Matrix II

- Solar Hybrid Inverter -



5kW / 8kW / 10kW / 15kW

Transformer-based
Built-in 600V/900V MPPT (5.0S lite: 250V)
Built-in Multiple MPPT Trackers
Two AC inputs & Two AC outputs
Programmable smart port
ESS Functionality
Parallel and three-phase capability (180kW)

Matrix II is an advanced all-in-one transformer-based solar hybrid inverter for backup power, off-grid and ESS applications, featuring a high-efficiency inverter charger with a 600V/900V MPPT solar charge controller (5.0S Lite model: 250V MPPT). The 10kW and 15kW models offer dual AC inputs and outputs for automatic connection to the active power source. While the smaller 5kW and 8kW models include a programmable smart port for flexible generator or secondary AC output configuration. Outperforming conventional transformer-based inverters, Matrix 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, Matrix II supports maximizing energy self-consumption, grid feed-in for utility credits, retrofitting existing PV system, and optimizing bills with peak shaving and time-of-use strategies.

Enhanced Flexibility

- AC Coupling and DC Coupling
- Parallel and three-phase up to 12 units, 180kW
- Two AC inputs and two AC outputs*1
- Built-in a smart port for Gen input or 2nd AC output*2
- Built-in 600V/900V MPPT solar charge controller for easy installation and lower cable costs*3
- With higher MPPT charging current, the 10.0S Pro & 15.0S Pro models deliver faster charging
- Built-in multiple MPPT trackers for flexible system design and higher yields
- AGS function, Power Control & Power Assist

Superior Reliability

- Transformer-based, high surge power
- 0ms ultra-fast switch to battery power
- Maximize solar energy utilization and minimize energy waste
- Minimize the impact of loads on batteries when the grid is available

ESS Capabilities

- Maximize self-consumption
- Lower electricity bills via peak shaving & time-of-use
- Grid feed-in for utility credits
- AC Coupling retrofit capability

Easy O&M

- System wake-up when the AC or PV is regained
- Bluetooth-based setup and local monitoring via TBB Nova APP
- Local monitoring via E4 LCD Monitor
- Remote monitoring and control via Nova Web & APP

*1: Only available for 10kW/15kW model
*2: Only available for 5kW-8kW model
*3: 5.0S Lite model is built in with 250V MPPT

Model	Matrix II 5.0S Lite	Matrix II 5.0S	Matrix II 8.0S	Matrix II 10.0S Pro	Matrix II 15.0S Pro
Product Topology	Transformer based				
Power Assist / Grid Feedback	Yes / Yes				
AC Input Range (VAC)	175~265VAC / 45Hz~55Hz@50Hz(normal), 55Hz~65Hz@60Hz(normal)				
AC Input Current (transfer switch) (A)	50			2×100	
Inverter					
Nominal Battery Voltage / Input Voltage	48V / 42~68V				
AC Output Voltage / Frequency	220/230/240VAC ± 2% / 50/60Hz ± 0.1%				
Harmonic Distortion	<2%				
Cont. Output Power at 25°C (VA)	5000	5000	8000	10000	15000
Max Output Power (30min) at 25°C (W)	5000	5000	8000	10000	15000
Cont. Output Power at 25 / 40 / 65°C (W)	4000 / 3700 / 3000	4000 / 3700 / 3000	6500 / 5600 / 4500	8000 / 7000 / 6000	13000 / 10000 / 7500
Peak Power (W) / Surge	15000 / 300%	15000 / 300%	24000 / 300%	30000 / 300%	45000 / 300%
Maximum Efficiency / Zero Load Power (W)	96% / 18	96% / 18	96% / 26	96% / 40	96% / 60
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)	70	70	110	140	200
Temperature Compensation	Yes				
Solar Charge Controller					
Max Output Current(A)	120	120	150	300	400
Maximum PV Open Circuit Voltage (V)	250	600	600	600	900
Maximum Charge Power	6900W @ 57.6V total, 3450W @ 57.6V per tracker	7000W @ 57.6V total, 5000W @ 57.6V per tracker	8750W @ 57.6V total, 5000W @ 57.6V per tracker	17500W @ 57.6V total, 5000W @ 57.6V per tracker	23000W @ 57.6V total, 8000W @ 57.6V per tracker
PV / MPPT Operating Voltage Range (V)	65-245 / 65-245	120-525 / 80-525, *Solar charge controller will stop working if a higher PV open circuit voltage (525V~600V) is connected.		120-600 / 80-525	160-900 / 80-720
Number of MPPT Trackers	2	2	2	4	4
Max. PV Input Current Per Tracker (A)	36+36	18+18	18+18	20+20+20+20	20+20+20+20
Max. PV Short Circuit Current Per Tracker (A)	40+40	20+20	20+20	25+25+25+25	25+25+25+25
Allowable Max. PV Panel Power Per Tracker (W)	5200+5200	8000+8000	8000+8000	8000+8000+ 8000+8000	10000+10000+ 10000+10000
Charge Voltage 'Absorption' / 'Float' (V)	Default: 57.6 / Default: 55.2				
Maximum Efficiency / MPPT Efficiency	97% / >99.9%				
PV Array Insulation Resistance Detection	N/A	Integrated			
Protection	a) battery voltage too high; b) battery voltage too low; c) temperature too high; d) PV reverse polarity; e) surge				
General Data					
Main Output (AC Out1) Current (A)	50			100	
Auxiliary Output Current (A)	50 (Smart Port)			50 (AC Out2)	
Transfer Time / Altitude	0ms (<15ms in Weak AC source Mode) / 3500m				
Remote On-Off / Programmable Relay	Yes / 2x (30Vdc/3A or 250Vac/3A)			Yes / 3x (30Vdc/3A or 250Vac/3A)	
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				
ComSync/ComMON Communication Port	For parallel and three phase operation / For remote monitoring and system integration				
Operating Temperature / Relative Humidity	-40°C~+65°C / 95% without condensation				
Mechanical Data					
Battery Connection / AC Connection	Bolts M8*2 (1+1) / Screw Terminals 10mm²			Bolts M8 (2+2) / Bolts M6	
Dimension (mm) (max) / Net Weight (kg)	570*310*154 / 32	600*347*244 / 39	650*357*254 / 49	805*524*320 (Excluding connectors and brackets) / 92	805*524*320 (Excluding connectors and brackets) / 110
Cooling / Protection Category	Forced fan / IP21				
Standards					
Safety	EN-IEC 62477-1, EN-IEC 62109-1, EN-IEC 62109-2, EN-IEC 62040-1				
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			EN-IEC 61000-6-1, EN-IEC 61000-6-2, EN 61000-6-3, EN 61000-6-4	
Grid Regulation	NRS 097*, AS/NZS 4777.2*, VDE-AR-N 4105*				