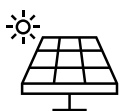


# HYDRO ESS

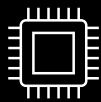
## Smart Generator & Energy Storage

### A COMPLETE ENERGY GENERATOR SOLUTION

HydroESS technology is the evolution of the solar generators & solar batteries. Our design was made so that you can integrate multiple sources of energy to power your home or business in the safest, most durable and cost-effective way. A fully integrated system with batteries, solar inverter, battery inverter, AGS, switches, touch screen display, operative system and smart computer. HydroESS disappears most external components and reduces the costs of programming and installation. HydroESS is a remote and automated system that does not require maintenance.



Solar  
Inverter



Smart  
Computer



Battery  
Inverter



Iron  
battery

## BATTERY INPUT DATA

Battery Compatibility	HydroESS   BYD   Pylontech   Lead Acid   Newton   HomeGrid   Pandora   OptimusPower   BlackRock	
Battery Voltage Range (V)	40V-59V	
Max. Charging Current (A)	120A	190A
Max. Discharging Current (A)	120A	190A
Charging curve	3 Stages & Equalization	
External temperature sensor	Optional	
Charging Strategy for Li-Ion Battery	Self-adaption to BMS	

## SOLAR INPUT DATA

Max. DC Input Power (W)	11000W	160000W
DC Input Voltage (V)	370V (100V ~ 500V)	
MPPT Range (V)	125 Vdc – 425 Vdc	
Start-up Voltage (V)	140 Vdc	
Max. Input dc Current (A)	11A+11A	18A+18A
MPPT Numbers	2	
Numbers of Strings per MPPT	2	4

## AC Input / Output

AC Bypass output (Grid or Generator)	8400W (35A)	12000W (50A)
Rated Continuous AC output to the grid (W)	6000W	10000W
AC Output Rated Current(A)	25A / 25A	36A / 36A
Peak power (UPS BACKUP)	2 times of rated power, 10 S	
Rated AC Output UPS Power (W)	5000w (20.8A)	8000w (33A)
Optional frequency and voltage	50/60Hz; (120VAC / 240VAC / 208VAC / 230VAC)	
Max. AC current(A)	Split phase , 2/3 Phase , Single Phase	
Output frequency and voltage	THD<3% (Linear loading<1.5%)	

## Efficiency

Battery Charge/Discharge Efficiency	96% / 95%	96% / 95%
Max Efficiency	97.6%	97.6%
MPPT Efficiency	99%	99%

## Protection

PV Arc Fault detection	Integrated
PV input lightning protection	Integrated
Anti-islanding Protection	Integrated
PV String Input Reverse Polarity Protection	Integrated
Insulation Resistor Detection	Integrated
Residual Current Monitoring Unit	Integrated
Output Over Current Protection	Integrated
Output Shorted Protection	Integrated
Output Over Voltage Protection	Integrated

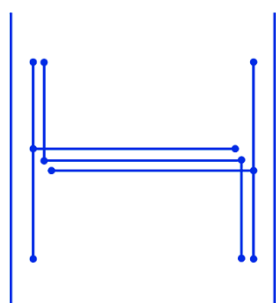
## Certifications and Standards

Grid Regulation	UL1741, IEEE1547, VDE-ARN 4105
Safety Regulation	IEC62109-1, IEC62109-2, IEC62040-1
EMC	EN61000-6-1, EN61000-6-3, FCC 15 class B

## General Data

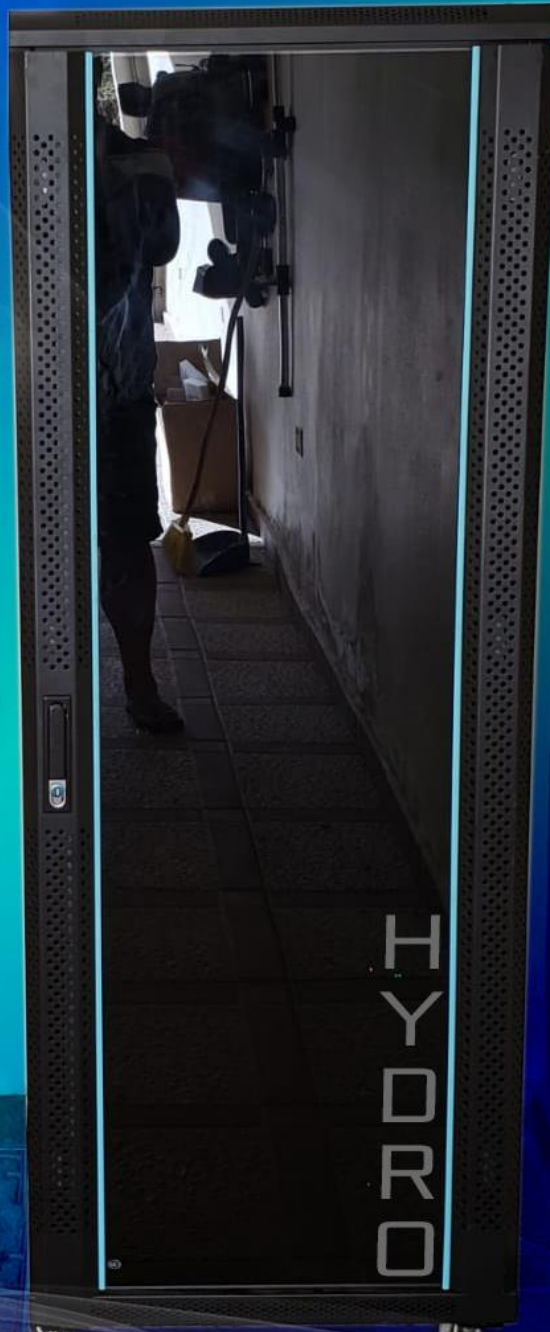
Operating Temperature Range (°C)	-25 ~ 60°C, > 45°C Derating
Cooling Concept	Natural Convection + Fans
Noise (dB)	< 30
Communication Interfaces	RS485, CAN, WI-Fi, LCD,
Weight (kg)	66 pounds
Size (Width*Height*Depth mm)	680 * 420 * 233mm
Protection Degree	IP – 20 & IP - 65
Installation style	Rack Mount & Wall Mount
Warranty	10 years

Model	HAP-51400	HAP-51300	HAP-48120	HAP-5160
Cell Chemistry	LifePo4 (Non toxic & Fire Safe)			
Capacity	20 kWh	15 kWh	6 kWh	3 kWh
Depth of Discharge	Up to 100%	Up to 100%	Up to 100%	Up to 100%
Nominal Voltage	51.2vdc	51.2vdc	51.2vdc	51.2vdc
Operating Voltage	44 ~ 54	44 ~ 54	44 ~ 54	44 ~ 54
Max Charge/Discharge	200A	200A	100A	50A
Operating Temp	-10 °C + 50°C*	-10 °C + 50°C*	-10 °C + 50°C*	-10 °C + 50°C*
Module Weight	175 kg	165 kg	44 kg	22 kg
Dimension	483mm x 685mm x 280mm	483mm x 685mm x 280mm	400mm x 609mm x 266mm	400mm x 609mm x 266mm
Scalability	Max 16 parallel			
Compatible Inverters	HydroESS / Genesis / Solark / Growatt / LuxPowertek / Fortress			
Monitoring Parameters	Battery Voltage, current, cell voltage, cell temperature			
Communication	CAN and RS485			
Enclosure Protection Rating	IP-55			
Round Trip efficiency	96%			
Certifications & Safety Standards	UN 38.3 / UL1642 / UL1973 / TUV (IEC62619) / CE / VDE2510			
Application	OnGrid + Backup (Refer to configuration list)			
Performance	8,000 cycles to 70% remaining capacity			
Product warranty	22 years lifespan / 10 years parts			



# YORO

## A I O P O W E R



# HYBRID, DAILY EXPORT & ZERO EXPORT FUNCTIONS

## **MULTI TASKING FUNCTION:**

Manage all the power at the same time of solar, batteries, grid, generator, wind and loads

## **AC COUPLE FUNCTION:**

Compatible with generators and others AC energy sources

## **ON-GRID FUNCTION:**

Say goodbye to your electric bill exporting your energy to the grid

## **ZERO EXPORT FUNCTION:**

Use all your renewable energy without a smart meter

## **TIME OF USE FUNCTION:**

Use HYDRO to minimize grid energy usage when its most expensive and recharge when is cheaper

## **SMART POWER FUNCTION:**

Setup the high power for off-grid items to run when there is a lot of solar

## **PLUG & PLAY INSTALLATION**

- ✓ Plug & Play
- ✓ Faster installation
- ✓ Prewired system
- ✓ Just few extra components

## **ONLINE MONITORING**

- ✓ HYDRO can give you online maintenance
- ✓ Online system monitoring
- ✓ Software update