

2013

ACB/ MCCB/ ELCB/ ATS MCB/ SPD/ MS/ MMS



SHIHLIN ELECTRIC & ENGINEERING

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MCCB
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ACB

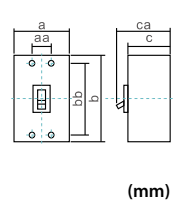
MCB

SPD

MS

MMS

MCCB (Molded Case Circuit Breaker)

Frame size (AF) (Inm)			30				50		60						
Type			BM30-CN		BM30-SN		BM50-CN		BM60-SN			BM60-HN			
Photograph															
Rated current In (A) at ambient temp. 40°C			3, 5, 10, 15, 20, 30.		3, 5, 10, 15, 20, 30.		10, 15, 20, 30, 40, 50.		10, 15, 20, 25, 30, 40, 50, 60.			10, 15, 20, 25, 30, 40, 50, 60.			
Number of poles (P)			2 3		2 3		2 3		2 3 4			2 3 4			
Rated insulation voltage Ui (V)			AC		690		690		690		690			690	
			DC		250		—		250			250			
Dimensions  (mm)	a		45	67.5	50	75	50	75	50	75	100	50	75	100	
	b		96		130		130		130			130			
	c		52		68		68		68			68			
	ca		67		90		90		90			90			
	bb		84		111		111		111			111			
	aa		23.5		25		25		25			25			
	Weight (kg)		0.3	0.4	0.45	0.65	0.45	0.65	0.45	0.65	0.85	0.45	0.65	0.85	
Rated breaking capacity (kA)	IEC 60947-2 EN 60947-2 Icu AC	500V	—		1.5		1.5		5			5			
		440V	—		2.5		2.5		7.5			10			
		380V	1.5		2.5		2.5		7.5			15			
		220V(240V)	2.5		5		5		10			25			
	DC	250V	—		—		—		—			—			
		125V	—		—		—		—			—			
Connection			Clamp terminal		Clamp terminal		Clamp terminal		Clamp terminal			Clamp terminal			
Optional accessories	Alarm switch	(AL)	—		○		○		○			○			
	Auxiliary switch	(AX)	—		○		○		○			○			
	Shunt trip	(SHT)	—		○		○		○			○			
	Under-voltage trip	(UVT)	—		○		○		○			○			
	External handle	(EH)	—		●		●		●			●			
	Terminal cover	(TC)	●		●		●		●			●			
Trip Unit			Hydraulic magnetic		Hydraulic magnetic		Hydraulic magnetic		Hydraulic magnetic			Hydraulic magnetic			
Tripping button			—		Equipped		Equipped		Equipped			Equipped			

Note 1. "●" which can be installed by client, "○" which have to be installed by manufacturer. "—" which is not available.
 Above accessories table is for 3P breaker.
 2. Ics= 50% Icu
 3. Adjustable thermal: 80%~100% In.

80% ~ 100% Adj. (A)

60		100									
BM60-HBN		BM100-MN		BM100-SN		BM100-HN			BM100-HBN		BM100-H
											
10, 15, 20, 30, 40, 50, 60.		10, 15, 20, 30, 40, 50, 60, 75, 100.		10, 15, 20, 30, 40, 50, 60, 75, 100.		10, 15, 20, 30, 40, 50, 60, 75, 100.			40, 50, 63, 80, 100.		15, 20, 30, 40, 50, 60, 75, 100.
3		2	3	2	3	2	3	4	3	4	3
690		690		690		690			690		690
250		250		250		250			250		250
90		50	75	50	75	60	90	120	105	140	105
155		130		130		155			165		165
68		68		68		68			68		86
90		90		90		90			92		112
134		111		111		134			126		126
30		25		25		30			35		35
1.3		0.45	0.65	0.45	0.65	0.9	1.3	1.6	1.5	1.9	2.1
15		5		5		15			20		25
25		7.5		10		25			32		42
30		10		15		30			36		50
50		15		25		50			85		85
—		—		—		—			—		—
—		—		—		—			—		—
Clamp terminal		Clamp terminal		Clamp terminal		Clamp terminal			Clamp terminal		Clamp terminal
○		○		○		○			●		○
○		○		○		○			●		○
○		○		○		○			●		○
○		○		○		○			●		—
●		●		●		●			●		●
●		●		●		●			●		●
Hydraulic magnetic		Hydraulic magnetic		Hydraulic magnetic		Hydraulic magnetic			Adj. thermal Fixed magnetic		Thermal magnetic
Equipped		Equipped		Equipped		Equipped			Equipped		Equipped

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MCCB
ELCB

ATS

ACB

MCB

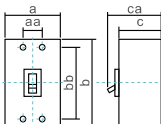
SPD

MS

MMS

MCCB (Molded Case Circuit Breaker)

80% ~ 100% Adj. (A)

Frame size (AF) (Inm)			100				125						160				
Type			BM100-HC		BM100-HS		BM125-SN			BM125-HN			BM160-SN				
Photograph																	
Rated current In (A) at ambient temp. 40℃			40, 50, 63, 80, 100.		40, 50, 63, 80, 100.		10, 15, 20, 30, 40, 50, 60, 75, 100, 125.			10, 15, 20, 30, 40, 50, 60, 75, 100, 125.			125, 140, 160.				
Number of poles (P)			3	4	3	4	2	3	4	2	3	4	3	4			
Rated insulation voltage Ui (V)			AC		690		690		690			690			690		
			DC		250		250		—			—			250		
Dimensions  (mm)			a	105	140	105	140	60	90	120	60	90	120	105	140		
			b	165		165		155			155			165			
			c	86		86		68			68			68			
			ca	112		112		90			90			92			
			bb	126		126		132			132			126			
			aa	35		35		30			30			35			
			Weight (kg)		2.1	2.6	2.1	2.6	0	30	30	0	30	30	1.5	1.9	
Rated breaking capacity (kA)			IEC 60947-2 EN 60947-2 Icu AC		500V	42		50		7.5			15			15	
					440V	55		70		15			25			25	
					380V	70		85		22			30			30	
					220V(240V)	100		125		30			50			50	
			DC		250V	—		—		—			—			—	
					125V	—		—		—			—			—	
Connection			Clamp terminal		Clamp terminal		Clamp terminal			Clamp terminal			Clamp terminal				
Optional accessories			Alarm switch (AL)	○		○		○			○			●			
			Auxiliary switch (AX)	○		○		○			○			●			
			Shunt trip (SHT)	○		○		○			○			●			
			Under-voltage trip (UVT)	—		—		— ○ ○			— ○ ○			●			
			External handle (EH)	●		●		●			●			●			
			Terminal cover (TC)	●		●		●			●			●			
Trip Unit			Thermal magnetic		Thermal magnetic		Hydraulic magnetic			Hydraulic magnetic			Adj. thermal Fixed magnetic				
Tripping button			Equipped		Equipped		Equipped			Equipped			Equipped				

Note 1. "●" which can be installed by client, "○" which have to be installed by manufacturer. "—" which is not available.
 Above accessories table is for 3P breaker.
 2. Ics= 50% Icu
 3. Adjustable thermal: 80%~100% In.

80% ~ 100% Adj. (A)

80% ~ 100% Adj. (A)

160								250					
BM160-HN		BM160-HB		BM160-HC		BM160-HS		BM250-CN			BM250-SN		
													
125, 140, 160.		125, 140, 160.		125, 140, 160.		125, 140, 160.		125, 150, 175, 200, 225, 250.			175, 200, 225, 250.		
3	4	3	4	3	4	3	4	2	3	4	3	4	
690		690		690		690		690			690		
250		250		250		250		250	—	—	250		
105	140	105	140	105	140	105	140	105	105	140	105	140	
165		165		165		165		165			165		
68		86		86		86		68			68		
92		112		112		112		92			92		
126		126		126		126		126			126		
35		35		35		35		35			35		
1.5	1.9	2.1	2.6	2.1	2.6	2.1	2.6	1.3	1.5	1.9	1.5	1.9	
20		25		42		50		7.5			15		
32		42		55		70		15			25		
36		50		70		85		22			30		
85		85		100		125		30			50		
—		—		—		—		10	—	—	—		
—		—		—		—		15	—	—	—		
Clamp terminal		Clamp terminal		Clamp terminal		Clamp terminal		Clamp terminal			Clamp terminal		
●		○		○		○		●			●		
●		○		○		○		●			●		
●		○		○		○		●			●		
●		—		—		—		●			●		
●		●		●		●		●			●		
●		●		●		●		●			●		
Adj. thermal Fixed magnetic		Thermal magnetic		Thermal magnetic		Thermal magnetic		Adj. thermal Fixed magnetic			Adj. thermal Fixed magnetic		
Equipped		Equipped		Equipped		Equipped		Equipped			Equipped		

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MCCB
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ACB

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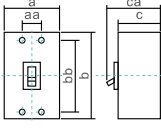
SPD

MS

MMS

MCCB (Molded Case Circuit Breaker)

80% ~ 100% Adj. (A)

Frame size (AF) (Inm)			250								400			
Type			BM250-HN		BM250-HB		BM250-HC		BM250-HS		BM400-CN			
Photograph														
Rated current In (A) at ambient temp. 40℃			175, 200, 225, 250.		125, 150, 175, 200, 225, 250.		175, 200, 225, 250.		175, 200, 225, 250.		250, 300, 350, 400.			
Number of poles (P)			3	4	3	4	3	4	3	4	2	3	4	
Rated insulation voltage Ui (V)			AC		690		690		690		690		690	
			DC		250		250		250		250		250	—
Dimensions  (mm)	a		105	140	105	140	105	140	105	140	140	140	185	
	b		165		165		165		165		257			
	c		68		86		86		86		103			
	ca		92		112		112		112		155			
	bb		126		126		126		126		194			
	aa		35		35		35		35		44			
	Weight (kg)			1.5	1.9	2.1	2.6	2.1	2.6	2.1	2.6	5.0	5.7	7.5
Rated breaking capacity (kA)	IEC 60947-2 EN 60947-2 Icu AC	500V	20		25		42		50		14			
		440V	32		42		55		70		22			
		380V	36		50		70		85		25			
		220V(240V)	85		85		100		125		35			
	DC	250V	—		—		—		—		10	—	—	
		125V	—		—		—		—		15	—	—	
Connection			Clamp terminal		Clamp terminal		Clamp terminal		Clamp terminal		Busbar			
Optional accessories	Alarm switch	(AL)	●		○		○		○		●			
	Auxiliary switch	(AX)	●		○		○		○		●			
	Shunt trip	(SHT)	●		○		○		○		●			
	Under-voltage trip	(UVT)	●		—		—		—		●			
	External handle	(EH)	●		●		●		●		●			
	Terminal cover	(TC)	●		●		●		●		●			
Trip Unit			Adj. thermal Fixed magnetic		Thermal magnetic		Thermal magnetic		Thermal magnetic		Thermal magnetic			
Tripping button			Equipped		Equipped		Equipped		Equipped		Equipped			

Note 1. "●" which can be installed by client, "○" which have to be installed by manufacturer. "—" which is not available.
 Above accessories table is for 3P breaker.
 2. Ics= 50% Icu
 3. Adjustable thermal: 80%~100% In.

400								630			
BM400-SN		BM400-HN		BM400-RN		BM400-UN		BM630-CN		BM630-SN	
											
250, 300, 350, 400.		250, 300, 350, 400.		250, 300, 350, 400.		250, 300, 350, 400.		500, 600, 630.		500, 630.	
3	4	3	4	3	4	3	4	3	3	4	
690		690		690		690		690		690	
250		250		250		250		250		250	
140	185	140	185	140	185	140	185	210	210	280	
257		257		257		257		275		275	
103		103		103		103		103		103	
155		155		155		155		155		155	
194		194		194		194		243		243	
44		44		44		44		70		70	
5.7	7.5	5.7	7.5	5.7	7.5	5.7	7.5	10	10	13	
20		25		42		65		14		20	
30		42		55		85		22		30	
35		50		70		85		25		35	
50		85		100		125		35		50	
—		—		—		—		10		20	—
—		—		—		—		—		—	
Busbar		Busbar		Busbar		Busbar		Busbar		Busbar	
●		●		●		●		●		●	
●		●		●		●		●		●	
●		●		●		●		●		●	
●		●		●		●		●		●	
●		●		●		●		●		●	
●		●		●		●		●		●	
Thermal magnetic		Thermal magnetic		Thermal magnetic		Thermal magnetic		Fixed thermal Adj. magnetic		Fixed thermal Adj. magnetic	
Equipped		Equipped		Equipped		Equipped		Equipped		Equipped	

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MCCB
ELCB

ATS

ACB

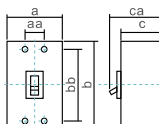
MCB

SPD

MS

MMS

MCCB (Molded Case Circuit Breaker)

Frame size (AF) (Inm)			630						800									
Type			BM630-HN		BM630-RN		BM630-UN		BM800-CN		BM800-SN							
Photograph																		
Rated current In (A) at ambient temp. 40 °C			500, 630.		500, 630.		500, 630.		700, 800.		700, 800.							
Number of poles (P)			3	4	3	4	3	4	3	4	3	4						
Rated insulation voltage Ui (V)			AC		690		690		690		690							
			DC		250		250		250		250							
Dimensions  (mm)			a	210	280	210	280	210	280	210	280	210	280					
			b	275		275		275		275		275						
			c	103		103		103		103		103						
			ca	155		155		155		155		155						
			bb	243		243		243		243		243						
			aa	70		70		70		70		70						
			Weight (kg)			10	13	10	13	10	13	10.5	13.5	10.5	13.5			
Rated breaking capacity (kA)			IEC 60947-2 EN 60947-2 Icu AC		500V	25		42		65		20		25				
					440V	50		70		85		30		50				
					380V	50		70		100		35		50				
					220V(240V)	85		100		125		50		85				
			DC		250V	40	—		—		—		20	—		40	—	
					125V	—		—		—		—		—		—		
Connection			Busbar		Busbar		Busbar		Busbar		Busbar							
Optional accessories			Alarm switch (AL)	●		●		●		●		●						
			Auxiliary switch (AX)	●		●		●		●		●						
			Shunt trip (SHT)	●		●		●		●		●						
			Under-voltage trip (UVT)	●		●		●		●		●						
			External handle (EH)	●		●		●		●		●						
			Terminal cover (TC)	●		●		●		●		●						
Trip Unit			Fixed thermal Adj. magnetic		Fixed thermal Adj. magnetic		Fixed thermal Adj. magnetic		Fixed thermal Adj. magnetic		Fixed thermal Adj. magnetic							
Tripping button			Equipped		Equipped		Equipped		Equipped		Equipped							

Note 1 "●" which can be installed by client, "○" which have to be installed by manufacturer. "—" which is not available.
 Above accessories table is for 3P breaker.
 2. Ics= 50% Icu

800		1000		1200		1600			
BM800-HN		BM800-RN		BM1000-HS		BM1200-HS		BM1600-HS	
									
700, 800.		700, 800.		1000		1200		1400, 1600.	
3	4	3	4	3	3	3	3		
690		690		690	690	690	690		
250		250		—	—	—	—		
210	280	210	280	210	210	210	210		
275		275		406	406	406	406		
103		103		140	140	140	140		
155		155		190	190	190	190		
243		243		375	375	375	375		
70		70		70	70	70	70		
10.5	13.5	10.5	13.5	23	23	23	23		
42		65		65	65	65	65		
70		85		85	85	85	85		
70		100		100	100	100	100		
100		125		130	130	130	130		
—		—		—	—	—	—		
—		—		—	—	—	—		
Busbar		Busbar		Busbar	Busbar	Busbar	Busbar		
●		●		○	○	○	○		
●		●		○	○	○	○		
●		●		○	○	○	○		
●		●		○	○	○	○		
●		●		—	—	—	—		
●		●		—	—	—	—		
Fixed thermal Adj. magnetic		Fixed thermal Adj. magnetic		Fixed thermal Adj. magnetic	Fixed thermal Adj. magnetic	Fixed thermal Adj. magnetic	Fixed thermal Adj. magnetic		
Equipped		Equipped		Equipped	Equipped	Equipped	Equipped		

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MCCB
ELCB

ATS

ACB

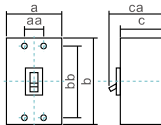
MCB

SPD

MS

MMS

EMCCB (Electronic Molded Case Circuit Breaker)

Frame size (AF) (Inm)			100			160			250		
Type			BM100-HE	BM100-RE	BM100-UE	BM160-HE	BM160-RE	BM160-UE	BM250-HE	BM250-RE	BM250-UE
Rated current In (A) at ambient temp. 40°C			100			160			250		
Electronically adjustable current Ir (A)			40, 45, 50, 60, 70, 80, 90, 95, 100.			64, 72, 80, 96, 112, 128, 144, 152, 160.			100, 113, 125, 150, 175, 200, 225, 238, 250.		
Rated operational voltage Ue (V)			400			400			400		
Rated insulation voltage Ui (V)			690			690			690		
Rated impulse withstand voltage Uimp (V)			8000			8000			8000		
Number of poles (P)			3P / 4P			3P / 4P			3P / 4P		
Model			HE	RE	UE	HE	RE	UE	HE	RE	UE
Rated breaking capacity Icu (kA)			50	70	85	50	70	85	50	70	85
Dimensions (mm)		a	105 / 140			105 / 140			105 / 140		
		b	165			165			165		
		c	86			86			86		
		ca	112			112			112		
		bb	126			126			126		
		aa	35			35			35		
Weight (kg)			2.5 / 3.0			2.5 / 3.0			2.5 / 3.0		
Endurance	Electrical life (10 thousand)		1,000			1,000			1,000		
	Mechanical life (10 thousand)		8,500			7,000			7,000		
Connection			Clamp terminal			Clamp terminal			Clamp terminal		
Trip unit			Electronic			Electronic			Electronic		
Trip button			Equipped			Equipped			Equipped		
Optional accessories	Alarm switch	(AL)	○			○			○		
	Auxiliary switch	(AX)	○			○			○		
	Shunt trip	(SHT)	○			○			○		
	Under-voltage trip	(UVT)	—			—			—		
	Lead wiring terminal	(LT)	○			○			○		
	Motor operation device		○			○			○		
	Communication	(COM)	○			○			○		
	Communication	(HUB)	○			○			○		

Note 1. Ics= 50% Icu

400			630			800			1000		1250	
BM400-HE	BM400-RE	BM400-UE	BM630-HE	BM630-RE	BM630-UE	BM800-SE	BM800-HE	BM800-RE	BM1000-SE	BM1000-HE	BM1250-SE	BM1250-HE
400			630			800			1000		1250	
160, 180, 200, 240, 280, 320, 360, 380, 400.			252, 284, 315, 378, 441, 504, 567, 600, 630.			320, 360, 400, 480, 560, 640, 720, 760, 800.			400, 450, 500, 600, 700, 800, 900, 950, 1000.		500, 563, 625, 750, 875, 1000, 1125, 1188, 1250.	
400			400			400			400		400	
690			690			690			690		690	
8000			8000			8000			8000		8000	
3P / 4P			3P / 4P			3P / 4P			3P		3P	
HE	RE	UE	HE	RE	UE	SE	HE	RE	SE	HE	SE	HE
50	70	85	50	70	85	50	70	85	70	85	70	85
140 / 185			210 / 280			210 / 280			210		210	
257			275			275			406		406	
103			103			103			140		140	
144			155			155			190		190	
194			243			243			375		375	
44			70			70			70		70	
7 / 8			11.5 / 14.5			11.5 / 14.5			26		26	
1, 000			1, 000			500			500		500	
4, 000			4, 000			2, 500			2, 500		2, 500	
Busbar			Busbar			Busbar			Busbar		Busbar	
Electronic			Electronic			Electronic			Electronic		Electronic	
Equipped			Equipped			Equipped			Equipped		Equipped	
○			○			○			—		—	
○			○			○			—		—	
○			○			○			—		—	
○			○			○			—		—	
—			—			—			—		—	
○			○			○			—		—	
○			○			○			—		—	
○			○			○			—		—	

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MCCB
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ACB

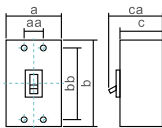
MCB

SPD

MS

MMS

ELCB (Earth Leakage Circuit Breaker)

Frame size (AF) (Inm)			50		100			
Type			BL50-SN		BL100-SN		BL100-HN	
Photograph								
Rated current In (A) at ambient temp. 40°C			15, 20, 30, 40, 50.		15, 20, 30, 40, 50, 60, 75, 100.		15, 20, 30, 40, 50, 60, 75, 100.	
Phase & wire (P)			1ø2W, 3ø3W.	3ø4W	1ø2W, 3ø3W.	3ø4W	1ø2W, 3ø3W.	3ø4W
Number of poles (P)			3	4	3	4	3	4
Rated voltage (VAC)			230, 400.		230, 400.		230, 400.	
High speed	Rated current sensitivity IΔn (mA)		30, 100, 300, 500 (Note 2)		30, 100, 300, 500 (Note 2)		30, 100, 300, 500 (Note 2)	
	5IΔn operating time (S)		0.04		0.04		0.04	
Delay	Rated current sensitivity IΔn (mA)		100- 300- 500 adjustable		100- 300- 500 adjustable		100- 300- 500 adjustable	
	2IΔn operating time (S)		0.1- 0.4- 0.8- 2.0 adjustable		0.1- 0.4- 0.8- 2.0 adjustable		0.1- 0.4- 0.8- 2.0 adjustable	
	2IΔn max. non-operating time (S)		0, 0.2, 0.4, 1.0		0, 0.2, 0.4, 1.0		0, 0.2, 0.4, 1.0	
	Leakage detection mode		Mechanical push-button		Mechanical push-button		Mechanical push-button	
Dimensions	 (mm)	a	75	100	90	120	90	120
		b	130		155		155	
		c	68		68		68	
		ca	90		90		90	
		bb	111		132		132	
		aa	25		30		30	
Weight (kg)			0.7	0.9	1.5	1.8	1.5	1.8
Rated breaking capacity (kA)	IEC 60947-2 EN 60947-2 CNS 14816-2 AC Icu	440V	7.5		10		25	
		380V	7.5		15		30	
		220V	10		25		50	
		Connection			Clamp terminal		Clamp terminal	
Optional accessories	Alarm switch	(AL)	○		○		○	
	Auxiliary switch	(AX)	○		○		○	
	Shunt trip	(SHT)	○		○		○	
	Under-voltage trip	(UVT)	—		○		○	
	External handle	(EH)	●		●		●	
	Terminal cover	(TC)	●		●		●	
	Leakage alarm module	(AM)	—		○		○	
Trip Unit			Hydraulic magnetic		Hydraulic magnetic		Hydraulic magnetic	
Tripping button			Equipped		Equipped		Equipped	

- Note 1. "●" which can be installed by client, "○" which have to be installed by manufacturer. "—" which is not available.
 2. Specify rated current sensitivity when place the order.
 3. Ics= 50% Icu
 4. Adjustable thermal: 80%~100% In.

80% ~ 100% Adj. (A)

160		250		400					
BL160-SN		BL250-SN		BL400-SN		BL400-HN		BL400-RN	
									
125, 140, 160.		175, 200, 225, 250.		250, 300, 350, 400.		250, 300, 350, 400.		250, 300, 350, 400.	
1ø2W, 3ø3W.	3ø4W	1ø2W, 3ø3W.	3ø4W	1ø2W, 3ø3W.	3ø4W	1ø2W, 3ø3W.	3ø4W	1ø2W, 3ø3W.	3ø4W
3	4	3	4	3	4	3	4	3	4
230, 400.		230, 400.		230, 400.		230, 400.		230, 400.	
30, 100-300-500 Adj.		30- 100- 500 adjustable		30- 100- 500 adjustable		30- 100- 500 adjustable		30- 100- 500 adjustable	
0.04		0.04		0.04		0.04		0.04	
100- 300- 500 adjustable		100- 300- 500 adjustable		100- 300- 500 adjustable		100- 300- 500 adjustable		100- 300- 500 adjustable	
0.1- 0.4- 0.8- 2.0 adjustable		0.1- 0.4- 0.8- 2.0 adjustable		0.1- 0.4- 0.8- 2.0 adjustable		0.1- 0.4- 0.8- 2.0 adjustable		0.45- 1.0- 2.0 adjustable	
0, 0.2, 0.4, 1.0		0, 0.2, 0.4, 1.0		0, 0.2, 0.4, 1.0		0, 0.2, 0.4, 1.0		0.1, 0.5, 1.0	
Mechanical push-button		Mechanical push-button		Mechanical push-button		Mechanical push-button		Mechanical push-button	
105	140	105	140	140	185	140	185	140	185
165		165		257		257		257	
68		68		103		103		103	
92		92		155		155		155	
126		126		194		194		194	
35		35		44		44		44	
1.7	2.3	1.7	2.3	6.6	8.4	6.6	8.4	5.7	7.5
25		25		30		42		55	
30		30		35		50		70	
50		50		50		85		100	
Clamp terminal		Clamp terminal		Busbar		Busbar		Busbar	
●		●		●		●		●	
●		●		●		●		●	
●		●		●		●		●	
●		●		●		●		●	
●		●		●		●		●	
●		●		●		●		●	
○		○		○		○		○	
Adj. thermal Fixed magnetic		Adj. thermal Fixed magnetic		Thermal magnetic		Thermal magnetic		Thermal magnetic	
Equipped		Equipped		Equipped		Equipped		Equipped	

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ACB

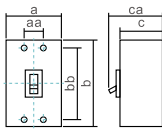
MCB

SPD

MS

MMS

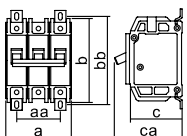
ELCB (Earth Leakage Circuit Breaker)

Frame size (AF) (Inm)			400		630			
Type			BL400-UN		BL630-HN		BL630-RN	
Photograph								
Rated current In (A) at ambient temp. 40°C			250, 300, 350, 400.		500, 630.		500, 630.	
Phase & wire (P)			1ø2W, 3ø3W.	3ø4W	1ø2W, 3ø3W.	3ø4W	1ø2W, 3ø3W.	3ø4W
Number of poles (P)			3	4	3	4	3	4
Rated voltage (VAC)			230, 400.		230, 400.		230, 400.	
High speed	Rated current sensitivity IΔn (mA)		30- 100- 500 adjustable		100- 300- 500 adjustable		100- 300- 500 adjustable	
	5IΔn operating time (S)		0.04		0.04		0.04	
Delay	Rated current sensitivity IΔn (mA)		100- 300- 500 adjustable		100- 300- 500 adjustable		100- 300- 500 adjustable	
	2IΔn operating time (S)		0.45- 1.0- 2.0 adjustable		0.45- 1.0- 2.0 adjustable		0.45- 1.0- 2.0 adjustable	
	2IΔn max. non-operating time (S)		0.1, 0.5, 1.0		0.1, 0.5, 1.0		0.1, 0.5, 1.0	
	Leakage detection mode		Mechanical push-button		Mechanical push-button		Mechanical push-button	
Dimensions	 (mm)	a	140	185	210	280	210	280
		b	257		257		257	
		c	103		103		103	
		ca	155		155		155	
		bb	194		243		243	
		aa	44		70		70	
Weight (kg)			5.7	7.5	10.0	13.0	10.0	13.0
Rated breaking capacity (kA)	IEC 60947-2 EN 60947-2 CNS 14816-2 AC Icu	440V	85		50		70	
		380V	85		50		70	
		220V	125		85		100	
Connection			Busbar		Busbar		Busbar	
Optional accessories	Alarm switch	(AL)	●		●		●	
	Auxiliary switch	(AX)	●		●		●	
	Shunt trip	(SHT)	●		●		●	
	Under-voltage trip	(UVT)	●		●		●	
	External handle	(EH)	●		●		●	
	Terminal cover	(TC)	●		●		●	
	Leakage alarm module	(AM)	○		○		○	
Trip Unit			Thermal magnetic		Fixed thermal Adj. magnetic		Fixed thermal Adj. magnetic	
Tripping button			Equipped		Equipped		Equipped	

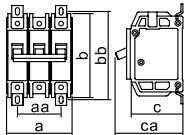
Note 1. "●" which can be installed by client, "○" which have to be installed by manufacturer. "—" which is not available.
2. Ics= 50% Icu

630		800					
BL630-UN		BL800-SN		BL800-HN		BL800-RN	
							
500, 630.		700, 800.		700, 800.		700, 800.	
1ø2W, 3ø3W.	3ø4W	1ø2W, 3ø3W.	3ø4W	1ø2W, 3ø3W.	3ø4W	1ø2W, 3ø3W.	3ø4W
3	4	3	4	3	4	3	4
230, 400.		230, 400.		230, 400.		230, 400.	
100- 300- 500 adjustable		100- 300- 500 adjustable		100- 300- 500 adjustable		100- 300- 500 adjustable	
0.04		0.04		0.04		0.04	
100- 300- 500 adjustable		100- 300- 500 adjustable		100- 300- 500 adjustable		100- 300- 500 adjustable	
0.45- 1.0- 2.0 adjustable		0.45- 1.0- 2.0 adjustable		0.45- 1.0- 2.0 adjustable		0.45- 1.0- 2.0 adjustable	
0.1, 0.5, 1.0		0.1, 0.5, 1.0		0.1, 0.5, 1.0		0.1, 0.5, 1.0	
Mechanical push-button		Mechanical push-button		Mechanical push-button		Mechanical push-button	
210	280	210	280	210	280	210	280
257		257		257		257	
103		103		103		103	
155		155		155		155	
243		243		243		243	
70		70		70		70	
10.0	13.0	10.5	13.5	10.5	13.5	10.5	13.5
85		50		70		85	
100		50		70		100	
125		85		100		125	
Busbar		Busbar		Busbar		Busbar	
●		●		●		●	
●		●		●		●	
●		●		●		●	
●		●		●		●	
●		●		●		●	
●		●		●		●	
○		○		○		○	
Fixed thermal Adj. magnetic		Fixed thermal Adj. magnetic		Fixed thermal Adj. magnetic		Fixed thermal Adj. magnetic	
Equipped		Equipped		Equipped		Equipped	

Miniature Circuit Breaker | Bolt on type

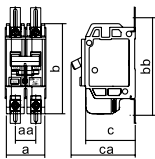
Frame (AF)			100			50	100			50	100			50	100		
Type			BP			BPH			BKH			BKS					
Photograph																	
Rated Voltage (A.C) #1			110	220*	220	110	220*	220	110/220*	380	110/220*	220					
Rated Current In (A) At Ambient Temp. 40°C			10*, 15, 20, 30, 40, 50, 60, 75, 100.			15, 20, 30, 40, 50.		15, 20, 30, 40, 50, 60, 75, 100.		15, 20, 30, 40, 50.		15, 20, 30, 40, 50, 60, 75, 100.		15, 20, 30, 40, 50.		15, 20, 30, 40, 50, 60, 75, 100.	
Number of poles (P)			1	2	3	1	2	3	1	2	3	1	2	3			
Dimensions	 (mm)	a	25	50	75	25	50	75	25	50	75	25	50	75			
		b	95			95			95			95					
		c	58.5			58.5			58.5			58.5					
		ca	77.5			77.5			77.5			77.5					
		bb	100			100			100			100					
		aa	0	25	50	0	25	50	0	25	50	0	25	50			
		Weight (kg)			0.15	0.31	0.46	0.2	0.4	0.6	0.22	0.44	0.66	0.22	0.44	0.66	
Rated Breaking Capacity (kA) CNS 14816-2 Icu AC #2 #3	110V / 120V*	5	—		10	—		15	—		25/22**	—					
	220V / 240V*	—	5***	5	—	10	10	10	15	—	25/22**	—					
	380V / 400V*	—	—	—	—	—	—	—	10	—	—	—					
Trip Unit			Thermal Magnetic			Thermal Magnetic			Thermal Magnetic			Thermal Magnetic					

Miniature Circuit Breaker | Plug in type

Frame (AF)		50	100		50		100		50	100		
Type		BL			BLH			BLS		BKL		
Photograph												
Rated Voltage (A.C) #1		110/220*	220		110/220*	220		220		110/220*	380	
Rated Current In (A) At Ambient Temp. 40°C		15, 20, 30 40, 50.	15, 20, 30, 40, 50 60, 75, 100.		15, 20, 30 40, 50.	15, 20, 30, 40, 50.		60, 75100.		15, 20, 30 40, 50.	15, 20, 30, 40, 50 60, 75, 100.	
Number of poles (P)		1	2	3	1	2	3	2	3	1	2	3
Dimensions  (mm)	a	25	50	75	25	50	75	50	75	25	50	75
	b	74			74			74		79		
	c	60.5			60.5			60.5		61		
	ca	74			74			74		77.5		
	bb	—			—			—		—		
	aa	0	25	50	0	25	50	25	50	0	25	50
	Weight (kg)		0.13	0.26	0.39	0.13	0.26	0.39	0.33	0.53	0.18	0.36
Rated Breaking Capacity (kA) CNS 14816-2 Icu AC	110V / 120V*	5	—		10	—		—		15	—	
	220V / 240V*	—	5		—	10		10		10	15	
	380V / 400V*	—	—		—	—		—		—	10	
Trip Unit		Thermal Magnetic			Thermal Magnetic			Thermal Magnetic		Thermal Magnetic		

- Note
1. "*/" 1 phase 3 wiring; L-L: 220V, L-N: 110V.
 2. "*/" Rated Breaking Capacity: asym/sym.
 3. "****" BP 1P 220V 5kA Rated Current: 15, 20, 30, 40, 50A.

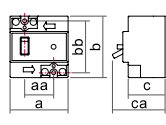
ELCB (Earth Leakage Circuit Breaker) | Earth Leakage, Overload, and Short Circuit Protection

Frame (AF)	50		50		50		50		50		50		100		50		
Type	BL-50L		BL-50UL		BLP-50L		BLP-50UL		BL-50F		BL-50U		BL-100U		BL-50H		
Photograph																	
Rated Current In (A) At Ambient Temp. 40°C	15, 20, 30, 40, 50.																
Phase & Wire	1φ2W																
Number of poles (P)	2P1E	2P2E	2P1E	2P2E	2P1E	2P2E	2P1E	2P2E	2P1E	2P2E	2P1E	2P2E	2P1E	2P2E	2P1E	2P2E	
Rated Voltage (A.C) #1.	110	220	220***	220	110	220	220***	220	110	110~220	110	110~220	220***	220/380			
Rated Current Sensitivity (mA) #2.	30, (100, 200, 300, 500)*								30						30, (100, 200, 300, 500)*		
Max. Operating Time (s)					≤0.15												
Rated Breaking Capacity (kA) CNS 5422 Icu AC	110V	5	—	10	—	5	—	10	—	5	—	10	—	15	—		
	220V	—	5	5	10	—	5	5	10	—	5	—	10	10	15		
Dimensions 	a	25	50	25	50	25	50	25	50	50	75	50	75	50	75		
	b	110				92				95							
	c	60				60.5				58.5							
	ca	78.4				78.4				77.5							
	bb	120				—				100							
	aa	0	25	0	25	0	25	0	25	25	50	25	50	25	50		
Weight (kg)	0.22	0.39	0.22	0.39	0.2	0.34	0.2	0.34	0.31	0.46	0.37	0.54	0.4	0.58			
Trip Unit	Thermal Magnetic																
Earth Leakage Tripping Device	Mechanical																

ELCB (Earth Leakage Circuit Breaker)

Earth Leakage,
Overload Protection

Earth Leakage Protection

Frame (AF)		30		40		30		30	
Type		BL-KLF		BL-KF		BL-K30F		BL-BF	
Photograph									
Rated Current In(A) At Ambient Temp. 40℃		15, 20, 30		15, 20, 30, 40		15, 20, 30		15, 20, 30, 40	
Phase & Wire		1φ2W		1φ2W		1φ3W 3φ3W		1φ2W	
Poles (P)		2P1E	2P2E	2		3		2	
Rated Voltage (A.C.)		110~220		110~220		110~220	380~440	110~220	
Rated Current Sensitivity (mA) #2.		30		30, (100, 200, 300, 500)*		30		30, (100, 200, 300, 500)*	
Max. Operating Time (s)		≦0.1S		≦0.1S		≦0.1S		≦0.1S	
Rated Breaking Capacity (kA) CNS 5422 Icu AC		110V~220V		1.5		1.5		—	1.5, 2.5
		380V~480V		—		—		1.5	—
Dimensions	 (mm)		a	66		90		32	
			b	70		70		70	
			c	42		42		36	
			ca	60		60		48	
			bb	59		59		62	
			aa	33		57		—	
Weight (kg)		0.2				0.25		0.1	
Trip Unit		Thermal Magnetic				—			
Earth Leakage Tripping Device				Mechanical					

Note 1. "****" 3 phase 4 wiring, L-N: 220V
2. "*/" Special order.

Optional Accessories Installation Table

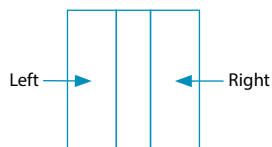
■ AL: Alarm Switch / AX: Auxiliary Switch / SHT: Shunt Trip / UVT: Under Voltage Trip

Model	Poles	AL	AX	SHT or UVT	AL+AX	AL+ SHT or UVT	AX+ SHT or UVT	AL+AX+ SHT or UVT
BM30-SN BM60-SN/ HN BM100-SN / MN	3P							—
BL50-SN	3P 4P				—	—	—	—
BM60-HBN BM100-HN BM125-SN	3P 4P							—
BL100-SN BL100-HN	3P 4P				—			—
BM100-H/ HC/ HS BM160-HB/ HC/ HS BM250-HB/ HC/ HS	3P 4P							—
BM100-HBN BM160-SN/ HN BM250-SN/ HN	3P 4P							
BL160-SN BL250-SN	3P 4P				—	—	—	—
BM400-SN/ HN/ RN/ UN	3P 4P							
BL400-SN/ HN/ RN/ UN	3P 4P							—
BM630-SN/ HN/ RN/ UN BM800-CN/ SN/ HN/ RN	3P 4P							
BL630-HN/ RN/ UN BL800-SN/ HN/ RN	3P 4P							
BM1000-HS BM1200-HS BM1600-HS	3P				—			—

Note:

- Standard: AL and AX are installed on left side, SHT and UVT are installed on right side.
- SHT is equipped with coil anti-burn switch.
- BL series can not do right side installation.
- UVT of BM30-SN~BM100-HN can not install on its left side.
- #1 means have no UVT.
- #2 means only can apply to 4P breakers.

● : AL
○ : AX
■ : SHT or UVT



Optional Accessories | Application Table

External Handle

TYPE	Poles	Model
EH-100N	3P、4P	BM30-SN, BM60-SN/HN, BM100-SN/MN, BL50-SN
EH-125N	3P、4P	BM60-HBN, BM100-HN, BM125-SN, BL100-SN/HN
EH-250N	3P、4P	BM100-HBN, BM160-SN/HN, BM250-SN/HN, BL160-SN, BL250-SN
EH-400N	3P、4P	BM400-SN/HN/RN/UN, BL400-SN/HN/RN/UN
EH-800N	3P、4P	BM630-SN/HN/RN/UN, BM800-CN/SN/HN/RN, BL630-HN/RN/UN, BL800-SN/HN/RN
EH-250H	3P、4P	BM100-H/HC/HS, BM160-HB/HC/HS, BM250-HB/HC/HS

Manual Operation Device

TYPE	Poles	Model
MA-100N	3P、4P	BM30-SN, BM60-SN/HN, BM100-SN/MN, BL50-SN
MA-125N	3P、4P	BM60-HBN, BM100-HN, BM125-SN, BL100-SN/HN
MA-250N	3P、4P	BM100-HBN, BM160-SN/HN, BM250-SN/HN, BL160-SN, BL250-SN
MA-400N	3P、4P	BM400-SN/HN/RN/UN, BL400-SN/HN/RN/UN
MA-800N	3P、4P	BM630-SN/HN/RN/UN, BM800-CN/SN/HN/RN, BL630-HN/RN/UN, BL800-SN/HN/RN

Motor Operation Device

TYPE	Poles	Model
MT-100N	3P、4P	BM30-SN, BM60-SN/HN, BM100-SN/MN, BL50-SN
MT-125N	3P、4P	BM60-HBN, BM100-HN, BM125-SN, BL100-SN/HN
MT-250N	3P、4P	BM100-HBN, BM160-SN/HN, BM250-SN/HN, BL160-SN, BL250-SN
MT-400N	3P、4P	BM400-SN/HN/RN/UN, BL400-SN/HN/RN/UN
MT-800N	3P、4P	BM630-SN/HN/RN/UN, BM800-CN/SN/HN/RN, BL630-HN/RN/UN, BL800-SN/HN/RN
MT-250E	3P、4P	BM100-H/HC/HS, BM160-HB/HC/HS, BM250-HB/HC/HS

Note : Applicable voltage : ① DC 24V ② AC 110V/ DC 110V ③ AC 230V/ DC 220V

Rear Connection

TYPE	Poles	Model
PGI-100N50	3P	BM30-SN, BM60-SN/HN, BL50-SN (50A and below)
PGI-100N	3P	BM60-SN/HN, BM100-SN/MN (60A and below)
PGI-125N50	3P	BM60-HBN, BM100-HN, BM125-SN, BL100-SN/HN (50A and below)
	4P	BM100-HN, BM125-SN, BL100-SN/HN (50A and below)
PGI-125N	3P	BM60-HBN, BM100-HN, BM125-SN, BL100-SN/HN (60A and above)
	4P	BM100-HN, BM125-SN, BL100-SN/HN (60A and above)
PGI-250N	3P、4P	BM100-HBN, BM160-SN/HN, BM250-SN/HN, BL160-SN, BL250-SN
PGI-400N	3P、4P	BM400-SN/HN/RN/UN, BL400-SN/HN/RN/UN
PGI-800N	3P、4P	BM630-SN/HN/RN/UN, BM800-CN/SN/HN/RN, BL630-HN/RN/UN, BL800-SN/HN/RN
PGI-BM250	3P	BM100-H/HC/HS, BM160-HB/HC/HS, BM250-HB/HC/HS

Optional Accessories | Dimensions

External Handle

Type	Poles	fig.1			fig.2			fig.3		
		A	B	C	D	E	F	G	H	J
EH-100N	3P, 4P	104	105	39	90	78	10	25	111	M4 screw or $\phi 5$
EH-125N	3P, 4P	104	105	39	90	78	10	30	132	
EH-250N	3P, 4P	104	105	39	90	78	10	35	126	
EH-400N	3P, 4P	150	183	53	108	112	10	44	194	
EH-800N	3P, 4P	150	183	53	108	112	10	70	243	
EH-250H	3P, 4P	104	125	39	90	78	10	35	126.5	

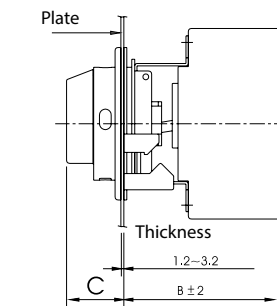
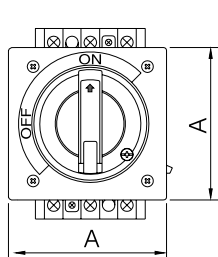
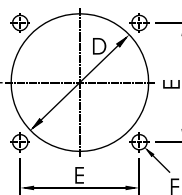


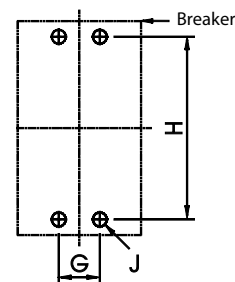
Fig. 1

Center of
breaker and
operation
handle



Panel Dimension

Fig. 2



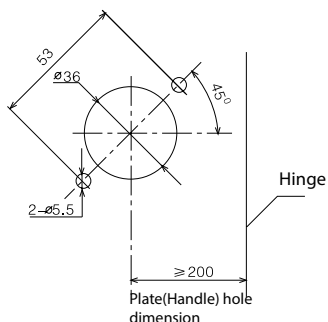
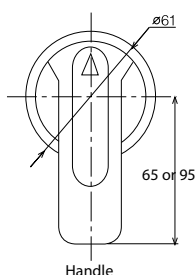
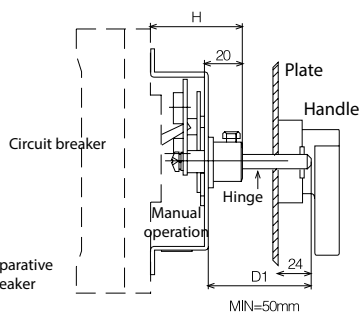
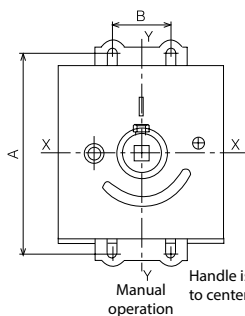
Breaker Dimension

Fig. 3

Note: 1. Standard: White, optional: Black.
2. Optional for dust and water protection.
3. L: long type, EH100NL & EH125NL can not install to 2P.

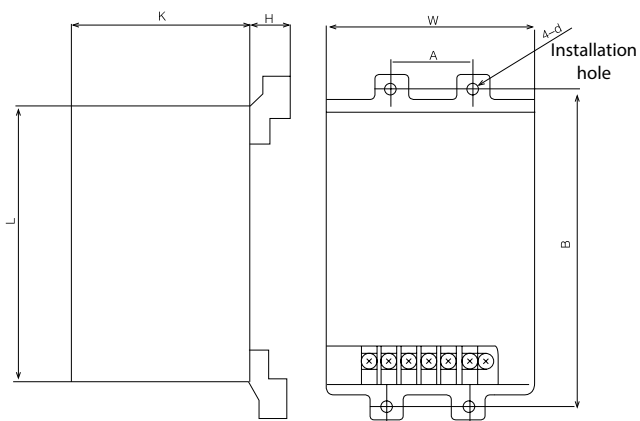
Manual Operation Device

Type	Dimensions (mm)			
	A	B	H	Y
MA-100N	111	25	53.5	+8
MA-125N	132	30	54	+8
MA-250N	146	35	56	0
MA-400N	221	45	85	+10
MA-800N	242	70	85	+10



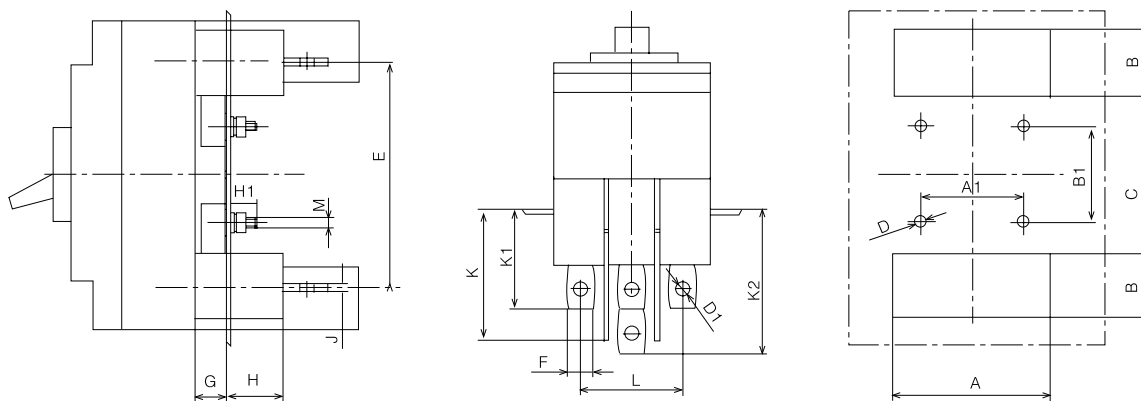
Motor Operation Device

Type	Dimensions (mm)						
	A	B	d	H	K	L	W
MT-100N	25	111	$\phi 4.5$	16.5	79	102	74
MT-125N	30	132	$\phi 4.5$	15	77	116	90
MT-250N	30	126	$\phi 4.5$	15	77	116	90
MT-400N	44	194	$\phi 4.5$	36	115	176	130
MT-800N	70	234	$\phi 4.5$	36	115	176	130
MT-250E	30	126	$\phi 4.5$	15	77	116	90



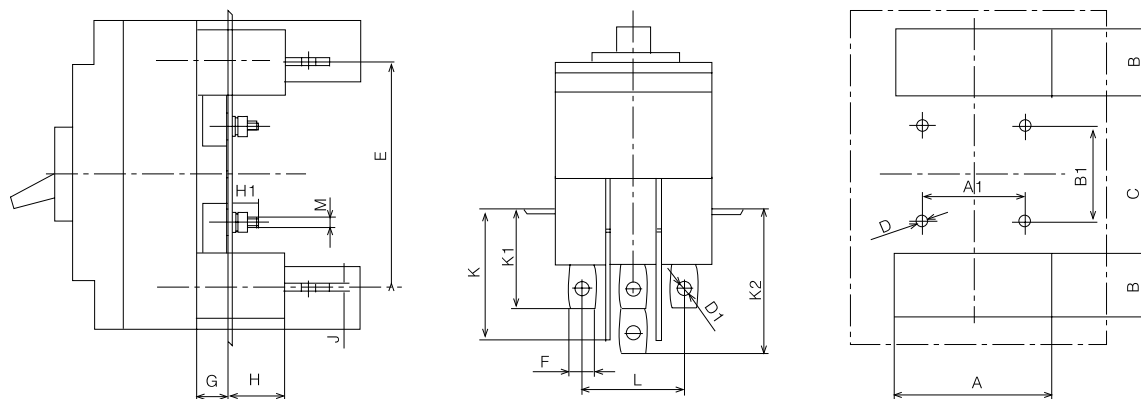
Rear Connection

Type	Poles	Dimensions (mm)																	Connect Direction		
		A	A1	B	B1	C	D	D1	E	F	G	H	H1	J	K	K1	K2	L	M	Horizontal	Vertical
PGI-100N	3	74	50	24	58	90	ø5	/	116	M10	9.5	28	12	M10	/	62	122	50	M4	⊙	⊙
	4	99	75															75			
PGI-125N	3	92	60	30	70	104	ø6	/	134	M10	13	26	16	M10	/	62	122	60	M5	⊙	⊙
	4	122	90															90			
PGI-250N	3	107	70	38	76	106	ø6	ø10	144	25	13	34	15	6	/	79	134	70	M5	⊙	⊙
	4	142	105															105			
PGI-400N	3	137	44	50	135	175	ø10	ø13	225	28	18	40	24	8	120	79	/	44	M8	⊙	⊙
	4	181	88															88			
PGI-800N	3	212	140	57	143	185	ø10	ø13	243	44	17	53	20	11	/	146	/	140	M8	⊙	⊙
	4	282	210															210			



Rear Connection

Type	Poles	Dimensions (mm)																	Connect Direction		
		A	A1	B	B1	C	D	D1	E	F	G	H	H1	J	K	K1	K2	L	M	Horizontal	Vertical
PGI-BM250	3	107	70	38	76	106	ø6	ø10	144	25	13	34	15	6	/	79	134	70	M5	⊙	⊙



ATS (Automatic Transfer Switches)



(Controller voltage: AC 220V)

A. MCCB Type

Type	Pole	Rated current In (A)	Rated Breaking Capacity Sym r.m.s. (kA) IEC 60947-2 AC Icu	
			220V	380V
BS100SN	2P, 3P, 4P	10, 15, 20, 30, 40, 50, 60, 75, 100.	25	15
BS100HN	2P, 3P, 4P		50	30
BS250SN	2P, 3P, 4P	125, 150, 175, 200, 225, 250.	50	30
BS400SN	2P, 3P, 4P		50	35
BS400HN	2P, 3P, 4P	250, 300, 350, 400.	85	50
BS630SN	3P, 4P		50	35
BS630HN	3P, 4P	500, 600, 630.	85	50
BS800SN	3P, 4P		85	50
BS1000HS	3P	1000	130	100
BS1200HS	3P	1200	130	100
BS1600HS	3P	1400, 1600.	130	100

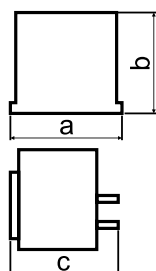
Note : 1. Standard: IEC 60947-2
2. Special breaking capacity, please contact sales representative.
3. BS225SN rated current 250A is optional order.

B. MS Type

Type	ATS Protection Switch	Rated current In (A)	Pole	Voltage
BS-MB	Miniature Circuit Breaker Protection Switch	20A	R, N	110V
			R, T	220V



ACB (Air Circuit Breaker) | BW Series

Frame (AF)			2000 - AF				3200 - AF				4000 - AF		6300 - AF			
Type			BW-2000H				BW-3200H				BW-4000H		BW-6300H			
Feature																
Type			Fixed type		Drawout type		Fixed type		Drawout type		Drawout type		Drawout type			
Rated current (In) (A)			630, 800, 1000, 1250, 1600, 2000.				2000, 2500, 3200.				4000.		4000, 5000.		6300.	
Adjustable range of rated current (A)			0.4 ~ 1.0In													
Max. rated voltage (Ue) V (50/60Hz)			AC 690													
Rated insulated voltage (Ui) V (50/60Hz)			AC 1000													
Rated impulse withstand voltage (Uimp) kV			12													
Number of poles			3	4	3	4	3	4	3	4	3	4	3	4	3	
Rated current of N pole (A)			—	100%	—	100%	—	100%	—	100%	—	100%	—	100%	—	
Rated breaking capacity (kA)	IEC 60947-2 CNS 14816-2 Icu/Ics kA	*AC 690V	50/40				65/50				65/50		75/65			
		*AC 440V	75/48				85/55				85/55		100/100			
		*AC 415V	78/50				90/60				90/60		110/100			
		AC 400V	80/50				100/65				100/65		120/100			
		*AC 380V	85/55				100/65				100/65		130/130			
		*AC 220V	150/95				170/110				170/110		200/200			
Rated short time withstand capacity (Icw) kA (1 sec)			50				65				65		100			
Electrical control type		Standard type (M Type)	●													
		Communication type (H Type)	●													
Number of operating cycles			10000													
Bus bar connection type			Horizontal / Vertical				Horizontal						Horizontal			
Dimensions (mm)		Horizontal	a	362	457	375	470	429	544	435	550	435	550	813	928	928
			b	395	395	430	430	398	398	430	430	430	430	435	435	435
			c	332	332	421	421	333	333	421	421	466	466	505	505	505
		Vertical	a	362	457	375	470	—						—		
			b	395	395	430	430	—						—		
			c	356	356	416	416	—						—		
Auxiliary switch (Standard device)			4NO 4NC													
Motor drive			Rated control voltage: AC 110V, 220V, 380V; DC 110V, 220V													
Optional accessory	Under-voltage trip (UVT)		Rated control voltage: AC 110V, 220-230V, 380-400V													
	Manual programming editor		English version													
	ST-DP interface		●													
	ST power module		●													
	Power ZCT		●													

Note: The rated breaking capacity indicated by voltage which marked with * are for reference.

Index

MCCB
ELCB

ATS

ACB

MCB

SPD

MS

MMS

MCB (Miniature Circuit Breaker) | BHA Series

Applications:

Applicable to the residential, industrial and commercial power distribution systems, provide circuit-control and protection on equipments against any impacts of overload, short-circuit and earth leakage.

100AF also can be used for any of the application with low switching.

- DIN rail TH 35mm
- Ambient temperature: -5°C ~ +40°C

BHA

• Overload, Short Circuit

BHA	2	2	C	32		
↓	↓	↓	↓	↓		
Type	Rated short-circuit breaking capacity (kA)	Poles (P)	Tripping characteristics	Rated current In (A)	Standard	Mechanical life
	Rated voltage (V)					
BHA	2: 4.5kA; 3: 6kA; 4: 10kA 230/400V	1, 2, 3, 4	C type: 5~10In D type: 10~15In	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63.	IEC 60898	20,000 operations
BHA	4: 10kA DC 125V (1P) / DC 250V (2P)	1, 2	DC Type	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63.	IEC 60947-2	20,000 operations
BHN	2: 4.5kA; 3: 6kA 230V	1P+N	C type: 5~10In	6, 10, 16, 20, 25, 32.	IEC 60898	20,000 operations



Index

MCCB
ELCB

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ACB

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MS

MMS

BHL

• Overload, Short Circuit, Leakage

BHL	2	2	C	32	32
↓	↓	↓	↓	↓	↓
Type	Rated short-circuit breaking capacity (kA)	Poles (P)	Tripping characteristics	Rated current In (A)	Optional function
	Rated voltage (V)				
BHL	2: 4.5kA; 3: 6kA 230V	1P+N	C type: 5~10In D type: 10~15In	6, 10, 16, 20, 25, 32, 40.	Over-voltage protection (230V, internal built)
BHL	2: 4.5kA 230V: 2P ; 400V: 3P/4P	2, 3, 4	C type: 5~10In D type: 10~15In	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63.	Over-voltage protection (230V, internal built)
BHL	3: 6kA 230/400V	2, 3, 4	C type: 5~10In D type: 10~15In	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63.	Over-voltage protection (230V, internal built)

- Standard: IEC 61009



BHG

• Disconnecter

BHG		2	32		
↓		↓	↓		
Type	Rated voltage (V)	Poles (P)	Rated current In (A)	Standard	Mechanical life
BHG	230/400V	1, 2, 3, 4	32A, 40A, 63A, 80A, 100A.	IEC 60947-3	50,000 operations



BHN

• N+L Overload, Short Circuit

BHN	2	1	C	32
↓		↓	↓	
Type	Rated breaking capacity (kA)	Poles (P)	Tripping characteristics	Rated current In (A)
	Rated voltage (V)			
BHN	2: 4.5kA; 3: 6kA 230V	1P+N	C type: 5~10In	6, 10, 16, 20, 25, 32.

- Standard: IEC 60898



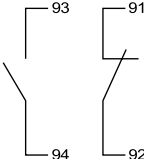
BHK

Accessories

BHK	2					1	
Type	Accessory Code					Installation	
	1	2	3	4	5	1	2
BHK	AL	AX	SHT	UVT	OVT	Standard	Option

Note: 1. Standard: Left side mounting of breaker
2. Option: Left side mounting of other accessory

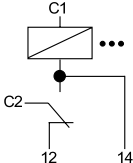


Type	Auxiliary Contact	Width	Product Code	
	AC/12	(mm)		
AL Alarm Switch		1NO. 1NC 230V 6A 440V 3A	9	BHK11



AX Auxiliary Contact			9	BHK21 BHK22
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Type	Control Voltage		Auxiliary Contact	Width	Product Code	
	V AC	V DC	AC/12	(mm)		
SHT Shunt Trip			12 24-48 230-415	12 12~48 110-130	1NO. 1NC 230V 6A 440V 3A 18	BHK31 BHK32



UVT Under Voltage Trip			220-240	48	1NO. 1NC 230V 6A 440V 3A	18 BHK41 BHK42
---------------------------	--	--	---------	----	--------------------------------	----------------------



Type	Rated voltage	Current	Over voltage range	Trip time	Width (mm)	Product Code	
OVT Over Voltage Trip	 N L	230V	15mA	280V±5%	≤0.2S	18	BHK51 BHK52

Index

MCCB
ELCB

ATS

ACB

MCB

SPD

MS

MMS

Surge Protective Device | BHP Series



BHP	20	3P	R	320
-----	----	----	---	-----

Type	I _{max} /Limp (kA)	Waveform (μs)	Pole (P)	R	U _c (V)	U _n (V)	U _p (kV)	Waveform (μs)	I _n (kA)	Connection wire diameter	
										L-N	PE
BHP20	20: 20kA	8/20	1P: 1P 1P1: 1P+1 2P: 1P+N 3P: 3P 3P1: 3P+1 4P: 3P+N	With alarm auxiliary contact	320	230/400	≤ 1.3	8/20	10	≥ 2.5mm ²	≥ 6mm ²
BHP40	40: 40kA	8/20			385	230/400	≤ 1.8	8/20	20	≥ 4mm ²	≥ 16mm ²
BHP80	80: 80kA	8/20			385	230/400	≤ 2.1	8/20	40	≥ 10mm ²	≥ 25mm ²
BHP100	100: 100kA	8/20			385	230/400	≤ 2.3	8/20	60	≥ 16mm ²	≥ 25mm ²
BHP250	250: 25kA	10/350			440	230/400	≤ 1.8	10/350	25	≥ 25mm ²	≥ 35mm ²

To enable the surge protective device to work, please read the following note:

1. The grounding system type of the protected device and maximum operating voltage of the power grid U_s. Max.
2. The impulse withstand voltage of the protected device.

Note: 1. BHP20, 40 are plug-in type; BHP80, 100, 250 are fixed type.

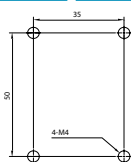
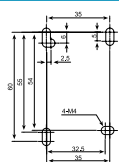
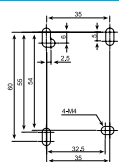
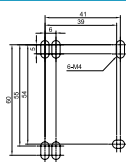
2. The standard operation voltage U_c(V) is below table. Max operation voltage U_c(V): 660V.

Normal working conditions

- Frequency: the AC power frequency shall be 50/60Hz.
- Voltage: the voltage continuously supplied between the wiring terminals of the surge protective device shall not exceed its maximum continuous operating voltage U_c.
- Altitude: less than 2,000m.
- Use and storage temperature: -Normal range: -5°C ~ +40°C;
-Ultimate range: -40°C ~ +80°C;
- Humidity: Relative humidity 30%~90% under ambient temperature.

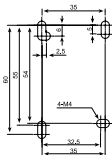
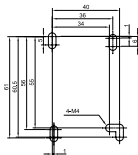
Magnetic Contactor / Switch ◆ AC control



Model				06	09	11	12
Type	Magnetic Contactor	Nonreversing		S-P06	S-P09	S-P11	S-P12
		Reversing		S-2×P06	S-2×P09	S-2×P11	S-2×P12
	Magnetic Switch	without enclosure	Nonreversing	MSO-P06	MSO-P09	MSO-P11	MSO-P12
			Reversing	—	—	MSO-2×P11	MSO-2×P12
		with enclosure	Nonreversing	—	—	MS-P11	MS-P12
			Reversing	—	—	MS-2×P11	MS-2×P12
		with enclosure (push button)	Nonreversing	—	—	MS-P11PB	MS-P12PB
		Thermal overload relay	Standard	—	—	TH-P12 E	TH-P12 E
	With phase failure protection		TH-P09PP	TH-P09PP	TH-P12PP	TH-P12PP	
Rated Capacity	IEC 60947-4-1 EN 60947-4-1 DIN VDE 0660	3 Ø	240V	1.5/ 2/ 6	2.2/ 3/ 9	3.5/ 4.5/ 13	3.5/ 4.5/ 13
			380V	3/ 4/ 6	4/ 5.5/ 9	5.5/ 7.5/ 12	5.5/ 7.5/ 12
			440V	3/ 4/ 6	4/ 5.5/ 9	5.5/ 7.5/ 12	5.5/ 7.5/ 12
			550V	3/ 4/ 6	4/ 5.5/ 9	5.5/ 7.5/ 9	5.5/ 7.5/ 9
			660V	—	—	5.5/ 7.5/ 7	5.5/ 7.5/ 7
	AC 3 (kW/HP/A)	Operation current (Ith) AC1 (A)		20	20	20	20
		Rated impulse voltage (Ui) (V)		AC660	AC660	AC660	AC660
	UL 508 CSA-C22.2	1 Ø	100~120V	0.25/ 5.8	0.5/ 9.8	0.5/ 9.8	0.5/ 9.8
			200~240V	1/ 8	1.5/ 10	2/ 10	2/ 12
		3 Ø	200~240V	2/ 6.8	3/ 9.6	3/ 9.6	3/ 9.6
			380~480V	3/ 4.8	5/ 7.6	7.5/ 11	7.5/ 11
			550~600V	3/ 3.9	5/ 6.1	10/ 11	10/ 11
		Operation current (Ith) AC1 (A)		20	20	24	24
		Rated impulse voltage (Ui) (V)		AC660	AC660	AC600	AC600
	NEMA			00	00	0	0
Auxiliary Contact	IEC 60947-5-1 EN 60947-5-1 GB14048.4	Contact	Standard	1NO	1NO	1NO	1NO 1NC
			Special	1NC	1NC	1NC	2NC or 2NO
			220V	3.3	3.3	1.6	1.6
			380V	1.9	1.9	0.95	0.95
	AC 15	Operation current (Ith) AC1 (A)		10	10	16	16
		Contact class (UL)		A600	A600	A600, P600, Q300	A600, P600, Q300
Mechanical Life AC3 (10 thousand)			120	120	120	120	
Electrical Life (10 thousand)			600	600	600	600	
Magnetic Contactor	Weight (kg)		0.15	0.15	0.33	0.35	
	Installation Dimensions (L×W×H) (mm)		58×46×51	58×46×51	81×43×83.5	81×53×83.5	
	Dimensions (mm)						
Mechanical Interlock			—	—	MPU-11	MPU-21	

Magnetic Contactor / Switch ◆ AC control



Model				15	16	21 (A)	25	
Type	Magnetic Contactor	Nonreversing		S-P15	S-P16	S-P21 (A)	S-P25	
		Reversing		S-2×P15	S-2×P16	S-2×P21 (A)	S-2×P25	
	Magnetic Switch	without enclosure	Nonreversing	MSO-P15	MSO-P16	MSO-P21 (A)	MSO-P25	
			Reversing	MSO-2×P15	MSO-2×P16	MSO-2×P21 (A)	MSO-2×P25	
		with enclosure	Nonreversing	MS-P15	MS-P16	MS-P21 (A)	MS-P25	
			Reversing	MS-2×P15	MS-2×P16	MS-2×P21 (A)	MS-2×P25	
		with enclosure (push button)	Nonreversing	MS-P15PB	MS-P16PB	MS-P21PB (A)	MS-P25PB	
		Thermal overload relay	Standard	TH-P12 E	TH-P20 E	TH-P20 E	TH-P20 E(TA)	
	With phase failure protection		TH-P12PP	TH-P20PP	TH-P20PP	TH-P20(TA)PP		
Rated Capacity	IEC 60947-4-1 EN 60947-4-1 DIN VDE 0660 AC 3 (kW/HP/A)	3 Ø	240V	4.5/ 6/ 18	4.5/ 6/ 18	5.5/ 7.5/ 24	6.5/ 8.5/ 26	
			380V	7.5/ 10/ 16	7.5/ 10/ 18	11/ 15/ 21	12/ 16/ 23	
			440V	7.5/ 10/ 16	7.5/ 10/ 16	11/ 15/ 21	12/ 16/ 23	
			550V	7.5/ 10/ 13	7.5/ 10/ 13	11/ 15/ 17	12/ 16/ 20	
			660V	7.5/ 10/ 9	7.5/ 10/ 9	11/ 15/ 14	12/ 16/ 16	
		Operation current (Ith) AC1 (A)		25	30	32	32	
		Rated impulse voltage (Ui) (V)		AC660	AC660	AC660	AC660	
	UL 508 CSA-C22.2 AC3 (HP/A)	1 Ø	100~120V	—	1/ 16	2/ 24	2/ 24	
			200~240V	—	3/ 17	3/ 17	3/ 17	
		3 Ø	200~240V	—	5/ 15.2	7.5/ 22	10/ 28	
			380~480V	—	10/ 14	15/ 21	15/ 21	
			550~600V	—	10/ 11	15/ 17	15/ 17	
		Operation current (Ith) AC1 (A)		—	30	35	40	
		Rated impulse voltage (Ui) (V)		—	AC600	AC600	AC600	
	NEMA				0	0	1	1
	Auxiliary Contact	IEC 60947-5-1 EN 60947-5-1 GB14048.4 AC 15	Contact	Standard	1NO	1NO 1NC	1NO 1NC (2NO 2NC)	1NO 1NC
				Special	1NC	—	—	—
220V				1.6	1.6	1.6	1.6	
380V				0.95	0.95	0.95	0.95	
Operation current (Ith) AC1 (A)		16	16	16	16			
Contact class (UL)		—	A600, Q300	A600, Q300	A600, Q300			
Mechanical Life AC3 (10 thousand)				120	120	120	120	
Electrical Life (10 thousand)				600	600	600	600	
Magnetic Contactor	Weight (kg)			0.33	0.37	0.38	0.38	
	Installation Dimensions (L×W×H) (mm)			81×43×83.5	81×53.5×83.5	81×53.5×83.5	81×53.5×83.5	
	Dimensions (mm)							
Mechanical Interlock				MPU-11	MPU-21	MPU-21	MPU-21	

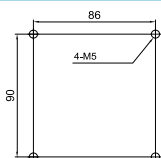
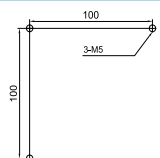
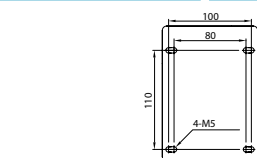


Technical drawing of a square plate with the following dimensions and annotations:

- Overall width: 80
- Overall height: 76
- Inner width (excluding top flange): 79.6
- Inner height (excluding bottom flange): 76.6
- Top flange thickness: 3
- Bottom flange thickness: 2
- Side flange thickness: 2
- Material specification: 4-M4

Magnetic Contactor / Switch ◆ AC control



Model				80T	100T	125T	150T
Type	Magnetic Contactor	Nonreversing		S-P80T	S-P100T	S-P125T	S-P150T
		Reversing		S-2×P80T	S-2×P100T	S-2×P125T	S-2×P150T
	Magnetic Switch	without enclosure	Nonreversing	MSO-P80T	MSO-P100T	MSO-P125T	MSO-P150T
			Reversing	MSO-2×P80T	MSO-2×P100T	MSO-2×P125T	MSO-2×P150T
		with enclosure	Nonreversing	MS-P80T	MS-P100T	MS-P125T	MS-P150T
			Reversing	MS-2×P80T	MS-2×P100T	MS-2×P125T	MS-2×P150T
		with enclosure (push button)	Nonreversing	—	—	—	—
		Thermal overload relay	Standard	TH-P60 E(TA)	TH-P120 E(TA)	TH-P120 E(TA)	TH-P120 E(TA)
	With phase failure protection		TH-P60(TA)PP	TH-P120(TA)PP	TH-P120(TA)PP	TH-P120(TA)PP	
Rated Capacity	IEC 60947-4-1 EN 60947-4-1 DIN VDE 0660	3 Ø	240V	22/ 30/ 80	30/ 40/ 105	37/ 50/ 135	45/ 60/ 165
			380V	45/ 60/ 80	60/ 80/ 105	75/ 100/ 130	90/ 125/ 160
			440V	45/ 60/ 75	60/ 80/ 105	75/ 100/ 130	90/ 125/ 160
			550V	45/ 60/ 60	60/ 80/ 85	75/ 100/ 105	90/ 125/ 130
			660V	45/ 60/ 50	60/ 80/ 70	75/ 100/ 90	90/ 125/ 110
	AC 3 (kW/HP/A)	Operation current (Ith) AC1 (A)		100	135	170	200
		Rated impulse voltage (Ui) (V)		AC660	AC660	AC660	AC660
		UL 508 CSA-C22.2 AC3 (HP/A)	1 Ø	100~120V	7.5/ 80	—	—
	200~240V			15/ 68	—	—	—
	3 Ø		200~240V	25/ 68	30/ 80	50/ 130	60/ 154
			380~480V	50/ 65	60/ 77	100/ 124	125/ 156
			550~600V	60/ 62	60/ 62	100/ 99	125/ 125
	Operation current (Ith) AC1 (A)		90	100	170	200	
	Rated impulse voltage (Ui) (V)		AC600	AC600	AC600	AC600	
	NEMA				3	3	3
Auxiliary Contact	IEC 60947-5-1 EN 60947-5-1 GB14048.4	Contact	Standard	2NO 2NC	2NO 2NC	2NO 2NC	2NO 2NC
			Special	—	—	—	—
			220V	1.6	1.6	3.3	3.3
			380V	0.95	0.95	1.6	1.6
	AC 15	Operation current (Ith) AC1 (A)		16	16	16	16
		Contact class (UL)		A600, Q300	A600, Q300	A600, Q300	A600, Q300
	Mechanical Life		AC3 (10 thousand)		120	120	120
Electrical Life		(10 thousand)		600	600	600	600
Magnetic Contactor	Weight (kg)		1.5	2.35	2.7	2.7	
	Installation Dimensions (L×W×H) (mm)		142×93×116	116×120×128	152.5×106×140	152.5×106×140	
	Dimensions (mm)						
Mechanical Interlock			MPU-50	Assembled and adjusted by the factory.	MPU-125	MPU-125	



200T	220T	300T	400T	600C
S-P200T	S-P220T	S-P300T	S-P400T	M-600C
S-2×P200T	S-2×P220T	S-2×P300T	S-2×P400T	RC-600C
MSO-P200T	MSO-P220T	MSO-P300T	MSO-P400T	—
MSO-2×P200T	MSO-2×P220T	MSO-2×P300T	MSO-2×P400T	—
MS-P200T	MS-P220T	—	—	—
MS-2×P200T	MS-2×P220T	—	—	—
—	—	—	—	—
TH-P220T E	TH-P220T E	TH-P400T E	TH-P400T E	TH-P600 E
TH-P220TPP	TH-P220TPP	TH-P400TPP	TH-P400TPP	TH-P600PP
55/ 75/ 200	65/ 85/ 220	90/ 125/ 300	110/ 150/ 400	160/ 220/ 620
110/ 150/ 190	120/ 160/ 220	160/ 220/ 300	220/ 300/ 400	315/ 420/ 620
110/ 150/ 190	120/ 160/ 190	185/ 250/ 300	250/ 340/ 400	315/ 420/ 600
110/ 150/ 150	132/ 180/ 180	185/ 250/ 263	250/ 340/ 360	315/ 420/ 500
110/ 150/ 125	132/ 180/ 150	200/ 300/ 220	280/ 380/ 280	—
240	260	350	450	660
AC660	AC660	AC1000	AC1000	AC660
—	—	—	—	—
—	—	—	—	—
75/ 192	75/ 192	100/ 248	125/ 312	—
150/ 180	150/ 180	200/ 240	250/ 302	—
150/ 144	150/ 144	200/ 192	300/ 289	—
240	260	350	450	—
AC600	AC600	AC1000	AC1000	—
4	4	5	5	6
2NO 2NC	2NO 2NC	2NO 2NC	2NO 2NC	2NO 2NC
—	—	—	—	—
3.3	3.3	3.3	3.3	1.6
1.6	1.6	1.6	1.6	0.95
16	16	10	10	16
A600, Q300	A600, Q300	A600, Q300	A600, Q300	A600, Q300
120	120	120	120	60
600	600	600	600	600
4.35	4.35	9.75	9.75	28
185×138×159.5	185×138×159.5	246×164×196.5	246×164×196.5	320×360×234
MPU-125	MPU-125	MPU-125	MPU-125	—

Index

MCCB
ELCB

ATS

ACB

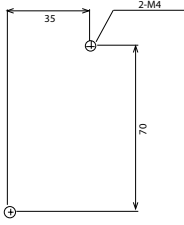
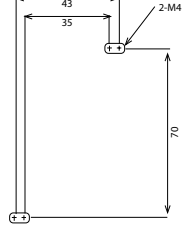
MCB

SPD

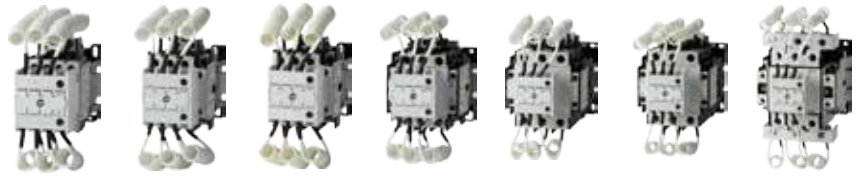
MS

MMS

Magnetic Contactor / Switch ◆ DC control

						
Type	Magnetic Contactor	Nonreversing		SD-P11	SD-P16	SD-P21
		Reversing		SD-2×P11	SD-2×P16	SD-2×P21
	Magnetic Switch	without enclosure	Nonreversing	MDO-P11	MDO-P16	MDO-P21
			Reversing	MDO-2×P11	MDO-2×P16	MDO-2×P21
		with enclosure	Nonreversing	—	—	—
			Reversing	—	—	—
		with enclosure (push button)	Nonreversing	—	—	—
			Thermal overload relay	Standard	TH-P12	TH-P20
			With phase failure protection	TH-P12PP	TH-P20PP	TH-P20PP
	Rated Capacity	IEC 60947-4-1 EN 60947-4-1 DIN VDE 0660 AC 3 (kW/HP/A)	3 ø	240V	3.5/ 4.5/ 13	4.5/ 6/ 18
380/440V				5.5/ 7.5/ 12	7.5/ 10/ 18	11/ 15/ 21
550V				5.5/ 7.5/ 9	7.5/ 10/ 13	11/ 15/ 17
660V				5.5/ 7.5/ 7	7.5/ 10/ 9	11/ 15/ 14
Operation current (Ith)			AC1 (A)	20	30	32
UL 508 CSA-C22.2 AC3 (HP/A)		1 ø	110~120V	0.5/ 9.8	1/ 16	2/ 24
			220~240V	2/ 12	3/ 17	3/ 17
		3 ø	220~240V	3/ 9.6	5/ 15.2	7.5/ 22
			440~480V	7.5/ 11	10/ 14	15/ 21
			550~600V	10/ 11	10/ 11	15/ 17
		Operation current (Ith)		AC1 (A)	24	30
NEMA			0	0	1	
Auxiliary contact			1NO or 1NC	1NO 1NC	1NO 1NC	
Control coil voltage		DC (V)	12/ 24/ 48/ 72/ 110/ 125/ 220			
Mechanical Life		AC3 (10 thousand)	120	120	120	
Electrical Life		(10 thousand)	600	600	600	
Magnetic Contactor	Weight (kg)		0.33	0.37	0.38	
	Installation Dimensions (L×W×H) (mm)		81×43×83.5	81×53.5×83.5	81×53.5×83.5	
	Dimensions (mm)					
Mechanical Interlock			MPU-11	MPU-11	MPU-11	

Capacitor Contactors



Type				SC-P12	SC-P16	SC-P20	SC-P25	SC-P33	SC-P45	SC-P60
Rated impulse voltage (Ui) (V)				690	690	690	690	690	690	690
Rated Capacity	IEC 60947-4-1 EN 60947-4-1 DIN VDE 0660	AC-6b 3 Ø (kVar/A)	200~240V	6.7/ 18	8.5/ 22	10/ 26	15/ 39	20/ 48	25/ 66	35/ 92
			400~440V	12.5/ 16	16.7/ 22	20/ 26	25/ 33	33.3/ 44	45/ 59	60/ 86
			660~690V	18/ 15	24/ 20	30/ 25	36/ 30	48/ 40	58/ 49	75/ 63
	AC 3 (kW/HP/A)	Operation current (Ith) AC1 (A)	20	30	40	50	80	90	100	
		Auxiliary Contact			2NO or 1NO 1NC	2NO 1NC	2NO 1NC	3NO 2NC	3NO 2NC	3NO 2NC
Auxiliary Contact	IEC 60947-5-1 EN 60947-5-1	AC12 (A)	100~120V	6	6	6	6	6	6	6
			200~220V	5	5	5	5	5	5	5
			380~440V	3	3	3	3	3	3	3
			550~600V	3	3	3	3	3	3	3
			Operation current (Ith) (A)			16	16	16	16	16
Mechanical Life / Electrical Life (AC-6b) (10 thousand)				500 / 30	500 / 30	500 / 30	500 / 30	500 / 30	500 / 30	500 / 30
On/ Off Frequency (time/ hour)				240	240	240	240	240	240	240
Magnetic Contactor	Weight (kg)			0.43	0.48	0.48	0.64	1.15	1.15	1.6
	Installation Dimensions (L×W×H) (mm)			125×43×112	130×53.5×112	130×53.5×112	143×60×121	164×88×135.5	164×88×135.5	180×100×144
	Dimensions (mm)									

Star-delta Starter



Model		21	35	50	60	80	100	125	150	220
Type	Without enclosure (no CT)	SDO-P21	SDO-P35	SDO-P50	SDO-P60	SDO-P80	SDO-P100	SDO-P125	SDO-P150	SDO-P220
	Without enclosure (with CT)	SDO-P21T	SDO-P35T	SDO-P50T	SDO-P60T	SDO-P80T	SDO-P100T	SDO-P125T	SDO-P150T	SDO-P220T
	With enclosure (no CT)	SDE-P21	SDE-P35	SDE-P50	SDE-P60	SDE-P80	SDE-P100	SDE-P125	SDE-P150	SDE-P220
	With enclosure (with CT)	SDA-P21	SDA-P35	SDA-P50	SDA-P60	SDA-P80	SDA-P100	SDA-P125	SDA-P150	SDA-P220
Rated Capacity (kW/HP)	200V~220V	11/ 15	19/ 25	22/ 30	30/ 40	37/ 50	45/ 60	55/ 75	75/ 100	110/ 150
	380V~440V	19/ 25	30/ 40	45/ 60	55/ 75	75/ 100	90/ 125	110/ 150	132/ 180	200/ 260
AC Magnetic Contactor	MCM	S-P21	S-P35T	S-P50T	S-P60T	S-P80T	S-P100T	S-P125T	S-P150T	S-P220T
	MCD	S-P21	S-P35T	S-P50T	S-P60T	S-P80T	S-P100T	S-P125T	S-P150T	S-P220T
	MCS	S-P11	S-P16	S-P21	S-P21	S-P35T	S-P35T	S-P50T	S-P50T	S-P60T
Thermal Overload Relay		TH-P20	TH-P60	TH-P60	TH-P120	TH-P120	TH-P120		TH-P220T	TH-P400T
		TH-P20TA	TH-P60TA	TH-P60TA	TH-P120TA	TH-P120TA	TH-P120TA		TH-P400T	
Conducting wire size of motor (mm ²)	Power supply side	2.5~16	2.5~25	2.5~35	2.5~50	10~70	10~95	35~150	35~150	35~240
	Load side	2.5~10	2.5~16	2.5~25	2.5~35	4~50	4~70	10~95	10~90	16~150
	Control loop	1~2.5	1~2.5	1~2.5	1~2.5	1~2.5	1~2.5	1~2.5	1~2.5	1~2.5

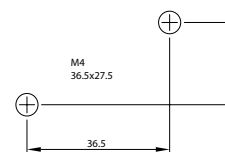
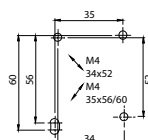
Thermal Overload Relay



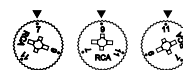
Type		09		12		20			
Standard #3	Contactor Assembled Type	—		TH-P12(E)		TH-P20(E)		TH-P20(E)TA	
	Independently Installed Type	—		TH-P12R(E)		—		—	
With phase failure protection #3	Contactor Assembled Type	TH-P09PP		TH-P12PP		TH-P20PP		TH-P20TAPP	
	Independently Installed Type	—		TH-P12PPR		—		—	
Reset Mode		Manual / Automatic		Manual / Automatic		Manual / Automatic			
Magnetic Contactor		S-P06, S-P09.		S-P11, S-P12, S-P15.		S-P16, S-P21, S-P25, S-P30T, S-P35T, S-P40T.		S-P25, S-P30T, S-P35T, S-P40T.	
Thermal Overload Relay Range (A)		Rated (A)	Adjustable Range (A)	Rated (A)	Adjustable Range (A)	Rated (A)	Adjustable Range (A)	Rated (A)	Adjustable Range (A)
		0.13	0.1~0.16	0.25	0.19~0.31	0.25	0.19~0.31	28	22~34
		0.20	0.16~0.24	0.4	0.3~0.5	0.4	0.3~0.5	33	28~38
		0.32	0.24~0.4	0.6	0.45~0.75	0.6	0.45~0.75	40	32~48
		0.5	0.4~0.6	0.9	0.7~1.1	0.9	0.7~1.1		
		0.8	0.6~1	1.2	0.9~1.5	1.2	0.9~1.5		
		1.3	1~1.6	1.7	1.3~2.1	1.7	1.3~2.1		
		2.0	1.6~2.4	2.1	1.6~2.6	2.1	1.6~2.6		
		3.2	2.4~4	3.3	2.5~4.1	3.3	2.5~4.1		
		5	4~6	4.4	3.4~5.4	4.4	3.4~5.4		
		7.5	6~9	6.5	5~8	6.5	5~8		
				9	7~11	9	7~11		
				11	9~13	11	9~13		
				15	12~18	15	12~18		
				21	17~24				
Auxiliary Contact		—		—		1NO 1NC			
Weight		0.075		0.11/ 0.12		0.18/ 0.19		0.20/ 0.21	
Dimensions (mm) (L×W×H)		64.8×45.5×50		TH-P12(PP): 55.5×45.5×78 TH-P12(PP)R: 71×47×86.2		TH-P20(PP): 46.1×64.5×80		TH-P20TA(PP): 56.2×64.5×80	

Installation Dimensions (mm)

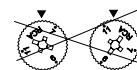
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TH-P12(PP):
TH-P12(PP)R:

Note. 1. The purpose of using TOR is protecting load tripping. For protecting circuit, please choose circuit breaker.
2. When adjusting the rated current; please refer to the TOR range table above. Do not exceed its range.
3. (E): 3 Elements



Correct

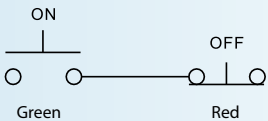
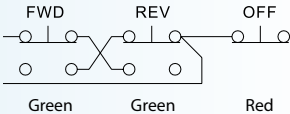
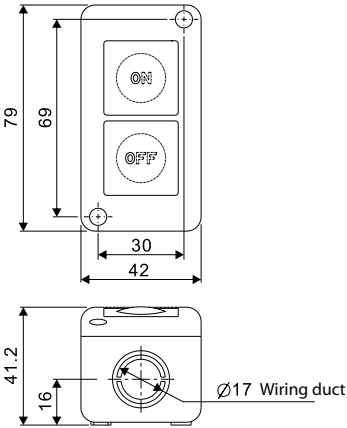
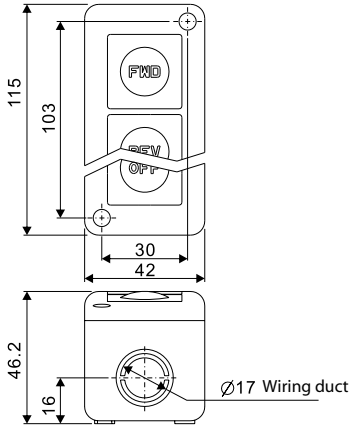


Incorrect



Technical drawing of a mechanical part. The drawing shows a cross-section of a cylindrical component. Key dimensions include a diameter of $\varnothing 5.2$ at the top, a length of 147.5 for the main body, and a diameter of $\varnothing 5.2$ for a smaller section. A section line is indicated by a circle with a cross, labeled M4 36.5x27.5. The drawing is oriented vertically with a horizontal section line.

Push Button | PB Series

Type	PB2	PB3
		
Contact schema		
External dimensions (mm)		
	WET. 72.5g	110g

Separate Mounting Unit



Type	UATP12
TOR	TH-P12

Magnetic Control Relays



Type		SR-P40	SR-P50	SR-P80
Auxiliary Contact		4NO 3NO 1NC 2NO 2NC	5NO 4NO 1NC 3NO 2NC 2NO 3NC	8NO 7NO 1NC 6NO 2NC 5NO 3NC 4NO 4NC
Rated Capacity IEC 60947-4-1 AC15 (A)	220V	1.6	1.6	1.6
	380V	0.95	0.95	0.95
Rated impulse voltage	(Ui) (V)	660	660	660
Operation current	(Ith) (A)	16	16	16
Contact Class	(UL)	A600, Q300	A600, Q300	A600, Q300
Electrical Life	(10 thousand)	50 and up	50 and up	50 and up
Mechanical Life	(10 thousand)	500	500	500
On/ Off Frequency	(time per / hour)	500	500	500

Definite Purpose Magnetic Contactor | SF Series

Type		20	25	30	35	40
		 C1	 C2	 C3		
Type	1 Pole	SF20C1	SF25C1	SF30C1	SF35C1	SF40C1
	2 Pole	SF20C2	SF25C2	SF30C2	SF35C2	SF40C2
	1Pole w/shunt	SF20C3	SF25C3	SF30C3	SF35C3	SF40C3
Start Current(A) (Per Pole)	AC 240V / AC 277V	120	150	180	180	180
	AC 480V	100	125	150	150	150
	AC 600V	80	100	120	120	120
Start Current(A) (Single Phase) (2 Pole)	AC 240V / AC 277V	120	150	180	210	240
	AC 480V	100	125	150	175	200
	AC 600V	80	100	120	140	160
Rated Current w/resistance load (A)		30	35	40	50	50
Full Rated Current (A)		20	25	30	35	40
Mechanical / Electrical life (10 thousand)		50/25	50/25	50/25	50/25	50/25
Operation frequency (time / hour)		360	360	360	360	360
Coil Control Voltage 50/60 Hz		24 / 110-120 / 200 / 220 / 208-240 / 277				

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MCCB
ELCB

ATS

ACB

MCB

SPD

MS

MMS

Auxiliary Contact Block

◆ AP Series



Installation		2P FRONT MOUNTED TYPE			4P FRONT MOUNTED TYPE			SIDE MOUNTED TYPE	
Type		AP-20	AP-11	AP-02	AP-40	AP-31	AP-22	APS-11	APL-11
Contact		2NO	1NO 1NC	2NC	4NO	3NO 1NC	2NO 2NC	1NO 1NC	1NO 1NC
Applicable contactor		SR-P40, SR-P50 S-P11~ S-P80T SD-P11~ SD-P21			SR-P40, SR-P50 S-P11~ S-P80T SD-P11~ SD-P21			SR-P40, SR-P50 S-P11~ S-P60T SD-P11~ SD-P21	S-P125, S-P150T S-P200T, S-P220T S-P300T, S-P400T
Rated Capacity AC 15 (A)	220V	1.6							
	380V	0.95							
Operation current	(Ith) (A)	16							

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Auxiliary Contact Block

◆ MAP Series

Installation		2P FRONT MOUNTED TYPE			4P FRONT MOUNTED TYPE		
Type		MAP-20	MAP-11	MAP-02	MAP-40	MAP-31	MAP-22
Contact		2NO	1NO 1NC	2NC	4NO	3NO 1NC	2NO 2NC
Applicable contactor		S-P06, S-P09.					
Rated Capacity AC 15 (A)	220V	3.3					
	380V	1.9					
Operation current (Ith) (A)		10					

ATS

ACB

MCB

Timer



Type		PTR-30	PTR-180
Contact		1NO 1NC	1NO 1NC
Applicable contactor		SR-P40, SR-P50, S-P11~ S-P60T, SD-P11~ SD-P21.	
Rated Capacity AC 15 (A)	220V	1.6	
	380V	0.95	
Operation current (Ith) (A)		16	

SPD

MS

MMS



Varistors: Anti-surge interference

Type	BMSACW220V	BMSACW380V
Applicable contactor	SR-P40, SR-P50, S-P11~ S-P60T.	

Characteristics

Type		S-P06 S-P09	S-P11 S-P15	S-P12	S-P16 S-P21 S-P25 S-P30T	S-P35T S-P40T	S-P50T S-P60T S-P80T	S-P100T	S-P125T S-P150T	S-P200T S-P220T	S-P300T S-P400T	M-600C
Coil Capacity (VA)	Impulse	25	55	55	55	72	250	319	370	440	700	4840
	Operation	5	11	11	11	12	28	36	42	50	50	242
Power Consumption (W)		1.6	2.5	2.5	2.5	3	7	11	10	12	7	80
Operation Vot. (Ue)	On	55~70%	55~68%	55~68%	59~70%	60~75%	63~75%	65~75%	75~80%	75~80%	65~80%	72~79%
	Off	35~50%	34~48%	34~48%	36~52%	40~57%	40~57%	40~55%	40~55%	40~60%	20~50%	59~66%
Close Time (ms)	Aux. OFF	5-12	5-12	4-11	6-14	6-13	6-13	18-28	9-20	10-19	22-37	42-71
	Aux. ON	6-15	10-18	10-18	10-18	12-20	12-20	22-32	15-24	17-25	25-40	49-78
	Contact ON	6-15	10-18	10-18	10-18	12-20	12-20	22-32	10-20	12-27	30-45	51-80
Open Time (ms)	Aux. OFF	6-15	12-20	9-18	9-19	10-17	10-17	50-100	9-18	10-20	40-60	61-97
	Aux. ON	5-12	8-15	4-13	6-14	5-12	5-12	48-98	7-15	7-18	31-51	58-94
	Contact ON	5-12	8-15	4-13	6-14	5-12	5-12	46-96	7-15	7-20	30-50	57-93

Coil Specifications Table

◆ S-P06~S-P25, S-P30T~P220T, SR-P40~P50, SC-P12~P60						
Description	AC12V	AC24V	AC48V	AC110V	AC120V	AC220V
Coil rated specifications marking	12V 50Hz	24V 50Hz	48~50V 50Hz	100V 50Hz	110~120V 50Hz	200~220V 50Hz
	12V 60Hz	24V 60Hz	48~50V 60Hz	100~110V 60Hz	115~120V 60Hz	220V 60Hz
Description	AC240V	AC380V	AC440V	AC480V	AC550V	
Coil rated specifications marking	220~240V 50Hz	346~380V 50Hz	400V 50Hz	415~440V 50Hz	500V 50Hz	
	240~260V 60Hz	380V 60Hz	400~440V 60Hz	460~480V 60Hz	500~550V 60Hz	

◆ S-P300T~P400T				
Description	AC48V	AC220V	AC380V	AC550V
Coil rated specifications marking	AC 48~50V 50/60Hz	AC 100~240V 50/60Hz	AC 265~450V 50/60Hz	AC 440~575V 50/60Hz
	DC 48V	DC 100~220V		

◆ M-600C				
Description	AC110V	AC120V	AC220V	AC260V
Coil rated specifications marking	100V 50Hz	110~120V 50Hz	208~220V 50Hz	240~260V 50Hz
	100~110V 60Hz	115~120V 60Hz	220V 60Hz	260~280V 60Hz
Description	AC380V	AC440V	AC480V	AC550V
Coil rated specifications marking	346~380V 50Hz	380~415V 50Hz	415~440V 50Hz	500V 50Hz
	380V 60Hz	400~440V 60Hz	460~480V 60Hz	500~550V 60Hz

Selection Table ◆ Direct On-Line Starter

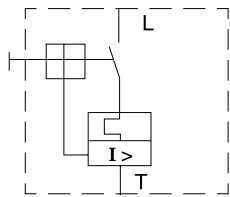
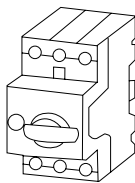
Motor rated capacity kW (HP)		3 φ 200V~220V			
		Heating element rating (A)		Selection of the contactor	
0.016	(1/47)	0.13A	0.1~0.16A	S-P06	S-P09
0.025	(1/30)	0.2A	0.16~0.24A		
0.04	(1/19)	0.32A	0.24~0.4A		
0.09	(1/8)	0.5A	0.4~0.6A		
0.12	(1/6)	0.8A	0.6~1.0A		
0.25	(1/3)	1.3A	1.0~1.6A		
0.37	(1/2)	2.0A	1.6~2.4A		
0.75	(1)	3.2A	2.4~4.0A		
1.1	(1 1/2)	5A	4.0~6.0A	S-P11, S-P12	S-P15, S-P16
1.5	(2)	7.5A	6.0~9.0A		
0.03	(1/25)	0.25A	0.19~0.31A		
0.05	(1/15)	0.4A	0.3~0.5A		
0.1	(1/8)	0.6A	0.45~0.75A		
0.15	(1/5)	0.9A	0.7~1.1A		
0.2	(1/4)	1.2A	0.9~1.5A		
0.3	(2/5)	1.7A	1.3~2.1A		
0.4	(1/2)	2.1A	1.6~2.6A	S-P21	S-P25
0.75	(1)	3.3A	2.5~4.1A		
1.1	(1 1/2)	4.4A	3.4~5.4A		
1.5	(2)	6.5A	5~8A		
2.2	(3)	9A	7~11A		
3	(4)	11A	9~13A		
3.7	(5)	15A	12~18A		
5.5	(7 1/2)	21A	17~24A		
6.5	(8 1/2)	28A	22~34A	S-P30T	S-P35T
7.5	(10)	33A	28~38A		
9	(12 1/2)	40A	32~48A		
11	(15)	54A	43~65A		
15	(20)	67A	54~80A		
19	(25)	80A	60~100A		
22	(30)	105A	80~130A		
25	(35)	130A	100~160A		
30	(40)	160A	120~200A	S-P40T	S-P45T
37	(50)	200A	150~250A		
45	(60)	260A	200~320A		
55	(75)	350A	260~440A		
65	(85)				
75	(100)				
90	(125)				
110	(150)				
132	(180)	500A	400~600A	S-P50T	S-P60T
160	(220)				
				S-P80T	S-P100T
				S-P125T	S-P150T
				S-P200T	S-P220T
				S-P300T	S-P400T
				M-600C	

Motor rated capacity kW (HP)		3 ø 500V~550V																	
		Heating element rating (A)		Selection of the contactor															
0.06	(1/12)	0.13A	0.1~0.16A	S-P06	S-P09														
0.09	(1/8)	0.2A	0.16~0.24A																
0.12	(1/6)	0.32A	0.24~0.4A																
0.18	(1/4)	0.5A	0.4~0.6A																
0.37	(1/2)	0.8A	0.6~1.0A																
0.55	(3/4)	1.3A	1.0~1.6A																
0.75	(1)	2.0A	1.6~2.4A																
1.1	(1 1/2)																		
1.5	(2)																		
2.2	(3)	3.2A	2.4~4.0A																
3	(4)																		
4	(5 1/2)	7.5A	6.0~9.0A																
0.12	(1/6)	0.25A	0.19~0.31A	S-P11, S-P12	S-P15, S-P16	S-P21	S-P25	S-P30T	S-P35T	S-P40T									
0.18	(1/4)	0.4A	0.3~0.5A																
0.25	(1/3)	0.6A	0.45~0.75A																
0.37	(1/2)	0.9A	0.7~1.1A																
0.55	(3/4)	1.2A	0.9~1.5A																
0.75	(1)	1.7A	1.3~2.1A																
1.1	(1 1/2)	2.1A	1.6~2.6A																
1.5	(2)	3.3A	2.5~4.1A																
2.2	(3)	4.4A	3.4~5.4A																
4	(5 1/2)	6.5A	5~8A																
4.5	(6)	9A	7~11A																
5.5	(7 1/2)	11A	9~13A																
7.5	(10)																		
11	(15)																		
12	(16)	21A	17~24A																
15	(20)																		
19	(25)																		
22	(30)	33A	28~38A																
30	(40)	40A	32~48A																
37	(50)	54A	43~65A																
45	(60)	67A	54~80A																
50	(70)																		
60	(80)																		
75	(100)	105A	80~130A																
90	(125)	130A	100~160A																
110	(150)	160A	120~200A																
132	(180)																		
150	(200)																		
160	(220)	260A	200~320A																
220	(330)	350A	260~440A																
315	(420)	500A	400~600A																

Selection Table ◆ λ - Δ Starter

Heater selection table (A)	Motor output kW (HP)				TH selection of λ - Δ Starter																			
	A		B		21		35		50		60		80		100		125		150		220			
	200~220V		380~440V		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B		
6.5	1.5	(2)	3	(4)	TH-P20	TH-P20																		
9	1.9	(2 1/2)	3.7	(5)																				
9	2.2	(3)	4.5	(6)																				
11	3	(4)	5.5	(7 1/2)																				
15	3.7	(5)	7.5	(10)																				
15	4.5	(6)	10	(13)																				
21	5.5	(7 1/2)	11	(15)	TH-P20TA	TH-P20TA	TH-P60	TH-P60	TH-P60	TH-P60														
28	6.5	(8)	14	(19)																				
28	7.5	(10)	15	(20)																				
33	9	(12 1/2)	19	(25)																				
40	11	(15)	22	(30)			TH-P120	TH-P120	TH-P120	TH-P120	TH-P120	TH-P120	TH-P120	TH-P120	TH-P120	TH-P120	TH-P120	TH-P120	TH-P120	TH-P120	TH-P120			
40	14	(19)	26	(35)																				
54	15	(20)	30	(40)																				
67	19	(25)	37	(50)																				
80	22	(30)	45	(60)			TH-P60TA	TH-P60TA																
80	25	(34)	50	(67)																				
105	30	(40)	55	(75)																				
130	37	(50)	75	(100)																				
160	45	(60)	90	(125)																				
200	55	(75)	110	(150)																				
200	65	(85)	132	(200)																				
260	75	(100)	150	(200)																				
350	110	(150)	200	(260)																				

MANUAL MOTOR STARTER



Power factor AC-3	Rated current	Overload adjustable range	Tripping current (A)	Type	
400V (kW)	In (A)	In (A) 	Id ± 20%	Button	Rotary
—	0.16	0.1-0.16	1.92	MR-32S-0.16	MR-32R-0.16
—	0.25	0.16-0.25	3	MR-32S-0.25	MR-32R-0.25
—	0.4	0.25-0.4	4.8	MR-32S-0.4	MR-32R-0.4
—	0.63	0.4-0.63	7.56	MR-32S-0.63	MR-32R-0.63
—	1	0.63-1	12	MR-32S-1	MR-32R-1
0.37	1.6	1-1.6	19.2	MR-32S-1.6	MR-32R-1.6
0.75	2.5	1.6-2.5	30	MR-32S-2.5	MR-32R-2.5
1.5	4	2.5-4	48	MR-32S-4	MR-32R-4
2.2	6.3	4-6.3	75.6	MR-32S-6.3	MR-32R-6.3
4	10	6-10	120	MR-32S-10	MR-32R-10
5.5	14	9-14	168	MR-32S-14	MR-32R-14
7.5	18	13-18	216	MR-32S-18	MR-32R-18
11	23	17-23	276	MR-32S-23	MR-32R-23
11	25	20-25	300	MR-32S-25	MR-32R-25
15	32	24-32	384	MR-32S-32	MR-32R-32

Side AX (MR-AN)

Front AX (MR-AE)

SHT (MR-AS)



AL (MR-AM)

UVT (MR-AU)



MMS





VCB
Vacuum Circuit Breaker

Based in Taiwan

Breaker & Switchgear System

Towards the Development of Globalization



MCB / ELCB
Miniature Circuit Breaker



ACB
Air Circuit Breaker



BHA
Miniature Circuit Breaker



SW1100-P
Pre-Payment
Electricity Meter



BHP
Surge Protective Device



MCCB / ELCB
Molded Case Circuit Breaker /
Earth-Leakage Circuit Breaker



MS
Magnetic Contactor / Switch



SW3005
Multi-function
Electricity Meter



Capacitor
Cylinder/ Box Type



SLPR
3-phase Sequence
Protection Relay



ATS
Automatic Transfer
Switches



SPM8 / SPM3
Digital Multi-Meter



APFR
Auto Power Factor Regulate

SHIHLIN ELECTRIC & ENGINEERING

Air Circuit Breaker, Molded Case Circuit Breaker, Earth-Leakage Circuit Breaker, Electronic Molded Case Circuit Breaker, Miniature Circuit Breaker, Residual Current Circuit Breaker, Automatic Transfer Switches, Magnetic Contactor/ Switch, Surge Protective Device, Low Voltage Power Capacitors, Digital Multi-Meter, Inverter



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