Fronius Verto Plus



Product advantages



01 Full Backup Capability

When combined with a battery storage system, the Fronius Verto Plus provides a powerful, fully-fleched three-phase backup power supply* for the entire building. It is capable of handling even large loads such as heat pumps, cooling systems, fans or grinders. This makes the Fronius Verto Plus a reliable and safe solution for securing the power supply even in critical situations.

02 Total flexibility

The Fronius Verto Plus offers maximum flexibility with three high-current MPP Trackers and a wide voltage range. This makes the inverter ideally suited to complex system designs and all your individual requirements. What's more, the Fronius Verto Plus uses an integrated Dynamic Peak Manager algorithm that enables users to achieve optimal yields even in shady conditions.

03 Maximum safety

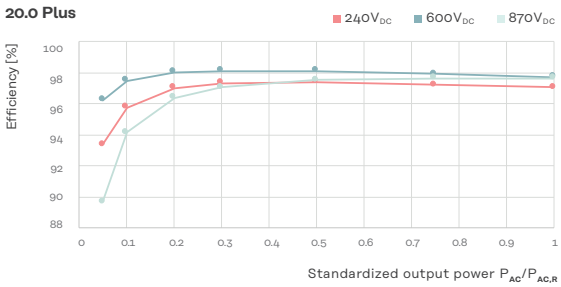
With an integrated surge protection device and an Arc Fault Circuit Interrupter (Fronius Arc Guard), the Fronius Verto Plus guarantees the very highest safety standards even in its basic configuration, without the need to pay for additional components. With Fronius, you can also rest assured that your data is in the best hands. This is ensured by our certified information security system and our servers and cloud storage in Europe.

* Available only in combination with external grid switchover components.

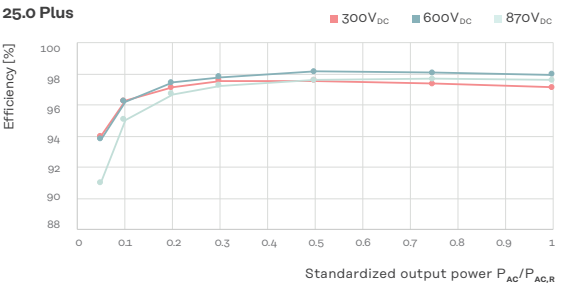
Fronius Verto Plus

Efficiency

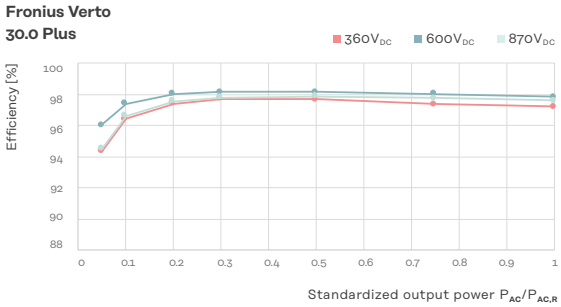
Fronius Verto 20.0 Plus



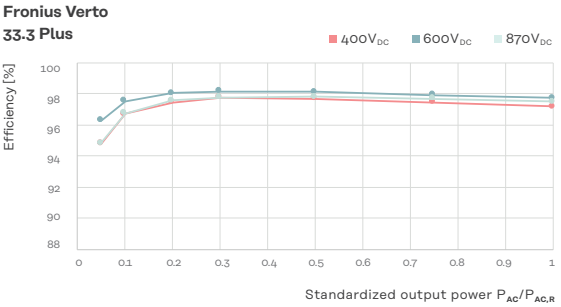
Fronius Verto 25.0 Plus



Fronius Verto 30.0 Plus

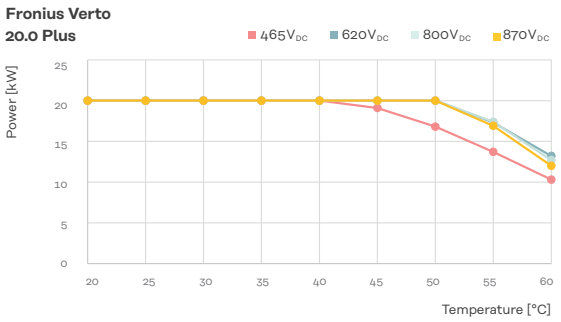


Fronius Verto 33.3 Plus

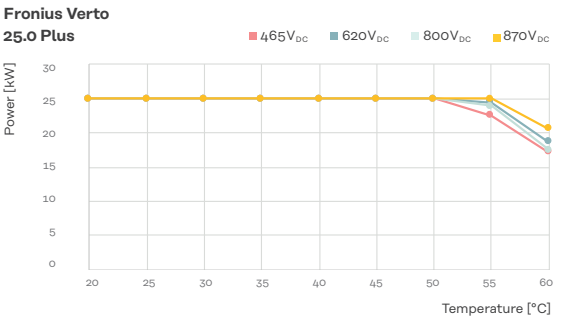


Power derating

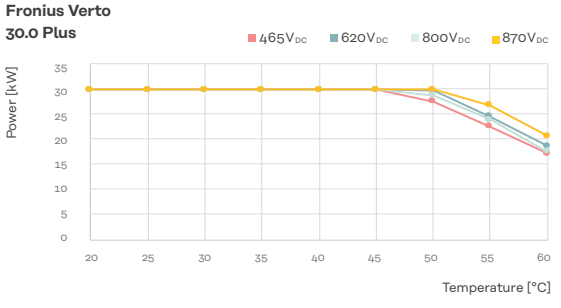
Fronius Verto 20.0 Plus



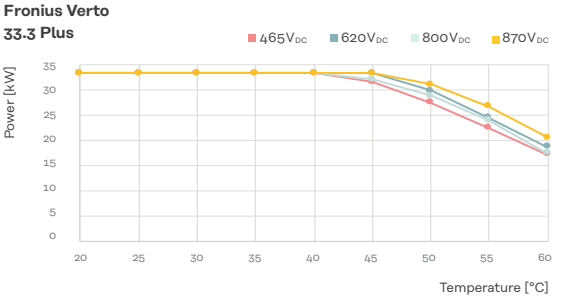
Fronius Verto 25.0 Plus



Fronius Verto 30.0 Plus



Fronius Verto 33.3 Plus



Technical data

Verto 15.0 - 20.0 Plus

			Fronius Verto Plus		
			Verto 15.0 Plus	Verto 17.5 Plus	Verto 20.0 Plus
Input data	Number of MPP trackers		3	3	3
	Inputs Per MPPT / Number of DC connection per MPPT		2	2	2
	Max. usable input current per MPPT ($I_{dc\ max,\ MPPT}$)	A	28	28	28
	Max. usable input current per string ($I_{dc\ max,\ string}$) [1]	A	28	28	28
	Max. module array short circuit current - MPPT ($I_{sc\ pv,\ MPPT}$) [2]	A	50	50	50
	Max. module array short circuit current - per string ($I_{sc\ pv,\ string}$) [2]	A	50	50	50
	Max. module array short circuit current - inverter ($I_{sc\ pv,\ inverter}$) [2]	A	150	150	150
	Nominal input voltage ($U_{dc,r}$)	V	600	600	600
	DC input voltage range ($U_{dc\ min}$ - $U_{DC\ max}$)	V	150–1,000	150–1,000	150–1,000
	Feed-in start-up input voltage ($U_{dc\ start}$)	V	150	150	150
	Usable MPP voltage range ($U_{mpp\ min}$ - $U_{mpp\ max}$)	V	150–870	150–870	150–870
	MPP voltage range (full power) ($U_{mpp\ min}$ - $U_{mpp\ max}$)	V	210–870	245–870	275–870
	Max. usable DC power - MPPT	W	13,000	13,000	13,000
	Max. usable DC power - Inverter [3]	W	22,500	26,250	30,000
	Max. PV generator output - MPPT	Wpeak	20,000	20,000	20,000
	Max. PV generator output - Inverter	Wpeak	22,500	26,250	30,000

Output data	AC rated power ($P_{ac,r}$)	W	15,000		17,500		20,000	
	Max. output power / rated apparent power	VA	15,000		17,500		20,000	
		V_{AC}	380	400	380	400	380	400
	Nominal AC output current ($I_{ac,\ r}$)	A	22.7	21.7	26.5	25.4	30.3	29.0
	Grid connection (voltage range)	V	3~ (N)PE 380/220; 3~ (N)PE 400/230;		3~ (N)PE 380/220; 3~ (N)PE 400/230;		3~ (N)PE 380/220; 3~ (N)PE 400/230;	
	Frequency (frequency range)	Hz	50/60 (45–65)		50/60 (45–65)		50/60 (45–65)	
	Total harmonic distortion	%	< 3		< 3		< 3	
	Power factor (cos $\varphi_{ac,r}$)		0–1 ind./cap.		0–1 ind./cap.		0–1 ind./cap.	

Output data Full Backup [4]	Nominal Full Backup output power	VA	15,000		17,500		20,000	
	Peak output power [5]	VA	30,000		30,000		30,000	
	Nominal Full Backup phase power	VA	7,000	7,300	7,000	7,300	7,000	7,300
	Supported phase asymmetry Full Backup [5]	A	25.0 / 32.0 peak		25.0 / 32.0 peak		25.0 / 32.0 peak	
	Grid connection Full Backup	V	380 VAC	400 VAC	380 VAC	400 VAC	380 VAC	400 VAC
	Switching time	sec.	~11		~11		~11	

[1] *Individual string is technically capable to handle full / usable MPPT current. However Max. Current per MPPT is limited to 28A.*
[2] *Isc pv = Isc max ≥ Isc (STC) x 1.25 according e.g.: IEC 60364-7-712, NEC 2020, AS/NZS 5033:2021.*
[3] *Max power that can be utilized in parallel for output power (AC) and battery charging power (DC).*
[4] *Additional external components for grid switchover are required for the Full Backup. See the Operating Instructions for further details.*
[5] *Sufficient PV and battery power required. Duration max. 10s, 400 VAC symmetric, depending on environmental conditions.*

Technical data

Verto 15.0 - 20.0 Plus

			Fronius Verto Plus		
			Verto 15.0 Plus	**Verto 17.5 Plus**	**Verto 20.0 Plus**
Battery connection	Number of DC inputs		1	1	1
	Max. nominal dis-/charging current ($I_{dc\ max}$)	A	50	50	50
	DC input voltage range ($U_{dc\ min}$ - $U_{dc\ max}$)	V	150–700	150–700	150–700
	DC battery connection technology		DC-connectors Stäubli MC4 Evo Stor	DC-connectors Stäubli MC4 Evo Stor	DC-connectors Stäubli MC4 Evo Stor
	Max. charging power [6]	W	22,500	26,250	30,000
	Max. discharging power [6]	W	15,000	17,500	20,000
	Max. charging power for AC coupling [6]	W	15,000	17,500	20,000
	Compatible batteries [7]		Fronius Reserva, Reserva Pro, BYD Battery-Box HVM, HVS, HVM+, HVS+, HVB		
General data	Dimensions (height x width x depth)	mm	865 x 574 x 279		
	Weight (Inverter)	kg	40.1		
	Degree of protection		IP66		
	Protection class		1		
	Overvoltage category (DC / AC) [8]		2/3		
	Night time consumption	W	<16		
	Cooling		Regulated air cooling		
	Installation		Indoor and outdoor installation, 90° - 10° tilt		
	Ambient temperature range	°C	-40 to +60		
	Permitted humidity	%	0–100		
	Noise emissions	dB (A)	< 50.3		
	Max. Altitude (unrestricted / restricted voltage range)	m	3,000 / 4,000		
	DC connection technology		DC-connectors Stäubli Multi Contact MC4		
	AC connection technology		Cable cross section: 4 - 35 mm² (Al & Cu) Cable gland: M32 (Ø12-24.5 mm) Prepared for option 1: M50 Cable gland (Ø10-35 mm) Option 2: 1.5“ conduit connection		
	Certificates and compliance with standards		IEC 62109-1/-2; VDE-AR-N 4105:2018; VDE-AR-N 4110:2023-09; R25; EN 50549-1/-2; CEI 0-16; CEI 0-21; UNE 217002:2020; IEC 62116; IEC 61727; AS/NZS 4777.2:2020+A1; IEC63027:2023; G99		
	Country of manufacture		Austria		
Efficiency	Max. efficiency	%	98.03	98.06	98.15
	Europ. efficiency (ηEU)	%	97.35	97.54	97.95
	MPP adaptation efficiency	%	>99.9	>99.9	>99.9
Protective Devices	AFCI - Arc Fault Detection (Arc Guard)		Yes		
	DC insulation measurement		Yes		
	Overload behaviour		Operating point adjustment. Power limitation		
	DC disconnector		Yes		
	Reverse polarity protection		Yes		
	RCMU		Yes		
	DC/AC overvoltage protection		DC Type 1+2 (IEC 61643-31) / AC Type 2 (IEC 61643-11)		
	Active Anti-islanding		Frequency Shift		

[6] *Depending on current and voltage of connected battery.*
[7] *Excluding BYD Battery-Box Premium HVM 8.3 and 3xHVM 22.1. When combining multiple BYD battery towers current ratings need to be considered.*
[8] *According to IEC 62109-1. DIN rail for optional type 1 + 2 or type 2 surge protection device available. Further information regarding the availability of the inverters in your country can be found at www.fronius.com.*

Technical data

Verto 15.0 - 20.0 Plus

			Fronius Verto Plus		
			Verto 15.0 Plus	Verto 17.5 Plus	Verto 20.0 Plus
Interfaces	WLAN		Fronius Solar.web, Modbus TCP SunSpec, JSON, 802.11b/g		
	Ethernet LAN RJ45		10/100Mbit; max. 100m, Fronius Solar.web, Modbus TCP SunSpec, JSON		
	Wired Shutdown (WSD)		Integrated		
	2 x RS485		Modbus RTU SunSpec (3rd party) / Fronius Smart Meter / Battery		
	6 digital inputs 6 digital in-/outputs		Connection to ripple control receiver, energy management, load management		
	Datalogger & Webserver		Integrated		

Technical data

Verto 25.0 - 33.3 Plus

			Fronius Verto Plus		
			Verto 25.0 Plus	Verto 30.0 Plus	Verto 33.3 Plus
Input data	Number of MPP trackers		3	3	3
	Inputs Per MPPT / Number of DC connection per MPPT		2	2	2
	Max. usable input current per MPPT ($I_{dc\ max,\ MPPT}$)	A	28	28	28
	Max. usable input current per string ($I_{dc\ max,\ string}$) [1]	A	28	28	28
	Max. module array short circuit current - MPPT ($I_{sc\ pv,\ MPPT}$) [2]	A	50	50	50
	Max. module array short circuit current - per string ($I_{sc\ pv,\ string}$) [2]	A	50	50	50
	Max. module array short circuit current - inverter ($I_{sc\ pv,\ inverter}$) [2]	A	150	150	150
	Nominal input voltage ($U_{dc,r}$)	V	600	600	600
	DC input voltage range ($U_{dc\ min}$ - $U_{DC\ max}$)	V	150–1,000	150–1,000	150–1,000
	Feed-in start-up input voltage ($U_{dc\ start}$)	V	150	150	150
	Usable MPP voltage range ($U_{mpp\ min}$ - $U_{mpp\ max}$)	V	150–870	150–870	150–870
	MPP voltage range (full power) ($U_{mpp\ min}$ - $U_{mpp\ max}$)	V	350–870	400–870	410–870
	Max. usable DC power - MPPT	W	13,000	13,000	13,000
	Max. usable DC power - Inverter [3]	W	33,250	39,000	39,000
	Max. PV generator output - MPPT	Wpeak	20,000	20,000	20,000
	Max. PV generator output - Inverter	Wpeak	37,500	45,000	50,000

Output data	AC rated power ($P_{ac,r}$)	W	25,000		29,990		33,300	
	Max. output power / rated apparent power	VA	25,000		29,990		33,300	
		V_{AC}	380	400	380	400	380	400
	Nominal AC output current ($I_{ac,r}$)	A	37.90	36.2	45.4	43.5	50.5	48.3
	Grid connection (voltage range)	V	3~ (N)PE 380/220; 3~ (N)PE 400/230;		3~ (N)PE 380/220; 3~ (N)PE 400/230;		3~ (N)PE 380/220; 3~ (N)PE 400/230;	
	Frequency (frequency range	Hz	50/60 (45–65)		50/60 (45–65)		50/60 (45–65)	
	Total harmonic distortion	%	< 3		< 1		< 1	
	Power factor (cos $\varphi_{ac,r}$)		0–1 ind./cap.		0–1 ind./cap.		0–1 ind./cap.	

[1] *Individual string is technically capable to handle full / usable MPPT current. However Max. Current per MPPT is limited to 28A.*
[2] *Isc pv = Isc max ≥ Isc (STC) x 1.25 according e.g.: IEC 60364-7-712, NEC 2020, AS/NZS 5033:2021.*
[3] *Max power that can be utilized in parallel for output power (AC) and battery charging power (DC).*

Technical data

Verto 25.0 - 33.3 Plus

			Fronius Verto Plus					
			Verto 25.0 Plus		Verto 30.0 Plus		Verto 33.3 Plus	
Output data Full Backup [4]	Nominal Full Backup output power	VA	25,000		29,990		33,300	
	Peak output power [5]	VA	50,000		50,000		50,000	
	Nominal Full Backup phase power	VA	11,100	11,100	11,100	11,100	11,100	11,100
	Supported phase asymmetry Full Backup [5]	A	50.0 / 72.5 peak		50.0 / 72.5 peak		50.0 / 72.5 peak	
	Grid connection Full Backup	V	380 VAC	400 VAC	380 VAC	400 VAC	380 VAC	400 VAC
	Switching time	sec.	~11		~11		~11	
Battery connection	Number of DC inputs		1		1		1	
	Max. nominal dis-/charging current ($I_{dc\ max}$)	A	50		50		50	
	DC input voltage range ($U_{dc\ min}$ - $U_{dc\ max}$)	V	150–700		150–700		150–700	
	DC battery connection technology		DC-connectors Stäubli MC4 Evo Stor		DC-connectors Stäubli MC4 Evo Stor		DC-connectors Stäubli MC4 Evo Stor	
	Max. charging power [6]	W	35,000		35,000		35,000	
	Max. discharging power [6]	W	25,000		29,990		33,300	
	Max. charging power for AC coupling [6]	W	25,000		29,990		33,300	
	Compatible batteries [7]		Fronius Reserva, Reserva Pro, BYD Battery-Box HVM, HVS, HVM+, HVS+, HVB					
General data	Dimensions (height x width x depth)	mm	865 x 574 x 279					
	Weight (Inverter)	kg	40.1					
	Degree of protection		IP66					
	Protection class		1					
	Overvoltage category (DC / AC) [8]		2/3					
	Night time consumption	W	<16					
	Cooling		Regulated air cooling					
	Installation		Indoor and outdoor installation, 90° - 10° tilt					
	Ambient temperature range	°C	-40 to +60					
	Permitted humidity	%	0–100					
	Noise emissions	dB (A)	< 56.7					
	Max. Altitude (unrestricted / restricted voltage range)	m	3,000 / 4,000					
	DC connection technology		DC-connectors Stäubli Multi Contact MC4					
	AC connection technology		Cable cross section: 4 - 35 mm² (Al & Cu) Cable gland: M32 (Ø12-24.5 mm) Prepared for option 1: M50 Cable gland (Ø10-35 mm) Option 2: 1.5“ conduit connection					
	Certificates and compliance with standards		IEC 62109-1/-2; VDE-AR-N 4105:2018; VDE-AR-N 4110:2023-09; R25; EN 50549-1/-2; CEI 0-16; CEI 0-21; UNE 217002:2020; IEC 62116; IEC 61727; AS/NZS 4777.2:2020+A1; IEC63027:2023; G99					
	Country of manufacture		Austria					

[4] *Additional external components for grid switchover are required for the Full Backup. See the Operating Instructions for further details.*
[5] *Sufficient PV and battery power required. Duration max. 10s, 400 VAC symmetric, depending on environmental conditions.*
[6] *Depending on current and voltage of connected battery.*
[7] *Excluding BYD Battery-Box Premium HVM 8.3 and 3xHVM 22.1. When combining multiple BYD battery towers current ratings need to be considered.*
[8] *According to IEC 62109-1. DIN rail for optional type 1 + 2 or type 2 surge protection device available. Further information regarding the availability of the inverters in your country can be found at www.fronius.com.*

Technical data

Verto 25.0 - 33.3 Plus

			Fronius Verto Plus		
			Verto 25.0 Plus	Verto 30.0 Plus	Verto 33.3 Plus
Efficiency	Max. efficiency	%	98.16	98.15	98.15
	Europ. efficiency (ηEU)	%	97.74	97.96	97.95
	MPP adaptation efficiency	%	> 99.9	> 99.9	> 99.9
Protective Devices	AFCI - Arc Fault Detection (Arc Guard)		Yes		
	DC insulation measurement		Yes		
	Overload behaviour		Operating point adjustment. Power limitation		
	DC disconnector		Yes		
	Reverse polarity protection		Yes		
	RCMU		Yes		
	DC/AC overvoltage protection		DC Type 1+2 (IEC 61643-31) / AC Type 2 (IEC 61643-11)		
	Active Anti-islanding		Frequency Shift		
Interfaces	WLAN		Fronius Solar.web, Modbus TCP SunSpec, JSON, 802.11b/g		
	Ethernet LAN RJ45		10/100Mbit; max. 100m, Fronius Solar.web, Modbus TCP SunSpec, JSON		
	Wired Shutdown (WSD)		Integrated		
	2 x RS485		Modbus RTU SunSpec (3rd party) / Fronius Smart Meter / Battery		
	6 digital inputs 6 digital in-/outputs		Connection to ripple control receiver, energy management, load management		
	Datalogger & Webserver		Integrated		

Your photovoltaic system can do more

Fronius Verto Plus, the adaptable hybrid inverter for small businesses, agricultural applications, and apartment buildings. Its flexibility makes it the perfect choice, both for constructing a new PV system and expanding an existing one. Featuring integrated safety features and innovative shade management, the Fronius Verto Plus ensures optimum operation. Our flexible inverter facilitates energy sector integration thanks to its open interfaces. This means that it is easy to integrate charging stations such as Fronius Wattpilot Flex and consumption regulators such as Fronius Ohmpilot.

For more information about the product, visit:
www.fronius.com.au/verto

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