



Letter of Conformity for Grid Support Interactive Inverter

UL STANDARD No. 1741-SECOND EDITION SUPPLEMENT SA

Reference Certificate: 70050250

Master Contract: 203213

Project: 70163422

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.

Issued by: *Thian (Peter) Lim*
Thian (Peter) Lim

Transformerless Special Purpose Grid Support Interactive Inverter, Model Fronius Symo 15.0-3 208, 3phase, permanently connected, system ratings as follows:

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:** For Model Fronius Symo 15.0-3 208, 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, IEEE1547a and IEEE 1547.1.



Reference Certificate: 70050250
Project: 70163422

Master Contract: 203213
Date Issued: 2017-12-21

Supplement to Letter of Conformity for Grid Support Interactive Inverter

Firmware Revision:

Product Tested	Fronius Symo 15.0-3 208
Firm ware and Checksum	<p>ReCerbo (U2 on ReCerbo) ST Microelectronics / STM32F437IIH6 SW Version: V0.3.14.8 (23/06/2017) Checksum: #1 546161d19b #2 Ad5131c9ee #3 Bd4fd7cb87 #4 B86c053f3a</p> <p>PS1 – Roach (U4 on ROACH02) ST Mircoelectronics /STM32F405ZG (U4) SW Version: V0.26.14.0 (07/08/2017) Checksum: 0x63e40f20</p> <p>PS2 – Guard (U7 on ECOFIL15US) ST Mircoelectronics /STM32F415VG (U7) SW version: V0.10.9.0 (10/11/2017) Checksum: 0xab23f31a</p>

Tests were performed on model Fronius **Symo 15.0-3 208**, at Fronius International GmbH, Guenter Fronius Strasse 1, Wels-Thalheim, 4600 Austria under the CSA SMTC program, witness by CSA certifier.

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

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



Reference Certificate: 70050250	Master Contract: 203213
Project: 70163422	Date Issued: 2017-12-21

UL1741 - SA14 (Electric Rule No. 21 Hh.2.1)	Frequency-Watt (FW) – Optional	PASS
UL1741 - SA15 (Electric Rule No. 21 Hh.2.m)	Volt-Watt (VW) – Optional	PASS

Note:

- (1) **PS1's U4 firmware software version was updated to correct previous typographical errors.**
- (2) **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.**



Reference Certificate: 70050250
Project: 70163422

Master Contract: 203213
Date Issued: 2017-12-21

Product Certification History

Project	Date	Description
70163422	2017-12-22	Update Report 70050250 to Evaluate Firmware Changes That Address Software Bugs Associated with Filter Changes Issues (Guard μ C) and minor alternative component update.
70130883	2017-09-27	Update Symo Series Report 70050250 to include new UL1741 SA