eSOLAR HYD series

Hybrid PV Inverter

PRODUCT DESCRIPTION

The eSOLAR HYD (ES) series is a cost-effective, single phase, transformerless type hybrid PV inverter designed for a combination of both grid-tied and off-grid applications.

Integrating the hybrid PV string inverter with PV panels, batteries, and the balance of systems, direct current (DC) generated by the solar panels are converted into high quality alternating current (AC) that can be fed into the public electricity network, charge the batteries and supplying to the load. Depending on the grid conditions, the reserve energy may be used to meet the load demands.

The eSOLAR HYD (ES) series is designed to provide a smart, simple, reliable and efficient solution for small to medium hybrid PV systems.

KEY FEATURES

- **Wide operating and MPPT input voltage range**
  Enables PV generation at low starting voltage
- **Highly efficient**
  Up to max efficiency of 98.0%
- **Hybrid application for flexible solution**
  Includes grid and off-grid applications combining with storage energy and load
- **Battery Management System for storage batteries**
  Compatible for both lead acid and lithium battery technologies
- **Supports different communication modes**
  Standard RS485, Bluetooth, WIFI, GRPS (Optional)
- **IP65 rated enclosure with natural cooling**
- **Optional modular batteries**
- **Small, light and easy to install**

APPLICATIONS

- Residential
- Small to medium commercial
- Small to medium industrial

TECHNICAL SPECIFICATIONS

MODEL	eHYD 3KTL-ES	eHYD 4KTL-ES	eHYD 5KTL-ES	eHYD 6KTL-ES
Capacity	3000W	4000W	5000W	6000W
PV STRING INPUT				
Recommended Max. PV input power	3990Wp	5320Wp	6650Wp	7980Wp
Max DC Power per MPPT	2000W	2600W	3000W	3500W
Max. DC Voltage	600Vdc			
Start-up Operating Voltage	120Vdc			
MPPT Voltage Range	90Vdc to 580Vdc			
Nominal DC Voltage	360Vdc			
Full Power MPPT Voltage Range	160Vdc-520Vdc	200Vdc-520Vdc	250Vdc-520Vdc	300Vdc-520Vdc
Max. Input Current	12A / 12A			
Max. Short Circuit Current	15A / 15A			
No. of MPP Trackers	2			
AC OUTPUT (Grid-Tied)				
Nominal AC Power	3000W	4000W	5000W	6000W
Nominal Grid Voltage	L/N/PE, 220, 230, 240Vac			
Grid Voltage Range	180Vac to 276Vac			
Grid Frequency Range	45-55Hz / 54-66Hz			
Max. AC Output Power to Grid	3000VA	4000VA	5000VA	6000VA
Max. AC Output Current to Grid	13.7A	18.2A	22.8A	27.3A
Output Power Factor	~1 (±0.8 adjustable)			
Output THDi (@ Linear Load)	< 3%			
AC OUTPUT (Emergency Power)				
Nominal Output Power	3000VA			
Nominal Output Voltage	L/N/PE, 230Vac			
Nominal Output Frequency	50Hz / 60Hz			
Max Output Current	13.2A			
Peak Output Power / Duration	4000VA / 10s			
Output THDv (@ Linear Load)	< 3%			
Switch Time	10ms default			
Battery Connection				
Battery Type	Lithium Ion / Lead Acid			
Nominal Battery Voltage	48Vdc			
Battery Voltage Range	42Vdc to 58Vdc			
Max. Charge/Discharge Power	3000W			
Max. Charge/Discharge Current	65A / 70A (configurable)			
Charging Algorithm	Lithium Ion (BMS) / Lead Acid (3-stage charging)			
Battery Capacity	50AH to 2000AH			
Depth of Discharge	Lithium Ion: 0-90% DOD adjustable; Lead Acid: 0-50% DOD adjustable			
EFFICIENCY				
MPPT Efficiency	99.99%			
Euro Efficiency	97.2%	97.2%	97.3%	97.5%
Max. Efficiency	97.6%	97.6%	97.8%	98.0%
Max. Batt Charge/Discharge Efficiency	94.6%			

Due to continuous product development, specifications are subject to change without prior notice

Rev00

TECHNICAL SPECIFICATIONS

MODEL	eHYD 3KTL-ES	eHYD 4KTL-ES	eHYD 5KTL-ES	eHYD 6KTL-ES
Capacity	3000W	4000W	5000W	6000W
PROTECTION				
DC Switch	Yes			
PV Reverse Polarity Protection	Yes			
PV Insulation Detection	Yes			
Ground Fault Monitoring	Yes			
Overcurrent Protection	Yes			
Overvoltage Protection	Yes			
Battery Soft Start Protection	Yes			
Surge Protection Level	III			
GENERAL DATA				
Dimension (W x D x H)	566 x 394 x 173 mm			
Weight	20.5kg			
Topology	High Frequency Isolation (for Batt)			
Standby Self-Consumption	< 10W			
Operating Temperature Range	-30°C to +60°C (de-rating @ > 45°C)			
Relative Humidity	0 to 100%			
Noise	< 25dB			
Operating Altitude	< 2000m			
Cooling	Natural Cooling			
Protection Degree	IP65			
Protection Class	Class 1			
Current Sensor Connection	External			
FEATURES				
DC Terminal	MC4			
Display	LCD Display			
Communication Interface	RS485 / WIFI / Ethernet / GPRS, SD, CAN2.0			
Standard Warranty	Standard (up to 5 years)			
CEFRTIFICATIONS AND STANDARDS				
EMC	EN 61000-6-2, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 61000-3-11, EN 61000-3-12			
Safety	IEC62109-1/2, IEC62040-1, IEC62116, IEC61727, IEC-61683, IEC60068(1,2,14,30)			
Grid	AS/NZS 4777, VDE V 0124-100, V 0126-1-1, VDE-AR-N 4105, CEI 0-21, EN50549, G83/G59/G98/G99, UTE C15-712-1, UNE 206 007-1			