Art. No. 12020-230

OPERATING INSTRUCTIONS

ECO 305

PROFESSIONAL EBUS GATEWAY

Gateway of the latest generation for the eBus system

HIGHLIGHTS

eBus Gateway
optimized for ebusd** software

—

eBus interface to the
read and write for your
eBus heating system

—

Manufacturer-independent

—

Plug and Play System

—

Automatic eBus level adjustment

—

Web server and access point
for configuration, debug and firmware updates

—

Low maintenance industrial device, because
without Linux. Native programmed without
unknown libraries

—

LAN interface
for data, configuration, debug
and firmware updates

—

Rugged industrial design

—

Extensive protection circuits and good device
protection

—

Easy mounting on
Top-hat rail, 4TE (77mm)
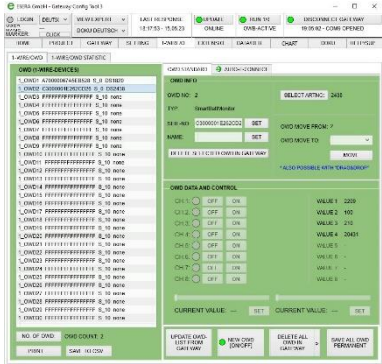
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Power supply 110-240VAC

TABLE OF CONTENT

1 ADDITIONAL DOCUMENTS AND SOFTWARE

In addition to the ECO 305 eBus Gateway operating manual, we also offer cross-product documents that are valid for several devices.

You can find these documents and additional software on our website (https://esera.de) by following the links below.

Please make sure that you read all the documents thoroughly and follow the information and instructions contained. If you have difficulties finding the documents or software you need, do not hesitate to contact our customer support (support@esera.de). We will be happy to help you with any questions or problems.

Webserver Access Point INTERFACE DOCUMENTATION	**WEBSERVER MANUAL** Manual for configuring the interface via web server and access point The manual can be found in the ESERA download area at: https://lnk.esera.de/6ufqk8or https://lnk.esera.de/6UFQK8OR
	CONFIG TOOL 3 SOFTWARE Comprehensive software for all EC and ECO gateways with 1-Wire I/O section You can find the software in the ESERA download area at: https://lnk.esera.de/r68y1mkg https://lnk.esera.de/R68Y1MKG

PDF DOWNLOAD

Note

Before you begin assembling the device and put the product into operation, we strongly recommend that you carefully read this user manual to the end, especially the section on safety instructions.

If you encounter any issues downloading additional documents or software, please don't hesitate to contact our support team via email at support@esera.de.

We are committed to acting in an environmentally friendly and resource-conscious manner. Therefore, we use paper and cardboard whenever possible instead of plastics. With this paperless manual, we also aim to make an environmental contribution. Please consider the environment before printing this manual.

2   PRODUCT DESCRIPTION

The ECO 305 eBus Gateway is a high-performance interface of the latest generation that acts as a link between your heating system and the ebusd* software. It allows you to access your heating system independently of the manufacturer, both for reading and writing, and enables optimizations.

This gateway has been specifically designed for communication with the optimized "ebusd"* software and supports the enhanced command set (Enhanced Mode) of ebusd*.

In addition to the eBus functions, the ECO 305 Gateway features an Access Point and an integrated web server that facilitate easy operation and configuration. You can communicate through the LAN interface with up to 2 data connections using the ASCII text protocol.

The ECO 305 is a new eBus coupler with a standard 2400 Baud data interface and an "Enhanced Mode" extension. It does not perform independent data analysis or evaluation.
The fully automatic level adjustment takes place within seconds on your eBus, eliminating the need for manual adjustment.

Through the integrated web server, you can conveniently change device settings, perform software updates, and view device data. The web server is accessible via both LAN and the Access Point (activated by pressing a button).

The ECO 305 eBus Gateway is a low-maintenance industrial device as it does not use Linux and does not rely on unknown libraries.

Software support is available via ebusd** on the web, and we offer the free eConfig tool for debugging purposes.

Please note that the ECO 305 is not supported by the Vaillant vrDIALOG software.

3   HIGHLIGHTS

Optimized for the ebusd** software
The gateway is specially optimized for use with the ebusd software.

eBus interface for reading and writing
You can access your eBus heating system and transfer both read and write data.

Manufacturer-independent
The gateway is compatible with various heating systems from different manufacturers. The heating systems only need to have an eBus interface.

Plug and Play System
It's easy to install and set up, with no complicated setup processes.

Automatic eBus level adjustment
The level adjustment on the eBus takes place automatically and in a few seconds.

Web server and access point
The gateway has an integrated web server and access point for configuration, troubleshooting and firmware updates.

Low maintenance industrial device
The gateway has been natively programmed without the use of Linux or unknown libraries to ensure reliable and low-maintenance performance.

LAN interface
Data transfer, configuration, troubleshooting and firmware updates can be performed via the LAN interface.

Rugged industrial design
The gateway is designed in a rugged industrial version to meet the requirements in various environments.

Extensive protection circuits and good device protection
The gateway provides comprehensive protection circuits and reliable device security.

Simple assembly
The gateway can be easily mounted on a top-hat rail with 4TE (77 mm).

Power supply
The gateway supports a power supply in the range of 110-240VAC.

These functions make the ECO 305 eBus Gateway a powerful and versatile tool for controlling and monitoring your heating system.

**ebusd is not software by ESERA GmbH. We do not assume any liability, promise of function or support for this software.

4 ECO 305 eBus Gateway

The ECO 305 eBus Gateway offers several advantages that result in potential savings of up to 25%* in heating costs and an increase in living comfort.

Here are some ways the gateway can help:

- **Optimization of heating control**
  By accessing your heating system and being able to read and write to it, you can control and adjust heating parameters more precisely. This allows you to operate your heating more efficiently and reduce unnecessary energy consumption.

- **Improved control of the room temperature**
  The ECO 305 gateway in combination with the ebusd software allows you to control and adjust the room temperature more precisely. You can set up individual schedules and temperature profiles to improve home comfort and save energy at the same time.

- **Remote access and control**
  Thanks to the gateway's web server and access point function, you can conveniently access and control your heating system from anywhere. This gives you flexible and easy remote monitoring and control to optimize home comfort while minimizing energy consumption.

It is important to note that actual heating cost reduction and improvement in home comfort depend on various factors, such as the efficiency of your heating system, building insulation and your individual usage patterns. However, the ECO 305 eBus Gateway, together with the ebusd** software, offers you the possibility to better control and optimize these aspects for potential savings and improved comfort.

*The stated heating cost reduction of up to 25% is for illustrative purposes only and may vary depending on individual circumstances. It is not a guaranteed savings.

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DATA INTERFACE

The ECO gateway is equipped with an Ethernet interface that allows a speed of 10/100Mbit. It supports different data protocols like TCP/IP or UDP. Up to 2 data connections can be used in parallel, which enables efficient communication and data transfer. The Ethernet interface provides a reliable and fast connection for data exchange between the gateway and other devices or systems.

ASCII TEXT PROTOCOL

The ECO 305 gateway ensures a direct and unaltered transmission of the data transmitted via the eBus. It outputs the data in its native form via the data interface without evaluating or analyzing it. The gateway forwards the data without any additional processing or interpretation. This ensures that the received data is transmitted to the user unchanged and true to the original.

SELF-SUFFICIENT MANAGEMENT

The eBus gateway ECO 305 enables the independent reading of communication data of the eBus and also offers the possibility to transfer commands to the eBus. This allows various actions to be carried out, such as triggering a heating system or transmitting parameters to the central heating system. With the help of the gateway, data can be written to and read from the eBus heating bus to control the heating center or peripheral components such as pumps, mixers or a living room control unit. However, it is important to note that the correctness of the command data is always the responsibility of the user. The gateway itself does not perform any write or read actions independently.

DESIGNED FOR ALL eBus HEATING SYSTEMS

The eBus is a cross-company bus system used in heating construction. The ECO 305 eBus gateway enables the connection with all heating systems which have this heating data bus. Please check whether your heating system is also supported by the ebusd evaluation system. For more information, please visit the ebusd website at www.ebusd.de.

VOLTAGE SUPPLY

For the power supply, the ECO 305 is equipped with an integrated power supply unit that supports a wide-range voltage input of 100VAC - 240VAC. This makes it ideally suited for stationary operation in a control cabinet or control box. This voltage input option allows flexible installation of the gateway in different environments and ensures a reliable power supply for the operation of the device.

5   TECHNICAL DATA

SPECIAL FEATURE	• eBus Gateway/Data interface is optimized for the software ebusd**. • Enables read and write access to the eBus heating bus. • Manufacturer-independent and compatible with all heating systems, including gas, oil, solar, and heat pumps. • Integrated web server for configuring data connections. • Activation of an internal access point via a button for 30 minutes. • Powerful Ethernet interface. • Internal WLAN antenna for wireless connectivity.
DATA INTERFACE	• Ethernet, 10/100Mbit, autonegotiation, DHCP or fixed IP address
NUMBER OF DATA CONNECTIONS	max. 2 parallel TCP/IP socket data connections • 1 x binary 2400 baud, 8 data bits, no start bit, 1 stop bit • 1 x binary with enhanced ProProtocol for ebsud* with 115,2kBaud, 8 data bits, no start bit, 1 stop bit
PROTOCOL	ESERA ASCII text for eConfig tool, 19200 baud, 8 data bits, no start bit, 1 stop bit
OPERATING MODES	Standard ebus with 2400 baud and enhanced ProProtocol with 115.2kBaud TCP Socket, TCP Client, UDP
EBUS INTERFACE	• Standard eBus interface • Reverse polarity and overvoltage protection • Automatic level adjustment to correct operating point Input voltage high: 15-24 V, low: 9-12 V
POWER SUPPLY	110 - 240VAC
STROKE UP	max. 5 Watt at 230VAC, typical 2W at 230VAC
CONNECTION	Screw terminals for stranded wire and cable up to 2.5qmm cross-section
PROTECTIVE CIRCUITS	ESD, overvoltage and reverse polarity protection for the eBus interface
CONNECTION	Screw terminals for stranded wire and cable up to 2.5qmm cross-section
ISOLATION	Galvanic isolation between Ethernet and eBus interface

6   ENVIRONMENTAL CONDITIONS

Operating temperature	-5°C to +40°C, standard temperature range
Storage temperature	-10°C to +60°C
Relative humidity	10% to 92% (non-condensing)
Room classification	Operate only in dry rooms
Protection class	IP20
Protection class	II
Dimensions	2TE, 77 x 90 x 70mm (WxHxD)

7   CONFORMITY

EN 50090-2-2
EN 61000-4-2, ESD
EN 61000-4-3, HF
EN 61000-4-4, Burst
EN 61000-4-5, Surge
EN 61000-6-1, Noise immunity
EN 61000-6-3, Interference radiation
RoHS

8   DISPLAY LED

The module has different display LEDs. The function of the displays is as follows

ADVERTISEMENT	DESCRIPTION	FUNCTION
LED Green	PWR	Display for supply voltage
LED Green	DATA	• After switching on the device, the LED flashes 3x • Flashes during eBus activity • Flashes when sending data via the data interface
LED Green	LAN	LAN - network status LED Lights up when LAN network connection is established Flashes when the interface is not activated
LED Green	WLAN	WLAN - Network Status LED Lights up when WLAN network connection is established Flashes when the WLAN access point is activated and a direct connection is possible

9   SOFTWARE, EVALUATION EBUS DATA

The scope of delivery of the ECO 305 does not include any evaluation software. The ECO 305 gateway is optimized for the ebusd software.

For the evaluation of the eBus data there are different projects on the Internet. We would like to recommend the following projects.

The ebusd website also provides information on how to configure ebusd.

- **ebusd website*:**   https://ebusd.de/
- **Documentation on ebusd:**   https://github.com/john30/ebusd/wiki
- **LoxBerry Wiki**:   https://wiki.loxberry.de/plugins/ebusd_plugin/start

*ebusd is not software by ESERA GmbH. We do not assume any liability, promise of function or support for this software.

Documentation on eBus in general:

- **eBus Wiki Page of** the eBus Friends
  Webside: (https://www.dokuwiki.org/start?id=de:dokuwiki

Notice:
- **Vaillant vrDIALOG Software**
  The ECO 305 gateway is NOT supported by the Vaillant vrDIALOG software.

10   FUNCTION TERMINALS

The following is an overview of the terminals and their functions

KLEMME	DESCRIPTION	FUNCTION
3	Mains voltage neutral conductor	Power supply of the eBus gateway, Neutral - ladder, N
4	Mains voltage phase	Power supply of the eBus gateway, Phase - conductor, L
5	Functional earthing FE	Connection for functional grounding
22	eBus connection "A"	Connection of the eBus heating bus, terminal A
23	eBus connection "B"	Connection of the eBus heating bus, terminal B
17	Reset button	Reset button for eBus section, not interface
All other terminals that are not used	Not used	No function, not used Do not insert any objects, tools or lines

NOTE
The FE connection of the ECO 305 must be connected to ground potential (PE). This establishes a functional ground for reliable operation.

11   CONNECTION PLAN
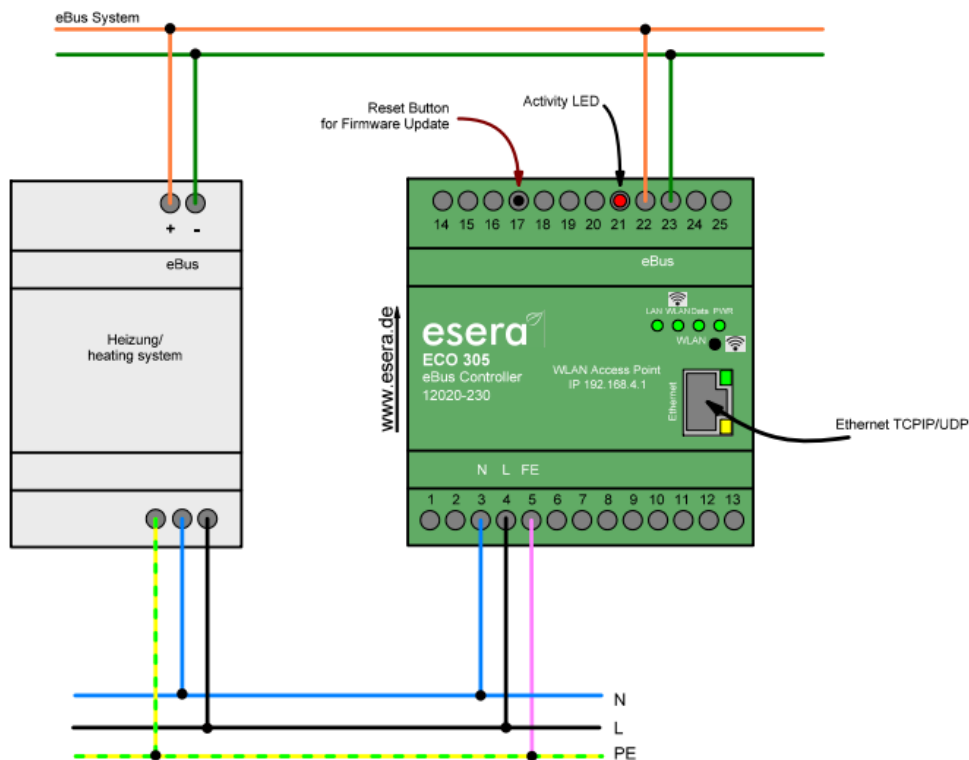
NOTE
The module may only be operated at the voltages and under the ambient conditions specified for it. The operating position of the device is arbitrary.
The modules may only be commissioned by a qualified electrician.
Carry out all connection work in a de-energized state.

For further information on the operating conditions, see the following instructions under "Operating conditions".

12 ACTIVATE ACCESS POINT

The ECO Gateway with Maxi interface has a switchable WiFi (WLAN) access point.
This means that you can access the device via a mobile device such as a smartphone, tablet or laptop. This is possible directly - without additional devices via WiFi (WLAN), access point (e.g. Fritzbox).

> **NOTE**
> You activate the access point by pressing (for 5 seconds) the button on the top.
> The access point is active for approx. 30 minutes. After that, it deactivates automatically for security reasons.
> You can switch off the access point by pressing it again for at least 5 seconds.

Push button to activate the Access Point

What is an access point?
With an access point (wireless LAN **AP mode**), mobile end devices such as laptops, tablets, smartphones, etc. can be connected directly to the ECO Gateway. No additional wireless LAN access point is required.

When the access point is activated, we talk about the AP mode of the WLAN interface of the ECO Gateway.
(See figure, LED "AP" is on, LED "Station" is off)

If you no longer need the access point, switch it off by pressing the button again for **at** least 5 seconds.

> **NOTE**
> The web server is continuously available via the Ethernet interface. You can reach it via the IP address of the device.
> The IP address of the ECO Gateway can be found on the "Ethernet Interface Settings" web page

Access Point is activated

13   SELECT ACCESS POINT

The ECO gateway registers itself as a WLAN access point with the identifier "ESERA". In the delivery state, the Ethernet interface is set to "DHCP".
The access point is open, without an access password.

Select "ESERA" Access Point
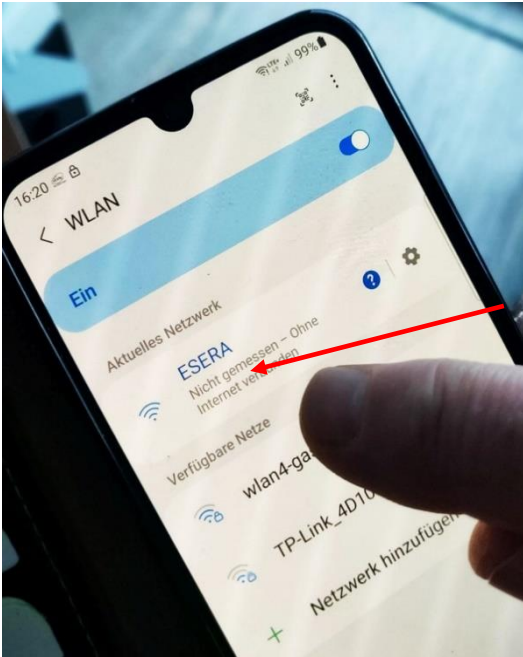
NOTE
The ECO WLAN access point can be found as a WLAN network at the identifier "ESERA".

14   CALL WEB SERVER VIA WIFI

If you have connected to the WLAN network "ESERA", the web browser starts directly on many smartphones.
If this is not the case, switch to your web browser (e.g. Firefox, Chrome, etc.) and enter
enter the IP address of the ECO Gateway.
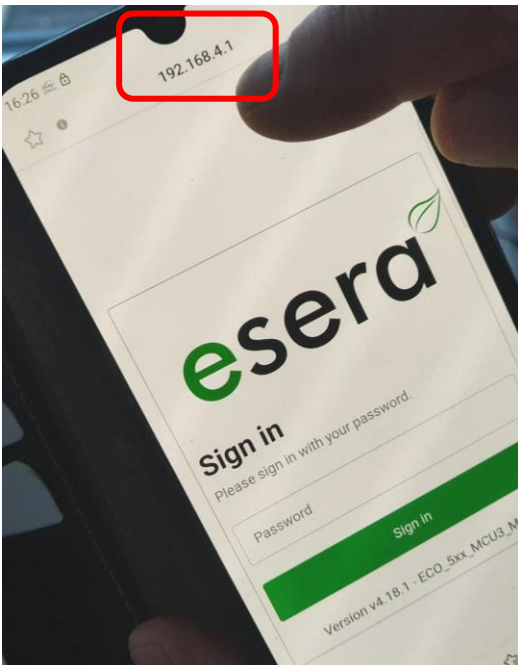
Now the web server of the ECO Gateway should be visible, comparable to the following picture.

The configuration of the device is currently only possible via the web server of the ECO Gateway.

NOTE
The IP address of the ECO Gateway via Access Point is: **192.168.4.1**
The IP address of the access point is printed on the right side of the gateway housing.
Important: Enter the IP address without "https://".

15   CALL WEBSERVER VIA LAN

You can also connect the web server of the ECO Gateway at any time via LAN interface using the set Reach IP address.
The IP address of the ECO Gateway is shown on the device display (if the device has a display). If the device does not have a display, you can
also read out the current IP address (not the
IP address of the access point) via your router/DHCP server.

16   WEBSERVER, LOG IN

Sign in

Please sign in with your password.

Version v4.18.1 - ECO_5xx_MCU3_MQTT

Password, Log In
To be able to log into the web server of the ECO Gateway, use for the first login the
Startup/default password: eserapwd

For security reasons, the password is not displayed in plain text, but with dots.
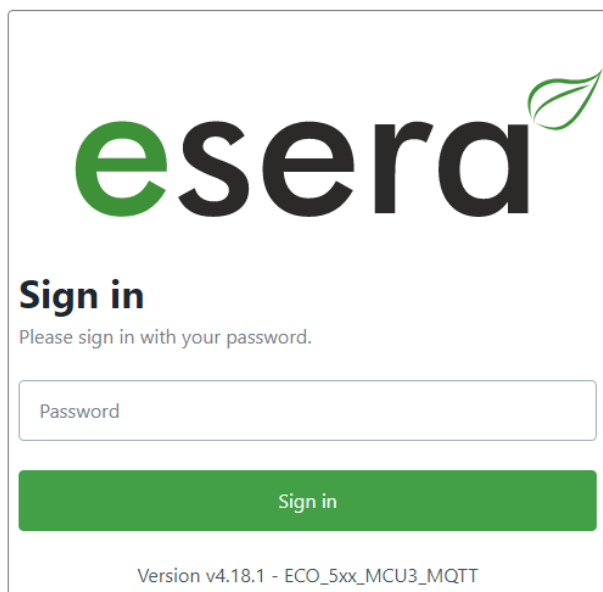After entering the password, click on the "Login" button to open the main menu (hereinafter referred to as the main menu).

Please change the password after the first login, otherwise unauthorized persons can also
make settings on the
ECO Gateway.
Please enter a new and secure password via the main menu/"Change Password".
Advice on how to assign secure passwords can be found on the Internet.

Software version Ethernet interface/Log Out
Display of the software version of the Ethernet interface installed on the device. The version of the 1-Wire firmware can be seen via the Config Tool 3.

Log Out
Click on the "Log Out" button to exit the web interface.

NOTE
The startup/default password for login is: **eserapwd**

IMPORTANT
Please change the password after the first login.

For more details about functions of the web server, please refer to the document "Interface Manual" that you can find via our website www.esera.de, download area/technical-downloads.

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17   Main page

The ECO gateways are delivered with different equipment regarding interfaces and protocols.

The main page is divided into two sections:
General
Here you will find all menus for configuring the interfaces and viewing the gateway
and sensor data. The various buttons (selection keys) take you to the corresponding submenus, which are
described below.

Danger Zone
Here you get to submenus where you should take great care, because the possible changes are usually not
undoable.
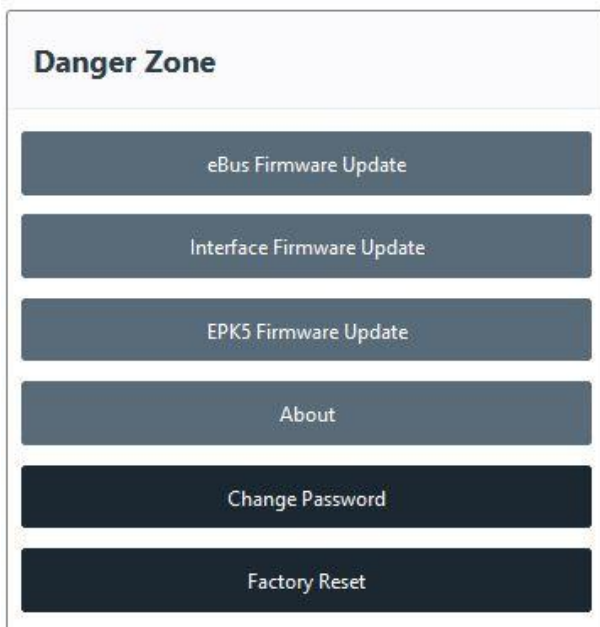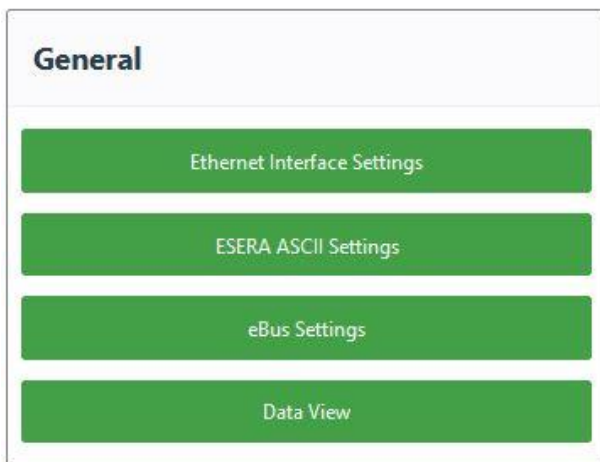
Ethernet Interface Setting
Use this button to enter the menu for setting the IP address, Sub Net and Gateway number.

ESERA ASCII Settings
From here you come to the submenu for setting the data port. Pressing the button takes you to the menu for configuring socket interfaces 2 - 5.

Data View
Here you can view the gateway data and the sensors connected via the 1-Wire bus system. Here you will also find the Auto-E-Connect information.

Firmware update, eBus, I/O section
Using this button you can perform an update of the eBus Section perform.

Firmware Update Interface Section
This button allows you to perform a firmware update of the interface and the web server.

Change Password
To change the password for the web server, click the "Change Password" button.

Factory Reset
You may reset the Ethernet interface to the delivery state. For this press the button "Factory Reset

Software version Ethernet interface/Log Out
Display of the software version of the Ethernet interface installed on the device. The version of the 1-Wire firmware can be seen via the Config Tool 3.

Sign Out
Click the "Sign Out" button to exit the web server.

18 ETHERNET INTERFACE SETTINGS

Use the "Interface Setting" page to set the basic settings for the Maxi interface. The device IP address, subnet mask and gateway IP address are set in
this menu.
These settings are also relevant for the web server and the ESERA ASCII text interface.

esera

Interface Settings

Ethernet Interface

DHCP ⦿
Manual ◯
IP Address:

192.168.2.157

Subnet mask:

255.255.255.0

Gateway:

192.168.2.1

[Back]

[Save]

ECO305_MCU3
Version v5.0.2
Sign Out

DHCP/Manual,
Operating mode IP address assignment
You can choose between automatic (DHCP) and manual assignment of the IP address.
DHCP is activated in the delivery state.

IP Address
In case of automatic address assignment (DHCP), the assigned IP addresses are displayed.
If the IP addresses are assigned manually, the corresponding settings must be IP-Address,
Subnet mask and Gateway must be entered.

Save/Back
The "Save" button permanently saves the current settings.
If you do not want to make any changes, press the "Back" button.

Software version Ethernet interface/LogOut
Display of the software version of the Ethernet interface installed on the device. The version of the 1-Wire firmware can be seen via the Config Tool 3.
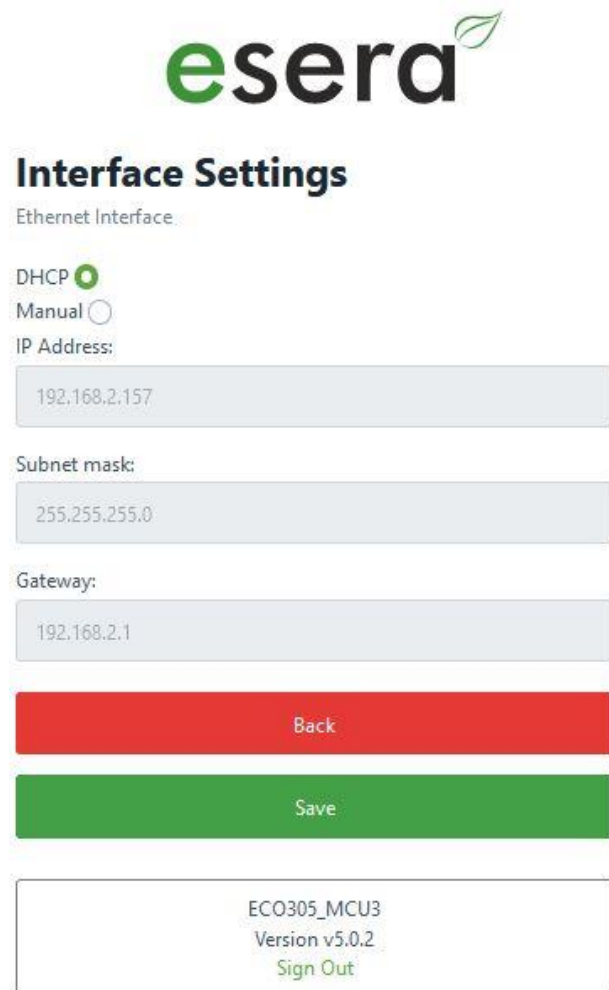
Sign Out
By clicking the "Sign Out" button you will leave the web server.

19   ASCII PROTOCOL SETTINGS

The ASCII Setting web page is used to configure the settings for the ESERA ASCII data interface (text interface), e.g. for the Config Tool or the ECO DASHBOARD 100.

TCP Server/UDP Server
Here you can set the operating mode of the ASCII data interface.
You can choose between TCP server and UDP server.
Delivery state is TCP Server.

Port
The port for the ASCII data interface is assigned here.
 The port can be selected in the range of 1 - 5000. The
default port is 5000, which
is the default setting for the ESERA Config Tool 3 and the ESERA ECO DASHBOARD 100.

Save/Back
The "Save" button permanently saves the current settings.
If you do not want to make any changes, press the "Back" button.

Software version Ethernet interface/LogOut
Display of the software version of the Ethernet interface installed on the device. The version of the 1-Wire firmware can be seen via the Config Tool 3.

Sign Out
By clicking the "Sign Out" button you will leave the web server.

20   DISABLE AP MODE

In addition to a LAN interface, the ECO Gateway also has a connectable WLAN access point that you can use to connect for configuration and data communication.

The access point is activated via a button on the device interface. For details, see above, under point 4.
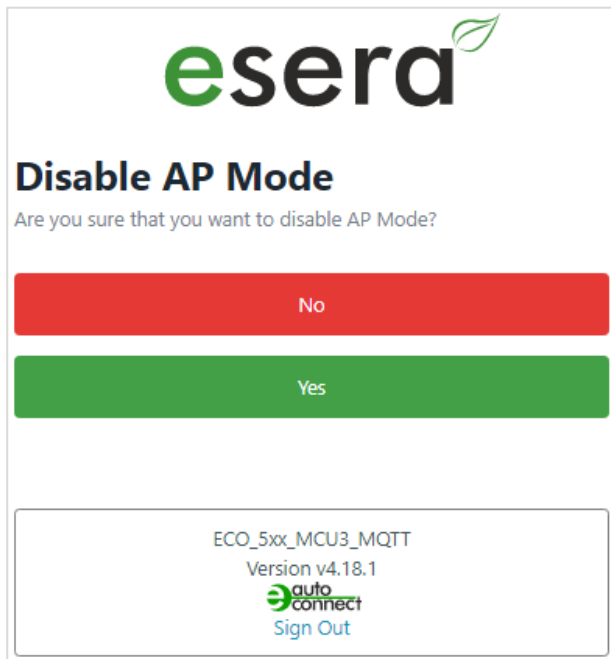
Disable AP Mode
Yes/No
To turn off the WLAN access point, press the "Yes" button.

Press the "No" button to exit the menu without making any changes.

Software version Ethernet interface/Log Out
Display of the software version of the Ethernet interface installed on the device. The version of the 1- Wire firmware can be seen via the Config Tool 3.

Sign Out
By clicking the "Sign Out" button you will leave the web server.

21   WEBSERVER, CHANGE PASSWORD

Use the "Change Password" page to set your individual access password.

Important
Please change the access password with the first login! Use a secure password if possible. What is a secure password? Here are tips for creating a strong password: https://de.wikipedia.org/wiki/Passwort. Keep the password in a safe place.

Change Password

Here you enter the new access password for the web server twice.

Save/Back
The "Save" button permanently saves the current settings.
If you do not want to make any changes, press the "Back" button.

Software version Ethernet interface/Log Out
Display of the software version of the Ethernet interface installed on the device. The version of the 1-Wire firmware can be seen via the Config Tool 3.

Sign Out
By clicking the "Sign Out" button you will leave the web server.

22   WEBSERVER, FACTORY RESET

Use the Factory Reset web page to clear all your settings and restore the interface to factory defaults.

NOTE
No changes are made to the I/O section, e.g. 1-Wire or eBus, settings.

Factory Reset

Do you really want to delete all Ethernet Interface settings and reset them to factory defaults?
If yes, press the "Yes" button.
Otherwise press the "No" button. This will also exit the menu.

Software version Ethernet interface/Log Out
Display of the software version of the Ethernet interface installed on the device. The version of the 1- Wire firmware can be seen via the Config Tool 3.

Log Out
Click on the "Sign Out" button to exit the web interface.

23   WEBSERVER, eBus FIRMWARE UPDATE

Via this web page you can update the firmware of the eBus section of the ECO Gateway. This replaces the possibility to perform an update via the Config Tool.

esera

eBus Firmware Update

OTA Update

Durchsuchen... Keine Datei ausgewählt.

Back

Upload

ECO305_MCU3
Version v5.0.2
Sign Out

eBus firmware update
Update procedure

1. Firmware file
First download the new firmware via the download directory of the Config Tool 3 or the ESERA website (www.esera.de).
Via the button "Firmware File" you can select the new firmware version from your computer or tablet.

Select file
Use the "Upload" button to copy the new firmware version to the interface of the ECO Gateway.
You can see the progress of the upload by the progress bar.

2. Start firmware update
Now you will be asked if you really want to start the firmware update.

Pressing "Yes" starts the update. The progress is displayed via a progress bar.

With "No" no update is performed and the menu is left.
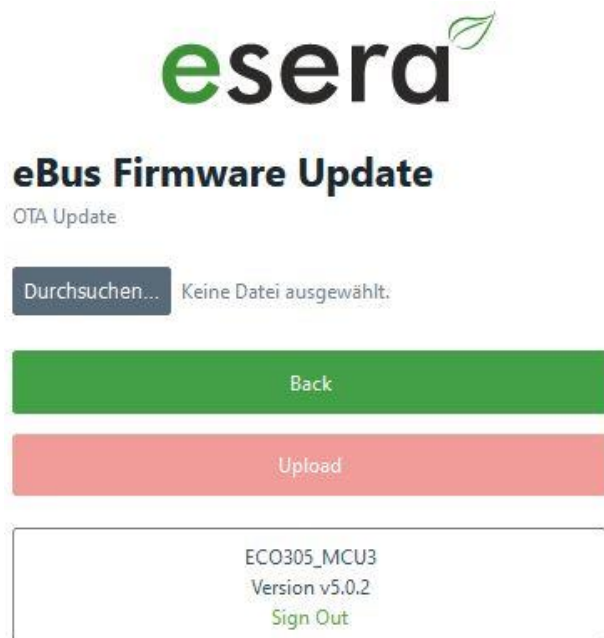
Software version Ethernet interface/Log Out
Display of the software version of the Ethernet interface installed on the device. The version of the 1- Wire firmware can be seen via the Config Tool 3.

Log Out
Click on the "Sign Out" button to exit the web interface.

24   WEBSERVER, INTERFACE FIRMWARE UPDATE

Via this web page you can update the Ethernet firmware interface of the ECO Gateway.

NOTE
With the update of the interface no changes are made to the I/O / 1-Wire side of the
ECO Gateway.
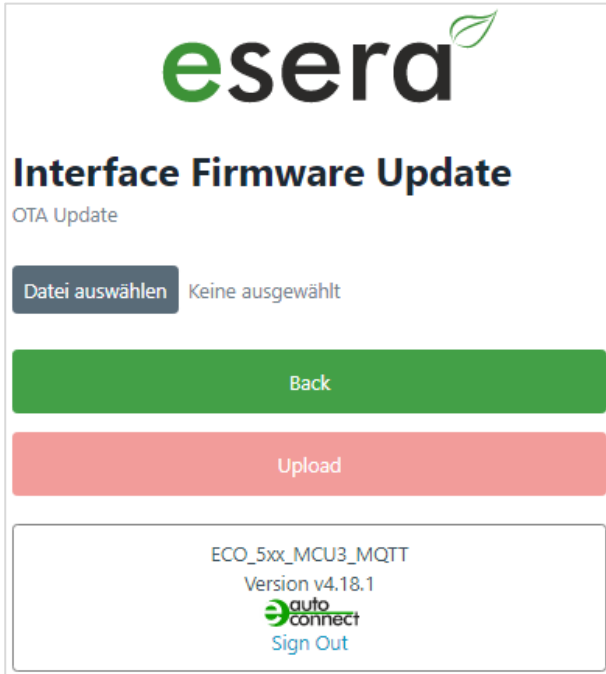
Firmware file
First download the new firmware from the ESERA website (www.esera.de).
Via this button "Firmware File" you can select the new firmware file from your computer or tablet.

Upload
Use the button "Upload" to copy the new firmware file into the interface of the ECO controller.
You can see the progress of the upload by the progress bar.

Start firmware update
Now you will be asked if you really want to start the firmware update.

Pressing "Yes" starts the update. The progress is displayed via a progress bar.

With "No" no update is performed and the menu is left.

Clicking the "No" button will cancel the update and you will exit this menu.

Software version Ethernet interface
Display of the software version of the Ethernet interface installed on the device. The version of the 1- Wire firmware can be seen via the Config Tool 3.
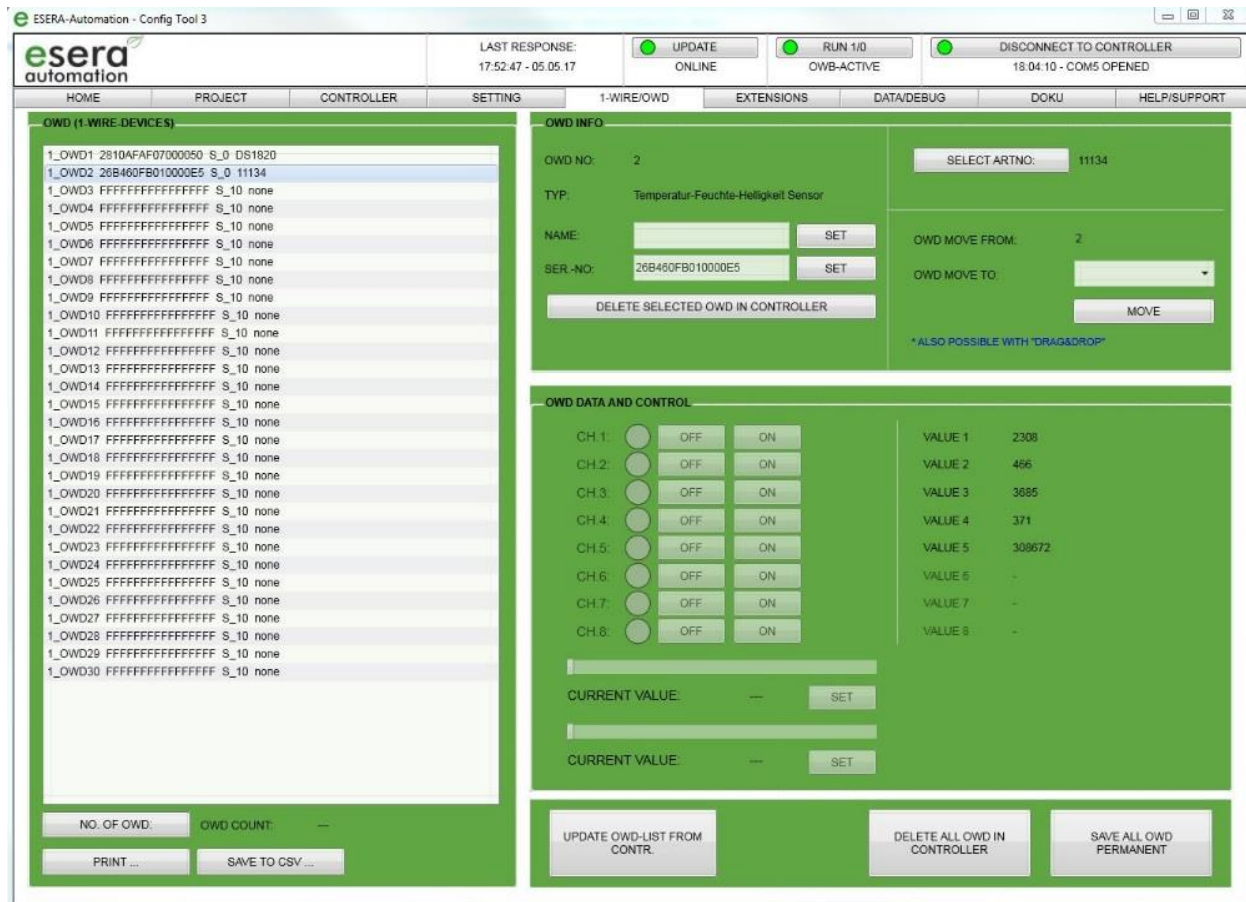
Log Out
Click on the "Sign Out" button to exit the web interface.

25   DATA INTERFACE, ASCII PROTOCOL

You configure the Ethernet interface with the help of the Windows ESERA program Config Tool 3. You find this program in the download area of the ESERA Onlineshop Tool 3 software.

26   ESERA ASCII TEXT PROTOCOL

The ASCII protocol is a standard protocol for the transmission of data via serial interfaces between a computer and another device, such as an ECO Gateway and a controller.

The abbreviation "ASCII" stands for "American Standard Code for Information Interchange" and refers to the code used to represent letters, numbers and other characters in digital form.

The ASCII protocol sends data in the form of ASCII strings, which can consist of a number of characters, including letters, numbers, punctuation marks, and control characters. These strings are usually divided into specific fields or segments to represent different types of data, e.g. measured values, status messages or commands.

 The ASCII
 protocol is relatively simple and easy to implement because it relies on standardized ASCII characters and allows data to be transmitted in plain text.

Overall, the ASCII protocol is frequently used in applications that require simple, reliable and easy-to-understand data transmission, such as our EC and ECO gateways that provide sensor and actuator data for measurement and control technology or industrial automation.

The ECO 305 provides two protocols. For configuration and analysis, the ESERA text protocol in ASCII format can be used very easily. Here, special emphasis was placed on good readability and traceability. The

ESERA text protocol works with "GET" and "SET" commands, which probably every programmer has already used in his own projects.

The ESERA text protocol is disclosed and documented. The current version of the ESERA protocol description can be found in the programming manual in the download area of the article and the ESERA Config Tool 3. By default, port 5000 is preset for the ASCII protocol.

27   eBus NETWORK WIRING

The special feature of the 1-Wire system is the "BUS technology". This means that all devices (sensors and actuators) are operated in parallel on a two-wire line, which is used for both power supply and data communication.

Lay the mains connection lines with 230 V voltage and the eBUS lines spatially separated from each other. The eBus connection to the gateway can be branched off at any point of the eBus system.

For the cabling of the eBus heating system, we recommend using flexible and twisted cables with at least 0.75mm² cable cross-section or CAT5 or CAT6 network cables.
It is also possible to use J-Y(St)Y telephone cables and KNX lines.
With CAT5 versus CAT7 cables, longer cable runs are possible.
With twisted-pair cable, a greater connection length can be achieved in an undisturbed environment, since the capacitive bus load is lower. A total length of 50 m and more can be easily achieved without additional measures.
In EMC disturbed, commercial and industrial environments, the cable should always be shielded to increase the "robustness" or interference sensitivity of the system.

> **NOTE**
> The above statements regarding the eBus are hints and tips and do not describe any product property or represent any guaranteed product property of the ECO 305.

28   FIRMWARE UPDATE

The current device software (firmware) can be found in the download area of the Config Tool 3.
When commissioning the ECO 305 gateway, please check for a new firmware version.
Please always use the latest version.
The firmware update is performed via the web server.
Please refer to the operating instructions for Config Tool 3, which can be found within Config Tool 3 under the "HELP/SUPPORT" tab.
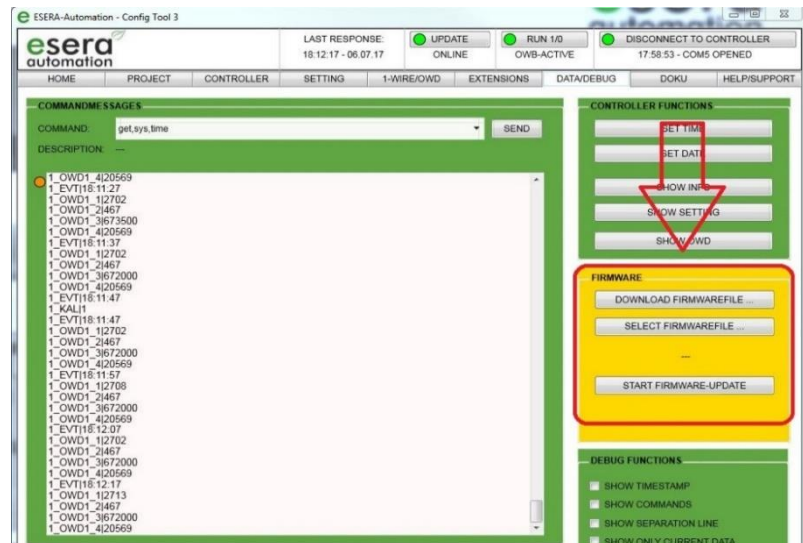
> **NOTE**
> Please also refer to the operating instructions for Config Tool 3, which can be found within Config Tool 3 under the "HELP/SUPPORT" tab.
> Furthermore you can find a video about the firmware update on our website under "Service and Support, Support Videos".

> **NOTE**
> After performing a firmware update, we recommend disconnecting the gateway from the power supply for approx. 30 seconds and restarting it.

29   RESET BUTTON

The restart, or also called RESET, is performed via the RESET button of the system. When the button is pressed, the eBus IO part of the device is restarted.
The permanently stored data is retained, but all connections are interrupted.
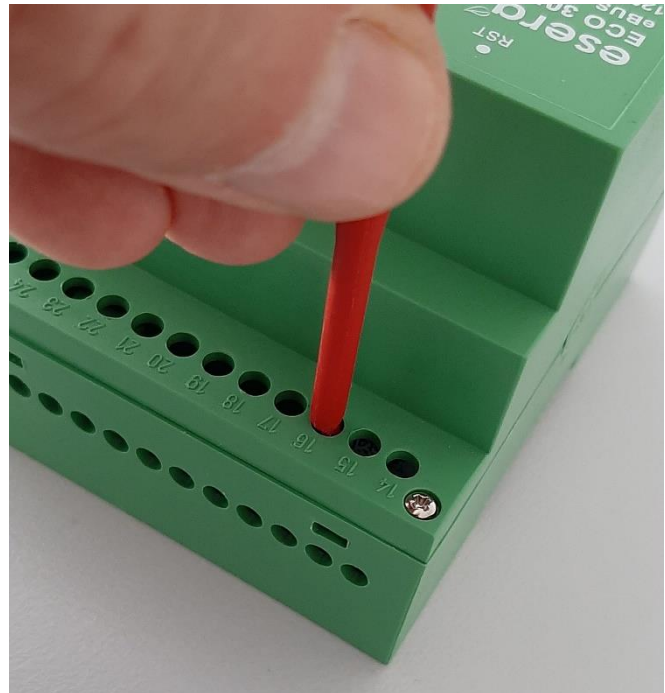This keystroke does not correspond to an interruption (also called cold start) of the power supply.

30   OPERATING CONDITIONS
The module may only be operated at the voltages and under the ambient conditions specified for it. The operating position of the device is arbitrary. The device is intended for use in dry and dust-free rooms. Do not operate the module in an environment where flammable gases, vapors or dusts are or could be present.
If you install the duct in a damp room, then the electronics can be damaged by moisture.
If condensation forms, wait for an acclimatization period of at least 2 hours.

31   INTENDED USE
The product and other material assets may be impaired if used improperly or not as intended. The product is used as a system component in conjunction with the VRC 470 or VRC 430 controllers to control two heating circuits, one storage tank charging circuit or one circulation pump.
Intended use includes:
- Observing the enclosed operating, installation and maintenance instructions for the Vaillant product and all other components of the system.
- Compliance with all inspection and maintenance conditions specified in the instructions.

This product is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and/or knowledge, unless they have been given supervision or instruction concerning use of the product by a person responsible for their safety.

Children must be supervised to ensure that they do not play with the product.

Any other use not described in these instructions or which goes beyond the use described here is considered improper. Likewise, any direct, commercial and industrial use is not as intended.
Please note: Any misuse is prohibited.

32   Electrical installation

The ECO 305 gateway is designed for mounting inside a control box or control cabinet.
There is a danger to life due to live connections! There is a risk of electric shock when working in the open switch box of the gateway.

To ensure your safety, please observe the following measures:
- Switch off the power supply before working on the product and in the control box of the heater.
- Secure the power supply against being switched on again.
- Do not perform any work when the LED (green) on the product's circuit board is lit.

Furthermore, there is a risk of damage due to improper installation:

- Make sure that the connecting wires are not stripped too long, as this can lead to short circuits and damage to the electronics. Do not strip the outer sheath of flexible cables by more than 2.5 cm.
- Lay the cables correctly and use the strain reliefs.

These safety measures are designed to minimize potential risks and prevent accidents or damage. Please strictly follow these instructions to ensure your safety.

33   ASSEMBLY

The modules may only be commissioned by a qualified electrician.

34   MOUNTING LOCATION

The mounting location must be protected from moisture. The device may only be used in dry rooms. The device is intended for mounting inside a control cabinet as a stationary device.

35   DISPOSAL

Do not dispose of the device in household waste! Electronic devices are to be disposed of according to
of the Directive on Waste Electrical and Electronic Equipment on the local
Collection points for electronic waste to dispose of!

36   SAFETY INSTRUCTIONS

When handling products that come into contact with electrical voltage, the applicable VDE regulations must be observed, in particular VDE 0100, VDE 0550/0551, VDE 0700, VDE 0711 and VDE 0860.
- All connection and wiring work may only be carried out when the device is de-energized.
- Before opening a device, always disconnect the power plug or ensure that the device is de-energized.
- Components, assemblies or devices may only be put into operation if they have previously been installed in a housing so that they are safe to touch. They must be de-energized during installation.
- Tools may only be used on devices, components or assemblies if it has been ensured that the devices are disconnected from the supply voltage and that electrical charges stored in the components located in the device have been discharged beforehand.
- Live cables or lines to which the device, component or assembly is connected must always be inspected for insulation faults or breaks.
- If a fault is detected in the supply line, the device must be taken out of operation immediately until the defective line has been replaced.
- When using components or assemblies, attention must always be drawn to strict compliance with the characteristic data for electrical variables specified in the associated description.
- If it is not clear for the non-commercial end user from an existing description which electrical characteristic values apply to a component or an assembly, how external wiring is to be carried out or which external components or additional devices may be connected and which connection values these external components may have, a qualified electrician must be consulted.
- Before commissioning a device, it must generally be checked whether this device or the assembly is fundamentally suitable for the application for which it is to be used.
- In case of doubt, it is essential to consult specialists, experts or the manufacturer of the assemblies used.
- We do not accept any liability for operating and connection errors that are beyond our control.
- Kits should be returned with a precise description of the fault and the associated assembly instructions without housing in the event of malfunction. Without error description a repair is not possible. We have to charge extra for time-consuming assembly or disassembly of housings.

- It is essential that the relevant VDE regulations are observed during installations and when handling parts that will later carry mains voltage.
- Devices that are operated at a voltage greater than 35 VDC/ 12mA may only be connected and commissioned by qualified electricians.
- Commissioning may only be carried out if the circuit is installed in a housing so that it is safe to touch.
- If measurements are unavoidable with the housing open, a safety isolating transformer must be connected upstream or a suitable power supply unit must be used for safety reasons.
- After installation, the required test must be performed in accordance with DGUV Regulation 3.

37   WARRANTY

ESERA GmbH warrants that the goods sold are free from material and manufacturing defects at the time of transfer of risk and have the contractually warranted characteristics. The statutory warranty period of two years from invoicing applies. The warranty does not cover normal wear and tear. Claims of the customer for damages, e.g. due to non-performance, culpa in contrahendo, breach of ancillary contractual obligations, consequential damages, damages in tort and other legal grounds are excluded. ESERA GmbH shall be liable, however, in the absence of a warranted characteristic, in the case of intent or gross negligence. Claims from the product liability law are not affected by this. If defects occur for which ESERA GmbH is responsible, and if in case of exchange of the goods also the replacement delivery is defective, the purchaser has the right to rescission or reduction of the purchase price. ESERA GmbH assumes no liability neither for the constant and uninterrupted availability of ESERA GmbH nor for technical or electronic errors of the online offer.

We are constantly developing our products and reserve the right to make changes and improvements to any of the products described in this documentation without prior notice. If you need documentation or information on older versions, please contact us by mail to info@esera.de.

38   WARNING

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