



Letter of Conformity for Grid Support Interactive Inverter

UL STANDARD No. 1741- THIRD EDITION SUPPLEMENT SA

Reference Certificate: 70050250

Master Contract: 203213

Project: 80158406

Date Issued 2022-02-17

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, 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-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 - 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

New Firmware Version			
Device	Device Manufacturer/Type	Software Version (Release Date)	Device Checksum
ReCerbo (U2 on ReCerbo)	ST Microelectronics / STM32F437IIH6 (U2)	V0.3.25.0 (2020-11-30)	#1 0x42C2680BD0 #2 0xDA43B99DD2 #3 0xEE36096821 #4 0xEF8FE850F1
PS1 – Roach (U4 on ROACH)	ST Microelectronics / STM32F405ZG (U4) <u>Alterative:</u> ST Microelectronics / STM32F407XX(U4)	V1.5.1.1 (2021-02-11)	0xffc6b806
PS2 – Guard (U7 on ECOFIL15US)	ST Microelectronics / STM32F415VG (U7)	V0.11.8.1 (2021-03-09)	0xea584008

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 1741-3rd Edition with SUPPLEMENT SA - GRID SUPPORT UTILITY INTERACTIVE INVERTERS AND CONVERTERS (September 28th, 2021) with acceptable results.

General Overview of UL 1741 Evaluations: UL 1741 3 rd 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 (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.2.1)	Frequency-Watt (FW) – Optional	PASS
UL1741 - SA15	Volt-Watt (VW) – Optional	PASS



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UL1741 – SA	Applicable Requirement/Topic	Comment
(Electric Rule No. 21 Hh.2.m)		

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 Symo 15.0-3 208		Y	Y



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Product Certification History

Project	Date	Description
80158406	2023-02-16	Update report 70050250 to include alternate Fuse holder and AC Inductor from another manufacturer of the same construction with similar form fit and function or better. Due to the nature of the changes as state above, no further testing is deemed necessary.
80106343	2022-03-28	Update report 70050250 to include software bugfixes and some alternative components.
80048716	2020-07-28	Update report 70050250 to include new RECEBRO Firmware revision number for the increase in initial programing initialization timing slot from 80ms to 125ms to accommodate hardware tolerances. The change on this parameter has no impact on grid tie and factory testing except factory programing's initialization timing. Therefore, no further testing is deemed necessary.
80045327	2020-06-15	Update report 70050250 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), firmware version remains the same.
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