ZERO EMISSION VEHICLES AUSTRALIA

http://www.zeva.com.au

J1772 EVSE Interface

INTRODUCTION

The ZEVA EVSE Interface allows you to charge your EV from standard AC (Level 1 and Level 2) EVSE charging stations using the SAE J1772 standard. It works with both Type 1 connectors (USA, Japan, etc) and Type 2 (Europe, Australia, etc).

It is designed to work with our Electric Vehicle Management System, but can be used in any application where its Charge Enable output is used to turn on the vehicle's onboard charger, via a BMS for over-voltage protection. When used with our EVMS and TC or compatible chargers, charge rate will be adjusted automatically via CAN bus based on available power from the EVSE.

SPECIFICATIONS

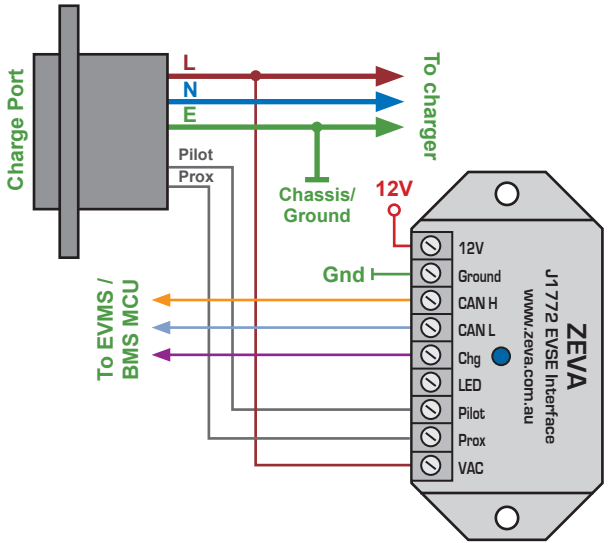
- Supply voltage: 12VDC nominal (8-16VDC range)
- Power consumption: 3.5mA standby, 30mA active
- Dimensions: 73x40x15mm
- 2x 4mm mounting holes, 65mm apart
- Weight: 26g

INSTALLATION

The EVSE Interface should be securely mounted to the vehicle with screws through the two Ø4mm holes either side. It is usually best to install the device close to the charging port, in a location protected from dirt and water.

The diagram on the following page shows the typical wiring for the EVSE Interface and devices it is connected to. There are three wires (Pilot, Prox and Live/VAC) between the charging connector and the EVSE Interface, a Charge enable wire from the EVSE Interface to the EVMS (or other BMS master controller, to signal charging to commence), and optionally two wires for CAN bus between the EVSE Interface and EVMS.

The 12V supply may be permanently connected, or switched on as needed if the device's quiescent current consumption is a concern. Both the Ground terminal on the EVSE Interface and the Ground pin on the charge connector should be connected to vehicle chassis.



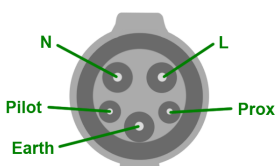
The LED terminal will mirror the behaviour of the LED on the device, optionally used for powering a remote LED in a more visible location. The output has a 5mA current limit (no series resistor required).

None of the wiring to/from the EVSE Interface involves significant current so small hookup wire can be used, but around 18-22AWG is recommended for suitable mechanical strength. Shielded Twisted Pair wire is best for the CAN bus.

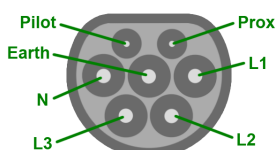
The wires from charge port to charger (not connected to EVSE Interface) do carry significant power so ensure the voltage and current ratings are suitable for the charger's power. Colour standards for AC wiring vary around the world, so be sure to match the Live, Neutral and Ground wires from the charger to the charge port correctly.

CHARGE PORT CONNECTORS

The following diagrams show the pin assignments for Type 1 and Type 2 connectors, *viewed from the front of the socket in the vehicle*.



Type 1 connector



Type 2 connector

If only a single charger is used with a Type 2 connector, its AC supply should be connected between Neutral and L1. L2 and L3 are used where three chargers are present, for three phase charging.

Some charge connectors come with a 2.7Kohm resistor preinstalled between the Prox and Ground pins. The EVSE Interface includes this resistor built-in so it should be removed from the connector if present.

VAC MEASUREMENT

The EVSE Interface measures the AC supply voltage so that it can correctly calculate the power available to the charger, where supply voltage may vary. If not connected, the EVSE will assume 240VAC. It is only applicable if the EVSE Int is connected to an EVMS and compatible charger.

OPERATION

When a charging cable from an EVSE is plugged in, the *Charge Enable* output on the EVSE Interface will be pulled to ground (signaling to the EVMS/BMS that charging should commence), the LED will start flashing, and the device will signal to the EVSE that the vehicle is ready for charging.

While charging, the EVSE Interface transmits the available AC power via CAN bus to an EVMS (if present), which will then calculate a DC current limit to send to a TC or compatible charger over the CAN bus.

The LED will flash during charging, and where a CAN bus connection with an EVMS is available, the LED will stop flashing when charging has completed. This device will also signal to the EVSE that charging has completed and AC power can be disconnected.

When disconnecting the charge cable, pressing the connector release button will immediately turn off the Charge Enable output so that the charger stops and the cable can be unplugged safely.

CAN BUS COMMUNICATIONS

For those wishing to integrate the EVSE Interface with their own CAN-enabled BMS master controllers, the CAN communications involves just a single message on (decimal) ID 45 sent at 4Hz, containing the EVSE's available power in watts as a 16-bit number in the first two bytes of the message. Note that this is the AC input power available, so does not factor in charger losses before its DC output.

The default baud rate is 250kbps and uses 29-bit IDs (CAN 2.0B). Other baud rates, formats and CAN IDs are available by request.

TECHNICAL SUPPORT

If you have any queries not covered by this manual, feel free to contact us via our website:

http://www.zeva.com.au

Products are covered against manufacturing faults for a period of 12 months from date of purchase. If you believe your device may be faulty, please contact us via the above website.

ZEVA is a carbon neutral business. All products designed and manufactured in Australia.