

BB1-125 DC Circuit Breaker



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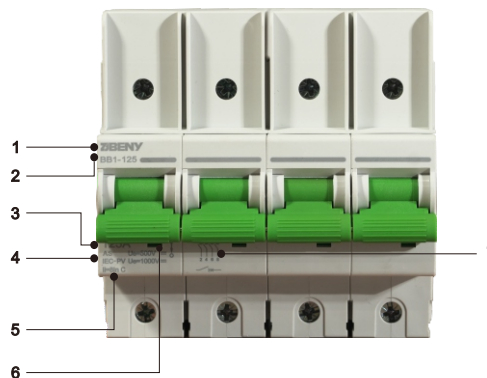
- Non-polar
more convenient installation
- High score breaking ability
- Overload protection
short circuit protection
Off-frequency operation
- Rated current up to 125A
- Comply with:
IEC 60947-2, GB/T 14048.2



Application

ZBENY BB1-125 series PV DC Circuit Breaker are mainly used in electrical equipment equipment such as bus box and energy storage distribution system. Rated working voltage up to DC 1000V, rated working current up to 125A, Scientific arc extinguishing and current limiting system can quickly disconnect the fault current of the DC distribution system, and can realize countercurrent protection to ensure the reliable operation of the system.

Appearance introduction



Type explanation

BB1	125	4P	125A	1000V	OF	4A
Product Code	Frame current	Pole	Rated Current	Rated Voltage	Accessory	Wiring Method
DC Circuit Breaker	125	1P 2P 3P 4P	80A 100A 125A	250V 125V 500V 250V 750V 375V 1000V 500V	OF : Auxiliary Contacts MX : Shunt Release MF : Shunt aid	Customer selection

Parameter

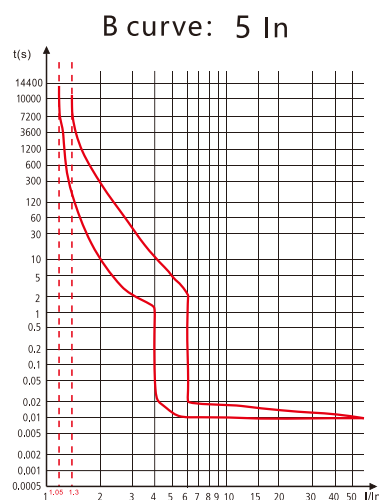
Electric Parameter										
Standard Category		PV Standard Circuit Breaker				DC Standard Circuit Breaker				
Standard		IEC 60947-2、GB/T 14048.2				AS/NZS IEC 60947.2				
Product Certificate		CCC、CE、CB				AS				
Pole		1P	2P	3P	4P	1P	2P	3P	4P	
Rated Working Voltage		Ue	250V	500V	750V	1000V	125V	250V	375V	500V
Maximum current of shell frame		Ith	125A							
Rated Working Current		In	80A,100A,125A							
Rated Insulation Voltage		Ui	DC 1000V							
Rated Impulse Voltage		Uimp	6kV							
Run Breaking Capacity		Icu	10kA							
Ultimate Breaking Capacity		Ics	6kA							
Flashover distance			< 50mm							
Product Unipolar Internal Resistance			< 5mΩ							
Trip Type			Thermomagnetic type							
Service life										
Mechanical life			10000				10000			
Electrical life			300				1000			
Installation Environment										
Protection Degree			Side IP40, cable port IP20							
Wiring Capacity			2.5mm ² ~ 50mm ²							
Wiring Torque		M7	3.5N·m~ 5N·m							
Working Temperature			-40℃~ +80℃							
Storage Temperature			-40℃~ +85℃							
Resistance to moisture and heat			II (Humidity 55℃, relative humidity 95%)							
Fixed installation			Fixed to the 35mm guide rail							
Stripping Length			16mm-17mm							

Wiring Diagram

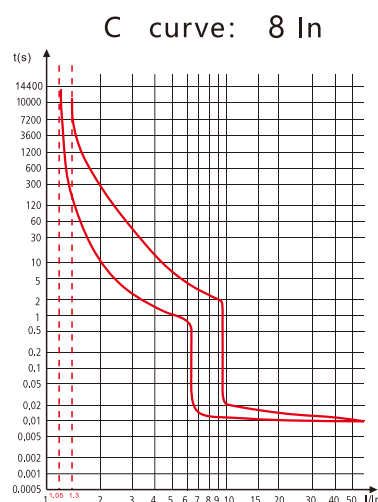
Product Type	Poles	Wiring Diagram		
	1P	1A		
		1A		
	2P	2A Default wiring mode		
		2B		
		2C		
	3P	3A Default wiring mode		
		3B		
		3C		
		3D		
		3E		User-defined wiring method
	4P	4A Default wiring mode		
		4B		
		4C		
		4D		
		4E		User-defined wiring method

Characteristic Curve

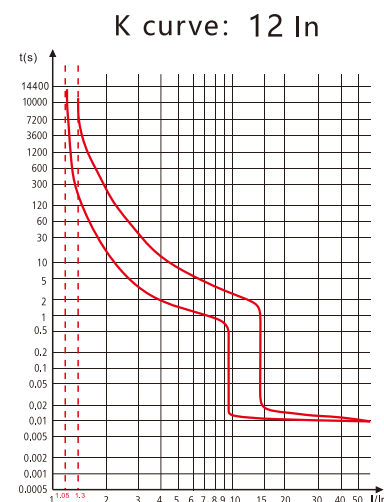
Note: Default C curve, if you need other curves, please contact customization



- 1) $I=1.05I_n$, $t < 2h$, Non Tripping ;
- 2) $I=1.3I_n$, $t < 2h$, Tripping;
- 3) $I=2I_n$, $t \geq 1-120s$;
- 4) Instantaneous trip: $5I_n \pm 20\%$



- 1) $I=1.05I_n$, $t < 2h$, Non Tripping ;
- 2) $I=1.3I_n$, $t < 2h$, Tripping;
- 3) $I=2I_n$, $t \geq 1-120s$;
- 4) Instantaneous trip: $8I_n \pm 20\%$



- 1) $I=1.05I_n$, $t < 2h$, Non Tripping ;
- 2) $I=1.3I_n$, $t < 2h$, Tripping;
- 3) $I=2I_n$, $t \geq 1-120s$;
- 4) Instantaneous trip: $12I_n \pm 20\%$

Derating curve

Temperature Derating

temperature Derating ratio Type	-40°C~40°C	50°C	60°C	70°C	80°C
BB1-125	100%	95%	90%	85%	80%

Altitude Derating

Altitude	2000m	3000m	4000m	5000m
power frequency withstand voltage	100%	100%	100%	100%
Ui	100%	100%	100%	100%
In	100%	100%	90%	80%
Ue	N/A			

Installation Derating

MCB side by side quantity	1	2-3	4-5	6-9	≥ 10
Reduction coefficient	1	0.95	0.9	0.8	0.7

Recommended wiring section

Current	80A	100A	125A
Copper wire cross section (mm ²)	25	35	50

- Note:
1. When the wire specification differs from the recommended cross-section, the overload current range can be customized, indicating the wire specification and length;
 2. Product Selection: Select the corresponding product rated current according to the coefficient $1.3I_n$ of the system's maximum current.

Outline Drawing(mm)

1A Wiring		2A Wiring	
Front dimensioning	Side dimensioning	Front dimensioning	Side dimensioning
2B Wiring		2C Wiring	
Front dimensioning	Side dimensioning	Front dimensioning	Side dimensioning
3A Wiring		3B Wiring	
Front dimensioning	Side dimensioning	Front dimensioning	Side dimensioning
3C Wiring		3D Wiring	
Front dimensioning	Side dimensioning	Front dimensioning	Side dimensioning

Outline Drawing(mm)

3E Wiring		4A Wiring	
Front dimensioning	Side dimensioning	Front dimensioning	Side dimensioning
4B Wiring		4C Wiring	
Front dimensioning	Side dimensioning	Front dimensioning	Side dimensioning
4D Wiring		4E Wiring	
Front dimensioning	Side dimensioning	Front dimensioning	Side dimensioning

BY-OF

Accessory Type: BY-OF – Auxiliary Contacts

- Auxiliary contacts indicate product body status
- Meeting Standards : IEC 60947-5-1, GB/T 14048.5

Parameter

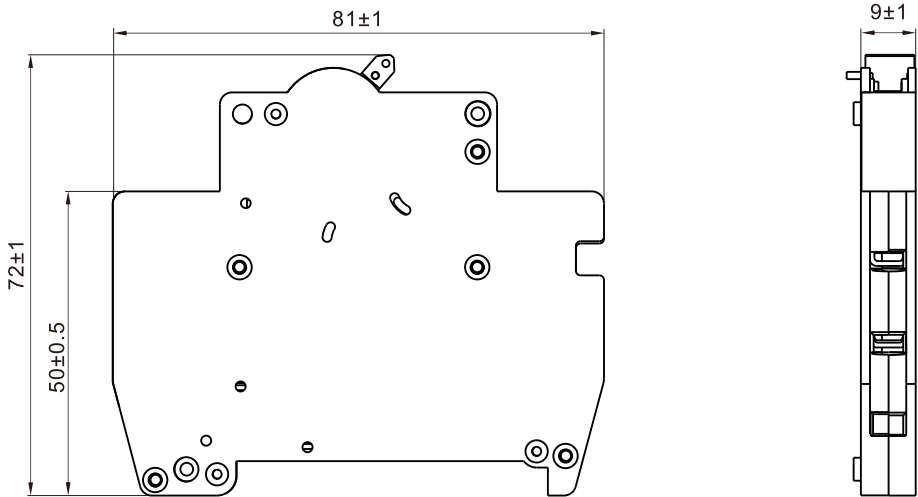


BY-OF Auxiliary switch electrical parameters		
Electric parameter	AC 12	Ie=3A Ue=415V
		Ie=6A Ue=240V
	DC 12	Ie=1A Ue=110V
		Ie=2A Ue=48V
		Ie=6A Ue=24V
Rated insulation voltage	Ui	500V
Rated impulse voltage	Uimp	2.5kV
Min.op.current per contact	I _{min}	100mA
Min.op.voltage per contact	U _{min}	11V DC
Rated Output Frequency		50/60Hz
Electrical life		4000
Mechanical Specifications		
Mechanical life		10000
Protection Class		IP20
Wiring capacity		1mm ² -2.5mm ²
Terminal tightening moment		0.5N·m-0.7N·m
Working temprature		-40°C~+80°C

Wiring Diagram

Product indication status	Auxiliary circuit diagram
OFF	
ON	

Dimensions(mm)



BY-MX

Accessory Type: **BY-MX** – **Shunt Release**

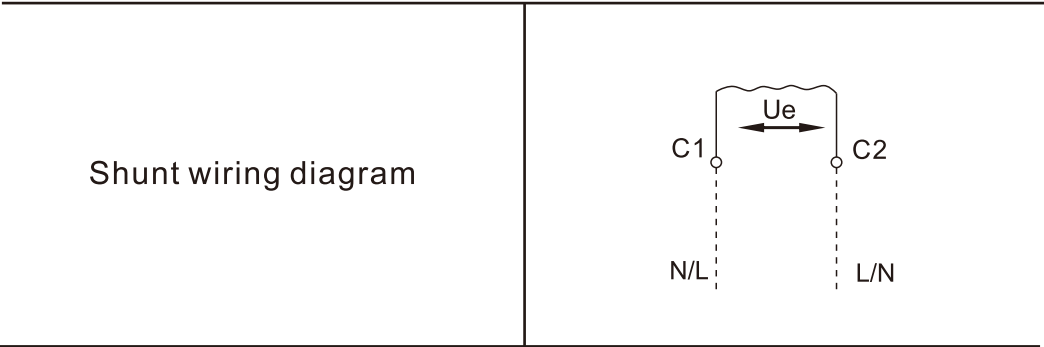
- Shunt release device can remotely release the product body
- Meeting Standards : GB/T 14048.1

Parameter

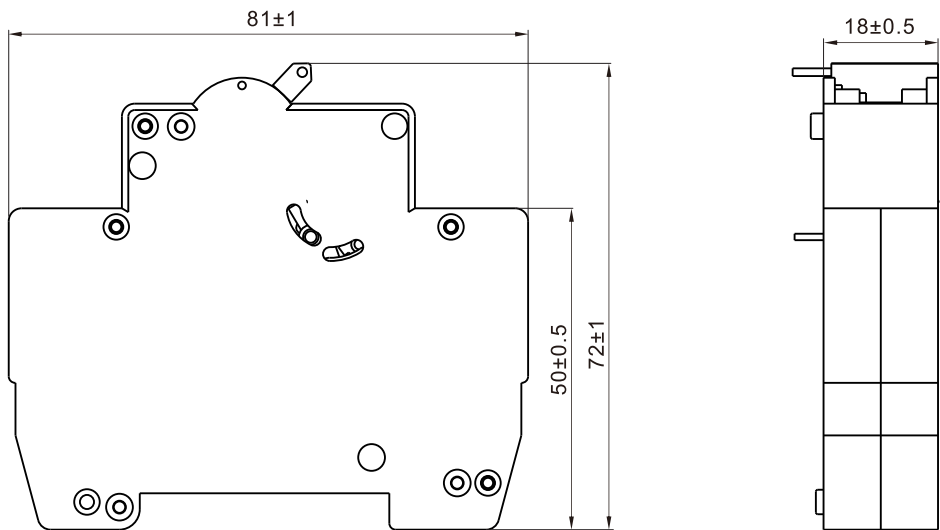


Electrical Parametes	
Rated op. voltage	Ue=DC 12/24V
Conduction time	< 1s
Rated Working Voltage	Ue70%-110%
Rated operating voltage pull-in power	80VA
Tripping Life	1000
Mechanical parameters	
Mechanical Life	10000
Degree of protection	IP20
Terminals capacity	1mm ² ~2.5mm ²
Fastening torque of terminals	0.8N·m~1N·m
Working temprature	-40~+80°C

Wiring Diagram



Dimensions(mm)



BY-MF

Accessory Type: BY-MF – Shunt aid

- Passive shunt aid integrated □ Auxiliary and shunt wires are separately distributed
- Meeting Standards : IEC 60947-5-1, GB/T 14048.5, GB/T 14048.1

Parameter

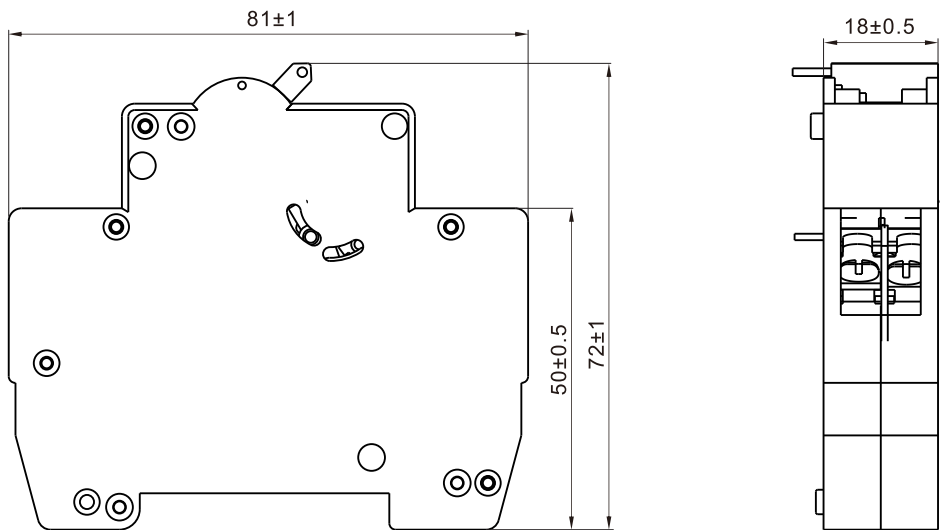


Electrical Parametes			
Auxiliary contact	Rated Working Voltage	AC	Ie=2 Ue=250V Ie=5 Ue=125V
		DC	Ie=5 Ue= 24V
	Rated insulation voltage	Ui	500V
	Rated impulse voltage	Uimp	2.5kV
	Min.op.current per contact	I _{min}	100mA
	Min.op.voltage per contact	U _{min}	11V DC
	Rated frequency		50/60Hz
	Electrical life		4000
Shunt trip	Rated Working Voltage		Ue=DC 12/24V
	Conduction time		< 1s
	Rated Voltage Range		Ue70%-110%
	Rated operating voltage pull-in power		80VA
	Tripping Life		1000
Mechanical parameters			
Mechanical Life			10000
Degree of protection			IP20
Terminals capacity			1mm ² -2.5mm ²
Fastening torque of terminals			0.8N·m-1N·m
Working temprature			-40~+80℃

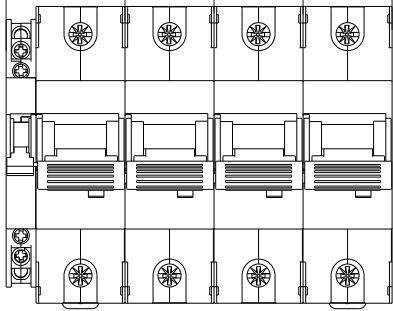
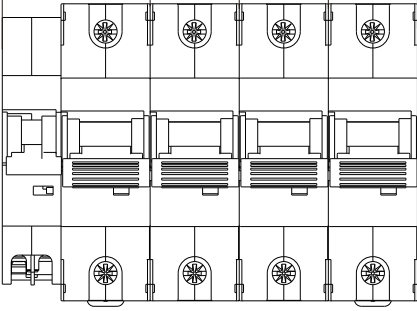
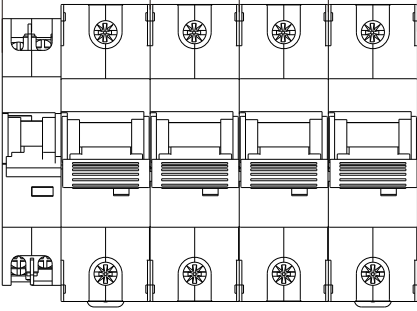
Wiring Diagram

Product indication status	Auxiliary circuit diagram	Shunt circuit diagram
OFF		
ON		

Dimensions(mm)



Product dimensions with accessories(mm)

Product dimensions with accessories	
Type	Dimensions drawing
BY-OF	4P+OF 3P+OF 2P+OF 1P+OF 117⁺¹₀ 90⁺¹₀ 63⁺¹₀ 36⁺¹₀ 
BY-MX	4P+MX 3P+MX 2P+MX 1P+MX 126⁺¹₀ 99⁺¹₀ 72⁺¹₀ 45⁺¹₀ 
BY-MF	4P+MF 3P+MF 2P+MF 1P+MF 126⁺¹₀ 99⁺¹₀ 72⁺¹₀ 45⁺¹₀ 

Precautions for Use

1 Safety Notice

Before installation, operation, running, maintenance, and inspection, please be sure to carefully read this specification and accurately install and use this product according to the content in the specification.

☐ **Danger**

- ☐ When installing, maintaining, and servicing the product, live operation is strictly prohibited;
- ☐ It is strictly prohibited to operate the product with wet hands;
- ☐ During use, touching live parts is strictly prohibited;
- ☐ It is strictly prohibited to test the product by short-circuiting the positive pole to ground or directly short-circuiting the positive and negative poles.

☐ **Attention**

- ☐ The product requires personnel with professional qualifications to perform wiring installation, maintenance, and upkeep;
- ☐ All features of the product have been set during factory production, and should not be disassembled, reassembled, or adjusted at will during use;
- ☐ If the product is damaged, makes abnormal noises, etc. upon unpacking, stop using it immediately and contact the supplier;
- ☐ To prevent phase-to-phase short circuits, insulation treatment should be carried out on bare conductors or copper busbars at the terminals;
- ☐ Circuit breakers cannot protect against personal electric shock and equipment leakage.

2 Environmental Protection

To protect the environment, when this product or its components are discarded, please dispose of them properly as industrial waste; or hand them over to a recycling station for classified disassembly, recycling, and reuse in accordance with relevant national regulations.

3 Warranty Period

When the product is stored and transported under normal conditions and the product packaging or the product itself is in good condition, the warranty period of the product shall be 60 months from the date of production.

The following situations are not covered by the warranty:

- ☐ Damage caused by improper use, storage, or maintenance by the user;
- ☐ Damage caused by non-company-assigned institutions or personnel, or self-disassembly, assembly, or repair;
- ☐ The product has exceeded the warranty period;
- ☐ Damage caused by force majeure factors.