



ROMA TECHNOLOGY LIMITED

Single Phase

Protective Earth and Neutral (PEN) Fault Protection Device
for
Electric Vehicle Charging Equipment

PFPD-SP-32A-U

Installation Document

V1.1 August 2021

This product must be installed by a competent person in accordance with the IET Wiring Regulations, BS7671 (18th Edition or later) and current Building Regulations.

Ensure the electrical supply is disconnected before installation

As part of our on-going commitment to the environment, Romatech (Roma Technology Limited) make every effort to use pre-used, reusable and biodegradable packaging (boxes, packing materials etc) so you may find our deliveries in boxes that have previously been used for household items and so on. We ask that you help support our efforts to reduce unnecessary waste and recycle or reuse all packaging appropriately. Thank you.

PRODUCT DESCRIPTION

The Romatech PFPD-SP-32A-U single phase electric vehicle charging protection device is designed for use in domestic dwelling applications where a single phase TN system is used to supply power to electric vehicle charging equipment. The device should NOT be used on any three phase 3 phase installation.

This document covers only the PFPD-SP-32A-U device. The device is not intended for any purpose other than that defined within this document.

WARNINGS

Please read and observe the following notices carefully. These warnings must be observed when installing and operating the electric vehicle charger protective earth and neutral (PEN) fault protection device.

All relevant supplies must be isolated or disconnected before commencing any work. This product must be installed by a competent person in accordance with the IET Wiring Regulations, BS7671 (18th Edition or later) and any relevant Building Regulations and/or Installation Regulations



The device must be installed within a suitable modular DIN rail enclosure in accordance with BS7671 (18th Edition or later). Once installed, the device has a Live Mains Supply (230v or higher) applied to it within this enclosure. The cover of this enclosure must not be removed until the mains supply to the device has been fully isolated or disconnected.

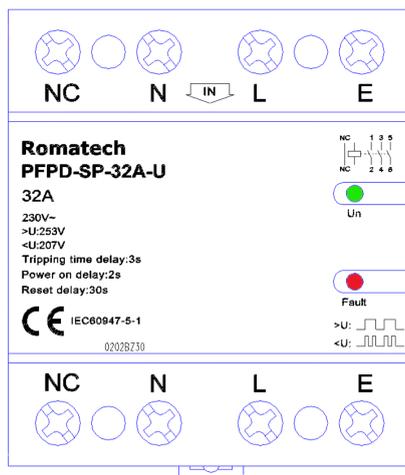
The device must be installed into a standard modular DIN rail enclosure suitable for the location and the environmental conditions for the chosen installation location. This may require the DIN rail enclosure to be suitably IP and fire rated as per BS7671 (18th Edition or later) and any relevant Building Regulations and/or Installation Regulations. It is the responsibility of the installer to select this enclosure and to ensure that it is suitable.

INSTALLATION

The Romatech PFPD-SP-32A-U single phase electric vehicle charging protection device is designed to operate in single phase TN infrastructures . The device incorporates an electronic detection circuit and 3 pole contactor to IEC60947-5-1.

On detection of fault conditions the electronic circuit disconnects the electric vehicle charging equipment from the incoming supply including CPC by de-energising the contactor. The Romatech PFPD-SP-32A-U does not require earth rods or measuring electrodes to function correctly.

The device is designed to be installed between the service provider's meter / distribution board and the electric vehicle charging equipment within a suitable modular DIN enclosure with the device requiring a 4 standard module space. Use of RCDs, RCBO and similar protection devices, if required, should be installed between the PFPD-SP-32A-U and the service provider's meter / distribution board. These can be, if required, be installed within the same enclosure as the PFPD-SP-32A-U.



Power to the PFPD-SP-32A-U must be supplied to the top of the device, marked as IN, with the live, neutral and earth (CPC) connections being made respectively to the L, N and E screw terminal connections as marked.

Power from the PFPD-SP-32A-U to the electric vehicle charging equipment must be connected to the opposite side of the device with the live, neutral and earth (CPC) connection to the electric vehicle charging equipment being made respectively to the L, N and E screw terminal connections as marked.

All wiring, soundness of connection, direction of wiring and testing is the responsibility of the installer. The device should not be exposed to high test voltages as it contains electronic circuitry.

OPERATION

The PFPD-SP-32A-U is fully automatic and requires no intervention or setting to operate correctly. **The unit should not be power cycled to reset it.**

When power is initially applied there is a 2 second power on delay built into the electronic circuitry. During this 2 second period the green status LED will flash and no power will be applied to the electric vehicle charging equipment side of the device.

After the 2 second power on delay the green status LED will become permanently lit and the 3 pole contactor will be closed to allow power to be applied to the electric vehicle charging equipment.

The PFPD-SP-32A-U will then continually monitor the voltage presented to the input side of the device and the green status LED will remain permanently lit unless there is a fault detected or there is a power failure on the input side of the device.

If a high voltage fault is detected, this being a voltage greater than 253VAC, the device will allow this fault to persist for no more than 3 seconds after which it will open the contactor, removing power from the electric vehicle charging equipment, and will start to flash the red status LED with a constant on/off cycle.

If a low voltage fault is detected, this being a voltage less than 207VAC, the device will allow this fault to persist for no more than 3 seconds after which it will open the contactor, removing power from the electric vehicle charging equipment, and will start to flash the red status LED using a fast irregular on/off cycle.

Once a fault condition is removed the device will remain in a recovery state for 30 seconds, during which time it will flash the green status LED. Any grid fault detected during this time will reset the reset timer. After this time the contactor will be closed, restoring power to the electric vehicle charging equipment, and the green status LED will once again be lit permanently.

Should a power cut occur the green status LED will be extinguished and the contactor will be opened. Once power is restored and provided no fault is no fault detected, the device will operate as though power has been initially applied as described above.

NUISANCE TRIPPING

Due to the increased use of renewable technologies for power generation in the UK it is now not uncommon for the grid voltage to exceed 253VAC, despite regulations requiring grid voltages to remain below this level. These high voltages will be detected by the PFPD-SP-32A-U device which will subsequently disconnect all power from the electric vehicle charging equipment and flash the red LED. Such a disconnect is not indicative of a faulty PFPD-SP-32A-U device. Rather it is an indication that the device, which is a safety device, is operating correctly even though such 'tripping' may be described as a nuisance and will prevent power delivery.

WARRANTY

The PFPD-SP-32A-U device is guaranteed for a period of 1 year from the date of manufacture. This warranty is limited to the replacement of faulty devices only.