

BB1-63

PV Miniature Circuit Breaker

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BB1-63 PV Miniature Circuit Breaker



- 1 Brand
- 2 Type
- 3 Rated Current
- 4 Rated Voltage
- 5 Breaking Capacity
- 6 Current Setting
- 7 Wiring Diagram
- 8 Indicator

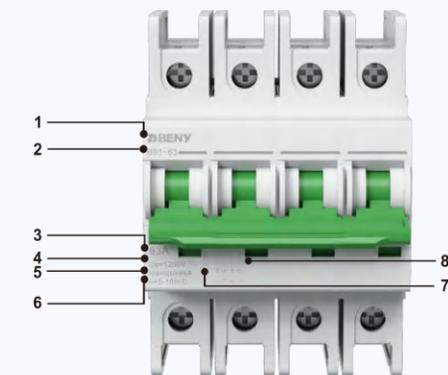
- Nonpolarity
- High short-circuit/breaking capacity
- Overload, Short circuit, Unfrequent operation and Anti-reflux protection
- Rated Voltage: 1200V DC
- Breaking Capacity: 6kA
- Body lengthening, Increase electrical clearance and creepage distance
- Rated Current: 63A
- Comply with: IEC60947-2/GB/T14048.2



Application

BENY BB1-63 series PV DC mini-circuit breaker is mainly used in PV power generation and distribution system, that is, photovoltaic bus box, inverter and other DC electrical equipment. Rated working voltage up to 1200V DC, rated working current up to 63A, scientific arc extinguishing and current limiting system, can quickly disconnect the DC distribution system fault current, and can achieve countercurrent protection, to ensure the reliable operation of photovoltaic power generation system.

Appearance Introduction



Type Instruction

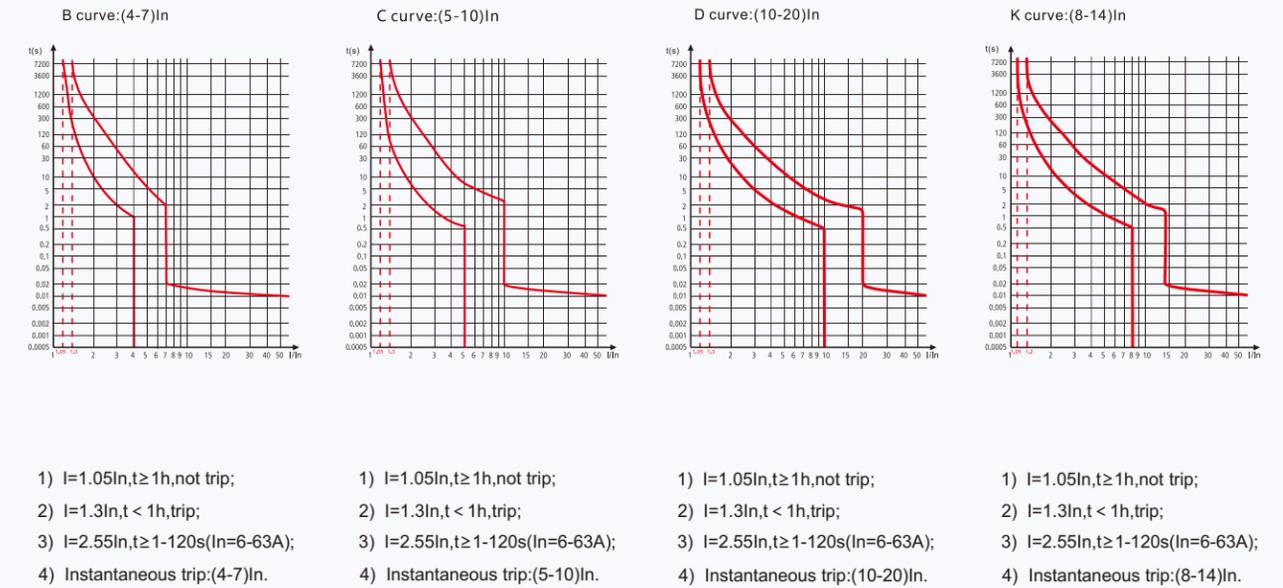
BB1	63	4P	63A	1200V	MF	4B
Product Code	Max Rated Current	Pole	Rated Current	Rated Voltage	Accessory	Wiring Method
PV Miniature Circuit Breaker	63A	1P 2P 3P 4P	6A, 10A, 13A 16A, 20A, 25A 32A, 40A, 50A 63A	300V 600V 900V 1200V	MX: Shunt Release OF: Auxiliary Contact MF: Shunt Release & Auxiliary Contact	customization

Parameter

Electrical Characteristics		BB1-63			
Type	BB1-63				
Comply With	IEC 60947-2 / GB/T 14048.2				
Pole	1P	2P	3P	4P	
Rated Working Voltage Ue	300V	600V	900V	1200V	
Max Rated Current	63A				
Rated Current In	6A, 10A, 13A, 16A, 20A, 25A, 32A, 40A, 50A, 63A				
Rated Insulated Voltage Ui	1200V DC				
Rated Impulsed Voltage Uimp	6kV				
Ultimate Breaking Capacity Icu	6kA				
Run Breaking Capacity Ics	6kA				
Tripping Type	Thermal Magnetic Type				
Service Life & Cycle Operation					
Mechanical	Actual Value	10000			
	Standard Value	9700			
Electrical	Actual Value	1000			
	Standard Value	300			
Installation Environment					
Ingress Protection	All Sides IP40, Connection Terminal IP20				
Terminal Cross Section	2.5-25mm ²				
Product wiring torque M5	2N·m-2.5N·m				
Working Temperature	-40°C~+80°C				
Storage Temperature	-40°C ~ +85°C				
Resistance to Humidity and Heat	II (Humidity 55°C, relative humidity 95%)				
Fixed installation	Fixed to the 35mm guide rail				

Wiring Diagram			
Type	Pole	Wiring Diagram	
	1P	1A	
		2A	
	2P	2B	
		2C	
		3A	
	3P	3B	
		3C	
		3D	
		4A	
	4P	4B	
		4C	
		4D	

Characteristic Curve



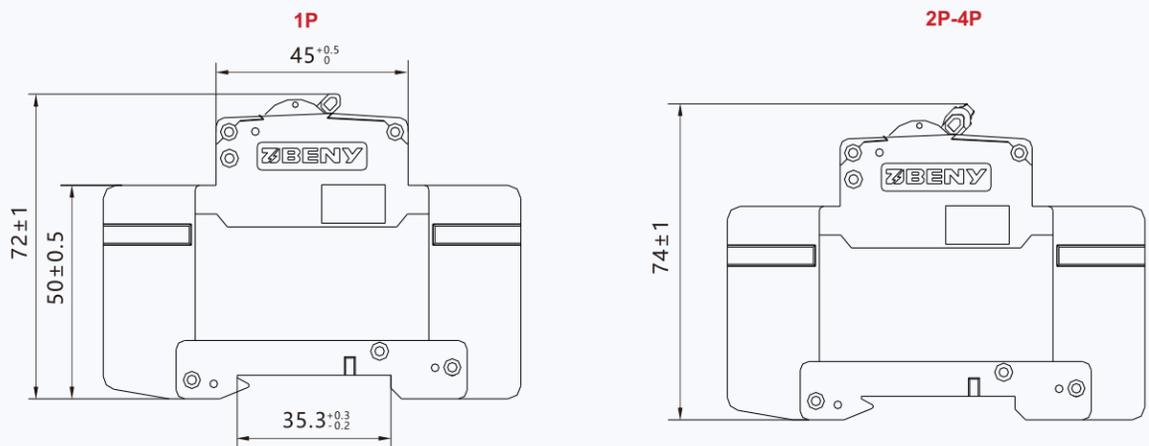
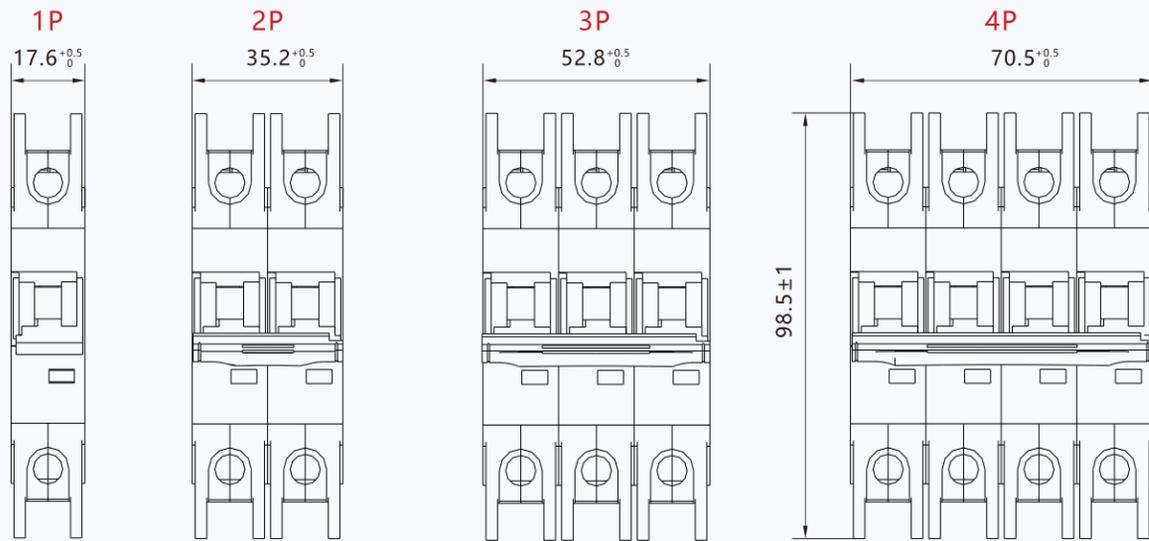
Derating Date

Derating Temperature					
Tem	-40°C-40°C	50°C	60°C	70°C	80°C
Proportion					
Type					
BB1-63	100%	95%	90%	85%	80%

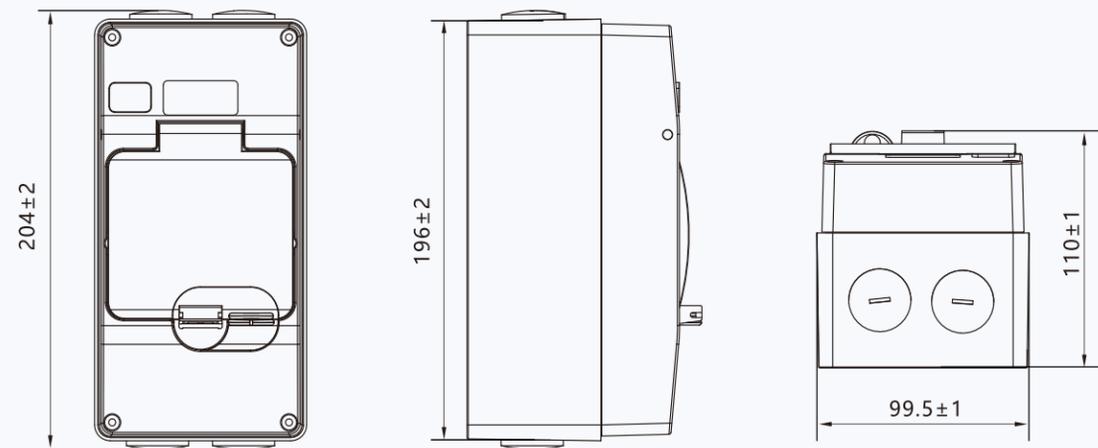
Altitude of Derating				
Altitude	2000m	3000m	4000m	5000m
Power frequency withstand voltage	100%	100%	100%	100%
Ui	100%	100%	100%	100%
In	100%	100%	90%	80%
Ue	N/A			

DC Circuit Breakers

Dimensions(mm)



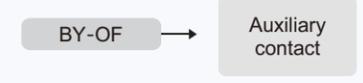
Dimensions with IP65 Waterproof Enclosure(mm)



BY-OF

The auxiliary contact needs to access the control loop and act synchronously with the circuit breaker. It can be used to indicate breaker opening and closing, and can be used to remotely monitor the current status of the circuit breaker. Auxiliary contact is only a switch, can only load small current, can not play a large current cut-off function, rated current can not be greater than 3A, so it can only be used for control loop.

Type Instruction



- Auxiliary contact synchronous with main contacts of device
- According IEC/EN 60947-5-1 GB/T14048.5

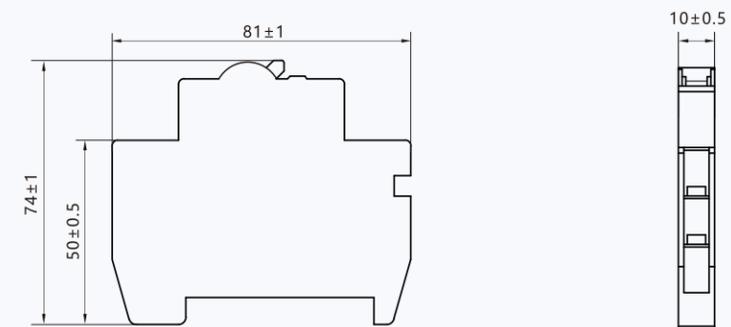
Electrical Parametes

Product parameters	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 Insulated Voltage U _i	500V	
Rated Impulsed Voltage U _{imp}	4kV	
Min.op.current per contact I _{min}	10mA	
Min.op.voltage per contact U _{min}	11V DC	
Rated frequency	50/60Hz	
Mechanical parameters		
Mounting	Fixed to the 35mm guide rail	
Degree of protection	IP20	
Terminals capacity	1mm ² -2.5mm ²	
Fastening torque of terminals	0.5N·m-0.7N·m	
Working temperture	-40~+80°C	

Wiring Method

Show	Wiring Diagram
OFF	
ON	

Dimensions(mm)



BY-MX

Shunt trip An accessory to a remotely operated mini-circuit breaker that reliably disconnects the breaker when the supply voltage is equal to any voltage between 75% and 110% of the rated voltage of the shunt trip. Shunt trip is a short-time operation, the coil energized time generally cannot exceed 1s, otherwise the coil will be burned out.

Type Instruction

- BY-MX → Shunt trip
- Shunt trip synchronous with main contacts of device
 - According GB/T 14048.1

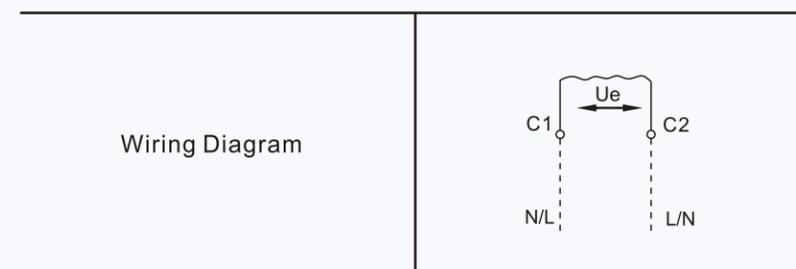
Electrical Parameters

Rated op. voltage	AC	Ue=110/415V
	DC	Ue=24/48V
Conduction time		< 1s
Min.op.voltage		Ue*70%
Max. op. voltage		Ue*110%
Working current		0.5A-5A
Operation frequency		6 times per minute
Rated frequency		50/60Hz

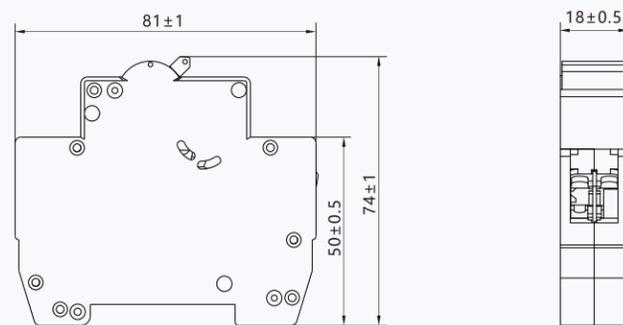
Mechanical parameters

Mounting	Fixed to the 35mm guide rail	
Degree of protection	IP20	
Terminals capacity	1mm ² ~2.5mm ²	
Fastening torque of terminals	0.8N. m-1N. m	
Working tempreture	-40~+80°C	

Wiring Method



Dimensions(mm)



BY-MF

The shunt auxiliary unit integrates the shunt tripping device and auxiliary contact, providing both shunt tripping device and auxiliary contact functions.

Type Instruction

- BY-MF → Shunt trip & Auxiliary contact
- Shunt assist one of the ports shared
 - According GB/T14048.1 GB/T14048.5 IEC60947-5-1

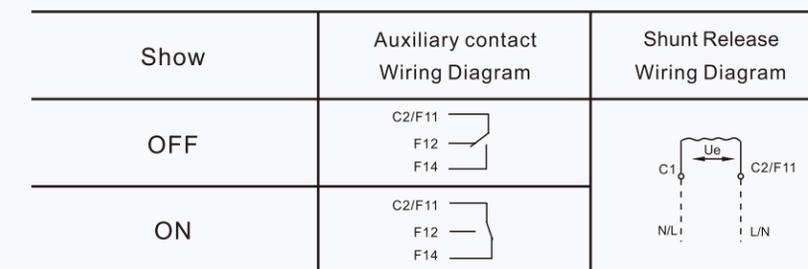
Electrical Parameters

Product parameters	Shunt trip	AC	Ue=110/415V
		DC	Ue=24/48V
Auxiliary contact	AC		Ie=3A Ue=415V
			Ie=6A Ue=240V
	DC		Ie=1A Ue=110V
			Ie=2A Ue=48V
Rated frequency			50/60Hz
Shunt trip parameters	Conduction time		< 1s
	Min.op.voltage		Ue*70%
	Max. op. voltage		Ue*110%
	Working current		0.5A-5A
	Operation frequency		6 times per minute

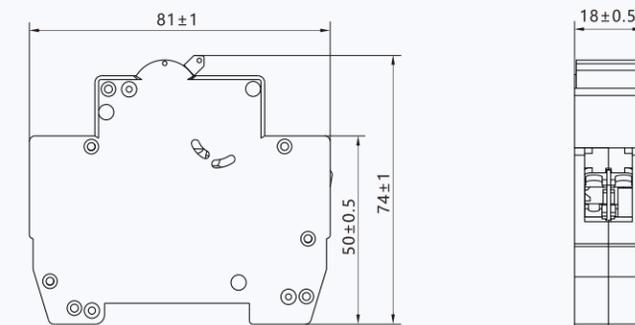
Mechanical parameters

Mounting	Fixed to the 35mm guide rail	
Degree of protection	IP20	
Terminals capacity	1mm ² -2.5mm ²	
Fastening torque of terminals	0.8N. m-1N. m	
Working tempreture	-40~+80°C	

Wiring Method



Dimensions(mm)



BY-MF

The shunt auxiliary unit integrates the shunt tripping device and auxiliary contact, providing both shunt tripping device and auxiliary contact functions.

Type Instruction

- BY-MF → Shunt trip & Auxiliary contact
- Shunt auxiliary independent port
 - According GB/T14048.1 GB/T14048.5 IEC60947-5-1

Electrical Parameters

Product parameters	Shunt trip	AC	Ue=110/415V
		DC	Ue=24/48V
	Auxiliary contact	AC	Ie=3A Ue=415V
			Ie=6A Ue=240V
		DC	Ie=1A Ue=110V
			Ie=2A Ue=48V
Rated frequency		50/60Hz	
Shunt trip parameters	Conduction time	< 1s	
	Min.op.voltage	Ue*70%	
	Max. op. voltage	Ue*110%	
	Working current	0.5A-5A	
	Operation frequency	6 times per minute	

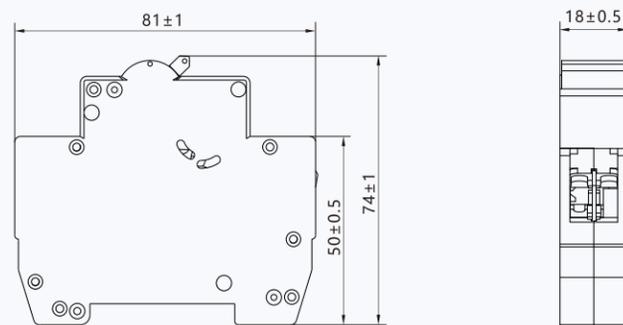
Mechanical parameters

Mounting	Fixed to the 35mm guide rail
Degree of protection	IP20
Terminals capacity	1mm ² -2.5mm ²
Fastening torque of terminals	0.8N.m-1N.m
Working temperature	-40~+80°C

Wiring Method

Show	Auxiliary contact Wiring Diagram	Shunt Release Wiring Diagram
OFF		
ON		

Dimensions(mm)



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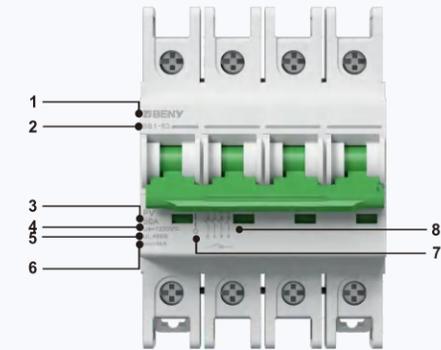
- Nonpolarity
- High short-circuit/breaking capacity
- Overload, Short circuit, Unfrequent operation and Anti-reflux protection
- Rated Voltage: 1200V DC
- Breaking Capacity: 5kA
- Body lengthening, Increase electrical clearance and creepage distance
- Rated Current: 50A
- Comply with: UL489B



Application

ZBENY BB1-63 PV Miniature Circuit Breaker are designed for solar DC strings protection according to UL489B standard. Offer overload protection, anti-reflux function and short-circuit protection to solar PV systems, UPS and BESS. The new design brings safety and durable working life.

Appearance Introduction



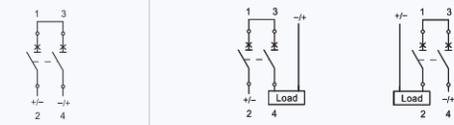
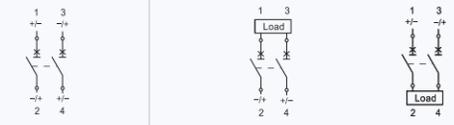
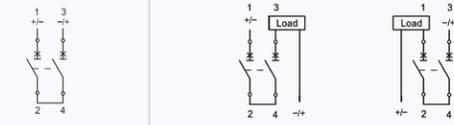
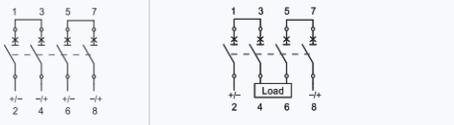
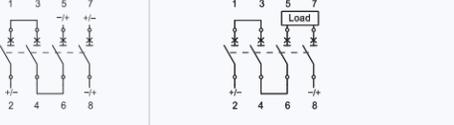
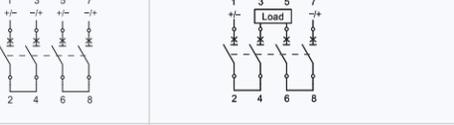
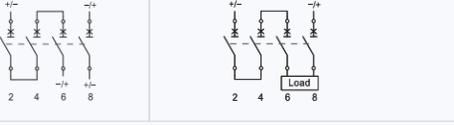
Type Instruction

BB1	63	4P	50A	1200V	MF	4B
Product Code	Max Rated Current	Pole	Rated Current	Rated Voltage	Accessory	Wiring Method
PV Miniature Circuit Breaker	50A	1P 2P 3P 4P	6A, 10A, 13A 16A, 20A, 25A 32A, 40A, 50A	600V 1200V	MX:Shunt Release OF:Auxiliary Contact MF:Shunt Release& Auxiliary Contact	customization

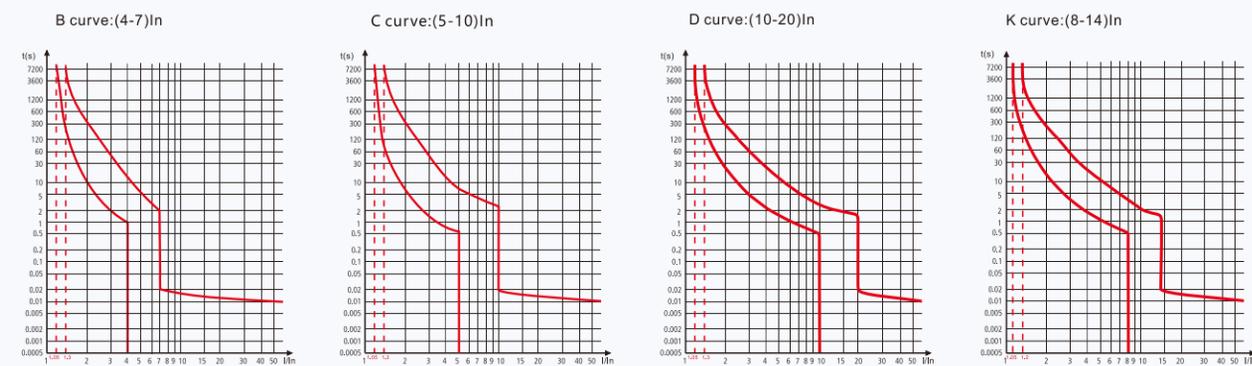
Parameter

Electrical Characteristics		
Type	BB1-63	
Comply with	UL 489B	
Pole	2P 4P	
Rated Working Voltage	Ue 600V 1200V	
Max Rated Current	Ith 50A	
Rated Current	In 6A, 10A, 13A, 16A, 20A, 25A, 32A, 40A, 50A	
Rated Insulated Voltage	Ui 1200V DC	
Rated Impulsed Voltage	Uimp 6kV	
Ultimate Breaking Capacity	Icu 5kA	
Run Breaking Capacity	Ics 5kA	
Tripping Type	Thermal Magnetic Type	
Service Life&Cycle Operation		
Mechanical	Actual Value	1000
	Standard Value	1000
Electrical	Actual Value	1000
	Standard Value	1000
Installation Environment		
Ingress Protection	All Sides IP40, Connection Terminal IP20	
Terminal Cross Section	AWG14-4mm ²	
Working Temperature	-40°C~+80°C	
Storage Temperature	-40°C~+85°C	
Resistance to Humidity and Heat	II (Humidity 55%, relative humidity 95%)	
Fixed installation	Fixed to the 35mm guide rail	

Wiring Diagram

Type	Pole	Wiring Diagram
	2P	2A 
		2B 
		2C 
	4P	4A 
		4B 
		4C 
		4D 

Characteristic Curve

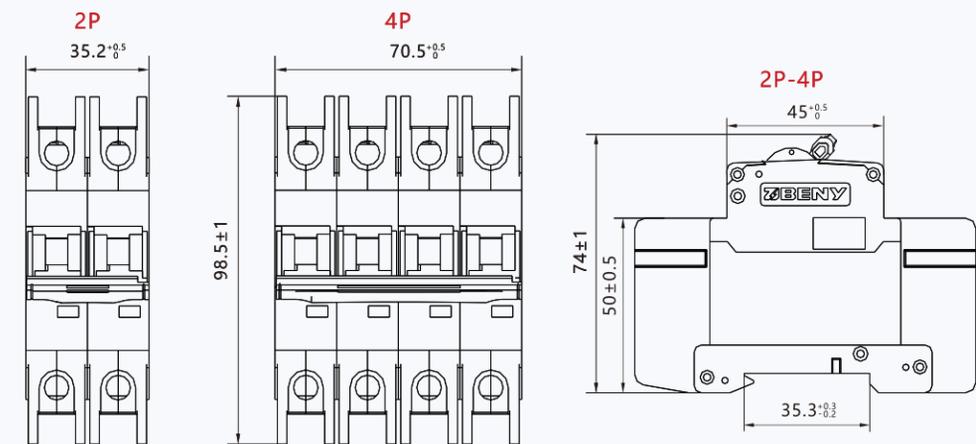


- | | | | |
|---|---|---|---|
| <p>B curve:(4-7)In</p> <ol style="list-style-type: none"> 1) $I=1.0I_n, t \geq 1h, \text{not trip}$; 2) $I=1.35I_n, t < 1h, \text{trip}$; 3) $I=2.55I_n, t \geq 1-120s (I_n=6-63A)$; 4) Instantaneous trip: (4-7)In. | <p>C curve:(5-10)In</p> <ol style="list-style-type: none"> 1) $I=1.0I_n, t \geq 1h, \text{not trip}$; 2) $I=1.35I_n, t < 1h, \text{trip}$; 3) $I=2.55I_n, t \geq 1-120s (I_n=6-63A)$; 4) Instantaneous trip: (5-10)In. | <p>D curve:(10-20)In</p> <ol style="list-style-type: none"> 1) $I=1.0I_n, t \geq 1h, \text{not trip}$; 2) $I=1.35I_n, t < 1h, \text{trip}$; 3) $I=2.55I_n, t \geq 1-120s (I_n=6-63A)$; 4) Instantaneous trip: (10-20)In. | <p>K curve:(8-14)In</p> <ol style="list-style-type: none"> 1) $I=1.0I_n, t \geq 1h, \text{not trip}$; 2) $I=1.35I_n, t < 1h, \text{trip}$; 3) $I=2.55I_n, t \geq 1-120s (I_n=6-63A)$; 4) Instantaneous trip: (8-14)In. |
|---|---|---|---|

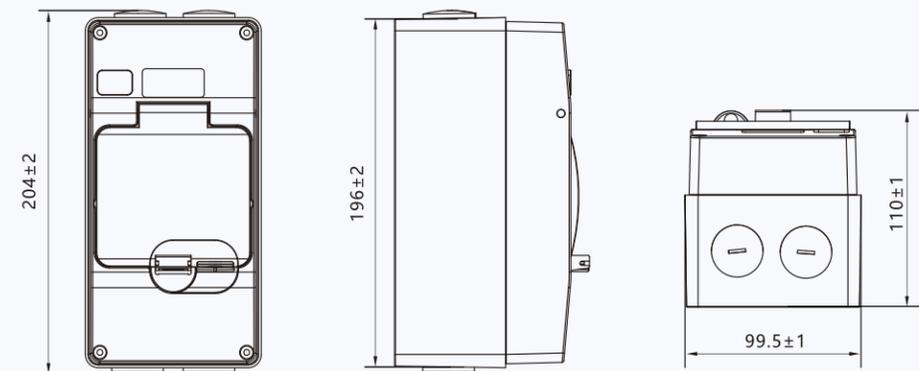
Derating Date

		Derating Temperature				
Type	Tem	-40°C-40°C	50°C	60°C	70°C	80°C
	BB1-63	Proportion	100%	95%	90%	85%
		Altitude of 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				

Dimensions(mm)



Dimensions with IP65 Waterproof Enclosure(mm)



BY-OF

The auxiliary contact needs to access the control loop and act synchronously with the circuit breaker. It can be used to indicate breaker opening and closing, and can be used to remotely monitor the current status of the circuit breaker. Auxiliary contact is only a switch, can only load small current, can not play a large current cut-off function, rated current can not be greater than 3A, so it can only be used for control loop.

Type Instruction



- Auxiliary contact synchronous with main contacts of device
- According IEC/EN 60947-5-1 GB/T14048.5

Electrical Parametes

Product parameters	AC 12	le=3A Ue=415V
		le=6A Ue=240V
	DC 12	le=1A Ue=110V
		le=2A Ue=48V
		le=6A Ue=24V
Rated Insulated Voltage	U _i	500V
Rated Impulsed Voltage	U _{imp}	4kV
Min.op.current per contact	I _{min}	10mA
Min.op.voltage per contact	U _{min}	11V DC
Rated frequency		50/60Hz

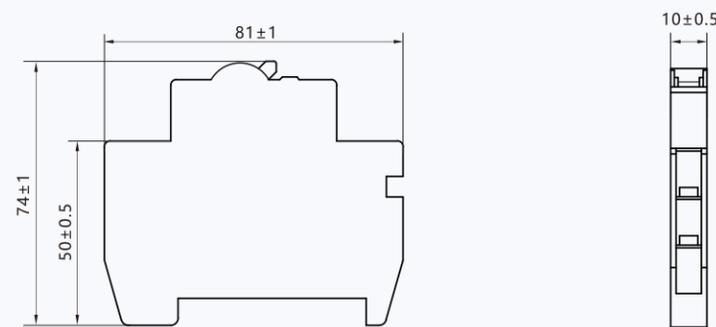
Mechanical parameters

Mounting	Fixed to the 35mm guide rail	
Degree of protection	IP20	
Terminals capacity	1mm ² -2.5mm ²	
Fastening torque of terminals	0.5N·m-0.7N·m	
Working temperture	-40~+80°C	

Wiring Method

Show	Wiring Diagram
OFF	
ON	

Dimensions(mm)



BY-MX

Shunt trip An accessory to a remotely operated mini-circuit breaker that reliably disconnects the breaker when the supply voltage is equal to any voltage between 75% and 110% of the rated voltage of the shunt trip. Shunt trip is a short-time operation, the coil energized time generally cannot exceed 1s, otherwise the coil will be burned out.

Type Instruction



- Shunt trip synchronous with main contacts of device
- According GB/T 14048.1

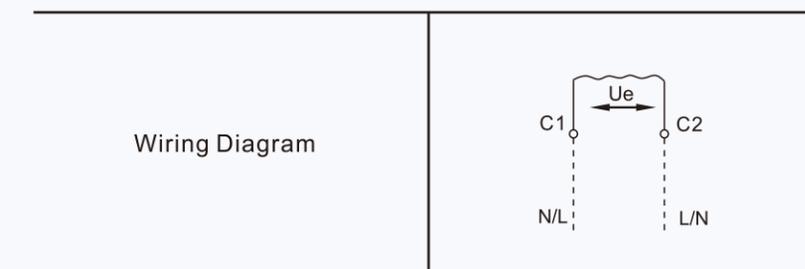
Electrical Parametes

Rated op. voltage	AC	Ue=110/415V
	DC	Ue=24/48V
Conduction time	< 1s	
Min.op.voltage	Ue*70%	
Max. op. voltage	Ue*110%	
Working current	0.5A-5A	
Operation frequency	6 times per minute	
Rated frequency	50/60Hz	

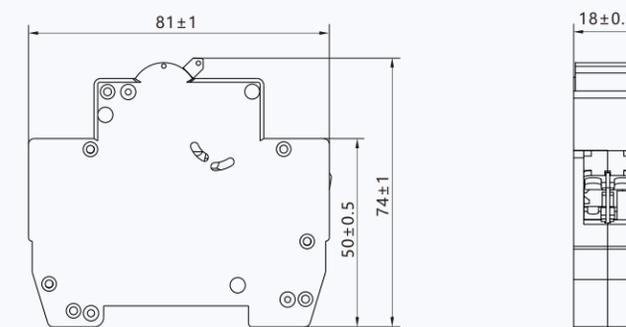
Mechanical parameters

Mounting	Fixed to the 35mm guide rail	
Degree of protection	IP20	
Terminals capacity	1mm ² ~2.5mm ²	
Fastening torque of terminals	0.8N·m-1N·m	
Working temperture	-40~+80°C	

Wiring Method



Dimensions(mm)



BY-MF

The shunt auxiliary unit integrates the shunt tripping device and auxiliary contact, providing both shunt tripping device and auxiliary contact functions.

Type Instruction



- Shunt assist one of the ports shared
- According GB/T14048.1 GB/T14048.5 IEC60947-5-1

Electrical Parameters

Product parameters	Shunt trip	AC	Ue=110/415V Ue=24/48V	
		DC	Ue=24/48V	
	Auxiliary contact	AC	Ie=3A Ue=415V Ie=6A Ue=240V	
			DC	Ie=1A Ue=110V Ie=2A Ue=48V Ie=6A Ue=24V
		Rated frequency		50/60Hz
		Shunt trip parameters	Conduction time	
Min. op. voltage			Ue*70%	
Max. op. voltage			Ue*110%	
Working current			0.5A-5A	
Operation frequency			6 times per minute	

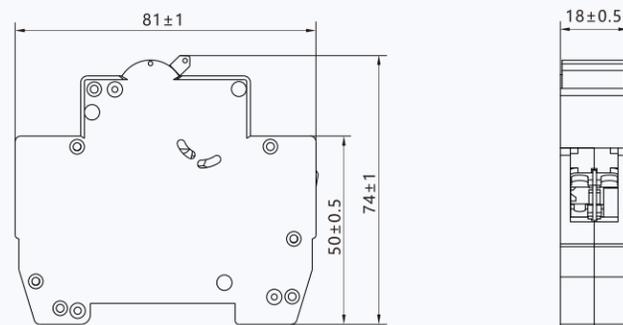
Mechanical parameters

Mounting	Fixed to the 35mm guide rail
Degree of protection	IP20
Terminals capacity	1mm ² -2.5mm ²
Fastening torque of terminals	0.8N. m-1N. m
Working temperature	-40~+80°C

Wiring Method

Show	Auxiliary contact Wiring Diagram	Shunt Release Wiring Diagram
OFF		
ON		

Dimensions(mm)



BY-MF

The shunt auxiliary unit integrates the shunt tripping device and auxiliary contact, providing both shunt tripping device and auxiliary contact functions.

Type Instruction



- Shunt auxiliary independent port
- According GB/T14048.1 GB/T14048.5 IEC60947-5-1

Electrical Parameters

Product parameters	Shunt trip	AC	Ue=110/415V Ue=24/48V	
		DC	Ue=24/48V	
	Auxiliary contact	AC	Ie=3A Ue=415V Ie=6A Ue=240V	
			DC	Ie=1A Ue=110V Ie=2A Ue=48V Ie=6A Ue=24V
		Rated frequency		50/60Hz
		Shunt trip parameters	Conduction time	
Min. op. voltage			Ue*70%	
Max. op. voltage			Ue*110%	
Working current			0.5A-5A	
Operation frequency			6 times per minute	

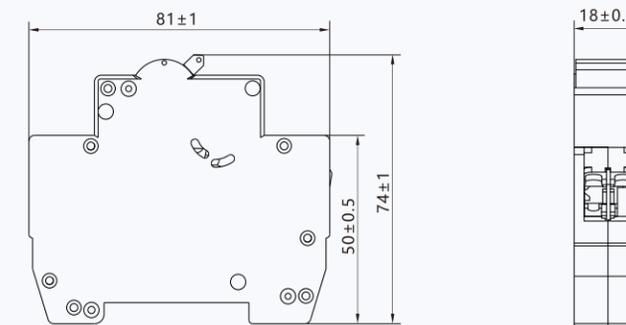
Mechanical parameters

Mounting	Fixed to the 35mm guide rail
Degree of protection	IP20
Terminals capacity	1mm ² -2.5mm ²
Fastening torque of terminals	0.8N. m-1N. m
Working temperature	-40~+80°C

Wiring Method

Show	Auxiliary contact Wiring Diagram	Shunt Release Wiring Diagram
OFF		
ON		

Dimensions(mm)

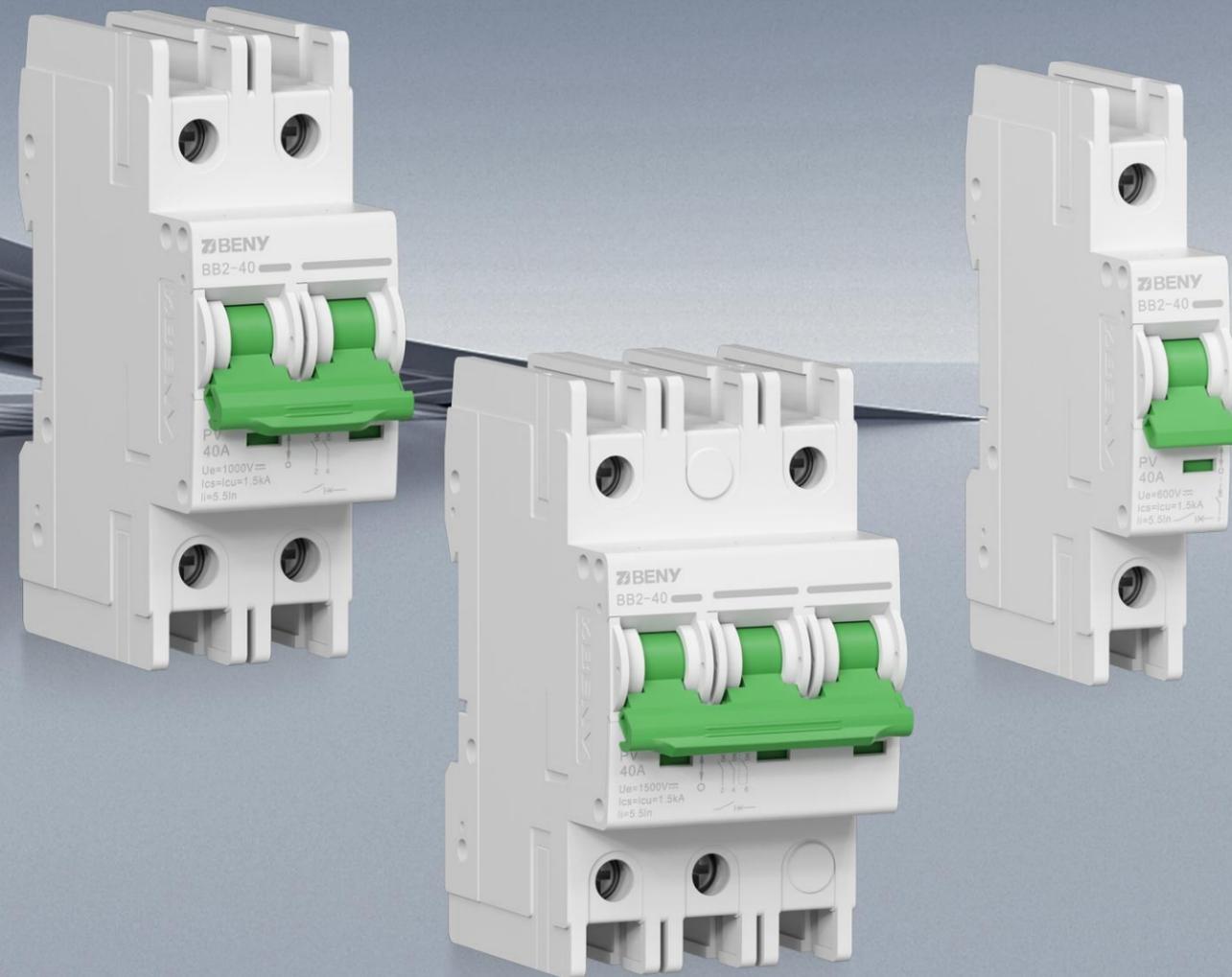


BB2-40

PV DC Circuit Breaker

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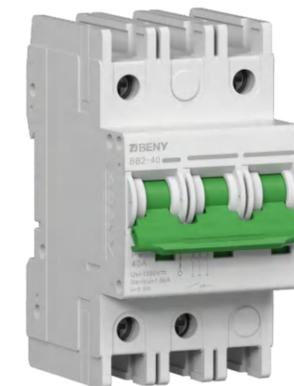
BB2-40 PV DC Circuit Breaker



AS/NZS 60947.2
IEC/EN 60947-2
GB/T 14048.2

- 1 Brand
- 2 Type
- 3 Rated Current
- 4 Rated Voltage
- 5 Standard Code
- 6 Ultimate Breaking Capacity
- 7 Indicator
- 8 Wiring Diagram

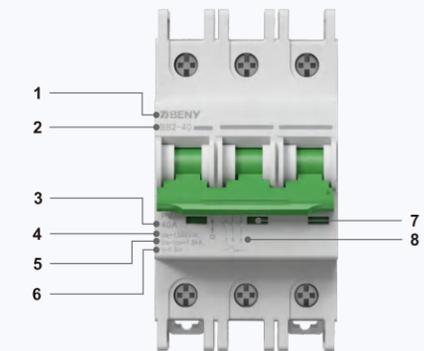
- Nonpolarity
- High Short-Circuit / Breaking Capacity
- Functions: Overload, Short Circuit, Unfrequent Operation and, Anti-reflux Protection
- Rated Voltage: 1500V, Ultimate
- Breaking Capacity : 1.5KA
- Rated Current: 40A
- Comply with: IEC60947-2 / GB/T 14048.2



Application

BENY BB2-40 Series PV DC Circuit Breakers are mainly used in photovoltaic power generation and distribution systems, such as small circuit photovoltaic combiner box, DC controller and other electrical equipment. The max rated working voltage is up to DC1500V, 2 poles up to DC1000V, and the max rated working current is up to 40A. It has a scientific arc extinguishing and current limiting system, which can quickly disconnect the fault current at the DC side of the photovoltaic system, and realize reverse current protection, providing sufficient guarantee for the safe operation of the DC side of the photovoltaic system.

Appearance Introduction

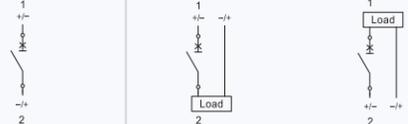
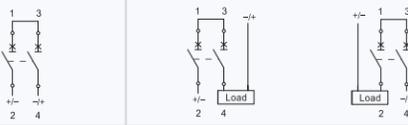
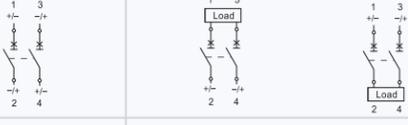
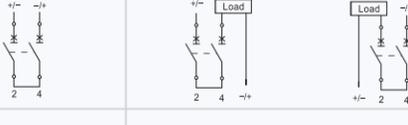
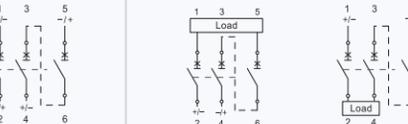
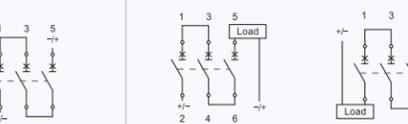
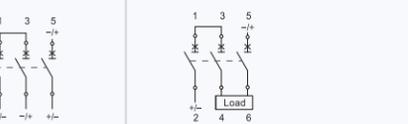
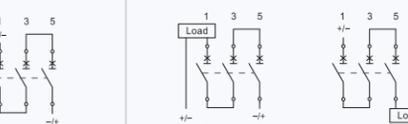
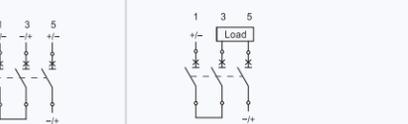


Type Instruction

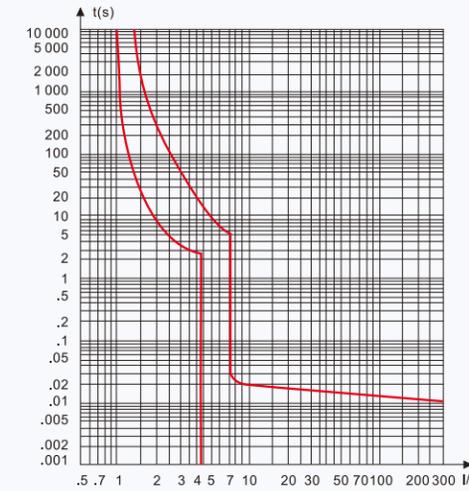
BB2	40	3P	40A	1500V	MX	3D
↓	↓	↓	↓	↓	↓	↓
Product Code	Max Rated Current	Pole	Rated Current	Rated Voltage	Accessory	Wiring Method
PV DC Circuit Breaker	40A	1P 2P 3P	6A, 10A, 13A 16A, 20A, 25A 32A, 40A	600V 1000V 1500V	MX: Shunt Release OF: Auxiliary Contact MF: Shunt Release & Auxiliary Contact	customization

Parameter

Electrical Characteristics		BB2-40		
Type	BB2-40			
Comply with	AS/NZS 60947.2/IEC/EN 60947-2/GB/T 14048.2			
Pole	1P	2P	3P	
Rated Working Voltage	Ue	600V DC	1000V DC	1500V DC
Max Rated Current	40A			
Rated Current	In	6A, 10A, 13A, 16A, 20A, 25A, 32A, 40A		
Rated Insulated Voltage	Ui	1500V DC		
Rated Impulsed Voltage	Uimp	8kV		
Ultimate Breaking Capacity	Icu	1.5kA		
Run Breaking Capacity	Ics	1.5kA		
Tripping Type	Thermal Magnetic Type			
Service Life/cycle Operation				
Mechanical		10000		
Electrical	Actual Value	1000		
	Standard Value	300		
Installation Environment				
Ingress Protection		All Sides IP40 , Connection Terminal IP20		
Terminal Cross Section		2.5-25mm ²		
Product wiring torque M5		2N·m-2.5N·m		
Working Temperature		-40°C ~ +80°C		
Storage Temperature		-40°C ~ +85°C		
Resistance to Humidity And Heat		II (when Humidity arrived to 55°C, Relative Humidity 95%)		
Resistance to Shock		2.6 IEC60068		
Resistance to Impact		2.27 IEC60068		

Wiring Method			
Type	Pole	Contacts Wiring graph	
	1P	1A	
	2P	2A	
		2B	
		2C	
	3P	3A	
		3B	
		3C	
		3D	
		3E	

Characteristic Curve



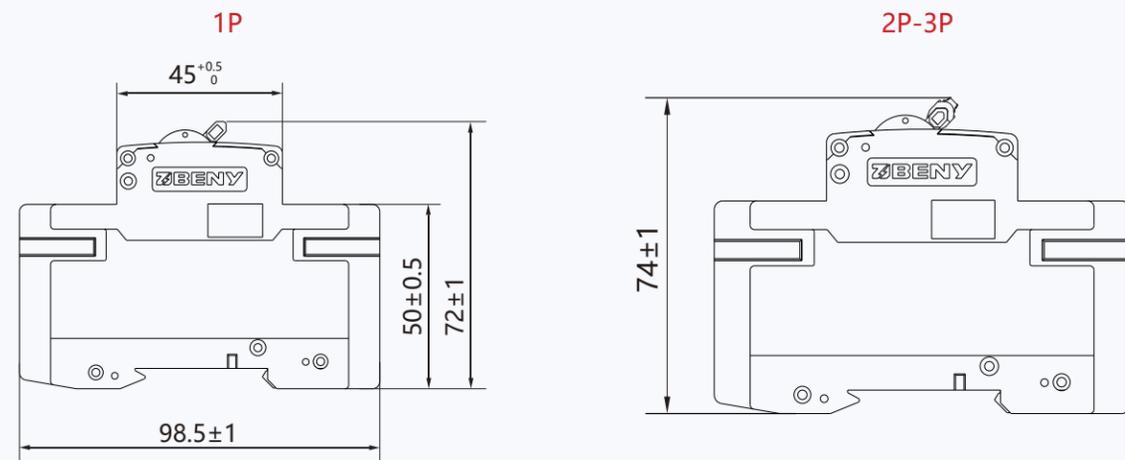
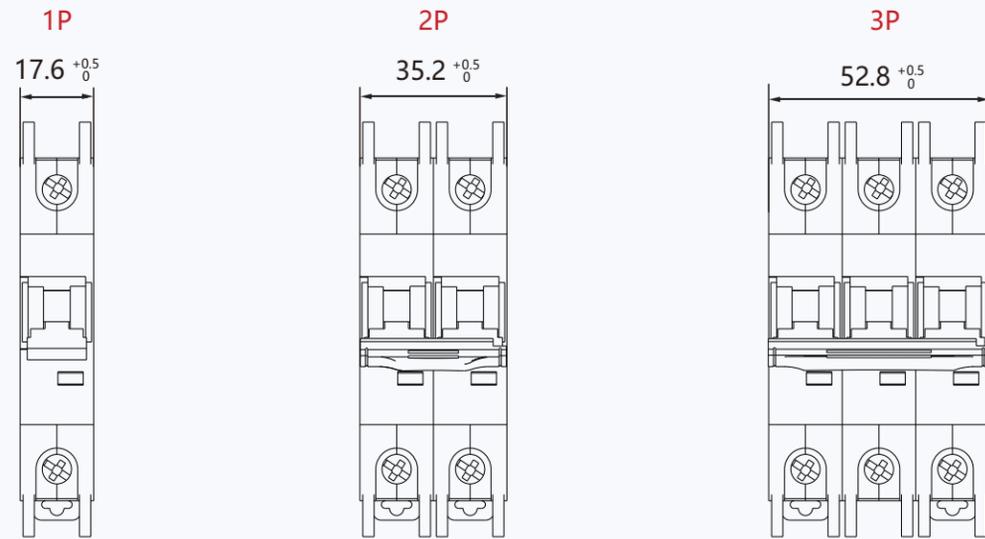
- 1) $I=1.05I_n, t \geq 1h$, not trip;
- 2) $I=1.3I_n, t < 1h$, trip;
- 3) $I=2.55I_n, t \geq 1-120s (I_n=6-40A)$;
- 4) Instantaneous trip: $(4.4-6.6)I_n$.

Derating Date

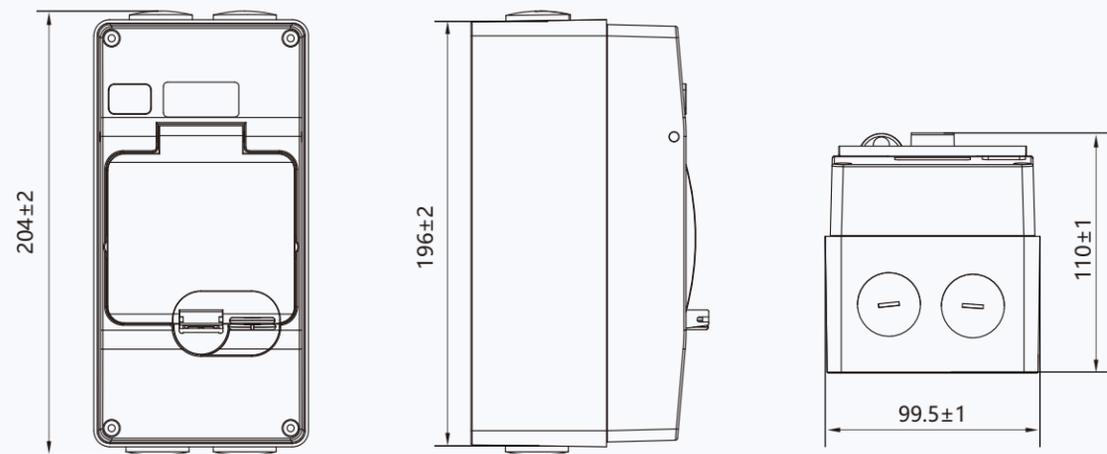
Derating Temperature					
Tem	-40°C-40°C	50°C	60°C	70°C	80°C
Proportion					
Type					
BB2-40	100%	95%	90%	85%	80%

Altitude of Derating				
Altitude	2000m	3000m	4000m	5000m
Power frequency withstand voltage	100%	100%	100%	100%
Ui	100%	100%	100%	100%
In	100%	95%	90%	80%
Ue	N/A			

Dimensions(mm)



Dimensions with IP65 Waterproof Enclosure(mm)



BY-OF

The auxiliary contact needs to access the control loop and act synchronously with the circuit breaker. It can be used to indicate breaker opening and closing, and can be used to remotely monitor the current status of the circuit breaker. Auxiliary contact is only a switch, can only load small current, can not play a large current cut-off function, rated current can not be greater than 3A, so it can only be used for control loop.

Type Instruction



- Auxiliary contact synchronous with main contacts of device
- According IEC/EN 60947-5-1 GB/T14048.5

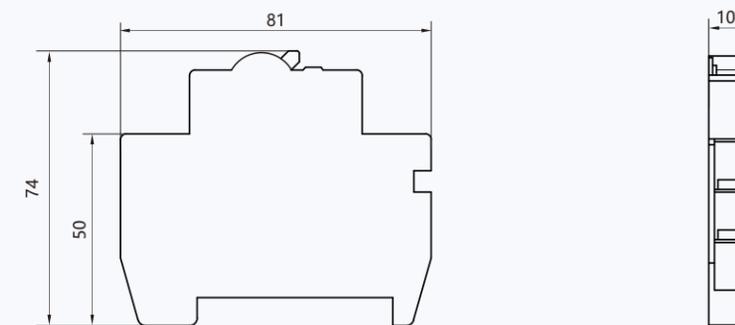
Electrical Parametes

Product parameters	AC 12	le=3A Ue=415V
		le=6A Ue=240V
	DC 12	le=1A Ue=110V
		le=2A Ue=48V le=6A Ue=24V
Rated Insulated Voltage U _i	500V	
Rated Impulsed Voltage U _{imp}	4kV	
Min.op.current per contact I _{min}	10mA	
Min.op.voltage per contact U _{min}	11V DC	
Rated frequency	50/60Hz	
Mechanical parameters		
Mounting	Fixed to the 35mm guide rail	
Degree of protection	IP20	
Terminals capacity	1mm ² -2.5mm ²	
Fastening torque of terminals	0.5N·m-0.7N·m	
Working tempreture	-40~+80°C	

Wiring Method

Show	Wiring Diagram
OFF	
ON	

Dimensions(mm)



BY-MX

Shunt trip An accessory to a remotely operated mini-circuit breaker that reliably disconnects the breaker when the supply voltage is equal to any voltage between 75% and 110% of the rated voltage of the shunt trip. Shunt trip is a short-time operation, the coil energized time generally cannot exceed 1s, otherwise the coil will be burned out.

Type Instruction



- Shunt trip synchronous with main contacts of device
- According GB/T 14048.1

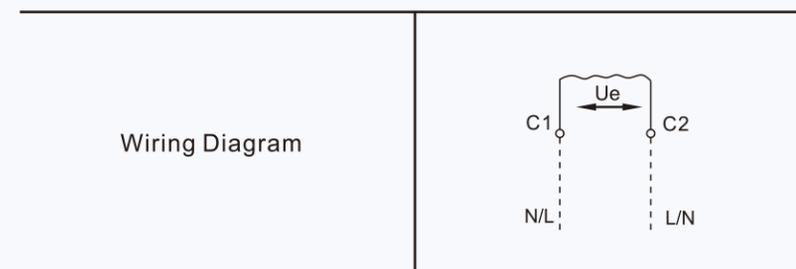
Electrical Parameters

Rated op. voltage	AC	Ue=110/415V Ue=24/48V
	DC	Ue=24/48V
Conduction time		< 1s
Min.op.voltage		Ue*70%
Max. op. voltage		Ue*110%
Working current		0.5A-5A
Operation frequency		6 times per minute
Rated frequency		50/60Hz

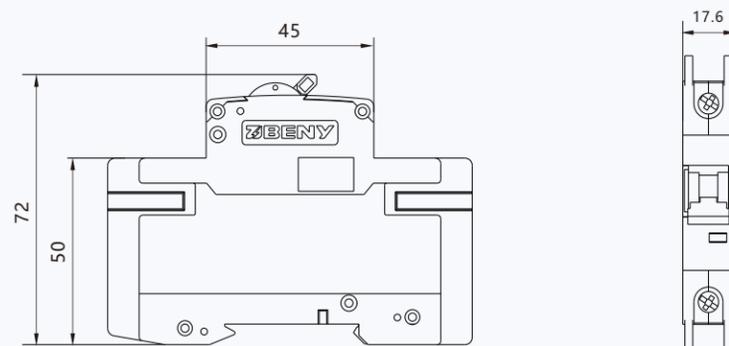
Mechanical parameters

Mounting	Fixed to the 35mm guide rail	
Degree of protection	IP20	
Terminals capacity	1mm ² ~2.5mm ²	
Fastening torque of terminals	2N·m-2.5N·m	
Working temperture	-40~+80°C	

Wiring Method



Dimensions(mm)



BY-MF

The shunt auxiliary unit integrates the shunt tripping device and auxiliary contact, providing both shunt tripping device and auxiliary contact functions.

Type Instruction



- Shunt assist one of the ports shared
- According GB/T14048.1 GB/T14048.5 IEC60947-5-1

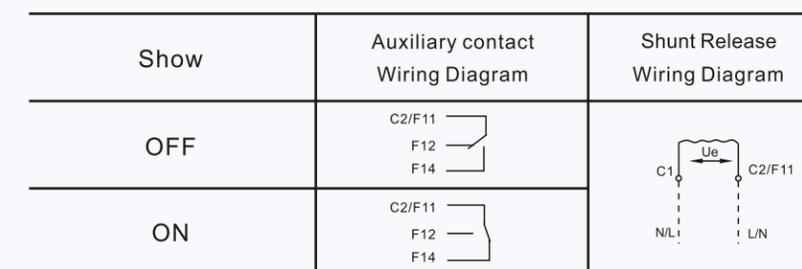
Electrical Parameters

Product parameters	Shunt trip	AC	Ue=110/415V Ue=24/48V
		DC	Ue=24/48V
Auxiliary contact	AC		Ie=3A Ue=415V Ie=6A Ue=240V
		DC	Ie=1A Ue=110V Ie=2A Ue=48V Ie=6A Ue=24V
	Rated frequency		50/60Hz
	Shunt trip parameters		Conduction time
		Min.op.voltage	Ue*70%
		Max. op. voltage	Ue*110%
		Working current	0.5A-5A
		Operation frequency	6 times per minute

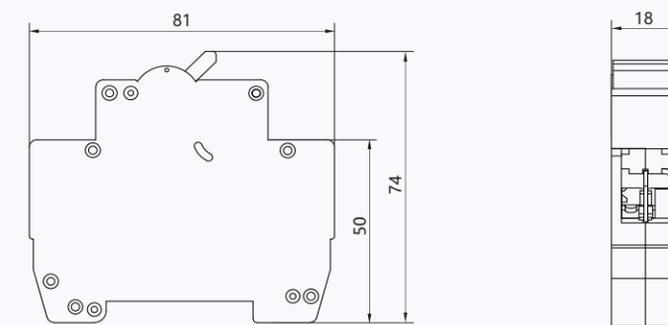
Mechanical parameters

Mounting	Fixed to the 35mm guide rail	
Degree of protection	IP20	
Terminals capacity	1mm ² -2.5mm ²	
Fastening torque of terminals	0.5N·m-0.7N·m	
Working temperture	-40~+80°C	

Wiring Method



Dimensions(mm)



Series PV DC Moulded Case Circuit Breaker

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BD-125 PV DC Moulded Case Circuit Breaker



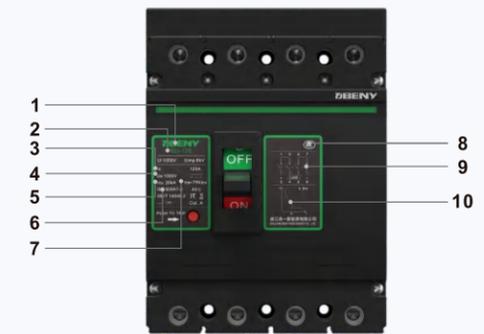
- 1 Brand
- 2 Type
- 3 Rated Current
- 4 Rated Voltage
- 5 Ultimate Breaking Capacity
- 6 Standard Code
- 7 Run Breaking Capacity
- 8 Certification Mark
- 9 Wiring Diagram
- 10 Breaking curve

- Easy installation
- Convenient installation with high segmentation and good insulation performance
- Overload protection, short circuit protection, non frequency operation
- Rated Voltage:DC 1000V
- Rated Current:125A
- Comply with:IEC60947-2, GB/T14048.2

Application

ZBENY BD-125 series PV DC Moulded Case Circuit Breakers are mainly used in large-scale photovoltaic power generation systems . Including photovoltaic junction box, photovoltaic inverter, photovoltaic DC cabinet, etc. Rated Voltage DC 1000V, Rated Current up to 125A, The fault current of the DC power distribution system can be quickly disconnected to ensure the reliable peration of the solar photovoltaic power generation system.

Appearance Introduction



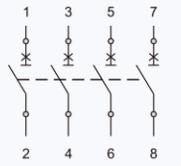
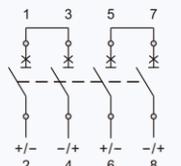
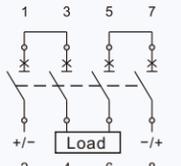
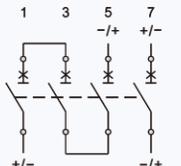
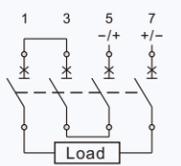
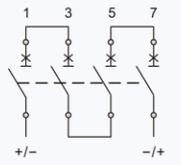
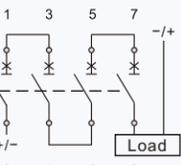
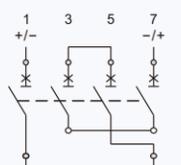
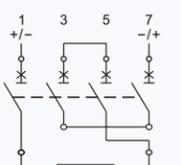
Type Instruction

BD	125	4P	125A	DC1000V	4B /	M
Product Code	Max Rated Current	Pole	Rated Current	Rated Voltage	Wiring Method	Optional attachments
PV DC Moulded Case Circuit Breaker	125A	4P	63A, 80A, 100A, 125A	DC1000V	4A4B, 4C4D, 4S	F:Auxiliary Contact, M:Shunt Release, L:Lock for handle

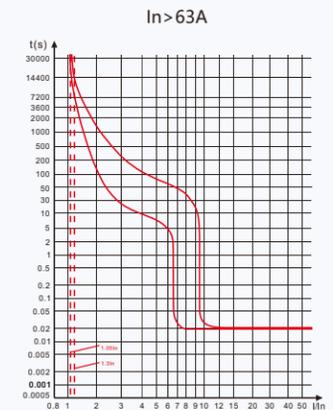
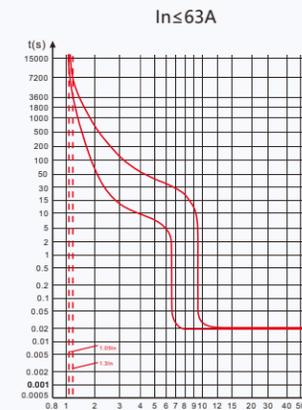
Parameter

Electrical Characteristics			
Type	BD-125		
Comply With	IEC 60947-2 /GB/T 14048.2		
Pole	4P		
Rated Working Voltage	Ue	DC 1000V	
Max Rated Current	Ith	125A	
Rated Current	In	63A,80A,100A,125A	
Rated Insulated Voltage	Ui	DC 1000V	
Rated Impulsed Voltage	Uimp	8kV	
Ultimate Breaking Capacity	Icu	20kA	
Run Breaking Capacity	Ics	15kA	
Service Life&Cycle Operation			
Mechanical	Actual Value	10000	
	Standard Value	In≤100	9700
		100<In≤315	7800
Electrical	Actual Value	1000	
	Standard Value	In≤100	300
		100<In≤315	200
Installation Environment			
Ingress Protection	All Sides IP40 ,Connection Terminal IP20		
Bottom mounting screw torque (M4)	1.2N·m~1.6N·m		
Product wiring torque (M8)	8N·m~11N·m		
Working Temperature	-40°C~+80°C		
Storage Temperature	-40°C ~ +85°C		
Pollution degree	3		

Wiring Diagram

Product	Connection	Wiring Diagram	Schematic diagram
	4A		user-defined (4th pole unprotected)
	4B		
	4C		
	4D		
	4S		

Circuit breaker action characteristic curve



- 1) cold state, $I=1.05I_n, t < 1h$, not trip;
- 2) Hot state, $I=1.3I_n, t < 1h$, trip;
- 3) cold state, $I=3I_n, t \leq 500s$;
- 4) Instantaneous trip: $8I_n \pm 20\%$.

- 1) cold state, $I=1.05I_n, t < 2h$, not trip;
- 2) Hot state, $I=1.3I_n, t < 2h$, trip;
- 3) cold state, $I=3I_n, t \leq 500s$;
- 4) Instantaneous trip: $8I_n \pm 20\%$.

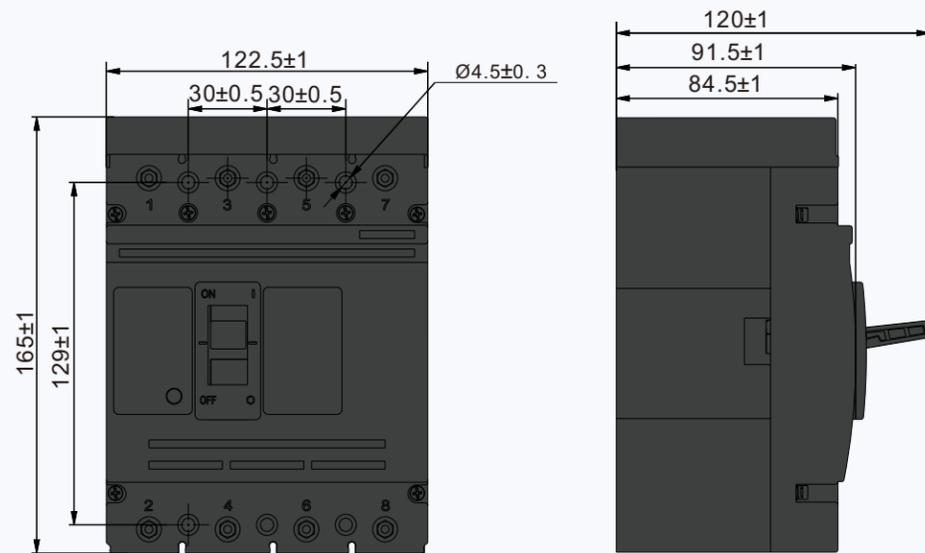
Derating Date

Derating Temperature						
Proportion	Tem	-40°C~40°C	50°C	60°C	70°C	80°C
Type	BD-125	100%	95%	90%	85%	80%
Derating Altitude						
Altitude		2000m	3000m	4000m	5000m	
Power frequency withstand voltage		100%	100%	100%	100%	
Isolation voltage		100%	100%	100%	100%	
Working current		100%	100%	90%	80%	
Working voltage		N/A				

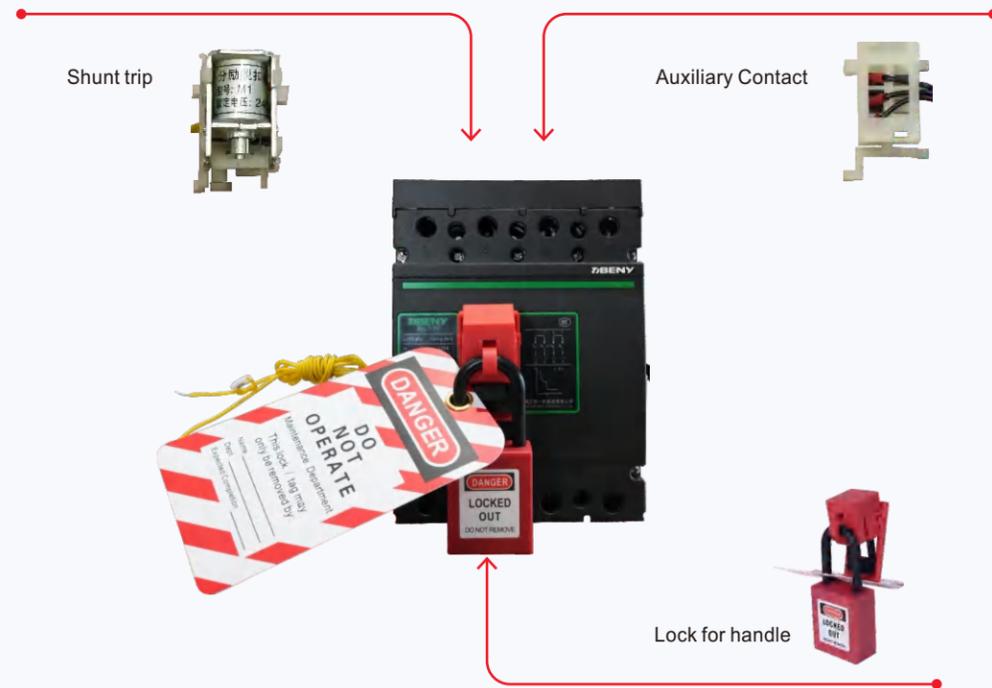
Conductor size

Terminal, A	63	80	100	125
Copper conductors, mm ²	16	25	35	50

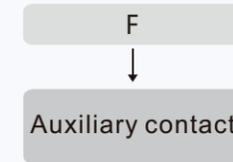
Dimensions(mm)



Accessory



Accessory



- The auxiliary contact can remotely indicate the product's opening and closing status
- According IEC 60947-5-1,GB/T 14048.5

Parameter

Electrical Parametes

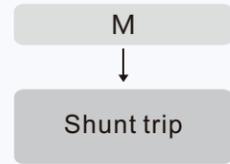
Electrical Parametes	AC	le=3A	Ue=250V
	DC	le=3A	Ue=24V
Min.op.current per contact	10mA		
Min.op.voltage per contact	11V DC		
Rated frequency	50/60Hz		
Working temperture	-40°C~ +80°C		

Wiring Method

Show	Wiring Diagram
OFF	
ON	

Note: When the customer orders 2 wires, there is no F12 (F22) wire.

Accessory



- Shunt release can remotely control product opening
- According GB/T 14048.1, IEC 60947-1

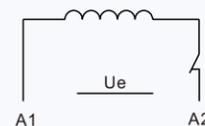
Parameter

Electrical Parametes

Electrical Parametes	AC	$I_e \geq 0.5A$ $U_e = 220V$
	DC	$I_e \geq 4.5A$ $U_e = 24V$
Conduction time		0.2~1s
Min.op.voltage		70% U_e
Max. op. voltage		110% U_e
Operation frequency		6 times/min
Working tempreture		-40°C~+80°C

Wiring Method

Wiring Diagram



BD-250
PV DC Moulded Case
Circuit Breaker



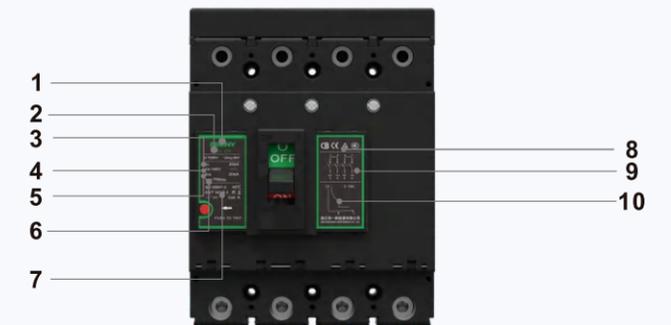
- 1 Brand
- 2 Type
- 3 Rated Current
- 4 Rated Voltage
- 5 Ultimate Breaking Capacity
- 6 Run Breaking Capacity
- 7 Standard Code
- 8 Certification Mark
- 9 Wiring Diagram
- 10 Breaking curve

- Easy installation
- Convenient installation with high segmentation and good insulation performance
- Overload protection, short circuit protection, non frequency operation
- Rated Voltage:DC 1000V
- Rated Current:250A
- Comply with:IEC60947-2, GB/T14048.2

Application

ZBENY BD-250 series PV DC moulded case circuit breakers are mainly used in large-scale photovoltaic power generation systems .Including photovoltaic junction box, photovoltaic inverter, photovoltaic DC cabinet, etc. Rated voltage DC 1000V, rated current up to 250A, The fault current of the DC power distribution system can be quickly disconnected to ensure the reliable peration of the solar photovoltaic power generation system.

Appearance Introduction



Type Instruction

BD	250	4P	250A	DC1000V	4B	/	M
Product Code	Max Rated Current	Pole	Rated Current	Rated Voltage	Wiring Method		Accessory
PV DC Moulded Case Circuit Breaker	250A	4P	125A 160A 200A 250A	DC1000V	4A 4B 4C 4D 4E 4S		F:Auxiliary Contact M:Shunt Release L:Lock for handle RHD:Front hand exercises S:Long Shield

Parameter

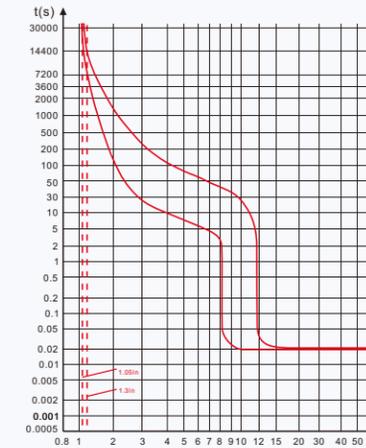
Electrical Characteristics		
Type		BD-250
Comply With		IEC 60947-2 /GB/T 14048.2
Pole		4P
Rated Working Voltage	U_e	DC 1000V
Max Rated Current	I_{th}	250A
Rated Current	I_n	125A, 160A, 200A, 250A
Rated Insulated Voltage	U_i	DC 1000V
Rated Impulsed Voltage	U_{imp}	8kV
Ultimate Breaking Capacity	I_{cu}	20kA
Run Breaking Capacity	I_{cs}	15kA
Service Life&Cycle Operation		
Mechanical	Actual Value	10000
	Standard Value	7800
Electrical	Actual Value	1000
	Standard Value	200
Installation Environment		
Ingress Protection		All Sides IP40 ,Connection Terminal IP20
Bottom mounting screw torque (M4)		1.2N·m~1.6N·m
Product wiring torque (M8)		8N·m~11N·m
Working Temperature		-40°C~+80°C
Storage Temperature		-40°C ~ +85°C
Pollution degree		3

Wiring Diagram

Product	Connection	Wiring Diagram	Schematic diagram
	4A		user-defined (4th pole unprotected)
	4B		
	4C		
	4D		
	4E		
	4S		



Characteristic Curve



- 1) cold state, $I=1.05I_n, t < 2h$, not trip;
- 2) Hot state, $I=1.3I_n, t < 2h$, trip;
- 3) cold state, $I=3I_n, t \leq 500s$;
- 4) Instantaneous trip: $10I_n \pm 20\%$.

Derating Date

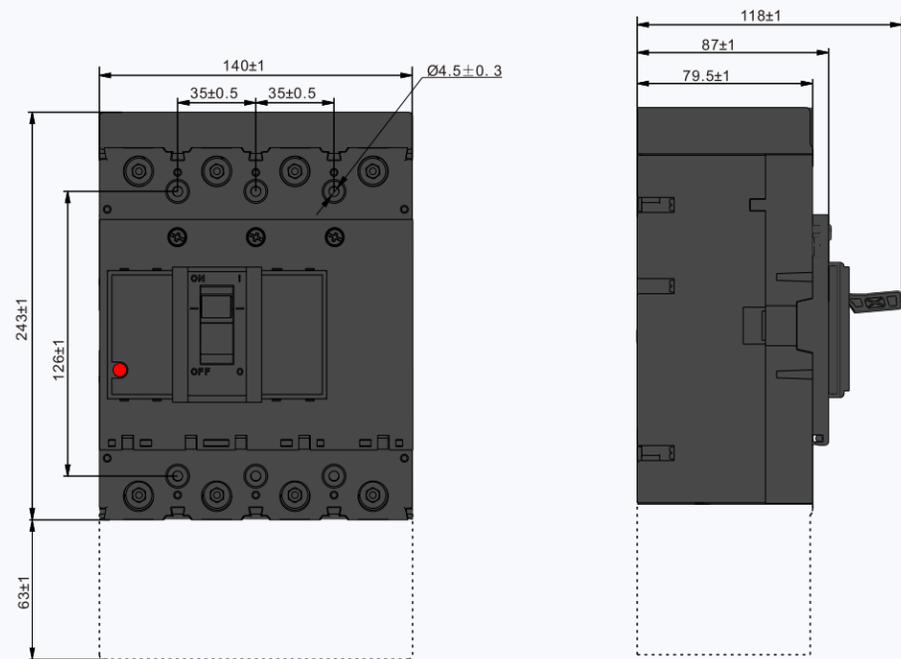
		Derating Temperature				
Proportion Type	Tem	-40°C~40°C	50°C	60°C	70°C	80°C
	BD-250		100%	95%	90%	85%

		Derating Altitude				
Altitude		2000m	3000m	4000m	5000m	
Power frequency withstand voltage		100%	100%	100%	100%	
Isolation voltage		100%	100%	100%	100%	
Working current		100%	100%	90%	80%	
Working voltage		N/A				

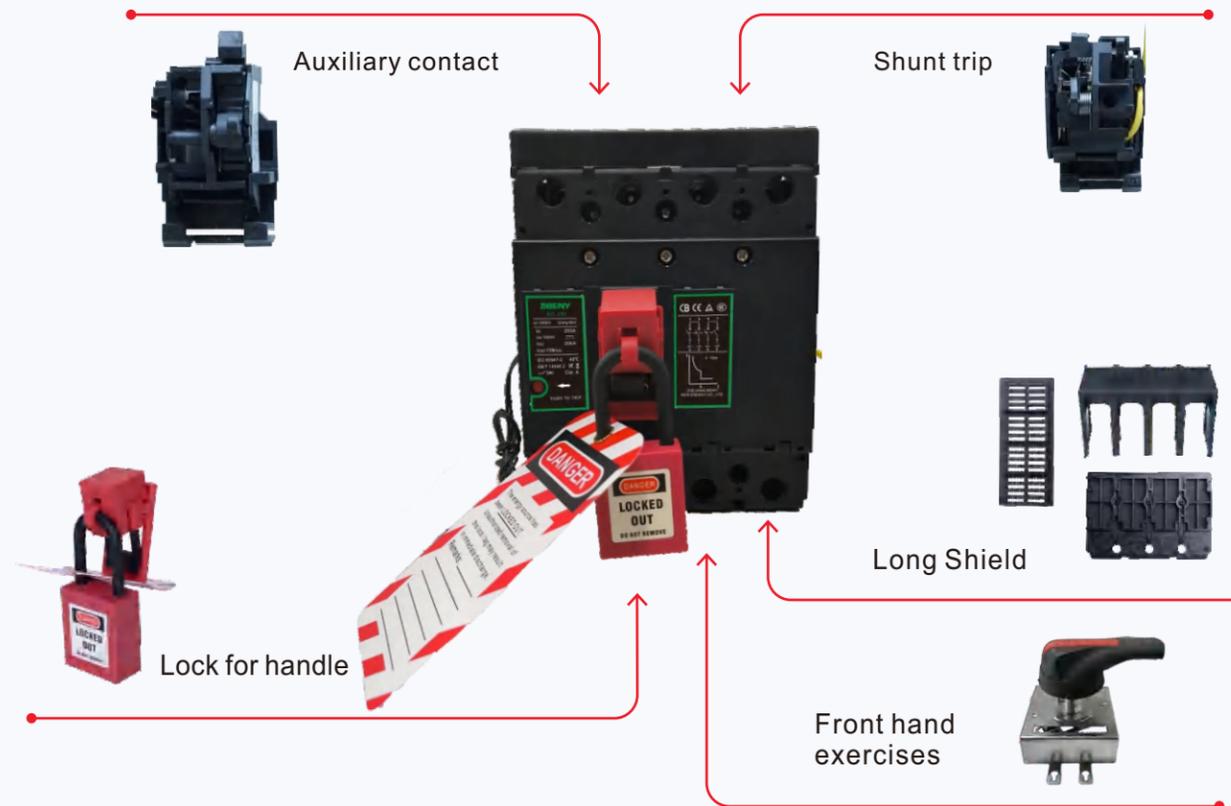
Conductor size

Terminal, A	125	160	200	250
Copper conductors, mm ²	50	70	95	120

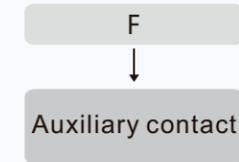
Dimensions(mm)



Accessory



Accessory



- The auxiliary contact can remotely indicate the product's opening and closing status
- According IEC 60947-5-1, GB/T 14048.5

Parameter and Wiring Method

Electrical Parametes

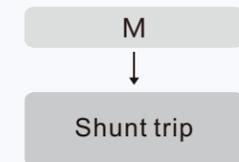
Electrical Parametes	AC	$I_e=3A$ $U_e=250V$
	DC	$I_e=3A$ $U_e=24V$
Min.op.current per contact	10mA	
Min.op.voltage per contact	11V DC	
Rated frequency	50/60Hz	
Working temperture	-40°C~+80°C	

Show Wiring Diagram



Note: When the customer orders 2 wires, there is no F12(F22) wire.

Accessory Shunt trip



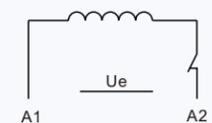
- Shunt release can remotely control product opening
- According GB/T 14048.1, IEC 60947-1

Parameter and Wiring Method

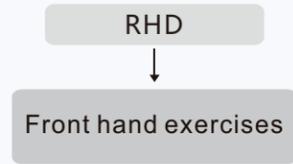
Electrical Parametes

Electrical Parametes	AC	$I_e \geq 0.5A$ $U_e=220V$
	DC	$I_e \geq 4.5A$ $U_e=24$
Conduction time	0.2~1s	
Min.op.voltage	70% U_e	
Max. op. voltage	110% U_e	
Operation frequency	6 times/min	
Working temperture	-40°C~+80°C	

Wiring Diagram

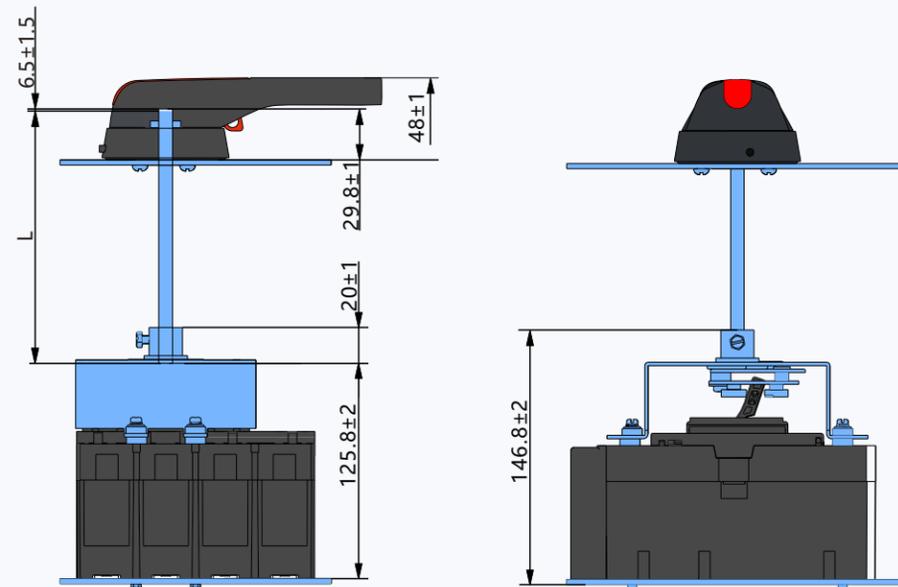


Accessory

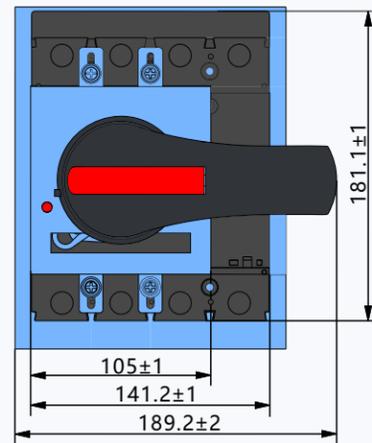


- The front hand operation can rotate outside the box to open, close and rebuckle the product

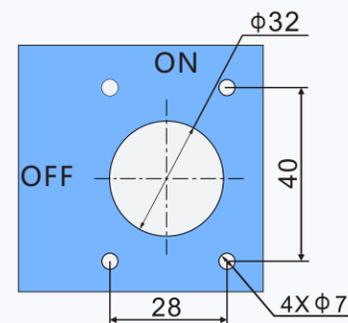
Dimensions(mm)



L: Four specifications are optional: 250, 180, 150, 100 (Custom minimum length: 42)



Cut-out dimension



BDM-125 PV DC Moulded Case Circuit Breaker



- Brand
- Model
- Rated Working Current
- Rated Limit/operating Short-circuit Breaking Capacity
- Compliant With Standards
- Rated Operational Voltage
- Instantaneous Current Setting Value
- Certification Mark

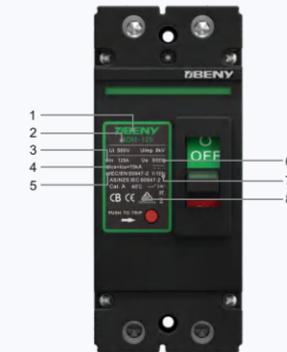
- Easy installation
- Convenient installation with high segmentation and good insulation performance
- Overload protection, short circuit protection, non frequency operation
- Rated Voltage:DC 500V
- Rated Current:125A
- Comply with:IEC60947-2, GB/T14048.2



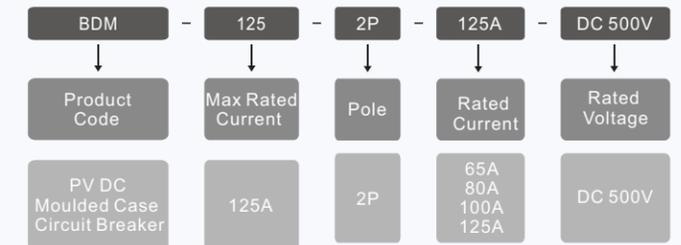
Application

ZBENY BDM-125 series PV DC moulded case circuit breakers are mainly used in large-scale photovoltaic power generation systems. Including photovoltaic junction box, photovoltaic inverter, photovoltaic DC cabinet, etc. Rated voltage DC 500V, rated current up to 125A, The fault current of the DC power distribution system can be quickly disconnected to ensure the reliable peration of the solar photovoltaic power generation system. At the same time, the circuit breaker is equipped with a dedicated waterproof box, with a protection level of up to IP65

Appearance Introduction



Type Instruction



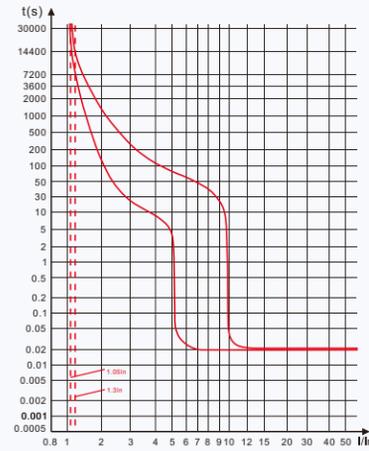
Parameter

Electrical Characteristics		BDM-125	
Type	BDM-125		
Comply With	IEC 60947-2 /GB/T 14048.2		
Pole	2P		
Rated Working Voltage	Ue	DC 500V	
Max Rated Current	Ith	125A	
Rated Current	In	65A,80A,100A,125A	
Rated Insulated Voltage	Ui	DC 500V	
Rated Impulsed Voltage	Uimp	8kV	
Ultimate Breaking Capacity	Icu	15kA	
Run Breaking Capacity	Ics	15kA	

Service Life&Cycle Operation			
Mechanical	Actual Value	10000	
	Standard Value	In≤100	9700
Electrical	Actual Value	1000	
	Standard Value	In≤100	300
		100<In≤315	200

Installation Environment	
Ingress Protection	IP20(without enclosure), IP65(with enclosure)
Bottom mounting screw torque (M4)	1.2N·m~1.6N·m
Product wiring torque (M8)	8N·m~11N·m
Working Temperature	-40°C~+80°C
Storage Temperature	-40°C ~ +85°C
Pollution degree	3

Circuit breaker action characteristic curve



- 1) cold state, $I=1.05I_n, t < 2h$, not trip;
- 2) Hot state, $I=1.3I_n, t < 2h$, trip;
- 3) cold state, $I=3I_n, t \leq 500s$;
- 4) Instantaneous trip: $5I_n-10I_n$.

Derating Date

		Derating Temperature				
Proportion Type	Tem	-40°C~40°C	50°C	60°C	70°C	80°C
	BDM-125		100%	95%	90%	85%

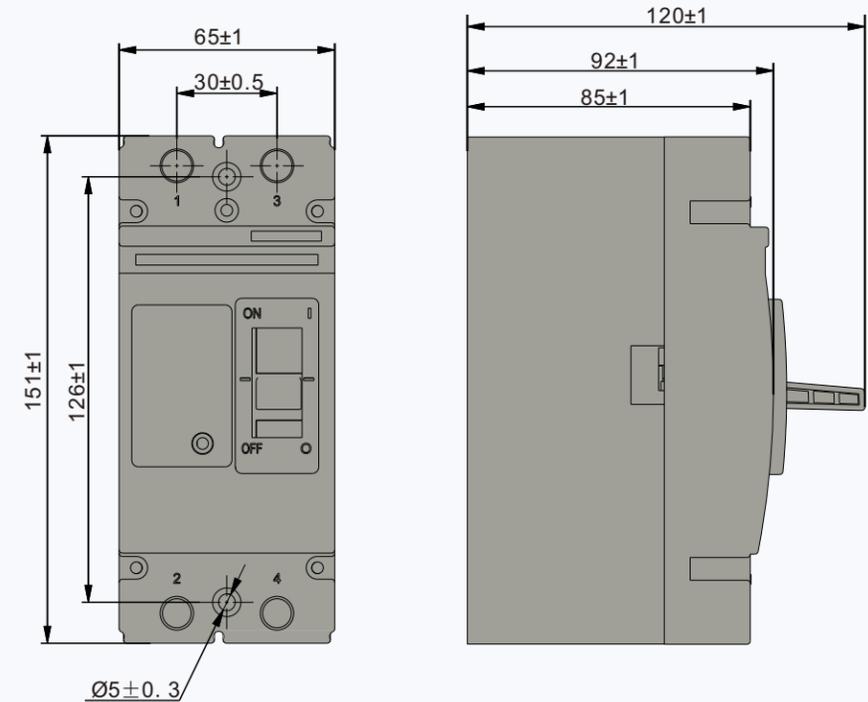
		Derating Altitude			
Altitude		2000m	3000m	4000m	5000m
Power frequency withstand voltage		100%	100%	100%	100%
Isolation voltage		100%	100%	100%	100%
Working current		100%	100%	90%	80%
Working voltage		N/A			

Conductor size

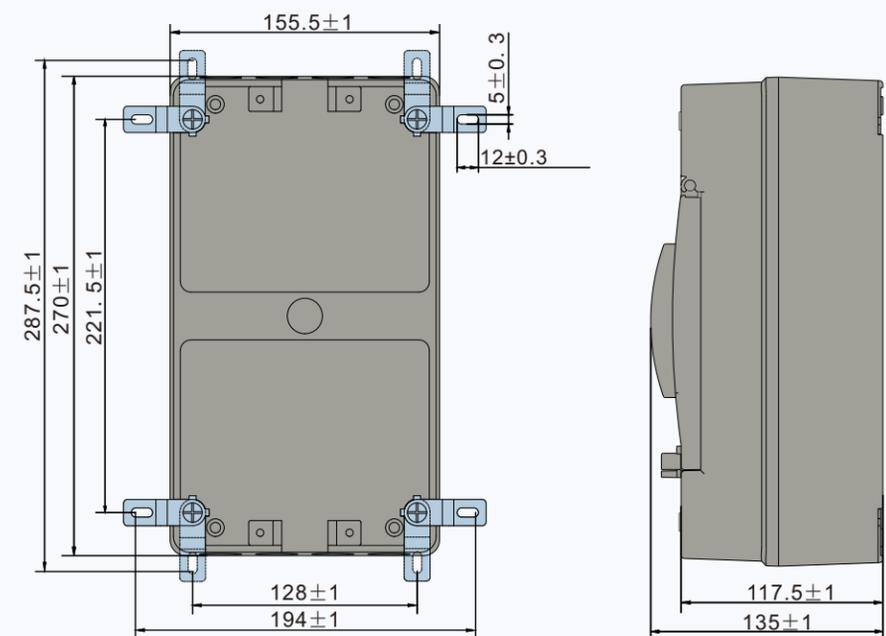
Terminal, A	65	80	100	125
Copper conductors, mm ²	16	25	35	50

Note: The maximum outer diameter of the connecting wire for products with waterproof boxes is 14.5mm.

Outline dimension diagram of products without waterproof box (mm)



Outline Dimensional Drawing of Products with Waterproof Boxes (mm)



**BDM-250
PV DC Moulded Case
Circuit Breaker**



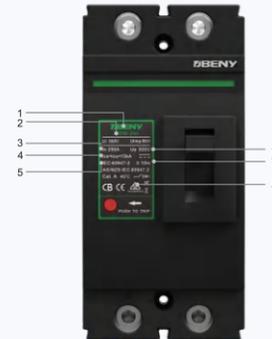
- 1 Brand
- 2 Model
- 3 Rated Working Current
- 4 Rated Limit/operating Short-circuit Breaking Capacity
- 5 Compliant With Standards
- 6 Rated Operational Voltage
- 7 Instantaneous Current Setting Value
- 8 Certification Mark

- Easy installation
- Convenient installation with high segmentation and good insulation performance
- Overload protection, short circuit protection, non frequency operation
- Rated Voltage:DC 500V
- Rated Current:125A
- Comply with:IEC60947-2, GB/T14048.2

Application

ZBENY BDM-250 series PV DC moulded case circuit breakers are mainly used in large-scale photovoltaic power generation systems . Including Photovoltaic junction box, photovoltaic inverter, photovoltaic DC cabinet, etc. Rated voltage DC 500V, rated current up to 250A, The fault current of the DC power distribution system can be quickly disconnected to ensure the reliable peration of the solar photovoltaic power generation system. At the same time, the circuit breaker is equipped with a dedicated waterproof box, with a protection level of up to IP65

Appearance Introduction



Type Instruction

BDM	250	2P	250A	DC 500V	Optional Accessories
Product Code	Max Rated Current	Pole	Rated Current	Rated Voltage	Optional Accessories
PV DC Moulded Case Circuit Breaker	250A	2P	125A, 160A, 175A, 200A, 250A	DC 500V	SW: Small waterproof box (default) LW: Large waterproof box SL: Safety lock

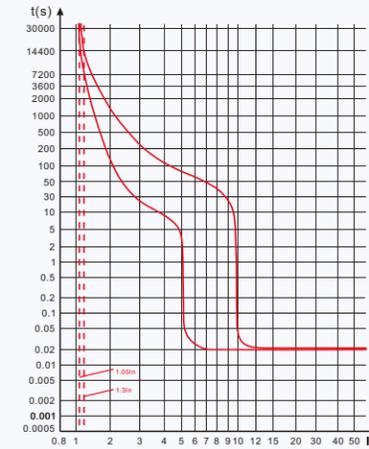
Parameter

Electrical Characteristics		
Type		BDM-250
Comply with		IEC 60947-2, GB/T 14048.2
Pole		2P
Rated Working Voltage	Ue	DC 500V
Max Rated Current	Ith	250A
Rated Current	In	125A, 160A, 175A, 200A, 250A
Rated Insulated Voltage	Ui	DC 500V
Rated Impulsed Voltage	Uimp	8kV
Ultimate Breaking Capacity	Icu	15kA
Run Breaking Capacity	Ics	15kA

Service Life&Cycle Operation		
Mechanical	Actual Value	10000
	Standard Value	7800
Electrical	Actual Value	1000
	Standard Value	200

Installation Environment	
Ingress Protection	IP20(without enclosure), IP65(with enclosure)
Bottom mounting screw torque (M4)	1.2N·m-1.6N·m
Product wiring torque (M8)	8N·m-11N·m
Working Temperature	-40°C~+80°C
Storage Temperature	-40°C~+85°C
Pollution degree	3

Circuit breaker action characteristic curve



- 1) cold state, I=1.05In, t<2h, not trip;
- 2) Hot state, I=1.3In, t<2h, trip;
- 3) cold state, I=3In, t≤500s;
- 4) Instantaneous trip: 5In-10In.

Derating Date

Derating Temperature					
Tem	-40°C~40°C	50°C	60°C	70°C	80°C
Proportion Type					
BDM-250	100%	95%	90%	85%	80%

Derating Altitude					
Altitude	2000m	3000m	4000m	5000m	
Power frequency withstand voltage	100%	100%	100%	100%	100%
Isolation voltage	100%	100%	100%	100%	100%
Working current	100%	100%	90%	80%	
Working voltage	N/A				

Conductor size

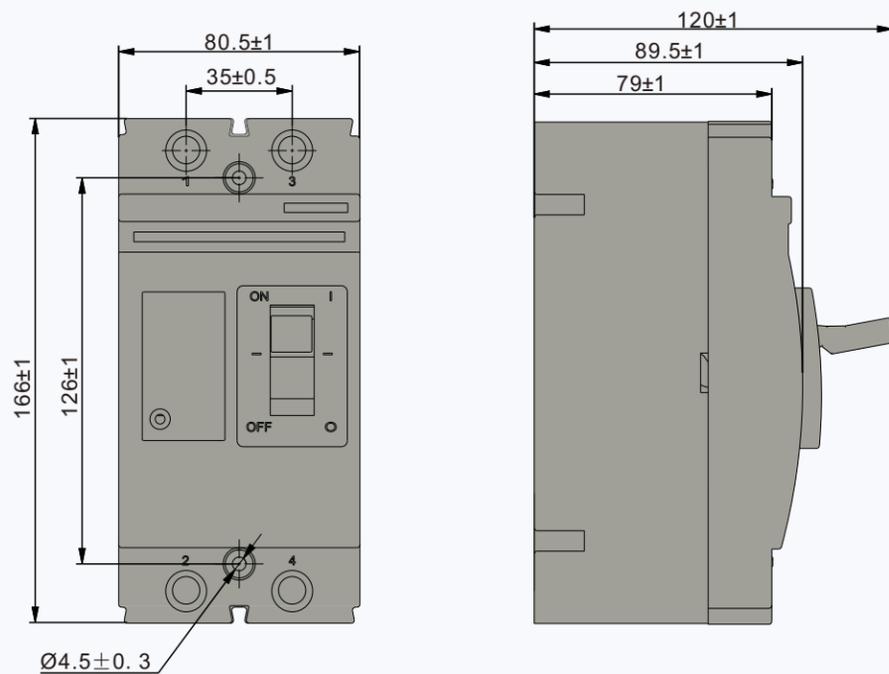
Terminal, A	125	160	200	250
Copper conductors, mm ²	50	70	95	120

Products without waterproof boxes



- Protection Level IP20

Outline dimension diagram of products without waterproof box (mm)

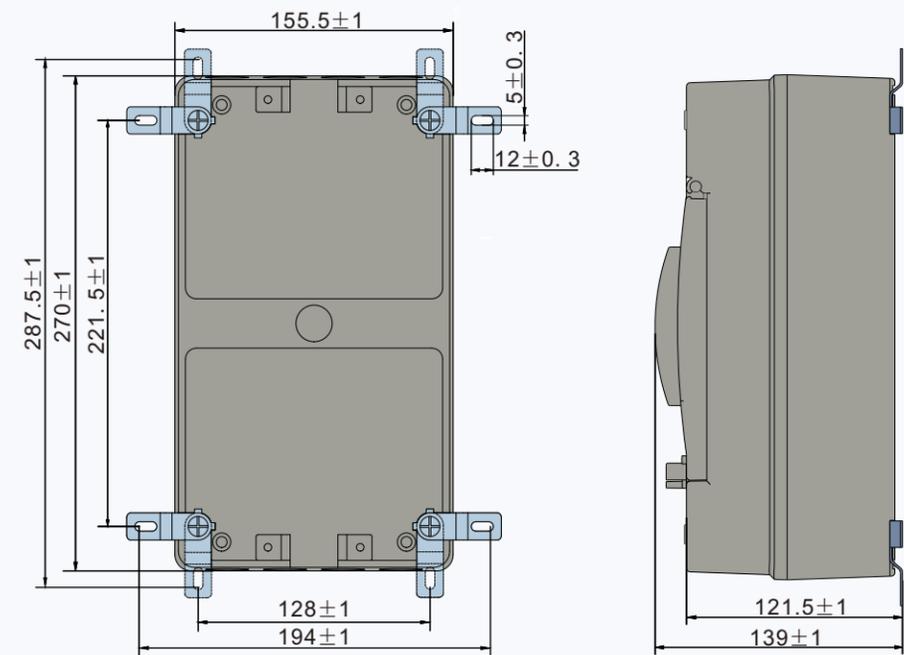


Products with small waterproof boxes



- Protection Level IP65
- The maximum diameter of the connecting wire is $\Phi 14.5$ mm

Outline Dimensional Drawing of Products with small Waterproof Boxes (mm)



Custom large waterproof box products

- Protection Level IP65
- The maximum diameter of the connecting wire is $\Phi 25$ mm

Outline dimension diagram of customized large waterproof box product (mm)