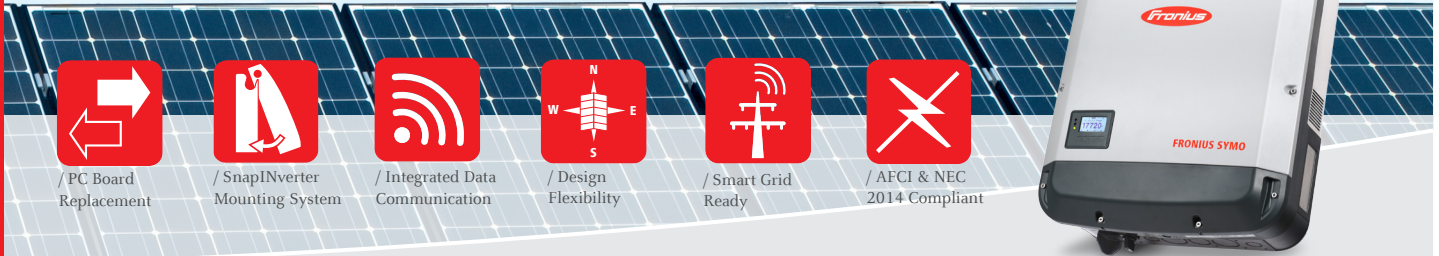




# FRONIUS SYMO

/ Powering commercial projects that last. The Fronius Symo.



/ Featuring ten models ranging from 10 kW to 24 kW, 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, NEMA 4X and 1000 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. Several industry-leading features are available with the Fronius Symo including Wi-Fi®\* and SunSpec Modbus interfaces for seamless monitoring and data-logging, field proven Arc Fault Circuit Interruption (AFCI), NEC 2014 compliant, and Fronius' superb online and mobile monitoring platform Fronius Solar.web.

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	N/A	325 V
	240 V	370 V	370 V	N/A	N/A	N/A
	480 V	N/A	N/A	675 V	685 V	N/A
Operating voltage range		200-600 V		200-1000 V		325-1000 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		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				12A
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	9995 VA	11995 VA	NA	NA	15000 VA
	240 V	9995 VA	11995 VA	NA	NA	NA
	480 V	NA	NA	9995 VA	12495 VA	NA
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 %	<3.5 %
Power factor range		0-1 ind./cap.				
Max. continuous output current	208 V	27.7 A	33.3 A	NA	NA	41.6 A
	240 V	24.0 A	28.9 A	NA	NA	NA
	480 V	NA	NA	12.0 A	15.0 A	NA
OCPD/AC breaker size	208 V	35 A	45 A	NA	NA	60 A
	240 V	30 A	40 A	NA	NA	NA
	480 V	NA	NA	15 A	20 A	NA
Max. Efficiency		97.0 %	97.0 %	98.1 %	98.1 %	97.3%
CEC Efficiency	208 V	96.5 %	96.5 %	NA	NA	96.5%
	240 V	96.5 %	96.5 %	NA	NA	NA
	480 V	NA	NA	96.5 %	97.0 %	NA

## 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	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	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	200-1000 V				
DC startup voltage	200 V				
MPP-voltage range	350-800 V	400-800 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	NA	6- and 6+		
Max (Isc) input terminal rating	33A	33A	12A		
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	14995 VA	17495 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 %	<1.25 %	<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	28.9 A
OCPD/AC breaker size	480 V	25 A	30 A	30 A	35 A	40 A
Max. Efficiency		98.0 %				
CEC Efficiency	480 V	97.0 %	97.5 %	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	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

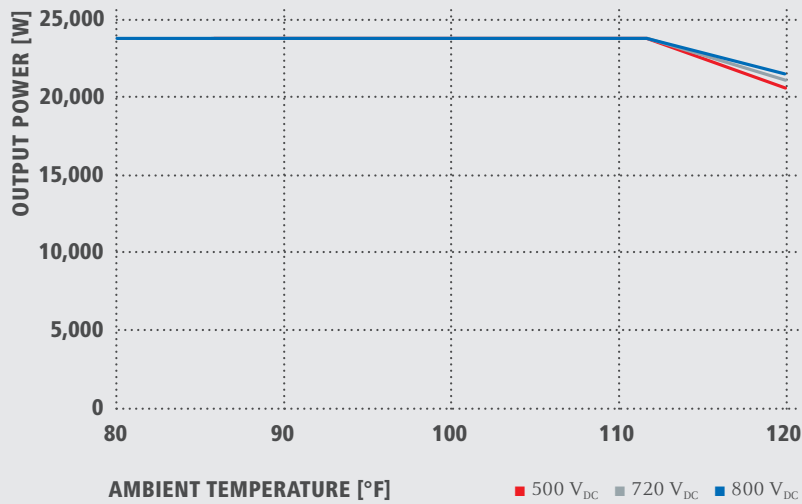
GENERAL DATA	SYMO 15.0-3 480	SYMO 17.5-3 480	SYMO 20.0-3 480	SYMO 22.7-3 480	SYMO 24.0-3 480
Weight	95.7 lbs.				

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

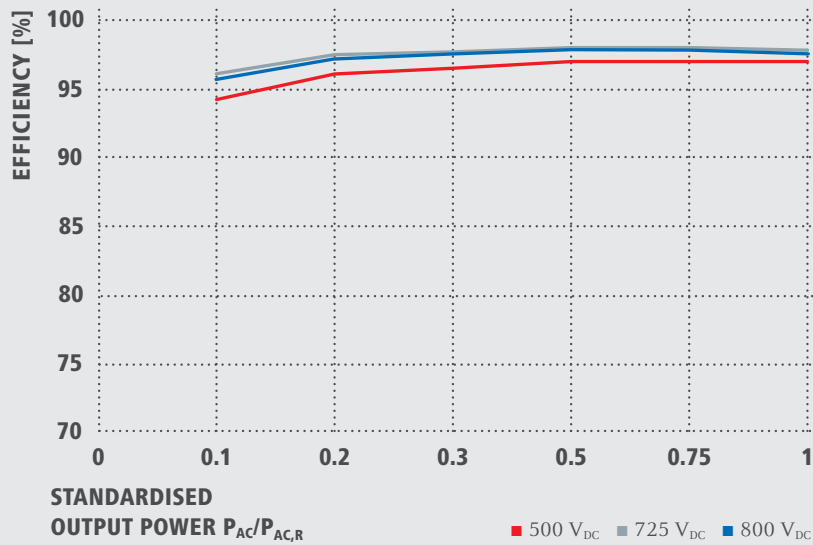
INTERFACES	AVAILABLE WITH ALL FRONIUS SYMO MODELS
USB (A socket)	Datalogging and inverter update possible via USB
2x RS422 (RJ45 socket)	Fronius Solar Net, interface protocol
AVAILABLE WITH THE FRONIUS DATAMANAGER 2.0 CARD ( ONLY ONE CARD REQUIRED FOR UP TO 100 INVERTERS )	
Wi-Fi/Ethernet/Serial/ Datalogger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

#### WE HAVE THREE DIVISIONS AND ONE PASSION: SHIFTING THE LIMITS OF POSSIBILITY.

/ Whether welding technology, photostatic or battery charging technology – our goal is clearly defined: to be the innovation leader. With around 3,700 employees worldwide, we shift the limits of what’s possible - our record of over 800 granted patents is testimony to this. While others progress step by step, we innovate in leaps and bounds. Just as we’ve always done. The responsible use of our resources forms the basis of our corporate policy.

