

Simple Smart Safe -Tower(HV) All-in-One ESS



Cost-efficient Performance with Intelligently Agile Solution

- 
SMART
Automatic balancing between new and old battery packs
Dynamic tariffs ready
- 
Simple
Fast installation, modular design
- 
Efficient
DC:AC ratio up to 2.0 for all roof types and for a fully charged batter at all times
- 
Flexible
IP65 for outdoor applications ground or wall mounted
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Worry-free
Backup available at maximum power size in <10ms and AFCI included
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ALL-IN-ONE
It combines an hybrid inverter, battery packs, and management system into one elegant unit
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Stable
Supports up to 150% 3ph unbalanced loads

-Tower(HV) All-in-One ESS

System Parameters				Battery module	
System Model	HA3PH-4K4.8B1 HA3PH-5K4.8B1 HA3PH-6K4.8B1	HA3PH-4K9.6B1 HA3PH-5K9.6B1 HA3PH-6K9.6B1 HA3PH-8K9.6B1 HA3PH-10K9.6B1	HA3PH-4K14.4B1 HA3PH-5K14.4B1 HA3PH-6K14.4B1 HA3PH-8K14.4B1 HA3PH-10K14.4B1 HA3PH-12K14.4B1 HA3PH-15K14.4B1	Model	HBHS-4.8KB1/LPP
Production Configuration	HAH3P-4/5/6KB1/HU9+ HBHS-4.8KB1/LPP	HAH3P-4/5/6/8/10KB1/HU9+ 2*HBHS-4.8KB1/LPP	HAH3P-4/5/6/8/10/12/15KB1/HU 9+3*HBHS-4.8KB1/LPP	Battery Type	LFP
System Capacity	4.8kWh	9.6kWh	14.4kWh	Rated Voltage	96V
System Weight(kg)	82±2	136±3	190±4	Rated Energy	4.8kWh
No. Of Battery Parallel	1	2	3	Usable Capacity	4.5kWh
Life Cycles	8000 times			Working Voltage Range	90-108V
Operating Temperature	Charging 0°C<T<50°C Discharging -10°C<T<50°C			Rated Charging/Discharging Current	50A
Working Humidity	0-95% (No Condensing)			Max.Charging/ Discharging Current	50A
Dimensions (W*H*D) [mm]	620*935*206	620*1365*206	620*1795*206	Depth Of Discharge(DoD)	95%
Working Altitude	≤3000m(Without Derating)			Net Weight	53.4kg
Warranty	10 years			Dimensions (W*H*D) [mm]	620*206*430
				Enclosure Type	IP 65
				Communication	CAN
				Warranty	10 Years
				Weight(kg)	50±2
				Certification	UN 38.3, EN 61000-6, IEC 62619

Hybrid Inverter							
Model	HAH3P-4KB1/HU9	HAH3P-5KB1/HU9	HAH3P-6KB1/HU9	HAH3P-8KB1/HU9	HAH3P-10KB1/HU9	HAH3P-12KB1/HU9	HAH3P-15KB1/HU9
PV String Input Data							
Max. PV Input Power	8kW	10kW	12kW	16kW	20kW	22.5kW	22.5kW
Max PV Input Voltage	1100V						
Full load MPPT Voltage Range	140-950V						
Startup Voltage	85V						
Max. Input Current	16A / 16A / 16A						
Max. Short Circuit Current	24A / 24A / 24A						
Numbers of MPPTs	3						
Strings Per MPPT	1 / 1 / 1						
BATTERY PORT							
Battery Type	LFP						
Battery Voltage Range	90-700V						
Max. Charging Current	50A						
Max. Discharging Current	50A						
GRID PORT							
Rated Output Power	4kVA	5kVA	6kVA	8kVA	10kVA	12kVA	15kVA
Max. Output Current	6.7A	8.3A	10A	13.3A	16.7A	20A	22.8A
Max. Output Apparent Power	4.4kVA	5.5kVA	6.6kVA	8.8kVA	11kVA	13.2kVA	15.75kVA
Max. Input Power	8kVA	10kVA	12kVA	16kVA	20kVA	20kVA	20kVA
Rated Grid Voltage	220V, 230/400Vac, 3L/N/PE						
Grid Voltage Range	150-288Vac						
Rated Grid Frequency	50/60Hz						
Power Factor	Leading -0.8 - Lagging+0.8						
THDi	<3%						
BACKUP PORT							
Grid Max Power	8kVA	10kVA	12kVA	16kVA	20kVA	20kVA	20kVA
Rated Backup Power	4kVA	5kVA	6kVA	8kVA	10kVA	12kVA	15kVA
Rated Backup Voltage	220/380Vac, 230/400Vac, 3L/N/PE						
Rated Backup Frequency	50/60Hz						
THDv	<3% (Linear Load) / <5% (Non-linear Load)						
Switching Time	<10ms						
EFFICIENCY							
Max. Efficiency	98%	98%	98.2%	98.4%	98.4%	98.4%	98.4%
Europe Efficiency	97.5%	97.5%	97.7%	97.9%	97.9%	97.9%	98%
MPPT Efficiency	99.9%						
GENERAL DATA							
Operating Temperature Range	-25°C-60°C						
Relative Humidity	0-100% (No Condensing)						
Operating Altitude	≤3000m(Without Derating)						
Cooling	Natural Convection	Natural Convection	Natural Convection	Natural Convection	Natural Convection	Intelligent Air Cooling	Intelligent Air Cooling
Noise	<30dB	<30dB	<30dB	<30dB	<30dB	<45dB	<45dB
Topology	Transformerless						
Dimensions (W*H*D)[mm]	590x416x205mm						
Protection Degree	IP65						
Weight	29kg						
Warranty	10 Years						
HMI&COMM.							
Communication With BMS	CAN / RS-485						
External Communication	RS-485 / WIFI / 4G / Ethernet						
User Interface	LED						
CERTIFICATE							
Grid Regulation	VDE-AR-N 4105:2018, G98, G99, C10/11:2021, NTS 631, RD647:2020 UNE 217002:2020, CEI 0-21, VDE 0126-1-1, NRS 097-2-1, AS/NZS 4777.2:2020, EN 50549-1						
Certification	EC/EN 61000-6, IEC/EN 62109-1&2, IEC/62477-1:2012						