Three-phase C&I Hybrid Inverter

X3-ULTRA

15kW / 19.9kW / 20kW
25kW / 30kW

Smart Management

- Single unit UPS-level switchover time <10ms
- Built-in shadow tracking
- Smart loads management(e.g., heat pump, smart EV charger)
- Loads respond time within 0.3 s
- VPP ready with a variety of compatibility (OpenADR, IEEE2030.5, FCAS, API)*

Assured Reliability

- Battery terminal temperature detection
- IP66 protection degree
- Type II SPD on AC&DC side
- Optional AFCI protection

High Performance

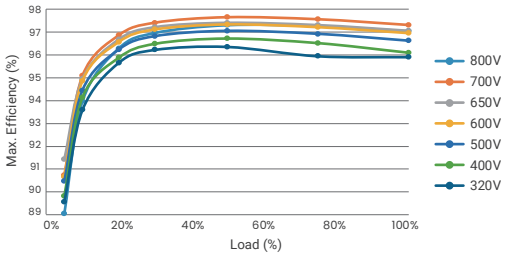
- 200% PV oversizing and up to 110% AC output
- 200% EPS overload for 10s
- Max. 60A charging / discharging current
- Low start-up voltage for longer operation

Flexible Adaptability

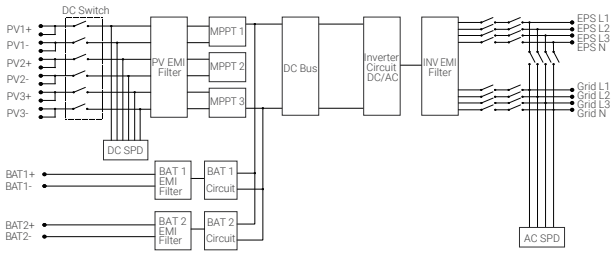
- Max. 10pcs parallel for on-grid and off-grid
- Microgrid and generator function for versatile operations
- Max. 36A PV input per MPPT, optimized for high-power solar panel

** Feature to be upgraded in the future*

Efficiency Curve



Circuit Diagram



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	X3-ULT-15K	X3-ULT-15KP	X3-ULT-19.9K	X3-ULT-20K	X3-ULT-20KP	X3-ULT-25K	X3-ULT-30K
PV INPUT							
Max. recommended PV array power	30 kWp		40 kWp			50 kWp	60 kWp
Max. PV input voltage①	1000 V						
Nominal PV input voltage	600 V						
Operating voltage range	120 ~ 950 V						
MPPT voltage range②	160 ~ 950 V						
Start-up voltage	200 V						
No. of MPP trackers / Strings per MPP tracker	2 / (2 / 2)	3 / (2 / 2 / 2)	2 / (2 / 2)		3 / (2 / 2 / 2)		
Max. input current per MPPT (MPPT1/2/3)	36 A / 36 A	36 A / 36 A / 36 A	36 A / 36 A		36 A / 36 A / 36 A		
Max. input short circuit current per MPPT (MPPT1/2/3)	45 A / 45 A	45 A / 45 A / 45 A	45 A / 45 A		45 A / 45 A / 45 A		
AC INPUT & OUTPUT (ON-GRID)							
Rated output power	15000 W (AS4777 14999 W)		19999 W	20000 W	20000 W	25000 W (VDE4105 24900 W)	30000 W (AS4777 29999 W, VDE4105 29900 W)
Rated output current	21.8 A		29.0 A	29.0 A	29.0 A	36.3. A	43.5 A
Max. output apparent power	16500 VA (AS4777 14999 VA)		19999 VA	22000 VA	22000 VA	27500 VA (VDE4105 24900 VA)	30000 VA (AS4777 29999 VA, VDE4105 29900 VA)
Max. output continuous current	24.0 A (AS4777 21.8 A)		29.0 A	31.9 A	31.9 A	39.9 A (VDE4105 36.3 A)	43.5 A
Nominal AC voltage	3 / N / PE, 220 / 380 V 3 / N / PE, 230 / 400 V						
Max. AC input apparent power	15000 VA		19999 VA	20000 VA	20000 VA	25000 VA	30000 VA
Max. AC input current	21.8 A		29.0 A	29.0 A	29.0 A	36.3 A	43.5 A
Nominal AC frequency	50 Hz / 60 Hz						
Adjustable Power Factor range	~ 1 (0.8 lagging to 0.8 leading)						
THDi (Rated power)	< 3%						
BATTERY							
Battery type	Lithium						
Battery voltage range	120 ~ 800 V						
Max. charge / discharge current	60 A (30 A × 2)						
EPS (OFF-GRID) OUTPUT (WITH BATTERY)							
Rated EPS output voltage, frequency	230 V / 400 V, 50 Hz / 60 Hz						
Rated EPS output power	15000VA		19999 VA	20000 VA		25000 VA	30000 VA
Peak EPS output power	2 times of rated power, 10 s						
Switchover time	< 10 ms						
EFFICIENCY							
Max. efficiency	98.0%						
European efficiency	97.7%						
ENVIRONMENT LIMIT							
Ingress protection	IP66						
Operating ambient temperature range③	-35 ~ 60°C						
Max. operating altitude	3000 m						
Relative humidity	0 ~ 100% RH (condensing)						
Overvoltage category	Mains: III, Battery: II, PV: II						
GENERAL							
Dimensions (W × H × D)	696 × 526 × 240 mm						
Net weight	47 kg						
Cooling concept	Smart cooling						
Communication interfaces	Meter (RS-485), DI x 2, DO x 1, Modbus						
Power consumption (night)	< 5 W						
Topology	Non-isolated						
Certificates and approvals	VDE4105, G99, AS4777, EN50549, CEI 0-21, IEC61727, PEA/MEA, NRS-097-2-1, RD1699, TOR						
AC auxiliary power supply (APS)	Built-in						
PROTECTION							
Protection	Over / under voltage protection, DC reverse-polarity protection, Residual current detection, Over temperature protection, DC isolation protection, Grid monitoring, DC injection monitoring, Back feed current monitoring						
Active anti-islanding method	Frequency shift						
Surge protection (DC / AC)	DC: Type II, AC: Type II						
Arc-fault circuit interrupter (AFCI)	Optional						

① The maximum input voltage is the upper limit of the DC voltage. Any higher input DC voltage would probably damage inverter
② Input voltage exceeding the MPPT voltage range may triggers inverter protection
③ Derating above +45°C