/ PC board replace-

ment process

/ SnapINverter

technology

/ Integrated data

communication



# **FRONIUS ENERGY PACKAGE** / The personal storage solution for 24H Sun.

/ Dynamic Peak

Manager

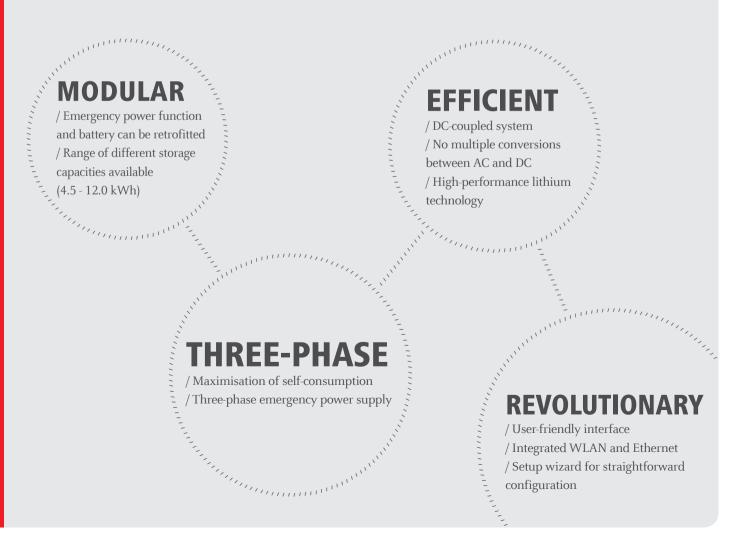
# / "24H sun" is the Fronius vision of how energy will be supplied in the coming decades. The Fronius Symo Hybrid is the heart of the storage solution for 24H Sun - the Fronius Energy Package. Boasting power categories ranging from 3.0 to 5.0 kW, the transformerless inverter allows excess energy from 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.

/ Smart Grid

Ready

/ Ready for

Storage





# TECHNICAL DATA FRONIUS SYMO HYBRID<sup>1)</sup>

/ The Fronius Symo Hybrid is the heart of the storage solution for 24H Sun - the Fronius Energy Package. 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.

INPUT DATA	SYMO HYBRID 3.0-3-S	3.0-3-S SYMO HYBRID 4.0-3-S SYMO HYB					
PV input power	5.0 kW	6.5 kW	8.0 kW				
Max. input current (I <sub>dc max</sub> )	1 x 16 A	1 x 16 A	1 x 16 A				
Max. short circuit current, module array		24 A					
Min. input voltage (U <sub>dc min</sub> )		150 V					
Feed-in start voltage (U <sub>dc start</sub> )		200 V					
Nominal input voltage (U <sub>dc,r</sub> )		595 V					
Max. input voltage (U <sub>dc max</sub> )		1000 V					
MPP voltage range (U <sub>mpp min</sub> – U <sub>mpp max</sub> )	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				
DATIENT INPUT	STINU HTERIU S.0-5-5	STWO HTBRID 4.0-5-5	STWO HTERID 5.0-5-5				
Maximum output power to battery	1	Depends on connected Fronius Solar Battery					
Maximum input power from battery	1	Depends on connected Fronius Solar Battery					
OUTPUT DATA	SYMO HYBRID 3.0-3-S	SYMO HYBRID 4.0-3-S	SYMO HYBRID 5.0-3-S				
AC nominal output (P <sub>ac,r</sub> )	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 <sub>ac max</sub> )	4.5 A	6.0 A	7.6 A				
Grid connection (voltage range)	3~NPE 40	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.					

<sup>1)</sup> Preliminary data.

# **TECHNICAL DATA FRONIUS SYMO HYBRID<sup>1)</sup>**

GENERAL DATA	SYMO HYBRID 3.0-3-S	SYMO HYBRID 4.0-3-S	SYMO HYBRID 5.0-3-S				
Dimensions (height x width x depth)		645 x 431 x 204 mm					
Weight		22 kg					
Degree of protection		IP 65					
Protection class		1					
Overvoltage category (DC / AC) <sup>2)</sup>		2/3					
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	2x DC+ and 2x DC- screw terminals 2.5 - 16 mm <sup>2</sup>					
DC battery connection technology	1x	1x DC+ and $1x$ DC- screw terminals 2.5 - 16 mm <sup>2</sup>					
AC connection technology		5-pin AC screw terminals 2.5 - 16 mm <sup>2</sup>					
Certificates and compliance with standards	VDE AR N 4	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 %	97.5 % 97.6 %					
Max. efficiency (PV - battery - grid)	> 90.0 %	> 90.0 %	> 90.0 %				
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 disconnector		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				
	Fronius Solar.web						
WLAN / Ethernet	Included						
WLAN / Ethernet Datalogger and web server							

<sup>1)</sup> Preliminary data. <sup>2)</sup> Testing to IEC 62109-1.



### **TECHNICAL DATA FRONIUS SOLAR BATTERY<sup>1)</sup>**

/ 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 storage capacity of the Fronius Solar Battery can be adapted to meet individual customer needs.

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)	8,000					
Voltage range	120 - 170 V	160 - 230 V	200 - 290 V	240 - 345 V	280 - 400 V	320 - 460 V
Nominal charging power	2,400 W	3,200 W	4,000 W	4,800 W	5,600 W	6,400 W
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	1		
Installation type	Indoor installation					
Ambient temperature range	5 - 35°C					
Permitted humidity	0 - 100 %					
DC connection technology	Screw terminals 2.5 - 16 mm <sup>2</sup>					
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)					

Connection to inverter

<sup>1)</sup> Preliminary data.

#### **TECHNICAL DATA FRONIUS SMART METER<sup>1)</sup>**

/ The Fronius Smart Meter is a bidirectional meter which optimises self-consumption and records the household's load curve. In conjunction with the Fronius Solar.web online portal, the Fronius Smart Meter provides a clear overview of a user's own power consumption.

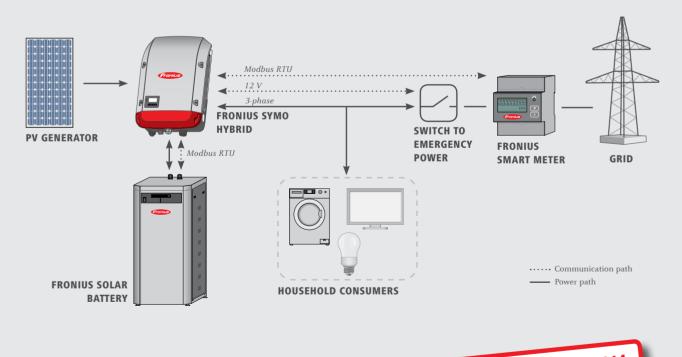


FRONIUS SMART METER		
400 - 415 V		
3 x 63 A		
1 - 16 mm <sup>2</sup>		
0.05 - 4 mm <sup>2</sup>		
DIN rail		
4 modules DIN 43880 (4 pole)		
1		
Modbus RTU (RS485)		
8-digit LCD		

<sup>1)</sup> Preliminary data.



# **CONFIGURATION DIAGRAM FRONIUS ENERGY PACKAGE**



AVAILABLE FROM THE END OF 2014

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

/ 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. Our goal has remained constant throughout: to be the innovation 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.

#### **PERFECT WELDING**

/ We develop products and complete systems - both manual and automated - as well as the corresponding services for our customers in the global welding technology market. We have made it our goal to decode the "DNA of the arc".

#### **SOLAR ENERGY**

/ The challenge is to make the leap to a regenerative energy supply. Our vision is to use renewable energy to achieve energy independence. With our services, inverters and energystorage systems for optimising energy yields, we are one of the leading suppliers in the photovoltaics sector.

### **PERFECT CHARGING**

/ As know-how leaders in the world of battery charging, we deliver exceptional solutions to create the maximum benefit for our customers. For the intralogistics sector, we are committed to energy flow optimisation for electric forklift trucks and are constantly striving for the next innovation. Our powerful charging systems for vehicle workshops guarantee safe and reliable processes.

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

Fronius India Private Limited GAT no 312, Nanekarwadi Chakan, Taluka - Khed District Pune 410501 India pv-sales-india@fronius.com www.fronius.in Fronius Australia Pty Ltd. 90-92 Lambeck Drive Tullamarine VIC 3043 Australia pv-sales-australia@fronius.com www.fronius.com.au Fronius UK Limited Maidstone Road, Kingston Milton Keynes, MK10 0BD United Kingdom pv-sales-uk@fronius.com www.fronius.co.uk Fronius International GmbH Froniusplatz 1 4600 Wels Austria pv-sales@fronius.com www.fronius.com