

# FRONIUS SYMO 3.0 - 8.2 kW

/ The three-phase inverter for maximum flexibility.



/ PC board replacement process



/ Mounting system



/ WLAN interface



/ Open data communication



/ Smart Grid Ready



/ Boasting power categories ranging from 3.0 to 8.2 kW, the transformerless Fronius Symo is the three-phase inverter for households. The high system voltage, wide input voltage range, two MPP trackers and unrestricted use indoors and outdoors ensure maximum flexibility in system design. 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.

## COMMUNICATIVE

- / Comprehensive data communication built-in (Webserver, integrated Datalogger, interfaces to connect with external systems)
- / Free online monitoring Fronius Solar.web

## FLEXIBLE

- / Straightforward system integration through high system voltage and 2 MPP-tracker
- / Wireless connection to the internet via WLAN
- / Connection with third-party components through standard interfaces

## FUTURE-PROOF

- / Innovative plug-in card technology
- / Smart Grid Ready
- / Optimisation of self-consumption through standard energy management relay

## TECHNICAL DATA FRONIUS SYMO (3.0-3-M, 3.7-3-M, 4.5-3-M, 5.0-3-M)

INPUT DATA	SYMO 3.0-3-M	SYMO 3.7-3-M	SYMO 4.5-3-M	SYMO 5.0-3-M
DC maximum power at $\cos \varphi = 1$	3,125 W	3,854 W	4,688 W	5,208 W
Max. input current ( $I_{dc \max 1} / I_{dc \max 2}$ )			16 A / 16 A	
Max. array short circuit current (MPP <sub>1</sub> /MPP <sub>2</sub> )			24 A / 24 A	
Min. input voltage ( $U_{dc \min}$ )			150 V	
Feed-in start voltage ( $U_{dc \text{ start}}$ )			200 V	
Nominal input voltage ( $U_{dc,r}$ )			595 V	
Max. input voltage ( $U_{dc \max}$ )			1.000 V	
MPP voltage range ( $U_{mpp \min} - U_{mpp \max}$ ) <sup>1)</sup>	150 - 800 V	150 - 800 V	150 - 800 V	163 - 800 V
Number MPP trackers			2	
Number of DC connections			2+2	
OUTPUT DATA	SYMO 3.0-3-M	SYMO 3.7-3-M	SYMO 4.5-3-M	SYMO 5.0-3-M
AC nominal output ( $P_{ac,r}$ )	3,000 W	3,700 W	4,500 W	5,000 W
Max. output power	3,000 VA	3,700 VA	4,500 VA	5,000 VA
Max. output current ( $I_{ac \max}$ )			13.5 A	
Grid connection ( $U_{ac,r}$ )		3-NPE 400 V / 230 V or 3-NPE 380 V / 220 V		
Min. output voltage ( $U_{ac \min}$ )			150 V	
Max. output voltage ( $U_{ac \max}$ )			275 V	
Frequency ( $f_r$ )			50 Hz / 60 Hz	
Frequency range ( $f_{\min} - f_{\max}$ )			45 - 67 Hz	
Total harmonic distortion			< 3 %	
Power factor ( $\cos \varphi_{ac,r}$ )			0.85 - 1 ind. / cap.	
GENERAL DATA	SYMO 3.0-3-M	SYMO 3.7-3-M	SYMO 4.5-3-M	SYMO 5.0-3-M
Dimensions (height x width x depth)			645 x 431 x 204 mm	
Weight			19.9 kg	
Degree of protection			IP 55	
Protection class			1	
Overvoltage category (DC / AC)			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 %	
DC connection technology			Screw terminals 2,5 - 16 mm <sup>2</sup> 2)	
Mains connection technology			Screw terminals 2,5 - 16 mm <sup>2</sup> 2)	
Certificates and compliance with standards			VDE 0126-1-1/A1, IEC 62109-1/-2, IEC 62116, IEC 61727, CER 06-190, G83/2, VDE AR-N 4105, UNE 206007-1, SI 4777, CEI 0-21	
EFFICIENCY	SYMO 3.0-3-M	SYMO 3.7-3-M	SYMO 4.5-3-M	SYMO 5.0-3-M
Max. efficiency			98.0 %	
European efficiency ( $\eta_{EU}$ )	96.2 %	96.7 %	97.0 %	ca. 97 %
MPP adaptation efficiency			> 99.9 %	
PROTECTIVE DEVICES	SYMO 3.0-3-M	SYMO 3.7-3-M	SYMO 4.5-3-M	SYMO 5.0-3-M
DC insulation measurement			Yes	
Overload behaviour			Operating point shift, power limitation	
DC disconnect			Yes	
INTERFACES	SYMO 3.0-3-M	SYMO 3.7-3-M	SYMO 4.5-3-M	SYMO 5.0-3-M
WLAN / Ethernet LAN			Fronius Solar.web / Fronius Solar.web, JSON	
6 inputs or 4 digital inputs/outputs			Interface to ripple control receiver	
USB (A socket)			For USB sticks	
2x RS422 (RJ45 socket)			Fronius Solar Net, interface protocol	
Signalling output			Energy management (potential-free relay output)	
Datalogger and Webservice			Included	

<sup>1)</sup> two MPP trackers connected parallel

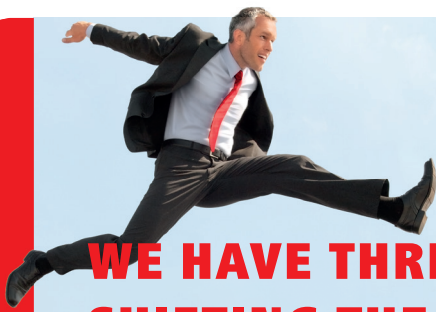
<sup>2)</sup> 16mm<sup>2</sup> without wire end ferrules

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

INPUT DATA	SYMO 6.0-3-M	SYMO 7.0-3-M	SYMO 8.2-3-M
DC maximum power at $\cos \varphi = 1$	6,250 W	7,290 W	8,550 W
Max. input current ( $I_{dc \max 1} / I_{dc \max 2}$ )		16 A / 16 A	
Max. array short circuit current (MPP <sub>1</sub> /MPP <sub>2</sub> )		24 A / 24 A	
Min. input voltage ( $U_{dc 1 \min} / U_{dc 2 \min}$ )		150 V / 150 V	
Feed-in start voltage ( $U_{dc \text{ start}}$ )		200 V	
Nominal input voltage ( $U_{dc,r}$ )		595 V	
Max. input voltage ( $U_{dc \max}$ )		1,000 V	
MPP voltage range ( $U_{mpp \min} - U_{mpp \max}$ ) <sup>1)</sup>	195 - 800 V	228 - 800 V	267 - 800 V
Number MPP trackers		2	
Number of DC connections		2 + 2	
OUTPUT DATA	SYMO 6.0-3-M	SYMO 7.0-3-M	SYMO 8.2-3-M
AC nominal output ( $P_{ac,r}$ )	6,000 W	7,000 W	8,200 W
Max. output power	6,000 VA	7,000 VA	8,200 VA
Max. output current ( $I_{ac \max}$ )		13.5 A	
Grid connection ( $U_{ac,r}$ )		3-NPE 400 V / 230 V or 3-NPE 380 V / 220 V	
Min. output voltage ( $U_{ac \min}$ )		150 V	
Max. output voltage ( $U_{ac \max}$ )		275 V	
Frequency ( $f_r$ )		50 Hz / 60 Hz	
Frequency range ( $f_{\min} - f_{\max}$ )		45 - 67 Hz	
Total harmonic distortion		< 3 %	
Power factor ( $\cos \varphi_{ac,r}$ )		0.85 - 1 ind. / cap.	
GENERAL DATA	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 55	
Protection class		1	
Overvoltage category (DC / AC)		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 %	
DC connection technology		Screw terminals 2,5 - 16 mm <sup>2)</sup>	
Mains connection technology		Screw terminals 2,5 - 16 mm <sup>2)</sup>	
Certificates and compliance with standards	VDE 0126-1-1/A1, IEC 62109-1/2, IEC 62116, IEC 61727, CER 06-190, G83/2, VDE AR-N 4105, UNE 206007-1, SI 4777, CEI 0-21		
EFFICIENCY	SYMO 6.0-3-M	SYMO 7.0-3-M	SYMO 8.2-3-M
Max. efficiency		98.0 %	
European efficiency ( $\eta_{EU}$ )	approx. 97.2 %	approx. 97.3 %	approx. 97.5 %
MPP adaptation efficiency		> 99.9 %	
PROTECTIVE DEVICES	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	
INTERFACES	SYMO 6.0-3-M	SYMO 7.0-3-M	SYMO 8.2-3-M
WLAN / Ethernet LAN		Fronius Solar.web / Fronius Solar.web, JSON	
6 inputs or 4 digital inputs/outputs		Interface to ripple control receiver	
USB (A socket)		For USB sticks	
2x RS422 (RJ45 socket)		Fronius Solar Net, interface protocol	
Signalling output		Energy management (potential-free relay output)	
Datalogger and Webservice		Included	

<sup>1)</sup> two MPP trackers connected parallel

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



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

/ What Günter Fronius started in 1945 in Pettenbach, Austria, has now become a modern day success story. Today, the company has around 3,000 employees worldwide and owns more than 850 active patents. Since the very beginning, our goal has not changed: to be the technology and quality leader. We shift the limits of what's possible. While others progress step by step, we innovate in leaps and bounds. The responsible use of our resources forms the basis of our corporate policy.

### **BATTERY CHARGING SYSTEMS**

/ We started a technological revolution with Active Inverter Technology and are now the know-how leaders in battery charging technology. We are driven by the aim of providing intelligent energy management systems that ensure maximum energy efficiency and battery life in intralogistics together with total safety and top performance in the vehicle workshop.

### **WELDING TECHNOLOGY**

/ We develop welding technologies, such as entire systems for arc and resistance spot welding, and have set ourselves the task of making impossible weld joints possible. Our aim is to »decode the DNA of the arc«. We are the technology leader worldwide and the market leader in Europe.

### **SOLAR ELECTRONICS**

/ The greatest challenge of our time is to make the leap to a regenerative energy supply. Our vision is to use renewable energy to achieve energy independence. With our grid-connected inverters and products for monitoring photovoltaic systems, we are now one of the leading suppliers in solar electronics.

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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