



Fronius
Solar Energy

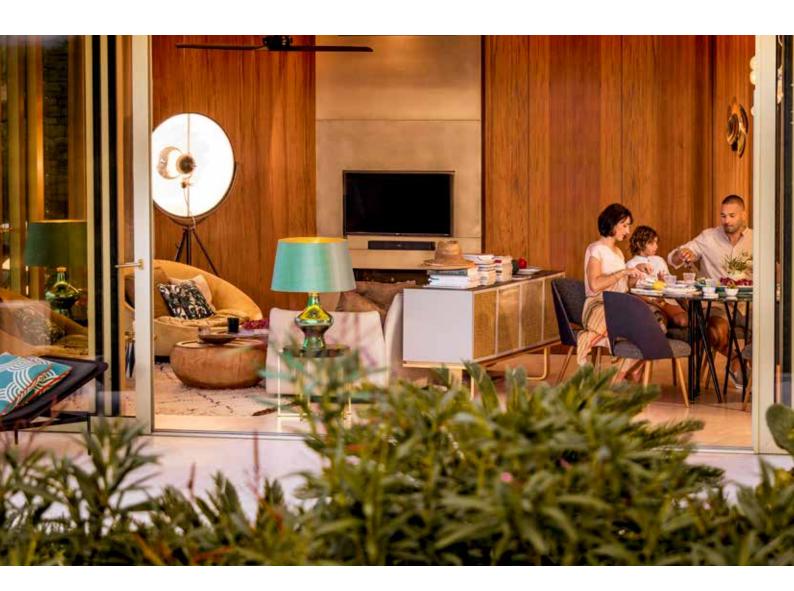
Home Inverter

GEN24 Plus

The heart of your photovoltaic system

Your energy revolution, your solution: the Fronius GEN24 Plus is the inverter that enables you to use the solar energy you generate flexibly and directly. The Fronius GEN24 Plus allows you to bring the power of 24 hours of sun into your home.

That's because the hybrid inverter lets you connect a battery system to make your energy supply even more independent. Electricity, heating, cooling, e-mobility — everything is possible. Full solar power for your energy revolution with the **Fronius GEN24 Plus. Designed to empower.**







Designed to empower.

With the Fronius GEN24 Plus, you have the flexibility to be as energy self-sufficient as you want. Whichever tailor-made solution you choose, you always benefit from easy installation, reliable and comprehensive services and the lasting good feeling of making real savings - in money and CO2 emissions.



Multi-award-winning









Premium efficiency

Awarded by the HTW Berlin: The GEN24 Plus occupies the top position in the electricity storage inspection 2020, 2021, and 2022, thereby confirming its high efficiency in combination with electricity storage.



Product advantages

Your energy supply must be reliable, which is why the Fronius GEN24 Plus provides an integrated basic backup power function. "PV Point" is a socket that supplies backup power to connected devices, as long as the sun is shining or there is sufficient energy in the battery.

Its "Full Backup" feature backs up the power supply for the whole home. Even large loads, such as heat pumps, are reliably supplied with solar energy and energy from the connected battery. If the battery is discharged, it is charged again when the sun shines.

The Fronius GEN24 Plus was developed to enable you to set up and use your independent energy supply as flexibly as possible.
That's why the hybrid inverter has open interfaces, making it easy to integrate third-party components.

More functions. More control. More supply. With its energy management functions, the Fronius GEN24 Plus constantly saves you time and money. The design enables fast and flexible installation, while our software generates optimum yields — even in the shade. At the same time, the integrated active cooling extends the service life to protect your investment.

Backup power for every situation

Built-in freedom

Versatility as standard



Relaxed living with backup power



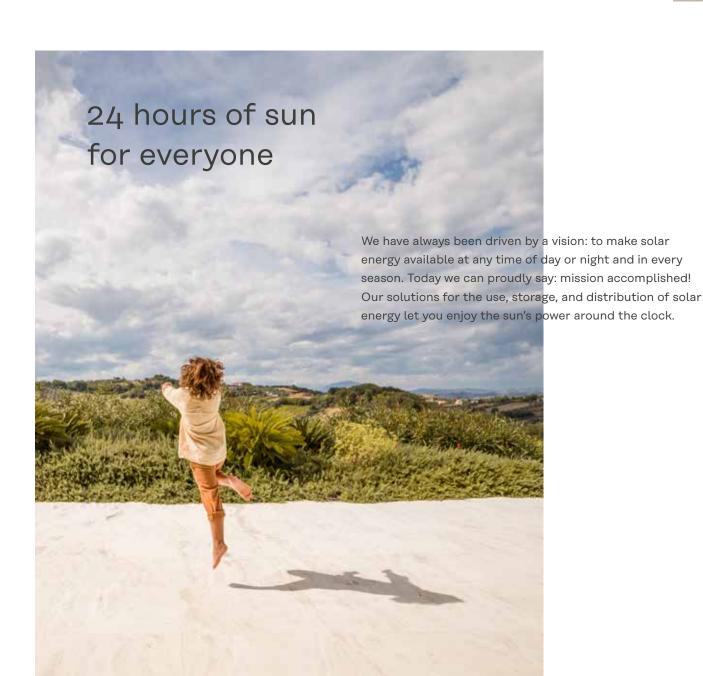
More possibilities with solar energy

*The Full Backup option is available for the Primo GEN24 3.0–6.0 Plus and the Symo GEN24 6.0–10.0 Plus.

Sustainable right from the start

Ecological, economical, social: We are focused on all aspects of sustainability. We have been successfully investing in good relationships with our customers, partners, and employees for 30 years and are a

dependable partner as well as an innovative pioneer. When developing all our solutions, we always consider the wellbeing of future generations: a fact that is clearly reflected in our responsible approach to business.





Energy self-sufficiency pays off: with the Fronius GEN24 Plus as the core of your PV system, you will save a lot of money and CO2 right from the very first day. And with a service life of 20 years or more, the savings are quite significant.

For example: If used for 20 years, you can offset as much CO2 as would be produced by 20 flights* from Lisbon to New York.

Made in Austria

All our products and solutions are "Made in Austria" and are consistently developed and implemented with sustainability in mind. In their life cycle analysis, employees from the renowned Fraunhofer IZM confirmed that our GEN24 product range performs very well in all phases with sustained outputs and outstanding features.



100% recycled aluminum for the cooling elements in all Fronius GEN24 inverters



100% green electricity is used in production



Maximum repairability on site thanks to easy-to-replace individual components

Your PV syste can do more

Imagine if you could use your excess solar energy and turn it into heat or energy to power your electric car. Fronius makes this easy, with solutions that are tailored to the heart of your PV system.



Fronius Ohmpilot

The consumption regulator constantly controls water heating with excess current. The advantages for you are loss-free energy utilization and even lower CO2 emissions.



Fronius Wattpilot

Sustainable efficiency on the road: with the Fronius Wattpilot, excess solar energy is used to power your electric car. Available as a mobile charging solution to take with you or as a stationary version for use at home.



For more information on the product and our Fronius partners, go to: www.fronius.com/gen24-residential

Solar.web

Everything under control: with our monitoring tool, you can always keep an eye on your PV system and keep your energy revolution on track. And if ever anything isn't quite right, Solar.web automatically notifies the responsible installer.

Fronius International GmbH

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BATTERY STORAGE SOLUTION

with Fronius GEN24 Plus and compatible battery storage

- BYD Battery-Box Premium HVS/HVM or
- LG RESU FLEX



THE ADVANTAGES AT A GLANCE:

- / Use of PV energy also possible at night
- / Demand-oriented backup power variants
- / Simultaneous supply of the loads and charging of the battery also possible in the event of a power outage
- High self-consumption and self-sufficiency rates
- / Highest system efficiency thanks to DC coupling of the battery storage and high voltage technology

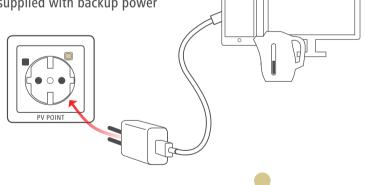
- 1 Fronius Inverter
- 2 Fronius Smart Meter
- 3a OPTION 1: LG RESU FLEX
- **3b OPTION 2:** BYD Battery-Box Premium HVS/HVM

ONBOARD BASIC BACKUP POWER SUPPLY: THE PV POINT

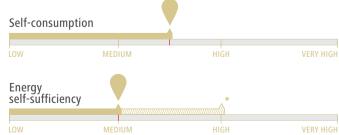
/ Single-phase loads in households up to 3 kW can be supplied with backup power

/ No additional installations necessary

/ Automatic activation in case of a grid outage



Cost-effectiveness





^{*} depending on the heat generation in the household.

COMPATIBILITIES AND MAXIMUM CHARGING AND DISCHARGING POWER:

BYD BATTERY-BOX PREMIUM									
		HVS					HVM		
MAXIMUM DC CHARGING AND DIS- CHARGING POWER WITH GEN24 PLUS (KW) 1			HVS 10.2						
Primo GEN24 3.0 Plus	3.11	3.11	-		3.11	3.11	3.11	3.11	-
Primo GEN24 3.6 Plus	3.81	3.81	-		3.81	3.81	3.81	3.81	-
Primo GEN24 4.0 Plus	4.14	4.14	-		4.14	4.14	4.14	4.14	-
Primo GEN24 4.6 Plus	4.51	4.75	-		4.51	4.75	4.75	4.75	-
Primo GEN24 5.0 Plus	4.51	5.17	-		4.51	5.17	5.17	5.17	-
Primo GEN24 6.0 Plus	4.51	6.20	-		4.51	5.63	6.20	6.20	
Symo GEN24 3.0 Plus	2.56	3.15	3.15		2.56	3.15	3.15	3.15	3.15
Symo GEN24 4.0 Plus	2.56	3.84	4.18		2.56	3.20	3.84	4.18	4.18
Symo GEN24 5.0 Plus	2.56	3.84	5.20		2.56	3.20	3.84	4.48	5.20
Symo GEN24 6.0 Plus	4.51	6.22	6.22		4.51	5.63	6.22	6.22	6.22
Symo GEN24 8.0 Plus	4.51	6.76	8.26		4.51	5.63	6.76	7.88	8.26
Symo GEN24 10.0 Plus	4.51	6.76	9.01		4.51	5.63	6.76	7.88	9.01

LG RESU FLEX					
MAXIMUM DC CHARGING AND DIS- CHARGING POWER WITH GEN24 PLUS (KW) ¹					
Primo GEN24 3.0 Plus	3.11	3.11	-		
Primo GEN24 3.6 Plus	3.81	3.81	-		
Primo GEN24 4.0 Plus	4.14	4.14	-		
Primo GEN24 4.6 Plus	4.30	4.75	-		
Primo GEN24 5.0 Plus	4.30	5.17	-		
Primo GEN24 6.0 Plus	4.30	6.20			
Symo GEN24 3.0 Plus	2.86	3.15	3.15		
Symo GEN24 4.0 Plus	2.86	4.18	4.18		
Symo GEN24 5.0 Plus	2.86	4.29	5.20		
Symo GEN24 6.0 Plus	4.30	6.22	6.22		
Symo GEN24 8.0 Plus	4.30	6.50	8.26		
Symo GEN24 10.0 Plus	4.30	6.50	8.50		

¹ The data in the table is the DC charging and discharging power. This DC discharge power differs from the AC power that then reaches the loads in the household, since the efficiency of the inverter must also be taken into account here.

DIFFERENCES OF BYD BATTERY-BOX PREMIUM HVS VS. HVM:

BYD BATTERY-BOX PREMIUM				
HVS	HVM			
High battery module voltage, therefore excellent system efficiency (confirmed by HTW Berlin)	Higher energy density, therefore lower space requirement			
Higher charging and discharging power at similar capacity: HVS 10.2 up to 9.01 kW	Lower charging and discharging power at similar capacity: HVM 11.0 up to 4.51 kW			
Scalable up to 7.68 kWh (Primo GEN24 Plus) / 10.24 kWh (Symo GEN24 Plus) without parallel operation	Scalable up to 19.32 kWh (Primo GEN24 Plus) / 22.08 kWh (Symo GEN24 Plus) without parallel operation			
Parallel operation up to 23.04 kWh (Primo GEN24 Plus) / 30.72 kWh (Symo GEN24 Plus)	Parallel operation up to 57.96 kWh			

PARALLEL OPERATION FRONIUS GEN24 PLUS AND BYD BATTERY-BOX PREMIUM HVS/HVM:

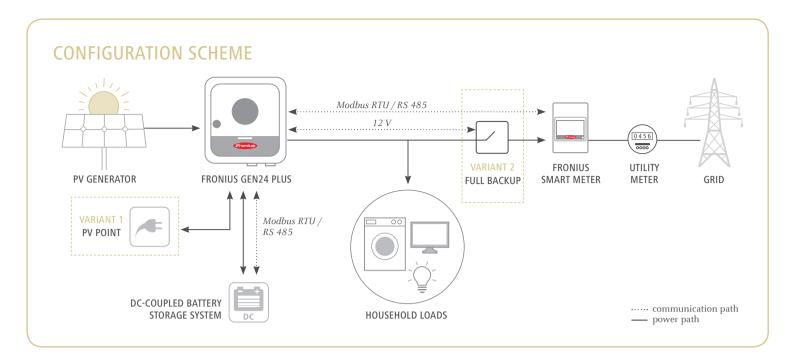
Due to the expandability of the BYD Battery-Box Premium HVS/HVM, up to 3 batteries can be operated in parallel. The advantage of parallel operation of several storage units is that a high capacity can be achieved. Thus, even small commercial systems can be realised with the combination of Fronius GEN24 Plus and BYD Battery-Box Premium HVS/HVM.

THE FOLLOWING TABLE SHOW THE POSSIBLE COMBINATIONS DEPENDING ON THE INVERTER AND STORAGE TYPE:

BYD BATTERY-BOX PREMIUM									
		HVS				HVN	Л		
				2x / 3x HVM 11.0					
Fronius Primo GEN24 Plus	✓	✓	-	✓	✓	✓	✓	-	-
Fronius Symo GEN24 Plus	✓	✓	✓	✓	✓	✓	✓	✓	

Parallel operation increases the capacity of the battery, but the charging and discharging power remain the same as when operating a single battery.

Please also follow the BYD guidelines for parallel operation of the BYD Battery-Box Premium HVS/HVM. National regulations, the grid operator's specifications or other factors may require a residual current circuit breaker in the AC connection lead. In this case, in accordance with national legislation, Fronius recommends that a residual current circuit breaker with a tripping current of at least 100 mA suitable for frequency converters be used. Parallel operation depends on the respective availability and the certification in the country.



WHAT IS NEEDED TO IMPLEMENT THE FRONIUS BATTERY STORAGE SOLUTION?

DEVICE	TYPE	NOTE
INVERTER	Fronius Primo GEN24 Plus or Fronius Symo GEN24 Plus	Depending on the type of inverter and the type and capacity of the battery
BATTERY STORAGE SYSTEM	BYD Battery-Box Premium HVS/HVM or LG RESU FLEX	You can find more details on the BYD Battery-Box Premium HVS/HVM under the following link https://www.bydbatterybox.com/ For more information on the LG RESU FLEX, go to https://www.lgessbattery.com/
FRONIUS SMART METER	63A-1; 63A-3; 50KA-3 240V-3 UL; 480V-3 UL; 600V-3 UL TS 100A-1; TS 65A-3; TS 5KA-3	/ Suitable for single-phase and three-phase grids / Measures energy consumption and energy from the grid
COMMUNICATION INVERTER WITH BATTERY	RTU (RS485). The terminating resistors of Premium HVS/HVM by means of a DIP s RESU Monitor App. To ensure proper fu	ery via a shielded 4-pin cable (CAT5 and higher) via Modbus must be set at the end of the ring, with the BYD Battery-Box witch directly on the battery, with the LG RESU FLEX in the nctioning, the inverter and battery always need to have the ite of the inverter can be activated via Fronius Solar.web.
COMMUNICATION INVERTER WITH SMART METER	Cable connection (CAT5 and higher) via M	Modbus RTU (RS485)

BACKUP POWER OPTIONS 1

VARIANT 1:

BACKUP POWER VARIANT:
"PV POINT"

- ON BOARD -

For the PV Point, a socket must be connected to the OP-terminal of the inverter in accordance with the installation standard. The PV Point can be implemented with or without a battery storage. For further details on installation, please refer to the Fronius GEN24 Plus Operating Instructions.

VARIANT 2:

BACKUP POWER VARIANT: "FULL BACKUP" ²

For the Full Backup, additional mains switchover contactors or auxiliary relays (Enwitec) are required. The requirements for this switchover vary from country to country - please contact your grid operator. For the Full Backup, a battery storage is required.

¹ Only one of the two backup power variants can be implemented.

² The Full Backup option is available for the Primo GEN24 Plus 3 - 6 kW and the Symo GEN24 Plus 6 - 10 kW.

1 Nov 2022

Scan the QR code and discover the vision and storage solution of Fronius:





GEN24 Plus brings us another step closer to our vision of 24 hours of sun:

It's all about sustainability – throughout all phases of the product life cycle. The following facts confirm this:

- / Extension of the inverters service life thanks to active cooling
- / Comprehensive functions and open interfaces replace the need for additional equipment
- / > 90% recycled aluminium is used in the aluminium heat-sink



Even more information on sustainability with the Fronius GEN24 Plus

/ Perfect Welding / Solar Energy / Perfect Charging

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 5,660 employees worldwide and 1,321 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.

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

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FRONIUS SYMO GEN24 PLUS

The hybrid allrounder with individual backup power





Communication











Multi Flow Technology

SuperFlex Full backup Design

PV Point basic grid backup

The Fronius Symo GEN24 Plus, with power categories of between 6 and 10 kW, is the ideal hybrid inverter for private households. With many features as standard, the three-phase device covers all customer requirements.

The GEN24 Plus leaves nothing to be desired with numerous features such as energy management functions, WLAN connection as standard, Ethernet connectivity and easy integration of third-party components. Thanks to a selection of backup power options (PV Point, full backup) in particular, it ensures the highest degree of power supply reliability.

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

INPUT DATA	SYMO GEN24 6.0 PLUS	SYMO GEN24 8.0 PLUS	SYMO GEN24 10.0 PLUS
Number of MPP trackers		2	
Max. input current (Idc 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,r})		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 (Pdc max)	9 kW _{peak}	12 kW _{peak}	15 kW _{peak}

OUTPUT DATA	SYMO GEN24 6.0 PLUS	SYMO GEN24 8.0 PLUS	SYMO GEN24 10.0 PLUS		
AC nominal output (Pac,r)	6,000 W	8,000 W	10,000 W		
Max. output power	6,000 VA	8,000 VA	10,000 VA		
Max. output current (Iac 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,r)	0.7 - 1 ind. / cap.				
Backup power		3~NPE 400 V / 230 V			

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

¹⁾ 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 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	
Max. input / output power 2)	6,220 W	8,260 W	10,300 W
Max. AC charging power	6,000 W	8,000 W	10,000 W

GENERAL DATA	SYMO GEN24 6.0 PLUS	SYMO GEN24 8.0 PLUS	SYMO GEN24 10.0 PLUS	
Dimensions (height x width x depth)	594 x 527 x 180 mm			
Weight (inverter / with packaging)		24 / 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			
DC battery connection technology	1x BATT+ and 1x BATT- push-in spring terminals 2.5 - 10 mm²			
		pole AC push-in spring terminals 1.5 - 10 mm²		
AC connection technology	3 pole b	ackup power push-in spring terminals 1.5mm² - 10mm² 5x PE-screw terminals 2.5 - 16 mm²		
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⁾			
Back-up power functions		PV Point or full backup		
Compatible batteries		BYD Battery-Box Premium HVS/HVM 5)		

EFFICIENCY	SYMO GEN24 6.0 PLUS	SYMO GEN24 8.0 PLUS	SYMO GEN24 10.0 PLUS
Max. efficiency		98.2 %	
Europ. efficiency (ηΕU)	97.7 %	97.8 %	97.9 %
MPP-tracking efficiency		> 99.9 %	

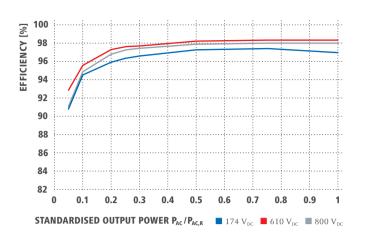
PROTECTIVE DEVICES	SYMO GEN24 6.0 PLUS	SYMO GEN24 8.0 PLUS	SYMO GEN24 10.0 PLUS
DC insulation measurement		Yes	
Overload behaviour		Operating point shift. Power limitation	
DC disconnector		Yes	
Reverse polarity protection		Yes	

INTERFACES	SYMO GEN24 6.0 PLUS	SYMO GEN24 8.0 PLUS	SYMO 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, Fronius Ohmpilot		

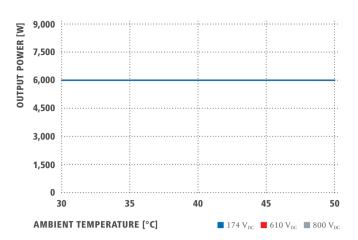
 $^{^{2)}}$ Depending on the connected battery $^{-3)}$ According to IEC 62109-1 $^{-4)}$ For the current certificates, please see **www.fronius.com** $^{5)}$ Except HVS 12.8 and HVM 8.3

For further information on the availability of this inverter in your country please see $\mathbf{www.fronius.com.}$

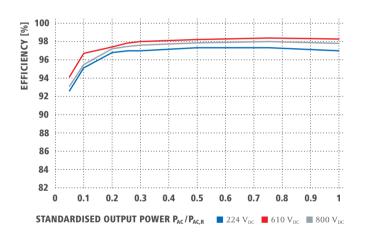
FRONIUS SYMO GEN24 PLUS 6.0 EFFICIENCY CURVE



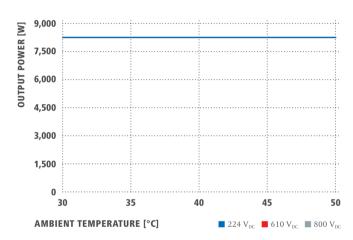
FRONIUS SYMO GEN24 PLUS 6.0 TEMPERATURE DERATING



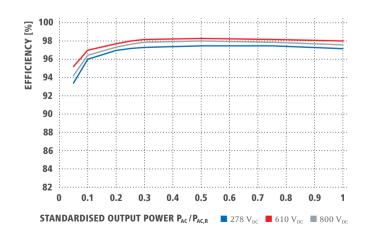
FRONIUS SYMO GEN24 PLUS 8.0 EFFICIENCY CURVE



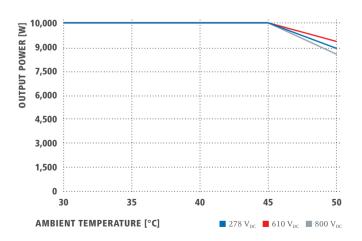
FRONIUS SYMO GEN24 PLUS 8.0 TEMPERATURE DERATING



FRONIUS SYMO GEN24 PLUS 10.0 EFFICIENCY CURVE



FRONIUS SYMO GEN24 PLUS 10.0 TEMPERATURE DERATING



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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.

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



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