



# BATTERY STORAGE SOLUTION

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



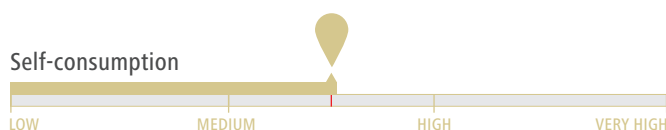
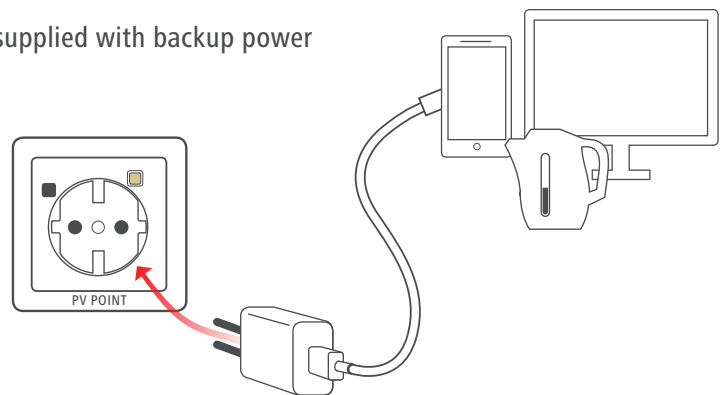
## THE ADVANTAGES AT A GLANCE:

- / 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 *	HVS 5.1	HVS 7.7	HVS 10.2	HVM 8.3	HVM 11.0	HVM 13.8	HVM 16.6	HVM 19.3	HVM 22.1
Usable capacity of the battery [kWh]	5.12	7.68	10.24	8.28	11.04	13.8	16.56	19.32	22.08
Nominal voltage of the battery [V]	204.8	307.2	409.6	153.6	204.8	256	307.2	358.4	409.6
Battery operating voltage [V]	160 - 230.4	240 - 345.6	320 - 460.8	120 - 172.8	160 - 230.4	200 - 288	240 - 345.6	280 - 403.2	320 - 460.8
	SYMO GEN24 PLUS (3.0 - 5.0)				PRIMO GEN24 PLUS AND SYMO GEN24 PLUS (6.0 - 10.0)				
Max. charge/discharge current Primo/Symo GEN24 Plus [A]	12.5				22				

\* Values according to BYD.

MAXIMUM CHARGING AND DISCHARGING POWER WITH GEN24 PLUS (KW)	HVS 5.1	HVS 7.7	HVS 10.2	HVM 8.3	HVM 11.0	HVM 13.8	HVM 16.6	HVM 19.3	HVM 22.1
Primo GEN24 3.0 Plus	3.13	3.13	-	-	3.13	3.13	3.13	3.13	-
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	3.13	3.13	-	2.56	3.13	3.13	3.13	3.13
Symo GEN24 4.0 Plus	2.56	3.84	4.17	-	2.56	3.20	3.84	4.17	4.17
Symo GEN24 5.0 Plus	2.56	3.84	5.12	-	2.56	3.20	3.84	4.48	5.12
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 cascading 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.

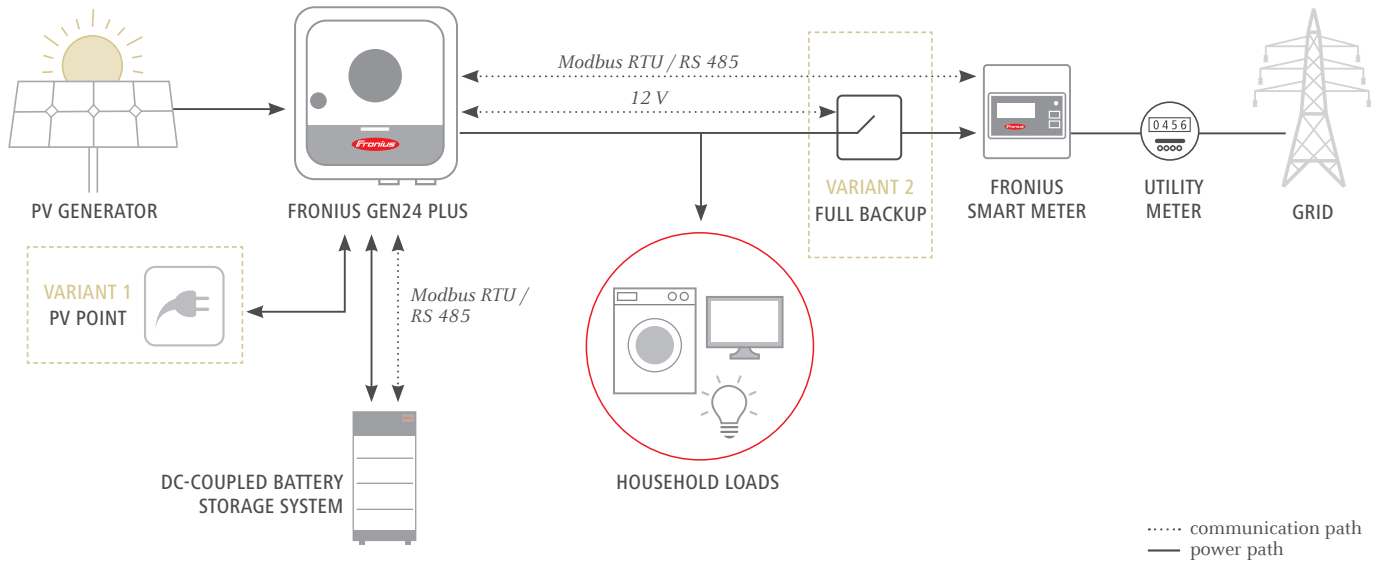
THE FOLLOWING TABLE SHOW THE POSSIBLE COMBINATIONS DEPENDING ON THE INVERTER AND STORAGE TYPE:

	BYD BATTERY-BOX PREMIUM								
	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
Capacity [kWh]	10.24 / 15.36	15.36 / 23.04	20.48 / 30.72	22.08 / 33.12	27.60 / 41.40	33.12 / 49.68	38.64 / 57.96	44.16	66.24
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. In accordance with national legislation, we recommend using a residual current protection device suitable for frequency converters with a tripping current of at least 100 mA. 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 <a href="https://eft-systems.de/">https://eft-systems.de/</a> and <a href="http://alpspower.com.au/">http://alpspower.com.au/</a>
FRONIUS SMART METER	63A-1; 63A-3; 50KA-3 240V-3 UL; 480V-3 UL; 600V-3 UL	/ 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 OPTIONS<sup>1</sup>

### 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“<sup>2</sup>

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.

<sup>1</sup> Only one of the two backup power variants can be implemented.

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

Take a look at our references to see how battery storage solution can be implemented in the best possible way:

REFERENCE  
WELS / AUSTRIA:



/ 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](http://www.fronius.com)

**Fronius India Private Limited**  
Plot no BG-71/2/B,  
Pimpri Industrial Area,  
MIDC- Bhosari,  
Pune- 411026, India  
[pv-sales-india@fronius.com](mailto:pv-sales-india@fronius.com)  
[www.fronius.in](http://www.fronius.in)

**Fronius Australia Pty Ltd.**  
90-92 Lambeck Drive  
Tullamarine VIC 3043  
Australia  
[pv-sales-australia@fronius.com](mailto:pv-sales-australia@fronius.com)  
[www.fronius.com.au](http://www.fronius.com.au)

**Fronius UK Limited**  
Maidstone Road, Kingston  
Milton Keynes, MK10 0BD  
United Kingdom  
[pv-sales-uk@fronius.com](mailto:pv-sales-uk@fronius.com)  
[www.fronius.co.uk](http://www.fronius.co.uk)

**Fronius International GmbH**  
Froniusplatz 1  
4600 Wels  
Austria  
[pv-sales@fronius.com](mailto:pv-sales@fronius.com)  
[www.fronius.com](http://www.fronius.com)