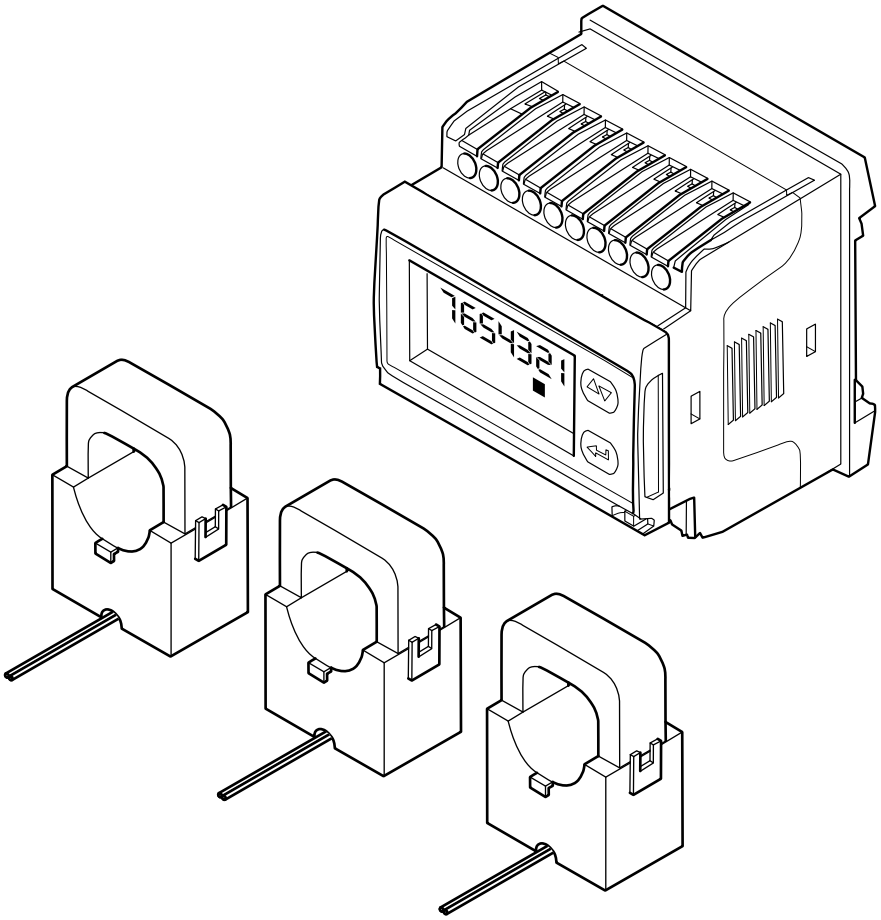
ABL



METERS
METERL

EN

Installation and Configuration Guide

Article No.: 0301676_EN_b

Contact

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Contents

Additional technical information

Additional technical information is required to install the controller/extender charging stations and the control unit from ABL, as well as to set up a group installation. It is contained in separate documents.

In addition, the technical data for the METERS | METERL load management systems and the compatible products are collated in product-specific data sheets. You can download these documents from the ABL website using the following link:

https://www.ablmobility.de/en/service/downloads.php

NOTE

Displaying the additional information on a computer, tablet or smartphone

Additional technical information is made available in the Portable Document Format (PDF).

- To display PDF files, you need the free Adobe Acrobat Reader or comparable software.

You can find further information about our product range, as well as about separately available accessory components on our website at **www.ablmobility.de**. Please visit:

https://www.ablmobility.de

Intended use

METERS | METERL is an external load management system for a single controller charging station or a group installation controlled via an eMH2 or eMH3 controller wallbox, an eMC2 or eMC3 controller charging pole or via the 1V0001/1V0002 external control unit. METERS | METERL allows dynamically controlled, efficient distribution of the available charging current to up to 16 charge points by measuring the energy flow via the three cable type current transformers supplied and feeding the values back to the controller. METERS measures currents up to 300 A, METERL up to 600 A, ensuring that electric vehicles can charge at the maximum available charging current.

Information in this document

This document describes how to install the three cable type current transformers and the energy meter as well as how to subsequently configure them on the energy meter and via the ABL User Interface software. It is recommended that all working steps described in this document are carried out by qualified specialist electrical contractors only.

	User	Specialist electrical contractor
Installation and Configuration Guide (this document)	✗	✓
Additional technical information		
■ Data sheets	✓	✓
■ Installation instructions for charging stations (eMH2/eMH3/eMC2/eMC3) and control unit (1V0001/1V0002)	✗	✓

Important information

General

This manual describes all working steps required to install and/or operate the product it concerns.

Certain sections of this manual are specially formatted for quick and easy reference.

- Descriptions listing equally valid options are indicated by bullet points.

1 Descriptions listing operating steps are numbered in chronological order.

DANGER!

Indicates life-threatening electrical voltages

Sections marked with this symbol indicate electrical voltages that present a danger of loss of life or grievous bodily injury.

- Actions marked with this symbol must not be carried out under any circumstances.

WARNING!

Indicates important actions and further hazards

Sections marked with this symbol indicate further hazards that may result in damage to the product or to other connected components.

- Actions marked with this symbol must be carried out with special care.

NOTE

Indicates important information for operation or installation

Sections marked with this symbol indicate further important information and features necessary for successful operation.

- Actions marked with this symbol should be carried out as required.
- Passages marked with this symbol contain valuable additional information.

Safety instructions

The safety notices serve to ensure the proper and safe installation, as well as subsequent safe operation of the device.

DANGER!

Violation of the safety information

Disregard of or actions contrary to the safety information and instructions contained in this manual may lead to electric shock, fire, severe injury and/or death.

Please pay attention to the following points:

- Please read this manual carefully.
- Heed all warnings and follow all instructions.
- Only use components intended and sold for the product by ABL.
- Do not install this device in close vicinity to running water, water jets or areas subject to flooding.
- The product must not be installed in explosive atmosphere areas (EX areas).
- Mechanical installation should be carried out by qualified specialist personnel.

- Electrical installation and testing must be carried out with reference to local rules by a qualified specialist electrical contractor, who, on the basis of their specialist training and experience, as well as their knowledge of the relevant standards, is able to assess and carry out the working steps described in this manual and recognise potential hazards.
- In case of installation faults, or malfunctions that can be traced back to faulty installation, always contact the contractor who carried out the installation first.
- The product must not be covered with other objects or materials.
- No liquids or receptacles containing liquids must be placed on the product.
- Do not under any circumstances make alterations to the product. Any disregard of this instruction represents a safety risk, fundamentally breaches the guarantee provisions and may void the warranty with immediate effect.
- Malfunctions affecting the safety of persons, connected electric devices or the device itself must be resolved by a qualified specialist electrical contractor.
- Should one of the following malfunctions occur, please contact the specialist electrical contractor who has carried out the installation of your charging station and accessories:
  - The product housing has been damaged mechanically, or the housing cover has been removed or can no longer be closed.
  - Sufficient protection against splashing water and/or foreign objects is no longer provided.
  - The product does not function properly or has been otherwise damaged.

WARNING!

Observation of further safety instructions

Please always observe all further safety instructions in the manuals for the optionally available charging stations and control units.

User information

- Ensure that rated voltage and rated current of the supply cable at the installation location comply with the parameters of your local electricity grid and that the rated output of the product and the connected charging stations is not exceeded during operation.
- Local safety regulations regarding the operation of electrical devices for the country in which you operate the product and the connected charging stations always apply.
- No user-maintainable parts are located inside the device.
- Only have the product repaired by a qualified specialist electrical company.

NOTE

Changes to functions and design features

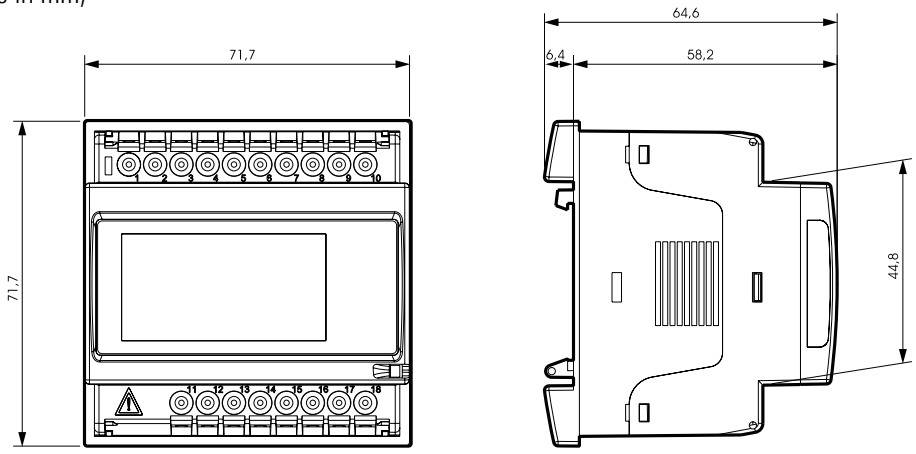
Please note that all technical details, specifications and design characteristics of the product may be changed without prior notice.

Dimensional drawings and dimensions

The following dimensional drawings show the dimensions of all components of the METERS and METERL load management systems.

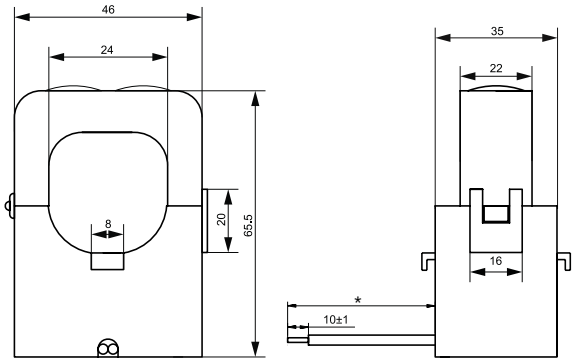
Energy meter EM210

Energy meter (included in METERS and METERL), front and side view
(all dimensions in mm)



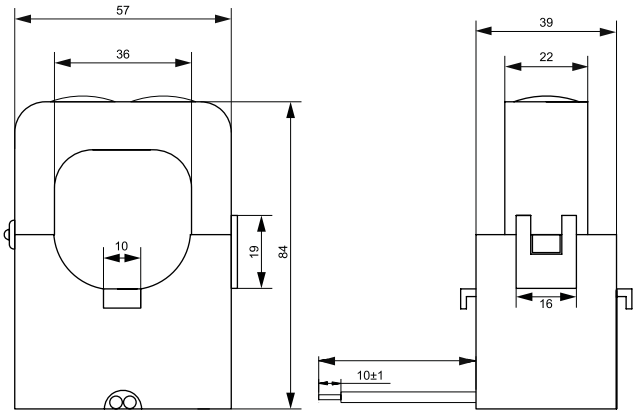
Cable type current transformers up to 300 A

Current transformer for attachment to a single power line (included in METERS), front and side view.
(all dimensions in mm)



Cable type current transformers up to 600 A

Current transformer for attachment to a single power line (included in METERL), front and side view.
(all dimensions in mm)



Introduction to the METERS and METERL load management systems

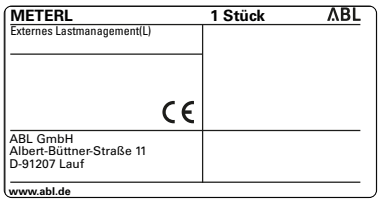
Thank you very much for choosing a METERS/METERL dynamic load management system from ABL!

The METERS | METERL load management systems combine an external energy meter with three cable type current transformers for measuring the three-phase total current (charging stations and domestic consumption) or section current (domestic consumption only). The energy meter communicates with the controller charging station (eMH2 | eMH3 | eMC2 | eMC3) or control unit (1V0001 | 1V0002) in a group or individual installation and allows dynamic and efficient distribution of the available electricity to all charge points based on this measurement. METERS can measure currents up to 300 A, while METERL is designed for larger installations with up to 600 A.

Further information on technical data is available in the appendix from page 29.

Identification

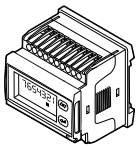
There is a label on the packaging to identify the type of load management system. Check the label to make sure that the model you have is the system suitable for your application.



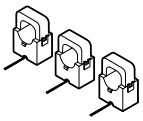
Items supplied

METERS | METERL are supplied with the following components:

- Energy meter, 1 pc



- Cable type current transformer (300 or 600 A), 3 pcs



- Download note (multilingual), 1 pc

NOTE

Checking the components included

Check immediately after unpacking whether all components are included: should any components be missing, please contact the dealer from whom you purchased the load management system.

Compatible products

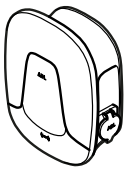
The METERS and METERL load management systems are offered as separate accessories for the following ABL products.

- Wallbox eMH2 Controller (2W2240 | 2W2241)

Charging station from ABL with one charge point for use as a controller in a group installation, either with a permanently integrated charging cable or with a charging socket

h = 437 mm, w = 328 mm, d = 170 mm

(Housing without protrusions)

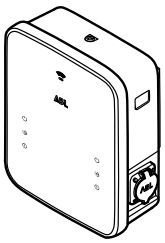


- Wallbox eMH3 Controller (3W2260 | 3W2261 | 3W2263 | 3W2264 | 3W2283 | 3W2284)

(Calibration law compliant) charging station from ABL with one or two charge points for use as a controller in a group installation, either with a permanently integrated charging cable or with a charging socket

h = 492 mm, w = 394 mm, d = 192 mm

(Housing without protrusions)

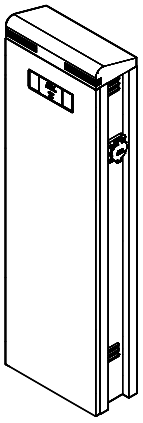


- Charging pole eMC2 Controller (2P4445)

Charging pole from ABL for use as a controller in a group installation with two charging sockets

h = 1,460 mm, w = 440 mm, d = 200 mm

(Housing without protrusions)

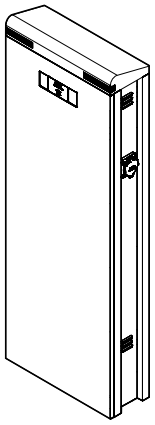


- Charging pole eMC3 Controller (3P4412 | 3P4435)

Calibration law compliant charging pole from ABL with two charge points, either with permanently integrated spiral charging cables or with charging sockets

h = 1,661 mm, w = 590 mm, d = 220 mm

(Housing without protrusions)

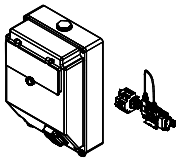


- External control unit (1V0001 | 1V0002)

Controller unit from ABL without its own charge points, either mounted in a sturdy wall-mounted housing or as a top-hat rail module for installation in a control cabinet

h = 320 mm, w = 205 mm, d = 146 mm

(1V0001 housing)

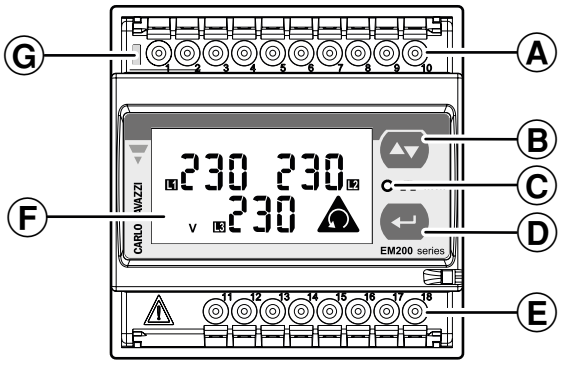


You can find further information on ABL charging stations and accessories at www.ablmobility.de.

The energy meter at a glance

The energy meter is designed as a top-hat rail model for installation in a control cabinet or distribution box. For details on installation, see section "Installation of the energy meter and the cable type current transformers" on page 15.

The energy meter itself offers the following connections, buttons and displays:



Ⓐ Terminal blocks

Screw terminals ① to ⑥ are used to connect the supplied cable type current transformers, screw terminals ⑦ to ⑩ are used to supply power to the meter.

Ⓑ Toggle key

This key is used to navigate within the system/parameter menus and to increase/decrease the currently selected parameter value. To switch between the modes (*Up/Increase* or *Down/Decrease*) press the **enter key** Ⓓ.

You can find further information on key operation in section "Setting up the energy meter" on page 19.

Ⓒ Red LED

This LED flashes red proportionally to the measured energy.

Ⓓ Enter key

This button is used to open a parameter menu, to switch between the modes of the **toggle key** Ⓑ and to confirm/exit a parameter menu.

You can find further information on key operation in section "Setting up the energy meter" on page 19.

Ⓔ Output and RS485 terminals

The static outputs ⑪ to ⑭ are not used with METERS | METERL. The screw terminals ⑮ to ⑰ serve as RS485 interfaces for communication with the controller charging station/control unit. The screw terminal ⑱ is required for terminating the RS485 bus.

Ⓕ Display

The LCD display shows all system/parameter menus and measured values.

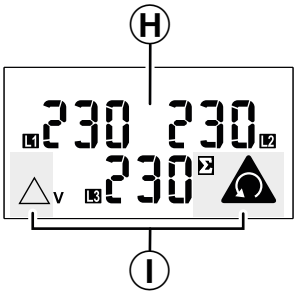
You can find further information on the display in the next section and in section "Setting up the energy meter" on page 19.

Ⓖ Green LED

The LED lights up green when the energy meter is properly supplied with voltage. When the LED flashes green, the energy meter is also communicating with the charging station/control unit via the serial RS485 interface.

The display at a glance

In measuring mode, the energy meter display shows the current measured values as well as system and warning information.



Ⓗ Measuring range

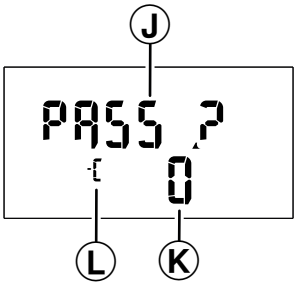
Depending on the selected connection mode, the measured current values for one or all three phases are displayed here.

Ⓘ Signal ranges

Symbols relating to operation are shown here:

- – Symbol for wrong phase sequence
- – Symbol for system values
- △ – Symbol for phase-to-phase voltage L1-2, L2-3, L3-1

During setup of the energy meter, the display shows the system and parameter menus and provides visual feedback for the items in the menus.



Ⓙ Menu item

The currently selected menu in the energy meter software is displayed here. Use the toggle key Ⓑ to switch between the menus, and the enter key Ⓓ to activate editing in this menu.

Ⓚ Value range

The current value for the selected menu is shown here.

Ⓛ Increase/decrease symbol

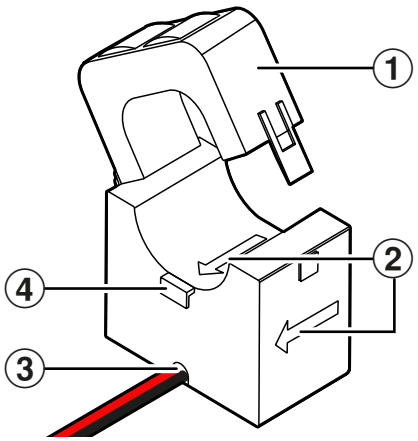
- [– The selected menu/current value is increased.
- -[– The selected menu/current value is decreased.

You can switch between [and -[by pressing the enter key Ⓓ.

The cable type current transformer at a glance

METERS | METERL are supplied with three cable type current transformers each, which are designed for measuring currents up to 300 A (METERS) or 600 A (METERL), but are otherwise identical in construction.

Each cable type current transformer is built as follows:



① Clamp-on core

Thanks to the clamp-on mechanism, the current transformer can be mounted on already laid cables with a cable diameter of up to 24 mm (METERS) or 36 mm (METERL) and locked via the latch.

② Energy flow arrows

These arrows on the housing specify the energy flow and thus the installation direction.

③ Connection cables

The two cables are used to connect to the screw terminals ① to ⑥ of the energy meter. The red wire K should be screwed into an odd-numbered terminal on the meter (①, ③ and ⑤), while the black wire L is assigned to the even-numbered terminals (②, ④ and ⑥).

NOTE

Assignment according to connection mode

Please note that depending on the selected connection mode (see “Selecting the connection mode” on page 14), not all cable type current transformers may be required: In connection mode 1P, only one current transformer is connected to terminals ① and ② of the energy meter; terminals ③ to ⑥ are not used in this mode.

④ Cable tie tab

To secure the current transformer, it can be protected against slipping etc. via an optional cable tie and this tab on the cable.

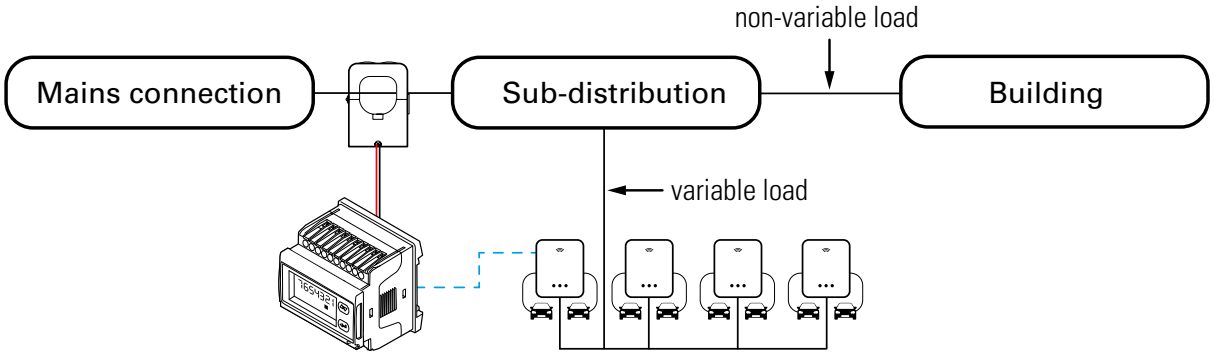
Mechanical and electrical installation

The METERS and METERL load management systems can be used flexibly for the total current measurement of a system or for section current measurement within a system.

Total current measurement

For total current measurement, the cable type current transformers are installed on the individual phases of the house supply line and the energy meter on the house connection.

- This measurement takes into account both the building load and the consumption of the charging stations.



WARNING!

Approval requirement by the grid operator

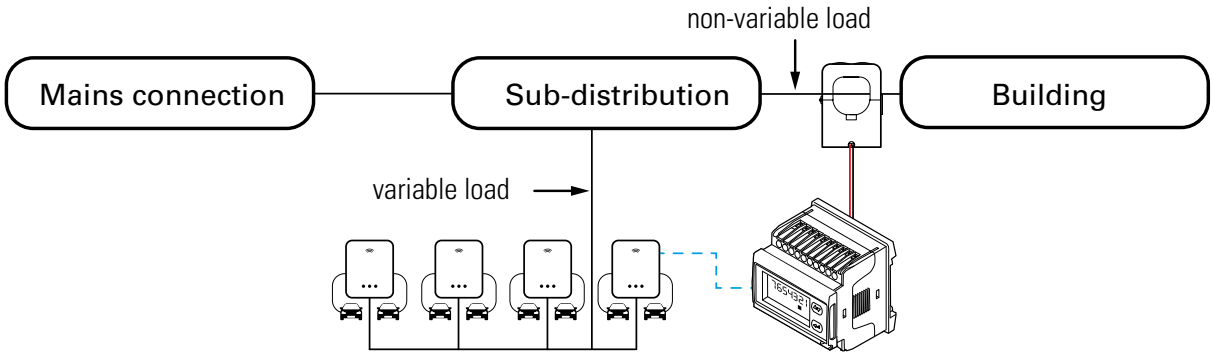
Please note that the position of the energy meter for total current measurement may have to be approved by your local grid operator.

- Contact your local grid operator for further information!

Section current measurement

In contrast, with section current measurement, the cable type current transformers are installed behind the tap for the charging stations, and the energy meter can be installed nearby in a distributor in the building.

- This measurement only takes into account the building load, and not the consumption of the charging stations.



WARNING!

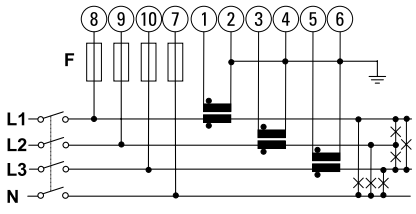
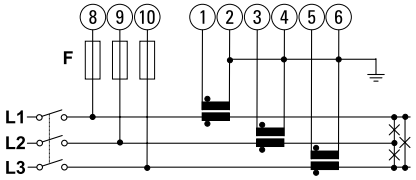
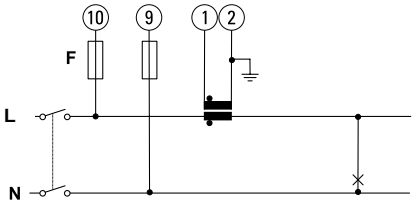
Correct specification of the measurement situation

In order to correctly identify the meter values, the meter position must be specified correctly when setting up the load management system via the ABL User Interface software (see page 26).

Selecting the connection mode

To ensure correct current measurement, a connection mode must also be selected and entered in the SYS menu when setting up the energy meter (see "Setting up the energy meter" on page 19).

The following connection modes are supported by METERS | METERL.

Connection mode	Description
	■ Name of the option in the SYS menu: 3P.n ■ 3 phases, 4 wires ■ Connection of three current transformers via terminals ①, ②, ③, ④, ⑤ and ⑥ on the energy meter ■ Power supply via screw terminals ⑦, ⑧, ⑨ and ⑩ on the energy meter, fuse protection F = 315 mA
	■ Name of the option in the SYS menu: 3P ■ 3 phases, 3 wires ■ Connection of three current transformers on the energy meter via terminals ①, ②, ③, ④, ⑤ and ⑥ on the energy meter ■ Power supply via screw terminals ⑧, ⑨ and ⑩ on the energy meter, fuse protection F = 315 mA
	■ Name of the option in the SYS menu: 1P ■ Single phase, 2 wires ■ Connection of one current transformer via terminals ① and ② on the energy meter ■ Power supply via screw terminals ⑨ and ⑩ on the energy meter, fuse protection F = 315 mA

WARNING!

Support for non-compatible connection modes

The energy meter supplied with METERS | METERL supports other connection types in principle, although these are not required in practical use as a load management system. Therefore, always make sure that the energy meter is set to the appropriate connection option in the SYS menu.

→ "Setting up the energy meter" on page 20

Installation guidelines

Depending on the type of current measurement (total or section current) and the connection mode selected, the following guidelines should be observed when installing the current transformers and the energy meter:

- Be sure to observe all local regulations for electrical installations, fire prevention and accident prevention.
- All guidelines for the installation of low-voltage systems in accordance with IEC 60364-1 and IEC 60364-5-52 apply.
- Depending on the type of current measurement, the cable type current transformers are attached to the individual wires of the house supply line (total current measurement) or the sub-distribution unit for the building (section current measurement).
- The cables for connecting the current transformers determine the maximum distance to the energy meter and thus the position in the distribution box.
- Fused taps (F = 315 mA) must also be provided in the distribution box to supply power to the energy meter.

Installation of the energy meter and the cable type current transformers

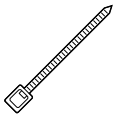
The energy meter and the current transformers must be installed in a distribution box. Depending on the position of the current measurement, you will need to use the distributor for the house supply line (total current measurement) or the sub-distributor for the building (section current measurement).

The energy meter is a standard top-hat rail module that can be placed on any DIN rail. The distance between the energy meter and the current transformers is determined by the length of the connection cables that are permanently connected to the current transformers.

You will need the following tools and components for the installation:

- Phillips screwdriver

- Optional: Cable tie (1 per transformer)



DANGER!

Dangerous electrical currents

Always observe the 5 safety rules:

1 Cut power source
2 Secure all cut-off devices
3 Verify absence of voltage
4 Ground and short-circuit
5 Cover or bar access to adjacent components under voltage

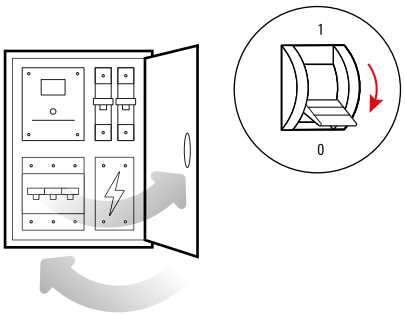
WARNING!

Electrical installation guidelines

- The entire installation must be carried out by a qualified specialist electrical contractor!
- The electrical supply cable must be disconnected from the power supply during the entire installation.
- The connection to the electricity grid must only be established after the installation has been completed in order to subsequently set up the energy meter (see "Setting up the energy meter" on page 19).

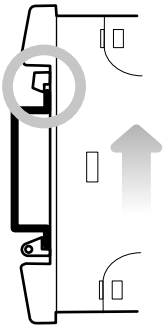
Proceed as follows:

1 Switch off the power supply to the house before the distributor.

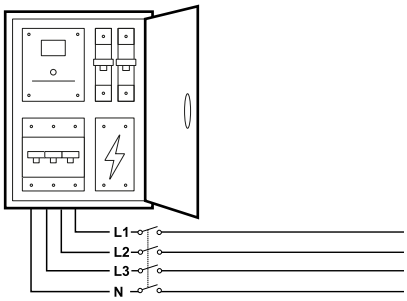


2 Install the energy meter on a DIN rail in the distributor.

- The distance to the current transformers is determined by the connection cables of the transformers.

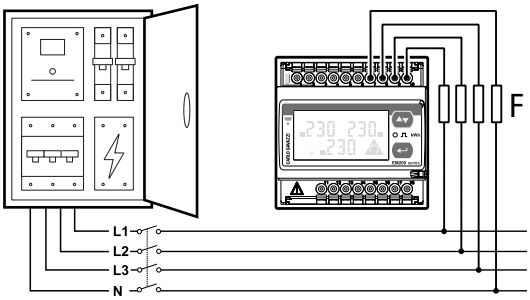


3 Locate the cables for current measurement in the distributor.



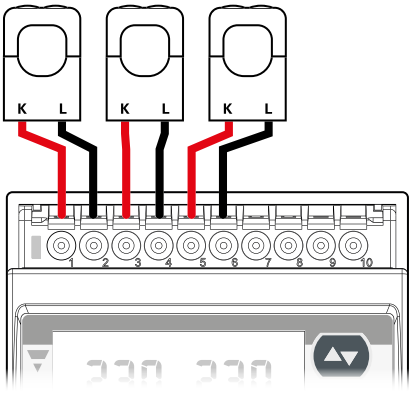
4 Connect the energy meter to the mains via specially fused cable taps (F = 315 mA).

- Assign the screw terminals ⑦, ⑧, ⑨ and ⑩ on the energy meter in accordance with the connection mode selected (→ page 14).



5 Connect the fixed connection cables of the current transformers to the energy meter.

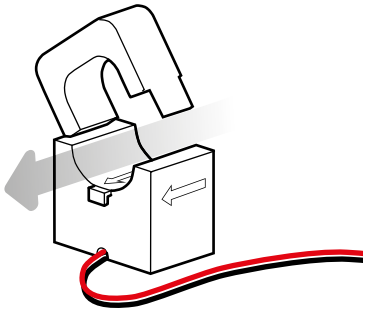
- Assign the connection terminals ①, ②, ③, ④, ⑤ and ⑥ on the energy meter in accordance with the connection mode (see table next page).



Connection mode	3P.n	3P	1P
Cable type current transformer 1	K → ① L → ②	K → ① L → ②	K → ① L → ②
Cable type current transformer 2	K → ③ L → ④	K → ③ L → ④	– –
Cable type current transformer 3	K → ⑤ L → ⑥	K → ⑤ L → ⑥	– –

6 Open a cable type current transformer, place it around one of the cables and close the catch, which must audibly click into place.

- The energy flow direction and thus the installation direction is specified by the arrows shown on the housing:
  Mains → Consumer
- Repeat the process for all cables that are relevant for the selected connection mode.



WARNING!

Adhering to the electrical energy flow direction

Always observe the energy flow direction and thus the installation direction for the power cable indicated by the arrow on the current transformer. Otherwise, the energy meter connected to the current transformer cannot measure reliable current values.

WARNING!

Pre-condition for the installation of a cable type current transformer

Please note that a cable type current transformer may only be installed on a power line if its connection cables are either connected together (short-circuited) or connected to the connection terminals of the energy meter.

- Otherwise, the cable type current transformer may be damaged!

This completes the installation of the cable type current transformer and the energy meter.

Data connection with the controller of a group installation

The energy meter must communicate with the controller charging station/control unit via its RS485 interface for the system's load management. The Modbus interface depends on the year of manufacture – on older ABL charging stations it is designed with spring terminals and on newer models it is equipped with RJ45 sockets. METERS | METERL are compatible with both systems.

Cat 5e or Cat 6 data cables with a cross-section of at least 0.14 mm² are recommended for the wiring. The internal twisting must be maintained until connection to the respective terminal.

NOTE

Communication via the free interface

In the controller of a group installation, one of the two Modbus interfaces remains unassigned, while the other is used for communication with the extender charging stations.

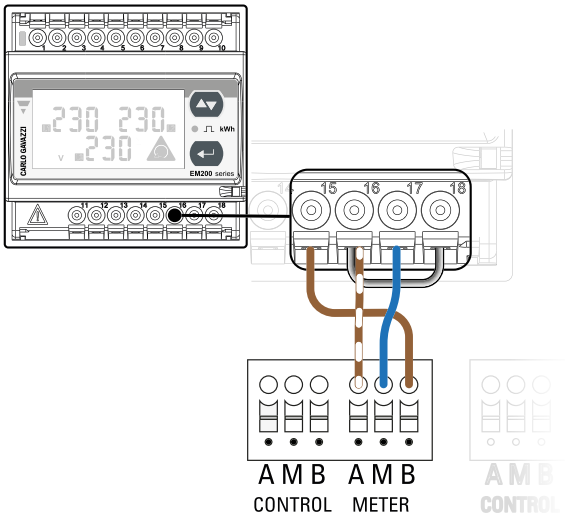
- Wire the free interface in the controller to the RS485 interface of the energy meter.

Connect the interfaces as follows:

Charging station with spring terminals

Connect the contacts as follows:

Meter contact	Charging station spring terminal
⑮	METER – B
⑯	METER – A
⑰	METER – M

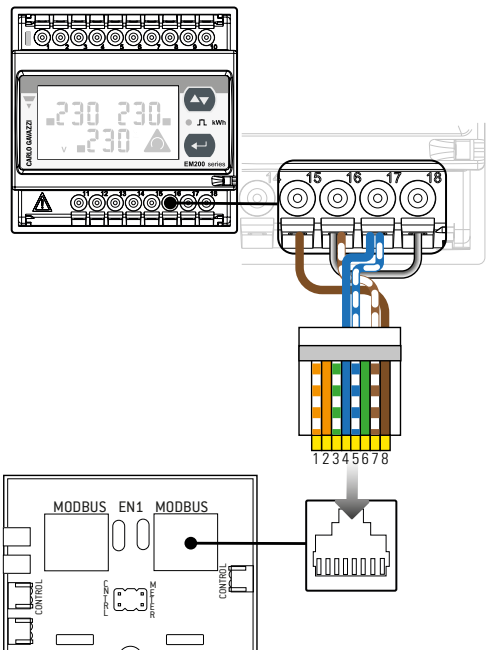


To terminate the RS485 bus, a wire jumper must also be inserted between the contacts ⑯ and ⑱ on the energy meter!

Charging station with RJ45 interface

Connect the contacts as follows:

Meter contact	Bus assignment	Wire colour T-568B	PIN assignment RJ45
⑮	B	Brown	8
⑯	A	Brown-white	7
⑰	M	Blue	4
	M	Blue-white	5



To terminate the RS485 bus, a wire jumper must also be inserted between the contacts ⑯ and ⑱ on the energy meter!

NOTE

Adhering to the colour scheme when wiring via the E2I interface

In contrast to the wiring for charging stations with spring terminals, you must always adhere to the colour assignment shown above for charging stations with an E2I interface!

- Use a network cable that corresponds to the T-568B pinout.
- If you use a cable with a different pinout, you must always ensure that the assignment between the pins of the RJ45 plug (4, 5, 7 and 8) and the contacts of the energy meter (15, 16 and 17) – as shown above, but regardless of the wire colour specified – is adhered to.

WARNING!

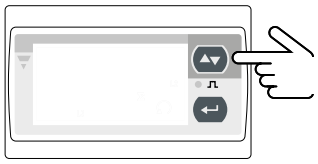
Termination of the bus connection

In addition to the wire jumper used for termination between the contacts ⑯ and ⑱ on the energy meter, the RS485 bus must also be terminated at the last extender charging station. You can find further information on this in the corresponding installation manual for the charging station.

Setting up the energy meter

To ensure accurate measurement, the energy meter must be set up via its system and parameter menus. This can be done using the toggle and enter keys as well as the visual feedback on the display:

Toggle key



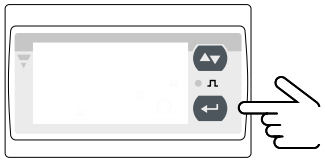
Navigation within the menus

- Select next/previous option

Edit a parameter value

- Increase/decrease value

Enter key – press briefly



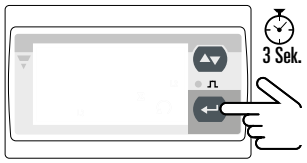
Navigation within the menus

- Open selected menu for editing

Edit a parameter value

- Switch toggle key between "[Increase value" and "-[Decrease value"

Enter key – hold for approx. 3 seconds



Edit a parameter value

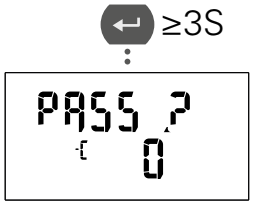
- Open configuration mode
- Confirm input / finish editing the menu item

The following guidelines apply when setting up the energy meter as described below:

- The energy meter must be supplied with power.
- The energy meter must be connected to the current transformers.
- The value must be entered within 120 seconds, otherwise the energy meter will switch back to measuring mode.

Proceed as follows to set up the energy meter:

1 Press and hold the enter key for about 3 seconds.
- The password entry menu will be displayed.

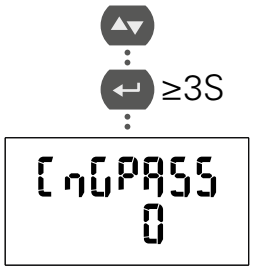


NOTE

Enter the factory default password

A password is required in order to set up the energy meter. This is set as **0** by default.

2 If a value other than **0** is displayed, press the toggle key until **0** appears on the display and hold the enter key for about 3 seconds to confirm.
- The **CnGPASS** menu will be displayed.



WARNING!

Changing the factory default password

If required, you can set a new password between **000** and **999** via the **CnGPASS** menu to protect the energy meter against unauthorised access.

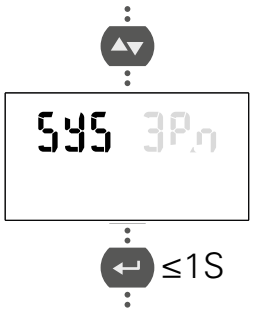
- To change the password, briefly press the enter key, select a new password with the toggle key, then confirm the new password by holding the enter key for about 3 seconds.
- If you change the password, you must keep it in a safe place for reference.

NOTE

Skipping unnecessary menus

To give a better overview, only menus relevant to the setup are described below. Unnecessary menus (such as **APPliC.**, **SEnSOr**, etc.) are not mentioned and can be skipped when selecting menu options.

3 Use the toggle key to select the **SYS** menu and briefly press the enter key.



4 Use the toggle key to select the desired connection mode (see "Selecting the connection mode" on page 14) and hold the enter key for about 3 seconds to confirm.

5 Use the toggle key to select the **Ct rAt.** menu for the transformer ratio and briefly press the enter key .

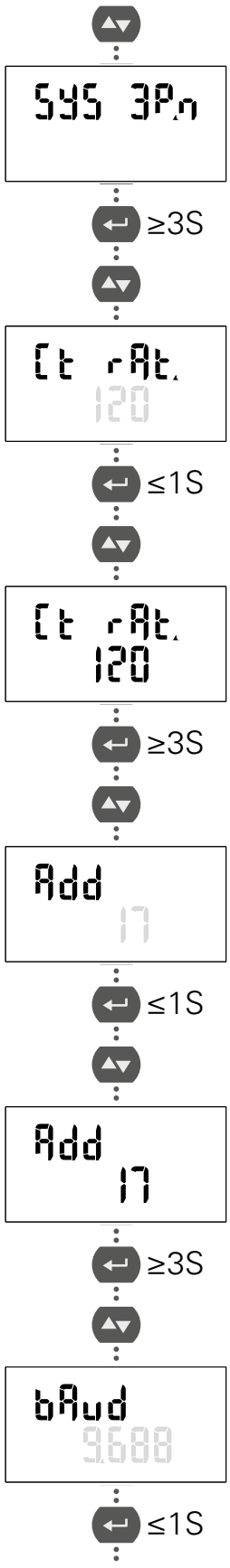
6 Use the toggle key to select the appropriate transformer ratio and hold the enter key for about 3 seconds to confirm.

- METERS: Select the value **60**
- METERL: Select the value **120**

7 Use the toggle key to select the **Add** menu for the serial address of the energy meter and briefly press the enter key .

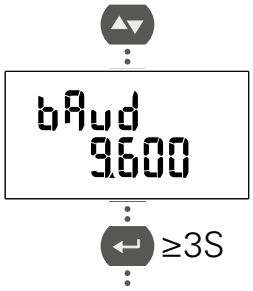
8 Use the toggle key to select the address value **17** and hold the enter key for about 3 seconds to confirm.

9 Use the toggle key to select the **bAud** menu for the baud rate of the energy meter and briefly press the enter key .



10 Use the toggle key to select the appropriate baud rate and hold the enter key for about 3 seconds to confirm.

- Calibration law non-compliant controller charging station: Select the value 9,600
- Calibration law compliant Controller charging station: Select the value 38,400



≥3S

11 Use the toggle key to select the PAritY menu for the parity of the energy meter and briefly press the enter key.

≤1S

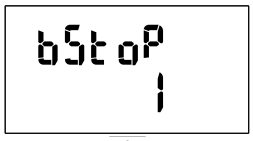
12 Use the toggle key to select the parity EVEN and hold the enter key for about 3 seconds to confirm.

≥3S

13 Use the toggle key to select the bStoP menu for the stop bit of the energy meter and briefly press the enter key.

≤1S

14 Use the toggle key to select the value 1 for the stop bit and hold the enter key for about 3 seconds to confirm.



≥3S

15 Use the toggle key to select End and briefly press the enter key.

≤1S

The energy meter is now set up for operation as a load management system for a group installation. The next step is to set up the individual charging stations and the group in the ABL Configuration Software and ABL User Interface applications.

Setup via the ABL User Interface application

Before you set up and commence initial operation of METERS | METERL, your charging system must first be correctly addressed and completely set up. METERS | METERL can then be set up for operation with the charging system via the ABL User Interface web-based application.

WARNING!

METERS | METERL can only be set up in a pre-configured charging system

Please note that the charging system must first be fully and properly configured before you can set up load management via METERS | METERL. The corresponding installation manual describes in detail how to configure a single charging station or charging group with controller and extender charging stations.

NOTE

Updating the application

The working steps described below refer to the current version of the ABL User Interface application.

- Please check in advance which version is installed on your system and carry out an update in any case.
- The instructions included in the installation package describe step by step how to perform the update.

The application offers a role-based concept that restricts the editing of selected parameters.

■ Owner	The Owner may view all information about the application and the installed charging stations, perform updates and set up data communication in the system.
■ Installer	The Installer makes fundamental changes to the system properties. This person must therefore be a qualified electrician, who, on the basis of their specialist training and experience, as well as their knowledge of the relevant regulations, can assess and carry out the working steps described in this manual and recognise potential hazards.

WARNING!

Registration as a qualified electrician required

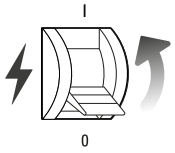
The working steps described below for setting up the system must be carried out in the Installer role.

- Contact a qualified specialist electrical contractor if the following working steps need to be carried out.

Proceed as follows:

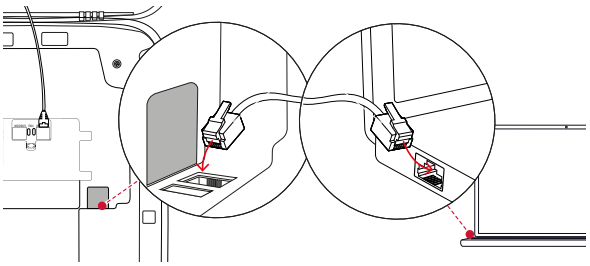
1 Switch on the Controller charging station / control unit.

- Always wait for two minutes until the SBC has completed set-up.



2 Connect an RJ45 data cable to the SBC of the Controller charging station / control unit and the computer.

- For information on the location of the SBC network jack, please refer to the corresponding installation manual.



3 Open a web browser on your computer and enter the following address: http://169.254.1.1:8300/. This opens the **ABL User Interface** online application, where you are automatically logged in with the **Owner** role.

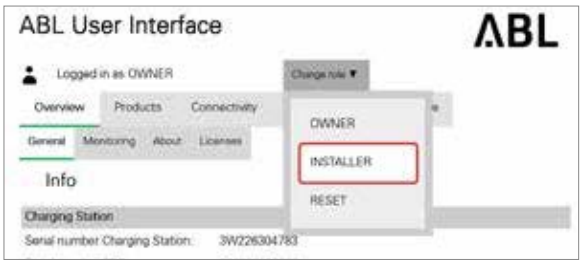
WARNING!

Manually setting up the network settings

If you are unable to connect to the application, check your computer's network settings and, if necessary, adjust them as follows:

Network	169.254.0.0
Subnet mask	255.255.0.0
Address	169.254.1.2

4 Click the **Change role** selection menu in the top right and select the **Installer** role.



5 Click the **Products** > **Installation** tab, navigate to the bottom of the screen and click the **Add products** button.

6 In the product filter, click on the **Product line** tab and select the **External** option.

- All available energy meters (**External Meters**) are then listed.

7 Select the energy meter with the highest revision number.

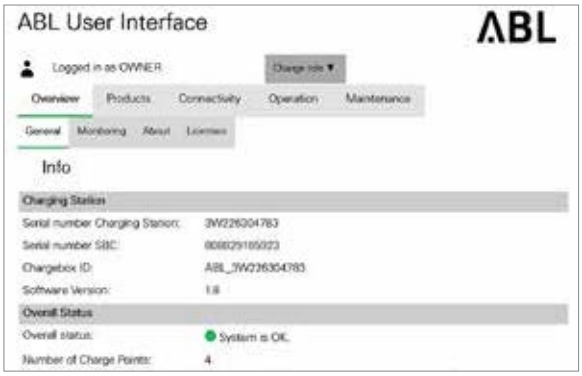
8 Enter the number 1 in the selection list at the bottom and click the Save button.

- The external energy meter is then displayed next to the controller and the already selected extender charging stations in the Products > Installation tab.

9 Navigate to the bottom of the Products > Installation tab and click the Create new configuration button.

10 Then click Perform reconfiguration to restart the system.

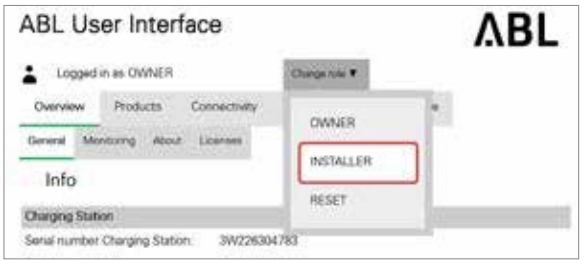
11 After restarting, switch to the Overview > General tab: this shows at a glance whether your system is set up correctly.



After you have set up all Extender charging stations and the external meter for the Controller, you must then define the parameters for the entire system. To do so, proceed as follows:

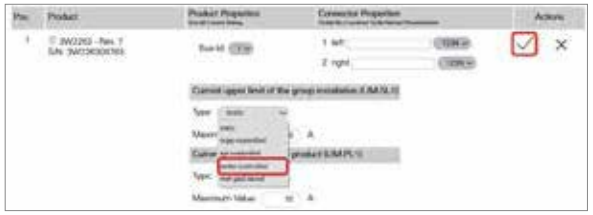
12 Make sure you are still logged into the **ABL User Interface** application in the **Installer** role.

- If not, change your role as described in **step 4**.



13 Switch to the **Products** > **Installation** tab, and, in the **Actions** column, click the ☰ button for the Controller charging station marked with Ⓒ.

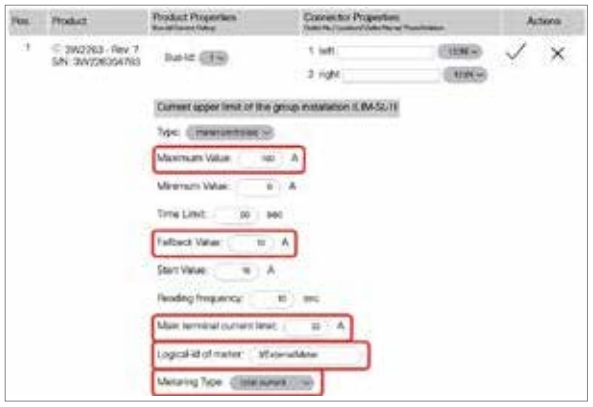
14 Set the **Type** to **meter-controlled** and save this setting by clicking the corresponding tick ✓ in the **Actions** column.



15 Switch to the **Products** > **Installation** tab, and, in the **Actions** column, click the ☰ button for the Controller charging station marked with Ⓒ.

16 Set the parameters for the controller.

- **Maximum Value:** Enter the maximum charging current for the entire charging group here (for example: **160 A**).
- **Fallback Value:** Enter a static maximum current for the charging group here if the controller does not receive a measured value from the energy meter within the specified *Time Limit* (for example: **10 A**) (see boxes on next page).
- **Main terminal current limit:** Enter the tripping current for the building fuse here (for example: **180 A**).
- **Logical-Id of meter:** Set the ID to the position (**Pos.**) and the model name of the energy meter in the **Products** > **Installation** table view here (for example: **3/ExternalMeter**).
- **Metering type:** Switch the measuring position between total and section current measurement here (see page 13).



NOTE

Explanation of the fallback value

If you are not sure which static maximum current the charging group should be limited to if the time limit (see below) is exceeded, enter the value **0 A** here: This will cause all charging operations to be interrupted in the event of a fallback.

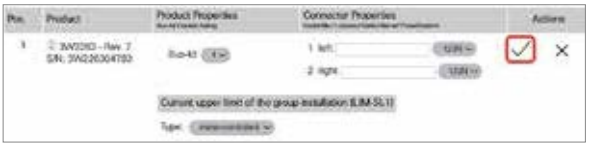
WARNING!

Setting the other controller parameters

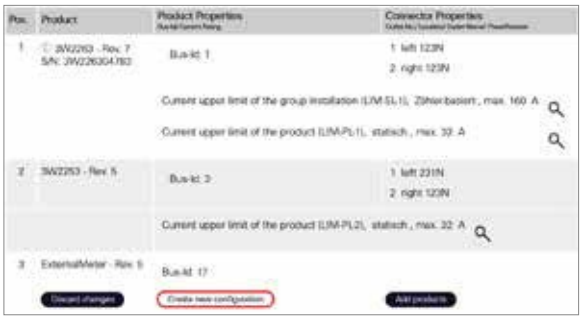
If required, you can also set the other controller parameters on this page. However, if you are unsure what each parameter does, you should leave the value at the default setting!

- **Minimum Value:** Specify a minimum current for the system here. The recommendation is **0 A**, although you may also increase this value if you want a minimum current in the installation.
- **Time Limit:** Set how long the communication between the energy meter and the controller / control unit needs to be interrupted before the charging group is set to the *Fallback Value* here (see above).
- **Start Value:** Set the starting current for the charging group until the measured values from the energy meter are available here. It is recommended to set the **Start Value** and **Fallback Value** the same.
- **Reading frequency:** Set the time interval for retrieving the meter value here. The value must be greater than 3 seconds. The recommendation is **5 seconds**
- **Buffer width:** Set a safety buffer here to avoid frequent and short-term oscillation of the current above the main terminal current limit. The recommendation is to set the buffer width to 10% of the main terminal current limit.
- **Validation Count:** Set the number of measurements until the current setting is readjusted here. The product of the **Validation Count** and the **Reading frequency** (see above) results in the time until the current setting is readjusted (for example: 5 * 5 seconds = 25 seconds).
  However, if the maximum current is exceeded, the current setting immediately readjusts.

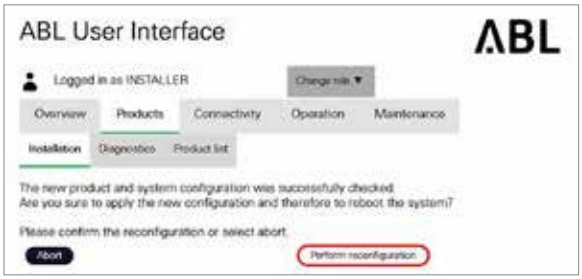
17 Confirm your settings by clicking on the tick ✓ in the **Actions** column.



18 Navigate to the bottom of the **Products** > **Installation** tab and click the **Create new configuration** button.



19 Then click **Perform reconfiguration** to restart the system.



20 Switch to the **Overview** > **General** tab: this shows at a glance whether your system is set up correctly.

This completes the setup of the charging group and the charge management.

Appendix

Technical specifications

Model code	METERS	METERL
Gross dimensions (H×W×D)	265 × 205 × 120 mm	
Weight (gross)	1.2 kg	1.6 kg
Items supplied	Energy meter, 3 cable type current transformers (300 | 600 A), download information	
Compatible product ranges	Controller Wallbox eMH2 / eMH3 | Controller Charging Pole eMC2 / eMC3 external control unit 1V0001 / 1V0002	
Energy meter		
Protection class front / screw terminals	IP40 / IP20	
Operating temperature	-25 to 55°C	
Ambient temperature (storage)	-30 to 70°C	
Energy meter dimensions	72 × 72 × 65 mm	
Installation	Panel and DIN rail	
Overvoltage category	Class III	
Insulation (for 1 minute)	4,000 VRMS between input measurement and digital output	
Dielectric strength	4,000 VAC RMS for 1 minute	
Noise suppression ratio CMRR	100 dB, 48 to 62 Hz	
EMC in accordance with EN62052-11		
■ Electrostatic discharges	15 kV air discharge	
■ Immunity to electromagnetic fields	Test with current: 10 V/M at 80 to 2,000 MHz Test without current: 30 V/m from 80 to 2,000 MHz	
■ Burst noise	On the current and input voltage measuring circuit: 4 kV	
■ Immunity to conducted interferences	10 V/m from 150 kHz to 80 MHz	
■ Overvoltage	On the current and input voltage measuring circuit: 6 kV	
■ Radio interference suppression	In accordance with CISPR 22	
Standard compliance		
■ Safety	EC60664, IEC61010-1 | EN60664 | EN61010-1 | EN62052-11	
■ Measurement technology	EN62053-21 | EN62053-23 | EN50470-3	
■ Pulse output	DIN43864 | IEC62053-31	
■ Approvals	CE, cULus listed (AV only)	
Screw terminals		
Cable cross section	2.4 × 3.5 mm	
Min./max. screw tightening torque	0.4 Nm / 0.8 Nm	

Model code	METERS	METERL
Cable type current converter		
IP rating	IP20	
Operating temperature	-20 to 65°C	-20 to 50°C
Ambient temperature (storage)	-25 to 80°C	
Cable type current converter dimensions	65.5 × 46 × 35 mm	84 × 57 × 39 mm
Secondary output	UL R/C cable, 16 AWG (1.3 mm²)	
Cable diameter	24 mm	36 mm
Cable length	0.5 m	1 m
Primary/secondary power	300 / 5 A	600 / 5 A
Frequency	50 / 60 Hz	
Nominal insulation level	0.72 kV ac, dielectric strength 3 kV ac for 1 minute	
Insulation class	Thermal class B (IEC 60085)	
Accuracy (EN61869-2)	Class 1	
Burden	2.5 VA	10 VA

IP rating

IP rating	Explanation
IP20	Protection against penetration of solid foreign bodies with a diameter greater than 12.5 mm
IP40	Protection against penetration of solid foreign bodies with a diameter greater than 1 mm

Data cable recommendations

The following data cables are recommended for wiring up the RS485 interfaces of the energy meter to the charging station:

Designation	Cross section	Number
Cat5e	from at least 0.14 mm²	1 cable per connection between two wallboxes
Cat6	from at least 0.14 mm²	

WARNING!

Selecting suitable data cables

Please note that these are recommendations only: the conductor cross-section must be adjusted according to the cable length by the specialist electrical contractor responsible for installation.

Allocation schematic from spring terminal to Easy2Install interface

For mixed data cabling connections using E2I interfaces as well as spring terminals within one group installation, the below allocation schematic must be followed. For each length of cable between these two interface systems, one unbraided RJ45 to individual strand Ethernet/patch cable (1 pc) is required.

The following allocations are then made:

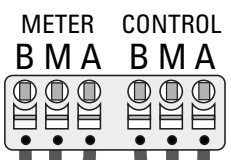
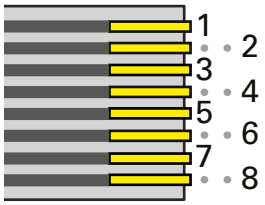
- Controller/Extender with spring terminal to Extender with Easy2Install interface

  In this configuration, the individual wire strands of an Ethernet cable (CAT5e or above), which has been unbraided at one end, are connected to one of the spring terminals (R) of the Controller or Extender charging station, while the RJ45 plug of the Ethernet cable is inserted into the left hand side Easy2Install interface of the next Extender charging station.

- Controller/Extender with Easy2Install interface to Extender with spring terminal

  In this configuration, the RJ45 plug of the Ethernet cable is inserted into the right hand side Easy2Install interface of the Controller or Extender charging station, while the unbraided wire strands of the Ethernet cable are connected to the other spring terminal (L) of the next Extender charging station.

  In both cases, the individual wire strands of the Ethernet cable must be allocated as illustrated below.

Spring terminal		**Energy meter**	**RJ45 plug**	
Top view of terminal	ABL bus allocation	Connection terminal	PIN allocation	Top view of RJ45 plug
	CONTROL A	–	1	
	CONTROL M	–	3 & 6	
	CONTROL B	–	2	
	METER A	⑯	7	
	METER M	⑰	4 & 5	
	METER B	⑮	8	

WARNING!

Identical allocation of wire strands

Please note:

- As no standard exists for the allocation of wire strands colours to the contacts of an RJ45 plug, the above illustration only shows the allocation of the RJ45 contact to the spring terminal contact.
- These allocations must be followed consistently, otherwise faultless communication within the system is impossible.

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Disposal advice

The crossed out rubbish bin symbol indicates that electrical and electronic devices including accessories must be disposed of separate from household refuse.

The materials are recyclable as marked. The reuse or recycling of materials, or other forms of repurposing of old devices make an important contribution towards protecting the environment.

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