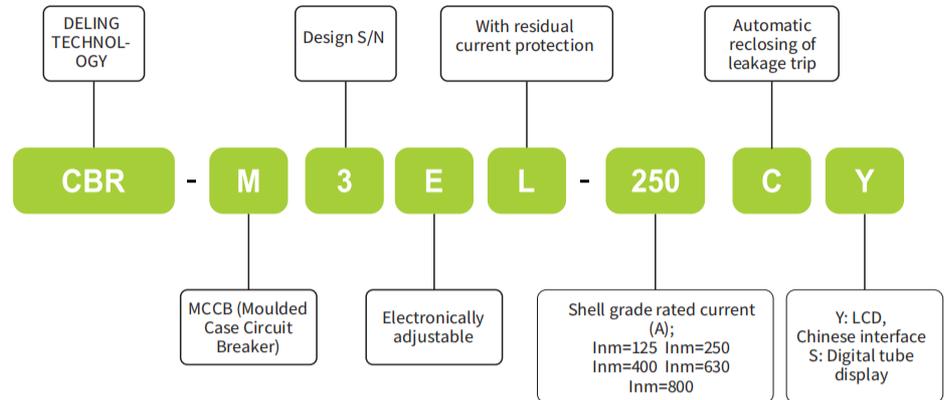




### Model and Meaning



### Scope of Application

The rated insulation voltage of series residual current operated circuit breaker is 1000V, which is suitable for three-phase four-wire neutral point direct grounding (TT) distribution networks with 50Hz AC, 400V rated voltage and 800A rated current. It is used to provide indirect contact protection; Prevent fire danger caused by grounding fault current due to equipment insulation damage; And it can be used to distribute electric energy and it can also be used to distribute electric energy and protect lines and power supply equipment from overload, undervoltage, short circuit, single-phase grounding and other faults.

Products meet the following standards:

Low-voltage Switchgear and Controlgear Assemblies – Part 1: General (GBT14048.1-2012);

Low-voltage Switchgear and Control Gear - Part 2: Circuit Breaker (IEC60947-2);

Circuit Breaker for Equipment (GBT17701-2008)

### Main Functions and Features

- High-performance 32-bit ARM microprocessor is used to carry out signal processing and intelligent control in real time;
- LCD Chinese/English display provides friendly HMI and simple operation;
- For residual current (leakage) protection, the residual current gear can be set online, with reclosing function;
- Monitor and track the residual current of the line in real time, and automatically adjust the gear to ensure the operation rate and reliability of the product;
- Long delay, short delay and instantaneous three-stage protection, electronic tripping mode is applied, which is independent of supply voltage;
- High breaking ability could ensure the reliability of short circuit protection for the line;
- Overvoltage protection, undervoltage protection, phase loss protection;
- Real-time display of residual current, three-phase supply voltage and load current of the line;
- Protection functions and parameters can be set and modified online;
- Trip types (residual current, locking, overload, undervoltage, overvoltage, phase loss) can be identified & displayed, and can be stored, inquired & deleted;
- Network type has communication function, which can realize remote communication, telemetry, remote control and remote adjustment.
- Pluggable lightning protection module (optional)
- Infrared communication function (optional)

### Main Technical Parameters

Specification/Model	CBRM3EL-125CY CBRM3EL-125CS	CBRM3EL-250CY CBRM3EL-250CS	CBRM3EL-400CY CBRM3EL-400CS	CBRM3EL-630CY CBRM3EL-630CS	CBRM3EL-800CY CBRM3EL-800CS
Shell grade rated current (A)	125	250	400	630	800
No. of poles	3P+N	3P+N, 2P	3P+N	3P+N	3P+N
Rated operating voltage U <sub>e</sub> : (V)	AC 400/50HZ				
Rated insulation voltage U <sub>i</sub> (V)	1000				
Rated impact withstand voltage (V)	8000				
Flashing distance (mm)	≥ 50		≥ 100		
Limit short circuit breaking capacity I <sub>cu</sub> (kA)	50		65	65	
Operating short circuit breaking capacity I <sub>cs</sub> (kA)	36		50	50	
Rated residual short circuit on (off) capacity I $\Delta$ m (kA)	12.5 17.5 (H)		16.25 (H 21.5)	16.25	
Rated short-time withstand current I <sub>cw</sub> (kA)/S	1.5	3	5	8	10
Residual current operating features	AC type				
Rated residual operating current I $\Delta$ n (mA)	50/100/200/300/400/500/600/800 MCU automatic tracking or manual setting			100/200/300/400/500/600/800/1000 MCU automatic tracking or manual setting	
Residual operating time features	Delayed/non-delayed type				
Limit non-drive time of delayed type (s)	0.06/0.1/0.2 Optional: 2I $\Delta$ n				
Breaking time (s)	I $\Delta$ n ≤ 0.5; 2I $\Delta$ n ≤ 0.2; 5I $\Delta$ n ≤ 0.15				
Auto re-closing time (s)	20-60				
Operational performance (times)	Powered	1500	1000	1000	500
	Not powered	8500	7000	4000	2500
	Total	10000	8000	5000	3000
Overload and short circuit features	Three-stage protection, electronically adjustable, see "Description of Protection features" for details				
Overvoltage protection value (V)	Setting value (250~300) ± 5%				
Undervoltage protection value (V)	Setting value (145~200) ± 5%				
Link control delay time (ms)	≤ 40ms				
Communication delay time (ms)	≤ 200ms				

### Description of Protection features

- ◆ Overload long delay protection operating value setting range

Table 1: Overload Long Delay Parameters Setting

Parameters	Shell current	Set value	Factory setting value
operating setting value I <sub>r1</sub>	125	50A、63A、80A、100A、125A	125A
	250	100A、125A、140A、160A、180A、200A、225A、250A	250A
	400	160A、180A、200A、225A、250A、315A、350A、400A	400A
	630	250A、315A、350A、400A、500A、630A	630A
	800	315A、350A、400A、500A、630A、700A、800A	800A
Delay time setting value t <sub>L</sub>		3s,4s,6s,8s,10s,12s,16s,18s,OFF	12s

◆ operating features

Table 2: Protection operating features

Ambient temperature	Current name	Setting current multiple	Agreed time
+40°C	Agreed non-release current	1.05I <sub>r1</sub>	≥ 2h
	Agreed release current	1.3I <sub>r1</sub>	< 2h

◆ Delay features

Overload protection is carried out according to inverse time features:

$T = (6I)^{2tL}$  Delay accuracy: 10%, where T is the operating time value, I<sub>r1</sub> is the long delay protection setting value, I is the fault current, and tL is the long delay time setting value.

◆ Short-circuit short-time delay protection

Short-circuit short-delay protection prevents impedance short-circuit of distribution system. The purpose of trip delay is to realize selective protection.

Setting of related parameters of short-circuit short-delay protection

Table 3: Short Circuit Short-Delay Parameter Setting

Parameters setting	Set value	Factory setting value
Setting value of short-delay operating current I <sub>r2</sub>	2I <sub>r1</sub> , 2.5I <sub>r1</sub> , 3I <sub>r1</sub> , 4I <sub>r1</sub> , 5I <sub>r1</sub> , 6I <sub>r1</sub> , 7I <sub>r1</sub> , 8I <sub>r1</sub> , 10I <sub>r1</sub> , 12I <sub>r1</sub>	6I <sub>r1</sub>
Setting value of short-delay time t <sub>s</sub>	0.1s, 0.2s, 0.3s, 0.4s, 0.6s, 0.8s, 1.0s, OFF	0.4s

operating features of short-circuit short-delay protection

Table 4: Short-circuit Short-Delay operating features

features	Fault current multiple	Release features	Delay error
Non-operating features	≤ 0.85 I <sub>r2</sub>	Non-operating	/
Activate features	> 1.15 I <sub>r2</sub>	Delay operating	±40ms

◆ Instantaneous protection

Setting of related parameters of instantaneous protection

Table 5: Instantaneous Parameters Setting

Parameters setting	Set value	Factory setting value
Instantaneous operating current setting value I <sub>r3</sub>	4 I <sub>r1</sub> , 6 I <sub>r1</sub> , 7 I <sub>r1</sub> , 8 I <sub>r1</sub> , 10 I <sub>r1</sub> , 11 I <sub>r1</sub> , 12 I <sub>r1</sub> , 13 I <sub>r1</sub> , 14 I <sub>r1</sub> , OFF	10 I <sub>r1</sub>

operating features of short-circuit instantaneous protection

Table 6: Instantaneous operating Features

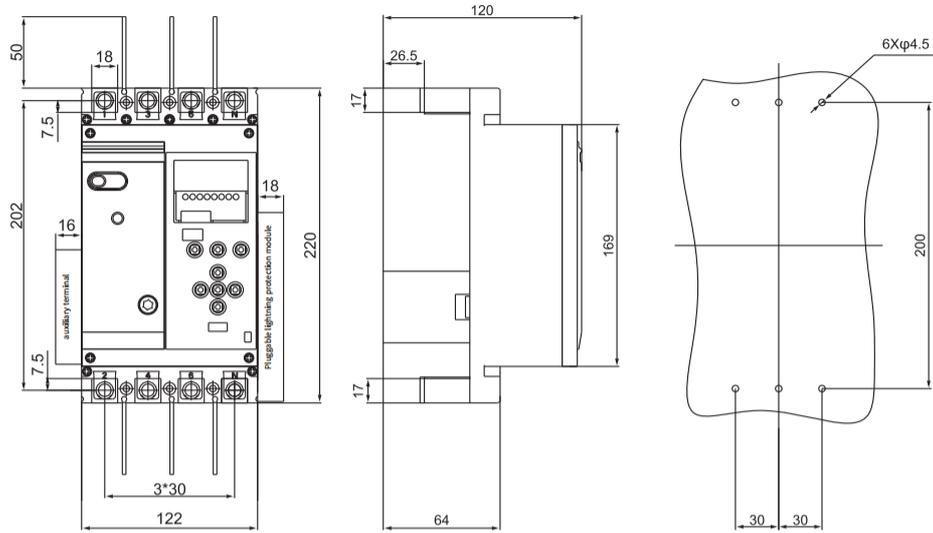
features	Fault current multiple	Release features	Release time
Non-operating features	≤ 0.85	Non-operating	≥ 200ms
Activate features	> 1.15	Instantaneous operating	< 200ms

◆ Residual current protection features

Gear setting range

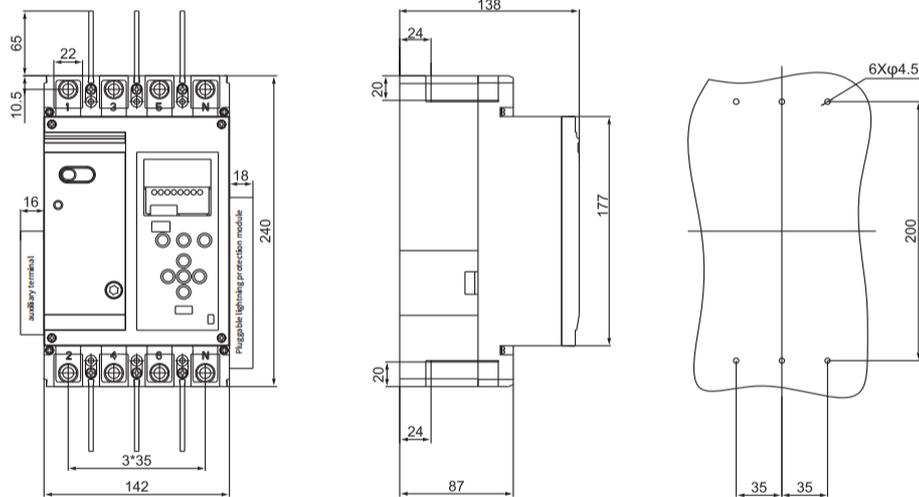
Parameters	Setting value (125,250,400)	Setting value (630,800)	Factory setting value
Residual operating current I <sub>Δn</sub>	50,100,200,300,400,500, 600,800 automatic	100,200,300,400,500,600,800,1000 automatic	500

Overall and Installation Dimensions

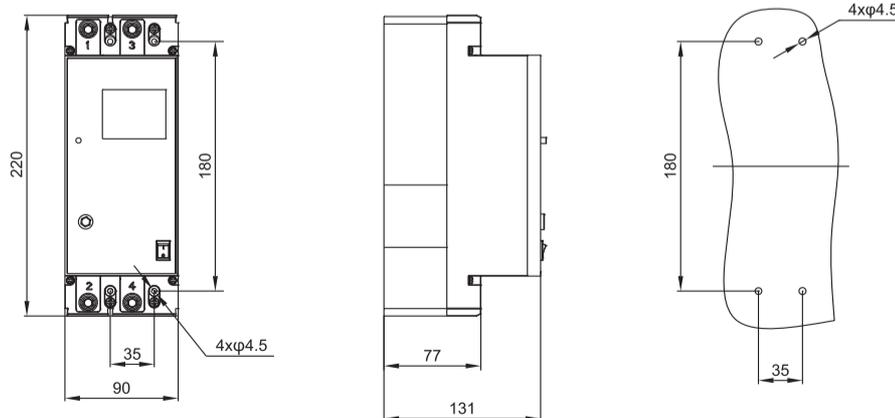


CBRM3EL-125CY  
CBRM3EL-125CS

Note: Auxiliary contact is on the left side and lightning protection module is on the right side of the accessory in the figure: the size of each model accessory is the same

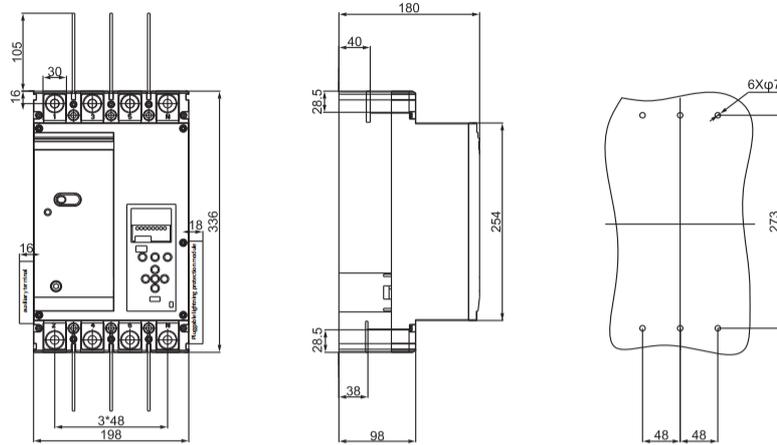


CBRM3EL-250CY

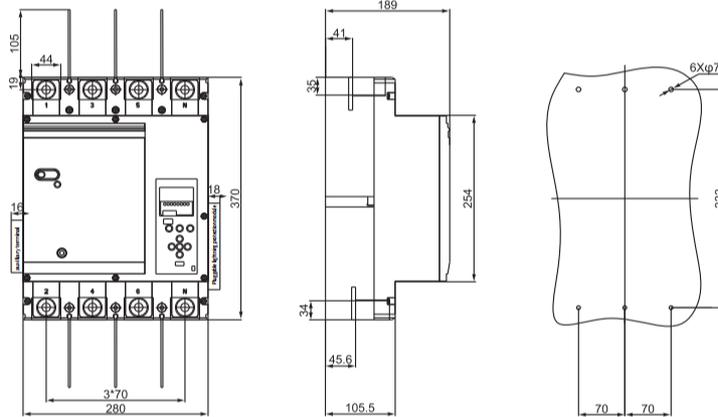


CBRM3EL-250CY/2P

Overall and Installation Dimensions



CBRM3EL-400CY  
CBRM3EL-400CS



CBRM3EL-630-800CY  
CBRM3EL-630-800CS

Diagram

