



# Letter of Conformity for Grid Support Interactive Inverter

UL STANDARD No. 1741-SECOND EDITION SUPPLEMENT SA

Reference Certificate: 70043714

Master Contract: 203213

Project: 70163420

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, Models Fronius Primo 10.0-1 208-240, Fronius Primo 11.4-1 208-240, Fronius Primo 12.5-1 208-240, and Fronius Primo 15.0-1 208-240, 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, IEEE 1547a and IEEE 1547.1



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### *Supplement to Letter of Conformity for Grid Support Interactive Inverter*

#### **Firmware Revision:**

Product Tested	Fronius Primo 15.0-1 208-240 (representative of series)
Firm ware and Checksum	ReCerbo (U2 on ReCerbo) ST Microelectronics / STM32F437IIH6 (U2) SW Version: V0.3.14.8 (26/06/2017) Checksum: 546161d19b Ad5131c9ee Bd4fd7cb87 B86c053f3a  PS1 – Roach (U4 on ROACH03) ST Mircoelectronics /STM32F405ZG (U4) SW Version: V0.26.16.0 (10/07/2017)) Checksum: 0x5dca92ea  PS2 – Guard (U7 on PRIMOFIL15) ST Mircoelectronics /STM32F415VG (U7) <b>SW version: V0.10.9.0 (10/11/2017)</b> <b>Checksum: 0xab23f31a</b>

Tests were performed on model Fronius Primo 15.0-1 208-240 (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 with new firmware under the requirements of UL 1741-2<sup>nd</sup> Edition with SUPPLEMENT SA - GRID SUPPORT UTILITY INTERACTIVE INVERTERS AND CONVERTERS (September 7<sup>th</sup>, 2017) with acceptable results:



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General Overview of UL 1741 Evaluations: UL 1741 2 <sup>nd</sup> 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	L/HVRT Low and High Voltage Ride-Through	PASS
UL1741 - SA10	L/HFRT Low and High Frequency Ride-Through	PASS
UL1741 - SA11	RR – Normal Ramp Rate and SS – Soft-Start Ramp Rate	PASS
UL1741 - SA12	SPF – Specified Power Factor	PASS
UL1741 - SA13	Volt/VAr Mode (Q(V))	PASS
UL1741 - SA14	Frequency-Watt (FW) – Optional	PASS
UL1741 - SA15	Volt-Watt (VW) – Optional	PASS

Note: Primo series firmware updated for this project only involved the Filter section (PS2, safety platform ZEUS on guard  $\mu\text{C}$ ), this change did not include the Kronos platform (which affect power stage). The power stage  $\mu\text{C}$  and guard  $\mu\text{C}$  are two completely independent units with two different software binaries. Therefore, no further UL1741 SA test requirements were repeated.



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### Product Certification History

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<b>Project</b>	<b>Date</b>	<b>Description</b>
70163420	2017-12-22	Update report 70043714 to evaluate firmware changes that address software bugs associated with Filter stage changes issues.
70130882	2017-09-22	Update Primo Series (10KW-15KW) Report 70043714 to include new UL1741 SA.