



-Tower (HV)

All-in-One ESS



Cost-efficient performance in an All-In-One solution



Smart

Dynamic tariffs ready
Faulty battery modules can be bypassed, ensuring uninterrupted system functionality for the user



Fast installation

Fast installation, modular design



Efficient

DC:AC ratio up to 2.0 for a fully charged battery at all times and 3MPPTs for all roof types



Flexible

IP65 for outdoor applications ground or wall mounted. Scalable capacity from 1 module 4.8kWh up to 6 modules 28,8kWh on 2 clusters



Worry-free

Backup available at maximum power size in <10ms and AFCI included in both PV and battery sides



All-In-One

It combines a hybrid inverter and battery packs into one elegant all-in-one unit – also available in a split version for flexible installations



Advance load balancing

Supports up to 150% 3ph unbalanced loads

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						
Number of string per MPPT	1 / 1 / 1						

Battery port

Battery Type	LiFePO4						
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 Pow	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 <3%						
THDi							

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%		98.2%		98.4%		
Europe Efficiency	97.5%		97.7%		97.9%		98%
MPPT Efficiency	99.9%						

General data

Operating Temperature Range ¹	-25°C~60°C						
Relative Humidity	0~100% (No Condensing)						
Operating Altitude	≤3000m(Without Derating)						
Cooling	Natural Convection					Intelligent Air Cooling	
Noise	<30dB					<45dB	
Topology	Transformerless						
Dimensions WxHxD (mm)	590x416x205						
Protection Degree	IP65						
Weight	29kg						
Warranty	10 Years						

HMI&COMM

Communication With BMS	CAN / RS-485						
External Communication	RS-485 / WIFI / Ethernet						
User Interface	LED						

Certificate

Grid Regulation	VDE-AR-N 4105:2018, G98, G99, C10/11:2021, NTS 631, RD647:2020						
Certification	UNE 217002:2020, CEI 0-21, VDE 0126-1-1, NRS 097-2-1, AS/NZS 4777.2:2020, EN 50549-1 EC/EN 61000-6, IEC/EN 62109-1&2, IEC/62477-1:2012						

Battery module

Model	HBHS-4.8KB1/LPP						
Battery Type	LiFePO4						
Rated Voltage	96V						
Rated Energy	4.8kWh						
Usable Capacity	4.5kWh						
Working Voltage Range	90~108V						
Rated Charging/Discharging Current	50A						
Max.Charging/Discharging Current	50A						
Depth Of Discharge(DoD)	95%						
Life Cycles	8000						
Operating Temperature ¹	Charging 0°C<T<50°C Discharging -10°C<T<50°C						
Dimensions WxHxD (mm)	620x430x206						
Protection Rate	IP 65						
Communication	CAN						
Warranty	10 Years						
Weight(kg)	54±2						
Certification	UN 38.3, EN 61000-6, IEC 62619						

System Parameters

Production Configuration	HAH3P-4/5/6/8/10/12/15 KB1/HU9					
	HBHS-4.8KB1/LPP	2x HBHS-4.8KB1/LPP	3x HBHS-4.8KB1/LPP	4x HBHS-4.8KB1/LPP	5x HBHS-4.8KB1/LPP	6x HBHS-4.8KB1/LPP
System Capacity	4.8kWh	9.6kWh	14.4kWh	19.2kWh	24kWh	28.8kWh
System Weight (kg)	82±2	136±2	190±2	244±2	298±2	352±2
No. of battery modules	1	2	3	4	5	6
Working Humidity	0~95% (No Condensing)					
Dimensions WxHxD (mm)	620x935x206	620x1365x206	629x1795x206	629x1795x206 (cluster 1) 629x519x206 (cluster 2)	629x1795x206 (cluster 1) 629x949x206 (cluster 2)	629x1795x206 (cluster 1) 629x1379x206 (cluster 2)

¹Possible derating occurring