

FRONIUS SYMO

/ Maximum flexibility for the applications of tomorrow.



/ PC board replacement process



/ SnapInverter technology



/ Integrated data communication



/ SuperFlex Design



/ Dynamic Peak Manager



/ Smart Grid Ready



/ Boasting 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.

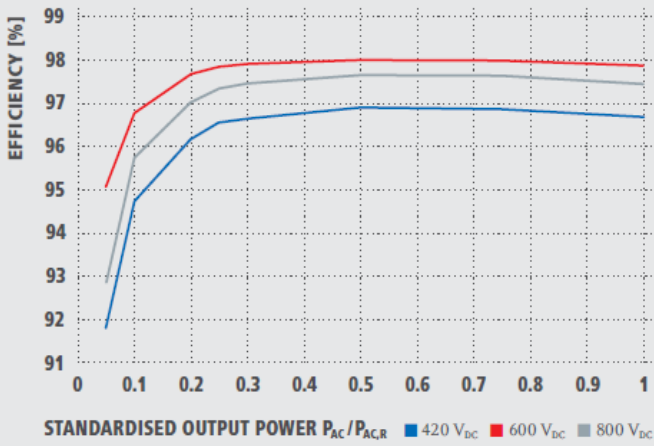
TECHNICAL DATA FRONIUS SYMO (10.0-3-M, 12.5-3-M, 15.0-3-M, 17.5-3-M, 20.0-3-M)

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
Max. input current ($I_{dc\ max\ 1} / I_{dc\ max\ 2}$)	27.0 A / 16.5 A				33.0 A / 27.0 A
Max. array short circuit current (MPP1/MPP2)	40.5 A / 24.8 A				49.5 A / 40.5 A
Min. input voltage ($U_{dc\ min}$)			200 V		
Feed-in start voltage ($U_{dc\ start}$)			200 V		
Nominal input voltage ($U_{dc\ n}$)			600 V		
Max. input voltage ($U_{dc\ max}$)			1,000 V		
MPP voltage range ($U_{mpp\ min} - U_{mpp\ max}$)	270 - 800 V	320 - 800 V		370 - 800 V	420 - 800 V
Number MPP trackers			2		
Number of DC connections			3+3		
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 ($P_{ac,n}$)	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
Max. output current ($I_{ac\ max}$)	16.0 A	19.9 A	23.9 A	27.9 A	31.9 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	< 2 %				
Power factor ($\cos\ \varphi_{ac,n}$)	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) ¹⁾			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			6x DC+ and 6x DC- screw terminals 2.5 - 16 mm ²		
Mains connection technology			5-pole AC screw terminals 2.5 - 16 mm ²		
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, G59/3, UNE 206007-1, SI 4777, CEI 0-16, CEI 0-21				

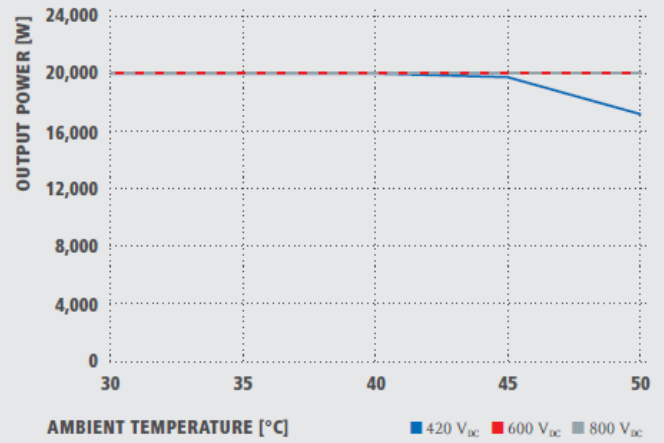
¹⁾ According to IEC 62109-1. DIN rail for optional overvoltage protection (type 2) is included.

Further information regarding the availability of the inverters in your country can be found at 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 (η_{EU})	97.4%	97.6 %	97.8 %	97.8 %	97.9 %
η at 5 % $P_{AC,R}$ ¹⁾	87.9 / 92.5 / 89.2 %	88.7 / 93.1 / 90.1 %	91.2 / 94.8 / 92.3 %	91.6 / 95.0 / 92.7 %	91.9 / 95.2 / 93.0 %
η at 10 % $P_{AC,R}$ ¹⁾	91.2 / 94.9 / 92.8 %	92.9 / 96.1 / 94.6 %	93.4 / 96.0 / 94.4 %	94.0 / 96.4 / 95.0 %	94.8 / 96.9 / 95.8 %
η at 20 % $P_{AC,R}$ ¹⁾	94.6 / 97.1 / 96.1 %	95.4 / 97.3 / 96.6 %	95.9 / 97.4 / 96.7 %	96.1 / 97.6 / 96.9 %	96.3 / 97.8 / 97.1 %
η at 25 % $P_{AC,R}$ ¹⁾	95.4 / 97.3 / 96.6 %	95.6 / 97.6 / 97.0 %	96.2 / 97.6 / 97.0 %	96.4 / 97.8 / 97.2 %	96.7 / 97.9 / 97.4 %
η at 30 % $P_{AC,R}$ ¹⁾	95.6 / 97.5 / 96.9 %	95.9 / 97.7 / 97.2 %	96.5 / 97.8 / 97.3 %	96.6 / 97.9 / 97.4 %	96.8 / 98.0 / 97.6 %
η at 50 % $P_{AC,R}$ ¹⁾	96.3 / 97.9 / 97.4 %	96.4 / 98.0 / 97.5 %	96.9 / 98.1 / 97.7 %	97.0 / 98.1 / 97.7 %	97.0 / 98.1 / 97.8 %
η at 75 % $P_{AC,R}$ ¹⁾	96.5 / 98.0 / 97.6 %	96.5 / 98.0 / 97.6 %	97.0 / 98.1 / 97.8 %	97.0 / 98.1 / 97.8 %	97.0 / 98.1 / 97.7 %
η at 100 % $P_{AC,R}$ ¹⁾	96.5 / 98.0 / 97.6 %	96.5 / 97.8 / 97.6 %	97.0 / 98.1 / 97.7 %	96.9 / 98.1 / 97.6 %	96.8 / 98.0 / 97.6 %
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				
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)				
0 inputs and 4 digital inputs/outputs	Interface to ripple control receiver				
USB (A socket) ²⁾	Datalogging, inverter update via USB flash drive				
2x RS422 (RJ45-socket) ²⁾	Fronius Solar Net, interface protocol				
Signalling output ²⁾	Energy management (potential-free relay output)				
Datalogger und Webserver	Included				
External input	S0-Meter Interface / Input for overvoltage protection				
RS485 ³⁾	Modbus RTU SunSpec or meter connection				

¹⁾ And at $U_{mpp, min} / U_{dcr} / U_{mpp, max}$ ²⁾ Also available in the light version. ³⁾ Available from autumn 2014.

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Further information about all Fronius products and our global sales partners and representatives can be found at www.fronius.com

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