

Switches & Breakers



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EARTH LEAKAGE BREAKERS

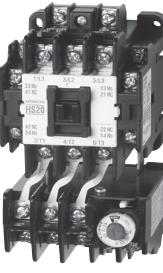
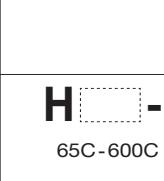
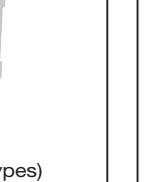
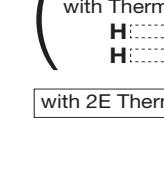
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SELECTION

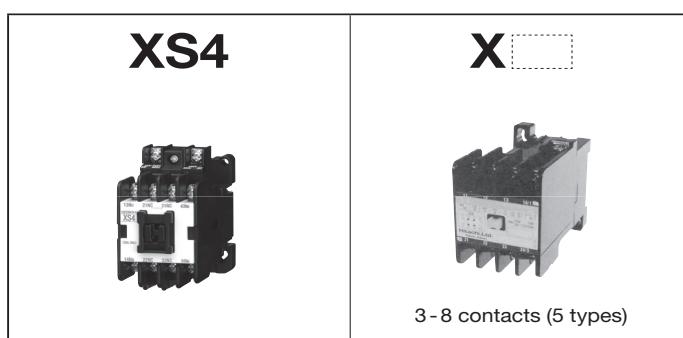
MINIATURE CIRCUIT BREAKERS

ELECTROMAGNETIC CONTACTORS AND SWITCHES

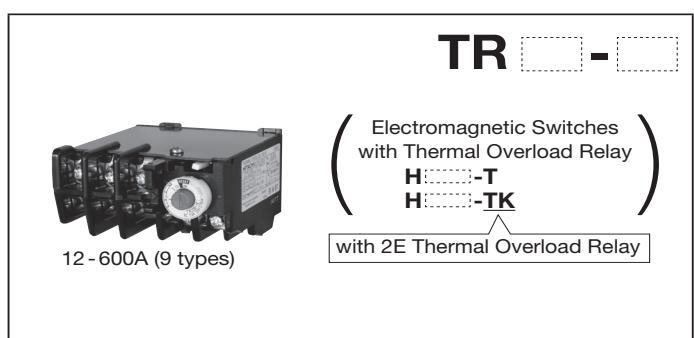
▼ TYPES AND MODEL ARRANGEMENTS OF ELECTROMAGNETIC CONTACTORS AND SWITCHES

	Electromagnetic Contactors		Electromagnetic Switches		
			Without Enclosure		With Enclosure
	HS []	-T	SHS [] -T		
Non-reversible Type	HS []	8-50 frame		HS [] -T	
	H []	65C-800C frame		H [] -T	
Reversible Type [20-800C frame (:provided mechanical interlock)]	HS [] -R	10-50 frame		HS [] -RT	
	H [] -R	65C-800C frame		H [] -RT	

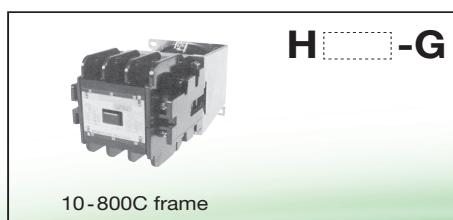
Contactor Relays



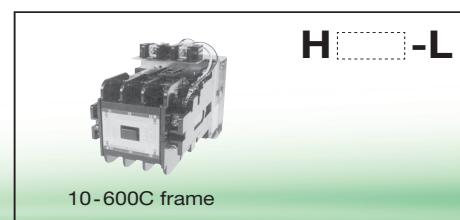
Thermal Overload Relays



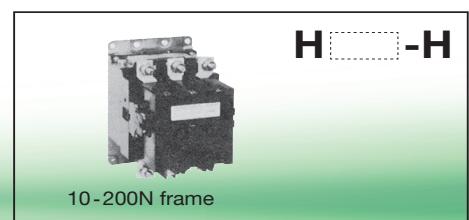
DC Operated Electromagnetic Contactors



Latched Electromagnetic Contactors



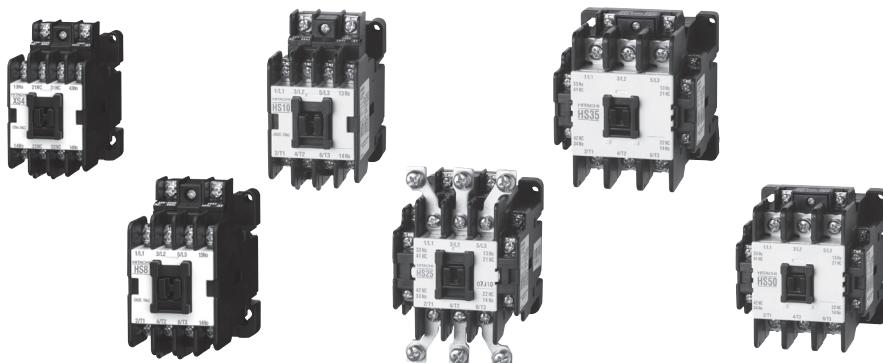
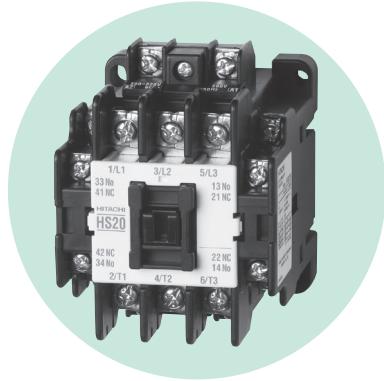
Heavy Load Electromagnetic Contactors





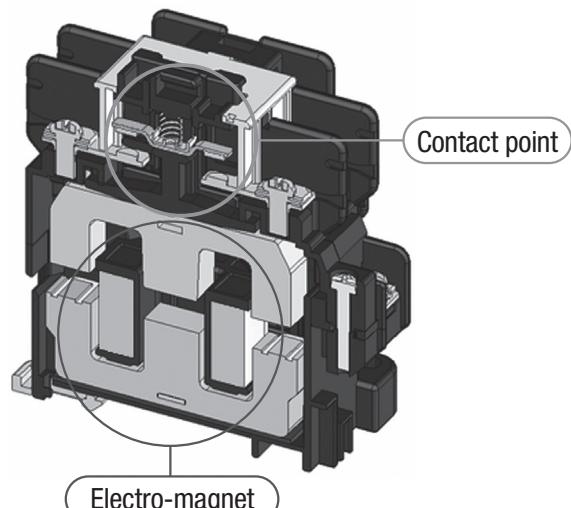
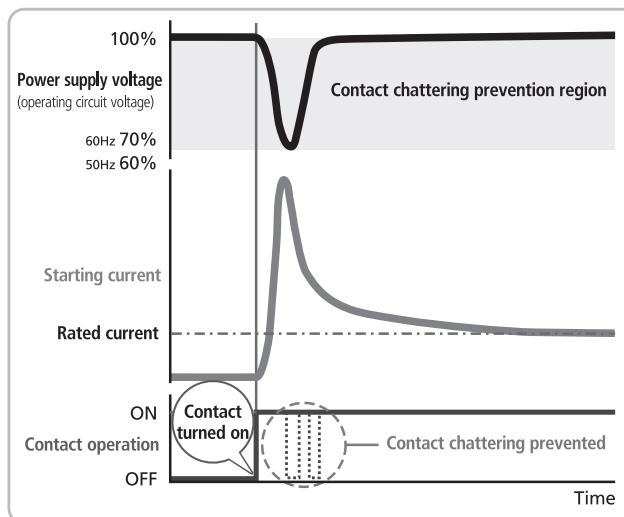
HS series - New ELECTROMAGNETIC CONTACTORS AND SWITCHES

▼ FEATURES OF NEW ELECTROMAGNETIC CONTACTORS AND SWITCHES (HS series)



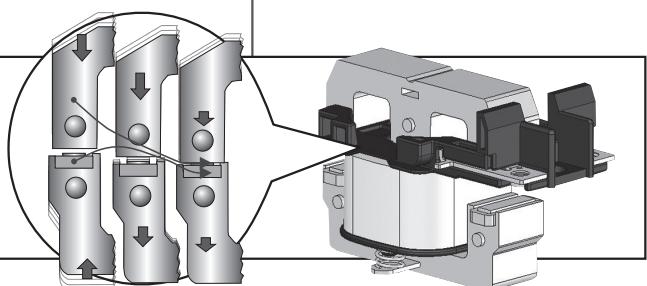
ELECTROMAGNET RESISTANT TO VOLTAGE FLUCTUATIONS

The contactor maintains stable conducting performance even when the power supply voltage drops when started under load.

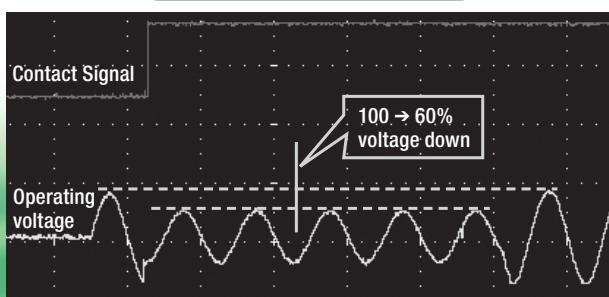


New shock-absorbing structure

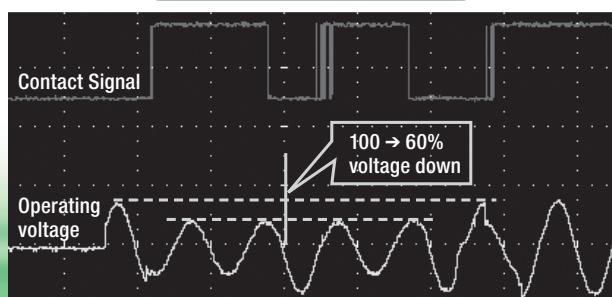
Immediately before collision, the movable core and the fixed core move in the same direction to absorb the shock.



Stable operation



During contact chattering



IMPROVED ENVIRONMENTAL PERFORMANCE**Reduced power consumption**

The HS series reduces power consumption by operating coils with 20A to 50A frames.

Frame	20A	25A	35A	50A
Power consumption	86%	86%	95%	95%

(compared with conventional Hitachi IES products)



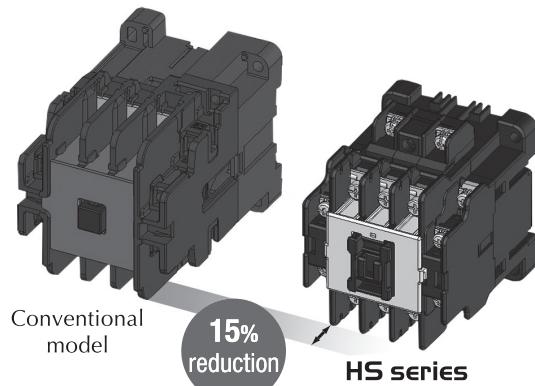
Example of
indication for resin used

Amount of materials used reduced, recyclable materials increased

The HS series improves environmental performance through miniaturization to reduce product weight and with indications of material names for easier recycling.

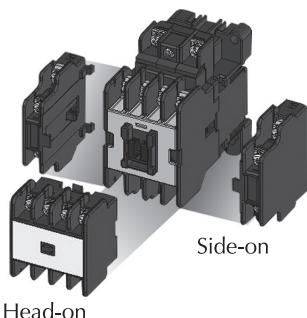
IMPROVED USABILITY by Miniaturization and an Enhanced Auxiliary Contact Unit**15% height reduction**

Improved magnet and contact efficiency greatly decreases the height from the mounting surface for 20A to 50A frames.

**Improved inching performance**

The capability of the 10A frame has been upgraded to 2.2 kW and that of the 20A frame to 3.7 kW.

220VAC, 50% inching rate 50%, 100,000-operation service life (AC-4)

**Enhanced auxiliary contact unit**

In addition to the side-on type, a head-on type is available, further improving usability.

You can easily mount the side-on type with one hand (patent pending).

IMPROVED RELIABILITY AND SAFETY**Minimum load to 20V 5mA on the auxiliary contact**

The HS series uses a highly reliable twin contact to open or close the contact of a micro load circuit.

Mechanical durability of 8 million operations

The HS series uses a new shock absorbing structure to improve durability.

Safe contact opening

(the auxiliary b-contact is turned off during welding of the main contact)

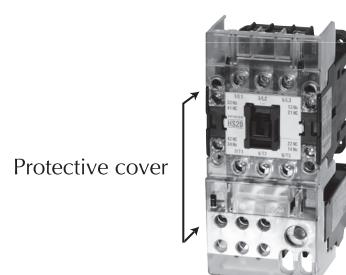
The HS series complies with the requirements for control functions for failures specified in EN60204 for electrical equipment of industrial machinery.

Fireproof materials used

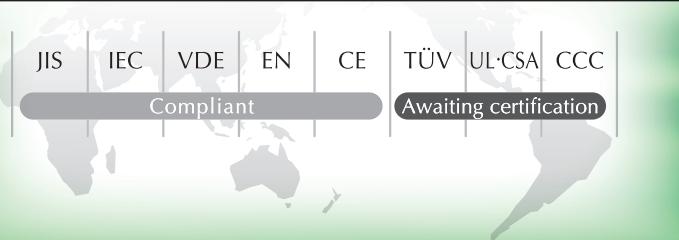
Resin-molded parts use UL-approved fireproof materials to help improve system reliability.

Protective cover (option)

You can opt for a protective cover applicable to the IP20.

**COMPLIES WITH VARIOUS INTERNATIONAL STANDARDS**

The HS series either complies with or expects to comply with various domestic and international standards.





▼ Ratings and Specification New HS Series

Item			Frame	8	10	20	25	35	50				
Type	Electromagnetic contactors	without enclosure	Non-reversible	HS8	HS10	HS20	HS25	HS35	HS50				
			Reversible	-	HS10-R	HS20-R	HS25-R	HS35-R	HS50-R				
	Electromagnetic switch with 1E Thermal Overload Relay	without enclosure	Non-reversible	HS8-T	HS10-T	HS20-T	HS25-T	HS35-T	HS50-T				
			Reversible	-	HS10-RT	HS20-RT	HS25-RT	HS35-RT	HS50-RT				
		with enclosure	Non-reversible	-	SHS10-T	SHS20-T	SHS25-T	SHS35-T	SHS50-T				
			Reversible	-	SHS10-RT	SHS20-RT	SHS25-RT	SHS35-RT	SHS50-RT				
	Thermal overload relay		TR12B-1E		TR20B-1E	TR25B-1E	TR50B-1E						
Rated insulation voltage (Ui)				AC690V									
Max. Rated Capacity of motor	JIS C 8201-4-1 JEM 1038	Rate operational current [A] (AC3)	200-220V	11	13	20(18)	26	35	50(48)				
			380-440V	7	9	17	36	32	47				
			500-550V	6	9	17	20	26	37				
		Three-phase motor [kW] AC3 & AC2	200-220V	2.2	2.7	4(3.7)	5.5	7.5	11				
			380-440V	2.7	4	7.5	11	15	22				
			500-550V	2.7	5.5	7.5	11	15	22				
	IEC 60947-4-1	Rate operational current [A] (AC3)	200-220V	11	13	22	27	40	50				
			380-440V	9	12	22	26	40	50				
			500-550V	-	-	-	-	-	-				
		Three-phase motor [kW] AC3 & AC2	200-220V	2.5	3.5	5.5	7.5	11	15				
			380-440V	4	5.5	11	11	18.5	22				
			500-550V	-	-	-	-	-	-				
Single-Phase Motor [kW] AC3			100-110V	0.4	0.5	0.9	1.2	1.7	-				
JIS, JEM and IEC			380-440V	0.8	1	1.8	-	-	-				
Inching [kW] AC4 (Inching Ratio 50%), Electrical life 0.1 million times) JIS, JEM and IEC			200-240V	1.5	2.2	3.7	3.7	5.5	7.5				
			380-440V	2.2	3.7	5.5	5.5	7.5	11				
Rated Capacity for Resistance Load [A] AC1 (Electrical Life 0.5 million times) JIS, JEM and IEC			200-240V	20	20	32	35	50	70				
			380-440V	20	20	32	35	50	70				
Rated Thermal Current (Ith) [A]			without enclosure	20	20	32	35	50	70				
			with enclosure	15	15	26	35	44	60				
Characteristics of operation coil	Coil burden (max.) 50/60Hz [VA]		At power-on	100/90	100/90	100/90	100/90	135/125	135/125				
			After power-on	12/11	12/11	12/11	12/11	15/14	15/14				
	Coil consumption (mean) [W]		3						4.3				
	Pick-up voltage (% of rate voltage)(mean)		70%		70%		70%		70%				
	Drop-out voltage (% of rate voltage)(mean)		55%		55%		60%		60%				
	Operating time [ms] (reference value)	At power-on	10-20										
			10-35										
Auxiliary contact specification	Type of constant			Twin contact									
	Numbers	Standard	1NO or 1NC			1NO1NC or 2NO2NC		2NO2NC					
			Four contacts can be added to the standard specification. Head-on2P: 2NO, 1NO1NC, 2NC(Not applicable for the machine mounted with the side-on unit) Head-on4P:4NO,3NO1NC,2NO2NC(Not applicable for the machine mounted with the side-on unit) Side-on2P:1NO1NC(Not applicable for the machine mounted with the head-on unit)										
		Maximum	3						4.3				
			70%										
	Rated operational current [A]	200-240V	AC-12		AC-15		DC-12		DC-13				
			110V	220V	110V	220V	440V	110V	220V				
		380-440V	10A	8A	6A	3A	1.5A	2.5A	1A				
	Rated Thermal current [A]			- minimum rating									
Application	Durability (million times)	Mechanical	8										
			2						1				
	With mechanical Interlock (Reversible Type)		-						O				
			O						O				
	With 2E Thermal Overload Relay		O						O				
			O						O				
	With Three-Element Thermal Overload Relay		-						O				
			O						O				
	With Latch		-						O				
			O						O				
	DC Operation		-						O				
			O						O				
	IEC 35mm Rail Mounting			◎									

Note:

- The ratings of the 200V class in the parenthesis when frames 20 and 50 are provided with an enclosure.
- The rated thermal current applies to electromagnetic contactors.
- The pick-up and drop-out voltages apply to 200V 60Hz power source. In case of 50Hz, the figures for frame H65C-125C are about 10% smaller and for frame H150C-800C are about the same.
- Aplication of category AC3 and AC2 to the reversible electromagnetic contactors and switches shall be limited to regula reversible operation in which motor starts reverse rotation after it has once stopped. Category AC4 is aplicable when the motor starts reverse rotation before it has completely stopped.

▼ Ratings and Specification

Magnetic Starter and Contactors

65C	80C	100C	125C	150C	200C	250C	300C	400C	600C	800C								
H65C	H80C	H100C	H125C	H150C	H200C	H250C	H300C	H400C	H600C	H800C-R								
H65C-R	H80C-R	H100C-R	H125C-R	H150C-R	H200C-R	H250C-R	H300C-R	H400C-R	H600C-R	-								
H65C-T	H80C-T	H100C-T	H125C-T	H150C-T	H200C-T	H250C-T	H300C-T	H400C-T	H600C-T	-								
H65C-RT	H80C-RT	H100C-RT	H125C-RT	H150C-RT	H200C-RT	H250C-RT	H300C-RT	H400C-RT	H600C-RT	-								
SH65C-T	SH80C-T	SH100C-T	SH125C-T	SH150C-T	SH200C-T	SH250C-T	SH300C-T	SH400C-T	SH600C-T	-								
SH65C-RT	SH80C-RT	SH100C-RT	SH125C-RT	SH150C-RT	SH200C-RT	SH250C-RT	SH300C-RT	SH400C-RT	SH600C-RT	-								
TR80B-1E	TR150B-1E	TR150B-1E			TR250B-1E		TR400B-1E		TR600B-1E	-								
AC690V																		
65	80	100	125	150	180	240	300	400	600	800(AC2)								
65	80	100	125	150	180	240	300	400	600	800(AC2)								
52	72	72	72	80	145	145	250	350	500	-								
15	19	25	30	37	45	60	75	110	150	200(AC2)								
30	37	50	60	75	90	120	150	200	300	400(AC2)								
30	45	45	45	55	90	90	160	200	300	-								
65	80	105	126	150	182	240	300	400	600	800(AC2)								
65	80	100	125	150	180	240	300	400	600	800(AC2)								
52	72	72	72	80	145	145	250	350	500	-								
18.5	22	30	37	45	55	75	90	115	160	200(AC2)								
30	37	50	60	75	90	120	150	200	300	400(AC2)								
30	45	45	45	55	90	90	160	200	300	-								
-	-	-	-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-	-	-	-								
9	13	13	15	22	30	37	45	45	55	-								
15	19	19	22	30	37	45	55	55	75	-								
80	120	135	150	200	260	300	350	420	600	800 0.1Million times								
80	120	135	150	200	260	300	350	420	600	800 0.1Million times								
80	120	135	150	200	260	300	350	420	600	800								
65	80	100	125	150	180	240	300	400	600	-								
220/190	490/420		490/420	400/400	480/480		1600/1600		1800/1800									
18/14	50/40		50/40	8/8	9/9		10/10		14/14									
6	9.5		9.5	7	8		8		13									
75%	75%		75%	70	70%		70%		70%									
58%	58%		58%	45	45%		35%		35%									
10-20	10-25		10-25	35-50	35-50		35-60		40-70									
10-30	10-30		10-30	20-45	20-45		20-45		25-50									
Twin contact																		
2NO2NC																		
4NO4NC [in case of reversible type: 3NO3NC (max.)]																		
4NO4NC																		
2 (Twin contact)																		
1 (Twin contact)																		
10 (Twin contact)																		
5						5												
1						0.5												
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎								
○	○	○	○	○	○	○	○	○	○	-								
○	○	○	○	○	○	○	○	○	○	-								
○	○	○	○	○	○	○	○	○	○	-								
○	○	○	○	○	○	○	○	○	○	-								
-	-	-	-	-	-	-	-	-	-	-								

5. The mark ◎ in the application indicates that they standard.

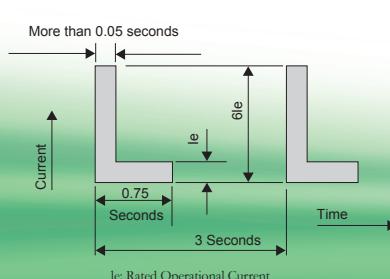
6. Operating time is a reference value where 200V 50Hz is applied to AC 200V coil. Operating time varies with coil voltage, frequency and phase so it is unsuitable for timing use.

7. Testing condition of electrical durability (Category AC3); The marking and breaking currents and operating frequency of the electrical durability are tested as shown in page 8 drawing according to test conditions of JIS C8201-4-1, IEC 1038 and IEC 60947-4-1

▼ Ratings and Specifications

OLD PRODUCT (BACKLOG)

Item			Frame	8C	10C	10B	11	12	20	25	35	50		
Type	Electromagnetic contactors	without enclosure	Non-reversible	H8C	H10C	-	H11	H12	H20	H25	H35	H50		
		Reversible		-	-	H10B-R	H11-R	H12-R	H20-R	H25-R	H35-R	H50-R		
	Electromagnetic switch with 1E Thermal Overload Relay	without enclosure	Non-reversible	H8C-T	H10C-T	-	H11-T	H12-T	H20-T	H25-T	H35-T	H50-T		
		Reversible		-	-	H10B-RT	H11-RT	H12-RT	H20-RT	H25-RT	H35-RT	H50-RT		
		with enclosure	Non-reversible	SH8C-T	SH10C-T	-	SH11-T	-	SH20-T	SH25-T	SH35-T	SH50-T		
		Reversible		-	-	SH10B-RT	SH11-RT	-	SH20-RT	SH25-RT	SH35-RT	SH50-RT		
Thermal overload relay									TR20B-1E	TR25B-1E		TR50B-1E		
Rated insulation voltage (Ui)									AC690V					
Max. Rated Capacity of motor	JIS C 8201-4-1 JEM 1038	Rate operational current [A] (AC3)	200-220V	11	12	12	12	20(18)	26	35	50(48)			
			380-440V	6	9	9	9	17	24	32	47			
			500-550V	5	8	6	8	12	12	26	37			
		Three-phase motor [kW] AC3 & AC2	200-220V	2.2	2.5	2.5	2.5	4(3.7)	5.5	7.5	11			
			380-440V	2.2	4	4	4	7.5	11	15	22			
			500-550V	2.2	4	3.7	4	7.5	7.5	15	22			
	IEC 60947-4-1	Rate operational current [A] (AC3)	200-220V	11	12	12	12	22(20)	27	39	52(48)			
			380-440V	7	9	9	9	22(20)	24	37	47			
			500-550V	5	8	6	8	12	12	26	37			
		Three-phase motor [kW] AC3 & AC2	200-220V	2.5	3	3	3	5.5	*7.5	11	15(11)			
			380-440V	3	4	4	1	11	11	18.5	22			
			500-550V	3	4	3.7	1	7.5	7.5	15	22			
Single-Phase Motor [kW] AC3 JIS, JEM and IEC			100-110V	0.4	0.4	-	0.4	0.75	-	-	-			
Inching [kW] AC4 (Inching Ratio 50%), Electrical life 0.1 million times) JIS, JEM and IEC			380-440V	0.75	0.75	-	0.75	-	-	-	-			
200-240V			0.75	1.5	1.5	1.5	2.2	3.7	5.5	7.5	7.5			
380-440V			1.5	2.2	2.2	2.2	3.7	5.5	7.5	11				
Rated Capacity for Resistance Load [A] AC1 (Electrical Life 0.5 million times) JIS, JEM and IEC			200-240V	20	20	18	20	32	35	50	70			
380-440V			20	20	18	20	32	35	50	70				
Rated Thermal Current (Ith) [A]			without enclosure	20	20	18	20	32	35	50	70			
with enclosure			15	15	15	15	26	35	44	60				
Characteristics of operation coil	Coil burden (max.) 50/60Hz [VA]	At power-on	45/40	45/40	45/40	45/40	90/80		165/150					
		After power-on	9/7	9/7	9/7	9/7	14/11		16/12					
	Coil consumption (mean) [W]		2.4	2.4	2.4	2.4	3.5		4.5					
	Pick-up voltage (% of rate voltage)(mean)		65%	75%	68%	75%	68%		73%					
	Drop-out voltage (% of rate voltage)(mean)		50%	50%	50%	50%	53%		53%					
	Operating time (reference value)	At power-on	10-15	10-15	10-15	10-15	10-20		10-20					
		At release	10-30	10-30	10-30	10-30	10-35		10-25					
Auxiliary contact specification	Type of constant			Twin contact										
	Numbers	Standard						1NO1NC	2NO2NC					
			1NO or 1NC	2NO1NCx2	1NO1NC or 2NO, 2NC	2NO1NC or 1NO2NC		4NO4NC [in case of reversible type: 3NO3NC (max.)]						
		Maximum												
	Rated operational current [A]	200-240V					2 (Twin contact)							
		380-440V					1 (Twin contact)							
	Rated Thermal current [A]						10 (Twin contact)							
Durability (million times)	Mechanical	10	5	10	5	5		5						
	Electrical	2	1	2	2	1		1						
Application	With mechanical Interlock (Reversible Type)			-	-	◎	-	-	◎	◎	◎	◎		
	With 2E Thermal Overload Relay			○	○	○	○	-	○	○	○	○		
	With Three-Element Thermal Overload Relay			○	○	○	○	○	○	○	○	○		
	With Latch			-	○ (H10-L)	-	○	-	○	○	○	○		
	DC Operation			-	○ (H10-G)	-	○	-	○	○	○	○		
	IEC 35mm Rail Mounting			◎	◎	◎	◎	◎	◎	◎	◎	◎		



▼ Ratings and Specification 1E Thermal Overload Relays

Overload and Lock Protections

Frame		12B		20B		25B		50B		80B		150B		250B		400B		600B																																	
Type		TR12B -1E		TR20B -1E		TR25B -1E		TR50B -1E		TR80B -1E		TR150B -1E		★TR250B -1E		★TR400B -1E		★TR600B -1E																																	
		Center value	Adj. range	Center value	Adj. range	Center value	Adj. range	Center value	Adj. range	Center value	Adj. range	Center value	Adj. range	Center value	Adj. range	Center value	Adj. range	Center value	Adj. range																																
Heater Specifications	Type of Heater (Center RC Value) [A]	0.2	0.16-0.24	0.2	0.16-0.24	20	16-24	9	7-11	20	16-24	80	65-95	(140)	(110-180)	(140)	(110-180)	(140)	(110-180)																																
		0.3	0.22-0.38	0.3	0.22-0.38	22	18-26	11	9-13	28	22-34	105	90-120	(240)	(170-290)	(240)	(170-290)	(240)	(170-290)																																
		0.5	0.38-0.62	0.5	0.38-0.62			15	12-18	40	32-48	130	110-150			(380)	(280-440)	(380)	(280-440)																																
		0.8	0.6-1.0	0.8	0.6-1.0			20	16-24	55	45-65								(500)	(400-600)																															
		1.2	0.9-1.5	1.2	0.9-1.5			28	22-34	67	55-80																																								
		1.4	1.1-1.8	1.4	1.1-1.8			40	32-48																																										
		2.4	1.7-2.9	2.4	1.7-2.9			55	45-65																																										
		3.8	2.8-4.4	3.8	2.8-4.4																																														
		5	4-6	5	4-6																																														
		6.8	5-8	6.8	5-8																																														
		9	7-11	9	7-11																																														
		11	9-13	11	9-13																																														
				15	12-18																																														
		*Number of Heat Elements		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2																																
		Heat Element Consumption [VA] (/1 pole)		1.9	1.9	1.9	4.1	7.6	7.6	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9																																
		External Dimensions [mm]		A	45	63	63	85	102.5	102.5	148	164	230																																						
				B	71	45	54	45	55	87	120	135	179																																						
				C Height to Reset Button	78.5	72.5	72.5	73.5	73.5	73.5	167	167	170																																						
Net Weight [kg]		0.1		0.15		0.17		0.25		0.36		0.37		2.0		2.0		5.0																																	
Terminal Screw Diameter		Main Circuit		M3.5		M4		M5 (Line) M5 (Load)		M5		M6		M6 (Line) M8 (Load)		M10		M12		M12																															
		Operating Circuit		M3.5		M3.5		M3.5		M3.5		M3.5		M3.5		M3.5		M3.5																																	
Contact Specification	Type of Contact		1NO1NC																																																
	Arrangement		95 O 97 95-96 (NC Contact) 96 O 98 95-96 (NO Contact)																																																
	Rated Insulation Voltage [V]		660																																																
	Rated Thermal Current [A]		NC Contact: 2, NO Contact: 2																																																
	Rate Operational Current [A] Values in parenthesis for Automatic reset	AC (AC15) DC L/R≤ 40ms	110V		NC Contact: , NO Contact: 2 (0.5)																																														
			220V		NC Contact: , NO Contact: 1 (0.5)																																														
			440V		NC Contact: , NO Contact: 0.5 (0.2)																																														
			550V		NC Contact: , NO Contact: 0.5 (0.2)																																														
			24V		NC Contact: , NO Contact: 0.5 (0.2)																																														
			48V		NC Contact: , NO Contact: 0.2 (0.1)																																														
			110V		NC Contact: , NO Contact: 0.1 (0.05)																																														
			220V		NC Contact: , NO Contact: 0.1 (0.05)																																														
Minimum Rating		NC Contact: , NO Contact: 24V 10mA																																																	
Reset Method		**Both as Manual and Automatic Reset																																																	
Separate Mounting		O	◎	O	◎	O	◎	O	◎	O	○	○	○	○	○	○	○	Refer Remarks 4																																	
Option	Reset Release		O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O																																	
	Lamp Unit		O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O																																	
	Safety Cover		-	○	-	○	○	○	-	-	-	-	-	-	-	-	-	-																																	
	Separate (DIN rail) Mounting Unit		O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																																	
	Applicable Electromagnetic Contactor		H8C	H20	H25	H35	H65C	H100C	H200C	H300C	H600C																																								
								H50		H80C		H125C		H250C		H400C																																			
										H150C																																									
Conforming standard		JIS, JEM, IEC, BS, VDE (3 Heat Element Only)																																																	

REMARKS:

- 1 In case of mounting for Electromagnetic Contactor H25 and required 15A or less RC value, applies 20B frame with extension terminal.
- 2 In case of mounting for Electromagnetic Contactor H100C-H150C and required 67A or less RC value, applied 80B frame with extension terminal.
- 3 If 25B or 150B frame is mounted separately, ordering shall be "Type" + "RC Value" + "Separate mounting". And 25B or 150B frame with extension terminal for both load and Line terminal is supplied.
- 4 For separate mounting of 150B frame and above rating, Tr400B-□ separate mounting type is supplied.

5 * 3 Heat Element type is available for standard type with 2 Heat Elements.

6 Marked ★TR250B-TR600B-□ are Type names for TR20B-□ with CT (ratio 100:1) On the Relay mounted to Electromagnetic Contactor at factory, marked ★ name is not indicated.

7 ** Relay is set in manual reset when shipped from factory.

8 ○ mean provided as standard. O mean available as option.

2E Thermal Overload Relays Overload, Lock Protections and Phase - Failure Protections

Frame		12B		20B		25B		50B		80B		150B		250B		400B		600B			
Type		TR12B -2E		TR20B -2E		TR25B -2E		TR50B -2E		TR80B -2E		TR150B -2E		*TR250B -2E		*TR400B -2E		*TR600B -2E			
		Center value	Adj. range	Center value	Adj. range	Center value	Adj. range	Center value	Adj. range	Center value	Adj. range	Center value	Adj. range	Center value	Adj. range	Center value	Adj. range	Center value	Adj. range		
Heater Specifications	Type of Heater (Center RC Value) [A]	0.2	0.16-0.24	0.2	0.16-0.24	20	16-24	9	7.0-11	20	16-24	80	65-95	(140)	(110-170)	(140)	(110-170)	(140)	(110-170)		
		0.3	0.24-0.36	0.3	0.24-0.36	22	18-26	11	9-13	28	22-34	105	90-120	(180)	(140-220)	(180)	(140-220)	(180)	(140-220)		
		0.4	0.32-0.48	0.4	0.32-0.48			15	12-18	40	32-48	130	110-150	(240)	(200-280)	(240)	(200-280)	(240)	(200-280)		
		0.5	0.4-0.6	0.5	0.4-0.6			20	16-24	55	45-65					(300)	(240-360)	(300)	(240-360)		
		0.6	0.5-0.7	0.6	0.5-0.7			28	22-34	67	55-80					(380)	(300-450)	(380)	(300-450)		
		0.8	0.7-0.9	0.8	0.7-0.9			40	32-48								(500)	(400-600)			
		1.0	0.8-1.2	1.0	0.8-1.2			55	45-65												
		1.2	1.0-1.4	1.2	1.0-1.4																
		1.4	1.1-1.7	1.4	1.1-1.7																
		1.8	1.4-2.2	1.8	1.4-2.2																
		2.4	2.0-2.8	2.4	2.0-2.8																
		3.0	2.4-3.6	3.0	2.4-3.6																
		3.8	3.0-4.5	3.8	3.0-4.5																
		5.0	4.0-6.0	5.0	4.0-6.0																
		6.8	5.5-8.0	6.8	5.5-8.0																
		9.0	7.0-11	9.0	7.0-11																
		11	9-13	11	9-13																
			15		12-18																
			3		3			3		3		3		3		3		3		3	
			1.9		1.9			1.9		4.1		7.6		7.6		1.9		1.9		1.9	
External Dimensions [mm]		A	45	63	63	85	102.5	102.5	148	164	230										
		B	71	45	54	45	55	87	120	135	179										
Net Weight [kg]			0.1	0.15	0.17	0.25	0.36	0.37	2.0	2.0	5.0										
Terminal Screw Diameter		Main Circuit	M3.5	M4	M4(Line) M5(Lead)	M5	M6	M6(Line) M8(Lead)	M10	M12	M12										
		Operating Circuit	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5										
Contact Specification	Type of Contact		1NO1NC																		
	Arrangement		95 ¹ O ₂O ₃ 97 ₄ 95-96 (NC Contact) 96 ¹ O ₂O ₃ 98 ₄ 95-96 (NO Contact)																		
	Rated Insulation Voltage [V]		660																		
	Rated Thermal Current [A]		NC Contact , NO Contact: 2																		
	Rate Operational Current [A] Values in parenthesis for Automatic reset	AC (AC15) DC L/R≤ 40ms	110V	NC Contact , NO Contact: 2 (0.5)																	
			220V	NC Contact , NO Contact: 1 (0.5)																	
			440V	NC Contact , NO Contact: 0.5 (0.2)																	
			550V	NC Contact , NO Contact: 0.5 (0.2)																	
			24V	NC Contact , NO Contact: 0.5 (0.2)																	
Minimum Rating	Reset Method		48V	NC Contact , NO Contact: 0.2 (0.1)																	
			110V	NC Contact , NO Contact: 0.1 (0.05)																	
			220V	NC Contact , NO Contact: 0.1 (0.05)																	
				NC Contact , NO Contact: 24V 10mA																	
				**Both as Manual and Automatic Reset																	
Option	Separate Mounting		O	○	○	○	○	○	○	○	○	○	○	○	○	○	○	Refer Remarks 4			
	Reset Release		O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			
	Lamp Unit		O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O			
	Safety Cover		-	O	-	O	O	O	-	-	-	-	-	-	-	-	-	-			
	Separate (DIN rail) Mounting Unit		O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	Applicable Electromagnetic Contactor		H8C	H20	H25	H35	H65C	H100C	H200C	H300C	H600C										
	H10C					H50	H80C	H125C	H250C	H400C											
	H11																				
	H12																				
	H10B-R																				
Conforming standard		JIS, JEM, IEC, BS, VDE, NEMA																			



TR12B



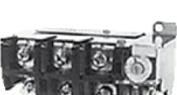
TR20B



TR25B



TR50B



TR80B



TR150B



TR250B

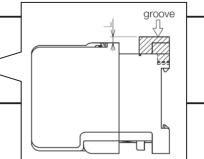


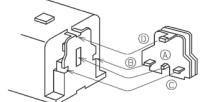
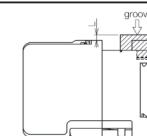
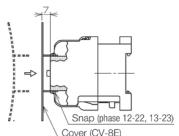
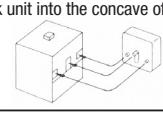
TR400B



TR600B

▼ OPTIONS Aux. Contact Block, Safety Cover and Mechanical Interlock Unit

HS series					
Item	Model	Configuration	Rating	Applicable model	Mounting
Auxiliary contact block	SXS-2	Contact configuration 1a1b	Rated operational current (AC15) 220V 3A 440V 1.5A Open thermoelectric current (Ith) 10A	XS4 HS8-50	Assemble the unit referring to the instruction manual that comes with the unit.
	SXH-2	Contact configuration 2a 1a1b 2b			
	SXH-4	Contact configuration 4a 3a1b 2a2b			
Coil surge absorber	CS-50	—	AC 250V Suppressed surge voltage: 600 V (peak) or less	XS4 HS8-50	Snap it into the groove of the case. L=0mm
Safety cover	TCS-10, TCS-10T	TC type	—	XS4, 8,10 frame	
	TCS-20, TCS-20T		—	20 frame	
	TCS-25, TCS-25T		—	25 frame	
	TCS-50, TCS-50T		—	35, 50 frame	
	CVS-10	CV type	—	XS4, 8,10 frame (non-reversible)	
	CVS-25		—	20, 25 frame	
	CVS-50		—	35, 50 frame	
	CVS-10R		—	10 frame (reversible)	
	FPS-S2	FP type	—	SXS-2	
	FPS-H2		—	SXH-2	
	FPS-H4		—	SXH-4	
Mechanical-Interlock unit	RI-50	—	—	10–50 (reversible)	Refer to the instruction manual.

H series						
Item	Model	Configuration	Rating	Applicable model	Mounting	
Auxiliary contact block	AX-20	Contact configuration 1a1b	Rated operational current (AC15) 220V 2A 440V 1A Rated thermal current 10A	20, 25, 35, 50 frame	 Notes: Cannot be applied to the DC operated contactor (H [] -G)	
	AX-65			65C frame		
	AX-80			80C, 100C, 125C, 150C, 200C, 250C, 300C, 400C frame		
Coil surge absorber	CS-8		AC 250V Suppressed surge voltage: 600 V (peak) or less	X3, X4, X5, X6, X8, 8C, 10C, 10B, 11, 12, 20, 25, 35, 50, 65C frame	 Snap it into the groove of the case. L=2–6mm	
	CS-80			80C, 100C, 125C frame		
Coil drive unit	CX-20		—	20, 25, 35, 50 frame	Install CX-20 in the same way as AX-20. (above)	
Safety cover	CV-8E		Thermal overload relay 20B frame	8C, 10C frame	 Example of CV-8E Bend the cover and insert it in the direction of the arrows to snap it into the main unit. Snap (phase 12-22, 13-23) Cover (CV-8E)	
	CV-11E			11 frame		
	CV-20			20, 25 frame		
	CV-35			35, 50 frame		
	CV-65			65C frame		
	CV-80, CV-80T			80C, 100C, 125C frame		
	CV-150, CV-150T			150C frame		
	CV-200, CV-200T			200C, 250C frame		
	CV-300, CV-300T			300C, 400C frame		
	CV-600, CV-600T			600C, 800C frame		
	CV-T20B			Thermal overload relay 20B frame		
	CV-T50B			50B frame		
Reset release	CV-T80B			80B frame	Except those with a saturable reactor Align the notch of the cover with the protrusion of the thermal overload relay and push it.	
	RR-350		Dimension 350mm	Thermal overload relay 20B, 25B, 50B, 80B, 150B frame		
	RR-500					
	RR-600					
Mechanical-Interlock unit	RI-20		—	Reversible type of 20, 25, 35, 50 frame	 Snap the convex of the interlock unit into the concave of the electromagnetic contactor.	
	RI-65		—	Reversible type of 65C frame		
Unit for installing the thermal overload relay solely	ST-12B		—	Thermal overload relay 12B frame		

MOLDED CASE CIRCUIT BREAKERS

— HITACHI FUSE-FREE BREAKERS —

New line-ups with fully integrated configuration, advanced performance and simplified operation

Reduced Total Costs Through Increased Efficiency in Specification Changes and Replacement

System configuration is integrated for each model type cassette loading system for interior accessories. Specification change and replacement are flexibly, easily executed. Leading-edge technology improves reliability and performance.

Flexibility — Cassette Type Accessories

The specifications of breakers can be changed by cassette type internal accessories. It can be installed by users. Quickly responding to changing specifications.

Capability — Improvement of Breaking Performance

Performance of short-circuit breaking has been developed for the requirement of IEC standard and we have just realized the performance $I_{cs}=I_{cu}$ ($I_{cs}=100\% I_{cu}$)

Compatibility — Unified Dimensions

Dimensions are unified for economical models and standard models *1, interrupt capacity is unified *2 , for the fuse-free breaker and earth leakage breaker to facilitate easy replacement.

*1 400, 600AF

*2 Within the frame for the same rated current

▼ Types and Models

Fuse-Free Breaker for General Purpose

Standard Breaker	Economical Breaker	High Interrupting Capacity Breaker
 Fundamental	 Small	 Current Limiting
30A~4000A Frame	30A~800A Frame	50A~800A Frame

▼ Composition of Interrupting Capacity

AC 230V																			
Transformer Capacity [kVA]	- 30		50 - 100		150	200 - 500			750 - 1500		2000 - 3000								
Interrupting Capacity [kA](sym)	2.5	5		10	14	25	35	42	50	85	100	125	175						
Frame (AF)	30	S-30S	F-30FB																
	50	S-50E	S-50SB	F-50KB						L-50E									
	60	S-60RB			F-60RB														
	100, 125	S-100EB			S-100SB	F-100RB FXK125-S		F-100KB	FXK125-H		L-100E								
	225, 250	S-225SB, SXK225					F-225FB FXK250-S	F-225KC	FXK250-H		L-225E								
	400	S-400S, SX400						F-400R, FX400			L-400E								
	600	S-600S, SX600						F-600F, FX600			L-600E								
	800	S-800S, SX800						F-800R, FX800			F-800RH	L-800E							
	1000-1200	FX1000, FX1200, F-1000K, F-1200K, F-1000C, F-1200C																	
	1600-4000	F-1600CB, F-1600E, F-2000E(130), F-2500E(130), F-3200CB, F-3200E, F-4000E																	

AC 400V																			
Transformer Capacity [kVA]	- 50		75 - 100		200 - 500		750 - 1000		1500 - 2000			2500 - 3000							
Interrupting Capacity [kA](sym)	1.5	2.5	5	7.5	10	15	18	22	25	30	35	50	75	85	125	175			
Frame (AF)	30	S-30S	F-30FB																
	50	S-50E	S-50SB	F-50KB						L-50E									
	60	S-60RB		F-60RB															
	100, 125	S-100SB			F-100RB FXK125-S				F-100KB FXK125-H	F-100GB	L-100E								
	225, 250	S-225SB, SXK225				F-225FB FXK250-S			F-225KC FXK250-H	F-225GB F-250GB	L-225E								
	400	S-400S, SX400						F-400R FX400	F-400GB	L-400E									
	600	S-600S, SX600						F-600F FX600	F-600GB	L-600E									
	800	S-800S, SX800						F-800R FX800	F-800GB	F-800RH	L-800E								
	1000-1200	FX1000, FX1200, F-1000K, F-1200K, F-1000C, F-1200C																	
	1600-4000	F-1600CB, F-1600E, F-2000E(130), F-2500E(130), F-3200CB, F-3200E, F-4000E																	



▼ Ratings and Specification

Series			S series			F series		S series				F series								
Frame size			30AF						50AF											
TYPE			S-30S		S-30E		F-30FB		S-50E		S-50EB		S-50SB		F-50KB		FXK50-HU			
Appearance																				
Number of Poles			2	3	2	3	2	3	2	3	2	3	2	3	2	3	2	3		
Rated Current In [A] (Base Ambient Temperature 40 °C)			3 5 10 15 20 30		3 5 10 15 20 30		3 5 10 15 20 30		5 10 15 20 30 40 50		5 10 15 20 30 40 50		5 10 15 20 30 40 50		5 10 15 20 30 40 50		10 5 3			
Rated Insulation Voltage Ui [V]			500		500		690		500		500		690		690		690			
Rate Impulse withstand Voltage Uimp [kV]			-		4		6		-		4		6		6		8			
Rated Breaking Capacity [kA]	IEC 60947-2 (lcu/lcs)	AC	440V		-		2.5/1		-		-		2.5/1		50/50		50/25			
			415V		-		1.5/1		2.5/1		-		1.5/1		2.5/1		50/50			
			400V		1.5/1		1.5/1		2.5/1		1.5/1		1.5/1		2.5/1		50/50			
			380V		1.5/1		-		2.5/1		1.5/1		-		2.5/1		50/50			
			240V		2.3/1.3		-		7.5/2		2.5/1.3		-		7.5/2		85/85			
			230V		2.5/1.3		5/2		7.5/2		2.5/1.3		5/2		7.5/2		85/85			
	DC		250V		-		2.5/1		-		-		-		2.5/1		40/40			
			125V		-		5/2		-		-		-		5/2		40/40			
Dimensions [mm]			a	50	75	50	75	52	75	50	75	50	75	52	75	65	90	120	60	90
	b	95		96		130		95		96		130		130		150		150		
	c	60		60		60		60		60		60		60		86		68		
	d	79		76		84		79		76		84		84		106		94		
	Net weight [kg]			0.32	0.47	0.25	0.37	0.46	0.63	0.32	0.47	0.25	0.37	0.46	0.63	1.4	1.8	2.3	0.8	1.4
Automatic Tripping device			Full magnetic		Full magnetic		Full magnetic		Full magnetic		Full magnetic		Full magnetic		Full magnetic		Full magnetic			
Short Time Delay Trip			-		-		-		-		-		-		-		-			
Standard Connection Type			Front Terminal		Front Terminal		Front Terminal		Front Terminal		Front Terminal		Front Terminal		Front Terminal		Front Terminal			
Interior Accessories	Shunt Trip		SHT	-	O	O	-	O	O	O	O	O	O	O	O	O	O	O		
	Undervoltage Trip		UVT	-	-	-	-	-	-	-	-	-	-	-	O	O	O	O		
	Alrm Switch	AL-1C	-	O	O	-	O	O	O	O	O	O	O	O	O	O	O	O		
			AL-2C	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O		
	Auxiliary Switch	AUX-1C	-	O	O	-	O	O	O	O	O	O	O	O	O	O	O	O		
			AUX-2C	-	-	-	-	-	-	-	-	-	-	-	-	O	O	O		
	Terminal block		TB. TB2	-	O (TB2 Only)	O	-	O (TB2 Only)	O	O	O	O	O	O	O	O	O	O		
Exterior Accessories	Rear-Connecting Studs		STB	-	-	STB-2M	-	-	-	STB-2M	-	STB-2	-	STB-2S	-	-	-	-	-	
	Rear-Connecting Bar Studs		BSD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Flush Mounting Base Ass'y	GKW (STB)		-	-	O	-	-	-	O	O	O	O	O	O	O	O	O	O	
		GK+GKW (BSD)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Plug-in Mounting Base Ass'y		PK	-	-	O	-	-	O	O	O	O	O	O	O	O	O	O	O	
	Drawout Ass'y		PDK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Mechanical Interlock		MIW	-	-	MIW-2E	-	-	MIW-2E	-	MIW-2E	-	MIW-3D	-	MIW-3H	-	-	-	-	
	Motor-Operating Mechanism		MMK	-	-	-	-	-	-	-	-	-	-	-	MMK-S	-	-	-	-	
	Lock Cover		LC	LC-0B	LC-03	LC-2E	LC-0B	LC-03	LC-2G	LC-2C	LC-4J	-	-	-	-	-	-	-	-	-
	Handle Lock		HL	-	-	O	-	-	HL-2G	O	HL	-	-	-	-	HL-4J	-	-	-	-
	Handle-Operating Mechanism	HA		-	-	HA-108	-	-	HA-108	-	HA-108	-	HA-106	-	-	-	-	-	-	-
		HM		-	-	-	HM-S12	-	-	-	HM-S12	-	HM-S11	-	HM-S13	-	-	-	-	-
Terminal Cover	Front type	TMC	TMC-0C	TMC-0A	TMC-0G	TMC-1	TMC-0C	TMC-0A	TMC-0G	TMC-1	TMC-1S(Short)	-	-	-	TMC-2C	TMC-2C	TMC-2C	TMC-2C	TMC-2C	
		(Short or Wide)	-	-	TMC-1S(Short)	-	-	-	-	TMC-1S(Short)	-	-	-	-	-	-	-	-	-	
	Rear Type	BTC	-	-	BTC-1	-	-	-	BTC-1	-	BTC-1	-	BTC-3C	-	BTC-2C	-	-	-	-	
Trip Button			●	-	●	●	-	●	●	●	●	●	●	●	●	●	●	●	●	
Phase Separator for Line Side			-	-	O	-	-	-	-	O	-	O	-	O	-	-	-	-	-	

REMARKS:

*1; 2 pole marked with *1 supplied in 3 pole unit.

*2; Attached Rear-connected bar studs as satandard.

*3; Attached Rear-connected bar studs as satandard.
Front-connected bar terminals type can not be supplied

MOLDED CASE CIRCUIT BREAKERS

L series	S series	F series	S series			F series				L series	S series	F series						
50AF	60AF		100AF								125AF							
L-50E	S-60RB	F-60RB	S-100EB	S-100SB	F-100RB	F-100KB	F-100GB	L-100E	S-125SB	FXK125-S	FXK125-H							
																		
3 4	2 3	2 3	2 3	2 3	2 3	2 3	2 3 4	2 3 4	3 4	2 3	2 3	2 3						
5 10 15 20 30 40 50	5 10 15 20 30 40 50 60	5 10 15 20 30 40 50 60	60 75 100	60 75 100	15 20 30 40 50 60 75 100	15 20 30 40 50 60 75 100	15 20 30 40 50 60 75 100	15 20 30 40 50 60 75 100	125	15 20 30 40 50 60 75 100 125	15 20 30 40 50	15 20 30 40 50						
690	690	690	250	690	690	690	690	690	690	690	690	690						
6	6	6	6	6	8	8	8	8	6	8	8	8						
125/32	5/2	10/10	-	10/3	25/25	50/50	65/65	125/32	10/3	30/30	50/50							
125/32	5/2	10/10	-	10/3	25/25	50/50	70/70	125/32	10/3	30/30	50/50							
125/32	5/2	10/10	-	10/3	25/25	50/50	75/75	125/32	10/3	30/30	50/50							
125/32	5/2	10/10	-	10/3	25/25	50/50	75/75	125/32	10/3	30/30	50/50							
175/88	10/3	25/25	10/3	35/9	50/50	85/85	100/100	175/88	35/9	50/50	100/100							
175/88	10/3	25/25	10/3	35/9	50/50	85/85	100/100	175/88	35/9	50/50	100/100							
-	2.5/1	-	5/2	-	2.5/1	-	5/2	-	40/40	-	40/40	-	5/2	-	25/13	-	40/20	-
-	5/2	-	7.5/2	-	5/2	-	7.5/2	-	40/40	-	40/40	-	7.5/2	-	25/13	-	40/20	-
90 120	52 75	52 75	52 75	52 75	65 90	65 90	120	65 90	120	90 120	52 75	60 90	60 90					
150	130	130	130	130	150	150	150	150	150	150	130	150	150					
103	60	60	60	60	78	86	86	103	60	68	68							
123	84	84	84	84	97.5	106	106	123	84	94	94							
2.0 2.5	0.53 0.74	0.53 0.74	0.53 0.74	0.53 0.74	1.2 1.5	1.4 1.8 2.3	1.4 1.8 2.3	2 2.5	0.53 0.74	0.8 1.4	0.8 1.4							
Full magnetic	Full magnetic	Full magnetic	Thermal-Magnetic	Thermal-Magnetic														
-	-	-	-	-	-	-	-	-	-	-	-	-						
Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal														
O	O	O	O	O	O	O	O	O	O	O	O	O						
O	-	-	-	-	-	O	O	O	O	O	O	O						
O	O	O	O	O	O	O	O	O	O	O	O	O						
-	-	-	-	-	-	-	-	-	-	-	-	-						
O	O	O	O	O	O	O	O	O	O	O	O	O						
-	-	-	-	-	-	-	-	-	-	-	-	-						
O	O	O	O	O	O	O	O	O	O	O	O	O						
O	STB-3K (50A or Less STB-2M)	STB-2M	STB-3K	STB-3K	STB-3J (50A or Less STB-2)	STB-3J (50A or Less STB-2)	STB-3J (50A or Less STB-2)	O	STB-3K	STB-2S (Up to 50A)	STB-2S (Up to 50A)							
-	-	-	-	-	-	-	-	-	-	BSD-3S (60A or more)	BSD-3S (60A or more)							
O	O	O	O	O	O	O	O	O	O	O (Up to 50A)	O (Up to 50A)							
-	-	-	-	-	-	-	-	-	-	O (60A or more)	O (60A or more)							
O	O	O	O	O	O	O	O	O	O	O	O	O						
-	-	-	-	-	-	-	-	-	-	-	-	-						
MIW-3E	MIW-2E	MIW-2E	MIW-2E	MIW-2E	MIW-3C	MIW-3D	MIW-3D	MIW-3E	MIW-2E	MIW-3H	MIW-3H							
MMK-S	-	-	-	-	-	MMK-S	-	MMK-S	-	O	O							
LC-2C	LC-2G	LC-2E	LC-2G	LC-2G	LC-2C	LC-2C	LC-2C	LC-2C	LC-2G	LC-4J	LC-4J							
O	HL-2G	O	HL-2G	HL-2G	O	O	O	O	HL-2G	HL-4J	HL-4J							
HA-106	HA-108	HA-108	HA-108	HA-108	HA-106	HA-106	HA-106	HA-106	HA-108	-	-							
HM-S11	-	HM-S12	-	HM-S12	-	HM-S12	-	HM-S11	-	HM-S11	HM-S12	HM-S13	HM-S13					
TMC-3C	TMC-1	TMC-1	TMC-1	TMC-1	TMC-2	TMC-3C	TMC-3C	TMC-3C	TMC-1	TMC-2C	TMC-2C							
-	TMC-1S(Short)	TMC-1S(Short)	TMC-1S(Short)	TMC-1S(Short)	TMC-1S(Short)	-	-	-	TMC-1S(Short)	-	-							
BTC-3C	BTC-1	BTC-1	BTC-1	BTC-1	BTC-2	BTC-3C	BTC-3C	BTC-3C	BTC-1	BTC-2C	BTC-2C							
●	●	●	●	●	●	●	●	●	●	●	●							
●	O	●	O	●	●	●	●	●	●	●	●							



= Standard
= Option

▼ Ratings and Specification

Series			S series			F series						L series				
Frame size			225AF/250AF													
TYPE			S-225SB	SXK225	F-225FB F-250FB	F-225KC F-250KC	F-225GB F-250GB	FXK250-S	FXK250-H	L-225E						
Appearance																
Number of Poles			2 ¹⁾	3	2 ¹⁾	3	2 ¹⁾	3	4	2 ¹⁾	3	4	2	3		
Rated Current In [A] (Base Ambient Temperature 40 °C)			125 150 175	125 150 175	125 150 175	125 150 175	125 150 175	125 150 175	125 150 175	125 150 175	125 150 175	125 150 175	200 225 250	200 225 250		
Rated Insulation Voltage Ui [V]			690	690	690	690	690	690	690	690	690	690	690	690		
Rate Impulse withstand Voltage Uimp [kV]			6	6	8	8	8	8	8	8	8	8	8	8		
Rated Breaking Capacity [kA]	IEC 60947-2 (Icu/lcs)	AC	440V	15/8	15/8	30/30	50/50	65/65	30/30	50/50	125/32					
			415V	15/8	15/8	30/30	50/50	70/70	30/30	50/50	125/32					
			400V	15/8	15/8	30/30	50/50	75/75	30/30	50/50	125/32					
		DC	380V	15/8	15/8	30/30	50/50	75/75	30/30	50/50	125/32					
			240V	35/18	35/18	85/85	85/85	100/100	50/50	100/100	175/88					
		DC	230V	35/18	35/18	85/85	85/85	100/100	50/50	100/100	175/88					
			250V	10/5	-	10/5	25/25	-	40/40	-	40/40	-	25/13	-		
			125V	15/8	-	15/8	25/25	-	40/40	-	40/40	-	25/13	-		
Dimensions [mm]			a	105	105	105	140	105	140	105	140	105	140	185		
	b	165	165	165	165	165	165	165	165	165	165	165	257			
	c	60	68	68	103	103	103	103	103	68	68	68	103			
	d	85	95	95	127	127	127	127	127	75	75	75	133			
	Net weight [kg]		1.6	1.6	2.0	2.3	3.1	2.0	2.3	3.1	2.0	2.3	3.1	1.6		
Automatic Tripping device			Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic		
Short Time Delay Trip			-	-	-	-	-	-	-	-	-	-	-	-		
Standard Connection Type			Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal		
Interior Accessories	Shunt Trip	SHT	O	O	O	O	O	O	O	O	O	O	O	O		
	Undervoltage Trip	UVT	-	-	O	O	O	-	-	-	-	-	O			
	Alarm Switch	AL-1C	O	O	O	O	O	O	O	O	O	O	O			
		AL-2C	-	-	-	-	-	-	-	-	-	-	O			
	Auxiliary Switch	AUX-1C	O	O	O	O	O	O	O	O	O	O	O			
		AUX-2C	-	-	-	-	-	-	-	-	-	-	O			
	Terminal block	TB. TB2	O	O	O	O	O	O	O	O	O	O	O			
Exterior Accessories	Rear-Connecting Studs	STB	-	-	-	-	-	-	-	-	-	-	-	-		
	Rear-Connecting Bar Studs	BSD	O	O	O	O	O	O	O	O	O	O	O	O		
	Flush Mounting Base Ass'y	GKW (STB)	-	-	-	-	-	-	-	-	-	-	-	-		
		GK+GKW (BSD)	O	O	O	O	O	O	O	O	O	O	O (GK)			
	Plug-in Mounting Base Ass'y	PK	-	-	O	O	O	O	O	O	O	O	O			
	Drawout Ass'y	PDK	-	-	-	-	-	-	-	-	-	-	-	-		
	Mechanical Interlock	MIW	MIW-4F	MIW-4L	MIW-4H	MIW-4H	MIW-4H	MIW-4M	MIW-4M	MIW-4M	MIW-4M	MIW-4M	MIW-5D			
	Motor-Operating Mechanism	MMK	MMK-S	MMK-S	MMK-S	-	MMK-S	-	MMK-S	-	MMK-S	MMK-S	MMK-C			
	Lock Cover	LC	LC-4E	LC-2F	LC-4H	LC-4H	LC-4H	LC-4J	LC-4J	LC-4J	LC-4J	LC-4J	-			
	Handle Lock	HL	HL-4E	HL-2F	O	O	O	HL-4J	HL-4J	HL-4J	HL-4J	HL-4J	HL-5			
	Handle-Operating Mechanism	HA	HA-207	HA-209	HA-206	HA-206	HA-206	HA-210	HA-210	HA-210	HA-210	HA-210	HA-405			
		HM	HM-S22	HM-S23	HM-S21	HM-S21	HM-S21	HM-S25	HM-S25	HM-S25	HM-S25	HM-S25	HM-405			
	Terminal Cover	TMC	TMC-4K	TMC-4J	TMC-4H	TMC-4H	TMC-4H	TMC-4J	TMC-4J	TMC-4J	TMC-4J	TMC-4J	TMC-5B			
		(Front type)	(Short or Wide)	-	TMC-4JS (Short)	-	-	TMC-4JS (Short)	-							
	Rear Type	BTC	BTC-4G	BTC-4J	BTC-4J	-	BTC-4J	-	BTC-4J	-	BTC-4J	BTC-4J	BTC-5B	-		
Trip Button			●	●	●	●	●	●	●	●	●	●	●			
Phase Separator for Line Side			●	●	●	●	●	●	●	●	●	●	●			

REMARKS: *1; 2 pole marked with *1 supplied in 3 pole unit.

*2; Attached Rear-connected bar studs as standard.

*3; Attached Rear-connected bar studs as standard.
Front-connected bar terminals type can not be supplied

MOLDED CASE CIRCUIT BREAKERS

S series			F series				L series		S series			F series				L series								
400AF									600AF															
S-400S	SX400	F-400R	FX400	F-400GB	L-400E	S-600S	SX600	F-600F	FX600	F-600GB	L-600E													
2 ¹ 250 350 300 400	3 300 350 200/225/250/300/ 350/400 Adjustable	2 ¹ 3 3 300 350 400	3 3 300 350 400	4 4 3 3 300 350 400	2 ¹ 3 3 3 300 350 400	3 4 4 4 3 3 300 350 400																		
690	690	690	690	690	690	690	690	690	690	690	690	690	690	690	690	690								
8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8								
36/18	36/18	50/50	50/50	65/65	125/32	36/18	36/18	50/50	50/50	50/50	50/50	65/65	125/32											
36/18	36/18	50/50	50/50	70/70	125/32	36/18	36/18	50/50	50/50	50/50	50/50	70/70	125/32											
36/18	36/18	50/50	50/50	75/75	125/32	36/18	36/18	50/50	50/50	50/50	50/50	75/75	125/32											
36/18	36/18	50/50	50/50	75/75	125/32	36/18	36/18	50/50	50/50	50/50	50/50	75/75	125/32											
50/25	50/25	100/100	100/100	100/100	175/88	50/25	50/25	100/100	100/100	100/100	100/100	100/100	100/100											
50/25	50/25	100/100	100/100	100/100	175/88	50/25	50/25	100/100	100/100	100/100	100/100	100/100	100/100											
25/13	-	40/40	-	-	40/40	-	-	40/20	-	-	40/40	-	-	40/40	-	-								
25/13	-	40/40	-	-	40/40	-	-	40/20	-	-	40/40	-	-	40/40	-	-								
140	140	140	185	140	140	185	140	185	210	210	210	280	210	210	280	210								
257	257	257	257	257	257	257	274	274	274	274	274	274	274	274	274	274								
103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103	103								
133	133	133	133	133	133	141	141	141	141	141	141	141	141	141	141	141								
5.3	6.1	5.1	5.9	5.3	6.1	8.2	5.1	5.9	5.3	6.1	8.2	6.1	8.2	10.0	8.7	9.7	10.0	13.0	8.7	9.7	10.0	13.0	10.0	13.0
Thermal-Magnetic	Electronic	Thermal-Magnetic	Electronic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic								
-	●	-	●	-	-	-	-	-	●	-	-	●	-	-	-	-								
Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal								
O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O								
O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O								
O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O								
O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O								
O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O								
O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O								
O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O								
O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O								
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O								
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
O (GK)	O	O (GK)	O	O (GK)	O (GK)	O (GK)	O (GK)	O (GK)	O (GK)	O (GK)	O (GK)	O (GK)	O (GK)	O (GK)	O (GK)	O (GK)								
O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O								
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
MIW-5D	MIW-5F	MIW-5D	MIW-5F	MIW-5D	MIW-5D	MIW-5D	MIW-5	MIW-5G	MIW-5	MIW-5G	MIW-5	MIW-5	MIW-5	MIW-5	MIW-5	MIW-5								
MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C							
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
HL-5	HL-5	HL-5	HL-5	HL-5	HL-5	HL-5	HL-6	HL-6																
HA-405	HA-406	HA-405	HA-406	HA-405	HA-405	HA-405	HA-402	HA-402																
HM-405	HM-406	HM-405	HM-406	HM-405	HM-405	HM-405	HM-402	HM-407	HM-402	HM-407	HM-402	HM-407	HM-402	HM-402	HM-402	HM-402								
TMC-5B	TMC-5B	TMC-5B	TMC-5B	TMC-5B	TMC-5B	TMC-5B	TMC-5D	TMC-5D																
TMC-5BW (Wide)	TMC-5BW (Wide)	TMC-5BW (Wide)	-	TMC-5BW (Wide)	TMC-5BW (Wide)	-	TMC-5BW (Wide)	-	-	-	-	-	-	-	-	-								
BTC-5B	BTC-5B	BTC-5B	-	BTC-5B	BTC-5B	-	BTC-5B	-	-	-	-	-	-	-	-	-								
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●								



= Standard
○ = Option

▼ Ratings and Specification

Series		S series		F series				L Series	F Series			
Frame size		800AF								1000AF		
TYPE		S-800S	SX800	F-800R		FX800	F-800RH		F-800GB	L-800E	F-1000K	
Appearance												
Number of Poles		3	3	3	4	3	3	4	3	3	4	
Rated Current In [A] (Base Ambient Temperature 40 °C)		700 800	400/450/500/600/ 700/800 Adjustable	700 800	400/450/500/600/ 700/800 Adjustable	700 800	700 800	700 800	700 800	1000		
Rated Insulation Voltage Ui [V]		690	690	690	690	690	690	690	690	690		
Rate Impulse withstand Voltage Uimp [kV]		8	8	8	8	8	8	8	8	8		
Rated Breaking Capacity [kA] IEC 60947-2 (Icu/ics)	AC	440V	36/18	36/18	50/50	50/50	85/43	65/65	125/32	85/22		
		415V	36/18	36/18	50/50	50/50	85/43	70/70	125/32	85/22		
		400V	36/18	36/18	50/50	50/50	85/43	75/75	125/32	85/22		
		380V	36/18	36/18	50/50	50/50	85/43	75/75	125/32	85/22		
		240V	85/43	85/43	100/100	100/100	125/63	100/100	175/88	125/32		
		230V	85/43	85/43	100/100	100/100	125/63	100/100	175/88	125/32		
	DC	250V	40/20	-	40/40	-	40/40	-	40/40	-		
		125V	40/20	-	40/40	-	40/40	-	40/40	-		
Dimensions [mm]		a	210	210	210	280	210	280	210	210	280	
		b	274	274	274	274	274	274	274	274	410	
		c	103	103	103	103	103	103	103	103	150	
		d	141	141	141	141	141	141	141	141	190	
Net weight [kg]		10.5	11.0	10.5	13.5	11.0	10.5	13.5	10.5	13.5	10.5	
Automatic Tripping device		Thermal-Magnetic	Electronic	Thermal-Magnetic	Electronic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic		
Short Time Delay Trip		-	●	-	●	-	-	-	-	-		
Standard Connection Type		Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal	Front Bar Terminal		
Interior Accessories	Shunt Trip	SHT	○	○	○	○	○	○	○	○		
	Undervoltage Trip	UVT	○	○	○	○	○	○	○	○		
	Alarm Switch	AL-1C	○	○	○	○	○	○	○	○		
		AL-2C	○	○	○	○	○	○	○	○		
	Auxiliary Switch	AUX-1C	○	○	○	○	○	○	○	○		
		AUX-2C	○	○	○	○	○	○	○	○		
	Terminal block	TB, TB2	○	○	○	○	○	○	○	○		
Exterior Accessories	Rear-Connecting Studs	STB	-	-	-	-	-	-	-	-		
	Rear-Connecting Bar Studs	BSD	○	○	○	○	○	○	○	○		
	Flush Mounting Base Ass'y	GKW (STB)	-	-	-	-	-	-	-	-		
		GK•GKW (BSD)	○ (GK)	○ (GK)	○ (GK)	○ (GK)	○ (GK)	○ (GK)	○ (GK)	○ (GK)		
	Plug-in Mounting Base Ass'y	PK	○	○	○	○	○	○	○	○		
	Drawout Ass'y	PDK	-	-	-	-	-	-	-	-		
	Mechanical Interlock	MIW	MIW-5	MIW-5G	MIW-5	MIW-5G	MIW-5	MIW-5	MIW-5	MIW-8		
	Motor-Operating Mechanism	MMK	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C		
	Lock Cover	LC	-	-	-	-	-	-	-	-		
	Handle Lock	HL	HL-6	HL-6	HL-6	HL-6	HL-6	HL-6	HL-6	○		
	Handle-Operating Mechanism	HA	HA-402	HA-402	HA-402	HA-402	HA-402	HA-402	HA-402	HA-801		
		HM	HM-402	HM-407	HM-402	HM-407	HM-402	HM-402	HM-402	-		
Terminal Cover	Front type (Short or Wide)	TMC	TMC-5D	TMC-5D	TMC-5D	TMC-5D	TMC-5D	TMC-5D	TMC-5D	TMC-6		
			-	-	-	-	-	-	-	-		
	Rear Type	BTC	-	-	-	-	-	-	-	-		
Trip Button		●	●	●	●	●	●	●	●	●		
Phase Separator for Line Side		●	●	●	●	●	●	●	●	●		

REMARKS: *1: 2 pole marked with *1 supplied in 3 pole unit.

*2: Attached Rear-connected bar studs as standard.

*3: Attached Rear-connected bar studs as standard.

Front-connected bar terminals type can not be supplied

MOLDED CASE CIRCUIT BREAKERS

F series																
1000AF		1200AF				1600AF			2000AF		2500AF		3200AF	4000AF		
FX1000	F-1000C	F-1200K		FX1200	F-1200C		F-1600CB		F-1600E		F-2000E		F-2500E		F-3200E	F-4000E
																
3	3 4	3 4	3 4	3	3 4	3 4	3 4	3 4	3 4	3 4	3 4	3 4	3	3		
500/600/700/800/ 900/1000 Adjustable	500/600/700/800/ 900/1000 Adjustable	1200	600/700/800/ 1000/1200 Adjustable	600/700/800/ 1000/1200 Adjustable	1000/1200 Adjustable	1400/1600 Adjustable	800/900/1000/1200/ 1400/1600 Adjustable	1000/1200/1400/1600/ 1800/2000 Adjustable	1200/1400/1600/ 2000/2500 Adjustable	2500 2800 3200	2500 2800 3200	4000				
690	690	690	690	690	690	690	690	690	690	690	690	690	690	690		
8	8	8	8	8	8	8	8	8	8	8	8	8	8	8		
85/85	85/22	85/22	85/85	85/85	85/22	85/22	85/64	85/64	85/64	85/64	85/64	85/64	85/64	85/64		
85/85	85/22	85/22	85/85	85/85	85/22	85/22	85/64	85/64	85/64	85/64	85/64	85/64	85/64	85/64		
85/85	85/22	85/22	85/85	85/85	85/22	85/22	100/75	100/75	100/75	100/75	100/75	100/75	100/75	100/75		
85/85	85/22	85/22	85/85	85/85	85/22	85/22	100/75	100/75	100/75	100/75	100/75	100/75	100/75	100/75		
125/125	125/32	125/32	125/125	125/32	125/32	125/32	125/94	125/94	125/94	125/94	130/98	130/98	130/98	130/98		
125/125	125/32	125/32	125/125	125/32	125/32	125/32	125/94	125/94	125/94	125/94	130/98	130/98	130/98	130/98		
-	-	40/40	-	-	-	-	-	-	-	-	-	-	-	-		
-	-	40/40	-	-	-	-	-	-	-	-	-	-	-	-		
210	210 280	210 280	210 280	210 280	210 280	210 280	210 280	210 280	320 429	320 429	390	390				
410	410	410	410	410	410	410	410	410	450	450	560	560				
150	150	150	150	150	150	150	150	150	185	185	235	235				
190	190	190	190	190	190	190	190	191	245	245	315	315				
26	26 33	26 33	26 33	26	26 33	37 39	27 35	54 67	63 78	120	120	130				
Electronic	Electronic	Thermal-Magnetic	Electronic	Electronic	Electronic	Electronic	Electronic	Electronic	Electronic	Electronic	Thermal-Magnetic	Thermal-Magnetic				
●	●	-	●	●	●	●	●	●	●	●	○	○				
Front Bar Terminal	Rear Bar Studs	Rear Bar Studs	Rear Bar Studs	Rear Bar Studs	Rear Bar Studs	Rear Bar Studs										
○	○	○	○	○	○	○	○	○	○	○	○	○				
-	○	○	-	○	○	○	○	○	○	○	○	○				
○	○	○	○	○	○	○	○	○	○	○	○	○				
○	○	○	○	○	○	○	-	-	-	-	-	-				
○	○	○	○	○	○	○	○	○	○	○	○	○				
○	○	○	○	○	○	○	○	○	○	○	○	○				
○	○	○	○	○	○	○	○ (TB Only)	○ (TB Only)	○ (TB Only)	○ (TB Only)	○ (TB Only)	○ (TB Only)				
-	-	-	-	-	-	-	-	-	-	-	-	-				
○	○	○	○	○	○	○	● *2	● *2	● *3	● *3	● *3	● *3				
-	-	-	-	-	-	-	-	-	-	-	-	-				
○ (GK)	○ (GK)	○ (GK)	○ (GK)	○ (GK)	-	-										
○	○	○	○	○	○	○	-	-	-	-	-	-				
-	-	-	-	-	-	-	-	-	-	-	-	-				
MIW-8	MIW-8	MIW-8	MIW-8	MIW-8	MIW-8D	○	○	○	○	○	-	-				
MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK	MMK	MMK	MMK	MMK	-	-				
-	-	-	-	-	-	○	○	○	○	○	-	-				
○	○	○	○	○	○	○	○	○	○	○	-	-				
HA-801	HA-801	HA-801	HA-801	HA-801	HA-801	○	○	○	○	○	-	-				
-	-	-	-	-	-	-	-	-	-	-	-	-				
TMC-6B	TMC-6	TMC-6	TMC-6B	TMC-6	TMC-6	-	-	-	-	-	-	-				
-	-	-	-	-	-	-	-	-	-	-	-	-				
-	-	-	-	-	-	-	-	-	-	-	-	-				
●	●	●	●	●	●	●	●	●	●	●	-	-				
●	●	●	●	●	●	●	-	-	-	-	-	-				



= Standard
○ = Option

EARTH LEAKAGE BREAKERS

▼ Types and Models

Earth Leakage Breakers (For General Circuit)	
Standard Breaker	High Interupting Breaker
	
E series	R series
30A ~ 800A Frame	100A ~ 1200A Frame

▼ Composition of Interupting Capacity

415V Volt AC-Interupting Capacity [kA]															
Symmetrical	2.5	5	7.5	10	15	18	22	25	30	35	42	50	85		
Frame (AF)	30	EX30													
	50	EX50	EX50C												
	100, 125	EX100B		RXK125-S				RXK125-H							
	225, 250	EX225, EXK225			RXK250-S			RXK250-H							
	400	EX400, EX400B						RX400, RX400B							
	600	EX600B						RX600B							
	800	EX800B						RX800B							
	1000 - 1200	RF-1000CBN, RF-1000KN, RF-1200CBN, RF-1200KN													

200V Volt AC-Interupting Capacity [kA]												
Symmetrical	5	10	22	25	35	42	50	85	100	125		
Frame (AF)	30	EX30										
	50	EB-50E, EX50	EX50B	EX50C								
	100, 125	EB-100E, EX100		EX100B			RXK125-S	RXK125-H				
	225, 250	EX225, EXK225				RXK250-S	RXK250-H					
	400	EX400, EX400B						RX400, RX400B				
	600	EX600B						RX600B				
	800	EX800B						RX800B				
	1000 - 1200	RF-1000CBN, RF-1000KN, RF-1200CBN, RF-1200KN										

▼ Ratings and Specification

Series		E series								R Series		
Frame size		30AF	50AF			100AF			125AF			
TYPE		EX30	EB-50E	EX50	EX50B	EX50C	EB-100E	EX100	EX100B	RXK125-S	RXK125-H	
Appearance												
Number of Poles		3	2	3	3	3	3	3	3	3	3	
Rated Current In [A] (Base Ambient Temperature 40 °C)		5 10 15 20 30	5 10 15 20 30 40 50	5 10 15 20 30 40 50	5 10 15 20 30 40 50	15 20 30 40 50	60 75 100	60 75 100	60 75 100	15 20 30 40 50 60 75 100 125	15 20 30 40 50 60 75 100 125	
Rated Operation Voltage Ue [V]		200-440	100-200	200-440	100-200	200-440	100-200	100-200	200-440	200-440	200-440	
Rate Impulse withstand Voltage Uimp [kV]		6	4	6	6	6	4	6	6	6	6	
Rate sensitivity Current IΔn[mA]	High Sensitivity Type	30	(15) 30 (100)	30	30	30	30 100	30	30			
	Nominal Sensitivity Type	100/200/500 interchangeable	-	100/200/500 interchangeable	100	100/200/500 interchangeable	-	100	100/200/500 interchangeable	100/200/500 interchangeable	100/200/500 interchangeable	
Dimensions [mm]	415V	2.5	-	2.5	-	10	-	-	10	30/15	50/25	
	200V	5	5/2	5	10	35	5/2	10	35	50/25	100/50	
Dimensions [mm]	a	75	50	75	75	75	75	75	75	90	90	
	b	130	96	130	130	130	97.5	130	130	150	150	
	c	60	60	60	60	60	60	60	60	68	68	
	d	84	76	84	84	84	76	84	84	94	94	
Net weight [kg]		0.7	0.3	0.4	0.7	0.7	0.8	0.6	0.8	0.9	1.7	
Automatic Tripping device		Full Magnetic	Full Magnetic	Full Magnetic	Full Magnetic	Full Magnetic	Full Magnetic	Full Magnetic	Full Magnetic	Thermal-Magnetic	Thermal-Magnetic	
Earth Leakage Indication System		Button	Button	Button	Button	Button	Button	Button	Button	Button	Button	
Standard Connection Type		Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	
Interior Accessories	Test Button Lead Wire	TBL	O	O	O	O	O	O	O	O	O	
	Alarm Switch	AL-1C	O	O	O	O	O	O	O	O	O	
		AL-2C	-	-	-	-	-	-	-	-	-	
	Auxiliary Switch	AUX-1C	O	O	O	O	O	O	O	O	O	
		AUX-2C	-	-	-	-	-	-	-	-	-	
	Earth Leakage Alarm Switch	EAL	-	-	-	-	-	-	-	-	-	
Exterior Accessories	Terminal Block	TB. TB2	O	O (TB2)	O	O	O	O (TB2)	O	O	O	
	Rear-Connecting Studs	STB	STB-2M	-	STB-2M	STB-2M	STB-2M	-	STB-3K (50A:STB-2M)	STB-3K (50A:STB-2M)	STB-2S (Up to 50A)	
	Rear-Connecting Bar Studs	BSD	-	-	-	-	-	-	-	-	BSD-3S (60A or more)	
	Flush Mounting Base Ass'y	GKW (STB)	O	-	O	O	O	-	O	O	O	
	Plug-in Mounting Base Ass'y	PK	-	-	-	-	-	-	-	-	-	
	Drawout Ass'y	PDK	-	-	-	-	-	-	-	-	-	
	Mechanical Interlock	MIW	MIW-2E	-	MIW-2E	MIW-2E	MIW-2E	-	MIW-2E	MIW-2E	MIW-3H	
	Motor-Operating Mechanism	MMK	-	-	-	-	-	-	-	-	-	
	Lock Cover	LC	LC-2G	LC-03	LC-2G	LC-2G	LC-03	LC-2G	LC-2G	O	O	
	Handle Lock	HL	HL-2G	-	HL-2G	HL-2G	HL-2G	HL-2G	HL-2G	O	O	
Handle-Operating Mechanism	Front type	HA	HA-108	-	HA-108	HA-108	HA-108	-	HA-108	HA-108	-	
		HM	HM-S12	-	HM-S12	HM-S12	HM-S12	-	HM-S12	HM-S12	HM-S13	
	Rear Type	TMC	TMC-1	TMC-0G	TMC-1	TMC-1	TMC-1	TMC-0H	TMC-1	TMC-1	TMC-2C	
		(Short or Wide)	TMC-1S(Short)	-	TMC-1S(Short)	TMC-1S(Short)	-	TMC-1S(Short)	TMC-1S(Short)	-	-	
Trip Button		-	-	-	-	-	-	-	-	●	●	
Phase Separator for Line Side		O	-	O	O	●	-	O	●	●	●	



= Standard

= Option

Rate Voltage	Applicable Circuit Voltage
100-200V	100 • 110 • 120 • 220V
200V	200 • 220V

Rate Voltage	Applicable Circuit Voltage
100-200V	230-240V
200V	200-220-230-240-380-400-415-440-460V(60Hz)

Rate Voltage	Applicable Circuit Voltage
100-200V	380V
200V	400-415-440-460V(60Hz)

▼ Ratings and Specification

Series		E series		R series		E series		R series		
Frame size		225AF		250AF		400AF				
TYPE		EX225	EXK225	RG-225BN	RXK 250-S	RXK 250-H	EX400	EX400B	RX400	
Appearance										
Number of Poles		3	3	4	3	3	3	3	3	
Rated Current In [A] (Base Ambient Temperature 40 °C)		125 150 175 200 225	125 150 175 200 225	125 150 175 200 225 250	125 150 175 200 225 250	125 150 175 200 225 250	250 300 350 400	200/225/250/300/ 350/400 Adjustable	250 300 350 400	
Rated Operation Voltage Ue [V]		200-440	200-440	200-440	200-440	200-440	200-440	200-440	200-440	
Rate Impulse withstand Voltage Uimp [kV]		6	6	8	8	8	8	8	8	
Rate sensitivity Current I _{Δn} [mA]	High Sensitivity Type	30	30	30	30	30	30	30	30	
	Normal Sensitivity Type	100/200/500 interchangeable	100/200/500 interchangeable							
Rate breaking Capacity Icn [kA] JIS/C8371		415V	15	15	42	30/15	50/25	22	35	
		200V	35	35	85	50/25	100/50	19-Feb	50	
Dimensions [mm]	a	105	105	185	90	90	140	140	140	
	b	165	165	345	150	150	257	257	257	
	c	60	68	103	68	68	103	103	103	
	d	84	93	133	94	94	133	133	133	
Net weight [kg]		2.2	2.2	9.3	2.0	2.0	6.6	6.5	6.6	
Automatic Tripping device		Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Thermal-Magnetic	Electronic	Thermal-Magnetic	
Earth Leakage Indication System		Button	Button							
Standard Connection Type		Front Terminal	Front Terminal							
Interior Accessories	Test Button Lead Wire	TBL	○	○	○	○	○	○	○	
	Alarm Switch	AL-1C	○	○	○	○	○	○	○	
		AL-2C	-	-	○	-	-	○	○	
	Auxiliary Switch	AUX-1C	○	○	○	○	○	○	○	
		AUX-2C	-	-	○	-	○	○	○	
	Earth Leakage Alarm Switch	EAL	-	-	-	-	-	-	-	
Exterior Accessories	Terminal Block	TB, TB2	○	○	○	-	-	○	○	
	Rear-Connecting Studs	STB	-	-	-	-	-	-	-	
	Rear-Connecting Bar Studs	BSD	○	○	○	○	○	○	○	
	Flush Mounting Base Ass'y	GKW (STB)	○	○	○ (GK)	○	○	○	○	
	Plug-in Mounting Base Ass'y	PK	-	-	-	-	-	-	-	
	Drawout Ass'y	PDK	-	-	-	-	-	-	-	
	Mechanical Interlock	MIW	MIW-4F	MIW-4L	MIW-5DE	MIW-4M	MIW-4M	○	MIW-5F	
	Motor-Operating Mechanism	MMK	-	-	MMK-C	-	-	MMK-C	-	
	Lock Cover	LC	LC-4E	LC-2F	-	LC-4J	LC-4J	-	-	
	Handle Lock	HL	HL-4E	HL-2F	HL-5	HL-4J	HL-4J	HL-5	HL-5	
Terminal Cover	Front type (Short or Wide)	HA	HA-207	HA-209	HA-405	HA-210	HA-210	HA-405	HA-406	
		HM	HM-S22	HM-S23	-	HM-S25	HM-S25	-	-	
	Rear Type	TMC	TMC-4K	TMC-4J	TMC-5B	TMC-4J	TMC-4J	TMC-5B	TMC-5B	
		(Short or Wide)	-	TMC-4JS(Short)	-	TMC-4JS	TMC-4JS	TMC-5BW(Wide)	TMC-5BW(Wide)	
Trip Button		-	●	-	●	●	-	●	-	
Phase Separator for Line Side		●	●	●	●	●	●	●	●	

	= Standard	Rate Voltage	Applicable Circuit Voltage
	= Option	100-200V	100 • 110 • 120 • 220V
		200V	200 • 220V

Rate Voltage	Applicable Circuit Voltage
100-200V	230• 240V
200V	200•220• 230• 240• 380• 400• 415• 440• 460V(60Hz)

▼ Ratings and Specification

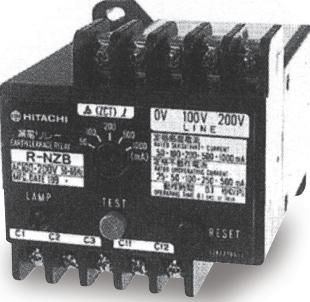
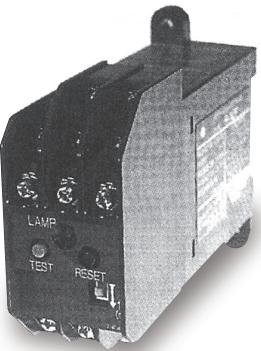
R series		E series	R series		E series		R series					
400AF		600AF			800AF			1000AF			1200AF	
RX400B	RG-400BN	EX600B	RX600B	RF-600FN	EX800B	RX800B	RF-800KN	RF-1000KN	RF-1000CBN	RF-1200KN	RF-1200CBN	
3	4	3	3	4	3	3	4	3	4	3	4	3
200/225/250/ 300/350/400 Adjustable	250 300 350 400	300/350/400/ 500/600 Adjustable	300/350/400/ 500/600 Adjustable	500 600	400/450/500/ 600/700/800 Adjustable	400/450/500/ 600/700/800 Adjustable	700 800	1000	500/600/700/ 800/900/1000 Adjustable	1200	600/750/800/ 100/1200 Adjustable	
200-440	200-440	200-440	200-440	440(200)	200-440	200-440	440(200)	440(200)	440(200)	440(200)	440(200)	
8	8	8	8	8	8	8	8	8	8	8	8	
30	30	-	-	-	-	-	-	-	-	-	-	
100/200/500 interchangeable	100/200/500 interchangeable	100/200/500 interchangeable	100/200/500 interchangeable	100/200/500 interchangeable	100/200/500 interchangeable	100/200/500 interchangeable	100/200/500 interchangeable	100/200/500 interchangeable	100/200/500 interchangeable	100/200/500 interchangeable	100/200/500 interchangeable	
50	42	35	50	42	35	50	85	85	85	85	85	
100	85	50	100	-	50	100	-	125	4-May	125	125	
140	185	210	210	280	210	210	280	210	280	210	210	
257	345	274	274	580	274	274	800	800	800	800	800	
103	103	103	103	141	103	103	185	185	185	185	185	
133	133	141	141	179	141	141	225	225	225	225	225	
6.5	10.2	10.6	10.6	23	12.9	12.9	50	41	60	41	41	
Electronic	Thermal-Magnetic	Electronic	Electronic	Thermal-Magnetic	Electronic	Electronic	Thermal-Magnetic	Thermal-Magnetic	Electronic	Thermal-Magnetic	Electronic	
Button	Button	Button	Button	Button	Button	Button	Button	Button	Button	Button	Button	
Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	Front Terminal	
○	○	○	○	○	○	○	○	○	○	○	○	
○	○	○	○	○	○	○	○	○	○	○	○	
○	○	○	○	○	○	○	○	○	○	○	○	
○	○	○	○	○	○	○	○	○	○	○	○	
○	○	○	○	○	○	○	○	○	○	○	○	
-	-	-	-	●	-	-	●	●	●	●	●	
○	○	○	○	○	○	○	○	○	○	○	○	
-	-	-	-	-	-	-	-	-	-	-	-	
○	○	○	○	○	○	○	○	○	○	○	○	
○	○ (GK)	○ (GK)	○ (GK)	○ (GK)	○ (GK)	○ (GK)	○ (GK)	○ (GK)	○ (GK)	○ (GK)	○ (GK)	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
MIW-5F	MIW-5DE	MIW-5G	MIW-5G	○	MIW-5G	MIW-5G	○	○	○	○	○	
MMK-C	MMK-C	MMK-C	MMK-C	○	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	MMK-C	
-	-	-	-	-	-	-	-	-	-	-	-	
HL-5	HL-5	HL-6	HL-6	HL-6	HL-6	HL-6	○	○	○	○	○	
HA-406	HA-405	HA-402	HA-402	HA-402	HA-402	HA-402	HA-801	HA-801	HA-801	HA-801	HA-801	
-	-	-	-	-	-	-	-	-	-	-	-	
TMC-5B	TMC-5B	TMC-5D	TMC-5D	TMC-5D(Line Side)	TMC-5D	TMC-5D	TMC-6(Line Side)	TMC-6(Line Side)	TMC-6B(Line Side)	TMC-6B(Line Side)	TMC-6B(Line Side)	
TMC-5BW(Wide)	-	-	-	-	-	-	-	-	-	-	-	
BTC-5B	BTC-5B	-	-	-	-	-	-	-	-	-	-	
●	-	●	●	●	●	●	●	●	●	●	●	
●	●	●	●	●	●	●	●	●	●	●	●	

Rate Voltage	Applicable Circuit Voltage
100-200V	380V
200V	400•415•440•460V(60Hz)

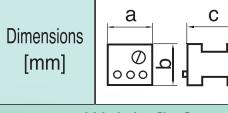


EARTH LEAKAGE RELAYS

▼ Types and Models

Earth Leakage Relays		Zoro-Phase-Sequence Current Transformer
Standard Type	Small Type	
		
R-NZB	R-NZF	

▼ Ratings and Specifications —— Earth Leakage Relays

Function	Standard Type					Small Type		
	High-Speed Type	Time Delay Type	Automatic Reset Type	Latched Type	Relay: Automatic Reset Lamp: Latched	High-Speed Type	Time Delay Type	
Type-Form	R-NZB	R-NZBT	R-NZBK	R-NZBL	R-NZBR	R-NZF	R-NZFT	
Appearence								
Rated Voltage (AC) [V]	100, 200, 240, 380, 415					100, 200, 240		
Frequency [Hz]	50, 60					50, 60		
Rated Sensitivity Current [mA]	50/100/200/ 500/1000 (30)	*1	100/200/500/1000/2000	*1	50/100/200/ 500/1000 (30)	100/200/500/ 1000/2000	*1 (30) (200/500)	100/200 200/500
Operating Time [sec]	0.1 or Less	0.3(0.2/0.5/1/2/4)		0.3	*1	0.3(0.2/0.5/1/2/4)	0.1 or Less	0.1/0.3 *1
Alarm Contact	1c + 1a					1c + 1a		
Dimensions [mm]		a	80			38		
	b	80			88			
	c	115			120			
Weight [kg]	0.45					0.45		

NOTES:

- *1; interchangeable by manual operation.
- Rating with () are manufacturing by customer' order.

Rated Voltage	Applicable Circuit Voltage	Remarks
100V	100 -110V	
200V	200-220V	Interchangeable by tap changing
240V	230-240V	
380V	380V	
415V	400 • 415 • 440 • 460V(60Hz)	

Zero-Phase-Sequence Current Transformers

Type	Aperture Diameter ϕ [mm]	Maximum Available Wire Size					
		Vinyl-Insulated 600V Wire (IV)			Polyethylene-Insulated 600V Wire (CV)		
		2-Wires	3-Wires	4-Wires	2-Wires	3-Wires	4-Wires
ZR-15	15	14mm ² (88A)	8mm ² (61A)	8mm ² (61A)	2mm ² (33A)	2mm ² (33A)	-
ZR-30B	30	60mm ² (217A)	50mm ² (190A)	38mm ² (162A)	38mm ² (190A)	22mm ² (135A)	14mm ² (105A)
ZR-58B	58	250mm ² (556A)	200mm ² (469A)	150mm ² (395A)	200mm ² (560A)	150mm ² (480A)	100mm ² (365A)
ZR-65	65	325mm ² (650A)	250mm ² (556A)	200mm ² (469A)	250mm ² (655A)	200mm ² (560A)	150mm ² (480A)
ZR-80	80	500mm ² (842A)	500mm ² (842A)	325mm ² (650A)	500mm ² (870A)	352mm ² (760A)	250mm ² (655A)
ZR-100	100	500mm ² x 4 (1,684A)	400mm ² x 6 (1,490A)	500mm ² (842A)	600mm ² x 4 (1,140A)	600mm ² (1,140A)	400mm ² (870A)
ZR-120	120	-	325mm ² x 9 (1,950A)	400mm ² x 8 (1,490A)	1,000mm ² x 4 (1,600A)	800mm ² (1,370A)	600mm ² (1,140A)

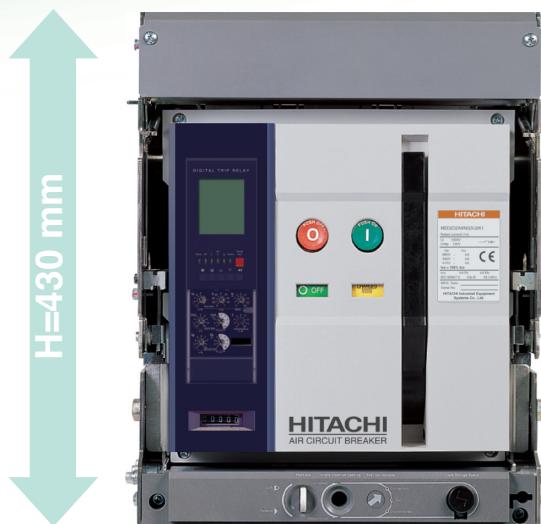
ZCT with Primary Conductors

Type	Z-400B	Z-600B	Z-800B	Z-1000B	Z-1200B	Z-2000B							
Appearance													
Number of Poles	3	4	3	4	3	4							
Continuous Thermal Current [A]	400		600		800		1000		1200		2000		
Rated Voltage (AC) [V]					600								
Frequency [Hz]					50, 60								
Rated Withstand Current [kA]					100 (Peak Value)					150 (Peak Value)			
Rated Sensitivity Current					Refer to Earth Leakage Relays								
Operating Time					Ditto								
Dimensions [mm] 	A	220	315	220	315	240	320	240	320	320	310	380	
	B	348	348	348	348	380	380	380	380	380	300	300	
	B1	400	400	460	460	480	480	480	480	480	600	600	
Weight [kg]		11	15	11.2	16	12.3	17	12.3	17	13	18	30	42

Full line-up & Compact

Up to 6300A, ACB provides fully lined-up 3 frame.
 For each frame, there is just one size, which is smaller and more compact. It makes it possible for you to design the optimized volume panel.

630-200AF



630-400AF



W=334 mm

W=412 mm

85kA **100kA**

AKH-06 – 20D

06	630AF
08	800AF
10	1000AF
13	1250AF
16	1600AF
20	2000AF

Icu = Ics = 85kA / 500Vac

W = 334(3p), 419(4p) mm

AKH-06 – 40E

06	630AF	20	2000AF
08	800AF	25	2500AF
10	1000AF	32	3200AF
13	1250AF	40	4000AF
16	1600AF		

Icu = Ics = 100kA / 500Vac

W = 412(3p), 527(4p) mm

4000-6300AF



150kA

- The highest breaking capacity:
150kA (6300AF at 500VAC)
- 3 ampere frame sizes:
2000/4000/6300AF
- N phase current conducting capacity: 100%

AKH-40 – 63G

40	4000AF
50	5000AF
63	6300AF

$I_{cu} = I_{cs} = 150\text{kA}/500\text{Vac}$
 $W=785(3\text{p}), 1015(4\text{p})\text{mm}$



Rating



Type			AKH-06D	AKH-08D	AKH-10D	AKH-13D	AKH-16D	AKH-20D
Ampere frame	(AF)		630	800	1000	1250	1600	2000
Rated current (A)	(in max)	at 40°C	200	400				
			400	630	1000	1250	1600	2000
Setting current (A)*	Control trip relay (... x in max)		(0.4 – 1.0) x in max					
Rated current of neutral pole (A)			400	400				
			630	630	1000	1250	1600	2000
				800				
Rated insulation voltage (V)	(Ui)				1,000			
Rated operating voltage (V)	(Ue)				690			
Rated impulse withstand voltage (kV)	(Uimp)				12			
Frequency (Hz)					50/60			
Number of poles (P)					3, 4			
Rated breaking capacity (kA sym)					85			
AC 50 / 60Hz	(Icu)	IEC 60947-2	220V/230V/380V/415V					
		JISC 8201-2-1	460V/480V/500V					
			550V/600V/690V					
Rated service breaking capacity (kA) (Ics)			...% x Icu		100%			
Rated making capacity (kA peak)			220V/230V/380V/415V		187			
AC 50 / 60Hz	(Icm)	IEC 60947-2	460V/480V/500V		187			
		JISC 8201-2-1	550V/600V/690V		143			
Rated shot-time withstand current (kA)			1 sec		65			
	(Icw)		2 sec		60			
			3 sec		50			
Operating time (ms)			Maximum total breaking time		40			
			Maximum closing time		80			
Life cycle (time)	Mechanical		Without maintenance		20,000			
			With maintenance		30,000			
	Electrical		Without maintenance		5,000			
			With maintenance		10,000			
Connections**	Draw-out / Fixed		Horizontal connection	●		-		
			Vertical connection	○		●		
			Front connection	○		-		
			Mixed connection	○		-		
Weight (kg)	Draw-out type	Main body (With cradle)	Motor charging type		63/74			
(3P / 4P)		Craddle only	Manual charging type		61/72			
					29/32			
	Fixed type		Motor charging type		34/44			
			Manual charging type		32/42			
External dimensions (mm) (H x W x D)	Draw-out type	3P			430 x 334 x 375			
		4P			430 x 419 x 375			
	Fixed type	3P			300 x 300 x 295			
		4P			300 x 385 x 295			
Trip relay					N, A, P, S type			
Certificate & Approval					KEMA			

*Refer to trip relay specification. **●: Standard, ○: Option





AKH-06E	AKH-08E	AKH-10E	AKH-13E	AKH-16E	AKH-20E	AKH-25E	AKH-32E	AKH-40E
630	800	1000	1250	1600	2000	2500	3200	4000
630	800	1000	1250	1600	2000	2500	3200	4000
(0.4 – 1.0) x In max								
630	800	1000	1250	1600	2000	2500	3200	4000
1,000								
690								
12								
50/60								
3, 4								
100								
100								
85								
100%								
220								
220								
187								
85								
75								
65								
40								
80								
15,000								
20,000								
5,000								
10,000								
●							○	
○							●	
○							-	
○							-	
87/103						104/147		
85/101						102/145		
44/55						58/70		
44/55						63/100		
42/53						61/98		
430 x 412 x 375								
430 x 527 x 375								
300 x 378 x 295								
300 x 493 x 295								
N, A, P, S type								
KEMA								

AKH-40G	AKH-50G	AKH-63G
4000	5000	6300
4000	5000	6300
(0.4 – 1.0) x In max		
4000	5000	6300
1,000		
690		
12		
50/60		
3, 4		
150		
150		
100		
100%		
330		
330		
220		
100		
100		
100		
40		
80		
10,000		
15,000		
2,000		
5,000		
○		
●		
-		
-		
181/223		186/230
179/221		184/228
97/117		102/124
98/123		103/130
96/121		101/128
460 x 785 x 375		
460 x 1,015 x 375		
300 x 751 x 295		
300 x 981 x 295		
N, A, P, S type		
KEMA		

Rating



Type			AKN-06D	AKN-08D	AKN-10D	AKN-13D	AKN-16D	AKS-20D
Ampere frame	(AF)		630	800	1000	1250	1600	2000
Rated current (A)	(in max)	at 40°C	200	400				
			400	630	1000	1250	1600	2000
Setting current (A)*	Control trip relay (... x in max)		(0.4 – 1.0) x in max					
Rated current of neutral pole (A)			400	400				
			630	630	1000	1250	1600	2000
				800				
Rated insulation voltage (V)	(Ui)		1,000					
Rated operating voltage (V)	(Ue)		690					
Rated impulse withstand voltage (kV)	(Uiimp)		12					
Frequency (Hz)			50/60					
Number of poles (P)			3, 4					
Rated breaking capacity (kA sym)		IEC 60947-2	220V/230V/380V/415V	65			70	
AC 50/60Hz	(Icu)	JISC 8201-2-1	460V/480V/500V	65			70	
			550V/600V/690V	50			65	
Rated service breaking capacity (kA)	(Ics)		...% x Icu	100%			100%	
Rated making capacity (kA peak)		IEC 60947-2	220V/230V/380V/415V	143			154	
AC 50/60Hz	(Icm)	JISC 8201-2-1	460V/480V/500V	143			154	
			550V/600V/690V	105			143	
Rated shot-time			1 sec	50			65	
withstand current (kA)	(Icw)		2 sec	42			55	
			3 sec	36			50	
Operating time (ms)			Maximum total breaking time	40				
			Maximum closing time	80				
Life cycle (time)		Mechanical	Without maintenance	20,000				
			With maintenance	30,000				
		Electrical	Without maintenance	5,000				
			With maintenance	10,000				
Connections**		Draw-out /Fixed	Horizontal connection	●			-	
			Vertical connection	○			●	
			Front connection	○			-	
			Mixed connection	○			-	
Weight (kg)	Draw-out type	Main body (With cradle)	Motor charging type	63/74			70/85	
(3P/4P)		Cradle only	Manual charging type	61/72			68/83	
	Fixed type		Motor charging type	29/32			33/40	
			Manual charging type	34/44			38/47	
				32/42			36/45	
External dimensions (mm)		Draw-out type	3P	430 x 334 x 375				
(H x W x D)			4P	430 x 419 x 375				
		Fixed type	3P	300 x 300 x 295				
			4P	300 x 385 x 295				
Trip relay				N, A, P type				
Certificate & Approval				KEMA				

*Refer to trip relay specification. **●: Standard, ○: Option



AIR CIRCUIT BREAKERS



AKS-20E	AKS-25E	AKS-32E	AKS-40E
2000	2500	3200	4000
630, 800			
1000, 1250	2500	3200	4000
1600, 2000			
(0.4 – 1.0) x In max			
630, 800			
1000, 1250	2500	3200	4000
1600, 2000			
1,000			
690			
12			
50/60			
3, 4			
85			
85			
85			
100%			
187			
187			
187			
85			
75			
65			
40			
80			
15,000			
20,000			
5,000			
10,000			
●	○		
○	●		
○	-		
○	-		
87/103	104/147		
85/101	102/145		
44/50	58/70		
44/55	63/100		
42/53	61/98		
430 x 412 x 375			
430 x 527 x 375			
300 x 378 x 295			
300 x 493 x 295			
N, A, P type			
KEMA			

AKS-50F	
4000	5000
4000	5000
(0.4 – 1.0) x In max	
4000	5000
1,000	
690	
12	
50/60	
3, 4	
100	
100	
85	
100%	
220	
220	
187	
85	
75	
65	
40	
80	
10,000	
15,000	
2,000	
5,000	
○	
●	
-	
-	
145/173	
143/171	
78/90	
76/94	
74/92	
460 x 629 x 375	
460 x 799 x 375	
300 x 597 x 295	
300 x 767 x 295	
N, A, P type	
KEMA	

AKS-40G	AKS-50G	AKS-63G
4000	5000	6300
4000	5000	6300
(0.4 – 1.0) x In max		
4000	5000	6300
1,000		
690		
12		
50/60		
3, 4		
120		
120		
100		
100%		
264		
264		
220		
100		
90		
85		
40		
80		
10,000		
15,000		
2,000		
5,000		
○		
●		
-		
-		
181/223	186/230	
179/221	184/228	
97/117	102/124	
98/123	103/130	
96/121	101/128	
460 x 785 x 375		
460 x 1,015 x 375		
300 x 751 x 295		
300 x 981 x 295		
N, A, P type		
KEMA		

SELECTION

Table 1 Direct Starting a 3-Phase Induction Motor (380-415VAC)

Motor		Magnetic Starter		Fuse-Free Breakers													
Capacity [kW]	Full-Load Current [A]	Type	TOR Rated Current [A]	Rated Current [A]	Interrupting Capacity (sym) [kA]												
					2.5	7.5	10	15	22	25	30	35	50	125			
0.2	0.7	H8C-T H10C-T H11-T	0.6~1.0	3	F-30FB	F-60RB	F-50KB FXK125-H	L-50E									
0.4	1.4	"	0.9~1.5	3													
0.75	2.3	"	1.7~2.9	3													
1.5	4.2	"	2.8~4.4	5													
2.2	5.6	"	4~6	10													
3.7	9.0	H10C-T H11-T	7~11	20													
5.5	14	H20-T	12~18	30													
7.5	16	"	"	30													
11	24	H25-T	16~24	50	S-50SB	S-100SB	F-100RB FXK125-S	L-100E									
15	32	H35-T	21~34	60													
18.5	40	H50-T	32~48	60	S-60RB												
22	45	"	"	75													
30	60	H65C-T	45~65	100	S-225SB, SXK225	F-225FB, FXK250-S	F-225KC FXK250-H	L-225E									
37	75	H80C-T	55~80	100													
45	90	H100C-T	65~95	150													
55	(110)	H125C-T	90~120	175													
75	(150)	H150C-T	110~150	225													
90	(180)	H200C-T	170~290	225													
110	(220)	H250C-T	170~290	350					F-400R, FX400	L-400E							
150	(300)	H300C-T	280~440	500					F-600F, FX600	L-600E							
190	(380)	H400C-T	"	600													

Table 2 Direct Starting a 3-Phase Induction Motor (220-240VAC)

Motor		Magnetic Starter		Fuse-Free Breakers														
Capacity [kW]	Full-Load Current [A]	Type	TOR Rated Current [A]	Rated Current [A]	Interrupting Capacity (sym) [kA]													
					2.5	5	10	25	35	42	50	85	100	175				
0.2	1.4	H8C-T H10C-T H11-T	0.9~1.5	3	S-30S	F-30FB	S-60RB	F-60RB	F-50KB FXK125-H	L-50E								
0.4	2.6	"	1.7~2.9	5														
0.75	4.2	"	2.8~4.4	10														
1.5	7.4	"	5~8	15														
2.2	10	"	7~11	20														
3.7	16	H20-T	12~18	30														
5.5	24	H25-T	16~24	50	S-50E	S-50SB	S-100EB	S-100SB	F-100RB FXK125-S	L-100E								
7.5	32	H35-T	22~34	60														
11	45	H50-T	32~48	75	S-225SB, SXK225	F-225FB, FXK250-S												
15	60	H65C-T	45~65	100														
18.5	75	H80C-T	55~80	100														
22	90	H100C-T	65~95	150														
30	(120)	H125C-T	90~120	200														
37	(150)	H150C-T	110~150	225														
45	(180)	H200C-T	110~180	225														
55	(220)	H250C-T	170~290	350														
60	(240)	"	"	400														
75	(300)	H300C-T	200~400	500	S-600S, SX600	F-600F, FX600	L-600E											
90	(360)	H400C-T	"	600														

Table 3 人—△ Starting a 3-Phase Induction Motor (380-415VAC)

Motor		Fuse-Free Breakers									
Capacity [kW]	Full-Load Current [A]	Rated Current	Interrupting Capacity (sym) [kA]								
			10	15	22	25	30	35	50	85	125
For a capacity of 15 kw or less, select the same breaker among those for direct-starting											
18.5	40	75									
22	45	75	S-100SB	F-100RB FXK125-S			F-100KB FXK125-H			L-100E	
30	60	100		FXK125-S			F-225KC FXK250-H				
37	75	125	S-225SB, SXK225	F-225FB, FXK250-S			F-400R FX400			L-225E	
45	90	150		S-400S, SX400			F-600F, FX600				
55	(110)	175		S-600S, SX600			F-800R, FX800			L-600E	
75	(150)	225		S-800S, SX800			F-800RH			L-800E	
90	(180)	350									
110	(220)	400									
150	(300)	600									
190	(380)	700									

Table 4 人—△ Starting a 3-Phase Induction Motor (200-240VAC)

Motor		Fuse-Free Breakers									
Capacity [kW]	Full-Load Current [A]	Rated Current	Interrupting Capacity (sym) [kA]								
			25	35	42	50	85	100	125	175	
For a capacity of 15 kw or less, select the same breaker among those for direct-starting											
18.5	75	125									
22	90	150	S-225SB, SXK225	F-225FB FXK250-S			F-225KC FXK250-H			L-225E	
30	(120)	200		S-400S, SX400			F-400R, FX400				
37	(150)	225		S-600S, SX600			F-600F, FX600			L-600E	
45	(180)	350		S-800S, SX800			F-800R, FX800			F-800RH	
55	(220)	400									
60	(240)	500									
75	(300)	600									
90	(360)	700									

Table 5 Application to Capacitor Bank

Magnetic Contactor	Three- Phase (With Reactance 6%)				Three- Phase (Without Reactance)				Single-Phase (Without Reactance)			
	200~220V		380~440V		200~220V		380~440V		200~220V		380~440V	
	[kvar]	[A]	[kvar]	[A]	[kvar]	[A]	[kvar]	[A]	[kvar]	[A]	[kvar]	[A]
H10C, H11	4.2	12	6	9	3	9	4	6	1.8	9	2.4	6
H20	6.9	20	12	17	5	14	8	12	2.8	14	4.8	12
H25	9	26	16	23	7	20	12	17	4	20	6.8	17
H35	12	35	22	32	10	29	18	26	5.5	28	10.5	26
H50	17	49	32	46	13	38	26	38	7.5	38	15	38
H65C	22	64	42	61	18	52	35	51	10	50	20	50
H80C	27	78	51	74	22	64	45	65	12	60	26	65
H100C	32	92	64	92	29	84	55	79	16	80	31	78
H125C	36	104	72	104	34	98	70	101	19	95	40	100
H150C	48	139	96	139	44	127	88	127	25	125	50	125
H200C	62	179	120	173	53	153	105	152	30	150	60	150
H250C	65	188	130	188	65	188	130	188	37	185	75	188
H300C	84	242	180	260	80	231	160	231	46	230	92	230
H400C	109	315	200	289	100	289	200	289	57	285	115	288
H600C	159	459	300	433	150	433	300	433	86	430	173	433

SELECTION

Table 6 Automatic 人—△ Starters (Phase-Current Protection Type)

Voltage	Max. Motor Capacity [kW]	Twin Contactor System		Three Contactor System			Thermal Overload Relay				
		STAR	DELTA	MAIN	DELTA	STAR	RC [A]	Adjustable Range	Type		
230V	5.5	H20	H20-T	H20-T	H20	H20	15	12~18	TR20B-1E		
	7.5		H25-T	H25-T	H25		28	22~34	TR50B-1E		
	11		H35-T	H35-T	H35						
	15	H25	H50-T	H50-T	H50	H25	40	32~48	TR50B-1E		
	18.5		H35	H65C-T	H65C-T			55	45~65		
	22			H125C-T	H125C-T	H125C	H50	67	55~80	TR80B-1E	
	30	H50	H80C-T	H80C-T	H80C						
	37	H65C	H100C-T	H100C-T	H100C	H65C	80	65~95	TR150B-1E		
	45		H125C-T	H125C-T	H125C						
	55	H80C	H150C-T	H150C-T	H150C	H80C	105	90~120	TR250B-1E		
	75	H125C	H200C-T	H200C-T	H200C			1.4 (140)			
	90	H150C	H250C-T	H250C-T	H250C	H150C	2.4 (240)	(110~180)	(170~290)		
	110	H200C	H300C-T	H300C-T	H300C						
	132	H250C	H400C-T	H400C-T	H400C	H250C	2.4 (240)	(170~290)	TR400B-1E		
	150	H300C						(280~440)			
415V	5.5	H20	H20-T	H20-T	H20	H20	6.8	5~8	TR20B-1E		
	7.5		H25-T	H25-T	H25		9	7~11			
	11		H25	H35-T	H35			12~18			
	15			H35	H35	H25	20	16~24	TR50B-1E		
	18.5	H25			H35			28			
	22	H35	H50-T	H50-T	H50	H35	40	32~48	TR80B-1E		
	30		H50	H65C-T	H65C-T			55			
	37				H50	55	45~65	TR150B-1E			
	45	H65C	H80C-T	H80C-T			H80C				
	55										
	75	H80C	H100C-T	H100C-T	H100C	H80C	80	65~95	TR250B-1E		
	90	H100C	H125C-T	H125C-T	H125C						
	110	H125C	H150C-T	H150C-T	H150C	H125C	105	90~120	TR400B-1E		
	132	H200C	H200C-T	H200C-T	H200C			1.4 (140)			
	150				H200C	1.4 (140)	(110~180)				
	190	H300C	H300C-T	H300C-T			H300C			2.4 (240)	(170~290)
	200										TR400B-1E

Table 7 Automatic 人—△ Starters (Line-Current Protection Type)

Voltage	Max. Motor Capacity [kW]	Three Contactor System			Thermal Overload Relay	RC [A]	Adjustable Range		
		MAIN	STAR	DELTA					
230V	5.5	H20	H20	H20	TR25-1E Self-Standing Type				
	7.5	H25		H25	TR50B-1E				
	11	H35		H35					
	15	H50	H25	H50	TR80B-1E				
	18.5								
	22	H65C	H35	H65C					
	30				TR150B-1E Self-Standing Type				
	37	H100C	H65C	H100C	H125C	TR400B-1E Self-Standing Type	1.4 (140)		
	45	H125C							
	55	H150C	H80C	H150C			2.4 (240)		
	75	H200C	H125C	H200C					
	90	H250C	H150C	H250C					
	110	H300C	H200C	H300C					
	132	H400C	H250C	H400C			3.8 (380)		
	150						5.0 (500)		
415V	5.5	H20	H20	H20	TR20B-1E				
	7.5				TR25B-1E Self-Standing Type				
	11								
	15	H25	H25	H35	H50		28		
	18.5	H35					32~48		
	22	H50	H35	H50	H65C		40		
	30						45~65		
	37	H65C	H50	H65C		H80C	67		
	45						55~80		
	55	H80C	H80C	H80C	H100C	105	65~95		
	75	H100C	H125C	H125C					
	90	H125C	H150C	H150C	H125C	130	110~150		
	110	H150C	H175C	H175C					
	132	H200C	H200C	H200C	H200C	1.4 (140)	110~180		
	150	H250C							
	190	H300C	H300C	H300C	H400C	2.4 (240)	(170~290)		
	260	H400C					3.8 (380)		
							(280~440)		
							5.0 (500)		
							(400~600)		

MINIATURE CIRCUIT BREAKERS

▼ Types and Models

Miniature Circuit Breakers (MCB)	Residual Current Circuit Breakers (RCCB)
 BK63 series	 BTK63 series
 RK63 series	

Tripping characteristics

Type B

Instant tripping characteristics : 3~5In
Application : computers and electronic equipments

Type C

Instant tripping characteristics : 5~10In
Application : general load such as bulbs, motors

Type D

Instant tripping characteristics : 10~20In
Application : high current surge device
such as transformers, motors with heavy load

Approval

CE marking

CB Certificate

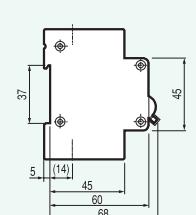
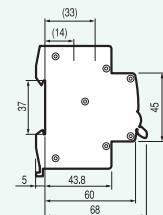
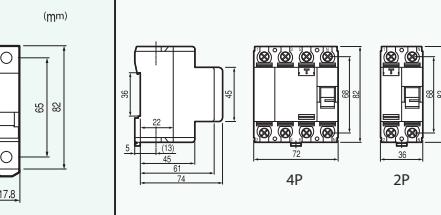
Colored handles

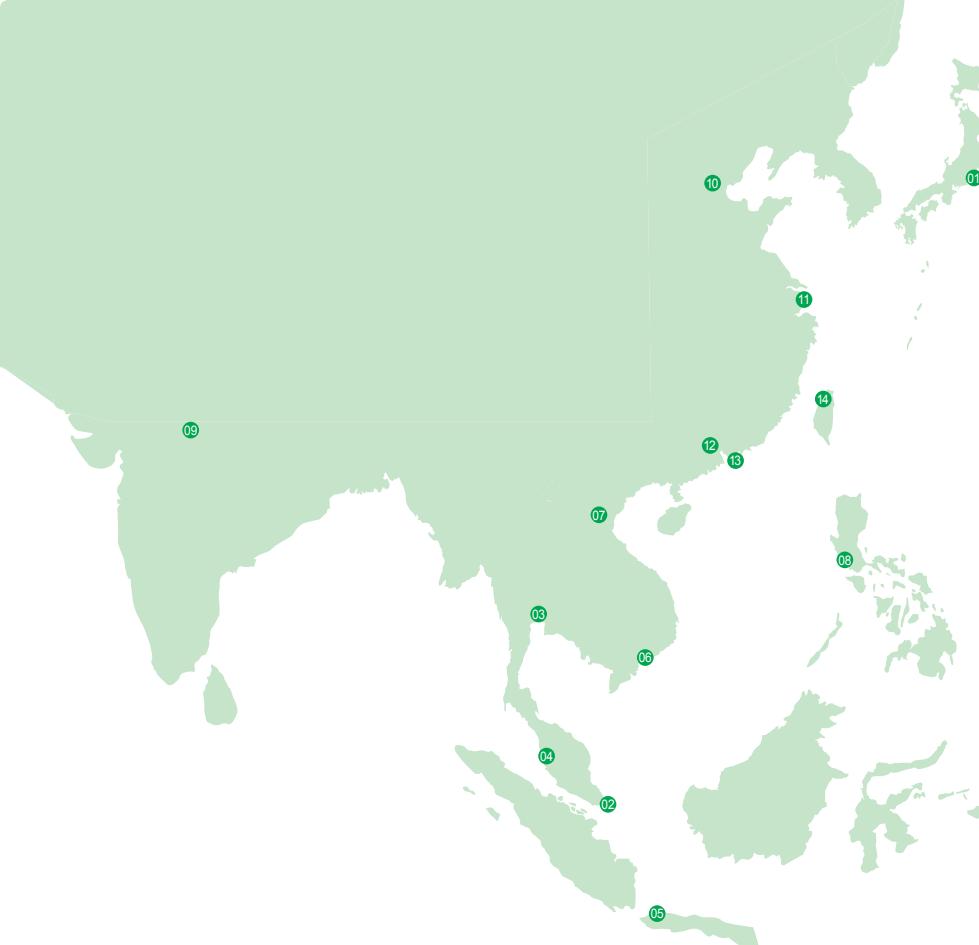
Easy to distinguish the rated current of the MCB
by means of colored handle.

1A	Black	20A	Blue
2A	Pink	25A	Yellow
3A	Pink	32A	Purple
4A	Brown	40A	Black
6A	Green	50A	White
10A	Red	63A	Copper-colored
16A	Grey		

(In case of RCCB, Black color only is available)

▼ Specifications

Type	BK63	BTK63	RK63
Protection	Overload and short circuit		Ground fault
Rated current	1, 2, 3, 4, 6, 10, 16, 20, 25, 32, 40, 50, 63A		25, 32, 40, 63A
Characteristics	B, C, D curve		-
Number of poles	1P, 1P+N, 2P, 3P, 3P+N, 4P		2P, 4P
Breaking capacity	1P 2, 3, 4P 6kA 6kA	1P 2, 3, 4P 10kA 10kA	2P 2P 6kA 6kA
Rated voltage	230/400VAC	400VAC	240/415VAC
Standards	IEC60898		
Approval	SEMKO CB scheme	KEMA CB scheme	SEMKO CB sheme
Type of trip	Thermal magnetic release		
Electrical endurance (time)	6,000 operations	8,000 operations	6,000 operations
Installation	35mm DIN rail		
Width	17.8mm per pole		
Type of terminal	Lug type (Cable up to 25mm ²)		
Operating IΔn	Not applicable	Not applicable	30, 100, 300mA
Non operating IΔn	Not applicable	Not applicable	0.5 IΔn
Residual current off time	Not applicable	Not applicable	less 0.1 sec
Rated making capacity(Im)	Not applicable	Not applicable	500A for In=25,32,40A 630A for In=63A
Alarm switch (optional)	 1 changeover contact 6A at 230VAC, 3A at 415VAC(AX) 6A at 230VAC, 3A at 415VAC(AL) 2A at 48VAC, 1A at 125VAC Lug terminal Cable capacity 2.5mm ² 9mm wide	Not applicable	Not applicable
Dimension (mm)	 (mm)	 (mm)	 (mm)



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