

Article

Why Eninserv Limited tests DC charge points with the Fluke FEV500

An e-Mobility consultant explains why DC charge point testing needs to move from reactive to preventive, and where the Fluke FEV500 fits.



~45 minutes → ~7 minutes per outlet

5 hours saved across four stations

Approx. €200 or more per reactive call (Mark's estimate)

Mark Daly is owner and principal consultant at Eninserv Limited, a hands-on energy and e-Mobility consultancy based in Ireland, whose clients include public sector organizations and medium to large private companies.

An independent voice on charger reliability

Mark has been part of what he calls “the rebirth of electric mobility in Ireland and across Europe” since 2011. Eninserv is a practical consultancy that doesn't mind getting its hands dirty, and it measures a project by its commercial success as well as its technical success.

He also has no stake in what his clients buy. “Because I don't sell equipment, it is only important to me that I think the product is worth having,” he says. “I don't have sales targets, and I don't make a margin. To have this confidence, I need to know that it is dependable, comprehensive in its function and adds value for my business and clients.”

Over a month, Mark has tested 6 charging stations with the FEV500 for clients.

When a charge point is down, confidence goes with it

Charge point availability is a very important topic for Mark's clients. "Where the public is concerned, there is a justified expectation that a charge point is operational when they arrive to charge." AC charge points can be installed in enough numbers to give some redundancy. DC charge points, because of their cost and the electrical connection they need, rarely include much redundancy.

An employee who picks up their vehicle in the morning without enough charge to complete their duties starts to distrust EVs. Their employer then starts to lose faith in the provider that installs or operates its charge points. A driver who plans a trip and finds a faulty public charger comes to associate the experience with that Charge Point Operator, and "brands them undependable, choosing other CPOs for future trips."

Higher-power chargers and shared delivery systems raise the stakes.

"From a safety perspective, higher power gives rise to higher fault energy, so it is arguably even more important to ensure earthing and protective devices are functioning correctly."

On a shared delivery system, one central fault can make multiple charging outlets unavailable.

The urgent and the important

The serious players in the market understand the importance of testing and maintenance, Mark says. Most CPOs are vigilant at initial installation. However, while priorities are sales and installations, preventative maintenance and periodic inspections often get less focus.

"Life is often about the urgent taking precedence over the important," he says. "PPMs are important, but when technicians are busy doing fault callouts or installations, the PPM is often put on the long finger."

That is starting to shift. "As the income generated by charge points is increasing, the focus is starting to change. Downtime means reduced revenue and potentially lost customers."

A full suite of tests in a single unit

When Mark introduces the FEV500, their first reaction is that one tool now does a full suite of tests. "It's not simply plugging in a vehicle to see if it charges but also allows them to check and record the handshake process as well as signal strength and voltage stabilities."

"The FEV500 is a one-stop shop, so to speak."

The FEV500 simulates an EV during testing. Conversations often start with the expectation that a technician who already drives an EV doesn't need a tester. "The realization typically comes, that the vehicle does not perform electrical tests and also doesn't keep a record of the handshake," Mark says.

Mark compared stability, communications protocol and safety tests. A vehicle records none of the communications checks. Whether an installation tester records continuity and insulation resistance depends on the model. Moreover, gaining access to the appropriate connection points is quite difficult and time consuming. The FEV500 records every test on the list, from SLAC attenuation and pre-charge to load, IMD and residual voltage tests, with the minimum of intrusion.





Minutes per outlet, hours back per visit

"Probably the biggest advantage I spotted was speed," Mark says. "The testing of each outlet is completed in a matter of minutes." In his test sequence, a full test takes ~45 minutes per outlet with a vehicle and an installation tester, and ~7 minutes with the FEV500.

Travel, check-in and visual inspection times stay the same. The saving is in the functional and electrical tests. For a single station with 2 outlets, those take 90 minutes traditionally and 14 minutes with the FEV500, saving 1.25 hours overall. Two stations with 4 outlets save 2.5 hours, and four stations with 8 outlets save 5 hours.

The automated, all-in-one sequence also means less time "jumping between different devices and completing lots of manual data entry." "Visibility of SLAC attenuation and voltage stability help to predict the likelihood of future problems," Mark says. Faults linked to these values are typically intermittent and can require multiple visits to resolve. "From a safety perspective, testing the electrical integrity on a regular basis, reduces the likelihood of unsafe occurrences."

Proof that testing happened

The FEV500's reporting function keeps a full set of records, which is useful where statutory requirements apply. Mark points to the uncommon case of an incident between a charge point and a vehicle, or a person.

"In that case, there may be a need to show that regular and thorough functional and safety tests have been carried out. Failure to prove this may leave a CPO liable for the incident."

Charge point hosts, whether fleet operators or fuel forecourts, will also start to expect best-practice PPMs that include comprehensive testing and record-keeping.

"I have Fluke equipment that is over 30 years old and still doing its job. I trust it to work when I need it."

Maintenance that earns its keep

“Reliability of charge points is a key performance indicator that, whether formally or informally, will rank CPOs against their competitors,” Mark says. “PPMs can be a revenue generator for the business, one that protects the interests of the operator, the client and the end user. Reactive maintenance is typically a cost, not a revenue.”

His estimates show why. A reactive call typically means 2 hours’ return travel and at least 1 hour on site, so he expects an average reactive call to take 3.5 hours.

“Between wages, fuel and sundries, the cost can be estimated at approx. €200 or more per call excluding spare parts.”

A single charging station offline for 4 hours during the day “could easily be expected to lose over €100 revenue,” and “4 hours could be 8 or more disappointed EV drivers.”

Scheduled visits to multiple charge points keep the staff overhead down. “This investment and its resultant revenue must be protected,” Mark says of the growing charging network.

Building confidence as the market grows

E-mobility is still in an early stage, and confidence is being built, Mark says. The car and van market is proving itself, and the HDV market is looking to follow. “Because this sector is very much based on revenue generation and management of overheads, it is crucial that charge point reliability is maintained, so that fleet operators gain confidence.”

As the market matures, he expects the industry to settle into a business-as-usual mode, with preventive maintenance and comprehensive testing reducing opinions the perception that charge points are “always giving trouble.”



For Mark, that is where the FEV500 fits.

“The FEV500 can play a significant part in ensuring this reliability and charge point up-time.”

See how the FEV500 can speed up your DC charge point testing.



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