

# Bidirectional Power Module Specification

TPS-BM23013K5TIF





### Features

- AC three-phase without neutral line, no neutral line current
- Three-phase AC-DC bidirectional isolation and energy flow, reliable inverter in grid-connected system
- Mature and excellent soft switching technology, more reliable and efficient
- High efficiency: AC to DC 93.5%, DC to AC 92.5%
- Bidirectional high PF >0.99, low TH Di <5%
- Fast switching between rectifier mode and inverter mode
- Strong adaptability, adapt to unstable grids and harsh environments, no derating at 45°C
- Modular design, intelligent expansion, automatic parallel operation
- Perfect fault protection function
- Designed to comply with IEC62477-1 and EN55032 standards
- Can pass UL, CE, TUV certification

### Applications

- Battery module test equipment
- Electrical bidirectional test equipment
- Power aging equipment

### Profile

#### TPS-BM Three-phase MV 230V AC-DC Seamless Switching BPM

TPS-BM three-phase medium voltage BPM adopts advanced three-phase none neutral line technology, mature soft switching technology, advanced control algorithm and excellent manufacturing to realize AC-DC bidirectional energy conversion, and completely solves the problem of neutral line current in the power system. The module applies to various electrical test scenarios, and provides high performances such as high reliability, strong adaptability of grids and environments, bidirectional seamless switching without voltage difference, high efficiency, low THDi, high PF, intelligence.

### Specification

Product Model			TPS-BM23013K5TIF
AC to DC Direction	Rated Output Capacity		13500W
	AC Input	Wiring Mode	3Ph+PE
		Rated Voltage	380/400/415VAC
		Voltage Range	342-456VAC, Full load; 323-342, derating to 80%
		Frequency Range	50/60±5Hz adaptive control
		Input Current	≤25.7A
		THDi	<5% @380VAC, full load, power grid THDu ≤2%
		PF	0.99 @380VAC, full load, power grid THDu ≤2%
	DC Output	Rated Voltage	230VDC
		Rated Current	58.7A
		Voltage Accuracy	±1%
		Ripple Voltage	3.8V
		Peak Efficiency	93.5%

DC to AC Direction	Rated Input Capacity		11000W
	DC Input	Rated Voltage <sup>①</sup>	230VDC
		Rated Current	47.8A
	AC Output	Voltage Range	342-456VAC, Full load; 323-342, derating to 80%
		Frequency Range	50/60 ± 5Hz adaptive control
		THDi	<5% @380Vac, full load, power grid THDu ≤ 2%
		PF	0.99 @380Vac, full load, power grid THDu ≤ 2%
		Peak Efficiency	92.5%
Complete Machine	System	Power Direction	BidirectionalHigh frequency isolation
		Cooling System	Forced air cooling, intelligent control
		Air Flow	Default: Front inlet and rear outlet , R type: Rear inlet and front outlet ( front: fan; rear: terminal )
		Expandability	Up to 8 units connected in parallel
		Non-balance of Current Sharing	< 5%
	Environment	Operation Temperature <sup>②</sup>	-10°C~45°C full load, 45°C~60°C capacity derating to 80%
		Storage Temperature	-40°C~70°C
		Relative Humidity	5~95% (no condensing)
		Operation Altitude	0~1000m; 1000m~3000m, power derating 1% per 100m rising
	Interface	Indicator Lamp	Operation: Blue    Fault: Red
		Communication	CAN
	Mechanical	Size (W*H*D)	268mm*86mm*435mm
		Weight	≤ 10kg

**Note:**

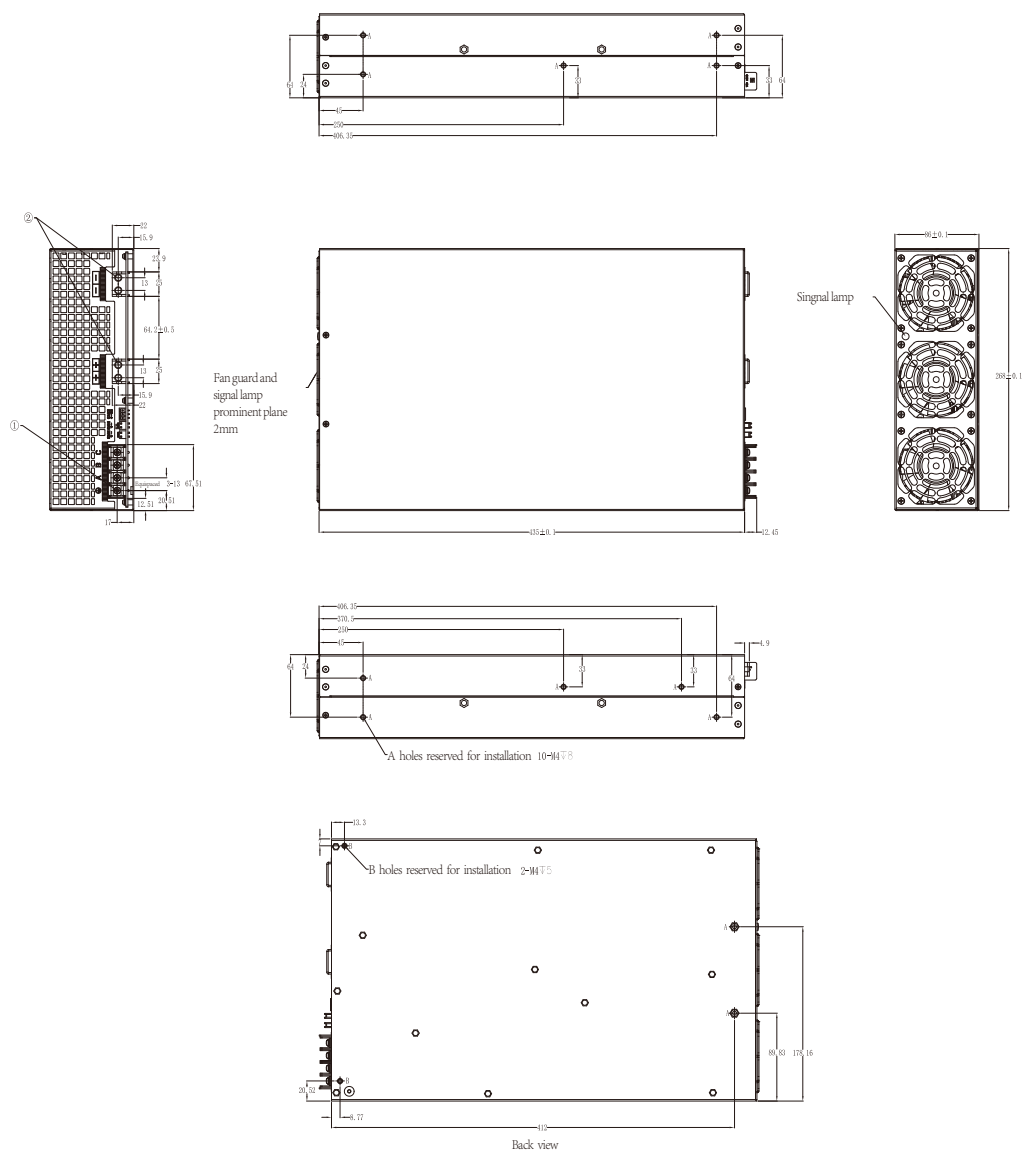
- ① TPS-BM23013K5TIF side voltage exceeding 350VDC will cause power failure
- ② Shut down due to over temperature after overload



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## Dimension

• **TPS-BM23013K5TIF Installation Structure**



- Identification explanation


2-M4 $\nabla$ 5


 Hole depth 5mm  
 Metric thread size  
 Total 2

Serial number	Type	Name	Specification	Quantity	Tightening torque
②	Output terminal fastening screws	GB907413-88 series cross slot hexagon head spring flat washer combination screws	M6X12	4pcs	2N·M
①	Input terminal fastening screw	Cross recessed pan head flat washer combination screw	M4X8.5	4pcs	1.5N·M

- Warning

1.The length of the screw shall not exceed the depth of the hole in the drawing when the screw is installed at the reserved hole position (▽) . Otherwise it will cause damage to the equipment.

Dimensional tolerance (GB1804-M level)	0.5~6	$\pm 0.1$	Unit	Proportion	Projection identification
	6~30	$\pm 0.2$	mm	1:1	
	30~120	$\pm 0.3$			
	>120	$\pm 0.5$			