

Indra Smart Charger

Installation Guide

Be at the forefront of EV charging with
Indra's pioneering technology



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Indra's Range of Smart Chargers

Smart PRO Tethered

Smart PRO (SPRFGT2WG402) has an IEC 62196 (Type 2) 6M tethered charging connector to be used with Type 2 socket fitted EVs.



Smart PRO Untethered

Smart PRO Untethered (SPRFGSKWG404) has an IEC 62196 (Type 2) socket as part of the front body.



Smart PRO Gen 2 Tethered

Smart PRO has an IEC 62196 (Type 2) 6M (SPRFGT2WG403) or 9.4M (SPRFGT2WG404) tethered charging connector to be used with Type 2 socket fitted EVs.



Smart PRO Gen 2 Untethered

Smart PRO Untethered (SPRFGSKWG403) has an IEC 62196 (Type 2) socket as part of the front body.



Smart LUX™

Smart LUX™ Tethered has an IEC 62196 (Type 2) tethered charging connector to be used with Type 2 socket fitted EVs.

It comes with either a 6m or 10m tethered lead and a variety of coloured fascia.



Smart LUX™ Product Codes:

SMNFGT2BL403	SYMPHONY BLACK, 6M
SMNFGT2GY405	MALVERN STONE, 6M
SMNFGT2GY406	ELGAR GREY, 6M
SMNFGT2WH404	INDRA WHITE, 6M
SMNFGT2BL404	SYMPHONY BLACK, 10M
SMNFGT2GY407	MALVERN STONE, 10M
SMNFGT2GY408	ELGAR GREY, 10M
SMNFGT2WH405	INDRA WHITE, 10M

General Description

This manual describes the method of installation and hardware operation of the Indra's Range of Smart Chargers, where the charger is a permanently installed electric vehicle charging solution for resistive domestic and commercial loads of at least 6A and up to 32A at 230V, 50Hz.



General Warnings and Safety

- The Indra's Range of Smart Chargers should only be installed and maintained by a suitably competent electrician who has successfully completed Indra product training. Failure to comply will VOID the product warranty.
- The Smart Range is designed for permanent installation and should only be used within the parameters set out in the technical specification and on the product label.
- The Smart Range should be installed in accordance with the latest wiring regulations (BS7671).
- Use of an upstream O-PEN protection device is NOT permitted with Indra Smart Range. Use of such devices will VOID the warranty.
- Before commencing installation or maintenance, the electrical power supply MUST be safely isolated.
- The Smart Range should be installed in a location that is structurally sound and free from excessive vibration, dust, or other material build up that could affect normal operation.

Overview and Intended Use Environment

Indra's Smart range can be classified as a 'smart' electric vehicle charging solution because of the communications infrastructure which allows charging to be remotely optimised by the Indra App; where charging can take place when electricity is cheapest; or if immediate charging is required, its 'Boost' functionality overrides any smart grid criteria and provides instantaneous charging capability.

Charging using Indra Smart chargers can take place at up to 7.4kW, but due to modulation capability (measured by the external CT clamp) this power output level can also be reduced.

The Smart range are intended for both indoor and outdoor installation, securely mounted to a wall or appropriately pedestal.

In its operating environment, the temperature must be between -20°C and 50°C, with humidity between 10% to 85% non-condensing.

The supply to the charger should be 230V AC +10/-6%, 50HZ and rated $\geq 32A$ for maximum charging capacity.

Indra Smart Features

Boost

Fundamental function of the charger that enables the user to charge the car when the charger is offline, or to override any set schedules. This function is most often used when the user needs the car charged earlier than normal.

O-PEN Fault Detection

Indra's Smart PRO and Smart LUX products have built-in O-PEN protection in the form of Indra's patented PESTs. This offers multiple options to comply with the PEN fault regulations, including Line to Neutral Voltage monitoring (PEST mode B) and CPC to true earth voltage monitoring (PEST mode A).

(For more information see the PESTs section).

House Fuse Protection (Load Curtailment)

House Fuse Protection is a function that allows an EV charger to be installed at a property that may not have enough spare capacity to accommodate the charger always running at full power.

It works by monitoring the amount of power the installation is using via an external CT clamp and comparing that to the rating of the main cut-out supplying the installation. If the difference is greater than 32A then the charger will offer full charge. If the difference is less than 32A then the charger will only offer as much power as there is spare capacity on the main cut-out, at that point in time.

Note: G100.2 defines how load curtailment is managed. If the charger is configured to use load curtailment and it loses contact with the external CT clamp, then the charger will de-rate its power output to 6A to protect the main cut-out, thus 6A is the figure that should be considered when carrying out the maximum demand survey.

DC Leakage Protection

An RDC-DD is fitted into Indra Smart chargers, offering 6mA DC leakage protection. This means they should be installed with a Type A or type F RCD up stream.

Tariff Intelligence

This feature enables the customer to tell the charger what electricity costs them and when, the charger will charge the car at the cheapest times. This feature is also compatible with all time of use tariffs including Agile.

Solar Mode

This mode can be selected in the Indra App and can enable the customer to use any excess solar energy (or any other form of micro-generation) to charge their car.

The external CT monitors how much energy is being exported from the installation. If the installation is exporting more than 1.4KW, then the charger will offer the car a charge. (1.4KW is the minimum amount of power required for an in-car charger to accept a charge).

Note: The external CT clamp can only measure what energy is being exported back to the grid, therefore, if the micro-generation is generating 2KW, and the installation is using 1KW, the charger will only detect the remaining 1KW being exported to the grid. This means the charger will not offer a charge to the car because there isn't enough power to trigger the in-car charger (1.4KW). Export to the grid needs to be 1.4kW or greater before the car will be offered charge.

Smart Scheduling

Smart scheduling allows the user to create a schedule window - this is when the charger will start and stop charging - but also, how many miles to add, how many kWh to add or how much money's worth of energy to add to the car.

Over-The-Air Updates

The Smart Range can be updated via an internet connection to the charger. These updates can offer improvements to the function of the charger, pre-emptive fixes for identified issues, or can be used to rectify faults if they occur.

Charge Analytics

The Indra App offers the user detailed information about the behaviour of their charger and their charging history, including how much money they have spent, how many miles have been added to the car and overall usage.

PEN Fault, Earthing, Simultaneous Touch (PESTs) Protection

Indra's patented PESTs solution can operate under three of the indents of BS7671:2018 A1:2020+A2:2022; section 722.411.4.1. For the purposes of design/installation we have two modes of operation which Indra call A & B. Mode A can be configured with or without a reference pin. The safest installation configuration is mode A with reference electrode.

Mode A with reference pin – (Compliant to BS7671:2018, regulation 722.411.4.1, Indent iii)

This method monitors the voltage difference between Circuit Protective Conductor (CPC) and true earth, disconnecting the car from the charger in the event of the voltage difference rising above 30Vrms. It also measures the voltage between L, N & CPC between 184v-257.6v (230v +/-12%).

What it means:

- Removes the risk of nuisance tripping due to supply voltage fluctuations (e.g. voltage spikes due to energy export to the grid),
- Compliant install on a 3-phase supply,
- Prevents potentially dangerous voltages from occurring on the car chassis under any circumstances,
- Removes simultaneous touch risks between the charger/connected car and conductive parts connected via TT (e.g. lamppost).

Mode B – (Compliant to BS7671:2018, regulation 722.411.4.1, Indent iv)

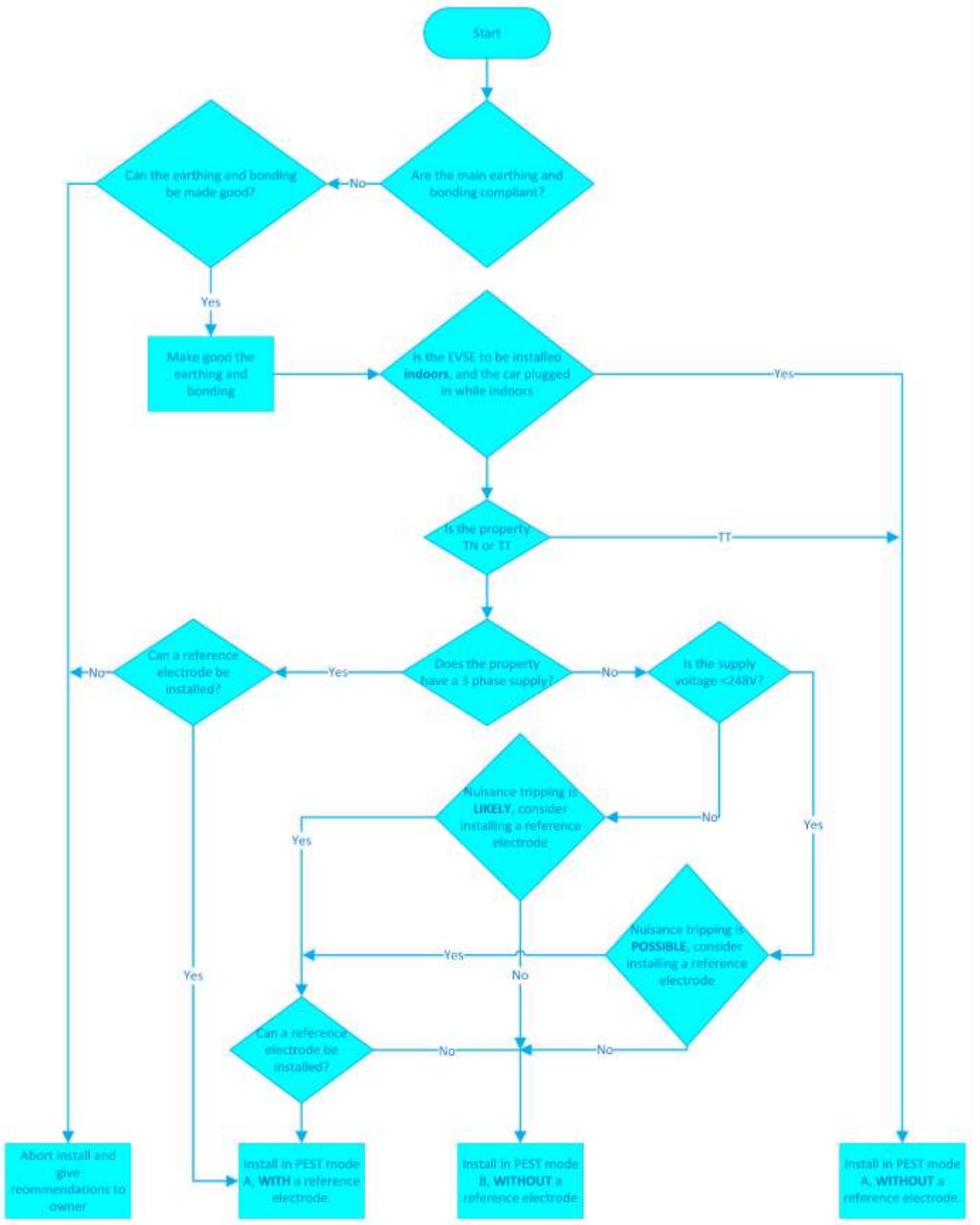
Monitors the L-N voltage and will disconnect from the car if the voltage goes out of range (253V-207V). Protected Multiple Earth (PME) is used as the CPC, and no earth rod or reference pin is required if there are no simultaneous contact or touch voltage risks present.

Consideration should be given to nuisance trips where the line to neutral voltage may exceed 253V, especially where local renewables are present.

Mode A without reference electrode

Used for installations that do not fall under the requirements of 722.411.4.1 E.g. TT installations; installations where the charger and car will be indoors when charging; installations where PME is bonded to Earth in accordance with BS7671:2018; regulation 722.411.4.1, Indent ii.

PESTs Decision Workflow



General Installation Notes

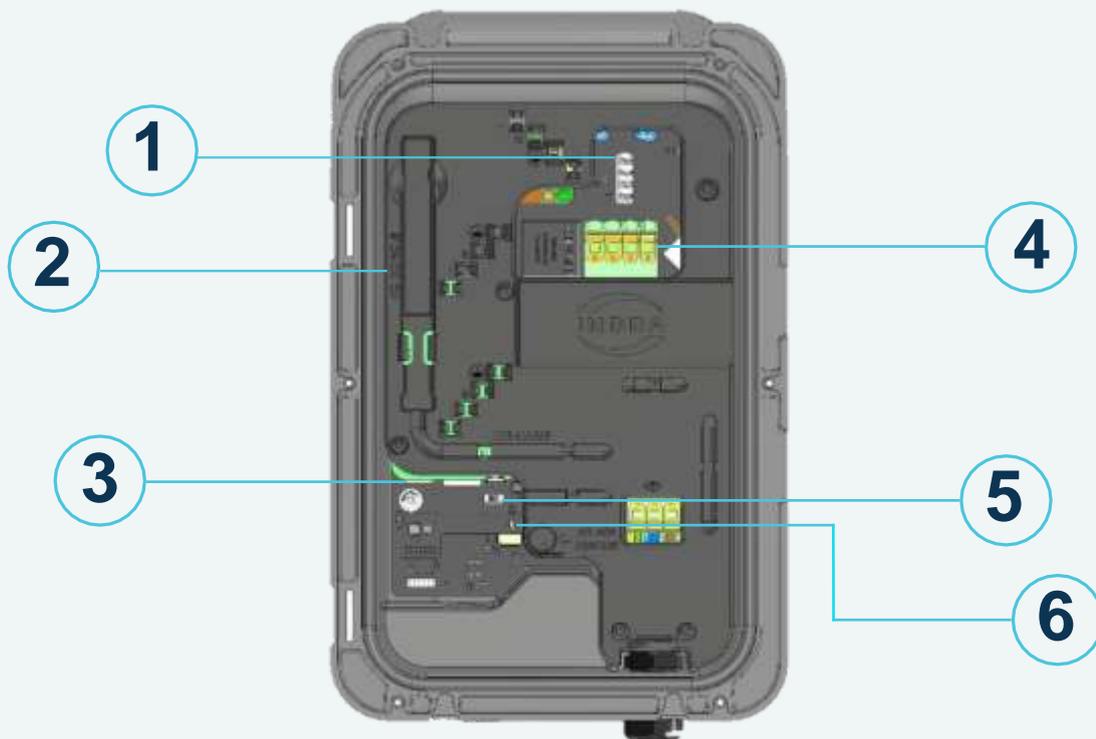
WARNING: FAILURE TO COMPLY WITH THESE INSTRUCTIONS COULD PRESENT A HAZARD

- A. The Indra Smart Range must be installed by a qualified electrician who has completed Indra Academy Training. Any servicing or tampering by a non-qualified professional electrician WILL void the warranty.
- B. Read these instructions fully before installing an Indra smart charger.
- C. The power supply MUST be isolated and checked for dead before installation or maintenance.
- D. The Indra Smart Range chargers are designed for permanent installation and is suitable for operation on an AC electricity supply having the same voltage and current rating as shown on the product label.
- E. The chargers should be installed in accordance with extant wiring regulations.
- F. The charger MUST NOT be fitted alongside an upstream protection device which claims to meet ident (iv) of BS 7671:2018+A1:2020+A2:2022; section 722.411.4.1. Voltage upstream PEN Fault protection and curtailment devices may damage the device through frequent removal of the grid supply under load.

WARNING: Protection against electric shock shall not be automatically reset.

- G. The charger MUST be connected to CPC (either supplied from a PME or TT earth).
- H. The installation location MUST be structurally sound and MUST NOT be subject to excessive dust, vibration, lint, or other material build-up which could affect the charger's proper operation.
- I. The customer should have agreed to the position of the charger and any additional enclosures, and cable routing.

Charger Layout - Smart LUX™



1 CT Connections

2 Wireless Dongle allocated position

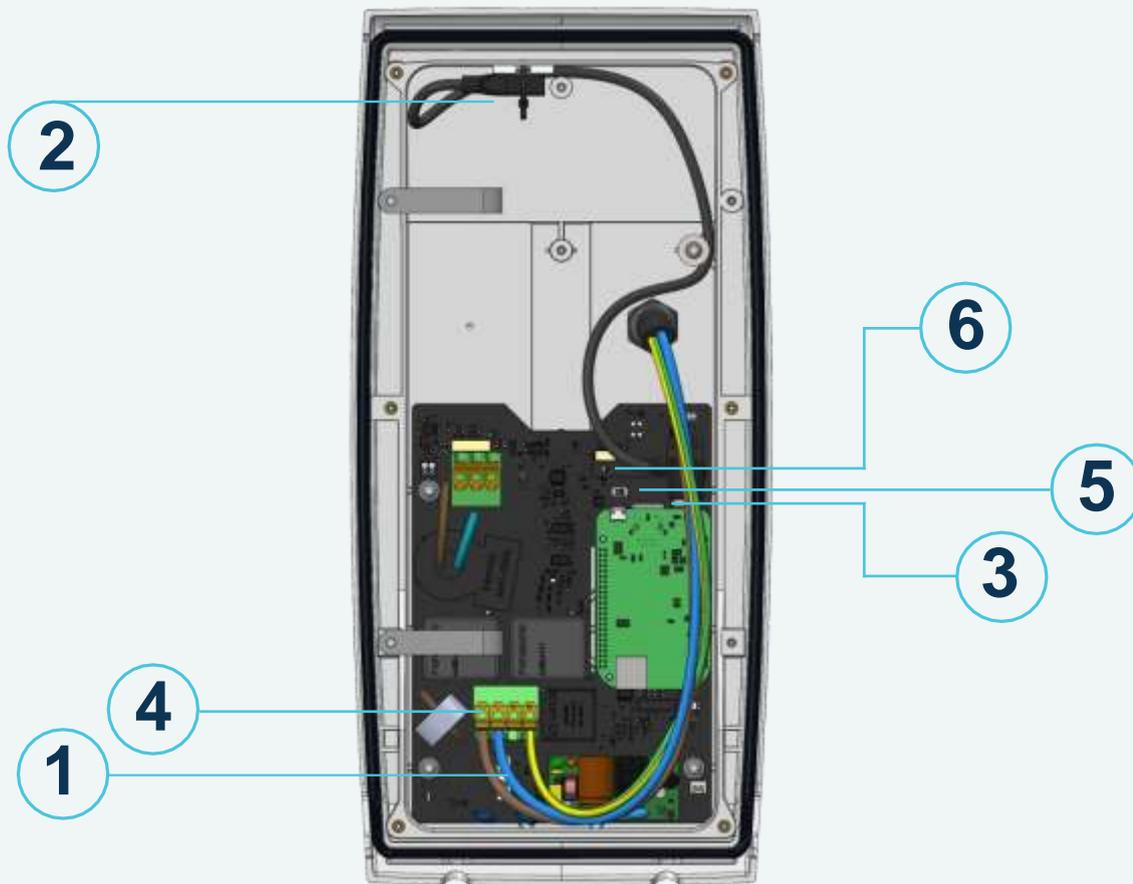
3 USB & RJ45

4 Live Neutral REF CPC

5 PESTs Mode Switch

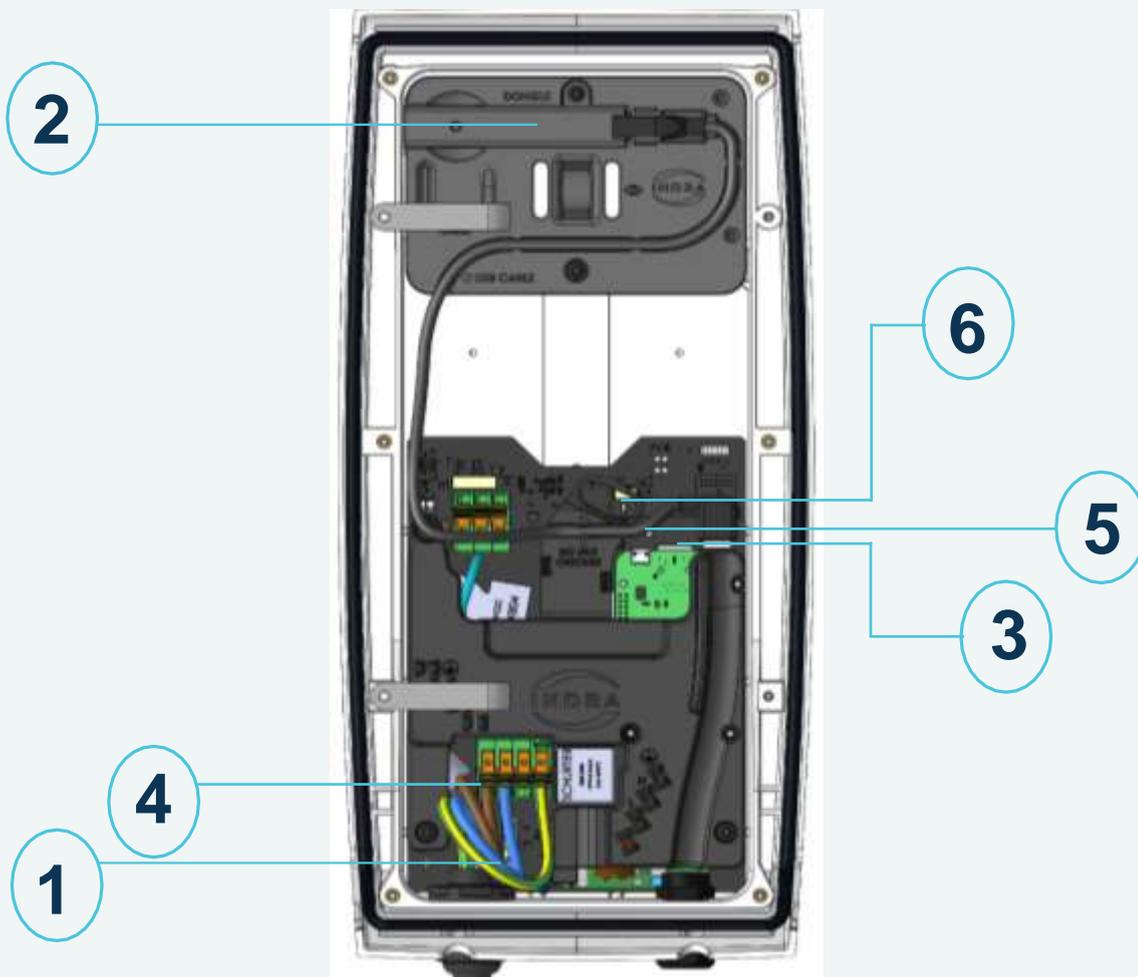
6 Tamper Sensor

Charger Layout - Smart PRO



- 1** CT Connections
- 2** Wireless Dongle allocated position
- 3** USB & RJ45
- 4** Live Neutral REF CPC
- 5** PESTs Mode Switch
- 6** Tamper Sensor

Charger Layout - Smart PRO Gen 2



- 1** CT Connections
- 2** Wireless Dongle allocated position
- 3** USB & RJ45
- 4** Live Neutral REF CPC
- 5** PESTs Mode Switch
- 6** Tamper Sensor

Pre-Installation Survey

Before installing an Indra smart charger, we recommend surveying the installation to ensure that an install can go ahead; and that the charger is appropriate for the customers' requirements.

This survey should include:

- Identify the earthing arrangement of the property and the required PEST mode.
- If a reference electrode will be required, identify a suitable location for it.
- Establish the maximum demand of the existing installation and compare this with the rating of the main cut out supplying the property. If there is less than 32A capacity remaining, then the Load Curtailment feature on the charger will be required. You should account for a load of 6A for the charger when load curtailment is being used.
- If Load Curtailment or Solar Mode is required by the customer, establish where the external CT would be placed.
- Wi-Fi installation is the recommended method for install, if not possible to install on Wi-Fi then hardwire or cellular install can be performed as required.
- Ensure Wi-Fi and Cellular network signal strength is sufficient for the function of the charger. Required 4Mb.
- Identify a suitable location for the charger, with agreement from the customer.

Installation Procedure

Indra smart chargers are supplied with the general screws and wall fixings that are required to permanently fix them in position. However, it remains the responsibility of the installer to evaluate the suitability of the installation surface and use the appropriate fixing.

Procedure

- All parts of the existing installation that will comprise part of the EVSE charging circuit, must be inspected for damage, be suitably rated and compliant with the appropriate regulations.
- Ensure installation earthing conductors are tested and compliant with the latest BS 7671 wiring regulations.

WARNING: ANY DAMAGED OR UNSUITABLE CABLES OR EQUIPMENT MUST BE REPLACED

- Inspect the charger to ensure it has not been damaged in transit and is safe to connect.

Switchgear

Indra smart chargers **REQUIRE** an upstream type A or F RCD to be fitted.

Indra recommends installing the following equipment upstream to minimise potential nuisance tripping and to ensure compliance with BS7671:2018 A1:2020+A2:2022 section 722. (These requirements can be met in whatever configuration suits your design).

- a) Type A 30ma Double Pole RCD protection
- b) C Curve 40A Overcurrent protection

In accordance with BS 7671:2018 A1:2020+A2:2022 Regulation 443.4.1 a surge protection device will need to be installed to protect the charger unless the customer has signed a waiver acknowledging they accept the risk of any potential damage caused.

Choosing the Charger Location

- Select an installation location that ensures future servicing of the Indra Smart charger, where the back plate can be mounted flush to a flat wall and screws can be used to permanently secure the charger in position.
- Make sure the install location will not allow any flammable material to come within 100mm of the unit.
- The control panel of the unit should be installed between 0.75m - 1.20m from the ground.
- The charger should be placed such that the potential risk of tripping over trailing charging leads is minimised as far as reasonably practicable.

Wall Mounting

Note: The fixing holes in the bracket are spaced to meet standard brick sizes so they can all fall within a brick centre.

- Offer the mounting bracket against the surface you intend to fix to and level using a spirit level.
- Mark and drill four holes with a 6mm drill bit (Masonry/5mm Plasterboard).
- Secure to the wall with the supplied four fixings.

Hanging the charger

- Hold the top of the charger just above the wall bracket, tilting the bottom of the charger away from the wall.
- Lower the charger onto the two prongs at the top then hinge the charger back flush with the bracket.
- Secure the charger to the bracket with the 4x8mm button head T20 Torx screws into the bottom of the charger with a T20 screwdriver. Torque setting 2.0-2.5 N/m. Carefully remove the front of the charger and hinge it to the side to allow access, the front body is secured to the main body to protect the ribbon cable to the front panel PCB. Do not remove or detach.

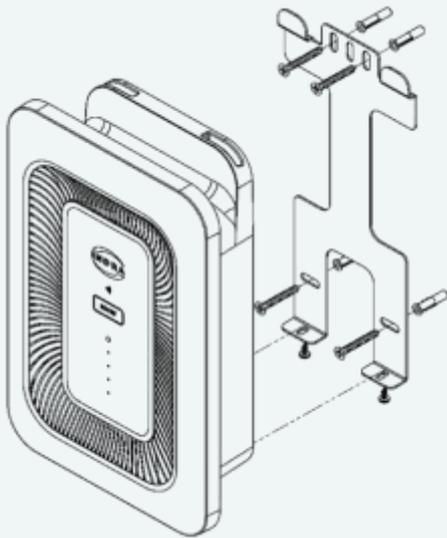


Figure 1: Smart LUX™ Wall Mounting

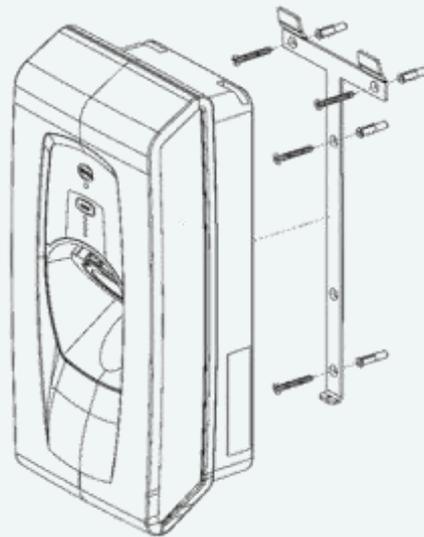


Figure 2: Smart PRO Wall Mounting

Smart LUX™ Storage Hook

The Smart LUX™ Storage Hook should be fitted near the charger to enable the tethered charging cable to be coiled and stowed on it.

The cable hook should be secured with the supplied fixings as per Figure 3

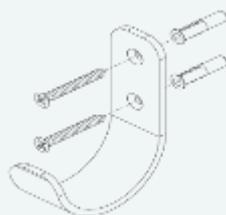


Figure 3: Cable Storage Hook

Cable Entry - Smart LUX™

The Smart LUX™ is designed with two cable entries in the bottom edge and one in the rear (Identified in blue on Figure 4).

- All cable entry points are designed for a 25mm hole.
- Install a 25mm IP68 rated gland for the cable identified in the circuit design.

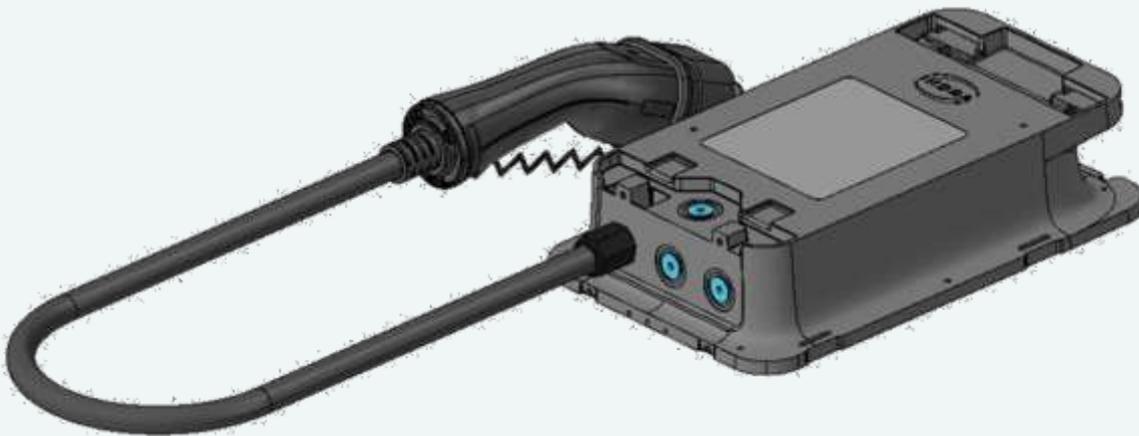


Figure 4: Smart LUX™ Cable Entry

Cable Entry - Smart PRO

The Smart PRO is designed with four cable entry points, two in the bottom edge and two in the rear (Identified in blue on Figure 5).

- Cable entry point 1 is designed for a 25mm hole.
- Cable entry point 2 is designed for a 20mm hole.
- The rear entry points are designed for a 25mm hole.
- Install the appropriately sized IP68 gland for the cable used.

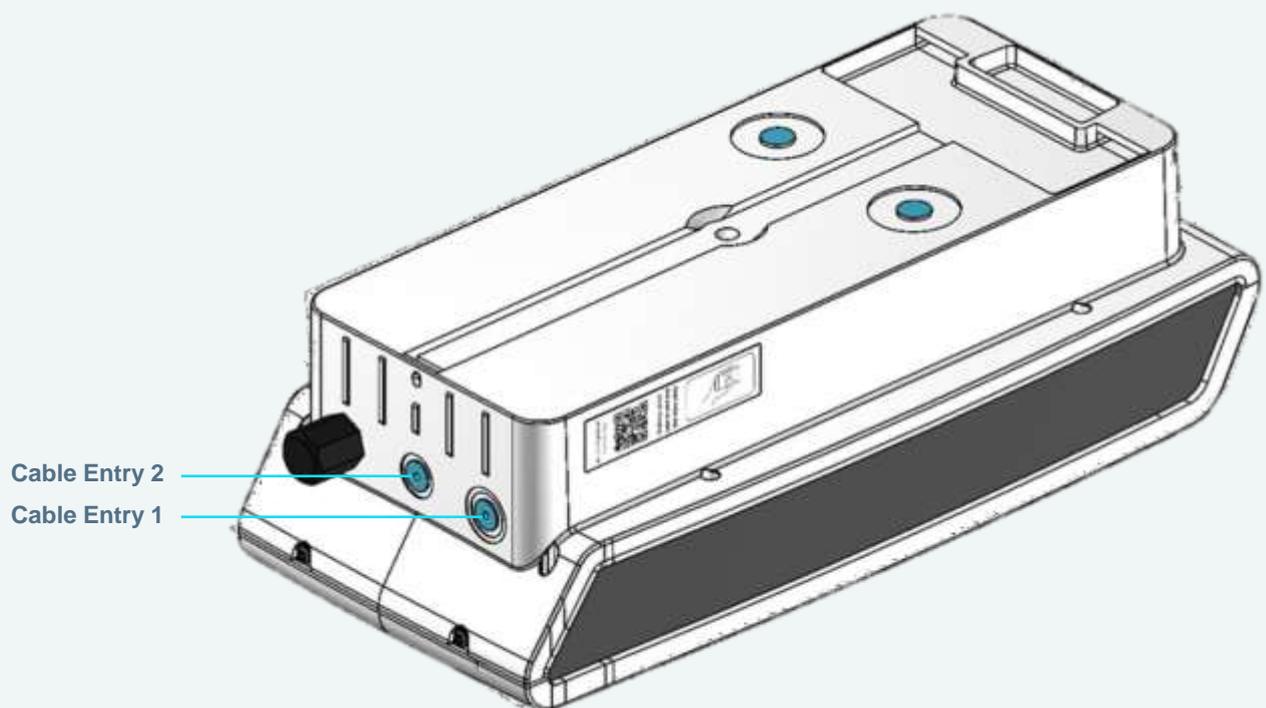


Figure 5: Smart PRO Cable Entry

All swarf and shavings should be removed from the charger and the hole deburred.

Connect Mains Cables - Smart LUX™

Note: Cut the mains wires with reference to the Wire Cut Length table. (pg. 41)

- Remove the outer insulation of the cable, leaving 10mm protruding from the gland.
- Route the wires as per Figure 6.
- Insert wires into the lever type connectors labelled L (Live), N (Neutral) and CPC (Circuit Protective Conductor).
- Ensure any tension is removed from the connection by dressing the cable appropriately.

Note: Indra recommends the use of bootlace ferrules on class 5 & 6 cables ONLY.

Note: Indra recommends using EV Ultra Cable from Doncaster Cables as it contains power and data in the same cable.

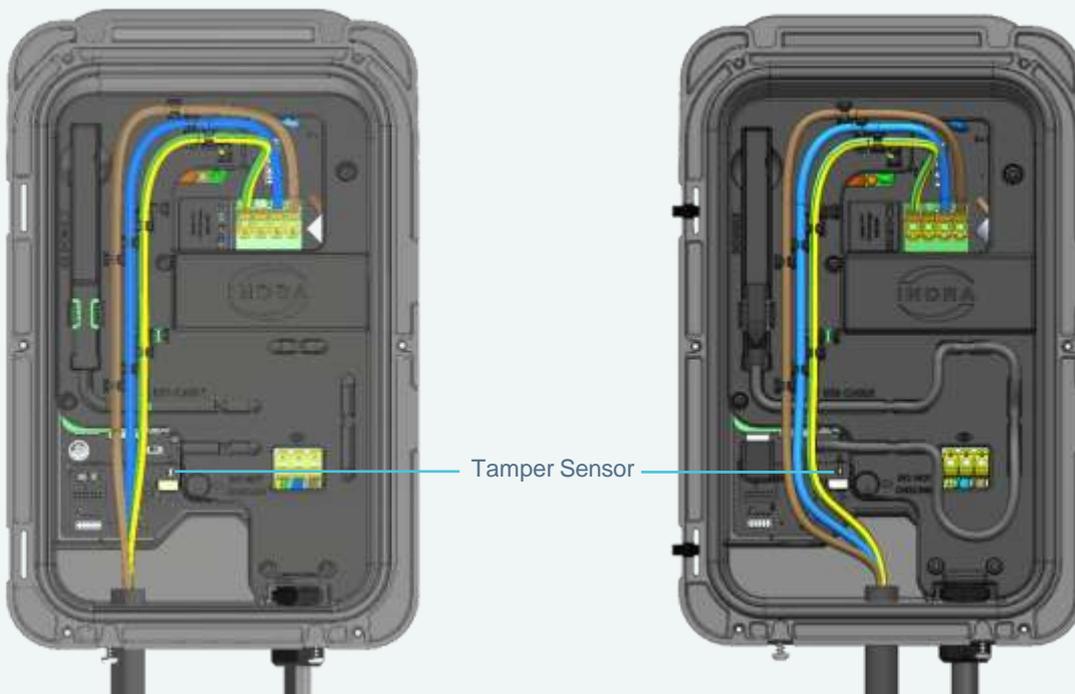


Figure 6: Smart LUX™ Mains Cable Routing

Figure 6a: Cable Routing From Rear or Middle Entry

- **Mains cabling should be routed in accordance with figures 6 & 6A to ensure avoidance of blocking the tamper sensor.**

Connect Mains Cables - Smart PRO

Note: Cut the mains wires with reference to the Wire Cut Length table.

- Remove the outer insulation of the cable, leaving 10mm protruding from the gland.
- Route the wires as per Figure 7.
- Insert wires into the lever type connectors labelled L (Live), N (Neutral) and CPC (Circuit Protective Conductor).

Ensure any tension is removed from the connection by dressing the cables appropriately.

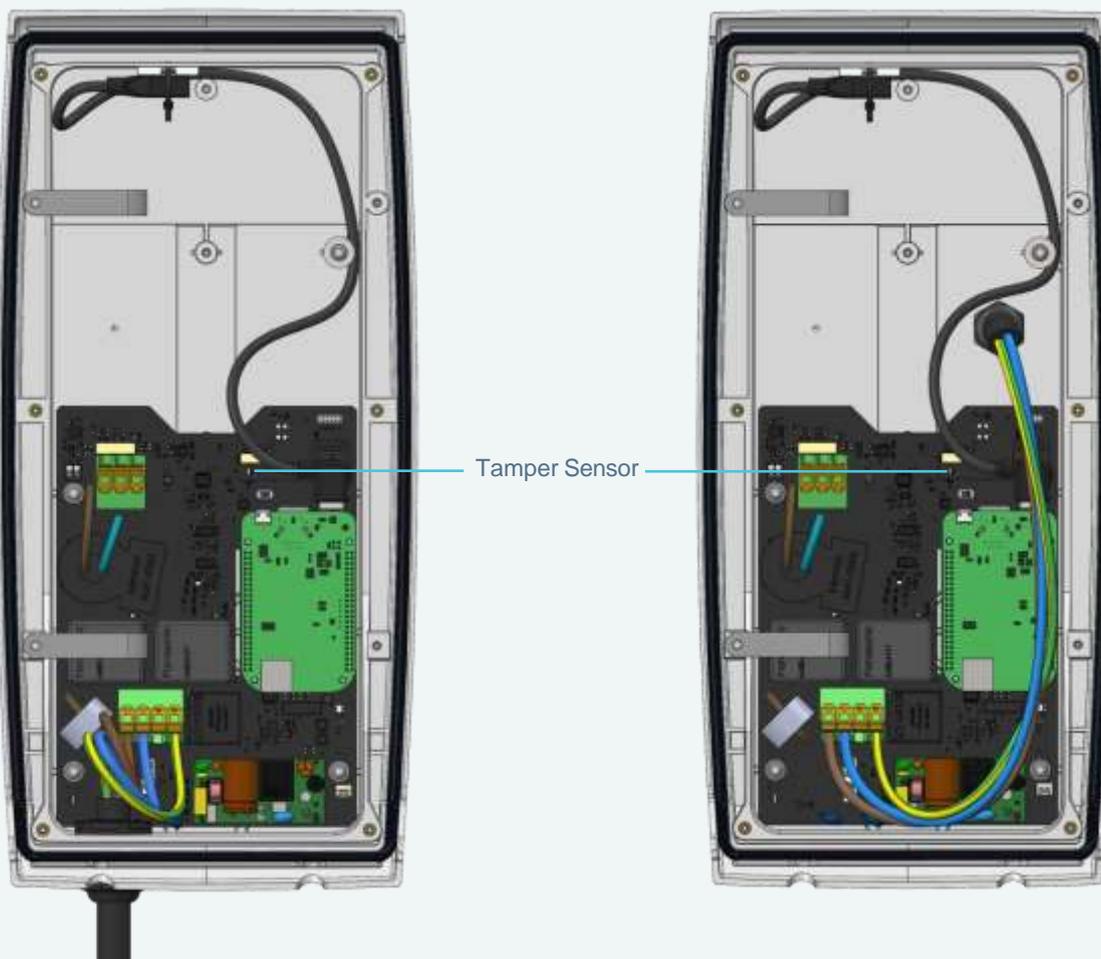


Figure 7: Smart PRO Mains Cable Routing

Figure 7a: Smart PRO Mains Cable Routing from Rear Entry

- Mains cabling **MUST** be routed such that it avoids blocking the tamper sensor.

Connect Mains Cables - Smart PRO Gen 2

Note: Cut the mains wires with reference to the Wire Cut Length table.

- Remove the outer insulation of the cable, leaving 10mm protruding from the gland.
- Route the wires as per Figure 7.
- Insert wires into the lever type connectors labelled L (Live), N (Neutral) and CPC (Circuit Protective Conductor).

Ensure any tension is removed from the connection by dressing the cables appropriately.

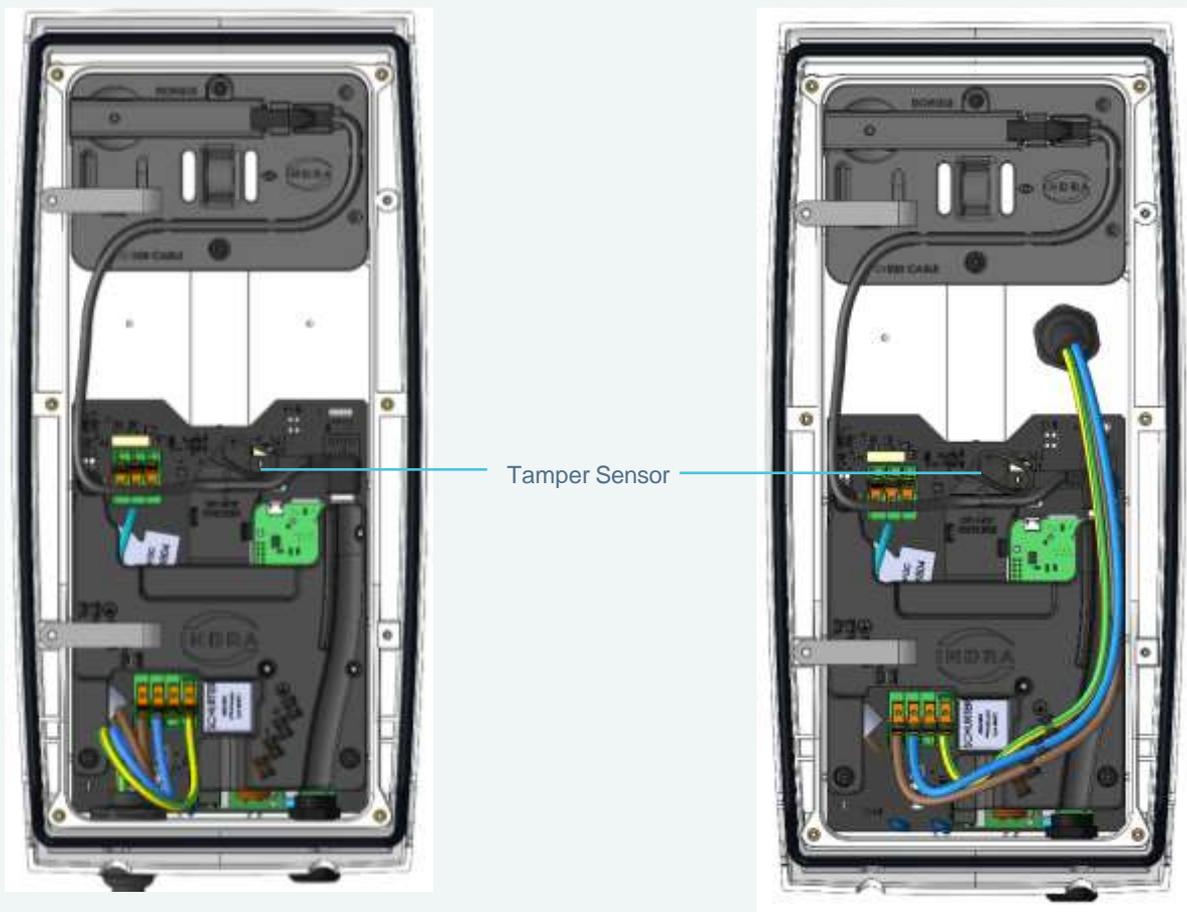


Figure 7: Smart PRO Mains Cable Routing

Figure 7a: Smart PRO Mains Cable Routing from Rear Entry

- Mains cabling **MUST** be routed such that it avoids blocking the tamper sensor.

Installing a Reference Pin

When using PEST Mode A, a reference to true earth is required to protect against O-PEN faults in the distribution network. This reference allows for voltage to be measured between the installation earth (CPC) and true earth, so that if CPC becomes live because of a broken PEN, the voltage will be detected and the charger will disconnect Live, Neutral and CPC from the car. The reference pin is NOT a fault path, thus does not need to comply with the requirement for a TT earth electrode.

The reference pin should be a copper plated 3/8" electrode with a lug terminal clamp.

- If installing straight into soil or equivalent soft terrain, then the electrode can be cut down, to reduce the necessary length driven into the ground (as short as 300mm). For hard aggregate, it may need to be longer to reduce conductive resistance.

Before driving the pin into the ground, ensure there are no buried services in the area.

- Drive the pin straight into the ground, leaving enough length at its tip to secure the clamping terminal.
- Attach the lug clamp terminal and run a length of cable (Indra recommend solar PV cable) back to the charger.
- Terminate with a bootlace ferrule (Class 5 & 6 cable only) in the lever type connector labelled "REF". (As shown in Figure 8).

Note: Cut the reference cable in accordance with the Wire Cut Length Table (Page 41).

Note: Indra recommends the use of Solar PV cable (EN5061) with double insulation.

- Using a Multi-Function Tester or electrode tester, measure the resistance of the newly installed reference pin and ensure it is less than **600Ω**.



Figure 8: Reference Connection

Connectivity

Wi-Fi

The Smart Range can be connected to the internet via a Wi-Fi dongle installed inside the charger. This method is ideal when data cable routing to the router is not feasible, or the customer wants to reduce visible cables.

- Connect the USB cable supplied with the dongle and route as per Figure 9 or 10.
- Connect the dongle and secure as per Figure 11 or 12.
- Connect the charger to the router via the Indra Installer App or WPS

Connecting the charger to the Wi-Fi can be carried out after the charger has been sealed and powered up.

Note: If installing on Wi-Fi, Indra recommends using the Installer App due to improved user experience and improved range of connectivity.



Figure 9: Smart LUX™ Dongle Routing

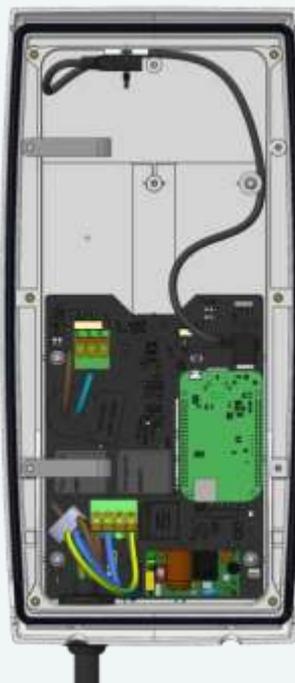


Figure 10: Smart PRO Dongle Routing

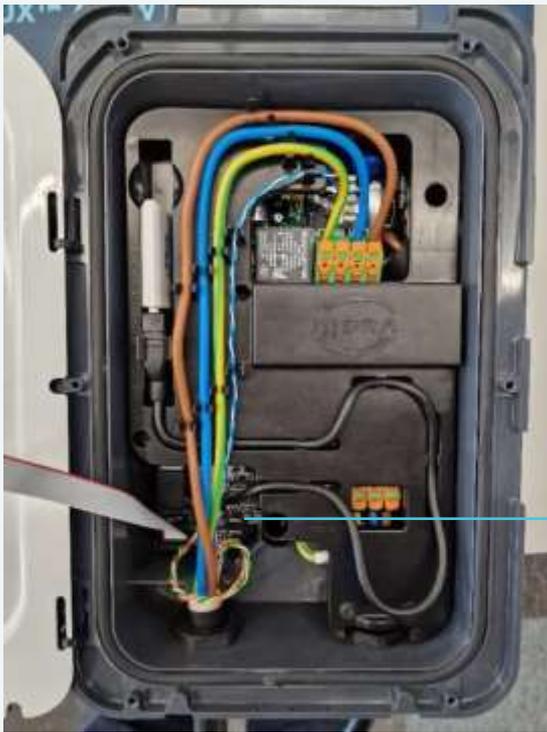


Figure 11: Smart LUX™ Dongle Placement



Figure 12: Smart PRO Dongle Placement

- Routing the USB extension should be executed as per Figures 11 & 12, to ensure the tamper sensor does not become blocked.

Wi-Fi Pairing (App)

1. Open the Indra Installer App
2. Follow the on-screen instructions

Note: See Pg. 39 for QR Codes to App.

Wi-Fi Pairing (WPS)

1. Press and hold the BOOST button until the Primary LED turns orange.
2. Release the BOOST button (before it turns green).
3. Set Router to WPS mode (refer to Router instructions on how to do so).
4. The main LED will flash orange whilst Pairing is taking place.
5. When successfully paired the main LED will flash green for 5 seconds, before reverting to its last state, whether awaiting commissioning (Flashing white) or successfully commissioned (Solid white).

Note: The above routine times out in 2 minutes and the LED will turn red if unsuccessful.

Hardwired

Note: Indra recommends the use of hardwired internet back to the customer's router, as the best option based on reliability.

- Route a cable from the customer's Wi-Fi router back to the charger and use an appropriately sized IP68 gland to enter the bottom of the charger.

Note: If using EV Ultra with CAT5e data cable built in, the Orange, Brown and Green pairs of wires can be terminated into an RJ45 connector and used for the internet connection; and the blue pair used for the CT clamp. This means you would only need to route a separate data cable from the router to the maintenance free enclosure the CT clamp is terminated into.

Note: Cut the data cable for hardwired internet with reference to the Wire Cut Length table

- Ensure data cable is routed as per Figure 13 or 14.
- Terminate the required data cable pairs into an RJ45 connector.
- Using a network tester, confirm correct connection order and continuity of the data cable before connecting at either end.
- Connect the RJ45 connector into the RJ45 socket as per Figure 13 or 14.



Figure 13: Smart LUX™
Data Cable Routing



Figure 14: Smart PRO
Data Cable Routing



Figure 14a: Chargers with the
USB cable pre-installed, connect
the USB plug into the USB
extension as per figure 14a

Note: If it isn't feasible to get a data cable back to the customer's router, you can use a Wi-Fi extender with an RJ45 socket built in and plug into that.

4G

The Smart Range can be connected to the internet via a cellular, 4G dongle fitted inside the charger. This method is ideal when cable routing to the router is not feasible, the Wi-Fi signal strength is too weak, or the customer wants to reduce visible cables.

- Before installing a 4G dongle, check the speed and strength of the 4G signal at the charger location. This can be done by using a signal analyser. A minimum speed of 4Mbps is required.

Indra cannot be held responsible for the intermittent nature of cellular network, nor the lack of signal in the chosen area.

Note: Internet signal strength can vary based on usage in the area; provider maintenance; and in some extreme cases, the weather. This means that connectivity can be unreliable via cellular in some circumstances.

- Should you receive the charger without the USB cable pre-installed then route the USB and cable as per Figures 15 & 16.
- Connect the dongle and secure it as per Figure 15 or 16.
- Record the WCD number of the dongle during the commissioning process.



Figure 15: Smart LUX™ 4G Dongle Placement



Figure 16: Smart PRO 4G Dongle Placement

- Routing of the USB extension should be carried out in accordance with figures 15 & 16 to ensure that the tamper sensor does not get blocked.

4G Pairing

Once powered up, the 4G dongle will find the strongest signal network it can. If the signal strength is strong enough, the charger will indicate it is connected to the internet by the primary LED going White.

External CT Clamp

Chargers required to utilise Load Curtailment or Solar Mode features, must have an External Current Transformer fitted, so the charger can monitor total demand on the installation and total export of any micro-generation.

- The External CT clamp must be clipped around a Live cable that will enable it to measure the total import and export of the entire installation. This is usually the main tails at the meter.

Note: The external CT clamp should be placed with directional arrows **facing the grid**.

Note: The smart charge regulations dictate that metering equipment for EVSE is designed in such a way as to prevent/deter tampering.

- The hard-wired cable of the CT should be routed to a location where it can be joined with a data cable. This would usually be a junction box near the switchgear of the charger circuit.

Note: Indra recommends the use of EV Ultra Cable from Doncaster Cables as it contains power and data combined in one cable.

- Using the jelly crimps provided, join the CT clamp wires to the Blue/Blue White pair of your data cable and secure it inside a maintenance free enclosure.

Data Cable Conductor	CT Clamp Conductor
Blue	Red
Blue & White	White

- Route the data cable to the charger and enter the bottom through an appropriately sized IP68 gland (If using EV Ultra, it will go through the hole drilled for the power cable).
- Using an IDC punch-down tool terminate the Blue/Blue White wires into the CT connector.

Note: Other data cable colours may be used but must terminate into the BE, BE/WE connection.



Figure 17: Example CT Location

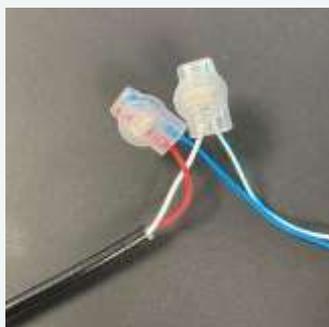


Figure 18: Data Cable Jelly Crimps



Figure 19: Charger CT Termination

Testing

All tests should be documented on an Electrical Installation Certificate (EIC).

Continuity of protective conductors

In accordance with (IAW) Guidance Note 3 to BS7671:2018+A2:2022 Section 2.6.5. This should be carried out between the live and CPC of the mains cable that will connect to the L & CPC lever connectors of the charger.

Insulation resistance (IR)

IAW Guidance Note 3 to BS7671:2018+A2:2022 Section 2.6.7, example (ii).

The Smart PRO should be disconnected from the circuit and the exposed cable end made safe before carrying out IR tests.

Polarity

IAW Guidance Note 3 to BS7671:2018+A2:2022 Section 2.6.12.

Earth Electrode Resistance Testing (If required)

IAW Guidance Note 3 to BS7671:2018+A2:2022 Section 2.6.13. This will be required when installing the charger on a TT installation or when using a reference electrode.

Earth Fault Loop Impedance (EFLI) Verification

IAW Guidance Note 3 to BS7671:2018+A2:2022 Section 2.6.15.

Zs can be measured using a multi-function tester (MFT) and a compatible Electric Vehicle Service Equipment (EVSE) tester as follows:

- Connect the MFT to the EVSE tester as per the manufacturer's instructions and set to mode A.
- Set the MFT to 6mA. If the tester does not go to 6mA then the calculation method should be used for Zs as the in-built RCD-DD protection will trigger and isolate the power relays.

- Power the charger up, once the boot up is complete, connect the EVSE tester to the charger.
- Change the mode on the EVSE tester to B, the 4 status lights should begin to flash.
- Press the boost button on the charger, the primary LED and status LED's will go blue.
- Change the mode on the EVSE tester to mode C. The status lights will go solid blue and a voltage should be indicated on the MFT
- Carry out the Loop test as per the MFT manufactures instructions.

RCD Testing

IAW Guidance Note 3 to BS7671:2018+A2:2022 Section 2.6.18.

RCD tests can be carried out at any point on the circuit e.g. on the RCD contacts or via the EVSE.

Testing via the EVSE:

Using a multi-function tester (MFT) and a compatible Electric Vehicle Service Equipment (EVSE) tester as follows:

- Connect the MFT to the EVSE tester as per the manufacturer's instructions and set to mode A.
- Set the MFT to 6mA. If the tester does not go to 6mA then the calculation method should be used for Zs as the in-built RCD-DD protection will trigger and isolate the power relays.
- Power the charger up, once the boot up is complete, connect the EVSE tester to the charger.
- Change the mode on the EVSE tester to mode B, the 4 status lights should begin to flash.
- Press the boost button on the charger, the primary LED and status LED's will go blue.
- Change the mode on the EVSE tester to mode C. The status lights will go solid blue and a voltage should be indicated on the MFT.
- Carry out the Loop test as per the MFT manufacturer's instructions.

Sealing the Unit

Once all works have been carried out inside the charger, it can be closed and sealed.

- Front cover should be secured to a torque rating of between 2-2.5 N/m with 6x 4x8mm Button Head T20 screws.
- Note: It may be worth carrying out commissioning and calibration of the charger before completing the sealing process.
- Fix the tamper seal (provided) as per Figure 20 or 21.
- During the commissioning process you will be required to input the tamper seal number (if used).
- Fix the CT tamper seal (Red tie wrap) around the CT clamp as per Figure 22.

Note: If required, now is the time to pair the Wi-Fi dongle.



Figure 20: Smart LUX™ tamper Seal Location



Figure 21: Smart PRO Tamper Seal Location

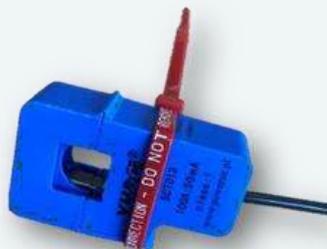


Figure 22: CT Tamper Tie Wrap

Commissioning

Commissioning of the unit is handled through the **Indra Installer App**, and Indra recommends this method of commissioning. However, if required commissioning can be performed by scanning the QR code on the side of the charger and carrying out Dynamo commissioning..

Any Smart PROs that are not SPRFGT2WG403, SPRFGT2WG404 or SPRFGSKWG403 will require an update to firmware v11 to use the Installer App. Installed chargers can be updated following the steps outlined in the “Offline charger firmware updates” section of the installer manual (pg. 36-37)

DynaMO Commissioning:

Once you have completed the Indra Academy training, you will receive an email containing access to DynaMO.

To begin commissioning, scan the QR code on the left side of the charger and it will take you to the DynaMO login page, then follow the installation procedure as instructed in the DynaMO portal.

DynaMO URL: DynaMo.Indra.co.uk/login

For a video tutorial on commissioning click [here](#).



Figure 23: Smart LUX™ Commissioning QR Code

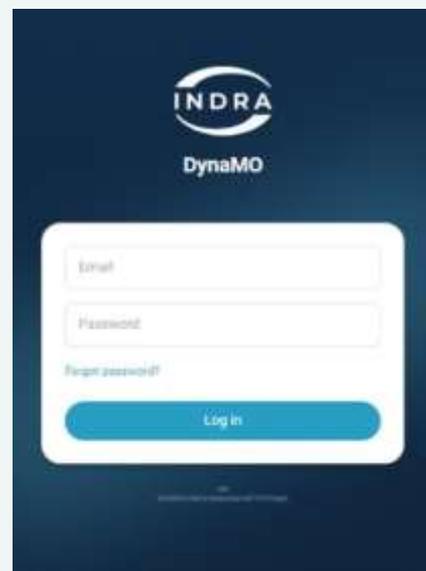


Figure 24: DynaMO Login Page

Offline charger firmware updates.

Temporary Hardwire

Preferred method for updating firmware because the connection to the internet will be the most stable.

Limiting factors would be the distance between the charger and the customer router, or an unacceptable level of risk (trips and falls) associated with the temporary trailing data cable.

Equipment:

- Data cable with RJ45 terminations on both ends

Process:

Inform the customer of your intent to run a loose cable from the charger to their router and manage any potential risks involved.

1. Power off the charger
2. Connect the one end of the pre-terminated data cable to the RJ45 port on the Beaglebone of the charger.
3. Loosely fix the front body to the charger with the data cable hanging out.
4. Connect the other end of the pre-terminated data cable to the customers router.
5. Power on the charger and wait for the boot cycle to complete.
6. When the Primary Indicating LED is solid white, Call customer support and ask them to send a firmware update to the charger.
7. DO NOT REMOVE THE DATA CABLE CONNECTION UNTIL THE FIRMWARE UPDATE IS COMPLETE.

Temporary 4G Dongle

Useful option assuming the 4G signal to the dongle is reliable enough to complete a firmware update. Though the likelihood is that the charger will be being updated to FW.11 because 4G wasn't suitable in the first place.

Equipment:

Indra 4G Dongle

Process:

1. Power off the charger
2. Insert the 4G dongle to the charger (if required, install a USB extension cable as per the installation manual).
3. Loosely fix the front cover of the charger shut.

4. Power on the charger and wait until the boot cycle is complete.
5. When the Primary Indicating LED is solid white, Call customer support and ask them to send a firmware update to the charger.
6. DO NOT REMOVE THE DATA CABLE CONNECTION UNTIL THE FIRMWARE UPDATE IS COMPLETE.
7. Power off the charger.
8. Remove the 4G dongle.

Firmware update using Mobile Phone for Internet

Useful if the customers router is too far from the charger to connect with a data cable, or the customer doesn't have a router. Or, if the 4G dongle doesn't have suitable signal but the installers Android device does.

Limiting factor is the installer having the appropriate adapter with them.

Equipment:

- RJ45-USB C Adapter
- Android mobile phone/device with USB-C charging port (Android 11 or greater).
- Data cable with RJ45 terminations on both ends

Process:

1. Carry out an internet speed test on the Android device and ensure you have 10MB or greater available. (<10MB may well work but could be slow and unreliable).
2. Power off the charger
3. Connect the one end of the pre-terminated data cable to the RJ45 port on the Beaglebone of the charger.
4. Connect the other end of the data cable to the RJ45 to USB-C adapter.
5. Loosely fix the front body to the charger with the data cable hanging out.
6. Power on the charger and wait for the boot cycle to complete.
7. Connect the adapter to the Android device.
8. In the settings menu, select connections.
9. Scroll down to and select "Mobile Hotspot and Tethering".
10. Turn on "Ethernet tethering".
11. Check the lights on the RJ45 socket of the RJ45 to USB-C adapter are on. (The orange LED will flash as data is transferred).
12. If the internet signal provided by the phone is strong enough, the charger Primary indicating LED will go flashing white then White.
13. When the Primary Indicating LED is solid white, Call customer support and ask them to send a firmware update to the charger.
14. DO NOT DISCONNECT THE PHONE FROM THE CHARGER UNTIL THE FIRMWARE UPDATE IS COMPLETE.

If the firmware update is being carried out to get the charger to FW.11 for SSID & Password Wi-Fi connection, then the charger MUST be left with a Wi-Fi dongle fitted.

Note: The front panel flashes blue whilst updating. **DO NOT** power off during update. Once the update is complete the front panel should be solid white.

FW 11

Firmware version 11 brings several improvements and features to the Indra Smart Range.

Most importantly it is the firmware required to use the Indra Installer App for installations.

It is recommended that units are installed on v11 or greater for improvements to ease of installation when using the installer app.

V.11 firmware is standard on PRO Gen 2 and Lux units. These can be identified by a sticker on the box.

Gen 1 units can be updated to V11.0 post installation by contacting customer support.

Indra recommends installing on V11.0 for the smoothest installation experience, this will also make the charger compatible with the Indra Installer App.

On a first-time installation Bluetooth will start when the unit is turned on. Once an internet connection has been established the unit can be put back into Bluetooth pairing mode at any time by pressing and holding the boost button for between 3 and 10 seconds.

Installer App

Faster, smoother installations

We've designed the Indra Installer App to meet the needs of professional installers, helping them complete installations faster than ever - with a reliable outcome every time.

The app guides installers through a simple set-up process and allows you to select the best connection option for the charger (Wi-Fi, hardwired or 4G) depending on what's best for each customer. For Wi-Fi installs you can monitor the signal strength from the app, to reduce the risk of drop outs and other connection issues, The whole process normally takes less than 4 minutes to complete.

How to get the Installer App.

To get the Installer App go to the App Store [™] or Google Play Store [™] and search for "Indra Installer App". Please then install the app from the first result that comes up. Or use the below QR code.

Once the app is installed, installers can simply follow the in-app instructions to get the charger connected to the internet and commissioned.



Customer Handover

Fill out and hand over the 'Smart Charge Act Statement of Compliance'. Encourage the customer to retain this document as it may be used as evidence of a compliant EVSE install.

It is also recommended that the installer retains a copy, or evidence of its completion and handover, for their records.

A digital version of this form can be found on the Indra website to be emailed to the customer.

Also hand the customer the Customer Quick Start Guide. This provides them with support on getting set up on the Indra App.

Charger Familiarisation

Offer the customer a demonstration of how the charger works, for example, plug it in and show them how to start and stop a boost charge.

Show the customer where the switchgear is and how they would safely isolate or power cycle the charger if required.

Offer the customer a brief walk through of the Indra App.

Customer Support

Remember, if you have issues at any point, please contact the customer support team:

Phone: 01684 770631

Email: support@Indra.co.uk

Technical Support:

Monday - Thursday: 08:00 - 20:00

Friday: 08:00 - 18:00

Customer Support: Available 24/7

Wire Cut Lengths

	Smart LUX™	Smart PRO
Live	385mm	200mm
Neutral	340mm	200mm
CPC	310mm	240mm
REF	315mm	200mm
CT	295mm	180mm

Troubleshooting

Powerline adapters

Powerline adapters should not be used on chargers that will service an MG.

4G

4G dongles have an indicating LED on the front, which shows what the dongle is doing.

To enable you to see the dongle status LED without exposing live conductive parts, dangle the dongle out of the side of the charger and loosely secure the front of the charger in place.

The 4G dongle may take up to seven minutes to connect to the internet. If it has not connected within seven minutes, power cycle the charger and try again.

If the dongle connects to a 2G signal, consider using another means of internet connection as this may not be reliable.

Meaning of 4G Dongle LEDs

Stage	Colour	Time
Bootup	Random Rainbow Colour	Roughly 20s
Looking for network	Flashing Red	N/A
2G (Ready to connect)	Flashing Green	N/A
2G (Connected)	Solid Green	N/A
3G (Ready to connect)	Flashing Yellow	N/A
3G (Connected)	Solid Yellow	N/A
4G - LTE (Ready to connect)	Flashing Blue	N/A
4G - LTE (Connected)	Solid Blue	N/A

Note:

The above table is representative of the Alcatel LinkKey 4G dongle.

Turbine Lights - Smart LUX™

The Indra Smart LUX™ is fitted with a unique set of turbine lights that correspond with the relevant colour, dependent on the user interaction. These lights trace around the full circumference of the front panel and are visible through the 'grill' of the charger.

The Turbine lights can be turned off via the Indra App at any time via the settings.



What do the LEDs on my charger mean?

There are two separate LED indicators on the charger. The Primary LED indicates the charger status, while the four panel LEDs highlight the charger's current mode. Each of these will illuminate a different colour and will emit a sequence of flashes that indicates the charger's current state.



LEDs relating to the primary LED light:



ALL LEDs are off

The charger is not receiving power; it may be disconnected from the mains. There is no power to the front panel (The ribbon cable or its connections maybe damaged or disconnected).



Primary LED lit, white

A solid white LED indicates that the charger is set up and ready to go.



Primary LED flashing, white

The unit has successfully connected to the internet and needs to be commissioned or the unit has successfully connected to the internet, is commissioned and is carrying out cache telemetry (The time this process takes depends on internet speed and the time the charger has been offline).



Primary LED lit, blue

The charger is in boost mode (This is activated by pressing the boost button either in the app or on the front of the charger).



Primary LED flashing, blue

The charger is processing a software update.



Primary LED lit, yellow

The charger is in solar mode (This is activated on the app).



Primary LED lit, red

A serious fault has occurred (This could be an RCD-DD trip event)

- Power cycle the charger
- If it persists, contact Indra customer support.



Primary LED flashing, red

There is a temporary fault with the charger (This could be a PESTs trip)

- Unplug the vehicle.
- Wait for 10 minutes to see if the fault clears.
- Power cycle the charger
- If it persists, contact Indra customer support.



Primary LED lit, purple

The charger is booting up.



Primary LED flashing, purple

There is a problem connecting to the internet.

- Ensure all connections are soundly made
- Ensure other devices are working on the customer's router
- Ensure the Wi-Fi Dongle is successfully paired (Where applicable)
- Restart the customer's router (Where applicable)
- Refer to 4G indicator lights (Where applicable)
- If it persists, contact Indra customer support



Primary LED flashing, orange

WPS Wi-Fi pairing has been initiated.



Primary LED flashing, orange and purple

The charger is in Bluetooth pairing mode. This mode is for connecting the charger to Wi-Fi via the Indra Installer App.

○○○○ LEDs relating to the four ascending panel LEDs



4 panel LEDs are off

The charger is not connected to the car.



4 panel LEDs are steady

The charger is offering a charge to the car but is “idle” (The car is not accepting a charge).



4 panel LEDs are racing downwards

The charger is charging the car (The speed the lights move at represents the rate of charge).



4 panel LEDs flashing, white

The car is plugged in but the charger is not offering charge.



Contact us

For more information, please contact us;



Email us
support@indra.co.uk



Call us:
(+44) 01684 770 631



Online support
[www.indra.co.uk/
support](http://www.indra.co.uk/support)