

ULTRA

GENERAL SPECIFICATIONS CENTRALIZED MODELS



ULTRA-700.0-TL



ULTRA-1050.0-TL



ULTRA-1400.0-TL

AURORA[®] CORE
PLUS
ULTRA

The largest solar power inverter in the Power-One Aurora product range, the new UTLTRA-1400.0 unit is designed with large utility-grade installations in mind.

This liquid-cooled, high-powered Aurora inverter is the largest PV inverter available in the market. The compact chassis gives maximum power for the minimum footprint.

Industry-leading power conversion efficiencies of up to 98.7%, combined with high-speed Maximum Power Point Tracking (MPPT) channels, optimize energy harvesting across a wide array of operating conditions. Up to four independent MPPT input channels offer maximum flexibility and energy harvesting.

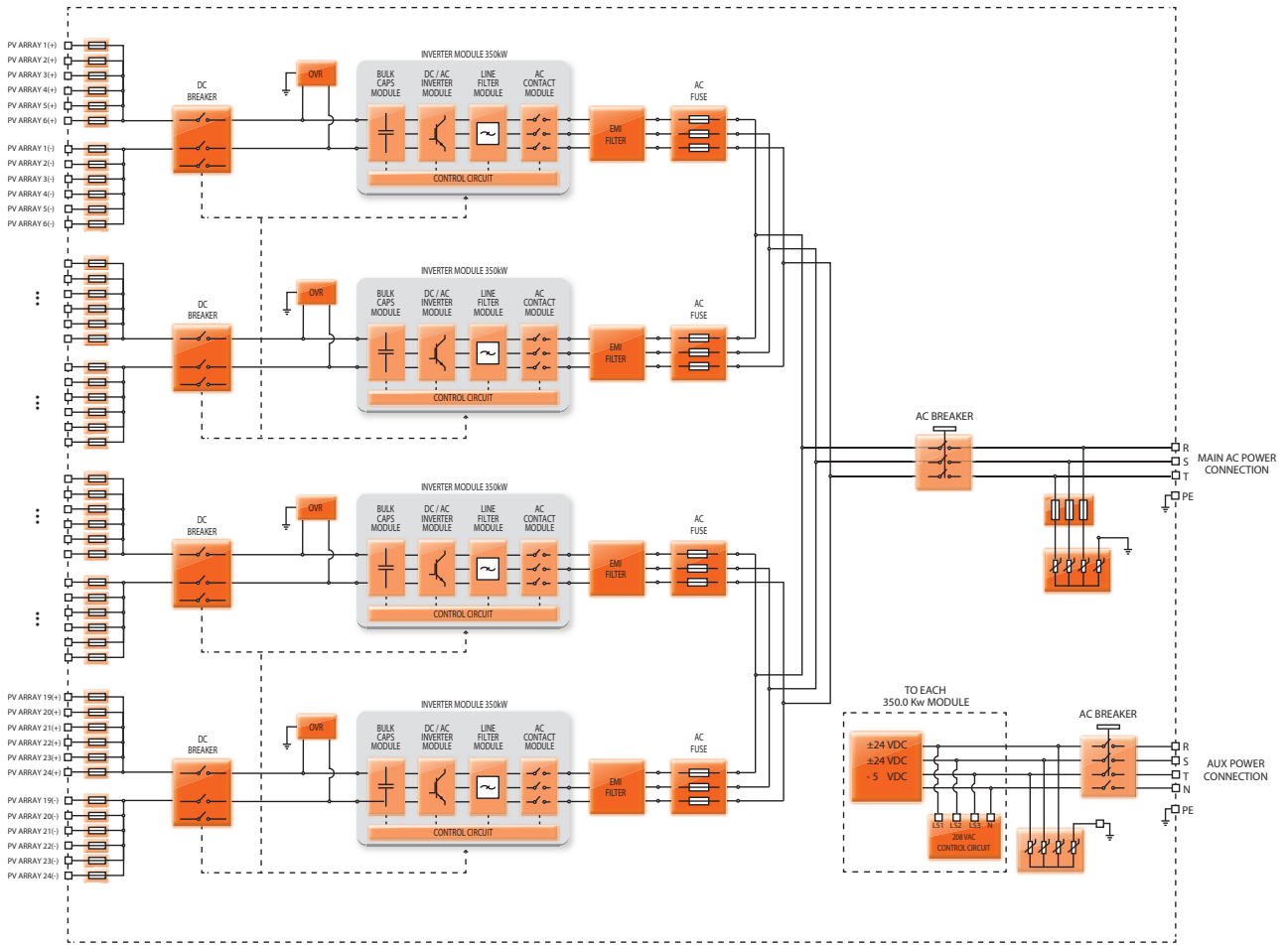
This large inverter system significantly reduces the wiring requirements and on-site testing thanks to the presence of separated and dedicated compartments for DC and AC.



Features

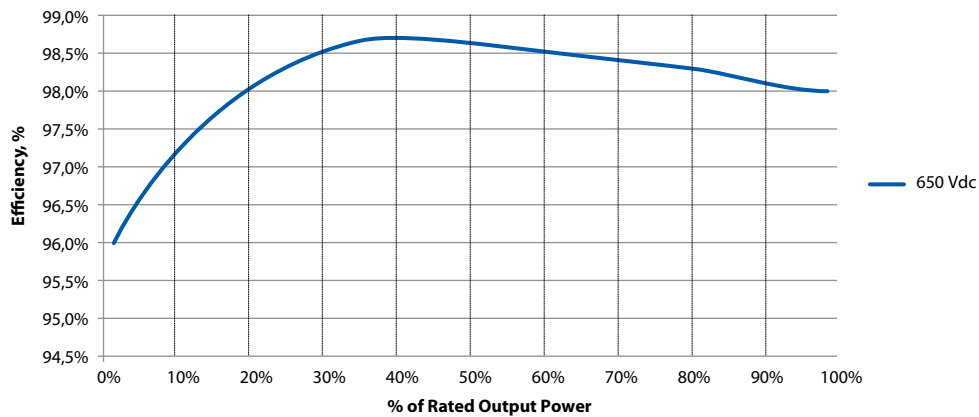
- High performance utility grade inverter for large utility PV installations with 98.7% efficiency
- Outdoor enclosure for unrestricted use under any environmental conditions
- Passive liquid cooling with total segregation of internal compartments assuring a 5-year maintenance cycle
- Reduced susceptibility to a single fault. In case of a component failure, a maximum of 350kW will be lost
- Extended MPPT input voltage range
- Direct transformerless conversion to the 690 Vac output reduces AC distribution cost
- Maximum input voltage up to 1100 Vdc, high design flexibility and reduced DC distribution losses for large scale PV plants
- Integrated DC and AC distribution and protection. Fully equipped for connection, additional accessories not required
- Easy installation and maintenance procedure. Front extractible DC/AC converters and accessibility to all critical parts
- Ethernet communication and two independent RS-485 communication interfaces for inverter and intelligent string combiner monitoring
- Compliant to BDEW and FERC 661

BLOCK DIAGRAM OF ULTRA-1400.0-TL



Block Diagram and Efficiency Curves

PVI-ULTRA



PARAMETER	ULTRA-700.0-TL-OUTD-690	ULTRA-1050.0-TL-OUTD-690	ULTRA-1400.0-TL-OUTD-690
Input Side			
Absolute Maximum DC Input Voltage ($V_{max,abs}$)	1000 V (1100 V opt.)	1000 V (1100 V opt.)	1000 V (1100 V opt.)
MPPT Input DC Voltage Range ($V_{MPPTmin} \dots V_{MPPTmax}$) at V_{acr}	470...900 V Linear Derating from MAX to 10kW [850V< V_{MPPT} <900V] 560 kW @ 470 V	470...900 V Linear Derating from MAX to 15kW [850V< V_{MPPT} <900V] 840 kW @ 470 V	470...900 V Linear Derating from MAX to 20kW [850V< V_{MPPT} <900V] 1120 kW @ 470 V
MPPT Input DC Range ($V_{MPPTmin} \dots V_{MPPTmax}$) at P_{acr} and V_{acr}	585...850 V @ 700 kW 645...850 V @ 780 kW	585...850 V @ 1050 kW 645...850 V @ 1170 kW	585...850 V @ 1400 kW 645...850 V @ 1560 kW
Number of Independent MPPT Multi-Master	2	3	4
Number of Independent MPPT Multi - Master/Slave	1	2	2
Maximum Combined DC Input Current ($I_{dcmax,c}$)	1240 A	1240 A + 620 A	1240 A + 1240 A
Maximum DC Input Current for Each Module ($I_{dcmax,m}$)	620 A	620 A	620 A
Number of DC Inputs Pairs	12	18	24
DC Connection Type (both positive and negative polarity)	24 x 50mm ² ...185mm ² (M10)	36 x 50mm ² ...185mm ² (M10)	48 x 50mm ² ...185mm ² (M10)
Input Protection			
Reverse Polarity Protection	Yes, via input breaker	Yes, via input breaker	Yes, via input breaker
Input Over Voltage Protection - Varistor	1 for each module	1 for each module	1 for each module
Residual Current Protection, grounded Neutral, floating panels	Not included; recommended 10A ground fault protection with time and current adjustable		
Fuse Size for Each Input Pair	125 A / 1100 V	125 A / 1100 V	125 A / 1100 V
Output Side			
AC Grid Connection Type	Three phases 3W+PE	Three phases 3W+PE	Three phases 3W+PE
Rated AC Power (P_{acr})	780 kVA	1170 kVA	1560 kVA
Rated Grid Voltage (V_{acr})	690 V	690 V	690 V
AC Voltage Range ($V_{acmin} \dots V_{acmax}$)	621...759 V ⁽¹⁾	621...759 V ⁽¹⁾	621...759 V ⁽¹⁾
Maximum Output Current (I_{acmax})	650 A	975 A	1300 A
Rated Frequency (f.)	50/60 Hz	50/60 Hz	50/60 Hz
Frequency Range ($f_{min} \dots f_{max}$)	47...53 / 57...63 Hz ⁽²⁾	47...53 / 57...63 Hz ⁽²⁾	47...53 / 57...63 Hz ⁽²⁾
Power Factor (Cos ϕ_{acr})	> 0.995 (adj. \pm 0.90)	> 0.995 (adj. \pm 0.90)	> 0.995 (adj. \pm 0.90)
Total Harmonic Distortion	< 3% (@ P_{acr})	< 3% (@ P_{acr})	< 3% (@ P_{acr})
AC Connection Type (for each phase)	2 x 240 mm ² (M12)	3 x 240 mm ² (M12)	4 x 240 mm ² (M12)
Output Protection			
Anti-Islanding Protection	According to local standard	According to local standard	According to local standard
Output Overvoltage Protection (Varistor)	Yes	Yes	Yes
Night Time Disconnect	Yes	Yes	Yes
AC Switch	Yes	Yes	Yes
AC Fuse for each module	3x350A/200kA	3x350A/200kA	3x350A/200kA
Operating Performance			
Maximum Efficiency (η_{max})	98.7% ⁽⁴⁾	98.7% ⁽⁴⁾	98.7% ⁽⁴⁾
Weighted Efficiency (η_{EURO} / η_{CEC})	98.2% / 98.0% ⁽⁴⁾	98.2% / 98.0% ⁽⁴⁾	98.2% / 98.0% ⁽⁴⁾
Stand-by Consumption/Night-time power loss	< 90 W	< 110 W	< 180 W
AC Auxiliary Supply	3 x 400 Vac +N, 50/60 Hz	3 x 400 Vac +N, 50/60 Hz	3 x 400 Vac +N, 50/60 Hz
Auxiliary Supply Consumption	< 0.50% of P_{acr}	< 0.40% of P_{acr}	< 0.50% of P_{acr}
Auxiliary Supply Consumption without Cooling	< 0.05% of P_{acr}	< 0.04% of P_{acr}	< 0.05% of P_{acr}
Inverter Switching Frequency	9 kHz	9 kHz	9 kHz
Communication			
Wired Local Monitoring	PVI-USB-RS232_485 (opt.)		
Remote Monitoring	PVI-AEC-EVO (opt.), AURORA-UNIVERSAL (opt.)		
AURORA String Combiner	PVI-STRINGCOMB (opt.)		
User Interface	TFT LCD 5.7"		
Environmental			
Ambient Temperature Range	-20...+ 60°C/-4...140°F with derating above 50°C/122°F -40...+ 60°C/-40...140°F with derating above 50°C/122°F (opt.)		
Relative Humidity	0...100% condensing	0...100% condensing	0...100% condensing
Noise Emission	< 78 dB(A) @ 1 m	< 78 dB(A) @ 1 m	< 78 dB(A) @ 1 m
Maximum Operating Altitude without Derating	2000 m / 6560 ft	2000 m / 6560 ft	2000 m / 6560 ft
Physical			
Environmental Protection Rating	IP 65	IP 65	IP 65
Cooling	Passive liquid and air forced	Passive liquid and air forced	Passive liquid and air forced
Required Air Cooling Flow	Not applicable	Not applicable	Not applicable
Dimension (H x W x D)	2920mm x 3020mm x 1520mm / 114,9" x 118,9" x 59,9"	2920mm x 3720mm x 1520mm / 114,9" x 146,5" x 59,9"	2920mm x 4420mm x 1520mm / 114,9" x 174,0" x 59,9"
Weight	< 3000 kg / 6613 lb	< 3800 kg / 8377 lb	< 4600 kg / 10141 lb
Weight of the module	< 55 kg / 121 lb	< 55 kg / 121 lb	< 55 kg / 121 lb
Safety			
Transformer	No	No	No
Marking	CE	CE	CE
Safety and EMC Standard	EN 50178, EN61000-6-2, EN61000-6-4, EN61000-3-11, EN61000-3-12	EN 50178, EN61000-6-2, EN61000-6-4, EN61000-3-11, EN61000-3-12	EN 50178, EN61000-6-2, EN61000-6-4, EN61000-3-11, EN61000-3-12
Grid Standard	Attachment A70 Terna ⁽³⁾ , CEI-0-16 ⁽³⁾ , BDEW, FERC661	Attachment A70 Terna ⁽³⁾ , CEI-0-16 ⁽³⁾ , BDEW, FERC661	Attachment A70 Terna ⁽³⁾ , CEI-0-16 ⁽³⁾ , BDEW, FERC661

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. Since their applicability dates

4. Power consumption of the auxiliary services not included

Remark. Features not specifically listed in the present data sheet are not included in the product



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