NRGCHARGE

Untethered EV Charger



NRG Charge delivers fast, smart, and reliable EV charging solutions for homes, businesses, and commercial properties.

Manual

Version 1 - Jan 2026

Manual

Index

Introduction	2
Specification	3
Dimensions	3
Fixtures	3
Load balance	4
Step-by-Step Installation Guide	5 - 9
Wiring	10 - 11
Troubleshooting	12



The 7kW (Residential) and 22kW (Commercial) Electric Vehicle (EV) Charge Point is engineered with a modular, three-part design that provides numerous benefits. The first module, the back box, contains all the essential electrical connections. (load balancing, and communication). The back box is non-electronic, and once installed by a qualified engineer, it serves as a foundational connection point. The second module, the main body, integrates with the back box using guided pins, establishing a secure link between the back box and the electronic components. This part is fully encapsulated, tamper-proof, and sealed to ensure durability. Finally, the cover plate clicks into place to complete the unit.

This modular approach enables a streamlined service plan, eliminating the need for site visits by a qualified engineer. The unit includes a standard 3-year warranty, which can be extended to 5 years due to reduced reliance on on-site servicing. Additionally, this design offers convenience for property developers, allowing the installation of the back box at the first fix phase without any electronics, and thus no immediate value, until the main body is added later on.

SGS certification

Fast charging 7kW/22kW

WiFi & Bluetooth 4G/Ethernet

Easy installation & maintenance

DLB & Solar charging

Full chain encryption

Type A(30mA)+ DC6mA built-in

IP54, IK10

Multiple security protections

Long-term use of 100,000 times

Mobile APP control RFID, plug & play

OTA smart scheduled charging

This product is covered by the Waste Electrical and Electronic Equipment (WEEE) Regulations. At end of life, the unit must not be disposed of with general waste.

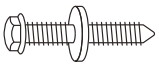
Please return the product to the supplier or take it to an authorised WEEE recycling facility for proper treatment and recycling.



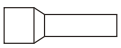
Specification

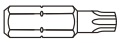
AC Power supply	NRG-10-07-x-xx NRG-10-22-x-xx	1P+N+PE 3P+N+PE
Rated Power	NRG-10-07-x-xx NRG-10-22-x-xx	7.4kW 22kW
Rated Voltage	NRG-10-07-x-Xx NRG-10-22-x-xx	AC 230V, 50/60Hz AC 400V, 50/60Hz
Rated Current	NRG-10-07-x-xx, NRG-10-22-x-xx	32A
Sockets	NRG-10-xx-S-xx	Socket
Tethered(Cable)	NRG-10-xx-T-xx	Tethered(Cable)
Product size (H*W*D)	NRG-10-xx-S-xx	255mm*180mm*105mm
Indicator Light	NRG-10-xx-1-xx	LED lights
Charge Mode	Smart phone APP control, RFIDcard control, Plug-and-charge	
Communication Interface	WiFi+BT, 4G, LAN	
Communication Protocol	OCPP 1.6)	
RCD	Type A (30mA) + DC 6mA built-in	
Altitude	2000m	
IP Code	IP54	
Relative humidity	<95>%RH, No water droplet condensation	
Vibration	0.5G, No acute vibration and impaction	
Installation location	Indoor or outdoor, good ventilation, no flammable explosive gases	
Mounting	wall-mounted or pole-mounted (mounting pole is optional)	
Safety	Over current protection, over voltage protection, under voltage Protection protection, over temperature protection, leakage protection, unconnected PE ground protection etc	

Fixtures

4 X  WALL MOUNTING SCREWS

4 X  WALL PLUGS

5 X  FERRULES

1 X  TORX bit

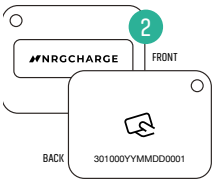
4 X  Screw caps

1 X  Pry bar

1 X  cable gland (For bottom entry)

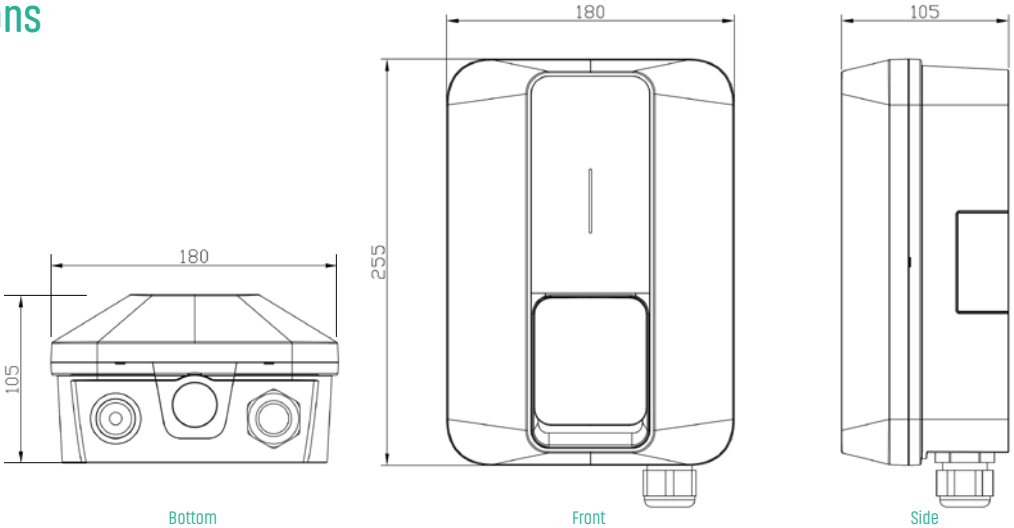


CTCLAMP
1x CT clamp as standard (For Load Management)
2nd CT clamp if ordered (For PV and Load Management)
Eastron split-core current transformer (CT) with a primary rated input of 120A and a secondary rated output of 40mA.
0.5% ACCURACY



RFIDCARDS
2 X TAP & CHARGE RFID Key ring Tags
Used to authorise charging in tandem with app, or in standalone RFID Mode.

Dimensions



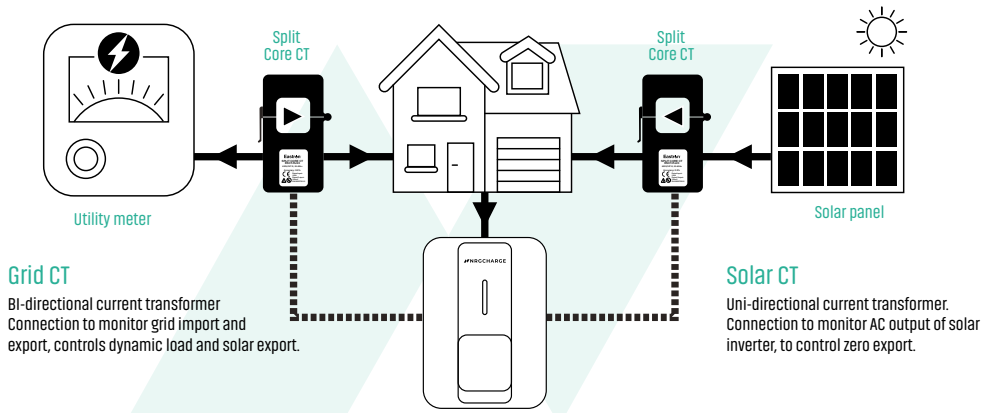
Bottom Front Side

Load Balancing + PV

Utilizing the CT (Current Transformer) enables load balancing, ensuring the charger does not take priority over the property's overall power needs. The system continuously monitors the property's electrical load and relays this data to the charger's internal controller. Based on this real-time feedback, the charger automatically adjusts its power demand to avoid overloading the system, preventing potential tripping or loss of power. If you also want to utilize the PV mode, you will need a second CT clamp that will monitor the inverter and allow the charger to use any generated power rather than drawing electricity from the grid.

Example:

Your EV needs at least **6A** (~1.4 kW) to charge. Your solar panels are only generating **1 kW** at that moment (e.g., it's cloudy). In **PV Mode** → the charger takes **1 kW** from solar **+ 0.4 kW from the grid**, so the car keeps charging smoothly.

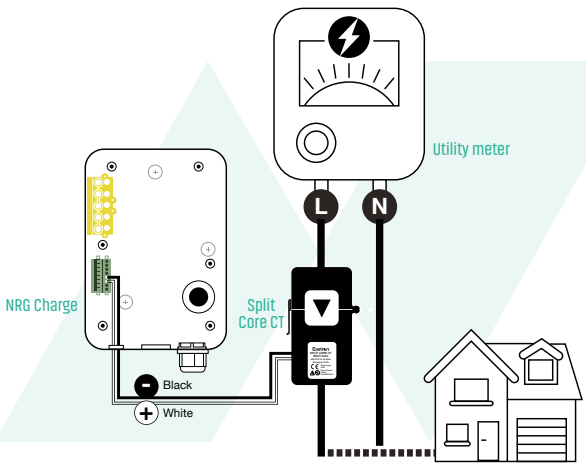


Load Balancing Important Information

The Load Balancing is activated via the Grid CT connections. To set this up, ensure the CT connections are secure and the polarity is correctly matched. Connect the CT to the incoming main supply from the meter to the property. The arrow on the CT should point in the direction of the incoming electrical flow.

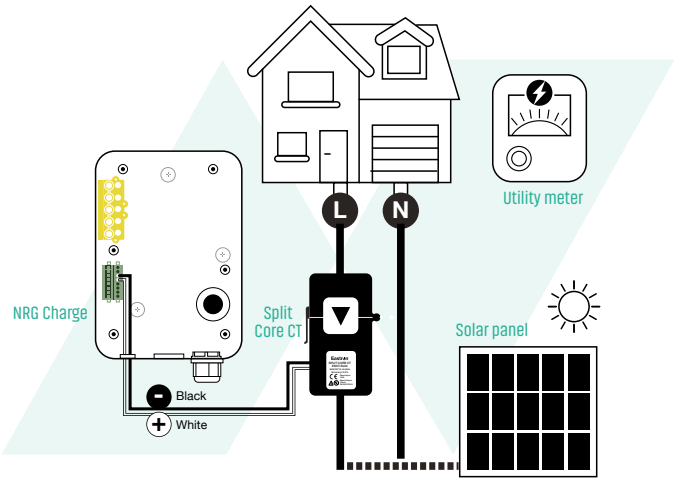
PV Mode important information

Ensure the CT is securely installed with correct polarity. Connect the CT to the outgoing supply from the solar inverter to the property. The arrow on the CT must point in the direction of the outgoing flow of electricity. If the polarity is incorrect, the CT will not read accurately and must be repositioned to correct the direction.



Grid CT Connection

Bi-directional current transformer connection
To monitor grid import and export
CT+Connection: Black **CT-Connection:** White



Solar CT Connection

Uni-directional current transformer
Connection to monitor AC output of solar inverter
CT+Connection: Black **CT-Connection:** White



Step-by-Step Installation Guide

Safety Warnings and Installation Notes

IMPORTANT: Read this section carefully before installing or servicing the EV Charger.

Qualified Personnel Only

Installation, commissioning, and maintenance must be performed by a qualified and competent electrician in accordance with BS 7671 (IET Wiring Regulations, 18th Edition) and all relevant local regulations.

Electrical Isolation

Before starting any installation or maintenance work, isolate the power supply at the distribution board and verify the circuit is de-energized to prevent electric shock or injury.

Circuit Protection

The EV charger must be connected to a circuit protected by an appropriate overcurrent protective device (e.g., MCB) rated according to the charger's current specifications and complying with BS EN 60898-1.

Residual Current Device (RCD) Protection

This EV charger includes a built-in Type A RCD with 30mA AC sensitivity and 6mA DC residual current detection, providing protection against electric shock and DC fault currents.

- An external RCD dedicated to the EV charging circuit **may not be required**.
- Always verify compliance with local regulations and utility requirements.
- If an external RCD is installed upstream, ensure coordination with the charger's internal RCD to avoid nuisance tripping.

Cable Sizing and Voltage Drop

Select cables with adequate current-carrying capacity according to BS 7671, considering cable length and voltage drop limits. For cable runs longer than 100 meters, increase conductor size to maintain voltage drop within permissible limits.

Earthing and Bonding

Ensure protective earthing and bonding comply with BS 7671 Chapter 54 to guarantee user safety and proper operation of protective devices.

Environmental Conditions

Install the charger only in locations with an environmental rating matching the product's IP classification. Avoid exposure to extreme temperatures, moisture, or direct sunlight unless the unit is rated for such conditions.

Manufacturer Instructions

Strictly follow all manufacturer instructions. Any deviation may compromise safety, performance, and warranty validity.

Do Not Modify

Do not open, alter, or attempt to repair the charger unless authorized. Unauthorized modifications can cause electric shock, fire hazards, or damage, and will void the warranty.

Testing and Verification

After installation, perform all required electrical tests, including continuity of protective conductors, insulation resistance, polarity, and RCD function tests, in accordance with BS 7671 Part 6.

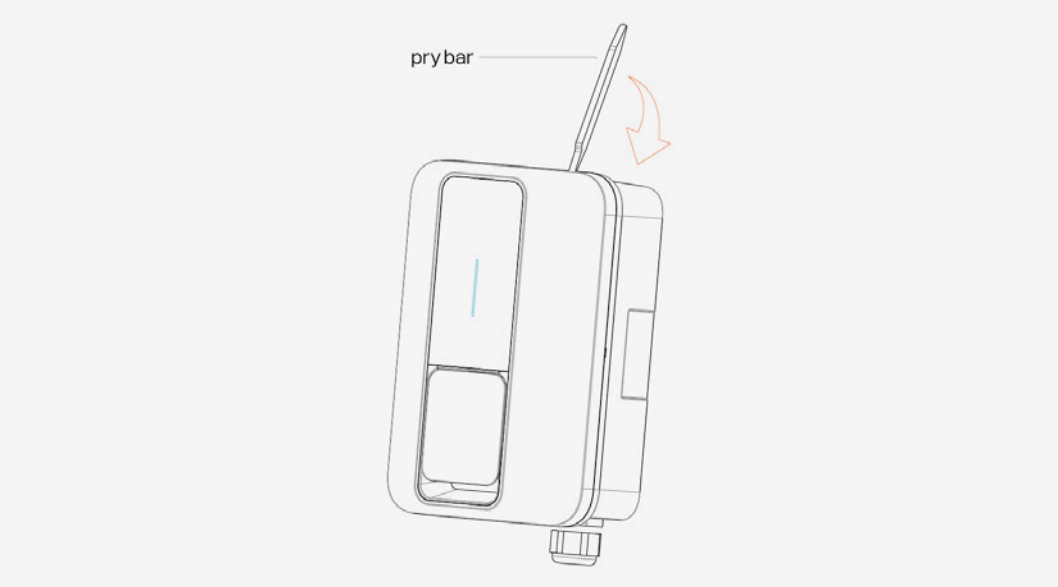
CT Installation

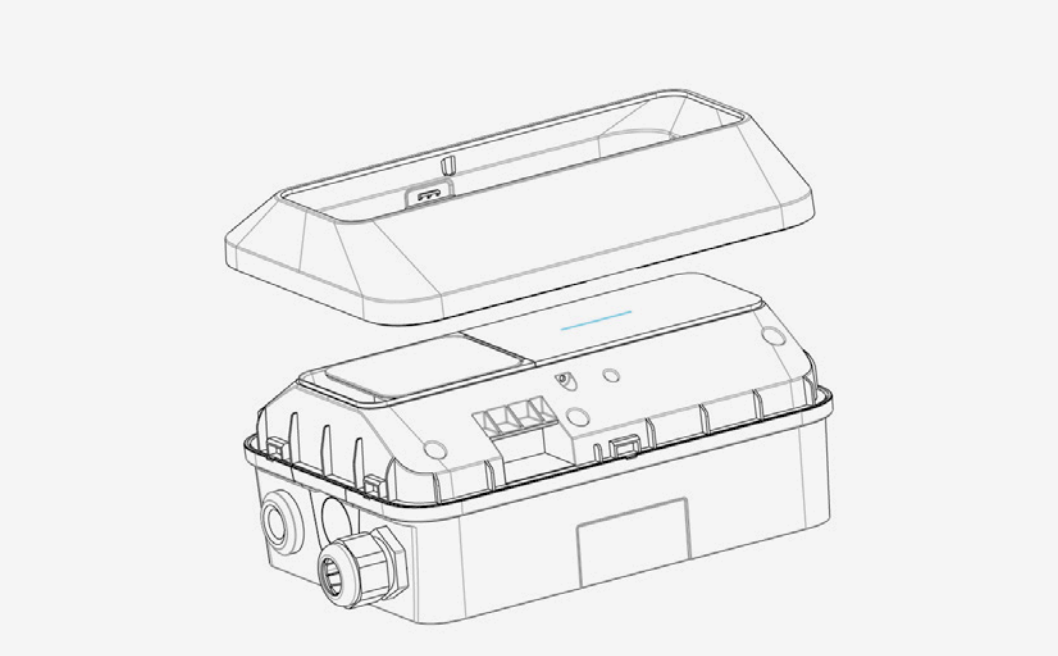
Never clamp the CT around the cable before it has been terminated in the charger.

Step-by-Step Installation Guide

1. Remove the Front Cover

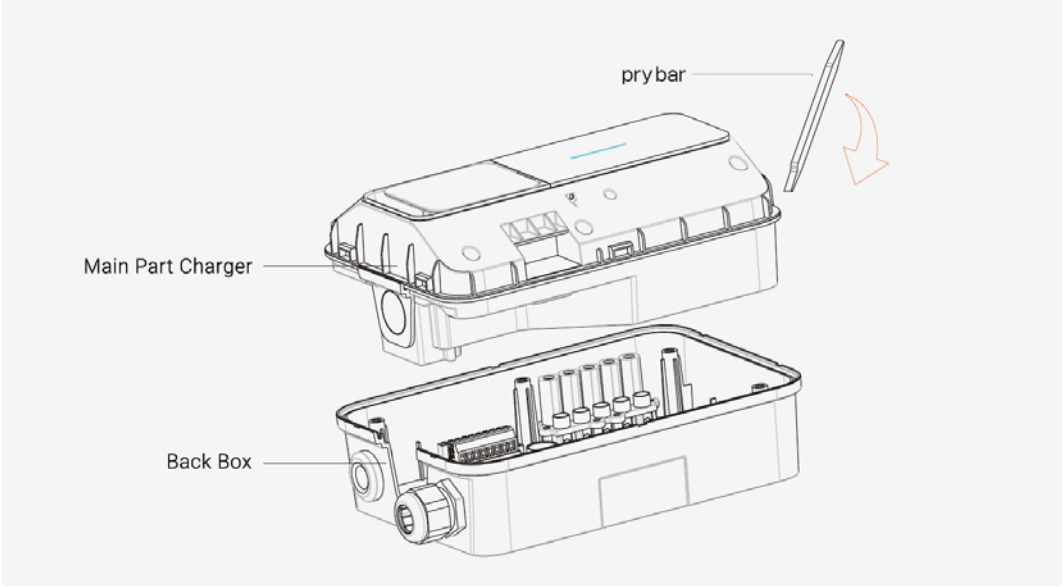
Use the plastic pry bar to carefully remove the front cover from the face of the charger.





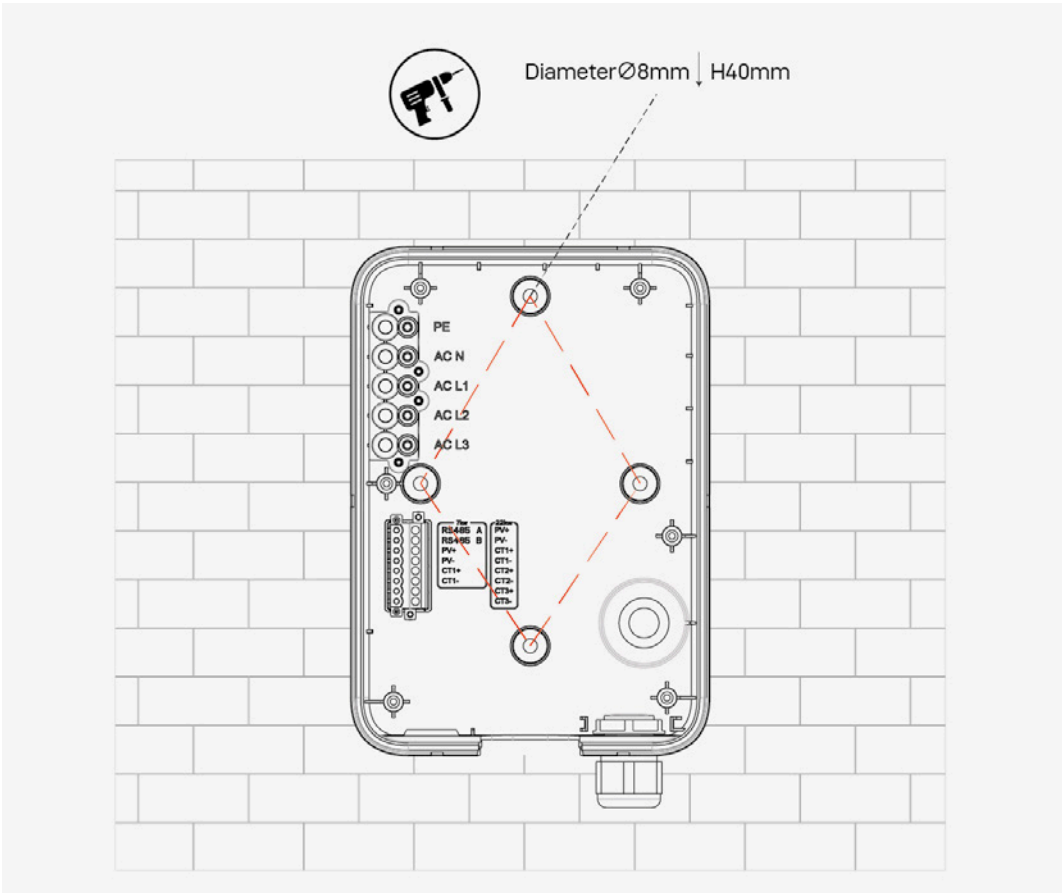
2. Detach the Main Part of the Charger

use the pry tool to separate the body of the charger from the base (back box) containing the wiring connections.



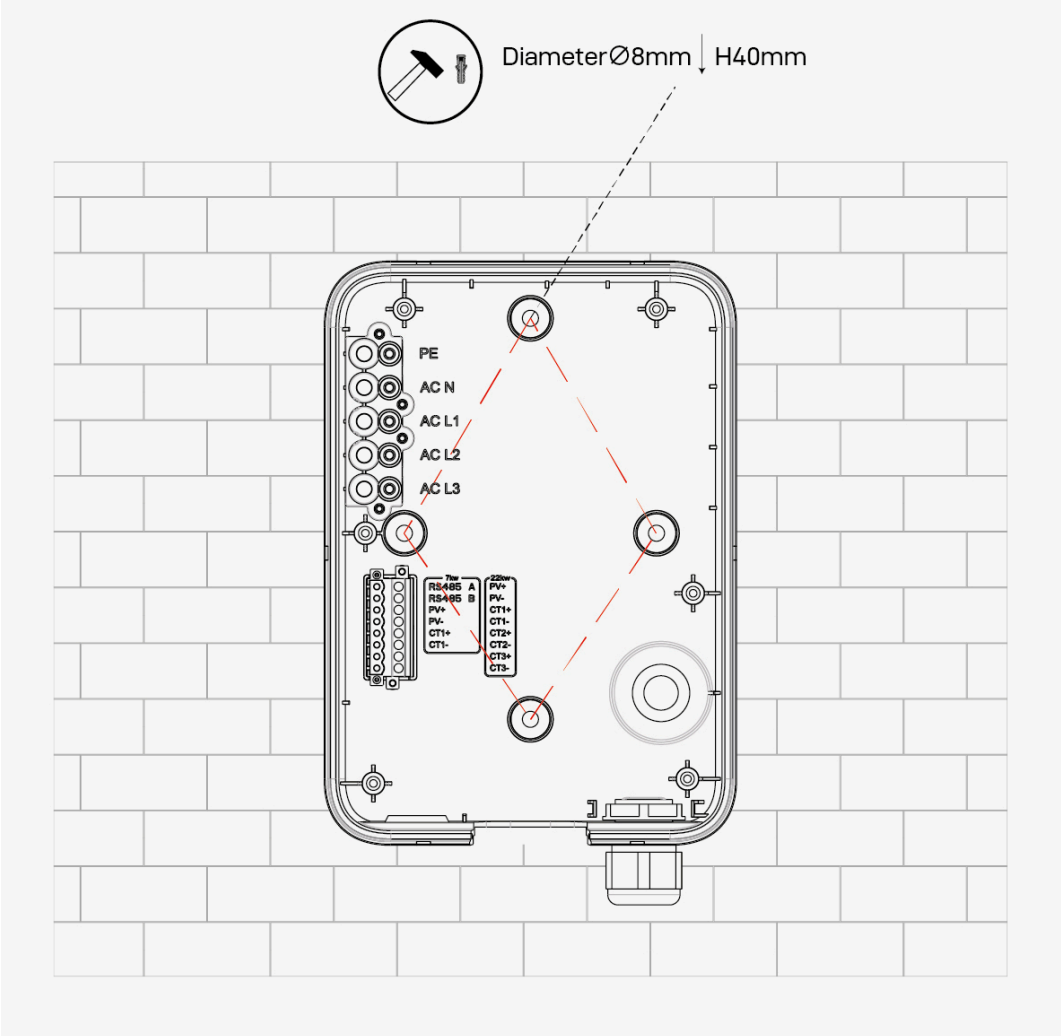
3. Mark Mounting Points

Position the back box against the wall, ensuring it is level at the top. Mark the drilling points accordingly.



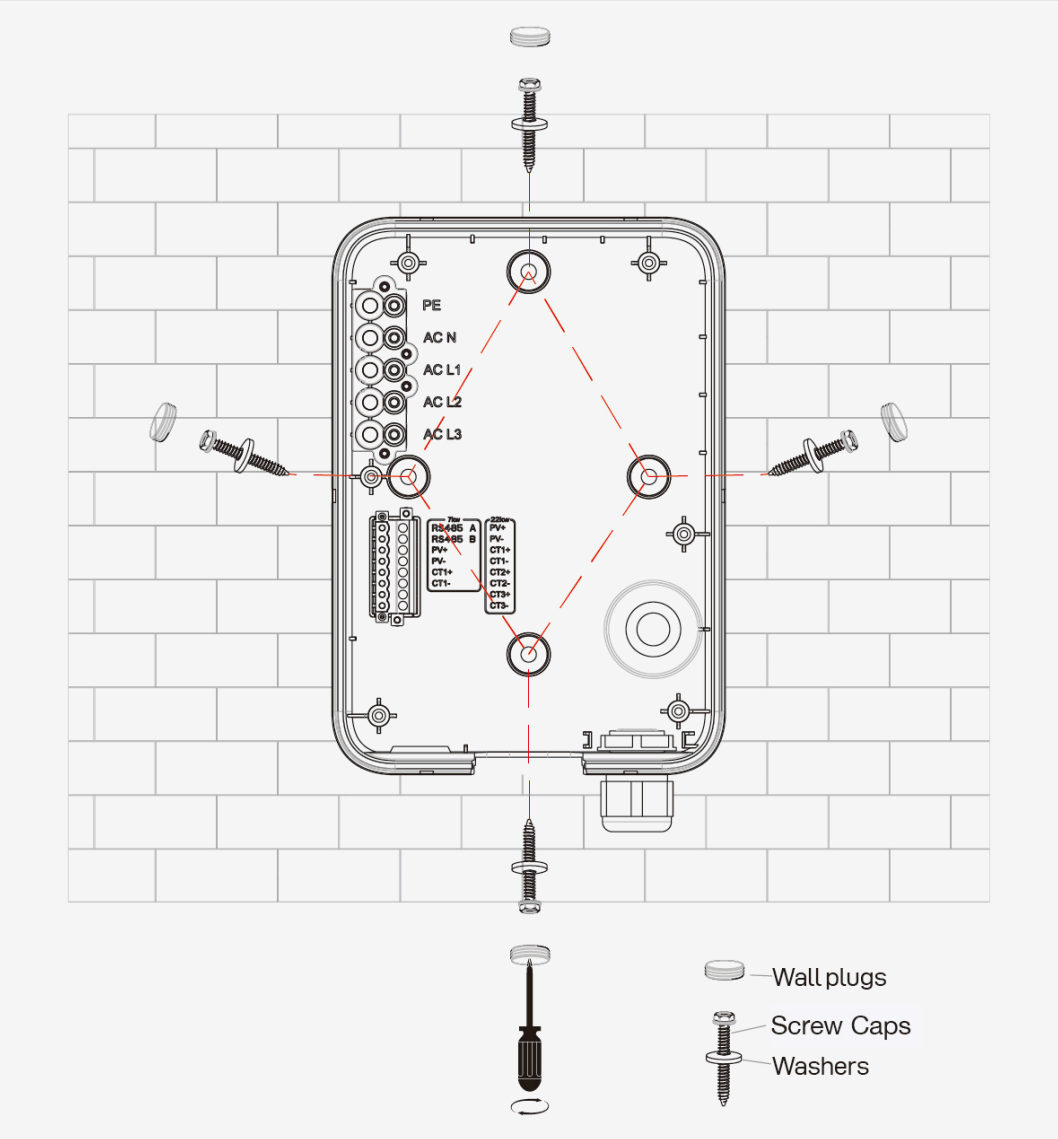
4. Drill and Insert Wall Plugs

Remove the back box, drill the marked holes, and insert the provided wall plugs.



5. Secure the Back Box

Mount the back box securely to the wall using appropriate fixings.



6. Wiring – 7kW Single Phase Model (Bottom and Rear Inlet)

⚠ **Warning:** Ensure mains power is turned off before starting electrical connections to avoid the risk of electric shock. Never clamp the CT around the cable before it has been terminated in the charger.

• Load Balancing:

Connect the supplied CT clamp to the incoming supply:

- "S1" → **CT1 -**
- "S2" → **CT1 +**

Ensure the arrow on the CT clamp points **away from the supply and towards the charger** (Supply → Load).

• PV Mode (Optional):

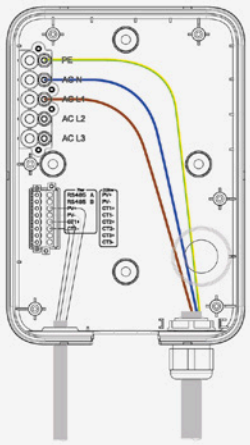
To enable PV Mode, connect an additional CT clamp to the PV terminals in the charger then connect the CT around the inverter output cable at the distribution board. (never clamp the CT around the cable before it has been terminated in the charger).

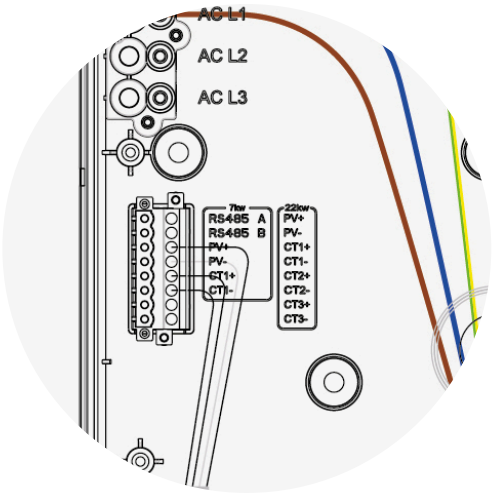
- "S1" → **PV -**
- "S2" → **PV +**

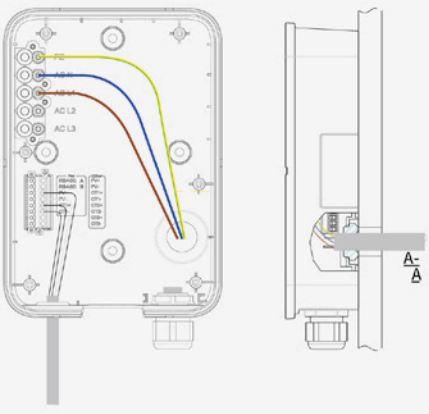
• Important:

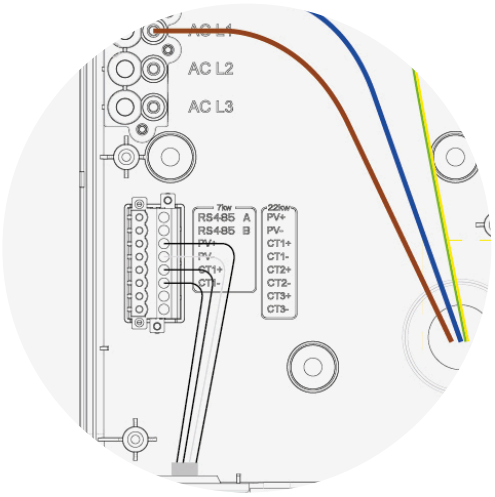
Follow the manufacturer's recommended torque settings for all mains terminals.

Mains terminals: 1.0Nm
CT terminals: 0.5Nm











7. Wiring – 22kW Three Phase Model (Bottom and Rear Inlet)

⚠ **Warning:** Ensure mains power is turned off before starting electrical connections to avoid the risk of electric shock. Never clamp the CT around the cable before it has been terminated in the charger.

• Dynamic Load Management:

Connect the three supplied CT clamps to the incoming supply:

- CT1: "S1" → CT1 -, "S2" → CT1 +
- CT2: "S1" → CT2 -, "S2" → CT2 +
- CT3: "S1" → CT3 -, "S2" → CT3 +

Ensure all CT arrows points **away from the supply and towards the charger** (Supply → Load).

• PV Mode (Optional):

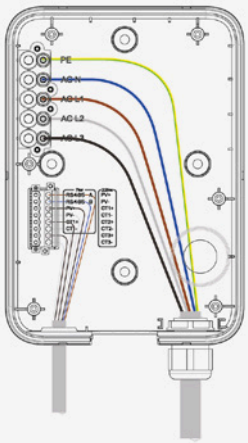
To enable PV Mode, connect an additional CT clamp to the PV terminals in the charger then connect the CT around the inverter output cable at the distribution board. (never clamp the CT around the cable before it has been terminated in the charger).

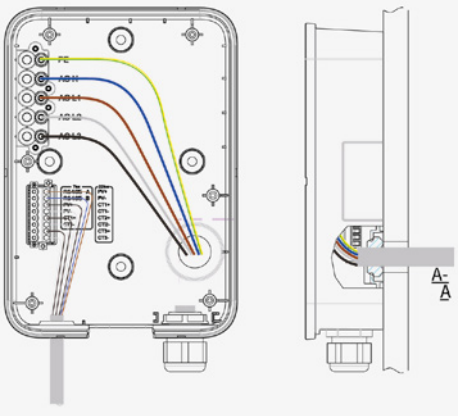
• If using dynamic load function then connect to the RS485 input A and B, Please note that you can not use PV and RS485 function on this device.

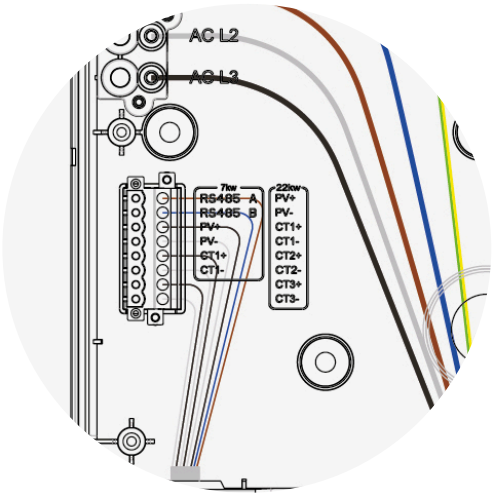
• Important:

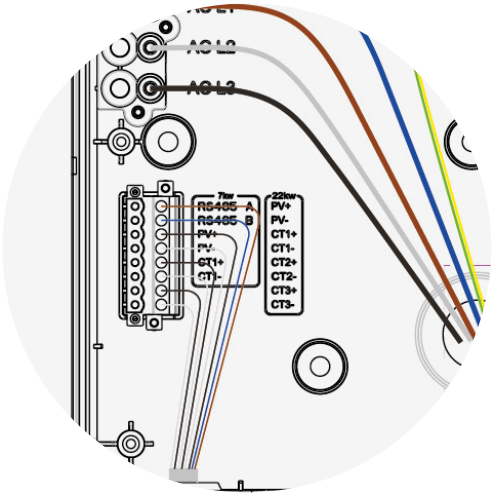
Always adhere to the specified torque for all mains terminals.

Mains terminals: 1.0Nm
CT terminals: 0.5Nm









Troubleshooting

Error code = Number of RED LED flashes. e.g. Error code 4 'Over voltage and Under voltage' 4 RED LED flashes.

Error Code	Error Description	Troubleshooting Suggestions
1	Leakage	Disconnect the leakage/overcurrent protection and switch off the distribution box immediately. Check whether the charger's output cable is damaged or has a low-impedance ground or short circuit. After troubleshooting, power on the charger again. If the problem persists, contact customer support.
2	Overcurrent	Check whether the charging connector is properly connected. Check whether the OBC (On-board Charger) is functioning normally.
3	Ground fault	The charger is not grounded. Check the input power cable. For single live wire systems, ensure the L and N wires are not reversed.
4	Overvoltage or undervoltage	Check whether the input cable is properly connected. Check whether the voltage on the power input is too high or too low. If yes, contact your local power company.
5	Relay welding or contact sticking	Power off and restart the charger. If the problem persists, contact customer support.
6	Abnormal CP (Control Pilot)	Check the charging connector and the charging socket of your EV. Disconnect and reconnect the charging connector.
7	Electronic lock fault	Check that the electronic lock connection is secure and functioning properly.
8	Overtemperature	The ambient temperature is too high. Maintain ambient temperature around 50°C.
10	Tamper detected	Check that the charger cover is properly closed (if applicable).
12	Diode missing	No vehicle diode detected. If an EV charge point testing adapter is connected to the charger, please confirm the presence of a diode.
13	DLB communication fault	Check whether the RS485 communication cable is properly connected.

LED Status

LED Status	Status Description
Solid yellow	EV is not connected and no wireless connectivity with Installer Application.
Solid blue	Not Connected to the EV.
Flashing blue	Connected to EV.
Pulsating green	Charging in progress.
Flashing green	Charging ended.
Solid red	Unavailable.
Fast flashing red	Firmware update in progress.
Flashing red	Number of red flashes indicates current error code. Refer to Troubleshooting Table.



NRGCHARGE

www.nrgcharge.co.uk

Business WhatsApp + 44 (0)7380 592241

Misrepresentation Act – The details provided in this document are believed to be accurate but cannot be guaranteed. All liability, whether in negligence or otherwise, for any loss arising from the use of these details is hereby excluded.

©2026 NRG CHARGE