

EKM8E MCCB 160AF~2000AF



Electronic Adjustable Type MCCB

Standard_ IEC60947-2



EKM8E-160H 3P

EKM8E-250H 3P

EKM8E-400H 3P

EKM8E-1250H 3P

Product Overview

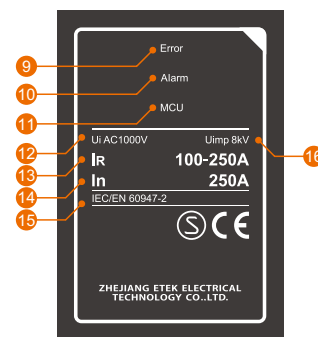
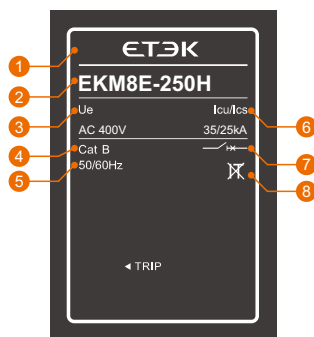
EKM8E series offers a range of MCCBs with electronic type trip unit, providing LSI* protection. These MCCB are suitable for use with AC 50Hz, rated voltage of 690V and below, and rated current up to 2000A.

Electronic trip units in comparison with thermomagnetic trip units, they allow a more precise setting both in terms of trip times as well as in terms of current thresholds to meet the installation requirements better.

- Frame size: 160A, 250A, 400A, 630A, 800A, 1250A, 1600A, 2000A
- Rated operational voltage U_e (V/AC): 230/400/415/690
- Breaking capacity code: S, H
- Number of poles: 3P, 4P
- Trip unit type: electronic type
- Installation method: Fixed type; plug-in type

*Note: Function L (Long time delay) setup current and time delay; Function S (Short time delay) setup current and time delay; Function I (Instantaneous) setup current without delay.

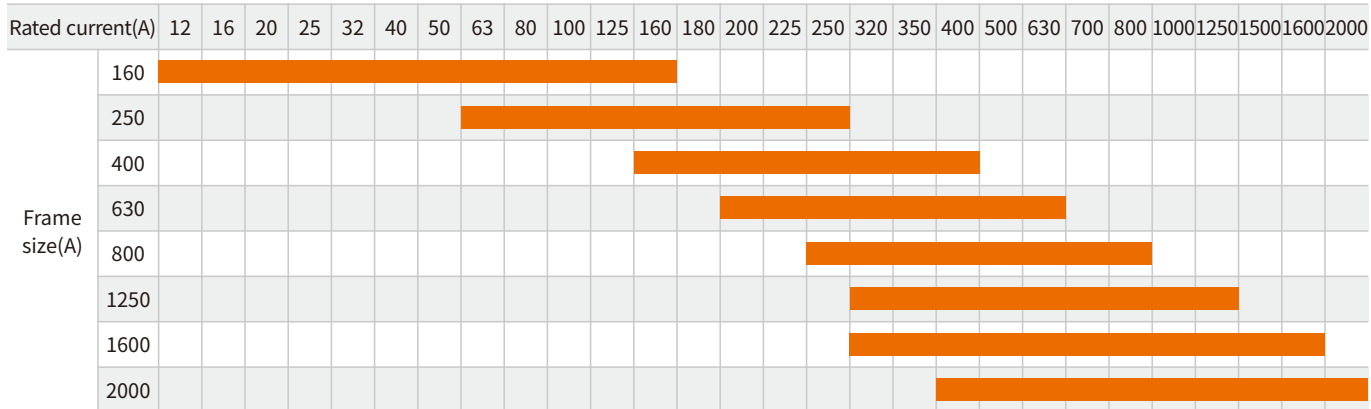
Nameplate Interpretation



- 1 Company LOGO
- 2 Product model
- 3 U_e : Rated operational voltage
- 4 CatA: Utilization category of breaker
- 5 Frequency of A.C.
- 6 I_{cu}/I_{cs} : Ultimate short circuit breaking capacity/Service short circuit breaking capacity
- 7 Electrical symbol for circuit breaker with isolating function
- 8 Not applicable to IT systems

- 9 Error: Fault
- 10 Alarm: Alarm
- 11 MCU: Run
- 12 U_i : Rated insulation voltage
- 13 I_R : Long-time-delay setting current range
- 14 I_n : Rated operational current
- 15 The product is in conformity with standard IEC/EN 60947.2
- 16 U_{imp} : Rated impulsive withstand voltage

Comparison Table of Frame Sizes and Rated Current



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

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

MCCB Selection Code

Product code	Frame size code	Breaking capacity code	Operation way code ①	Number of poles code	Knob code	Inner accessories code ②
EKM8E -	160	H	P1	/ 4	3	00
EKM8E Series electronic adjustable type MCCB	160: 160A	S: Standard type	No code: Direct operation	3: 3P	3: 3 knob	See accessory table
	250: 250A		P1: DC3 electric operation			
	400: 400A		P2: DC6 series electric operation			
	630: 630A		ZY1: Turning handle (hand-operated center type-round handle)-(Preferred for conventional factory)			
	800: 800A		ZF1: Turning handle (hand-operated center type-square handle)			
	1250: 1250A	H: High breaking type	ZY2: Turning handle (hand-operated eccentric type-round handle)	4: 4P	6: 6 knob	
	1600: 1600A		ZF2: Turning handle (hand-operated eccentric type-square handle)			
	2000: 2000A		Z3: Turning handle (Hand-operated one-piece type) (Only available for 160, 250)			

Note: ① The voltage of electric operation is divided into: DC24, DC110V, DC220V, AC230V, AC400V; Conventional production is AC230V.

② 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.

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)	No code: General products	160: 32,63,100,125, 160A (0.4-1In adjustable)
		G: With grounding protection	P: Coupling row (extended copper row)		250: 160,250A (0.4-1In adjustable)
		III: Overload alarm does not trip	Z1: Rear connection (fixed type)		400: 400A (0.4-1In adjustable)
	B: There is no over-current protection at pole N and N-pole operates with other three poles.	R: Thermomagnetic protection	Z2H: Plug-in rear connection (split type)		630: 500,630A (0.4-1In adjustable)
		V: Low temperature rise model 40K	Z3Q: Plug-in front connection (one-piece)		800: 630,800A (0.4-1In adjustable)
		VI: Low temperature rise model 50K	Z3H: Plug-in rear connection (one-piece)		1250: 630,800,1000, 1250A (0.4-1In adjustable)
2: motor protection	C: There is over-current protection at pole N and N-pole operates with other three poles.	DF: Draw-out type front connection	Z: Terminal cover	1600: 800,1000, 1250,1600A (0.4-1In adjustable)	
		VII: Low temperature rise model 60K		DR: Draw-out type rear connection	2000: 1000,1250, 1600,2000A (0.4-1In adjustable)
	D: There is over-current protection at pole N and the N pole is always connected.				

③ Magnetic protection 14In does not operate, 20In action; 700A-2000A without motor protection type.

④ 160, 250 no pull-out; 1250, 2000 with coupling row only.

⑤ Terminal cover is only available for 3P;

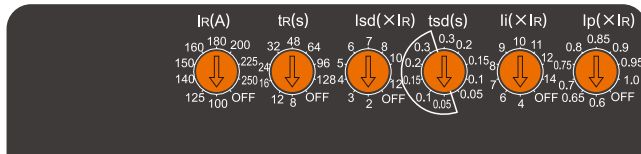
400 and 630 are divided into narrow and long models, and wide and long models, and the default is wide and long models; 2000 are not available at the moment.

Technical Parameters

Frame size Inm(A)		160		250		400	
Rated operational current In(A)		32, 63, 100, 125, 160A		160, 250A		400A	
Trip rated current Ir(A)		63, 75, 80, 90, 100, 125, 140, 150, 160		100, 125, 140, 150, 160, 180, 200, 225, 250		160, 180, 200, 220, 240, 280, 320, 360, 400	
Rated insulation voltage Ui(V)		1000V		1000V		1000V	
Rated impulse withstand voltage Uimp(kV)		8kV		8kV		8kV	
Rated operational voltage Ue(V), AC 50/60Hz		AC400V, AC690V		AC400V, AC690V		AC400V, AC690V	
Breaking capacity code		S	H	S	H	H	
Number of poles		3P,4P	3P,4P	3P,4P		3P,4P	
Rated service short circuit breaking capacity Ics (kA)	230/240V	28	35	28	35	50	
	400/415V	18	25	18	25	35	
	690V	4	8	4	8	10	
Rated ultimate short circuit breaking capacity Icu (kA)	230/240V	40	50	40	50	75	
	400/415V	25	35	25	35	50	
	690V	8	8	8	8	10	
Standards		IEC 60947-2		IEC 60947-2		IEC 60947-2	
Utilization category		A		B		B	
Isolation function		■		■		■	
Trip unit type		Electronic		Electronic		Electronic	
Mechanical life (times)		8500		8500		4000	
Electrical life (times)		1500		1500		1000	

Poles		3P	4P	3P	4P	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	-	-	-	-	■	-	

Electronic trip unit

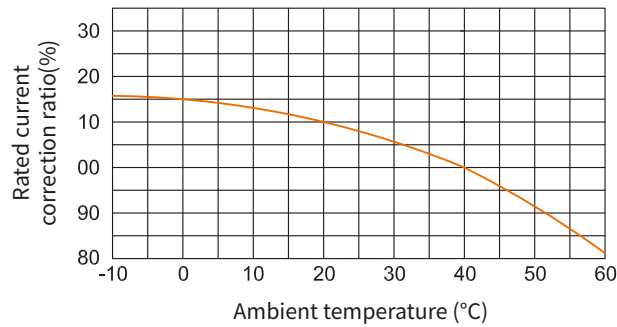


EKM8E-250

- Ir: Overload long delay setting current
- Isd: Short-circuit short delay setting current
- li: Short-circuit instantaneous setting current
- tr: Overload long delay setting time
- tsd : Short-circuit short delay setting time
- Ip: Overload pre-alarm setting current

Frame size	Setting current and time parameters						
	In(A)	Ir(A)	Tr(s)	Isd(×Ir)	Tsd(s)	li(×Ir)	Ip(×Ir)
EKM8E-160	32	12,14,16,19,22,24,26,29,32,OFF	8,12,16,24, 32,48,64, 96,128,OFF	2,3,4,5,6, 7,8,10,12, OFF	0.05,0.1, 0.15,0.2, 0.3	4,6,7,8,9, 10,11,12, 14,OFF	0.6,0.65, 0.7,0.75, 0.8,0.85, 0.9,0.95, 1,OFF
	63	25,28,32,35,41,44,50,57,63,OFF					
	100	40,45,50,55,60,70,80,90,100,OFF					
	125	50,63,75,80,85,90,95,100,125,OFF					
	160	63,75,80,90,100,125,140,150,160,OFF					
EKM8E-250	160	63,75,80,90,100,125,140,150,160,OFF					
	250	100,125,140,150,160,180,200,225,250,OFF					
EKM8E-400	400	160,180,200,220,240,280,320,360,400,OFF					
		200,225,250,280,300,320,350,375,400,OFF					
EKM8E-630	500	200,225,250,300,320,350,400,450,500,OFF					
	630	250,280,315,350,380,440,500,570,630,OFF					
		400,440,460,480,500,530,560,600,630,OFF					
EKM8E-800	630	250,280,315,350,380,440,500,570,630,OFF					
		400,440,460,480,500,530,560,600,630,OFF					
	800	320,400,450,500,550,630,700,750,800,OFF					
		500,550,600,630,660,700,740,780,800,OFF					
EKM8E-1250	630	400,440,460,480,500,530,560,600,630,OFF					
		320,400,450,500,550,630,700,750,800,OFF					
	800	500,550,600,630,660,700,740,780,800,OFF					
		400,500,600,630,700,800,900,950,1000,OFF					
	1000	630,680,700,750,800,850,900,950,1000,OFF					
		500,600,700,800,900,1000,1100,1200,1250,OFF					
EKM8E-1600	1250	850,900,950,1000,1050,1100,1150,1200,1250,OFF					
		500,600,700,800,900,1000,1100,1200,1250,OFF					
	1600	320,400,450,500,550,630,700,750,800,OFF					
		400,500,600,630,700,800,900,950,1000,OFF					
EKM8E-2000	1000	500,600,700,800,900,1000,1100,1200,1250,OFF					
		630,800,900,1000,1100,1250,1400,1500,1600,OFF					
	1250	400,500,600,630,700,800,900,950,1000,OFF					
		500,600,700,800,900,1000,1100,1200,1250,OFF					
	1600	630,800,900,1000,1100,1250,1400,1500,1600,OFF					
2000	800,1000,1250,1400,1500,1600,1800,1900,2000,OFF						

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
EKM8E-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
EKM8E-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
EKM8E-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
EKM8E-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
EKM8E-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
EKM8E-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
EKM8E-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

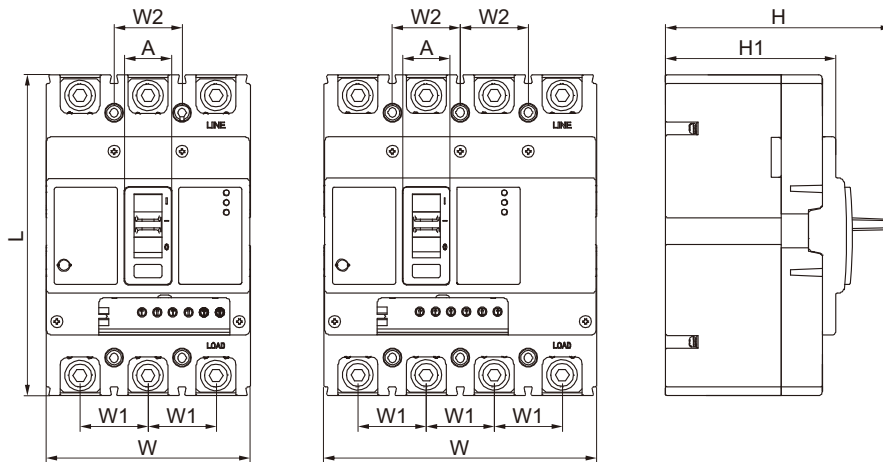
EKM8E MCCB 160AF~2000AF



Electronic Adjustable Type MCCB

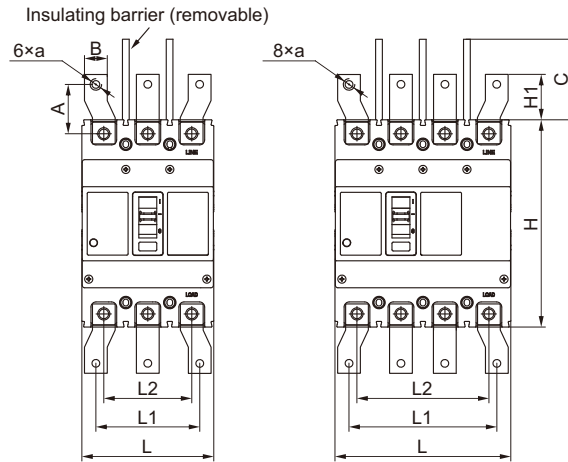
Standard_ IEC60947-2

Overall Dimension (mm)



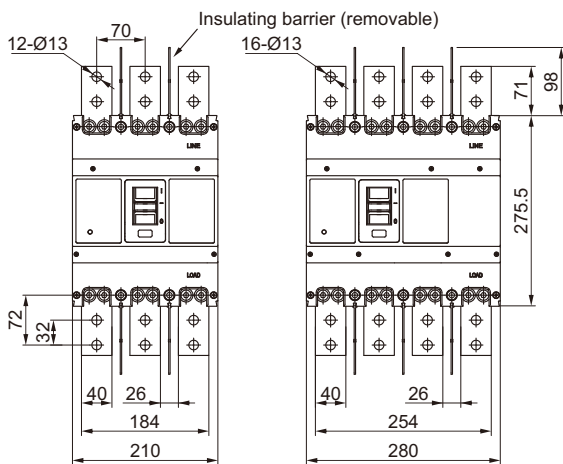
Product type	Poles	W	L	H	H1	W1	W2	A
EKM8E-160	3	90	155	94(S)/108(H)	68(S)/82(H)	30	30	25
	4	120	155	94(S)/108(H)	68(S)/82(H)	30	30	25
EKM8E-250	3	105	165	96(S)/116(H)	68(S)/88(H)	35	35	24
	4	140	165	96(S)/116(H)	68(S)/88(H)	35	35	24
EKM8E-400/630	3	140	257	152	103	44	44	51
	4	184	257	152	103	44	44	51
EKM8E-800	3	210	275.5	152	103	70	70	58
	4	280	275.5	152	103	70	70	58
EKM8E-1250	3	210	275.5	152	103	70	70	58
	4	280	275.5	152	103	70	70	58
EKM8E-1600/2000	3	210	340	244	141	70	70	78
	4	280	340	244	141	70	70	78

Front Connection Installation Dimension (mm)

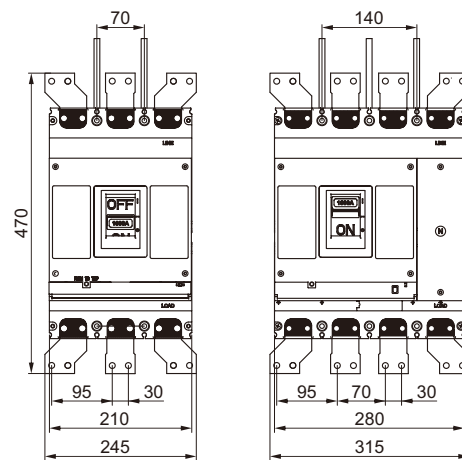


Product type	Poles	L	L1	L2	H	H1	A	B	C	a
EKM8T-160	3	90	78	60	155	21.8	24.5	15	48(S)/64(H)	M8
	4	120	108	90	155	21.8	24.5	15	48(S)/64(H)	M8
EKM8E-250	3	105	84	70	165	41.8	43.5	20	48(S)/64(H)	M8
	4	140	119	105	165	41.8	43.5	20	48(S)/64(H)	M8
EKM8E-400/630	3	140	111	87	257	45.4	43	28	98	Ø14
	4	184	155	131	257	45.4	43	28	98	Ø14
EKM8E-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

EKM8E-1250



EKM8E-1600/2000



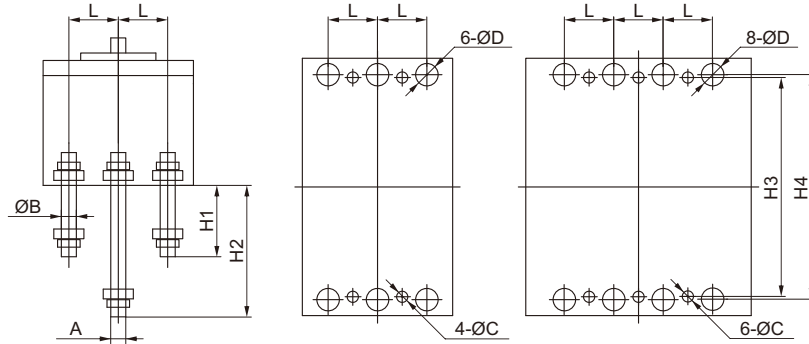
EKM8E MCCB 160AF~2000AF



Electronic Adjustable Type MCCB

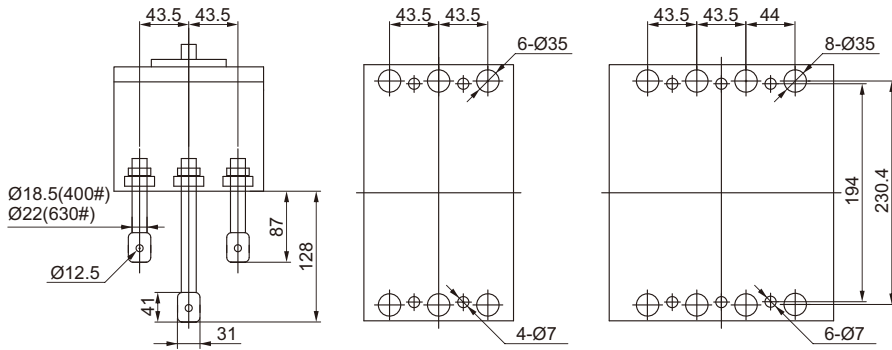
Standard_ IEC60947-2

Rear Connection Installation Dimension (mm)

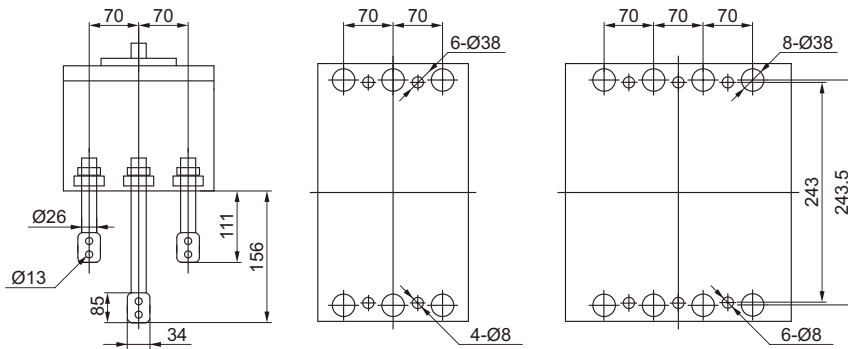


Product type	L	H1	H2	H3	H4	A	B	C	D
EKM8E-160	30	49	94	132	134	M8	12	4.5	15
EKM8E-250	35	82	121	126	144	M12	12	4.5	15

EKM8E-400/630

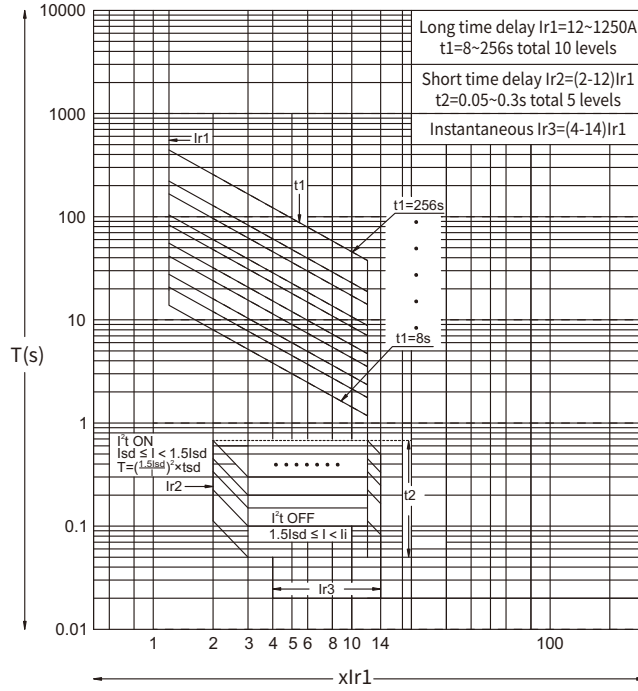


EKM8E-800



Tripping Curve

EKM8E (6 knobs)



EKM8E (3 knobs)

