

Pow-R-Station Level 2 AC electric vehicle charging station



Note: Wall-mount shown. Optional pedestal-mount.

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Product family overview

The electric vehicle (EV) revolution is here, and with it the need for a robust and accessible EV charging infrastructure. Eaton meets that need with a family of EV charging stations specifically designed for use in the places where people work, shop, and play. Eaton's Pow-R-Station™ Level 2 AC charging stations are offered in 30A and 70A styles, and anything in between, to provide a 4–6 hour charging range, depending on battery size, making this design suitable for residential or commercial installations.

Product description

The Pow-R-Station Level 2 AC charging station provides users with a rugged, dependable, and durable solution to their EV charging needs. Designed to meet the most rigorous electrical and environmental standards, the charging station is housed in an attractive steel case and equipped with the industry standard SAE J1772™ power connector mounted on a 9–20-foot cord. A series of six LED indicators gives users system status and feedback for ease of use. The Pow-R-Station Level 2 charging station can be configured to interface with a third-party authentication system, offering the flexibility to become part of a new or existing distribution system. Optional input/output ports provide operators with additional data storage and unit communications capabilities. The Level 2 charging station is available as a wall-mount, or it can be freestanding with the optional pedestal-mount.

Standard features

- Level 2 AC charging—208 Vac or 240 Vac
- Eaton's standard one-year warranty on all electrical components and housing per Selling Policy 25-000
- NEMA® 3R exterior housing

Standards compliance

- SAE J1772 2010 EV conductive charge coupler
- NFPA® 70 National Electrical Code®, Article 625 Electric Vehicle Charging System
- UL® 2231 personnel protection systems for EV charging circuits
- UL 2594 EV supply equipment (outline of investigation)
- UL 1998 software in programmable components
- FCC compliant

Specifications

Table 1. Technical Specifications

Description	30A	70A
Incoming voltage (optional NEMA 5-20 outlet requires 120V)	208 Vac, 240 Vac, 120 Vac optional	
Input frequency	60 Hz	
Incoming amperage ("+" indicates dual fed)	40A	100A
Output voltage	Same as incoming	
Output frequency	Same as incoming	
Output amperage—max continuous (EV connector + outlet [optional])	30A	70A
Interlocked power output	Yes	
Overcurrent rating	Output amperage +5%	
Ground fault interruption	20 mA (UL 2231-1 / UL 2231-2 personnel protection)	
Automatic reset after nuisance trip feature	Available—field enabled	
Randomized restart on power failure (delay before charging resumes after a power failure)	Yes—field selectable ON/OFF	
Mechanical operations	10,000 cycles (EV connector, replaceable) 100,000 cycles (contactor, replaceable)	
De-energization on breakaway	Yes	

Table 2. Physical and Environmental Specifications

Description	Wall-Mount	Pedestal
Dimensions H x W x D in inches (mm)	22.00 x 15.00 x 8.00 (558.8 x 381.0 x 203.2) Add 9 inches below for cable hanger	58.00 x 15.00 x 8.00 (1473.2 x 381.0 x 203.2)
Status indicators	Six LEDs: Power, Charging, Complete, Remotely Controlled, Temporary Fault, and Service	
Pushbuttons	Two buttons: Override and Reset	
Ingress protection	IP14	
Type rating	3R	
Temperature—storage	-30 to 80°C	
Temperature—operating	-25 to 40°C	
Humidity	90% RH, noncondensing	

Table 3. I/O Specifications

Description	Wall-Mount	Pedestal
J1772 pistol-grip EV connector	Same as output rating	
Permissive run contact	NC dry contact input	
Available line current control	4–20 mA analog input	
RS-485	Modbus®-RTU four-wire port	
Memory	SD memory slot	
Ethernet	RJ45, IEEE® 802.3, TCP/IP, Modbus TCP	
Field diagnostics and upgrade port	RS-232 DB9 (HyperTerminal™ support)	

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 Printed in USA
 Publication No. TD0EV00003E / Z10313
 December 2010

Table 4. Optional Specifications

Description	Wall-Mount	Pedestal
Through-feed (daisy chain) compatible	No	Yes
Cellular	GSM/CDMA	
Credit card processing	PCI-DSS	
Network management	Pow-R-Station Network Manager with real-time status and historical information	
Wireless	Wi-Fi	

Installation

The Pow-R-Station EVSE's electric requirements and wiring installation procedure vary by form-factor, but can easily be performed by any qualified electrician. For the wall-mount Level 2 AC, the procedure is much like installing an electric stove circuit, and for the outside pedestal, it is much like installing a lighting bollard circuit.

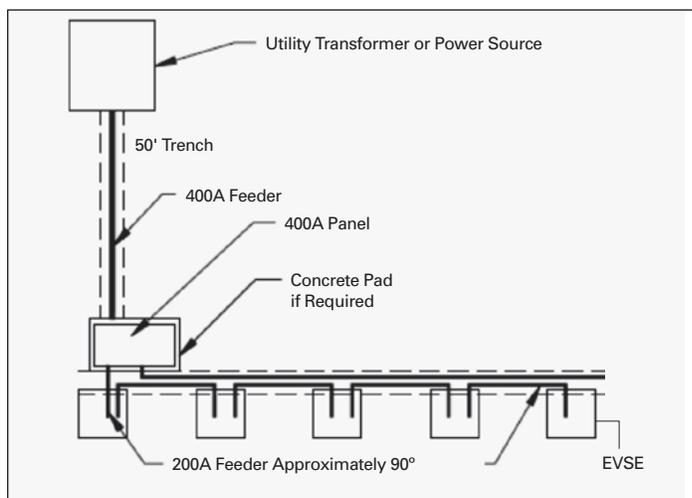


Figure 1. CAD Drawing of 90° Nose-In Parking Lot with the Associated Electrical Wiring and Distribution

The Level 2 AC requires that a few things be taken into account before installing. With the driving range and battery sizes constantly increasing each model year for EVs, the size of the branch circuit is a big first step. The size of the circuit is inversely proportional to the EV's charge time: a bigger circuit and a bigger onboard charging station mean that less plug-in time is needed.

In regard to the size of the circuit, the upstream protection for an EVSE must be at least equal to 125% of the nameplate rating of the unit. This is due to the EVSE being considered a continuous load where no diversification is allowed. As an example, a 30A EVSE will more than likely be fed by a distribution breaker with a trip rating of 40A, and a 70A EVSE with a 100A. For more information regarding this requirement, please consult the NFPA 70 National Electrical Code, Article 625.14.



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