



English

User Manual

UPS Gen² Configuration Software

UPS Gen² Configuration v2.2

UPS Gen² Configuration

Device Informations

Input Voltage:	24,15	V
Output Voltage:	24,17	V
Output Current:	0,58	A
Runtime to Full:	—	min.
Runtime to Empty:	—	min.

Battery Voltage:	15,90	V
Battery Current:	0	A
State of Charge:	100	%
Battery Temperature:	23	°C
Battery Cycles:	0	CY

Parameter

<input checked="" type="checkbox"/> Load Sensor 200 mA	<input checked="" type="checkbox"/> Shut Down OS at SOC 23 %	<input type="checkbox"/> Ignition timer 30 sec.
<input checked="" type="checkbox"/> Shut Down OS in: 240 sec.	<input type="checkbox"/> Min. SOC to start-up 20 %	Relay Event Power Fail - NC Evid
<input type="checkbox"/> Maximum Backup Time 7 sec.	Restart Delay 10 sec.	Battery Low Threshold 20 %

Device: UPSI-2406DP1
SN: 203B05600074
Firmware: v2.1.17R (Jan 12 2021 15:53:43)

Hw-Version: 9.0.1
Energy Pack: BP-LIO-1525
Port: COM7


Cpu Core
38 °C

Reset Parameter... Save...


Revision Directory

Date	Change
15.03.2021 Revision 0-1	Initial version
20.04.2021 Revision 1	Release version

UPS Gen² Configuration v2.2
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UPS Gen² Configuration



Device Informations

Input Voltage:	24.15	V
Output Voltage:	24.17	V
Output Current:	0.58	A
Runtime to Full:	—	min.
Runtime to Empty:	—	min.



Battery Voltage:	15.90	V
Battery Current:	0	A
State of Charge:	100	%
Battery Temperature:	23	°C
Battery Cycles:	0	CY

Parameter

<input checked="" type="checkbox"/> Load Sensor <div style="text-align: center;"> <input type="text" value="200"/> mA </div>	<input checked="" type="checkbox"/> Shut Down OS at SOC <div style="text-align: center;"> <input type="text" value="23"/> % </div>	<input type="checkbox"/> Ignition timer <div style="text-align: center;"> <input type="text" value="30"/> sec. </div>
<input checked="" type="checkbox"/> Shut Down OS in: <div style="text-align: center;"> <input type="text" value="240"/> sec. </div>	<input type="checkbox"/> Min. SOC to start-up <div style="text-align: center;"> <input type="text" value="20"/> % </div>	Relay Event <div style="text-align: center;"> <input type="text" value="Power Fail - NC"/> Evid </div>
<input type="checkbox"/> Maximum Backup Time <div style="text-align: center;"> <input type="text" value="7"/> sec. </div>	Restart Delay <div style="text-align: center;"> <input type="text" value="10"/> sec. </div>	Battery Low Threshold <div style="text-align: center;"> <input type="text" value="20"/> % </div>

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 SN: 203B05600074
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A Introduction and description

Read carefully before initial operation !

UPS Gen² Configuration Software is required for setting parameters and programming new firmware for all UPSI Gen² devices under Microsoft® Windows. The software tool also shows the operating status of the UPS and its energy storage device and could be connected only via USB to following devices:

DEVICE MODEL	FIRMWARE VERSION
UPSI-1208(D)	≥2.1.16
UPSI-1208DPx	≥2.1.16
UPSI-2406(D)	≥2.1.16
UPSI-2406DPx	≥2.1.16
UPSI-2412(D)	≥2.2.4
UPSI-2412DPx	≥2.2.4
UPSI-IP-1 series	≥2.1.16
UPSI-IP-2 series	≥2.1.16

All models shown above have integrated the native UPS device group via USB/HID-UPS (HID Power Class). The most operating systems (OS) recognize without additional driver the UPSI models via Plug & Play and can be used with the own energy settings of the OS.

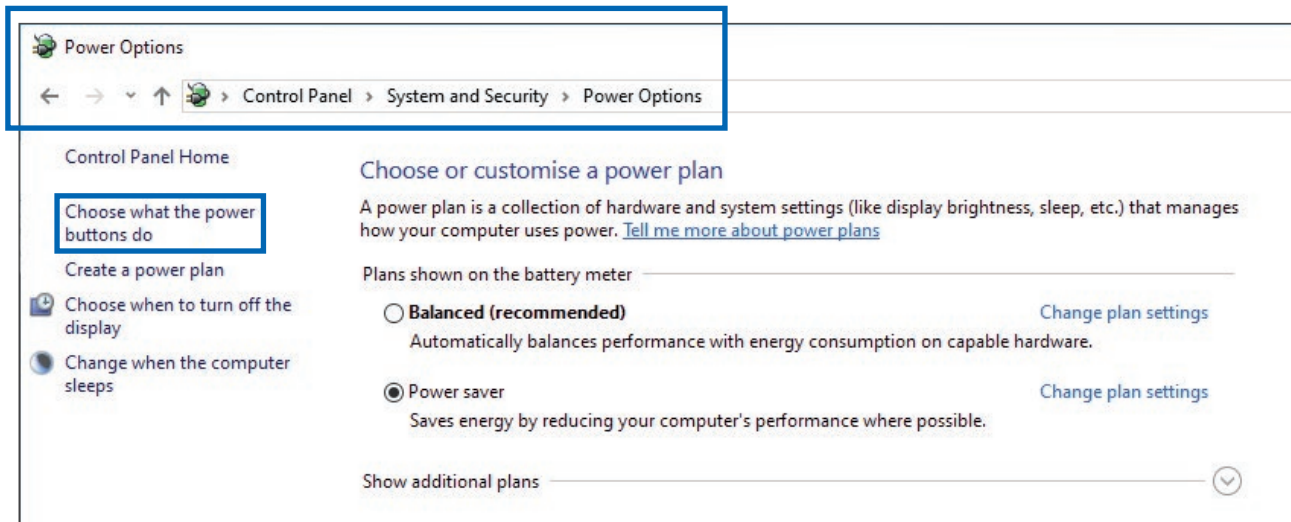
UPS Gen² software tool brings additional settings as shutdown via time and other important features.

In this Software user manual we only refer to the Microsoft® Windows operating systems. For other operating systems, reference is made to their operating instructions.

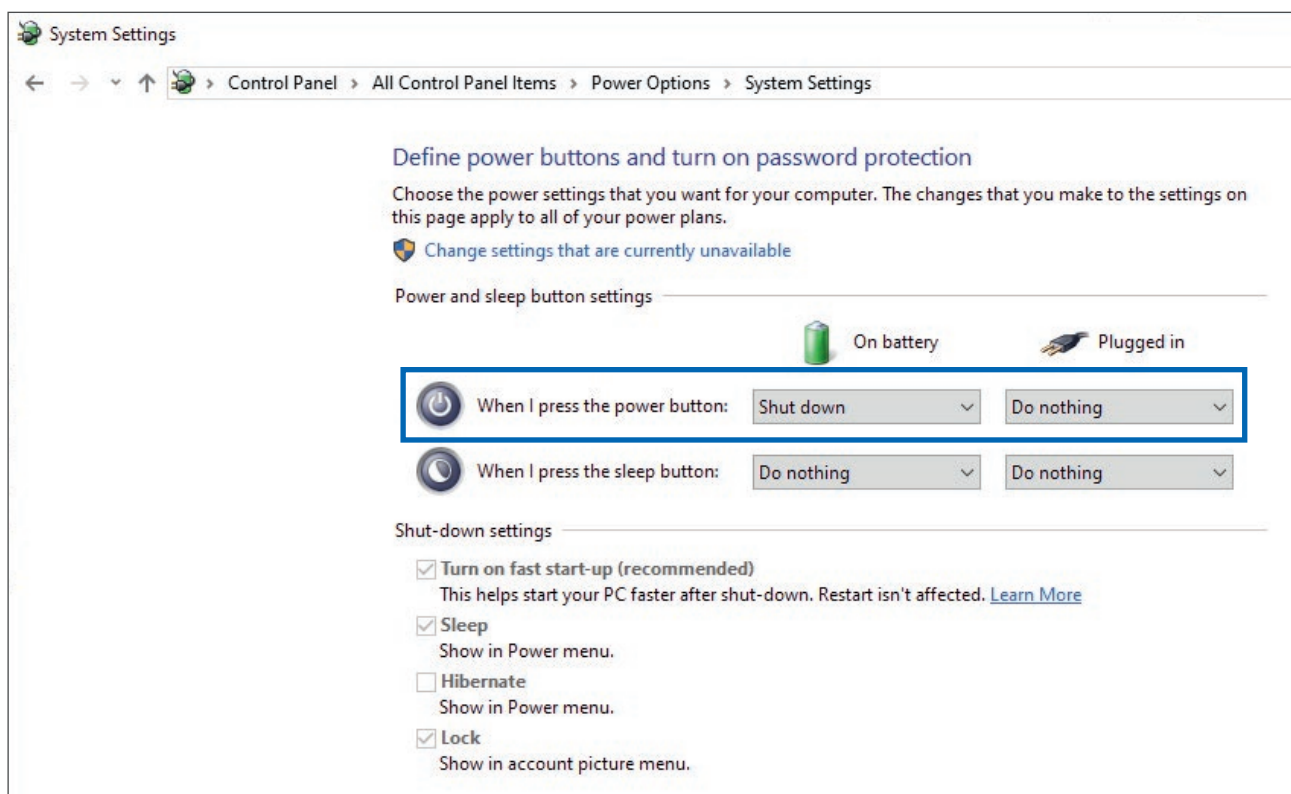
B Windows® settings

When using the Windows® software to shut down the system, it has to be ensured that the following settings are done!

Control Panel >> System and Security >> Power Options



Choose what the power buttons do
>> When I press the power button: Shut down



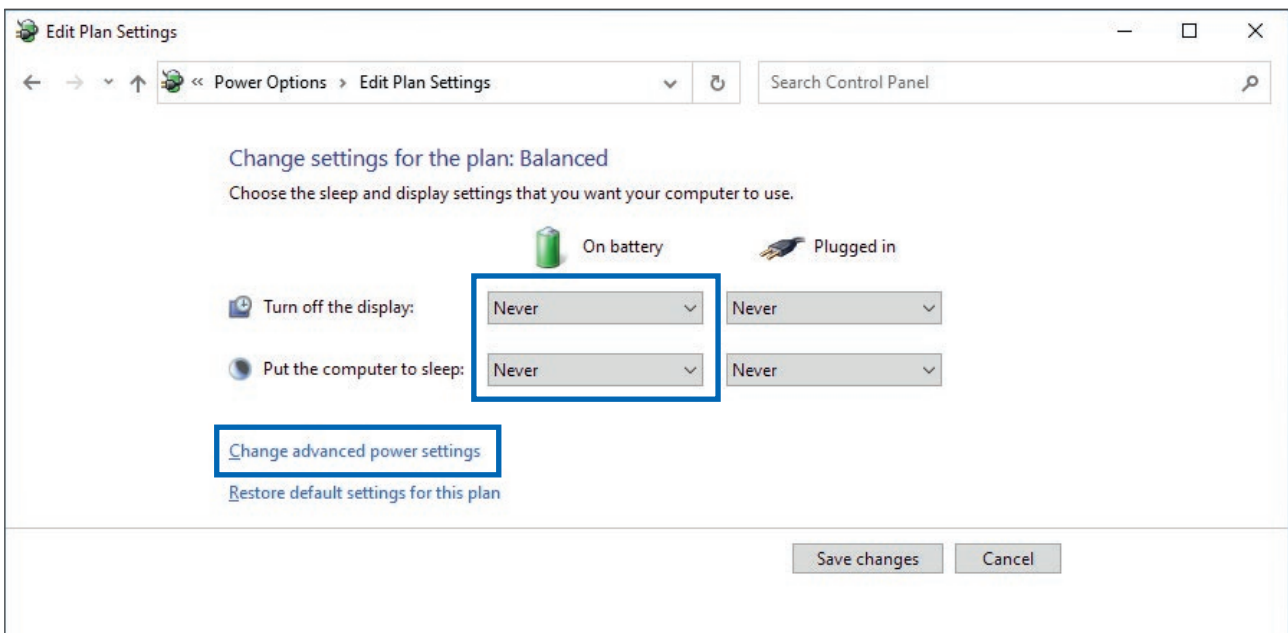
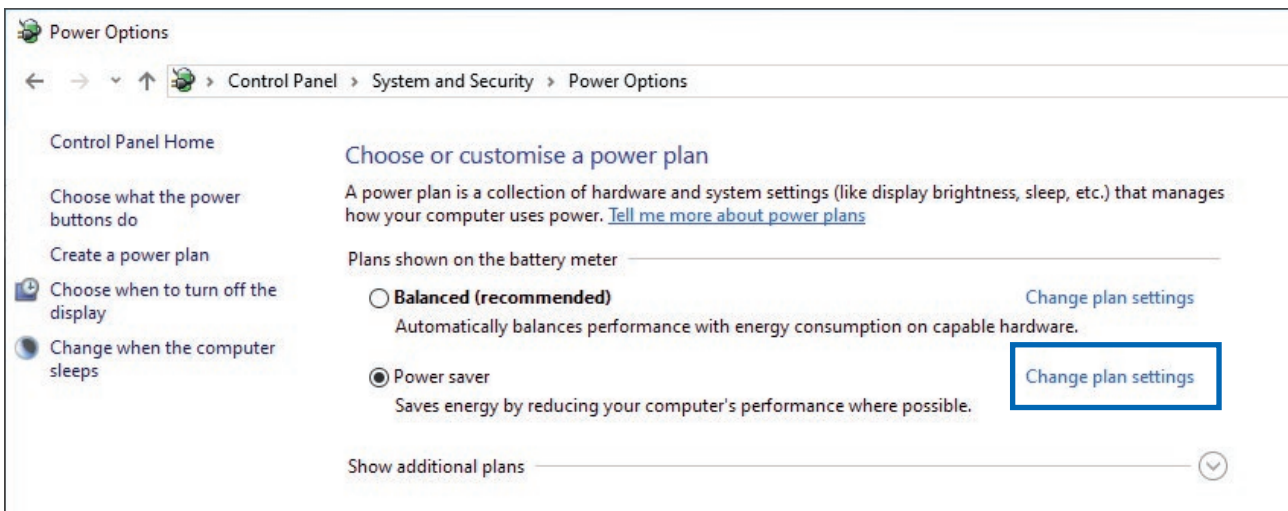
Battery settings:

Usually Microsoft® Windows offers settings to make a save shutdown during black out.

As standard, Microsoft® Windows offers configuration options to control the clean shutdown in the event of voltage errors.

The settings for battery can be found under:

Power Options >> Edit Plan Settings >> Change advanced power settings



The settings "On battery" must be set to "Never", otherwise the computer could go to "Sleep Mode" during "On battery" mode. Then the load sensor will switch off PC although PC is "On battery" (UPS mode).

Power Options / Advanced settings / Battery

CRITICAL BATTERY NOTIFICATION

On Battery: on

Plugged in: on

The Critical battery notification allows users to turn on or off whether a notification is shown when battery capacity reaches the Critical battery level.

CRITICAL BATTERY ACTION

On Battery: Shut down

Plugged in: Do nothing (e.g.)

At above settings the OS will shut down on critical battery.

LOW BATTERY LEVEL

On Battery: 50% (e.g.)

Plugged in: 50% (e.g.)

Determines the battery (percentage) for the low-battery-level warning. This value should be generous, well above the critical level.

CRITICAL BATTERY LEVEL

On Battery: 30 % (e.g.)

Plugged in: 50 % (e.g.)

Sets the battery power level (percentage) for the critical battery-level action.

LOW BATTERY NOTIFICATION

On Battery: on

Plugged in: on

The Low battery notification allows users to turn on or off whether a notification is shown when battery capacity reaches the Low battery level.

LOW BATTERY ACTION

On Battery: Shut down

Plugged in: Do nothing (e.g.)

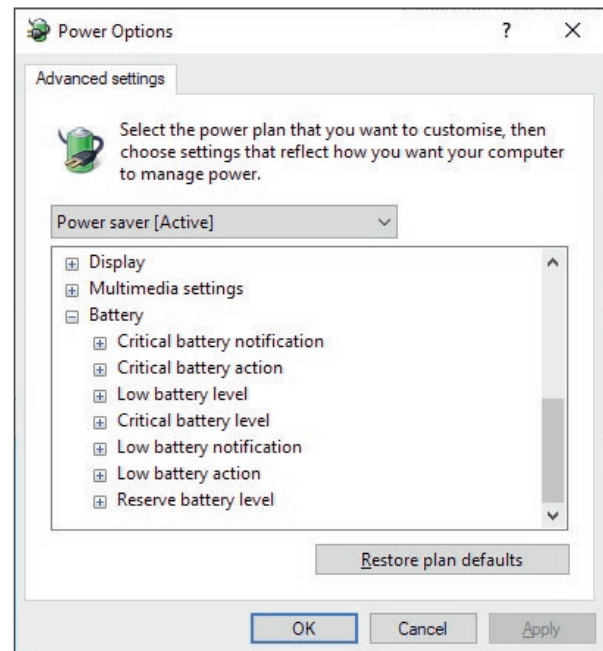
At above settings the OS will shut down on Low battery.

RESERVE BATTERY LEVEL

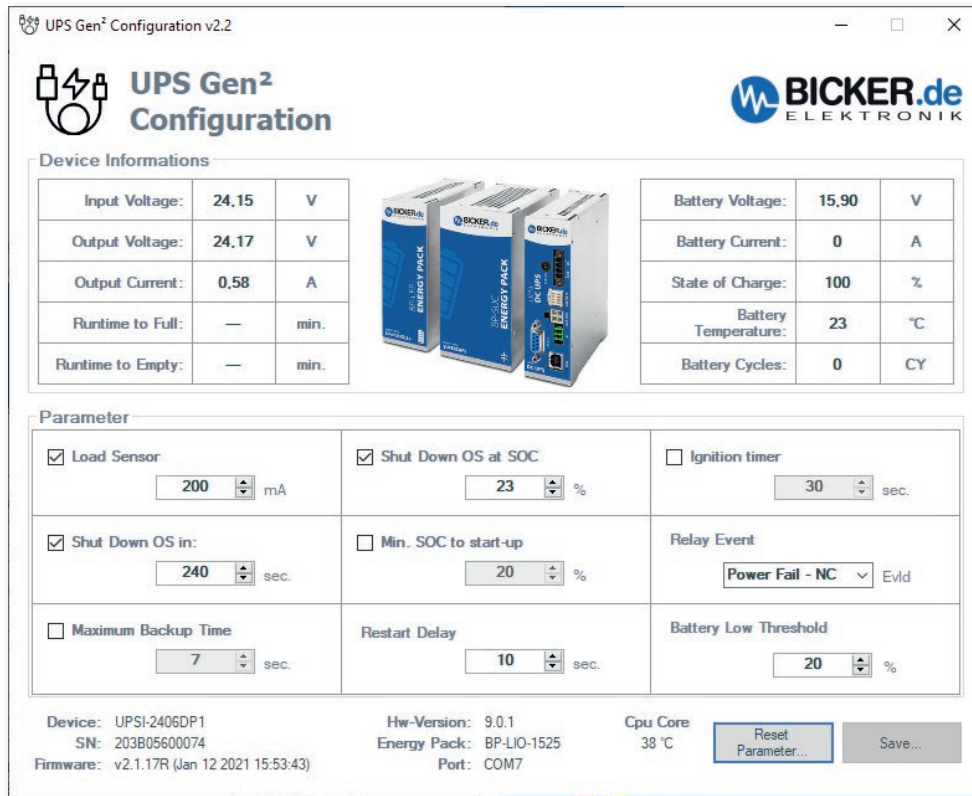
On Battery: 20 % (e.g.)

Plugged in: 50 % (e.g.)

Sets the Reserve battery power level (percentage) for the Reserve battery-level action.



C UPS Gen² software



DEVICE INFORMATION	DESCRIPTION
Display mode – no settings possible	
Input voltage	Input voltage only displayed during normal operation
Output voltage	Output voltage displayed always
Output current	Current of application
Runtime to full	Charging time until 100% capacity is reached
Runtime to empty	Remaining time under current load conditions
Battery voltage	Voltage at storage medium
Battery current	Current at storage medium
State of charge	Charge status of storage medium
Battery temperature	Temperature of the battery
Battery cycles	Full cycles of the battery (SUC not supported)

PARAMETER adjustable	VALUE / UNIT	DESCRIPTION
Load Sensor	50 ... 4000 mA in steps of mA	If the current value of load sensor falls below the set value in UPS operation, the UPS switches off the connected system at the output. The system is then disconnected for x seconds (Restart Delay) in order for running the reboot function, in case input voltage has returned.
Shutdown OS	1 ... 65535 s in steps of seconds	Relates to backup time on battery: After this time is expired and the input voltage of UPS is still missing, the shutdown process of the PC-system gets started. If the voltage returns at the grid side within this time there will be no action for shutting down OS.
Maximum Backup Time	1 ... 65535 s in steps of seconds	After this time the application at output of UPS will be disconnected. This setting can be used for systems which do not need a shut down process or in case the application hangs up and has to be "hard" disconnected. If you will use it for an PC-system the shutting time of the OS plus minimum 30% should be fine.
Shutdown OS at SOC	1 ... 99% in steps of 1 %	Relates the capacity of the energy source: After the set capacity has expired (SOC State of charge) and the input supply is still missing, the shutdown process of the PC gets started. If the voltage returns at the grid side within this % SOC there will be no action.
Min. SOC to start up	1 ... 99% in steps of 1 %	Minimum capacity for enable output UPS. After the set capacity has expired (SOC State of charge) the UPS output is enabled. Hereby can be secured that the application can safely be powered at a power fail. As a result, the switch-on time can be delayed.
Restart Delay	1 ... 65535 s in steps of seconds	Time delay after disconnecting the application for a renewed activation of the preconnected power supply. If the main power of power supply supply returns while or afterwards the shutdown process, the application will be restarted via the output of the UPS. So for example a PC will reboot if this functionality is also set at PC BIOS.
Ignition Timer	1 ... 65535 s in steps of seconds	A second signal (X10 Pin6 = V+ auf Pin3 = GND) is evaluated. If it shows „high“ (>3.8 V, 29 V max) this time is used instead of shut-down time to shut down the system. This setting can be used to adjust an alternative time than the „Shutdown System After“ setting. If a „high“ signal is present the time of „Shutdown System After“ is ignored and the „Ignition Timer“ time is used to delay the shut down process.
Relay Event Pull down menue description see next page		

PARAMETER adjustable	VALUE / UNIT	DESCRIPTION
Relay Event	Hardware revision (UPSI-2406/1208 ≥ 9.0)	Pull down menu
Power Fail NC		NC, normally closed, in battery mode (power fail) the relay contact is closed
Power Fail NO		NO, normally open, in battery mode (power fail) the relay contact is open
Shutdown impuls		Can shut down the PC via "Start Push button", the relay must be connected parallel to this Start Push button (pulse length ~700 ms)
Battery LOW NC		NC, normally closed, in battery mode (power fail) at x % SOC the contact will open
Battery LOW Threshold	1 ... 99 % in steps of 1 %	Relates the capacity of the energy source: After the set capacity has expired (SOC State of charge), the Battery Low NC (Relay Event) is enabled.

Further information

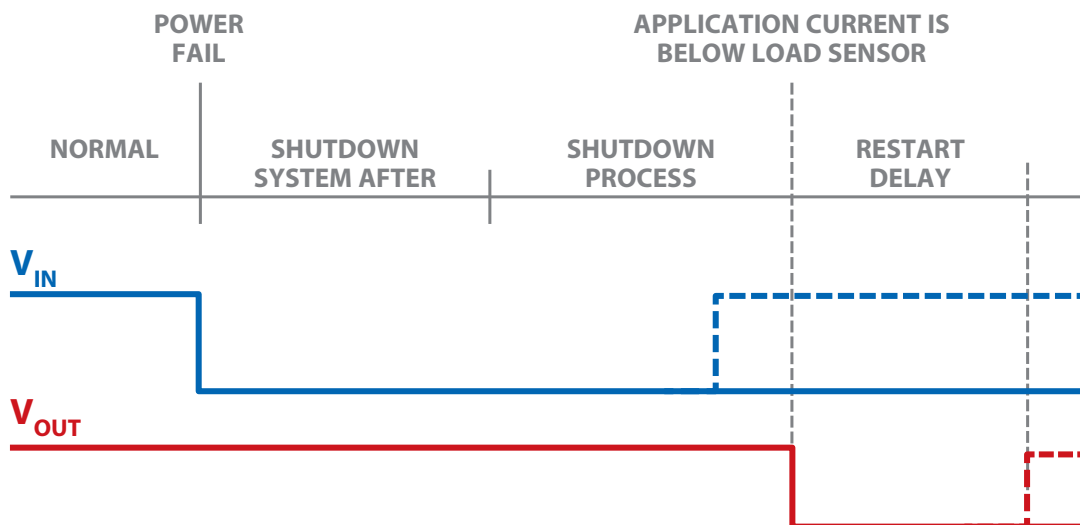
Combination of „Shut Down OS in sec“ and „Shut Down OS at SOC (%“:
Depending on what is achieved first, causes the operating system to shutdown.

Resetting parameters

With „Reset Parameter...“ the settings are reset to the default values.

Saving parameters

With „Save...“ the settings are saved on the UPS. Software can be closed.



D Firmware update

1. CLICK ON „FIRMWARE“ ON THE BOTTOM LEFT

UPS Gen²
Configuration

Device Informations

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Runtime to Full:	—	min.
Runtime to Empty:	—	min.

Battery Voltage:	15,90	V
Battery Current:	0	A
State of Charge:	100	%
Battery Temperature:	23	°C
Battery Cycles:	0	CY

Parameter

<input checked="" type="checkbox"/> Load Sensor <div style="text-align: center;">200 mA</div>	<input checked="" type="checkbox"/> Shut Down OS at SOC <div style="text-align: center;">23 %</div>	<input type="checkbox"/> Ignition timer <div style="text-align: center;">30 sec.</div>
<input checked="" type="checkbox"/> Shut Down OS in: <div style="text-align: center;">240 sec.</div>	<input type="checkbox"/> Min. SOC to start-up <div style="text-align: center;">20 %</div>	Relay Event <div style="text-align: center;">Power Fail - NC Evld</div>
<input type="checkbox"/> Maximum Backup Time <div style="text-align: center;">7 sec.</div>	Restart Delay <div style="text-align: center;">10 sec.</div>	Battery Low Threshold <div style="text-align: center;">20 %</div>

Device: UPSI-2406DP1
 SN: 203B05600074
Firmware: v2.1.17R (Jan 12 2021 15:53:43)

Hw-Version: 9.0.1
 Energy Pack: BP-LIO-1525
 Port: COM7

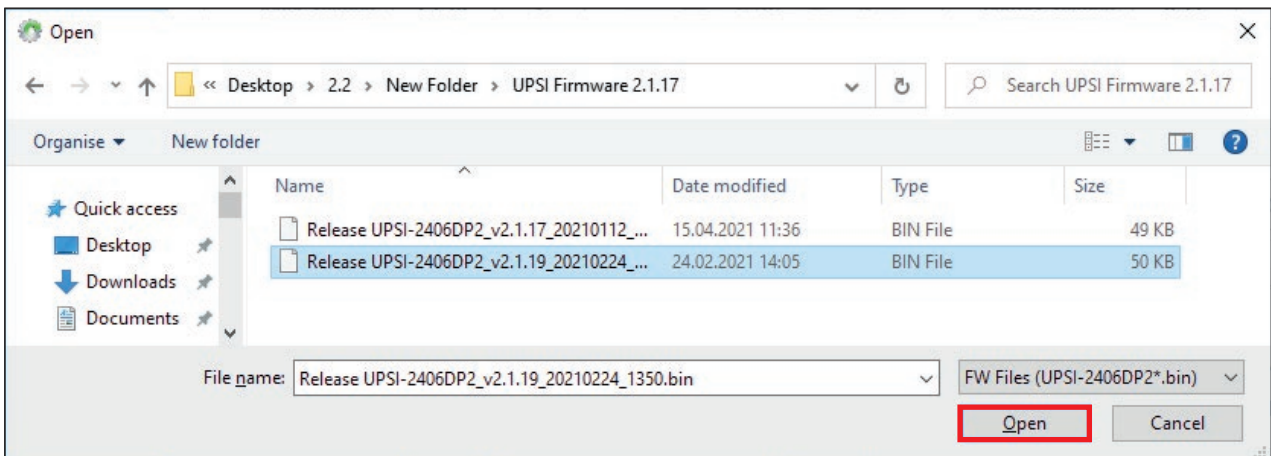
Cpu Core
 38 °C

Reset
Parameter...
Save...

2. CHOOSE FIRMWARE FILE AND PRESS „FILE“



2.1 PRESS „OPEN“



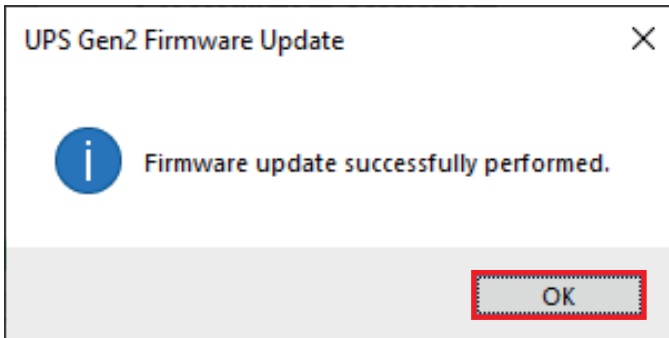
2.2 PRESS „START“



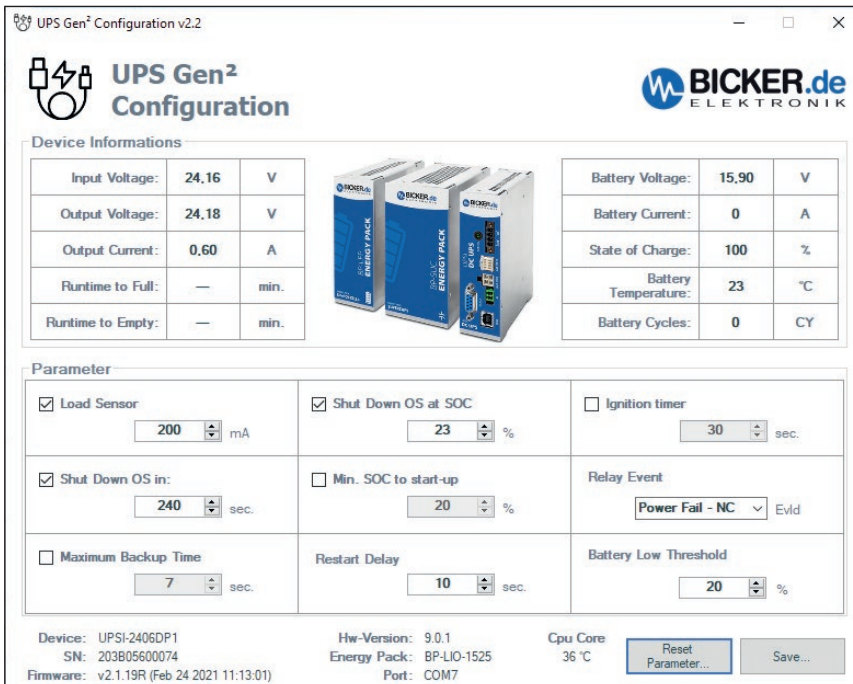
3. FIRMWARE WILL BE COPIED TO THE UPSI



3.1 FIRMWARE UPDATE SUCCESSFULLY PERFORMED. PRESS „OK“



4. UPS GEN2 SOFTWARE SURFACE



E Communication protocol

Transfer Packet

The description of the protocol refers to the RS232 (serial). The protocol is equally valid for data which will be sent and received.

Transfer Packet						
Control Byte	Data Packet					Control Byte
	Header			D	A	
Byte 0	Byte 1	Byte 2	Byte 3	Byte 4 to 254 (can be null)		Last Byte
ASCII 'SOH' (0x01)	Size of Data Packet = 'Size of Header' + 'Size of used Data'	Command Index	Command Number	Transfer or Received Data		ASCII 'EOT' (0x04)

Description

The data transfer always begins with a „start character“ (0x01) and always ends with an „end character“ (0x04). After sending the start sign the „header“ follows with a size of 3 byte. The header contains information about the size of the data packet (see upper figure), the device index and the data record which will be executed or received. After transmission of the data packet it will be terminated with a „final character“ (0x04).

Important: All received and sent data (Byte 4 to Byte 254) have Little Endian byte sequence.

RS232 (Serial Port)	
Baudrate	38400
Data length	8-bit
Stop bit	1
Parity	Disabled
DTR	Enabled

USB CDC (VCOM)	
Baudrate	Not relevant
Data length	8-bit
Stop bit	1
Parity	Disabled
DTR	Enabled

F List of Commands

Command Indexes

INDEX NO.	DESCRIPTION
0x01	Generic
0x07	Parameter
0xFE	Event Logging (future use)

F1 Command Index "Generic" 0x01

Status Flags - 0x40

This read function returns the ups status flags.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x40	StatusFlags()	R	UInt8	–	–	–

Transfer Packet: 0x01 0x03 0x01 0x40 0x04

UPSI STATUS FLAGS							
NA	NA	OCF	SHR	BP	PP	DCHRG	CHRG
		Overcurrent	Shutdown Received	Battery Present	Power Present	Discharging	Charging
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0

Input Voltage - 0x41

This read function returns the input voltage.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x41	InputVoltage()	R	UInt16	0	65535	mV

Transfer Packet: 0x01 0x03 0x01 0x41 0x04

Input Current - 0x42

This read function returns the input current.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x42	InputCurrent()	R	UInt16	0	65535	mA

Transfer Packet: 0x01 0x03 0x01 0x42 0x04

Output Voltage - 0x43

This read function returns the output voltage.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x43	OutputVoltage()	R	UInt16	0	65535	mV

Transfer Packet: 0x01 0x03 0x01 0x43 0x04

Output Current - 0x44

This read function returns the output current.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x44	OutputCurrent()	R	UInt16	0	65535	mA

Transfer Packet: 0x01 0x03 0x01 0x44 0x04

Battery Voltage - 0x45

This read function returns the voltage from connected battery pack.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x45	BatteryVoltage()	R	UInt16	0	65535	mV

Transfer Packet: 0x01 0x03 0x01 0x45 0x04

Battery Current - 0x46

This read function returns the current from connected battery pack.

Positive value indicates a charge. Negative value indicates a discharge.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x46	BatteryCurrent()	R	Int16	-32768	+32767	mA

Transfer Packet: 0x01 0x03 0x01 0x46 0x04

Battery SOC - 0x47

This read function returns the actual state of charge from connected battery pack.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x47	BatterySoc()	R	UInt8	0	100	%

Transfer Packet: 0x01 0x03 0x01 0x47 0x04

Battery SOH - 0x48

This read function returns the actual state of health from connected battery pack.

Not implemented yet.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x48	BatterySoh()	R	UInt8	0	100	%

Transfer Packet: 0x01 0x03 0x01 0x48 0x04

Battery Cycles - 0x49

This read function returns the actual number of full charge/discharge cycles of connected battery pack.

Not implemented for all energy packs.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x49	BatteryCycles()	R	UInt16	0	65535	Cycles

Transfer Packet: 0x01 0x03 0x01 0x49 0x04

Battery Temperature - 0x4A

This read function returns the actual temperature from connected battery pack (273.5 K ~ 0 °C).

A value of „0“ indicates that no temperature sensor is connected.

Not implemented for all energy packs.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x4A	GetBatteryTemperature()	R	UInt16	233	424	Kelvin

Transfer Packet: 0x01 0x03 0x01 0x4A 0x04

Manufacturer - 0x60

This read function returns the manufacturer of device.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x60	Manufacturer()	R	char[]	–	–	–

Transfer Packet: 0x01 0x03 0x01 0x60 0x04

Serial Number - 0x61

This read function returns the serial number of devices.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x61	SerialNumber()	R	char[]	–	–	–

Transfer Packet: 0x01 0x03 0x01 0x61 0x04

Device Name - 0x62

This read function returns the model of device.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x62	DeviceName()	R	char[]	–	–	–

Transfer Packet: 0x01 0x03 0x01 0x62 0x04

FW Version - 0x63

This read function returns the firmware version.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x63	GFirmwareVersion()	R	char[]	–	–	–

Transfer Packet: 0x01 0x03 0x01 0x63 0x04

Battery Pack - 0x64

This read function returns the connected energy storage pack (P/N).

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x64	BatteryPack()	R	char[]	–	–	–

Transfer Packet: 0x01 0x03 0x01 0x64 0x04

FW Core Version - 0x65

This read function returns the firmware UPS-Core-System version.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x65	FwCoreVersion()	R	char[]	–	–	–

Transfer Packet: 0x01 0x03 0x01 0x65 0x04

CPU Temperature - 0x66

This read function returns the CPU-Core temperature.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x66	CpuTemperature()	R	Int8	–127	127	°C

Transfer Packet: 0x01 0x03 0x01 0x66 0x04

HW Version - 0x67

This read function returns the Hardware Version.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x67	HwVersion()	R	char[]	-127	127	°C

Transfer Packet: 0x01 0x03 0x01 0x67 0x04

UPS Output - 0x21

This read / write function enables or disables the ups output static or in a time window.

Not implemented in all devices.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x21	Get/Set UpsOutput ()	R/W	UInt8	0	255	sec.

Transfer Packet: 0x01 0x03 0x01 0x21 0x04 => Returns True/False

Transfer Packet: 0x01 0x04 0x01 0x21 [**aa**] 0x04

VALUE	DESCRIPTION
0	Disable
1-254	Disable and restart in [aa] seconds
255	Enable

Shutdown Flag - 0x2F

This read / write function is used by an external program that initiate the OS shutdown.

In this case the program must tell the UPS the shutdown by setting this flag to True.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x22	Get/SetUpsShutdownFlag()	R/W	UInt8	False	True	Bool

Transfer Packet: 0x01 0x03 0x01 0x2F 0x04 => Returns the set value.

Transfer Packet: 0x01 0x04 0x01 0x2F [**aa**] 0x04 => Set the flag and returns the value.

Reset Parameter Settings - 0x7A

This function set the UPS-Parameter to standard values and returns the complete parameter list (like ParameterList()).

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x7A	ResetParameterSettings()	R	-	-	-	-

Transfer Packet: 0x01 0x03 0x01 0x7A 0x04

F2 Command Index “Parameter” 0x07

List of Parameter IDs

ID	DESCRIPTION
0x00	Dummy entry. Do not use!
0x01	Load Sensor.
0x02	Maximum Backup Time.
0x03	OS Shutdown by Timer.
0x04	Restart Delay Timer.
0x05	Minimum Capacity To Start.
0x06	Maximum Backup Time by IN-1.
0x07	OS Shutdown by SOC.
0x08	Battery SOC Low Threshold.
0x09	Relay Event Configuration.
0x0A	RS232 Port Configuration. -Place holder-

Parameter Structure

The data format: 0x[AA] 0x[bBBB] 0x[ccCC] 0x[ddDD] 0x[EE] 0x[ffff]

VALUE	DESCRIPTION	ACCESS	TYPE
AA	Parameter ID	R	Byte
BBbb	Minimum Value	R	UInt16
CCcc	Maximum Value	R	UInt16
DDdd	Standard Value	R	UInt16
EE	Is Enabled	R/W	Byte/Bool
FFff	Value	R/W	UInt16

NOTE: The size of parameter structure is 10 bytes long.

Get Parameter List - 0x00

This function returns the complete parameter list (List of Parameter IDs).

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x00	GetParameterList()	R	ParameterStructure[11]	–	–	–

Transfer Packet: 0x01 0x03 0x07 0x00 0x04

NOTE: The complete size of transferred data is (number of id's) * (size of parameter structure).

Get / Set Parameter ID - 0x01 to 0x0A

This function read or write the specified parameter.

CMD	NAME	ACCESS	TYPE	MIN.	MAX.	UNIT
0x01 to 0x0A	PARAMETERNAME()	R/W	ParameterStructure	–	–	–

Transfer Packet: GET: 0x01 0x03 0x07 0x[AA] 0x04

SET: 0x01 0x06 0x07 0x[AA] 0x[EE] 0x[ffff] 0x04

NOTE: To set a parameter, only the AA(Parameter ID), EE(Is Active), ffff(Value) have to transfer! (4 bytes long)

Load Sensor - 0x01

VALUE	DESCRIPTION	UNIT
0x01	Parameter ID	–
50	Minimum Value	mA
4000	Maximum Value	mA
200	Standard Value	mA
TRUE	Is Active	Bool
200	Value	mA

If activated and the UPS is in battery mode and the current drops below the set value, the output of the UPS will shut down and disconnect the energy storage to prevent self-discharge.

Maximum Backup Time - 0x02

VALUE	DESCRIPTION	UNIT
0x02	Parameter ID	–
1	Minimum Value	sec.
65535	Maximum Value	sec.
60	Standard Value	sec.
FALSE	Is Active	Bool
60	Value	sec.

If activated and the UPS is in battery mode and the set time has expired, the output will be disabled, and the UPS and energy storage will be disconnected.

OS Shutdown by Timer - 0x03

VALUE	DESCRIPTION	UNIT
0x03	Parameter ID	–
1	Minimum Value	sec.
65535	Maximum Value	sec.
60	Standard Value	sec.
FALSE	Is Active	Bool
60	Value	sec.

If activated and the UPS is in battery mode and the set time has elapsed, a shutdown command via USB or relay (relay event) is signaled. If USB (HID) is used, the operating system must be set to „Shutdown“ when the power switch is pressed.

Restart Delay Timer - 0x04

VALUE	DESCRIPTION	UNIT
0x04	Parameter ID	–
1	Minimum Value	sec.
65535	Maximum Value	sec.
60	Standard Value	sec.
FALSE	Is Active	Bool
60	Value	sec.

If activated and a restart condition switches the UPS output off and on again, the set time is the delay between switching on and off. The time should cause a defined off time so that capacities in the application can be discharged.

Minimum Capacity To Start- 0x05

VALUE	DESCRIPTION	UNIT
0x05	Parameter ID	–
1	Minimum Value	%
99	Maximum Value	%
20	Standard Value	%
FALSE	Is Active	Bool
20	Value	%

If activated and the UPS is off or restarts, the UPS output will not be released until the energy storage device has the set charge state. The energy storage device is charged in the meantime.

Maximum Backup Time by IN-1 - 0x06

VALUE	DESCRIPTION	UNIT
0x06	Parameter ID	–
1	Minimum Value	sec.
65535	Maximum Value	sec.
30	Standard Value	sec.
FALSE	Is Active	Bool
30	Value	sec.

If activated and the UPS is in battery mode and the signal at the IN-1 input is „HIGH“ and the set time has expired, a shutdown command via USB or relay (relay event) is signaled. If USB (HID) is used, the operating system must be set to „Shutdown“ when the power switch is pressed. This timer has higher priority than „OS Shutdown by Timer“.

OS Shutdown by SOC - 0x07

VALUE	DESCRIPTION	UNIT
0x07	Parameter ID	–
1	Minimum Value	%
99	Maximum Value	%
20	Standard Value	%
FALSE	Is Active	Bool
20	Value	%

If activated and the UPS is in battery mode and the SOC drops below the set value, a shutdown command via USB or relay (relay event) is signaled. If USB (HID) is used, the operating system must be set to „Shutdown“ when the power switch is pressed.

Battery SOC Low Threshold - 0x08

VALUE	DESCRIPTION	UNIT
0x08	Parameter ID	–
1	Minimum Value	%
99	Maximum Value	%
20	Standard Value	%
TRUE	Is Active	Bool
20	Value	%

This parameter stores the threshold value for the „Battery Empty“ signal. Currently this setting is only valid for relay signaling. Changing the „Is Active“ property has no effect on the function.

Relay Event Configuration - 0x09

VALUE	DESCRIPTION	UNIT
0x09	Parameter ID	–
0x01	Minimum Value	EvId
0x05	Maximum Value	EvId
0x01	Standard Value	EvId
TRUE	Is Active	Bool
0x01	Value	EvId

This parameter controls the behavior of the relay in case of different events. The property „Is Active“ has no function.

On Power Fail – Normally Closed

In battery mode the relay contact is closed.

On Power Fail – Normally Opened

In battery mode the relay contact is open.

Shutdown Impulse approx. 1 sec

In battery mode and activated „OS Shutdown by Timer“ or „OS Shutdown by SOC“ and falling below the threshold values the contact closes for ~1 sec.

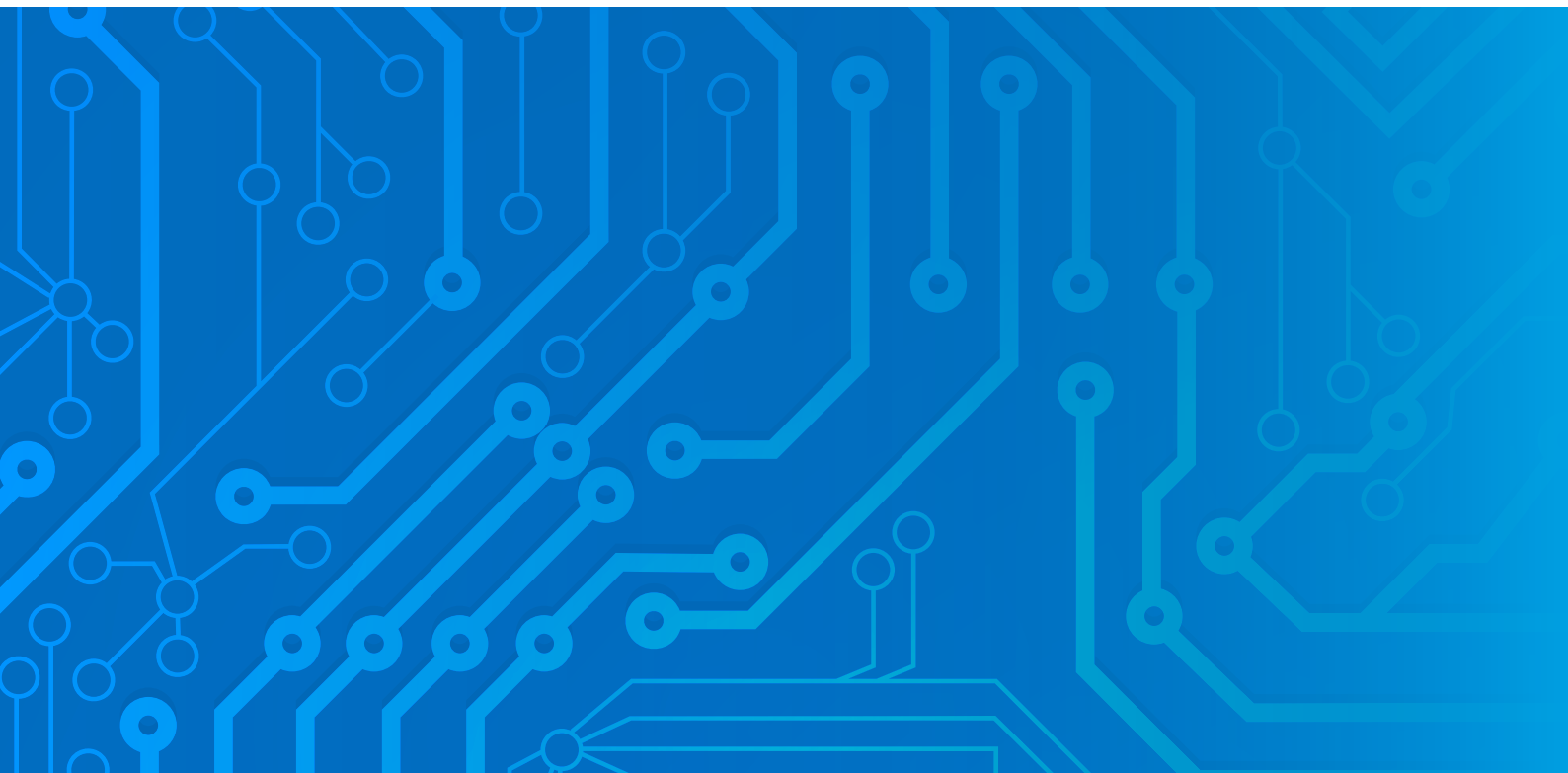
Battery Low Signal – Normally Closed

In battery mode and when the battery level falls below „Battery SOC Low Threshold“ the relay contact closes.

Battery Defect Signal – Normally Closed

If the battery is missing or not recognized (LED status code 5), the relay contact closes.

EVID	DESCRIPTION
0x01	On Power Fail – Normally Closed
0x02	On Power Fail – Normally Opened
0x03	Shutdown Impulse approx. 1 sec
0x04	Battery Low Signal – Normally Closed
0x05	Battery Defect Signal – Normally Closed



Note: Subject to errors and technical modifications!
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