KNX
Product documentation

GIRA

Status of the documentation:
01.11.2025

Gira Eco

Order No. 2045 00

Gira Eco (Fig. 1:1)

Contents

1. About this Documentation

This documentation will accompany you through all phases of the product life cycle of Gira Eco. You will learn for example how to assemble, install, commission and configure the device.

All descriptions in this documentation relating to configuration in the ETS refer to the variant “ETS Professional” in version 5.

Explanations of KNX concepts do not form part of this documentation.

1.1. Target group

This documentation is aimed at qualified electricians and KNX processors.

Only qualified electricians may assemble and install the Gira Eco. Specialist knowledge of KNX is a prerequisite.

Anyone may configure the Gira Eco. We recommend that configuration is done by a system integrator. with sound specialist knowledge of KNX and using the ETS.

1.2. Symbols and typographical conventions

Symbol / label	Meaning
	Note or important additional information
	Safety note qualified electrician
	Danger note

2. About Gira Eco

2.1. Proper use

The Gira Eco enables the integration of compatible charging points, solar inverters, hybrid inverters and power storage units into the KNX system.
The following combinations can be realised per device:

- up to five charging points,
- up to five charging points and up to five solar inverters,
- up to five charging points, up to four solar inverters, a hybrid inverter and a power storage unit.

The Gira Eco is a KNX system device and complies with the KNX guidelines.

Note

Gira Giersiepen GmbH & Co. KG assumes no liability for damage caused by improper use or use for purposes other than or contrary to the intended purpose.

Installation: compatible charging points and inverters

The Gira Eco supports a wide range of models from many renowned manufacturers. Please see our compatibility list for a list of compatible models.

Configuration: compatible ETS version

Simple integration into the KNX system (completely programmable via ETS):

- ETS5 from v5.7.5
- ETS6 from v6.0.2

Product database entry: Download the product database entry from our website from the ETS online catalogue free of charge.

KNX Secure

The Gira Eco is KNX Secure.
The device is compatible with KNX Secure. KNX Secure offers protection against manipulation in building automation and can be configured in the ETS project.

- The required KNX Device Certificate or the FDSK (Factory Default Setup Key) that it contains can be found on a sticker on the side of the device and is also enclosed with the device.
- For maximum security, we recommend removing the sticker from the device.
- Keep the KNX Device Certificate in a safe place.
- You cannot restore the KNX Device Certificate yourself.
- Please contact our support team if you lose the KNX Device Certificate despite utmost care.

2.2. System

The Gira Eco is connected to the KNX installation via KNX/TP. Depending on the model used, charging points are connected to the gateway either via IP or RS485 (Modbus). The Gira Eco unites the required connections in one gateway. Thanks to the integrated RS485 connection, no additional USB adapter is required. The solar inverters or hybrid inverters are connected via IP.

Depending on the configuration, status information and yield values can be called up within the KNX installation via a visualisation, for example, or actions can be triggered via a push button on the wall.

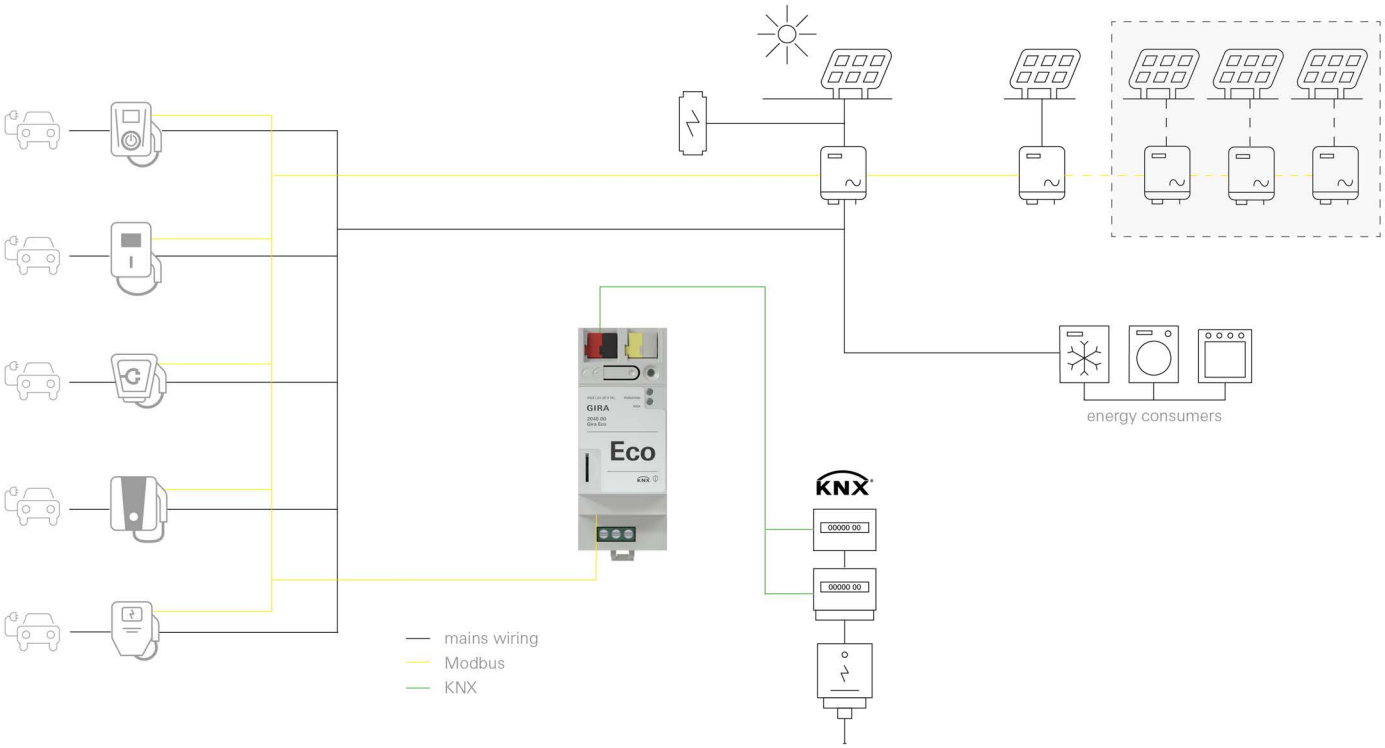

Figure 1: System Gira Eco

2.3. Functions

Integration of charging points

The gateway enables the integration of compatible charging points in your KNX system. Configuration is carried out entirely in the ETS. You do not require any additional software and have all data in one system.

Note

The installation and commissioning of charging stations may be subject to notification or approval from the grid operator. Therefore, please observe national regulations as well as the local regulations of the grid operator.

In Germany, a notification obligation exists pursuant to Section 19 of the Low Voltage Connection Ordinance (NAV).

Grid-supporting control

The Gira Eco enables the grid operator to control the power consumption if necessary by reducing the charging current or interrupting the charging process. Control or interruption of vehicle charging may occur during high load periods in order to prevent a critical grid situation. The setpoint current with grid-supporting control can be parameterised in the ETS.

Dynamic load management

The dynamic load management, or DLM for short, controls the current distribution without overloading the mains connection. The DLM coordinates the available charging current depending on the general charging current in the building. If consumption in the building decreases, more electricity is available for charging the electric vehicles at the charging points. This way, the DLM ensures the effective utilisation of power from the available mains connection. Despite various high power-consuming devices in the building, one or more electric vehicles can be charged at the same time. The DLM also offers the option of prioritising a charging point.

The two main factors for the use of the DLM are the use of an intelligent measuring system, e.g. a smart meter, and overcurrent protection device dimensioning. Alternatively, an inverter can be set up as a measuring point.

Depending on the on-site conditions, a smart meter is recommended as the intelligent measuring system. If the installation already exists, an intelligent measuring system is implemented as follows:

- If an electromechanical meter is installed, a smart meter must also be connected.
- If an electronic household meter is installed, an interface with an optical head is used to read out and send the values to the KNX bus.

Smart meter and optical head interface requirements

- Communication at adjustable intervals
- Transmission of actual values (consumption values) measured in current or power
- KNX-capable

This documentation uses the term “smart meter” to refer to all types of intelligent measurement systems.

Note

The Gira Eco does not imply the function of a smart meter gateway.

The DLM is an optional function that can be used depending on the use case.

► See “Dynamic load management” on page 43.
► See “No use of load management” on page 49.

Charging mode

The DLM allows you to select a charging mode to switch between fast charging and surplus charging:

- IMMEDIATE: Charging with maximum possible power independent of PV or grid consumption. The power is determined by the parameters of the DLM and the maximum charging current of the charging point.
- ECO: Charging with PV power only. To cover the minimum current, a consumption from the grid is permitted for an adjustable period of time.

The selection of the charging mode applies to all connected charging points and has no effect on their prioritisation.

Static load management

Static load management, or SLM for short, supplies a fixed charging current as an upper limit for the charging infrastructure. This is determined by a corresponding fuse after the electricity meter, taking the mains connection into account. The sum of the minimum charging currents of all connected charging points must not exceed this fixed (static) value. The SLM does not take the varying electricity consumption of other consumers in the building into account.

The use of a smart metering system is not required.

The SLM is an optional function that can be used depending on the use case.

► See “Static load management” on page 46.
► See “No use of load management” on page 49.

Prioritisation and sequence

If required, prioritise one or several charging points to which the load management should provide the highest possible charging current as a preference.

If the minimum charging current per charging point is guaranteed and current is still available, the prioritised charging points receive it first. The upper limit is the maximum charging current defined for the charging point. If there is still electricity available, it is distributed evenly amongst the other charging points. ► See “Dynamic load management” on page 43.

Mixed operation

Up to five charging points from different manufacturers can be integrated in mixed operation. Mixed operation implies that you can install charging points with IP connection and RS485 connection (Modbus) together on one gateway.

IP connection

When integrating charging points with one IP connection, various models can be combined.

RS485 connection (Modbus)

When integrating charging points with an RS485 connection, only one model type can be used on the RS485 connection. In order to avoid communication problems, the following is also recommended: Do not install any additional devices on the RS485 bus line apart from the charging points that are to communicate with the Gira Eco.

Photovoltaics

The Gira Eco enables the integration of up to five solar inverters into your KNX system. The solar inverters are connected via Modbus/TCP.

In conjunction with dynamic load management, the charging process is automatically started with the previously defined charging current in the event of a PV surplus ► see “Charging mode” on page 9.

The maximum duration for power consumption from the grid can be parameterised in the ETS.

The data provided by the solar inverter, such as the power currently being fed in, the solar yield or device information, can be sent from Gira Eco to the KNX bus.

Power storage unit

A compatible hybrid inverter must be parameterised for the integration of a power storage unit into your KNX system. In addition to the hybrid inverter, four solar inverters can also be integrated. The storage strategy selected in the ETS is used to decide whether electric vehicles can also be charged from the power storage unit or only with excess PV.

In addition to the device status, the hybrid inverter also provides the currently fed-in/consumed power and the state of charge of the power storage unit (State of Charge/SoC).

Boost

With the boost function, you have the option of interrupting excess charging and supplying the maximum permissible current to one or more charging points.

Charging points with an active boost function are charged before charging points in IMMEDIATE or ECO mode. The boost can be activated/deactivated per charging point using a group object.

► See “Charging point 1 | 2 | 3 | 4 | 5” on page 63.

Diverse statuses and actions

The Gira Eco offers various other functions, the implementation of which depends on the charging point model. See the overview on the product website for the full range of functions. More information on the individual functions

► See “Group objects” on page 53.

Electricity meter at the charging point

The Gira Eco supports the retrofitting of electricity meters at the charging point if the charging point does not offer the integrated measurement of consumption values (current, power and energy). Electricity meters with IP connection (Modbus TCP) and RS485 connection (Modbus) can be connected. To see which models are already pre-configured, please see our compatibility list.

Electricity meters not listed on the product page can also be connected via manual configuration.

Electricity meter requirements for manual configuration

- The electricity meter must provide phase-based registers for current and/or power values. At least one of the measurements is required.
- The measured values must be provided in 1, 2, or 4 consecutive 16-bit registers.
- To read the registers, the function codes 0x03 (read holding register) or 0x04 (read entry register) are required.
- If the electricity meter provides the measured values as floating-point numbers, they must be formatted in accordance with IEEE 754.
- If energy values are to be determined, the electricity meter must provide the registers either in a phase-based format or as a sum of all phases.
- If the electricity meter offers fault registers for the internal state, these must be provided as an integer.

Electricity meter with RS485 connection (Modbus)

The connection settings in the electricity meter must be adjusted to those of the charging point. Therefore, for Modbus RTU/ASCII, the following parameters must be configurable: Baud, data bits, parity and stop bit. The Modbus client address must also be configurable.

► See “Connecting the electricity meter at the charging point” on page 51.

Functional enhancements through firmware updates

You can obtain functional enhancements for the Gira Eco with a new version of the firmware. Simply download the latest firmware and the relevant product documentation from our product website.

► See “Updating the firmware via the device website” on page 39.

3. Important notes

3.1. General safety instructions

Danger from incorrect use

Incorrect use can result in damage to the device, fire or other dangers.

- Only qualified electricians may install and mount electrical devices.
- Follow the instructions in this product documentation.
- This product documentation is part of the product and must remain with the end customer.

3.2. Storage and transport

Store the device in its original packaging. The original packaging provides optimum protection during transport. Store the device in a temperature range of -25 °C to +70 °C.

3.3. Cleaning and maintenance

Gira Eco is maintenance-free.

If necessary, clean the device with a dry cloth.

Device damage due to improper opening

- Never open the housing.
- If you suspect that the device is damaged, contact our Support.
- We provide a warranty in accordance with statutory requirements.
- Send the device back to us postage free with a detailed error description only if our support team asks you to.

4. Technical data

Power supply and connections	
Rated voltage:	Supply via external DC 24 V to 30 V
Power consumption:	2.3 W
Connections:	• KNX: Bus connection terminal (black/red) • External power supply: Power supply terminal (white/yellow) • IP: 2x RJ45 (integrated switch) • RS485 (Modbus): Screw terminal, 3-pin (GND, A+, B-)
microSD card slot:	microSD cards up to 32 GB (SDHC)

Ambient conditions	
Installation environment temperature:	0 °C to +45 °C

Device dimensions	
Installation width:	36 mm (2 HP)
Installation height:	90 mm
Installation depth:	74 mm (DRA Plus)

KNX	
Communication:	KNX/TP
Installation method:	S mode
Medium:	TP1-256
Current consumption:	typ. 6 mA

IP	
Communication:	Ethernet 10/100 BaseT (10/100 Mbit/s)

RS485	
Communication:	Modbus
Data rate:	max. 500 kbps
Cable length:	up to 1200 m
Electrical isolation:	3 kV DC
Termination:	120 Ω (can be activated)

Approvals and protection type	
Approvals / certifications:	CE, KNX
Protection type:	IP20 (compliant with EN 60529)
Protection class:	III (compliant with IEC 61140)

Supported web browsers
Current versions of Mozilla Firefox, Microsoft Edge, Apple Safari and Google Chrome.

5. Device design

Stated directions always relate to the device in its installed position.

5.1. Front

1. Programming button
2. KNX/TP connection
3. External power supply connection
4. Programming LED (red)
5. RUN/DIAG (operating) LED (green)
6. KNX LED (yellow)
7. Holding device release lever for top-hat rail terminal
8. RS485 (Modbus) connection screw terminal
9. MicroSD card slot connection, use of microSD cards up to 32 GB (SDHC)

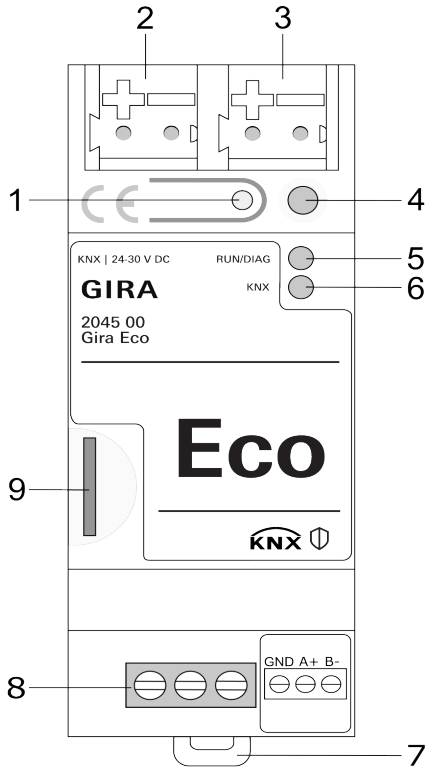

Figure 2: Front

5.2. Data on device sticker

1. Product name
2. Order number
3. Rated voltage
4. KNX Secure
5. KNX certification

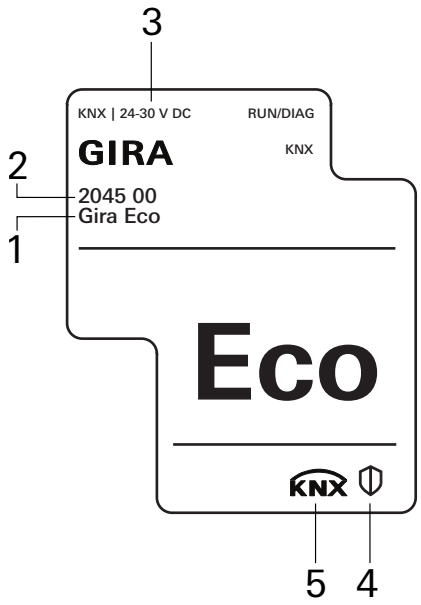

Figure 3: Device sticker

5.3. Top

The openings for securing the cover cap are located on the top of the device.

1. Opening for securing the cover cap
2. Attached power connection terminal
3. Attached bus connection terminal

A Back of device

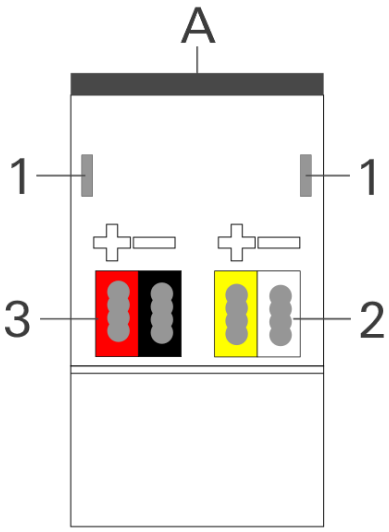

Figure 4: Top of device

5.4. Underside

1. IP: 2x RJ45 (integrated switch)
2. “Communication” LED
3. “Connection speed” LED
4. RS485 (Modbus): screw terminal, 3-pin

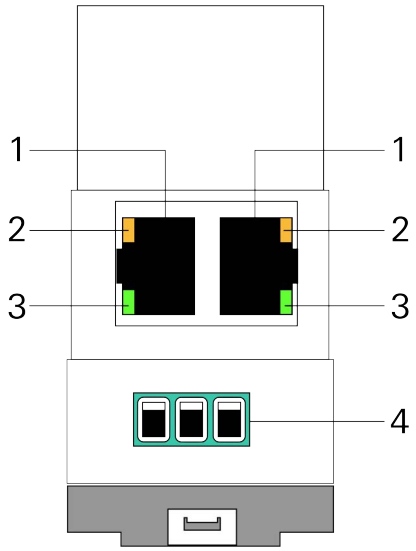

Figure 5: Connections

5.5. Device side

1. Attached cover cap
2. Release lever for top-hat rail terminal
3. RS485 communication cable (not included in the scope of supply) connected to 3-pin screw terminal.
4. RJ45 cable (not included in the scope of supply) connected to RJ45 socket.

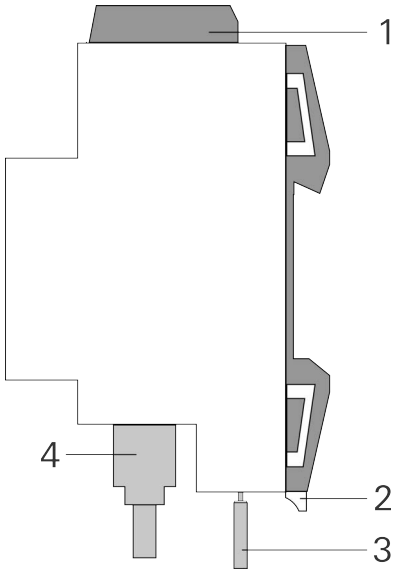

Figure 6: Device side

6. Installation

6.1. Scope of supply

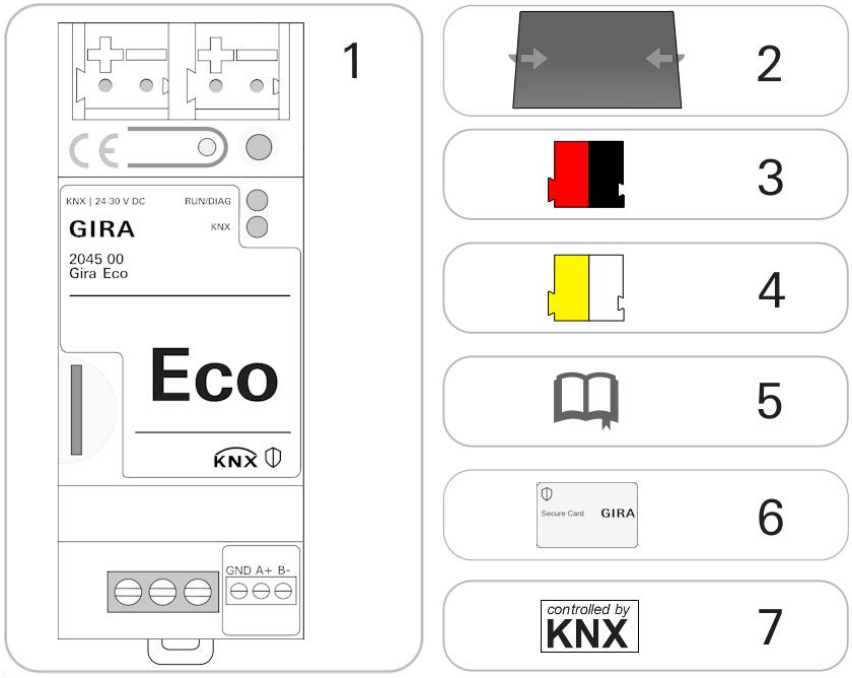

Figure 7: Scope of supply

No.	Objects supplied	Explanation
1	Device	Gira Eco
2	Cover cap	To protect connections from dangerous voltages.
3	Bus connection terminal	To connect the KNX/TP bus lines.
4	Power connection terminal	To connect the external power supply.
5	Operating instructions	This product documentation also provides you with the information from the operating instructions, but with additional details, application examples and configuration instructions.
6	Secure Card	Secure Card with data for KNX Secure. The same data are attached to the side of the device.
7	5 x “controlled by KNX” stickers	Stickers to be attached to the charging point to identify it as a KNX-controlled system after commissioning.

Note

The operating instructions are part of the product. Give these instructions to your customer.

6.2. Checking the installation conditions

Before starting the installation process, check that the requirements for the planned installation environment have been met.

Device functional fault due to incorrect ambient temperature in the installation environment

- Pay attention to the temperature of the installation environment: min. 0°C to max. 45°C
- Do the not mount the Gira Eco above heat-emitting devices.
- Ensure that there is sufficient ventilation/cooling

Pay attention to the device depth (figure 8, pos. 1): DRA Plus, 74 mm.

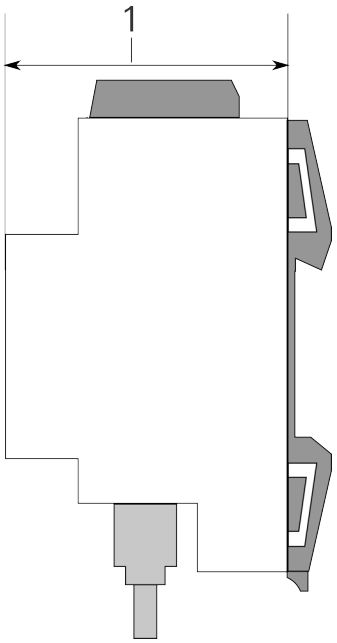

Figure 8: Device depth

6.3. Mounting the device

Only qualified electricians may assemble and install the Gira Eco.
Specialist knowledge of the installation regulations is a prerequisite.

Safety note:

Incorrect use can result in damage to the device, fire or other dangers.

- Only qualified electricians may install and mount electrical devices.
- Follow the instructions in this product documentation.
- This product documentation is part of the product and must remain with the end customer.

Danger

You are at risk of electric shock if you touch live parts in the installation environment.
Electric shock can cause death.
Pay attention to the installation regulations:

- Route the bus line with the sheathing intact until it is close to the bus connection terminal.
- Firmly press the bus line into the bus connection terminal as far as possible.
- Install bus line leads without sheathing (SELV) reliably disconnected from all non-safety low-voltage cables (SELV/PELV).
- Maintain the specified clearance.
- Attach the cover cap supplied.

See also the VDE regulations governing SELV (DIN VDE 0100-410 / “Safe separation”, KNX installation regulation) for more information.

Mounting and connecting the device

1. Snap the device vertically onto the top-hat rail (installation position: network connections at bottom).
2. Connect the KNX/TP bus line (referred to below as the bus line) to the KNX connection of the device (figure 9, pos. 1) using the supplied bus connection terminal (figure 9, pos. 2). Polarity: left/red: “+”, right/black “-”.
   a. Attach the bus connection terminal (figure 9, pos. 2).
   b. Route the bus line with the sheathing intact until it is close to the bus connection terminal.
   c. Firmly press the bus line into the bus connection terminal as far as possible.
   d. Route the bus line to the back.

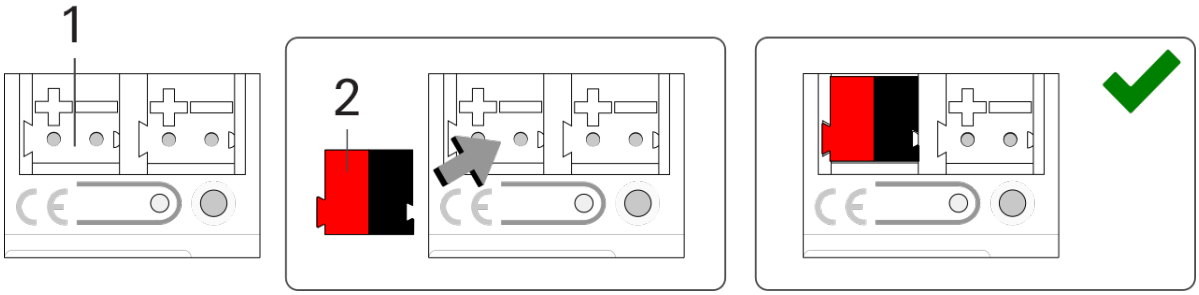

Figure 9: Connect the bus line

3. Connect the external power supply to the power supply terminal (figure 10, pos. 1) using the supplied power connection terminal (figure 10, pos. 2). Polarity: left/yellow: “+”, right/white: “-”.
   a. Attach the power connection terminal (figure 10, pos. 2).
   b. Route the power line with the sheathing intact until it is close to the power connection terminal.
   c. Firmly press the power line into the power connection terminal as far as possible.
   d. Route the power supply line to the back.

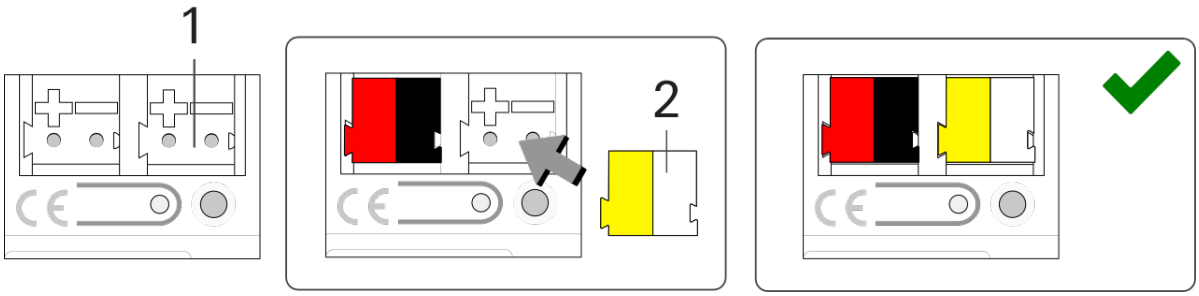

Figure 10: Connect the power supply

Functional fault in all devices due to incorrectly dimensioned power supply

The following applies if you use the non-choked auxiliary supply output of a KNX power supply as an additional power supply:
The operating currents of all KNX/TP devices on the line section must not exceed the rated current of the power supply.

4. Attach the cover cap supplied:
   a. Route all cables to the back. The openings for fastening the cover cap (figure 11, pos. 1) must be clear. All cables must be between the openings.

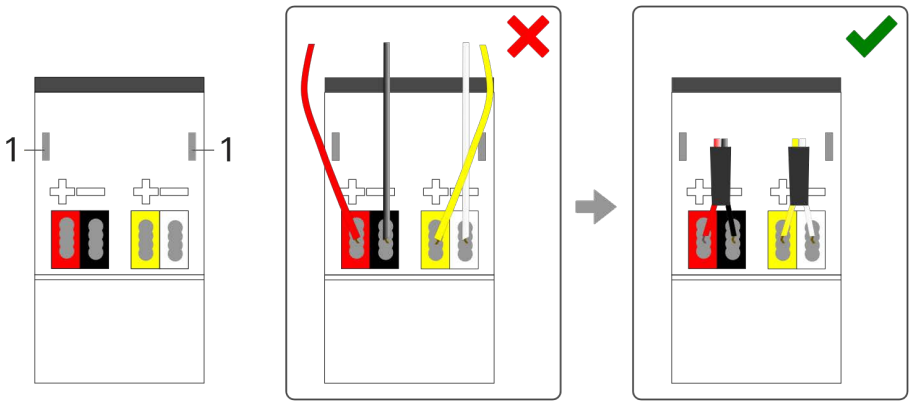

Figure 11: Cable routing

   b. Attach the cover cap over the connection terminals.
   c. Press the cover cap together gently.
   d. Route the cover cap's fastening claws into the openings until the cover cap noticeably engages.

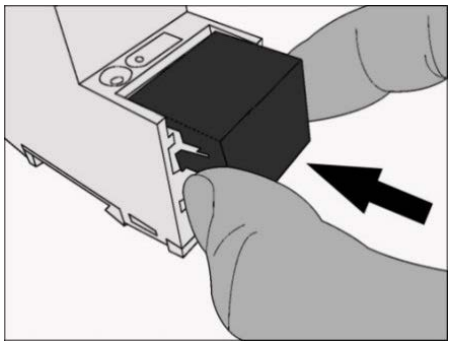

Figure 12: Attaching the cover cap

5. Connect the RS485 (Modbus) if a charging point is integrated via this connection.

Note

After configuring the charging point and then the Gira Eco, connect the Gira Eco to the charging point.

a. Note the assignment of the 3-pin screw terminal.

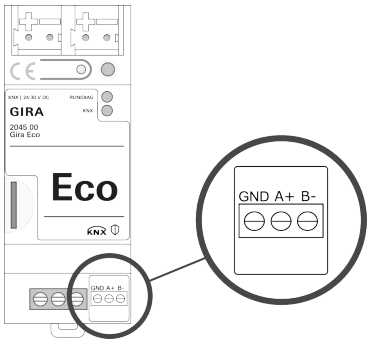

Figure 13: Screw terminal assignment

b. Connect the RS485 communication cable conductors as per the assignment by inserting the lines into the conductor entry and tightening the screw terminal.

Note

The GND connection is optional and may, depending on the system, reduce susceptibility to faults, e.g. communication interruptions.

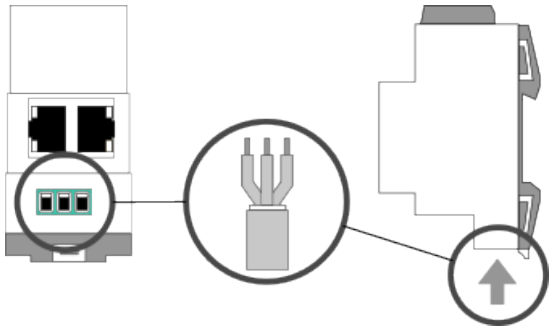

Figure 14: Connect RS485 communication cable

6. Connect the network:
   a. make sure that your network infrastructure (router, DNS/DHCP server) is in operation.
   b. The network connections are on the underside of the device.

c. Connect the IP network cable (RJ45 cable) to the device's network connection (RJ45 socket).

Note

The RJ45 sockets are the same. The free RJ45 socket can be used to connect another IP device.

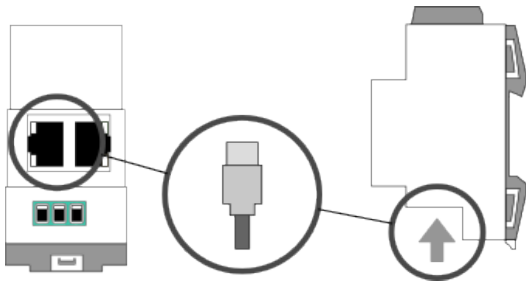

Figure 15: Connect the IP network cable

7. Device website

You can access the Gira Eco via the device website. The device website is run on your installed browser. You do not require any additional software. As soon as the device is available you can access the device website via the IP.

7.1. Accessing the device website

Call up the device website by actioning one of the following:

- Enter the device's IP address in the address bar of your browser.
- Alternatively, select the device in the network environment category "Other devices" (figure 16, pos. 1): Double click on the device icon (figure 16, pos. 2).

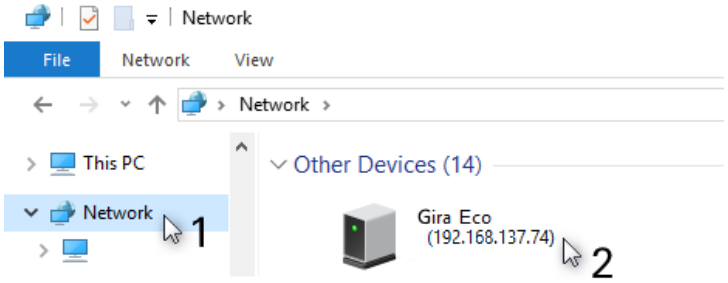

Figure 16: Accessing the device website via the network environment

7.2. Getting to know the interface of the device website

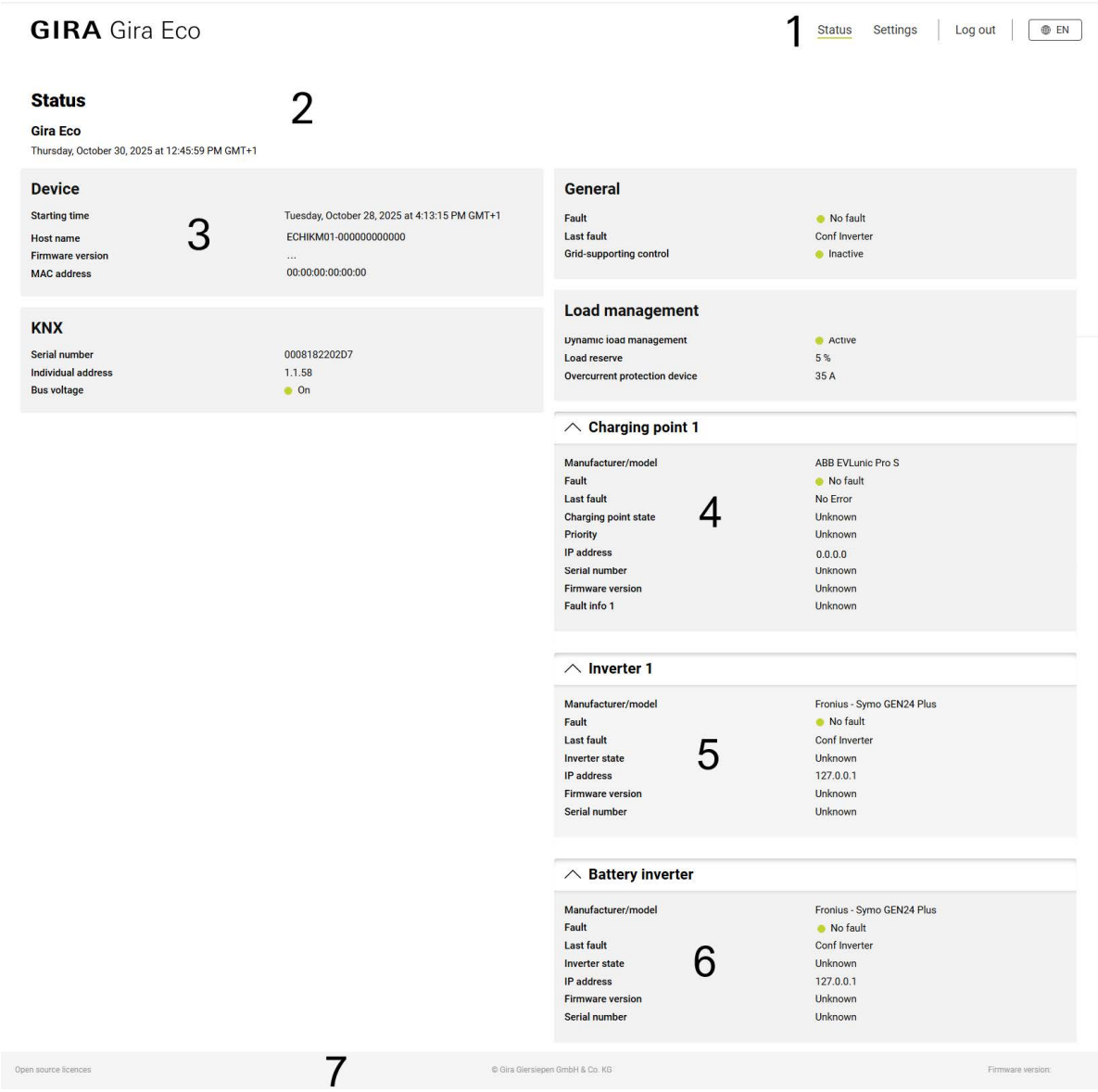

Figure 17: Device website homepage/status page

Pos.	Element	Function
1	Menu bar	Access other pages, log off, change language.
2	Page	The “Status” page is shown.
3	Information	Specific information and functions divided into sections.
4	Charging point Information	Specific information on parameterised charging points.
5	Inverters Information	Specific information on parameterised inverters.
6	Battery inverter Information	Specific information on the parameterised battery inverter.
7	Status bar	Open source licenses, currently installed firmware version.

Menu	Description
Status	• System information on device and KNX • General user information • Information on configuration in the ETS
Settings	• ► Generate log files, page 90 • Change password • Restart device • Reset device ► Reset to factory settings, page 37 • Switch device to programming mode • ► Change logging mode, page 90 • ► Configure network settings, page 37 • Configure NTP settings • ► Update firmware, page 39

Table 1: Overview

8. Commissioning and configuration

After installing the device and connecting the bus, power supply and network, the device can be commissioned.

8.1. Reading device status using the LEDs

The following status indicators (LEDs) can be found on the front panel.

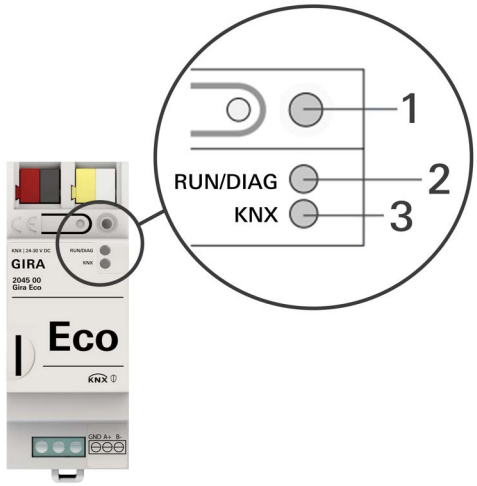

Figure 18: Status indicators (LEDs) on the front of the device

No.	Element	Description
1	“Programming” LED (red)	Programming mode active/inactive display
2	LED “RUN/DIAG” (green)	Serves as a status indicator for the application
3	LED “KNX” (yellow)	KNX/TP communication traffic display

Table 2: Status indicators

The “Programming” LED shows, independently of the operating mode, whether the device is in programming mode or not.

Colour	Description
● (red, continuously on)	Programming mode is active. ► Assign individual address, page 36
○ (off)	Programming mode is deactivated.

Table 3: Device status – programming mode

The status indicators for the network are on the underside of the device.

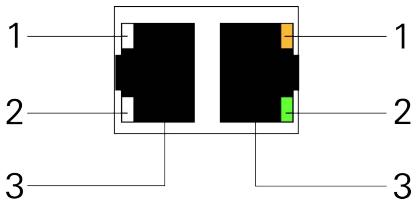

Figure 19: Network LEDs

No.	Element	Description
1	“Connection speed” LED	• LED lights up green: 100 Mbit/s • LED is off: 10 Mbit/s (There is no connection if LED 2 also off. Check whether the cable is correctly connected.)
2	“Communication” LED	• LED lights up yellow-orange: connected but currently no telegram traffic • LED flashes yellow-orange: telegram traffic
3	IP connection	2x RJ45 (integrated switch)

Table 4: Device status – network

8.1.1. LEDs during device start-up

The “RUN/DIAG” and “KNX” LEDs have different meanings depending on the phase in the operating mode. After the power supply is switched on or after power returns, the device indicates its status using the following LED combinations:

RUN/DIAG	KNX	Description
Correct operation		
○ (off)	● (yellow)	Device starting up.
● (green)	● (yellow)	Device started up and ready for operation.
Error		
○ (off)	○ (off)	No power supply. • Check the connections and the power supply.
○ ... ● ... ○ ...● ... (off)...(green)...(off)...(green)... Slow flashing (approx. 1 Hz)	● (yellow)	The device is fully started up but is not yet configured. The system is configured in S mode. • Configure the device in the ETS.
○ ... ● ... ○ ...● ... (off)...(green)...(off)...(green)... Slow flashing (approx. 1 Hz)	○ (off)	The device is fully started up but is not yet configured. The system is configured in S mode. • Configure the device in the ETS. Connection to KNX is interrupted. • Check whether the KNX and voltage connections are mixed up. • Check the bus connection. • Check whether the power supply is correctly connected.
○ . ● . ○ . ● . ○ . ● (off).(green).(off).(green).(off).(green) Rapid flashing	○ (off)	The firmware cannot be started. • Please contact Support.
○ ... ● ... ○ ...● ... ● ... ○ ... ● ...○ ... (off)...(green)...(off)...(green)... (yellow)...(off)...(yellow)...(off)... “RUN/DIAG” and “KNX” LED: Slow flashing (approx. 1 Hz) in an alternating pattern		The newly loaded firmware cannot be started. The system is trying to activate the previous firmware (invalid firmware). • Please contact Support.

Table 5: Device status – device starting up

8.1.2. LEDs in operation

LED status after successful device start-up:

RUN/DIAG	Description
● (green)	The device is working perfectly (normal operation).
○ (off)	The device is currently starting up or is out of operation. • Wait until the device start-up process is complete. • If the device is still out of operation, check the connections and the power supply.

Table 6: “RUN/ DIAG” LED in operation

KNX	Description
● (yellow)	The KNX connection has been established. No KNX telegram traffic. The LED is also deemed to be continuously on if brief irregular interruptions occur.
○ . ● . ○ . ● . ○ . ● (off).(yellow).(off).(yellow).(off).(yellow) Rapid flashing	KNX connection has been established. KNX telegram traffic.
Error	
○ (off)	Connection to KNX is interrupted. • Check whether the KNX and voltage connections are mixed up. • Check the bus connection. • Check whether the power supply is correctly connected.

Table 7: “KNX” LED in operation

8.2. “RUN/DIAG” LED in case of a fault

The “RUN/DIAG” LED indicates a fault with a corresponding flashing code. At the same time, the device website shows the corresponding error code. For more information on error codes and how to remedy faults, see chapter ► “Troubleshooting” on page 83.

RUN/DIAG	Description
○ ... ● ... ○ ... ● ... ○ ... ● (off)...(green)...(off)...(green)...(off)...(green) Three slow flashes (approx. 1 Hz)	The device indicates a fault with a severity level of 60 to 110. This is a temporary fault that only affects a specific component and not the overall system operation. No new configuration in the ETS is required to remedy the fault.
○ ... ● ... ○ ... ● ... ○ ... ● ... ○ ... ● ... ○ ... ● (off)...(green)...(off)...(green)...(off)...(green) Five slow flashes (approx. 1 Hz)	The device indicates a fault with a severity level of 120 to 130. This is a serious fault that puts the whole system out of operation. To remedy the fault, a new configuration in the ETS is required.

Table 8: “RUN/DIAG” LED in case of a fault

If several faults with different severity levels are present, the LED flashing code will always appear for the current fault with the highest severity level.

8.3. Configuration

The device is configured in the ETS (Engineering Tool Software). The ETS is available with various ranges of functions from the KNX Association (www.knx.org).

All descriptions in this documentation relating to configuration in the ETS refer to the variant "ETS Professional" in the version 5.

Note

Help on the ETS is available in the integrated ETS Online Help.
Press the [F1] button.

Work steps

1. Create Gira Eco as device in the ETS ► See “Creating the device in the ETS” on page 33.
2. In the ETS, assign the device and its individual address corresponding to the KNX topology.
3. Select the option “Receive IP address automatically” or select “Use a permanent IP address” and complete the following fields: IP address, IP subnet mask and standard gateway address, ► See “Setting the IP address, IP subnet mask and standard gateway address” on page 35.
4. Set the general parameters, ► See “Parametrisation” on page 42.
5. Link the group addresses to the group objects.
6. Gira Eco is now ready for commissioning via “Program ETS” and for testing the functions.

8.3.1. Creating the device in the ETS

Depending on whether the product database entry already exists in the ETS catalogue or whether the device is already being used in your existing project, different work steps are required in order to use the current version.

Work steps	
Device already exists in the ETS catalogue?	
Yes	No
Update product database. During an update, the old product database entry is replaced by the new one.	Importing product database entry. There are numerous possibilities for importing a new product database entry. Below we will assume that you have downloaded the product database entry yourself. ► See “Importing a new product database entry” on page 33.
Device in existing project should be updated?	
Yes	No
You must update the device properly so that the existing links to group addresses are maintained. ► See “Updating a product in the existing project” on page 34.	Add the device to your topology in the usual way.

Table 9: Work steps – creating the device in the ETS

Importing a new product database entry

Requirement: You have downloaded the product database entry (product file) from our product website.

1. Start the ETS and select the “Catalogue” tab on the Start page.
2. Select the “Import” button in the toolbar.
3. In the “Open product file” window, open the product file and press the “Open” button to confirm your selection.
4. Follow the further instructions in the ETS. If necessary, call up the Online Help with the [F1] button.

Updating a product in the existing project

Requirement: New product database entry exists in the catalogue.

1. In the ETS, open the project for which the device is to be updated.
2. Search for the new product database entry in the catalogue and add the new version of the device to the devices in your project.
3. Select the old version of the device in your topology.
4. Under “Properties”, select the “Information” → “Application program” tab.
5. Select the “Update” button under the item “Update application program version” (figure 20, pos. 2)

Note

If you change the value under “Change application program” (figure 20, pos. 1), user-defined settings such as links to group addresses will be lost.

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6. Select the newly added device and delete it again from your topology.

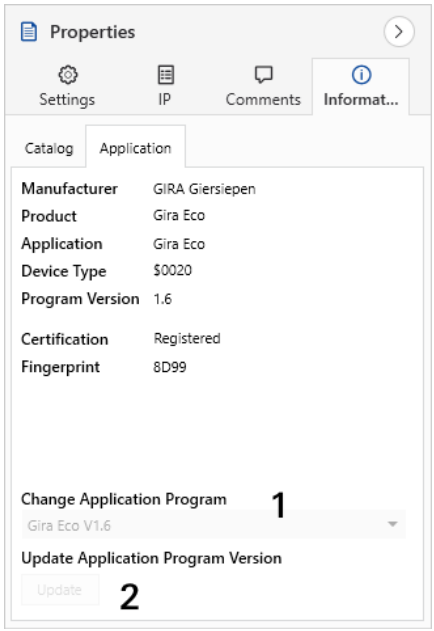

Figure 20: Updating the application program

8.3.2. IP settings

Besides the individual address in the KNX network, an IP address, the subnet mask and the address of the standard gateway in the IP data network must be assigned to the Gira Eco.

You can enter the settings manually in the ETS or receive them automatically (obtain the data from a DHCP server, e.g. integrated in the router of the data network).

Setting the IP address, IP subnet mask and standard gateway address

1. In the ETS, select the device in your topology.
2. Under “Properties” select the “IP” tab.
3. You will find the available selection options in figure 21 and table 10, “Settings for manual IP address entry or for receiving automatically,” on page 35.

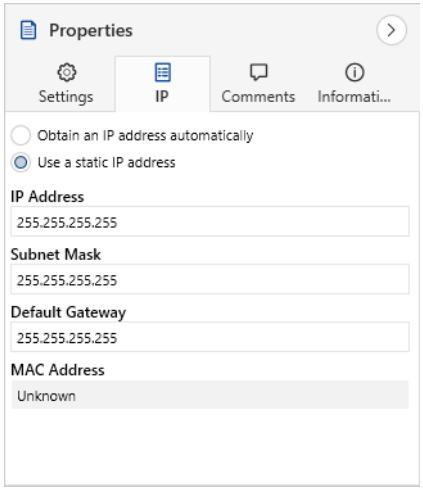

Figure 21: IP settings

Setting	Description
Receive IP address automatically	The address data are automatically obtained from a DHCP server on the data network. The DHCP server must assign a valid IP address to the Gira Eco. **Note** If there is no DHCP server available, the device starts up after a waiting time with an automatic IP address in the address range of 169.254.1.0 to 169.254.254.255. As soon as a DHCP server is available, the device is automatically assigned a new IP address.
Use a permanent IP address	Enter the data manually. You can obtain the permitted IP address range and the subnet mask and standard gateway from the router configuration interface.

Table 10: Settings for manual IP address entry or for receiving automatically

Serious misconfiguration

Default values are set if you want to use the setting “Use permanent IP address” but then forget to fill in the appropriate fields. Devices with the default value 127.0.0.1 as fixed IP address will therefore not start up properly.
Reset the device to its factory settings. ► “Resetting to factory settings” on page 37.
If problems should persist, contact Support.

8.3.3. Programming an individual address

The individual address that you issued in the ETS must be assigned to the device. We refer here to “programming”. To do this you must put the device into programming mode.

Assigning an individual address

Requirements: Device and bus voltage switched on. Programming LED is off.

1. Briefly press the programming button (figure 22, pos. 1). The programming LED (figure 22 pos. 2) lights up red.
2. In the ETS, assign the individual address to the device in accordance with the KNX topology and execute programming in the ETS.

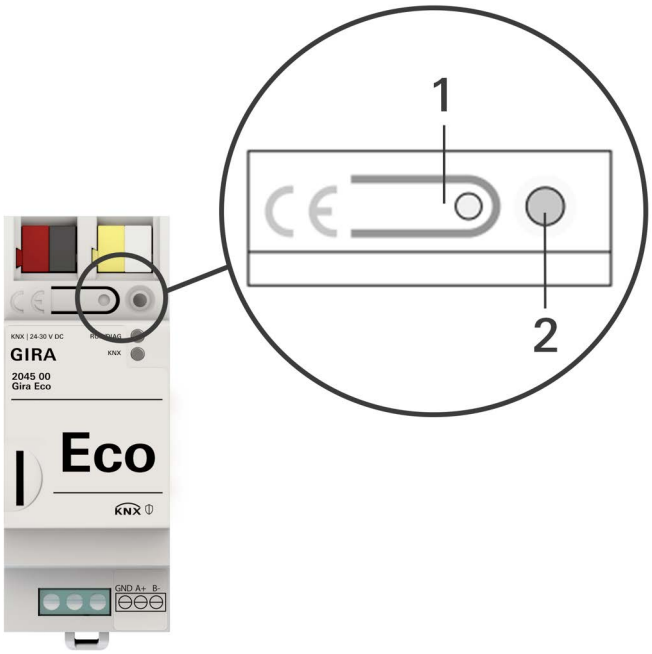

Figure 22: Programming

How to recognise successful assignment of the individual address:

- Device: The programming LED on the device is off.
- ETS: The completed transfer is indicated on the “History” tab by a green marking. Programming flag “Adr” is set and “Cfg” is not set. More information about this and other flags is available from the ETS documentation.

Note

After the IP address is assigned, you can also conveniently set the device to programming mode on the device website instead of pressing the programming button on the device itself.

8.3.4. Network settings via the device website

Requirement: the device website is open.

1. Select “Settings” in the menu bar.
2. In the “Network” area, select the ⚙ button under “IPv4 settings”. The network settings dialogue will open.
3. In the input field “DNS address”, enter the IP address of your DNS server.
4. Click “Save”. The system accepts the configuration.

8.3.5. Resetting to factory settings

When you reset the device to the factory settings, it behaves as it does in the state of delivery. The device is then unconfigured:

- The device remains in the existing projects.
- The device keeps the version of the application program in the ETS.
- The entire parametrisation is rejected.
- The DHCP mode is activated.
- The device website password is reset to the initial password.
- The individual KNX address of the device returns to: 15.15.255.

Note

An unconfigured device is identifiable by the green RUN/DIAG LED flashing slowly when the device starts up.
► See table 5, “Device status – device starting up,” on page 30.

You have the following possibilities for resetting the device to the factory settings:

- Manual: press the programming button on the device in a particular sequence.
- Automated: you select the “Reset device” button on the device website.

Danger of electric shock

An electric shock can result from touching live parts in the installation environment.
Electric shock can cause death.
Pay attention to the installation regulations:

- Route the bus line with the sheathing intact until it is close to the bus connection terminal.
- Firmly press the bus line into the bus connection terminal as far as possible.
- Install bus line leads without sheathing (SELV) reliably disconnected from all non-safety low-voltage cables (SELV/PELV).
- Maintain the specified clearance.
- Attach the cover cap supplied.
- See also the VDE regulations governing SELV (DIN VDE 0100-410 / “Safe separation”, KNX installation regulation) for more information.

Manually resetting the device to the factory settings
Requirement: the device must be switch off without voltage.

1. Press the programming button (figure 22, pos. 1) and keep it pressed while you attach the power connection terminal.
2. Do not release the programming button until the following LEDs are all flashing slowly at the same time:
   - Programming LED (figure 18, pos. 1)
   - RUN/DIAG LED (figure 18, pos. 2)
   - KNX LED (figure 18, pos. 3)

   Usual duration: approx. 30 seconds.
3. Release the programming button briefly.
4. Press the programming button again and keep it pressed until following LEDs are all flashing rapidly at the same time:
   - Programming LED (figure 18, pos. 1)
   - RUN/DIAG LED (figure 18, pos. 2)
   - KNX LED (figure 18, pos. 3)
5. Release the programming button.

The device is reset to the factory settings. You do not have to restart the device.

Resetting the device to the factory settings via the device website

1. Open the device website at ► See “Accessing the device website” on page 25.
2. On the “Settings“ page, select the “Reset device“ button.
3. Confirm the confirmation prompt.

As soon as the device has been completely reset to factory settings, the device website login will appear. To log in, you need to re-enter the initial device password. You do not need to restart the device.

8.4. Update firmware

You can obtain functional enhancements for the Gira Eco with a new version of the firmware. The current firmware and corresponding product documentation are available on our product website.

So that you can use the new functions, it is necessary for the versions of the firmware being used and the product database entry are compatible.

8.4.1. Updating the firmware via the device website

You can only import a firmware version that is newer than the current version on the device. Previous versions cannot be imported.

There are two ways to update:

- Online: Import firmware automatically online.
- Offline: Import firmware offline. For devices without internet connection in the installation environment.

No compatibility check

The system does not check whether the current configuration is compatible with the new firmware. You must check yourself whether the firmware is compatible with the product database entry.
► See “Compatibility between product database entry and firmware version” on page 40.

Import firmware automatically online

1. Open the device website at ► See “Accessing the device website” on page 25.
2. Select “Settings” in the menu bar.
   You will see the currently installed firmware version in the “Firmware” area. If a new firmware version is available for the device it will be indicated to you.
3. Under “Online Update”, select the “Start update” button.

Import firmware offline

Requirement: You have downloaded the current firmware version from the product website.

1. Open the device website at ► See “Accessing the device website” on page 25.
2. Select “Settings” in the menu bar.
3. In the “Firmware” area, select the “Upload firmware” button under “Local update without internet access”.
4. Select the desired firmware file in Explorer and confirm your selection by pressing the “Open” button. The firmware is then installed automatically.

8.4.2. Compatibility between product database entry and firmware version

So that you can use the device's new functions, the version of the firmware used must be compatible with the version of the device's application program in the project. The application program is part of the product database entry.

Note

The application program version can be found in the ETS under “Properties” in the “Information” tab → “Application program” under “Program version”.

Compatibility at a glance

The versions are fully compatible if the main version of the application program and firmware are identical.

The version numbers are structured according to the following scheme: <Main version no.>.<Sub-version no.>

Example: Full compatibility with same main version numbers

- Firmware version: 2.3
- Application program version: 2.0

Note

In order to use all new functions, it may be necessary to update the application program,
►See “Updating a product in the existing project” on page 34.

Establishing compatibility

In case of incompatibility, you will need to uninstall the application program.

- The device remains in the existing projects.
- The device keeps the version of the application program in the ETS.
- The entire parametrisation is rejected.
- User data in the ETS is preserved.

Requirement: New product database entry exists in the catalogue.

1. In the ETS, open the project for which the device is to be updated.
2. Search for the new product database entry in the catalogue and add the new version of the device to your project.
3. Select the old version of the device in the topology for your project.
4. In the “Topology” window in the menu bar, select the “Uninstall” → “Application program” button.

Note

After uninstalling, the device behaves as in the state of delivery. The device is then unconfigured. Then start configuration as usual. ► See ““RUN/DIAG” LED in case of a fault” on page 32.

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5. Under “Properties”, select the “Information” → “Application program” tab.
6. Select the “Update“ button under the “Update application program version“.
7. Select the newly added device and delete it again from your topology.

9. Parametrisation

The parameters you need to configure depend on your use case and charging point model. The context help in the ETS explains the parameters.

Sequence for the configuration of charging points with RS485 connection:

1. Configure the charging point.
   If several charging points are configured, connect and configure charging points individually.
2. Configure the Gira Eco.
3. Connect the Gira Eco with the charging point(s) using the RS485.

Calling up the context help in the ETS

1. Enable the “Context help” button in the “Parameter” tab in the toolbar.
2. Click on the desired parameter/the parameter value.
   The corresponding explanation appears in the lower area of the parameter dialogue.

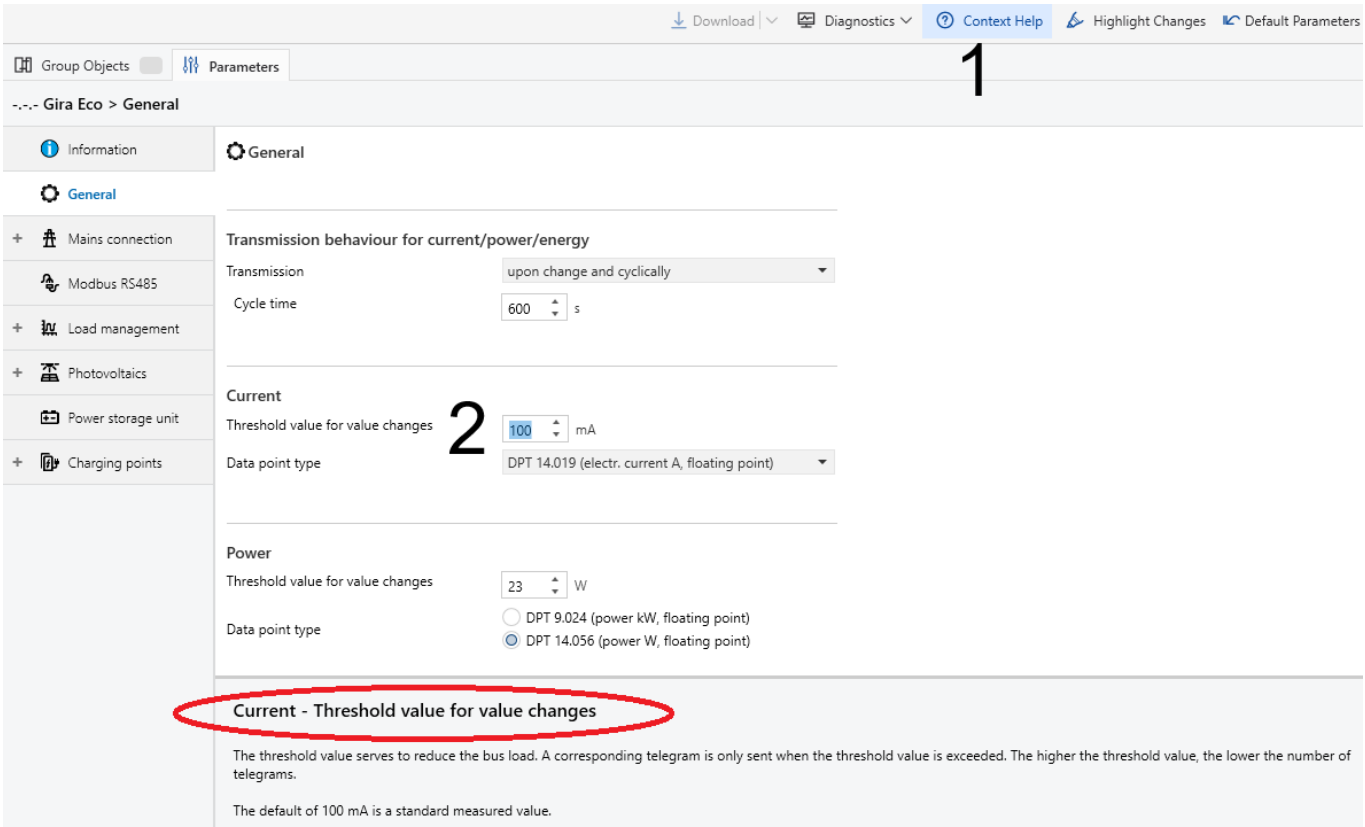

Figure 23: ETS context help

9.1. Dynamic load management

Use case

- Use the existing connection for charging electric vehicles in addition to the everyday devices in the building without overloading the connection and having to expand it.
- Charge several electric vehicles at the same time.
- Utilise surplus PV charging for electric vehicles.

Overcurrent protection device and smart meter

The size of the overcurrent protection device is used by the DLM to calculate the maximum permissible current value that results, minus the load reserve. The load reserve prevents the total consumption from reaching the limit of the available current value, the value of the overcurrent protection device. In the DLM, the charging points and other devices share the maximum permissible current value.

The overcurrent protection device protects the line shared by the charging points and other devices. The smart meter has to measure the current flowing through this line. In doing so, the smart meter measures the current of all phases – either 1-phase or 3-phase, depending on the installation. The measurement represents a snapshot and the values are sent directly to the KNX bus. Using the measured values and the configuration stored in the ETS, the DLM determines how much current is available for charging.

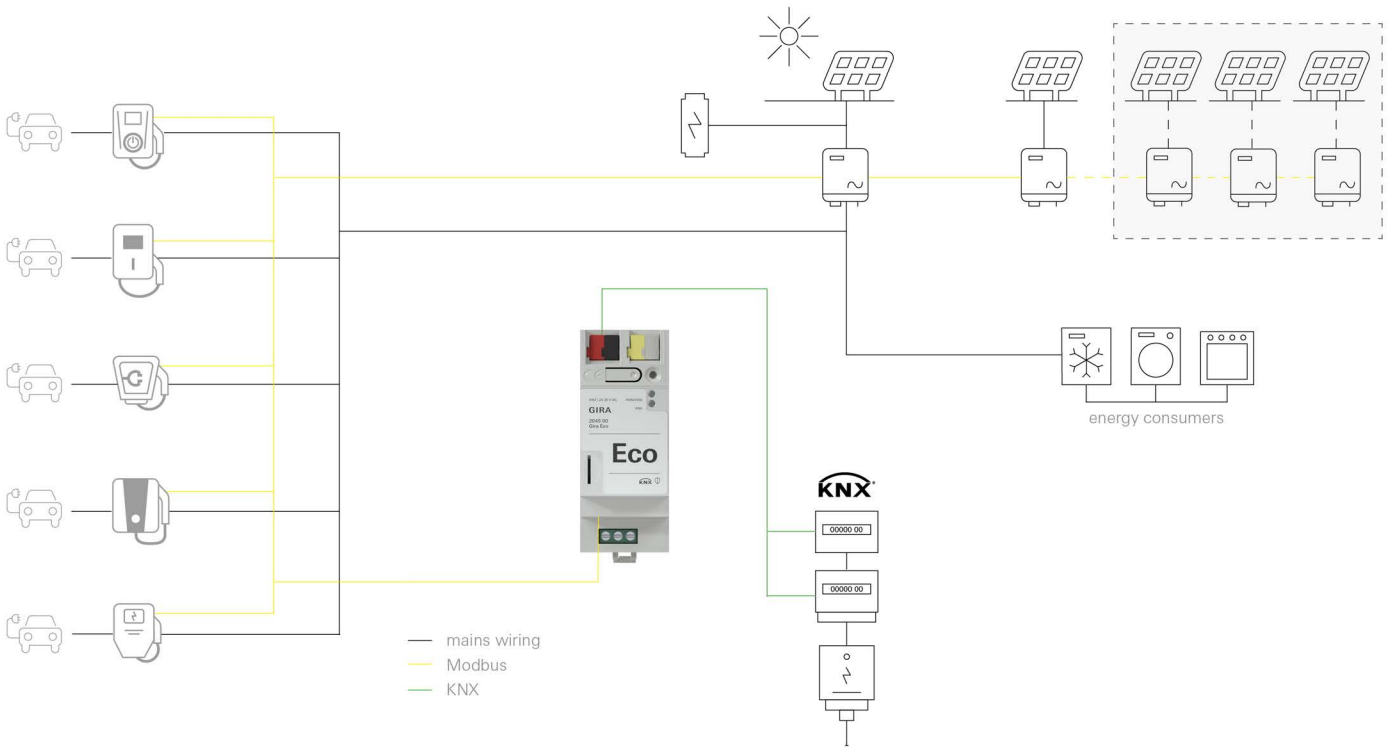

Figure 24: System Gira Eco

Note

The smart meter must measure that current of the line that is protected by the overcurrent protection device.

The DLM thus responds dynamically to the current consumption in the building and flexibly distributes the ever-changing current to the charging points in order to remain within the consumption limit. The DLM takes into account the defined minimum and maximum charging current of each charging point. If a high power-consuming device becomes active or the smart meter reports increased readings in general, the DLM reduces the charging current to the minimum charging current value and then slowly regulates it upwards again in accordance with availability. This way, the DLM promptly counteracts a possible, short-term overcurrent.

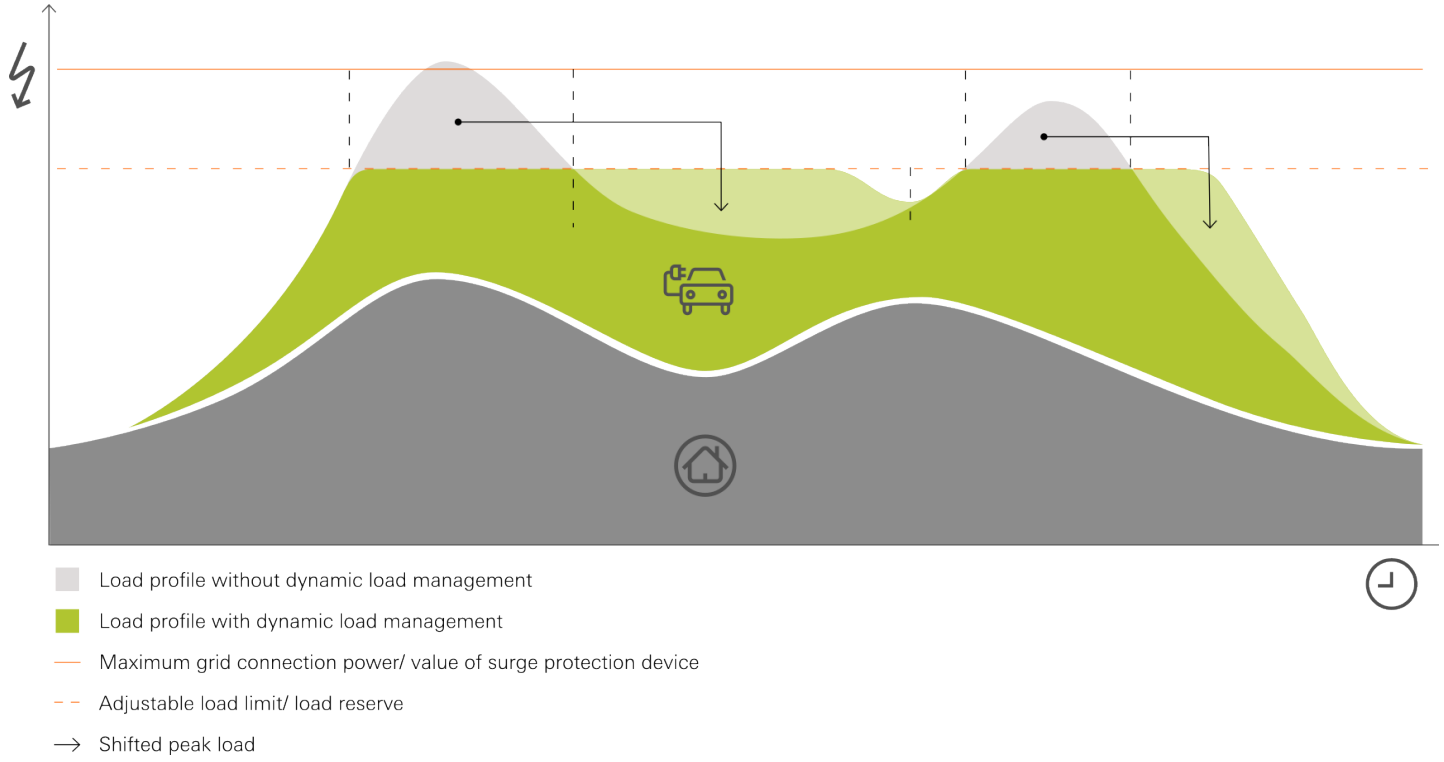

Figure 25: Dynamic load management

Unbalanced load management

In order to reduce the uneven load on individual phases in a 3-phase connection, a limit value for the unbalanced load can be parameterised.

If the parameterised limit value is exceeded on one phase, the active charging points are down-regulated. If the unbalanced load persists, the charging process is interrupted.

If no more unbalanced load is detected, the charging process continues automatically.

Note

If you use the unbalanced load management of the Gira Eco, any load management integrated in the charging point must first be deactivated.

Smart meter as a measuring point

1. Select the type of metering point „KNX (Smart Meter)“ under the Mains connection/Metering system tab.
2. Select the appropriate data point type for current and power.
3. Depending on the output of the smart meter, select whether the active power is to be displayed separately for consumption and feed-in. If the power is displayed separately, separate group objects are enabled for consumption and feed-in.
4. Select the sign for the display of the active power depending on the output of the smart meter.
5. Select how the smart meter is to be checked for operation and connection to the KNX.

   As well as sending measured values, there is also an additional query via the group object „In operation“, see Table 25 on page 60. With the „per measured values & “In operation” object“ setting, the measured values are no longer sent continuously, but rather only when there is a change. This reduces the bus load which is increased due to the constant sending of measured values.

Note

If the smart meter does not send any values within the specified time, a fault is reported. The DLM goes into emergency mode. This means that the DLM regulates distribution down to the minimum charging current per charging point.

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6. Set the time interval specified by the smart meter for sending the measured values.

Inverter as a measuring point

1. Select the type of metering point „Solar inverter“ under the Mains connection/Metering system tab.
2. Select a suitable inverter. Only the devices already parameterised under photovoltaics are displayed.

Note

The inverter must have an integrated counter.

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3. Select whether group objects are to be enabled for the measured values (current and power).

9.2. Static load management

Use case

- Use a sub-distribution available specifically for charging electric vehicles with its own fuse, without taking other dynamic consumers into account.
- Charge several vehicles at the same time.

Maximum charging current overall

The maximum charging current overall is the relevant parameter for calculating the maximum permissible current value shared by the charging points. The maximum permissible current is calculated by subtracting the load reserve from the total maximum charging current. The load reserve prevents the total consumption from reaching the limit of the available current value, the value of the total maximum charging current.

9.3. Prioritisation and sequence

Through the use of dynamic load management, you can prioritise one charging point.

- All active charging points receive the minimum charging current, provided sufficient power is available. This can lead to the restriction of charging points that are currently consuming more than the minimum charging current.
- Additional current is first distributed evenly to the prioritised charging points until they have reached the maximum charging current.
- The remaining power is distributed evenly to the non-prioritised charging points.
- If an even distribution is impossible (e.g. uneven number of amperes), the order is decisive.
- The order is ascending (1 first). Charging points with a 0 receive power last.
- If several charging points have the sequence number 0, these are taken into account according to the charging point order of the ETS.
- If there is not enough power for the minimum requirements of the charging points, the priority and sequence decide whether a charging point is switched off.
- Charging points with activated boost have priority over charging points in IMMEDIATE or ECO mode. If the boost is activated for several charging points, the aforementioned rules on prioritisation and sequence also apply within the boosted charging points.
- The prioritisation of a charging point can be parameterised in the ETS and/or activated and deactivated via a group object.
- The order of the charging points can only be parameterised in the ETS.

Example: Power distribution with prioritised charging point in the DLM

Three charging points need to be charged simultaneously. Consumer V1 consumes 8 A at the same time. The charging points (CP) are configured as follows:

- CP1: min. charging current 6 A / max. charging current 12 A (prioritised)
- CP2: min. charging current 6 A / max. charging current 8 A
- CP3: min. charging current 6 A / max. charging current 16 A

Static load management is configured as follows:

- Total maximum charging current: 35 A
- Load reserve: 5 %

Maximum permissible current value: 35 A - 1.75 (5 %) = 33.25 A

Total of minimum charging currents of all charging points: 6 A + 6 A + 6 A = 18 A

The maximum permissible current value is sufficient for the configuration: 18 A < 33.25 A

The consumption of V1 is subtracted. What remains is the charging current for distribution to the charging points: 33.25 A - 8 A = 25.25 A

The total minimum charging current of all charging points is still less than the maximum permissible current value, which means that the requirement for charging electric vehicles is met:
18 A < 25.25 A

Remaining charging current for further distribution: 25.25 A - 18 A = 7.25 A

The prioritised CP1 is given priority and receives 6 A of the remaining charging current in order to provide its maximum charging current of 12 A:
7.25 A - 6 A = 1.25 A

The remaining 1 A receives either LP2 or LP3 (depending on the parameterised sequence).

Example: Power distribution with prioritised charging point in the SLM

Three charging points need to be charged simultaneously.

The charging points (CP) are configured as follows:

- CP1: min. charging current 6 A / max. charging current 12 A (prioritised)
- CP2: min. charging current 6 A / max. charging current 8 A
- CP3: min. charging current 6 A / max. charging current 16 A

Static load management is configured as follows:

- Total maximum charging current: 35 A
- Load reserve: 5 %

Maximum permissible current value: 35 A - 1.75 (5 %) = 33.25 A

Total of minimum charging currents of all charging points: 6 A + 6 A + 6 A = 18 A

The maximum permissible current value is sufficient for the configuration: 18 A < 33.25 A

Remaining charging current for further distribution: 33.25 A - 18 A = 15.25 A

The prioritised CP1 receives preferential current from the remaining charging current. CP1 can even supply the max. charging current of 12 A because it only needs 6 A of 15.25 A: 15.25 A - 6 A = 9.25 A

The remaining 9.25 A is usually distributed equally between CP2 and CP3. However, it is also taken into account that CP2 supplies a maximum charging current of 8 A and only requires 2 A. In this case, the 9.25 A is distributed as follows: CP2 receives 2 A and CP3 receives 7 A.

9.4. No use of load management

Use case

- The existing mains connection is sufficiently dimensioned to specify a target charging current that the electric vehicle can use as a maximum.
- External load management is used.

Defined current value per charging point

If load management is deactivated, a maximum current value is set for each charging point via a group object. Specifying the minimal and maximum charging current per charging point ensures that the set value is always within range.

Note

It must be ensured that the mains connection can provide the target charging current at all times and that an overload is prevented.

Deactivation

1. Disable load management in the like-named tab with “off”.

   The “Setpoint charging current” group object is enabled per charging point, see table 43 on page 66.
2. For each charging point, set the maximum charging current that may be used to charge the electric vehicle using “Setpoint charging current”.

   If the set value is below the minimum charging current, the value is automatically corrected to the minimum charging current. If the set value is above the maximum charging current, the value is automatically corrected to the maximum charging current.

9.5. Activation of photovoltaics

Use case

- Electric vehicles are to be charged with surplus PV electricity when the sun is shining.
- Solar yields and device information from the inverters should be sent to the KNX bus.

Activation

1. Activate photovoltaics under the tab of the same name.
2. Activate „Solar yield can be read out via object“ to enable the group object for the total energy yield per inverter.
3. Enter the number of inverters installed and parameterise them on the respective sub-tab. Make sure that the correct manufacturer, model and connection data match the device.

9.6. Using the power storage unit

Use case

- Electric vehicles are to be charged with surplus PV electricity and/or from the power storage unit.
- The charge status of the power storage unit and device information from the battery inverter should be sent to the KNX bus.

Activation

1. Activate power storage unit under the tab of the same name.
2. Select one of the inverters parameterised under Photovoltaics at „Select hybrid device“.
   Only a configured hybrid inverter can be used.
3. Select the preferred storage strategy:
   a. Optimised consumption = The connected electric vehicles are charged with excess PV and the contents of the power storage unit. If the electric vehicles are full or not connected, the power storage unit is recharged.

   b. No consumption = The connected electric vehicles are only charged with excess PV. Afterwards, the power storage unit is charged.

9.7. Phase connection/phase changeover/phase rotation

The possibility of 3-phase charging and phase switching depends on the mains connection and the charging point models used.

Phase connection

1. Under the Mains connection tab, select a 1-phase or 3-phase connection according to your installation.
2. Select the phase connection for this charging point under the tab for the respective charging point.
   This selection is only available if the installation has a 3-phase mains connection.

Phase changeover

Note

If the selected charging point allows phase changeover, the corresponding parameter will be visible. If no power contactor is integrated in this charging point, a power contactor suitable for the existing currents and a KNX switching actuator must also be installed.

Activate phase switching to optimise the charging point depending on the PV power currently available. If there is not enough power available, the system switches from 3-phase to 1-phase charging.

If the charging point does not have an internal contactor, the group object 91 "Phase changeover contactor" is enabled. This must be linked to a KNX switching actuator, which in turn controls the power contactor for the phase changeover.

Phase rotation
Under Phase rotation, select the correct configuration for your installation.

Note

Phase L1 of the charging point is always connected to the first phase of the house connection.

Example: Phase rotation
Set "L3, L1, L2" if phase L1 of the charging point is connected to phase L3 of the domestic installation.

9.8. Connecting the electricity meter at the charging point

Use case

- The charging point does not offer an integrated electricity meter to measure consumption values.
- Measure the charging point's current consumption and send to the bus.
- Determine actual consumption in order to achieve an effective distribution of the available current.

Connection
The "Electricity meter" parameter is optional and is only available for charging points without an integrated electricity meter.

Note

If you are using a charging point without consumption value measurement with DLM, the provided setpoint current is automatically used as the actual current.

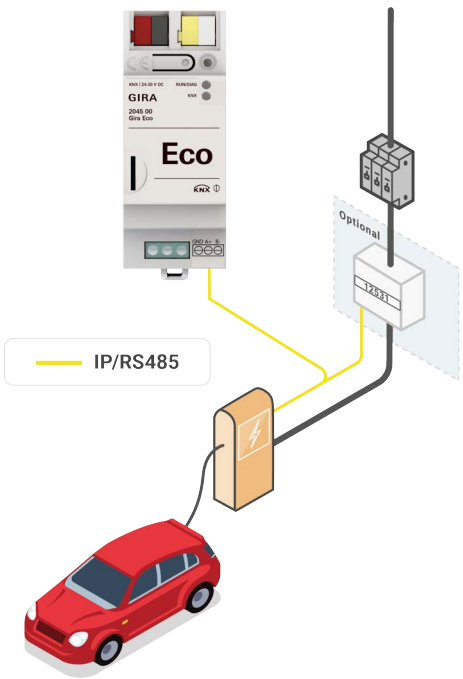

Figure 26: Electricity meter at the charging point

1. Add the electricity meter with “Yes”.

   A new tab for electricity meter configuration will appear as a subcategory at the charging point.
2. Open the “Electricity meter” tab.

   Depending on the charging point connection, you can choose from specific, pre-configured models or, in the case of manual configuration, the corresponding connections. To see which electricity meters are already pre-configured, please see our product website.
3. Select the desired model or configure the electricity meter manually.

   If you select a pre-configured model, the configuration is completed by entering the IP or Modbus client address.

   For manual configuration, please refer to the electricity meter manufacturer’s documentation and the context help in the ETS for parameter value specification.
   ► See “Calling up the context help in the ETS” on page 42.

10. Group objects

The Gira Eco makes the corresponding group objects available according to its range of functions. In addition to generally valid and DLM functions, there are model-dependent functions. The corresponding group objects appear as soon as you have assigned a manufacturer and model to the charging point.

The group objects are shown below according to the structure in the ETS. Model-dependent functions are referred to accordingly.

10.1. General

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
1	Grid-supporting control	Write	1 bit	1.001	C-WTUI
Rubric:	General	Data type:	Switching		
Function:	Reduces the charging current or interrupts the charging process as soon as the grid operator controls the power consumption. The charging current available during grid-supporting control is to be defined under the parameter “Setpoint current with grid-supporting control”. • In its technical implementation, grid-supporting control with 0 A behaves in the same way as the “Interruption” function. When grid-supporting control is terminated, the previous state is always restored, taking into account the previously used setpoint current. However, if the setpoint current is changed during grid-supporting control, it will be subsequently recorded as the new setpoint value. • The 6 A setting acts upon the setpoint current to reduce the setpoint current to this value during grid-supported control. The previous state is restored as soon as the grid-supporting control is finished. However, if the setpoint current is changed during grid-supporting control, this setpoint value will be used once the grid-supporting control has ended. The functions “Grid-supporting control” and “Interruption” can be used in parallel. The grid-supporting control settings 0 A and 6 A are not relevant. Interruption can be activated during grid-supporting control, for instance. Interruption is the more dominant of the functions and takes effect immediately. If interruption is cancelled and the grid-supporting control is still active, the charging point will return to the state of grid-supporting control again.				
Description:	1 = On, 0 = Off				

Table 11: Grid-supporting control

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
2	Grid-supporting control – state	Read	1 bit	1.011	CR-T--
Rubric:	General	Data type:	Status		
Function:	Shows whether grid-supporting control is active.				
Description:	1 = Active, 0 = Inactive				

Table 12: Grid-supporting control – state

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
8	Fault	Read	1 bit	1.002	CR-T--
Rubric:	General	Data type:	Boolean		
Function:	Indicates whether a general fault is present.				
Description:	1 = True (fault present), 0 = False (no fault present)				

Table 13: Fault

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
9	Last fault	Read	14 bytes	16.001	CR-T--
Rubric:	General	Data type:	Character (ISO 8859-1)		
Function:	Shows information about the last or current fault.				
Description:	For details of the corresponding error code, see “General faults” on page 84.				

Table 14: Last fault

10.2. Load management (LM)

Object	Name	Direction	Data width	Flags (CRWTUI)
10	Smart meter current value Smart meter current value L1	Write	4 bytes	C-WTUI
Rubric:	LM	DP type/data type:	7.012/electr. current (mA) 9.021/electr. current (mA, floating point) 14.019/electr. current (A, floating point)	
Function:	Receives the value from the smart meter. Depends on the connection of the smart meter (tab „Mains connection“ → „Connection“). • “Smart meter current value“: Actual current value with a 1-phase connected smart meter. • “Smart meter current value L1“: Actual current value with a 3-phase connected smart meter. The data point type can be changed at „Metering system“ → „Data point type current“.			
Description:	Electr. current (mA)/(A)			

Table 15: Smart meter, 1-phase/L1 – value

Object	Name	Direction	Data width	Flags (CRWTUI)
11	Smart meter current value L2	Write	4 bytes	C-WTUI
Rubric:	LM	DP type/data type:	7.012/electr. Current (mA) 9.021/electr. current (mA, floating point) 14.019/electr. current (A, floating point)	
Function:	Receives the value from the smart meter. Depends on the connection of the smart meter (tab „Mains connection“ → „Connection“). “Smart meter current value L2“: Actual current value with a 3-phase connected smart meter. The data point type can be changed at „Metering system“ → „Data point type current“.			
Description:	Electr. current (mA)/(A)			

Table 16: Smart meter L2 – value

Object	Name	Direction	Data width	Flags (CRWTUI)
12	Smart meter current value L3	Write	4 bytes	C-WTUI
Rubric:	LM	DP type/data type:	7.012/electr. current (mA) 9.021/electr. current (mA, floating point) 14.019/electr. current (A, floating point)	
Function:	Receives the value from the smart meter. Depends on the connection of the smart meter (tab „Mains connection“ → „Connection“). “Smart meter current value L3“: Actual current value with a 3-phase connected smart meter. The data point type can be changed at „Metering system“ → „Data point type current“.			
Description:	Electr. current (mA)/(A) Power (W)/(kW)			

Table 17: Smart meter L3 – value

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
13	High power-consuming devices	Write	1 bit	1.002	C-W--
Rubric:	DLM	Data type:	Boolean		
Function:	Receives the activity status from high power-consuming devices. If a high power-consuming device becomes active, the DLM reduces the charging current to the minimum charging current value. After a short waiting time, the DLM distributes the changed, available charging current. If another high power-consuming device reports within the short waiting time, the short waiting time starts again. You can group several current consumers together under the group object “High power-consuming devices”. Use either a group address that is shared by any number of KNX devices, or store several group addresses per KNX device.				
Description:	1 = True (Active), 0 = False (Inactive)				

Table 18: High power-consuming devices

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
14	Smart meter power value consumption/feed-in Smart meter power value consumption/feed-in L1 Smart meter power value consumption Smart meter power value consumption L1	Write	4 byte	14.056	C-WTUI
Rubric:	LM	Data type:	Power (W, floating point)		
Function:	Receives the active power from the smart meter. Depends on the connection of the smart meter (tab „Mains connection“ → „Connection“). • „Smart meter power value consumption/feed-in“: Current active power of consumption and feed-in with a 1-phase connected smart meter. • „Smart meter power value consumption/feed-in L1“: Current active power of consumption and feed-in with a 3-phase connected smart meter. Depending on the output of the smart meter, it may be necessary to separate the consumption and feed-in (tab „Metering system“ → „Separate active power consumption and feed-in“). This changes the group objects to • „Smart meter power value consumption“: Current active power of the consumption with a 1-phase connected smart meter. • „Smart meter power value consumption L1“: Current active power of the consumption with a 3-phase connected smart meter. and another group object is enabled for the power supply.				
Description:	Power (W)				

Table 19: Smart meter, consumption/feed-in 1-phase/L1 – value

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
15	Smart meter power value consumption/feed-in L2 Smart meter power value consumption L2	Write	4 byte	14.056	C-WTUI
Rubric:	LM	Data type:	Power (W, floating point)		
Function:	Receives the current active power from a 3-phase connected smart meter. Depends on the connection of the smart meter (tab „Mains connection“ → „Connection“). Depending on the output of the smart meter, it may be necessary to separate the consumption and feed-in (tab „Metering system“ → „Separate active power consumption and feed-in“). This changes the group object to „Smart meter power value consumption L2“ and another group object is enabled for the power supply.				
Description:	Power (W)				

Table 20: Smart meter consumption/feed-in L2 – value

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
16	Smart meter power value consumption/feed-in L3 Smart meter power value consumption L3	Write	4 byte	14.056	C-WTUI
Rubric:	LM	Data type:	Power (W, floating point)		
Function:	Receives the current active power from a 3-phase connected smart meter. Depends on the connection of the smart meter (tab „Mains connection“ → „Connection“). Depending on the output of the smart meter, it may be necessary to separate the consumption and feed-in (tab „Metering system“ → „Separate active power consumption and feed-in“). This changes the group object to „Smart meter power value consumption L3“ and another group object is enabled for the power supply.				
Description:	Power (W)				

Table 21: Smart meter consumption/feed-in L3 – value

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
17	Smart meter power value feed-in Smart meter power value feed-in L1	Write	4 byte	14.056	C-WTUI
Rubric:	LM	Data type:	Power (W, floating point)		
Function:	Receives the active power from the smart meter. Depends on the connection of the smart meter (tab „Mains connection“ → „Connection“) and whether the separation of consumption and feed-in has been activated (tab „Metering system“ → „Separate active power supply and feed-in“). • “Smart meter power value feed-in“: Current active power of consumption and feed-in with a 1-phase connected smart meter. • „Smart meter power value feed-in L1“: Current active power of consumption and feed-in with a 3-phase connected smart meter.				
Description:	Power (W)				

Table 22: Smart meter feed-in 1-phase/L1

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
18	Smart meter power value feed-in L2	Write	4 byte	14.056	C-WTUI
Rubric:	LM	Data type:	Power (W, floating point)		
Function:	Receives the current active power from a 3-phase connected smart meter. Depends on the connection of the smart meter (tab „Mains connection“ → „Connection“) and whether the separation of consumption and feed-in has been activated (tab „Metering system“ → „Separate active power consumption and feed-in“).				
Description:	Power (W)				

Table 23: Smart meter feed-in L2

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
19	Smart meter power value feed-in L3	Write	4 byte	14.056	C-WTUI
Rubric:	LM	Data type:	Power (W, floating point)		
Function:	Receives the current active power from a 3-phase connected smart meter. Depends on the connection of the smart meter (tab „Mains connection“ → „Connection“) and whether the separation of consumption and feed-in has been activated (tab „Metering system“ → „Separate active power consumption and feed-in“).				
Description:	Power (W)				

Table 24: Smart meter feed-in L3

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
20	In operation	Write	1 bit	1.017	C-W--
Rubric:	DLM	Data type:	Trigger		
Function:	Cyclically receives a telegram from the smart meter and thus ensures that it is in operation. Is active when “per measured value and per “in operation” object” is set under the “Monitoring” parameter, see context help in the ETS, see “Dynamic load management” on page 43.				
Description:	1 = Trigger, 0 = Trigger				

Table 25: In operation

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
21	Charging mode	Write	1 byte	–	C-WTU-
Rubric:	LM	Data type:	Non DPT		
Function:	Sets the transmitted charging mode for all connected charging points. • Charging mode IMMEDIATE: Electric vehicles are charged with the maximum possible power. This depends on the load management and the maximum charging current at the charging point. • Charging mode ECO: Electric vehicles are mainly charged with PV electricity. Power is only drawn from the grid when there is a drop in output, e.g. due to clouds or the connection of peak consumers. The maximum duration of the grid supply can be set (parameter „Allowed bridging with mains power for“). Requires activation of the parameter „Charging mode adjustable via object“.				
Description:	0: IMMEDIATE, 1: ECO				

Table 26: Charging mode

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
21	Charging mode – state	Read	1 byte	–	CR-T--
Rubric:	LM	Data type:	Non DPT		
Function:	Indicates the current charging mode.				
Description:	0: IMMEDIATE, 1: ECO				

Table 27: Charging mode – state

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
35	Solar inverter current value Solar inverter current value L1	Read	4 byte	14.019	CR-T--
Rubric:	LM	Data type:	electr. current (A, floating point)		
Function:	Sends the current value of the inverter selected as the measuring point. Depends on the connection of the inverter („Connection“ parameter). • „Solar inverter current value“: Actual current value with a 1-phase connected inverter. • „Solar inverter current value L1“: Actual current value with a 3-phase connected inverter.				
Description:	electr. current (A)				

Table 28: Solar inverter current value 1-phase/L1

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
36	Solar inverter current value L2	Read	4 byte	14.019	CR-T--
Rubric:	LM	Data type:	electr. current (A, floating point)		
Function:	Sends the current value of the inverter selected as the measuring point. Depends on the connection of the inverter. (Parameter „Connection“/“3-phase“).				
Description:	electr. current (A)				

Table 29: Solar inverter current value L2

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
37	Solar inverter current value L3	Read	4 byte	14.019	CR-T--
Rubric:	LM	Data type:	electr. current (A, floating point)		
Function:	Sends the current value of the inverter selected as the measuring point. Depends on the connection of the inverter. (Parameter „Connection“/“3-phase“).				
Description:	electr. current (A)				

Table 30: Solar inverter current value L3

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
38	Solar inverter power value Solar inverter power value L1	Read	4 byte	14.056	CR-T--
Rubric:	LM	Data type:	power (W, floating point)		
Function:	Sends the current value of the inverter selected as the measuring point. Depends on the connection of the inverter („Connection“ parameter). • „Solar inverter current value“: Actual current value with a 1-phase connected inverter. • „Solar inverter current value L1“: Actual current value with a 3-phase connected inverter.				
Description:	Power (W)				

Table 31: Solar inverter power value 1-phase/L1

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
39	Solar inverter power value L2	Read	4 byte	14.056	CR-T--
Rubric:	LM	Data type:	power (W, floating point)		
Function:	Sends the power value of the inverter selected as the measuring point. Depends on the connection of the inverter. (Parameter „Connection“/“3-phase“).				
Description:	Power (W)				

Table 32: Solar inverter power value L2

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
40	Solar inverter power value L3	Read	4 byte	14.056	CR-T--
Rubric:	LM	Data type:	power (W, floating point)		
Function:	Sends the power value of the inverter selected as the measuring point. Depends on the connection of the inverter. (Parameter „Connection“/“3-phase“).				
Description:	Power (W)				

Table 33: Solar inverter power value L3

10.3. Charging point 1 | 2 | 3 | 4 | 5

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
50, 100, 150, 200, 250	Charging point state – state	Read	1 byte	Non DPT	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5		Data type:	-	
Function:	Displays the current charging point state. The current state is emitted by means of a specific value, see the following table. This value is displayed on the device website at the corresponding charging point.				
Description:	0 – 255				

Table 34: Charging point state – state

Value	Charging point state	Description
0	Illegal	The charging point signals an unknown state. Contact Support if this state is constantly present.
1	Start-up	The charging point starts up.
2	Error	The charging point signals an error that can be shown via the group objects “Charging point fault info 1-4”.
3	Not available	The charging point signals that it is not available.
4	Cancelled	The charging process was cancelled via the group object “Start/stop charging process”.
5	Available	The charging point can be used.
6	Connected	A vehicle is connected with the charging point.
7	Manual start required	The charging process does not start automatically and must be started via the group object “Start/stop charging process”.
8	Charge	The charging process will be executed.
9	Charge with reduced current	The charging process will be executed with reduced current.
10	Charge + ventilation	The charging process will be executed and ventilation is active.
11	Interruption	Depending on the current state, the charging process was interrupted or charging point availability was blocked. This charging point state is emitted when an interruption is activated via KNX through the “Interruption” group object, see table 40, “Interruption,” on page 65. when active grid-supporting control is enabled via KNX using the group object “Grid-supporting control” with setting 0 A, see table 11, “Grid-supporting control,” on page 53. when an interruption is triggered through an internal charging point function, e.g. overheating. If the interruption is disabled or terminated, the previous state is restored and displayed via the corresponding charging point state, e.g. “Charge” or “Available”.

Table 35: Charging point state – values

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
51, 101, 151, 201, 251	Connected – state	Read	1 bit	1.002	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Boolean		
Function:	Indicates whether an electric vehicle is connected.				
Description:	1: True (connected) 0: False (not connected)				

Table 36: Connected – state

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
52, 102, 152, 202, 252	Charging – state	Read	1 bit	1.011	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Status		
Function:	Indicates whether an electric vehicle is being charged.				
Description:	1: Active (charging) 0: Inactive (not charging)				

Table 37: Charging – state

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
53, 103, 153, 203, 253	Charging complete – state	Read	1 bit	1.002	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Boolean		
Function:	Indicates whether a charging process is considered complete. The charging process is considered to be complete when the measured amperage exceeds the pre-set current threshold value for longer than the defined time. If the threshold value is exceeded, this group object is immediately reset. Depends on the setting of the “Threshold value for “Charging complete”” and “Time until “Charging complete”” parameters, see ETS context help (“Calling up the context help in the ETS” on page 42).				
Description:	1: True (complete) 0: False (not complete)				

Table 38: Charging complete – state

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
54, 104, 154, 204, 254	Start/stop charging process	Write	1 bit	1.010	C-W--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Start/Stop		
Function:	• Starts the charging process when the charging point is not configured for an automatic start function. The charging point signals the corresponding charging point state “Manual start required” (value 7). • Cancels the charging process. The charging point signals the corresponding charging point state “Cancelled” (value 4). The charging process can only be restarted again once the electric vehicle is reconnected.				
Description:	1: Start 0: Stop (terminate)				

This group object depends on the model.

Table 39: Start/stop charging process

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
55, 105, 155, 205, 255	Interruption	Write	1 bit	1.002	C-WTU-
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Boolean		
Function:	Interrupts the current charging point state. The interruption remains active until it is disabled again. Depending on the charging point state, the interruption can be used as follows: • If the charging point is currently in use, the charging process is paused for the duration of the interruption. • If the charging point is currently available or a charging process has finished, the charging point is blocked for the duration of the interruption. If the interruption is disabled, the previous state is restored. However, if a charging process is to be continued, it is important to note the following: • If the charging process was previously controlled via the load management, the load management will continue the charging process with the minimum charging current and will control the available charging current again. • If the charging process was previously controlled without load management, the charging process is continued with the previous setpoint current. If the setpoint current is changed during the interruption, the charging process is continued with the re-defined setpoint current.				
Description:	1: True (set) 0: False (cancel)				

Table 40: Interruption

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
56, 106, 156, 206, 256	Interruption – state	Read	1 bit	1.011	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	State		
Function:	Shows whether an interruption is active.				
Description:	1: active 0: inactive				

Table 41: Interruption – state

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
59, 109, 159, 209, 259	Unlock	Write	1 bit	1.017	C-W--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Trigger		
Function:	Unlocks the charging cable providing that the charging process has finished.				
Description:	1: Trigger 0: Trigger				

This group object depends on the model.

Table 42: Unlock

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
60, 110, 160, 210, 260	Setpoint charging current	Write	4 bytes	14.019	C-W--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Electr. current (A)		
Function:	Appears if the load management is disabled and not in use. Sets the target charging current the electric vehicle may use as a maximum. If the set charging current falls below or exceeds the established “Minimum charging current” and “Maximum charging current” parameter values, the charging current will automatically assume the value of the minimum or maximum charging current. **Note:** Some charging points allow 0 A to be set as the setpoint charging current.				
Description:	Electr. current (A)				

Table 43: Setpoint charging current

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
61, 111, 161, 211, 261	Setpoint charging current – state	Read	4 bytes	14.019	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Electr. current (A)		
Function:	Shows the target charging current reported by the charging point. **Note:** Some charging points do not report a setpoint charging current if no electric vehicle is connected.				
Description:	Electr. current (A)				

Table 44: Setpoint charging current – state

Object	Name	Direction	Data width	Flags (CRWTUI)
62, 112, 162, 212, 262	Actual charging current (sum)	Read	4 bytes	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type/DP type	7.012/electr. current (mA) 9.021/electr. current (mA, floating point) 14.019/electr. current (A, floating point)	
Function:	Shows the charging current used by the electric vehicle. With a 3-phase connection, the values of the three phases are added together. **Note:** The value is not suitable for billing.			
Description:	Electr. current (mA)/(A)			

This group object depends on the model.

Table 45: Actual charging current (sum)

Object	Name	Direction	Data width	Flags (CRWTUI)
63, 113, 163, 213, 263	Actual charging current L1	Read	4 bytes	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type/DP type	7.012/electr. current (mA) 9.021/electr. current (mA, floating point) 14.019/electr. current (A, floating point)	
Function:	Shows the phase L1 charging current used by the electric vehicle with a 3-phase connection. **Note:** The value is not suitable for billing.			
Description:	Electr. current (mA)/(A)			

This group object depends on the model.

Table 46: Actual charging current L1

Object	Name	Direction	Data width	Flags (CRWTUI)
64, 114, 164, 214, 264	Actual charging current L2	Read	4 bytes	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type/DP type	7.012/electr. current (mA) 9.021/electr. current (mA, floating point) 14.019/electr. current (A, floating point)	
Function:	Shows the phase L2 charging current used by the electric vehicle with a 3-phase connection. **Note:** The value is not suitable for billing.			
Description:	Electr. current (mA)/(A)			

This group object depends on the model.

Table 47: Actual charging current L2

Object	Name	Direction	Data width	Flags (CRWTUI)
65, 115, 165, 215, 265	Actual charging current L3	Read	4 bytes	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type/DP type	7.012/electr. current (mA) 9.021/electr. current (mA, floating point) 14.019/electr. current (A, floating point)	
Function:	Shows the phase L3 charging current used by the electric vehicle with a 3-phase connection. **Note:** The value is not suitable for billing.			
Description:	Electr. current (mA)/(A)			

This group object depends on the model.

Table 48: Actual charging current L3

Object	Name	Direction	Data width	Flags (CRWTUI)
66, 116, 166, 216, 266	Actual power (sum)	Read	4 bytes	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type/DP type	9.024/power (kW, floating point) 14.056/power (W, floating point)	
Function:	Shows the currently applied power at the charging point. With a 3-phase connection, the values of the three phases are added together. **Note:** The value is not suitable for billing.			
Description:	Power (W)/(kW)			

This group object depends on the model.

Table 49: Actual power (sum)

Object	Name	Direction	Data width	Flags (CRWTUI)
67, 117, 167, 217, 267	Actual power L1	Read	4 bytes	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type/DP type	9.024/power (kW, floating point) 14.056/power (W, floating point)	
Function:	Shows the phase L1 power currently applied at the charging point with a 3-phase connection. **Note:** The value is not suitable for billing.			
Description:	Power (W)/(kW)			

This group object depends on the model.

Table 50: Actual power L1

Object	Name	Direction	Data width	Flags (CRWTUI)
68, 118, 168, 218, 268	Actual power L2	Read	4 bytes	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type/DP type	9.024/power (kW, floating point) 14.056/power (W, floating point)	
Function:	Shows the phase L2 power currently applied at the charging point with a 3-phase connection. **Note:** The value is not suitable for billing.			
Description:	Power (W)/(kW)			

This group object depends on the model.

Table 51: Actual power L2

Object	Name	Direction	Data width	Flags (CRWTUI)
69, 119, 169, 219, 269	Actual power L3	Read	4 bytes	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type/DP type	9.024/power (kW, floating point) 14.056/power (W, floating point)	
Function:	Shows the phase L3 power currently applied at the charging point with a 3-phase connection. **Note:** The value is not suitable for billing.			
Description:	Power (W)/(kW)			

This group object depends on the model.

Table 52: Actual power L3

Object	Name	Direction	Data width	Flags (CRWTUI)
74, 124, 174, 224, 274	Energy consumption last charge – state	Read	4 bytes	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type/DP type	13.010/active energy (Wh) 13.013/active energy (kWh)	
Function:	Shows the energy consumption of the current or last charge. **Note:** The value is not suitable for billing. Requires activation of the parameter „Energy consumption of last charging can be read out via object“.			
Description:	Active energy (Wh)/ (kWh)			

This group object depends on the model.

Table 53: Energy consumption last charge – state

Object	Name	Direction	Data width	Flags (CRWTUI)
75, 125, 175, 225, 275	Energy consumption total – state	Read	4 bytes	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type/DP type	13.010/active energy (Wh) 13.013/active energy (kWh)	
Function:	Shows the total energy consumed at the charging point. **Note:** The value is not suitable for billing. Requires activation of the parameter „Energy consumption can be read out via object“.			
Description:	Active energy (Wh)/ (kWh)			

This group object depends on the model.

Table 54: Energy consumption total – state

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
76, 126, 176, 226, 276	Charging process start time – state	Read	3 bytes	10.001	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Time of day		
Function:	Transmits the start of the charging process.				
Description:	Time of day				

This group object depends on the model.

Table 55: Charging process start time – state

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
77, 127, 177, 227, 277	Charging process end time – state	Read	3 bytes	10.001	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Time of day		
Function:	Transmits the end of the charging process.				
Description:	Time of day				

This group object depends on the model.

Table 56: Charging process end time – state

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
78, 128, 178, 228, 278	Charging process duration – state	Read	4 bytes	13.100	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Time difference (s)		
Function:	Transmits the duration of the charging process in seconds.				
Description:	Time difference (s)				

This group object depends on the model.

Table 57: Charging process duration – state

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
79, 129, 179, 229, 279	Communication ID (EVCCID)	Read	14 bytes	16.001	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Character (ISO 8859-1)		
Function:	Transmits the EVCCID of the charging control device in the electric vehicle, which is required for communication between the electric vehicle and the charging point in accordance with ISO 15118.				
Description:	Character (ISO 8859-1)				

This group object depends on the model.

Table 58: Communication ID (EVCCID)

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
80, 130, 180, 230, 280	Serial number	Read	14 bytes	16.001	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Character (ISO 8859-1)		
Function:	Transmits the serial number of the charging point.				
Description:	Character (ISO 8859-1)				

This group object depends on the model.

Table 59: Serial number

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
81, 131, 181, 231, 281	Firmware version	Read	14 bytes	16.001	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Character (ISO 8859-1)		
Function:	Transmits the firmware version of the charging point.				
Description:	Character (ISO 8859-1)				

This group object depends on the model.

Table 60: Firmware version

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
82, 132, 182, 232, 282	Internal temperature – state	Read	2 bytes	9.001	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Temperature (°C)		
Function:	Transmits the internal temperature of the charging point. The transmission depends on the setting of the “Send temperature values” parameter, see ETS context help (“Calling up the context help in the ETS” on page 42).				
Description:	Temperature (°C)				

This group object depends on the model.

Table 61: Internal temperature – state

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
83, 133, 183, 233, 283	Temperature warning	Read	1 bit	1.002	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Boolean		
Function:	Generates a warning when the charging point internal temperature increases. For this function, some charging points also require the setting of the “Value for temperature warning” parameter.				
Description:	1: True (warning present) 0: False (warning not present)				

This group object depends on the model.

Table 62: Temperature warning

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
84, 134, 184, 234, 284	RFID tag	Read	14 bytes	16.001	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Character (ISO 8859-1)		
Function:	Transmits the first 4 bytes of the RFID card serial number when enabled for charging.				
Description:	Character (ISO 8859-1)				

This group object depends on the model.

Table 63: RFID tag

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
85, 135, 185, 235, 285	Boost	Write	1 bit	1.002	C-W-U-
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Boolean		
Function:	Activates or deactivates the boost function to supply the charging point with the maximum available current.				
Description:	0: Disable 1: Enable				

Table 64: Boost

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
85, 135, 185, 235, 285	Boost – state	Read	1 bit	1.011	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	State		
Function:	Shows whether the boost function is active.				
Description:	0: Inactive 1: Active				

Table 65: Boost – state

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
87, 137, 187, 237, 287	Prioritised charging	Write	1 bit	1.001	C-W-U-
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Switch		
Function:	Activates/deactivates the prioritisation of the charging point. Requires activation of the parameter „Prioritisation adjustable via object“. Activation/deactivation overwrites the default value set at „Sequence/prioritisation“. The default value applies again when the ETS is programmed again.				
Description:	0: Off 1: On				

Table 66: Prioritised charging

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
88, 138, 188, 238, 288	Prioritised charging – state	Read	1 bit	1.011	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	State		
Function:	Shows whether the prioritisation of the charging point is active.				
Description:	0: Inactive 1: Active				

Table 67: Prioritised charging – state

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
89, 139, 189, 239, 289	Phase changeover	Write	1 bit	1.001	C-W-U-
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Switch		
Function:	Switches on the phase changeover of the charging point. This group object is available if „No load management“ has been selected.				
Description:	0: Off 1: On				
This group object depends on the model.					

Table 68: Phase changeover

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
90, 140, 190, 240, 290	Phase changeover – state	Read	1 bit	1.011	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	State		
Function:	Shows whether the phase changeover of the charging point is active.				
Description:	0: Inactive 1: Active				
This group object depends on the model.					

Table 69: Phase changeover – state

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
91, 141, 191, 241, 291	Phase changeover contactor	Read	1 bit	1.001	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Switch		
Function:	Sends the phase changeover command to an external contactor (via a switching actuator, if necessary).				
Description:	0: 1-phase 1: 3-phase				
This group object depends on the model.					

Table 70: Phase changeover contactor

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
94, 144, 194, 244, 294	Charging point fault	Read	1 bit	1.002	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Boolean		
Function:	Indicates whether a fault is present at the charging point.				
Description:	1: True (fault present) 0: False (no fault present)				

Table 71: Charging point fault

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
95, 145, 195, 245, 295	Last charging point fault	Read	14 bytes	16.001	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Character (ISO 8859-1)		
Function:	Shows information about the last or current fault.				
Description:	For details of the corresponding error code, see “Faults affecting the charging point” on page 86.				

Table 72: Last charging point fault

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
96, 146, 196, 246, 296	Charging point fault info 1	Read	14 bytes	16.001	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Character (ISO 8859-1)		
Function:	Shows the manufacturer’s error code as a readable hexadecimal value. If the error code has several parts, this group object will show the first part. The complete error code shows the internal state of the charging point. **Note:** Please note the error code descriptions in the manufacturer’s specifications.				
Description:	Character (ASCII) Character (ISO 8859-1)				

This group object depends on the model.

Table 73: Charging point fault info 1

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
97, 147, 197, 247, 297	Charging point fault info 2	Read	14 bytes	16.001	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Character (ISO 8859-1)		
Function:	Shows the second part of the manufacturer's error code as a readable hexadecimal value if the error code consists of several parts. The complete error code shows the internal state of the charging point. **Note:** Please note the error code descriptions in the manufacturer's specifications.				
Description:	Character (ASCII) Character (ISO 8859-1)				

This group object depends on the model.

Table 74: Charging point fault info 2

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
98, 148, 198, 248, 298	Charging point fault info 3	Read	14 bytes	16.001	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Character (ISO 8859-1)		
Function:	Shows the third part of the manufacturer's error code as a readable hexadecimal value if the error code consists of several parts. The complete error code shows the internal state of the charging point. **Note:** Please note the error code descriptions in the manufacturer's specifications.				
Description:	Character (ASCII) Character (ISO 8859-1)				

This group object depends on the model.

Table 75: Charging point fault info 3

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
99, 149, 199, 249, 299	Charging point fault info 4	Read	14 bytes	16.001	CR-T--
Rubric:	Charging point 1 | 2 | 3 | 4 | 5	Data type:	Character (ISO 8859-1)		
Function:	Shows the fourth part of the manufacturer's error code as a readable hexadecimal value if the error code consists of several parts. The complete error code shows the internal state of the charging point. **Note:** Please note the error code descriptions in the manufacturer's specifications.				
Description:	Character (ASCII) Character (ISO 8859-1)				

This group object depends on the model.

Table 76: Charging point fault info 4

10.4. Inverter 1| 2 | 3 | 4 | 5

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
300, 320, 340, 360, 380	Device state	Read	1 byte	Non DPT	CR-T--
Rubric:	Inverter 1 | 2 | 3 | 4 | 5	Data type:	-		
Function:	Displays the current inverter state. The current state is emitted by means of a specific value, see the following table. This value is displayed on the device website at the corresponding inverter.				
Description:	0 – 255				

Table 77: Device state inverter

Value	Charging point state	Description
0	Unknown	The inverter signals an unknown state. Contact Support if this state is constantly present.
1	Error	The inverter signals an error that can be displayed via the group object 319 ff „Last fault“.
2	Available – Does not feed	The inverter signals that it is available.
3	In operation – Feeds in	The inverter signals that it is in operation. PV electricity is fed in.

Table 78: Device state inverter – values

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
301, 321, 341, 361, 381	Power (total)	Read	4 bytes	14.056	CR-T--
Rubric:	Inverter 1 | 2 | 3 | 4 | 5	Data type:	Power (W, floating point)		
Function:	Shows the power currently being fed in by the inverter. With a 3-phase connection, the values of the three phases are added together.				
Description:	Power (W)				

Table 79: Power (total)

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
302, 322, 342, 362, 382	Energy (total)	Read	4 bytes	13.013	CR-T--
Rubric:	Inverter 1 | 2 | 3 | 4 | 5	Data type:	Active energy (kWh)		
Function:	Transmits the total solar yield of the inverter.				
Description:	Active energy (kWh)				

Table 80: Energy (total)

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
316, 336, 356, 376, 396	Serial number	Read	14 bytes	16.001	CR-T--
Rubric:	Inverter 1 | 2 | 3 | 4 | 5	Data type:	Character (ISO 8859-1)		
Function:	Transmits the serial number of the inverter.				
Description:	Character (ISO 8859-1)				

This group object depends on the model.

Table 81: Serial number inverter

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
317, 337, 357, 377, 397	Firmware version	Read	14 bytes	16.001	CR-T--
Rubric:	Inverter 1 | 2 | 3 | 4 | 5	Data type:	Character (ISO 8859-1)		
Function:	Transmits the firmware version of the inverter.				
Description:	Character (ISO 8859-1)				

Table 82: Firmware version inverter

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
318, 338, 358, 378, 398	Fault	Read	1 bit	1.002	CR-T--
Rubric:	Inverter 1 | 2 | 3 | 4 | 5	Data type:	Boolean		
Function:	Indicates whether a fault is present at the inverter.				
Description:	0: False (no fault present) 1: True (fault present)				

Table 83: Inverter fault

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
319, 339, 359, 379, 399	Last fault	Read	14 bytes	16.001	CR-T--
Rubric:	Inverter 1 | 2 | 3 | 4 | 5	Data type:	Character (ISO 8859-1)		
Function:	Shows information about the last or current fault.				
Description:	For details of the corresponding error code, see “Faults affecting the inverter” on page 89.				

Table 84: Inverter last fault

10.5. Power storage unit/battery inverter

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
400	Device state	Read	1 byte	Non DPT	CR-T--
Rubric:	Storage	Data type:	-		
Function:	Displays the current battery inverter state. The current state is emitted by means of a specific value, see the following table. This value is displayed on the device website at the corresponding power storage unit.				
Description:	0 – 255				

Table 85: Device state battery inverter

Value	Charging point state	Description
0	Unknown	The inverter signals an unknown state. Contact Support if this state is constantly present.
1	Error	The inverter signals an error that can be displayed via the group object 419 ff „Last fault“.
2	Available – Does not feed	The inverter signals that it is available.
3	In operation – Feeds in	The inverter signals that it is in operation. PV electricity is fed in.
4	In operation – Consumption	The inverter signals that it is in operation. Power is consumed from the power storage unit.

Table 86: Device state battery inverter – values

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
401	State of charge (SoC)	Read	1 byte	5.001	CR-T--
Rubric:	Storage	Data type:	Percent (0 to 100%)		
Function:	Shows the filling level of the power storage unit in percent.				
Description:	0...100 % (100 % = fully charged)				

Table 87: State of charge (SoC)

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
402	Power (total)	Read	4 bytes	14.056	CR-T--
Rubric:	Storage	Data type:	Power (W, floating point)		
Function:	Shows the power currently being fed in/consumed by the battery inverter. With a 3-phase connection, the values of the three phases are added together.				
Description:	0 – 255				

Table 88: Power (total)

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
416	Serial number	Read	14 bytes	16.001	CR-T--
Rubric:	Storage	Data type:	Character (ISO 8859-1)		
Function:	Transmits the serial number of the battery inverter.				
Description:	Character (ISO 8859-1)				

This group object depends on the model.

Table 89: Serial number

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
417	Firmware version	Read	14 bytes	16.001	CR-T--
Rubric:	Storage	Data type:	Character (ISO 8859-1)		
Function:	Transmits the firmware version of the battery inverter.				
Description:	Character (ISO 8859-1)				

Table 90: Firmware version

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
418	Fault	Read	1 bit	1.002	CR-T--
Rubric:	Storage	Data type:	Boolean		
Function:	Indicates whether a fault is present at the battery inverter.				
Description:	0: False (no fault present) 1: True (fault present)				

Table 91: Battery inverter fault

Object	Name	Direction	Data width	DP type	Flags (CRWTUI)
419	Last fault	Read	14 bytes	16.001	CR-T--
Rubric:	Storage	Data type:	Character (ISO 8859-1)		
Function:	Shows information about the last or current fault.				
Description:	For details of the corresponding error code, see “Faults affecting the inverter” on page 89.				

Table 92: Battery inverter last fault

11. Troubleshooting

The device LEDs give you information on operating state errors as well as faults after configuration:

► See “LEDs during device start-up” on page 30.
► See “LEDs in operation” on page 31.
► See ““RUN/DIAG” LED in case of a fault” on page 32.

11.1. Faults after configuration

In the event of a fault, the error codes are shown on the device website under “Status”.

- Faults that affect the device are shown in the “General” area.
- Faults that affect a charging point are shown in the corresponding “Charging point 1 | 2 | 3 | 4 | 5” area.
- Faults that affect an inverter are shown in the corresponding “Inverter 1 | 2 | 3 | 4 | 5” area.

The fault display shows the last or current fault. Each new error overwrites the information of the last error. If the fault display has the value “No fault”, no faults have occurred since commissioning.

Fault severity

- Faults with a severity level of 120 to 130 are serious faults that will prevent the use of the charging point. The “RUN/ DIAG” LED will signal the fault by flashing 5 times. To remedy the fault, a new configuration in the ETS is required.
- Faults with a severity level of 60 to 110 are temporary faults that only affect the function of the corresponding component or charging point. The “RUN/ DIAG” LED will signal the fault by flashing 3 times.
- Faults with severity level 5 to 50 are automatically reset when next called and do not emit any visual signals via the “RUN/DIAG” LED.

Note

Faults with a lower severity level cannot overwrite faults with a higher severity level. This means that if the “SmartMeterTOut” fault (level 90) occurs when the “Conf Charger” fault (level 120) is already present, the fault state will remain unchanged.
The same applies for the LED flashing code: If several faults with different severity levels are present, the LED flashing code will always appear for the current fault with the highest severity level.

General faults

The current fault is shown by group object 9 “Last fault” and the device website, ► See “Accessing the device website” on page 25.

Error code	Severity level	Description	Possible cause / correction
ContactSupport	130	A serious error is present.	Generate the log files and contact Support.
Conf NoCharger	120	No charging point has been configured because the configuration of all charging points is not complete.	Make sure that the details regarding manufacturer, model or IP address or Modbus client address are complete.
Conf Charger	120	At least one charging point has not been configured properly. The charging point whose configuration triggers the fault is marked as faulty, but is not necessarily the cause. The cause may be a previously configured charging point.	Check the following charging point settings: • Modbus TCP: an IP address is being used several times. • Modbus RTU/ASCII: an invalid combination of RTU and ASCII protocols is present. • Prioritised charging point is disabled, i.e. IP address is 0.0.0.0. Or Modbus client address is 0. • Details of manufacturer and model are missing for the prioritised charging point.
Conf Inverter	120	At least one inverter has not been configured properly. The inverter whose configuration triggers the fault is marked as faulty, but is not necessarily the cause. The cause may be in a previously configured inverter.	Check the following ETS settings of the inverters: • whether an IP address is being used several times. • whether an inverter has been deactivated, i.e. IP address is 0.0.0.0. • whether the manufacturer and model details match the respective device.
Conf EMeter	120	At least one charging point electricity meter has not been configured properly. The electricity meter whose configuration triggers the fault is marked as faulty, but is not necessarily the cause. The cause may be in a previously configured electricity meter.	Check the following electricity meter settings at the charging point: • Modbus TCP: an IP address is being used several times. • Modbus RTU/ASCII: A Modbus client address is being used several times.
DLMAssociation	120	Not all group objects required for the DLM are linked.	Check whether all group objects required for the DLM are linked with the group addresses.

Error code	Severity level	Description	Possible cause / correction
DLM MaxCurrent	120	The maximum permissible current value is too low for the currently configured charging points.	Check the overcurrent protection device/maximum charging current overall and load reserve readings or reduce the number of charging points.
SmartMeterTOut	90	The smart meter has not transmitted the values within the specified interval. The DLM goes into emergency mode. This means that the DLM regulates distribution down to the minimum charging current per charging point.	If there is constant alternation between brief fault display and transmission, check that the transmission interval defined in the ETS is the same as that of the smart meter. If the fault is permanent, the group address may be incorrectly configured or the smart meter may be defective.
SmartM ValMiss	85	Measured phase values have not yet been received from the smart meter in the power path for all required phases.	Check the configuration of the smart meter and the connection of the corresponding group objects in the ETS.
OverCurrent	80	An overcurrent is present. The DLM interrupts the charging processes at all charging points.	The sum of the minimum charging currents for the active charging points causes an overcurrent. Check the installation and configuration.
ImbalCurrent	79	There is an unbalanced load. Charging processes at all charging points are interrupted.	Check whether a connected consumer is generating too high a current load. If necessary, the distribution of the current load to the phases must be changed.
DLM InvCurrent	70	At least one charging point is supplying invalid current values. The DLM cannot take the affected charging points into account. Charging is not possible at the charging point.	The meter inside a charging point is defective or unavailable. Refer to the manufacturer documentation for help or contact the charging point manufacturer.
No Error (No fault)	-	The device is functioning normally (normal operation), no fault since device start-up.	-

Table 93: Error codes general

Faults affecting the charging point

The current fault is shown by group object 95 | 145 | 195 | 245 | 295 “Last charging point fault” as well as the device website, ►See “Accessing the device website” on page 25.

Error code	Severity level	Description	Possible cause / correction
Conf Charger	120	The configuration of a current or previously configured charging point is incorrect.	Check the settings for the current charging point as well as the previously configured charging points: • Modbus TCP: an IP address is being used several times. • Modbus RTU/ASCII: an invalid combination of RTU and ASCII protocols is present. • Prioritised charging point is disabled, i.e. IP address is 0.0.0.0 or Modbus client address is 0. • Details of manufacturer and model are missing for the prioritised charging point.
Conf EMeter	120	The configuration of a current or previously configured charging point electricity meter is incorrect.	Check the settings for the current electricity meter as well as the previously configured electricity meter: • Modbus TCP: an IP address is being used several times. • Modbus RTU/ASCII: A Modbus client address is being used several times.
CloudError	81	Connection to the cloud not possible.	Check whether • the login data has been entered correctly. • the serial number has been entered correctly. • a connection (uplink) to the cloud is active. • there is an error at the cloud operator.
NotReachable	80	The charging point cannot be reached.	Modbus TCP: Make sure that the IP address is correct and check the network connection between the gateway and charging point with regard to e.g. cable connection and firewall. Modbus RTU/ASCII: Make sure that the Modbus client address is correct and check the Modbus cabling.

Error code	Severity level	Description	Possible cause / correction
WrongCharger	70	The configured charging point does not coincide with the connected charging point.	Check the manufacturer and model details.
Comm	60	Communication to the charging point failed despite an existing connection. This means that the charging point gives erroneous answers to a query.	Check that the charging point firmware is compatible. A firmware update may have caused incompatibility. If the fault continues, generate the log files and contact Support.
ChargerError	50	The charging point signals a fault regarding the internal state described by the group objects "Charging point fault info 1 | 2 | 3 | 4" (96 | 97 | 98 | 99 + offset). The error code displayed is provided by the manufacturer and is only passed on by the group objects.	Refer to the manufacturer documentation for help or contact the charging point manufacturer.
OpNotPossible	40	The current status at the charging point is preventing the action: A manual start or stop cannot be activated using the "Start/stop charging process" function. The fault is for information only and is immediately automatically reset.	The charging point is configured for an automatic start function. Check the configuration. The charging process has already been started using the "Start/stop charging process" function. However, a manual start has been activated using this function again. If the action has already been started, it cannot be activated again. No remedial action required.
ValOutOfRange	40	The set value is outside of the permitted range. The fault is for information only and is immediately automatically reset.	Check your set value – it is outside of the permitted range.
EMeterNotReach	30	The electricity meter at the charging point cannot be reached.	Modbus TCP: Make sure that the IP address is correct and check the network connection between the gateway and smart meter with regard to the cable connection and firewall. Modbus RTU/ASCII: Make sure that the Modbus client address is correct and check the Modbus cabling. Make sure that the electricity meter is using the connection parameters stored in the ETS.

Error code	Severity level	Description	Possible cause / correction
EMeter Comm	20	Communication to the electricity meter at the charging point failed despite an existing connection. This means that the electricity meter gives erroneous answers to a query.	Check the ETS settings on the electricity meter. If the fault continues, generate the log files and contact Support.
EMeter Error	10	The electricity meter at the charging point shows a fault in the internal state.	Refer to the manufacturer documentation for help or contact the electricity meter manufacturer. Check the ETS settings.
DLM InvCurrent	5	The charging point is supplying an invalid current value. The DLM cannot take the affected charging point into account. Charging is not possible at the charging point.	The meter inside a charging point is defective or unavailable. Refer to the manufacturer documentation for help or contact the charging point manufacturer.
No Error (No fault)	-	The charging point and any installed electricity meter are in working order (normal operation), no fault since device start-up.	-

Table 94: Charging point error codes

Faults affecting the inverter

The currently present fault is shown by the group object 319 | 339 | 359 | 379 | 399 „Last fault“ for the solar inverter and/or the group object 419 „Last fault“ for the battery inverter as well as the device website, ►See “Accessing the device website” on page 25.

Error code	Severity level	Description	Possible cause / correction
Conf Inverter	120	Error in the configuration of the inverter in the ETS parameters.	Check the following ETS settings of the inverters: • whether an IP address is being used several times. • whether an inverter has been deactivated, i.e. IP address is 0.0.0.0. • whether the manufacturer and model details match the respective device.
NotReachable	80	Inverter cannot be contacted.	Check whether the IP address, port and Modbus unit ID of the inverter are correct. Check the network connection between the gateway and inverter with regard to the cable connection and firewall. Make sure that the inverter is using the connection parameters stored in the ETS.
WrongInverter	70	An incorrect inverter was found.	Check whether the installed inverter matches the manufacturer and model details in the ETS parameters.
Comm	60	Communication error with inverter (e.g. a register is not working).	Check that the inverter firmware is compatible. A firmware update may have caused incompatibility. If the fault continues, generate the log files and contact Support.
InverterError	50	The inverter signals an error, e.g. via events.	Check the web interface of the inverter for possible faults. Refer to the manufacturer documentation for help or contact the charging point manufacturer.
No Error (No fault)	-	The charging point and any installed electricity meter are in working order (normal operation), no fault since device start-up.	-

Table 95: Error code inverter

11.2. Generating log files

Support uses log files to obtain information to help analyse your problem. You generate these log files via the device website and download them as a ZIP file.

You configure the scope of the information contained in the log files using the logging mode. Our Support may ask you to configure the logging mode.

1. Open the device website at ► See “Accessing the device website” on page 25.
2. On the “Settings” page in the “General” area, select the corresponding button under “Logging mode”.
   - “Simple” = Basic information is collected.
   - “Extended” = Detailed information is collected.

Note

“Extended” logging mode has a negative influence on performance. Only activate this mode if Support requests the extended log files.
Deactivate this mode again as soon as you have generated the log files.

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3. Click on the“Download log file” button. The log files are compiled and downloaded as a ZIP file.

11.3. FAQs - Frequently asked questions

How do I find the IP address of my Gira Eco?

Detailed information on IP address ► See “IP settings” on page 35.

Why is my Gira Eco not generating a response at the charging point?

There can be several reasons for this. Start by checking the operating state of the device,
► See “Reading device status using the LEDs” on page 28.

A fault may have occurred after configuration. The device website gives you an error code and the “RUN/DIAG” LED emits an optical warning signal.

- ► See “Accessing the device website” on page 25.
- ► See ““RUN/DIAG” LED in case of a fault” on page 32.
- ► See “Faults after configuration” on page 83.

Does a microSD card have to be inserted in the Gira Eco?

No, the microSD card slot is not in use.

Why does the ETS report an error during application program download?

- You might be using an older ETS version. The application accesses ETS functions that are not supported by older ETS versions. Make sure that your ETS version is up to date. The Gira Eco is configured via the ETS from v5.7.5. Older versions of the ETS cannot be used for configuration.
- The product database entry you are using in the ETS might be incompatible with the device firmware. Check the compatibility between the product database entry and firmware version ► See “Compatibility between product database entry and firmware version” on page 40.

Why is the “Conf NoCharger” error displayed during installation?

Check the ETS version. You need an ETS version from v5.7.5.
Alternative error sources and their remedies ► See “General faults” on page 84.

Can I integrate charging points both with IP connection and RS485 connection (Modbus) via a Gira Eco?

Yes, you can simultaneously integrate charging points with both connection types via the Gira Eco
► See “Mixed operation” on page 9.

Can I install different charging point models with an RS485 connection (Modbus)?

No, you can only integrate one model type with an RS485 connection (Modbus) via the Gira Eco. You can install up to five charging points of this model type ► See “Mixed operation” on page 9.

Why is my electric vehicle taking an usually long time to charge?

The reasons for this may be to do with the configuration. Check whether

- another charging point is prioritised and an electric vehicle is currently being charged there. If so, it is likely that only the minimum charging current is available for your electric vehicle.
- the minimum and maximum charging currents have been configured for the electric vehicle.
- the dynamic load management values, e.g. overcurrent protection device and load reserve are configured in accordance with on-site conditions.
- grid-supporting control is active.

Why does the charging point not show the group object I am looking for?

Function support depends on the model. As soon as you have assigned the manufacturer and model to the charging point during configuration, the corresponding group objects will be shown. Some group objects depend on the corresponding parameter setting.

► See “Group objects” on page 53.

Where is the context help?

From version 5.6, the ETS offers a context help function, which provides detailed information about parameters and appears directly in the parameter dialogue. To enable the context help, open the parameter dialogue and click on the “Context help” button on the toolbar. To show the context help of a parameter, click on the desired parameter (“Calling up the context help in the ETS” on page 42).

Can I control more than five charging points?

You can connect up to five charging points with the firmware version v1.4 of Gira Eco. A system integrator can cascade several Gira Eco in a system via a Gira X1 or Gira L1.

12. Disassembly and Disposal

If you want to disassemble the device due to a defect, for example, proceed in reverse order to installation.

Removing the cover cap

Safety note:

Incorrect use can result in damage to the device, fire or other dangers.

- Only qualified electricians may install and disassemble electrical devices.
- Follow the instructions in this product documentation.

Danger

You are at risk of electric shock if you touch live parts in the installation environment.
Electric shock can cause death.

- Enable the device.
- Cover up live parts in the vicinity.

1. Gently press in the cover cap at the side (figure 27, pos. 1).
2. Pull off the cover cap upwards (figure 27, pos. 2).

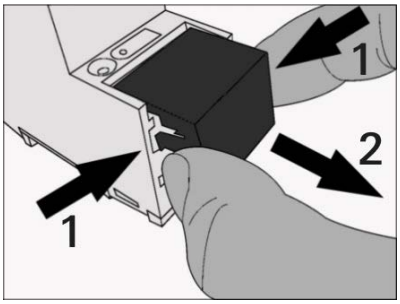

Figure 27: Removing the cover cap

Detaching the device from the top-hat rail

Requirement: Power supply, bus line and network connection are disconnected.

1. Insert a screwdriver (figure 28, pos. 1) into the release lever (figure 28, pos. 2) and push the release lever down (figure 28, pos. 3).
2. Take the device off the top-hat rail.

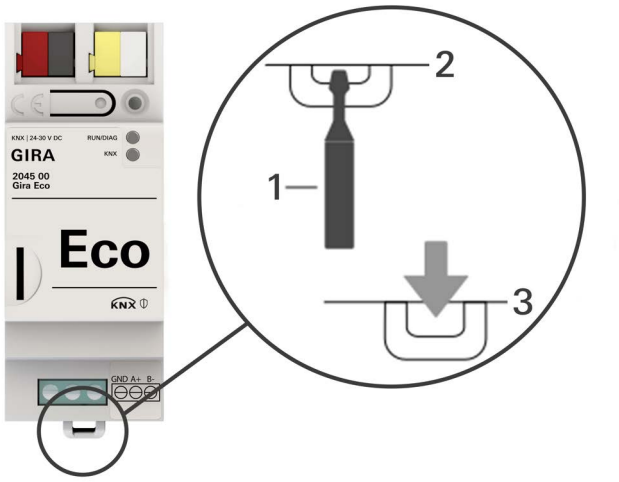

Figure 28: Detaching the device from the top-hat rail

Disposal

Make an active contribution to protecting the environment by disposing of all materials in an environmentally-responsible way.

Packaging and box

Dispose of the packaging material appropriately, in a card, paper or plastic recycling bins.

Device

Old devices must not be disposed of with domestic refuse!

You can dispose of your old device free of charge at designated collection facilities or, if necessary, you can hand it in to your specialist dealer. Contact your local authority for recycling details.

13. Glossary

Catalogue

Short for "Online KNX Product Catalogue". The catalogue is a product database. The catalogue contains all KNX-certified devices. The device data is saved as a product database entry.

Charging point

A charging point is an interface that can be used to charge one electric car at a time. The number of charging points shows how many vehicles can be charged at the same time. A charging point can be equipped with various socket types (pin jack, cable).

Charging point state

The charging point state shows the function that the charging point is currently executing, e.g. charging, pause, fault.

Charging station

A charging station is a location where electric vehicles can be charged. For instance, a charging station can be a vertically installed charging post or a wall-mounted wallbox. A charging station can provide one or more charging points and thus determine the number of electric vehicles that can be charged at the same time.

Device website

Applications used to check device status, update loading and the display of device information.

DP type, data point type

The data point type is the standard coding for data transmitted via group telegrams.

Electricity meter (at the charging point)

The electricity meter is used for measuring consumption values (current, power and energy) at charging points that are not fitted with an integrated meter by the manufacturer.

Electric vehicle

Electric vehicle is generally used to refer to a vehicle powered by an electric motor, such as a car, bus, motorbike, bicycle, etc. In this documentation, electric vehicle only refers to a car.

ETS (Engineering Tool Software)

The device is configured in the ETS software. The ETS is available with various ranges of functions from the KNX Association (www.knx.org).

FDSK (Factory Default Setup Key)

The FDSK is used for secure communication between category "KNX IP Secure Device" devices. The combination of FDSK and serial number enables each device to be unambiguously identified. Together, they form the KNX Device Certificate.

Depending on the use case, the FDSK is required for initial authentication in the ETS or for the encryption of communication.

The required KNX Device Certificate can be found on a sticker on the side of the device and is also enclosed with the device.

Firmware update tool

Software which is embedded on the device hardware and enables operation of the device. Function enhancements for the device are available via a new firmware version.

Flags (CRWTUI)

Every group object has flags with which the group object obtains methods: C=Communication, R=Read, W=Write, T=Transfer, U=Update, I=Initialise.

High power-consuming devices

A high power-consuming device is one of the highest power consumers in the building.

Modbus RTU/ASCII

Modbus TRU and Modbus ASCII are used in serial communication (RS485). Modbus RTU transmits data in binary form. Modbus ASCII transmits ASCII code and not binary sequences.

Modbus TCP

The Modbus TCP is very similar to RTU, except that TCP/IP packages are used to transmit data. TCP port 502 is reserved for Modbus/TCP.

Offset

The numerical assignment of functionally identical group objects that are used more than once in a project is carried out with the help of a defined offset. The offset is a constant value which, when added or subtracted, represents the offset between the group objects.

Offset 50 example:

Group object 100 (component 1) + offset 50 = group object 150 (component 2)

Group object 150 (component 2) + offset 50 = group object 200 (component 3)

Product database entry (also catalogue entry)

Data relating to a device in the "Online KNX Product Catalogue" of the ETS. The product database entry contains all data to allow the device to be configured in the ETS. The product database entry is provided in the form of a file by the device manufacturer. The latest version of product database entries from Gira Giersiepen GmbH & Co. KG can be downloaded free of charge from our website www.gira.de.

The product database entry is often also called the "catalogue entry".

Smart meter

A smart meter is an intelligent measuring system that consists of a digital electricity meter and a communication unit (smart meter gateway). The smart meter can process and automatically transmit measured values.

Updates

You will find information on new versions of the firmware in this documentation under the search term "Update".

Website

Information on the device's application can be found in this documentation under the search term "Device website".

14. Gira Eco Licensing Agreement

The terms and conditions for use of the software by you as the "Licensee" are set out below.
By accepting this Agreement and installing the Gira Eco software or putting the Gira Eco into operation, you are entering into an agreement with Gira Giersiepen GmbH & Co. KG and agree to be bound by the provisions of that agreement.

14.1. Definitions

Licensor: Gira, Giersiepen GmbH & Co. KG, Radevormwald, Germany

Licensee: The intended recipient of the Gira Eco software.

Firmware: Software that is integrated into the Gira Eco hardware and is used to operate.

Gira Eco: The Gira Eco software refers to all the software, including the operating data, which is provided for the Gira Eco product. In particular, this includes the firmware and the product database.

14.2. Subject of the Agreement

The subject of this Agreement is the Gira Eco software provided on data carriers or via download as well as the associated documentation in written or electronic form.

14.3. Rights to use the software

The Licensor grants the Licensee the non-exclusive, perpetual, non-transferable and non-sublicensable right to use the Gira Eco software in accordance with the following terms and conditions, for the purposes and areas of application specified in the valid version of the documentation (which is made available in printed form or else as online help or online documentation).
The Licensee undertakes to ensure that anyone using the program does so only under this Licensing Agreement and complies with this Licensing Agreement.
All rights that are not expressly granted to the Licensee under this Agreement shall remain expressly with the Licensor.

14.4. Limitation of the rights of use

14.4.1. Copying, processing or transfer

The Licensee is not entitled to use, copy, process or transfer the Gira Eco software, in full or in part, in any way other than as described herein.
An exception to this is one (1) copy made by the Licensee exclusively for archiving and backup purposes.

14.4.2. Reverse engineering or conversion technologies

The Licensee is not entitled to apply reverse engineering technologies to the Gira Eco software or to convert the Gira Eco software into
another form, where such use is not permitted by way of exception on the basis of statutory limiting provisions. Such technologies include, in particular, disassembly (conversion of binary-coded machine commands from an executable program into an assembler language that can be read by humans) or decompilation (conversion of binary-coded machine commands or assembler commands into source code in the form of high-level language commands).

14.4.3. Firmware and hardware

The firmware may only be installed and used on the hardware approved by the Licensor (Gira Eco).

14.4.4. Transfer to third parties

The Gira Eco software may not be transferred to third parties or made accessible to third parties. The Licensee may only pass on the Gira IP device software and all licence keys required to use the software to third parties, with the exception of correspondingly marked software, if and in so far as (i) the Licensee has removed the Gira IP device software and any backup copies, as well as the licence keys required to use the Gira IP device software, from its system by deleting or uninstalling it and (ii) the third party undertakes to comply with these licensing conditions vis-à-vis the Licensor before such use or transfer. The Licensee shall expressly inform the third party of these terms of use before transferring the Gira IP device. In the event of transfer to a third party, the Licensee's right to personal use shall lapse.

14.4.5. Hiring out, leasing or sublicensing

The Licensee is not entitled to hire out or lease the Gira Eco Software or to issue sublicences to the program.

14.4.6. Software production

The Licensee requires written approval from the Licensor to create and distribute software derived from the Gira Eco software.

14.4.7. The mechanisms of licence management and copy protection

The licence management and copy protection mechanisms for the Gira Eco software must not be analysed, published, circumvented or disabled.

14.5. Further development of software

The Licensor is entitled to collect and process information relating to the parameterisation of Gira Eco, provided that this information is collected in a form that does not allow the personal identification of the Licensee. The information is intended solely for the targeted further development of Gira Eco and the associated provision of software updates and product support.

14.6. Ownership and confidentiality

14.6.1. Documentation

The Gira Eco software and documentation (provided in printed form or else as online help or online documentation) are trade secrets of the Licensor and/or subject to copyright and/or other rights and shall continue to belong to the Licensor. The Licensee shall observe these rights.

14.6.2. Transfer to third parties

Neither the software, the data backup copy, nor the documentation (provided in printed form or else as online help or online documentation) may be passed on to third parties at any time - in whole or in part, for a fee or free of charge.

14.7. Changes and subsequent deliveries

14.7.1. Change to the subject of the Licence

The Licensor reserves the right to expand, improve or otherwise modify the subject of the Licence, including documentation, at any time without notice or to have the aforementioned actions performed by third parties, if and in so far as the modifications do not result in a reduction or change in content of the scope of services that the Licensor is obliged to provide to the Licensee. This Licensing Agreement shall continue to apply accordingly to the further developed software.

14.7.2. Change to the Licensing Conditions

In the course of the continual development of our products and services, we occasionally incorporate additional functions and features. As a result of this, or any technical or legal changes, it may be necessary to adapt these Licensing Conditions to reflect these changes. For this reason and where there is just cause, the Licensor is entitled to modify and adapt these Licensing Conditions at any time with future effect. Just cause exists in the following cases:

- for the implementation of amended statutory requirements or case law,
- for the implementation of amended technical requirements, such as a new technical environment or other operational reasons,
- for adaptation to changing market conditions, such as increased number of licensees,
- if the amendments and modifications are made for the benefit of the Licensee, e.g. to improve Licensee experience or security.

If the Licensor makes use of its right to make amendments, it shall notify the Licensee of this in written form at least and notify them of the amendments.

The Licensee has a right to object to the amendment. If the Licensee does not object within 8 weeks from receipt of the notification of the amendment to these Licensing Conditions, the amended Licensing Conditions shall be deemed to have been accepted and shall apply in the further course of the Agreement. In the notification of the amendment to these Licensing Conditions, the Licensor shall once again expressly inform the Licensee separately of its right to object, the objection period and the consequences if no objection is raised.

In the event of an objection by the Licensee to the amended Licensing Conditions within the time limit, the Licensor shall be entitled to terminate the contractual relationship pursuant to Clause 9 para. 2, while safeguarding the legitimate interests of the Licensee.

14.8. Warranty

The Gira Eco software is supplied together with the third-party software.

The Licensor does not assume any warranty of its own for the TPIP contained in the Gira IP device software, as listed in Clause 1. This does not affect the warranty for the GIRA IP device software as a whole or the functioning of third-party software within the Gira IP device software. For more information, ► see “Open-source software” on page 101.

14.8.1. Software and documentation

The currently valid version of the Gira Eco software and documentation (provided in printed form or else as online help or online documentation) will be made available to the Licensee. The warranty period for the Gira Eco software is 24 months. During this time, the Licensor warrants as follows:

- The software is free of material and manufacturing defects at the time of handover.
- The software works in accordance with the enclosed documentation in the currently valid version.
- The software can run on the computer workstations specified by the Licensor.

The warranty obligation shall be discharged through the delivery of a replacement.

14.8.2. Limitation of warranty

Otherwise, no warranty is given that the Gira Eco software and its data structures are free from defects. The warranty does not extend to defects that are attributable to improper use or other causes outside of the Licensor's control either. Further warranty claims are excluded.

14.9. Liability

The Licensor's liability, regardless of the legal grounds, is excluded for slight negligence. This exclusion of liability does not apply to claims for damages that are based on a breach of essential contractual obligations by the infringing party; essential contractual obligations are those obligations that enable the proper fulfilment of the Agreement in the first place and on the fulfilment of which the contractual partner may regularly rely. Furthermore, the exclusion of liability does not apply to losses or damage due to personal injury, loss of life or damage to health, nor does it apply to guarantees assumed by the Licensor (liability under a guarantee). Nor does the exclusion of liability affect claims by the Licensee that are based on the statutory provisions on product liability.

In cases of slightly negligent breach of essential contractual obligations and in cases of gross negligence by ordinary vicarious agents, the claim for damages is limited to the compensation for the typical damage that is foreseeable at the time of conclusion of the Agreement and the amount is limited to the product purchase price.

In so far as the Licensor's liability is excluded or limited, this shall also apply to the personal liability of the Licensor's employees, workers, personnel, representatives and vicarious agents.

14.10. Applicable law

(1) This Agreement shall be governed by German law, to the express exclusion of the conflict of laws provisions. The application of the Uniform Law on the International Sale of Goods and the Uniform Law on the Formation of Contracts for the International Sale of Goods - both dated 17 July 1973 - and the United Nations Convention on Contracts for the International Sale of Goods (CISG) dated 11 April 1980 is excluded. If the user is a consumer within the meaning of Section 13 BGB, mandatory statutory consumer protection provisions under the law of the state in which the consumer has their habitual residence shall remain unaffected.

(2) The place of jurisdiction for all claims arising from and in connection with this Agreement shall be the court having local jurisdiction for the contracting authority's registered office. This does not apply if the Licensee is not a merchant, a legal entity under public law or a special fund under public law or if it has no general place of jurisdiction within the Federal Republic of Germany. In addition, each party shall be entitled to bring an action against the other at its place of residence or business. The right of the parties to bring proceedings before the competent courts in urgent cases remains unaffected.

14.11. Termination

This Agreement and the rights granted therein shall end if the Licensee fails to comply with one or more provisions of this Agreement or terminates this Agreement at least in written form. The transferred Gira Eco software and documentation (provided in printed form or else as online help or online documentation) including all copies must be returned in full, immediately and without request in this case. In this case, a claim for reimbursement of the price paid is excluded.

Upon termination of the Agreement, the licence to use the Gira Eco software shall expire. In this case, the Gira Eco product must be taken out of operation. Continued use of the Gira Eco without a licence is excluded.

The start-up software and visualisation software must be uninstalled and all copies must be destroyed or returned to the Licensor.

14.12. Subsidiary agreements and amendments to the Agreement

Subsidiary agreements and amendments to the Agreement must be made in writing in order to be valid. This also applies to any amendment of this clause.

This Licensing Agreement is executed in German and English. The English version is for information purposes only. In the event of ambiguities or disputes arising from the Agreement, the German version shall be considered binding.

15. Open-source software

The Gira Eco device software also contains third-party software components (TPIP). An overview of the TPIP included is listed on the device website for this product and can be accessed in the status bar.

The Licensee is entitled to use the TPIP in accordance with the relevant licensing conditions of the respective TPIP. The licensing conditions of the respective TPIP take precedence over these licensing conditions with regard to the use of the TPIP.

If the licensing conditions of TPIP require the provision of TPIP source code, the Licensor shall submit to the Licensee and to any third party, upon request and within 36 months of the conclusion of the Agreement, an offer to deliver the corresponding TPIP source code on payment of the shipping costs after invoicing by the Licensor.