

HYPERVOLT



Home 3 Pro Installation **Guide**

Product Overview	4-5
Safety Notice	6
Installation / Getting Started	7-9
Installation / Mounting the Charger	10-14
Installation / Wiring and Cabling	15-19
Installation / Mains and CT Connection	20-21
Installation / Monitoring and Protection Devices	22
CT (Current Transformer)	22
PEN Fault Protection	22
Overheating Sensing	22
Installation / Automatic Load Management	23
Installation / Maximum Operating Current	24
Installation / Fitting the Faceplate	25-26
LED Statuses	27

Home Energy Managment	28-33
Hybrid DC Coupled Systems	28
AC Coupled Systems	29-33
Installation - Handover to customer	34-35
Technical Specification	36-37
Product Information	36
Electrical Properties	36
Connectivity	36
Safety	37
Standards and Compliance	37
Features	37
Environment	37
Notes	38-39

What's in the box



- 1 **Wall Mount Bracket**
- 2 **Hypervolt Charger with Charging Cable**
- 3 **Hypervolt Home 3 Pro Front Cover** (UltraWhite/SpaceGray/UltraBlack colour)



- 4 **CT Clamp**
Note: 2nd CT clamp must be ordered separately.
- 5 **HyperHolster** - Charging Cable Holster
- 6 Cardboard **Drilling Template**
- * **Screw set**

Safety Notice

The installer and end user must read and fully understand the safety instructions provided. Disregarding safety information and instructions contained in this document, printed on the device or by other way given may lead to one or all of the following:

- Injury or potential death of the operator, installer and any other third parties.
- Improper operation, function and damage of the charger.
- Damage to the vehicle on charge, building electrical systems and the surrounding environment.

In addition, failure to adhere to any of the safety precautions, notices, advice and instructions set out in this guide in relation to either the installation or operation of this and all other Hypervolt products will invalidate the warranty.

Legal Notice

This document is intended to be used as a reference guide for the installation and operation of the Hypervolt Home 3 Pro EV Charger. The product images shown are for illustration purposes only and may not be an exact representation of the product.

Hypervolt Limited reserves the right to make changes to the specifications and processes of the product and documentation at any time and without prior notice.

The Hypervolt Home 3 Pro charger has been designed, developed and manufactured to satisfy requirements, safety dispositions and norms in accordance with the directives presented in the declaration of conformity.

Disposal

Important information for the correct disposal of the product in accordance with Directive 2012/19/EC. At the end of its useful life, the product should not be disposed of as urban waste. It must be taken to a collection centre for special and differentiated disposal or to a distributor that provides this service.



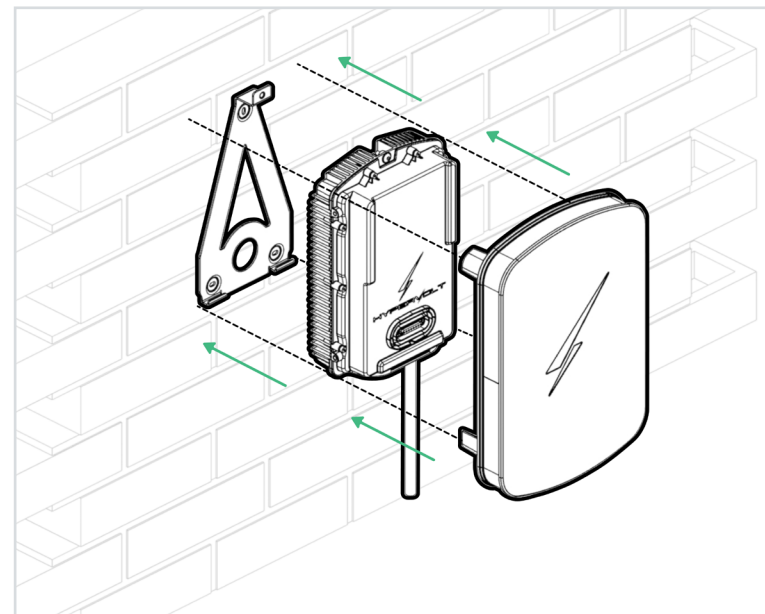
Getting Started

Please read the entire guide before starting your install – you will need to know how you are cabling the unit before installing the enclosure on the wall to ensure that you've drilled the correct holes in the enclosure and prepared your IP66+ rated glands or grommets to maintain the appropriate ingress protection.

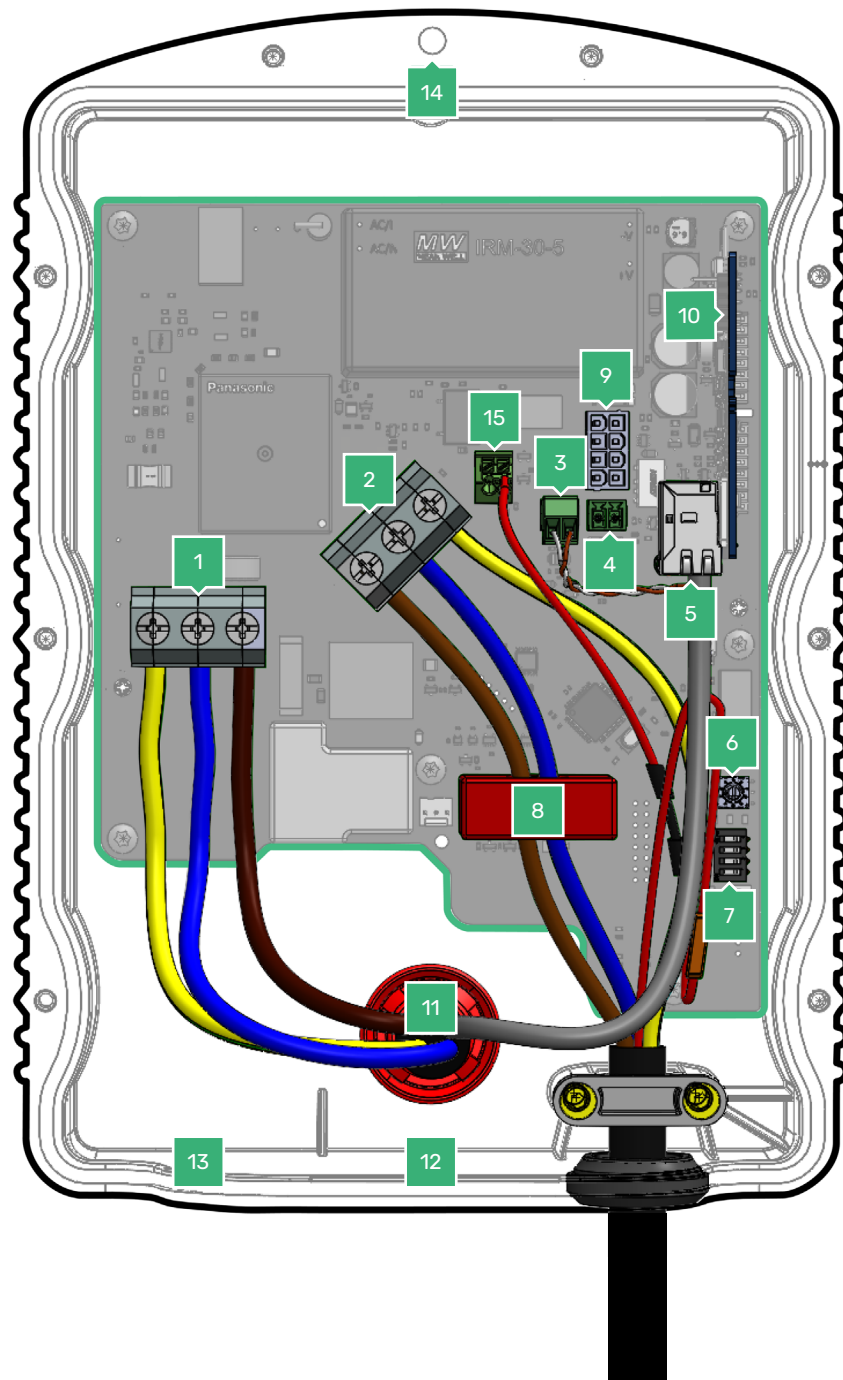
Hypervolt products must be installed by suitably qualified electricians. The Requirements for Electrical Installations as set out in BS7671 (as amended) must be followed with special attention to section 722. In addition, the guidelines given in the "Code of Practice for Electric Vehicle Charging Equipment Installation" (as amended) by the IET must also be followed.

If you are unsure about any part of the installation of a Hypervolt product you must obtain clarification from our technical department before proceeding.

Within 48 hours of installation the unit must be registered as having been installed in order to validate the warranty. This is done online, and you must do this before leaving the site. Failure to do this will void the warranty (see page 34-35 for details).



Location of Important Components

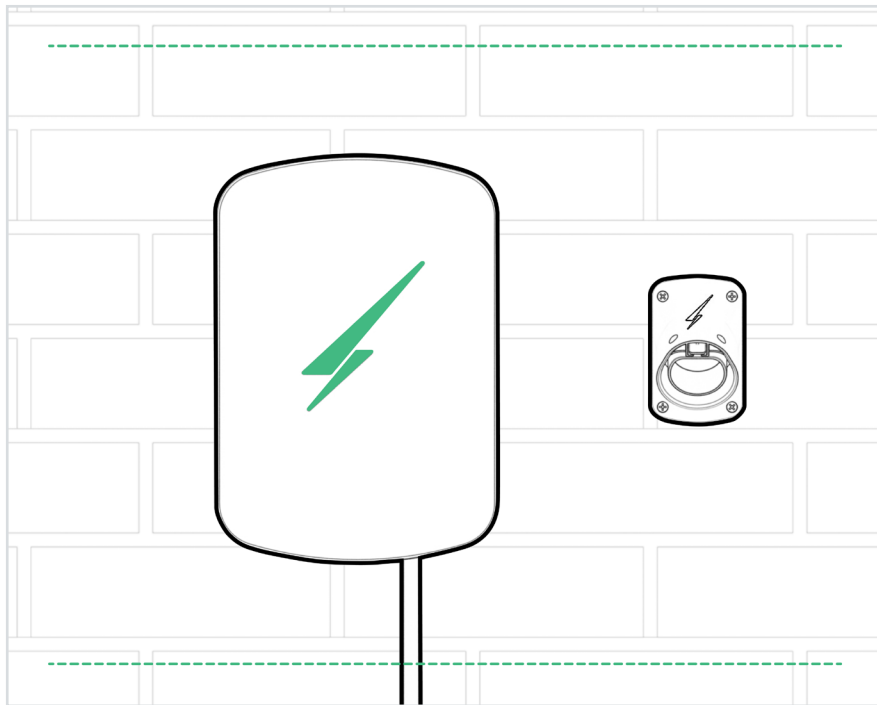


- 1 Incoming Supply Connections
- 2 Tethered Cable Connections
- 3 CT1 connection
- 4 CT2 connection
- 5 RJ45 Data Cable Connection
- 6 ALM Adjustment Dial
- 7 Derating DIP Switches
- 8 Sensing Device (RCD-DD)
- 9 LED Connection
- 10 Primary Processor Daughtercard
- 11 Rear Cable Entry Cutout
- 12 32mm Cable Entry Cutout
- 13 25mm Cable Entry Cutout
- 14 Top Mounting Hole
- 15 CP Connection

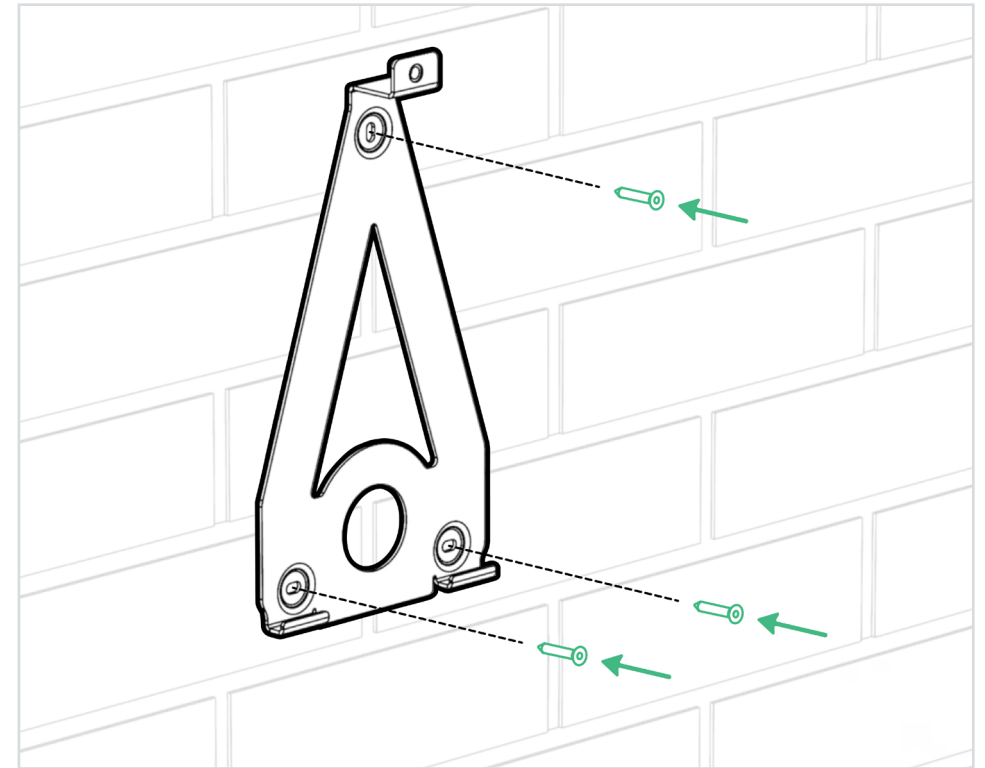
Mounting the Charger

Step 1

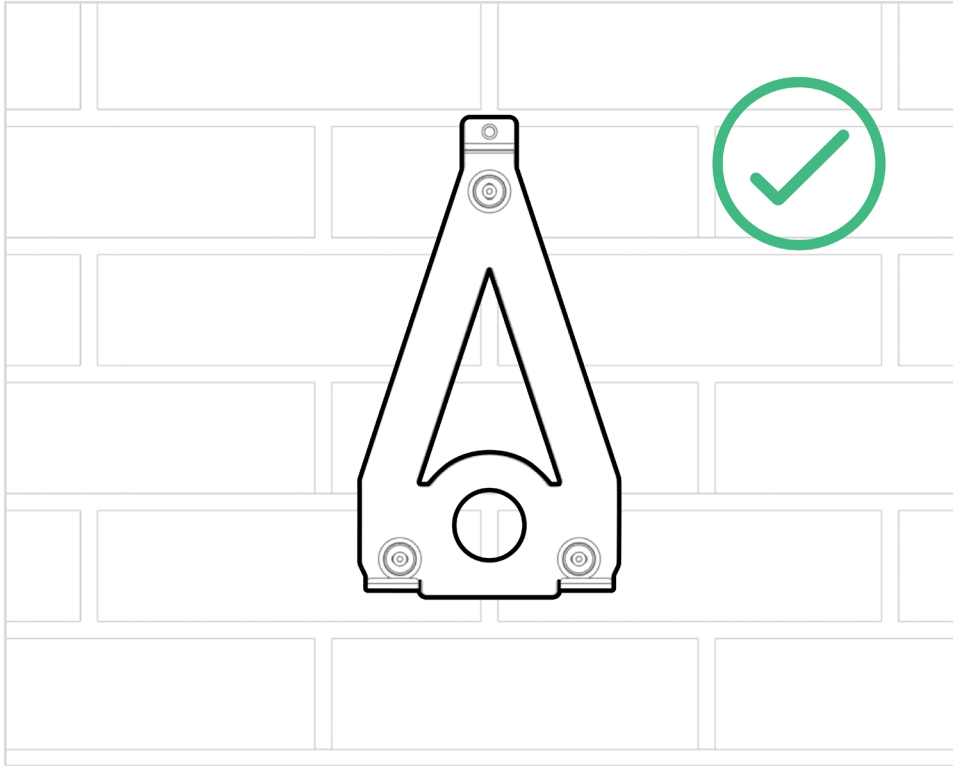
- The installation location should be on a clean flat surface with good WiFi signal (if used) that is protected from the weather.
- Locate the pull tab at the lower part of the box. Remove this from the box to reveal the metal wall bracket.
- Use the cardboard drilling template to mark the mounting holes for the wall bracket and holster.



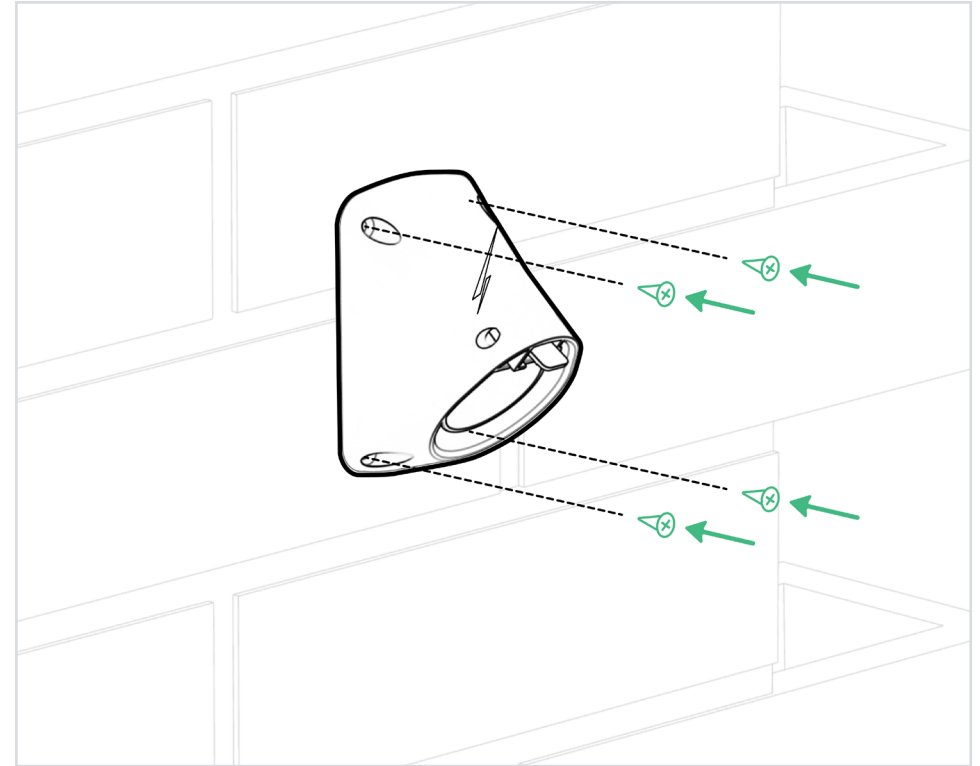
- Your Hypervolt unit and accompanying holster should be fixed between 0.5m and 1.5m above the ground. See the above diagram for the recommended placement.



- Drill out all 3 fixing holes for the bracket, then fit the top screw leaving it ≈10mm out. Then fit the bottom 2 screws and adjust as needed for leveling.
- We recommend using a minimum 5mm non-countersunk head to secure the mounting bracket. Please choose the depth and plugs based on the material where you're installing the unit.

Step 2

- Insert the bottom screws then tighten all 3 up; we recommend using a spirit level on the top of the bracket.

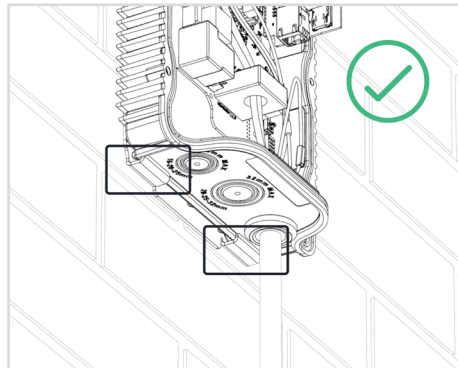
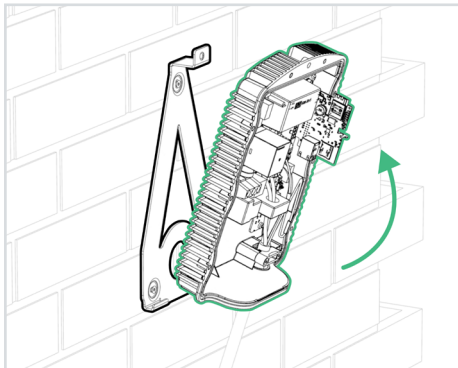
Step 3

- Now that you have placed the mounting bracket, you should mount the cable holster. We recommend placing the holster approximately half a meter to the side, measured from the center of the mounting bracket.
- You should use a screw with a 5mm countersunk head to secure the holster. Please choose the depth and plugs based on the material where you're installing the unit.

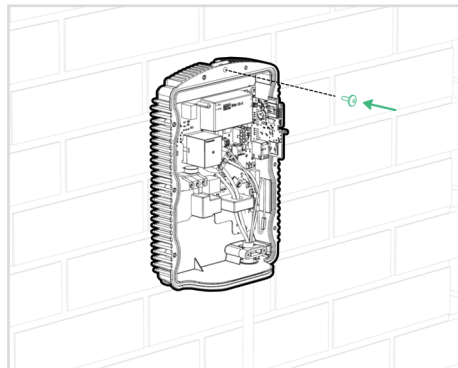
Step 4

- You will need to remove the rear enclosure lid to install the cabling and set ALM and current limit appropriately on the hardware.
- Put both components, and the provided screws, safely to one side.
- Before you mount the unit to the wall, you should also drill out the cable entry point(s) that you will use for the installation.

Step 5



- Use the supplied M6 x 16mm screw for the top central hole, to secure with the wall bracket. Tighten with a torque of 1.2 Nm.



Wiring and Cabling

Be sure the method you use to supply electricity to the Hypervolt charger is compliant with the BS7671 Wiring Regulations, particular attention should be given to section 722. Remember external RCDs must be as a minimum Type "A", individual and double pole (Including RCBOS). SPDs should be fitted with consideration given to whether a type 1 or type 2 device would be more suitable.

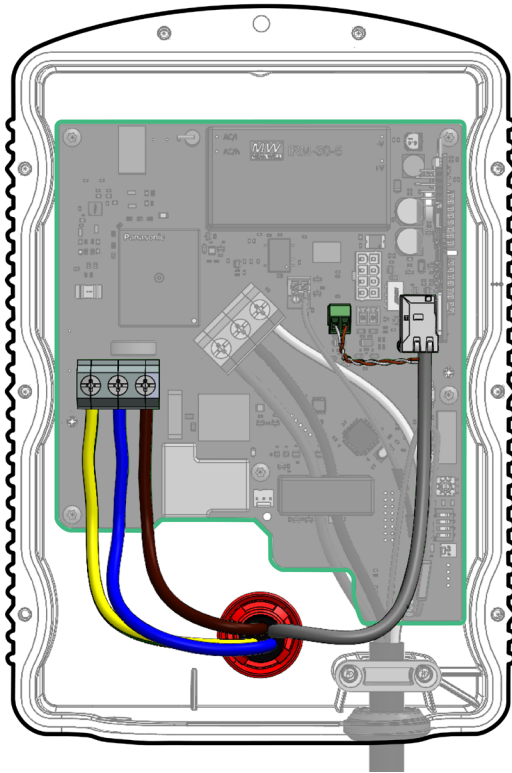
The Hypervolt requires two types of connections: one for supplying electricity and one for sending CT information (one cable each for Load Management and Home Battery / ESS monitoring, if present). A hardwired ethernet connection for internet is optional but recommended as this does not suffer from atmospheric changes & stability issues sometimes seen with WiFi.

Select the size of your incoming cable depending on your protective device rating (see next page), installation method and calculated voltage drop. Ensure that the cable size used to supply the Hypervolt is as generous as possible, we recommend 10mm or greater diameter cable especially on longer runs. This will prevent unwanted losses in the cabling and ensure the sensitive energy measurements are given the best quality signal in order to allow for more accurate home energy usage calculations.

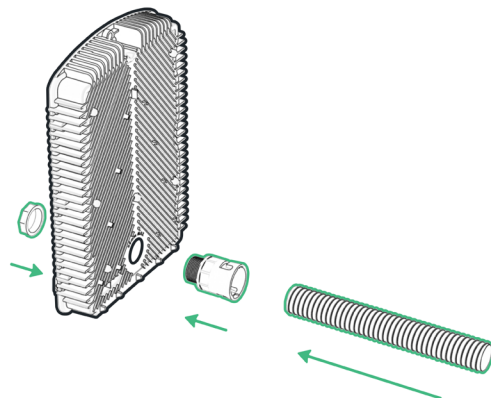
All holes must be suitably sealed to prevent water ingress. The warranty is voided if the IP rating of the unit is not maintained or installations are not compliant with BS7671.

We have three recommended options for cable installation, shown here for a single-CT installation where no home battery system is present:

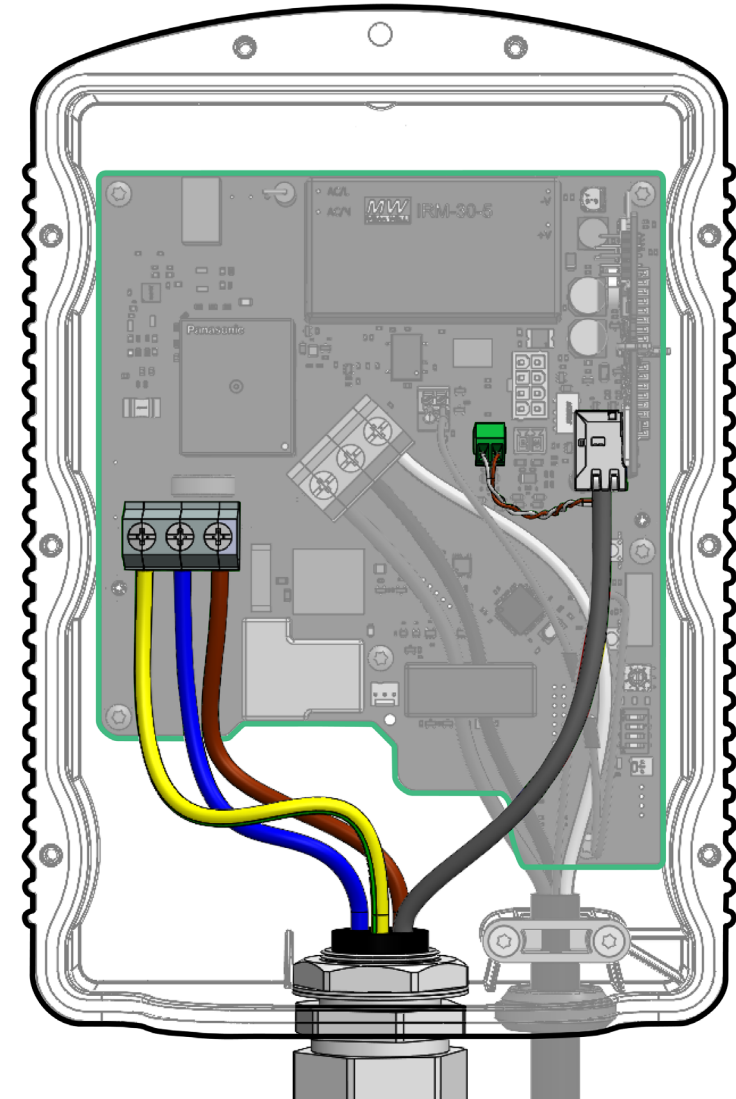
Option 1



Rear entry, through an AI28/
M25/A/GR Straight Adaptlok Fitting
with PVC Conduit 28mm OD
maximum for multiple cables or a
Wiska CLIXX M25 Cable Membrane
if using an EV-Ultra or other
combined cable - see image to the
right..

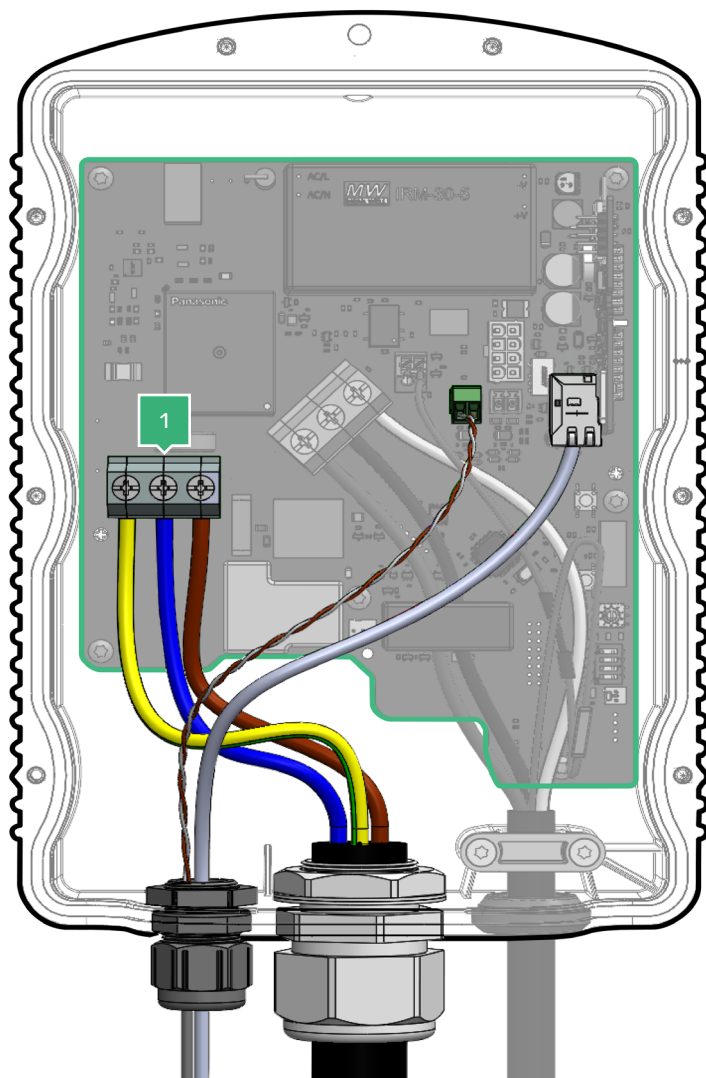


Option 2



Bottom entry, through the 32mm hole on the base of the charger.

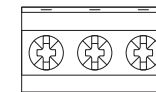
Option 3



Bottom entry, through both the 32mm hole (for power) and 24mm hole (for data).

Step 1 (At the Hypervolt)

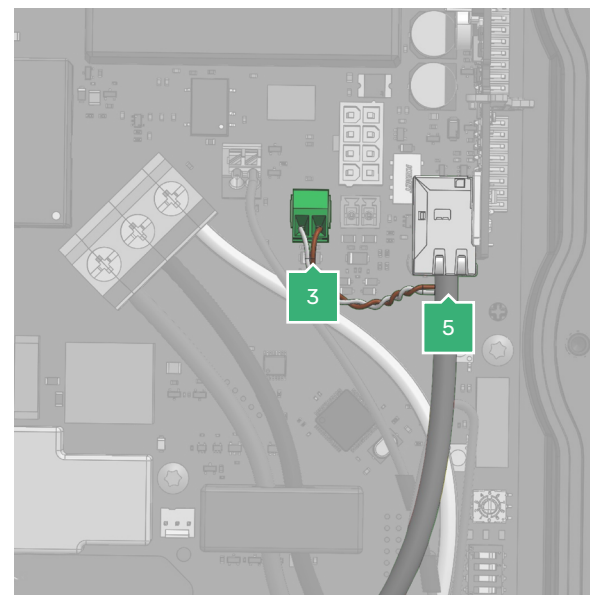
Connect the electrical supply cable to the terminals (**1**) and tighten to 1.8Nm. We recommend using ferrules on stranded cables. **Do not use powered screwdrivers on the terminals.**



Screw
Terminals
1.8 Nm

Tighten the CTS gland to hold the incoming cable in place. If you are using an SWA cable then the CTS gland should be replaced for an SWA Gland (not provided).

Step 2 (At the Hypervolt)



Connect the CT clamp supplied to the left-hand green CT connector (**3**), you can use a/the Cat5 (brown pair) cable to extend the connection but always end up with the white wire in the left of the plug and the black wire in the right (as per colour coding).

For instructions on installing the 2nd CT clamp refer to page 30

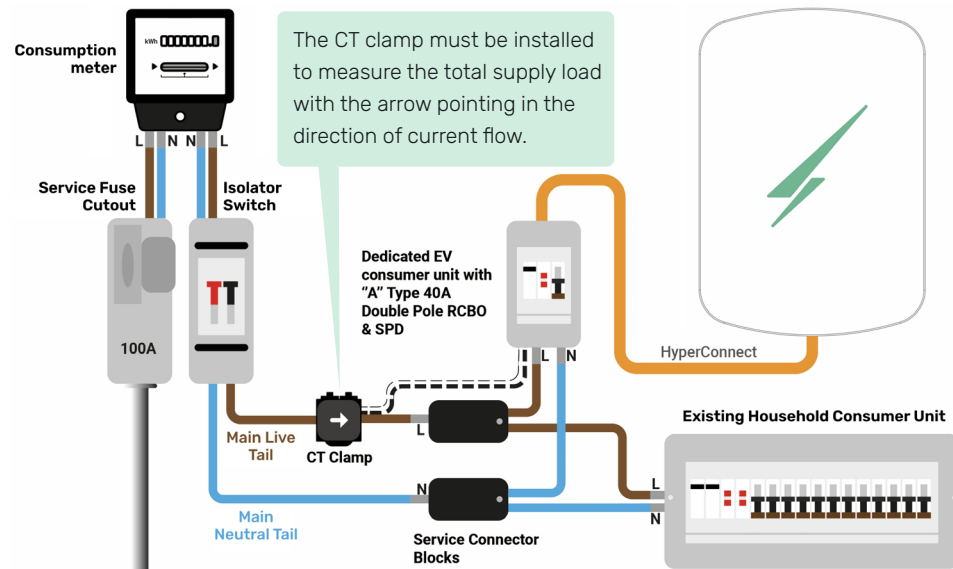
If you need hardwired internet you can use the remaining Orange and Green pairs terminated in an RJ45 plug following the T-568B wiring standard. This can be inserted into the RJ45 data cable port inside the device (**5**).

Mains and CT Connection

Step 1 (At the Consumer Unit)

For Both Methods:

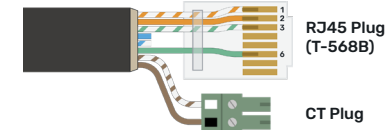
A suitably sized overcurrent protective device must be installed to protect the Hypervolt circuit. The Hypervolt takes a maximum load just below 32A. Consideration should be given to if a 32A or 40A device is used based upon the operating environment. A 32A device may run too warm and trip out prematurely over a long charging period especially if it is between other loaded devices. In all cases the Hypervolt must also be protected by an external RCD device (Type AC devices must not be used).



Connect the supply cable. We recommend using method 1 below as this is the easiest way to be compliant.

Connection Method 1:

A separate consumer unit spurred into the existing meter tails is installed just for the use of the Hypervolt unit. EV Ultra (or equivalent) cable is from from the Hypervolt unit and a joint made within the consumer unit to the CT clamp. Alternately, run separate supply and cat5 cables; these must not run directly alongside each other.



Connection Method 2:

This is the same as above apart from the supply is taken from an existing consumer unit. Both wiring methods can still be used.

Monitoring and Protection Devices

CT (Current Transformer)

For general use a single CT clamp must be fitted at the service origin to measure the main load on the property. This must be installed as per the diagram on page 22.

For users with a home battery system, a second CT clamp must go around the primary cable connecting the battery system to the home. This must be installed as per Appendix 2 on page 34.

Note: The CT clamp wiring can be extended up to 50m using Cat5e cable or 100m using EV-Ultra or similar cable.

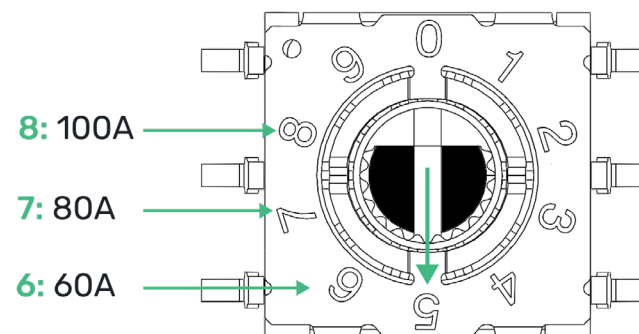
PEN Fault Protection

Hypervolt chargers have built-in PEN fault protection which means they can be connected to a PME (TN-C-S) incoming service which shares Neutral & Earth in the same conductor. There is no requirement to install an additional earth rod. In the event that the Protective Earth and Neutral (PEN) conductor becomes damaged/disconnected the Hypervolt PEN Fault system will isolate all conductors to protect the user from the potential danger a PEN fault presents.

Overheating Sensing

Hypervolt chargers have built-in temperature sensors; in the event where it recognises there is too much heat being generated it will reduce the current being delivered to the EV, this will ensure the charger is not damaged.

ALM (Automatic Load Management)



Hypervolt's Automatic Load Management control is used to safely adjust the maximum charging current an EV can take to prevent the charging device being responsible for overloading the electrical service to a property.

When activated the charging current will drop to as low as 6A. Generally the ALM system will activate for short periods every so often. If the ALM is being triggered very regularly this could be a sign that the electrical service to the property is inadequate for requirements.

The dial (**6**) can be adjusted to set the limit at which the load manager activates. The diagram above shows what part of the dial is the pointer, in this case pointing to position 5.

For the ALM system to work correctly it is very important for the CT clamp to have been correctly installed. See pages 20-22 for CT1 and pages 28-33 if installing a 2nd CT for a compatible home energy storage system.

The ALM dial is normally set to 6 for 60A even in cases where the main fuse value is higher. The units will normally come factory set to position 6, but always check.

Maximum Operating Current

It is possible to limit the maximum current the Hypervolt Home 3 Pro will operate at by permanently derating the unit using the internal dip switches. This is called a "Hard Set" as opposed to a "Soft Set" which can be done from the App.

Setting the Maximum Operating Current (Hard Set)

Locate the "Hard Set" dip switches (7) in the bottom right corner of the PCB. The dip switches are factory set to the maximum 32A (all off). Change the first two dip switches (1&2) to your required maximum output as per the following positions:

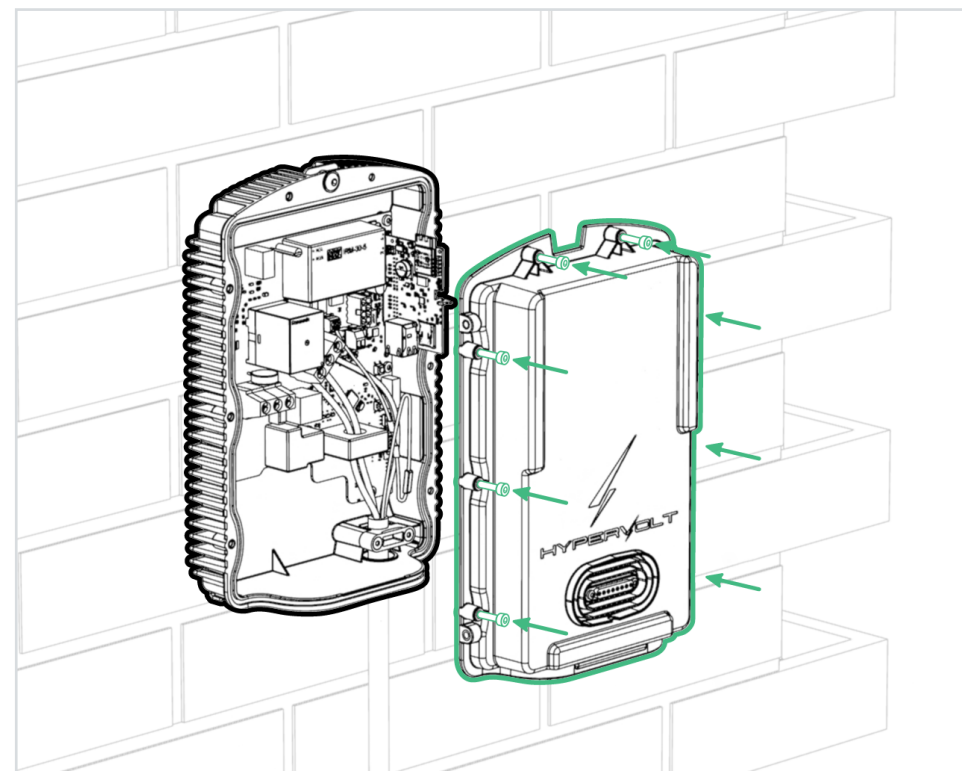


Reducing the maximum operating current can sometimes be requested by a DNO and should be done using the Hard Set method only.

Fitting the Faceplate

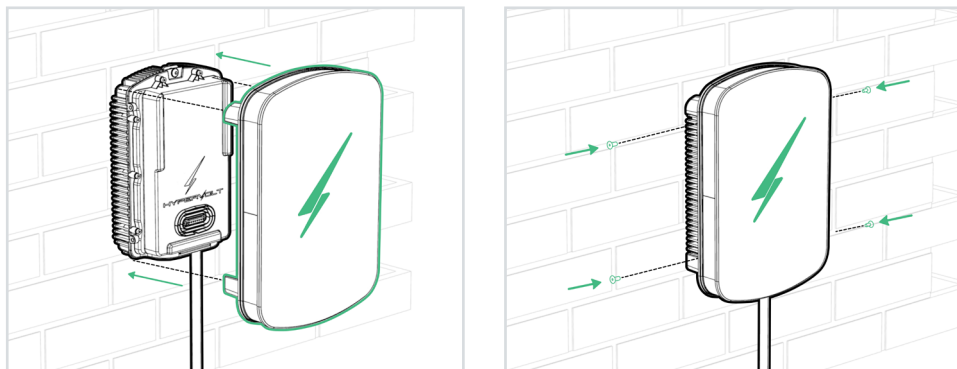
Step 1

- Reconnect the LED Connector into LED Socket (9)
- Carefully re-attach the rear lid to the unit, making sure to hand-tighten all eight screws.

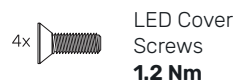


8x  Rear Enclosure Assembly
1.2 Nm

Step 2



- Slide the front cover (C) over parts A & B and secure using the four M5x12 countersunk screws supplied. A small amount of pressure will be required on the front to compress the seal and line the holes up.
- **Please take care to hand-tighten the screws, rather than using a powered screwdriver, to avoid cross threading the screws.**
- The wall unit doubles as a cable holder when the charger is not in use. Simply wind the cable around the recess of the unit clicking the charging plug into the holster only once the cable has been wound to prevent twisting.



LED Statuses

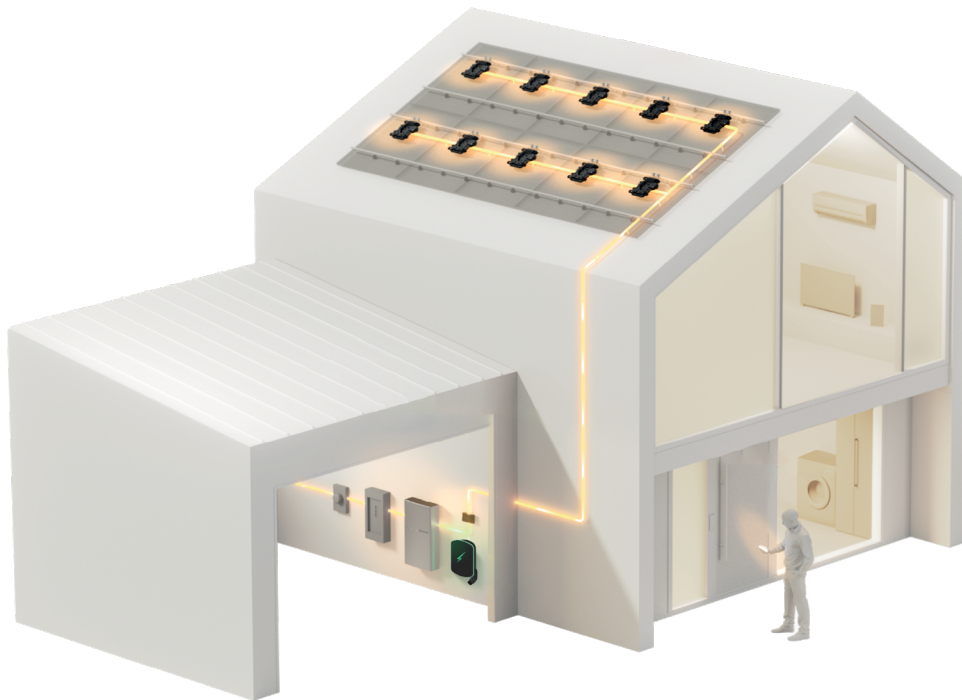
The LED coloured light status show what action your charger is performing.



Note: If you have selected an LED Mode or dimmed to 0% the status colour will show briefly before returning to 0% or the mode colours.

Home Energy Management

Skip this section if the home doesn't have solar panels or battery storage



Overview

At Hypervolt, we recognize the increasing demand from our valued customers for seamless integration of solar panels and Energy Storage Systems (ESS) in commercial applications. As such, we understand the necessity of incorporating a second CT (current transformer) to ensure that the ESS never gets depleted unintentionally during the charging process. This page serves as a definitive guide for both customers and installers, detailing the precise steps for mounting the second CT effectively.

Hybrid inverter – panels & ESS DC coupled

Maximizing efficiency and minimizing costs are paramount in the realm of renewable energy integration. One prevailing solution gaining traction is the DC coupling of Energy Storage Systems (ESS) and solar panel outputs at the inverter input, often referred to as a hybrid inverter.

This streamlined approach reduces expenses by requiring only one DC/AC rectification process. However, it introduces a challenge: distinguishing between solar panel and ESS contributions to the charger becomes impractical.

Presently, Hypervolt does not accommodate a secondary current transformer (CT) installation in the presence of hybrid inverters. We are working hard with market leaders to offer customers added value by directly integrating with the power gateways.



It is worth noting that Hypervolt Home 3 Pro can safeguard against hybrid-inverter based ESS depletion with just the mandatory(one) CT mounted



Do not mount the second CT if the house has a hybrid inverter

Understanding the Installation Process

The installation of the second CT is contingent upon various factors, presenting a unique set of challenges in each scenario. It is imperative to adhere to the following principles:

Note: **Placement of the CT:** The CT is an AC coupled device and must be affixed to the AC output of the Energy Storage System (ESS).

Where the home benefits from an AC coupled ESS system, YOU MUST INSTALL the 2nd CT clamp to unlock full functionality

Hypervolt currently supports following installation architectures:

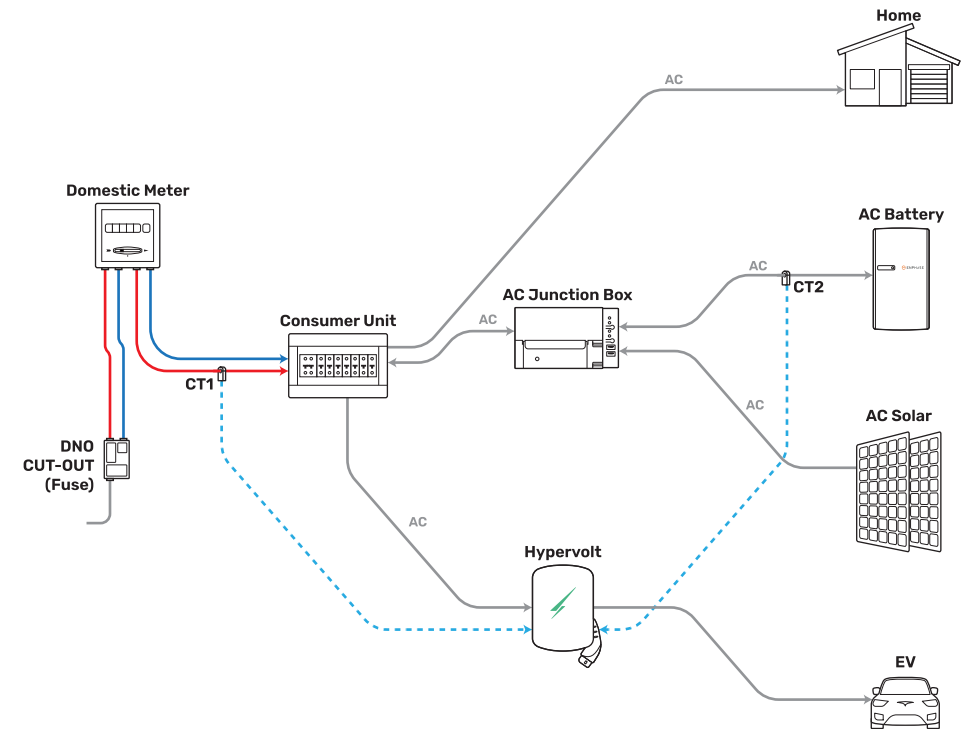
- Systems with one consumer unit and one ESS
- Systems with two consumer units and one ESS
- Systems with Multiple ESS

Before proceeding with the installation, it is essential to verify that the chosen ESS supports parallel connection.

Note: Hypervolt assumes no liability for damages resulting from improper ESS installation.

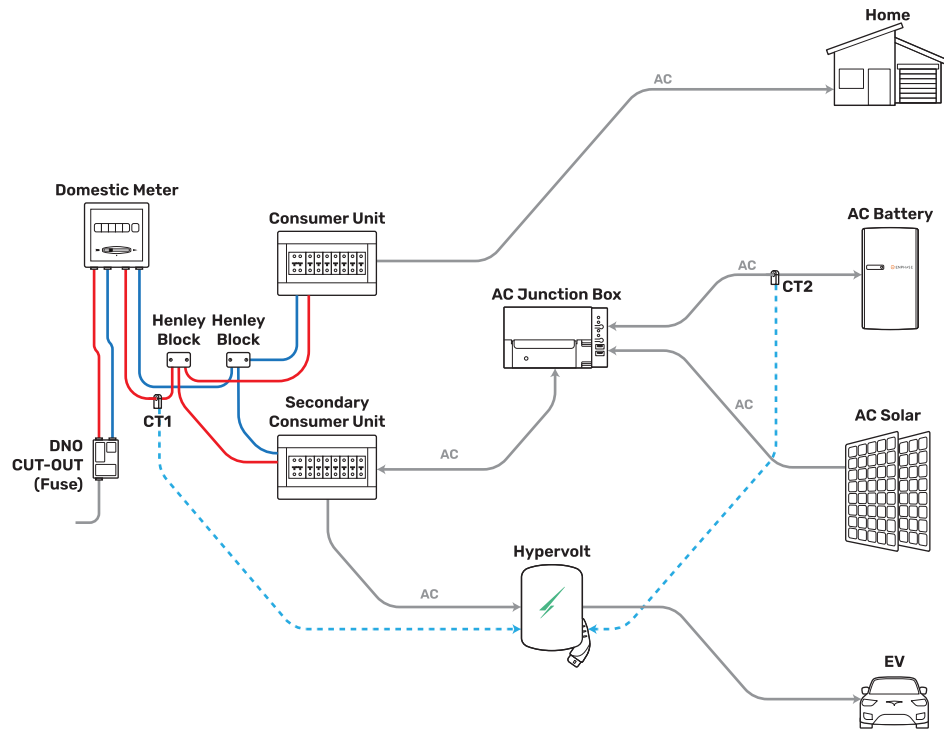
Systems with one consumer unit and one ESS

Battery/Solar with Single Consumer Unit - Hypervolt CTs Map



Systems with two consumer units and one ESS

Battery/Solar with Dual Consumer Unit - Hypervolt CTs Map

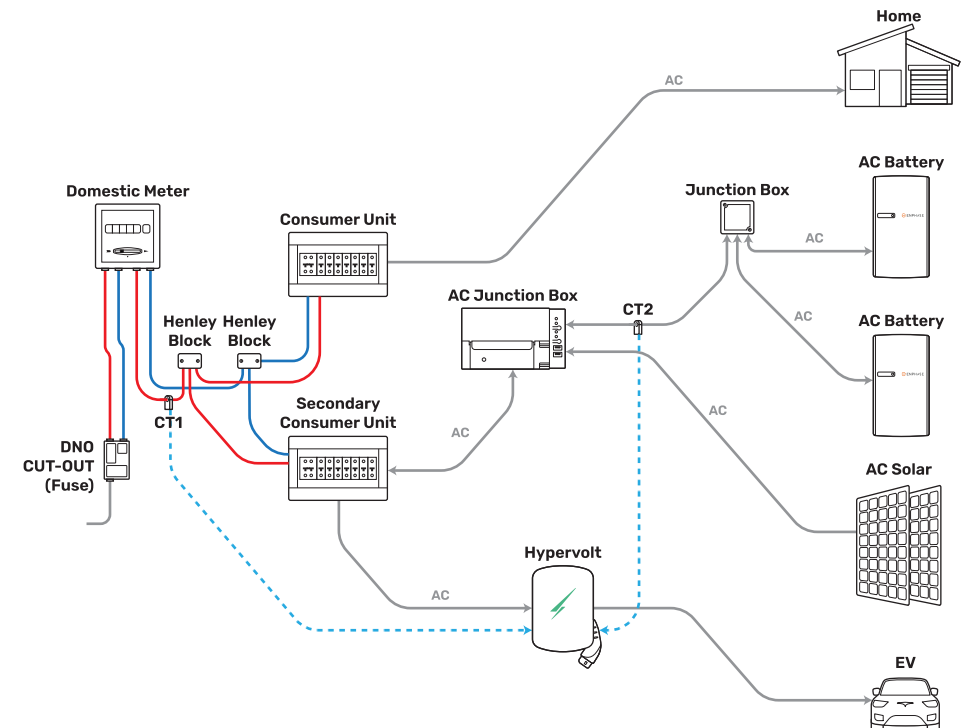


Systems with more than one ESS

Note: For installations where multiple batteries are connected in parallel, the second CT must be connected at the output of the junction box

Note: Check before that the ESS you purchased can be connected in parallel. Hypervolt is not responsible for any damage caused by incorrect ESS installations

An example how this might be achieved is shown below:



Installation - Handover to customer

Using the Hypervolt Installer App

We recommend using the **Hypervolt Installer App**, available in both Apple App Store and Google Play Store, to run automated tests and hand-off the newly-installed Hypervolt unit to the customer. The app will guide you through the end to end process, but to summarize:

1. Stand near the charger to adopt it using Bluetooth
2. Configure the charger to connect to the owner's home network
3. Input the client details (name and email address)
4. Run the automated tests from the app to validate that everything is working properly
5. After testing is complete, you can mark the installation as complete and automatically hand off to the customer.



*Scan Me to Download
Installer app*

Without App

If you are not using the app, you will need to manually test the functionality of the charger before confirming that the installation is successful.

You should double-check all of the following:

- ☐ Checked that the house fuse is the appropriate size
- ☐ Set and verified the ALM and appropriate current limit
- ☐ Confirmed CT is in the correct place and direction

Do not remove the lower sticker on the unit - these details will be needed by the owner in the future.

Product Information

Model: Home 3 Pro

Connection Capacity: Single Phase, 7.4kW AC

Charging Connector: Tethered, IEC 62196/Type 2 OR SAE J1772/Type 1 Tethered Cable

Length (m): 5 / 7.5 / 10 (10m only available in type 2)

Dimensions (mm): 328 (H) x 243 (W) x 101(D)

Mounting Type: Wall/Pole mounted

Colour: Ultra White / Ultra Black / Space Grey

Unit Material: PC, PA66 GF NYLON

Charging Protocol / Mode: Mode 3 (compliant with BS EN IEC 61851-1:2019)

Electrical Properties

Rated supply voltage: 230V AC – Single Phase

Rated power: 7.4 kW

Rated current of assembly: 32A (max)

Output supply: AC 230V 7.4 kW Single Phase

(Note: May vary based on vehicle make and model as well as electrical installation setup)

Mains Frequency: 50 Hz

Average standby power consumption:

Lowest LED brightness setting: 4.2W

Maximum LED brightness setting: 8.4 W

Energy efficiency (at full rated output): 99%

Rating against shock: Class I Equipment

Compatible earthing systems: TN-C-S & TN-S (PEN Fault Protection) or TT

Electromagnet Compatibility (EMC): Classification Type B

Connectivity

WiFi: Wi-Fi 802.11b/g/n @2.4 GHz

Bluetooth: Bluetooth LE (Version 4.2)

Safety

RCD Protection: Internal 6mA DC RCD (External AC Protection Required, "A" Type Recommend).

PEN Fault Protection: Integrated PEN fault protection compliant with Amendment 2 of BS7671:2018.

Overcurrent protection: External protection required (MCB or RCBO). We recommend using B or C Curve, 40A

Standards and Compliance

Electric Vehicles (Smart Charge Points) Regulations 2021

EV Charging Compliance | EN 61851-1:2019, BS 7671:2018 + A1:2020

RoHS | 2011/65/EU

Safety Compliance | 2014/53/EU Radio Equipment Directive 3.1(a) – EN IEC 61851-1:2019 / EN 62196-1:2014 / IEC TS 61439-7:2014

EMC Compliance | 2014/53/EU Radio Equipment Directive 3.1(b) – EN IEC 61851-21-2:2021, EN 55032:2015 + A1:2020 (Class B)

Impact Protection: IK10, **Ingress Protection:** IP66

Features

Status Indication/HMI: Multi-colour LED's around the sides and the logo on the front of the enclosure.

Charging modes: Boost, Eco (Solar & Grid), Super Eco (Solar Only)

App: Full Function Control via the app.

ALM: Automatic Load Management

Other: Lock, Plug & Charge, Schedule Charging, Selectable LED Brightness & Modes

Environment

Operating Temperature: -25 to 40 °C | **Operating Humidity:** Up to 95% RH, non-condensing | **Environmental Protection:** IP66 | **Pollution degree:** 3

Maximum Altitude Level: 2000m



 <https://hypervolt.co.uk>  support@hypervolt.co.uk  +44 (0)333 090 30 93

© Hypervolt Limited 2024. Registered in England and Wales at Level
10 West, One Canada Square, Canary Wharf, London E14 5AB.