

# NEX

## INSTALLATION MANUAL – SEMI-PUBLIC CHARGING SOLUTIONS



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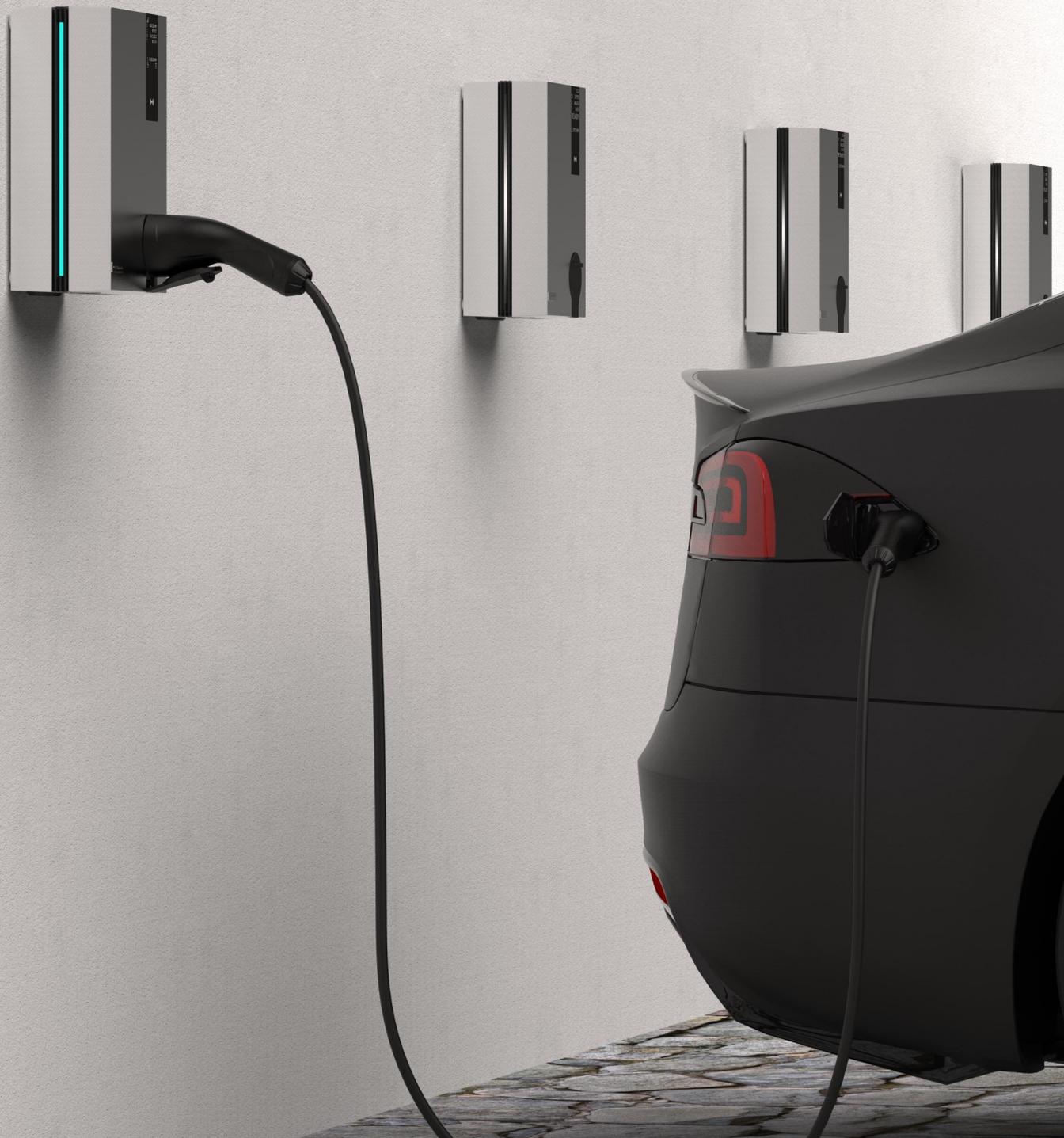
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# 1. Safety and usage guide

## 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

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## 1.3 Trademarks

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## 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 NEX (in this document also indicated as "Charger") produced by RAEDIAN. The NEX 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

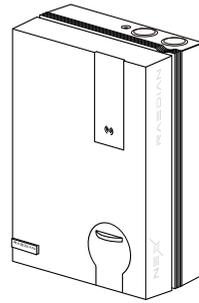
Operating temperature	<b>-30°C ~ 55°C with derating mechanism</b>
Relative atmospheric humidity	<b>5% ~ 95 %</b>
Electrical safety class	<b>Class I</b>
Degree of protection (housing)	<b>Charging Core: IP55 Between Charging Core and Backplate: IP54 EtherBox: IP67</b>
IK protection (mechanical impact)	<b>IK10</b>



## 2. Product Overview

### 2.1 Scope of delivery

No.	Item	Quantity
1	NEX	1
2	Quick Guide	1
3	Removal Kit	1
4	Plastic anchor	4
5	Wall-mounting screw	4
6	Security screw	2
7	Security label	2
8	RFID card	2
9	Rubber plug	2
10	Single Cable Gland	1
11	Dual Cable Gland	1
12	Rubber stick	2



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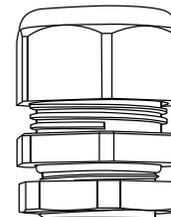
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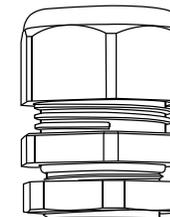
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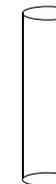
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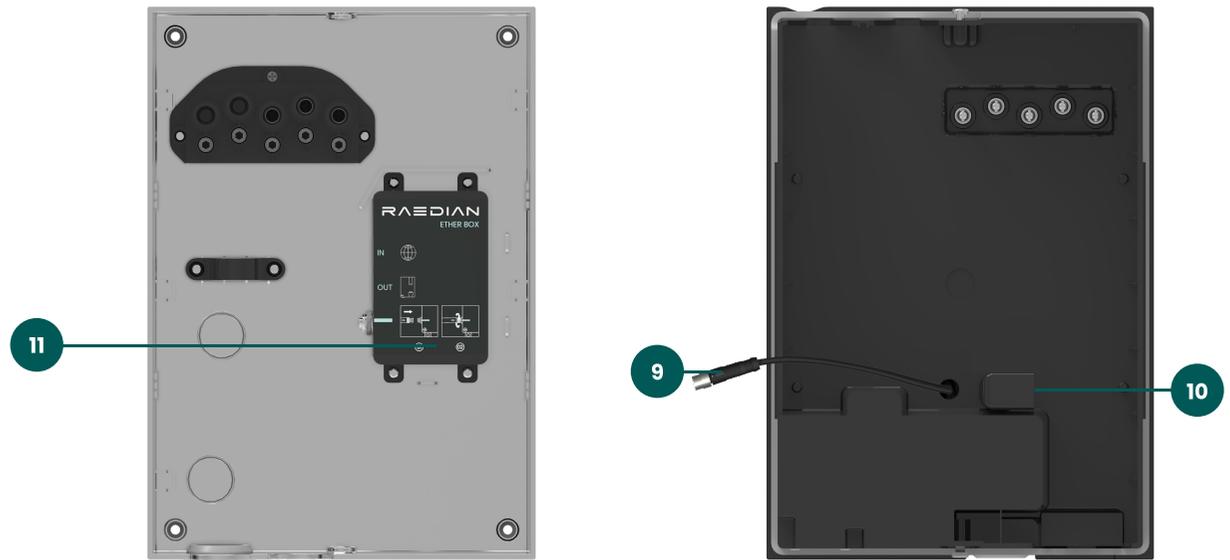
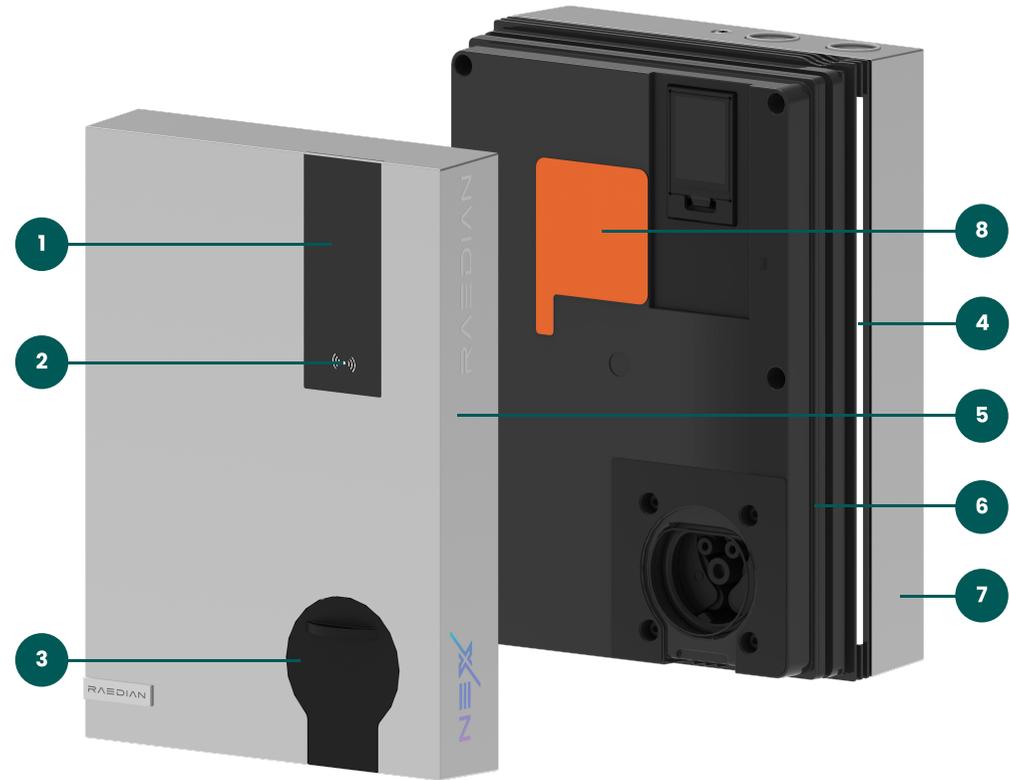
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## 2.2 Exterior view

1. Display
2. RFID card reader
3. Type 2 socket
4. LED stripes
5. Front cover
6. Charge core
7. Backplate
8. SIM card insert area
9. Cable assembly for etherbox
10. RJ45 jet for CT clamps and RS-485
11. Etherbox



## 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. 50m 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. Ethernet cable pliers
8. Voltmeter or digital multimeter
9. M25 hole saw (for plastic)

## 3.5 Installation procedure prerequisites



### NOTE

The following text only describes the wall-mounting installation procedure. The NEX 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 have 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.
- Use a non-scratching surface to put the charger down on 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.

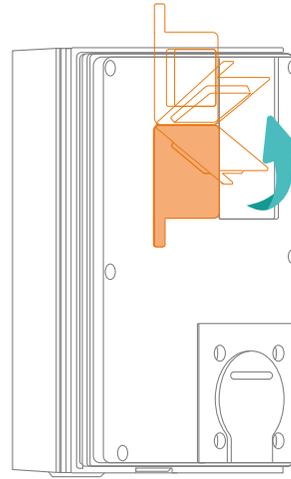
**2** Insert User SIM card.

## Must !

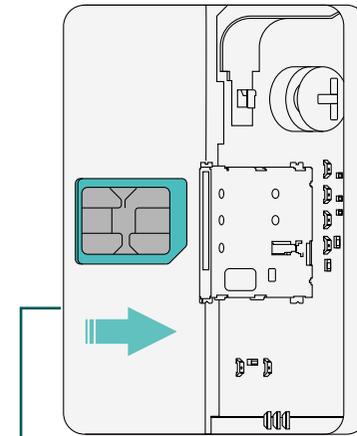
**3** Peel off the film on the card slot cover and attach the cover to the charge core.

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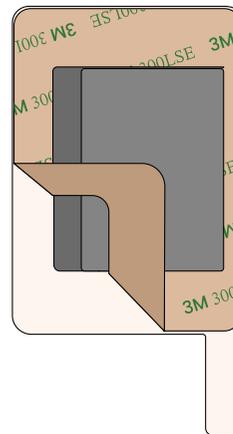
**4** Securely install the front cover onto the charge core.



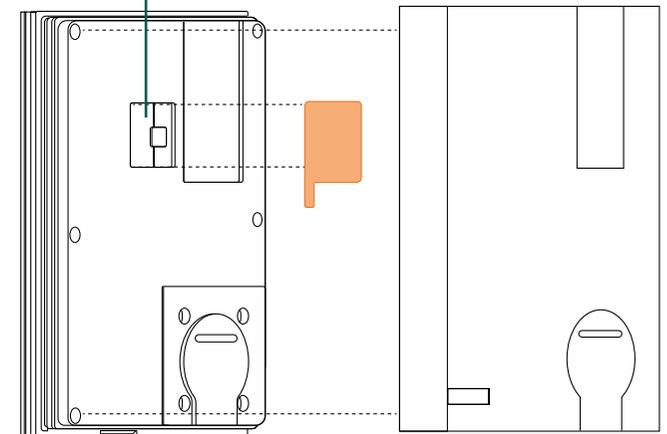
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### 3.6.2 Wall-mounting the backplate

- 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.

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### 3.6.3 Electrical installation procedure

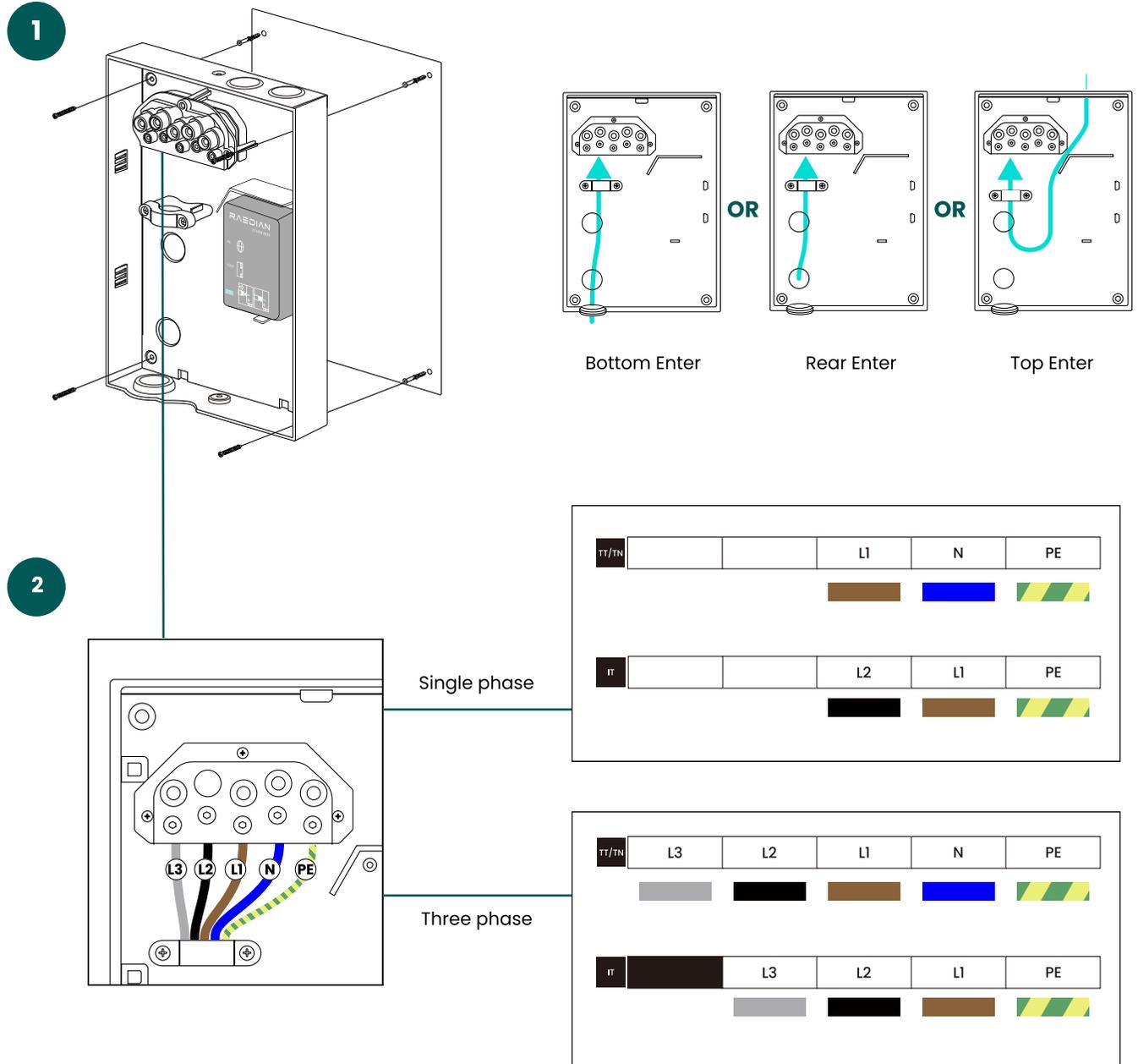


#### WARNING

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

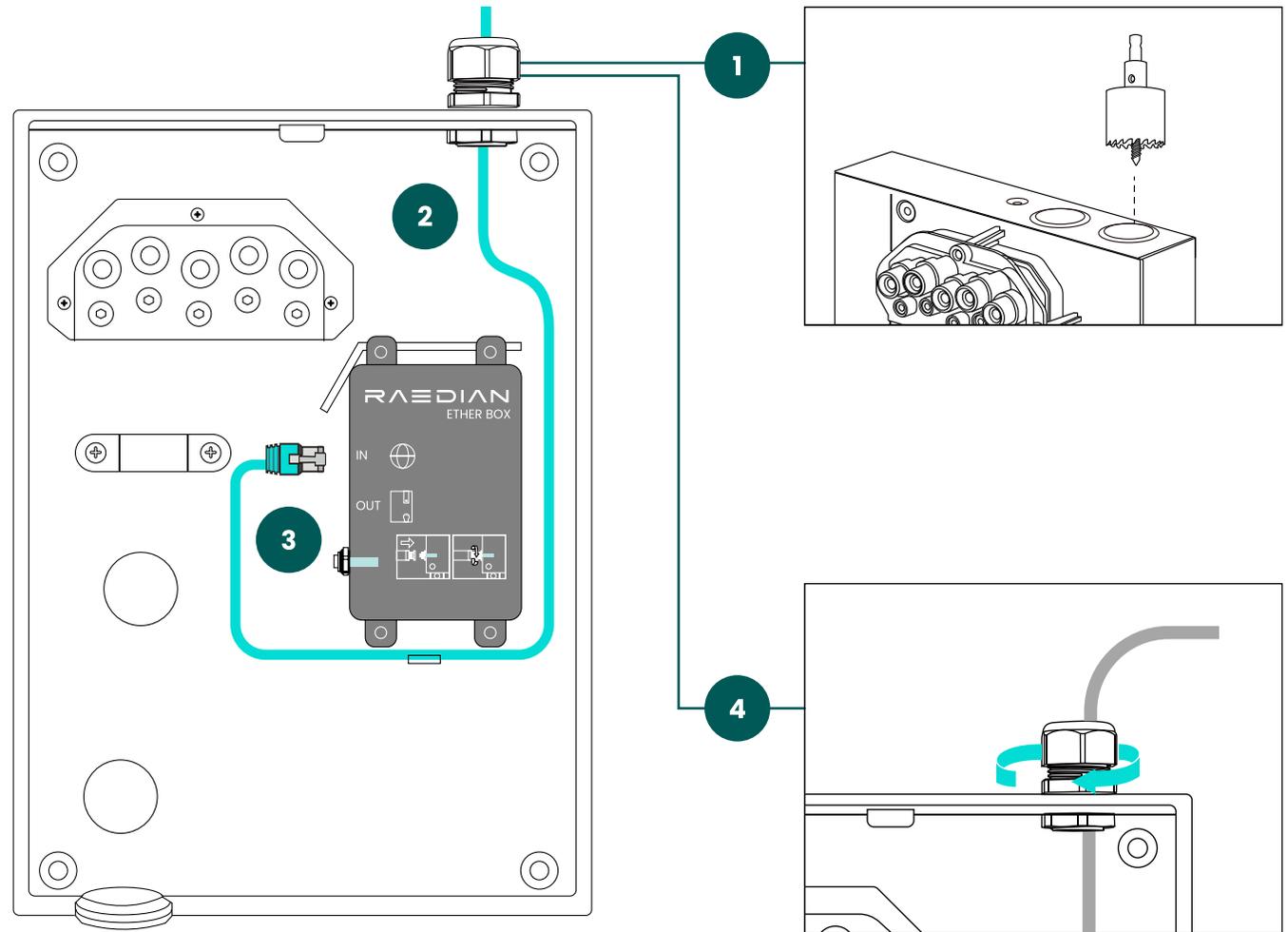
Make sure you know if the charging station needs to be installed as a single-phase or three-phase variant.

- 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.



### 3.6.4 LAN Connection for individual charger

- 1** Use an M25 hole saw to create the hole and install the dual cable gland.
- 2** Remove the rubber stick from the cable gland. Run the Ethernet cable through the hole and install the RJ45 connector.
- 3** Connect the RJ45 connector of the Ethernet cable (connected to the router) to the LAN port (marked as IN) on the Etherbox.
- 4** Tighten the dual cable gland.

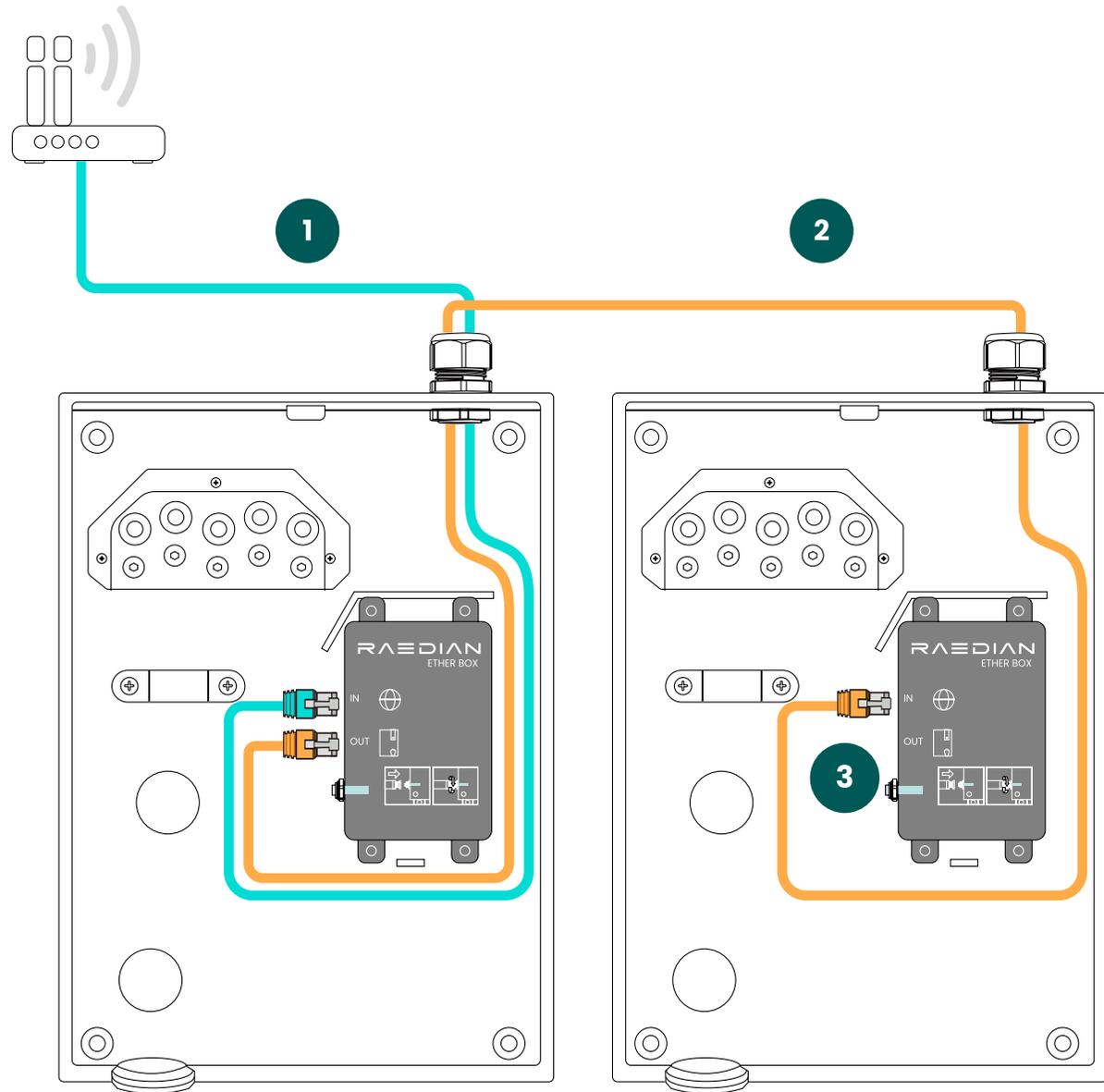


### 3.6.5 Daisy Chain Connection (using two chargers as an example)

- 1** Follow the steps 1, 2 and 3 of the **3.6.4 for the first charger.**
- 2** Take a second Ethernet cable. Remove the other rubber stick from dual cable gland and run the cable through the hole. Then, install the RJ45 connector.
- 3** Connect the second Ethernet cable to the LAN port (marked as OUT) on the Etherbox of the first Charger.

Repeat the steps 1, 2 and 3 to connect the first charger and the second charger.

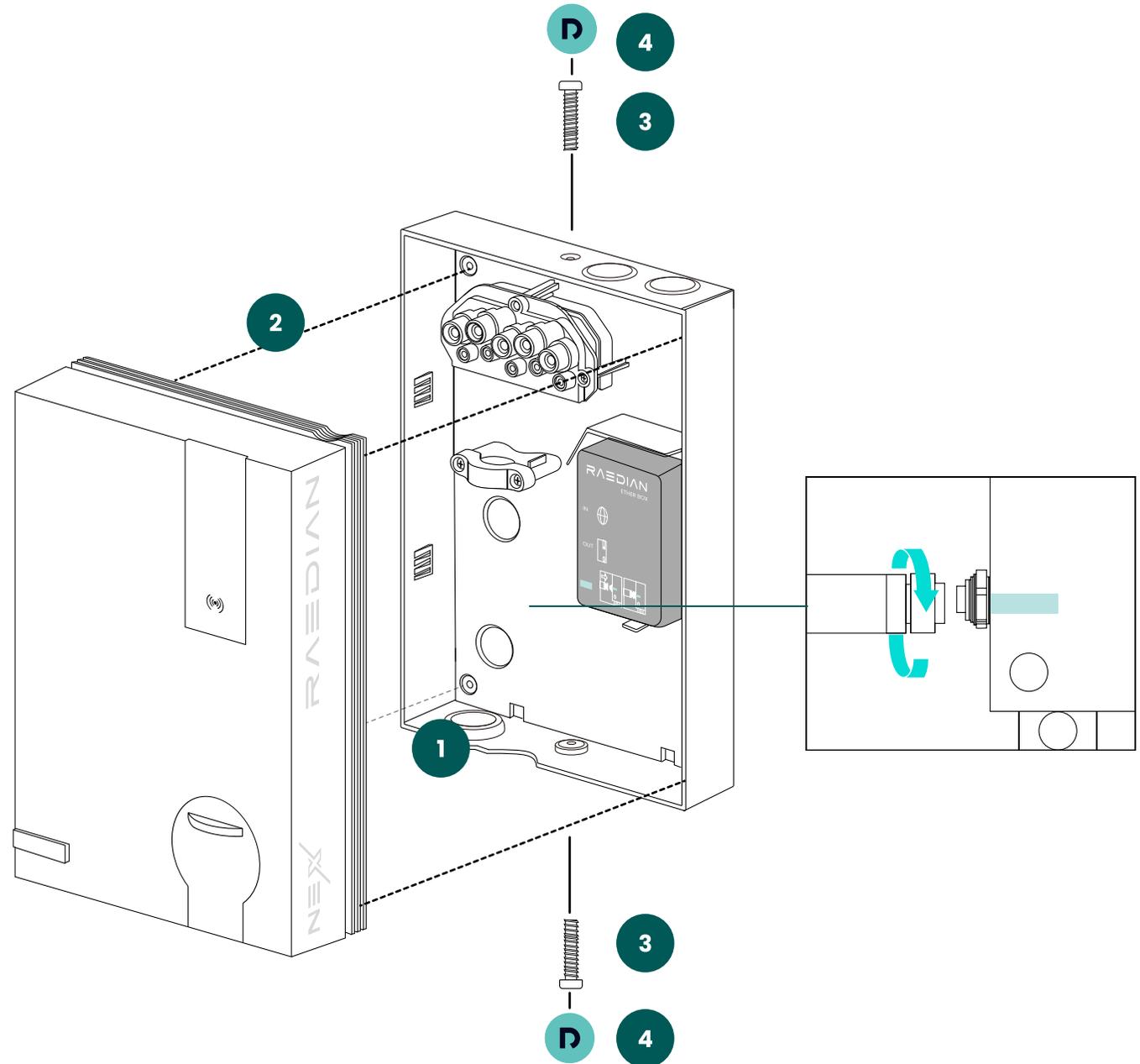
Tighten the dual cable glands on both chargers.



### 3.6.6 Finishing the installation

- 1 Connect the Etherbox wire from the charge core to the Etherbox on the backplate, and tighten it.
- 2 Clip the charger's body back onto the backplate.
- 3 Tighten two security screws, one on the top and one on the bottom of the charger.
- 4 Seal the top and bottom with two stickers.

The electrical installation is finished. The charger is ready to be commissioned.



## 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

- Turn on the local power supply
- The charger will boot up and run self diagnostics within a few seconds
- The charger's OLED display shows booting image and indicate the availability with a **"READY"**. The LED stripes on the side of the charger are white and have a shooting star effect from top to bottom.
- The charger is now ready for testing.

### 4.3 Test the charging process

- Plug the charging cable into the socket (socket variant), press firmly.
- Plug cable into electrical vehicle to start charging.
- The charger is ready for charging and is waiting for the vehicle to release it. The LED stripes display a green colour and flash back and forth.
- After the vehicle has enabled charging, the OLED display shows real-time charging metering information like charging current and power. The LED stripes display a cyan bow lighting effect.
- Pull out the charging cable. The charger is now ready for use.

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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 illustrated crossed out wheeled bin is electrical and electronic equipment. The crossed out wheeled bin indicates that this waste must be collected separately and must 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 collection points.

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