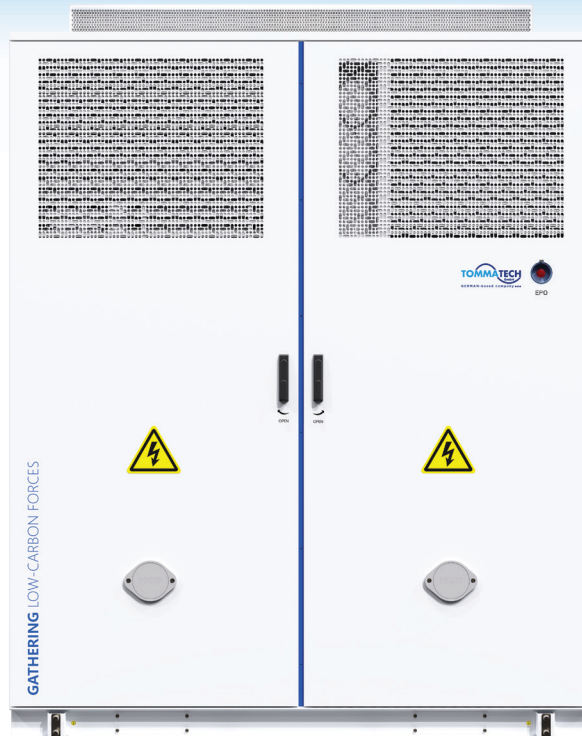


C&I ESS SOLUTION



Intelligent Cloud Platform

- Customizable load algorithmic modules
- 24-hour online O&M
- Battery life and safety warning
- Device cloud interconnection



Ultimate Safety

- 3+3 Fire Protection System
- 3+3 Electrical Safety Safeguards
- AC Leakage & DC Insulation Detection
- High-voltage interlocking, preventing loaded arc operation



Versatile Expansion

- PCS/BMS/EMS All-in-one modular design
- Support up to 10 cabinets in parallel
- Support 2/4/6/8-hour energy storage applications
- Higher energy density to reduce footprint
- PV and BESS DC Coupling



Multiple Application Scenarios

- Peak-to-Valley arbitrage/Peak-to-Valley shifting
- Virtual power plant ready
- Off-grid operation (Islands, communication base stations, etc.)

5 Level

Extreme safety protection

Detection, early warning, smoke exhaust, fire fighting, explosion venting

≤15ms

Seamless on-grid and off-grid

10 Years

10-year warranty
10-year free replacement of coolant

430kWh

2/4/6/8-hour energy storage system



Model ESS-TT-KB-430KWH-2H2 (AC BESS)

System parameter

Operating Temperature	-25°C ~ +55°C
Storage Temperature	-30°C ~ +60°C
Humidity	0 ~ 95% (No condensation)
Type of cooling	Liquid cooling
Fire Suppression	Aerosol, Water
Ingress Protection	IP54
Anticorrosion grade	≥C4
Altitude	≤2000m
Communication	RS485, Modbus TCP, DIDO
Weight	5000kg
Dimensions (W × D × H)	2000 × 1300 × 2480mm
Active Balancing Function	Yes

DC Data

Battery	LiFePO ₄
Nominal Capacity	280Ah
Nominal Energy	430.08kWh
Nominal DC Voltage	768Vd.c.
DC Voltage Range	636Vd.c ~ 876Vd.c.
Charge and discharge rate	0.5P

AC Data

Nominal AC Voltage	380/400V 3L+N+PE
Rated Frequency	50 / 60Hz
Rated Power	200kW
Maximun Power	220kW (1.1 times of rated power)
Power Factor	-0.8 ~ +0.8



Model ESS-TT-KB-430KWH-BC-2 (DC BESS)

System parameter

Operating Temperature	-30°C ~ +55°C
Storage Temperature	-30°C ~ +60°C
Humidity	0 ~ 95% (No condensation)
Type of cooling	Liquid cooling
Fire Suppression	Aerosol, Water
Ingress Protection	IP54
Anticorrosion grade	≥C4
Altitude	≤2000m
Communication	RS485, Modbus TCP, DIDO
Weight	≤4900kg
Dimensions (W × D × H)	2000 × 1300 × 2480mm
Active Balancing Function	Yes

DC Data

Battery	LiFePO ₄
Nominal Capacity	280Ah
Nominal Energy	430.08kWh
Nominal DC Voltage	768Vd.c.
DC Voltage Range	636Vd.c ~ 876Vd.c.
Charge and discharge rate	0.5P

Model	MPPT-MDL-400-2
System parameters	
Dimension (W × D × H, mm)	1000 × 1000 × 2480
Weight Appr. (kg)	≤700kg
System Operating temperature range	-30°C ~ 50°C
Max. working altitude (m)	≤2000m
IP Rating of Enclosure	IP54
STS parameters	
Rated insulation voltage (V)	DC1000
Rated working voltage (V)	AC400
Auxiliary equipment operating voltage (V)	AC220, DC24
Frequency	50/60Hz
Rated power of load (kW)	250
Rated power of the power grid (kW)	500
Rated power of oil engine (kW)	500
Switching Time	≤15ms
MPPT parameters	
No. of MPPT	2
Max. PV Input Power (kW)	400(2*200)
Max. PV Input Voltage (V)	1000
Start-up Voltage (V)	200
MPPT Voltage Range (V)	180 ~ 850
Full Load MPPT Voltage Range (V)	450 ~ 850
Rated PV Input Voltage (V)	600
Max. Operating PV Input Current (A)	2*(40+40+40+40+40+40+40+40)
Max. Input Short-Circuit Current (A)	2*(60+60+60+60+60+60+60+60)
No.of MPP Trackers	16 (2*8)
Max. Efficiency	>99%
MPPT Efficiency	>99.9%



AI Intelligence

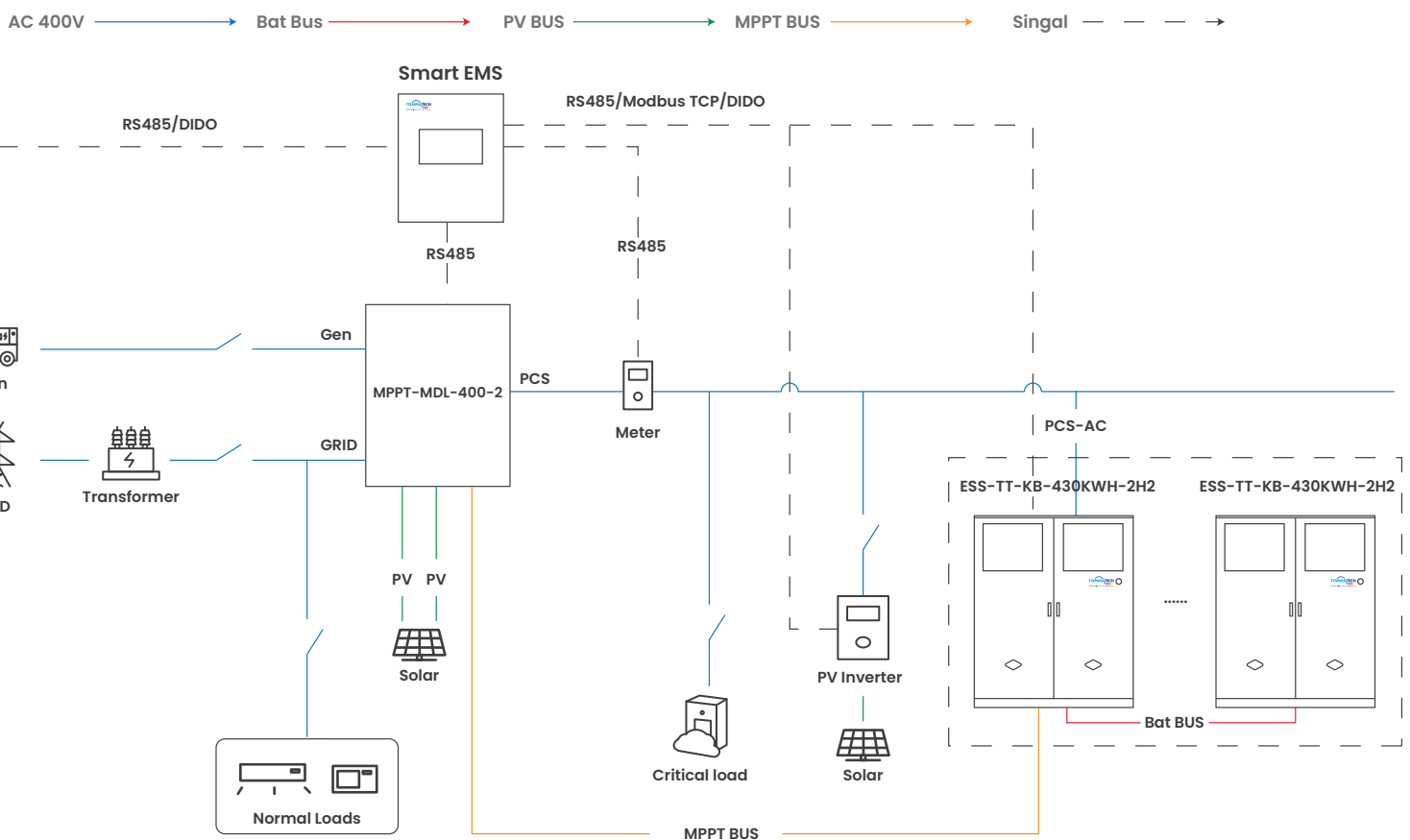
- Large capacity energy aggregation
- Real-time electricity price revenue calculation
- One click generation of statistical charts
- Maximum profit charging and discharging strategy

Efficient Operation and Maintenance

- Provide local / cloud operation and maintenance to ensure stable device operation
- Combination of multiple operation and maintenance methods for WEB / APP

Safe and Reliable

- Real-time alarm for equipment malfunction
- Support SOC balance management

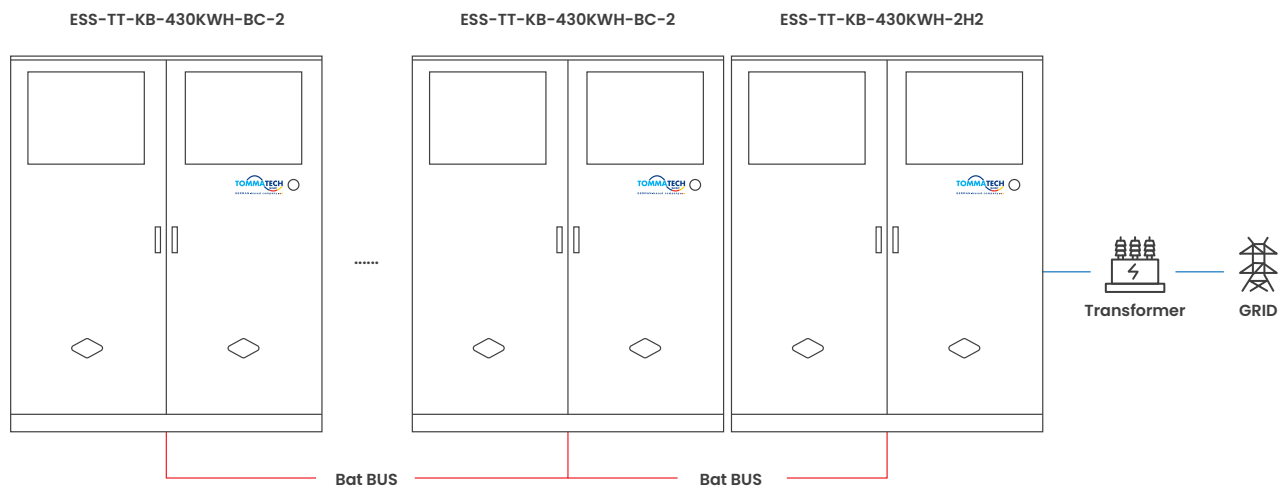


Model	EMS
System	
Configuration	EMS controller, lightning protection module, switch power supply, UPS module, switch
Function	Basic functions : peak valley arbitrage, anti backflow, main transformer overload protection, load tracking, demand control, backup power function, phase separation control, SOC balancing, TommaTech Cloud monitoring Advanced features : load forecasting, production planning, electricity price planning, optimal economic curv
Communicate	
Ethernet (5 channels)	10 / 100 / 1000 Mbps
Fiber optic port (2 channels)	1Gbps
USB (2 channels)	Host
CAN (3 channels)	Isolation, with 2 channels supporting CAN-FD
RS485 (8 channels)	Isolation
RS232 (3 channels)	2 isolated channels, 1 non isolated debugging channel (DB9 socket)
TF Card (1 channel)	Standard TF card holder
LVDS (1 channel)	The physical interface is DVI (including 1 USB for touch)
M. 2 Interfaces (1 channel)	PCIe2.0 X1, Scalable SSD (standard 1TB)
MiniPCIe Interface (1 channel)	4G card with expandable USB communication protocol (standard)
Nano SIM Interface (1 channel)	Used in conjunction with the miniPCIe expansion 4G module
DI (17 channels)	Optocoupler isolation
DO (8 channels)	Relay isolation
WLAN	802.11 b / AC g n, HT 20 / 40, 2.4 GHz 5 GHz
4G Antenna	Support multi country frequency bands
Power Supply	
Communication Input	220Vac
DC IN	24Vdc
UPS Backup Power	24Vdc
Consumption	Max 25W
Environmental parameters	
Operation Temperature	-15°C ~ +50°C
Storage Temperature	-15°C ~ +50°C
Working Humidity	5% ~ 95%
Max. Working Altitude (m)	≤3000m
IP Rating of Enclosure	IP54
Anti-Corrosion Grade	≥C4
Mechanical parameters	
Dimension (W × D × H, mm)	488 × 188 × 588
Weight Appr. (kg)	≤24.5kg
Installation Location	Indoor or outdoor, wall-mounted
Box Material	Metal
Incoming Specifications	AC power cord : Recommended wire diameter 1.5mm² DC power cord : Recommended wire diameter of 1.5mm² Eight core Ethernet cable: Recommended CAT5e Ethernet cable RS485 : Recommended 0.75mm²~1.5mm² outdoor UV protection with shielding layer twisted pair cable length<1000m (baud rate 9600)

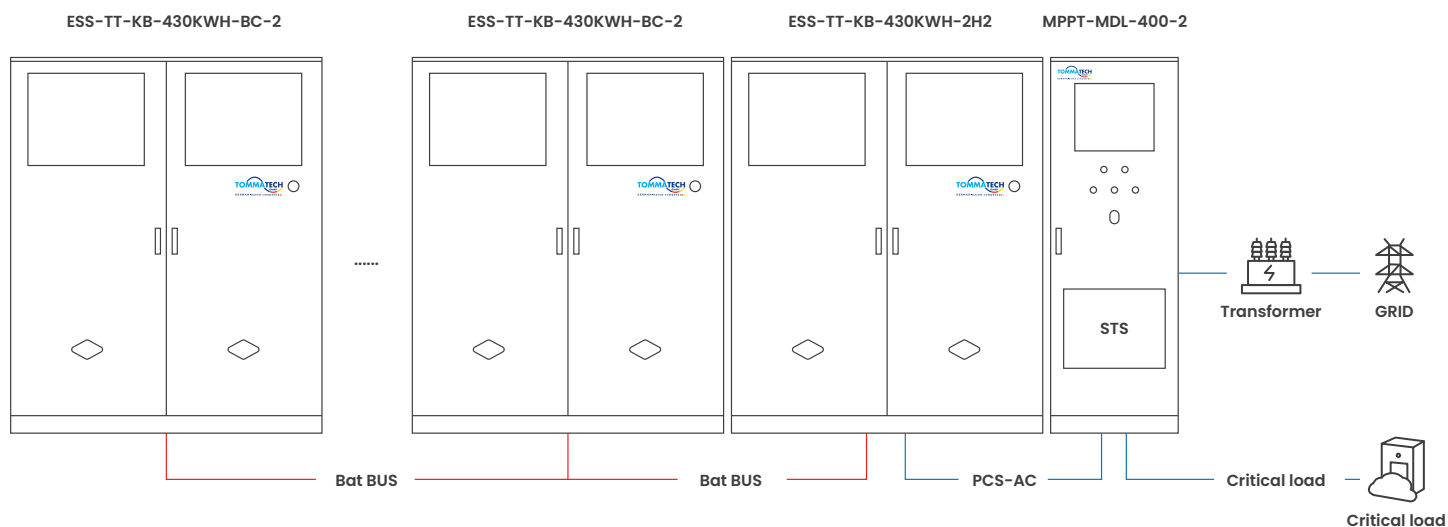
NOTE: MAX 3 battery cabinets (without PCS) parallel

AC 400V — Bat Bus — PV BUS — MPPT BUS —

For ESS on-grid application



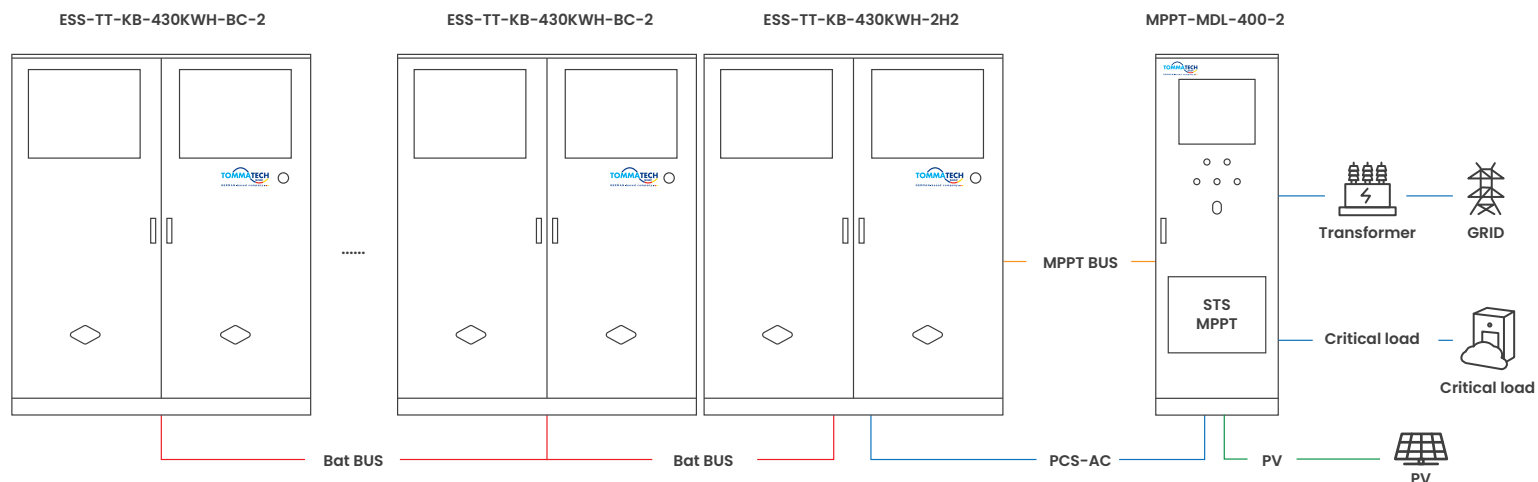
For backup power application



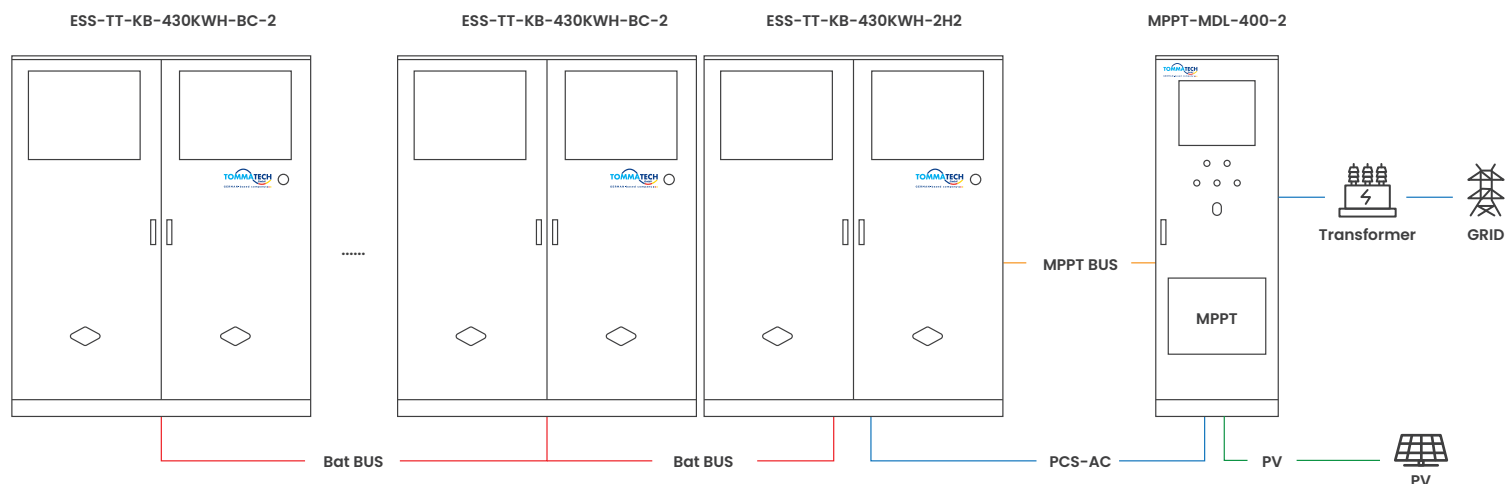
NOTE: MAX 3 battery cabinets (without PCS) parallel

AC 400V — Bat Bus — PV BUS — MPPT BUS —

For backup power application with solar



For ESS on-grid application with solar



NOTE: MAX 3 battery cabinets (without PCS) parallel

AC 400V — Bat Bus — PV BUS — MPPT BUS —

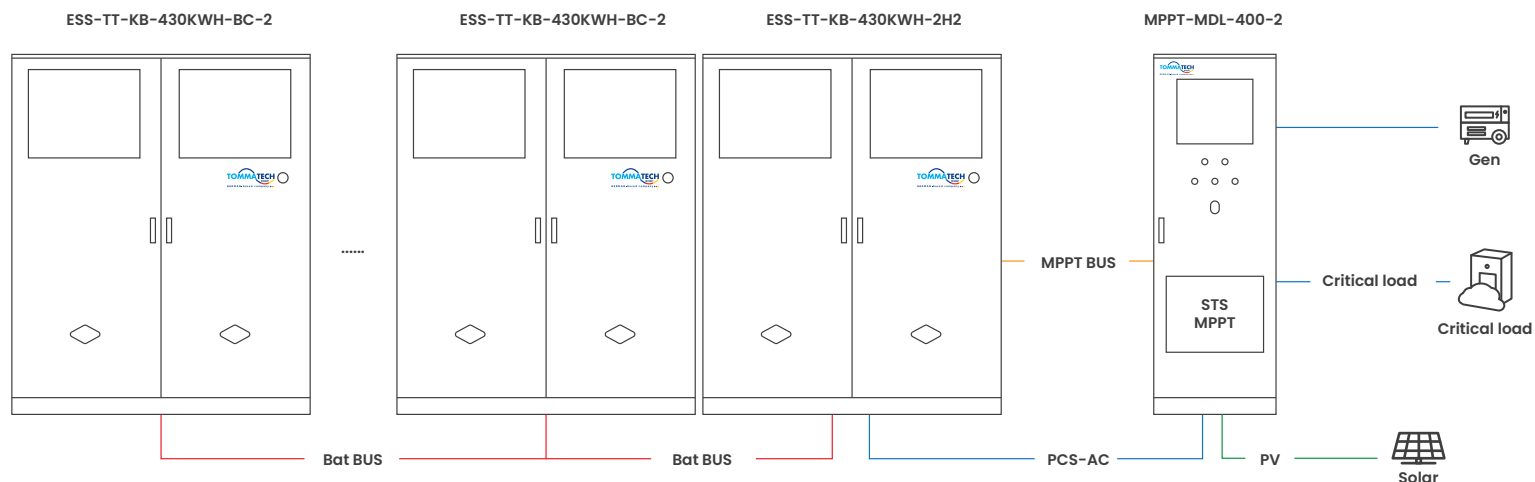
For backup power application with generator and grid



NOTE: MAX 3 battery cabinets (without PCS) parallel

AC 400V — Bat Bus — PV BUS — MPPT BUS —

For ESS off-grid application with solar and generator



For ESS off-grid application with solar

