Installation Guide

SYNC EV EVCP7KWS1PH: 32A Installation Guide

Introduction

THE SYNC

This guide is intended for use by competent electrical installers to explain basic requirements and options to be considered when installing a SYNC charger. The SYNC is designed for installations in or outside, the advanced safety technology we have built into the unit ensures its safe usage, this guide provides information to assist when installing the EVCP7KWS1PH: 32A. This guide should not be used for any other EVSE.

Important Safety Information

Warning! The SYNC EV EVCP7KWS1PH: 32A is manufactured to be safe without risk provide they are installed correctly, used and maintained in accordance with the manufacturers recommendations and installed by a competent electrical installer in accordance with national and local regulations and legislation applicable at the time of installation, eg: BS7671:2018 amendment 1.

The SYNC EV unit is designed to be connected to one dedicated AC supply only. The property must comply with BS7671 standards before the installation commences. As the SYNC EV unit has a built Type A RCD with 6mA DC protection we recommend that the circuit at source is installed on a 40A B Type MCB.

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 upstream Type “AC” RCD.

Locating the

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The SYNC unit can be installed inside and outside, the installer should consult with the EV owner to establish their preferred installation location. This should take into consideration the length of the owners charging cable and risk of vehicle impact etc.

It is recommended the SYNC unit be installed at a height of between 600mm-1.4m. Note: buildings regulations BS8300:2018 recommends 500mm-1500mm.

Technical Details

The SYNC unit is designed to meet the following European standards:IEC61851-1 edition 3 (2017), Low Voltage Directive (LVD) 2014/35/EU and EMC Directive2014/30/EU. During manufacture each SYNC unit has been functionality tested for safety using BS EN 61010 & BS EN 61557 approved equipment. The SYNC unit 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 Technical details.

Earthing Arrangements

The new SYNC EV EVCP7KWS1PH features an on-board safety monitoring system to detect low or high voltage supplies and potential earth-neutral faults, this in accordance with regulation 722.411.4.1 (iv) of BS7671 2018. If such a condition is encountered the charge cycle is ended or prevented and the SYNC unit.

effectively becomes a double insulated (class II) device.
The vehicle becomes isolated from 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 SYNC unit may be connected directly to a TN-C-S (PME) earthing system without any special arrangements.
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-Sand 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 SYNC unit). The earth connection shall be made from the electrode to the SYNC unit 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.

Additional note: SYNC EV recommend Earth electrode impedance to be <100ohms

SURGE PROTECTION

Guidance on requirements for surge protection devices given In BS7671: section
443. The SYNC unit 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 SYNC EV units 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 LP etc., it Is therefore recommended a common sense approach is used on choice of SPD (or if required).

Isolation And Switching for Safety And Maintenance

To ensure that the SYNC 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 regulations. The switch should be rated at 45 amps. All installations must comply to BS7671: 2018 regulations.

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Installation Procedure

The SYNC unit 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 SYNC unit. 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 SYNC unit is securely attached to the wall or structure where the unit is intended to be operated from.

• 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)

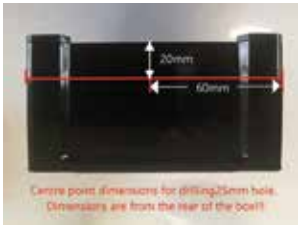
• Once the location and height of the SYNC unit has been decided. We advise that the installer pre drill a 4mm hole in ONLY the 4 circles in the back box shown in the picture below. IMPORTANT: Please use washers provided for all 4 screws.

• Before drilling commences ensure that the installation wall has been checked for electric cabling or pipework with a suitable detector.

Drilling The Holes For The Electrical Supply Cable Entry

As the electrical supply to the SYNC unit may be fed from 2 directions; the unit has been designed to accept supply cable entry on either the bottom or via rear entry. The installer should drill a suitable 25mm hole for the grommet which is supplied and is advised to be used. If SWA cable is to be used then please use a lock ring on the outside of the unit between the gland and the chargers box. Then be careful the PCB is not damaged when fitting the front of the charger.

Cable entry holes should not be drilled anywhere else other than shown in the pictures below. This is strictly prohibited and will void the warranty of the unit.



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Important note: The installer MUST separate the front of the charger from the back bow before drilling cable entry holes to avoid damaging the charger's components and PCB.

Once cable entry hole is safely drilled and screw holes predrilled then insert the supplied grommet so the cable grip pyramid is inside the enclosure. As shown below.

Wiring Up The SYNCEVCP7KWS1PH: 32A

When connecting to the SYNC unit the terminal blocks are clearly labelled.

LIVE = L

NEUTRAL = N

EARTH = Earth symbol

Please ensure you follow these correctly to prevent any damage to the charger components.

SYNC EV recommend to use EV Ultra cable on installs which require a CT clamp to use the units dynamic load management capabilities. Please see info at

http://www.doncastercables.com/cables/1 7/77/EV-Ultra/Power-and-data-connectivity-combined-in-one-cable/

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All of the cables that are to be connected into the supply terminals should have their insulation stripped back 8~12mm or ferrules used when appropriate 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.

CONNECTING THE FRONT OF THE CHARGER

Once all supply connections are made and appropriate electrical dead testing is carried out. Please carefully connect the front of the charger using the pre-wired cabling and plugs. The connection ports are as follows.

For details on connecting the CT clamps please contact info@syncev.co.uk

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 SYNC 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.

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• 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 SYNC unit. An electrical installation certificate must be completed.

Important Information

SYNC EV 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.

WIFI Connection Guide

Connecting to the Internet

Upon powering the Sync EV unit, the status indicator light will show Yellow. This indicates that the health of the charging unit is good but there is no connection to the Sync EV Network.

In order to connect to the network,please connect your laptop to the Sync EV WIFI network –

Password **SEV-1234**

In your web browser, please enter the following web address –

https://192.168.4.1/index.html

You will be presented with the following, and the unit will indicate connection with an audio beep.

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Network Setup

Select the Network Configuration Tab from the left hand menu and the following screen will load.

Select Ethernet/WIFI/GPRS from the main network interface menu and select Apply.

You will then be prompted to restart the unit. Click Restart Now.

The unit will beep to indicate this has been completed.

If you selected Ethernet and your unit is connected to a CAT5/6 Network and/or a SIM card installed/setup, the indicator light will be Blue to confirm connection to the Sync EV Network.

Setting up WIFI Details

Once the unit has restarted, refresh the page and scroll down to Wireless Interface.

SSID is the name of the WIFI network you are trying to connect the Sync EV unit to. This will be case sensitive and must be typed exactly to match as displayed on your mobile phone.

Please use your smart device to ensure WIFI signal is strong in the position where the unit has been fitted.

Password is the WIFI networks password again, please type this in exactly as displayed.

Click Submit. Select Restart Now.

After 15 seconds, the Yellow Indicator should turn Blue to confirm connection to the Sync EV Network.

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GPS Connectivity Kit (SIM)

If you are unable to connect to WIFI due to unavailable signal in the area of installation, we offer a GPS connectivity kit which is available from selected wholesalers.

Sync EV Smart App

You now need to inform your customer to download the Sync EV App.

Available on both Apple and Google Play stores.

Android https://play.google.com/store/apps/details?id=syncev.co.uk

i Phonehttps://apps.apple.com/gb/app/sync-ev/id1528884639

Once downloaded, please register an account. The units Pin Code can be found on the RFID card enclosed within the units packaging.

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Trouble Shooting Guidelines

Please further information or to refer to our FAQs, please visit

www.syncev.co.uk

The status of the Charging Unit can be identified by referencing the colour shown on the Halo LED indicator. See below –

Solid Yellow
Indicates unit has power but is not connected
to the Sync EV Network.

Flashing Yellow
Indicates charging session has ended successfully and/or vehicle battery is fully charged.

Solid Blue
Indicates unit has power and is connected to the Sync EV Network.

Flashing Blue
Indicates vehicle is connected and unit is awaiting instruction for operation.
(Scheduled start time or manual start via Smart App.)

Solid Green
Indicates vehicle is currently in charging program.

Pulsing Green
Indicates unit is in scheduled charging mode.

Red
Indicates unit is in fault mode.

Potential causes.

Charger has lost CPC (Supply Earth)

Internal RCD has tripped.

Cable entry point drilled in incorrect location, causing damage to PCB when charger face has been attached.

Vehicle fault.

SYNC EV

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