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Janitza Universal Gateway

JUG 25

Starting with firmware version 1.1.2

User manual and technical data



Doc. no. 2.204.064.1.b 10/2026

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Janitza

JUG 25
Janitza Universal Gateway

Doc. no. 2.204.064.1.b
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The German version is the original version of the documentation.

INFORMATION

Our usage information uses the grammatical masculine form in a gender-neutral sense. This form always refers equally to women, men and diverse. In order to make the texts more readable, distinctions are not made. We ask for your understanding for these simplifications.

Subject to technical changes.

The contents of our documentation have been compiled with great care and reflect the current state of the information available to us. Nonetheless, we wish to point out that updates of this document are not always possible at the same time as technical refinements are implemented in our products. Information and specifications are subject to change at any time.
Please check the current version at **www.janitza.com**.

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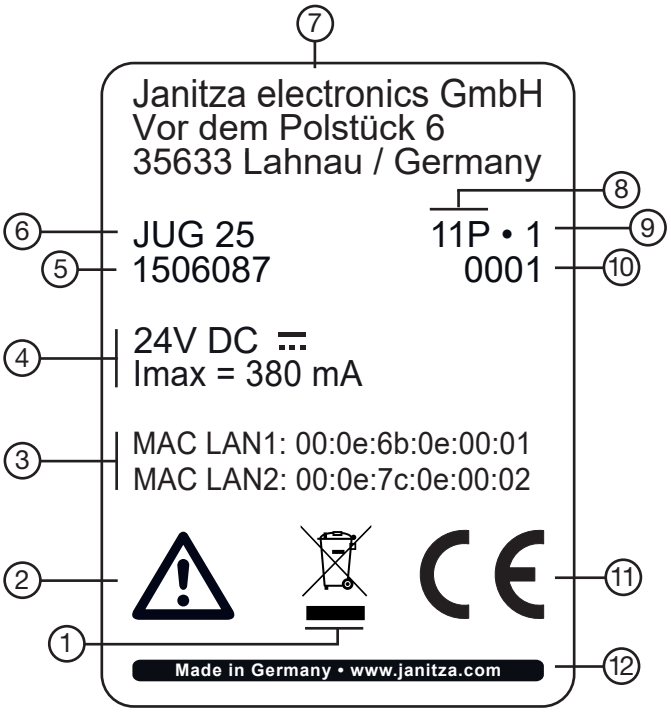
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1. About the device and the user manual

1.1 Identification

This user manual describes the JUG 25 device from firmware version 1.0.0.

1.2 Nameplate



Item	Designation	Description
1	Symbol for "Disposal"	WEEE symbol Electrical devices must not be disposed of with household waste. See section "13.2 Defective device / disposal" on page 40.
2	Symbol for "Danger sign"	General hazard symbol. Be certain to observe the warning notices applied to the device and shown in the documentation in order to avoid possible injury or even death.
3	MAC addresses	Unique identification of the device in a computer network.
4	Operational data	· Supply voltage, DC in V · Max. current draw in mA
5	Item number	Manufacturer's item number
6	Device type	Device designation
7	Manufacturer	Address of the device manufacturer
8	Manufacturer-specific data	Manufacturer data
9	Hardware version	Hardware version of the device
10	Serial number	Number for identification of the device
11	CE conformity marking	See section "1.6 Conformity declaration" on page 7.
12	Designation of origin/web address	Country of origin and manufacturer's web address

Tab. Nameplate

1.3 Characters and symbols used

The following signs and symbols are used in this document:

➤	Instructions
1.	Steps that must be carried out in sequence.
-	Bullet points
1	Legend, item identifier

1.4 Product labeling

The product fulfills the applicable requirements of the respective market for placing on the market. If labeling to this effect is required, it is attached to the product.

1.5 Marking of warning notices

Warning notices are identified by a warning symbol and a signal word and are given before potentially dangerous work steps. The warning notices are shown as follows, depending on the degree of danger:

⚠ DANGER
Warns of an imminent danger which, if not avoided, results in serious or fatal injury.

⚠ WARNING
Warns of a potentially hazardous situation which, if not avoided, could result in serious injury or death.

⚠ CAUTION
Warns of an immediately hazardous situation which, if not avoided, can result in minor or moderate injury.

ATTENTION
Warns of an immediately hazardous situation which, if not avoided, can result in material or environmental damage.

ⓘ ***INFORMATION***

Indicates procedures in which there is **no** hazard of personal injury or material damage.

1.6 Conformity declaration

The declarations of conformity for the device are available for download at www.janitza.com.

1.7 Copyright notice

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All rights reserved.

Any reproduction, processing, distribution or other use, in whole or in part, is prohibited.
All trademarks and the rights arising from them are the property of the respective owners of these rights.

1.8 Questions or suggestions?

Do you have any questions, suggestions or ideas for improving the user manual? Please let us know by sending an email to info@janitza.com

Further documents, updates and firmware updates are available for download at www.janitza.com.

2. Safety

Compliance with the safety instructions is a prerequisite for the safe operation of the device.
Disregard may result in life-threatening danger or personal injury as well as material damage.

2.1 Intended use

The Janitza Universal Gateway is designed for monitoring, processing and communicating machine and sensor data in industrial, building and data center environments. The device offers various typical industrial interfaces for connection to surrounding devices to enable data communication.

Safe and trouble-free operation of the device requires proper transport, storage, assembly, installation, operation and maintenance.

Any other use is considered improper. Unauthorized conversions, modifications or manipulations are not permitted.

2.2 Improper use

The product is not intended for the following uses:

- Use outside of the technical data boundaries (operating voltage, measuring voltage, overvoltage category, etc.)
- Use in environments with harmful oils, acids, gases, vapors, dusts, radiation, etc.
- Use in potentially explosive environments
- Use in vehicles
- Use in critical switching, control or protection applications (protective relays)

2.3 Warning and information signs on the product

The following warning and information signs are located on the product:

	General warning of possible sources of injury.

2.4 Personnel qualifications

To avoid personal injury and material damage, only electrically qualified personnel are permitted to work on electrical equipment.
Electrically qualified personnel must be able to furnish proof of the following knowledge:

- Regulations on occupational safety and accident prevention
- Requirements for personal protective equipment
- Installation, commissioning, operation, disconnection, grounding and marking of electrical equipment
- Handling the device

2.5 Safety instructions

The device complies with the state of the art and the recognized safety standards and directives. Nevertheless, residual risks that cannot be avoided through design measures arise from the device. The manufacturer assumes no liability for damage resulting from disregard of the usage information.

- ➤ Read and follow the usage information associated with the product.
- ➤ Keep the usage information accessible for the entire service life of the product.
- ➤ Only operate the product when it is in perfect condition.
- ➤ When handling our products, observe the limit-values specified in the technical data and on the nameplate.
- ➤ Please also observe all further usage information on the components of your system.
- ➤ Observe the local accident prevention regulations.

3. Delivery specifications

3.1 Scope of delivery

The following components are included in the scope of delivery:

Quantity	Part. no.	Designation
1	1506087	JUG 25
1	-	Installation manual
1	-	Accessory pack (plug set)

Tab. Scope of delivery

3.2 Incoming goods inspection

The scope of delivery is carefully checked and packaged before shipping. However, transport-related damage cannot be completely ruled out.

Carry out incoming goods inspection
- ➤ Compare the delivery and delivery note with the order.
- ➤ Check to ensure the scope of delivery is complete.
- ➤ Check the delivery for damage (visual inspection).

Report complaints
- ➤ Do not operate the device if it is visibly damaged.
- ➤ Report any transport damage to the transport company immediately.
- ➤ Keep the damaged product and packaging for possible inspection.
- ➤ Contact the support team.

Returning the device
- ➤ Send the damaged device including accessories.
- ➤ Use the original packaging for return shipments.

4. Device description

4.1 Application description

The Janitza Universal Gateway JUG 25 can be used in two different applications and serves either as an IoT gateway for data communication or as a Modbus converter.

Application 1: IoT gateway

The JUG 25 enables bidirectional communication between Modbus RTU and Modbus TCP slave devices as well as an MQTT broker. With the shortest polling interval, a total of 1,000 measured values from up to 10 devices can be transmitted simultaneously.

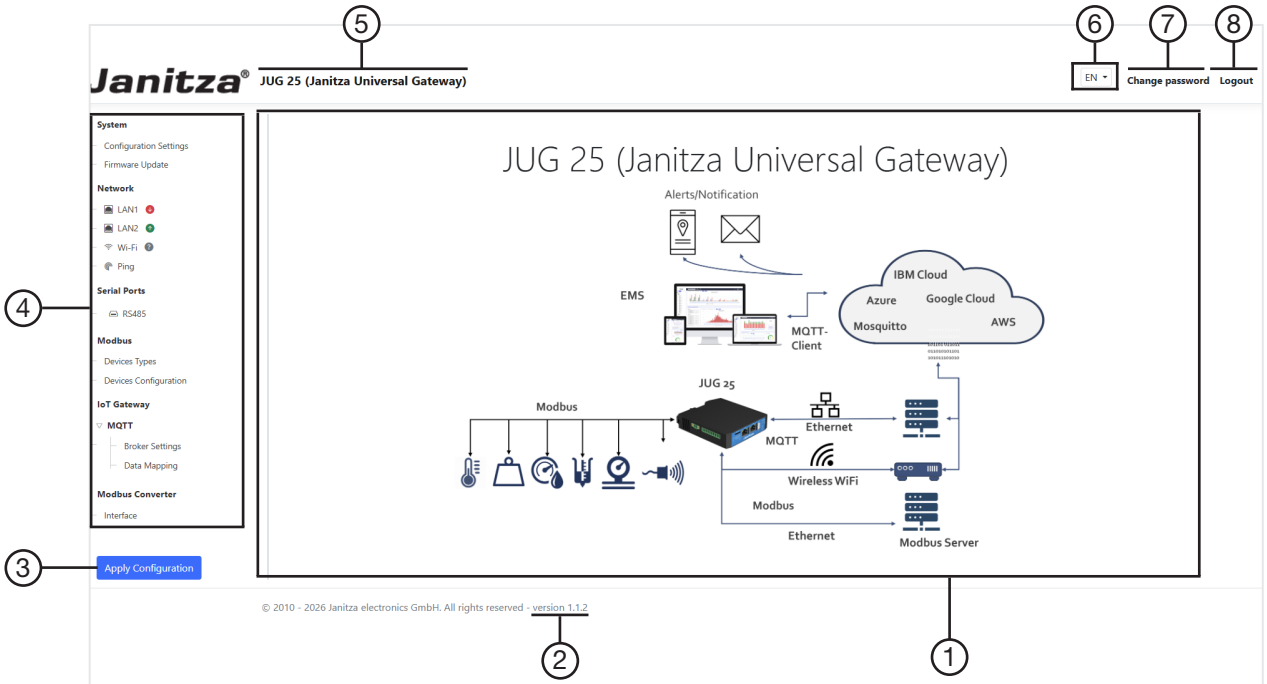
The gateway can be used to send the data collected via Modbus to freely configurable MQTT topics. On the MQTT side, the secure connection is supported by TLS/SSL encryption. The JUG 25 guarantees reliable message transmission through RAM-based buffering to ensure delivery in the event of temporary network interruptions.

Application 2: Modbus converter

The JUG 25 has a converter mode from Modbus TCP to Modbus RTU. In this mode, the gateway works as a Modbus TCP server and converts incoming requests into the RTU protocol. This means that the gateway can also be used in networks in which older RTU devices are not directly accessible.

4.2 Web interfaces

The JUG 25 has a web interface that is provided via an integrated measuring device homepage. Various device settings can be made and the applications configured via the web interface. The web interface is accessed via the IP address of the JUG 25 in a web browser.



Item	Function/Designation
1	Display range
2	Firmware version number
3	"Apply Configuration" button for transferring the configuration to the device
4	Navigation bar
5	Device name / "Start screen" button
6	Language selection
7	"Change password" button
8	"Logout" button

Tab. Web interfaces

4.3 Technical data

General	
Net weight	max. 130 g (0.29 lb.)
Dimensions	W=25 mm (0.98 in), H=100 mm (3.94 in) D=110 mm (4.33 in)
Realtime clock (RTC)	Gold cap for real-time functionality
Foreign body/water protection of JUG 25	IP20 according to EN60529

Transport and storage The following information applies to devices that are transported or stored in their original packaging.	
Temperature	-20 .. +70° C (-4 .. +158° F)
Relative humidity	10 .. 95% non-condensing

Environmental conditions during operation	
The JUG 25 is intended for weather-protected, stationary use.	
Rated temperature range	-20 .. +60° C (-4 .. +140° F)
Relative humidity	10 .. 95% non-condensing
Operating elevation	0 .. 1000 m above sea level (3280 ft AMSL)
Mounting orientation	As desired
Installation/assembly	35 mm DIN rail in accordance with EN 60715
Foreign body/water protection of installation location	min. IP44
Ventilation	No forced ventilation required

Supply voltage	
Nominal range	24 VDC (12 .. 36 V), SELV/PELV
Power consumption	max. 200 mA at 24 VDC

Interface	
USB	1x USB-A
Ethernet	2x RJ45, 10/100 Mbit/s
Serial	1x RS-232 (RxD/TxD) + 1x RS-232 (RTS/CTS) isolated or 2x RS-232 (RxD/TxD) isolated or 1x RS-232 (RxD/TxD) + 1x RS-485 isolated
Modbus RTU	1x RS-485
Mass storage MMC/SD/SDIO	1x microSD card slot (max. 128 GB, class 10)
WLAN	Via WLAN USB adapter (not included in the scope of delivery)

Tab. Technical data

5. Structure of the device

5.1 Front panel

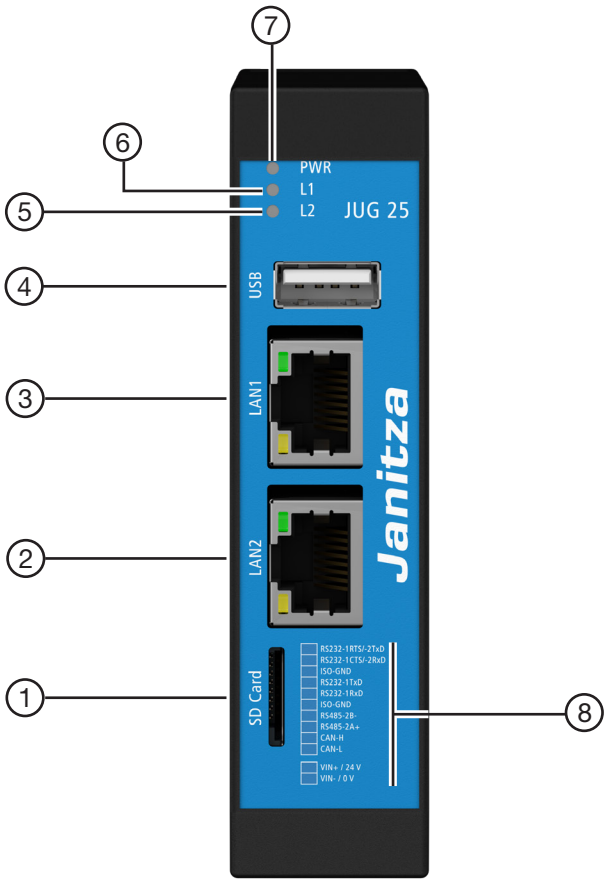


Fig. Front view JUG 25

Item	Function / Designation
1	microSD card slot
2	Ethernet interface LAN2
3	Ethernet interface LAN1
4	USB-A connection
5	LED L2 (yellow)
6	LED L1 (red)
7	Power LED (green)
8	Assignment plan on the bottom of the device

Tab. Front view

5.2 Bottom of device

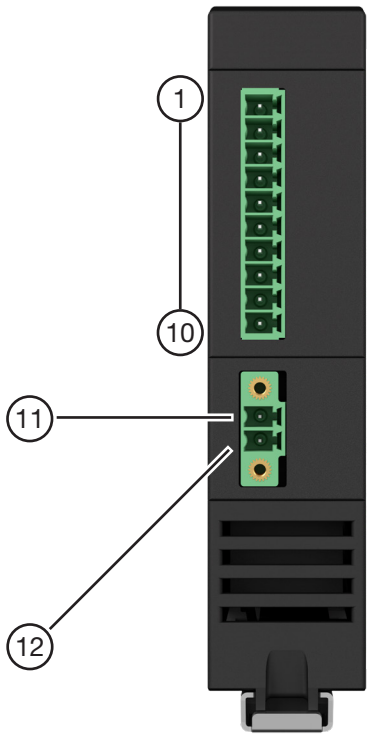


Fig. Bottom view JUG 25

Item	Function / Designation
1	RS-232-1RTS / -2TxD (not supported)
2	RS-232-1CTS / -2RxD (not supported)
3	ISO-GND (not supported)
4	RS-232-1TxD (not supported)
5	RS-232-1RxD (not supported)
6	ISO-GND
7	RS-485-B
8	RS-485-A
9	CAN-H (not supported)
10	CAN-L (not supported)
11	Supply voltage / +24 V DC
12	Supply voltage / GND

Tab. Bottom view

6. Mounting

6.1 Installation location

ATTENTION
Material damage due to overheating Failure to observe the installation instructions may damage or destroy the device. ➤ Observe the environmental conditions according to the technical data. ➤ Take suitable cooling measures if the permissible ambient temperature is exceeded. ➤ Ensure sufficient air circulation.

The JUG 25 is designed for mounting on a 35 mm DIN rail in switchboard cabinets with at least protection class IP44.

6.2 Securing

The housing of the JUG 25 has a bracket that enables secure installation without tools. To do so, proceed as follows:

➤ Press the device vertically onto the DIN rail until the housing audibly snaps into place.

7. Installation

⚠ WARNING

Disregarding the connection conditions of the Janitza measurement devices or their components can lead to injuries and even death or to material damage!

- ➤ Do not use Janitza measurement devices or components for critical switching, control or protection applications where the safety of persons and property depends on this function.
- ➤ Do not carry out switching operations with the Janitza measurement devices or components without prior inspection by your plant manager with specialist knowledge! In particular, the safety of persons, material assets and the applicable standards must be taken into account!

⚠ WARNING

Risk of injury due to electrical voltage

Severe bodily injury or death can result! Therefore please abide by the following:

- ➤ Before starting work, de-energize the system, secure it against being re-energized, and verify that it is de-energized. Ground the system and short-circuit it. Cover or block off adjacent live parts.
- ➤ When operating or troubleshooting the system, especially with DIN-rail devices, check the system for hazardous voltages and shut down the system if necessary.
- ➤ Wear protective clothing and protective equipment in accordance with applicable directives when working on electrical systems.
- ➤ Before making any connections, ground the device or component to the ground wire connection, if present.
- ➤ Do not touch any bare or stripped wires that are live! Equip stranded conductors with wire ferrules!
- ➤ Hazardous voltages can be present in all circuitry parts that are connected to the power supply.
- ➤ Protect wires, cables, and devices with an appropriate line circuit breaker or fuse.
- ➤ Never switch, remove, or tamper with safety devices!
- ➤ There can still be hazardous voltages present in the device or in the component even after it has been disconnected from the supply voltage (capacitor storage).
- ➤ Do not exceed the limit values specified in the user manual and on the nameplate! This must also be observed during testing and commissioning.
- ➤ Take note of the safety and warning notices in the documents that belong to the device!

7.1 Establishing the supply voltage

1. Ensure that the power supply unit matches the technical data of the device; see section "4.3 Technical data" on page 13.
2. Connect the power supply unit to the device using the plug provided. Observe the polarity, see section "5.2 Bottom of device" on page 15.
3. Switch on the supply voltage.
   · The initialization phase of the device starts.
4. After the initialization phase, check whether the power LED on the device is lit.
   · LED is lit: Device is ready for operation.
   · LED is not lit: Check connection and supply voltage.

7.2 Establishing an Ethernet connection

You can connect the JUG 25 directly to a network or directly to a PC via the Ethernet interfaces.

ATTENTION

Material damage due to incorrect network settings.
Incorrect network settings can cause faults in the IT network!
➤ Consult your network administrator for the correct network settings for your device.

ATTENTION

Material damage due to security vulnerabilities in programs, IT networks and protocols.
Security vulnerabilities can lead to data misuse and faults and even the standstill of your IT infrastructure.
To protect your IT system, network, data communications and measurement devices:
➤ Inform your network administrator and/or IT representative.
➤ Always keep the meter firmware up to date and protect the communication to the meter with an external firewall. Close unused ports.
➤ Take protective measures against viruses and cyber attacks from the Internet, e.g. through firewall solutions, security updates and virus protection programs.
➤ Eliminate security vulnerabilities and update or renew existing protective devices for your IT infrastructure.

➤ Use at least CAT5 cable.
➤ Connect the device to the network or a PC via one of the Ethernet interfaces (LAN1 or LAN2).

7.3 Connect additional devices

Optionally, further Modbus RTU devices can be connected to the JUG 25 via the RS-485 interface on the bottom of the device.

INFORMATION

Correct data transmission via RS-485 requires that the data lines A and B as well as the grounding (ISO-GND) be connected, as otherwise no or incorrect measured values will be recorded.

➤ Connect the Modbus RTU device to the RS-485 interface of the JUG 25 using the plug supplied. Note the pin assignment, see section "5.2 Bottom of device" on page 15.

7.4 Connecting the Wi-Fi adapter

INFORMATION

The Wi-Fi connectivity of the JUG 25 is only available with an external Wi-Fi adapter.
The Wi-Fi adapter is not included in the scope of delivery.

The following Wi-Fi adapters are recommended:
· Edimax EW-7811UAC
· TP-Link TL-WN821N (V5 or V6)

1. Plug the Wi-Fi adapter into the USB port.
2. Switch on the supply voltage, if not already done.
3. After the initialization phase, check the Wi-Fi status in the device settings on the web interface.

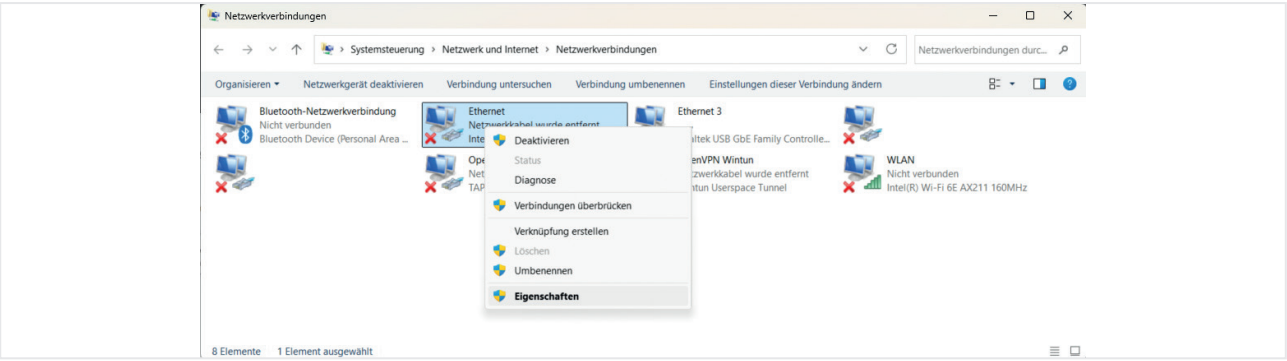
Wi-Fi symbol	Description
	Wi-Fi adapter has been recognized and can be set up. See section "9. Configuration" on page 22.
	Wi-Fi adapter has been recognized and Wi-Fi connection is active.
	Wi-Fi adapter was not recognized. Check connection and supply voltage.

Tab. Wi-Fi symbols

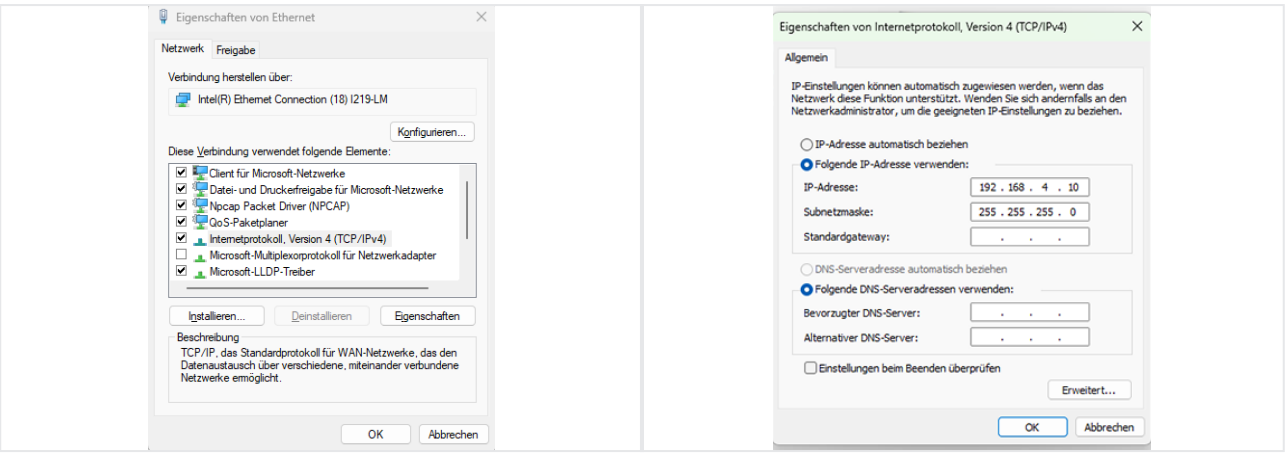
8. Commissioning

An Ethernet connection via an Ethernet cable is required for trouble-free communication when commissioning the JUG 25. This ensures that the JUG 25 and the PC are in the same IP address range (subnet). Administrator rights are required for commissioning, as only users with these rights can make changes to the network settings.

1. Ensure there is an Ethernet connection via an Ethernet cable between JUG 25 and PC.
2. Enter "Network connections" in the search bar of your Windows PC.
3. Open the "Show network connections" menu.



4. Right-click to open the properties of "Ethernet".



5. Open "Properties" of "Internet Protocol Version 4 (TCP/IPv4)".
6. Select "Use the following IP address".

7. Enter the IP address of the PC from the "IP addresses" table, whereby xx must not be equal to 11.
8. Enter the subnet mask "255.255.255.0".
9. Open web browser.
10. Enter the IP address of the JUG 25 from the "IP addresses" table to open the web interface.
11. When logging in for the first time, enter the default username "Admin" and the default password "Admin".
12. Select the "Change password" button on the start page of the web interface to change the default password.

Ethernet interface	JUG 25	PC
LAN1	192.168.4.11.	192.168.4.xx
LAN2	192.168.3.11.	192.168.3.xx

Tab. IP addresses

9. Configuration

The entire configuration of the device is carried out via the web interface. The web interface is accessed by entering the IP address of the device in the address bar of a web browser. The configuration menus are available via the navigation bar.

9.1 Language selection

The web interface language can be set using the language selection in the header. The following languages are available:

· EN – English
· DE – German

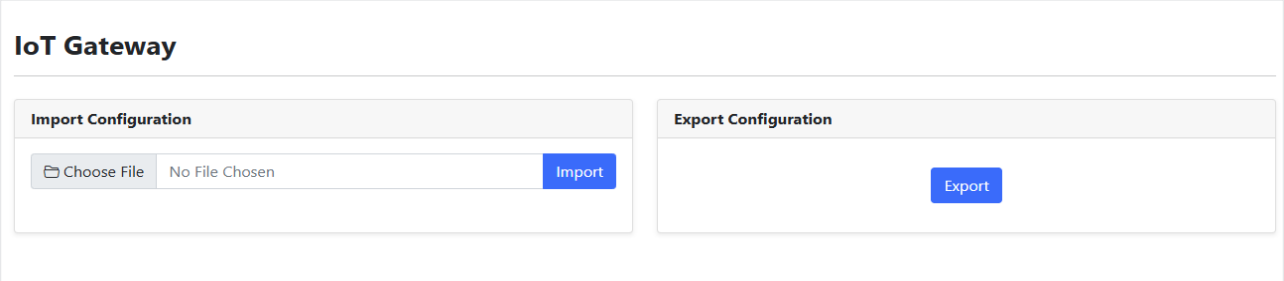
The selected language is immediately applied to all menus and configuration pages.

9.2 System

9.2.1 Configuration settings

The following functions are available for quickly adopting settings or transferring them to other devices:

· Import configuration:
  Loads an existing configuration from a ZIP folder. Adopts the predefined parameters.
· Export configuration:
  Saves the current configuration in a ZIP folder. Provides the configuration for other devices.



9.2.2 Firmware update

To ensure reliable operation of the JUG 25, the firmware must be updated regularly.

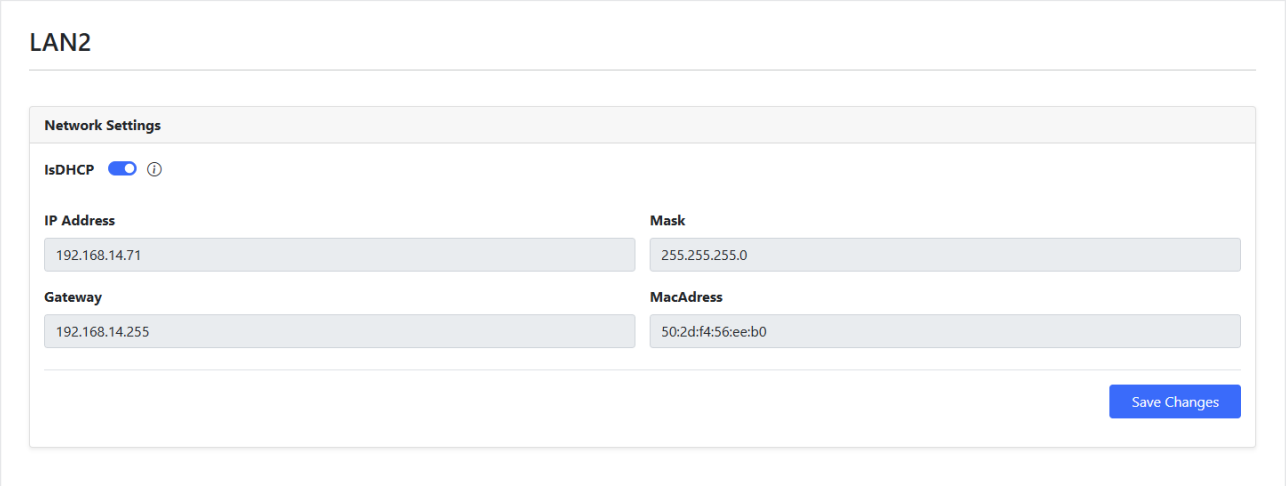
For information on carrying out a firmware update, see section "12.3 Firmware update" on page 38.

9.3 Network

The network configuration includes settings for LAN and Wi-Fi connections, as well as a function for checking the accessibility of network devices.

9.3.1 LAN1 / LAN2

The following settings are available for the wired network interfaces:



IsDHCP:
The switch is used to specify whether the device automatically obtains network settings such as IP address, subnet mask and gateway from a DHCP server.

- Switch activated: The device obtains the network settings automatically.
- Switch deactivated: The network settings are entered manually.

IP Address:
This is the unique IP address assigned to the device in the network. It enables communication with other devices in the same network.

Mask:
The subnet mask defines the network part of an IP address and separates it from the host part. It determines whether another IP address is in the same subnet as the device.

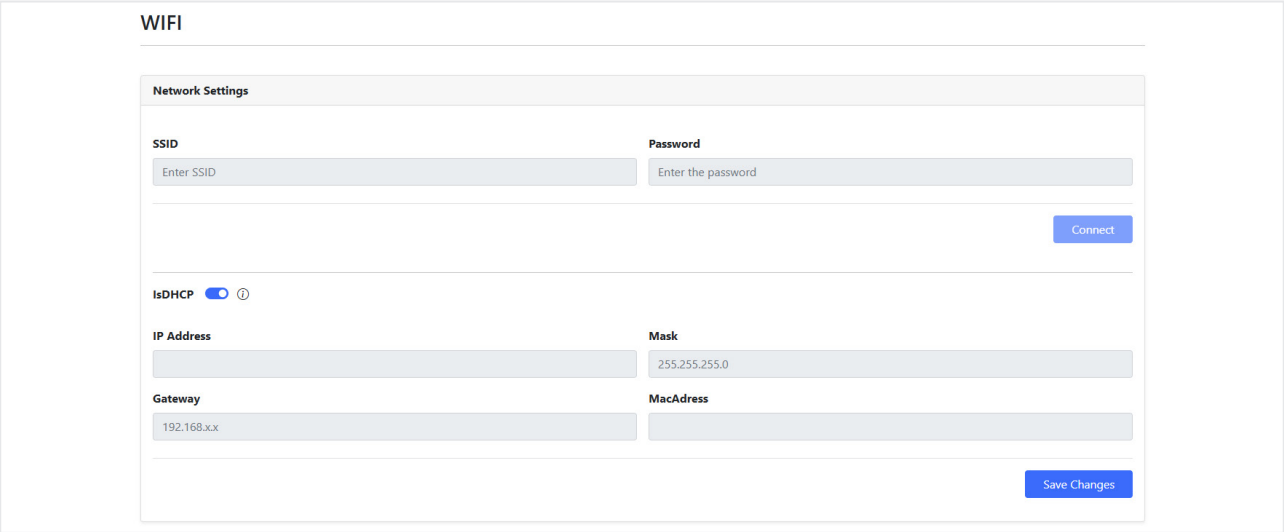
Gateway:
The gateway is the IP address of the router or another device that connects the local network to other networks such as the Internet.

MacAddress:
The MacAddress is the unique physical address assigned to the network interface of the device. It serves as a fixed identifier for identifying the device in the local network.
The MacAddresses are specified on the nameplate.
If the "IsDHCP" switch is unselected:

- ➤ Enter the IP address of the device in the "IP Address" field.
- ➤ Enter the subnet mask in the "Mask" field.
- ➤ Enter the IP address of the local router in the "Gateway" field.
- ➤ Click the "Save Changes" button to save the settings.

9.3.2 Wi-Fi

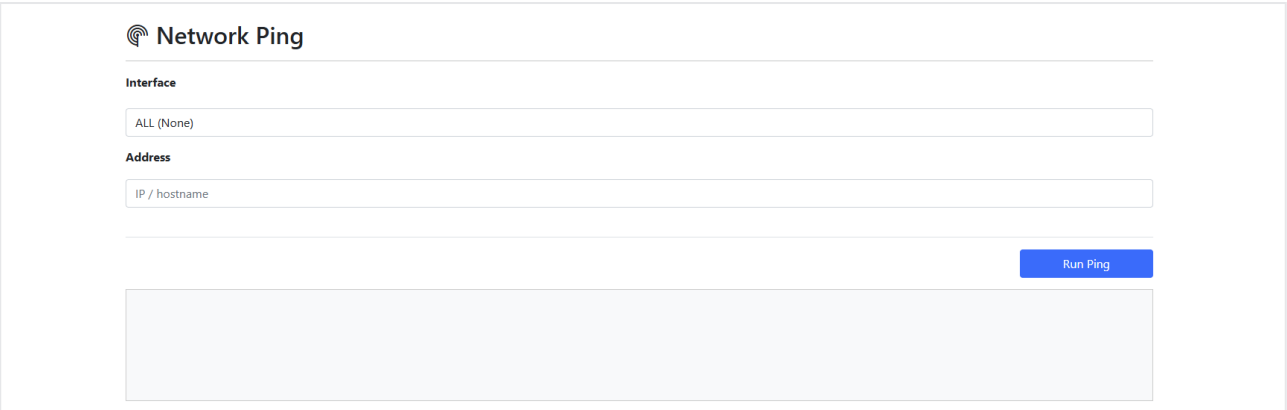
The following settings are available for the wireless network interface:



1. Enter the SSID of the Wi-Fi network.
2. Enter the password for the Wi-Fi network.
3. Make further settings in the same way as for the LAN connection, see Sect. 9.3.1 on page 23.
4. Click the "Save Changes" button to save the settings.

9.3.3 Ping

The ping diagnostics tool is used to check the accessibility of a target host via a selected network interface (LAN1, LAN2 or Wi-Fi).



The following steps are required:

1. Select the interface from the "Interface" drop-down menu.
2. Enter the IP address or hostname of the destination host in the "Address" field.
3. Click the "Run Ping" button.

The result of the ping diagnostics is displayed below the button.

9.4 RS-485 interface

The RS-485 interface of the JUG 25 is used for communication with connected devices. The settings made apply across all applications. The JUG 25 has a 3-pin RS-485 interface for communication via the Modbus RTU protocol.

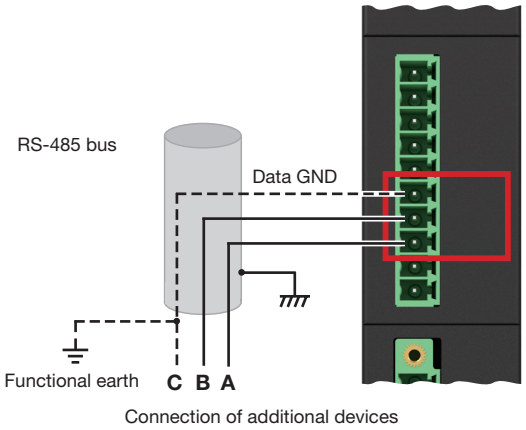


Fig. Connection example at the beginning or end of a bus topology as a client device (formerly master device):

INFORMATION

A segment of an RS-485 bus structure can contain up to 32 nodes/devices. Use a repeater for more than 32 nodes/devices.

➤ If you use the measurement device as a client device, always position it at the beginning or end of a bus segment!

CAT cables are not suitable for bus wiring.
Recommendation: Use Unitronic Li2YCY(TP) 2x2x0.22 cable (Lapp cable) for the bus wiring.

➤ To prevent the addition of leakage currents when using several devices, install the Data GND as a functional earth (see figure).

9.4.1 Shielding

For connections via the interfaces, use a twisted and shielded cable and observe the following for the shielding:

1. Ground the shields of all cables leading into the switchboard cabinet at the cabinet entrance.
2. Route the cables into the switchboard cabinet using suitable cable inlets, such as PG glands.
3. Connect the shield to a noiseless ground using a large surface area with good conductivity.
4. DO NOT connect the shield to terminal C (GND).
5. Secure the cables mechanically above the grounding clamp to prevent damage caused by cable movement (strain relief).

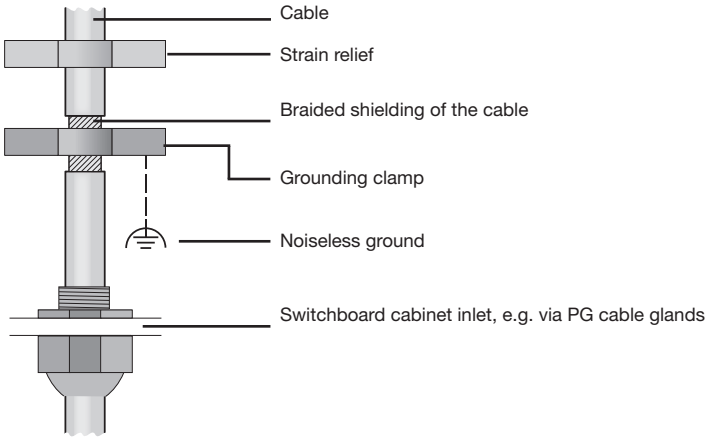


Fig. Shielding design at entrance to switchboard cabinet

⚠ WARNING

Risk of injury due to high currents and high electrical voltages!
Atmospheric discharge can cause transmission errors and hazardous voltages on the device.
Therefore please abide by the following:

- ➤ Connect the cable shield to functional earth (PE) at least once.
- ➤ For larger sources of interference or frequency converters in the switchboard cabinet, connect the shielding to functional earth (PE) as close to the device as possible.
- ➤ At a baud rate of 38.4 kbps, observe the maximum cable length of 1,200 m.
- ➤ Use shielded cables.
- ➤ Route interface cables spatially separated or additionally insulated from mains voltage-carrying system components.

9.4.2 Termination resistors/Termination

The device does not contain an integrated termination resistor. Terminate the beginning and end of your bus segments with a 120 Ω / 0.25 W termination resistor.

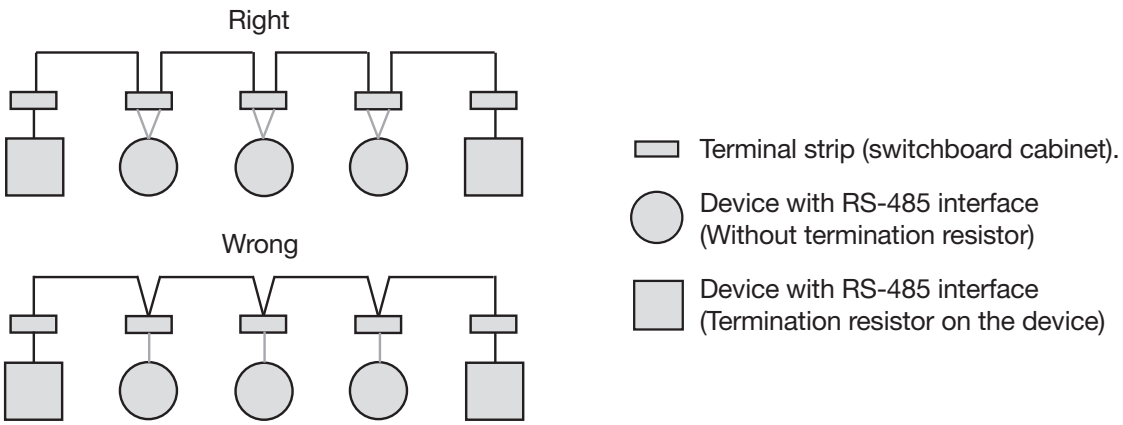


Fig. Termination of an RS-485 bus segment

9.4.3 Bus structure (bus segment)

In a bus structure:
· All devices are connected in series.
· Each device has its own device address.
· Devices with bus termination switched on must be powered.
· It is recommended that the client device be placed at the end of a segment. If the client device is replaced with the bus termination switched on, the bus is out of service.
· The bus can become unstable if a server device with bus termination switched on is replaced or is de-energized.
· Devices that are not involved in the bus termination can be replaced without the bus becoming unstable.

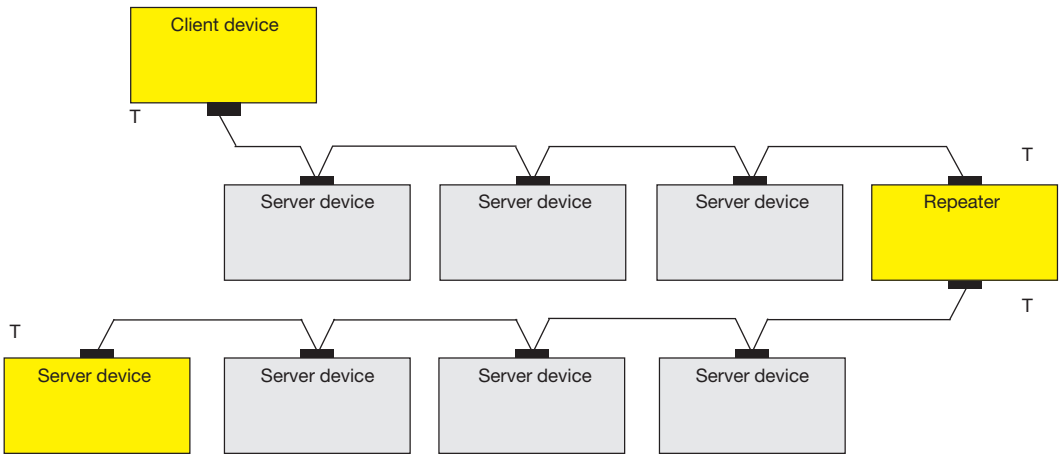


Fig. Diagram of a bus structure

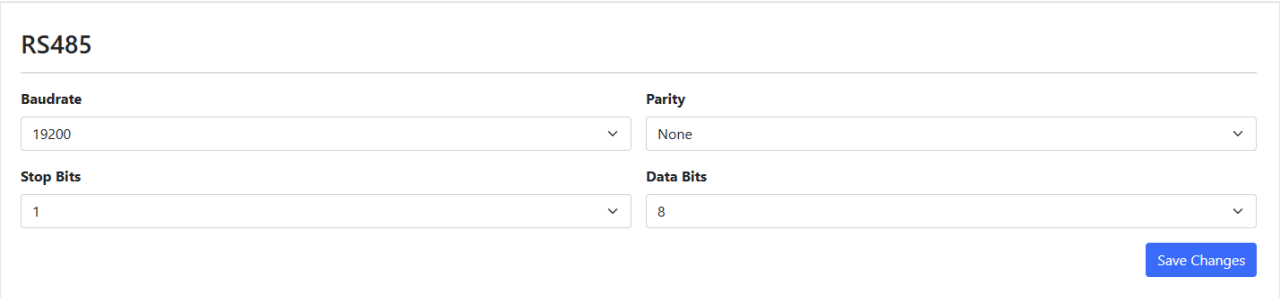
INFORMATION

In a Modbus system, the Modbus organization (modbus.org) uses the terms "client" and "server" to describe Modbus communication, which is characterized by communication between a client device, which initiates communication and sends requests, and server devices, which process the requests and return a corresponding response (or error message).

9.4.4 Configuration of the RS-485 interface

The RS-485 interface can be configured as follows:

1. Open the "RS-485" menu.
2. Select baud rate from the "Baudrate" drop-down list.
3. Select the parity from the "Parity" drop-down list.
4. Select the stop bits from the "Stop Bits" drop-down list.
5. Select the data bits from the "Data Bits" drop-down list.
6. Click the "Save Changes" button to save the settings.
7. Click the "Apply Configuration" button in the navigation bar to transfer the configuration to the JUG 25.

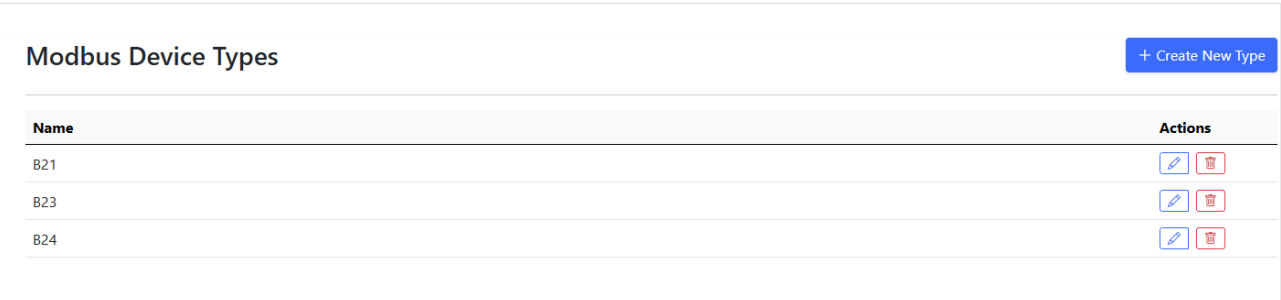


9.5 Configuring the Modbus device type

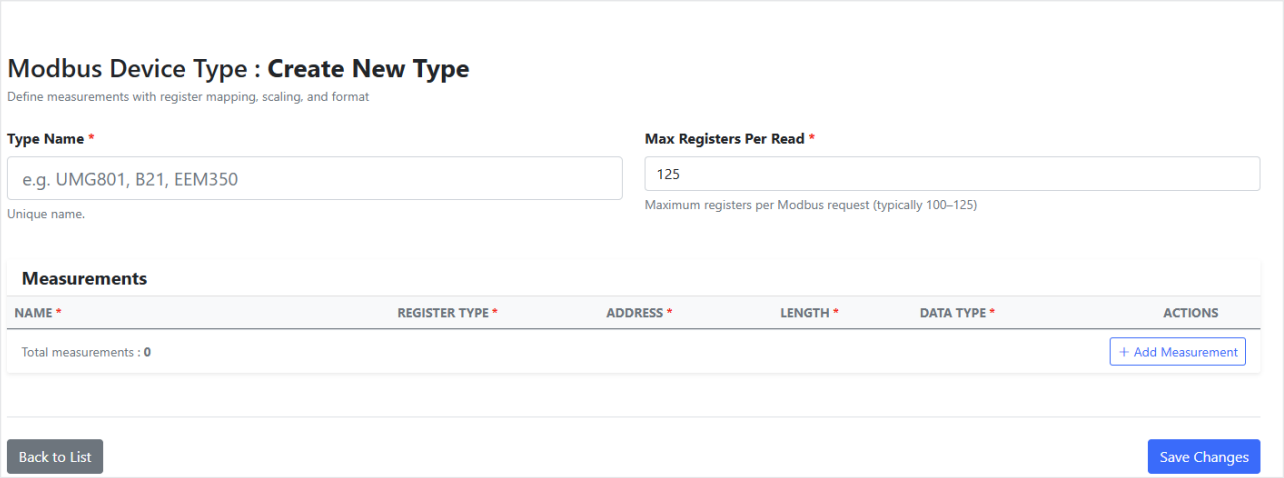
The device type defines a fixed group of measured values as well as the common data and configuration structure for devices of the same type. Ready-made templates for Janitza measurement devices are available and contain the necessary configuration settings to simplify commissioning. Alternatively, you can select your own preconfigured templates, which reduces manual input and ensures consistent settings.

9.5.1 Creating a new device type

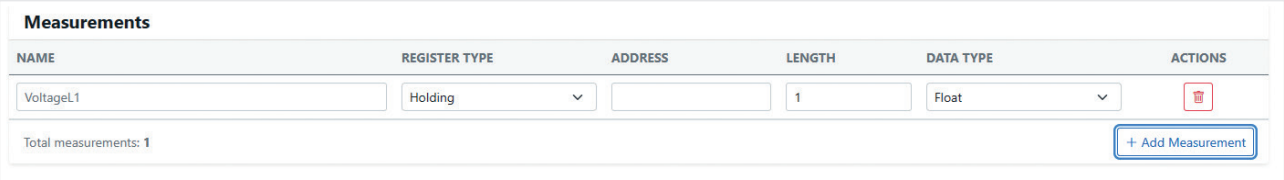
1. Open the "Device Types" menu.



2. Click the "Create New Type" button.



3. In the "Type Name" field, enter the name of the device type.
   The device name must be unique. Only letters, numbers and "-" are permitted.
4. In the "Maximum Registers per Read" field, enter the maximum number of registers to be read per Modbus query.
5. Click the "Add Measurement" button to add a new measured value for the device type.



6. Editing details of the measured value:

Parameters	Description	Permissible values
Name	Unique designation of the measured value	Letters, numbers, "-"
Register type	Register type of the measured value	Input, Holding
Address	Modbusaddress of the measured value	0–65535
Length	Number of registers to be read	1–125
Data type	Data type of the measured value	Short, UShort, Integer, UInteger, Float, Float (Swapped), Double, ULong, String, Raw

Tab. Measured value details

7. Click the "Save Changes" button to save the new device type.
8. Click the "Apply Configuration" button in the navigation bar to transfer the configuration to the JUG 25.

9.5.2 Editing the device type

INFORMATION

A device type can only be renamed or deleted if no devices are assigned to it. The name field and the "Delete" button are disabled for device types that have an existing assignment.

1. Open the "Device Types" menu.
2. Press the button in the line of the corresponding device type.
3. Edit information on the device type or the measured values.
4. If necessary, press the button to delete individual measured values.
5. Click the "Save Changes" button to save the settings.
6. Click the "Apply Configuration" button in the navigation bar to transfer the configuration to the JUG 25.

9.5.3 Deleting the device type

INFORMATION

A device type can only be deleted if no devices are assigned to it. For device types with an existing assignment, the "Delete" button is disabled.

1. Open the "Device Types" menu.
2. Press the button in the line of the corresponding device type.

9.6 Configuring Modbus devices

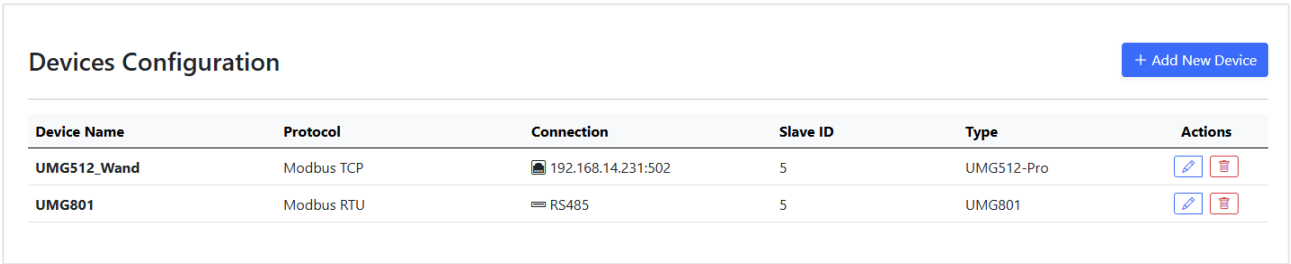
Modbus devices represent the measurement devices connected via Modbus and form the basis for data acquisition in the JUG 25. The configuration of the Modbus devices is a prerequisite for the further processing and transmission of the recorded data.

9.6.1 Creating a new device

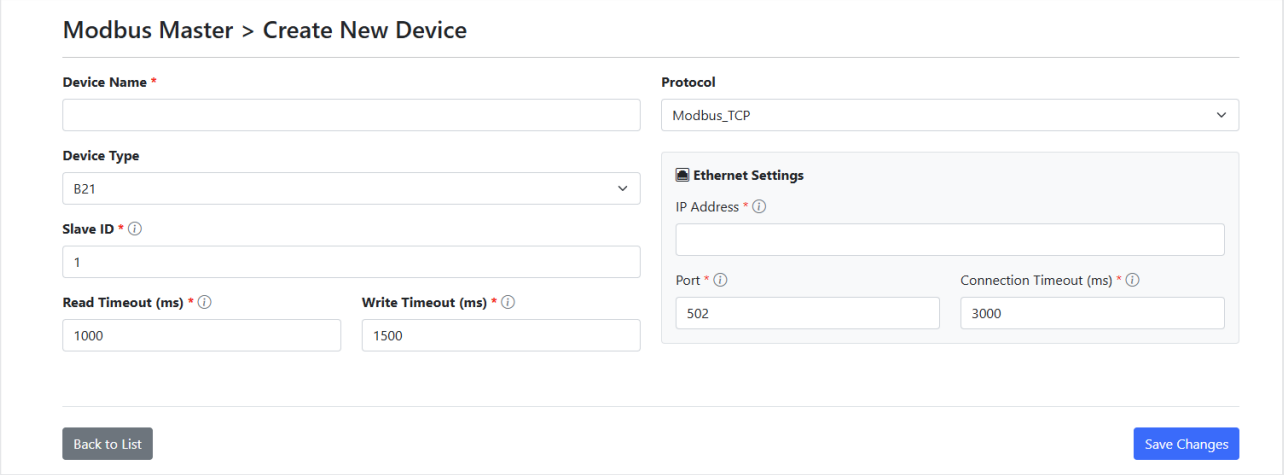
INFORMATION

Once a Modbus RTU device has been created in the device configurator (the "Devices Configuration" menu), the JUG cannot be used as a converter (Application 2), but only as a gateway (Application 1). Simultaneous use is then not possible.

1. Open the "Devices Configuration" menu.



2. Click the "Create New Device" button.



3. Edit device details:

Parameters	Description	Permissible values
Device Name	Unique device identifier	Letters, numbers, "-"
Device Type	Selection of the device type	Drop-down list selection
Slave ID	Slave ID of the device	1-247
Read Timeout (ms)	Waiting time for Modbus read response before timeout	100-10000
Write Timeout (ms)	Waiting time for Modbus write confirmation before timeout	100-10000
Protocol	Modbus protocol of the device	Modbus_RTU, Modbus_TCP
Serial interface [1)]	Device interface used	Drop-down list selection
IP Address [2)]	IP address of the device	Format xxx.xxx.xx.xxx
Port [2)]	Communication port of the device	1-65535
Connection Timeout (ms) [2)]	Waiting time for Modbus TCP connection before timeout	100-30000

1) Only if "Modbus_RTU" is selected *2) Only if "Modbus_TCP" is selected*

Tab. Device specifications

4. Click the "Save Changes" button to save the settings.
5. Click the "Apply Configuration" button in the navigation bar to transfer the configuration to the JUG 25.

9.6.2 Editing the device configuration

1. Open the "Devices Configuration" menu.
2. Press the button in the line of the corresponding device.
3. Edit the device details.
4. Click the "Save Changes" button to save the settings.
5. Click the "Apply Configuration" button in the navigation bar to transfer the configuration to the JUG 25.

9.6.3 Deleting a device

1. Open the "Device Configuration" menu.
2. Press the button in the line of the corresponding device.

9.7 Transferring a configuration to a device

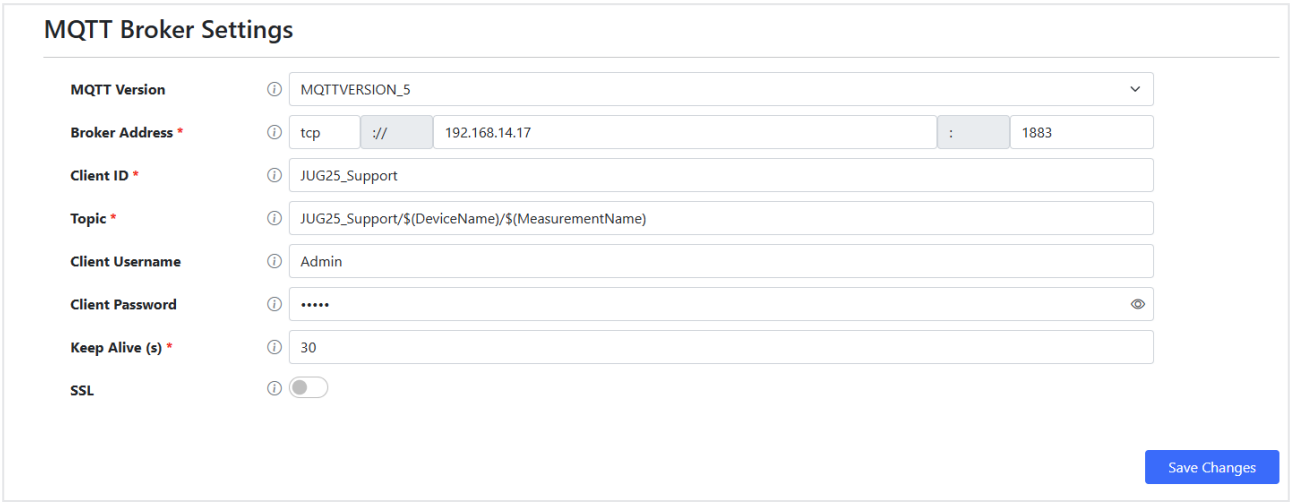
When entering and saving values in the web interface, the new configuration is not automatically transferred to the JUG 25. The transfer only takes place after the "Apply Configuration" button has been clicked. The "Apply Configuration" button can also be used to transfer several previously saved changes at the same time.

10. APPLICATION 1: IoT gateway

As an IoT gateway, the JUG 25 enables the transmission of recorded measurement data to an MQTT broker for further processing.
The JUG 25 also supports automatic message recovery in the event of temporary network interruptions that do not involve a power failure. If the connection to the MQTT broker is interrupted, the device buffers outgoing messages in RAM and delivers them once the connection has been restored.
Data buffering after a connection is lost lasts for a maximum of one hour from the start of the interruption. The actual buffered time period depends on the number of connected devices and the configured polling interval.
The buffer management uses a FIFO (first-in, first-out) strategy. However, the exact order of the messages is not always retained, especially across different MQTT sessions or when messages are transmitted simultaneously.
Once the gateway has been configured, the recorded data is available for further processing by the customer.

10.1 Editing the MQTT Broker settings

1. Open the "MQTT Broker Settings" menu.



2. Edit details of the MQTT broker:

Parameters	Description	Permissible values
MQTT Version	Version of the MQTT protocol	Drop-down list selection
Broker Address	Communication protocol used	Drop-down list selection
	IP address of the MQTT broker	Format xxx.xxx.xx.xxx
	Port of the MQTT broker	1-65535 (1883 default port for unsecured communication, 8883 default port for secured communication).
Client ID	Unique device identifier of the JUG 25 in the MQTT broker	Letters, numbers, "-"
Topic	MQTT topic	E.g. JUG25/$(DeviceName)/$(MeasurementName)
Client Username	Username for authentication on the MQTT broker	Default MQTT broker
Client Password	Password for authentication on the MQTT broker	Default MQTT broker
Keep Alive (s)	Time interval in seconds. Signals are sent to the MQTT broker at this interval to maintain the connection.	0-65535
SSL	Activate the "SSL" switch to use SSL.	SSL 
	Deactivate the "SSL" switch to not use SSL.	SSL 
Client Certificate [1)]	Certificate for authentication on the MQTT broker	E.g. file format .pem
Client-key file [1)]	Private key for using the client certificate	E.g. file format .key
CA Certificate [1)]	Certificate of the certification authority for verification of the MQTT broker	E.g. file formats .pem or .crt

1) Only with an activated SSL

Tab. MQTT broker

3. Click the "Save Changes" button to save the configuration.
4. Click the "Apply Configuration" button in the navigation bar to transfer the configuration to the JUG 25.

10.2 Configuring data mapping

Data mapping is used to assign measured values to MQTT topics and determines which measured values are transmitted. Device-related and measuring-value-related polling intervals and MQTT topics can be defined. In this way, data transmission can be flexibly adapted to different requirements.

1. Open the "MQTT Data Mapping" menu.



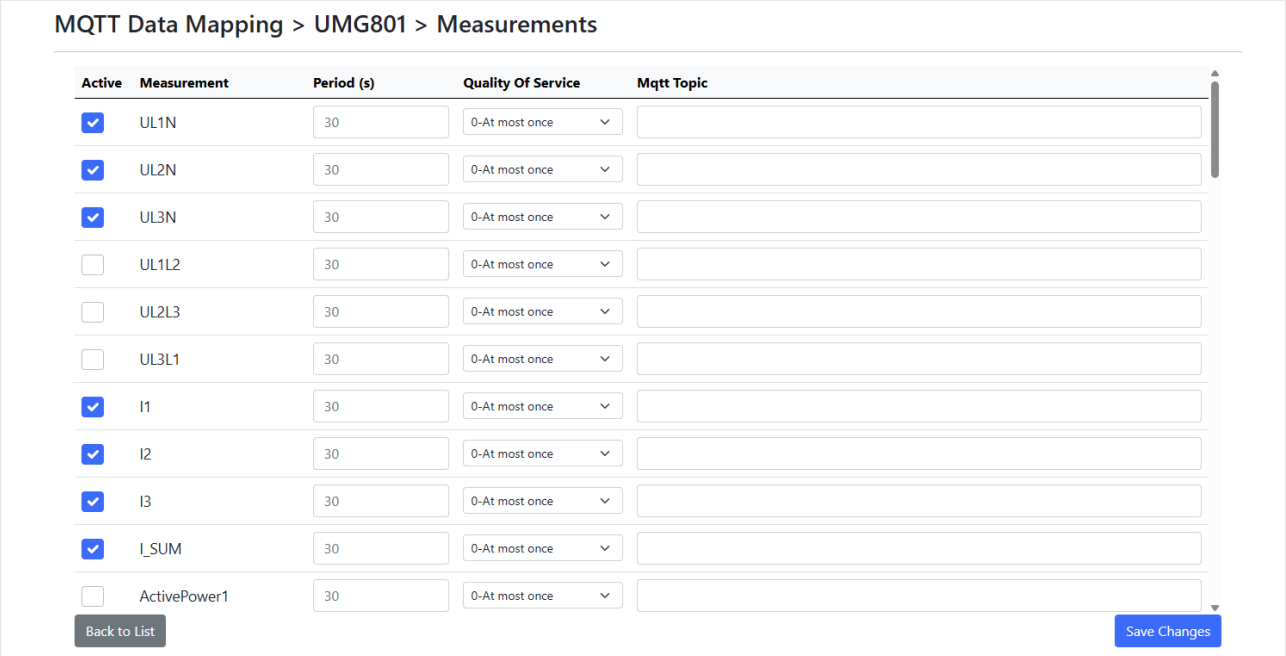
2. Enter the polling interval (at least 5 seconds) in the "Global Period (s)" field. This polling interval applies as long as no deviating value is set at the device or measured value level.

INFORMATION

The "Device Name" column lists all devices that have been created in the device configurator.

3. Optionally, enter a custom polling interval (minimum 5 seconds) for the corresponding device in the "Period (s)" field.
4. Optionally enter an individual MQTT topic for the corresponding device in the "MQTT Topic" field.

5. Press the button ⚙ to make settings to the measured values of the device.



6. Select the checkbox in the "Active" column to transfer the corresponding measured value.
7. Optionally, enter a custom polling interval (minimum 5 seconds) for the corresponding measured value in the "Period (s)" field.
8. Select the quality of service from the "Quality of Service" drop-down list.
9. Optionally enter an individual MQTT topic for the corresponding measured value in the "MQTT Topic" field.
10. Click the "Save Changes" button to save the configuration.
11. Click the "Apply Configuration" button in the navigation bar to transfer the configuration to the JUG 25.

ⓘ *INFORMATION*

If you activate measured values from devices that are not connected, transmission errors may occur.

➤ Only activate measured values from devices that are actually connected.

➤ Whenever changes are made to the connected devices, ensure that the measured values to be transmitted are also updated.

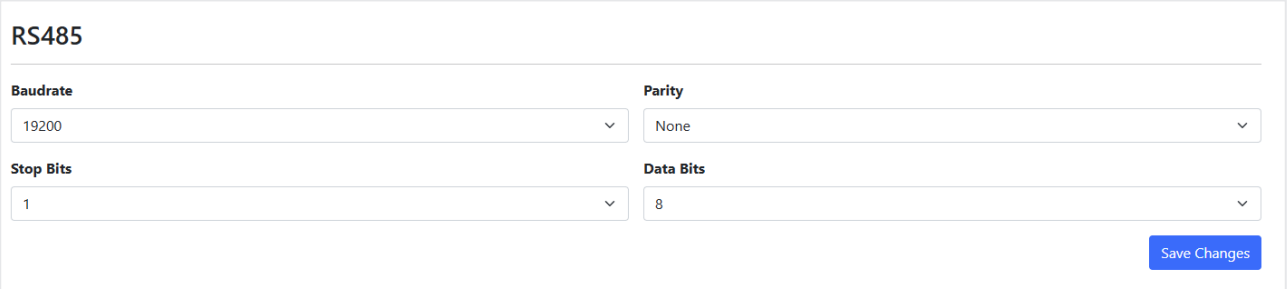
11. APPLICATION 2: Modbus TCP to RTU converter

INFORMATION

Once a Modbus RTU device has been created in the device configurator (the "Device configurator" menu), the JUG cannot be used as a converter (Application 2), but only as a gateway (Application 1). Simultaneous use is then not possible.

The Modbus-TCP-to-RTU converter enables communication between the JUG 25 as a Modbus TCP client and the Modbus RTU server devices connected via the RS-485 interface.
Incoming Modbus TCP requests are converted into the Modbus RTU protocol, and the responses from the Modbus RTU servers are once again encapsulated into Modbus TCP telegrams.
Once the Modbus TCP to RTU converter has been configured, the data collected by the gateway is available for further processing by the customer.

1. Open the "Interface" menu.



2. Press the button to change the interface settings, see section "9.4 RS-485 interface" on page 25.
3. Click the "Save Changes" button to save the settings.
4. Click the "Apply Configuration" button in the navigation bar to transfer the configuration to the JUG 25.

12. Service and maintenance

Prior to outbound delivery, the device is subjected to various safety tests and is marked with a seal. If a device is opened, the safety tests must be repeated. A warranty is only assumed for unopened devices.

12.1 Care and cleaning

The front foil and display can be cleaned if they become dirty.

ATTENTION
Material damage due to incorrect cleaning Water or other solvents (e.g. alcoholic or acidic agents) can damage or destroy the device. ➤ Clean the device and the front panel foil with a soft cloth. ➤ In cases of heavy contamination, use a cloth pre-treated with LCD cleaning spray.

12.2 Service

For questions not answered or described in this manual, please contact the manufacturer. Please be certain to have the following information ready to answer any questions:
· Device designation (see nameplate)
· Serial number (see nameplate)
· Firmware version (see system display)
· Measured voltage and supply voltage
· An exact error description.

12.3 Firmware update

To ensure reliable operation of the JUG 25, the firmware must be updated regularly.

INFORMATION

A firmware update resets the configuration to the factory settings.

1. Export the device configuration from the "Configuration settings" menu.
2. Download the firmware from the download area of **www.janitza.com**.
3. Open the "Firmware update" menu in the web interface.
4. Select the update file (.raucb).
5. Click the "Update firmware" button.

The firmware update is installed and takes approx. 5 minutes. The device then restarts.

6. Carry out commissioning, see Page 20.
7. Reload the web interface.
8. Check that the firmware version at the bottom of the screen is up to date.
9. Import the device configuration using the "Configuration settings" menu.

13. Dismounting and disposal

13.1 Dismounting

⚠ WARNING

Disregarding the connection conditions of the Janitza measurement devices or their components can lead to injuries and even death or to material damage!

- ➤ Do not use Janitza measurement devices or components for critical switching, control or protection applications where the safety of persons and property depends on this function.
- ➤ Do not carry out switching operations with the Janitza measurement devices or components without prior inspection by your plant manager with specialist knowledge! In particular, the safety of persons, material assets and the applicable standards must be taken into account!

⚠ WARNING

Risk of injury due to electrical voltage

Severe bodily injury or death can result! Therefore please abide by the following:

- ➤ Switch off your installation before commencing work! Secure it against being switched on again! Check to be sure it is de-energized! Ground and short circuit! Cover or block off adjacent live parts!
- ➤ During operation and troubleshooting (especially for DIN rail devices), check your system for dangerous voltages and switch these off if necessary!
- ➤ Wear protective clothing and protective equipment in accordance with applicable guidelines when working on electrical systems!
- ➤ Before making connections to the device/the component, ground the device by means of the ground wire connection, if present.
- ➤ Do not touching bare or stripped leads that are energized! Equip stranded conductors with wire ferrules!
- ➤ Hazardous voltages can be present in all circuitry parts that are connected to the power supply.
- ➤ Protect wires, cables and devices with a suitable line circuit breaker/fuse!
- ➤ Never switch off, remove or tamper with safety devices!
- ➤ There can still be hazardous voltages present in the device or in the component even after it has been disconnected from the supply voltage (capacitor storage).
- ➤ Do not exceed the limit values specified in the user manual and on the nameplate! This must also be observed during testing and commissioning.
- ➤ Take note of the safety and warning notices in the documents that belong to the device!

- ➤ Disconnect the supply voltage.
- ➤ Disconnect all connected components and cables from the connections of the JUG 25.
- ➤ Pull the JUG 25 straight forwards off the DIN rail.

13.2 Defective device / disposal

Opening or repairing the device yourself will invalidate the warranty.
The following steps are required before returning defective devices, modules or components to the manufacturer:

- Contact the support team.
- Use the original packaging for return shipments.
- Consider transportation conditions.
- Send the damaged device including accessories.
- For the Disposal of the device, please observe the national regulations. If necessary, dispose of individual parts, depending on their condition and existing country-specific regulations, e.g. as
  - · Electronic waste,
  - · Plastics,
  - · Metals.
- Engage a certified disposal company as needed.



Electrical devices with this symbol must not be disposed of with household waste.

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The current version of the document can be found in the download area at www.janitza.com.