

BK-TYN-M SERIES MULTIMODE MODULAR SOLAR HYBRID INVERTER

DATASHEET



BK-TYN-M MULTIMODE MODULAR SOLAR HYBRID INVERTER

TYN-M Series Modular Multi-System Hybrid Solar Inverter is an Intelligent Multi-function Power Supply designed by Aerospace Baykee for New Energy needs. It is internally powered by:

- Solar MPPT Controller
- Charger
- Rectifier
- Inverter
- Static Switch
- Main Control Circuit
- Display Alarm Circuit

Features:

- Multimode-Standard Design
- Modular Technology: For easy Expansion and Redundancy
- Hot Swappable: Reduce On-Site Repair and Maintenance time
- High Speed Static Switching
- Bus MPPT Control Technology
- Reverse Feeding Management
- Intelligent Input Source Management
- Large Touch Screen Display
- User-Friendly Configuration: Parallel Operation upto 800 KW
- Current Limiting Soft-Start Circuit: to reduce the Inrush Current
- Intelligent Digital Control Technology: High-Speed DSP Microcontroller
- Sixth Generation High-Speed Low-Loss IGBT
- Intelligent Fault Detection Function and Communication
- Superior Load Characteristics: 0 to 100% load transition without switching to bypass
- High-Performance Dynamic Regulation: reduce output voltage distortion
- Optional Battery Inspection Module

Applications:

- On- Grid Mode
- Off-Grid Mode
- Hybrid Mode

Main Technical Parameters of BK-TYN-M Series

PARAMETER	BK-TYN-M-10K	BK-TYN-M-20K	BK-TYN-M-60K	BK-TYN-M-100K	BK-TYN-M-200K
Rated Output Power	10KW	20KW	60KW	100KW	200KW
Operating Mode	Solar Energy, AC Hybrid Energy Storage Inverter Power Supply				
Working Order	Solar Energy——Grid——Battery				
Technology	High Frequency				
Isolation Transformer	Optional				
Power Module Model	TYNM-20K-PM				
Configurable number of Power Modules	1 Set		1~3 Set	1~5 Set	1~10 Set
SOLAR ENERGY					
Maximum Input Power	5KW×2	10KW×2	10KW×6	10KW×10	10KW×20
Rated Operating Voltage	500V				
Maximum Input Voltage	800V				
MPPT Range	400~800V				
Maximum Input Current	20A×2				
Number of Input Channels	2 Channels		6 Channels	10 Channels	20 Channels
MAINS (CONVERTER)					
Rated Operating Voltage	L-L:380/400/415 Vac, L-N:220/230/240 Vac 3Phase 4Wire (or single phase 2 wire) + PE				
Rated Operating Frequency	50/60Hz				
Input Voltage Range	±25%, -40% (Half Load)				
Input Frequency Range	±10%				
Input Power Factor	≥0.95 (20~50% Load) ≥0.99 (100% Load)				
Total Harmonics Distortion (THD) (2~39 times)	≤3% (100% Load)				
Maximum Input Power	15KW	30KW	90KW	150KW	300KW

Maximum Output Power	10KW	20KW	60KW	100KW	200KW
Maximum Input Current	22.5A	45A	135A	225A	450A
Grid Current DC Component	≤0.5% Rated DC Current				
Isolation Protection Time	2s				
Generator Mode	Yes				
OUTPUT (INVERTER)					
Rated Operating Voltage	L-L:380/400/415 Vac, L-N:220/230/240 Vac 3Phase 4Wire (or single phase 2 wire) + PE				
Rated Operating Frequency	50/60Hz±0.5Hz				
Output Regulation Accuracy	≤±1%				
Frequency Tracking Rate	0.2Hz/s~2Hz/s				
Waveform Distortion	Sine Wave, Distortion: ≤3% (Linear Load) ≤5% (Non Linear Load)				
Output DC Component	≤1%				
Three Phase Voltage Phase Deviation	2°				
Dynamic Transient Characteristics	Inverter output dynamic transient range is less than ±10%, Transient recovery time <20mS				
Crest Factor	3:1				
Overload Capability	1 minute delay for 125% overloading, Immediate Protection at150% Overloading				
Working Standard	Three In Three Out, Three In Single Out, Single In Single Out, Single In Three Out (Optional)				
Operation Mode	ON-Grid/OFF Grid/Hybrid Mode				
Parallel No Load Circulation	≤5%				
Parallel Current Imbalance	≤5%				
Self-Aging Function	25%, 50%, 75%, 100% (Four Set Optional)				

BATTERY					
Rated Voltage	240V (192V~288V Adjustable)				
Maximum Current	60A	120A	360A	600A	1200A
Battery Type	Lead Acid Battery, Lithium Battery (Or similar one)				
Battery Capacity	Configurable				
Charging Mode	Temperature compensated constant current, Constant pressure (three-stage @ lead-acid battery)				
Floating Charge	2.25V±1% /cell (@25°C, Lead-acid batteries)				
Average Charging Voltage	2.34V±1% /cell (@25°C, Lead-acid batteries)				
Temperature Compensation	-3mV/°C/cell (@Lead-acid batteries)				
Maximum charging power	≤50% (Adjustable) , Scalable external isolation charger				
SYSTEM PARAMETERS					
Switching Time	0ms				
Inverter Efficiency	≥95%				
Protection	Reverse battery protection, PV reverse connection protection, output short circuit, overload, over and under voltage, phase sequence, over temperature, fan failure, etc.				
Heat Dissipation Method	Temperature controlled air cooling				
Protection Level	IP20				
Operating Environment	Temperature -20~50°C				
Relative Humidity	30%~95% (No condensation)				
Operational Height (Max.)	<1000 m (1% decrease in power per 100 meters, Maximum Height 4000 m)				
Isolation Transformer	Optional				
Installation Method	Based on customer's requirements and the project site condition				
Dimension W*D*H (mm)	800*200*1100	600*800*1200	600*800*1800	600*800*2200	

Main Technical Parameters of TYN-M-20K Power Module

PARAMETER	TYN-M-10K-PM	TYN-M-20K-PM
Rated Output Power	10 KW	20 KW
Main Functional Unit	Solar MPPT Controller, Mains Bidirectional Rectifier, Inverter Bidirectional Converter, Battery Bidirectional Converter	
Isolation type	Non-Isolated High frequency	
Two-Way AC type	IGBT Three-Level Communication	
SOLAR ENERGY		
Maximum Input Power	5KW×2	10KW×2
Rated Operating Voltage	500V	
Maximum Input Voltage	800V	
MPPT Range	400~800V	
Maximum Input Current	10A×2	20A×2
Number of Input Channels	2 Channels	
MAINS (CONVERTER)		
Rated Operating Voltage	220/380Vac	
Rated Operating Frequency	50/60Hz	
Input Voltage Range	± 25%, -40% (Half Load)	
Input Frequency Range	± 10%	
Maximum Input Power	15KW	30KW
Maximum Output Power	10KW	20KW
OUTPUT (INVERTER)		
Rated Operating Voltage	220/380Vac (Optional)	
Rated Operating Frequency	50/60Hz ± 0.5Hz	
Output Regulation Accuracy	≤ ± 1%	

BATTERY	
Rated Voltage	240V (192V~288V Adjustable)
Maximum Current	120A
SYSTEM PARAMETERS	
Heat Dissipation Method	Temperature Controlled Air Cooling
Protection Level	IP20
Operating Environment	Temperature -20~50°C
Relative Humidity	30%~95% (No condensation)
Operational Height (Max.)	<1000 m (1% decrease in power per 100 meters, Maximum Height 4000 m)
Installation Method	Plug-In
Dimension W*D*H (mm)	482*133*600

Main Technical Parameters of TYN-M Series Bypass Module

PARAMETERS	TYN-M-60K-BY	TYN-M-120K-BY	TYN-M-200K-BY
Rated Input Power	60KW	120KW	200KW
Switch Type	Thyristor Static Switch		
Rated Operating Voltage	220/380Vac		
Rated Operating Frequency	50/60Hz		
Maximum Input Voltage Range	± 25%		
Input Frequency Range	± 10%		
Output Voltage Range	± 10~25% (Adjustable)		
Heat Dissipation Method	Temperature Controlled Air Cooling		
Protection Level	IP20		
Operating Environment	Temperature 20~50℃		
Relative Humidity	30%~95% (No Condensation)		
Operational Height (Max.)	<1000 m (1% decrease in power per 100 meters, Maximum Height 4000 m)		
Installation Method	Plug-In		
Dimension W*D*H (mm)	482*133*600		

*The above data is for reference, changes are subject to the actual product.