Backup Power & Hybrid ESS Solution

TBB's Backup Power & Hybrid ESS Solution is tailored for homes with unstable power supply or no grid access. Featuring the transformer-based RiiO Sun II all-in-one solar inverter and the high-density ES100 PLUS lithium battery, it ensures a stable and independent power supply. In regions with a reliable grid but high electricity costs, this solution maximizes self-consumption, reduces grid dependency, and lowers electricity bills, thanks to its ESS capability.

RiiO Sun II All-in-one Solar Inverter →

Available in 3 Models:

3kVA	6kVA	8kVA
230Vac/24Vdc	230Vac/48Vdc	230Vac/48Vdc

- Transformer-based, high surge power
- Versatile for backup power, hybrid ESS applications
- Parallel & three-phase up to 9 units, 72kVA
- Built-in a smart port for Gen input or 2nd AC output*
- 2 MPPT trackers for flexible system design and higher yields*
- 4ms ultra-fast switch to battery power
- ESS Capabilities

* Only available for 6kVA/8kVA model

The TBB RiiO Sun II all-in-one solar inverter, with its transformer-based design, 3x high surge power, and 2x overload power rating, is ideal for areas with unstable power supply or no grid access, ensuring stable operation for heavy loads. Featuring advanced ESS capabilities, it enhances energy self-consumption, supports grid feed-in for utility credits, and reduces costs through peak shaving and time-of-use strategies in regions with a reliable grid but high electricity costs.

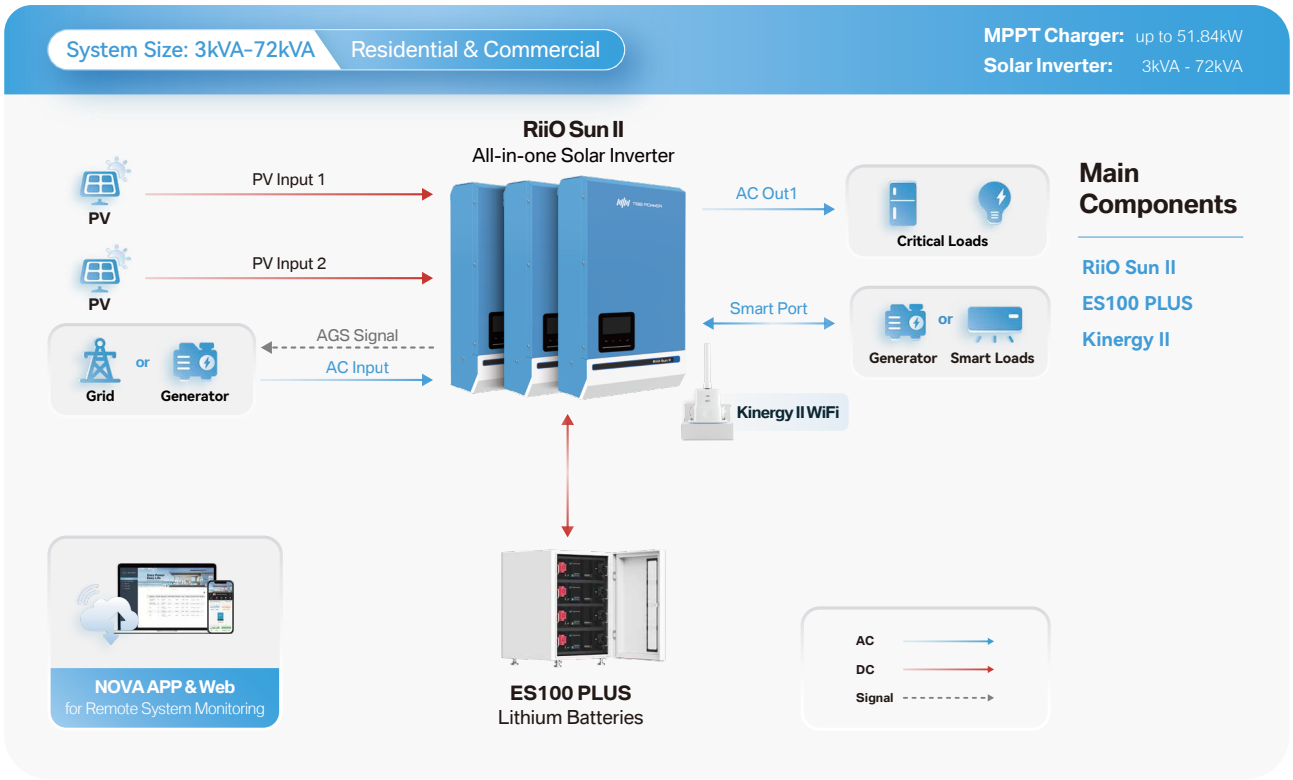
ES100 PLUS Lithium Battery Module →

48V-105Ah-5.04kWh

- Works seamlessly with leading inverter brands
- Automatic communication addressing for easy installation
- Supports up to 32 modules in parallel for scalable storage capacity
- Expandable up to 5*32 modules in parallel when using TBB CAN HUB
- 150A discharging capability for short-term high power demands
- Intelligent BMS for effective management
- RS485 and CAN communication ports ensure compatibility and integration

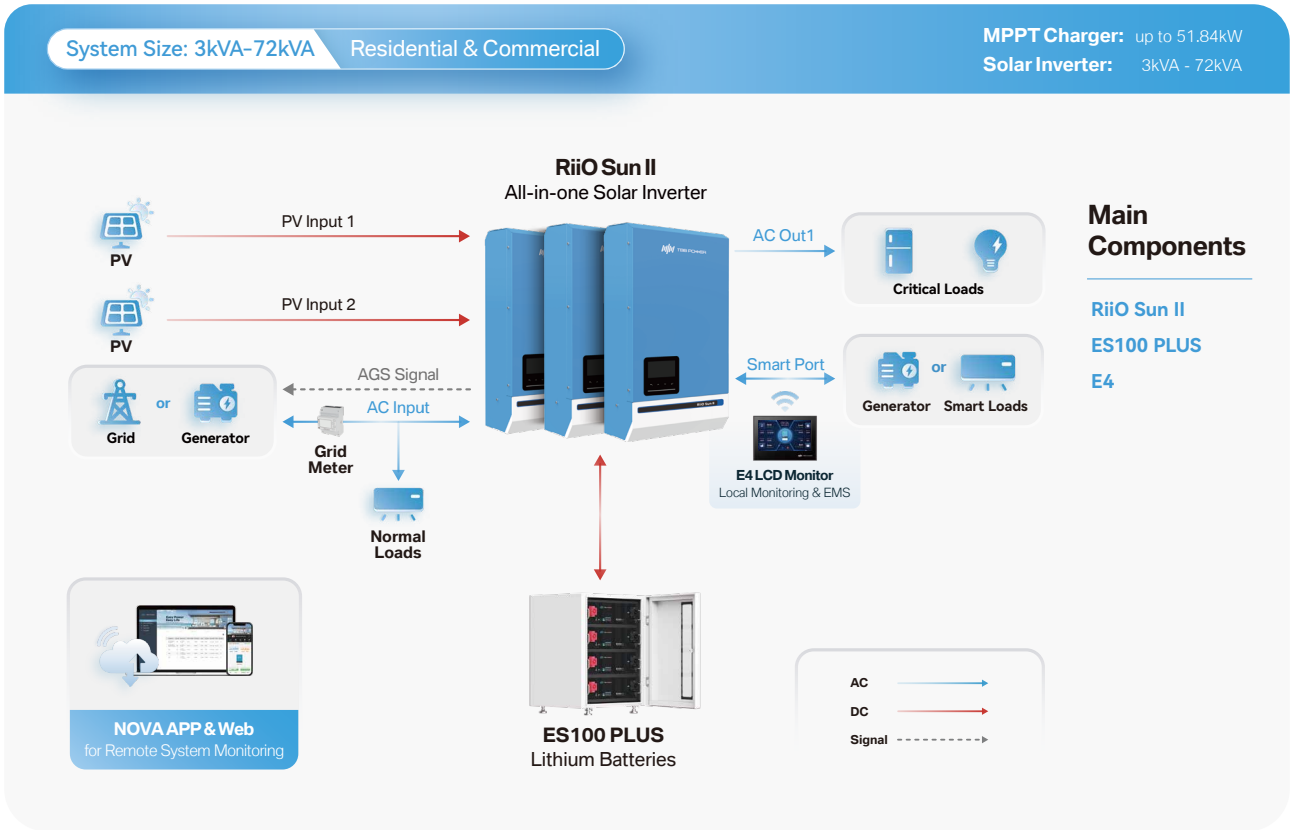
TBB ES100 PLUS is a 48V 105Ah lithium battery for backup, solar hybrid, and residential storage, featuring high compatibility and energy density in a compact design. It simplifies parallel connection with automatic communication addressing and offers 150A discharging for short-term high power demands.

Basic Backup & Off-Grid



With its transformer-based design, AGS, Power Assist and Power Control functions, RiiO Sun II ensures stable operation of critical loads during power interruptions or in pure off-grid scenarios. Built-in with 2 MPPTs and a programmable smart port, the solution offers greater flexibility for system design based on users needs and enables intelligent energy management.

Hybrid ESS with Grid Feed-in



Ideal for regions with a reliable grid but high electricity costs. RiiO Sun II supports feeding energy back to power loads on the AC input to to maximize solar self-consumption. With TBB E4 LCD Monitor, the solution can further reduce your electricity bills with peak shaving and time-of-use strategies.

Model	RiiO Sun II 3KVA-M	RiiO Sun II 6KVA-S	RiiO Sun II 8KVA-S
Power Assist	Yes		
AC input range	175~265 VAC / 45~65 Hz		
AC input Current (transfer switch) (A)	32	50	
Inverter			
Nominal battery voltage (V) / Input voltage (V)	24 / 21~34	48 / 42~68	
AC output voltage (VAC)	220/230/240 ± 2%		
AC output Frequency (Hz)	50/60 ± 0.1%		
Harmonic distortion	<2%		
Cont. output power at 25°C (VA)	3000	6000	8000
Max output power at 25°C (W)	3000	6000	8000
Peak power (W)	6000	12000	16000
Surge	300%		
Maximum efficiency	91%	94%	95%
Zero load power (W)	17	25	32
Charger			
Charge voltage 'absorption' (V) / 'float' (V)	28.8 / 27.6	57.6 / 55.2	
Battery types	AGM / GEL / OPzV / Lead-Carbon / Flooded / Traction / Lithium		
Max AC charge current (A)	70		90
Temperature compensation	Yes		
Solar Charge Controller			
Max output current (A)	80	100 (50 per tracker)	
Maximum PV open circuit voltage (V)	150	250	
MPPT voltage range (V)	40~145	65~245	
Number of MPPT trackers	1	2	
Maximum PV input current per tracker (A)	36	36 + 36	
Maximum PV short circuit current per tracker (A)	40	40 + 40	
Maximum charge power	2300W @ 28.8V	5760W @ 57.6V total, 2880W @ 57.6V per tracker	
Allowable maximum PV power per tracker (W)	3600	4400 + 4400	
Charge voltage 'absorption' (V) / 'float' (V)	28.8 / 27.6	57.6 / 55.2	
MPPT charger maximum efficiency	98%		
MPPT efficiency	> 99.5%		
Protection	a) output short circuit; b) overload; c) battery voltage too high; d) battery voltage too low; e) temperature too high; f) input voltage out of range		
General Data			
AC Out1 Current (A)	32	50	
Smart Port Current (A)	N/A	50	
Transfer time	4ms (<15ms in Weak AC source Mode)		
Protection	a) output short circuit; b) overload; c) battery voltage too high; d) battery voltage too low; e) temperature too high; f) input voltage out of range; g) input voltage ripple too high; h) Fan block		
General purpose com. Port	RS485 (GPRS, WLAN optional)		
Programmable relay	1x (30Vdc/3A or 250Vac/3A)		
Operating temperature range	-20°C to 65°C		
Relative humidity in operation	95% without condensation		
Altitude (m)	2000		
Mechanical Data			
Dimension (mm) (max)	499*272*144	570*310*154	620*320*164
Net Weight (kg)	18	31	34
Cooling	Forced fan		
Protection index	IP21		
Standards			
Safety	EN-IEC 62477-1, EN-IEC 62109-1, EN-IEC 62109-2		
EMC	EN-IEC 61000-6-1, EN-IEC 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 61000-3-11, EN 61000-3-12		
Grid regulation	RD 1699, NRS 097		

Model	ES100 PLUS
Nominal Voltage (V)	48
Working Voltage Range (V)	42~54.75
Nominal Capacity (Ah)	105
Nominal Energy (kWh)	5.04
Max. Power (kW)	7.2
Peak Current (A)	180
Charge Current (A)	52.5
Maximum Charge Current (A)	105
Discharge Current (A)	52.5
Maximum Discharge Current (A)	150
Cycle Life	6000 (80% DoD, 70% SoH), @25℃, 0.5C 1500 (80% DoD, 70% SoH), @25℃,1.5C
Operating Temperature (℃)	Discharge: -20~+55 Charge: 0~+55
Recommended Operating Temperature (℃)	Discharge: +15~+30 Charge: +15~+30 Storage: 0~+35
Altitude (m)	<2000
Humidity	15%~95%
Cooling Method	Natural heat dissipation
Protection Degree	IP20
Dimension (mm) (L*W*H)	482.6*450*133.4
Weight (kg)	41
Standards	UN38.3

Optional Accessories →

Simple Mounting Bracket

IP65 Power Rack Cabinet

PDP-ES
For power distribution

CAN-Hub
For up to 160 units of ES100 PLUS connected in parallel

High Compatibility with Leading Inverter Brands →

TBB POWER · victron energy · Deye · GROWATT · LUX POWER TEK · GOODWE · SMA
SOFAR · solis · IMEON ENERGY · SUNGROW · SOROTEC · RENAC · MEGAREVO
DELIOS · SERMATEC · STUDER · Schneider Electric · TSUN · MUST · SAJ