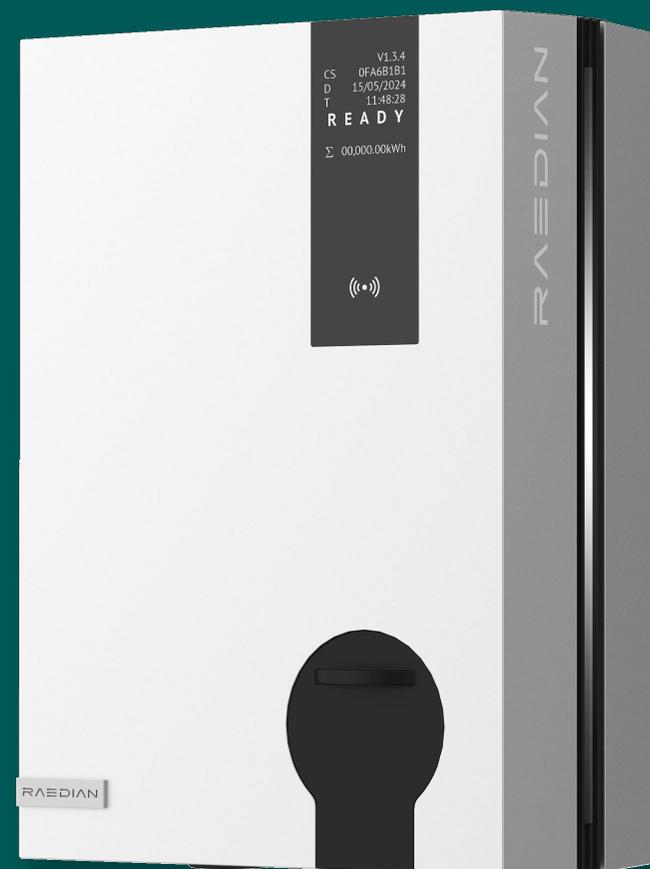


# NEO

## INSTALLATION MANUAL – PREMIUM SMART CHARGING



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# 1. Safety and usage guide

## 1.1 Disclaimer

This document is subject to updates and changes. Errors and omissions are exceptional.

It is revised at regular intervals, and any modifications and amendments are included in the subsequent issues.

RAEDIAN shall bear no liability in any way, for any kind of damage, and the warranty for the product and the accessories shall not apply in the following cases:

- Failure to comply with the instructions in this guide in general and with the operating conditions specifically.
- Improper use.
- External damage.
- Installation, commissioning or faulty repair or maintenance by unqualified persons.
- Failures from the grid or the cellular network provider.
- Modification or configuration of the product or accessories without the knowledge of RAEDIAN.
- Use of spare parts not approved or manufactured by RAEDIAN.
- The charger is used outside its operating conditions as stated in this guide.
- Situations have occurred that are beyond the control of RAEDIAN (force majeure).
- Damage to the electrical vehicle.

### 1.1.1 Improper use

It is safe when the charger is used as intended. Any other use or changes to the charger are considered improper use and therefore not permitted. The operator, owner or qualified technician is responsible for any personal injury or material damage arising from improper use.

## 1.2 Copyright

The reproduction, dissemination and utilization of this document, as well as the communication of its contents to other parties without explicit authorization by RAEDIAN or one of its affiliates, is strictly prohibited.

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## 1.3 Trademarks

**RAEDIAN®** is trademark registered by RAEDIAN. Any unauthorized use of this trademark is therefore illegal.

## 1.4 Languages

The English version of this document is the original source. Documents in other languages are translations of this source.

## 1.5 Purpose and target audience

This guide applies to the NEO (in this document also indicated as "Charger") produced by RAEDIAN. The NEO is intended exclusively for charging electric vehicles. Follow this guide to install and debug the charger correctly.

Installation, commissioning and maintenance of this charger may only be performed by a qualified electrician. It is essential that this person has:

1. Proficient in general and specific rules related to safety and accident prevention.
2. Comprehensive knowledge of applicable electrical regulations.
3. The ability to identify and foresee risks and avoid potential hazards.
4. Received and read these installation and operating instructions.



## 1.6 Safety symbols

The following warning pictograms are attached to (parts of) the charger:

	<b>Dangerous voltage</b>
	<b>Protective earth</b>

## 1.7 Complementary documentation

By means of the following links, you can obtain detailed information regarding the NEO.



Installation video



Install APP

## 1.8 Operating conditions

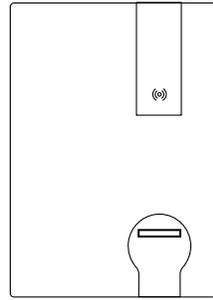
Operating temperature	<b>-30°C ~ 55°C with derating mechanism</b>
Relative atmospheric humidity	<b>5% ~ 95 %</b>
Electrical safety class	<b>Class I</b>
Degree of protection (housing)	<b>Charging core: IP55 Between charging core and backplate: IP54</b>
IK protection (mechanical impact)	<b>IK10</b>



## 2. Product Overview

### 2.1 Scope of delivery

No.	Item	Quantity
1	NEO	1
2	Quick Guide	1
3	Removal Kit	1
4	Plastic anchor	4
5	Wall-mounting screw	4
6	Rubber plug	2
7	Security screw	2
8	Security label	1
9	RFID card	2
10	CT Kit (Single Phase)	1
	CT Kit (Three phase)	1



1



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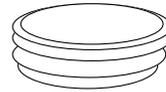
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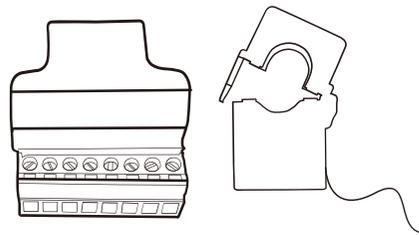
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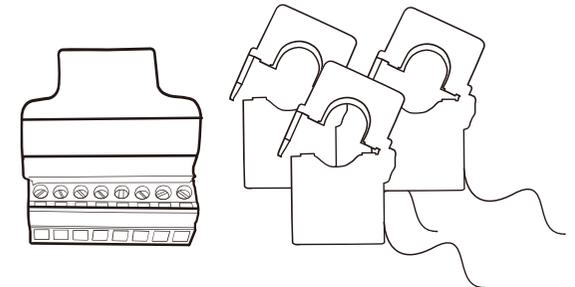
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OR



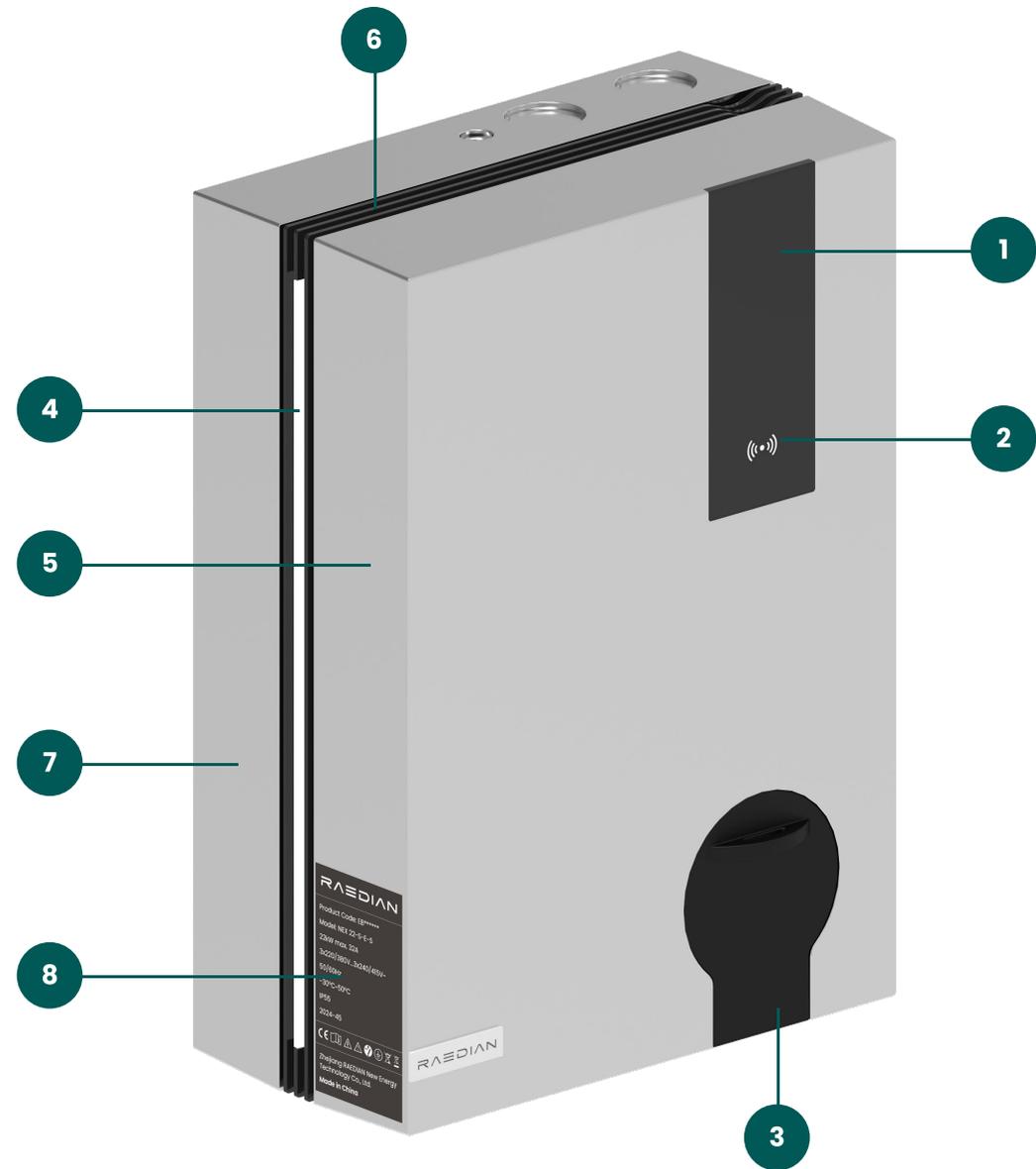
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## 2.2 Exterior view

1. Display
2. RFID card reader
3. Type 2 socket
4. LED stripes
5. Front cover
6. Charge core
7. Backplate
8. Identification label



## 3. Installation and connection

### 3.1 Safety announcements



#### **DANGER**

Risk of injury and electrocution. Installation, (de)commissioning and maintenance of the charger must only be performed by a qualified electrician.



#### **DANGER**

Risk of injury and electrocution. Installing the charger incorrectly may result in fatal injury! When working with electricity, failure to comply with relevant regulations can lead to dangerous and life-threatening situations.



#### **DANGER**

Risk of electrocution. The electrical system must be disconnected from every power source before performing any installation or maintenance work!



#### **DANGER**

Risk of injury and electrocution. The charger contains electrical components that still contain a charge after being disconnected from the system. Always test with proper equipment to ensure there's no residual current before commencing to work.



#### **WARNING**

Risk of injuries, explosion or fire. Never install in a potentially explosive atmosphere.



#### **WARNING**

Risk of electrocution. Never install in areas prone to flooding without implementing compensatory measures.



#### **WARNING**

Risk of injury and electrocution. Installation work must not be carried out during rain or if the air humidity exceeds 95%.



#### **WARNING**

Risk of injury and electrocution. The installation must be performed by a qualified electrician who has read this guide and will execute the installation in accordance with the IEC 60364 (Electrical Installations for Buildings) standard.



#### **WARNING**

Risk of damage or electrocution. A charger must always be installed on separate power circuit.



#### **WARNING**

Risk of damage or electrocution. Local conditions may affect the installation requirements. Your installation must comply with the standards and regulations of the location (country) where it is installed.



#### **CAUTION**

Risk of injury and damage. The installer is always responsible for choosing the correct cable diameter and complying with the relevant standards and legislation.



#### **CAUTION**

Risk of injury and damage. The installation and cables must be rated to match the maximum charging current of the charger input, assuming continuous load.



## 3.2 Assembly and installation requirements

### 3.2.1 Power supply cable

Minimum advised cable cross-section (based on assumed max. 50 m cable length):

- 3-phase 11 kW charging, 16 A selected per phase: 5 x 4 mm<sup>2</sup>
- 1-phase 7.4 kW charging, 32 A per phase: 3 x 6 mm<sup>2</sup>
- 3-phase 22 kW charging, 32 A per phase: 5 x 6 mm<sup>2</sup>

### 3.2.2 RCD requirement

- A residual current monitor device is integrated inside the charger. The charger will stop charging in case residual current exceeding 6mA DC is detected, according to IEC 62955.
- The RCD is automatically tested between each charging session.
- The integrated RCD has no influence on the function of external protective devices.

An external RCBO is required shown as below:

Input.	Specification	Remark
1-phase	2P, 40A RCBO, at least Type A, Characteristic B/C	50 Amp is recommended if the ambient temperature is higher than 40°C
3-phase	4P, 40A RCBO, at least Type A, Characteristic B/C	

### 3.2.3 Grounding

- TN system: separate PE cable
- TT system: separately installed grounding electrode < 100 Ohm spreading resistance
- IT system: connected to a shared reference (common earth) with other metal parts

## 3.3 Preparation prior to installation

- Check the scope of delivery and all required parts.
- Read this installation guide beforehand.
- Verify and determine the installation location.

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## 3.4 Installation tools

1. Pencil or marker
2. Measuring tape
3. Drilling machine
4. Hammer
5. Phillips screwdriver
6. Slotted screwdriver
7. Voltmeter or digital multimeter
8. M25 Hole Saw (for plastic)

## 3.5 Installation procedure prerequisites



### NOTE

The following text only describes the wall-mounting installation procedure. The NEO can also be mounted on a pedestal. The pedestal is an accessory and the installation instruction is provided within its scope of delivery.



### NOTE

Install the charger upright against the wall and/or on the mounting pedestal. Installations other than this may lead to damage to the charger.



### NOTE

Chargers which are exposed to the elements will gradually age and/or discolor. RAEDIAN recommends to place the chargers in a sheltered environment to optimize the lifetime of the product.

- The installation position must be against a solid, vertical wall.
- In the surroundings of at least 5 m of the installation position there must be no fire hazard.
- The power supply cable must be routed before proceeding with the installation.
- The power cabinet must be equipped with at least a Type A RCD according to IEC 61008 or IEC 61009.
- The electrical system must be disconnected from every power source before performing any installation work.

## 3.6 Mechanical installation procedure

- Take the charger out of the box.
- Place the charger on a non-scratching surface to prevent damage.
- Check if all parts listed are provided.



### 3.6.1 SIM card Installation



#### NOTE

Applicable to RAEDIAN NEO and NEX models that support 4G with a user SIM card (models with-ES).

#### Two SIM options:

- User SIM: Nano SIM, Settable APN user name and password.
- eSIM: Integrated, activated by Lifetime Connectivity Key (please contact reseller or distributor).

#### Installation procedure:

Separate the front cover and charge core of the charger

**1** Remove the card slot cover on the charge core.

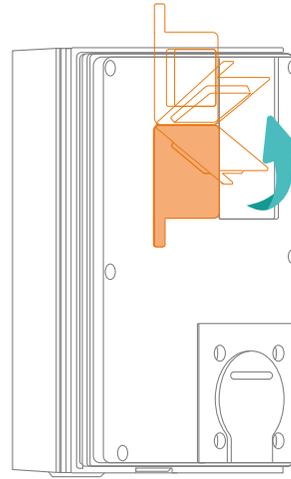
**2** Insert User SIM card.

## Must !

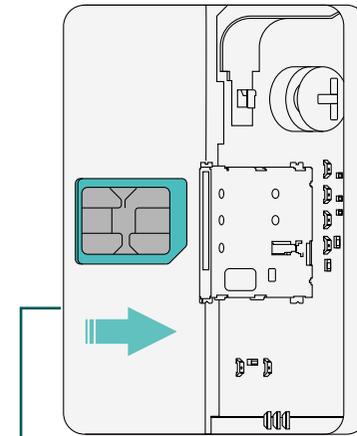
**3** Peel off the film on the card slot cover and attach the cover to the charge core.

&

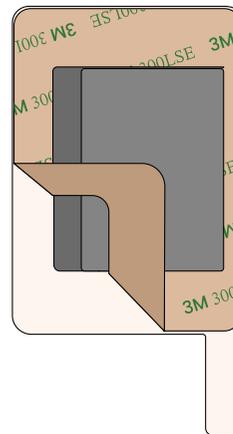
**4** Securely install the front cover onto the charge core.



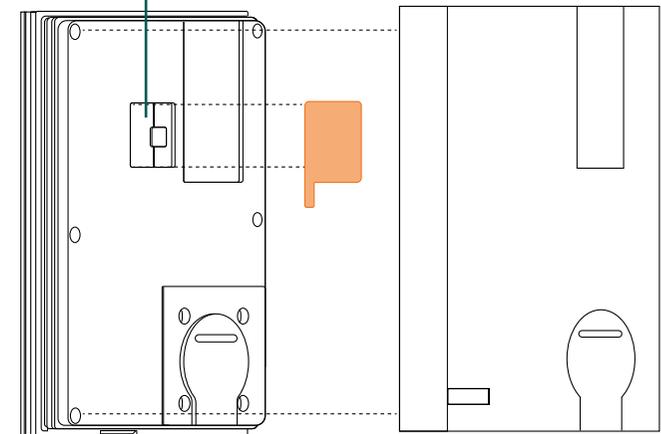
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### 3.6.2 Wall-mounting the backplate

- Place the backplate on a clear and solid wall with a bearing capacity of at least 100 kg. Recommended height: 800–1000 mm.
- Ensure it is level, and use a pencil to mark the positions for 4 drilling holes.
- Drill 4 holes at the marked locations. Recommended depth and diameter: 50 mm;  $\phi 8$  mm.
- Insert 4 plastic anchors into the drilled holes.
- Mount the backplate and fasten it using four wall-mounting screws.

2

### 3.6.3 Electrical installation procedure



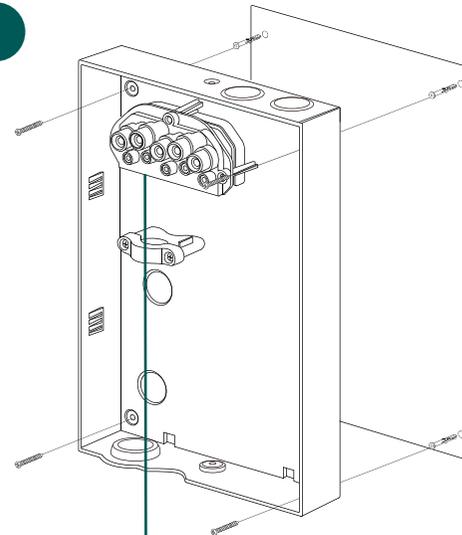
#### WARNING

At least an external Type A RCD is required to be installed upstream. Ensure the installation complies with all applicable laws and regulations.

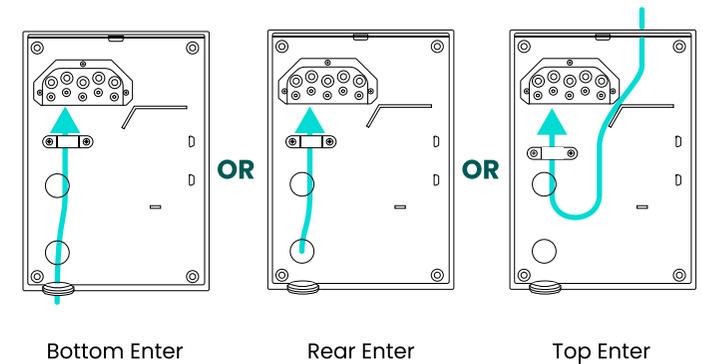
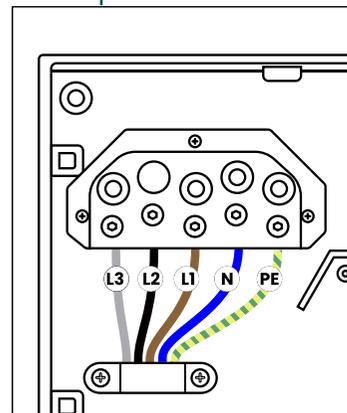
Ensure you know whether the charger needs to be installed as a single-phase or three-phase variant.

- There are three entries available for input wiring: bottom (recommended), top and rear wiring entry. For the top and rear entry, use an M25 hole saw to create the hole and install the rubber plug over the hole.
- Connect the power wires to the terminal block according to the type of equipment (single-phase or three-phase) shown in the figure.

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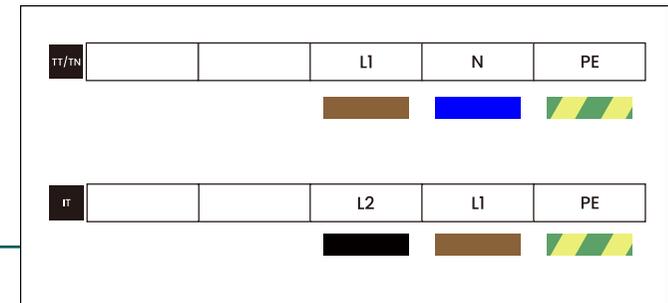


Bottom Enter

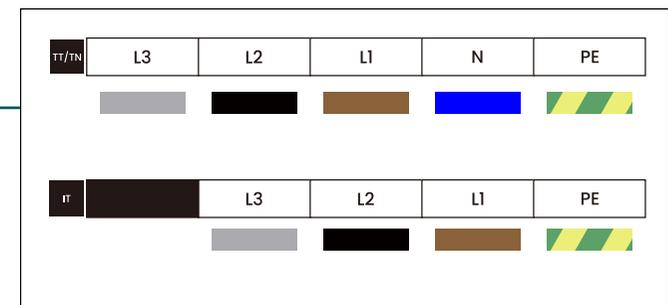
Rear Enter

Top Enter

Single phase



Three phase



### 3.6.4 Ethernet Cable Installation (For CT Kit/SC Kit/EMS)

**1** There are two options available for input wiring: top and rear entry. Use an M25 hole saw to create the hole and install the rubber plug over the hole. (An M25 cable gland is recommended for the top entry.)



#### NOTE

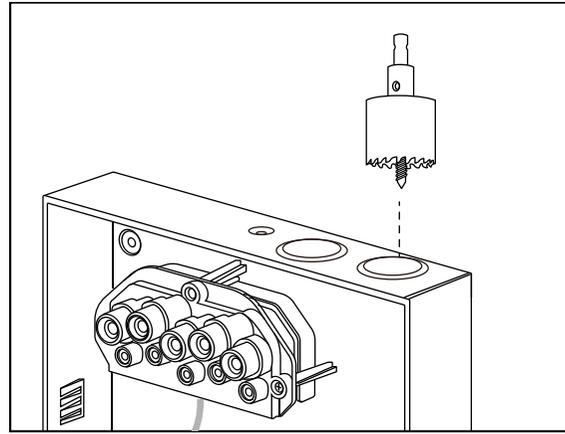
Recommended reserved cable lengths:

- Top entry – 45 cm;
- Rear entry – 35 cm.

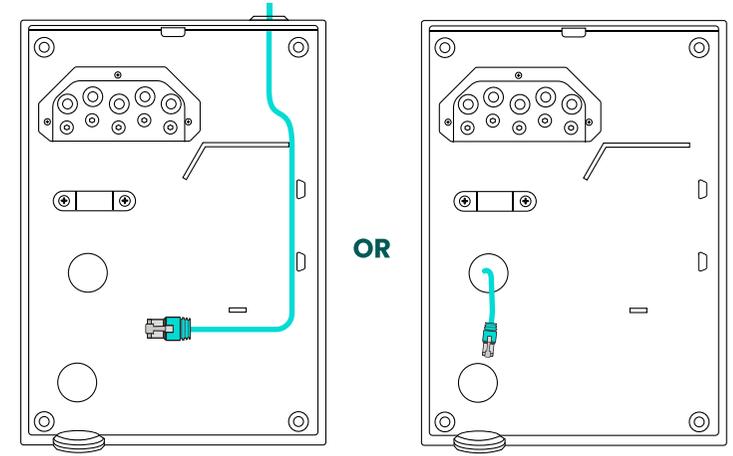
**2** Run the Ethernet cable through the chosen hole and install the RJ45 connector.

**3** Plug in RJ45 port.

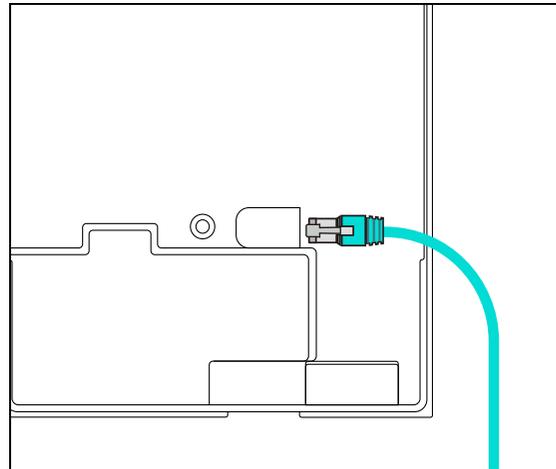
**4** Securely clip the charger's body onto the backplate.



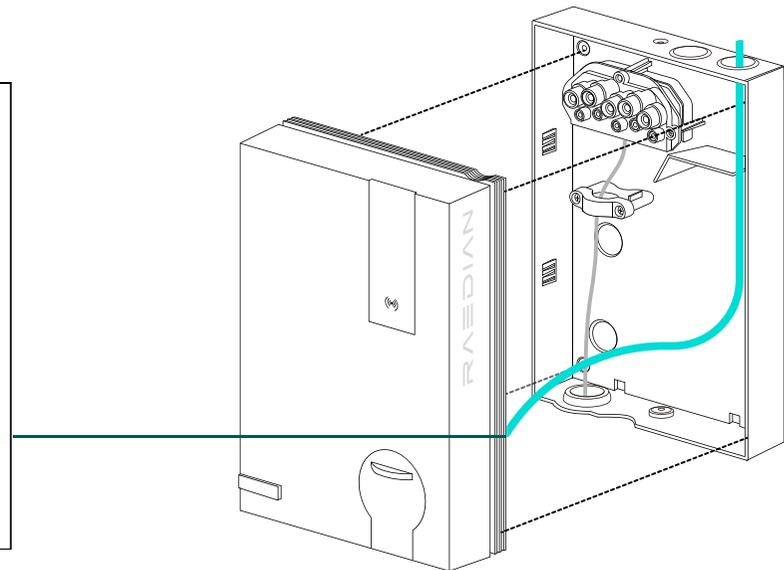
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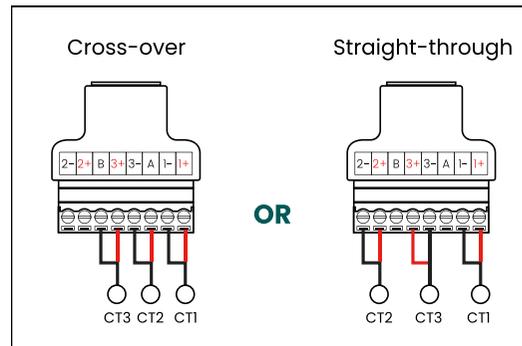
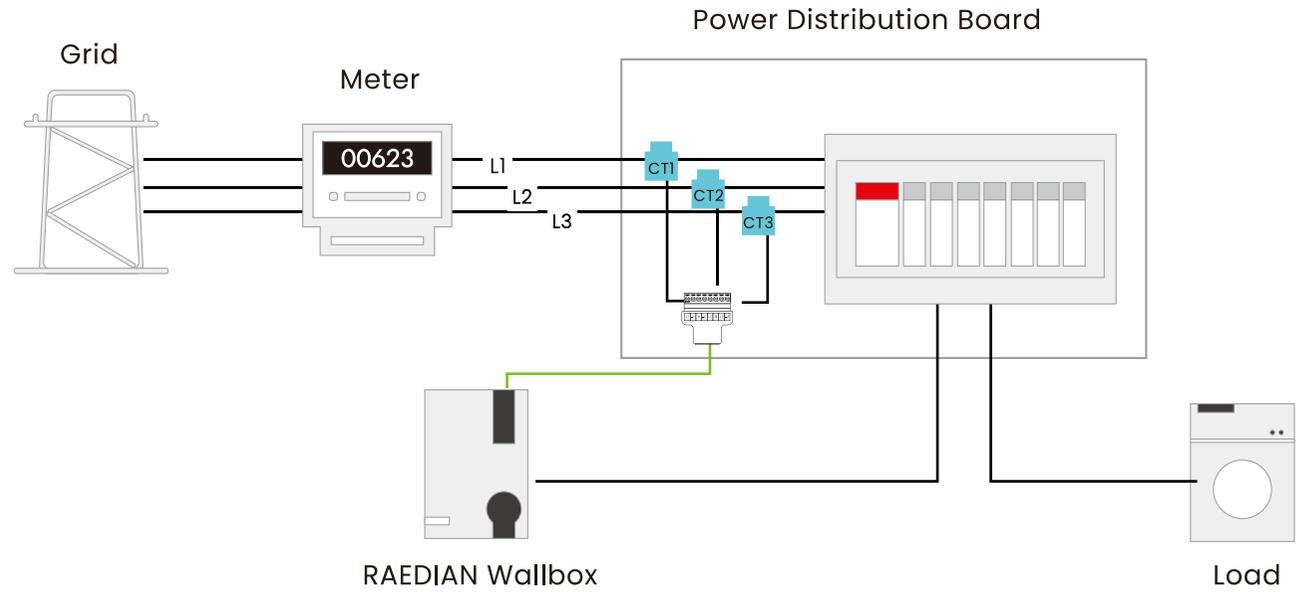
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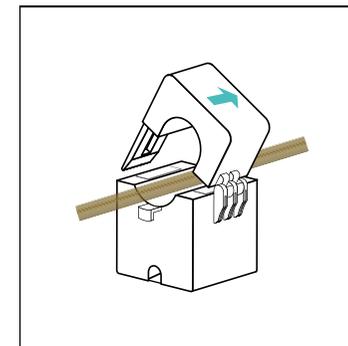
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### 3.6.5 CT Installation for Home Balance

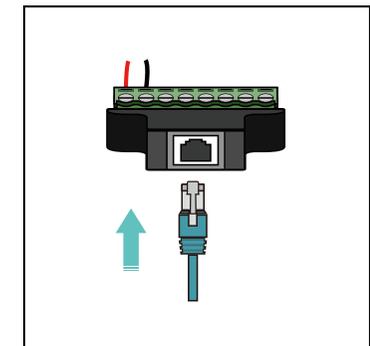
- 1** For the 11kW and 22kW variants, connect CT2 and CT3 to the RJ45 connector according to the Ethernet cable type used (Straight-through or Cross-over). Follow the specific wiring sequence for the type of cable you are using.
- 2** Securely attach CT1 to L1, either upstream or downstream of the main circuit breaker. Ensure that the arrow on the CT clamp is pointing toward the load, and firmly clamp it until you hear a 'click'.  
  
Repeat the same steps for CT2 and CT3 (if present), attaching them to L2 and L3 respectively.
- 3** Connect the charger to the RJ45 adapter using the Ethernet cable.



1



2



3

### 3.6.6 Additional installation procedure for Load Management with EMS

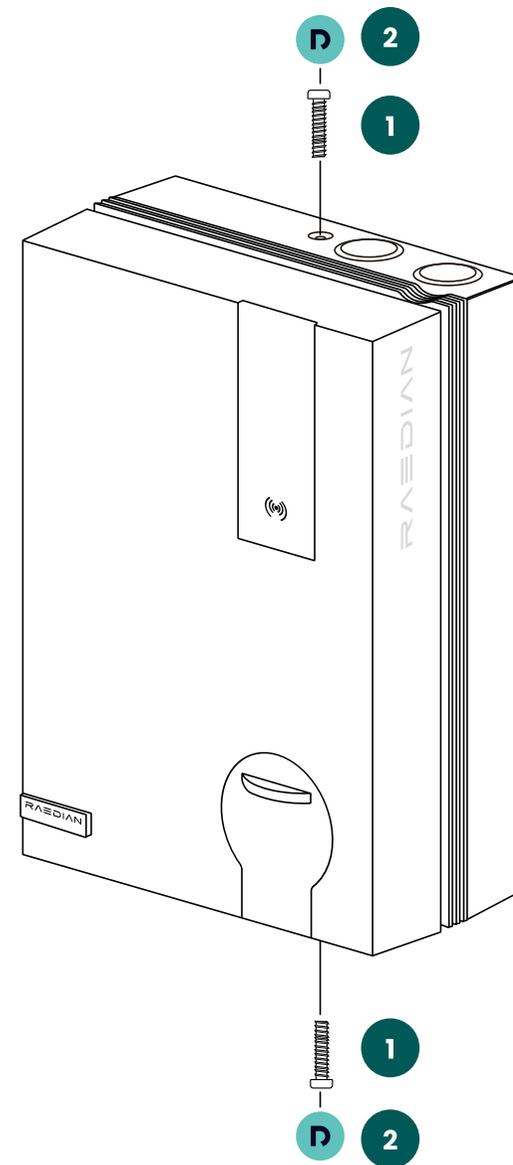
- NEO supports load management through external EMS devices.
- Home Balance and Solar Charging will be not available when using EMS by setting ModbusRTU.
- Use the Ethernet cable to connect the charger and the external EMS device. Connect one RJ45 connector of the Ethernet cable to the charger in the same way as in **3.6.4**.
- Another RJ45 connector of the Ethernet cable can be connected to the external EMS device through the provided CT adaptor.

1. Remove the CT clamp connected to the CT adaptor
2. Connect external EMS with RS-485 A and B on the CT adaptor.

### 3.7 Finishing the installation

The electrical installation is finished.

- 1 Tighten two security screws, one at the top and one at the bottom of the charger.
- 2 Seal the top and bottom with two security stickers.



## 4. Commissioning

### 4.1 Safety instructions before use

Carry out the following safety instructions before commissioning your charger:

- Check if the charger is properly connected to the power supply as described in this guide.
- Check if the distribution of the power supply is separately protected by an appropriate breaker (automatic or fuse cartridges).
- Check if the charger is installed in accordance with this guide.
- Check if the casing is closed.
- Verify that the charging cable is not twisted and that the cable, plug and casing are not damaged.

### 4.2 Initial start-up

- The charger will boot up and run self-diagnostics within a few seconds
- The OLED display shows a booting image and indicates the availability with a **"READY"**. The LED stripes on the side of the charger will display a white colour with the falling effect. And the charger is now ready for testing.

### 4.3 Test the charging process

- Plug the charging cable into the socket (for socket variant) and press it it firmly.
- Plug cable into EV to start charging.
- The charger is ready for charging and is waiting for the vehicle to start. The LED stripes will display a green colour with the scrolling effect.
- After the vehicle has enabled charging, the OLED display shows real-time charging information like charging current and power. The LED stripes display a cyan colour with the falling and retracting effect.

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## 5. Maintenance

Maintaining the casing of the charger:

- Annual cleaning, using water and mild soap.



### NOTE

The casing of the charger can be damaged. Do not use any aggressive cleaning agents, high-pressure cleaners, scouring pads or similar.

## 6. Waste Electrical And Electronic Equipment (WEEE)



Electrical and electronic equipment contains materials, components and substances that may be harmful and pose a risk to human health and the environment if not handled correctly.

Equipment marked with the symbol above indicates that it's electrical and electronic equipment. It means that this waste must be collected separately and should not be discarded together with household waste.

Please check with your local authority for collection schedules. Residents can dispose of waste electrical and electronic equipment at recycling centres or other designated collection points.

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