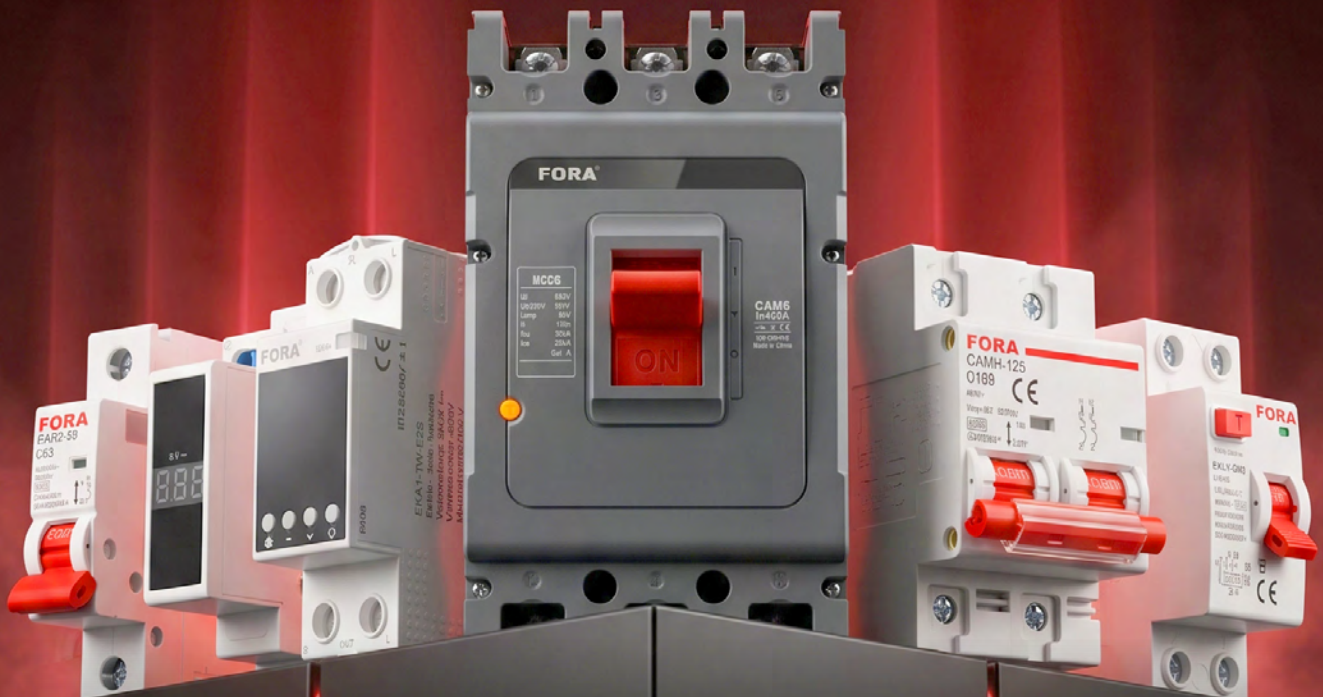




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FOR ELECTRICAL INDUSTRIES

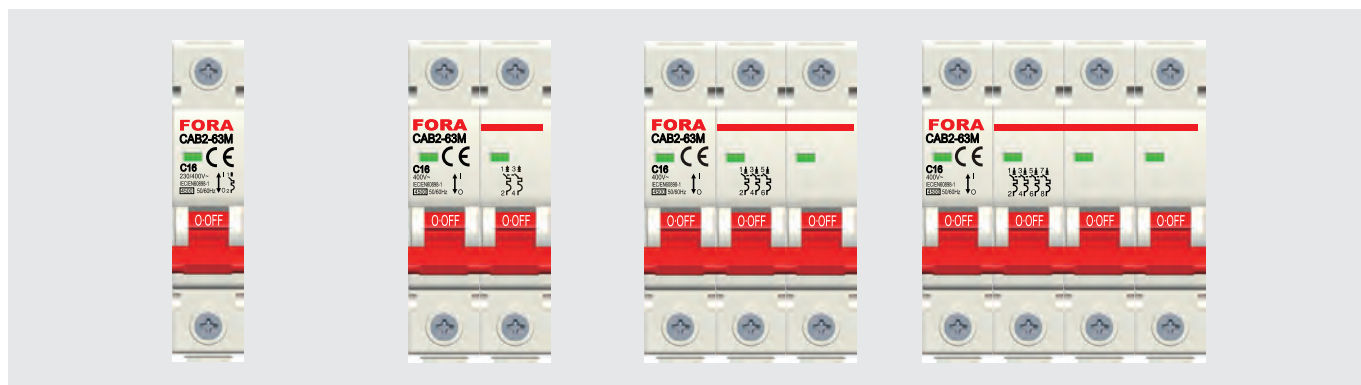
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CAB2-63M Economic Type MCB 4.5KA

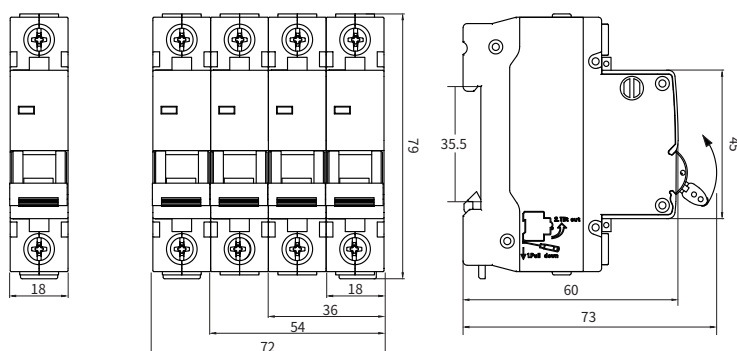
Mini Circuit Breaker ----- Standard_IEC60898-1



TechnicalData

Standard	IEC/EN60898-1
Protection	Overcurrent and short circuit
Type of trip	Thermo-magnetic
No.of poles	1P,1P+N,2P,3P,3P+N,4P
Rated voltage (Ue)	240/415V~
Rated currents (In)	1,2,3,4,5,6,10,16,20,25,32,40,50,63A
Rated frequency	50/60Hz
Rated breaking capacity	4,500A
Rated impulse with standard voltage (1.5/50)(Uimp)	4,000V
Dielectric test voltage at Ind. Freq. for 1min	2kV
Thermal release characteristic	$(1.13-1.45) \times I_n$
Magnetic release characteristic	B: $(3-5) \times I_n$, C: $(5-10) \times I_n$, D: $(10-20) \times I_n$
Electrical life	4,000 Cycles
Mechanical life	10,000 Cycles
Contact position indicator	Yes
Protection degree	IP20
Ambient temperature	-5°C to +40°C Max. 95% humidity
Terminal connection type	Cable/Pin-type busbar
Max. terminal size for cable	25mm ²
Max. tightening torque	2.5N.m
Installation	Mounting on 35mm DIN rail
Connection	From top and bottom

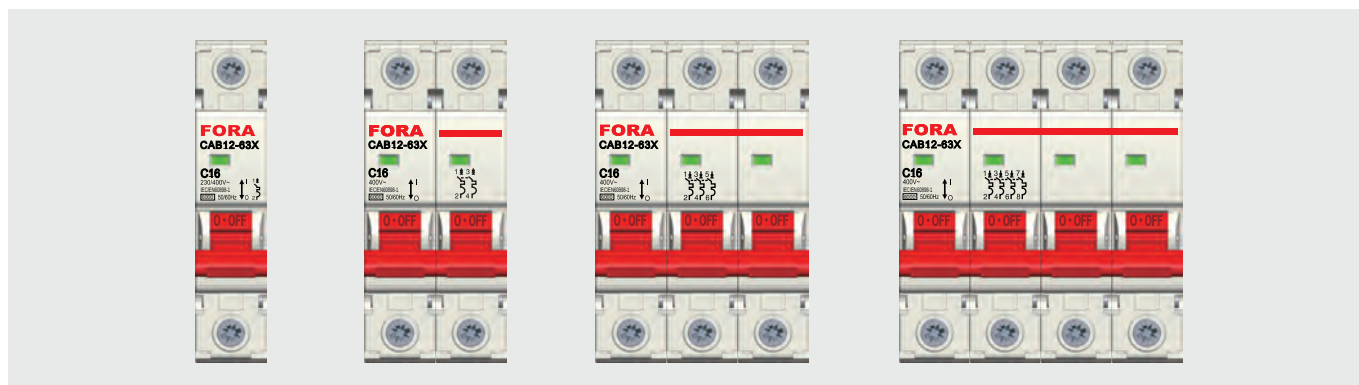
OverallandInstallationDimension(mm)



CAB12-63X Economic Type MCB 6kA

Mini Circuit Breaker

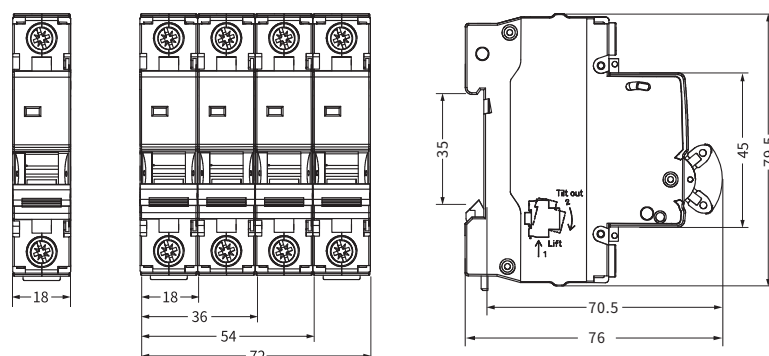
Standard_IEC60898-1



Technical Data

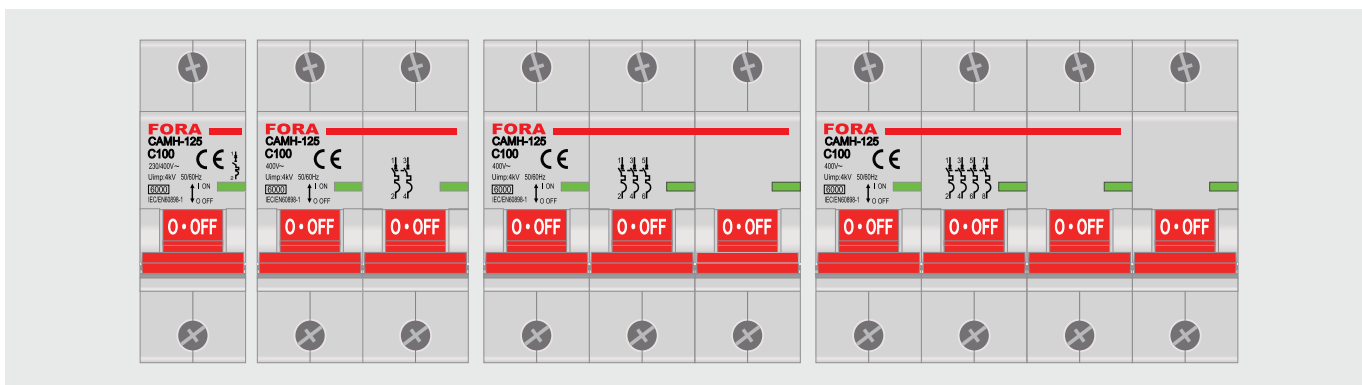
Standard	IEC/EN60898-1
Protection	Overcurrent and short circuit
Type of trip	Thermo-magnetic
No.of poles	1P,2P,3P,4P,1P+N,3P+N
Rated voltage (Ue)	240/415V~
Rated currents (In)	1,2,3,4,5,6,10,16,20,25,32,40,50,63A
Rated frequency	50/60Hz
Rated breaking capacity	6,000A
Rated impulse withstand voltage(1.2/50) Uimp	4,000V
Dielectric test voltage at Ind. Freq.for 1 min	2kV
Thermal release characteristic	$(1.13-1.45) \times I_n$
Magnetic release characteristic	B: $(3-5) \times I_n$, C: $(5-10) \times I_n$, D: $(10-20) \times I_n$
Electrical life	4,000 Cycles
Mechanical life	10,000 Cycles
Contact position indicator	Yes
Protection degree	IP20
Ambient temperature	-5°C to +40°C, Max.95% humidity
Terminal connection type	Cable/Pin-type busbar
Max.terminal size for cable	25mm ²
Max.tightening torque	2.5N.m
Installation	Mounting on 35mm DIN rail
Connection	From top and bottom

Overall and Installation Dimension(mm)



CAMH-125 Economic Type 6kA MCB

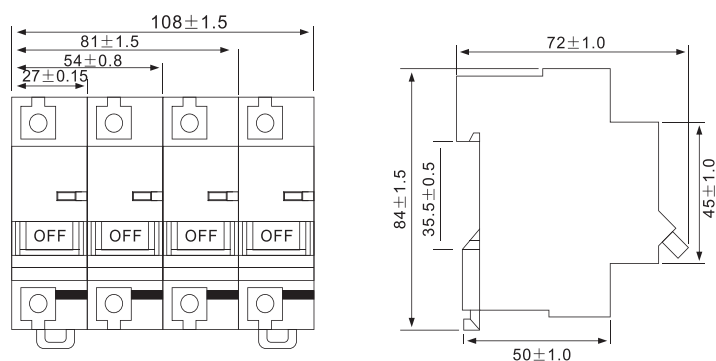
Mini Circuit Breaker Standard_IEC60947-2 IEC60898-1



Technical Data

Standard	IEC/EN60898-1	IEC/EN60947-2
Type of trip	Thermo-magnetic	
No.of poles	1P,2P,4P,3P,1P+N,3P+N	
Rated currents (In)	63,80,100,125A	
Rated voltage (Ue)	240/415V~	
Rated frequency	50/60Hz	
Rated breaking capacity	6,000A	
Rated impulse withstand voltage(1.2/50) Uimp	4,000V	
Dielectric test voltage at Ind. Freq.for 1 min	2kV	
Rated insulation voltage Ui	500V	
Thermal release characteristic	(1.13-1.45) x In	(1.05-1.30) x In
Thermo-magnetic release characteristic	B:(3-5) x In, C:(5-10) x In	(8-12) x In
Electrical life	4,000 Cycles	
Mechanical life	10,000 Cycles	
Contact position indicator	Yes	
Protection degree	IP20	
Ambient temperature	-5°C to +40°C Max.95%humidity	
Terminal connection type	Cable/Pin-type busbar	
Max. terminal size for cable	50mm ²	
Max. tightening torque	3.5N.m	
Installation	Mounting on 35mm DIN rail	
Connection	From top and bottom	

Dimension(mm)



CAM6 MCCB

Moulded Case Circuit Breaker

Standard_IEC60947-2

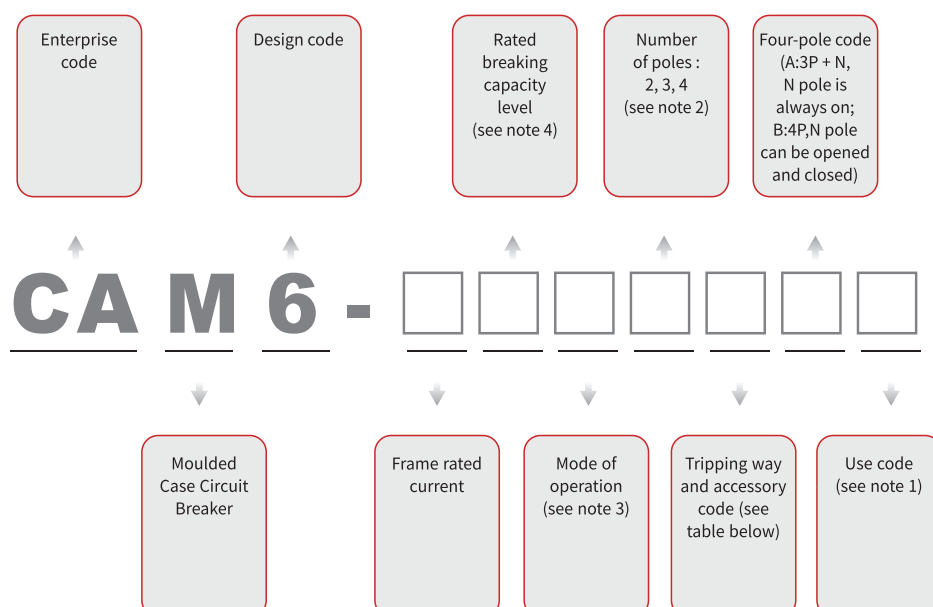


Scope Of Application

CAM6 Series Moulded Case Circuit Breaker (hereinafter as circuit breaker) is one of the latest circuit breakers developed by our company. The product has the characteristics of small size, high breaking, short arcing and high protection accuracy. It is an ideal product for power distribution and an updated product of the plastic external circuit breaker. It is suitable for infrequent conversion and infrequent motor starting in circuits with AC50Hz, rated operating voltage of 400V and below, and rated operating current to 800A use. The circuit breaker has overload, short circuit and under-voltage protection functions, which can protect the circuit and power equipment from damage.

This series of circuit breakers comply with IEC60947-2 standards.

Type Designation



Note: 1) No code for power distribution protection: circuit breaker for motor protection is indicated by 2

2) No code for three-pole products.

3) No code for handle directly operated ; the motor operation is indicated by p; the rotation of the handle operation is indicated by Z.

4) See main technical parameters.

CAM6 MCCB

Moulded Case Circuit Breaker ----- Standard_IEC60947-2

Normal Working Condition

1. Altitude: The altitude of the installation site is 2000m and below.
2. Ambient air temperature: the ambient air temperature is not higher than +40°C (+45°C for marine products) and not lower than -5°C, and the average temperature within 24 hours does not exceed + 35°C.
3. Atmospheric conditions: when the maximum temperature is +40°C, the relative humidity of the air does not exceed 50%, and the effective high humidity can be allowed at lower temperatures; for example, RH could be 90% at 20P. Special measures should be taken for condensation that occasionally occurs on the product due to temperature changes.
4. It can work withstand the influence of humid air, the influence of salt mist and oil mist, the carving of toxin bacteria and the influence of nuclear radiation.
5. It can work reliably under normal vibration of the ship.
6. It can work reliably under the condition of a slight earthquake (level 4).
7. It can work in the medium without explosion hazard, and the medium does not have enough gas and conductive dust to corrode the metal and destroy the insulation.
8. It can work in a place free from rain and snow.
9. It can work in the maximum inclination is $\pm 22.5^\circ$.
10. Pollution degree is 3
11. Installation category: The installation category of the main circuit breaker is II, and the installation category of auxiliary circuits and control circuits not connected to the main circuit is II.

Classification

1. According to product pole number: classify into 2 poles, 3 poles and 4 poles. The forms of neutral poles (N poles) in 4-pole products are as follows:
 - ◇ N pole is not installed with overcurrent trip element, and the N pole is always connected, and it will not open and close with other three poles.
 - ◇ N pole is not installed with overcurrent trip element, and N pole is open and close with other three poles (N pole is open first and then close.)
 - ◇ N-pole installed over-current tripping components are open and close with other three poles.
 - ◇ N-pole installed overcurrent release components will not open and close together with other three poles.
2. Classify according to the rated short-circuit breaking capacity of the circuit breaker:
 - L: Standard type; M. Higher breaking type; H. High breaking type; R: Ultra high breaking type
3. Classify according to operation mode: handle direct operation, rotary handle operation, electric operation;
4. Classify according to the wiring method: front wiring, rear wiring, plug-in wiring;
5. Classify according to the installation method: fixed (vertical installation or horizontal installation)
6. Classify by use: power distribution and motor protection;
7. Classify according to the form of overcurrent release: electromagnetic type, thermal electromagnetic type;
8. Classify according to whether there are accessories: with accessories, without accessories; The accessories are divided into internal accessories and external accessories; internal accessories have four types: shunt release under-voltage release, auxiliary contacts and alarm contacts; external accessories have rotating handle operating mechanism, electric operating mechanism, interlock mechanism and wiring terminal block, etc. The codes of internal accessories are shown in the table below.

CAM6 MCCB

Moulded Case Circuit Breaker Standard_IEC60947-2

Accessory name	Instantaneous release	Complex trip
None	200	300
Alarm contact	208	308
Shunt release	218	310
Energy meter prepayment function	310S	310S
Auxiliary contact	220	320
Under-voltage release	230	330
Auxiliary contact and shunt release	240	340
Under-voltage release Shunt release	250	350
Two sets of auxiliary contacts	260	360
Auxiliary contact and under-voltage release	270	370
Alarm contact and shunt release	218	318
Auxiliary contact and alarm contact	228	328
Alarm contact and under-voltage release	238	338
Alarm contact Auxiliary contact and shunt release	248	348
Two sets of auxiliary contact and alarm contacts	268	368
Alarm contact Auxiliary contact and under-voltage release	278	378

Main Performance Indexes

1. Main Performance Indexes

Model		CAM6-63	CAM6-125		CAM6-250		CAM6-400		CAM6-630		CAM6-800		
Frame current		63	125		250		400		630		800		
Rated current		(6)、10、16 20、25、32 40、50、63	80、100、125		100、125、160 180、200、225 250		225、250 315、350 400		400、500 630		630、700 800		
Rated insulation voltage		1000	1000		1000		1000		1000		1000		
Rated working voltage		400	400		400		400		400		400		
Rated impulse withstand voltage Uimp(KV)		8	8		8		8		8		8		
Breaking capacity code		S	S	H	S	H	S	H	S	H	S	H	
Ultimate short-circuit breaking capacity Icu(KA)	AC 415V	10	25	35	25	35	35	50	35	50	35	50	
Operating short-circuit breaking capacity Ics(KA)	AC 415V	5	18	25	18	25	25	35	25	35	25	35	
Arc distance (mm)		≤50	≤50				≤100						
Operating performance (times)	Times/hour	120					60				20		
	Power on	4000	3000			1500		1000				500	
	No electricity	6000	7000			6500		4000				2500	

CAM6 MCCB

Moulded Case Circuit Breaker Standard_IEC60947-2

Main Performance Indexes

2. Circuit breaker overcurrent protection characteristics

◇ Characteristics of overcurrent inverse time protection for distribution protection

Name of test current	I/h	Conventional time			Initial state	Ambient temperature
		$I_h \leq 63$	$63 < I_n \leq 250$	$I_n \geq 250$		
Conventional non - trip current	1.05	$\geq 1h$	$\geq 2h$	$\geq 2h$	Cold state	+30°C
Conventional trip current	1.30	$< 1h$	$< 2h$	$< 2h$	Thermal state	
Returnable time	3.0	5s	8s	12s	Cold state	

◇ Characteristics of overcurrent inverse time protection for motor protection

Name of test current	I/h	Conventional time		Initial state	Ambient temperature
		$10 < I_n \leq 250$	$250 \leq I_n \leq 630$		
Conventional non - trip current	1.0	$\geq 2h$		Cold state	+40°C
Conventional trip current	1.2	$< 2h$		Thermal state	
	1.5	$\leq 4min$	$\leq 8min$	Cold state	
Returnable time	7.2	$4s \leq T \leq 10s$	$6s \leq T \leq 20s$	Thermal state	

◇ Short-circuit setting value of instantaneous release

I_{nm} A	For power distribution	For motor protection
63、125、250、400	$10I_n$	$12I_n$
630	$5I_n$ and $10I_n$	
800	$10I_n$	

3. Parameters of internal accessories of circuit breaker

◇ The rated working voltage of the undervoltage release is: AC50HZ, 230V, 400V; DC110V, 220V and so on.

Undervoltage release should act when voltage drops to within 70% and 35% of the rated voltage.

The undervoltage release should not be able to close to prevent the circuit breaker from closing when voltage is lower than 35% of the rated voltage.

The undervoltage release should ensure to be closed and ensure reliable closing of the circuit breaker when voltage is equal to or greater than 85% of the rated voltage.

◇ Shunt release

The rated control voltage of the shunt release is: AC50HZ 230V, 400V; DC100V, 220V, etc.

Shunt release can work reliably when the rated voltage value is at 70% and 110%.

◇ The rated current of auxiliary contact and alarm contact

Classification	Frame rated current $I_{nm}(A)$	Conventional thermal current $I_{nm}(A)$	Rated working current at AC400V $I_e(A)$	Rated working current at DC220V $I_e(A)$
Auxiliary contact	≤ 250	3	0.3	0.15
	≥ 400	6	1	0.2
Alarm contact	$10 \leq I_{nm} \leq 800$	AC220V/1A, DC220V/0.15A		

CAM6 MCCB

Moulded Case Circuit Breaker ----- Standard_IEC60947-2

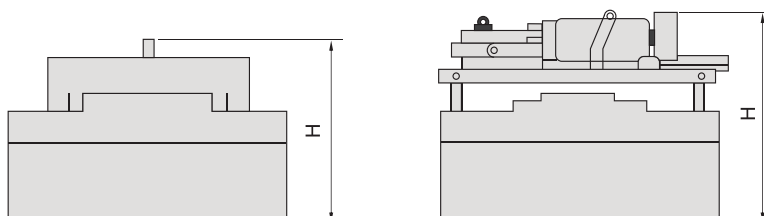
Main Performance Indexes

4. Electric operating mechanism

- ◇ The rated working voltage of the electric operating mechanism are: AC50HZ 110V、230V; DC110V、220V, etc.
- ◇ Motor power consumption of the electric operating mechanism is shown in the table below.

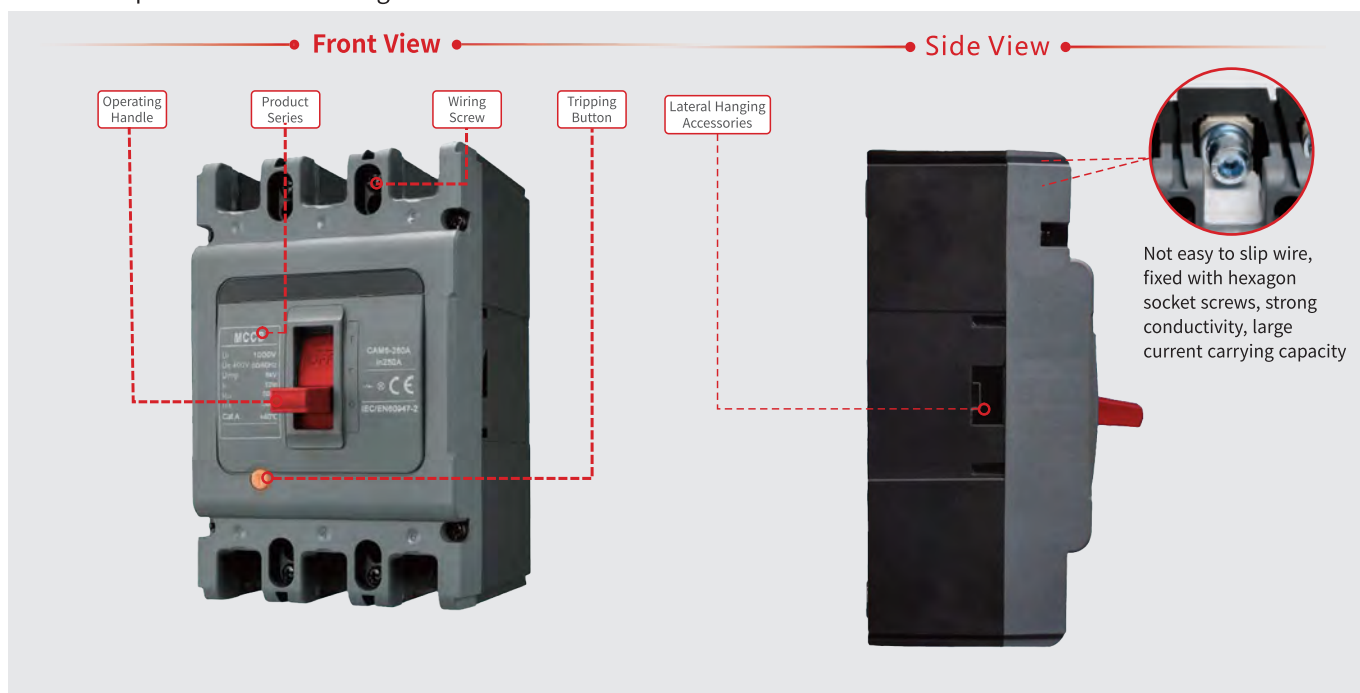
Power distribution circuit breaker	Starting current	Power consumption	Power distribution circuit breaker	Starting current	Power consumption
CAM6-63	≤ 5	1100	CAM6-400	≤ 5.7	1200
CAM6-125	≤ 7	1540	CAM6-630	≤ 5.7	1200
CAM6-250	≤ 8.5	1870			

- ◇ Installation height of electric operating mechanism



Inm Height	63S	125S	125H	250S	250H	400S	400H	630S	630H	800S、H
H(mm)	146	140	158	161	178	235	240	239	239	250

5. Rated impulse withstand voltage 8KV



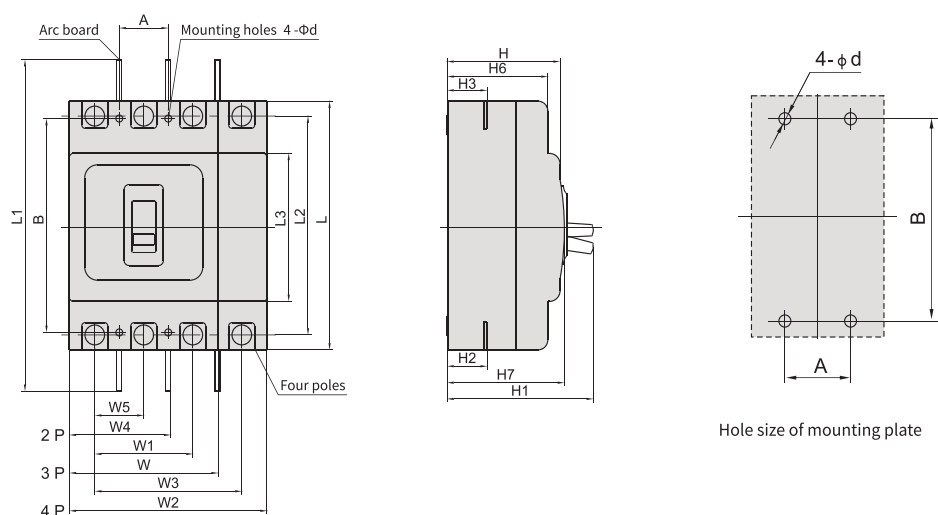
CAM6 MCCB

Moulded Case Circuit Breaker

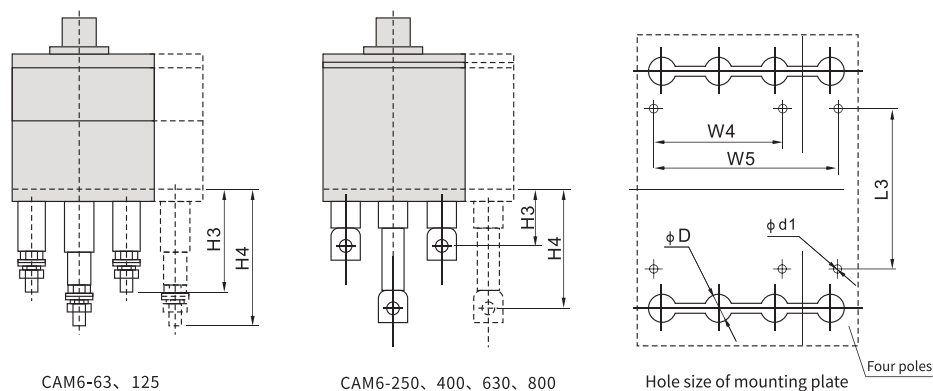
Standard_IEC60947-2

Outline And Installation Dimensions

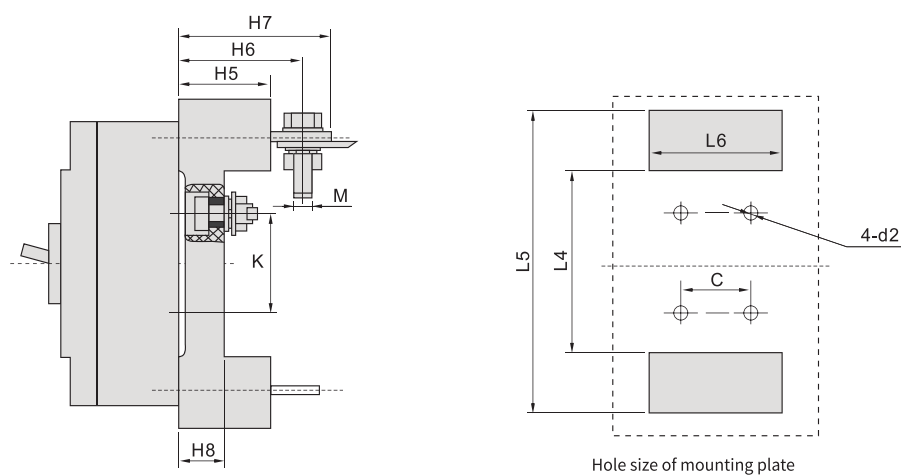
Front Wiring



Back-board Wiring



Plug-in Type Wiring



CAM6 MCCB

Moulded Case Circuit Breaker Standard_IEC60947-2

Type			Model	CAM6-63	CAM6-125		CAM6-250		CAM6-400		CAM6-630		CAM6-800	
			S	S	H	S	H	S	H	S	H	S	H	
Dimensions	Front-board Wiring	W	78	91.5		106.5		149.5		182		210		
		W2	101	121		142		197.5		240		280		
		W4	/	64.5		74.5		/		/		280		
		L	135	150		165		257		270		280		
		H	74	69	87	86	103.5	104.5		110		116		
		H6	/	62	79.5	80.5	98.5	96.5		102		/		
		H7	/	72	90	88.5	106.5	109		114.5		/		
		W1	50	60		70		96		116		140		
		W3	75	90		105		144		174		210		
		W5	/	30		35		/		/		/		
		L1	169	220		295		476		476		490		
		H1	90.5	86	104	110	127	155		160		158		
		H2	28	24.5	23.5	23	24	37		41.5		43		
		H3	28	24.5	23.5	23	24	39		44.5		43		
		L2	117	132		144		224		234		243		
	L3	/	89		102		173.5		184		/			
	Back-board Wiring	H4	44	68		66		60		65		/		
		H5	66	108		110		120		125		/		
Installation Dimensions		A	25	30		35		44		58		70		
		B	117	129		126		194		200		243		
		φd	3.5	4.5		5		7		7		7		

CAM6 MCCB

Moulded Case Circuit Breaker Standard_IEC60947-2

Installation, Use And Maintenance

1. Close and open the circuit breaker several times to check whether the operating mechanism of the circuit breaker is stuck and whether the mechanism is reliable.
2. The "N", "1", "3" and "5" of the breaker are the input ends, and the "N", "2", "4" and "6" are the output ends, no flipping is allowed.
3. The cross-section area of the connecting wire selected when the circuit breaker is wired should be matched with the rated current. Refer to the table below for the cross-section of the main circuit wire when using copper wires and copper bars.

Rated current (A)	10	16 20	25	32	40 50	63	80	100	125 140	160	180 200 225	250	315 350	400
Conductor cross-section area(mm ²)	1.5	2.5	4	6	10	16	25	35	50	70	95	120	185	240

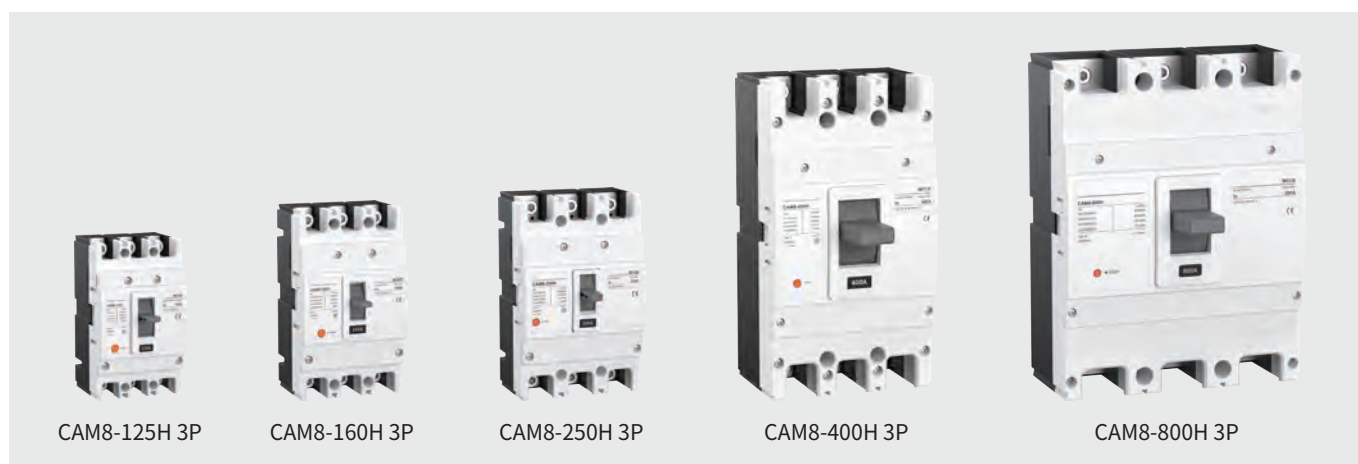
Rated current value (A)	Cable		Copper bar	
	Cross-section area (mm ²)	Quantity	Size (mm×mm)	Quantity
500	150	2	30×5	2
630	185	2	40×5	2
800	240	3	50×5	2

4. Confirm that all terminal connections and fixing screws should be tightened without looseness before use.
5. Install the circuit breaker separately and fix it vertically in a dry and ventilated place. It should be easy to maintain and operate, generally $1 \geq 1.5$ meters from the ground.
6. Confirm that there are no short-circuits or short-circuits to ground between the terminals or exposed live parts.
7. After the circuit breaker is overloaded, it is necessary to find out the reason and eliminate the fault. After the bimetal in the circuit breaker is reset, the circuit can be energized.

CAM8 MCCB 125AF~2000AF

Thermal Magnetic Fixed MCCB

Standard_ IEC60947-2

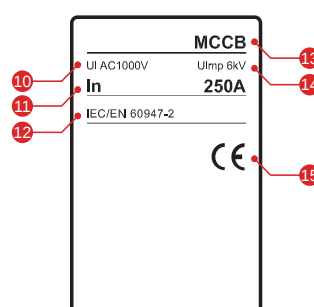
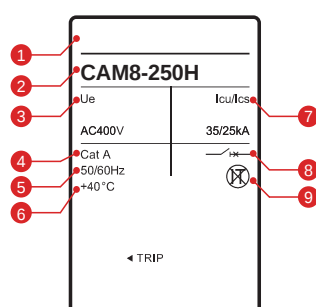


Product Overview

CAM8 series offers a range of molded case circuit breakers with fixed thermal magnetic trip units, providing both line and motor protection. These MCCB are suitable for use with AC 50Hz, rated voltage of 690V and below, and rated current up to 2000A.

- Frame size: 125A, 160A, 250A, 400A, 630A, 800A, 1250A, 2000A
- Rated operational voltage U_e (V/AC): 230/400/415/690
- Breaking capacity code: C, S, H
- Number of poles: 1P, 2P, 3P, 4P
- Trip unit type: thermal magnetic type
- Installation method: Fixed type; plug-in type

Nameplate Interpretation



- 1 Company LOGO
- 2 Product model
- 3 U_e : Rated operational voltage
- 4 Cat A: Utilization category of breaker
- 5 Frequency of A.C.
- 6 +40°C: Ambient temperature
- 7 I_{cu}/I_{cs} : Ultimate short circuit breaking capacity/Service short circuit breaking capacity

- 8 Electrical symbol for circuit breaker with isolating function
- 9 Not applicable to IT systems
- 10 U_i : Rated insulation voltage
- 11 I_n : Rated operational current
- 12 The product is in conformity with standard IEC/EN 60947-2
- 13 Molded Case Circuit Breaker
- 14 U_{imp} : Rated impulsive withstand voltage
- 15 CE certification

CAM8 MCCB 125AF~2000AF

Thermal Magnetic Fixed MCCB ----- Standard_ IEC60947-2

Comparison Table of Frame Sizes and Rated Current

Rated current(A)		10	16	20	25	32	40	50	63	80	100	125	160	180	200	225	250	315	350	400	500	630	700	800	1000	1250	1500	1600	2000
Frame size(A)	125																												
	160																												
	250																												
	400																												
	630																												
	800																												
	1250																												
	2000																												

Comparison Table of Frame size, Number of Poles and Breaking Capacity

Frame size(A)	125				160			250		400		630		800		1250		2000	
Number of poles	1P	2P	3P	4P	2P	3P	4P	3P	4P	3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
Code of breaking capacity	C	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	S	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	H	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Thermal and Magnetic Trip Unit

Protection

The circuit breaker equipped with TM thermomagnetic release is mainly for protection of the cable, which is on the power distribution system for transformer power supply.

Overload protection: thermal protection I_r (Fixed)

The overload protection function provides inverse time limit curve on the basis of bimetal. If the limit is exceeded, the deformation of the bimetal can lead in the tripping of the circuit breaker operating mechanism.

Test No.	I/I_n	Conventional time	Breaker status	Initial status
1	1.05	$> 1h(I_n \leq 63A)$ $> 2h(I_n > 63A)$	Non-tripping	Cold status
2	1.3	$\leq 1h(I_n \leq 63A)$ $\leq 2h(I_n > 63A)$	Tripping	Immediately after test 1

Short circuit protection: magnetic protection I_i (Fixed)

Magnetic protection achieves short circuit protection through a magnetic trip device. The circuit breaker will trip instantaneously. I_i set at $10I_n$.

Test No.	I	Breaker status	Conventional time
1	$80\%I_i$	Non-tripping	$\geq 0.2s$
2	$120\%I_i$	Tripping	$\leq 0.2s$

Magnetic

The circuit breaker equipped with magnetic release is mainly for protection of the motor.

Short circuit protection: magnetic protection I_i (Fixed)

Magnetic protection achieves short circuit protection through a magnetic trip device. The circuit breaker will trip instantaneously. I_i set at $12I_n$.

Test No.	I	Breaker status	Conventional time
1	$80\%I_i$	Non-tripping	$\geq 0.2s$
2	$120\%I_i$	Tripping	$\leq 0.2s$

CAM8 MCCB 125AF~2000AF

Thermal Magnetic Fixed MCCB ----- Standard_ IEC60947-2

MCCB Selection Code

Product code	Frame size code	Breaking capacity code	Operation way code ①	Number of poles code	Trip unit type code	Inner accessories code ②	
CAM8	- 160	H	P1	/ 4	3	00	
CAM8 Series thermal magnetic fixed molded case circuit breaker	125: 125A	C: Basic type	No code: Direct operation	1: 1P	2: Only electromagnetic detent	See accessory table	
	160: 160A		P1:DC3 electric operation				
			P2: DC6 series electric operation				
	250: 250A	S: Standard type	ZY1:Turning handle (hand-operated center type-round handle)-(Preferred for conventional factory)	2: 2P			
	400: 400A		ZF1:Turning handle (hand-operated center type-square handle)				
	630: 630A		ZY2:Turning handle (hand-operated eccentric type-round handle)	3: 3P	3: Thermal + Electromagnetic release		
	800: 800A						ZF2:Turning handle (hand-operated eccentric type-square handle)
	1250: 1250A			H: High breaking type			Z3:Turning handle (Hand-operated one-piece type) (Only available for 125, 160, 250)
	2000: 2000A						

Note: ① 1P, 2P products have direct operation only.

The voltage of electric operation is divided into: DC24, DC110V, DC220V, AC230V, AC400V;Conventional production is AC230V.

② 125: 1P products without internal accessories;

Conventional factory default is the lead type: wire length 500mm (other lengths need to be customized);

Can be customized terminal type; undervoltage accessories are only terminal type.

CAM8 MCCB 125AF~2000AF

Thermal Magnetic Fixed MCCB ----- Standard_ IEC60947-2

Usage code ③	Product with N pole the code is selectable	Additional functionality code	Mounting and wiring options code ④	Protective accessories code ⑤	Rated current
2	B	VI /	P	Z	In=100A
No code: distribution protection	A: There is no over-current protection at pole N and the N pole is always connected.	No code : Conventional products	No designation : Front panel wiring (fixed type)	No code: General products	125: 10,16,20,25, 32,40,50,63,80,100, 125A
			P: Coupling row (extended copper row)		160: 16,20,25,32,40, 50,63,80,100,125, 160A
			Z1: Rear connection (fixed type)		250: 100,125,160, 180,200,225,250A
	B: There is no over-current protection at pole N and N-pole operates with other three poles.	V: Low temperature rise model 50K	Z2Q: Plug-in front connection (split type)		400: 250,315,350, 400A
			Z2H: Plug-in rear connection (split type)		
			Z3Q: Plug-in front connection (one-piece)		
2: motor protection	C: There is over-current protection at pole N and N-pole operates with other three poles.	VI: Low temperature rise model 40K	Z3H: Plug-in rear connection (one-piece)	Z: Terminal cover	630: 400,500,630A
			DF: Draw-out type front connection		800: 500,630,700, 800A
			DR: Draw-out type rear connection		1250: 800,1000, 1250A
	D: There is over-current protection at pole N and the N pole is always connected.		K: Connection frame type		2000: 1000,1250, 1500,1600,2000A
			JK: Inlet only: Connection frame type		
			CK: Outlet only : Connection frame type		

③ ≤40A 8.5In does not act, 500A action; 700A -2000A no motor protection type.

④ 1P, 2P only connection row, behind the board wiring; 125, 160, 250 no pull-out; 125 no 4P plug-in (split);
1250, 2000 with coupling row only.

⑤ Terminal cover is only available for 3P;

400 and 630 are divided into narrow and long models, and wide and long models, and the default is wide and long models;
125 and 2000 are not available at the moment.

CAM8 MCCB 125AF~2000AF

Thermal Magnetic Fixed MCCB ----- Standard_ IEC60947-2

Technical Parameters

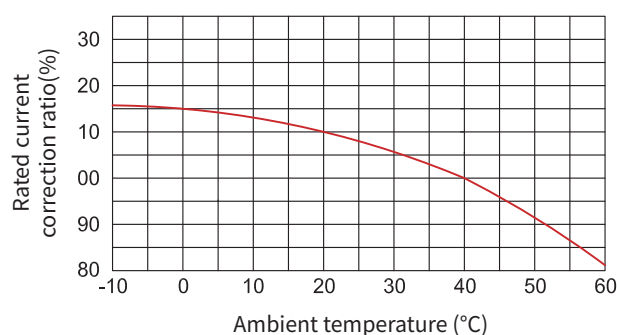
Frame size Inm(A)		125			160			
Rated operational current In(A)		10,16,20,25,32,40,50,63,80,100,125A			16,20,25,32,40,50,63,80,100,125,160A			
Rated insulation voltage Ui(V)		1000V			1000V			
Rated impulse withstand voltage Uimp(kV)		8kV			8kV			
Rated operational voltage Ue(V), AC 50/60Hz		230V(1P); 240V(3P/4P); 400V(2P/3P/4P); 690V(3P/4P)			230V; 400V; 690V			
Breaking capacity code		C	S	H	C	S	H	
Number of poles		1P,2P,3P,4P			2P,3P,4P		3P,4P	
Rated service short circuit breaking capacity Ics (kA)	230/240V	10	18	25	20	28	35	
	400/415V	7.5	15	18	10	18	25	
	600/690V	3	4	8	4	4	8	
Rated ultimate short circuit breaking capacity Icu (kA)	230/240V	15	25	35	30	40	50	
	400/415V	10	18	25	15	25	35	
	600/690V	5	6	8	6	8	8	
Standards		IEC 60947-2			IEC 60947-2			
Utilization category		A			A			
Isolation function		■			■			
Trip unit type		Thermo magnetic			Thermo magnetic			
Mechanical life (times)		8500			8500			
Electrica llife (times)		1500			1500			
Poles		1P	2P	3P	4P	2P	3P	4P
Inner accessories	Alarm contact	-	-	■	■	-	■	■
	Shunt release	-	■	■	■	■	■	■
	Shunt release + Alarm contact	-	-	■	■	-	■	■
	Single auxiliary contact	-	■	■	■	■	■	■
	Dual auxiliary contacts	-	■	■	■	■	■	■
	Single auxiliary contact + Alarm contact	-	-	■	■	-	■	■
	Dual auxiliary contacts + Alarm contact	-	-	■	■	-	■	■
	Under voltage release	-	■	■	■	■	■	■
	Under voltage release + Alarm contact	-	-	■	■	-	■	■
	Shunt release + Single auxiliary contact	-	-	■	■	-	■	■
	Shunt release + Dual auxiliary contacts	-	-	■	■	-	■	■
	Shunt release + Auxiliary alarm	-	-	■	■	-	■	■
	Shunt release + Under voltage release	-	-	■	■	-	■	■
	Two sets of single auxiliary contacts	-	-	■	■	-	■	■
	Single auxiliary contact + Dual auxiliary contacts	-	-	■	■	-	■	■
	Two sets of dual auxiliary contacts	-	-	■	■	-	■	■
	Single auxiliary contact + Auxiliary alarm	-	-	■	■	-	■	■
	Dual auxiliary contact + Auxiliary alarm	-	-	■	■	-	■	■
	Under voltage release + Single auxiliary contact	-	-	■	■	-	■	■
	Under voltage release + Dual auxiliary contact	-	-	■	■	-	■	■
	Under voltage release + Auxiliary alarm	-	-	■	■	-	■	■
External accessories	Motor-driven mechanism	-	-	■	■	-	■	■
	Manual operational mechanism	-	-	■	■	-	■	■
	Extended copper row	■	■	■	■	■	■	■
	Mechanical interlocking	-	-	■	■	-	■	■
	Plug-in front connection split type	-	-	■	■	-	■	■
	Plug-in front connection one-piece	-	-	■	■	-	■	■
	Plug-in front connection fixed type	-	-	■	■	-	■	■
	Plug-in rear connection split type	-	-	■	■	-	■	■
	Plug-in rear connection one-piece	-	-	■	■	-	■	■
	Plug-in rear connection fixed type	-	-	■	■	-	■	■
Draw-out type rear connection	-	-	-	-	-	-	-	

CAM8 MCCB 125AF~2000AF

CAM8 MCCB 125AF~2000AF

Thermal Magnetic Fixed MCCB ----- Standard_ IEC60947-2

Current-Temperature Characteristics



Derating of Temperature

Frame size	Ambient temperature (40°C product)														
	-10°C	-5°C	0°C	5°C	10°C	15°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C	55°C	60°C
CAM8-125	1.18	1.15	1.15	1.1	1.08	1.06	1.04	1.03	1.02	1.01	1	0.977	0.957	0.936	0.915
CAM8-160	1.22	1.2	1.15	1.14	1.12	1.09	1.07	1.05	1.03	1.01	1	0.977	0.957	0.936	0.915
CAM8-250	1.2	1.18	1.15	1.13	1.11	1.09	1.08	1.07	1.05	1.02	1	0.985	0.968	0.952	0.935
CAM8-400	1.4	1.35	1.3	1.22	1.18	1.13	1.09	1.06	1.04	1.02	1	0.985	0.968	0.952	0.935
CAM8-630	1.2	1.18	1.13	1.11	1.09	1.08	1.07	1.05	1.03	1.01	1	0.985	0.968	0.952	0.935
CAM8-800	1.25	1.23	1.18	1.15	1.13	1.1	1.07	1.05	1.03	1.02	1	0.978	0.957	0.936	0.915
CAM8-1250	1.25	1.21	1.2	1.15	1.13	1.1	1.08	1.06	1.04	1.02	1	0.978	0.957	0.936	0.915
CAM8-1600	1.18	1.15	1.12	1.15	1.13	1.1	1.08	1.06	1.04	1.02	1	0.978	0.957	0.936	0.915

Note: When the ambient temperature is below 40°C, the product can be used normally, with no derating capacity.

Derating of Altitude

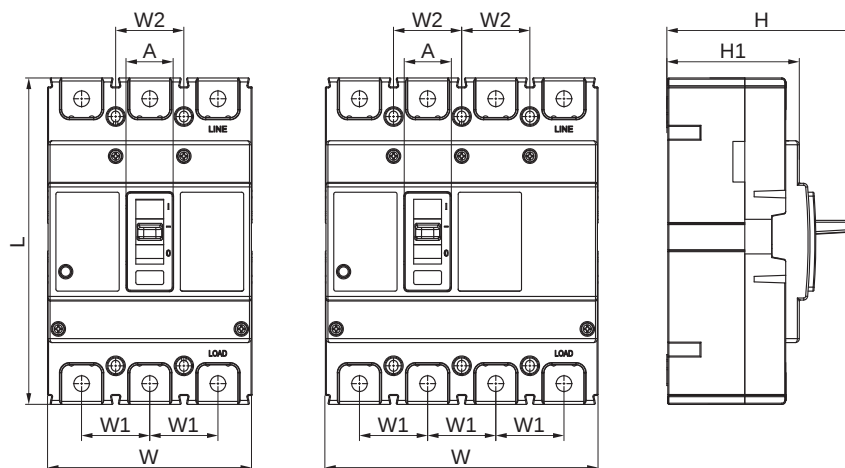
Altitude (m)	2000	2500	3000	4000	4500	5000
Power frequency withstand voltage (V)	2500	2500	2250	1950	1775	1625
Insulation voltage (V)	1000	1000	900	780	710	650
Maximum operationnal voltage (V)	400	400	350	312	284	260
Correction coefficient of operating current (In)	1	1	0.98	0.95	0.92	0.9

CAM8 MCCB 125AF~2000AF

Thermal Magnetic Fixed MCCB

Standard_ IEC60947-2

Overall Dimension (mm)



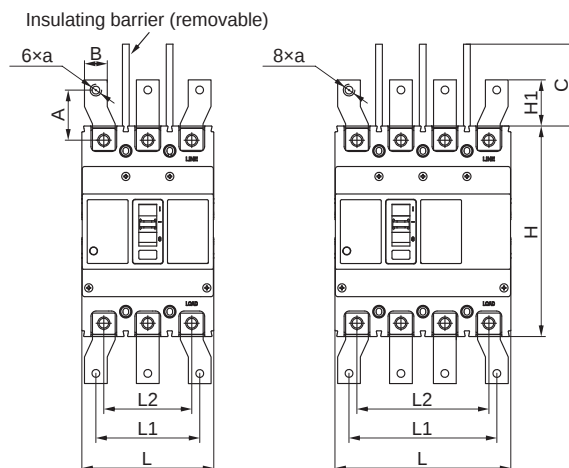
Product type	Poles	W	L	H	H1	W1	W2	A
CAM8-125	1	25	130	94.5	68	25	25	24
	2	50	130	94.5	68	25	25	24
	3	75	130	94.5	68	25	25	24
	4	100	130	94.5	68	25	25	24
CAM8-160	2	60	155	94(S)/108(H)	68(S)/82(H)	30	30	25
	3	90	155	94(S)/108(H)	68(S)/82(H)	30	30	25
	4	120	155	94(S)/108(H)	68(S)/82(H)	30	30	25
CAM8-250	3	105	165	96(S)/116(H)	68(S)/88(H)	35	35	24.4
	4	140	165	96(S)/116(H)	68(S)/88(H)	35	35	24.4
CAM8-400/630	3	140	257	152	103	44	44	51
	4	184	257	152	103	44	44	51
CAM8-800	3	210	275.5	152	103	70	70	58
	4	280	275.5	152	103	70	70	58
CAM8-1250	3	210	275.5	152	103	70	70	58
	4	280	275.5	152	103	70	70	58
CAM8-2000	3	210	340	244	141	70	70	78
	4	280	340	244	141	70	70	78

CAM8 MCCB 125AF~2000AF

Thermal Magnetic Fixed MCCB

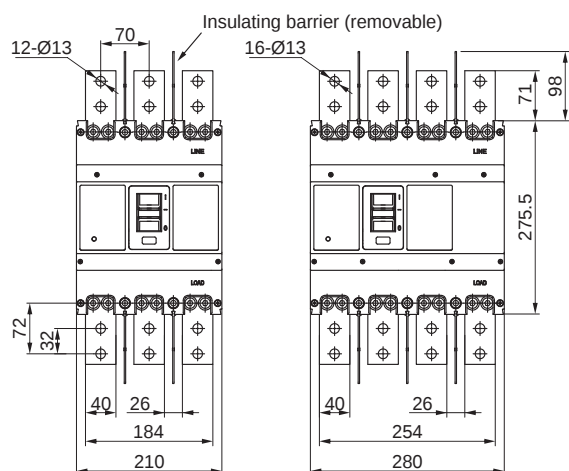
Standard_ IEC60947-2

Front Connection Installation Dimension (mm)

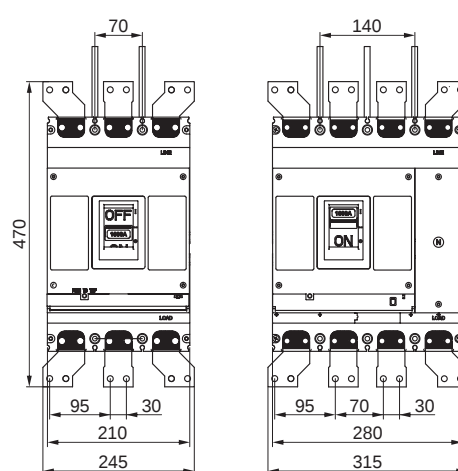


Product type	Poles	L	L1	L2	H	H1	A	B	C	a
CAM8-125	3	75	68	50	130	24	24.5	15	48	M8
	4	100	93	75	130	24	24.5	15	48	M8
CAM8-160	3	90	78	60	155	21.8	24.5	15	48(S)/64(H)	M8
	4	120	108	90	155	21.8	24.5	15	48(S)/64(H)	M8
CAM8-250	3	105	84	70	165	41.8	43.5	20	48(S)/64(H)	M8
	4	140	119	105	165	41.8	43.5	20	48(S)/64(H)	M8
CAM8-400/630	3	140	111	87	257	45.4	43	28	98	Ø14
	4	184	155	131	257	45.4	43	28	98	Ø14
CAM8-800	3	210	160	140	275.5	50.5	53	40	98	Ø13
	4	280	230	210	275.5	50.5	53	40	98	Ø13

CAM8-1250



CAM8-2000

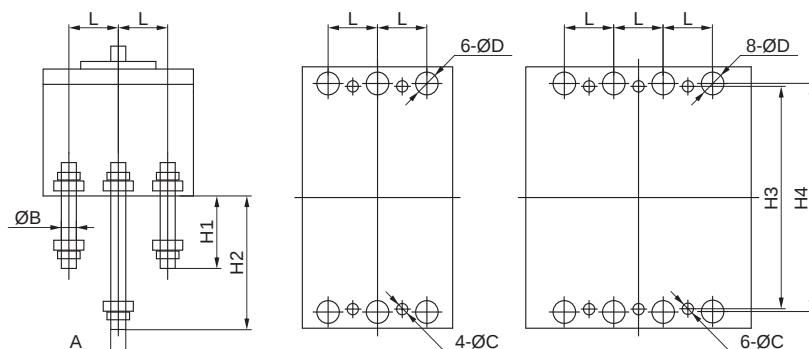


CAM8 MCCB 125AF~2000AF

Thermal Magnetic Fixed MCCB

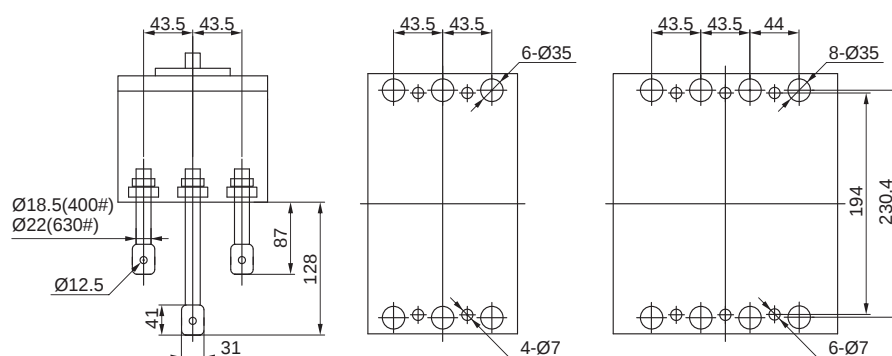
Standard_ IEC60947-2

Rear Connection Installation Dimension (mm)

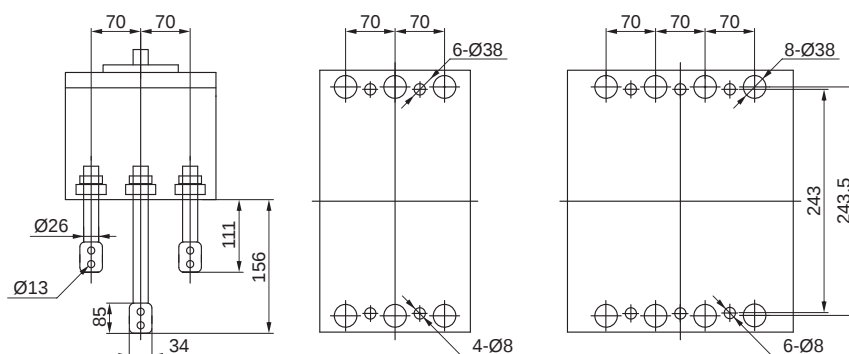


Product type	L	H1	H2	H3	H4	A	B	C	D
CAM8-125	25	51	81	110	114	M8	10	4.5	13
CAM8-160	30	49	94	132	134	M8	12	4.5	15
CAM8-250	35	82	121	126	144	M12	12	4.5	15

CAM8-400/630



CAM8-800



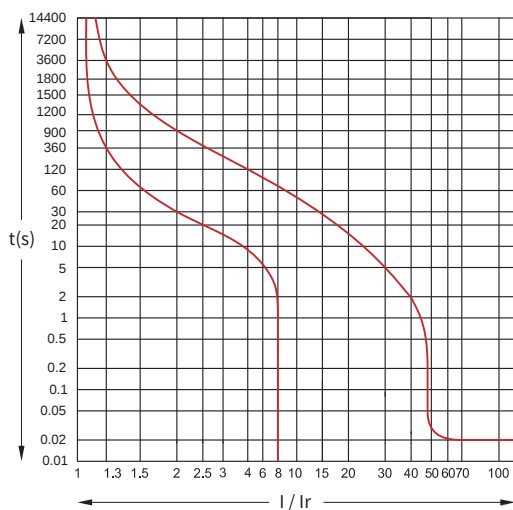
CAM8 MCCB 125AF~2000AF

Thermal Magnetic Fixed MCCB

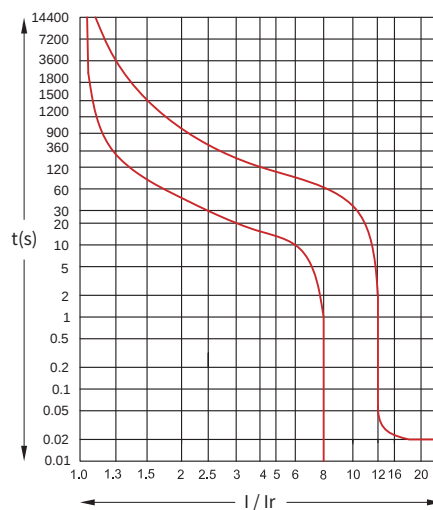
Standard_ IEC60947-2

Tripping Characteristic Curve

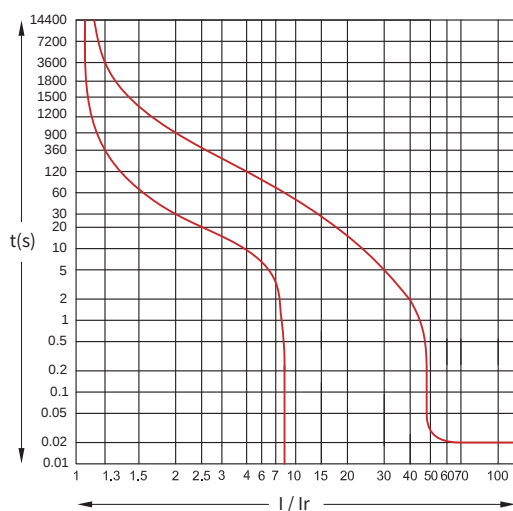
CAM8-125 (10-50A)



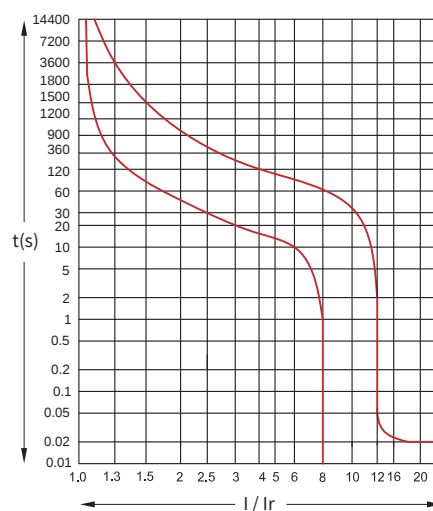
CAM8-125 (63-125A)



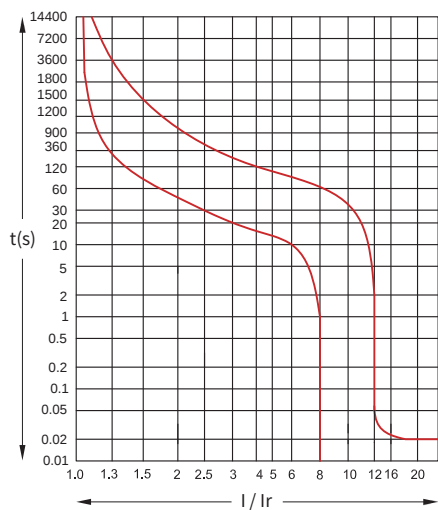
CAM8-160 (10-50A)



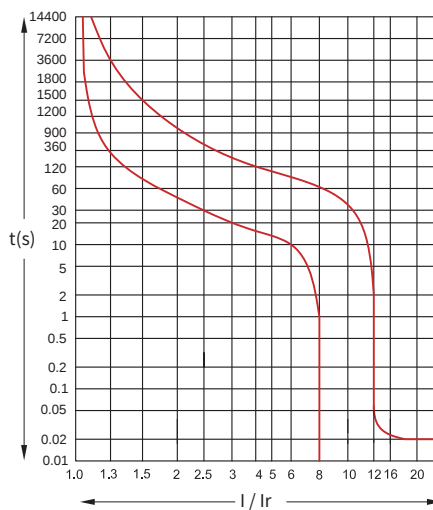
CAM8-160 (63-160A)



CAM8-250



CAM8-400

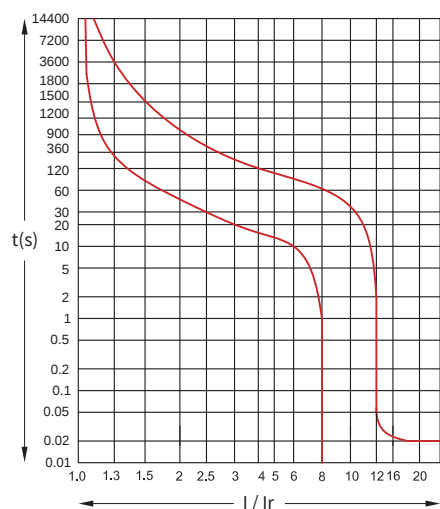


CAM8 MCCB 125AF~2000AF

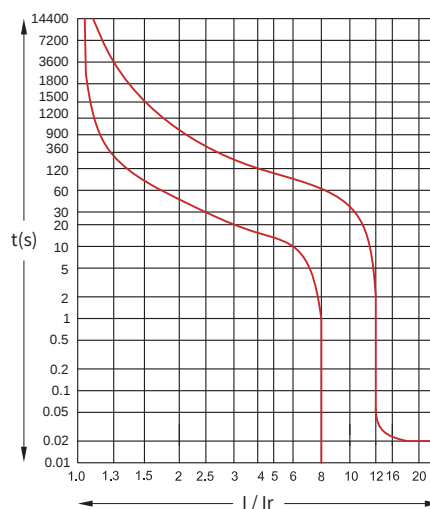
Thermal Magnetic Fixed MCCB

Standard_ IEC60947-2

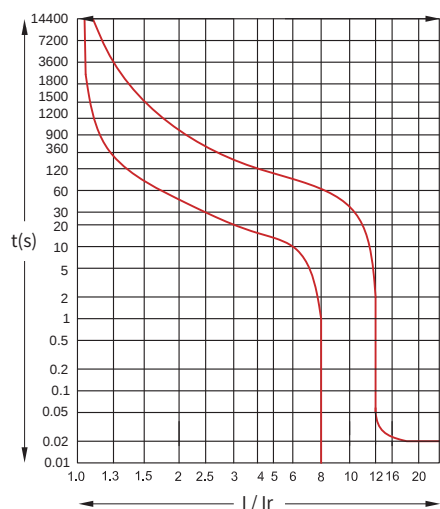
CAM8-630



CAM8-800

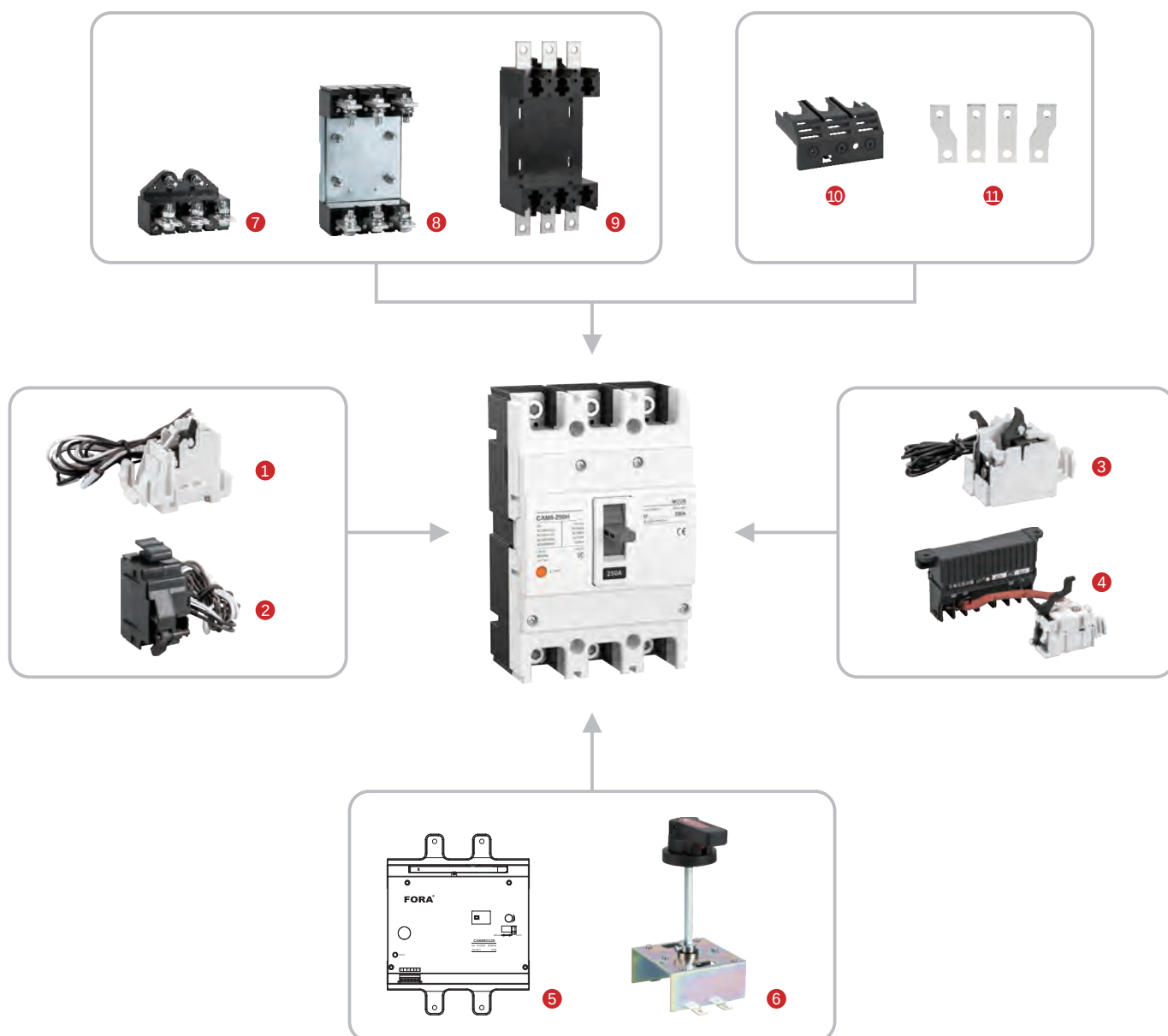


CAM8-1250/2000



CAM8 Series MCCB Accessories

Overview of Accessories



① Auxiliary contact

② Alarm contact

③ Shunt release

④ Under voltage release

⑤ Electric operating mechanism

⑥ Manual operation mechanism

⑦ Plug-in rear connection split type

⑧ Plug-in rear connection integrated type

⑨ Plug-in front connection integrated type

⑩ Terminal cover

⑪ Extension terminal

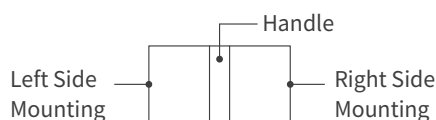
CAM8 Series MCCB Accessories

CAM8, CAM8T Accessory Table

Accessory code	Accessory name	125AF			160AF			250AF		400/630AF		800/1250/2000AF	
		2P	3P	4P	2P	3P	4P	3P	4P	3P	4P	3P	4P
00	No	-	-	-	-	-	-	-	-	-	-	-	-
08	Alarm contact	-			-								
10	Shunt release												
18	Shunt release + Alarm contact	-			-								
20	Single auxiliary contact												
27	Dual auxiliary contacts												
28	Single auxiliary contact + Alarm contact	-			-								
29	Dual auxiliary contacts + Alarm contact	-			-								
30	Under voltage release												
38	Under voltage release + Alarm contact	-			-								
40	Shunt release + Single auxiliary contact	-			-								
41	Shunt release + Dual auxiliary contacts	-			-								
48	Shunt release + Auxiliary alarm	-			-								
50*	Shunt release + Under voltage release	-			-								
60	Two sets of single auxiliary contacts	-			-								
61	Single auxiliary contact + Dual auxiliary contacts	-			-								
62	Two sets of dual auxiliary contacts	-			-								
68	Single auxiliary contact + Auxiliary alarm	-			-								
69	Dual auxiliary contact + Auxiliary alarm	-			-								
70	Under voltage release + Single auxiliary contact	-			-								
71	Under voltage release + Dual auxiliary contact	-			-								
78	Under voltage release + Auxiliary alarm	-			-								

*Note: Code 50: 125, 160 need to customize the left undervoltage; The 250 requires custom left spin-off.

Selectable sub-excitation and undervoltage voltage range: DC24V, DC110V, DC220V, AC230V, AC400V; The conventional production is AC230V.



 Alarm contact
 Single auxiliary contact
 Dual auxiliary contacts

 Under voltage release
 Shunt trip

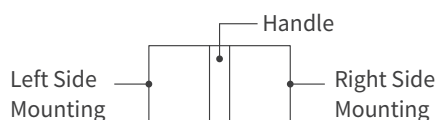
CAM8 Series MCCB Accessories

CAM8E, CAM8EY, CAM8ELY Accessory Table

Accessory code	Accessory name	160AF		250AF		400/630AF		800/1250AF		2000AF	
		3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
00	No	-	-	-	-	-	-	-	-	-	-
08	Alarm contact										
10	Shunt release										
18	Shunt release + Alarm contact										
20	Single auxiliary contact										
27	Dual auxiliary contacts										
28	Single auxiliary contact + Alarm contact										
29	Dual auxiliary contacts + Alarm contact	-	-	-	-						
30	Under voltage release										
38	Under voltage release + Alarm contact	-	-	-	-						
40	Shunt release + Single auxiliary contact										
41	Shunt release + Dual auxiliary contacts										
48	Shunt release + Auxiliary alarm										
50*	Shunt release + Under voltage release										
60	Two sets of single auxiliary contacts	-	-	-	-						
61	Single auxiliary contact + Dual auxiliary contacts	-	-	-	-						
62	Two sets of dual auxiliary contacts	-	-	-	-						
68	Single auxiliary contact + Auxiliary alarm	-	-	-	-						
69	Dual auxiliary contact + Auxiliary alarm	-	-	-	-						
70	Under voltage release + Single auxiliary contact	-	-	-	-						
71	Under voltage release + Dual auxiliary contact	-	-	-	-						
78	Under voltage release + Auxiliary alarm	-	-	-	-						

*Note: Code 50: 160, 250 need to customize the left undervoltage.

Selectable sub-excitation and undervoltage voltage range: DC24V, DC110V, DC220V, AC230V, AC400V; The conventional production is AC230V.



 Alarm contact
 Single auxiliary contact
 Dual auxiliary contacts

 Under voltage release
 Shunt trip (mechanical)
 Shunt trip (electronic)

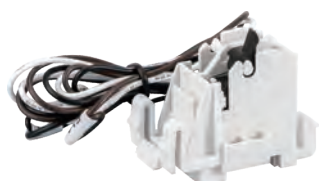
CAM8 Series MCCB Accessories

AX

Auxiliary contact



AXS-125



AX-250

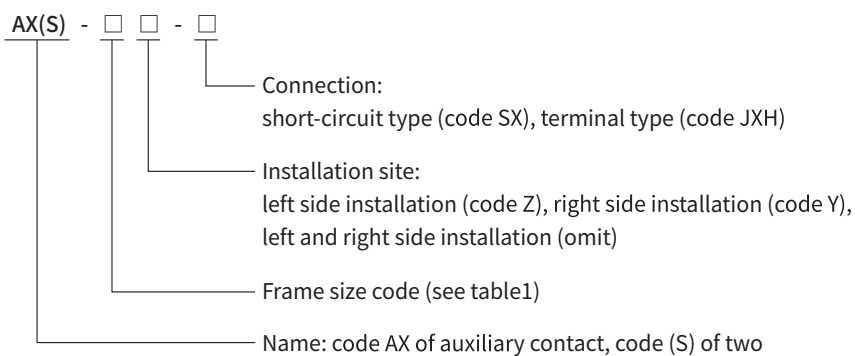


AX-400

Function

Accessories that remotely indicate the closing (ON) or opening/free tripping (OFF) status of the circuit breaker are connected to the auxiliary circuit of the circuit breaker.

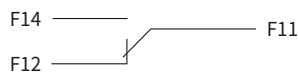
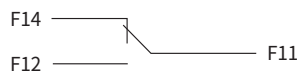
Model Description



Frame Size Code

Frame size	125~160	250	400~1250	1600~2000
Code	AX(S)-125	AX(S)-250	AX(S)-400	AX(S)-2000

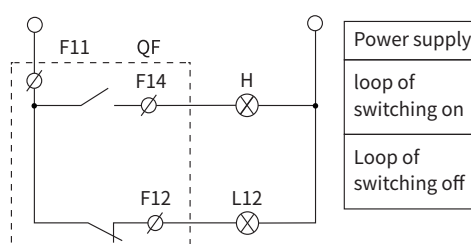
Electrical Wiring Diagram

Accessory name	ON	OFF/TRIP
Auxiliary		

Electrical Characteristics

Operational voltage (V)	AC		DC		
	230	400	110	220	24
Operational current (A)	0.3	0.3	0.15	0.15	0.15

Wiring Diagram



CAM8 Series MCCB Accessories

AL

Alarm contact



AL-125



AL-250

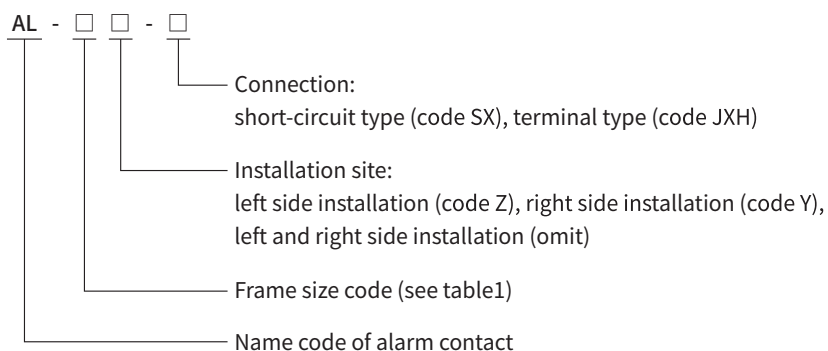


AL-400

Function

It is mainly used to provide a signal for circuit breakers when a fault occurs or when a free blur is made.

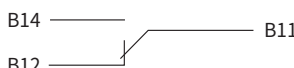
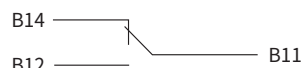
Model Description



Frame Size Code

Frame size	125~160	250	400~1250	1600~2000
Code	AL-125	AL-250	AL-400	AL-2000

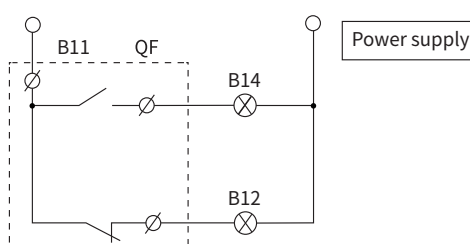
Electrical Wiring Diagram

Accessory name	ON/OFF	TRIP
Alarm		

Electrical Characteristics

Operational voltage (V)	AC		DC		
	230	400	110	220	24
Operational current (A)	0.3	0.3	0.15	0.15	0.15

Wiring Diagram



CAM8 Series MCCB Accessories

SHT

Shunt release



SHT-125



SHT-250

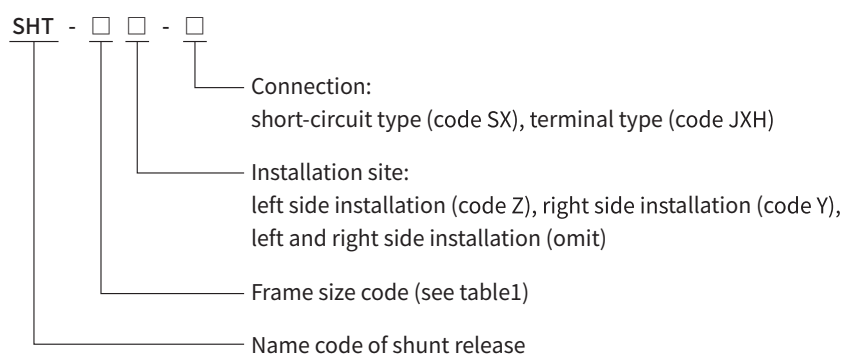


SHT-400

Function

The shunt tripper is an accessory for manipulating the opening over long distances. When the power supply voltage is equal to any voltage between 70%~110% of the rated control power supply voltage, the shunt trip should be able to make the circuit breaker operate reliably.

Model Description



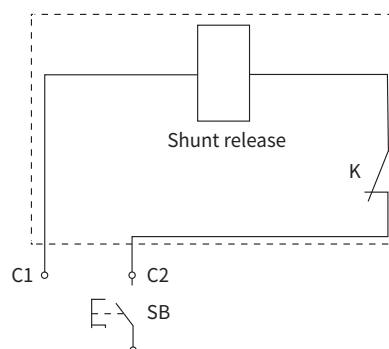
Frame Size Code

Frame size	125~160	250	400~1250	1600~2000
Code	SHT-125	SHT-250	SHT-400	SHT-2000

Electrical Characteristics

Operational voltage (V)	AC		DC		
	230	400	110	220	24
Operational current (A)	0.3	0.3	0.15	0.15	0.15

Electrical Wiring Diagram



CAM8 Series MCCB Accessories

UVR

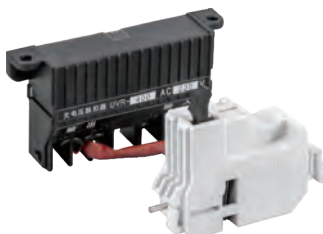
Under voltage release



UVR-125



UVR-250

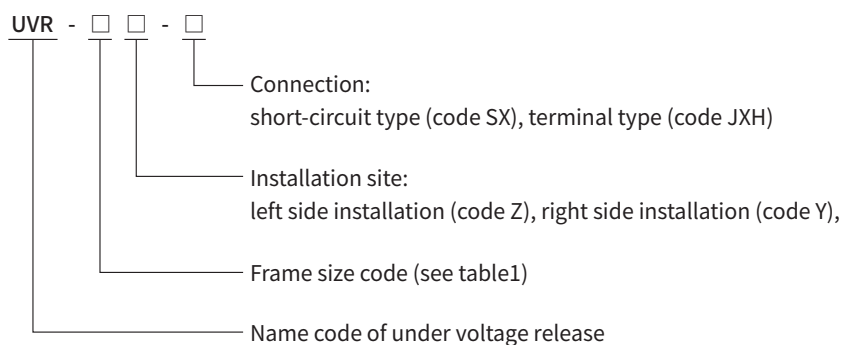


UVR-400

Function

Realize the undervoltage protection function of the circuit breaker to disconnect the circuit breaker when the power supply voltage is too low to protect the power-using equipment. When the supply voltage drops (or even drops slowly) to 70% to 35% of the rated control supply voltage, the undervoltage tripper shall enable the circuit breaker to disconnect reliably; When the supply voltage is equal to or greater than 85% of the rated control supply voltage of the undervoltage striker, it should be able to ensure that the circuit breaker is closed; When the supply voltage is less than 35% of the rated control supply voltage of the undervoltage detent, the undervoltage detent shall be able to prevent the circuit breaker from closing.

Model Description



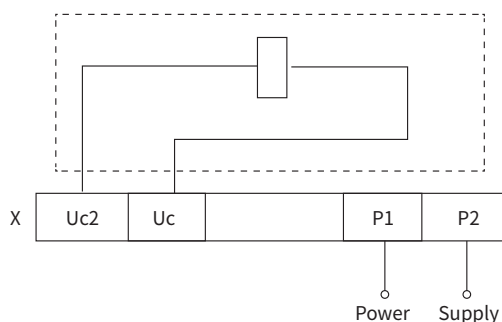
Frame Size Code

Frame size	125~160	250	400~1250	1600~2000
Code	UVR-125	UVR-250	UVR-400	SHT-2000

Electrical Characteristics

Operational voltage (V)	AC		DC		
	230	400	110	220	24
Operational current (A)	0.3	0.3	0.15	0.15	0.15

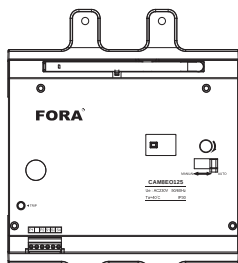
Electrical Wiring Diagram



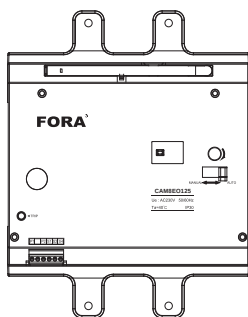
CAM8 Series MCCB Accessories

CAM8EO

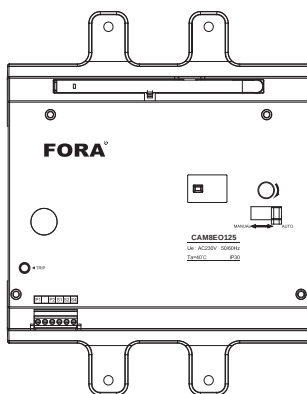
Electric operating mechanism



CAM8EO125



CAM8EO250

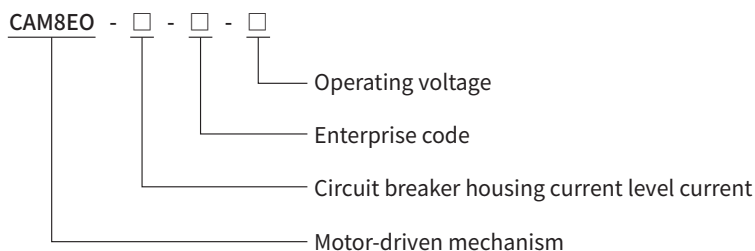


CAM8EO400

Function

It is suitable for closing, opening and re-fastening circuit breakers over long distances, as well as for automation applications.

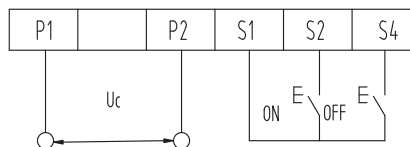
Model Description



Electrical Characteristics

Model	125/160/250/400/630/800/1250/2000
Voltage specifications	AC230V, AC400V, DC24V
Rated frequency	50Hz

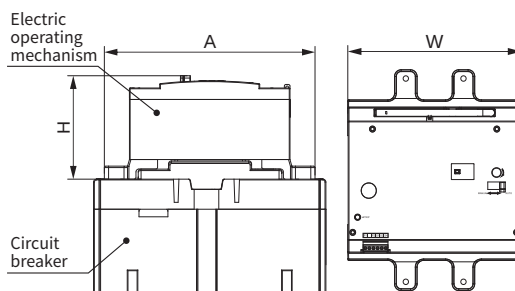
Electrical Wiring Diagram



WARNING

- When manual operation, it should be operated 180° clockwise, and counterclockwise operation is prohibited.
- Withstand voltage test: It should be between the inlet terminals P1 and P2 (excluding S1, S2, S4) of the power supply and the installation screws of the electric operation that can withstand the power frequency withstand voltage test of AC 50Hz and 2000V (the withstand voltage test is prohibited when the rated voltage is DC24V).
- When the electric operation is wiring, P1 and P2 are forbidden to be connected with S1, S2 and S4.

Dimensions and Installation (mm)

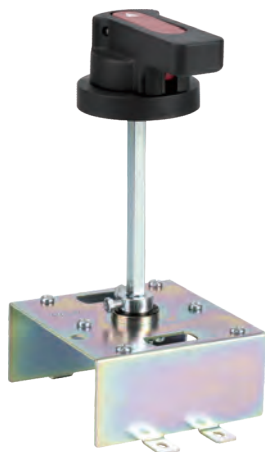


Model	A	H	W
CAM8EO160	144	76	90
CAM8EO250	150	72	105
CAM8EO400/630	212	74	140
CAM8EO800/1250	264	93	210
CAM8EO2000 Without stand	174	78	210

CAM8 Series MCCB Accessories

SC

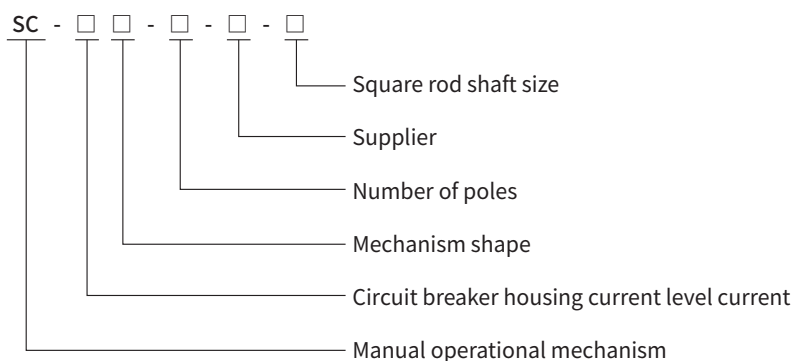
Manual operational mechanism



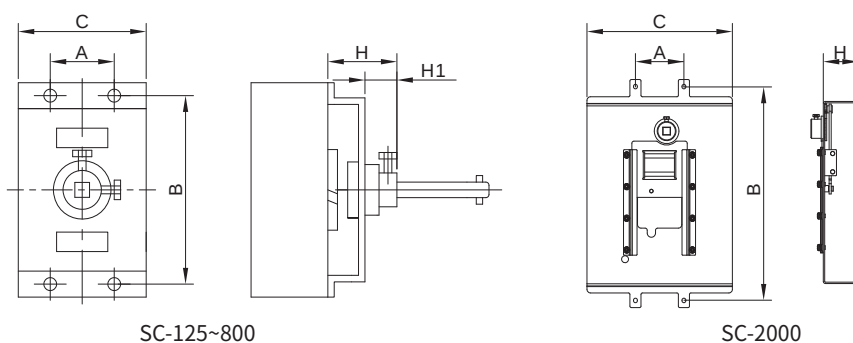
Function

According to the ergonomics, the unique design and transmission structure are adopted, and the closing, opening and re-buckle operation of the circuit breaker are realized by rotating the handle.

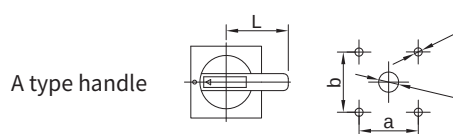
Model Description



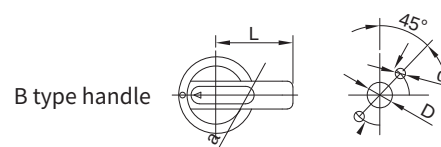
Dimensions and Installation (mm)



Model	A	B	C	H	H1
SC-125	25	111	77	58	13
SC-160	30	132	82	57	13
SC-250	35	126	105	64	13
SC-400/630	128	194	140	95	20
SC-800	198	243	208	94	20
SC-2000	70	304	210	50.5	-



Model	D	d	a	b	L
A1 (63-250A)	Ø35	Ø4.5	65	65	65
A2 (400-1000A)	Ø35	Ø4.5	65	65	95
A3 (1250-1600A)	Ø35	Ø4.5	65	65	125



Model	D	d	a	L
B1 (63-250A)	Ø35	Ø4.5	Ø53	65
B2 (400-1000A)	Ø35	Ø4.5	Ø53	95
B3 (1250-1600A)	Ø35	Ø4.5	Ø53	125

CAM8 Series MCCB Accessories

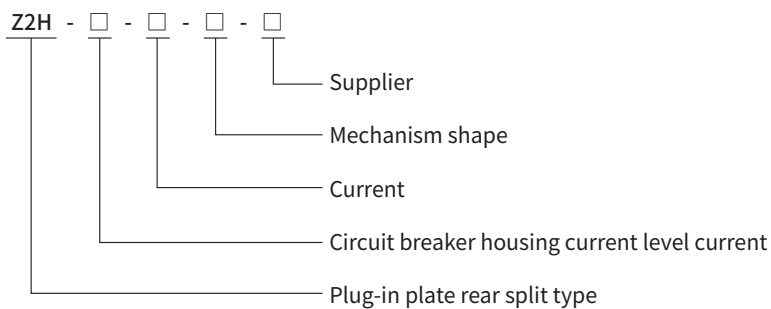
Z2H

Plug-in rear connection split type

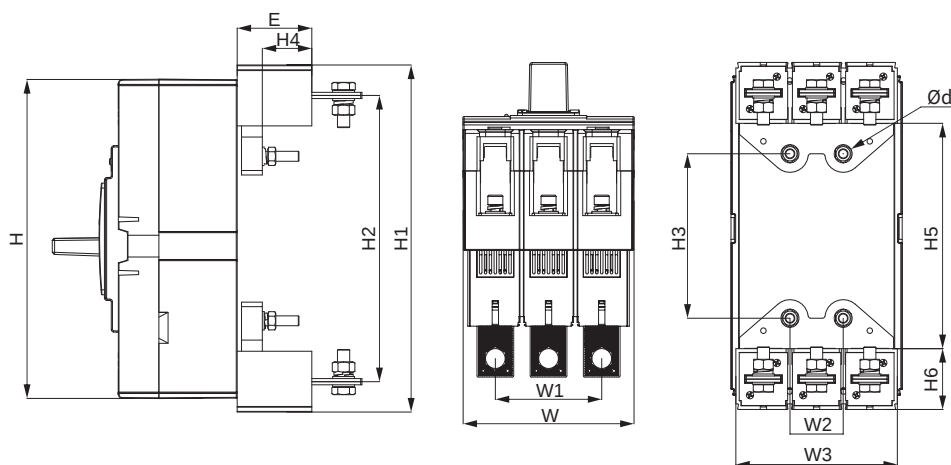
Function

Enables the circuit breaker to have a flexible wiring method for mating with the switchboard.

Model Description



Dimensions and Installation (mm)



Model	Poles	W	W1	W2	W3	E	d	H	H1	H2	H3	H4	H5	H6
Z2H-125	3P	75	50	25	76	48	5.5	130	141	110	55	30	82	29
	4P	/												
Z2H-160	3P	91	60	30	92	52	6.5	155	168	134	54	30	92	38
	4P	120												
Z2H-250	3P	105	70	70	105	50	6.5	165	179	144	54	33.5	108	35.5
	4P	140		105	140									
Z2H-400/630	3P	132	87	43.5	132	61	8.5	257	279.4	230.4	132.4	40.5	181.4	49
	4P	176			176									
Z2H-800	3P	210	140	90	210	87	11	275.5	305	256	146	60	180	62.5
	4P	/												

CAM8 Series MCCB Accessories

Z3H

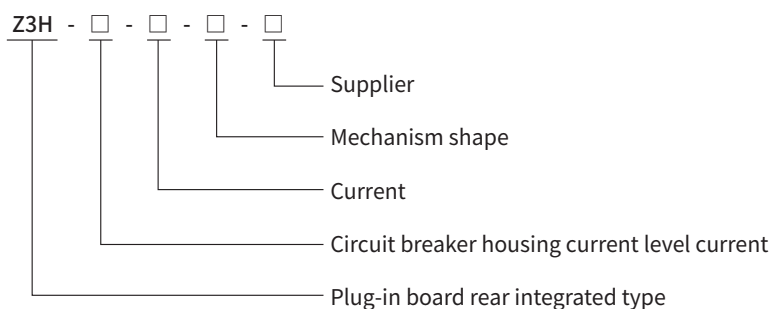
Plug-in rear connection one-piece



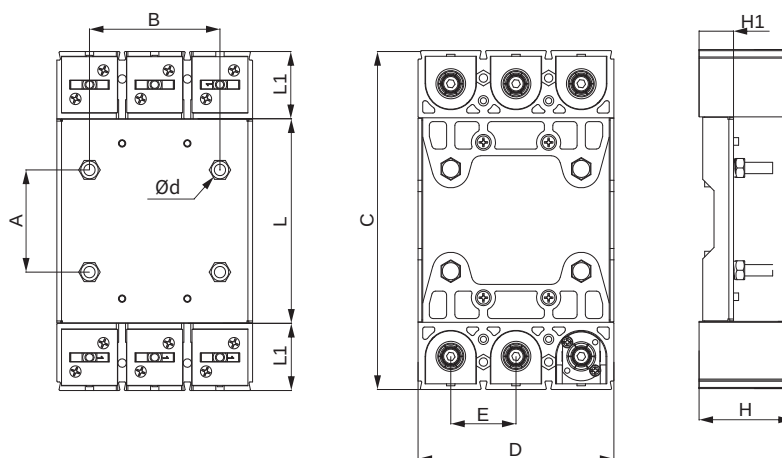
Function

Enables the circuit breaker to have a flexible wiring method for mating with the switchboard.

Model Description



Dimensions and Installation (mm)



Model	Poles	D	A	B	C	E	d	H	L	L1	H1
Z3H-125	3P	75	50	50	142	25	5.5	56	82	32	20
	4P	100		75							
Z3H-160	3P	90	67	60	162	30	6.5	56	80	51	20
	4P	125		90							
Z3H-250	3P	105	54	70	179	35	6.5	52	108	35.5	18.5
	4P	140		105							
Z3H-400/630	3P	132	132.4	43.5	279.4	43.5	8.5	63	181.4	49	22.5
	4P	176									
Z3H-800	3P	210	143	140	311	70	7	125	181	87	50
	4P	280		210							

CAM8 Series MCCB Accessories

Z3Q

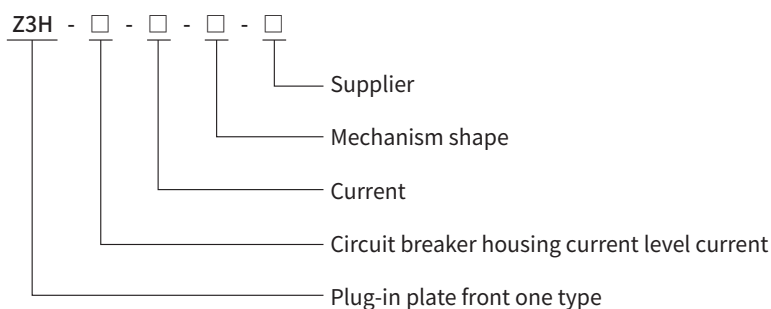
Plug-in front connection one-piece



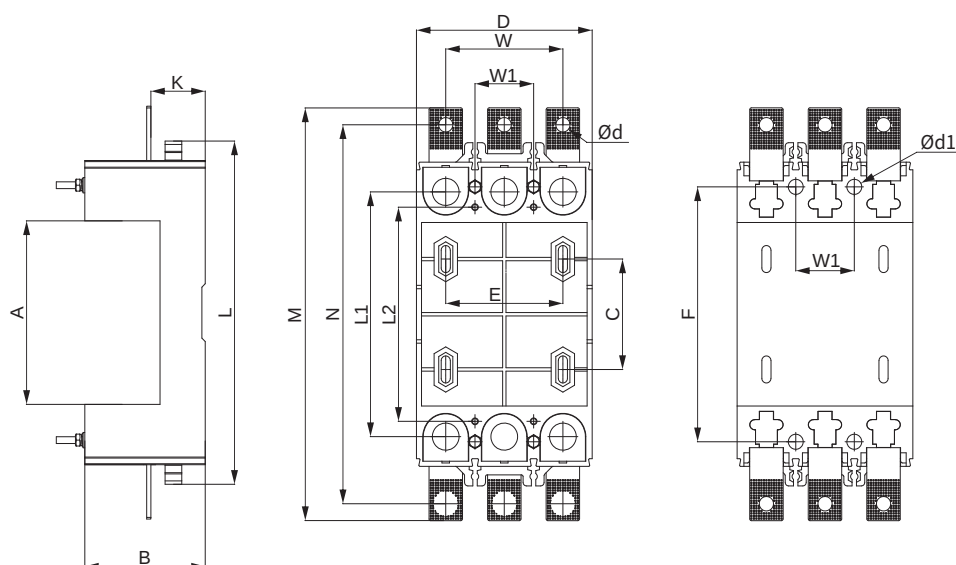
Function

Enables the circuit breaker to have a flexible wiring method for mating with the switchboard.

Model Description

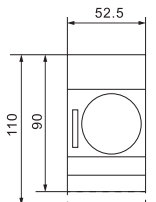
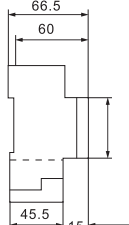
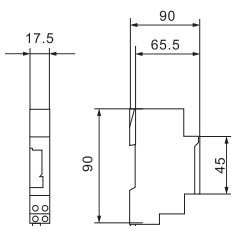
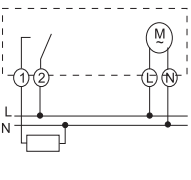
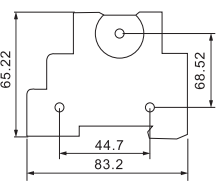
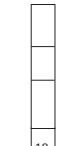
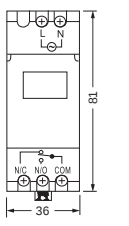
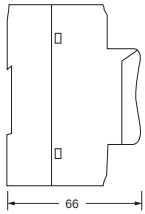


Dimensions and Installation (mm)



Model	Poles	D	A	B	C	E	d	F	W	W1	L	L1	L2	K	M	N	d1
Z3Q-125	3P	75	91	48	54	50	6	90	50	25	/	110	/	23	184	167	3.5
	4P	/															
Z3Q-160	3P	91	101	55	61	60	6.5	110	60	30	/	132	/	25	215	199	5
	4P	/															
Z3Q-250	3P	105	108	72	65	70	6	150	70	35	202	144	126	32.5	243	223	3.5
	4P	140							105								
Z3Q-400/ 630	3P	132	181	85	144	88	10.5	249	87	44	309	230	194	44.5	358	332	7.7
	4P	173							130.5								
Z3Q-800	3P	210	180	87	145	90	13	145	140	/	/	243	/	66	405	374	11
	4P	/															

CATM Timer

Classification		24 Hours Timer		Timer	Weekly Programmable Timer
Model		SUL181H	SUL180A	CATM-E8	CAHC15A
Appearance					
Contact Capacity		AC250V 16A	AC250V 16A	AC250V 16A	AC250V 20A
Full Timing Range		24h	24h	7m	Per week or per day cycle
Contact resistance		$\leq 50\text{m}\Omega$	$\leq 50\text{m}\Omega$	$\leq 50\text{m}\Omega$	$\leq 50\text{m}\Omega$
Insulation Resistance		$\geq 100\text{m}\Omega$	$\geq 100\text{m}\Omega$	$\geq 100\text{m}\Omega$	$\geq 100\text{m}\Omega$
Coil Voltage		110,230V AC	110,230V AC	110,230V AC	230V AC 85%~110%
Life	Electrical	10^5 times	10^5 times	10^5 times	10^5 times
	Mechanical	10^7 times	10^7 times	10^7 times	10^7 times
Operating Temperature		-40°C+55°C	-10°C+55°C	-40°C+55°C	-20°C+55°C
Dimensions(mm)		 	 	 	 
Storage Battery (Working Reserve)		Time 150h	Time 70h	—	Rated Voltage: AC200V 50Hz 85%~110% Contact Form:1NC/1NO Accuracy : $\leq 2\text{s/day}(25^\circ\text{C})$ Expectancy Display:LCD Mounting Form: From panel,DIN Rail Programmable: 8time week or day Memory Backup:15days
Minimum Setting Unit		30Minutes	15Minutes	0.5Minutes	
Set up Times		30m/per times 48 times	15m/per times 96 times	1M,1.5M2M,2.5M 3M,3.5M,4.5M,5M 5.5M,6M,6.5M,7M	

CAVAP Single Phase Voltage & Current Protector

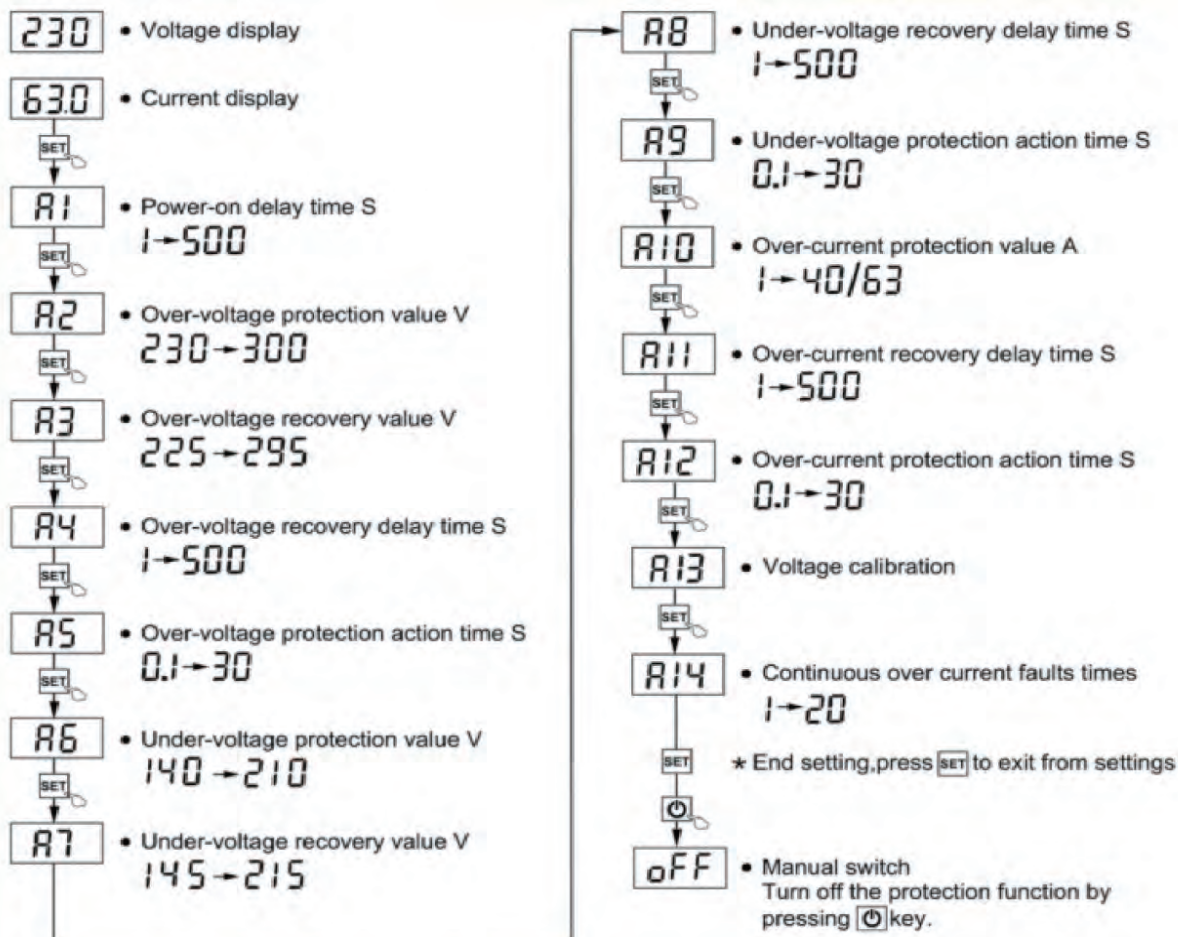


OPERATING RANGE

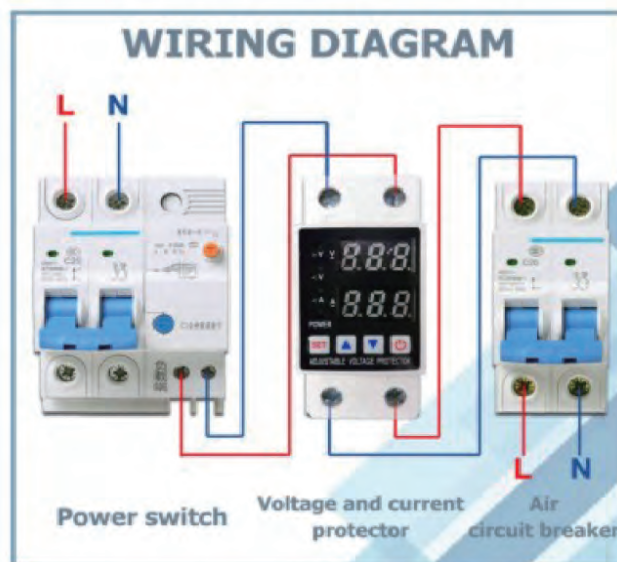
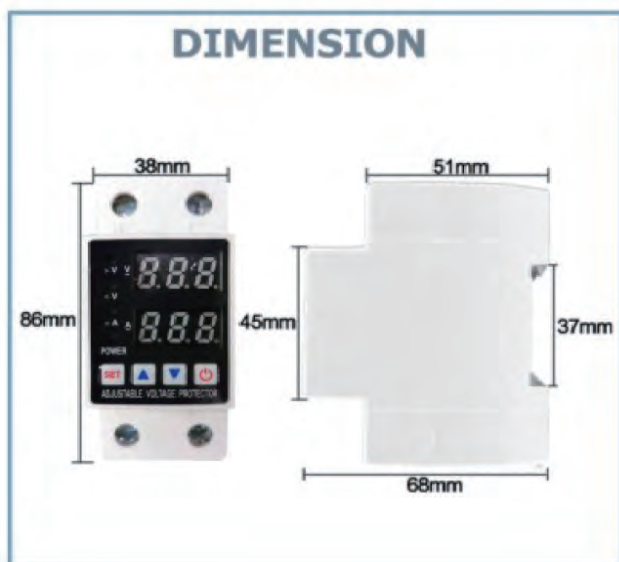
Function	Technical Parameter	Function	Technical Parameter
Input voltage	AC 140-300V	Power-on delay time	1-500s default 10s
Over-voltage protection value	230-300V default 270V	Over-voltage recovery value	225-295V default 265V
Under-voltage protection value	140-210V default 170V	Under-voltage recovery value	145-215V default 175V
Over-current protection value	40A:1-40A default 20A	Over-current recovery value	0.5-39.5A
	63A:1-63A default 40A		0.5-62.5A
Recovery delay time	1-500s default 30s	Action time	0.1-30s default 1s
Continuous over current faults times		1-20 times default OFF	
Power consumption	$\leq 2W$	Electrical and mechanical life	≥ 100000 cycles
Boundary dimension	86×38×68MM	Wiring	Over-entering down-out

CAVAP Single Phase Voltage & Current Protector

Main menu setting



1. Change the setting value by pressing **▲** **▼** keys.
2. Press **▼** key for more than 12 seconds to restore the factory settings.
3. Press **▲** key for more than 6 seconds to query the latest fault.



CAVAP Single Phase Voltage Protector

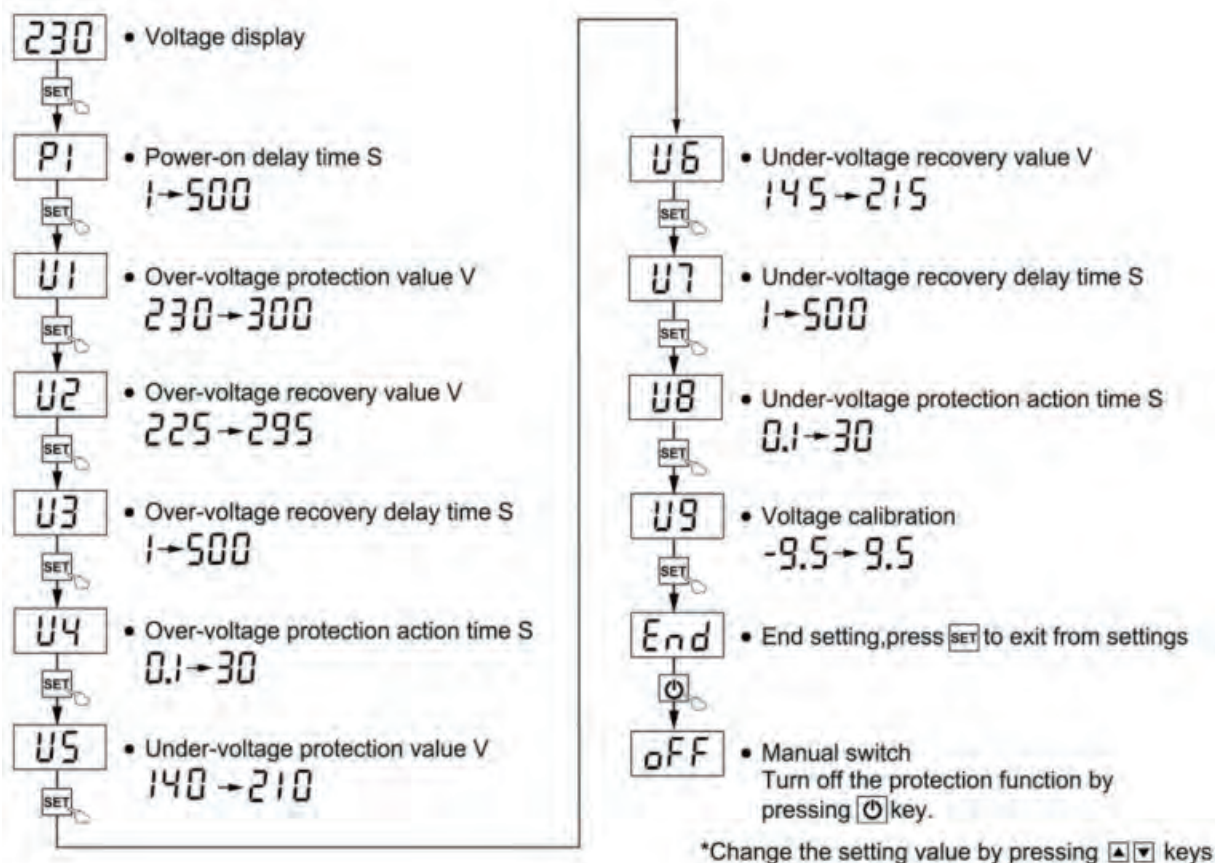


OPERATING RANGE

Function	Technical Parameter	Function	Technical Parameter
Input voltage	AC 140-300V	Power-on delay time	1-500s default 10s
Over-voltage protection value	230-300V default 270V	Over-voltage recovery value	225-295V default 265V
Under-voltage protection value	140-210V default 170V	Under-voltage recovery value	145-215V default 175V
Recovery delay time	1-500s default 30s	Action time	0.1-30s default 1s
Rated current	40A,63A	Voltage calibration	-9.5%-9.5% default 0
Power consumption	$\leq 2W$	Electrical and mechanical life	≥ 100000 cycles
Boundary dimension	86×38×68MM	Wiring	Over-entering down-out

CAVAP Single Phase Voltage Protector

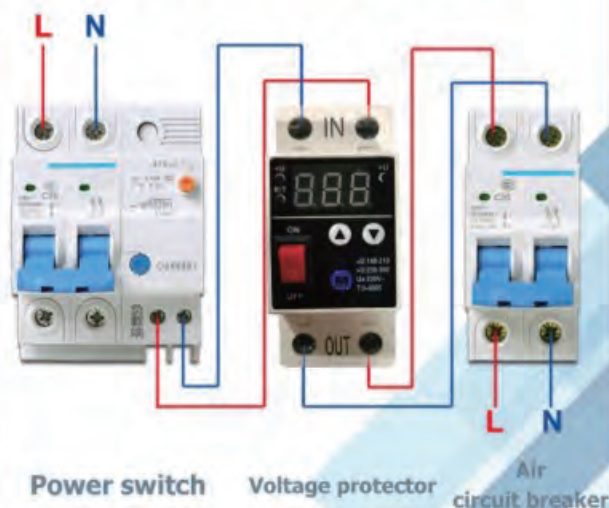
Main menu setting



DIMENSION

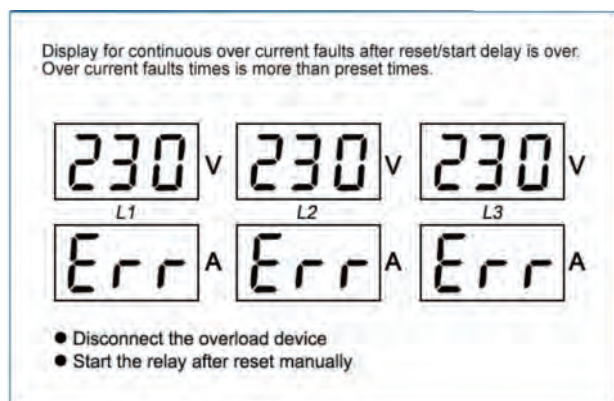


WIRING DIAGRAM



CAVAP Three Phase Voltage and current Protector

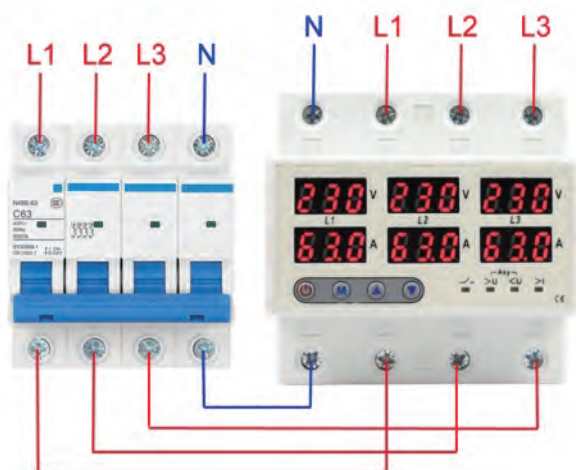
Indication of continuous over current faults



OPERATING INSTRUCTIONS

- If a voltage fault was detected when the reset/start delay of relay is counting, the output relay opens and faults indication LED lights up.
- The operating voltage and current values will be displayed on screen when the relay is operating normally. If a voltage or current fault was detected, the output relay opens and fault indication LEDs light up
- Voltage faults: If input voltage was detected to have returned to Hys after tripped for voltage faults, the relay will reset automatically. During the counting of reset/start delay faults indication LEDs go out and the operating Voltage and current values flash on screen.
- Current faults: After the relay tripped for current faults, it will reset automatically. During the counting of reset/start delay, fault indication LED goes out, the operating voltage and current values flash on screen.

WIRING DIAGRAM



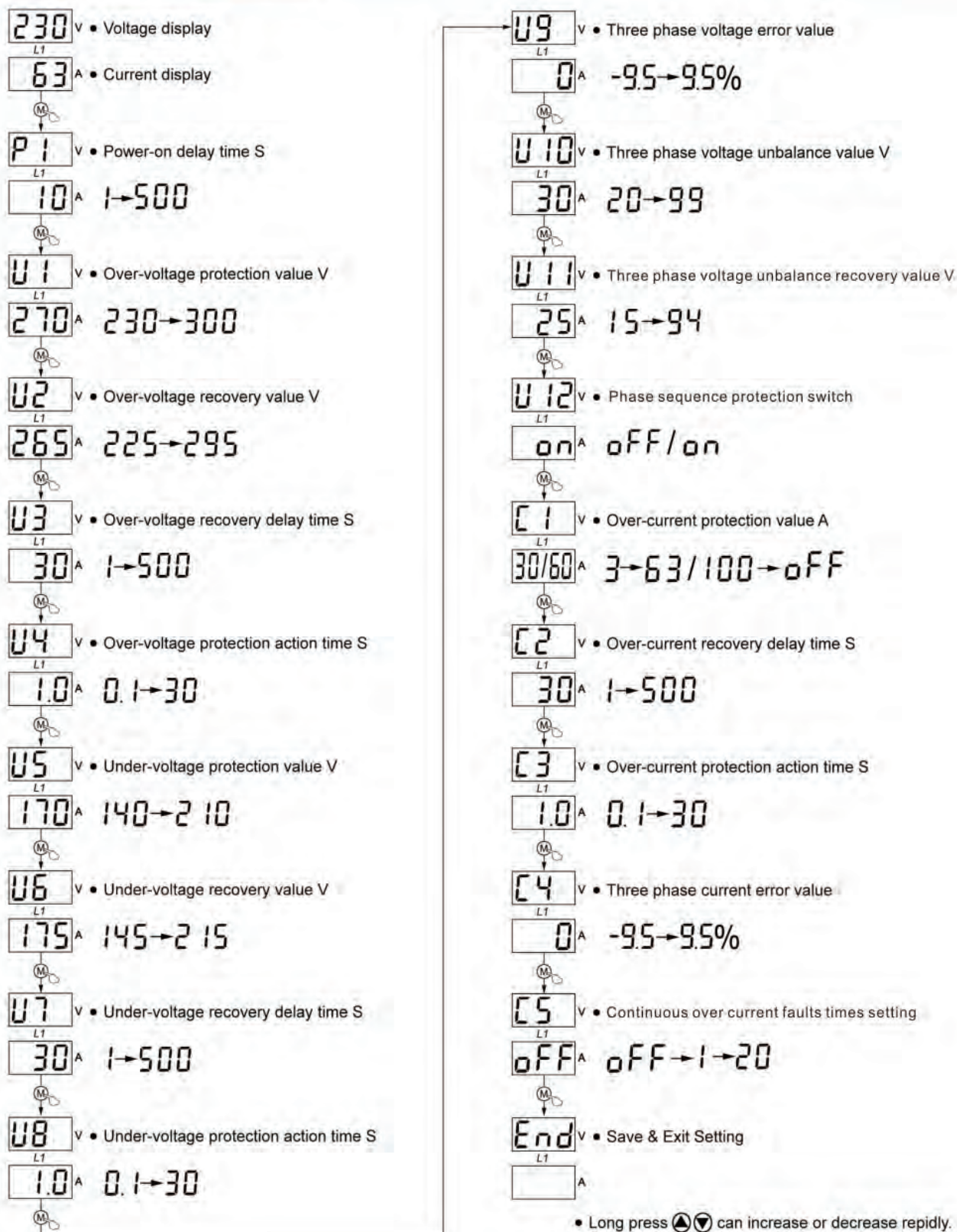
Three Phase Voltage and Current Protector

Instruction Manual



CAVAP Three Phase Voltage and current Protector

Main menu setting



CAVAP Three Phase Voltage and current Protector

OPERATING RANGE

Technical parameter	Setting range	Factory setting	Step	Function description
Power-on delay time	1s-500s	10s	1s	After external power cut,the time needed for power-on when power recovery.
Over-voltage protection value	230V-300V	270V	1V	When the voltage is higher than the set value, the protector will cut off the line.
Over-voltage recovery value	225V-295V	265V	1V	When the voltage is lower than the set value, the protector will automatically reset, and the set value must be less than the over-voltage protection value by more than 5V.
Over-voltage recovery delay time	1s-500s	30s	1s	After voltage recovery,the time needed for automatic reset.
Over-voltage protection action time	0.1s-30s	1.0s	0.1s	When the voltage is higher than the set value,the time needed for protection action.
Under-voltage protection value	140V-210V	170V	1V	When the voltage is lower the set value, the protector will cut off the line.
Under-voltage recovery value	145V-215V	175V	1V	When the voltage is higher than the set value, the protector will automatically reset, and the set value must be more than the under-voltage protection value by more than 5V.
Under-voltage recovery delay time	1s-500s	30s	1s	After voltage recovery,the time needed for automatic reset.
Under-voltage protection action time	0.1s-30s	1.0s	0.1s	When the voltage is lower than the set value,the time needed for protection action.
Three phase voltage error value	-9.5%-9.5%	0		Correct the three phase voltage error.
Three phase voltage unbalance value	20V-99V	30V	1V	When the error among the three phase voltage is bigger than the set value,the protector will cut off the line.
Three phase voltage unbalance recovery value	15V-94V	25V	1V	When three phase voltage unbalance value is lower than the set value,the protector will automatically reset.
Phase sequence protection switch	OFF/ON	ON		Switch on or on the phase sequence protection function.
Over-current protection value	3A-63A-OFF 3A-100A-OFF	30A/60A	1A	When the current is higher than the set value, the protector will cut off the line.
Over-current recovery delay time	1s-500s	30s	1s	After current recovery,the time needed for automatic reset.
Over-current protection action time	0.1s-30s	1.0s	0.1s	When the current is higher than the set value,the time needed for protection action.
Three phase current error value	-9.5%-9.5%	0		Correct the three phase current error.
Times of continuous over current protection	OFF-1-20	OFF	1	When the times of continuous over-current protection exceeds the set value,the protector will cut off the line,then it needs to be opened manually.
Phase-loss protection	ON			One of the three-phase voltages is losing,the protector will cut off the line.

CAVAP Three Phase Voltage and current Protector

SAFETY PRECAUTIONS

- 1.The device must be installed by a qualified person.
- 2.Disconnect all power before working on the device.Don't touch any terminal when the power is ON.
- 3.Verify correct terminal connection when wiring.
- 4.Don't dismantle or repair the device whether it operates normally, otherwise no responsibility is assumed by producer and seller.
- 5.Never use the device at the site which can be invaded by corrode gas,strong sunshine light and rain.
- 6.Clean the device with a dry cloth.
- 7.Fail to follow these instructions will result in serious injury or death.

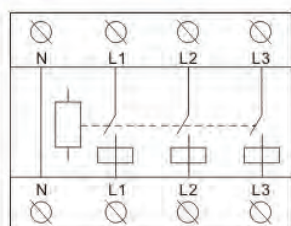
FEATURES

- Microcontroller based
- Digit display for operating voltage and current value
- Protect electrical device against over/under voltage,over current,three phase asymmetry and incorrect phase sequence
- Voltage measurement accuracy $\leq 1\%$
- Parameters setting by keys
- LEDs indication for over/under voltage and over current faults
- 5 Module,DIN Rail mounting

TECHNICAL DATA

Rated supply voltage	AC220V
Operation voltage range	AC140V-300V
Rated frequency	50/60Hz
Hysteresis	Over voltage and asymmetry:5V Under voltage:3V
Asymmetry trip delay	10s
Voltage measurement accuracy	$\leq 1\%$ (over the whole range)
Rated insulation voltage	450V
Output contact	1NO
Electrical life	10^5
Mechanical life	10^5
Protection degree	IP20
Pollution degree	3
Altitude	$\leq 2000\text{m}$
Operating temperature	$-5^{\circ}\text{C}-40^{\circ}\text{C}$
Humidity	$\leq 50\%$ at 40°C (without condensation)
Storage temperature	$-25^{\circ}\text{C}-55^{\circ}\text{C}$

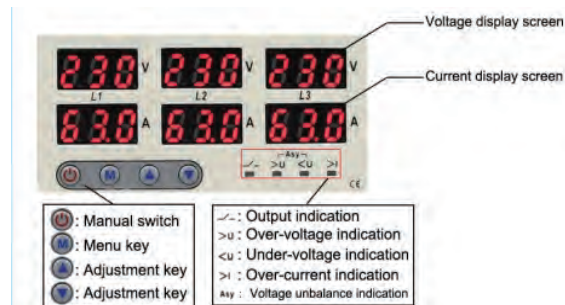
SYMBOL



3 PHASE VOLTAGE AND CURRENT PROTECTOR

Please read complete instructions prior to installation and operation of the device.

FRONT-FACE PANEL

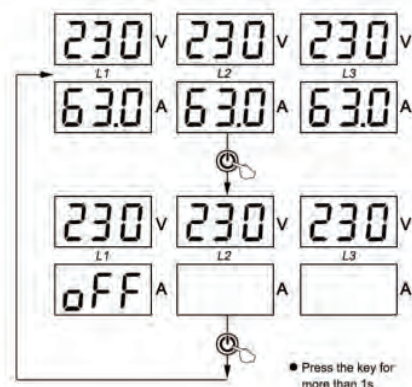


Reset/start delay display



- Voltage operating values display on L1-L2-L3 and current value display on L2 during the counting of start delay;they will be normally ON after the delay is over and the output relay closes.

Switch on/off manually



Indication for incorrect phase sequence



- Display L1-L3-L2 when phase failure fault occurs.User can change the position of L2 and L3 after disconnected supply.

EKC1

Contactor 9~95A

Standard_IEC60947-4-1



EKC1-0910



EKC1-2510



EKC1-3210

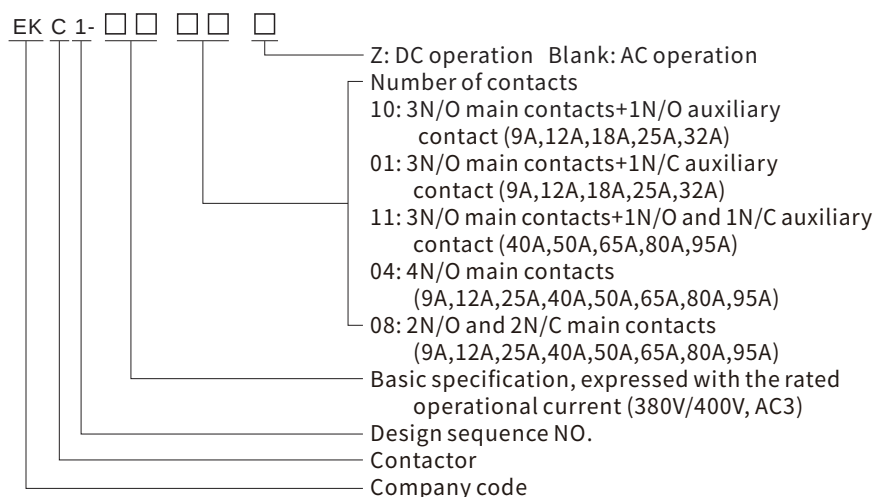
Technical Data

Description	Application	Remote making & breaking circuits
		Protect circuit from over-load when assembling with thermal over-load relay
		Frequent start-up and control of AC contactor
	Electric value	AC50/60Hz, 690V, up to 95A
	Utilization category	AC-3, AC-4
	Altitude	≤2000m
	Ambient temperature	-5°C~+40°C
	Mounting category	III
	Mounting conditions	Inclination between the mounting plane and the vertical plane should not exceed ±5°
	Standard	IEC/EN 60947-4-1. IEC/EN 60947-5-1.

AC Coil Operation	Volts(VAC)	24	36	42	48	110	127	220	230	240	380	415	440	480	500	600
	50Hz	B5	C5	D5	E5	F5	G5	M5	P5	U5	Q5	N5	R5	-	S5	Y5
	60Hz	B6	-	D6	E6	F6	G6	M6	-	U6	Q6	-	R6	T6	-	-
	50/60Hz	B7	-	D7	E7	F7	-	M7	P7	-	Q7	N7	R7	-	-	-

DC Coil Operation	Volts(VDC)	12	24	36	48	110	220
	Code	JD	BD	CD	ED	FD	MD

Type Designation



EKC1

Contactor 9~95A Standard_IEC60947-4-1



EKC1-4011



EKC1-8011

Technical Data

Technical Specification	Standard	IEC/EN60947-4-1 IEC/EN60947-5-1					
	Model No.		EKC1-09	EKC1-12	EKC1-18	EKC1-25	EKC1-32
	Rated Conventional Heating Current	Ith(A)	20	20	32	40	50
	Rated Voltage Ui(V)	Ui(V)	690	690	690	690	690
	Rated Operation Current Ue=380/415V	AC-3 Ie(A)	9	12	18	25	32
		AC-4 Ie(A)	3.5	5	7.7	8.5	12
	Power Controlled	220/240V KW	2.2	3	4	5.5	7.5
	3ph cage Motor	380/415V KW	4	5.5	7.5	11	15
	AC-3	660/690V KW	5.5	7.5	10	15	18.5
	Electrial life(x10 ³ operations)	AC-3	1000	1000	1000	1000	800
		AC-4	200	200	200	200	200
	Mechanical life(x10 ⁶ operations)		10	10	10	10	8
	Matched Fuse	Size	RT16-00	RT16-00	RT16-00	RT16-00	RT16-00
		A	20	20	32	40	50
	Main circuit	3P or 4P					
	Auxiliary circuit Cat.:AC-15,Ue=415V Ie=0.95A Ith=10A	1NO / 1NC					
	Standard	IEC/EN60947-4-1 IEC/EN60947-5-1					
	Model No.		EKC1-40	EKC1-50	EKC1-65	EKC1-80	EKC1-95
	Rated Conventional Heating Current	Ith(A)	60	80	80	100	125
	Rated Voltage Ui(V)	Ui(V)	690	690	690	690	690
	Rated Operation Current Ue=380/415V	AC-3 Ie(A)	40	50	65	80	95
		AC-4 Ie(A)	18.5	24	28	37	44
	Power Controlled	220/240V KW	11	15	18.5	22	25
	3ph cage Motor	380/415V KW	18.5	22	30	37	45
	AC-3	660/690V KW	30	33	37	45	45
	Electrial life(x10 ³ operations)	AC-3	800	600	600	600	600
		AC-4	150	150	150	100	100
	Mechanical life(x10 ⁶ operations)		8	8	8	6	6
	Matched Fuse	Size	RT16-00	RT16-00	RT16-00	RT16-00	RT16-00
		A	63	80	80	100	125
	Main circuit	3P or 4P					
	Auxiliary circuit Cat.:AC-15,Ue=415V Ie=0.95A Ith=10A	1NO + 1NC					

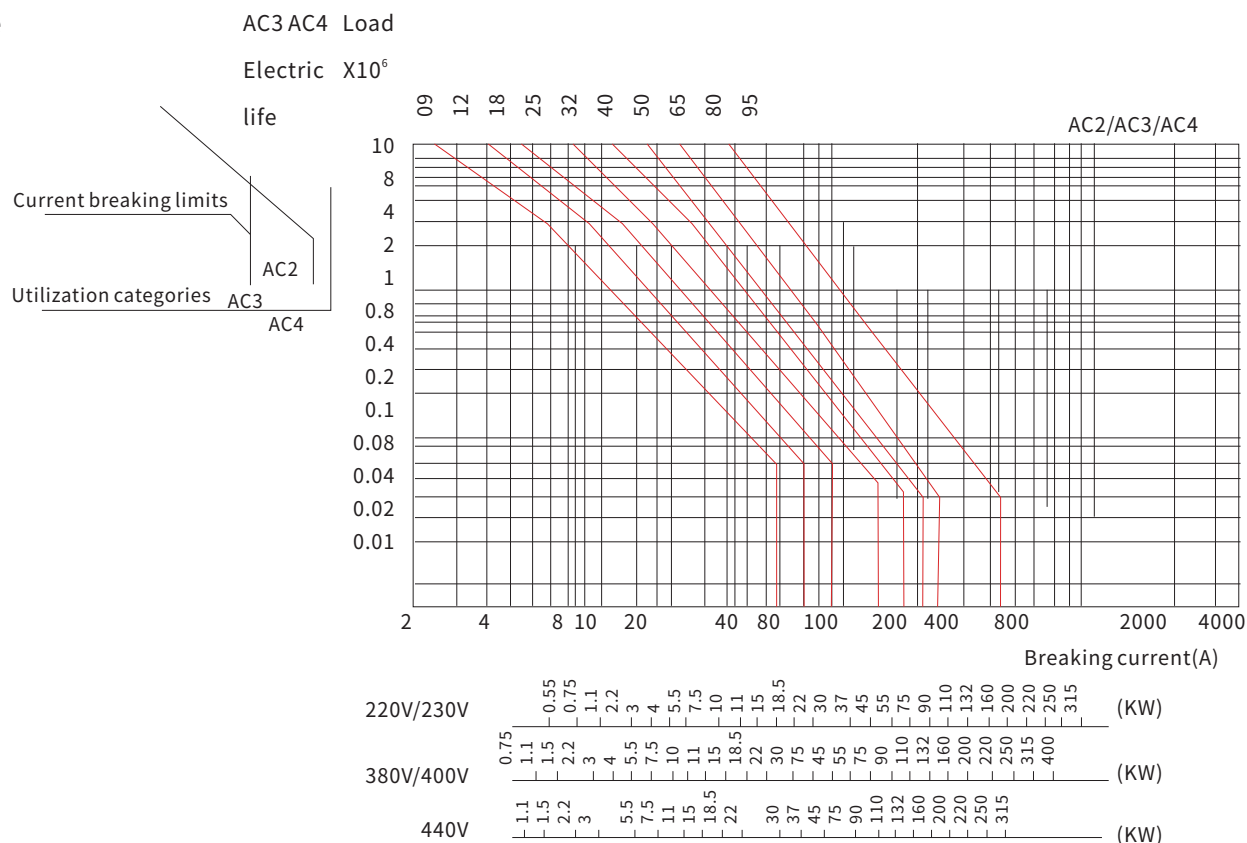
EKC1

Contactor 9~95A Standard_IEC60947-4-1

Technical Information

Terminal Connection	Model	Cabling cross section(Cu)				Screw size	Tightening torque(N.m)
		Number of piece	Flexible cable with cold-pressed socket(mm²)	Flexible cable without cold-pressed socket(mm²)	Inflexible cable(mm²)		
	EKC1-09	1~2	2.5	4	4	M3.5	0.8
	EKC1-12	1~2	2.5	4	4	M3.5	0.8
	EKC1-18	1~2	4	6	6	M3.5	0.8
	EKC1-25	1	4	10	6	M4	1.2
		2	4	6	6	M4	1.2
	EKC1-32	1	4	10	6	M4	1.2
		2	4	6	6	M4	1.2
	EKC1-40	1	10	16	10	M4	3.5
		2	10	10	10	M8	3.5
	EKC1-50	1	16	25	25	M8	3.5
		2	16	16	-	M8	3.5
	EKC1-65	1	16	25	25	M8	3.5
		2	16	16	-	M8	3.5
	EKC1-80	1	50	50	50	M8	3.5
		2	25	35	-	M10	4.0
	EKC1-95	1	50	50	50	M10	4.0
		2	25	35	-	M10	4.0

Curve



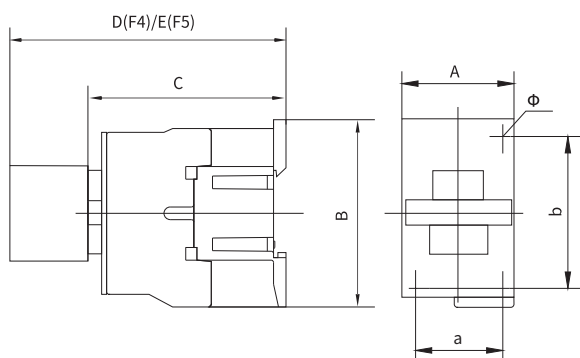
EKC1

Contactor 9~95A

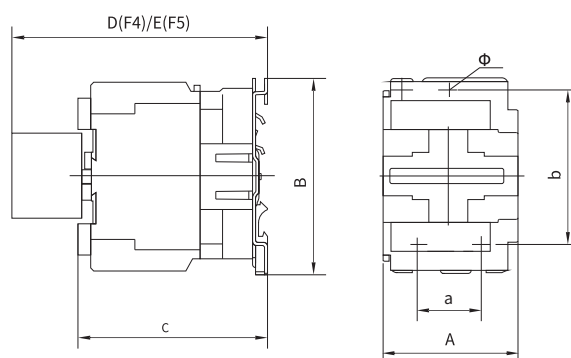
Standard_IEC60947-4-1

Overall and Installation Dimension(mm)

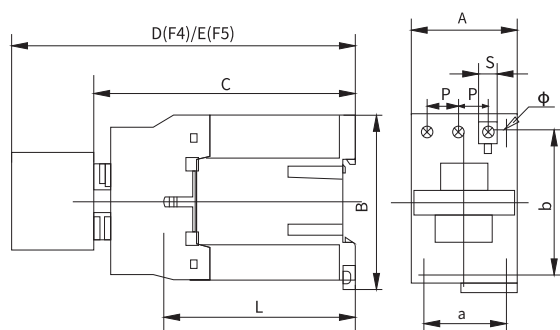
EKC1-09~32



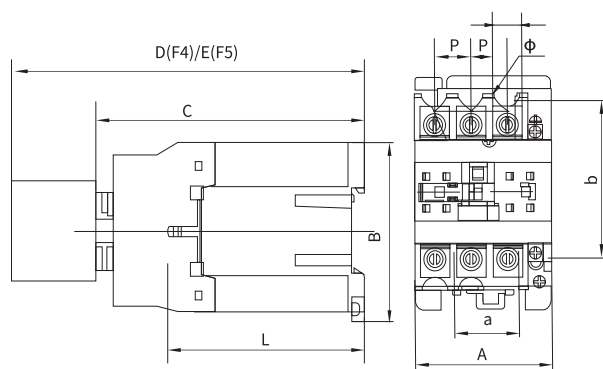
EKC1-40~95



EKC1-09Z~32Z



EKC1-40Z~95Z



Note:

1. L: in main circuit, the distance between terminals and plate;
2. P: in main circuit, the distance between two phases;
3. S: in main circuit, the width of contacting plate.

Model	A Max	B Max	C Max	D Max	E Max	a	b	φ	L	P	S
EKC1-09(Z)~12(Z)	47	76	82(116)	125.5(160.5)	140.5(174.5)	34/35	50/60	4.5	60(95)	10.5	8.6
EKC1-18(Z)	47	76	87(122)	120.5(154.5)	145.5(180.5)	34/35	50/60	4.5	61(96)	11.3	10.4
EKC1-25(Z)	57	86	95(131)	133.5(169.5)	153.5(189.5)	40	48	4.5	70(107)	13.2	11.7
EKC1-32(Z)	57	86	100(138)	138.5(176.5)	158.5(196.5)	40	48	4.5	71.6(120)	14.5	13
EKC1-4011(Z)~6511(Z)	77	129	116(173)	154.5(211.5)	174.5(231.5)	40	100/110	6.5	78(135)	20	8.6
EKC1-4004/4008(Z)~6504/6508(Z)	84	129	116(173)	154.5(211.5)	174.5(231.5)	40	100/110	6.5	78(135)	20	8.6
EKC1-8011(Z)~9511(Z)	87	129	127(183)	165.5(226.5)	185.5(246.5)	40	100/110	6.5	83(140)	23.5	12
EKC1-8004/8008(Z)~9504/9508(Z)	96	129	127(183)	160.5(221.5)	180.5(241.5)	40	100/110	6.5	83(140)	23.5	12

Contactor Accessories

Standard_IEC 60947-4-1

	Sepecification	Model	Contact Number	Contactor Matched
	Auxiliary Contact 4-pole Front mount	EKF4-40	4NO	EKC1-09~95 EKC1-115~800
		EKF4-31	3NO+1NC	
		EKF4-22	2NO+2NC	
		EKF4-13	1NO+3NC	
		EKF4-04	4NC	
	Auxiliary Contact 2-pole Front mount	EKF4-20	2NO	EKC1-09~95
		EKF4-11	1NO+1NC	
		EKF4-02	2NC	
	Auxiliary Contact 2-pole Side mount	EKF8-20	2NO	EKC1-09~95
		EKF8-11	1NO+1NC	
		EKF8-02	2NC	
	1NO+1NC Pneumatic timer ON-delay	EKF5-T0	0.1~3s	EKC1-09~95 EKC1-115~800
		EKF5-T2	0.1~30s	
		EKF5-T4	10~180s	
	1NO+1NC Pneumatic timer OFF-delay	EKF5-D0	0.1~3s	
		EKF5-D2	0.1~30s	
		EKF5-D4	10~180s	
	Auxiliary Contact 4-pole Front mount	EKF4-40M	4NO	EKC1-09~12M
		EKF4-31M	3NO+1NC	
		EKF4-22M	2NO+2NC	
		EKF4-13M	1NO+3NC	
		EKF4-04M	4NC	
	Auxiliary Contact 2-pole Front mount	EKF4-20M	2NO	EKC1-09~12M
		EKF4-11M	1NO+1NC	
		EKF4-02M	2NC	
	Contactor Coil	EKX1-2	AC Volts	EKC1-09~18
		EKX1-4	AC Volts	EKC1-25~32
		EKX1-6	AC Volts	EKC1-40~95
	Contactor Coil Water Proof	EKX1-6N	AC Volts	EKC1-40~95
		EKX1-FF	AC Volts	EKC1-115~150
		EKX1-FG	AC Volts	EKC1-185~225
		EKX1-FH	AC Volts	EKC1-265
		EKX1-FJ	AC Volts	EKC1-400
		EKX1-FK	AC Volts	EKC1-500
		EKX1-FL	AC Volts	EKC1-630
		EKX1-FX	AC Volts	EKC1-780

Contactor Accessories

Standard_IEC 60947-4-1

	Sepecification	Model	Contactor Matched
	Accessories for Reversing/ change-over type contactor	EKA9-0932	EKC1-09~32
		EKA9-4095	EKC1-40~95
		EKA9-FF970	EKC1-115~150
		EKA9-FB970	EKC1-185~225
		EKA9-FH970	EKC1-265~330
		EKA9-FJ970	EKC1-400~500
		EKA9-FL970	EKC1-630~800

	Sepecification	Model	TOR Matched
	Mounting Block for Thermal Overload Relay	EKA9-1064	EKR2-13
		EKA9-2064	EKR2-23
		EKA9-3064	EKR2-33

Mounting Sketch Map



EKATS1-100~3200GA1/GA

PC. AUTOMATIC TRANSFER SWITCH

Standard_IEC 60947-4-1



GA Type

Product Type

EKAT	S	1	3200	GA1/GA	/	4P	3200A	R	F
-	Product category	Design code	Current frame	Product code		Pole	Rated current	Working mode	Additional function

Name	Details		
Product category	PC class automatic transfer switch		
Design code	1		
Current frame	Product code	Current frame	
	GA	100A,160A,250A,400A,630A,1000A,1250A,1600A,2000A,2500A,3200A	
Product code	Product code	Working current	Features
	GA1	16A~100A	Economical type
	GA	16A~3200A	Integral type, 3 positions, with fire-fighting function
Pole	3P,4P		
Rated current	16A~3200A		
Working mode	R=Self-input and self-recover		
Additional function	F: Utility- Generator		

Technical parameter

Type		EKATS1-GA1, EKATS1-GA																									
Current frame		100								250					630					1600				3200			
Rated working current (Ie)		16	20	25	32	40	50	63	80	100	125	160	200	225	250	315	350	400	500	630	800	1000	1250	1600	2000	2500	3200
Rated insulation voltage (Ui)		690V														800V											
Rated impulse withstand voltage (Uimp)		8kV																									
Rated working voltage (Uw)		AC400V																									
Use catagory		AC-33B																		AC-33iB							
Rated limited short circuit current (Icm)		8kA								17kA					26kA					67.5kA							
Rated short-time withstand current (Icw)		5kA/30ms								10kA/60ms					12.6kA/60ms					32kA/60ms							
Transfer time		2.5s								2.2s					0.9s					2s							
Control power voltage		DC24V, AC110V, AC220V																									
Rated frequency	Start	11W								13W					355W					400W	440W		600W				
	Normal														74W					90W	98W		120W				



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