

# Fermata Energy V2X Grid Interconnection

TSRG Presentation

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# V2X Technology Overview

## V2X-DC Offboard Power Conversion



Nissan LEAF

- Battery data

Fermata Energy FE-15 (15 kW)

- Site data
- Smart functions
- Bidirectional power converter (Inverter)

# Fermata FE-15 Bidirectional Charger is UL 9741, UL 1741, and IEEE 1547 Certified

**CERTIFICATE OF COMPLIANCE**

Certificate Number E499555  
 Report Reference E499555-20200226  
 Issue Date 2020-MARCH-04

Issued to: Fermata, LLC  
 1705 Lambs Rd  
 Charlottesville VA 22901

This certificate confirms that representative samples of STATIC INVERTERS, CONVERTERS AND ACCESSORIES FOR USE IN INDEPENDENT POWER SYSTEMS ; ELECTRIC VEHICLE CHARGING SYSTEM EQUIPMENT WITH BIDIRECTIONAL CAPABILITY Bi-Directional Electric Vehicle Charging Equipment (EVCE), and Utility Interactive Inverter Model FE-15.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: See Addendum Page  
 Additional Information: See the UL Online Certifications Directory at <https://iq.ulprospector.com> for additional information.

This Certificate of Compliance does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

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This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Standard for Software in Programmable Components, ANSI/UL 1998.

UL 9741, Outline of Investigation for Bidirectional Electric Vehicle (EV) Charging System Equipment.

ANSI/UL 1741, Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources.

and IEEE 1547, "IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems."

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**FERMATA ENERGY**

MODEL **FE - 15**

SERIAL # 0135

Utility Interactive Inverter  
 Bidirectional Electrical Vehicle Charger  
 This device only supports the Nissan LEAF

**AC (GRID) PORT**  
 Normal AC Voltage 277 / 480 3Ø VAC  
 Operating Voltage Range 244-55 L-N VAC  
 422-528 L-L VAC  
 Nominal Frequency 60 Hz  
 Cont. Operating Freq. Range 58.3 to 60.5 Hz  
 Rated Power 15 kW  
 Default Power Factor 1.0  
 Max. Operating Current 21 A  
 Over Current Protection 30 A  
 Max Input Short Circuit Current 48A / 0.008 S  
 Max Feedback Current 188 A

**DC (VEHICLE) PORT**  
 Normal DC Voltage 380 VDC  
 Operating Voltage Range 220 to 500 VDC  
 Maximum Operating Current 73 ADC  
 Maximum Voltage 600 VDC  
 Rated Power 16 kW  
 Max. Input Short Circuit Current 1900 A

**ENVIRONMENTAL**  
 Enclosure Rating Type 3R1 Rainproof  
 Operating Temp. Range 5° to 40° C  
 Storage Temp. Range -40° to 80° C  
 Mounting (Floor or Wall)

**REGULATORY**  
 UL E-File Number E499555  
 UL Certified UL1741, UL9741  
 UL 2231, IEEE 1547

**DANGER**  
 Multiple power sources are terminated inside this equipment. Each circuit must be individually disconnected before servicing.

**ATTENTION**  
 Please refer to Owner's Manual and/or Installation Manual for tightening torque specification of field wiring terminals. Use only copper conductors.

**CAUTION**  
 Risk of electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

**CAUTION**  
 Have defective cords or wires replaced immediately by a qualified service person.

**WARNING**  
 This equipment is intended only for charging vehicles not requiring ventilation during charging.  
 Do not remove cover until 2 minutes after disconnecting all sources of supply.

See installation instructions before connecting to the supply.

**REGULATORY**

UL E-File Number E499555  
 UL Certified UL1741, UL9741  
 UL 2231, IEEE 1547

E499555

# For TSRG Consideration

1. Next steps to interconnect six small (15 kW - 30 kW) non-exporting V2X projects with a total of nine UL certified bidirectional chargers for light-duty vehicles
2. Interconnection application process revisions for an emerging technology--bidirectional chargers: don't fit in traditional generation or stationary energy storage categories