



Aldi UK best practice manual

Guidelines for the operation
and maintenance of Electric
Vehicle Charging Points
(EVCP's)

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1. Overview

1.1. Electric Vehicle (EV) Charging

Standard store sites shall have four dedicated EVCP bays, planning consent may require additional bays. There is also a requirement for 20% or 26 bays to have the infrastructure installed ready for future install, this will include ducting, concrete bases and a feeder pillar base if points are more than 120mts from the plantroom.

2. Installation

2.1. Recommendations:

With all stores at planning stage, architects and regional M&E consultants will need to coordinate which spaces are used for the active and future bays. Under regulations in the code of practice, new EVCP'S need to be a minimum of 2.5mts away from any metal work connected to a separate electrical supply i.e. lamposts. This should be achievable on most new build stores and extensions, however if not please see section on TT/PME systems further on in this specification.

REFER ALSO TO ALL SHELL RECHARGE INSTALLATION AND CONNECTON GUIDES PRIOR TO DESIGN FINALISATION AND INSTALLATION COMMENCEMENT.

Electrical Contractors shall use the Template purchase order form attached to the procedure document to order the EVCP's from SHELL RECHARGE (Aldi nominated supplier).

2.2. Specification:

Electrical Contractors shall Include for installation, connection, testing, and attendance for the commissioning (By SHELL RECHARGE) of EV charging units, specified currently as:

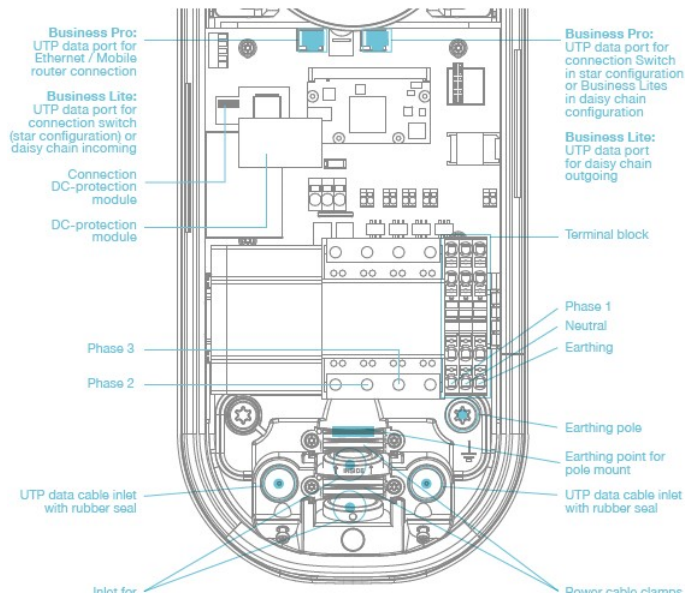
- Shell RECHARGE **1x Business Pro** and **5x Business Lite** units.
- 6 x 22KW (2 x 32A TPN) @ 400v

The **Business Pro** units shall be linked to the adjacent **Business Lite** units by a CAT6 factory made patch lead, this cannot be a site made lead and must be screened/shielded as per the below product details. Only these products or equal and approved shall be used. Between the 2nd and 3rd unit where the patch lead runs through external ground ducting/access chambers a copex shall cover this cable from the base of each post, inside the post can be the loose cable.

500mm – Roline Blue Cat6 S/FTP Male RJ45 Terminated 500mm. **10 metres** - Roline Blue Cat6 S/FTP Male RJ45 Terminated 10m. **20 metres** - Roline Blue Cat6 S/FTP Male RJ45 Terminated 20m.

30 Metres – RS PRO Blue Cat6 Cable FTP Terminated 30m. All available at RS components.

For wall mount projects, EVCP's are to be mounted on the Shell Recharge wall bracket and the above patch leads used either through ducting or wall mount trunking/tray, same applies to the copex requirement to patch leads between the Four units.



Underground duct routes shall be installed by others but set out to the project external electrical drawing with draw cords for future use. Detailed setting out of these units will be by the Architects on each project.

Setting out of the units will require any equipment connected to a different earthing system (eg lighting column) being a minimum of 2.5mts away from the edge of the EVCP bay. Regional M&E consultant to advise on and site specific details in line with the latest regulations published.

Ducting and access chambers shall be installed to enable **twenty six** spaces in total or four active and 20% for future use – see drawings.

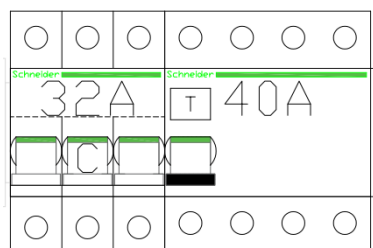
The electrical contractor shall provide and install all outlet boxes, containment and power supplies required for the EV charger as indicated on the drawings and described.

The electrical services to the EV charger shall either be derived from a new Feeder Pillar or if under 150mts from the plantroom spare ways utilised with a 32amp type A MCB and a 32amp Type A RCD, all supplied free-issue by Kane Engineering Ltd

The EVCP's will require connection to a separate TT type earthing system and shall not be connected to the main store supply PME system.

EVCP Individual Circuit wiring - 4 core 10mm LSF/SWA/XLPE

Max. circuit distance – 100m. (Over 100m regional consultant shall recalculate and advise). **Protective Devices** – 32A Type C TP MCB + a separate 40A Type A RCD located in the feed-er pillar as:



Steel wire is not to be exposed when making off the SWA, insulate the Steel wire so this cannot be in contact with any part of the post or EVCP. Install earthrods near to the charging point to a max of 100 Ohms and utilise for the main earth to the Charging points. The quantity of earthrods required shall be determined on site until the 70 Ohms is achieved. This is required when there is a standard PME supply into the building.

Underground services shall need to be taken into account and traced before any rods are installed.

Initially these circuits shall feed four EVCP Points mounted on a dual steel posts, with two feeds complying to IEC 60950, BS7671 latest edition and IET code of practice for electrical vehicle charging equipment installations.

The EV charger shall be protected by a suitable bollard or fixed loop supplied and installed by the groundworkers on each project.

The EVCP Post will need fixing down by the four fixing holes into a suitable base (By Others) 8mm x 120mm long chemical fixings shall be required. Post must be plumb level and fixed securely.

2.3. PME & TT Systems

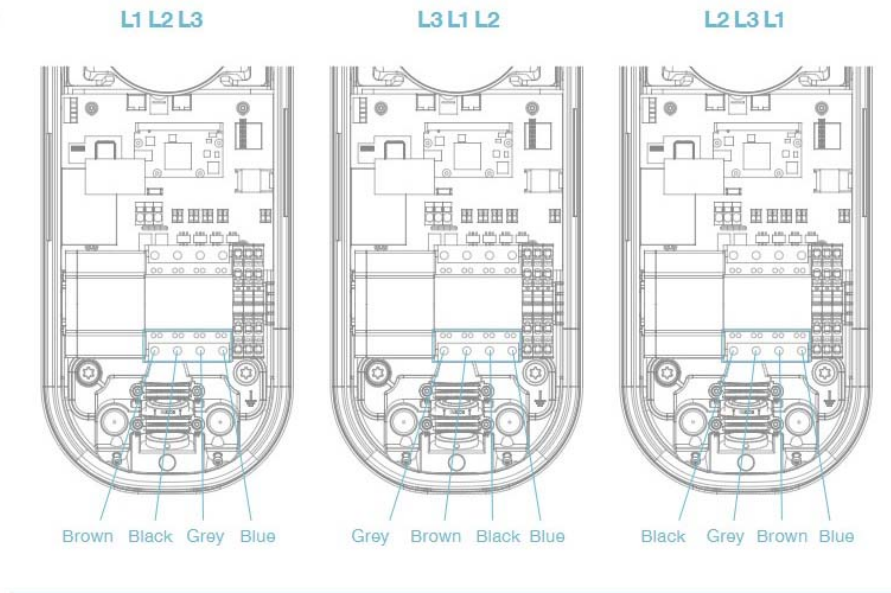
When it is not possible to keep the EVCP's a minimum of 2.5mts away from any other steelwork connected to a different earthing system an O-PEN device should be considered by the Regional M&E Consultant. At the time of writing this specification, this technology is fairly new with only one product available. The matt-e EV1-32 unit is the only one currently available and will increase the cost per unit by an estimated £1000, this will put an extra £4000 per store when four units are needed.



Other solutions for example changing the circuit in question to a TT supply should be looked at as a last resort due to future maintenance issues. Regional M&E Consultants will need to review each site according to the latest IET Code Of Practice and Wiring regulations.

3. Dynamic Power Sharing

When installing > four units, Dynamic Power Sharing shall need to be activated by Shell Re-charge. Please refer to the installation guides on how to connect each unit, in relation to phasing requirements. With a standard 175Kva store, we propose to use 44Kw over the FOUR units with each unit having a minimum of 7.2KW each. Below example of how to connect each unit.



3.1. Labelling

All services shall be clearly marked as per BS7671:

514.15.1 Where an installation includes alternative or additional sources of supply, warning notices shall be affixed at the following locations in the installation:

- (i) At the origin of the installation
- (ii) At the meter position, if remote from the origin
- (iii) At the consumer unit or distribution board to which the alternative or additional sources are connected
- (iv) At all points of isolation of all sources of supply.

The warning notice shall be durably marked in legible type not smaller than that illustrated here and shall read as follows:

WARNING – MULTIPLE SUPPLIES Isolate all electrical supplies before carrying out work. Isolate the mains supply at Isolate the alternative supplies at
--

The below label shall be installed on the incoming cutout and distribution board where the EVCP's are fed from.

▼ **Figure 5.2** Example of warning notice for TT charging equipment installed in locations using a PME earth for other circuits, or where premises with PME supply is converted to TT

ELECTRIC VEHICLE CHARGING EQUIPMENT
TT system adopted for charging equipment circuit.
Do not connect to the PME earth

4. Groundworks (By Others)

To install a concrete base, level and min. 800mm deep (refer to structural engineers' guidance for base detail) with a 63mm duct from an inspection chamber not more than 2mts away from the EVCP.

Earthrod inspection chambers (Concrete or GRP by the Electrical Contractor) to be installed behind, or in the base. See suggested GA below.

Steel Protection Hoop must be installed in front of each charging post, this is to be supplied and installed by the Groundworkers.

Clarify all civil works with appointed Civil & Structural Consulting Engineer prior to installation.

Future Bays – 26, 20% or as shown on drawings of car parking bays will need to have the infrastructure installed ready for a separate rollout of EVCP's at a later date. This is to include a feeder pillar base, ducting and EVCP bases. Ideally, two 150mm ducts coming from the plantroom shall be installed for future use. Please see below example of this.

If the last EVCP is within 120mts of the plantroom, regional consultants to advise if an internal (Plantroom/Warehouse) feeder pillar will be more beneficial.

5. Multiple Charger Installations

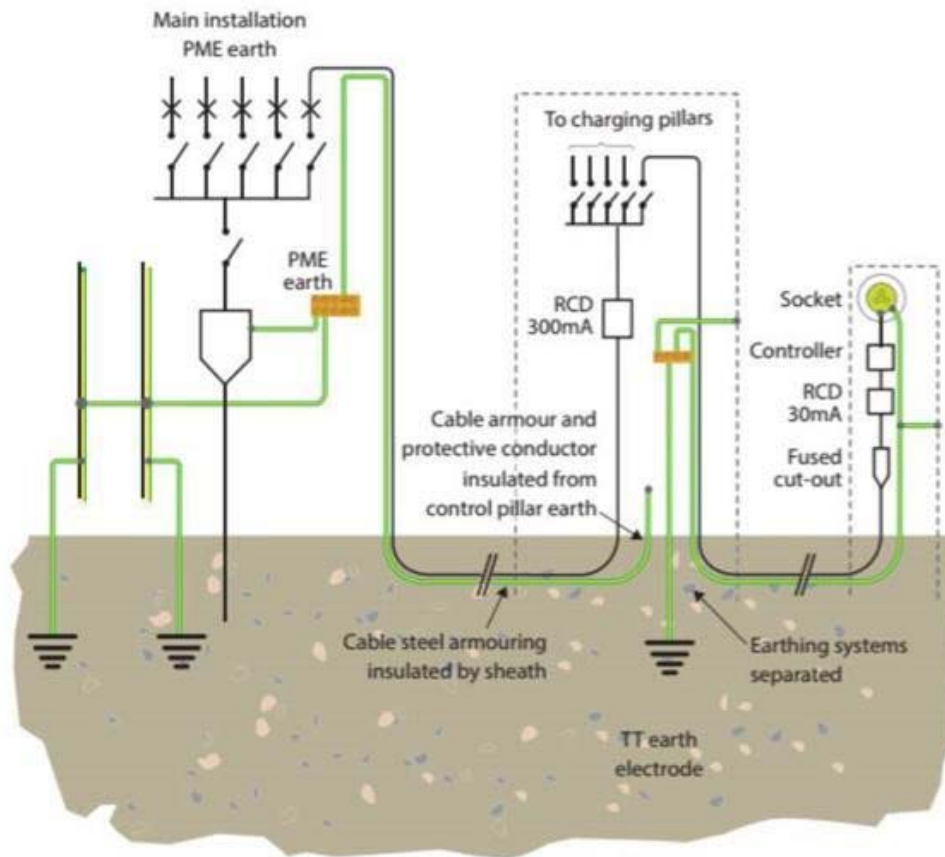
Where more than four active EV charging bays are required, a feeder pillar shall be installed containing a suitably sized and rated TP&N distribution board supplied from the Main LV panel MCCB section.

Feeder pillar shall be heavy duty galvanised construction fixed down to a prepared concrete base. Base to be complete with 100/150mm duct entries.

Sub-main and sub circuit cable and protective device sizes shall be assessed on a project specific basis.

Depending on how many EVCP's are required shall determine if the 175kva is large enough or an additional upgrade to the main supply is required. Regional M&E consultants to be made aware of any additions to the proposed four bays at the earliest possible time. I.e. At the lowest power sharing setting of 4-5kw, a maximum of ten points before a power upgrade is required. Regional Consultant to assess the

expected load and confirm.



5.1. Feeder Pillar (General Arrangement)

- 1) Sub Main cable sized by Consultant, Electrical Contractor to request this information when ducting is complete, and an accurate cable measure can take place.
- 2) SWA when entering feeder pillar DB shall be terminated into a PVC stuffing gland, with the steel wire not touching any parts of the metal case. If a separate CPC is required, this also needs terminating into a plastic adaptable box and clearly labelled.
- 3) Main switch on the feeder pillar DB needs to be a 250amp 4pole RCD 300ma. Regional consultants to size this on a store-by-store basis, depending on the amount of EVCP's re- quired.
- 4) Outgoing Circuits to the Charging points are to be on 32amp type C MCB with an additional Type A - RCD.
- 5) Generally, when the Feeder Pillars are within 20mts of the Charging points a 10mm 4 core SWA shall be used for the circuits required into each EVCP. If this is further, please contact the Electrical consultant for the cable size.
- 6) Earthrods need to be installed to achieve Max 70 Ohms when all connected, this shall need to be reviewed onsite to determine the number of rods required. As a starting point install **one** rod per charging point.
- 7) All metal work, rods to be connected from the feeder pillar to the Charging points, main feed earth from store is to be kept separate at all times.
- 8) Feeder Pillar and Charging Points must be 3m away from any other circuit which is being fed from the store main panel. E.g. Lampposts.
- 9) A thermostatically controlled heater shall be installed inside the feeder pillar housing and set to frost protection.
- 10) Note requirements for phase rotation on multi-charger installations.

Installation Example of Feeder Pillar Base and Future EVCP Base.



6. Maintenance

6.1 Cleaning and sanitizing

It is advised to regularly clean the casing of the charge point using a simple damp cloth. Also, make sure no plants are growing on or against the charge point.

Do not use high pressure water hose to clean the product.
Do not use aggressive cleaning agents to clean the product.
Do not clean the inside of the product.

6.2. Periodic maintenance

Annually check:

if all the screws and connectors are securely tightened on the components in the consumer unit. Check the connectors of the MCB, RCD, RCBO, Dynamic Power Management module, etc.

if all the screws are securely tightened on the components in the charge point. Check the connectors of the terminal blocks, power meter, contactor, etc.

if there are no bugs or plants inside the charge point. If this is the case, use a smaller coloured grommet for the power cable or check if there is another possible way that the bugs have entered the charge point.

6.3. Reactive maintenance

Shell recharge constantly monitor all EVCP's within the Aldi estate, their framework agreement will allow any charger to be repaired and reinstated when notified.

The area manager is to notify Shell recharge any EVCP's that are not working for any length of time, as soon as possible. Contacts for Shell recharge are as follows:

NEWMOTION CONTACT DETAILS			
NAME	DIVISION	EMAIL	PHONE NUMBER
General Operations	Commissioning	Installations.uk@shellrecharge.com	0203 3186673
Customer Service 24hrs	Onboarding and General enquires	customerservice@shellrecharge.com	0203 8681036
Jodie Mills	ALDI Orders + Account Manager	J.mills@shellrecharge.com	0203 9914464
Harrison Thorne	ALDI Technical	H.thorne@shellrecharge.com	0203 5143760
Nashatar Chand	Commissioning & Onboarding	N.chand@shellrecharge.com	0204 5257315
Kristoffer Winter	Commissioning	K.winter@shellrecharge.com	0204 5251453
Jonathan Harrisberg	Commissioning	j.Harrisberg@shellrecharge.com	0203 9911143
Jorge Marques	Commissioning	Js.marques@shellrecharge.com	