

AM1 Series Moulded Case Circuit Breaker

1. Application

AM1 series moulded case circuit breaker is one of products developed and manufactured by adopting international advanced technology. It is supplied with rated insulating voltage 550 and 800V and used for circuit of AC 50/60Hz, rated operating voltage AC 400V (or below), rated operating current up to 1600A for infrequent changing over and starting of the motors. The products conforms to IEC60947-2 standard.



AM1-63M/3P



AM1-100M/3P



AM1-225L/3P

2. Main Technical Specification

Table 1

Type	Rated current (A)	Pole	Rated insulating voltage (V)	Rated operating voltage (V)	Arcing- over distance (mm)	Ultimate short circuit breaking capacity (kA)	Service short circuit breaking capacity (kA)	Operation performance		Utiliza- tion cat- egory
								Load	Unload	
AM1-63L	(6),10,16,20,	3, 4	500V	400V	0	25	18	1500	8500	A
AM1-63M	25,32,40,50,63				0	50	35			
AM1-100L	(10),16,20,25,				0(< 50)	35	22			
AM1-100M	32,40,50,63,				0(< 50)	50	35			
AM1-100H	80,100		0(< 50)		85	50	1000	7000		
AM1-225L	100,125,160, 180,200,225		< 50		35	22				
AM1-225M			< 50		50	35				
AM1-225H			< 50		85	50				
AM1-400L			225,250,315,		< 50	50	35	1000	4000	
AM1-400M	350,400		< 100		65	42				
AM1-630L	400		< 100		50	35				
AM1-630M	500		< 100		65	42				
AM1-630H	630		< 100		100	65				
AM1-800M	630,700,800		< 100		75	50				
AM1-800H			< 100		100	65				
AM1-1250M	1000,1250		< 100		100	65				
AM1-1250H		< 100	125	75						
AM1-1600M		1600	< 100	150	80					

Note: 6A without thermal protection

The N-pole of four-poles breaker is sited at the right side of the product has four types:

Type A: Without current trip-release on N pole which making all the time, not closing and opening with the other three poles.

Type B: Without current trip-release on N pole which closing and opening with the other poles.

Type C: With current trip-release which closing and opening with the other three poles.

Type D: With current trip-release which making all the time not closing and opening with the other three poles.

3. Protection Characteristic

The thermodynamic release of a circuit breaker provides the feature of inverse time-delay, while the magnetic release is the instantaneous operation as shown on table 2(distribution circuit breaker) and table 3 (motor protection circuit breaker).

Two option: paper or laser
laser label, default is label



AM1-225L/3P



AM1-400L/3P



Back panel connection



Plug-in connection



Electromagnetic operation device



Motor-driven operation device

Table 2

Rated current of release (A)	Thermodynamic release (ambient temperature $\begin{matrix} \text{land } +40^{\circ}\text{C} \\ \text{marine } +45^{\circ}\text{C} \end{matrix}$)		Operating current of magnetic release (A)
	1.05In(cold state) Inoperative time(h)	1.30In(heat state) Operative time(h)	
$10 < I_n < 63$	> 1	< 1	$10I_n \pm 20\%$
$63 < I_n < 100$	> 2	< 2	$5I_n \pm 20\%$
$100 < I_n < 800$	> 2	< 2	$10I_n \pm 20\%$

Table 3

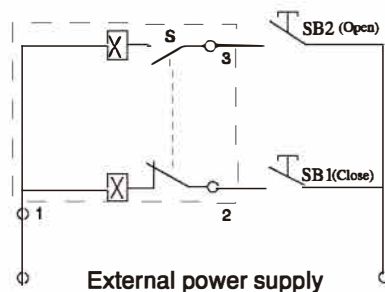
Rated current of release (A)	Thermodynamic release (ambient temperature $\begin{matrix} \text{land } +40^{\circ}\text{C} \\ \text{marine } +45^{\circ}\text{C} \end{matrix}$)				Operating current of magnetic release (A)
	1.0In(cold state) non-trip time(h)	1.20In(heat state) trip time (h)	1.50In(heat state) trip time (h)	7.2In(cold state) trip time(h)	
$10 < I_n < 225$	> 2	< 2	$< 4\text{min}$	$4\text{s} < T_p < 10\text{s}$	$12I_n \pm 20\%$
$225 < I_n < 630$			$< 8\text{min}$	$6\text{s} < T_p < 20\text{s}$	

4. Accessories of Circuit Breaker

4.1 The external accessories of the breaker

● Motor-driven operation device

1) Wiring diagram of type CDM electromagnetic operation device(fitting AM1-63,100,225) see the following drawing (wiring diagram of the external accessories of the breaker in the dotted frame)

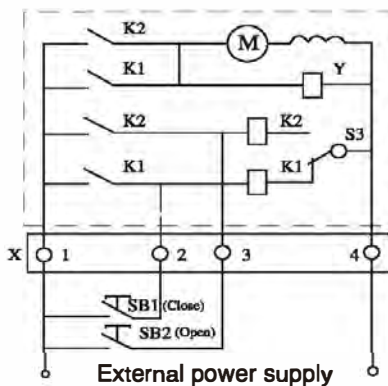


Code description: SB_1 、 SB_2 stand for push button.(provided by users themselves)

Number "1"、"2"、"3" stand for number of wiring terminals.

Voltage rating: AC50/60Hz 230V 400V, DC 220V

2) Wiring diagram of type CD Electromagnetic operation device and motor-driven operation device (fitting AM1-400、630、800) see belows (wiring diagram of the external accessories of the breaker in the dotted frame)



Code description: SB_1 、 SB_2 stand for push button. (provided by users themselves)

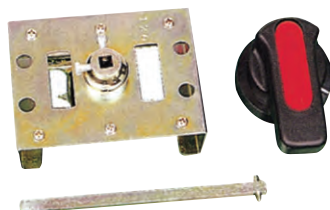
"X" stands for line connection terminals

Voltage rating: AC50/60Hz 230V 400V, DC220V

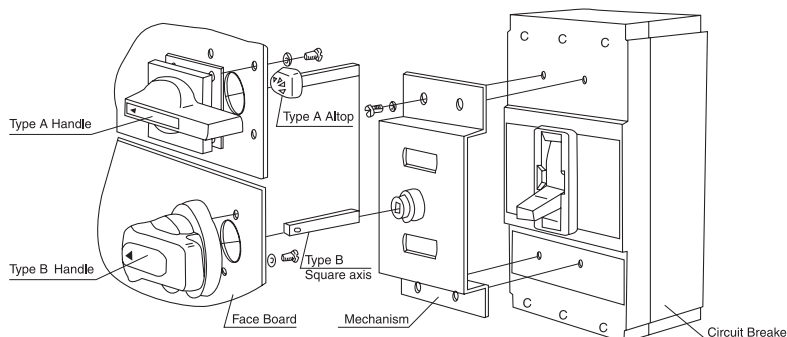
● Rotary handle operation device

The mechanism is used with moulded case circuit breaker to operate the draw-out panel. Power distribution panel and supply box outside the panel by turning the handle ,and to ensure the door of panel would not be opened when the breaker being on.

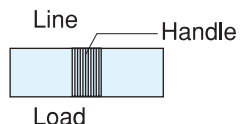
The hand-drive mechanism can be equipped with two types of operation, one is “A” model square handle , the other is “B” model round handle.



Rotary handle operation device



4.2 Release pattern and accessories code



UVR: Under-voltage release; SHT: Shunt release;

AL: Alarm contact AX: Auxiliary contact;

Release pattern and accessories code	Type	AM1-63, 100, 225	AM1-400	AM1-630	AM1-800
200, 300	Without accessories	200: magnetic release (only short circuit protection) 300: thermal magnetic release(both overload and short circuit protection)			
208, 308	Alarm contact	AL	AL	AL	AL
210, 310	Shunt release	SHT	SHT	SHT	SHT
220, 320	Auxiliary contact	AX	AX	AX	AX
230, 330	Under-voltage release	UVR	UVR	UVR	UVR
240, 340	Shunt release Auxiliary contact	SHT AX	SHT AX	SHT AX	AX SHT
250, 350	Shunt release Under-voltage release	SHT UVR	SHT UVR	SHT UVR	UVR SHT
260, 360	Two group of auxiliary contact	AX AX	AX AX	AX AX	AX AX
270,370	Under-voltage release Auxiliary contact	AX UVR	AX UVR	AX UVR	UVR AX
218, 318	Shunt release Alarm contact	AL SHT	SHT AL	AL SHT	AL SHT
228, 328	Alarm contact Auxiliary contact	AL AX	AL AX	AL AX	AL AX
238, 338	Under-voltage release Alarm contact	AL UVR	AL UVR	AL UVR	AL UVR
248, 348	Shunt release, Alarm contact, Auxiliary contact	AL AX SHT	SHT AL AX	AL AX SHT	AL AX SHT
268, 368	Two group of auxiliary contact, Alarm contact	AL AX AX	AL AX AX	AL AX AX	AL AX AX
278, 378	Shunt release, Alarm contact, Under-voltage release	AL AX UVR	AL AX UVR	AL AX UVR	AL UVR AX

According to user's demands, accessories could lead to direct wire outcoming or line wiring terminals could be added(please mark out in case of placing order).

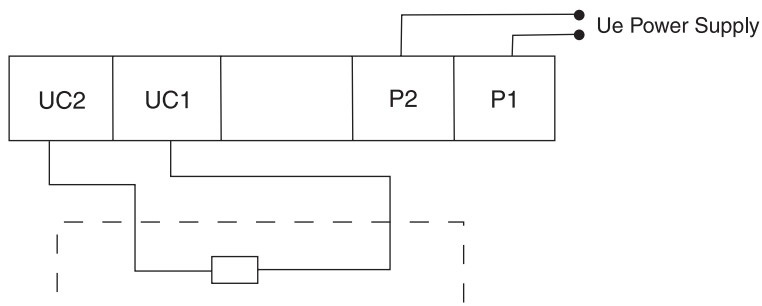
● Under-voltage release

Wiring diagram of the under-voltage release connected externally (the internal accessories in the dotted frame)

U_e: AC50/60Hz 230V, 400V



Under-voltage release

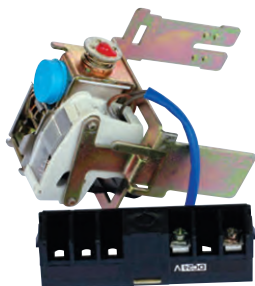


When the operation voltage is 35%~70% of the rated voltage, the under-voltage release should make the breaker trip correctly.

When the operation voltage is 85%~110% of the rated voltage, the under-voltage release should make the breaker close.

In case of the operation voltage less than 35% of the rated voltage, the under-voltage should prevent the breaker from closing.

Note: Only the under-voltage release should be energized in advance, the breaker could be recramped and turned-on, otherwise the breaker will be damaged.

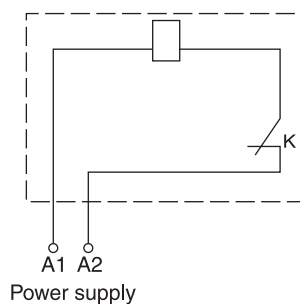


Shunt release

● Shunt release

Wiring diagram of the shunt release(the internal accessories in the dotted frame)

"K" is the slow motion switch normal-close contact connect the coil in series in the shunt release. It turns-on or turns-off automatically as soon as the breaker on or off.



Voltage rating: AC50/60Hz 230V 400V, DC 110V 220V

The shunt release should make the breaker trip reliably when the operation voltage is 70%~110% of the rated control voltage.

● Alarm contact



Alarm contact

The position of the breaker in "off" or "on"	
The position of the breaker in "free trip" (alarm)	B ₁₁ and B ₁₂ switch from "close" to "open", status of B ₁₁ and B ₁₄ switch from "open" to "close"

● Auxiliary Contact



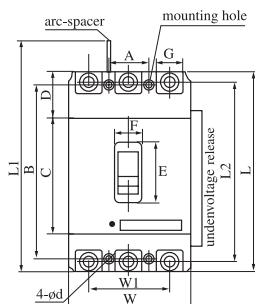
Auxiliary Contact

When the breaker is in "off"		For the breaker with frame current 400A and above
		For the breaker with frame current 225A and below
When the breaker is in "on"	When the breaker is in "off", the contacts switch from "close" to "open". When the breaker is in "off", the contacts switch from "open" to "close"	

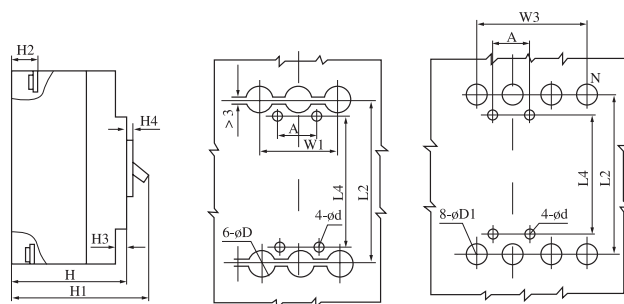
5. Outline and Installation Dimensions

Type	Outline Dimensions(mm)																														Installation Dimensions				
	Front panel connection															Back panel connection						Plug-in connection													
	W	W1	L	L1	L2	H	H1	H2	H3	H4	C	D	E	F	G	W2	W3	L4	H5	H6	ØD	ØD1	L5	L6	H7	H8	H9	H10	J	K	Ød1	M	A	B	Ød
AM1-63L	76	50	135	170	117	74	92	20	7	4	85	28.5	48	22	14	100	75	117	44	66	8	8							60.7				25	117	3.5
AM1-63M	76	50	135	170	117	82	98.5	28	7	4	85	28.5	48	22	14	100	75	117	44	66	8	8							62				25	117	3.5
AM1-100L	92	60	150	185	132	68	86	24	7	4	88	35.5	50	22	17.5	122	90	129	68	108	26	16	92	168	50	62	74	17.5	56	60	6.5	M8	30	129	4.5
AM1-100M	92	60	150	185	132	86	104	24	7	4	88	35.5	50	22	17.5	122	90	129	68	108	26	16	92	168	50	62	74	17.5	56	60	6.5	M8	30	129	4.5
AM1-100H	92	60	150	185	132	86	104	24	7	4	88	35.5	50	22	17.5	122	90	129	68	108	26	16	92	168	50	62	74	17.5	56	60	6.5	M8	30	129	4.5
AM1-225L	107	70	165	215	144	86	110	24	5	4	102	31.5	50	22	17	142	105	126	66	110	20	20	94	183	50	69.5	84.5	17.5	54	70	6.5	M8	35	126	5
AM1-225M	107	70	165	215	144	103	127	24	5	4	102	31.5	50	22	17	142	105	126	66	110	20	20	94	183	50	69.5	84.5	17.5	54	70	6.5	M8	35	126	5
AM1-225H	107	70	165	215	144	103	127	24	5	4	102	31.5	50	22	17	142	105	126	66	110	20	20	94	183	50	69.5	84.5	17.5	54	70	6.5	M8	35	126	5
AM1-400L	150	96	257	357	224	105	155	38	8	6	128	64.5	89	65	ø26	198	144	194	60	120	33	33	169	279	60	83.5	106.5	21	129	60	8.5	M10	44	194	7
AM1-400M	182	116	270	370	234	110	160	43	8	6	134	70	89	65	ø29	198	144	200	65	125	36	36	169	299	60	92	110	21	123	100	8.5	M12	58	200	7
AM1-630L	182	116	270	370	234	110	160	43	8	6	134	70	89	65	ø29	240	174	200	65	125	36	36	169	299	60	92	110	21	123	100	8.5	M12	58	200	7
AM1-630M	182	116	270	370	234	110	160	43	8	6	134	70	89	65	ø29	240	174	200	65	125	36	36	169	299	60	92	110	21	123	100	8.5	M12	58	200	7
AM1-630H	210	140	280	380	243	106	145	33	30	128									128														70	243	7.2
AM1-800M	210	140	280	380	243	106	145	33	30	128									128														70	243	7.2
AM1-800H	210	140	280	380	243	106	145	33	30	128									128														70	243	7.2
AM1-1250M	210	140	393			200																													
AM1-1250H	210	140	393			200																													
AM1-1600M	210	140	393			200																													

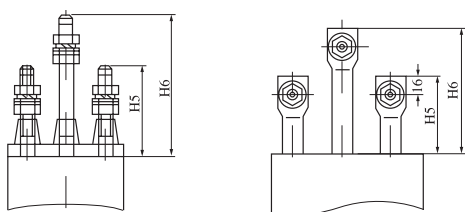
Front panel connection



Back panel connection



Back panel connection



Plug-in connection

