



MELSOFT

FR Configurator2

INSTRUCTION MANUAL

INVERTER SETUP SOFTWARE

SW1DND-FRC2-E

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INTRODUCTION

Thank you for choosing this Mitsubishi Electric Inverter Setup Software.

This Instruction Manual provides handling information and precautions for use of this product. Incorrect handling might cause an unexpected fault. Before using the software, please read this Instruction Manual carefully to use the software to its optimum performance.

Please forward this Instruction Manual to the end user.

When reading this Instruction Manual, note the following.

- This Instruction Manual is written on the basis that Windows® 11 (English version) is the operating system.
- Drive D is described as the DVD drive and Drive C as the hard disk drive.

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- CodeProject

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- scipy 1.3.0

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For Maximum Safety

- This product has not been designed or manufactured for the use with any equipment or system operated under life-threatening conditions.
- Please contact our sales office when you are considering using this product in special applications such as passenger mobile, medical, aerospace, nuclear, power or undersea relay equipment or system.
- Although this product was manufactured under conditions of strict quality control, you are strongly advised to install safety devices to prevent serious accidents when it is used in facilities where breakdowns of the product are likely to cause a serious accident.

Design precautions

- To maintain the security (confidentiality, integrity, and availability) of the inverter and the system against unauthorized access, DoS^{*1} attacks, computer viruses, and other cyberattacks from external devices via network, take appropriate measures such as firewalls, virtual private networks (VPNs), and antivirus solutions. We shall have no responsibility or liability for any problems involving inverter trouble and system trouble by DoS attacks, unauthorized access, computer viruses, and other cyberattacks.
- Depending on the network environment, the inverter may not operate as intended due to delays or disconnection in communication. Carefully consider what type of environment this product will be used in and any safety issues related to its use.
- Network overload may cause a communication error (error code: 0x0180840B). When the online connection cannot be established or when communication is disabled after the online connection is established, adjust the timeout time setting in the system setting, and reduce the load in the network environment.

^{*1} DoS: A denial-of-service (DoS) attack disrupts services by overloading systems or exploiting vulnerabilities, resulting in a denial-of-service (DoS) state.

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1 OUTLINE

This chapter explains the outline for use of this product.

Always read the instructions before using the software.

The available connection methods and usable parameters differ depending on the inverter. For details, refer to the Instruction Manual of the inverter.

Read "master station" in this product and document as "manager station", and "slave station" as "device station". Use other common terms as appropriate for the network or function.

◆ Abbreviation / generic name

Item	Description
Operation panel	Operation panel (FR-DU08) and LCD operation panel (FR-LU08)
Parameter unit	Parameter unit (FR-PU07)
PU	Operation panel and parameter unit
Inverter	Mitsubishi Electric inverter / sensorless servo
FR-A800	Mitsubishi Electric FR-A800 series / FR-A800 Plus series inverter
FR-A800-E	Mitsubishi Electric FR-A800 inverter Ethernet model or FR-A800 Plus series inverter Ethernet model (except for FR-A800-E-R2R)
FR-B	Mitsubishi Electric FR-B inverter (A800 specifications)
FR-B3	Mitsubishi Electric FR-B3 inverter (A800 specifications)
FR-B4	Mitsubishi Electric FR-B4 inverter (A800 specifications)
FR-F800	Mitsubishi Electric FR-F800 series inverter
FR-F800-E	Mitsubishi Electric FR-F800 inverter Ethernet model
FR-E800	Mitsubishi Electric FR-E800 series inverter
FR-E800-E	Mitsubishi Electric FR-E800 inverter Ethernet model
FR-D800	Mitsubishi Electric FR-D800 series inverter
FR-D800-E	Mitsubishi Electric FR-D800 inverter Ethernet model
FR-CS80	Mitsubishi Electric FREQROL-CS80 inverter
FR-A700	Mitsubishi Electric FR-A700 series inverter
FR-B (700)	Mitsubishi Electric FR-B inverter (A700 specifications)
FR-B3 (700)	Mitsubishi Electric FR-B3 inverter (A700 specifications)
FR-D700	Mitsubishi Electric FR-D700 series inverter
FR-F700	Mitsubishi Electric FR-F700 series inverter
FR-F700P	Mitsubishi Electric FR-F700P series inverter
FR-E700	Mitsubishi Electric FR-E700 series inverter
FR-E700-NE	Mitsubishi Electric FR-E700 inverter Ethernet model
FR-E700EX	Mitsubishi Electric FR-E700EX series sensorless servo drive unit
FR-D700-G	Mitsubishi Electric FR-D700-G series sensorless servo drive unit
FR-E560	Mitsubishi Electric FR-E500 series inverter
FR-A8NCG	Plug-in option FR-A8NCG (CC-Link IE TSN communication)
Pr.	Parameter number (Number assigned to function)
PU operation	The start and frequency commands are given by the operation panel, parameter unit, or RS-485 communication, via the PU connector.
NET operation	The start and frequency commands are given via the RS-485 terminals, a communication option, or the Ethernet connector.
External operation	The start and frequency commands are given by an external potentiometer and switches, via control circuit terminals.
Combined operation	Combined operation using the PU (operation panel / parameter unit) and External operation
Mitsubishi Electric standard motor	SF-JR
Mitsubishi Electric constant-torque motor	SF-HRCA
Vector control dedicated motor	SF-V5RU
Programmable controller	Mitsubishi Electric MELSEC series programmable controller / Mitsubishi Electric MELSEC MX Controller series programmable automation controller
Network module	Ethernet interface module, CC-Link IE Field Network master/local module, or CC-Link IE TSN master/local module of the Mitsubishi Electric programmable controller
Ethernet module	Ethernet interface module of the Mitsubishi Electric programmable controller
GOT	Mitsubishi Electric GOT3000 series / GOT2000 series / GOT1000 series Human Machine Interface (HMI)

◆ Mark

- []: Indicates a menu selected from menu bar, or button used on windows.
- " ": Indicates a title name of a window.

1.1 Before using this software

This software is an effective support tool for startup and maintenance of the Mitsubishi Electric general-purpose inverter. The following functions can be performed efficiently on a personal computer.

Function	Description	Release version	Free trial version
Parameter list	Displays the parameter list and the initial value change list, and allows editing and setting of the parameters. Parameters can also be set by function in the "Settings by function" window.	○	○
Safety parameter setting	Displays the safety parameter list and the initial value change list, and allows editing and setting of the safety parameters.	○	○
Convert	Parameter settings of the conventional models can be copied to the 800 series parameter settings.	○	○
Diagnosis	Shows the fault history, serial number, life check, diagnosis result output, Ethernet status, and online status.	○	○
AI fault diagnosis	When a fault occurs and the fault indication is displayed, probable causes of the fault are determined using AI technology to suggest corrective actions.	○	×
Graph	Displays the values monitored by the high speed or monitor sampling and the USB trace file in a graph format.	○	×
Batch monitor	Displays the monitored items of the inverter in a batch.	○	×
I/O terminal monitor	Displays the I/O terminal status in a batch.	○	×
Test operation	"Test operation" allows the selected inverter's frequency to be displayed, operation mode to be switched and displayed, forward and reverse operation commands to be sent, setting frequency to be written, and other functions to be done.	○	○
Developer	Used for creating sequence programs and writing them to the inverter to enable the use of the PLC function of the inverter.	○	×
USB memory parameter copy file edit	Used for editing the parameter setting values (USB memory parameter copy file) read from the inverter to the USB memory.	○	×
Ethernet parameter setting	Used for setting parameters of the inverter for Ethernet communication.	○	○
iQSS backup file conversion	Used for converting a file in the backup/restore format generated by the Mitsubishi Electric GOT (Human Machine Interface). The file is converted into the format that can be used for editing the USB memory parameter copy file or in Developer.	○	○
Firmware update	The inverter firmware can be updated by using Firmware Update Tool.	○	○
Help	Displays contents of the inverter and software instruction manuals.	○	○

(○: Available, ×: Unavailable)

NOTE

- If a file name or folder name is using Unicode, file writing or reading may not be performed correctly. Please use a file name and folder name without Unicode.
- The following functions are not compatible with this software.
 - Application starting with Windows® compatibility mode
 - Starting using "Run As..."
 - Fast User Switching
 - Remote Desktop
 - Large font size (Advanced setting of screen property)
 - DPI setting other than the normal size (Advanced setting of screen property)
 - Windows XP Mode
 - Windows Touch
- A part of this software is using a function of Internet Explorer. This software may not operate properly depending on Internet Explorer setting.
- FR Configurator2 is not available when inverter is activated with FR-PU07BB Battery mode.
FR Configurator2 may not operate properly.

◆ Related manuals

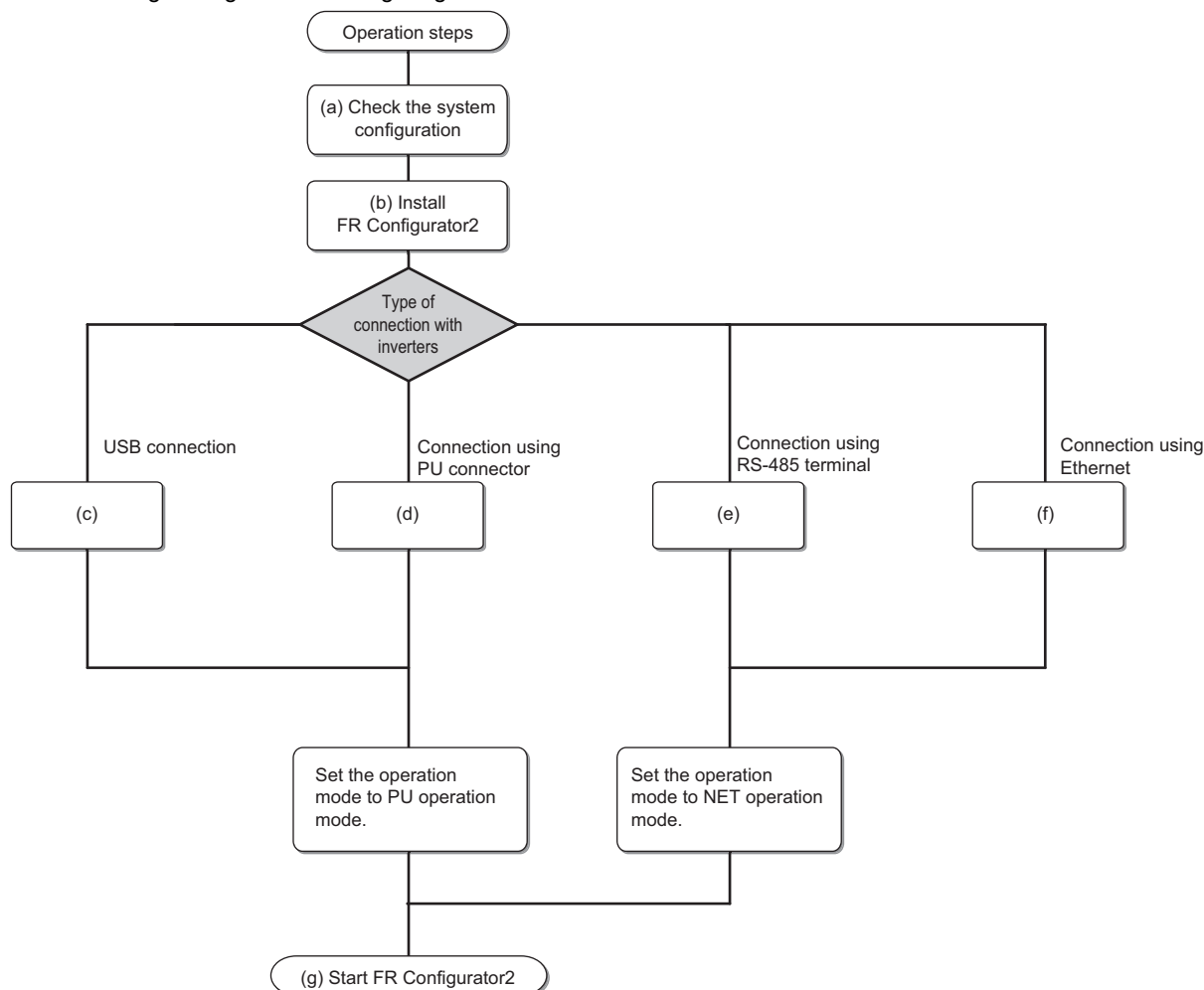
Manuals related to this product are shown in the following table. The download of the latest manuals is free at the Mitsubishi Electric FA Global Website. FR Configurator2 offers a link to the Mitsubishi Electric FA Global Website. For details, refer to [page 279](#).

Name	Manual number
FR-A800 Instruction Manual (Startup)	IB-0600493
FR-A800 Instruction Manual (Detailed)	IB-0600503ENG
FR-A802 (Separated Converter Type) Instruction Manual (Hardware)	IB-0600534ENG
FR-A806 (IP55/UL Type 12 Specifications) Instruction Manual (Hardware)	IB-0600531ENG
FR-A800-E Instruction Manual (Startup)	IB-0600626
FR-A802-E (Separated Converter Type) Instruction Manual (Hardware)	IB-0600631ENG
FR-A806-E (IP55/UL Type 12 Specifications) Instruction Manual (Hardware)	IB-0600634ENG
FR-A870 (690 V Class Specification Inverter) Instruction Manual (Function)	IB-0600616ENG
FR-A870-E Instruction Manual (Hardware)	IB-0600803ENG
FR-A800-F/G Instruction Manual (Startup)	IB-0600941
FR-A802-F/G (Separated Converter Type) Instruction Manual (Hardware)	IB-0600978ENG
FR-A840M Instruction Manual (Startup)	IB-0600932
FR-A802M (Separated Converter Type) Instruction Manual (Hardware)	IB-0600989ENG
Ethernet Function Manual	IB-0600628ENG
CC-Link IE TSN Function Manual	IB-0600843ENG
FR-B, B3 Instruction Manual (Startup) (A800 Specifications)	IB-0600663
FR-B4 Instruction Manual (Startup) (A800 Specifications)	IB-0600774
FR-A800 Crane Function Manual	IB-0600581ENG
FR-A800-R2R Instruction Manual (Startup)	IB-0600605
FR-A802-R2R (Separated Converter Type) Instruction Manual (Hardware)	IB-0600607ENG
FR-A800-R2R Roll to Roll Function Manual	IB-0600622ENG
FR-A800-E-R2R Ethernet Function Manual	IB-0600813ENG
FR-A840-LC (Liquid Cooled Type) Instruction Manual (Hardware)	IB-0600683ENG
FR-A870-LC (Liquid Cooled Type) Instruction Manual (Hardware)	IB-0600613ENG
FR-F800 Instruction Manual (Startup)	IB-0600545
FR-F800 Instruction Manual (Detailed)	IB-0600547ENG
FR-F802 (Separated Converter Type) Instruction Manual (Hardware)	IB-0600550ENG
FR-F806 (IP55/UL Type 12 Specifications) Instruction Manual (Hardware)	IB-0600676ENG
FR-F860 Instruction Manual (Detailed)	IB-0600688ENG
FR-F862 (Separated Converter Type) Instruction Manual (Hardware)	IB-0600689ENG
FR-F800-E Instruction Manual (Startup)	IB-0600643
FR-F802-E (Separated Converter Type) Instruction Manual (Hardware)	IB-0600648ENG
FR-F806-E (IP55/UL Type 12 Specifications) Instruction Manual (Hardware)	IB-0600765ENG
FR-F862-E (Separated Converter Type) Instruction Manual (Hardware)	IB-0600692ENG
FR-E800 Instruction Manual (Function)	IB-0600868ENG
FR-E800 Instruction Manual (Communication)	IB-0600871ENG
FR-E800 Instruction Manual (Maintenance)	IB-0600874ENG
FR-D800(-E) Instruction Manual (Function)	IB-0601036ENG
FR-D800(-E) Instruction Manual (Communication)	IB-0601041ENG
FR-D800(-E) Instruction Manual (Maintenance)	IB-0601046ENG
FREQROL-CS80 Instruction Manual (Detailed)	IB-0600721ENG
PLC Function Programming Manual	IB-0600492ENG
FR-A700 Instruction Manual (Basic)	IB-0600225ENG
FR-A700 Instruction Manual (Applied)	IB-0600226ENG
FR-B, B3 Instruction Manual (Basic) (A700 Specifications)	IB-0600271ENG
FR-B, B3 Instruction Manual (Applied) (A700 Specifications)	IB-0600272ENG
FR-D700 Instruction Manual (Basic)	IB-0600438ENG
FR-D700 Instruction Manual (Applied)	IB-0600366ENG
FR-D700-NA Instruction Manual (Applied)	IB-0600368ENG
FR-D700-EC Instruction Manual (Applied)	IB-0600352ENG
FR-F700 Instruction Manual (Basic)	IB-0600176ENG
FR-F700 Instruction Manual (Applied)	IB-0600177ENG
FR-F700P Instruction Manual (Basic)	IB-0600411ENG
FR-F700P Instruction Manual (Applied)	IB-0600412ENG

Name	Manual number
FR-E700 Instruction Manual (Basic)	IB-0600441ENG
FR-E700 Instruction Manual (Applied)	IB-0600277ENG
FR-E700-NA Instruction Manual (Applied)	IB-0600334ENG
FR-E700-EC Instruction Manual (Applied)	IB-0600336ENG
FR-E700-NE Instruction Manual (Basic)	IB-0600712ENG
FR-E700-NE Ethernet Function Manual	IB-0600724ENG
FR-E700-NNE Installation Guideline	IB-0600716ENG
FR-E700-ENE Installation Guideline	IB-0600718ENG
FR-E700EX Instruction Manual (Basic)	IB-0600506ENG
FR-E700EX Instruction Manual (Applied)	IB-0600507ENG
FR-D700-G Instruction Manual (Basic)	IB-0600477ENG
FR-D700-G Instruction Manual (Applied)	IB-0600478ENG
FR-A500 Instruction Manual	IB-0600133E
FR-A500L Instruction Manual	IB-T7268-02
FR-E500 Instruction Manual	IB-66813
FR-E500(CC-Link) Instruction Manual	IB-66864
FR-E500(Device Net) Instruction Manual	IB-0600008
GX Works3 Operating Manual	SH-081215ENG
GX Works2 Version 1 Operating Manual (Common)	SH-080779ENG
GT Designer3 (GOT2000) Screen Design Manual	SH-081220ENG
GOT2000 Series Connection Manual (Mitsubishi Electric Products) For GT Works3 Version1	SH-081197ENG
GOT1000 Series Connection Manual	SH-080532ENG

◆ Setting check

Check the following settings before configuring the inverter with this software.



Symbol	Explanation of steps	Refer to page
(a)	Check the system configuration	17
(b)	Install FR Configurator2	22
(c)	Initial parameter settings can be used. (Set Pr.548 USB communication check time interval = "9999".)	39
(d)	Initial parameter settings can be used. (Set Pr.122 PU communication check time interval ≠ "0" and Pr.123 PU communication waiting time setting = "9999".)	43
(e)	Set the station number in Pr.331 RS-485 communication station number (used for connecting multiple inverters). Set Pr.336 RS-485 communication check time interval ≠ "0" and Pr.337 RS-485 communication waiting time setting = "9999".	43
(f)	- FR-A800-E/FR-A800-G/FR-F800-E/FR-E800-(SC)E/FR-E806-SCE/FR-D800-E Set the station number in Pr.1425 Ethernet communication station number (used for connecting multiple inverters). Set Pr.1432 Ethernet communication check time interval = "9999". - FR-A800-E-R2R Set the station number in Pr.1074 Ethernet communication station number (used for connecting multiple inverters). Set Pr.1432 Ethernet communication check time interval = "9999". - FR-E700-NE Set the station number in Pr.831 Ethernet communication station number (used for connecting multiple inverters). Set Pr.852 Ethernet communication check time interval = "9999".	49
(g)	Start FR Configurator2	26

NOTE

- The available connection methods differ depending on the inverter. For the details, refer to the Instruction Manual of the inverter.

1.1.1 Product confirmation

After unpacking, check that the following items are contained in the package:

Item	Quantity
DVD	1
Installation Manual	1
License certificate	1

1.2 System requirement

1.2.1 System requirement for FR Configurator2

◆ System requirement for FR Configurator2

Component ^{*1}	Description	
Personal computer	IBM PC/AT compatible machine with DVD drive (for installation), USB port, serial port, or Ethernet port	
	Operating system ^{*2}	Windows® 11 (Home, Pro, Enterprise, IoT Enterprise)
	Processor	Intel Core i3 or higher, or equivalent
	Memory	4 GB or more: Windows® 11
	Disk space	Free area of 7 GB or more
Display	Applicable to display at resolution of 1024 × 768 (XGA) or higher, and 256 colors or more. Compatible with the above personal computer.	
Keyboard	Compatible with the above personal computer.	
Mouse	Compatible with the above personal computer.	
Printer	Compatible with the above personal computer.	

*1 FR Configurator2 may not operate properly depending on the type of personal computer, peripheral devices, or software used.

*2 Operation on an operating system not listed here is not guaranteed.

◆ System requirement for Firmware Update Tool

Component	Description	
Personal computer	IBM PC/AT compatible machine with USB port or Ethernet port	
	Operating system ^{*3}	Windows® 11 (Home, Pro)
	Processor	Intel Core i3 or higher, or equivalent
	Memory	4 GB or more: Windows® 11
	Disk space	Free area of 7 GB or more
Display	Applicable to display at resolution of 1024 × 768 (XGA) or higher, and 256 colors or more. Compatible with the above personal computer.	

*3 Operation on an operating system not listed here is not guaranteed.

1.2.2 Compatible inverters

FR Configurator2 is compatible with the following inverters.

◆ 800 series

Series	Model	Capacity	Structure	Function
FR-A800 series	FR-A820	00046(0.4K) to 04750(90K)	Standard model	Standard
	FR-A840	00023(0.4K) to 06830(280K)		
	FR-A842	07700(315K) to 12120(500K)	Separated converter type	
	FR-A846	00023(0.4K) to 03610(132K)	IP55 compatible model	
	FR-A860	00027(0.75K) to 04420(220K)	Standard model	
	FR-A862	05450(280K) to 08500(450K)	Separated converter type	
	FR-A840M	03630(160K), 04540(200K)	Standard model (slim model)	
	FR-A842M	05080(250K) to 10160(500K)	Separated converter type (slim model)	
	FR-A842M-B	05080(250K) to 06440(315K)	Separated converter type with built-in brake transistor (slim model)	
	FR-A820-E	00046(0.4K) to 04750(90K)	Standard model	Standard (Ethernet model)
	FR-A840-E	00023(0.4K) to 06830(280K)		
	FR-A842-E	07700(315K) to 12120(500K)	Separated converter type	
	FR-A846-E	00023(0.4K) to 03610(132K)	IP55 compatible model	
	FR-A860-E	00027(0.75K) to 04420(220K)	Standard model	
	FR-A862-E	05450(280K) to 08500(450K)	Separated converter type	
	FR-A870-E	00550 to 02860	Standard model	
	FR-A872-E	05690 to 07150	Separated converter type	
	FR-A840M-E	03630(160K), 04540(200K)	Standard model (slim model)	
	FR-A842M-E	05080(250K) to 10160(500K)	Separated converter type (slim model)	
	FR-A842M-E-B	05080(250K) to 06440(315K)	Separated converter type with built-in brake transistor (slim model)	
	FR-A820-F	00046(0.4K) to 04750(90K)	Standard model	Safety communication
	FR-A840-F	00023(0.4K) to 06830(280K)		
	FR-A842-F	07700(315K) to 12120(500K)	Separated converter type	
	FR-A820-G	00046(0.4K) to 04750(90K)	Standard model	Safety communication (Ethernet model)
	FR-A840-G	00023(0.4K) to 06830(280K)		
	FR-A842-G	07700(315K) to 12120(500K)	Separated converter type	

Series	Model	Capacity	Structure	Function	
FR-B series (A800 specifications)	FR-B (200V)	750 to 3700, 5.5K to 75K	Standard model	Pressure-resistant, explosion-proof motor driving inverter	
	FR-B (400V)	750 to 3700, 7.5K to 110K			
FR-B3 series (A800 specifications)	FR-B3-(N)	400 to 3700, 5.5K to 37K			
	FR-B3-(N)H				
FR-B4 series (A800 specifications)	FR-B4	1.5K to 18.5K			
	FR-B4D				
FR-A800 Plus series	FR-A820-CRN	00046(0.4K) to 04750(90K)	Separated converter type	Crane function	
	FR-A840-CRN	00023(0.4K) to 06830(280K)			
	FR-A842-CRN	07700(315K) to 12120(500K)			
	FR-A820-E-CRN	00046(0.4K) to 04750(90K)	Standard model	Crane function (Ethernet model)	
	FR-A840-E-CRN	00023(0.4K) to 06830(280K)			
	FR-A842-E-CRN	07700(315K) to 12120(500K)	Separated converter type		
	FR-A840-G-CRN	00023(0.4K) to 06830(280K)	Standard model	Crane function, safety communication (Ethernet model)	
	FR-A820-R2R	00046(0.4K) to 04750(90K)	Standard model	Roll to Roll function	
	FR-A840-R2R	00023(0.4K) to 06830(280K)			
	FR-A842-R2R	07700(315K) to 12120(500K)	Separated converter type		
	FR-A820-E-R2R	00046(0.4K) to 04750(90K)	Standard model	Roll to roll function (Ethernet model)	
	FR-A840-E-R2R	00023(0.4K) to 06830(280K)			
	FR-A842-E-R2R	07700(315K) to 12120(500K)	Separated converter type		
	FR-A840-LC	03250(110K) to 06830(280K)	Standard model	Liquid cooled type	
	FR-A870-LC	03590(280K) to 04560(355K)		Liquid cooled type (Ethernet model)	
	FR-A840-E-LC	03250(110K) to 06830(280K)			
	FR-A870-E-LC	03590(280K) to 04560(355K)		Elevator function	
	FR-A840-ELV	00126(3.7K) to 00770(30K)		Logistics/transport function	
	FR-A820-AWH	00046(0.4K) to 04750(90K)		Logistics/transport function (Ethernet model)	
	FR-A840-AWH	00023(0.4K) to 02600(90K)			
	FR-A820-E-AWH	00046(0.4K) to 04750(90K)			
	FR-A840-E-AWH	00023(0.4K) to 02600(90K)			
FR-F800 series	FR-F820	00046(0.75K) to 04750(110K)			Standard model
	FR-F840	00023(0.75K) to 06830(315K)			
	FR-F842	07700(355K) to 12120(560K)		Separated converter type	
	FR-F846	00023(0.75K) to 03610(160K)	IP55 compatible model		
	FR-F860	00680(45K) to 04420(250K)	Standard model		
	FR-F862	05450(315K) to 08500(500K)	Separated converter type		
	FR-F820-E	00046(0.75K) to 04750(110K)	Standard model	Standard (Ethernet model)	
	FR-F840-E	00023(0.75K) to 06830(315K)			
	FR-F842-E	07700(355K) to 12120(560K)	Separated converter type		
	FR-F846-E	00023(0.75K) to 03610(160K)	IP55 compatible model		
	FR-F860-E	00027(1.5K) to 04420(250K)	Standard model		
	FR-F862-E	05450(315K) to 08500(500K)	Separated converter type		

Series	Model	Capacity	Structure	Function
FR-E800 series	FR-E820	0008(0.1K) to 0900(22K)	Standard model	Standard
	FR-E840	0016(0.4K) to 0440(22K)		
	FR-E860	0017(0.75K) to 0120(7.5K)		
	FR-E820S	0008(0.1K) to 0110(2.2K)		
	FR-E810W	0008(0.1K) to 0050(0.75K)		
	FR-E820-E	0008(0.1K) to 0900(22K)		Standard (Ethernet model)*1
	FR-E840-E	0016(0.4K) to 0440(22K)		
	FR-E860-E	0017(0.75K) to 0120(7.5K)		
	FR-E820S-E	0008(0.1K) to 0110(2.2K)		
	FR-E810W-E	0008(0.1K) to 0050(0.75K)		
	FR-E820-SCE	0008(0.1K) to 0900(22K)		Standard (Safety communication model)*1
	FR-E840-SCE	0016(0.4K) to 0440(22K)		
	FR-E860-SCE	0017(0.75K) to 0120(7.5K)		
	FR-E820S-SCE	0008(0.1K) to 0110(2.2K)		
	FR-E810W-SCE	0008(0.1K) to 0050(0.75K)		
	FR-E846-SCE	0026(0.75K) to 0095(3.7K)	IP67 compatible model	
	FR-E820-NC	0.1K to 3.7K	Standard model	Standard (CC-Link communication function model)
	FR-E840-NC	0.4K to 3.7K		
	FR-E820-HVC	0011(0.2K) to 0978(30K)	HVAC model	Standard
	FR-E840-HVC	0018(0.75K) to 0510(30K)		
	FR-E860-HVC	0021(1.5K) to 0136(11K)		
	FR-E820S-HVC	0011(0.2K) to 0082(2.2K)		
FR-D800 series	FR-D820	0.1K-008 to 15K-580	Standard model	Standard
	FR-D840	0.4K-012 to 15K-295		
	FR-D820S	0.1K-008 to 2.2K-100		
	FR-D810W	0.1K-008 to 0.75K-042		
	FR-D820-E	0.1K-008 to 15K-580		Standard (Ethernet model)
	FR-D840-E	0.4K-012 to 15K-295		
	FR-D820S-E	0.1K-008 to 2.2K-100		
	FR-D810W-E	0.1K-008 to 0.75K-042		
FREQROL-CS80 series	FR-CS84	012 to 295	Standard model	Standard
	FR-CS82S	025 to 100		

*1 The FR-E800-EPC and the FR-E800-SCEPC can be connected to a personal computer (FR Configurator2) only via USB.

◆ 700 series / 500 series

Series	Model	Capacity			
		Japan	North America	Europe	China
A700 series	FR-A720	0.4K to 90K	00030 to 03460	—	—
	FR-A740	0.4K to 500K	00015 to 09620	00023 to 12120	0.4K to 500K
	FR-A760	—	00017 to 06630	—	—
FR-B (A700) series	FR-B (200V)	750 to 3700, 5.5K to 75K	—	—	—
	FR-B (400V)	750 to 3700, 7.5K to 110K	—	—	—
FR-B3 (A700) series	FR-B3-(N)	400 to 3700, 5.5K to 37K	—	—	—
	FR-B3-(N)H	—	—	—	—
FR-F700 series	FR-F720	0.75K to 110K	00046 to 04750	—	—
	FR-F740	0.75K to 560K	00023 to 12120	00023 to 12120	S75K to S630K - CHT, 0.75K to 55K - CHT1
FR-F700P series	FR-F720P	0.75K to 110K	—	—	—
	FR-F740P	0.75K to 560K	—	—	—
FR-E700 series	FR-E710W	0.1K to 0.75K	008 to 050	—	—
	FR-E720	0.1K(SC) to 15K(SC)	008(SC) to 600(SC)	—	—
	FR-E720S	0.1K(SC) to 2.2K(SC)	008 to 110	008(SC) to 110(SC)	0.1K to 2.2K
	FR-E740	0.4K(SC) to 15K(SC)	016(SC) to 300(SC)	016(SC) to 300(SC)	0.4K to 15K
	FR-E720-NE	0.1K to 15K	008-SC to 600-SC	—	—
	FR-E720S-NE	0.1K to 2.2K	—	008-SC to 110-SC	0.1K to 2.2K
	FR-E740-NE	0.4K to 15K	016-SC to 300-SC	016-SC to 300-SC	0.4K to 15K

Series	Model	Capacity			
		Japan	North America	Europe	China
FR-D700 series	FR-D710W	0.1K to 0.75K	008 to 042	—	—
	FR-D720	0.1K to 15K	008 to 318	—	—
	FR-D720S	0.1K to 2.2K	008 to 100	008(SC) to 100(SC)	0.1K to 2.2K
	FR-D740	0.4K to 15K	012 to 160	012(SC) to 160(SC)	0.4K to 7.5K
FR-E700EX series	FR-E720EX	0.1K to 3.7K	—	—	—
FR-D700-G series	FR-D720-G	0.2K to 3.7K	—	—	—
	FR-D740-G	0.4K to 3.7K	—	—	—
FR-E500 series	FR-E560	—	0.75K to 7.5K	—	—

1.3 Installation and uninstallation

1.3.1 Installation of FR Configurator2

To use FR Configurator2, the files included on the setup disk (DVD) or the downloaded file must be installed onto the personal computer.

Check the following points before the installation.

- Close any other applications that have already been running.
- Log on as a user with administrator authority and start the installation.
- Select a folder with administrator rights for the installation folder. The default installation folder is recommended to enhance security.
- If an inverter is connected by the USB cable, disconnect the USB cable.
- Installation files are compressed. Copying the files does not start FR Configurator2 yet. Install the software using the setup program.
- To install the software, follow the installation procedure in Windows screen.
- In an operation system with antivirus/security software, a warning may appear when installing FR Configurator2. If a warning appears, permit the installation of FR Configurator2 according to the setting procedure of your antivirus/security software.

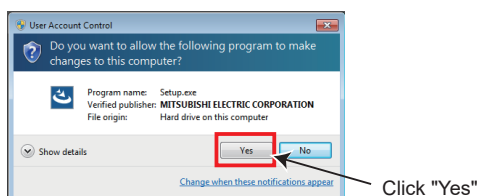
◆ Installation procedure

The following section describes the procedures of installing FR Configurator2.

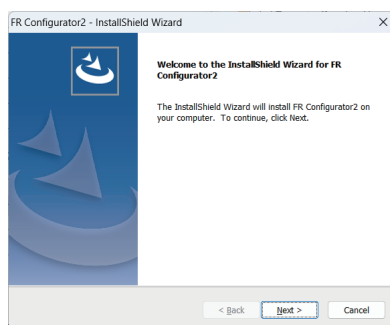
1. Insert the DVD to an available DVD drive. Installation starts automatically.

NOTE

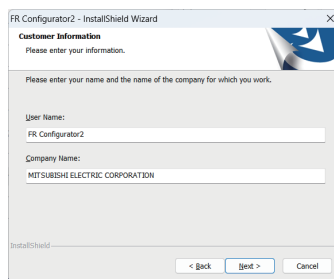
- Installation can be started by double-clicking the icon of DVD drive or the following procedure.
 - 1) Choose the [Run...] command from [Start] menu.
 - 2) "Run" window appears.
 - 3) Type "D:\SETUP" (with one-byte characters) in "Open" field and click [OK]. (When DVD drive is D drive.)
- The following dialog may appear during the installation. Click "Yes".



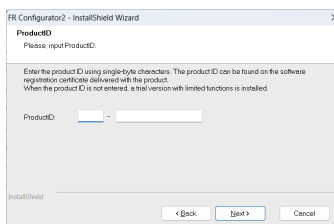
2. The following window will be displayed. Click [Next>].



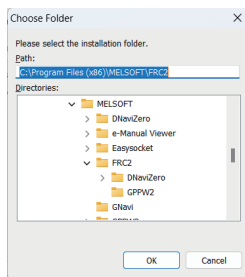
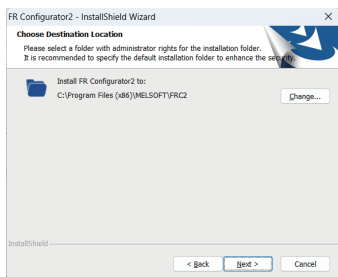
3. Enter user name and company name. Click [Next>] after entering.



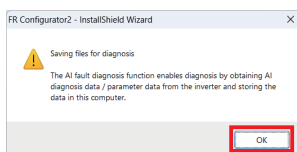
4. Enter the product ID using single-byte numeric characters. The product ID can be found on the license certificate delivered with the product. After entering the product ID, click [Next>].



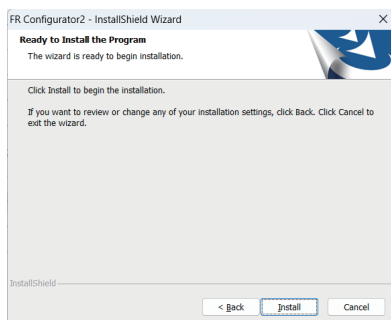
5. Check the installation folder and click [Next>]. To change the installation folder, click [Change...] and select an installation folder. A new folder "FRC2" is created at the selected installation folder. This software is installed there. (If the installation folder is not changed, the software is installed at "C:\Program Files\MELSOFT\FRC2")



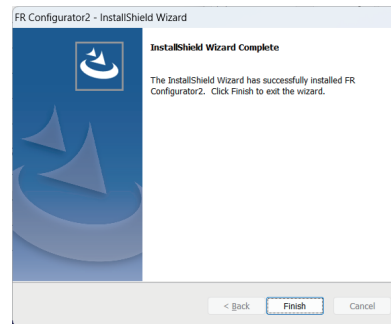
6. The following window will be displayed. Diagnosis data are stored in the computer that contains the files for diagnosis. Click [OK].



7. Check that the setting is correct and click [Install]. Installation will start. To change the setting, click [<Back].



8. Installation is completed. Click [Finish] to close the window. Restart the personal computer before using the software.



NOTE

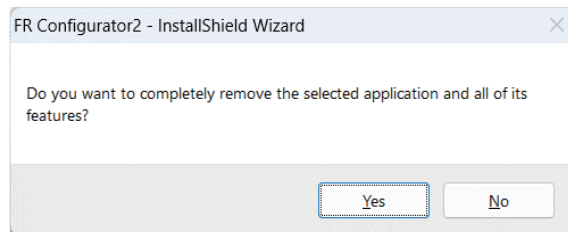
- The "Program Compatibility Assistant" dialog may appear when completing the installation. If the dialog appears, select "This program installed correctly".
- A user without administrator authority cannot start the installation. Log on as a user with administrator authority and start the installation again.
- When .NET Framework (version 3.5, 3.0, or 2.0) is disabled, the installation is not completed. Enable .NET Framework (version 3.5, 3.0, or 2.0) and try the installation again.

1.3.2 Uninstallation of FR Configurator2

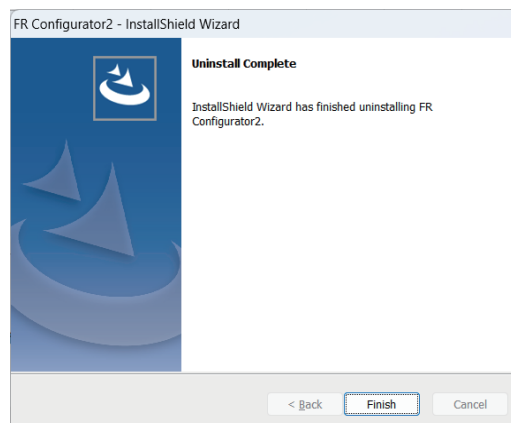
1. Right click the Start button to select [Installed apps], and display the setting window. Or click [Settings] -> [Apps] on the Start menu and select [Installed apps].



2. Click three dots icon on the right of "FR Configurator2" and select [Uninstall] to uninstall the program. When the uninstallation starts, the following confirmation dialog appears.



3. Click [Yes] to proceed the uninstallation. (Click [No] to cancel the uninstallation.) The following window is displayed when the program has been uninstalled. Click [Finish] to close the window.



NOTE

- The program cannot be uninstalled while it is running. Uninstall the program after closing the application.

1.4 Start and close of FR Configurator2

1.4.1 Starting FR Configurator2

There are following ways to start FR Configurator2.

- Start from Start menu

Select [All Apps] from the Start menu, click [MELSOFT] -> [FR Configurator2], and select [FR Configurator2] in the sub menu to start FR Configurator2.

- Start from the project file (*.frc2)

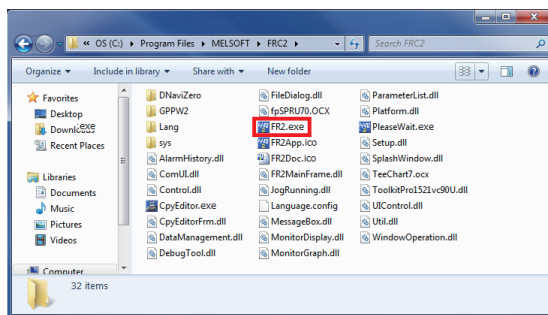
(Refer to [page 120](#) for the project file (*.frc2).)

- Select the project file (*.frc2) and execute it (or press the Enter key). The project file settings will be read and FR Configurator2 will be started.

- Drag and drop the project file to the execution file (FR2.exe) or to the shortcut icon of FR Configurator2. FR Configurator2 will be started.

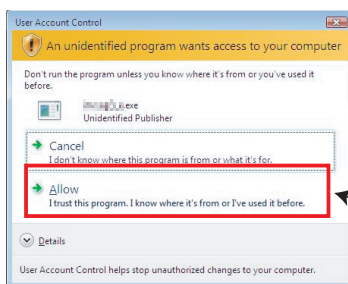
- Start from Windows Explorer

Select the executable file of FR Configurator2 (FR2.exe) by using Windows Explorer, and double-click (or hit Enter key) to start FR Configurator2.



NOTE

- The following window may appear at the start up of FR Configurator2. If the window appears, select "Allow".



Select "Allow"

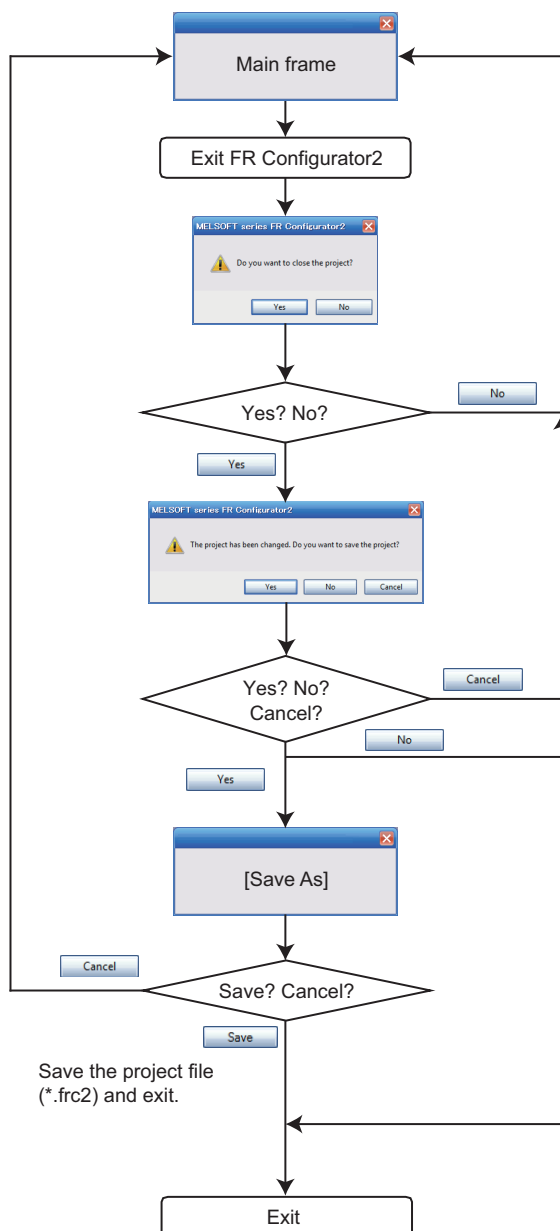
- In an operation system with antivirus/security software, a warning may appear at starting FR Configurator2. If a warning appears, permit FR Configurator2 according to the setting procedure of your antivirus/security software.
- If files shown in [Recent] of Windows® 11 are stored in system folders (Program Files for example), the files may not be opened correctly.

1.4.2 Closing FR Configurator2

Select [E]xit FR Configurator2 in [P]roject menu to close FR Configurator2. (Alternatively, press Alt + P to open [P]roject menu, and press the X key or Alt + F4 to close FR Configurator2.)

NOTE

- If a project file (*.frc2) is not saved yet when closing FR Configurator2, the dialog box is displayed to confirm the closing.



CHAPTER 2 CONNECTION OF FR Configurator2 WITH DEVICES

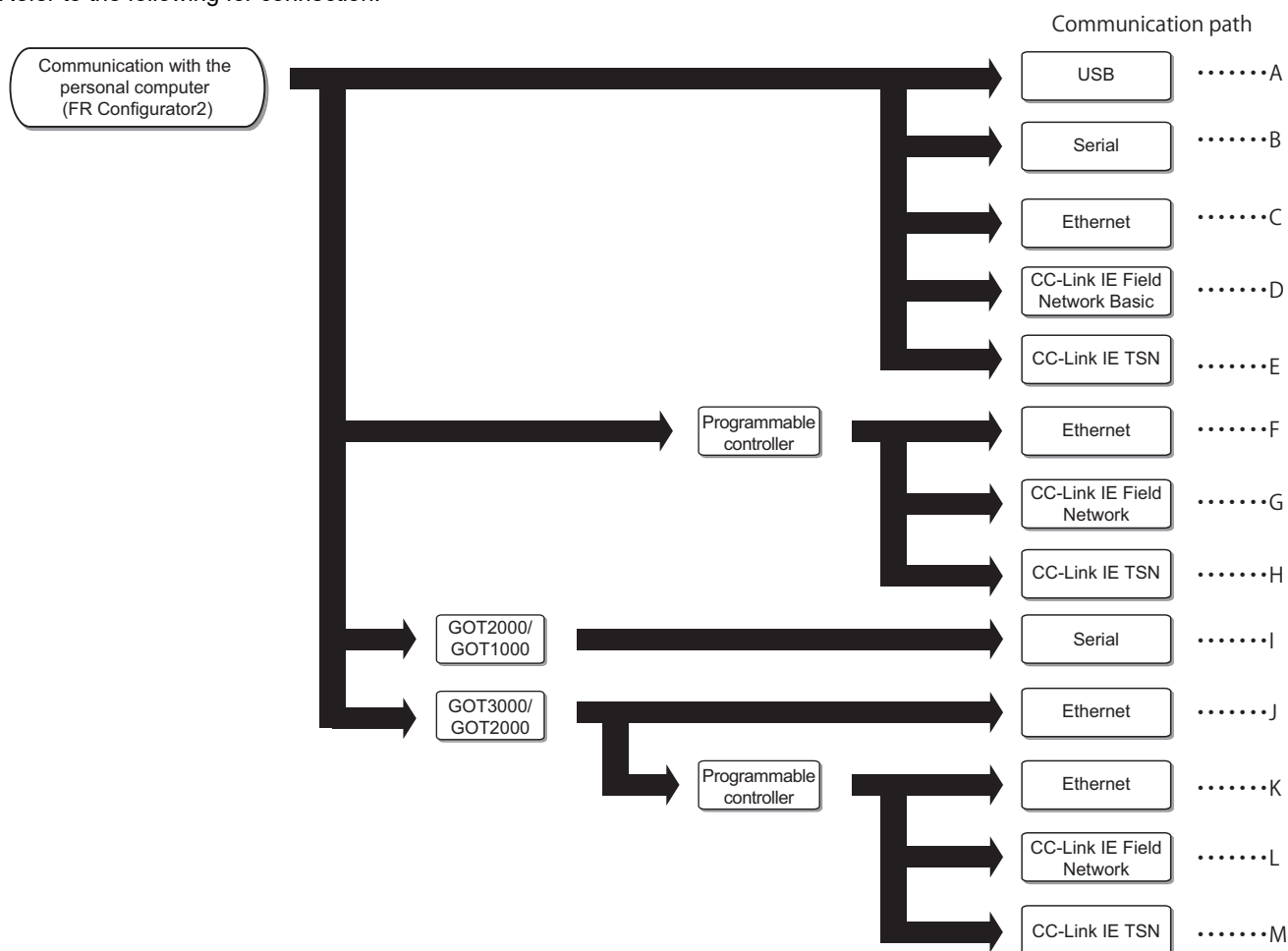
2.1	Communication path between the personal computer (FR Configurator2) and inverters.....	30
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2 CONNECTION OF FR Configurator2 WITH DEVICES

This chapter explains the connection with devices. Always read the instructions before using the software.

2.1 Communication path between the personal computer (FR Configurator2) and inverters

Refer to the following for connection.



	Communication path												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Configuration (refer to page)	32	32	33	34	34	35	35	36	36	37	37	38	38
Procedure (refer to page)	39	43	49	49	64	70	70	70	87	87	101	101	101

- Supported model

○: Supported

Δ: Supported only when the option is installed

—: Not supported

2

Series	Model	Communication path												
		A	B	C	D	E	F	G	H	I ^{*1}	J	K	L	M
FR-A800 series	FR-A800	○	○	—	—	Δ ^{*2}	—	Δ ^{*4}	Δ ^{*2}	○	—	—	Δ ^{*4}	Δ ^{*2}
	FR-A800-E	○	○	○	○	Δ ^{*2}	○	Δ ^{*4}	Δ ^{*2}	○	○	○	Δ ^{*4}	Δ ^{*2}
	FR-A800-F	○	○	—	—	Δ ^{*3}	—	—	Δ ^{*3}	○	—	—	—	Δ ^{*3}
	FR-A800-G	○	○	○	○	Δ ^{*3}	○	—	Δ ^{*3}	○	○	○	—	Δ ^{*3}
FR-A800 Plus series	FR-A800-CRN	○	○	—	—	Δ ^{*2}	—	Δ ^{*4}	Δ ^{*2}	○	—	—	Δ ^{*4}	Δ ^{*2}
	FR-A800-E-CRN	○	○	○	○	Δ ^{*2}	○	Δ ^{*4}	Δ ^{*2}	○	○	○	Δ ^{*4}	Δ ^{*2}
	FR-A800-R2R	○	○	—	—	—	—	Δ ^{*5}	—	○	—	—	Δ ^{*5}	—
	FR-A800-E-R2R	○	○	○	○	—	○	Δ ^{*5}	—	○	○	○	Δ ^{*5}	—
	FR-A800-LC	○	○	—	—	Δ ^{*2}	—	Δ ^{*4}	Δ ^{*2}	○	—	—	Δ ^{*4}	Δ ^{*2}
	FR-A800-E-LC	○	○	○	○	Δ ^{*2}	○	Δ ^{*4}	Δ ^{*2}	○	○	○	Δ ^{*4}	Δ ^{*2}
	FR-A800-ELV	○	○	—	—	—	—	Δ ^{*5}	—	○	—	—	Δ ^{*5}	—
	FR-A800-AWH	○	○	—	—	—	—	Δ ^{*5}	—	○	—	—	Δ ^{*5}	—
	FR-A800-E-AWH	○	○	○	○	—	○	Δ ^{*5}	—	○	○	○	Δ ^{*5}	—
FR-B series (A800 specifications)	FR-B	○	○	—	—	Δ ^{*2}	—	Δ ^{*4}	Δ ^{*2}	○	—	—	Δ ^{*4}	Δ ^{*2}
	FR-B3	○	○	—	—	Δ ^{*2}	—	Δ ^{*4}	Δ ^{*2}	○	—	—	Δ ^{*4}	Δ ^{*2}
	FR-B4	○	○	—	—	—	—	Δ ^{*4}	—	○	—	—	Δ ^{*4}	—
FR-F800 series	FR-F800	○	○	—	—	Δ ^{*2}	—	Δ ^{*4}	Δ ^{*2}	○	—	—	Δ ^{*4}	Δ ^{*2}
	FR-F800-E	○	○	○	○	Δ ^{*2}	○	Δ ^{*4}	Δ ^{*2}	○	○	○	Δ ^{*4}	Δ ^{*2}
FR-E800 series	FR-E800	○	○	—	—	—	—	—	—	○	—	—	—	—
	FR-E800-E	PA/PB	○	—	○	○	○	—	○	—	○	○	—	○
			PC	○	—	—	—	—	—	—	—	—	—	—
	FR-E800-SCE	PA/PB	○	—	○	○	○	—	○	—	○	○	—	○
			PC	○	—	—	—	—	—	—	—	—	—	—
	FR-E800-NC	○	○	—	—	—	—	—	—	○	—	—	—	—
	FR-E800-HVC	○	○	—	—	—	—	—	—	○	—	—	—	—
FR-D800 series	FR-D800	○	○	—	—	—	—	—	—	○	—	—	—	—
	FR-D800-E	○	—	○	○	○	○	—	○	—	○	○	—	○
FR-CS80 series	FR-CS80	—	○	—	—	—	—	—	—	○	—	—	—	—
FR-A700 series	FR-A700	○	○	—	—	—	—	—	—	○	—	—	—	—
FR-B series (A700 specifications)	FR-B	○	○	—	—	—	—	—	—	○	—	—	—	—
	FR-B3	○	○	—	—	—	—	—	—	○	—	—	—	—
FR-F700 series	FR-F700	—	○	—	—	—	—	—	—	○	—	—	—	—
FR-F700P series	FR-F700P	—	○	—	—	—	—	—	—	○	—	—	—	—
FR-E700 series	FR-E700	○	○	—	—	—	—	—	—	○	—	—	—	—
	FR-E700-NE	○	○	○	○	—	○	—	—	○	○	○	—	—
FR-D700 series	FR-D700	—	○	—	—	—	—	—	—	○	—	—	—	—
FR-E700EX series	FR-E700EX	○	○	—	—	—	—	—	—	○	—	—	—	—
FR-D700-G series	FR-D700-G	—	○	—	—	—	—	—	—	○	—	—	—	—
FR-E500 series	FR-E560	—	○	—	—	—	—	—	—	○	—	—	—	—

*1 Availability information is provided for the supported GOT2000 models. For information on the supported GOT1000 models, refer to the Instruction Manual of the GOT.

*2 Supported when the FR-A8NCG (CC-Link IE TSN communication setting) is installed.

*3 Supported only when the FR-A8NCG-S is installed.

*4 Supported when the FR-A8NCG (CC-Link IE Field Network communication setting) or FR-A8NCE is installed.

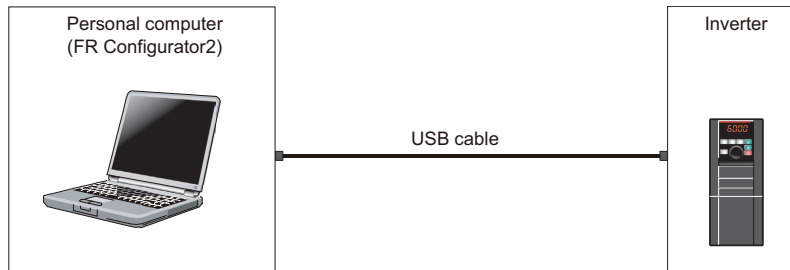
*5 Supported when the FR-A8NCE is installed.

2.1.1 Connection configuration

For FR Configurator2, communication via a USB connector, a PU connector, the RS-485 terminal block, Ethernet connector, a GOT, or a programmable controller is available.

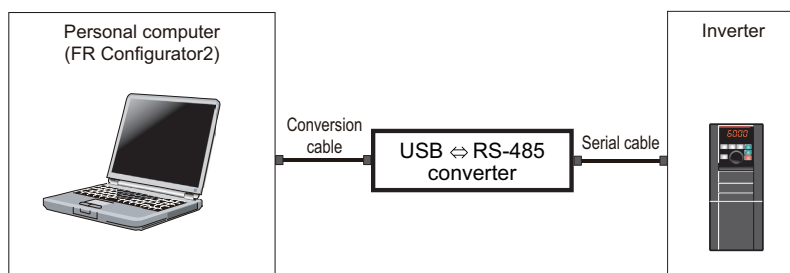
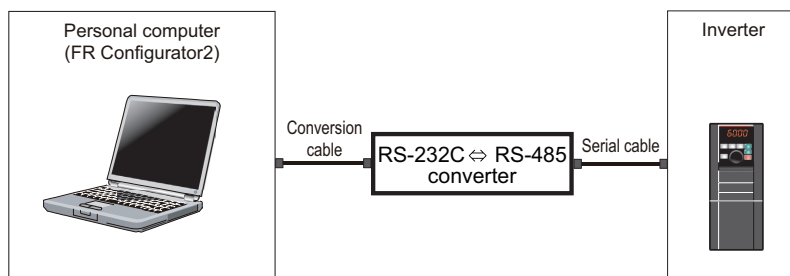
◆ Connection of the personal computer and the inverter (USB connection)

Connect a cable to the USB connector (mini B connector) of the inverter. 1:1 connection is supported. Connection using USB hub is not supported. (Refer to [page 39](#).)



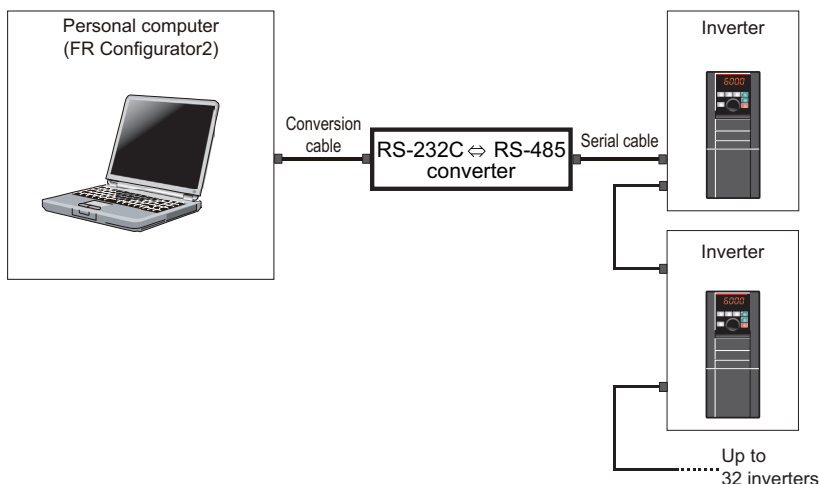
◆ Connection of the personal computer and a single inverter (serial communication)

Connect a cable to the PU connector of the inverter. Serial port/RS-485 converter (cable) or USB/RS-485 converter (cable) is required. (Refer to [page 43](#).)



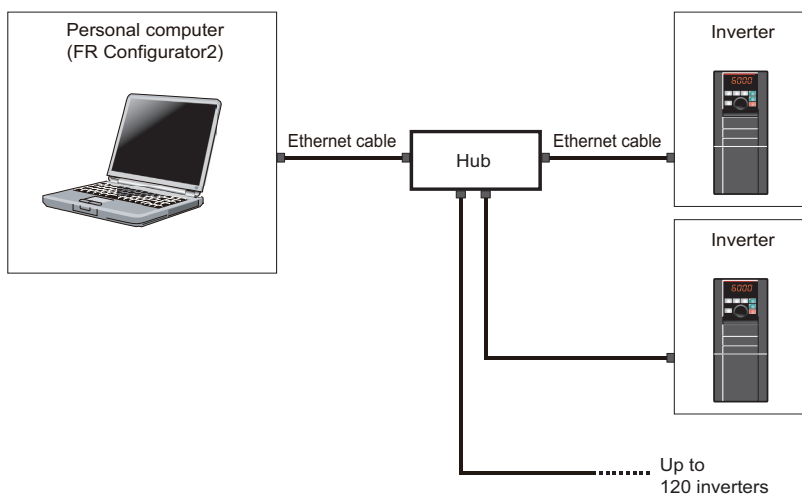
◆ Connection of the personal computer and multiple inverters (serial communication)

Connect a cable to the RS-485 terminal of the inverter. Up to 32 inverters can be connected. (Refer to [page 43](#).)



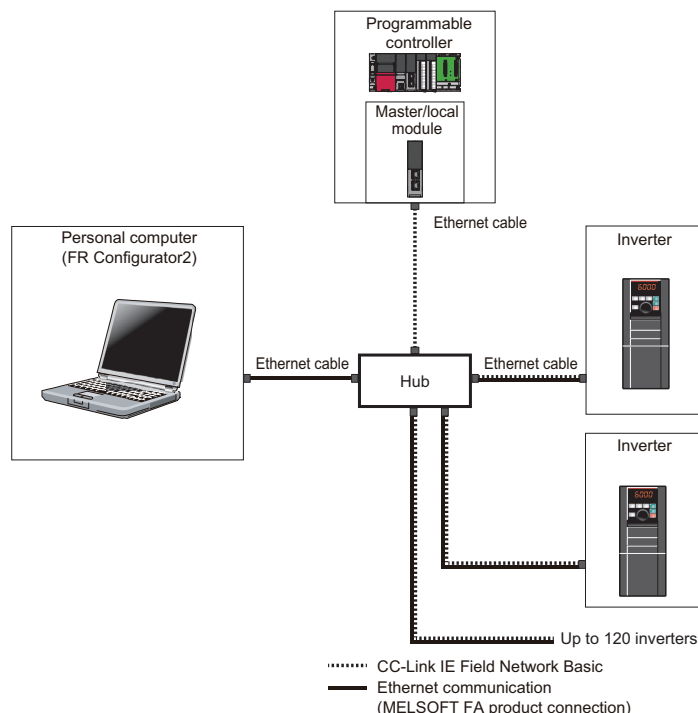
◆ Connection of the personal computer and inverters (Ethernet connection)

Connect a cable to the Ethernet connector of the inverter. Up to 120 inverters can be connected with the personal computer using a hub. (Refer to [page 49](#).)



◆ Connection of the personal computer and inverters (Ethernet connection (CC-Link IE Field Network Basic))

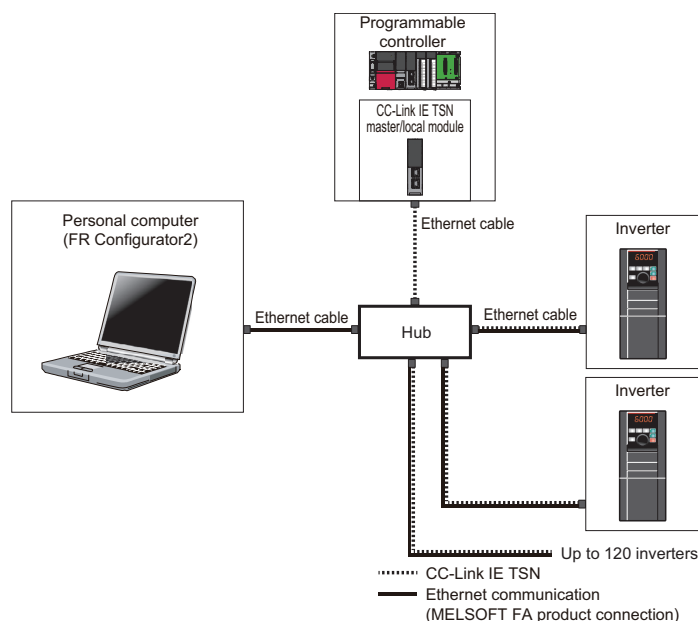
Connect a cable to the Ethernet connector of the inverter. Up to 120 inverters can be connected with the personal computer using a hub. (Refer to [page 49](#).)



◆ Connection of the personal computer and inverters (Ethernet connection (CC-Link IE TSN communication))

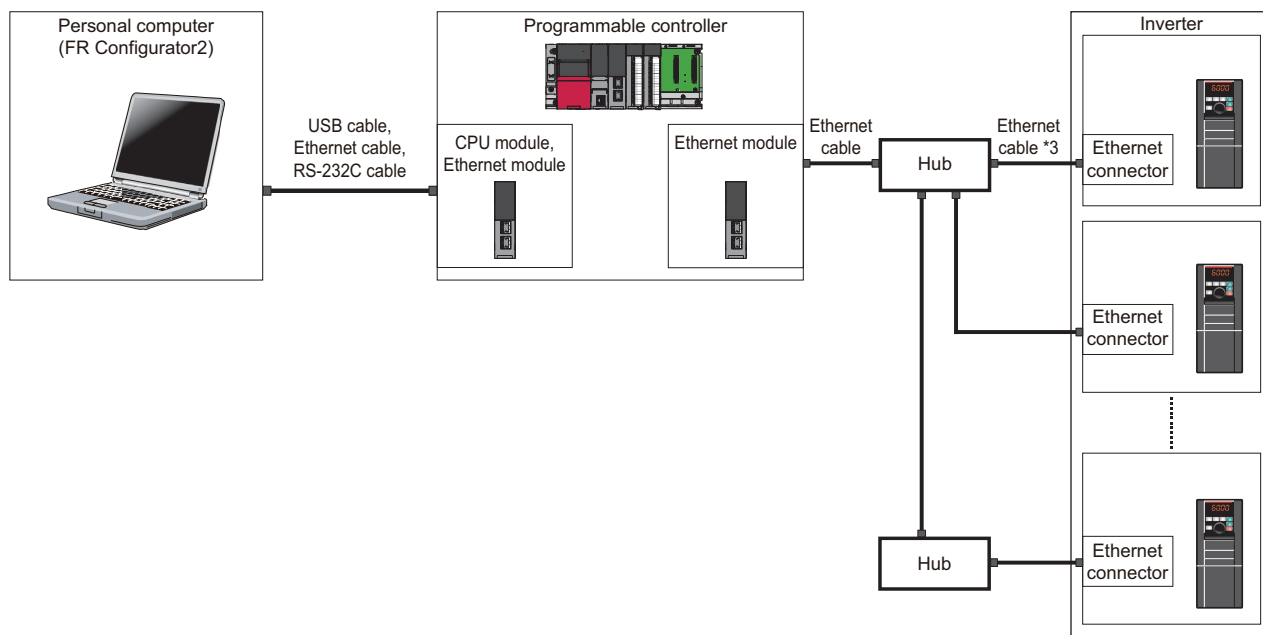
The inverter can be connected to a personal computer via the Ethernet port of the inverter (FR-A800/FR-F800 with FR-A8NCG in it, FR-A800-F/G with FR-A8NCG-S in it, FR-E800-(SC)EPA, FR-E800-(SC)EPB, or FR-D800-E). (Refer to [page 49](#).)

For the hub used for connection of the FR-A800/FR-F800 with FR-A8NCG in it, refer to the FR-A8NCG Instruction Manual. For the hub used for connection of the FR-A800-F/G with FR-A8NCG-S in it, refer to the FR-A8NCG-S Instruction Manual. For the hub used for connection of the FR-E800-(SC)E, refer to the FR-E800 Instruction Manual (Communication). For the hub used for connection of the FR-D800-E, refer to the FR-D800(-E) Instruction Manual (Communication).



◆ Connection of the personal computer and inverters via a programmable controller (Ethernet connection)

A programmable controller^{*1} (CPU module / Ethernet module^{*2}) can be used for connecting the inverter. (Refer to [page 70.](#))



*1 Connection via an MX Controller is not supported.

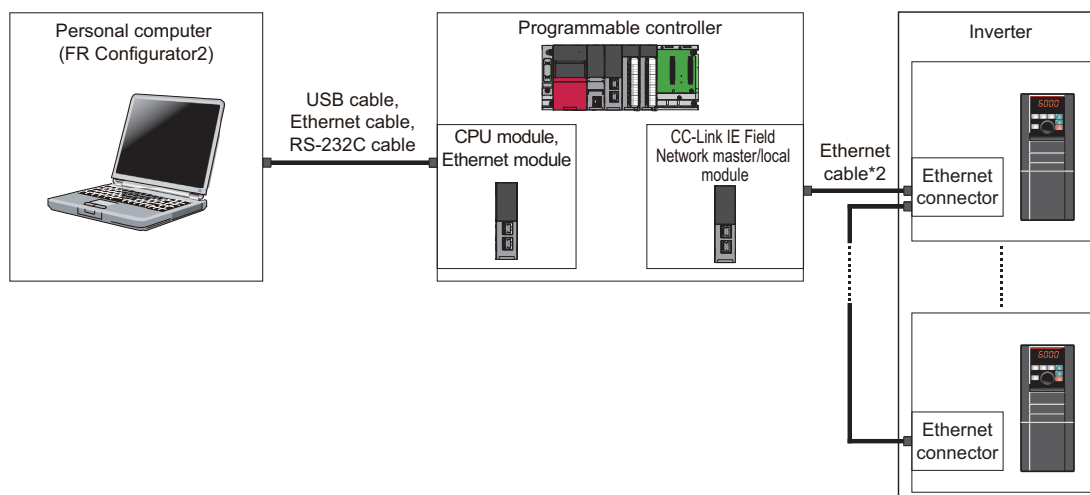
*2 The personal computer and the inverter can be connected to a single Ethernet module depending on the type of module used. For details, refer to the Instruction Manual of the programmable controller.

*3 For information on the maximum number of connectable units and the transmission specifications, refer to the Instruction Manual of the Ethernet module.

◆ Connection of the personal computer and inverters via a programmable controller (CC-Link IE Field Network)

A programmable controller^{*1} (CPU module / Ethernet module / CC-Link IE Field Network master/local module) can be used for connecting the inverter. (Refer to [page 70.](#))

When the personal computer and the inverter are connected via a programmable controller, the CC-Link IE Field Network Basic communication is not available.

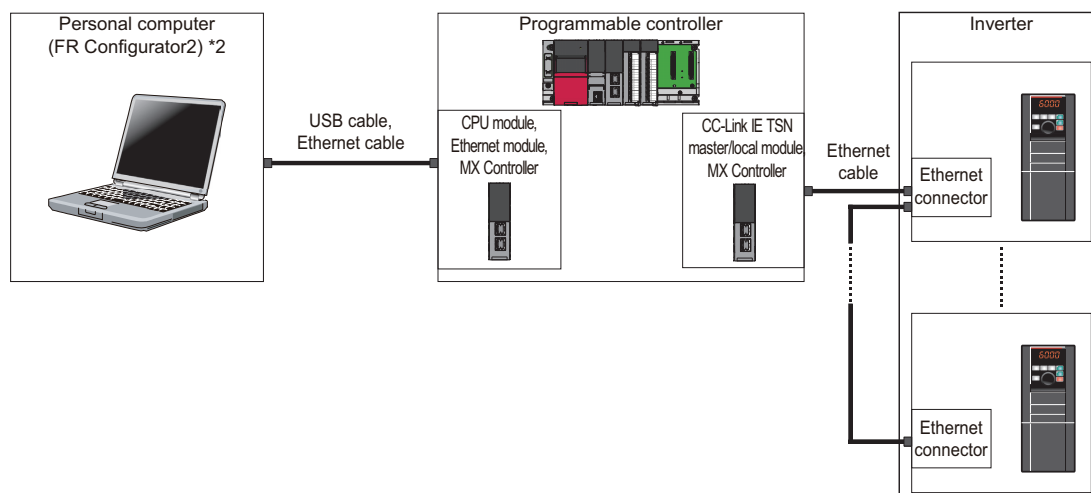


*1 Connection via an MX Controller is not supported.

*2 For information on the maximum number of connectable units, refer to the CC-Link network specifications.

◆ Connection of the personal computer and inverters via a programmable controller (CC-Link IE TSN communication)

A programmable controller (CPU module / Ethernet module / CC-Link IE TSN master/local module / MX Controller^{*1}) can be used for connecting the inverter. For the module of the programmable controller connected to the inverter, use a CC-Link IE TSN master/local module or an MX Controller. (Refer to [page 70](#).)

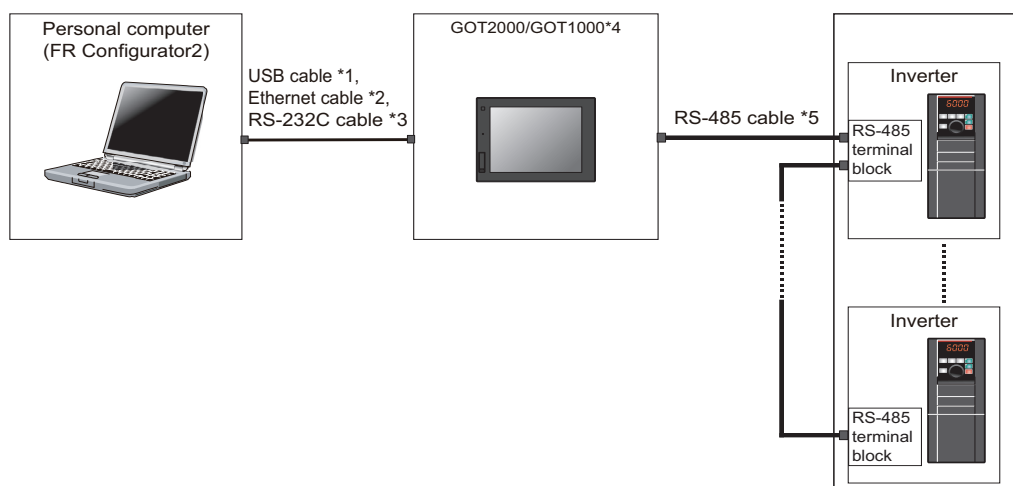


*1 When an MX Controller is used, the personal computer and the inverter can be connected to a single module.

*2 Use "1 to 120" to set station numbers for the inverters that communicate with FR Configurator2.

◆ Connection of the personal computer and inverters via a GOT2000/GOT1000 model (serial communication)

Through a GOT, connection to the RS-485 terminal block is available. (Refer to [page 87](#).) For the GOT1000 series, an RS-422/485 serial communication unit is required. For the compatible version of GOT or details of the RS-422/485 connection, refer to the GOT2000 or GOT1000 Series Connection Manual (Mitsubishi Electric Products).



*1 When using the GOT1000, use a dedicated cable, GT09-C30USB-5P or GT09-C20USB-5P.

*2 Available for the GOT2000 only.

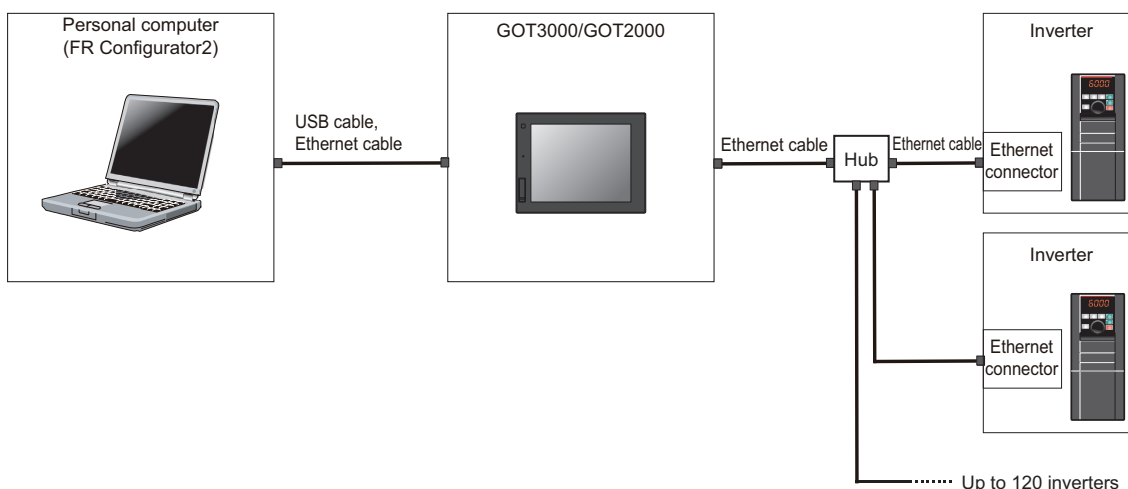
*3 Available for the GOT1000 only.

*4 To use the GOT1000 series, the optional GOT RD-422/485 serial communication unit is required.

*5 When connecting multiple inverters using their PU connectors, use a distributor. For details on the distributor, refer to the GOT2000 or GOT1000 Series Connection Manual (Mitsubishi Electric Products).

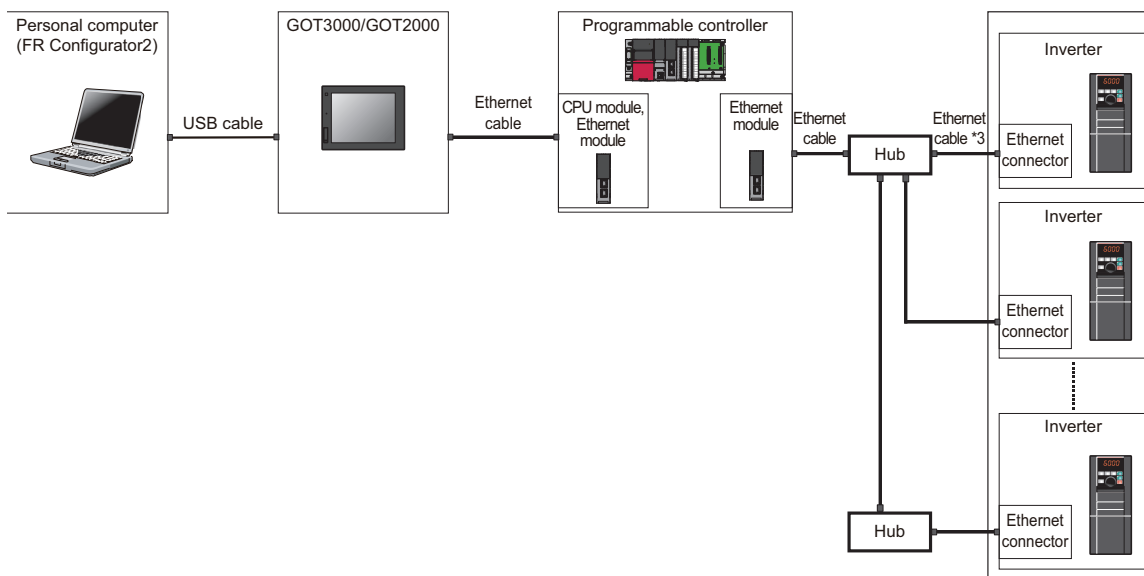
◆ Connection of the personal computer and inverters via a GOT3000/ GOT2000 model (Ethernet connection)

Through a GOT, connection to the inverter is available. (Refer to [page 87](#).) For the compatible version of GOT or details of the connection, refer to the GOT3000 Series User's Manual (Connection) or the GOT2000 Series Connection Manual (Mitsubishi Electric Products).



◆ Connection of the personal computer and inverters via a GOT3000/ GOT2000 model and a programmable controller (Ethernet connection)

Through a GOT and a programmable controller^{*1} (CPU module / Ethernet module^{*2}), connection to the inverter is available. (Refer to [page 101](#).)



*1 Connection via an MX Controller is not supported.

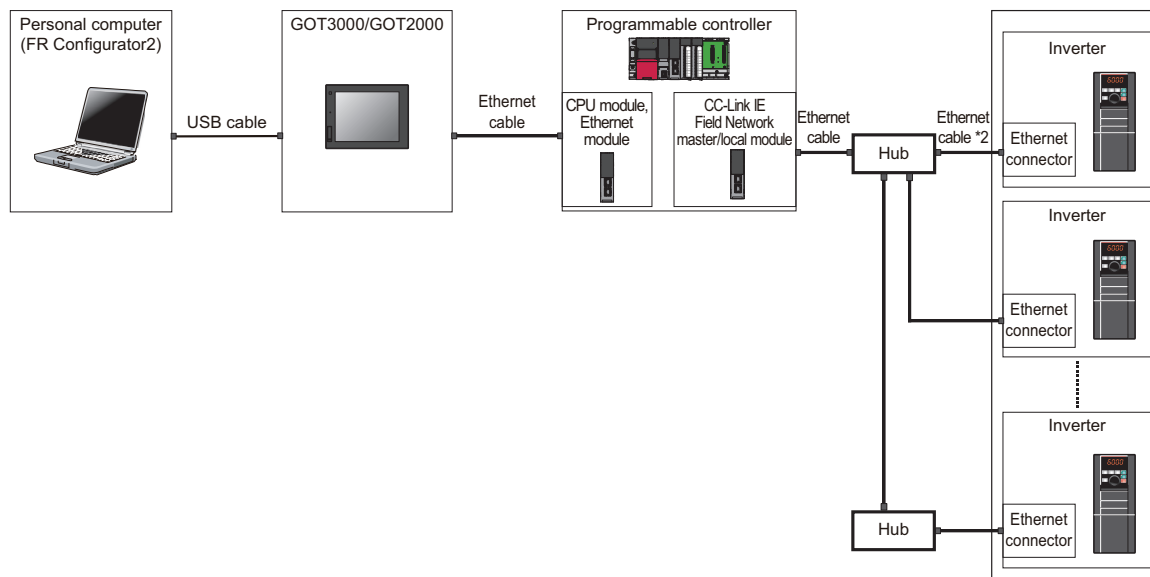
*2 The personal computer and the inverter can be connected to a single Ethernet module depending on the type of module used. For details, refer to the Instruction Manual of the programmable controller.

*3 For information on the maximum number of connectable units and the transmission specifications, refer to the Instruction Manual of the Ethernet module.

◆ Connection of the personal computer and inverters via a GOT3000/ GOT2000 model and a programmable controller (CC-Link IE Field Network)

Through a GOT and a programmable controller^{*1} (CPU module / Ethernet module / CC-Link IE Field Network master/local module), connection to the inverter is available. (Refer to [page 101](#).)

When the personal computer and the inverter are connected via a programmable controller, the CC-Link IE Field Network Basic communication is not available.

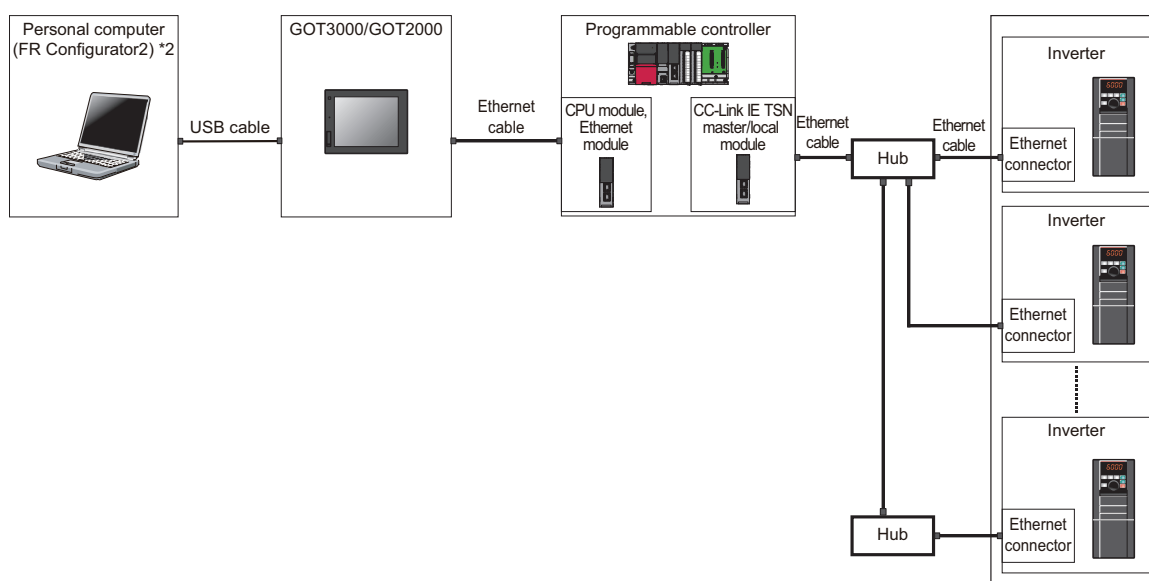


*1 Connection via an MX Controller is not supported.

*2 For information on the maximum number of connectable units, refer to the web site of the CC-Link Partner Association.

◆ Connection of the personal computer and inverters via a GOT3000/ GOT2000 model and a programmable controller (CC-Link IE TSN communication)

Through a GOT and a programmable controller^{*1} (CPU module / Ethernet module / CC-Link IE TSN master/local module), connection to the inverter is available. (Refer to [page 101](#).)



*1 Connection via an MX Controller is not supported.

*2 Use "1 to 120" to set station numbers for the inverters that communicate with FR Configurator2.

2.2 USB connection

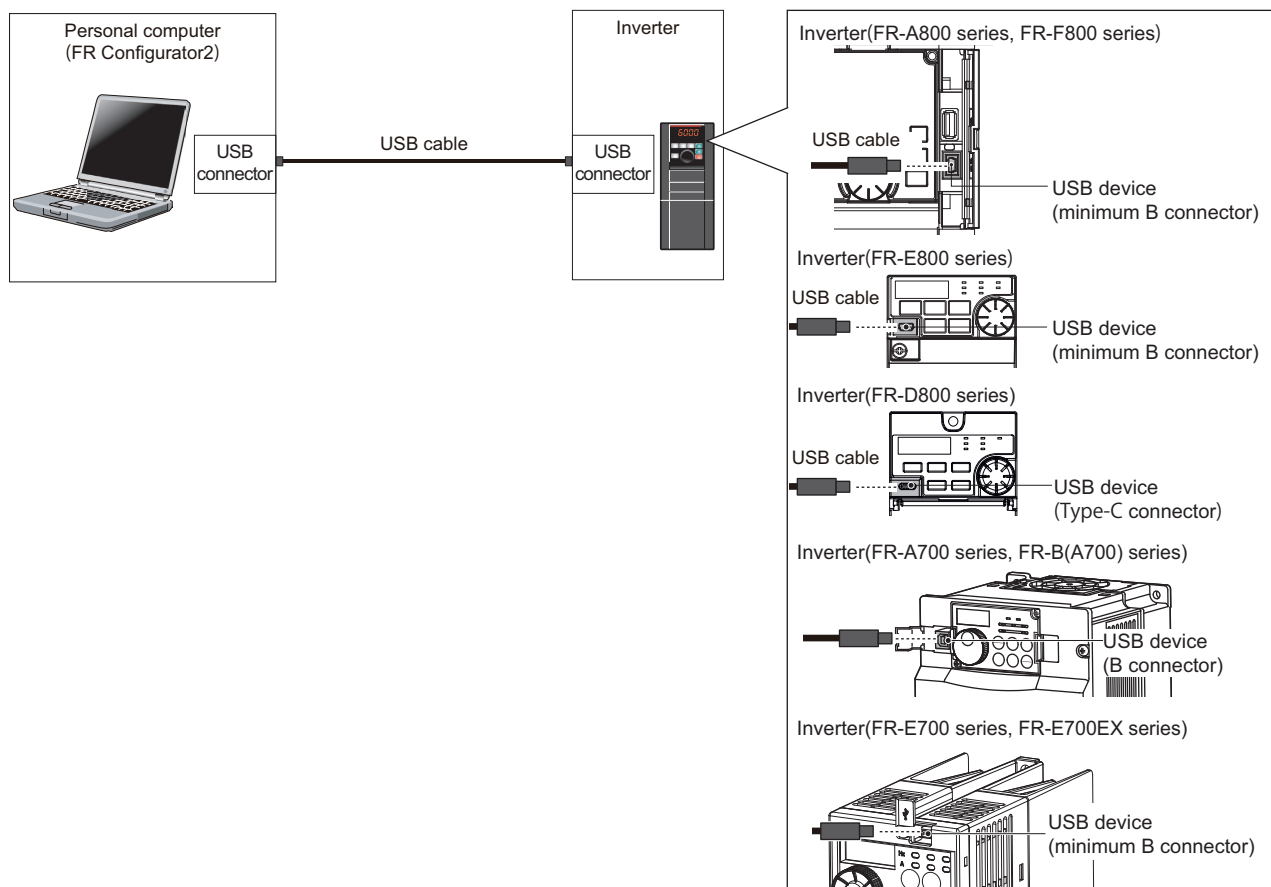
The inverter can be connected easily to a personal computer (FR Configurator2) with a USB cable. However, this connection method is available only for one-to-one connection. Connection using a USB hub is not available.

2.2.1 Supported model and connection configuration

◆ Supported model

For the supported models, refer to [page 30](#).

◆ Connection configuration

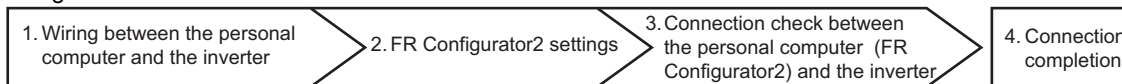


2.2.2 Connection procedure

The following explains the connection procedure between the personal computer (FR Configurator2) and inverters.

◆ Connection flow

The general flow of the USB connection is as follows.



◆ Recommended procedure

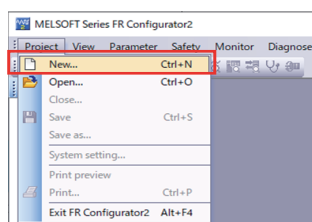
The following shows the procedure for the USB connection.

1. Wiring between the personal computer and the inverter
Connect the personal computer and the inverter using the USB cable. For details on USB cables, refer to the Instruction Manual of the inverter.

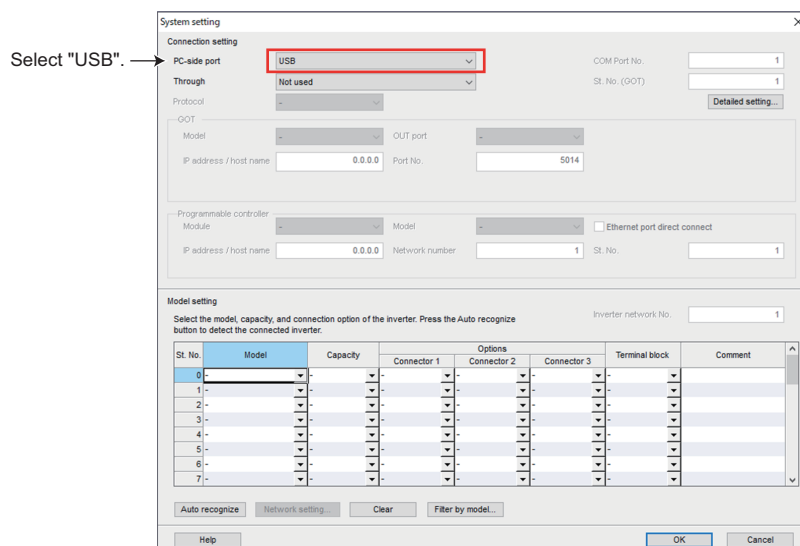
2. FR Configurator2 settings

Start FR Configurator2.

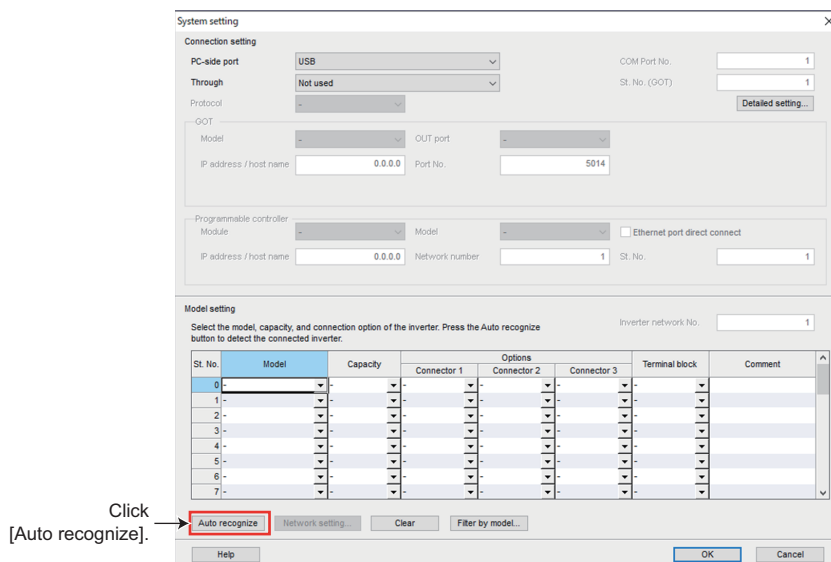
Select [New...] from the [Project] menu bar.



"System setting" window appears. In the "Connection setting", select "USB" for the PC-side port.



Click [Auto recognize]. The inverters connected with the personal computer are automatically detected.

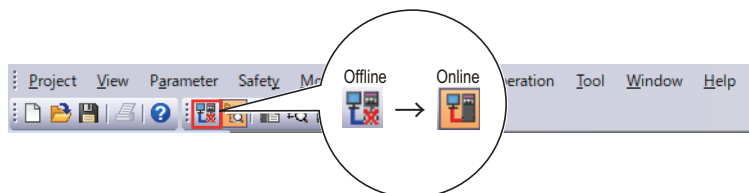


After the inverter is detected, click [OK]. Example) FR-A820-0.4K(00046)

The detection result is displayed.

Click [OK].

3. Connection check between the personal computer (FR Configurator2) and the inverter
- Click the [Online/offline] button and check that the online connection is established.



4. Connection completion

NOTE

- Before removing the USB cable between the personal computer and the inverter, check the conditions of the inverter and the connected devices which configure the system.
- If an inverter error occurs after the USB cable is removed, check the **Pr.548 USB communication check time interval** setting. (Refer to [page 42.](#))

2.2.3 Related parameters for USB connection

The following table shows the parameters related to the USB communication. Set the parameters as required. For details, refer to the Instruction Manual of the inverter.

Pr.	Name	Description
547 N040 ^{*1}	USB communication station number	Specify the inverter station number.
548 N041 ^{*1}	USB communication check time interval	Set the communication check time interval.
551 D013 ^{*1}	PU mode operation command source selection	Any of the PU connector, RS-485 terminals, or USB connector can be specified as the command source in the PU operation mode.

^{*1} Parameter numbers in function groups are not available for the 700 series and the 500 series.

NOTE

- After changing the parameter setting values, restart the inverter.

2.2.4 Troubleshooting for the USB connection

- If a problem occurs for the USB connection, refer to the following for corrective actions.

No.	Condition	Possible cause	Countermeasure
1	A communication error occurred in the inverter after the USB cable between the personal computer and the inverter was removed.	The setting value of Pr.548 USB communication check time interval is not "9999". ^{*1}	Set "9999" in Pr.548 USB communication check time interval. ^{*1}

^{*1} If the Pr.548 setting cannot be changed while the USB connection is used, set "3 or 9999" in Pr.551.

2.3 Connection using serial communication

The PU connector or the RS-485 terminal block of the inverter can be used for connection with a personal computer. To use the PU connector, a USB/RS-485 converter (cable) or a serial port/RS-485 converter (cable) is required. To use the RS-485 terminal block, a serial port/RS-485 converter (cable) is required.

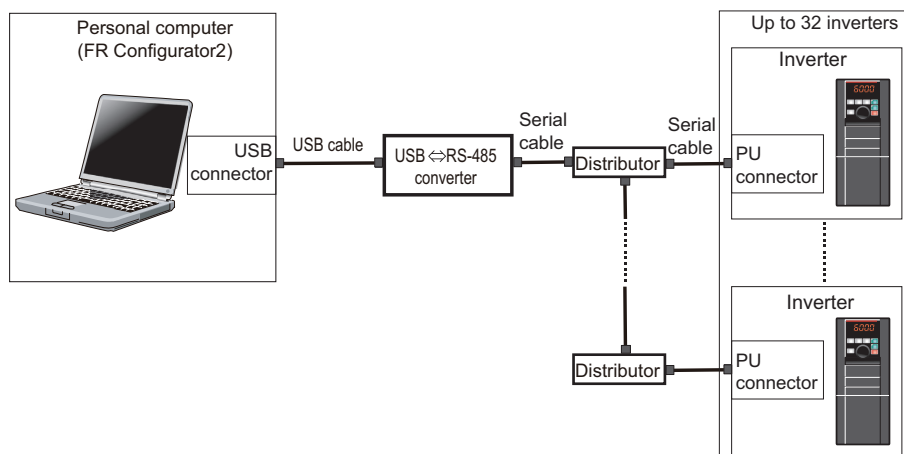
2.3.1 Supported model and connection configuration

◆ Supported model

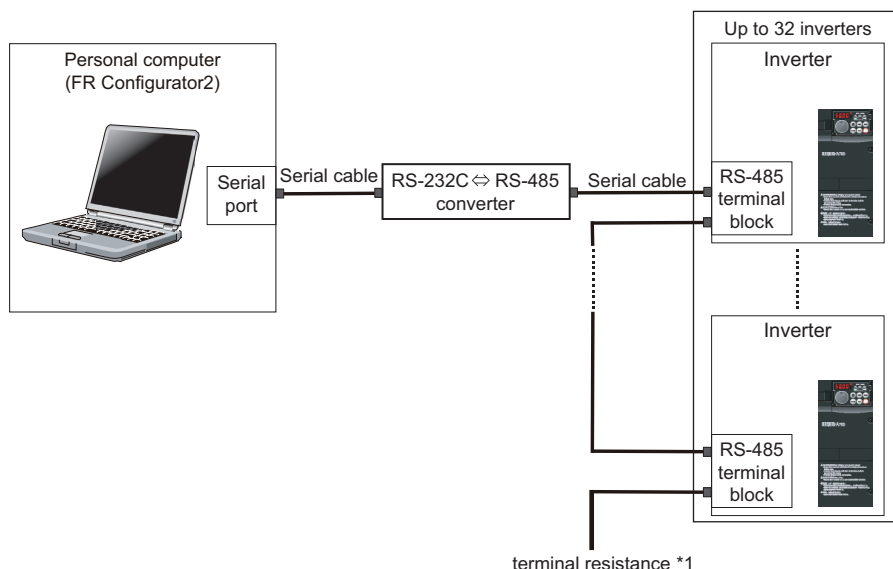
For the supported models, refer to [page 30](#).

◆ Connection configuration

- PU connector



- RS-485 terminal block



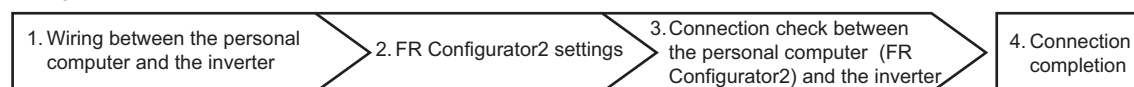
*1 The terminating resistor is required for the 700 series and the 500 series. Use the terminating resistor switch of the inverter for the 800 series. For details, refer to the Instruction Manual of the inverter.

2.3.2 Connection procedure

The following explains the connection procedure between the personal computer (FR Configurator2) and inverters.

◆ Connection flow

The general flow of the serial connection is as follows.



◆ Recommended procedure

The following shows the procedure for the serial connection.

1. Checking the parameters related to the serial communication
Connect the personal computer and the inverter using the USB cable. (For the connection method, refer to [page 39](#).)
Check the parameters required for the connection with the PU connector or the RS-485 terminal block. For the parameters to be checked, refer to [page 47](#).

Point

- To change the inverter parameter setting values using FR Configurator2, check that the master (such as a programmable controller) is stopped and then change or check the inverter parameter setting values.

2. Wiring between the personal computer and the inverter
Connect the personal computer and the inverter using a Conversion cable. For details on the available Conversion cable, refer to the following table.
 - Connection with the PU connector
Connect the USB connector or serial port of the personal computer and the PU connector of the inverter.
 - Connection with the RS-485 terminal block
Connect the serial port of the personal computer and the RS-485 terminal block of the inverter.

NOTE

- Conversion cable
Prepare a cable referring to the following.
Commercially available products (as of October 2020)

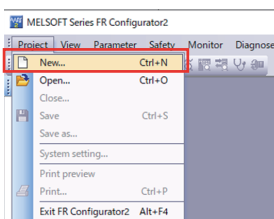
Product name	Model name	Manufacturer
Interface converter cable + Connector conversion cable (RS-232C to RS-485 converter)	DAFXIH-CAB (D-SUB25P for personal computer) DAFXIH-CABV (D-SUB9P for personal computer) + DINV-485CAB (for inverter)	Diatrend Corp.
Interface converter cable for Mitsubishi Electric FR series inverters (RS-232C to RS-485 converter)	DINV-CABV	
Interface converter cable for Mitsubishi Electric FR series inverters (USB to RS-485 converter)	DINV-U4	

- For information on the distributor, refer to the Instruction Manual of each inverter.

3. FR Configurator2 settings

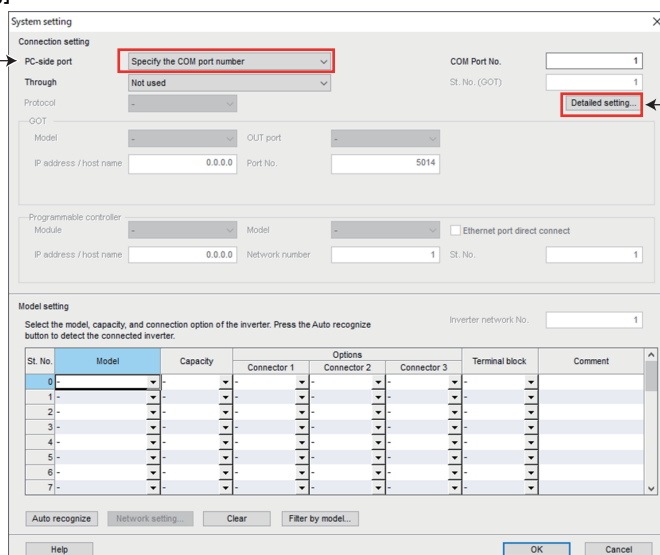
Start FR Configurator2.

Select [New...] from the [Project] menu bar.



"System setting" window appears. In the "Connection setting", select COM: communication port for the PC-side port. Click [Detailed setting].

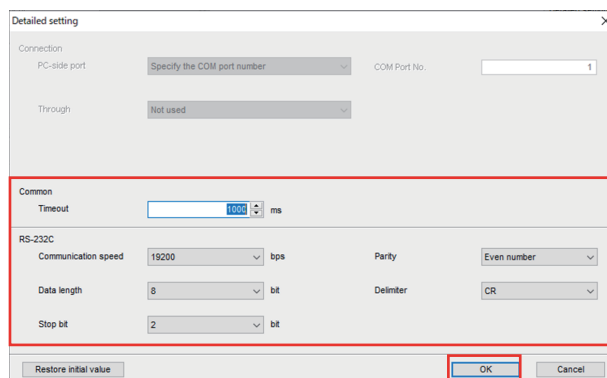
Select COM:
communication port.



Click
[Detailed setting].

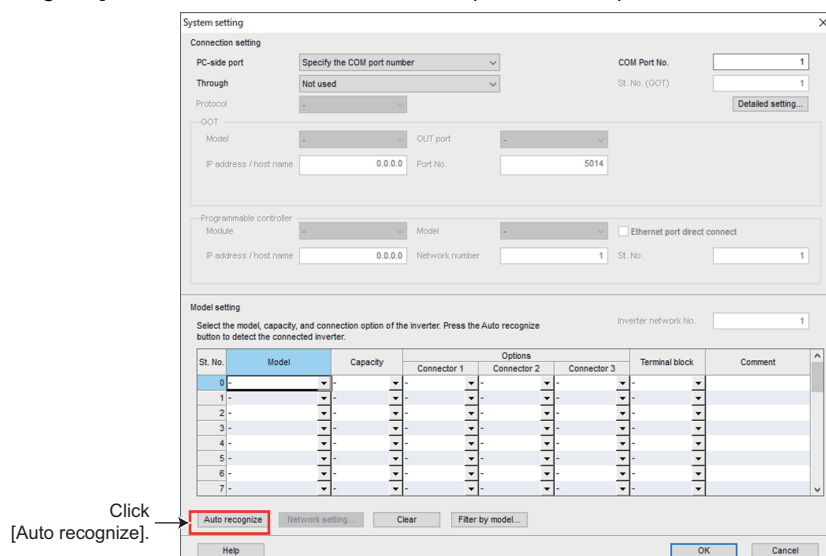
In the "Detailed setting" window, change the setting values to the same values as the parameter setting values checked in "1. Checking the parameters related to the serial communication".

Click [OK].

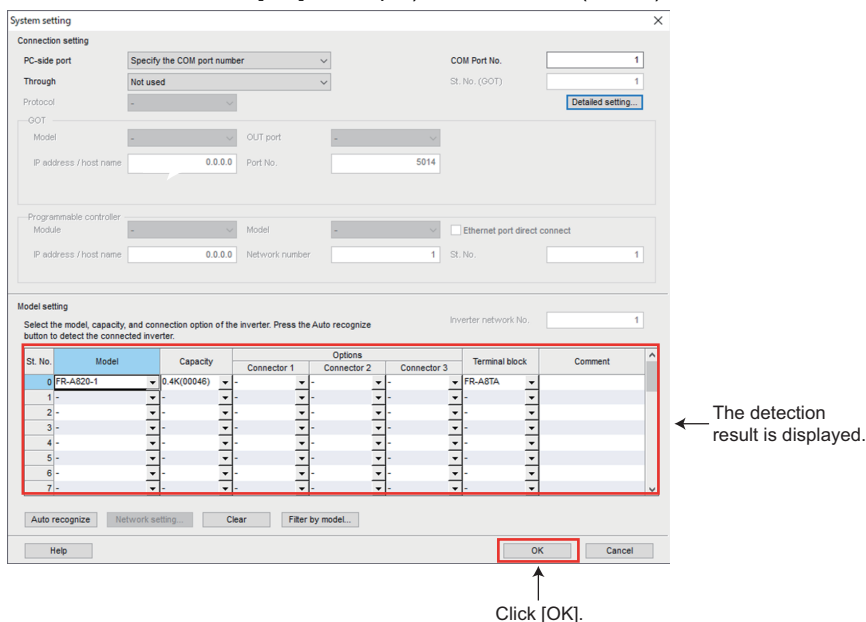


Click [OK].

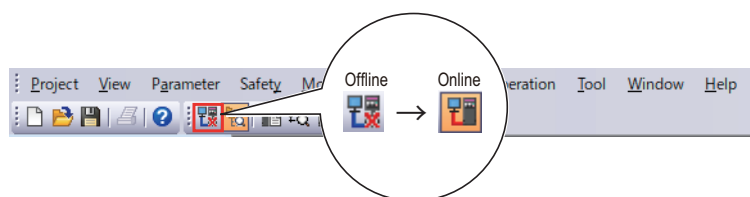
Click [Auto recognize]. The inverters connected with the personal computer are automatically detected.



After the inverter is detected, click [OK]. Example) FR-A820-0.4K(00046)



4. Connection check between the personal computer (FR Configurator2) and the inverter
Click the [Online/offline] button and check that the online connection is established.



5. Connection completion

NOTE

- Before removing the serial cable between the personal computer and the inverter, check the conditions of the inverter and the connected devices which configure the system.
- If an inverter error occurs after the serial cable is removed, check the setting of **Pr.122 PU communication check time interval** or **Pr.336 RS-485 communication check time interval**. (Refer to [Page 48.](#))

2.3.3 Related parameters for serial communication

The following table shows the parameters related to the serial communication. Set the parameters as required. For details, refer to the Instruction Manual of the inverter.

◆ Parameters related to PU connector communication

Pr.	Name	Description
117 N020 ^{*1}	PU communication station number	Set the inverter station number.
118 N021 ^{*1}	PU communication speed	Set the communication speed. The setting value × 100 equals the communication speed.
119	PU communication stop bit length / data length	Set the stop bit length and data bit length.
N022 ^{*1}	PU communication data length	Set the data length.
N023 ^{*1}	PU communication stop bit length	Set the stop bit length.
120 N024 ^{*1}	PU communication parity check	Set the parity check specifications.
121 N025 ^{*1}	PU communication retry count	Set the permissible number of retries for unsuccessful data reception.
122 N026 ^{*1}	PU communication check time interval	Set the interval of the communication check (signal loss detection) time.
123 N027 ^{*1}	PU communication waiting time setting	Set the delay between data transmission to the inverter and response.
124 N028 ^{*1}	PU communication CR/LF selection	Set the presence/absence of CR/LF.
550 D012 ^{*1}	NET mode operation command source selection	Specify either the communication option or the Ethernet connector as the command source in the NET operation mode.
551 D013 ^{*1}	PU mode operation command source selection	Specify any of the Ethernet connector, PU connector, RS-485 terminals, or USB connector as the command source in the PU operation mode.

*1 Parameter numbers in function groups are not available for the 700 series and the 500 series.

◆ Parameters related to RS-485 terminal communication

Pr.	Name	Description
331 N030 ^{*2}	RS-485 communication station number	Set the inverter station number.
332 N031 ^{*2}	RS-485 communication speed	Set the communication speed. The setting value × 100 equals the communication speed.
333	RS-485 communication stop bit length / data length	Set the stop bit length and data bit length.
N032 ^{*2}	RS-485 communication data length	Set the data length.
N033 ^{*2}	RS-485 communication stop bit length	Set the stop bit length.
334 N034 ^{*2}	RS-485 communication parity check selection	Set the parity check specifications.
335 N035 ^{*2}	RS-485 communication retry count	Set the permissible number of retries for unsuccessful data reception.
336 N036 ^{*2}	RS-485 communication check time interval	Set the interval of the communication check (signal loss detection) time.
337 N037 ^{*2}	RS-485 communication waiting time setting	Set the delay between data transmission to the inverter and response.
341 N038 ^{*2}	RS-485 communication CR/LF selection	Set the presence/absence of CR/LF.
549 N000 ^{*2}	Protocol selection	Set the RS-485 communication protocol.
550 D012 ^{*2}	NET mode operation command source selection	Specify either the communication option or the Ethernet connector as the command source in the NET operation mode.
551 D013 ^{*2}	PU mode operation command source selection	Specify any of the Ethernet connector, PU connector, RS-485 terminals, or USB connector as the command source in the PU operation mode.

^{*2} Parameter numbers in function groups are not available for the 700 series and the 500 series.

NOTE

- After changing the parameter setting values, restart the inverter.

2.3.4 Troubleshooting for the serial communication

- If a problem occurs for the serial connection, refer to the following for corrective actions.

No.	Condition	Possible cause	Countermeasure
1	A communication error occurred in the inverter after the serial cable between the personal computer and the inverter was removed.	- PU connector connection: - The setting value of Pr.122 PU communication check time interval is too small. - RS-485 terminal block connection: - The setting value of Pr.336 RS-485 communication check time interval is too small.	- PU connector connection: - Set "9999" in Pr.122 PU communication check time interval.^{*1} - RS-485 terminal block connection: - Set "9999" in Pr.336 RS-485 communication check time interval.^{*2}

^{*1} If the **Pr.122** setting cannot be changed while the PU connector connection is used, set "2 or 9999" in **Pr.551**.

^{*2} If the **Pr.336** setting cannot be changed while the RS-485 terminal block connection is used, set "1 or 9999" in **Pr.551**.

NOTE

- The inverter output is shut off if communication is broken for the period of time set in **Pr.122 PU communication check time interval** or **Pr.336 RS-485 communication check time interval**. If changing the **Pr.122** or **Pr.336** setting after checking the setting with FR Configurator2, return the setting value to the previous value.

2.4 Connection using Ethernet

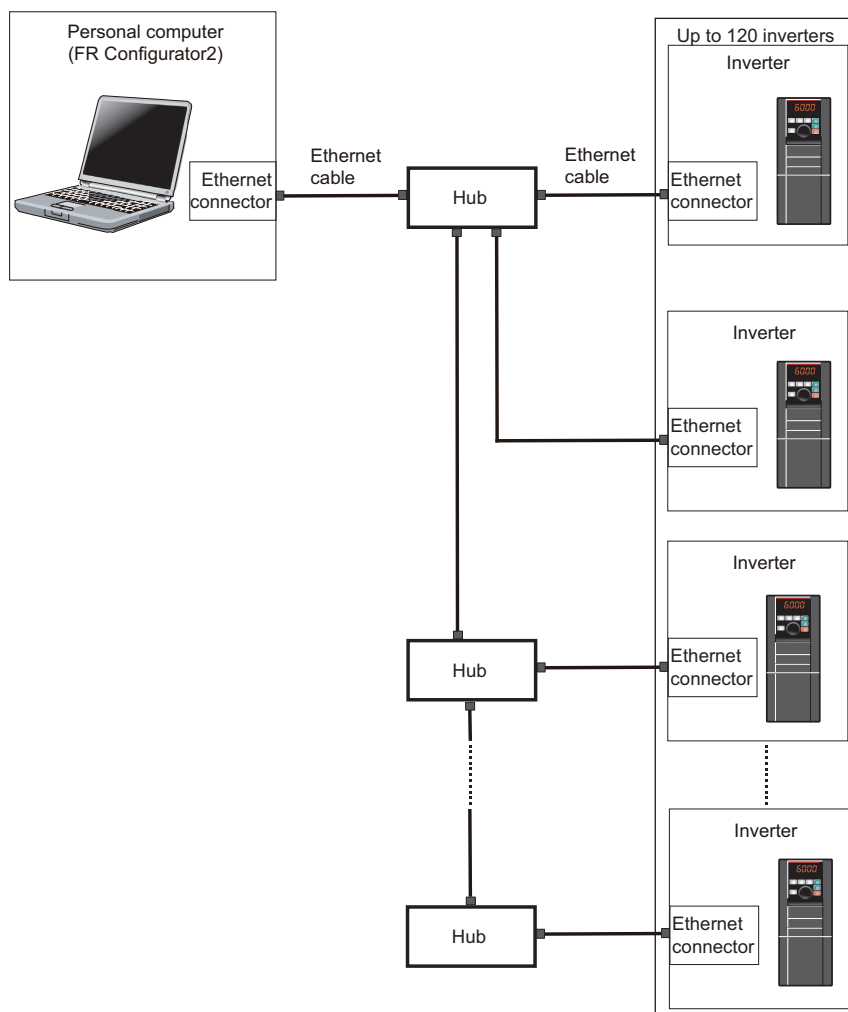
The inverter can be connected to a personal computer via the Ethernet connector of the inverter.

2.4.1 Supported model and connection configuration

◆ Supported model

For the supported models, refer to [page 30](#).

◆ Connection configuration

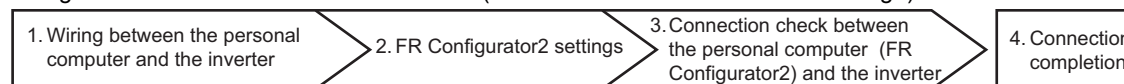


2.4.2 Connection procedure (within the same network address range)

This section explains the connection when the personal computer (FR Configurator2) and the inverter communicate using the IP addresses within the same network address range. If the different network addresses are used, refer to [page 54](#).

◆ Connection flow

The general flow of the Ethernet connection (within the same network address range) is as follows.



◆ Recommended procedure

The following shows the procedure for the Ethernet connection (within the same network address range).

1. Wiring between the personal computer and the inverter
 - Connect the personal computer and the hub using the Ethernet cable.
 - Connect the hub and the inverter using the Ethernet cable.

NOTE

- Connection cable
 - Prepare a cable referring to the following.

Ethernet cable	Connector	Standard
Category 5 or higher straight cable (double shielded / STP)	RJ-45 connector ^{*1}	The cables compliant with the following standards: • IEEE 802.3 (100BASE-TX) • ANSI/TIA/EIA-568-B (Category 5)

^{*1} For the FR-E806-SCE, use a cable with M12, 4-pole (male) connector.

- Change and check the inverter parameter settings using the Ethernet parameter setting function. Refer to [page 256](#) for the procedure for checking using the Ethernet parameter setting function.

Point

- If the inverter parameter setting values cannot be changed or checked using the Ethernet parameter setting function of FR Configurator2, check that the master (such as a programmable controller) is stopped and then check the inverter parameter setting values. When the master is stopped, check the parameter setting values and then restart the master operation.
- If the above measure does not solve the problem, connect the personal computer and the inverter using the USB and change the setting values of the following parameters using FR Configurator2. The setting values can also be checked and changed on the operation panel of the inverter.

Model	Intermediate device	Pr.	Name	Setting
FR-A800-E FR-A800-G FR-F800-E	Not connected	1427	Ethernet function selection 1	Set a combination of "5001" (or "5002") and "45237" in any two of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	The IP address range can be set for connectable network devices. ^{*2}
FR-A800-E-R2R	Not connected	1076	Ethernet function selection 1	Set a combination of "5001" (or "5002") and "45237" in any two of the parameters.
		1077	Ethernet function selection 2	
		1078	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	The IP address range can be set for connectable network devices. ^{*2}

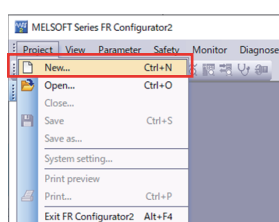
Model	Intermediate device	Pr.	Name	Setting
FR-E800-(SC)EPA/ (SC)EPB FR-E806-SCE FR-D800-E	Not connected	1427	Ethernet function selection 1	Set a combination of "5001" (or "5002") and "45237" in any two of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1430	Ethernet function selection 4	
		1442 to 1448	IP filter address (Ethernet)	The IP address range can be set for connectable network devices. *2
FR-E700-NE	Not connected	833	Ethernet function selection 1	Set a combination of "31" and "20" in any two of the parameters.
		834	Ethernet function selection 2	
		835	Ethernet function selection 3	
		837 to 843	IP filter address (Ethernet)	The IP address range can be set for connectable network devices. *2

*2 When using the IP filter address (Ethernet), set the IP address of the personal computer within the setting range.

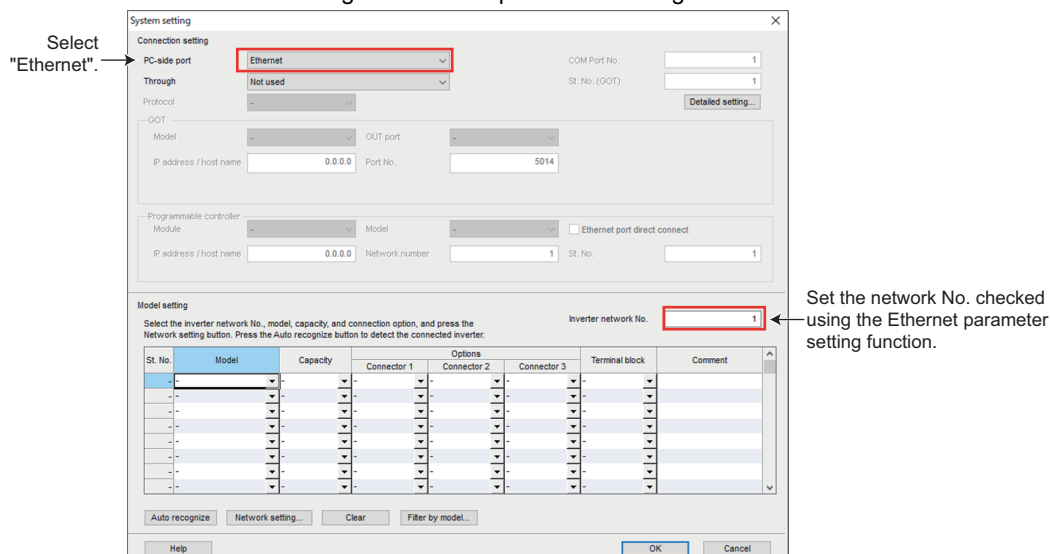
2. FR Configurator2 settings

Start FR Configurator2.

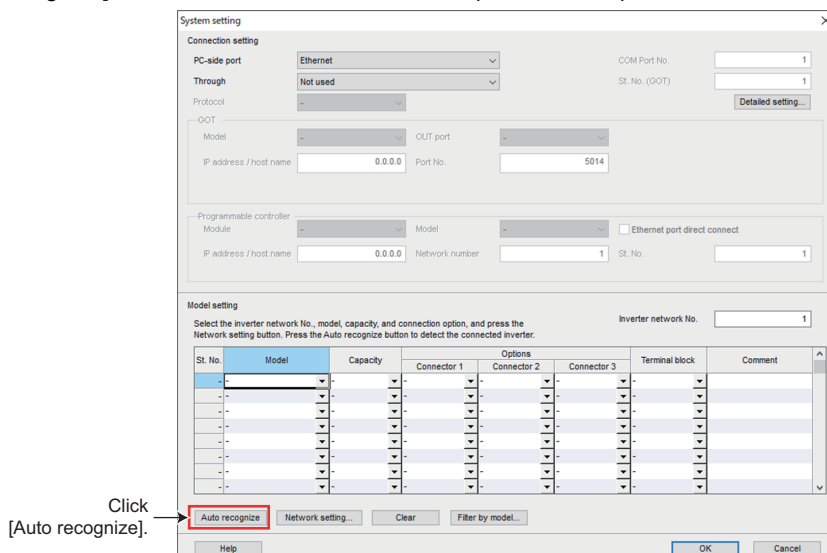
Select [New...] from the [Project] menu bar.



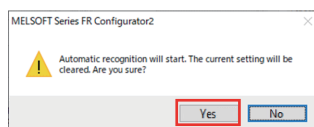
"System setting" window appears. In the "Connection setting", select "Ethernet" for the PC-side port. Set the network No. checked using the Ethernet parameter setting function for "Inverter network No.".



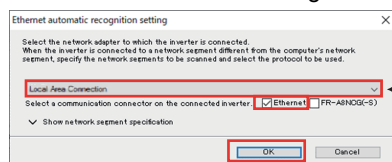
Click [Auto recognize]. The inverters connected with the personal computer are automatically detected.



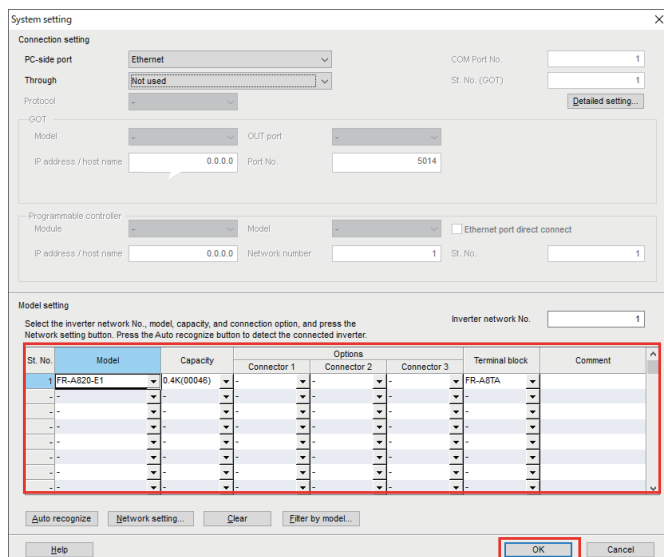
Click [Yes].



Select the network adapter to which the personal computer (FR Configurator2) and inverter are connected. Select "Ethernet" in the "Ethernet automatic recognition setting" window, and click [OK].

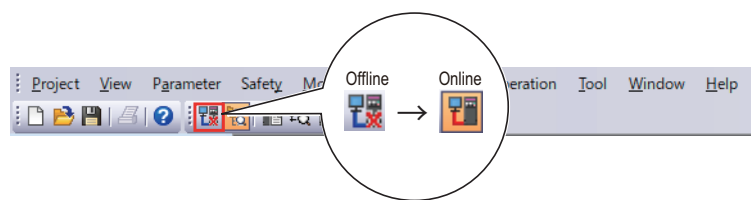


After the inverter is detected, click [OK]. Example) FR-A820-E-0.4K(00046)



The detection result is displayed.

3. Connection check between the personal computer (FR Configurator2) and the inverter
Click the [Online/offline] button and check that the online connection is established.



4. Connection completion

NOTE

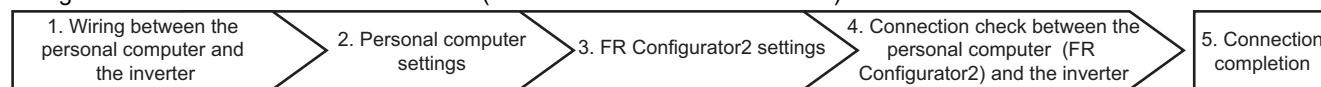
- Before removing the Ethernet cable between the personal computer and the inverter, check the conditions of the inverter and the connected devices which configure the system.
- If an inverter error occurs after the Ethernet cable is removed, check the following parameter setting. (Refer to [Page 63.](#))
800 series: **Pr.1432 Ethernet communication check time interval**
700 series: **Pr.852 Ethernet communication check time interval**

2.4.3 Connection procedure (with different network addresses)

The following explains the connection procedure between the personal computer (FR Configurator2) and inverters. Connection with different network addresses means a communication while a network device such as a router is connected between the personal computer and the inverter.

◆ Connection flow

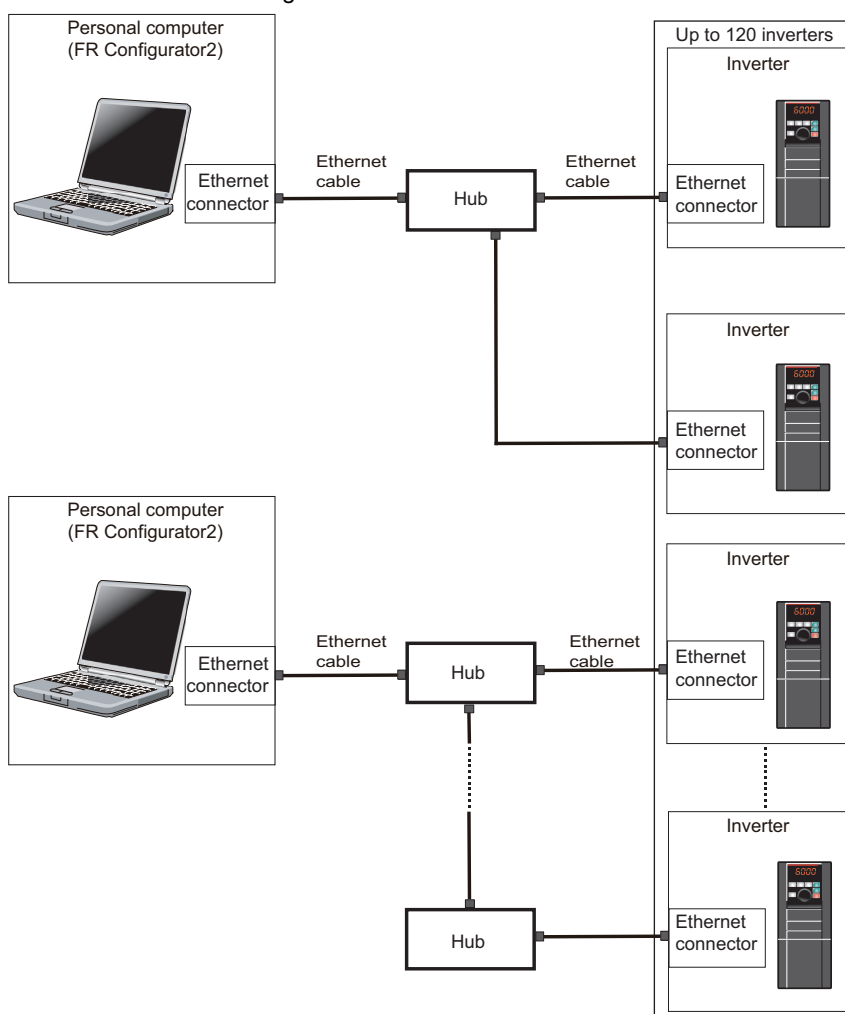
The general flow of the Ethernet connection (with different network addresses) is as follows.



◆ Recommended procedure

The following shows the procedure for the Ethernet connection (with different network addresses).

- 1.** Wiring between the personal computer and the inverter
Connect the personal computer and the hub, without connecting a router between them, using the Ethernet cable.
Connect the hub and the inverter using the Ethernet cable.



Change and check the inverter parameter settings using the Ethernet parameter setting function. Refer to [Page 256](#) for the procedure for setting or checking using the Ethernet parameter setting function.

For the 700 series inverter, use FR Configurator2 to check that the settings of **Pr.442 to Pr.445 Default gateway address** match with the IP address of the router connected to the inverter. If the settings do not match, change the settings of **Pr.442 to Pr.445**.

NOTE

- Connection cable
Prepare a cable referring to the following.

Ethernet cable	Connector	Standard
Category 5 or higher straight cable (double shielded / STP)	RJ-45 connector ^{*1}	The cables compliant with the following standards: • IEEE 802.3 (100BASE-TX) • ANSI/TIA/EIA-568-B (Category 5)

^{*1} For the FR-E806-SCE, use a cable with M12, 4-pole (male) connector.

- The Ethernet parameter setting function is available only when the personal computer and the inverter are within the same network address range.

Point

- If the inverter parameter setting values cannot be changed or checked using the Ethernet parameter setting function of FR Configurator2, check that the master (such as a programmable controller) is stopped and then check the inverter parameter setting values. When the master is stopped, check the parameter setting values and then restart the master operation.
- If the above measure does not solve the problem, connect the personal computer and the inverter using the USB and change the setting values of the following parameters using FR Configurator2. The setting values can also be checked and changed on the operation panel of the inverter.

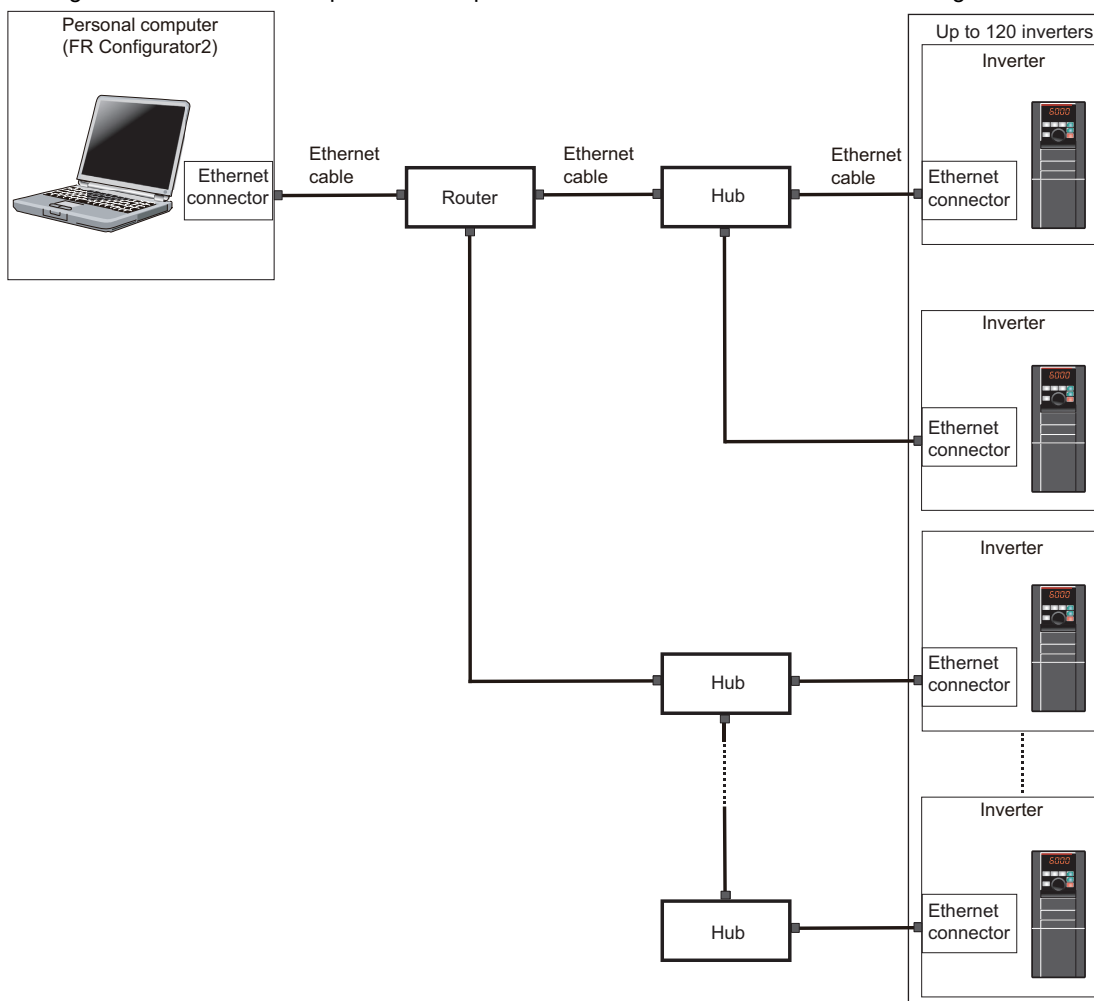
Model	Intermediate device	Pr.	Name	Setting
FR-A800-E FR-A800-G FR-F800-E	Not connected	1427	Ethernet function selection 1	Set a combination of "5001" (or "5002") and "45237" in any two of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	The IP address range can be set for connectable network devices. ^{*2}
FR-A800-E-R2R	Not connected	1076	Ethernet function selection 1	Set a combination of "5001" (or "5002") and "45237" in any two of the parameters.
		1077	Ethernet function selection 2	
		1078	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	The IP address range can be set for connectable network devices. ^{*2}
FR-E800-(SC)EPA/ (SC)EPB FR-E806-SCE FR-D800-E	Not connected	1427	Ethernet function selection 1	Set a combination of "5001" (or "5002") and "45237" in any two of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1430	Ethernet function selection 4	
		1442 to 1448	IP filter address (Ethernet)	The IP address range can be set for connectable network devices. ^{*2}
FR-E700-NE	Not connected	833	Ethernet function selection 1	Set a combination of "31" and "20" in any two of the parameters.
		834	Ethernet function selection 2	
		835	Ethernet function selection 3	
		837 to 843	IP filter address (Ethernet)	The IP address range can be set for connectable network devices. ^{*2}

^{*2} When using the IP filter address (Ethernet), set the IP address of the personal computer within the setting range.

2. Personal computer settings

Connect a router between the personal computer and the hub.

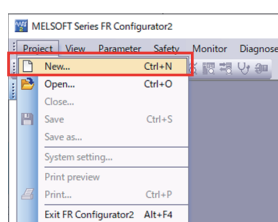
Change the IP address of the personal computer to within the same network address range as the router.



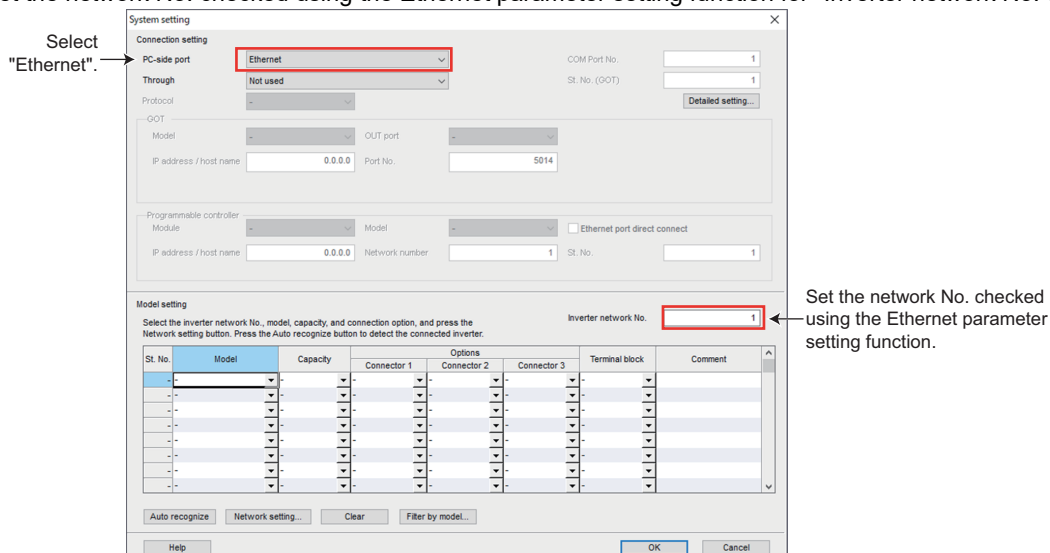
3. FR Configurator2 settings

Start FR Configurator2.

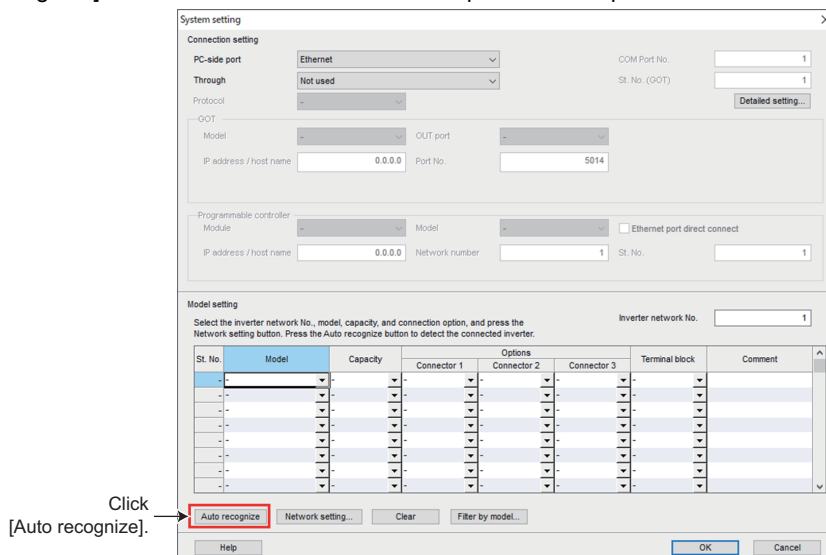
Select [New...] from the [Project] menu bar.



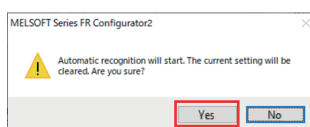
"System setting" window appears. In the "Connection setting", select "Ethernet" for the PC-side port. Set the network No. checked using the Ethernet parameter setting function for "Inverter network No.".



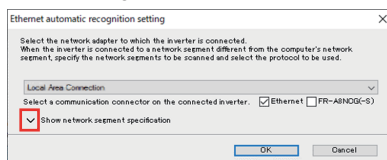
Click [Auto recognize]. The inverters connected with the personal computer are automatically detected.



Click [Yes].

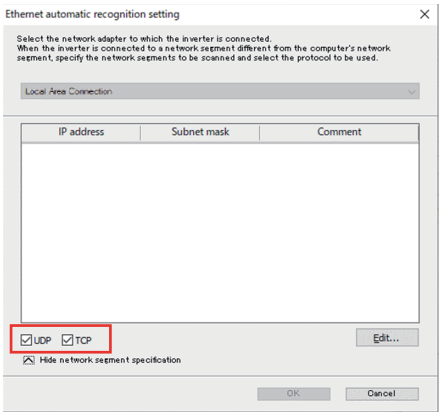


In the "Ethernet automatic recognition setting" window, click [Show network segment specification].

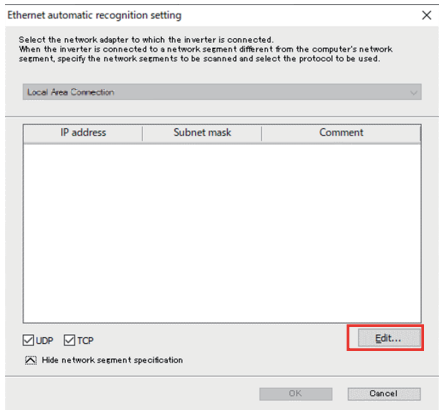


If you know either "UDP" or "TCP" is used, selecting only one of them may shorten the time required for inverter automatic detection.

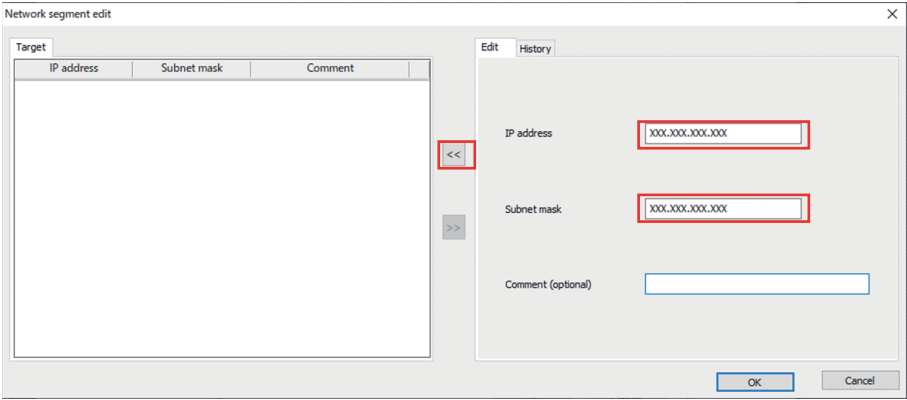
When both "UDP" and "TCP" are selected, the time required for inverter automatic detection may be longer.



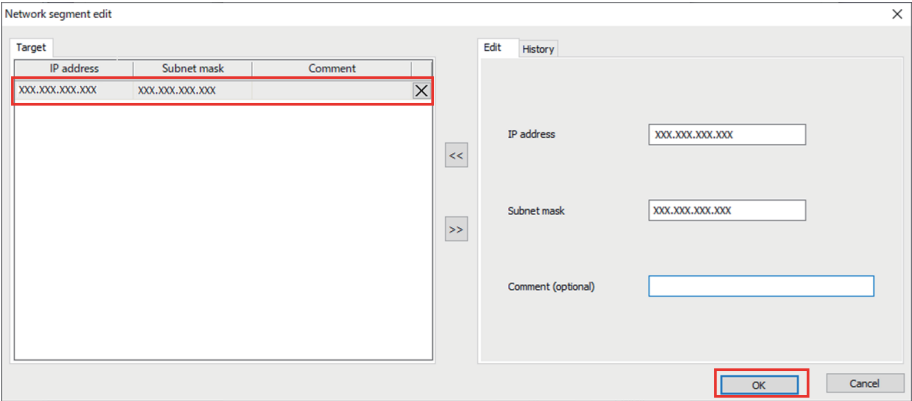
In the "Ethernet automatic recognition setting" window, click [Edit].



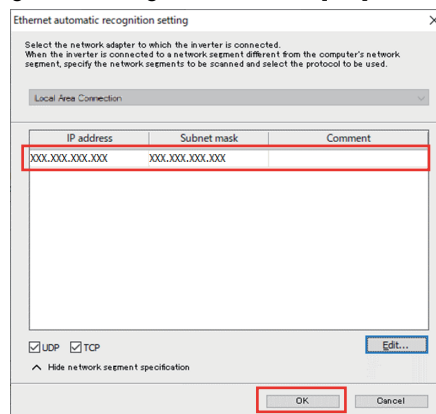
Enter the public IP address of the inverter (IP address viewed from outside the router) in "IP address" and the subnet mask in "Subnet mask", then click the [<<] button.



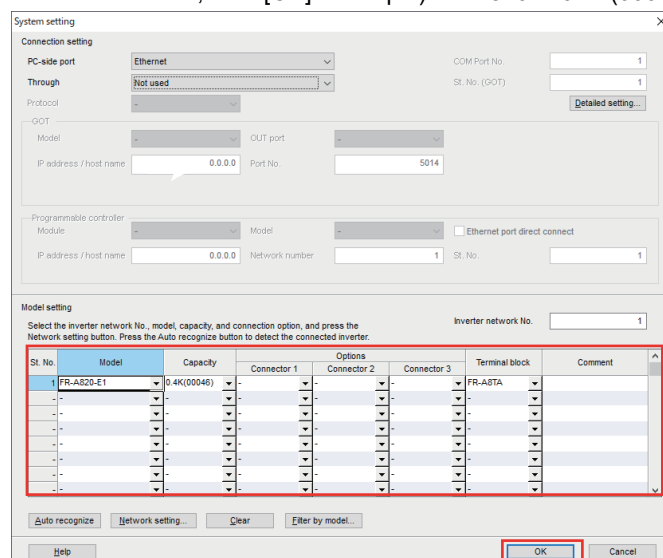
Click [OK].



In the "Ethernet automatic recognition setting" window, click [OK].



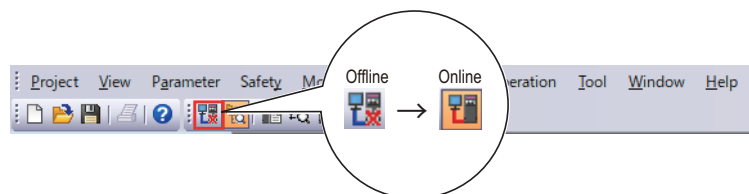
After the inverter is detected, click [OK]. Example) FR-A820-E-0.4K(00046)



← The detection result is displayed.

Click [OK].

4. Connection check between the personal computer (FR Configurator2) and the inverter
Click the [Online/offline] button and check that the online connection is established.



5. Connection completion

NOTE

- Before removing the Ethernet cable between the personal computer and the inverter, check the conditions of the inverter and the connected devices which configure the system.
- If an inverter error occurs after the Ethernet cable is removed, check the following parameter setting. (Refer to [Page 63.](#))
800 series: **Pr.1432 Ethernet communication check time interval**
700 series: **Pr.852 Ethernet communication check time interval**

2.4.4 Related parameters for Ethernet connection

The following table shows the parameters related to the Ethernet communication. Set the parameters as required. For details, refer to the Instruction Manual of the inverter.

◆ FR-A800-E, FR-A800-G, FR-A800-E-CRN, FR-A800-G-CRN, FR-A800-E-LC, FR-A800-E-AWH, FR-F800-E

Pr.	Name	Description
550 D012	NET mode operation command source selection	Specify either the communication option or the Ethernet connector as the command source in the NET operation mode.
551 D013	PU mode operation command source selection	Specify any of the Ethernet connector, PU connector, RS-485 terminals, or USB connector as the command source in the PU operation mode.
1424 N650	Ethernet communication network number	Enter the network number.
1425 N651	Ethernet communication station number	Set the inverter station number.
1427 N630	Ethernet function selection 1	Set the application, protocol, and so on.
1428 N631	Ethernet function selection 2	
1429 N632	Ethernet function selection 3	
1432 N644	Ethernet communication check time interval	Set the interval of the communication check (signal loss detection) time.
1434 N600	IP address 1 (Ethernet)	Enter the IP address of the inverter to be connected to Ethernet.
1435 N601	IP address 2 (Ethernet)	
1436 N602	IP address 3 (Ethernet)	
1437 N603	IP address 4 (Ethernet)	
1438 N610	Subnet mask 1	Enter the subnet mask of the network to which the inverter belongs.
1439 N611	Subnet mask 2	
1440 N612	Subnet mask 3	
1441 N613	Subnet mask 4	
1442 N660	IP filter address 1 (Ethernet)	The IP address range can be set for connectable network devices.
1443 N661	IP filter address 2 (Ethernet)	
1444 N662	IP filter address 3 (Ethernet)	
1445 N663	IP filter address 4 (Ethernet)	
1446 N664	IP filter address 2 range specification (Ethernet)	
1447 N665	IP filter address 3 range specification (Ethernet)	
1448 N666	IP filter address 4 range specification (Ethernet)	

◆ FR-A800-E-R2R

Pr.	Name	Description
550 D012	NET mode operation command source selection	Specify either the communication option or the Ethernet connector as the command source in the NET operation mode.
551 D013	PU mode operation command source selection	Specify any of the Ethernet connector, PU connector, RS-485 terminals, or USB connector as the command source in the PU operation mode.
1073 N650	Ethernet communication network number	Enter the network number.
1074 N651	Ethernet communication station number	Set the inverter station number.
1076 N630	Ethernet function selection 1	Set the application, protocol, and so on.
1077 N631	Ethernet function selection 2	
1078 N632	Ethernet function selection 3	
1432 N644	Ethernet communication check time interval	Set the interval of the communication check (signal loss detection) time.
1434 N600	IP address 1 (Ethernet)	Enter the IP address of the inverter to be connected to Ethernet.
1435 N601	IP address 2 (Ethernet)	
1436 N602	IP address 3 (Ethernet)	
1437 N603	IP address 4 (Ethernet)	
1438 N610	Subnet mask 1	Enter the subnet mask of the network to which the inverter belongs.
1439 N611	Subnet mask 2	
1440 N612	Subnet mask 3	
1441 N613	Subnet mask 4	
1442 N660	IP filter address 1 (Ethernet)	The IP address range can be set for connectable network devices.
1443 N661	IP filter address 2 (Ethernet)	
1444 N662	IP filter address 3 (Ethernet)	
1445 N663	IP filter address 4 (Ethernet)	
1446 N664	IP filter address 2 range specification (Ethernet)	
1447 N665	IP filter address 3 range specification (Ethernet)	
1448 N666	IP filter address 4 range specification (Ethernet)	

◆ FR-E800-(SC)EPA/(SC)EPB, FR-E806-SCE, FR-D800-E

Pr.	Name	Description
550 D012	NET mode operation command source selection	Specify either the communication option or the Ethernet connector as the command source in the NET operation mode.
551 D013	PU mode operation command source selection	Specify any of the Ethernet connector, PU connector, RS-485 terminals, or USB connector as the command source in the PU operation mode.
1424 N650	Ethernet communication network number	Enter the network number.
1425 N651	Ethernet communication station number	Set the inverter station number.
1427 N630	Ethernet function selection 1	Set the application, protocol, and so on.
1428 N631	Ethernet function selection 2	
1429 N632	Ethernet function selection 3	
1430 N633	Ethernet function selection 4	
1432 N644	Ethernet communication check time interval	Set the interval of the communication check (signal loss detection) time.
1434 N600	IP address 1 (Ethernet)	Enter the IP address of the inverter to be connected to Ethernet.
1435 N601	IP address 2 (Ethernet)	
1436 N602	IP address 3 (Ethernet)	
1437 N603	IP address 4 (Ethernet)	
1438 N610	Subnet mask 1	Enter the subnet mask of the network to which the inverter belongs.
1439 N611	Subnet mask 2	
1440 N612	Subnet mask 3	
1441 N613	Subnet mask 4	
1442 N660	IP filter address 1 (Ethernet)	The IP address range can be set for connectable network devices.
1443 N661	IP filter address 2 (Ethernet)	
1444 N662	IP filter address 3 (Ethernet)	
1445 N663	IP filter address 4 (Ethernet)	
1446 N664	IP filter address 2 range specification (Ethernet)	
1447 N665	IP filter address 3 range specification (Ethernet)	
1448 N666	IP filter address 4 range specification (Ethernet)	

◆ FR-E700-NE

2

Pr.	Name	Description
442	Default gateway address 1	Enter the IP address of the default gateway, which is a device connecting the different networks, to establish a communication between the inverter and the devices outside the inverter network.
443	Default gateway address 2	
444	Default gateway address 3	
445	Default gateway address 4	
550	NET mode operation command source selection	Specify either the communication option or the Ethernet connector as the command source in the NET operation mode.
551	PU mode operation command source selection	Specify any of the Ethernet connector, PU connector, RS-485 terminals, or USB connector as the command source in the PU operation mode.
805	IP address 1 (Ethernet)	Enter the IP address of the inverter to be connected to Ethernet.
806	IP address 2 (Ethernet)	
807	IP address 3 (Ethernet)	
808	IP address 4 (Ethernet)	
809	Subnet mask 1	Enter the subnet mask of the network to which the inverter belongs.
810	Subnet mask 2	
811	Subnet mask 3	
812	Subnet mask 4	
830	Ethernet communication network number	Enter the network number.
831	Ethernet communication station number	Set the inverter station number.
833	Ethernet function selection 1	Set the application, protocol, and so on.
834	Ethernet function selection 2	
835	Ethernet function selection 3	
837	IP filter address 1 (Ethernet)	The IP address range can be set for connectable network devices.
838	IP filter address 2 (Ethernet)	
839	IP filter address 3 (Ethernet)	
840	IP filter address 4 (Ethernet)	
841	IP filter address 2 range specification (Ethernet)	
842	IP filter address 3 range specification (Ethernet)	
843	IP filter address 4 range specification (Ethernet)	
852	Ethernet communication check time interval	Set the interval of the communication check (signal loss detection) time.

NOTE

- After changing the parameter setting values, restart the inverter.

2.4.5 Troubleshooting for the Ethernet connection

- If a problem occurs for the Ethernet connection, refer to the following for corrective actions.

No.	Condition	Possible cause	Countermeasure
1	A communication error occurred in the inverter after the Ethernet cable between the personal computer and the inverter was removed.	The setting value of Ethernet communication check time interval (800 series: Pr.1432 , 700 series: Pr.852) is not "9999".	Set "9999" in Ethernet communication check time interval (800 series: Pr.1432 , 700 series: Pr.852). ^{*1*2}

*1 If the **Pr.1432** setting cannot be changed while the Ethernet connection is used for the 800 series, set "5 or 9999" in **Pr.550**.

*2 If the **Pr.852** setting cannot be changed while the Ethernet connection is used for the 700 series, set "0" in **Pr.550**.

NOTE

- The inverter output is shut off if communication is broken for the period of time set in **Ethernet communication check time interval** (800 series: **Pr.1432**, 700 series: **Pr.852**). If changing the **Pr.1432** and **Pr.852** settings after checking the setting with FR Configurator2, return the setting values to the previous values.

2.5 Connection using CC-Link IE TSN communication (Ethernet connection)

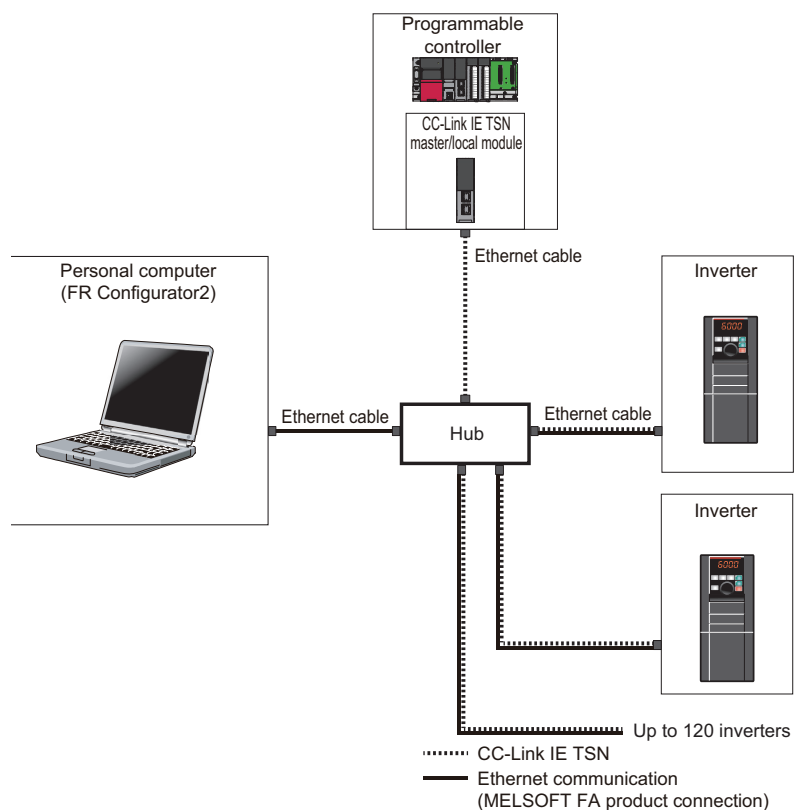
The inverter can be connected to a personal computer via the Ethernet port of the inverter (FR-A800 with FR-A8NCG in it, FR-A800-F/G with FR-A8NCG-S in it, FR-F800 with FR-A8NCG in it, FR-E800-(SC)EPA, FR-E800-(SC)EPB, FR-E806-SCE, or FR-D800-E).

2.5.1 Procedure for connection using CC-Link IE TSN communication (Ethernet connection)

◆ Supported model

For the supported models, refer to [page 30](#).

◆ Connection configuration



◆ Connection cable

Prepare a cable referring to the following.

■ CC-Link IE TSN communication specifications

For details on the communication specifications, refer to the Instruction Manual of the inverter.

■ Ethernet cable

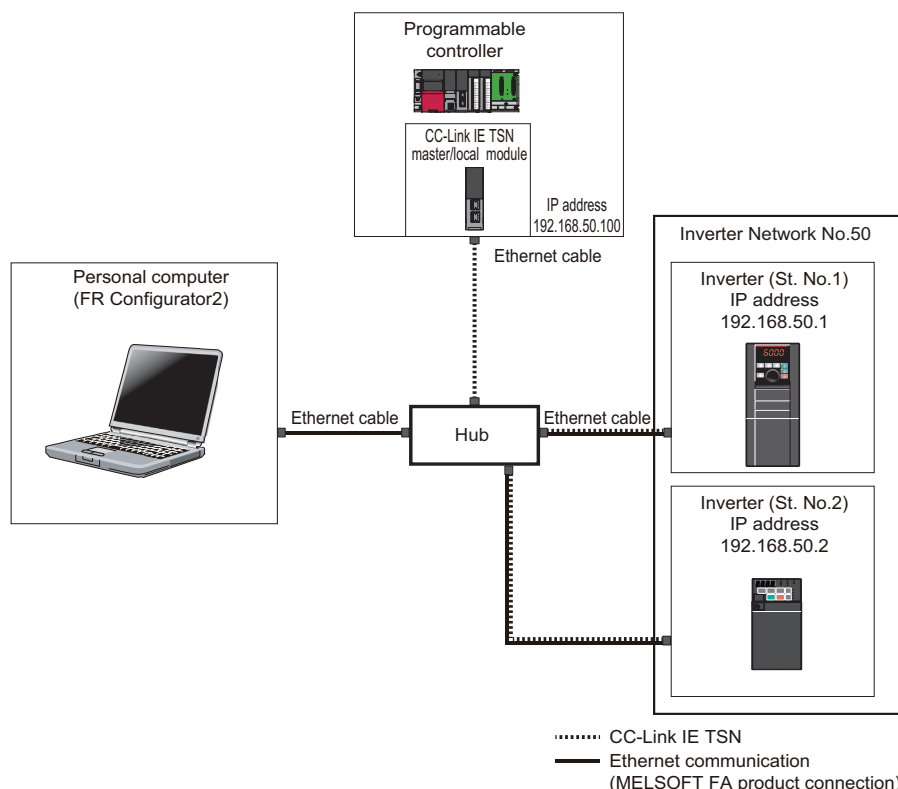
Use Ethernet cables compliant with the following standards.

Model	Ethernet cable	Connector	Standard
FR-A800 with FR-A8NCG FR-A800-F/G with FR-A8NCG-S FR-F800 with FR-A8NCG	Category 5e or higher straight cable (double shielded/STP)	RJ-45 connector	The cables compliant with the following standards: • IEEE 802.3 (1000BASE-T) • ANSI/TIA/EIA-568-B (Category 5e)
FR-E800-(SC)EPA/(SC)EPB FR-D800-E FR-E806-SCE	Category 5 or higher straight cable (double shielded / STP)	M12, 4-pole (male)	The cables compliant with the following standards: • IEEE 802.3 (100BASE-TX) • ANSI/TIA/EIA-568-B (Category 5)

◆ Connection procedure

1. Start the PLC engineering software (such as GX Works3).
In the "Navigation" window, select [Parameter] > [Module Information] then select the module name of the CC-Link IE TSN master/local module.
Select [Basic Settings] in the Setting Item List window. Go to [Network Configuration Settings] and configure the inverter settings.

- Example



- When using FR-A800 with FR-A8NCG (FR-A800-GN) or FR-F800 with FR-A8NCG and setting the station number and the IP address using the station number switches
The IP address set in [Network Configuration Settings] of GX Works3 is set in the first to third octets.
The third octet of the IP address set in [Network Configuration Settings] of GX Works3 is "Inverter network No.". The value set by the station number switches is used as "St. No." and the fourth octet of the IP address.
Example) When the IP address is "192.168.50.1", the network No. is "50", and the station number is "1",
[Network Configuration Settings] of GX Works3: "192.168.50.100" (IP address of the master)
Station number switch setting of the inverter: "01"
- When using FR-A800 with FR-A8NCG (FR-A800-GN) or FR-F800 with FR-A8NCG and setting the IP address using parameters^{*1}
Set the IP address in **Pr.434 to Pr.437 IP Address 1 to 4**.
The setting value in **Pr.436 IP Address 3** (the third octet of the IP address) is "Inverter network No.". The setting value in **Pr.437 IP Address 4** (the fourth octet of the IP address) is used as "St. No.". Example) When the IP address is "192.168.50.1", the network No. is "50", and the station number is "1",
Pr.434 to Pr.437 setting of the inverter: "192.168.50.1"
Station number switch setting of the inverter: "00" or "FF"

^{*1} Refer to [page 68](#) for details on parameters.

- When using FR-E800-(SC)EPA/(SC)EPB, FR-E806-SCE, or FR-D800-E^{*2}

Set the IP address in **Pr.1434 to Pr.1437 IP Address 1 to 4**.

Set "Inverter network No." in **Pr.1424**.

Set the station number in **Pr.1425**.

Example) When the IP address is "192.168.50.2", the network No. is "50", and the station number is "2",

Pr.1434 to Pr.1437 setting of the inverter: "192.168.50.2"

Pr.1424 = "50"

Pr.1425 = "2"

^{*2} Refer to [page 68](#) for details on parameters.

2. Connect the personal computer and the inverter using the Ethernet cable.

3. Check the inverter parameter settings.

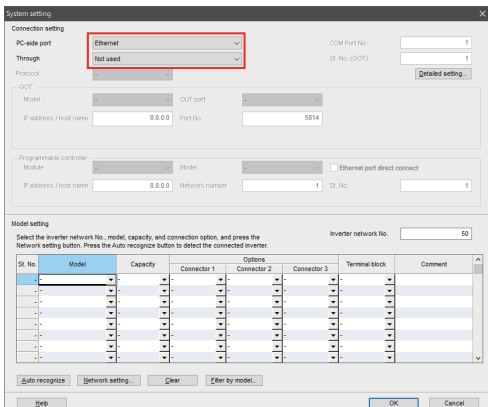
Set the following communication parameters for connection using the Ethernet connector of the inverter. To set parameters or input operation commands, set the following command source parameter.

Inverter	Parameter setting	
	Communication parameter	Command source parameter
FR-A800 with FR-A8NCG FR-A800-F/G with FR-A8NCG-S FR-F800 with FR-A8NCG	Setting not required	Pr.550 NET mode operation command source selection = "1" (initial value: "9999")
FR-E800-(SC)EPA/(SC)EPB FR-E806-SCE FR-D800-E	Set "5001" and "45238" in any two of Pr.1427 to Pr.1430 Ethernet function selection 1 to 4 .	Pr.550 NET mode operation command source selection = "5" (initial value: "9999")

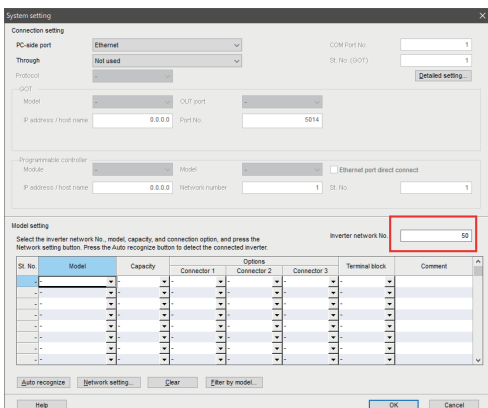
4. Start FR Configurator2.

5. Select [New...] from the [Project] menu bar.

6. In the "Connection setting" of the "System setting" window, select "Ethernet" for the PC-side port.



7. Set the value for "Inverter network No." referring to the following tables.



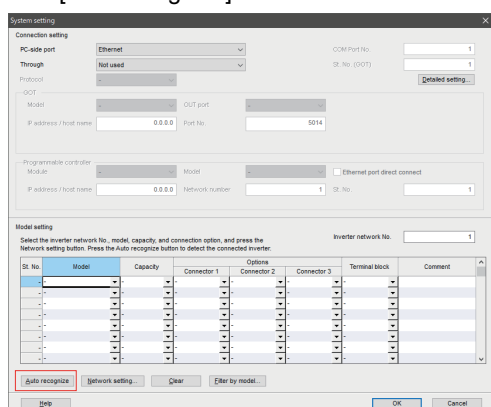
- For setting with the station number switches

Inverter	Input value
FR-A800 with FR-A8NCG FR-A800-F/G with FR-A8NCG-S FR-F800 with FR-A8NCG	Setting of the master module

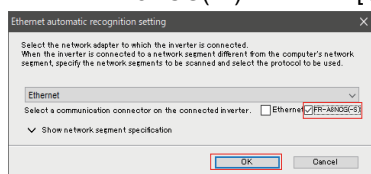
- For setting with the parameter

Inverter	Input value
FR-A800 with FR-A8NCG FR-A800-F/G with FR-A8NCG-S FR-F800 with FR-A8NCG	Pr.436 IP Address 3
FR-E800-(SC)EPA/(SC)EPB FR-E806-SCE FR-D800-E	Pr.1424 Ethernet communication network number

- Click [Auto recognize]. The inverters connected with the personal computer are automatically detected.

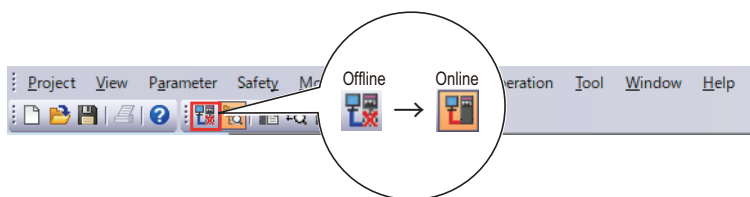


- Select "FR-A8NCG(-S)" and click [OK].



- Click [OK].

- Click the [Online/offline] button to switch to online. The procedure is complete when the online connection is established.



2.5.2 Related parameters for connection using CC-Link IE TSN communication (Ethernet connection)

◆ FR-A800 with FR-A8NCG, FR-A800-F/G with FR-A8NCG-S, and FR-F800 with FR-A8NCG

For details on CC-Link IE TSN communication, refer to the FR-A8NCG Instruction Manual or the FR-A8NCG-S Instruction Manual.

Pr.	Name
434 N700	IP address 1
435 N701	IP address 2
436 N702	IP address 3
437 N703	IP address 4
438 N710	Subnet mask 1
439 N711	Subnet mask 2
440 N712	Subnet mask 3
441 N713	Subnet mask 4

Pr.	Name
1442 N760	IP filter address 1 (Ethernet)
1443 N761	IP filter address 2 (Ethernet)
1444 N762	IP filter address 3 (Ethernet)
1445 N763	IP filter address 4 (Ethernet)
1446 N764	IP filter address 2 range specification (Ethernet)
1447 N765	IP filter address 3 range specification (Ethernet)
1448 N766	IP filter address 4 range specification (Ethernet)

◆ FR-E800-(SC)EPA/(SC)EPB, FR-E806-SCE, and FR-D800-E

For details on CC-Link IE TSN communication, refer to the FR-E800 Instruction Manual (Communication) or the FR-D800(-E) Instruction Manual (Communication).

Pr.	Name
544 N103	CC-Link extended setting
1424 N650	Ethernet communication network number
1425 N651	Ethernet communication station number
1427 N630	Ethernet function selection 1
1428 N631	Ethernet function selection 2
1429 N632	Ethernet function selection 3
1430 N633	Ethernet function selection 4
1434 N600	IP address 1 (Ethernet)
1435 N601	IP address 2 (Ethernet)
1436 N602	IP address 3 (Ethernet)
1437 N603	IP address 4 (Ethernet)

Pr.	Name
1438 N610	Subnet mask 1
1439 N611	Subnet mask 2
1440 N612	Subnet mask 3
1441 N613	Subnet mask 4
1442 N660	IP filter address 1 (Ethernet)
1443 N661	IP filter address 2 (Ethernet)
1444 N662	IP filter address 3 (Ethernet)
1445 N663	IP filter address 4 (Ethernet)
1446 N664	IP filter address 2 range specification (Ethernet)
1447 N665	IP filter address 3 range specification (Ethernet)
1448 N666	IP filter address 4 range specification (Ethernet)

NOTE

- Always reset the inverter after making the initial settings of the parameters. After changing the communication-related parameters, communication cannot be made until the inverter is reset.

2.5.3 IP address setting

◆ FR-A800 with FR-A8NCG, FR-A800-F/G with FR-A8NCG-S, and FR-F800 with FR-A8NCG

- For CC-Link IE TSN communication, the IP address of the inverter is set using the station number switches on the communication circuit board of the FR-A8NCG or inverter parameters. Note that the station number switch ^{*1} setting has a higher priority than the parameter setting. (When the station number switches are not set to "0 or 255", the station number switch setting has a higher priority than the **Pr.437** setting.) For CC-Link IE TSN communication, the third octet of the inverter's IP address is used as the network No. and the fourth octet is used as the station number. (Enter the IP address assigned by the network administrator.)

^{*1} For details on the station number switches, refer to the CC-Link IE TSN Function Manual or FR-A8NCG Instruction Manual.

■ Setting the IP address with the station number switches

- Set a value other than "0 (H00)" or "255 (HFF)" to specify a station number using the station number switches. The setting range is from "1 (H01)" to "254 (HFE)". The setting is applied after an inverter reset or at the next power-ON.

IP address	Description
First octet	The settings of the master station are used. (The settings from Pr.434 to Pr.436 are invalid.)
Second octet	
Third octet	
Fourth octet	The station number switch setting is enabled regardless of the setting in Pr.437 .

■ Setting the IP address with parameters (Pr.434 to Pr.437)

- Set the station number switches to "0 (H00)" or "255 (HFF)" to specify the IP address of the inverter using **Pr.434** to **Pr.437**. The setting is applied after an inverter reset or at the next power-ON.

IP address	Description
First octet	Pr.434
Second octet	Pr.435
Third octet	Pr.436
Fourth octet	Pr.437

- Enter the inverter network number in **Pr.436 IP Address 3**.
- The setting range of **Pr.436** is "0 to 255", but its active range is "1 to 254". The values out of the active range are invalid because such values cannot be transmitted to the master station.
- Specify the inverter station number in **Pr.437 IP Address 4**.
- The setting range of **Pr.437** is "0 to 255", but its active range is "1 to 254". Out-of-range setting values are invalid because such values cannot be transmitted to the master station.

◆ FR-E800-(SC)EPA/(SC)EPB, FR-E806-SCE, and FR-D800-E

- Enter the IP address of the inverter in **Pr.1434** to **Pr.1437**. (Enter the IP address assigned by the network administrator.) Enter the Ethernet communication network number in **Pr.1424**. Enter the Ethernet communication station number in **Pr.1425**.

2.6 Connection via a programmable controller

The inverter and FR Configurator2 can be connected via a programmable controller (CPU module / network module / MX Controller). Select USB, Ethernet, or RS-232C connection between the personal computer and the programmable controller. Use Ethernet cables for connection between the programmable controller and inverters.

2.6.1 Supported model

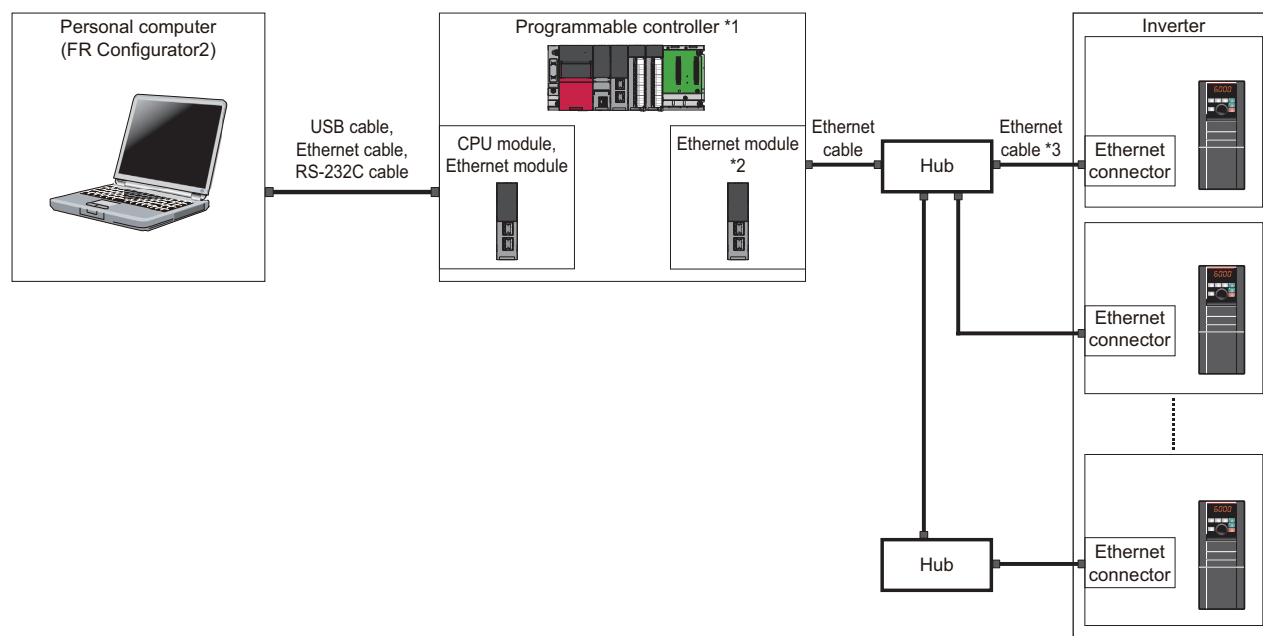
For the supported models, refer to [page 30](#).

2.6.2 Connection configuration

The following shows connection configuration diagrams.

- Programmable controller to/from inverter: Ethernet communication
- Programmable controller to/from inverter: CC-Link IE Field Network communication
- Programmable controller to/from inverter: CC-Link IE TSN communication

◆ Programmable controller to/from inverter: Ethernet communication

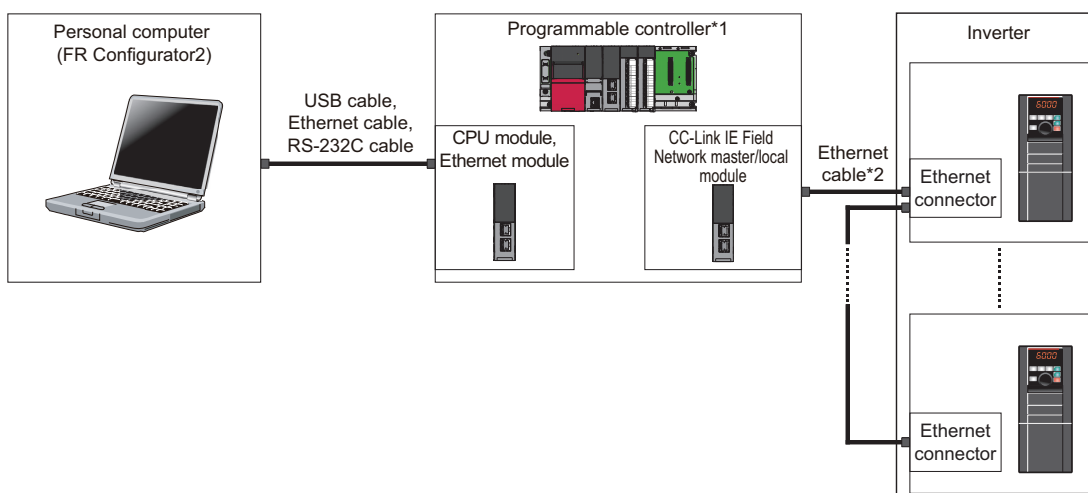


*1 Connection via an MX Controller is not supported.

*2 The personal computer and the inverter can be connected to a single Ethernet module depending on the type of module used. For details, refer to the Instruction Manual of the programmable controller.

*3 For information on the maximum number of connectable units and the transmission specifications, refer to the Instruction Manual of the Ethernet module.

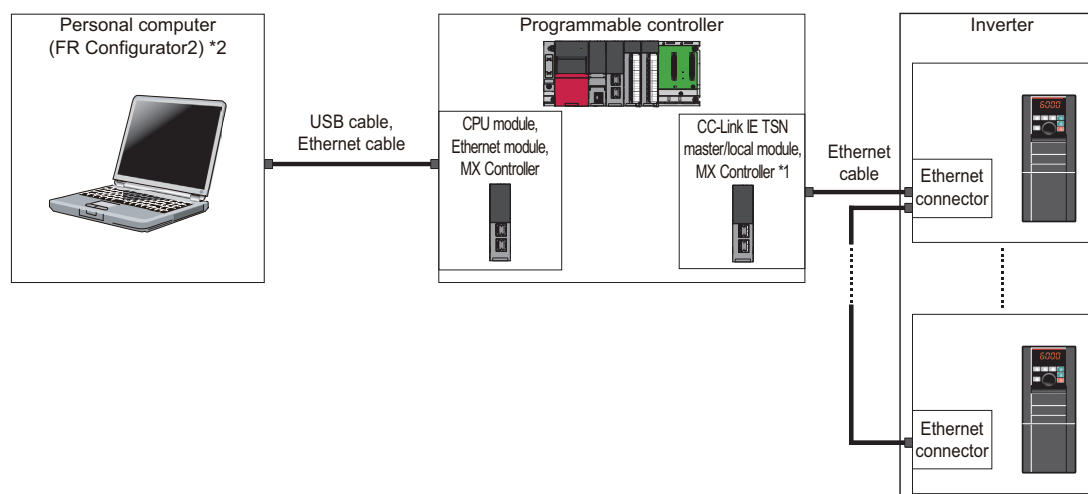
◆ Programmable controller to/from inverter: CC-Link IE Field Network communication



*1 Connection via an MX Controller is not supported.

*2 For information on the maximum number of connectable units, refer to the CC-Link network specifications.

◆ Programmable controller to/from inverter: CC-Link IE TSN communication



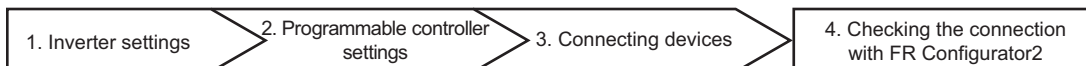
*1 When an MX Controller is used, the personal computer and the inverter can be connected to a single module.

*2 Use "1 to 120" to set station numbers for the inverters that communicate with FR Configurator2.

2.6.3 Connection flow

The following chart and procedure show the steps to connect the personal computer (FR Configurator2) and inverters via a programmable controller in use. Details of each step are given in [2.6.4 Inverter settings](#) to [2.6.7 Checking the connection with FR Configurator2](#). The detailed description shows connection procedure for Ethernet communication and CC-Link IE TSN communication. For details of other types of communication, refer to the Instruction Manual of the programmable controller.

- Connection procedure



◆ Outline of connection procedure

- 1. Inverter settings**
Using FR Configurator2, set the inverter communication parameters to match the settings of the Ethernet module or CC-Link IE TSN master/local module to be connected.
 [page 73](#)
- 2. Programmable controller settings**
Using GX Works3, add communication parameters of the inverter to be connected to the Ethernet module or CC-Link IE TSN master/local module.
 [page 76](#)
- 3. Connecting devices**
Connect the personal computer to the programmable controller and the programmable controller to inverters using connection cables.
 [page 83](#)
- 4. Checking the connection with FR Configurator2**
Use FR Configurator2 to check the connection between the personal computer (FR Configurator2) and inverters.
 [page 84](#)

◆ System configuration example

[2.6.4 Inverter settings](#) to [2.6.7 Checking the connection with FR Configurator2](#) describe the steps to establish the connections shown in the following configuration diagram, using the devices with the communication parameters set as specified in the following table.

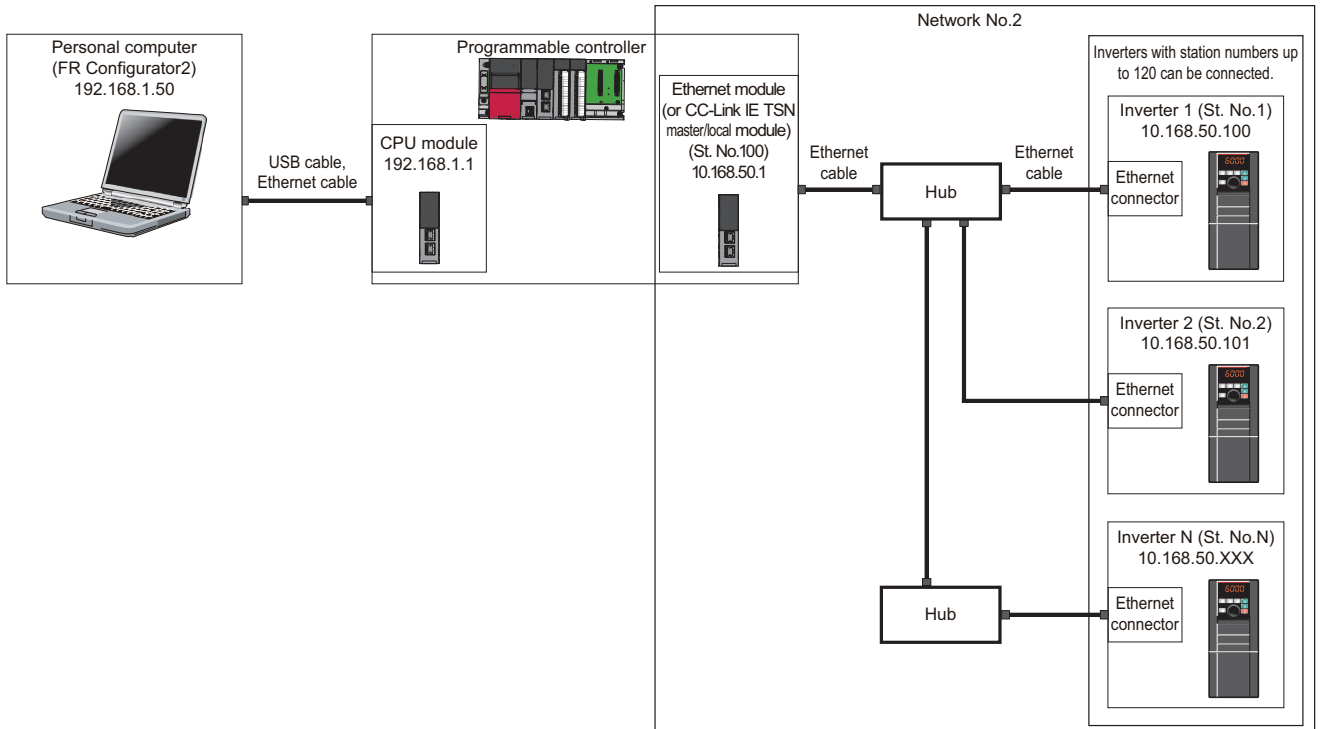
Device		Communication parameters			
		Network No.	Station number	IP address	Subnet mask
Personal computer		—	—	192.168.1.50 ^{*1}	255.255.255.0
Programmable controller	CPU module	—	—	192.168.1.1	255.255.255.0
	Ethernet module or CC-Link IE TSN master/local module	2	100	10.168.50.1	255.255.255.0

^{*1} It is necessary to match the network parts (first to third octets) of the IP address of the personal computer and the IP address of the CPU module.

NOTE

- When actually configuring the settings, change the communication parameter settings to match those in the programmable controller in use (CPU module, Ethernet module, or CC-Link IE TSN master/local module). Check the communication parameters in the programmable controller in advance by referring to the Instruction Manual of the programmable controller.

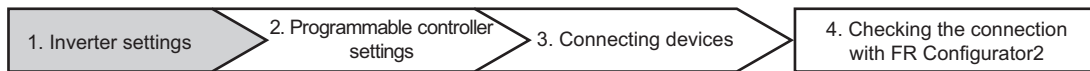
■ Configuration diagram



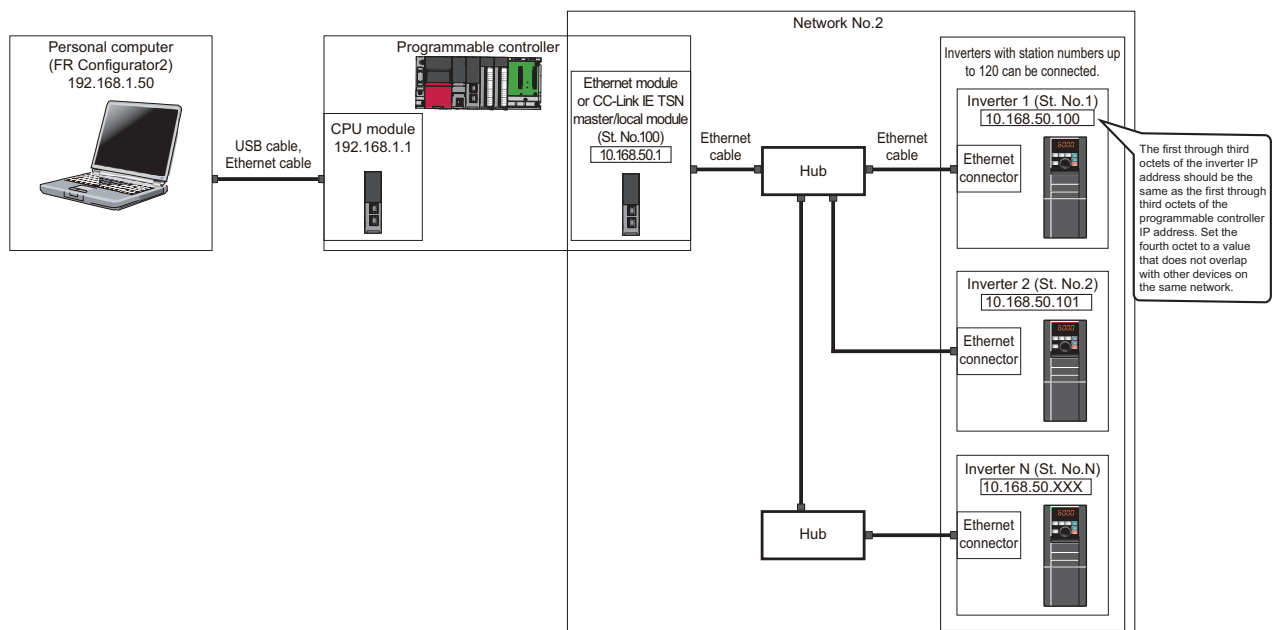
2

2.6.4 Inverter settings

Set the inverter communication parameters to match the settings in the Ethernet module or CC-Link IE TSN master/local module. When using the FR-A8NCG, the station number switch settings are necessary. For details on the station number settings, refer to [page 69](#).



Refer to the following configuration diagram and set the inverter communication parameters.

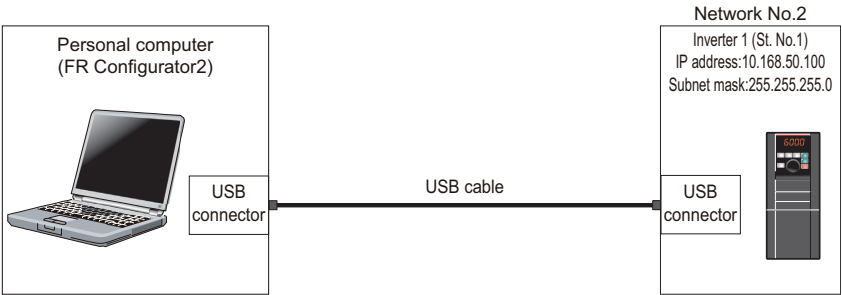


- Settings via USB communication
Set the inverter communication parameters using the parameter list function of FR Configurator2.

- Settings via Ethernet communication
- Set the inverter communication parameters using the Ethernet parameter setting function of FR Configurator2. For information on the inverters for which the Ethernet parameter setting function is available, refer to [page 253](#).

◆ Settings via USB communication

1. Wiring between the personal computer and the inverter
- Connect the personal computer and the inverter using the USB cable.



2. Inverter parameter settings
- Use the parameter list function to set the communication parameters (network number, Ethernet communication station number, IP address 1 to 4, and subnet mask 1 to 4). Determine the setting values for the parameters related to Ethernet communication based on the IP address of the Ethernet module.

<Example>

Device	Communication parameters			
	Network No.	Station number	IP address	Subnet mask
Inverter ^{*1}	2	1	10.168.50.100	255.255.255.0
Setting of the Ethernet module or CC-Link IE TSN master/local module to be connected	2	100	10.168.50.1	255.255.255.0

^{*1} Perform "All parameter clear" if a writing error occurs when setting inverter parameters. Note that performing "All parameter clear" in the inverter will reset all parameters to their initial values. After performing "All parameter clear", set the parameters again as required. For details, refer to the Instruction Manual of the inverter.

For information on how to set or check the inverter parameters, refer to [page 150](#). Refer to [page 60](#) or [page 68](#) for parameter numbers related to Ethernet communication. The setting values can also be checked and changed on the operation panel of the inverter. (Refer to the Instruction Manual of the inverter.)

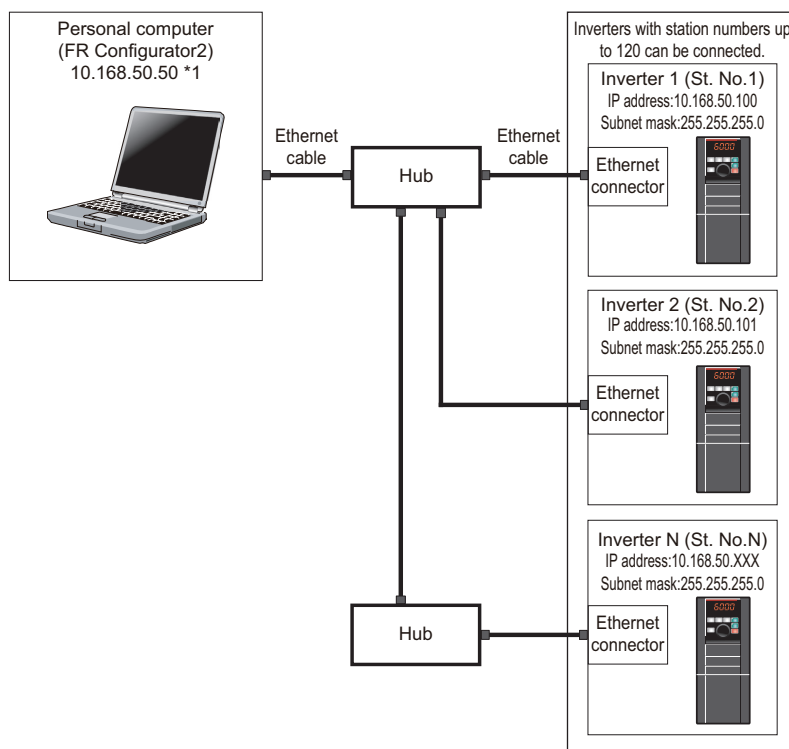
3. Resetting the inverter
- Be sure to reset the inverter before operation by, for example, turning OFF the power.
4. Removing the connection cable
- After the settings are completed, remove the USB cable between the personal computer and the inverter.

The next step is [2.6.5 Programmable controller settings](#).

◆ Settings via Ethernet communication

1. Wiring between the personal computer and the inverter

Connect the personal computer and the inverter using Ethernet cables. When connecting multiple inverters, use hubs. Connect the personal computer and the inverter without connecting a router between them.



*1 To establish Ethernet communication between the personal computer and inverters, it is necessary to match the network parts (first to third octets) of the IP address of the personal computer and the IP address of the inverter.

2. Inverter parameter settings

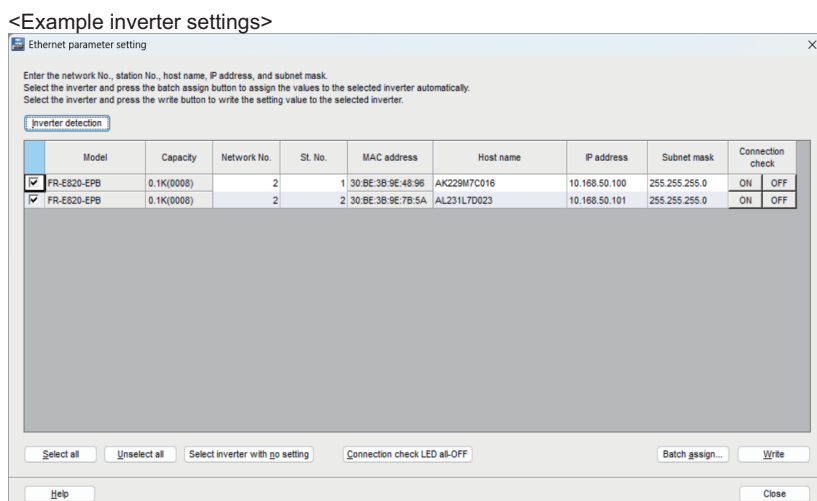
Use the Ethernet parameter setting function of FR Configurator2 to set the inverter parameters related to Ethernet communication (network number, Ethernet communication station number, IP address 1 to 4, and subnet mask 1 to 4). Determine the setting values for the parameters related to Ethernet communication based on the IP address of the Ethernet module.

<Example>

Device	Communication parameters			
	Network No.	Station number	IP address	Subnet mask
Inverter ^{*1}	2	1	10.168.50.100	255.255.255.0
Setting of the Ethernet module or CC-Link IE TSN master/local module to be connected	2	100	10.168.50.1	255.255.255.0

*1 Perform "All parameter clear" if a writing error occurs when setting inverter parameters. Note that performing "All parameter clear" in the inverter will reset all parameters to their initial values. After performing "All parameter clear", set the parameters again as required. For details, refer to the Instruction Manual of the inverter.

Refer to [page 60](#) for parameters related to Ethernet communication. Refer to [page 256](#) for the procedure for setting or checking using the Ethernet parameter setting function.



3. Resetting the inverter
Be sure to reset the inverter before operation by, for example, turning OFF the power.
4. Removing the connection cable
After the settings are completed, remove the Ethernet cable between the personal computer and the inverter.

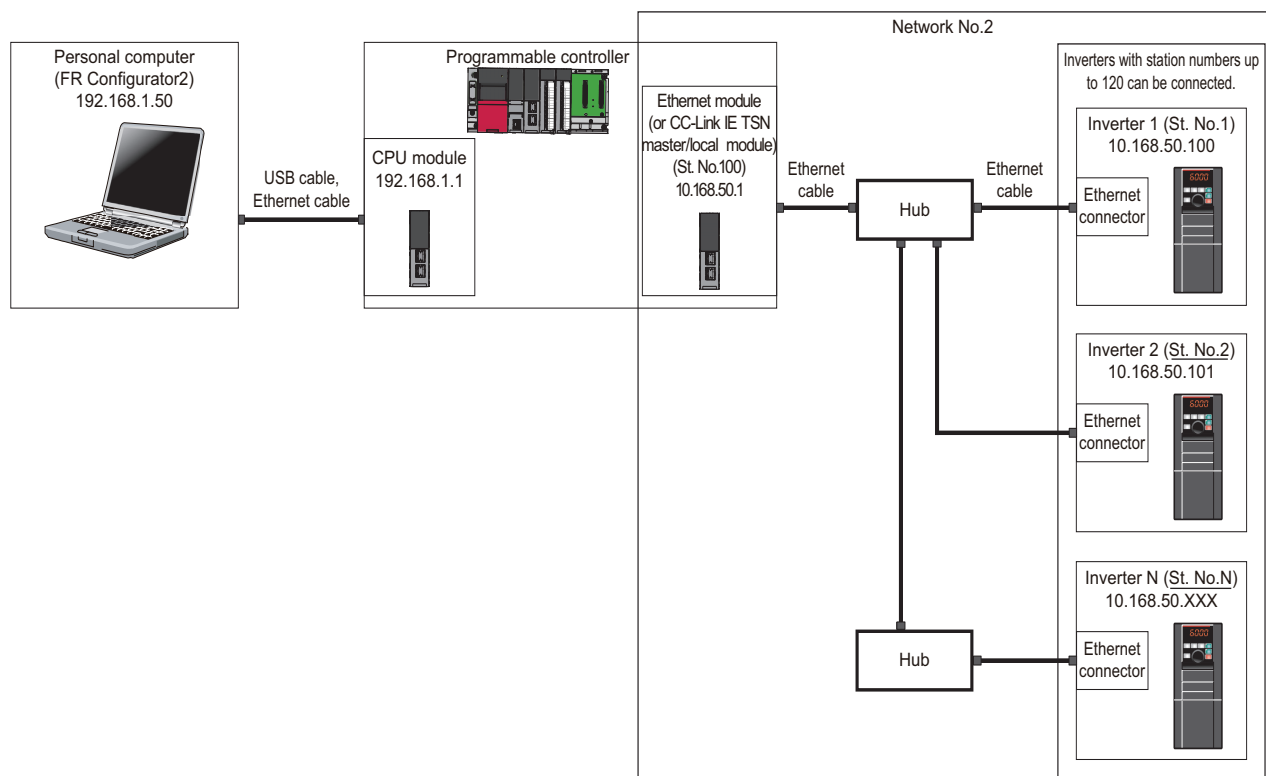
The next step is [2.6.5 Programmable controller settings](#).

2.6.5 Programmable controller settings

Using PLC engineering software (such as GX Works3), add communication parameters of the inverter to be connected to the Ethernet module or CC-Link IE TSN master/local module.



Refer to the following configuration diagram and set the inverter communication parameters in the Ethernet module or CC-Link IE TSN master/local module.



This section shows an example using GX Works3.

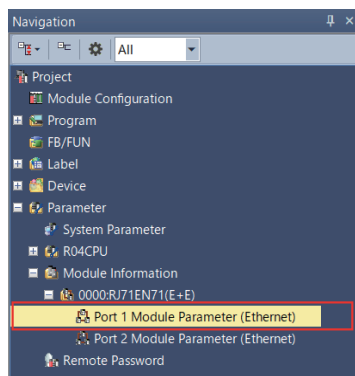
The setting procedure depends on the communication between the programmable controller and inverters. Refer to the following operation procedure according to your environment.

- Ethernet communication  [page 77](#)
- CC-Link IE TSN communication  [page 80](#)

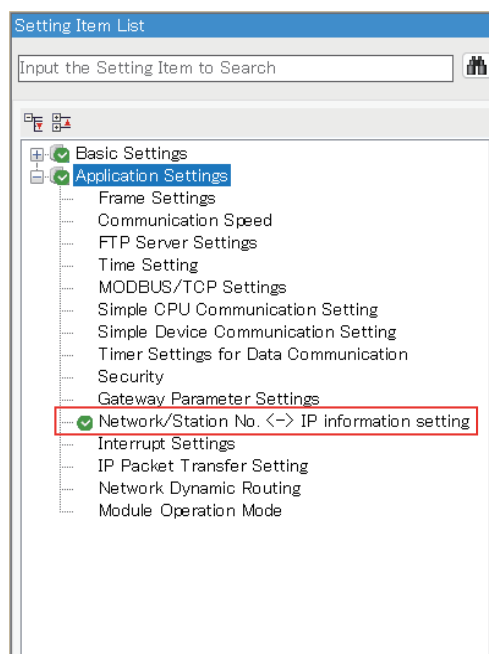
◆ Ethernet communication for the programmable controller and inverters

Use GX Works3 to set the IP address of the inverter for the Ethernet module.

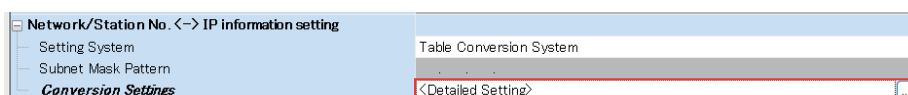
1. Select an Ethernet module to connect to the inverter.



2. In the "Setting Item List" window, click [Network/Station No. <-> IP information setting] in [Application Settings].



3. For [Setting System], select "Table Conversion System". Then, for [Conversion Settings], click <Detailed Setting> or .



4. Enter the network number, station number, and IP address of the inverter to be connected in the external device field. Check the network number, station number, and IP address in the inverter parameters. For information on the parameter numbers, refer to [page 60](#) or [page 68](#).

<Example>

Setting Item			
External Device			
No.	Network No.	Station No.	IP Address
1	2	1	10 . 168 . 50 . 100
2	2	2	10 . 168 . 50 . 101
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

Explanation

Set the network No. of the external device.
[Setting range]
1 to 239

Check Restore the Default Settings

Apply

5. Click [Apply].

Setting Item			
External Device			
No.	Network No.	Station No.	IP Address
1	2	1	10 . 168 . 50 . 100
2	2	2	10 . 168 . 50 . 101
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

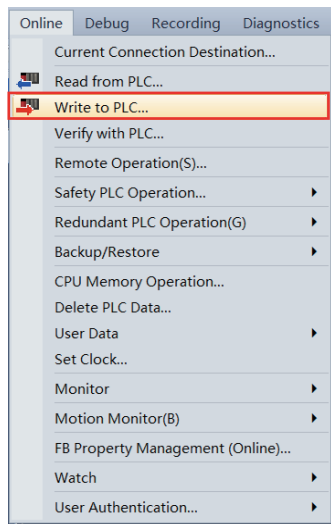
Explanation

Set the network No. of the external device.
[Setting range]
1 to 239

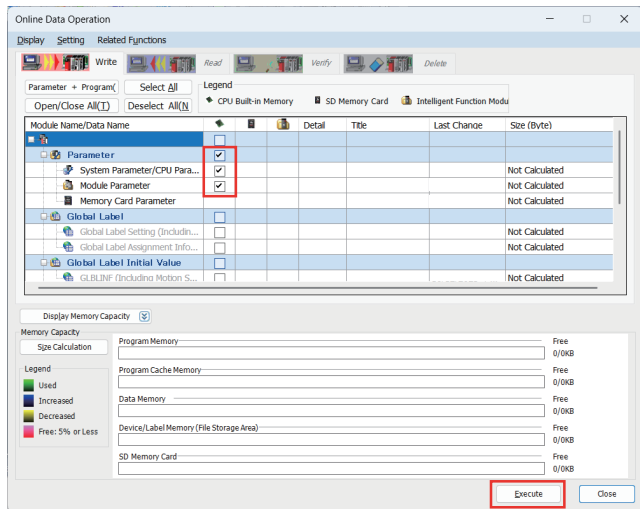
Check Restore the Default Settings

Apply

6. On the menu bar, select [Online] > [Write to PLC].



7. Check the checkboxes of [System Parameter/CPU Parameter] and [Module Parameter] and click [Execute].



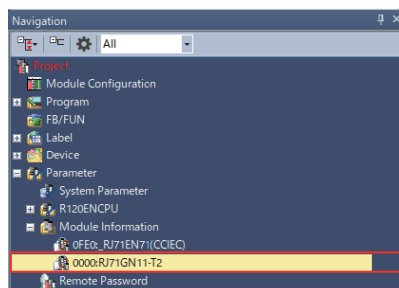
8. After the writing has been done, reset the programmable controller.

The next step is [2.6.6 Connecting devices](#).

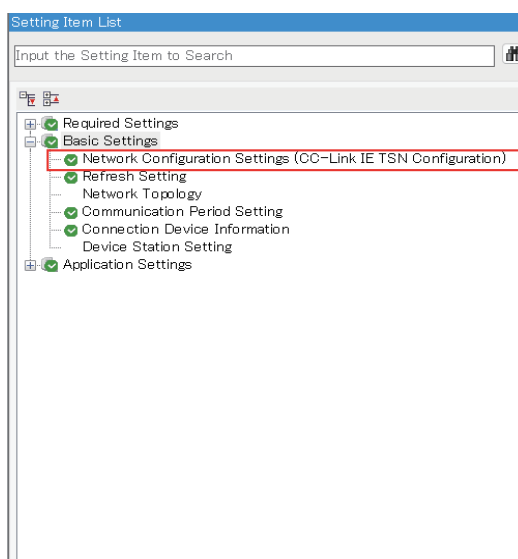
◆ CC-Link IE TSN communication for the programmable controller and inverters

Use GX Works3 to set the IP address of the inverter for the CC-Link IE TSN master/local module.

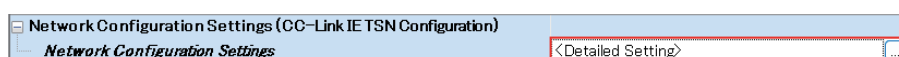
1. Select a CC-Link IE TSN master/local module to connect to the inverter.



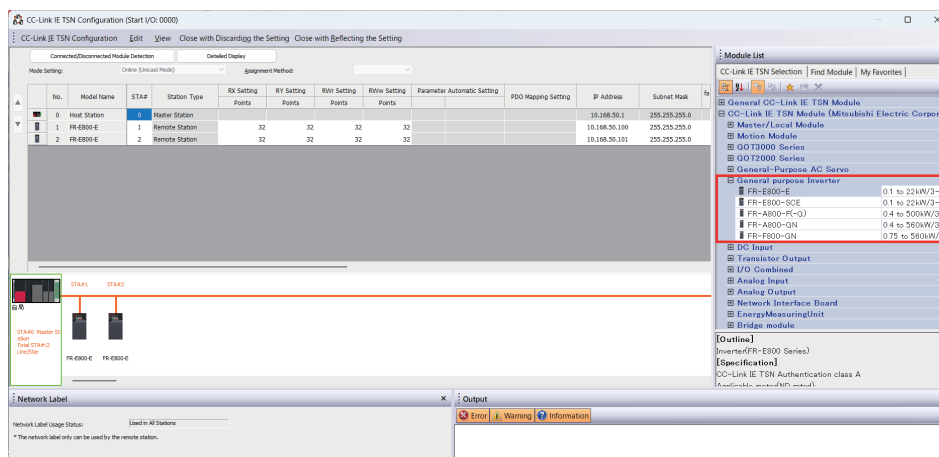
2. Select [Basic Settings] in the "Setting Item List" window and click [Network Configuration Settings (CC-Link IE TSN Configuration)].



3. Click <Detailed Setting>  for [Network Configuration Settings].

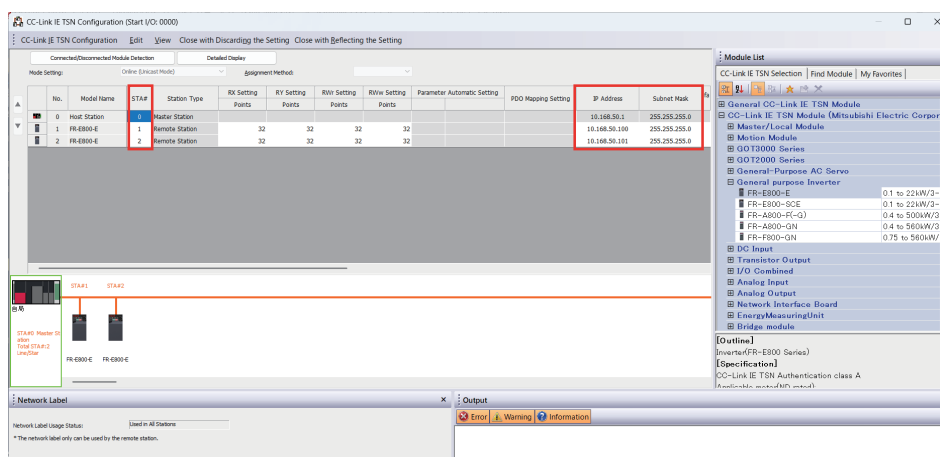


4. In the "CC-Link IE TSN Configuration" window, select the inverter to be connected from [Module List].

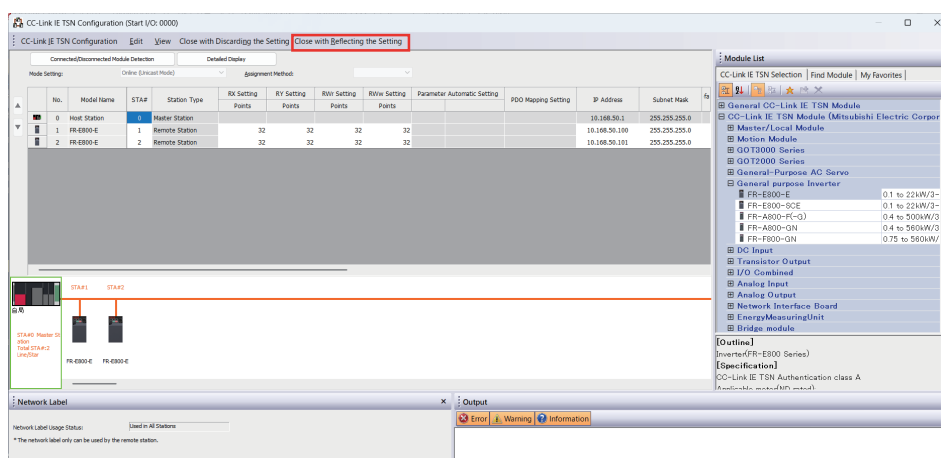


- When connecting the CC-Link IE TSN master/local module and the inverter via Ethernet cable, the inverter model and Ethernet communication-related setting values can be input automatically.

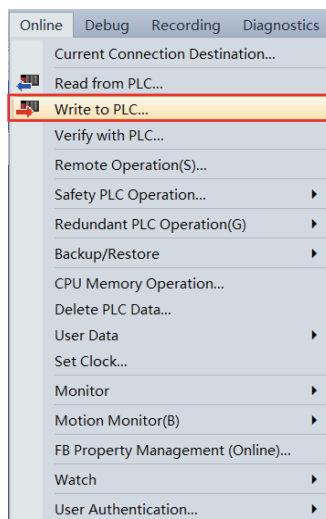
5. In the "CC-Link IE TSN Configuration" window, enter the station number, IP address, and subnet mask of the inverter to be connected. Check the station number, IP address, and subnet mask in the inverter parameters. For information on the parameter numbers, refer to [page 68](#).



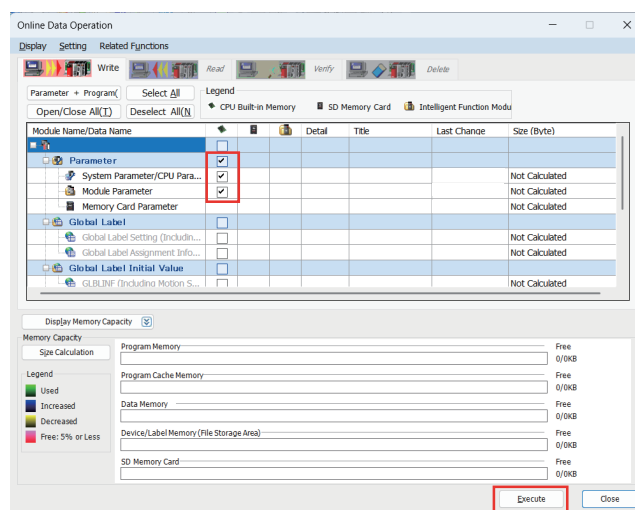
6. Click [Close with Reflecting the Setting] to close the window.



7. On the menu bar, select [Online] > [Write to PLC].



8. Check the checkboxes of [System Parameter/CPU Parameter] and [Module Parameter] and click [Execute].



9. After the writing has been done, reset the programmable controller.

The next step is [2.6.6 Connecting devices](#).

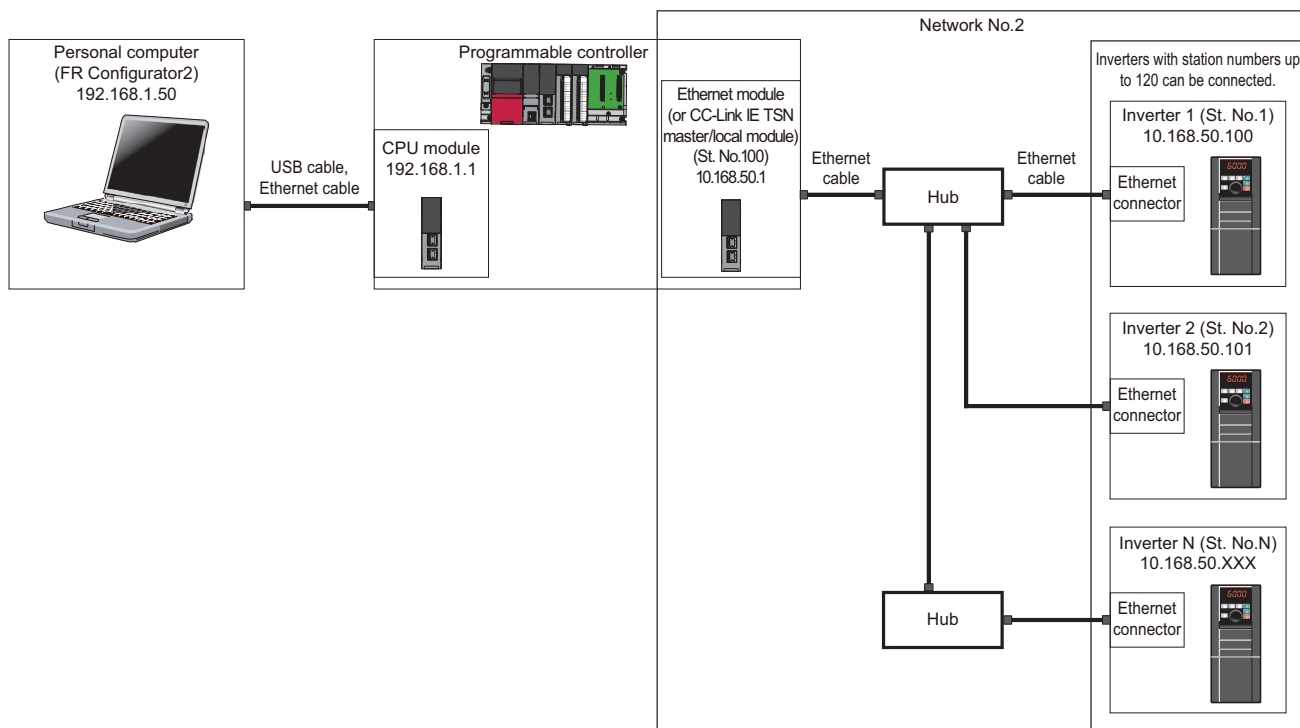
2.6.6 Connecting devices

Connect the personal computer to the programmable controller and the programmable controller to inverters using cables.



2

Refer to the following configuration diagram, and connect the personal computer to the programmable controller and the programmable controller to inverters using cables.

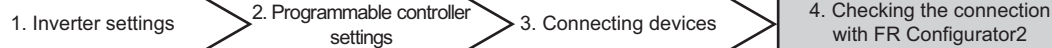


1. Connect the personal computer and the CPU module with the USB cable or Ethernet cable.
2. Connect the Ethernet module or CC-Link IE TSN master/local module and the inverter with the Ethernet cable.

The next step is [2.6.7 Checking the connection with FR Configurator2](#).

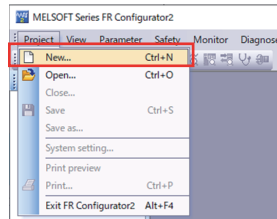
2.6.7 Checking the connection with FR Configurator2

Use FR Configurator2 to check the connection between the personal computer (FR Configurator2) and inverters.



1. Creating a project

Start FR Configurator2 and select [New] from the [Project] menu bar to display the "System setting" window.



2. Settings for [Connection setting]

After the "System setting" window appears, configure the settings for [Connection setting].

PC-side port: USB or Ethernet

Through: Programmable controller

(In the following example, "USB" is selected for [PC-side port] and "programmable controller" for [Through].)

System setting

Connection setting

PC-side port: **USB** (dropdown menu)

Through: **Programmable controller** (dropdown menu)

COM Port No.: 1

St. No. (GOT): 1

Protocol: (dropdown menu)

GOT: Model: (dropdown menu) OUT port: (dropdown menu)

P address / host name: 0.0.0.0 Port No.: 5014

Programmable controller

Module: CPU module Model: QCPU(Q Mode) Ethernet port direct connect: ☐

P address / host name: 0.0.0.0 Network number: 1 St. No.: 1

Model setting

Select the inverter network No., model, capacity, and connection option, and press the Network setting button. Press the Auto recognize button to detect the connected inverter.

Inverter network No.: 1

St. No.	Model	Capacity	Connector 1	Options	Connector 2	Connector 3	Terminal block	Comment
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Auto recognize Network setting... Clear Filter by model...

Help OK Cancel

3. Settings for [Programmable controller]

Configure the following settings for [Programmable controller] according to the PC-side port setting in step 2.

- USB selected for the PC-side port: [Model]
- Ethernet selected for the PC-side port: [Module], [Model], [Ethernet port direct connect], [IP address / host name], [Network number], and [St. No.].

(In the following example, "USB" is selected for [PC-side port] and "RCPU" for [Model].)

4. Settings for [Model setting]

Set the inverter network number specified in "2.6.4 Inverter settings" for "Inverter network No." and click [Auto recognize].

The inverters connected with the programmable controller are automatically detected.

- 5.** Detection of the connected inverters
After the inverter is detected, click [OK].
Example: FR-E820-EPB-0.1K(0008)

System setting

Connection setting

PC-side port: USB

Through: Programmable controller

Protocol: -

GOT

Model: -

OUT port: -

IP address / host name: 0.0.0.0

Port No.: 5014

Programmable controller

Module: CPU module

Model: RCPU

IP address / host name: 0.0.0.0

Network number: 1

St. No.: 1

Model setting

Select the inverter network No., model, capacity, and connection option, and press the Network setting button. Press the Auto recognize button to detect the connected inverter.

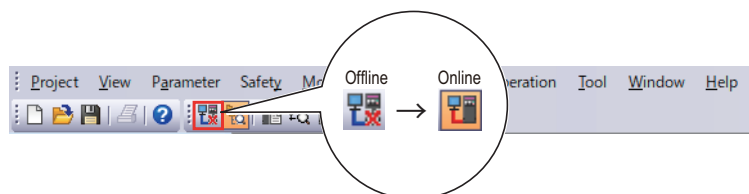
Inverter network No.: 2

St. No.	Model	Capacity	Connector 1	Options	Connector 2	Connector 3	Terminal block	Comment
1	FR-E820-EPB	0.1K(0008)	-	-	-	-	FR-E820	
2	FR-E820-EPB	0.1K(0008)	-	-	-	-	FR-E820	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	

Auto recognize Network setting... Clear Filter by model...

Help OK Cancel

- 6.** Click the [Online/offline] button.



- 7.** The procedure is complete when the online connection is established.

2.7 Connection via a GOT

The inverter and FR Configurator2 can be connected via the GOT.

Select USB, Ethernet, or RS-232C connection between the personal computer and the GOT. Ethernet or RS-485 is used for connecting the GOT and the inverter.

Point

- For connection with the GOT, use the FA transparent function of the GOT. For details on the FA transparent function, refer to the Instruction Manual of the GOT.

2.7.1 Supported model

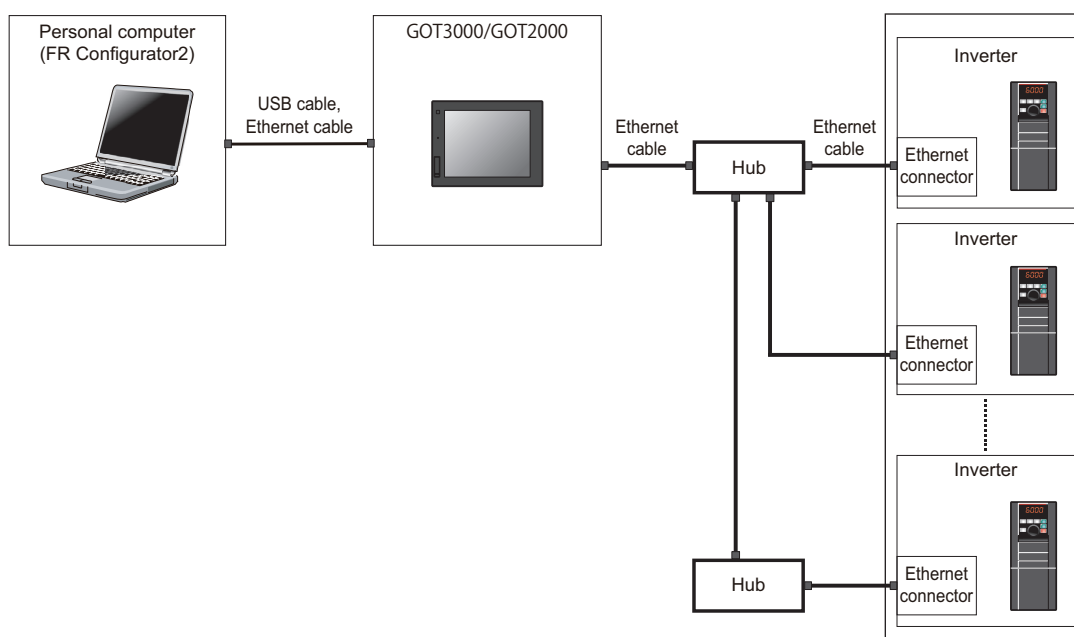
For the supported models, refer to [page 30](#).

2.7.2 Connection configuration

The following shows connection configuration diagrams.

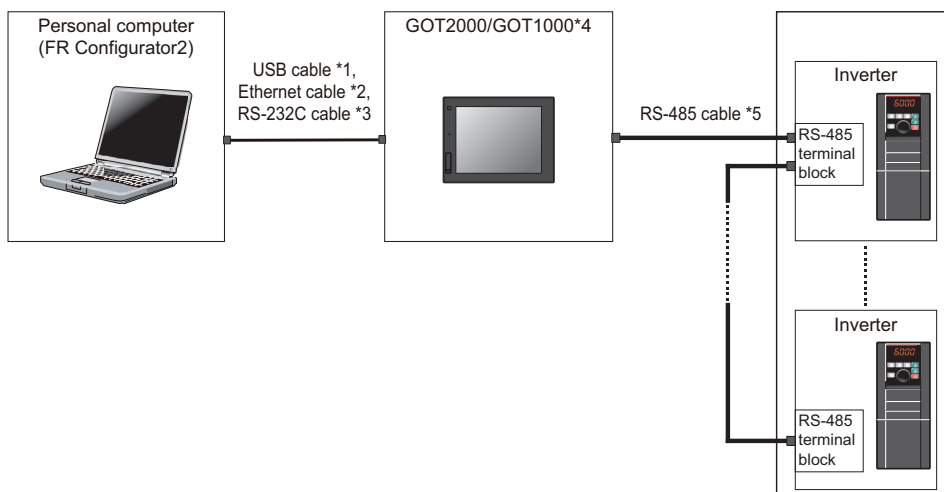
- GOT3000/GOT2000 to/from inverter: Ethernet communication
- GOT2000/GOT1000 to/from Inverter: RS-485 communication

◆ GOT3000/GOT2000 to/from inverter: Ethernet communication



*1 For information on the maximum number of connectable units, refer to the Instruction Manual of the GOT.

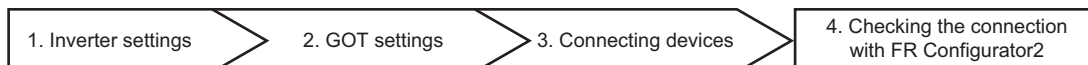
◆ GOT2000/GOT1000 to/from Inverter: RS-485 communication



- *1 When using the GOT1000, use a dedicated cable, GT09-C30USB-5P or GT09-C20USB-5P.
- *2 Available for the GOT2000 only.
- *3 Available for the GOT1000 only.
- *4 To use the GOT1000 series, the optional GOT RD-422/485 serial communication unit is required.
- *5 When connecting multiple inverters using their PU connectors, use a distributor. For details on the distributor, refer to the GOT2000 or GOT1000 Series Connection Manual (Mitsubishi Electric Products).

2.7.3 Connection flow

The following chart and procedure show the steps to connect the personal computer (FR Configurator2) and inverters via the GOT2000 in use. Details of each step are given in [2.7.4 Inverter settings](#) to [2.7.7 Checking the connection with FR Configurator2](#). The detailed description shows connection procedure for Ethernet communication. For details of other types of communication, refer to the Instruction Manual of the GOT.



◆ Outline of connection procedure

- 1.** Inverter settings
Using FR Configurator2, set the inverter communication parameters to match the settings of the GOT2000 to be connected.
[page 90](#)
- 2.** GOT settings
Using GT Designer3, add communication parameters of the inverter to be connected to the GOT2000.
[page 94](#)
- 3.** Connecting devices
Connect the personal computer to the GOT2000 and the GOT2000 to inverters using connection cables.
[page 97](#)
- 4.** Checking the connection with FR Configurator2
Use FR Configurator2 to check the connection between the personal computer (FR Configurator2) and inverters.
[page 98](#)

◆ System configuration example

2.7.4 Inverter settings to 2.7.7 Checking the connection with FR Configurator2 describe the steps to establish the connections shown in the following configuration diagram, using the devices with the communication parameters set as specified in the following table.

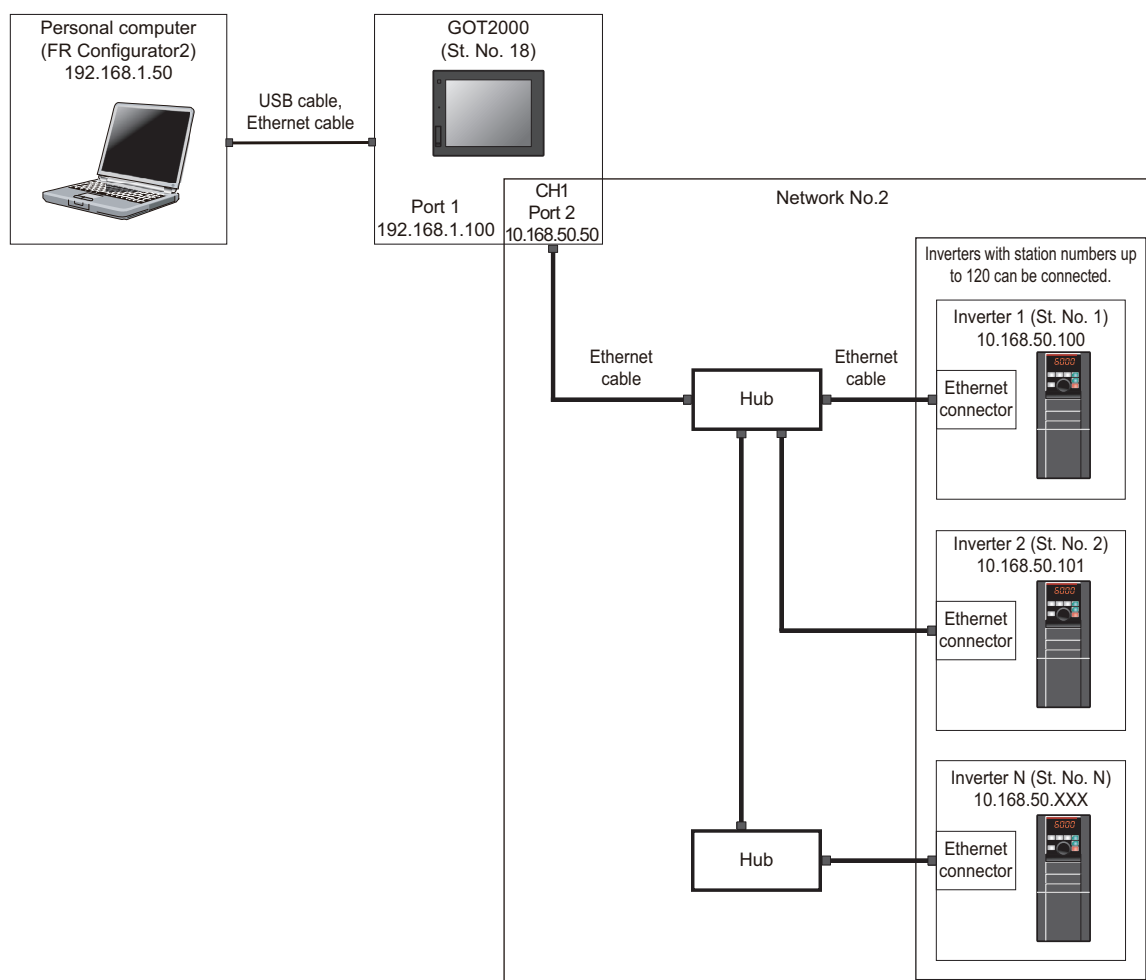
Device		Communication parameters			
		Network No.	Station number	IP address	Subnet mask
Personal computer		—	—	192.168.1.50 ^{*1}	255.255.255.0
GOT2000	Port 1	—	—	192.168.1.100	255.255.255.0
	Port 2	2	18	10.168.50.50	255.255.255.0

^{*1} It is necessary to match the network parts (first to third octets) of the IP address of the personal computer and the IP address (port 1) of the GOT2000.

NOTE

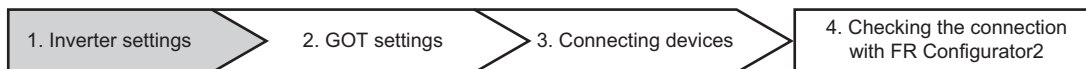
- When actually configuring the settings, change the communication parameter settings to match those in the GOT in use. Check the GOT communication parameters in advance by referring to the Instruction Manual of the GOT.

■ Configuration diagram

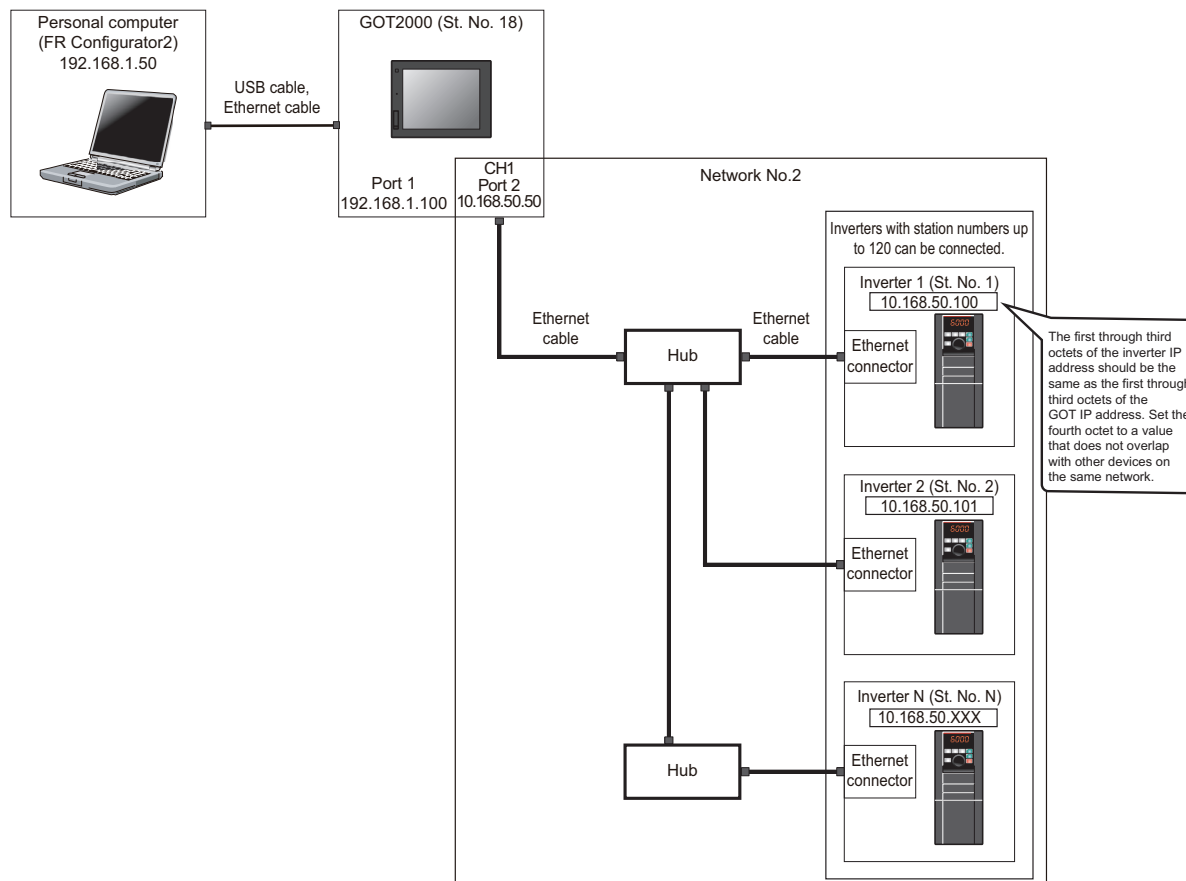


2.7.4 Inverter settings

Set the inverter communication parameters to match the GOT2000 settings. When using the FR-A8NCG, the station number switch settings are necessary. For details on the station number settings, refer to [page 69](#).



Refer to the following configuration diagram and set the inverter communication parameters.



- **Settings via USB communication**

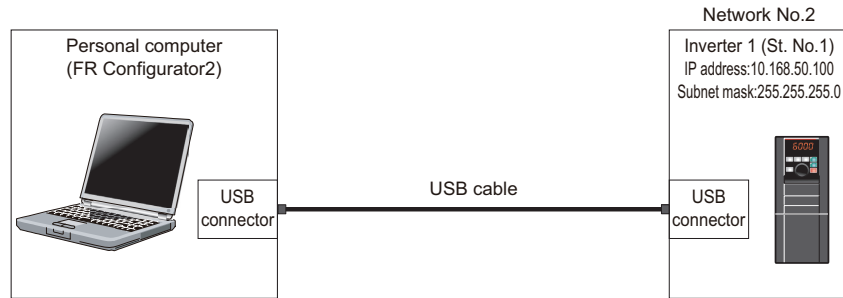
Set the inverter communication parameters using the parameter list function of FR Configurator2.

- **Settings via Ethernet communication**

Set the Ethernet communication parameters of the inverter using the Ethernet parameter setting function of FR Configurator2. For information on the inverters for which the Ethernet parameter setting function is available, refer to [page 253](#).

◆ Settings via USB communication

1. Wiring between the personal computer and the inverter
Connect the personal computer and the inverter using the USB cable.



2. Inverter parameter settings
Use the parameter list function to set the communication parameters (network number, Ethernet communication station number, IP address 1 to 4, and subnet mask 1 to 4). Determine the setting values for the parameters related to Ethernet communication based on the IP address of the GOT2000.

<Example>

Device	Communication parameters			
	Network No.	Station number	IP address	Subnet mask
Inverter ^{*1}	2	1	10.168.50.100	255.255.255.0
GOT2000	2	18	10.168.50.50	255.255.255.0

^{*1} Perform "All parameter clear" if a writing error occurs when setting inverter parameters. Note that performing "All parameter clear" in the inverter will reset all parameters to their initial values. After performing "All parameter clear", set the parameters again as required. For details, refer to the Instruction Manual of the inverter.

For information on how to set or check the inverter parameters, refer to [page 150](#). Refer to [page 60](#) or [page 68](#) for parameter numbers related to Ethernet communication. The setting values can also be checked and changed on the operation panel of the inverter. (Refer to the Instruction Manual of the inverter.)

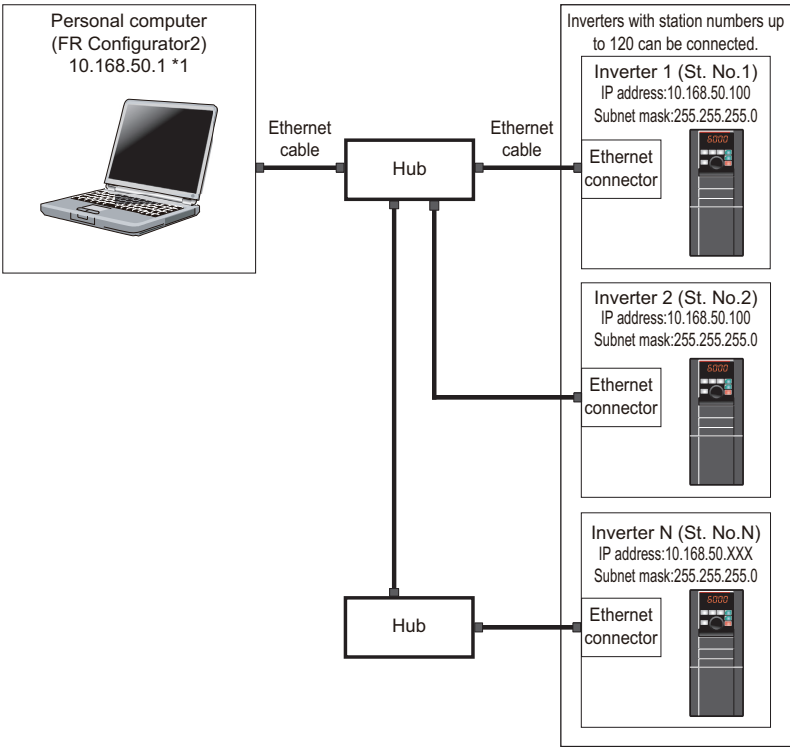
3. Resetting the inverter
Be sure to reset the inverter before operation by, for example, turning OFF the power.
4. Removing the connection cable
After the settings are completed, remove the USB cable between the personal computer and the inverter.

The next step is [2.7.5 GOT settings](#).

◆ Settings via Ethernet communication

1. Wiring between the personal computer and the inverter

Connect the personal computer and the inverter using Ethernet cables. When connecting multiple inverters, use hubs. Connect the personal computer and the inverter without connecting a router between them.



*1 To establish Ethernet communication between the personal computer and inverters, it is necessary to match the network parts (first to third octets) of the IP address of the personal computer and the IP address of the inverter.

2. Inverter parameter settings

Use the Ethernet parameter setting function of FR Configurator2 to set the inverter parameters related to Ethernet communication (network number, Ethernet communication station number, IP address 1 to 4, and subnet mask 1 to 4). Determine the setting values for the parameters related to Ethernet communication based on the IP address of the GOT2000.

<Example>

Device	Communication parameters			
	Network No.	Station number	IP address	Subnet mask
Inverter*1	2	1	10.168.50.100	255.255.255.0
GOT2000	2	18	10.168.50.50	255.255.255.0

*1 Perform "All parameter clear" if a writing error occurs when setting inverter parameters. Note that performing "All parameter clear" in the inverter will reset all parameters to their initial values. After performing "All parameter clear", set the parameters again as required. For details, refer to the Instruction Manual of the inverter.

Refer to [page 60](#) for parameters related to Ethernet communication. Refer to [page 256](#) for the procedure for setting or checking using the Ethernet parameter setting function.

<Example inverter settings>

Ethernet parameter setting

Enter the network No., station No., host name, IP address, and subnet mask.
Select the inverter and press the batch assign button to assign the values to the selected inverter automatically.
Select the inverter and press the write button to write the setting value to the selected inverter.

Inverter detection

	Model	Capacity	Network No.	St. No.	MAC address	Host name	IP address	Subnet mask	Connection check	
☒	FR-E820-EPB	0.1K(0008)	2	1	30-BE-36-9E-48-96	AK229M7C016	10.168.50.100	255.255.255.0	☐ ON	☐ OFF
☒	FR-E820-EPB	0.1K(0008)	2	2	30-BE-36-9E-7B-5A	AL231L7D023	10.168.50.101	255.255.255.0	☐ ON	☐ OFF

Select all Unselect all Select inverter with go setting Connection check LED all-OFF Batch assign... Write

Help Close

3. Resetting the inverter

Be sure to reset the inverter before operation by, for example, turning OFF the power.

4. Removing the connection cable

After the settings are completed, remove the Ethernet cable between the personal computer and the inverter.

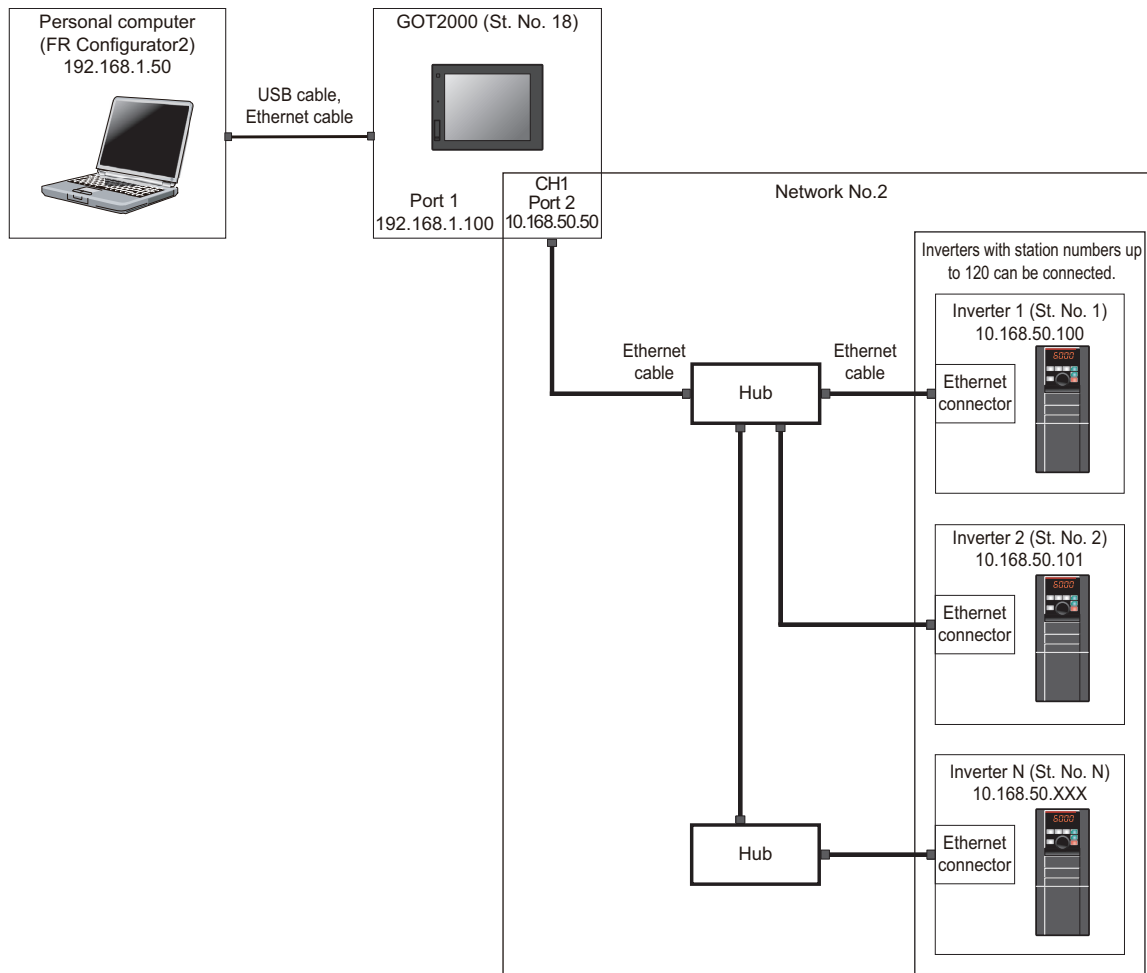
The next step is [2.7.5 GOT settings](#).

2.7.5 GOT settings

Using GT Designer3, add communication parameters of the inverter to be connected to the GOT2000.



Refer to the following configuration diagram and set the inverter communication parameters in the GOT.



This section shows an example using GT Designer3.

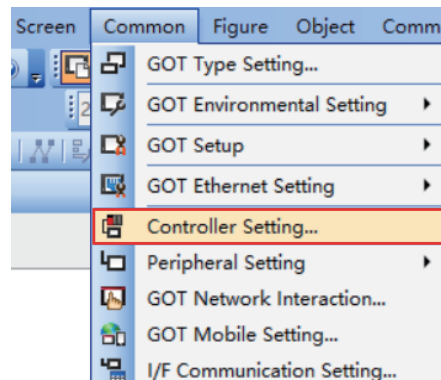
The setting procedure depends on the communication between the GOT and inverters.

This section shows the procedure to establish Ethernet communication between the GOT and inverters. For details of other types of communication, refer to the Instruction Manual of the GOT.

◆ Ethernet communication for the GOT and inverters

Using GT Designer3, set the inverter communication parameters in the GOT2000.

1. On the menu bar, select [Common] > [Controller Setting] to display the "Controller Setting" window.



2. Configure the following to match the inverter parameter settings related to Ethernet communication.

Example

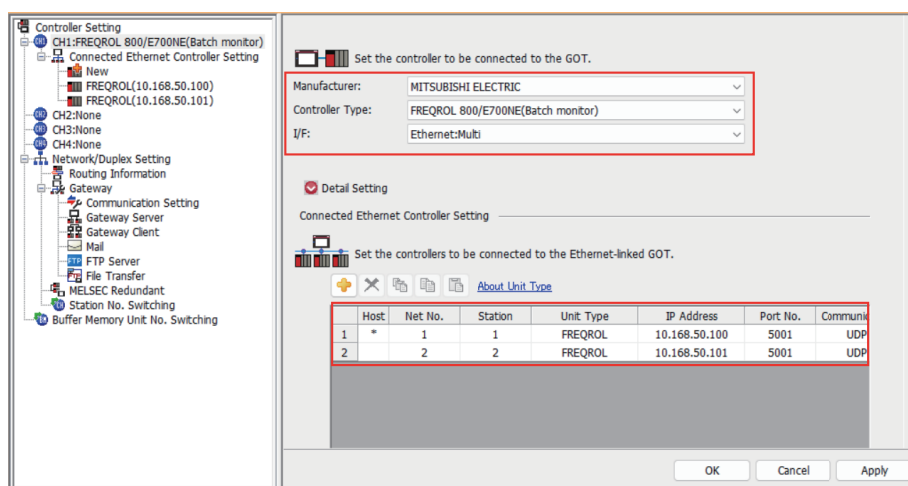
Manufacturer: MITSUBISHI ELECTRIC

Model: FREQROL 800/E700NE(Batch monitor)

I/F: Ethernet:Multi

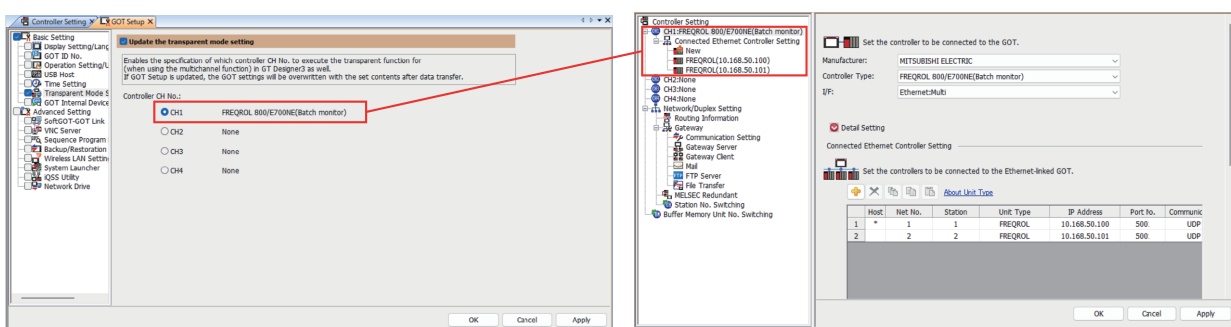
Connected Ethernet Controller Setting:

- Host, Unit Type, Port No., Communication: Default
- Net No., Station, IP Address: Parameters related to Ethernet communication of the connected inverter

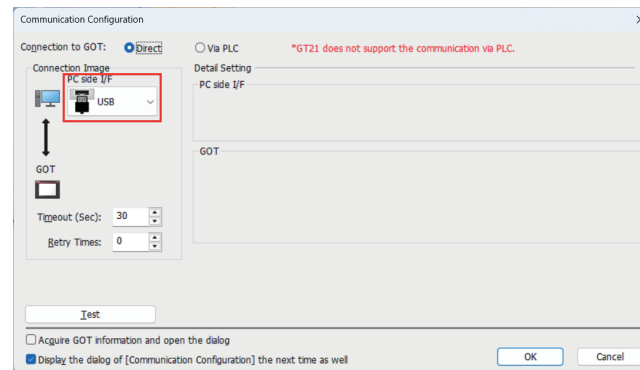


3. On the menu bar, select [Common] > [GOT Setup] > [Basic Setting] > [Transparent Mode Setting] to display the "GOT Setup" window.

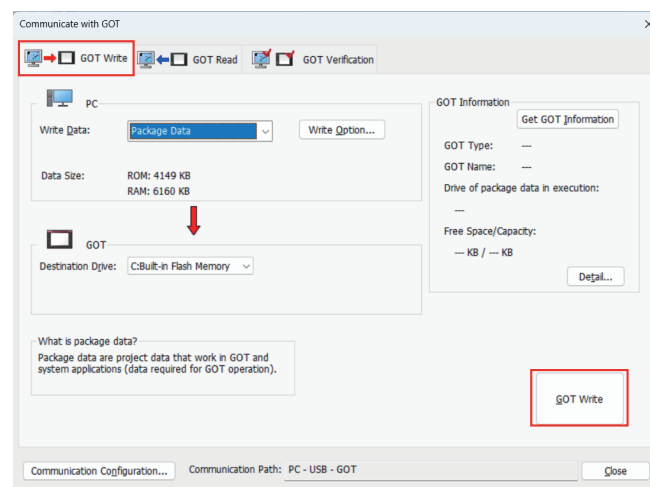
Make sure that the channel setting for [Controller CH No.] in [Transparent Mode Setting] is the same as the one set in [Controller Setting].



4. On the menu bar, select [Communication] > [Write to GOT] to display the "Communication Configuration" dialog. Configure the setting for [PC side I/F] and click [OK].
PC side I/F: USB or Ethernet (The following shows a setting example of USB.)



5. After the "Communicate with GOT" dialog appears, select the [GOT Write] tab and click [GOT Write].



The next step is [2.7.6 Connecting devices](#).

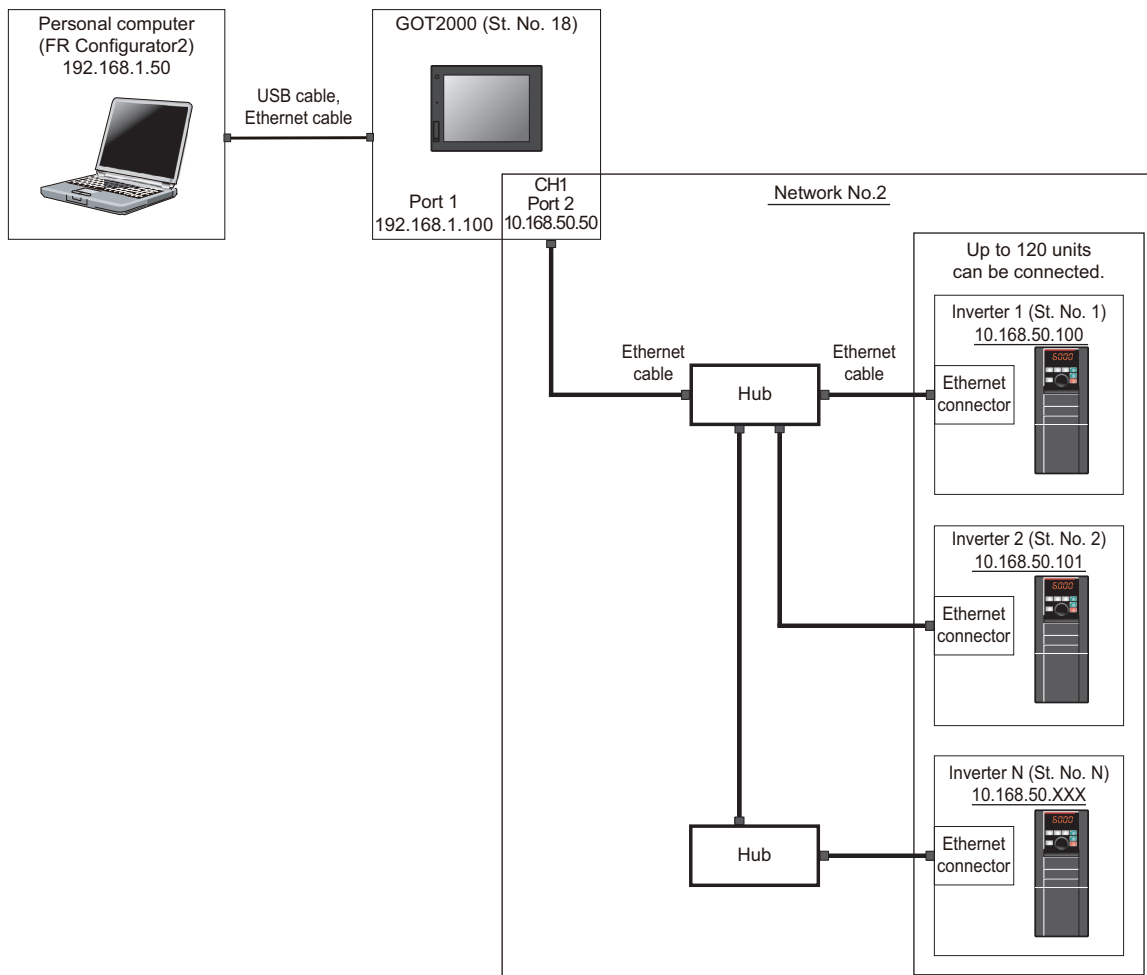
2.7.6 Connecting devices

Connect the personal computer to the GOT and the GOT to inverters using cables.



2

Refer to the following configuration diagram, and connect the personal computer to the GOT and the GOT to inverters using cables.



1. Connect the personal computer and the GOT2000 with the USB cable or Ethernet cable.
2. Connect the GOT2000 and the inverter using Ethernet cables.

The next step is [2.7.7 Checking the connection with FR Configurator2](#).

2.7.7 Checking the connection with FR Configurator2

Use FR Configurator2 to check the connection between the personal computer (FR Configurator2) and inverters.

1. Inverter settings

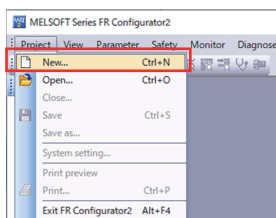
2. GOT settings

3. Connecting devices

4. Checking the connection with FR Configurator2

1. Creating a project

Start FR Configurator2 and select [New] from the [Project] menu bar to display the "System setting" window.

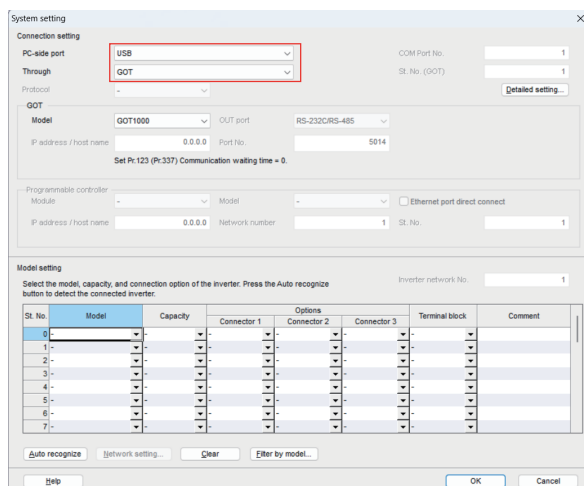


2. Settings for [Connection setting]

After the "System setting" window appears, configure the settings for [Connection setting].

PC-side port: USB or Ethernet

(In the following example, "USB" is selected for [PC-side port] and "GOT" for [Through].)

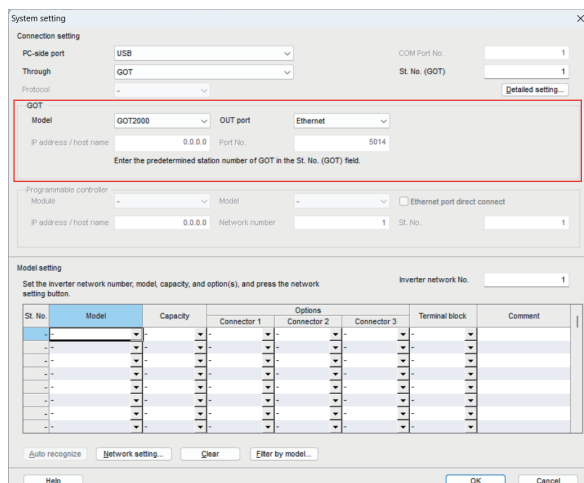


3. Settings for [GOT]

Configure the following settings for [GOT] according to the PC-side port setting in step 2.

- USB selected for the PC-side port: [Model] and [OUT port]
- Ethernet selected for the PC-side port: [Model], [OUT port], [IP address / host name] and [Port No.].

(In the following example, "USB" is selected for [PC-side port], "GOT2000" for [Model], and "Ethernet" for [OUT port].)



4. Settings for [Model setting]

Set the inverter network number specified in "2.7.4 Inverter settings" for "Inverter network No.".

System setting

Connection setting

PC-side port: USB

Through: GOT

Protocol: GOT

Model: GOT2000

OUT port: Ethernet

IP address / host name: 0.0.0.0

Port No.: 5014

Enter the predetermined station number of GOT in the St. No. (GOT) field.

Programmable controller

Module: -

Model: -

IP address / host name: 0.0.0.0

Network number: 1

St. No.: 1

Model setting

Set the inverter network number, model, capacity, and option(s), and press the network setting button.

Inverter network No.: 2

St. No.	Model	Capacity	Connector 1	Options	Connector 2	Connector 3	Terminal block	Comment
1	FR-E820-EPB	0.1K(0008)					FR-E820-EPB	
2	FR-E820-EPB	0.1K(0008)					FR-E820-EPB	
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

Auto recognize Network setting... Clear Filter by model...

Help OK Cancel

5. Setting the connected inverter

Set the connected inverter.

Example: FR-E820-EPB-0.1K(0008)

System setting

Connection setting

PC-side port: USB

Through: GOT

Protocol: GOT

Model: GOT2000

OUT port: Ethernet

IP address / host name: 0.0.0.0

Port No.: 5014

Enter the predetermined station number of GOT in the St. No. (GOT) field.

Programmable controller

Module: -

Model: -

IP address / host name: 0.0.0.0

Network number: 1

St. No.: 1

Model setting

Set the inverter network number, model, capacity, and option(s), and press the network setting button.

Inverter network No.: 2

St. No.	Model	Capacity	Connector 1	Options	Connector 2	Connector 3	Terminal block	Comment
1	FR-E820-EPB	0.1K(0008)					FR-E820-EPB	
2	FR-E820-EPB	0.1K(0008)					FR-E820-EPB	
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

Auto recognize Network setting... Clear Filter by model...

Help OK Cancel



- When the personal computer and the GOT are connected with an Ethernet cable, the inverter model can be input automatically by clicking [Auto recognize].

6. Network settings

Click [Network setting] and configure the settings for [St. No.], [IP address] and [Port No.] of the connected inverter.

Network setting

Connection setting

PC-side port: USB

Through: GOT

Model setting

Enter the station number, IP address, and port number.

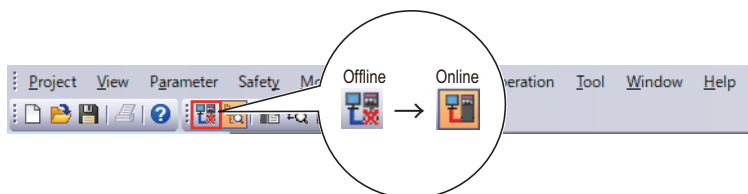
Inverter network No.: 2

No.	St. No.	Model	Capacity	IP address	Port No.	Protocol
1	1	FR-E820-EPB	0.1K(0008)	10.168.50.100	5001	UDP
2	2	FR-E820-EPB	0.1K(0008)	10.168.50.101	5001	UDP
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

Help OK Cancel

7. After completing the settings, click [OK].

8. Click the [Online/offline] button.



9. The procedure is complete when the online connection is established.

NOTE

- When "Ethernet" is selected for the PC-side port and "GOT" is selected from the "Through" drop-down list in the "System setting" window, switch the status to online after the monitor window (such as batch monitor window and I/O terminal monitor window) is displayed. Switching the status to online without the monitor window displayed causes a communication error.
- Do not perform the following operation while the FA transparent function is valid and FR Configurator2 is in online mode.
Online operation (project download, etc.) from GT Designer/GT Designer2 to GOT
Online operation to programmable controller CPU by using FA transparent function of GX Developer or GX Works2
- When using FA transparent communication, communication error (timeout) may occur when FR Configurator2 starts communication during timeout occurrence in a GOT (when a GOT is monitoring the inverter which is not connected). In that case, set the timeout time value more than the following. (Refer to [page 90](#).)

Timeout value of GOT [s] × (Retry count of GOT + 1)

If the value above is more than 30 [s], make adjustment to "Timeout value" [s] and "Retry count" of GOT to make the value above become 30 [s] or less.

2.8 Connection via a GOT and a programmable controller

2

The inverter and FR Configurator2 can be connected via a GOT and a programmable controller (CPU module or Ethernet module).

Use a USB cable for connection between the personal computer and the GOT. Use an Ethernet cable for connection between the GOT and a programmable controller and between the programmable controller and inverters.

2.8.1 Supported model

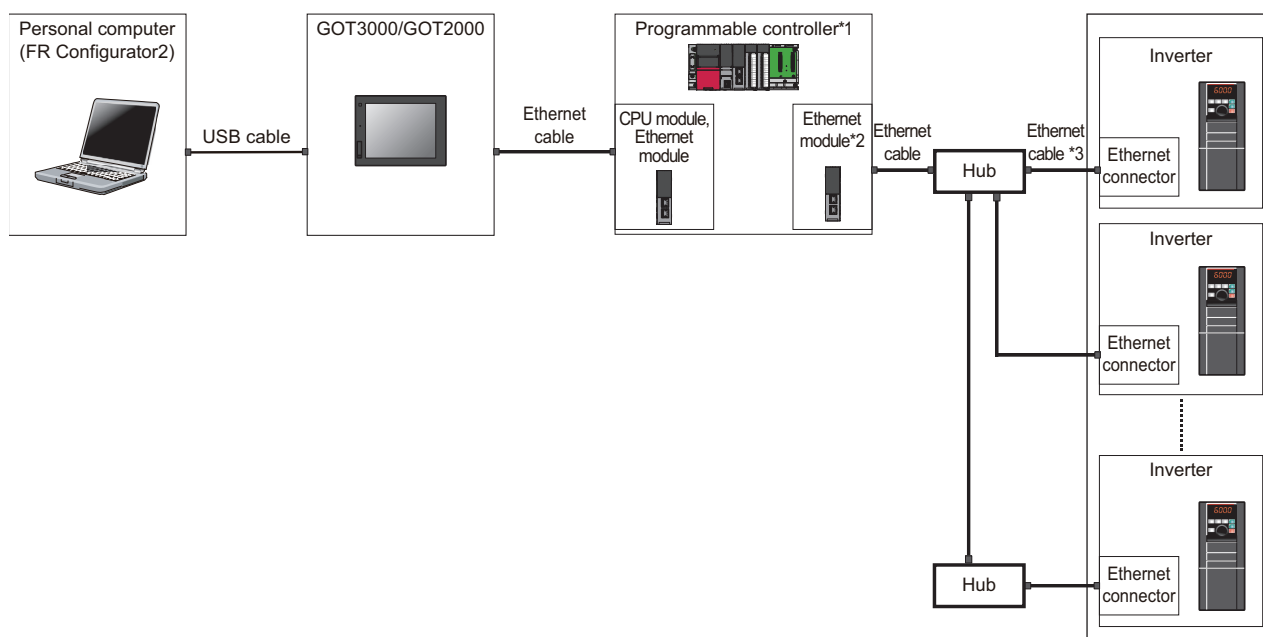
For the supported models, refer to [page 30](#).

2.8.2 Connection configuration

The following shows connection configuration diagrams.

- Programmable controller to/from inverter: Ethernet communication
- Programmable controller to/from inverter: CC-Link IE Field Network communication
- Programmable controller to/from inverter: CC-Link IE TSN communication

◆ Programmable controller to/from inverter: Ethernet communication

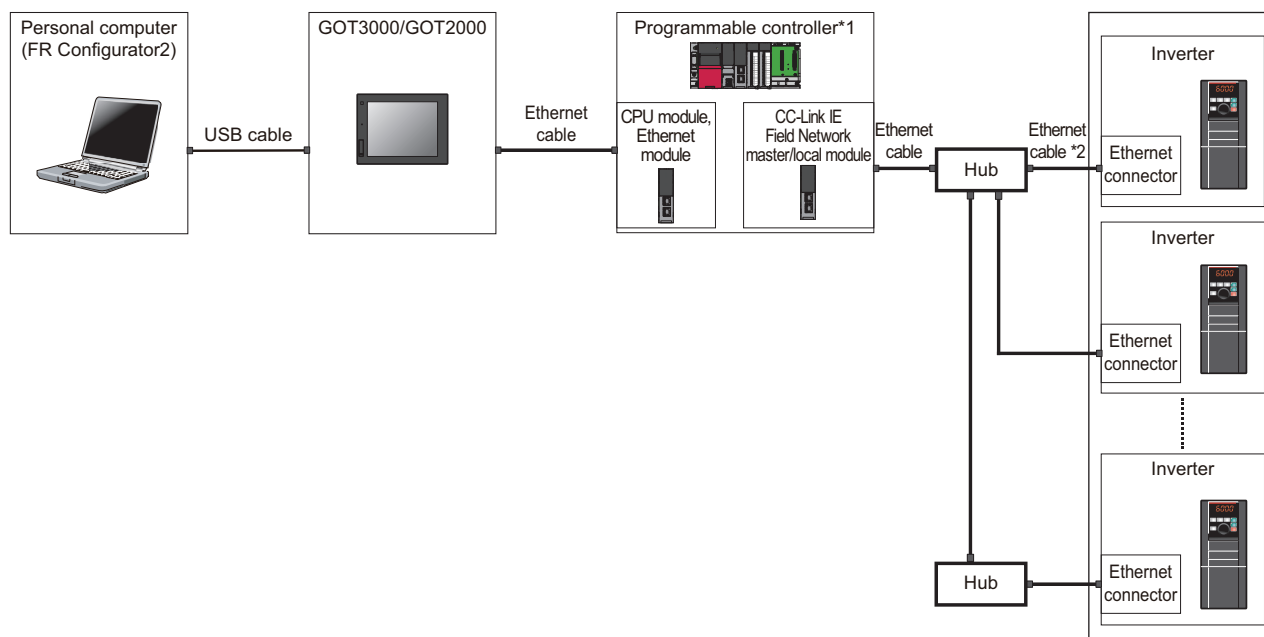


*1 Connection via an MX Controller is not supported.

*2 The personal computer and the inverter can be connected to a single Ethernet module depending on the type of module used. For details, refer to the Instruction Manual of the programmable controller.

*3 For information on the maximum number of connectable units and the transmission specifications, refer to the Instruction Manual of the Ethernet module.

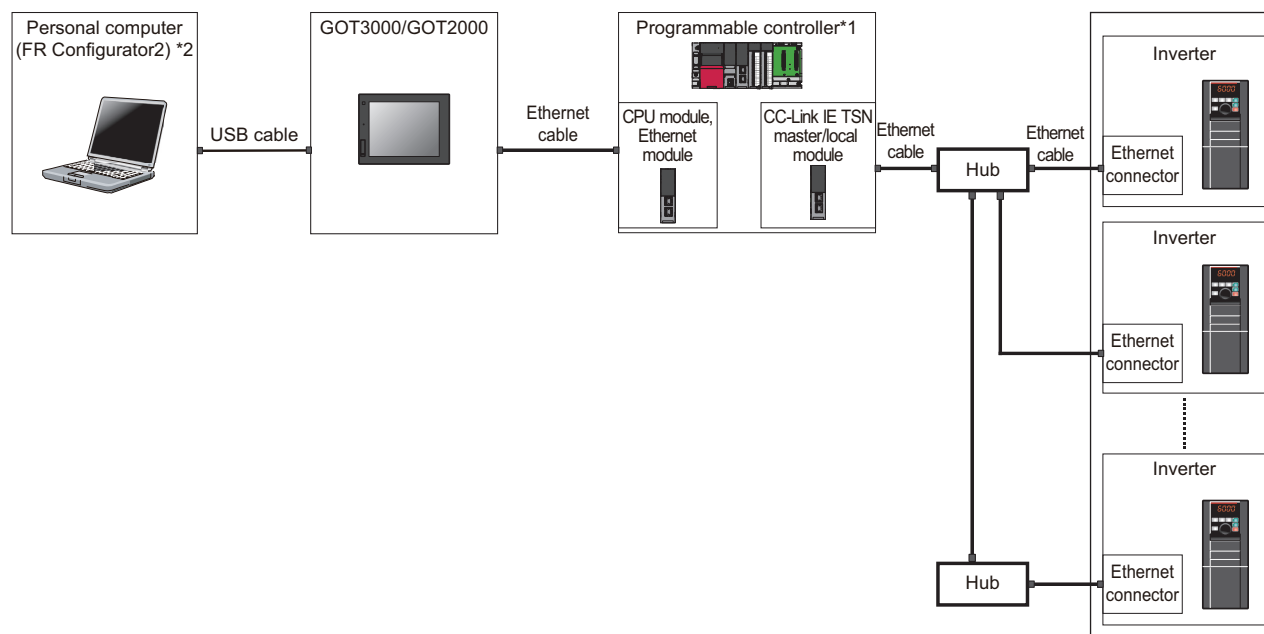
◆ Programmable controller to/from inverter: CC-Link IE Field Network communication



*1 Connection via an MX Controller is not supported.

*2 For information on the maximum number of connectable units, refer to the web site of the CC-Link Partner Association.

◆ Programmable controller to/from inverter: CC-Link IE TSN communication



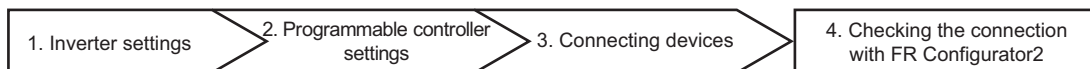
*1 Connection via an MX Controller is not supported.

*2 Use "1 to 120" to set station numbers for the inverters that communicate with FR Configurator2.

2.8.3 Connection flow

The following chart and procedure show the steps to connect the personal computer (FR Configurator2) and inverters via the GOT2000 and a programmable controller in use. Details of each step are given in [2.8.4 Inverter settings](#) to [2.8.7 Checking the connection with FR Configurator2](#). The detailed description shows connection procedure for Ethernet communication. For details of other types of communication, refer to the Instruction Manual of the programmable controller.

- Connection procedure



◆ Outline of connection procedure

- 1. Inverter settings**
Using FR Configurator2, set the inverter communication parameters to match the settings of the Ethernet module to be connected.
 [page 105](#)
- 2. Programmable controller settings**
Using GX Works3, add communication parameters of the inverter to be connected to the Ethernet module.
 [page 108](#)
- 3. Connecting devices**
Connect the personal computer to the programmable controller and the programmable controller to inverters using connection cables.
 [page 112](#)
- 4. Checking the connection with FR Configurator2**
Use FR Configurator2 to check the connection between the personal computer (FR Configurator2) and inverters.
 [page 113](#)

◆ System configuration example

2.8.4 Inverter settings to 2.8.7 Checking the connection with FR Configurator2 describe the steps to establish the connections shown in the following configuration diagram, using the devices with the communication parameters set as specified in the following table.

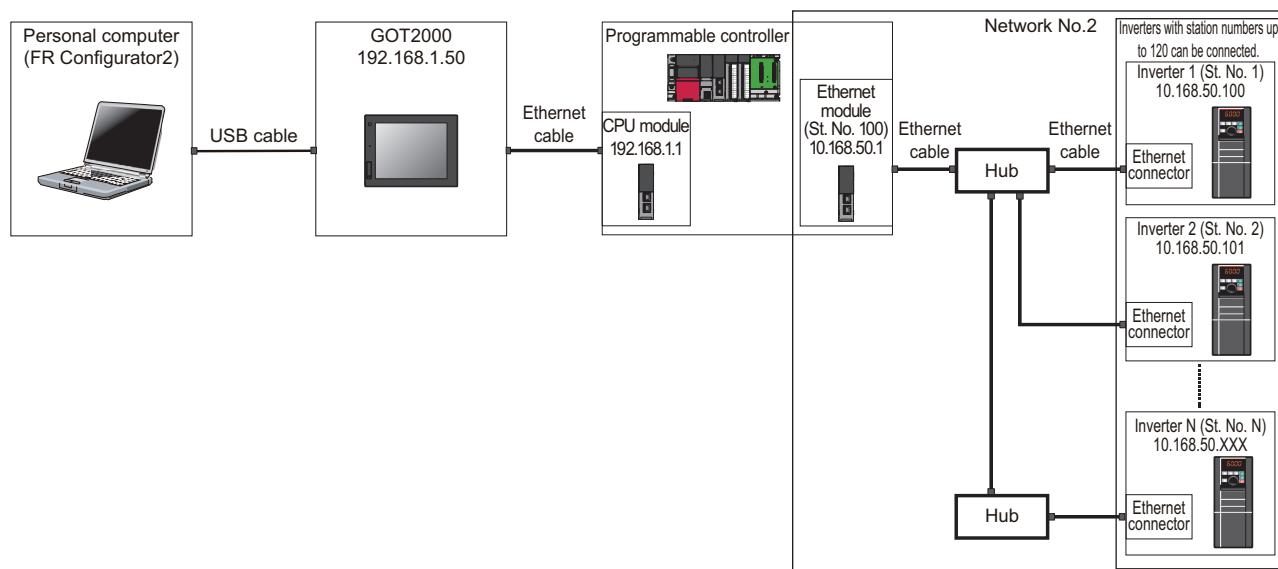
Device		Communication parameters			
		Network No.	Station number	IP address	Subnet mask
Personal computer		—	—	—	—
GOT2000		—	—	192.168.1.50 ^{*1}	255.255.255.0
Programmable controller	CPU module	—	—	192.168.1.1	255.255.255.0
	Ethernet module	2	100	10.168.50.1	255.255.255.0

*1 It is necessary to match the network parts (first to third octets) of the IP address of the GOT2000 and the IP address of the CPU module.

NOTE

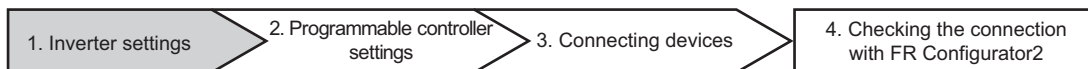
- When actually configuring the settings, change the communication parameter settings to match those in the GOT or programmable controller in use. Check the communication parameters in the GOT and programmable controller in advance by referring to their Instruction Manual.

■ Configuration diagram

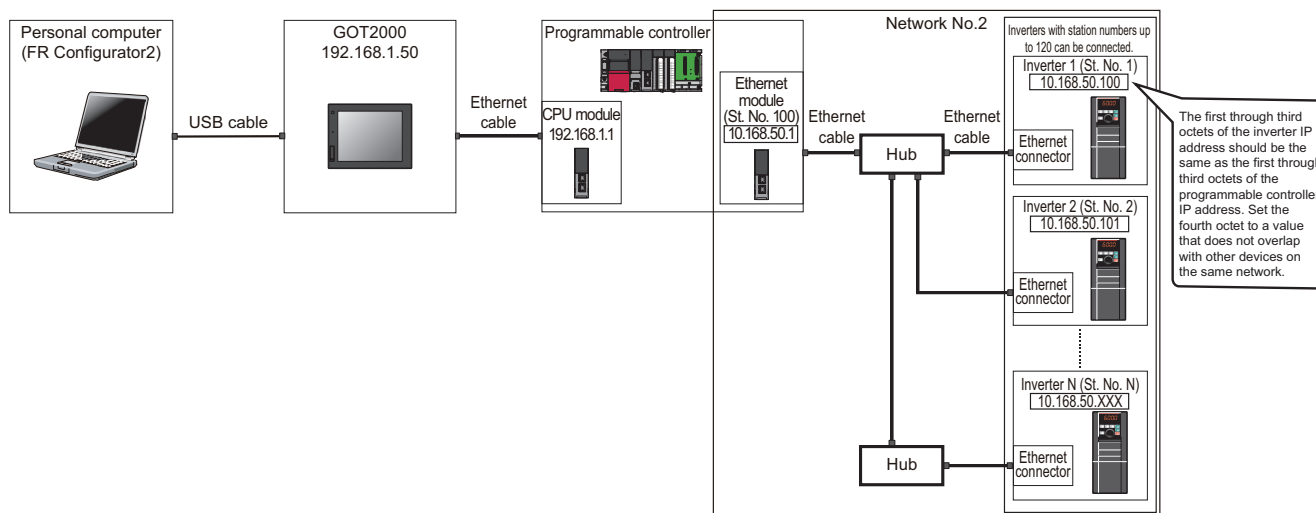


2.8.4 Inverter settings

Configure the inverter communication parameter settings to match the Ethernet module settings. When using the FR-A8NCG, the station number switch settings are necessary. For details on the station number settings, refer to [page 69](#).



Refer to the following configuration diagram and set the inverter communication parameters.

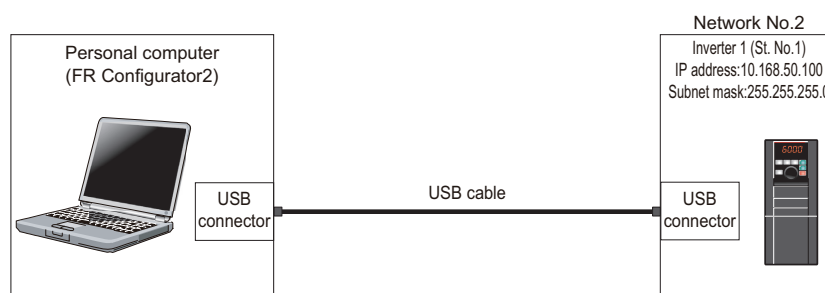


When using the FR-A8NCG, the station number switch settings are necessary. For details on the settings, refer to .

- Settings via USB communication
Set the inverter communication parameters using the parameter list function of FR Configurator2.
- Settings via Ethernet communication
Set the Ethernet communication parameters of the inverter using the Ethernet parameter setting function of FR Configurator2. For information on the inverters for which the Ethernet parameter setting function is available, refer to [page 256](#).

◆ Settings via USB communication

1. Wiring between the personal computer and the inverter
Connect the personal computer and the inverter using the USB cable.



2. Inverter parameter settings

Use the parameter list function to set the communication parameters (network number, Ethernet communication station number, IP address 1 to 4, and subnet mask 1 to 4). Determine the setting values for the parameters related to Ethernet communication based on the IP address of the Ethernet module.

<Example>

Device	Communication parameters			
	Network No.	Station number	IP address	Subnet mask
Inverter*1	2	1	10.168.50.100	255.255.255.0
Ethernet module to be connected	2	100	10.168.50.1	255.255.255.0

*1 Perform "All parameter clear" if a writing error occurs when setting inverter parameters. Note that performing "All parameter clear" in the inverter will reset all parameters to their initial values. After performing "All parameter clear", set the parameters again as required. For details, refer to the Instruction Manual of the inverter.

For information on how to set or check the inverter parameters, refer to [page 150](#). Refer to [page 60](#) or [page 68](#) for parameters related to Ethernet communication. The setting values can also be checked and changed on the operation panel of the inverter. (Refer to the Instruction Manual of the inverter.)

3. Resetting the inverter

Be sure to reset the inverter before operation by, for example, turning OFF the power.

4. Removing the connection cable

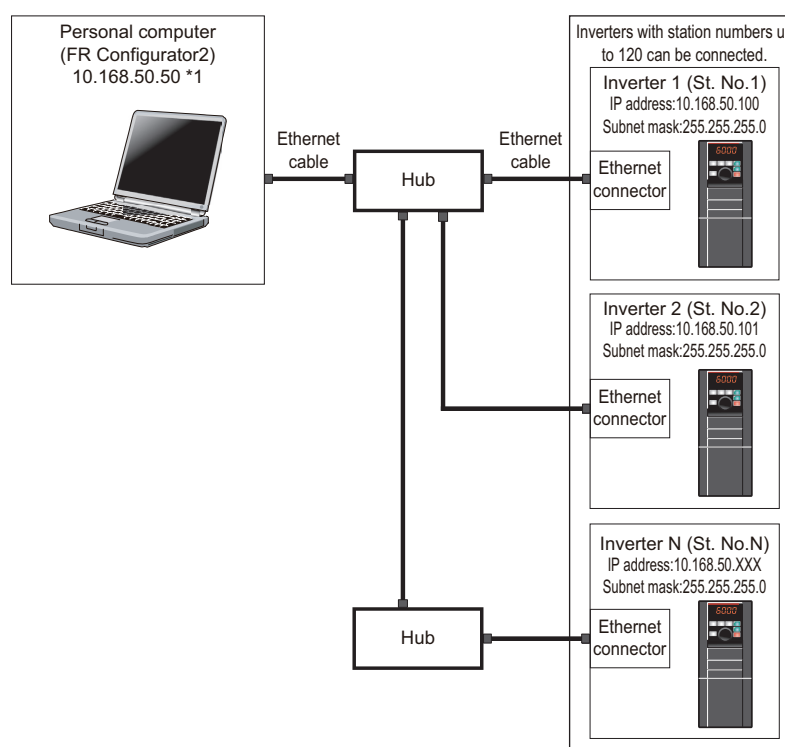
After the settings are completed, remove the USB cable between the personal computer and the inverter.

The next step is [2.8.5 Programmable controller settings](#).

◆ Settings via Ethernet communication

1. Wiring between the personal computer and the inverter

Connect the personal computer and the inverter using Ethernet cables. When connecting multiple inverters, use hubs. Connect the personal computer and the inverter without connecting a router between them.



*1 To establish Ethernet communication between the personal computer and inverters, it is necessary to match the network parts (first to third octets) of the IP address of the personal computer and the IP address of the inverter.

2. Inverter parameter settings

Use the Ethernet parameter setting function of FR Configurator2 to set the inverter parameters related to Ethernet communication (network number, Ethernet communication station number, IP address 1 to 4, and subnet mask 1 to 4). Determine the setting values for the parameters related to Ethernet communication based on the IP address of the Ethernet module.

<Example>

Device	Communication parameters			
	Network No.	Station number	IP address	Subnet mask
Inverter ^{*1}	2	1	10.168.50.100	255.255.255.0
Ethernet module to be connected	2	100	10.168.50.1	255.255.255.0

^{*1} Perform "All parameter clear" if a writing error occurs when setting inverter parameters. Note that performing "All parameter clear" in the inverter will reset all parameters to their initial values. After performing "All parameter clear", set the parameters again as required. For details, refer to the Instruction Manual of the inverter.

Refer to [page 60](#) for parameters related to Ethernet communication. Refer to [page 256](#) for the procedure for setting or checking using the Ethernet parameter setting function.

<Example inverter settings>

3. Resetting the inverter

Be sure to reset the inverter before operation by, for example, turning OFF the power.

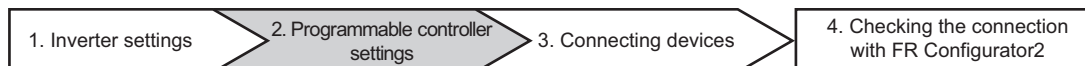
4. Removing the connection cable

After the settings are completed, remove the Ethernet cable between the personal computer and the inverter.

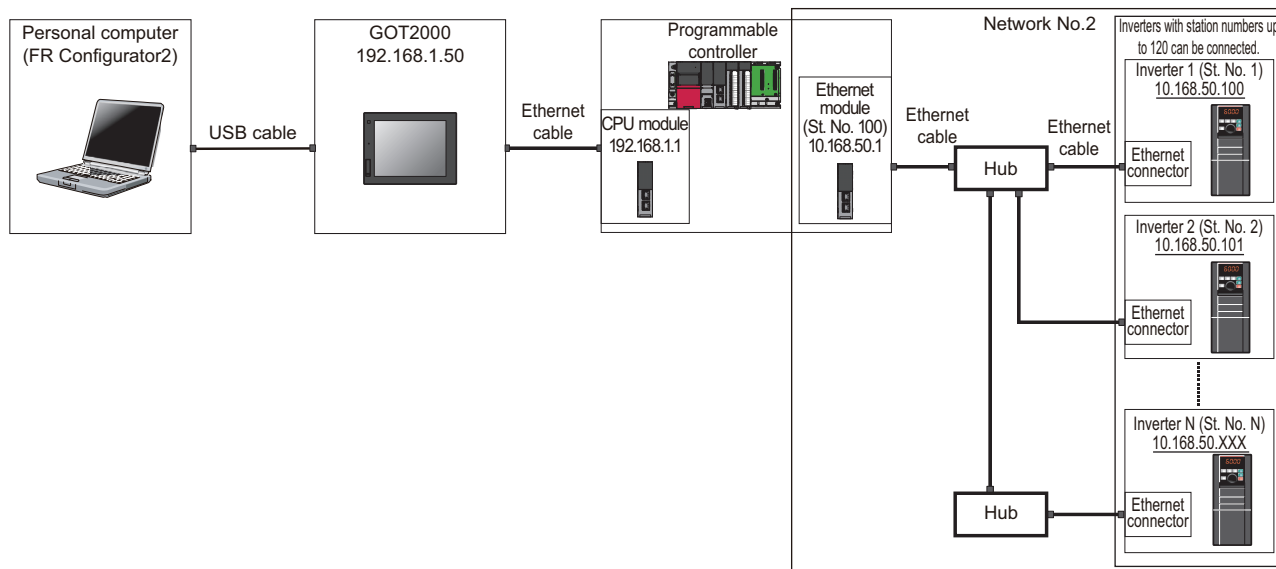
The next step is [2.8.5 Programmable controller settings](#).

2.8.5 Programmable controller settings

Using PLC engineering software (such as GX Works3), add communication parameters of the inverter to be connected to the Ethernet module.



Refer to the following configuration diagram and set the inverter communication parameters in the Ethernet module.



This section shows an example using GX Works3.

The setting procedure depends on the communication between the programmable controller and inverters.

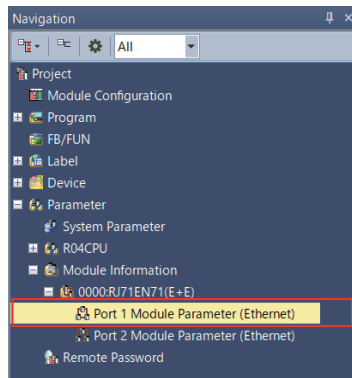
This section shows the procedure to establish Ethernet communication between the programmable controller and inverters.

For details of other types of communication, refer to the Instruction Manual of the programmable controller.

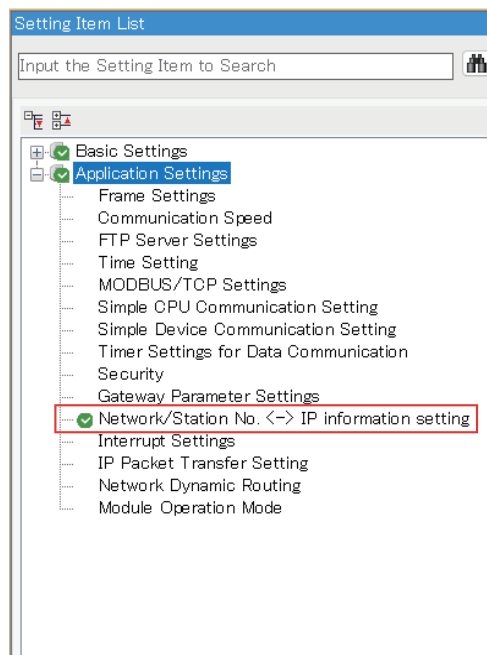
◆ Ethernet communication for the programmable controller and inverters

Use GX Works3 to set the IP address of the inverter for the Ethernet module.

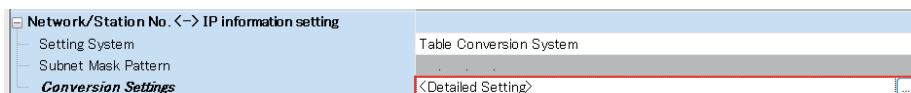
1. Select an Ethernet module to connect to the inverter.



2. In the "Setting Item List" window, click [Network/Station No. <-> IP information setting] in [Application Settings].



3. For [Setting System], select [Table Conversion System]. Then, for [Conversion Settings], click <Detailed Setting> or .



4. Enter the network number, station number, and IP address of the inverter to be connected in the external device field. Check the network number, station number, and IP address in the inverter parameters. For information on the parameter numbers, refer to [page 60](#) or [page 68](#).

<Example>

Setting Item			
External Device			
No.	Network No.	Station No.	IP Address
1	2	1	10 . 168 . 50 . 100
2	2	2	10 . 168 . 50 . 101
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

Explanation
Set the network No. of the external device.
[Setting range]
1 to 239

Check Restore the Default Settings

Apply

5. Click [Apply].

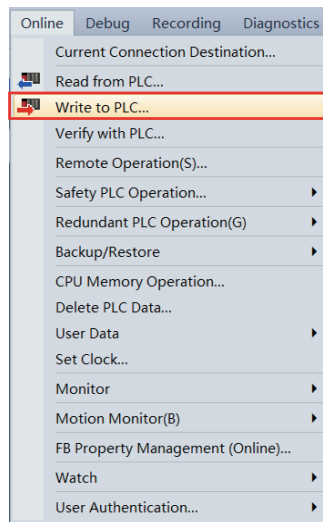
Setting Item			
External Device			
No.	Network No.	Station No.	IP Address
1	2	1	10 . 168 . 50 . 100
2	2	2	10 . 168 . 50 . 101
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

Explanation
Set the network No. of the external device.
[Setting range]
1 to 239

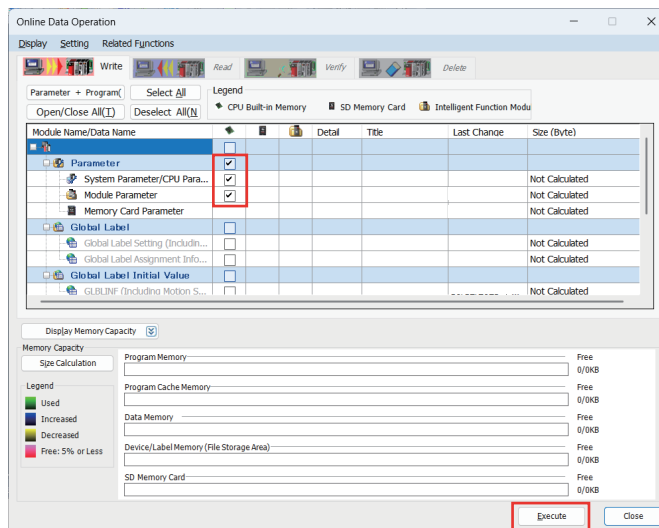
Check Restore the Default Settings

Apply

6. On the menu bar, select [Online] > [Write to PLC].



7. Check the checkboxes of [System Parameter/CPU Parameter] and [Module Parameter] and click [Execute].



8. After the writing has been done, reset the programmable controller.

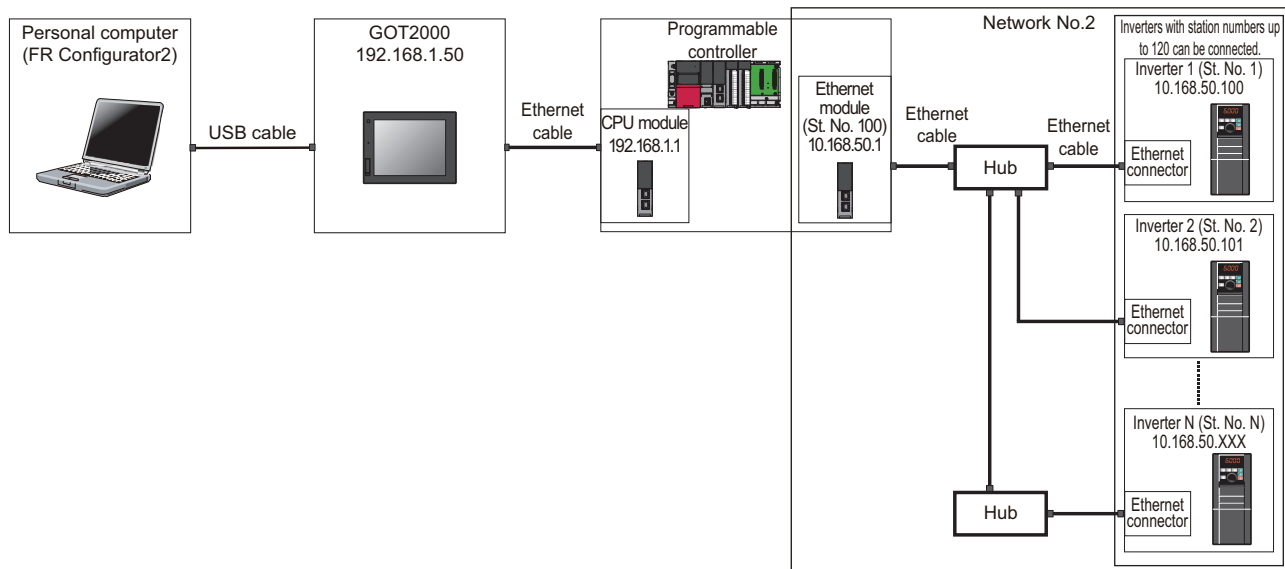
The next step is [2.8.6 Connecting devices](#).

2.8.6 Connecting devices

Connect the personal computer to the GOT, the GOT to the programmable controller, and the programmable controller to inverters using cables.



Refer to the following configuration diagram, and connect the personal computer to the GOT, the GOT to the programmable controller, and the programmable controller to inverters using cables.

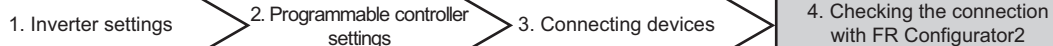


1. Connect the personal computer and the GOT using the USB cable.
2. Connect the GOT and the CPU module using the Ethernet cable.
3. Connect the Ethernet module and the inverter with the Ethernet cable.

The next step is [2.8.7 Checking the connection with FR Configurator2](#).

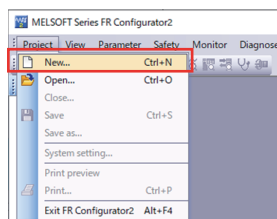
2.8.7 Checking the connection with FR Configurator2

Use FR Configurator2 to check the connection between the personal computer (FR Configurator2) and inverters.



1. Creating a project

Start FR Configurator2 and select [New] from the [Project] menu bar to display the "System setting" window.

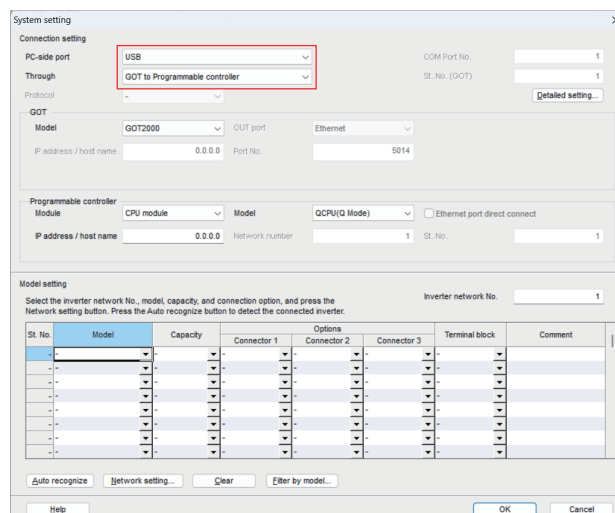


2. Settings for [Connection setting]

After the "System setting" window appears, configure the settings for [Connection setting].

PC-side port: USB

Through: GOT to Programmable controller



- 3.** Settings for [GOT]
 For [GOT], configure the setting for [Model].
 (In the following example, "GOT2000" is selected.)

The screenshot shows the 'System setting' dialog box with the 'GOT' section highlighted. The 'Model' dropdown is set to 'GOT2000'. The 'OUT port' is set to 'Ethernet'. The 'IP address / host name' is '0.0.0.0' and the 'Port No.' is '5014'. The 'COM Port No.' is '1' and the 'St. No. (GOT)' is '1'. The 'Detailed setting...' button is visible.

- 4.** Settings for [Programmable controller]
 For [Programmable controller], configure the settings for [Module], [Model], [IP address / host name], [Network number], and [St. No.]. When the CPU module is selected for [Module], settings are not required for [Network number] and [St. No.].
 (In the following example, "CPU module" is selected for [Module], "RCPU" for [Model], and the IP address of the CPU module connected to the GOT selected for [IP address / host name].)

The screenshot shows the 'System setting' dialog box with the 'Programmable controller' section highlighted. The 'Module' dropdown is set to 'CPU module', the 'Model' dropdown is set to 'RCPU', and the 'Ethernet port direct connect' checkbox is unchecked. The 'IP address / host name' is '192.168.1.1', the 'network number' is '1', and the 'St. No.' is '1'. The 'Model setting' section below shows a table with columns for St. No., Model, Capacity, Connector 1, Options, Connector 2, Connector 3, Terminal block, and Comment.

5. Settings for [Model setting]

Set the inverter network number specified in "2.8.4 Inverter settings" for "Inverter network No." and click [Auto recognize].

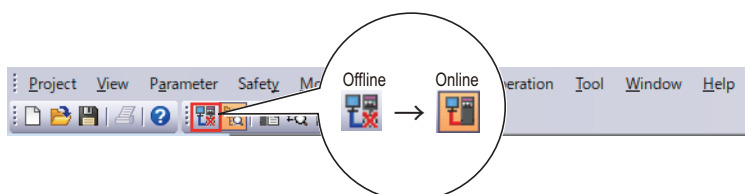
The inverters connected with the programmable controller are automatically detected.

6. Detection of the connected inverters

After the inverter is detected, click [OK].

Example: FR-E820-EPB-0.1K(0008)

7. Click the [Online/offline] button.



8. The procedure is complete when the online connection is established.

2.9 Setting of operation mode of the inverter

- The inverter has three operation modes. For details, refer to the Instruction Manual of the inverter.
 External operation mode: For giving a start command and a frequency command with an external potentiometer or switches which are connected to the control circuit terminal.
 PU operation mode: For giving a start command and a frequency command from the operation panel, parameter unit, or RS-485 communication via the PU connector.
 Network operation mode (NET operation mode): For giving a start command and a frequency command via the RS-485 terminals, a communication option, or the Ethernet connector.

◆ Selecting the operation mode for power-ON (Example: FR-A800)

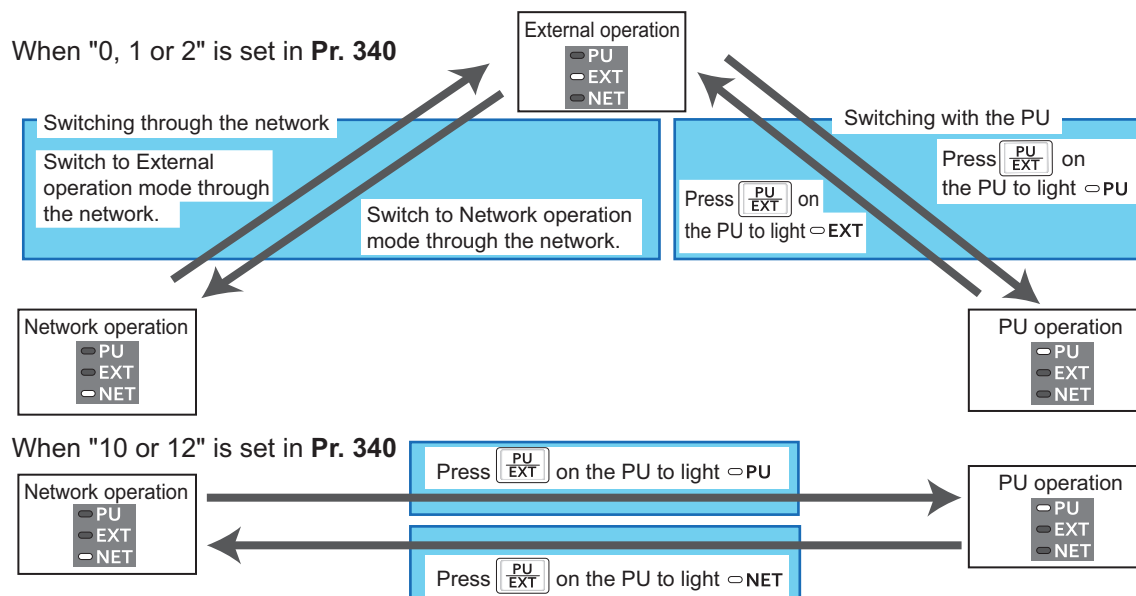
For the FR-A800, the operation mode at power-ON (reset) changes as described below depending on the **Pr.79 Operation mode selection** and **Pr.340 Communication startup mode selection** settings. For details, refer to the Instruction Manual of the inverter.

Pr.340 ^{*1} setting	Pr.79 ^{*1} setting	Operation mode at power ON, at power restoration, or after a reset.	Operation mode switching
0	0 (initial value)	External operation mode	Switching among the External, PU, and NET operation modes is enabled. ^{*2}
	1	PU operation mode	PU operation mode fixed.
	2	External operation mode	Switching between the External and NET operation mode is enabled. Switching to PU operation mode is disabled.
	3, 4	External/PU combined operation mode	Operation mode switching is disabled
	6	External operation mode	Switching among the External, PU, and NET operation mode is enabled while running.
	7	X12 (MRS) signal ON...External operation mode	Switching among the External, PU, and NET operation modes is enabled. ^{*2}
		X12 (MRS) signal OFF...External operation mode	External operation mode fixed. (Forcibly switched to External operation mode.)
1, 2	0	NET operation mode	Same as Pr.340 = "0".
	1	PU operation mode	
	2	NET operation mode	
	3, 4	External/PU combined operation mode	
	6	NET operation mode	
	7	X12 (MRS) signal ON...NET operation mode	
		X12 (MRS) signal OFF...External operation mode	
10, 12	0	NET operation mode	Switching among the External, PU, and NET operation modes is enabled. ^{*2}
	1	PU operation mode	Same as Pr.340 = "0".
	2	NET operation mode	NET operation mode fixed.
	3, 4	External/PU combined operation mode	Same as Pr.340 = "0".
	6	NET operation mode	Switching between the PU and NET operation mode is enabled while running.
	7	External operation mode	Same as Pr.340 = "0".

*1 For details on **Pr.79** and **Pr.340**, refer to the Instruction Manual of the inverter.

*2 Operation mode cannot be directly changed between the PU operation mode and Network operation mode.

◆ Operation mode switching method (Example: FR-A800)



◆ Start command source and frequency command source during communication operation

For details, refer to the Instruction Manual of each inverter.

CHAPTER 3 PROJECT CREATION

3.1	Project file operation	120
3.2	Explanation of the operating window of FR Configurator2	129
3.3	File operation and print	141
3.4	Display setting	145

3 PROJECT CREATION

This chapter explains the project creation for use of this product.
Always read the instructions before using the equipment.

3.1 Project file operation

3.1.1 Before using the functions of FR Configurator2

The functions of FR Configurator2 are available after the following operations.

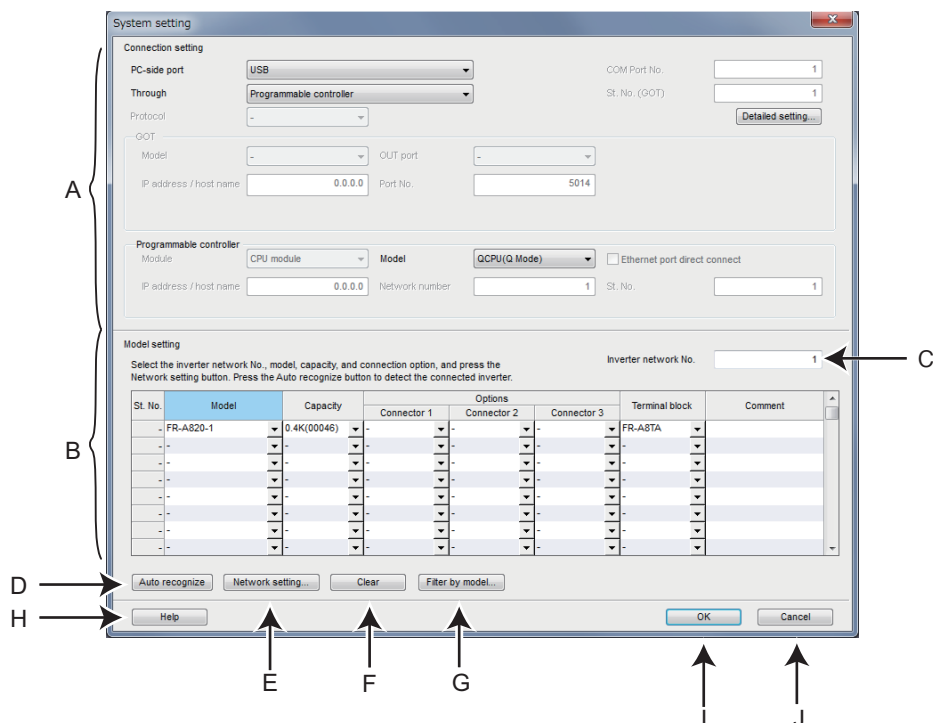
Operation	Available function	Refer to page
Starting FR Configurator2	System setting	121
	Convert	174
	Ethernet parameter setting function	253
	iQSS backup file conversion function	258
	Developer	238
	USB memory parameter copy file edit	250
	Firmware update	259
	Help	276
New project	Parameter list	149
	Safety parameter setting	166
	Graph	200
	Batch monitor	218
	I/O terminal monitor	221
	Diagnostics	222
	Test operation	235

3.1.2 Creating a new project file

This function reads the information of each function window that is saved in a project file, such as inverter model information and parameter setting values, and reflects it to the windows.

Enter information required for creating a project file on the "System setting" window.

Select [**N**ew] from the [**P**roject] menu bar or click on the  on the toolbar to display the "System setting" window.



Symbol	Name	Function/description
A	Connection setting	Select the connection type. Select an option or enter an applicable value in [PC-side port], [COM Port No.], [Through], [St. No. (GOT)], [Detailed setting], [Protocol], [GOT], and [Programmable controller] setting fields.
B	Model setting	Click the [Auto recognize] button to automatically set the information about the connected inverter. The model, capacity, and connection option of the inverter can also be selected from the list manually.
C	Inverter network No.	Enter the same value as set in Ethernet communication network number ^{*1} . (Refer to Pr.1424 for the FR-A800-E, FR-A800-G, FR-F800-E, FR-E800-(SC)E, and FR-E806-SCE, FR-D800-E, Pr.1073 for the FR-A800-E-R2R, or Pr.830 for the FR-E700-NE.)
D	Auto recognize	Information of the connected inverter can be recognized automatically. (Refer to page 122 .)
E	Network setting...	Specify the settings for network connection.
F	Clear	Clears the entries in the model setting field.
G	Filter by model...	Shows the window to filter the list of models used for the model selection.
H	Help	Displays the help window.
I	OK	Applies the setting to the project and closes the "System setting" window.
J	Cancel	Closes the "System setting" window without applying the setting to the project.

^{*1} When the FR-A8NCG(-S) is installed, enter the same number as the network No.

NOTE

- To use a communication option for the FR-F700-EC/NA inverter equipped with only one option connector, select the communication option name from the Connector 2 pull-down list of the model setting field in the "System setting" window.
- When the automatic recognition is performed for the FR-F700-EC/NA inverter with a communication option connected to its option connector, the communication option name is displayed in the Connector 2 field.

◆ Setting the automatic recognition of the inverter and FR Configurator2 (Ethernet connection)

- To connect the inverter and FR Configurator2 via Ethernet, refer to the following table to check the settings of the relay device and parameters.

Model	Through	Pr.	Name	Setting
FR-A800-E FR-A800-G FR-F800-E	Not connected	1427	Ethernet function selection 1	Set a combination of "5001" (or "5002") and "45237" in any two of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	
	Programmable controller	1427	Ethernet function selection 1	Set "5001" in any of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	
	GOT to programmable controller ^{*1}	1427	Ethernet function selection 1	Set "5001" in any of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	
FR-A800-E-R2R	Not connected	1076	Ethernet function selection 1	Set a combination of "5001" (or "5002") and "45237" in any two of the parameters.
		1077	Ethernet function selection 2	
		1078	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	
	Programmable controller	1076	Ethernet function selection 1	Set "5001" in any of the parameters.
		1077	Ethernet function selection 2	
		1078	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	
	GOT to programmable controller ^{*1}	1076	Ethernet function selection 1	Set "5001" in any of the parameters.
		1077	Ethernet function selection 2	
		1078	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	
FR-E800-(SC)E FR-E806-SCE FR-D800-E	Not used	1427	Ethernet function selection 1	Set a combination of "5001" (or "5002") and "45237" in any two of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1430	Ethernet function selection 4	
		1442 to 1448	IP filter address (Ethernet)	
	Programmable controller	1427	Ethernet function selection 1	Set "5001" in any of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1430	Ethernet function selection 4	
		1442 to 1448	IP filter address (Ethernet)	
	GOT to programmable controller ^{*1}	1427	Ethernet function selection 1	Set "5001" in any of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1430	Ethernet function selection 4	
		1442 to 1448	IP filter address (Ethernet)	

Model	Through	Pr.	Name	Setting
FR-E700-NE	Not connected	833	Ethernet function selection 1	Set a combination of "31" (or "32") and "20" in any two of the parameters.
		834	Ethernet function selection 2	
		835	Ethernet function selection 3	
		837 to 843	Ethernet IP filter address	The IP address range can be set for connectable network devices.
	Programmable controller	833	Ethernet function selection 1	Set "31" in any of the parameters.
		834	Ethernet function selection 2	
		835	Ethernet function selection 3	
		837 to 843	Ethernet IP filter address	The IP address range can be set for connectable network devices.
	GOT to programmable controller ^{*1}	833	Ethernet function selection 1	Set "31" in any of the parameters.
		834	Ethernet function selection 2	
		835	Ethernet function selection 3	
		837 to 843	Ethernet IP filter address	The IP address range can be set for connectable network devices.

^{*1} When the programmable controller is protected by a remote password, automatic recognition is disabled.

- The following shows automatic recognition condition.

PC-side port	Intermediate device	Automatic recognition		
		Direct connection	Hub connection	Router connection
Ethernet	Not connected	○	○	○
USB	GOT	×	×	×
Ethernet	GOT	○	○	○
USB	GOT to programmable controller	○	○	○
USB, RS-232C, Ethernet	Programmable controller	○	○	○

(○: Enabled, ×: Disabled)

- If the network device is protected by a remote password, the "Remote password input" dialog appears during the automatic recognition.

3.1.3 Connection setting

In the "Connection setting" of the "System setting" window, set the communication between the personal computer and inverter, etc.

For communication with the inverter using the USB port of personal computer, set "USB" in the box of "PC-side port".

For communication with the inverter using the serial port of personal computer, set "Specify the COM port number" in the box of "PC-side port".

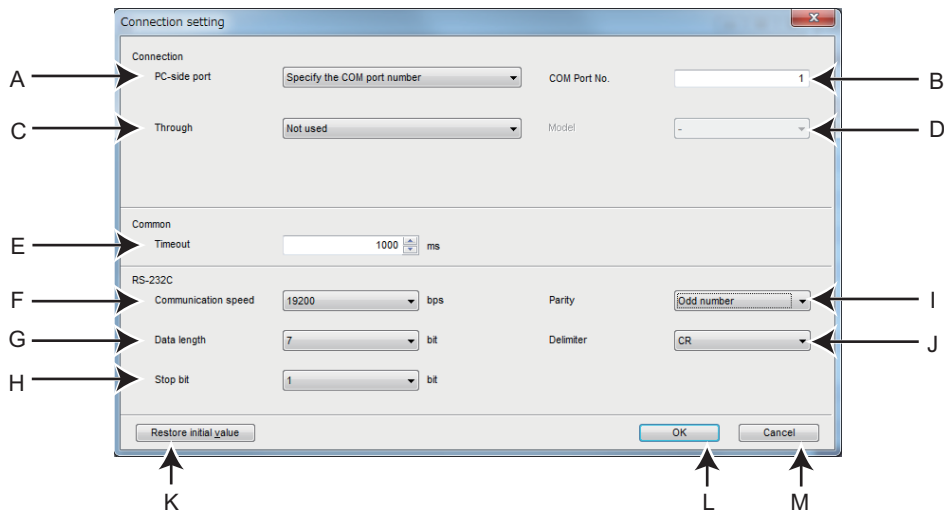
For communication with the inverter using the LAN port of personal computer, set "Ethernet" in the box of "PC-side port".

NOTE

- To use the USB/RS-485 conversion cable DINV-U4, select [COM*: DTC DINV-U4 USB Serial Port (COM*)] for the PC-side port.
- If it is not in the drop-down list although the DINV-U4 cable is connected, do the following:
Check the DINV-U4 cable for insecure connection to the personal computer.
Check if the DINV-U4 driver is already installed in the personal computer.

◆ Detailed setting

Select [Detailed setting] in the "System setting" window, or select [Connection setting] in the "Source" window of the convert function to open the "Detailed setting" window (the "Connection setting" window when the convert function is used). The items for the detailed setting are determined according to the PC-side port and relay device settings specified in the system setting window. Change the settings as required. The connection setting is in accordance with the initial value of the inverter.

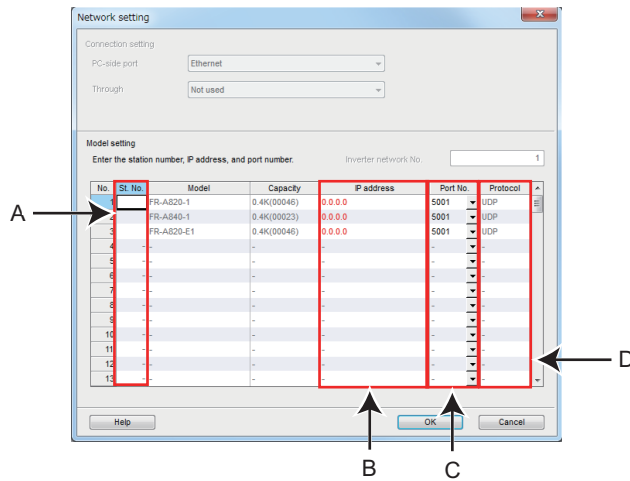


Symbol	Name	Initial value	Function/description
A	PC-side port	USB	Select a port for connection.
B	COM Port No.	1	Specify the port number when "Specify the COM port number" is selected for the PC-side port. ^{*1}
C	Through	Not used	Set a relay device. ^{*1}
D	Model	—	Set a GOT model. ^{*1}
E	Timeout	1000	Set the time after transmitting data from the personal computer to the inverter until the personal computer receives a response from the inverter. When no response comes after the set time elapsed, the error of "timeout occurs" is displayed.
F	Communication speed	19200	Set the communication speed. (Refer to Pr.118 and Pr.332 .)
G	Data length	8	Set the data bit length. (Refer to Pr.119 and Pr.333 .)
H	Stop bit	2	Set the stop bit length. (Refer to Pr.119 and Pr.333 .)
I	Parity	Even	Specify the parity bit. (Refer to Pr.120 and Pr.334 .)
J	Delimiter	CR	Specify the delimiter at the end of the data. (Refer to Pr.124 and Pr.341 .)
K	Restore initial value	—	A button to return the communication setting to the initial value of the inverter.
L	OK	—	When the window is opened from the "System setting" window, click [OK] to close the window and return to the "System setting" window. (Refer to page 121 .) When the window is opened from the "Source" window for the connection setting of the convert function, click [OK] to close the window and return to the "Source" window. (Refer to page 177 .)
M	Cancel	—	Clears the setting and closes the "Detailed setting" window.

^{*1} Setting is available for connection setting using the convert function.

◆ Network setting

When "Ethernet" is selected for the PC-side port, or "GOT", "Programmable controller", or "GOT to programmable controller" is selected from the "Through" drop-down list, the "Network setting" window can be opened by clicking the [Network setting] button in the "System setting" window.



Symbol	Name	Function/description
A	St. No.	Set the station number. (For FR-A800-E, FR-A800-G, FR-F800-E, FR-E800-(SC)E, FR-E806-SCE, and FR-D800-E, refer to Pr.1425 . For FR-A800 with FR-A8NCG (CC-Link IE TSN communication), FR-A800-F/G with FR-A8NCG-S, and FR-F800 with FR-A8NCG (CC-Link IE TSN communication), refer to Pr.437^{*2*3} . For FR-A800-E-R2R, refer to Pr.1074 . For FR-E700-NE, refer to Pr.831 .)
B	IP address	Enter the IP address. (For FR-A800-E, FR-A800-E-R2R, FR-A800-G, FR-F800-E, FR-E800-(SC)E, FR-E806-SCE, and FR-D800-E, refer to Pr.1434 to Pr.1437 . For FR-A800 with FR-A8NCG (CC-Link IE TSN communication), FR-A800-F/G with FR-A8NCG-S, and FR-F800 with FR-A8NCG (CC-Link IE TSN communication), refer to Pr.434 to Pr.437^{*2*3} . For FR-E700-NE, refer to Pr.805 to Pr.808 .) ^{*1}
C	Port No.	Set the port number set in the inverter. (For FR-A800-E, FR-A800-G, and FR-F800-E, refer to Pr.1427 to Pr.1429 . For FR-A800-E-R2R, refer to Pr.1076 to Pr.1078 . For FR-E800-(SC)E, FR-E806-SCE, and FR-D800-E, refer to Pr.1427 to Pr.1430 . For FR-E700-NE, refer to Pr.833 to Pr.835 .)
D	Protocol	The "UDP" or "TCP" protocol is displayed.

^{*1} Setting is available in the following conditions: "Not used" is selected from the "Through" drop-down list for the connection setting, or "GOT" is selected from the "Through" drop-down list and "Ethernet" from "OUT port".

^{*2} When the station number switches are not set to "0 (H00)" or "255 (HFF)", the station number switch setting is enabled. (For details on the station number switches, refer to the CC-Link IE TSN Function Manual, FR-A8NCG Instruction Manual, or FR-A8NCG-S Instruction Manual.)

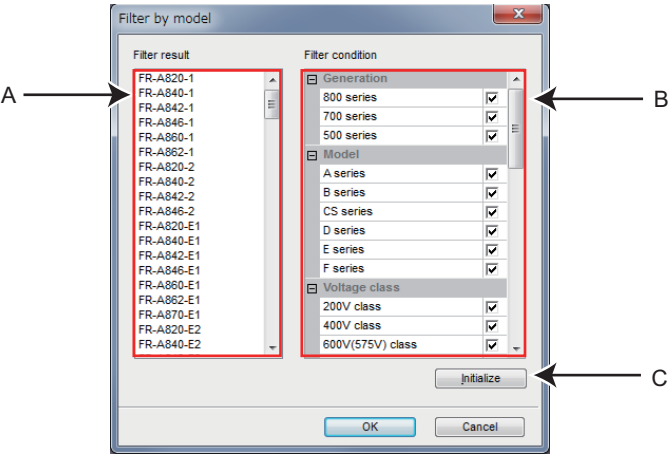
^{*3} When the station number switches are set to "0 (H00)" or "255 (HFF)", the setting in the master station is enabled. (For details on the station number switches, refer to the CC-Link IE TSN Function Manual, FR-A8NCG Instruction Manual, or FR-A8NCG-S Instruction Manual.)

NOTE

- When "Ethernet" is set for the PC-side port and "TCP" is set for the protocol, a timeout may occur before the set timeout time elapses. Since the TCP timeout on Windows is controlled by the operating system, a timeout occurs after the shorter timeout time set in FR Configurator2 or the operating system elapses. The standard timeout time is about 20 seconds on Windows.
- When the "St. No." or "IP address" setting value is used by other model, the value is shown in red.

◆ Filtering by model

Select [Filter by model] in the "System setting" window to open the "Filter by model" dialog. Filter the list by manual setting.

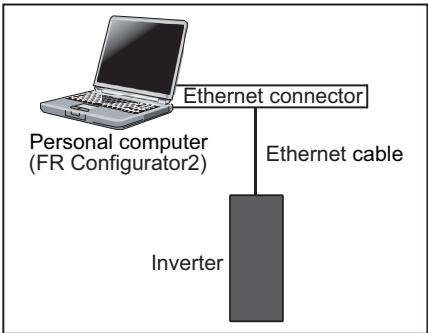


Symbol	Name	Function/description
A	Filter result	Selected inverters are displayed.
B	Filter condition	Click on the checkbox to change the filter condition.
C	Initialize	Reset the filter condition to check all.

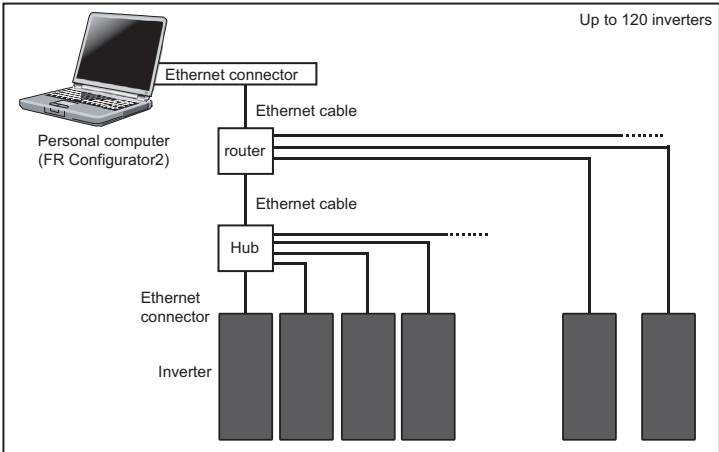
◆ Ethernet automatic recognition setting

When "Ethernet" is selected for the PC-side port and "Not used" is selected from the "Through" drop-down list, the "Ethernet automatic recognition setting" window appears by clicking the [Auto recognize] button in the "System setting" window. Automatic recognition of inverters is enabled by specifying Ethernet network segments.

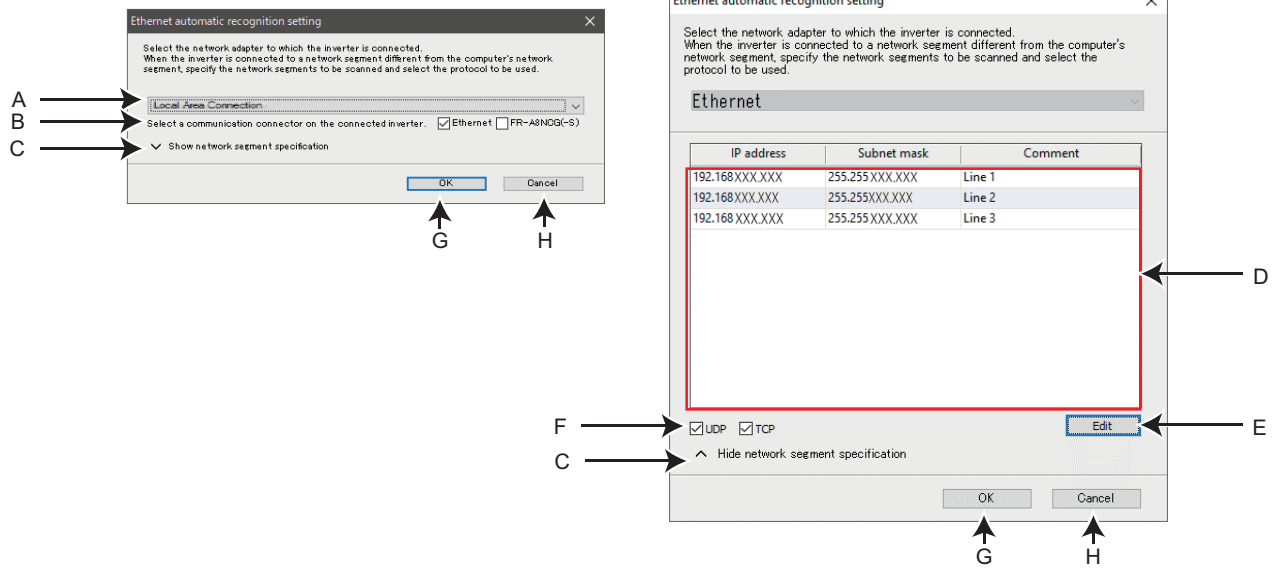
■ Example connection without a router



■ Example connection with a router

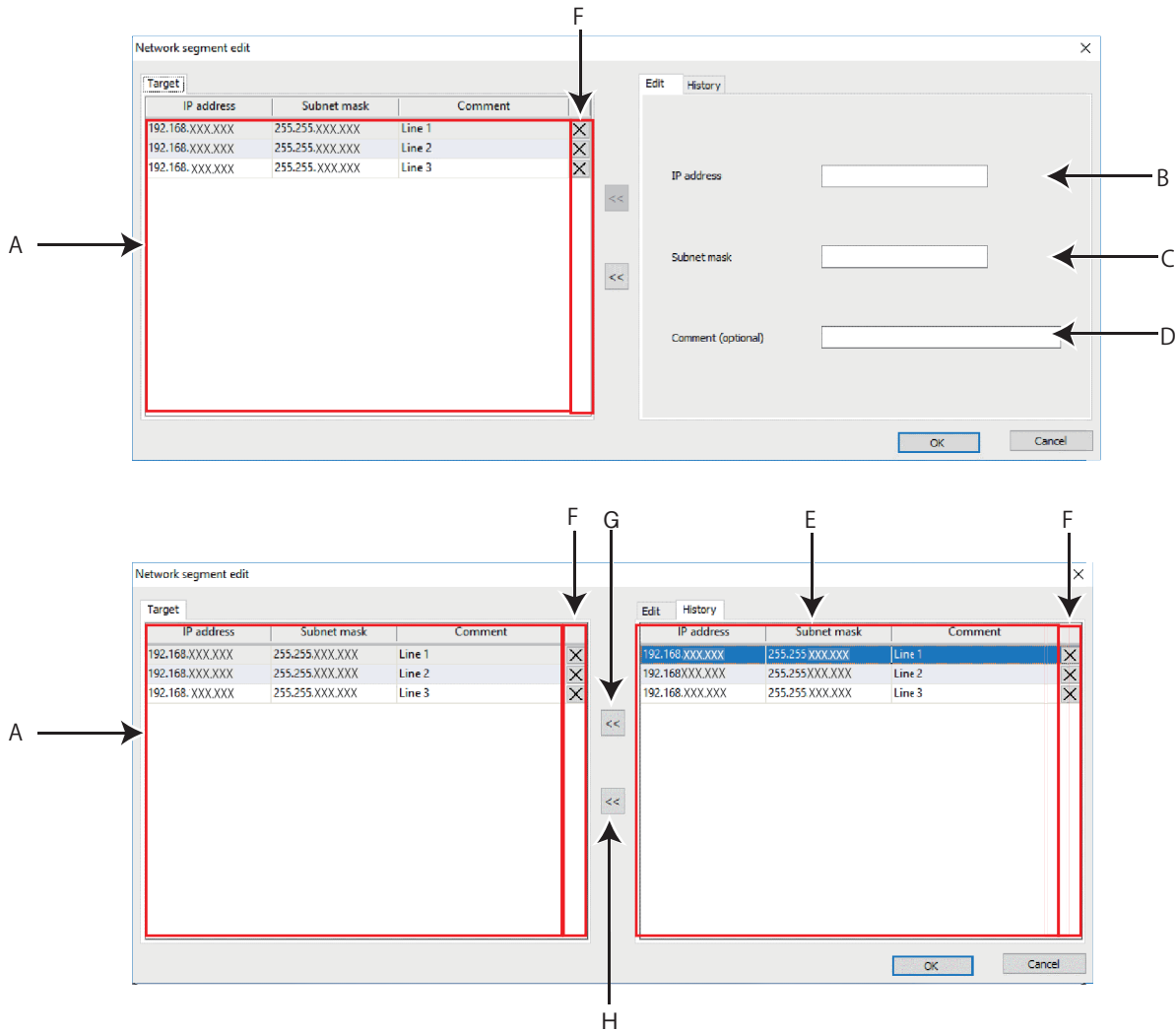


■ Ethernet automatic recognition setting window



Symbol	Name	Function/description
A	Network adapter selection	Select a network adapter for connection.
B	Selection of a communication connector on the connected inverter.	Click on the checkbox to enable automatic recognition of the connected inverters.
C	Show network segment specification	Shows or hides the network segment setting area.
D	Network segment setting area	Displays the data set in the "Network segment edit" window.
E	Edit	Displays the "Network segment edit" window.
F	Protocol selection	Click on the checkbox to enable the UDP/TCP protocol.
G	OK	Start automatic recognition through the specified network adapter.
H	Cancel	Closes the "Ethernet automatic recognition setting" window without starting automatic recognition.

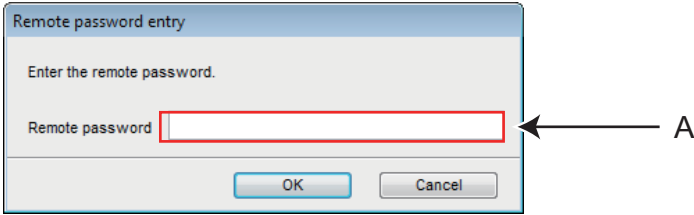
■ Network segment edit window



Symbol	Name	Function/description
A	Target area	Displays the data shown in the network setting area on the "Ethernet automatic recognition setting" window.
B	IP address	Enter the IP address of the network to be added.
C	Subnet mask	Enter the subnet mask of the network to be added.
D	Comment (optional)	Any character string can be saved as a comment.
E	History area	Displays the historical network data obtained by automatic recognition.
F	Cancel button	Deletes the selected line in the target/history area.
G	<<	Copy the selected line in the edit/history area to the target area.
H	>>	Copy the selected line in the target area to the edit/history area.

◆ Remote password entry

The following window appears when the Ethernet device protected by a remote password and the personal computer are connected to the same Ethernet network.



Symbol	Name	Function/description
A	Remote password	Enter the password. The password is masked with asterisks (*).

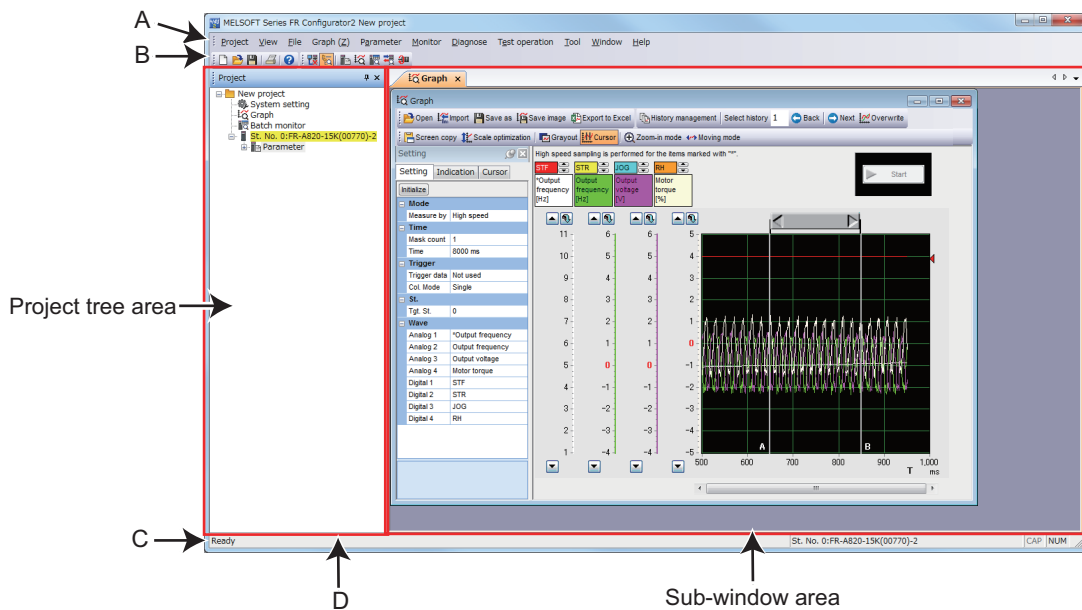
3.2 Explanation of the operating window of FR Configurator2

This section explains the screen configuration of FR Configurator2.

3.2.1 Main frame

The main frame (main screen) of FR Configurator2 consists of two areas.

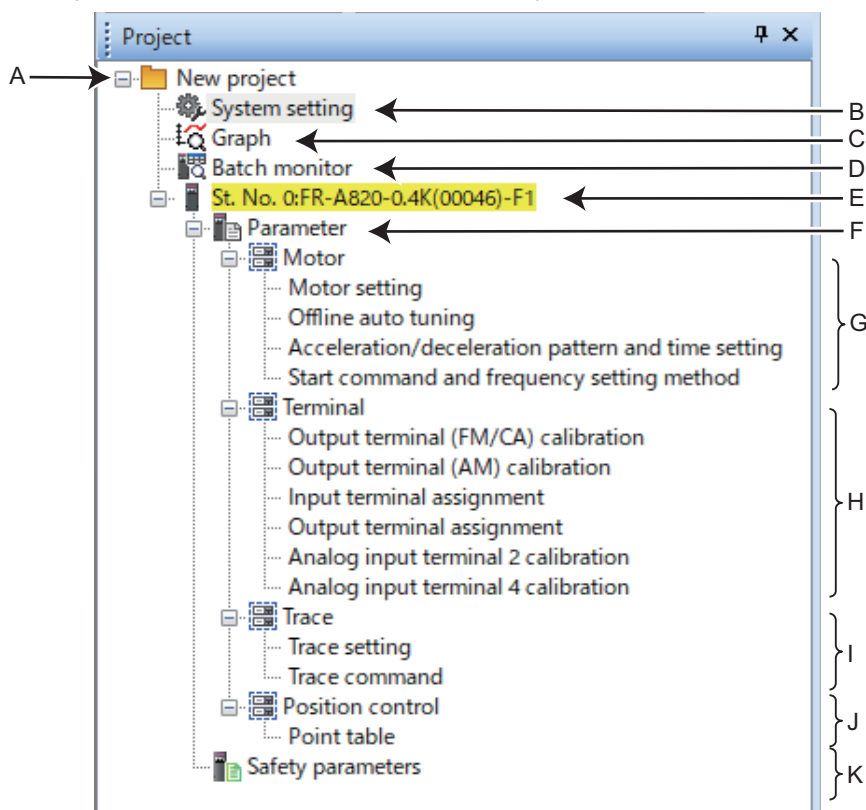
- Project tree area (Refer to [page 130](#).)
An area for showing information of the registered inverter, or for making settings. "System setting", "Graph", and "Batch monitor" are available in this area.
- Sub-window area (Refer to [page 132](#).)
An area for showing obtained monitor data of the inverter. "Parameter list", "Graph", "Batch monitor", and "Fault history" are available in this area.



Symbol	Name	Function/description	Refer to page
A	Menu bar	The window of each function is displayed from the menu bar.	134
B	Toolbar	The window of each function is displayed in the sub-window area by selecting an icon on the toolbar.	
C	Status bar	The model name, operating status, etc. are displayed.	140
D	Split line	Adjustment of the project tree area size and sub window area size is available. To resize the project tree area and sub window area to their original size, from [Window] of the menu bar, choose [Reset window layout].	—

3.2.2 Project tree area

"Parameter list" and "Safety parameter setting" of the inverters registered in the project, "System setting", "Graph", and "Batch monitor" are listed in the project tree area. Select such an item to display the window in the sub-window area.

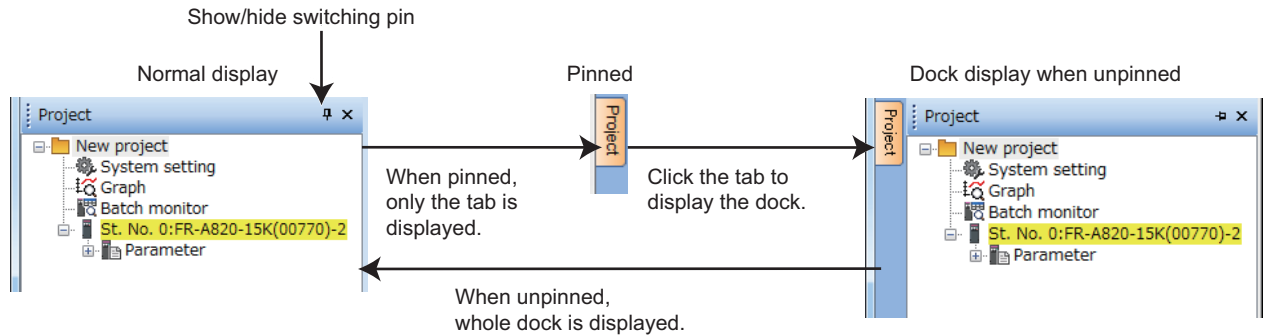


- Details of the project tree area

Symbol	Name	Function/description
A	Project name	Displays the project name.
B	System setting	Displays the system setting window in the sub-window area.
C	Graph	Displays the graph window in the sub-window area.
D	Batch monitor	Displays the batch monitor screen in the sub-window area.
E	Station number: inverter model	Displays the station number and the model of the inverter registered in the project. Click "Station number: inverter model" to select the corresponding station number. The selected "Station number: inverter model" is highlighted in yellow. (If the main frame is not selected, "Station number: inverter model" is displayed in gray.) Click  on the left of the icon to spread the tree view and display [Parameter].
F	Parameter	Click [Parameter] to display the "parameter list" in the sub window area.
G	Motor	Click [Motor] to select the window for motor setting, offline auto tuning, acceleration/deceleration pattern and time setting or start command and frequency setting method.
H	Terminal	Click [Terminal] to select the window for terminal calibration or function assignment.
I	Trace	Click [Trace] to select the window for trace function setting or trace command execution.
J	Position control	Click [Point table] to set point tables used for position control.
K	Safety parameter	Click [Safety parameter] to display the "Safety parameter setting" in the sub window area.

Display and switching of the project tree area

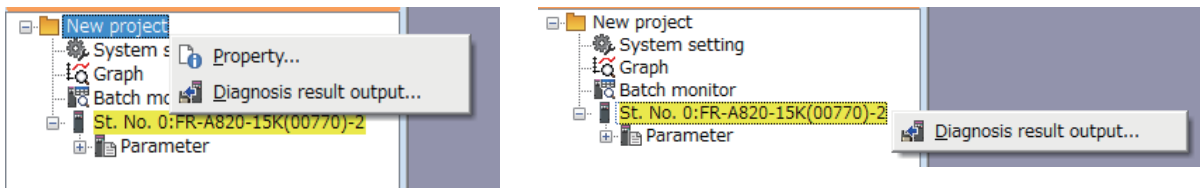
Select [Project window] from [Docking Window] in the [View] menu to switch the display of the project tree area among display, tab display, and hidden. The show/hide switching pin is used to show or hide the project tree area.



3

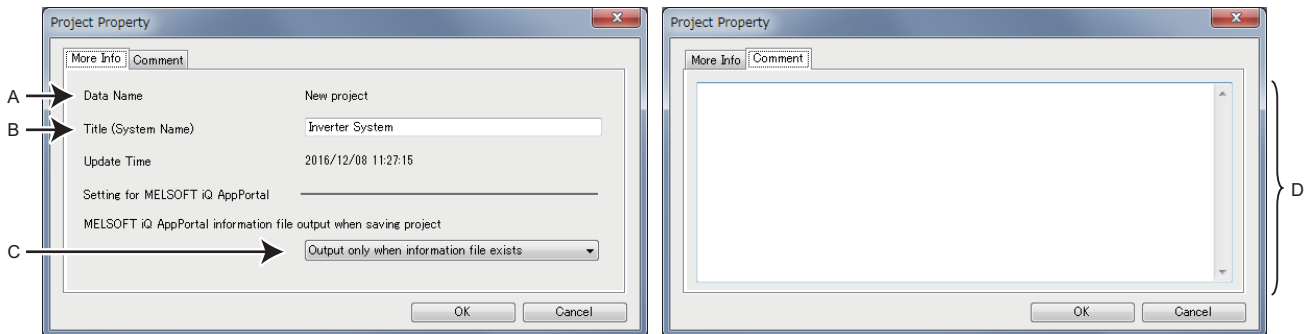
3.2.3 Pop-up menu

Right-click on the project name or the station number to display a pop-up menu.



◆ Project property

Click the pop-up menu to open the "Project Property" window. The data name, title (system name), or other information for the project can be checked or changed.



Symbol	Name	Function/description
A	Data Name	The project file (*.frc2) name is shown.
B	Title (System Name)	The project title can be changed.
C	MELSOFT iQ AppPortal information file output when saving project	Select whether to output the MELSOFT iQ AppPortal information file when saving the project. Select from among the following: "Always output", "Output only when information file exists", or "Not output (delete information file)".
D	Comment	A text field for description of the project.

◆ Diagnosis result output

Click on the menu option to obtain the diagnosis result data for all inverters or the selected inverter. The diagnosis result is output to a CSV text file.

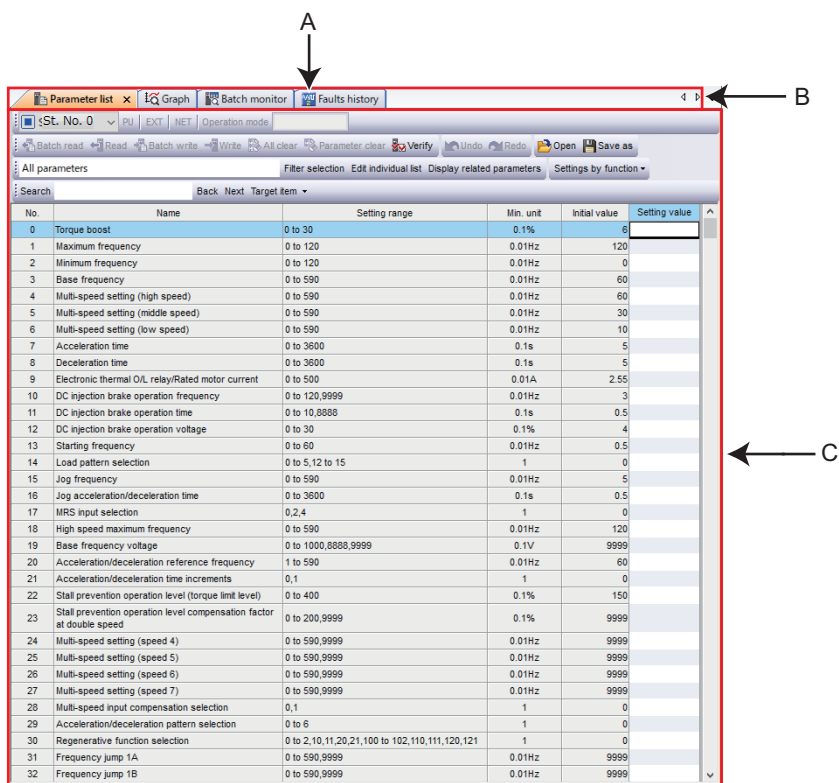
NOTE

- Data for all inverters are obtained by selecting the option on the pop-up menu displayed by clicking on the project name. Data for the selected inverter are obtained by selecting the option on the pop-up menu displayed by clicking on the station number.

3.2.4 Sub-window area

The sub-window area is for displaying, reading, and writing parameters, and for displaying the information read from the inverter.

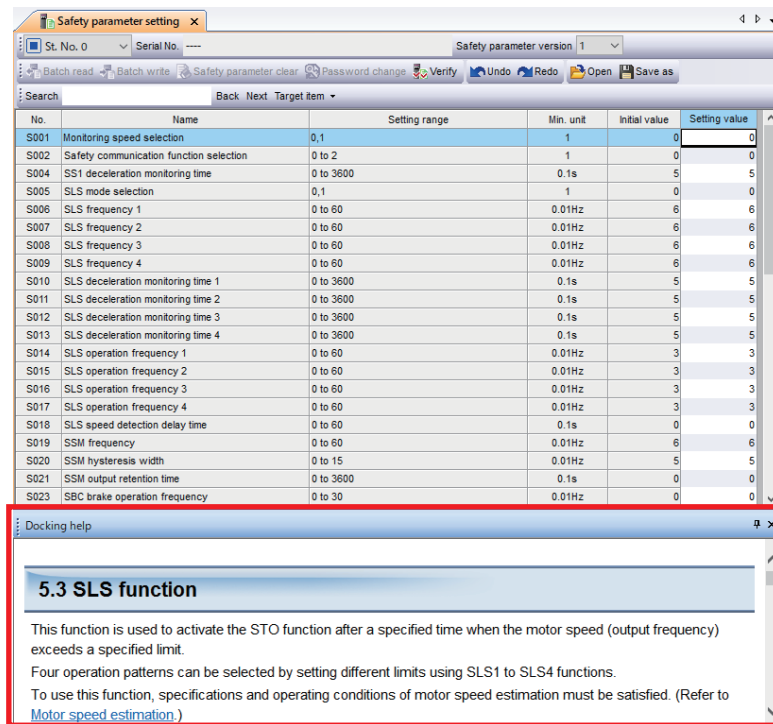
Select a function in the [Window] menu or click an icon on the toolbar to switch the windows in the sub-window area.



Symbol	Name	Function/description
A	Tab	Displays the names of functions in tab format. Click a tab to move the corresponding sub window to the front and operate it. Drag a tab to change the order of the sub windows. Click the × button on the tab to close the corresponding sub window. (When the window cannot display all the tabs, the tabs can be scrolled by the button.)
B	Sub-window selection button	Displays a list of the displayed sub windows. Select a sub window from the list to display it front.
C	Sub-window display area	Displays a function window of FR Configurator2.

◆ Docking help

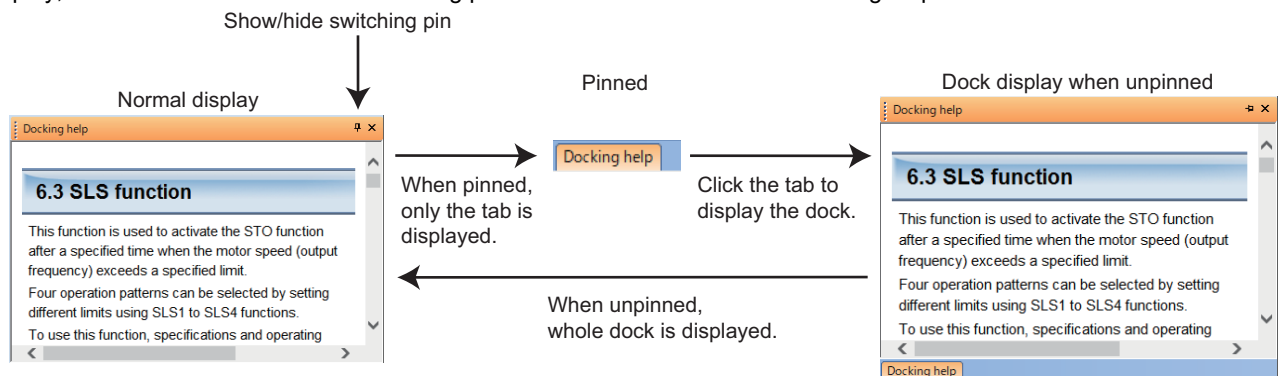
The Instruction Manual of the inverter can be displayed in the sub-window area only when the safety parameter setting function or the safety parameter verification function is selected.



Symbol	Name	Function/description
A	Docking help	Displays the Instruction Manual in the sub-window area.

Display and switching of the docking help

Select [Docking help] from [Docking Window] in the [View] menu to switch the display of the docking help among display, tab display, and hidden. The show/hide switching pin is used to show or hide the docking help.



3.2.5 Menu bar and toolbar

The window of a desired function can be displayed by selecting it from the menu or on the toolbar.

◆ Menu/Toolbar list

The following functions are available on the menu.

Menu	Pull-down menu		Toolbar icon	Function/operation
Project	New...			Displays the system setting window.
	Open...			Opens a project file (*.frc2).
	Close...		—	Closes the project file (*.frc2).
	Save			Saves the project file (*.frc2). When the project file (*.frc2) has not been read or not created yet, the "Save As" window is displayed to save the project file.
	Save As...		—	Names the current setting and saves it as a project file (*.frc2).
	System setting		—	Used to check and change the system setting.
	Print preview		—	Used to check the print screen of the selected sub window.
	Print...			Prints the selected sub window.
	Exit FR Configurator2		—	Exits FR Configurator2.
View	System		—	Shows or hides the system toolbar.
	Call function		—	Shows or hides the call function toolbar.
	Status bar		—	Shows or hides the status bar.
	Docking Window	Project window		Shows or hides the project window.
		Docking help	—	Shows or hides the docking help used with the safety parameter setting window.
	Switch display language...		—	Displays the "Switch Display Language" window to switch the display language. This menu is not available for the Developer function.
File ^{*1}	Open...			Opens a file related to the function of the sub window that is displayed front.
	Import...			Imports files (*.gp4 or *.st1) when the graph window is open. Use this function to compare them with the previous waveform data by displaying them together.
	Save As...			Saves the data related to the function of the sub window that is displayed front as new data with a name.
	Save image in file...			Saves the graph window as graph data (*.jpg or *.emf) when the graph window is open.
	Export to Excel...			Divides the information displayed in the graph window into channels and saves it in Excel format when the graph window is open.
	Reread		—	Re-reads the data of the open file when the graph window is open.

Menu	Pull-down menu		Toolbar icon	Function/operation	
Parameter list (Z) ^{*1}	<u>P</u> U		—	Activates the PU operation mode.	
	<u>E</u> XT		—	Activates the External operation mode.	
	<u>N</u> ET		—	Activates the NET operation mode.	
	Batch <u>r</u> ead			Reads all the set values of the parameters of the selected inverter.	
	Re <u>a</u> d			Reads the set value of the selected parameter of the selected inverter.	
	Batch <u>w</u> rite			Writes all the parameter setting values entered in the setting field to the selected inverter.	
	W <u>r</u> ite			Writes the set value of the selected parameter to the selected inverter.	
	All <u>c</u> lear			Returns all parameters which can be cleared including calibration parameters and terminal function selection parameters to their initial values.	
	Parameter <u>c</u> lear			Returns parameters excluding calibration parameters and terminal function selection parameters to their initial values.	
	<u>V</u> erify			Verifies the parameter settings in FR Configurator2 against settings already written to the inverter.	
	<u>F</u> ilter selection		—	Used to select parameters shown in the parameter list.	
	E <u>d</u> it individual list		—	Displays the window for selecting items for the individual list used as a parameter filter.	
	Display of related parameters		—	Displays items related to selected parameters.	
	Settings by function	Motor	Motor setting	—	Displays the window for the motor and the control method setting.
			Offline auto tuning	—	Displays the window to perform offline auto tuning.
			Acceleration/deceleration pattern and time setting	—	Displays the window for the acceleration/deceleration and the time setting.
			Start command and frequency setting method	—	Displays the window for the start command and frequency setting.
		Terminal	Output terminal (FM/CA) calibration	—	Displays the window to calibrate terminal FM/CA.
			Output terminal (AM) calibration	—	Displays the window to calibrate terminal AM.
			Input terminal assignment	—	Displays the window to assign functions to input terminals.
			Output terminal assignment	—	Displays the window to assign functions to output terminals.
			Analog input terminal 2 calibration	—	Displays the window to calibrate terminal 2.
			Analog input terminal 4 calibration	—	Displays the window to calibrate terminal 4.
		Trace	Trace setting	—	Displays the window for the trace-related setting.
			Trace command	—	Displays the window to perform trace commands such as sampling start/end.
		Position control	Point table	—	Displays the window for the point table setting used for position control.
Safety parameter setting (Z) ^{*1}	Batch <u>r</u> ead			Reads all the safety parameter setting values of the selected inverter.	
	Batch <u>w</u> rite			Writes all the safety parameter setting values in the setting value column to the selected inverter.	
	Safety parameter <u>c</u> lear			All safety parameters and passwords return to initial values.	
	<u>V</u> erify			Verifies the safety parameter settings in FR Configurator2 against settings already written to the inverter.	
	<u>P</u> assword change			Changes the registered password.	
	CIP Safety	Read configuration signature	—	Displays the window to check the details of the Safety Configuration ID (SCID) and copy the ID.	
		Set <u>T</u> UNID and OCPUNID	—	Set the IP address and the safety network number for TUNID and OCPUNID.	

Menu	Pull-down menu		Toolbar icon	Function/operation
Graph (Z) ^{*1}	Screen copy			Saves the entire sub window as image data (*.bmp) to the clipboard.
	Scale optimization			Adjusts the scale of the vertical axis and the position of zero so that the entire waveform of the selection history can be displayed in the window.
	Moving mode			Used to scroll the displayed waveform data.
	Zoom-in mode			Used to zoom in the specified area of a waveform.
	Cursor			Shows or hides the cursor on the screen.
	Grayout			Switches the display color (color or gray scale) of the waveform and the graph on the screen.
	Overwrite			Enables or disables overwriting for all the histories.
	History management...			Shows or hides the waveform history screen.
	Property window	Setting	—	Shows or hides the setting tab.
		Indication	—	Shows or hides the indication tab.
		Cursor	—	Shows or hides the cursor tab.
Batch monitor (Z) ^{*1}	Pause			Pauses the acquisition of the monitor data.
	Resume			Resumes the acquisition of the monitor data.
	Setting...			Sets the monitored item to be displayed.
	Trend monitor...			Displays the window for selecting items to be monitored in the form of a graph.
Trend monitor (Z) ^{*1}	Pause			Pauses the acquisition of the monitor data.
	Resume			Resumes the acquisition of the monitor data.
	Setting...			Sets the monitored item to be displayed.
	Trend monitor...			Displays a graph for each of the selected monitored items.
	All screen copy			Saves the screen displayed in all trend monitor windows to the clipboard.
	Screen copy			Saves a screen displayed in the selected trend monitor window to the clipboard.
	View	Toolbar	—	Shows or hides the trend monitor toolbar.
		Status bar	—	Shows or hides the trend monitor status bar.
I/O terminal monitor (Z) ^{*1}	Pause			Pauses the acquisition of the I/O terminal monitor data.
	Resume			Resumes the acquisition of the I/O terminal monitor data.
Faults history (Z) ^{*1}	Faults history clear			Clears the fault history of the inverter.
	Inverter reset			Resets the inverter.
	AI fault diagnosis			Used to find probable causes of faults using AI technology.
	Offline AI fault diagnosis			Perform "AI fault diagnosis" using the AI diagnosis data file saved on the personal computer.
Life check (Z) ^{*1}	Update			Refreshes the life check result.
	Main circuit capacitor life measuring			Starts life measuring of the main circuit capacitor.
Online status (Z) ^{*1}	All online			Sets all the devices selected in the project to online.
	Connection check LED all-OFF		—	Used to turn OFF the LED on all connected inverters.

Menu	Pull-down menu	Toolbar icon	Function/operation
Operation mode (Z) ^{*1}	PU	—	Activates the PU operation mode.
	EXT	—	Activates the External operation mode.
	NET	—	Activates the NET operation mode.
Parameter	Parameter list...		Displays the "Parameter list" window in the sub-window area.
	Convert...	—	Displays the "Convert" window in the sub-window area.
Safety	Safety parameter setting...		Displays the "Safety parameter setting" window in the sub-window area.
Monitor	Graph...		Displays the "Graph" window in the sub-window area.
	Batch monitor...		Displays the "Batch monitor" window in the sub-window area.
	I/O terminal monitor...		Displays the "I/O terminal monitor" window in the sub-window area.
Diagnose	Faults history...	—	Displays the "Faults history" window in the sub-window area.
	Serial number...	—	Displays the "Serial number" window in the sub-window area.
	Life check		Displays the "Life check" window in the sub-window area.
	Diagnosis result output...		Reads diagnosis data from the inverter and output the data to a file.
	Ethernet status...	—	Displays the "Ethernet status" window in the sub-window area.
	Online status...	—	Displays the "Online status" window in the sub-window area.
Test operation	Test operation...		Shows or hides the command sending section of "Test operation".
Tool	Developer...		Starts Developer.
	USB memory parameter copy file function edit		Starts the USB memory parameter copy file editor.
	Ethernet parameter setting		Starts the Ethernet parameter setting.
	iQSS backup file conversion	—	Starts the iQSS backup file conversion.
	Firmware Update Tool		Start Firmware Update Tool.
Window	Cascade	—	Cascades sub windows.
	Tile vertically	—	Tiles sub windows horizontally.
	Tile horizontally	—	Tiles sub windows vertically.
	Arrange icons	—	Arranges sub windows that are displayed as icons.
	Close all	—	Closes all the sub windows.
	Reset window layout	—	Resets the layout and the sizes of the toolbar, docking windows, and sub windows to each initial status.
	Opened sub window (Example) Parameter list 1	—	Select this item to display the opened sub window.
Help	FR Configurator2 help...		Starts e-Manual Viewer to display the Manual.
	Inverter's Instruction Manual	—	Starts the help.
	Connection to Mitsubishi Electric FA Global Website...	—	Starts up the web browser to access Mitsubishi Electric FA Global Website.
	About...	—	Opens the "About" window.

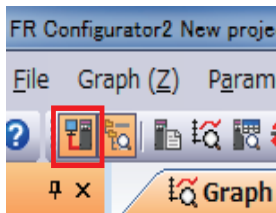
*1 The function menu related to the front sub window is displayed. When no sub window is displayed in the sub-window area, these items are not displayed on the menu bar.

NOTE

- The layout of excel files can be changed by editing the template file "Charts.xlsx".
(An editable file can be found in C:\FREXROL\FRC2\dat\com\ChartTemplate.)
- Do not delete objects in the template file "Charts.xlsx" or the file itself. Using a template file in which the original template has been deleted will cause the error message "Export to Excel failed" to be displayed.
A template file used to export data to Excel when an error occurs can be found in the FR Configurator2 installation folder.
(If the location of the installation folder has not been changed, it can be found in C:\Program Files\MELSOFT\FRC2\sys\Function\ChartTemplate.) Do not overwrite the template file. Instead, copy the template file and use that file to make any changes.

◆ Communication manager

Online/offline can be switched for communication between FR Configurator2 and the inverter from the menu on the toolbar.



The online/offline condition of communication between FR Configurator2 and the inverter can be checked by the icon that is displayed.

Display	Status
	Offline
	Online

NOTE

- When no communication is made for the period of the timeout time at online while "Ethernet" is selected for "PC-side port", "TCP" for "Protocol", and "GOT" for "Through", a communication error occurs when communication is attempted next. After a communication error occurs, the connection status is switched from online to offline. Switch the connection status to online again to operate.

◆ Online/offline setting of the inverter and FR Configurator2 (Ethernet connection)

- To connect the inverter and FR Configurator2 via Ethernet, refer to the following table to check the settings of the relay device and parameters.

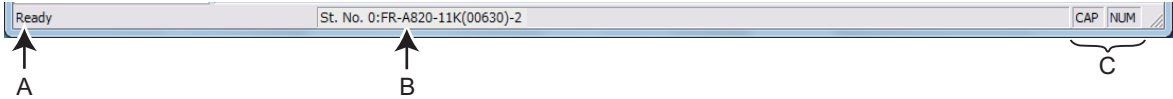
Model	Intermediate device	Pr.	Name	Setting
FR-A800-E FR-A800-G FR-F800-E	Not connected	1427	Ethernet function selection 1	Set "5001" or "5002" in any of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	
	GOT	1427	Ethernet function selection 1	Set "5000", "5001", "5006", or "5008" in any of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
	Programmable controller	1427	Ethernet function selection 1	Set "5001" in any of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	
	GOT to programmable controller	1427	Ethernet function selection 1	Set "5001" in any of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	

Model	Intermediate device	Pr.	Name	Setting
FR-A800-E-R2R	Not connected	1076	Ethernet function selection 1	Set "5001" or "5002" in any of the parameters.
		1077	Ethernet function selection 2	
		1078	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	
	GOT	1076	Ethernet function selection 1	Set "5000", "5001", "5006", or "5008" in any of the parameters.
		1077	Ethernet function selection 2	
		1078	Ethernet function selection 3	
	Programmable controller	1076	Ethernet function selection 1	Set "5001" in any of the parameters.
		1077	Ethernet function selection 2	
		1078	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	
	GOT to programmable controller	1427	Ethernet function selection 1	Set "5001" in any of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1442 to 1448	IP filter address (Ethernet)	
FR-E800-(SC)E FR-E806-SCE FR-D800-E	Not used	1427	Ethernet function selection 1	Set "5001" or "5002" in any of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1430	Ethernet function selection 4	
		1442 to 1448	IP filter address (Ethernet)	
	GOT	1427	Ethernet function selection 1	Set "5000", "5001", "5006", or "5008" in any of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1430	Ethernet function selection 4	
	Programmable controller	1427	Ethernet function selection 1	Set "5001" in any of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1430	Ethernet function selection 4	
	GOT to programmable controller	1427	Ethernet function selection 1	Set "5001" in any of the parameters.
		1428	Ethernet function selection 2	
		1429	Ethernet function selection 3	
		1430	Ethernet function selection 4	
FR-E700-NE	Not connected	833	Ethernet function selection 1	Set "31" or "32" in any of the parameters.
		834	Ethernet function selection 2	
		835	Ethernet function selection 3	
		837 to 843	Ethernet IP filter address	
	GOT	833	Ethernet function selection 1	Set "31", "30", "36", or "38" in any of the parameters.
		834	Ethernet function selection 2	
		835	Ethernet function selection 3	
	Programmable controller	833	Ethernet function selection 1	Set "31" in any of the parameters.
		834	Ethernet function selection 2	
		835	Ethernet function selection 3	
		837 to 843	Ethernet IP filter address	
	GOT to programmable controller	833	Ethernet function selection 1	Set "31" in any of the parameters.
		834	Ethernet function selection 2	
		835	Ethernet function selection 3	
		837 to 843	Ethernet IP filter address	

- When the communication status is switched to online while the connected device is protected by a remote password, the remote password dialog appears.
- When the personal computer and GOT are connected via Ethernet, switch the status to online after the monitor window (such as batch monitor window and I/O terminal monitor window) is displayed. Switching the status to online without the monitor window displayed causes a communication error.
- When the remote password dialog is canceled, the device is kept offline.

3.2.6 Status bar

The status bar displays the operation mode of the inverter, the model information etc.



Symbol	Name	Function/description
A	Window status display	Displays the function description when the mouse cursor is on an item on the menu bar or an icon on the toolbar.
B	Station information	Displays the model information of the inverter that is selected in the project tree. The display format is "Station number: Inverter model".
C	Keyboard status	Displays the keyboard status.

- Keyboard status list

Item	Character color	
	Black	Gray
"CAP"	Caps Lock: ON	Caps Lock: OFF
"NUM"	Num Lock: ON	Num Lock: OFF

3.3 File operation and print

3.3.1 List of file types

Extension	Description	Corresponding window	Open	Save	Import	Refer to page
*.frc2	Manages the system setting, model information, parameter list, sampling data of graph, and data of the batch monitor with a single file.	All window	○	○	×	121
*.gp4	Holds the waveform data sampled by the graph function. The saved waveform data can be displayed again by opening the file with the graph function.	Graph	○	○	○	201
*.csv	Holds the waveform data sampled by the graph function in the text file format.		×	○	×	201
*.st1	Holds the operating status of the inverter in a USB memory tracing it.		○	×	○	201
*.jpg	Holds the waveform data of the displayed graph window as an image file.		×	○	×	201
*.emf			×	○	×	201
*.xlsx	Divides the information displayed in the graph window into channels and saves it in Excel format.		×	○	×	—
*.csv	Holds the acquired serial number of the inverter in the text file format.	Serial number	×	○	×	223
*.csv	Holds the acquired diagnosis data (inverter information, terminal information, etc.) in the text file format.	Diagnosis result output	×	○	×	225
*.pr4	Holds the parameter setting values set in FR Configurator2.	Parameter list	○	○	×	150
*.pr3	Holds the parameter setting values set in FR Configurator SW3.		○	×	×	150
*.prm	Holds the parameter setting values set in FR Configurator SW1.		○	×	×	150
*.xls	Holds the parameter list data in Microsoft Excel format.		×	○	×	150
*.ind	Holds the parameters set in the parameter individual list.		○	○	×	155
*.spr4	Holds the safety parameter setting values set in FR Configurator2.	Safety parameter setting	○	○	×	165
*.xls	Holds the safety parameter list data in Microsoft Excel format.		×	○	×	165
*.cp1	Holds the parameter setting that has been copied from the inverter to a USB memory device.	USB memory parameter copy file edit	○	○	×	250
*.bin	Executes inverter firmware update.	Firmware update	○	×	×	259

(○: Available, ×: Unavailable)

3.3.2 Open the file

◆ Opening a project file

This function reads the information of each function window that is saved in a project file (*.frc2), such as model information and parameter setting values, and reflects it to the windows. Select [Open] in the [Project] menu or click  on the toolbar to display the "Open the file" window. To read a saved file, select the target file, then press the [Open] button. Regardless whether each function window is shown or hidden, the information of the opened file is reflected to FR Configurator2.

◆ Open the file of each function

The information of files having an extension *.gp4, *.pr4, *.spr4, *.pr3, *.prm, or *.cp1 can be imported and displayed on the screen by selecting [Open...] in the [File] menu or  on the tool menu of each function window while the corresponding function window is displayed.

NOTE

- Project files (*.me3) created on FR Configurator SW3 cannot be opened.

3.3.3 Save the file

Select [Save As] in the [Project] menu or the [File] menu to display the "Save As" window. Check the save destination, and save the file with the specified [File Name]. Select [Save] in the [Project] menu to save the file with the same name. When saving a file for the first time, "Save As" window is displayed.

NOTE

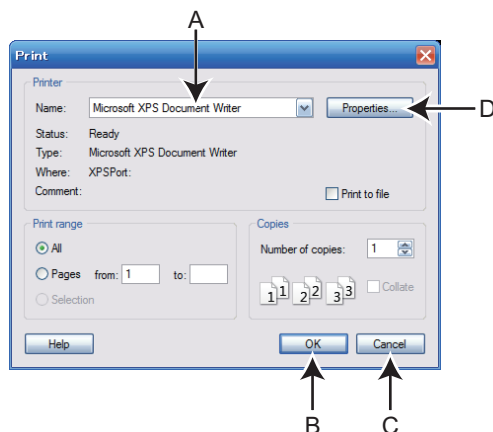
- If the project file (*.frc2) needs to be shared with another user, place it in the folder that another user can access.

3.3.4 Import the data

By importing the saved data (*.gp4) of the "Graph", the information of the data can be displayed on the "Graph" sub window. Select [Import] in the [File] menu to display a window for selecting the importing file.

3.3.5 Print

The window of "Parameter List", "Safety Parameter Setting", or "Graph" can be printed. Select [Print...] in the [Project] menu or click  on the toolbar.



Symbol	Name	Function/description
A	Name	Select a printer.
B	OK	Click to start printing.
C	Cancel	Cancels the printing, and closes the window.
D	Properties	Displays a printer property window of the selected printer.

The parameter list and safety parameter setting are printed in the following format.

Name	Name	Setting range	Min. unit	Initial value	Setting value
0	Torque limit	0.00	0.1%	2	6
1	Maximum frequency	0.00	0.01Hz	120	120
2	Minimum frequency	0.00	0.01Hz	0	0
3	Base frequency	0.00	0.01Hz	60	60
4	Multi-speed setting (high speed)	0.00	0.01Hz	60	60
5	Multi-speed setting (middle speed)	0.00	0.01Hz	30	30

Printing example of a parameter list

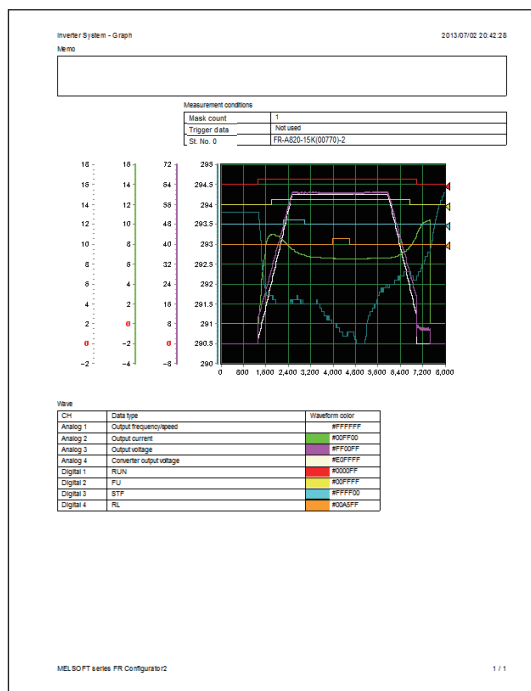
No	Name	Initial value	Setting value
56	Current monitoring reference	1.5	3
57	Restart coasting time	9999	
59	Remote function selection	0	2
63	Reference value of deceleration	9999	1.2
64	Starting frequency for elevator mode	9999	5
65	Brake selection	0	1
75	Reset selection(Disconnected PU detection/PU stop selection/Reset limit	14	1
80	Motor capacity	9999	4500
81	Number of motor poles	9999	4
82	Motor excitation current	9999	
83	Rated motor voltage	400	
84	Rated motor frequency	9999	

Printing example of a verification list

NOTE

- The comments entered in the system setting window are printed in the comment field of the parameter list and safety parameter setting.

The Graph is printed in the following format.



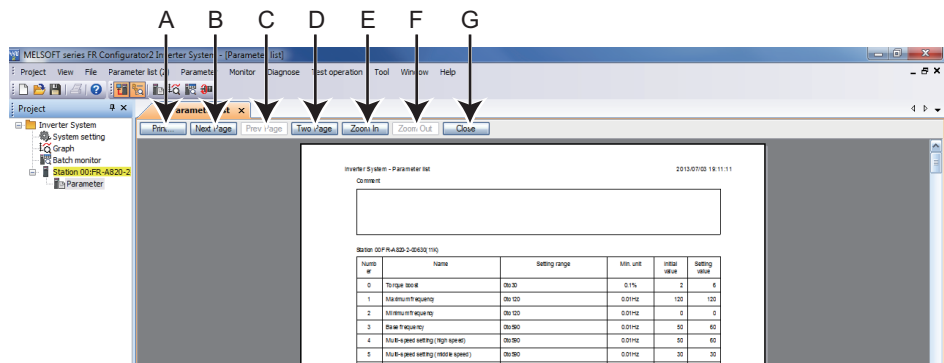
Example of the Graph print

NOTE

- The graph drawing area is printed in black. To print the area in white, turn ON the grayout setting before printing.
- The displayed position in the print preview may differ from the actual printed position on a print.

3.3.6 Print preview

The printing image of the "Parameter List" window, "Safety Parameter Setting" window, or "Graph" window can be displayed in the sub window before printing. Select [Print preview] in the [Project] menu.

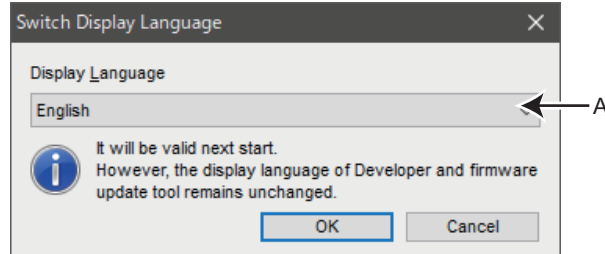


Symbol	Name	Function/description
A	Print...	Click to start printing.
B	Next Page	Displays the next page when the print target has two pages or more.
C	Prev Page	Displays the previous page when the print target has two pages or more.
D	Two Page	Displays two pages on one window when the print target has two pages or more.
	One Page	Displays one page on one window when the print target has two pages or more.
E	Zoom In	Enlarges the display of the print preview by three steps.
F	Zoom Out	Reduces the display of the print preview by three steps.
G	Close	Closes the print preview window.

3.4 Display setting

3.4.1 Switch the display language

You can switch the display language of FR Configurator2. Select [Switch Display Language] in [View] menu. The change will take effect after FR Configurator2 is restarted.



Symbol	Name	Function/description
A	Display _Language	Select the display language.



NOTE

- The change is not applied to the Developer function and Firmware Update Tool.

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4 FUNCTION

This chapter explains the functions of this product.

Always read the instructions before using the equipment.

◆ Connecting the USB power supply / 24 V external power supply

■ Applicable models

- FR-E800 series and FR-D800 series

■ Functions available during USB power delivery / 24 V external power supply operation

- Only the following functions operate normally when power is supplied to the FR-E800/FR-D800 inverter from the USB port or a 24 V external power supply.

Function			USB power delivery	24 V external power supply operation
Parameter list function	Parameter list		○	○
	Settings by function	Motor setting	○	○
		Analog input terminal calibration	○	○
		Output terminal calibration	○	○
		Trace setting	○	○
		Input terminal assignment	○	○
		Output terminal assignment	○	○
		Point table	○	○
		Unit selection	○	○
Safety parameter setting		○	○	
Convert		○	○	
Batch monitor function		○	○	
I/O terminal monitor		✕	○	
Diagnostic function	Fault history function		✕	○
	Serial number function		○	○
	Life check		○	○
	Online status display		○	○
PLC function		○	○	
USB memory parameter copy file edit		○	○	
Ethernet parameter setting function		○	○	
Help		○	○	

○: Available ×: Not available

■ Precautions

- Option information cannot be recognized automatically by automatic recognition in the system setting window.
- The AI fault diagnosis and main circuit capacitor life diagnosis are not available.
- Serial numbers cannot be displayed using the serial number function.
- Diagnosis result output is not available for the I/O monitor function, faults history function, serial number function, and life check function.
- The inverter is reset when power source is changed from the main circuit power supply to the USB power supply, or from the USB power supply or the 24 V external power supply to the main circuit power supply. A timeout error may occur depending on the types of functions being activated.

■ Precautions only for USB power delivery

- Ethernet communication is not guaranteed.
- Note that Ethernet communication may be disabled in the FR-E800-(SC)E or FR-D800-E inverter when turning ON/OFF the main circuit power supply is repeated while Ethernet and USB connections are used at the same time. Disconnect the USB cable before turning ON/OFF the main circuit power supply.

4.1 Parameter list

The following functions can be used using the "Parameter list".

- Parameter display
- Parameter setting value read, batch read
- Parameter setting value input, write, batch write
- Parameter clear / all parameter clear
- Parameter verify
- Parameter search

To display the "Parameter list", select [Parameter list...] in the [Parameter] menu, or click  on the toolbar. "Parameter list" cannot be displayed if no project file has been created, or if no project file is open. The available "Parameter list" functions are different at online and offline.

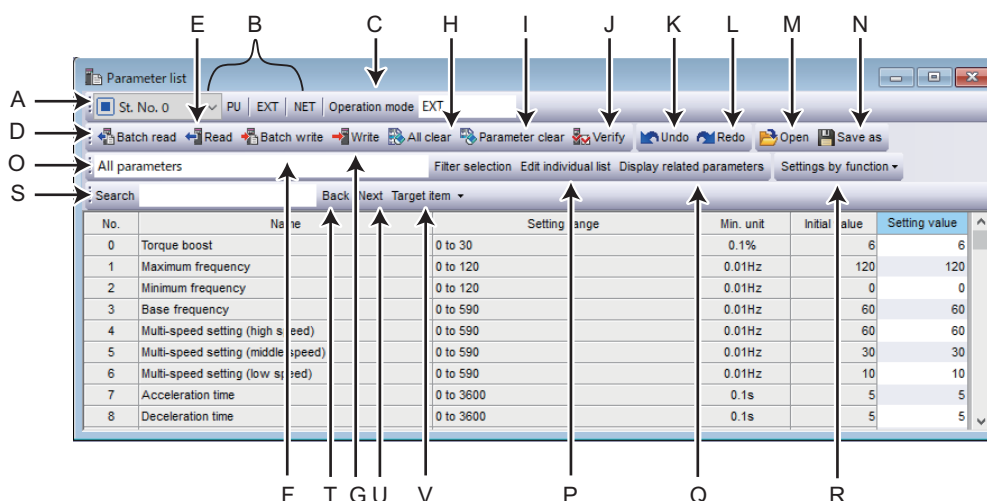
Function	Online	Offline
All parameter clear	○	×
Parameter clear	○	×
Batch read	○	×
Read	○	×
Batch write	○	×
Write	○	×
Verify	○	○
Parameter setting value input	○	○
Undo	○	○
Redo	○	○
Search	○	○

(○: operation available; ×: operation not available)

NOTE

- FR Configurator2 parameter list supports the latest inverter at the time of FR Configurator2 upgrade. The setting range, initial value, number of parameters, etc., may be different with the inverter before upgrading (additional functions).
- Although the parameter name of the instruction manual and the parameter name of FR Configurator2 may be different, there is no difference in the parameter function.
- **Pr.296** and **Pr.297** do not appear in the parameter list. **Pr.296** and **Pr.297** will not change even if parameter settings of another inverter are read. Change **Pr.296** and **Pr.297** from the operation panel or the parameter unit.

4.1.1 Parameter list



Symbol	Name	Function/description
A	St. No. (Station number)	Select a station registered in the project.
B	Operation mode button	Switch between the operation modes of the inverter.
C	Operation mode indication	Displays the operation mode.
D	Batch read	Reads all the parameter setting values of the selected inverter.
E	Read	Reads the selected parameter setting values of the selected inverter.
F	Batch write	Writes all the selected parameter setting values in the setting value column to the selected inverter.
G	Write	Writes all selected parameter setting values to the selected inverter.
H	All clear	Returns all parameters which can be cleared including calibration parameters and terminal function selection parameters to their initial values.
I	Parameter clear	Returns parameters excluding calibration parameters and terminal function selection parameters to their initial values.
J	Verify	Verifies the parameter settings set in FR Configurator2 against initial values, settings in parameter files (*.pr4, *.pr3, *.prm), or settings in the inverter.
K	Undo	Returns the edited parameter setting value to the setting value before editing.
L	Redo	Redoes the setting value changed by "Undo" (up to 10 parameters).
M	Open	Displays the "Open" dialog box for a parameter file (*.pr4, *.pr3, and *.prm) to be opened.
N	Save as	Shows the "Save as" dialog box. Verifies the save location, and saves with the specified [File Name]. The extension for savable parameter information files is *.pr4. The parameter list data can also be saved in the Microsoft Excel file format (*.xls) by using "File Type" in the "Save as" dialog box.
O	Filter selection	Used to select parameters shown in the parameter list.
P	Edit Individual list	Used to set the individual list for filtering items.
Q	Display of related parameters	Used to display items related to the parameters selected in the parameter list.
R	Settings by function	Perform settings by function: motor, terminal, trace, and position control settings.
S	Search	Searches for the input character string from within the parameter list.
T	Back	Searches for the input character string in the upward direction.
U	Next	Searches for the input character string in the downward direction.
V	Target item	Specifies the column to search.

- Parameter list display item

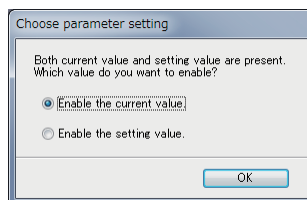
Item	Function/description
Number	Shows the parameter number. Calibration parameters (Pr.902 , Pr.903 , Pr.904 , Pr.905 , etc.) will be shown with ().
Name	Shows the parameter name.
Setting range	Shows the setting range of the parameter setting value.
Min. unit	Shows the minimum setting unit of the parameter setting value.
Initial value	Shows the factory default parameter setting values of the inverter.
Setting value	Inputs the value to be written to the inverter. The value different from the initial one is displayed in blue. Selecting [Write] or [Batch write] will write the setting value field data to the inverter.

NOTE

- To display the explanation about a parameter on the help window, double-click the parameter in the parameter list.

◆ To open the parameter file created on FR Configurator SW3 or SW1

- When the parameter file (*.pr3 or *.prm) created on FR Configurator SW3 or SW1 including both current values and setting values is opened, "Choose parameter setting" window appears.



4

4.1.2 Parameter clear / all parameter clear

Performing parameter clear or all parameter clear will return the parameters to the initial values.

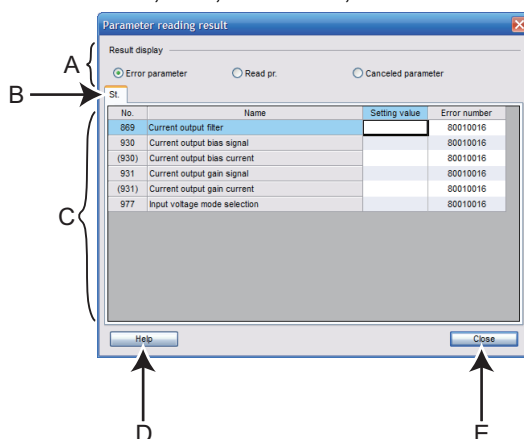
Select [All clear] or [Parameter clear] from the [Parameter list (Z)] menu bar, or [All clear] or [Parameter clear] on the toolbar to perform parameter clear or all parameter clear. Refer to the Instruction Manual of the inverter for availability of parameter clear and all parameter clear for each parameter.

NOTE

- When parameter clear or all parameter clear were performed from FR Configurator2, the communication parameters are not cleared. For the parameter details, refer to the Instruction Manual of the inverter or the Instruction Manual of the communication option.

4.1.3 Parameter read (batch read) and write (batch write)

Parameter read and write can be performed by accessing the inverter parameters. By selecting from among [Batch read], [Read], [Batch write], or [Write] from the [Parameter list (Z)] menu bar, or by selecting [Batch read], [Read], [Batch write], or [Write] on the toolbar, the confirmation dialog will be displayed, and batch read, read, batch write, or write will be performed. The following window is shown when batch read, read, batch write, or write is finished and an error has occurred.



Symbol	Name	Function/description	
A	Result display	Error parameter	Shows only the parameters with read errors or write errors.
		Read successful parameter	Shows only the parameters successfully read.
		Write successful parameter	Shows only the parameters successfully written.
		Canceled parameter	Shows only the parameters with read or write canceled.
B	Station tag	Shows the read or write target station.	
C	Result list	Read	Shows parameter number, name, initial value, and error number of the reading error parameters.
		Write	Shows parameter number, name, data, and error number of the writing error parameters.

Symbol	Name	Function/description
D	Help	Help appears.
E	Close	Closes the operation window.



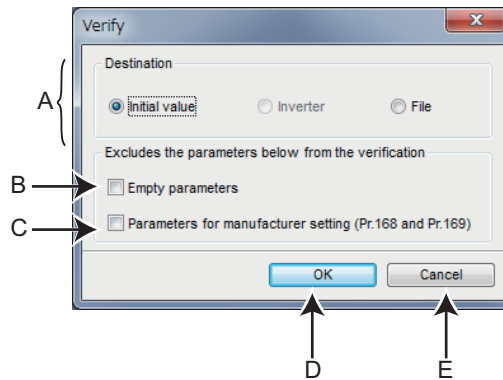
NOTE

- If the setting value of **Pr.342** is changed from "0" to "1" by batch writing, only the **Pr.77 Parameter write selection**, **Pr.122 PU communication check time interval**, and **Pr.336 RS-485 communication check time interval** setting values will be written to RAM only. (They will not be written to EEPROM.) To change the setting values for **Pr.77**, **Pr.122**, and **Pr.336**, write from the parameter unit or the operation panel.
- Due to the setting values of **Pr.77 Parameter write selection** and **Pr.79 Operation mode selection**, when batch writing parameters a write error will occur for **Pr.122 PU communication check time interval**, **Pr.336 RS-485 communication check time interval**, and **Pr.342 Communication EEPROM write selection**.
- For the FR-A820-55K (03160) or FR-A840-55K (01800), changing the **Pr.570 Multiple rating setting** to the SLD or LD rating (**Pr.570** = "0" or "1") does not change the minimum increment and setting range displays of **Pr.90 to 94**, **Pr.458 to Pr.462**, **Pr.859**, and **Pr.860**. If a setting value is entered in accordance with the displayed minimum increment, the lower digits may be dropped when it is written to the inverter.
- Example with **Pr.90 Motor constant (R1)**: "0.001" is displayed on the parameter list, but the inverter's minimum setting increment is "0.01". If "12.567" is input in this condition, "12.56" is written to the inverter.
- When writing to **Pr.570 Multiple rating setting** fails during batch writing, writing to other parameters is also canceled.
- All parameter clear is performed when the **Pr.570** setting is changed. Therefore, when a password is set in **Pr.297 Password lock/unlock**, the password is unlocked.
- Do not write parameters from FR Configurator2 to the inverter whose parameters are being copied using the operation panel or other means. Writing parameters from FR Configurator2 may cause a communication error. Alternatively, the data for parameter copy may be overwritten by the parameter setting values.
- The servo-ON state is equivalent to "during operation" state. Therefore, if parameters are not allowed to be written during operation, writing the parameters is not allowed.

4.1.4 Parameter verification

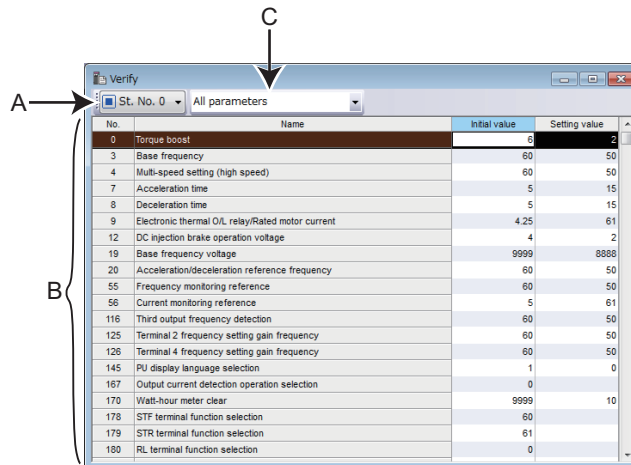
This function accesses the inverter parameters, and verifies the parameter setting values set by FR Configurator2 with the values selected in the verify destination window.

The "Select destination selection" window can be displayed by selecting [Verify...] from the [Parameter list (Z)] menu bar, or by selecting [Verify] on the toolbar.



Symbol	Name		Function/description
A	Destination	Initial value	Verifies against the initial value.
		Inverter	Verifies against parameter setting values written to the inverter.
		File	Verifies against parameter list setting values saved to a file (*.pr4, *.pr3, and *.prm).
B	Excludes the parameters below from the verification	Empty parameters	Excludes the parameters from verification if they do not have a setting.
C		Parameters for manufacturer setting (Pr.168, Pr.169)	Excludes Pr.168 and Pr.169 (parameters for manufacturer setting) from verification.
D	OK		Shows the Verify window.
E	Cancel		Closes the Verify destination selection window without performing verification.

The Verify window appears after selecting the destination on the Verify destination window.

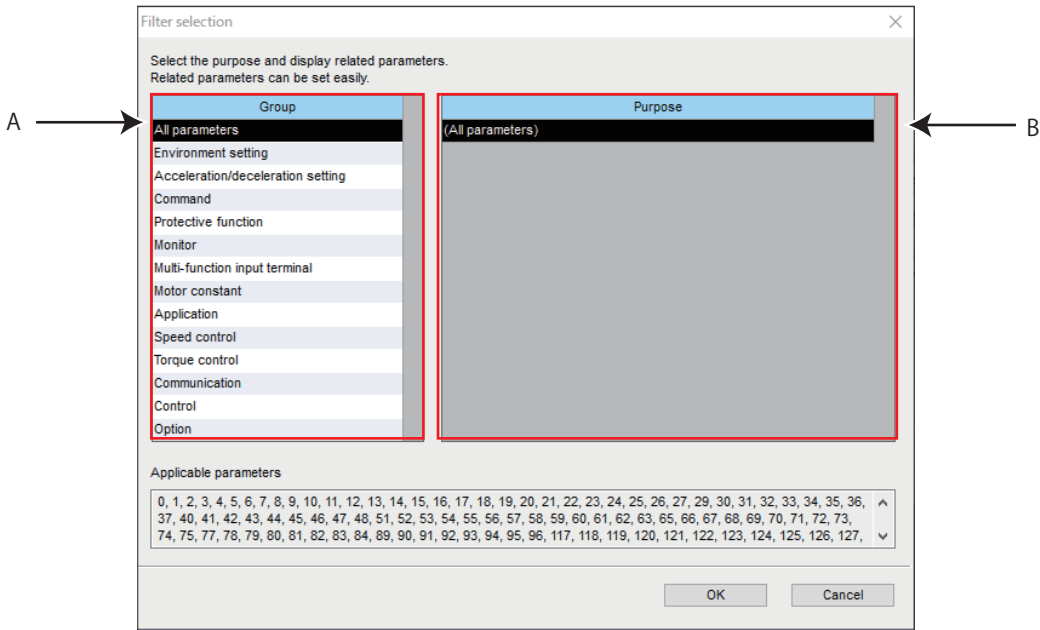


Symbol	Name	Function/description
A	St. No. (Station number)	Shows the verified station number.
B	Verify list	Shows parameters whose verified values are mismatched.
C	Filter	Select a filter for filtering the parameters in the verify list.

4.1.5 Filter selection

Set parameters to be shown in the parameter list.

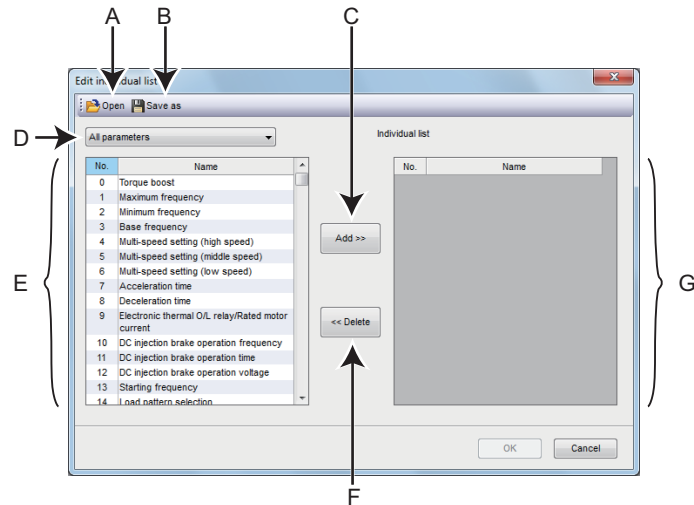
The "Filter selection" window can be displayed by selecting [Filter selection...] from the [Parameter list (Z)] menu bar, or by selecting [Filter selection] on the toolbar.



Symbol	Name	Function/description
A	Group	Function groups of parameters are shown. Select a group to show the function in the purpose field.
B	Purpose	The function of the selected group is shown. By selecting the function group, only the relevant parameters can be shown in the parameter list.

4.1.6 Editing the individual list

Set parameters to be shown when the [Individual list] filter is selected. Select [Edit individual list] from the [Parameter list (Z)] menu bar, or [Edit individual list] on the toolbar to display the "Edit individual list" window.



Symbol	Name	Function/description
A	Open	Reads the stored individual list.
B	Save As	Saves a completed individual list.
C	Add	Adds the selected parameters to the individual list.
D	Filter	Select a filter for filtering the parameters in the parameter list.
E	Parameter list	Displays the parameters.
F	Delete	Deletes the selected parameters in the individual list.
G	Individual list	Displays the selected parameters for the individual list.

4.1.7 Settings by function

Parameters related to each function can be set in the individual windows.

Select [Settings by function] - [Function name] from the [Parameter list (Z)] menu bar, [Settings by function] - [Function name] on the toolbar, or [Parameter] - [Function name] from the project tree to display the window by function.

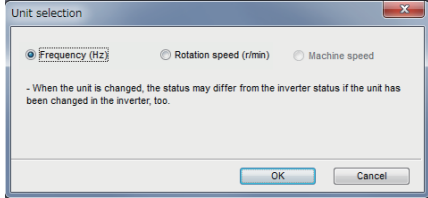
NOTE

- Some of the settings by function are not available depending on the inverter model.

◆ Toolbar for settings by function

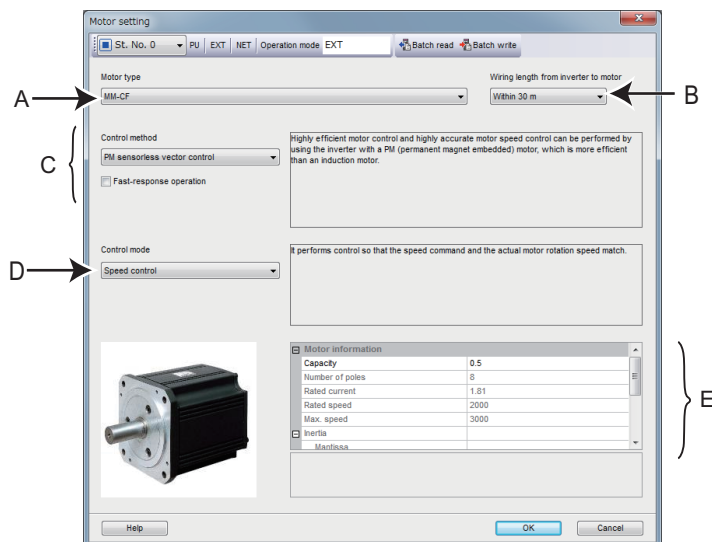
The toolbar for setting by function is described below.



Symbol	Name	Function/description	Corresponding window
A	Station number selection	Select a station number for function setting.	Common for all windows
B	Operation mode button	Switch between the operation modes of the inverter.	
C	Operation mode indication	Displays the operation mode.	
D	Batch read	Used to read the inverter parameter settings and reflect them in the window for settings by function.	Motor setting Acceleration/deceleration pattern and time setting Start command and frequency setting method Input terminal assignment Output terminal assignment Analog input terminal 2 calibration Analog input terminal 4 calibration Trace setting Point table
E	Batch write	Used to write the contents of the window for settings by function to the inverter parameters.	
F	Trace operation indicator	Displays the present trace operation status.	
G	Trace setting	Displays the trace setting window.	Trace command
H	Unit selection	Click the [Unit selection] button to display the unit selection dialog.  In the "Unit selection" dialog, the frequency (Hz), rotation speed (r/min), or machine speed can be selected.	Point table
I	Undo	Click the [Undo] button to reset the settings of the edited parameters to the previous values.	
J	Redo	Click the [Redo] button to cancel the change by selecting the [Undo] button.	

◆ Motor setting

Set motor-related parameters.



Symbol	Name	Function/description
A	Motor type	Select the motor type.
B	Wiring length from inverter to motor	Select [Within 30 m] or [Longer than 30 m].
C	Control method	Select the control method.
D	Control mode	Select the control mode.
E	Motor information	Set the motor information.

NOTE

- The motor type, the control method, and the control mode supported by the inverter are displayed. Any item not supported by FR Configurator2 is not displayed.

4

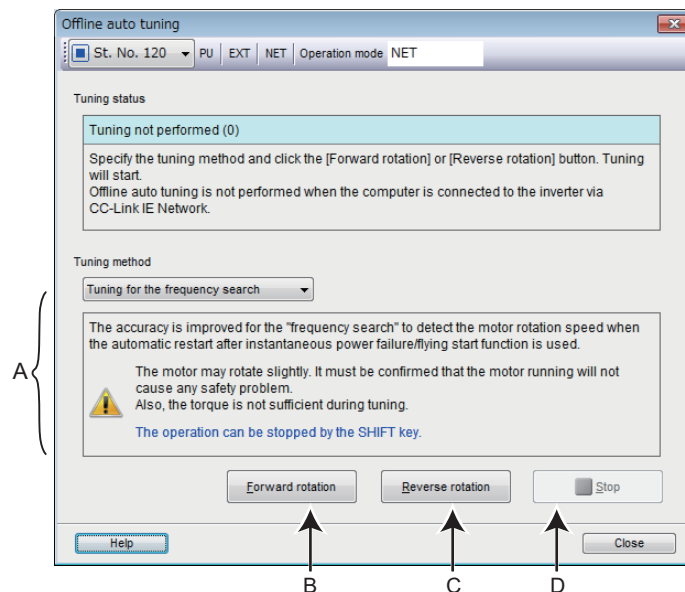
Encoder option selection (Pr.862 = "10 or 11")

When **Pr.862** = "10 or 11", position control and PM motor vector control are disabled. The following functions are enabled instead.

Function disabled	Functions enabled instead
Vector control with encoder (induction motor, position control)	Vector control with encoder (induction motor, speed control)
Vector control with encoder (PM motor, speed control)	PM sensorless vector control (PM motor, speed control)
Vector control with encoder (PM motor, position control)	PM sensorless vector control (PM motor, speed control)

Offline auto tuning

Perform offline auto tuning.



Symbol	Name	Function/description
A	Tuning method	Select the tuning method.
B	<u>F</u> orward rotation	The motor rotates in the forward direction.
C	<u>R</u> everse rotation	The motor rotates in the reverse direction.
D	<u>S</u> top	Stops the operation.

NOTE

- The [Forward rotation] and [Reverse rotation] buttons are disabled when the computer is connected with the inverter via CC-Link IE network communication.

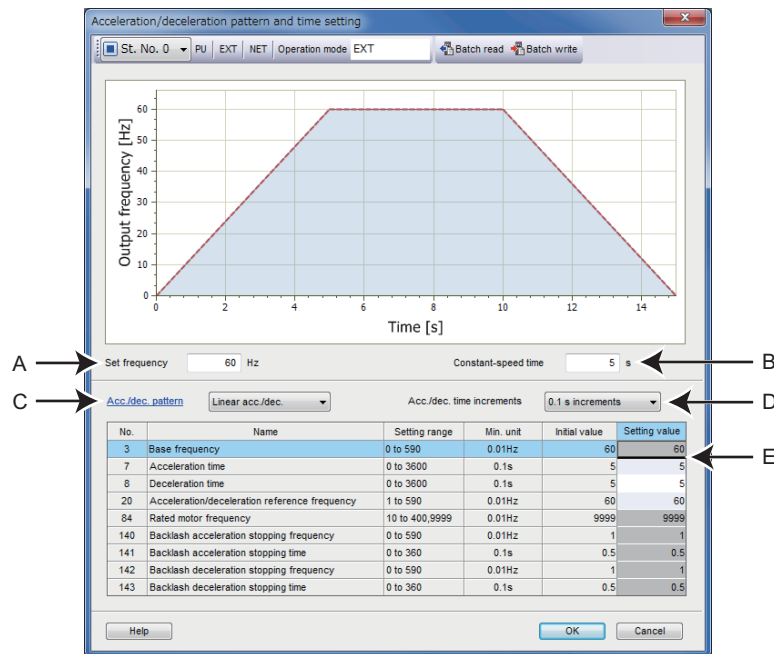
■ Encoder option selection (Pr.862 = "10 or 11")

When **Pr.862** = "10 or 11", position control and PM motor vector control are disabled. The following functions are enabled instead.

Function disabled	Functions enabled instead
Vector control with encoder (induction motor, position control)	Vector control with encoder (induction motor, speed control)
Vector control with encoder (PM motor, speed control)	PM sensorless vector control (PM motor, speed control)
Vector control with encoder (PM motor, position control)	PM sensorless vector control (PM motor, speed control)

◆ Acceleration/deceleration pattern and time setting

Set parameters related to acceleration/deceleration.



Symbol	Name	Function/description
A	Set frequency	Set an output frequency target value for the graph.
B	Constant-speed time	Set the constant-speed operation time for the graph.
C	Acceleration/ deceleration pattern	Select the acceleration/deceleration pattern. Several patterns are available for selection depending on the inverter model. (Refer to Pr.29 .)
D	Acceleration/ deceleration time increments	Select the increment for the acceleration/deceleration time. (Refer to Pr.21 .)
E	Parameter list	Change the setting (value) of the selected parameter.

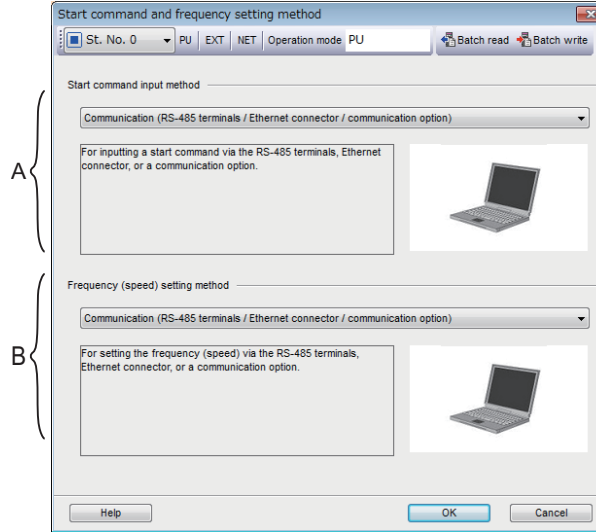
■ Encoder option selection (Pr.862 = "10 or 11")

When **Pr.862** = "10 or 11", position control and PM motor vector control are disabled. The following functions are enabled instead.

Function disabled	Functions enabled instead
Vector control with encoder (induction motor, position control)	Vector control with encoder (induction motor, speed control)
Vector control with encoder (PM motor, speed control)	PM sensorless vector control (PM motor, speed control)
Vector control with encoder (PM motor, position control)	PM sensorless vector control (PM motor, speed control)

◆ Start command and frequency setting method

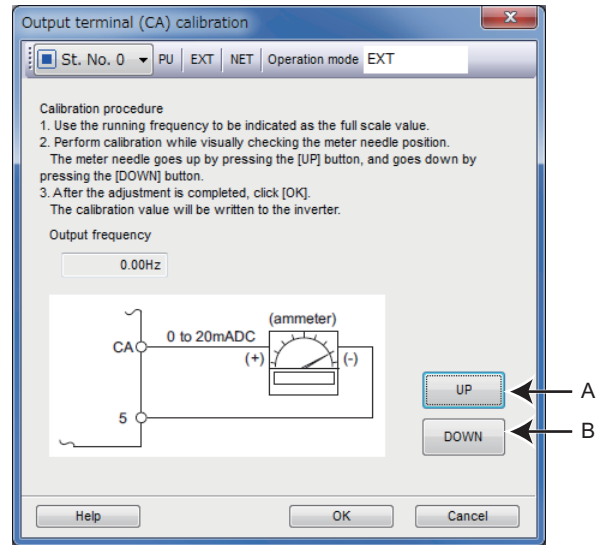
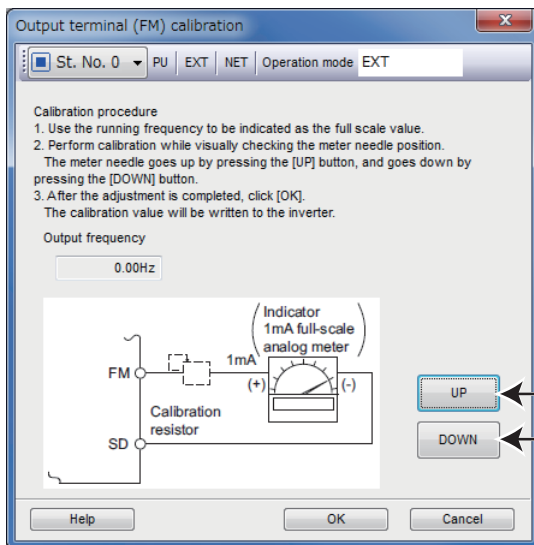
Set parameters related to the start command and frequency (speed) setting method.



Symbol	Name	Function/description
A	Start command input method	Select "External signal input (terminal STF/STR)", "PU (FWD/REV key)", or "Communication (RS-485 terminals / Ethernet connector / communication option)". (Refer to Pr.79 , Pr.338 , Pr.339 , Pr.340 .)
B	Frequency (speed) setting method	Select an option in the list, which is determined according to the start command input method.

◆ Output terminal (FM/CA) calibration

Set parameters related to the output terminal calibration.



Symbol	Name	Function/description
A	UP button	The meter needle goes up. (Refer to Pr.900 .)
B	DOWN button	The meter needle goes down. (Refer to Pr.900 .)

NOTE

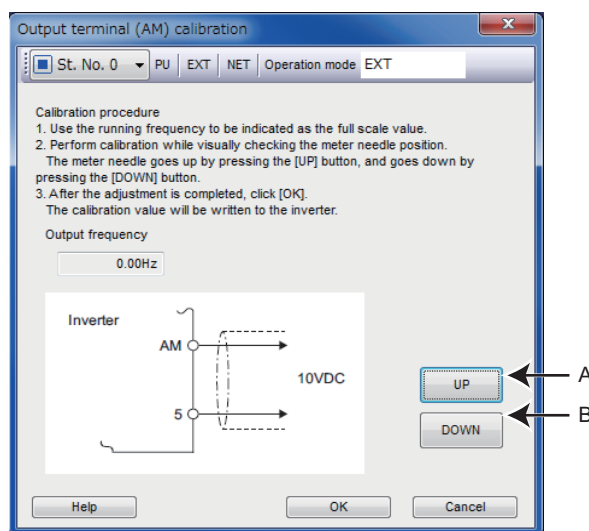
- For the FR-E800-1, the condition to use the output terminal (FM) calibration function differs depending on the FR Configurator2 version. Check the following condition. Terminal FM calibration is enabled regardless of the following condition when using the operation panel. For details on terminal FM calibration using the operation panel, refer to the FR-E800 Instruction Manual (Function).

FR Configurator2 version	Output terminal (FM) calibration
v1.31H to v1.34L	× (Enabled only when the FR-E8AXY is installed)
Other than the above	○

○: Enabled, ×: Disabled

◆ Output terminal (AM) calibration

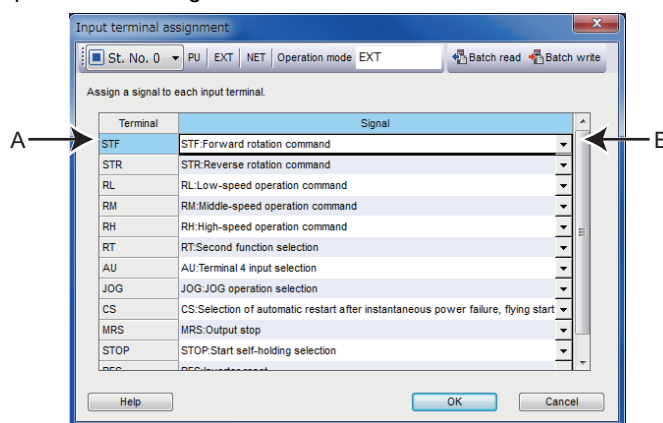
Set parameters related to the output terminal calibration.



Symbol	Name	Function/description
A	UP button	The meter needle goes up. (Refer to Pr.901.)
B	DOWN button	The meter needle goes down. (Refer to Pr.901.)

◆ Input terminal assignment

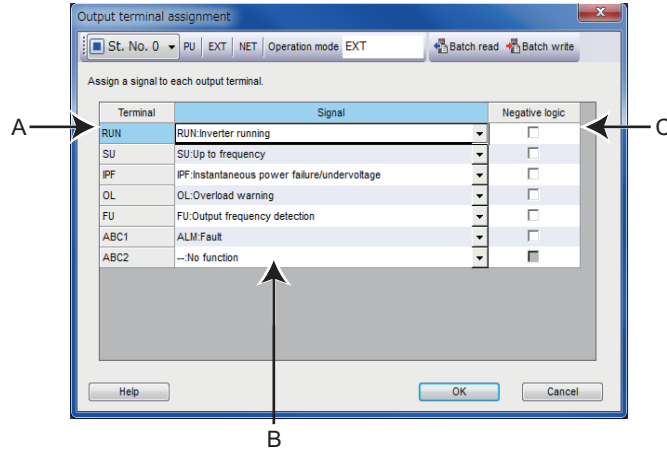
Set parameters related to the input terminal assignment.



Symbol	Name	Function/description
A	Terminal	A terminal name is displayed in this section.
B	Signal	Select the signal to be assigned to the terminal.

◆ Output terminal assignment

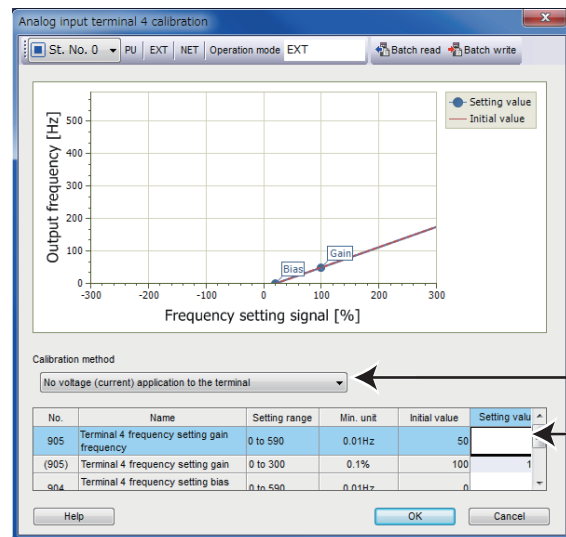
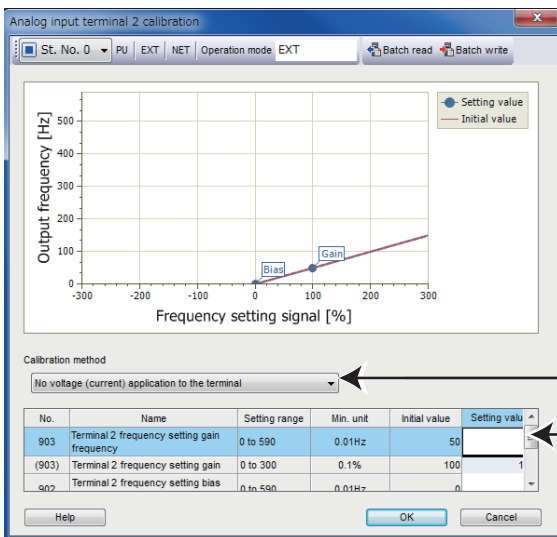
Set parameters related to the output terminal assignment.



Symbol	Name	Function/description
A	Terminal	A terminal name is displayed in this section.
B	Signal	Select the signal to be assigned to the terminal.
C	Negative logic	Select the checkbox to use negative logic.

◆ Analog input terminal calibration

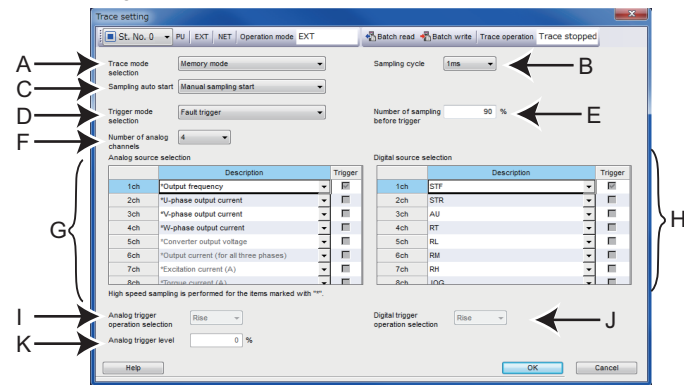
Set parameters related to the analog input terminal calibration.



Symbol	Name	Function/description
A	Calibration method	Select the calibration method. When the online connection with an inverter is established, "Bias frequency setting with application of a voltage (current) to the terminal" and "Gain frequency setting with application of a voltage (current) to the terminal" are added to the drop-down list.
B	Parameter list	Change the parameter setting in this field.

◆ Trace setting

Set parameters related to the trace setting.



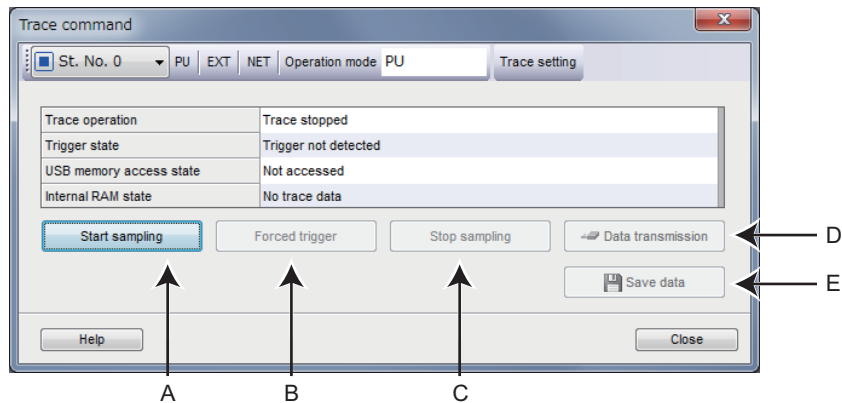
Symbol	Name	Function/description
A	Trace mode selection	Select the trace mode.
B	Sampling cycle	Select the sampling cycle.
C	Sampling auto start	Select how to start sampling.
D	Trigger mode selection	Select the trigger type.
E	Number of sampling before trigger	Set the percentage of the number of data sampled before trigger occurs for the target sampling data.
F	Number of analog channels	Select the number of analog data channels for sampling.
G	Analog source selection	Select analog data to be sampled.
H	Digital source selection	Select digital data to be sampled.
I	Analog trigger operation selection	When "Analog trigger" is set in the trigger mode selection, select the analog signal trigger operation.
J	Digital trigger operation selection	When "Digital trigger" is set in the trigger mode selection, select the digital signal trigger operation.
K	Analog trigger level	Set the analog signal trigger level.

NOTE

- The trace data stays at "0" for unsupported terminals (terminals S1, S2, and NET).

◆ Trace command

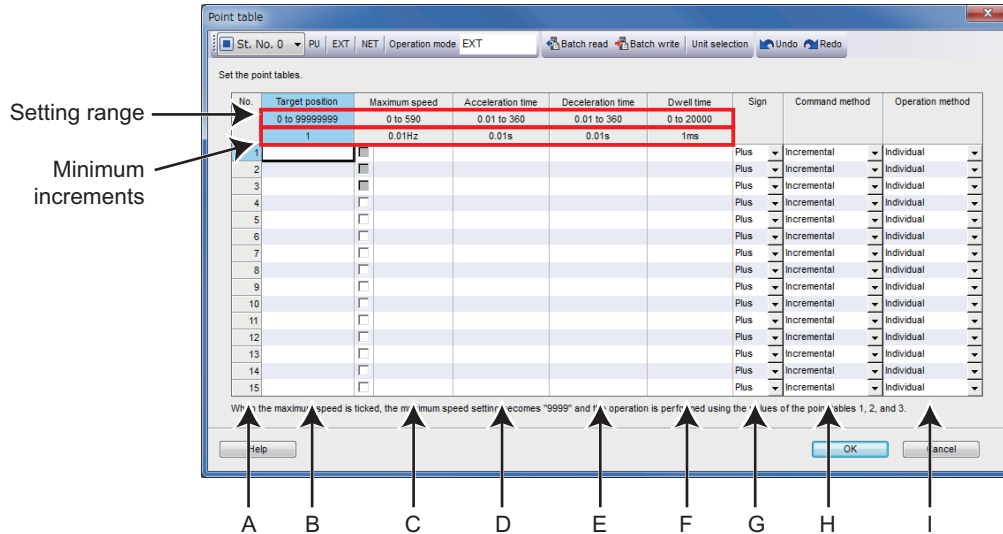
Set parameters related to the trace command.



Symbol	Name	Function/description
A	Start sampling	Starts sampling.
B	Forced trigger	Forcibly generates the trigger condition.
C	Stop sampling	Stops sampling.
D	Data transmission	Saves the trace data stored in the inverter to the USB memory device.
E	Save data	Saves the trace data stored in the inverter to the personal computer.

◆ Point table (FR-A800)

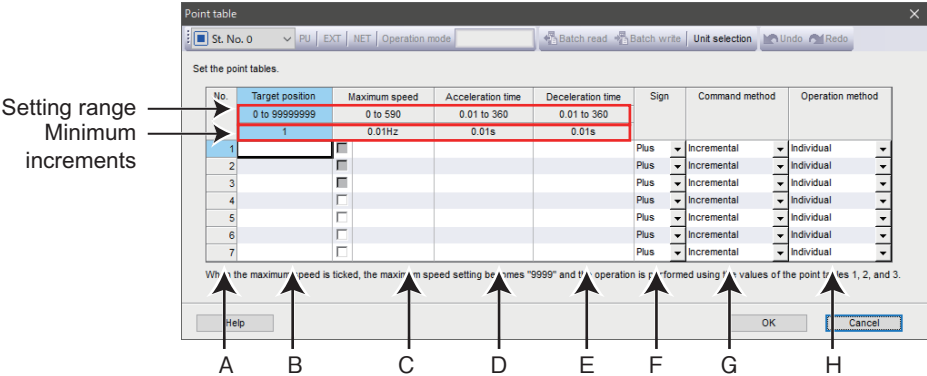
Set parameters related to point tables.



Symbol	Name	Function/description
A	No.	Point table number
B	Target position	Set the position feed length. (Refer to Pr.465 to Pr.494.)
C	Maximum speed	Set the maximum speed for the target parameter of each point table. If a checkbox is selected, the maximum speed of the point table 1, 2, or 3 is applied ("9999" is set in the corresponding parameter (Pr.24 to Pr.27, and Pr.232 to Pr.239)).
D	Acceleration time	Set the acceleration time for the target parameter of each point table.
E	Deceleration time	Set the deceleration time for the target parameter of each point table.
F	Dwell time	Set the waiting time before starting the position command of the next point table.
G	Sign	Select the polarity of position data.
H	Command method	Select the absolute or incremental position command.
I	Operation method	Select the individual, continuous, or repeat operation. When continuous operation is selected, next point table is executed after a command has been executed. For continuous operation, select "individual" in [Operation method] of the last point table. Individual operation executes the selected point table only. When repeat operation is selected, the selected positioning operation is repeated.

◆ **Point table (FR-E800)**

Set parameters related to point tables.



Symbol	Name	Function/description
A	No.	Point table number
B	Target position	Set the position feed length. (Refer to Pr.465 to Pr.478.)
C	Maximum speed	Set the maximum speed for the target parameter of each point table. If a checkbox is selected, the maximum speed of the point table 1, 2, or 3 is applied ("9999" is set in the corresponding parameter (Pr.24 to Pr.27, and Pr.232 to Pr.239)).
D	Acceleration time	Set the acceleration time for the target parameter of each point table.
E	Deceleration time	Set the deceleration time for the target parameter of each point table.
F	Sign	Select the polarity of position data.
G	Command method	Select the absolute or incremental position command.
H	Operation method	Select the individual or continuous operation. When continuous operation is selected, next point table is executed after a command has been executed. For continuous operation, select "individual" in [Operation method] of the last point table. Individual operation executes the selected point table only.

4.2 Safety parameter setting

The safety parameter setting function is available for the following models.

Model: FR-A800-F, FR-A800-G, FR-E800-SCE, and FR-E806-SCE

The following functions can be used using the "Safety parameter setting".

- Safety parameter display
- Safety parameter setting value batch read
- Safety parameter setting value input and batch write
- Safety parameter clear
- Safety parameter verification
- Safety parameter search

To display "Safety parameter setting", select [Safety] > [Safety parameter setting] on the menu bar. "Safety parameter setting" cannot be displayed if no project file has been created, or if no project file is open. The available "Safety parameter setting" functions are different at online and offline.

Function	Online	Offline
Safety parameter version change	×	○
Safety parameter clear	○	×
Batch read	○	×
Batch write	○	×
Verify	○	○
Safety parameter setting value input	○	○
Undo	○	○
Redo	○	○
Search	○	○

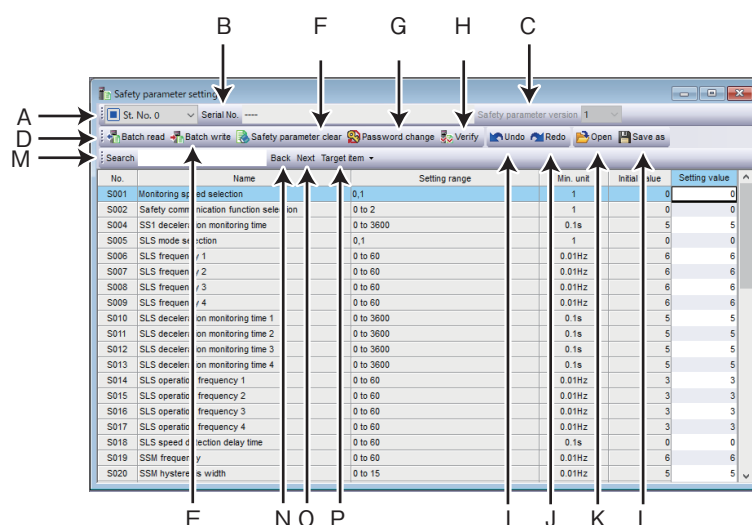
(○: operation available; ×: operation not available)



NOTE

- FR Configurator2 shows the safety parameter setting of the latest inverter at the time of the FR Configurator2 upgrade. Use the newest version of FR Configurator2 to use the safety parameter setting function.
- The setting range, initial value, and number of safety parameters may be different with the inverter before upgrading (additional functions).
- Although the safety parameter name of the Instruction Manual and the safety parameter name of FR Configurator2 may be different, there is no difference in the safety parameter function.

4.2.1 Safety parameter setting



Symbol	Name	Function/description
A	St. No. (Station number)	Select a station registered in the project.
B	Safety parameter update record	Shows the serial number of the inverter and the date and time of the last update of the safety parameters.
C	Safety parameter version	Select the version of the parameter list.
D	Batch read	Reads all the safety parameter setting values of the selected inverter.
E	Batch write	Writes all the selected parameter setting values in the setting value column to the selected inverter.
F	Safety parameter clear	All safety parameters and passwords return to initial values.
G	Password change	Changes the registered password.
H	Verify	Verifies the safety parameter settings set in FR Configurator2 against initial values, settings in parameter files (*.spr4), or settings in the inverter.
I	Undo	Returns the edited parameter setting value to the setting value before editing.
J	Redo	Redoes the setting value changed by "Undo" (up to 10 parameters).
K	Open	Displays the "Open" dialog box for a safety parameter file (*.spr4) to be opened.
L	Save as	Shows the "Save as" dialog box. Verifies the save location, and saves with the specified [File Name]. The extension for savable safety parameter information files is *.spr4. The parameter list data can also be saved in the Microsoft Excel file format (*.xls) by using "File Type" in the "Save as" dialog box.
M	Search	Searches for the input character string from within the parameter list.
N	Back	Searches for the input character string in the upward direction.
O	Next	Searches for the input character string in the downward direction.
P	Target item	Specifies the column to search.

- Safety parameter list display item

Item	Function/description
Number	Shows the safety parameter number.
Name	Shows the safety parameter name.
Setting range	Shows the setting range of the safety parameter setting value.
Min. unit	Shows the minimum setting unit of the safety parameter setting value.
Initial value	Shows the factory default safety parameter setting values of the inverter.
Setting value	Inputs the value to be written to the inverter. The value different from the initial one is displayed in blue. The value out of the setting range is displayed in red. The pale red background color indicates that a fault has occurred in the inverter. Selecting [Batch write] will write the setting value field data to the inverter.

- Combination of FR Configurator2 and the safety parameter version

The following combinations of FR Configurator2 and the safety parameter version are available.

FR Configurator2 version	Safety parameter version					
	FR-E800-SCEPA	FR-E806-SCEPA	FR-E800-SCEPB	FR-E806-SCEPB	FR-E800-SCEPC	FR-A800-F/ FR-A800-G
v1.22Y to v1.30G	1	1	1	1	—	—
v1.31H, v1.32J	1	1	1	1	—	1
v1.33K or later	1 2 ^{*1}	1	1 2 ^{*1}	1	1	1

*1 For information on the safety parameter version supported by the inverter, refer to the FR-E800-SCE Instruction Manual (Functional Safety).

NOTE

- If "Safety parameter version" of FR Configurator2 does not match with the safety parameter version of the inverter, the version will be replaced by that of the inverter connected when [Batch read] or [Batch write] is performed.
- If the safety parameter version is changed, the safety parameter update record will be cleared and the parameter settings cannot be undone to the values before edit.

4.2.2 Safety parameter clear

Performing safety parameter clear will return the safety parameters and passwords to the initial values.

Select [Safety parameter clear] from the [Safety parameter setting (Z)] menu bar, or [Safety parameter clear] on the toolbar to perform safety parameter clear.

4.2.3 Safety parameter batch read and batch write

Safety parameter read and write can be performed by accessing the inverter safety parameters.

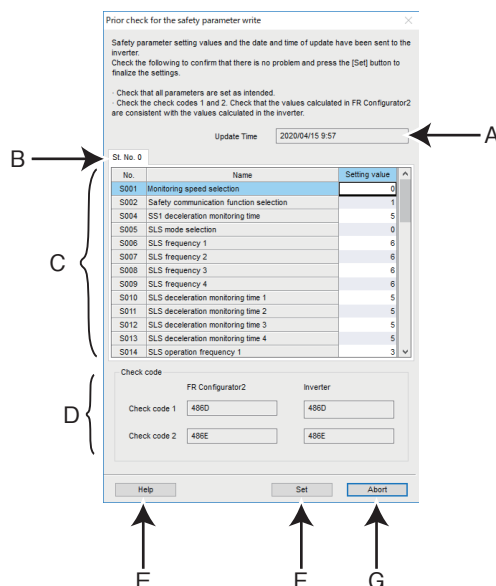
◆ Batch read

Select [Batch read] from the [Safety parameter setting (Z)] menu bar, or [Batch read] on the toolbar to display the confirmation window and perform batch read.

◆ Batch write

Select [Batch write] from the [Safety parameter setting (Z)] menu bar, or [Batch write] on the toolbar to display the batch write confirmation window.

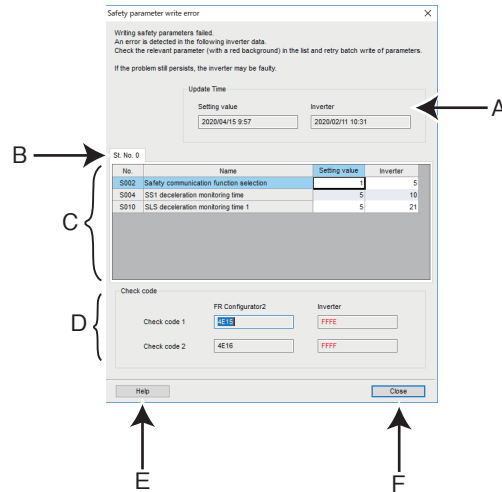
Check that the values in "Setting value" column and "Inverter" column are the same to confirm that batch write has been performed successfully.



Symbol	Name	Function/description	
A	Date and time of update	Shows the date and time when the data is transmitted to the inverter.	
B	Station number	Shows the station numbers selected for batch write.	
C	No.	Shows the safety parameter number.	
	Name	Shows the safety parameter name.	
	Setting value	Shows the safety parameter setting value.	
D	Check code	Setting value	Shows the values calculated in FR Configurator2.
		Inverter	Shows the values calculated in the inverter.
E	Help	Help appears.	
F	Set	Writes all safety parameter setting values to the inverter.	
G	Cancel	Closes the batch write confirmation window without performing batch write.	

Password authentication is required for the first batch write operation. The authentication process is skipped from the second batch write onwards. (When the safety parameter setting window is closed, authentication will be required again.)

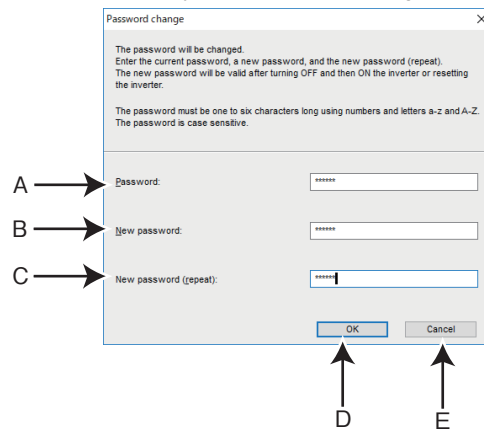
The following dialog is shown when batch write fails due to an error of the setting value or the date and time of update.



Symbol	Name	Function/description	
A	Date and time of update	Shows the date and time when the parameters are batch-written to the inverter.	
B	Station number	Shows the station numbers selected for batch write.	
C	No.	Shows the safety parameter number.	
	Name	Shows the safety parameter name.	
	Setting value	Shows the safety parameter setting value.	
	Inverter	Shows the safety parameter setting values read from the inverter.	
D	Check code	Setting value	Shows the values calculated in FR Configurator2.
		Inverter	Shows the values calculated in the inverter.
E	Help	Help appears.	
F	Close	Closes the batch write confirmation window without performing batch write.	

4.2.4 Password change

The password registered in the inverter can be changed. Select [Password change] from the [Safety parameter setting (Z)] menu bar, or [Password change] on the toolbar to display the password change window. The initial password is "000000".

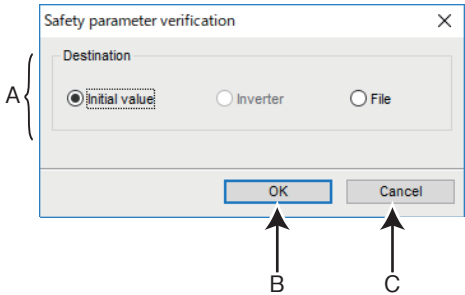


Symbol	Name	Function/description
A	<u>P</u> assword	Enter the current password. The password is masked with asterisks (*).
B	<u>N</u> ew password	Enter the new password. The password is masked with asterisks (*).
C	New password (<u>r</u> epeat)	Enter the new password again. The password is masked with asterisks (*).
D	OK	Applies the change. The password change window will close after the change is successfully applied.
E	Cancel	Closes the password change window without changing the password.

4.2.5 Safety parameter verification

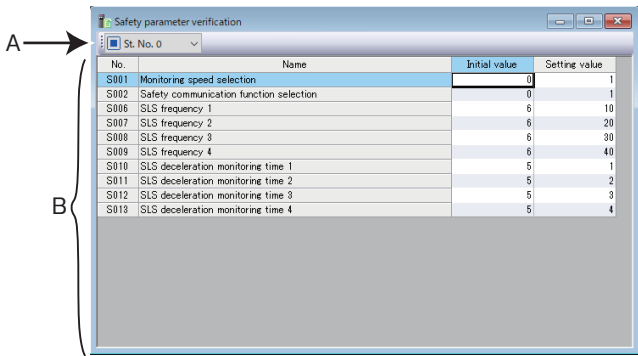
This function accesses the inverter safety parameters, and verifies the safety parameter setting values set by FR Configurator2 with the values selected in the verify destination window.

The "Select destination selection" window can be displayed by selecting [Verify...] from the [Safety parameter setting (Z)] menu bar, or by selecting [Verify] on the toolbar.



Symbol	Name	Function/description	
A	Destination	Initial value	Verifies against the initial value.
		Inverter	Verifies against parameter setting values written to the inverter.
		File	Verifies against parameter list setting values saved to a file (*.spr4).
B	OK	Shows the Verify window.	
C	Cancel	Closes the Verify destination selection window without performing verification.	

The Verify window appears after selecting the destination on the Verify destination window.



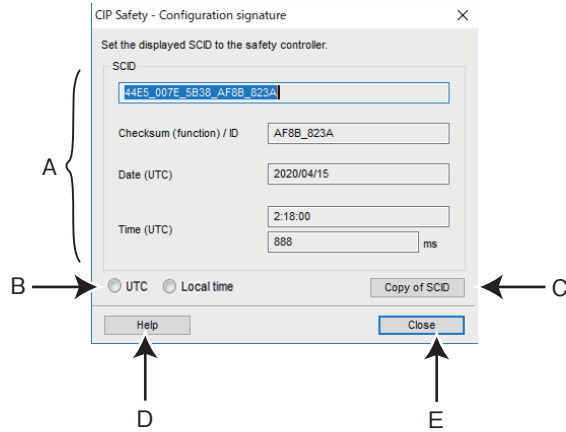
Symbol	Name	Function/description
A	St. No. (Station number)	Shows the verified station number.
B	Verify list	Shows parameters whose verified values are mismatched.

4.2.6 Configuration signature

The configuration signature is available when CIP Safety is used with the FR-E800-SCEPA or FR-E806-SCEPA.

The Safety Configuration ID (SCID) read from the inverter is displayed.

To display the window to show the SCID, select [CIP Safety] > [Read configuration signature] from the [Safety parameter setting (Z)] menu bar.



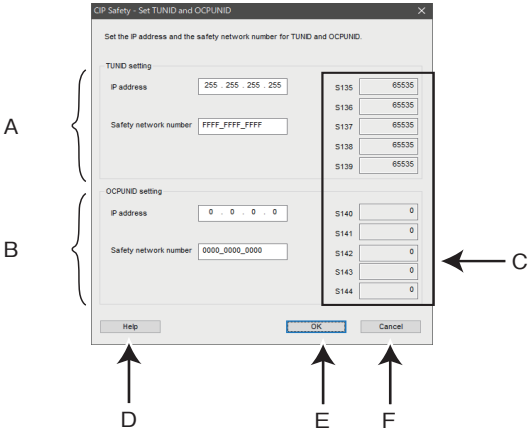
Symbol	Name	Function/description
A	SCID group	Shows the details of the Safety Configuration ID (SCID).
B	Time format switching button	Select "UTC" or "Local time" by configuring the setting in the Mitsubishi Electric safety controller setting tool (MELSEC Safety Designer).
C	Copy the SCID	Copies the SCID to the clipboard. Then use the copied SCID for "Add SCID" in the Mitsubishi Electric safety controller setting tool (MELSEC Safety Designer).
D	Help	Displays the help window.
E	Close	Closes the configuration signature window.

4.2.7 Set TUNID and OCPUNID

To use CIP Safety with the FR-E800-SCEPA or FR-E806-SCEPA, set TUNID and OCPUNID.

The input values are converted to decimal values and applied to **Pr.S135 to Pr.S144**.

To display the window to set the TUNID and OCPUNID, select [CIP Safety] > [Set TUNID and OCPUNID] from the [Safety parameter setting (Z)] menu.

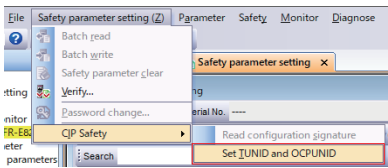


Symbol	Name		Function/description
A	TUNID setting	IP address	Enter the IP address of the TUNID of the inverter set and displayed in the safety network configuration in Safety Network Configuration Tool.
		Safety network number	Enter the safety network number of the TUNID of the inverter set and displayed in the safety network configuration in Safety Network Configuration Tool.
B	OCPUNID setting	IP address	Enter the IP address of the OCPUNID of the master set and displayed in the safety network configuration in Safety Network Configuration Tool.
		Safety network number	Enter the safety network number of the OCPUNID of the master set and displayed in the safety network configuration in Safety Network Configuration Tool.
C	Safety parameter display		Shows the values set in the safety parameters Pr.S135 to Pr.S144 .
D	Help		Displays the help window.
E	OK		Applies the settings.
F	Cancel		Closes the set TUNID and OCPUNID window without applying the settings.

◆ Setting procedure of TUNID and OCPUNID

Set the unique network identifier (Unique Node Identifier) determined by Safety Network Configuration Tool in the inverter.

1. Select [CIP Safety] > [Set TUNID and OCPUNID] from the [Safety parameter setting (Z)] menu.



2. Configure the TUNID setting. (Pr.S135 to Pr.S139)

Set the "IP address" and "safety network number" determined by Safety Network Configuration Tool in the unique network identifier (Unique Node Identifier) in the inverter.

CIP Safety - Set TUNID and OCPUNID

Set the IP address and the safety network number for TUNID and OCPUNID.

TUNID setting

IP address: 255 . 255 . 255 . 255

Safety network number: FFFF_FFFF_FFFF

S135: 65535
S136: 65535
S137: 65535
S138: 65535
S139: 65535

OCPUNID setting

IP address: 0 . 0 . 0 . 0

Safety network number: 0000_0000_0000

S140: 0
S141: 0
S142: 0
S143: 0
S144: 0

Help OK Cancel

3. Configure the OCPUNID setting. (Pr.S140 to Pr.S144)

Set the "IP address" and "safety network number" determined by Safety Network Configuration Tool in the unique network identifier (Unique Node Identifier) in the master.

CIP Safety - Set TUNID and OCPUNID

Set the IP address and the safety network number for TUNID and OCPUNID.

TUNID setting

IP address: 255 . 255 . 255 . 255

Safety network number: FFFF_FFFF_FFFF

S135: 65535
S136: 65535
S137: 65535
S138: 65535
S139: 65535

OCPUNID setting

IP address: 0 . 0 . 0 . 0

Safety network number: 0000_0000_0000

S140: 0
S141: 0
S142: 0
S143: 0
S144: 0

Help OK Cancel

4. Click the [OK] button.

Check that the settings are correct and click the [OK] button.

The confirmation window appears. Click the [OK] button to apply the settings to **Pr.S135 to Pr.S144**.

4.3 Convert

Parameter settings of the conventional models can be copied to the 800 series parameter settings in the "Convert" window. To display the "Convert" window, select [Convert...] in the [Parameter] menu.

- Models compatible with the convert function

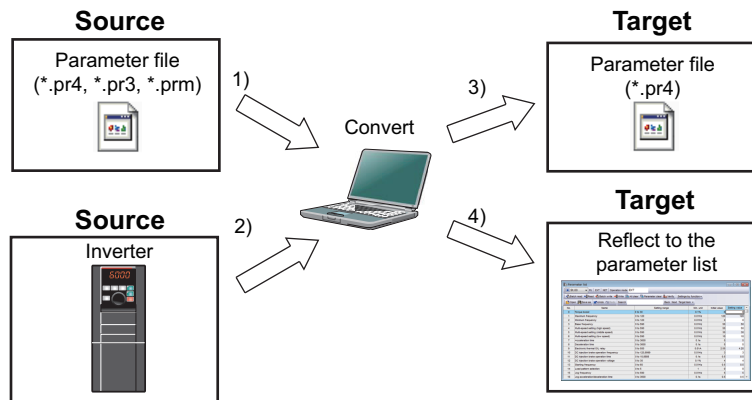
Source inverter	Target inverter
FR-A500(L)	FR-A800(-E)
FR-A700	FR-A800(-E)
FR-B(A700)	FR-B(A800)
FR-B3(-N/-H/-NH)(A700)	FR-B3(-N/-H/-NH)(A800)
FR-F700(P)	FR-F800(-E)
FR-E500	FR-E800(-E/-SCE)
FR-E700(-NE)	FR-E800(-E/-SCE)
FR-E700EX	FR-E800(-E/-SCE)
FR-D700	FR-D800(-E)
FR-F700PJ	FR-D800(-E)

NOTE

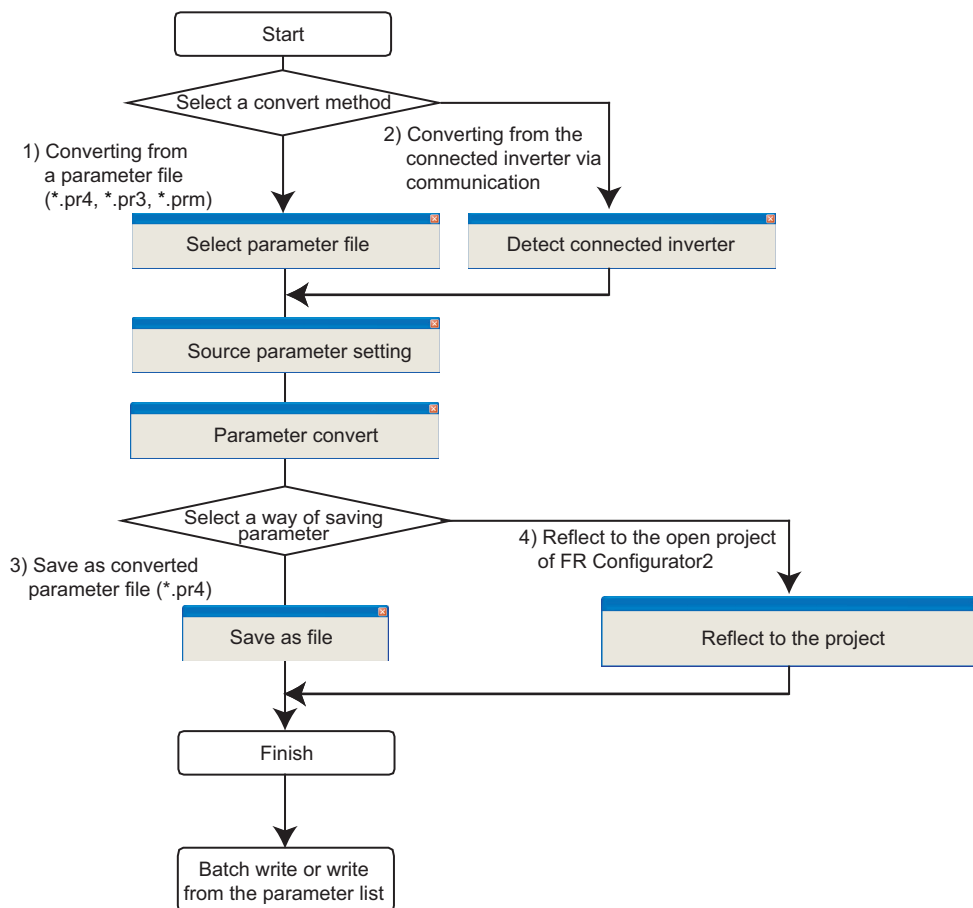
- Although the parameter name described in the Instruction Manual of the inverter and the parameter name used in FR Configurator2 may be different, there is no difference in the parameter function.
- If an option non-compatible with the target inverter is connected to the source inverter, if a unit for setting a parameter is fixed by the option while **Pr.37 Speed display** and **Pr.144 Speed setting switchover** of the source inverter are set to change the unit, the setting of the source inverter is copied unchanged to the target inverter.
- When the source inverter supports multiple ratings, the larger capacity inverter must be used as a target inverter depending on the multiple rating setting (**Pr.570**).
- Setting parameters of the target inverter by the convert function does not guarantee complete compatibility between the source and target inverters. For the precautions for use of the convert function, refer to [4.3.5 Precautions for the convert function](#).
- For upgrading the existing inverter, refer to the Instruction Manual of the inverter and the related documents. For further information on the upgrade, contact your sales representative.

4.3.1 Schematic illustration of the convert function

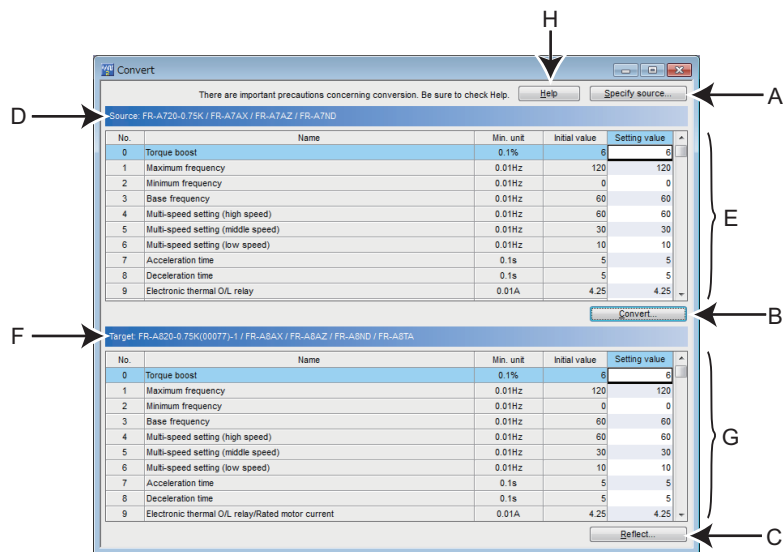
The parameter setting values of the source inverter can be converted to those of the target inverter using FR Configurator2. Connect the source inverter and FR Configurator2, and read the parameter setting values from the source inverter. When the parameter setting values of the source inverter is saved in the parameter file, reading from the parameter file is also available. The converted parameter setting values can be saved in the project of FR Configurator2. Writing to the parameter file is also available.



- Setting flow chart



4.3.2 Convert window

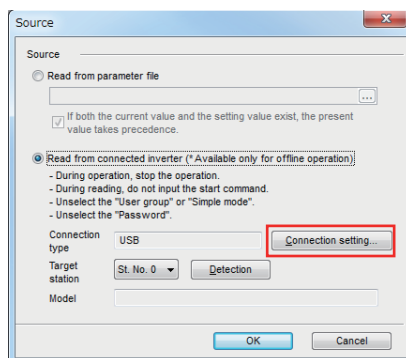


Symbol	Name	Function/description
A	<u>S</u> pecify source	Displays the "Source" window. Select the source parameter file (*.pr4, *.pr3, *.prm) or the source inverter model.
B	<u>C</u> onvert...	Displays the "Convert" sub window.
C	<u>R</u> eflect...	Displays the "Reflect" window. The converted setting of parameters will be reflected to the parameter list of the specified inverter. The setting can also be saved to a parameter file (*.pr4). (Select [Save in file] or [Reflect to project] after converting the parameters.)
D	Source inverter information	The model of the source inverter and the options connected to it are displayed.
E	Source parameter list	The list of the parameter settings read from the source is displayed.
F	Target inverter information	The model of the target inverter and the options connected to it are displayed.
G	Target parameter list	The list of the converted parameter settings is displayed.
H	<u>H</u> elp	Displays the help window.

4.3.3 Connection setting for the convert function

Select [Specify source] in the convert window to display the "Source" window.

To perform the convert function from the inverter connected via communication, select [Read from connected inverter] and click [Connection setting] to display the [Connection setting] window. For the "Connection setting" window, refer to [page 123](#).



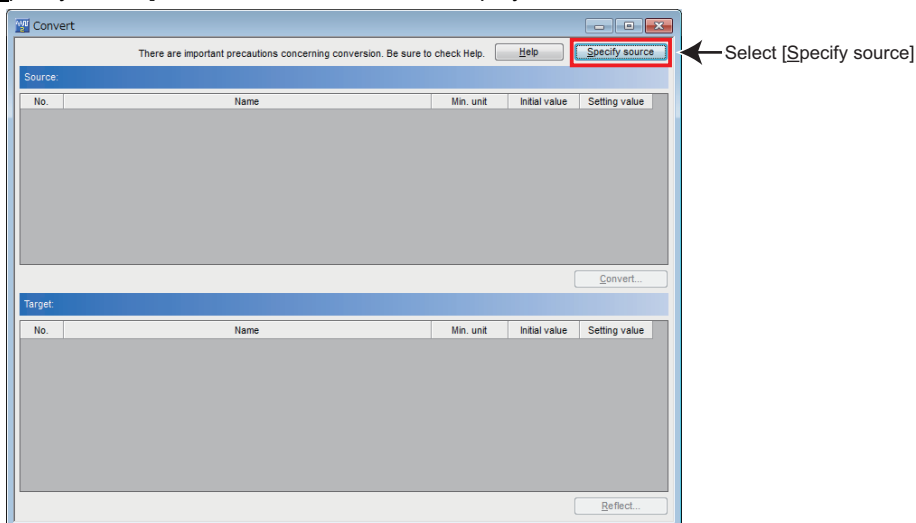
4.3.4 Convert procedures

◆ To convert from the directly connected inverter

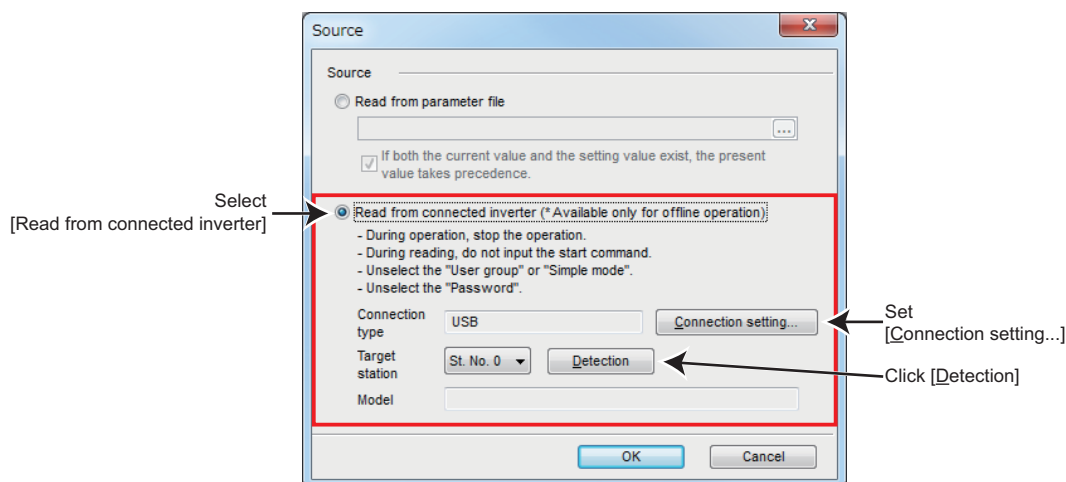
NOTE

- Perform this procedure while the inverter is stopped. Do not give a start command to the inverter.

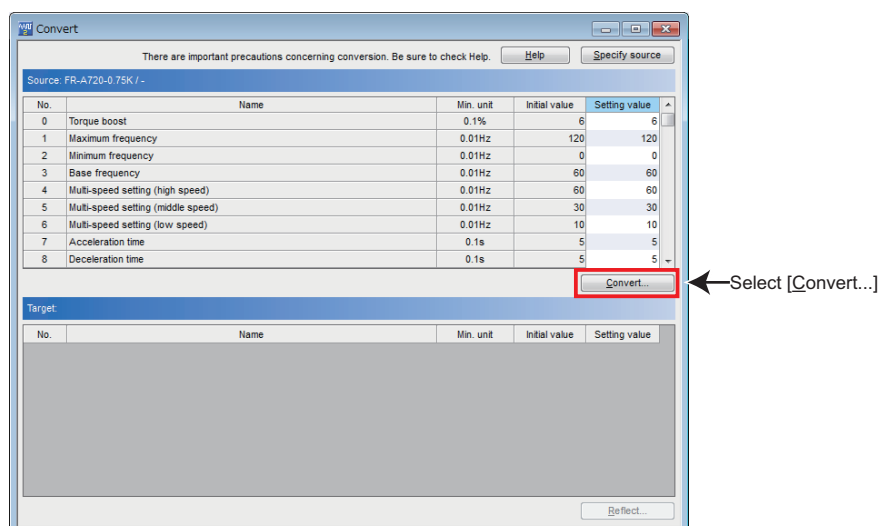
1. Select [Specify source] in the "Convert" window to display the "Source" window.



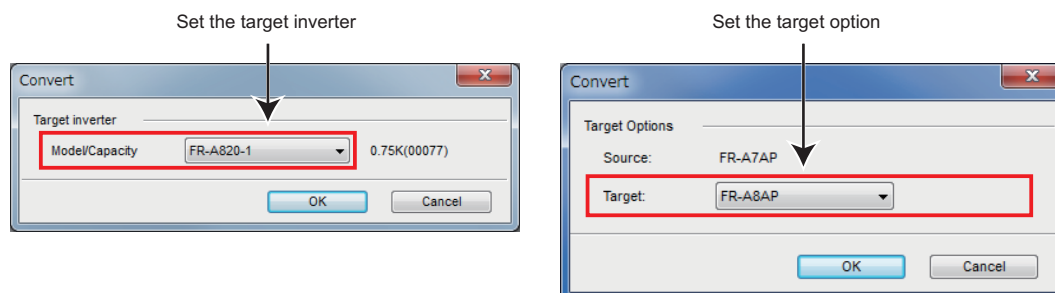
2. Select [Read from connected inverter]. Select [Connection setting...] to set [Connection type]. After setting [Target station], click [Detection]. (When multiple inverters are selectable as the source inverter, the "Source inverter" window appears. Specify the model of the [Source inverter].) After detection, confirm the inverter model in the [Model] field, and click [OK]. The parameters are converted and the "Source" window closes.



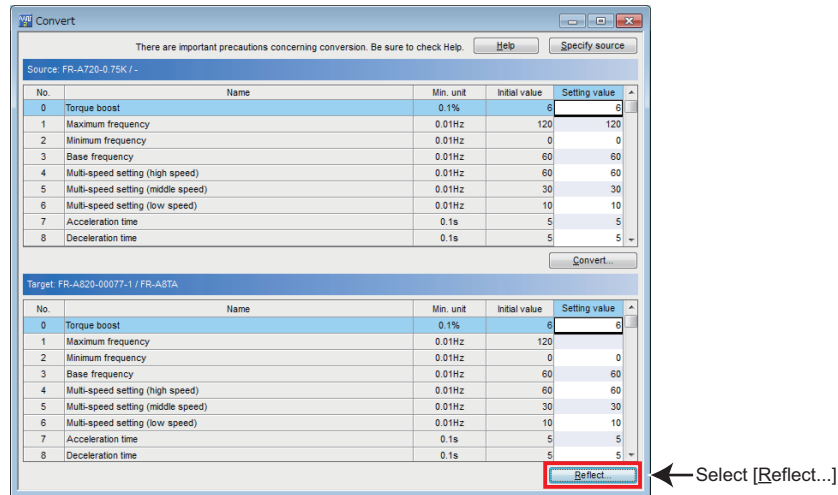
3. The setting can be changed for some parameters of the source inverter. To change the parameter setting value, enter the desired value in the setting value field. After the parameters of the source inverter are displayed in the list, the [Convert...] button in the "Convert" window will be active. Select [Convert...] to display the "Convert" sub window.



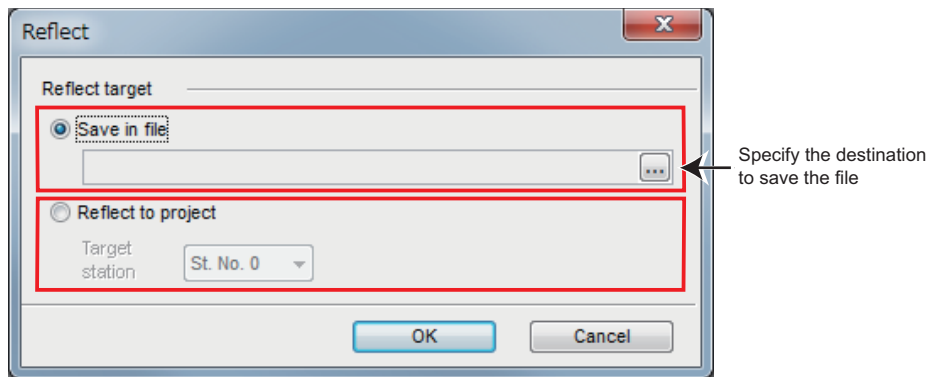
4. Specify the model of the [Target inverter] from the lists in the "Convert" sub window. Click [OK] to convert the parameters and close the "Convert" sub window. (When several options are selectable as a target, the "Target option" window appears. Select the target option.)



5. The converted parameter settings for the target inverter are displayed in the "Convert" window.

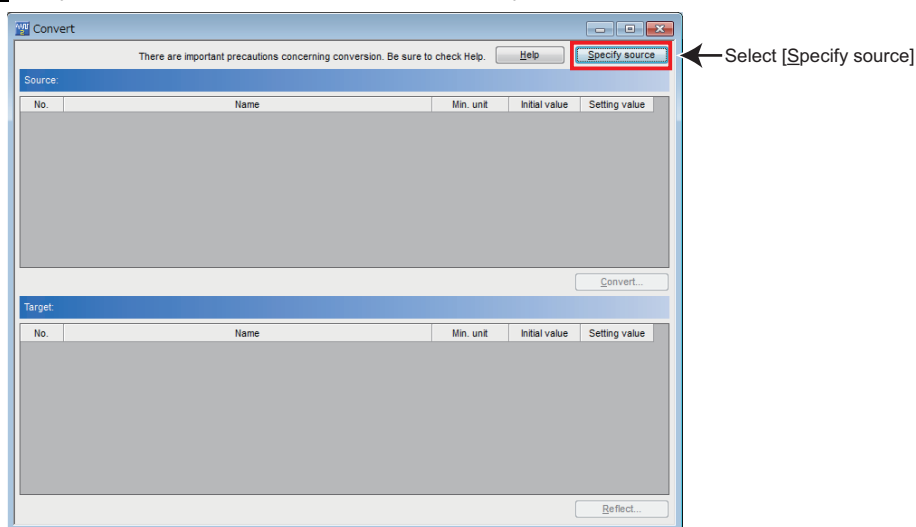


6. Select [Reflect...] in the "Convert" window to display the "Reflect" window.
- To save the setting to a file
Select [Save in file]. Specify the destination to save the file and click [OK]. The converted parameter setting is saved in the parameter file (*.pr4).
- To reflect the setting to the project
Select [Reflect to project]. Specify the station to reflect the setting and click [OK]. The converted parameter setting is reflected to the project.

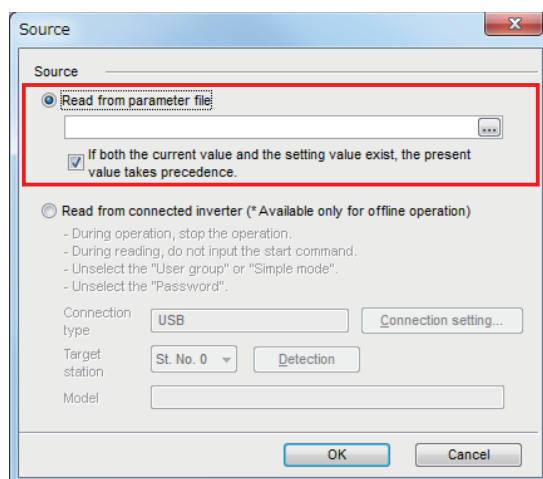


◆ To convert from a parameter file (*.pr4, *.pr3, *.prm)

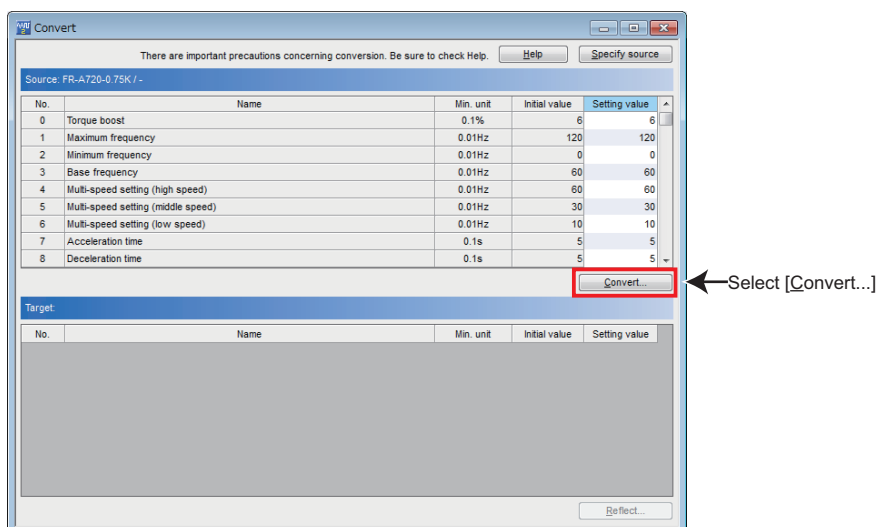
1. Select [Specify source] in the "Convert" window to display the "Source" window.



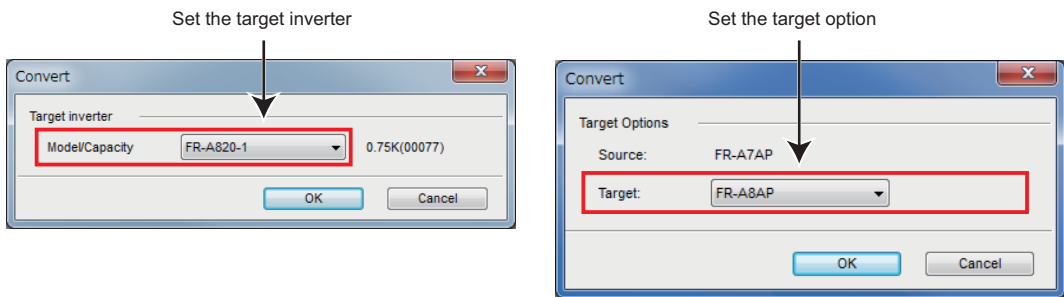
2. Specify the source parameter file (*.pr4, *.pr3, *.prm). Click [OK] to reflect the parameter settings of the source file in the source parameter list in the convert window.



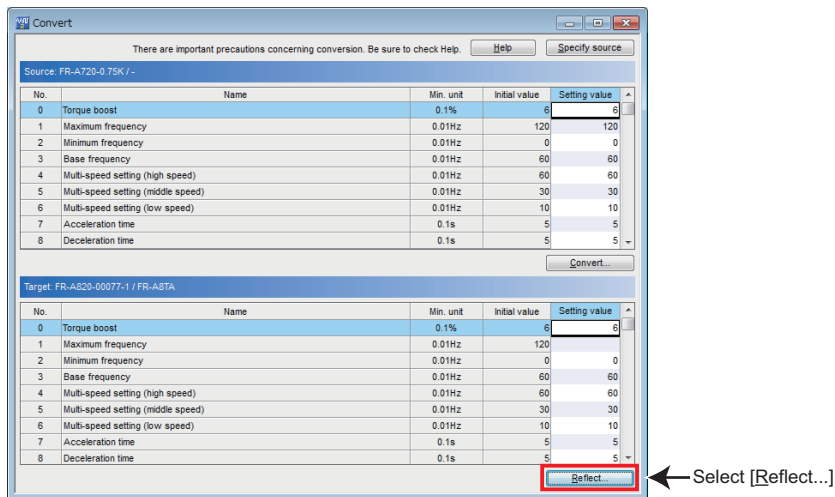
3. The setting can be changed for some parameters of the source inverter. To change the parameter setting value, enter the desired value in the setting value field. After the parameters of the source inverter are displayed in the list, the [Convert...] button in the "Convert" window will be active. Select [Convert...] to display the "Convert" sub window.



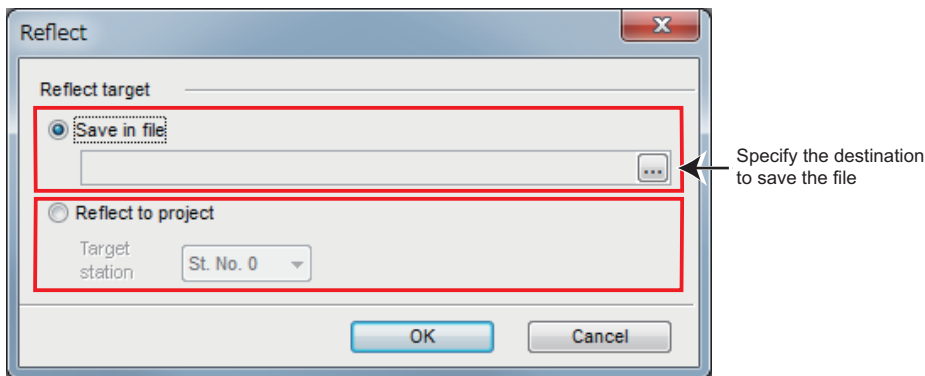
4. Specify the model of the [Target inverter] from the lists in the "Convert" sub window. Click [OK] to convert the parameters and close the "Convert" sub window.
(When several options are selectable as a target, the "Target option" window appears. Select the target option.)



5. The converted parameter settings for the target inverter are displayed in the "Convert" window.



6. Select [Reflect...] in the "Convert" window to display the "Reflect" window.
To save the setting to a file
Select [Save in file]. Specify the destination to save the file and click [OK]. The converted parameter setting is saved in the parameter file (*.pr4).
To reflect the setting to the project
Select [Reflect to project]. Specify the station to reflect the setting and click [OK]. The converted parameter setting is reflected to the project.



4.3.5 Precautions for the convert function

Check the following items to use the convert function, and adjust the settings as required.

For the parameter details, refer to the Instruction Manual of the inverter.

◆ To convert from FR-A700 inverters to FR-A800(-E) inverters

- Set the following parameters as required in the "Parameter list" window because they are not converted.

Pr.69 Retry count display erase

Pr.170 Watt-hour meter clear

Pr.171 Operation hour meter clear

Pr.172 to Pr.174 (User group selection)

Pr.259 Main circuit capacitor life measuring

Pr.498 PLC function flash memory clear

Pr.501 (Communication option parameter)

Pr.503, Pr.686, and Pr.688 (Maintenance timer)

Pr.805 Torque command value (RAM)

Pr.898 Power saving cumulative monitor clear

C29(Pr.925) Motor temperature detection calibration (analog input)^{*1}

Pr.991 PU contrast adjustment

Pr.1006 to Pr.1008 (Clock function)

Pr.1020 Trace operation selection

^{*1} Available when the plug-in option is connected.

- When parameter settings are converted from FR-A700 (FM type) inverters to FR-A800 (CA type) inverters or from FR-A700 (CA type) inverters to FR-A800 (FM type) inverters, set the following parameters as required in the "Parameter list" window because they are not converted.

Pr.54 FM/CA terminal function selection

Pr.291 Pulse train I/O selection

Pr.869 Current output filter

C8 (Pr.930) to C11 (Pr.931) (Terminal CA calibration parameters)

- It is recommended to adjust the setting of the following parameters again after conversion according to the mechanical system because they are used for adjustment.

Pr.0 Torque boost

Pr.12 DC injection brake operation voltage

Pr.46 Second torque boost

Pr.112 Third torque boost

C2 (Pr.902) to C7 (Pr.905) (Frequency setting input calibration parameters)

- Since the communication-related parameters (**Pr.117 to Pr.124, Pr.331 to Pr.337, Pr.341, Pr.547, and Pr.548**) are also converted, communication may be disabled depending on the setting after the setting is written to parameters. For example, when **Pr.122/Pr.336 RS-485 communication check time interval** = "0 (initial value)", a communication error (E.PUE, E.SER) occurs immediately after the operation mode with the command source is selected.
- The parameters for the FR-A7AL function (**Pr.413, Pr.432, and Pr.433**) are not converted because the FR-A800 series inverters have no corresponding parameters.
- If "63" is set in **Pr.184 AU terminal function selection** to enable the PTC thermal error detection (E.PTC) in the source FR-A700 inverter, setting of **Pr.561 and Pr.1016** and connecting the motor to the target FR-A800 inverter via terminals 2 and 10 are required. For the parameter details and terminal connection, refer to the Instruction Manual of the inverter.

◆ To convert from FR-A700 inverters to FR-A802(-E) inverters

When the parameter settings are converted to the separated converter type, check the following items in addition to the items mentioned in the previous page.

- After converting parameters, assign the X10 signal to an input terminal by setting of any of **Pr.178 to Pr.189**, and connect the signal to the RDA signal of the FR-CC2.
- After converting parameters, assign the RES signal to an input terminal by setting of any of **Pr.178 to Pr.189**, and connect the signal to the RSO signal of the FR-CC2.
- Set the following parameter as required in the "Parameter list" window because they are not converted depending on the setting of the source inverter.

Pr.30 Regenerative function selection

Pr.52 Operation panel main monitor selection

Pr.54 FM/CA terminal function selection

Pr.158 AM terminal function selection

Pr.178 to Pr.189, Pr.190 to Pr.196 (I/O terminal function assignment)

Pr.306 Analog output signal selection^{*1}

Pr.310 Analog meter voltage output selection^{*1}

Pr.313 to Pr.322 (Output selection)^{*1}

Pr.599 X10 terminal input selection

^{*1} Available when the plug-in option is connected.

- For the following parameters, set the FR-CC2 parameters as required.

Pr.57 Restart coasting time

Pr.65, Pr.67, and Pr.68 (Retry selection)

Pr.872 Input phase loss protection selection

◆ To convert from FR-F700(P) inverters to FR-F800(-E) inverters

- Set the following parameters as required in the "Parameter list" window because they are not converted.

Pr.69 Retry count display erase

Pr.170 Watt-hour meter clear

Pr.171 Operation hour meter clear

Pr.172 to Pr.174 (User group selection)

Pr.259 Main circuit capacitor life measuring

Pr.498 PLC function flash memory clear

Pr.501 (Communication option parameter)

Pr.503, Pr.686, and Pr.688 (Maintenance timer)

Pr.898 Power saving cumulative monitor clear

Pr.991 PU contrast adjustment

Pr.1006 to Pr.1008 (Clock function)

Pr.1020 Trace operation selection

Pr.1219 PID gain tuning start/status

- When parameter settings are converted from FR-F700(P) (FM type) inverters to FR-F800 (CA type) inverters or from FR-F700(P) (CA type) inverters to FR-F800 (FM type) inverters, set the following parameters as required in the "Parameter list" window because they are not converted.

Pr.54 FM/CA terminal function selection

Pr.869 Current output filter

C8 (Pr.930) to C11 (Pr.931) (Terminal CA calibration parameters)

- It is recommended to adjust the setting of the following parameters again after conversion according to the mechanical system because they are used for adjustment.

Pr.0 Torque boost

Pr.12 DC injection brake operation voltage

Pr.46 Second torque boost

C2 (Pr.902) to C7 (Pr.905) (Frequency setting input calibration parameters)

- Since the communication-related parameters (**Pr.117 to Pr.124, Pr.331 to Pr.337, Pr.341, Pr.547, and Pr.548**) are also converted, communication may be disabled depending on the setting after the setting is written to parameters. For example, when **Pr.122/Pr.336 RS-485 communication check time interval** = "0 (initial value)", a communication error (E.PUE, E.SER) occurs immediately after the operation mode with the command source is selected.

- Set the following parameter as required in the "Parameter list" window because they are not converted depending on the setting of the source inverter.

Pr.52 Operation panel main monitor selection

Pr.54 FM/CA terminal function selection

Pr.158 AM terminal function selection

Pr.190 to Pr.196 (Output terminal function assignment)

Pr.306 Analog output signal selection^{*1}

Pr.310 Analog meter voltage output selection^{*1}

Pr.313 to Pr.322 (Output selection)^{*1}

Pr.774 to Pr.776 Operation panel monitor selection

^{*1} Available when the plug-in option is connected.

- If "63" is set in **Pr.184 AU terminal function selection** to enable the PTC thermal error detection (E.PTC) in the source FR-F700 inverter, setting of **Pr.561 and Pr.1016** and connecting the motor to the target FR-F800 inverter via terminals 2 and 10 are required. For the parameter details and terminal connection, refer to the Instruction Manual of the inverter.

◆ To convert from FR-F700(P) inverters to FR-F802(-E) inverters

When the parameter settings are converted to the separated converter type, check the following items in addition to the items mentioned in the previous page.

- After converting parameters, assign the X10 signal to an input terminal by setting of any of **Pr.178 to Pr.189**, and connect the signal to the RDA signal of the FR-CC2.
- After converting parameters, assign the RES signal to an input terminal by setting of any of **Pr.178 to Pr.189**, and connect the signal to the RSO signal of the FR-CC2.
- Set the following parameter as required in the "Parameter list" window because they are not converted depending on the setting of the source inverter.
 - Pr.30 Regenerative function selection**
 - Pr.178 to Pr.189 (I/O terminal function assignment)**
 - Pr.599 X10 terminal input selection**

- For the following parameters, set the FR-CC2 parameters as required.

Pr.57 Restart coasting time

Pr.65, Pr.67, and Pr.68 (Retry selection)

Pr.872 Input phase loss protection selection

◆ To convert from FR-E700 inverters to FR-E800 inverters

- After conversion, set the following parameters as required in the "Parameter list" window as they are not converted.

Pr.69 Retry count display erase

Pr.170 Watt-hour meter clear

Pr.171 Operation hour meter clear

Pr.172 to Pr.174 (User group selection)

Pr.259 Main circuit capacitor life measuring

Pr.501 (Communication option parameter)

Pr.503 Maintenance timer 1

Pr.991 PU contrast adjustment

Pr.1006 to Pr.1008 (Clock function)

Pr.1200 AM output offset calibration

- The following parameters are used for adjustment. It is recommended to adjust the setting of the parameters again after conversion according to the mechanical system.

Pr.0 Torque boost

Pr.12 DC injection brake operation voltage

Pr.46 Second torque boost

Pr.323 AM0 0V adjustment

Pr.324 AM1 0mA adjustment

C2 (Pr.902) to C7 (Pr.905) (Frequency setting input calibration parameters)

- The communication-related parameters are also converted. Communication may be disabled depending on the setting after the setting is written to parameters.

Pr.117 to Pr.124: PU connector communication

Pr.442 to Pr.445, Pr.1424 to Pr.1432, Pr.1434 to Pr.1455: Ethernet communication

Pr.547, Pr.548: USB communication

- When the SF-PR motor is used, always set "70 or 73" in **Pr.71 Applied motor** or **Pr.450 Second applied motor** after conversion.

- To disable the PWM carrier frequency automatic reduction function after conversion to avoid the change in the motor driving sound, set "0" in **Pr.260 PWM frequency automatic switchover**. To enable the PWM carrier frequency automatic reduction function, set "10".

- After conversion, initial values are set in the following parameters. The settings are equivalent to those in the FR-E700. Change the settings as required.

Pr.639 Brake opening current selection

Pr.640 Brake operation frequency selection

- When output shutoff is intended when the Ethernet board fails in the source inverter (FR-E700-NE), set "0" in **Pr.502 Stop mode selection at communication error** after conversion.

- The setting value of **Pr.850 Ethernet TCP disconnection time coefficient** in the source inverter (FR-E700-NE) will be converted to the setting value of **Pr.1455 Keepalive time** in the target inverter (FR-E800-E/FR-E800-SCE) after conversion. To use Ethernet TCP, check the **Pr.1455** setting.

- When "2" is set in **Pr.30 Regenerative function selection** of the source inverter, check the **Pr.30** setting in the target inverter (FR-E800-SCE) after conversion as required. Check the settings of **Pr.30** and **Pr.70 Special regenerative brake duty** according to the combination of the inverter and regenerative option used. For details, refer to the FR-E800 Instruction Manual (Function).

- The following parameters are not converted because the FR-E800 series inverters have no corresponding parameters.

Pr.146 Built-in potentiometer switching

Pr.922 Frequency setting voltage bias frequency (built-in potentiometer)

Pr.923 Frequency setting voltage gain frequency (built-in potentiometer)

Pr.387 Initial communication delay time^{*1}

Pr.388 Transmission interval during heartbeat^{*1}

Pr.389 Minimum transmission time during heartbeat^{*1}

Pr.391 Reception interval during heartbeat^{*1}

Pr.392 Event-driven detection width^{*1}

^{*1} Available when the plug-in option is connected.

- After conversion, set the voltage/current input switch according to the **Pr.73 Analog input selection** and **Pr.267 Terminal 4 input selection** settings in the FR-E800 inverter.
- When "68" is set in **Pr.190 to Pr.192 (Output terminal function selection)** in the FR-E700 inverter, set initial values in **Pr.190 to Pr.192** after conversion in the FR-E800 inverter that does not support the FR-E8DS.

- The FR-E800-E or FR-E800-SCE inverter does not support some input signals. The unsupported signals cannot be set in **Pr.178 to Pr.184 (Input terminal function selection)**.

When the following input signals are used in the source inverter, set the corresponding parameters as required in the "Parameter list" window because they are not converted.

JOG signal: JOG operation selection

OH signal: External thermal relay input

X10 signal: Inverter run enable signal (FR-XC/FR-HC2/FR-CV connection)

X12 signal: PU operation external interlock

X16 signal: PU-External operation switchover

STP (STOP) signal: Start self-holding selection

RES signal: Inverter reset

X65 signal: PU/NET operation switchover

X66 signal: External/NET operation switchover

X67 signal: Command source switchover

- When "60" is set in **Pr.505 Speed setting reference** in the FR-E800 inverter, the maximum value of the speed display is almost one-half of that in the FR-E700 inverter. Depending on the setting in the FR-E700 inverter, an out-of-range error (0x80010011) may occur for **Pr.1**, **Pr.18**, **Pr.37**, or **Pr.505**. If the error occurs, take the following corrective actions.

When the value set in **Pr.1** or **Pr.18** is too large, set a smaller value.

If the out-of-range error persists after the **Pr.1** or **Pr.18** setting is changed, check the **Pr.37** setting.

◆ To convert from the FR-E700EX series to the FR-E800 series

- After conversion, set the following parameters as required in the "Parameter list" window as they are not converted.
 - Pr.170 Watt-hour meter clear**
 - Pr.171 Operation hour meter clear**
 - Pr.172 to Pr.174 (User group selection)**
 - Pr.259 Main circuit capacitor life measuring**
 - Pr.501 Communication error occurrence count display**
 - Pr.503 Maintenance timer 1**
 - Pr.991 PU contrast adjustment**
 - Pr.1006 to Pr.1008 (Clock function)**
 - Pr.1200 AM output offset calibration**
- The following parameters are used for adjustment. It is recommended to adjust the setting of the parameters again after conversion according to the mechanical system.
 - C2 (Pr.902) to C7 (Pr.905) (Frequency setting input calibration parameters)**
- The communication-related parameters are also converted. Communication may be disabled depending on the setting after the setting is written to parameters.
 - Pr.117 to Pr.124: PU connector communication**
 - Pr.547, Pr.548: USB communication**
- When the source inverter with **Pr.550 NET mode operation command source selection** set to "2" (PU connector is the command source in the NET operation mode) is converted to the FR-E800-(SC)E inverter, the **Pr.550** setting value becomes the initial value as the PU connector is not provided for the target inverter. In the same way, when **Pr.551 PU mode operation command source selection** is set to "2" (PU connector is the command source in the PU operation mode) for the source inverter, the **Pr.551** setting value for the target inverter becomes the initial value. After conversion, set the parameters as required in the "Parameter list" window.
- After conversion, as **Pr.260 PWM frequency automatic switchover** is set to "10" (PWM carrier frequency automatic reduction function enabled), the motor noise increases under high load. To lower the noise level to that achieved by the source inverter, set **Pr.260** = "0" (PWM carrier frequency automatic reduction function disabled).
- The following parameters for the brake sequence function, which are not provided for the FR-E700EX, have been added to the FR-E800. The initial values for the FR-E800 are set at conversion. After conversion, set the parameters as required in the "Parameter list" window.
 - Pr.278 Brake opening frequency**
 - Pr.279 Brake opening current**
 - Pr.280 Brake opening current detection time**
 - Pr.282 Brake operation frequency**
 - Pr.284 Deceleration detection function selection**
 - Pr.292 Automatic acceleration/deceleration**
 - Pr.639 Brake opening current selection**
 - Pr.640 Brake operation frequency selection**
- As the minimum setting increments are different, the following parameters are converted as follows. When a value other than "9999" is set in **Pr.1494 Brake operation time at start 2** and **Pr.1495 Brake operation time at stop 2** in the FR-E800, the settings of **Pr.281 Brake operation time at start** and **Pr.283 Brake operation time at stop** are not converted.
 - [FR-E700EX] **Pr.281 Brake operation time at start** → [FR-E800] **Pr.1494 Brake operation time at start 2**
 - [FR-E700EX] **Pr.283 Brake operation time at stop** → [FR-E800] **Pr.1495 Brake operation time at stop 2**

- For the following parameters, some setting values for the source inverter are out of the setting range for the target inverter, therefore a writing error may occur. After conversion, set a value within the setting range as required in the "Parameter list" window.

Pr.2 Minimum frequency

Pr.10 DC injection brake operation frequency

Pr.13 Starting frequency

Pr.725 Motor protection current level

- The following parameters are not converted because the FR-E800 series inverters have no corresponding parameters.

Pr.110 Acceleration time for home position return

Pr.111 Deceleration time for home position return

Pr.144 Speed setting switchover

Pr.419 Position command source selection

Pr.424 Position command acceleration/deceleration time constant

Pr.428 Command pulse selection

Pr.429 Clear signal selection

Pr.643 Voltage compensation amount setting

Pr.658 Wiring resistance

Pr.736 Electromagnetic brake interlock time

Pr.982 Motor capacity selection for initialization

- The display unit (frequency / rotations per minute) setting in accordance with the settings of **Pr.37 Speed display** and **Pr.144 Speed setting switchover** of the FR-E700EX is converted to the **Pr.53 Frequency / rotation speed unit switchover** setting of the FR-E800.

The number of motor poles for the display in frequencies is determined by the **Pr.81 Number of motor poles** setting.

Motor speed r/min conversion formula: frequency × 120 / number of motor poles (**Pr.81**)

- For the FR-E800, the analog input selection function has been enhanced. After conversion, check the settings of **Pr.73 Analog input selection** and **Pr.267 Terminal 4 input selection** and set the voltage/current input switch according to the settings.

- The following setting values of **Pr.178 to Pr.189 (Input terminal function selection)** for the source inverter cannot be set for the FR-E800. If either of the following values is set for the source inverter, the setting is not converted. Check and correct the setting value as required in the "Parameter list" window.

59: NET position pulse clear

69: Position pulse clear

- When the target inverter is the FR-E800-(SC)E, the following setting values of **Pr.180 to Pr.184 (Input terminal function selection)** for the source inverter cannot be set for the target inverter. If either of the following values is set for the source inverter, the setting is not converted. Check and correct the setting value as required in the "Parameter list" window.
 - 5: JOG operation selection
 - 7: External thermal relay input
 - 10: Drive unit run enable signal (FR-HC2, FR-XC, FR-CV connection)
 - 12: PU operation external interlock
 - 16: PU-External operation switchover (turning ON X16 selects External operation)
 - 25: Start self-holding selection
 - 62: Drive unit reset
 - 65: PU/NET operation switchover (turning ON X65 selects PU operation)
 - 66: External/NET operation switchover (turning ON X66 selects NET operation)
 - 67: Command source switchover (turning ON X67 makes **Pr.338** and **Pr.339** commands valid)
- The following setting values of **Pr.190 to Pr.196 and Pr.313 to Pr.315 (Output terminal function selection)** for the source inverter cannot be set for the FR-E800. If either of the following values is set for the source inverter, the setting is not converted. Check and correct the setting value as required in the "Parameter list" window.
 - 21: Electromagnetic brake interlock
 - 55: Rough match
 - 121: Electromagnetic brake interlock
 - 155: Rough match
- When "68" is set in **Pr.190 to Pr.196 (Output terminal function selection)** in the source inverter and the parameter settings are converted to the FR-E800 inverter that does not support the FR-E8DS, set initial values in **Pr.190 to Pr.196 (Output terminal function selection)**.
- When "60" is set in **Pr.505 Speed setting reference** in the FR-E800 inverter, the maximum value of the speed display is almost one-half of that in the FR-E700EX inverter. Depending on the setting in the FR-E700EX inverter, an out-of-range error (0x80010011) may occur for **Pr.1 Maximum frequency**, **Pr.18 High speed maximum frequency**, **Pr.37 Speed display**, or **Pr.505 Speed setting reference**. If the error occurs, take the following corrective actions.
 - When the value set in **Pr.1** or **Pr.18** is too large, set a smaller value.
 - If the out-of-range error persists after the **Pr.1** or **Pr.18** setting is changed, check the **Pr.37** setting.
- When "330, 460, or 470" (MM-CF or MM-BF series motor) is set in **Pr.71 Applied motor** in the source inverter, the **Pr.71** setting becomes "8090" (IPM motor) after conversion in the target inverter. Auto tuning is required to drive the motor.
- If a motor compatible with E700EX compatible mode of the FR-E800 has been set in the source inverter, "210, 213, or 214" (PM sensorless vector control (E700EX compatibility mode)) is set in **Pr.800 Control method selection** in the target inverter depending on the **Pr.800 Control method selection** setting in the source inverter. The motors that can be driven by the FR-E800 inverter in the E700EX compatible mode depend on the firmware version. For details, refer to the FR-E800 Instruction Manual (Function).
- The FR-E800 does not support position control using MM-CF series motors. When **Pr.71 Applied motor** = "330" (MM-CF series motor) and **Pr.800 Control method selection** = "13" (Normal operation (position control)) or "14" (Normal operation (speed control / position control switchover)) in the source inverter, the target inverter operation does not start due to incorrect parameter setting (SE warning) after conversion.
- When **Pr.48 Second torque limit level** is set in the source inverter, its setting is reflected to **Pr.815 Torque limit level 2** after conversion in the FR-E800. To switch the torque limit level, turn ON the Torque limit selection (TL) signal. The setting value of **Pr.815** is used as the torque limit level. After conversion, set "27" (Torque limit selection) in any parameter from **Pr.178 to Pr.189 (Input terminal function selection)** to assign the function.

- For the FR-E800, **Pr.156 Stall prevention operation selection** cannot be used to select whether to enable the torque limit operation for PM motors. After conversion, configure the settings using **Pr.816 Torque limit level during acceleration** and **Pr.817 Torque limit level during deceleration**.
- When the parameter settings are converted using the parameter file (*.pr3), the following parameters are not converted. Set the value as required.
 - Pr.57 Restart coasting time**
 - Pr.162 Automatic restart after instantaneous power failure selection**
 - Pr.286 Droop gain**
 - Pr.287 Droop filter time constant**
 - Pr.327 Automatic servo-ON selection**
 - Pr.419 Position command source selection**
 - Pr.425 Position feed forward command filter**
 - Pr.611 Acceleration time at a restart**
 - Pr.788 Low-speed range torque characteristic selection**
 - Pr.979 Position accuracy compensation gain 1**
 - Pr.980 Position accuracy compensation gain 2**
 - Pr.981 Position accuracy compensation gain 3**
 - Pr.982 Motor capacity selection for initialization**
- When **Pr.71 Applied motor** = "1040" (S-PM geared motor) in the source inverter, continuous operation in the low-speed range of less than 10% of the rated motor frequency after conversion may cause the motor overload trip (electronic thermal relay function) (E.THM) depending on the operating time even with no load. In that case, set 80% or less in **Pr.785 Increased magnetic excitation current level**.

◆ To convert from the FR-D700 series to the FR-D800 series

- After conversion, set the following parameters as required in the "Parameter list" window as they are not converted.
 - Pr.69 Retry count display erase**
 - Pr.170 Watt-hour meter clear**
 - Pr.171 Operation hour meter clear**
 - Pr.172 to Pr.174 (User group selection)**
 - Pr.259 Main circuit capacitor life measuring**
 - Pr.503 Maintenance timer 1**
 - Pr.991 PU contrast adjustment**
 - Pr.1006 to Pr.1008 (Clock function)**
- When the parameter settings are converted from the FR-D700-NA, -EC, or -CHT, set the following parameter as required in the "Parameter list" window because they are not converted.
 - Pr.901 AM terminal calibration**
- It is recommended to adjust the setting of the following parameters again after conversion according to the mechanical system because they are used for adjustment.
 - Pr.0 Torque boost**
 - Pr.12 DC injection brake operation voltage**
 - Pr.46 Second torque boost**
 - C2 (Pr.902) to C7 (Pr.905) (Frequency setting input calibration parameters)**
- Since the communication-related parameters (**Pr.117 to Pr.124**) are also converted, communication may be disabled depending on the setting after the setting is written to parameters.
- When the SF-PR motor is used, always set "70" in **Pr.71 Applied motor** after conversion.

- When General-purpose magnetic flux vector is selected (**Pr.80 Motor capacity** ≠ "9999") for the FR-D700 inverter, note the following points:

The number of motor poles is converted to four (**Pr.81 Number of motor poles** = "4"). Set the number of poles of the motor used in Pr.81. Tuning and parameter setting of the target inverter are recommended, if offline auto tuning is performed (**Pr.71 Applied motor** = "3, 13, 23, 43, 53") at the source inverter. When an SF-PR or GM-[] motor is used, set an appropriate value in **Pr.71** after writing the converted parameter to the target inverter.

- To disable the PWM carrier frequency automatic reduction function after conversion to avoid the change in the motor driving sound, set "0" in **Pr.260 PWM frequency automatic switchover**. To enable the PWM carrier frequency automatic reduction function, set "10".

- The following parameters are not converted because the FR-D800 series inverters have no corresponding parameters.

Pr.54 FM terminal function selection^{*1}

Pr.146 Built-in potentiometer switching

Pr.922 Frequency setting voltage bias frequency (built-in potentiometer)

Pr.923 Frequency setting voltage gain frequency (built-in potentiometer)

Pr.197 SO terminal function selection

Pr.900 FM terminal calibration^{*1}

^{*1} Not exist in the FR-D700-NA, FR-D700(-SC)-EC, and FR-D700-CHT.

- After conversion, set the voltage/current switch according to the **Pr.73 Analog input selection** and **Pr.267 Terminal 4 input selection** settings in the FR-D800 inverter.

- When "60" is set in **Pr.505 Speed setting reference** in the FR-D800 inverter, the maximum value of the speed display is almost one-half of that in the FR-D700 inverter. Depending on the setting in the FR-D700 inverter, an out-of-range error (0x80010011) may occur for **Pr.1**, **Pr.18**, **Pr.37**, or **Pr.505**.

If the error occurs, take the following corrective actions.

When the value set in **Pr.1** or **Pr.18** is too large, set a smaller value.

If the out-of-range error persists after the **Pr.1** or **Pr.18** setting is changed, check the **Pr.37** setting.

- When "2" is set in **Pr.551 PU mode operation command source selection** in the FR-D700 inverter, the **Pr.551** setting returns to its initial value after conversion to the FR-D800-E. Set **Pr.551** as required.

- When the conversion is performed using a parameter file with the extension *.pr3, the following parameters are not converted. Set values as required.

Pr.154 Voltage reduction selection during stall prevention operation

Pr.552 Frequency jump range

◆ To convert from the FR-F700PJ series to the FR-D800 series

- After conversion, set the following parameters as required in the "Parameter list" window as they are not converted.

Pr.69 Retry count display erase

Pr.170 Watt-hour meter clear

Pr.171 Operation hour meter clear

Pr.172 to Pr.174 (User group selection)

Pr.259 Main circuit capacitor life measuring

Pr.503 Maintenance timer 1

Pr.991 PU contrast adjustment

Pr.1006 to Pr.1008 (Clock function)

- The following parameters are used for adjustment. It is recommended to adjust the setting of the parameters again after conversion according to the mechanical system.

Pr.0 Torque boost

Pr.12 DC injection brake operation voltage

C2 (Pr.902) to C7 (Pr.905) (Frequency setting input calibration parameters)

- The communication-related parameters are also converted. Communication may be disabled depending on the setting after the setting is written to parameters.

Pr.117 to Pr.124: PU connector communication

- When V/F control is selected (**Pr.80 Motor capacity** = "9999") for the FR-F700PJ inverter, note the following:
When an SF-PR motor is used, set "70" in **Pr.71** after writing the converted parameter to the target inverter.
When offline auto tuning is performed (**Pr.71 Applied motor** = "3, 13, 23, 43, or 53") for the source inverter, it is recommended to perform tuning again (**Pr.96 Auto tuning setting/status** = "11") and set parameters for the target inverter.
- When General-purpose magnetic flux vector control is selected (**Pr.80 Motor capacity** ≠ "9999", **Pr.998 IPM parameter initialization** = "0") for the FR-F700PJ inverter, note the following:
When an SF-PR motor is used, set "70" in **Pr.71** after writing the converted parameter to the target inverter.
The number of motor poles is converted to four (**Pr.81 Number of motor poles** = "4"). Set the number of poles of the motor used in **Pr.81**.
When offline auto tuning is performed (**Pr.71 Applied motor** = "3, 13, 23, 43, or 53") for the source inverter, it is recommended to perform tuning again (**Pr.96 Auto tuning setting/status** = "11") and set parameters for the target inverter.
- When the MM-EF or MM-EFS motor is selected (**Pr.71 Applied motor** = "120 or 210") for the FR-F700PJ inverter, note the following:
The motor is converted as an IPM motor (**Pr.71** = "8090"). Perform tuning and set parameters in the target inverter.
- When the IPM motor test operation is selected (**Pr.800 Control method selection** = "9") for the FR-F700PJ inverter, note the following:
When an IM motor is selected in the source inverter (**Pr.71 Applied motor** = "0, 1, 3, 13, 23, 40, 43, 50, or 53") or when V/F control is selected (**Pr.80 Motor capacity** = "9999"), the operation does not start due to incorrect parameter setting (SE warning).
- When IPM motor control is selected, **Pr.72 PWM frequency selection** is converted to the nearest PWM carrier frequency.
- The following parameters are not converted because the FR-D800 series inverters have no corresponding parameters.

Pr.54 FM terminal function selection

Pr.144 Speed setting switchover

Pr.146 Built-in potentiometer switching

Pr.900 FM terminal calibration

Pr.922 Frequency setting voltage bias frequency (built-in potentiometer)

Pr.923 Frequency setting voltage gain frequency (built-in potentiometer)

- The display unit (frequency / rotations per minute) setting in accordance with the settings of **Pr.37 Speed display** and **Pr.144 Speed setting switchover** of the FR-F700PJ is converted to the **Pr.53 Frequency / rotation speed unit switchover** setting of the FR-D800.
The number of motor poles for the display in frequencies is determined by the **Pr.81 Number of motor poles** setting.
Motor speed r/min conversion formula: frequency × 120 / number of motor poles (**Pr.81**)

- For the FR-D800 series, the analog input selection function has been enhanced. After conversion, check the settings of **Pr.73 Analog input selection** and **Pr.267 Terminal 4 input selection** and set the voltage/current input switch according to the settings.
- AU terminal assignment (**Pr.180 AU terminal function selection**) of the FR-F700PJ series is converted to RL terminal assignment (**Pr.180 RL terminal function selection**) of the FR-D800 series.
- When **Pr.502 Stop mode selection at communication error** = "3" for the FR-F700PJ series, the setting is converted to **Pr.502 Stop mode selection at communication error** = "6" for the FR-D800 series after conversion. When a communication error occurs, the operation continues with **Pr.779 Operation frequency during communication error** as in the FR-F700PJ series, but the Continuous operation during communication fault (CF warning) is displayed.
- When "60" is set in **Pr.505 Speed setting reference** in the FR-D800 inverter, the maximum value of the speed display is almost one-half of that in the FR-F700PJ inverter. Depending on the setting in the FR-F700PJ inverter, an out-of-range error (0x80010011) may occur for **Pr.1 Maximum frequency**, **Pr.18 High speed maximum frequency**, **Pr.37 Speed display**, or **Pr.505 Speed setting reference**.
If the error occurs, take the following corrective actions.
When the value set in **Pr.1** or **Pr.18** is too large, set a smaller value.
If the out-of-range error persists after the **Pr.1** or **Pr.18** setting is changed, check the **Pr.37** setting.
- When the FR-F700PJ inverter with **Pr.551 PU mode operation command source selection** set to "2" (PU connector is the command source in the PU operation mode) is converted to the FR-D800-E inverter, the **Pr.551** setting value becomes the initial value as the PU connector is not provided for the target inverter. After conversion, set the parameters as required in the "Parameter list" window.

◆ To convert from FR-B (A700) inverters to FR-B (A800) inverters

- Set the following parameters as required in the "Parameter list" window because they are not converted.
Pr.69 Retry count display erase
Pr.170 Watt-hour meter clear
Pr.171 Operation hour meter clear
Pr.172 to Pr.174 (User group selection)
Pr.259 Main circuit capacitor life measuring
Pr.498 PLC function flash memory clear
Pr.501 (Communication option parameter)
Pr.610 PID measured value input selection
Pr.503, Pr.686, and Pr.688 (Maintenance timer)
Pr.805 Torque command value (RAM)
Pr.898 Power saving cumulative monitor clear
Pr.991 PU contrast adjustment
Pr.1006 to Pr.1008 (Clock function)
Pr.1020 Trace operation selection
- It is recommended to adjust the setting of the following parameters again after conversion according to the mechanical system because they are used for adjustment.
C2 (Pr.902) to C7 (Pr.905) (Frequency setting input calibration parameters)
- Since the communication-related parameters (**Pr.117 to Pr.124**, **Pr.331 to Pr.337**, **Pr.341**, **Pr.547**, and **Pr.548**) are also converted, communication may be disabled depending on the setting after the setting is written to parameters. For example, when **Pr.122/Pr.336 RS-485 communication check time interval** = "0 (initial value)", a communication error (E.PUE, E.SER) occurs immediately after the operation mode with the command source is selected.

- If "63" is set in **Pr.184 AU terminal function selection** to enable the PTC thermal error detection (E.PTC) in the source FR-B (A700) inverter, setting of **Pr.561 and Pr.1016** and connecting the motor to the target FR-B (A800) inverter via terminals 2 and 10 are required. For the parameter details and terminal connection, refer to the Instruction Manual of the inverter.

◆ To convert from FR-B3 (A700) inverters to FR-B3 (A800) inverters

- Set the following parameters as required in the "Parameter list" window because they are not converted.
Pr.69 Retry count display erase
Pr.170 Watt-hour meter clear
Pr.171 Operation hour meter clear
Pr.172 to Pr.174 (User group selection)
Pr.259 Main circuit capacitor life measuring
Pr.498 PLC function flash memory clear
Pr.501 (Communication option parameter)
Pr.503, Pr.686, and Pr.688 (Maintenance timer)
Pr.610 PID measured value input selection
Pr.805 Torque command value (RAM)
Pr.898 Power saving cumulative monitor clear
Pr.991 PU contrast adjustment
Pr.1006 to Pr.1008 (Clock function)
Pr.1020 Trace operation selection
- It is recommended to adjust the setting of the following parameters again after conversion according to the mechanical system because they are used for adjustment.
Pr.12 DC injection brake operation voltage
C2 (Pr.902) to C7 (Pr.905) (Frequency setting input calibration parameters)
- Since the communication-related parameters (**Pr.117 to Pr.124, Pr.331 to Pr.337, Pr.341, Pr.547, and Pr.548**) are also converted, communication may be disabled depending on the setting after the setting is written to parameters. For example, when **Pr.122/Pr.336 RS-485 communication check time interval** = "0 (initial value)", a communication error (E.PUE, E.SER) occurs immediately after the operation mode with the command source is selected.
- If "63" is set in **Pr.184 AU terminal function selection** to enable the PTC thermal error detection (E.PTC) in the source FR-B3 (A700) inverter, setting of **Pr.561 and Pr.1016** and connecting the motor to the target FR-B3 (A800) inverter via terminals 2 and 10 are required. For the parameter details and terminal connection, refer to the Instruction Manual of the inverter.

◆ To convert from FR-A500(L) inverters to FR-A800(-E) inverters

- Set the following parameters as required in the "Parameter list" window because they are not converted.
 - Pr.69 Retry count display erase**
 - Pr.96 Auto tuning setting/status**
 - Pr.133 PID action set point**
 - Pr.170 Watt-hour meter clear**
 - Pr.171 Operation hour meter clear**
 - Pr.172 to Pr.174 (User group selection)**
 - Pr.259 Main circuit capacitor life measuring**
 - Pr.463 Second motor auto tuning setting/status**
 - Pr.496 Remote output data 1**
 - Pr.497 Remote output data 2**
 - Pr.498 PLC function flash memory clear**
 - Pr.501 (Communication option parameter)**
 - Pr.503, Pr.686, and Pr.688 (Maintenance timer)**
 - Pr.805 Torque command value (RAM)**
 - Pr.898 Power saving cumulative monitor clear**
 - Pr.991 PU contrast adjustment**
 - Pr.1006 to Pr.1008 (Clock function)**
 - Pr.1020 Trace operation selection**
- When parameter settings are converted from FR-A500 inverters to FR-A800 (CA type) inverters, set the following parameters as required in the "Parameter list" window because they are not converted.
 - Pr.54 FM/CA terminal function selection**
 - Pr.291 Pulse train I/O selection**
 - Pr.869 Current output filter**
 - C8 (Pr.930) to C11 (Pr.931) (Terminal CA calibration parameters)**
- It is recommended to adjust the setting of the following parameters again after conversion according to the mechanical system because they are used for adjustment.
 - Pr.0 Torque boost**
 - Pr.12 DC injection brake operation voltage**
 - Pr.46 Second torque boost**
 - Pr.112 Third torque boost**
 - C2 (Pr.902) to C7 (Pr.905) (Frequency setting input calibration parameters)**
- Since the communication-related parameters (**Pr.117 to Pr.124, Pr.331 to Pr.337, and Pr.341**) are also converted, communication may be disabled depending on the setting after the setting is written to parameters. For example, when **Pr.122/Pr.336 RS-485 communication check time interval** = "0 (initial value)", a communication error (E.PUE, E.SER) occurs immediately after the operation mode with the command source is selected.
- Note the following when Advanced magnetic flux vector control or vector control is selected (**Pr.80 Motor capacity** is not "9999", **Pr.81 Number of motor poles** is not "9999").
 Tuning and parameter setting of the target inverter are recommended, if offline auto tuning is performed (**Pr.71 Applied motor** = "3, 4, 7, 8, 13, 14, 17, 18, 23, 24") or motor constants is directly input (**Pr.71** = "5, 6, 15, 16") at the source inverter. When an SF-HR or SF-HRCA motor is used, set **Pr.71** = "40, 43, 44, 50, 53, or 54" after writing the converted parameter to the target inverter. (Conversion of **Pr.82, Pr.85, Pr.86, Pr.89, Pr.90 to Pr.94** is not necessary)

- The following wiring needs to be changed. Refer to the FR-A800 series Instruction Manual for details of wiring.
When using pulse train input of the FR-A5AP, change the connection to JOG/pulse train input terminal of the inverter (JOG terminal is changed to pulse train input by Convert). Note that a resistance is necessary when connecting.
When using a relay output terminal of the FR-A5NR, change the connection to terminal ABC2 of the inverter.
When stop position command of orientation control was given from the FR-A5AX (**Pr.360** = "1") and **Pr.369 Number of encoder pulses** was "2048" or "4096", wire to the FR-A8AX as shown below.
Pr.369 Number of encoder pulses = "2048"
Change connection from X0 to X1.....from X11 to X12 (X0 is always open)
Pr.369 Number of encoder pulses = "4096"
Change connection from X0 to X2.....from X11 to X13 (X0 and X1 are always open)
- There is a change in the following functions. Refer to the FR-A800 series manual for details.
For the FR-A500L series, when automatic restart after instantaneous power failure is performed with residual voltage detection system by T-SEN50 (**Pr.162** = "11"), it is changed to automatic restart after instantaneous power failure with reduced voltage system. Fully check that there is no problem in automatic restart operation after instantaneous power failure. If there are any problem, consider changing to f search system, etc.
Y29 (acceleration speed detection) signal is deleted, and major fault by E.OS occurs instead.
When stop position command of orientation control was given from the FR-A5AX (**Pr.360** = "1"), orientation with **Pr.369 Number of encoder pulses** "1025 to 2047", or "2049 to 4095" is not supported by Convert.
Since convert is performed using the full scale value of the motor torque as 200%, the full scale value of the load meter is converted as 200% (FR-A500 (L) series is 100%). Use **Pr.866** to change. In such a case, note that the full scale value of the motor torque also changes accordingly.
- The following functions are not converted, since they have been deleted from the FR-A800 series.
Pr.53 PU level display data selection
Pr.199 User initial value
Setting value 3 of **Pr.200 to Pr.231** and **Pr.76**, setting value 5 of **Pr.79**, PRG signal (program operation)
Pr.371 Torque characteristic selection
Pr.390 to Pr.396 Trace function of the FR-A500L series
Pr.450 to Pr.453 Motor constant adjustment function for vector control of the FR-A500L series and FR-A5AP (encoder 50)

◆ To convert from FR-A500(L) inverters to FR-A802(-E) inverters

When the parameter settings are converted to the separated converter type, check the following items in addition to the items mentioned in the previous page.

- After converting parameters, assign the X10 signal to an input terminal by setting of any of **Pr.178 to Pr.189**, and connect the signal to the RDA signal of the FR-CC2.
- After converting parameters, assign the RES signal to an input terminal by setting of any of **Pr.178 to Pr.189**, and connect the signal to the RSO signal of the FR-CC2.
- Set the following parameter as required in the "Parameter list" window because they are not converted depending on the setting of the source inverter.
Pr.52 Operation panel main monitor selection
Pr.54 FM/CA terminal function selection
Pr.158 AM terminal function selection
Pr.190 to Pr.196 (I/O terminal function assignment)
Pr.306 Analog output signal selection^{*1}
Pr.310 Analog meter voltage output selection^{*1}
Pr.313 to Pr.322 (Output selection)^{*1}
Pr.599 X10 terminal input selection

^{*1} Available when the plug-in option is connected.

- For the following parameters, set the FR-CC2 parameters as required.

Pr.57 Restart coasting time

Pr.65, Pr.67, and Pr.68 (Retry selection)

Pr.872 Input phase loss protection selection

◆ To convert from the FR-E500 series to the FR-E800 series

- After conversion, set the following parameters as required in the "Parameter list" window as they are not converted.

Pr.69 Retry count display erase

Pr.133 PID action set point

Pr.160 User group read selection

Pr.170 Watt-hour meter clear

Pr.171 Operation hour meter clear

Pr.172 to Pr.174 (User group selection)

Pr.259 Main circuit capacitor life measuring

Pr.501 Communication error occurrence count display

Pr.503 Maintenance timer 1

Pr.900 and Pr.901 FM/AM terminal calibration

Pr.991 PU contrast adjustment

Pr.1006 to Pr.1008 (Clock function)

Pr.1200 AM output offset calibration

- The following parameters are used for adjustment. It is recommended to adjust the setting of the parameters again after conversion according to the mechanical system.

Pr.0 Torque boost

Pr.12 DC injection brake operation voltage

Pr.46 Second torque boost

Pr.245 Rated slip

Pr.246 Slip compensation time constant

C2 (Pr.902) to C7 (Pr.905) (Frequency setting input calibration parameters)

- Since the communication-related parameters (**Pr.117 to Pr.124**) are also converted, communication may be disabled depending on the setting after the setting is written to parameters. When computer link communication is used for the FR-E500 inverter, use the FR-E800 inverter in NET mode.
- When the SF-PR motor is used, always set "70 or 73" in **Pr.71 Applied motor or Pr.450 Second applied motor** after conversion.
- To disable the PWM carrier frequency automatic reduction function after conversion to avoid the change in the motor driving sound, set "0" in **Pr.260 PWM frequency automatic switchover**. To enable the PWM carrier frequency automatic reduction function, set "10".

- The following parameters are not converted because the FR-E800 series inverters have no corresponding parameters.

Pr.146 Frequency setting command selection

Pr.175 User group 2 registration

Pr.176 User group 2 deletion

Pr.347 DeviceNet address startup data

Pr.348 DeviceNet baudrate startup data

Pr.922 Built-in frequency setting potentiometer bias

Pr.923 Built-in frequency setting potentiometer gain

Pr.387 Initial communication delay time^{*1}

Pr.388 Transmission interval during heartbeat^{*1}

Pr.389 Minimum transmission time during heartbeat^{*1}

Pr.391 Reception interval during heartbeat^{*1}

Pr.392 Event-driven detection width^{*1}

^{*1} Available when the plug-in option is connected.

- Set appropriate values in **Pr.30 Regenerative function selection** and **Pr.70 Special regenerative brake duty** according to the combination of the inverter and regeneration unit used. For details, refer to the FR-E800 Instruction Manual (Function).
- When "100" or larger value is set in **Pr.71** and the RT signal is ON for the FR-E500 inverter, the settings are not applied to the FR-E800 inverter's parameters for the motor constant of the second motor or other settings (**Pr.450, Pr.451, Pr.453 to Pr.463, Pr.560, and Pr.860**). After conversion, set the appropriate values.
- When General-purpose magnetic flux vector control is selected (**Pr.80 Motor capacity** ≠ "9999") for the FR-E500 inverter, note the following points: The number of motor poles is converted to four (**Pr.81 Number of motor poles** = "4"). Set the number of poles of the motor used in **Pr.81**. When offline auto tuning is performed (**Pr.71 Applied motor** = "3, 13, 23, 103, 113, or 123") or motor constants are directly input (**Pr.71** = "5, 6, 15, 16, 105, 106, 115, or 116") for the source inverter, the setting method of CC-Link communication differs depending on the specification of the target inverter. Set the station number and baud rate in **Pr.542 and Pr.543** of the FR-E800 inverter (with FR-A8NC installed) according to the setting switches of the FR-E500-N inverter.
- The FR-E800-E or FR-E800-SCE inverter does not support some input signals. The unsupported signals cannot be set in **Pr.178 to Pr.184 (Input terminal function selection)**.
When the following input signals are used in the source inverter, set the corresponding parameters as required in the "Parameter list" window because they are not converted.
OH signal: External thermal relay input
X16 signal: PU-External operation switchover
STP (STOP) signal: Start self-holding selection
- When "60" is set in **Pr.505 Speed setting reference** in the FR-E800 inverter, the maximum value of the speed display is almost one-half of that in the FR-E700 inverter. Depending on the setting in the FR-E500 inverter, an out-of-range error (0x80010011) may occur for **Pr.1, Pr.18, Pr.37, or Pr.505**. If the error occurs, take the following corrective actions.
When the value set in **Pr.1 or Pr.18** is too large, set a smaller value.
If the out-of-range error persists after the **Pr.1 or Pr.18** setting is changed, check the **Pr.37** setting.

4.3.6 When "100" or larger value is set in Pr.119 for the FR-E500-EC inverter

1. Use the operation panel (FR-PA02-02) or the parameter unit (FR-PU04) to check the **Pr.338, Pr.339, and Pr.340** setting values of the FR-E500-EC. Record the values.
2. Use the operation panel (FR-PA02-02) or the parameter unit (FR-PU04) to change the **Pr.119** setting value of the FR-E500-EC to the value obtained by subtracting 100 from the set value. After the setting has completed, turn OFF and then ON the power of the inverter or reset the inverter.
3. Select [Specify source] in the "Convert" window of FR Configurator2 to display the "Source" window.
4. Select [Read from connected inverter] and configure the setting. The source parameter list is displayed in the "Convert" window.
5. In the source parameter list, set the values recorded in Step 1 in **Pr.338, Pr.339, and Pr.340**.
6. After conversion, change the **Pr.119** setting value of the FR-E500-EC to the original value using the operation panel (FR-PA02-02) or the parameter unit (FR-PU04).

4.4 Graph

The graph function is not available for the following models.

Model: FR-A700, FR-B (700), FR-B3 (700), FR-F700, FR-F700P, and FR-E500

The inverter output frequency, current, and other data is sampled, and the result is displayed in a graph (waveform). Sampled data can be saved to a file (*.jpg, *.emf, *.gp4, *.xlsx, or *.csv file), and sampling data saved to a file can be read (*.gp4 file, or *.st1 import) and displayed.

The [Graph] window can be displayed by selecting [Graph] from the [Monitor] menu, or by clicking  on the toolbar.

There are two types of sampling methods.

- High speed sampling

Data is collected with the shortest sampling interval, approx. 0.125 [ms]. The target station of the sampling is only 1 station. The high speed sampling is available when the connection method is USB or Ethernet connection.

The high speed sampling is not available when the computer is connected with the inverter via CC-Link IE TSN communication.

The high speed sampling is not available when the FR-A802 inverter has been converted to the high power factor converter by installing the FR-A8AVP.

To perform high speed sampling for the FR-E700 or FR-E700-EX inverter, close all windows other than the "Graph" window.

- Monitor sampling

The sampling interval varies depending on communication settings (communication speed, communication port) and the number of sampling items.

Setting item	Specifications
Sampling interval	High speed sampling: Set to between approx. 0.125 [ms] (mask count: 0) and approx. 20 [ms] (mask count: 30) Monitor sampling: Set to the range from 50 [ms] to 60000 [ms] (varies due to communication speed, communication port, and number of sampling items)
Sampling time [ms]	High speed sampling: Maximum = (mask count + 1) × 4000 Monitor sampling: Maximum = sampling interval × 4000
Analog data	Analog data for 4 channels can be sampled.
Digital data	Digital data for 4 channels can be sampled.

- Trace data display

Trace data, stored in the USB memory device by the inverter, can be read or imported to be displayed in the graph window.

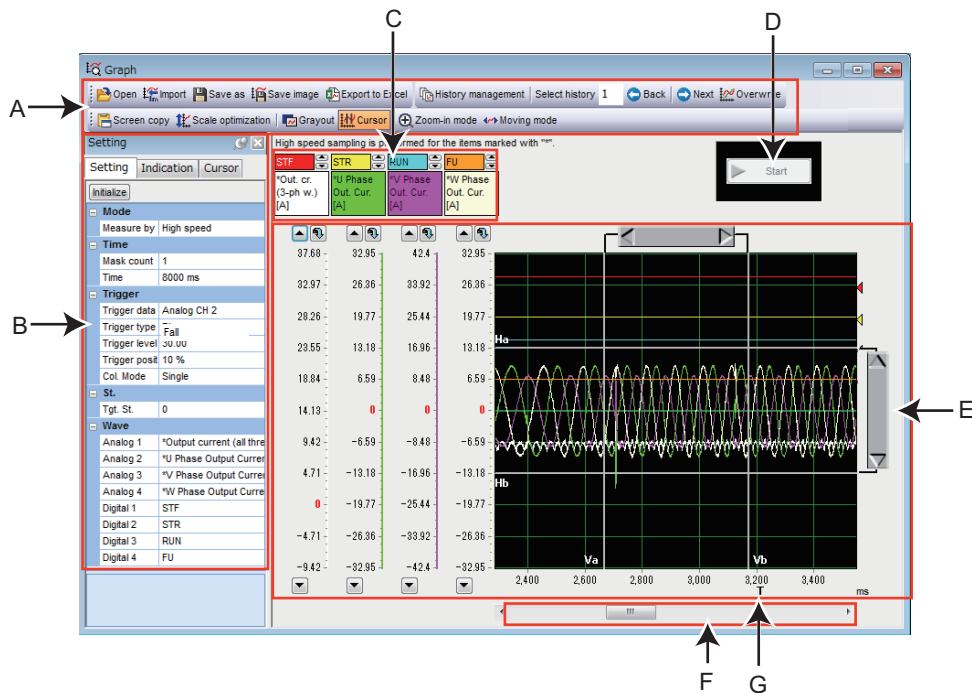
For details of the trace function, refer to the Instruction Manual of the inverter.

Setting item	Specifications
Analog data	Analog data for 8 channels can be displayed in the graph window.
Digital data	Digital data for 8 channels can be displayed in the graph window.

NOTE

- Running other applications during high speed sampling, or performing personal computer file operations during high speed sampling, etc., will cause communication errors (error code 0x80020007 or 0x80020008) or buffer overflow errors to occur, and data will not be able to be displayed correctly. In this case, execute such countermeasures as terminating the other applications, refraining from operation of FR Configurator2, and increasing the mask count setting of the sampling interval.
- The sampling interval varies depending on the inverter control method and presence/absence of plug-in options.

4.4.1 Graph window

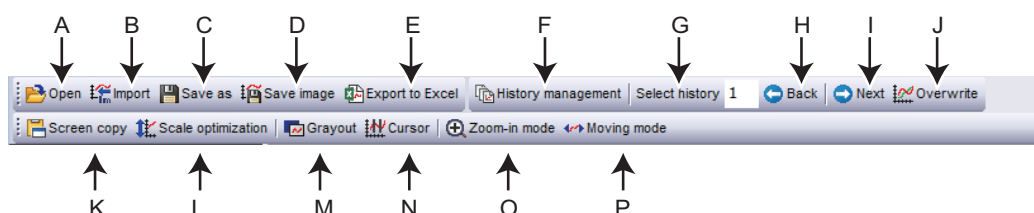


Symbol	Name	Function/description
A	Tool bar	Allows operation of the file, history control, and graph display settings.
B	Properties	Setting of the measurement conditions, display conditions, and cursor can be done in the properties.
C	Sampling item column	Displays the contents of the analog CH and digital CH set by [Waveform] in the settings tab of the condition properties.
D	Measurement start/stop button	 Start Starts sampling.
		 Stop Stops sampling. This button only appears when operating.
E	Graph display area	Displays the sampled data in a graph.
F	Horizontal axis scroll bar	Allows scrolling of the displayed section in the graph display area.
G	Trigger position	Shows the position in which the trigger completes. "T" on the graph horizontal axis denotes measuring time period.

NOTE

- If a normal communication with inverter is not maintained (communication error, etc.), the sampling stops.
- If a fault occurs during sampling, sampling continues.
- During sampling, other communication tasks such as parameter reading are unavailable.
- When parameter write is performed during measurement of graph, waveform data may be incorrect.
- When the negative output of monitor item is enabled/disabled during measurement of graph, the waveform data will be incorrect.
- For the FR-D800, the negative output of monitor item is disabled.

4.4.2 Graph window toolbar



Symbol	Name	Function/description
A	Open	Opens a file (*.gp4, *.st1).
B	Import	Imports a file (*.gp4, *.st1). Use to overlay and compare with previously acquired waveform data.
C	Save as	Saves the file with a different name (*.gp4, *.csv).
D	Save image	Saves the graph screen as image data (*.jpg, *.emf).
E	Export to Excel	Divides the information displayed in the graph window into channels and saves it in Excel format.
F	History management	Switches between show/hide of the waveform history window.
G	Select history	Shows the history number of the displayed graph window.
H	Back	Changes the order of history numbers displayed in the graph window to ascending.
I	Next	Changes the order of history numbers displayed in the graph window to descending.
J	Overwrite	Switches overlaying of the entire history ON/OFF.
K	Screen copy	Saves the entire sub window to the clipboard as image data (*.bmp).
L	Scale optimization	In order to fit all of the waveform of the selected history within the window, the scale and 0-point position of the drawn waveform's vertical axis are automatically adjusted.
M	Grayout	Changes the display color of the waveform and the display area of the graph (color/gray).
N	Cursor	Switches between show/hide of the screen cursor.
O	Zoom-in mode	Specifies a range of the waveform, and zooms in.
P	Moving mode	Scrolls the waveform data being displayed.

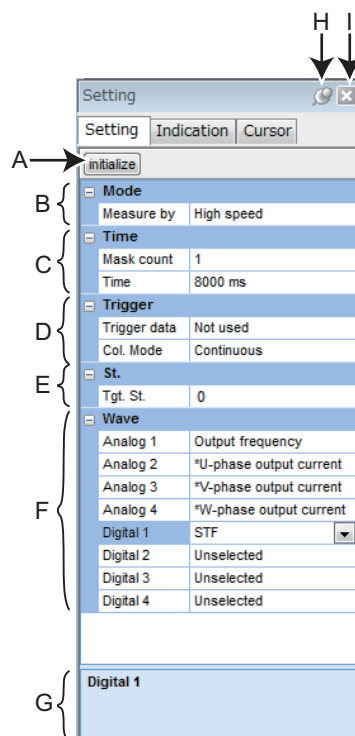
NOTE

- The trace data stays at "0" for unsupported terminals (terminals S1, S2, and NET) although the terminal names are displayed.
- The layout of excel files can be changed by editing the template file "Charts.xltx".
(An editable file can be found in C:\FREQROL\FRC2\dat\com\ChartTemplate.)
- Do not delete objects in the template file "Charts.xltx" or the file itself. Using a template file in which the original template has been deleted will cause the error message "Export to Excel failed" to be displayed.

A template file used to export data to Excel when an error occurs can be found in the FR Configurator2 installation folder. (If the location of the installation folder has not been changed, it can be found in C:\Program Files\MELSOFT\FRC2\sys\Function\ChartTemplate.) Do not overwrite the template file. Instead, copy the template file and use that file to make any changes.

4.4.3 Sampling settings

The sampling settings column can be shown by selecting the [Setting] tab in the property conditions. The time, trigger, station, and waveform of the analog CH can be set as analog data, and that of the digital CH can be set as digital data.



Symbol	Name	Function/description	
A	Initialize	Initialize sampling settings.	
B	Mode	Set the measurement mode for sampling.	
C	Time	Mask count	Set the interval for data sampling measurement.
		Measurement time (ms)	Displays the maximum time for data sampling measurement.
D	Trigger	Set the condition to start sampling measurement.	
E	St. (Station)	Selects the station to be set for sampling.	
F	Wave ^{*1*2}	Selects the items to be sampled. For analog data, 4 CHs (8 CHs of trace data) can be selected, and for digital data, 4 CHs (8 CHs of trace data) can be selected.	
G	Help area	Shows a description of the currently selected item.	
H	Show/hide switching pin	The show/hide switching pin is used to show or hide the property window.	
I	Close	Closes the currently-selected tab ([Setting], [Indication], or [Cursor]) of the property window. To open the closed tab again, from [Graph (Z)] of the menu bar, choose [Property window] and click the tab to open.	

*1 For the position command, current position, and droop pulse, if either the parameter for the upper or lower digits is selected in the Wave section, "Unselected" is shown for the channel and the waveform is not displayed. Even when both upper and lower digit parameters are selected, "Unselected" is shown for the channel for the upper digit parameter. The upper digit value is connected to the lower digit value, and the monitor item name is shown for the channel for the lower digit parameter. The waveform is displayed for the channel for the lower digit parameter.

*2 When the winding length (upper) and the winding length (lower) are monitored, if only the winding length (upper) is selected in the Wave section, "Unselected" is shown for the channel and the waveform is not displayed.

NOTE

- Virtual network terminals are displayed for the digital data when the high speed mode is selected.

◆ Setting range and setting unit of sampling interval and sampling time

- The setting range of the sampling interval and sampling time are different for high speed sampling and monitor sampling.
- High speed sampling (only for direct USB/Ethernet connections between inverters and the personal computer)
The sampling interval can be about 0.125 [ms] (mask count 0) to about 20 [ms] (mask count 30). The sampling time can be up to "(mask count + 1) × 4000". The sampling interval varies depending on the control mode.
- Monitor sampling
The sampling interval and the sampling time vary depending on communication settings. The minimum sampling interval is calculated by multiplying the number of sampling items by the lower limit value. The lower limit of the sampling interval is as shown in the following table.

Communication port	Communication speed [bps]	Sampling interval lower limit [ms]
Serial port	4800	250
	9600	150
	19200	100
	38400	100
	57600	50
	115200	50
USB	—	50
Ethernet	—	100

For the sampling interval and sampling time maximum values, minimum values, and setting units under actual measurement conditions, refer to the following table.

	Maximum value	Minimum value	Setting unit
Sampling interval [ms]	60000	Sampling interval lower limit (table above) × number of sampling items ^{*1}	1
Sampling time [ms]	Sampling interval × 4000	Sampling interval × 50 ^{*2}	1

*1 If a fault trigger is set, the fault trigger is also counted as a sampling item.

*2 Even if a sampling time shorter than 3000 [ms] is set, the minimum sampling time of 3000 [ms] applies.

Example: Connected to the serial port with a communication speed of 19200 bps, when monitoring three items of output frequency, output current, and output voltage as data items to be displayed in a graph.

Sampling interval lower limit = 100 [ms]

Sampling interval maximum value = 60000 [ms] (60 [s])

Sampling interval minimum value = $100 \times 3 = 300$ [ms]

Sampling time maximum value = $60000 \times 4000 = 240000000$ [ms] (approx. 66.67 [h])

Sampling time minimum value = $300 \times 50 = 15000$ [ms] (15 [s])

◆ High speed mode sampling menu

- The following table shows the additional menu available when the high speed sampling is selected in the measurement mode selection. High speed sampling is applicable to the items whose name contains an asterisk (*) at the beginning. For information about the list of items on each measurement mode and the details of each item, refer to the section about monitor items in the manuals of the inverter.

■ 800 series

Sampling item	Model					
	A800/A800-LC/ A800-CRN/ A800-ELV	B and B3	A800-R2R and B4	F800	E800(-E/-SCE) E806-SCE	D800(-E)
Winding length (upper + lower)	×	×	○	×	×	×
Winding length (lower)	×	×	○	×	×	×
Output frequency	○	○	○	○	○	○
*U-phase output current	○	○	○	○	○	○
*V-phase output current	○	○	○	○	○	○
*W-phase output current	○	○	○	○	○	○
*Converter output voltage	○	○	○	○	○	○
*Output current (for all three phases)	○	○	○	○	○	○
*Excitation current (A)	○	○	○	○	○	○
*Torque current (A)	○	○	○	○	○	○
Terminal 2	○	○	○	○	○	○
Terminal 4	○	○	○	○	○	○
Terminal 1	○	○	○	○	×	×
*Excitation current (%)	○	○	○	○	○	○
*Torque current (%)	○	○	○	○	○	○
Position command	○	○	×	×	○	×
Current position	○	○	×	×	○	×
Droop pulse	○	○	×	×	○	×
*Ideal speed command	×	×	×	×	○	×
*Output frequency (signed)	○	○	○	○	○	○
*Motor speed (signed)	○	○	○	○	○	○
*Speed command (signed)	○	○	○	○	○	○
*Torque command	○	○	○	×	○	○
*Motor torque	○	○	○	×	○	○
*Excitation current command	○	○	○	○	○	○
*Torque current command	○	○	○	○	○	○

■ 700 series

Sampling item	Model			
	E700 and E700-NE		E700EX	D700-G
	USB	Ethernet		
*Output frequency / *rotation speed	○	×	○	×
*U-phase output current	○	×	○	×
*V-phase output current	○	×	○	×
*W-phase output current	○	×	○	×
*Converter output voltage	○	×	○	×
*Output current (for all three phases)	○	×	○	×
*Excitation current (A)	○	×	○	×
*Torque current (A)	○	×	○	×
Terminal 2	○	×	○	×
Terminal 4	○	×	○	×
*Excitation current (%)	×	×	○	×
*Torque current (%)	×	×	○	×
*Position command (before the electronic gear)	×	×	○	×
*Current position (before the electronic gear)	×	×	○	×
*Droop pulse (after the electronic gear)	×	×	○	×
*Position within one revolution	×	×	○	×
*Ideal speed command	×	×	○	×
*Rotation speed (signed)	×	×	○	×
*Motor speed	×	×	○	×
*Speed command	×	×	○	×
*Excitation current command	×	×	○	×
*Torque current command	×	×	○	×



NOTE

- When changing the sampling setting mode (monitor/high speed), change the sampling items before setting. Because the monitor contents change if the mode is changed, unshared sampling items are cleared. (Refer to [page 207](#).)
- When setting sampling items, set analog data (CH1 to CH4) sequentially from the analog data CH1, and digital data (CH1 to CH4) sequentially from the digital data CH1.
- When the position command, current position, or droop pulse is sampled, the upper and lower sets of data are combined to display a waveform, occupying two channels. For the latter of the two channels, "Unselected" is shown and another item cannot be selected to display a waveform.
- When sampling the voltage input of terminal 2, terminal 4, and terminal 1, **Pr.241 Analog input display unit switchover** will be set to "0" (% display), and the sampled data will be shown as 10 V = 100%.
Example: If **Pr.73** = 1 (Terminal 2 input 0 to 5 V), **Pr.241** = 0 (% display)
Sampling data of the graph will be shown at 50% even if 5 V is input to terminal 2.

4.4.4 Trigger settings

Setting a trigger allows sampling to start when a fault occurs or sampling item conditions are met.

Trigger		
A	Trigger data	Analog CH 1
B	Trigger type	Rise
C	Trigger level	0.00
D	Trigger posit	10 %
E	Col. Mode	Single

Symbol	Name	Function/description
A	Trigger data	Selects the signal that triggers the start of sampling. The trigger signals are as follows. • Not used • Analog CH, digital CH (sampling starts if the sampling items meet the conditions) • Fault (Sampling starts if a fault occurs.)
B	Trigger type	Selects the conditions to determine trigger condition satisfaction from rise or fall. (Only appears when trigger data is set to analog CH or digital CH.) • Rise Analog CH: When the value specified by the trigger level is exceeded Digital CH: When the signal changes from OFF to ON • Fall Analog CH: When the value drops to a level lower than the trigger level Digital CH: When the signal changes from ON to OFF
C	Trigger level	Set the threshold to determine trigger condition satisfaction by the analog signal. (Only appears when the trigger data is set to Analog CH.)
D	Trigger position	Set the ratio of sampling data to collect before the trigger conditions are met. (Only appears when trigger data is set to analog CH, digital CH, or fault.)
E	Col. Mode (Collection mode)	Set whether the sampling should be continuously operated. Single: Sampling is performed only once. Continuous: Sampling is performed continuously.

NOTE

- Activation of analog data

The trigger will not start if the trigger starting conditions have already been met when [ Start] is selected. If "Rise" is selected, the trigger occurs when the set value in "level" is exceeded, and with "Fall", the trigger occurs when the set value drops to a level lower than "level".

Example: If trigger start condition is "Rise" and the level is set to "3"

If the level is 4 when sampling starts, the trigger will not start. When changed from less than 3 to 3 or more, the trigger conditions are met and sampling will start.

- If the machine speed is displayed by setting **Pr.37 Speed display** to a value other than 0

To set the "Output frequency" or "Frequency" as the trigger data, enter the trigger activation machine speed as is to the "level" column.

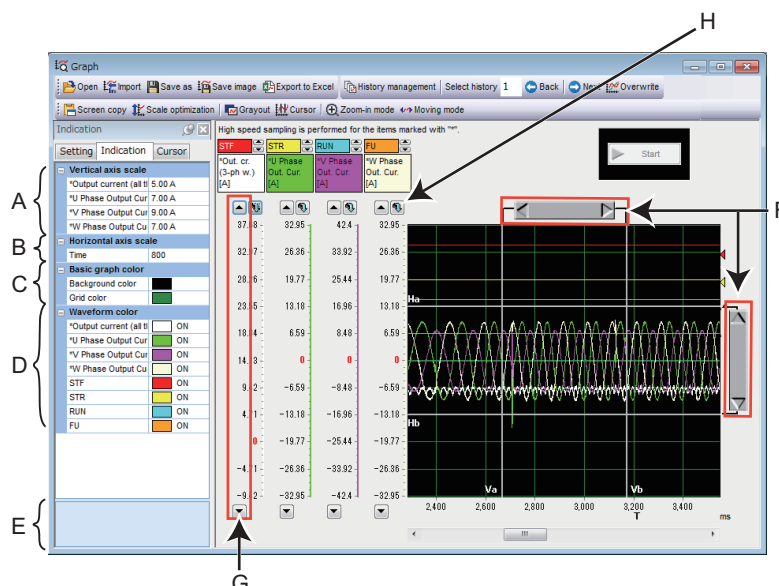
For example, if **Pr.37 Speed display** is set to "1800" with "Output frequency" as the sampling item, and the trigger is to be activated at "900", input "900" as is to the "level" column.

-
- ```
graph TD; Standby((Standby)) -- "Click [Start] to move to the pre-trigger state." --> Pre-trigger((Pre-trigger)); Pre-trigger -- "Once the data ratio set at the trigger position is collected, it goes to the trigger standby state." --> Waiting-for-trigger((Waiting for trigger)); Waiting-for-trigger -- "When trigger conditions are satisfied, sampling will start." --> Sampling((Sampling)); Sampling -- "Sampling stops when [Stop] is clicked or when the sampling time has exceeded." --> Exit((Exit));
```
- The flowchart illustrates the sampling process through five states: Standby, Pre-trigger, Waiting for trigger, Sampling, and Exit. Transitions between states are triggered by specific actions or conditions.
- Standby**: Sampling setting and trigger setting are performed. Transition to Pre-trigger occurs when the [Start] button is clicked.
  - Pre-trigger**: Data before trigger is being collected. (Even if the trigger condition is satisfied during pre-triggering, sampling will not start.) Transition to Waiting for trigger occurs once the data ratio set at the trigger position is collected.
  - Waiting for trigger**: Data before trigger has been collected, and the system is waiting for the trigger conditions to be satisfied. When trigger conditions are satisfied, sampling will start. Data before trigger is collected until the trigger conditions are satisfied. Transition to Sampling occurs when trigger conditions are satisfied.
  - Sampling**: Sampling is performed. Graph mapping is performed at the same time. Transition to Exit occurs when sampling stops (e.g., when the [Stop] button is clicked or when the sampling time has exceeded).
  - Exit**: Ends the sampling.

The scale and waveform data display of the displayed graph can be changed. The graph's displayed portion can be divided into a grid of 10 vertical and 10 horizontal sections. The scale of the vertical axis and the horizontal axis can be changed by setting a numerical value for each 1 divided grid.

It is possible to slide and display the selected graph up and down by calibrating of the 0 position.

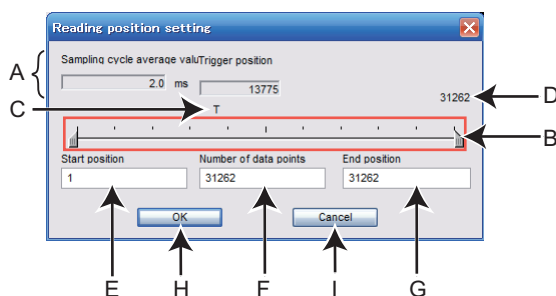
The scale value displayed on the vertical axis changes according to changes in the vertical axis scale.



| Symbol | Name                                   | Function/description                                                                                                      |
|--------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| A      | Vertical axis scale                    | Changes the vertical axis scale intervals for the analog CH set as sampling items.                                        |
| B      | Horizontal axis scale                  | Changes the horizontal axis scale interval based on the set operating time.                                               |
| C      | Basic graph color                      | Changes the background color of the graph and the color of the grid lines.                                                |
| D      | Waveform color                         | Changes the color of the measured waveform data.                                                                          |
| E      | Help area                              | Shows a description of the currently selected item.                                                                       |
| F      | Cursor bar                             | Adjusts the cursor position.                                                                                              |
| G      | Scroll buttons for each analog channel | Moves up/down the graph waveform data for each analog channel.                                                            |
| H      | Scroll destination setting button      | Displays a dialog box to directly input a numerical value for the position of the travelling target of the waveform data. |

- Reading position setting window

When displaying the trace data (\*.st1), which is saved in the recorder mode, on the graph window, the start position and end position of the waveform data can be specified. The reading area of waveform data can be specified by sliding pointers or entering numerical values into the start position and end position input boxes.



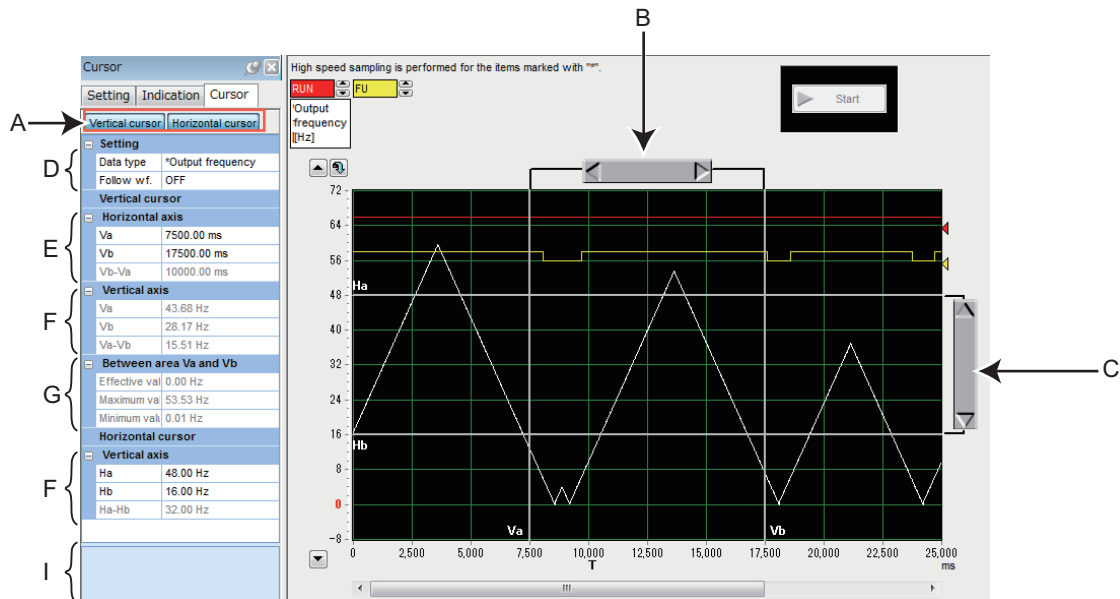
| Symbol | Name                               | Function/description                                                                             |
|--------|------------------------------------|--------------------------------------------------------------------------------------------------|
| A      | Sampling cycle average value       | Displays the sampling cycle.                                                                     |
| B      | Reading position setting slide bar | Set the reading start position, the number of reading data points, and the reading end position. |
| C      | Trigger position                   | Displays the trigger position saved in the trace file.                                           |
| D      | Number of all points               | Displays the number of points sampled and saved in the trace file.                               |
| E      | Start position                     | Set the reading start position for the waveform data in sampling point number.                   |
| F      | Number of points                   | Set the number of sampling points to display in the graph window.                                |
| G      | End position                       | Set the reading end position for the waveform data in sampling point number.                     |
| H      | OK                                 | Applies the settings in the read position setting window and reads the trace data.               |
| I      | Cancel                             | Closes the window without applying the settings of the reading position setting window.          |

#### NOTE

- When opening the trace data (\*.st1) saved in the recorder mode using the graph function, reading of the file may take time.

## 4.4.6 Cursor function

Displays the numerical value, actual value between any two points, maximum value, and minimum value at the cursor on the waveform.

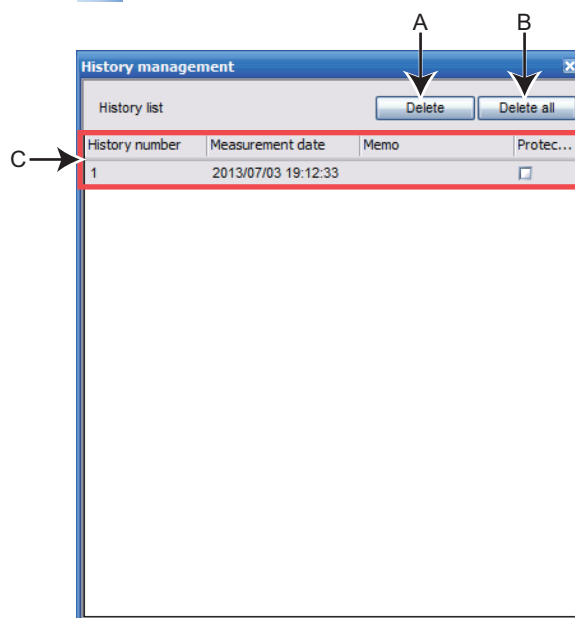


| Symbol | Name                         | Function/description                                                                                                                             |                                                                                                                                                                                        |
|--------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Vertical/horizontal cursor   | Press the Vertical cursor or Horizontal cursor button to show/hide the cursor bar for cursors Va and Vb or the cursor bar for cursors Ha and Hb. |                                                                                                                                                                                        |
| B      | Cursor bar (Horizontal axis) | Specifies the position between cursor Va and cursor Vb.                                                                                          |                                                                                                                                                                                        |
| C      | Cursor bar (Vertical axis)   | Specifies the position between cursor Ha and cursor Hb.                                                                                          |                                                                                                                                                                                        |
| D      | Setting                      | Data type                                                                                                                                        | Selects the analog CH subject to the cursor measurement.                                                                                                                               |
|        |                              | Follow wf. (Follow waveform)                                                                                                                     | ON: Moves the cursor so as not to change the value of the vertical axis or horizontal axis scale.<br>OFF: Moves the cursor so as not to change the position of the graph display area. |
|        |                              |                                                                                                                                                  |                                                                                                                                                                                        |
| E      | Horizontal axis              | Va                                                                                                                                               | Shows the time (ms) at cursor point Va.                                                                                                                                                |
|        |                              | Vb                                                                                                                                               | Shows the time (ms) at cursor point Vb.                                                                                                                                                |
|        |                              | Vb-Va                                                                                                                                            | Shows the time (ms) between cursor points Va and Vb.                                                                                                                                   |
| F      | Vertical axis                | Va                                                                                                                                               | Shows the measured values at cursor point Va on the waveform.                                                                                                                          |
|        |                              | Vb                                                                                                                                               | Shows the measured values at cursor point Vb on the waveform.                                                                                                                          |
|        |                              | Va-Vb                                                                                                                                            | Shows the values between cursor points Va and Vb.                                                                                                                                      |
| G      | Between area Va and Vb       | Effective value                                                                                                                                  | Calculates and displays the effective value between cursor Va and cursor Vb.                                                                                                           |
|        |                              | Maximum value                                                                                                                                    | Shows the maximum value between cursor Va and cursor Vb.                                                                                                                               |
|        |                              | Minimum value                                                                                                                                    | Shows the minimum value between cursor Va and cursor Vb.                                                                                                                               |
| H      | Vertical axis                | Ha                                                                                                                                               | Shows the value at cursor point Ha.                                                                                                                                                    |
|        |                              | Hb                                                                                                                                               | Shows the value at cursor point Hb.                                                                                                                                                    |
|        |                              | Ha-Hb                                                                                                                                            | Shows the difference between the values at cursor points Ha and Hb.                                                                                                                    |
| I      | Help area                    | Shows a description of the currently selected item.                                                                                              |                                                                                                                                                                                        |

## 4.4.7 Displaying history

Data of the past 20 samplings (including the current data) can be saved and displayed. The graph data at the time of sampling is stopped is saved. When the number of records exceeds 20, the oldest set of data will be deleted for every new data sampled.

The "History management" window will be displayed by selecting [History management...] from the [Graph (Z)] menu while the graph window is displayed, or by clicking  on the toolbar.



| Symbol | Name         | Function/description                                                 |                                                                                                                                    |
|--------|--------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| A      | Delete       | Deletes the selected history.                                        |                                                                                                                                    |
| B      | Delete all   | Deletes all records. However, protected records will not be deleted. |                                                                                                                                    |
| C      | History list | History number                                                       | Records are displayed in ascending order by number from the newest to the oldest. Up to 20 records can be saved.                   |
|        |              | Measurement date and time                                            | Shows the date and time when sampling was executed.                                                                                |
|        |              | Memo                                                                 | A field for comments.                                                                                                              |
|        |              | Protection                                                           | Prevents the checked records from being deleted by the delete button or by continuous sampling. Up to 10 records can be protected. |

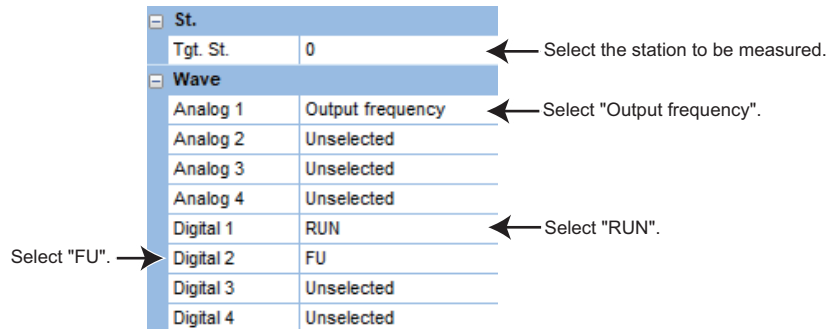
### NOTE

- When continuously sampling, all acquired data will be added sequentially to the history, and the next sampling will be performed.
- When graphs are displayed overlapped each other, cursor functions are available only for the currently displayed graph.
- The unit (unit symbol) used for the latest sampling is indicated as the unit of the sampling data. Take care when changing the unit.

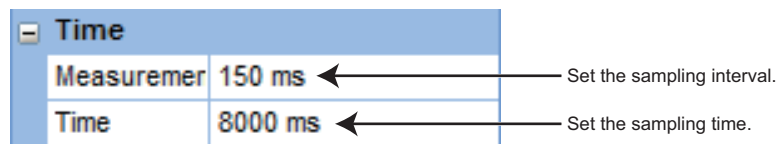
## 4.4.8 Graph measurement procedure example (monitoring output frequency, terminal RUN, and terminal FU)

### ◆ Measurement without a trigger

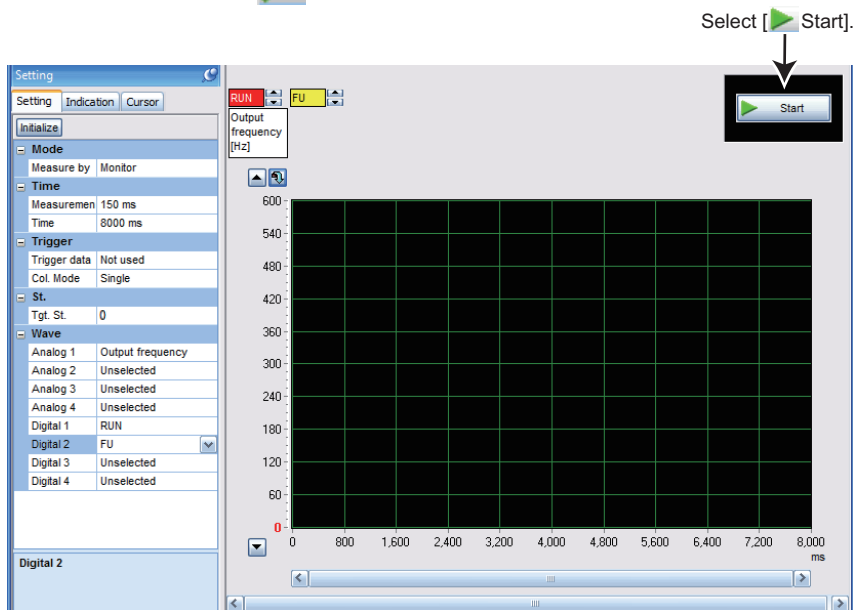
1. Specify the station number to be measured as the "Tgt. St." (Target station). Next, select "Output frequency" for the "Analog 1" column of "Wave", "RUN" for "Digital 1", and "FU" for "Digital 2".



2. The sampling interval can be set for "measurement interval", and the sampling time can be set for "Time".

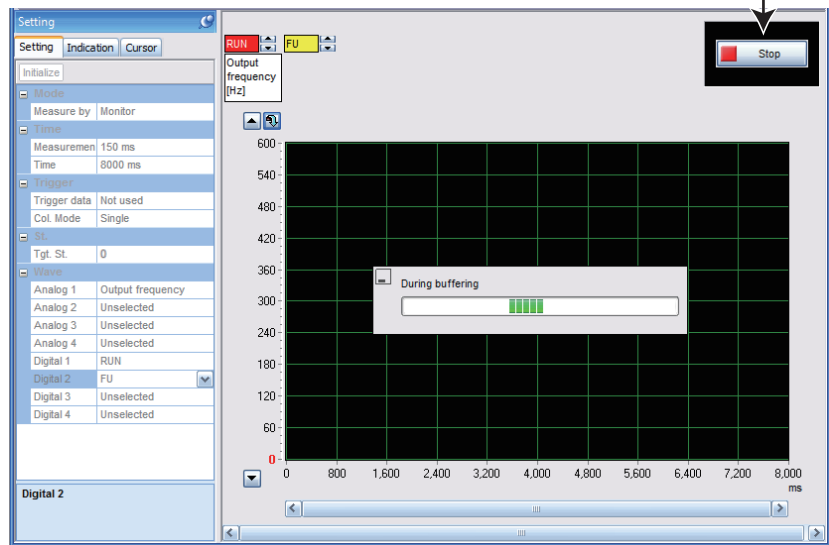


3. Measurement will start by clicking [  Start ].

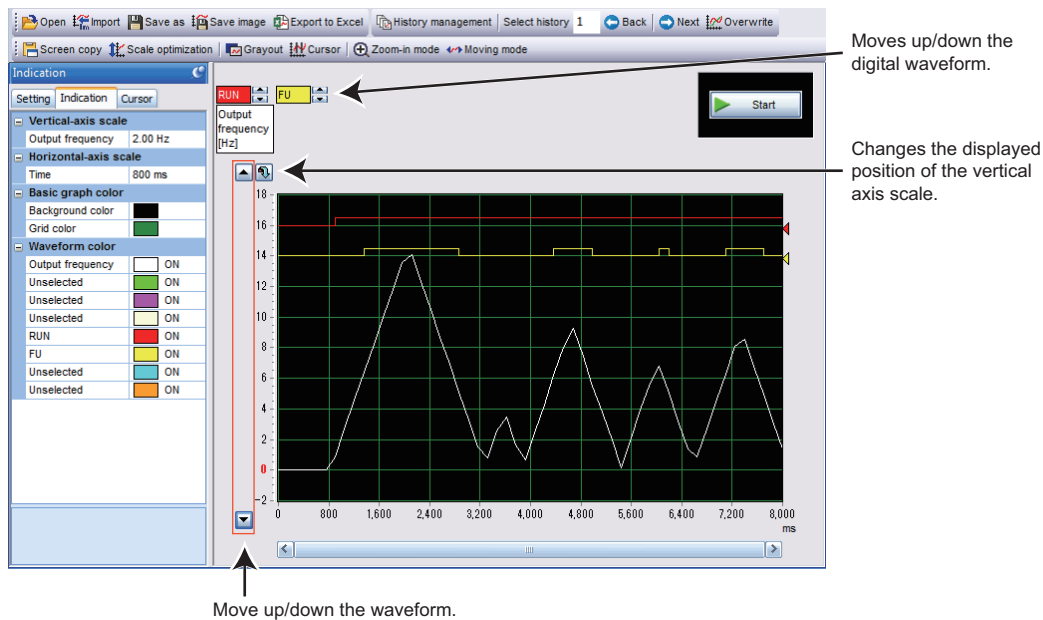


- Measurement is finished by clicking [  Stop], or when the set sampling time is elapsed.

Select [  Stop].



- The graph display can be adjusted.

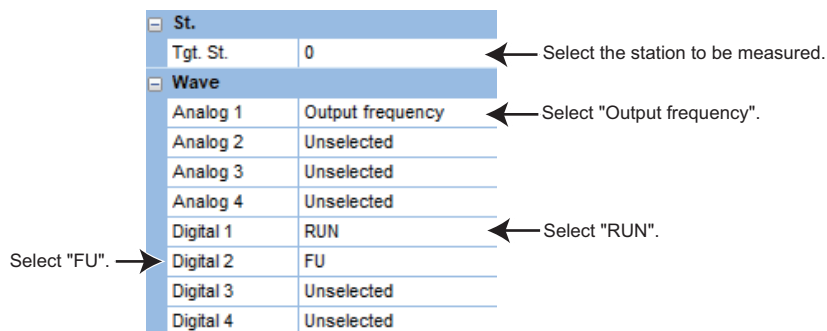


- Data can be saved to a file by "Save as" (refer to [page 141](#)).

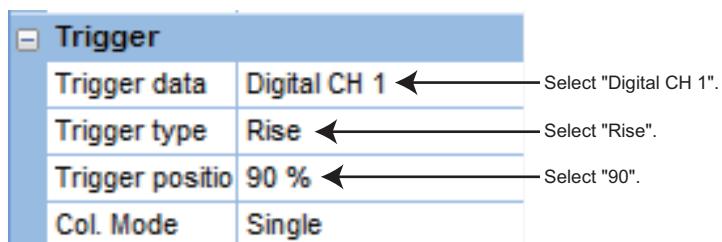
## ◆ Measurement with a trigger

### ■ Trigger data: Digital CH1

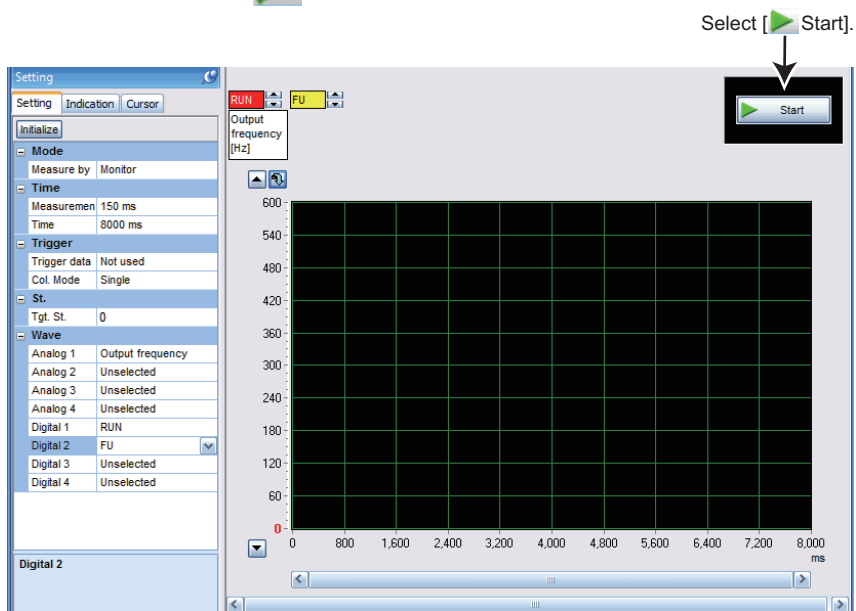
1. Specify the station number to be measured as the "Tgt. St." (Target station). Next, select "Output frequency" for the "Analog 1" column of "Wave", "RUN" for "Digital 1", and "FU" for "Digital 2".



2. Trigger setting:  
 Select "Digital CH1" for the "Trigger data" column.  
 Select "Rise" for the "Trigger type" column.  
 Select "90%" for the "Trigger position" column.

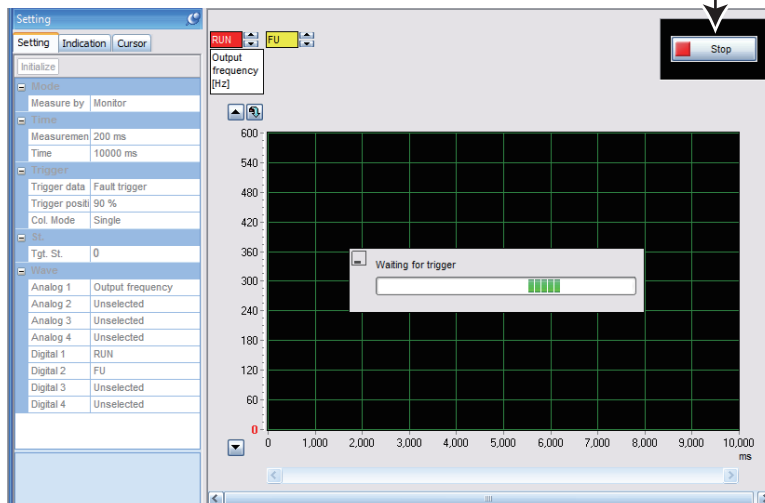


3. Measurement will start by clicking [Start].

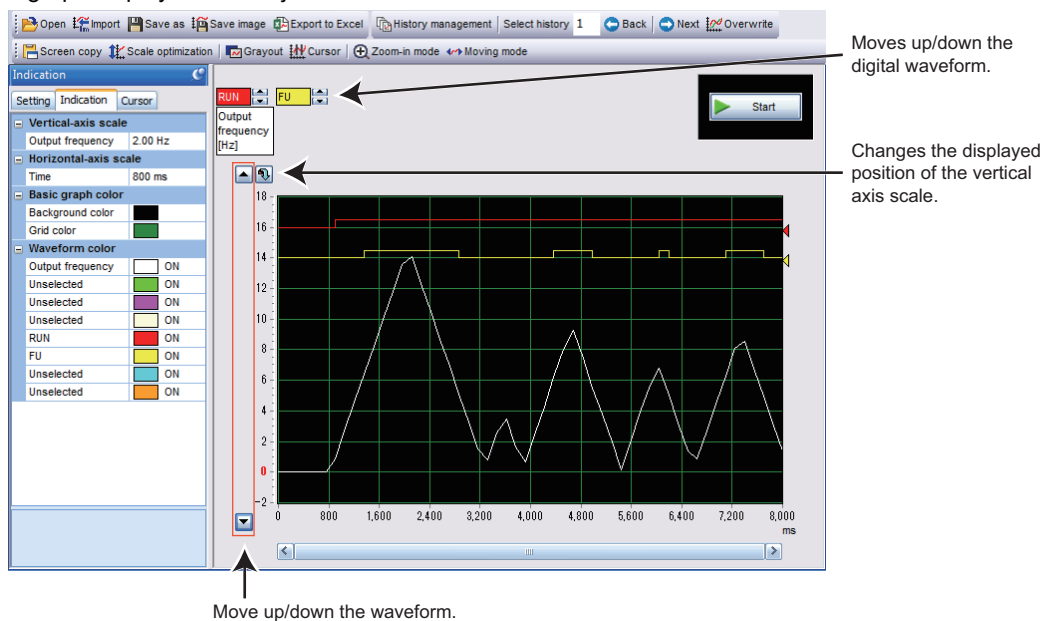


4. Measurement automatically starts if the trigger conditions are met (rise of the terminal RUN signal).

5. Measurement is finished by clicking [  Stop], or when the set sampling time is elapsed.  
Select [  Stop].



6. The graph display can be adjusted.



7. Data can be saved to a file by "Save as" (refer to [page 141](#)).

#### NOTE

- In this example, "Trigger position" is set to "90%". After clicking [  Start], the rise of the terminal RUN signal will be ignored and measurement will not start until 90% of the sampling time elapses.

# ◆ Measurement with a trigger

## ■ Trigger data: Fault

1. Specify the station number to be measured as the "Tgt. St." (Target station). Next, select "Output frequency" for the "Analog 1" column of "Wave", "RUN" for "Digital 1", and "FU" for "Digital 2".

|           |                  |
|-----------|------------------|
| St.       |                  |
| Tgt. St.  | 0                |
| Wave      |                  |
| Analog 1  | Output frequency |
| Analog 2  | Unselected       |
| Analog 3  | Unselected       |
| Analog 4  | Unselected       |
| Digital 1 | RUN              |
| Digital 2 | FU               |
| Digital 3 | Unselected       |
| Digital 4 | Unselected       |

← Select the station to be measured.

← Select "Output frequency".

← Select "RUN".

Select "FU". →

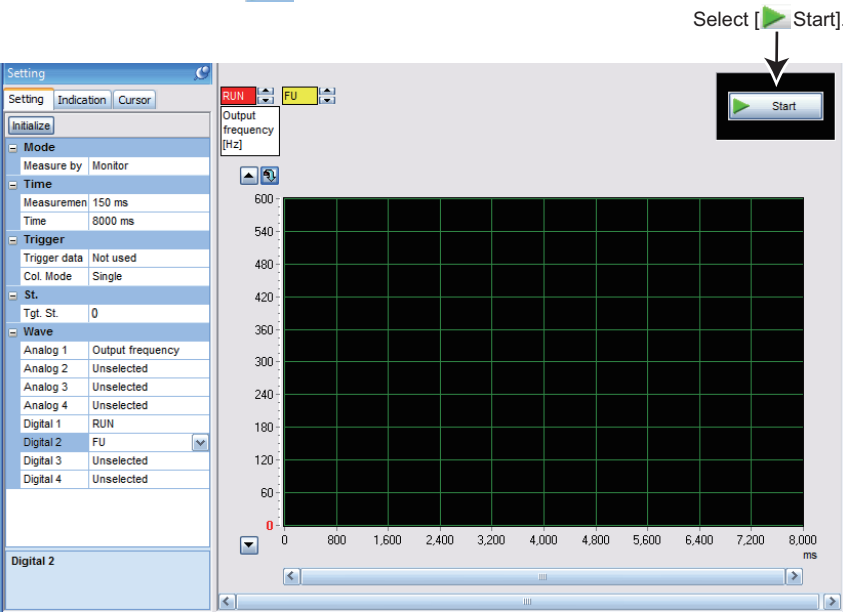
2. Trigger setting:  
Select "Fault" for the "Trigger data" column.  
Select "90%" for the "Trigger position" column.

|              |        |
|--------------|--------|
| Trigger      |        |
| Trigger data | Fault  |
| Trigger posi | 90 %   |
| Collect mode | Single |

← Select "Fault".

← Select "90".

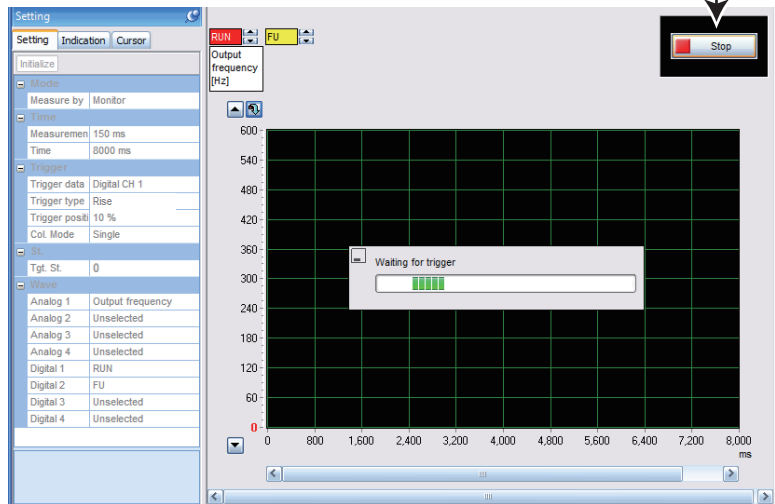
3. Measurement will start by clicking [Start].



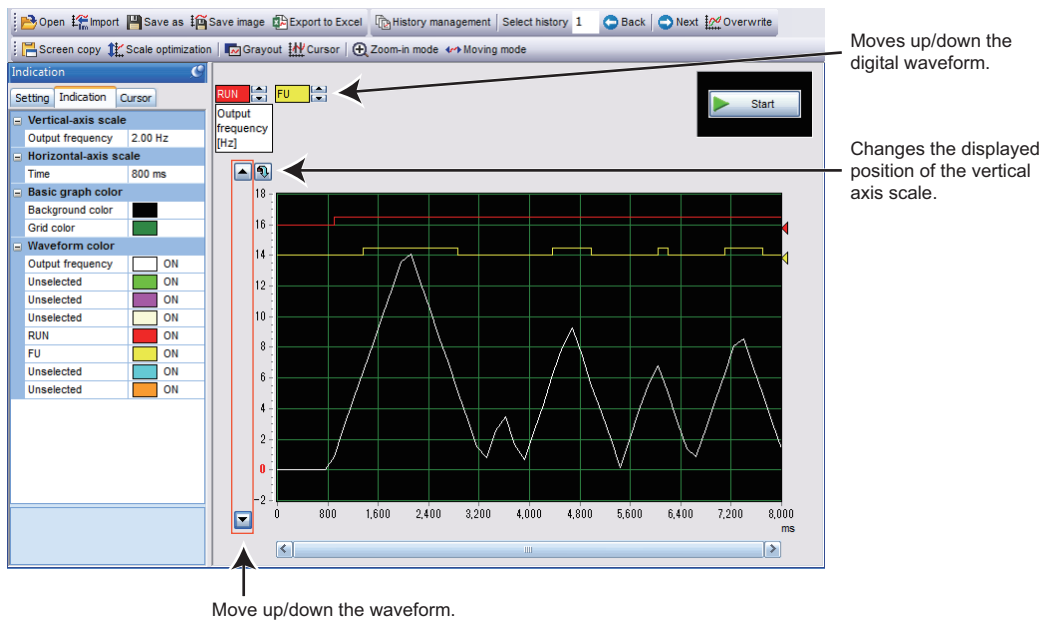
4. Operation starts automatically if an inverter fault occurs.

5. Measurement is finished by clicking [  Stop], or when the set sampling time is elapsed.

Select [  Stop].



6. The graph display can be adjusted.



7. Data can be saved to a file by "Save as" (refer to [page 141](#)).

#### NOTE

- In this example, "Trigger position" is set to "90%". After clicking [  Start], the rise of the terminal RUN signal will be ignored and measurement will not start until 90% of the sampling time elapses.

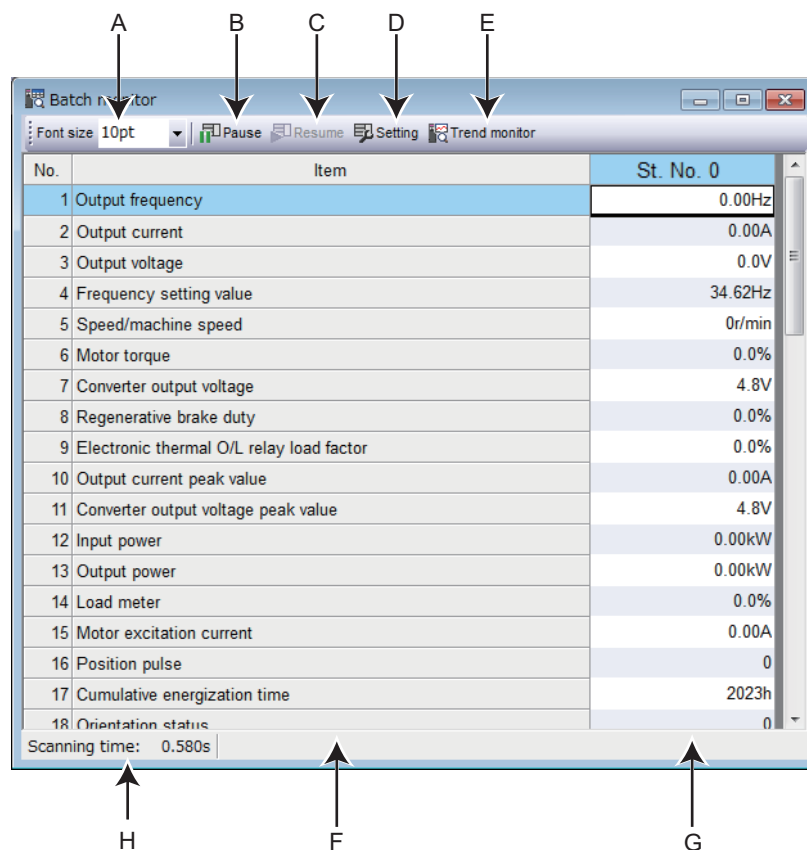
## 4.5 Batch monitor

The batch monitor function is not available for the following models.

Model: FR-A700, FR-B (700), FR-B3 (700), FR-F700, FR-F700P, and FR-E500

### ◆ Batch monitor window

"Batch monitor" monitors two or more items at a time. To show the "Batch monitor" window, select [Batch monitor] from the [Monitor] menu bar, or select [Batch monitor] from the project tree area.



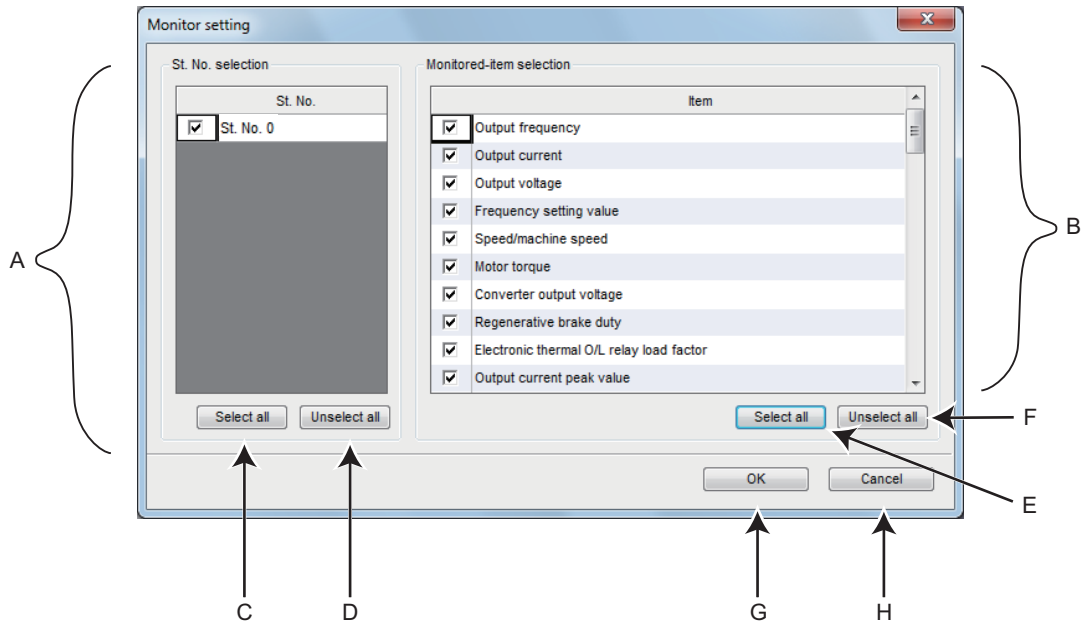
| Symbol | Name                       | Function/description                                                                                    |
|--------|----------------------------|---------------------------------------------------------------------------------------------------------|
| A      | Font size                  | Changes the size of monitor item characters.                                                            |
| B      | Pause                      | Pauses acquisition of monitor data.*1                                                                   |
| C      | Resume                     | Resumes acquisition of monitor data.*1                                                                  |
| D      | Setting                    | Set monitor items to display. Refer to <a href="#">page 219</a> .                                       |
| E      | Trend monitor              | Displays the window for selecting items to be monitored in a graph. Refer to <a href="#">page 219</a> . |
| F      | Item                       | Shows the monitor item.                                                                                 |
| G      | St. No. (Station number)*2 | Shows the acquired data of the corresponding station.                                                   |
| H      | Scanning time              | Shows the elapsed time from the last update.                                                            |

\*1 The [Pause] and [Resume] buttons are effective for the batch monitor window and all trend monitor windows.

\*2 For the FR-D800, the negative output of monitor item is disabled.

## ◆ Monitor setting window

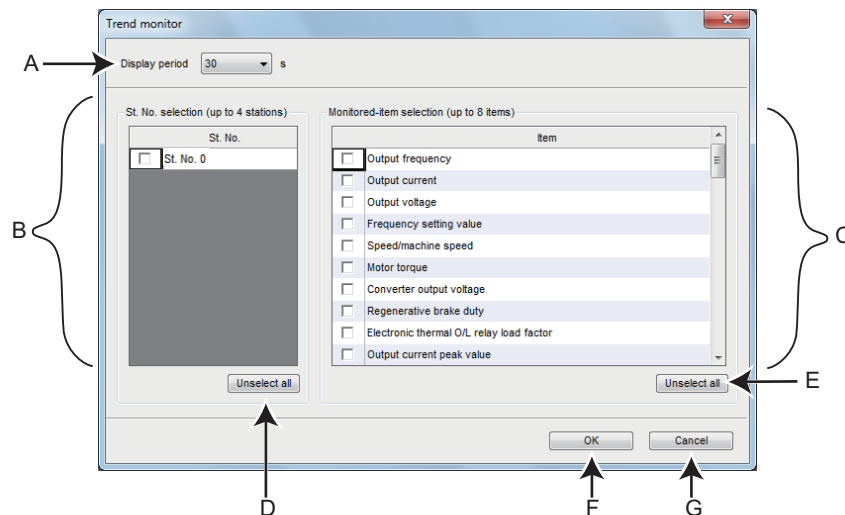
The station number and monitor item to be displayed in the batch monitor window can be set by the monitor setting window. Selecting a monitor item will add the item in the batch monitor window.



| Symbol | Name                     | Function/description                                                                |
|--------|--------------------------|-------------------------------------------------------------------------------------|
| A      | St. No. (Station number) | Select station(s) for displaying the graph of monitor items.                        |
| B      | Monitor item selection   | Set monitor items to display.                                                       |
| C      | Select all               | Selects all station numbers.                                                        |
| D      | Unselect all             | Unselects all station numbers.                                                      |
| E      | Select all               | Selects all monitor items.                                                          |
| F      | Unselect all             | Unselects all monitor items.                                                        |
| G      | OK                       | Applies all selected station numbers and monitor items to the batch monitor window. |
| H      | Cancel                   | Discards the monitor settings, and closes the monitor setting window.               |

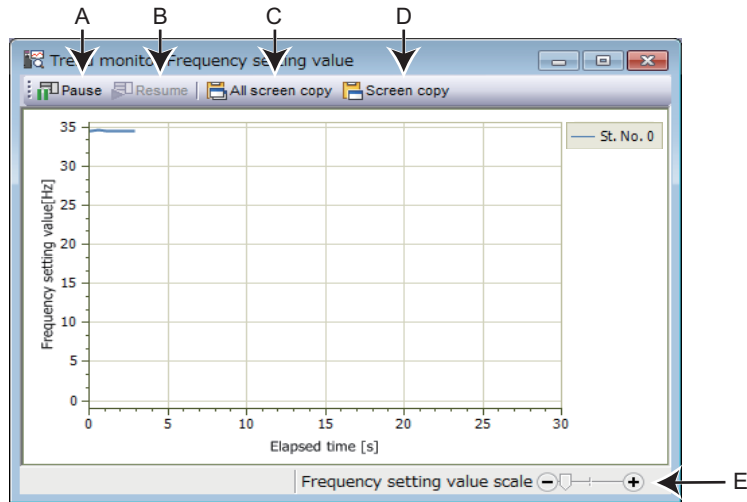
## ◆ Trend monitor window

Select the trend monitor in the "Batch Monitor" window to select items to be displayed in a graph. Select the checkbox to display the graph.



| Symbol | Name                     | Function/description                                                                                               |
|--------|--------------------------|--------------------------------------------------------------------------------------------------------------------|
| A      | Display period           | Select the maximum point of the scale in seconds for the elapsed time axis of a graph in the trend monitor window. |
| B      | Station number selection | Select station(s) for displaying the graph of monitor items.                                                       |
| C      | Monitor item selection   | Set monitor items to display.                                                                                      |
| D      | Unselect all             | Unselects all station numbers.                                                                                     |
| E      | Unselect all             | Unselects all monitor items.                                                                                       |
| F      | OK                       | Applies the selection of the station and monitor items to the trend monitor window.                                |
| G      | Cancel                   | Discards the monitor settings, and closes the monitor setting window.                                              |

After selecting the monitor items in the trend monitor setting window, the trend monitor window appears.



| Symbol | Name                          | Function/description                                                                                                    |
|--------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| A      | Pause                         | Pauses acquisition of monitor data.*1                                                                                   |
| B      | Resume                        | Resumes acquisition of monitor data.*1                                                                                  |
| C      | All screen copy               | Saves all of the displayed trend monitor windows to the clipboard.                                                      |
| D      | Screen copy                   | Saves the trend monitor window to the clipboard. This button is effective for the window on which the button is placed. |
| E      | Frequency setting value scale | Scales the vertical axis.                                                                                               |

\*1 The [Pause] and [Resume] buttons are effective for the batch monitor window and all trend monitor windows.

## ◆ Monitor item

- For information about the list of items and the details of each item, refer to the section about monitor items in the manuals of the inverter.

### NOTE

- If a communication error occurs, batch monitoring will be stopped. To perform batch monitoring again, go offline once after correcting the cause of the communication error, and then go online again.
- If an inverter fault occurs during batch monitoring, the output frequency, output current, and output voltage monitors hold the monitored values at the time the fault.

# 4.6 I/O terminal monitor

The I/O monitor function is not available for the following models.

Model: FR-A700, FR-B (700), FR-B3 (700), FR-F700, FR-F700P, and FR-E500

Setting "256" and larger values for output signals is available in FR-E800(-E/-SCE) inverters manufactured in August 2020 or later.

Monitoring the digital input terminals X1 to X7 of the FR-E8AXY is available in FR-E800(-E/-SCE) whose firmware version is 13 or later.

Check the SERIAL number indicated on the inverter rating plate or packaging. Alternatively, use the serial number function to check the number.

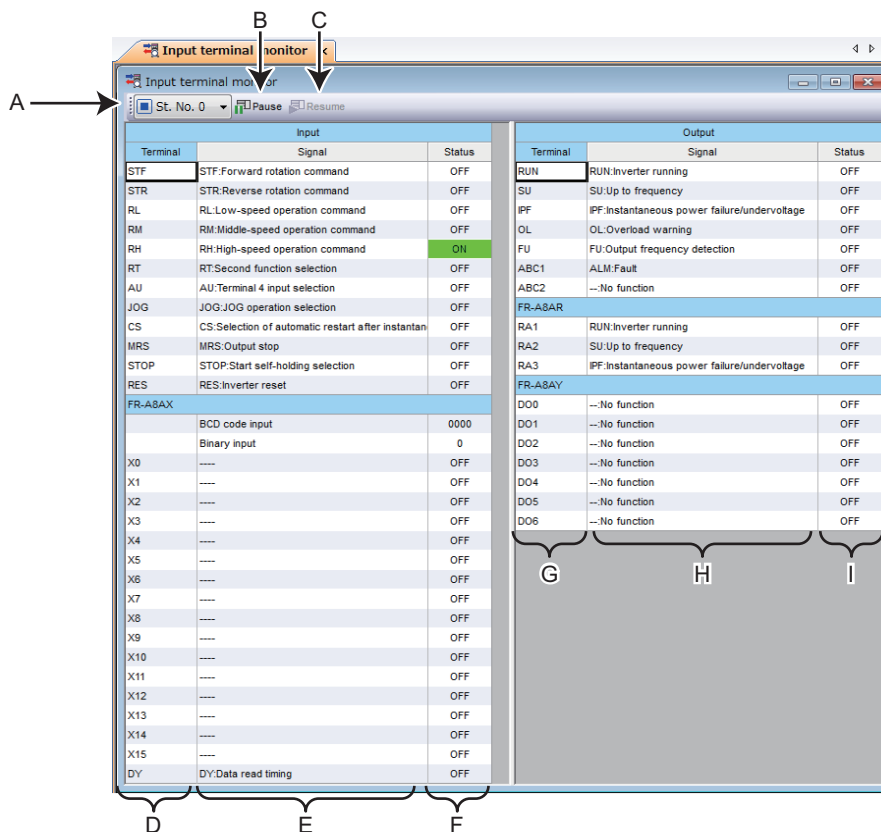
For how to read the SERIAL number, refer to each Instruction Manual of the inverter.

## ◆ I/O terminal monitor window

The "I/O terminal monitor" window shows the signals assigned to the I/O terminals of the control circuit and the ON/OFF status of the signals. To display the "I/O terminal monitor" window, select [I/O terminal monitor...] in the [Monitor] menu, or select



on the toolbar.



| Symbol | Name                          | Function and Description                                           |
|--------|-------------------------------|--------------------------------------------------------------------|
| A      | St. No. (Station number)      | Select a station to display its I/O terminal monitor data.         |
| B      | Pause                         | Temporarily stop the acquisition of the I/O terminal monitor data. |
| C      | Resume                        | Resumes the acquisition of the I/O terminal monitor data.          |
| D      | Input Terminal <sup>*1</sup>  | All the input terminals are displayed.                             |
| E      | Input Signal <sup>*1</sup>    | Signal names assigned to the input terminals are displayed.        |
| F      | Input Status                  | Input terminal status are displayed.                               |
| G      | Output Terminal <sup>*2</sup> | All the output terminals are displayed.                            |
| H      | Output Signal <sup>*2</sup>   | Signal names assigned to the output terminals are displayed.       |
| I      | Output Status                 | Output terminal status are displayed.                              |

<sup>\*1</sup> For the FR-D800, the input signal name is not changed even if the input terminal is switched from terminal RM to a pulse train input terminal.

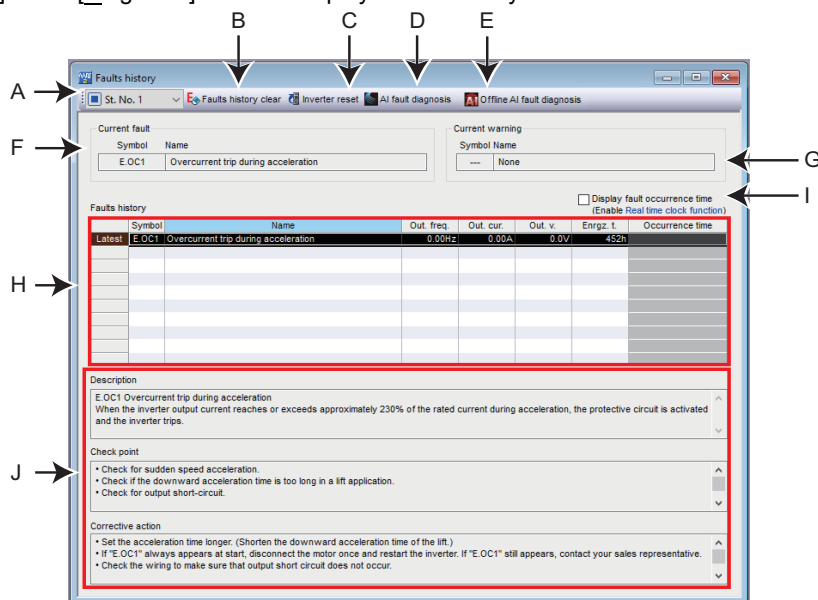
<sup>\*2</sup> For the FR-D800, the output signal name is not changed even if the output terminal is switched from terminal FU to terminal R+.

## 4.7 Diagnostics

"Diagnosis" displays fault information of the inverter.

### 4.7.1 Faults history function

Select [Faults history...] in the [Diagnosis] menu to display "faults history" in the sub-window.



| Symbol | Name                          | Function/description                                                                                                                                                                                                                                                                                               |
|--------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | St. No. (Station number)      | Selects a station of which fault history is to be displayed.                                                                                                                                                                                                                                                       |
| B      | Faults history clear          | Clears the selected station's fault history.                                                                                                                                                                                                                                                                       |
| C      | Inverter reset                | Resets the selected station's inverter.                                                                                                                                                                                                                                                                            |
| D      | AI fault diagnosis            | Used to find probable causes of faults using AI technology. (For details, refer to <a href="#">page 227</a> .)                                                                                                                                                                                                     |
| E      | Offline AI fault diagnosis    | Perform the AI fault diagnosis using the AI diagnosis data file. (For details, refer to <a href="#">page 233</a> .)                                                                                                                                                                                                |
| F      | Current fault                 | Shows the current fault.<br>If E.SAF occurs in the FR-E800-SCE or FR-E806-SCE, the fault detail code is displayed. When the fault detail code cannot be obtained, "----" will be displayed. When the fault detail code is not defined, "Unknown code" will be displayed.                                           |
| G      | Current warning               | Shows the current warning.                                                                                                                                                                                                                                                                                         |
| H      | Faults history                | Shows a list of fault records read from the inverter. The output frequency, output current, output voltage, and energization time at the time of fault occurrence are displayed by each fault record. The time of fault occurrence is also displayed when the "Display fault occurrence time" checkbox is checked. |
| I      | Display fault occurrence time | Determines whether to display the time of fault occurrence. (Available for the product having the real time clock function.)                                                                                                                                                                                       |
| J      | Fault details                 | Shows explanations of selected fault details, check points, and corrective actions.                                                                                                                                                                                                                                |

#### NOTE

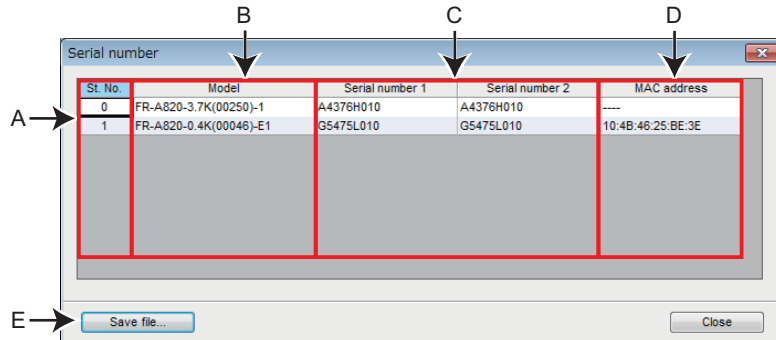
- When "Ethernet" is selected for "PC-side port", "TCP" for "Protocol", and "GOT" for "Through", clicking the [Inverter reset] button for any inverter switches all the connected inverters to offline. Switch the connection status to online to establish the communication with the inverter again.
- Do not use FR Configurator2 to reset the inverter whose parameters are being copied using the operation panel or other means. Doing so may cause a communication error.

## 4.7.2 Serial number function

The serial number function is not available for the following models.

Model: FR-CS80, FR-A700, FR-B (700), FR-B3 (700), FR-F700, FR-F700P, FR-E700, FR-D700, FR-E700EX, FR-D700-G, and FR-E500

Select [Serial number...] in the [Diagnose] menu to display the "Serial number" window as a sub window.



| Symbol | Name           | Function and Description                                                       |
|--------|----------------|--------------------------------------------------------------------------------|
| A      | Station number | All the stations set in the project are displayed.                             |
| B      | Model          | Models of the connected inverters are displayed.                               |
| C      | Serial number  | Serial numbers of the circuit boards of the connected inverters are displayed. |
| D      | MAC address    | MAC addresses of the connected inverters are displayed.                        |
| E      | Save file...   | Save the data as a file (*.csv) with a name.                                   |

### NOTE

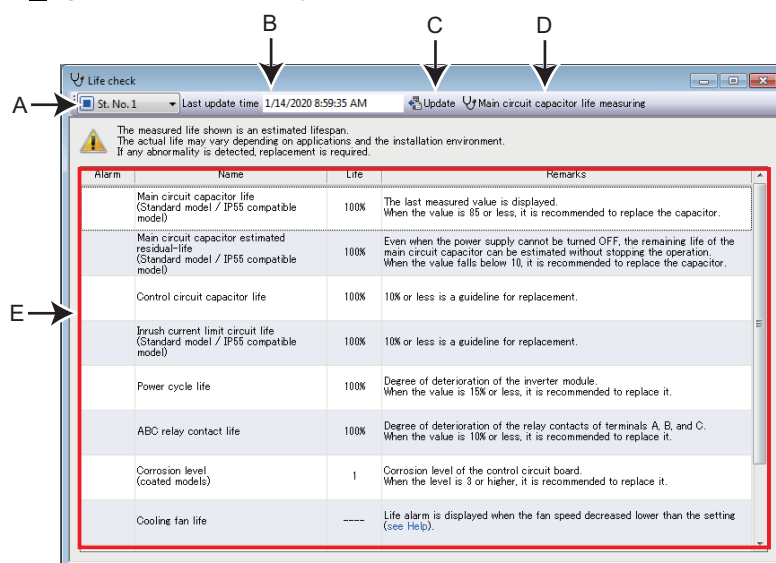
- When the inverter is repaired, its serial number or MAC address may be changed.
- If the serial number is not displayed, check the connection of FR Configurator2 and the inverter. If the serial number is not displayed although the connection is correct, contact your sales representative.

## 4.7.3 Life check

The life check function is not available for the following models.

Model: FR-CS80, FR-A700, FR-B (700), FR-B3 (700), FR-F700, FR-F700P, and FR-E500

Select [Life check...] in the [Diagnose] menu to display the "Life check" window as a sub window.



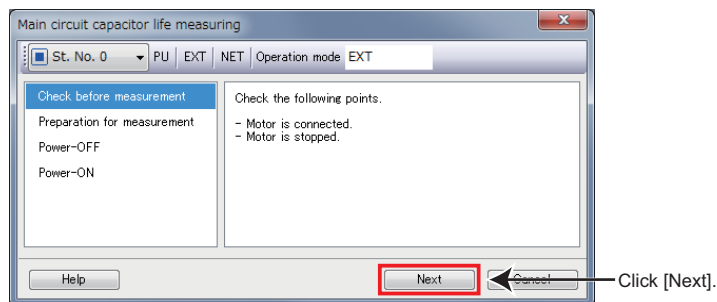
| Symbol | Name                                         | Function and Description                                                                                                                                                                                               |
|--------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | St. No. selection (Station number selection) | Select a station for the life check.                                                                                                                                                                                   |
| B      | Last update time                             | Displays the last update time (system clock time of the personal computer).                                                                                                                                            |
| C      | Update                                       | Updates the life information data.                                                                                                                                                                                     |
| D      | Main circuit capacitor life measuring        | Starts life measuring of the main circuit capacitor.                                                                                                                                                                   |
| E      | Parts life information                       | Displays parts life information read from the inverter.  mark is shown in the alarm field for the parts recommended to be replaced. |

## NOTE

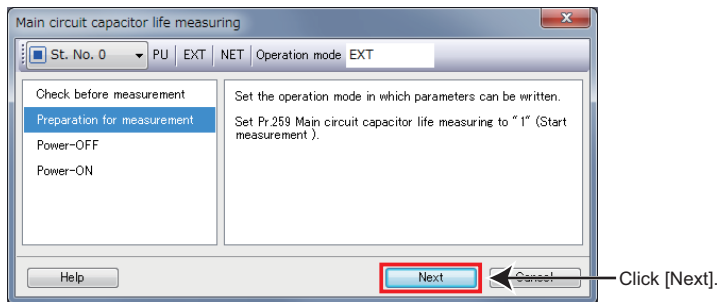
- For EtherCAT communication, the main circuit capacitor's life cannot be measured during control using the controlword. To measure the main circuit capacitor's life, disable the control using the controlword.

## ◆ Procedure of main circuit capacitor life measuring

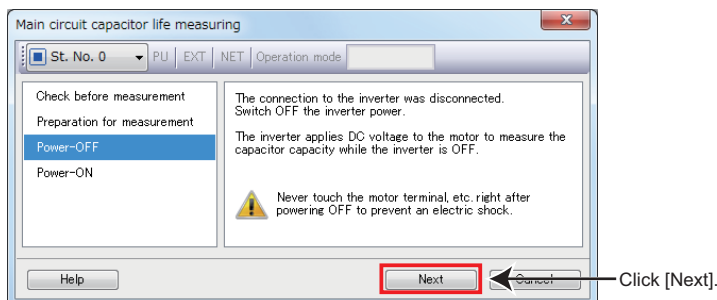
- The "Check before measurement" instructions are shown. Check the following items, and click [Next].  
Motor is connected.  
Motor is stopped.



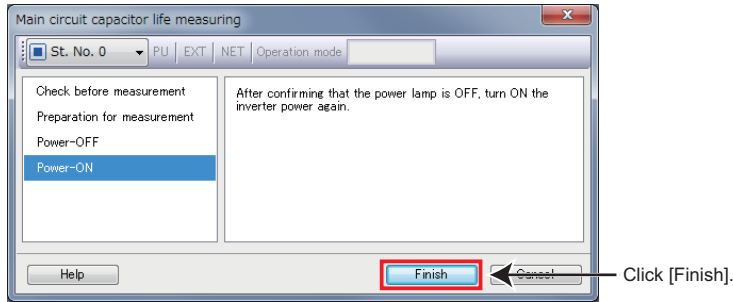
- The "Preparation for measurement" instructions are shown. Set the operation mode in which parameters can be written and click [Next].  
Set **Pr.259 Main circuit capacitor life measuring** to "1".



- The "Power-OFF" instructions are shown. Turn OFF the inverter power, and click [Next].



4. The "Power-ON" instructions are shown. After confirming that the power lamp is OFF, switch ON the inverter power again, and click [Finish].



## 4.7.4 Diagnosis result output

Select [Diagnosis result output...] in the [Diagnose] menu to output the diagnosis data of the selected station and save the data in a CSV text file.

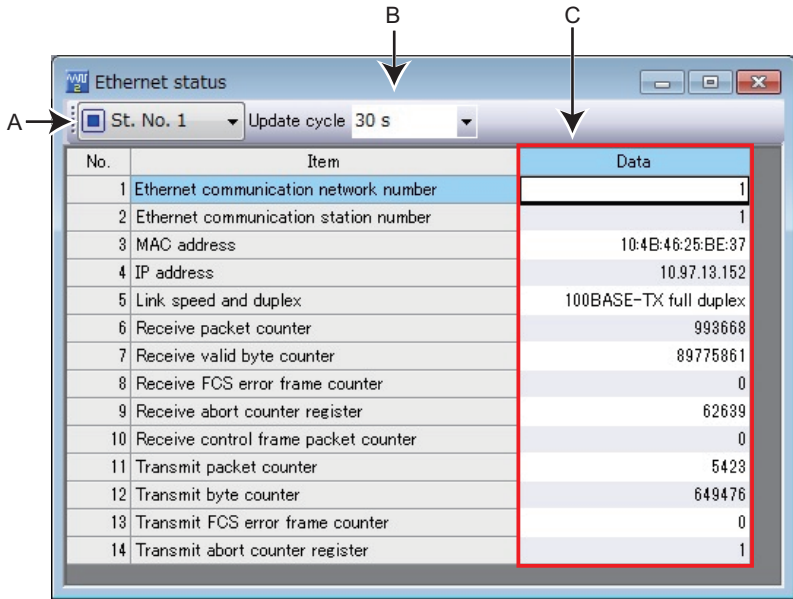
[Diagnosis result output...] is also available in the pop-up menu. (Refer to [page 131](#).)

## 4.7.5 Ethernet status

The Ethernet status check function is available for the following models.

Model: FR-A800-E, FR-A800-G, FR-F800-E, and FR-E700-NE

Select [Ethernet status...] in the [Diagnose] menu to display the "Ethernet status" window as a sub window.



| Symbol | Name                                         | Function and Description                                                                                                                                                                                             |
|--------|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | St. No. selection (Station number selection) | Select a station number to check the Ethernet status. The pull-down list shows station numbers of the Ethernet models only.                                                                                          |
| B      | Update cycle                                 | Set the data update interval.                                                                                                                                                                                        |
| C      | Communication status                         | Displays the Ethernet communication status of the selected inverter. (The display shows "----" in the data field in the initial state, just after the station number changes, or when the setting is not available.) |

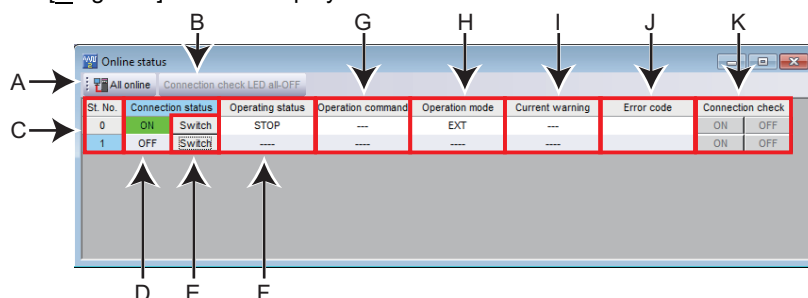


### NOTE

- Inverters connected via CC-Link IE Field Network communication are not recognized properly.

## 4.7.6 Online status

Select [Online status...] in the [Diagnose] menu to display the "Online status" window as a sub window.



| Symbol | Name                         |     | Function and Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------|------------------------------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | All online                   |     | Set all the devices selected in the project to online.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| B      | Connection check LED all-OFF |     | <ul style="list-style-type: none"> <li>FR-A800 with FR-A8NCG, FR-A800-F/G with FR-A8NCG-S, or FR-F800 with FR-A8NCG<br/>Used to turn OFF the ACT LEDs on all successfully connected inverters.</li> <li>FR-E800-(SC)E, FR-E806-SCE, or FR-D800-E<br/>Used to stop the blinking of the NET LEDs on all successfully connected inverters.</li> </ul>                                                                                                                                                                                                                                                                                                                 |
| C      | St. No.                      |     | All the station numbers set in the project are displayed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| D      | Connection status            |     | Shows the connection status.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| E      | Switch online/offline        |     | Switch from offline to online and from online to offline.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| F      | Operating status             |     | Shows the operating status. <sup>*1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| G      | Operation command            |     | Shows operation commands. Shows "----" if there is no start command. <sup>*1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| H      | Operation mode               |     | Shows the operating mode. <sup>*1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| I      | Current warning              |     | Shows the current warning. Shows "----" if there is no warning. <sup>*1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| J      | Error code                   |     | Shows if a connection error has occurred when the connection status is switched from offline to online.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| K      | Connection check             | ON  | <ul style="list-style-type: none"> <li>FR-A800 with FR-A8NCG, FR-A800-F/G with FR-A8NCG-S, or FR-F800 with FR-A8NCG<br/>Used to turn ON the ACT LEDs on successfully connected inverters or plug-in options (FR-A8NCG(-S)) to blink in the communication check of FR Configurator2. (The blinking LEDs will automatically turn OFF five minutes after the start of blinking.)</li> <li>FR-E800-(SC)E, FR-E806-SCE, or FR-D800-E<br/>Used to turn ON the NET LEDs on successfully connected inverters to blink in the communication check of FR Configurator2. (The blinking LEDs will automatically turn OFF five minutes after the start of blinking.)</li> </ul> |
|        |                              | OFF | <ul style="list-style-type: none"> <li>FR-A800 with FR-A8NCG, FR-A800-F/G with FR-A8NCG-S, or FR-F800 with FR-A8NCG<br/>Used to turn OFF the ACT LEDs on successfully connected inverters or plug-in options (FR-A8NCG(-S)) in the communication check of FR Configurator2.</li> <li>FR-E800-(SC)E, FR-E806-SCE, or FR-D800-E<br/>Used to stop the blinking of the NET LEDs on successfully connected inverters in the communication check of FR Configurator2.</li> </ul>                                                                                                                                                                                         |

\*1 Shows "----" when a device is offline.

### NOTE

- Inverters connected via CC-Link IE Field Network communication are not recognized properly.
- The LED all-OFF setting and the connection check ON/OFF setting are available for direct Ethernet connection of the FR-A800 with FR-A8NCG in it, FR-A800-F/G with FR-A8NCG-S in it, FR-F800 with FR-A8NCG in it, FR-E800-(SC)E, FR-E806-SCE, or FR-D800-E.
- Those settings are enabled when online communication is established between the inverter and FR Configurator2.
- LEDs may not blink depending on the **Pr.1399** setting even when the connection check is enabled. Refer to the Instruction Manual of the inverter for the details.

### ◆ For use of the connection check ON/OFF setting

- Before using the connection check ON/OFF setting, check the setting of parameters in the following table.

| Model                                     | Intermediate device | Pr.  | Name                          | Setting                               |
|-------------------------------------------|---------------------|------|-------------------------------|---------------------------------------|
| FR-E800-(SC)E<br>FR-E806-SCE<br>FR-D800-E | Not connected       | 1427 | Ethernet function selection 1 | Set "45237" in any of the parameters. |
|                                           |                     | 1428 | Ethernet function selection 2 |                                       |
|                                           |                     | 1429 | Ethernet function selection 3 |                                       |
|                                           |                     | 1430 | Ethernet function selection 4 |                                       |

# 4.8 AI fault diagnosis

The AI fault diagnosis function is available for the following models under the following conditions.

|                  |                |                                                                   |
|------------------|----------------|-------------------------------------------------------------------|
| Applicable model |                | FR-E800 series                                                    |
| Condition        | Control method | Any method                                                        |
|                  | Control mode   | Speed control only                                                |
| Applicable fault |                | Overcurrent trip: E.OC1 to E.OC3                                  |
|                  |                | Overvoltage trip: E.OV1 to E.OV3                                  |
|                  |                | Inverter overload trip (electronic thermal relay function): E.THT |
|                  |                | Motor overload trip (electronic thermal relay function): E.THM    |
|                  |                | Stall prevention stop: E.OLT                                      |
|                  |                | Brake transistor alarm detection: E.BE                            |
|                  |                | Loss of synchronism detection: E.SOT                              |
|                  |                | Output side earth (ground) fault overcurrent: E.GF                |
|                  |                | Output phase loss: E.LF                                           |
|                  |                | Option fault: E.OPT                                               |
|                  |                | PU disconnection: E.PUE                                           |
|                  |                | Parameter storage device fault (main circuit board): E.PE2        |
|                  |                | CPU fault: E.CPU, E.5 to E.7                                      |
|                  |                | USB communication fault: E.USB                                    |
|                  |                | Safety circuit fault: E.SAF                                       |
|                  |                | Overspeed occurrence: E.OS                                        |
|                  |                | Speed deviation excess detection: E.OSD                           |
|                  |                | Ethernet communication fault: E.EHR                               |
|                  |                | Board combination fault: E.CMB                                    |
|                  |                | Option fault: E.1                                                 |
|                  |                | Internal circuit fault: E.13                                      |

The AI fault diagnosis function is used to suggest probable causes of faults using AI technology.

Select [AI fault diagnosis] in the [Faults history (Z)] menu while the fault history window is displayed front, or select [AI fault diagnosis] on the toolbar to display the AI fault diagnosis window as a sub window.

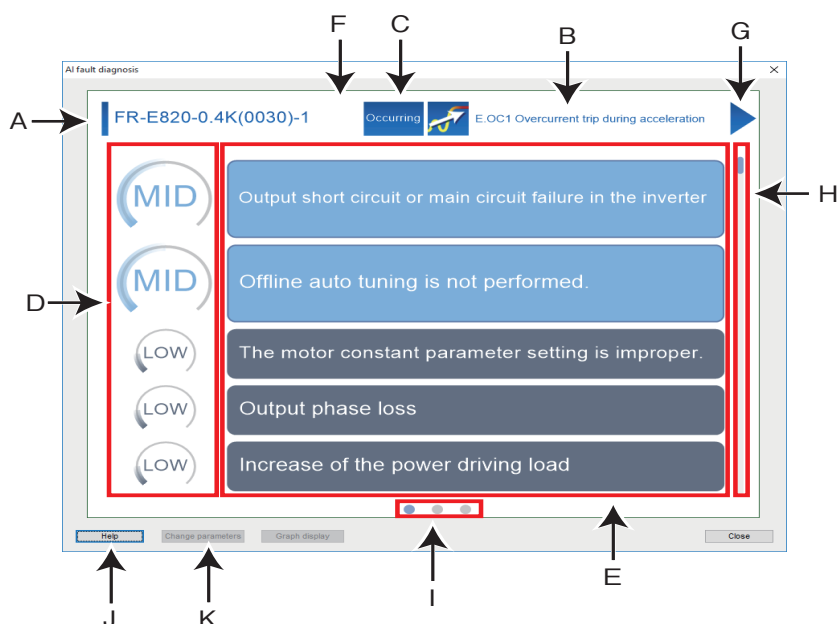


## NOTE

- When the message "An error occurred. AI fault diagnosis will be canceled. Restart or reinstall FR Configurator2." appears during AI fault diagnosis, update the operating system using Windows Update. After the update, install FR Configurator2 again.
- The AI fault diagnosis function can be used for up to three faults while a fault occurs, and up to two faults while no fault occurs.
- The AI fault diagnosis function is not available for faults initiated by setting **Pr.997**.
- To enable the AI fault diagnosis function, AI diagnosis data are stored in the computer that contains the files for diagnosis.
- The trace function is not available during AI fault diagnosis.
- The AI fault diagnosis function is not available for faults that occurred during emergency drive operation.

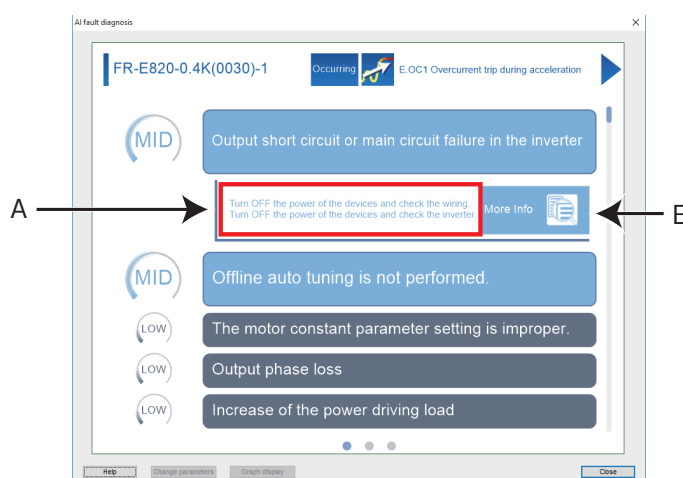
## 4.8.1 AI fault diagnosis details

### ◆ AI fault diagnosis result screen



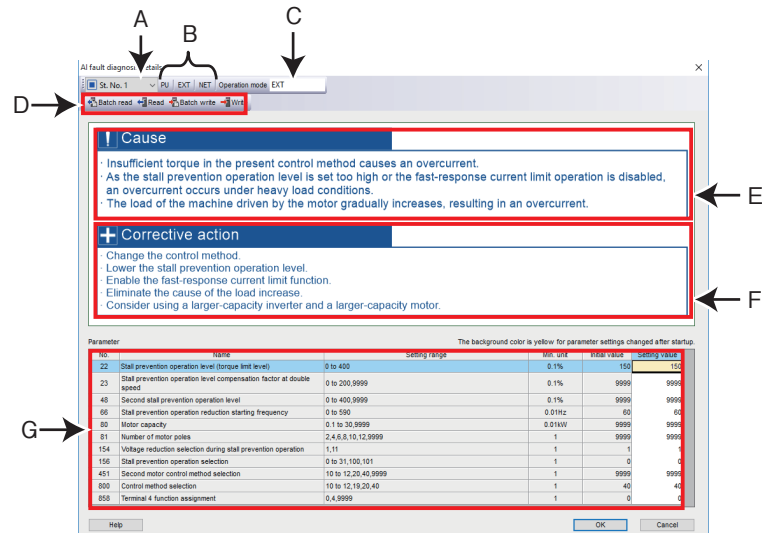
| Symbol | Name                             | Function/description                                                                                                                                                             |
|--------|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Model                            | Shows the model of the inverter of the selected station number.                                                                                                                  |
| B      | Fault name                       | Shows the name of fault.                                                                                                                                                         |
| C      | Fault No.                        | Shows the fault record number.                                                                                                                                                   |
| D      | Probability                      | Shows the probability (high, mid, and low) of each cause.                                                                                                                        |
| E      | Cause                            | Shows probable causes of the fault.<br>When a cause is selected, details of corrective action to be taken and the [Details] button appear. (Refer to <a href="#">page 228.</a> ) |
| F      | Next fault (left arrow key)      | Shows probable causes of the subsequent fault. Not applicable when no subsequent fault exists.                                                                                   |
| G      | Previous fault (right arrow key) | Shows probable causes of the previous fault. Not applicable when no previous fault exists.                                                                                       |
| H      | Scroll bar (up/down key)         | Used for scrolling up/down when there are many probable fault causes.                                                                                                            |
| I      | Page indicator                   | Shows the current page and the total number of pages.                                                                                                                            |
| J      | Help                             | Displays the help window.                                                                                                                                                        |
| K      | Change parameters                | Shows parameters changed after the startup. (Refer to <a href="#">page 230.</a> )                                                                                                |

### ◆ AI fault diagnosis result screen (cause selection)



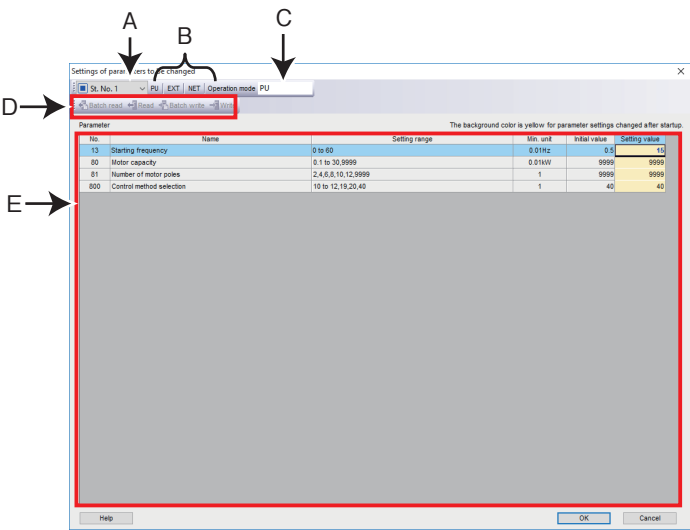
| Symbol | Name                  | Function/description                                                                                     |
|--------|-----------------------|----------------------------------------------------------------------------------------------------------|
| A      | Corrective action     | Corrective actions are suggested.                                                                        |
| B      | More Info (space key) | Shows a window for details of the parameters related to the cause. (Refer to <a href="#">page 229.</a> ) |

## ◆ AI fault diagnosis result screen (details of the AI fault diagnosis)



| Symbol | Name                      | Function/description                                                                                                                      |
|--------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| A      | St. No. (Station number)  | Select a station registered in the project.                                                                                               |
| B      | Operation mode button     | Switch between the operation modes of the inverter.                                                                                       |
| C      | Operation mode indication | Displays the operation mode.                                                                                                              |
| D      | Batch read                | Reads all the parameter setting values of the selected inverter.                                                                          |
|        | Read                      | Reads the selected parameter setting values of the selected inverter.                                                                     |
|        | Batch write               | Writes all the selected parameter setting values in the setting value column to the selected inverter.                                    |
|        | Write                     | Writes all selected parameter setting values to the selected inverter.                                                                    |
| E      | Cause                     | Shows probable causes of the fault.                                                                                                       |
| F      | Corrective action         | Corrective actions are suggested.                                                                                                         |
| G      | No.                       | Shows the parameter number.                                                                                                               |
|        | Name                      | Shows the parameter name.                                                                                                                 |
|        | Setting range             | Shows the setting range of the parameter setting value.                                                                                   |
|        | Min. unit                 | Shows the minimum setting unit of the parameter setting value.                                                                            |
|        | Initial value             | Shows the factory default parameter setting values of the inverter.                                                                       |
|        | Setting value             | Inputs the value to be written to the inverter. For the values that has been changed, the background color becomes yellow at the startup. |

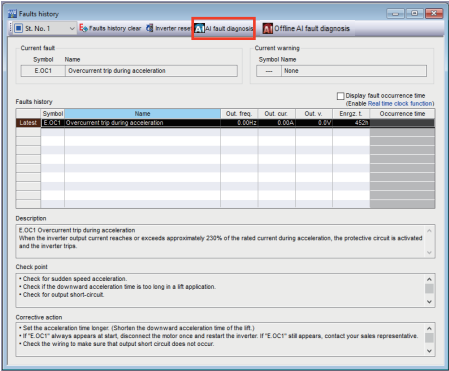
◆ AI fault diagnosis result screen (settings of parameters to be changed)



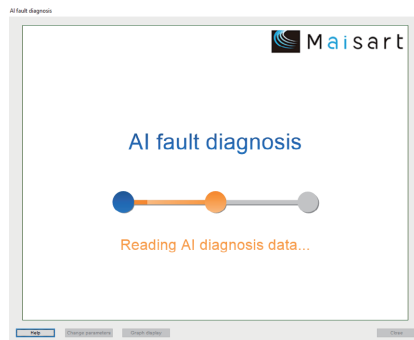
| Symbol | Name                      | Function/description                                                                                                                      |
|--------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| A      | St. No. (Station number)  | Select a station registered in the project.                                                                                               |
| B      | Operation mode button     | Switch between the operation modes of the inverter.                                                                                       |
| C      | Operation mode indication | Displays the operation mode.                                                                                                              |
| D      | Batch read                | Reads all the parameter setting values of the selected inverter.                                                                          |
|        | Read                      | Reads the selected parameter setting values of the selected inverter.                                                                     |
|        | Batch write               | Writes all the selected parameter setting values in the setting value column to the selected inverter.                                    |
|        | Write                     | Writes all selected parameter setting values to the selected inverter.                                                                    |
| E      | No.                       | Shows the parameter number.                                                                                                               |
|        | Name                      | Shows the parameter name.                                                                                                                 |
|        | Setting range             | Shows the setting range of the parameter setting value.                                                                                   |
|        | Min. unit                 | Shows the minimum setting unit of the parameter setting value.                                                                            |
|        | Initial value             | Shows the factory default parameter setting values of the inverter.                                                                       |
|        | Setting value             | Inputs the value to be written to the inverter. For the values that has been changed, the background color becomes yellow at the startup. |

4.8.2 Procedure for finding probable causes by AI fault diagnosis

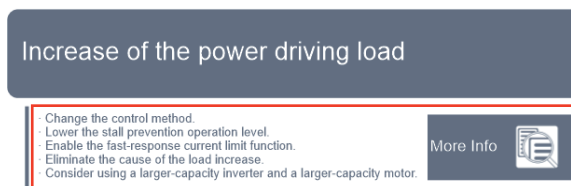
1. Select [Faults history...] in the [Diagnosis].
2. The fault history window is displayed.
3. Display the fault history window front and select [AI fault diagnosis] in the [Faults history (Z)] menu. Alternatively, select [AI fault diagnosis] on the taskbar in the fault history window.



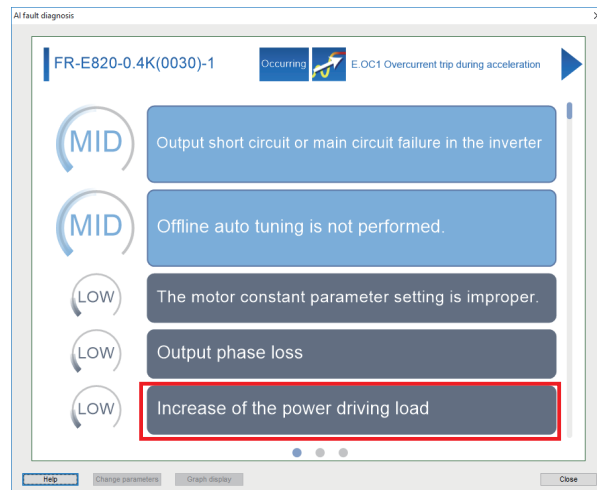
4. The AI fault diagnosis function is activated to find probable causes and display corrective actions for the fault in the fault history using AI technology.



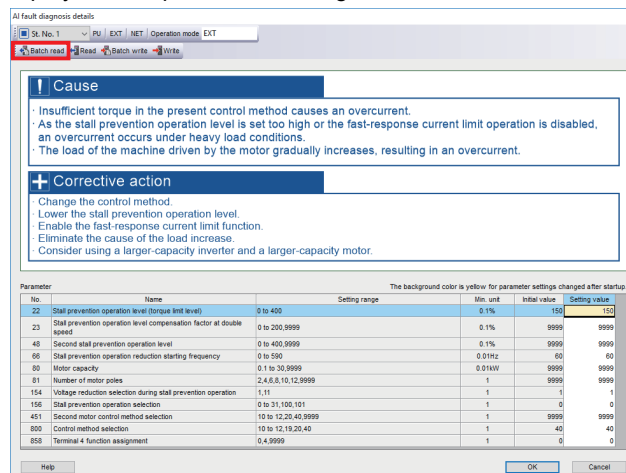
5. Select one of the probable causes suggested in the result screen to check corrective actions to be taken.



6. When the probable cause is related to parameter settings, click [More Info].



7. Click [Batch read] to display current parameter settings of the inverter.



8. Check the corrective actions and change parameter settings as required. After the change, click [Batch write] to write the setting values to the inverters.

AI fault diagnosis details

St. No. 1PU | EXT | NETOperation mode: EXT

Batch readBatch writeWrite

! Cause

Insufficient torque in the present control method causes an overcurrent.

As the stall prevention operation level is set too high or the fast-response current limit operation is disabled, an overcurrent occurs under heavy load conditions.

The load of the machine driven by the motor gradually increases, resulting in an overcurrent.

+ Corrective action

Change the control method.

Lower the stall prevention operation level.

Enable the fast-response current limit function.

Eliminate the cause of the load increase.

Consider using a larger-capacity inverter and a larger-capacity motor.

Parameter

The background color is yellow for parameter settings changed after startup.

| No. | Name                                                                 | Setting range       | Min. unit | Initial value | Setting value |
|-----|----------------------------------------------------------------------|---------------------|-----------|---------------|---------------|
| 22  | Stall prevention operation level (torque limit level)                | 0 to 400            | 0.1%      | 150           | 150           |
| 23  | Stall prevention operation level compensation factor at double speed | 0 to 200,9999       | 0.1%      | 9999          | 9999          |
| 40  | Second stall prevention operation level                              | 0 to 400,9999       | 0.1%      | 9999          | 9999          |
| 66  | Stall prevention operation reduction starting frequency              | 0 to 500            | 0.01Hz    | 60            | 60            |
| 80  | Motor capacity                                                       | 0.1 to 30,9999      | 0.01kW    | 9999          | 9999          |
| 81  | Number of motor poles                                                | 2,4,6,8,10,12,9999  | 1         | 9999          | 9999          |
| 154 | Voltage reduction selection during stall prevention operation        | 1,11                | 1         | 1             | 1             |
| 156 | Stall prevention operation selection                                 | 0 to 31,100,101     | 1         | 0             | 0             |
| 451 | Second motor control method selection                                | 10 to 12,20,40,9999 | 1         | 9999          | 9999          |
| 890 | Control method selection                                             | 10 to 12,19,20,40   | 1         | 40            | 40            |
| 898 | Terminal 4 function assignment                                       | 0,4,9999            | 1         | 0             | 0             |

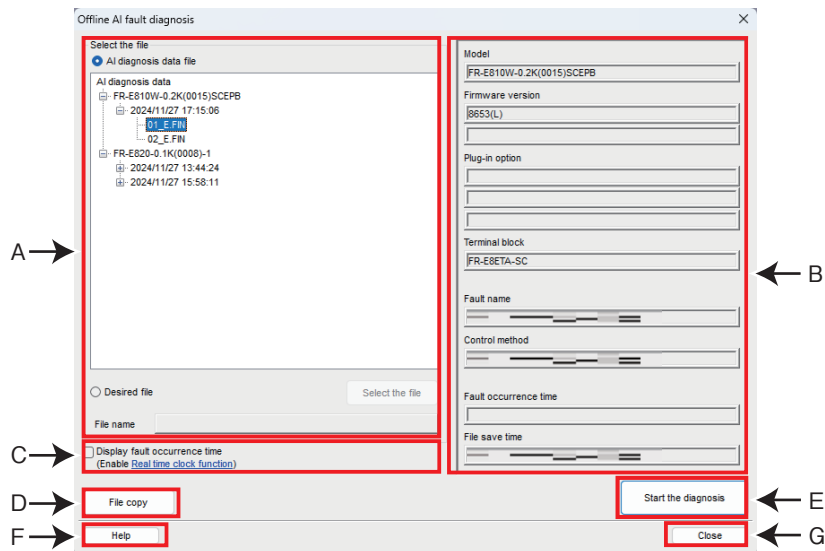
HelpOKCancel

## 4.9 Offline AI fault diagnosis

The AI fault diagnosis function can be used even when the connection between the inverter and FR Configurator2 is offline. The AI fault diagnosis results in the past can be checked again. The diagnosis data can also be saved and checked on another personal computer.

### ◆ File selection window

The AI diagnosis data file can be selected, the file information can be checked, and the AI alarm diagnosis can be performed in the file selection window. The AI diagnosis data file saved on the personal computer can also be copied.



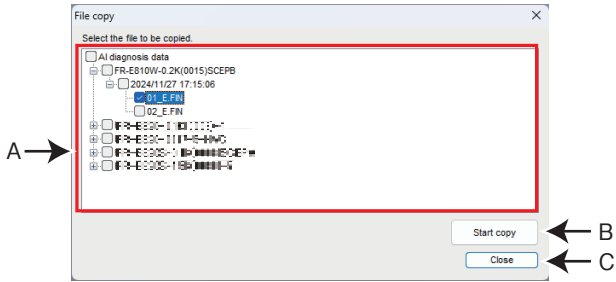
| Symbol | Name                          | Function/description                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Select the file               | <p>AI diagnosis data file</p> <p>Lists the AI diagnosis data files<sup>*1</sup>. An AI diagnosis data file to perform AI alarm diagnosis can be selected. If the AI diagnosis file is not saved, "No AI diagnosis data file exists" is displayed.</p> <p><b>AI diagnosis data</b></p> <p>FR-E810W-0.2K(0015)SCEPB ← Model name</p> <p>2024/11/27 17:15:06 ← File save date</p> <p>01_E.FIN ← AI diagnosis data files</p> <p>02_E.FIN</p> |
|        | Desired file                  | <p>AI fault diagnosis can be performed by reading the AI diagnosis data file saved on other personal computers. Press the [Select the file] button to select an AI diagnosis data file (*.st1)<sup>*2</sup>.</p>                                                                                                                                                                                                                         |
| B      | AI diagnosis data information | Shows details of the selected AI diagnosis data file.                                                                                                                                                                                                                                                                                                                                                                                    |
| C      | Display fault occurrence time | Determines whether to display the time of fault occurrence. (Available for the product having the real time clock function.)                                                                                                                                                                                                                                                                                                             |
| D      | File copy                     | <p>This function can be selected when [AI diagnostic data file] is selected for [Select the file]. Clicking the button displays the file copy window, enabling copying of a selected AI diagnosis data file<sup>*1</sup>.</p> <p>Refer to <a href="#">page 234</a> for the file copy window.</p>                                                                                                                                         |
| E      | Start the diagnosis           | <p>Starts "AI fault diagnosis" using the selected AI diagnosis data file.</p> <p>Refer to <a href="#">page 227</a> for the AI fault diagnosis.</p>                                                                                                                                                                                                                                                                                       |
| F      | Help                          | Help appears.                                                                                                                                                                                                                                                                                                                                                                                                                            |
| G      | Close                         | Offline AI fault diagnosis will be terminated.                                                                                                                                                                                                                                                                                                                                                                                           |

<sup>\*1</sup> When AI fault diagnosis is performed with FR Configurator2, the AI diagnosis data file is read from the inverter and stored in the personal computer.

<sup>\*2</sup> The file name of the AI diagnosis data file must be 64 characters or less, including the extension.

◆ File copy window

The AI diagnosis data file saved on the personal computer can be copied to user-designated location using the file copy window.



| Symbol | Name                     | Function/description                                                                                                                                                                                                                                                                                                     |
|--------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Copy file selection tree | Select an AI diagnosis data file to be copied.                                                                                                                                                                                                                                                                           |
| B      | Start copy               | <div>Copies the file selected in the copy file selection tree. When the [Start Copy] button is clicked, a window to select the save destination appears to save the selected AI diagnosis data file to a selected folder.<sup>*1</sup></div> <div>When selecting one file</div> <div>When selecting multiple files</div> |
| C      | Close                    | Closes the file copy window.                                                                                                                                                                                                                                                                                             |

<sup>\*1</sup> To save the AI diagnosis data file, the file name must be 64 characters or less, including the extension.

## 4.10 Test operation

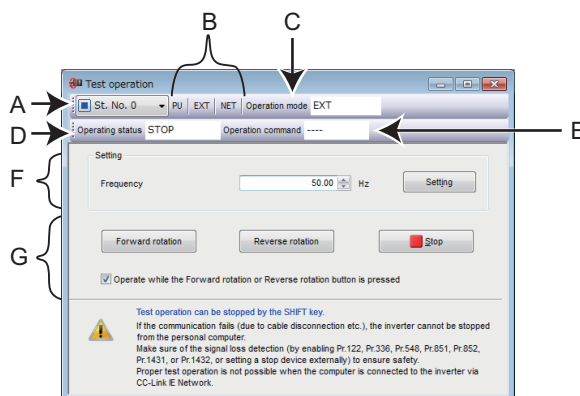
The test operation function is not available for the following models.

Model: FR-A700, FR-B (700), FR-B3 (700), FR-F700, FR-F700P, FR-E700, FR-D700, FR-E700EX, FR-D700-G, and FR-E500

FR Configurator2 gives a start command to the inverter to start test operation. "Test operation" allows the selected inverter's frequency to be displayed, operation mode to be switched and displayed, forward and reverse operation commands to be sent, setting frequency to be written, and other functions to be done.

### 4.10.1 Test operation window

Select [Test operation...] in the [Test operation] menu or  in the toolbar to display the test operation window.



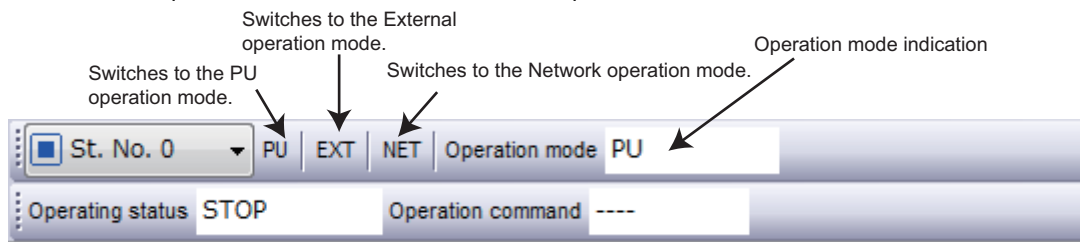
| Symbol | Name                         | Function/description                              |                                                                          |
|--------|------------------------------|---------------------------------------------------|--------------------------------------------------------------------------|
| A      | St. No. (Station number)     | Selects a station to perform test operation with. |                                                                          |
| B      | Operation mode switch        | Switches over the inverter's operation mode.      |                                                                          |
| C      | Operation mode <sup>*1</sup> | PU                                                | PU operation mode                                                        |
|        |                              | EXT                                               | External operation mode                                                  |
|        |                              | NET                                               | NET operation mode                                                       |
|        |                              | PU + EXT                                          | External/PU combined operation mode                                      |
|        |                              | ----                                              | Indicates that the operation mode information was not acquired properly. |
|        |                              | No display                                        | Nothing is displayed when offline.                                       |
| D      | Operating status             | FWD                                               | Rotating forward                                                         |
|        |                              | REV                                               | Rotating reversely                                                       |
|        |                              | STOP                                              | Stopped                                                                  |
|        |                              | ALARM                                             | Being stopped by the fault                                               |
|        |                              | ----                                              | Appears when operating status information acquisition fails.             |
|        |                              | No display                                        | Nothing is displayed when offline.                                       |
| E      | Operation command            | STF                                               | During forward rotation command                                          |
|        |                              | STR                                               | During reverse rotation command                                          |
|        |                              | ----                                              | Appears when operating status information acquisition fails.             |
|        |                              | No display                                        | Nothing is displayed when offline.                                       |
| F      | Frequency setting            | Set the running frequency.                        |                                                                          |
| G      | Run/Stop command buttons     | Sends the run/stop commands.                      |                                                                          |

\*1 The names displayed on the operation panel and the test operation window differ depending on the connected inverter.

## 4.10.2 Displaying and switching the operation mode

To switch the operation mode, select the [PU], [EXT], or [NET] button, or select [PU(P)], [EXT(E)], or [NET(N)] from the [Operation mode (Z)] menu bar.

The connected inverter's operation mode can be verified in the operation mode indicator.

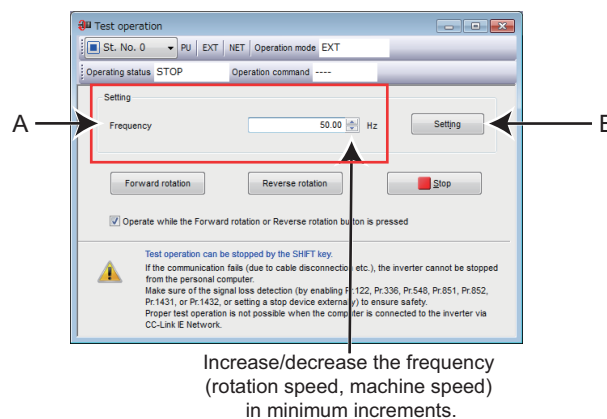


### NOTE

- Some operation modes cannot be switched according to the present operation mode and parameter settings. For example, the initial setting does not allow switching between the PU operation mode and the Network operation mode. (For the details, refer to the Instruction Manual of the inverter.)

## 4.10.3 Specifying the running frequency (rotation speed, machine speed)

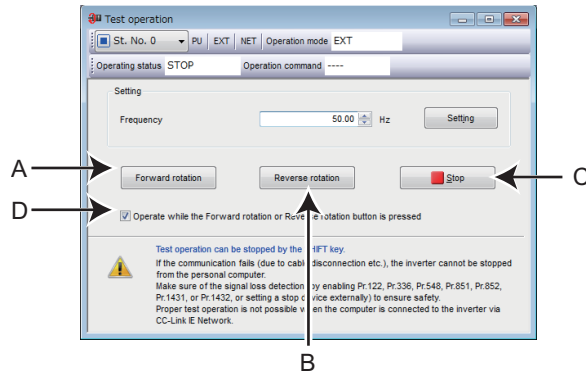
Input a desired frequency (rotation speed, machine speed) to the frequency (speed) input section and press the [Setting] button to write the set frequency to the inverter. To increase or decrease a read setting frequency in minimum setting increments, use the buttons at the right side of the input section.



| Symbol | Name              | Function/description                           |                                                                                                                                                                                                                                                                                            |
|--------|-------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Frequency setting | Frequency/<br>rotation speed/<br>machine speed | Appears in the following situations. <ul style="list-style-type: none"> <li>When offline</li> <li>When the selected station's set frequency unit is other than the frequency, rotation speed, and machine speed.</li> <li>When the set frequency information acquisition fails.</li> </ul> |
|        |                   | Frequency                                      | Appears when the frequency (Hz) has been set as the set frequency unit for the selected station.                                                                                                                                                                                           |
|        |                   | Rotation speed                                 | Appears when the rotation speed (r/min) has been set as the set frequency unit for the selected station.                                                                                                                                                                                   |
|        |                   | Machine speed                                  | Appears when the machine speed has been set as the set frequency unit for the selected station.                                                                                                                                                                                            |
| B      | Setting           | Set the set frequency.                         |                                                                                                                                                                                                                                                                                            |

## 4.10.4 Running the inverter in test operation (forward rotation, reverse rotation, and stop commands)

Press the [Forward rotation] or [Reverse rotation] button to execute test operation. Press the STOP button to stop operation. Selecting "Operate while the Forward rotation or Reverse rotation button is pressed" will execute test operation only while the [Forward rotation] or [Reverse rotation] button is held down. Simply pressing the [Forward rotation] or [Reverse rotation] button will write the input frequency value to the inverter. After the value is written to the inverter, the test operation will start. Release the [Forward rotation] or [Reverse rotation] button to stop the operation.



| Symbol | Name             | Function/description                                                                                                        |
|--------|------------------|-----------------------------------------------------------------------------------------------------------------------------|
| A      | Forward rotation | Rotates the motor forward.                                                                                                  |
| B      | Reverse rotation | Rotates the motor reversely.                                                                                                |
| C      | Stop             | Stops the operation.                                                                                                        |
| D      | Operation option | Click on the checkbox to enable test operation only while the [Forward rotation] or [Reverse rotation] button is held down. |

### NOTE

- Open the batch monitor window (on [page 218](#)) to check the output frequency during test operation.
- If FR Configurator2 had to be terminated, stop the operation by sending an operation stop command to the inverter.
- Do not press an individual operation button, such as [Forward rotation] or [Reverse rotation], repeatedly. Doing so may make the FR Configurator2 operation unstable. If operation continues unintentionally, press [Stop] to stop operation.
- Operation may continue without the [Forward rotation] or [Reverse rotation] button being held down by dragging the mouse cursor off the button while holding down the [Stop] button. Press the [Stop] button to stop operation.

### CAUTION

- If communication fails (due to, for example, cable disconnection), the inverter cannot be stopped from the personal computer.
- Ensure safety by, for example, enabling signal loss detection (**Pr.122**, **Pr.336**, **Pr.548**, **Pr.851**, **Pr.852**, **Pr.1431**, or **Pr.1432**) or externally setting a stop device.
- Test operation is not properly performed when the computer is connected to the inverter via CC-Link IE Field, CC-Link IE Field Network Basic, and CC-Link IE TSN.

## 4.11 Using the Developer function

The Developer function is not available for the following models.

Model: FR-D800, FR-CS80, FR-A700, FR-B (700), FR-B3 (700), FR-F700, FR-F700P, FR-E700, FR-D700, FR-E700EX, FR-D700-G, and FR-E500

The Developer function becomes available when devices shown in the following table are connected.

| PC-side port | Intermediate device     | GOT             |                | Programmable controller module     |
|--------------|-------------------------|-----------------|----------------|------------------------------------|
|              |                         | Model           | OUT port       |                                    |
| USB          | No device               | —               | —              | —                                  |
|              | GOT                     | GOT2000/GOT1000 | RS-232C/RS-485 | —                                  |
|              | Programmable controller | —               | —              | CPU module                         |
| Ethernet     | Not connected           | —               | —              | —                                  |
|              | Programmable controller | —               | —              | CPU module / Ethernet module       |
| COM port     | Not connected           | —               | —              | —                                  |
|              | GOT                     | GOT1000         | RS-232C/RS-485 | —                                  |
|              | Programmable controller | —               | —              | CPU module (other than RCP module) |

Developer is used for creating sequence programs and writing them to the inverter to enable the use of the PLC function of the inverter. PLC function is used for customizing inverter operation to meet the machine specifications. PLC function operates the inverter according to the input signals, or outputs signals and monitored values according to inverter operation. For details of inverter settings related to the PLC function, refer to the PLC Function Programming Manual.

### 4.11.1 Before using Developer

When using Developer, enable the PLC function of the inverter (**Pr.414 PLC function operation selection** ≠ 0).

For details, refer to the Instruction Manual of the inverter used.

| Pr. | Name                             | Initial value | Setting range | Description           |
|-----|----------------------------------|---------------|---------------|-----------------------|
| 414 | PLC function operation selection | 0             | 0             | PLC function disabled |
|     |                                  |               | 1, 11         | PLC function enabled  |
|     |                                  |               | 2, 12         |                       |

#### ◆ Outline of PLC function

- A800/F800

To enable the PLC function, set a value other than "0" in **Pr.414**. When **Pr.414** = "2 or 12", the sequence start (SQ) signal from the external input terminal is valid regardless of the setting in **Pr.338 Communication operation command source**. (The change of **Pr.414** setting is applied after an inverter reset.)

- E800

To enable the PLC function, set a value other than "0" in **Pr.414**. (The change of **Pr.414** setting is applied after an inverter reset.)

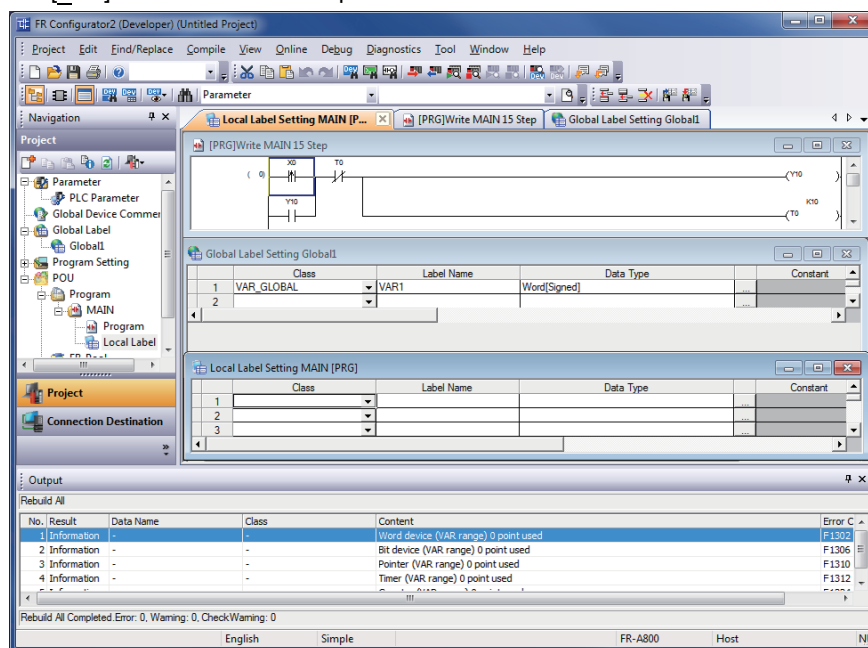
Switch the execution key (RUN/STOP) of the sequence program by turning the SQ signal ON/OFF. The sequence program can be executed by turning the SQ signal ON. To input the SQ signal, set "50" in any parameter from **Pr.178 to Pr.189 (Input terminal function selection)** to assign the function to a terminal.

## NOTE

- Developer cannot be used when a communication speed of 4800 bps or less is selected for PU connector communication (**Pr.118**) or RS-485 terminal communication (**Pr.332**). To use Developer, set a communication speed of 9600 bps or more.
- Developer cannot be used when the 7-bit data length is selected for PU connector communication (**Pr.119**) or RS-485 terminal communication (**Pr.333**). To use Developer, select the 8-bit data.

## 4.11.2 Starting the Developer function

Select [Developer] in the [Tool] menu to start Developer.



## NOTE

- Use the help function of Developer to refer to the contents of the manuals relevant to Developer. Refer to the contents of the manuals from [Help] (on [page 276](#)) in the Developer menu.
- To use the USB/RS-485 conversion cable DINV-U4, set RS-232C (initial setting) in the PC side I/F in the Developer Connection Destination setting window.
- A file created by GX Developer or GX Works2 cannot be used by Developer of FR Configurator2. Conversely, a file created by Developer of FR Configurator2 cannot be used for GX Developer or GX Works2.

### 4.11.3 Basic menu

The following table shows the basic menus of Developer. The basic menus can be operated in the same way under any window condition. For details on each function, refer to manuals of GX Works2.

| Menu         | Pull-down menu                              | Sub-menu                          | Sub-menu 2 | Icon                                                                                  |
|--------------|---------------------------------------------|-----------------------------------|------------|---------------------------------------------------------------------------------------|
| Project      | <u>N</u> ew...                              | —                                 | —          |    |
|              | <u>O</u> pen...                             | —                                 | —          |    |
|              | <u>C</u> lose                               | —                                 | —          | —                                                                                     |
|              | <u>S</u> ave                                | —                                 | —          |    |
|              | Save <u>A</u> s...                          | —                                 | —          | —                                                                                     |
|              | <u>D</u> elete...                           | —                                 | —          | —                                                                                     |
|              | <u>V</u> erify                              | —                                 | —          | —                                                                                     |
|              | Change Project Type                         | —                                 | —          | —                                                                                     |
|              | O <u>bj</u> ect                             | <u>N</u> ew...                    | —          |    |
|              |                                             | Rename                            | —          | —                                                                                     |
|              |                                             | <u>D</u> elete                    | —          | —                                                                                     |
|              |                                             | <u>C</u> opy                      | —          |    |
|              |                                             | <u>P</u> aste                     | —          |    |
|              |                                             | Set as Default <u>C</u> onnection | —          | —                                                                                     |
|              |                                             | <u>P</u> roperty...               | —          |    |
|              | Print ( <u>J</u> )...                       | —                                 | —          |   |
|              | Print Preview ( <u>B</u> )...               | —                                 | —          | —                                                                                     |
|              | Print <u>W</u> indow...                     | —                                 | —          | —                                                                                     |
|              | Print Window Preview                        | —                                 | —          | —                                                                                     |
|              | Printer Setup...                            | —                                 | —          | —                                                                                     |
|              | Recently used Developer project path 1 to 4 | —                                 | —          | —                                                                                     |
|              | Exit ( <u>Q</u> )                           | —                                 | —          | —                                                                                     |
| Edit         | <u>U</u> ndo                                | —                                 | —          |  |
|              | <u>R</u> edo                                | —                                 | —          |  |
|              | <u>C</u> ut                                 | —                                 | —          |  |
|              | <u>C</u> opy                                | —                                 | —          |  |
|              | <u>P</u> aste                               | —                                 | —          |  |
| Find/Replace | Cross Reference                             | —                                 | —          | —                                                                                     |
|              | Device List                                 | —                                 | —          | —                                                                                     |
|              | Find <u>D</u> evice                         | —                                 | —          |  |
|              | Find Instru <u>c</u> tion                   | —                                 | —          |  |
|              | Find <u>C</u> ontact or Coil                | —                                 | —          |  |
|              | <u>F</u> ind String                         | —                                 | —          | —                                                                                     |
|              | <u>R</u> eplace Device                      | —                                 | —          | —                                                                                     |
|              | Replace <u>I</u> nstruction                 | —                                 | —          | —                                                                                     |
|              | Replace String                              | —                                 | —          | —                                                                                     |
|              | Change Open/Close Contact                   | —                                 | —          | —                                                                                     |
|              | Device <u>B</u> atch Replace                | —                                 | —          | —                                                                                     |
|              | Register to Device Batch Replace            | —                                 | —          | —                                                                                     |
| Compile      | <u>B</u> uild                               | —                                 | —          |  |
|              | <u>R</u> ebuild All                         | —                                 | —          |  |

| Menu        | Pull-down menu         | Sub-menu                            | Sub-menu 2     | Icon                                                                                  |
|-------------|------------------------|-------------------------------------|----------------|---------------------------------------------------------------------------------------|
| View        | Toolbar                | Standard                            | —              | —                                                                                     |
|             |                        | Program Common                      | —              | —                                                                                     |
|             |                        | Docking Window/Switch Project Data  | —              | —                                                                                     |
|             |                        | Display All                         | —              | —                                                                                     |
|             | Status bar             | —                                   | —              | —                                                                                     |
|             | Colors and Font...     | —                                   | —              | —                                                                                     |
|             | Docking Window         | Navigation                          | —              |    |
|             |                        | Element Selection                   | —              |    |
|             |                        | Output                              | —              |    |
|             |                        | Cross Reference                     | —              |    |
|             |                        | Device Use List                     | —              |    |
|             |                        | Watch 1 to 4 (1) to (4)             | —              | —                                                                                     |
|             |                        | Find/Replace                        | —              |    |
| Online      | Read from PLC...       | —                                   | —              |    |
|             | Write to PLC...        | —                                   | —              |    |
|             | Verify with PLC...     | —                                   | —              | —                                                                                     |
|             | Remote Operation(S)... | —                                   | —              | —                                                                                     |
|             | Password/Keyword       | New...                              | —              | —                                                                                     |
|             |                        | Delete...                           | —              | —                                                                                     |
|             |                        | Disable...                          | —              | —                                                                                     |
|             | Set Clock...           | —                                   | —              | —                                                                                     |
|             | Monitor                | Start Monitoring (All Windows)      | —              |  |
|             |                        | Stop Monitoring (All Windows)       | —              |  |
|             |                        | Start Monitoring                    | —              |  |
|             |                        | Stop Monitoring                     | —              |  |
|             |                        | Change Value Format (Decimal)       | —              | —                                                                                     |
|             |                        | Change Value Format (Hexadecimal)   | —              | —                                                                                     |
|             |                        | Device / Batch Monitor              | —              |  |
|             |                        | Monitor Condition Setting...        | —              | —                                                                                     |
|             |                        | Monitor Stop Condition Setting...   | —              | —                                                                                     |
|             |                        | Change Instance (Function Block)... | —              | —                                                                                     |
|             | Watch                  | Start Watching                      | —              | —                                                                                     |
|             |                        | Stop Watching                       | —              | —                                                                                     |
|             |                        | Display Format of Bit Device        | Number Display | —                                                                                     |
|             |                        |                                     | ON/OFF Display | —                                                                                     |
|             |                        |                                     | Symbol Display | —                                                                                     |
|             |                        | Register Watch                      | —              | —                                                                                     |
| Debug       | Modify Value...        | —                                   | —              |  |
| Diagnostics | PLC Diagnostics...     | —                                   | —              | —                                                                                     |

| Menu   | Pull-down menu                           | Sub-menu                                            | Sub-menu 2 | Icon                                                                                |
|--------|------------------------------------------|-----------------------------------------------------|------------|-------------------------------------------------------------------------------------|
| Tool   | IC Memory Card                           | Read IC Memory Card...                              | —          | —                                                                                   |
|        |                                          | Write IC Memory Card...                             | —          | —                                                                                   |
|        | Check Program...                         | —                                                   | —          | —                                                                                   |
|        | Check Parameter...                       | —                                                   | —          | —                                                                                   |
|        | Clear All Parameters (F)...              | —                                                   | —          | —                                                                                   |
|        | Device/Label Automatic-Assign Setting... | —                                                   | —          | —                                                                                   |
|        | Block Password...                        | —                                                   | —          | —                                                                                   |
|        | Merge Data...                            | —                                                   | —          | —                                                                                   |
|        | Language Selection...                    | —                                                   | —          | —                                                                                   |
| Window | Options                                  | —                                                   | —          | —                                                                                   |
|        | Cascade                                  | —                                                   | —          | —                                                                                   |
|        | Tile Vertically                          | —                                                   | —          | —                                                                                   |
|        | Tile Horizontally                        | —                                                   | —          | —                                                                                   |
|        | Arrange Icons                            | —                                                   | —          | —                                                                                   |
|        | Close All                                | —                                                   | —          | —                                                                                   |
| Help   | Other Window...                          | —                                                   | —          | —                                                                                   |
|        | FR-A800/F800/E800 Programming Manual     | —                                                   | —          | —                                                                                   |
|        | GX Works2 Help...                        | —                                                   | —          |  |
|        | Operating Manual                         | GX Works2 Beginner's Manual (Simple Project) (1)    | —          | —                                                                                   |
|        |                                          | GX Works2 Beginner's Manual (Structured Project)(2) | —          | —                                                                                   |
|        |                                          | Operating Manual Common(3)                          | —          | —                                                                                   |
|        |                                          | Operating Manual (Simple Project)(4)                | —          | —                                                                                   |
|        |                                          | Operating Manual (Structured Project)(5)            | —          | —                                                                                   |
|        |                                          | Operating Manual Intelligent Function Module (6)    | —          | —                                                                                   |
|        |                                          | Operating Manual Simple Project, Function Block (7) | —          | —                                                                                   |

## 4.11.4 Ladder edit menu

The following menus can be used for ladder editing by Developer. The following menus include SFC-Zoom. For details on each function, refer to manuals of GX Works2.

| Menu | Pull-down menu                   | Sub-menu                            | Sub-menu 2 | Icon                                                                                       |
|------|----------------------------------|-------------------------------------|------------|--------------------------------------------------------------------------------------------|
| Edit | Continuous Paste ( <u>Q</u> )... | —                                   | —          | —                                                                                          |
|      | <u>D</u> elte...                 | —                                   | —          | —                                                                                          |
|      | Restore After Ladder Conversion  | —                                   | —          | —                                                                                          |
|      | <u>I</u> nsert Row               | —                                   | —          | —                                                                                          |
|      | <u>D</u> elte Row                | —                                   | —          | —                                                                                          |
|      | <u>I</u> nsert Column            | —                                   | —          | —                                                                                          |
|      | <u>D</u> elte Column             | —                                   | —          | —                                                                                          |
|      | NPO Batch <u>I</u> nsert...      | —                                   | —          | —                                                                                          |
|      | NPO Batch <u>D</u> elte          | —                                   | —          | —                                                                                          |
|      | <u>E</u> dit Line                | —                                   | —          |  F10    |
|      | <u>D</u> elte Line               | —                                   | —          |  sF9    |
|      | Change TC Setting...             | —                                   | —          | —                                                                                          |
|      | Ladder Edit Mode ( <u>Z</u> )    | <u>R</u> ead Mode                   | —          |         |
|      |                                  | <u>W</u> rite Mode                  | —          |         |
|      | Ladder <u>S</u> ymbol            | <u>O</u> pen Contact...             | —          |  F5    |
|      |                                  | <u>C</u> lose Contact...            | —          |  F6   |
|      |                                  | <u>O</u> pen Branch...              | —          |  sF5  |
|      |                                  | <u>C</u> lose Branch...             | —          |  sF6  |
|      |                                  | <u>C</u> oil...                     | —          |  F7   |
|      |                                  | Applicati <u>o</u> n Instruction... | —          |  F8   |
|      |                                  | <u>V</u> ertical Line...            | —          |  sF9  |
|      |                                  | <u>H</u> orizontal Line...          | —          |  F9   |
|      |                                  | <u>D</u> elte Vertical Line...      | —          |  cF10 |
|      |                                  | <u>D</u> elte Horizontal Line...    | —          |  cF9  |

| Menu | Pull-down menu            | Sub-menu                          | Sub-menu 2                    | Icon                                                                                  |
|------|---------------------------|-----------------------------------|-------------------------------|---------------------------------------------------------------------------------------|
| Edit | Ladder Symbol             | Pulse Contact Symbol              | Rising Pulse...               |    |
|      |                           |                                   | Falling Pulse...              |    |
|      |                           |                                   | Rising Pulse Branch...        |    |
|      |                           |                                   | Falling Pulse Branch...       |    |
|      |                           |                                   | Rising Pulse Close...         |    |
|      |                           |                                   | Falling Pulse Close...        |    |
|      |                           |                                   | Rising Pulse Close Branch...  |    |
|      |                           |                                   | Falling Pulse Close Branch... |    |
|      |                           | Invert Operation Results...       | —                             |    |
|      |                           | Operation Result Rising Pulse...  | —                             |    |
|      |                           | Operation Result Falling Pulse... | —                             |    |
|      | Inline Structured Text    | Insert Inline Structured Text Box | —                             |   |
|      |                           | Display Template                  | —                             |  |
|      |                           | Mark Template (Left)              | —                             |  |
|      |                           | Mark Template (Right) (J)         | —                             |  |
|      | Edit FB Instance...       | —                                 | —                             | —                                                                                     |
|      | Documentation             | Device Comment                    | —                             |  |
|      |                           | Statement                         | —                             |  |
|      |                           | Note                              | —                             |  |
|      |                           | Statement/Note Batch Edit...      | —                             | —                                                                                     |
|      | Easy Edit                 | Connect Line to Right-Side Symbol | —                             | —                                                                                     |
|      |                           | Connect Line to Left-Side Symbol  | —                             | —                                                                                     |
|      |                           | Enter/Delete HLine Rightward      | —                             | —                                                                                     |
|      |                           | Enter/Delete HLine Leftward       | —                             | —                                                                                     |
|      |                           | Enter/Delete VLine Downward       | —                             | —                                                                                     |
|      |                           | Enter/Delete VLine Upward         | —                             | —                                                                                     |
|      |                           | Switch Open/Close Contact         | —                             | —                                                                                     |
|      |                           | Switch Statement/Note Type        | —                             | —                                                                                     |
|      |                           | Instruction Partial Edit          | —                             | —                                                                                     |
|      |                           | Edit List for Ladder Block...     | —                             | —                                                                                     |
|      | Read from CSV File (J)... | —                                 | —                             |  |
|      | Write to CSV File (K)...  | —                                 | —                             |  |

| Menu         | Pull-down menu                                  | Sub-menu                     | Sub-menu 2 | Icon                                                                                  |
|--------------|-------------------------------------------------|------------------------------|------------|---------------------------------------------------------------------------------------|
| Find/Replace | Change Module I/O No....                        | —                            | —          | —                                                                                     |
|              | Switch Statement/Note Type...                   | —                            | —          | —                                                                                     |
|              | Line Statement List...                          | —                            | —          |    |
|              | Jump...                                         | —                            | —          | —                                                                                     |
|              | Jump to Next Ladder Block Start...              | —                            | —          | —                                                                                     |
|              | Jump to Previous Ladder Block Start...          | —                            | —          | —                                                                                     |
|              | Next Device                                     | —                            | —          | —                                                                                     |
|              | Next Contact (Y)                                | —                            | —          | —                                                                                     |
|              | Next Coil (Z)                                   | —                            | —          | —                                                                                     |
|              | Back                                            | —                            | —          | —                                                                                     |
| View         | Comment                                         | —                            | —          | —                                                                                     |
|              | Statement                                       | —                            | —          | —                                                                                     |
|              | Note                                            | —                            | —          | —                                                                                     |
|              | Display Lines of Monitored Current Value (W)... | —                            | —          | —                                                                                     |
|              | Display Format for Device Comment (Q)...        | —                            | —          | —                                                                                     |
|              | Display Ladder Block                            | Hide Ladder Block            | —          | —                                                                                     |
|              |                                                 | Display Ladder Block         | —          | —                                                                                     |
|              |                                                 | Hide All Ladder Block        | —          | —                                                                                     |
|              |                                                 | Display All Ladder Block     | —          | —                                                                                     |
|              | Device Display                                  | Device Display               | —          |    |
|              |                                                 | Batch Device Display         | —          | —                                                                                     |
|              |                                                 | Cancel All Device Display    | —          | —                                                                                     |
|              | Display Compile Result...                       | —                            | —          | —                                                                                     |
|              | Zoom...                                         | —                            | —          |  |
|              | Text Size                                       | Bigger                       | —          | —                                                                                     |
|              |                                                 | Smaller                      | —          | —                                                                                     |
|              | Open Other Windows                              | Open Reference Window        | —          | —                                                                                     |
|              |                                                 | Update Reference Window      | —          | —                                                                                     |
|              |                                                 | Open Reference Source Window | —          | —                                                                                     |
|              |                                                 | Tile FB Horizontally         | —          | —                                                                                     |
|              |                                                 | Open Header                  | —          | —                                                                                     |
|              | Open Instruction Help                           | —                            | —          | —                                                                                     |

## 4.11.5 Structured ladder edit menu

The following menus can be used for structured ladder edit by Developer. For details on each function, refer to manuals of GX Works2.

| Menu | Pull-down menu        | Sub-menu                | Icon                                                                                  |
|------|-----------------------|-------------------------|---------------------------------------------------------------------------------------|
| Edit | Delete...             | —                       | —                                                                                     |
|      | Select Mode           | —                       |    |
|      | Interconnect Mode     | —                       |    |
|      | Guided Mode           | Guided Editing          |    |
|      |                       | Overwrite Mode          | —                                                                                     |
|      |                       | Insert Mode             | —                                                                                     |
|      |                       | Line Mode               | —                                                                                     |
|      |                       | Auto Comment            |    |
|      | Auto Connect          | —                       |    |
|      | Recalculate Line      | —                       | —                                                                                     |
|      | Insert Row            | —                       |    |
|      | Insert Column         | —                       |    |
|      | New Ladder Block List | Top                     | —                                                                                     |
|      |                       | Before                  |   |
|      |                       | After                   |  |
|      |                       | Bottom                  | —                                                                                     |
|      | Input Instruction     | —                       |  |
|      | Ladder Symbol         | Open Contact            |  |
|      |                       | Close Contact           |  |
|      |                       | Coil                    |  |
|      |                       | Jump                    |  |
|      |                       | Return                  |  |
|      |                       | Open Branch             |  |
|      |                       | Close Branch            |  |
|      |                       | Input Label             |  |
|      |                       | Output Label            |  |
|      |                       | Horizontal Line Segment |  |
|      |                       | Vertical Line Segment   |  |
|      |                       | Rising Pulse            |  |
|      |                       | Falling Pulse           |  |

| Menu         | Pull-down menu            | Sub-menu                         | Icon                                                                                  |
|--------------|---------------------------|----------------------------------|---------------------------------------------------------------------------------------|
| Edit         | Ladder Symbol             | Rising Pulse Close               |    |
|              |                           | Falling Pulse Close              |    |
|              |                           | Ladder Comment...                |    |
|              |                           | Ladder Block Label...            |    |
|              |                           | Left Power Rail                  |    |
|              | List Operands...          | —                                |    |
|              | Number of Pins            | Increment                        |    |
|              |                           | Delete...                        |    |
|              | Ladder Block List...      | —                                | —                                                                                     |
|              | Signal Configuration      | Configure...                     | —                                                                                     |
|              |                           | Toggle                           | —                                                                                     |
| Find/Replace | Jump...                   | —                                | —                                                                                     |
| View         | View Mode                 | Label                            | —                                                                                     |
|              |                           | Device                           | —                                                                                     |
|              |                           | Address                          | —                                                                                     |
|              |                           | Comment                          | —                                                                                     |
|              |                           | Change Label-Device-Address Mode | —                                                                                     |
|              |                           | Change Label-Comment Mode        | —                                                                                     |
|              |                           | —                                | —                                                                                     |
|              | All Device Display        | —                                | —                                                                                     |
|              | Cancel All Device Display | —                                | —                                                                                     |
|              | Grid                      | —                                | —                                                                                     |
|              | Print Wrap Position       | —                                | —                                                                                     |
|              | Display Compile Result... | —                                | —                                                                                     |
|              | Zoom                      | Set Zoom Factor...               | —                                                                                     |
|              |                           | Increase Zoom                    |  |
|              |                           | Decrease Zoom                    |  |
|              | Zoom Header/Body          | Header                           | —                                                                                     |
|              |                           | Body                             | —                                                                                     |
|              | Open Header               | —                                | —                                                                                     |

## 4.11.6 Label edit menu

The following menus can be used for label (global labels, local labels, tasks, and structures) edit by Developer. For details on each function, refer to manuals of GX Works2.

| Menu         | Pull-down menu                    | Sub-menu           | Icon                                                                                |
|--------------|-----------------------------------|--------------------|-------------------------------------------------------------------------------------|
| <u>E</u> dit | <u>D</u> elete...                 | —                  | —                                                                                   |
|              | Select <u>A</u> ll                | —                  | —                                                                                   |
|              | <u>N</u> ew Declaration (Before)  | —                  |  |
|              | New <u>D</u> eclaration (After)   | —                  |  |
|              | <u>D</u> elete Row                | —                  |  |
|              | Read from CSV File( <u>J</u> )... | —                  |  |
|              | Write to CSV File( <u>K</u> )...  | —                  |  |
|              | <u>S</u> ort                      | <u>C</u> lass      | —                                                                                   |
|              |                                   | <u>L</u> abel Name | —                                                                                   |
|              |                                   | <u>D</u> ata Type  | —                                                                                   |
|              |                                   | <u>C</u> onstant   | —                                                                                   |
|              |                                   | <u>D</u> evice     | —                                                                                   |
|              |                                   | <u>C</u> omment    | —                                                                                   |
|              |                                   | <u>R</u> emark     | —                                                                                   |
|              | Unused label list ( <u>J</u> )    | —                  | —                                                                                   |

## 4.11.7 Device comment edit menu

The following menus can be used for device comment editing by Developer. For details on each function, refer to manuals of GX Works2.

| Menu         | Pull-down menu                                                         | Sub-menu                               | Icon                                                                                  |
|--------------|------------------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------|
| <u>E</u> dit | <u>D</u> elete...                                                      | —                                      | —                                                                                     |
|              | Select <u>A</u> ll                                                     | —                                      | —                                                                                     |
|              | <u>I</u> mport from Sample Comment                                     | <u>S</u> pecial Relay/Special Register | —                                                                                     |
|              | <u>C</u> lear All                                                      | —                                      | —                                                                                     |
|              | <u>C</u> lear All (All Devices)                                        | —                                      | —                                                                                     |
|              | Read from CSV File( <u>J</u> )...                                      | —                                      |  |
|              | Write to CSV File( <u>K</u> )...                                       | —                                      |  |
|              | <u>H</u> ide Bit Specification Information                             | —                                      | —                                                                                     |
|              | <u>S</u> how Bit Specification Information                             | —                                      | —                                                                                     |
|              | Cut The Range including Hidden Bit Specification Information           | —                                      | —                                                                                     |
|              | Copy The Range including Hidden Bit Specification Information          | —                                      | —                                                                                     |
|              | Paste The Range including Hidden <u>B</u> it Specification Information | —                                      | —                                                                                     |

## 4.11.8 Verification result menu

The following menus can be used for showing verification results by Developer. Verification is performed between the project of Developer and other project data, or the data (program, parameter, etc.) in the programmable controller CPU. For details on each function, refer to manuals of GX Works2.

| Menu                 | Pull-down menu                   | Icon                                                                              |
|----------------------|----------------------------------|-----------------------------------------------------------------------------------|
| <u>E</u> dit         | Write to CSV File( <u>K</u> )... |  |
| <u>F</u> ind/Replace | Next <u>U</u> nmatch             |  |
|                      | Previous <u>U</u> nmatch         |  |
| <u>V</u> iew         | <u>R</u> eturn to Result List    |  |
|                      | Close <u>D</u> etail Result      |  |
|                      | Close Detail <u>R</u> esult      |  |

## 4.12 USB memory parameter copy file edit function

The function for editing parameter files copied to USB memory is not available for the following models.

Model: FR-E800 series, FR-D800, FR-CS80, FR-A700, FR-B (700), FR-B3 (700), FR-F700, FR-F700P, FR-E700, FR-D700, FR-E700EX, FR-D700-G, and FR-E500

The USB memory parameter copy file editor is dedicated software for editing the setting values of USB memory parameter copy files of the FR Configurator2 compatible models.

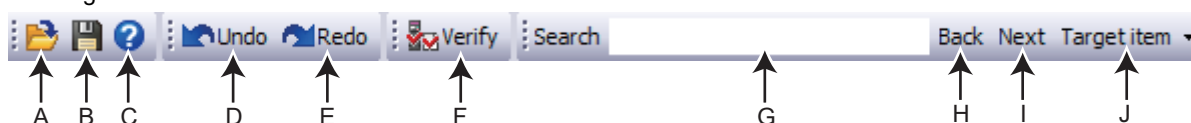
To start the USB memory parameter copy file editor, choose [USB memory parameter copy file edit] in the [Tool] menu.

### 4.12.1 USB parameter copy file editor menu and toolbar

The following functions can be accessed from the menu.

| Menu   | Pull-down menu                         | Toolbar icon                                                                        | Function/operation                                                                                                                                                    |
|--------|----------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| File   | Open...                                |    | Shows the "Open" dialog box, and opens the USB memory parameter copy file (*.cp1).                                                                                    |
|        | Close...                               | —                                                                                   | Closes the Open file edit window.                                                                                                                                     |
|        | Save                                   |    | Saves the USB memory parameter copy file (*.cp1).                                                                                                                     |
|        | Save As...                             | —                                                                                   | Shows the "Save as" dialog box. Verifies the save location, and saves with the specified [File Name]. The extension for savable parameter information files is *.cp1. |
|        | Exit                                   | —                                                                                   | Exits the USB parameter file editor.                                                                                                                                  |
| View   | System                                 | —                                                                                   | Switches between show/hide of the system toolbar.                                                                                                                     |
|        | Edit                                   | —                                                                                   | Switches between show/hide of the edit toolbar.                                                                                                                       |
|        | Verify                                 | —                                                                                   | Switches between show/hide of the verify toolbar.                                                                                                                     |
|        | Search                                 | —                                                                                   | Switches between show/hide of the search toolbar.                                                                                                                     |
| Tool   | Verify...                              |  | Shows the Verify file selection window.                                                                                                                               |
| Window | Cascade                                | —                                                                                   | Shows the open windows in an overlapping and slightly shifted state.                                                                                                  |
|        | Tile Vertically                        | —                                                                                   | Shows the open windows side-by-side.                                                                                                                                  |
|        | Tile Horizontally                      | —                                                                                   | Shows the open windows with one on top of the other.                                                                                                                  |
|        | Arrange icons                          | —                                                                                   | Arranges icons which represent different windows.                                                                                                                     |
|        | Close All                              | —                                                                                   | Closes all open windows.                                                                                                                                              |
| Help   | USB parameter copy file editor help... |  | Help appears.                                                                                                                                                         |

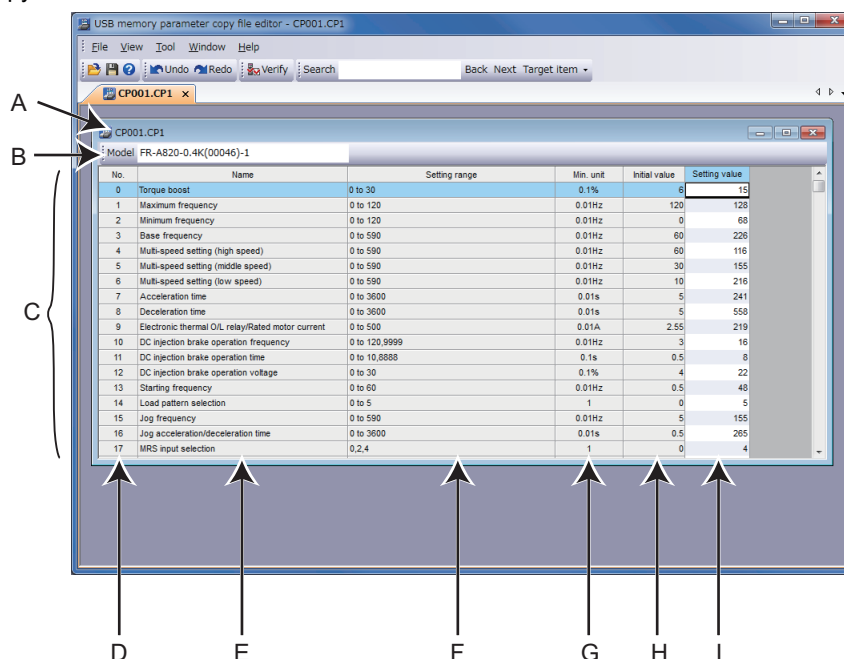
The following functions can be accessed from the toolbar.



| Symbol | Name        | Function/operation                                                                                                                                                  |
|--------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Open        | Shows the "Open" dialog box, and opens the USB memory parameter copy file (*.cp1).                                                                                  |
| B      | Save        | Saves the USB memory parameter copy file (*.cp1).                                                                                                                   |
| C      | Help        | Help appears.                                                                                                                                                       |
| D      | Undo        | Returns the edited parameter setting value to the setting value before editing.                                                                                     |
| E      | Redo        | Redoes the setting value changed by "Undo".                                                                                                                         |
| F      | Verify      | Verifies the setting value in the USB memory parameter copy file (*.cp1) with the initial value or setting values in other USB memory parameter copy files (*.cp1). |
| G      | Search      | Inputs the character string, and searches for a matching character string from within the parameter list.                                                           |
| H      | Back        | Locations that contain the matching character string will be selected from the selected parameter list search column from the bottom.                               |
| I      | Next        | Locations that contain the matching character string will be selected from the selected parameter list search column from the top.                                  |
| J      | Target item | Specifies the column to search.                                                                                                                                     |

## 4.12.2 Editing parameter setting values

The listed setting values can be edited from the file edit window. The file edit window can be shown by opening the USB memory parameter copy file.



| Symbol | Name           | Function/description                                                                                                                                                                |
|--------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Title bar      | Shows the file name of the open file.                                                                                                                                               |
| B      | Model          | Shows the model set by the file.                                                                                                                                                    |
| C      | Parameter list | Shows the parameters of the USB memory parameter copy file.                                                                                                                         |
| D      | No.            | Shows the parameter number.                                                                                                                                                         |
| E      | Name           | Shows the parameter name.                                                                                                                                                           |
| F      | Setting range  | Shows the setting range of the parameter setting value.                                                                                                                             |
| G      | Min. unit      | Shows the minimum setting unit of the parameter setting value.                                                                                                                      |
| H      | Initial value  | Shows the factory default parameter setting values of the inverter.                                                                                                                 |
| I      | Setting value  | Shows the parameter setting values saved to the USB memory parameter copy file, and inputs the setting values to be written to the inverter. Setting values cannot be set as blank. |

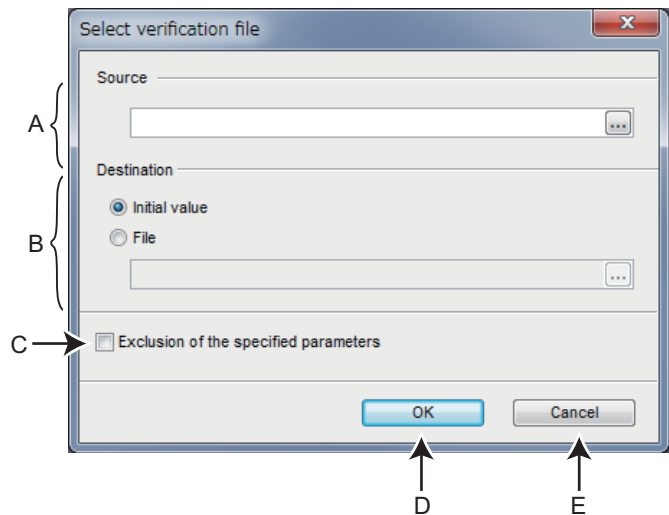
### NOTE

- Edited setting values are not checked when saving the USB memory parameter copy file or when writing to the inverter. Therefore, even values that cannot normally be set to the inverter (setting range, write-limited values) are written to the inverter. In this case, because operation of the inverter cannot be guaranteed, change setting values with extreme caution.
- To display the explanation about a parameter on the help window, double-click the parameter in the parameter list.
- Changing a parameter by FR Configurator2 may affect other parameter settings.
- When using the FR-A820-03160(55K) or FR-A840-01800(55K), do not change **Pr.570 Multiple rating setting**.
- Do not change the **Pr.71 Applied motor** and **Pr.450 Second applied motor** settings from an induction motor to a PM motor or vice versa.
- Calibration parameters cannot be set.
- If the parameter name field is blank, do not change the setting.

## 4.12.3 Verifying parameters

A list of differences between the USB memory parameter copy file to verify (\*.cp1) and the parameter initial values or the parameter setting values of the verify destination file (\*.cp1) can be displayed.

The "Verify file selection" window can be displayed by selecting [Verify] in the [Tool] menu, or by selecting  from the toolbar.



| Symbol | Name                                  | Function/description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Source                                | Specifies the verify source file.<br>The method for specifying the file is as follows. <ul style="list-style-type: none"><li>• Input the path of the file to verify (*.cp1) in the verify source text box.</li><li>• Select  in the verify source text box, and specify the file by opening the "Open file" dialog.</li><li>• With the file edit window open, open the "Verify file selection" window, and the path of the selected edit window file (*.cp1) will appear in the text box.</li></ul> |
| B      | Destination                           | When the option button for "Initial value" is selected, parameter verification will be performed against the initial parameter settings of the verify source inverter model. When the option button for "File" is selected, parameter verification is performed against the parameter settings of the inverter model specified by a file (*.cp1). Set a file.                                                                                                                                                                                                                        |
| C      | Exclusion of the specified parameters | Check the box to exclude the parameters for the monitoring and for the manufacturer setting from verification.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| D      | OK                                    | Verification of the verify source parameter values with the verify destination parameter values starts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| E      | Cancel                                | Closes the verify file selection window without performing verification.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

Verify result window

| No. | Name                                   | Setting range | Min. unit | Initial value | Source | Destination |
|-----|----------------------------------------|---------------|-----------|---------------|--------|-------------|
| 0   | Torque boost                           | 0to30         | 0.1%      | 2             | 0      | 10          |
| 1   | Maximum frequency                      | 0to120        | 0.01Hz    | 120           | 120    | 100         |
| 3   | Base frequency                         | 0to590        | 0.01Hz    | 50            | 60     | 66          |
| 4   | Multi-speed setting (high speed)       | 0to590        | 0.01Hz    | 50            | 60     | 50          |
| 5   | Multi-speed setting (middle speed)     | 0to590        | 0.01Hz    | 30            | 30     | 40          |
| 6   | Multi-speed setting (low speed)        | 0to590        | 0.01Hz    | 10            | 10     | 20          |
| 7   | Acceleration time                      | 0to3600       | 0.01s     | 15            | 5      | 1000        |
| 8   | Deceleration time                      | 0to3600       | 0.01s     | 15            | 5      | 1500        |
| 9   | Electronic thermal O/L relay           | 0to500        | 0.01A     | 46            | 4.25   | 425         |
| 10  | DC injection brake operation frequency | 0to120.9999   | 0.01Hz    | 3             | 3      | 50          |
| 11  | DC injection brake operation time      | 0to10.8888    | 0.1s      | 0.5           | 0.5    | 5           |
| 12  | DC injection brake operation voltage   | 0to30         | 0.1%      | 2             | 4      | 20          |
| 13  | Starting frequency                     | 0to60         | 0.01Hz    | 0.5           | 0.5    | 10          |

| Symbol | Name        | Function/description                                                                                                                                                                                                                                                        |
|--------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| E      | Title bar   | Shows the verify source file name and the verify destination file name.<br>If the initial value is specified as the verify destination, "[Initial value]" is displayed.                                                                                                     |
| F      | Source      | Shows the parameter setting value of the file (*.cp1) specified by verify source in the "Verify file selection" window.                                                                                                                                                     |
| G      | Destination | If the verify destination is the initial value<br>Shows the initial value as the verify destination.<br>If the verify destination is a file<br>Shows the parameter setting value of the file (*.cp1) specified by verify destination in the "Verify file selection" window. |

 **NOTE**

- Parameter setting values cannot be input to the verify source and verify destination cells.

# 4.13 Ethernet parameter setting function

The Ethernet parameter setting function is not available for the following models.

Model: All models except for Ethernet models

The Ethernet parameter setting function is a dedicated software for setting the minimum necessary inverter parameters via Ethernet to perform Ethernet communication.

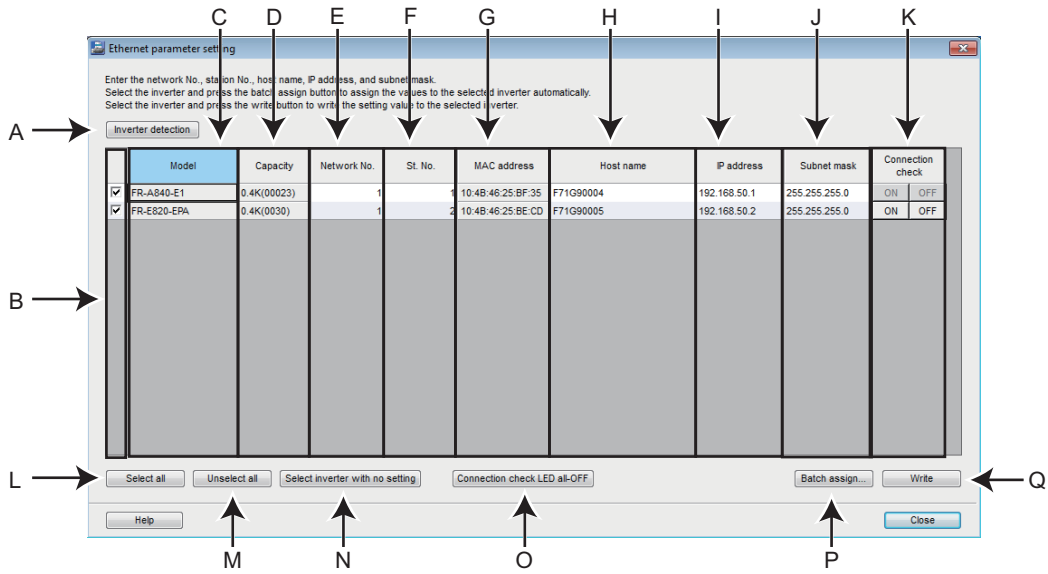
The setting function is not available for parameters of the inverter connected via CC-Link IE TSN.

To start the Ethernet parameter setting, choose [Ethernet parameter setting] in the [Tool] menu.

## 4.13.1 Ethernet parameter setting

In the "Ethernet parameter setting" window, the network number, station number, host name, IP address, and subnet mask can be set.

At the initial startup, inverters are detected automatically.



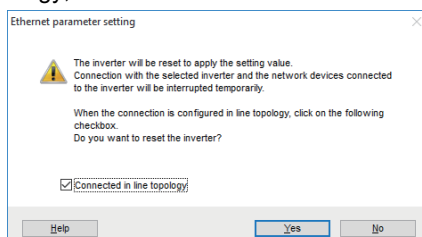
| Symbol | Name                            | Function/description                                                                                                                                                                                                                                             |
|--------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Inverter detection              | Detects the inverter(s) connected via Ethernet to read and indicate the parameters.                                                                                                                                                                              |
| B      | Target inverter checkbox        | Select the target inverter(s) to perform [Batch assign] or [Write].                                                                                                                                                                                              |
| C      | Model                           | Shows the model of the connected inverter.                                                                                                                                                                                                                       |
| D      | Capacity                        | Shows the capacity of the connected inverter.                                                                                                                                                                                                                    |
| E      | Network No.                     | Set the inverter network number. (For FR-A800-E, FR-A800-G, FR-F800-E, FR-E800-(SC)E, FR-E806-SCE, and FR-D800-E, refer to <b>Pr.1424</b> . For FR-A800-E-R2R, refer to <b>Pr.1073</b> . For FR-E700-NE, refer to <b>Pr.830</b> .)                               |
| F      | St. No.                         | Set the inverter station number to be written to the inverter. (For FR-A800-E, FR-A800-G, FR-F800-E, FR-E800-(SC)E, FR-E806-SCE, and FR-D800-E, refer to <b>Pr.1425</b> . For FR-A800-E-R2R, refer to <b>Pr.1074</b> . For FR-E700-NE, refer to <b>Pr.831</b> .) |
| G      | MAC address                     | Shows the MAC address of the connected inverter.                                                                                                                                                                                                                 |
| H      | Host Name                       | Set the host name to be written to the inverter. Up to 16 characters can be entered. Single-byte letters and numbers, hyphens (-), periods (.), colons (:), and underscores (_) can be entered.                                                                  |
| I      | IP address                      | Enter the IP address to be written to the inverter.                                                                                                                                                                                                              |
| J      | Subnet mask                     | Enter the Subnet mask to be written to the inverter.                                                                                                                                                                                                             |
| K      | Connection check                | ON<br>Used to turn ON the NET LEDs on successfully connected inverters to blink in the communication check of FR Configurator2. (The blinking of LEDs will automatically stop five minutes after the start of blinking.)                                         |
|        |                                 | OFF<br>Used to stop the blinking of the NET LEDs on successfully connected inverters in the communication check of FR Configurator2.                                                                                                                             |
| L      | Select all                      | Selects all inverters in the list.                                                                                                                                                                                                                               |
| M      | Unselect all                    | Clears selection of all inverters in the list.                                                                                                                                                                                                                   |
| N      | Select inverter with no setting | Selects inverters for which the series name is indicated in the model field.                                                                                                                                                                                     |
| O      | Connection check LED all-OFF    | Used to stop the blinking of the NET LEDs on all successfully connected inverters.                                                                                                                                                                               |
| P      | Batch assign...                 | Shows the batch assignment dialog.                                                                                                                                                                                                                               |
| Q      | Write                           | Writes the network number, station number, host name, IP address, and subnet mask to the inverters with a check in the checkbox.                                                                                                                                 |

## NOTE

- For using the Ethernet parameter setting, connect the inverter and the personal computer directly via Ethernet or using a hub.
- The inverter and the personal computer must have the same IP address. If they have different IP addresses, the network number and the station number cannot be set.
- The LED all-OFF setting and the connection check ON/OFF setting are available for FR-E800-(SC)E, FR-E806-SCE, or FR-D800-E inverters connected directly by Ethernet.
- Those settings are enabled when online communication is established between the inverter and FR Configurator2.
- LEDs may not blink depending on the **Pr.1399** setting even when the connection check is enabled. Refer to the Instruction Manual of the inverter for the details.
- When FR-E800-(SC)E (or FR-E806-SCE) inverters are connected in line topology, writing to two or more inverters at the same time may cause a communication error.
- Do not click the [Write] button in the "Ethernet parameter setting" window of FR Configurator2 for the inverter whose parameters are being copied using the operation panel or other means. Doing so may cause a communication error. Alternatively, the data for parameter copy may be overwritten by the setting values in the "Ethernet parameter setting" window.

## ◆ Precautions for writing Ethernet parameters

To apply written setting values, perform inverter reset. When inverter reset is attempted, the following window appears. When multiple inverters are connected in line topology, click on the checkbox. Otherwise, the inverter is not reset properly.



- When inverters are connected in line topology, perform inverter reset for each inverter one by one. The time required to complete the operation differs depending on the number of connected inverters. Total time = Number of inverters × 5 s
- When it takes a long time, it is alternatively possible to reset the inverters by turning OFF and ON the power of each inverter.

## ◆ Ethernet parameter settings in the inverter and FR Configurator2

- Before using the Ethernet parameter setting, check the setting of parameters in the following table.

| Model                                     | Intermediate device | Pr.          | Name                          | Setting                                                                           |
|-------------------------------------------|---------------------|--------------|-------------------------------|-----------------------------------------------------------------------------------|
| FR-A800-E<br>FR-A800-G<br>FR-F800-E       | Not connected       | 1427         | Ethernet function selection 1 | Set a combination of "5001" (or "5002") and "45237" in any two of the parameters. |
|                                           |                     | 1428         | Ethernet function selection 2 |                                                                                   |
|                                           |                     | 1429         | Ethernet function selection 3 |                                                                                   |
|                                           |                     | 1442 to 1448 | IP filter address (Ethernet)  | The IP address range can be set for connectable network devices.                  |
| FR-A800-E-R2R                             | Not connected       | 1076         | Ethernet function selection 1 | Set a combination of "5001" (or "5002") and "45237" in any two of the parameters. |
|                                           |                     | 1077         | Ethernet function selection 2 |                                                                                   |
|                                           |                     | 1078         | Ethernet function selection 3 |                                                                                   |
|                                           |                     | 1442 to 1448 | IP filter address (Ethernet)  | The IP address range can be set for connectable network devices.                  |
| FR-E800-(SC)E<br>FR-E806-SCE<br>FR-D800-E | Not connected       | 1427         | Ethernet function selection 1 | Set a combination of "5001" (or "5002") and "45237" in any two of the parameters. |
|                                           |                     | 1428         | Ethernet function selection 2 |                                                                                   |
|                                           |                     | 1429         | Ethernet function selection 3 |                                                                                   |
|                                           |                     | 1430         | Ethernet function selection 4 | The IP address range can be set for connectable network devices.                  |
|                                           |                     | 1442 to 1448 | IP filter address (Ethernet)  |                                                                                   |
| FR-E700-NE                                | Not connected       | 833          | Ethernet function selection 1 | Set a combination of "31" and "20" in any two of the parameters.                  |
|                                           |                     | 834          | Ethernet function selection 2 |                                                                                   |
|                                           |                     | 835          | Ethernet function selection 3 |                                                                                   |
|                                           |                     | 837 to 843   | Ethernet IP filter address    | The IP address range can be set for connectable network devices.                  |

### 4.13.2 Batch assignment dialog

Batch assignment can be performed to assign the network number, station number, IP address, and subnet mask automatically.

The target inverters are the inverters with a check in the checkbox in the Ethernet parameter setting window.

| Symbol | Name                    | Function/description                                                                                                                                                                                                                                                              |
|--------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Network No./station No. | <ul style="list-style-type: none"> <li>• Check the box to assign the network number and the station number.</li> <li>• Set the network number to be assigned.</li> <li>• Check the box to assign the station number.</li> <li>• Set the station number to be assigned.</li> </ul> |
| B      | IP address/subnet mask  | Check the box to assign the IP address and the subnet mask.<br>Set the IP address and the subnet mask to be assigned.                                                                                                                                                             |

### 4.13.3 Writing result

Click the [Write] button on the Ethernet parameter setting window to write the data to the inverters with a check in the checkbox.

After the writing, the following dialog appears to show the inverters to which the writing failed if any.

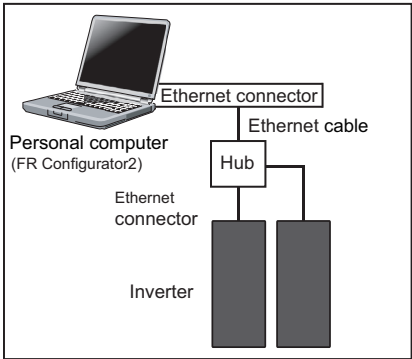
| Symbol | Name           | Function/description          |                                                                                                                                                      |
|--------|----------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Result display | Error inverter                | Shows the inverters to which the writing failed.                                                                                                     |
|        |                | Successfully written inverter | Shows the inverters to which the writing succeeded.                                                                                                  |
| B      | Result list    | Error inverter                | Shows the model, capacity, network number, station number, MAC address, and error number of the inverters to which the writing failed.               |
|        |                | Successfully written inverter | Shows the model, capacity, network number, station number, MAC address, and error number (00000000) of the inverters to which the writing succeeded. |

# 4.13.4 Procedure for connecting inverters via Ethernet

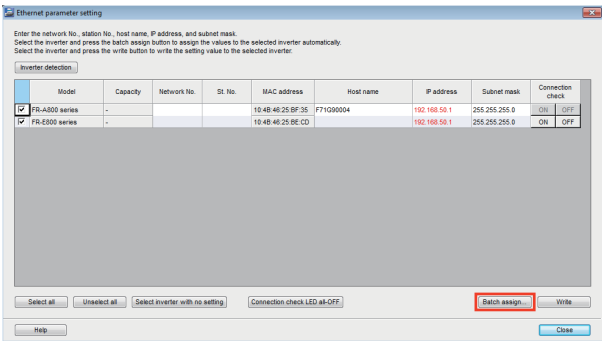
Start from step 7 for connecting inverters via the CC-Link IE Field Network.

## ◆ Example

The following diagram shows the example of connection with two inverters. Inverter parameters are set to initial values. The IP address of the personal computer is "192.168.50.100".



1. Start FR Configurator2.
2. Select [Ethernet parameter setting] from the [Tool] menu bar. The inverters connected on the network are automatically detected.
3. Check that the inverters have been detected. Select [Batch assign] for network setting.



## NOTE

- If the inverters have not been detected, probable causes include the following.
  - The Ethernet cable is disconnected.
  - The inverter power is turned OFF.
  - Inverters are not found in the same segment (there is a router in between).
  - Inverter parameter settings are not set to initial values.

| Model         | Pr.  | Name                          | Initial value |
|---------------|------|-------------------------------|---------------|
| FR-A800-E     | 1427 | Ethernet function selection 1 | 5001          |
| FR-A800-G     | 1428 | Ethernet function selection 2 | 45237         |
| FR-F800-E     |      |                               |               |
| FR-E800-(SC)E |      |                               |               |
| FR-E806-SCE   |      |                               |               |
| FR-D800-E     |      |                               |               |
| FR-A800-E-R2R | 1076 | Ethernet function selection 1 | 5001          |
|               | 1077 | Ethernet function selection 2 | 45237         |
| FR-E700-NE    | 833  | Ethernet function selection 1 | 31            |
|               | 834  | Ethernet function selection 2 | 20            |

- Each inverter has its own MAC address and host name.

4. Select both the "Network No./station No." and "IP address/subnet mask" checkboxes.  
Set the network number, station number, IP address, or subnet mask as required, and click [OK].

5. Click [Write] to write the setting values to the inverters.

| Model          | Capacity | Network No. | St. No. | MAC address       | Host name | IP address   | Subnet mask   | Connection check |
|----------------|----------|-------------|---------|-------------------|-----------|--------------|---------------|------------------|
| FR-A300 series | -        | 1           | 1       | 10-4B-4E-25-BF-35 | F7109004  | 192.168.50.1 | 255.255.255.0 | ON               |
| FR-E300 series | -        | 1           | 2       | 10-4B-4E-25-BE-02 |           | 192.168.50.2 | 255.255.255.0 | OFF              |

6. Click [Yes] to reflect the settings.

7. Select [New...] from the [Project] menu bar. In the "System setting" window, select "Ethernet" for the PC-side port and start automatic recognition.

#### NOTE

- Automatic recognition is not enabled if the setting in "Inverter network No." in the "System setting" window is not consistent with the "Network No." of the inverter in the "Ethernet parameter setting" window.

8. Automatically-recognized inverters are displayed. Click [OK] and reflect the system setting.
9. Click the [Online/offline] button to switch to online. The procedure is complete when the online connection is established.

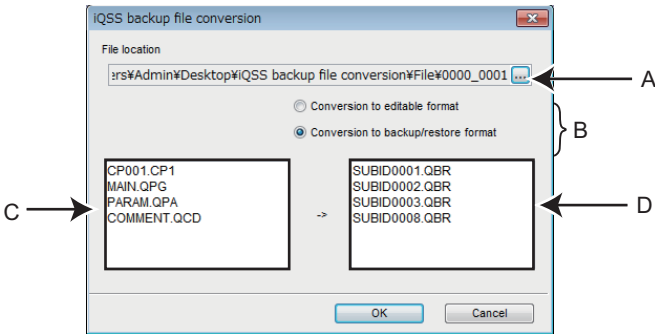
# 4.14 iQSS backup file conversion function

The iQSS backup file conversion function is not available for the following models.  
Model: FR-E800 series, FR-D800, FR-CS80, FR-A700, FR-B (700), FR-B3 (700), FR-F700, FR-F700P, FR-E700, FR-D700, FR-E700EX, FR-D700-G, and FR-E500

This is a function to convert a file in the backup/restore format generated by the GOT. The file is converted into the format of the USB memory parameter copy file or the format that can be opened for the Developer function. To start the iQSS backup file conversion, choose [iQSS backup file conversion] in the [Tool] menu.

## 4.14.1 iQSS backup file conversion

In the iQSS backup file conversion dialog, the file format can be converted to the editable file format or the backup/restore format.



| Symbol | Name                        | Function/description                                                                                                                                                                                                                                                                                                                                                                    |
|--------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | File location               | Specify the folder in which the file to be converted is stored.                                                                                                                                                                                                                                                                                                                         |
| B      | Format after the conversion | Select "Conversion to editable format" or "Conversion to the backup/restore format".<br>Conversion to the editable format:<br>The file is converted into the format that can be used for the USB memory parameter copy or the Developer function.<br>Conversion to the backup/restore format:<br>The file converted for the edit functions is reconverted to the backup/restore format. |
| C      | Source file                 | The files stored in the selected file location are shown.<br>If any file is missing, the file name is displayed in gray.                                                                                                                                                                                                                                                                |
| D      | Target file                 | The files after the conversion are shown.<br>If any file has the same name as the saved file, the file name is displayed in red.                                                                                                                                                                                                                                                        |

## 4.15 Firmware update

Firmware Update Tool is used to update the inverter firmware.

Select [Firmware Update Tool] in the [Tool] menu to start Firmware Update Tool.

The firmware file (\*.bin) can be downloaded from the Mitsubishi Electric FA Global Website.

### 4.15.1 Applicable inverter

The following table shows interface options for connection between Firmware Update Tool and inverters. Note that Firmware Update Tool can update the firmware of the inverters which have the SERIAL number listed in the following table. (For information on the SERIAL number of the inverter, refer to the Instruction Manual of the inverter.)

| Series                             | Model                     | Connection interface |          | Country of origin indication | Supported inverter's SERIAL |
|------------------------------------|---------------------------|----------------------|----------|------------------------------|-----------------------------|
|                                    |                           | USB                  | Ethernet |                              |                             |
| FR-A800 series                     | FR-A800                   | ○                    | ×        | MADE in Japan                | □11○○○○○ or later           |
|                                    |                           |                      |          | MADE in China                | □12○○○○○ or later           |
|                                    | FR-A800-E                 | ○                    | ×        | MADE in Japan                | □11○○○○○ or later           |
|                                    |                           |                      |          | MADE in China                | □12○○○○○ or later           |
| FR-B series (A800 specifications)  | FR-B                      | ○                    | ×        | MADE in Japan                | □11○○○○○ or later           |
|                                    |                           |                      |          | MADE in China                | □12○○○○○ or later           |
| FR-B3 series (A800 specifications) | FR-B3                     | ○                    | ×        | MADE in Japan                | □11○○○○○ or later           |
|                                    |                           |                      |          | MADE in China                | □12○○○○○ or later           |
| FR-A800 Plus series                | FR-A800-CRN               | ○                    | ×        | MADE in Japan                | □11○○○○○ or later           |
|                                    |                           |                      |          | MADE in China                | □12○○○○○ or later           |
|                                    | FR-A800-E-CRN             | ○                    | ×        | MADE in Japan                | □11○○○○○ or later           |
|                                    |                           |                      |          | MADE in China                | □12○○○○○ or later           |
|                                    | FR-A800-LC                | ○                    | ×        | MADE in Japan                | □11○○○○○ or later           |
|                                    |                           |                      |          | MADE in China                | □12○○○○○ or later           |
|                                    | FR-A800-E-LC              | ○                    | ×        | MADE in Japan                | □11○○○○○ or later           |
|                                    |                           |                      |          | MADE in China                | □12○○○○○ or later           |
| FR-F800 series                     | FR-F800                   | ○                    | ×        | MADE in Japan                | □11○○○○○ or later           |
|                                    |                           |                      |          | MADE in China                | □12○○○○○ or later           |
|                                    | FR-F800-E                 | ○                    | ×        | MADE in Japan                | □11○○○○○ or later           |
|                                    |                           |                      |          | MADE in China                | □12○○○○○ or later           |
| FR-E800 series                     | FR-E800                   | ○                    | ×        | MADE in Japan                | □□211○○○○○ or later         |
|                                    |                           |                      |          | MADE in China                | □□212○○○○○ or later         |
|                                    | FR-E800-E <sup>*1</sup>   | ○                    | ○        | MADE in Japan                | □□211○○○○○ or later         |
|                                    |                           |                      |          | MADE in China                | □□212○○○○○ or later         |
|                                    | FR-E800-SCE <sup>*1</sup> | ○                    | ○        | MADE in Japan                | □□211○○○○○ or later         |
|                                    |                           |                      |          | MADE in China                | □□212○○○○○ or later         |
|                                    | FR-E806-SCE               | ○                    | ○        | MADE in Japan                | □□23X○○○○○ or later         |
|                                    |                           |                      |          | MADE in China                |                             |
|                                    | FR-E800-HVC               | ○                    | ×        | MADE in Japan                | □□222○○○○○ or later         |
|                                    |                           |                      |          | MADE in China                |                             |
| FR-D800 series                     | FR-D800                   | ○                    | ×        | MADE IN JAPAN                | □□251○○○○○ or later         |
|                                    |                           |                      |          | MADE IN CHINA                |                             |
|                                    | FR-D800-E <sup>*2*3</sup> | ○                    | ○        | MADE IN JAPAN                |                             |
|                                    |                           |                      |          | MADE IN CHINA                |                             |

○: Available    ×: Not available

\*1 A personal computer (FR Configurator2) and the FR-E800-EPC or the FR-E800-SCEPC can be connected only via USB.

\*2 Overwriting from the FR-D800-EPA to the FR-D800-EPB, and from the FR-D800-EPB to the FR-D800-EPA is only possible via USB.

\*3 Download the FR-D800-EPA and EPB firmware files (bin files) from the Mitsubishi Electric FA Global Website.

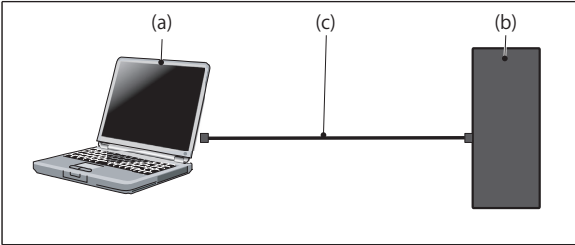
### 4.15.2 Connection and parameter setting

The inverter firmware can be updated using Firmware Update Tool in the personal computer connected to the inverter via a USB connector or Ethernet.

#### ◆ USB connection

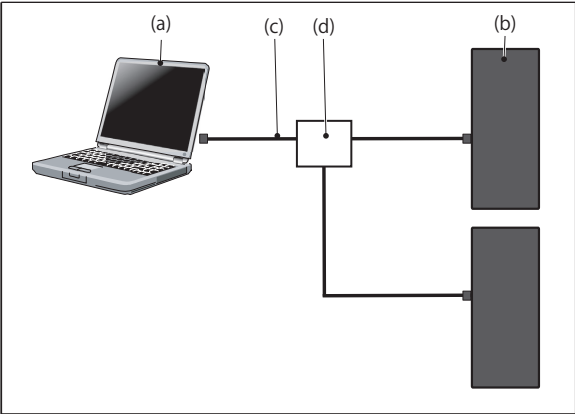
Connect a cable to the USB connector of the inverter. The firmware of up to two inverters can be updated at the same time.

- For one inverter



|     |                                      |
|-----|--------------------------------------|
| (a) | Personal computer (FR Configurator2) |
| (b) | Inverter                             |
| (c) | USB cable                            |

- For multiple inverters

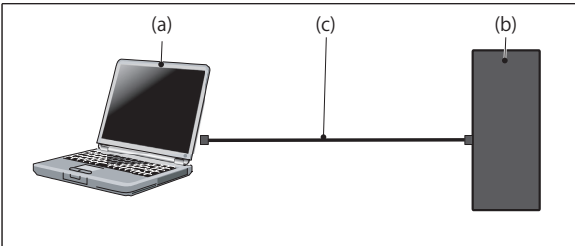


|     |                                      |
|-----|--------------------------------------|
| (a) | Personal computer (FR Configurator2) |
| (b) | Inverter                             |
| (c) | USB cable                            |
| (d) | Hub                                  |

#### ◆ Ethernet connection

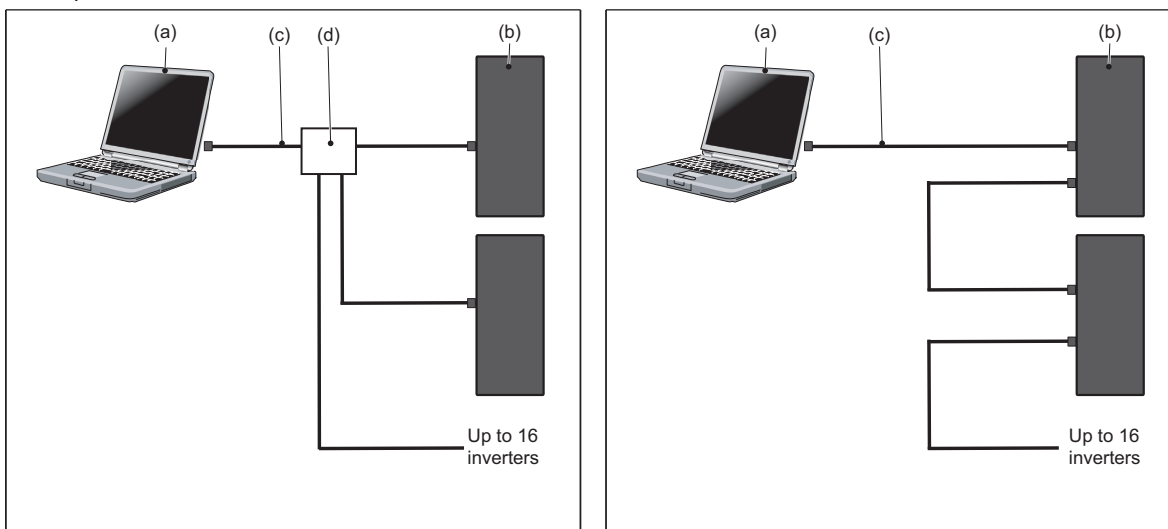
Connect a cable to the Ethernet connector of the inverter. The firmware of up to 16 inverters connected in star or line topology can be updated at the same time.

- For one inverter



|     |                                      |
|-----|--------------------------------------|
| (a) | Personal computer (FR Configurator2) |
| (b) | Inverter                             |
| (c) | Ethernet cable                       |

- For multiple inverters



|     |                                      |
|-----|--------------------------------------|
| (a) | Personal computer (FR Configurator2) |
| (b) | Inverter                             |
| (c) | Ethernet cable                       |
| (d) | Hub                                  |

## ■ Parameter setting

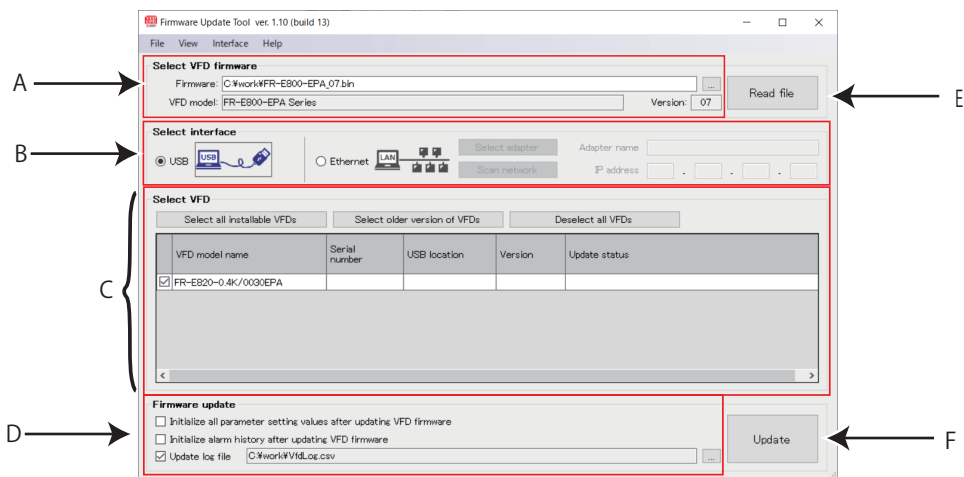
Set the following communication parameters for connection using the Ethernet connector.

| Pr.          | Name                          | Setting                                                               |
|--------------|-------------------------------|-----------------------------------------------------------------------|
| 1427         | Ethernet function selection 1 | Set a combination of "5001" and "45237" in any two of the parameters. |
| 1428         | Ethernet function selection 2 |                                                                       |
| 1429         | Ethernet function selection 3 |                                                                       |
| 1430         | Ethernet function selection 4 |                                                                       |
| 1434 to 1437 | IP address (Ethernet)         | Enter the IP address of the inverter to be connected to Ethernet.     |
| 1442 to 1448 | IP filter address (Ethernet)  | The IP address range can be set for connectable network devices.      |

### NOTE

- When a value other than "9999" is set in **Pr.1432** and no information is displayed in the project tree area and sub window area of FR Configurator2, E.EHR may be activated in the inverter. In such a case, set a larger value or "9999" (initial value) in **Pr.1432 Ethernet communication check time interval**.

### 4.15.3 Firmware Update Tool



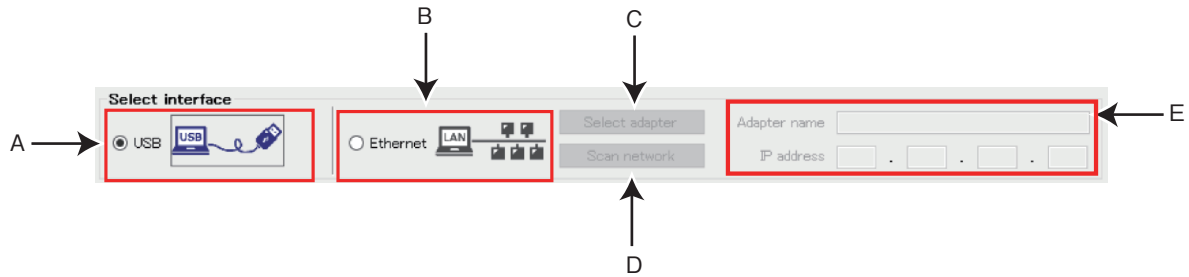
| Symbol | Name                | Function/description                                                                                |
|--------|---------------------|-----------------------------------------------------------------------------------------------------|
| A      | Select VFD firmware | Select the firmware file (*.bin) to show the information of the file to be updated.                 |
| B      | Select interface    | Select the connection method of the personal computer and the inverters. USB is initially selected. |
| C      | Select VFD          | Shows the detected inverters that are connected by the selected method.                             |
| D      | Firmware update     | Select the operations to be performed after the firmware update.                                    |
| E      | Read file           | Reads the firmware file.                                                                            |
| F      | Update              | Updates the firmware of the selected inverters.                                                     |

#### ◆ Selecting inverter firmware



| Symbol | Name      | Function/description                |
|--------|-----------|-------------------------------------|
| A      | Firmware  | Select the file (*.bin) to be read. |
| B      | Read file | Reads the selected file.            |
| C      | VFD model | Shows the file contents.            |

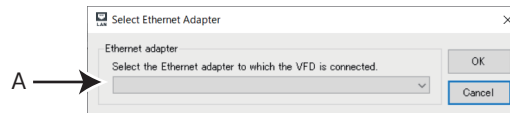
## ◆ Selecting interface



| Symbol | Name                | Function/description                                                                                               |
|--------|---------------------|--------------------------------------------------------------------------------------------------------------------|
| A      | USB                 | Selects USB for connection between the personal computer and the inverter. This interface is initially selected.   |
| B      | Ethernet            | Selects Ethernet for connection between the personal computer and the inverter.                                    |
| C      | Select adapter      | Enabled when Ethernet is selected. "Select Ethernet Adapter" window appears.                                       |
| D      | Scan network        | Enabled when Ethernet is selected. "Scan Network" window appears.                                                  |
| E      | Network information | Enabled when Ethernet is selected. Shows the settings set in "Select Ethernet Adapter" and "Scan Network" windows. |

### ■ Select Ethernet Adapter window

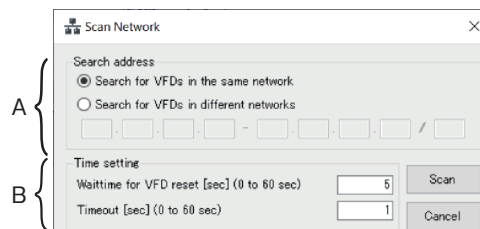
Select the network adapter to which the personal computer and inverter are connected.



| Symbol | Name                    | Function/description                                      |
|--------|-------------------------|-----------------------------------------------------------|
| A      | Select Ethernet Adapter | Only the adapters connected to the network are displayed. |

### ■ Scan Network window

- The inverters connected to the personal computer are detected in the IP address range specified in the "Scan Network" window.
- The inverter reset time and communication check time interval after firmware update can be set.

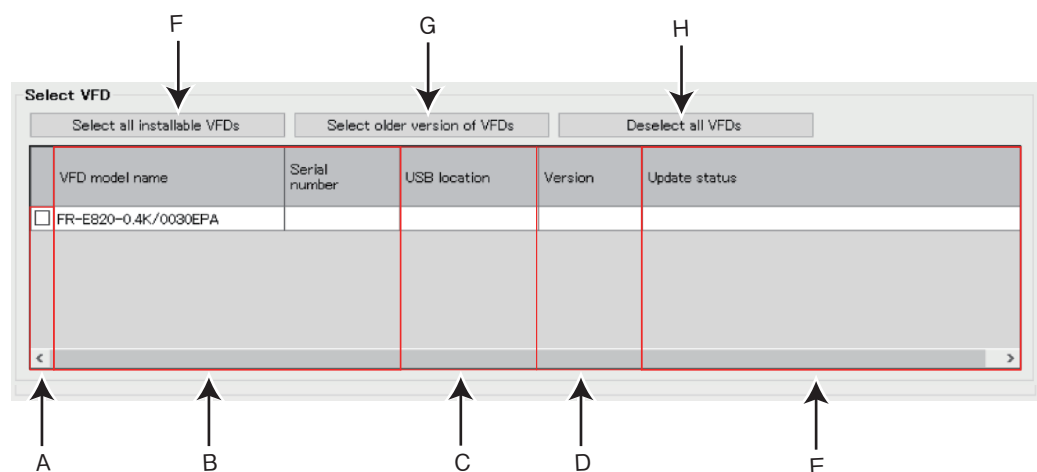


| Symbol | Name           | Function/description                                                                                                                                                                                                                                                                                                     |
|--------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Search address | <ul style="list-style-type: none"> <li>Search for VFDs in the same network</li> </ul> The inverters are searched in the IP address range of the personal computer. <ul style="list-style-type: none"> <li>Search for VFDs in different networks</li> </ul> The inverters are searched in the specified IP address range. |
| B      | Time setting   | <ul style="list-style-type: none"> <li>Waittime for VFD reset</li> </ul> Set the delay time from when the firmware update is complete until inverter reset is performed. <ul style="list-style-type: none"> <li>Timeout</li> </ul> Set the communication check time interval for communication with the inverters.       |

### NOTE

- To update the firmware of inverters having addresses in different networks, set the default gateway address of the personal computer and **Pr.442 to Pr.445** Default gateway address of the FR-E800 inverters.
- To search the inverters in different networks, configure networks using a router. Up to 512 inverters can be searched.

◆ **Selecting inverters**



| Symbol | Name                         | Function/description                                                                                                                                                                      |
|--------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Checkbox                     | Select the inverters whose firmware are to be updated.                                                                                                                                    |
| B      | Inverter information         | Model names and serial numbers of the connected inverters are displayed.                                                                                                                  |
| C      | Connection information       | <ul style="list-style-type: none"><li>• USB connection:<br/>Connection information of the USB port is displayed.</li><li>• Ethernet connection:<br/>IP addresses are displayed.</li></ul> |
| D      | Version information          | Firmware versions of detected inverters are displayed.                                                                                                                                    |
| E      | Status                       | Status for firmware update is displayed. <ul style="list-style-type: none"><li>• Update state</li><li>• Error message</li><li>• Update complete message and elapsed time</li></ul>        |
| F      | Select all installable VFDs  | Select all the connected inverters whose firmware are to be updated.                                                                                                                      |
| G      | Select older version of VFDs | Select the inverters with firmware older than the firmware file among the connected inverters whose firmware are to be updated.                                                           |
| H      | Deselect all VFDs            | Clears the checkboxes for the selected inverters.                                                                                                                                         |

**NOTE**

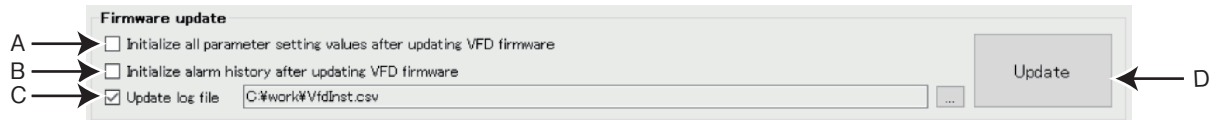
- When selecting a title (VFD Model name, Serial Number, USB location, IP address, or Version) in the "Select VFD" section, the detected inverters can be sorted in ascending or descending order by column.

◆ **Background colors for selecting inverters**



| Symbol | Color  | Description                                                                                                                                                                                                                                                                                            |
|--------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Gray   | <ul style="list-style-type: none"><li>• The firmware file has not been read.</li><li>• Firmware update is not available for the detected inverter.</li><li>• The IP address is overlapping with that of another inverter on the network or the personal computer to execute firmware update.</li></ul> |
| B      | Red    | Fault state due to abnormal operation.                                                                                                                                                                                                                                                                 |
| C      | Yellow | Firmware is being updated.                                                                                                                                                                                                                                                                             |
| D      | Blue   | Firmware update is complete.                                                                                                                                                                                                                                                                           |

## ◆ Firmware update



| Symbol | Name                                                                | Function/description                                             |
|--------|---------------------------------------------------------------------|------------------------------------------------------------------|
| A      | Initialize all parameter setting values after updating VFD firmware | Performs All parameter clear after update.                       |
| B      | Initialize alarm history after updating VFD firmware                | Clears the faults history.                                       |
| C      | Update log file                                                     | Stores the log file of firmware update in the specified storage. |
| D      | Update                                                              | Updates the firmware.                                            |

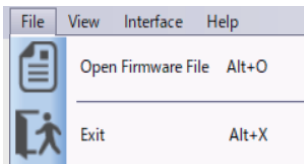
4

### 4.15.4 Menu list for Firmware Update Tool

The following functions are available on the menu.

| Menu      | Pull-down menu            | Function/operation                                                                      |
|-----------|---------------------------|-----------------------------------------------------------------------------------------|
| File      | Open Firmware File        | Select the firmware file (*.bin) to show the information of the file to be updated.     |
|           | Exit                      | Close Firmware Update Tool.                                                             |
| View      | Switch Display Language   | Displays the "Switch Display Language" window to switch the display language.           |
| Interface | USB                       | Detects the inverters connected to the personal computer using the USB connector.       |
|           | Ethernet                  | Detects the inverters connected to the personal computer using the Ethernet connector.  |
|           | Select Ethernet Adapter   | Select the network adapter to which the personal computer and inverter are connected.   |
|           | Scan Network              | Detects the inverters with IP addresses included in the specified range on the network. |
| Help      | Firmware Update Tool Help | Starts e-Manual Viewer to display the Manual.                                           |
|           | About...                  | Opens the "About" window.                                                               |

## ◆ "File" menu



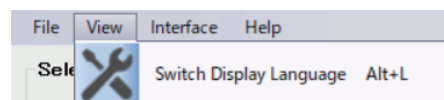
### ■ Open Firmware File

Select the firmware file (\*.bin) to show the information of the file to be updated.

### ■ Exit

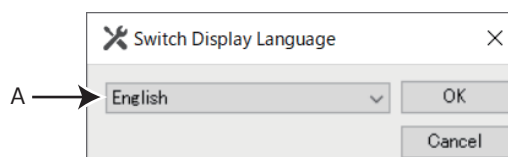
Close Firmware Update Tool.

## ◆ "View" menu



### ■ Switch Display Language

The display language of Firmware Update Tool can be switched.

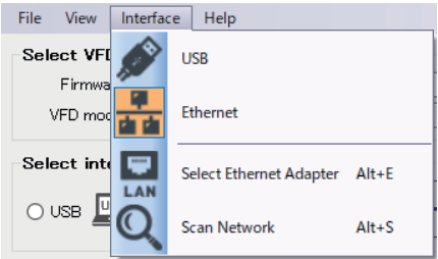


| Symbol | Name                    | Function/description         |
|--------|-------------------------|------------------------------|
| A      | Switch Display Language | Select the display language. |

**NOTE**

- Only the display language of Firmware Update Tool is changed.

◆ **"Interface" menu**



■ **USB**

Detect the inverters connected to the personal computer using the USB connector.

■ **Ethernet**

Detect the inverters connected to the personal computer using the Ethernet connector.

■ **Select Ethernet Adapter**

This menu is enabled when Ethernet is selected. "Select Ethernet Adapter" window appears.

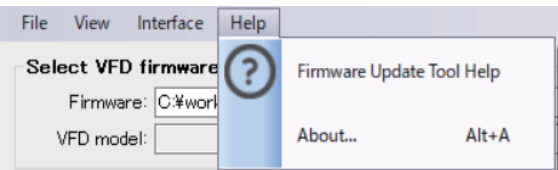
For details on the window, refer to [page 262](#).

■ **Scan network**

This menu is enabled when Ethernet is selected. "Scan Network" window appears.

For details on the window, refer to [page 262](#).

◆ **"Help" menu**

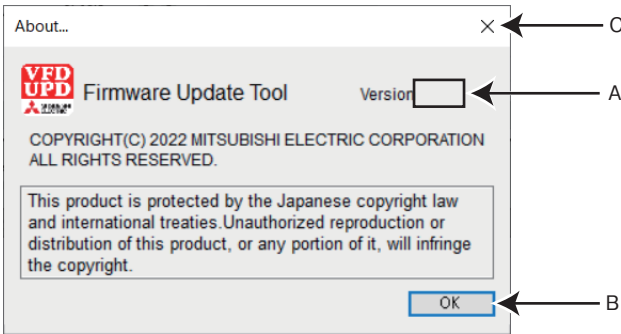


■ **Firmware Update Tool Help**

Software and inverter Instruction Manuals can be viewed in e-Manual Viewer.

■ **About...**

The information about firmware update such as firmware version can be checked.

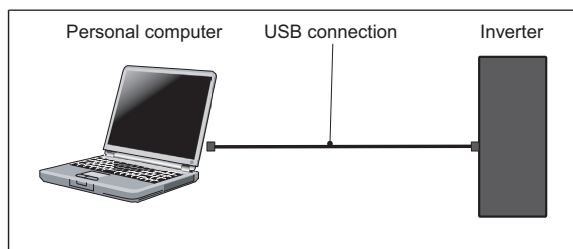


| Symbol | Name                | Function/description                              |
|--------|---------------------|---------------------------------------------------|
| A      | Version information | The version of Firmware Update Tool is displayed. |
| B      | OK                  | Exits the version information window.             |
| C      | Close button        |                                                   |

## 4.15.5 Firmware update procedure

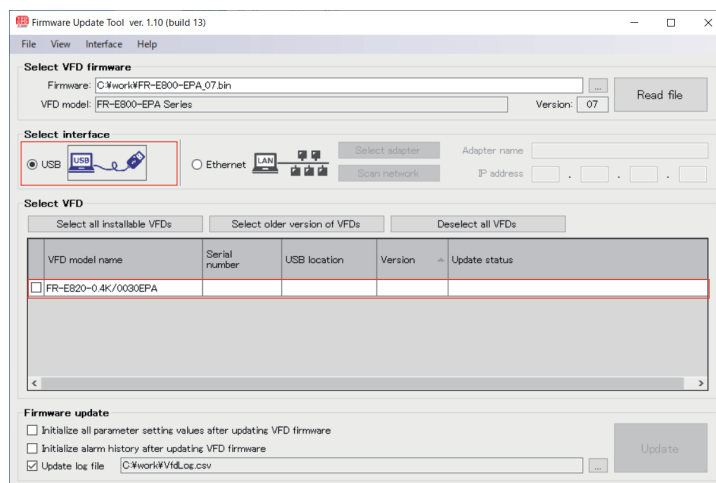
### ◆ USB connection

The following procedure is for the connection with one inverter. Before update, download the firmware file from the Mitsubishi Electric FA Global Website.

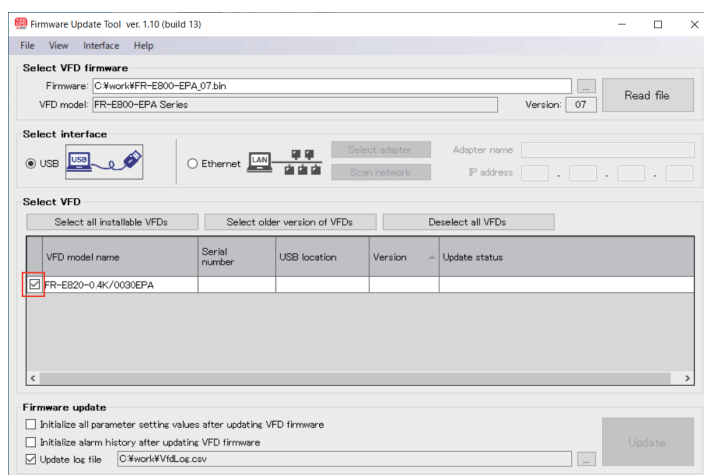


4

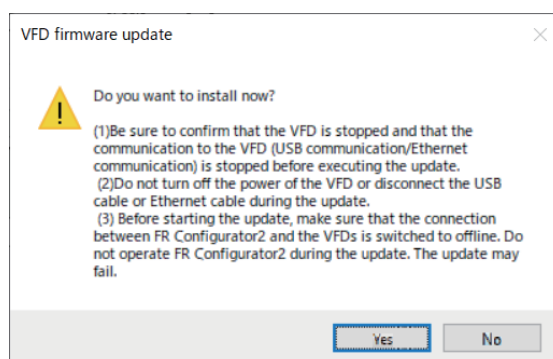
1. Start FR Configurator2. (Record the parameter setting values before firmware update by performing parameter batch read or other functions when the same setting values are to be used after the update.)
2. After FR Configurator2 is switched to offline, select [Firmware Update Tool] in the [Tool] menu.
3. In the "Firmware Update Tool" window, select [ ... ] in [Select VFD firmware] to select the firmware file (\*.bin). Click the "Read file" button to read model information.
4. In the "Firmware Update Tool" window, select [USB] in [Select interface]. The inverters connected to the personal computer using the USB connector are detected.



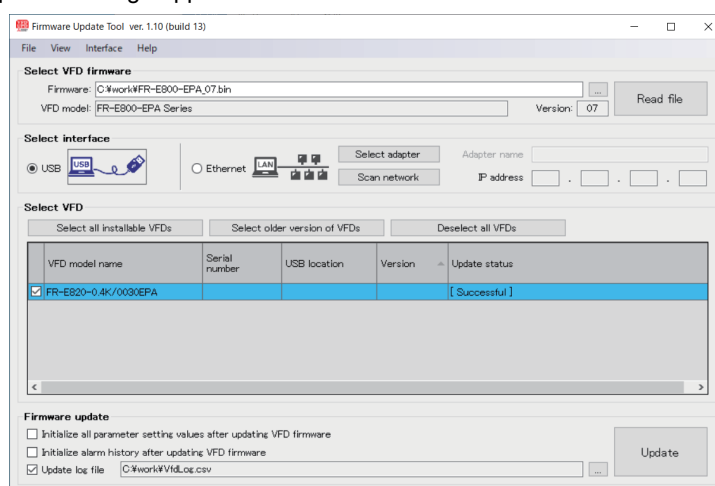
5. Select the inverters whose firmware are to be updated from among the detected inverters. Click the "Update" button.



- 6.** The following warning window will be displayed. Read the description and select [Yes].  
Be sure to confirm that the VFD is stopped and that the communication to the VFD (USB communication/Ethernet communication) is stopped before executing the update.  
Do not turn off the power of the VFD or disconnect the USB cable or Ethernet cable during the update. Before starting the update, make sure that the connection between FR Configurator2 and the VFDs is switched to offline.  
Do not operate FR Configurator2 during the update. The update may fail.



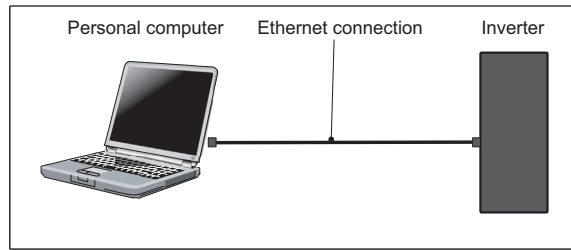
- 7.** The update complete message appears in the status field for the inverter whose firmware is updated.



- 8.** Perform All parameter clear. (To apply the parameter setting values recorded before the update, perform All parameter clear and then write the setting values by performing parameter batch write or other functions.)

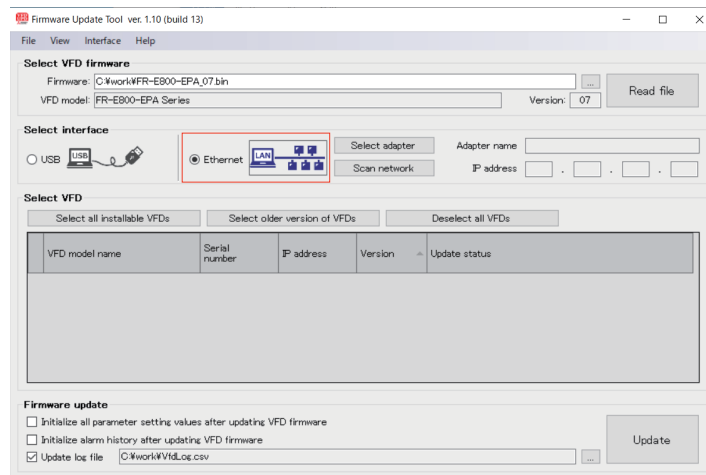
## ◆ Ethernet connection (for inverters in the same network)

The following procedure is for the connection with one inverter. The IP address of the personal computer is "192.168.50.100". Before update, download the firmware file from the Mitsubishi Electric FA Global Website.

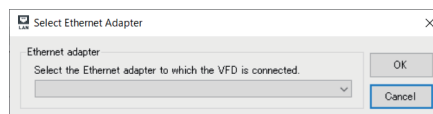


4

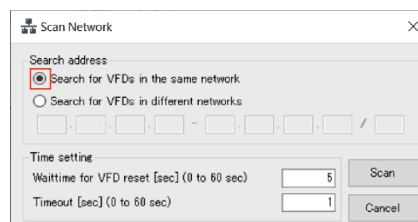
1. Start FR Configurator2. (Record the parameter setting values before firmware update by performing parameter batch read or other functions when the same setting values are to be used after the update.)
2. After FR Configurator2 is switched to offline, select [Firmware Update Tool] in the [Tool] menu.
3. In the "Firmware Update Tool" window, select [ ... ] in [Select VFD firmware] to select the firmware file (\*.bin). Click the "Read file" button to read model information.
4. In the "Firmware Update Tool" window, select [Ethernet] in [Select interface].



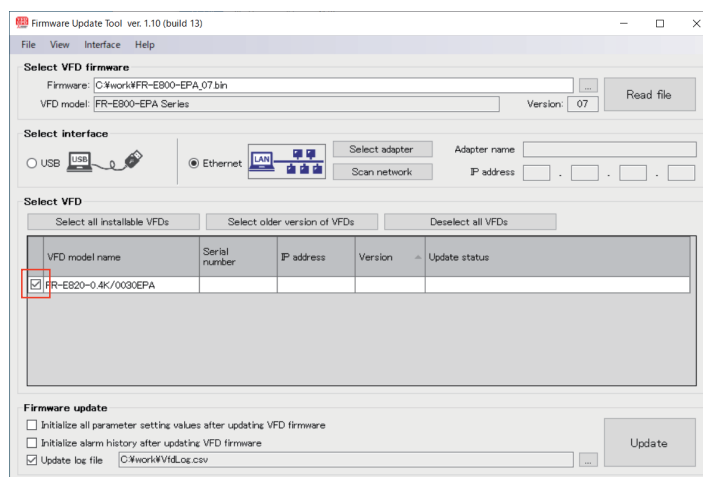
5. Click the "Select adapter" button. In the "Select Ethernet Adapter" window, select the network adapter to which the personal computer and inverter are connected. Then click the "OK" button.



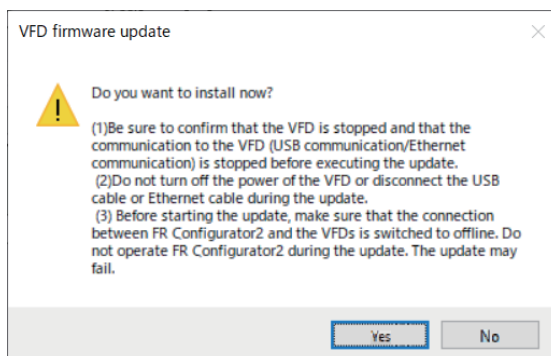
6. Click the "Scan network" button. In the "Scan Network" window, select [Search for VFDs in the same network]. Then click the "Scan" button. Change the "Time setting" settings according to the number of connected inverters or the interface.



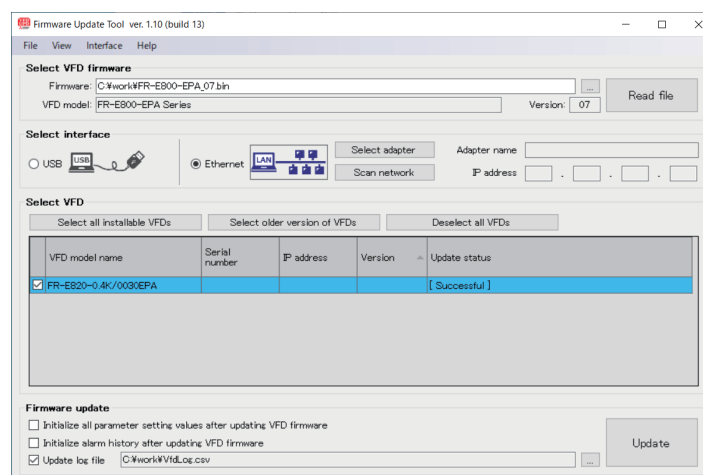
7. Click on the checkboxes for the inverters whose firmware are to be updated. Click the "Update" button.



8. The following warning window will be displayed. Read the description and select [Yes].  
Be sure to confirm that the VFD is stopped and that the communication to the VFD (USB communication/Ethernet communication) is stopped before executing the update.  
Do not turn off the power of the VFD or disconnect the USB cable or Ethernet cable during the update. Before starting the update, make sure that the connection between FR Configurator2 and the VFDs is switched to offline. Do not operate FR Configurator2 during the update. The update may fail.



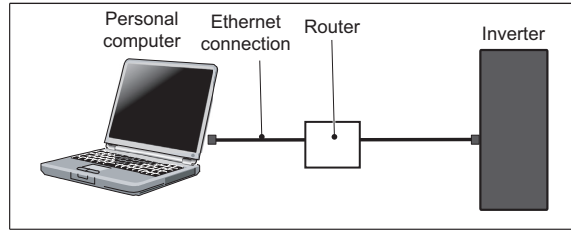
9. The update complete message appears in the status field for the inverter whose firmware is updated.



10. Perform All parameter clear. (To apply the parameter setting values recorded before the update, perform All parameter clear and then write the setting values by performing parameter batch write or other functions.)

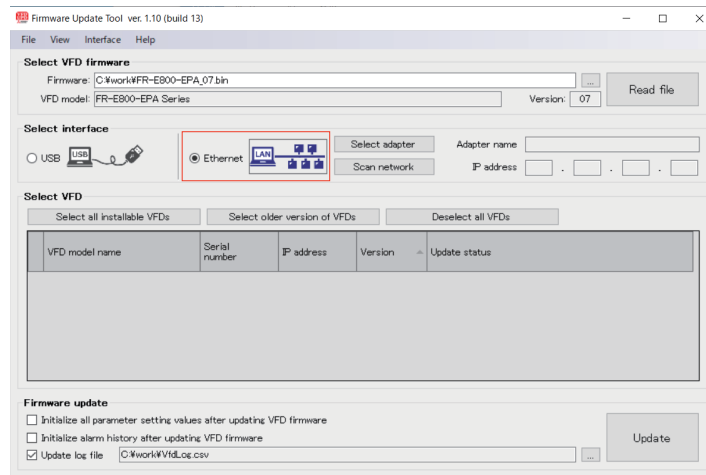
## ◆ Ethernet connection (for inverters in different networks)

The following procedure is for the connection with one inverter. Inverter parameters are set to initial values. Before update, download the firmware file from the Mitsubishi Electric FA Global Website. Set the default gateway address of the personal computer and **Pr.442 to Pr.445 Default gateway address 1 to 4** of the FR-E800 or the FR-D800-E inverters.

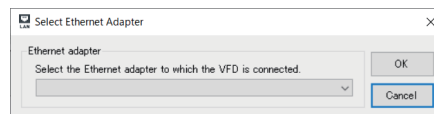


4

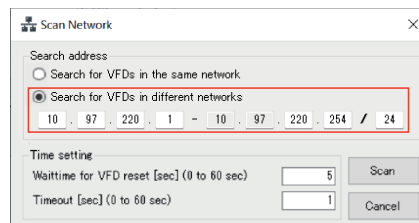
1. Start FR Configurator2. (Record the parameter setting values before firmware update by performing parameter batch read or other functions when the same setting values are to be used after the update.)
2. After FR Configurator2 is switched to offline, select [Firmware Update Tool] in the [Tool] menu.
3. In the "Firmware Update Tool" window, select [ ... ] in [Select VFD firmware] to select the firmware file (\*.bin). Click the "Read file" button to read model information.
4. In the "Firmware Update Tool" window, select [Ethernet] in [Select interface].



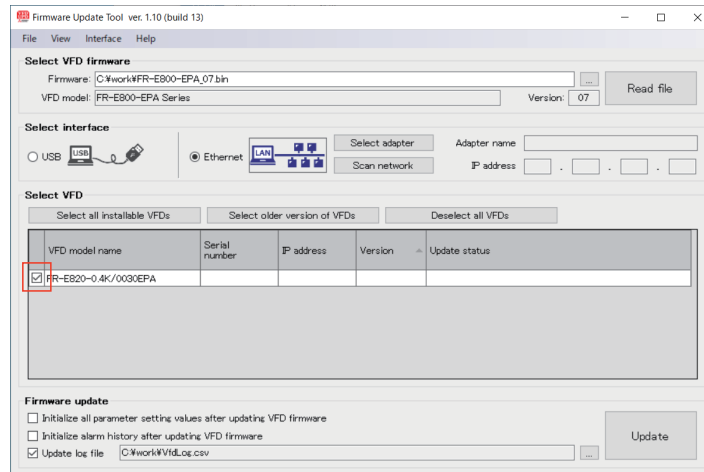
5. Click the "Select adapter" button. In the "Select Ethernet Adapter" window, select the network adapter to which the personal computer and inverter are connected. Then click the "OK" button.



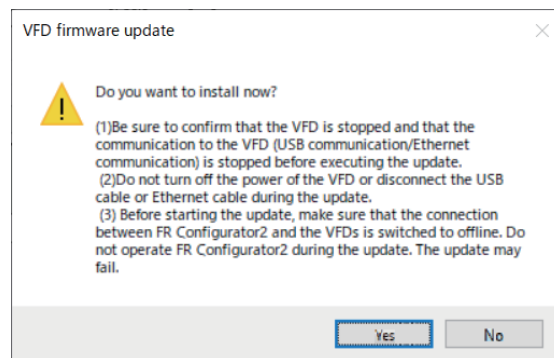
6. Click the "Scan network" button. In the "Scan Network" window, select [Search for VFDs in different networks]. Set **Pr.1434 to Pr.1437 IP address (Ethernet)** in the inverters. Then click the "Scan" button. Change the "Time setting" settings according to the number of connected inverters or the interface.



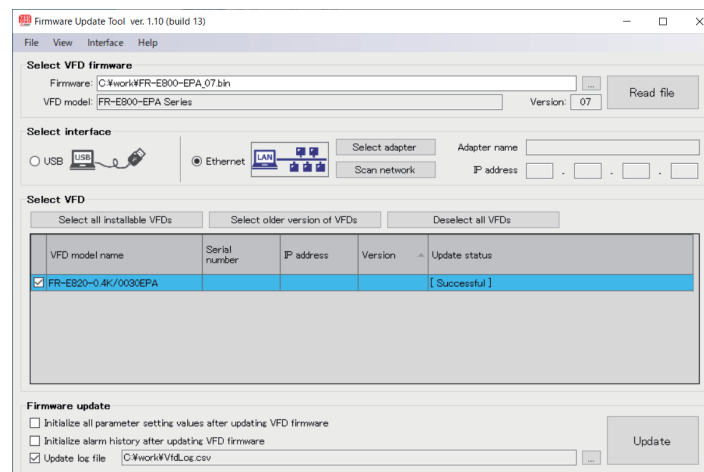
7. Click on the checkboxes for the inverters whose firmware are to be updated. Click the "Update" button.



8. The following warning window will be displayed. Read the description and select [Yes].  
Be sure to confirm that the VFD is stopped and that the communication to the VFD (USB communication/Ethernet communication) is stopped before executing the update.  
Do not turn off the power of the VFD or disconnect the USB cable or Ethernet cable during the update. Before starting the update, make sure that the connection between FR Configurator2 and the VFDs is switched to offline. Do not operate FR Configurator2 during the update. The update may fail.



9. The update complete message appears in the status field for the inverter whose firmware is updated.



10. Perform All parameter clear. (To apply the parameter setting values recorded before the update, perform All parameter clear and then write the setting values by performing parameter batch write or other functions.)

## 4.15.6 Precautions for firmware update

The following precautions apply to firmware update.

### ◆ Conditions to disable firmware update

- The operating system does not support firmware update. (Refer to [page 17](#).)
- The firmware is updated via a GOT or a programmable controller.
- "5001" (UDP) and "45237" (iQSS) are not set in any parameters from **Pr.1427 to Pr.1430 Ethernet function selection** when firmware is to be updated via Ethernet.
- The file name or data for the update file is changed.
- The firmware is updated while the FR-E800/FR-D800 series inverter is in battery supply PU mode or the power source is the USB power supply or the 24 V external power supply.
- The inverter does not support firmware update.
- The firmware is updated for the inverter which does not match the information in the firmware file.
- The inverter has been converted to the high power factor converter using the FR-A8AVP.

### ◆ Precautions for firmware update

- Operation is not guaranteed when the inverter firmware is downgraded.
- To perform firmware update successfully, make sure that the connection between FR Configurator2 and the inverters is switched to offline, do not operate FR Configurator2 during the update, and disconnect a system other than Firmware Update Tool connected on the network.
- Before the update, make sure that the inverter operates properly.
- Update the firmware while the inverter is stopped (output is shutoff).
- When a sequence program has been written to the inverter, write the sequence program that can be used for the inverter with the updated firmware version after the update. The sequence program written before the update may not operate properly.
- When the firmware is updated, **Pr.547 USB communication station number**, **Pr.1424 Ethernet communication network number**, and **Pr.1425 Ethernet communication station number** are disabled.
- Update the firmware of the FR-E800 series inverter while only the main circuit power supply is ON. Do not perform firmware update while other power source (USB port or a 24 V external power supply, or the FR-PU07BB) is ON.
- For the FR-D800 series, the firmware can be overwritten from the FR-D800-EPA to the FR-D800-EPB, and from the FR-D800-EPB to the FR-D800-EPA. Do not turn off the power supply for approximately 5 seconds while the initialization process is ongoing after overwriting.

## 4.15.7 Troubleshooting

| Condition                                                                                                                    | Possible cause                                                                                                                              | Corrective action                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The inverter is not detected by the "Scan Network" function.                                                                 | The IP address of the inverter is not specified.                                                                                            | Check the IP address of the inverter.                                                                                                                                                       |
|                                                                                                                              | The IP address of the personal computer is not specified.                                                                                   | Check the IP address of the personal computer.                                                                                                                                              |
|                                                                                                                              | The Ethernet cable is not connected or broken.                                                                                              | Connect or replace the Ethernet cable.                                                                                                                                                      |
| "Ethernet" cannot be selected in "Select Ethernet Adapter" window.                                                           | The same IP address is used for the personal computer and the inverter.                                                                     | Check the IP address of the inverter.                                                                                                                                                       |
|                                                                                                                              | The Ethernet cable is not connected or broken.                                                                                              | Connect or replace the Ethernet cable.                                                                                                                                                      |
| An error occurs when the network is scanned.                                                                                 | When Ethernet is selected for the network adapter, the Ethernet cable is not connected or the network is scanned while the cable is broken. | Set a network adapter again.                                                                                                                                                                |
|                                                                                                                              | Too many inverters are to be scanned.                                                                                                       | Scan 512 or less inverters connected via Ethernet.                                                                                                                                          |
| An error occurs during firmware update (inverter reset) via Ethernet when multiple inverters are connected in line topology. | The relay station is reset during firmware update and the communication with the subsequent inverters is disconnected.                      | Set the reset time longer to reset all the connected inverters simultaneously.                                                                                                              |
| An error occurs during firmware update via Ethernet when multiple inverters are connected.                                   | For firmware update when multiple inverters are connected, a communication delay occurs due to relay delays.                                | Set the timeout time longer.                                                                                                                                                                |
| Firmware update fails.                                                                                                       | The inverter power is OFF.                                                                                                                  | Update the firmware again.                                                                                                                                                                  |
|                                                                                                                              | USB or Ethernet connection is improper.                                                                                                     |                                                                                                                                                                                             |
| After firmware update of the FR-E800 series inverter failed, the firmware cannot be updated again.                           | Power is supplied to the inverter from the USB port or a 24 V external power supply, or the FR-PU07BB.                                      | Remove all the power sources and turn ON the main circuit power supply, then update the firmware again (to be performed after connecting the USB cable for the update via a USB connector). |

## 4.15.8 Error codes for Firmware Update Tool

| Error code   | Error message                                                                                                                                                                                                                                | Countermeasure                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1000         | [Invalid Windows version]<br>This application works on computers with Windows 10 or later.                                                                                                                                                   | Use computers with Windows 11 or later.                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1001         | [Invalid .Net Framework version]<br>• Install .Net Framework v4.5 or later. (When the Firmware Update Tool version is v1.11 or earlier)<br>• Install .Net Framework v4.8 or later. (When the Firmware Update Tool version is v2.00 or later) | • Install .Net Framework v4.5 or later. (When the Firmware Update Tool version is v1.11 or earlier)<br>• Install .Net Framework v4.8 or later. (When the Firmware Update Tool version is v2.00 or later)                                                                                                                                                                                                                                     |
| 1003         | [Error]<br>The required file is not found.                                                                                                                                                                                                   | The required file is not found.<br>Reinstall FR Configurator2.                                                                                                                                                                                                                                                                                                                                                                               |
| 1004         | [Invalid file name]<br>The VFD firmware was not found.                                                                                                                                                                                       | Check that the firmware file is in the folder specified in "Select VFD firmware" section.                                                                                                                                                                                                                                                                                                                                                    |
| 1005         | [Error]<br>The application cannot start up on a 32-bit operating system.                                                                                                                                                                     | Use a 64-bit operating system.                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2000 to 2800 | [Invalid VFD firmware]<br>The VFD firmware cannot be read correctly.                                                                                                                                                                         | The firmware file may be damaged.<br>Download the firmware file from the Mitsubishi Electric FA Global Website again.                                                                                                                                                                                                                                                                                                                        |
| 3000         | [No Ethernet adapter]<br>The Ethernet adapter was not found.                                                                                                                                                                                 | Check that the inverters are connected via Ethernet and the power of the inverters are ON.<br>Scan the network after selecting the adapter.                                                                                                                                                                                                                                                                                                  |
| 4000         | [Network scan]<br>The VFD was not found on the network.                                                                                                                                                                                      | Check that the power of the inverters are ON.<br>Check that the inverters are connected via Ethernet.<br>Check that "5001" and "45237" are set in any two parameters from <b>Pr.1427 to Pr.1430</b> Ethernet function selection.                                                                                                                                                                                                             |
| 5000         | [Invalid target]<br>The target VFD is not selected.                                                                                                                                                                                          | Select the inverters whose firmware are to be updated, and perform firmware update.                                                                                                                                                                                                                                                                                                                                                          |
| 7000         | This VFD is not supported.                                                                                                                                                                                                                   | Firmware Update Tool is not available for a selected inverter.<br>When "Err" is displayed on the operation panel or an inverter does not start up properly, turn OFF and then ON the power.                                                                                                                                                                                                                                                  |
| 8000 to 8A01 | Failed to update.                                                                                                                                                                                                                            | An error occurred during the update. Check the following points and perform the update again.<br>· Check if the inverter's power is OFF.<br>· Check for a break in the USB/Ethernet cable.<br>· When the firmware of inverters having addresses in different networks are to be updated, check that the settings of <b>Pr.442 to Pr.445</b> Default gateway address are correct.<br>· Download the firmware file again as it may be damaged. |
| 9000         | Failed to clear the alarm history.                                                                                                                                                                                                           | An error occurred while clearing the fault history after the firmware update. Clear the fault history in the inverter manually.                                                                                                                                                                                                                                                                                                              |
| 9001         | Failed to clear all parameter settings.                                                                                                                                                                                                      | An error occurred during All parameter clear after the firmware update. Perform All parameter clear in the inverter manually.                                                                                                                                                                                                                                                                                                                |
| 9101         | Failed to parameter settings.*1                                                                                                                                                                                                              | Perform All parameter clear in the inverter again.                                                                                                                                                                                                                                                                                                                                                                                           |
| 9102         | Failed to reset the VFD.*1                                                                                                                                                                                                                   | An error occurred during inverter reset. Check if the inverter's power is OFF. Check for a break in the USB cable.                                                                                                                                                                                                                                                                                                                           |

\*1 Firmware update is complete.

## 4.16 Help

---

### 4.16.1 FR Configurator2 help menu

Software and inverter Instruction Manuals can be viewed in e-Manual Viewer.

Use one of the following methods to start e Manual Viewer:

- Select [FR Configurator2 Help...F1] in [Help] menu.
- Click  on the toolbar.
- Press the F1 key.

#### Point

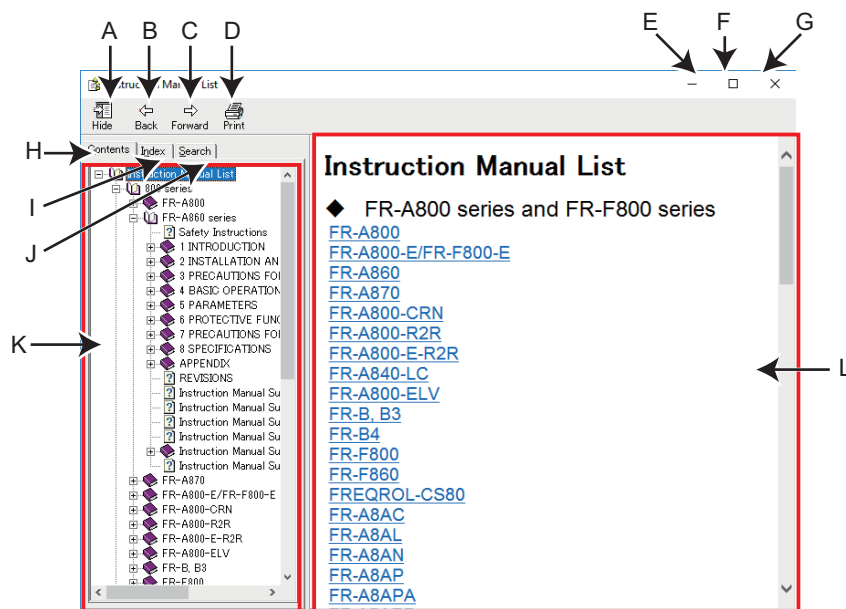
- e-Manual refers to the Mitsubishi FA electronic book manuals that can be browsed using a dedicated tool. e-Manual has the following features:
  - Required information can be cross-searched in multiple manuals.
  - Pages that users often browse can be bookmarked.
-

## 4.16.2 [Instruction Manual of the inverter] menu

The Help window shows the contents of the software and inverter's Instruction Manuals.

There are following ways of displaying Help.

- Select [Inverter 's Instruction Manual] in [Help] menu.
- Double clicking a parameter on the parameter list will show the explanation of the selected parameter.



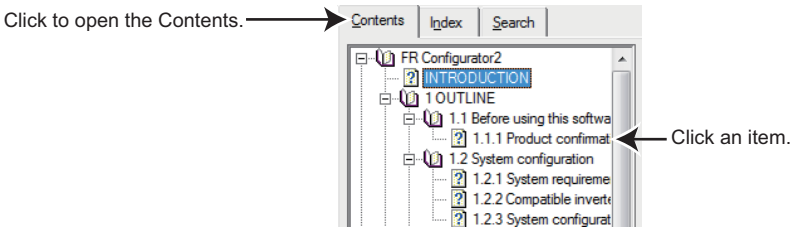
| Symbol | Name            | Function/description                                                                                                                                                                                                                                                                                                                                                             |
|--------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A      | Hide            | Hides the navigation panel, [Contents], [Index], and [Search] tabs. While hiding the navigation panel and the tabs, the button changes to  . Click  to display the navigation panel and the tabs again. |
| B      | Back            | Returns to the previous help description.                                                                                                                                                                                                                                                                                                                                        |
| C      | Forward         | Click this to read forward the help description again after using  .                                                                                                                                                                                                                        |
| D      | Print           | Prints help description.                                                                                                                                                                                                                                                                                                                                                         |
| E      | Minimize button | Minimizes the help window.                                                                                                                                                                                                                                                                                                                                                       |
| F      | Maximize button | Maximizes the help window.                                                                                                                                                                                                                                                                                                                                                       |
| G      | Close button    | Exits the help window.                                                                                                                                                                                                                                                                                                                                                           |
| H      | Contents        | Click this to check the contents. Contents will be displayed in the navigation panel.                                                                                                                                                                                                                                                                                            |
| I      | Index           | Click this to use the index. Index will be displayed in the navigation panel.                                                                                                                                                                                                                                                                                                    |
| J      | Search          | Click this to use the search function. Search will be displayed in the navigation panel.                                                                                                                                                                                                                                                                                         |
| K      | Navigation      | Display the Contents, Index, or Search.                                                                                                                                                                                                                                                                                                                                          |
| L      | Contents        | Shows help description.                                                                                                                                                                                                                                                                                                                                                          |

◆ **HTML format and link**

Help description is displayed in the contents panel. Help description is displayed in HTML format. Hyperlink is available to jump to the related help description. Hyperlink in description is shown in blue and underline.

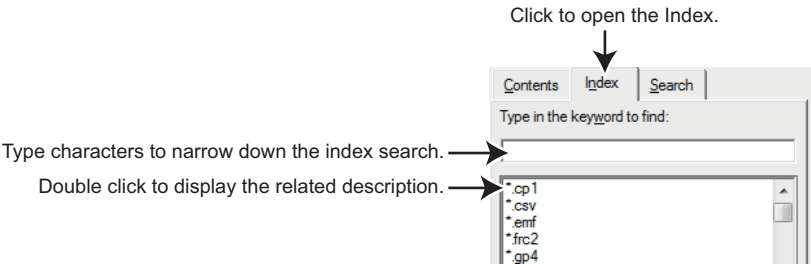
◆ **Contents**

Click [C]ontents to display a list of contents. Click a desired item to show the help description.



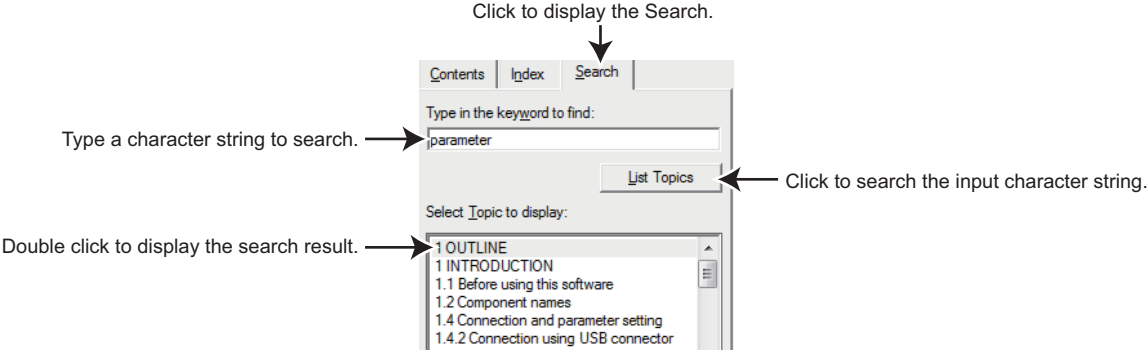
◆ **Index**

Click [I]ndex to display the index of keywords contained in the Help.  
Type characters to narrow down the index search. Click a desired item to show the help description.



◆ **Search**

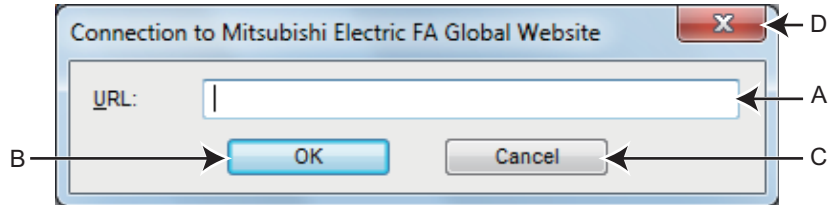
Click [S]earch to display the search panel. Type a character string and click [L]ist Topics to perform full-text search with the character string in the Help. Click a desired topic in the search result to show the help description.



### 4.16.3 Connection to Mitsubishi Electric FA Global Website

Mitsubishi Electric FA Global Website provides technical information and information on training schools and contacts. An update for FR Configurator2 is available on this Mitsubishi Electric FA Global Website.

Select [Connect Mitsubishi Electric FA Global Website...] in the [Help] menu to display the "Connection Mitsubishi Electric FA Global Website" dialog. The Mitsubishi Electric FA Global Website URL is initially set to the [URL]. Use this dialog to start up the web browser and access to Mitsubishi Electric FA Global Website.



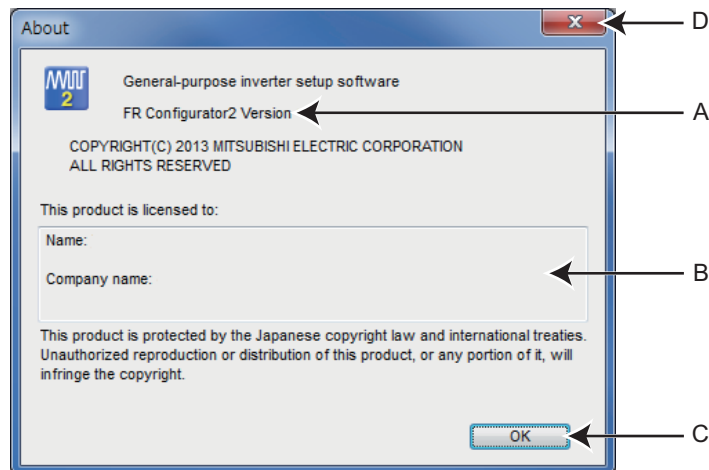
| Symbol | Name         | Function/description                                                          |
|--------|--------------|-------------------------------------------------------------------------------|
| A      | <u>U</u> RL  | Displays the Mitsubishi Electric FA Global Website URL.                       |
| B      | OK           | Starts up the web browser to access to Mitsubishi Electric FA Global Website. |
| C      | Cancel       | Close the [Connect Mitsubishi Electric FA Global Website] window.             |
| D      | Close button |                                                                               |

#### NOTE

- Internet connection is required to connect to the Mitsubishi Electric FA Global Website.
- When [OK] is clicked while the URL field is blank, the web browser starts up to access Mitsubishi Electric FA Global Website. When [Connect Mitsubishi Electric FA Global Website...] is selected next time, the URL of the Mitsubishi Electric FA Global Website is set in the field.

### 4.16.4 Version information

Go to [Help] and select [About...] to show the software version of the FR Configurator2.



| Symbol | Name                | Function/description                                   |
|--------|---------------------|--------------------------------------------------------|
| A      | Version information | Shows the version information of the FR Configurator2. |
| B      | Registration        | Shows the information registered during installation.  |
| C      | OK                  | Exits the version information window.                  |
| D      | Close button        |                                                        |



# CHAPTER 5 TROUBLE INDICATION

|     |                  |     |
|-----|------------------|-----|
| 5.1 | Error code ..... | 282 |
|-----|------------------|-----|

# 5 TROUBLE INDICATION

This chapter explains the trouble indications of this product.

Always read the instructions before using the equipment.

For the troubleshooting for firmware update, refer to [page 274](#).

## 5.1 Error code

If an error occurs, the following error codes and error messages appear.

### 5.1.1 Communication error with the inverter

#### NOTE

- If a timeout error occurs, set the FR Configurator2 to the offline mode. Check the connection of the communication cable, etc., and remove any error causing condition, then set it to online.
- The parameter list of FR Configurator2 shows the parameters of the latest inverter at the time of the FR Configurator2 upgrade. (For the upgrade timing of FR Configurator2, refer to [page 296](#).) The parameters' setting range, initial value, and numbers may be different before and after a version upgrade (with functions added).

| Error code (HEX) | Error message                          | Possible cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Countermeasure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0x010A4171       | A remote password is set.              | A remote password is set for the intermediate CPU or Ethernet module.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Delete the remote password set for the CPU or Ethernet module.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 0x010AC201       |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 0x01801006       | The specified module does not exist.   | An incorrect module is specified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Check the module type and model of the programmable controller in the system setting window.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 0x01808201       | A data transmission error occurred.    | Transmission error.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Check the communication environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 0x01808301       | An error occurred when receiving data. | <ul style="list-style-type: none"><li>• FR-A800-E/FR-A800-G/FR-F800-E<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.1427 to Pr.1429 Ethernet function selection</b>.</li><li>• FR-A800-E-R2R<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.1076 to Pr.1078 Ethernet function selection</b>.</li><li>• FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.1427 to Pr.1430 Ethernet function selection</b>.</li><li>• FR-E700-NE<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.833 to Pr.835 Ethernet function selection</b>.</li></ul> | <p>"Ethernet" is selected from the "PC-side port" drop-down list and "Not used" from the "Through" drop-down list.</p> <ul style="list-style-type: none"><li>• FR-A800-E/FR-A800-G/FR-F800-E<br/>Set the combination of "5001" (or "5002") and "45237" in any two parameters from <b>Pr.1427 to Pr.1429</b>.</li><li>• FR-A800-E-R2R<br/>Set the combination of "5001" (or "5002") and "45237" in any two parameters from <b>Pr.1076 to Pr.1078</b>.</li><li>• FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>Set the combination of "5001" (or "5002") and "45237" in any two of <b>Pr.1427 to Pr.1430</b>.</li><li>• FR-E700-NE<br/>Set the combination of "31" (or "32") and "20" in any two parameters from <b>Pr.833 to Pr.835</b>.</li></ul> |

| Error code (HEX) | Error message                            | Possible cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Countermeasure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0x01808301       | An error occurred when receiving data.   | <ul style="list-style-type: none"> <li>• FR-A800-E/FR-A800-G/FR-F800-E<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.1427 to Pr.1429 Ethernet function selection.</b></li> <li>• FR-A800-E-R2R<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.1076 to Pr.1078 Ethernet function selection.</b></li> <li>• FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.1427 to Pr.1430 Ethernet function selection.</b></li> <li>• FR-E700-NE<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.833 to Pr.835 Ethernet function selection.</b></li> </ul> | <p>"GOT" is selected from the "Through" drop-down list and the GOT and the inverter are connected via Ethernet.</p> <ul style="list-style-type: none"> <li>• FR-A800-E/FR-A800-G/FR-F800-E<br/>Set "5001" (or "5000", "5006", or "5008") in any parameter from <b>Pr.1427 to Pr.1429.</b></li> <li>• FR-A800-E-R2R<br/>Set "5001" (or "5000", "5006", or "5008") in any parameter from <b>Pr.1076 to Pr.1078.</b></li> <li>• FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>Set "5001" (or "5000", "5006", or "5008") in any parameter from <b>Pr.1427 to Pr.1430.</b></li> <li>• FR-E700-NE<br/>Set "31", "30", "36", or "38" in any parameter from <b>Pr.833 to Pr.835.</b></li> </ul> <p>"Programmable controller" or "GOT to programmable controller" is selected from the "Through" drop-down list.</p> <ul style="list-style-type: none"> <li>• FR-A800-E/FR-A800-G/FR-F800-E<br/>Set "5001" in any parameter from <b>Pr.1427 to Pr.1429.</b></li> <li>• FR-A800-E-R2R<br/>Set "5001" in any parameter from <b>Pr.1076 to Pr.1078.</b></li> <li>• FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>Set "5001" in any parameter from <b>Pr.1427 to Pr.1430.</b></li> <li>• FR-E700-NE<br/>Set "31" in any parameter from <b>Pr.833 to Pr.835.</b></li> </ul> |
| 0x01808401       | The communication line cannot be opened. | Control error.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Check the communication environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 0x01808402       |                                          | Signal cable control error.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 0x01808403       |                                          | Incorrect signal cable setting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 0x0180840F       |                                          | Failed to obtain the signal cable status information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 0x01808410       |                                          | CD signal cable offline.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 0x01808405       |                                          | Communication parameter setting error.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Check the communication settings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 0x01808406       |                                          | Incorrect baud rate setting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 0x01808407       |                                          | Incorrect data length setting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 0x01808408       |                                          | Incorrect parity setting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 0x01808409       |                                          | Incorrect stop bit setting.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 0x0180840A       |                                          | Communication setting error.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

| Error code (HEX) | Error message                                                                | Possible cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Countermeasure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0x0180840B       | Communication was not established with the inverter within the timeout time. | <ul style="list-style-type: none"> <li>• Electromagnetic interference.</li> <li>• Cable is damaged or broken.</li> <li>• The personal computer port is set invalid or the port is broken.</li> <li>• The value in the network part of the IP address is not the same between the inverter and the personal computer. (Ethernet parameter setting)</li> <li>• The network is overloaded.</li> <li>• The communication driver failed to open.</li> <li>• FR-A800-E/FR-A800-G/FR-F800-E/FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>The value set in <b>Pr.1432 Ethernet communication check time interval</b> is too small.</li> <li>• FR-E700-NE<br/>The value set in <b>Pr.852 Ethernet communication check time interval</b> is too small.</li> </ul> | <ul style="list-style-type: none"> <li>• Reconnect or replace the cable.</li> <li>• Activate the port using Device Manager, or replace the port.</li> <li>• Use the same value in the network part of the IP address between the inverter and the personal computer. (Ethernet parameter setting)</li> <li>• Establish the online connection.</li> <li>• Adjust the timeout time setting in the system setting, and reduce the load in the network environment.</li> <li>• FR-A800-E/FR-A800-G/FR-F800-E/FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>Set a larger value or "9999" in <b>Pr.1432 Ethernet communication check time interval</b>.</li> <li>• FR-E700-NE<br/>Set a larger value or "9999" in <b>Pr.852 Ethernet communication check time interval</b>.</li> </ul> |

| Error code (HEX) | Error message                                                                | Possible cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Countermeasure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0x0180840B       | Communication was not established with the inverter within the timeout time. | <ul style="list-style-type: none"> <li>• FR-A800-E/FR-A800-G/FR-F800-E<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.1427 to Pr.1429 Ethernet function selection.</b></li> <li>• FR-A800-E-R2R<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.1076 to Pr.1078 Ethernet function selection.</b></li> <li>• FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.1427 to Pr.1430 Ethernet function selection.</b></li> <li>• FR-E700-NE<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.833 to Pr.835 Ethernet function selection.</b></li> </ul> | <p>"Ethernet" is selected from the "PC-side port" drop-down list and "Not used" from the "Through" drop-down list.</p> <ul style="list-style-type: none"> <li>• FR-A800-E/FR-A800-G/FR-F800-E<br/>Set the combination of "5001" (or "5002") and "45237" in any two parameters from <b>Pr.1427 to Pr.1429.</b></li> <li>• FR-A800-E-R2R<br/>Set the combination of "5001" (or "5002") and "45237" in any two parameters from <b>Pr.1076 to Pr.1078.</b></li> <li>• FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>Set the combination of "5001" (or "5002") and "45237" in any two of <b>Pr.1427 to Pr.1430.</b></li> <li>• FR-E700-NE<br/>Set the combination of "31" (or "32") and "20" in any two parameters from <b>Pr.833 to Pr.835.</b></li> </ul> <p>"GOT" is selected from the "Through" drop-down list and the GOT and the inverter are connected via Ethernet.</p> <ul style="list-style-type: none"> <li>• FR-A800-E/FR-A800-G/FR-F800-E<br/>Set "5001", "5000", "5006", or "5008" in any parameter from <b>Pr.1427 to Pr.1429.</b></li> <li>• FR-A800-E-R2R<br/>Set "5001", "5000", "5006", or "5008" in any parameter from <b>Pr.1076 to Pr.1078.</b></li> <li>• FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>Set "5001", "5000", "5006", or "5008" in any parameter from <b>Pr.1427 to Pr.1430.</b></li> <li>• FR-E700-NE<br/>Set "31", "30", "36", or "38" in any parameter from <b>Pr.833 to Pr.835.</b></li> </ul> <p>"Programmable controller" or "GOT to programmable controller" is selected from the "Through" drop-down list.</p> <ul style="list-style-type: none"> <li>• FR-A800-E/FR-A800-G/FR-F800-E<br/>Set "5001" in any parameter from <b>Pr.1427 to Pr.1429.</b></li> <li>• FR-A800-E-R2R<br/>Set "5001" in any parameter from <b>Pr.1076 to Pr.1078.</b></li> <li>• FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>Set "5001" in any of <b>Pr.1427 to Pr.1430.</b></li> <li>• FR-E700-NE<br/>Set "31" in any parameter from <b>Pr.833 to Pr.835.</b></li> </ul> |
| 0x01808008       | The communication line cannot be opened.                                     | Invalid Ethernet port number or IP address.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Check the communication settings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 0x01808009       |                                                                              | Invalid communication port.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 0x0180800C       |                                                                              | Invalid communication settings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 0x0180800D       |                                                                              | Invalid timeout value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 0x01808501       | USB communication was interrupted.                                           | USB driver loading failed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Establish the online connection again.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 0x01808502       |                                                                              | The USB driver failed to open.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 0x01808506       |                                                                              | USB driver initialization failed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Error code (HEX)                       | Error message                                                                                                                          | Possible cause                                                                                                                                                                                                                                                                                             | Countermeasure                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0x80A00101                             | The communication line cannot be opened.                                                                                               | <ul style="list-style-type: none"> <li>Communication setting is not set for the USB while connecting via USB.</li> <li>No communication port exists on the personal computer, or it is not recognized.</li> </ul>                                                                                          | <ul style="list-style-type: none"> <li>Check the connection type on the [System setting] window. (Refer to <a href="#">page 121</a>.)</li> <li>Check that a communication ports exists on the personal computer.</li> </ul>                                                                                                                                                                  |
| 0x80A00104<br>0x80A00107<br>0x80A0010A | An unexpected error occurred in S/W.                                                                                                   | Please contact your sales representative.                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                              |
| 0x80010000                             | The transmission data from the computer was containing errors for the permissible number of retries or more.                           | <ul style="list-style-type: none"> <li>The <b>Pr.124 PU communication CR/LF selection</b> and <b>Pr.341 RS-485 communication CR/LF selection</b> settings are different with the software settings.</li> <li>Electromagnetic interference.</li> <li>Cable breakage.</li> </ul>                             | <ul style="list-style-type: none"> <li>Match the <b>Pr.124 PU communication CR/LF selection</b> and <b>Pr.341 RS-485 communication CR/LF selection</b> settings with the software settings.</li> <li>Set a larger value in <b>Pr.121 PU communication retry count</b> and <b>Pr.335 RS-485 communication retry count</b>.</li> <li>Replace the cable.</li> </ul>                             |
| 0x80010001                             | The content does not match with the specified parity.                                                                                  | <ul style="list-style-type: none"> <li>The <b>Pr.120 PU communication parity check</b> and <b>Pr.334 RS-485 communication parity check selection</b> settings are different with the software settings.</li> <li>Electromagnetic interference.</li> <li>Cable breakage.</li> </ul>                         | <ul style="list-style-type: none"> <li>Match the <b>Pr.120 PU communication parity check</b> and <b>Pr.334 RS-485 communication parity check selection</b> settings with the software settings.</li> <li>Set a larger value in <b>Pr.121 PU communication retry count</b> and <b>Pr.335 RS-485 communication retry count</b>.</li> <li>Replace the cable.</li> </ul>                         |
| 0x80010002                             | The sum check code of the computer is different from the sum check code of the data received by the inverter.                          | <ul style="list-style-type: none"> <li>The communication setting is different between the inverter and the software.</li> <li>Data is corrupted due to electromagnetic noise, etc.</li> </ul>                                                                                                              | <ul style="list-style-type: none"> <li>Make the same communication setting.</li> <li>Check for electromagnetic noise and wiring.</li> </ul>                                                                                                                                                                                                                                                  |
| 0x80010003                             | The data received by the inverter contains a syntax error. Or the inverter was not able to receive the data within the specified time. | <ul style="list-style-type: none"> <li>The <b>Pr.124 PU communication CR/LF selection</b> and <b>Pr.341 RS-485 communication CR/LF selection</b> settings are different with the software settings.</li> <li>Electromagnetic interference.</li> <li>Cable breakage.</li> </ul>                             | <ul style="list-style-type: none"> <li>Match the <b>Pr.124 PU communication CR/LF selection</b> and <b>Pr.341 RS-485 communication CR/LF selection</b> settings with the software settings.</li> <li>Set a larger value in <b>Pr.121 PU communication retry count</b> and <b>Pr.335 RS-485 communication retry count</b>.</li> <li>Replace the cable.</li> </ul>                             |
| 0x80010004                             | The stop bit length is different from the initial value.                                                                               | <ul style="list-style-type: none"> <li>The <b>Pr.119 PU communication stop bit length / data length</b> and <b>Pr.333 RS-485 communication stop bit length / data length</b> settings are different with the software settings.</li> <li>Electromagnetic interference.</li> <li>Cable breakage.</li> </ul> | <ul style="list-style-type: none"> <li>Match the <b>Pr.119 PU communication stop bit length / data length</b> and <b>Pr.333 RS-485 communication stop bit length / data length</b> settings with the software settings.</li> <li>Set a larger value in <b>Pr.121 PU communication retry count</b> and <b>Pr.335 RS-485 communication retry count</b>.</li> <li>Replace the cable.</li> </ul> |
| 0x80010005                             | Because of incorrect wiring, data was transmitted before completing a data reception.                                                  | <ul style="list-style-type: none"> <li>The settings of <b>Pr.123 PU communication waiting time setting</b> and <b>Pr.337 RS-485 communication waiting time setting</b> are too small.</li> <li>Electromagnetic interference.</li> <li>Cable breakage.</li> </ul>                                           | <ul style="list-style-type: none"> <li>Set a larger value or "9999" in <b>Pr.123 PU communication waiting time setting</b> and <b>Pr.337 RS-485 communication waiting time setting</b>.</li> <li>Set a larger value in <b>Pr.121 PU communication retry count</b> and <b>Pr.335 RS-485 communication retry count</b>.</li> <li>Replace the cable.</li> </ul>                                 |

| Error code (HEX) | Error message                                                                              | Possible cause                                                                                                                                                                                                                                                                                             | Countermeasure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0x80010007       | The inverter received an unusable character (other than 0 to 9, A to F, or control codes). | <ul style="list-style-type: none"> <li>The <b>Pr.119 PU communication stop bit length / data length</b> and <b>Pr.333 RS-485 communication stop bit length / data length</b> settings are different with the software settings.</li> <li>Electromagnetic interference.</li> <li>Cable breakage.</li> </ul> | <ul style="list-style-type: none"> <li>Match the <b>Pr.119 PU communication stop bit length / data length</b> and <b>Pr.333 RS-485 communication stop bit length / data length</b> settings with the software settings.</li> <li>Set a larger value in <b>Pr.121 PU communication retry count</b> and <b>Pr.335 RS-485 communication retry count</b>.</li> <li>Replace the cable.</li> </ul>                                                                                                              |
| 0x8001000A       | A mode error occurred.                                                                     | A test operation was attempted without setting FR Configurator2 as the operation (start) command source, for example in the External operation mode (EXT).                                                                                                                                                 | <ul style="list-style-type: none"> <li>Change the operation mode to the PU operation mode (or NET).</li> <li>Check the setting values of <b>Pr.338 Communication operation command source</b>, <b>Pr.550 NET mode operation command source selection</b>, and <b>Pr.551 PU mode operation command source selection</b>.</li> </ul>                                                                                                                                                                        |
| 0x8001000C       | Any value outside the setting range cannot be written.                                     | An out-of-range value or operation frequency was written to the parameter.                                                                                                                                                                                                                                 | Set a value within the setting range, and enter the setting.<br>If a writing error occurs even if a value within the setting range is written, check for the writing requirements for each parameter. For the details on the writing requirements, refer to the Instruction Manual of the inverter.                                                                                                                                                                                                       |
| 0x80010011       | The parameter outside the setting range cannot be written.                                 | An out-of-range value was written to the parameter.                                                                                                                                                                                                                                                        | Set a value within the setting range, and enter the setting.<br>If a writing error occurs even if a value within the setting range is written, check for the writing requirements for each parameter. For the details on the writing requirements, refer to the Instruction Manual of the inverter.                                                                                                                                                                                                       |
| 0x80010012       | A mode error occurred.                                                                     | <ul style="list-style-type: none"> <li><b>Pr.79 Operation mode selection</b> is not set for PU/NET (RS-485).</li> <li>A parameter or frequency setting was attempted without setting FR Configurator2 as such command source, for example in the External operation mode (EXT).</li> </ul>                 | <ul style="list-style-type: none"> <li>Click [PU] button of Test Operation.</li> <li>Change the setting of <b>Pr.79</b> for PU/NET (RS-485).</li> <li>Change the operation mode to the PU operation mode (or NET).</li> <li>Set <b>Pr.77 Parameter write selection</b> to "2".</li> <li>Check the setting values of <b>Pr.339 Communication speed command source</b>, <b>Pr.550 NET mode operation command source selection</b>, and <b>Pr.551 PU mode operation command source selection</b>.</li> </ul> |
| 0x80010013       | No parameter can be written during inverter running.                                       | Parameter writing was attempted during inverter operation.                                                                                                                                                                                                                                                 | Perform parameter writing after the inverter is stopped.                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                  |                                                                                            | Parameter writing was attempted at servo-ON.                                                                                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>Disable the servo lock function.</li> <li>Change the <b>Pr.1493 Automatic servo-ON selection</b> setting value to "9999" (automatic servo-ON disabled).</li> </ul>                                                                                                                                                                                                                                                                                                 |
| 0x80010014       | The setting value cannot be written to the parameters to which writing is prohibited.      | <ul style="list-style-type: none"> <li>Writing is disabled by <b>Pr.77 Parameter write selection</b>. (Pr.77 = "1 (write disabled)")</li> <li>Password lock is activated.</li> </ul>                                                                                                                       | <ul style="list-style-type: none"> <li>Set <b>Pr.77 Parameter write selection</b> to other than "1".</li> <li>Enter the password in <b>Pr.297</b> to unlock password protection.</li> </ul> <p>If an error occurs while Ethernet parameters are set, change the setting of the above parameter on the operation panel.</p>                                                                                                                                                                                |

| Error code (HEX) | Error message                                                                                                         | Possible cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Countermeasure                                                                                                                                                                                                                                                                                                                    |
|------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0x80010016       | Non-existed parameters cannot be read or written.                                                                     | <ul style="list-style-type: none"> <li>The version of the parameter file in the setup software is different from the inverter version.</li> <li>Simple mode is set by <b>Pr.160 User group read selection</b>.</li> <li>Password lock is activated.</li> <li>Parameter writing has been attempted to <b>Pr.77 Parameter write selection</b> or <b>Pr.79 Operation mode selection</b> in the NET mode.</li> <li>The user attempted to read from a read-protected parameter, or write to a write-protected parameter.</li> <li>The user attempted to perform batch write to a set of parameters that includes <b>Pr.77</b>.</li> </ul> | <ul style="list-style-type: none"> <li>Reinstall the software.</li> <li>Change the setting of <b>Pr.160</b> to choose a mode other than the simple mode.</li> <li>Enter the password in <b>Pr.297</b> to unlock the password lock.</li> <li>Change the setting of <b>Pr.77</b> or <b>Pr.79</b> on the operation panel.</li> </ul> |
| 0x80010017       | The set option is not connected to the inverter.                                                                      | Reading of option parameter was attempted while the option is not installed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Install the option to the inverter.                                                                                                                                                                                                                                                                                               |
| 0x80010018       | The bias and gain settings for an analog value are too close.                                                         | There is only small difference between the gain and bias settings for an analog value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Widen the gap between the gain and bias settings for an analog value.                                                                                                                                                                                                                                                             |
| 0x8001001A       | An unsupported model is connected.                                                                                    | Please contact your sales representative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                   |
| 0x80010021       | The mode cannot be switched during inverter running.                                                                  | Change the operation mode after the inverter stops.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Set <b>Pr.77 Parameter write selection</b> to "2".</li> <li>Stop the inverter.</li> </ul>                                                                                                                                                                                                  |
| 0x80010022       | While the forward rotation command (STF) is ON, the operation mode cannot be switched to the External operation mode. | Switching to the External mode was attempted while the forward rotation signal (STF) is ON.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Change the operation mode after switching STF to OFF.                                                                                                                                                                                                                                                                             |
| 0x80010023       | While the reverse rotation command (STR) is ON, the operation mode cannot be switched to the External operation mode. | Switching to the External mode was attempted while the reverse rotation signal (STR) is ON.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Change the operation mode after switching STR to OFF.                                                                                                                                                                                                                                                                             |
| 0x80010024       | The mode cannot be switched during the present operation mode.                                                        | The operation mode was attempted to be switched to the mode other than the one selected by <b>Pr.79 Operation mode selection</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Change the setting of <b>Pr.79 Operation mode selection</b> .                                                                                                                                                                                                                                                                     |
| 0x80010025       | The inverter cannot be reset with the present setting.                                                                | Reset is disabled by <b>Pr.75 Reset selection/disconnected PU detection/PU stop selection</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Change the setting of <b>Pr.75 Reset selection/disconnected PU detection/PU stop selection</b> .                                                                                                                                                                                                                                  |
| 0x80010026       | An unexpected error occurred in S/W.                                                                                  | Please contact your sales representative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                   |
| 0x80010027       | The remote password contains invalid characters.                                                                      | Invalid characters were entered in the remote password.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Eliminate the invalid characters.                                                                                                                                                                                                                                                                                                 |
| 0x80010028       | The remote password protection is still active.                                                                       | A remote password is set for a device connected via Ethernet, but the password has not been entered.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Enter the correct password.                                                                                                                                                                                                                                                                                                       |
| 0x80010029       | The remote password is not correct.                                                                                   | A remote password is set for a device connected via Ethernet, but a different password was entered.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Enter the correct password again.                                                                                                                                                                                                                                                                                                 |
| 0x8001002A       | Enter the password again after 1 minutes.                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Enter the correct password at the specified intervals.                                                                                                                                                                                                                                                                            |
| 0x8001002B       | Enter the password again after 5 minutes.                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                   |
| 0x8001002C       | Enter the password again after 15 minutes.                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                   |
| 0x8001002D       | Enter the password again after 60 minutes.                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                   |
| 0x8001002E       | Enter the password again after a while.                                                                               | The remote password was entered before the specified interval has passed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Enter the remote password at the specified intervals.                                                                                                                                                                                                                                                                             |

| Error code (HEX)                                                                                             | Error message                                                                        | Possible cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Countermeasure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0x80010101                                                                                                   | Communication was not established with the inverter within the timeout time.         | <ul style="list-style-type: none"> <li>The setting values in <b>Pr.122 PU communication check time interval</b>, <b>Pr.336 RS-485 communication check time interval</b>, <b>Pr.548 USB communication check time interval</b>, and <b>Pr.1432 Ethernet communication check time interval</b> (Pr.852 for FR-E700-NE) are too small.</li> <li>Electromagnetic interference.</li> <li>Cable breakage/damage.</li> <li>The personal computer port is set invalid or the port is broken.</li> <li>Power source was changed from the USB power supply or the 24 V external power supply to the main circuit power supply.</li> </ul> | <ul style="list-style-type: none"> <li>Set a larger value or "9999" in <b>Pr.122 PU communication check time interval</b>, <b>Pr.336 RS-485 communication check time interval</b>, <b>Pr.548 USB communication check time interval</b>, and <b>Pr.1432 Ethernet communication check time interval</b> (Pr.852 for FR-E700-NE).</li> <li>Set a larger value for the timeout setting of the software.</li> <li>Connect or replace the cable.</li> <li>Activate the port using Device Manager, or replace the port.</li> <li>Check the status of the inverter.</li> </ul> |
| 0x80010102                                                                                                   | The data received by the computer contains incorrect data.                           | <ul style="list-style-type: none"> <li>The <b>Pr.124 PU communication CR/LF selection</b> and <b>Pr.341 RS-485 communication CR/LF selection</b> settings are different with the software settings.</li> <li>Electromagnetic interference.</li> <li>Inverter reset (or power-OFF).</li> <li>Cable breakage.</li> </ul>                                                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>Match the <b>Pr.124 PU communication CR/LF selection</b> and <b>Pr.341 RS-485 communication CR/LF selection</b> settings with the software settings.</li> <li>Set a larger value in <b>Pr.121 PU communication retry count</b> and <b>Pr.335 RS-485 communication retry count</b>.</li> <li>Do not reset the inverter or turn OFF the inverter power during communication.</li> <li>Replace the cable.</li> </ul>                                                                                                               |
| 0x8001101B                                                                                                   | Not specified as the command source.                                                 | Appears if parameter writing or operation mode change is attempted through the unspecified command interface.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Check the command source.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 0x80011026                                                                                                   | Access is disabled by exclusion control.                                             | More than one device is trying to access the inverter.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Avoid device access conflict.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 0x80020001                                                                                                   | The communication line cannot be opened.                                             | Invalid communication data type.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Check the communication settings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 0x80020002                                                                                                   | The parameter outside the setting range cannot be written.                           | An out-of-range value was written to the parameter.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Set a value within the setting range, and enter the setting.<br>If a writing error occurs even if a value within the setting range is written, check for the writing requirements for each parameter. For the details on the writing requirements, refer to the Instruction Manual of the inverter.                                                                                                                                                                                                                                                                    |
| 0x80020003<br>0x80020004                                                                                     | An unexpected error occurred in S/W.                                                 | Please contact your sales representative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 0x80020005<br>0x80020006<br>0x80020007<br>0x80020008                                                         | The reception data could not be acquired.                                            | The sampling data could not be obtained by the high speed sampling.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>Close other applications.</li> <li>Set a larger value for the mask count.</li> <li>Decrease the number of sampling channels.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                         |
| 0x80020009                                                                                                   | The time cannot be set if the difference with the inverter time is 10 years or more. | Real time clock setting error                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Set appropriate time in <b>Pr.1006 to Pr.1008</b> of the inverter.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 0x80030001                                                                                                   | The specification of the communication port is incorrect.                            | The communication port is set disabled. Another application is already using the port.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <ul style="list-style-type: none"> <li>Activate the port using Device Manager.</li> <li>Close other applications, and establish the online connection.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                      |
| 0x80030002<br>0x80030003<br>0x80030004<br>0x80030005<br>0x80030006<br>0x80030007<br>0x80030008<br>0x80030009 | An unexpected error occurred in S/W.                                                 | Please contact your sales representative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Error code (HEX)                                                   | Error message                                                                | Possible cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Countermeasure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0x8003000A                                                         | USB communication was interrupted.                                           | Invalid USB communication settings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Check the system settings.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 0x8003000B                                                         | The communication line cannot be opened.                                     | Incorrect USB type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 0x8003000C                                                         | Duplication was detected in station number of the USB communication.         | Please contact your sales representative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 0x8003000D                                                         | An unexpected error occurred in S/W.                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 0x8003000E                                                         | The driver is not installed or broken.                                       | The driver is not installed or is broken.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Reinstall the software.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 0x8003000F<br>0x80030010<br>0x80030011<br>0x80030012<br>0x80030013 | An unexpected error occurred in S/W.                                         | Please contact your sales representative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 0x9000C05C                                                         | An unexpected error occurred in S/W.                                         | <ul style="list-style-type: none"><li>• Electromagnetic interference</li><li>• Cable breakage/damage.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"><li>• Try again.</li><li>• Check for cable connection.</li><li>• Replace any faulty cable.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 0x90010101                                                         | Communication was not established with the inverter within the timeout time. | <ul style="list-style-type: none"><li>• Electromagnetic interference.</li><li>• Cable is damaged or broken.</li><li>• The personal computer port is set invalid or the port is broken.</li><li>• The value in the network part of the IP address is not the same between the inverter and the personal computer. (Ethernet parameter setting)</li><li>• The communication driver failed to open.</li><li>• FR-A800-E/FR-A800-G/FR-F800-E/FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>The value set in <b>Pr.1432 Ethernet communication check time interval</b> is too small.</li><li>• FR-E700-NE<br/>The value set in <b>Pr.852 Ethernet communication check time interval</b> is too small.</li></ul> | <ul style="list-style-type: none"><li>• Reconnect or replace the cable.</li><li>• Activate the port using Device Manager, or replace the port.</li><li>• Use the same value in the network part of the IP address between the inverter and the personal computer. (Ethernet parameter setting)</li><li>• Establish the online connection.</li><li>• FR-A800-E/FR-A800-G/FR-F800-E/FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>Set a larger value or "9999" in <b>Pr.1432 Ethernet communication check time interval</b>.</li><li>• FR-E700-NE<br/>Set a larger value or "9999" in <b>Pr.852 Ethernet communication check time interval</b>.</li></ul> |

| Error code (HEX) | Error message                                                                | Possible cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Countermeasure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0x90010101       | Communication was not established with the inverter within the timeout time. | <ul style="list-style-type: none"> <li>• FR-A800-E/FR-A800-G/FR-F800-E<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.1427 to Pr.1429 Ethernet function selection.</b></li> <li>• FR-A800-E-R2R<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.1076 to Pr.1078 Ethernet function selection.</b></li> <li>• FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.1427 to Pr.1430 Ethernet function selection.</b></li> <li>• FR-E700-NE<br/>The function to communicate with FR Configurator2 is not set in <b>Pr.833 to Pr.835 Ethernet function selection.</b></li> </ul> | <p>"Ethernet" is selected from the "PC-side port" drop-down list and "Not used" from the "Through" drop-down list.</p> <ul style="list-style-type: none"> <li>• FR-A800-E/FR-A800-G/FR-F800-E<br/>Set the combination of "5001" (or "5002") and "45237" in any two of <b>Pr.1427 to Pr.1429.</b></li> <li>• FR-A800-E-R2R<br/>Set the combination of "5001" (or "5002") and "45237" in any two of <b>Pr.1076 to Pr.1078.</b></li> <li>• FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>Set the combination of "5001" (or "5002") and "45237" in any two of <b>Pr.1427 to Pr.1430.</b></li> <li>• FR-E700-NE<br/>Set the combination of "31" (or "32") and "20" in any two of <b>Pr.833 to Pr.835.</b></li> </ul> <p>"GOT" is selected from the "Through" drop-down list and the GOT and the inverter are connected via Ethernet.</p> <ul style="list-style-type: none"> <li>• FR-A800-E/FR-A800-G/FR-F800-E<br/>Set "5001", "5000", "5006", or "5008" in any parameter from <b>Pr.1427 to Pr.1429.</b></li> <li>• FR-A800-E-R2R<br/>Set "5001", "5000", "5006", or "5008" in any parameter from <b>Pr.1076 to Pr.1078.</b></li> <li>• FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>Set "5001", "5000", "5006", or "5008" in any parameter from <b>Pr.1427 to Pr.1430.</b></li> <li>• FR-E700-NE<br/>Set "31", "30", "36", or "38" in any parameter from <b>Pr.833 to Pr.835.</b></li> </ul> <p>"Programmable controller" or "GOT to programmable controller" is selected from the "Through" drop-down list.</p> <ul style="list-style-type: none"> <li>• FR-A800-E/FR-A800-G/FR-F800-E<br/>Set "5001" in any of <b>Pr.1427 to Pr.1429.</b></li> <li>• FR-A800-E-R2R<br/>Set "5001" in any of <b>Pr.1076 to Pr.1078.</b></li> <li>• FR-E800-(SC)E/FR-E806-SCE/FR-D800-E<br/>Set "5001" in any of <b>Pr.1427 to Pr.1430.</b></li> <li>• FR-E700-NE<br/>Set "31" in any of <b>Pr.833 to Pr.835.</b></li> </ul> |
| 0x90010101       | Communication was not established with the inverter within the timeout time. | PROFINET is selected in any of <b>Pr.1427 to Pr.1430 Ethernet function selection.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Do not set "34962" in any of <b>Pr.1427 to Pr.1430 Ethernet function selection.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 0x90A00101       | The communication line cannot be opened.                                     | The IP address is used by another inverter.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Set a unique IP address.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 0x90A00102       |                                                                              | The personal computer is disconnected from the network or the network setting is changed after the inverter detection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>• Restart the procedure from the inverter detection again.</li> <li>• Check the network connection and setting of the computer.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Error code (HEX) | Error message                                 | Possible cause                       | Countermeasure                                                                                                                                                                                                                                                            |
|------------------|-----------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0x90F00001       | The communication settings cannot be written. | The inverter series name is unknown. | <ul style="list-style-type: none"> <li>• Upgrade FR Configurator2 to the latest version.</li> <li>• Write the communication settings from the operation panel. For information on the communication settings, refer to the Instruction Manual of the inverter.</li> </ul> |
| 0x90F00002       |                                               | The inverter model is unknown.       |                                                                                                                                                                                                                                                                           |

## 5.1.2 Communication error with the GOT

### NOTE

- If a timeout error occurs, set the FR Configurator2 to the offline mode. Check the connection of the communication cable, etc., and remove any error causing condition, then set it to online.
- The parameter list of FR Configurator2 shows the parameters of the latest inverter at the time of the FR Configurator2 upgrade. (For the upgrade timing of FR Configurator2, refer to [page 296](#).) The parameters' setting range, initial value, and numbers may be different before and after a version upgrade (with functions added).
- Refer to [page 282](#) for information on communication errors with the GOT (error codes: 0x01808301 and 0x0180840B).

| Error code (HEX)         | Error message                                                                | Possible cause                                                                                                                                                                                                                                                                                                                                                                                               | Solution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0x80110001               | An unexpected error occurred in S/W.                                         | GOT type error.                                                                                                                                                                                                                                                                                                                                                                                              | Check for the GOT type.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 0x80110002<br>0x80110003 | An unexpected error occurred in S/W.                                         | Please contact your sales representative.                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 0x80110004               | Communication was not established with the inverter within the timeout time. | <ul style="list-style-type: none"> <li>• Communication protocol of the inverter and the GOT are not the same.</li> <li>• Setting of <b>Pr.122 PU communication check time interval</b>, <b>Pr.336 RS-485 communication check time interval</b>, <b>Pr.548 USB communication check time interval</b> is other than "0".</li> <li>• Electromagnetic interference.</li> <li>• Cable breakage/damage.</li> </ul> | <ul style="list-style-type: none"> <li>• Set the same communication protocol for the inverter and the GOT.</li> <li>• Set a value other than "0" in <b>Pr.122 PU communication check time interval</b>, <b>Pr.336 RS-485 communication check time interval</b>, <b>Pr.548 USB communication check time interval</b>.</li> <li>• Set a larger value for the timeout setting of the software.</li> <li>• Cable connection/replacement. Check for communication cable and power supply of devices.</li> </ul> |
| 0x80110005               | Communication was not established with the inverter within the timeout time. | GX drawing software was started when FR Configurator2 was starting.                                                                                                                                                                                                                                                                                                                                          | After closing GX drawing software, try communication again.                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 0x80110006               | Communication was not established with the inverter within the timeout time. | GX drawing software was started when FR Configurator2 was starting.                                                                                                                                                                                                                                                                                                                                          | After closing GX drawing software, try communication again.                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 0x80110007               | An unexpected error occurred in S/W.                                         | Communication line quality error                                                                                                                                                                                                                                                                                                                                                                             | Set lower baud rate and make a communication.                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 0x80110008               | An unexpected error occurred in S/W.                                         | Baud rate not supported by connected device                                                                                                                                                                                                                                                                                                                                                                  | Check for the baud rate supported by connected devices.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 0x80110009               | Communication was not established with the inverter within the timeout time. | <ul style="list-style-type: none"> <li>• Electromagnetic interference</li> <li>• Cable breakage/damage</li> </ul>                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>• Set a larger value for the timeout setting of the software.</li> <li>• Cable connection/replacement. Check for the connection.</li> </ul>                                                                                                                                                                                                                                                                                                                         |
| 0x8011000A               | Communication was not established with the inverter within the timeout time. | Other process is ongoing in the GOT and line is BUSY. (retry is performed in the EZSocket)<br>A station not connected is being monitored.                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>• Set a larger value for the timeout setting of the software.</li> <li>• Monitor only the station which the GOT is connected.</li> <li>• Check that the GOT is operating correctly and try again.</li> </ul>                                                                                                                                                                                                                                                        |
| 0x8011000B               | An unexpected error occurred in S/W.                                         | Protocol type error                                                                                                                                                                                                                                                                                                                                                                                          | Check for protocol type.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 0x8011000C               | An unexpected error occurred in S/W.                                         | Host name error                                                                                                                                                                                                                                                                                                                                                                                              | Check for the host name of the connected GOT.                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Error code (HEX)                                                                                                                                                                   | Error message                                                                | Possible cause                                                                                                                                                                                                                                                       | Solution                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| 0x8011000D                                                                                                                                                                         | An unexpected error occurred in S/W.                                         | Socket port number error                                                                                                                                                                                                                                             | Check for the port number.                                                                               |
| 0x80111001<br>0x80111002<br>0x80111003<br>0x80111004<br>0x80111005<br>0x80111101<br>0x80111102<br>0x80111103<br>0x80111104<br>0x80111105<br>0x80111106<br>0x80111107<br>0x801111FF | Communication was not established with the inverter within the timeout time. | Electromagnetic interference, etc. are propagated when receiving GOT software.                                                                                                                                                                                       | Set a larger value for timeout setting of the software and try again.                                    |
| 0x80112001                                                                                                                                                                         | The specification of the communication port is incorrect.                    | Serial line open error                                                                                                                                                                                                                                               | Check for the communication port setting.                                                                |
| 0x80112002                                                                                                                                                                         | An unexpected error occurred in S/W.                                         | Serial line closed error                                                                                                                                                                                                                                             | Try again.                                                                                               |
| 0x80112003                                                                                                                                                                         | An unexpected error occurred in S/W.                                         | Serial line setting error                                                                                                                                                                                                                                            | Try again.                                                                                               |
| 0x80112004                                                                                                                                                                         | An unexpected error occurred in S/W.                                         | Serial line baud rate error                                                                                                                                                                                                                                          | Try again.                                                                                               |
| 0x80112005                                                                                                                                                                         | Communication was not established with the inverter within the timeout time. | <ul style="list-style-type: none"> <li>Occurred before starting the FR Configurator2 or during communication.</li> <li>Serial cable between the GOT and the personal computer is disconnected.</li> </ul>                                                            | Connect the cable.                                                                                       |
| 0x80112201                                                                                                                                                                         | An unexpected error occurred in S/W.                                         | EZSocket GOT is installed, but the file is broken.                                                                                                                                                                                                                   | Install software again.                                                                                  |
| 0x80112202                                                                                                                                                                         | Communication was not established with the inverter within the timeout time. | <ul style="list-style-type: none"> <li>A cable between the GOT and the personal computer disconnected before starting FR Configurator2.</li> <li>The GOT power turned OFF before starting FR Configurator2.</li> </ul>                                               | <ul style="list-style-type: none"> <li>Connect the cable.</li> <li>Power ON the GOT.</li> </ul>          |
| 0x80112203                                                                                                                                                                         | Communication was not established with the inverter within the timeout time. | Electromagnetic interference, etc. are affecting between the personal computer and the GOT.                                                                                                                                                                          | Set a larger value for timeout setting of the software and try again.                                    |
| 0x80112204                                                                                                                                                                         | An unexpected error occurred in S/W.                                         | USB line error (at the GOT device error communication ending)                                                                                                                                                                                                        | Try again.                                                                                               |
| 0x80112205                                                                                                                                                                         | An unexpected error occurred in S/W.                                         | USB line error (sending function is invalid)                                                                                                                                                                                                                         | Try again.                                                                                               |
| 0x80112206                                                                                                                                                                         | An unexpected error occurred in S/W.                                         | USB line error (receiving function is invalid)                                                                                                                                                                                                                       | Try again.                                                                                               |
| 0x80112207                                                                                                                                                                         | An unexpected error occurred in S/W.                                         | USB line error (cable disconnection registration failure)                                                                                                                                                                                                            | After reconnecting with the GOT, try again.                                                              |
| 0x80112208                                                                                                                                                                         | Communication was not established with the inverter within the timeout time. | <ul style="list-style-type: none"> <li>USB line error (cable was disconnected halfway)</li> <li>When a cable between the GOT and the personal computer was disconnected during communication.</li> <li>When the GOT power turned OFF during communication</li> </ul> | <ul style="list-style-type: none"> <li>Check for cable connection.</li> <li>Power ON the GOT.</li> </ul> |
| 0x80112401                                                                                                                                                                         | An unexpected error occurred in S/W.                                         | The GOT was not found on the network.                                                                                                                                                                                                                                | Check that the GOT is connected to the network.                                                          |
| 0x80112402                                                                                                                                                                         | An unexpected error occurred in S/W.                                         | Socket line open error (socket generation failed)                                                                                                                                                                                                                    | Check that specified port number is correct and the IP address of the GOT is specified.                  |
| 0x80112403<br>0x80112404                                                                                                                                                           | An unexpected error occurred in S/W.                                         | Please contact your sales representative.                                                                                                                                                                                                                            |                                                                                                          |
| 0x80112405                                                                                                                                                                         | An unexpected error occurred in S/W.                                         | Network error                                                                                                                                                                                                                                                        | Check that the GOT is connected to the network.                                                          |

| Error code (HEX) | Error message                        | Possible cause                        | Solution                                                                     |
|------------------|--------------------------------------|---------------------------------------|------------------------------------------------------------------------------|
| 0x80112406       | An unexpected error occurred in S/W. | Connected socket forced disconnection | Check that the GOT is not making a communication in other connection method. |

### 5.1.3 List of errors related to functional safety

#### NOTE

- If a timeout error occurs, set the FR Configurator2 to the offline mode. Check the connection of the communication cable, etc., and remove any error causing condition, then set it to online.
- FR Configurator2 shows the safety parameters of the latest inverter at the time of the FR Configurator2 upgrade. (For the upgrade timing of FR Configurator2, refer to [page 296](#).) The parameters' setting range, initial value, and numbers may be different before and after a version upgrade (with functions added).

| Error code (HEX)         | Error message                                                                                  | Countermeasure                                                                                                                                                                                                                                       |
|--------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0x01A0000B               | Parameters of the inverter used are not supported by the existing version of FR Configurator2. | Upgrade FR Configurator2 to the latest version.                                                                                                                                                                                                      |
| 0x01A00117               | Safety parameter settings are corrupt.                                                         | <ul style="list-style-type: none"> <li>• Retry the operation interrupted by the fault.</li> <li>• Perform safety parameter clear.</li> </ul> <p>If the problem still persists after taking the above measure, contact your sales representative.</p> |
| 0x01A00217               |                                                                                                |                                                                                                                                                                                                                                                      |
| 0x01A00417               |                                                                                                |                                                                                                                                                                                                                                                      |
| 0x01A00301               |                                                                                                |                                                                                                                                                                                                                                                      |
| 0x01A00303               |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA001**01 <sup>*1</sup> | An unexpected error occurred in S/W.                                                           | Please contact your sales representative.                                                                                                                                                                                                            |
| 0xA002**01 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA001**02 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA002**02 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA001**03 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA002**03 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA001**04 <sup>*1</sup> | A communication error occurred.                                                                | Check the noise and wiring.                                                                                                                                                                                                                          |
| 0xA002**04 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA001**05 <sup>*1</sup> | An unexpected error occurred in S/W.                                                           | Please contact your sales representative.                                                                                                                                                                                                            |
| 0xA002**05 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA001**10 <sup>*1</sup> | A safety parameter reading error occurred.                                                     | <ul style="list-style-type: none"> <li>• Retry the operation interrupted by the fault.</li> <li>• Perform safety parameter clear.</li> </ul>                                                                                                         |
| 0xA002**10 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA001**11 <sup>*1</sup> | A safety parameter writing error occurred.                                                     | If the problem still persists after taking the above measure, contact your sales representative.                                                                                                                                                     |
| 0xA002**11 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA001**12 <sup>*1</sup> | An unexpected error occurred in S/W.                                                           | Please contact your sales representative.                                                                                                                                                                                                            |
| 0xA002**12 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA001**13 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA002**13 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA001**14 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA002**14 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA001**15 <sup>*1</sup> | Any value out of the setting range cannot be written.                                          | Write a value within the setting range.                                                                                                                                                                                                              |
| 0xA002**15 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA001**16 <sup>*1</sup> | Safety parameter settings are corrupt.                                                         | <ul style="list-style-type: none"> <li>• Retry the operation interrupted by the fault.</li> <li>• Perform safety parameter clear.</li> </ul> <p>If the problem still persists after taking the above measure, contact your sales representative.</p> |
| 0xA002**16 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA001**17 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA002**17 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |
| 0xA001**18 <sup>*1</sup> | A safety parameter clearing error occurred.                                                    |                                                                                                                                                                                                                                                      |
| 0xA002**18 <sup>*1</sup> |                                                                                                |                                                                                                                                                                                                                                                      |

| Error code (HEX)         | Error message                            | Countermeasure                                                                                                                                                                                                                                                                                                                           |
|--------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0xA001**20 <sup>*1</sup> | The password protection is still active. | <ul style="list-style-type: none"> <li>• Enter the correct password.</li> <li>• If you forget the password, perform safety parameter clear to reset the password to the initial value, then enter the password again.</li> </ul> <p>If the problem still persists after taking the above measure, contact your sales representative.</p> |
| 0xA002**20 <sup>*1</sup> |                                          |                                                                                                                                                                                                                                                                                                                                          |
| 0xA001**21 <sup>*1</sup> | A password writing error occurred.       | <ul style="list-style-type: none"> <li>• Retry the operation interrupted by the fault.</li> <li>• Perform safety parameter clear.</li> </ul> <p>If the problem still persists after taking the above measure, contact your sales representative.</p>                                                                                     |
| 0xA002**21 <sup>*1</sup> |                                          |                                                                                                                                                                                                                                                                                                                                          |
| 0xA00E**04 <sup>*1</sup> | A communication error occurred.          | Check the noise and wiring.                                                                                                                                                                                                                                                                                                              |
| 0xA00F**04 <sup>*1</sup> |                                          |                                                                                                                                                                                                                                                                                                                                          |

\*1 The value displayed in \*\* position depends on the applicable error.

# REVISIONS

\*The manual number is given on the bottom left of the back cover.

| Revision date | *Manual number      | Revision                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Jul. 2013     | IB(NA)-0600516ENG-A | First edition<br>(Ver.1.00 supported)                                                                                                                                                                                                                                                                                                                                                                           |
| Jun. 2013     | IB(NA)-0600516ENG-B | Added <ul style="list-style-type: none"> <li>• Compatibility with the FR-A802<br/>(Ver.1.03D supported)</li> </ul>                                                                                                                                                                                                                                                                                              |
| Mar 2015      | IB(NA)-0600516ENG-C | Added <ul style="list-style-type: none"> <li>• Compatibility with the FR-F800</li> <li>• Settings by function</li> <li>• I/O terminal monitor</li> <li>• Serial number reading<br/>(Ver.1.07H supported)</li> </ul>                                                                                                                                                                                             |
| Mar. 2016     | IB(NA)-0600516ENG-D | Added <ul style="list-style-type: none"> <li>• Parameter list (filter function)</li> <li>• Settings by function (acceleration/deceleration time setting, point table)</li> <li>• I/O terminal monitor</li> <li>• Batch monitor (trend monitor)</li> </ul> Edited <ul style="list-style-type: none"> <li>• Settings by function (trace setting)</li> <li>• Convert function<br/>(Ver.1.08J supported)</li> </ul> |
| May 2016      | IB(NA)-0600516ENG-E | Added <ul style="list-style-type: none"> <li>• Compatibility with the FR-A800-E</li> <li>• Settings by function (start command and frequency setting method)</li> <li>• Compatibility with Windows 10</li> <li>• Backup/restore file conversion<br/>(Ver.1.09K supported)</li> </ul>                                                                                                                            |
| Dec. 2016     | IB(NA)-0600516ENG-F | Added <ul style="list-style-type: none"> <li>• Compatibility with the FR-B, B3 and FR-F800-E<br/>(Ver.1.10L supported)</li> </ul>                                                                                                                                                                                                                                                                               |
| Jun. 2017     | IB(NA)-0600516ENG-G | Added <ul style="list-style-type: none"> <li>• Compatibility with the FR-A846, A846-E, F860 and F860-E</li> <li>• Compatibility with the 700 series (FR-A700, B, B3, F700 and F700P)</li> <li>• Diagnostics (Life check, Diagnosis result output, Ethernet status)<br/>(Ver.1.11M supported)</li> </ul>                                                                                                         |
| Oct. 2017     | IB(NA)-0600516ENG-H | Added <ul style="list-style-type: none"> <li>• Compatibility with the FREQROL-CS80</li> <li>• Compatibility with the 700 series (FR-E700-NE)<br/>(Ver.1.12N supported)</li> </ul>                                                                                                                                                                                                                               |
| Jan. 2018     | IB(NA)-0600516ENG-J | Added <ul style="list-style-type: none"> <li>• Compatibility with the FR-A800-E-CRN and FR-F806 series inverters, as well as the FREQROL-CS80 series single-phase 200 V class inverters.</li> <li>• Graph function (Export to Excel)</li> <li>• Diagnose function (Online status)<br/>(Ver.1.13P supported)</li> </ul>                                                                                          |
| Mar. 2018     | IB(NA)-0600516ENG-K | Added <ul style="list-style-type: none"> <li>• Compatibility with the FR-A870, A840-LC, A870-LC, A800-ELV, E700EX and E560<br/>(Ver.1.14Q supported)</li> </ul>                                                                                                                                                                                                                                                 |
| Jul. 2018     | IB(NA)-0600516ENG-L | Added <ul style="list-style-type: none"> <li>• GOT transparent function</li> <li>• Compatibility with the 700 series (FR-E700)<br/>(Ver.1.15R supported)</li> </ul>                                                                                                                                                                                                                                             |
| Nov. 2018     | IB(NA)-0600516ENG-M | Added <ul style="list-style-type: none"> <li>• GOT transparent function (applicable Intermediate paths added)</li> <li>• Compatibility with the 800 series (FR-A800-E-R2R)</li> <li>• Compatibility with 700 series (FR-D700)<br/>(Ver.1.16S supported)</li> </ul>                                                                                                                                              |
| Apr. 2019     | IB(NA)-0600516ENG-N | Added <ul style="list-style-type: none"> <li>• Compatibility with CC-Link IE TSN</li> <li>• Life check (main circuit capacitor residual-life estimation)<br/>(Ver.1.17T supported)</li> </ul>                                                                                                                                                                                                                   |

| Revision date | *Manual number       | Revision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dec. 2019     | IB(NA)-0600516ENG-P  | Added <ul style="list-style-type: none"> <li>• Compatibility with the 800 series (FR-E800, A872, and B4)</li> <li>• Compatibility with the 700 series (FR-D700-G)</li> </ul> (Ver.1.19V supported)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Jan. 2020     | IB(NA)-0600516ENG-Q  | Added <ul style="list-style-type: none"> <li>• AI fault diagnosis</li> </ul> (Ver.1.20W supported)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Feb. 2020     | IB(NA)-0600516ENG-R  | Edited <ul style="list-style-type: none"> <li>• AI fault diagnosis</li> </ul> (Ver.1.21X supported)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Apr. 2020     | IB(NA)-0600516ENG-S  | Added <ul style="list-style-type: none"> <li>• Compatibility with the 800 series (FR-E820S and FR-E800-SCE)</li> <li>• Safety parameter setting</li> </ul> (Ver.1.22Y supported)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Jul. 2020     | IB(NA)-0600516ENG-T  | Added <ul style="list-style-type: none"> <li>• Design precautions</li> <li>• Description for using the FR-A8NCG</li> </ul> (Ver.1.23Z supported)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Dec. 2020     | IB(NA)-0600516ENG-U  | Added <ul style="list-style-type: none"> <li>• Compatibility with the 800 series (FR-E800-11K to 22K)</li> </ul> (Ver.1.24A supported)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Apr. 2021     | IB(NA)-0600516ENG-V  | Added <ul style="list-style-type: none"> <li>• Compatibility with the 800 series (FR-E800-EPC)</li> <li>• Convert function (FR-E800)</li> </ul> (Ver.1.25B supported)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Aug. 2021     | IB(NA)-0600516ENG-W  | Added <ul style="list-style-type: none"> <li>• AI fault diagnosis (inverter overload trip (electronic thermal relay function) and motor overload trip (electronic thermal relay function))</li> </ul> (Ver.1.26C supported)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Jan. 2022     | IB(NA)-0600516ENG-X  | Added <ul style="list-style-type: none"> <li>• Firmware Update Tool</li> </ul> (Ver.1.27D supported)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Apr. 2022     | IB(NA)-0600516ENG-Y  | Added <ul style="list-style-type: none"> <li>• Safety parameter setting (Set TUNID and OCPUNID)</li> <li>• Convert function (FR-E500 to FR-E800)</li> </ul> Edited <ul style="list-style-type: none"> <li>• Connection and parameter setting</li> </ul> (Ver.1.28E supported)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Sep. 2022     | IB(NA)-0600516ENG-Z  | Added <ul style="list-style-type: none"> <li>• Compatibility with the 800 series (FR-E810W)</li> </ul> (Ver.1.29F supported)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Jan. 2023     | IB(NA)-0600516ENG-AA | Added <ul style="list-style-type: none"> <li>• Compatibility with the 800 series (FR-A800-E-AWH and FR-E800-HVC)</li> </ul> (Ver.1.30G supported)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Jul. 2023     | IB(NA)-0600516ENG-AB | Added <ul style="list-style-type: none"> <li>• Compatibility with the 800 series (FR-A800-F and FR-A800-G)</li> <li>• Compatibility with Windows 11</li> </ul> (Ver.1.31H supported)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Oct. 2023     | IB(NA)-0600516ENG-AC | Added <ul style="list-style-type: none"> <li>• Compatibility with the 800 series (FR-E806-SCE)</li> </ul> (Ver.1.32J supported)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Aug. 2024     | IB(NA)-0600516ENG-AD | Added <ul style="list-style-type: none"> <li>• Compatibility with the 800 series (FR-A840M and FR-E800-SCEPC)</li> <li>• AI fault diagnosis (brake transistor alarm detection, output side earth (ground) fault overcurrent, output phase loss, option fault, PU disconnection, parameter storage device fault (main circuit board), CPU fault, USB communication fault, safety circuit fault, speed deviation excess detection, Ethernet communication fault, board combination fault, option fault, and internal circuit fault)</li> </ul> Edited <ul style="list-style-type: none"> <li>• Chapter 2 CONNECTION WITH DEVICES (800 SERIES): USB connection, Connection using serial communication, Connection using Ethernet</li> <li>• Chapter 3 CONNECTION WITH DEVICES (700/500 SERIES): USB connection, Connection using serial communication, Connection using Ethernet</li> </ul> (Ver.1.33K supported) |

| Revision date | *Manual number       | Revision                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Jan. 2025     | IB(NA)-0600516ENG-AE | Added <ul style="list-style-type: none"> <li>• Compatibility with the 800 series (FR-D800)</li> <li>• Offline AI fault diagnosis (Ver.1.34L supported)</li> </ul>                                                                                                                                                                                                                                                                   |
| Mar. 2025     | IB(NA)-0600516ENG-AF | Added <ul style="list-style-type: none"> <li>• Restrictions for output terminal (FM) calibration (Ver.1.34L supported)</li> </ul>                                                                                                                                                                                                                                                                                                   |
| Sep. 2025     | IB(NA)-0600516ENG-AG | Added <ul style="list-style-type: none"> <li>• Compatibility with the 800 series (FR-E800-NC)</li> <li>• CONNECTION WITH DEVICES<br/>GOT3000<br/>MX Controller</li> <li>• Convert function (FR-E700EX to FR-E800)</li> </ul> Edited <ul style="list-style-type: none"> <li>• End of support for Windows 10 (Ver.1.35M supported)</li> </ul>                                                                                         |
| Apr. 2026     | IB(NA)-0600516ENG-AH | Added <ul style="list-style-type: none"> <li>• Convert function (FR-F700PJ to FR-D800)</li> </ul> Edited <ul style="list-style-type: none"> <li>• Convert function (FR-E700EX to FR-E800)</li> <li>• Integrated Chapter 2 CONNECTION WITH DEVICES (800 SERIES) and Chapter 3 CONNECTION WITH DEVICES (700/500 SERIES), and edited the contents. Reorganized the chapter structure after Chapter 3. (Ver.1.36N supported)</li> </ul> |
|               |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                     |

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