

# Technical data

## Verto 25.0 - 33.3

			Fronius Verto															
			Verto 25.0				Verto 27.0				Verto 30.0				Verto 33.3			
Input data	Number of MPP trackers		4				4				4				4			
	Number of DC connections per MPPT		2				2				2				2			
	Max. usable input current per MPPT ( $I_{dc\ max, MPPT}$ )	A	28				28				28				28			
	Max. usable input current per string ( $I_{dc\ max, string}$ ) <sup>1</sup>	A	28				28				28				28			
	Max. module array short circuit current per MPPT ( $I_{sc\ pv, MPPT}$ ) <sup>2</sup>	A	50				50				50				50			
	Max. module array short circuit current per string ( $I_{sc\ pv, string}$ ) <sup>2</sup>	A	50				50				50				50			
	Max. module array short circuit current – inverter ( $I_{sc\ pv, inverter}$ ) <sup>2</sup>	A	150				150				150				150			
	Nominal input voltage ( $U_{dc,r}$ )	V	600				600				600				600			
	DC input voltage range ( $U_{dc\ min} - U_{dc\ max}$ )	V	150–1000				150–1000				150–1000				150–1000			
	Feed-in start-up input voltage ( $U_{dc\ start}$ )	V	150				150				150				150			
	Usable MPP voltage range ( $U_{mpp\ min} - U_{mpp\ max}$ ) <sup>1</sup>	V	150–870				150–870				150–870				150–870			
	MPP voltage range (at rated power) ( $U_{mpp\ min} - U_{mpp\ max}$ )	V	300–870				330–870				360–870				400–870			
	Max. usable DC power – MPPT ( $P_{dc\ max, PV}$ )	W <sub>peak</sub>	13,000				13,000				13,000				13,000			
	Max. PV generator output – MPPT ( $P_{PV\ max}$ )	W <sub>peak</sub>	20,000				20,000				20,000				20,000			
Max. PV generator output – inverter ( $P_{PV\ max}$ )	W <sub>peak</sub>	37,500				40,500				45,000				50,000				

Output data	AC rated power ( $P_{ac,r}$ )	W	25,000				27,000				29,990				33,300			
	Max. output power	VA	25,000				27,000				29,990				33,300			
		V <sub>ac</sub>	380	400	440	480	380	400	440	480	380	400	440	480	380	400	440	480
	AC output current ( $I_{ac,r}$ )	A	37.9	36.2	32.8	30.1	40.9	39.1	35.4	32.5	45.5	43.5	39.4	36.1	50.5	48.3	43.7	40.1
	Mains connection ( $U_{ac,r}$ )	V	3~ (N)PE 380/220; 3~ (N)PE 400/230; 3~ (N)PE 440/254; 3~ (N)PE 480/274				3~ (N)PE 380/220; 3~ (N)PE 400/230; 3~ (N)PE 440/254; 3~ (N)PE 480/275				3~ (N)PE 380/220; 3~ (N)PE 400/230; 3~ (N)PE 440/254; 3~ (N)PE 480/276				3~ (N)PE 380/220; 3~ (N)PE 400/230; 3~ (N)PE 440/254; 3~ (N)PE 480/277			
	Frequency (frequency range $f_{min} - f_{max}$ )	Hz	50/60 (45–65)				50/60 (45–65)				50/60 (45–65)				50/60 (45–65)			
	Total harmonic distortion	%	< 3				< 3				< 1				< 1			
	Power factor ( $\cos \varphi_{ac,r}$ )		0–1 ind./cap.				0–1 ind./cap.				0–1 ind./cap.				0–1 ind./cap.			

<sup>1</sup> A single string is technically capable of processing the full/usable MPPT current. The max. current per MPPT is always limited to 28 A.

<sup>2</sup>  $I_{sc\ pv} = I_{sc\ max} \geq I_{sc\ (STC)} \times 1.25$  according to e.g.: IEC 60364-7-712, NEC 2020, AS/NZS 5033:2021.

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General data	Dimensions (height × width × depth)	mm	865 x 574 x 278			
	Weight (inverter)	kg	41.75			
	Protection class		IP 66			
	Safety class		1			
	Over-voltage category (DC/AC)		2/3			
	Night consumption	W	< 16			
	Cooling		Active air cooling			
	Installation		Indoor and outdoor installation			
	Ambient temperature range	°C	-40 to +60			
	Permissible humidity	%	0–100			
	Noise emissions	dB (A)	< 54.6			
	Max. altitude above sea level	m	3,000/4,000 (unrestricted/restricted voltage range)			
	Certificates and compliance with standards		IEC62109-1/-2; VDE-AR-N 4105:2018; R25			
Connection technology	AC	Cable cross-section	mm <sup>2</sup>	4–35		
		Conductive material		Al and Cu		
		Connection ports		AC: M32 (Ø12–24.5 mm) Prepared for option 1: M50 cable gland (Ø10–35 mm) Option 2: 1.5" conduit connection PE & data communication: 2 x M32 (3 xØ 4.9–5.5 mm + 3 xØ 6.7–8.5 mm)		
	DC	Connection ports		DC direct connection Stäubli Multi Contact MC4		
		Conductive material		Al and Cu		
Efficiency	Max. efficiency	%	97.47	98.03	98.02	97.98
	European efficiency (η <sub>EU</sub> )	%	97.36	97.79	97.80	97.76
	MPP adaptation efficiency	%	> 99.9			
Protection devices	DC isolation measurement		Integrated			
	DC disconnecter		Integrated			
	RCMU		Integrated			
	Arc Fault Circuit Interrupter—Arc Guard		Integrated			
	Reverse polarity protection		Integrated			
	DC/AC surge protection device		Type 1+2 or type 2			
Interfaces	WLAN		Fronius Solarweb, Modbus TCP, JSON, 802.11b/g			
	Ethernet LAN RJ45		10/100 Mbit; max. 100 m Fronius Solar.web, Modbus TCP, JSON			
	Wired Shutdown (WSD)		Integrated			
	2 × RS485		Modbus RTU SunSpec (third-party provider)/Fronius Smart Meter			
	6 digital inputs 6 digital inputs/outputs		Connection to ripple control receiver, energy management, load management			
	Datalogger and web server		Integrated			

Fronius Verto. Designed to transform.



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For more information about the product, visit:

[www.fronius.com/verto-en](http://www.fronius.com/verto-en)

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