



# Letter of Conformity for Grid Support Interactive Inverter

UL STANDARD No. 1741-THIRD EDITION SUPPLEMENT SA

Reference Certificate: 70043714

Master Contract: 203213

Project: 80158407

Date Issued: 2023-02-17

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- Third Edition (Rev. September 28, 2021) 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- Third Edition - Inverters, Converters, Controllers and Interconnection System Equipment For Use With Distributed Energy Sources (Rev. September 28, 2021)

\*Note: Conformity to UL 1741-Third Edition (Rev. September 28, 2021) includes compliance with applicable requirements of UL1741 Supplement SA 8 to SA 15 - 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 1547:2003, IEEE 1547a and IEEE 1547.1:2005



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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)	
Device	Device Manufacturer/Type	Software Version (release date)	Device Checksum
ReCerbo (U2 on ReCerbo)	ST Microelectronics / STM32F437IIH6 (U2)	V0.3.7.0 (07/14/2015)	033D2FB7BE 3E4429E74E 4B9B77DB18 25A1F7162B
		V0.3.8.2 (10/09/2015)	DAEC969571 B126D12202 800383CC19 6A0D971C36
		V0.3.10.2 (05/04/2016)	B5754C2321 283AA8E595 90C8889239 3F26194BCB
		V0.3.14.9 (2020-06-18)	0xE3492C0519 0xAE4F1889BC 0x7AC2223564 0xDBD515D7FA
		V0.3.25.0 (2020-11-30)	0x42C2680BD0 0xDA43B99DD2 0xEE36096821 0xEF8FE850F1
PS1 – Roach (U4 on ROACH03)	ST Microelectronics / STM32F405ZG (U4) <u>Alternative:</u> ST Microelectronics / STM32F407XX(U4)	V0.18.8.3 (08/21/2015)	0x7d2799ea
		V0.18.16.3 (10/14/2015)	0xc182aa5f
		V0.18.46.3 (29/03/2016)	0x66FFBF09
		V0.18.50.3 (26/07/2016)	0x04c39395
		V0.26.16.0 (10/07/2017/ V1.5.1.1 (2021-02-11)	0x5dca92ea 0xffc6b806
PS2 – Guard (U7 on PRIMOFIL15)	ST Microelectronics / STM32F415VG (U7)	V0.6.18.4 (08/21/2015)	0xea600a4
		V0.6.26.4 (10/09/2015)	0xecaa75edd
		V0.6.32.4 (07/04/2016)	0x2283EDD6
		V0.6.34.4 (10/06/2016)	0x3a229e91
		V0.10.7.0 (05/09/2017)	0x998c8938
		V0.10.9.0 (10/11/2017) V0.11.8.1 (2021-03-09)	0xab23f31a 0xea584008



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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 under the requirements of UL 1741- 3<sup>rd</sup> Edition with SUPPLEMENT SA - GRID SUPPORT UTILITY INTERACTIVE INVERTERS AND CONVERTERS (September 28<sup>th</sup>, 2021) with acceptable results:

General Overview of UL 1741 Evaluations: UL 1741 3 <sup>rd</sup> Edition 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

Grid Support Interactive Inverters certified with Reactive Power Priority				
Inverter Manufacturer Company Name	New Model numbers to be listed with CEC list[Nominal Voltage]	Question #1 (Y/N)	Question #2 (Y/N)	Question #3 (Y/N)
Fronius International GmbH	Fronius Primo 10.0-1 208-240,		Y	Y
Fronius International GmbH	Fronius Primo 11.4-1 208-240, 0		Y	Y
Fronius International GmbH	Fronius Primo 12.5-1 208-240		Y	Y
Fronius International GmbH	Fronius Primo 15.0-1 208-240		Y	Y



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### Product Certification History

Project	Date	Description
80158407	2023-02-17	Update report 70043714 to include alternate Fuse holder, Line to ground cap, opto isolator, PTC, alternate fan, and Current sensor with the same form, fit and function or better specification. Due to the nature of the above changes, no further testing is deemed necessary.
80106345	2022-03-26	Update report 70043714 to include software bugfixes and some alternative components.
80048720	2020-07-20	Update report 70043714 to include new RECEBRO Firmware revision number for the increase in initial programming initialization timing slot from 80ms to 125 ms to accommodate hardware tolerances. The change on this parameter has no impact on grid tie and factory testing except factory programming's initialization timing. Therefore, no further testing is deemed necessary.
80045323	2020-06-15	Update report 70043714 to include an alternate MCUs which is identical to the original model STM32F405 except alternate Micro STM32F407 has two additional features (I.e. Ethernet + camera interface which are not deployed). Since firmware version remains the same and the hardware functional features including form and fit are compatible, no further testing is deemed necessary.
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.