



FRONIUS GEN24 PLUS PROVIDES NEW LEVELS OF VERSATILITY

PRIVATE HOUSEHOLD WITH 10.2-KWP ROOF-MOUNTED PV SYSTEM,
FRONIUS SYMO GEN24 PLUS HYBRID INVERTER, BYD BATTERY, E-MOBILITY

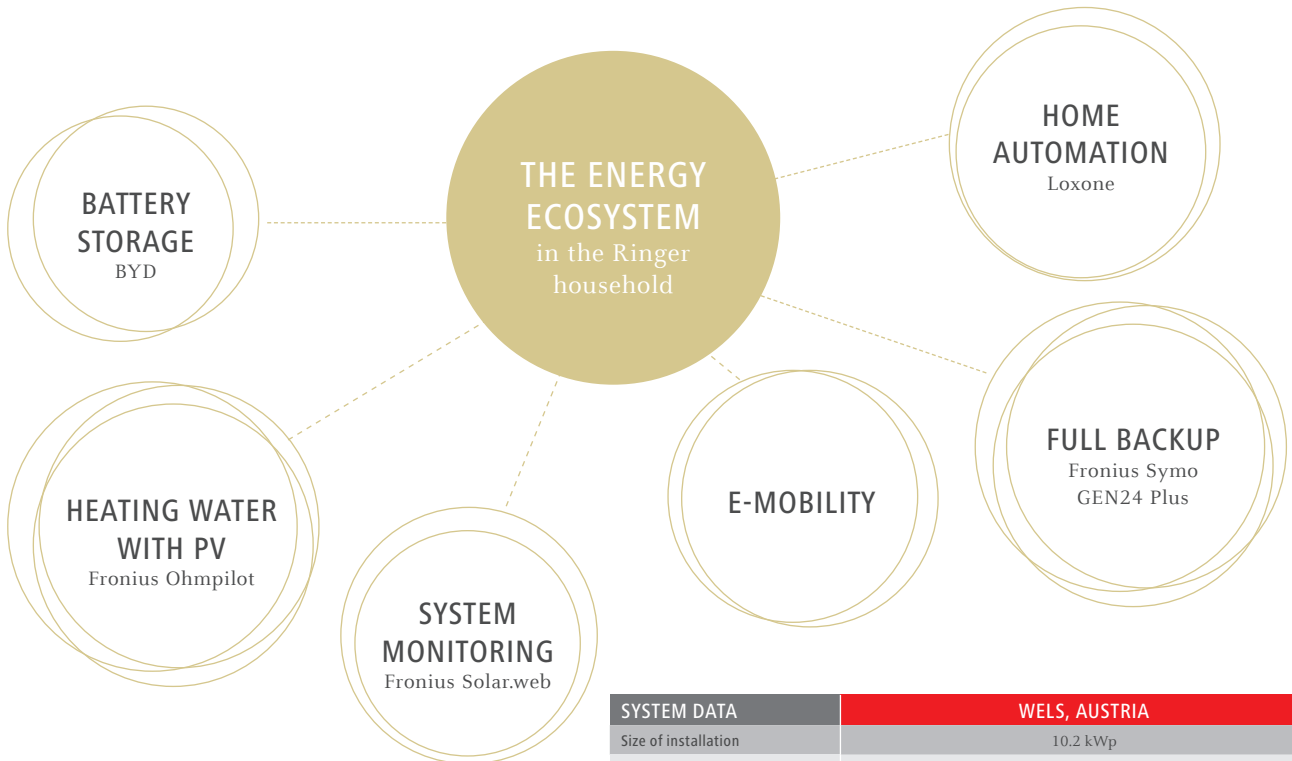
Wels, Austria: The dream of becoming self-sufficient is perhaps one of the most enduring around and the Ringer family has all but achieved it, at least when it comes to energy independence. *“Not only can we produce and store our own electricity but, thanks to our electric car, we no longer need to visit the service station. And since we opted for a Full Backup system, our energy supply needs are also covered in the event of a power failure,”* explains Thomas Ringer.



INDEPENDENCE WITHIN REACH FOR THE RINGER FAMILY

"We saw this house and fell in love with it right away," explains Stefanie Ringer. The couple have been living in the private residence, built on the outskirts of Wels, Austria in the late 1980s, for around a year now. "When we bought the house we wanted to preserve its charms while at the same time profiting from the latest developments in energy generation. This meant turning off the existing oil heating system as far as possible. We are now using PV electricity to heat our water instead."

Stefanie and Thomas Ringer also incorporated a storage system to use their own electricity when the sun is not shining. *"We want to supply our whole household with PV electricity in the event of a power failure. It was therefore clear that we were looking for an inverter that could do this. There aren't that many that can, but we have found one in the Fronius Symo GEN24 Plus,"* adds Thomas Ringer. *"And since we also have an electric car, we are self-sufficient when it comes to transport too. It goes without saying that we use our own electricity to charge the car."*



SYSTEM DATA	WELS, AUSTRIA
Size of installation	10.2 kWp
System type	Roof-top installation
Inverter	1 Fronius Symo GEN24 Plus 10.0
Solution for heat generation	Fronius Ohmpilot
Storage solution	BYD Battery-Box Premium HVM 22.1
Annual yield	Approx. 10,500 kWh
CO ₂ savings / year	Approx. 5.6 t
Commissioned	March 2019
Special feature	Complete energy ecosystem with PV, battery storage system, heating solution and e-mobility



BATTERY STORAGE SOLUTION

with Fronius GEN24 Plus and BYD Battery-Box Premium HVS/HVM



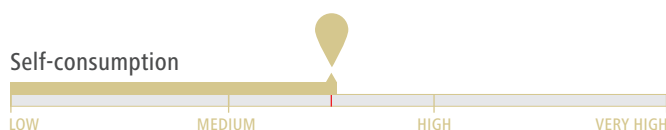
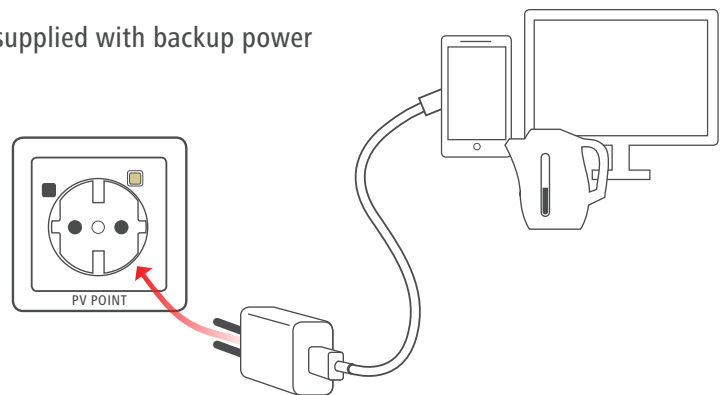
THE ADVANTAGES AT A GLANCE:

- / 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

- 1 Fronius Inverter
- 2 Fronius Smart Meter
- 3 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



* The test for the 2020 energy storage inspection was still carried out with the BYD Battery-Box HV.

** depending on the heat generation in the household.

COMPATIBILITIES AND MAXIMUM CHARGING AND DISCHARGING POWER

BYD BATTERY-BOX PREMIUM									
MAXIMUM CHARGING AND DISCHARGING POWER WITH GEN24 PLUS (KW)	HVS			HVM					
	HVS 5.1	HVS 7.7	HVS 10.2	HVM 11.0	HVM 13.8	HVM 16.6	HVM 19.3	HVM 22.1	
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	

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

Due to the cascability 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 GEN24 Plus and BYD Battery-Box Premium HVS/HVM.

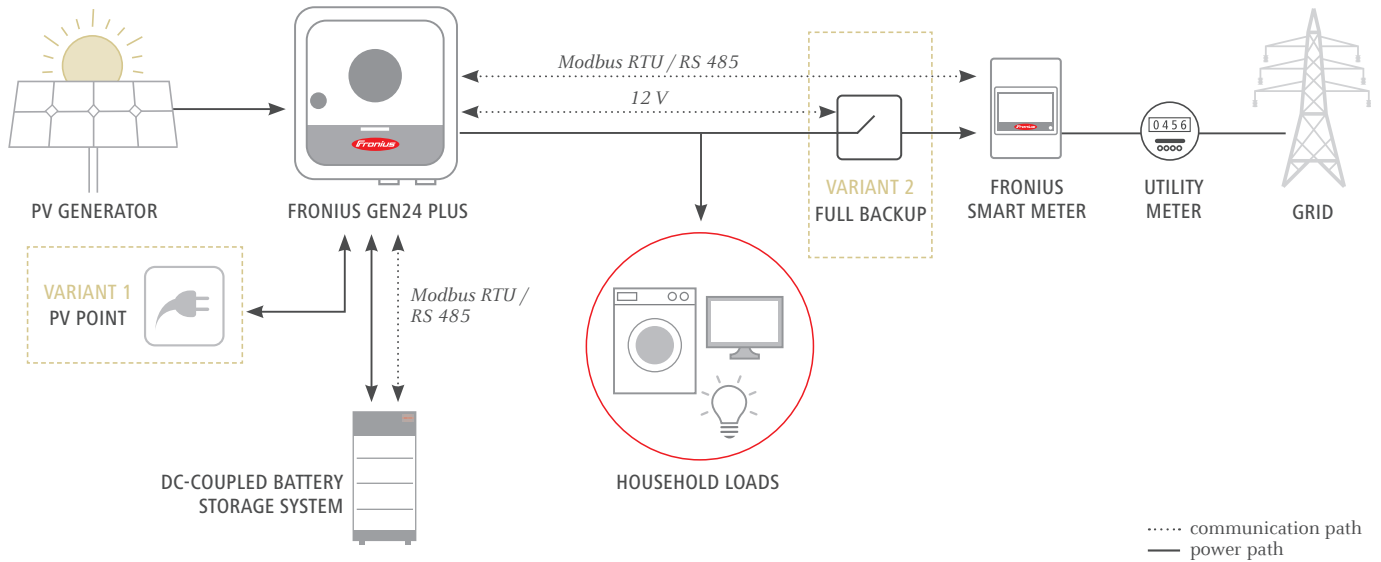
THE FOLLOWING TABLE SHOW THE POSSIBLE COMBINATIONS DEPENDING ON THE INVERTER AND STORAGE TYPE:

BYD BATTERY-BOX PREMIUM									
	HVS			HVM					
	2x / 3x HVS 5.1	2x / 3x HVS 7.7	2x / 3x HVS 10.2	2x / 3x HVM 11.0	2x / 3x HVM 13.8	2x / 3x HVM 16.6	2x / 3x HVM 19.3	2x HVM 22.1	3x HVM 22.1
Symo GEN24 Plus	✓	✓	✓	✓	✓	✓	✓	✓	-
Primo 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.

CONFIGURATION SCHEME



WHAT IS NEEDED TO IMPLEMENT THE FRONIUS BATTERY STORAGE SOLUTION?

DEVICE	TYPE	NOTE
INVERTER	Fronius Primo GEN24 Plus or 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	You can find more details on the BYD Battery-Box Premium HVS/HVM under the following links https://eft-systems.de/ and http://alpspower.com.au/
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	The inverter communicates with the battery via a shielded 4-pin cable (CAT5 and higher) via Modbus RTU (RS485). The terminating resistors must be set at the end of the ring. For further details, please refer to the GEN24 Plus Operating Instructions. To ensure proper functioning, the inverter and battery always need to have the latest software update. The software update of the inverter can be activated via Fronius Solar.web.	
COMMUNICATION INVERTER WITH SMART METER	Cable connection (CAT5 and higher) via Modbus RTU (RS485)	

BACKUP POWER OPTIONS¹

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 GEN24 Plus Operating Instructions.

VARIANT 2:

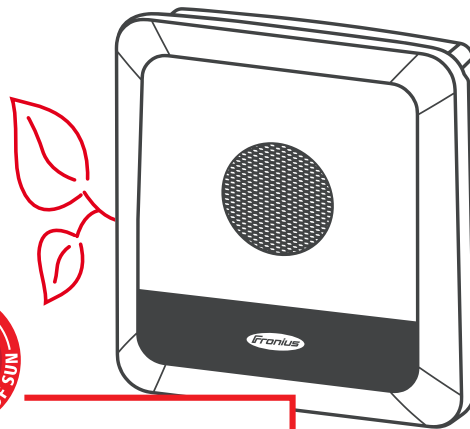
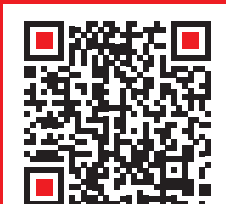
BACKUP POWER VARIANT:
„FULL BACKUP“²

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.

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



APPROVED

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

/ 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 5,440 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.

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

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