

# Wallbox Duo Power

Assembly manual



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Before the installation, make sure that the module packages contain all the elements. Current version of the operation manual can be accessed at <https://enelion.com/en/support/>.

See the contents of the manual before initiating any activities related to the installation or the activation of the charger.



## 1. Important information

### 1.1. General Provisions

Installation and servicing of the device must be performed by qualified and authorized persons, and repairs may only be carried out by the manufacturer or entities authorized by the manufacturer.

Tampering with the mechanical, electrical and electronic components and the device software is forbidden and shall result in the nullification of the warranty. The exceptions include operations described herein and those agreed in writing with the manufacturer.

The manufacturer is not responsible for damage to property resulting from the forbidden interference in the product.

The electrical installation to be used by the device during its operation must meet the conditions described in the installation manual. The manufacturer is not responsible for incorrect assembly and/or protection of the electrical installation to which the device is connected.

The manufacturer is not responsible for the malfunction of the electrical installation to which the device is connected.

The electrical installation to be used by the device during its operation must comply with the legal standards in force in the place of assembly and the operation of the device. The manufacturer is not liable for any damage caused by an electrical installation that does not meet legal standards.

The device does not have a built-in switch. The device activates when the supply voltage is applied. The power supply cut off function must be provided by the appropriate electrical installation devices described in the assembly manual. Except in emergencies, the device must not be turned off during the charging process.

It is forbidden to supply the power to the device when the device casing remains open.

The use of a mechanically damaged charger or a charger that indicates a critical error is forbidden.

It is forbidden to place in the charger socket any objects not intended for this purpose. A working power cable with a cross-section appropriate for the power supplied to the device and appropriate for the type of electric vehicle, terminated with a functional plug type 2 in accordance with EC 62196-2 is the only object that may be plugged in the charger socket.

It is forbidden to use any extensions of the charging cable.

The manufacturer is not responsible for loss of health or life by any persons resulting from failure to comply with the above-mentioned recommendations.

The data plate on the device is an integral part of the device and its removal or damage shall result in the nullification of the warranty.

### 1.2. Safety instructions

Outdoor installation should not be carried out during precipitation or strong wind, if there is a risk that water or dirt may get into the device.

All operations described in this manual should be performed only having made sure that there is no voltage in the power cable.

## 2. General information

Wallbox Duo Power is a charging station intended for electric road and passenger vehicles. It is made of an aluminum casing, closed at its sides with reinforced polymer material. It includes a charging process control module, a front panel with an RFID reader, an OLED screen and LED signaling.

It is distinguished by two available TYPE 2 charging sockets operating in a 3-phase mode.

Additional accessories can be installed. The range of functions of the device can be extended by adding such accessories as Enelion Bridge, Enelion MID or Enelion RCM B protection. Some parameters and functions can be changed by reprogramming the device with the use of the attached RFID card. Enelion Wallbox Duo Power is available in two colors: black and silver.



Fig. 1: Enelion Wallbox Duo Power in black.

All Enelion charging stations are compatible with the original Enelion Chain communication protocol, which enables operation in the local network of chargers. This enables the Enelion DLB function to be activated for dynamic load balancing, thus reducing the number of devices that require an Internet connection and optimizing the use of power in charging vehicles.

All Enelion devices can be fitted with Enelion Bridge (an add-on to be purchased separately). It provides the devices with Smart functions and facilitates their connection to a remote management system (OCPP 1.6 compliant) via the Internet.

### INFO

For more information, see the “User Guide”. It contains detailed information about the functionality and use of the device.

### 2.1. Opening and closing Enelion Wallbox Duo Power

### INFO

The 3 mm Allen key is needed to open (or close) the Enelion Wall-box Duo Power. No other tool is necessary for this operation.

### INFO

Closing of the device is performed by repeating the steps in the reverse order.

### INFO

The operations described below are identical for the device already mounted on the wall. Please note that the device must be opened at least once before the installation to allow access to the mounting holes on its back and to connect the power cable.

1. Remove the rubber plugs from the top left and right hole of the device.

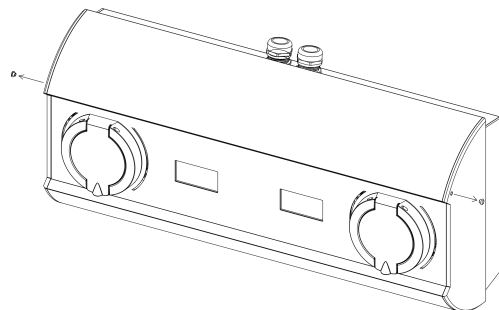


Fig. 2: Removal of rubber plugs.

2. Insert the supplied Allen key into the exposed hole. The key should be inserted until resistance is felt, i.e. until it cannot be pushed deeper.

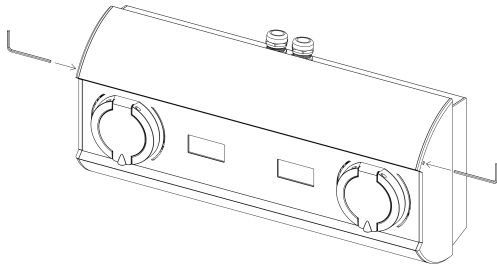


Fig. 3: Inserting an Allen key.

3. Turn the key counterclockwise until the locking pin is aligned with the side of the charger. Remove the Allen key from the hole. Repeat action number 2 for the second locking pin.

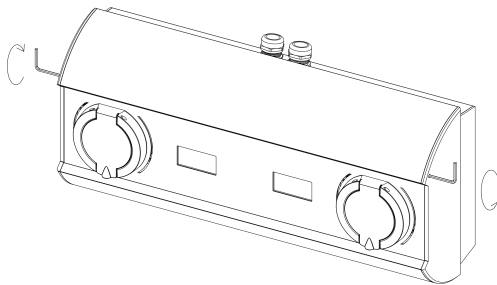


Fig. 4: Unscrewing the locking pin.

4. Slide the front panel upwards of the device by holding the socket housing – use a suction cup as an option – until the lower edge of the front panel is exposed.

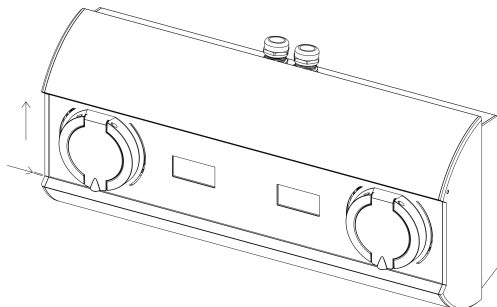


Fig. 5: Front panel moved upwards.

5. Holding the socket housing, pull the bottom edge of the panel until it is released from the housing and tilted slightly.

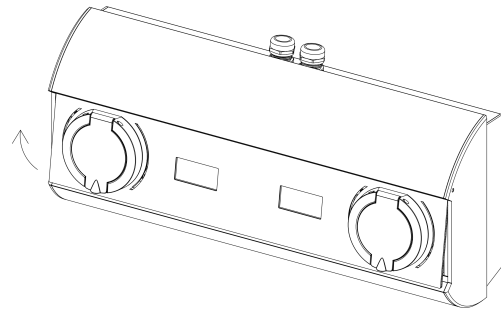


Fig. 6: Front panel slightly tilted.

6. Holding the front panel in the same plane, slide it downwards from the top frame of the device.

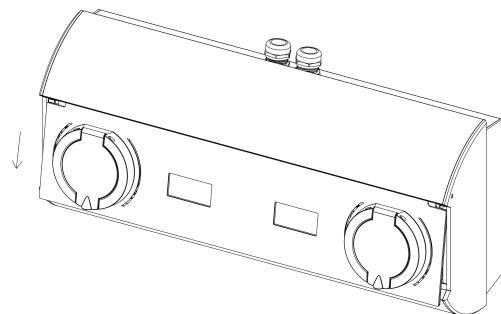


Fig. 7: Removing the front panel from the device housing.

7. Slowly continue to pull out the front panel, watchful of the socket lock not hooking onto the housing.

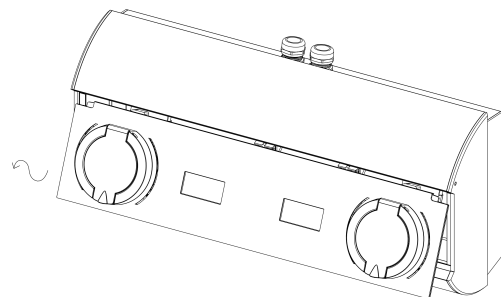


Fig. 8: Pulling out the front panel.

8. The front panel may freely rest next to the housing, hanging within the reach of the socket connection wires.

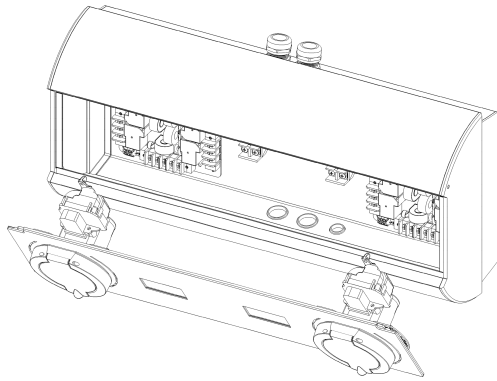


Fig. 9: The device open with the access to its interior.

#### **i INFO**

The panel is fitted into place by following the above operations in the reverse order.

#### **⚠ WARNING**

Be careful not to crumple the signal tape while fitting the front panel.

### 3. Design indications of the installation

#### 3.1. Recommended power connection

Enelion charging stations are adapted to five-wire power supply from TN-S type and TT type grid. It is possible to apply three-wire power supply from TN-S type grid.

##### WARNING

Connection possibilities have been described in "User manual", in the Device *configuration section*.

Enelion charging terminal must be powered from the electrical switchboard. The board must have the required protections in the form of an overcurrent circuit breaker with B or C characteristics and rated current of 32 A or lower, appropriate to the device version. To be compliant with the PN-EN IEC 61851-1: 2019-10 standard, each charging point must also be protected against type A or B residual current. This requirement must be met by one of the below:

1. installation of a type B residual current device (RCD B 30 mA/40 A) or RCD EV (30 mA/40 A) in the switchboard,
2. installation of a type A residual current device (RCD A 30 mA/40 A) in the switchboard with the application of Enelion RCM B – type B Residual Current Monitor, attached to the charging terminal.

The final selection of the safety devices belongs to an authorized designer or a qualified electrician.

##### HINT

The above requirements result in the necessity to use independent cables for multi-socket devices: Wallbox Duo Power and Wallbox Adspace.

Wallbox Duo multi-socket device allows one to power the charging sockets only in 1-phase mode. Therefore, it should be powered with one four-wire cable.

The cross-section of the power supply cables must be selected by an authorized electrician, depending on the distance from the switchboard and other conditions pertinent to the location. To obtain the maximum charging

power in wall-mounted devices, the use of cables with a conductor cross-section not greater than 6 mm<sup>2</sup> is recommended. **The diameter of the power supply cable with insulation must not exceed 16 mm.**

Cables running underground must be installed in accordance with the binding building regulations. For convenient installation, flexible power cables, stranded type, terminated with clamping sleeves are recommended

##### INFO

In case of single phase installation, the maximum cross-section of the power supply cable to be assembled in connection terminals is 10 mm<sup>2</sup>. The diameter of the power supply cable with insulation must not exceed 16 mm.

##### WARNING

To supply the voltage to the installed and connected charging station, first switch on the RCD protection, and next the overcurrent switch.

For installation, about 50 cm of power cable reserve from the expected installation position is recommended. For Wallbox Adspace devices, a reserve of about 110 cm of the cable supplying power to the left socket is recommended.

#### 3.2. Recommended communication network

Enelion devices support the Enelion Chain communication interface. For its implementation, a wired connection between the devices is required using an Ethernet CAT 5 or CAT 6 cable.

For installation, leave about 50 cm of communication cables from the expected installation position.

The network works in a serial topology where:

- the number of Enelion charging points does not exceed 100 devices,
- the total length of the communication cable connecting the devices does not exceed 500 m.

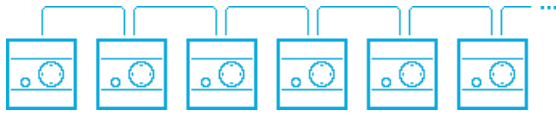


Fig. 10: Enelion Chain network topology.

Enelion devices equipped with the Enelion Bridge module can use the Internet connection via the Ethernet interface in the LAN network. In order to utilize this function, run the Ethernet CAT 6 cable to the device in which the use of this option is expected.

#### INFO

Devices equipped with Enelion Bridge can also use WiFi and GSM interfaces to ensure the Internet connection, but they do not have requirements related to cable installation.

1. 10 cm clearance on the right side of the unit.
2. 50 cm clearance above the top edge of the device.
3. 100 cm clearance below the bottom edge of the device.

#### WARNING

The manufacturer accepts no responsibility for any damage resulting from failure to comply with the above-mentioned recommendations.

### 3.3. Location selection criteria

Wall-mounted Enelion devices may be installed both internally or externally.

The device has been designed to be installed near parking spaces for electric vehicles. When used in the vehicle collision hazard zone, the structure should be secured with appropriate fenders painted in yellow and black stripes (warning about the gauge).

Bear in mind that the national regulations may define the space for the installation. The device should not be located in a place of high exposure to sunlight, which could cause overheating. Do not install the device near heat sources or in small, closed spaces (e.g. in a box).

It is forbidden to install a power cord that does not comply with the guidelines in section 3.1 *Recommended power connection*. It is forbidden to install the device in potentially explosive environment.

Local regulations for electrical installations, fire prevention measures and accident prevention must be taken into account, and escape routes at the installation site must be provided.

It is forbidden to install the device in a location where falling objects may damage the charger.

Before installation, make sure that the mounting space for the device is sufficient.

Wallbox family devices should have at least:

1. 10 cm clearance on each side of the unit.

Stilo family devices should have at least:

## 4. Assembly

### ⚠ WARNING

Before commencing the installation, switch off the power supplied to the cables.

### 4.1. Preparing the installation

1. Place the packaged Enelion Wallbox Duo Power horizontally, in accordance with the markings on the packaging. Cut the package open along the indicated line. Take the device out of the cardboard box, remove the polystyrene protective casing and put the device in the safe position.

2. The polystyrene protection contains useful accessories necessary for the mounting of the device. Before recycling the packaging, collect those accessories that include:

- cable gland plug,
- RFID configuration card and RFID pendant.

3. Open Enelion Wallbox Duo Power in accordance with the instruction included in section 2.1 *Opening and closing Enelion Wallbox Duo Power*.

### 4.2. Selection of bolts and anchors

Enelion Wallbox Duo Power is mounted on vertical surface using bolts. The device has four mounting openings. Additionally, the device is equipped with holds facilitating the assembly.

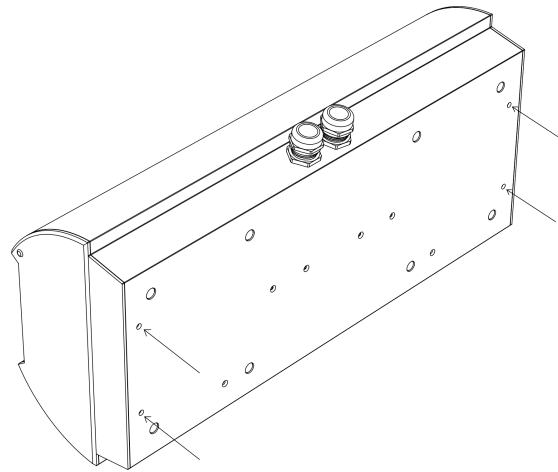


Fig. 11: Mounting holes of Enelion Wallbox Duo Power as seen from the back of the device.

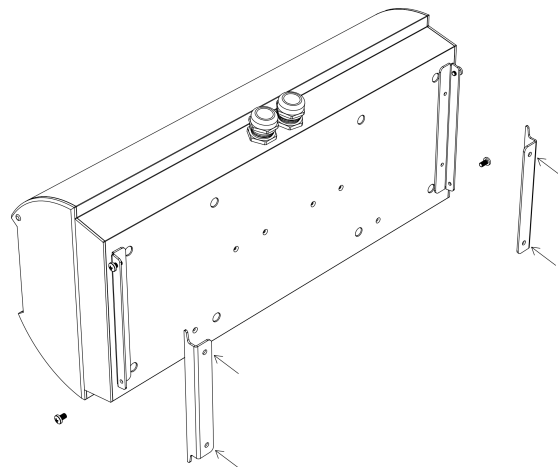


Fig. 12: Assembly of the holds at the back of the device.

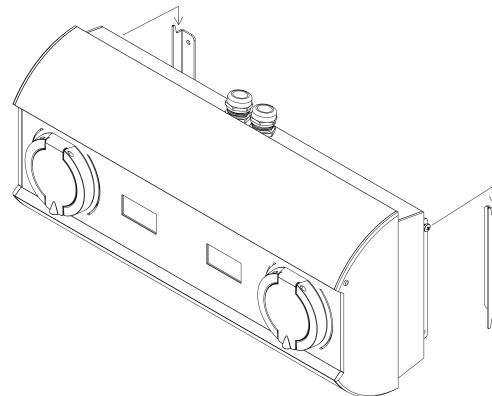


Fig. 13: Hanging Enelion Wallbox Duo Power on the holds.



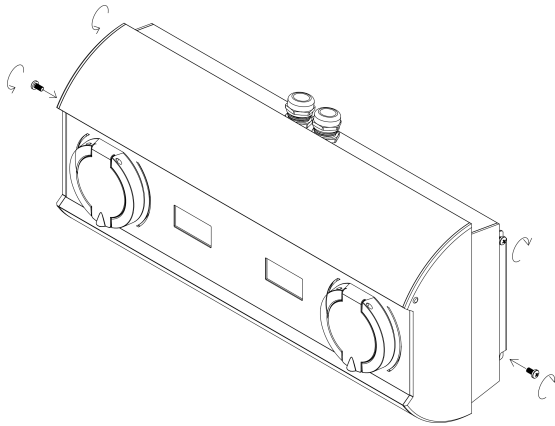


Fig. 14: Attaching the device to the holds with screws.

Follow the information listed below to choose the appropriate method of assembly, depending on the mounting surface:

1. four mounting holes are positioned on the plan of a rectangle with dimensions of 490 mm x 96 mm (width x height),
2. mounting holes have a diameter of 5,5 mm,
3. the device weighs 6,2 kg,
4. mounting must provide stability for the device to withstand significant forces affecting it when plugging and unplugging the charging cable in the socket.

#### **⚠ WARNING**

Use all mounting holes in the process of installation. Failure to do so will result in the loss of water and dust resistance of the device, as a default classified as IP 54. This can lead to damage or failure of the charger, and consequently to loss of life or health. The manufacturer is not responsible for damage and injuries arising from failure to observe the above recommendations.

### 4.3. Cable routes

The default power cable entry ("A" entry) is at the top part of the device.

It is possible to insert the power cables from the bottom of the device by moving the glands by oneself. To do this, remove the plugs at the bottom of the device.

The insertion of communication cables ("B" entry) is possible from the bottom of the device. This requires the removal of the plug and the installation of a gland suitable for the type and number of communication cables to be routed. The opening diameter for the communication cable gland is 19 mm.

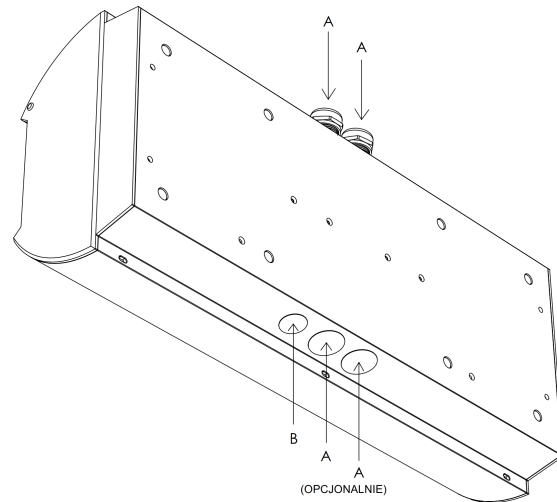


Fig. 15: Locations of cable entry points in Enelion Wallbox Duo Power.

The removal of plugs for the assembly of cable glands should be performed according to the following guidelines:

1. place the device on a stable surface,
2. use a hammer and a flat-bladed screwdriver to knock out the gland hole plug carefully.

The cable gland in the upper part of the device should be put into the hole in the lower part of the device and screwed to ensure tightness. The gland nut requires a 32 mm spanner and the gland requires a 30 mm spanner. After repositioning the gland, the opening in the upper part of the device should be closed with the plug provided with the product.

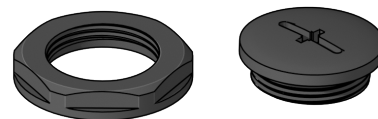


Fig. 16: Additional plug with a nut provided with the product.



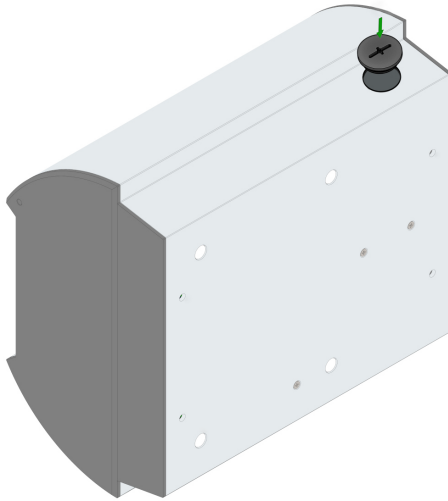


Fig. 17: Mounting place for the additional plug.

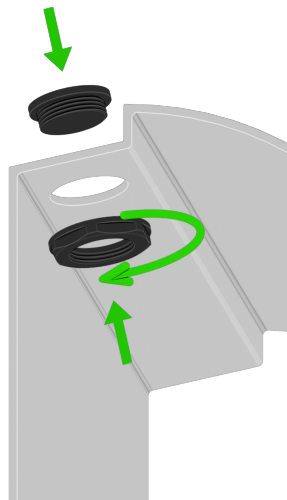


Fig. 18: Mounting method for the additional plug.

The cable gland for communication cables should be installed in accordance with the manufacturer's instructions.

#### **⚠ WARNING**

To make sure the device is water-tight in accordance with IP54 class and keep the manufacturer's warranty for the device, after relocating the cable gland from the top to the bottom of the device, the unused holes must be secured with a plug and a nut set included with the device.

## 4.4. Mounting the device

### **i INFO**

The device has been equipped with a template facilitating the installation.

1. Determine the final location of the device using the attached template and the level, and mark the mounting holes. The template marks the mounting holes, the outline of the rear wall of the device, the axis of the glands (both in the version with a gland in the upper and the lower part of the device) and the optimal cable lengths. Mounting holes should be at least 5 cm from the edge of the wall (in case of a recess, minimum 20 cm — to leave enough space for the use of Allen key). The axis of the power cable must coincide with the axis of the glands marked on the template. Make sure that the power cord is at least 350 mm long, measured from the edge of the device marked on the template.
2. Make assembly holes and install expansion bolts. Mounting holes should be made in accordance with the specification of expansion bolts, which should be placed in the cleaned holes.
3. Make sure that there is no voltage in the power cords.
4. Open the device as described in section 2.1 *Opening and closing Enelion Wallbox Duo Power*.
5. Put the device in the target position by threading the power cable through the glands.
6. Fasten the device with screws using a screwdriver with a shaft length of at least 150 mm.
7. Screw on the power cable gland ensuring tightness.
8. (Optional) Insert at least 350 mm of the communication cables into the device.

The device mounted in this way can be connected.

## 5. Connection

### 5.1. Power connection

Enelion Wallbox Duo Power devices come in various types. Depending on which type is being installed, the

power supply cables may be connected directly to the terminals or to the approved integrated MID meter.

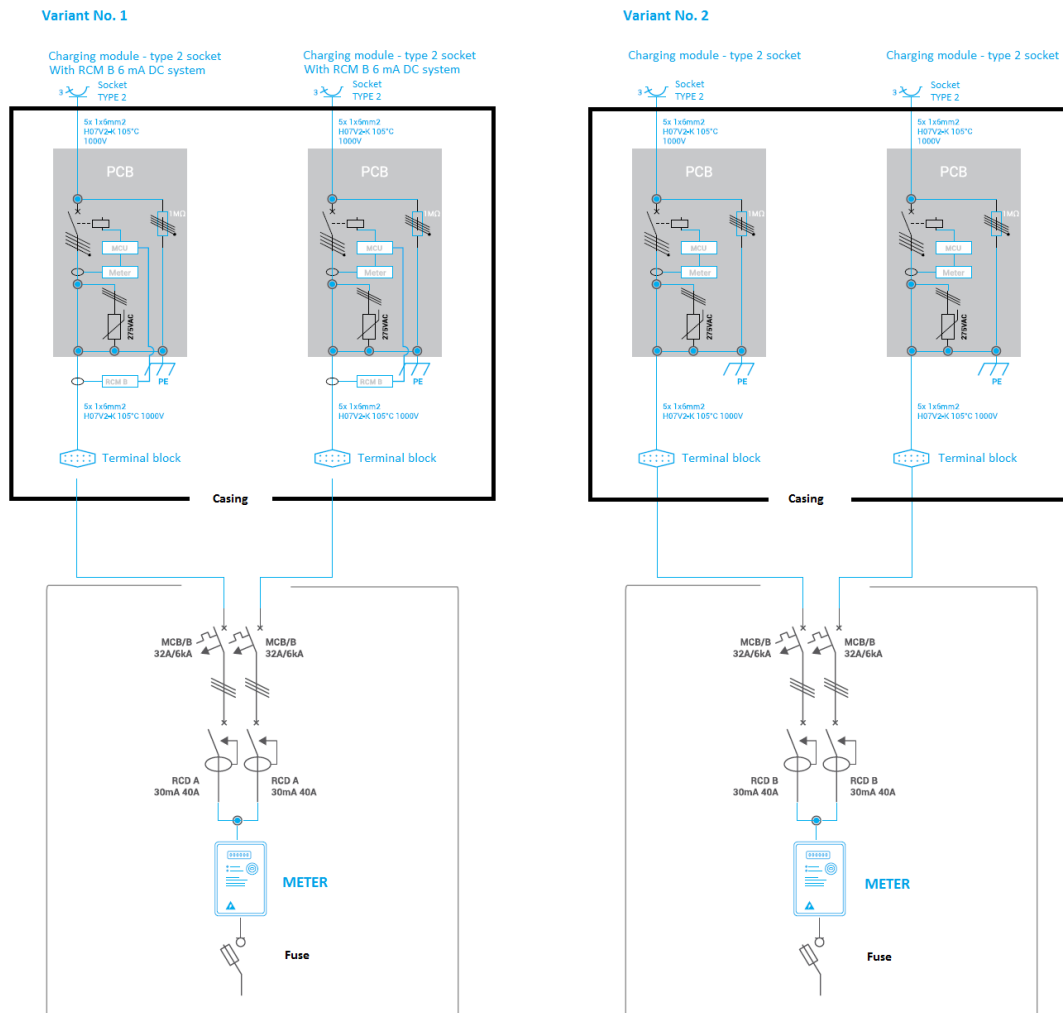


Fig. 19: Diagrams of connection types 1/2.

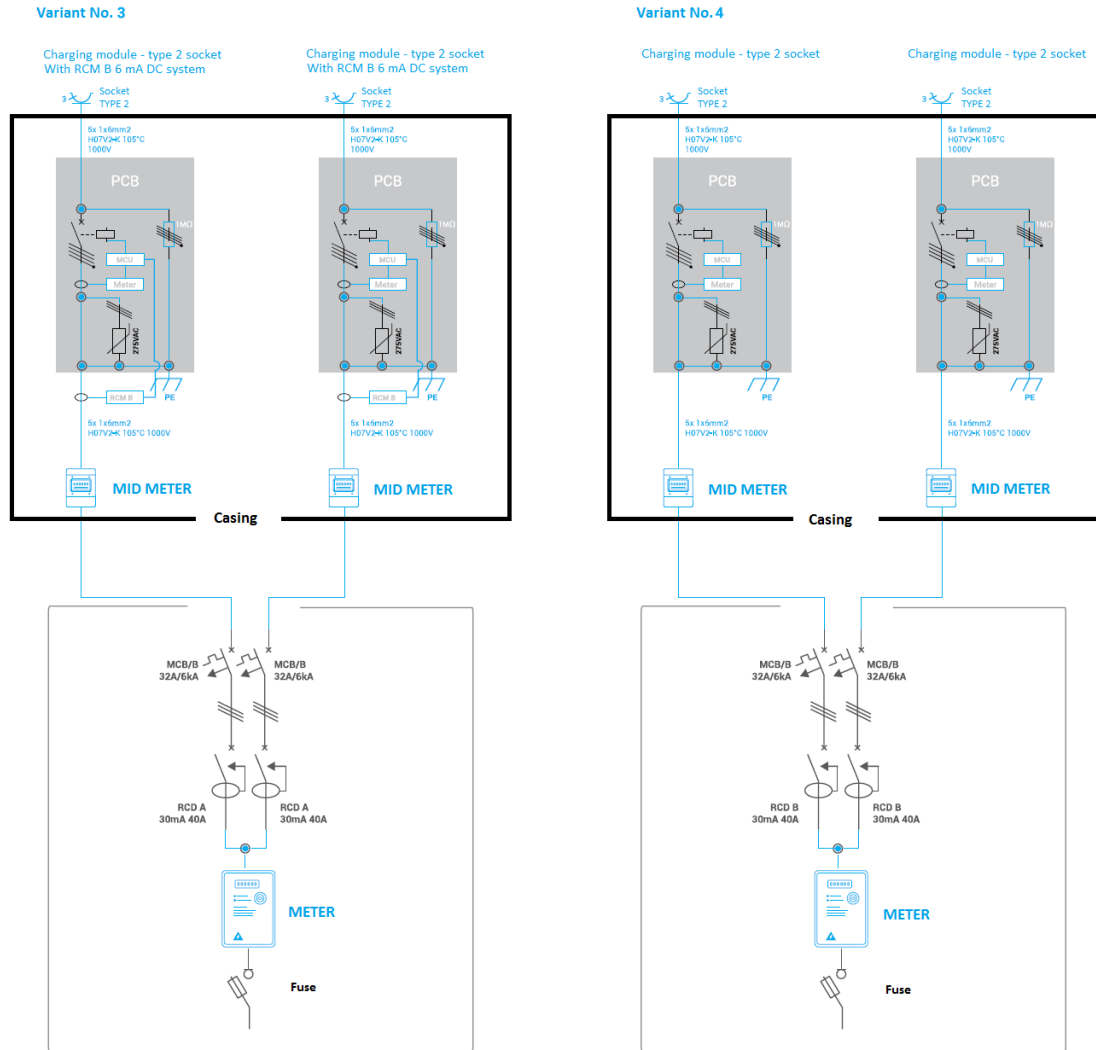


Fig. 20: Diagrams of connection types 2/2.

### 5.1.1. Standard power connection

#### INFO

For both sockets to operate, the voltage in Enelion Wallbox Duo Power must be supplied to the connection clamps of both charging controllers. Operations described below should be performed for the terminals of both charging sockets.

1. Prepare the power supply cable.  
Remove 200 mm of the main insulation off the power supply cable. Terminate the individual wires of the cable with fork (M4 or M5 size) or sleeve terminals.

2. Insert the power supply cables into the terminals.

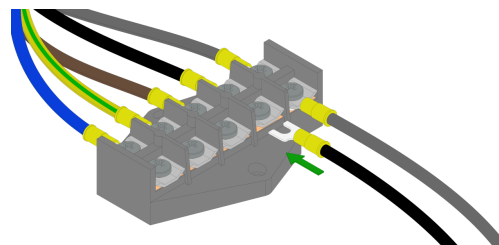


Fig. 21: Connection using fork terminals

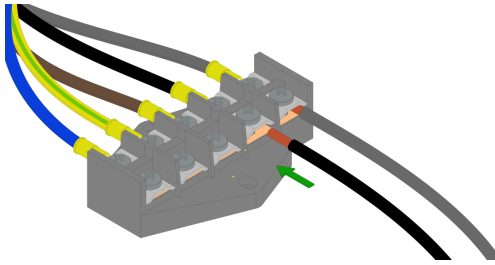


Fig. 22: Connection with solid conductors – wire

3. Use a PZ2 end screwdriver to tighten the terminals with 1,5 N m torque.

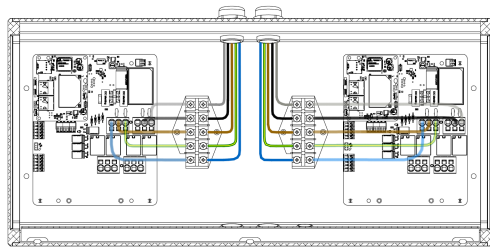


Fig. 23: Electrical connection executed correctly.

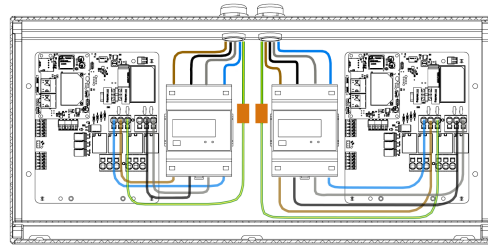


Fig. 24: Electrical connection with MID meters executed correctly.

MID meter communication connection should be done according to the diagram below:

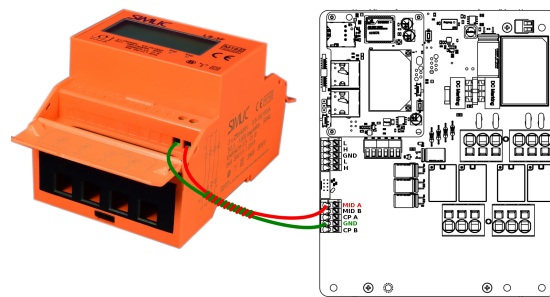


Fig. 25: MID meter communication connection diagram.

### 5.1.2. Power connection in version with MID meter

#### INFO

For both sockets to operate, the voltage in Enelion Wallbox Duo Power must be supplied to the connection clamps of both charging controllers. Operations described below should be performed for the terminals of both charging sockets.

1. Prepare the power cord.  
Remove 200 mm of the main insulation off the power supply cable. Terminate the individual wires of the cable with sleeve terminals.
2. Insert the power cables into the terminals of the MID meter and tighten them.  
Unless otherwise marked on the label of the device, make a standard connection in accordance with the markings on the meter. The PE protective conductor should be connected to the prepared coupling.

#### HINT

The colors of the phase wires in Enelion Wallbox Duo Power may not match the colors of the power cables, maintaining, however, the guidelines on Enelion Wallbox Duo Power label. This is a correct and expected situation when using the phase sequence function.

### 5.1.3. RCM B Connection

Enelion RCM B – Residual Current Monitor type B accessory. Enelion RCM B in combination with the RCD A used in the switchgear meet all safety requirements.

1. Connect the device to the dedicated socket on the PilotBox board. [Fig. 23]

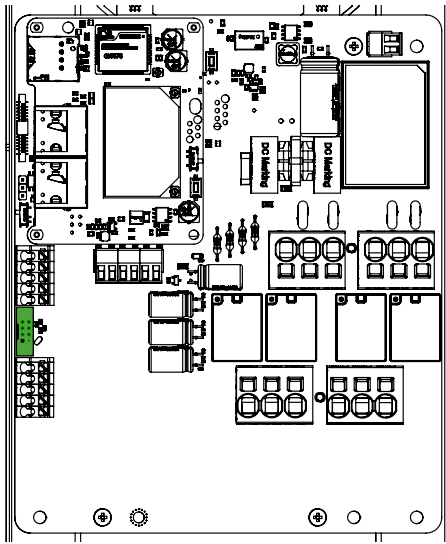


Fig. 26: PilotBox RCM B socket.

2. Pass through the RCM B hole four powering cables (All three phases and neutral cord.)

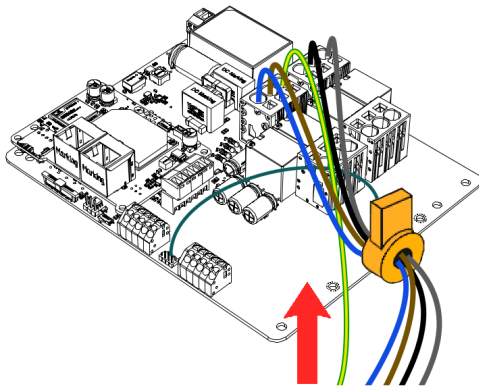


Fig. 27: RCM B connection

#### HINT

The way of cables through the RCMB hole does not matter. The RCMB monitor could be freely assembled on the socket cables or on the main income cables.

#### INFO

More detailed information about RCM B in the User Manual.

## 5.2. Connection of communication wires

### HINT

As a default, both integrated charging controllers in Enelion Wallbox Duo Power are connected with the communication cable. When setting up Enelion Chain network, this section should be considered as a section between devices, applying all the recommendations described below.

## 5.3. Enelion Chain

If the communication between the devices is expected to be via Enelion Chain network, the cables should be connected to the charge controller. Two cores of the communication cable and the screen grounding are used for communication. To connect correctly:

1. Prepare communication cables
2. (a) for devices at the beginning of the network, select a pair of communication wires,
  - (b) for devices in a section of the network, prepare the communication cables inserted into the device by connecting together the cores of the incoming and outgoing wires (in variant A) or move to the next step (in variant B, check figures below).

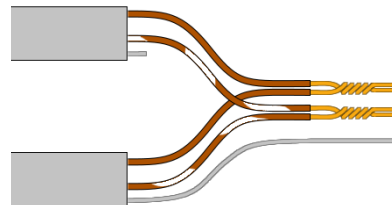


Fig. 28: Incoming and outgoing communication cable connection (variant A)

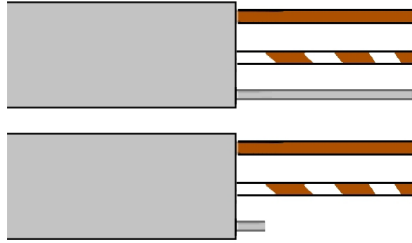


Fig. 29: Incoming and outgoing communication cables (variant B)

3. Release the connector terminal by pressing the button using a flathead screwdriver and insert the wires into the respective locations. There will be single wires for devices at the start and end of the network.

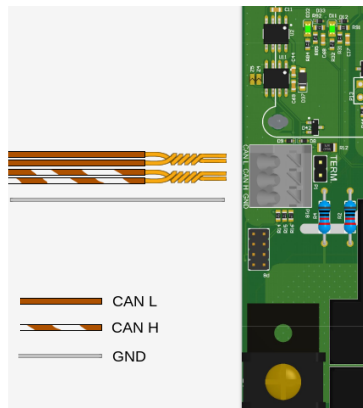


Fig. 30: Diagram of Enelion Chain communication cables connection (variant A)

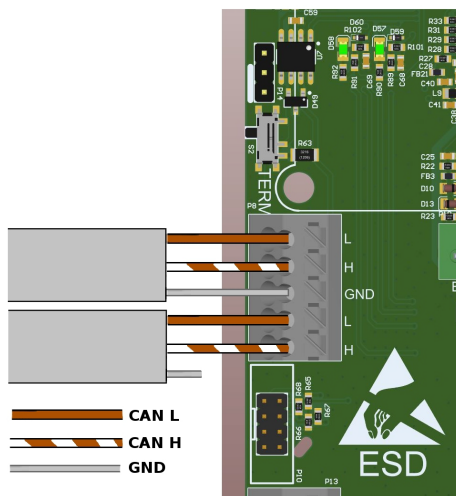


Fig. 31: Diagram of Enelion Chain communication cables connection (variant B)

4. Use termination for devices at the beginning and end of the network. In case of variant A place terminating jumper on the marked headers [Fig 31]. In case of variant B termination is done by slide the switch down, to show white square. In alternate version, if there is no switch, place a jumper on two pins in the header inside the charger marked by white line [Fig. 32].

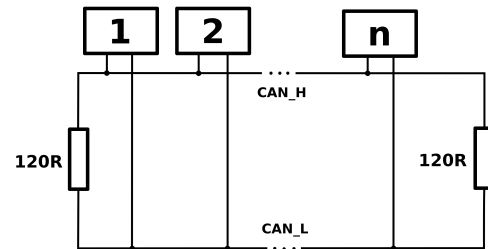


Fig. 32: Termination diagram.



Fig. 33: A sample jumper.

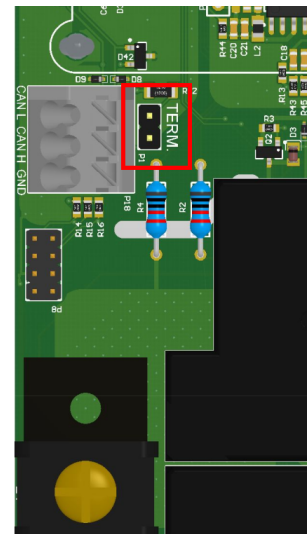


Fig. 34: The place of applying the terminating jumper (variant A)

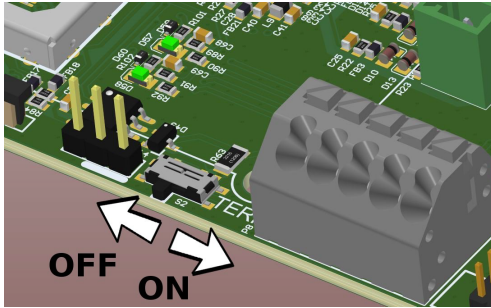


Fig. 35: The place of applying the terminating jumper (variant B)

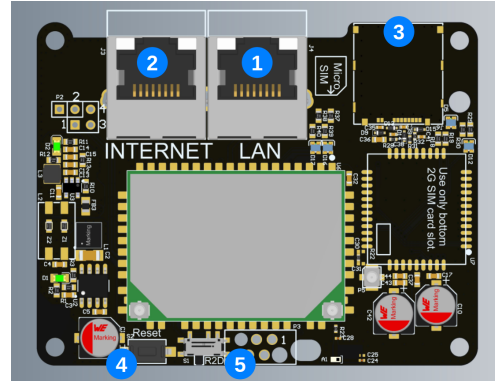


Fig. 37: Enelion Bridge module diagram.

#### 5.4. Internet connections via Ethernet interface in LAN network

To provide the Internet connection to a charger equipped with Enelion Bridge module via Ethernet interface:

1. Insert the Ethernet cable into the device through the gland for communication cables.
2. Terminate the cable with the RJ45 connector according to TIA-568A/B to 100BaseT.

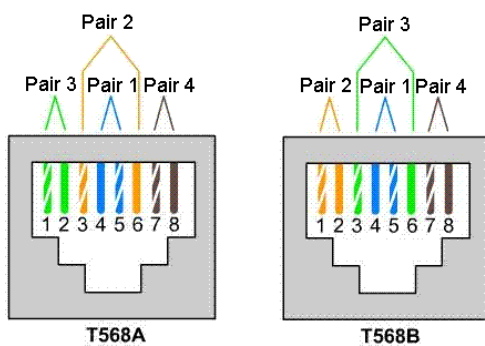


Fig. 36: Termination of the Ethernet cable according to TIA-568A/B to 100BaseT.

3. Connect the Ethernet cable to the WAN/INTERNET socket of Enelion Bridge module marked with number 2.

## 6. Maintenance

The device is designed to operate in temperatures from  $-25^{\circ}\text{C}$  to  $55^{\circ}\text{C}$ . The manufacturer does not guarantee the proper functioning of the charging station in temperatures outside the specified range. Chargers that are damaged because of exposure to temperatures below  $-25^{\circ}\text{C}$  or above  $55^{\circ}\text{C}$  are not covered under the warranty. In case it is necessary to open the device, make sure that it is disconnected from the power source. With the device installed outdoors, make sure that there is no precipitation or strong wind.

### WARNING

The device may only be opened by a qualified and authorized person.

### 6.1. Cleaning

The correct way to clean the charger is to wipe the housing with a microfiber cloth using a cleaning agent dedicated to anodized aluminum. Plexiglas elements (front panel) and plastic elements (socket) should be cleaned with a microfiber cloth using a cleaning agent dedicated to cleaning windowpanes. Other cleaning methods (e.g. wire brush) may lead to the damage of the device housing. Damage resulting from improper cleaning of the device does not constitute grounds for warranty claims.

### WARNING

The device meets the IP 54 standard. Therefore, it is forbidden to wash the charger with pressure washers, garden hoses, shower or any other water stream sources.



## 7. Technical data

### 7.1. Enelion Wallbox Duo Power

Electrical data	
Routing of the power cord	Surface mounted
Power cord cross-section	Recommended minimum cross-section • 2 cables 5 x 6,0 mm <sup>2</sup> (32 A nominal current)
Supply voltage (Europe)	3 x 230 V/400 V <sub>AC</sub> (+/-10%)
Voltage frequency	50 Hz/60 Hz
Network type	TN, TT (IT per special request)
Overvoltage category	III according to EN 60664-1
Rated short-circuit current	Effective value < 6 kA according to EN 61439-1
Overcurrent protection	Not included. Protection to be made in accordance with the locally valid regulations and according to the type of the device.
Protection Class	Class I
Socket type	2 x Type 2, standard socket 32 A/400 V <sub>AC</sub> in accordance with EN 62196-1

Mechanical data	
Dimensions (width x height x depth)	530 mm x 249 mm x 156 mm
Weight	6,3 kg ± 5%
IP Class	IP54
Mechanical strength class	IK10

Interfejsy	
Charging network development	Enelion Chain
Add-ons	<ul style="list-style-type: none"> <li>• Enelion MID</li> <li>• Enelion Bridge</li> <li>• Enelion RCM B</li> </ul>
RFID	MIFARE cards compliant with ISO 14443

Ambient conditions	
Working temperature	from -25 °C to 55 °C
Storage temperature range	from -40 °C to 80 °C
Permitted relative air humidity	from 5% to 95%
Elevation above the sea level	maximum 2000 m

Signs of installation faults	
Damaged varistors on PilotBox	It means faulty connection powering cords

**⚠ WARNING**

Above information may be the basis for exclusion of warranty.



