● Specification

Type				AE630-SW	AE1000-SW	AE1250-SW	AE1600-SW
Frame size (A)				630	1000	1250	1600
Rated insulation voltage (Ui) (50/60Hz)(AC.V)				1000			
Rated operational voltage (Ue) (50/60Hz)(AC.V)				690			
Rated impulse withstand voltage (Uimp) (kV)				12			
Utilization category				B			
Pollution degree				3			
EMC environment condition (environment A or B) (Note 14)				A			
Number of poles				3, 4			
Rated current In (CT rating) (A)				630 (Note 5)	1000	1250	1600
Current setting Ir (A) (40˚C)	WS 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
	WM Generator protection use (Current rating fixed) (Note 10)			160 ≤ Ir ≤ 630	400 ≤ Ir ≤ 1000	800 ≤ Ir ≤ 1250	1000 ≤ Ir ≤ 1600
Rated current of neutral pole (A)				630	1000	1250	1600
IEC60947-2 EN60947-2 JIS C 8201-2-1	Ultimate breaking capacity Icu (kA rms)		690V AC	65			
			600V AC	65			
			240-500V AC	65			
		with MCR	690V AC	65			
			600V AC	65			
			240-500V AC	65			
		Bare + External relay	690V AC	25 (Note 1)			
			500V AC	25 (Note 1)			
	Rated service breaking capacity Ics (kA rms) %Icu			100%			
	Rated making capacity Icm (kA peak)		690V AC	143			
			600V AC	143			
			240-500V AC	143			
		with MCR	690V AC	143			
			600V AC	143			
			240-500V AC	143			
		Bare or Bare + External relay	690V AC	52.5			
			500V AC	52.5			
Rated short time withstand current Icw (kA rms)			1s	65			
			2s	60			
			3s	50			
Maximum total breaking time (ms)				40 (Note 6)			
Maximum closing time (ms)				80			
Number of operating cycles (Note 2) (Note 15)	With rated current		690V AC In (Note 16)	5,000			
			690V AC In (Note 17)	10,000			
	Without rated current (Note 17)			25,000 (Note 4)			
Connecting terminal (Note 11)	Horizontal terminal			○			
	Vertical terminal			○			
	Front terminal			○			
Outline dimension (mm) H×W×D	Fixed type	3-pole		410×340×290			
		4-pole		410×425×290			
	Drawout type	3-pole		430×300×375			
		4-pole		430×385×375			
Weight (kg) (without Accessory) (Note 12)	Fixed type	3-pole		35	35		35
		4-pole		42	42	43	43
	Drawout type (including cradle)	3-pole		56	56		56
		4-pole		70	70		70
	Cradle only	3-pole		24			
		4-pole		28			
Marking:CE/UKCA				Self-declaration			
CCC recognition (☆:Certified)				☆			
Marine approval (☆:Certified)				☆(NK, LR, DNV(DNV GL), BV, ABS, CCS)			
Automatic tripping device				Electronic (effective value detection)			

(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.

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)

Connections

Over view (AE630~1600-SW, AE2000~3200-SW)

Type \ Connections	Horizontal	Vertical (VT)	Front (FT)	Vertical terminal adapter (VTA)	Front terminal adapter (FTA)
Fixed type (FIX)		——	——	 FIX-VTA	 FIX-FTA
Drawout type (DR)		 DR-VT	 DR-FT	 DR-VTA	 DR-FTA

● Connection image : AE630~1600-SW, 3-pole type

Over view (AE2000-SWA, AE4000-SWA, AE4000~6300-SW)

Type \ Connections	Vertical (VT) Standard
Fixed type (FIX)	 FIX-VT
Drawout type (DR)	 DR-VT

● Connection image : AE2000-SWA, 3-pole type
● For AE2000-SWA, AE4000-SWA, AE4000-SW, AE5000-SW and AE6300-SW models, vertical terminal only is available.

Available connections

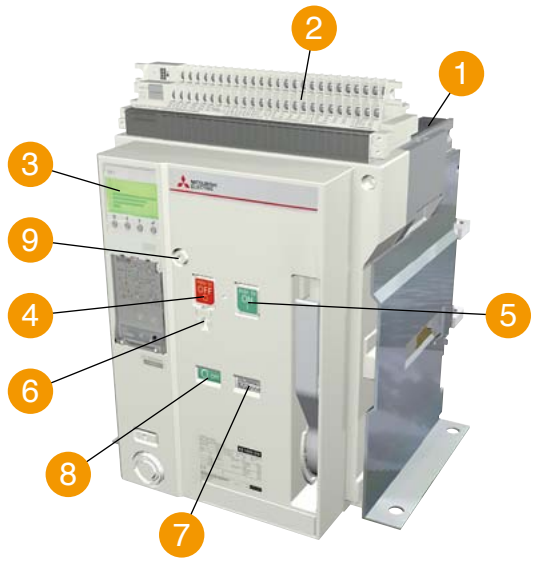
Connections \ Breakers		AE630-SW	AE1000-SW	AE1250-SW	AE1600-SW	AE2000-SWA	AE2000-SW	AE2500-SW	AE3200-SW	AE4000-SWA	AE4000-SW	AE5000-SW	AE6300-SW
Fixed type (FIX)	Horizontal	○	○	○	○	–	○	○	○	–	–	–	–
	FIX-VT	–	–	–	–	○	–	–	–	○	○	○	○
	FIX-VTA	○	○	○	○	–	○	○	○	–	–	–	–
	FIX-FTA	○	○	○	○	–	○	○	○	–	–	–	–
Drawout type (DR)	Horizontal	○	○	○	○	–	○	○	○	–	–	–	–
	DR-VT	○	○	○	○	○	○	○	○	○	○	○	○
	DR-FT	○	○	○	○	–	○	○	○	–	–	–	–
	DR-VTA	○	○	○	○	–	○	○	○	–	–	–	–
	DR-FTA	○	○	○	○	–	○	○	○	–	–	–	–

○ Available

Appearance and Product structure

Fixed type

AE-SW Series



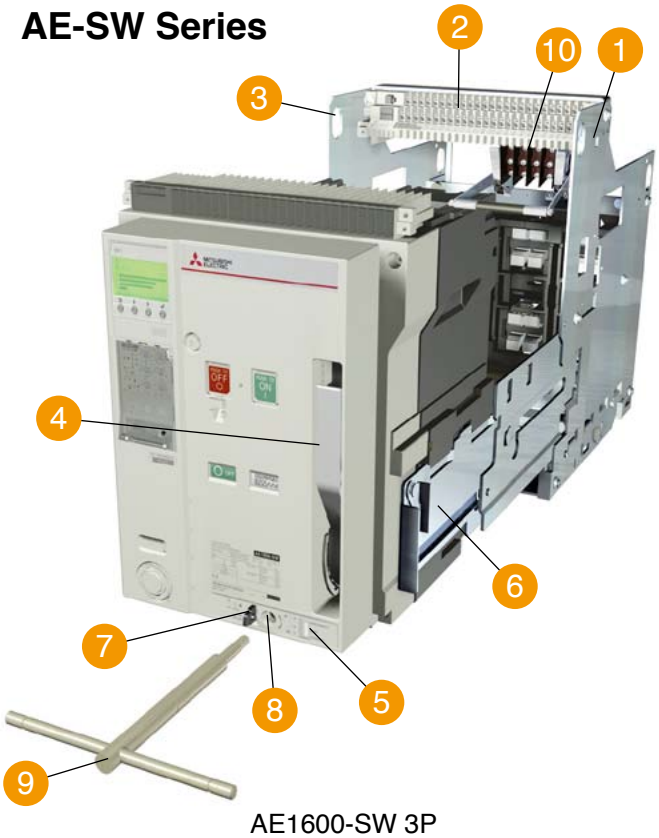
AE1600-SW 3P

1. Arc extinguishing chamber
2. Control circuit terminal block
3. Electronic trip relay
4. OFF button
5. ON button
6. Padlock hook (allows a padlock to be attached to the OFF button)
7. Charging indicator
8. ON/OFF indicator
9. Manual reset button(Optional)

For the fixed type, Lifting hooks (HP) are attached.

Drawout type

AE-SW Series



AE1600-SW 3P

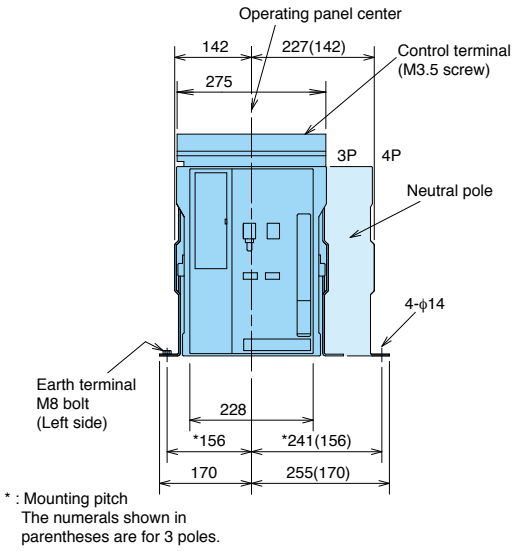
1. Cradle
2. Control circuit terminal block
3. Lifting hole
4. Charging handle
5. Drawout position indicator
6. Extension rail
7. Lock plate
8. Aperture for the drawout handle
9. Drawout handle
10. Cell switch (Optional)

For the drawout type, Drawout handle is attached.

Fixed type AE630-SW, AE1000-SW, AE1250-SW, AE1600-SW

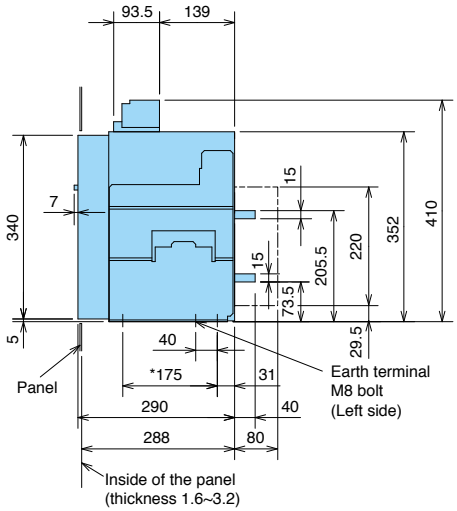
(mm)

Front view

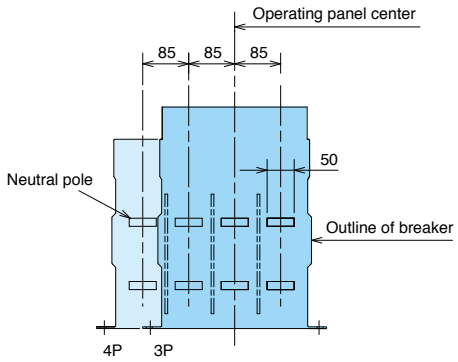


* : Mounting pitch
The numerals shown in parentheses are for 3 poles.

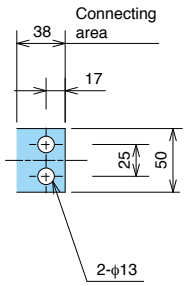
Side view



Rear view

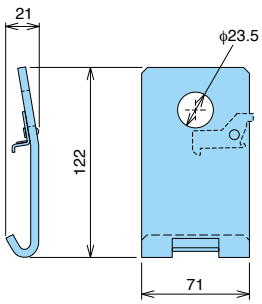


Main circuit terminal dimension



Lifting hooks (HP)

HP is supplied with ACB Fixed type.

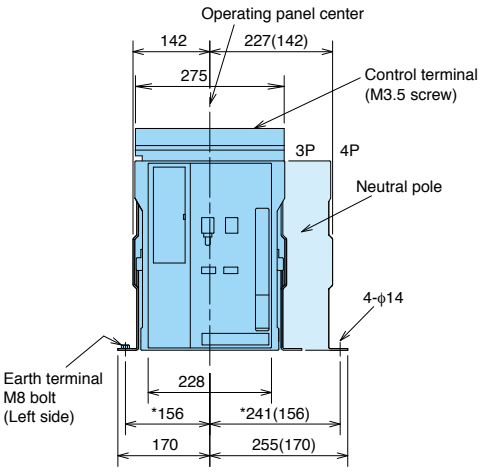


Outline dimensions

Fixed type AE2000-SWA

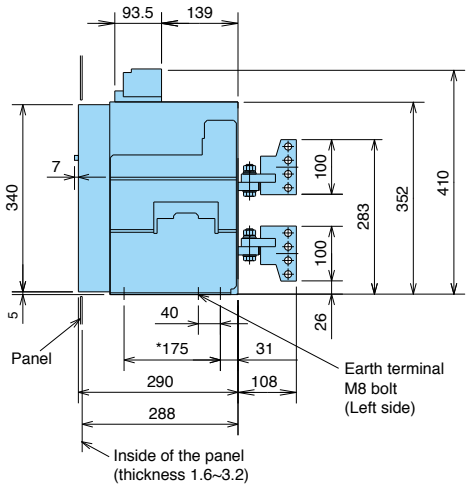
(mm)

Front view

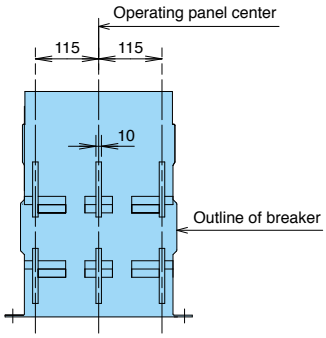


* : Mounting pitch
The numerals shown in parentheses are for 3 poles.

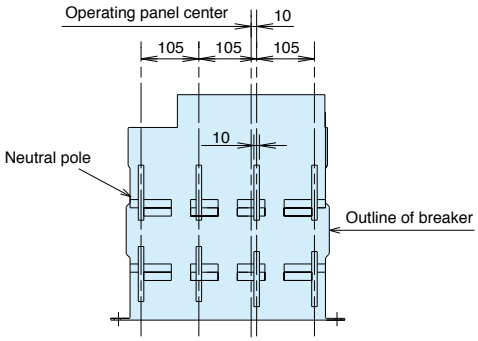
Side view



Rear view

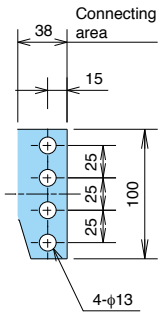


3P



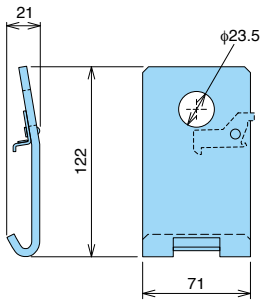
4P

Main circuit terminal dimension



Lifting hooks (HP)

HP is supplied with ACB Fixed type.

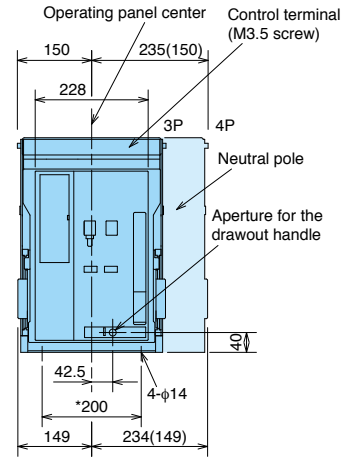


Outline dimensions

Drawout type AE630-SW,AE1000-SW, AE1250-SW, AE1600-SW

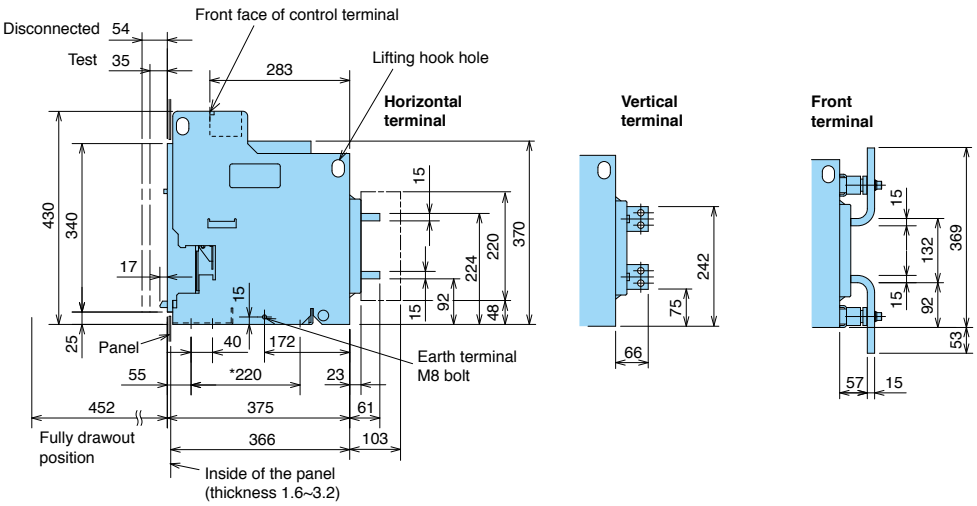
(mm)

Front view

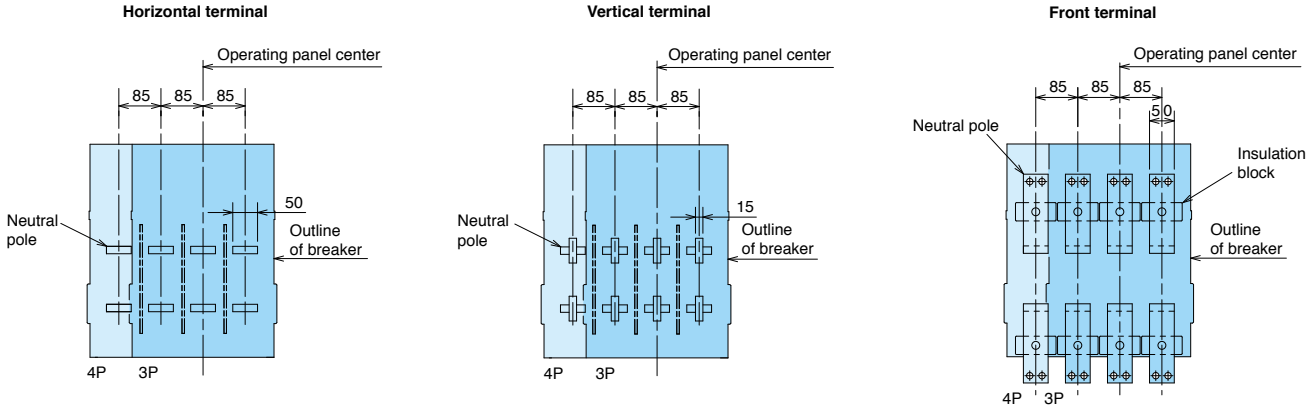


* : Mounting pitch
The numerals shown in parentheses are for 3 poles.

Side view

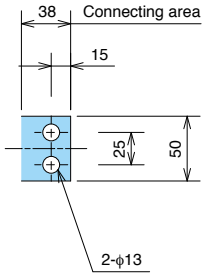


Rear view



Main circuit terminal dimension

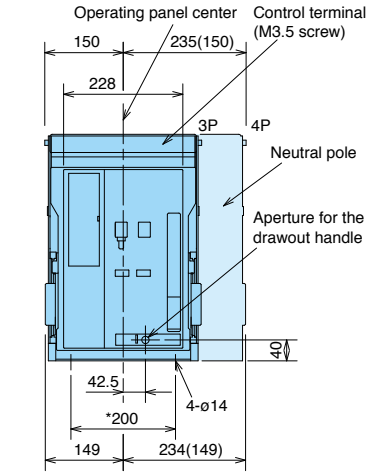
Horizontal terminal
Vertical terminal
Front terminal



Drawout type AE2000-SWA

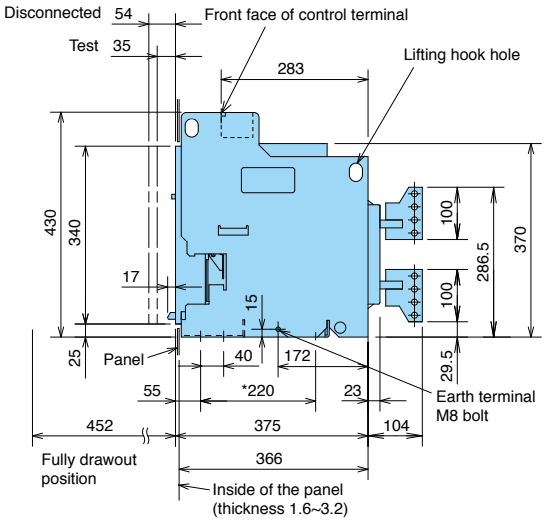
(mm)

Front view

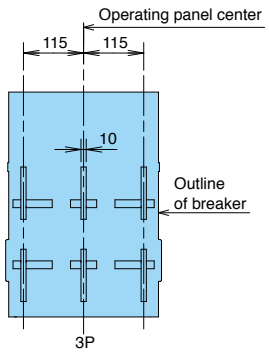


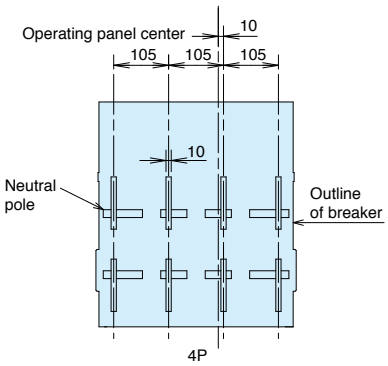
* : Mounting pitch
The numerals shown in parentheses are for 3 poles.

Side view

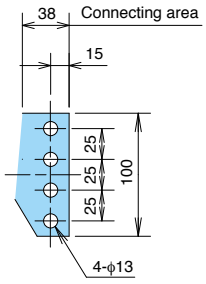


Rear view

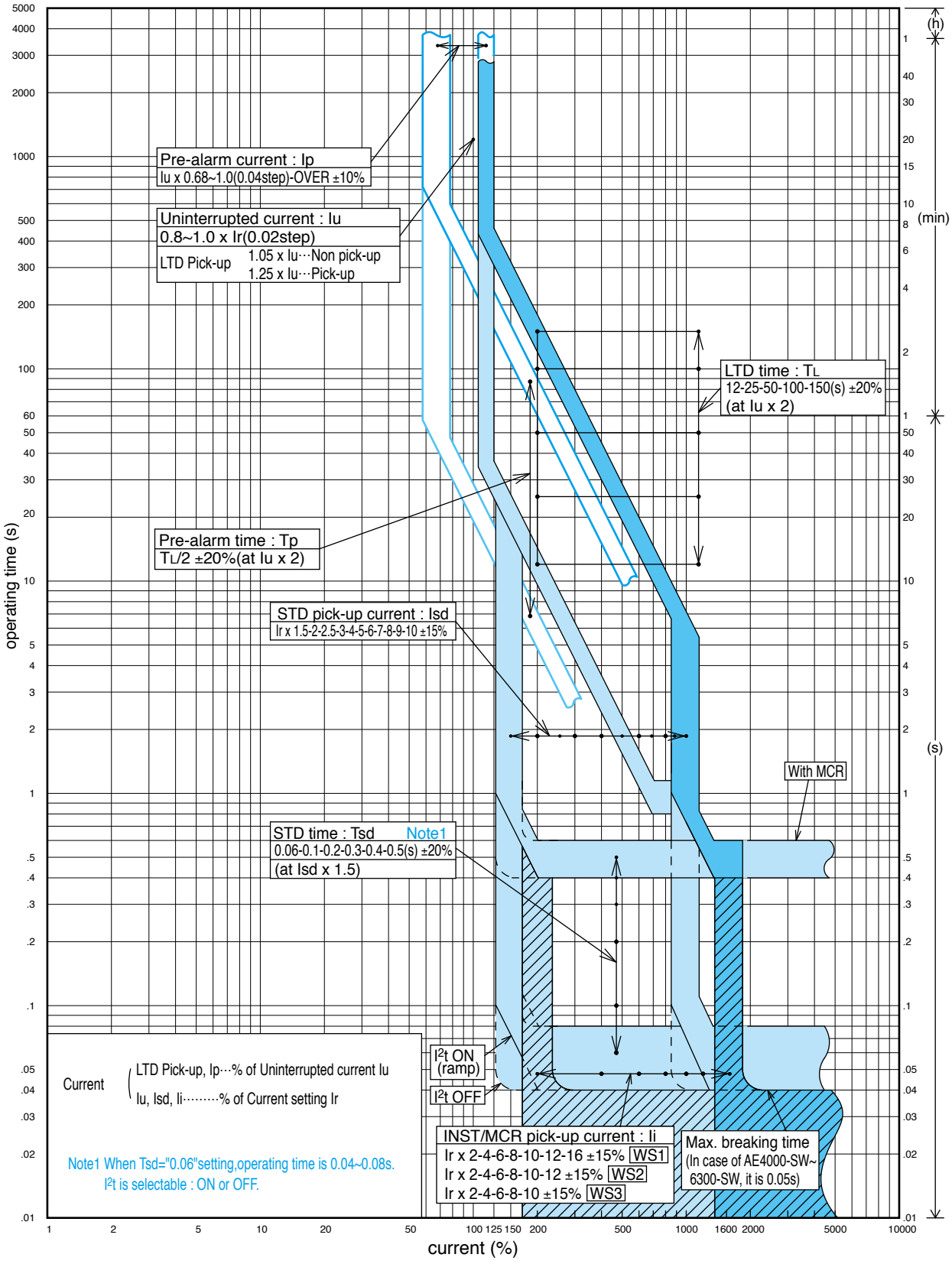




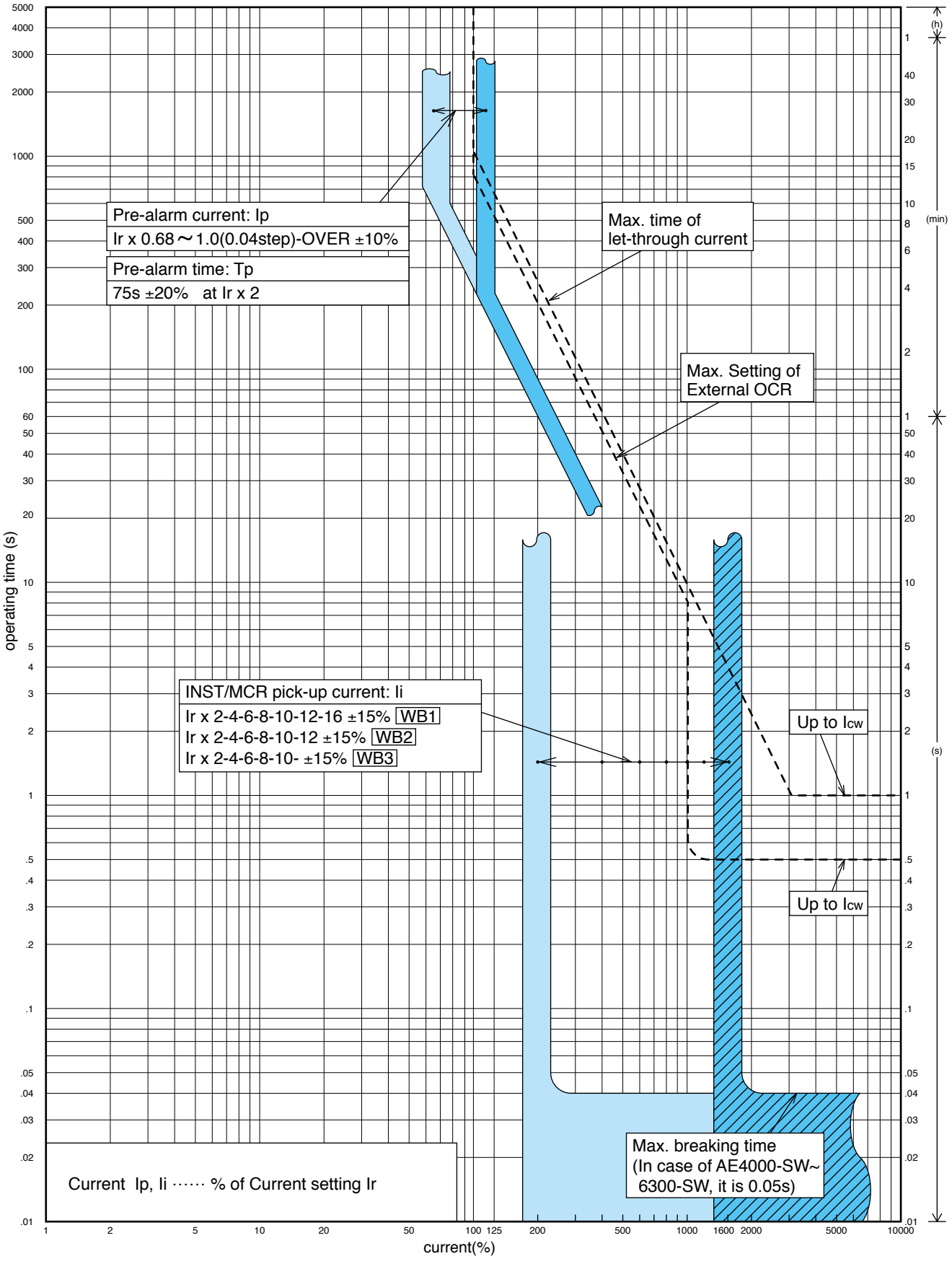
Main circuit terminal dimension



■Operating characteristic curve (for general use : WS)

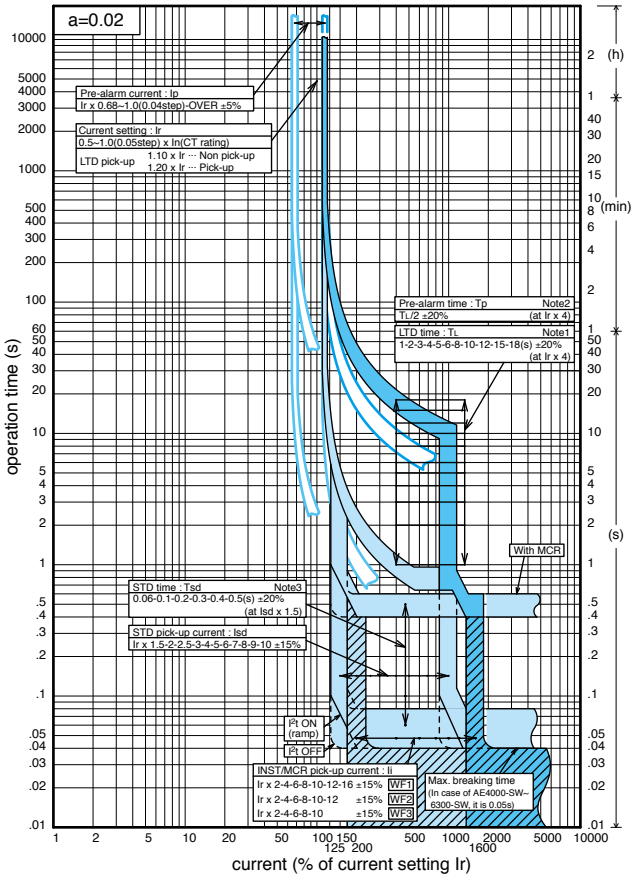


■Operating characteristic curve (for special use : WB)

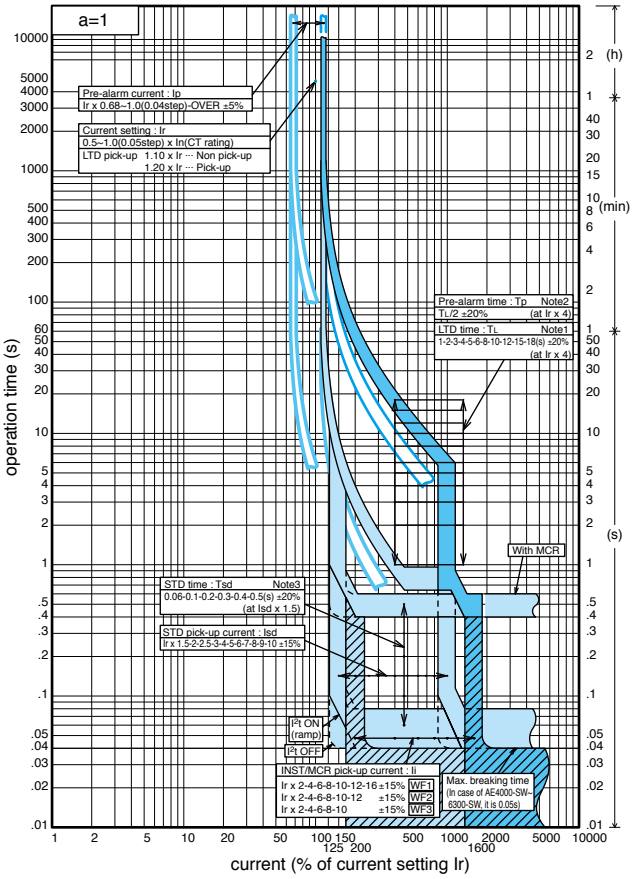


■Operating characteristic curve (for protective coordination use : WF)

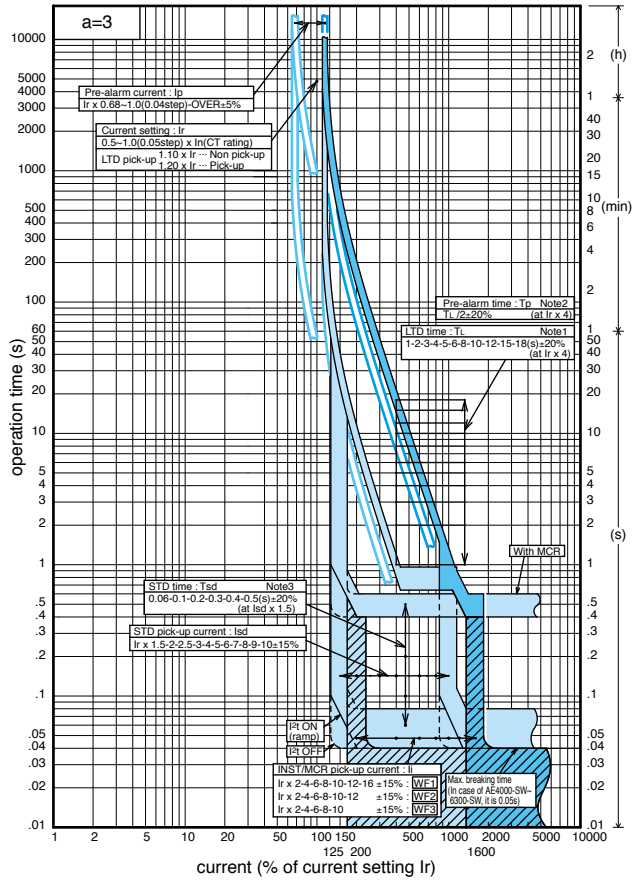
[LTD curve setting "a=0.02"]



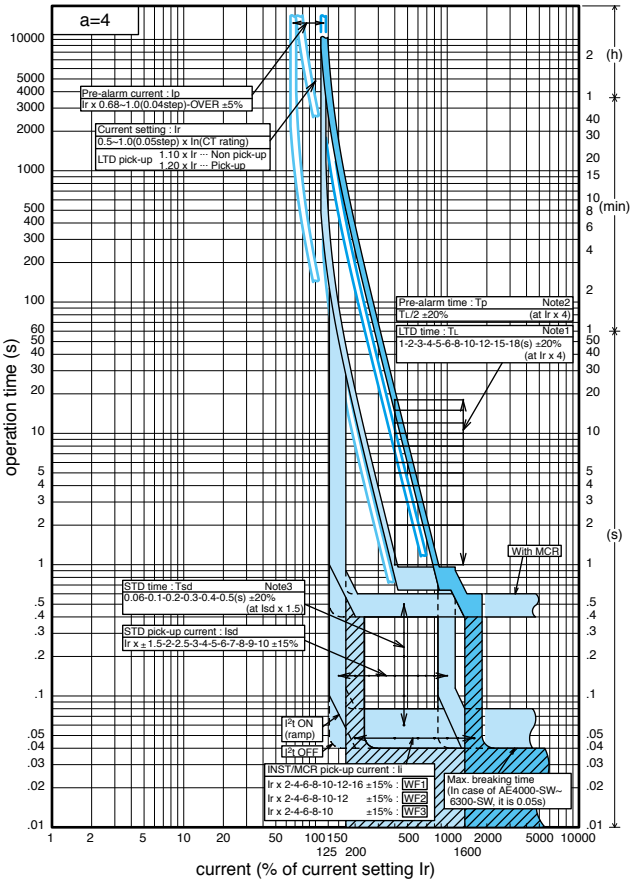
[LTD curve setting "a=1"]



[LTD curve setting "a=3"]



[LTD curve setting "a=4"]



Note 1: LTD operating time t_{LTD} is calculated by the following equations.

$$t_{LTD} = \frac{(4/1.1155)^a - 1}{(I/1.1155Ir)^a - 1} \times T_L$$

a = LTD curve setting
I = load current (A)
Ir = 0.5~1.0 x In (A)
T_L = 1~18 (s)

The accuracy of operating time is ±30% (1.5Ir≦load current<4Ir) or ±20% (4Ir≦load current).
LTD operating time is 0.8s(FLAT) when the operating time becomes 0.8s or less.

Note 3: When Tsd = "0.06" setting, operating time is 0.04~0.08s.
I²t is selectable : ON or OFF.

Note 2: PAL operating time t_{PAL} is calculated by the following equations.

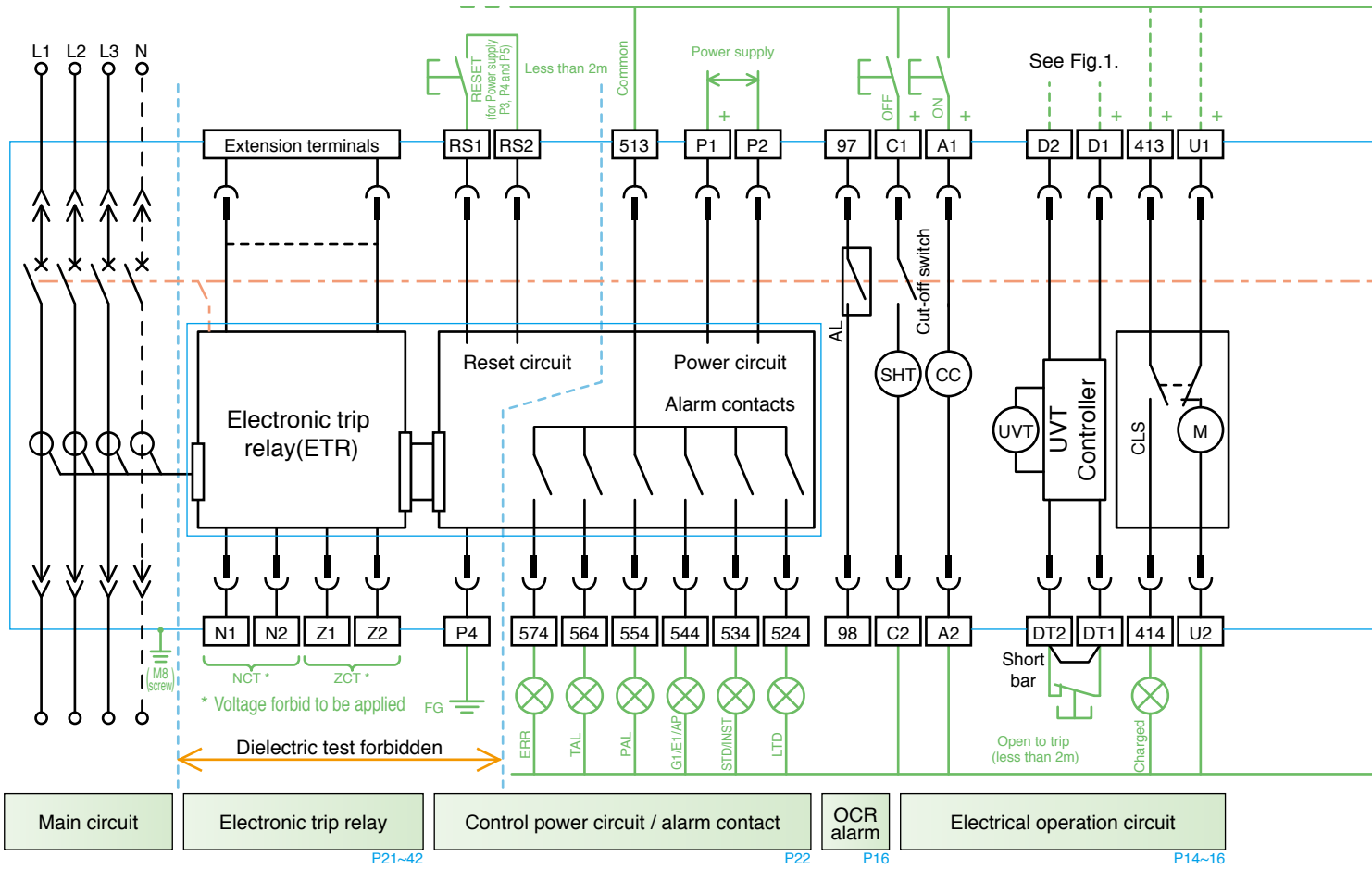
$$t_{PAL} = \frac{(4Ir/0.97Ip)^a - 1}{(I/0.97Ip)^a - 1} \times \frac{T_L}{2}$$

a = LTD curve setting
I = load current (A)
Ir = 0.5~1.0 x In (A)
Ip = 0.68~1.15 x Ir (A)
T_L = 1~18 (s)

The accuracy of operating time is ±30% (1.5Ir≦load current<4Ir) or ±20% (4Ir≦load current).
PAL operating time is 0.5s(FLAT) when the operating time becomes 0.5s or less.

Wiring diagram

● The following diagram shows the case that accessories are fully equipped.



Main circuit	Electronic trip relay	Control power circuit / alarm contact	OCR alarm	Electrical operation circuit
	P21~42	P22	P16	P14~16

Terminal description

13 14 ~ 53 54	Auxiliary switch "a"
11 12 ~ 51 52	Auxiliary switch "b"
U1 U2	Motor charging
413 414	Charged signal (Normal open)
D1 D2	Voltage Input terminal of UVT
DT1 DT2	Trip terminal of UVT (Remote trip)
A1 A2	Closing coil
C1 C2	Shunt trip
97 98	OCR alarm
P1 P2	Power supply for ETR
P4	FG of power supply (FG:Frame Ground)
RS1 RS2	Alarm reset (Trip cause LED, alarm contact)
513 524	Alarm contact for LTD Trip
513 534	Alarm contact for STD or INST Trips
513 544	Alarm contact for Ground fault, Earth leakage trips or 2nd Pre-alarm contact
513 554	Pre-alarm contact
513 564	Temperature alarm contact
513 574	Error alarm contact
Z1 Z2	For external ZCT
N1 N2	For Neutral CT (Note)
Extension terminals	For external display DP2
	For Interface unit
	For VT unit

Accessory Symbols

SHT	Shunt tripping device
CC	Closing coil
M	Motor(Motor charging device)
UVT	UVT coil
AX	Auxiliary switch
AL	OCR alarm switch
CLS	Charge limit switch
SBC	Shorting b-contact
CL	Cell switch

Internal wiring

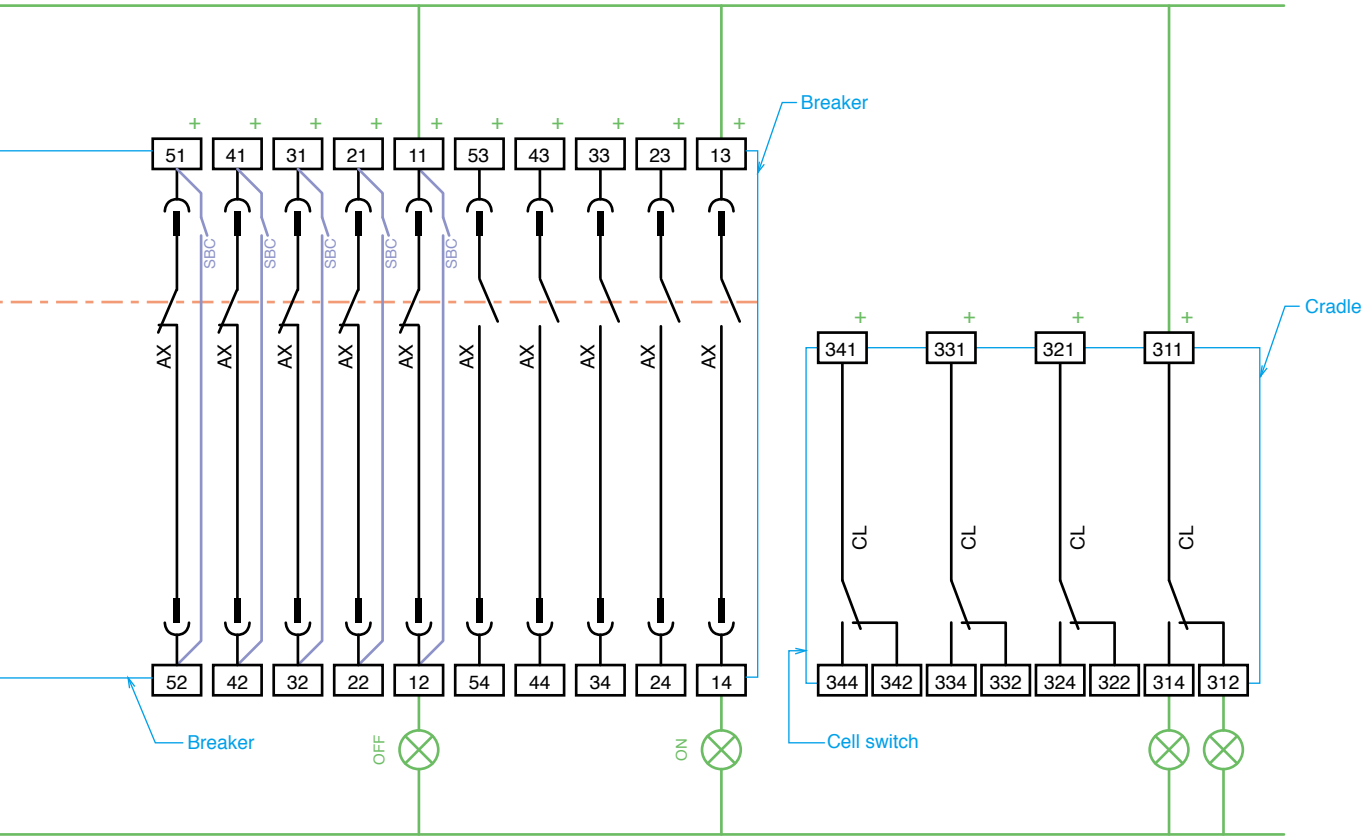
External wiring (user's wiring)

Control circuit connecter (drawout type)

Control circuit terminal block　Terminal placement

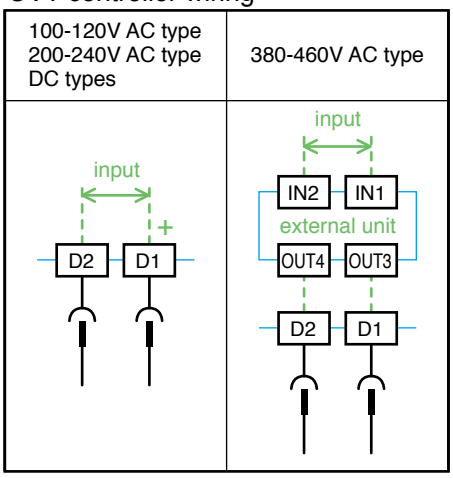
VT — VT unit	N1	Z1	RS1	513	564	544	524	P1	97	C1	A1	DT1	D1	413	U1	51	41	31	21	11	53	43	33	23	13
I/F-1 / I/F-2 — Display Interface unit	N2	Z2	RS2	P4	574	554	534	P2	98	C2	A2	DT2	D2	414	U2	52	42	32	22	12	54	44	34	24	14

Extended terminal

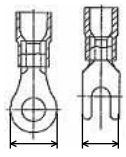


Auxiliary switch(normal close) P16　Auxiliary switch(normal open) P16　Cell switch P19

Fig.1
UVT controller wiring



Control circuit Recommended crimp-type terminals



for M3.5 screw
(wire size 1.25mm²~2.0mm²)

Max. 7.2mm

Note;

- For 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 5mm.
- 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)
  The contact output of the OCR alarm (Standard type AL) is the one-pulse output and the output time is 30~50ms.
  For this reason, this output needs self-holding circuit.
- For Power supply type P3 and P4, the high sensitive relay used in contact output may cause the chattering noise (wrong output of 1ms level) during ON and OFF operation, depending on the Panel placing condition. When it is used in the quick responsive sequence, the filter circuit of a few milli-second (ms) should be provided or the double reading sampling should be implemented.
- 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 150V DC, 0.5A for remote trip.
  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.
- Since some terminals are polarized, the wiring should be done correctly as the polarity shown in the wiring diagram when the control voltage is DC. Auxiliary switch (AX) Standard type has no polarity.
- Alarm reset (Terminal: RS1 and RS2) is available only for Power supply type P3, P4 and P5.
  For Power supply type P1 and P2, it can not be reset from the Control circuit terminal block (RS1 and RS2).
- Alarm contacts (Terminal : 513~574) are available only for power supply type P3, P4 and P5. For output contacts, refer to page 22 Note2.
- FG (Terminal: P4) is the protective earth for power supply (Terminal: P1, P2).
  It is recommended to use this terminal to reduce surge (M8 screw required).
- Shorting b-contact (SBC)
  SBC can be provided for all AX b contacts. At the time of shipment from factory, SBC is already connected to control circuit terminal block. Only one more crimp terminal can be added on contact, overlapping with SBC's contact on Terminal: 11~51.