

BB2-40 PV DC Circuit Breaker



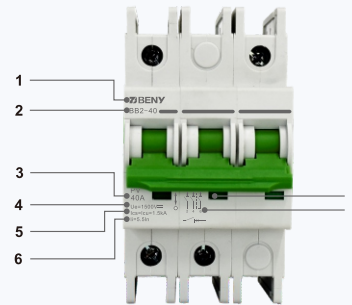
AS/NZS 60947.2
IEC/EN 60947-2
GB/T 14048.2

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

Application

ZBENY 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



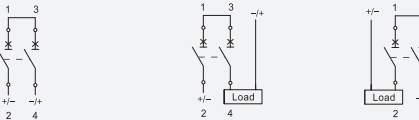
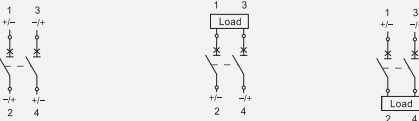
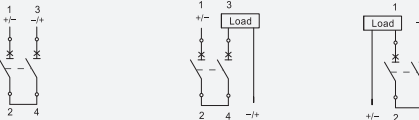
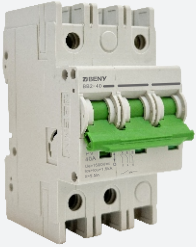
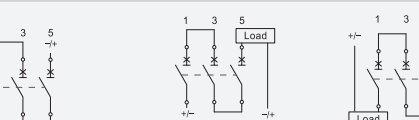
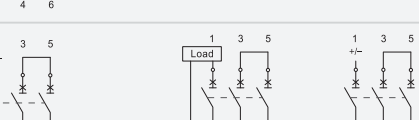
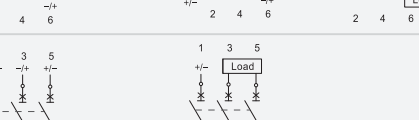
Type Instruction

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

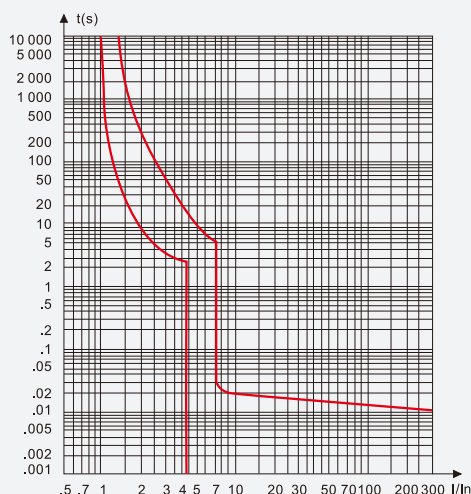
Parameter

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	U _e	600V DC	1000V DC	1500V DC
Max Rated Current	40A			
Rated Current	I _n	6A, 10A, 13A, 16A, 20A, 25A, 32A, 40A		
Rated Insulated Voltage	U _i	1500V DC		
Rated Impulsed Voltage	U _{imp}	8kV		
Ultimate Breaking Capacity	I _{cu}	1.5kA		
Run Breaking Capacity	I _{cs}	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 Humidity95%)			
Resistance to Shock	2.6 IEC60068			
Resistance to Impact	2.27 IEC60068			

Wiring Method

Type	Pole	Contacts Wiring graph
	1P	<p>1A</p> 
	2P	<p>2A</p>  <p>2B</p>  <p>2C</p> 
	3P	<p>3A</p>  <p>3B</p>  <p>3C</p>  <p>3D</p>  <p>3E</p> 

Characteristic Curve



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

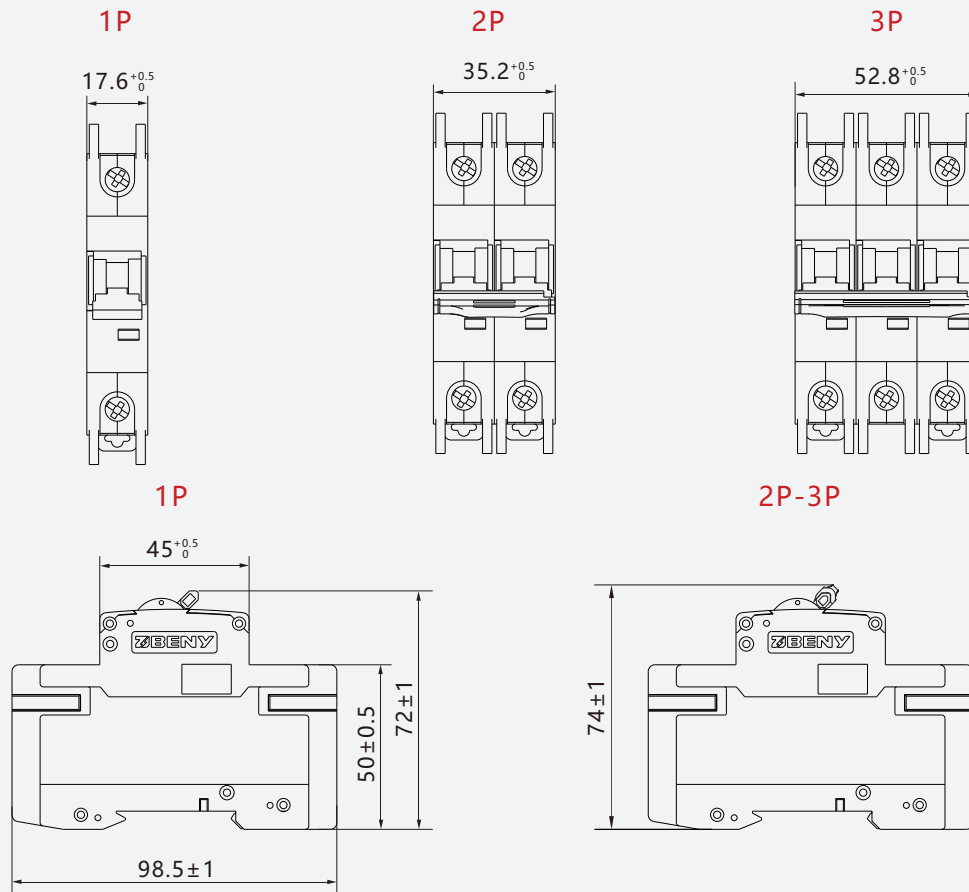
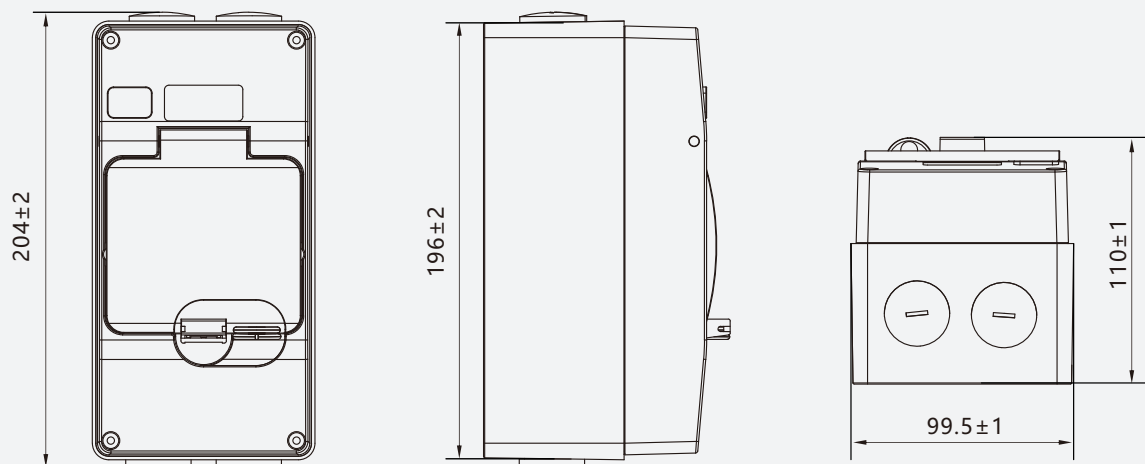
Derating Date

Derating Temperature

Type	Tem Proportion	-40°C-40°C	50°C	60°C	70°C	80°C
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

Type Instruction **BY-OF** – **Auxiliary contact**

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

Parameter

Electrical Parametes

Product parameters	AC 12	I _e =3A U _e =415V
		I _e =6A U _e =240V
	DC 12	I _e =1A U _e =110V
		I _e =2A U _e =48V
		I _e =6A U _e =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	

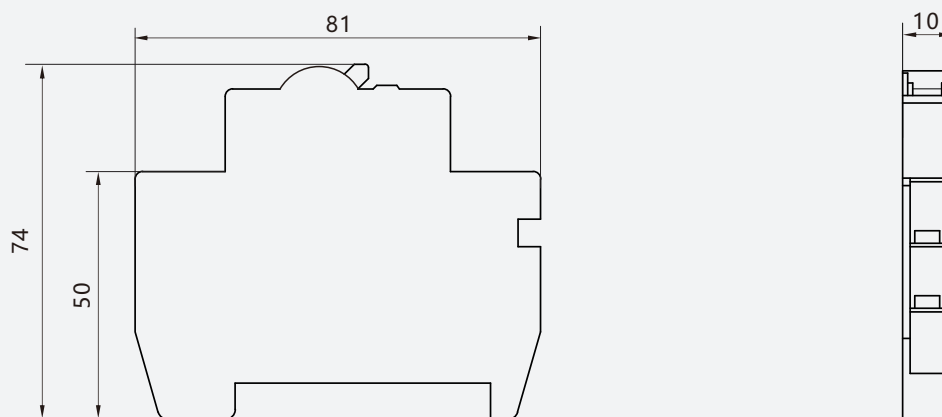
Mechanical parameters

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 temprature	-40~+80°C	

Wiring Method

Show	Wiring Diagram
OFF	
ON	

Dimensions(mm)



BY-MX

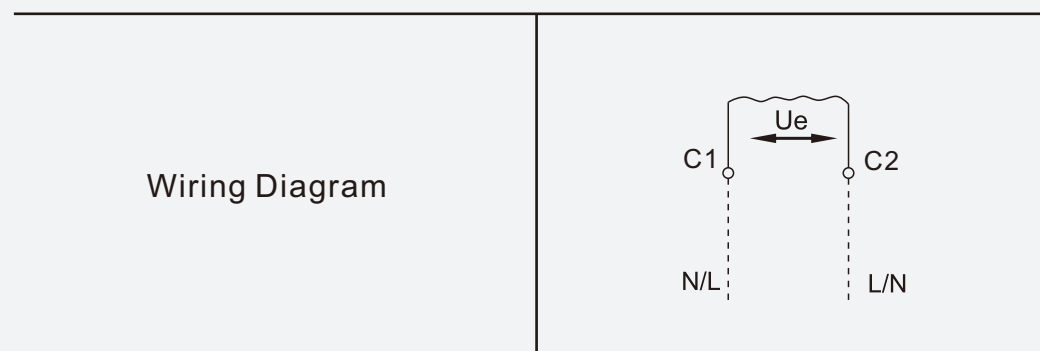
Type Instruction **BY-MX** – **Shunt trip**

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

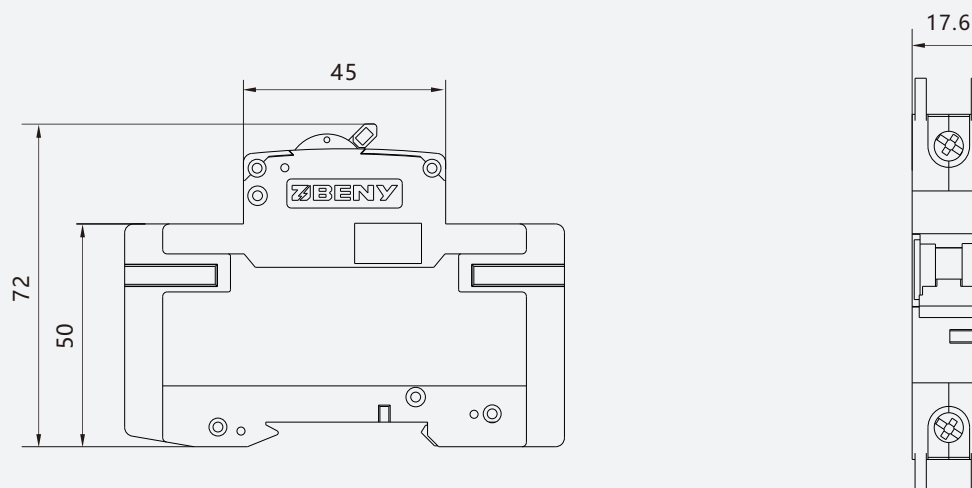
Parameter

Electrical Parametes		
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 tempreture	-40~+80°C	

Wiring Method



Dimensions(mm)



BY-MF

Type Instruction **BY-MF** – **Shunt trip&Auxiliary contact**

- Shunt assist one of the ports shared
- According GB/T 14048.1, GB/T14048.5, IEC 60947-5-1

Parameter

Electrical Parametes			
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		< 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		0.5N·m-0.7N·m	
Working tempreture		-40~ + 80°C	

Wiring Method

Show	Auxiliary contact Wiring Diagram	Shunt Release Wiring Diagram
OFF		
ON		

Dimensions(mm)

