



All-in-one Solar Inverter

RiiO Sun II

2kVA / 3kVA / 4kVA | Single Phase | 120VAC

5kVA / 8kVA | Split Phase | 120/240VAC

Transformer-based
 Maximize self-consumption
 Feeding energy back into grid
 Optional to work without battery

- Compatible with mainstream lithium battery brands
- Max inverter efficiency 94%, max MPPT efficiency 98%
- Extremely low self-consumption power
- Remote monitoring and control via Nova Web & APP
- Fully programmable by APP

* Please note: due to the inconsistency of grid regulatory requirements, you need to confirm with your supplier whether the Self-consumption/ ESS functionality of RiiO Sun II is allowed to be used or not.

RiiO Sun II series is TBB's brand-new versatile all-in-one solar inverter for off-grid, ESS and self-consumption applications, combining a pure sine wave inverter, battery charger, MPPT solar charge controller and a high-speed automatic transfer switch in a compact casing with a better display interface design and better human machine interface. Compared with the previous RiiO Sun series, it boasts higher PV open circuit voltage, higher PV charging power and current. It is optional to work without battery and only use solar energy to power loads directly. You can start with the comprehensive system or a smaller solution and gradually expand it, depending on what best suits your needs and budget. A programmable smart port is also equipped in both 5kVA and 8kVA models for generator input or load management.

Worth to mention, that RiiO Sun II supports energy feeding back to power loads on the AC input to maximize self-consumption and cut down system investment. AGS function now is also available for RiiO Sun II. Its power assist and power control function enable it work well with limited AC sources such as generators or limited grid. RiiO Sun II can automatically adjust its charging current by taking loads into account to protect the AC source from overload. Once the temporary peak power appears, it can also discharge the battery in an extremely short time to compensate the insufficient part of the limited AC source.

- All-in-one, plug and play design for easy installation
- Transformer-based, easily withstand the initial surge current
- Versatile for solar off-grid, ESS, self-consumption and backup power system
- Support parallel and three-phase up to 36kVA (2kVA/3kVA/4kVA model with RiiO Mate required)
- Support energy feeding back into grid
- Maximize self-consumption
- Optional to work without battery (only for single unit application with stable AC bypass supply, PV energy as a supplement for AC bypass)
- Auto restart when the PV or AC is recovering
- Higher PV open circuit voltage
- Higher PV charging power and current
- 2 MPPT trackers for 5kVA and 8kVA models
- Programmable output relay for generator start and stop
- A programmable smart port for 5kVA and 8kVA models
- Ultra-short transfer time (4ms) for mission-critical loads
- Better display interface design and better human machine interface
- Power assist and power control
- Built-in ECO Mode to prolong the battery backup time

Model No.	RiiO Sun II 2KVA-M-LV	RiiO Sun II 3KVA-M-LV	RiiO Sun II 2KVA-S-LV	RiiO Sun II 3KVA-S-LV	RiiO Sun II 4KVA-S-LV
Power Assist	Yes				
AC input range	85~140 VAC (45~65 Hz)				
AC input Current (transfer switch) (A)	50				

Inverter

Nominal battery voltage (V) / Input voltage (V)	24 / 21~34		48 / 42~68		
AC output range	110/120/127 ± 2% VAC (50/60 ± 0.1% Hz)				
Harmonic distortion	<2%				
Load Power factor	1.0				
Cont. output power at 25°C (VA)	2000	3000	2000	3000	4000
Max output power at 25°C (W)	2000	3000	2000	3000	4000
Peak power (W)	4000	6000	4000	6000	8000
Surge	300%				
Maximum efficiency	91%	91%	93%	93%	93%
Zero load power (W)	13	17	13	17	19

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)	40	70	20	35	50
Temperature compensation	Yes				

Solar Charge Controller

Max output current (A)	80	80	40	60	60
Maximum PV open circuit voltage (V)	150	150	250	250	250
MPPT voltage range (V)	40~145	40~145	65~245		
Number of MPPT trackers	1	1	1	1	1
Maximum PV input current per tracker (A)	36	36	24	36	36
Maximum PV short circuit current per tracker (A)	40	40	40	40	40
Maximum PV power per tracker (W)	3600	3600	3600	5200	5200
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)	50				
Smart Port Current (A)	N/A				
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				
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				
Net Weight (kg)	14	18	14	18	20
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				

Model No.	RiiO Sun II 5KVA-S-SP	RiiO Sun II 8KVA-S-SP
Power Assist	Yes	
AC input range	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	50

Inverter

Nominal battery voltage (V) / Input voltage (V)	48 / 42~68	
AC output voltage (VAC)	Split phase 120/240 ± 2%	
AC output Frequency (Hz)	50/60 ± 0.1%	
Harmonic distortion	<2%	
Load Power factor	1.0	
Cont. output power at 25°C (VA)	5000	8000
Max output power at 25°C (W)	5000	8000
Peak power (W)	10000	16000
Surge	300%	
Maximum efficiency	94%	95%
Zero load power (W)	22	32

Charger

Charge voltage 'absorption' (V) / 'float' (V)	57.6 / 55.2	
Battery types	AGM / GEL / OPzV / Lead-Carbon / Flooded / Traction / Lithium	
Max AC charge current (A)	60	90
Temperature compensation	Yes	

Solar Charge Controller

Max output current (A)	100	100
Maximum PV open circuit voltage (V)	250	250
MPPT voltage range (V)	65~245	
Number of MPPT trackers	2	2
Maximum PV input current per tracker (A)	36 + 36	36 + 36
Maximum PV short circuit current per tracker (A)	40 + 40	40 + 40
Maximum PV power per tracker (W)	4400 + 4400	4400 + 4400
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	50
Smart Port Current (A)	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

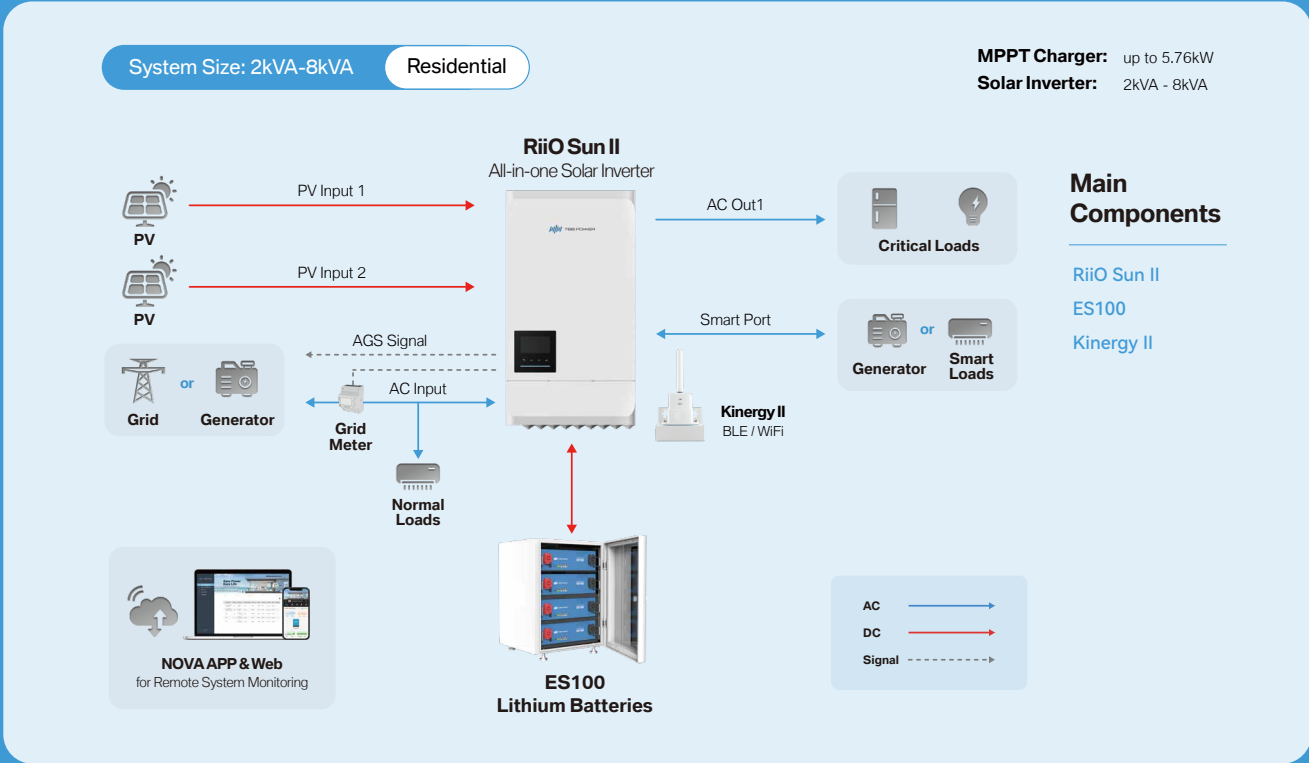
Dimension (mm) (max)	570*310*154	610*320*164
Net Weight (kg)	29	34
Cooling	Forced fan	
Protection index	IP21	

Standards

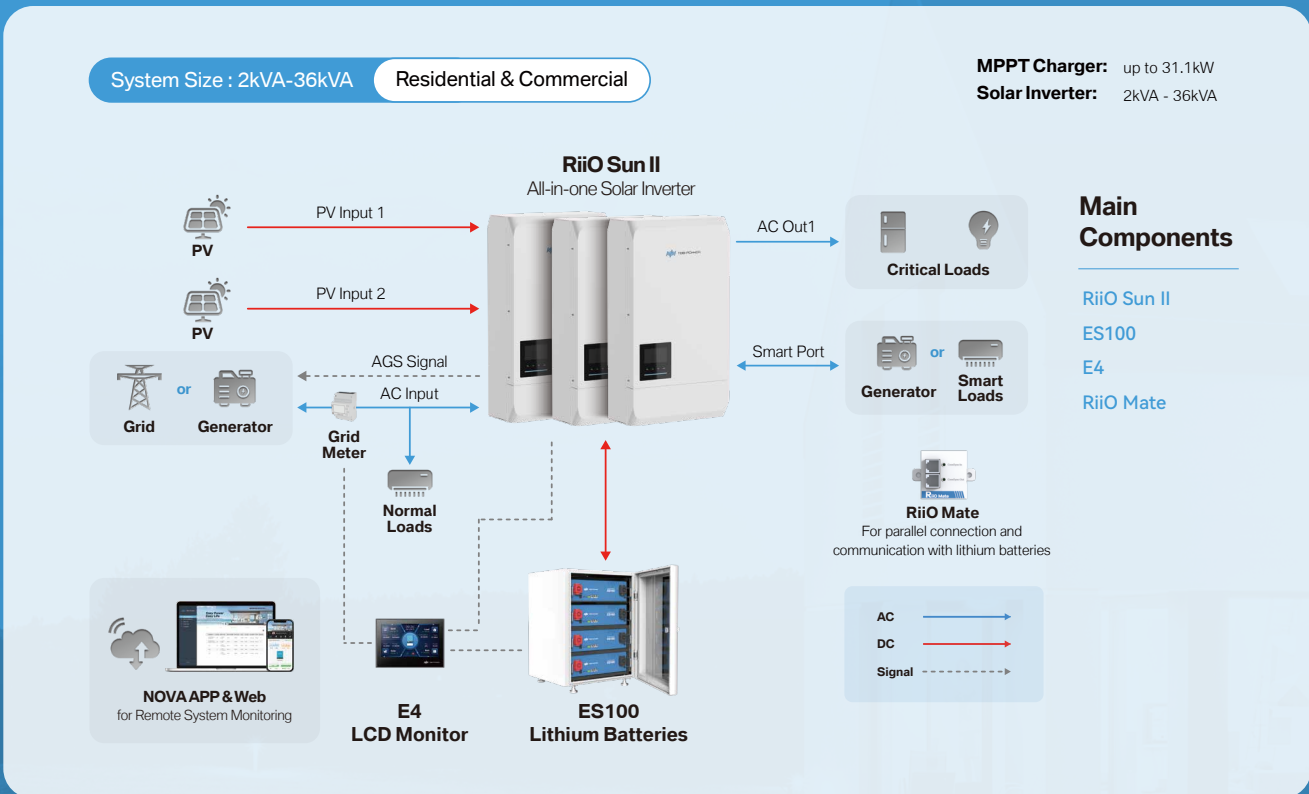
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EMC	EN-IEC 61000-6-1, EN-IEC 61000-6-2, EN 61000-6-3, EN 61000-6-4 EN 61000-3-11, EN 61000-3-12	

Maximize self-consumption & ESS

RiiO Sun II supports energy feeding back into the grid and maximizing the self-consumption. When there is any surplus solar energy after meeting the demand of loads on the AC outputs and the battery has been fully charged, the surplus part will be fed back to power loads on the AC input, which would maximize the self-consumption. Thus the system investment can be greatly reduced.



When multiple RiiO Sun II are connected in parallel or three-phase, they can maximize self-consumption and realize peak shaving with the aid of E4 LCD monitor and grid meter.

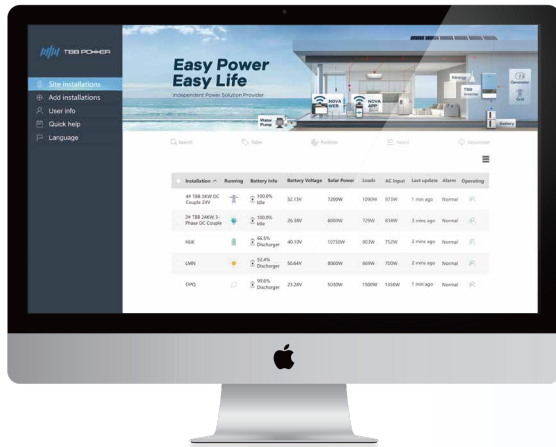


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TBB NOVA APP & Web

Monitor and Control Your Solar System Anywhere Anytime

NOVA App and NOVA Web are FREE energy management and monitoring system designed by TBB Renewable, displaying real-time data of all system components and history records, providing easy access to controlling the power generation and power consumption. According to historical data, users can actively adjust and optimize power consumption habits.



Devices for remote monitoring communication



Ether-Link



E4 LCD Monitor



Kinergy II-BLE/WiFi
Wireless Data Logger

Comprehensive Monitoring

- Live data and status overview and system analysis
- System configuration and parameter setting
- Customizable alarm setting
- Detailed report for power harvest, storage and consumption in visual chart and graph
- WEB compatible for Windows and Mac PC
- APP available for Android and iOS phone

Intelligent Management for Dealers / Installers

- Comprehensive management for multiple installations
- Catch potential issues early with alarm setting to prevent system failure
- Optimize the energy harvest and usage with history graphs and detailed analytical reports
- Proactive maintenance services to keep good relationship with customers
- Customizable banner to show dealers information and slogan

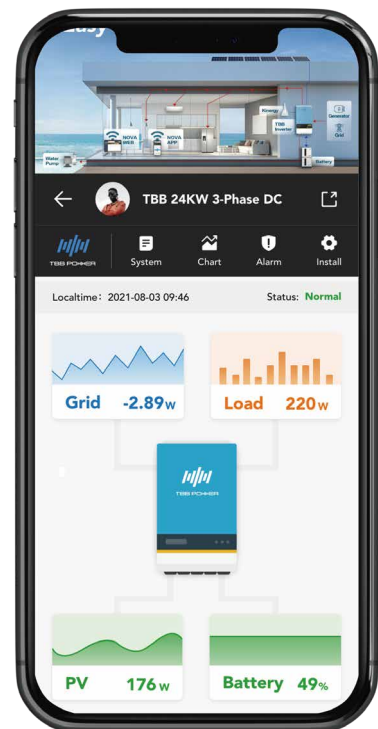


Android



iOS

nova.tbbpower.com



RiiO Sun II

All-in-one Solar Inverter

TBB Inverter / Guarantees Your Energy 24/7



Single Phase | 120VAC

2kVA / 3kVA / 4kVA

Split Phase | 120/240VAC

5kVA / 8kVA