

ES Uniq Series

Single Phase 1/2 MPPT Hybrid Inverter (LV)

HORIZON's ES Uniq Series inverters, available in 3-12kW capacities, are specifically designed for residential PV installations. They offer flexible compatibility with both on-grid and off-grid systems and support parallel connection of up to 6 inverters for easy system expansion. The ES Uniq inverters feature a user-friendly touch-screen LCD display for intuitive operation and monitoring, and can be combined with a range of battery capacities and brands.



Flexible & Adaptable Applications

- 3-in-1 Port: Generator & Smart Loads & On-Grid Inverter
- Micro-grid operation with PV inverter
- Supports on- and off-grid parallel operation of up to 6 units



Superb Safety & Reliability

- AI-driven AFCI
- IP66 ingress protection



Higher Power Generation

- Max. 20A DC input current per string
- 200% PV input oversizing



Smart Control & Monitoring

- Smart load control
- Seamless switching to backup <4ms

Technical Data

HZ3000-ES-C10 HZ3600-ES-C10 HZ5000-ES-C10 HZ6000-ES-C10 HZ8000-ES-C10 HZ10K-ES-C10 HZ12K-ES-C10

Battery Input Data

Battery Type ¹	Li-Ion/Lead-acid						
Nominal Battery Voltage (V)	48						
Battery Voltage Range (V)	40-60						
Start-up Voltage (V)	44.2						
Number of Battery Input	1						
Max. Continuous Charging Current (A)	70	90	120	140	160	200	240
Max. Continuous Discharging Current (A)	70	90	120	140	160	200	240
Max. Charging Power (kW)	3.0 ²	3.6 ²	5.0 ²	6.0 ²	8.0 ³	10.0 ³	12.0 ³
Max. Discharging Power (kW)	3.3 ³	3.96 ³	5.5 ³	6.6 ³	8.8 ³	11.0 ³	13.2 ³

PV String Input Data

Max. Input Power (kW)	6.0	7.2	10.0	12.0	16.0	20.0	24.0
Max. Input Voltage (V) ⁴	600						
MPPT Operating Voltage Range (V) ⁵	60-550						
Start-up Voltage (V)	58						
Nominal Input Voltage (V)	360						
Max. Input Current per MPPT (A)	20	20	20	20	32 / 16 ⁶	32 / 32 ⁶	32 / 32 ⁶
Max. Short Circuit Current per MPPT (A)	26	26	26	26	48 / 24	48 / 48	48 / 48
Number of MPPT Trackers	1	2	2	2	2	2	2
Number of Strings per MPPT	1	1	1	1	2 / 1	2 / 2	2 / 2

AC Output Data (On-grid)

Nominal Output Power (kW)	3.0	3.6	5.0	6.0	8.0	10.0	12.0
Nominal Apparent Power Output to Utility Grid (kVA)	3.0	3.6	5.0	6.0	8.0	10.0	12.0
Max. AC Active Power (kW) ^{7,8}	3.3	3.96	5.5	6.6	8.8	11.0	13.2
Max. Apparent Power Output to Utility Grid (kVA) ^{7,9}	3.3	3.96	5.5	6.6	8.8	11.0	13.2
Max. Apparent Power from Utility Grid (kVA)	7.04	7.04	8.8	8.8	16.5	16.5	16.5
Nominal Output Voltage (V)	220 / 230 / 240						
Output Voltage Range (V)	170-280						
Nominal AC Grid Frequency (Hz)	50 / 60						
AC Grid Frequency Range (Hz)	45 ~ 55 / 55 ~ 65						
Max. AC Current Output to Utility Grid (A)	15	18	25	30	40	50	60
Max. AC Current From Utility Grid (A)	32	32	40	40	75	75	75
Power Factor	~ 1 (Adjustable from 0.8 leading to 0.8 lagging)						
Max. Total Harmonic Distortion	<3%						

AC Output Data (Back-up)

Back-up Nominal Apparent Power (kVA)	3.0	3.6	5.0	6.0	8.0	10.0	12.0
Max. Output Apparent Power without Grid (kVA)	3.3 (6.0, 10s)	3.96 (7.2, 10s)	5.5 (10.0, 10s)	6.6 (12.0, 10s)	8.8 (16.0, 10s)	11.0 (20.0, 10s)	13.2 (24.0, 10s)
Max. Output Apparent Power with Grid (kVA)	7.04	7.04	8.8	8.8	16.5	16.5	16.5
Max. Output Current without Grid (A)	15	18	25	30	40	50	60
Max. Output Current with Grid (A)	32	32	40	40	75	75	75
Nominal Output Voltage (V)	220 / 230 / 240						
Nominal Output Frequency (Hz)	50 / 60						
Output THDv (@Linear Load)	<3%						

AC Data (Generator)

Nominal Apparent Power from AC generator (kVA)	3.0	3.6	5.0	6.0	8.0	10.0	12.0
Max. Apparent Power from AC generator (kVA)	3.3	3.96	5.5	6.6	8.8	11.0	13.2
Nominal Input Voltage (V)	220 / 230 / 240						
Input Voltage Range (V)	170-280						
Nominal AC generator Frequency (Hz)	50 / 60						
AC generator Frequency Range (Hz)	45 ~ 55 / 55 ~ 65						
Max. AC Current From AC generator (A)	32.0	32.0	40.0	40.0	50.0	54.5	54.5
Nominal AC Current From AC generator (A)	13.7 at 220V 13.1 at 230V 12.5 at 240V	16.4 at 220V 15.7 at 230V 15.0 at 240V	22.8 at 220V 21.8 at 230V 20.9 at 240V	27.3 at 220V 26.1 at 230V 25.0 at 240V	36.4 at 220V 34.8 at 230V 33.3 at 240V	45.5 at 220V 43.5 at 230V 41.7 at 240V	54.5 at 220V 52.2 at 230V 50.0 at 240V
Nominal Input Current (A)	13.7 at 220V 13.1 at 230V 12.5 at 240V	16.4 at 220V 15.7 at 230V 15.0 at 240V	22.8 at 220V 21.8 at 230V 20.9 at 240V	27.3 at 220V 26.1 at 230V 25.0 at 240V	36.4 at 220V 34.8 at 230V 33.3 at 240V	45.5 at 220V 43.5 at 230V 41.7 at 240V	54.5 at 220V 52.2 at 230V 50.0 at 240V

Efficiency

Max. Efficiency	97.6%
European Efficiency	96.2%
Max. Battery to AC Efficiency	95.5%
MPPT Efficiency	99.9%

Protection

PV String Current Monitoring	Integrated
PV Insulation Resistance Detection	Integrated
Residual Current Monitoring	Integrated
PV Reverse Polarity Protection	Integrated
Anti-islanding Protection	Integrated
AC Overcurrent Protection	Integrated
AC Short Circuit Protection	Integrated
AC Overvoltage Protection	Integrated
DC Switch	Integrated
DC Surge Protection	Type III
AC Surge Protection	Type III
AFCI	Optional
Rapid Shutdown	Optional
Remote Shutdown	Integrated

General Data

Operating Temperature Range (°C)				-35 ~ +60			
Relative Humidity				0 ~ 95%			
Max. Operating Altitude (m)				3000			
Cooling Method		Natural Convection		LCD, WLAN + APP		Smart Fan Cooling	
User Interface				CAN			
Communication with BMS				RS485, Wifi + LAN + Bluetooth			
Communication				Modbus-RTU, Modbus-TCP			
Communication Protocols							
Weight (kg)		14.5	15.5	15.5	15.5	27.0	29.0
Dimension (WxHxD mm)		560 * 415 * 204			560 * 444.5 * 226		
Topology				Non-isolated			
Ingress Protection Rating				IP66			
Mounting Method				Wall Mounted			

- The Li-Ion battery usually contain two mainstream type: LFP and Ternary Lithium battery.
- When the PV input voltage is higher than 500V, the battery charging and discharging power will be gradually limited, and the power limitation will be lifted after the input voltage is lowered.
- When the PV input voltage is higher than 490V, the battery charging and discharging power will be gradually limited, and the power limitation will be lifted after the input voltage is lowered.
- When the input voltage is 560V~600V, the inverter will enter standby mode. The inverter will return to normal operation state when the voltage returns to the MPPT working voltage range.
- Please refer to the user manual for the MPPT Voltage Range at Nominal Power.
- the maximum input current per string is 16A. Or For the MPPT with two strings, the current of each string is 16A.