

**MOBILE ENERGY SOLUTIONS FOR ENHANCED RELIABILITY, RESILIENCY, AND ELECTRIFICATION**

# Regenerative High-Power, Electric-Vehicle Simulator and Tester

An outdoor rated device designed to simulate an Electric Vehicle (EV) to test dc fast chargers or ultra-fast chargers. Solution is capable of EV communications using either CCS1 or CCS2 EV chargers.

The solution can emulate an end-to-end EV charging process up to the rated dc capacity of a charger, with or without using any battery storage system. Solution is also available as rack-mounted for indoor setups.

## Applications

- DC fast and ultra-fast charger testing, including:
  - Safety and functional testing (following IEC 61851).
  - Interoperability and conformance testing (CharIN-CCS, ISO 15118).
  - Analysis of Vehicle-to-Grid Integration (VGI) and any impact on host systems (SAE J2894).
- Cybersecurity testing of EV chargers, using a third-party controller interface.

## Why use a simulator?

### Limits of Existing Alternatives

- Limited charging power due to available cars in market.
- Fixed battery characteristics per EV.
- Tests repeatability issues due to inability to set initial conditions.
- Safety concerns with EVSE failure during tests.

### How Can Our Solution Help?

- High-power testing up to 500 kW, 1,000 V, 500 A dc.
- Adjustable user-specific battery characteristics.
- Adjustable test conditions offering easy repeatability.
- Designed for testing chargers with safety features.

## Features and Benefits

- High-power testing.
- Built-in library of EVs with selectable initial condition.
- Regenerative / minimizing losses during simulations.
- Programmable and repeatable test procedures.
- Provides interface for third-party controllers.
- Compliant with ISO 15118 dc EV communication, with IEC 61851-23 for CCS2 coupler interface, and SAE J1772 for CCS1 coupler interface.



**PICTURED:** Solution ultra-fast R-Series exterior and interior (containerized version)

## CONTACT US:

647-278-5883

[innoversa.ca](http://innoversa.ca)

[info@innoversa.ca](mailto:info@innoversa.ca)

Model	Fast Charger Tester B-Series	Fast Charger Tester R-Series	Ultra-Fast Charger Tester R-Series
Power range (charge)	25 kW - 100 kW	50 kW-250 kW	250 kW-500 kW
Maximum dc current (charge)	280 A	250 A	500 A
DC voltage range (charge)	350 V - 500 V	330 V - 1,000 V	730 V - 1,000 V
Tap box connection (for regenerative output, three-phase plus ground, four wires)	----	480 Vac / 600 A, 60 Hz	480 Vac / 600 A, 60 Hz
Container auxiliary power (split-phase plus ground, four wires)		120 / 240 Vac, 30 A, 60 Hz	
Regenerative or battery-based	Battery	Regenerative	Regenerative
Indoor / outdoor rated		Rack-mounted (indoor); containerized (outdoor)	

Item	Indoor-rated Lab Version B-Series	Indoor-rated Lab Version R-Series	Containerized Solutions
Dimensions (H x W x D)	<ul style="list-style-type: none"> <li>Battery setup: 4' x 8' x 4'</li> <li>Control rack: One rack (19" 27-U)</li> </ul>	<ul style="list-style-type: none"> <li>Transformer: 5' x 4' x 3.6'</li> <li>Power conversion system: 7' x 2' x 4'</li> <li>AC/DC and control panel: 7' x 6' x 3'</li> </ul>	Standard sea container
Ambient operating temperature	+65 °F to +75 °F (18 °C to 24 °C)	+65 °F to +75 °F (18 °C to 24 °C)	-20 °F to +110 °F (-29 °C to +43 °C)


**Innoversa Mobile Solutions, Ltd.**  
280 Applewood Crescent, Unit 1  
Concord, Ontario L4K 4E5 Canada

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**CONTACT US:**

 647-278-5883

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 [info@innoversa.ca](mailto:info@innoversa.ca)