

AZZURRO - INVERTER FOR HYBRID STORAGE

HYD 3000-ES/HYD 3600-ES/HYD 4000-
ES/HYD 5000-ES/HYD 6000-ES



ZCS Azzurro Hybrid storage inverter is the ideal solution for optimising energy independence in residential applications.

With a nominal power of 3 to 6kW and a storage capacity of up to 30kWh, it adapts to any type of requirement on new installations.



SIMPLE AND RELIABLE



- Automatic management of the energy flows from the photovoltaic system, battery and grid
- LCD graphic display for local monitoring
- Remote monitoring system through APP for visualising consumption, PV production, energy stored and exchanged with the grid

SIMPLE INSTALLATION



- On-board Energy Metre
- Does not require changes or upgrades to the existing electrical system thanks to the use of an open-core current sensor

FLEXIBLE DISCHARGE SOLUTION



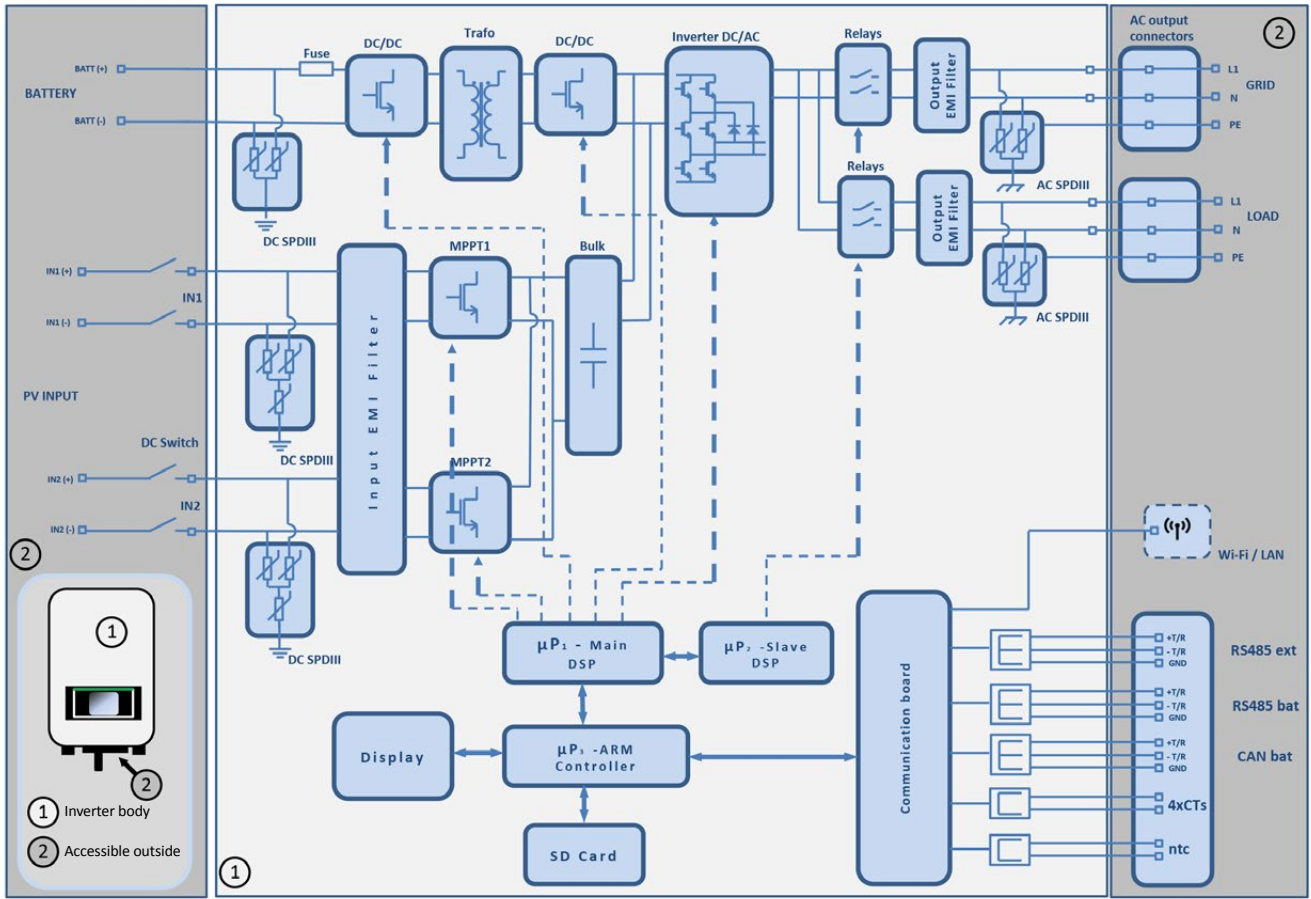
- Flexible charging/discharging management in accordance with local standards
- Maximisation of self-consumption above 80%
- Possibility of operation in zero grid feed-in mode
- Unit compatible with both lithium batteries and other 48V technologies

FUNCTIONALITY IN THE EVENT OF GRID DISCONNECTION

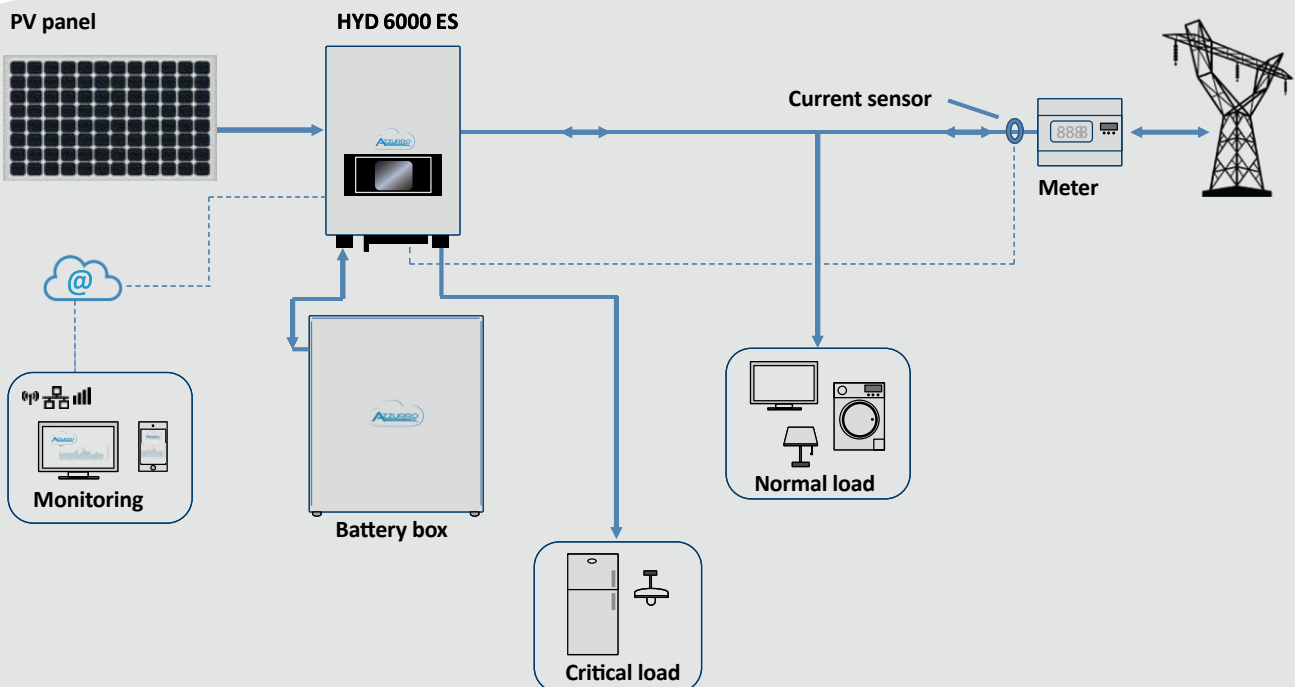


- Stand-Alone support mode guarantees continuity of operation and "island" operation, both from the photovoltaic source and from the battery, in the event of a power failure.

FLOW CHART



STORAGE DIAGRAM



TECHNICAL DATA	HYD 3000 ES	HYD 3600 ES	HYD 4000 ES	HYD 5000 ES	HYD 6000 ES
DC Input (photovoltaic)					
Maximum DC Power	3500W	4000W	4400W	5500W	6600W
Maximum DC power for each MPPT	2000W (160V-520V)	2400W (180V-520V)	2600W (200V-520V)	3000W (250V-520V)	3500W (300V-520V)
No. of independent MPPTs/no. of strings per MPPT	2/1				
Maximum input voltage	600V				
Activation voltage	120V				
Nominal input voltage	360V				
MPPT range of DC voltage	90V-580V				
DC voltage range at full load	160V-520V	180V-520V	200V-520V	250V-520V	300V-520V
Maximum input current for each MPPT	12A/12A				
Battery Technical Data					
Type of compatible battery	Lithium ion / Lead Gel / Salt water etc.				
Nominal voltage	48V				
Permissible voltage range	42V-58V				
Recommended battery capacity	50Ah-200Ah				
Maximum charging/discharging power	3000W				
Permissible temperature range *	-10°C-50°C				
Maximum charging current	65A (programmable)				
Maximum discharging current	65A (programmable)				
Charging curve (Lithium)	Managed by battery BMS				
Charging curve (other battery types)	3 adaptive stages with maintenance				
Depth of Discharge (DoD)	Lithium ion: 0%-90% (programmable); Lead Gel: 0%-50% (programmable)				
AC Output (grid side)					
Nominal power	3000W	3680W	4000W	5000W	6000W
Maximum power	3000VA	3680VA	4000VA	5000VA	6000VA
Maximum current	13.7A	16A	18.2A	22.8A	27.3A
Connection type/Nominal voltage	Single-phase L/N/PE 220,230,240V				
AC voltage range	180V-276V (according to the local standards)				
Nominal frequency	50Hz/60Hz				
AC frequency range	44Hz-55Hz / 54Hz-66Hz (according to the local standards)				
Total harmonic distortion	< 3%				
Power factor	1 default (programmable +/- 0.8)				
Grid feed-in limitation	Programmable from display				
EPS (Emergency Power Supply)					
Power output in EPS ** in the absence of production by photovoltaic	3000VA				
EPS output frequency and voltage	Single-phase 230V 50Hz/60Hz				
Output current in EPS	13A				
Apparent peak power in the absence of production by photovoltaic	4000VA per 10s				
Total harmonic distortion	< 3%				
Switch time	5s default (programmable 1s-60s)				
Efficiency					
Maximum efficiency	97.6%	97.6%	97.6%	97.8%	98.0%
Weighted efficiency (EURO)	97.2%	97.2%	97.2%	97.3%	97.5%
MPPT efficiency	>99.9%				
Maximum battery charge/discharge efficiency	94.6%				
Consumption in stand-by	< 5W				
Protections					
Internal interface protection	Yes				
Safety protections	Anti-islanding, RCMU, Ground Fault Monitoring				
DC reverse polarity protection	Yes				
DC switch	Integrated				
Overheating protection	Yes				
Protection class/Surge category	I/III				
Integrated dischargers	AC/DC MOV: Type III standard				
Soft Start Battery	Yes				
Standard					
EMC	EN 61000-6-1/2/3/4,				
Safety standard	IEC 62116, IEC 61727, IEC 61683, IEC 60068-1/2/14/30, IEC 62109-1/2				
Grid connection standard	CEI 0-21, NB/T32004-2013, AS4777, VDE 0126-1, G83/2, G59/3, EN50438, VDE-AR-N4105				
Communication					
Communication interfaces	Wi-Fi (Optional), RS485 (proprietary protocol), SD card, CAN 2.0 (for battery connection)				
Additional inputs or connections	Input for current sensor connection				
Data storage on SD	25 years				
General data					
Permissible ambient temperature range	-30°C...+60°C (power limitation above 45°C)				
Topology	Transformerless / High frequency isolation battery output				
Environmental protection degree	IP65				
Permissible relative humidity range	0%.....95% without condensation				
Maximum operating altitude	2000m				
Noise	< 25dB @ 1mt				
Weight	20.5Kg				
Cooling	Natural convection				
Dimensions (H*L*D)	566mm*394mm*173mm				
Display	LCD				
Warranty	5 - 10 years				

* Standard value for lithium batteries; maximum operating range between +10°C/+40°C

** Power output in EPS mode depends on the type of batteries and the status of the system (e.g. residual capacity, temperature)



AS4777 G83/2 G59/3

CE, CEI 0-21, CQC, IEC, VDE-AR-N4105/VDE-0126, EMC, C10/11, EN50438, RD1669