

A Brief Outline of J1772 Operation and Configuration

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Power from the electric grid (usually via a supply panel in the building) connects to the plug. Three suitable wires connect to the Control Box, which contains most of the electronics. This is where the Pilot function controller is located.

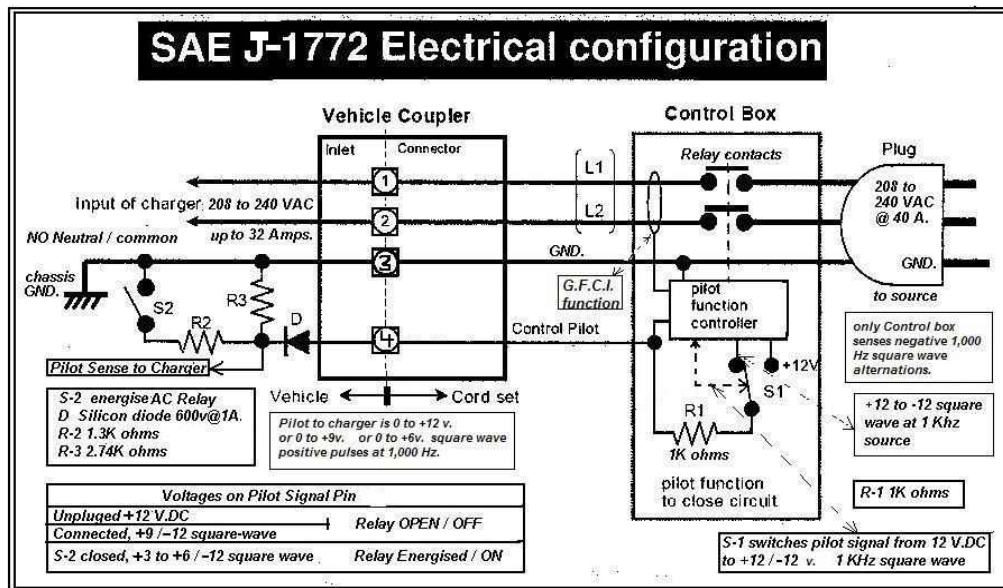
The Pilot Function Controller has several functions. An astable multivibrator produces a one kHz square wave with +12 to -12 alternations. If no output current is sensed the output is switched to +12 V. until output is loaded down by the connector plug making connection with the diode. R-3 current flow through R-1 drops the voltage on the left end of R-1 to +9 v. That results in S-1 being activated, applying the square wave to R-1. Because of the diode the wave at the left end of R-1 becomes +9v and -12 v. This assures that a valid connection exists, without corrosion, dirt and / or moisture.

Next, charger logic (or, absent a smart charger, the driver) activates S-2, putting R-2 in parallel with R-3. This draws additional current through the diode during the positive alternation and reduces the voltage level at the left end of R-1 from +3 to +6 volts and -12 volts, signaling the Pilot Function Controller to activate the 240VAC power relay. The Pilot Function Controller also monitors current and acts as a GFI (Ground Fault Interrupter).

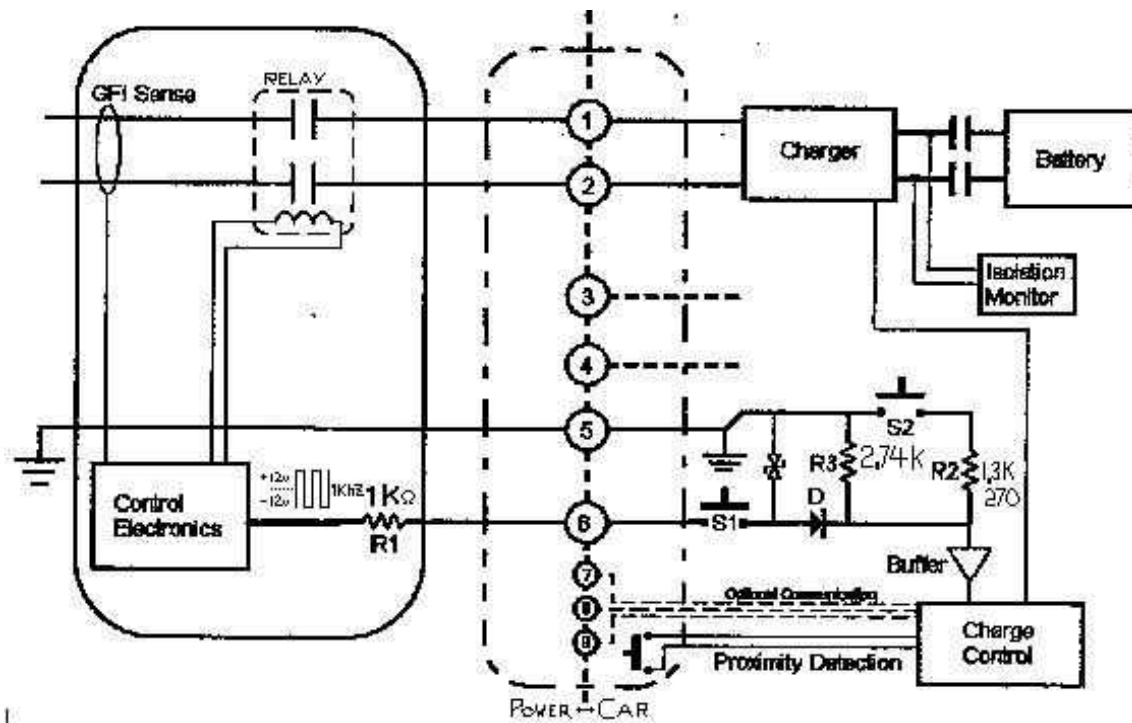
The batteries are charged by the charging system. When the charging is complete, S-2 is switched off, and the Pilot Function Controller opens the relay. The plug may now be pulled out and put in the storage location.

Some manufacturers use the fifth wire to detect plug that the plug is inserted and monitor them temperature of connection. This can prevent overheating in case of a poor, high-resistance connection caused by dirt or corrosion.

DISCLAIMER: I am providing this information for educational and informational purposes. I do not recommend attempting to build the circuitry yourself unless you are technically competent.

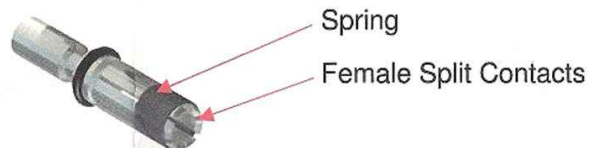


J1772 Interface



J1772 Terminal Specifications

Female multi-beam terminals with calibrated spring device to precisely control mating/unmating forces



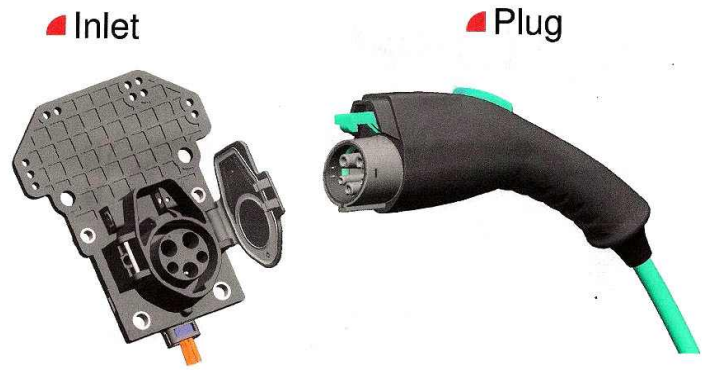
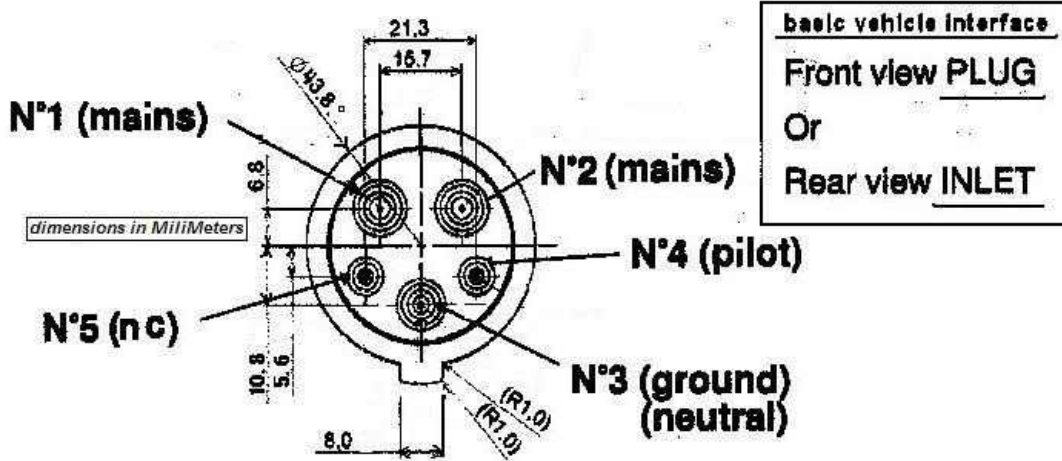
Male terminal with front plastic protection
Note that inlet uses male terminals



- Terminal material : copper (excellent conductivity and crimp performance)
- Terminal plating : nickel (excellent wear resistance, good conductivity)
- Terminal diameters :
 - 1.5 mm for connection switch and pilot control lines
 - 2.8 mm for ground line
 - 3.6 mm for main, neutral and ground lines
- Cable crimping : hexagonal

| Position n° | a.c. | Function |
|-------------|-----------------|-------------|
| 1 | 250 V 32 A | L1 (mains) |
| 2 | 250 V 32 A | L2 (mains) |
| 3 | Rated for fault | PE (ground) |
| 4 | 30 V 2 A | P (pilot) |
| 5 | 30 V 2 A | n.c. |

Norm IEC62196-2-1 WD-REV 090810



compatible with [SAE J1772](#) and [IEC62196 2 1](#)