MITSUBISHI ELECTRIC
FACTORY AUTOMATION

Quick Reference Guide

Circuit Breakers, Contactors & Relays

World Super WS Series



World Super Series

SUPER AE Series /// NF Series /// MS-N ///

More information?

This Quick Reference Guide is designed to give information about the operating characteristics and dimensions of Low-voltage switchgears, air-circuit breakers, moulded-case circuit breakers, magnetic contactors, thermal overload relays and contactor relays and its related accessories. If you cannot find the information you require in this guide, there are a number of ways you can get further details on configuration and technical issues, pricing and availability.

For technical issues visit the www.mitsubishi-automation.com website.

Our website provides a simple and fast way of accessing further technical data and up to the minute details on our products and services. Manuals and catalogues are available in several different languages and can be downloaded for free.

For technical, configuration, pricing and availability issues contact our distributors and partners.

Mitsubishi partners and distributors are only too happy to help answer your technical questions or help with configuration building. For a list of Mitsubishi partners please see the back of this catalogue or alternatively take a look at the "contact us" section of our website.

About this Quick Reference Guide

This Quick Reference Guide is a guide to the range of products available. For detailed configuration rules, system building, installation and configuration the associated product manuals must be read. You must satisfy yourself that any system you design with the products in this catalogue is fit for purpose, meets your requires and conforms to the product configuration rules as defined in the product manuals.

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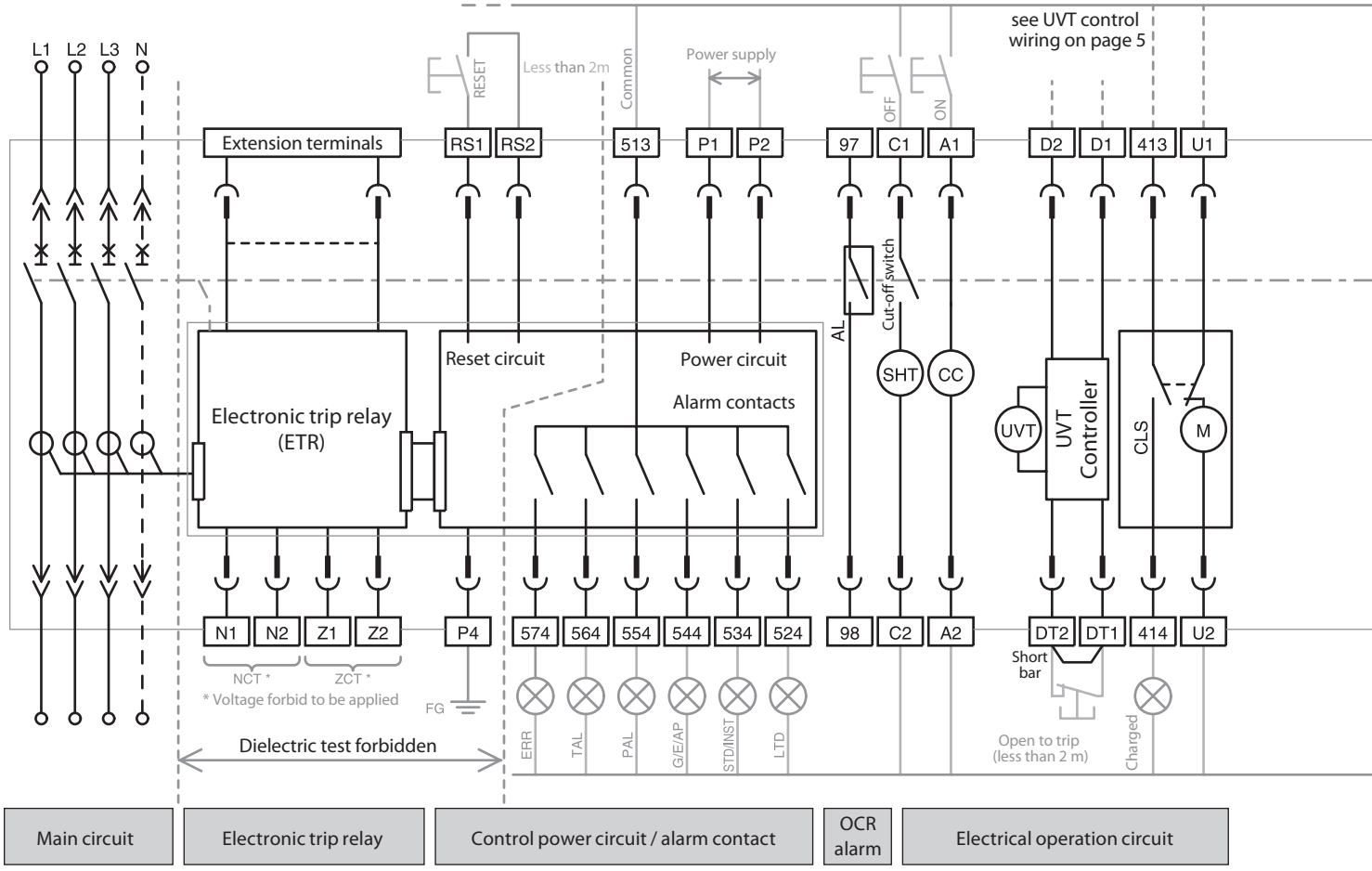
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■ Wiring diagram

The following diagram shown accessories fully equipped.

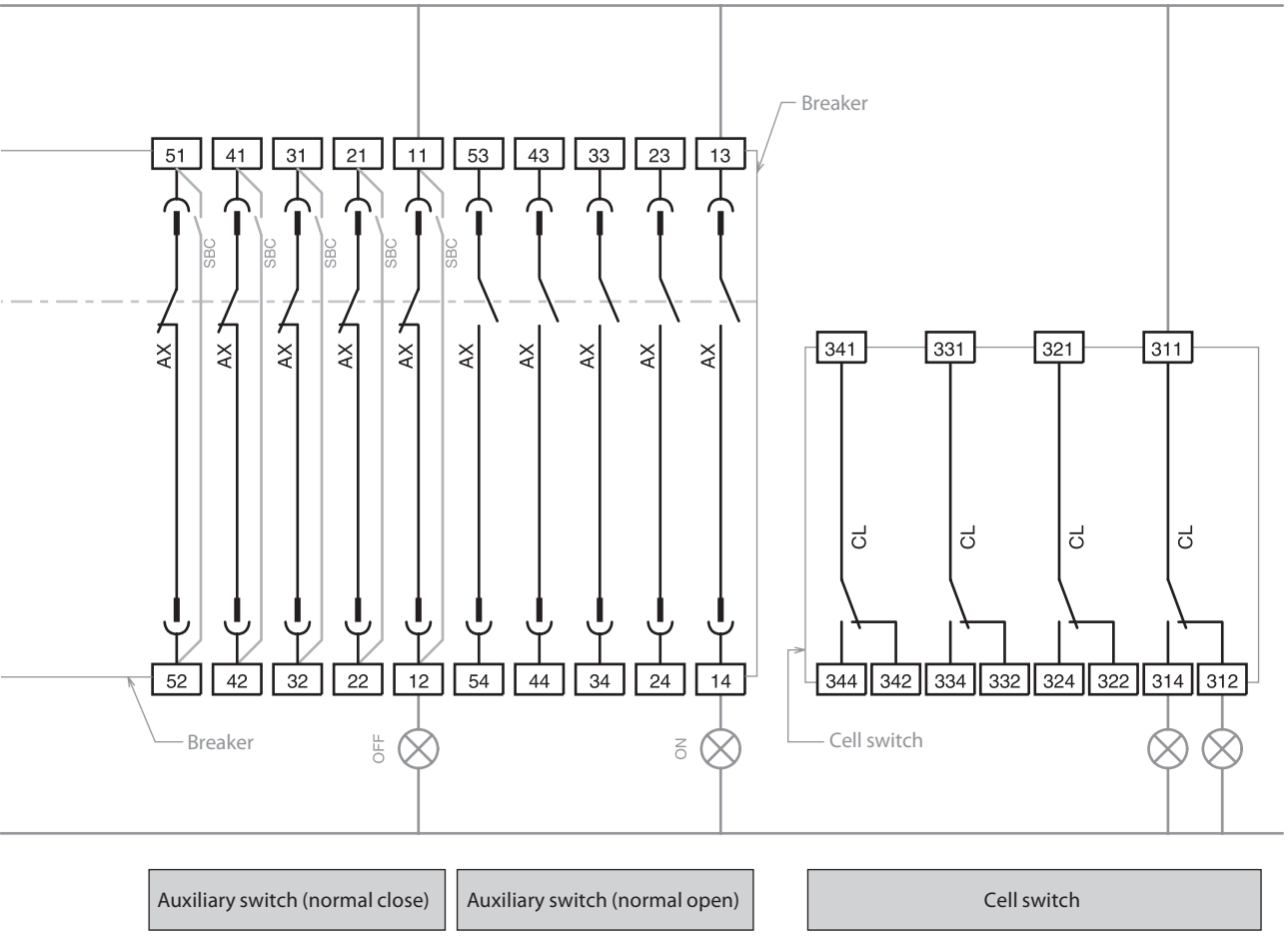


Terminal description

Symbol	Description
13 14 _ 53 54	Auxiliary switch "a" contact
11 12 _ 51 52	Auxiliary switch "b" contact
U1 U2	For motor charging power
413 414	Charged signal
D1 D2	Voltage input terminal of UVT
DT1 DT2	Trip terminal of UVT
A1 A2	For control of closing coil CC
C1 C2	For control of shunt tripping SHT
97 98	OCR alarm
P1 P2	Power supply for ETR
P4	FG: Frame ground
RS1 RS2	Alarm reset (Trip cause LED, alarm contact)
513, 524 _ 574	Trip cause, alarm contact output
Z1 Z2	ZCT connecting terminal
N1 N2	NCT connecting terminal
Extension terminals	Display unit connecting terminal, Interface unit connecting terminal, VT unit connecting terminal

Accessory Symbols

Symbol	Description
SHT	Shunt tripping device
CC	Closing coil
M	Motor for charging
UVT	UVT coil
AX	Auxiliary switch
AL	OCR alarm switch
CLS	Charging completion switch
SBC	Short-circuit B-contact
CL	Cell switch
———	Internal wiring
.....	External wiring (User's wiring)
—(——	Control circuit connector (drawout type)



Auxiliary switch (normal close) | Auxiliary switch (normal open) | Cell switch

UVT controller wiring

100 – 120 V AC type 200 – 240 V AC type DC types	380 – 460 V AC type
input D2 D1	input IN2 IN1 external unit OUT4 OUT3 D2 D1

Notes:

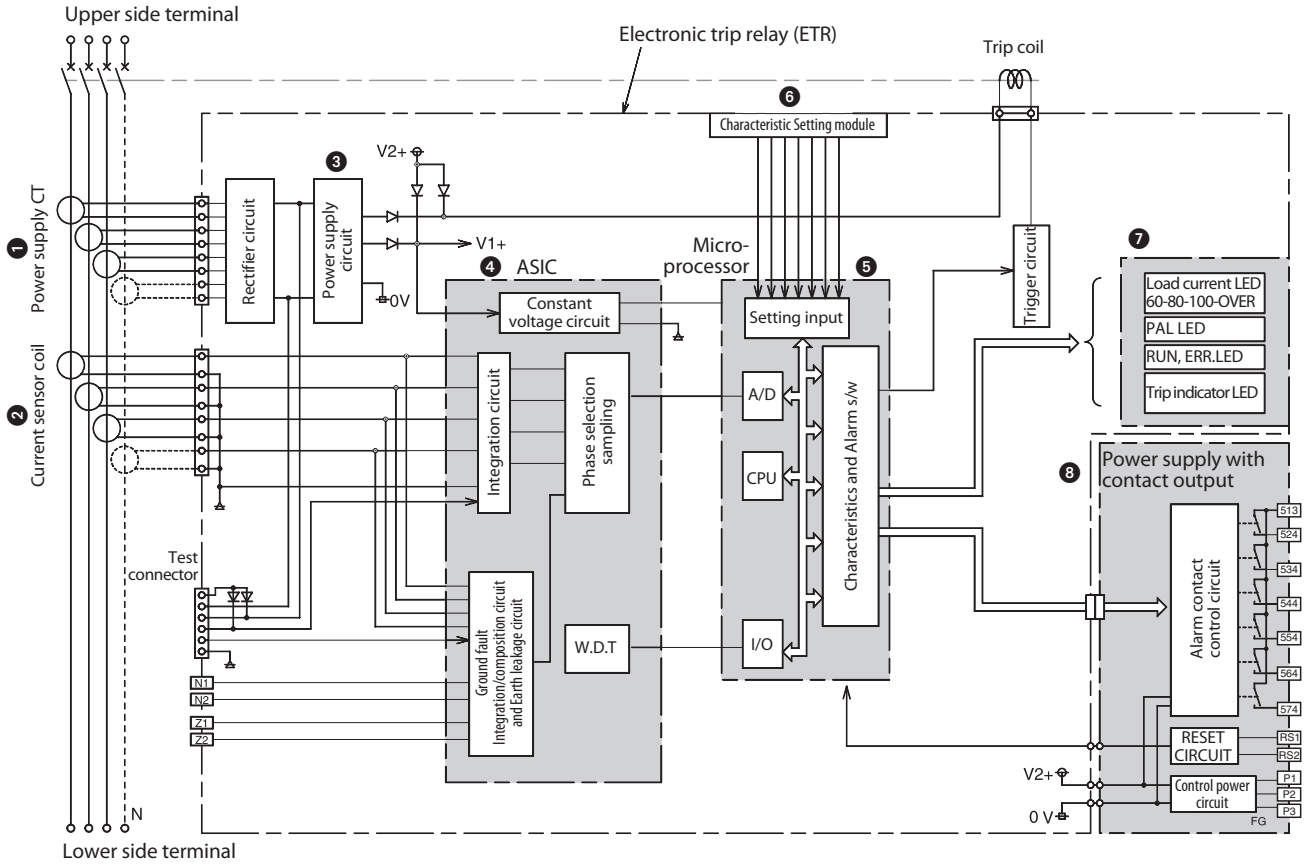
- On the drawout type, the cables should have the length which allow the control circuit terminal block to be moved to the left or right by 5 mm.
- When a coil load is connected in the same control circuit as the ETR, surge absorbers are required to absorb the surge voltage.
- OCR alarm (AL) 97 98

  The contact output of the OCR alarm(Standard type AL) is the one-pulse output and the output time is 30–50 ms.
  For this reason, this output needs self-holding circuit.
- Closing coil (CC)

  As CC is one-pulse driven, it is not necessary to insert AXb for burning prevention purposes. Inserting AXb will cause anti-pumping function to be ineffective.
- Under voltage trip device (UVT)

  Use the switch that can open and close DC 150 V, 0.5 A to remote trip. Use cable between remote trip switch within 2 m at the terminals DT1 DT2
  Remote trip terminal has short bar at shipment, so remove it before using this function.
  Disconnect the voltage input wires during dielectric testing of main circuit.
- Alarm contacts 513, 524 – 574 are also reset by removing P1 P2 power supply voltage. (longer than 1 sec.)

■ Electronic trip relay circuit diagram



Pos.	Name	Description
❶	Power supply CT	Energy is supplied for the operation of the overcurrent tripping and ground fault tripping(GFR) function of the electronic trip relay.
❷	Current sensor coil	The current in each phase flowing through in the breaker is detected. An air core coil which has good linearity is achieved.
❸	Power supply circuit	This part converts power supply CT energy to constant voltage for respective circuits in the ETR.
❹	ASIC	This module amplifies signal detected by the current sensor coil, and detects ground fault current by vector composition.
❺	Microprocessor	The microprocessor integrates each phase current waveforms from the ASIC and performs processing for overcurrent protection and others.
❻	Characteristic setting module	This module is used for the characteristic setting of the ETR.
❼	Several LEDs ①	The load current LED give a figure of current in percent by CT energy. Trip indicator and pre-alarm in indicated by control power supply. RUN and ERR. LED indicate breaker's condition by control power supply or ten-odd percent of CT energy.
❽	Power supply with contact output ②	This outputs contact signal at fault cause (including pre-alarm) and at other alarms. A control supply is necessary for this function.

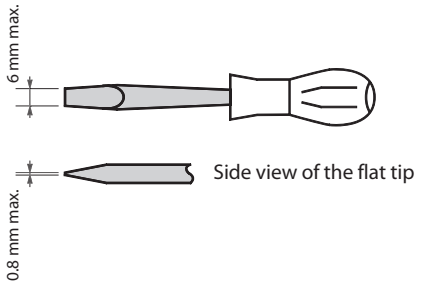
① The load current LED-bar indicates the load current from 60–80–100–OVER.
Trip indicator LED's of the main setting and optional setting module have to be supplied by control power supply on P1 P2.
The RUN and ERROR LED's display the condition of the ETR.

② These output contacts are activated at fault cause (pre-alarm included) and other alarms. For this function a control power supply is necessary.

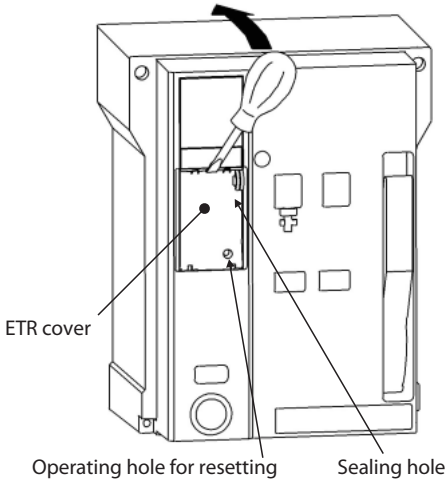
■ Setting procedure

Proceed as follows:

Step 1 Prepare a small flat tipped screwdriver.

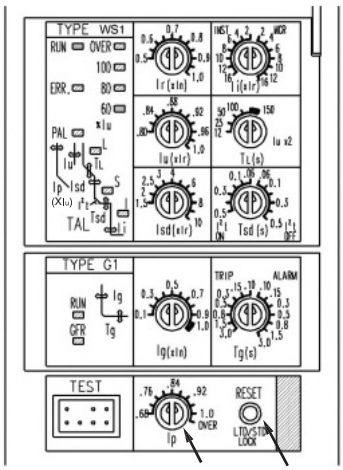


Press the screwdriver in the direction of the arrow to open the cover



Step 2 Insert the flat tipped screwdriver into the opening of the ETR cover.
Then, lightly turn the screwdriver to the upside as shown in the left figure, and the ETR cover will open.

Step 3 There are two kinds of switches for characteristics setting and for trip indicator reset. They should be used as follows.

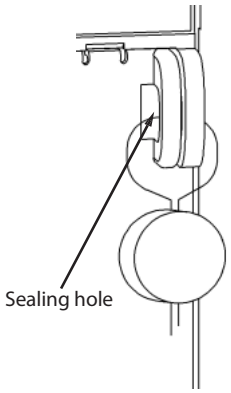


❶ Adjustable in steps

Rotary code switch is used. Do not set the switch at points between steps. The setting value is same when the switch is positioned at the thick line. (Set the switch with a torque of 0.02 Nm or below.)

❷ Push-button

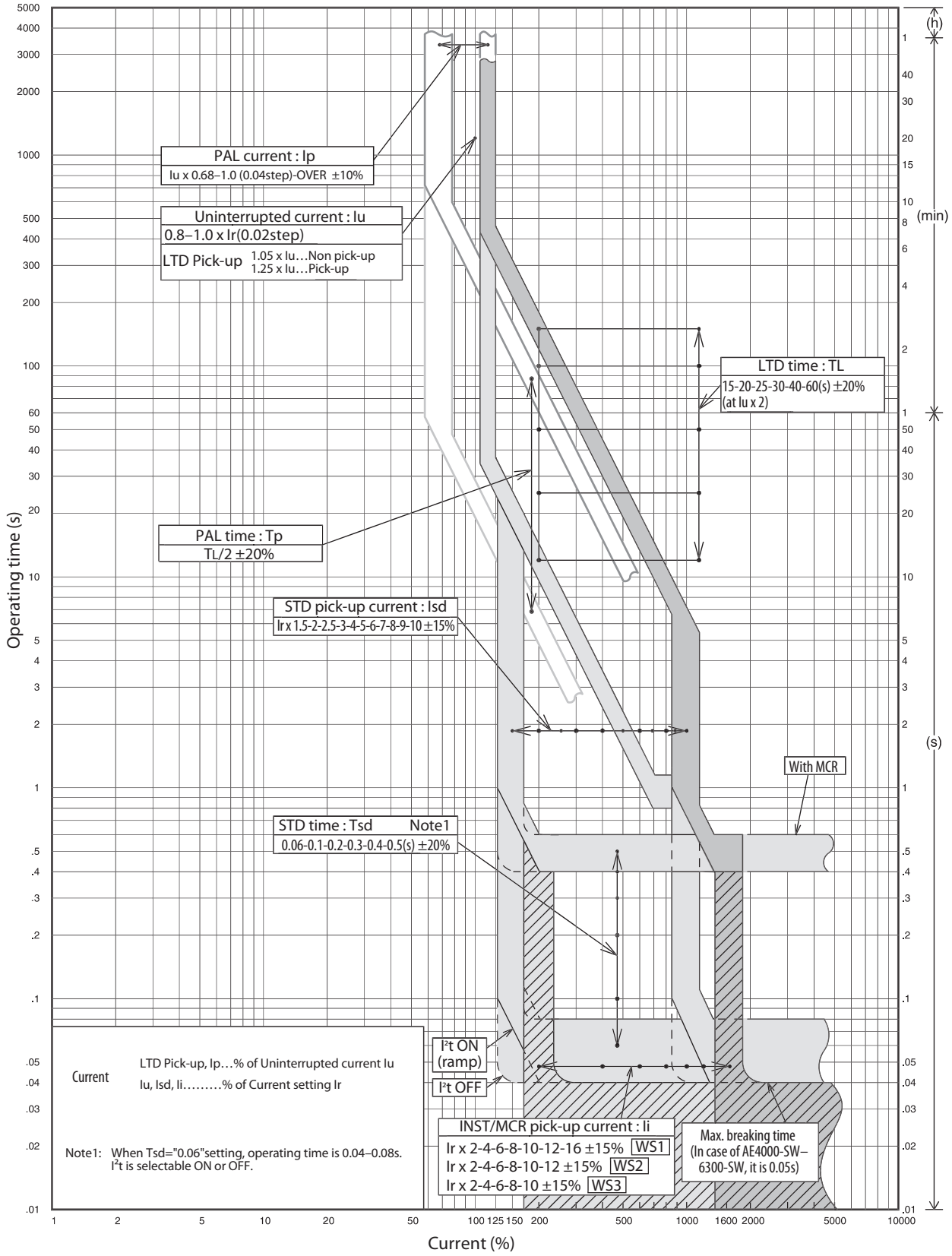
This is for temporary operation, and press it with force of 3 N or less.



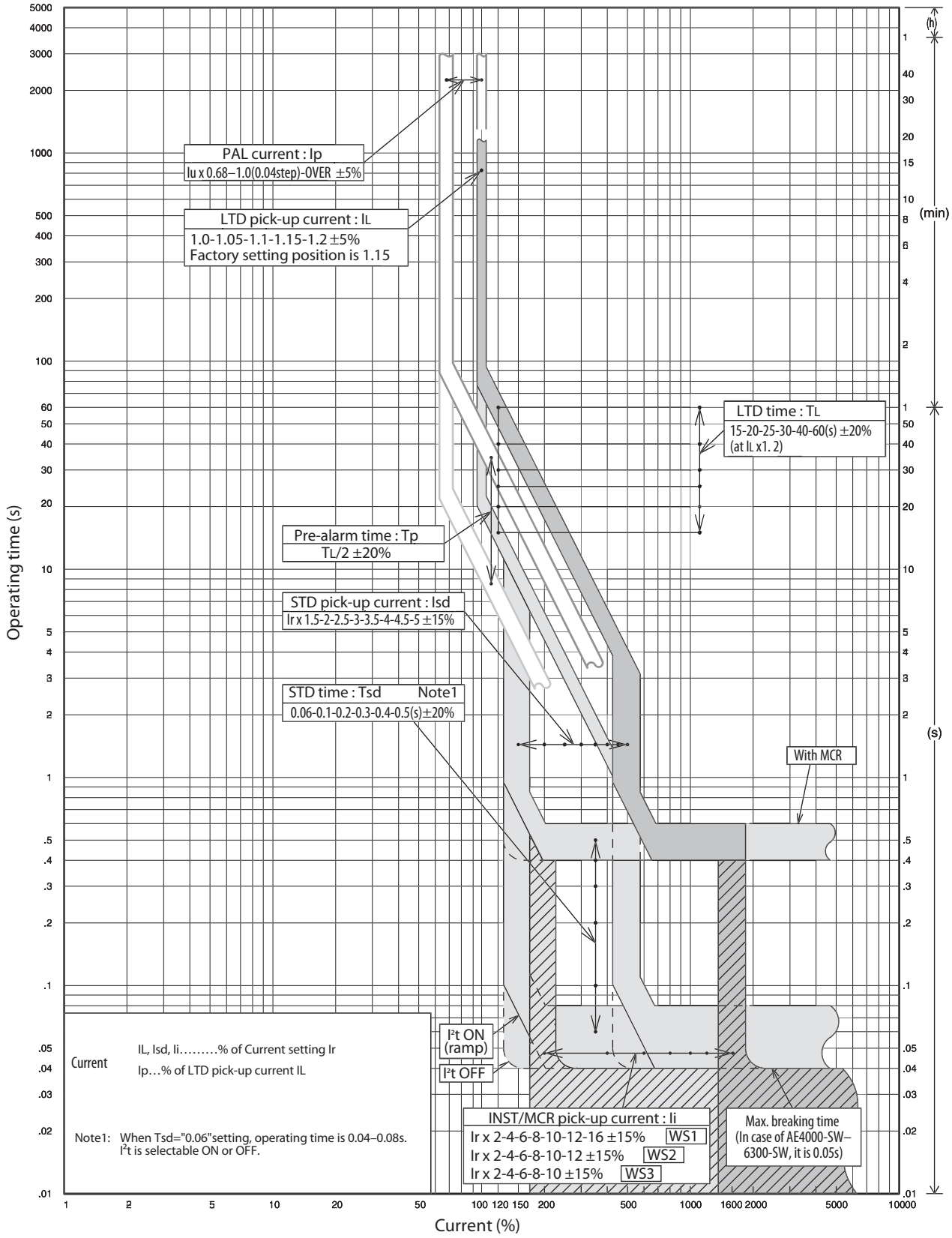
Step 4 When the characteristic is set up, use a device like a field tester, etc. to make sure that the required characteristic has been set.

Step 5 At sealing, seal the ETR cover by using the sealing hole at the top of the ETR cover.

■ Operating characteristiccurve (for general use: WS)

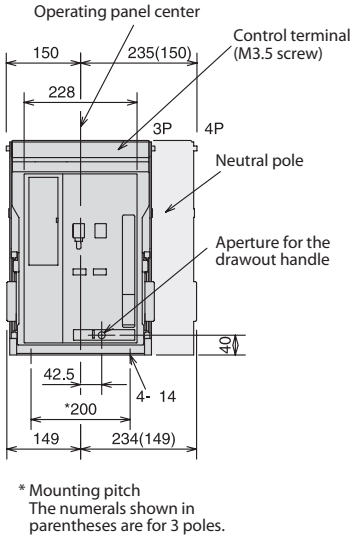


■ Operating characteristic curve (for generator protection use: WM)



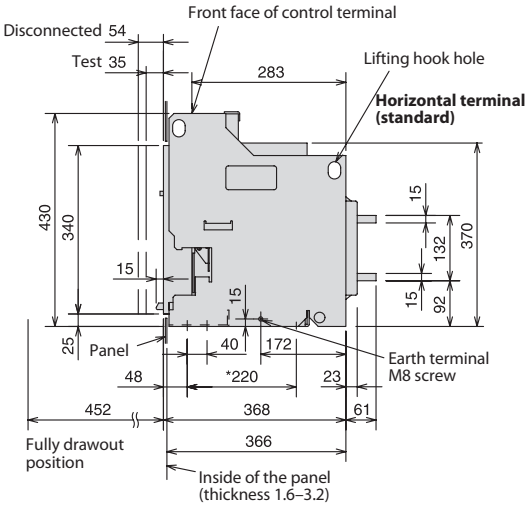
■ Drawout types AE1000-SW, AE1250-SW, AE1600-SW

Front view

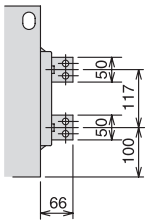


* Mounting pitch
The numerals shown in parentheses are for 3 poles.

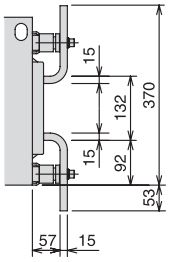
Side view



Vertical terminal

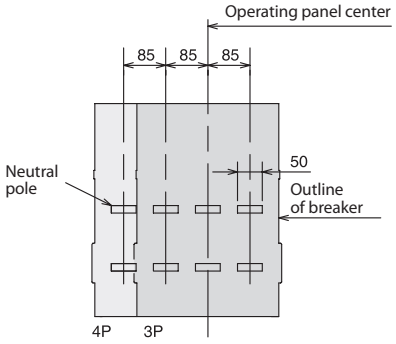


Front terminal

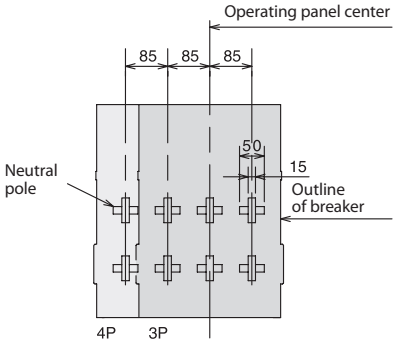


Rear view

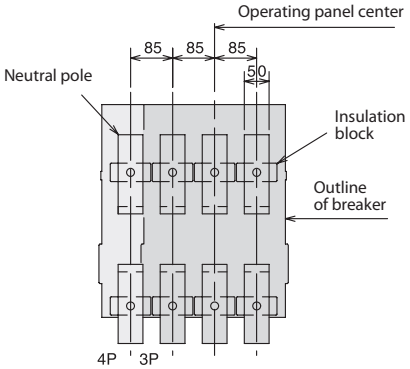
Horizontal terminal (standard)



Vertical terminal

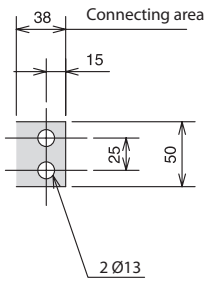


Front terminal



Main circuit terminal dimension

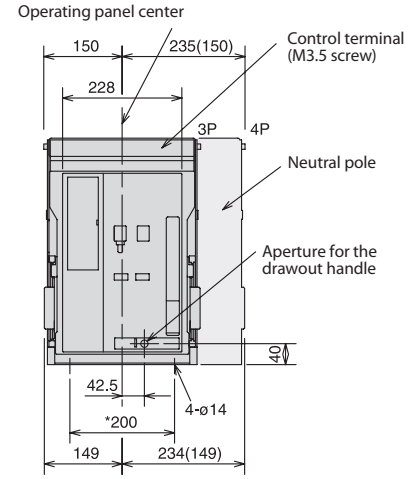
Horizontal terminal (standard)
Vertical terminal
Front terminal



All dimensions in mm.

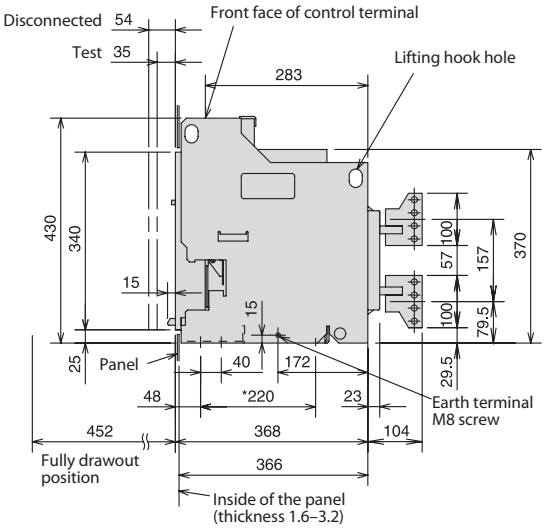
■ Drawout type AE2000-SWA

Front view

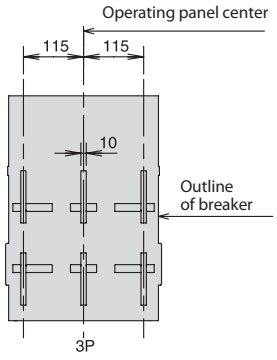


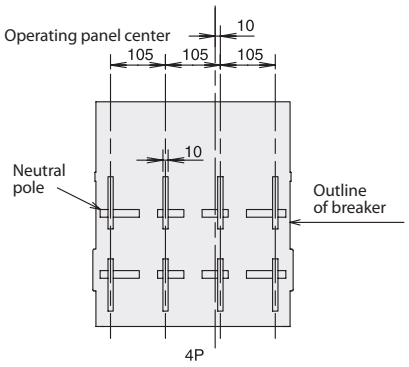
* Mounting pitch
The numerals shown in parentheses are for 3 poles.

Side view

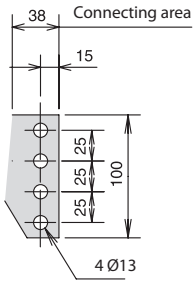


Rear view





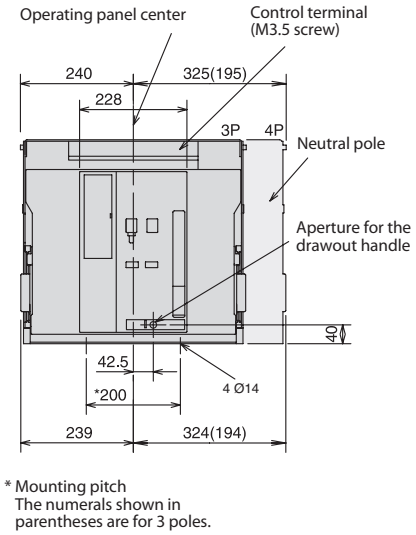
Main circuit terminal dimension



All dimensions in mm.

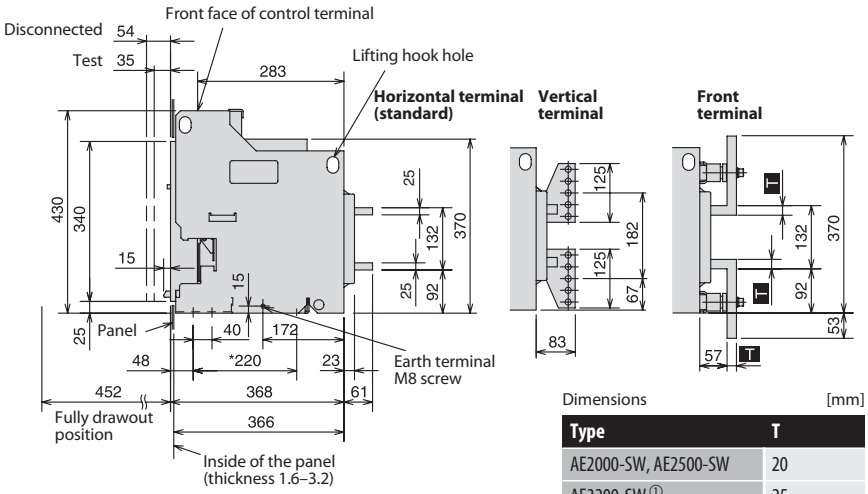
■ Drawout type AE2000-SW, AE2500-SW, AE3200-SW

Front view



* Mounting pitch
The numerals shown in parentheses are for 3 poles.

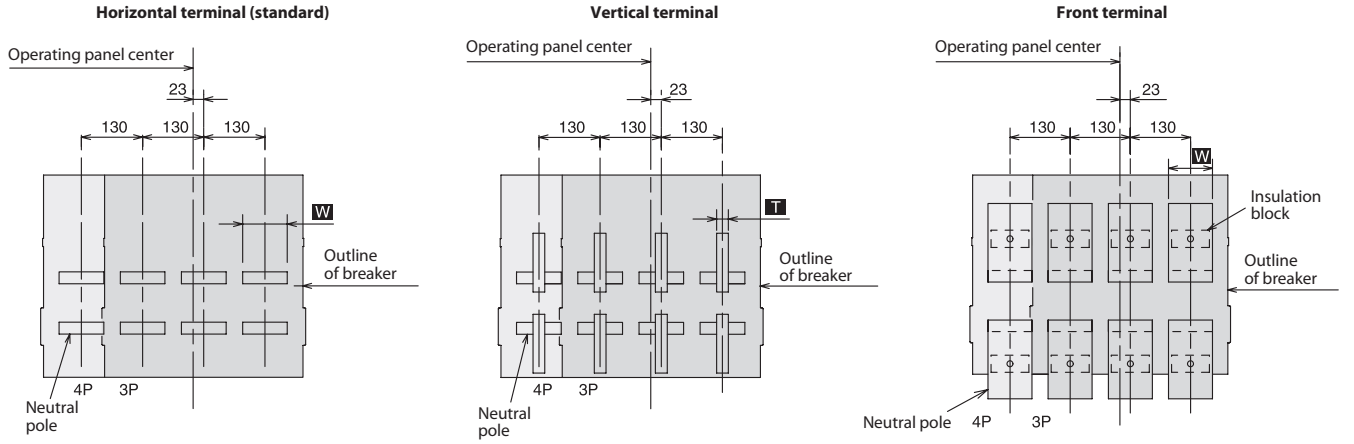
Side view



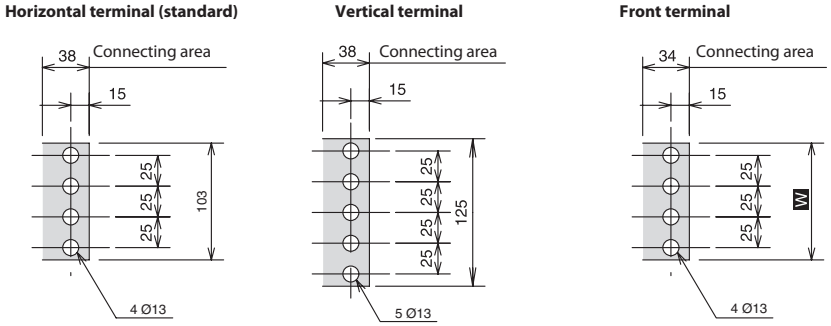
Dimensions [mm]

Type	T
AE2000-SW, AE2500-SW	20
AE3200-SW ①	25

Rear view



Main circuit terminal dimension



Dimensions [mm]

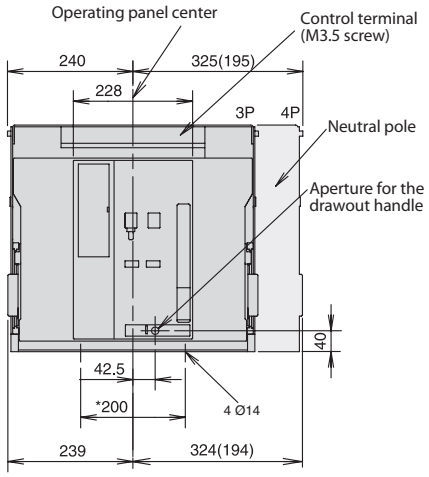
Type	W
AE2000-SW, AE2500-SW	95
AE3200-SW ①	103

① The cradle types CRD323/CRD324 offer horizontal terminals as standard.
Draw-out bodies AE2000-, AE2500-, AE3200-SW can be used with standard cradle types CRD323/CRD324

All dimensions in mm.

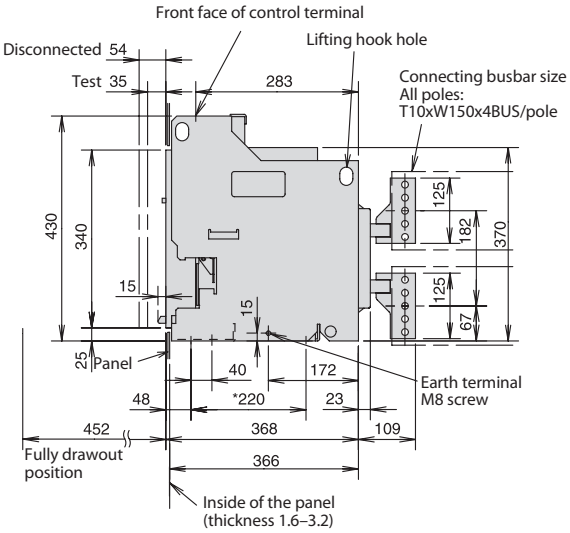
■ Drawout type AE4000-SWA

Front view

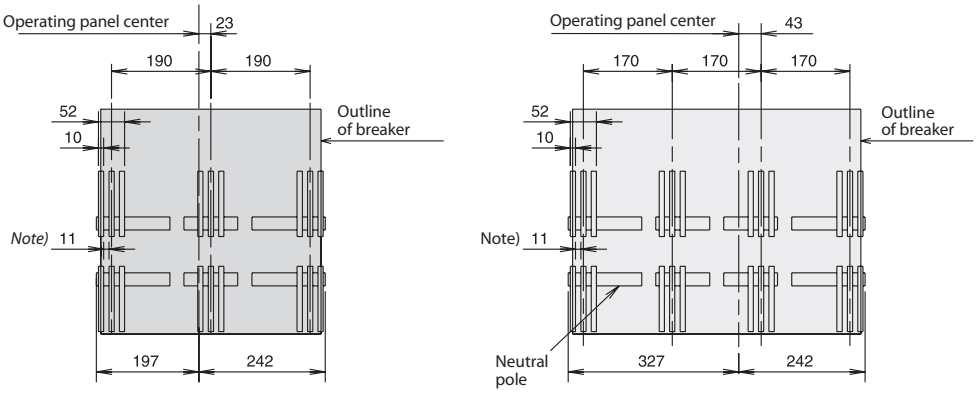


* Mounting pitch
The numerals shown in parentheses are for 3 poles.

Side view

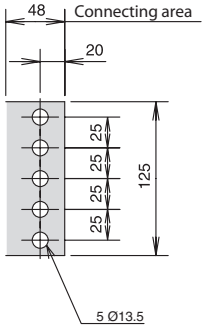


Rear view



Note) Spacers are not required when fastening connecting conductors (T10). The necessary contact area can be obtained with ACB terminal bent by tightening the screw.

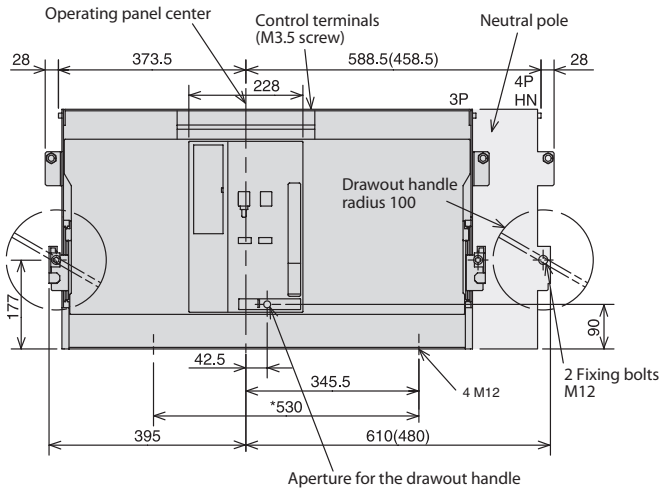
Main circuit terminal dimension



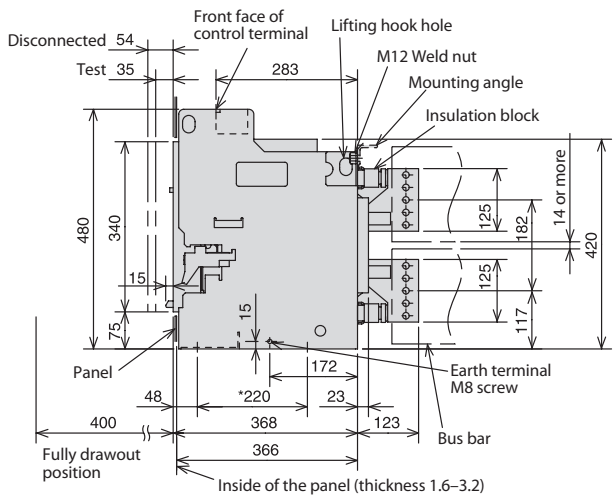
All dimensions in mm.

■ Drawout type AE4000-SW, AE5000-SW, AE6300-SW

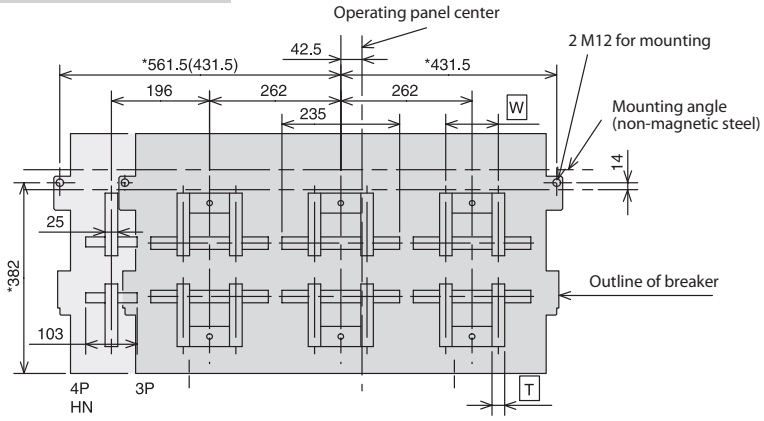
Front view



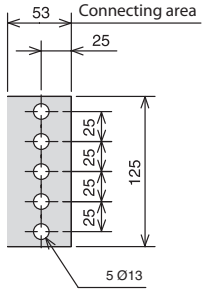
Side view



Rear view



Main circuit terminal dimension

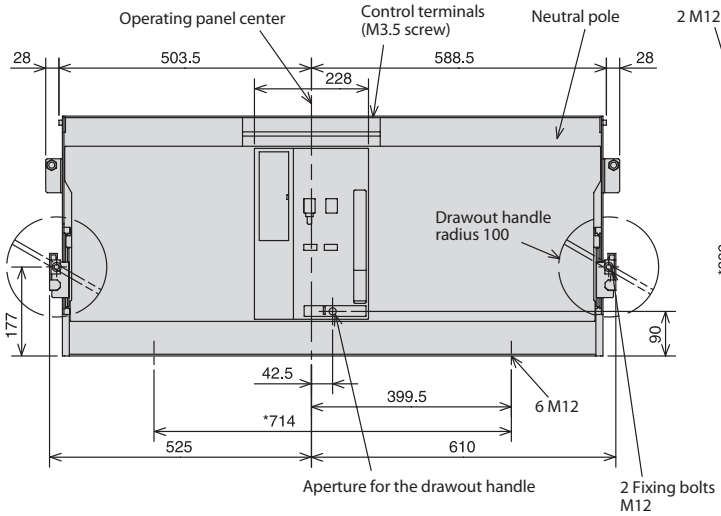


Dimensions [mm]

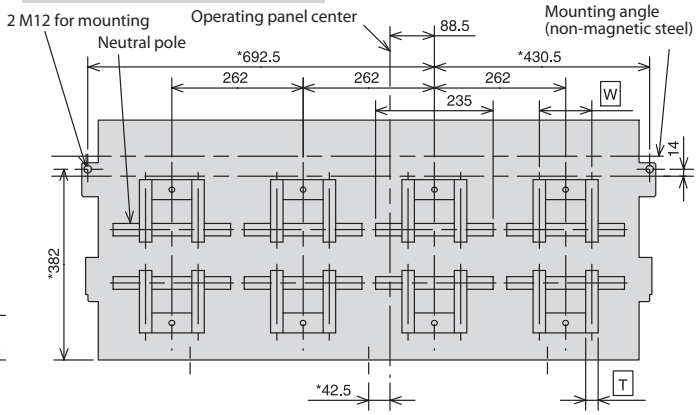
Type	W	T
AE4000-SW, AE5000-SW	100	20
AE6300-SW	105	25

■ 4P FN type

Front view



Rear view

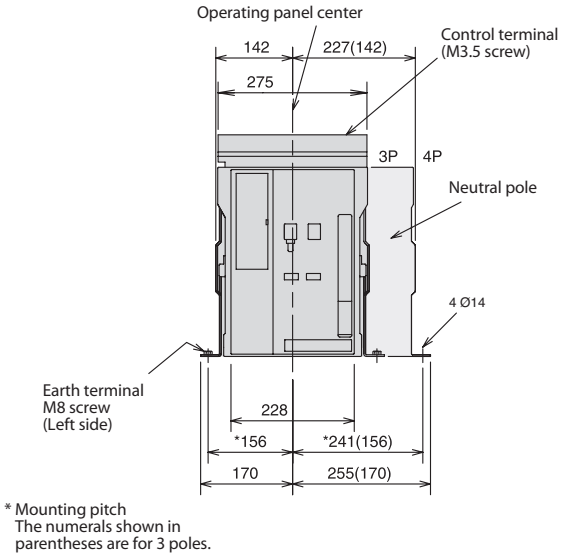


* Mounting pitch
The numerals shown in parentheses are for 3 poles.

All dimensions in mm.

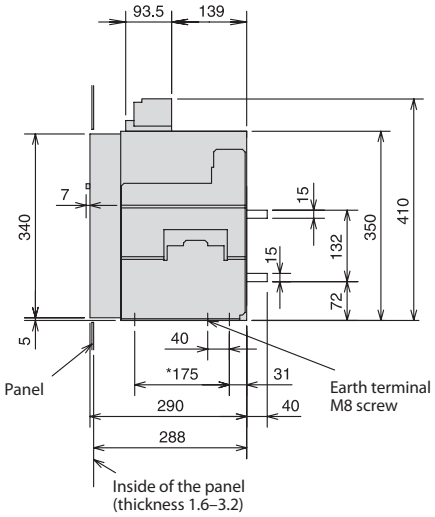
■ Fixed type AE1000-SW, AE1250-SW, AE1600-SW

Front view

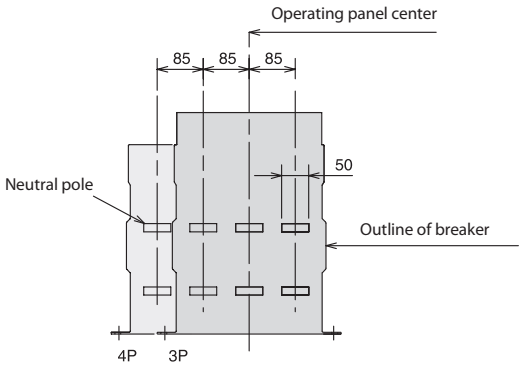


* Mounting pitch
The numerals shown in parentheses are for 3 poles.

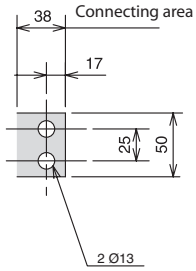
Side view



Rear view



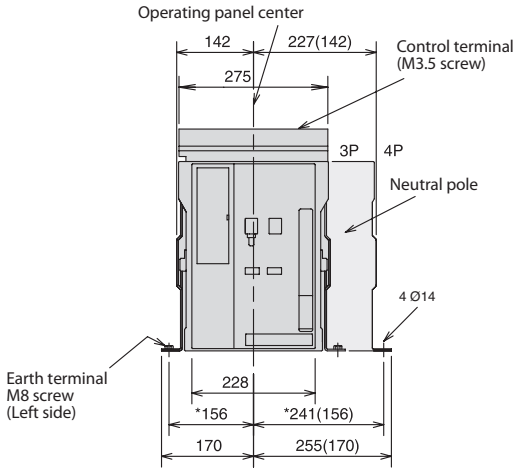
Main circuit terminal dimension



All dimensions in mm.

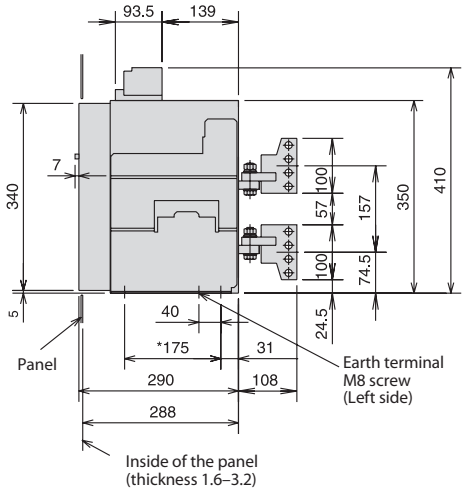
■ Fixed type AE2000-SWA

Front view

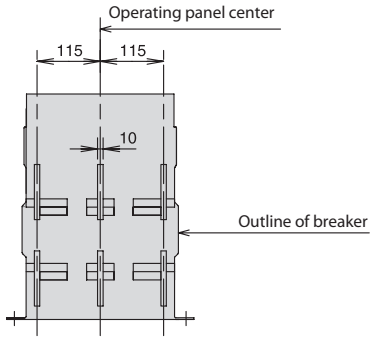


* : Mounting pitch
The numerals shown in parentheses are for 3 poles.

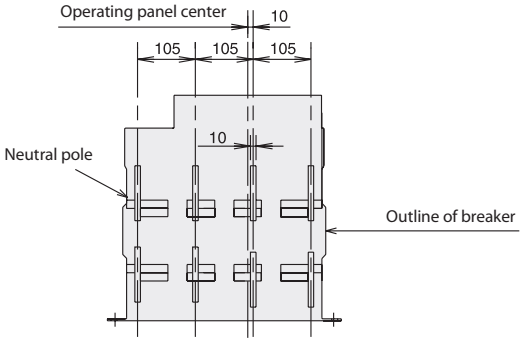
Side view



Rear view

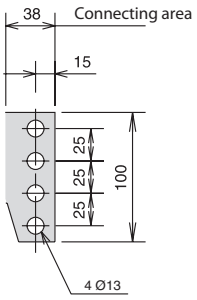


3P



4P

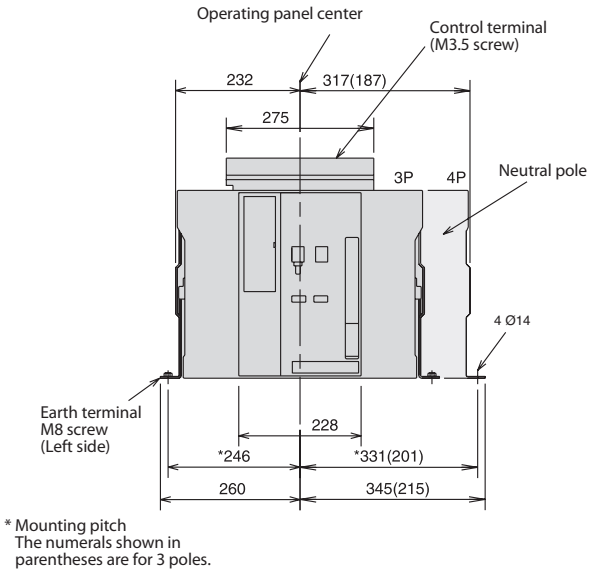
Main circuit terminal dimension



All dimensions in mm.

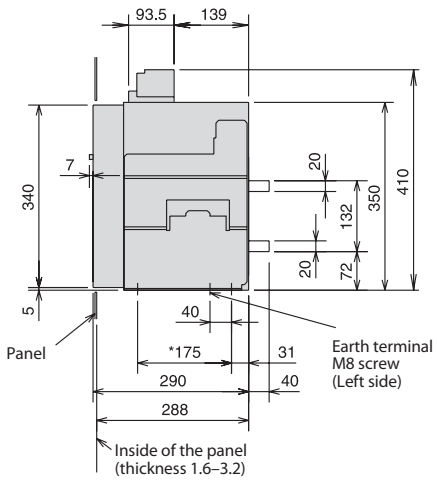
■ Fixed type AE2000-SW, AE2500-SW, AE3200-SW

Front view

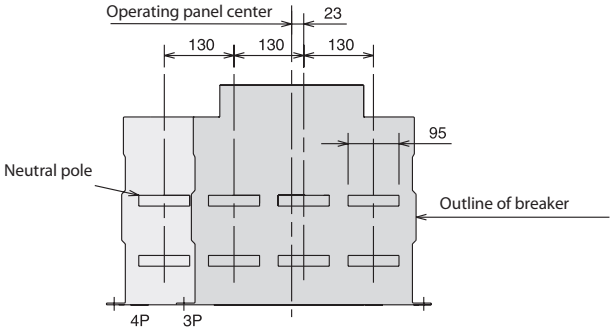


* Mounting pitch
The numerals shown in parentheses are for 3 poles.

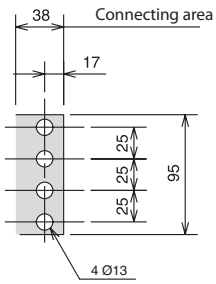
Side view



Rear view



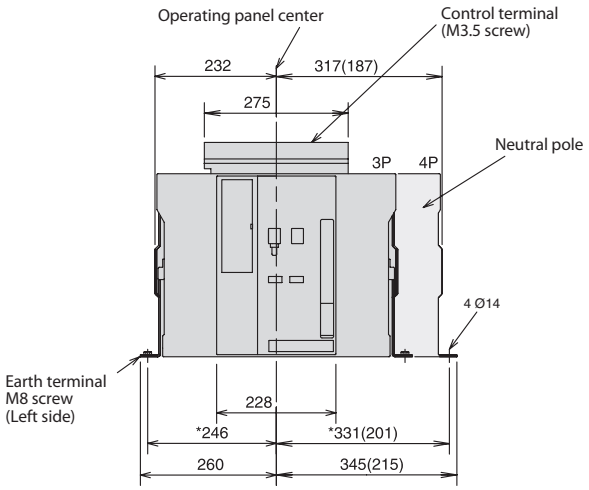
Main circuit terminal dimension



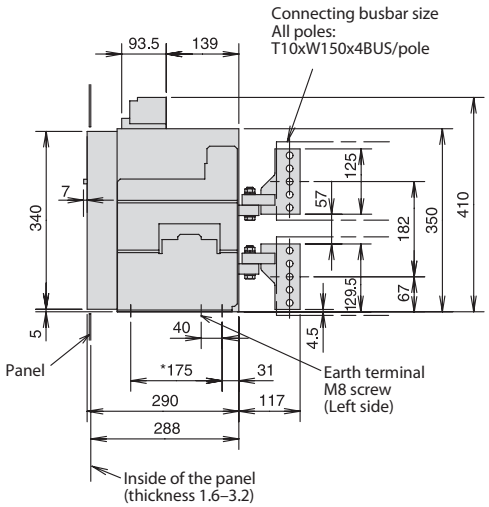
All dimensions in mm.

■ Fixed type AE4000-SWA

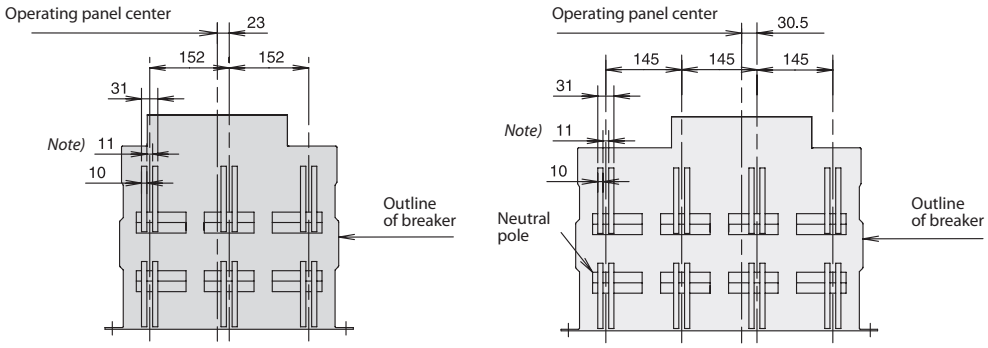
Front view



Side view

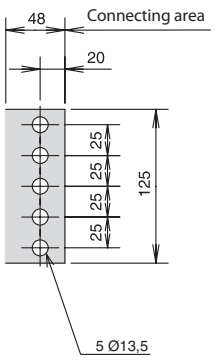


Rear view



Note) Spacers are not required when fastening connecting conductors (T10). The necessary contact area can be obtained with ACB terminal bent by tightening the screw.

Main circuit terminal dimension

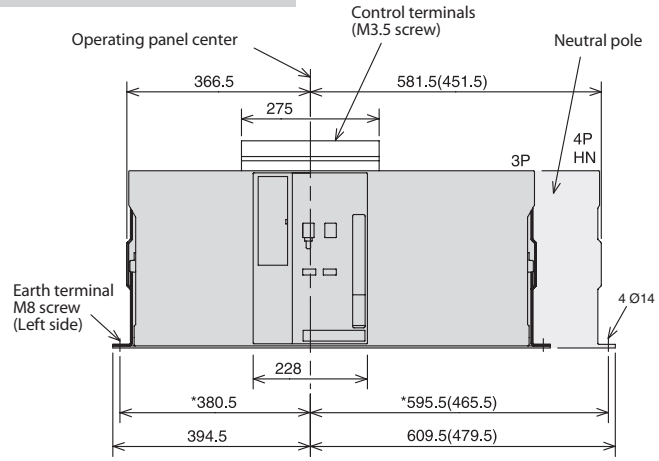


* Mounting pitch
The numerals shown in parentheses are for 3 poles.

All dimensions in mm.

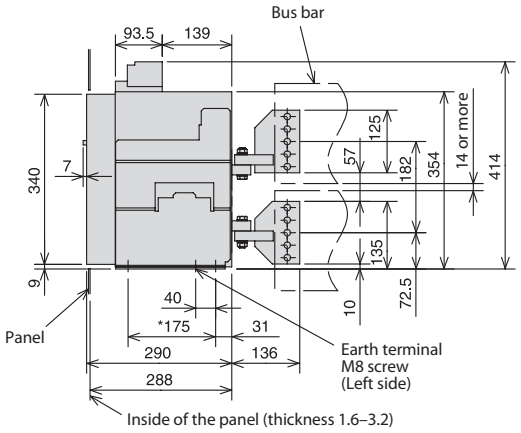
■ Fixed type AE4000-SW, AE5000-SW, AE6300-SW

Front view

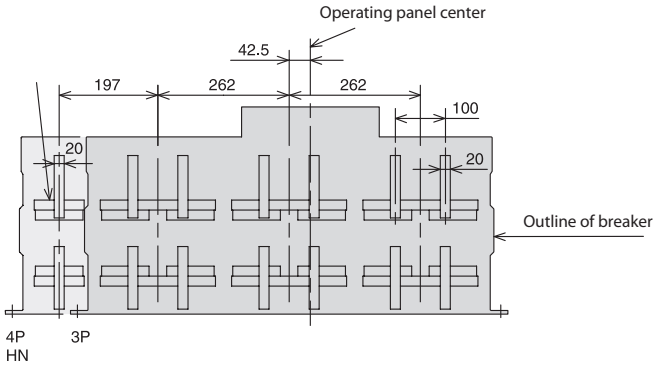


* Mounting pitch
The numerals shown in parentheses are for 3 poles.

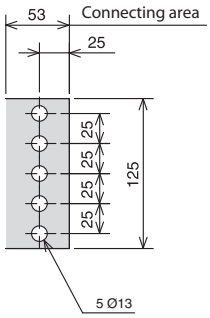
Side view



Rear view

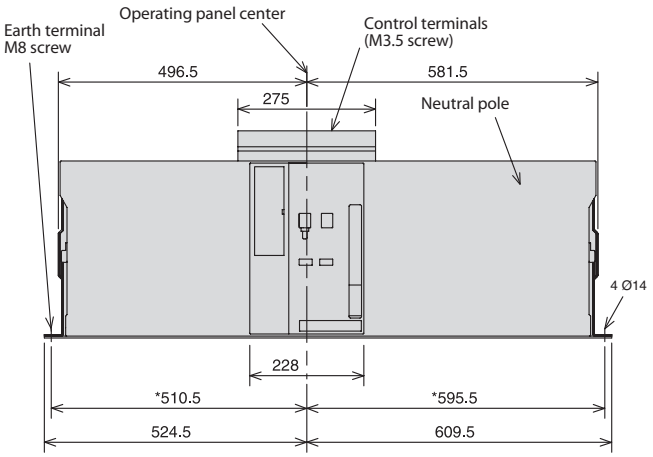


Main circuit terminal dimension

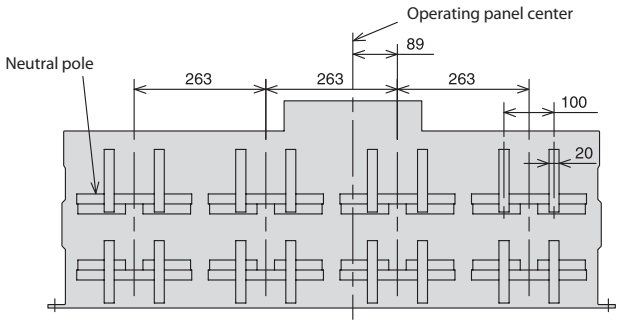


■ 4P FN type

Front view



Rear view



* Mounting pitch
The numerals shown in parentheses are for 3 poles.

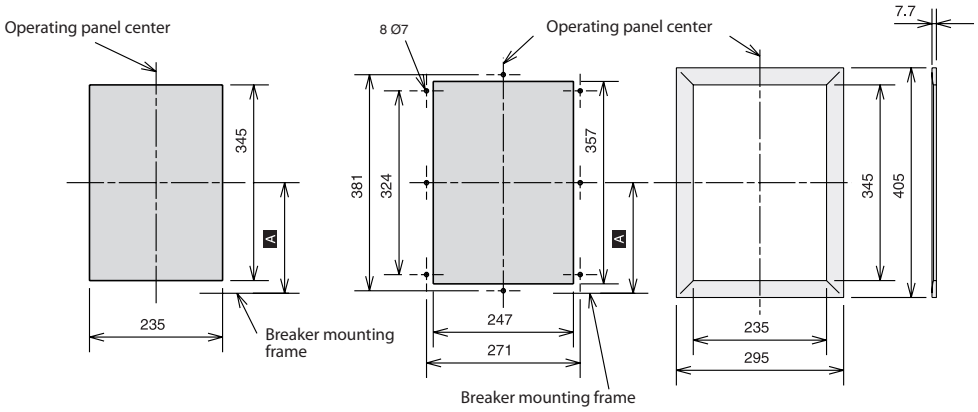
All dimensions in mm.

■ Panel cut-out, Drawout handle, Terminal adapter

Panel cut-out dimensions

Door frame panel cut-out dimensions

Panel cut-out dimensions Outline



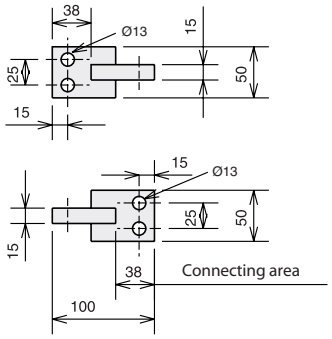
Dimensions [mm]

Type		A
AE1000-SW–AE1600-SW AE2000-SW–AE3200-SW AE2000-SWA, AE4000-SWA	Fixed type	175
	Drawout type	195
AE4000-SW–AE6300-SW	Fixed type	179
	Drawout type	245

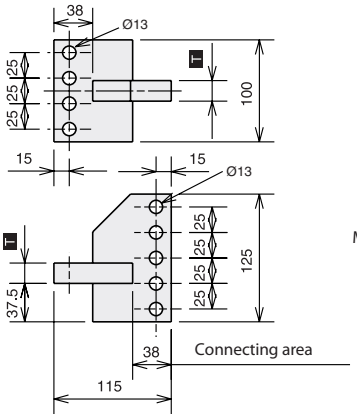
Vertical terminal adapter

Front terminal adapter

AE1000–1600-SW



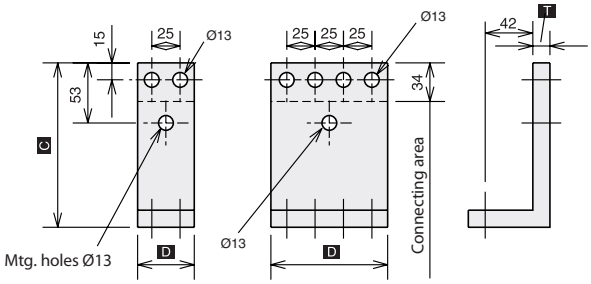
AE2000–3200-SW



Dimensions [mm]

Type	T
AE2000-SW, AE2500-SW	20
AE3200-SW	25

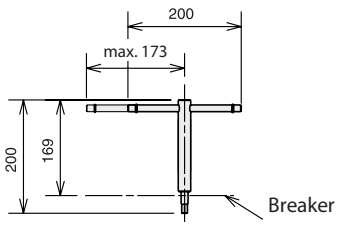
AE1000–1600-SW **AE2000–3200-SW**



Dimensions [mm]

Type			C	D	T
AE1000-SW–AE1600-SW	Fixed type	Up side	258.5	50	15
		Down side	145	50	15
	Drawout type		145	50	15
AE2000-SW, AE2500-SW	Fixed type	Up side	258.5	95	20
		Down side	145	95	20
	Drawout type		145	95	20
AE3200-SW	Fixed type	Up side	258.5	95	25
		Down side	145	95	25
	Drawout type		145	103	25

Drawout handle dimensions

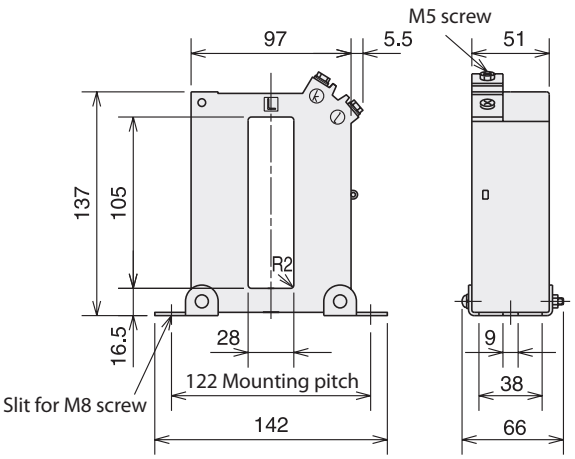


All dimensions in mm.

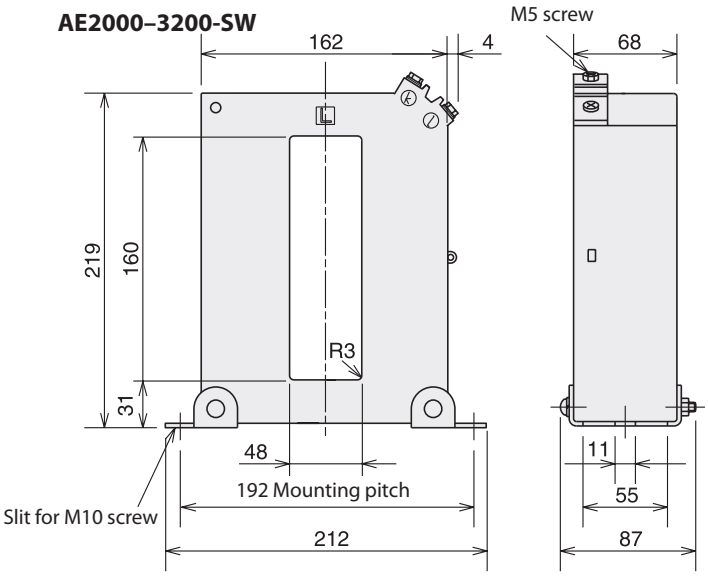
■ Neutral CT (NCT), External ZCT

Neutral CT (NCT)

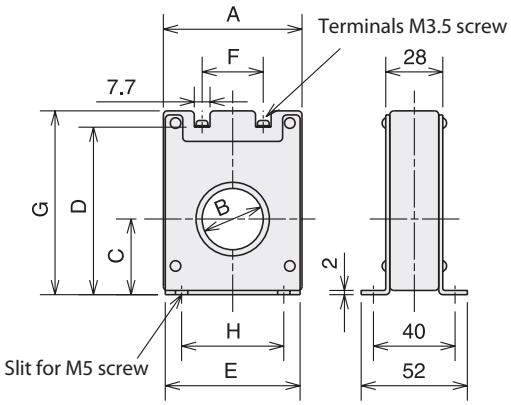
AE1000–1600-SW



AE2000–3200-SW

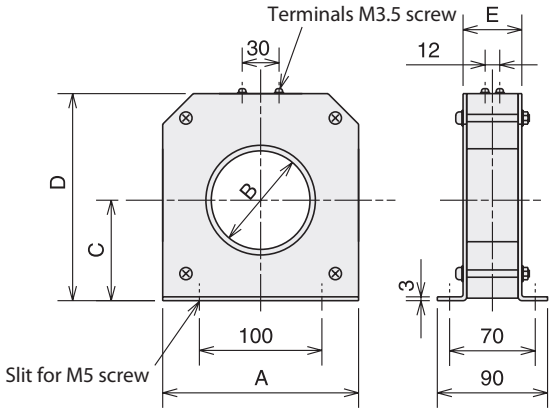


External ZCT for transformer ground wire



Dimensions [mm]

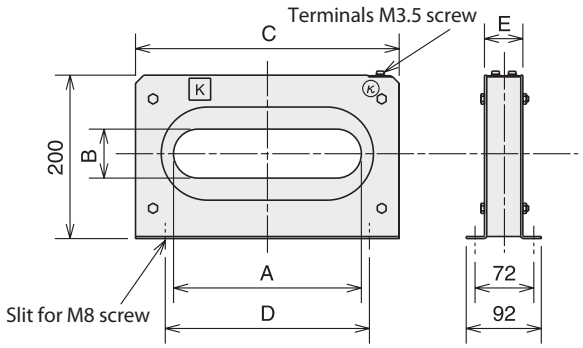
Type	A	B	C	D	E	F	G	H
ZT15B	48	15	29	62	46	15	70	25
ZT30B	68	30	37	82	66	30	90	50
ZT40B	85	40	43	91	81	40	100	50



Dimensions [mm]

Type	A	B	C	D	E
ZT60B	140	60	73	150	46
ZT80B	160	80	82	169	48
ZT100B	185	100	93	190	50

External ZCT for load circuits

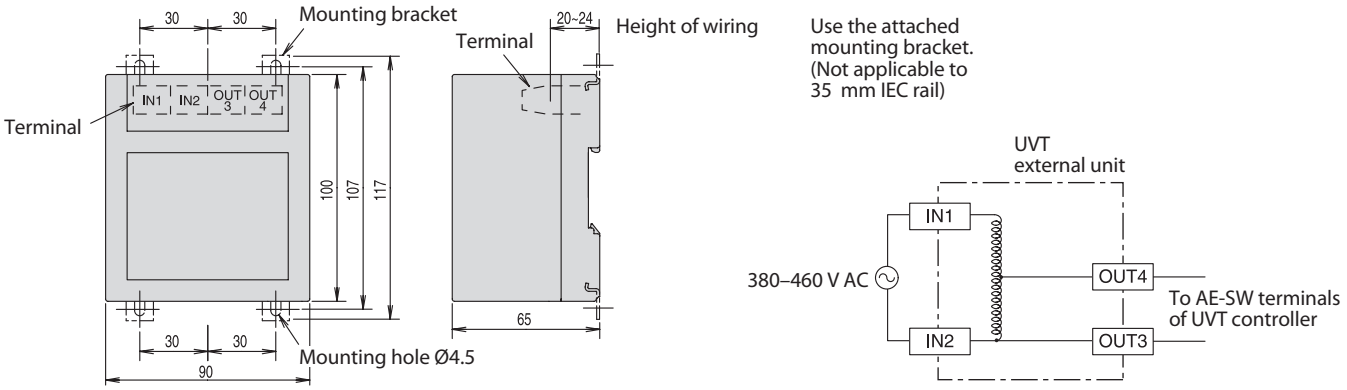


Dimensions [mm]

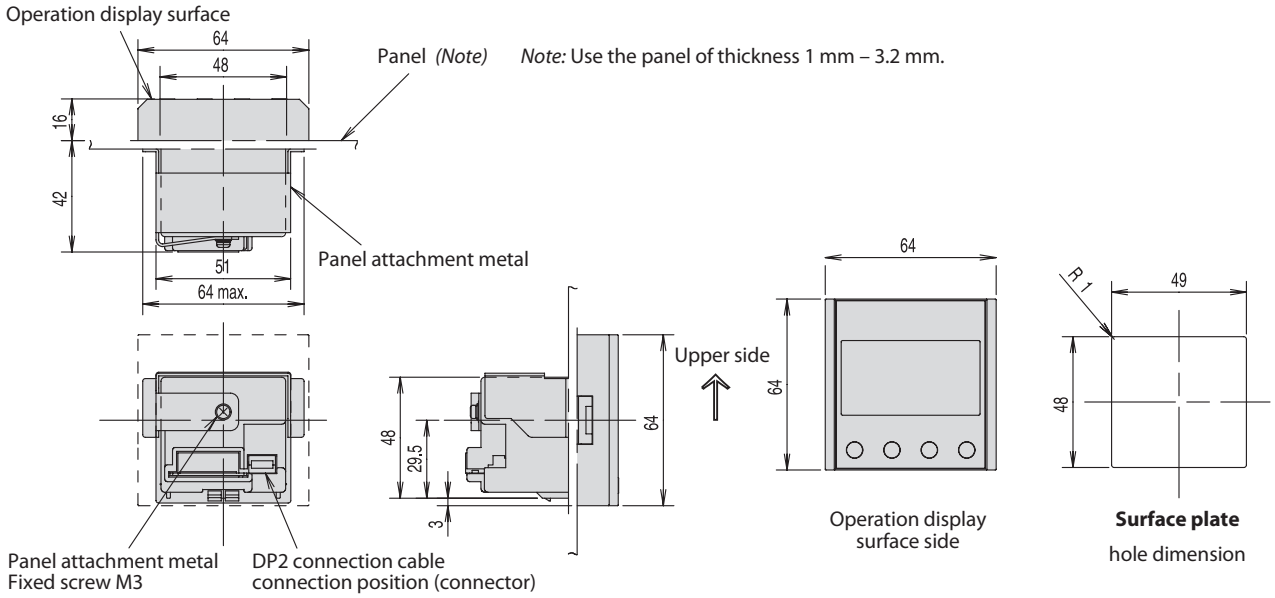
Type	A	B	C	D	E
ZCT163	230	60	323	250	47
ZCT323	370	108	460	400	47
ZCT324	500	108	600	550	48

All dimensions in mm.

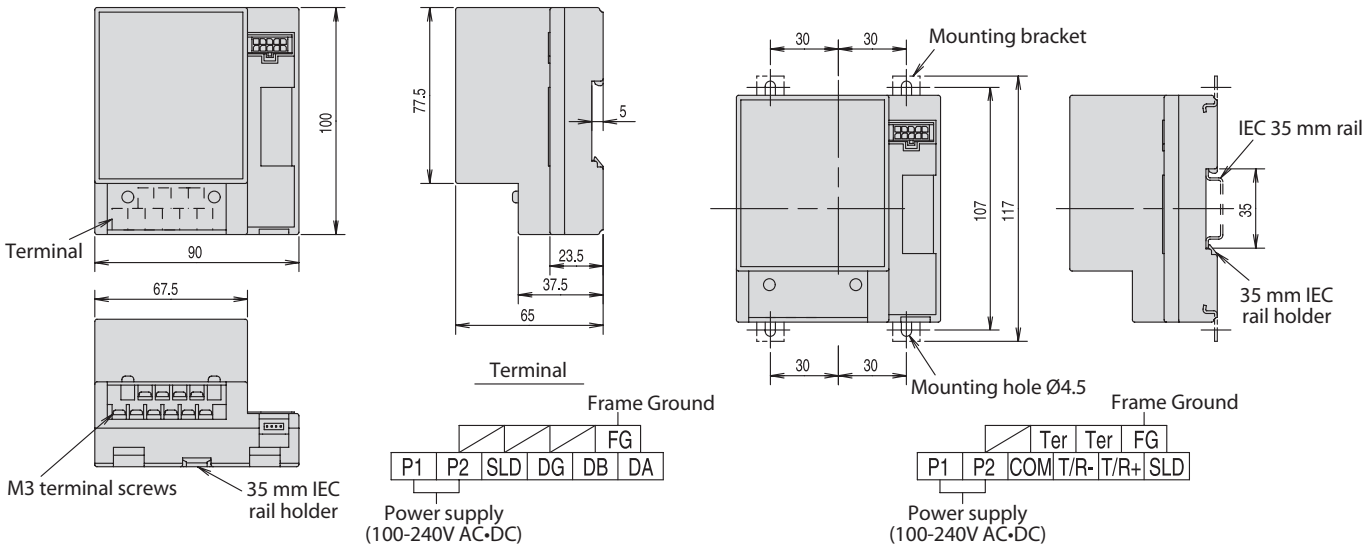
■ UVT external unit (AC380 – 460 V)



■ Display onto panel board DP2



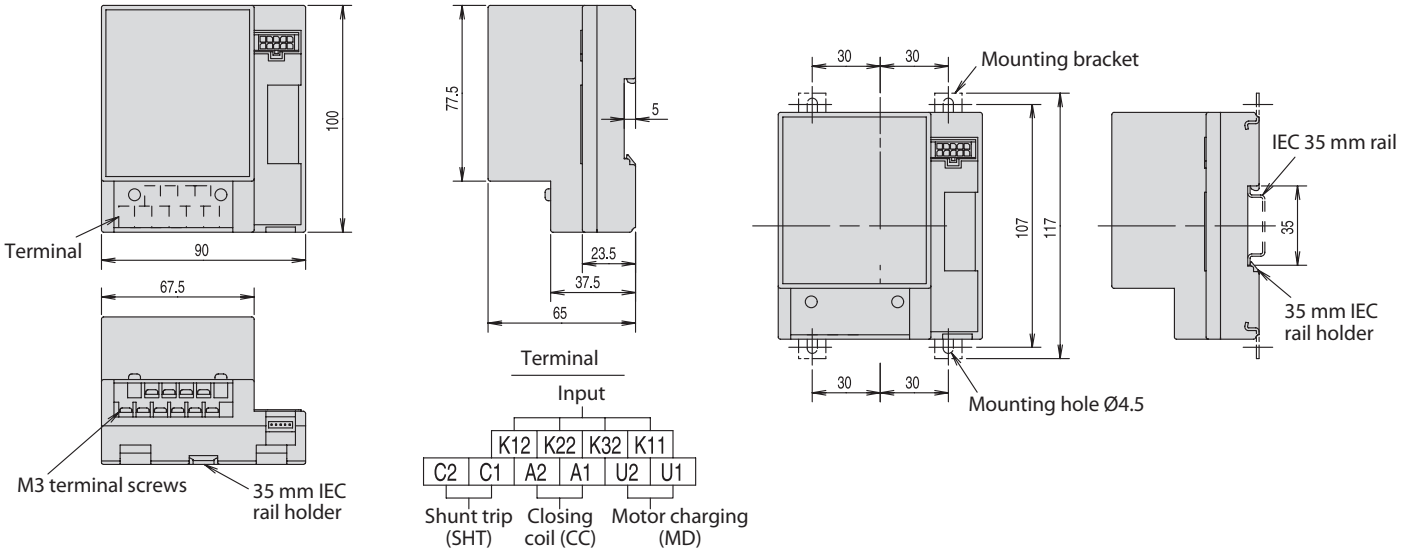
■ CC-Link® and MODBUS® interface units BIF-CC, BIF-MD



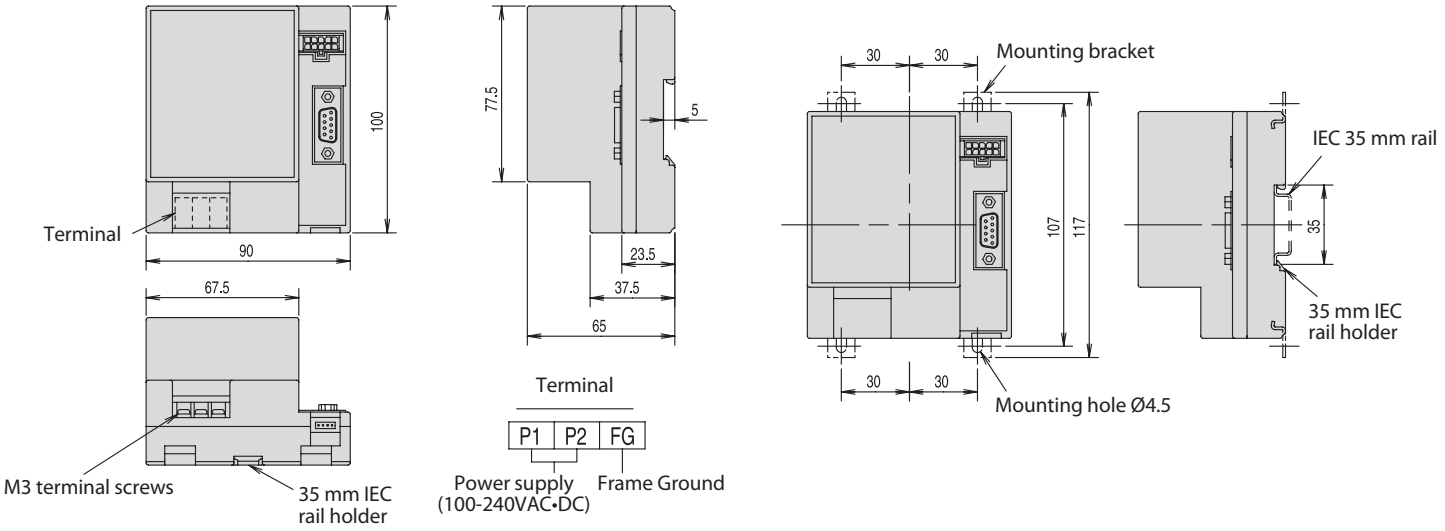
CC-Link® **MODBUS®**

All dimensions in mm.

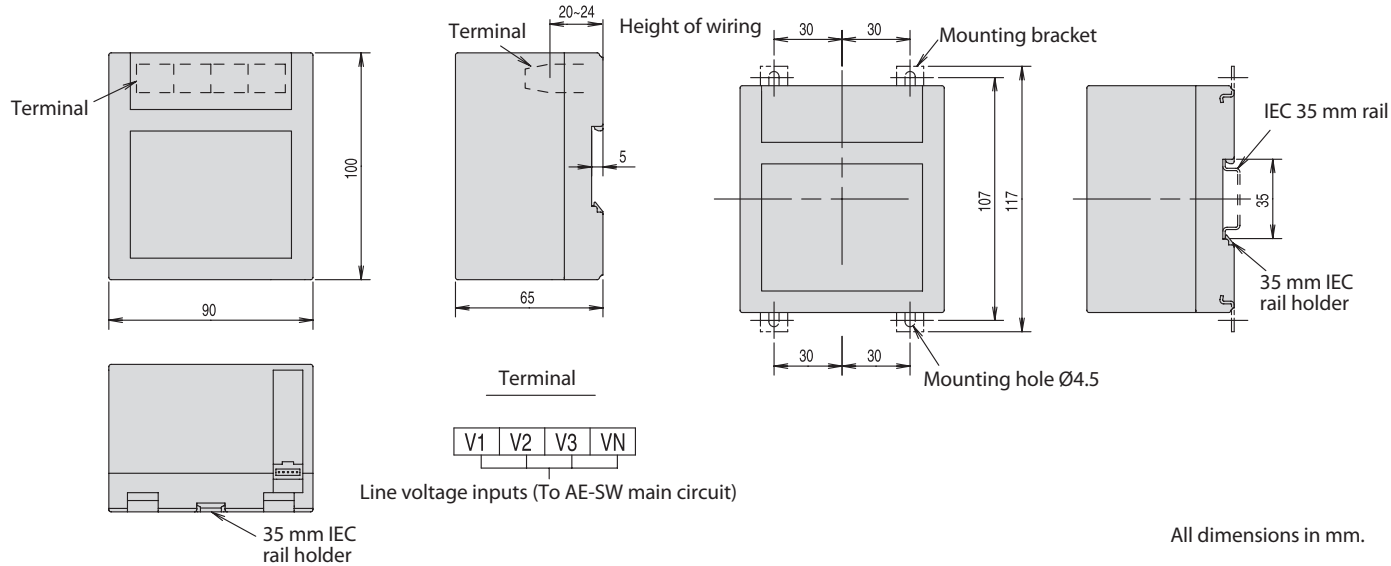
■ I/O unit BIF-CON



■ PROFIBUS-DP interface unit BIF-PR



■ VT unit



All dimensions in mm.

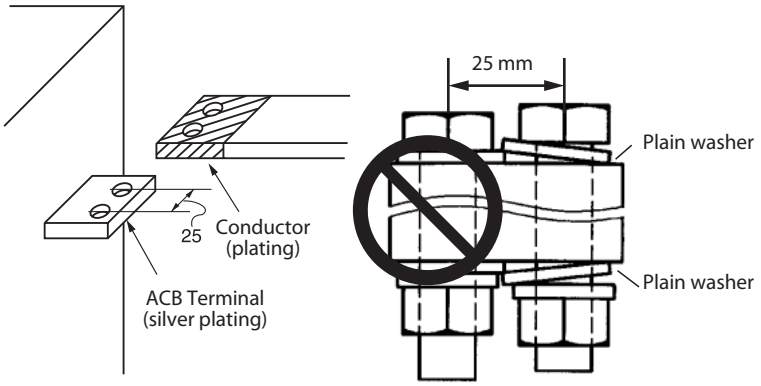
■ Pre-cautions when making connections

Use M12 bolts, plain washers, and spring lock washers to connect the conductor. There are various size plain washers, but use 24 mm or smaller outside diameter washers. The washers may overlap if too large washers are used.

It is recommended to apply silver plating on the contact surface of the conductor which is used to connect with the terminal of circuit breakers in order to prevent the increase of contact resistance due to moisture, etc. Tin plating or nickel plating may be applied, but quickly connect with the circuit breaker terminal if nickel plating is applied because nickel plating is less resistant to sulfur dioxide gas.

Clean the contact surface and securely tighten the bolts with a correct torque (M12: 40 to 50 Nm or M10: 45 Nm with conical spring washer).

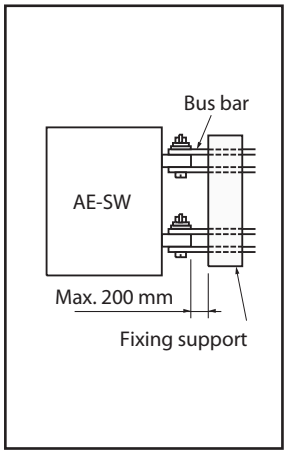
The terminal which is applicable to connect the conductor is different depending on the shape of the terminal. Refer to the outline dimensions of p. 10 to p. 19.



Standard tightening torque

Screw size	Tightening torque (N•m)
M12	40 to 50 Nm
M10 (quality 8.8)	45 Nm

Since fault current flowing through the conductors cause large electromagnetic forces, the conductors should be secured firmly, using the values in the below table as a reference. Max distance between fixing support and ACB bus bar should be less than 200 mm.



Electromagnetic force in N per 1m conductor

(in the case of three phase short circuit) [N]

Type	AE1000-SW–AE1600-SW	AE2000-SWA		AE2000-SW–AE3200-SW	AE4000-SWA Drawout type		Fixed type		AE4000-SW–AE6300-SW
		3-Pole	4-Pole		3-Pole	4-Pole	3-Pole	4-Pole	
Conductor distance [mm]	85	115	105	130	190	170	152	145	262
Prospective fault current kA [pf]									
30 [0.2]	7700	5700	6300	5100	3500	3900	4300	4500	2500
42 [0.2]	15100	11200	12200	9900	6800	7600	8500	8900	5000
50 [0.2]	21400	15800	17300	14000	9600	10700	12000	12600	7000
65 [0.2]	36100	26700	29300	23600	16200	18100	20200	21200	11800
75 [0.2]	—	—	—	31500	21500	24100	26900	28200	15800
85 [0.2]	—	—	—	40400	27600	30900	34500	36200	20000
100 [0.2]	—	—	—	—	—	—	—	—	27800
130 [0.2]	—	—	—	—	—	—	—	—	47000

When selecting conductors to be connected to AE breakers, please ensure that they have a sufficient current capacity. Refer to the right table.

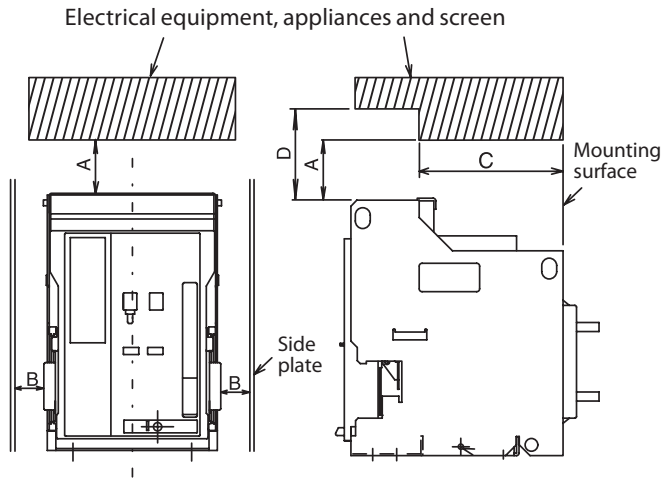
Conductor size (IEC 60947-1; ambient temperature 40 °C, open air)

Rated current Max. [A]	Connecting conductors (copper bus bar)		
	Arrangement	Quantity	Conductor size [mm]
1000	With long surface vertical	2	60 x 5
1250		2	80 x 5
1600		2	100 x 5
2000		3	100 x 5
2500		4	100 x 5
3150 (3200)①		3	100 x 10
4000 (AE4000-SWA Drawout type)		4	150 x 10
4000 (AE4000-SWA Fixed type)		3	150 x 10
4000 (AE4000-SW)		4	150 x 10
5000		4	150 x 10
6300		4	200 x 10

① The temperature rise of rated current 3200 A conforms to the requirement of IEC 60947-1 for the connecting conductor size of a rated current 3150 A. In case of more than 3200 A, conductor sizes are not defined in IEC 60947-1.

■ Insulation distance

When a short-circuit current is interrupted, hot gas blows out discharged from the exhaust port of the arc extinguishing chamber, so provide a clearance as shown in the following table.
Note: On the fixed type, maintenance is possible with following clearance.



Dimensions [mm]

Type		AE1000-SW – AE3200-SW AE2000-SWA, AE4000-SWA				AE4000-SW – AE6300-SW	
Applicable voltage		AC600V or less		AC660V, 690V		AC690V or less	
Fixed type	A	0	①	100	①	200	①
	B	50	③	50	③	50	③
	C	162		162		—	
	D	50	②	50	②	200	
Drawout type	A	0		100		200	①
	B	50	③	50	③	50	③
	C	240		240		—	
	D	50	②	50	②	200	

① 300 mm or more clearance is necessary to inspect the arc-extinguishing chamber and contacts.
② The wiring space required for the control terminal block.
③ When using mechanical interlock, door interlock, etc. are installed, dimension B becomes larger.

■ Service conditions

Normal service condition

Under ordinary conditions the following normal working conditions are all satisfied, the AE Series air circuit breaker may be used unless otherwise specified.

1. Ambient temperature	A range of max. +40 °C to min. -5 °C is recommended. And the average over 24 hours must not exceed +35 °C.
2. Altitude	2,000 m (6,600 feet) or less
3. Environmental conditions	The air must be clean, and the relative humidity must be 85 % or less at max. temp. +40°C. Do not use and store in atmospheres with sulfide gas and ammonia gas etc. ($H_2S \leq 0.01$ ppm, $SO_2 \leq 0.1$ ppm, NH_3 < a few ppm.)
4. Installation conditions	When installing the AE Series air circuit breaker, refer to the installation instructions in the catalogue and instruction manual.
5. Storage temperature	A range of max. +60°C to min. -20°C is recommended to be stored. And the average over 24 hours must not exceed +35°C.
6. Guideline for replacement	Please refer to the instruction manual.

Special service conditions

In the case of special service condition, modified air circuit breakers are provided.
Please specify when ordering. Service life may be shorter due to service conditions.

1. Special environmental conditions	If it is used under high temperature and/or high humidity, the insulation durability and other electrical/mechanical features may deteriorate. Therefore, the breaker should be specially treated. Moisture fungus treatment with corrosion proofing is recommended. Since some parts may have problems due to corrosion caused by the use in the environments where corrosive gas occurs, the corrosion proof specifications is recommended, in such environments.
2. High ambient temperature	If the ambient temperature exceeds +40 °C, the uninterrupted current rating will be reduced. Since the derating value is different depending on the applicable standard, refer to p. 24
3. High altitude	Since on the use at the 2,000m or higher, the heat radiation rate is reduced, accordingly the operating voltage, continuous current capacity and breaking capacity are derated. Moreover the insulation durability is also decreased owing to the atmospheric pressure. Please inquire us for further detail.

■ Discrimination table

AE-SW series air circuit breakers provide easy selective co-ordination with branch circuit breakers. For selective co-cordinations, refer to the following table.

AC 230 V sym kA

Branch circuit breaker		Unit breaking capacity	Main circuit breaker AE-SW series										
			AE1000-SW	AE1250-SW	AE1600-SW	AE2000-SWA	AE2000-SW	AE2500-SW	AE3200-SW	AE4000-SWA	AE4000-SW	AE5000-SW	AE6300-SW
			65	65	65	65	85	85	85	85	130	130	130
NF|S・NF|H	NF32-SW	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
	NF63-SW	15	10	10	10	10	10	10	10	10	10	10	10
	NF63-HW	25	25	25	25	25	25	25	25	25	25	25	25
	NF125-SW	50	45 (50)	50	50	50	50	50	50	50	50	50	50
	NF125-SGW RT	85	45 (65)	65	65	65	85	85	85	85	—	—	—
	NF125-SGW RE	85	45 (65)	65	65	65	85	85	85	85	—	—	—
	NF125-HW	100	50 (65)	65	65	65	85	85	85	85	100	100	100
	NF125-HGW RT	85	45 (65)	65	65	65	85	85	85	85	—	—	—
	NF125-HGW RE	85	45 (65)	65	65	65	85	85	85	85	—	—	—
	NF160-SGW RT	85	45 (65)	65	65	65	85	85	85	85	—	—	—
	NF160-SGW RE	85	45 (65)	65	65	65	85	85	85	85	—	—	—
	NF160-HGW RT	100	25 (65)	40 (65)	65	65	85	85	85	85	—	—	—
	NF160-HGW RE	100	25 (65)	40 (65)	65	65	85	85	85	85	—	—	—
	NF250-SW	50	20 (50)	22 (50)	42 (50)	42 (50)	50	50	50	50	50	50	50
	NF250-HW	100	25 (65)	40 (65)	65	65	85	85	85	85	100	100	100
	NF250-SGW RT	85	25 (65)	40 (65)	65	65	85	85	85	85	—	—	—
	NF250-SGW RE	85	25 (65)	40 (65)	65	65	85	85	85	85	—	—	—
	NF250-HGW RT	100	25 (65)	40 (65)	65	65	85	85	85	85	—	—	—
	NF250-HGW RE	100	25 (65)	40 (65)	65	65	85	85	85	85	—	—	—
	NF400-SW	85	—	20 (65)	27 (65)	27 (65)	42 (75)	70 (75)	85	85	85	85	85
	NF400-SEW	85	15 (65)	20 (65)	27 (65)	27 (65)	42 (75)	70 (75)	85	85	85	85	85
	NF400-HEW	100	15 (65)	20 (65)	27 (65)	27 (65)	42 (75)	70 (75)	85	85	100	100	100
	NF400-REW	150	15 (65)	20 (65)	27 (65)	27 (65)	42 (75)	70 (75)	85	85	130	130	130
	NF630-SW	85	—	—	24 (65)	24 (65)	30 (75)	40 (75)	60 (75)	60 (75)	85	85	85
	NF630-SEW	85	15 (65)	18 (65)	24 (65)	24 (65)	30 (75)	40 (75)	60 (75)	60 (75)	85	85	85
	NF630-HEW	100	15 (65)	18 (65)	24 (65)	24 (65)	30 (75)	40 (75)	60 (75)	60 (75)	85 (100)	85 (100)	85 (100)
	NF630-REW	150	15 (65)	18 (65)	24 (65)	24 (65)	30 (75)	40 (75)	60 (75)	60 (75)	85 (100)	85 (100)	85 (100)
	NF800-SEW	85	—	18 (65)	24 (65)	24 (65)	30 (75)	40 (75)	60 (75)	60 (75)	85	85	85
	NF800-HEW	100	—	18 (65)	24 (65)	24 (65)	30 (75)	40 (75)	60 (75)	60 (75)	85 (100)	85 (100)	85 (100)
	NF800-REW	150	—	18 (65)	24 (65)	24 (65)	30 (75)	40 (75)	60 (75)	60 (75)	85 (100)	85 (100)	85 (100)
NF|C	NF63-CW	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
	NF125-CW	30	15 (30)	18 (30)	24 (30)	24 (30)	30	30	30	30	30	30	30
	NF250-CW	35	15 (35)	18 (35)	24 (35)	24 (35)	35	35	35	35	35	35	35
	NF400-CW	50	15 (50)	18 (50)	24 (50)	24 (50)	30 (50)	37 (50)	48 (50)	48 (50)	50	50	50
	NF630-CW	50	—	—	24 (50)	24 (50)	30 (50)	37 (50)	48 (50)	48 (50)	50	50	50
	NF800-CEW	50	—	—	24 (50)	24 (50)	30 (50)	37 (50)	48 (50)	48 (50)	50	50	50
NF|U	NF125-RGW	125	65	65	65	65	85	85	85	85	125	125	125
	NF125-UGW	200	65	65	65	65	85	85	85	85	130	130	130
	NF250-RGW	125	65	65	65	65	85	85	85	85	125	125	125
	NF250-UGW	200	65	65	65	65	85	85	85	85	130	130	130
	NF400-UEW	200	15 (65)	18 (65)	29 (65)	29 (65)	48 (75)	85	85	85	130	130	130
	NF800-UEW	200	—	18 (65)	24 (65)	24 (65)	30 (75)	37 (75)	68 (75)	68 (75)	85 (100)	85 (100)	85 (100)

18 (65) Standard; 15 (50) Non-standard

AC 440 V sym kA

Branch circuit breaker		Unit breaking capacity	Main circuit breaker AE-SW series										
			AE1000-SW	AE1250-SW	AE1600-SW	AE2000-SWA	AE2000-SW	AE2500-SW	AE3200-SW	AE4000-SWA	AE4000-SW	AE5000-SW	AE6300-SW
			65	65	65	65	85	85	85	85	130	130	130
NF|S・NF|H	NF32-SW	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	NF63-SW	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
	NF63-HW	10	10	10	10	10	10	10	10	10	10	10	10
	NF125-SW	25	20(25)	25	25	25	25	25	25	25	25	25	25
	NF125-SGW RT	36	20 (36)	36	36	36	36	36	36	36	—	—	—
	NF125-SGW RE	36	20 (65)	36 (65)	65	65	65	65	65	65	—	—	—
	NF125-HW	50	30(50)	50	50	50	50	50	50	50	50	50	50
	NF125-HGW RT	65	20 (65)	36 (65)	65	65	65	65	65	65	—	—	—
	NF125-HGW RE	65	20 (65)	36 (65)	65	65	65	65	65	65	—	—	—
	NF160-SGW RT	36	15 (36)	25 (36)	36	36	36	36	36	36	—	—	—
	NF160-SGW RE	36	15 (36)	25 (36)	36	36	36	36	36	36	—	—	—
	NF160-HGW RT	65	15 (65)	25 (65)	42 (65)	42 (65)	65	65	65	65	—	—	—
	NF160-HGW RE	65	15 (65)	25 (65)	42 (65)	42 (65)	65	65	65	65	—	—	—
	NF250-SW	25	14(25)	19(25)	25	25	25	25	25	25	25	25	25
	NF250-SGW RT	36	15 (36)	25 (36)	36	36	36	36	36	36	—	—	—
	NF250-SGW RE	36	15 (36)	25 (36)	36	36	36	36	36	36	—	—	—
	NF250-HW	50	15(50)	25(50)	42(50)	42(50)	50	50	50	50	50	50	50
	NF250-HGW RT	65	15 (65)	25 (65)	42 (65)	42 (65)	65	65	65	65	—	—	—
	NF250-HGW RE	65	15 (65)	25 (65)	42 (65)	42 (65)	65	65	65	65	—	—	—
	NF400-SW	42	—	18(42)	24(42)	24(42)	33(42)	42	42	42	42	42	42
	NF400-SEW	42	15(42)	18(42)	24(42)	24(42)	33(42)	42	42	42	42	42	42
	NF400-HEW	65	15(65)	18(65)	24(65)	24(65)	33(65)	45(65)	65	65	65	65	65
	NF400-REW	125	15(65)	18(65)	24(65)	24(65)	33(75)	45(75)	80	80	100	100	100
	NF630-SW	42	—	—	24(42)	24(42)	33(42)	42	42	42	42	42	42
	NF630-SEW	42	15(42)	18(42)	24(42)	24(42)	30(42)	40(42)	42	42	42	42	42
	NF630-HEW	65	15(65)	18(65)	24(65)	24(65)	30(65)	40(65)	60(65)	60(65)	65	65	65
	NF630-REW	125	15(65)	18(65)	24(65)	24(65)	30(75)	40(75)	60(75)	60(75)	75(100)	75(100)	75(100)
	NF800-SEW	42	—	18(42)	24(42)	24(42)	30(42)	40(42)	42	42	42	42	42
	NF800-HEW	65	—	18(65)	24(65)	24(65)	30(65)	40(65)	60(65)	60(65)	65	65	65
	NF800-REW	125	—	18(65)	24(65)	24(65)	30(75)	40(75)	60(75)	60(75)	75(100)	75(100)	75(100)
NF|C	NF63-CW	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	NF125-CW	10	10	10	10	10	10	10	10	10	10	10	10
	NF250-CW	15	15	15	15	15	15	15	15	15	15	15	15
	NF400-CW	25	15(25)	18(25)	24(25)	24(25)	25	25	25	25	25	25	25
	NF630-CW	36	—	—	24(36)	24(36)	30(36)	36	36	36	36	36	36
	NF800-CEW	36	—	—	24(36)	24(36)	30(36)	36	36	36	36	36	36
NF|U	NF125-RGW	125	65	65	65	65	85	85	85	85	125	125	125
	NF125-UGW	200	65	65	65	65	85	85	85	85	130	130	130
	NF250-RGW	125	50(65)	65	65	65	85	85	85	85	125	125	125
	NF250-UGW	200	65	65	65	65	85	85	85	85	130	130	130
	NF400-UEW	200	15(65)	18(65)	29(65)	29(65)	48(75)	85	85	85	130	130	130
	NF800-UEW	200	—	18(65)	24(65)	24(65)	30(75)	37(75)	68(75)	68(75)	85(100)	85(100)	85(100)

50(65) Standard; 18(25) Non-standard

The values in the table represent the max. rated current for both Series AE-SW air circuit breakers and branch breakers, and the selective co-ordination applies when the AE-SW series air circuit breakers instantaneous pick up is set to maximum.

The numerals shown in parentheses are for AE-SW with MCR. (When set MCR).

■ Internal resistance, reactance and power consumption (per pole)

Type	Connection	Internal resistance (m)	Reactance (m)	Power consumption (W)
AE1000-SW	Fixed type	0.026	0.060	26
	Drawout type	0.040	0.091	40
AE1250-SW	Fixed type	0.024	0.060	38
	Drawout type	0.038	0.091	60
AE1600-SW	Fixed type	0.016	0.063	41
	Drawout type	0.030	0.095	77
AE2000-SWA	Fixed type	0.016	0.063	64
	Drawout type	0.032	0.095	128
AE2000-SW	Fixed type	0.010	0.047	40
	Drawout type	0.020	0.071	80
AE2500-SW	Fixed type	0.008	0.047	50
	Drawout type	0.018	0.071	113
AE3200-SW	Fixed type	0.007	0.048	72
	Drawout type	0.014	0.072	143
AE4000-SWA	Fixed type	0.009	0.048	144
	Drawout type	0.015	0.072	240
AE4000-SW	Fixed type	0.010	0.038	160
	Drawout type	0.013	0.062	210
AE5000-SW	Fixed type	0.009	0.038	225
	Drawout type	0.011	0.062	275
AE6300-SW	Fixed type	0.008	0.038	318
	Drawout type	0.0085	0.062	340

The above values are applicable for one pole. (at brand new product)

■ Deratings by ambient temperature

Standard	IEC60947-2, BS, JIS C 8201-2-1 (Standard:40 °C)				[A]
Ambient Temperature	40 °C	45 °C	50 °C	55 °C	60 °C
AE1000-SW	1000	1000	1000	1000	1000
AE1250-SW	1250	1250	1250	1250	1200
AE1600-SW	1600	1600	1600	1550	1500
AE2000-SWA	2000	2000	1900	1800	1700
AE2000-SW	2000	2000	2000	2000	2000
AE2500-SW	2500	2500	2500	2450	2350
AE3200-SW	3200	3200	3200	3000	2900
AE4000-SWA	4000	4000	4000	3800	3600
AE4000-SW	4000	4000	4000	3900	3750
AE5000-SW	5000	5000	5000	5000	4750
AE6300-SW	6300	6300	5750	5500	5200

With Extension module, Display and Network

Following derating values have to be applied, if additional electronic accessories are used inside the breaker as follows: EX1, DP1.

Standard	IEC60947-2, BS, JIS C 8201-2-1 (Standard: 40 °C)		[A]
Ambient Temperature	40 °C	45 °C	50 °C
AE1000-SW	1000	1000	1000
AE1250-SW	1250	1250	1250
AE1600-SW	1600	1600	1440
AE2000-SWA	2000	1900	1700
AE2000-SW	2000	2000	2000
AE2500-SW	2500	2500	2500
AE3200-SW	3200	3200	2880
AE4000-SWA	4000	3800	3600

Notes:

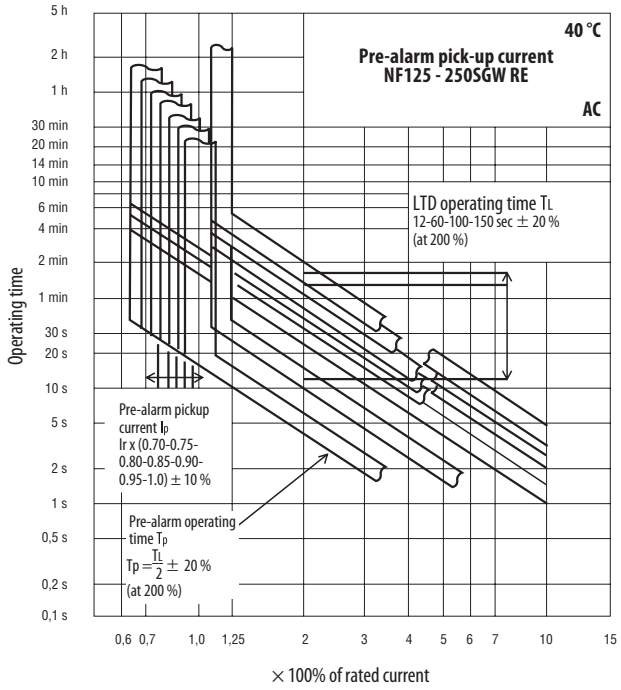
The table beside shows the maximum rated current per each ambient temperature for drawout type breaker with vertical connection (at brand new product), when breaker and bus bar are installed in open air.

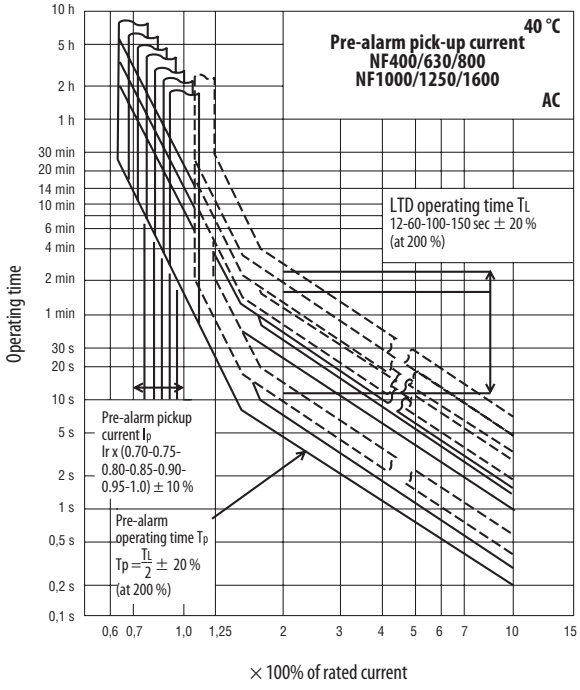
Connection bus bar is according to IEC60947-1. For AE3200-SW, AE4000-SWA, AE4000-SW, AE5000-SW and AE6300-SW, it is required to follow the manufacturer recommended size shown in page 24.

As for ambient temperature exceeding 60 °C, please inquire us.

■ Pre-alarm Characteristics

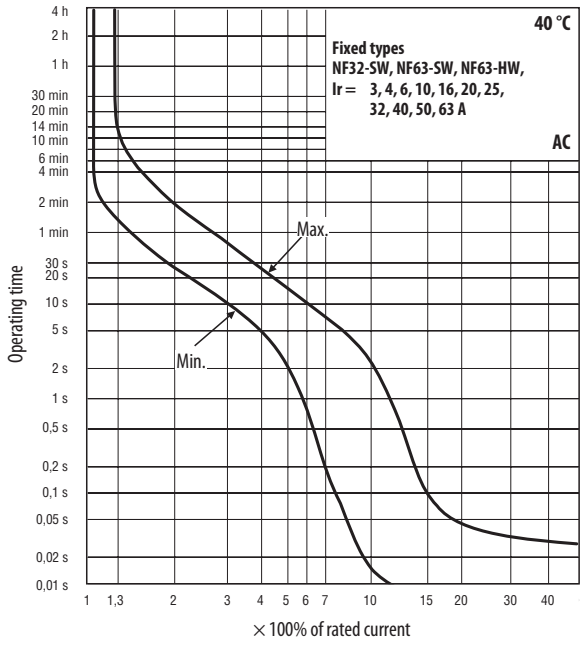
Operation characteristics





■ NF32-SW, NF63-SW, NF63-HW

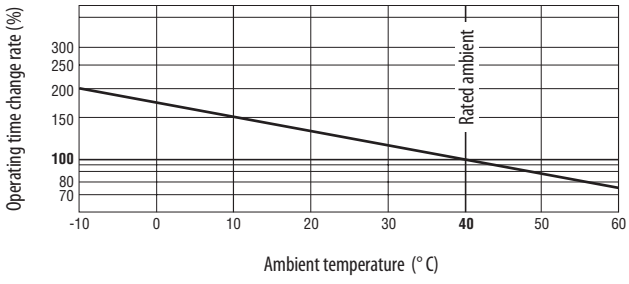
Operation characteristics



Temperature compensation characteristics

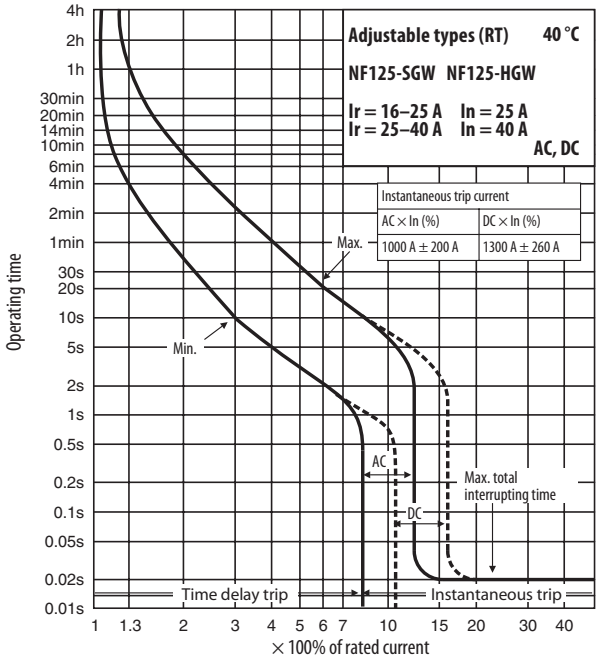
NF32-SW, NF63-SW, NF63-HW

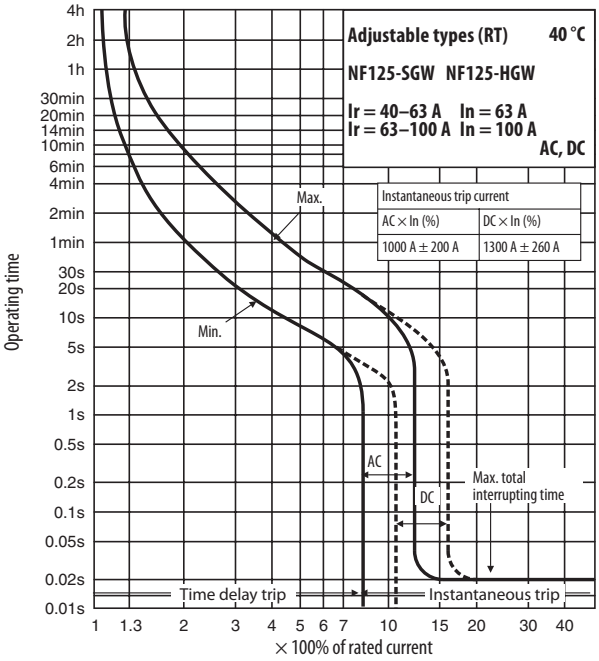
Operating time change correction, regarding to rated ambient temperature

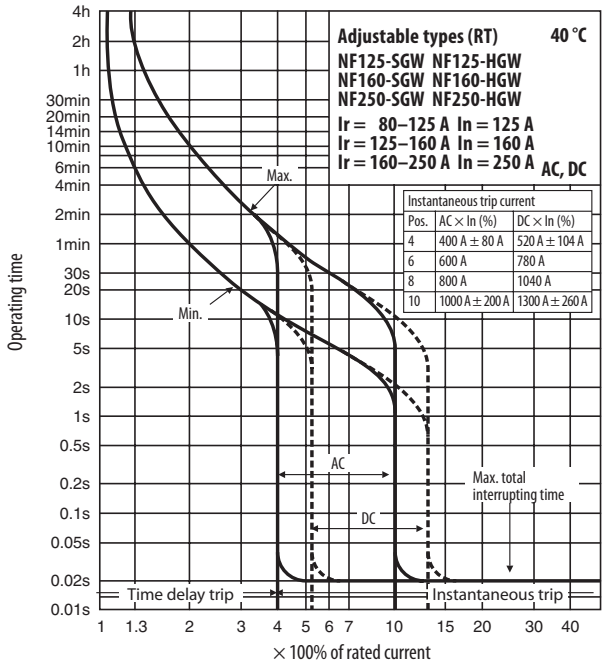


■ NF125-SGW RT, NF125-HGW RT, NF160-SGW RT, NF160-HGW RT, NF250-SGW RT, NF250-HGW RT

Operation characteristics



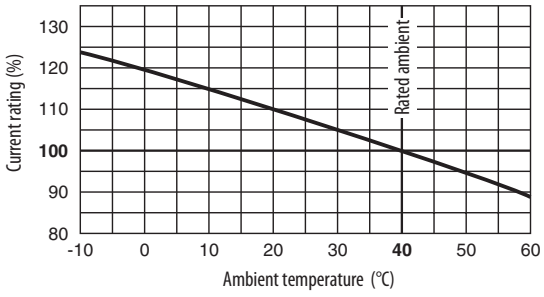




Temperature compensation characteristics

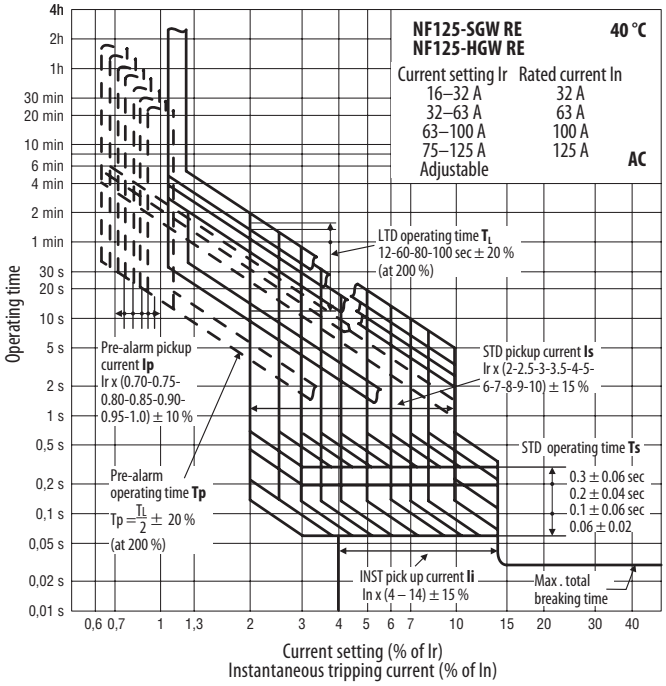
NF125-SGW RT, NF125-HGW RT,
NF160-SGW RT, NF160-HGW RT,
NF250-SGW RT, NF250-HGW RT

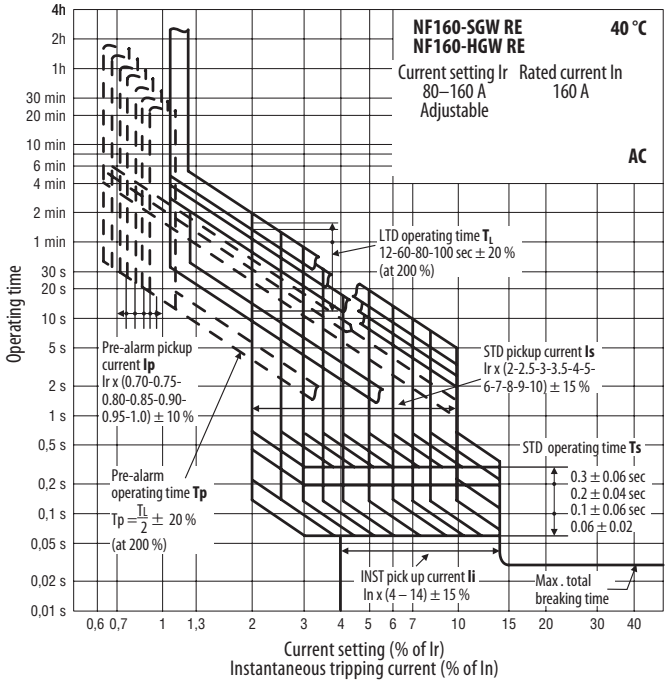
Current rating correction, regarding to rated ambient temperature

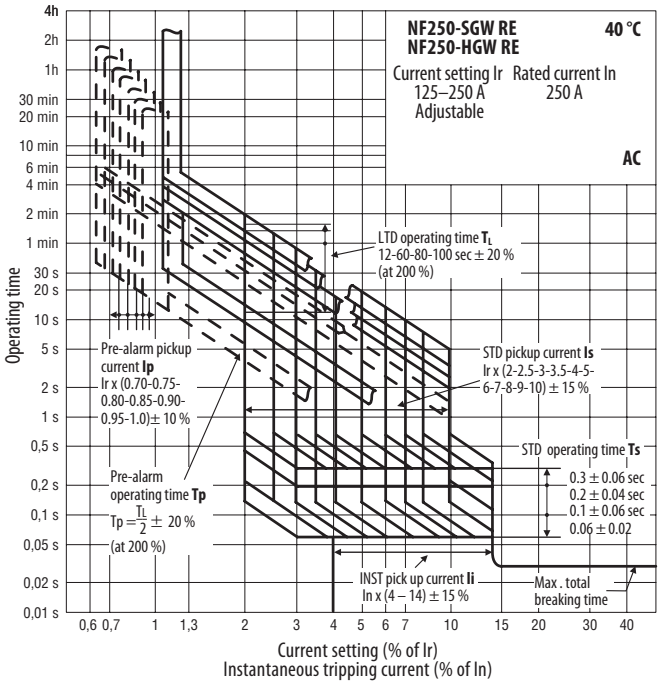


■ NF125-SGW RE, NF125-HGW RE, NF160-SGW RE, NF160-HGW RE, NF250-SGW RE, NF250-HGW RE

Operation characteristics



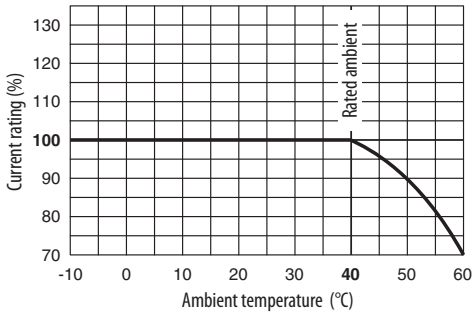




Temperature compensation characteristics

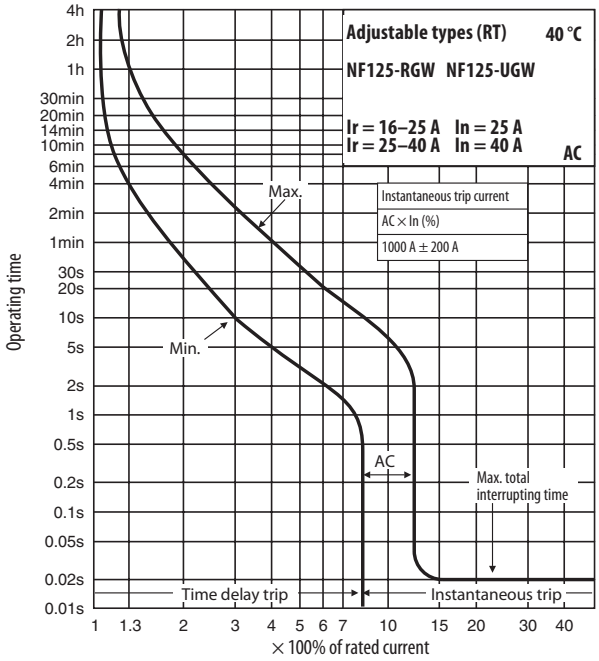
NF125-SGW RE, NF125-HGW RE,
NF160-SGW RE, NF160-HGW RE,
NF250-SGW RE, NF250-HGW RE

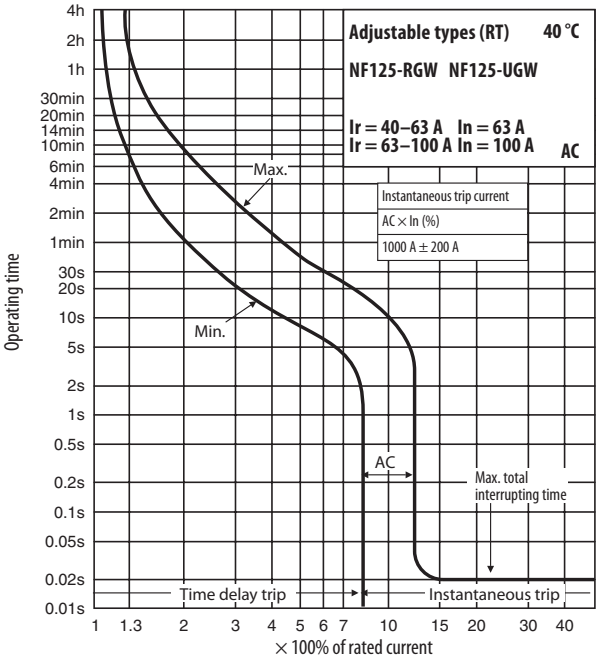
Current rating correction, regarding to rated ambient temperature

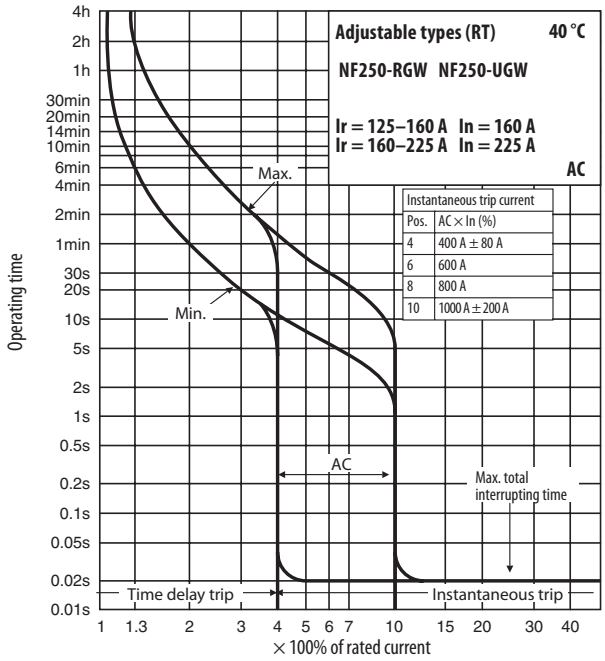


■ NF125-RGW RT, NF125-UGW RT, NF250-RGW RT, NF250-UGW RT

Operation characteristics

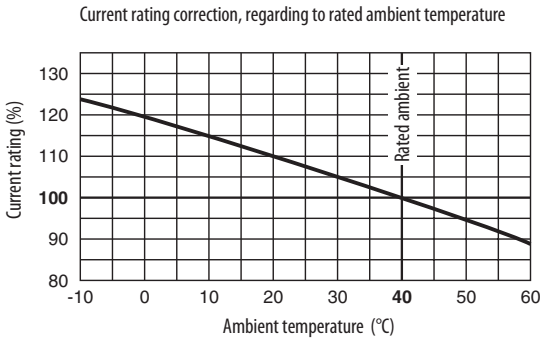






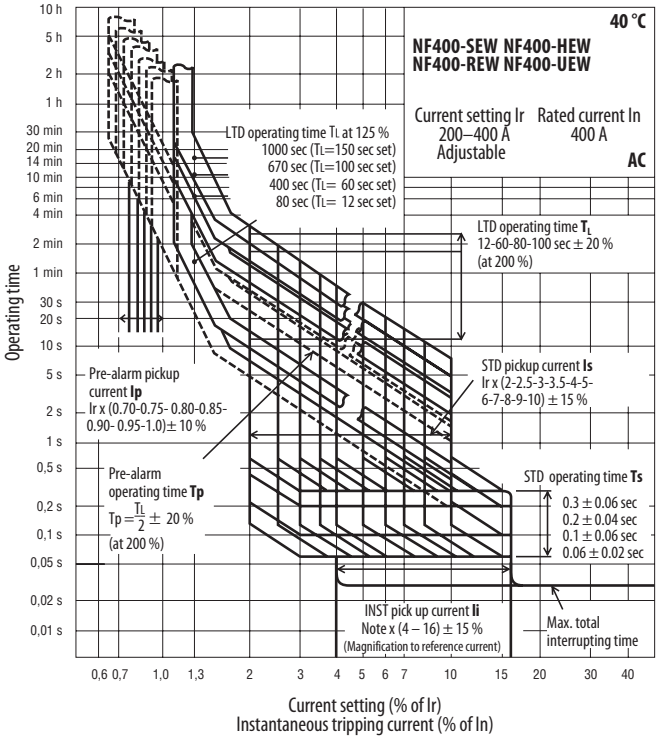
Temperature compensation characteristics

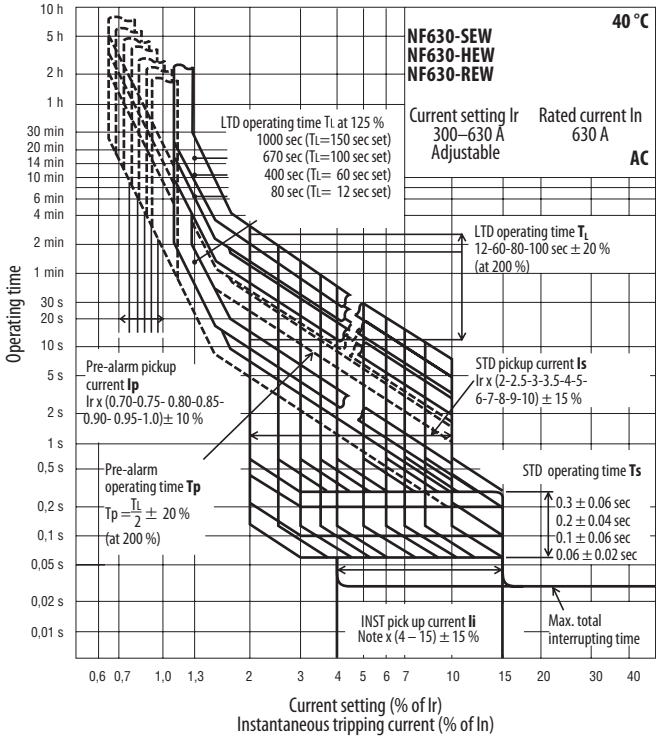
NF125-SGW RT, NF125-HGW RT,
NF160-SGW RT, NF160-HGW RT,
NF250-SGW RT, NF250-HGW RT

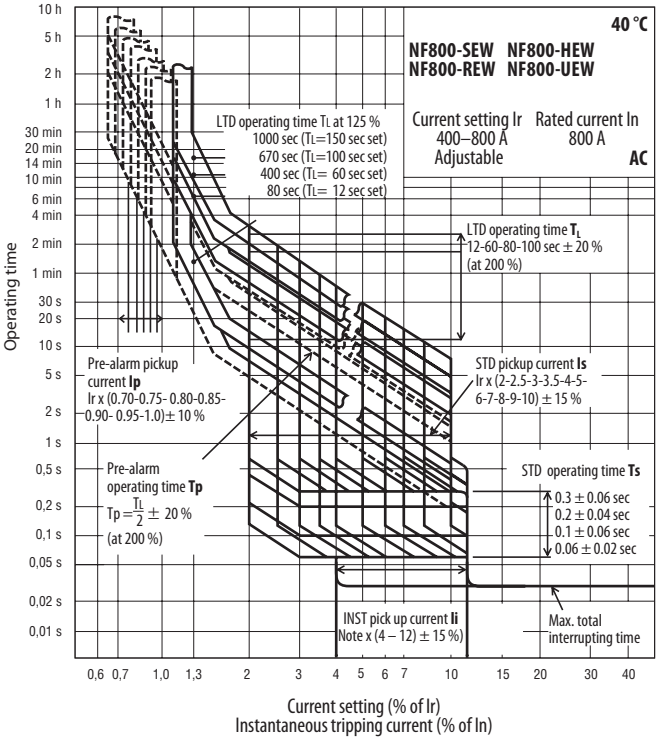


■ NF400-SEW/HEW/REW/UEW, NF630-SEW/HEW/REW, NF800-SEW/HEW/REW/UEW

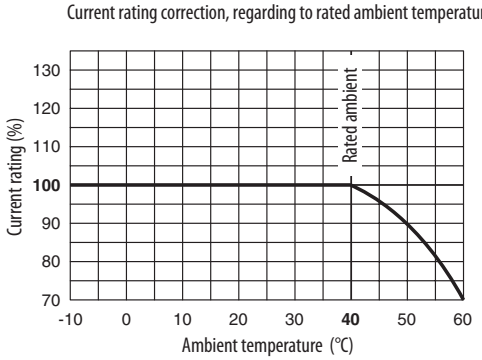
Operation characteristics



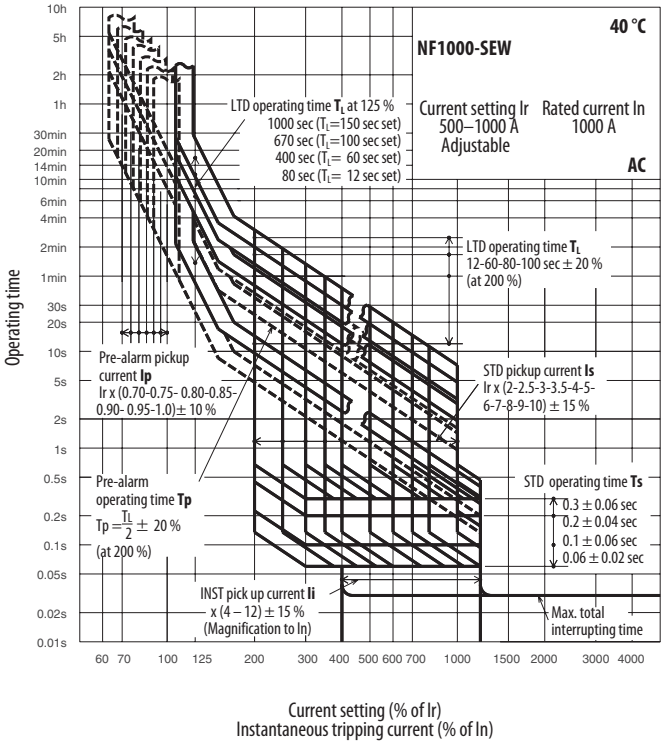




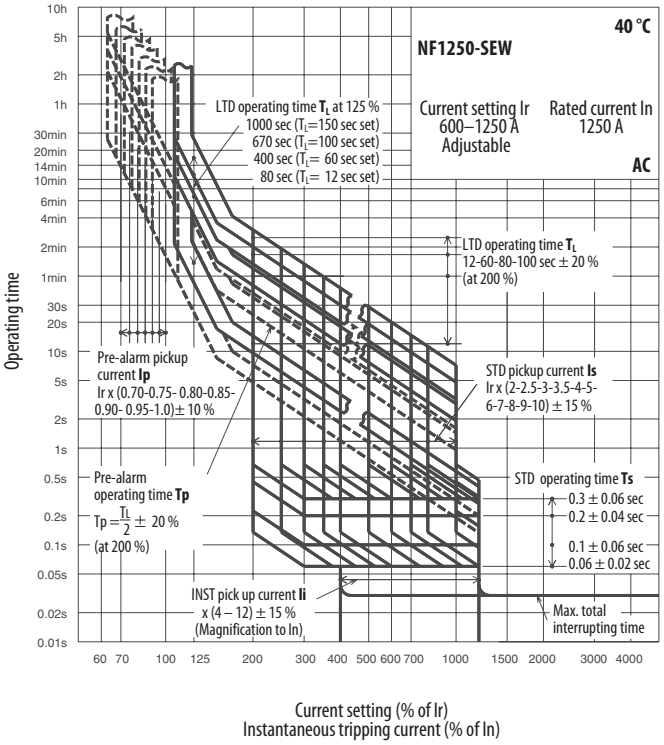
Temperature compensation characteristics



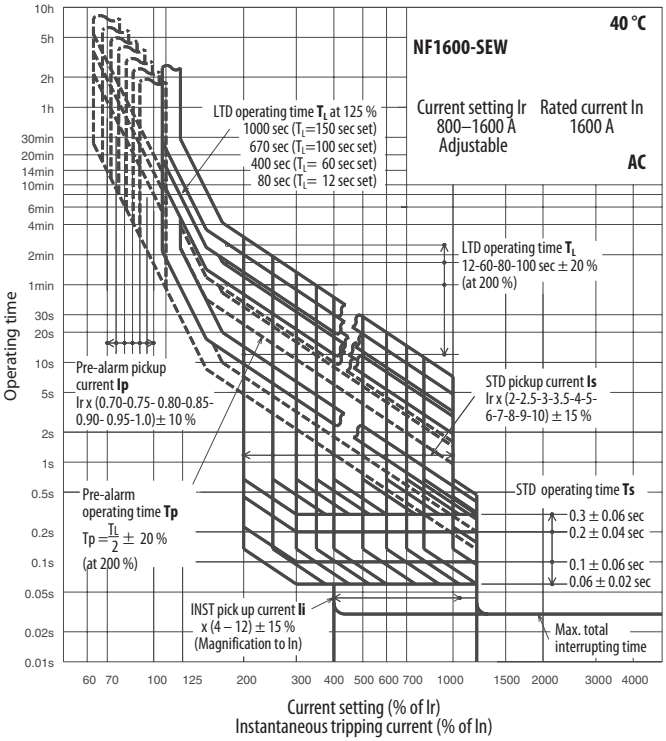
■ NF1000-SEW



■ NF1250-SEW

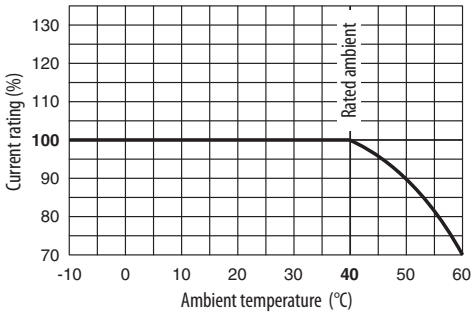


■ NF1600-SEW



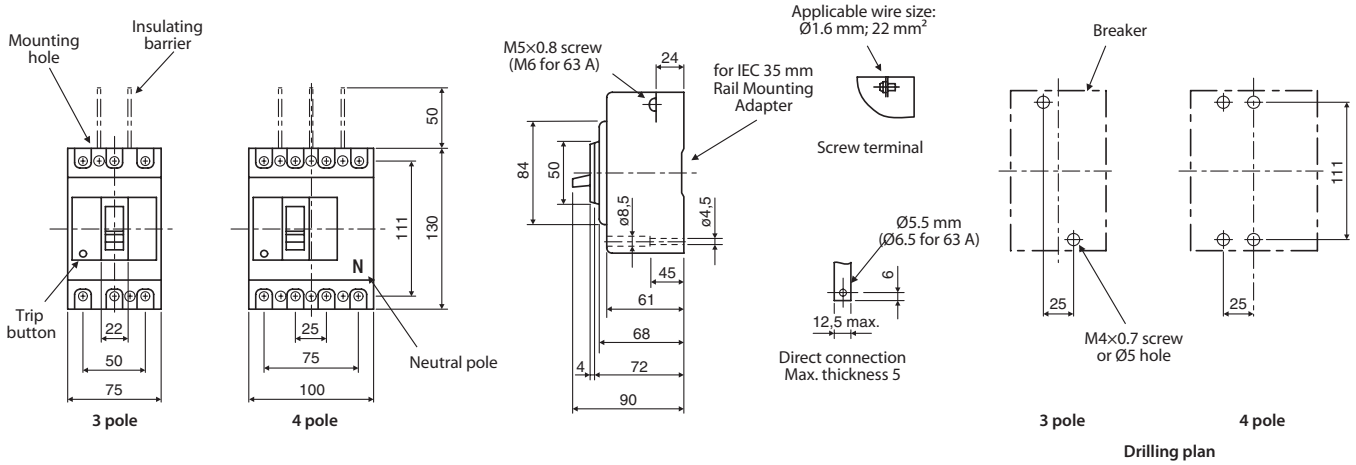
Temperature compensation characteristics

Current rating correction, regarding to rated ambient temperature

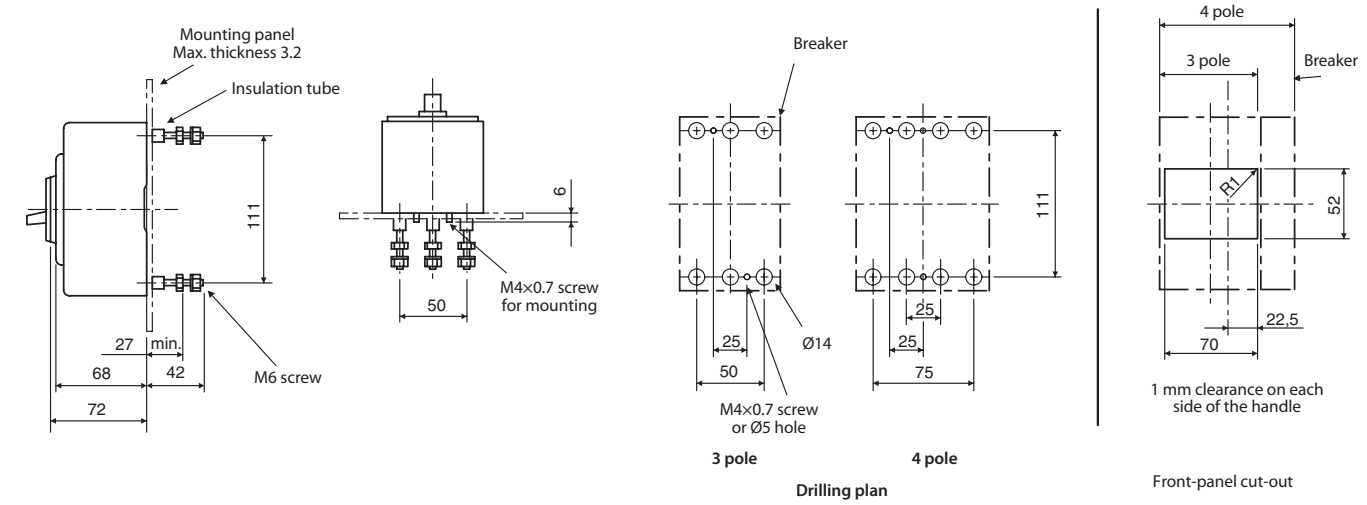


■ NF32-SW, NF63-SW, NF63-HW, DSN32-SW, DSN63-SW

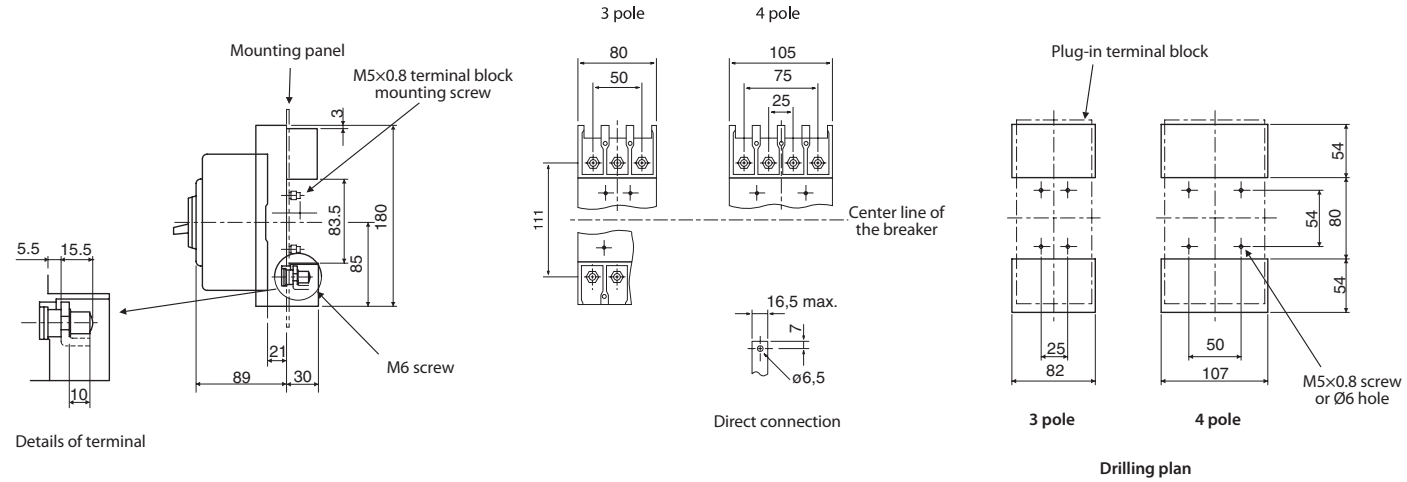
Front connection



Rear connection



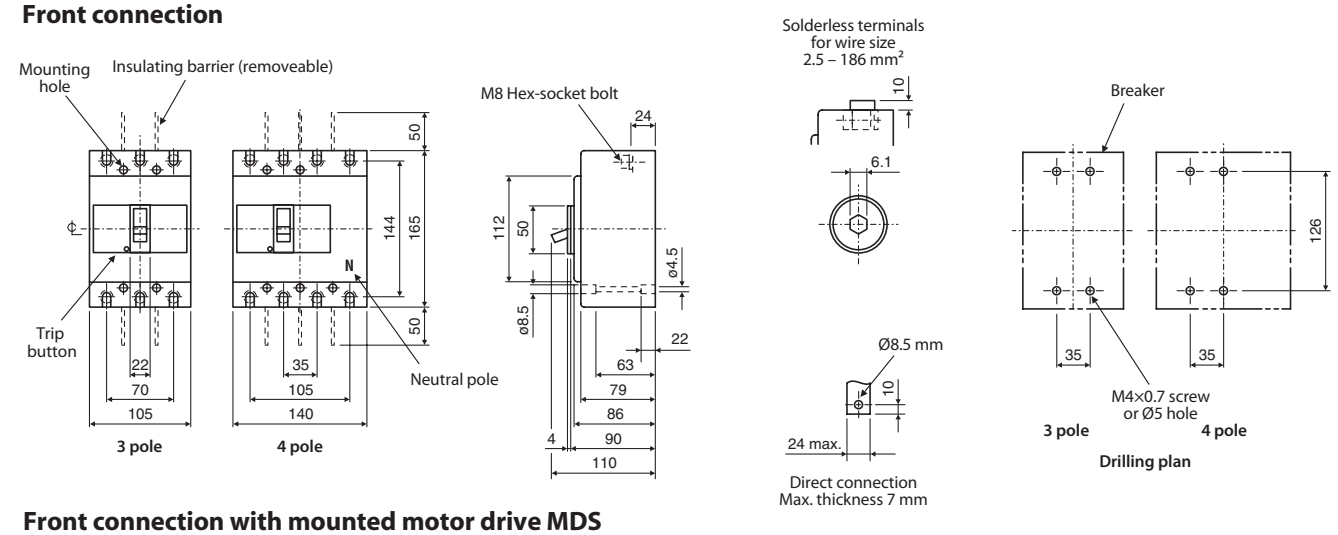
Plug-in



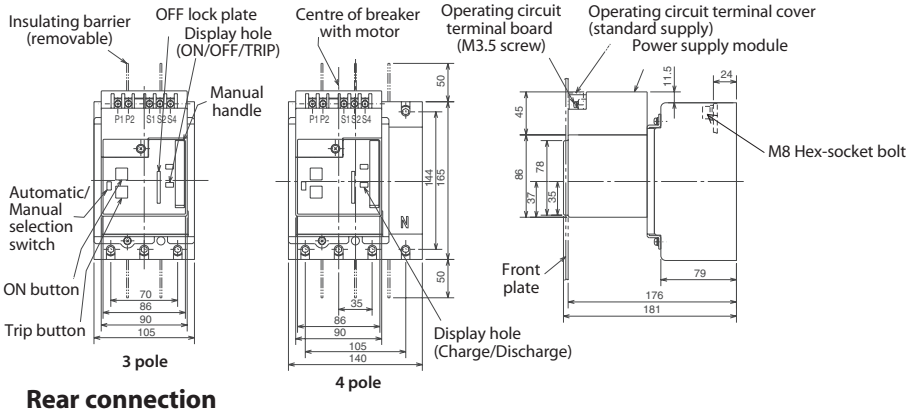
All dimensions in mm

■ NF125-SGW RE/RT, NF125-HGW RE/RT, NF160-SGW RE/RT, NF160-HGW RE/RT, NF250-SGW RE/RT, NF250-HGW RE/RT, DSN125-SGW, DSN160-SGW, DSN250-SGW

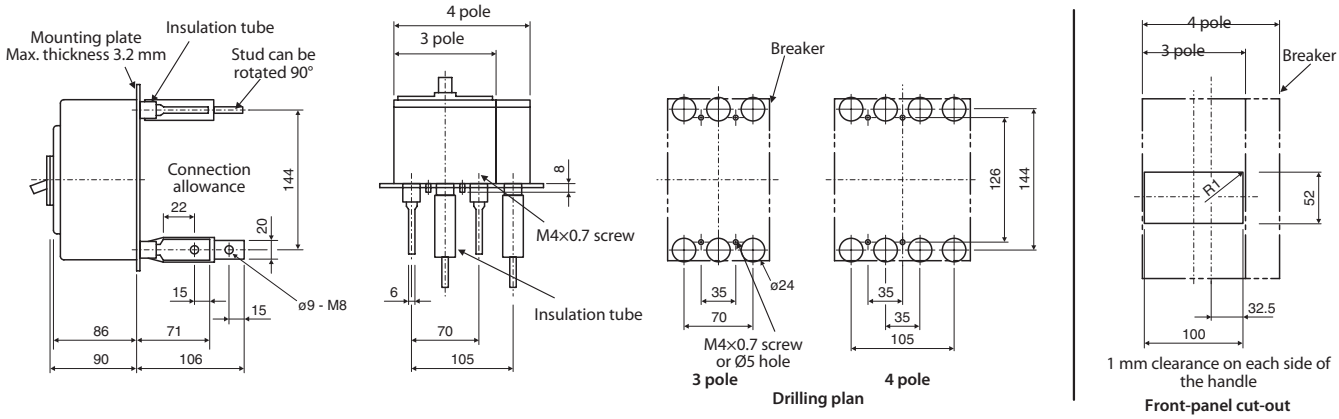
Front connection



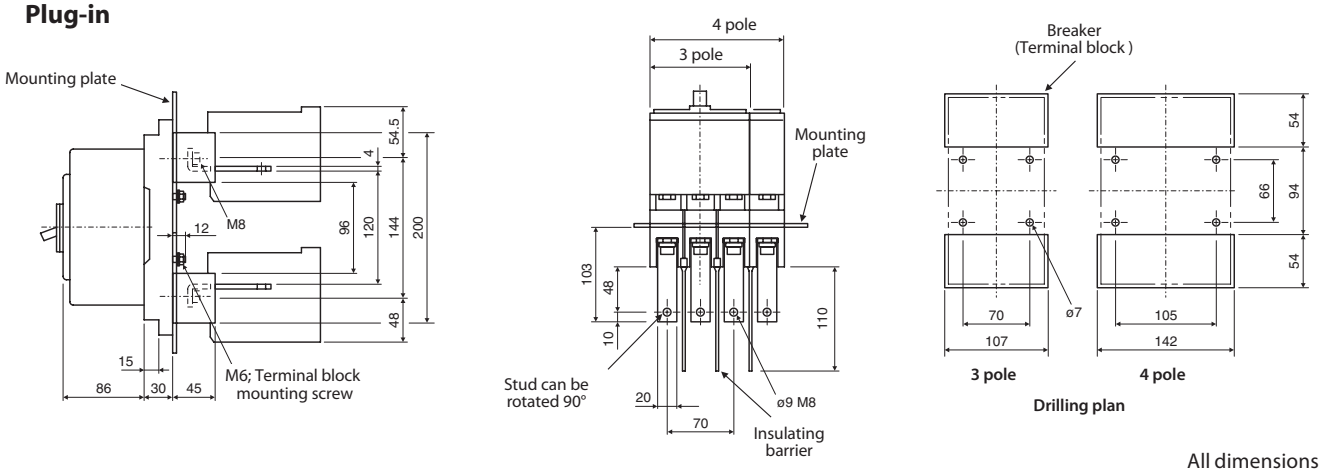
Front connection with mounted motor drive MDS



Rear connection



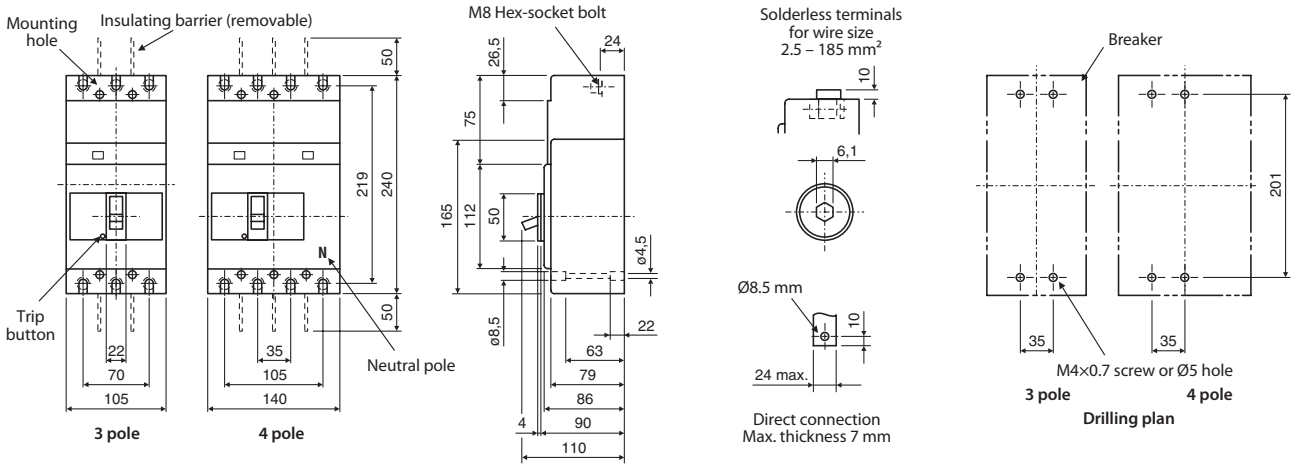
Plug-in



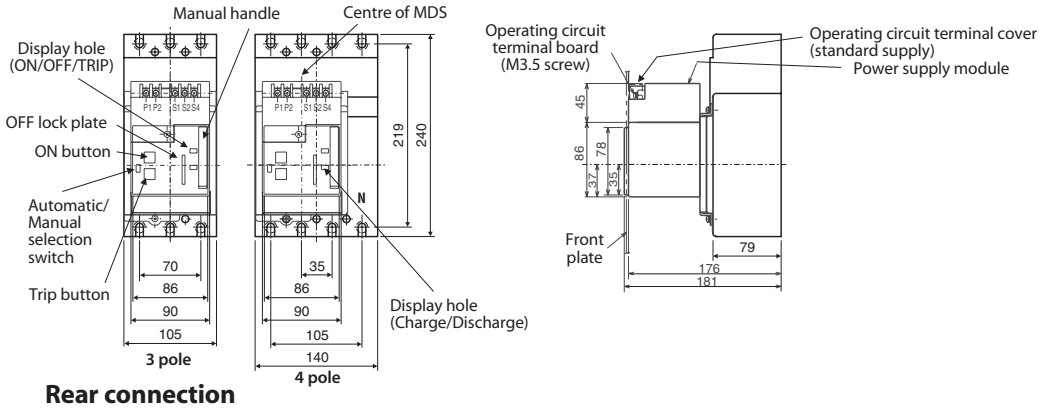
All dimensions in mm.

■ NF125-RGW RT, NF125-UGW RT, NF250-RGW RT, NF250-UGW RT

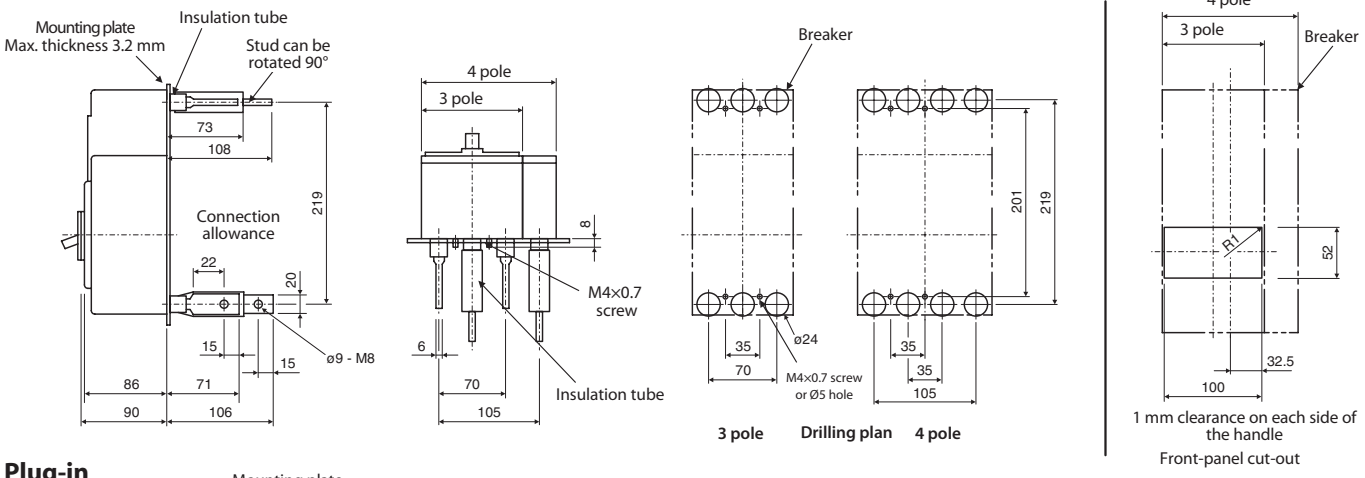
Front connection



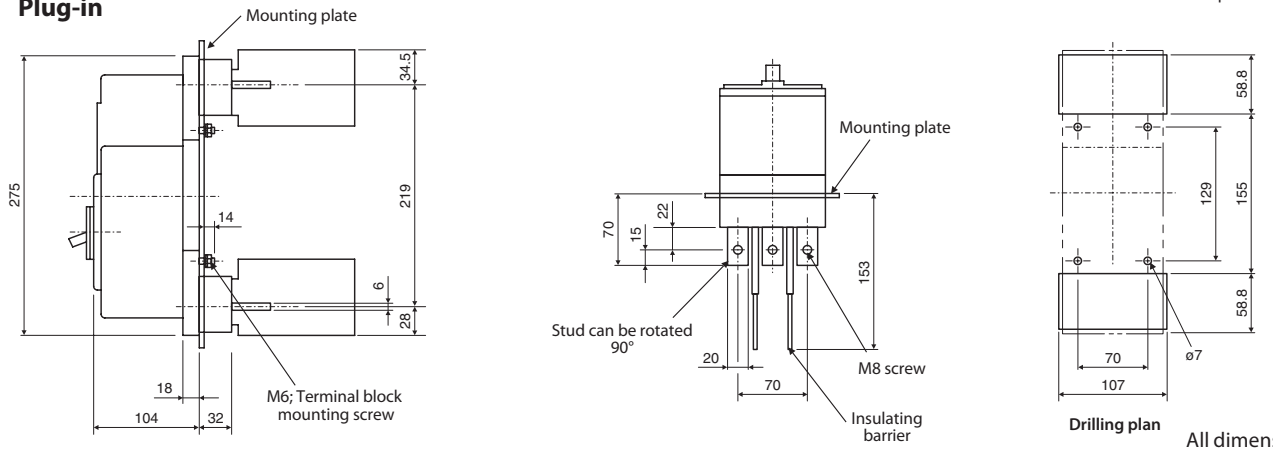
Front connection with mounted motor drive MDS



Rear connection



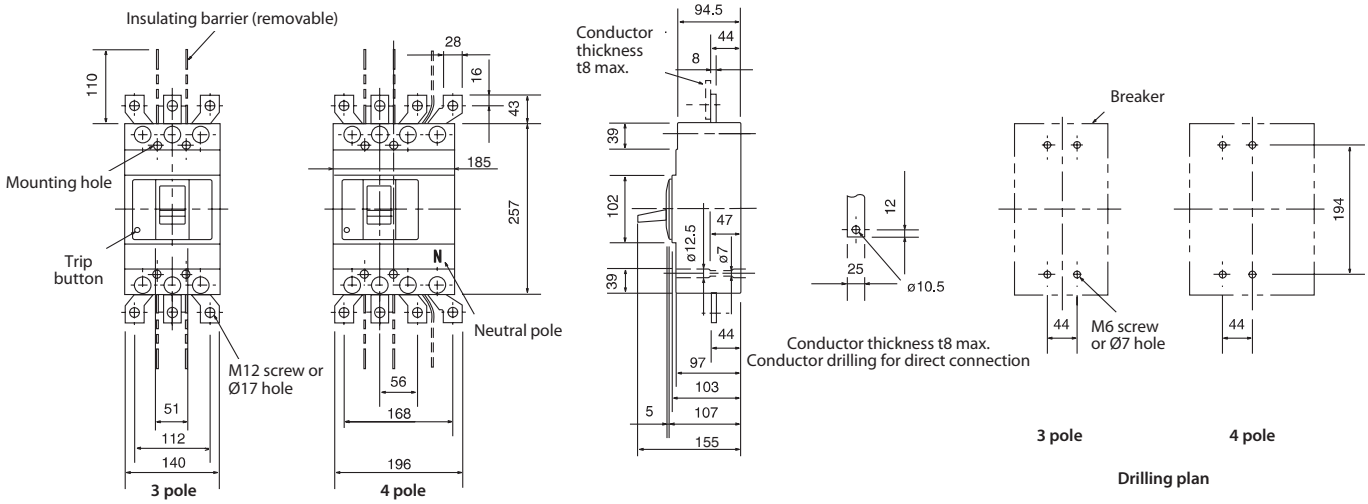
Plug-in



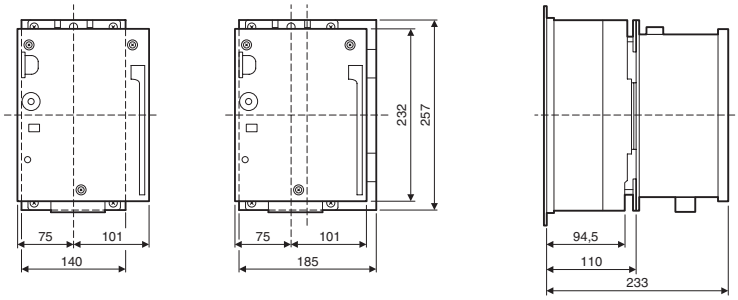
All dimensions in mm

■ NF400-SEW NF400-HEW, NF400-REW, DSN400-SW

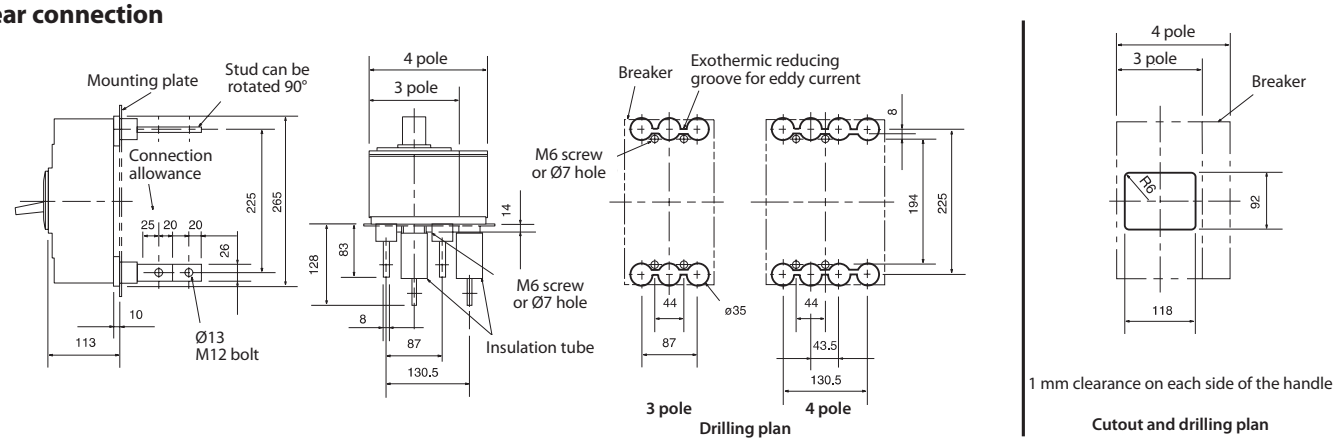
Front connection



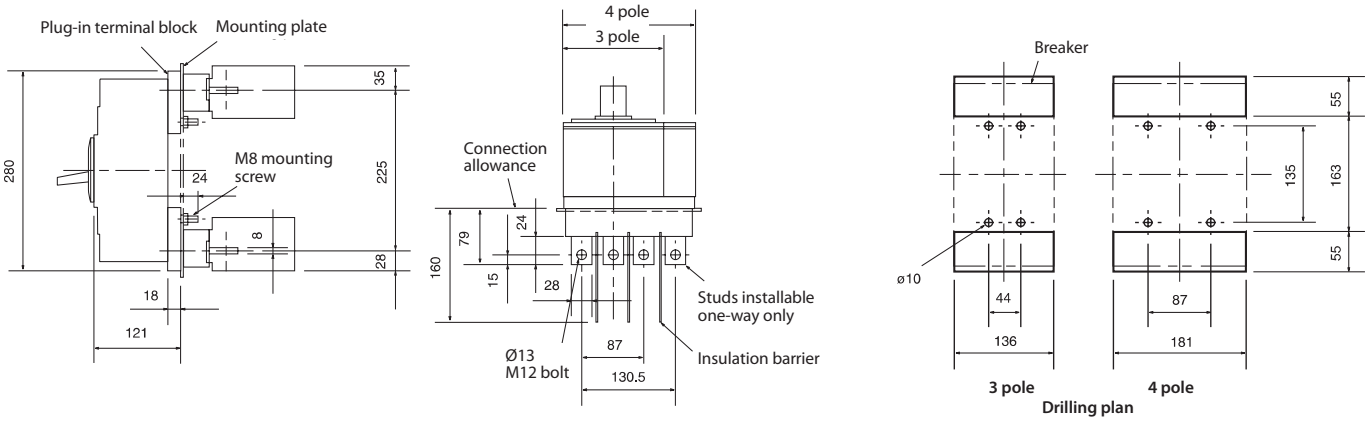
Front connection with mounted motor drive MDS



Rear connection



Plug-in

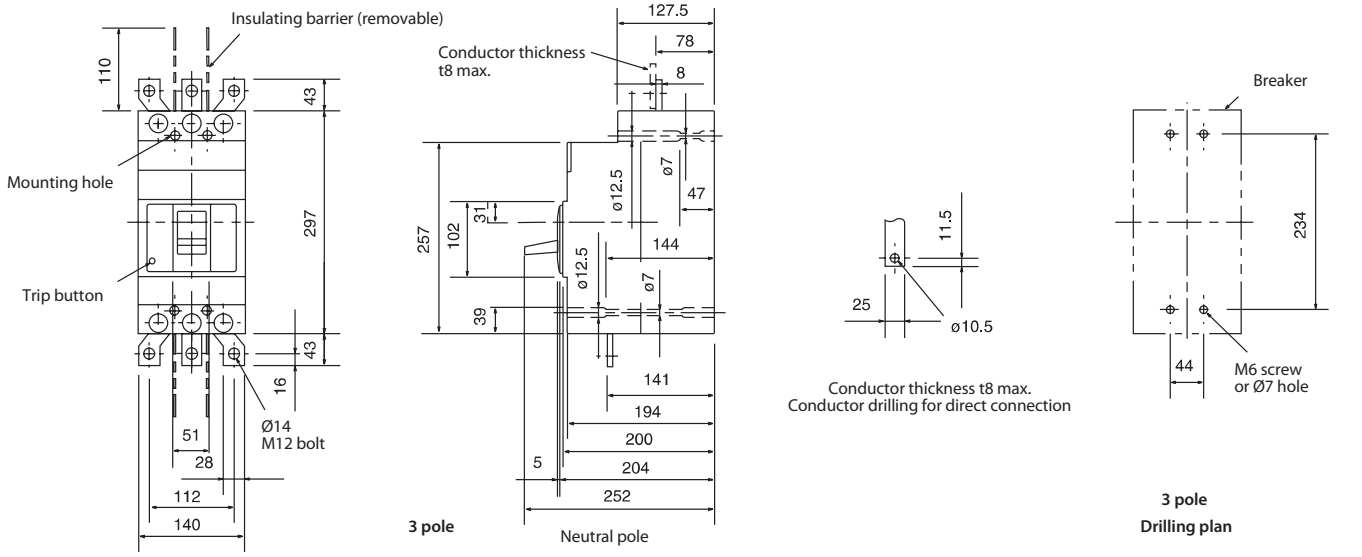


All dimensions in mm

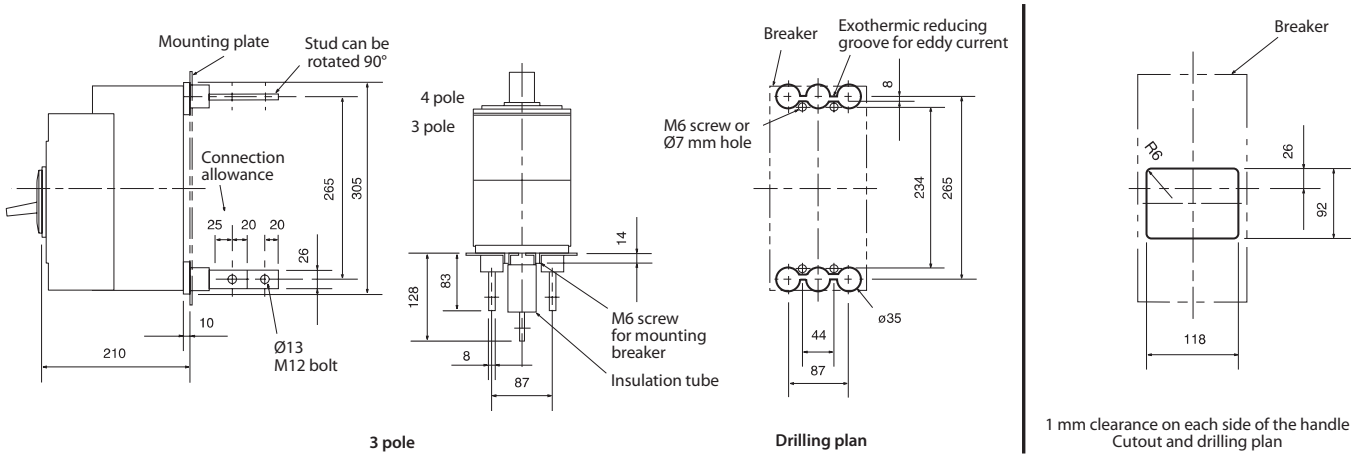
■ NF400-UEW (3-pole type)

Remark: 4-pole type please see page 42.

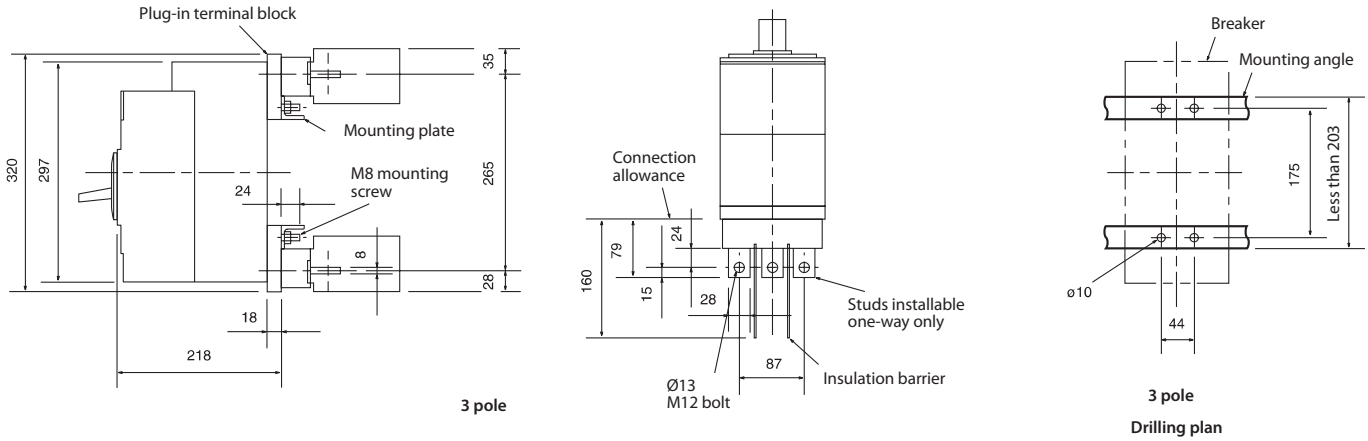
Front connection



Rear connection



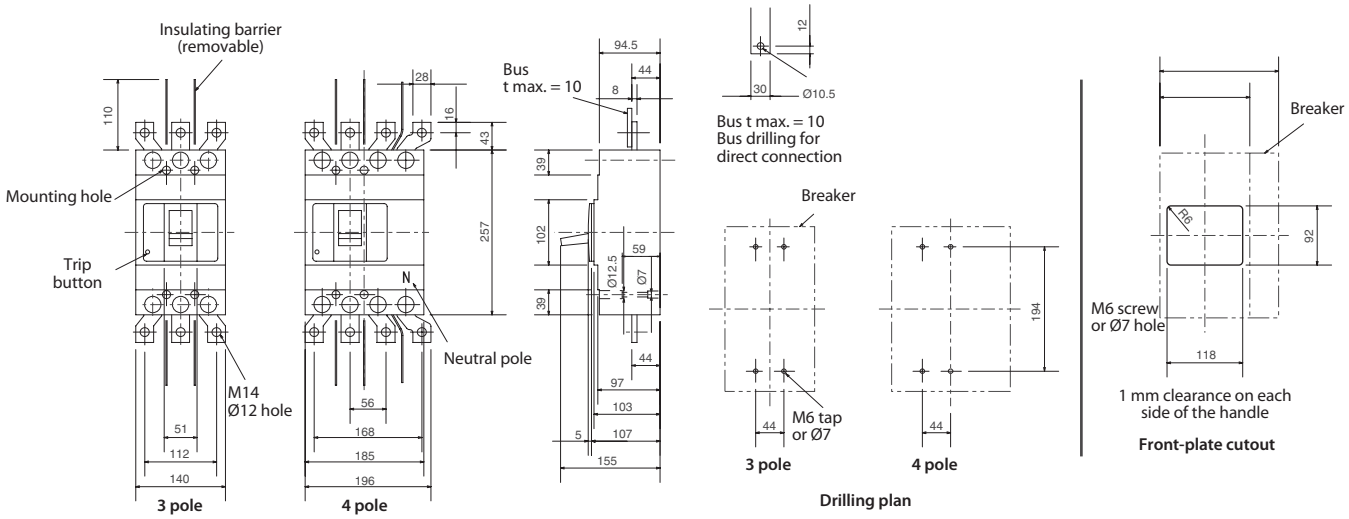
Plug-in



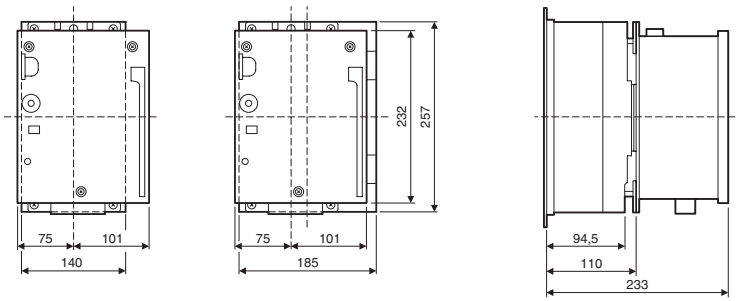
All dimensions in mm

■ NF630-SEW, NF630-HEW, NF630-REW, DSN630-SW

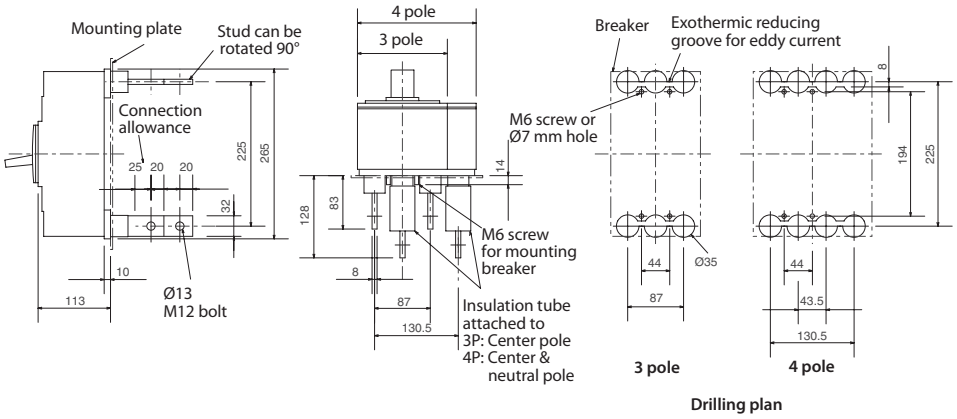
Front connection



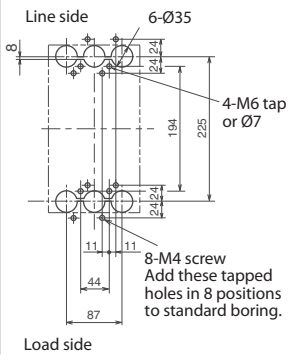
Front connection with mounted motor drive MDS



Rear connection

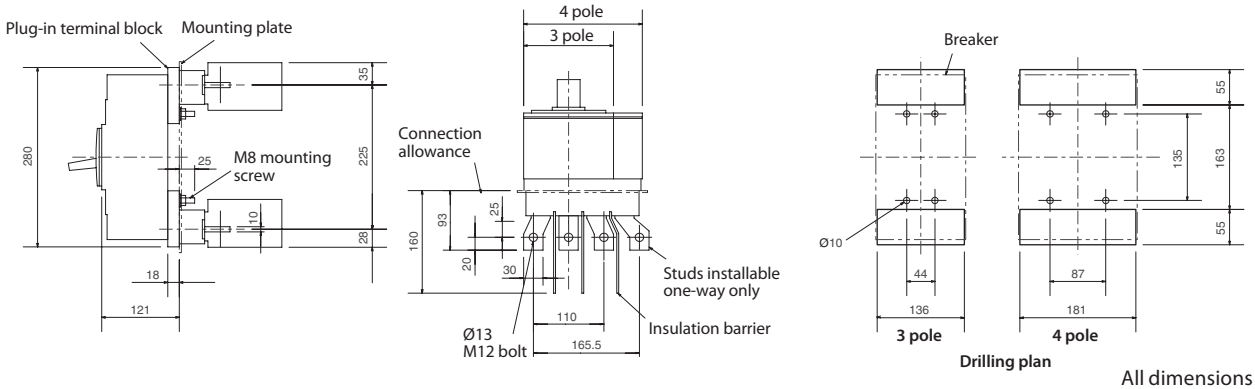


Boring dimensions for rear connection type barriers (3-pole)



Note: The boring dimensional drawing shows the breaker viewed from the rear.

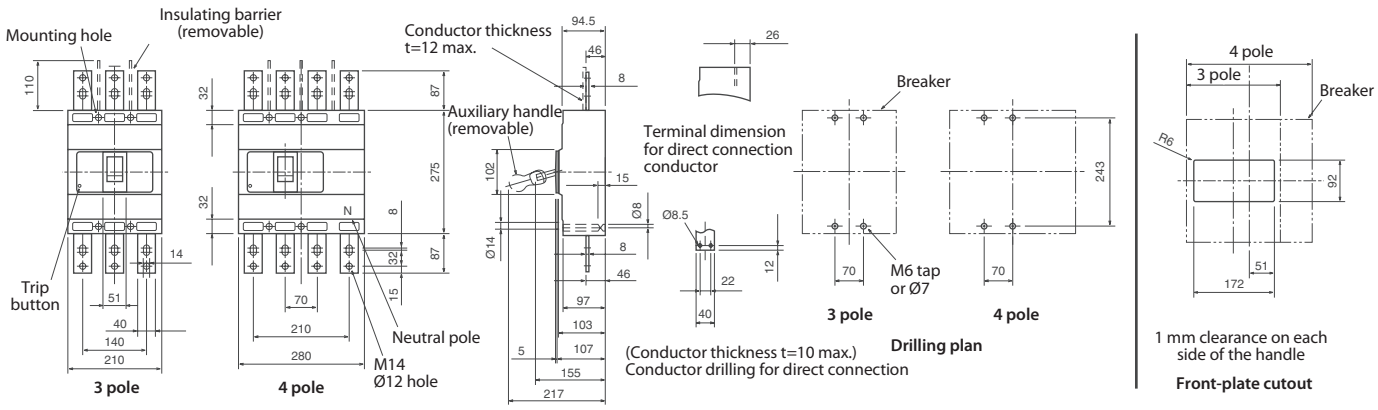
Plug-in



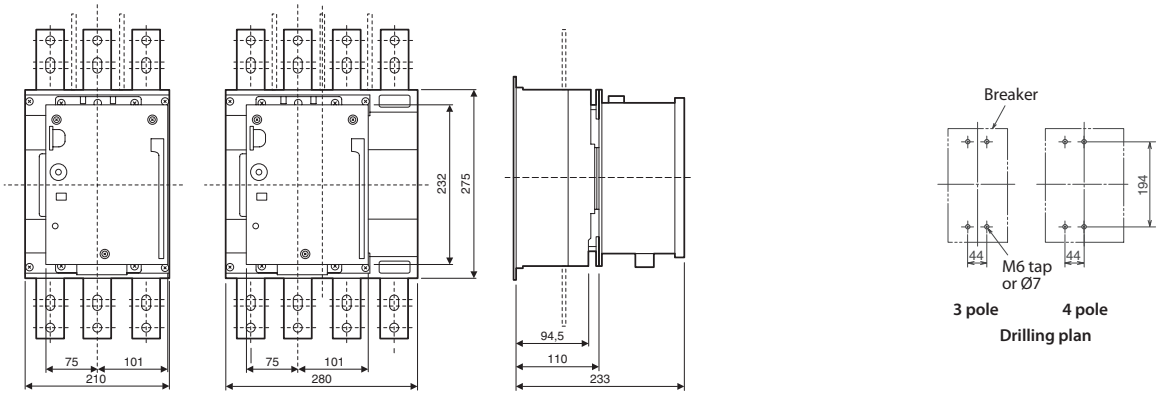
All dimensions in mm

■ NF800-SEW, NF800-HEW, NF800-REW, DSN800-SW

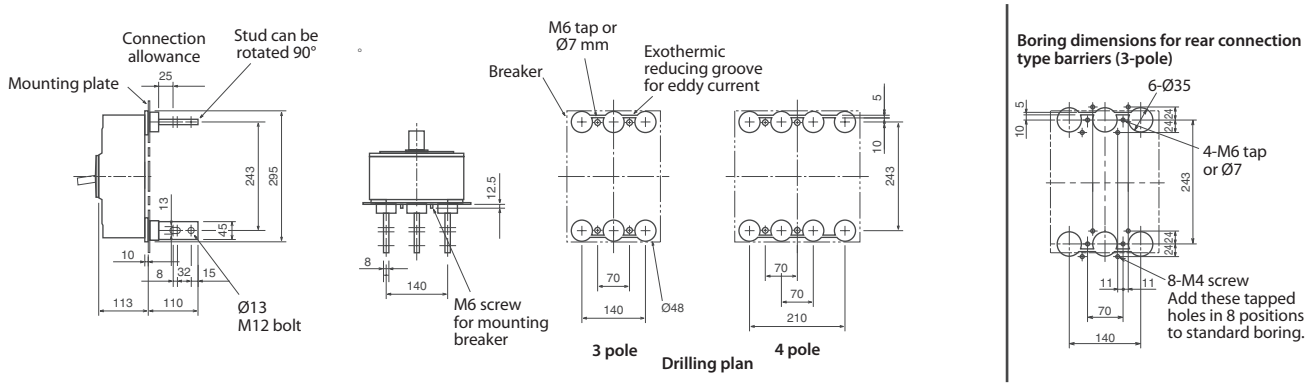
Front connection



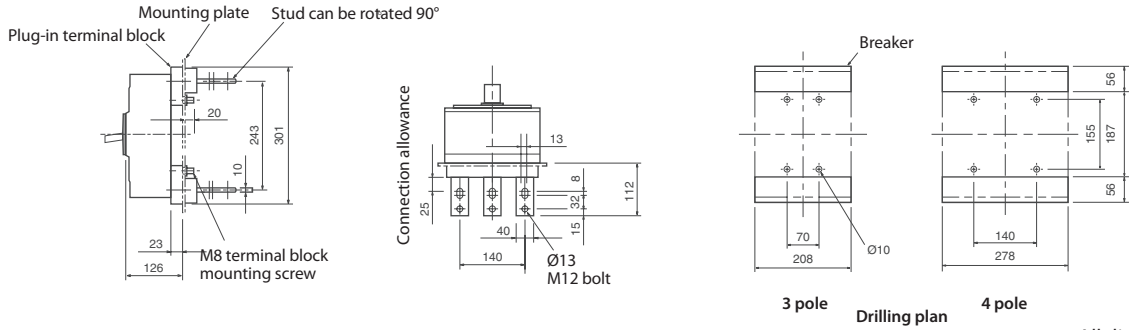
Front connection with mounted motor drive MDS



Rear connection



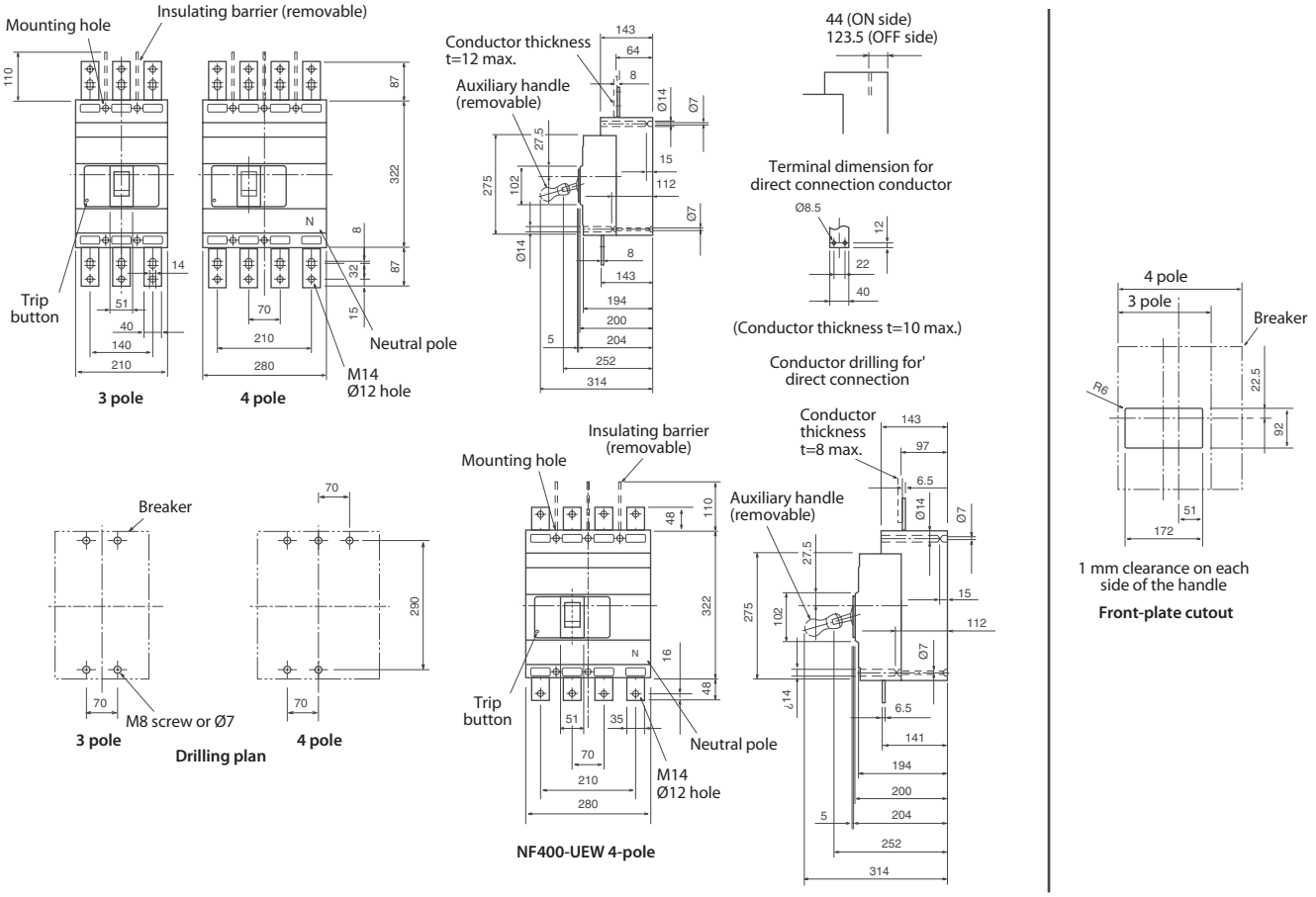
Plug-in



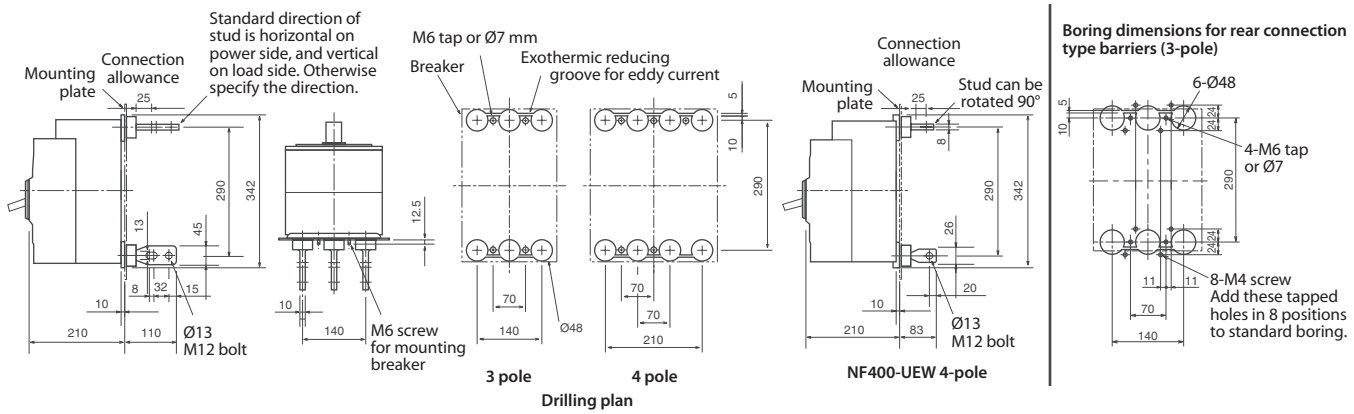
All dimensions in mm

■ NF400-UEW (4-pole type), NF800-UEW

Front connection



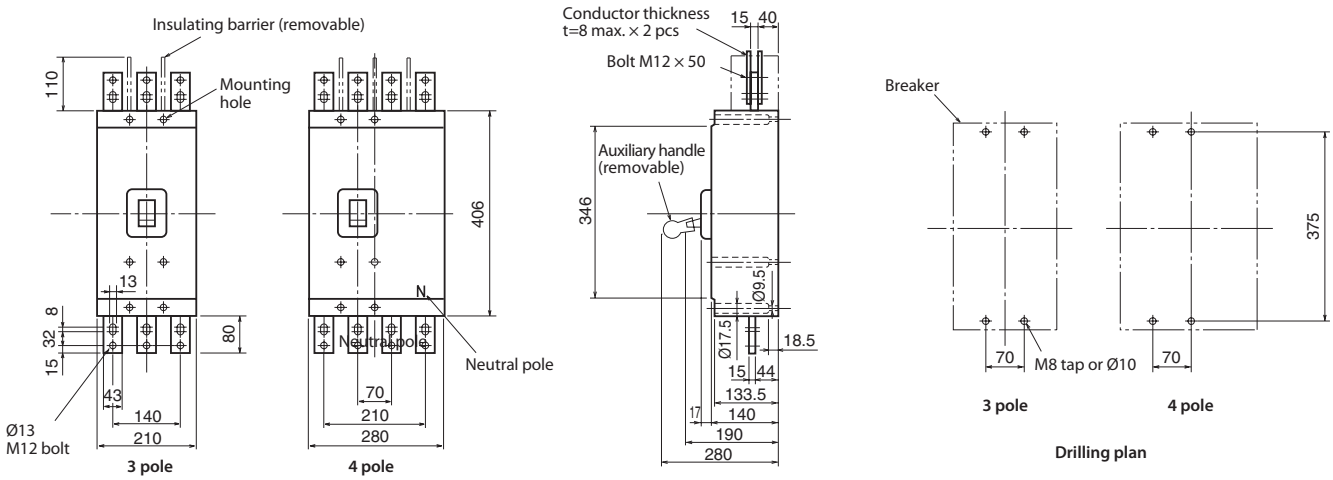
Rear connection



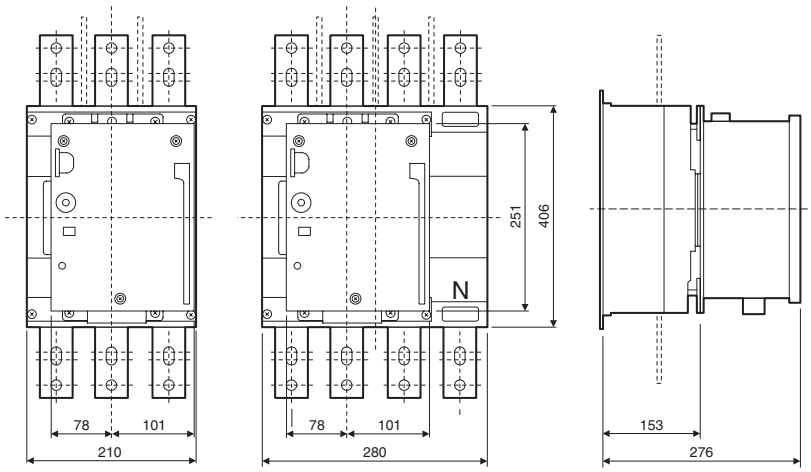
All dimensions in mm.

■ NF1000-SEW, NF1250-SEW, DSN1000-SW, DSN1250-SW

Front connection



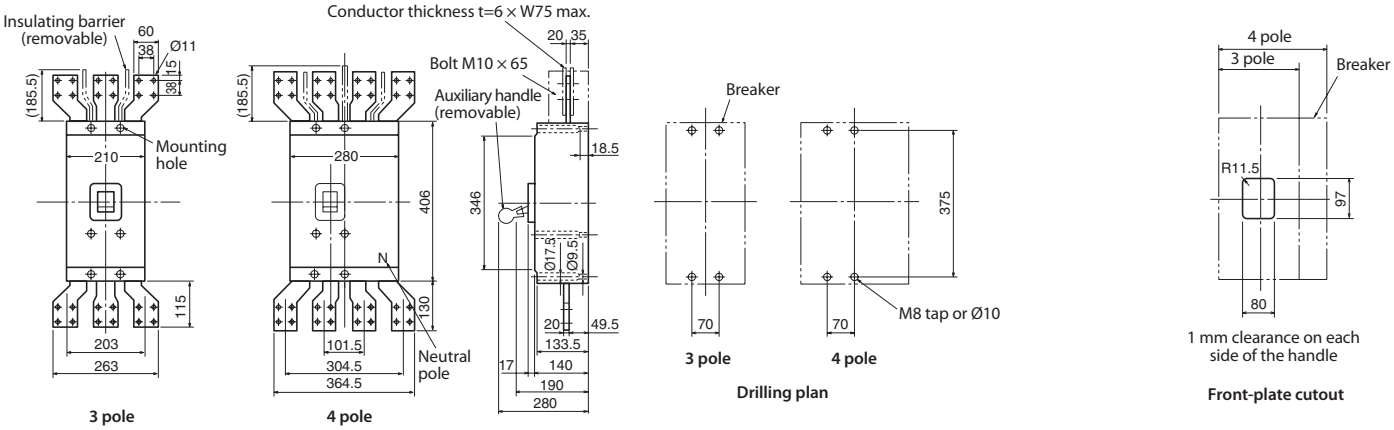
Front connection with mounted motor drive MDS



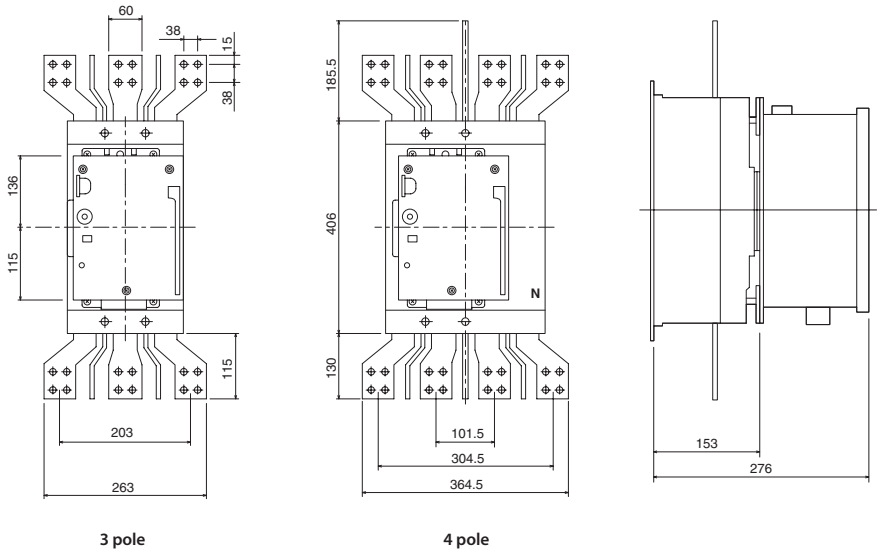
All dimensions in mm

■ NF1600-SEW, DSN1600-SW

Front connection



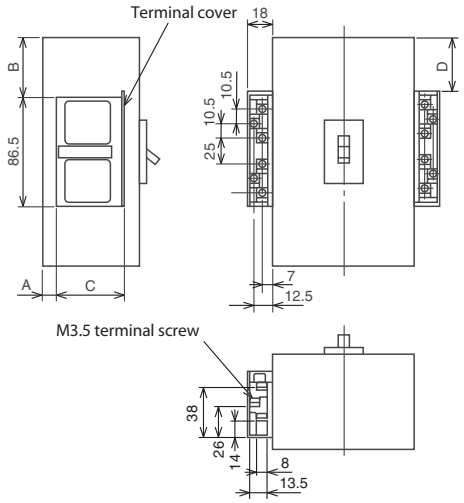
Front connection with mounted motor drive MDS



All dimensions in mm

■ Lead-Wire Terminal Block SLT

AL, AX, ALAX with 1 and 2 W (left-side mounted) SHT (right-side mounted)



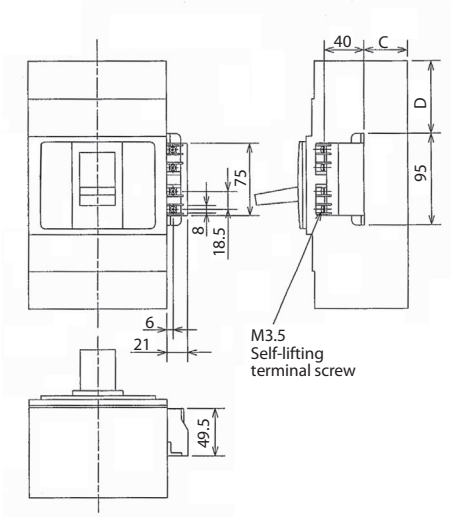
Dimensions for AL, AX, SHT and UVT (UVT: NF32 – NF250)

Breaker type	A	B	C	D
NF32-SW, NF63-SW/HW	7	17.5	54	17,5
NF125-SGW/HGW	25	25	54	19
NF125-RGW/UGW	25	100	54	95,5
NF160-SGW/HGW	25	25	54	20,5
NF250-SGW/HGW	25	25	54	20,5
NF250-RGW/UGW	25	100	54	95,5
NF400-SEW/HEW/REW NF630-SEW/HEW/REW	41	79.5	54	79,5
NF800-SEW/HEW/REW	41	88.5	54	88,5
NF1000-SEW NF1250-SEW NF1600-SEW	62.5	173	54	173
NF400-UEW (3 P)	138	119.5	54	119,5
NF400-UEW (4 P)	138	135.5	54	135,5

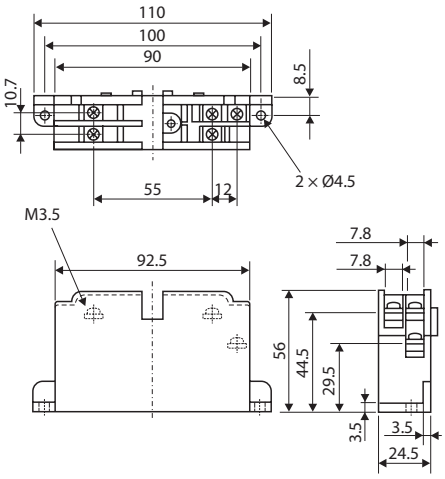
Tightening torque for terminal screws M3.5: 0.9–1.2 Nm
AL, AX and SHT are vertical lead-wire terminal block SHT.
UVT is horizontal lead-wire terminal block LT.

UVT (right-side mounted)

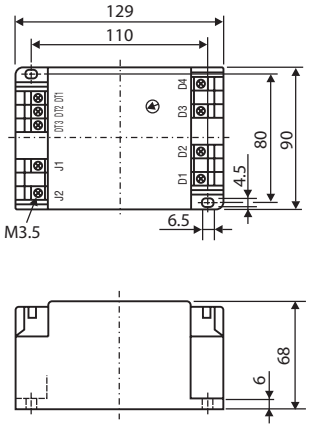
● For NF32 – NF250



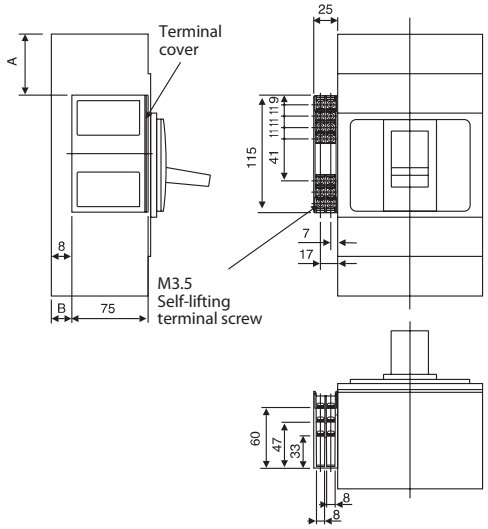
● For NF400 – NF1600
Instantaneous type



● For NF400 – NF1600
Time delay type



AL3, AX3, AX4, AL2AX2 with 3 and 4 W



Dimensions for AL3, AX3, AX4, AL2AX2 with 3 and 4 W

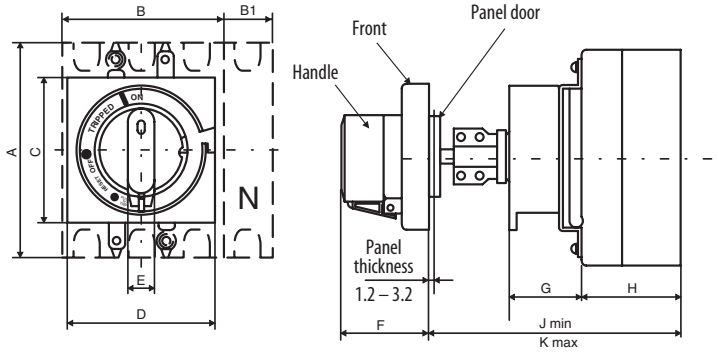
Breaker type	A	B
NF400-SEW, NF630-SEW/HEW/REW	20	60
NF800-SEW/HEW/REW	20	69
NF1000-SEW, NF1250-SEW, SEW1600-SEW	117	100
NF400-UEW (3 P)	35	154
NF400-UEW (4 P)	117	116

Tightening torque for terminal screws M3.5: 0.9–1.2 Nm

All dimensions in mm

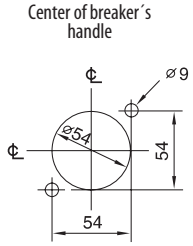
■ External Operating Handle – V Type

External dimensions

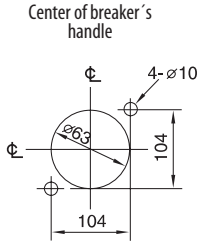


Drilling plan

NF32–250



NF400–1600

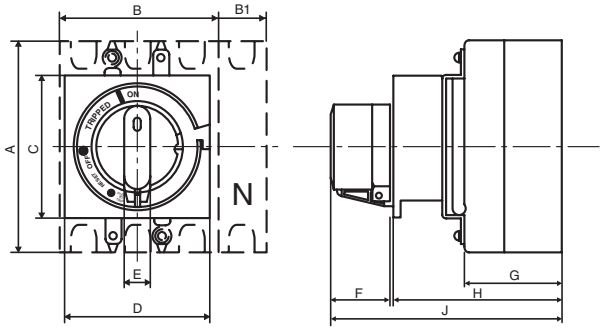


Type	Breaker type	Dimensions [mm]									
		A	B/B1	C	D	E	F	G	H	J	K
V05SW(E)N	NF32–63	130	75/100	90	90	16	54	44	61	125	—
V2SGW(E)N	NF125–250-SGW/HGW	165	105/140	90	90	16	54	46	79	172	536
V2GUW(E)N	NF125/250-RGW/UGW	240	105/140	More details on request.							
V4SW(E)	NF400/630	257	140/196	140	140	25	62	76	97	217	539
V8SW(E)	NF800	406	210/280	176	210	—	62	56	140	275	562
V101(E)	NF1000–1600	406	210/280	176	210	—	62	56	140	275	562

More details on request.

■ External Operating Handle – R Type

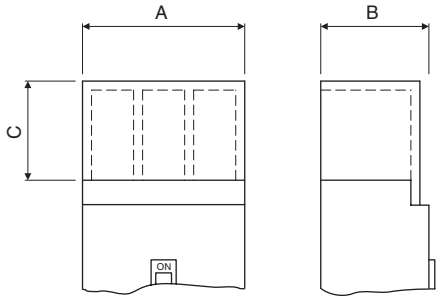
External dimensions



Type	Breaker type	Dimensions [mm]								
		A	B/B1	C	D	E	F	G	H	J
R2GSW(E)N	NF125–250-SGW/HGW	165	105/140	88	88	16	37	79	125	162
R2GUW(E)N	NF125/250-RGW/UGW	240	105/140	88	88	16	37	79	125	162
R4SW(E)	NF400/630	257	140/196	128	140	25	43	97	174	218
R8SW(E)	NF800	406	210/280	176	210	—	62	140	196	246
R101(E(	NF1000–1600	406	210/280	176	210	—	62	140	196	246

More details on request.

■ Terminal Covers



Small terminal covers TCS

Type	A	B	C
TCS-05SW3W	75	65.5	5
TCS-05SW4W	100	65.5	5
TCS-2GSW3W	105	84	6.5
TCS-2GSW4W	140	84	6.5

Large terminal covers TCL

Type	A	B	C
TCL-05SW3W	75	65.5	25
TCL-05SW4W	100	65.5	25
TCL-2GSW3W	105	84	40
TCL-2GSW4W	140	84	40
TCL-4SW3	171	99.5	110
TCL-4SW4	240	104.5	110
TCL-8SW3	224	103.5	155
TCL-8SW4	294	103.5	155
TCL-8UW3	220	146/194.5*	155
TCL-8UW4	290	146/194.5*	155
TCN-10SW3	220	139	150
TCN-10SW4	290	139	150

*Line side/load side

Large terminal covers TTC, transparent

Type	A	B	C
TTC-2GSW3	105	84	6.5
TTC-2GSW4	140	84	6.5

Terminal covers BTC

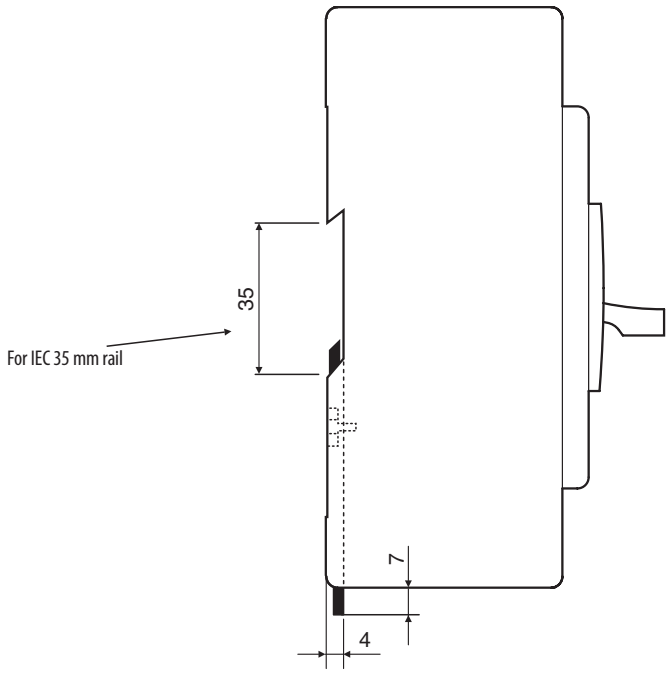
Type	A	B	C
BTC-05SW3W	75	65.5	5
BTC-05SW4W	100	65.5	5
BTC-2GSW3W	105	84	6.5
BTC-2GSW4W	140	84	6,5
BTC-4SW3	On request		
BTC-4SW4	On request		
BTC-8SW3	On request		
BTC-8SW4	On request		

Terminal covers PTC

Type	A	B	C
PTC-05SW3W	75	65.5	6.5
PTC-05SW4W	100	65.5	6.5
PTC-2GSW3W	105	84	6.5
PTC-2GSW4W	140	84	6.5

More details on request.

■ Adapter for IEC 35 mm Rail



All dimensions in mm

■ Performance of S-N series contactors

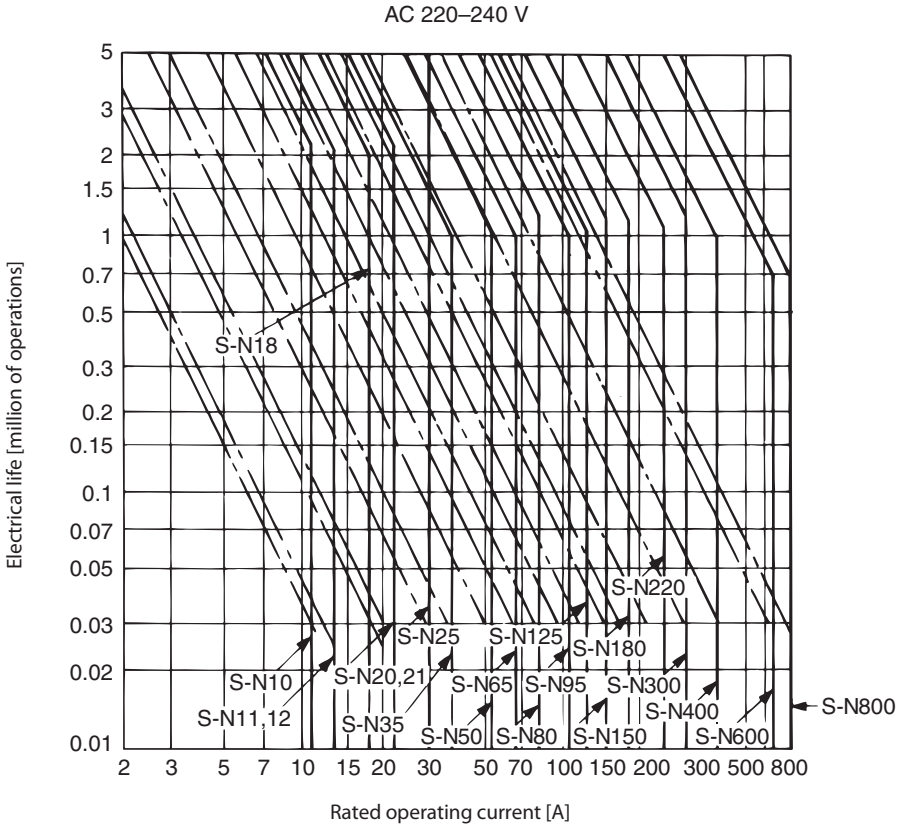
Electrical life

The electrical life of the main contacts of a contactor is determined mainly by the circuit-opening duty it will perform. The relationship between electrical life and rated current of MITSUBISHI contactors under normal and jogging duties of squirrel-cage motors is shown in the figures.

In the case of a mixture of normal and jogging duties, the expected contactor life can be determined as follows:

$$N = Nr/1 + \frac{\alpha}{100}\,(Nr/Ni - 1)$$

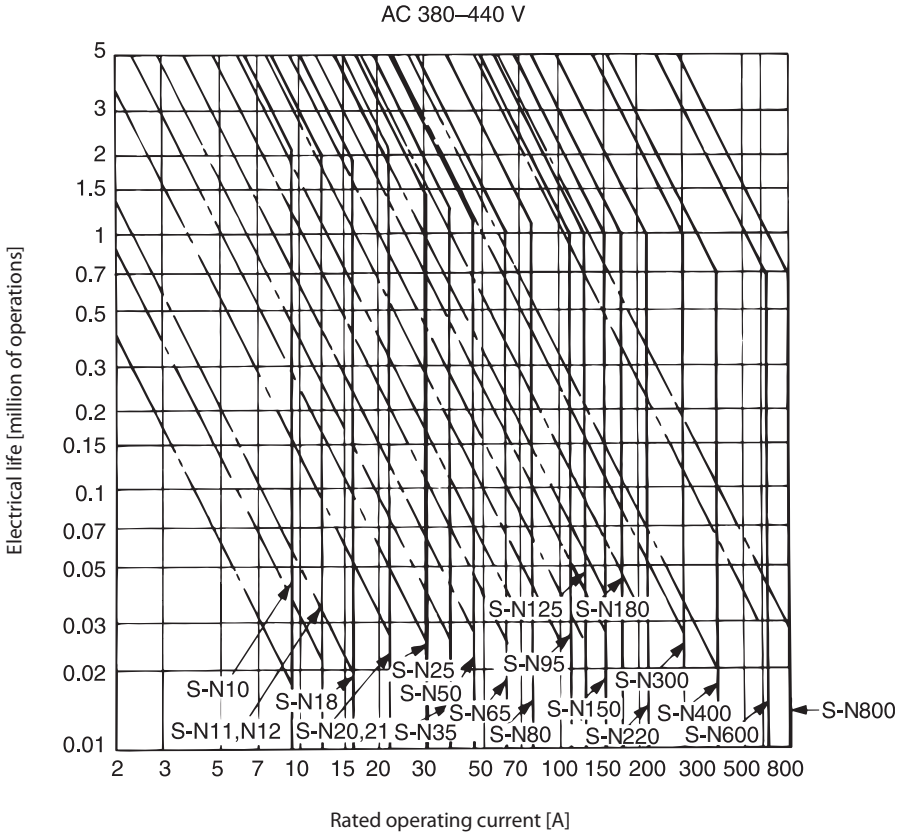
N : Life in the case of α % jogging duty
Nr: Life in the case of normal duty
Ni: Life in the case of 100 % jogging duty
α : Percentage of jogging duty



Electrical life versus rated operating current

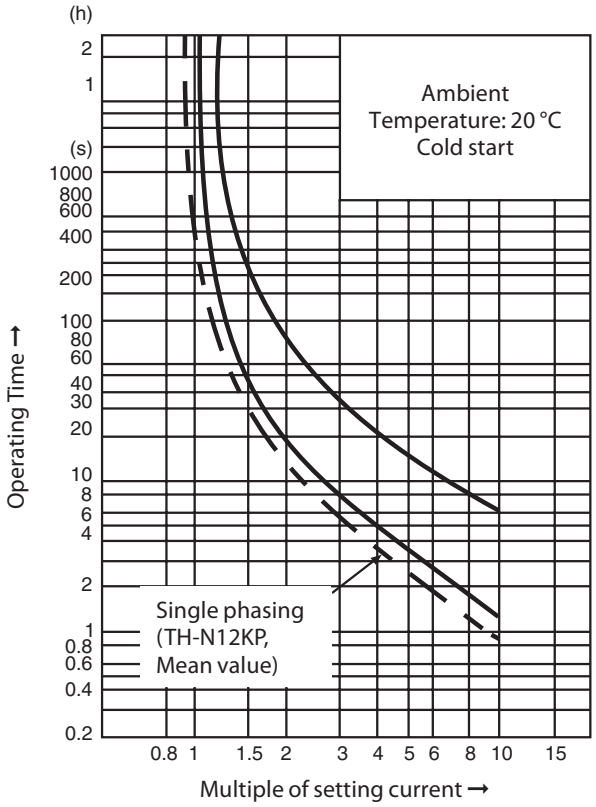
— Normal duty, 6 le ON, le OFF, on-load factor 40 %, 1200 operations/hour (AC-3)

–·– Jogging duty, 6 le ON, 6 le OFF, on-load factor 7 %, 600 operations/hour (AC-4)-S-N10 to S-N300 300 operations/hour (AC-4)-S-N400 to S-N600 150 operations/hour (AC-4)-S-N800

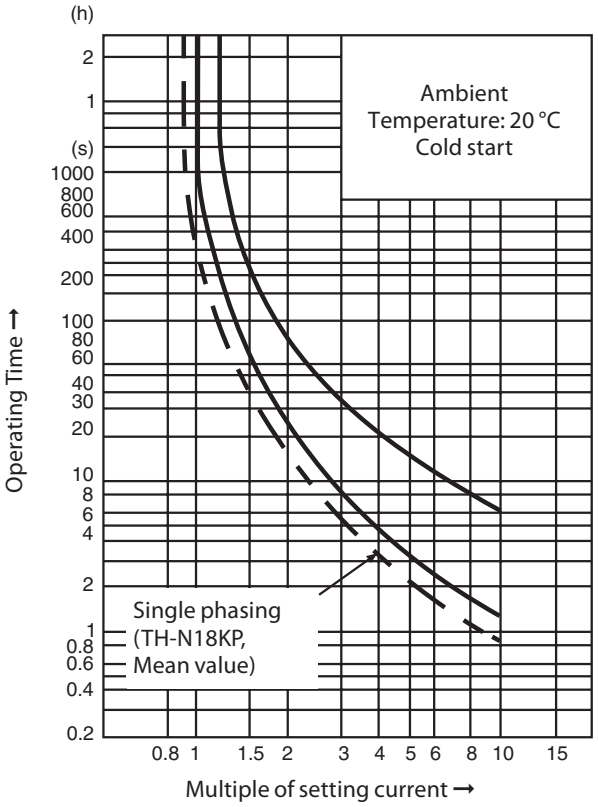


■ Thermal Overload Relays

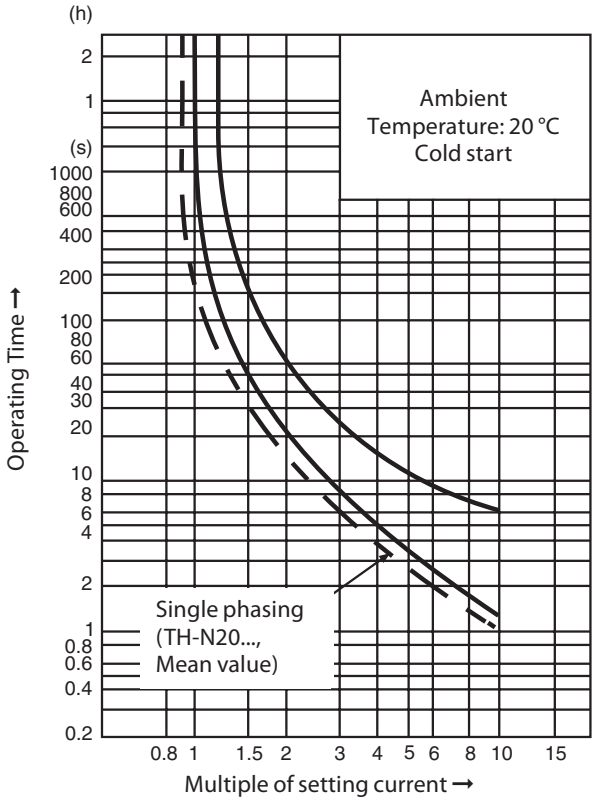
TH-N12KP



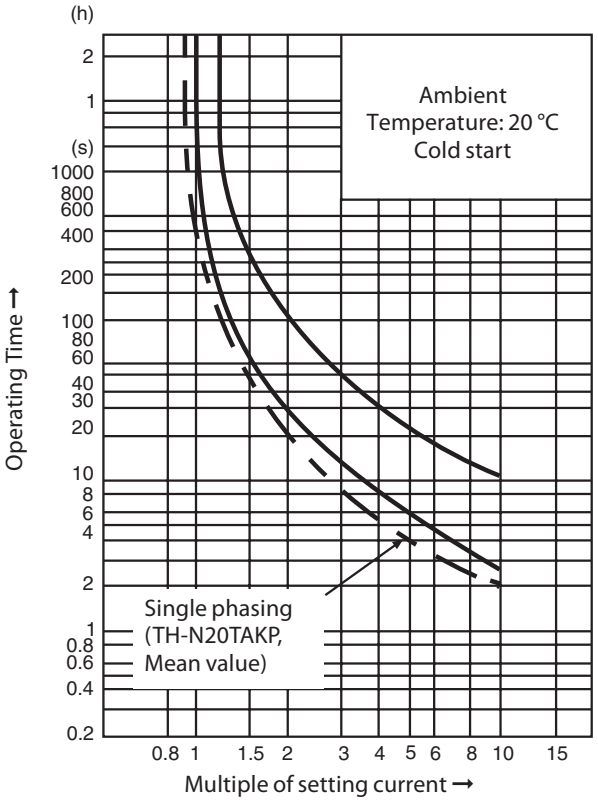
TH-N18KP



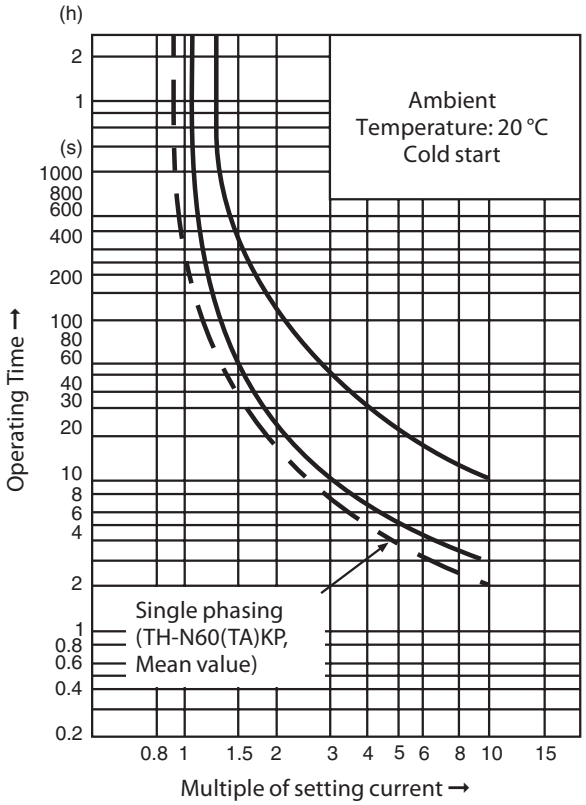
TH-N20KP, TH-N20HZKP



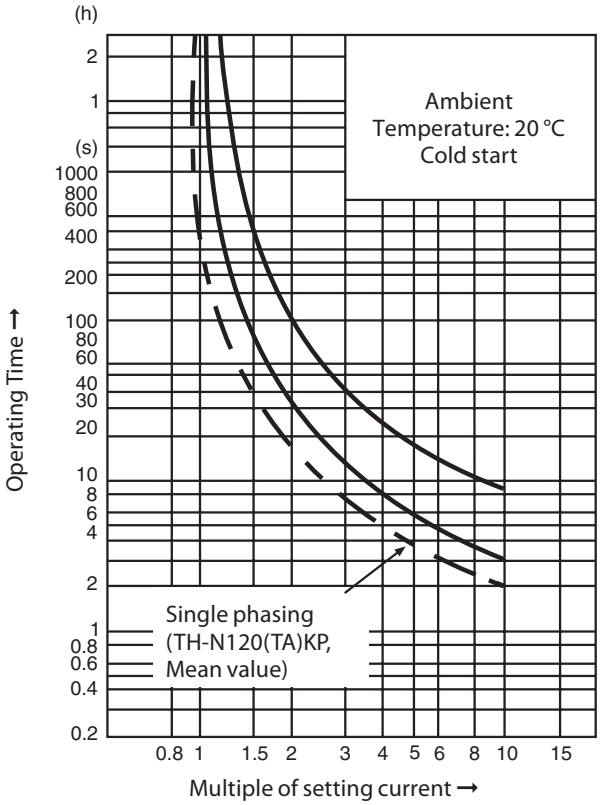
TH-N20TAKP



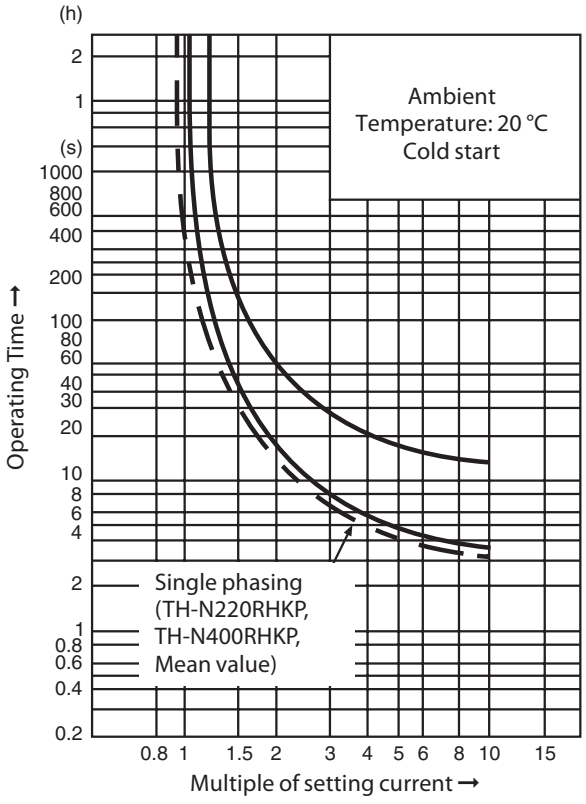
TH-N60KP, TH-N60TAKP



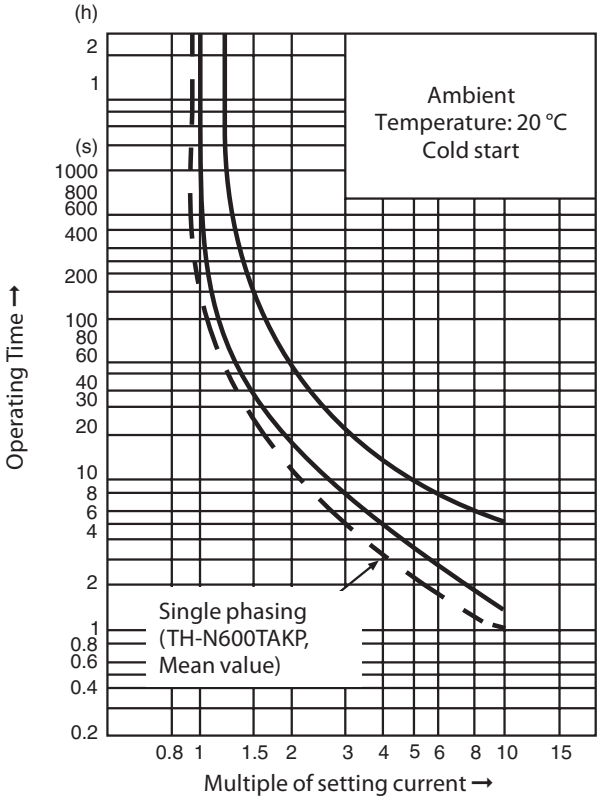
TH-N120KP, TH-N120TAKP



TH-N220RHKP, TH-N400RHKP

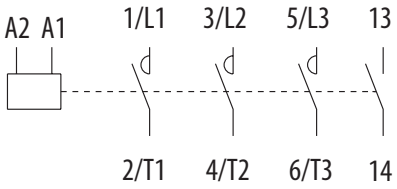


TH-N600KP

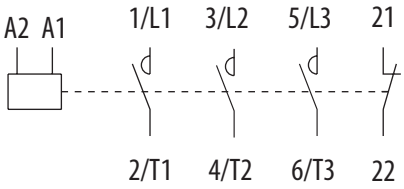


■ Contactors

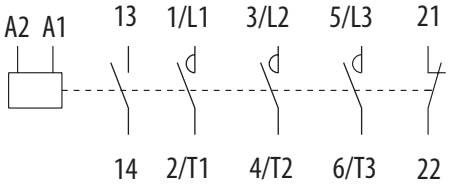
S-N10CX1A, S-N11CX1A, SD-N11CX1A



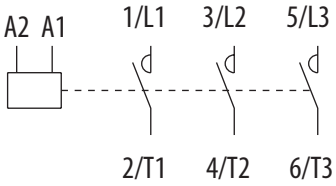
S-N10CX1B, S-N11CX1B, SD-N11CX1B



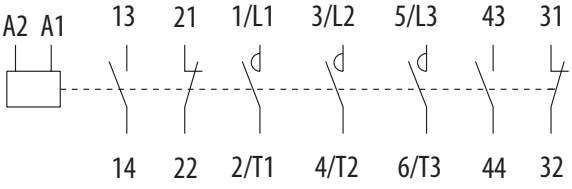
S-N12CX, S-N20CX, SD-N12CX



S-N18CX

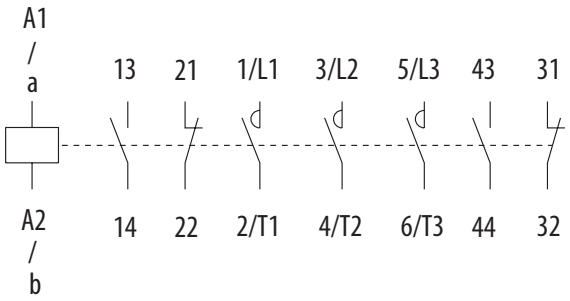


S-N21CX, S-N25CX, S-N35CX, SD-N21CX, SD-N35CX

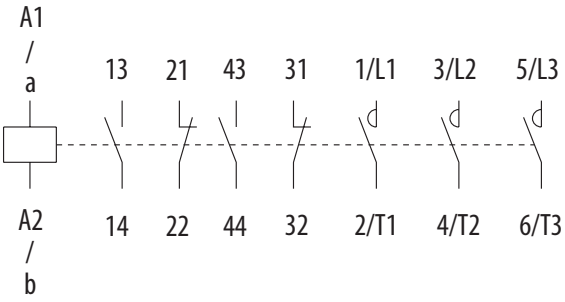


■ Contactors

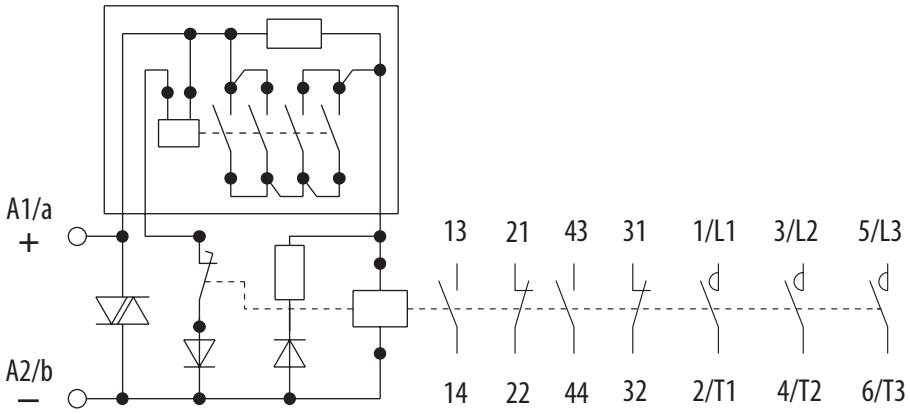
S-N50CX to S-N400, SD-N50 to SD-N400



S-N600, S-N800

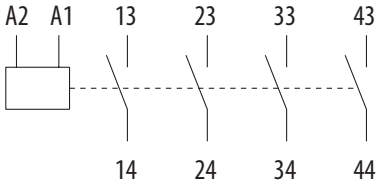


SD-N600, SD-N800

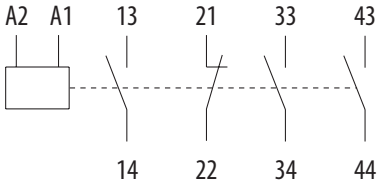


■ Contactor relays with standard contacts

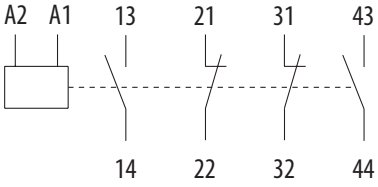
SR-N4CX ... 4A,
SRD-N4CX ... 4A



SR-N4CX ... 3A1B,
SRD-N4CX ... 3A1B



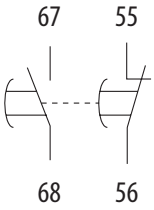
SR-N4CX ... 2A2B,
SRD-N4CX ... 2A2B



Type of auxiliary contact	Symbol		Code
Normally open	NO	=	A
Normally closed	NC	=	B

■ Pneumatic time delay module

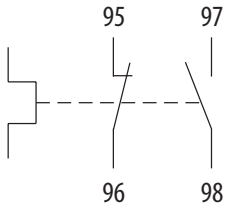
UN-TR4ANCX



55–56: Delayed NC contacts,
67–68: Delayed NO contacts

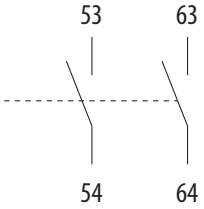
■ Thermal overload relays

For all types

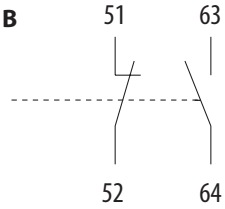


■ Front clip-on types

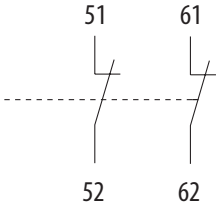
UN-AX2 2A



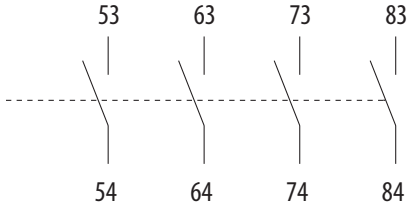
UN-AX2 1A1B



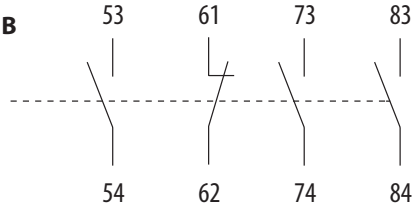
UN-AX2 2B



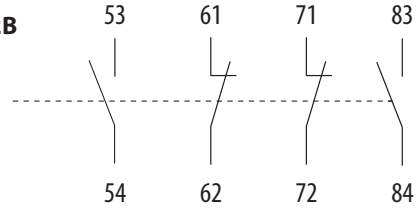
UN-AX4 4A



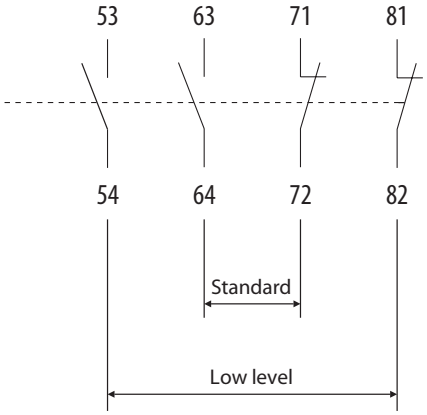
UN-AX4 3A1B



UN-AX4 2A2B

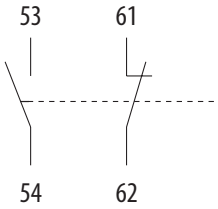


UN-LL22



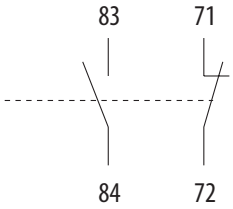
■ Side clip-on types

UN-AX11



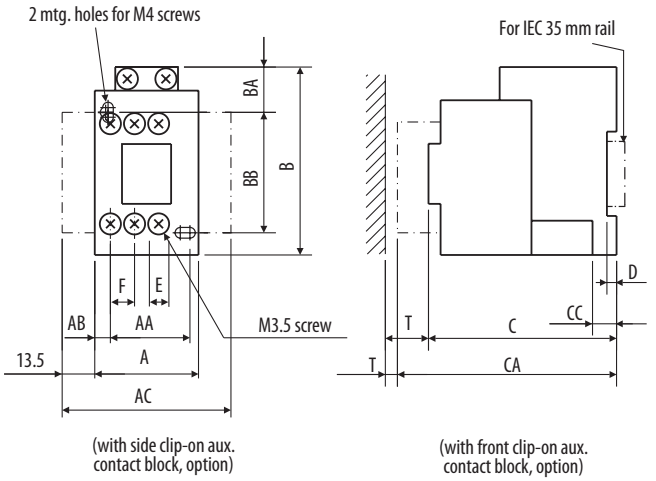
When mount on right side

UN-AX11

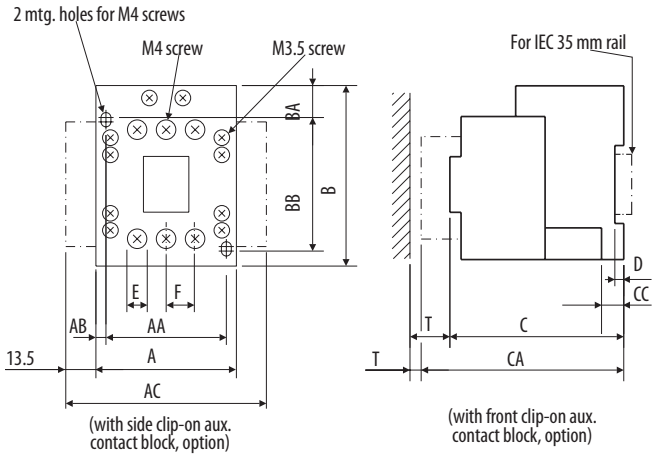


When mount on left side

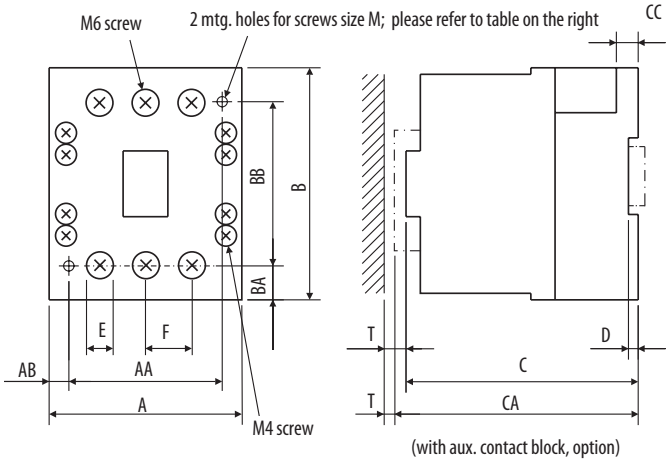
■ Contactors



Type	A	B	C	AA	AB	AC	BA	BB	CC	CA	D	E	F	T
S-N10CX	43	78	78	35	4.5	70	19	50	10	106	4	8	10	5
S-N11CX	43	78	78	35	4.5	70	19	50	10	106	4	8	10	5
S-N12CX	53	78	78	40	4.5	—	19	50	10	106	4	8	10	5
S-N18CX	43	79	81	30	6	—	13	60	10	109	4	10.5	13	5
SD-N11CX	43	78	110	35	4.5	70	19	50	10	138	4	8	10	5
SD-N12CX	53	78	110	40	4.5	—	19	50	10	138	4	8	10	5



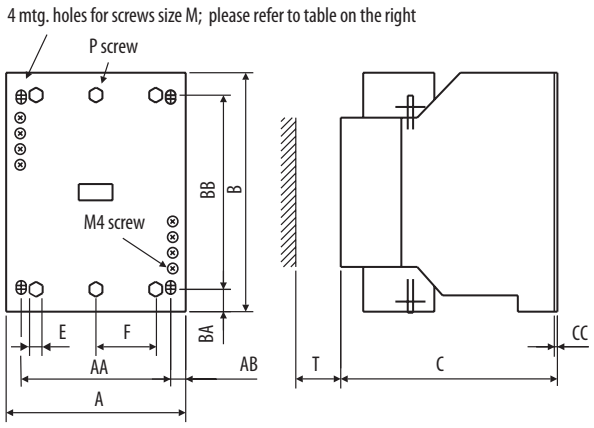
Type	A	B	C	AA	AB	AC	BA	BB	CC	CA	D	E	F	T
S-N20CX	63	81	81	54	4.5	90	14	60	6.5	109	4	10.5	13	5
S-N21CX	63	81	81	54	4.5	90	14	60	6.5	109	4	10.5	13	5
S-N25CX	75	89	91	65	5	102	13	70	6.5	119	4	13	16.7	5
S-N35CX	75	89	91	65	5	102	13	70	6.5	119	4	13	16.7	5
SD-N21CX	63	81	113	54	4.5	90	14	60	6.5	141	4	10.5	13	5
SD-N35CX	75	89	123	65	5	102	13	70	6.5	151	4	13	16.7	5



Type	A	B	C	AA	AB	BA	BB	CC	CA	D	E	F	M	T
S-N50CX	88	106	106	70	9	15.5	75	10	135	4.5	17	21	M4	5
S-N65CX	88	106	106	70	9	15.5	75	10	135	4.5	17	21	M4	5
S-N80	100	124	127	80	10	7	110	12	—	—	15	32	M5	10
S-N95	100	124	127	80	10	7	110	12	—	—	15	32	M5	10
SD-N50	88	110	133	70	9	15.5	75	10	—	—	17	21	M4	5
SD-N65	88	110	133	70	9	15.5	75	10	—	—	17	21	M4	5
SD-N80	100	134	158	80	10	7	110	12	—	—	15	32	M5	10
SD-K95	100	134	158	80	10	7	110	12	—	—	15	32	M5	10

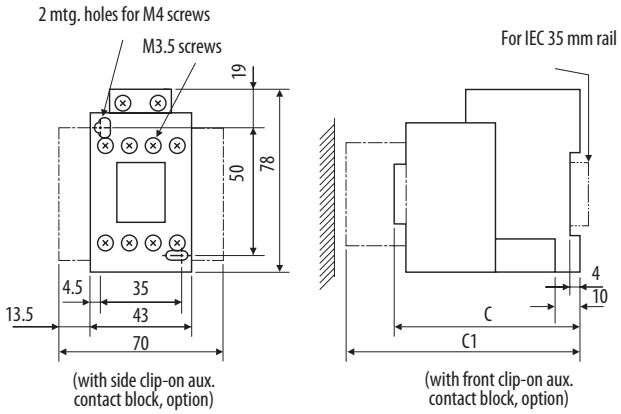
All dimensions in mm

Contactors



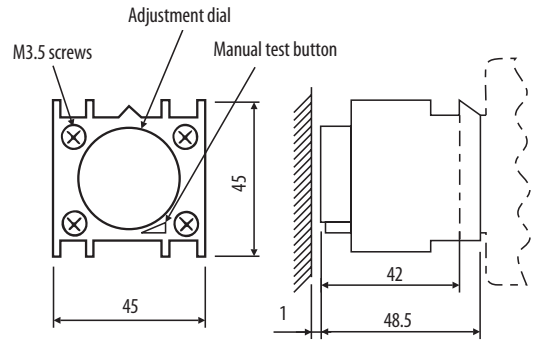
Type	A	B	C	AA	AB	BB	BA	CC	E	F	M	P	T
S-N125	100	150	136	90	5	125	12.5	1.6	15	32	M4	M8	10
S-N150	120	160	145	100	10	125	17.5	1.6	20	40	M5	M8	10
S-N180	138	204	174	120	9	190	7	1.6	25	47	M6	M10	10
S-N220	138	204	174	120	9	190	7	1.6	25	47	M6	M10	10
S-N300	163	243	195	145	9	225	9	2.3	30	55	M8	M12	10
S-N400	163	243	195	145	9	225	9	2.3	30	55	M8	M12	10
S-N600	290	310	234	250	20	250	30	10.5	40	70	M10	M16	10
S-N800	290	310	234	250	20	250	30	10.5	40	70	M10	M16	10
SD-N125	100	150	161	90	5	125	12.5	1.6	15	32	M4	M8	10
SD-N150	120	160	170	100	10	125	17.5	1.6	20	40	M5	M8	10
SD-N220	138	204	200	120	9	190	7	2.0	25	47	M6	M10	10
SD-N300	163	243	220	145	9	225	9	2.3	30	55	M8	M12	10
SD-N400	163	243	220	145	9	225	9	2.3	30	55	M8	M12	10
SD-N600	375	310	234	250	20	250	30	10.5	40	70	M10	M16	10
SD-N800	375	310	234	250	20	250	30	10.5	40	70	M10	M16	10

Contactor relays SR-N4CX, SRD-N4CX



Type	C	C1
SR-N4	78	106
SRD-N4	110	138

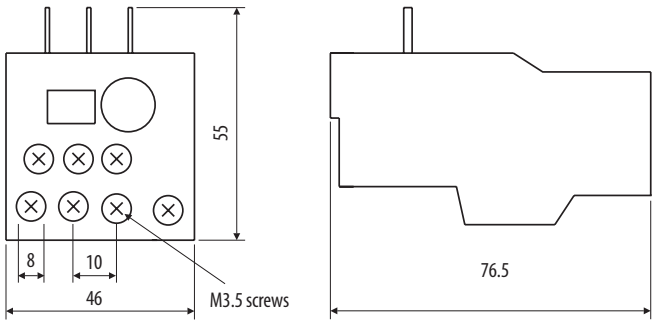
Pneumatic time delay module UN-TR4ANCX



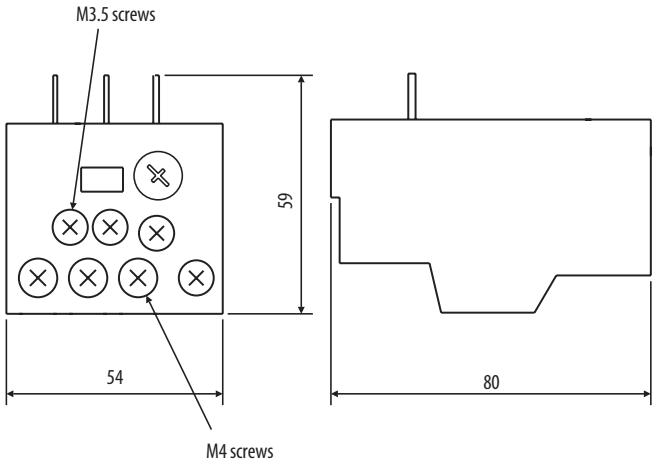
All dimensions in mm

■ Thermal Overload Relays

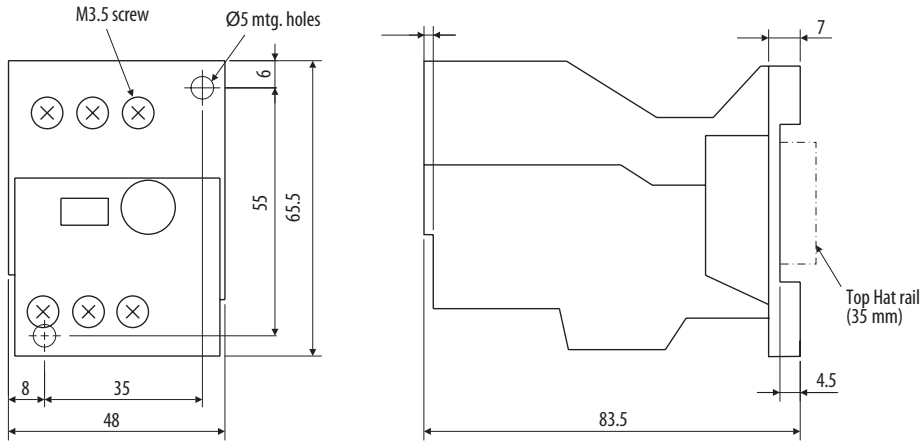
TH-N12KPCX



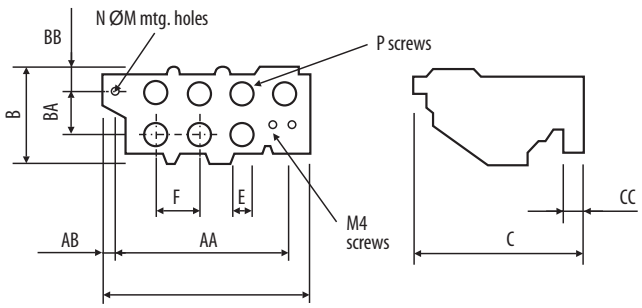
TH-N18KPCX



TH-N12KPCX with UN-HZ12CX (stand-alone)



TH-N20KPCX, TH-N20HZKPCX, TH-N60KPCX, TH-N120KP, TH-N600KP

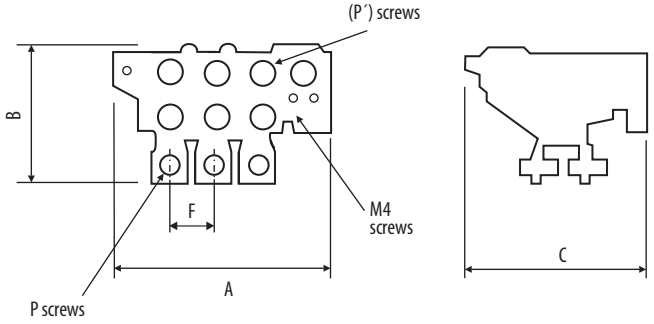


Type	A	B	C	AA	AB	BA	BB	CC	E	F	N	M	P
TH-N20KPCX	63	51	79	19	15	33	8.5	7	10.2	12.8	2	4.5	M4
TH-N20HZKPCX	63	51	79	19	15	33	8.5	7	10.2	12.8	2	4.5	M4
TH-N60KPCX	92	57	87	70	11	45	6	9	17	21	2	4.5	M6
TH-N120KP	103	67	105	75	14	50	6	10	28	38	2	6	M8
TH-N600KP	63	42	83,5	19	14	33	2	7	9.8	12.5	2	4.5	M4

All dimensions in mm

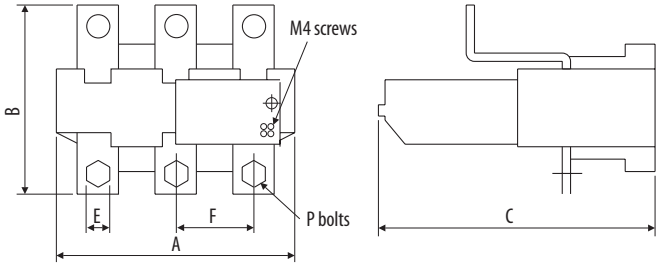
■ Thermal Overload Relays

TH-N20TAKPCX, TH-N60TAKP, TH-N120TAKP



Type	A	B	C	F	P	P´
TH-N20TAKPCX	74	72	83.5	16.7	M5	M4
TH-N60TAKP	89	73.5	83.5	21	M6	M6
TH-N120TAKP	112	87	105	38	M8	M8

TH-N220RHKP, TH-N400RHKP



Type	A	B	C	E	F	P
TH-N220RHKP	144	114	180	25	47	M10
TH-N400RHKP	144	160	194	30	55	M12

All dimensions in mm

■ NOTES

Global Partner. Local Friend.

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Specifications subject to change /// Art. no. 226856-A /// 05.2009