

WHAT OCPP CAN (AND CAN'T) TELL YOU ABOUT YOUR EV CHARGER



When the EV industry talks about the need to improve charging infrastructure, Open Charge Point Protocol (OCPP) is often cited as one of the keys to solving that puzzle.

Established in 2009 by the [Open Charge Alliance](#), OCPP is a free, open-source protocol that has become the international standard throughout the EV charging industry.

But while it can enable different EV charging stations and charge management systems to communicate with each other and capture critical information about charging sessions, there are some limitations that should be considered when comparing between brands of Level 3 EV Chargers.

Chief among those limitations is the data that can be used to troubleshoot issues and maximize charging uptime, which is also critical to improving EV charging infrastructure and reliability.

What Information Does OCPP Provide?

In addition to helping authenticate EV/charger connection and collecting transaction details, OCPP can also provide data on charging status and software errors.

There are dozens of codes that may be used to alert operators to potential issues, such as:

- network errors
- ground faults
- cooling equipment leaks
- high pressure warnings
- temperature sensor errors
- power measurement errors
- terminal touch screen failures

The alerts will display with an error code, such as “overTemperature,” with a short description (ex: “over temperature fault inside the terminal”) that can be used by the manufacturer or charging station operator to determine if a service call needs to be placed to inspect the charger.

What Information Is Missing from OCPP?

One major drawback of OCPP: It doesn't provide charging station operators or manufacturers with more specific details on what's wrong.

“It tells you there is a problem,” said Steven Sumner, Vice President of Global Equipment at Lincoln Electric. “It doesn't tell you what the problem is. It doesn't allow you to do things like run diagnostics. It just knows there's an issue.”

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Some of the critical information that OCPP does not cover in-depth includes:

- Specific hardware issues, such as the status of circuit boards, connectors, cooling systems or power electronics.
- Detailed history of errors and fault logs that can be used to identify recurring issues or patterns with malfunctioning components.
- Status of individual components within the charging station, such as cables, connectors, RFID readers or sensors.
- Serial numbers of specific components which can be vital for tracking and replacing faulty parts.
- Information about firmware versions and updates, which can be critical to helping technicians understand whether there are any firmware-related issues.

The bottom line: If you can't quickly get these answers from your EV charging network, you can expect to spend a lot of time and money when it eventually goes down waiting to get it back up and running.

How To Get The Information You Need (And Avoid Unnecessary Downtime and Repair Costs)

Along with OCPP, you should look for DC fast chargers that can be monitored and updated in real time by the manufacturer. Having an additional back-end system with better recordkeeping can help fill in some of the gaps that are missing from OCPP.

"I would look for something that has a much better, more rich set of information coming from it than what is limited by the base layer of OCPP," said Sumner.

"I would want to know with much more precision what the problem is so that I can make sure the service tech has the right parts on hand and knows in advance what is likely the problem so they don't spend a lot of time troubleshooting."

Another important piece to consider is the capability of the manufacturer to provide service when needed, said Michael Peash, Director of Business Development, EV Charging Solutions for Lincoln Electric.

"Some of these EV charging companies are getting that diagnostic information, but they don't have the wherewithal to send anyone out there to fix the machine," Peash said. "In some cases, manufacturers will have a back-end diagnostic that can be utilized where you don't have to visit the machine. It can be done over the air through the gateway OTA."

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