

Pod Point Solo Unit Installation Guide

Introduction

This guide is intended for use by competent electrical installers to explain the basic requirements and options to be considered when installing a Pod Point Solo Mode 3 electric vehicle charging point. The Pod Point Solo is designed for installations in or outside, the advanced safety systems we have built in to the unit ensure its safe usage, this guidance provides information to assist when installing the new Pod-Point Solo. This guide should not be used for any other EVSE as they do not include these safety systems.

Pod Point Solo -
Universal Version



Important safety information

Warning! The Pod Point Solo charging unit is manufactured to be safe and without risk provided they are professionally installed, used and maintained in accordance with the manufacturer's instructions and recommendations and installed by competent electrical installers in accordance with national and local regulations and legislation applicable at the time of installation, e.g.: BS7671:2018.

The Pod Point is designed to be connected to one dedicated AC supply only. The property must comply with minimum BS7671 standards before installation commences. As of the 1st January 2019 either a Type B RCD must be used or a Type A with 6mA DC protection included in the Pod-Point (see detail on packaging to determine what protection is required),

Important note: A DC leakage fault in the vehicle may "blind" a type "AC" RCD and render it ineffective, never feed any EVSE from an existing upstream Type "AC" RCD.

Fig. 1
RCD Markings



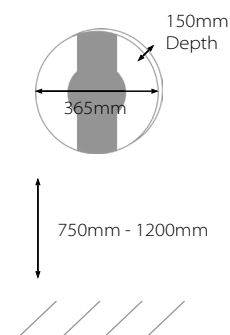
Type A (left) Type B (both symbols)

Locating the Pod Point Solo

The Pod Point can be fitted inside or outside, the installer should consult the EV owner to establish their preferred installation location. This should take into consideration the cable length (distance to vehicle being charged), risk of vehicle impact and obstruction of access etc.

It is recommended the Pod Point be mounted at a height of 750mm-1.2m (Fig. 2), (Building regulations BS8300:2018 recommends 450-1200mm, BS7671:2018 recommend 500-1500mm).

Fig. 2
Dimensions and location of
unit (150mm depth)



Technical details

The Point Solo is designed to meet the following European standards: IEC61851-1 edition 3 (2017), Low Voltage Directive (LVD) 2014/35/EU and EMC Directive 2014/30/EU. During manufacture each Pod Point has been functionality tested for safety using BS EN 61010 & BS EN 61557 approved equipment. The Pod Point Solo is a Class I/II rated device for 230V / 400V AC 50Hz systems and is IP54 rated. This installation guide is in accordance to the latest BS7671: 2018.

Earth arrangements

The new Pod Point Solo features an on-board safety monitoring system to detect low voltage supplies and potential earth-neutral faults, If such a condition is encountered the charge cycle is ended or prevented and the Pod-Point effectively becomes a double insulated (class II) device. The vehicle becomes isolated from the incoming supply and poses no risk to touch. This feature removes the requirement for an earth electrode where it may be ineffective or introduce further risk. The Pod Point Solo unit (tethered or socketed) may be connected directly to a TN-C-S (PME) earthing system without any special arrangements, the new Pod Point solo complies with regulation 722.411.4.1 (iii) of BS7671: 2018.

It remains the responsibility of the installer to conduct a risk assessment of the immediate area to a range of 10 Meters (equipotential zone) to ensure no other conductive metal fixings pose risks (mixture of TT/TN-S and TN-C-S), this is important where cable length may enable charging inside or outside of a building/garage where the vehicle is within touch distance.

Where certain conditions dictate an earth electrode must be used it shall be independent from the distributors earth system with no direct interconnection (the incoming supply SWA protective earth should be isolated from the housing and/or earth electrode). The electrical installer shall install a suitable electrode complete with termination housing and covers where appropriate, warning labels should be visible and close to the unconnected SWA protective earth (e.g inside the Pod-Point).

The earth connection shall be made from the electrode to the Pod Point Solo via copper conductor earth wire of an appropriate CSA for the installation. The earth wire shall be installed in conduit where there is a risk of mechanical damage or UV exposure.

* Note 1: Unless SWA is used, if a cable passes through any metallic material (signage etc..) this will also require bonding to earth, see separate documentation supplied with Pod-Point signage if included.

* Additional note: Pod Point recommend Earth electrode impedance to be < 100 ohms.

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RCD protection:

From January 2019 new Pod-Point's will include 6mA DC vehicle fault protection and only Type A RCD/RCBO's are required at source, if the Pod-Point was built earlier than this Type B RCD protection should be fitted at source, the symbols printed on the RCD in figure 1 can be used to identify the type of RCD protection.

Surge protection:

Guidance on requirements for surge protection devices given in BS7671: section 443.

The Pod-Point is protected against transient over voltages (+/-2kV Line-Earth and +/-1kV Line-Line as a requirement of EN 61000-6-1), a direct lightning strike carries a current of 30- 200kA the Pod Points internal protection would provide little or no protection in such an event, likewise nor would an SPD rated less than 30kA. If life support equipment or business operations could be affected by a lightning strike central SPD protection is advised if it does not already exist. The guidance on risk calculation in section 443.5 of BS7671 in most cases is not possible due to unknown location of any SPD already fitted, length of cables to calculate L_p etc., it is therefore recommended a common sense approach is used on choice of SPD (or if required).

Array systems:

The Pod-Point array system is designed to maximise charging for several units connected to a limited supply, To notify the Pod-Point of the total supply load a low voltage signal provided by an array controller should be hardwired to the point (connected to CON9 or J201). The Pod-Point(s) require WiFi connection and commissioning to enable the array features. For more details see:

<https://d3h256n3bzipp.cloudfront.net/Solo-Pod-Point-Array-Charging-Datasheet.pdf>

Transformers

If a galvanically isolated transformer is required, it should be placed upstream of the EVSE. The Neutral output feed of the transformer shall be connected to EVSE earth (creating a TN-S system), the PE taken before any RCD and MCB (if 2 pole MCB is used), resistance measured between the EVSE PE and this Earth must be less than 100 ohms. Do not connect the output earth/neutral of the transformer to a PME earthed system. Upstream transformer RCD protection maybe of Type AC (if fitted), downstream RCD protection is still required. Transformers should be rated for 100% duty cycle at 10% above rated charge current and should be located in a dry well ventilated area.

Direct EVSE connection to an IT system is prohibited.

Isolation and switching for safety and maintenance

To ensure that the Pod Point Solo unit can be "turned off" to enhance security and enable maintenance activities, a double pole isolator (or 2 pole RCBO) suitably rated must be installed within the customer's property. An isolator switch is a mandatory requirement for "new builds", but optional for existing dwellings (at customer's request), the switch should be mounted at a height of between 500mm and 1500mm above finished floor level to comply with regulation's. The switch should be rated at 45 amps.

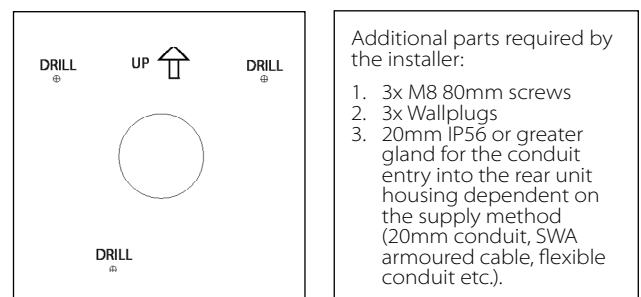
All installations must comply to BS7671: 2018 regulations.

Installation procedure

The Pod Point Solo has been designed as a wall mounted device. The installer should confirm that the wall that the unit is intended to be fixed to is structurally appropriate for the mounting of the Pod Point Solo. The installer should identify the construction of the wall, and identify the correct and appropriate fixings to use.

- The Installer has a duty of care to ensure that the Pod Point Solo unit is securely attached to the wall or structure where the unit is intended to be operated from.
- Once the location and height of the Pod Point Solo unit has been decided, the installer can begin marking the wall with indicator points to locate the unit. Use the back of the box insert as the drilling template for the 3 mounting holes (Fig. 3)
- **NOTE:** If any groundworks are required (cable trenching or earth electrode fitment) it is advisable to check if underground services could be present before commencement, plans maybe available at: linesearchbeforeudig.co.uk (free to domestic users).

Fig.3 Drilling template (box insert)



- Before drilling commences ensure that the installation wall has been checked for electric cabling or pipework with a suitable detector.
- It is highly recommended this is done prior to any installation work commencement (drilling or fitting of conduit etc) to allow the customer to visualise where the unit will be once installed. Once the installation site is marked up, confirm with the customer this meets their expectations.

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Fig 4.

Typical Schematic of installation circuit

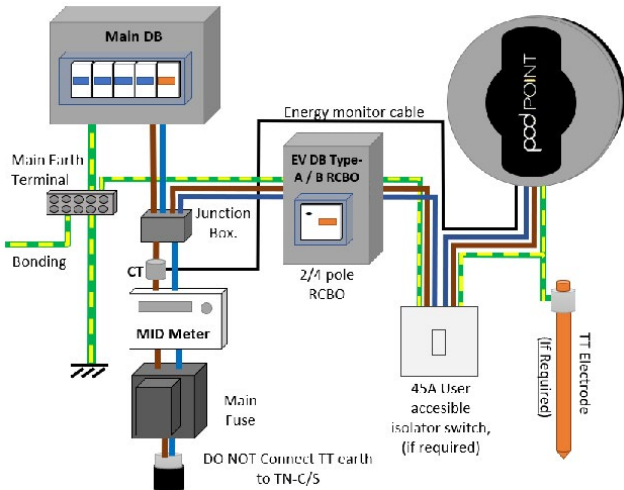


Table A.

Circuit protection and Power rating settings

Circuit Protection				Unit Power Rating				
Power Rating	Cable CSA	MCB* / RCBO	Switch Setting					
1Phase	3Phase		1	2	3	4	5**	Position depends on socketed/tethered
1.4kW	4.3kW	1.5mm ²	10A	0	0	0	0	
2.4kW	7.2kW	2.5mm ²	16A	0	0	1	0	
3.1kW	9.4kW	2.5mm ²	16A	0	1	0	0	
3.7kW	11kW	2.5mm ² - 4mm ²	20A	0	1	1	0	
4.8kW	14.4kW	4mm ² - 6mm ²	32A	1	0	0	0	
6kW	18kW	4mm ² - 6mm ²	32A	1	0	1	0	
7.2kW	21.6kW	6mm ² - 10mm ²	40A	1	1	0	0	
Pod Disabled				1	1	1	0	

0=OFF, 1=ON

**Switch 5 OFF for socketed units

Switch 5 ON for tethered units

*The Pod Point also provides internal over-current protection in addition to the above

Drilling the holes for the electrical supply cable entry

As the electrical supply to the Pod Point Solo may be fed from a number of directions; the unit has been designed to accept supply cable entry on either the left, right, bottom or via rear entry “knockouts”. The installer should drill a suitable size hole for the cable and grommet/gland to be used. Cable entry holes should not be drilled on any curved surfaces as this may provide an entry point for water. 20mm “Rear Knockouts” are also provided, water tight fittings should be used. Cable entry at the top of the unit is strictly prohibited.

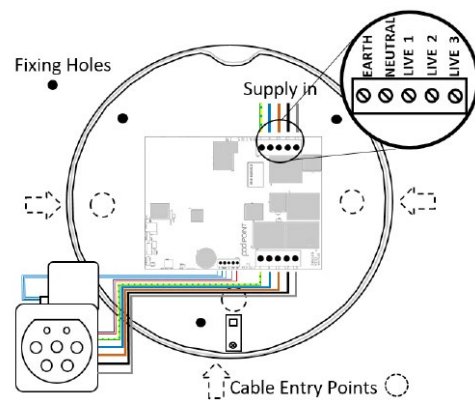
When drilling the case:

1. Only drill in the flat surfaces provided on the left, right, bottom or rear of the unit. Do not drill on any curved surface.
2. Take care not to damage any wiring or components inside the case. Place a suitable stop (e.g. block of wood) inside the case when drilling to prevent accidental damage.
3. If any of the wiring or components are damaged during installation DO NOT CONNECT OR SWITCH ON THE POWER before consulting with Pod Point.
4. The wall can now be drilled for the 3 mounting holes, Do not drill with the Pod Point in position as masonry dust may cause latent damage to the unit.
5. The Pod-Point can now be fitted to the wall, depending on the wall structure solid/dry lined or stud partition, appropriate fixings must be used to secure the unit.
6. Once fitted in place, the rear unit should be securely fixed flush to the wall.

Wiring up the Pod Point solo

Fig.5

Solo Wiring Diagram



- With the rear unit securely fitted to the wall, the electrical supply connection can be made.
- As the installation route of the wiring will vary with each Installation, allow enough cable to allow easy termination so that the cable terminals are not under strain.
- The choice of entry point used will determine the amount of insulation/SWA that needs to be removed for the internal wiring connection of the unit. The diagram above illustrates the connection terminals for the electrical supply cables.

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Ensure that incoming cables are connected to the appropriate terminal as follows:

Live 1:	Brown
Live 2:	Black (3 - Phase Units Only)
Live 3:	Grey (3 - Phase Units Only)
Neutral:	Blue
Earth:	Green/Yellow

All of the cables that are to be connected into the supply terminals should have their insulation stripped back 12-15mm to provide good contact to the screw terminal jaws, Torque settings for these connections is 1.5Nm. Appropriate pull tests shall be performed at the unit connections to confirm the installation is sound.

Smart energy monitoring

If energy monitoring of the domestic supply is required an external current clamp should be connected to the "blue" screw terminal block (CON9 or J201), Connect the 2 clamp wires to GND and EXTC (external clamp), the current clamp should be fitted to the main input supply cable close to the domestic energy meter. If the maximum supply limit must be changed commissioning over WiFi is required.

Final electrical testing

To meet the BS7671 (18th edition) requirements for testing of an electrical installation, the following tests and checks shall be performed by a competent electrical installer before during and after a POD Point Solo unit is installed:

- A visual inspection of the installation including the existing electrical installation.
- Verification of the characteristics of the electrical supply at the origin of the installation to confirm the supply is suitable for the additional load.
- A test to confirm the continuity of the circuit protective conductors.
- A test to confirm the integrity of the circuit insulation resistance.
- A test to confirm the polarity of the installation is correct.
- Where applicable a test to confirm the earth electrode resistance is within acceptable tolerances (or)
- An earth loop impedance test
- A test of the mechanical operation of residual current devices (RCD's)
- A test to confirm the operation of residual current devices (RCD's) is within stipulated timescales (at the rated current and at five times the rated current operating current.)
- A test or calculated measurement of the prospective fault current.
- A verification of the functional operation of the Pod Point Solo unit. An electrical installation certificate must be completed.

Connecting to Wi-fi network

<https://s3-eu-west-1.amazonaws.com/podpoint-website/Connecting-your-Pod-Point-Solo-to-Wifi.pdf>



QR Link to wifi setup guide

On power up of the Pod Point Solo the LED's on the front should illuminate in white. To get the unit connected to the Wi-Fi network do the following:

1. Search for "podpoint" Wi-fi network on your mobile device and connect to it (no password needed).
2. Open a web browser on your device and type 192.168.1.1 in the address bar.
3. When the page has loaded select the desired Wifi network from the list and type in the password for that network.
4. Press "connect" button located at the bottom of the page.
5. Power cycle the Pod Point Solo and wait for 1 minute. Light should go blue with a short magenta flash when connected.
6. If the status LED remains white, you may need to restart the unit again and or verify the settings.

Fitting the front of the unit

Once the rear unit has been fitted, the wiring to the unit connected and tested, the front cover can be fitted in place. Prior to fitting the front cover, visually check the internal connections, remove any debris that may have entered the unit during installation and check that the front cover mating seal is in place. Place the cover on the housing, using the top fixing as a point of reference, the front cover can then be secured in place at 5 points. The unit is supplied with both pozidrive and T15 pin torx screws if additional security is required.

Important information

Pod-Point do not authorise the use of ANY In cable adaptors, charging cables used should not have any modifications made to them. If there is evidence of damage to the charging connector(s) or cable it should not be used for safety reasons.

For units with Type 2 socket, the charge cable must be able to be fully inserted or charging will not begin (socket must lock).