# Fronius Verto

# Product advantages


### 01 Total flexibility

The Fronius Verto offers maximum flexibility with up to four 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 uses an integrated Dynamic Peak Manager algorithm that enables users to achieve optimal yields even in shady conditions.

### 02 Maximum safety

With an integrated surge protection device and an Arc Fault Circuit Interrupter (Fronius Arc Guard), the Fronius Verto 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.

### 03 Optimal use

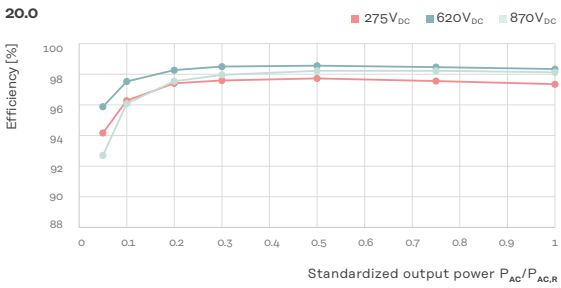
Use excess solar energy for other PV applications such as e-mobility or heat, save costs, and ensure faster amortization for your system. Thanks to its open interfaces, the Fronius Verto enables easy integration of consumption regulators, such as the Fronius Ohmpilot or Fronius Wattpilot Flex.

**Please note that the Verto cannot be upgraded to Verto Plus.**

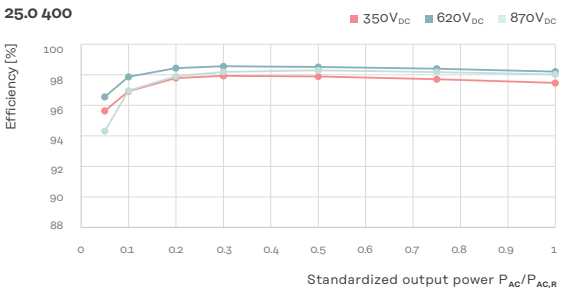
# Fronius Verto

## Efficiency

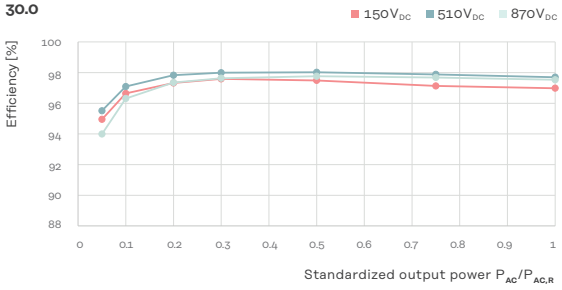
**Fronius Verto**
**20.0**



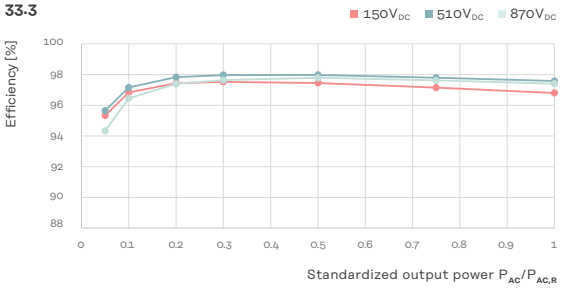

**Fronius Verto**
**25.0 400**




**Fronius Verto**
**30.0**

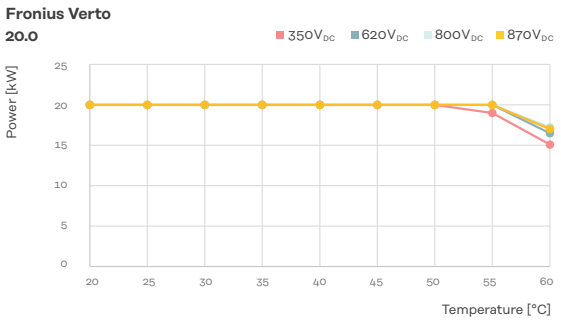



**Fronius Verto**
**33.3**

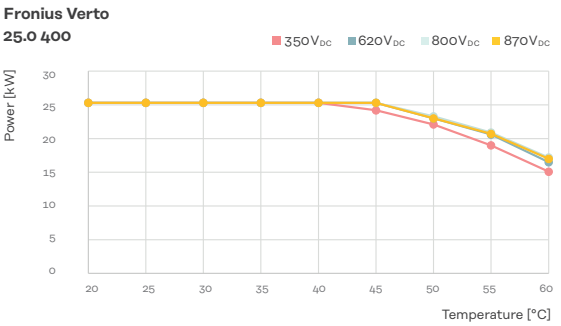



## Power derating

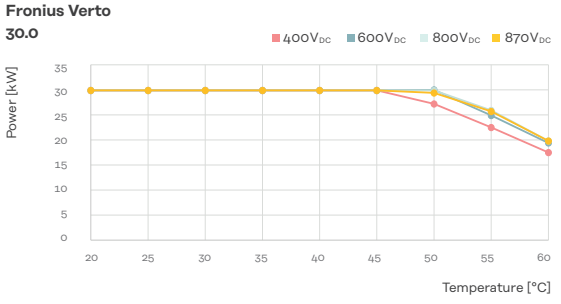
**Fronius Verto**
**20.0**



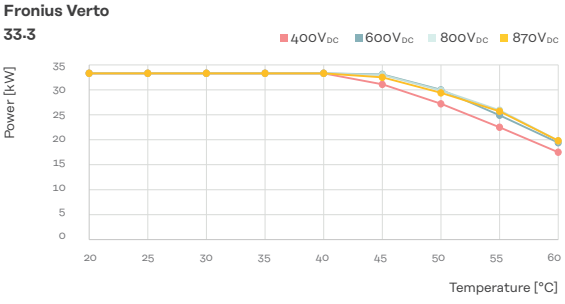

**Fronius Verto**
**25.0 400**




**Fronius Verto**
**30.0**




**Fronius Verto**
**33.3**



# Technical data

## Verto 15.0 - 25.0 400

| | | | Fronius Verto | | |
|---|---|---|---|---|---|
| | | | Verto 15.0 | Verto 20.0 | Verto 25.0 400 |
| Input data | Number of MPP trackers | | 3 | 3 | 3 |
| | Number of DC connections per MPPT | | 2 / 1 / 1 | 2 / 1 / 1 | 2 / 1 / 1 |
| | 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 | 100 | 100 | 100 |
| | 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 |
| | MPP voltage range ($U_{mpp\ min}$ - $U_{mpp\ max}$) [1] | V | 150–870 | 150–870 | 150–870 |
| | MPP voltage range (at rated power) ($U_{mpp\ min}$ - $U_{mpp\ max}$) | V | 210–870 | 275–870 | 335–870 |
| | Max. usable DC output ($P_{dc\ max,\ PV}$) | Wpeak | 13,000 | 13,000 | 13,000 |
| | Max. PV generator output - MPPT ($P_{PV\ max}$) | Wpeak | 19,500 | 19,500 | 19,500 |
| | Max. PV generator output - inverter ($P_{PV\ max}$) | Wpeak | 22,500 | 30,000 | 37,500 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Output data | AC rated power ($P_{ac,r}$) | W | 15,000 | | | | 20,000 | | | | 25,000 | | |
| | Max. output power | VA | 15,000 | | | | 20,000 | | | | 25,000 | | |
| | | $V_{AC}$ | 380 | 400 | 440 | 480 | 380 | 400 | 440 | 480 | 400 | 440 | 480 |
| | Nominal AC output current ($I_{ac,r}$) | A | 22.7 | 21.7 | 19.7 | 18.2 | 30.3 | 29.0 | 26.2 | 24.2 | 36.2 | 32.8 | 30.1 |
| | Grid connection ($U_{ac,r}$) | V | 3~ (N)PE 380/220;<br>3~ (N)PE 400/230;<br>3~ (N)PE 440/254;<br>3~ (N)PE 480/275 | | | | 3~ (N)PE 380/220;<br>3~ (N)PE 400/230;<br>3~ (N)PE 440/254;<br>3~ (N)PE 480/277 | | | | 3~ (N)PE 400/230; | | |
| | Frequency (frequency range $f_{min}$ - $f_{max}$) | 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] *A single String is capable of utilizing full usable MPP current. The current per MPPT is limited to total 28A.*
[2] *Isc pv = Isc max ≥ Isc (STC) x 1.25 according e.g.: IEC 60364-7-712, NEC 2020, AS/NZS 5033:2021.*

| | | | | Fronius Verto | | |
|---|---|---|---|---|---|---|
| | | | | Verto 15.0 | Verto 20.0 | Verto 25.0 400 |
| General data | Dimensions (height × width × depth) | | mm | 730 x 540 x 278 | | |
| | Weight (inverter) | | kg | 35.20 | | |
| | Degree of protection | | | IP 66 | | |
| | Safety class | | | 1 | | |
| | Overvoltage category (DC/AC) | | | 2/3 | | |
| | Night-time consumption | | W | < 16 | | |
| | Cooling | | | Active Cooling Technology | | |
| | Installation | | | Indoor and outdoor installation, 90°-10° tilt | | |
| | Ambient temperature range | | °C | -40 to +60 | | |
| | Permissible humidity | | % | 0–100 | | |
| | Noise emissions | | dB (A) | < 56.5 | | |
| | Max. altitude | | m | 3,000/4,000 (unrestricted/restricted voltage range) | | |
| | Certificates and compliance with standards | | | IEC 62109-1/-2; VDE-AR-N 4105:2018; R25; EN 50549-1/-2; CEI 0-16; CEI 0-21; UNE 217002:2020; IEC 62116; IEC 61727; IEC63027:2023; G99; | | |
| | Country of manufacture | | | Austria | | |
| Connection technology | AC | Cable cross-section | $mm^2$ | 4–35 | | |
| | | Conductor material | | Al and Cu | | |
| | | Cable gland | | 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 x Ø 4.9–5.5 mm + 3 x Ø 6.7–8.5 mm) | | |
| | DC | Connection terminals | | DC direct connection Stäubli Multi Contact MC4 | | |
| | | Conductor material | | Al and Cu | | |
| Efficiency | Max. efficiency | | % | 98.53 | 98.56 | 98.56 |
| | Europ. efficiency (ηEU) | | % | 98.19 | 98.33 | 98.35 |
| | MPP adaptation efficiency | | % | > 99.9 | | |
| Protection devices | DC insulation measurement | | | Integrated | | |
| | DC disconnector | | | Integrated | | |
| | RCMU | | | Integrated | | |
| | Arc fault circuit interrupter (Fronius Arc Guard) | | | Integrated | | |
| | Reverse polarity protection | | | Integrated | | |
| | DC surge protection | | | Type 1+2 (IEC 61643-31) | | |
| | AC surge protection | | | Type 2 (IEC 61643-11) | | |
| Interfaces | WLAN | | | Fronius Solar.web, Modbus TCP, JSON, 802.11b/g | | |
| | 2x Ethernet LAN RJ45 | | | 10/100 Mbit; max. 100 m Fronius Solar.web, Modbus TCP, JSON | | |
| | Wired Shutdown (WSD) | | | Integrated | | |
| | 2 × RS485 | | | Modbus RTU SunSpec / Fronius Smart Meter | | |
| | 6 inputs and 6 digital inputs/ outputs | | | Connection to ripple control receiver, energy management | | |
| | Datalogger and Webserver | | | Integrated | | |

# 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 ($I_{dc\ max,\ string}$) [1] | A | 28 | 28 | 28 | 28 |
| | Max. module array short circuit current - MPPT ($I_{sc\ pv,\ MPPT}$) [2] | A | 50 | 50 | 50 | 50 |
| | Max. module array short circuit current - per string ($I_{sc\ pv,\ string}$) [2] | A | 50 | 50 | 50 | 50 |
| | Max. module array short circuit current - inverter ($I_{sc\ pv,\ inverter}$) [2] | 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 - 1,000 | 150–1,000 | 150–1,000 | 150–1,000 |
| | Feed-in start-up input voltage ($U_{dc\ start}$) | V | 150 | 150 | 150 | 150 |
| | MPP voltage range ($U_{mpp\ min}$ - $U_{mpp\ max}$) [1] | 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 output ($P_{dc\ max,\ PV}$) | Wpeak | 13,000 | 13,000 | 13,000 | 13,000 |
| | Max. PV generator output - MPPT ($P_{PV\ max}$) | Wpeak | 20,000 | 20,000 | 20,000 | 20,000 |
| | Max. PV generator output - inverter ($P_{PV\ max}$) | Wpeak | 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 | | | | |
| | | $V_{AC}$ | 380 | 400 | 440 | 480 | 380 | 400 | 440 | 480 | 380 | 400 | 440 | 480 | 380 | 400 | 440 | 480 |
| | Nominal 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 |
| | Grid 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 480/276 | | | | 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 480/276 | | | | |
| | 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. | | | | |

[1] *A single String is capable of utilizing full usable MPP current. The current per MPPT is limited to total 28A.*

[2] *Isc pv = Isc max ≥ Isc (STC) x 1.25 according e.g.: IEC 60364-7-712, NEC 2020, AS/NZS 5033:2021.*

| | | | | Fronius Verto | | | |
|---|---|---|---|---|---|---|---|
| | | | | Verto 25.0 | Verto 27.0 | Verto 30.0 | Verto 33.3 |
| General data | Dimensions (height × width × depth) | | mm | 865 x 574 x 279 | | | |
| | Weight (inverter) | | kg | 41.75 | | | |
| | Degree of protection | | | IP 66 | | | |
| | Safety class | | | 1 | | | |
| | Overvoltage category (DC/AC) | | | 2/3 | | | |
| | Night-time consumption | | W | < 16 | | | |
| | Cooling | | | Active Cooling Technology | | | |
| | Installation | | | Indoor and outdoor installation, 90°-10° tilt | | | |
| | Ambient temperature range | | °C | -40 to +60 | | | |
| | Permissible humidity | | % | 0–100 | | | |
| | Noise emissions | | dB (A) | < 54.6 | | | |
| | Max. altitude | | m | 3,000/4,000 (unrestricted/restricted voltage range) | | | |
| | 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; NRS 097-2-1; G99 | | | |
| | Country of manufacture | | | Austria | | | |
| Connection technology | AC | Cable cross-section | $mm^2$ | 4–35 | | | |
| | | Conductor material | | Al and Cu | | | |
| | | Cable gland | | AC: M32 (Ø12–24.5 mm) Prepared for option 1:<br>M50 cable gland (Ø10–35 mm) Option 2: 1.5" conduit connection<br>PE & data communication: 2 x M32 (3 x Ø 4.9–5.5 mm + 3 x Ø 6.7–8.5 mm) | | | |
| | DC | Connection terminals | | DC direct connection Stäubli Multi Contact MC4 | | | |
| | | Conductor material | | Al and Cu | | | |
| Efficiency | Max. efficiency | | % | 97.47 | 98.03 | 98.02 | 97.98 |
| | Europ. efficiency (ηEU) | | % | 97.36 | 97.79 | 97.80 | 97.76 |
| | MPP adaptation efficiency | | % | > 99.9 | | | |
| Protection devices | DC insulation measurement | | | Integrated | | | |
| | DC disconnector | | | Integrated | | | |
| | RCMU | | | Integrated | | | |
| | Arc fault circuit interrupter (Fronius Arc Guard) | | | Integrated | | | |
| | Reverse polarity protection | | | Integrated | | | |
| | DC surge protection | | | Type 1+2 or Type 2 (IEC 61643-31) | | | |
| | AC surge protection | | | Type 1+2 or Type 2 (IEC 61643-11) | | | |
| Interfaces | WLAN | | | Fronius Solar.web, Modbus TCP, JSON, 802.11b/g | | | |
| | 2 x Ethernet LAN RJ45 | | | 10/100 Mbit; max. 100 m Fronius Solar.web, Modbus TCP, JSON | | | |
| | Wired Shutdown (WSD) | | | Integrated | | | |
| | 2 × RS485 | | | Modbus RTU SunSpec / Fronius Smart Meter | | | |
| | 6 inputs and 6 digital inputs/ outputs | | | Connection to ripple control receiver, energy management | | | |
| | Datalogger and Webserver | | | Integrated | | | |


# Your photovoltaic system can do more

Fronius Verto, the adaptable 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 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

**Fronius Australia Pty Ltd.**
90-92 Lambeck Drive
Tullamarine VIC 3043
Australia
sales.australia@fronius.com
www.fronius.com.au

**Fronius International GmbH**
Froniusplatz 1
4600 Wels
Austria
pv-sales@fronius.com
www.fronius.com

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