



FRONIUS ENERGY PACKAGE WITH LG Chem RESU H

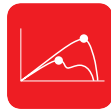
The cost-effective storage solution from Fronius



SnapInverter
Technology



Integrated data
communication



Dynamic Peak
Manager



Smart Grid
Ready



Zero feed-in



Multi Flow
Technology

Fronius offers customised storage solutions for every requirement.

The new Energy Package with LG Chem RESU H batteries and the Fronius Checkbox is the optimised solution for price- and quality-conscious system owners. With a strong commitment to cost effectiveness and operational reliability, it is a welcome addition to the range of batteries from Fronius.

In power categories ranging from 3.0 to 5.0 kW, the three-phase Fronius Symo Hybrid inverter allows excess energy produced by a photovoltaic system to be stored in LG Chem RESU 7H and LG Chem RESU 10H batteries. This results in maximum self-consumption and maximum independence. The Solar.web monitoring tool offers optimum visualisation and monitoring of the system and, together with the Fronius Smart Meter, gives a comprehensive overview of the system and household energy consumption. The Fronius Symo Hybrid supports either a DC or an AC coupling of storage systems. In the event of an AC coupling, another PV generator can be connected to the Fronius Symo Hybrid. The Fronius Energy Package is therefore suitable for new installations as well as for retrofitting batteries to existing PV systems.*

*Not available with emergency power function – a suitable Fronius alternative is the Energy Package with Fronius Solar Battery, which is equipped with an emergency power function.

FLEXIBLE

- / Simultaneous DC and AC coupling
- / Battery can be retrofitted
- / Two storage capacities available

THREE-PHASE

- / Maximisation of self-consumption

EFFICIENT

- / High-performance lithium technology
- / High system efficiency

REVOLUTIONARY

- / User-friendly interface
- / Integrated WLAN and Ethernet
- / Unlimited usage options thanks to Multi Flow Technology

TECHNICAL DATA FRONIUS SYMO HYBRID

The Fronius Symo Hybrid is the heart of the storage solution for 24 hours of sun - the Fronius Energy Package. With power categories from 3.0 to 5.0 kW, the three-phase inverter allows surplus energy from a photovoltaic system to be temporarily stored in the LG Chem RESU H Battery. Through intelligent energy flow management, the integrated Multi Flow Technology allows both the AC and the DC coupling of storage systems.



INPUT DATA	SYMO HYBRID 3.0-3-S	SYMO HYBRID 4.0-3-S	SYMO HYBRID 5.0-3-S
Number of MPP trackers		1	
Max. PV input power	5.0 kW	6.5 kW	8.0 kW
Max. input current ($I_{dc\ max}$)		1 x 16 A	
Max. short circuit current, module array		24 A	
DC input voltage range ($U_{dc\ min} - U_{dc\ max}$)		150 - 1000 V	
Feed-in start voltage ($U_{dc\ start}$)		200 V	
Usable MPP voltage range		150 - 800 V	
Number of DC connections (PV)		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		Depends on connected LG Chem RESU H Battery	
Maximum input power from battery		Depends on connected LG Chem RESU H Battery	

OUTPUT DATA	SYMO HYBRID 3.0-3-S	SYMO HYBRID 4.0-3-S	SYMO HYBRID 5.0-3-S
AC nominal output ($P_{ac,r}$)	3,000 W	4,000 W	5,000 W
Max. output power	3,000 VA	4,000 VA	5,000 VA
Max. power from grid to battery	3,000 VA	4,000 VA	5,000 VA
Max. AC output current ($I_{ac\ max}$)		8.3 A	
Grid connection (Spannungsbereich)		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 ($\cos \phi_{ac,r}$)		0.85 - 1 ind. / cap.	

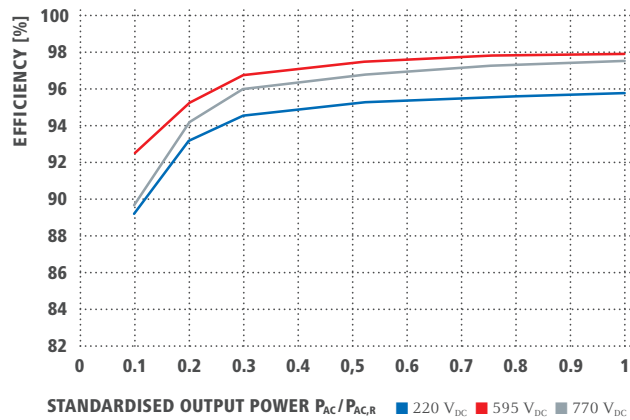
GENERAL DATA	SYMO HYBRID 3.0-3-S	SYMO HYBRID 4.0-3-S	SYMO HYBRID 5.0-3-S
Dimensions (height x width x depth)		645 x 431 x 204 mm	
Weight		19.9 kg	
Degree of protection		IP 65	
Protection class		1	
Overvoltage category (DC / AC) ¹⁾		2 / 3	
Inverter design		Transformerless	
Cooling		Regulated air cooling	
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 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	

EFFICIENCY	SYMO HYBRID 3.0-3-S	SYMO HYBRID 4.0-3-S	SYMO HYBRID 5.0-3-S
Max. efficiency (PV - grid)	97.7 %	97.9 %	
Max. efficiency (PV - battery - grid)	> 90.0 %	> 90.0 %	> 90.0 %
Europ. efficiency (PV - grid)	95.2 %	95.7 %	96.0 %
MPP adaptation efficiency		> 99.9 %	

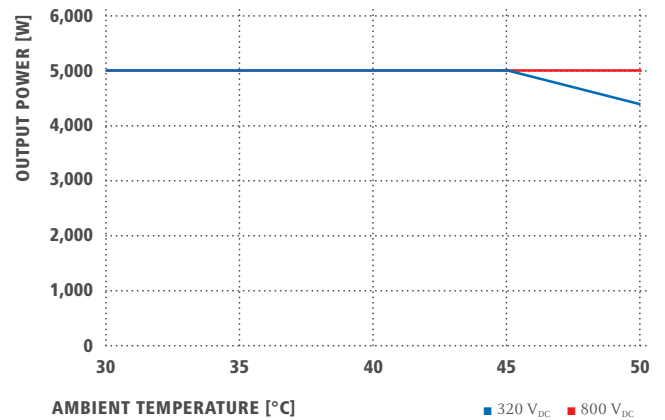
¹⁾ Testing to IEC 62109-1

Further information regarding the availability of the inverters in your country can be found at www.fronius.com.

FRONIUS SYMO HYBRID 5.0-3-S EFFICIENCY CURVE



FRONIUS SYMO HYBRID 5.0-3-S TEMPERATURE DERATING



TECHNICAL DATA FRONIUS SYMO HYBRID

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

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

Further information and technical data can be found at www.fronius.com.

TECHNICAL DATA FRONIUS SMART METER

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.



TECHNICAL DATA	FRONIUS SMART METER 63A-3	FRONIUS SMART METER 50kA-3 ¹⁾
Nominal voltage		400 - 415 V
Maximum current	3 x 63 A	3 x 50,000 A
Input Terminal capacity	1 - 16 mm ²	0.05 - 4 mm ²
Communication and Neutral line Terminal capacity		0.05 - 4 mm ²
Power consumption	1.5 W	2.5 W
Starting current		40 mA
Accuracy class		1
Active Energy Accuracy		Class B (EN50470)
Reactive Energy Accuracy		Class 2 (EN/IEC 62053-23)
Short-time overcurrent		30 x I _{max} / 0,5 s
Mounting		Indoors (DIN rail)
Housing		4 modules DIN 43880
Degree of protection		IP 51 (front frame), IP 20 (terminals)
Specified operating range		-25 - +55°C
Dimensions (Height x Width x Depth)		89.0 x 71.2 x 65.6 mm
Interface to inverter		Modbus RTU (RS485)
Display		8-digit LCD

¹⁾ Delivered without current sensors. Further information about selecting suitable current sensors can be found at www.fronius.com.

TECHNICAL DATA LG Chem RESU H

The batteries of LG Chem - RESU 7H and RESU 10H - are as cost efficient as they are dependable. Thus they are the perfect match for the Fronius Symo Hybrid.



ELECTRICAL PARAMETERS	RESU 7H	RESU 10H
Usable capacity ¹⁾	6.6 kWh	9.3 kWh
Voltage range	350 - 450 V	350 - 450 V
Max. power	3.5 kW	5.0 kW
Peak power (up to 10 seconds)	5.0 kW	7.0 kW

¹⁾ 12% of the capacity are allocated for protecting the battery against deep discharge.

GENERAL DATA	RESU 7H	RESU 10H
Dimensions (height x width x depth)	692 x 744 x 206 mm	907 x 744 x 206 mm
Weight	76 kg	97 kg
Degree of protection		IP 55
Certificates and compliance with standards	UL 1642, TUV (ICE 62619) / CE	TUV (IEC 62619) / UL1973 / CE

INTERFACES	RESU 7H	RESU 10H
Connection to inverter	RS485	RS485

Source www.lgesspartner.com
For detailed product information see www.lgesspartner.com

TECHNICAL DATA FRONIUS CHECKBOX 500V

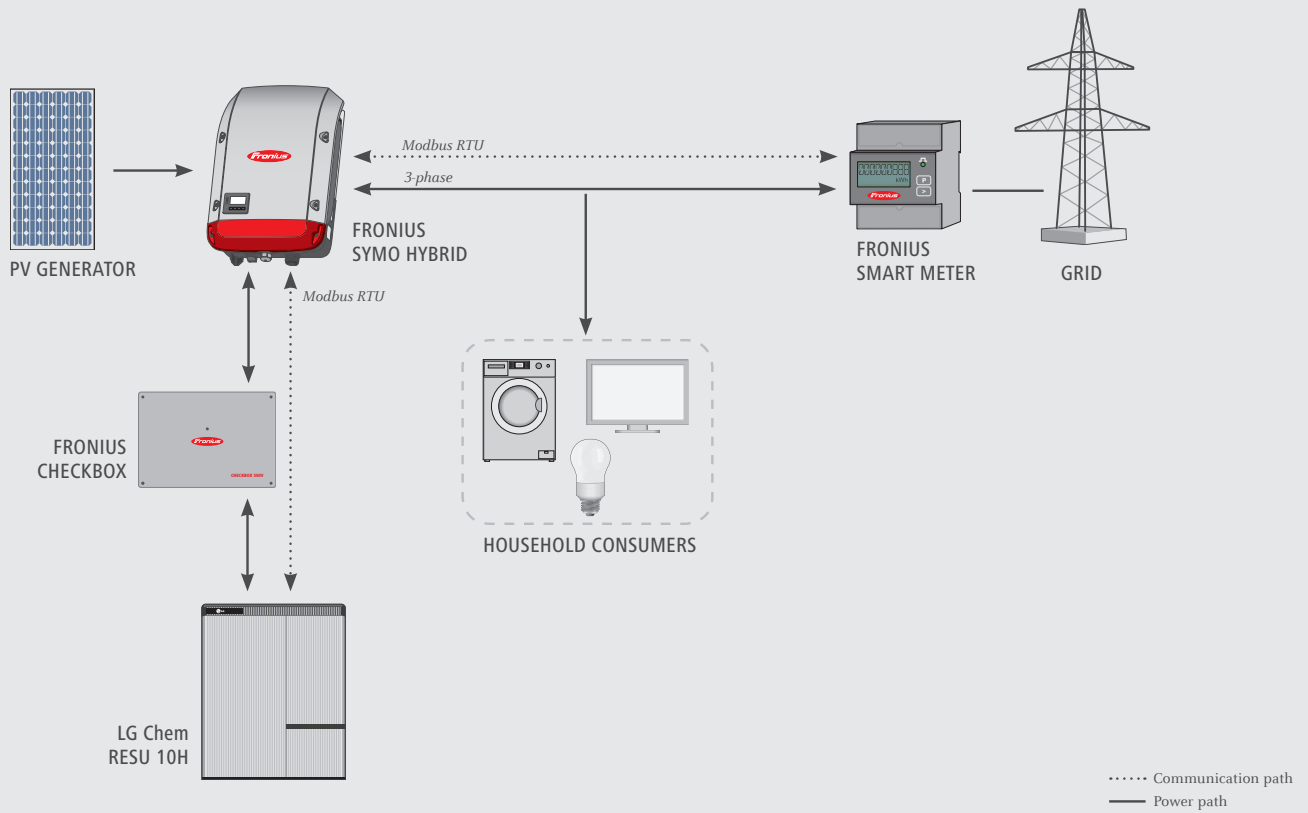
The Fronius Checkbox 500V guarantees the operational reliability of the Fronius Energy Package with LG Chem RESU H - even in exceptional situations. As the battery is designed for 500 V and the inverter is designed for 1000 V, the Fronius Checkbox 500V measures the voltage and disjoins the battery in case of failure.



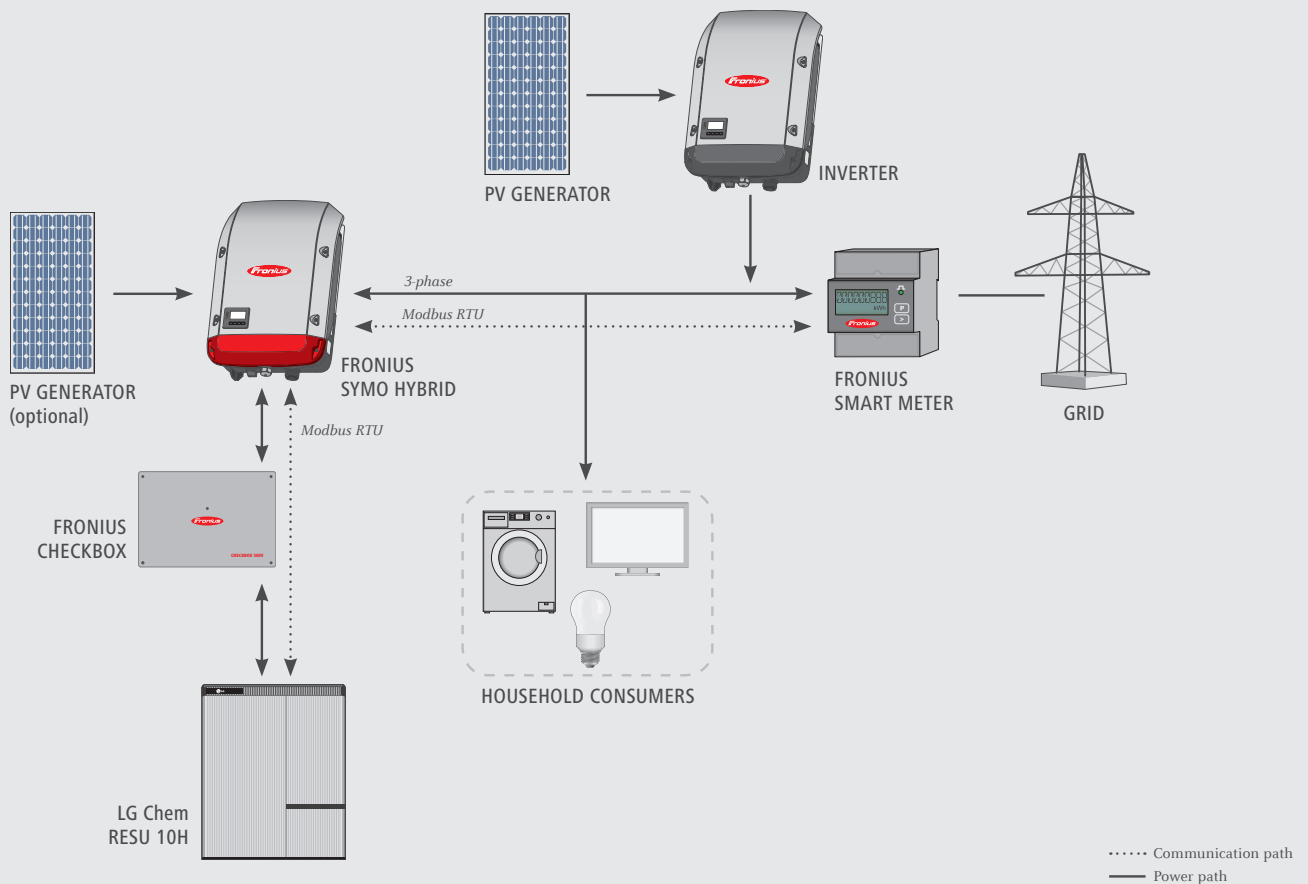
INPUT DATA	FRONIUS CHECKBOX
Max. input current ($I_{dc \max}$)	16 A
Max. input voltage (battery)	500 V
Max. input voltage (inverter)	1000 V

GENERAL DATA	FRONIUS CHECKBOX
Dimensions (DxWxH)	260 x 205 x 75 mm
Protection class	I
Degree of protection	IP 65
Installation	Indoors and outdoors (wall mounting)
Ambient temperature range	-25 to +60°C
Permitted humidity	0 - 100%
Certificates and compliance with standards	IEC62109-1
Self-consumption	< 2 W
Connection technology	MC4 connectors, M6 stud for earthing
Weight	1.34 kg

CONFIGURATION DIAGRAM DC COUPLING



CONFIGURATION DIAGRAM DC & AC COUPLING



THREE BUSINESS UNITS, ONE GOAL: TO SET THE STANDARD THROUGH TECHNOLOGICAL ADVANCEMENT.

What began in 1945 as a one-man operation now sets technological standards in the fields of welding technology, photovoltaics and battery charging. Today, the company has around 3,800 employees worldwide and 1,242 patents for product development show the innovative spirit within the company. Sustainable development means for us to implement environmentally relevant and social aspects equally with economic factors. Our goal has remained constant throughout: to be the innovation leader.

PERFECT WELDING

Our mission is Perfect Welding; a task we have approached with passion and skill for decades in order that our customers can join materials with the perfect weld seam. With our outstanding technologies and services and together with our customer's applications, not only do we solve their specific welding technology problems, but we also make a substantial contribution to increasing their productivity.

SOLAR ENERGY

Our mission is to achieve 24 hours of sun. Day after day we are hard at work turning this vision of a future in which 100% of the world's energy needs are covered by renewable sources into a reality. We are therefore concentrating on solutions to intelligently, efficiently and economically generate, store, distribute and consume solar energy.

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