



# FRONIUS SYMO

Powering commercial projects that last.  
The Fronius Symo.



PC board replacement concept



SnapInverter mounting system



Smart Grid Ready



Design Flexibility

The transformerless Fronius Symo is the ideal compact three-phase inverter for all commercial applications. The high system voltage and wide input range ensure maximum flexibility in system design. With low roof loading, NEMA4X and 1,000 V DC rating, the Fronius Symo can be mounted in many different ways, including flat on a roof or on a pole. The modern design is equipped with the SnapInverter mounting system, allowing for lightweight, secure and convenient installation.

## TECHNICAL DATA FRONIUS SYMO

INPUT DATA	SYMO 10.0-3 208-240	SYMO 12.0-3 208-240	SYMO 10.0-3 480	SYMO 12.5-3 480	SYMO 15.0-3 208
Recommended PV power (kWp)	8.0 - 13.0	9.5 - 15.5	8.0 - 13.0	10.0 - 16.0	12.0 - 19.5
Max. usable input current (MPPT1/MPPT 2)	25.0 A / 16.5 A				50.0 A
Max. usable input current total (MPPT 1 + MPPT 2)	41.5 A				50.0 A
Max. array short circuit current	37.5 A / 24.8 A				75.0 A
Nominal input voltage	208 V	350 V	350 V	N/A	325 V
	240 V	370 V	370 V	N/A	N/A
	480 V	N/A	N/A	675 V	N/A
Operating voltage range	200 - 600 V		200 - 1,000 V		325 - 1,000 V
DC startup voltage	200 V				360 V
MPP Voltage range	300 - 500 V		300 - 800 V		325 - 850 V
Max. input voltage	600 V		1,000 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			33 A	12 A	
Number of MPPT	2				1

OUTPUT DATA	SYMO 10.0-3 208-240	SYMO 12.0-3 208-240	SYMO 10.0-3 480	SYMO 12.5-3 480	SYMO 15.0-3 208
Max. output power	208 V	9,995 VA	11,995 VA	NA	15,000 VA
	240 V	9,995 VA	11,995 VA	NA	NA
	480 V	NA	NA	9,995 VA	12,495 VA
Output configuration	208/240 V		480 V Delta +N**		208 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 %		<1.5 %
Power factor range	0-1 ind./cap.				
Max. continuous output current	208 V	27.7 A	33.3 A	NA	41.6 A
	240 V	24.0 A	28.9 A	NA	NA
	480 V	NA	NA	12.0 A	15.0 A
OCPD/AC breaker size	208 V	35.0 A	45.0 A	NA	60.0 A
	240 V	30.0 A	40.0 A	NA	NA
	480 V	NA	NA	15.0 A	20.0 A
Max. Efficiency	97.0 %		97.0 %		98.1 %
CEC Efficiency	208 V	96.5 %	96.5 %	NA	96.5 %
	240 V	96.5 %	96.5 %	NA	NA
	480 V	NA	NA	96.5 %	97.0 %

## TECHNICAL DATA (10.0-3 208/240, 12.0-3 208/240, 10.0-3 480, 12.5-3 480, 15.0-3 208)

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
Ambient operating temperature range	-40°F - + 140 °F (-40 - +60 °C)
Permitted humidity	0 - 100 % (non-condensing)
Elevation	2,000 m (6,562 ft) with a max. input voltage of 1,000 V / 3,400 m (11,155 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
Warranty	10 years / extensions up to 15 and 20 years available <sup>1</sup>
Certificates and compliance with standards	UL 1741-2010 Second Edition (incl. UL1741 Supplement SA 2016-09 for California Rule 21), 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

<sup>1</sup> Fronius Limited Warranty Conditions for the USA. Different terms or restrictions may apply in other countries. More Information [www.fronius.us/warranty](http://www.fronius.us/warranty)

GENERAL DATA	SYMO 10.0-3 208-240	SYMO 12.0-3 208-240	SYMO 10.0-3 480	SYMO 12.5-3 480	SYMO 15.0-3 208
Weight	91.9 lbs.		76.7 lbs.		78.3 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 (according to NEC 2014)
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
AVAILABLE WITH THE FRONIUS DATAMANAGER 2.0 CARD ( ONLY ONE CARD REQUIRED FOR UP TO 100 INVERTERS )	
Wi-Fi/Ethernet/Serial/ Datalogger and webservice	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

## TECHNICAL DATA (15.0-3 480, 17.5-3 480, 20.0-3 480, 22.7-3 480, 24.0-3 480)

INPUT DATA	SYMO 15.0-3 480	SYMO 17.5-3 480	SYMO 20.0-3 480	SYMO 22.7-3 480	SYMO 24.0-3 480
Recommended PV power (kWp)	12.0 - 19.5	14.0 - 23.0	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	695 V	710 V	720 V
Operating voltage range	200 - 1,000 V				
DC startup voltage	200 V				
MPP-voltage range	350 - 800 V	400 - 800 V	450 - 800 V	500 - 800 V	
Max. input voltage	1,000 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	NA		6- and 6+	
Max (Isc) input terminal rating	33 A	33 A		12 A	
Number of MPPT	2				

## TECHNICAL DATA (15.0-3 480, 17.5-3 480, 20.0-3 480, 22.7-3 480, 24.0-3 480)

OUTPUT DATA	SYMO 15.0-3 480	SYMO 17.5-3 480	SYMO 20.0-3 480	SYMO 22.7-3 480	SYMO 24.0-3 480
Max. output power	480 V	14,995 VA	17,495 VA	19,995 VA	23,995 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 %	<1.25 %	<1.0 %	<1.25 %	<1.0 %
Power factor range	0 - 1 ind./cap.				
Max. continuous output current	480 V	18.0 A	21.0 A	24.0 A	27.3 A
OCPD/AC breaker size	480 V	25 A	30 A	30 A	35 A
Max. Efficiency	98.0 %				
CEC Efficiency	480 V	97.0 %	97.5 %	97.5 %	97.5 %

## TECHNICAL DATA (15.0-3 480, 17.5-3 480, 20.0-3 480, 22.7-3 480, 24.0-3 480)

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
Ambient operating temperature range	-40°F - + 140 °F (-40 - +60 °C)
Permitted humidity	0 - 100 % (non-condensing)
Elevation	2,000 m (6,562 ft) with a max. input voltage of 1,000 V / 3,400 m (11,155 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
Warranty	10 years / extensions up to 15 and 20 years available <sup>1</sup>
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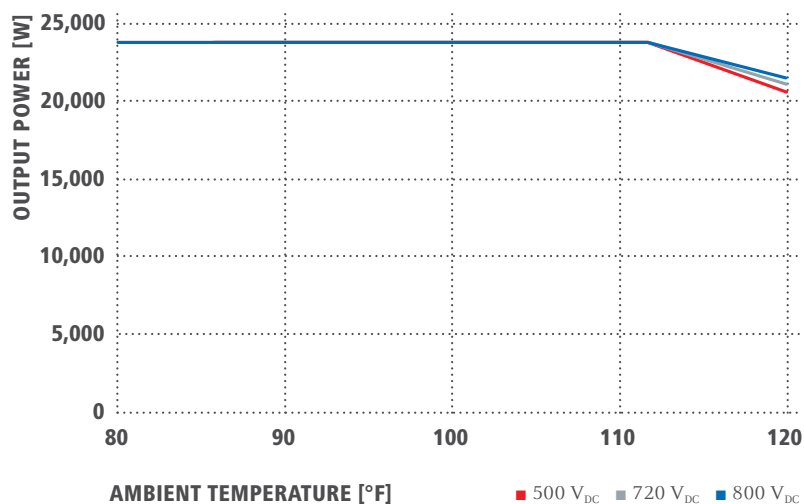
GENERAL DATA	SYMO 15.0-3 480	SYMO 17.5-3 480	SYMO 20.0-3 480	SYMO 22.7-3 480	SYMO 24.0-3 480
Weight	95.7 lbs.				

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 (according to NEC 2014)
Ground Fault Protection with Isolation Monitor Interrupter	Yes
DC disconnect	Yes

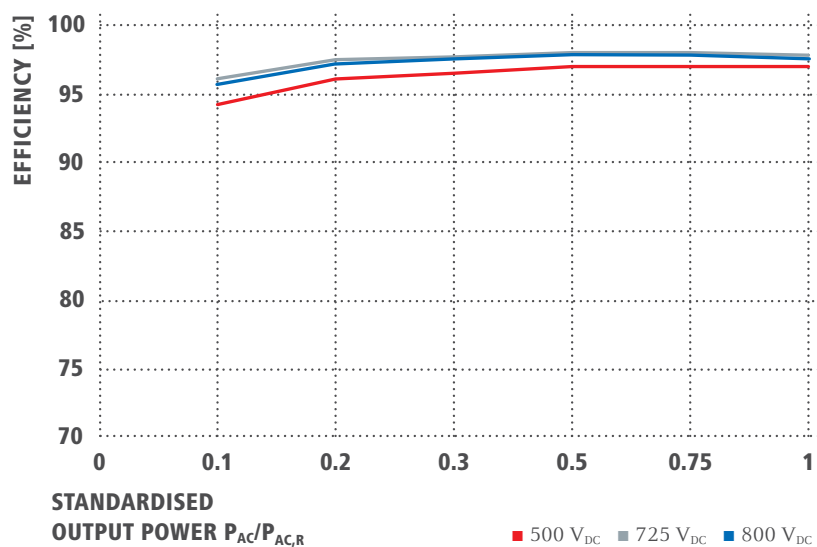
INTERFACES	AVAILABLE WITH ALL FRONIUS SYMO MODELS
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2x RS422 (RJ45 socket)	Fronius Solar Net, interface protocol
AVAILABLE WITH THE FRONIUS DATAMANAGER 2.0 CARD ( ONLY ONE CARD REQUIRED FOR UP TO 100 INVERTERS )	
Wi-Fi/Ethernet/Serial/ Datalogger and 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

\*\*+N FOR SENSING PURPOSES - NO CURRENT CARRYING CONDUCTOR.

## 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 5,660 employees worldwide and 1,321 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)



Fronius USA LLC  
6797 Fronius Drive  
Portage, IN 46368  
USA

[pv-support-usa@fronius.com](mailto:pv-support-usa@fronius.com)  
[www.fronius.us](http://www.fronius.us)