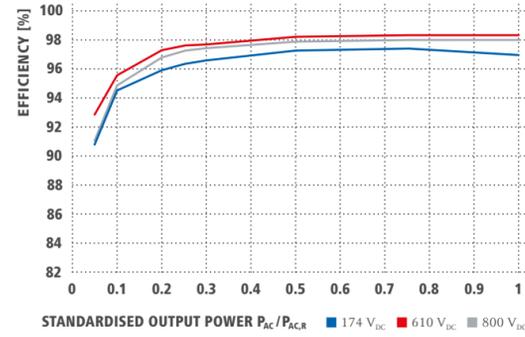
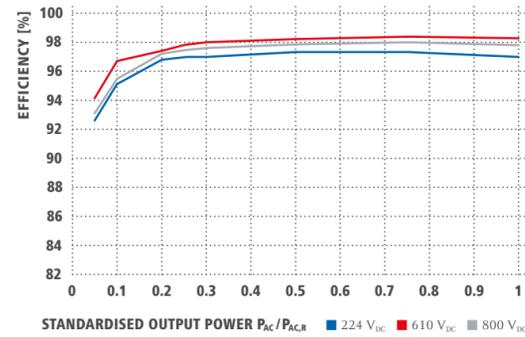


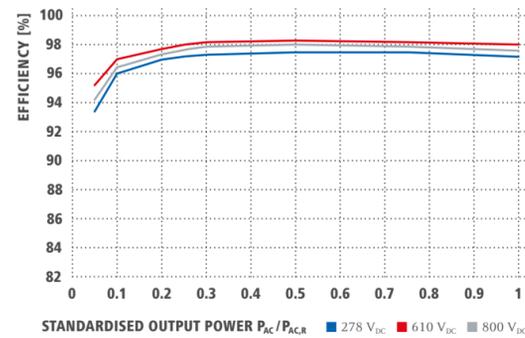
FRONIUS SYMO GEN24 / GEN24 PLUS 6.0 EFFICIENCY CURVE



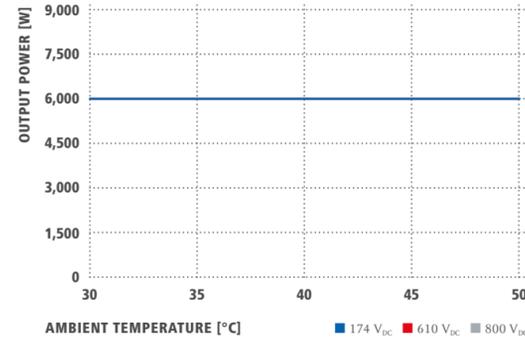
FRONIUS SYMO GEN24 / GEN24 PLUS 8.0 EFFICIENCY CURVE



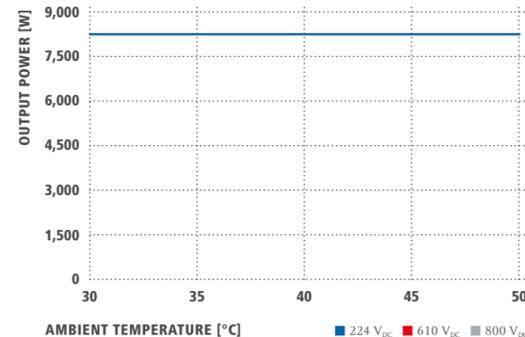
FRONIUS SYMO GEN24 / GEN24 PLUS 10.0 EFFICIENCY CURVE



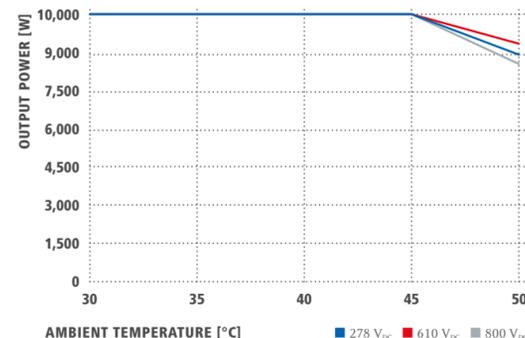
FRONIUS SYMO GEN24 / GEN24 PLUS 6.0 TEMPERATURE DERATING



FRONIUS SYMO GEN24 / GEN24 PLUS 8.0 TEMPERATURE DERATING



FRONIUS SYMO GEN24 / GEN24 PLUS 10.0 TEMPERATURE DERATING



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 5,440 employees worldwide and 1,264 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

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M2,00,0008, EN v12, Mar. 2021 as17

/ Perfect Welding / Solar Energy / Perfect Charging



FRONIUS SYMO GEN24 & GEN24 PLUS

Maximum flexibility and future reliability with the uniquely versatile inverter



The three-phase Symo GEN24 product family consists of the Symo GEN24 inverters and the Symo GEN24 Plus hybrid inverters. With power classes ranging from 3.0 to 10.0 kw, they are the perfect solution for private households. With numerous features these three-phase devices meet all customer needs – from energy management to WLAN connection as standard, Ethernet connectivity and easy integration of third-party components.

The Fronius Symo GEN24 Plus guarantees the highest level of safety in case of power grid failure: PV Point or even Full Backup. The Full Backup feature works in combination with a battery and supplies loads like an electric cooker or a heat pump, whenever there is sufficient energy available.

The Symo GEN24 is also available as an inverter without hybrid functions but still with an integrated basic backup power supply (PV Point). With the Fronius Upgrade Programme the battery connection and Full Backup feature can easily be activated. A software update with Fronius Solar.web (carried out by the installer) turns the Symo GEN24 to a Symo GEN24 Plus. This leads to maximal flexibility and future reliability because the battery connection and backup function can be upgraded at any time.

TECHNICAL DATA FRONIUS SYMO GEN24 AND GEN24 PLUS (3.0, 4.0, 5.0)

INPUT DATA	SYMO GEN24 3.0 / GEN24 3.0 PLUS	SYMO GEN24 4.0 / GEN24 4.0 PLUS	SYMO GEN24 5.0 / GEN24 5.0 PLUS
Number of MPP trackers	2		
Max. input current (I _{dc,max} MPPT1 / MPPT2)	12.5 A / 12.5 A		
Max. array short circuit current (MPPT1/MPPT2)	18.75 A / 18.75 A		
DC input voltage range (U _{dc,min} - U _{dc,max})	80 V - 1000 V		
Nominal input voltage (U _{dc,n})	610 V		
Feed-in start voltage (U _{dc,start})	80 V		
Usable MPP voltage range	80 V - 800 V		
Number of DC connections (MPPT1 / MPPT2)	2 / 1		
Max. PV generator output (P _{dc,max})	4.5 kW _{peak}	6 kW _{peak}	7.5 kW _{peak}
OUTPUT DATA	SYMO GEN24 3.0 / GEN24 3.0 PLUS	SYMO GEN24 4.0 / GEN24 4.0 PLUS	SYMO GEN24 5.0 / GEN24 5.0 PLUS
AC nominal output (P _{ac,n})	3000 W	4000 W	5000 W
Max. output power	3000 VA	4000 VA	5000 VA
Max. output current (I _{ac,max})	8 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 Hz – 66 Hz)		
Total harmonic distortion	< 3.5 %		
Power factor (cos φ _{ac})	0.7 - 1 ind. / cap.		

¹⁾ The Full Backup Option is available for the Symo GEN24 6.0 - 10.0 Plus. For the Full Backup, additional external components for grid separation are required. You can find more information on this in the operating instructions.

²⁾ Please note that the availability of Fronius UP differs from country to country. You can find an overview of the various availabilities on www.fronius.com.

TECHNICAL DATA FRONIUS SYMO GEN24 AND GEN24 PLUS (3.0, 4.0, 5.0)

OUTPUT DATA PV POINT	SYMO GEN24 3.0 / GEN24 3.0 PLUS	SYMO GEN24 4.0 / GEN24 4.0 PLUS	SYMO GEN24 5.0 / GEN24 5.0 PLUS
Nom. output power PV Point	3000 VA		
Grid connection PV Point	1 ~ NPE 220 V / 230 V		
Switchover time	< 90 seconds		

BATTERY CONNECTION	SYMO GEN24 3.0 PLUS	SYMO GEN24 4.0 PLUS	SYMO GEN24 5.0 PLUS
Number of DC connections	1		
Max. input current (I _{dc max})	12.5 A		
DC input voltage range (U _{dc min} - U _{dc max})	160 V - 500 V		
DC battery connection technology	1x BATT+ and 1x BATT- push-in spring terminals 2.5 - 10 mm ²		
Max. input / output power ¹⁾	3,150 W	4,180 W	5,200 W
Max. AC charging power	3,000 W	4,000 W	5,000 W
Compatible batteries	BYD Battery-Box Premium HVS/HVM ²⁾		

FOR THE BATTERY CONNECTION A GEN24 PLUS IS NEEDED

GENERAL DATA	SYMO GEN24 3.0 / GEN24 3.0 PLUS	SYMO GEN24 4.0 / GEN24 4.0 PLUS	SYMO GEN24 5.0 / GEN24 5.0 PLUS
Dimensions (height x width x depth)	530 x 474 x 165 mm		
Weight (inverter / with packaging)	15,6 / 19,4		
Degree of protection	IP 66		
Protection class	1		
Nighttime power loss	< 10 W		
Overvoltage category (DC/AC) ³⁾	2 / 3		
Inverter design	Transformerless		
Cooling	Regulated air cooling		
Installation	Indoor and outdoor installation		
Ambient temperature range	- 25 - +60 °C		
Permitted humidity	0 - 100 %		
Noise Emission	< 36 dB (A)		
Max. altitude	3,000 m / 4,000 m (unrestricted / restricted voltage range)		
DC PV connection technology	3x DC+ and 3x DC- push-in spring terminals 2.5 - 10 mm ² 5 pole AC push-in spring terminals 1.5 - 10 mm ² 3 pole backup power push-in spring terminals 1.5mm ² - 10mm ² 5x PE-screw terminals 2.5 - 16 mm ²		
AC connection technology			
Certificates and compliance with standards	IEC 62109, IEC 62116, IEC 61727, IEC 62909, VDE 0126, VDE AR-N4105, AS/NZS 4777.2, EN 50549, CEI 0-21, G 98, R25 ⁴⁾		
Backup power functions	PV Point		

EFFICIENCY	SYMO GEN24 3.0 / GEN24 3.0 PLUS	SYMO GEN24 4.0 / GEN24 4.0 PLUS	SYMO GEN24 5.0 / GEN24 5.0 PLUS
Max. efficiency	98.1 %	98.2 %	98.2 %
Europ. efficiency (η _{EU})	96.7 %	97.2 %	97.5 %
MPP-tracking efficiency	> 99.9 %		

PROTECTIVE DEVICES	SYMO GEN24 3.0 / GEN24 3.0 PLUS	SYMO GEN24 4.0 / GEN24 4.0 PLUS	SYMO GEN24 5.0 / GEN24 5.0 PLUS
DC insulation measurement	Yes		
DC insulation measurement	Operating point shift, Power limitation		
DC disconnect	Yes		
Reverse polarity protection	Yes		

INTERFACES	SYMO GEN24 3.0 / GEN24 3.0 PLUS	SYMO GEN24 4.0 / GEN24 4.0 PLUS	SYMO GEN24 5.0 / GEN24 5.0 PLUS
WLAN / 2x Ethernet LAN	Fronius Solar.web, Modbus TCP SunSpec, Fronius Solar API (JSON)		
6x digital in/out + 6x digital in	Interface to ripple control receiver, energy management		
USB 2.0 (A-socket)	1 A supply		
Emergency stop (WSD)	Yes		
Datalogger and webserver	Included		
2x RS485	Modbus RTU SunSpec (third-party supplier) / Fronius Smart Meter, battery (GEN24 Plus), Fronius Ohmpilot		

¹⁾ Depending on the connected battery

²⁾ Except HVS 12.8 and HVM 8.3

³⁾ According to IEC 62109-1. Optional retrofit surge protection device DC SPD type 1+2 for 2 MPP trackers available under the following article number: 4,240,313,CK

⁴⁾ For the current certificates, please see www.fronius.com

For further information on the availability of this inverter in your country please see www.fronius.com.

TECHNICAL DATA FRONIUS SYMO GEN24 AND GEN24 PLUS (6.0, 8.0, 10.0)

INPUT DATA	SYMO GEN24 6.0 / GEN24 6.0 PLUS	SYMO GEN24 8.0 / GEN24 8.0 PLUS	SYMO GEN24 10.0 / GEN24 10.0 PLUS
Number of MPP trackers	2		
Max. input current (I _{dc max} MPPT1 / MPPT2)	25 A / 12.5 A		
Max. array short circuit current (MPPT1/MPPT2)	37.5 A / 18.75 A		
DC input voltage range (U _{dc min} - U _{dc max})	80 V - 1,000 V		
Nominal input voltage (U _{dc,n})	610 V		
Feed-in start voltage (U _{dc, start})	80 V		
Usable MPP voltage range	80 V - 800 V		
Number of DC connections (MPPT1 / MPPT2)	2 / 1		
Max. PV generator output (P _{dc max})	9 kW _{peak}	12 kW _{peak}	15 kW _{peak}

OUTPUT DATA	SYMO GEN24 6.0 / GEN24 6.0 PLUS	SYMO GEN24 8.0 / GEN24 8.0 PLUS	SYMO GEN24 10.0 / GEN24 10.0 PLUS
AC nominal output (P _{ac,n})	6,000 W	8,000 W	10,000 W
Max. output power	6,000 VA	8,000 VA	10,000 VA
Max. output current (I _{ac max})	16.4 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 Hz – 66 Hz)		
Total harmonic distortion	< 3.5 %		
Power factor (cos φ _{ac,n})	0.7 - 1 ind. / cap.		

OUTPUT DATA PV POINT	SYMO GEN24 6.0 / GEN24 6.0 PLUS	SYMO GEN24 8.0 / GEN24 8.0 PLUS	SYMO GEN24 10.0 / GEN24 10.0 PLUS
Nom. output power PV Point	3,000 VA	3,000 VA	3,000 VA
Grid connection (voltage range) PV Point	1 ~ NPE 220 V / 230 V		
Switchover time	< 90 seconds		

OUTPUT DATA FULL BACKUP ¹⁾	SYMO GEN24 6.0 PLUS	SYMO GEN24 8.0 PLUS	SYMO GEN24 10.0 PLUS
Nom. output power Full Backup	6,000 VA	8,000 VA	10,000 VA
Nominal power per phase Full Backup	3.68 kVA		
Grid connection (voltage range) Full Backup	3~NPE 400V/230V or 3~NPE 380V/220V		
Switchover time	< 90 seconds		

FOR THE FULL BACKUP FUNCTION A GEN24 PLUS IS NEEDED

¹⁾ The Full Backup Option is available for the Symo GEN24 6.0 - 10.0 Plus. For the Full Backup, additional external components for grid separation are required. You can find more information on this in the operating instructions.

TECHNICAL DATA FRONIUS SYMO GEN24 AND GEN24 PLUS (6.0, 8.0, 10.0)

BATTERY CONNECTION	SYMO GEN24 6.0 PLUS	SYMO GEN24 8.0 PLUS	SYMO GEN24 10.0 PLUS
Number of DC connections	1		
Max. input current (I _{dc max})	22 A		
DC input voltage range (U _{dc min} - U _{dc max})	160 V - 500 V		
DC battery connection technology	1x BATT+ and 1x BATT- push-in spring terminals 2.5 - 10 mm ²		
Max. input / output power ¹⁾	6,220 W	8,260 W	10,300 W
Max. AC charging power	6,000 W	8,000 W	10,000 W
Compatible batteries	BYD Battery-Box Premium HVS/HVM ²⁾		

FOR THE BATTERY CONNECTION A GEN24 PLUS IS NEEDED

GENERAL DATA	SYMO GEN24 6.0 / GEN24 6.0 PLUS	SYMO GEN24 8.0 / GEN24 8.0 PLUS	SYMO GEN24 10.0 / GEN24 10.0 PLUS
Dimensions (height x width x depth)	595 x 529 x 180 mm		
Weight (inverter / with packaging)	23,4 / 28,5 kg		
Degree of protection	IP 66		
Protection class	1		
Nighttime power loss	< 10 W		
Overvoltage category (DC/AC) ³⁾	2 / 3		
Inverter design	Transformerless		
Cooling	Regulated air cooling		
Installation	Indoor and outdoor installation		
Ambient temperature range	-25 - +60 °C		
Permitted humidity	0 - 100 %		
Noise Emission	< 47 dB (A)		
Max. altitude	3,000 m / 4,000 m (unrestricted / restricted voltage range)		
DC PV connection technology	3x DC+ and 3x DC- push-in spring terminals 2.5 - 10 mm ² 5 pole AC push-in spring terminals 1.5 - 10 mm ² 3 pole backup power push-in spring terminals 1.5mm ² - 10mm ² 5x PE-screw terminals 2.5 - 16 mm ²		
AC connection technology			
Certificates and compliance with standards	IEC 62109, IEC 62116, IEC 61727, IEC 62909, VDE 0126, VDE AR-N4105, AS/NZS 4777.2, EN 50549, CEI 0-21, G 98, R25 ⁴⁾		
Backup power functions	PV Point or Full Backup		

EFFICIENCY	SYMO GEN24 6.0 / GEN24 6.0 PLUS	SYMO GEN24 8.0 / GEN24 8.0 PLUS	SYMO GEN24 10.0 / GEN24 10.0 PLUS
Max. efficiency	98.2 %		
Europ. efficiency (η _{EU})	97.7 %	97.8 %	97.9 %
MPP-tracking efficiency	> 99.9 %		

PROTECTIVE DEVICES	SYMO GEN24 6.0 / GEN24 6.0 PLUS	SYMO GEN24 8.0 / GEN24 8.0 PLUS	SYMO GEN24 10.0 / GEN24 10.0 PLUS
DC insulation measurement	Yes		
Overload behaviour	Operating point shift, Power limitation		
DC disconnect	Yes		
Reverse polarity protection	Yes		

INTERFACES	SYMO GEN24 6.0 / GEN24 6.0 PLUS	SYMO GEN24 8.0 / GEN24 8.0 PLUS	SYMO GEN24 10.0 / GEN24 10.0 PLUS
WLAN / 2x Ethernet LAN	Fronius Solar.web, Modbus TCP SunSpec, Fronius Solar API (JSON)		
6x digital in/out + 6x digital in	Interface to ripple control receiver, energy management		
USB 2.0 (A-socket)	1 A supply		
Emergency stop (WSD)	Yes		
Datalogger and webserver	Included		
2x RS485	Modbus RTU SunSpec (third-party supplier) / Fronius Smart Meter, battery (GEN24 Plus), Fronius Ohmpilot		

¹⁾ Depending on the connected battery

²⁾ Except HVS 12.8 and HVM 8.3

³⁾ According to IEC 62109-1. Optional retrofit surge protection device DC SPD type 1+2 for 2 MPP trackers available under the following article number: 4,240,313,CK

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