



Letter of Conformity for Grid Support Interactive Inverter

UL STANDARD No. 1741-SECOND EDITION SUPPLEMENT SA

Reference Certificate: 2779302

Master Contract: 203213

Project: 70163419

Date Issued: 2017-12-21

Issued to: **Fronius International GmbH**
Guenter Fronius Strasse 1
Wels-Thalheim, 4600
AUSTRIA

The products listed below have been found to comply with the applicable requirements of UL 1741-Second Edition (Rev. September 7, 2016) Supplement SA - GRID SUPPORT UTILITY INTERACTIVE INVERTERS AND CONVERTERS.

Thian (Peter) Lim

Issued by:

Thian (Peter) Lim

Transformerless Special Purpose Grid Support Interactive Inverter, Models Fronius Primo 3.8-1 208-240, Fronius Primo 5.0-1 208-240, Fronius Primo 6.0-1 208-240, Fronius Primo 7.6-1 208-240 and Fronius Primo 8.2-1 208-240, permanently connected.

For details related to rating, reference should be made to the CSA Certification Record, the Descriptive Report or Annex A Ratings for Certificate of Conformance.

APPLICABLE REQUIREMENTS

*UL Std No. 1741-Second Edition - Inverters, Converters, Controllers and Interconnection System Equipment For Use With Distributed Energy Sources (Rev. September 7, 2016)

*Note: Conformity to UL 1741-Second Edition (Rev. September 7, 2016) includes compliance with applicable requirements of UL1741 Supplement SA - GRID SUPPORT UTILITY INTERACTIVE INVERTERS AND CONVERTERS, California Rule 21(SRDs), Hawaiian Electric Co. Rule 14, Hawaiian Electric Co. SRD-UL-1741-SA-V1.0, IEEE 1547 and IEEE 1547.1



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Supplement to Letter of Conformity for Grid Support Interactive Inverter

Product Tested	Fronius Primo 8.2-1 208-240 (representative of series)
Firm ware and Checksum	ReCerbo (U2 on ReCerbo) ST Microelectronics / STM32F437IIH6 (U2) SW Version: V0.3.14.7 (2017-05-11) Checksum: 0x043E90A76F 0xA377597C27 0x9E962AC18E 0xE480FA2AC4
	PS1 – Roach (U4 on ROACH02) ST Mircoelectronics /STM32F405ZG (U4) SW Version: V0.26.9.10 (2017-07-14) Checksum: 0x24655cca
	PS2 – Guard (U7 on PRIMOFIL8) ST Mircoelectronics /STM32F415VG (U7) SW version: V0.10.9.0 (2017-11-10) Checksum: 0xab23f31a

Tests were performed on model Fronius Primo 8.2-1 208-240 (representative of series), at Fronius International GmbH, Guenter Fronius Strasse 1, Wels-Thalheim, 4600 Austria under the CSA SMTC program.

The following tests were performed under the requirements of UL 1741-2nd Edition with SUPPLEMENT SA - GRID SUPPORT UTILITY INTERACTIVE INVERTERS AND CONVERTERS (September 7th, 2017) with acceptable results.



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General Overview of UL 1741 Evaluations: UL 1741 2 nd With SUPPLEMENT SA - GRID SUPPORT UTILITY INTERACTIVE INVERTERS AND CONVERTERS		
UL1741 – SA	Applicable Requirement/Topic	Comment
UL1741 - SA8	Anti-islanding Protection - Unintentional Islanding with Grid Support Functions Enabled	PASS
UL1741 - SA9 (Electric Rule No. 21 Table Hh.1)	L/HVRT Low and High Voltage Ride-Through	PASS
UL1741 - SA10 (Electric Rule No. 21 Table Hh.2)	L/HFRT Low and High Frequency Ride-Through	PASS
UL1741 - SA11 Electric (Rule No. 21 Hh.2k)	RR – Normal Ramp Rate and SS – Soft-Start Ramp Rate	PASS
UL1741 - SA12 (Electric Rule No. 21 Hh.2i)	SPF – Specified Power Factor	PASS
UL1741 - SA13 (Electric Rule No. 21 Hh.2J)	Volt/VAr Mode (Q(V)	PASS
UL1741 - SA14 (Electric Rule No. 21 Hh.2.l)	Frequency-Watt (FW) – Optional	PASS
UL1741 - SA15 (Electric Rule No. 21 Hh.2.m)	Volt-Watt (VW) – Optional	PASS

Note: Firmware update for this project involved only the Filter (PS2, safety platform ZEUS with Guard μ C), this change did not include the Kronos platform (which affect power stage). The power stage μ C and guard μ C are two completely independent units with two different software binaries. Therefore, no further UL1741 SA test requirements were repeated except IEEE 1547 for V&F Variation, Anti-Islanding, Arc flash and Insulation resistance with acceptable results (refer to CSA Certification report).



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Product Certification History

Project	Date	Description
70163419	2017-12-22	Update report 2779302 to evaluate firmware changes that address software bugs associated with PS2 filter stage issues.
70152937	2017-09-22	Update report 2779302 to include change in Firmware Numbering to facilitate set-up for existing UL1741 SA certified models.
70130870	2017-07-07	Update Primo Series Report 2779302 to include new UL1741 SA.