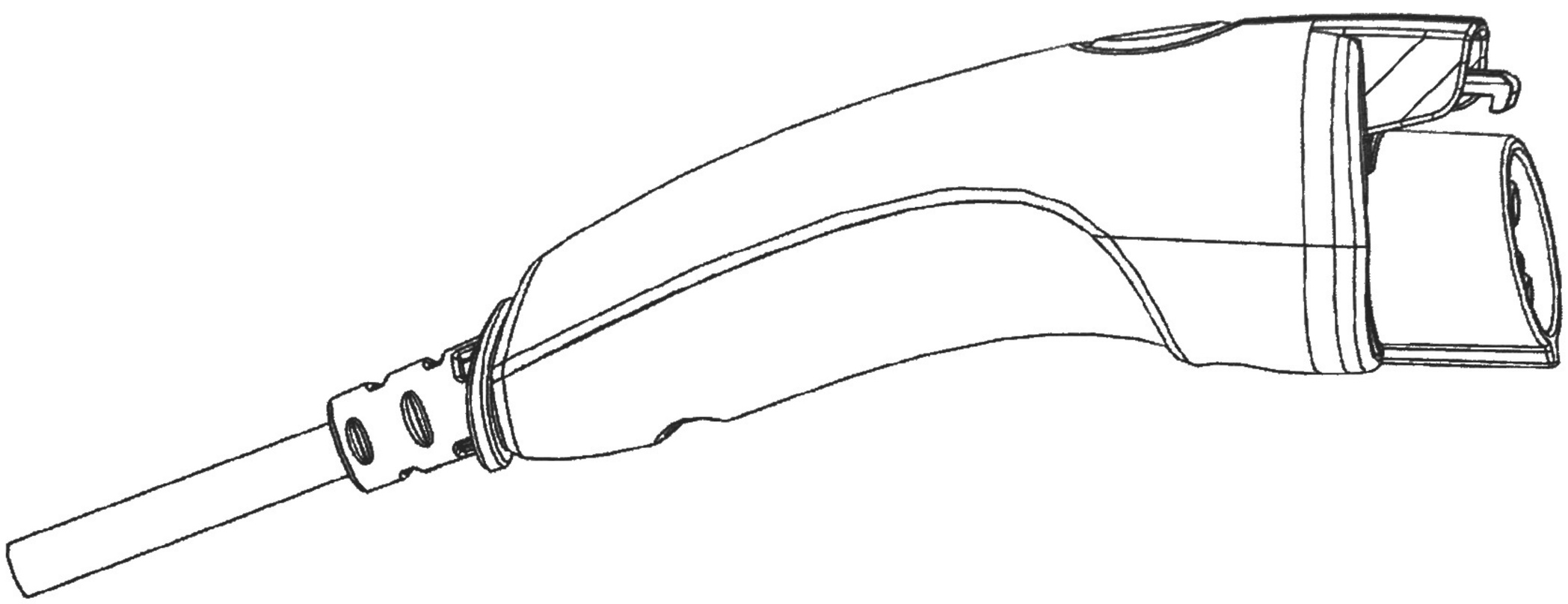
User Guide

Level 1 Electric Vehicle Supply Equipment (EVSE)

For use in North America



Portable charger for Electric Vehicles (EVs) and Plug-In Hybrid Electric Vehicles (PHEVs)

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Warnings and Notes

The portable charger must be used on a 15A or 20A, 120VAC, 60 Hz, grounded circuit. The charger will not work on a non-grounded circuit.

Warning! Shock, fire, property damage, personal injury, or death may occur if the portable charger is not used in accordance with the User Guide.

Warning! There are no user serviceable parts contained in this product. Any attempt to service this product may result in shock, fire, property damage, personal injury, or death.

If you have any questions about the use of this product, please contact your original equipment supplier.

Important Safety Instructions

WARNING – When using electric products, basic precautions should always be followed, including the following:

a) Read all the instructions before using this product.
b) This device should be supervised when used around children.
c) Do not put fingers into the electric vehicle connector.
d) Do not use this product if the flexible power cord or EV cable are frayed, have broken insulation, or any other signs of damage.
e) Do not use this product if the enclosure or the EV connectors are broken, cracked, open, or show any other indication of damage.

Grounding Instructions

This product must be grounded. If it should malfunction or break down, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord having an equipment grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

WARNING – Improper connection of the equipment-grounding conductor could result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product – if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

Moving, Transporting, and Storage Instructions

This device is not to be lifted or carried by either the flexible AC cord, nor by the flexible vehicle plug cord. The enclosure is the heaviest part of the unit and the flexible vehicle plug cord should be wrapped or secured to the enclosure, and the unit carried as a bundle to avoid stressing the assembly joints.

The device should be stored in a secure location in the vehicle while driving to keep it from damaging the vehicle or itself with dents, scratches, etc.

Quick Start

1. Plug the portable charger into a 15A or 20A, 120VAC, 60 Hz, grounded outlet. Do not use an extension cord, outlet/plug adapter, or with a worn outlet. The charger will not operate safely unless it is plugged directly into the outlet.

2. Some chargers are equipped with a charge rate selection switch. You may choose to increase or decrease the charge rate from the starting rate based on your charging situation. The charge rate selection switch is a momentary push button switch that toggles between a fast rate or a slow rate of charge **(Figure 1)**. The slow rate can be used if the charger overloads the circuit and trips the circuit breaker at the standard charge rate. For those chargers without a selection switch, the vehicle controls the appropriate charge rate.

3. Check to see if your portable charger is ready to charge by reviewing the indicator lights. There are three sets of indicator lights that communicate the status of the charger **(Figure 1)**.

A. Charge Rate Indicator	Two (slow) or four (fast) green lights. Optional: Two (slow), three (medium) or four (fast) green lights.
B. AC Indicator	Green light indicates charger is ready to charge.
C. Fault Indicator	Green light indicates charger is ready to charge.

If the indicator lights on your charger do not match the description above, please consult the Troubleshooting section of the user guide.

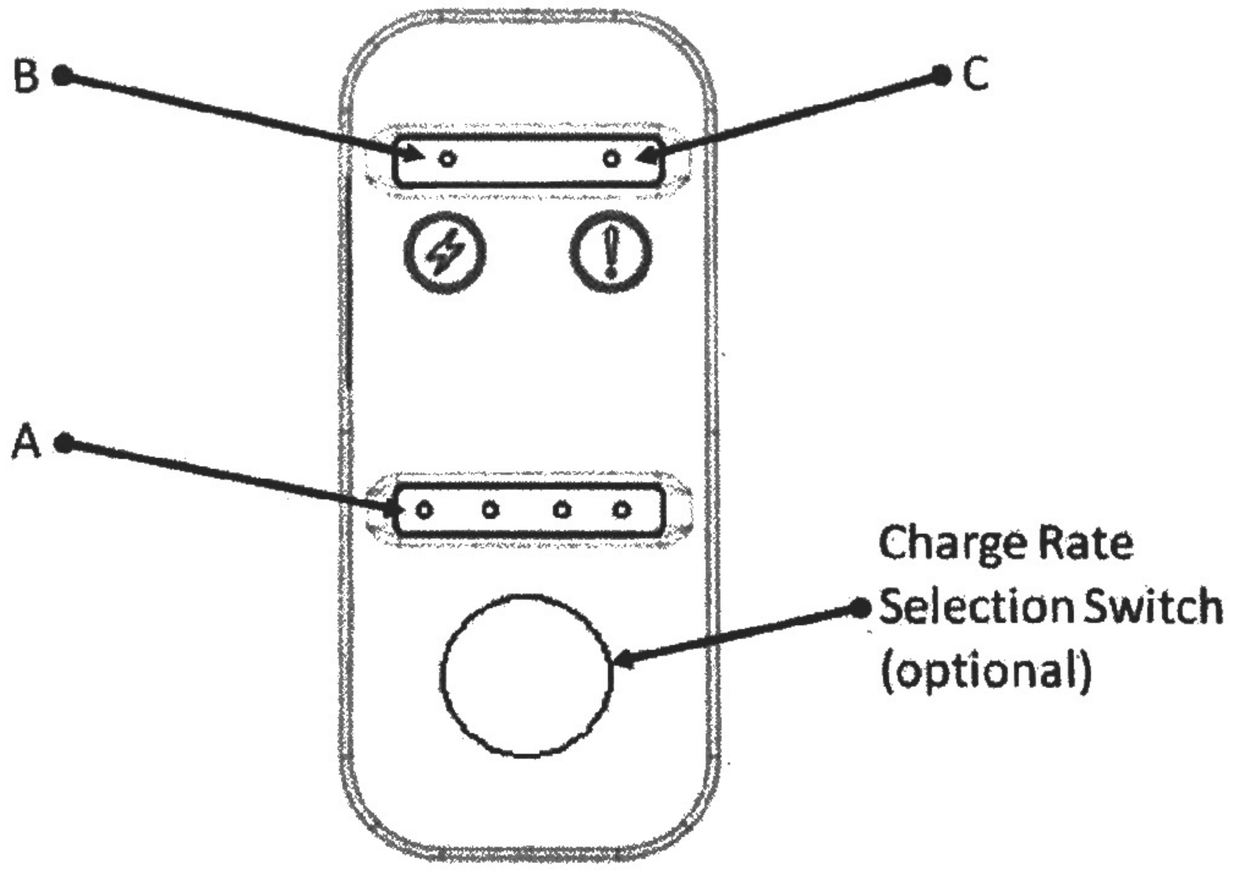

Figure 1

4. If your cordset is ready to charge, connect the vehicle plug to the vehicle's charge port **(Figure 2)**. While the vehicle is connected, the charge rate selection indicator lights will turn on and off in sequence. Once the vehicle has been fully charged, the charging will automatically stop and the indicator lights will stay on continuously. If necessary, charging may be stopped before the vehicle is completely charged.

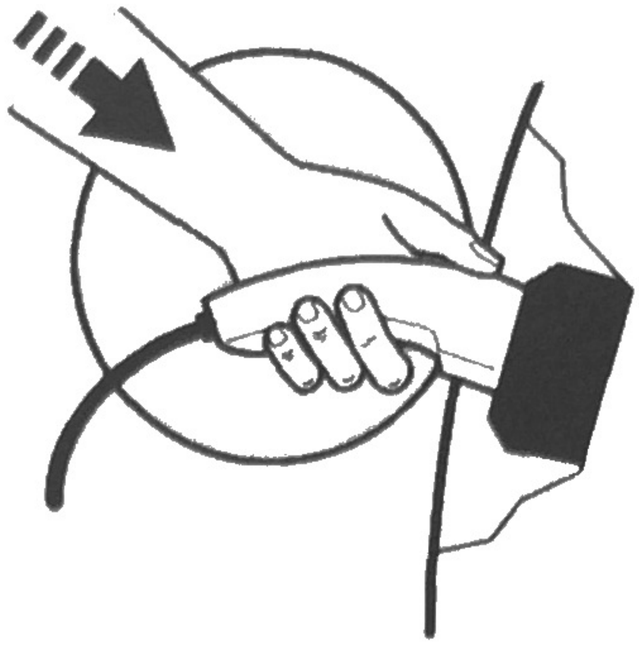

Figure 2

5. To stop charging, depress the button on the vehicle plug and disconnect from the vehicle inlet **(Figure 3)**.

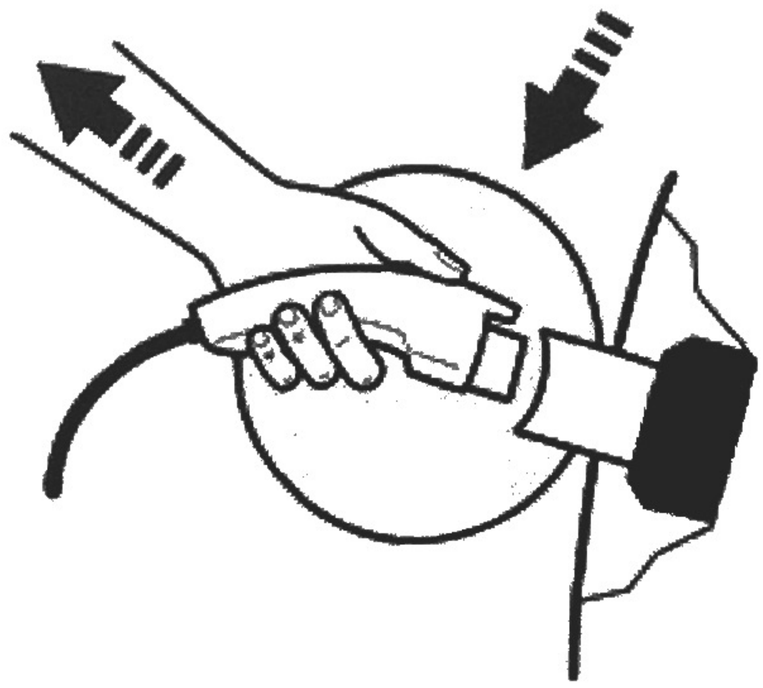

Figure 3

EV Portable Charger Mechanical Overview

The charger cordset is compliant with SAE J1772™, JAN 2010 Version and applicable for vehicles fitted with the standard SAE J1772™ vehicle charge port and charging systems. The charger **(Figure 4)** includes an AC Power Cord (NEMA 5-15p, Right Angle) (a), a NEMA 6 rated enclosure with a charge current interrupt device (CCID) (b), with status indicator display (e), an indoor/outdoor charge cord (c), and a vehicle plug (d).

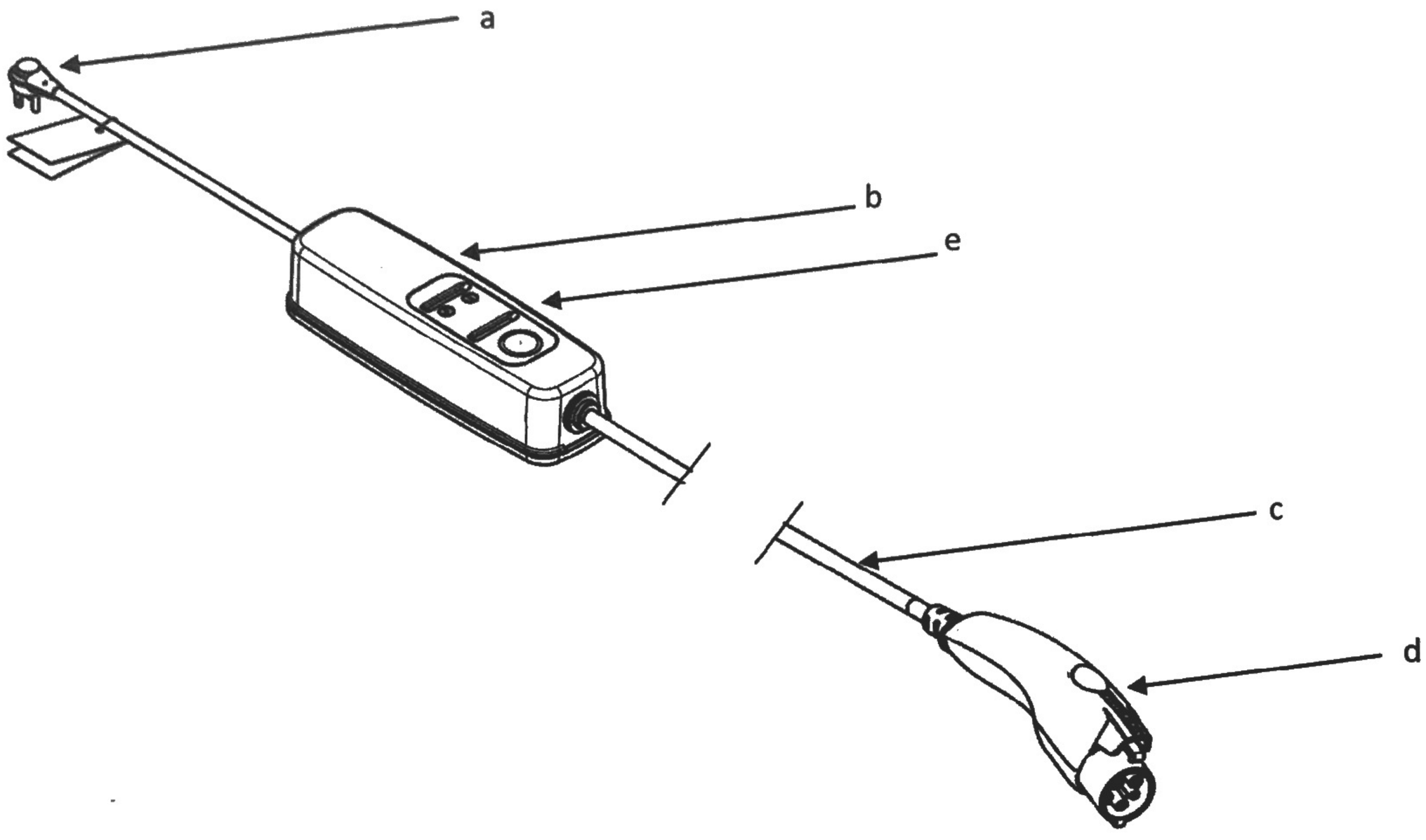

Figure 4

Troubleshooting Using the Status Indicator Display

If your vehicle is not charging properly, please consult the status indicator lights. The list below provides a reference of the important faults that are detected by the charger cordset.

The AC Present indicator displays the status and safety of the input power. If this indicator is green, the power is within acceptable limits to charge the vehicle. If the AC Present indicator is flashing red, there is a problem with the power and the charger cordset may attempt to re-try to provide current to the vehicle if the power returns to the proper levels. If the AC Present indicator does not return to green, it is recommended to unplug the charger cordset from the outlet to and attempt to charge in a different outlet.

The Fault indicator indicates the status of the charger cordset and the vehicle connection. If this indicator is green, the charger cordset has not detected any internal faults or faults with the vehicle connection. If the Fault indicator is flashing red, there is a fault detected either with the charger cordset electronics or with the vehicle connection. The charger cordset may attempt to re-try to provide current to the vehicle if the fault is cleared. If the Fault indicator does not return to green, the charger cordset will not attempt to provide charge to the vehicle, the vehicle plug connector will need to be removed from the vehicle to clear the fault.

The Charge Rate indicator lights tell the user what charge rate has been selected and whether or not the charger is ready for use. Two or four green lights indicate station is ready to charge. While the vehicle is connected the Charging indicator lights will turn on and off in sequence.

Status Indication:

a) If the AC Present indicator is flashing red, please contact an electrician to inspect your home wiring.
b) If the Fault indicator is flashing red, contact your original equipment supplier for additional help.
c) If both the AC Present and Fault indicators are flashing, please contact licensed electrician to inspect your home wiring.

Features

- Charge connector compatible with SAE J1772™ type Plug-In Electric Vehicles.
- Charge vehicle from standard electrical outlets.
- Status Indicator lights alert users to readiness and faults.
- Weatherproof rating allows for outdoor use.
- Critical Safety Features:
    - Built-in 20mA CCID protection with Self-Test feature.
    - Detects lack of ground (Ground Continuity Monitoring).
    - Communication with vehicle confirms electrical connections prior to charging.
- Auto-reset allows charger to re-try after a minor electrical fault. This prevents lock out and low charge situations.
- Vehicle Leakage Current Compensation prevents nuisance GFCI trips.
- Variable charge rate reduces tripping of circuit breaker due to overloading of circuit.
- RoHs (Reduction of Hazardous Substances) Compliant.

FCC Notice:

This unit has systems that operate on a radio frequency that comply with Part 15 of the Federal Communications Commission (FCC) rules and with ICES-003E of Industry Canada. (FCC) rules, ICES-003E of Industry Canada, and EMC Directive 2004/108/EC.

Operation is subject to the following two conditions:
1. The device may not cause interference
2. The device must accept any interference received, including interference that may cause undesired operation of the device.

Changes or modifications to any of these systems by other than an authorized service facility could void authorization to use this equipment.

Specifications

AC Plug Configuration	NEMA 5-15P
Input Power	12A max., 120VAC 60Hz grounded
Output Power	1.4kW @ 12A, 120V 1kW @ 8A, 120V
Charge Connector	SAE J1772™
Charging Cord Length	21'
Enclosure	Rated for indoor or outdoor use, protected against water, ice and dust. Conforms to NEMA 6 rating.
Operating Temperature	-40 °F to 140 °F (-40 °C to 60 °C)
Storage Temperature	-40 °F to 185 °F (-40 °C to 85 °C)
Ground Fault Protection	Internal 20mA CCID
Standards & Certifications	SAE J1772™ Electric Vehicle Conductive Charge Coupler Standard UL2202 UL Standard for Safety for Electric Vehicle (EV) Charging System Equipment (reference only) UL2231-1/2 UL Standard for Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits UL2251 UL Standard for Safety for plugs, Receptacles and Couplers for Electric Vehicles Subject UL2594 UL Outline of investigation for Electric Vehicle Supply Equipment NEC Article 625 Electric Vehicle Charging System