



# FRONIUS SYMO

/ Maximum flexibility for the applications of tomorrow.



/ SnapInverter technology



/ Integrated data communication



/ SuperFlex Design



/ Dynamic Peak Manager



/ Smart Grid Ready



/ Zero feed-in



/ With power categories ranging from 3.0 to 20.0 kW, the transformerless Fronius Symo is the three-phase inverter for systems of every size. Owing to the SuperFlex Design, the Fronius Symo is the perfect answer to irregularly shaped or multi-oriented roofs. The standard interface to the internet via WLAN or Ethernet and the ease of integration of third-party components make the Fronius Symo one of the most communicative inverters on the market. Furthermore, the meter interface permits dynamic feed-in management and a clear visualisation of the consumption overview.

## TECHNICAL DATA FRONIUS SYMO (3.0-3-S, 3.7-3-S, 4.5-3-S, 3.0-3-M, 3.7-3-M, 4.5-3-M)

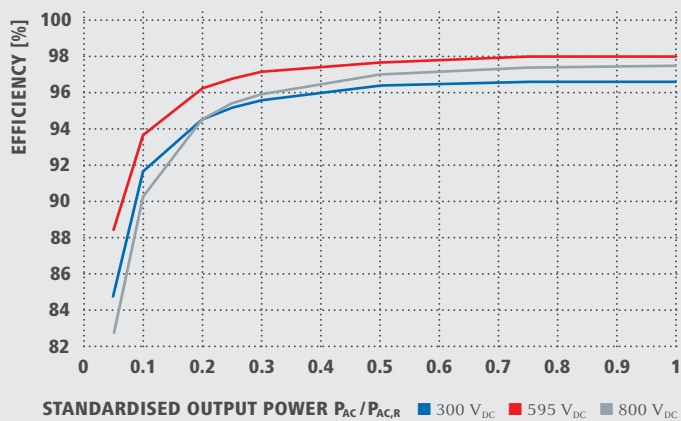
INPUT DATA	SYMO 3.0-3-S	SYMO 3.7-3-S	SYMO 4.5-3-S	SYMO 3.0-3-M	SYMO 3.7-3-M	SYMO 4.5-3-M
Number MPP trackers		1			2	
Max. input current ( $I_{dc \max 1} / I_{dc \max 2}^{1)}$ )		16.0 A			16.0 A / 16.0 A	
Max. array short circuit current (MPP <sub>1</sub> /MPP <sub>2</sub> <sup>1)</sup> )		24.0 A			24.0 A / 24.0 A	
DC input voltage range ( $U_{dc \min} - U_{dc \max}$ )			150 - 1,000 V			
Feed-in start voltage ( $U_{dc \text{ start}}$ )			200 V			
Usable MPP voltage range			150 - 800 V			
Number of DC connections		3			2+2	
Max. PV generator output ( $P_{dc \max}$ )	6.0 kW <sub>peak</sub>	7.4 kW <sub>peak</sub>	9.0 kW <sub>peak</sub>	6.0 kW <sub>peak</sub>	7.4 kW <sub>peak</sub>	9.0 kW <sub>peak</sub>
OUTPUT DATA	SYMO 3.0-3-S	SYMO 3.7-3-S	SYMO 4.5-3-S	SYMO 3.0-3-M	SYMO 3.7-3-M	SYMO 4.5-3-M
AC nominal output ( $P_{ac,r}$ )	3,000 W	3,700 W	4,500 W	3,000 W	3,700 W	4,500 W
Max. output power	3,000 VA	3,700 VA	4,500 VA	3,000 VA	3,700 VA	4,500 VA
AC output current ( $I_{ac \text{ nom}}$ )	4.3 A	5.3 A	6.5 A	4.3 A	5.3 A	6.5 A
Grid connection (voltage range)		3-NPE 400 V / 230 V or 3-NPE 380 V / 220 V (+20 % / -30 %)				
Frequency (Frequency range)		50 Hz / 60 Hz (45 - 65 Hz)				
Total harmonic distortion		< 3 %				
Power factor ( $\cos \varphi_{ac,r}$ )		0.70 - 1 ind. / cap.			0.85 - 1 ind. / cap.	
GENERAL DATA	SYMO 3.0-3-S	SYMO 3.7-3-S	SYMO 4.5-3-S	SYMO 3.0-3-M	SYMO 3.7-3-M	SYMO 4.5-3-M
Dimensions (height x width x depth)		645 x 431 x 204 mm				
Weight		16.0 kg			19.9 kg	
Degree of protection		IP 65				
Protection class		1				
Overvoltage category (DC / AC) <sup>2)</sup>		2 / 3				
Night time consumption		< 1 W				
Inverter design		Transformerless				
Cooling		Regulated air cooling				
Installation		Indoor and outdoor installation				
Ambient temperature range		-25 - +60 °C				
Permitted humidity		0 - 100 %				
Max. altitude		2,000 m / 3,400 m (unrestricted / restricted voltage range)				
DC connection technology	3x DC+ and 3x DC- screw terminals 2.5 - 16 mm <sup>2</sup>			4x DC+ and 4x DC- screw terminals 2.5 - 16mm <sup>2</sup> <sup>3)</sup>		
AC connection technology	5-pole AC screw terminals 2.5 - 16 mm <sup>2</sup>			5-pole AC screw terminals 2.5 - 16mm <sup>2</sup> <sup>3)</sup>		
Certificates and compliance with standards	ÖVE / ÖNORM E 8001-4-712, DIN V VDE 0126-1-1/A1, VDE AR N 4105, IEC 62109-1/2, IEC 62116, IEC 61727, AS 3100, AS 4777-2, AS 4777-3, CER 06-190, G83/2, UNE 206007-1, SI 4777 <sup>1)</sup> , CEI 0-21 <sup>1)</sup> , NRS 097					

<sup>1)</sup> This applies to Fronius Symo 3.0-3-M, 3.7-3-M and 4.5-3-M.

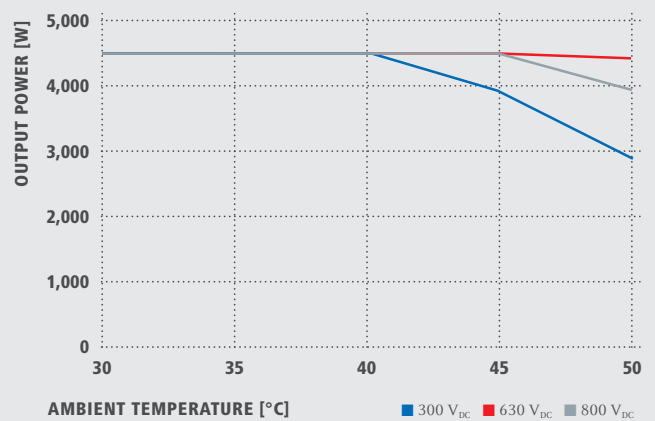
<sup>2)</sup> According to IEC 62109-1.

<sup>3)</sup> 16 mm<sup>2</sup> without wire end ferrules. Further information regarding the availability of the inverters in your country can be found at [www.fronius.com](http://www.fronius.com).

## FRONIUS SYMO 4.5-3-S EFFICIENCY CURVE



## FRONIUS SYMO 4.5-3-S TEMPERATURE DERATING



## TECHNICAL DATA FRONIUS SYMO (3.0-3-S, 3.7-3-S, 4.5-3-S, 3.0-3-M, 3.7-3-M, 4.5-3-M)

EFFICIENCY	SYMO 3.0-3-S	SYMO 3.7-3-S	SYMO 4.5-3-S	SYMO 3.0-3-M	SYMO 3.7-3-M	SYMO 4.5-3-M
Max. efficiency	98.0 %					
European efficiency ( $\eta_{EU}$ )	96.2 %	96.7 %	97.0 %	96.5 %	96.9 %	97.2 %
MPP adaptation efficiency	> 99.9 %					
PROTECTIVE DEVICES	SYMO 3.0-3-S	SYMO 3.7-3-S	SYMO 4.5-3-S	SYMO 3.0-3-M	SYMO 3.7-3-M	SYMO 4.5-3-M
DC insulation measurement	Yes					
Overload behaviour	Operating point shift, power limitation					
DC disconnecter	Yes					
Reverse polarity protection	Yes					
INTERFACES	SYMO 3.0-3-S	SYMO 3.7-3-S	SYMO 4.5-3-S	SYMO 3.0-3-M	SYMO 3.7-3-M	SYMO 4.5-3-M
WLAN / Ethernet LAN	Fronius Solar.web, Modbus TCP SunSpec, Fronius Solar API (JSON)					
6 inputs and 4 digital in/out	Interface to ripple control receiver					
USB (A socket) <sup>1)</sup>	Datalogging, inverter update via USB flash drive					
2x RS422 (RJ45 socket) <sup>1)</sup>	Fronius Solar Net					
Signalling output <sup>1)</sup>	Energy management (potential-free relay output)					
Datalogger and Webserver	Included					
External input <sup>1)</sup>	S0-Meter Interface / Input for overvoltage protection					
RS485	Modbus RTU SunSpec or meter connection					

<sup>1)</sup> Also available in the light version.

## TECHNICAL DATA FRONIUS SYMO (5.0-3-M, 6.0-3-M, 7.0-3-M, 8.2-3-M)

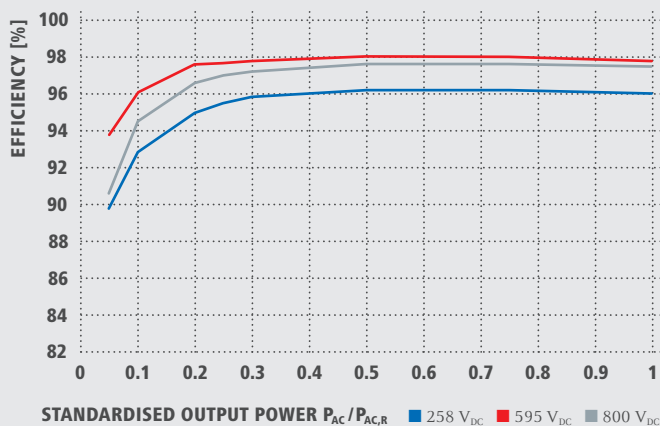
INPUT DATA	SYMO 5.0-3-M	SYMO 6.0-3-M	SYMO 7.0-3-M	SYMO 8.2-3-M
Number MPP trackers	2			
Max. input current ( $I_{dc \max 1} / I_{dc \max 2}$ )	16.0 A / 16.0 A			
Max. array short circuit current (MPP <sub>1</sub> /MPP <sub>2</sub> )	24.0 A / 24.0 A			
DC input voltage range ( $U_{dc \min} - U_{dc \max}$ )	150 - 1,000 V			
Feed-in start voltage ( $U_{dc \text{ start}}$ )	200 V			
Usable MPP voltage range	150 - 800 V			
Number of DC connections	2 + 2			
Max. PV generator output ( $P_{dc \max}$ )	10.0 kW <sub>peak</sub>	12.0 kW <sub>peak</sub>	14.0 kW <sub>peak</sub>	16.4 kW <sub>peak</sub>
OUTPUT DATA	SYMO 5.0-3-M	SYMO 6.0-3-M	SYMO 7.0-3-M	SYMO 8.2-3-M
AC nominal output ( $P_{ac,r}$ )	5,000 W	6,000 W	7,000 W	8,200 W
Max. output power	5,000 VA	6,000 VA	7,000 VA	8,200 VA
AC output current ( $I_{ac \text{ nom}}$ )	7.2 A	8.7 A	10.1 A	11.8 A
Grid connection (voltage range)	3-NPE 400 V / 230 V or 3-NPE 380 V / 220 V (+20 % / -30 %)			
Frequency (Frequency range)	50 Hz / 60 Hz (45 - 65 Hz)			
Total harmonic distortion	< 3 %			
Power factor ( $\cos \varphi_{ac,r}$ )	0.85 - 1 ind. / cap.			
GENERAL DATA	SYMO 5.0-3-M	SYMO 6.0-3-M	SYMO 7.0-3-M	SYMO 8.2-3-M
Dimensions (height x width x depth)	645 x 431 x 204 mm			
Weight	19.9 kg		21.9 kg	
Degree of protection	IP 65			
Protection class	1			
Overvoltage category (DC / AC) <sup>1)</sup>	2 / 3			
Night time consumption	< 1 W			
Inverter design	Transformerless			
Cooling	Regulated air cooling			
Installation	Indoor and outdoor installation			
Ambient temperature range	-25 - +60 °C			
Permitted humidity	0 - 100 %			
Max. altitude	2,000 m / 3,400 m (unrestricted / restricted voltage range)			
DC connection technology	4x DC+ and 4x DC- Screw terminals 2.5 - 16mm <sup>2,2)</sup>			
AC connection technology	5-pole AC Screw terminals 2.5 - 16mm <sup>2,2)</sup>			
Certificates and compliance with standards	ÖVE / ÖNORM E 8001-4-712, DIN V VDE 0126-1-1/A1, VDE AR N 4105, IEC 62109-1/-2, IEC 62116, IEC 61727, AS 3100, AS 4777-2, AS 4777-3, CER 06-190, G83/2, UNE 206007-1, SI 4777, CEI 0-21, NRS 097			

<sup>1)</sup> According to IEC 62109-1.

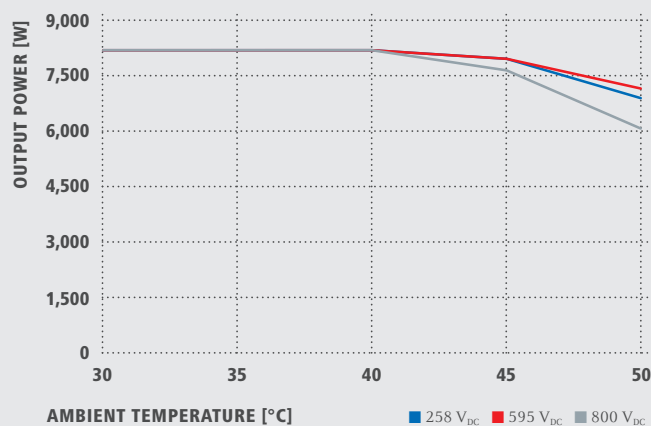
<sup>2)</sup> 16 mm<sup>2</sup> without wire end ferrules.

Further information regarding the availability of the inverters in your country can be found at [www.fronius.com](http://www.fronius.com).

### FRONIUS SYMO 8.2-3-M EFFICIENCY CURVE



### FRONIUS SYMO 8.2-3-M TEMPERATURE DERATING



### TECHNICAL DATA FRONIUS SYMO (5.0-3-M, 6.0-3-M, 7.0-3-M, 8.2-3-M)

EFFICIENCY	SYMO 5.0-3-M	SYMO 6.0-3-M	SYMO 7.0-3-M	SYMO 8.2-3-M
Max. efficiency			98.0 %	
European efficiency ( $\eta_{EU}$ )	97.3 %	97.5 %	97.6 %	97.7 %
MPP adaptation efficiency			> 99.9 %	
PROTECTIVE DEVICES	SYMO 5.0-3-M	SYMO 6.0-3-M	SYMO 7.0-3-M	SYMO 8.2-3-M
DC insulation measurement			Yes	
Overload behaviour		Operating point shift, power limitation		
DC disconnecter			Yes	
Reverse polarity protection			Yes	
INTERFACES	SYMO 5.0-3-M	SYMO 6.0-3-M	SYMO 7.0-3-M	SYMO 8.2-3-M
WLAN / Ethernet LAN		Fronius Solar.web, Modbus TCP SunSpec, Fronius Solar API (JSON)		
6 inputs and 4 digital in/out		Interface to ripple control receiver		
USB (A socket) <sup>1)</sup>		Datalogging, inverter update via USB flash drive		
2x RS422 (RJ45 socket) <sup>1)</sup>		Fronius Solar Net		
Signalling output <sup>1)</sup>		Energy management (potential-free relay output)		
Datalogger and Webservice		Included		
External input <sup>1)</sup>		S0-Meter Interface / Input for overvoltage protection		
RS485		Modbus RTU SunSpec or meter connection		

<sup>1)</sup> Also available in the light version.

## TECHNICAL DATA FRONIUS SYMO (10.0-3-M, 12.5-3-M, 15.0-3-M, 17.5-3-M, 20.0-3-M)

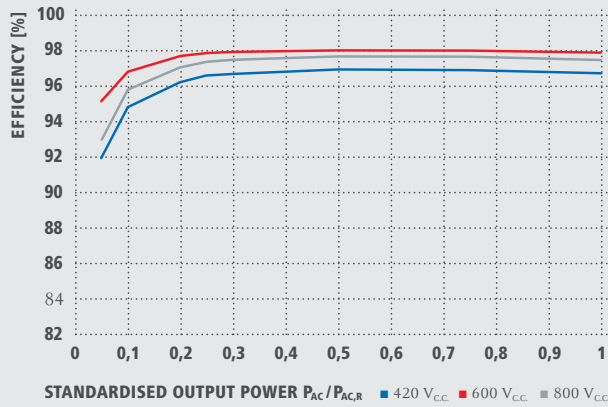
INPUT DATA	SYMO 10.0-3-M	SYMO 12.5-3-M	SYMO 15.0-3-M	SYMO 17.5-3-M	SYMO 20.0-3-M
Number MPP trackers	2				
Max. input current ( $I_{dc\ max\ 1} / I_{dc\ max\ 2}$ )	27.0 A / 16.5 A <sup>1)</sup>		33.0 A / 27.0 A		
Max. usable input current total ( $I_{dc\ max\ 1} + I_{dc\ max\ 2}$ )	43.5 A		51.0 A		
Max. array short circuit current (MPP <sub>1</sub> /MPP <sub>2</sub> )	40.5 A / 24.8 A		49.5 A / 40.5 A		
DC input voltage range ( $U_{dc\ min} - U_{dc\ max}$ )	200 - 1,000 V				
Feed-in start voltage ( $U_{dc\ start}$ )	200 V				
Usable MPP voltage range	200 - 800 V				
Number of DC connections	3+3				
Max. PV generator output ( $P_{dc\ max}$ )	15.0 kW <sub>peak</sub>	18.8 kW <sub>peak</sub>	22.5 kW <sub>peak</sub>	26.3 kW <sub>peak</sub>	30.0 kW <sub>peak</sub>
OUTPUT DATA	SYMO 10.0-3-M	SYMO 12.5-3-M	SYMO 15.0-3-M	SYMO 17.5-3-M	SYMO 20.0-3-M
AC nominal output ( $P_{ac,r}$ )	10,000 W	12,500 W	15,000 W	17,500 W	20,000 W
Max. output power	10,000 VA	12,500 VA	15,000 VA	17,500 VA	20,000 VA
AC output current ( $I_{ac\ nom}$ )	14.4 A	18.0 A	21.7 A	25.3 A	28.9 A
Grid connection (voltage range)	3-NPE 400 V / 230 V or 3-NPE 380 V / 220 V (+20 % / -30 %)				
Frequency (Frequency range)	50 Hz / 60 Hz (45 - 65 Hz)				
Total harmonic distortion	1.8 %	2.0 %	1.5 %	1.5 %	1.3 %
Power factor ( $\cos\ \varphi_{ac,r}$ )	0 - 1 ind. / cap.				
GENERAL DATA	SYMO 10.0-3-M	SYMO 12.5-3-M	SYMO 15.0-3-M	SYMO 17.5-3-M	SYMO 20.0-3-M
Dimensions (height x width x depth)	725 x 510 x 225 mm				
Weight	34.8 kg		43.4 kg		
Degree of protection	IP 66				
Protection class	1				
Overvoltage category (DC / AC) <sup>2)</sup>	2 / 3				
Night time consumption	< 1 W				
Inverter design	Transformerless				
Cooling	Regulated air cooling				
Installation	Indoor and outdoor installation				
Ambient temperature range	-40 - +60 °C				
Permitted humidity	0 - 100 %				
Max. altitude	2,000 m / 3,400 m (unrestricted / restricted voltage range)				
DC connection technology	6x DC+ and 6x DC- screw terminals 2.5 - 16 mm <sup>2</sup>				
AC connection technology	5-pole AC screw terminals 2.5 - 16 mm <sup>2</sup>				
Certificates and compliance with standards	ÖVE / ÖNORM E 8001-4-712, DIN V VDE 0126-1-1/A1, VDE AR N 4105, IEC 62109-1/2, IEC 62116, IEC 61727, AS 3100, AS 4777-2, AS 4777-3, CER 06-190, G83/2, UNE 206007-1, SI 4777, CEI 0-16, CEI 0-21, NRS 097				

<sup>1)</sup> 14.0 A for voltages < 420 V

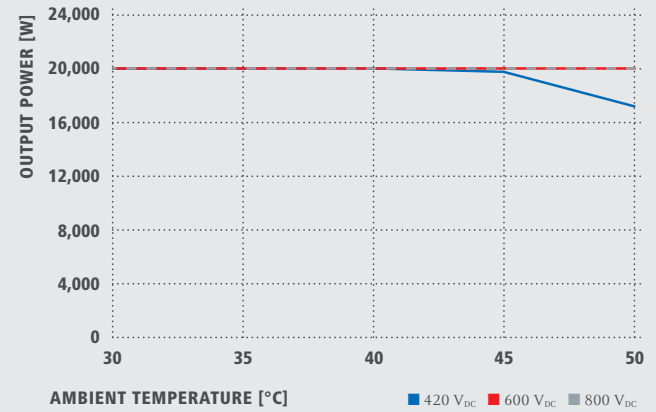
<sup>2)</sup> According to IEC 62109-1. DIN rail for optional type 1 + 2 or type 2 surge protection device available.

Further information regarding the availability of the inverters in your country can be found at [www.fronius.com](http://www.fronius.com).

## FRONIUS SYMO 20.0-3-M EFFICIENCY CURVE



## FRONIUS SYMO 20.0-3-M TEMPERATURE DERATING



## TECHNICAL DATA FRONIUS SYMO (10.0-3-M, 12.5-3-M, 15.0-3-M, 17.5-3-M, 20.0-3-M)

EFFICIENCY	SYMO 10.0-3-M	SYMO 12.5-3-M	SYMO 15.0-3-M	SYMO 17.5-3-M	SYMO 20.0-3-M
Max. efficiency	98.0 %		98.1 %		
European efficiency ( $\eta_{EU}$ )	97.4 %	97.6 %	97.8 %	97.8 %	97.9 %
MPP adaptation efficiency	> 99.9 %				
PROTECTIVE DEVICES	SYMO 10.0-3-M	SYMO 12.5-3-M	SYMO 15.0-3-M	SYMO 17.5-3-M	SYMO 20.0-3-M
DC insulation measurement	Yes				
Overload behaviour	Operating point shift, power limitation				
DC disconnecter	Yes				
Reverse polarity protection	Yes				
INTERFACES	SYMO 10.0-3-M	SYMO 12.5-3-M	SYMO 15.0-3-M	SYMO 17.5-3-M	SYMO 20.0-3-M
WLAN / Ethernet LAN	Fronius Solar.web, Modbus TCP SunSpec, Fronius Solar API (JSON)				
6 inputs and 4 digital inputs/outputs	Interface to ripple control receiver				
USB (A socket) <sup>1)</sup>	Datalogging, inverter update via USB flash drive				
2x RS422 (RJ45-socket) <sup>1)</sup>	Fronius Solar Net				
Signalling output <sup>1)</sup>	Energy management (potential-free relay output)				
Datalogger und Webservice	Included				
External input <sup>1)</sup>	S0-Meter Interface / Input for overvoltage protection				
RS485	Modbus RTU SunSpec or meter connection				

<sup>1)</sup> Also available in the light version.

Further information and technical data can be found at [www.fronius.com](http://www.fronius.com).

/ Perfect Welding / Solar Energy / Perfect Charging

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

/ Whether welding technology, photovoltaics 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.

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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