

Eaton's Pow-R-Station Level 2 electric vehicle charging station

The most robust, flexible offering of EVSE on the market



Overview

Plug-in electric vehicles offer improved fuel economy, lower emissions and strong acceleration with a quiet operation—all from a domestic energy source. Therefore, it is no surprise that automakers are bringing plug-in electric vehicles to the mass market. In fact, industry forecasts predict an annual volume of 400,000 battery electric vehicles in North America by 2020. These electric vehicles will require a substantial residential, commercial and public infrastructure to support them.

Eaton provides the most robust, flexible offering of electric vehicle supply equipment (EVSE) on the market. Eaton's Pow-R-Station™ family of solutions is the electric transportation industry's premier EVSE.

Eaton's Pow-R-Station electric vehicle charging stations supply the connection to the grid where vehicles park—street-side, garage or parking lot—and provide the car's onboard charger with the electricity it needs to refill the battery.

Configuration to meet your needs

Whether you have a fleet of electric vehicles or you are plugging in at home, Eaton has an electric vehicle charging station targeted to meet your needs.

The Level 2 Pow-R-Station electric vehicle charging station is NEMA® 3R-rated for indoor or outdoor use—it can be wall-mounted for residential or commercial garage installations, or it can be freestanding with the pedestal configuration. It is designed with steel housing and is treated with a powder coat paint for durability and long life. It can be operated as a stand-alone power station, or it can be networked with other power stations that will be operated or managed by one entity.

Using an industry standard J1772™ 30A or 70A connector, depending on battery size, the Level 2 charging station will easily fill a depleted all-electric vehicle battery in as little as four hours while the owner is working, shopping or sleeping.

How it works

When the driver connects the J1772 connector to the electric vehicle, the Level 2 Pow-R-Station EV charging station confirms that it is an electric vehicle by “waking it up” through one of the pins in the connector. Once the charger has confirmed the connection to the vehicle, the vehicle then tests to ensure it is connected to an EVSE.

The charging station will respond by indicating its available line current (ALC). The ALC is the maximum current the electric vehicle is allowed to draw, depending on the circuit size or the commands of a load-management system and/or the requirements of a utility.



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User safety

The various communications between the electric vehicle and the Pow-R-Station EV charging station are in place to ensure user safety. These safety checks verify that there is no chance of injury to the user or the equipment. For example, until the vehicle has confirmed it is connected to an EVSE, the five pins on the connector have no AC power.

In addition, electric vehicles are required to have an interlock deactivating the ignition while connected. If anything happens to disrupt the connection, such as a user releasing the connector latch, the power flow to the vehicle will immediately stop.

Installation

Installation of the Level 2 Pow-R-Station EVSE can be performed easily by any qualified electrician. The wall-mount design is much like the installation for an electric stove circuit, and the pedestal is comparable to the installation of a lighting bollard circuit. An electrician can also verify whether the size of the branch circuit is correct per NFPA® 70 and NEC® 625.14 standards.

Eaton manufactures all products that may be needed to support an electrical system upgrade, if it is required for installation. For commercial installations, Eaton's Electrical Services and Systems (EESS) team of electrical engineers is available nationwide and can be augmented by

Eaton's network of national, local and specialty commercial electrical contractors. For residential installations, Eaton's Certified Contractor Network (ECCN) can handle installation and any upgrades needed to the home's electrical system.

Communication features

The Level 2 Pow-R-Station EVSE offers standard ethernet, Serial (RS-232), and Modbus® or optional cellular or wireless communication selections. The charging station will also offer the following features for data collection, storage and extraction:


- **Memory slot:** allows the station to collect data locally onto an SD card of up to 2 GB of data, which is equivalent to one year of reporting.
- **Standard onboard memory:** allows the station to record 30 days of a subset of usage data and ongoing statistics.
- **Modbus:** allows a building's energy management system (EMS) to manage the charging station's deployment with status and usage statistics.
- **Ethernet:** allows the station to be a Modbus TCP and offers a small, built-in Web server that shows the station's status and usage statistics.
- **Serial port:** allows a third-party device, such as a technician's computer or an industrialized computer, to control, manage and troubleshoot the station's status and usage statistics.

Remote management and control

Eaton's optional Pow-R-Station Network Manager Software provides remote-management and control services for the charging station. Eaton's Pow-R-Station Network Manager Software allows a user or a fleet manager to check the status of the station, including if it is idle or in use, the amount of power flowing to the vehicle, and any required preventative maintenance. Further, the user is able to gather usage data and reports, manage and control how fast charging takes place, and access maps of where each station is located, all from Internet portal dashboards.

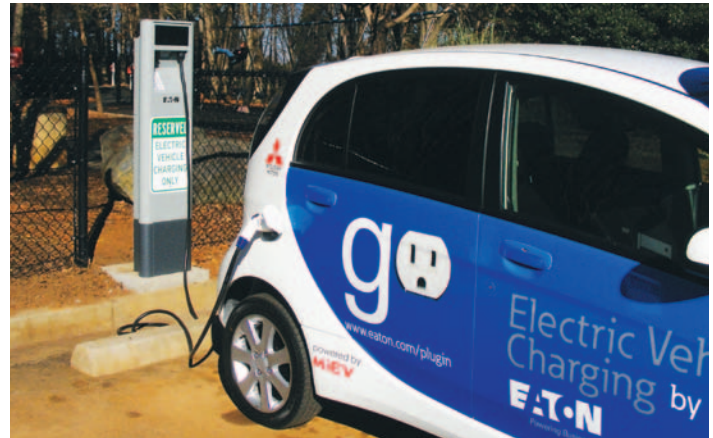
Authentication

To meet your application needs, Eaton can interface with third-party authentication systems including but not limited to:

- Outdoor-rated credit card swipe
- Secure access RFID
- RFID with user identification 
- Synchronous-code keypads

Further, the optional integrated synchronous-code keypad can be used in conjunction with parking lot management systems commonly deployed today to provide a method for both enabling payment and restricting access to the charging stations.

 When used with Eaton's Network Manager software



For more information, visit www.eaton.com/plugin, call 1-855-ETN-EVSE (1-855-386-3873), or call your local Eaton sales office.

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