

Tyrann

- Inverter Charger -



TBB Tyrann is a transformer-based inverter charger designed for backup power, off-grid, and ESS applications, handling high surge loads. It features dual AC inputs and outputs in the 10kW and 15kW versions for automatic connection to the active power source. The smaller 3kW to 8kW models include a programmable smart port, allowing for configuration as either a generator input or a secondary AC output for efficient load management during power shortages.

Additionally, Tyrann 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 9 units, 135kW
- Two AC inputs & two AC outputs^{*1}
- Built-in a smart port for Gen input or 2nd AC output^{*2}
- Supports 600V MPPT solar charge controller for less cable costs
- Compatible with mainstream lithium battery brands and generators
- AGS function, Power assist & power control
- Two independent CAN Buses for flexible system communication^{*3}

*1: Only available for 10kW/15kW model

*2: Only available for 3kW-8kW model

*3: Only available for 10kW/15kW model

Superior Reliability

- Transformer-based, high surge power
- 0ms ultra-fast switch to battery power
- 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 retrofitting

Easy O&M

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

Model No.	Tyrann 3.0M	Tyrann 3.0S	Tyrann 5.0S	Tyrann 8.0S	Tyrann 10.0S	Tyrann 15.0S
Product Topology	Transformer based					
Power Assist	Yes					
Feedback into Grid	Yes					
AC Input Range	175~265VAC / 45Hz~55Hz@50Hz (normal), 55Hz~65Hz@60Hz (normal)					
AC input Current (transfer switch) (A)	32		50		2x100	

Inverter

Nominal Battery Voltage / Input Voltage (VDC)	24 / 21-34	48 / 42~68				
AC Output Voltage(VAC) / Frequency(Hz)	220/230/240 ± 2%, 50/60 ± 0.1%					
Harmonic Distortion	<2%					
Cont. Output Power at 25°C (VA)	3000	3000	5000	8000	10000	15000
Max Output Power (30min) at 25°C (W)	3000	3000	5000	8000	10000	15000
Cont. Output Power at 25°C (W)	2500	2500	4000	6500	8000	13000
Cont. Output Power at 40°C (W)	2200	2200	3700	5600	7000	10000
Cont. Output Power at 65°C (W)	1800	1800	3000	4500	6000	7500
Peak Power (W)	9000	9000	15000	24000	30000	45000
Surge	300%					
Maximum Efficiency	94%	95%	96%			
Zero Load Power (W)	14	14	18	26	40	60

Charger

Charge Voltage 'Absorption' / 'Float' (VDC)	28.8 / 27.6	57.6 / 55.2				
Battery Types	AGM / GEL / OPZV / Lead-Carbon / Flooded / Traction / Lithium					
Max AC Charge Current (A)	80	40	70	110	140	200
Temperature Compensation	Yes					

General Data

Main Output (AC Out1) Current (A)	32	50	100
Auxiliary Output (AC Out2) Current (A)	N/A		50
Smart Port Current (A)	32	50	N/A
Transfer Time	0ms (<15ms in Weak AC source Mode)		
Remote On-Off	Yes		
Programmable Relay	2x (30Vdc/3A or 250Vac/3A)		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 Communication Port	For parallel and three phase operation		
ComMON Communication Port	For remote monitoring and system integration		
Operating Temperature Range	-40°C to 65°C		
Relative Humidity in Operation	95% without condensation		
Altitude (m)	2000		3500

Mechanical Data

Battery Connection	Bolts M8 (1+1)			Bolts M8 (2+2)		
AC Connection	Screw terminals 10 mm ²			Bolts M6		
Dimension (mm) (max)	499*272*144	499*272*144	570*310*154	620*320*164	672*498*290	672*498*290
Net Weight (kg)	19	19	30	36	74	80
Cooling	Forced fan					
Protection Category	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			EN-IEC 61000-6-1, EN-IEC 61000-6-2, EN 61000-6-3, EN 61000-6-4	
Grid Regulation	VDE-AR-N 4105*, NRS 097, AS/NZS 4777.2, NTS 2.1 (A)*, RD 1699*				

For Off-Grid and ESS Applications

T B B R E N E W A B L E



As a transformer-based inverter charger with AGS function and excellent compatibility with generators and lithium batteries, Tyrann is ideal for off-grid application, flexible to compose DC coupled PV system, AC Coupled PV system as well as the combination of both to meet various scenarios' need. With E4 LCD Monitor, Tyrann can realize complex ESS functionality.

Optimize Self-consumption

Tyrann can maximize self-consumption with solar and battery to cut down on high electricity expense. Connect some normal loads to the AC input of Tyrann, the solar energy will be used to power loads and charge batteries to a certain level. When there is any surplus, it can be fed back to power normal loads on the AC input, to maximize self-consumption and greatly reduce the system investment and save electricity bills.

Retrofit Existing Grid-tie System

When the subsidy of feeding energy into grid is greatly reduced or canceled, Tyrann can be applied to retrofitting the existing grid-tie system into energy storage system to store solar energy into the battery for local use rather than feeding back into the grid.

Peak Shaving

When there is large peak-to-valley price difference, Tyrann can charge batteries with grid electricity during low price periods and discharge batteries to power loads during high price periods. If there is still any surplus and the subsidy is high, it can be fed back into grid, to make a profit and greatly reduce electricity bills.

Self-consumption and Backup Power

The reserved battery SoC is configurable, depending on the grid failure is rare or common, to realize most efficient self-consumption and energy management & dispatch.

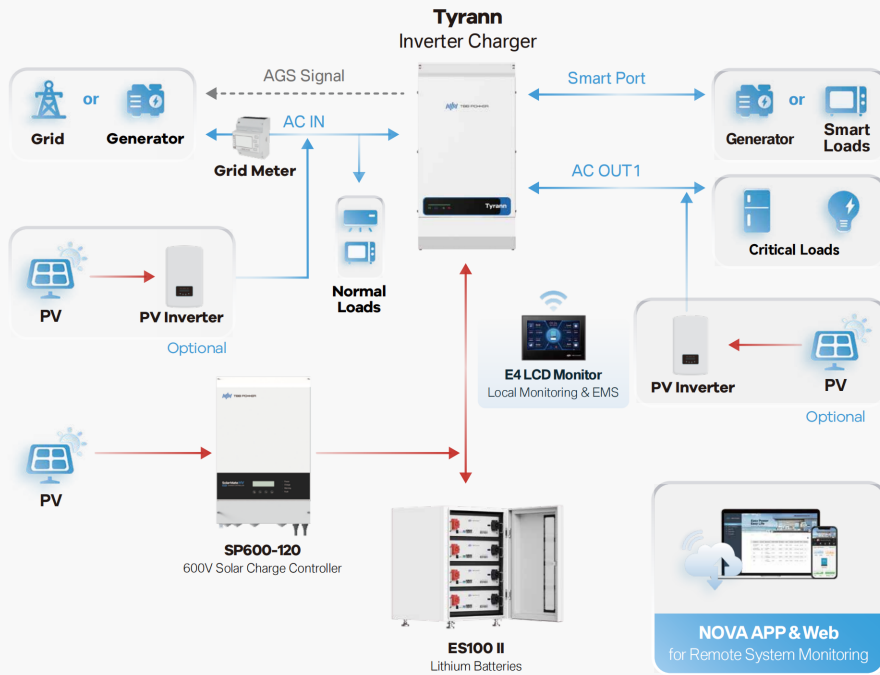
TBB RENEWABLE

AC+DC Coupled PV System

3kW-72kW

For Residential & Commercial

with ESS Functionality



Complete Solution

Inverter Charger:

3kW-24kW Single Phase
9kW-72kW Three Phase

PV Inverter:

3kW-24kW Single Phase
9kW-72kW Three Phase

MPPT Charger:

up to 105kW

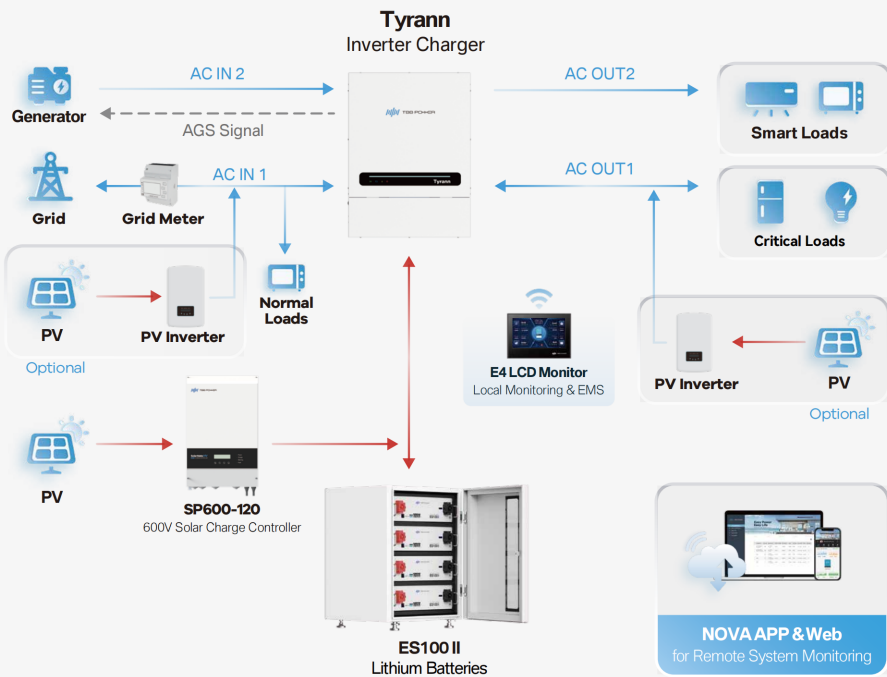
Ideal for residential and small commercial off-grid and ESS applications, ranging from 3kW to 72kW. Tyrann (3kW - 8kW model) is equipped with a smart port that can be programmed as a generator input to realize two AC inputs, or as an AC output for load management. Additionally, it can work with TBB 600V MPPT to achieve higher efficiency DC Coupling.

AC+DC Coupled PV System

10kW-135kW

For Residential & Commercial

with ESS Functionality



Complete Solution

Inverter Charger:

10kW-45kW Single Phase
30kW-135kW Three Phase

PV Inverter:

10kW-45kW Single Phase
30kW-135kW Three Phase

MPPT Charger:

up to 105kW

Ideal for residential and commercial off-grid and ESS applications, ranging from 10kW to 135kW. A single Tyrann unit has a maximum power capacity of up to 15kW. Additionally, Tyrann (10kW / 15kW model) is equipped with two AC inputs for connecting grid and generator or two generators. It can automatically select the active source or the prioritized AC source.