

LOW VOLTAGE PRODUCTS

● Specification

Type		AE630-SW	AE1000-SW	AE1250-SW	AE1600-SW	AE2000-SWA	AE2000-SW	AE2500-SW	AE3200-SW	AE4000-SWA	AE4000-SW	AE5000-SW	AE6300-SW		
Frame size	(A)	630	1000	1250	1600	2000	2000	2500	3200	4000	4000	5000	6300		
Rated insulation voltage (Ui)	(50/60Hz)(AC.V)	1000					1000					1000			
Rated operational voltage (Ue)	(50/60Hz)(AC.V)	690					690					690			
Rated impulse withstand voltage (Uimp)	(kV)	12					12					12			
Pollution degree		3					3					3			
Number of poles		3, 4					3, 4					3, 4 (HN, FN) (Note 7)			
Rated current In (CT rating)		630 (Note 5)	1000	1250	1600	2000	2000 (Note 5)	2500	3200	4000	4000	5000	6300		
Current setting Ir (A) (40°C)	WWS WB General use (Current rating adjustable) (0.5 to 1.0 × In 0.05 step)	315-346.5-378-409.5- 441-472.5-504-535.5- 567-598.5-630 (Note 5)	500-550-600-650- 700-750-800-850- 900-950-1000	625-687.5-750-812.5- 875-937.5-1000-1062.5- 1125-1187.5-1250	800-880-960-1040- 1120-1200-1280-1360- 1440-1520-1600	1000-1100-1200-1300- 1400-1500-1600-1700- 1800-1900-2000 (Note 5)	1000-1100-1200-1300- 1400-1500-1600-1700- 1800-1900-2000 (Note 5)	1250-1375-1500-1625- 1750-1875-2000-2125- 2250-2375-2500	1600-1760-1920-2080- 2240-2400-2560-2720- 2880-3040-3200	2000-2200-2400-2600- 2800-3000-3200-3400- 3600-3800-4000	2000-2200-2400-2600- 2800-3000-3200-3400- 3600-3800-4000	2500-2750-3000-3250- 3500-3750-4000-4250- 4500-4750-5000	3150-3465-3780-4095- 4410-4725-5040-5355- 5670-5985-6300		
	WWM Generator protection use (Current rating fixed) (Note 10)	160 ≤ Ir ≤ 630	400 ≤ Ir ≤ 1000	800 ≤ Ir ≤ 1250	1000 ≤ Ir ≤ 1600	1250 ≤ Ir ≤ 2000	800 ≤ Ir ≤ 2000	1600 ≤ Ir ≤ 2500	2000 ≤ Ir ≤ 3200	2500 ≤ Ir ≤ 4000	2500 ≤ Ir ≤ 4000	3150 ≤ Ir ≤ 5000	4000 ≤ Ir ≤ 6300		
Rated current of neutral pole	(A)	630	1000	1250	1600	2000	2000	2500	3200	4000	2000 (4000) (Note 8)	2500 (5000) (Note 8)	3150 (6300) (Note 8)		
IEC60947-2 EN60947-2 BS VDE JIS C 8201-2-1	Ultimate breaking capacity Icu (kA rms)	690V AC	65					75					85		
		600V AC	65					75					85		
		240-500V AC	65					85					130 (Note 9)		
	with MCR	690V AC	65					75					85		
		600V AC	65					75					85		
		240-500V AC	65					75					100		
	Bare + External relay	690V AC	25 (Note 1)					45 (Note 1)					65 (Note 1)		
		500V AC	25 (Note 1)					45 (Note 1)					65 (Note 1)		
	Rated service breaking capacity Ics (kA rms) %Icu		100%					100%					100%		
	Rated making capacity Icm (kA peak)	690V AC	143					165					187		
		600V AC	143					165					187		
		240-500V AC	143					187					286		
		690V AC	143					165					187		
		600V AC	143					165					187		
240-500V AC		143					165					220			
Bare or Bare + External relay	690V AC	52.5					94.5					143			
	500V AC	52.5					94.5					143			
Rated short time withstand current Icw (kA rms)	1s	65					75					100			
	2s	60					75					85			
	3s	50					65					85			
Maximum total breaking time	(ms)	40 (Note 6)					40 (Note 6)					50 (Note 6)			
Maximum closing time	(ms)	80					80					80			
Number of operating cycles	With rated current	500V AC In	5,000			1,500			1,500		1,000	500		1,000	
	690V AC In	5,000			1,500			1,500		1,000	500		1,000		
(Note 2)	Without rated current	25,000 (Note 4)					20,000 (Note 4)					10,000 (3P) / 5,000 (4P)			
Connecting terminal	Horizontal terminal	○					○					○			
	Vertical terminal	○					○ (Note 3)					○ (Note 3)			
	Front terminal	○					○					○			
Outline dimension (mm) H×W×D	Fixed type	3-pole	410×340×290			410×475×290			414×874×290						
		4-pole	410×425×290			410×605×290			414×1004(1134)×290 (Note 8)						
	Drawout type	3-pole	430×300×375			430×435×375			430×439×375						
		4-pole	430×385×375			430×565×375			430×569×375						
Weight (kg) (without Accessory)	Fixed type	3-pole	40	41	42	47	60	61	63	81	160	160	160		
		4-pole	50	51	52	57	72	73	75	99	180 (200) (Note 8)	180 (200) (Note 8)	180 (200) (Note 8)		
	Drawout type (including cradle)	3-pole	63	64	65	70	92	93	95	108	233	233	240		
		4-pole	77	78	79	84	113	114	116	136	256 (279) (Note 8)	256 (279) (Note 8)	263 (286) (Note 8)		
	Cradle only	3-pole	26			31			35		36	49		125	
		4-pole	30			35			43		44	61		133 (148) (Note 8)	
Marine approval	3-pole	○ (LR, GL, BV, DNV, ABS, NK, CCS)					○ (LR, GL, BV, DNV, ABS, NK, CCS)					○ (NK, LR, GL, BV, ABS)			

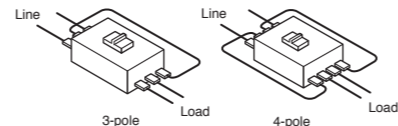
(Note 1) This is the Icu value when the bare main body and the external relay are combined.
 (Note 2) The number of operating cycles without rated current also includes the number of operating cycles with rated current.
 (Note 3) AE2000-SWA, AE4000-SWA and AE4000-SW-AE6300-SW apply for only vertical terminal of connecting terminal.
 (Note 4) This value is max. operating cycle for just ACB body without any accessories.
 (The max. operating cycles for the accessories like AX, MD,CC, SHT and UVT are half of this value.)
 (Note 5) Products with low rating types are available. For AE630-SW low rating types (250A, 315A, 500A), DP3 is not available.
 (Note 6) This value means the instantaneous breaking time at shortcircuit interruption.
 As for accessories (SHT, UVT), refer to page 13 and 14.
 (Note 7) 4(HN) means the neutral poles current capacity is 50% of the rated current, for 4 poles.
 4(FN) means the neutral poles current capacity is 100% of the rated current, for 4 poles.
 (Note 8) () shows the value for 4P FN type.
 (Note 9) Marine approval value is 138kA.
 (Note 10) For WM relay, the current setting Ir can be set by 1A except AE630-SW low rating types "CT315A" and "CT250A". For AE630-SW with "CT315A" and "CT250A", it can be set by 0.1A.
 (Remark) All models conform the isolating function according to IEC 60947-2.
 Reverse connection is possible.

AE 630-SW 3 kinds of products with low rating types are available.
 • 250-275-300-325-350-375-400-425-450-475-500(CT 500A)
 • 157.5-173.3-189-204.8-220.5-236.3-252-267.8-283.5-299.3-315(CT 315A)
 • 125-137.5-150-162.5-175-187.5-200-212.5-225-237.5-250(CT 250A)









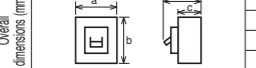
AE 2000-SW 2 kinds of products with low rating types are available.
 • 800-880-960-1040-1120-1200-1280-1360-1440-1520-1600(CT 1600A)
 • 625-687.5-750-812.5-875-937.5-1000-1062.5-1125-1187.5-1250(CT 1250A)

NF-C (Economy class)					NF-C (Economy class)								
Frame (A)		50		60		63		100		125			
Model				NF63-CV				NF125-CV					
Image													
Rated current In (A)		3 4 (5) 6 10 (15) 16		(60)		63		50 (60) 63 (75) 80 100		125			
Rated ambient temperature 40°C (45°C for marine use)		20 25 (30) 32 40 50											
Number of poles		2 3		2 3		2 3		2 3		2 3			
Rated insulation voltage Ui (V)		600		600		600		600		600			
Rated short-circuit breaking capacities (kA)	IEC 60947-2 EN 60947-2 (Icu/Ics)	AC	690V	-		-		-		-			
			500V	2.5/2.5		2.5/2.5		2.5/2.5		7.5/4		7.5/4	
			440V	2.5/2.5		2.5/2.5		2.5/2.5		10/5		10/5	
			415V	2.5/2.5		2.5/2.5		2.5/2.5		10/5		10/5	
			400V	5/5		5/5		5/5		10/5		10/5	
			380V	5/5		5/5		5/5		10/5		10/5	
			230V	7.5/7.5		7.5/7.5		7.5/7.5		30/15		30/15	
			200V	7.5/7.5		7.5/7.5		7.5/7.5		30/15		30/15	
			DC 250V	2.5/2.5 (*7)		2.5/2.5 (*7)		2.5/2.5 (*7)		7.5/4 (*4)		7.5/4 (*4)	
Rated impulse withstand voltage Uimp (kV)		8		8		8		8		8			
Current (*1)		AC/DC compatible		AC/DC compatible		AC/DC compatible		AC/DC compatible		AC/DC compatible			
Suitability for isolation		Compatible		Compatible		Compatible		Compatible		Compatible			
Reverse connection		Possible		Possible		Possible		Possible		Possible			
Number of operating cycles	Without current	10,000		10,000		10,000		10,000		10,000			
	With current (440VAC)	6,000		6,000		6,000		6,000		6,000			
Utilization category		A		A		A		A		A			
Pollution degree		3		3		3		3		3			
EMC environment condition (environment A or B)		N/A		N/A		N/A		N/A		N/A			
Overall dimensions (mm)		a	50	75	50	75	50	75	60	90	60	90	
		b	130		130		130		130		130		
		c	68		68		68		68		68		
		ca	90		90		90		90		90		
Mass of front-face type (kg)		0.45	0.65	0.5	0.7	0.5	0.7	0.6	0.9	0.6	0.9		
Installation and connections		●Screw terminal		●Screw terminal		●Screw terminal		●Screw terminal		●Screw terminal			
Front connection (F)		●Solderless (BOX) terminal (SL)		●Solderless (BOX) terminal (SL)		●Solderless (BOX) terminal (SL)		●Solderless (BOX) terminal (SL)		●Solderless (BOX) terminal (SL)			
Rear connection (R)		●Round stud		●Round stud		●Round stud		●Bar stud		●Bar stud			
Plug-in (PM)		●		●		●		●		●			
Cassette-type accessories		●Alarm switch (AL)		●Alarm switch (AL)		●Alarm switch (AL)		●Alarm switch (AL)		●Alarm switch (AL)			
		●Auxiliary switch (AX)		●Auxiliary switch (AX)		●Auxiliary switch (AX)		●Auxiliary switch (AX)		●Auxiliary switch (AX)			
		●Shunt trip (SHT)		●Shunt trip (SHT)		●Shunt trip (SHT)		●Shunt trip (SHT)		●Shunt trip (SHT)			
		●Undervoltage trip (UVT)		●Undervoltage trip (UVT)		●Undervoltage trip (UVT)		●Undervoltage trip (UVT)		●Undervoltage trip (UVT)			
		●With lead-wire terminal block (SLT)		●With lead-wire terminal block (SLT)		●With lead-wire terminal block (SLT)		●With lead-wire terminal block (SLT)		●With lead-wire terminal block (SLT)			
		●Pre-alarm (PAL)		●Pre-alarm (PAL)		●Pre-alarm (PAL)		●Pre-alarm (PAL)		●Pre-alarm (PAL)			
		●Closed (S)		●Closed (S)		●Closed (S)		●Closed (S)		●Closed (S)			
		●Dustproof (I)		●Dustproof (I)		●Dustproof (I)		●Dustproof (I)		●Dustproof (I)			
		●Waterproof (W)		●Waterproof (W)		●Waterproof (W)		●Waterproof (W)		●Waterproof (W)			
		●Electrical operation device (NFM)		●Electrical operation device (NFM)		●Electrical operation device (NFM)		●Electrical operation device (NFM)		●Electrical operation device (NFM)			
		●Mechanical interlock (MI) (*10)		●Mechanical interlock (MI) (*10)		●Mechanical interlock (MI) (*10)		●Mechanical interlock (MI) (*10)		●Mechanical interlock (MI) (*10)			
		●Panel mounting		●Panel mounting		●Panel mounting		●Panel mounting		●Panel mounting			
		●Breaker mounting		●Breaker mounting		●Breaker mounting		●Breaker mounting		●Breaker mounting			
		●LC		●LC		●LC		●LC		●LC			
		●HL		●HL		●HL		●HL		●HL			
		●HL-S		●HL-S		●HL-S		●HL-S		●HL-S			
		●External operating handle (F)		●External operating handle (F)		●External operating handle (F)		●External operating handle (F)		●External operating handle (F)			
		●External operating handle (V)		●External operating handle (V)		●External operating handle (V)		●External operating handle (V)		●External operating handle (V)			
		●Terminal cover (TC-L, TC-S, TTC, BTC, PTC)		●Terminal cover (TC-L, TC-S, TTC, BTC, PTC)		●Terminal cover (TC-L, TC-S, TTC, BTC, PTC)		●Terminal cover (TC-L, TC-S, TTC, BTC, PTC)		●Terminal cover (TC-L, TC-S, TTC, BTC, PTC)			
		●Rear stud (B-ST)		●Rear stud (B-ST)		●Rear stud (B-ST)		●Rear stud (B-ST)		●Rear stud (B-ST)			
		●Plug-in (PM)		●Plug-in (PM)		●Plug-in (PM)		●Plug-in (PM)		●Plug-in (PM)			
		●IEC 35mm rail mounting adapters		●IEC 35mm rail mounting adapters		●IEC 35mm rail mounting adapters		●IEC 35mm rail mounting adapters		●IEC 35mm rail mounting adapters			
CE marking		Self-declaration		Self-declaration		Self-declaration		Self-declaration		Self-declaration			
CCC recognition		Recognized		Recognized		Recognized		Recognized		Recognized			
Marine use approval (NK, LR, ABS, GL)		☆		☆		☆		☆		☆			
Automatic tripping device		Thermal-magnetic		Thermal-magnetic		Thermal-magnetic		Thermal-magnetic		Thermal-magnetic			
Trip button		Equipped		Equipped		Equipped		Equipped		Equipped			

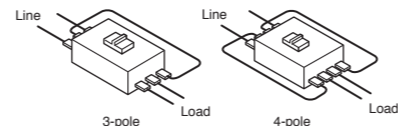
- Notes:
- *1 The trip action characteristics differ between AC and DC for products that are compatible with both AC and DC.
 - *2 It is attached with the alarm switch.
 - *3 In case of a current rating of 100A, it does not specify NK rating.
 - *4 Use two poles for three- and four-pole products. In this case, do not use the neutral pole of the four-pole products. If wired as shown on the right, three and four poles can be used for up to 400 and 500VDC, respectively.
 - *5 The standard lead drawing is performed laterally. Load drawing is also available.
 - *6 The cassette type design makes it easy for customer to install. Available for installation on side below 250A frame (excluding UVT).
 - *7 Use two poles for three- and four-pole products. In this case, do not use the neutral pole of the four-pole products. Not available for use with connection as shown on the right.
 - *8 Place an order of other models in conjunction with the circuit breaker.
 - *9 Solid state relay output is option. Please specify if other output is necessary. (Standard type is thus SLT equipped).
 - *10 Not isolation compatible, excluding 400 to 800A frame.



- Remarks:
1. Products with rated current parenthesized are produced when an order is placed.
 2. Specify "P-LT" when using a plug-in product with a lead-wire terminal block.
 3. The circuit breaker has the rated short-circuit breaking capacity specified in the shaded cells.

NF-S (Standard class)					NF-S (Standard class)																					
Frame (A)	30		32		50		60		63		125		125		125		125		160		250					
Model	NF32-SV						NF63-SV				NF125-SV		NF125-SXV		NF125-SGV		NF125-SEV		NF160-SGV		NF250-SV					
Image																										
Rated current In (A)	3 4 (5) 6 10 15 16 20 25 (30)		32		3 4 (5) 6 10 (15) 16 20 25 (30) 32 40 50		(60)		63		(15) 16 20 (30) 32 40 50 (60) 63 (75) 80 100 125		(15) 16 20 (30) 32 40 50 (60) 63 (75) 80 100 125		16-20 20-25 25-32 32-40 35-40-50 45-50-63 56-63-80 70-80-100 90-100-125		16-32 32-63 63-125		125-160		(100) 125 150 160 175 200 225 (*2) 250					
Rated ambient temperature 40°C (45°C for marine use)																										
Number of poles	2 3		2 3		2 3 4		2 3 4		2 3 4		2 3 4		2 3 4		2 3 4		3 4		2 3 4		2 3 4					
Rated insulation voltage Ui (V)	600		600		600		600		600		690		690		690		690		690		690					
Rated short-circuit breaking capacities (kA)	IEC 60947-2 EN 60947-2 (Icu/Ics)	690V	-		-		-		-		-		-		-		-		-		-		-			
		500V	2.5/2.5		2.5/2.5		7.5/7.5		7.5/7.5		7.5/7.5		18/18		23/23		30/30		30/30		30/30		30/30			
		440V	2.5/2.5		2.5/2.5		7.5/7.5		7.5/7.5		7.5/7.5		25/25		36/36		36/36		36/36		36/36		36/36			
		415V	2.5/2.5		2.5/2.5		7.5/7.5		7.5/7.5		7.5/7.5		30/30		36/36		36/36		36/36		36/36		36/36			
		400V	5/5		5/5		7.5/7.5		7.5/7.5		7.5/7.5		30/30		36/36		36/36		36/36		36/36		36/36			
		380V	5/5		5/5		7.5/7.5		7.5/7.5		7.5/7.5		30/30		36/36		36/36		36/36		36/36		36/36			
		230V	7.5/7.5		7.5/7.5		15/15		15/15		15/15		50/50		75/75		85/85		85/85		85/85		85/85			
200V	7.5/7.5		7.5/7.5		15/15		15/15		15/15		50/50		75/75		85/85		85/85		85/85		85/85					
DC 250V	2.5/2.5 (*5)		2.5/2.5 (*5)		7.5/7.5 (*5)		7.5/7.5 (*5)		7.5/7.5 (*5)		40/40 (*3)		-		20/20 (300V) (*3)		-		20/20 (300V) (*3)		20/20 (300V) (*3)					
Rated impulse withstand voltage Uimp (kV)	8		8		8		8		8		8		8		8		8		8		8					
Current (*1)	AC/DC compatible		AC/DC compatible		AC/DC compatible		AC/DC compatible		AC/DC compatible		AC/DC compatible		AC		AC/DC compatible		AC		AC/DC compatible		AC/DC compatible					
Suitability for isolation	Compatible																									
Reverse connection	Possible																									
Number of operating cycles	Without current 10,000		10,000		10,000		15,000		15,000		25,000		25,000		50,000		25,000		40,000		25,000		10,000			
	With current (440VAC) 6,000		6,000		6,000		8,000		8,000		10,000		10,000		30,000		10,000		15,000		15,000		15,000			
Utilization category	A																									
Pollution degree	3																									
EMC environment condition (environment A or B)	N/A																									
Overall dimensions (mm)		a	50 75		50 75		50 75 100		50 75 100		50 75 100		60 90 120		90 120		105 140		105 140		105 140		105 140			
		b	130		130		130		130		130		130		130		165		165		165		165		165	
		c	68		68		68		68		68		68		68		92		92		92		92		92	
ca	90		90		90		90		90		90		90		92		92		92		92		92			
Mass of front-face type (kg)	0.45 0.65		0.45 0.65		0.5 0.7 0.9		0.55 0.75 1.0		0.55 0.75 1.0		0.7 1.0 1.3		0.6 1.0 1.2		1.4 1.6 2.0		1.7 2.2		1.4 1.6 2.0		1.4 1.6 2.0		1.4 1.6 2.0			
Front connection (F)	●Screw terminal																									
	●Solderless (BOX) terminal (SL)																									
Rear connection (B)	●Bar stud																									
Plug-in (PM)	●Round stud																									
Cassette-type accessories	Alarm switch (AL)	●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		
	Auxiliary switch (AX)	●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		
	Shunt trip (SHT)	●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		
	Undervoltage trip (UVT)	●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		●(*4)		
	With lead-wire terminal block (SLT)																									
	Pre-alarm (PAL)																									
	Closed (S)																									
	Dustproof (I)																									
Waterproof (W)																										
External accessories	Electrical operation device (NFM)																									
	Mechanical interlock (MI) (*7)																									
	Panel mounting Breaker mounting																									
	LC																									
	HL																									
	HL-S																									
	External operating handle (F)																									
	(V)																									
	Terminal cover (TC-L, TC-S, TTC, BTC, PTC)																									
	Rear stud (B-ST)																									
Plug-in (PM)																										
IEC 35mm rail mounting adapters																										
CE marking	Self-declaration																									
CCC recognition	Recognized																									
Marine use approval (NK, LR, ABS, GL)	☆																									
Automatic tripping device	Thermal-magnetic																									
Trip button	Equipped																									

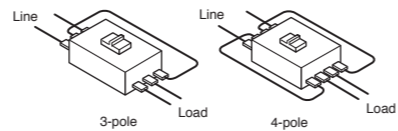
Notes: *1 The trip action characteristics differ between AC and DC for products that are compatible with both AC and DC.
 *2 In case of a current rating of 100A, it does not specify NK rating.
 *3 Use two poles for three- and four-pole products. In this case, do not use the neutral pole of the four-pole products. If wired as shown on the right, three and four poles can be used for up to 400 and 500VDC, respectively. (In case of NF250-SV, three and four poles can be used for up to 500 and 600VDC)
 *4 The cassette type design makes it easy for customer to install. Available for installation on side below 250A frame (excluding UVT).
 *5 Use two poles for three- and four-pole products. In this case, do not use the neutral pole of the four-pole products. Not available for use with connection as shown on the right.
 *6 Place an order of other models in conjunction with the circuit breaker.
 *7 Not isolation compatible, excluding 400 to 800A frame.



Remarks: 1. Products with rated current parenthesized are produced when an order is placed.
 2. Specify "P-LT" when using a plug-in product with a lead-wire terminal block.
 3. The circuit breaker has the rated short-circuit breaking capacity specified in the shaded cells.

NF-L / NF-H / NF-R (High-performance class)											NF-L / NF-H / NF-R (High-performance class)																																																																													
Frame (A)	50		63		125		125		125		125		125		160		160		250		250		250		250																																																															
Model	NF63-HV				NF125-HV				NF125-LXV				NF125-HXV				NF125-LGV				NF125-HGV				NF125-RGV				NF125-HEV				NF160-LGV				NF160-HGV				NF250-HV				NF250-LXV				NF250-HXV				NF250-LGV				NF250-HGV				NF250-RGV																											
Image																																																																																								
Rated current In (A)	10	15	16	20	25	60				63				15	16	20	30	32	40	50	(15)	16	20	(30)	32	40	50	(15)	16	20	(30)	32	40	50	16-20	20-25	25-32	32-40	35-40-50	45-50-63	50-63-80	70-80-100	80-100-125	16-20	20-25	25-32	32-40	35-40-50	45-50-63	50-63-80	70-80-100	80-100-125	16-20	20-25	25-32	32-40	35-40-50	45-50-63	50-63-80	70-80-100	100-125	16-32	32-63	125-160				125-160				125	150	160	(100)	125	150	(100)	125	150	125-160	140-160-200	175-200-250	125-160	140-160-200	175-200-250	125-160	160-200
Rated ambient temperature 40°C (45°C for marine use)																																																																																								
Number of poles	2	3	4	2	3	4	2				3				4				2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4	2	3	4																															
Rated insulation voltage Ui (V)	690																																																																																							
Rated short-circuit breaking capacities (kA)	IEC 60947-2 EN 60947-2 (Icu/Ics)																																																																																							
	690V	2.5/2.5	2.5/2.5	10/8				8/8				10/8				8/8				10/8				8/8				10/8				8/8				10/8				8/8				10/8				8/8				10/8				8/8				10/8				8/8																								
	500V	7.5/7.5	7.5/7.5	30/23				36/36				50/38				36/36				50/38				36/36				50/38				36/36				50/38				36/36				50/38				36/36				50/38				36/36																																
	440V	10/8	10/8	50/38				50/50				65/65				50/50				65/65				125/125				65/65				50/50				65/65				50/50				65/65				50/50				65/65				125/125																																
	415V	10/8	10/8	50/38				50/50				70/70				50/50				70/70				150/150				70/70				50/50				70/70				50/50				70/70				150/150																																								
	400V	10/8	10/8	50/38				50/50				75/75				50/50				75/75				150/150				75/75				50/50				75/75				50/50				75/75				150/150																																								
	380V	10/8	10/8	50/38				50/50				75/75				50/50				75/75				150/150				75/75				50/50				75/75				50/50				75/75				150/150																																								
230V	25/19	25/19	100/75				90/90				100/100				90/90				100/100				150/150				100/100				90/90				100/100				90/90				100/100				150/150																																									
200V	25/19	25/19	100/75				90/90				100/100				90/90				100/100				150/150				100/100				90/90				100/100				90/90				100/100				150/150																																									
DC 250V	7.5/7.5 (*5)	7.5/7.5 (*5)	-				20/20 (300V) (*2)				40/40 (300V) (*2)				20/20 (300V) (*2)				40/40 (300V) (*2)				-				-				20/20 (300V) (*2)				40/40 (300V) (*2)				40/40 (300V) (*2)				20/20 (300V) (*2)				40/40 (300V) (*2)				20/20 (300V) (*2)				40/40 (300V) (*2)																																	
Rated impulse withstand voltage Uimp (kV)	8																																																																																							
Compatibility	AC/DC compatible																																																																																							
Suitability for isolation	Compatible																																																																																							
Reverse connection	Possible																																																																																							
Number of operating cycles	Without current																																																																																							
	With current (440VAC)																																																																																							
Utilization category	A																																																																																							
Pollution degree	3																																																																																							
EMC environment condition (environment A or B)	N/A																																																																																							
Overall dimensions (mm)																																																																																								
	a	50	75	100	50	75	100	90				120				105				140				105				140				105				140				105				140				105				140				105				140																												
	b	130																																																																																						
	c	68																																																																																						
ca	90																																																																																							
Mass of front-face type (kg)	0.5	0.7	0.9	0.55	0.75	1.0	0.8				1.0				1.3				1.4				1.6				2.0				1.4				1.6				2.0				1.4				1.6				2.0				1.5				1.8																													
Installation and accessories	Front connection (F)	● Screw terminal																																																																																						
	Solderless (BOX) terminal (SL)	● Round stud																																																																																						
	Rear (B)	● Round stud																																																																																						
	Plug-in (PM)	● Bar stud																																																																																						
	Alarm switch (AL)	● (*3)																																																																																						
	Auxiliary switch (AX)	● (*3)																																																																																						
	Shunt trip (SHT)	● (*3)																																																																																						
	Undervoltage trip (UVT)	● (*3)																																																																																						
	With lead-wire terminal block (SLT)	● (*3)																																																																																						
	Pre-alarm (PAL)	-																																																																																						
External accessories	Enclosure	● Closed (S)																																																																																						
	Dustproof (I)	-																																																																																						
	Waterproof (W)	-																																																																																						
	Electrical operation device (NFM)	-																																																																																						
	Mechanical interlock (MI) (*4)	● Panel mounting																																																																																						
	Breaker mounting	● Panel mounting																																																																																						
	Handle lock device	● LC																																																																																						
	HL	● HL																																																																																						
	HL-S	● HL-S																																																																																						
	External operating handle	● (F)																																																																																						
(V)	● (V)																																																																																							
Terminal cover (TCL, TC-S, TTC, BTC, PTC)	● (TCL, TC-S, TTC, BTC, PTC)																																																																																							
Rear stud (B-ST)	● (B-ST)																																																																																							
Plug-in (PM)	● (PM)																																																																																							
IEC 35mm rail mounting adapters	● (IEC 35mm rail mounting adapters)																																																																																							
CE marking	Self-declaration																																																																																							
CCC recognition	Recognized																																																																																							
Marine use approval (NK, LR, ABS, GL)	☆																																																																																							
Automatic tripping device	Thermal-magnetic																																																																																							
Trip button	Equipped																																																																																							

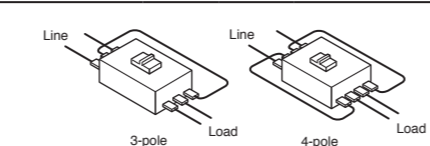
Notes: *1 The trip action characteristics differ between AC and DC for products that are compatible with both AC and DC.
 *2 Use two poles for three- and four-pole products. In this case, do not use the neutral pole of the four-pole products. If wired as shown on the right, three and four poles can be used for up to 500 and 600VDC, respectively.
 *3 The cassette type design makes it easy for customer to install. Available for installation on side below 250A frame (excluding UVT).
 *4 Not isolation compatible, excluding 400 to 800A frame.
 *5 Use two poles for three- and four-pole products. In this case, do not use the neutral pole of the four-pole products. Not available for use with connection as shown on the right.






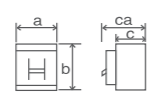
Remarks: 1. Products with rated current parenthesized are produced when an order is placed.
 2. Specify "P-LT" when using a plug-in product with a lead-wire terminal block.
 3. The circuit breaker has the rated short-circuit breaking capacity specified in the shaded cells.

NF-H / NF-R (High-performance class)								NF-U (Ultra current-limiting class)												
Frame (A)	250		400		630		800		125		250		400		800					
Model	NF250-HEV		NF400-HEV		NF630-HEV		NF800-HEV		NF125-UV		NF250-UV		NF400-UEW		NF800-UEW					
Image																				
Rated current In (A)	80-160 125-250		Adjustable 200 225 250 300 350 400		Adjustable 200 225 250 300 350 400		Adjustable 300 350 400 500 600 630		Adjustable 400 450 500 600 700 800		Adjustable 400 450 500 600 700 800		Adjustable 200 225 250 300 350 400		Adjustable 400 450 500 600 700 800					
Rated ambient temperature 40°C (45°C for marine use)																				
Number of poles	3 4		3 4		3 4		3 4		3 4		3 4		3 4		3 4					
Rated insulation voltage Ui (V)	690		690		690		690		690		690		690		690					
Rated short-circuit breaking capacity (kA)	IEC 60947-2 EN 60947-2 (Icu/Ics)	AC	690V	10/8	35/18	-	35/18	-	15/15	-	10/10	15/15	-	-	35/35					
			500V	50/38	50/50	70/35	50/50	70/35	50/50	70/35	200/200	200/200	170/170	170/170	170/170					
			440V	65/65	65/65	125/63	65/65	125/63	65/65	125/63	200/200	200/200	200/200	200/200	200/200					
			415V	70/70	70/70	125/63	70/70	125/63	70/70	125/63	200/200	200/200	200/200	200/200	200/200					
			400V	75/75	70/70	125/63	70/70	125/63	70/70	125/63	200/200	200/200	200/200	200/200	200/200					
			380V	75/75	70/70	125/63	70/70	125/63	70/70	125/63	200/200	200/200	200/200	200/200	200/200					
			230V	100/100	100/100	150/75	100/100	150/75	100/100	150/75	200/200	200/200	200/200	200/200	200/200	200/200				
DC 250V	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Rated impulse withstand voltage Uimp (kV)	8		8		8		8		8		8		8		8					
Current	AC		AC		AC		AC		AC		AC		AC		AC					
Suitability for isolation	Compatible		Compatible		Compatible		Compatible		Compatible		Compatible		Compatible		Compatible					
Reverse connection	Possible		Possible		Possible		Possible		Possible		Possible		Possible		Possible					
Number of operating cycles	Without current	25,000		6,000		6,000		6,000		4,000		4,000		6,000		4,000				
	With current (440VAC)	10,000		1,000		1,000		1,000		500		500		10,000		500				
Utilization category	A		B		B		B		A		A		B		B					
Rated short time with stand current Ics (kA) at 0.25s	-		5		5		7.6		9.6		-		5		9.6					
Pollution degree	3		3		3		3		3		3		3		3					
EMC environment condition (environment A or B)	A		A		A		A		A		N/A		A		A					
Overall dimensions (mm)																				
	a	105	140	140	185	140	140	185	140	210	280	210	90	120	105	140	140	280	210	280
	b	165		257		257		257		275		275		191		240		297	322	322
	c	68		103		103		103		103		103		68		68		200		200
ca	92		155		155		155		155		155		90		92		252		252	
Mass of front-face type (kg)	1.7 2.2		6.0 7.6		6.0 8.3		6.5 8.3		10.9 14.2		10.9		1.35 1.5 1.9		2.5 2.7 3.7		16.2 25.4		27.6 33.7	
Installation and connections	Front connection (F)	● Screw terminal		● Busbar terminal		● Busbar terminal		● Busbar terminal		● Busbar terminal		● Busbar terminal		● Busbar terminal		● Busbar terminal				
	Solderless (BOX) terminal (SL)	●		-		-		-		-		-		-		-				
Rear (B)	● Bar stud		● Bar stud		● Bar stud		● Bar stud		● Bar stud		● Bar stud		● Bar stud		● Bar stud					
Plug-in (PM)	●		-		-		-		-		-		-		-					
Cassette-type accessories	Alarm switch (AL)	● (*1)		● (*1)		● (*1)		● (*1)		● (*1)		● (*1)		● (*1)		● (*1)				
	Auxiliary switch (AX)	● (*1)		● (*1)		● (*1)		● (*1)		● (*1)		● (*1)		● (*1)		● (*1)				
	Shunt trip (SHT)	● (*1)		● (*1)		● (*1)		● (*1)		● (*1)		● (*1)		● (*1)		● (*1)				
	Undervoltage trip (UVT)	● (*1)		● (*1)		● (*1)		● (*1)		● (*1)		● (*1)		● (*1)		● (*1)				
	With lead-wire terminal block (SLT)	●		●		●		●		●		●		●		●				
	Pre-alarm (PAL)	●		● (*2)		● (*2)		● (*2)		● (*2)		● (*2)		● (*2)		● (*2)				
External accessories	Enclosure Closed (S)	●		-		-		-		-		-		-		-				
	Dustproof (I)	●		-		-		-		-		-		-		-				
	Waterproof (W)	●		-		-		-		-		-		-		-				
	Electrical operation device (NFM)	●		● (*3)		● (*3)		● (*3)		● (*3)		● (*3)		● (*3)		● (*3)				
	Mechanical interlock (MI) (*4)	●		-		-		-		-		-		-		-				
	Panel mounting	●		-		-		-		-		-		-		-				
	Breaker mounting	●		-		-		-		-		-		-		-				
	LC	●		-		-		-		-		-		-		-				
	Handle lock device HL	●		-		-		-		-		-		-		-				
	HL-S	●		-		-		-		-		-		-		-				
	External operating handle (F)	●		-		-		-		-		-		-		-				
	(V)	●		-		-		-		-		-		-		-				
	Terminal cover (TC-L, TC-S, TTC, BTC, PTC)	●		-		-		-		-		-		-		-				
Rear stud (B-ST)	●		-		-		-		-		-		-		-					
Plug-in (PM)	●		-		-		-		-		-		-		-					
IEC 35mm rail mounting adapters	-		-		-		-		-		-		-		-					
CE marking	Self-declaration		Self-declaration		Self-declaration		Self-declaration		Self-declaration		Self-declaration		Self-declaration		Self-declaration					
CCC recognition	Recognized		Recognized		Recognized		Recognized		Recognized		Recognized		Recognized		Recognized					
Marine use approval (NK, LR, ABS, GL)	☆ (LR, ABS, GL)		☆		☆		☆		☆		☆		☆		☆					
Automatic tripping device	Electronic (effective value detection)		Electronic (effective value detection)		Electronic (effective value detection)		Electronic (effective value detection)		Electronic (effective value detection)		Electronic (effective value detection)		Electronic (effective value detection)		Electronic (effective value detection)					
Trip button	Equipped		Equipped		Equipped		Equipped		Equipped		Equipped		Equipped		Equipped					

Notes: *1 The cassette type design makes it easy for customer to install. Available for installation on side below 250A frame (excluding UVT).
*2 Solid state relay output is option. Please specify if other output is necessary. (Standard type is thus SLT equipped).
*3 Place an order of other models in conjunction with the circuit breaker.
*4 Not isolation compatible, excluding 400 to 800A frame.



Remarks: 1. Products with rated current parenthesized are produced when an order is placed.
2. Specify "P-LT" when using a plug-in product with a lead-wire terminal block.
3. The circuit breaker has the rated short-circuit breaking capacity specified in the shaded cells.

Frame(A)		60						100						160							
Series		C		S		H		C		S		H		C		S		H			
Model		NFC60-CMXA		NFC60-SMXA		NFC60-HMXA		NFC100-CMXA		NFC100-SMXA		NFC100-HMXA		NFC160-CMXA		NFC160-SMXA		NFC160-HMXA			
Rated current In (A)		15, 16, 20, 25, 30, 32, 40, 50, 60						15, 16, 20, 25, 30, 32, 40, 50, 60, 63, 75, 80, 100						125, 140, 150, 160(*4)							
Image																					
Rated ambient temperature (°C)		40		40		40		40		40		40		40		40		40			
Number of poles		2 3		2 3 4		2 3 4		2 3		2 3 4		3 4		3		3 4		3 4			
Rated insulation voltage Ui (V AC)		690		690		690		690		690		690		690		690		690			
Rated short-circuit breaking capacity (kA)	IEC 60947-2 EN 60947-2 (Icu/Ics)	AC	415V	5/2.5	7.5/4	10/5	10/5	25/12.5	36/18	15/7.5	25/12.5	36/18	15/7.5	25/12.5	36/18	15/7.5	25/12.5	36/18			
			400V	5/2.5	7.5/4	10/5	10/5	25/12.5	36/18	15/7.5	25/12.5	36/18	15/7.5	25/12.5	36/18						
			380V	5/2.5	7.5/4	15/7.5	15/7.5	30/15	36/18	22/11	30/15	36/18	22/11	30/15	36/18						
	GB/T 14048.2 (Icu/Ics)	AC	400V	5/2.5	7.5/4	10/5	10/5	25/12.5	36/18	15/7.5	25/12.5	36/18	15/7.5	25/12.5	36/18						
			230V	7.5/4	10/5	25/12.5	25/12.5	50/25	65/33	30/15	50/25	65/33	30/15	50/25	65/33						
			230V	7.5/4	10/5	25/12.5	25/12.5	50/25	65/33	30/15	50/25	65/33	30/15	50/25	65/33						
Rated impulse withstand voltage Uimp (kV)		8		8		8		8		8		8		8		8		8			
Suitability for isolation		•		•		•		•		•		•		•		•		•			
Reverse connection		-		-		-		-		-		-		-		-		-			
Number of operating cycles	Without current	10,000		10,000		10,000		10,000		10,000		10,000		8,000		8,000		8,000			
	With current	1,500		1,500		1,500		1,500		1,500		1,500		1,000		1,000		1,000			
Utilization category		A		A		A		A		A		A		A		A		A			
Pollution degree		3		3		3		3		3		3		3		3		3			
Overall Dimension (mm)		a	50	75	50	75	100	50	75	100	50	75	100	75	100	105	105	140	105	140	
		b	130		130		130		130		130		130		165		165		165		
		c	68		68		68		68		68		68		68		68		68		
		ca	92		92		92		92		92		92		92		92		92		
Mass(kg)		0.6	0.8	0.6	0.8	1.0	0.6	0.8	1.0	0.6	0.9	0.6	0.9	1.1	0.9	1.1	1.8	1.8	2.0	1.8	2.0
Installation and connection (Front connection) (F)		Screw terminal		Screw terminal		Screw terminal		Screw terminal		Screw terminal		Screw terminal		Screw terminal		Screw terminal		Screw terminal			
Internal accessory (cassette-type)	Alarm switch	AL	•		•		•		•		•		•		•		•		•		
	Auxiliary switch	AX	•		•		•		•		•		•		•		•		•		
	Alarm and auxiliary switch	ALAX	•		•		•		•		•		•		•		•		•		
	Shunt trip	SHT	•		•		•		•		•		•		•		•		•		
	Undervoltage trip	UVT	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
External accessories	External operating handle	F	-	•	-	•	-	•	-	•	-	•	-	•	-	•	-	•	-	•	
		V	-	•	-	•	-	•	-	•	-	•	-	•	-	•	-	•	-	•	
	Terminal cover	TC-L	•		•		•		•		•		•		•		•		•		
TC-S		•		•		•		•		•		•		•		•		•			
Certification	CE, UKCA	Self declaration		Self declaration		Self declaration		Self declaration		Self declaration		Self declaration		Self declaration		Self declaration		Self declaration			
	CCC	Passed		Passed		Passed		Passed		Passed		Passed		Passed		Passed		Passed			
	KEMA	-		-		KEMA		KEMA		KEMA		KEMA		-		KEMA		KEMA			
Automatic tripping device		Thermal-magnetic		Thermal-magnetic		Thermal-magnetic		Thermal-magnetic		Thermal-magnetic		Thermal-magnetic		Thermal-magnetic		Thermal-magnetic		Thermal-magnetic			




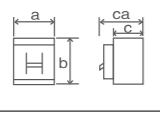
*1. Can also be used for 440VAC.

*2. While installing the external operating handle, the isolation function is unavailable for NFC30-SMX.

*3. Not cassette-type accessory.

*4. The rated current of NFC160-CMXA, NFC160-SMXA and NFC160-HMXA are adjustable.

They can be adjusted to rated current x0.8 or 1.0. (for example: 125A can be adjusted to 100A and 125A)

Frame(A)		250		400		630	
Series		C		S		S	
Model		NFC250-CMXA		NFC250-SMXA		NFC250-HMXA	
Rated current In (A)		175, 200, 225, 250 (*2)		250, 300, 350, 400		500, 600, 630 (*3)	
Image							
Rated ambient temperature (°C)		40		40		40	
Number of poles		3		3 4		3 4	
Rated insulation voltage Ui (V AC)		690		690		690	
Rated short-circuit breaking capacity (kA)	IEC 60947-2 EN 60947-2 (Icu/Ics)	AC	415V	15/7.5	25/12.5	36/18	36/18
			400V	15/7.5	25/12.5	36/18	36/18
		AC	380V	22/11	30/15	36/18	36/18
			230V	30/15	50/25	85/43	50/25
	GB/T 14048.2 (Icu/Ics)	AC	400V	15/7.5	25/12.5	36/18	36/18
			230V	30/15	50/25	85/43	50/25
Rated impulse withstand voltage Uimp (kV)		8		8		8	
Suitability for isolation		•		•		•(*1)	
Reverse connection		-		-		-	
Number of operating cycles	Without current	8,000		8,000		5,000	
	With current	1,000		1,000		1,000	
Utilization category		A		A		A	
Pollution degree		3		3		3	
Overall Dimension (mm)		a	105	105 140	105 140	140 185	210 280
		b	165	165	165	257	275
		c	68	68	68	103	103
		ca	92	92	92	155	155
Mass(kg)		1.8		1.8 2.0		1.8 2.0	
Installation and connection (Front connection) (F)		Screw terminal		Screw terminal		Screw terminal	
Internal accessory (cassette-type)	Alarm switch	AL	•	•	•	•	•
	Auxiliary switch	AX	•	•	•	•	•
	Alarm and auxiliary switch	ALAX	•	•	•	-	-
	Shunt trip	SHT	•	•	•	•	•
	Undervoltage trip	UVT	•	•	•	•	•
External accessories	External operating handle	F	•	•	•	•	-
		V	•	•	•	•	•
	Terminal cover	TC-L	•	•	•	•	•
		TC-S	-	-	-	-	-
Certification	CE, UKCA	Self declaration	Self declaration	Self declaration	Self declaration	Self declaration	
	CCC	Passed	Passed	Passed	Passed	Passed	
	KEMA	-	KEMA	KEMA	-	-	
Automatic tripping device		Thermal-magnetic		Thermal-magnetic		Thermal-magnetic	

*1. While installing the external operating handle, the isolation function are unavailable for NFC400-SMXA, NFC400-HMXA, NFC630-SMXA and NFC630-HMXA.

*2. The rated current of NFC250-CMXA, NFC250-SMXA and NFC250-HMXA are adjustable. They can be adjusted to rated current x0.8 or 1.0. (for example: 200A can be adjusted to 160A and 200A)

*3. The instantaneous trip current of NFC630-SMXA and NFC630-HMXA are adjustable. They can be adjusted to rated current x4 or x7 or x10 or x13. (for example: 500A can be adjusted to 2000A, 3500A, 5000A and 6500A)

Model		MCBs							
Image		BHW-T10							
No. of poles [P]		1	2	3	4	1	2	3	4
Instantaneous tripping ⁻²		Type B				Type C, D			
Rated insulation voltage U_i [V]		660				660			
Rated current I_n [A] at ambient temperature 30°C		6, 10, 16, 20, 25, 32, 40, 50, 63				0.5, 1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 63			
Rated short-circuit breaking capacity I_{cs} [kA]	IEC/EN 60898-1 (I_{cs})	10				10			
	AC	240V	10	10	10	10	10	10	10
		240/415V	10	10	10	10	10	10	10
		415V	-	10	-	-	10	-	10
Energy limiting class ⁻³		Class 3							
Number of operating cycles	Without current	4,000							
	With current	4,000							
Dimensions [mm]	a	18	36	54	72	18	36	54	72
	b	92.6							
	c	44							
	ca	Max. 73.5							
Type of overcurrent release		Thermal-magnetic							
Mounting		IEC 35mm rail							
Applicable wire size [mm ²]		1 to 25							
Mass [kg]		0.13	0.26	0.39	0.52	0.13	0.26	0.39	0.52
Accessories (optional)	Auxiliary switch (AX) ⁻⁴	○							
	Shunt trip (SHT) ⁻⁵	○							
Terminal connection		Solderless terminal							
Based on standard		IEC/EN 60898-1							
CE marking		Self-declaration							
UKCA marking		Self-declaration							

*1: N pole is a switched neutral pole (without overcurrent release device).

*2: Type B ($3 I_n < \leq 5 I_n$), Type C ($5 I_n < \leq 10 I_n$), Type D ($10 I_n < \leq 20 I_n$)

*3: Except for Type D

*4: Field fitted

*5: Factory fitted

*6: In case of installing breakers side by side, reduce the passing current to under 80% of the rated current.

Model		MCBs							
Image		BHW-T10							
No. of poles [P]		1	2	3	4	1	2	3	4
Instantaneous tripping ⁻¹		Type B, C							
Rated insulation voltage U_i [V]		690							
Rated current I_n [A]	Amb. temp.	80, 100							
		IEC/EN 60898-1 30°C							
Rated short-circuit breaking capacity I_{cs} [kA]	IEC/EN 60898-1 (I_{cs})	240V	10	10	10	10	10	10	10
		240/415V	10	10	10	10	10	10	10
		415V	-	10	10	10	10	10	10
		415V	-	10/75	10/75	10/75	10/75	10/75	10/75
Rated impulse withstand voltage U_{imp} [kV]		6							
Utilization category		A							
Pollution degree		3							
Number of operating cycles	Without current	10,000							
	With current	4,000							
Dimensions [mm]	a	27	54	81	108	27	54	81	108
	b	94							
	c	44							
	ca	74.5							
Type of overcurrent release		Thermal-magnetic							
Mounting		IEC 35mm rail							
Applicable wire size [mm ²]		10 to 35							
Mass [kg]		0.21	0.42	0.63	0.84	0.21	0.42	0.63	0.84
Accessories (optional) ⁻²	Alarm switch (AL)	○							
	Auxiliary switch (AX)	○							
Terminal connection		Solderless terminal							
Based on standard		IEC/EN 60898-1, IEC/EN 60947-2							
CE marking		Self-declaration							
UKCA marking		Self-declaration							

*1: Type B ($3 I_n < \leq 5 I_n$), Type C ($5 I_n < \leq 10 I_n$)

*2: Field fitted

*3: In case of installing breakers side by side, reduce the passing current to under 80% of the rated current.

Model		RCCBs							
Image		BWW-T							
No. of poles [P]		2	4	2	3	4	2	3	4
Rated voltage [VAC]		240				415			
Rated current I_n [A] at ambient temperature 30°C		40, 63, 80, 100							
Rated residual operating current $I_{\Delta n}$ [mA]		30, 100, 300							
Max. operating time at 5 $I_{\Delta n}$ [s]		0.04							
Pulsating current sensitivity		Type AC							
Residual operation		Independent of line voltage							
Short-circuit protective device		BHW-T10							
Rated making and breaking capacity I_m [A]		500 (I_n 16, 25, 32, 40A), 630 (I_n 63A), 800 (I_n 80A), 1000 (I_n 100A)							
Rated conditional short-circuit current I_{sc} [kA]		10							
Rated residual making and breaking capacity I_{sm} [A]		500 (I_n 16, 25, 32, 40A), 630 (I_n 63A), 800 (I_n 80A), 1000 (I_n 100A)							
Rated conditional residual short-circuit current I_{sc} [kA]		10							
Number of operating cycles	Without current	4,000 ⁻²							
	With current	2,000							
Dimensions [mm]	a	36	72	36	54	72	36	54	72
	b	90							
	c	44							
	ca	74							
Mounting		IEC 35mm rail							
Applicable wire size [mm ²]		1 to 35							
Mass [kg]		0.22	0.44	0.22	0.33	0.47	0.20	0.30	0.40
Accessories		Not available							
Terminal connection		Solderless terminal							
Based on standard		IEC/EN 61008-1							
CE marking		Self-declaration							
UKCA marking		Self-declaration							

*1: N pole is a switched neutral pole.

*2: In case of ampere rating 32, 40, 63, 80 and 100A, the number of operating cycles is 3,000.

Model		Isolators							
Image		KBW-T							
No. of poles [P]		1	2	3	4	2	3	4	4
Utilization category		AC-22A				AC-22A			
Rated operational current I_n [A] at ambient temperature 30 °C		25, 40, 63				80, 100, 125			
Rated operational voltage [VAC]		240	240/415	240/415	240/415	240/415	240/415	240/415	240/415
Rated short-time withstand current I_{cw} [A]		12× I_n , 1s				12× I_n , 1s			
Rated short-circuit making capacity I_{cm} [A]		12× I_n				12× I_n			
Rated impulse withstand voltage U_{imp} [kV]		6				6			
Pollution degree		2				2			
Dimensions [mm]	a	18	36	54	72	36	54	72	72
	b	92.6							
	c	44							
	ca	Max. 73.5							
Number of operating cycles	Without current	10,000				10,000 (I_n 80, 100A), 8,000 (I_n 125A)			
	With current	1,500				1,500 (I_n 80, 100A), 1,000 (I_n 125A)			
Mounting		IEC 35mm rail							
Applicable wire size [mm ²]		1 to 25							
Mass [kg]		0.12	0.22	0.33	0.47	0.20	0.30	0.40	0.40
Accessories		Not available							
Terminal connection		Solderless terminal							
Based on standard		IEC/EN 60947-3							
CE marking		Self-declaration							
UKCA marking		Self-declaration							

Frame		T10	T12	T20	T21	T25	T32	T35	T50	T65	T80	T100	N125	N150	N180	N220	N300	N400	N600AB	N800AB											
Applicable standard		JIS C8201-4-1, IEC60947-4-1, EN60947-4-1, GB14048.4											JIS C8201-4-1, IEC60947-4-1, EN60947-4-1, GB14048.4																		
Model Name	Magnetic Contactors (Without Thermal Overload Relay, Open Type)	Non-Reversing	S-T10	S-T12	S-T20	S-T21	S-T25	S-T32	S-T35	S-T50	S-T65	S-T80	S-T100	S-N125	S-N150	S-N180	S-N220	S-N300	S-N400	S-N600AB	S-N800AB										
	Magnetic Starters (With standard 2-element, With Thermal Overload Relay)	Reversing	S-2 x T10	S-2 x T12	S-2 x T20	S-2 x T21	S-2 x T25	S-2 x T32	S-2 x T35	S-2 x T50	S-2 x T65	S-2 x T80	S-2 x T100	S-2 x N125	S-2 x N150	S-2 x N180	S-2 x N220	S-2 x N300	S-2 x N400	S-2 x N600AB	S-2 x N800AB										
	Enclosed Type	Reversing	MS-T10	MS-T12	—	MS-T21	—	—	MS-T35	MS-T50	MS-T65	MS-T80	MS-T100	MS-N125	MS-N150	MS-N180	MS-N220	MS-N300	MS-N400	—	—										
Main contact rating	Rated insulation voltage	[V]	690																												
	Rated impulse withstand voltage	[kV]	6																												
	Rated frequency	[Hz]	50/60																												
Auxiliary contact rating	Pollution Degree		3																												
	Rated operational current / power Category AC-3 (Note 1)	[kVA]	2.5/11 [2.2/11]	3.5/13 [2.7/13]	4.5/18 [3.7/18]	5.5/25 [4/20]	7.5/30 [5.5/26]	7.5/32 [7.5/32]	11/40 [7.5/35]	15/55 [11/50]	18.5/65 [15/65]	22/85 [19/80]	30/105 [22/100]	37/125 [30/125]	45/150 [37/150]	55/180 [45/180]	75/250 [55/220]	90/300 [75/300]	125/400 [110/400]	190/630 [160/630]	220/800 [200/800]										
	(Three-phase squirrel-cage motor load standard responsibility) (Note 2) [kW/A]	[kW/A]	AC220 to 240V	4/5	5.5/7	7.5/9	11/12	11/12	15/17	22/26	30/38	45/52	55/65	60/70	90/100	110/120	132/150	200/220	250/300	330/420	500/630										
	Rated operational current / power Category AC-4 (Three-phase squirrel-cage motor load inching responsibility) [kW/A]	[kW/A]	AC220 to 240V	1.5/8	2.2/11	3.7/18	4.5/20	5.5/26	5.5/26	7.5/35	11/50	15/65	19/80	22/93	30/125	37/150	45/180	55/220	75/300	110/400	160/630										
	Rated operational current / power Category AC-1 (Resistance, heater load)	[A]	AC220 to 240V	11	13	—	32	60	80	100	120	150	150	200	260	260	350	450	660	800											
	Conventional Free Air Thermal Current Ith	[A]	AC380 to 440V	20	32	60	80	100	120	150	150	200	260	260	350	450	660	800													
	Standard Accessory (Note 7)	Non-Reversing	1a	1a1b	2a2b	—	2a2b	2a2b	2a2b	2a2b	2a2b	2a2b	2a2b	2a2b	2a2b	2a2b	2a2b	2a2b	2a2b	2a2b	2a2b	2a2b									
	Special accessory	Reversing (Note 4, Note 6)	1a x 2 + 2b	1a1b x 2 + 2b	2a2b x 2	2a2b x 2	2a2b x 2	2a2b x 2	2a2b x 2	2a2b x 2	2a2b x 2	2a2b x 2	2a2b x 2	2a2b x 2	3a3b x 2	3a3b x 2	3a3b x 2	3a3b x 2	3a3b x 2	3a3b x 2	4a4b x 2	4a4b x 2									
	Max. number of additional options (Note 10)	Non-Reversing	1 for UT-AX2/4, 2 for UT-AX11											1 for UT-AX2/4, 2 for UT-AX11		4a4b		4a4b		4a4b		4a4b									
	Rated Operating Current (Category AC-15: Alternating current coil load) [A]	AC120V	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6									
Rated Operational Current (Category DC-13 : Direct current coil load)	DC24V	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3										
Conventional Free Air Thermal Current Ith	DC110V	0.6																													
Performance	Mechanical Durability	[x 10000]	1000																												
	Electrical Durability (Note 5) [Ten thousand times]	Category AC-3	200 (Note 5, 6)																												
	Switching Frequency [Times/Hour]	Category AC-4	3 (Note 5)																												
		Category AC-1	50																												
Outside Dimensions	Coil consumption (Note7) [VA]	Sealed	7	7	4.5	10	20	23	24	24	40	40	50	50	90	90															
	Power Consumption (Note 7) [W]	Inrush	45	75	55	110	115	210	270	270	440	440	440	440	790	790															
		Category AC-3	2.2	2.4	2.4	1.8	3.8	3.8	2.2	2.2	2.8	2.9	2.9	4.2	4.2	6.1	6.1	17	17												
IEC 35mm rail mounting	Magnetic Contactors (without Thermal Overload Relays) (Width x Height x Depth) [mm]	Non-Reversing	36 x 75 x 78	44 x 75 x 78	63 x 81 x 81	43 x 81 x 81	75 x 89 x 91	88 x 106 x 106	88 x 106 x 106	100 x 124 x 127	100 x 150 x 137	120 x 160 x 145	138 x 204 x 175	138 x 204 x 175	163 x 243 x 195	163 x 243 x 195	290 x 310 x 230	290 x 310 x 230													
	Open Type Magnetic Starters (Width x Height x Depth) [mm]	Reversing	82 x 85 x 78	98 x 85 x 78	136 x 81 x 81	96 x 81 x 111	160 x 114 x 97	216 x 115 x 112	216 x 115 x 112	270 x 140 x 137	276 x 150 x 148	296 x 160 x 156	370 x 215 x 189	370 x 215 x 189	395 x 250 x 209	395 x 250 x 209	660 x 410 x 249	660 x 410 x 249													
	Enclosed Magnetic Starters (Width x Height x Depth) [mm]	Non-Reversing	46 x 115 x 79	63 x 128 x 82	—	75 x 157.5 x 91	90 x 158 x 106	90 x 174.5 x 106	100 x 196 x 127	112 x 239 x 137	120 x 250 x 145	144 x 282 x 180.5	144 x 282 x 180.5	163 x 360 x 195	163 x 360 x 195	—	—														
	Mechanical Interlock Units	Non-Reversing	90.5 x 125 x 79	98.5 x 125 x 79	136 x 138 x 82	—	160 x 179 x 97	216 x 169 x 112	216 x 185.5 x 112	270 x 213 x 137	276 x 251 x 148	296 x 276 x 156	370 x 304 x 194.5	370 x 304 x 194.5	395 x 392 x 209	395 x 392 x 209	—	—													
		Reversing	76 x 165 x 97.5	—	104 x 176 x 110	—	135 x 231 x 126	160 x 282 x 145	190 x 317 x 163	230 x 396 x 190	270 x 496 x 209	—	—	—	—	—	—	—													
	Additional Auxiliary Contact Units	(Contact Arrangement 1a1b) (Contact Arrangement 2a2b) With Low-Level Signal Contact	UT-AX2/AX11											UN-AX2/AX11		UN-AX80		UN-AX150		UN-AX600											
Coil Surge Absorber Units (Note 4)	(Varistor) (Note 4) (Varistor + Display LED) (CR) (Varistor + CR)	UT-SA21											—		—		—														
DC-AC Interface	Triac Output Contact Output	UT-SA22											—		—		—														
Live Part Protection Cover	For Magnetic Starters	Non-Reversing	—											UN-CZ500 + UN-CZ501		UN-CZ800 + UN-CZ801		UN-CZ1250 + UN-CZ1251		UN-CZ1500 + UN-CZ1501		UN-CZ2200 + UN-CZ2201		UN-CZ3000 + UN-CZ3001							
		Reversing	—											UN-CZ504		UN-CZ804		UN-CZ1254		UN-CZ1504		UN-CZ2204		UN-CZ3004							
Terminal Cover	For Magnetic Starters (Non-Reversing) For Magnetic Contactors (Non-Reversing)	Non-Reversing	—											UN-CZ500 x 2		UN-CZ800 x 2		UN-CZ1250 x 2		UN-CZ1500 x 2		UN-CZ2200 x 2		UN-CZ3000 x 2							
		Reversing	—											UN-CZ502		UN-CZ802		UN-CZ1252		UN-CZ1502		UN-CZ2202		UN-CZ3002							
Mechanical Interlock Units		UT-ML20					UN-ML21					UN-ML21					UN-ML80					UN-ML150					UN-ML220				

Note 1. The figure in the square brackets indicates the rated current shown on the rating plate of the product at which the category AC-3 opening/closing durability is 2,000,000 times for T10 to T65 (1,000,000 times for the T20 380V, T80 and T100). Refer to the electric durability curve for the life performance.

Note 2. The value between parentheses for the rated operating current is for the magnetic contactor (without thermal overload relay), while the value between parentheses for the motor capacity applies to an enclosed type magnetic starter.

Note 3. AC operated types T10 to T50, DC operated types T12 to T50 can be manufactured with coil surge absorber (□-□SA type). The UT-SA21 type can be mounted.

Note 4. T65 to N800 types have an integrated coil surge absorber rendering a coil surge absorber unit for prevention of coil switching surges unnecessary.

Note 5. 1 million times for T20 class AC-3 380V or more types for the rating in parentheses and 15,000 times for class AC-4 types. 15,000 times for T35 to N400 class AC-4 380V or more types. 8,000 times for N600AB and N800AB class AC-4 380V or more types.

Note 6. Values are for the ratings in parentheses. The electrical durability for the current values not in parentheses varies inversely with the rough square of the current.

Note 7. Mechanically latched types and delay open types have differing auxiliary contact arrangements. Refer to page 100 for details about mechanically latched types, or page 109 for delay open types.

Note 8. Operational coil input and coil consumption are average values in case of applying 220V60Hz to AC200V coil.

Note 9. The +2b on the auxiliary contact arrangement of reversible T10 to T20 types indicates the break contact of the integrated UT-ML11 interlock unit. There is no need to specify when ordering.

Note 10. The body and auxiliary contact unit can be additionally installed by the customer as a separate arrangement. Enclosed type auxiliary contact units and mechanically latched front clip-on auxiliary contacts cannot be additionally installed. Refer to page 182 for details about auxiliary contact units.

Note 11. Auxiliary contact arrangements for reversible types are displayed by twos, in a contact arrangement combined with two magnetic contactors. For standard contact arrangements there is no need to specify when ordering; however, please specify a matching contact arrangement for 2 units if for a special configuration. <Example> For 1b x 2 + 2b: 2B

Note 12. Because there are products that cannot be mounted, please refer to combination details on page 180 when applying optional products.

Frame		T18	T25	T50	T65	T100	N120	N120TA	N220	N400	N600	
Appearance												
Model Name	Standard with 2-Element	For Magnetic Starters For Independent Mounting TH-T18 UT-HZ18 + TH-T18	TH-T25	TH-T50	TH-T65	TH-T100	TH-N120	TH-N120TA TH-N120TAHZ	TH-N220RH TH-N220HZ	TH-N400RH TH-N400HZ	TH-N600 (Note 3)	
	With 3-Element (2E)	For Magnetic Starters For Independent Mounting TH-T18KP UT-HZ18 + TH-T18KP	TH-T25KP	TH-T50KP	TH-T65KP	TH-T100KP	TH-N120KP	TH-N120TAKP TH-N120TAHZKP	TH-N220RHKP TH-N220HZKP	TH-N400RHKP TH-N400HZKP	TH-N600KP (Note 3)	
	Outline Drawing [mm] W x H x D	For Magnetic Starters For Independent Mounting 46 x 55 x 76.5 48 x 65.5 x 83.5	63 x 53 x 80	74.3 x 74 x 88	89 x 57 x 83.5	89 x 68.5 x 83.5	103 x 67 x 105	112 x 87 x 105 112 x 103 x 105	144 x 114 x 179.5 144 x 104 x 166.5	144 x 160 x 193.5 144 x 173 x 166.5	63 x 42 x 83.5	
	Product Weight [kg]	For Magnetic Starters For Independent Mounting 0.11 0.16	0.16	0.2	0.26	0.32	0.48	0.75 1.0	2.5 2.5	2.7 2.7	0.14	
Applicable Standard		JIS C8201-4-1, IEC60947-4-1, EN60947-4-1, GB14048.4					JIS, JEM, IEC, VDE, BS, UL, GB					
Use Conditions		Ambient Temperature [°C] -10 to +40 (Standard is 20°C, Inner Panel Maximum Temperature is 55°C)					-10 to +40 (Standard is 20°C, Inner Panel Maximum Temperature is 55°C)					
		Frequency [Hz] 0 (DC) to 400					0 (DC) to 400					
Rated Insulation Voltage [V]		690					690					
Rated Impulse Withstand Voltage [kV]		6					6					
Pollution Degree		3					3					
Specifications of the Main Circuit	Heater Designation (Adjustment Range of Settling Current) [A]	0.12 (0.1 to 0.16) 0.17 (0.14 to 0.22) 0.24 (0.2 to 0.32) 0.35 (0.28 to 0.42) 0.5 (0.4 to 0.6) 0.7 (0.55 to 0.85) 0.9 (0.7 to 1.1) 1.3 (1 to 1.6) 1.7 (1.4 to 2) 2.1 (1.7 to 2.5) 2.5 (2 to 3) 3.6 (2.8 to 4.4) 5 (4 to 6) 6.6 (5.2 to 8) 9 (7 to 11) 11 (9 to 13) 15 (12 to 18)	0.24 (0.2 to 0.32) 0.35 (0.28 to 0.42) 0.5 (0.4 to 0.6) 0.7 (0.55 to 0.85) 0.9 (0.7 to 1.1) 1.3 (1 to 1.6) 1.7 (1.4 to 2) 2.1 (1.7 to 2.5) 2.5 (2 to 3) 3.6 (2.8 to 4.4) 5 (4 to 6) 6.6 (5.2 to 8) 9 (7 to 11) 11 (9 to 13) 15 (12 to 18)	29 (24 to 34) 35 (30 to 40) 42 (34 to 50)	15 (12 to 18) 22 (18 to 26) 29 (24 to 34) 35 (30 to 40) 42 (34 to 50) 54 (43 to 65)	67 (54 to 80) 82 (65 to 100) 95 (85 to 105)	42 (34 to 50) 54 (43 to 65) 67 (54 to 80) 82 (65 to 100)	105 (85 to 125) 125 (100 to 150)	82 (65 to 100) 105 (85 to 125) 125 (100 to 150) 150 (120 to 180) 180 (140 to 220) 210 (170 to 250)	105 (85 to 125) 125 (100 to 150) 150 (120 to 180) 180 (140 to 220) 250 (200 to 300) 330 (260 to 400)	250 (200 to 300) 330 (260 to 400) 500 (400 to 600) 660 (520 to 800)	(Current Transformer Ratio: 400/5 A) (Current Transformer Ratio: 500/5 A) (Current Transformer Ratio: 750/5 A) (Current Transformer Ratio: 1000/5 A)
	Power Consumption [VA/Element] Minimum/Maximum Settling	0.8/1.8	1.0/2.1	1.6/3.2	2.4/5.5	2.5/6.0	3.0/7.1	3.8/8.6	1.0/2.3 (Note 4)	1.0/2.3 (Note 4)	1.0/2.3 (Note 4)	
	Terminal Screw Size	M3.5	M4	M5	M6	M6	M8	M8	M10	M12	—	
	Terminal-Compatible	Wire Size [mm ²] φ 1.6, 0.75 to 2.5	φ 1.6 to 2.6, 1.25 to 6	φ 2 to 3.6, 4 to 14	—	—	—	—	—	—	—	
		Crimp Lug Size 1.25-3.5 to 2-3.5, 5.5-S3	1.25-4 to 5.5-4	5.5-5 to 14-5	5.5-6 to 22-6	14-6 to 22-6, 38-S6	8-8 to 38-8	38-8 to 100-8	22-10 to 150-10	22-12 to 200-12	—	
	Contact Arrangement	1a1b	1a1b	1a1b	1a1b	1a1b	1a1b	1a1b	1a1b	1a1b	1a1b	
	Conventional Free Air Thermal Current Ith [A]	2	5	5	5	5	5	5	5	5	5	
	Rating Use [A]	Category AC-15 (AC Contactors Coil Switching Make Contact/Break Contact) The value in parentheses is the rating during auto reset	AC24 V	2 (0.5)/2 (0.5)	2 (0.5)/3 (0.5)	2 (0.5)/3 (0.5)	2 (0.5)/3 (0.5)	2 (0.5)/3 (0.5)	2 (0.5)/3 (0.5)	2 (0.5)/3 (0.5)	2 (0.5)/3 (0.5)	2 (0.5)/3 (0.5)
			AC120 V	2 (0.5)/2 (0.5)	2 (0.5)/3 (0.5)	2 (0.5)/3 (0.5)	2 (0.5)/3 (0.5)	2 (0.5)/3 (0.5)	2 (0.5)/3 (0.5)	2 (0.5)/3 (0.5)	2 (0.5)/3 (0.5)	2 (0.5)/3 (0.5)
			AC240 V	1 (0.5)/1 (0.5)	1 (0.5)/2 (0.5)	1 (0.5)/2 (0.5)	1 (0.5)/2 (0.5)	1 (0.5)/2 (0.5)	1 (0.5)/2 (0.5)	1 (0.5)/2 (0.5)	1 (0.5)/2 (0.5)	1 (0.5)/2 (0.5)
AC550 V			0.3 (0.3)/0.3 (0.3)	0.3 (0.3)/0.3 (0.3)	0.3 (0.3)/0.3 (0.3)	0.5 (0.5)/1 (0.5)	0.5 (0.5)/1 (0.5)	0.5 (0.5)/1 (0.5)	0.5 (0.5)/1 (0.5)	0.5 (0.5)/1 (0.5)	0.5 (0.5)/1 (0.5)	0.5 (0.5)/1 (0.5)
Category DC-13 (DC Contactors Coil Switching) The value in parentheses is the rating during auto reset			DC24 V	0.5(0.3)	1(0.3)	1(0.3)	1(0.3)	1(0.3)	1(0.3)	1(0.3)	1(0.3)	1(0.3)
	DC110 V	0.2(0.2)	0.2(0.2)	0.2(0.2)	0.2(0.2)	0.2(0.2)	0.2(0.2)	0.2(0.2)	0.2(0.2)	0.2(0.2)		
	DC220 V	0.1(0.1)	0.1(0.1)	0.1(0.1)	0.1(0.1)	0.1(0.1)	0.1(0.1)	0.1(0.1)	0.1(0.1)	0.1(0.1)		
Minimum Applicable Load Level	20 V 5 mA	20 V 5 mA	20 V 5 mA	20 V 5 mA	20 V 5 mA	20 V 5 mA	20 V 5 mA	20 V 5 mA	20 V 5 mA	20 V 5 mA		
Terminal Screw Size	M3.5	M3.5	M3.5	M4	M4	M4	M4	M4	M4	M4		
Terminal-Compatible	Wire Size [mm ²] φ 1.6, 0.75 to 2.5	φ 1.6, 0.75 to 2.5	φ 1.6, 1.25 to 2	φ 1.6, 1.25 to 2	φ 1.6, 1.25 to 2	φ 1.6, 1.25 to 2	φ 1.6, 1.25 to 2	φ 1.6, 1.25 to 2	φ 1.6, 1.25 to 2	φ 1.6, 1.25 to 2		
	Crimp Lug Size 1.25-3.5 to 2-3.5	1.25-3.5 to 2-3.5	1.25-3.5 to 2-3.5	1.25-4 to 2-4, 5.5-S4	1.25-4 to 2-4, 5.5-S4	1.25-4 to 2-4, 5.5-S4	1.25-4 to 2-4, 5.5-S4	1.25-4 to 2-4, 5.5-S4	1.25-4 to 2-4, 5.5-S4	1.25-4 to 2-4, 5.5-S4		
Operating Characteristic Curve Page	145					148						
Vibration Resistance (Vibration and Malfunction Resistance Performance)	10 to 55 Hz 19.6 m/s ²					10 to 55 Hz 19.6 m/s ²						
Trip Free	○	○	○	○	○	○	○	○	○	○		
Reset Method	Manual/Automatic Switchable	Manual/Automatic Switchable	Manual/Automatic Switchable	Manual/Automatic Switchable	Manual/Automatic Switchable	Manual/Automatic Switchable	Manual/Automatic Switchable	Manual/Automatic Switchable	Manual/Automatic Switchable	Manual/Automatic Switchable		
Operation Indicator (Lever Display)	○	○	○	○	○	○	○	○	○	○		
Manual Tripping Check	○	○	○	○	○	○	○	○	○	○		
Frame of the Combined Magnetic Contactor	T10, T12, T20 T12, T20 T20	T21, T25, T35, T50	T35, T50 T50	T65, T80, T100	T80, T100 T100	N125, N150	N125, N150 N150	N180, N220 N220	N300, N400 N400	N600, N800		
Applied Products	With Saturable Reactor [See Page 138]	With 2-Element (TH-□SR) ○ (TH-T18SR)	○ (TH-T25SR)	○ (TH-T50SR)	○ (TH-T65SR)	○ (TH-T100SR)	○ (TH-N120SR)	○ (TH-N120TASR)	○ (TH-N220□SR)	○ (TH-N400□SR)	○ (TH-N600SR)	
	Quick Trip Type [See Page 139]	With 3-Element (2E) (TH-□KPSR) —	○ (TH-T25KPSR)	○ (TH-T50KPSR)	○ (TH-T65KPSR)	○ (TH-T100KPSR)	○ (TH-N120KPSR)	○ (TH-N120TAKPSR)	○ (TH-N220□KPSR)	○ (TH-N400□KPSR)	○ (TH-N600KPSR)	
	With 2-Element (TH-□FS)	—	△ (TH-T25FS)	△ (TH-T50FS)	△ (TH-T65FS)	△ (TH-T100FS)	—	—	—	—		
	With 3-Element (2E) (TH-□FSKP, KF)	△ (TH-T18FSKP)	△ (TH-T25FSKP)	△ (TH-T50FSKP)	△ (TH-T65FSKP)	△ (TH-T100FSKP)	—	—	—	—		
Optional	Live Part Protection Cover	—	—	—	○ (UN-CZ605)	—	—	—	—	—		
	Reset Release	○ (UN-RR□5)	○ (UN-RR□0)	○ (UN-RR□0)	○ (UN-RR□6)	○ (UN-RR□6)	○ (UN-RR□6)	○ (UN-RR□6)	○ (UN-RR□6)	○ (UN-RR□6)		
	Operation Indicator Lamp	○ (UN-TL12)	○ (UN-TL20)	○ (UN-TL20)	○ (UN-TL60)	○ (UN-TL60)	○ (UN-TL60)	○ (UN-TL60)	○ (UN-TL60)	○ (UN-TL60)		
	Independent/IEC 35 mm Rail Mounting Unit	○ (UT-HZ18)	○ (UN-RM20)	—	—	—	—	—	—	—		
Misoperation Prevention Cover	—	○ (UN-CV203)	○ (UN-CV203)	○ (UN-CV603)	○ (UN-CV603)	○ (UN-CV603)	○ (UN-CV603)	○ (UN-CV603)	○ (UN-CV603)			

Note 1. All model names come with ambient temperature compensation device.

Note 2. ○ indicates standard type (standard equipment), ◯ indicates semi-standard type, △ indicates special products and - indicates products outside production range.

Note 3. Use TH-N600(KP) in combination with current transformer for measuring instruments (rated secondary load of 15 VA or more). The recommended model names are CW-15LM or CW-15L for 250, 330 and 500 A, and CW-40LM for 660 A. The ratio of current transformation is as shown in the heater designation field in the table.

Note 4. The power consumption indicates the amount consumed by the heater element only. (The current transformer consumption amounts of the N220 to N600 frames are not included.)



SS ver.B
Super - S Series

ME96SSHB-MB

Model name		ME96SSHB-MB		
Phase wire system		3-phase 4-wire, 3-phase 3-wire (3CT, 2CT), 1-phase 3-wire, 1-phase 2-wire (common use)		
Rating	Current	5 A AC, 1 A AC (common use)		
	Voltage	3-phase 4-wire: max 277/480 V AC 3-phase 3-wire: (DELTA) max 220 V AC, (STAR) max 440 V AC 1-phase 3-wire: max 220/440 V AC 1-phase 2-wire: (DELTA) max 220 V AC, (STAR) max 440 V AC		
	Frequency	50/60 Hz (common use)		
Item		Measuring Item	Class	
Measuring element	Current (A)	A1, A2, A3, AN, A _{AVG}	±0.1%	
	Current demand (DA)	DA1, DA2, DA3, DAN, DA _{AVG}		
	Voltage (V)	V12, V23, V31, V _{AVG} (L-L), V1N, V2N, V3N, V _{AVG} (L-N)		±0.2%
	Active power (W)	W1, W2, W3, ΣW		
	Reactive power (var)	var1, var2, var3, Σvar		
	Apparent power (VA)	VA1, VA2, VA3, ΣVA		
	Power factor (PF)	PF1, PF2, PF3, ΣPF		
	Frequency (Hz)	Hz	±0.1%	
	Active energy (Wh)	Imported, Exported	Class 0.5S (IEC62053-22)	
	Reactive energy (varh)	Imported lag, Imported lead, Exported lag, Exported lead	Class 1S (IEC62053-24)	
	Apparent energy (VAh)	Imported + Exported	±2.0%	
	Harmonic current (HI)	Total, 1 st to 31 st (Odd degree only)	±1.0%	
	Harmonic voltage (HV)	Total, 1 st to 31 st (Odd degree only)		
	Rolling demand active power (DW)	Rolling block, Fixing block (Select either of them according to the settings.)	±0.2%	
	Rolling demand reactive power (Dvar)	Rolling block, Fixing block (Select either of them according to the settings.)		
	Rolling demand apparent power (DVA)	Rolling block, Fixing block (Select either of them according to the settings.)	±1.0%	
	Periodic active energy (Wh)	Periodic active energy 1, Periodic active energy 2, Periodic active energy 3		
	Operating time (h)	Operating time 1, Operating time 2	(Reference)	
	Current unbalance rate (Aunb)	Aunb	(Reference)	
	Voltage unbalance rate (Vunb)	Vunb	(Reference)	
CO ₂ equivalent	kg	(Reference)		
Item		Specifications		
Analog output response time		1 second or less (Hz: 2 seconds or less, HI, HV: 5 seconds or less)		
Measuring Method	Instantaneous Value	A, V: RMS value calculation; W, var, VA, Wh, varh, VAH: Digital multiplication; PF: Power ratio calculation; Hz: Zero-cross; HI, HV: FFT		
	Demand Value	DA: Thermal type calculation, DW, Dvar, DVA: Rolling demand calculation		
Display	Display type		LCD with LED backlight	
	Number of display digits or segments	Display type	First to third line indication: 4 digits, Fourth line indication: 6 digits	
		Digital section	A, DA, V, W, var, VA, PF, DW, Dvar, DVA: 4 digits; Hz: 3 digits; Wh, varh, VAH: 9 digits (6-digit or 12-digit is also available.); Harmonic distortion ratio/content rate: 4 digits; Harmonic RMS value: 4 digits; Operating time: 6 digits; Contact input/output: I/O	
Display update time interval		0.5 s, 1 s (selectable)		
Communication		MODBUS RTU communication		
Built-in logging	Logging mode		Automatic overwrite update	
	Logging data type	Measuring data *1	Measuring data and time data are logged at the interval set at the data logging period. (15 min, 30 min, 60 min)	
		Alarm log	Time data at alarm generating/cancellation and at waiting for alarm cancellation	
		The recorded time of the Max/Min value	Max/Min value data and time data	
	Number of logging items	Measuring data	Integrated value data: 5 items, Data other than integrated value: 15 items, Total: A maximum of 20 items	
		Alarm log	The number of the set alarms	
	Internal memory logging period	The recorded time of the Max/Min value	The total is 19 items: Current Max/Min (AVG), Line voltage Max/Min (AVG), Phase voltage Max/Min (AVG), Total active power Max/Min (AVG), Total power factor Max/Min (AVG), Frequency Max/Min (AVG), Total reactive power Max/Min, Total apparent power Max/Min, Total harmonic current RMS Max value, Harmonic line voltage distortion ratio Max total, Harmonic phase voltage distortion ratio Max total	
		Measuring data	30 days (Logging period: 15 minutes), 60 days (Logging period: 30 minutes), 120 days (Logging period: 60 minutes)	
		Alarm log	100 records	
	System log data		100 records	
Saving logging data		Use of nonvolatile memory		
How to acquire logging data		Acquire the logging data via MODBUS® RTU Communication		
Clock accuracy		1 minute difference/Month (typical)		
Connectable Optional Plug-in Module		ME-4210-SS96B, ME-0040C-SS96, ME-0052-SS96, ME-0000MT-SS96, ME-0000BU-SS96		
Analog output	Output specifications (Load)		4 mA to 20 mA DC (0 to 600 Ω)	
	Pulse/Alarm output	Switch type	Semiconductor relay/No-voltage a-contact	
		Contact capacity	35 V DC, 0.1 A	
Contact input (DI)	Pulse width	0.125 s, 0.5 s, 1.0 s		
	Contact capacity	24 V DC (19 V to 30 V DC), 7 mA or less		
Contact output (DO)	Signal width	30 ms or more		
	Switch type	Semiconductor relay/No-voltage a-contact		
Power interruption backup		Use of nonvolatile memory (Items: settings, MAX/MIN value, active energy, reactive energy, apparent energy, periodic active energy, rolling demand, operating time)		
VA Consumption	Built-in logging		Use of nonvolatile memory (Logging data, System log data)	
	Voltage circuit	Each phase: 0.1 VA (at 110 V AC), 0.2 VA (at 220 V AC), 0.4 VA (at 440 V AC)		
	Current circuit	Each phase: 0.1 VA		
	Auxiliary power circuit	13 VA (at 110 V AC), 14 VA (at 220 V AC), 9 W (at 100 V DC)		
Auxiliary power		100 V to 240 V AC (±15%), 100 V to 240 V DC (-30% +15%)		
Weight		0.5 kg		
Dimensions		96 (H) × 96 (W) × 90 (D) mm		
Mounting method		Embedded		
Operating temperature/humidity		-5°C to +55°C (Daily average temperature: 35°C or less), 0% to 85% RH, Non condensing		
Storage temperature/ humidity		-25°C to +75°C (Daily average temperature: 35°C or less), 0% to 85% RH, Non condensing		

Note 1. The class value represents the ratio to the rated value (100%).
 Note 2. For measurement where the harmonic distortion ratio (content rate) is 100% or more, the class can exceed ±1.0%.
 Note 3. Harmonic current cannot be measured without voltage input.
 Note 4. Using the conventional ME-4210-SS96 (Optional Plug-in Module), the CE marking and UL standards safety certification requirements cannot be met.
 *1: Integrated values (Wh, varh, and VAh) are measured values of ME96SS. They are not differential values by logging period.

ME96SSRB-MB

Model name		ME96SSRB-MB	
Phase wire system		3-phase 4-wire, 3-phase 3-wire (3CT, 2CT), 1-phase 3-wire, 1-phase 2-wire (common use)	
Rating	Current	5 A AC, 1 A AC (common use)	
	Voltage	3-phase 4-wire: max 277/480 V AC 3-phase 3-wire: (DELTA) max 220 V AC, (STAR) max 440 V AC 1-phase 3-wire: max 220/440 V AC 1-phase 2-wire: (DELTA) max 220 V AC, (STAR) max 440 V AC	
	Frequency	50/60 Hz (common use)	
	Item	Measurement items	Class
Measuring element	Current (A)	A1, A2, A3, AN, A _{AVG}	±0.2%
	Current demand (DA)	DA1, DA2, DA3, DAN, DA _{AVG}	
	Voltage (V)	V12, V23, V31, V _{AVG} (L-L), V1N, V2N, V3N, V _{AVG} (L-N)	
	Active power (W)	W1, W2, W3, ΣW	±0.5%
	Reactive power (var)	var1, var2, var3, Σvar	
	Apparent power (VA)	VA1, VA2, VA3, ΣVA	
	Power factor (PF)	PF1, PF2, PF3, ΣPF	
	Frequency (Hz)	Hz	±0.1%
	Active energy (Wh)	Imported, Exported	Class 0.5S (IEC62053-22)
	Reactive energy (varh)	Imported lag, Imported lead, Exported lag, Exported lead	Class 1S (IEC62053-24)
	Apparent energy (VAh)	Imported + Exported	±2.0%
	Harmonic current (HI)	Total, 1 st to 19 th (Odd degree only)	±1.0%
	Harmonic voltage (HV)	Total, 1 st to 19 th (Odd degree only)	
	Rolling demand active power (DW)	Rolling block, Fixing block (Select either of them according to the settings.)	±0.5%
	Rolling demand reactive power (Dvar)	Rolling block, Fixing block (Select either of them according to the settings.)	±1.0%
	Rolling demand apparent power (DVA)	Rolling block, Fixing block (Select either of them according to the settings.)	
	Periodic active energy (Wh)	Periodic active energy 1, Periodic active energy 2, Periodic active energy 3	Class 0.5S
	Operating time (h)	Operating time 1, Operating time 2	(Reference)
	Current unbalance rate (Aunb)	Aunb	(Reference)
	Voltage unbalance rate (Vunb)	Vunb	(Reference)
CO ₂ equivalent	kg	(Reference)	
Item		Specifications	
Analog output response time		1 second or less (Hz: 2 seconds or less, HI, HV: 5 seconds or less)	
Measuring Method	Instantaneous Value	A, V: RMS value calculation; W, var, VA, Wh, varh, VAh: Digital multiplication; PF: Power ratio calculation; Hz: Zero-cross; HI, HV: FFT	
	Demand Value	DA: Thermal type calculation, DW, Dvar, DVA: Rolling demand calculation	
Display	Display type		LCD with LED backlight
	Number of display digits or segments	Digital section	First to third line indication: 4 digits, Fourth line indication: 6 digits A, DA, V, W, var, VA, PF, DW, Dvar, DVA: 4 digits; Hz: 3 digits; Wh, varh, VAh: 9 digits (6-digit or 12-digit is also available.); Harmonic distortion ratio/content rate: 4 digits; Harmonic RMS value: 4 digits; Operating time: 6 digits; Contact input/output: I/O
		Display update time interval	0.5 s, 1 s (selectable)
Communication		MODBUS RTU communication	
Built-in logging	Logging mode		Automatic overwrite update
	Logging data type	Measuring data *1	Measuring data and time data are logged at the interval set at the data logging period. (15 min, 30 min, 60 min)
		Alarm log	Time data at alarm generating/cancellation and at waiting for alarm cancellation
		The recorded time of the Max/Min value	Max/Min value data and time data
	Number of logging items	Measuring data	Integrated value data: 5 items, Data other than integrated value: 15 items, Total: A maximum of 20 items
		Alarm log	The number of the set alarms
		The recorded time of the Max/Min value	The total is 19 items: Current Max/Min (AVG), Line voltage Max/Min (AVG), Phase voltage Max/Min (AVG), Total active power Max/Min (AVG), Total power factor Max/Min (AVG), Frequency Max/Min (AVG), Total reactive power Max/Min, Total apparent power Max/Min, Total harmonic current RMS Max value, Harmonic line voltage distortion ratio Max total, Harmonic phase voltage distortion ratio Max total
	Internal memory logging period	Measuring data	30 days (Logging period: 15 minutes), 60 days (Logging period: 30 minutes), 120 days (Logging period: 60 minutes).
		Alarm log	100 records
		The recorded time of the Max/Min value	1 record for every Max/Min value factor
System log data		100 records	
Saving logging data		Use of nonvolatile memory	
How to acquire logging data		Acquire the logging data via MODBUS [®] RTU Communication	
Clock accuracy		1 minute difference/Month (typical)	
Connectable Optional Plug-in Module		ME-4210-SS96B, ME-0040C-SS96, ME-0052-SS96, ME-0000MT-SS96, ME-0000BU-SS96	
Analog output	Output specifications (Load)	4 mA to 20 mA DC (0 to 600 Ω)	
	Switch type	Semiconductor relay/No-voltage a-contact	
Pulse/Alarm output	Contact capacity	35 V DC, 0.1 A	
	Pulse width	0.125 s, 0.5 s, 1.0 s	
	Contact capacity	24 V DC (19 V to 30 V DC), 7 mA or less	
Contact input (DI)	Signal width	30 ms or more	
Contact output (DO)	Switch type	Semiconductor relay/No-voltage a-contact	
Power interruption backup		Use of nonvolatile memory (Items: settings, MAX/MIN value, active energy, reactive energy, apparent energy, periodic active energy, rolling demand, operating time)	
VA Consumption	Built-in logging		Use of nonvolatile memory (Logging data, System log data)
	Voltage circuit	Each phase: 0.1 VA (at 110 V AC), 0.2 VA (at 220 V AC), 0.4 VA (at 440 V AC)	
	Current circuit	Each phase: 0.1 VA	
	Auxiliary power circuit	13 VA (at 110 V AC), 14 VA (at 220 V AC), 9 W (at 100 V DC)	
Auxiliary power		100 V to 240 V AC (±15%), 100 V to 240 V DC (-30% +15%)	
Weight		0.5 kg	
Dimensions		96 (H) × 96 (W) × 90 (D) mm	
Mounting method		Embedded	
Operating temperature/humidity		-5°C to +55°C (Daily average temperature: 35°C or less), 0% to 85% RH, Non condensing	
Storage temperature/ humidity		-25°C to +75°C (Daily average temperature: 35°C or less), 0% to 85% RH, Non condensing	

Note 1. The class value represents the ratio to the rated value (100%).
 Note 2. For measurement where the harmonic distortion ratio (content rate) is 100% or more, the class can exceed ±1.0%.
 Note 3. Harmonic current cannot be measured without voltage input.
 Note 4. Using the conventional ME-4210-SS96 (Optional Plug-in Module), the CE marking and UL standards safety certification requirements cannot be met.
 *1: Integrated values (Wh, varh, and VAh) are measured values of ME96SS. They are not differential values by logging period.

ME96SSEB-MB

Model name		ME96SSEB-MB		
Phase wire system		3-phase 4-wire, 3-phase 3-wire (3CT, 2CT), 1-phase 3-wire, 1-phase 2-wire (common use)		
Rating	Current	5 A AC, 1 A AC (common use)		
	Voltage	3-phase 4-wire: max 277/480 V AC 3-phase 3-wire: (DELTA) max 220 V AC, (STAR) max 440 V AC 1-phase 3-wire: max 220/440 V AC 1-phase 2-wire: (DELTA) max 220 V, (STAR) max AC 440 V AC		
	Frequency	50/60 Hz (common use)		
	Item	Measuring Item	Class	
Measuring element	Current (A)	A1, A2, A3, AN, A _{AVG}	±0.5%	
	Current demand (DA)	DA1, DA2, DA3, DAN, DA _{AVG}		
	Voltage (V)	V12, V23, V31, V _{AVG} (L-L), V1N, V2N, V3N, V _{AVG} (L-N)		
	Active power (W)	W1, W2, W3, ΣW	±0.5%	
	Reactive power (var)	var1, var2, var3, Σvar		
	Apparent power (VA)	VA1, VA2, VA3, ΣVA		
	Power factor (PF)	PF1, PF2, PF3, ΣPF		
	Frequency (Hz)	Hz	±0.2%	
	Active energy (Wh)	Imported, Exported	Class 0.5S (IEC62053-22)	
	Reactive energy (varh)	Imported lag, Imported lead, Exported lag, Exported lead	Class 1S (IEC62053-24)	
	Apparent energy (VAh)	Imported + Exported	±2.0%	
	Harmonic current (HI)	Total	±2.0%	
	Harmonic voltage (HV)	Total		
	Operating time (h)	Operating time 1, Operating time 2	(Reference)	
	Measuring method	Instantaneous value	A, V: RMS value calculation; W, var, VA, Wh, varh, VAh: Digital multiplication; PF: Power ratio calculation; Hz: Zero-cross; HI, HV: FFT	
		Demand value	DA: Thermal type calculation	
Display	Display type		LCD with LED backlight	
	The number of display digits or The number of segments	Digital section	First to Third line display: 4 digits, Fourth line display: 6 digits A, DA, V, W, var, VA, PF: 4 digits; Hz: 3 digits; Wh, varh, VAh: 9 digits (6-digit or 12-digit is also available.); Harmonic distortion ratio/content rate: 4 digits; Harmonic RMS value: 4 digits; Operating time: 6 digits	
		Display update time interval	0.5 s, 1 s (selectable)	
Communication		MODBUS RTU communication		
Connectable Optional Plug-in Module		Cannot connect optional module		
Power interruption backup		Use of nonvolatile memory (Items: settings, MAX/MIN value, active energy, reactive energy, apparent energy, operating time)		
VA consumption	Voltage circuit	Each phase: 0.1 VA (at 110 V AC), 0.2 VA (at 220 V AC), 0.4 VA (at 440 V AC)		
	Current circuit	Each phase: 0.1 VA		
	Auxiliary power circuit	4 VA (at 110 V AC), 5 VA (at 220 V AC), 3 W (at 100 V DC)		
Auxiliary power		100 V to 240 V AC (±15%), 100 V to 240 V DC (-30% +15%)		
Weight		0.3 kg		
Dimensions		96 (H) × 96 (W) × 36 (D) mm		
Mounting method		Embedded		
Operating temperature/humidity		-5°C to +55°C (Daily average temperature: 35°C or less), 0% to 85% RH, Non condensing		
Storage temperature/ humidity		-25°C to +75°C (Daily average temperature: 35°C or less), 0% to 85% RH, Non condensing		

Note 1. The class value is a percentage of rated value (100%).
 Note 2. For harmonics measurement where distortion ratio (content rate) is 100% or more, it can exceed ±2.0%.
 Note 3. When there is no voltage input, harmonic current cannot be measured.

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For Safety:

Please read the instruction manual carefully before using the products in this catalog. Wiring and connection must be done by the person has a specialized knowledge of electric construction and wiring.

Version Check



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