



Battery ESS ATEN-50

AGreatE's ATEN 50 Battery Energy Storage System is an all in one (LFP) battery energy storage system (BESS). Designed around a 50 kW power platform, 128 kWh and 192 kWh battery storage options, allows for easy and reliable light commercial applications. Solar, Wind, Grid, and DG compatible.



ATEN
BATTERY ESS



Advanced & Guaranteed System

- Strong R&D team supports innovative products and continuous improvement thereafter;
- Self-developed BESS controller and EMS, ensuring best reliability of the system;
- High-standard testing process guaranteeing quality delivery;

Reliable & Competitive Quality

- UL9540A compliant up to battery string level, 1 out of 7 manufacturers in China;
- Containerized with protection level at IP54 for the whole system and IP65 for the battery compartment;

Money-saved & Versatile Application

- 6,000 cycles battery cell against market prevailing 3,000 cycles battery cell;
- DC coupling system ensuring higher DC/AC ratio, higher round trip efficiency;
- Accessible to different sources of powers PV, ESS, Grid or DG, supports both on-grid and off-grid modes;

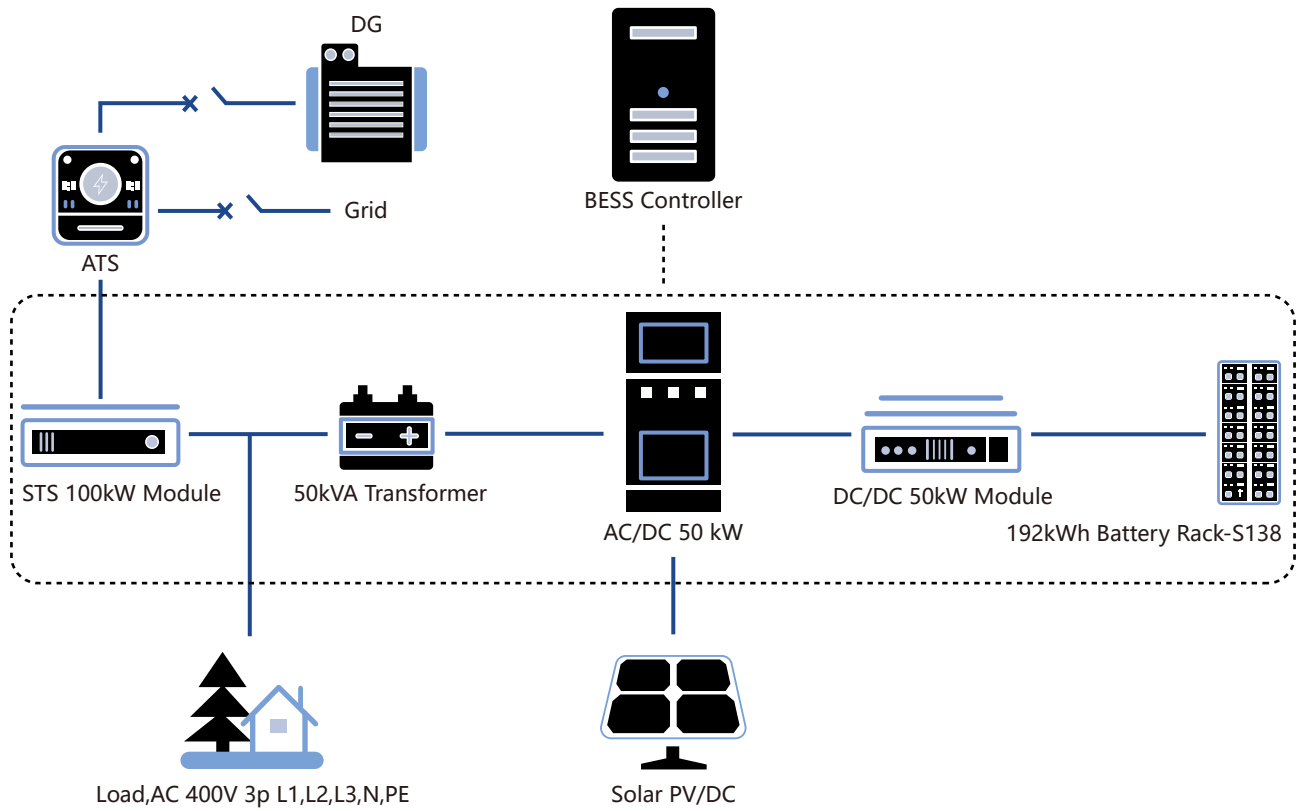
Smart & Easy Operation

- Fully integrated and plug-and-play microgrid system; 7*24 cloud-based monitoring and operation
- platform supports the visit of Mysql database and multiple mobile/PC devices.

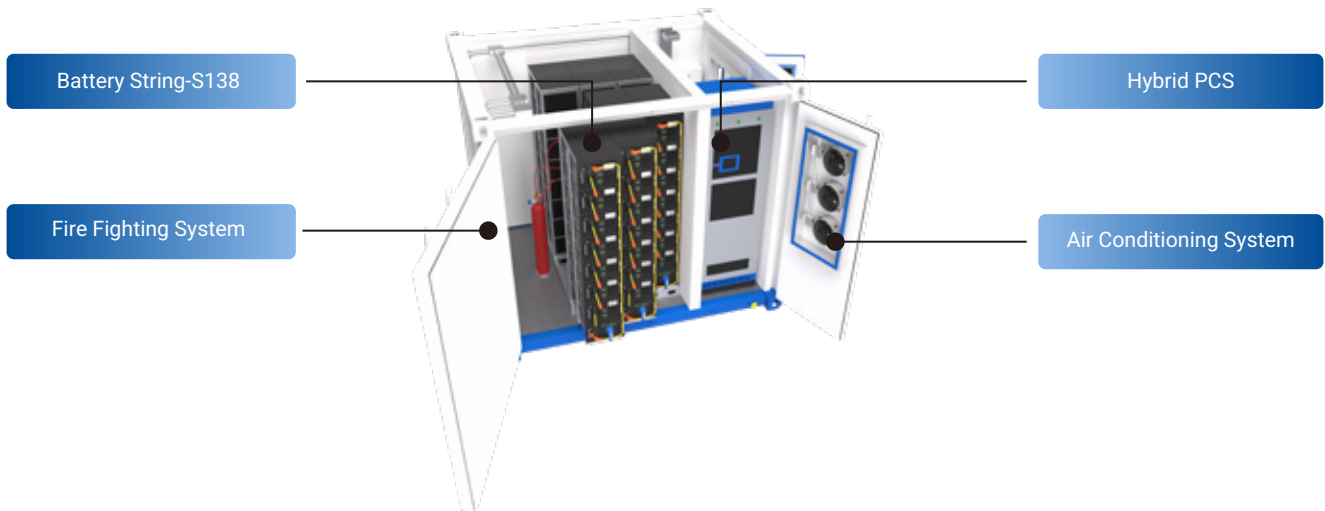
Product features (M50/M100)

- The 50kW/100kW PCS cabinet contains a Hybrid PCS with 250V~520V DC voltage;
- The n*138kWh(n=2~6) battery string is converted to 400V/480V AC through the 50kW/100kW Hybrid PCS, AC power is transferred to the isolated transformer supporting the load;
- The battery string is charged from corresponding PV string and DC/DC Module during day time operation;
- When BAT and PV supplies are insufficient, ATS switches the power supply to DG or grid. STS performs on-grid and off-grid seamless switching to ensure continuous power supply of load;
- The EMS control system runs automatically without manual operation.

System Topology (PV + 50kW PCS + 128/192kWh BESS)



System Configuration



Product Model	S138 Strings		BESS Controller	Power Conversion System
	S138-P9		BESS Controller 4	PWG2-50K-NA
M50-128	2		1	1
M50-192	3		1	1

□ Key Components



Battery Rack-I

- 1C Charge/Discharge;
- Power supply can be single battery string or parallel battery strings;
- Easy configuration and maintenance

Item	Data
Battery module	S138-7P9
Pack qty	7
Nominal capacity	64kWh
Discharge cutoff- Rated- Charge cutoff voltage	314V~358V~398V
Pack	3.2V/90Ah@2P16S
String measuring voltage range	100~1,000V
String voltage detection accuracy	±0.5%
String voltage sampling period	100ms
String measuring current range	±300A
String current detection accuracy	1%
SOC calculation accuracy	≤7%
Input insulation resistance	≥10MΩ, 1,000V DC
Communication	ModbusTCP ,CAN, ModbusRTU
System cycle life	≥5,000 cycles@1C, 25 C
Dimension (W*D*H)	400*750*2,050mm
Weight	690kg
Certifications	UL1973, UL9540A, IEC62619, CE, UN38.3



BESS Controller

- Data acquisition;
- Multiple protection overload protection & reverse power protection Intelligent interaction HMI

Item	Data
Dimension (L*W*H)	480*230*770mm
Weight	35.5kg
Power interface	AC 220V , 50/60Hz
PCS communication	Modbus RTU- Modbus TCP
HVU communication	Modbus TCP
HVAC communication	Modbus RTU
Grid control application	Time shifting, peak shaving, renewables moving average
Offgrid control application	Backup power, PV/DG/EV/ESS integrated micro-grid control
Battery management system	DC busbar incoming control



Power Conversion System

- Single-stage three-level modularization;
- Multi-branch input to reduce battery series and parallels connection

Item	M50/M100-EX	M50/M100-NA
DC voltage range	250V~520V	
PV voltage range	520V~900V	
Maximum DC current	150A/300A	
Maximum PV current	192A/384A	
Rated output power	100kW	
Rated grid voltage	400V	480V
Grid voltage range	±15%	±10%
Rated grid voltage	50/60±2.5Hz	59.5~60.5Hz
The frequency range of the power grid	72A/144A	60A/120A
Adjustable PF	1(leading)~1(lagging)	
Off-grid voltage	400V	480V
Off-grid voltage range	±10%	
Off-grid frequency	50/60Hz	60Hz
Weight	520kg/750kg	

System Technical Specifications

Item	128kWh	192kWh
DC Data		
Battery Chemisty	Lithium Iron Phosphate (LFP)	
Cell life cycle	80% Retention with 5,000 Cycles @ 1C 25°C	
Cell spec	3.2V/90Ah	
String configuration	2P112S	
Number of strings	2	3
Rack rated energy capacity	128kWh	192kWh
DC rated energy capacity	129.0kWh	193.5kWh
Rated voltage	358.4V	
Voltage range	313.6V~397.6V	
BMS communication interface	RS485, Ethernet	
BMS communication protocol	Modbus RTU, Modbus TCP	
AC Data		
Rated AC power	50kW	
Maximum AC power	50kW	
Rated grid voltage	400V/480V	
Grid voltage range	±15%/±10%	
AC rate of current	72A/60A	
Output THDi	≤3%	
Grid connected power factor	1 (leading)~1 (lagging)	
Grid frequency range	50/60±2.5Hz/59.5~60.5Hz	
Isolation method	3 Phase 4 Line Transformer	
General Data		
Dimension w/o clearances (L*W*H)	2,991*2,438*2,591mm	
Weight of whole system	<3.9t	<4.9t
Degree of protection	IP54	
Operating temperature range	-20~40 °C	
Relative humidity	0~95 % (non-condensing)	
Max working altitude	3,000m/9,842ft	
Cooling concept of DC hatch	HVAC	
Communication interfaces	RS485, Ethernet, GPRS	
Certificates	UL1973, UL9540A, IEC62619, CE , UN38.3	

□ Notes



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