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1 Device Description

1.1 Description

The Solar-Log™ Smart Relais Station 3 x 16A / 1 x 16A is a multipurpose device that is suitable for switching and monitoring of voltages. It has the following features:

- Suitable for top hat rail mounting.
- Solar-Log™ Smart Relais Station 1 x 16A: 1 switchable, potential-free relay output with 230V (AC 16A) switching voltage.
- Solar-Log™ Smart Relais Station 3 x 16A: 3 switchable, potential-free relay outputs with 230V (AC 16A) switching voltage.
- The measurement of Power, Voltage and Temperature (with optional sensor) is shown in section Diagnostics | Smart Energy | Status (current).
- Legible LED display visualizes Total Current, IP Address, Sensor Values and Error Messages.
- All circuit outputs can be switched individually on the device. The automatic control of the Solar-Log™ takes precedence over the manual operation of the Solar-Log™.
- Simultaneous switching of multiple outputs is prevented by automatic latency of 1 second.
- States of the relay outputs are displayed with bicolored LEDs on the front page.
- Connection for an external sensor.
- Possible firmware update in operation via Ethernet.
- Low own consumption.
- Developed and produced in Germany.



Solar-Log™ Smart Relais Station 3x3,5kW and 1x3,5kW



Note!

As of firmware version 6.0, we support the successor product, the Smart Relay Station v2. The descriptions in this manual also apply to the Smart Relay Station v2.



General note to differentiate the Solar-Log™ Smart Relay Station version!

The version of the Solar-Log™ Smart Relay Station can be differentiated by the serial number. The Solar-Log™ Smart Relay Station v2 have a serial number from 190000.

1.2 Security Advice

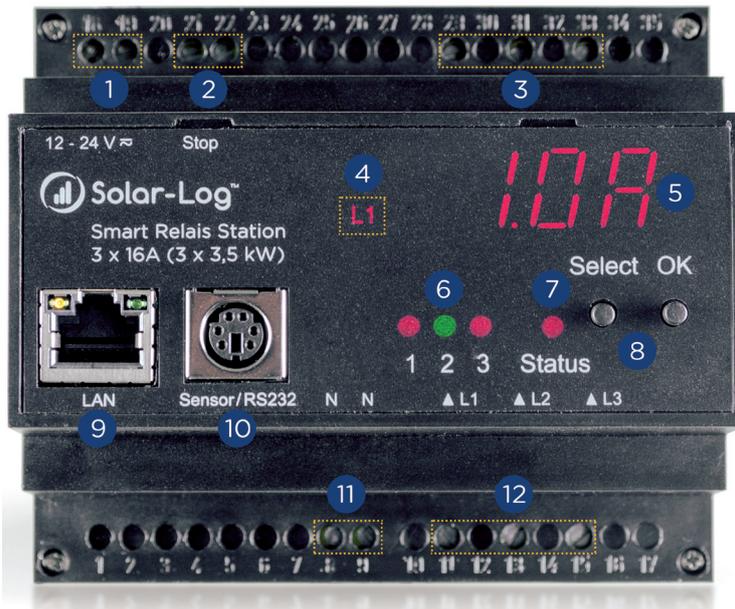
- The device must be installed only by qualified personnel according to the following installation and operating instructions.
- The manufacturer does not accept responsibility in case of improper use of the device and particularly any use of equipment that may cause personal injury or material damage.
- The device contains no user-maintenable parts. All maintenance has to be performed by factory trained service personnel.
- The device may only be connected by a low voltage power supply (12V - 24V AC or DC) .
- The device is intended for indoor use only. Do NOT install them in an area where excessive moisture or heat is present.
- Because of safety and approval issues it is not allowed to modify the device without our permission.
- Please note the safety advises and manuals of connected devices, too.
- The device is NOT a toy. It has to be used or stored out of range of children.
- Care about packaging material. Plastics has to be stored out of range of children. Please recycle the packaging materials.
- In case of further questions, about installation, operation or usage of the device, which are not clear after reading the manual, please do not hesitate to ask our support team.

1.3 Content of Delivery

The package includes:

- Solar-Log™ Smart Relais Station 3 x 16A / 1 x 16A
- Din rail power supply
Input 110-240 V_{AC} 0,88 A
Output 12V_{DC} 1,25 A
- DC connector cable LiY-Z 2x0,75 sw/rt with ferrule, L=10 cm
- CD-ROM and manual

2 Installation



Number	Description
1	Power supply (12V-24V AC oder DC).
2	Stop input for shutdown of all relays.*
3	Solar-Log™ Smart Relais Station 1 x 16A: 1 relay output. Solar-Log™ Smart Relais Station 3 x 16A: 3 relay outputs.
4	L1 - L3 indicator LED display.
5	LED display for load or sensor display.
6	3 indicator LEDs for relay outputs.
7	Status LED.
8	Button for OK, Select or bootloader mode.
9	Network connector RJ45.
10	Connector for sensor.
11	Neutral wire connection for measurement electronics.
12	Solar-Log™ Smart Relais Station 1 x 16A: 1 relay input. Solar-Log™ Smart Relais Station 3 x 16A: 3 relay inputs.

*Note!

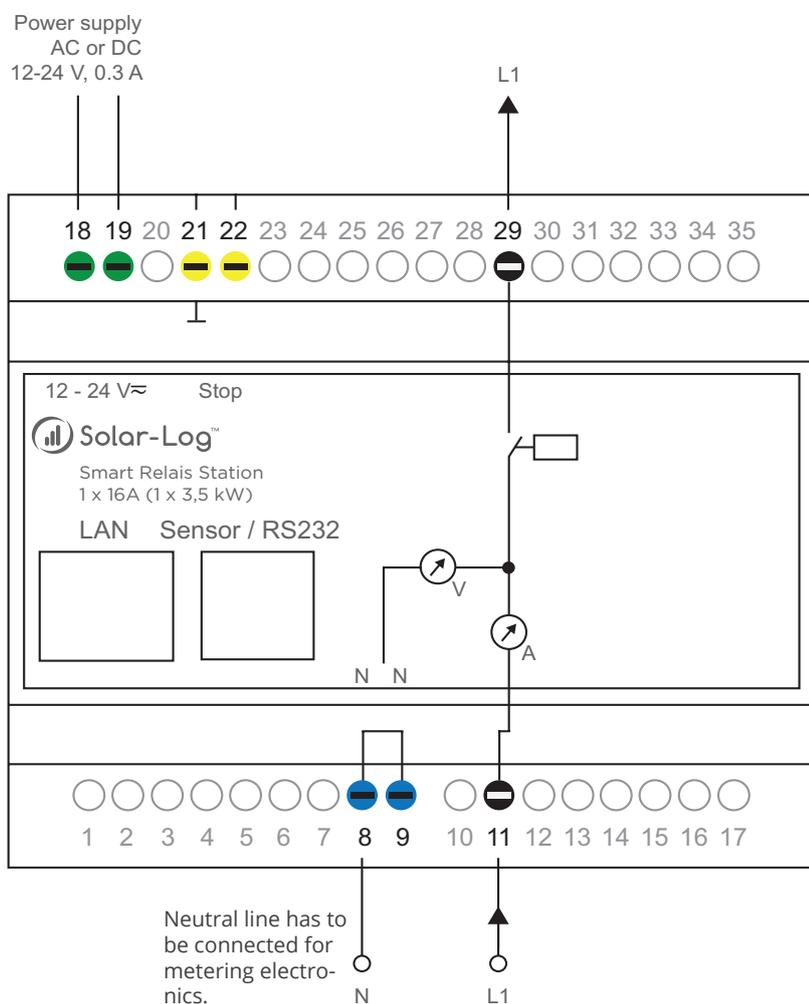


The stop input is monitored by the device firmware (Smart Relay Station). However, switching commands from the Solar-Log have a higher priority. These can switch the SmartRelay station back on even if the stop input is closed.

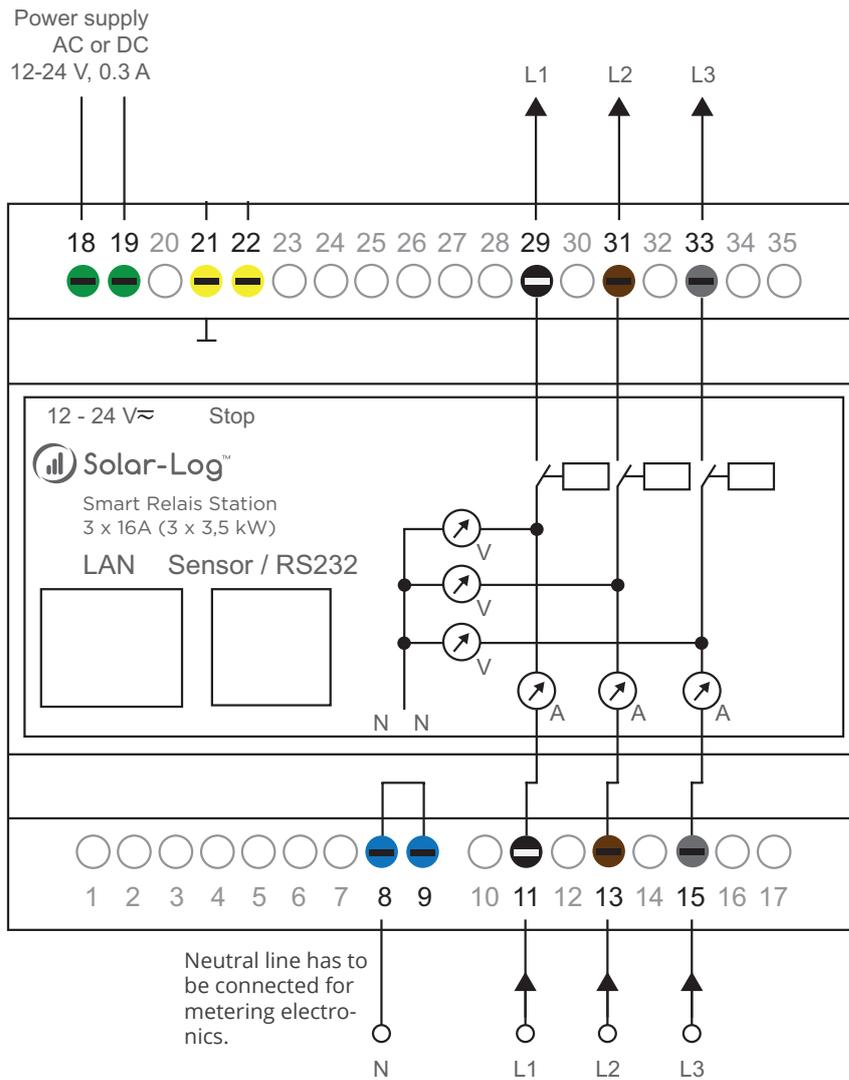
2.1 Start-up the device

- Connect the device to an AC Adaptor (12V-24V AC or DC).
- Plug the network cable into the Ethernet socket (RJ45).
- Connect the neutral wire to the neutral wire connector (11).
- Connect the relay outputs to the loads that should be used.
- Connect the relay inputs with the corresponding phase.
- Attach a switch (if any) to the stop input.
- Connect the sensor (if any) to the device.

2.2 Block Diagram



Block diagram for the Solar-Log™ Smart Relais Station 1 x 16A



Block diagram for the Solar-Log™ Smart Relais Station 3 x 16A

2.3 Status LED

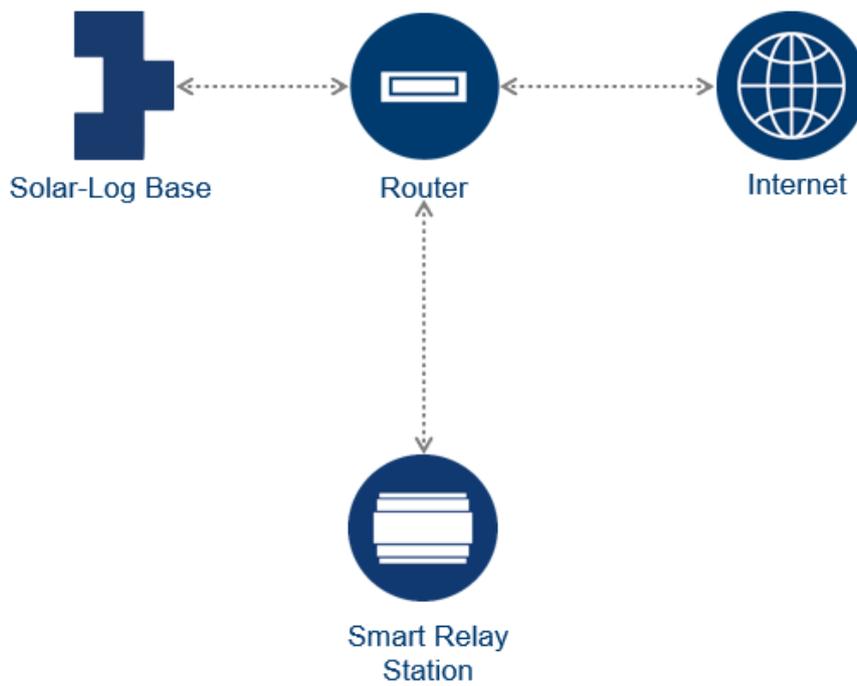
The Status LED shows different states of the device:

- Red: Device is not connected to the Ethernet.
- Orange: Device is connected to the Ethernet, TCP/IP settings are not allocated.
- Green: Device is connected to the Ethernet, TCP/IP settings allocated.
- Periodic blinking: Device is in Bootloader mode.

3 Configuration

3.1 Network design

The Solar-Log™ Smart Relay Station must be in the same local area network as the Solar-Log™.



View of network topology

3.2 Configuration - IP Address of Solar-Log™ Smart Relay Station

The Solar-Log™ Smart Relay Station is equipped with a standard Ethernet RJ45 network socket that can be connected with any commercially available network cable.

Procedure

- The commissioning steps must be completed.
- Download and install the Gude System Tool (GBL_Conf.exe).



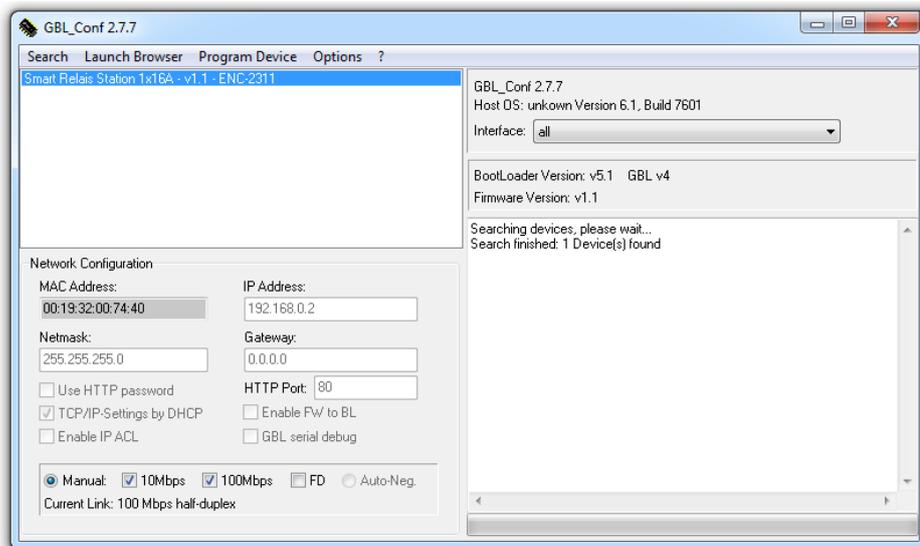
Note

In the manual you can find the screenshots of the GBL_Conf.exe 2.7.7. The current program version and the firmware file can be found on the Gude homepage. [Support Monitoring - GUDE Systems \(gude-systems.com\)](http://gude-systems.com)

- Start up the system tool.



- The software automatically searches for the Solar-Log™ Smart Relay Stations within the local area network.
- The devices found are listed in the software.



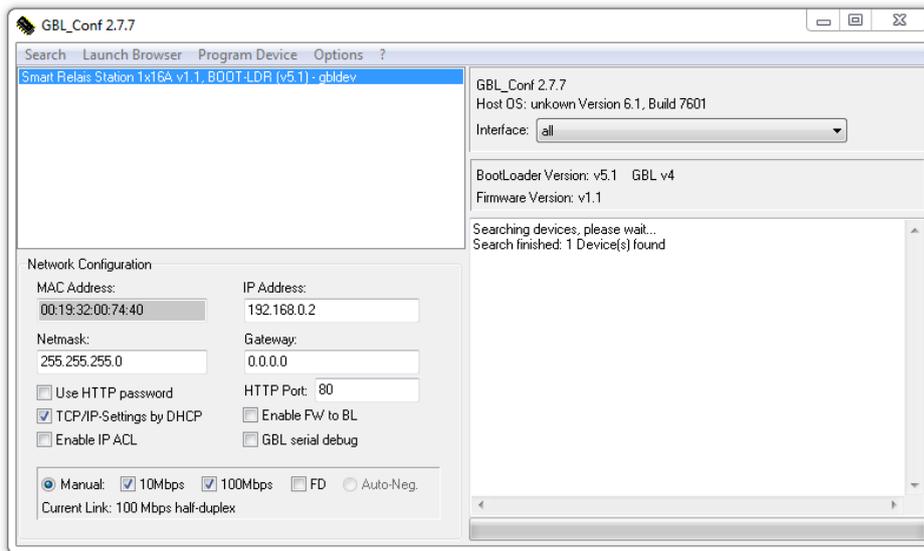
- Activate the Boot Loader mode of the Solar-Log™ Smart Relay Station: Hold both buttons pressed down for 3 seconds. At first „blr“ is displayed. After 3 seconds the display changes to „bld“. Further information about the Boot Loader Mode can be found in chapter 5.1.
- Go back to the system tool [GBL_Conf](#)



Note

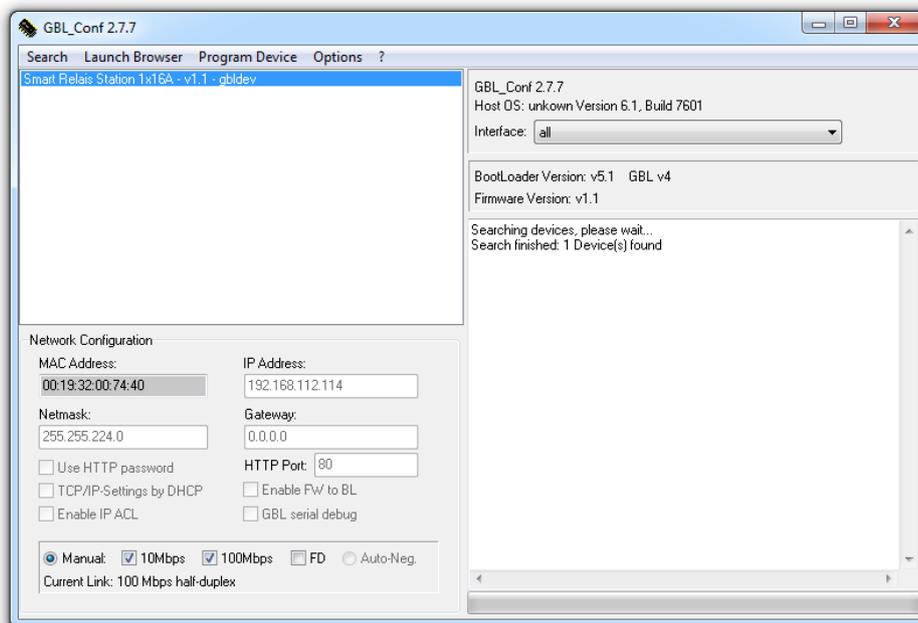
The Solar-Log™ Smart Relay Station has the IP address 192.168.0.2 as factory setting.

- In the Search menu, select the item Boot Loader Mode Devices only. In this mode, the IP address and netmask (subnet Mask) fields can be edited.



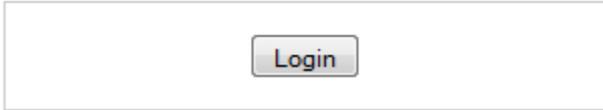
- Set the IP address and the netmask (subnet mask) accordingly to the used network and deactivate the function TCP/IP Setting by DHCP.
- Save the settings on the device by means of the menu item Program Device using the Save Config function.
- The network settings of the Solar-Log™ Smart Relay Station have been adjusted.
- Die Netzwerkeinstellungen der Solar-Log™ Smart Relais Station wurden angepasst.
- Exit the Boot Loader mode. Hold both buttons of the Solar-Log™ Smart Relay Station down for 3 seconds. „bld“ disappears from the display.

In the GBL_Conf system tool select the item All Devices in the Search menu. The set IP address and netmask (subnet mask) are displayed under Network Configuration. The fields are gray-shaded and cannot be changed here.



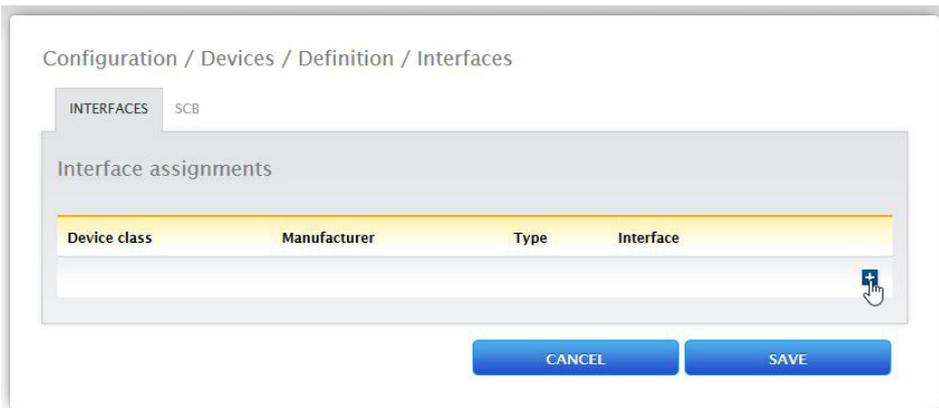
System tool GBL_Conf after successful IP address configuration

- The browser is opened by means of a double click on the blue colored line and the Start-screen of the Solar-Log™ Smart Relay Station is displayed.



Start-screen of the Solar-Log™ Smart Relay Station

- The IP configuration of the Solar-Log™ Smart Relay Station has been successfully concluded.
- Go to the web menu of the Solar-Log™.
- Navigate to the item [Configuration](#) | [Devices](#) | [Definition](#) | [Interfaces](#).
- The following menu is displayed:



Select the Solar-Log™ Smart Relay Station with the plus symbol. The following settings are required here (see the figure further below):

Device class:

- Switch

Manufacturer:

- Solar-Log

Type:

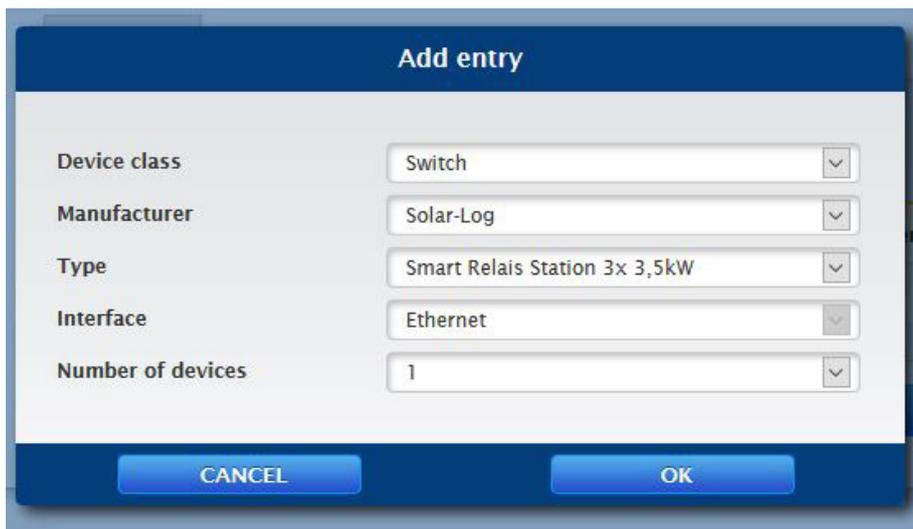
- Smart Relay Station 3x 3.5kW (or 1x 3.5kW)

Interface:

- Ethernet

Number of devices:

- 1 in the example



Add entry	
Device class	Switch
Manufacturer	Solar-Log
Type	Smart Relais Station 3x 3,5kW
Interface	Ethernet
Number of devices	1

CANCEL OK

Confirm the settings with OK. Then start the device detection from the [Configuration | Devices | Detection](#) menu.

To enter the IP assigned above, go to the [Configuration | Devices | Configuration](#) menu under Device Configuration, select the device and enter the IP address in the corresponding box.

Adjust the remaining configuration settings in this section (see the example figure further below).

Configuration / Devices / Configuration / Configuration

CONFIGURATION
ORDER

Device configuration *

Device ?

Model

IP address

Meter configuration

Operating mode ?

Deactivated

Generator

Consumption meter

Sub-consumer

Deactivated

Module field, power & label

	Nominal power [W]	Name
Device		<input style="width: 80px;" type="text" value="Switch 1"/>
Switch contact 1	<input style="width: 60px;" type="text" value="0"/>	
Switch contact 2	<input style="width: 60px;" type="text" value="0"/>	
Switch contact 3	<input style="width: 60px;" type="text" value="0"/>	

CANCEL
SAVE

- The last step is configuring the Smart Energy Logics. Refer to the Solar-Log™ Smart Energy Manual for more information. It is available from our website (https://www.solar-log.com/manuals/manuals/en_GB/SolarLog_Manual_Smart_Energy_EN.pdf).

3.3 TCP/IP configuration by DHCP

After switching on the device is scanning on the Ethernet for a DHCP server and requests an unused IP address. Check the IP address that has been assigned and adjust if necessary, that the same IP address is used at each restart. To turn off DHCP use the software GBL_Conf.exe or use the configuration via the web interface. To check the network settings with GBL_Conf.exe, start the program and choose „All Devices“ in the „Search“ menu. From the list select the appropriate device. The lower part of the left half of the window now shows the current network settings of the device. If the IP address is displayed with the default settings (192.168.0.2), either no DHCP server is present on the network, or there could be no free IP address assigned to it.

4 Operating

4.1 Operating the device directly

The current status of the output is indicated by the color of the LED. Red indicates that the output is off, green shows that the output is on. On the device are the buttons „select“ and „ok“. If you press „select“, the LED will blink for the first output, ie the output is selected. Press „select“ again to select the next output. Hold down the button „ok“ for two seconds, then the status of the selected output is toggled.

5 Firmware-Update

To perform a firmware update, the program GBL_Conf.exe and the latest firmware is needed.



Note

The current program version and the firmware file can be found on the Gude homepage.
[Support Monitoring - GUDE Systems \(gude-systems.com\)](https://www.gude-systems.com)

- Enable the bootloader mode (see Chapter Bootloader Mode).
- Start GBL_Conf.exe.
- Select the device for which a firmware update is to be performed.
- Click „Program Device“ and then select there „Firmware Update“.
- Specify the firmware file that should be uploaded.

Upon completion of the update process, please start the new firmware of the device. You can do this by simply leaving the bootloader mode.

A firmware update, unlike other functions, is not sent as a network broadcast. Therefore, the device must have a valid IP address and a valid netmask before the firmware update. If necessary, please correct the entries in GBL_Conf.exe in bootloader mode and save them with „Save Config“.

If after a firmware update, the web page is not displayed correctly anymore, this may be related to the interaction of Javascript with an outdated browser cache. Not always helps a Ctrl-F5, it is recommended that you manually delete the cache in the browser options. Alternatively, you can test start the browser in „private mode“.

5.1 Bootloader Mode

Certain actions can, for safety reasons, only be carried out if the device is in bootloader mode. The following operations are possible only in Bootloader Mode:

- Firmware Update.
- Configuration with GBL_Conf.exe.
- Factory Reset.

5.1.1 Activation of the Bootloader Mode

Via push button

- Hold both buttons for 3 seconds (only if the device has 2 buttons).

or

- Remove the power supply.
- Hold down the button (or the „Select“ button for devices with 2 buttons). If the push button is recessed, use a pin or paper clip.
- Connect the operating voltage.

By Software: (only if „Enable FW to BL“ was previously activated in GBL_Conf.exe)

- Start GBL_Conf.exe.
- Do a network search with the „Search“ menu action.
- Activate in menu „Program Device“ the item „Enter Bootloader“.

Whether the device is in bootloader mode, is indicated by the flashing of the status LED, or it is shown in GBL_Conf.exe, after a renewed device search, with the appendix „BOOT-LDR“ after the device name. In bootloader mode the program GBL_Conf.exe can disable the password and the IP ACL, perform a firmware update, and restore the factory settings.



Note

Activation of the bootloader mode and an abandonment of the bootloader does not change the state of the power or output ports as long as the supply voltage is maintained.

5.1.2 Abandonment of the Bootloader Mode

Via push button

- Hold both buttons for 3 seconds (only if the device has 2 buttons).
- or
- Remove and connect the power supply without operating a button.

By Software

- Start GBL_Conf.exe.
- Do a network search with the „Search“ menu action.
- In menu „Program Device“ activate the item „Enter Firmware“.

5.1.3 Factory Reset

If the device is in bootloader mode, it can always be put back to its factory default. All TCP / IP settings are reset in this operation.

Via push button

- Activate the Bootloader Mode of the device.
- Hold down the button (or the „Select“ button for devices with 2 buttons) for 6 seconds. If the push button is recessed, use a pin or paper clip.
- The status LED will blink in a fast rhythm, please wait until the LED blinks slowly (about 5 seconds).

By Software

- Activate the Bootloader Mode of the device.
- Start GBL_Conf.exe.
- In menu „Program Device“ activate the item „Reset to Fab Settings“.
- The status LED will blink in a fast rhythm, please wait until the LED blinks slowly (about 5 seconds).

6 Technical Specifications

Interfaces	1 x Ethernet port (RJ45) Solar-Log™ Smart Relais Station 1 x 16A: 2 x screw terminal with 1 x relay make contact (230V AC 16A) Solar-Log™ Smart Relais Station 3 x 16A: 6 x screw terminal with 3 x relay make contacts (230V AC 16A) 2 x screw terminal for power supply 2 x screw terminal with 1 x stop input 2 x screw terminal for neutral wire 1 x Mini-DIN socket for external sensor
Network connectivity	10/100 MBit/s 10baseT Ethernet
Protocols	TCP/IP, HTTP, DHCP, ICMP, SNMP v1/v2c + traps, Syslog, SMTP
Power Supply	12V to 24V AC or DC, 0.3 A
Environment	
Operating temperature	0°C to 50°C
Storage temperature	-15°C to 60°C
Humidity	10% to 85%
Case	Plastics black
Measurements	105mm x 70mm x 90mm (L x H x T)
Weight	approx. 280g



Note

Due to design, only alternating currents can be measured, no direct currents.

6.1 Optional Sensor

An external sensor can be connected to the Solar-Log™ Smart Relais Station 1 x 16A / 3 x 16A. The following sensors are currently available.



Temperature-Sensor 7001

Cable length	~ 2m
Connector	Mini-DIN
Measurement range	-20°C to +80°C at ±2°C (maximum) and ±1°C (typical)



Humidity/Temperature-Sensor 7002

Cable length	~ 2m
Connector	Mini-DIN
Measurement range	Temp: -20 to +80°C, ±0,5°C (maximum) and ±0,3°C (typical) Humidity: 0-100%, ±3% (maximum) and ±2% (typical)

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