

TRIO-20.0-TL-W TRIO-27.6-TL-W

GENERAL SPECIFICATIONS OUTDOOR MODELS

The latest in Power-One's Aurora Trio range, this newlook three-phase inverter fills a specific niche in the commercial wind market.

The Trio-27.6 and Trio-20.0 have efficiency ratings of up to 98.2%. The very wide input voltage range makes the inverter suitable to installations with an high number of turbines.

The new look inverter has new features including a special built-in heat sink compartment and front panel display system. The unit is free of electrolytic capacitors, leading to a longer product lifetime.

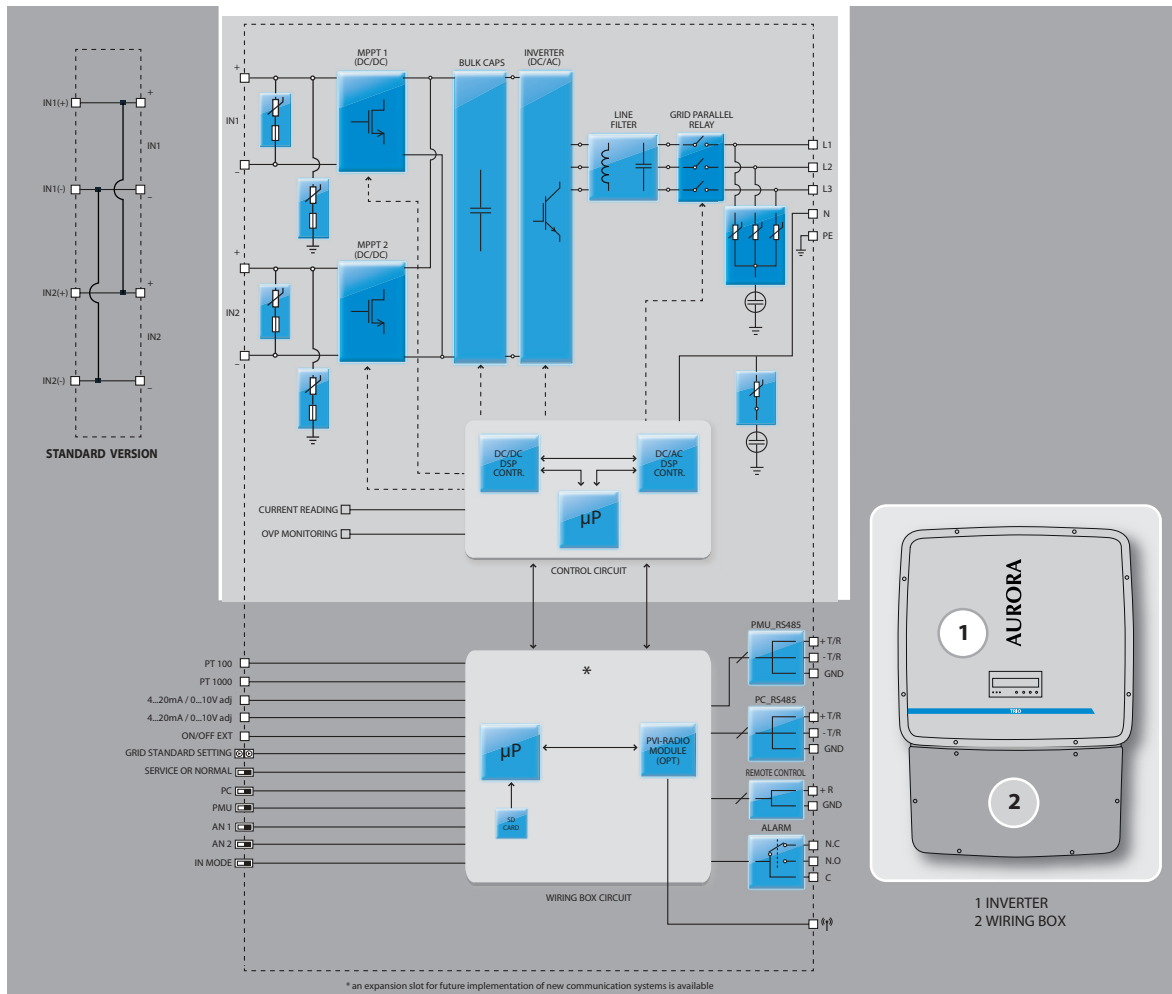
Trio manages a 16-point table to best match the power curve of each wind turbine.



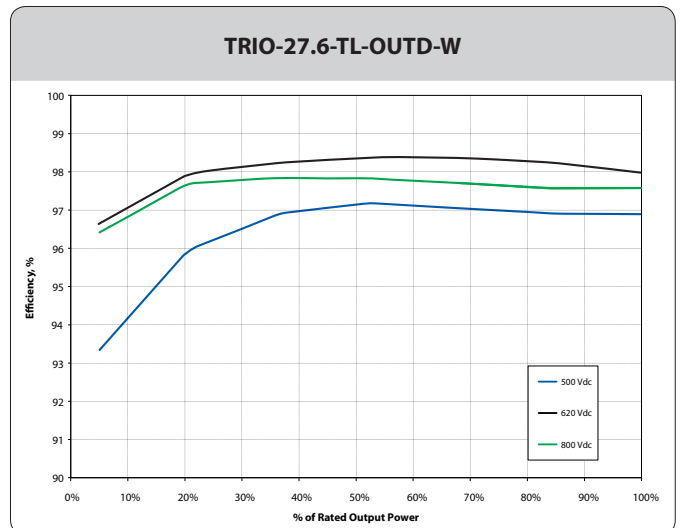
Features

- 'Electrolyte-free' power converter to further increase the life expectancy and long term reliability
- Quiet Rail
- True three-phase bridge topology for DC/AC output converter
- Each inverter is set on specific grid codes which can be selected in the field
- Flat efficiency curves ensure high efficiency at all output levels ensuring consistent and stable performance across the entire input voltage and output power range
- Outdoor enclosure for unrestricted use under any environmental conditions
- Capability to select via display the Active Power reduction and the Reactive Power regulation (fixed $\cos(\phi)$, standard $\cos(\phi)=f(P)$ curve, Fixed Q (Q/Pn))
- Capability to connect external sensors for monitoring environmental conditions
- Availability of auxiliary DC output voltage (24V, 300mA)
- Compatibility with 25 kW Wind Interface
- Managing power curve of turbine

BLOCK DIAGRAM OF TRIO-20.0/27.6-TL-OUT-W



Block Diagram and Efficiency Curves



PARAMETER	TRIO-20.0-TL-LOUD-W	TRIO-27.6-TL-LOUD-W
Input Side		
Maximum Absolute DC Input Voltage ($V_{max,abs}$)	1000 V	1000 V
Operating DC Input Voltage Range ($V_{dcm, min...V_{dcm, max}}$)	175...950 V	175...950 V
DC Input Voltage Range at Full Power ($V_{fp, min...V_{fp, max}}$)	440...800 V	500...800 V
Dc Power Limitation	Linear Derating From MAX to Null [800V≤Vdc≤950V]	Linear Derating From MAX to Null [800V≤Vdc≤950V]
Maximum DC Input Current ($I_{dcm, max}$)	50 A	64 A
Maximum Input Short Circuit Current	60 A	80 A
DC Connection Type	Screw Terminal Block Cable Glands	Screw Terminal Block Cable Glands
Input Protection		
Reverse Polarity Protection	Yes, from limited current source	Yes, from limited current source
Input Over Voltage Protection - Varistor	4	4
Generator Isolation Control	According to local standard	According to local standard
Output Side		
AC Grid Connection	Three phase 3W or 4W+PE	Three phase 3W or 4W+PE
Rated AC Power (P_{acr})	20000 W	27600 W
Maximum AC Output Power ($P_{ac, max}$)	22000 W ⁽³⁾	30000 W ⁽⁴⁾
Rated Grid AC Voltage (V_{acr})	400 V	400 V
AC Voltage Range	320...480 V ⁽¹⁾	320...480 V ⁽¹⁾
Maximum Output AC Current ($I_{ac, max}$)	33 A	45 A
Rated Frequency (f)	50 Hz	50 Hz
Frequency Range ($f_{min...f_{max}}$)	47...53 Hz ⁽²⁾	47...53 Hz ⁽²⁾
Nominal Power Factor ($\cos\phi_{acr}$)	> 0.995 (adj. ± 0.9, or fixed by display down to ± 0.8 with max 22 kVA)	> 0.995 (adj. ± 0.9, or fixed by display down to ± 0.8 with max 30 kVA)
Total Harmonic Distortion	< 3%	< 3%
AC Connection Type	Screw Terminal Block Cable Glands	Screw Terminal Block Cable Glands
Output Protection		
Anti-islanding protection	According to local standard	According to local standard
Maximum AC Overcurrent Protection	34 A	46 A
Output Over Voltage Protection - Varistor	4	4
Operating Performance		
Maximum Efficiency (η_{max})	98,2%	98,2%
Stand-by Consumption	< 8 W	< 8 W
Feed In Power Threshold	40 W	40 W
Communication		
Wired Local Monitoring	PVI-USB-RS232_485 (opt.), PVI-DESKTOP (opt.)	PVI-USB-RS232_485 (opt.), PVI-DESKTOP (opt.)
Remote Monitoring	PVI-AEC-EVO (opt.), AURORA-UNIVERSAL (opt.)	PVI-AEC-EVO (opt.), AURORA-UNIVERSAL (opt.)
Wireless Local Monitoring	PVI-DESKTOP (opt.) with PVI-RADIOMODULE (opt.)	PVI-DESKTOP (opt.) with PVI-RADIOMODULE (opt.)
User Interface	Graphic display	Graphic display
Environmental		
Ambient Temperature Range	-25...+60°C / -13...140°F with derating above 45°C/113°F	-25...+60°C / -13...140°F with derating above 45°C/113°F
Noise Emission	< 50 dB(A)	< 50 dB(A)
Maximum Operating Altitude with Derating	2000 m / 6560 ft	2000 m / 6560 ft
Physical		
Environmental Protection Rating	IP 65	IP 65
Cooling	Natural	Natural
Dimension (H x W x D)	1061 mm x 702 mm x 292 mm / 41.7" x 27.6" x 11.5"	1061 mm x 702 mm x 292 mm / 41.7" x 27.6" x 11.5"
Weight	< 70 kg / 153 lb	< 70 kg / 153 lb
Safety		
Isolation Level	Transformerless	Transformerless
Marking	CE	CE
Safety and EMC standard	EN 50178, AS/NZS3100, AS/NZS 60950, EN61000-6-1, EN61000-6-3, EN61000-3-11, EN61000-3-12 Enel Guideline	EN 50178, AS/NZS3100, AS/NZS 60950, EN61000-6-1, EN61000-6-3, EN61000-3-11, EN61000-3-12 Enel Guideline
Grid Standard	(CEI 0-21 + Attachment A70 Terna, CEI 0-16) ⁽⁵⁾ , VDE 0126-1-1, VDE-AR-N 4105, G59/2, EN 50438, RD1699, AS 4777, BDEW	(CEI 0-21 + Attachment A70 Terna, CEI 0-16) ⁽⁵⁾ , VDE 0126-1-1, VDE-AR-N 4105, G59/2, EN 50438, RD1699, AS 4777, BDEW
Available Products Variants		
Standard	TRIO-20.0-TL-LOUD-400-W	TRIO-27.6-TL-LOUD-400-W

1. The AC voltage range may vary depending on specific country grid standard

2. The Frequency range may vary depending on specific country grid standard

3. Limited to 20000 W for Germany

4. Limited to 27600 W for Germany

5. Since their applicability dates

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