

# MINIATURE CIRCUIT BREAKER



## MINIATURE CIRCUIT BREAKER

### BHA Series | 4.5kA/6kA/10kA

#### Applications :

Applicable to the residential, industrial and commercial power distribution systems, provide circuit-control and protection on equipments against any impacts of overload and short-circuit.

#### Type designation :

Type	Rated short-circuit breaking capacity (kA) Rated voltage (V)	Number of poles (P)	Tripping characteristics	Rated current In (A)
BHA	2: 4.5kA; 3: 6kA; 4: 10kA 230/400V	1, 2, 3, 4	C type: 5~10In D type: 10~15In	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63

**Standard :** IEC 60898/ IEC 60947-2 / GB 10963

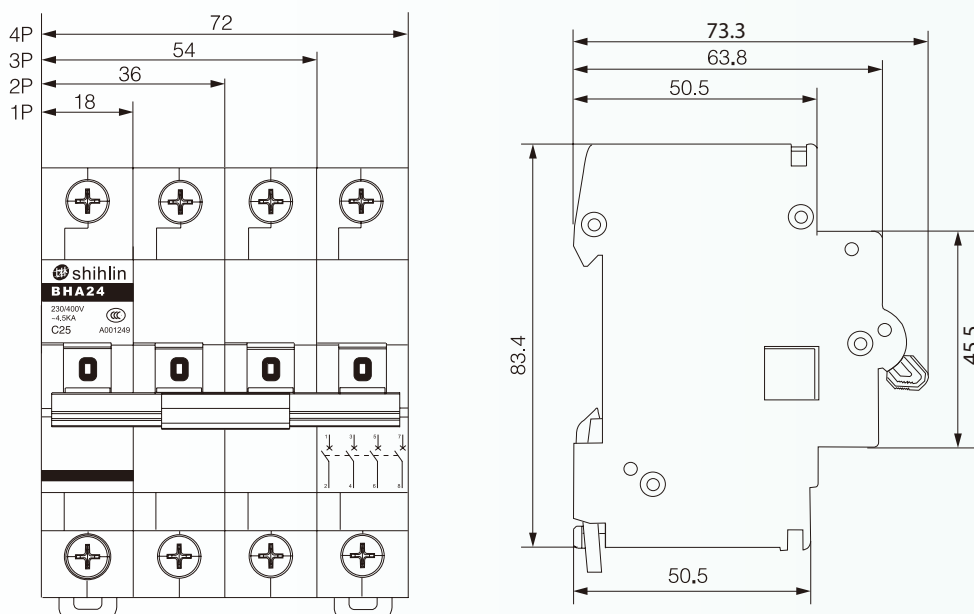
#### Technical specification :

- Rated voltage : AC 230/400V
- Rated current : 1~63A
- Rated short-circuit breaking capacity : 4,500/6,000/10,000A
- Tripping characteristics :  
C type : 5~10In  
D type : 10~15In
- Mechanical life : 20,000 operations
- Wiring capabilities : Stranded wire-16mm<sup>2</sup> / Rigid wire-25mm<sup>2</sup>
- Ambient temperature : -5°C~+40°C

#### Features :

- Provide circuit protections –  
Good choice for overload and short-circuit protections.
- Complete accessories available –  
shunt trip(SHT), under-voltage trip(UVT), over-voltage trip(OVT), auxiliary switch(AX), alarm switch(AL).
- Easy installation –  
Modularized structure design can be tool-free installed on standard DIN-rail TH35mm.

#### Dimension :

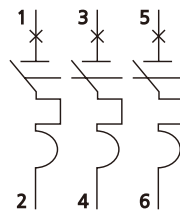




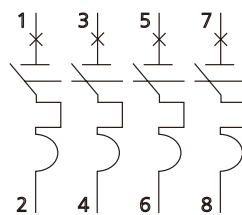
Poles (P)	Rated current (A)	Width (mm)	Weight (g)
1P	1	18	113
	2	18	113
	3	18	113
	4	18	113
	5	18	113
	6	18	113
	10	18	113
	16	18	113
	20	18	113
	25	18	113
	32	18	113
	40	18	113
	50	18	113
	63	18	113



2P	1	36	228
	2	36	228
	3	36	228
	4	36	228
	5	36	228
	6	36	228
	10	36	228
	16	36	228
	20	36	228
	25	36	228
	32	36	228
	40	36	228
	50	36	228
	63	36	228



3P	1	54	341
	2	54	341
	3	54	341
	4	54	341
	5	54	341
	6	54	341
	10	54	341
	16	54	341
	20	54	341
	25	54	341
	32	54	341
	40	54	341
	50	54	341
	63	54	341



4P	1	72	456
	2	72	456
	3	72	456
	4	72	456
	5	72	456
	6	72	456
	10	72	456
	16	72	456
	20	72	456
	25	72	456
	32	72	456
	40	72	456
	50	72	456
	63	72	456

## MINIATURE CIRCUIT BREAKER

### BHA Series | 100AF

#### Applications :

Applicable to the residential, industrial and commercial power distribution systems, such as high-rise buildings, residential apartment and etc., providing circuit-control and protection on equipment against any impacts of overload and short-circuit. It also can be used for any of the application with low switching operation and can be used for circuit changeover.

#### Type designation :

BHA	4	3	C	80
↓	↓	↓	↓	↓
Type	Rated short-circuit breaking capacity (kA) Rated voltage (V)	Poles (P)	Tripping characteristics	Rated current In (A)
BHA	4: 10kA 230/400V	1, 2, 3, 4	C type: 8~10In D type: 10~12In	80, 100

**Standard :** IEC 60947-2 / GB 14048.2

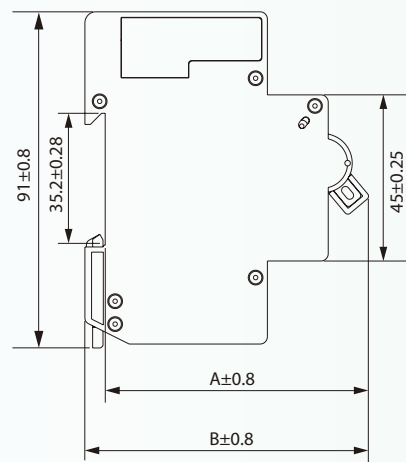
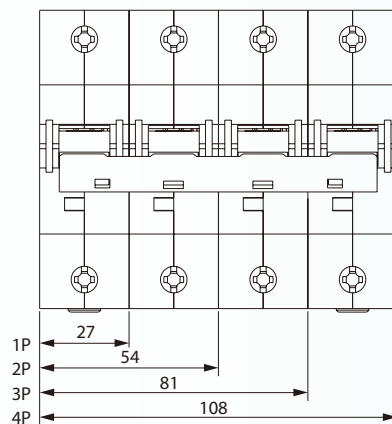
#### Technical Specification :

- Rated voltage : AC 230/400V
- Rated current : 80/100A
- Rated short-circuit breaking capacity : 10,000A
- Tripping characteristics :  
C type : 8~10In  
D type : 10~12In
- Mechanical life : 10,000 operations
- Wire capabilities : Cable cross section max. 50mm<sup>2</sup>
- Ambient temperature : -5°C~+40°C






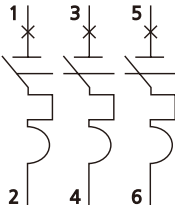

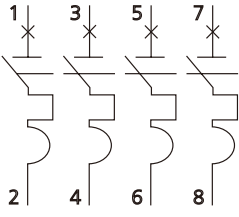
#### Features :

- Provide overload and short-circuit protections.
- Adoption of innovative new materials and manufacturing process with compact size, light weight and excellent appearance.
- Great capabilities in insulation, breaking capacity, arc-extinguishing, faster tripping with long service life and excellent reliabilities.
- Easy installation with the application of standard DIN-rail TH35mm.

#### Dimension :



Pole	A	B
1P	70	75.5
2P-4P	71.5	77

	Poles (P)	Rated current (A)	Width (mm)	Weight (g)
	1P	80	27	156
		100	27	156
	2P	80	54	315
		100	54	315
	3P	80	81	471
		100	81	471
	4P	80	108	630
		100	108	630

## MINIATURE CIRCUIT BREAKER

### BHA DC Series | 10kA

#### Applications :

Applicable to the residential, industrial and commercial power distribution systems, providing circuit-control and protection on equipment against any impacts of overload and short-circuit.

#### Type designation :

BHA	4	1	DC	32
↓	↓	↓	↓	↓
Type	Rated short-circuit breaking capacity (kA) Rated voltage (V)	Poles (P)	Voltage (AC/DC)	Rated current In (A)
BHA	4: 10kA DC 125V(1P)/ DC 250(2P)	1, 2	DC type	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63

**Standard :** IEC 60947-2 / GB 14048.2

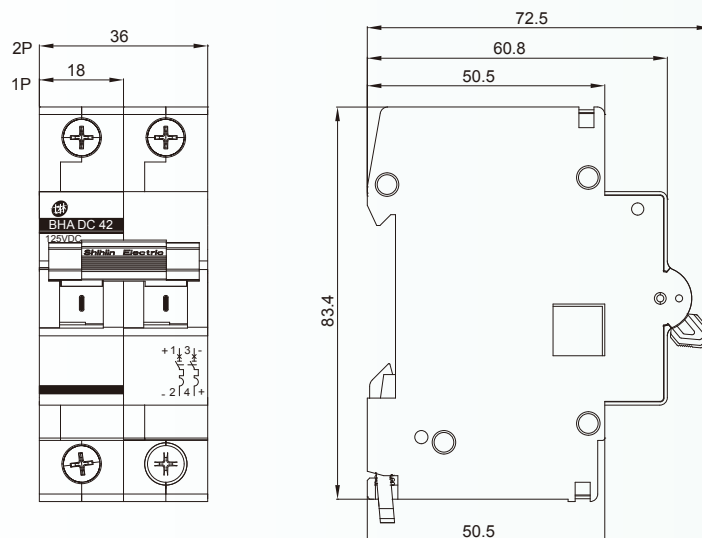
#### Technical Specification :

- Rated voltage : DC 125V(1P) / DC 250V(2P)
- Rated current : 1~63A
- Rated short-circuit breaking capacity : 10,000A
- Rated impulse voltage : 4kV
- Mechanical life : 20,000 operations
- Wiring capabilities : Stranded wire-16mm<sup>2</sup> / Rigid wire-25mm<sup>2</sup>
- Ambient temperature : -5°C~+40°C
- \* Can't be used in IT system

#### Features :

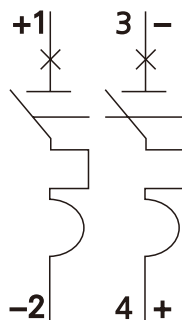
- Provide circuit protections -  
Good choice for overload and short-circuit protections.
- Variable accessories available -  
shunt trip(SHT), under-voltage trip(UVT), over-voltage trip(OVT), auxiliary switch(AX), alarm switch(AL).
- Easy installation -  
Modularized structure design can be tool-free installed on standard DIN-rail TH35mm.

#### Dimension :





Poles (P)	Rated current (A)	Width (mm)	Weight (g)
1P	1	18	113
	2	18	113
	3	18	113
	4	18	113
	5	18	113
	6	18	113
	10	18	113
	16	18	113
	20	18	113
	25	18	113
	32	18	113
	40	18	113
	50	18	113
	63	18	113



2P	1	36	228
	2	36	228
	3	36	228
	4	36	228
	5	36	228
	6	36	228
	10	36	228
	16	36	228
	20	36	228
	25	36	228
	32	36	228
	40	36	228
	50	36	228
	63	36	228

## MINIATURE CIRCUIT BREAKER

**BHN Series** | Used in the "phase+neutral" circuit, single-phase or three -phase power system

### Applications :

In the residential power distribution system with neutral circuit, when the tripping occurs, it breaks the phase wire and the neutral wire simultaneously, isolate the circuit to avoid the electrical shock on the neutral wire even after tripping.

### Type designation :

BHN	2	1	C	32
↓	↓	↓	↓	↓
Type	Rated short-circuit breaking capacity (kA) Rated voltage (V)	Poles (P)	Tripping characteristics	Rated current In (A)
BHN	2: 4.5kA; 3: 6kA; 230V	1P+N	C type: 5~10In	6, 10, 16, 20, 25, 32

**Standard :** IEC 60898 / GB 10963

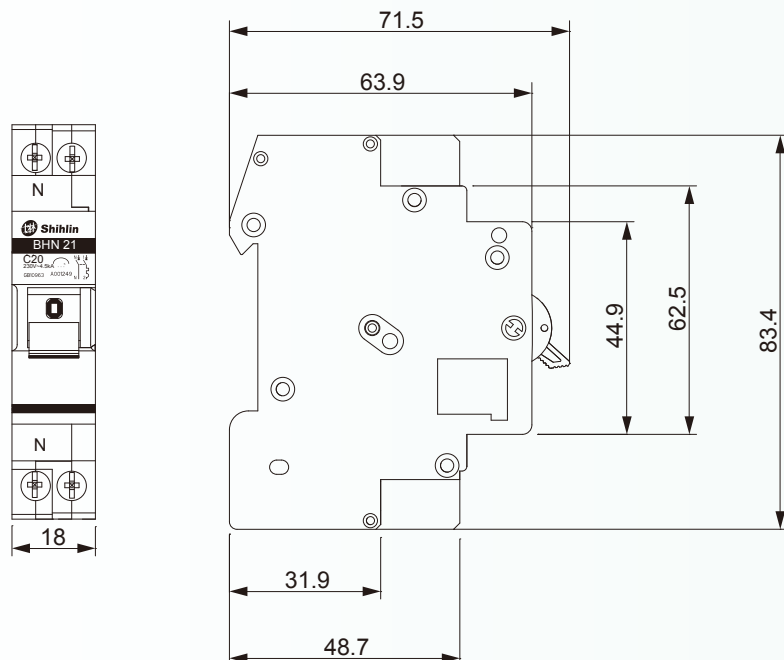
### Technical Specification :

- Rated voltage : AC 230V
- Rated current : 6~32A
- Rated short-circuit breaking capacity : 4,500 / 6,000A
- Tripping characteristics :  
C type : 5~10In
- Mechanical life : 20,000 operations
- Wiring capabilities : Stranded wire-10mm<sup>2</sup> / Rigid wire-16mm<sup>2</sup>
- Ambient temperature : -5°C~+40°C

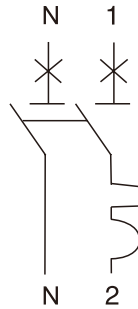
### Features :

- Adoption of innovative new materials and manufacturing process with compact size, light weight and excellent appearance.
- Breaking the phase wire and the neutral wire simultaneously.
- Great capabilities in insulation, breaking capacity, arc-extinguishing, faster tripping with long service life and excellent reliabilities.
- Bus bar wiring kit available for connection, easy and time-saving for wiring.
- Tool-free installation with the application of standard DIN-rail TH35mm, makes installation easy and convenient.

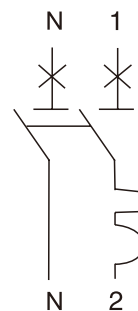
### Dimension :







Poles (P)	Rated current (A)	Width (mm)	Weight (g)
1P+N (4.5kA)	6	18	108
	10	18	108
	16	18	108
	20	18	108
	25	18	108
	32	18	108



1P+N (6kA)	6	18	108
	10	18	108
	16	18	108
	20	18	108
	25	18	108
	32	18	108

## RESIDUAL CURRENT CIRCUIT BREAKER

**BHL Series** | Used in the "phase+neutral" circuit, single-phase or three -phase power system

### Applications :

Applicable to the residential, industrial and commercial power distribution systems.

Compact size, provide with short-circuit, overload, earth-leakage and overvoltage protection.

Excellent short circuit and overload protection are able to break phase and neutral simultaneously

### Type designation :

Type	Rated short-circuit breaking capacity (kA) Rated voltage (V)	Poles (P)	Tripping characteristics	Rated current I <sub>n</sub> (A)	Optional function
BHL	2: 4.5kA; 3: 6kA; 230V	1P+N	C type: 5~10I <sub>n</sub> D type: 10~15I <sub>n</sub>	6, 10, 16, 20, 25, 32, 40	over-voltage protection (230V, internal built)

**Standard :** IEC 61009 / GB 16917

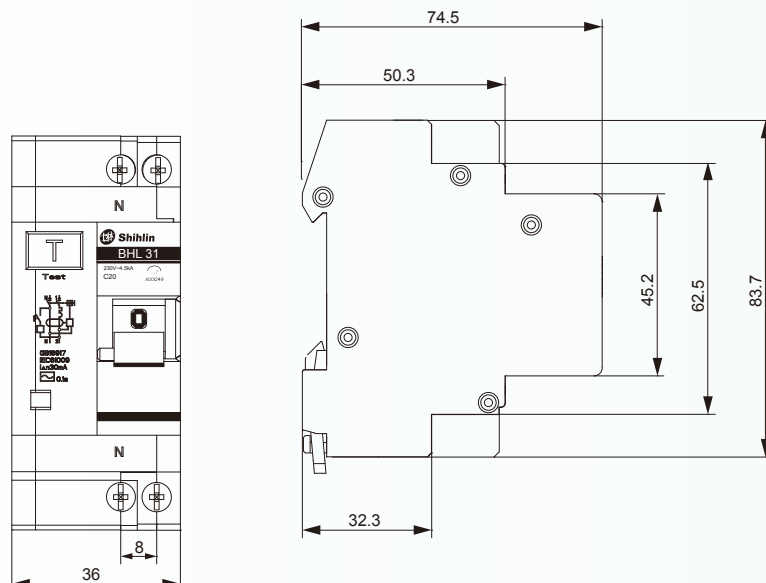
### Technical specification :

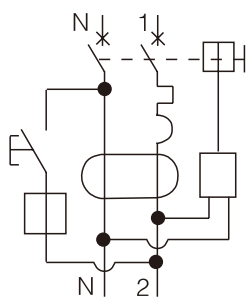
- Rated voltage : AC 230V
- Rated current : 6~40A
- Rated sensitivity current : 30mA
- Rated short-circuit breaking capacity : 4,500 / 6,000A
- Tripping characteristics :
  - C type : 5~10I<sub>n</sub>
  - D type : 10~15I<sub>n</sub>
- Mechanical life : 20,000 operations
- Wiring capabilities : Stranded wire-10mm<sup>2</sup> / Rigid wire-16mm<sup>2</sup>
- Ambient temperature : -5°C~+40°C
- Internal OUT over voltage range AC 280V ± 5%

### Features :

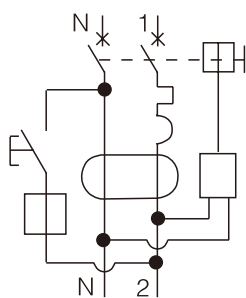
- Electronic type earth-leakage tripping protection.
- Excellent anti-electromagnetic interference capability which avoid the fault trip caused by a transient over-voltage.
- Tripping indication : Red- indicates earth-leakage tripped; white- no earth-leakage tripping
- Test button (yellow) provides earth-leakage testing function during the regular maintenance.
- Unique installation design, tool-free installation is realized.

### Dimension :





Poles (P)	Rated current (A)	Width (mm)	Weight (g)
1P+N (4.5kA)	6	36	160
	10	36	160
	16	36	162
	20	36	162
	25	36	166
	32	36	166
	40	36	166



1P+N (6kA)	6	36	160
	10	36	160
	16	36	162
	20	36	162
	25	36	166
	32	36	166
	40	36	166

## RESIDUAL CURRENT CIRCUIT BREAKER

### BHL Series

#### Applications :

Applicable to the residential, industrial and commercial power distribution systems provided with short-circuit, overload and earth-leakage protection.

#### Type designation :

Type	Rated short-circuit breaking capacity (kA) Rated voltage (V)	Poles (P)	Tripping characteristics	Rated current In (A)	Optional function
BHL	2: 4.5kA; 3: 6kA; 230/400V	2, 3, 4	C type: 5~10In D type: 10~15In	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63	over-voltage protection (230V, internal built)

Standard : IEC 61009 / GB 16917

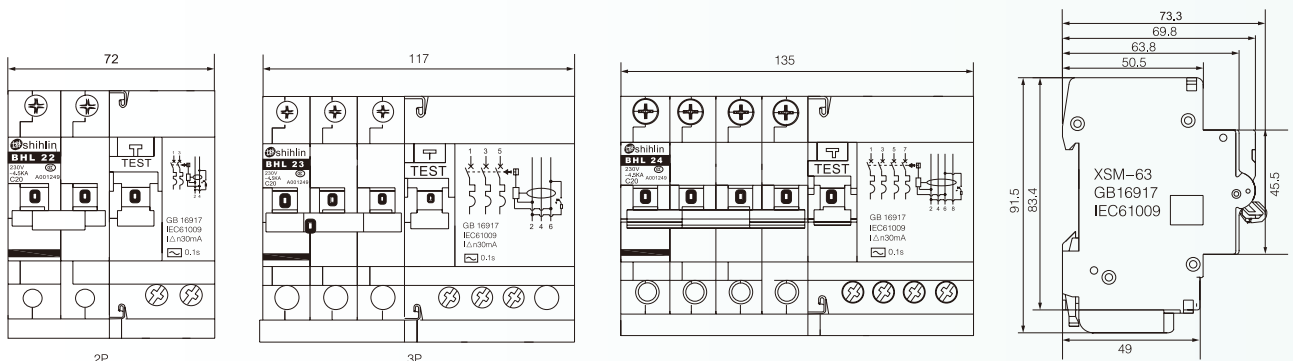
#### Technical Specification :

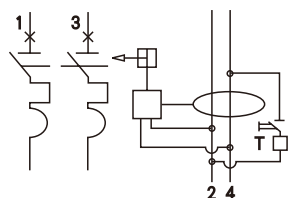
- Rated voltage : AC 230V(2P) 、 AC 400V(3P/4P)
- Rated current : 1~63A
- Rated sensitivity current : 30mA
- Rated short-circuit breaking capacity : 4,500/6,000A
- Tripping characteristics :  
C type : 5~10In  
D type : 10~15In
- Mechanical life : 20,000 operations
- Wiring capabilities : Stranded wire-16mm<sup>2</sup> / Rigid wire-25mm<sup>2</sup>
- Ambient temperature : -5°C~+40°C
- Internal OUT over voltage range AC 280V ± 5%

#### Features :

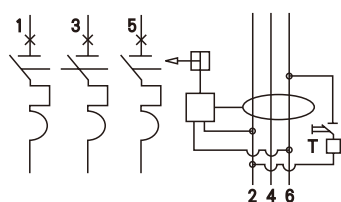
- Excellent anti-electromagnetic interference capability which avoid the faulty trip caused by a transient over-voltage.
- Tripping indication : Red- indicates earth-leakage tripped; white- no earth-leakage tripping.
- Test button(yellow) provides earth-leakage testing function during the regular maintenance.
- Unique installation design, tool-free installation is realized.

#### Dimension :

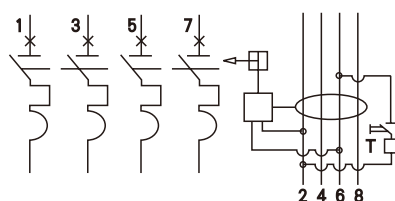




Poles (P)	Rated current (A)	Width (mm)	Weight (g)
2P	1	72	423
	2	72	423
	3	72	423
	4	72	423
	5	72	423
	6	72	423
	10	72	423
	16	72	423
	20	72	423
	25	72	423
	32	72	423
	40	72	423



3P	1	117	630
	2	117	630
	3	117	630
	4	117	630
	5	117	630
	6	117	630
	10	117	630
	16	117	630
	20	117	630
	25	117	630
	32	117	630
	40	117	630



4P	1	135	770
	2	135	770
	3	135	770
	4	135	770
	5	135	770
	6	135	770
	10	135	770
	16	135	770
	20	135	770
	25	135	770
	32	135	770
	40	135	770

## ISOLATION SWITCH

### BHG Series

#### Applications :

Applicable to the residential, industrial and commercial power distribution systems which provided with the protection and control of the circuit, mainly used as a main switch for the subsidiary circuits. It also can be used in the application with low switching and low consumption electrical appliances and illumination, providing On/Off and isolation of the circuit.

#### Type designation :


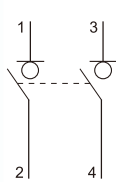
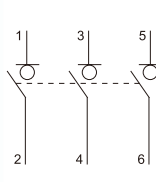
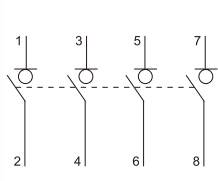
BHG	4P	32A
↓	↓	↓
Type	Poles (P)	Rated current In (A)
BHG	1, 2, 3, 4	32, 40, 63, 80, 100

Standard : IEC 60947-3 / GB 14048.3

#### Technical Specification :

- Rated voltage : AC 230/400V
- Rated current : 32~100A
- Mechanical life : 50,000 operations
- Wiring capabilities : Stranded wire-16mm<sup>2</sup> / Rigid wire-25mm<sup>2</sup>
- Ambient temperature : -5°C~+40°C



Poles (P)	Rated current (V)	Rated current (A)	Width (mm)	Weight (g)
1P 	230	32	18	85
	230	40	18	85
	230	63	18	85
	230	80	18	85
	230	100	18	85
2P 	400	32	36	172
	400	40	36	172
	400	63	36	172
	400	80	36	172
	400	100	36	172
3P 	400	32	54	259
	400	40	54	259
	400	63	54	259
	400	80	54	259
	400	100	54	259
4P 	400	32	72	346
	400	40	72	346
	400	63	72	346
	400	80	72	346
	400	100	72	346

**Accessories :**

**Features :**

Tool-free, left-mounted on the MCBs.

For one circuit breaker, maximum three (3) accessories can be installed. Maximum, two (2) auxiliary switch (AX) can be installed for one circuit breaker.

**Type designation :**

**BHK**

**▪ Accessories**

BHK	2					1	
Type	Accessory Code					Installation	
	1	2	3	4	5	1	2
BHK	AL	AX	SHT	UVT	OVT	Standard	Option

Note: 1. Standard: Left side mounting of breaker  
 2. Option: Left side mounting of other accessory



Type	Auxiliary Contact		Width (mm)	Product Code
	AC/12			
AL Alarm Switch		1NO. 1NC 230V 6A 440V 3A	9	BHK11



AX Auxiliary Contact		1NO. 1NC 230V 6A 440V 3A	9	BHK21 BHK22
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Type	Control Voltage		Auxiliary Contact	Width (mm)	Product Code	
	V AC	V DC				
SHT Shunt Trip		12	12	1NO. 1NC 230V 6A 440V 3A	18	BHK31 BHK32
		24-48	12~48			
		230-415	110-130			



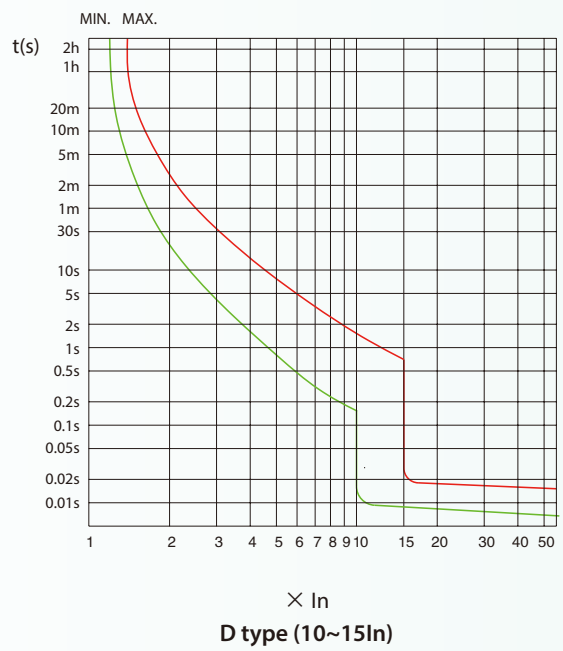
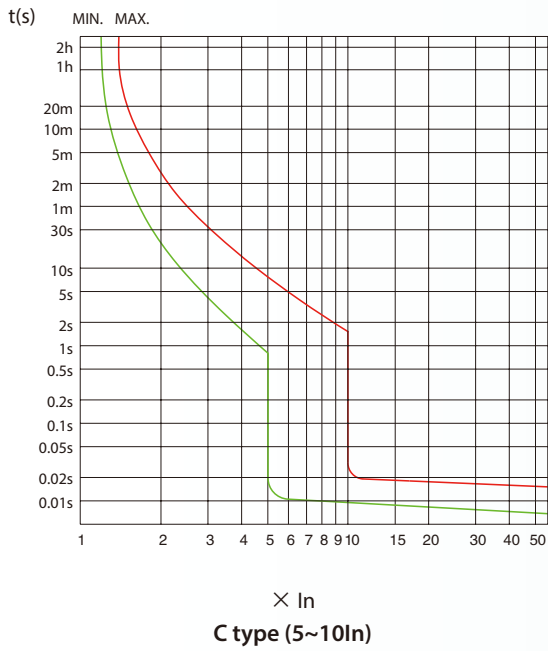
UVT Under Voltage Trip		220-240	48	1NO. 1NC 230V 6A 440V 3A	18	BHK41 BHK42
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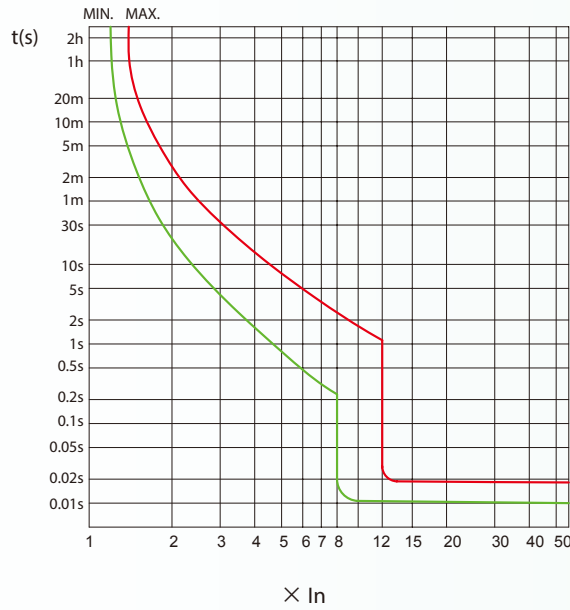
Type	Rated voltage	Current	Over voltage range	Trip time	Width (mm)	Product Code	
OVT Over Voltage Trip		230V	15mA	280V ± 5%	≤ 0.25	18	BHK51 BHK52

### Over-current protection characteristic

BHA series (4.5/6/10kA) 、 BHN series 、 BHL series (4.5/6kA)

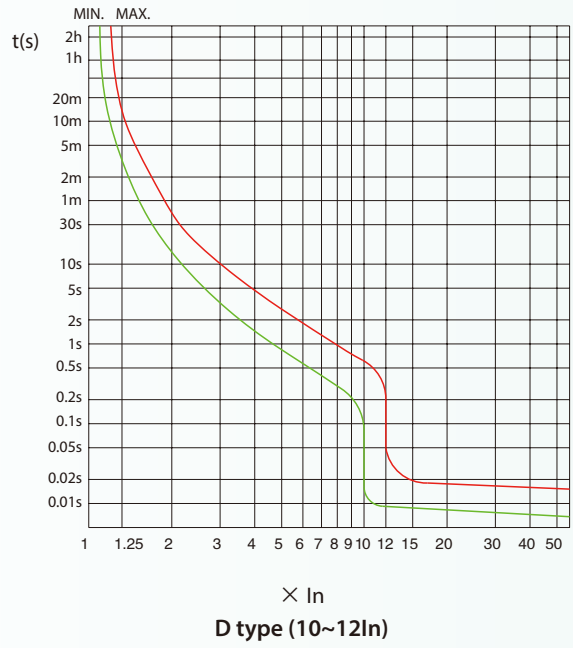
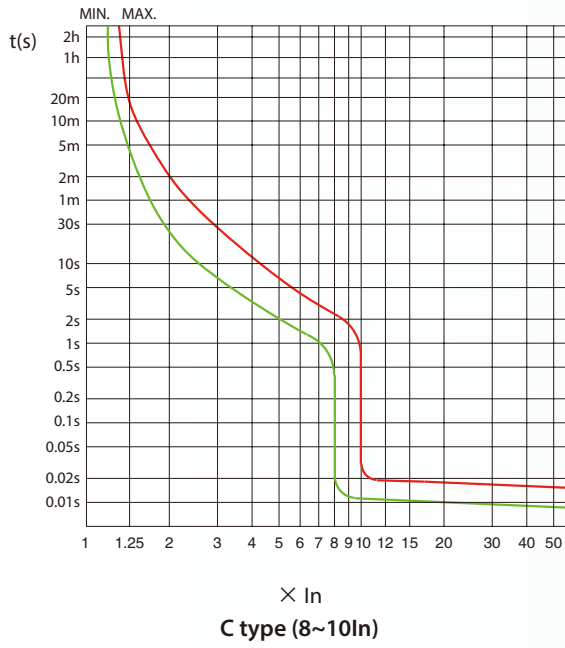


BHA DC series





BHA series (100AF)





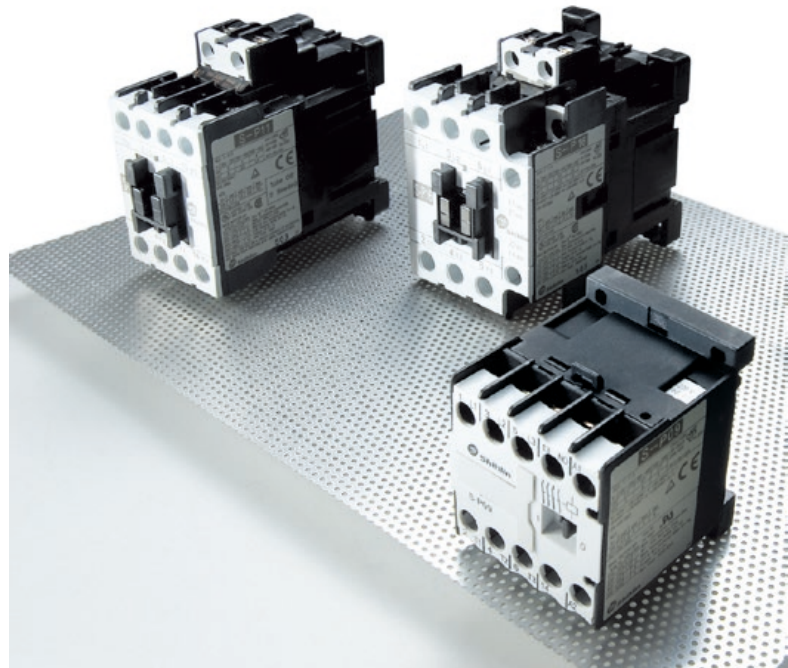


CIRCUIT BREAKER ( MCCB / ELCB / EMCCB / MCB )

## Breaker & Switchgear System



AIR CIRCUIT BREAKER



MOTOR CONTROL ( CONTACTOR / MS / MMS )



AUTOMATIC TRANSFER SWITCHES



SURGE PROTECTIVE DEVICE



SMART METER



INVERTER



LOW VOLTAGE POWER CAPACITORS

# SHIHLIN ELECTRIC & ENGINEERING

MOTOR CONTROL (CONTACTOR/ MS/ MMS), CIRCUIT BREAKER (MCCB/ ELCB/ EMCCB/ MCB), AIR CIRCUIT BREAKER, AUTOMATIC TRANSFER SWITCHES (Panel Board Type/ Residential Unit Use), SURGE PROTECTIVE DEVICE, LOW VOLTAGE POWER CAPACITORS, SMART METER, INVERTER



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