



# FRONIUS SYMO ADVANCED

Powering three-phase projects that last - now with integrated SunSpec PLC



/ PC Board Replacement



/ SnapInverter Mounting System



/ Integrated Data Communication



/ Design Flexibility



/ Smart Grid Ready



/ Power Line Communication integrated



Featuring ten models ranging from 10 kW to 24 kW, the Fronius Symo Advanced is the ideal inverter for commercial applications. The new Advanced versions combine the benefits of the Fronius Symo with additional value for states with Module Level Shutdown requirements including integrated PLC transmitter for SunSpec Rapid Shutdown communication standard, compliance with NEC pre-2014, 2014 and 2017, zero tilt mounting, light weight and field serviceability.

## TECHNICAL DATA FRONIUS SYMO (208-240V VERSIONS)

INPUT DATA		SYMO 10.0-3 208-240	SYMO 12.0-3 208-240
Recommended PV power (kWp)		8.0 - 13.0	9.5 - 15.5
Max. usable input current (MPPT1/MPPT 2)			25.0 A / 16.5 A
Max. usable input current total (MPPT 1 + MPPT 2)			41.5 A
Max. array short circuit current			37.5 A / 24.8 A
Nominal input voltage	208 V	350 V	350 V
	240 V	370 V	370 V
	480 V	N/A	N/A
Operating voltage range			200-600 V
DC startup voltage			200 V
MPP Voltage range			300-500 V
Max. input voltage			600 V
Admissible conductor size DC		AWG 14-AWG 6 copper direct, AWG 6 aluminum direct, AWG 4-AWG 2 copper or aluminum with input combiner	
Integrated DC string fuse holders			NA
Max (Isc) input terminal rating			33A
Number of MPPT			2

OUTPUT DATA		SYMO 10.0-3 208-240	SYMO 12.0-3 208-240
Max. output power	208 V	9995 VA	11995 VA
	240 V	9995 VA	11995 VA
	480 V	NA	NA
Output configuration			208/240 V
Frequency range (adjustable)			45-65 Hz
Nominal operating frequency			60 Hz
Admissible conductor size AC			AWG 14-AWG 6
Total harmonic distortion		<1.5 %	<1.75 %
Power factor range			Adjustable 0.85 leading to 0.85 lagging
Max. continuous output current	208 V	27.7 A	33.3 A
	240 V	24.0 A	28.9 A
	480 V	NA	NA
OCPD/AC breaker size	208 V	35 A	45 A
	240 V	30 A	40 A
	480 V	NA	NA
Max. Efficiency		97.0 %	97.0 %
CEC Efficiency	208 V	96.5 %	96.5 %
	240 V	96.5 %	96.5 %
	480 V	NA	NA

## TECHNICAL DATA FRONIUS SYMO (208-240V VERSIONS)

GENERAL DATA	STANDARD WITH ALL FRONIUS SYMO MODELS
Dimensions (width x height x depth)	20.1 x 28.5 x 8.9 inches
Protection Class	NEMA 4X
Night time consumption	< 1 W
Inverter topology	Transformerless
Cooling	Variable speed fan
Installation	Indoor and outdoor installation, tilt from 0 - 90 degrees*
Ambient operating temperature range	-40°F - + 140 °F (-40 - +60 °C)
Permitted humidity	0 - 100 % (non-condensing)
Elevation	2000 m (6562 ft) with a max. input voltage of 1000 V / 3400 m (11155 ft) with a max. input voltage of 850 V
DC connection terminals	6x DC+ and 6x DC- screw terminals for copper (solid / stranded / fine stranded) or aluminum (solid / stranded)
AC connection terminals	Screw terminals 14-6 AWG
Certificates and compliance with standards	UL 1741-2010 Second Edition (incl. UL1741 Supplement SA 2016-09 for California Rule 21 and Hawaiian Electric Code Rule 14H), UL1998 (for functions: AFCI, RCMU and isolation monitoring), IEEE 1547-2003, IEEE 1547a-2014, IEEE 1547.1-2003, ANSI/IEEE C62.41, FCC Part 15 A & B, NEC 2017 Article 690, C22. 2 No. 107.1-16, UL1699B Issue 2 -2013, CSA TIL M-07 Issue 1 -2013

GENERAL DATA	SYMO 10.0-3 208-240	SYMO 12.0-3 208-240
Weight	91.9 lbs.	

PROTECTIVE DEVICES	STANDARD WITH ALL FRONIUS SYMO MODELS
DC reverse polarity protection	Yes
Anti islanding	Internal; in accordance with UL 1741-2010, IEEE 1547-2003 and NEC
Over temperature protection	Output power derating /Active cooling
AFCI	Yes
Rapid shutdown compliant	Yes
Ground Fault Protection with Isolation Monitor Interrupter	Yes
DC disconnect	Yes

INTERFACES	AVAILABLE WITH ALL FRONIUS SYMO MODELS
USB (A socket)	Datalogging and inverter update possible via USB
2x RS422 (RJ45 socket)	Fronius Solar Net, interface protocol
<b>AVAILABLE WITH THE FRONIUS DATAMANAGER 2.0 CARD ( ONLY ONE CARD REQUIRED FOR UP TO 100 INVERTERS )</b>	
Wi-Fi/Ethernet/Serial/ Datalogger and webserver	Wireless standard 802.11 b/g/n / Fronius Solar.web, SunSpec Modbus TCP, JSON / SunSpec Modbus RTU
6 inputs and 4 digital I/Os	Load management; signaling, multipurpose I/O
Power Line Communication (PLC)	Yes – SunSpec Rapid Shutdown communication standard
Compatible Module Level Electronic	Tigo TS4-F based on SunSpec PLC (pending testing)

## TECHNICAL DATA FRONIUS SYMO (480V VERSIONS)

INPUT DATA	SYMO 15.0-3 480	SYMO 20.0-3 480	SYMO 22.7-3 480	SYMO 24.0-3 480
Recommended PV power (kWp)	12.0 – 19.5	16.0 - 26.0	18.0 - 29.5	19.0 - 31.0
Max. usable input current (MPPT1/MPPT 2)	33.0 A / 25.0 A			
Max. usable input current total (MPPT 1 + MPPT 2)	51 A			
Max. array short circuit current (MPPT 1/MPPT 2)	49.5 A / 37.5 A			
Nominal input voltage	480 V	685 V	710 V	720 V
Operating voltage range	200-1000 V			
DC startup voltage	200 V			
MPP-voltage range	350-800 V	450-800 V	500-800 V	
Max. input voltage	1000 V			
Admissible conductor size DC	AWG 14 - AWG 6 copper direct, AWG 6 aluminum direct, AWG 4 - AWG 2 copper or aluminum with input combiner			
Integrated DC string fuse holders	NA		6- and 6+	
Max (Isc) input terminal rating	33A		15A	
Number of MPPT	2			

\* Fronius Shade Cover required for installation angles less than 15 degrees

## TECHNICAL DATA FRONIUS SYMO (480V VERSIONS)

OUTPUT DATA		SYMO 15.0-3 480	SYMO 20.0-3 480	SYMO 22.7-3 480	SYMO 24.0-3 480
Max. output power	480 V	14995 VA	19995 VA	22727 VA	23995 VA
Output configuration		480 V Delta +N**			
Frequency range (adjustable)		45-65 Hz			
Nominal operating frequency		60 Hz			
Admissible conductor size (AC)		AWG 14-AWG 6			
Total harmonic distortion		<1.5 %	<1.0 %	<1.25 %	<1.0 %
Power factor range		Adjustable 0.85 leading to 0.85 lagging			
Max. continuous output current	480 V	18.0 A	24.0 A	27.3 A	28.9 A
OCPD/AC breaker size	480 V	25 A	30 A	35 A	40 A
Max. Efficiency		98.0 %			
CEC Efficiency	480 V	97.0 %	97.5 %	97.5 %	97.5 %

GENERAL DATA	STANDARD WITH ALL FRONIUS SYMO MODELS				
Dimensions (width x height x depth)	20.1 x 28.5 x 8.9 inches				
Protection Class	NEMA 4X				
Night time consumption	< 1 W				
Inverter topology	Transformerless				
Cooling	Variable speed fan				
Installation	Indoor and outdoor installation, tilt from 0 - 90 degree*				
Ambient operating temperature range	-40°F - + 140 °F (-40 - +60 °C)				
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GENERAL DATA	SYMO 15.0-3 480	SYMO 20.0-3 480	SYMO 22.7-3 480	SYMO 24.0-3 480
Weight	95.7 lbs.			

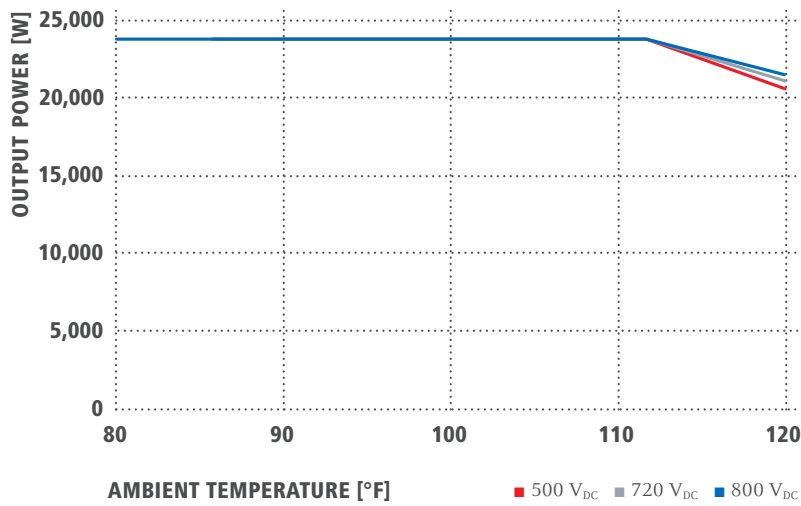
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AFCI	Yes				
Rapid shutdown compliant	Yes				
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DC disconnect	Yes				

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6 inputs and 4 digital I/Os	Load management; signaling, multipurpose I/O				
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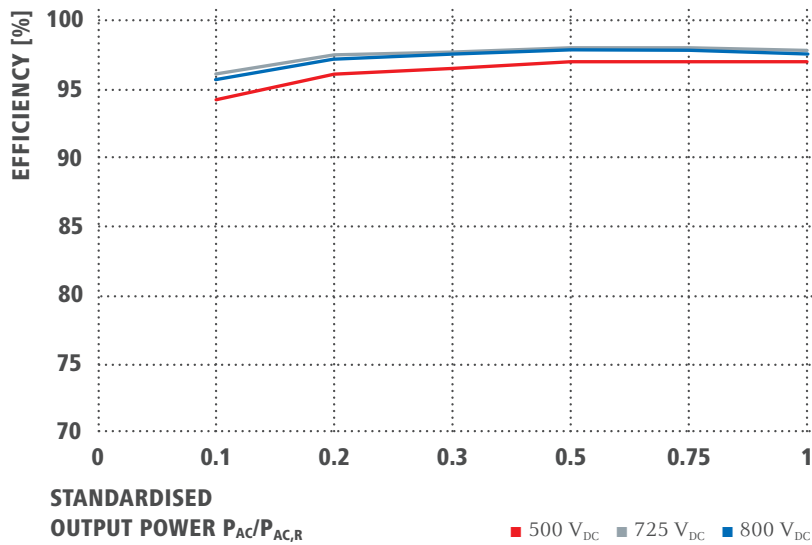
\*\*+N for sensing purposes - no current carrying conductor.

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## FRONIUS SYMO 24.0-3 480 TEMPERATURE DERATING CURVE



## FRONIUS SYMO 24.0-3 480 CEC EFFICIENCY CURVE



/ Perfect Welding / Solar Energy / Perfect Charging

### THREE BUSINESS UNITS, ONE GOAL: TO SET THE STANDARD THROUGH TECHNOLOGICAL ADVANCEMENT.

What began in 1945 as a one-man operation now sets technological standards in the fields of welding technology, photovoltaics and battery charging. Today, the company has around 3,800 employees worldwide and 1,242 patents for product development show the innovative spirit within the company. Sustainable development means for us to implement environmentally relevant and social aspects equally with economic factors. Our goal has remained constant throughout: to be the innovation leader.

Further information about all Fronius products and our global sales partners and representatives can be found at [www.fronius.com](http://www.fronius.com)

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