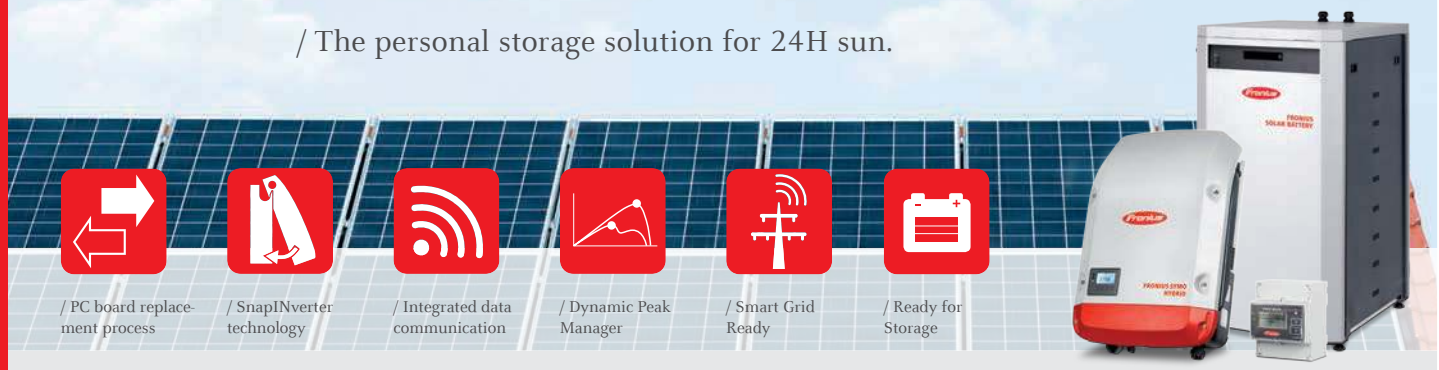
/ Perfect Welding / Solar Energy / Perfect Charging

SHIFTING THE LIMITS

FRONIUS ENERGY PACKAGE

/ The personal storage solution for 24H sun.



/ PC board replacement process

/ SnapINverter technology

/ Integrated data communication

/ Dynamic Peak Manager

/ Smart Grid Ready

/ Ready for Storage

/ "24H sun" is the Fronius vision of how energy will be supplied in the coming decades. The Fronius Symo Hybrid is a major step towards this vision. Boasting power categories ranging from 3.0 to 5.0 kW, the transformerless inverter 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.

FLEXIBLE

/ Emergency power function and battery can be retrofitted
/ Range of different storage capacities available (4.5 - 12.0 kWh)
/ retrofittable to existing PV systems

OPTIMISED

/ DC-coupled system
/ No multiple conversions between AC and DC
/ High-performance lithium technology

THREE-PHASE

/ Maximisation of self-consumption
/ Three-phase emergency power supply
/ Grid phase balancing support

REVOLUTIONARY

/ User-friendly interface
/ Integrated WLAN and Ethernet
/ Commissioning wizard for straightforward configuration

TECHNICAL DATA FRONIUS SYMO HYBRID[1)]

/ 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.

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 ($U_{dc\ start}$)		200 V	
Nominal input voltage ($U_{dc,r}$)		595 V	
Max. input voltage ($U_{dc\ max}$)		1000 V	
Usable MPP voltage range (Umpp min – Umpp max)		150 - 800 V	
MPP voltage range at nominal power ($U_{mpp\ min}$ – $U_{mpp\ max}$)	200 - 800 V	255 - 800 V	320 - 800 V
Number of MPP trackers		1	

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.		

[1)] Preliminary data.

TECHNICAL DATA FRONIUS SYMO HYBRID[1)]

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		
Charging sources	from AC and DC		
Overvoltage category (DC / AC) [2)]	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 mm²		
DC battery connection technology	1x DC+ and 1x DC- screw terminals 2.5 - 16 mm²		
AC connection technology	5-pin AC screw terminals 2.5 - 16 mm²		
Certificates and compliance with standards	VDE AR N 4105, ÖVE / ÖNORM E 8001-4-712, DIN V VDE 0126-1-1		
Stand-alone	Yes		

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 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
WLAN / Ethernet	Fronius Solar.web, Modbus TCP, JSON		
6 inputs or 4 digital in/out	Interface to ripple control receiver, Energy management		
USB (A socket)	For USB sticks		
2x RS422 (RJ45 socket)	Fronius Solar Net. Interface Protocol		
Signalling output	Energy management (potential-free relay output)		
External input	S0-Meter Interface / Input for overvoltage protection		
Datalogger and web server	Included		
Interface to battery and meter	Modbus RTU SunSpec (RS485)		

[1)] Preliminary data.
[2)] Testing to IEC 62109-1.

TECHNICAL DATA FRONIUS SOLAR BATTERY[1)]

/ The Fronius Solar Battery is a perfect example of safe and 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
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 mm²					
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)					

[1)] Preliminary data.

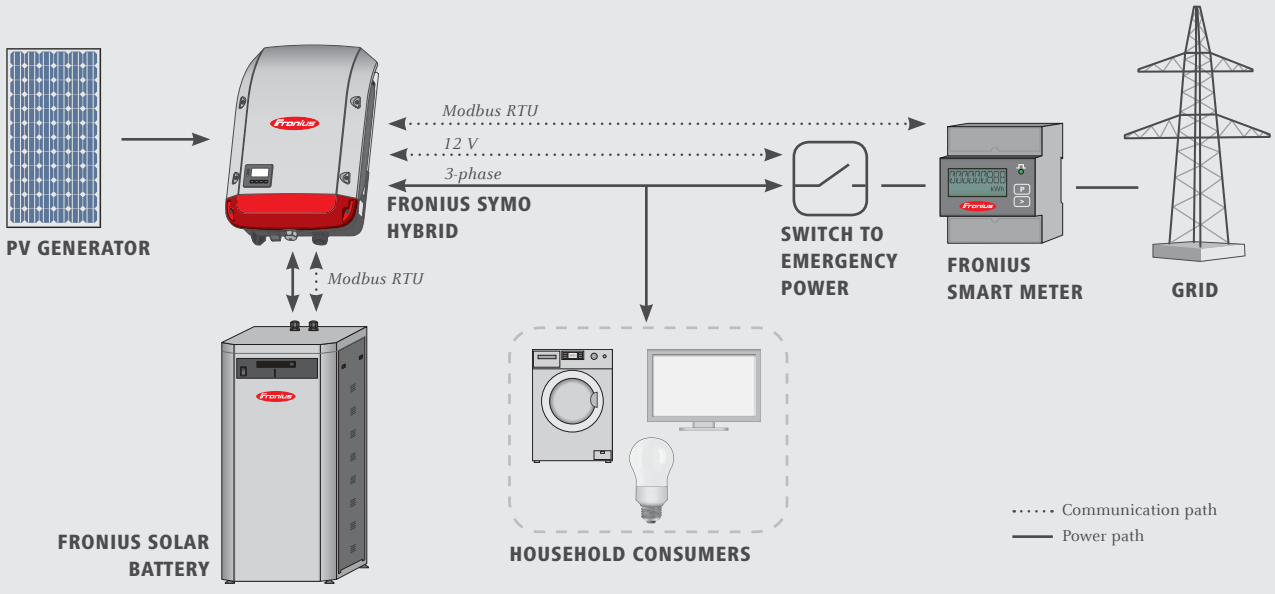
TECHNICAL DATA FRONIUS SMART METER[1)]

/ 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.

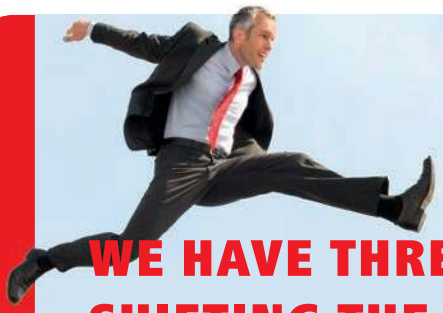
GENERAL DATA	FRONIUS SMART METER
Nominal voltage	400 - 415 V
Max. current	3 x 63 A
Cable cross-section, power path	1 - 16 mm²
Cable cross-section, communication	0.05 - 4 mm²
Installation	DIN rail
Housing	4 modules DIN 43880
Accuracy class	1
Interface to inverter	Modbus RTU SunSpec (RS485)
Display	8-digit LCD

[1)] Preliminary data.

CONFIGURATION DIAGRAM



AVAILABLE FROM Q1 2015



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 energy-storage 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**

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v02 Feb 2014 EN

EN v01 May 2014 as16

Warranty terms and conditions

These guaranteed conditions apply to inverters in the following series:

String inverters

- Fronius IG
- Fronius IG Plus
- Fronius IG Plus V
- Fronius IG TL
- Fronius Galvo (light)
- Fronius Symo (light)

Central inverters

- Fronius IG
- Fronius CL

Geographical validity

These warranty terms and conditions are valid worldwide. However, they do not apply to Canada, the United States of America and Mexico. Separate warranty terms and conditions apply to these countries.

Fronius manufacturer's warranty

The inverters listed above come standard with a manufacturer's warranty of 60 months from the date of installation. Fronius guarantees that your photovoltaic inverter will function correctly during this period.

Extended warranty

An extended warranty can be purchased up to 6 months after the date of installation. Applications for an extended warranty after this date can be rejected by Fronius. The extended warranty only applies to the inverters listed above.

You can apply to extend the warranty period to a total of 10, 15 or 20 years for string inverters. For central inverters, the warranty period can be extended to a total of 10 or 20 years.

Services within the warranty period

If a defect should occur within the agreed upon warranty period for which Fronius is responsible, Fronius has the option of

- repairing the defect at Fronius or onsite
- providing an equivalent replacement device or new device
- or having a trained Fronius Service Partner carry out these services

Transport

Fronius pays the transport costs for the inverter (by land or sea)

- into and within countries with a national Fronius subsidiary
- into and within countries of the EU (including the autonomous regions or cities of Spain and Portugal)
- into and within Switzerland
- between the respective national or nearest Fronius subsidiary and the retail site of the official Fronius sales partner from which the device was purchased.

Transport costs are not paid

- from or to EU overseas territories
- from, into, or within countries outside of the EU provided that there are no national Fronius subsidiaries there.

For return transportation, devices or components must be packed in their original or equivalent packaging.

Fronius subsidiaries

As of September 2012, Fronius will have national subsidiaries in the following countries outside the EU, Switzerland and the USA:

- Australia
- Brazil
- Canada
- China
- Mexico
- Norway
- Turkey
- Ukraine

Current information about this can be found on our website at www.fronius.com.

When making a warranty claim, attention should be paid to the following:

The purchase invoice, serial number of the device and start-up report (the date on which the device was provided/commissioned and report from the power supply company), as well as proof of payment of the warranty extension fee, are required for warranty claims.

End customers, please contact your installer. If necessary, the installer will get in contact with Fronius.

The procedure for a warranty claim must be coordinated with Fronius. This is the only way to ensure that the above mentioned warranty services will be provided free of charge for the warrantee.

When devices or components are replaced, the remaining warranty period will be transferred to the replacement device or component. This will be registered automatically by Fronius. You will not receive a new certificate.

If the remaining warranty period is less than one year, you will automatically receive a full year for the remaining warranty period for the replacement device or component.

Scope and validity of the warranty

The manufacturer's warranty is only valid for the inverter that is uniquely identified by the serial number. Other photovoltaic system components as well as Fronius system upgrades (e.g., plug-in cards) are not covered by the warranty.

Fronius DATCOM components (for system monitoring) come standard with a 24-month warranty from the date of installation.

Exclusions from the Fronius warranty

Defects not attributable to Fronius are excluded from the guarantee. Defects not attributable to Fronius are those that are caused in particular by:

- Non-compliance with operating instructions, installation instructions or maintenance instructions
- Improper installation
- Improper commissioning
- Incorrect transport
- Improper or incorrect operation
- Inadequate ventilation of the device
- Tampering with the device by companies or persons not authorized by Fronius
- Non-compliance with safety instructions and installation standards
- Force majeure (storm, lightning, overvoltage, fire, etc.)

Damage to the inverter caused by the remaining components of the photovoltaic system or damage that impairs the function of the inverter, such as "flaws," are also excluded from the manufacturer's warranty.

The warranty does not cover travel and accommodation costs as well as onsite assembly and installation costs if they exceed the service reimbursement received by the installer performing the work from Fronius depending on the service and agreement.

Changes to the existing PV system, the building installation and the like, or any expenditure of time and the costs resulting from this are not covered by the warranty.

Due to technological progress, the possibility exists that a replacement or new device of similar value provided may not be compatible with the system monitoring or other components installed onsite (e.g., Fronius DATCOM). Expenditures and costs resulting from this are not covered by the warranty.

No compensation is provided for lost power that has not been fed into the grid or for energy consumption that does not take place and the like.

Other legal information

In Australia, this warranty is given by, and all Australian warranty claims should be directed to:

Fronius Australia Pty Ltd, 90-92 Lambeck Drive, Tullamarine, VIC 3043, Telephone 03 8340 2900, Email pv-support-australia@fronius.com

The benefits to the consumer given by this manufacturer's warranty are in addition to other rights and remedies of the consumer that are stipulated by law, and which are not affected by this manufacturer's warranty.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

The general delivery and payment terms and conditions located on our website (www.fronius.com.au) under "Terms and conditions" are in effect unless these warranty conditions allow more favorable provisions.

Previously valid warranty conditions are replaced by these conditions.

Current and detailed information about warranty terms and conditions can be found on our website at

www.fronius.com/solar/warranty