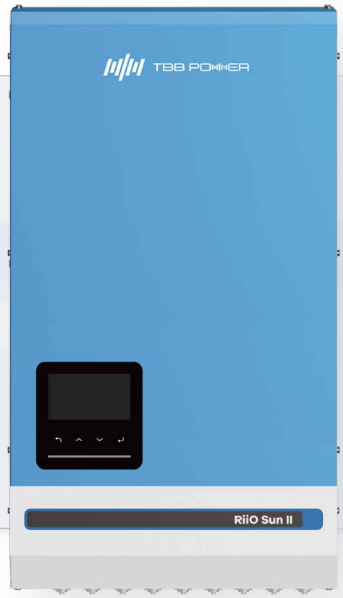
RiiO Sun II

- Hybrid Inverter (Single Phase) -



Single Phase | 230Vac, 48Vdc

50/60Hz | 2~8kVA | VOC 250V

Transformer-based
Parallel and three-phase (Up to 72kVA)
Dual MPPT trackers
Programmable smart port
ESS Capabilities

RiiO Sun II is a versatile transformer-based hybrid inverter, designed for backup power, off-grid and ESS applications, integrating a pure sine wave inverter, battery charger, MPPT solar charge controller and a rapid 4ms automatic transfer switch in a compact casing. It's engineered to handle high surge loads and ensures continuous operation of critical load during outages. Outperforming conventional transformer-based inverters, RiiO Sun II transformer-based hybrid inverter maximizes solar energy use by preferentially powering loads, charging batteries, and feeding surplus back to the grid, minimizing waste.

Additionally, RiiO Sun II enhances energy self-consumption, supports grid feed-in for utility credits, and optimizes costs with peak shaving and time-of-use strategies.

Enhanced Flexibility

- Versatile for backup power, off-grid and ESS
- 2 MPPT trackers for flexible system design and higher yields (5/6/8kVA model)
- 250V PV open circuit voltage
- Parallel & three-phase up to 9 units, 72kVA
- Built-in a smart port for Gen input or 2nd AC output (5/6/8kVA model)
- DC Coupling and AC Coupling
- Higher PV charging power and current
- AGS function, Power Control & Power Assist
- Compatible with mainstream lithium battery brands and generators
- Capable of operating with or without battery connection*3

Easy O&M

- All-in-one design for easy installation
- Auto restart when the PV or AC is recovering
- Bluetooth-based setup and local monitoring via TBB Nova APP
- Local monitoring via E4 LCD Monitor
- Remote monitoring and control via Nova Web & APP

Superior Reliability

- Transformer-based, high surge power
- 4ms ultra-fast switch to battery power
- Maximize solar energy utilization and minimize energy waste
- ECO Mode to prolong backup time
- Extremely low self-consumption power
- Max inverter efficiency 95%, max MPPT efficiency 98%

ESS Capabilities

- Maximize self-consumption
- Lower electricity bills via peak shaving & time-of-use
- AC Coupling retrofitting
- Grid feed-in for utility credits
- Grid-connection certifications in South Africa, Spain, Poland, Romania, Belgium, Greece, Cyprus, UK, Hungary, Bulgaria and more

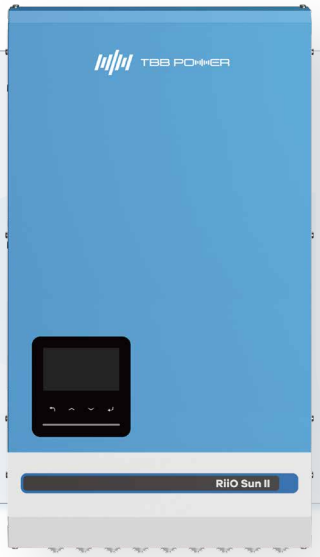
* Only for single-unit application with stable AC bypass supply, PV energy as a supplement for AC bypass

Model	RiiO Sun II 2KVA-S Kit	RiiO Sun II 3KVA-S Kit	RiiO Sun II 4KVA-S Kit	RiiO Sun II 5KVA-S Kit	RiiO Sun II 6KVA-S Kit	RiiO Sun II 8KVA-S Kit	RiiO Sun II 8KVA-S Pro Kit
Power Assist	Yes						
AC Input Range	175~265 VAC / 45~65Hz						
AC Input Current (Transfer Switch) (A)	20	32	32	50	50	50	50
Inverter							
Nominal Battery Voltage / Input Voltage (V)	48 / 42~68						
AC Output Voltage (VAC)	220/230/240 ±2%						
AC Output Frequency (Hz)	50/60 ±0.1%						
Harmonic Distortion / Surge	<2% / 300%						
Cont. Output Power at 25°C (VA)	2000	3000	4000	5000	6000	8000	8000
Max Output Power at 25°C (W)	2000	3000	4000	5000	6000	8000	8000
Peak Power (W)	4000	6000	8000	10000	12000	16000	16000
Maximum Efficiency	93%	93%	93%	94%	94%	95%	95%
Zero Load Power (W)	14	17	19	22	25	32	32
Charger							
Charge Voltage 'Absorption' / 'Float' (V)	57.6 / 55.2						
Battery Types	AGM / GEL / OPzV / Lead-Carbon / Flooded / Traction / Lithium						
Max AC Charge Current (A)	20	35	50	60	70	90	90
Temperature Compensation	Yes						
Solar Charge Controller							
Max Output Current (A)	40	60	60	100 (50 per tracker)			120 (60 per tracker)
Maximum PV Open Circuit Voltage (V)	250	250	250	250	250	250	250
MPPT Voltage Range (V)	65~245						
Number of MPPT Trackers	1	1	1	2	2	2	2
Maximum PV Input Current Per Tracker (A)	36	36	36	36+36	36+36	36+36	36+36
Max PV Short Circuit Current Per Tracker	40	40	40	40+40	40+40	40+40	40+40
Maximum Charge Power	2300W @ 57.6V	3450W @ 57.6V	3450W @ 57.6V	5760W @ 57.6V total, 2880W @ 57.6V per tracker			6900W @ 57.6V total 3450W @ 57.6V per tracker
Allowable Maximum PV Power Per Tracker	3600	5200	5200	4400 + 4400			5200 + 5200
Charge Voltage 'Absorption' (V) / 'Float' (V)	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)	20	32	32	50	50	50	50
Smart Port Current (A)	N/A			50	50	50	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)	462*255*144	499*272*144		570*310*154		620*320*164	
Net Weight (kg)	14	18	20	29	31	34	
Cooling / Protection Index	Forced fan / 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, EN 50549-1, EN 50549-10						

Note: The Kinergy II-WiFi wireless data logger is included with the RiiO Sun II Kit version.

RiiO Sun II

- Hybrid Inverter (Single Phase/Split Phase) -



Single Phase | 120Vac, 48Vdc | 50/60Hz | 3kVA | VOC 250V

Split Phase | 120/240Vac, 48Vdc | 50/60Hz | 5/8kVA | VOC 250V

Transformer-based
Dual MPPT trackers
Programmable smart port

RiiO Sun II is a versatile transformer-based hybrid inverter, designed for backup power and off-grid applications, integrating a pure sine wave inverter, battery charger, MPPT solar charge controller and a rapid 4ms automatic transfer switch in a compact casing. It's engineered to handle high surge loads and ensures continuous operation of critical load during outages. Outperforming conventional transformer-based inverters, RiiO Sun II transformer-based hybrid inverter maximizes solar energy use by preferentially powering loads, charging batteries, and feeding surplus back to the grid, minimizing waste.

Enhanced Flexibility

- Versatile for backup power and off-grid
- 2 MPPT trackers for flexible system design and higher yields (5/8kVA model)
- 250V PV open circuit voltage
- Parallel & three-phase up to 9 units, 27kVA (3kVA model)
- Parallel up to 3 units, 24kVA (5/8kVA model)
- DC Coupling and AC Coupling
- Built-in a smart port for Gen input or 2nd AC output (5/8kVA model)
- Higher PV charging power and current
- AGS function, Power Control & Power Assist
- Compatible with mainstream lithium battery brands and generators
- Capable of operating with or without battery connection*

Superior Reliability

- Transformer-based, high surge power
- 4ms ultra-fast switch to battery power
- Maximize solar energy utilization and minimize energy waste
- ECO Mode to prolong backup time
- Extremely low self-consumption power
- Max inverter efficiency 95%, max MPPT efficiency 98%

Easy O&M

- All-in-one design for easy installation
- Auto restart when the PV or AC is recovering
- Bluetooth-based setup and local monitoring via TBB Nova APP
- Local monitoring via E4 LCD Monitor
- Remote monitoring and control via Nova Web & APP

* Only for single-unit application with stable AC bypass supply, PV energy as a supplement for AC bypass

Model	RiiO Sun II 3KVA-S-LV Kit	RiiO Sun II 5KVA-S-SP Kit	RiiO Sun II 8KVA-S-SP Kit	RiiO Sun II 8KVA-S-SP Pro Kit
Power Assist	Yes			
AC input range	85~140 VAC / 45~65 Hz	Split phase: 180~276@240 (L1-L2); 90-138@120 (L1-N or L2-N) / 45~65 Hz		
AC input Current (transfer switch) (A)	50			
Inverter				
Nominal battery voltage / Input voltage	48V / 42~68V			
AC output range	110/120/127 ± 2% VAC / 50/60 ± 0.1% Hz	Split phase 120/240VAC ± 2% / 50/60Hz±0.1%		
Harmonic distortion	<2%			
Cont. output power at 25°C (VA)	3000	5000	8000	
Max output power at 25°C (W)	3000	5000	8000	
Peak power (W)	6000	10000	16000	
Surge	300%			
Maximum efficiency	93%	94%	95%	
Zero load power (W)	17	25	42	
Charger				
Charge voltage 'absorption' / 'float' (V)	57.6 / 55.2			
Battery types	AGM / GEL / OPzV / Lead-Carbon / Flooded / Traction / Lithium			
Max AC charge current (A)	35	60	90	
Temperature compensation	Yes			
Solar Charge Controller				
Max output current (A)	60	100 (50 per tracker)		120 (60 per tracker)
Maximum PV open circuit voltage (V)	250	250		
MPPT voltage range (V)	65~245	65~245		
Number of MPPT trackers	1	2		
Maximum PV input current per tracker (A)	36	36 + 36		
Max PV short circuit current per tracker	40A	40 + 40		
Maximum charge power	3450W @ 57.6V	5760W @ 57.6V total, 2880W @ 57.6V per tracker		6900W @ 57.6V total 3450W @ 57.6V per tracker
Allowable maximum PV power per tracker	5200W	4400 + 4400		5200 + 5200
Charge voltage 'absorption' (V) / 'float' (V)	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)	50			
Smart Port Current (A)	N/A	50		
Transfer time	4ms (<15ms in Weak AC source Mode)	240V AC output: <4ms (<15ms in Weak AC source Mode) 120V AC output: <10ms (<22ms 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	29	34	
Cooling / Protection index	Forced fan / 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			

Note: The Kinergy II-WiFi wireless data logger is included with the RiiO Sun II Kit version.