Instruction Manual

IP-level converter-series MPW16

Image similar

SAFETY INSTRUCTIONS

Installation and assembly of these electrical devices may only be carried out by a qualified electrician.

Read these operating instructions carefully. All safety instructions must be followed.

SERVICE and SUPPORT

Bf you have any questions about our products or need assistance with commissioning, our service team will be happy to help.

You can reach us Monday to Friday from 8:00 to 16:00 via the following means:

STV Electronic GmbH Service

Tel: +49 (0) 5207 – 9131 – 0

e-mail: info@stv-electronic.de

web: www.stv-electronic.de

PRODUCT and SERVICE DESCRIPTIONS

Intended use

The level converters of the IP series are intended for the conversion of M-Bus signals into other signal forms such as RS-232, RS-485 or Ethernet. The level converters are exclusively suitable for operation in closed locations (e.g. control cabinet).

Technical Data

	MPW16-IP/RS-232	***MPW16-IP/RS-485***	***MPW16-IP***
Art.No.	95077	95078	95079
Supply voltage. DC	24V ±20%		
Supply voltage. AC	24V ±5%		
Self-consumption	85 mA at 24Vdc		
Ingress protection	IP 20		
Operating temperature	0 … 50°C		
Relative humidity	0 … 90% (without condensation)		
M-Bus voltage	37 V		
M-Bus current	MPW16: 24 mA (16 standard loads @ 1,5 mA)		
Over current threshold	M-Bus current +30 mA		
Galvanic isolation	Between supply voltage, Ethernet, RS-232, RS-485 and M-Bus		
Collision detection	yes		
Data rate M-Bus	300 … 38400 Baud		
Interfaces	1 x Ethernet, 1 x RS-232	1 x Ethernet, 1 x RS-485	1 x Ethernet
Measurements (WxLxH)	52,5 x 90 x 64 mm (3HP)		
Mounting	On mounting rail TS35 or with screw lugs		
Weight	approx. 135 g		
Displays	Data: Tx/Rx two-coloured (yellow, green) Power: supply voltage (green) Overload: M-Bus over current (red)		
Button	Service: Set factory settings, press and hold for 30 s until the power LED flashes.		

Mounting

Mounting on mounting rail

The level converters can be mounted on commercially available mounting rails of type TS35 by snapping them on. A single level converter takes up a width of 52.5 mm (3HP).

Mounting with screw lugs

To attach the level converters with screw lugs, the black lugs on the back of the housing must be pushed outwards until they snap into place.

When engaged, the level converter can be screwed on with two M4 screws (top and bottom).

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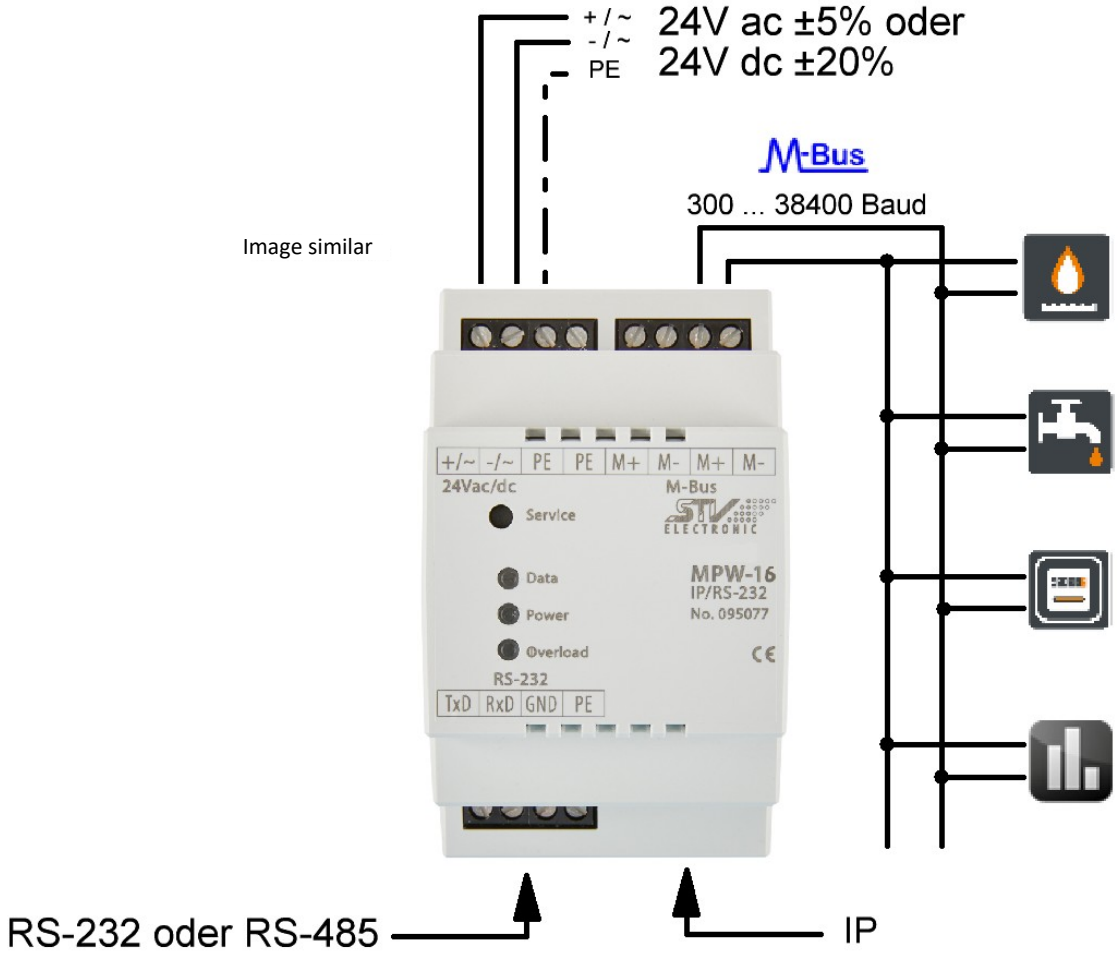
Electrical connection

Image similar



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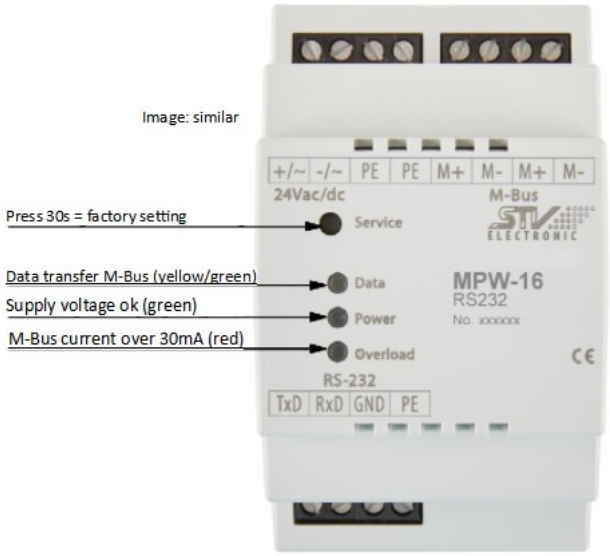
Commissioning

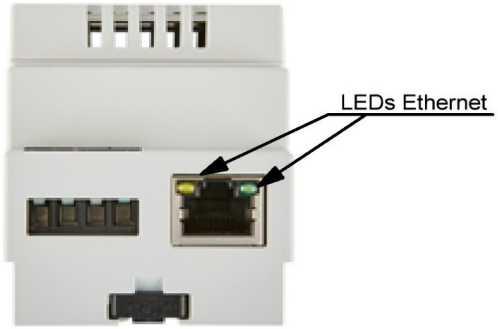
First steps



After connecting the power supply, the green "Power" LED starts to light up.

Make sure that the device is connected to your Ethernet network.

The level converter indicates the operating status via its LEDs integrated in the surface.
The service button is used to activate the factory settings if the unit is incorrectly configured.



The unit is now ready for operation and has configured its own IP address via DHCP, provided a DHCP server is available in the Ethernet network.

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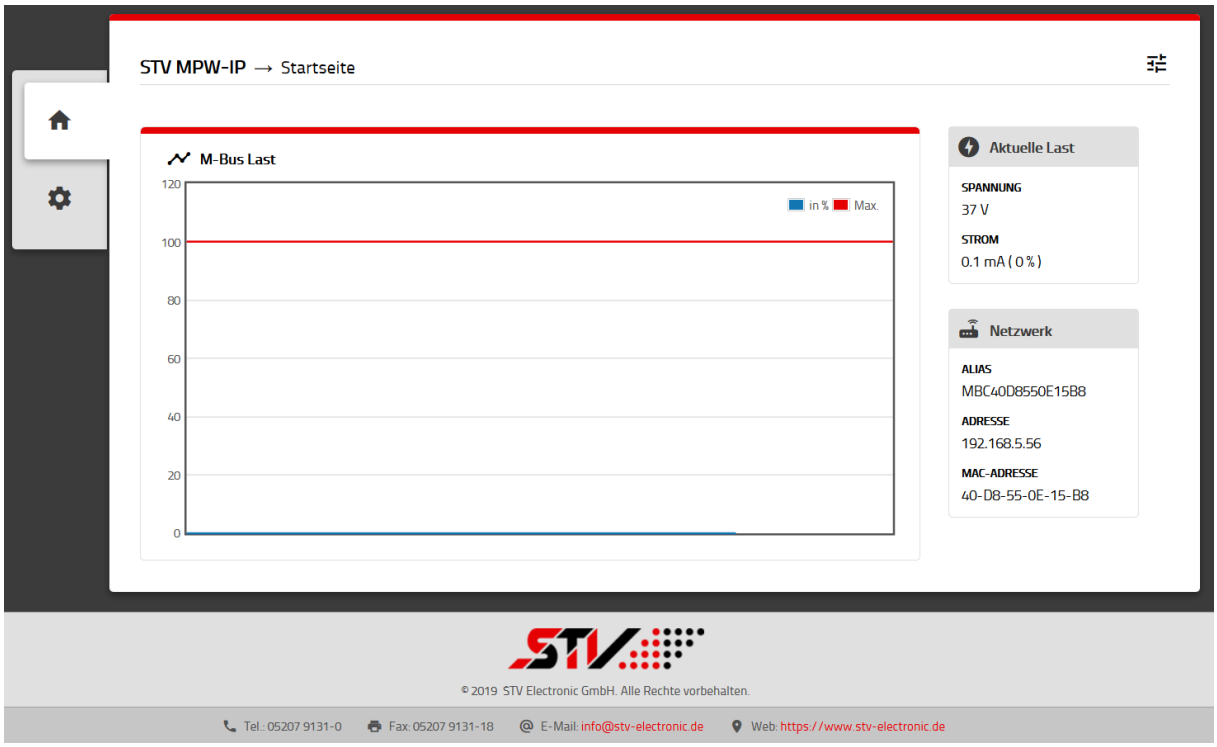
Configuration via the integrated web server

IWhen factory-set, the level converter configures its IP itself via DHCP.
Please check in your network which IP address the level converter has been given. If you need the MAC address of the level converter, you will find it on the device label on the side of the housing. Instead of the IP address, you can then address the device via alias. The alias has the format "MBC<MAC address of the device>".
For example, enter http://mbc40d8550e1501 in the address line of your browser to address a unit with the Mac address "40d8550e1501".

Enter the IP address you have determined in the address line of your browser.
You will see the starting page of the level converter:



Picture 1: Starting page level converter

The starting page gives you a quick overview of all the important parameters of the level converter.

M-Bus load (chart): The chart shows the maximum permissible M-Bus current in % (red line) and the actually used M-Bus current in % (blue line) over time.

Present load: The information display shows the actual M-Bus voltage and the actual M-Bus current.

Network: The information display shows the MAC address, IP address and alias of the unit.

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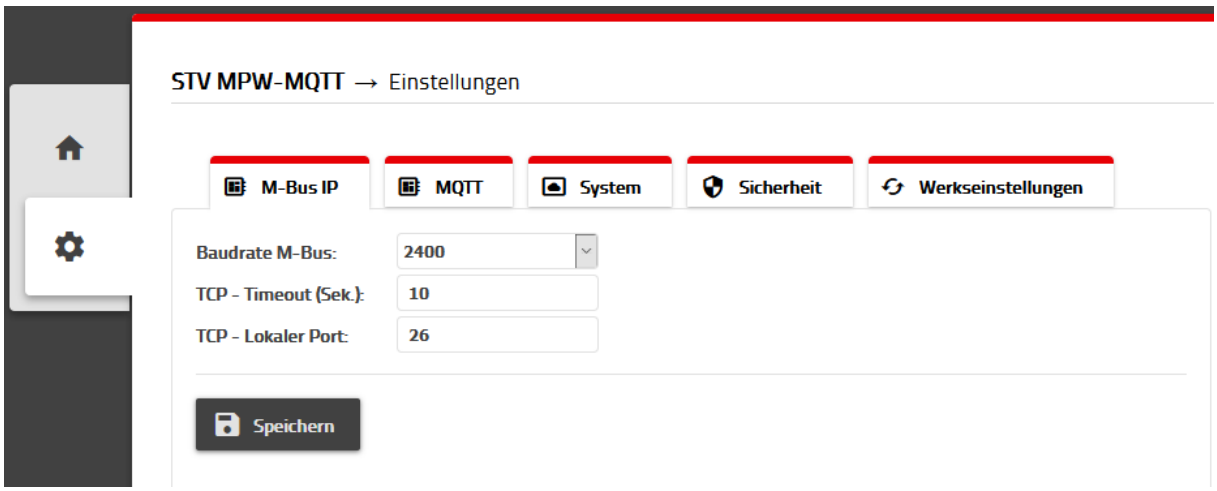
Switch to Settings (cogwheel symbol):



Picture 2: Output settings

Unter Einstellungen – M-Bus IP können Sie folgende Einstellungen ändern:

Baud rate M-Bus: Select the baud rate of the M-Bus you are using from the drop-down menu. You can select between 300 ... 38400 baud here.

TCP-Timeout: Enter here the TCP timeout after which the level converter closes the TCP connection when the M-Bus master is inactive. At 0, the TCP connection remains permanently established.

TCP-Local Port: Set the port you use to query the level converter here. Please make sure that any firewall in your network allows this port.
No special driver is required to query the level converter. To be able to read out the data of the M-Bus network, simply enter **<IP address of the level converter:port>** in your software.

In general, you can access the M-Bus network via both existing interfaces (RS-232/485 and Ethernet for art. no.: 095077/78). While accessing one interface, the other is blocked to avoid competing accesses.

Always finish changing the settings by using the "Save" button.

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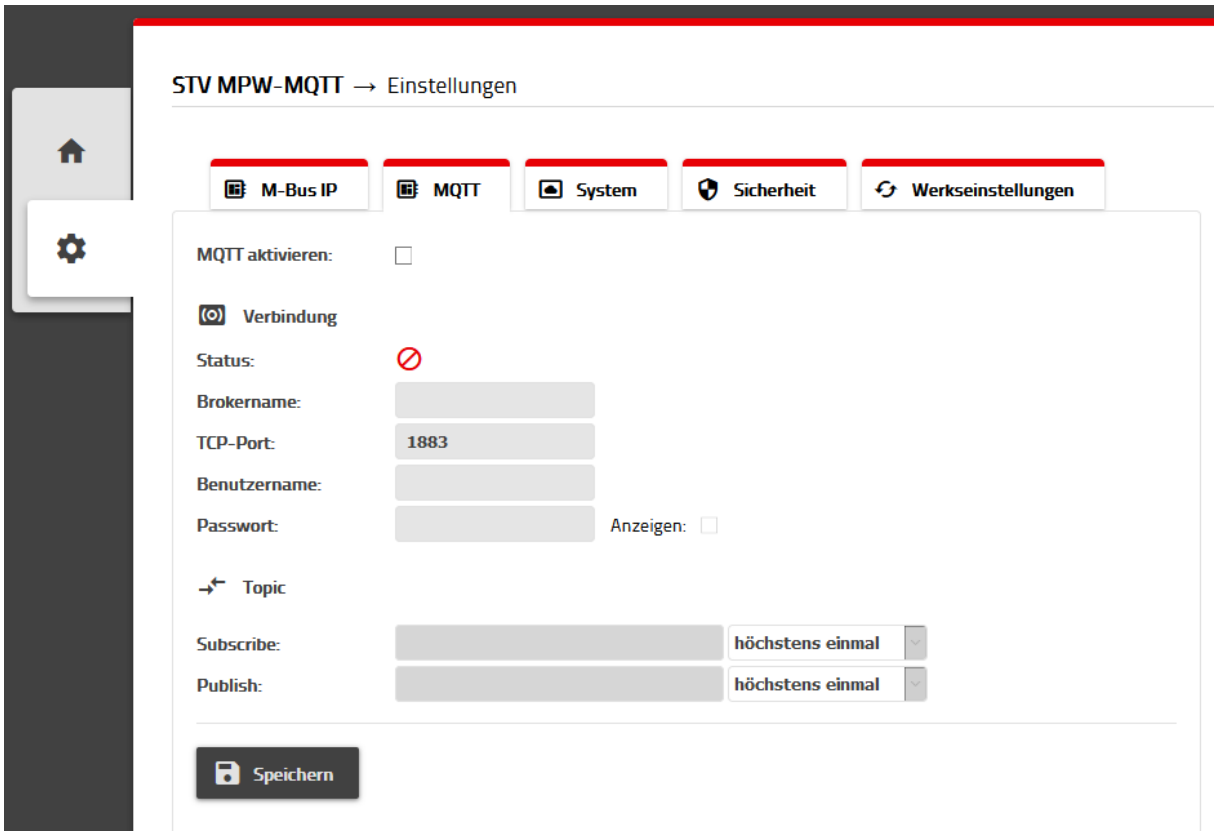

Picture 3: Settings MQTT

Under Settings - MQTT you can configure the following settings:

Activate MQTT: By ticking the checkbox, you activate the MQTT client function of the level converter. Now all further settings can be made. In MQTT mode, the level converter no longer communicates via the other IP protocols. The website remains accessible.

Status: Displays the status of the MQTT connection.

Broker name: Enter the server name or the IP address of the MQTT server here.

TCP-Port: Enter the port used on the server for MQTT here. The default is port 1883.

User name: The user name is entered in this field if the MQTT server requires it. If no user name is configured on the MQTT server, the field can remain empty.

Password: If required, the user's assigned password is entered in this field.

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Topics – Subscribe: Here you will find the topic to which the MQTT server subscribes. The conduct of the topic can be adjusted via dropdown.

Example: /40D8550E16BA/mbus/request

Topics – Publish: Here you will find the topic via which the MQTT server can send data to the level converter. The conduct of the topic can be adjusted via dropdown.

Example: /40D8550E16BA/mbus/response

Always finish changing the settings by using the "Save" button.

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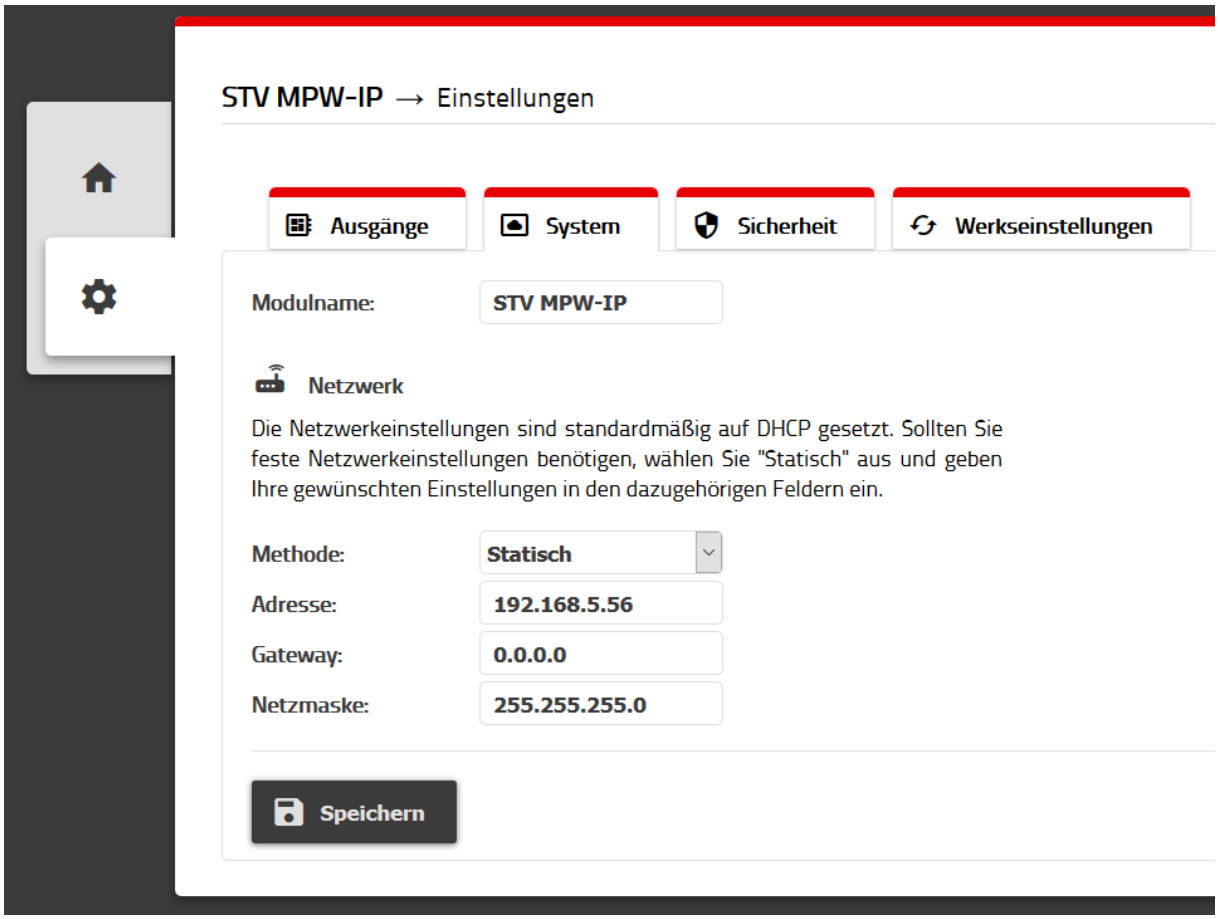

Picture 4: Settings System

Under Settings - System you can configure the following settings:

Module name: To identify the unit more easily, you may assign a name of your own to it. Changing this setting also changes the name in the title bar of the level converter.

Network: Configure your network settings here. By default, the network interface is set to DHCP and tries to obtain an IP address from a DHCP server.
Select "Static" to assign a fixed IP address to the unit.

Always finish changing the settings by using the "Save" button.

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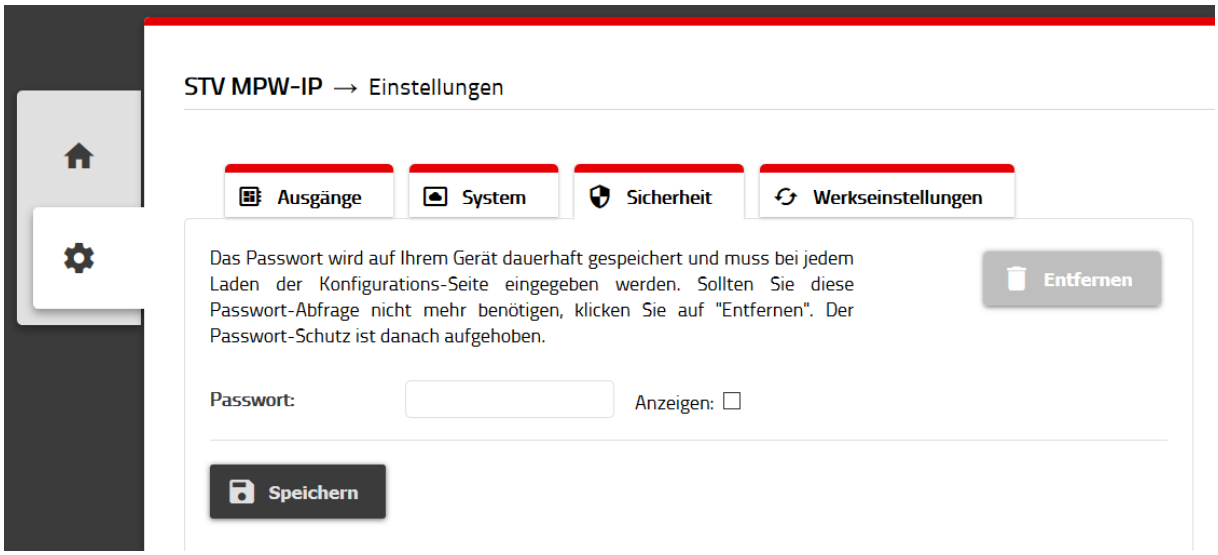

Picture 5: Settings Security

The level converter is provided without password protection in the default delivery state. To protect the configuration page of the level converter from unwanted access, you can assign a password here.
After you have successfully assigned a password, you must log in when you call up the settings page before you can make any changes to the settings.
If you want to deactivate the password protection, press the "Remove" button.

Always finish changing the settings by using the "Save" button.

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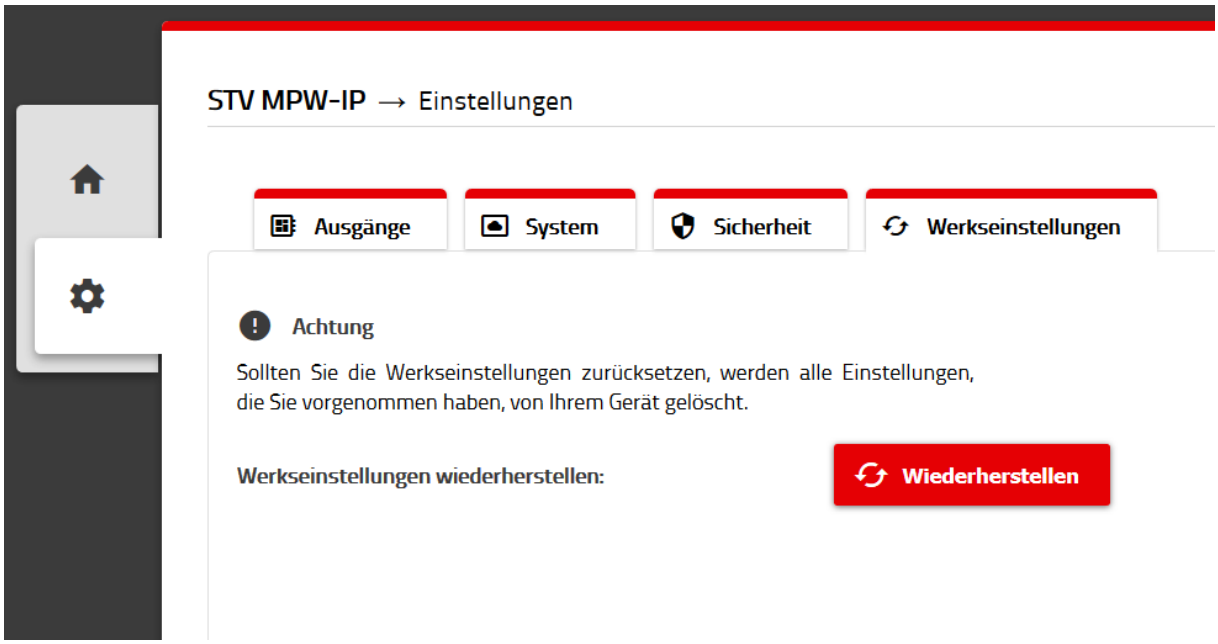

Picture 6: Settings factory settings

Press the "Reset" button to reset the level converter to factory settings. For safety reasons, you must confirm this action again before carrying it out. Afterwards, the level converter restarts with factory settings.

Factory settings:

Baud rate M-Bus:	2400 baud
TCP – Timeout:	0 Sek.
TPC – Local Port:	26
Module name:	STV MPW-IP
Network:	DHCP
Security:	No password protection

Factory settings via service button:

If you want to reset the level converter without accessing the web interface, you can also do this via the service button.
Press the service button for at least 30 seconds. The power LED flashes and the level converter restarts with factory settings.

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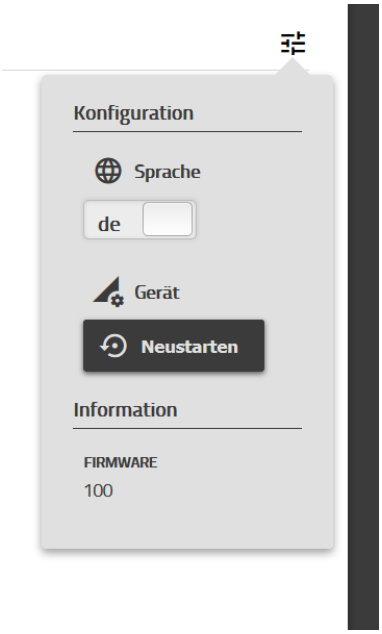
Language setting and firmware



Picture 7: Configuration

Change the language between German and English:
Press the "Configuration" button at the top right of the website and switch between languages. Your browser remembers the setting.

Restarting the unit:
To restart the unit, press the "Restart" button. After approx. 20s, the unit is restarted.

Firmware:
In this area you will find the currently installed firmware of the level converter.

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Configuration of the level converter without web interface

Every function that you can call up via the configuration page of the MPW-16 can also be called up via the HTTP interface.
The two interfaces "config.cgi" and "misc.cgi", which can be called via a URL, are described below.

config.cgi

The config.cgi returns values ("getter") or changes values ("setter"). If you do not specify a value in the URL, but only the key, the request is a "getter" method.

Example: http://[ip]/config.cgi?key
This returns the value for "key" in JSON format.

On the other hand, if you pass a key and a value to the URL, the request is a "setter" method.

Example: http://[ip]/config.cgi?key=value
As a response you will always receive a JSON formatted string according to the following pattern: {„key“:“value“}

It is not important whether you have used a "getter" or "setter" call.

Furthermore, you can transfer multiple key (value) pairs.

Example „Getter“: http://[ip]/config.cgi?key1&key2
In response you will receive: {„key1“:“value1“, „key2“:“value2“}

Example „Setter“: http://[ip]/config.cgi?key1=value8&key2=value9
In response you will receive: {„key1“:“value8“, „key2“:“value9“}

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Below you will find an overview of all available variables.

Getter	
Key	**Value**
networkname	Alias
networkaddress	IP-address
networkmacaddress	MAC-address
firmware	Firmware version
baudrate	Baud rate
timeout	TCP-Timeout in seconds
localport	TCP-Port
modname	Module name
method	Static/DHCP
staticip	Static IP-Adresse
gatewayip	Gateway IP-Adresse
subnetmask	Netmask
password	Password

Setter
baudrate
timeout
localport
modname
method
staticip
gatewayip
subnetmask
password

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misc.cgi

By means of the misc.cgi you can perform actions that affect the device itself. The calls differ from config.cgi in that you must describe an action in the URL.
Example: http://[ip]/misc.cgi?action=macheetwas

The response of the request is again JSON formatted. In general, as with the config.cgi - but with a special feature: Some actions only require a response that the action was performed successfully.

Below you will find a table describing the actions.

Key	Value
factorydefaults	Returns { "response": "OK" } if successful
reboot	Returns { "response": "OK" } if successful

You may also access system parameters by means of actions. The response is - as with the config.cgi's - also JSON formatted.

Key	Value
datacurrent	The current consumed by all connected devices
datavoltage	The voltage with which the connected devices are supplied
maxcurrent	The maximum value that all connected devices may consume (e.g. 16*1.5mA = 24mA for an MPW-16).
temp	The temperature of the device itself

An example to get the actual current would be:
http://[ip]/misc.cgi?action=datacurrent

In response you will receive:
{ "datacurrent":"7.5" }

Disposal

According to European Directive 2012/19/EU, electrical appliances must be collected separately and disposed of in an environmentally sound manner.

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