



SIMON HOPKINS

ELECTRICAL SERVICES

EV CHARGING SYSTEMS



Electric Vehicle Charging Infrastructure Installation Guide

Twin Charge 13/32 and 32/32 Models

PP_2111

PP_2151

PP_2152



Installation Guide

PP_2111

PP_2151

PP_2152

Contents

Section 0: Before you begin	2
Section 1: Contents of Box	3
Section 2: Civil Work	5
Section 3: Electrical Work	6
Section 3.1: Dedicated supply direct onto main	7
Section 3.2: Extension to existing supply	8
Section 4: Final connect up & commissioning the Installation	9
Appendix A: Commissioning Handover Certificate	10
Appendix B: Troubleshooting	11
Appendix C: Signage, Bay markings and guards	12

Introduction

POD Point Twin charge is the next generation in electric vehicle charging for local councils and corporate clients looking to join the electric vehicle revolution. Inexpensive and simple to install, it minimises the increase in street furniture and offers a level of management and control not seen before through the POD Point Communication Network.

Each POD Point can charge two vehicles simultaneously, which significantly reduces the effective cost per charging socket.

All POD Points use industry-standard foundations and electrical connections – making them extremely easy to install and connect using existing contractors with minimal additional training.

This document gives an outline of what is required for installing a POD Point from a civil and electrical perspective.

Section 0 : Before you Begin

Pod Points are designed to give a long and reliable service life. However, the operational reliability depends on a number of installation factors. Before starting installation, please confirm the following:

- There is a good GSM (Orange) signal available at the installation site;
- A suitable power source is within reasonable distance of the proposed location (consult a qualified electrician if required);
- The proposed site has been selected in order to minimise the risk of damage to the POD Point.

Note on GSM signal

POD Points communicate with a control network via a GSM/GPRS connection. To allow this, a 2G mobile phone signal is required and must be checked at the site survey.

Signal measurement is not an exact science as every mobile device/antenna receives with a different gain, but as a general guide; if the signal is:

> 80dBm: Reception should be good

- 90 dBm to 81dBm: Communication maybe slow sometimes

- 99dBm to 91dBm: Communication is unlikely to be established.

Note: the POD Point can still operate in standalone mode, but usage data and remote support will not be available.

If any of the above requirements are not satisfied, please consult POD Point on 0207 247 4114.

Alternative GSM network configurations are available if required.

Section 1 : Contents of Box

Mechanical

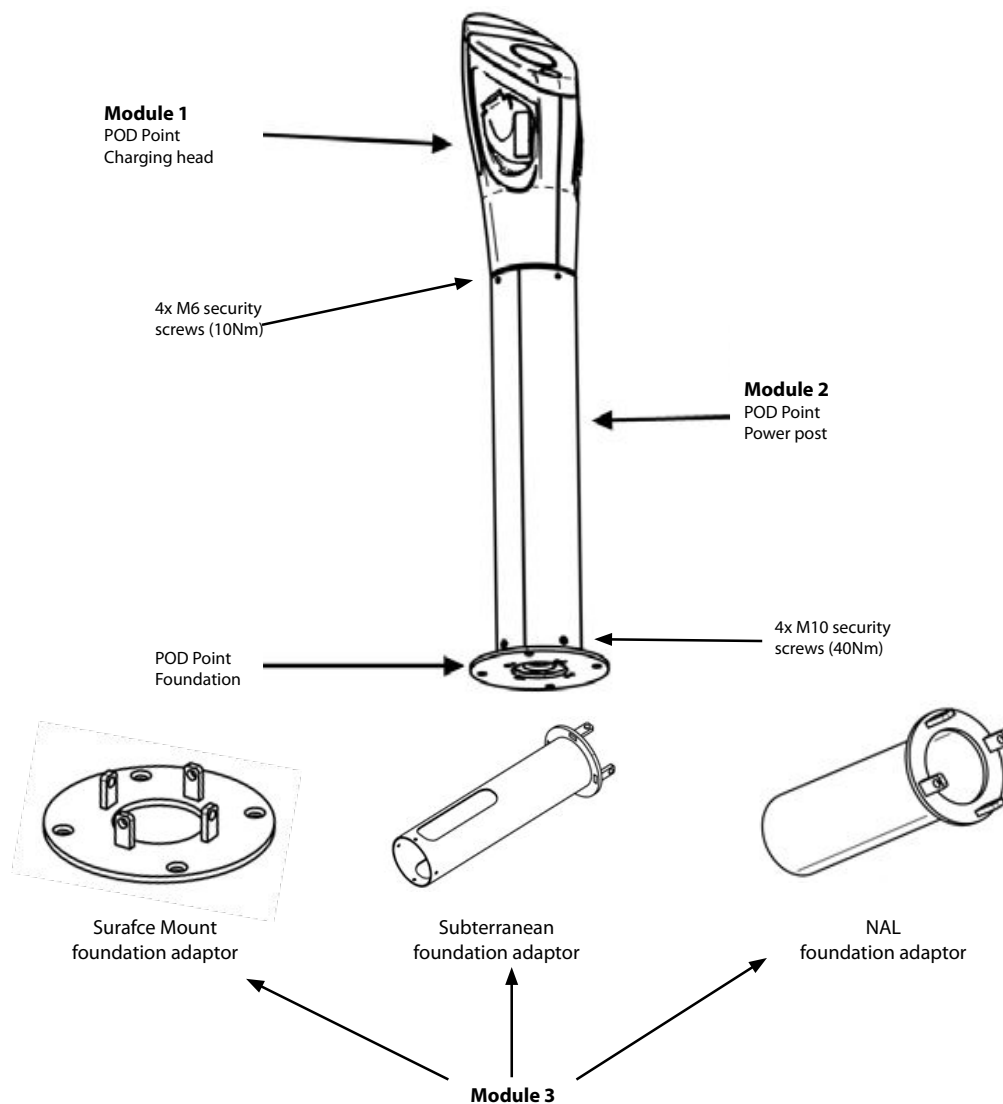
Depending on model, your POD Point may be shipped in a complete unit, or as three modules:

Module 1: Charging head (containing charging sockets and control circuitry)

Module 2: Power post (containing the electrical distribution and safety equipment)

Module 3: Foundation adaptor (surface, subterranean or NAL)

Where units are shipped as modules, the assembly screws are included with Module 2 (power post), supply fuses are shipped with Module 1 (power head).



Other items not supplied, but that may be required:

- M10 or M12 x 120 mm (minimum) countersunk security anchor bolts x 4 (surface mount only, suitable for local substrate)
- 5 mm steel rod (for stabilising subterranean foundation during installation only)
- RS115 NAL socket (NAL adapter only)
- Feeder Pillar

Section 1.2: Assembly/Installation Tools

Tools required:

Torque wrench (min. 8 – 30 Nm)

Bit adapter

Security Torx Bits

Drill and masonry bit to suit anchor bolts (surface mount and guards only)

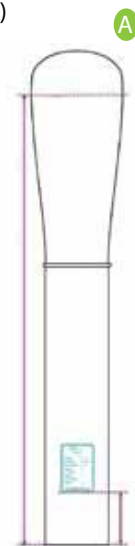
Hammer (surface mount only)

Spanner or socket (surface mount only)

Spirit level

Assembly Procedure summary

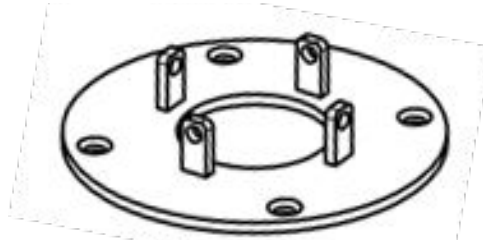
1. Installation foundation, foundation adapter and power supply (see sections 2 and 3)
2. Install power post onto foundation adapter
3. Insert 3 x M10 securing screws and tighten to 30 Nm
4. Remove red cover from power distribution box
5. Connect power supply
6. Replace red cover on power distribution box
7. Insert fuse(s) (supplied with the power head) and affix the appropriate rating label to the fuse holders. Note for 13/32 models (PP_2111) the 16A fuse MUST be installed in the right hand fuseholder.
8. Install power head
 - 8.1 Insert the power head onto the post (make sure that the face of the head is pointing the right way, that the internal brackets align with the slots in the post and that the rubber seal is correctly located over the post)
 - 8.2 Connect power plugs (1x4 way and 1 x3 way)
 - 8.3 Connect 1 x 8-way control plug
 - 8.4 Check all connectors for dislodged pins and security
 - 8.5 Install 3 x M6 security screws and tighten to 8 Nm (roll up the seal to access fixing holes)
9. Affix the large data plate label supplied with the head to the back of the power post, so that the base of the label is 170mm from ground level (see image A).
10. Carry out the testing and commissioning as defined in Section 4



Section 2 : Civil Work

Section 2.1: Surface Mount

The surface mounting foundation adapter can be used to secure the POD Point to existing concrete (or similar) surfaces, or to a purpose laid 600 x 600 x 150 mm concrete pad. Cable entry may be subterranean or surface mounted. For surface entry installations, a spacer kit will be required to allow the cable to enter under the baseplate. These are available in 5 or 10 mm thicknesses and may be stacked up to 25mm as required for your selected cable diameter.



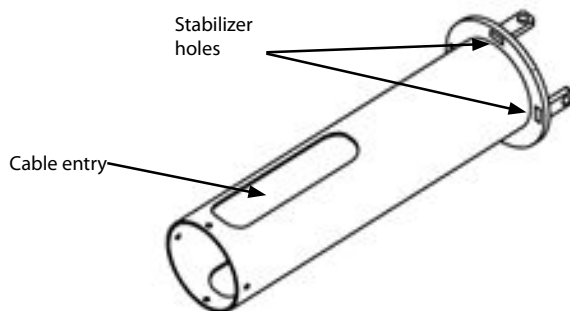
The surface mounting plate is secured to the ground using four M10 or M12 x 120mm minimum expanding countersunk concrete anchor bolts (or preferred equivalent fixing).

It is very important that the foundation is installed level, as this affects the angle of the POD Point. It is also very important to orientate the foundation correctly, as this controls the orientation of the POD Point. The POD Point may be mounted on the foundation in any orientation required (4 way rotational symmetry).

Section 2.2: Subterranean Mount

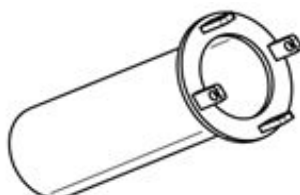
The Subterranean Foundation adaptor is typically set in 0.6 x 0.6 x 0.45m of PAV1 S2 Slump concrete and is designed to accept subterranean cables which are buried 450 mm below the surface. The cable enters the foundation through a standard 32mm Rigiduct.

It is very important that the foundation is level in all axes, as this controls the angle of the POD Point. It is also very important to orientate the foundation correctly, as this controls the orientation of the POD Point. (see Section 2.1). If required, it is possible to stabilise the subterranean foundation by inserting suitable lengths of 5/6mm rod through the two offset pairs of holes in the bottom of the unit.



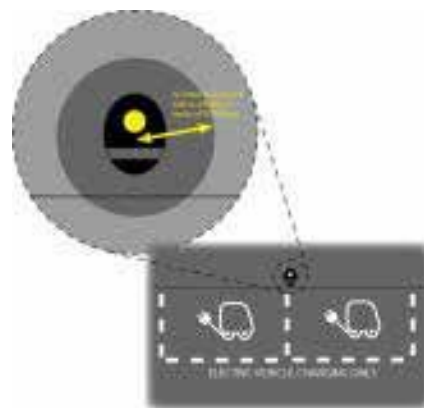
Section 2.3: NAL Foundation Mounting Plate

Where RS115 NAL sockets are installed, the NAL adapter may be attached to the bottom of the POD Point. Insert the adapter into the socket and clamp according to NAL instructions.



Exclusion Zone

Except where mounted against a rear wall, no items – e.g. Signage should be installed within 300mm radius of the centre of the POD Point.



Section 3 : Electrical Work

Each POD Point ideally needs a 240V single phase connection capable of continuously supplying >64 A. This will allow for easy upgrading for faster charging options in the future. Where such a supply is not possible, PP_2111 will accept a 45A supply, or POD Point can configure a power management feature to reduce total load to 32A if required (please contact POD Point to discuss this). Each POD Point also needs a separate earth (not connected to neutral) usually supplied by an Earth spike or mat (TT system), which is fed into the POD Point via a separate conductor. The earth should have a maximum resistance of 20 ohms.

There are typically two types of cable installation:

- Dedicated supply direct onto main, grid.
- Extension to existing supply.

Connection

2 standard BN25 SWA cable glands are provided to allow cable termination at the charging point. Models fitted with a 4-way switch disconnecter may be supplied from either a 240VAC single phase or a 415VAC 3-phase supply.

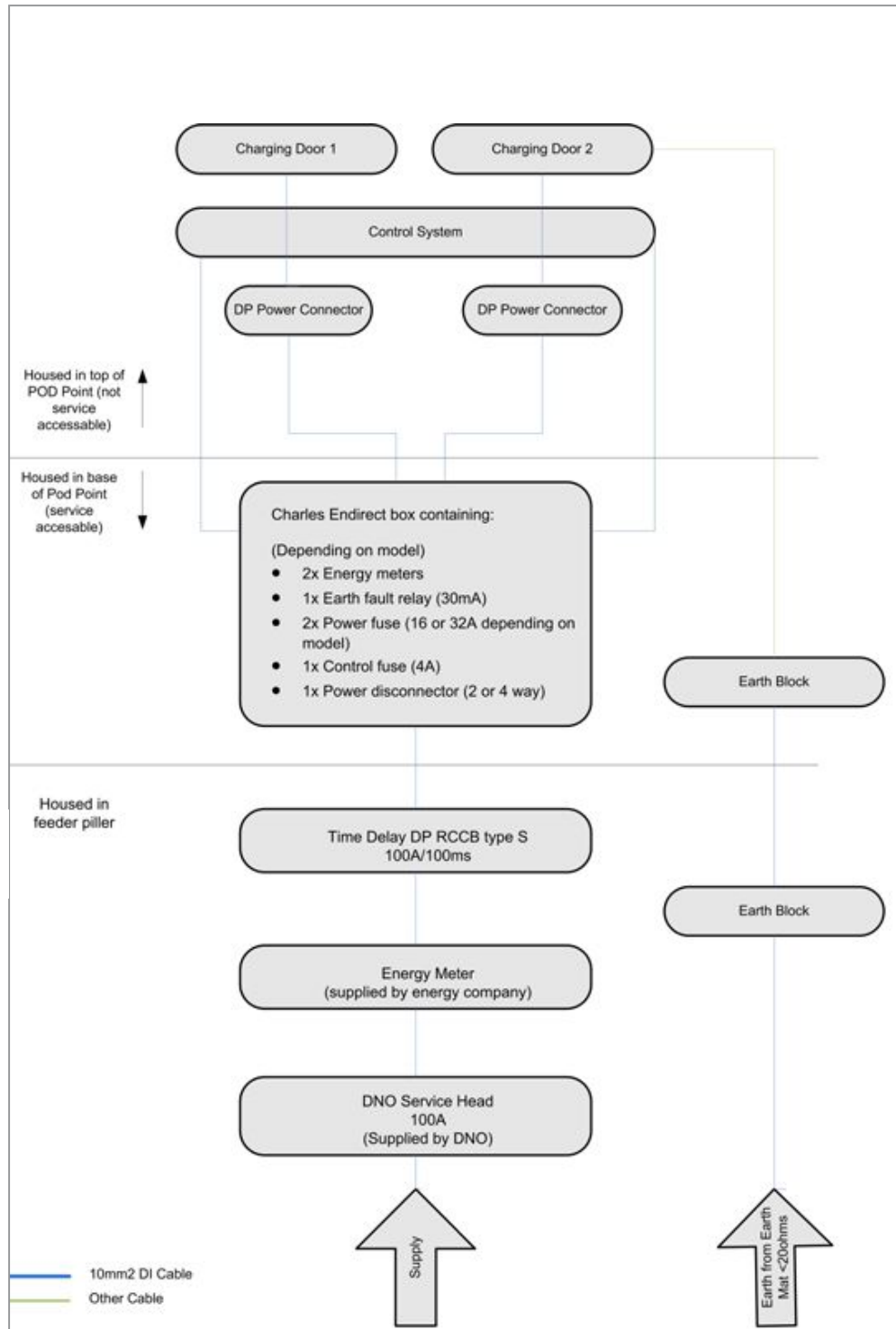
Units are supplied with a jumper between L1 and L2 on the supply side to allow connection to a single phase supply. This should be removed if installing a 3-phase supply. If both sockets are to be fed from the same phase, then the power conductors on the load side should be moved from L1 and L2 to a common phase as required.

The incoming terminals will accommodate rigid conductors up to 55mm² or flexible conductors up to 35mm²

All electrical installations must be carried out by a qualified electrician and be in compliance with BS 7671.

Section 3.1: Dedicated supply direct onto main

This format is typically utilised on street, where there is no existing power supply. It typically involves live spicing onto the low voltage main which can only be carried out by the local Distribution Network Operator. The specification of cabling entering the POD Point is usually defined by the Distribution Network Operator. 16mm² double insulated tails are typical. A feeder pillar will be required for this type of installation.



Section 3.2 : Extension to existing supply

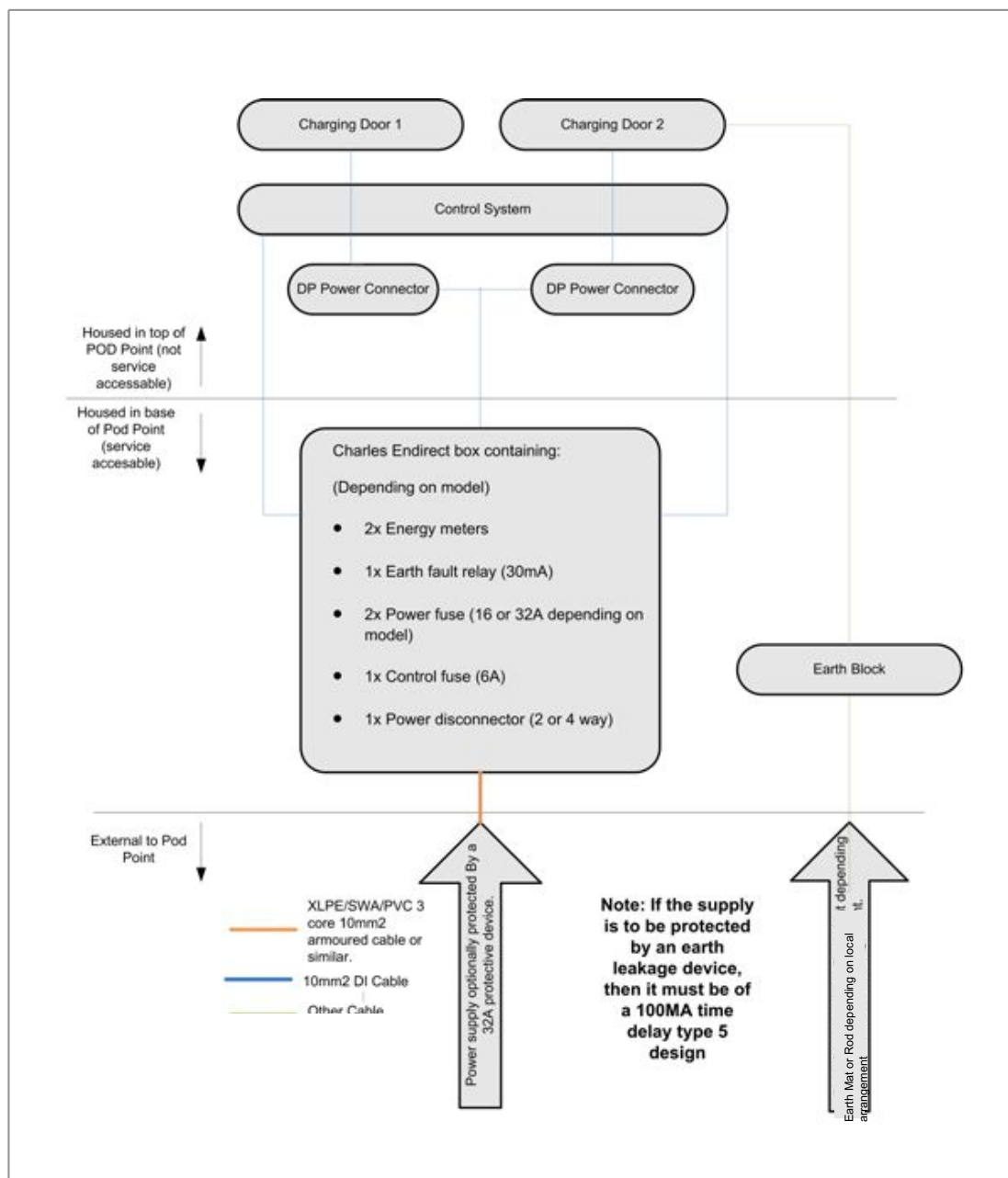
In this format electricity is supplied to the POD Point from an existing distribution board. This format is typically utilised in commercial car parks where an existing supply may be extended.

In all cases, the supply arrangements must be confirmed by a qualified electrician familiar with the site. The following acts as a guide only.

The POD Point needs a supply protected by a 64A (min) double pole protective device which can be BS88-2.2 or BS88-6 or a circuit breaker to BSEN60898 type B or and RCBO to BSEN61009-1 delayed type or a 64A min. protective device to BS1361 or BS3036. (Table 7.1 in the Onsite Guide of BS7671 2008). This device is at the supply end.

POD Point is protected internally by at 30ms RCD, therefore if an additional RCD is required for the installation, it must be a time delay type such as Time Delay DP RCCB type 'S' 100A/100ms.

Depending on the site location a dedicated earth may be required. A detailed investigation is required of the site earth arrangements to confirm this.



Section 4: Final connect up & commissioning the Installation

Once the Civil and Electrical work has been completed (see sections 2 and 3), and the POD Point fitted, the installation requires testing.

To meet BS7671 (17th edition) requirements for testing of an electrical installation, the following shall be performed by an accredited electrician¹:

- Visual inspection
- Characteristics of supply at the origin of the installation
- Protective conductors continuity test
- Ring Circuit Continuity
- Insulation resistance test
- Polarity
- Earth electrode resistance
- Earth fault loop impedance test
- Operation of residual current devices
- Prospective fault current

The main power supply to the POD Point should now be switched on.

Once the main supply has been switched on, the POD Point will take approximately 1 minute to “boot up”, and perform a diagnostic self check.

After this is complete, the LCD will show the POD Point Logo and the message “Please swipe your tag to begin” and the blue LED strip lights down the left and right of the body will illuminate.

The installer should complete the commissioning form (Appendix A or Quickstart Guide) with the relevant information, before calling the POD Point remote commissioning team on 0207 2474114 to register the installation.

¹ Electricians must be accredited by a recognized body such as:

BRE Certification Ltd
British Standards Institute
ELECSA Ltd
NAPIT Certification Ltd
NICEIC Group Ltd

Appendix A: Commissioning Handover Certificate

POD Point EV charging equipment will provide basic functionality on first installation, however each point must be registered and commissioned onto the POD Point network to enable full functionality and remote support. The data below should be completed for each installation and returned to installations@pod-point.com. Where a latitude and longitude are not available, please supply a detailed description and photograph of the charging point location.

This certificate may be completed by hand and scanned to email, or please contact the above email address to request a soft copy of the certificate in Word.

Please complete Sections 1, 2, 3 and 4. POD Point will complete Sections 5 and 6, to finalise activation. The completed certificate may be returned for the post owner, on request.

1. POD Location Details to be Completed	
POD Location name	
POD Location address	
Postcode	
Latitude	
Longitude	

2. POD Owner Details to be Completed	
Owner / Customer	
Owner address	
Owner postcode	
Postcode	
Contact name	
Contact number	

3. Commissioning Details to be Completed	
Date	
PPID	
Source of electricity (ref no/description)	
Confirm power switched on	
Confirm functional test complete	
Communications test complete: phone POD Point on 020 7247 4114	
Electrical Safety Test Certificate No. BS7671 (attach copy)	
Feeder pillar Key number	
Key holder	
Orange signal (strength dBm)	



4. To be completed by the installer	
<p>On behalf of the installer, I hereby confirm that:</p> <p>We have completed the installation in accordance with the Installation Manual; the POD Point has been connected to the electricity supply and commissioned; the installation has been tested for electrical safety; the above commissioning details are true and accurate.</p> <p>Name:..... Position</p> <p>Date:..... Compny:.....</p>	

Please send this certificate, with Sections 1-4 completed, to Installations@pod-point.com.

5. Activation Details	
Date POD entered into PPMS	
Date Whitelist updated	
Date Configuration updated	
Firmware version	
Date POD activated	

6. To be completed by POD Point	
<p>We hereby confirm that:</p> <p>The POD Point has been installed and commissioned; The above commissioning details are true and accurate.</p> <p>Name:..... Position</p> <p>Date:.....</p>	

Any Additional Notes

Appendix B: Troubleshooting

Issue	Action
<p>I've gone through the complete installation process and applied the power, waited for a few minutes but the POD Point still looks dead.</p>	<p>POD Points take approximately 1 minute to boot up, sometimes this can take up to 3 minutes if the GSM GPRS network traffic is busy.</p> <p>If the full connection process has gone ahead and a POD Point does not power up (no LCD and no side LEDs illuminated) then the following checks should be made:</p> <ul style="list-style-type: none"> • Are all wire correctly connected up (live, neutral, earth connections)? • Is there power at the input to the RCD or MCB from the supply? • With the RCD or MCB switched on, is there power at the output of the RCD or MCB? <p>In case of difficulty , call the installation team at POD Point on 020 7247 4114</p>
<p>I've gone through the complete installation/completion process but the side LEDs have gone RED instead of BLUE</p>	<p>If the side LEDs show RED, this indicates that the diagnostic self test during start up has found something wrong internally with the POD Point or the installation supply.</p> <p>In this case call the installation team at POD Point on 020 7247 4114 who will remotely log in to the POD Point and talk you through any check procedures necessary.</p>
<p>During the commissioning process the charging point opened its doors automatically without me scanning a Tag across the yellow RF Tag zone.</p>	<p>Once Sometimes during an installation, when power is first applied the POD Point will automatically open one or both doors.</p> <p>This is typically because the POD Point had a 'queued event' stored in memory from the end of line testing stage during its manufacture or because service engineers have sent commands to the POD Point whilst it was in storage to check it's status. This is perfectly normal and should it occur then the doors should be closed and the side LED checked. The LEDs should be blue and the LCD should be showing the POD Point logo and the message "Please swipe your tag to begin".</p> <p>If this is not successful, call the installation team at POD Point on 020 7247 4114</p>

Appendix C: Signage, Bay markings and Guards

Standard POD Point signage is as follows:

Signs are 700mm by 465mm and are mounted on a single 3in pole.

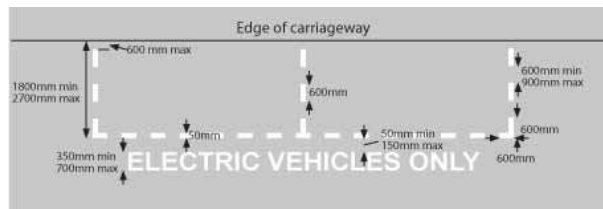
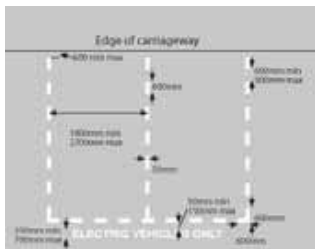


Custom designs are available on request

Bay Markings and Guards

Standard POD Point bay markings are marked out in thermo plastic paint as follows:

Custom designs are available on request



POD Points can be supplied complete with 600/900mm high floor or wall mounted guards.

600mm Guards are attached to the ground with 8 off M8 expanding concrete anchor ding bolts.



