

TRIO-27.6-TL TRIO-20.0-TL

GENERAL SPECIFICATIONS OUTDOOR MODELS

The latest in Power-One's Aurora Trio range, this new-look three-phase inverter fills a specific niche in the commercial solar market. This new three-phase inverter benefits from the three-phase inverter technology perfected in the PVI-10.0 and 12.5, probably the world's most commonly used three-phase inverter which has led the way in best-in-class efficiency.

Controlling more PV panels than its smaller predecessor, the Trio-27.6 and Trio-20.0 will offer more flexibility and control to installers who have large installations with varying aspects or orientations. This device has two independent MPPTs and efficiency ratings of up to 98.2%. The very wide input voltage range makes the inverter suitable to installations with reduced string size.

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.

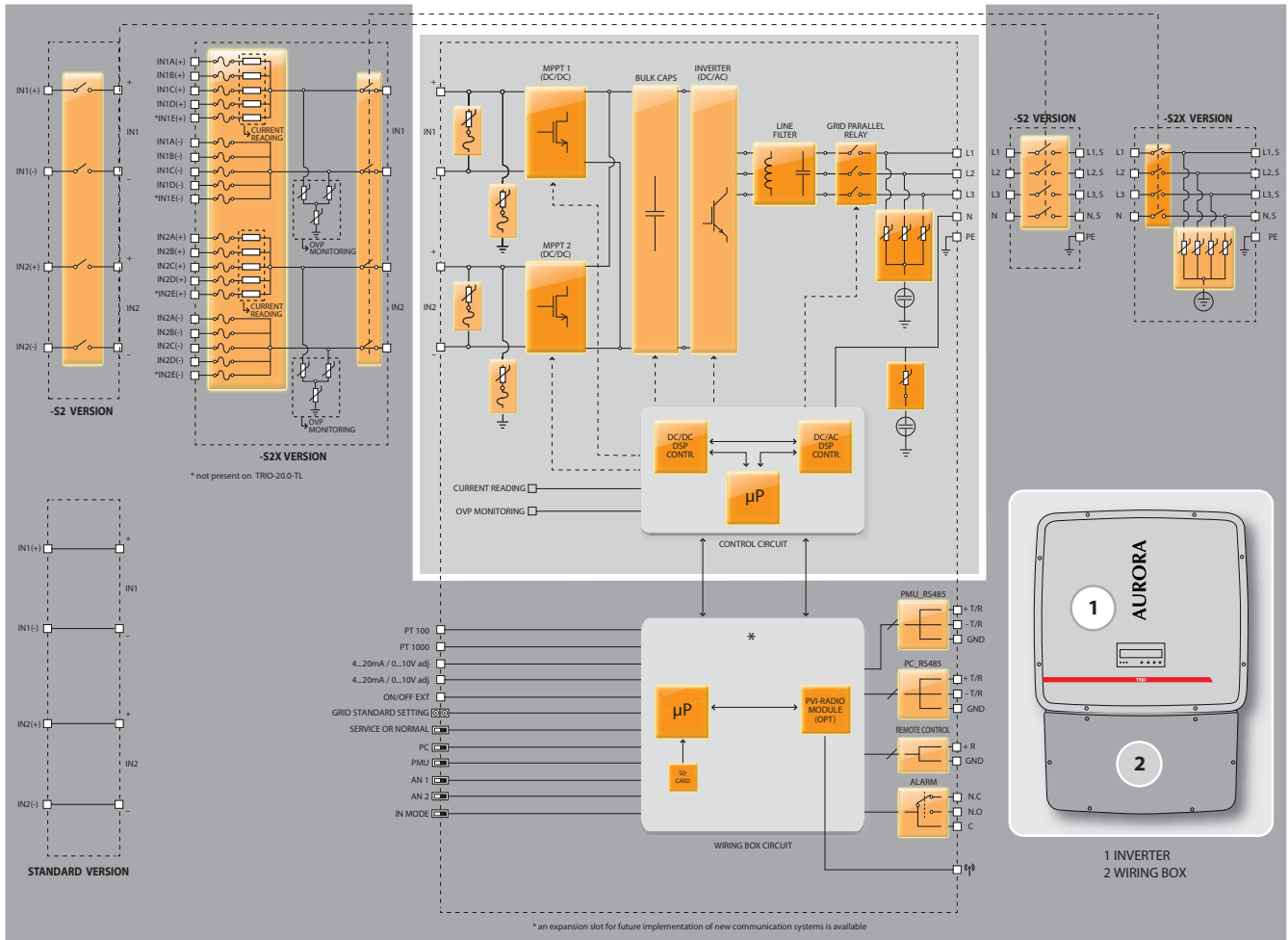


AURORA TRIO

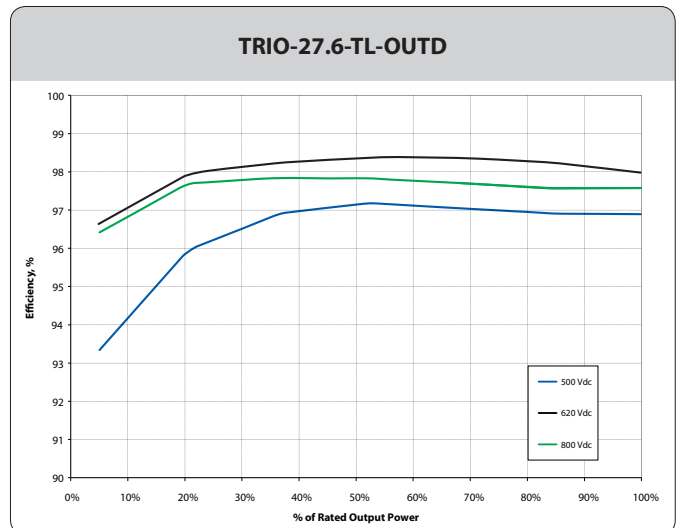
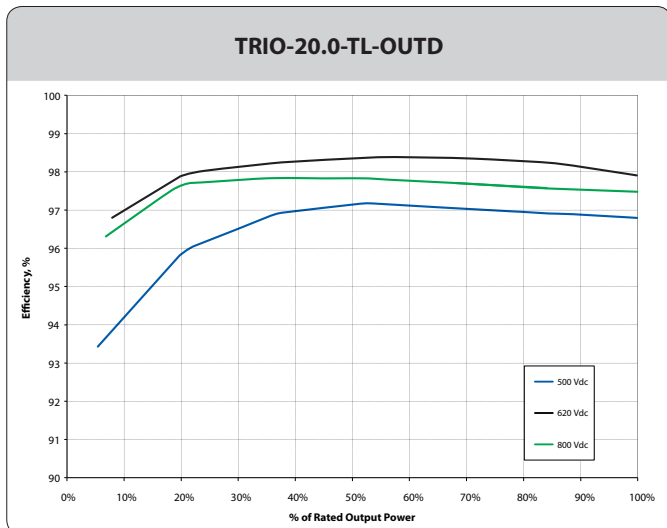
Features

- '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
- Dual input sections with independent MPP tracking, allows optimal energy harvesting from two sub-arrays oriented in different directions
- Wide input range
- Detachable wiring box to allow an easy installation
- Integrated string combiner with different options of configuration which include DC and AC disconnect switch in compliance with international Standards (-S2 and -S2X version)
- High speed and precise MPPT algorithm for real time power tracking and improved energy harvesting
- 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

BLOCK DIAGRAM OF TRIO-27.6-TL- OUTD



Block Diagram and Efficiency Curves



PARAMETER	TRIO-20.0-TL-OUTD	TRIO-27.6-TL-OUTD
Input Side		
Absolute Maximum DC Input Voltage ($V_{max,abs}$)	1000 V	
Start-up DC Input Voltage (V_{start})	360 V (adj. 250...500 V)	
Operating DC Input Voltage Range ($V_{dcmin}...V_{dcmax}$)	$0.7 \times V_{start}...970 V$	
Rated DC Input Power (P_{dcr})	20750 W	28600 W
Number of Independent MPPT	2	
Maximum DC Input Power for each MPPT ($P_{MPPTmax}$)	12000 W	16000 W
DC Input Voltage Range with Parallel Configuration of MPPT at P_{acr}	440...800 V	500...800 V
DC Power Limitation with Parallel Configuration of MPPT	Linear Derating From MAX to Null [$800V \leq V_{MPPT} \leq 950V$]	Linear Derating From MAX to Null [$800V \leq V_{MPPT} \leq 950V$]
DC Power Limitation for each MPPT with Independent Configuration of MPPT at P_{acr} , max unbalance example	12000 W [$480V \leq V_{MPPT} \leq 800V$] the other channel: P_{dcr} -12000W [$350V \leq V_{MPPT} \leq 800V$]	16000 W [$500V \leq V_{MPPT} \leq 800V$] the other channel: P_{dcr} -16000W [$400V \leq V_{MPPT} \leq 800V$]
Maximum DC Input Current (I_{dcmax}) / for each MPPT ($I_{MPPTmax}$)	50.0 A / 25.0 A	64.0 A / 32.0 A
Maximum Input Short Circuit Current for each MPPT	30.0 A	
Number of DC Inputs Pairs for each MPPT	1 (4 on -S2X version)	1 (5 on -S2X version)
DC Connection Type	Tool Free PV Connector WM / MC4	
Input Protection		
Reverse Polarity protection	Yes, from limited current source	
Input Over Voltage Protection for each MPPT - Varistor	2	
Input Over Voltage Protection for each MPPT Plug In Modular Surge Arrester (-S2X Version)	1	
Photovoltaic Array Isolation Control	According to local standard	
DC Switch Rating for each MPPT (-S Version)	40 A / 1000 V	
Fuse Rating (-FS Version)	10 A / 1000 V	
Output Side		
AC Grid Connection Type	Three phase (Δ/Y)	
Rated AC Power (P_{acr})	20000 W	27600 W
Maximum AC Output Power (P_{acmax})	22000 W	30000 W
Rated AC Grid Voltage (V_{acr})	400 V	
AC Voltage Range	320...480 V ⁽¹⁾	
Maximum AC Output Current ($I_{ac,max}$)	33.0 A	45.0 A
Rated Output Frequency (f_r)	50 Hz	
Output Frequency Range ($f_{min}...f_{max}$)	47...53 Hz ⁽²⁾	
Nominal Power Factor ($\cos\phi_{i,acr}$)	> 0.995 (adj. ± 0.9)	
Total Current Harmonic Distortion	< 3%	
AC Connection Type	Cage clamp	
Output Protection		
Anti-Islanding Protection	According to local standard	
Maximum AC Overcurrent Protection	34.0 A	46.0 A
Output Overvoltage Protection - Varistor	4	
Output Over Voltage Protection Plug In Modular Surge Arrester (-S2X Version)	2	
Operating Performance		
Maximum Efficiency (η_{max})	98.2%	
Weighted Efficiency (EURO/CEC)	98.0% / 98.0%	
Feed In Power Threshold	40 W	
Stand-by Consumption	< 8W	
Communication		
Wired Local Monitoring	PVI-USB-RS485_232 (opt.), PVI-DESKTOP (opt.)	
Remote Monitoring	PVI-AEC-EVO (opt.), AURORA-UNIVERSAL (opt.)	
Wireless Local Monitoring	PVI-DESKTOP (opt.) with PVI-RADIOMODULE (opt.)	
User Interface	Graphic display	
Environmental		
Ambient Temperature Range	-25...+60°C / -13...140°F with derating above 45°C/113°F	
Relative Humidity	0...100% condensing	
Noise Emission	< 50 db(A) @ 1 m	
Maximum Operating Altitude without Derating	2000 m / 6560 ft	
Physical		
Environmental Protection Rating	IP 65	
Cooling	Natural	
Dimension (H x W x D)	1060mm x 751mm x 291mm / 41.7" x 29.6" x 11.4"	
Weight	< 70.0 kg / 154.3 lb	< 75.0 kg / 165.4 lb
Mounting System	Wall bracket	
Safety		
Isolation Level	Transformerless	
Marking	CE	
Safety and EMC Standard	EN 50178, AS/NZS3100, AS/NZS 60950, EN61000-6-1, EN61000-6-3, EN61000-3-11, EN61000-3-12	
Grid Standard	Enel Guideline, VDE 0126-1-1, G59/2, EN 50438, RD1663, AS 4777	
Available Products Variants		
Standard	TRIO-20.0-TL-OUTD-400	TRIO-27.6-TL-OUTD-400
With DC Switch	TRIO-20.0-TL-OUTD-S2-400	TRIO-27.6-TL-OUTD-S2-400
With DC Switch and Fuse	TRIO-20.0-TL-OUTD-S2X-400	TRIO-27.6-TL-OUTD-S2X-400

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



www.power-one.com

Power-One Renewable Energy Worldwide Sales Offices

Country	Name/Region	Telephone
Australia	Asia Pacific	+61 2 9735 3111
China	Asia Pacific	+86 755 2988 5888 ext.5588
Singapore	Asia Pacific	+65 6896 3363
France	Europe	00 800 00287672 Choix n°4
Germany	Europe	+49 7641 955 2020
Italy	Europe	+39 055 9195 396
Spain	Europe	+34 629253564
United Kingdom	Europe	+44 1903 823 323
Dubai	Middle East	+971 50 100 4142
Canada	North America	+1 877 261-1374
USA East	North America	+1 877 261-1374
USA Central	North America	+1 877 261-1374
USA West	North America	+1 877 261-1374

Email
sales.australia@power-one.com
sales.china@power-one.com
sales.singapore@power-one.com
sales.france@power-one.com
sales.germany@power-one.com
sales.italy@power-one.com
sales.spain@power-one.com
sales.UK@power-one.com
sales.dubai@power-one.com
sales.canada@power-one.com
sales.usaeast@power-one.com
sales.usacentral@power-one.com
sales.usawest@power-one.com