



## Battery ESS ATEN-500 Micro-Grid System

AGreatE ATEN-500 is a fully integrated all-in-one containerized energy storage system, which delivers a wide range of energy storage solutions for commercial and industrial applications, microgrids and electrical grids.



**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.



SAFE AND RELIABLE



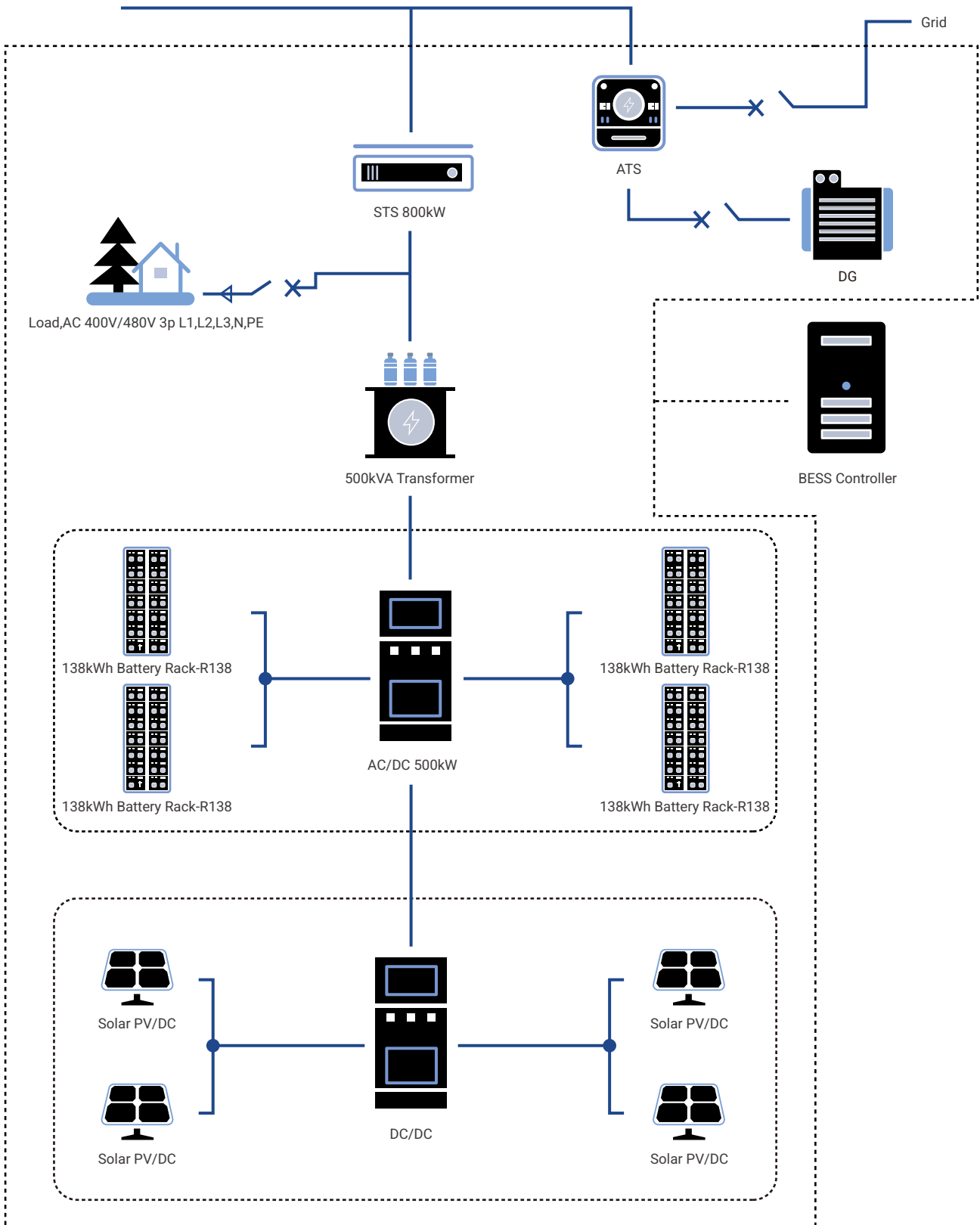
LONG SPAN



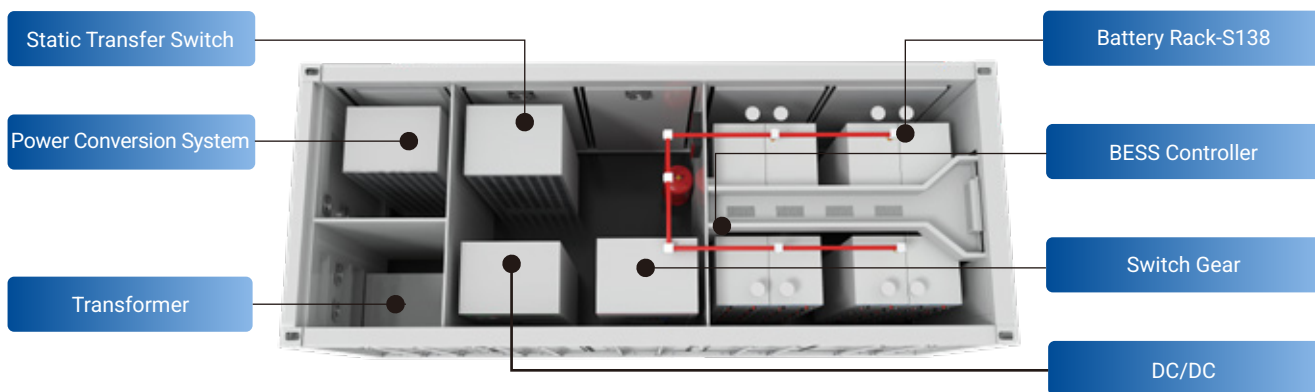
SMART AND FRIENDLY

# System Topology (PV + 500kW PCS + 552/1,104/1,656kWh BESS)

Grid AC 400V/480V 3P,A,B,C,N,PE



# System Configuration



## Product features (500kW/1,656kWh)

- The 500kW PCS cabinet contains a modularized 8\*62.5kW PCS with 600-900V DC voltage;
- The n\*138kWh(n=4/8/12) battery strings are converted to 400V/480V AC through the respective 62.5kW modularized PCS, AC power is transferred to the isolated transformer supporting the load;
- The battery string is charged from the corresponding PV string and 400kW DC/DC 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

Product Model	S138 Strings	Container	STS (optional)	DC/DC Convertor	PCS	Transformer
	S138-15P9	Size	800kW	300kW	250kW	250kVA
M500-552	4	20ft	1	1	1	1
M500-1,104	8	40ft	1	1	1	1
M500-1,656	12	40ft	1	1	1	1

# □ Key Components



## Battery Rack-II

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

Item	Data
Battery module	S138-15P9
Pack qty	15 (6~15 Configurable)
Nominal capacity	138kWh (55~138kWh)
Discharge cutoff- Rated- Charge cutoff voltage	672V~768V~852V
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%
Rack temperature detection accuracy	±2°C
SOC calculation accuracy	≤7%
Input insulation resistance	≥10MΩ, 1,000V DC
Communication	Modubus TCP, CAN, Modubus RTU
System cycle life	≥5,000 cycles@0.5C, 25°C
Dimension (W*D*H)	800*750*2,050mm
Weight	1,430kg
Certifications	UL1973, UL9540A, IEC62619, CE , UN38.3



## Static Transfer Switch

- Integrated distribution cabinet function, a variety of distributed power access;
- Millisecond on/off-grid switching;
- Automatic operation, unattended;
- It has a 15-inch display screen, which can monitor the operation of each equipment

Item	Data
Rated power	800kW
Rated voltage	400V
Input voltage range	-25%~15%
Output voltage range	-25%~15%
Rated input current	1,155A
Max input current	1,270A (110%)
Frequency range	50Hz/60Hz±4.5Hz
Switching time	10ms~80ms
IP degree	IP20
Efficiency	99.5% (Full load)
The max load standing capacity during switching	300kW (RCD type, pure capacitive load or inductive load < 100kvar)
Wiring mode	3 Phase 4 Wire
Dimension (W*D*H)	800*800*2,160mm
Weight	450kg



### DC/DC Inverter

- Bi-direction DC-DC converter;
- Field-replaceable modular design;
- Shared or separated DC bus

Item	Data
LV PV input mode	
HV DC bus voltage	LV voltage+40V~850V
HV DC bus current	0~100A*8
LV PV input voltage	250~840V
LV PV input current	0~120A*8
Power rating	50kW*8
Dimensions (W*D*H)	1,100*800*2,160mm
Weight	600kg



### Power Conversion System

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

Item	M500-EX	M500-NA
Battery voltage range	600~900V	630~900V
DC max current	873A	
Rated AC power	500kW	
Maximum AC power	550kW	
Rated voltage	400V	480V
Grid voltage range	±15%	±10%
AC rate of current	720A	601A
Output THDi	≤3%	
Adjustable PF	1(leading)~1(lagging)	
Grid frequency range	50/60±2.5Hz	59.5~60.5Hz
Isolation method	3 Phase 4 Line Transformer	
Dimensions (W*D*H)	1,200*800*2,160mm	
Weight	1,280kg	



### BESS Controller

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

Item	Data
Dimension (L*W*H)	600*700*2,200mm
Weight	200kg
Protection Level	IP20
Operating Temperature	0°C~40°C
Memory	dual-core micro-controller 64M RAM 128M flash memory
Network	Safety zones divided by network switches and firewalls.
Power Consumption	<100 W
Backup Time	30 minutes (optional)
HMI	15" LCD touch screen

# System Technical Specifications

Item	M500-552/NA	M500-1,104/NA	M500-1,656/NA
<b>DC Data</b>			
Battery Chemisty	Lithium Iron Phosphate (LFP)		
Cell life cycle	80% Retention with 5,000 Cycles @ 1C 25°C		
Cell spec	3.2V/90Ah		
Rack configuration	2P240S		
Number of strings	4	8	12
Rack rated energy capacity	138kWh		
DC rated energy capacity	552kWh	1,104kWh	1,656kWh
Rated voltage	768V		
Voltage range	672V~852V		
BMS communication interface	RS485, Ethernet		
BMS communication protocol	Modbus RTU, Modbus TCP		
<b>AC Data</b>			
Rated AC power	500kW		
Maximum AC power	550kW		
Rated voltage	400V/480V		
Grid voltage range	±15%/±10%		
AC rate of current	360A/301A		
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		
<b>General Data</b>			
Dimension w/o clearances(L*W*H)	6,058*2,438*2,591mm	12,192*2,438*2,591mm	
Weight of whole system	<16T	<26T	<30T
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	IEC 62619, UN 38.3, CE,UL1973		

# □ Notes



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