

FRONIUS SYMO HYBRID

/ The personal storage solution for 24H Sun.

AVAILABLE FROM THE END OF 2014



FRONIUS SYMO HYBRID 3.0-3-S / 4.0-3-S / 5.0-3-S

/ The independent inverter: the Fronius Symo Hybrid is the heart of the 24H Sun storage solution. From a simple inverter one minute, the battery and emergency power function can be added in no time. The result: sun by day, sun by night and sun during power outages. Revolutionary operation and system monitoring thanks to the integrated WLAN and web server complete this storage solution.

FRONIUS SOLAR BATTERY 4.5 / 6.0 / 7.5 / 9.0 / 10.5 / 12.0

/ The Fronius Solar Battery is a perfect example of high-performance lithium technology. A long service life, short charging times and high depth of discharge are therefore guaranteed. The result is maximum self-consumption and maximum independence. The storage capacity of the Fronius Solar Battery can be adapted to meet individual customer needs.



/ PC board replacement process



/ SnapINverter technology



/ Integrated data communication



/ Smart Grid Ready



/ Ready for storage



/ Dynamic Peak Manager

MAXIMUM INDEPENDENCE, MODULAR DESIGN & REVOLUTIONARY OPERATING SYSTEM

/ The three-phase Fronius Symo Hybrid in power categories from 3.0 to 5.0 kW allows unused energy from a photovoltaic system to be stored in a battery. The result: maximum self-consumption of the available power and maximum energy independence. Excess solar power can thus be used at times when generating conditions are poor or impossible. With the emergency power function, the household can enjoy an optimum electricity supply even during power outages. Perfect system configuration and visualisation are provided by the built-in web server with graphical interface, WLAN and Ethernet. In addition, the DC coupling on the battery guarantees maximum efficiency of the overall system.

/ Modular design

Despite its simplicity, this storage solution is so flexible that it can be adapted to the needs of individual customers. The device can be used simply as an inverter with emergency power function and no battery, or as the full version with a battery and emergency power function. From a simple inverter one minute, a battery can be added in no time at all.

/ Individually adaptable

The storage capacity of the Fronius Solar Battery can be adapted to suit an individual household and can also be expanded retrospectively. The storage location can be freely selected; in particular, the Fronius Symo Hybrid and the Fronius Solar Battery do not have to be installed in the same services room.

/ Integrated WLAN and web server

Both WLAN and a dedicated web server are permanently built into the Fronius Symo Hybrid. As a result, the inverter can easily be connected to a smartphone, tablet or notebook, and the commissioning wizard ensures that configuring the PV system is straightforward and intuitive. The user-friendly graphical interface on the integrated web server also makes system monitoring impressively simple. In short: whether you are using a WLAN hot spot, web interface, meter connection or interfaces to the power supply company, the Fronius Symo Hybrid offers all the communication functions you will need now and in the future.

/ Highest safety standards

The Fronius storage solution uses lithium iron phosphate, which is one of the safest storage technologies. The battery has a very high intrinsic safety level and no special ventilation arrangements are needed in the services room. Naturally, the Fronius Symo Hybrid meets all the current standards.

/ Maximum efficiency

The Fronius Solar Battery is connected on the DC side, making multiple conversion between DC and AC unnecessary. The result is a maximum total efficiency standard as conversion losses are extremely low. Low currents due to the high battery voltage also bring further advantages: lower losses on the DC side and the option of using standard solar cables with small cross-sections.

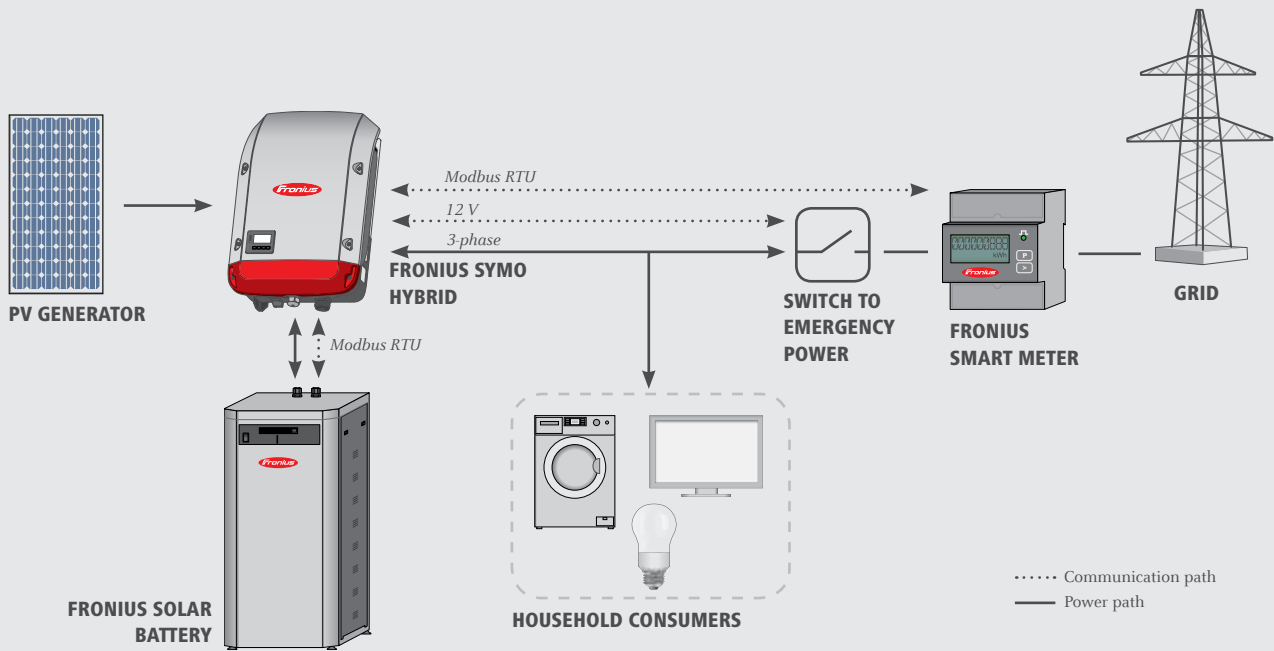
/ Ideal for feed-in limits

Overdimensioning of the PV input power enables optimum fine-tuning of the system to meet the 60% feed-in limit imposed by the German storage incentive programme. Excess PV energy can then be stored in the battery.

/ Safe, three-phase emergency power function

Even during a power outage, electrical devices can still be provided with an optimum power supply. The transfer switch ensures the safe isolation from - and reconnection to - the grid. As power is provided on all three-phases and asymmetrically, the Fronius storage solution means that the entire household - and not just one phase - is supplied with electricity.

CONFIGURATION DIAGRAM



/ Fronius Smart Meter



The Fronius Smart Meter is a bidirectional meter which optimises self-consumption and records the household's load curve. Thanks to highly accurate measurements and rapid communication via the Modbus RTU SunSpec interface, dynamic feed-in control when feed-in limits are imposed is faster and more accurate than with the S0. In conjunction with the Fronius Solar.web online portal, the Fronius Smart Meter provides a clear overview of a user's own power consumption. In the storage solution based on the Fronius Symo Hybrid, the Fronius Smart Meter provides perfectly coordinated management of the various energy flows and optimises overall energy management.

TECHNICAL DATA FRONIUS SYMO HYBRID

INPUT DATA	SYMO HYBRID 3.0-3-S	SYMO HYBRID 4.0-3-S	SYMO HYBRID 5.0-3-S
PV input power	5.0 kW	6.5 kW	8.0 kW
Max. input current ($I_{dc \max}$)	1 x 16 A	1 x 16 A	1 x 16 A
Max. short circuit current, module array		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 ($U_{dc \max}$)		1000 V	
MPP voltage range ($U_{mpp \min} - U_{mpp \max}$)	200 - 800 V	255 - 800 V	320 - 800 V
Number of MPP trackers		1	
Number of DC connections		2	

BATTERY INPUT	SYMO HYBRID 3.0-3-S	SYMO HYBRID 4.0-3-S	SYMO HYBRID 5.0-3-S
Maximum output power to battery	3,000 W	4,000 W	5,000 W
Maximum input power from battery	3,000 W	4,000 W	5,000 W

OUTPUT DATA	SYMO HYBRID 3.0-3-S	SYMO HYBRID 4.0-3-S	SYMO HYBRID 5.0-3-S
AC nominal output ($P_{ac,r}$)	3,000 W	4,000 W	5,000 W
Max. output power	3,000 VA	4,000 VA	5,000 VA
Max. output current ($I_{ac \max}$)	4.5 A	6.0 A	7.6 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.		

SUITABLE FOR THE GERMAN SOLAR ENERGY STORAGE INCENTIVE PROGRAMME.

TECHNICAL DATA FRONIUS SYMO HYBRID

GENERAL DATA	SYMO HYBRID 3.0-3-S	SYMO HYBRID 4.0-3-S	SYMO HYBRID 5.0-3-S
Item number	4,210,070	4,210,071	4,210,072
Dimensions (height x width x depth)	645 x 431 x 204 mm		
Weight	22 kg		
Degree of protection	IP 65		
Protection class	1		
Overtoltage category (DC / AC) ¹⁾	3 / 2		
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 (unrestricted voltage range)		
DC PV connection technology	2x DC+ and 2x DC- screw terminals 2.5 - 16 mm ²		
DC battery connection technology	1x DC+ and 1x DC- screw terminals 2.5 - 16 mm ²		
AC connection technology	5-pin AC screw terminals 2.5 - 16 mm ²		
Certificates and compliance with standards	VDE AR N 4105, ÖVE / ÖNORM E 8001-4-712, DIN V VDE 0126-1-1		
Stand-alone	Yes		
Emergency power function switchover time	5 sec.		

EFFICIENCY	SYMO HYBRID 3.0-3-S	SYMO HYBRID 4.0-3-S	SYMO HYBRID 5.0-3-S
Max. efficiency (PV - grid)	97.5 %	97.6 %	
Max. efficiency (PV - battery - grid)	> 85.0 %	> 85.0 %	> 85.0 %
Europ. efficiency (PV - grid)	95.2 %	95.7 %	96.0 %

PROTECTION DEVICES	SYMO HYBRID 3.0-3-S	SYMO HYBRID 4.0-3-S	SYMO HYBRID 5.0-3-S
DC disconnecter	Included		
Overload behaviour	Operating point shift, power limitation		
DC insulation measurement	Included		
Integral RCMU	Yes		

INTERFACES	SYMO HYBRID 3.0-3-S	SYMO HYBRID 4.0-3-S	SYMO HYBRID 5.0-3-S
WLAN / Ethernet	Fronius Solar.web		
Datalogger and web server	Included		
Interface to battery and meter	Modbus RTU SunSpec (RS485)		

¹⁾ Testing to IEC 62109-1.

TECHNICAL DATA FRONIUS SOLAR BATTERY

ELECTRICAL PARAMETERS	BATTERY 4.5	BATTERY 6.0	BATTERY 7.5	BATTERY 9.0	BATTERY 10.5	BATTERY 12.0
Nominal capacity	4.5 kWh	6.0 kWh	7.5 kWh	9.0 kWh	10.5 kWh	12.0 kWh
Usable capacity (80% DoD)	3.6 kWh	4.8 kWh	6.0 kWh	7.2 kWh	8.4 kWh	9.6 kWh
Cycle stability (80% DoD)	6,000					
Voltage range	120 - 170 V	160 - 230 V	200 - 290 V	240 - 345 V	280 - 400 V	320 - 460 V
Max. nominal charging power	2,400 W	3,200 W	4,000 W	4,800 W	5,600 W	6,400 W
Max. nominal discharge power	2,400 W	3,200 W	4,000 W	4,800 W	5,600 W	6,400 W
Max. charging current	16 A					
Max. discharge current	16 A					

GENERAL DATA	BATTERY 4.5	BATTERY 6.0	BATTERY 7.5	BATTERY 9.0	BATTERY 10.5	BATTERY 12.0
Battery technology	LiFePO4					
Dimensions (height x width x depth)	955 x 570 x 611 mm					
Weight	91 kg	108 kg	125 kg	142 kg	159 kg	176 kg
Degree of protection	IP 20					
Protection class	1					
Installation type	Indoor installation					
Ambient temperature range	5 - 35°C					
Permitted humidity	0 - 100 %					
DC connection technology	Screw terminals 2.5 - 16 mm ²					
Certificates and compliance with standards	IEC/EN 62133; EN 61000-6-2:2005, EN 61000-6-3:2007 + A1:2011, EN 62311:2008, FCC Part 15 Subpart B:2012 ClassB, UN 38.3					

INTERFACES	BATTERY 4.5	BATTERY 6.0	BATTERY 7.5	BATTERY 9.0	BATTERY 10.5	BATTERY 12.0
Connection to inverter	Modbus RTU SunSpec (RS485)					

TECHNICAL DATA FRONIUS SMART METER

GENERAL DATA	FRONIUS SMART METER
Item number	43,0008,0197
Nominal voltage	400 - 415 V
Max. current	3 x 63 A
Cable cross-section, power path	1 - 16 mm ²
Cable cross-section, communication	0.05 - 4 mm ²
Installation	DIN rail
Housing	4 modules DIN 43880
Accuracy class	1
Interface to inverter	Modbus RTU SunSpec (RS485)
Display	8-digit LCD