Order Form of ACB

■Order Form

User Name			Quantity		Date	
TAW-_____	□—Fixed-type □—Drawer-type		□—3P □—4P □—3P+N			Required fields
Rated Voltage	□—AC400V □—AC690V		Rated Current	In=_____ A		
Intelligent Controller	□—AC230V □—AC400V □—DC110V □—DC220V					

Intelligent Controller	Basic Functions（Notes 1)	Optional Functions
■M Digital display	Ir=_____ A　tr=_____S Isd=_____ A　tsd=_____S Ii=_____ A Ig=_____ A　tg=_____S Test Function Thermal memory function Current measurement Fault memory function Self diagnosis Fault status instruction and numerical value display	IC1=_____ A　tC1=_____S IC2=_____ A　tC2=_____S □—Load control　□—Method 1　□—Method 2 □—MCR making and breaking and over-grade tripping □—Voltage measurement □—Signal contact output
□3M (LCD)	Ir=_____ A　tr=_____S Isd=_____ A　tsd=_____S Ii=_____ A Ig=_____ A　tg=_____S Test Function　Fault memory function Thermal memory function　Self diagnosis Current measurement　Fault status instruction and Communication function　numerical value display Number of operations recorded　Contact wear indication	IC1=_____ A　tC1=_____S IC2=_____ A　tC2=_____S □—Load control　□—Method 1　□—Method 2 □—MCR making and breaking and over-grade tripping □—Voltage measurement □—Signal contact output　□—Current-unbalanced protection □—Power factor measurement　□—Power measurement □—Electric energy measurement
□3H (LCD+ communication)	Ir=_____ A　tr=_____S Isd=_____A　tsd=_____S Ii=_____ A Ig=_____ A　tg=_____S Test Function　Fault memory function Thermal memory function　Self diagnosis Current measurement　Fault status instruction and Communication function　numerical value display Number of operations recorded　Contact wear indication	IC1=_____ A　tC1=_____ S IC2=_____ A　tC2=_____ S □—Load control　□—Method 1　□—Method 2 □—MCR making and breaking and over-grade tripping □—Voltage measurement □—Signal contact output　□—Current-unbalanced protection □—Power factor measurement　□—Power measurement □—Electric energy measurement　□—Zone interlocking □—Harmonic measurement　□—Voltage protection

■Shunt release	□—AC230V	□—AC400V	□—DC110V	□—DC220V	Required fields
■Closed electromagnet	□—AC230V	□—AC400V	□—DC110V	□—DC220V
■Energy storage motor	□—AC230V	□—AC400V	□—DC110V	□—DC220V
□Under-voltage trip	□—AC230V □—AC400V □—Instantaneous □—Time-delay □s（0.3s、0.5s、1s、3s、5s)
□No-voltage trip	□—AC230V □—AC400V □—Instantaneous □—Time-delay □s（0.3s、0.5s、1s、3s、5s)
Auxiliary contact	Standard-type　■—Four contacts □—Five contacts □—**Six contacts**　(with co Special-type　□—4NO4NC　□—5NO5NC(not used for TAW-1600)　□—6NO6NC(not used for TAW-1600)
Mechanical interlocking	Two circuit breakers：□—Steel cable interlocking □—Connecting rod interlocking Three circuit breakers：□—Steel cable interlocking □—Connecting rod interlocking
Opening locking device	□—one lock and one key □—two locks and one key □—three locks and two keys □—five locks and three keys □—ABC key
Other options	■—Door frame　□—Interphase barrier　□—Test and the separation position connected to indicate the contact signal output (one normally-opened and one normally-closed) □—Button lock □—ZCT leakage transformer　□—Counter (used for 2000AF and above))　□—Temperature alarm protection device (only select 3M or 3H controller) □—Ground transformer　□—Power-supply module (DC24V)
ATS switching device	□—ATS controller (to be used with Mechanical interlocking. Please select the type)
Wiring	■—Horizontal wiring □—Forward wiring (only used for TAW-2000, TAW-3200) □—Vertical wiring (only used for TAW-1600, TAW-2500, TAW-4000)

Note: ■means standard configuration，□means options. (Please tick in □ or fill in with figures)
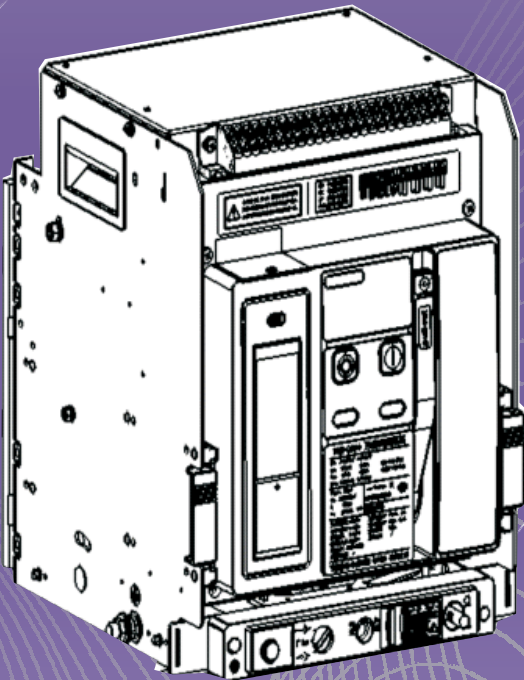
TAW Intelligent Universal Circuit Breakers

IS09001

ACB

ACB
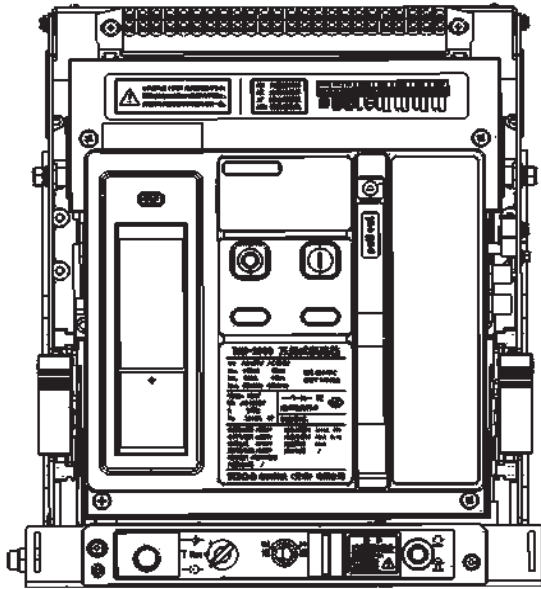
Structure Diagram of ACB

Terminals of secondary circuit

Undervoltage Realease

Arc Chute

Auxiliary Contacts

Intelligent
Controller unit

Shunt Release

Draw-out
socket

Cover

Closed Electromagnet

Operation Mechanism

Mechanism energy
storage handle

Motor driven Operating Mechanism
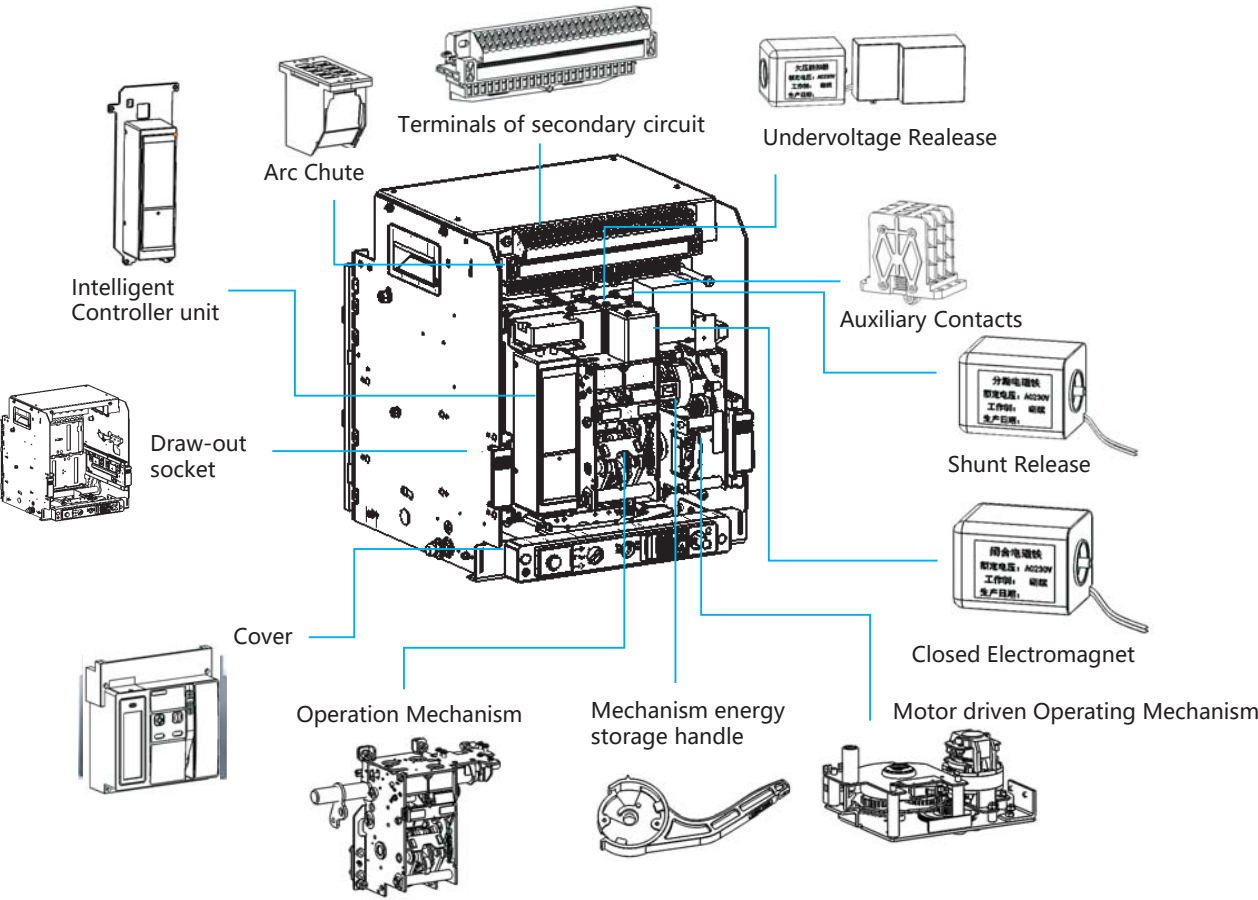
Selection Table

Rated current of frame size:

Inm=1600
Inm=2000
Inm=2500
Inm=3200
Inm=4000

Rated current:

TAW‑-1600 : 200、 250、 315、 400、 500、 630、 800、 1000、 1250、 1600
TAW‑-2000 : 630、 800、 1000、 1250、 1600、 2000
TAW‑-2500 : 630、 800、 1000、 1250、 1600、 2000、 2500
TAW‑-3200 : 2000、 2500、 2900、 3200
TAW‑-4000 : 2000、 2500、 2900、 3200、 3600、 3900、 4000

TAW

Model

4000

3

Pole:
3、 4、 3P+N

3200

M

Controller type:
M
3M
3H

D

Installation
method :
D:Draw-out
F:Fixed

Wiring method

H:Horizontal connection
V:Vertical connection
W:Front connection

A
C
B

A
C
B

Applicable Scope

The TAW series intelligent universal circuit breaker (hereinafter called the circuit breaker) is applicable for the distribution network with rated frequency of AC 50/60Hz, rated working voltage of 690V and rated working current of 630~4000A, the circuit breaker is mainly used for distributing electric energy and protecting circuit and power equipments from being damaged by faults such as overload, under-voltage, short circuit and one-phase ground fault.
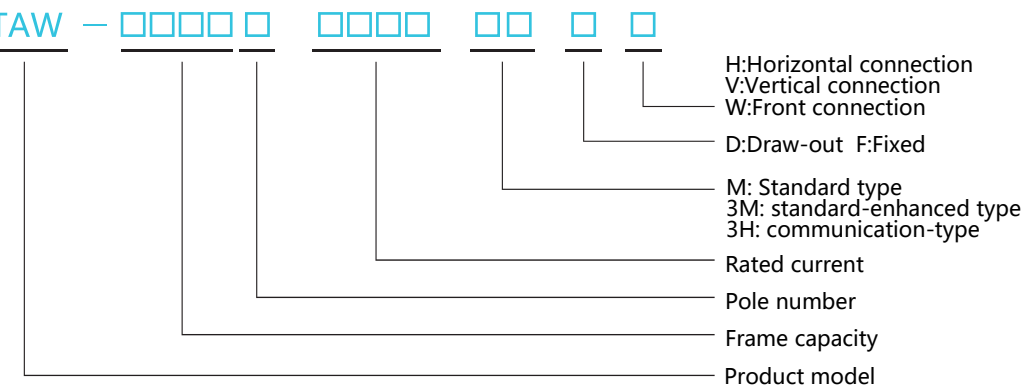
They are equipped with various intelligent controllers, which are of multiple protection functions and enhance the power supply reliability. The communication-type intelligent controller is of communication interface, which is convenient to connect with on-site fieldbus to realize the four functions of remote measuring, remote regulating, remote control and remote signaling and meet the requirement of control automation. Equipped with the leakage transformer and the associated intelligent controller, the circuit breaker is of the function of earth leakage protection.

The circuit breakers comply with standards of GB/T14048.2 Low-voltage Switchgear and Control gear Low-voltage Circuit Breakers and IEC60947-2 Low-voltage Switchgear and Control gear Circuit Breakers.

Numbering

TAW — □□□□ □   □□□□   □□   □   □

H:Horizontal connection
V:Vertical connection
W:Front connection

D:Draw-out F:Fixed

M: Standard type
3M: standard-enhanced type
3H: communication-type

Rated current

Pole number

Frame capacity

Product model

ACB meet the following standards

◆ IEC 60947-1:Low-voltage switchgear and controlgear -Part 1: General rules
◆ IEC 60947-2:Low-voltage switchgear and controlgear -Part 2: Circuit-breakers
◆ IEC60947-4-1:Low-voltage switchgear and controlgear -Part 4-1: Contactors and motor-starters-Electromechanical contactors and motor-starters

Normal working, installation and transportation conditions

• Ambient air temperature shall be -5℃~+40℃ and its average value in 24h shall not exceed +35℃.

Note: In working conditions where upper limit value of ambient air temperature is over +40 or the lower limit value of it is lower than -5℃, users shall consult with our company.

•The altitude of the installation location s hall not exceed 2000m.
•The class of pollution is class 3.
•The level of protection is IP40.
•Vertical gradient for installation shall not exceed 5℃.
•Use category is B.
•When the highest temperature is +40℃,the relative humidity of the air shall not exceed 50%.

At lower temperatures, higher relative humidity is allowed, for example, the relative humidity can be 90% when the temperature is 20℃. Special measures shall be taken to deal with the condensation that occurs occasionally due to change of temperature.

•The installation category of main circuit is IV; and for auxiliary circuit, except that the installation category of under voltage release coil and primary coil of power transformer is the same with that of circuit breaker, its installation category is III.

•Transportation and storage conditions: -25℃~+55℃, and temperature may be +70℃ in a short time(within 24h).

Preparation before installation

Before installation, use a 500VDC megohmmeter to check the insulation resistance of the circuit breaker according to regulations.When the ambient temperature is 25 ℃+-5℃and the relative humidity is 50%~70%, it should not be less than 500MΩ.

The insulation resistance test location is: when the circuit breaker is closed, between each phase and ground; When the circuit breaker is disconnected, between each phase and the inlet and outlet terminals.

Structure of circuit breakers

Number:Function/Name
1. Fault tripping indicator/ resetting button 2 Ronis
3. Closing button(I)
4. Opening button(O)
5. Intelligent controller
6. Position indicator of the main contact
   Opening (O)，Closing (I)
7. Closing indication
8. Status indicator for energy storage
   mechanismⅠnergy storage/Release
9. Mechanism energy storage handle
10 .Data nameplate
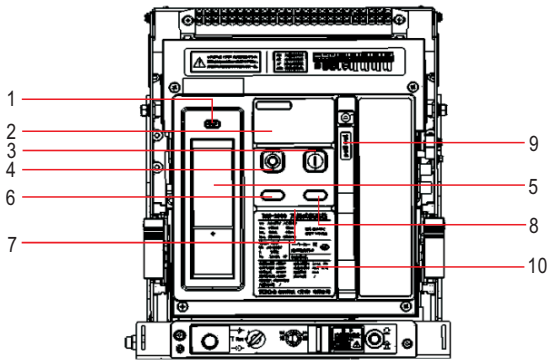
11. Handle storage area
12. Position padlock of "connection"，"testing" and "separation"
13. Position indication of "connection"，"testing" and "separation"
14. Push-in (-out) device
15. Position locking device of "connection"，"testing" and "separation"
16. Slide(only for Draw-out)
17. Control circuit wiring terminals(static)
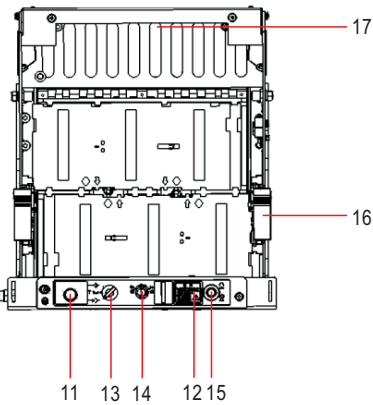
18. Control circuit wiring terminals (dynamic)
19. Shunt release
20. Closed electromagnet
21. Auxiliary contact
22. Gear motor
23. Mechanism energy storage handle
24. Operation mechanism
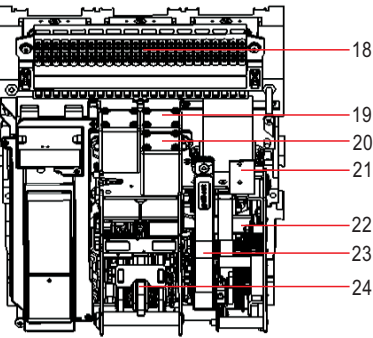
■ Main technical data and performance

Model		TAW	TAW	TAW	TAW	TAW
Rated current of frame size(A)		1600	2000	2500	3200	4000
Rated current (A)		200,250,315,400,500,630,800,1000,1250,1600	630,800,1000,1250,1600,2000	630,800,1000,1250,1600,2000,2500	2000,2500,2900,3200	2000,2500,2900,3200,3600,3900,4000
Rated working voltage Ue(V)		50Hz AC400V,690V	50Hz AC400V,690V	50Hz AC400V,690V	50Hz AC400V,690V	50Hz AC400V,690V
Rated insulation voltage Ui(V)		1000	1000	1140	1000	1140
Rated impulse withstand voltage Uimp(kV)		12	12	12	12	12
Power frequency withstand voltage		3500	3500	3500	3500	3500
Poles		3P/4P	3P/4P	3P/4P	3P/4P	3P/4P
Rated ultimate short circuit breaking capacity Icu(kA)	AC 400V	65	100	100	100	100
	AC 690V	50	65	65	65	80
Rated service short-circuit breaking capacity Ics(kA)	AC 400V	65	65	100	85	100
	AC 690V	42	65	65	65	80
Rated short-time withstand current Icw(KA 1s)	AC 400V	55	65	100	85	100
	AC 690V	42	65	65	65	80
Full breaking-time(no additional delay)(ms)		12~18	12~18	12~18	12~18	12~18
Closing time（ms）		≤60	≤60	≤60	≤60	≤60
Trip performance	Electrical life (times) AC400V	10000	10000	10000	10000	10000
	Electrical life (times) AC690V	5000	6000	6000	6000	6000
	Mechanical life (times) Non-Maintenable	15000	15000	15000	15000	15000
	Mechanical life (times) Maintenable	30000	30000	30000	30000	30000

Basic functions and optional functions of intelligent controller

TA-M

Digital display type

Basic functions
•Overload long-time delay, short-circuit short-time delay, short-circuit instantaneous protection
•Test function
•Fault memory
•Thermal memory
•Self diagnosis
•Current Measurement
•Fault status indication and numerical display
•Earth fault protection

Optional functions
•Signal contact output
•MCR and over limit tripping
•Load monitoring

TA-3M
TA-3H

LCD display type

Basic functions
•Overload long-time delay, short-circuit short-time delay, short-circuit instantaneous protection
•Test function
•Fault memory
•Thermal memory
•Self diagnosis
•Current Measurement
•Fault status indication and numerical display
•Earth fault protection
•Communication(3H)
•Contact wear indicator(3H)
•Record of number of operations(3H)

Optional functions
•Signal contact output
•MCR and over limit tripping
•Load monitoring
•Current imbalance protection
•Power measurement
•Power-factor measurement
•Electric energy measurement
•Regional interlocking
•Harmonic measurement
•Voltage protection
•Voltage measurement

List of Intelligent Controller Functions

Controller Model	TA-M	TA-3M	TA-3H
Overload long-time delay protection	■	■	■
short-circuit short-time delay protection	■	■	■
short-circuit instantaneous protection	■	■	■
Earth fault protection	■	■	■
Current imbalance protection	—	□	□
Test function	■	■	■
Fault memory	■	■	■
Signal contact output	□	□	□
Thermal memory	■	■	■
Self diagnosis	■	■	■
Current Measurement	■	■	■
MCR and over limit tripping	□	□	□
Load monitoring	□	□	□
Fault status indication and numerical display	■	■	■
Voltage measurement	—	□	■
Power-factor measurement	—	□	■
Power measurement	—	□	□
Electric energy measurement	—	□	□
Communication	—	—	■
Contact wear indicator	—	□	■
Regional interlocking	—	□	□
Harmonic measurement	—	□	□
Voltage protection	—	□	□
Record of number of operations	—	□	■

Notes：■Basic functions；□Optional functions；-No such function。

A C B

A C B

Current unbalance protection

Unbalance rate Adjustment range	40%~100%+OFF
Operating characteristics or alarm characteristics	≤0.9δ, No operation
	<1.1δ, Time delay operation
Time delay(s)	0.1~1.0s+OFF(OFF: Only alarm,no operation,step size 0.1s)

Over voltage protection

Operating threshold(V)	Return threshold~1200(Step size 1)	
Operating time delay(s)	0.2~60 (Step size 0.1)	
Return threshold(V)	100~Operating threshold(Step size 1)	
Operating time delay(s)	0.2~60 (Step size 0.1)	
Operating or alarm characteristics	Multiple of voltage(Umax/operating threshold)	Trip or alarm time
	<0.9	No operation,no contacts output
	≥1.1	Definite time operation or alarm,contact output(optional)

Time delay tolerance ±10%

Leakage protection

Operating current I△n(A)	0.5~30 (Step size 0.1)	
Time delay T△n(s)	0~0.83	
Operating characteristics	Current multiplier I/I△n	Trip time
	<0.8	No operation
	≥1.0	Definite time operation

Time delay tolerance ±10%

Time delay of Leakage protection

Setting time(s)	0.06	0.08	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.83	Instantaneous
Fault current	Maximum trip time(s)											
I△n	0.36	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	0.04
2I△n	0.18	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50	0.04
5I△n	0.072	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	0.04
10I△n												

No special requirements from the user,The intelligent controller is set as follows:

Overload long-time delay protection	Ir	1In
	tr	60s
Short-circuit short-time delay protection	Isd	6In
	tsd	0.4s
Short-circuit short-time delay protection	Ii	10In
Ground fault	Ig	0.8*In or 1200A(Take the minimum value)
Load monitoring	I_{C1}	1In
	I_{C2}	1In

Characteristic curve

Setting range of overload long delay
Ir=(0.4~1.0)In+OFF
tr=15s~480s
Setting range of short circuit short delay
Isd=(2~10)In+OFF
tsd=0.2s~0.4s
Setting range of short circuit instantaneous
Ii=(5~20)In+OFF

Setting range of overload long delay
Ir=(0.4~1.0)In+OFF
tr=15s~480s
Setting range of short circuit short delay
Isd=(0.4~15)In+OFF(M type)
Isd=(1.5~15)In+OFF(2M/2H/3M/3H type)
Setting range of short circuit short delay
tsd=0.1s~0.6s(M type)
tsd=0.1s~1s(2M/2H/3M/3H type)
Setting range of short circuit instantaneous
Ii=In~50/75/100kA

Overload long-time delay protection

Operating current setting value Ir,Current tolerance	TA-M/TA-3M TA-3H	$(0.4\sim1.0)$ x In+OFF **(Adjust according to 1A progression)**					
Operating time tr, tolerance ±15%	**Current**	**Operating time**					
	≤1.05Ir	**Not operate within 2 hours**					
	≥1.3Ir	**Operate within an hour**					
	1.5Ir **Setting time** Tr(s)	15	30	60	120	240	480
	2.0Ir **Operating time** Tr(s)	8.4	16.9	33.8	67.5	135	270
	7.2Ir **Operating time** Tr(s)	0.65	1.3	2.6	5.2	10	21
Thermal memory protection	30min+OFF **(It will eliminate if the electricity goes off -**						
N-phase overload and over-current characteristics	100%In **or** 50%In **(For 3P+N/4P)**						

Short-circuit short-time delay protection

Operating current setting value Isd, Current tolerance			TA-M	$(0.4\sim15)\times$In+OFF **(Adjust according to 1A progression)**				
			TA-3M / TA-3H	$(1.5\sim15)\times$In+OFF **(Adjust according to 1A progression)**				
Current tolerance ±10% Operating time tr, tolerance ±15%	TA-M	**Current**	**Operating time**					
		I≥Isd, I≤8Ir	**Inverse time** $T=(8Ir)^2\times tsd/I^2$ I-actual current					
		I≥Isd, I>8Ir,**or** I≥Isd, I≤8Ir Inverse time OFF	**Definite time setting time tsd(s)**	0.1	0.2	0.3	0.4	0.5
			Returnable time(s)	0.06	0.16	0.26	0.35	0.44
	TA-3M TA-3H	**Definite time delay**	**Definite time setting time tsd(s)**	0.1~1s+OFF **(Definite time closed,Inverse time open)**				
		Inverse time characteristic	**Curve rate**	The curve is the same as the overload long delay curve, and the curve speed is 10 times faster than the overload long delay curve				
Thermal memory protection			15min+OFF **(It will eliminate if the electricity goes off -**					

Short-circuit instantaneous protection

Operating current setting value Ii,Current tolerance	TA-M / TA-3M	In~50kA+OFF(TAW-1600/2000/2500)
	TA-3H	In~75kA+OFF(TAW-3200/4000)

Earth fault protection

Operating current setting value Ig,Current tolerance(A)	TA-M/TA-3M TA-3H	$(0.2\sim1.0)\times$ In+OFF **(M Ctroller:Min 100A)**		
Current tolerance ±10% Operating time tr, tolerance ±15%	TA-M	**Definite time**	**Setting time Tg(s)**	0.1~1s (0.1-1s Step size 0.1s)
	TA-3M TA-3H	**Definite time**	**Setting time Tg(s)**	0.1~1s (0.1-1s Step size 0.1s)

Load monitoring

Method 1	Operating time I_{C1},I_{C2} tolerance(A)	$(0.2\sim1.0)\times$In+OFF
	Delay characteristics t_{C1},t_{C2}(s)	$t_{C1}=(0.2\sim0.8)\times tr$, $t_{C2}=(0.2\sim0.8)\times tr$
Method 2	Operating time I_{C1},I_{C2} tolerance(A)	$(0.2\sim1.0)\times$In+OFF
	Delay characteristics t_{C1},t_{C2}(s)	$t_{C1}=(0.2\sim0.8)\times tr$
		Definite time $t_{C2}=60s$

Voltage unbalance protection

Operating threshold	2%~30% **(Step size 1%)**	
Operating time delay(s)	0.2~60 **(Step size 1%)**	
Operating return setting value(when the way of working is "alarm")	2%~30% **(Step size 1%) Not greater than the action threshold**	
Return time delay(s)(when the way of working is "alarm")	0.2~60 **(Step size 1%)**	
Output of alarm contact	**Optional**	
Operating characteristics	**Actual voltage unbalance/Setting value**	**Trip time**
	<0.9	**No operation**
	≥1.1	**Time delay operation**

Notes:Time delay tolerance ±10%

Under voltage protection

Operating threshold(V)	**Return threshold(Step size 1)**	
Operating time delay(s)	0.2~60 **(Step size 0.1)**	
Return threshold(V)	**Operating threshold~1200(Step size 1)**	
Operating time delay(s)	0.2~60 **(Step size 0.1)**	
Operating or alarm characteristics	**Multiple of voltage(Umax/operating threshold)**	**Trip or alarm time**
	<0.9	**Definite time operation or alarm, contact output(optional)**
	≥1.1	**No operation,no contacts output**

Time delay tolerance ±10%

Power loss(Ambient temperature +40£ ?)

Power loss is the overall consumption measureed with the circuit breaker which is electrified with current Inm.

Type	Power loss(W)	
	Fixed type	Draw-out type
TAW-1600	145	171
TAW-2000	240	360
TAW-2500	240	360
TAW-3200	600	800
TAW-4000	600	800

Derating coefficient

If ambient environment temperaure exceeds 40£ ,the continual current-loading capacity can be corrected according to the following table:

Ambient environment temperature		+40℃	+45℃	+50℃	+55℃	+60℃
Continual current-loading capacity	Inm=1600A	1Inm	0.98Inm	0.95Inm	0.90Inm	0.87Inm
	Inm=2000A	1Inm	0.97Inm	0.91Inm	0.87Inm	0.82Inm
	Inm=2500A	1Inm	0.97Inm	0.91Inm	0.87Inm	0.82Inm
	Inm=3200A	1Inm	0.96Inm	0.90Inm	0.86Inm	0.80Inm
	Inm=4000A	1Inm	0.96Inm	0.90Inm	0.86Inm	0.80Inm

If altitude exceeds or equals to 2000m,the electric property of circuit breaker can be corrected according to the following table:

Altitude(m)	2000	3000	4000	5000
Power-frequency withstand voltage(V)	3500	3150	2500	2000
Correction factor of operational current	1	0.93	0.88	0.82
Correction factor of short-circuit breaking capacity	1	0.83	0.71	0.63

Specification of copper bars

Frame size rated current Inm(A)	Rated current In(A)	Specification of copper bars	
		Number	Size(mm x mm)
1600	500−200	2	30x5
	630	2	40x5
	800	2	50x5
	1000	2	60x5
	1250	2	60x8
	1600	2	60x10
2000	630	2	50X5
	800	2	60X5
	1000	2	60X5
	1250	3	60X5
	1600	2	60x10
	2000	3	60x10
2500	630	2	50x5
	800	2	60x5
	1000	2	60x5
	1250	2	80x5
	1600	3	80x5
	2000	4	80x5
	2500	5	80x5
3200	2000	3	100x5
	2500	4	100x5
	2900	3	100x10
	3200	4	100x10
4000	2000	3	100x5
	2500	4	100x5
	2900	3	100x10
	3200	4	100x10
	3600	4	100x10
	3900	5	100x10
	4000	5	100x10

The specification of copper bars in the above table are introduced under the conditions that the circuit breakers open installed are at the maximum ambient temperature of 40£ and satisfy conventional heating in GB14048.2.

Accessories

A
C
B

◆ Under(No) voltage release

Note:In the electrified networks where thunder and rain often happens or whose power supply is not stable,under voltage release with time delay is highly recommended to protect the circuit breaker from releasing due to transient voltage-lowering. Generally, the relay time which is selected by users are 0.3s,0.6s,1s,3s,5s. If there are some special requirements about time delay,please contact us.
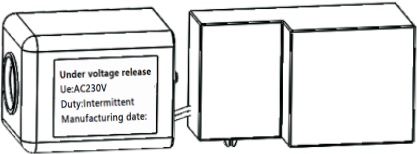
Rated working voltage Ue(V)	AC400	AC230
Operating voltage(V) for Undervoltage release	(0.35~0.7)Ue	
Operating voltage(V) for Novoltage release	≤0.35Ue	
Reliable impossible voltage(V)for Undervoltage release	(0.85~1.1)Ue	
Reliable doisng voltage(V)for Undervoltage release	≤0.35Ue	
Power loss	12VA	

◆ Shunt release

To break the circuit breaker by remote control
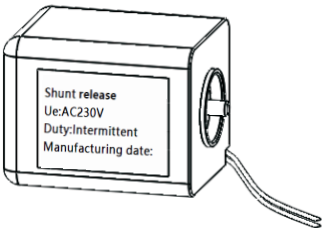
Rated voltage of control power supply Ue(V)	AC400	AC230	DC220
Operating voltage(V)	(0.85~1.1)Ue		
Instantaneous current(A)	1.2		1
Closing time(ms)	50ms±10ms		

◆ Closed electromagnet

After the circuit breaker ends up its energy storage the closing electromagnet will make the energy storing spring to release its energy instantly so that the circuit breaker is closed quickly.
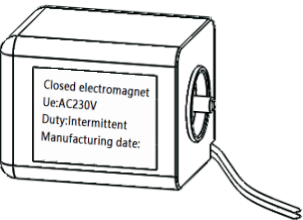
Rated voltage of control power supply Ue(V)	AC400	AC230	DC220
Operating voltage(V)	(0.85~1.1)Ue		
Instantaneous current(A)	1.2		1
Closing time(ms)	50ms±10ms		

◆ Auxiliary contact

Standard type of the inside auxiliary contacts provided by ACB is 4 normally open 4 normally closed.
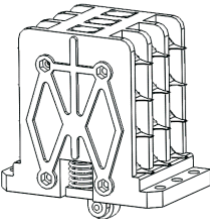
Rated working voltage Ue(V)	Conventional thermal current Ith(A)	Rated control capacity
AC400		300VA
AC230	6	
DC220		60W

Rated voltage Ue		Conventional thermal current Ith(A)
AC 50Hz	AC250V	3
	AC380V	1
DC	DC220V	0.3
Utilization category		AC-15、AC-12
		DC-12

◆ Three position switch

The three position switch is mainly suitable for indicating the separation, testing, and connection status of draw-outer ACB. Separation position configuration--1NO1NC; Testing position configuration--1NO1NC; Connection position configuration--1NO1NC;

◆ Wiring diagram or three position

Three position switch
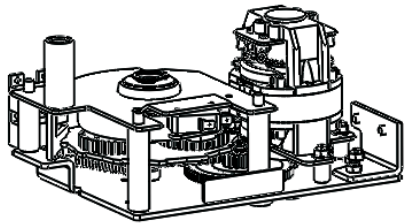
◆ Motor driven Operating Mechanism

The circuit breaker has the function of motor driven energy storage and automatic energy-restoring.(The energy storage can also be done manually.)

Frame size	1600	2000/2500	3200/4000
Operating voltage(V)	AC 230/400 DC 220/110		
Power loss	90W	85W	110W
Charging time(s)	<45	<7s	
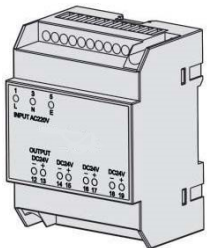
◆ Power supply module

Input power supply:AC230V/AC400V/DC110V/DC220V(Optional). Auxiliary power supply should be provided when using ground fault protection, communication, thermal memory fnuctions or the breaker keeps input output signanls in the state of OFF. DC power supply must be switched to DC24V by DC power supply module and then provided to intelligent controller when choosing DC type intelligent controller.
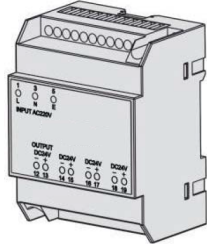
◆ ST201 Relay Expansion Module

The working power supply of the relay expansion module is DC24V, which is provided by the power module. The DO/DI signal unit outputted by the controller is generally used for fault alarms or indications. When used for controller opening and closing or with large load capacity, the DO/DI signal emitted by the controller needs to be amplified through the ST201 relay module. ST201 contact capacity: AC250V, 10A; DC28V, 10A. The appearance and installation dimensions are the same as the power module.

External neutral line (N-phase) transformer

When used in a 3P+N distribution system with a three pole circuit breaker (customer needs to contact the manufacturer for confirmation when purchasing), it should be installed on the neutral wire N, with a maximum distance of 2m from the installation point. The two specifications are as follows:
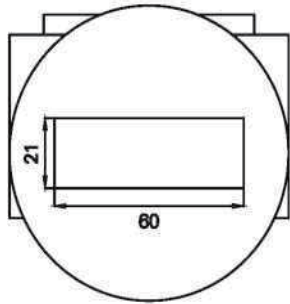

TAW-2500 Frame
630A-2500A
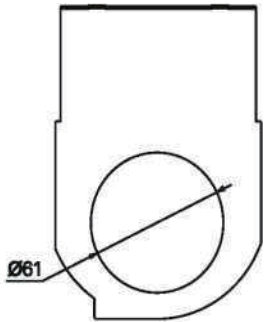
TAW-4000 Frame
2000A-4000A

If the N-phase busbar is too wide and the existing external N-phase transformer cannot meet the requirements, our company can also provide flexible transformers. Flexible transformers can be connected to busbar with a width of 100mm or more.

A
C
B

External grounding current transformer

When the grounding protection of the controller is ground current protection, the external grounding current transformer is ZT100 transformer, and the transformation ratio is: the rated current of the controller is 1A (below 3200A), and the rated current of the controller is 5A (above 3200A).

Mounting Hole,M6*4

4-Ø7

Ø100

ZT100 grounding current transformer
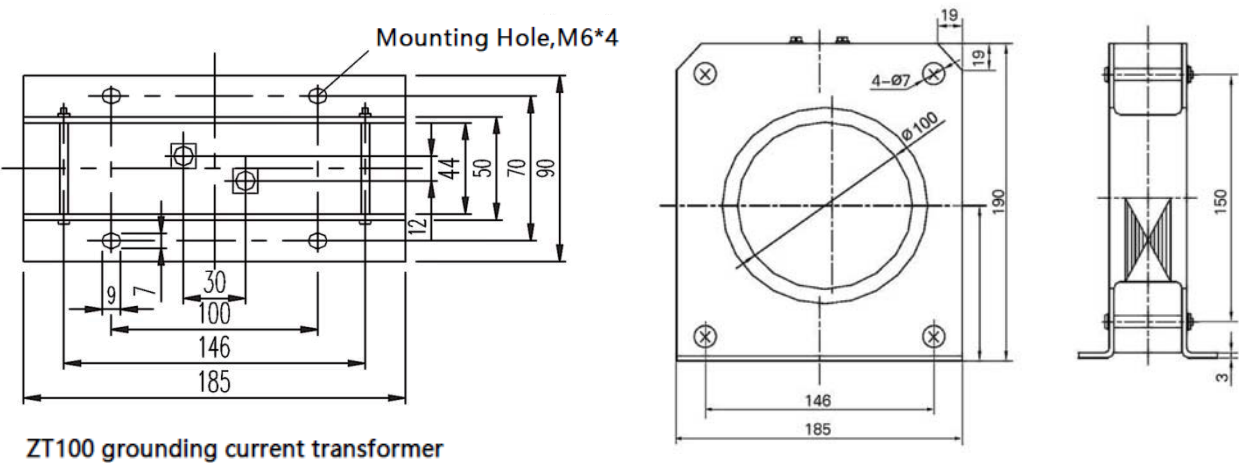
External zero sequence leakage transformer

When the grounding protection of the controller is leakage protection, the external zero sequence leakage transformer is ZCT1 transformer, with a transformation ratio of 30A/20mA.

Mounting hole,M8*6

Terminal of 2nd output M3.5

ZCT1 leakage transformer
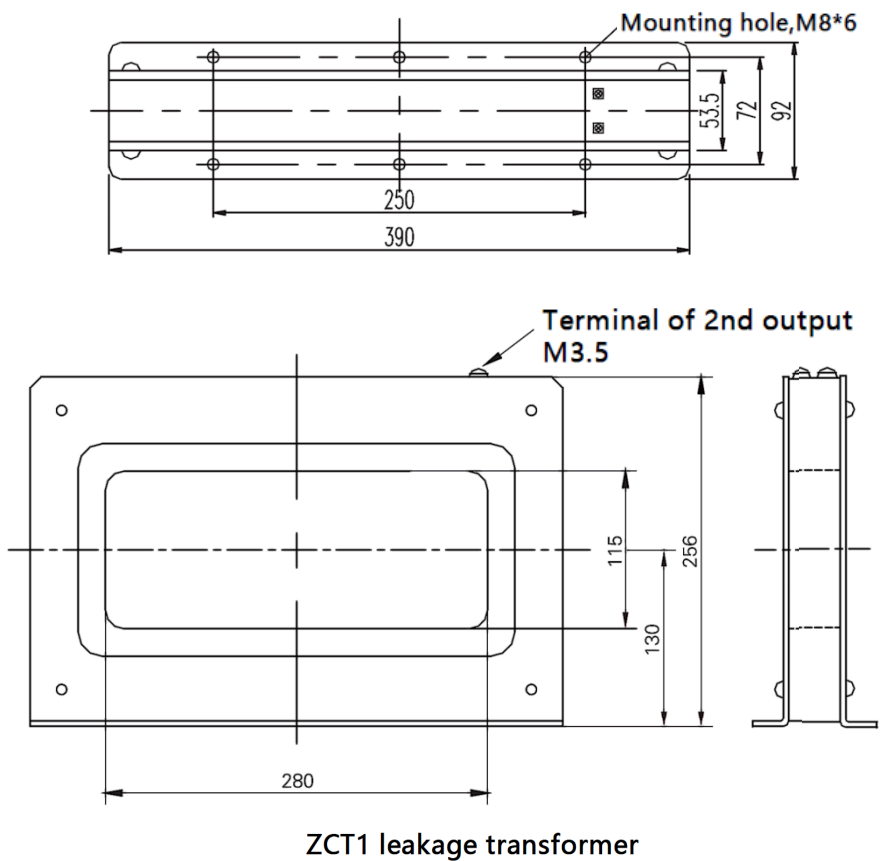
Electrical indicator device for draw-out seat position

When the main body of the draw-out ACB and the draw-out seat are in the "separation", "test", and "connection" positions, the electrical indicator devices at these positions can output electrical signals corresponding to these positions, and the devices are installed inside the drawer cabinet.

Characteristic

Rated working voltage Ue(V)	230
Conventional thermal current Ith(A)	10
Rated working current Ie(A)	1.5

the "separation", "test", and "connection" positions

Small chamber door Safety isolation barrier closed

Small chamber door Safety isolation barrier closed

Small chamber door Safety isolation barrier opened

The main circuit and auxiliary circuit are all disconnected, and the safety barrier is closed.

The main circuit is disconnected, the auxiliary circuit is connected, the safety barrier is closed, and necessary tests can be conducted.

Both the main circuit and auxiliary circuit are connected, and the safety barrier is opened

Connection,testing, and separation device of draw-out circuit breaker

ⓐ   ⓑ

◆a,Padlock device(user provided)
User can lock the "separation","test","connection" position

◆b,Interlocking and unlocking devices for circuit breaker separation, testing, and connection positions
The forward and backward handle can automatically find the locking position of "separation","test","connection",to avoid malfunctions caused by operators not operating the handle properly by hand.

◆Lock position release
After the red interlock device pops up, if you want to operate the handle again, you must first press the red interlock device

◆Interphase barriers
Vertically installed between the terminal blocks of the fixed part of the drawe-out circuit breaker, to strengthen the insulation strength of the busbar connection and prevent arc expansion into the interior of the circuit breaker.

◆Three locks and two keys
The three locks two keys mechanical interlocking is designed specifically for three non adjacent circuit breakers. When two circuit breakers need to be closed, first insert the key into the lock hole of the two circuit breakers, and press and hold the opening button to turn clockwise. At this time, the circuit breaker can be closed, but the key cannot be removed. If you want to remove the key, you need to open the circuit breaker, press and hold the open button, and turn the key counterclockwise to remove it. At this time, the circuit breaker will not be able to close.

◆a,Padlock device(user provided)
Interlocking of two flat circuit breakers with steel cables or interlocking of two stacked circuit breakers with connecting rods
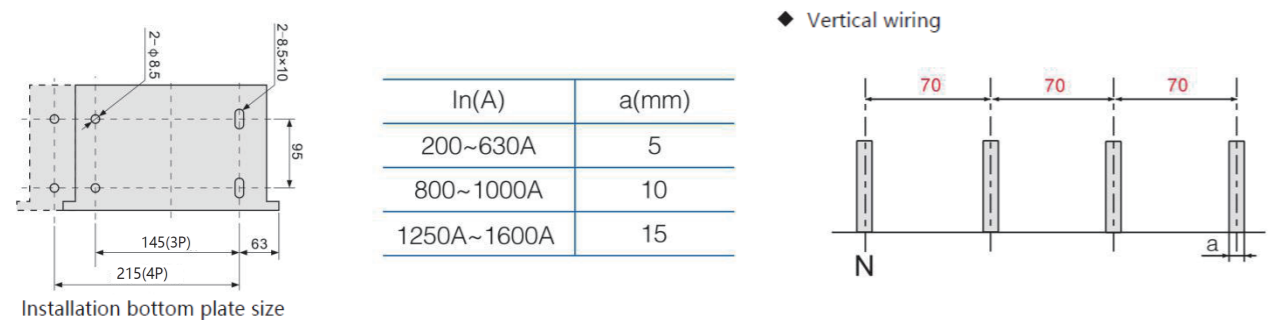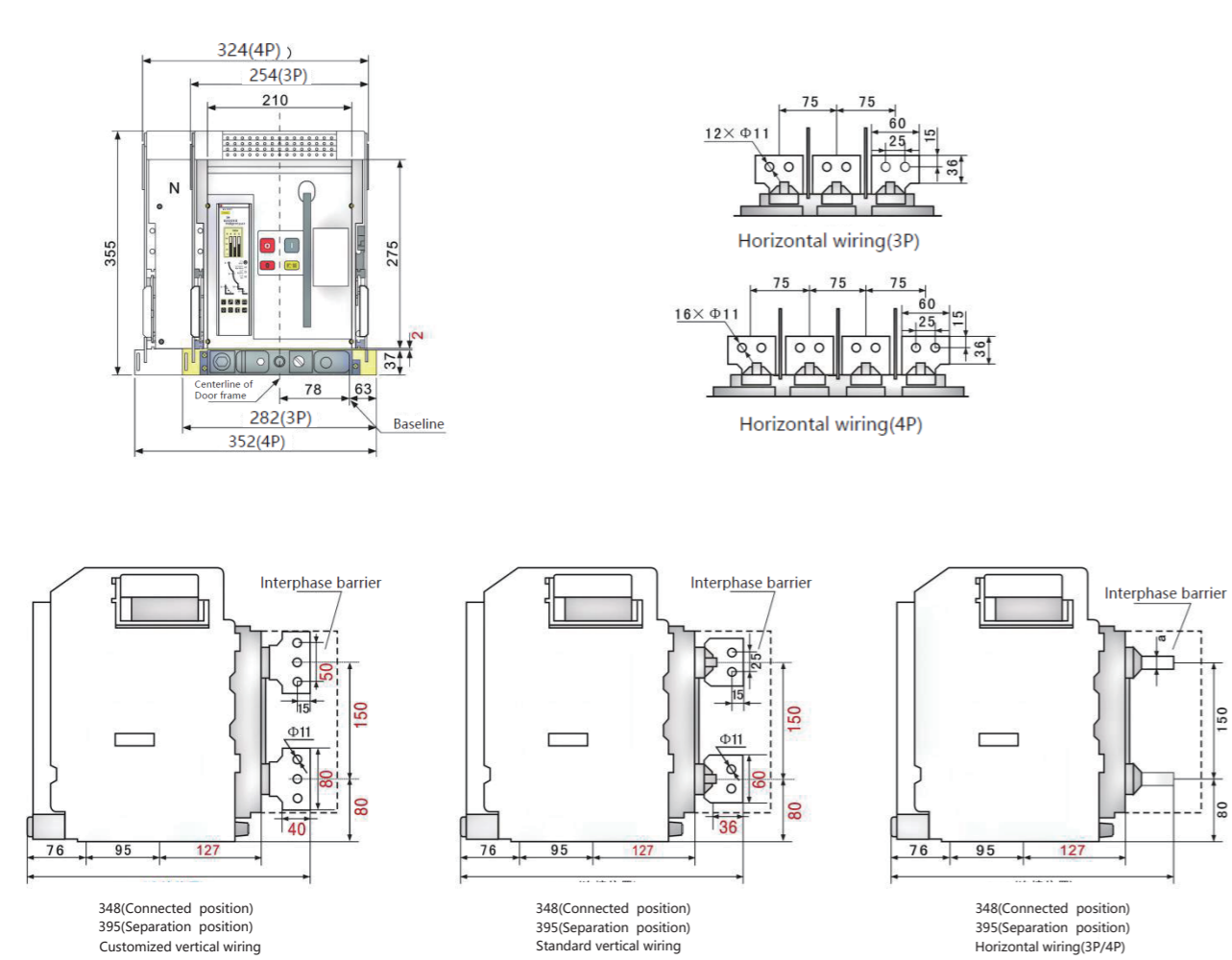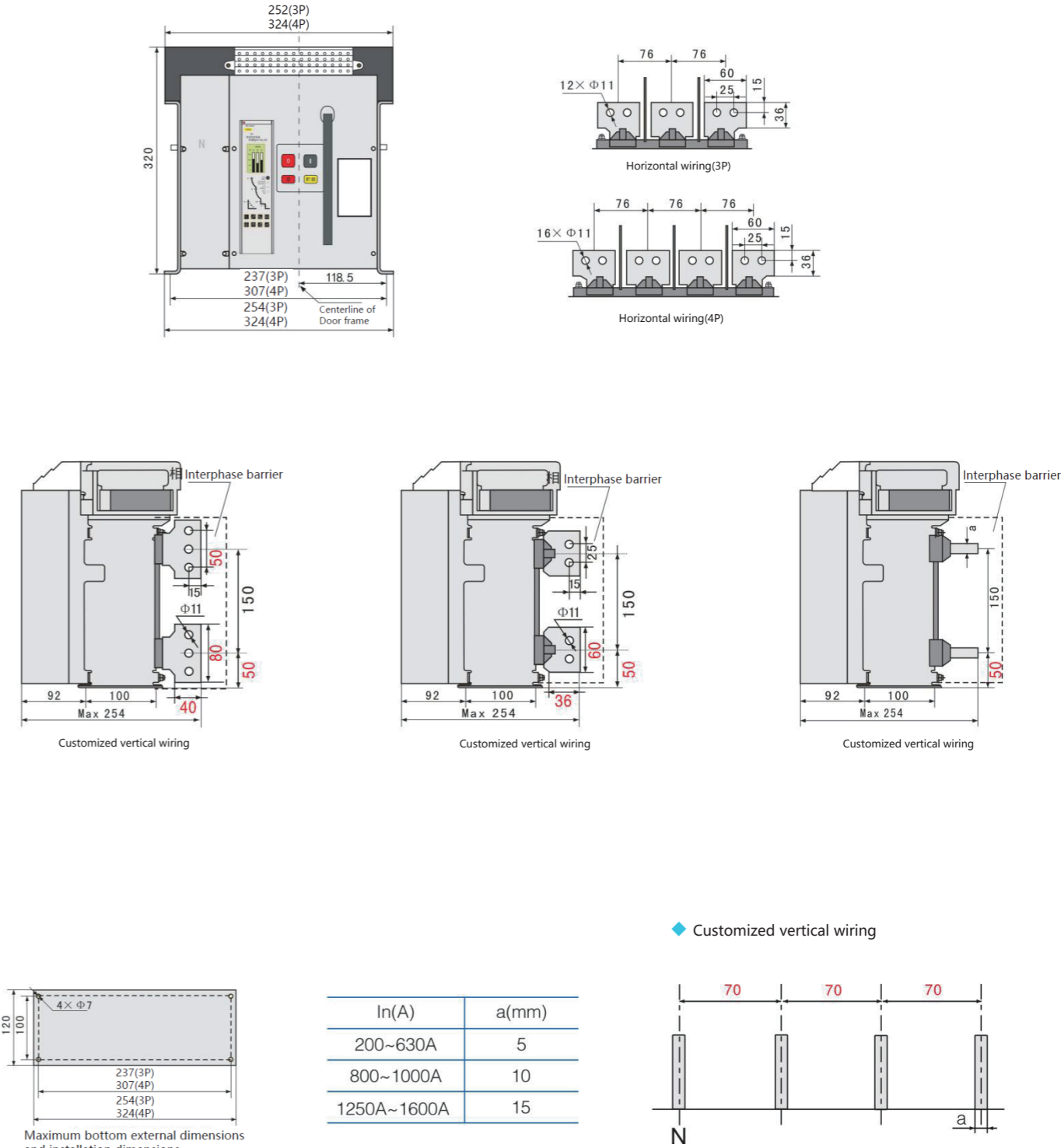
2m(max)

ACB1   ACB2
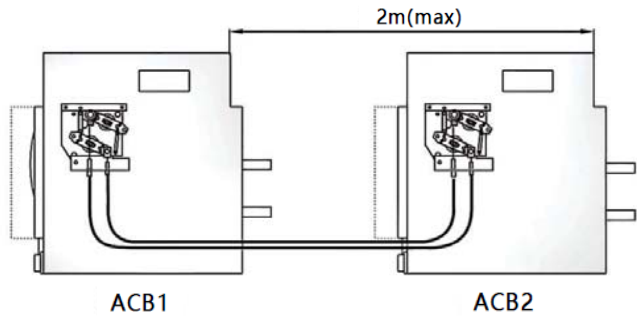
circuit diagram   Possible operating modes

	1QF	2QF
	0	0
	0	1
	1	0

1QF   2QF

TAW-1600 Outline and mounting dimensions

A
C
B

A
C
B

◆ TAW-1600/200A~ 1600A Draw-out type

324(4P)
254(3P)
210
355
N
275
37
2
Centerline of Door frame
78 63
282(3P)
352(4P)
Baseline

12× Φ11
75 75
60
25
15
36
Horizontal wiring(3P)

16× Φ11
75 75 75
60
25
15
36
Horizontal wiring(4P)

Interphase barrier
50
15
Φ11
80
60
40
150
80
76 95 127
348(Connected position)
395(Separation position)
Customized vertical wiring

Interphase barrier
25
15
Φ11
60
36
150
80
76 95 127
348(Connected position)
395(Separation position)
Standard vertical wiring

Interphase barrier
a
150
80
76 95 127
348(Connected position)
395(Separation position)
Horizontal wiring(3P/4P)

2-Φ8.5
2-8.5×10
95
145(3P) 63
215(4P)
Installation bottom plate size

◆ Vertical wiring

In(A)	a(mm)
200~630A	5
800~1000A	10
1250A~1600A	15

70 70 70
N
a

◆ TAW-1600/200A~ 1600A Fixed type

252(3P)
324(4P)
320
N
237(3P)
307(4P)
254(3P)
324(4P)
118.5
Centerline of Door frame

12× Φ11
76 76
60
25
15
36
Horizontal wiring(3P)

16× Φ11
76 76 76
60
25
15
36
Horizontal wiring(4P)

Interphase barrier
50
15
Φ11
80
50
40
150
92 100
Max 254
Customized vertical wiring

Interphase barrier
25
15
Φ11
60
50
36
150
92 100
Max 254
Customized vertical wiring

Interphase barrier
a
150
50
92 100
Max 254
Customized vertical wiring

4× Φ7
120
100
237(3P)
307(4P)
254(3P)
324(4P)
Maximum bottom external dimensions and installation dimensions

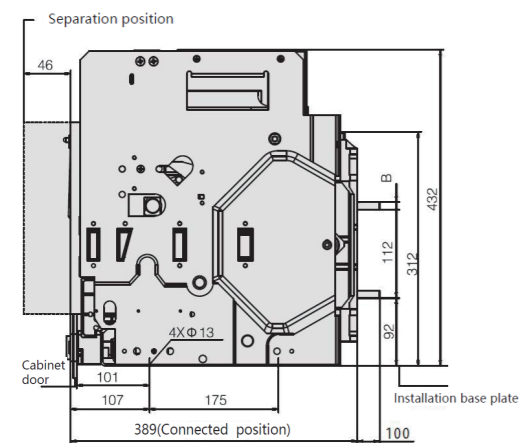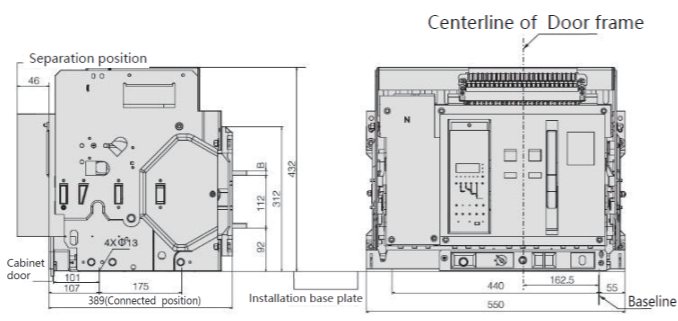| In(A)	a(mm)
200~630A	5
800~1000A	10
1250A~1600A	15

◆ Customized vertical wiring

70 70 70
N
a

TAW-2000 Outline and mounting dimensions

◆ TAW-2000/630A~ 2000A Draw-out type

TAW-2000 Draw-out ACB(3P)
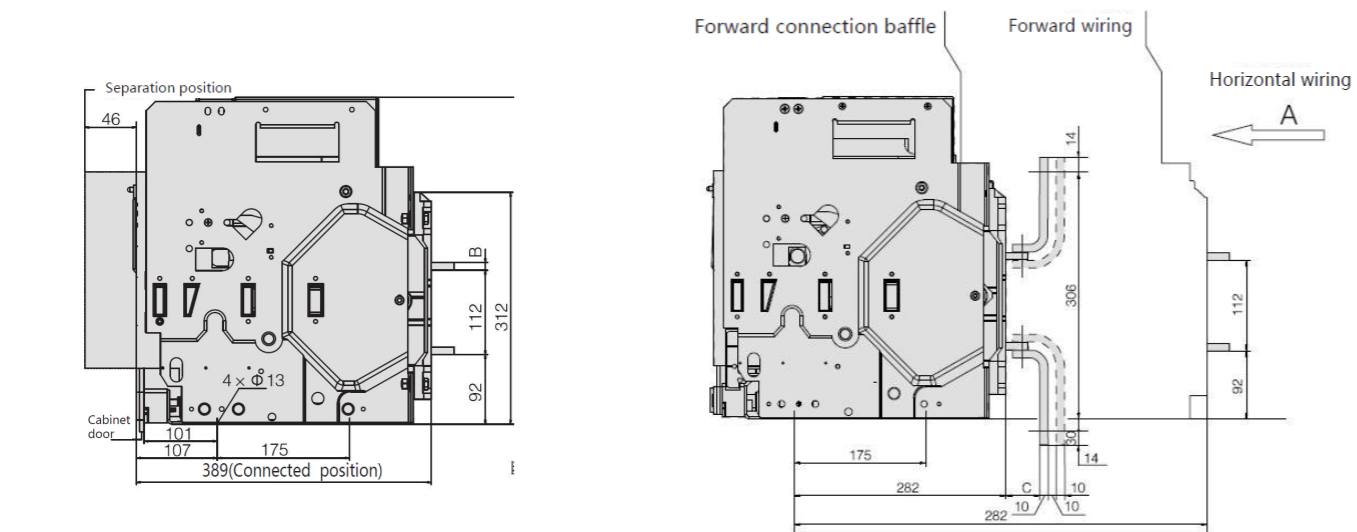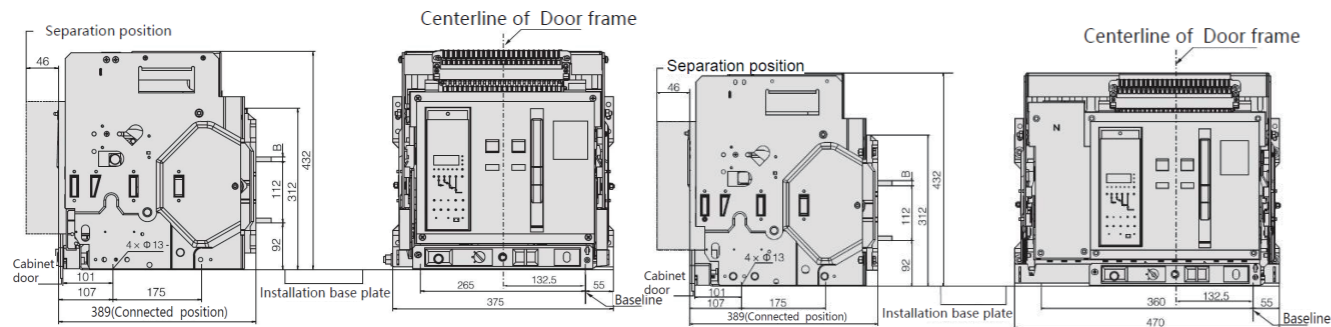
Separation position
Centerline of Door frame
Centerline of Door frame
Separation position
Cabinet door
Installation base plate
Baseline
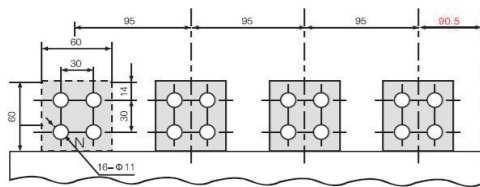
◆ Standard horizontal wiring

Rated current(A)	Forward wiring(mm)	
	Standard	Special
630~800	45	75
1000~1600	55	85
2000	65	95

Rated current(A)	Dimension(mm)
630~800	10
1000~1600	15
2000	20

Forward connection baffle   Forward wiring   Horizontal wiring
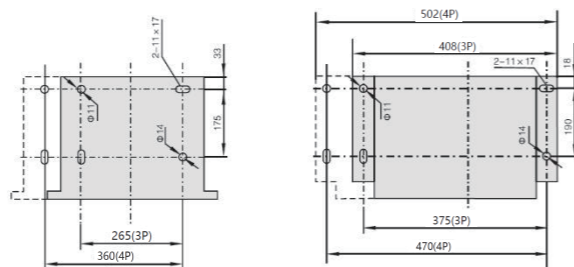
Internal installation dimensions   External installation dimensions

◆ TAW-2000/630A~ 2000A Fixed type

TAW-2000 Fixed ACB(3P)   TAW-2000 Fixed ACB(4P)
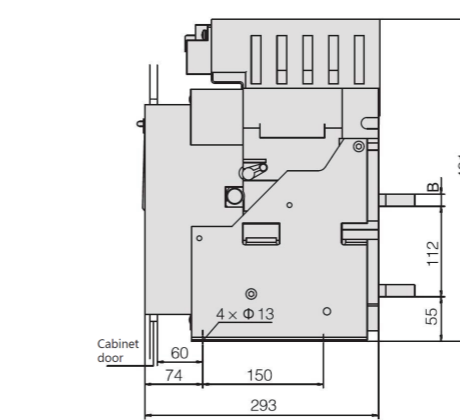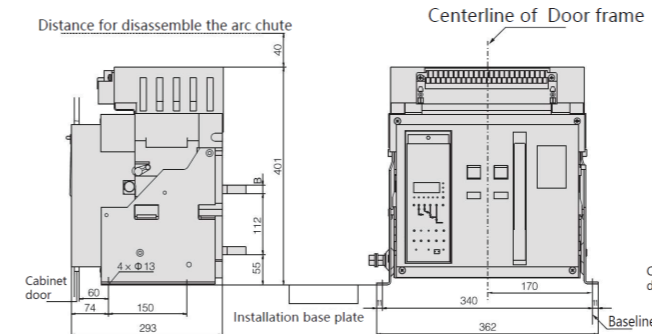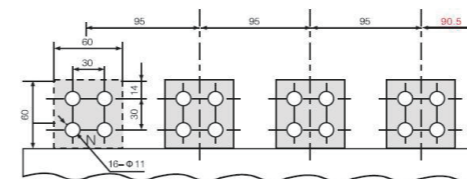
Distance for disassemble the arc chute   Centerline of Door frame
Distance for disassemble the arc chute   Centerline of Door frame
Cabinet door
Installation base plate
Baseline

◆ Standard horizontal wiring

Rated current(A)	Dimension(mm)
630~800	10
1000~1600	15
2000	20
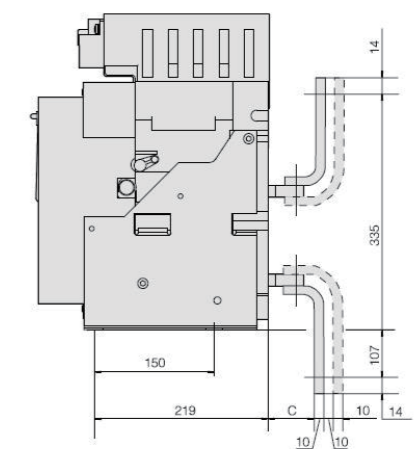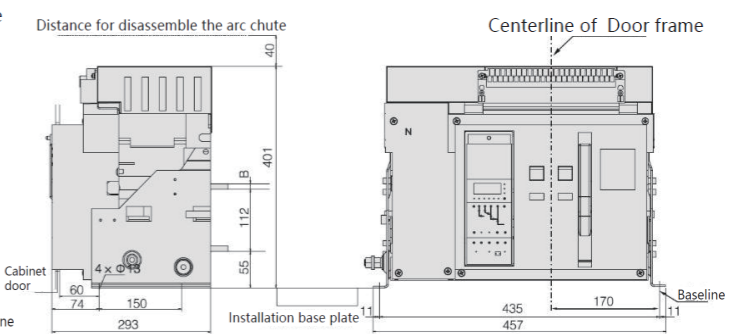
Rated current(A)	Forward wiring(mm)	
	Standard	Special
630~800	45	75
1000~1600	55	85
2000	65	95
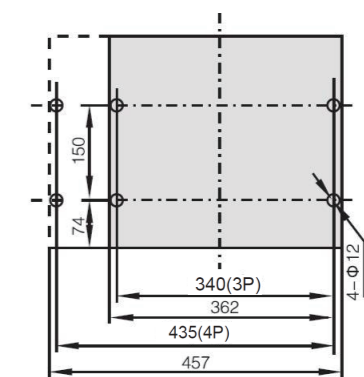
Installation dimensions

TAW-2500 Outline and mounting dimensions

◆ TAW-2500/630~2500A Draw-out type

TAW-2500 Draw-out ACB(3P)
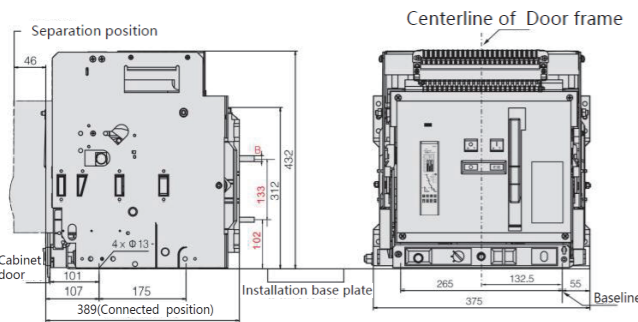
TAW-2500 Draw-out ACB(4P)
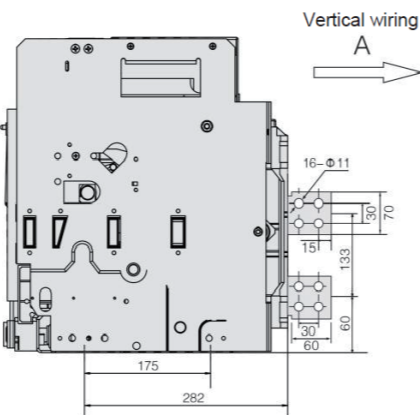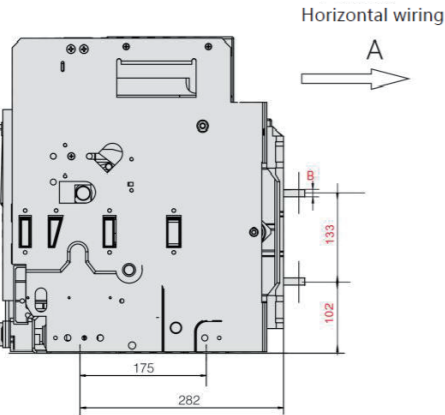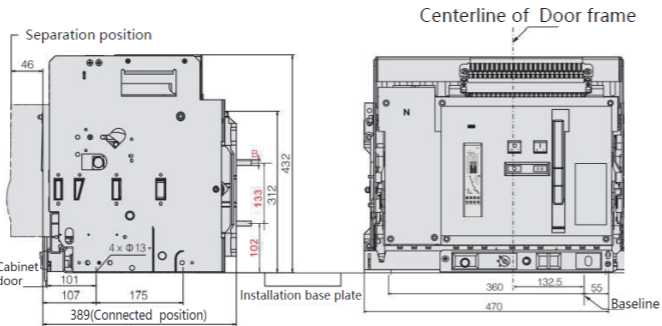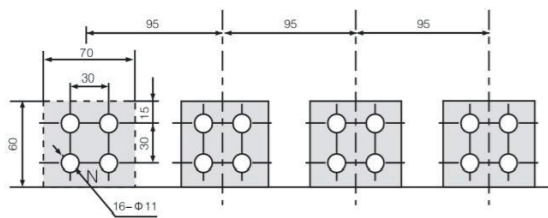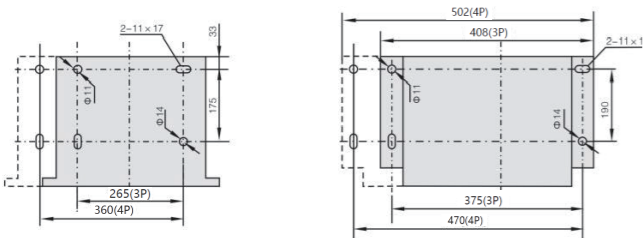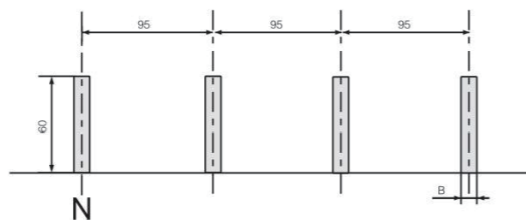
◆ TAW-2500/630~2500A Fixed type

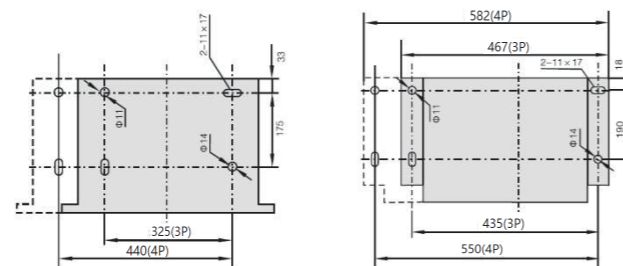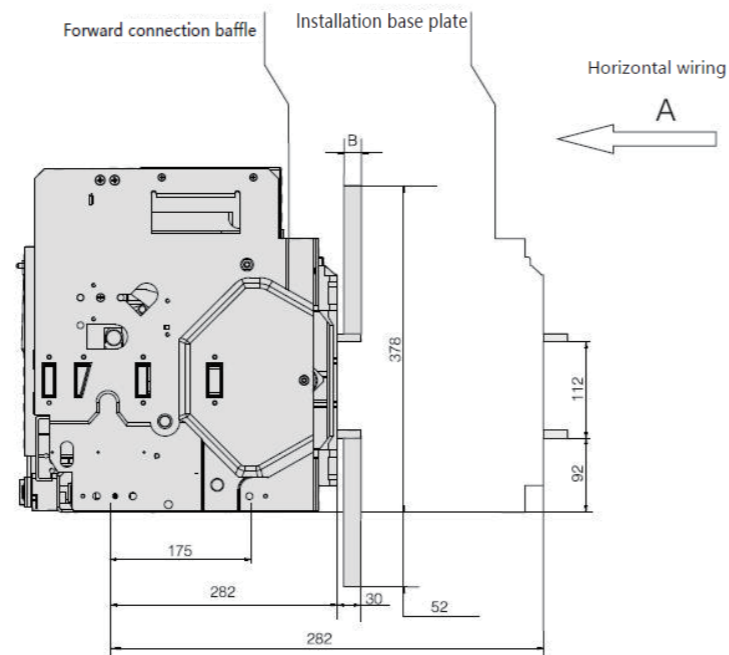TAW-2500 Fixed ACB(3P)
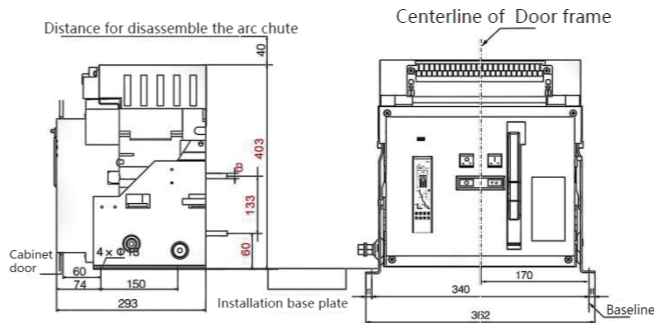
TAW-2500 Fixed ACB(4P)
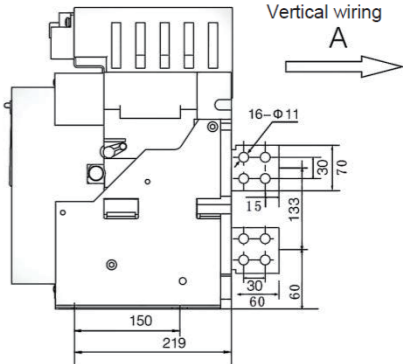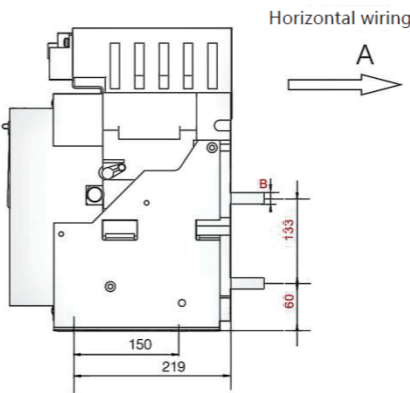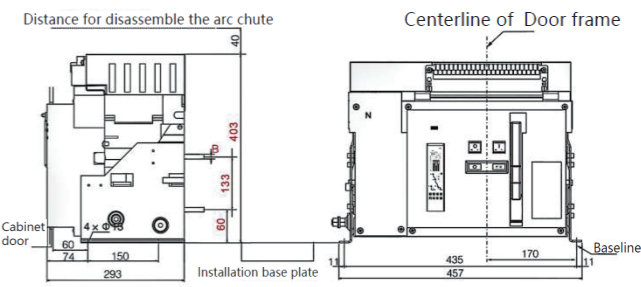
◆ Standard horizontal wiring
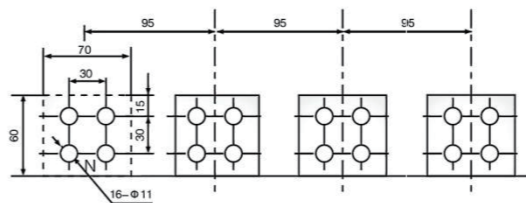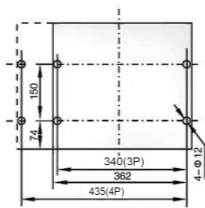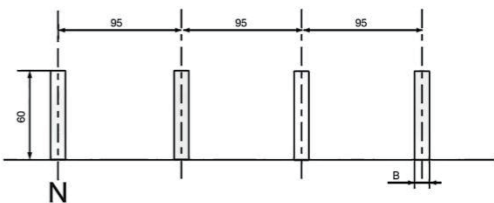
◆ Vertical wiring
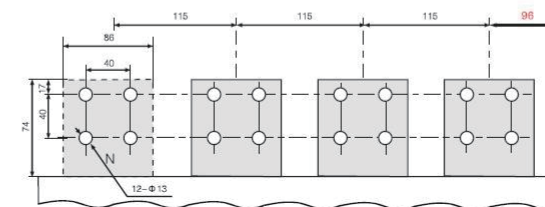
◆ Standard horizontal wiring

◆ Vertical wiring

Internal installation dimensions   External installation dimensions

Rated current(A)	Dimension(mm)
630~800	10
1000~1600	15
2000~2500	20

安装尺寸

Rated current(A)	Dimension(mm)
630~800	10
1000~1600	15
2000~2500	20

TAW-3200 Outline and mounting dimensions

◆ TAW-3200/2000A~ 3200A Draw-out type

TAW-3200 Draw-out ACB(3P)

TAW-3200 Draw-out ACB(4P)

◆ TAW-3200/2000A~ 3200A Fixed type

TAW-3200 Fixed ACB(3P)
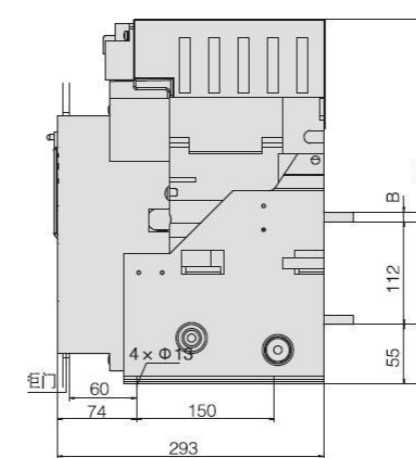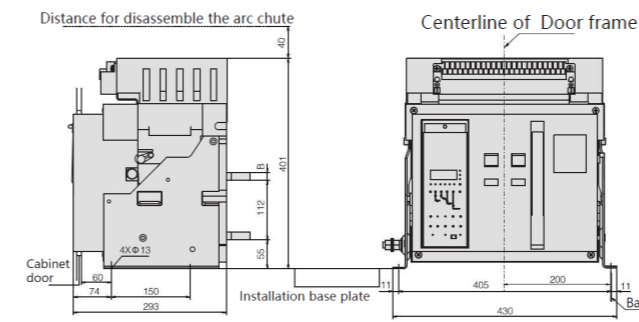
TAW-3200 Fixed ACB(4P)

◆Standard horizontal wiring

Rated current(A)	Dimensions(mm)
2000、2500	20
2900、3200	30

◆Standard horizontal wiring

Rated current(A)	Dimensions(mm)
2000、2500	20
2900、3200	30

Rated current(A)	Dimensions(mm)
2000、2500	20
2900、3200	30

Rated current(A)	Dimensions(mm)
2000、2500	20
2900、3200	30

Internal installation dimensions   External installation dimensions
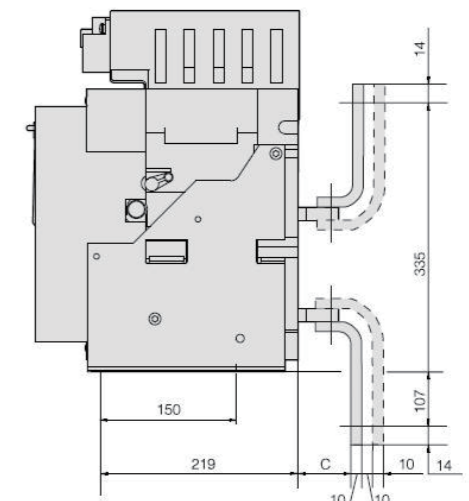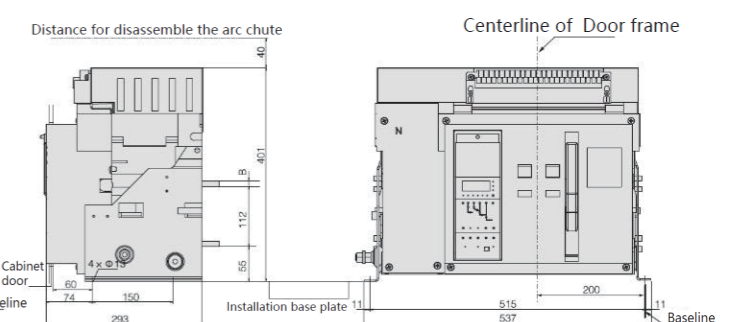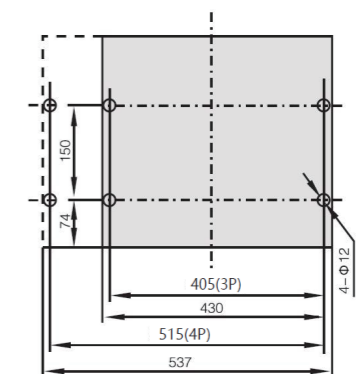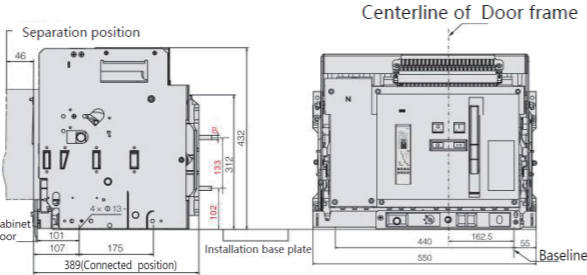
Installation dimensions

TAW-4000 Outline and mounting dimensions

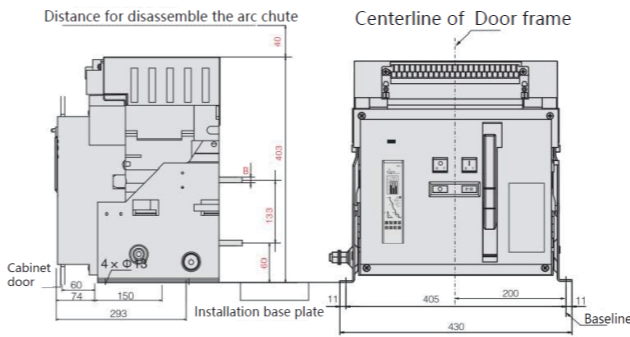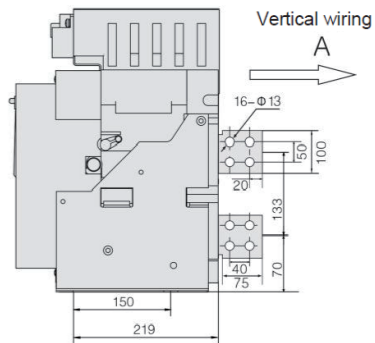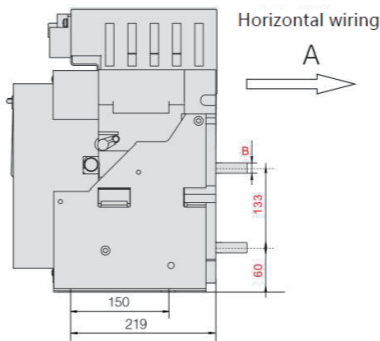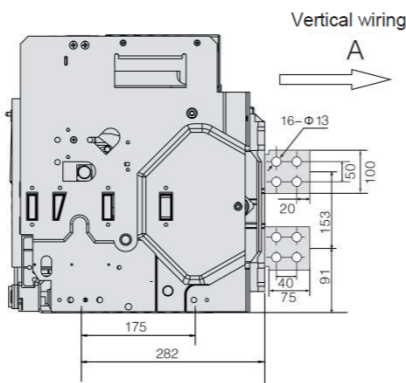◆ TAW-4000/2000A~ 4000A Draw-out type
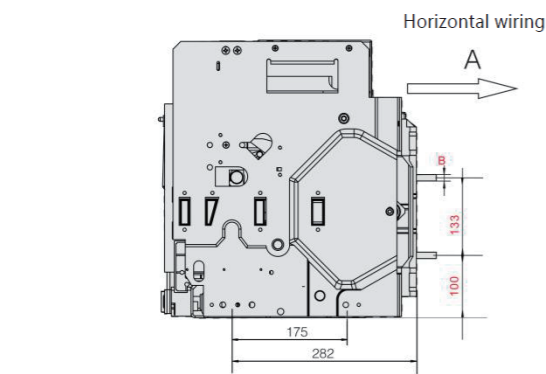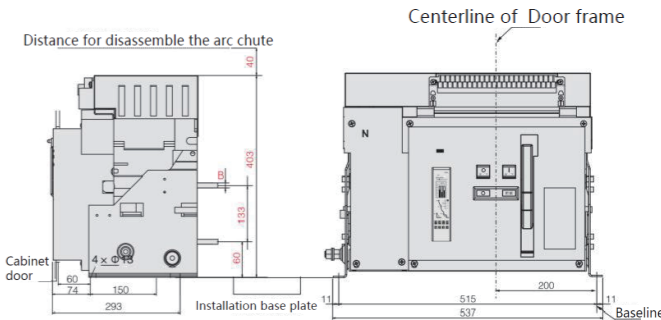
TAW-4000 Draw-out ACB(3P)
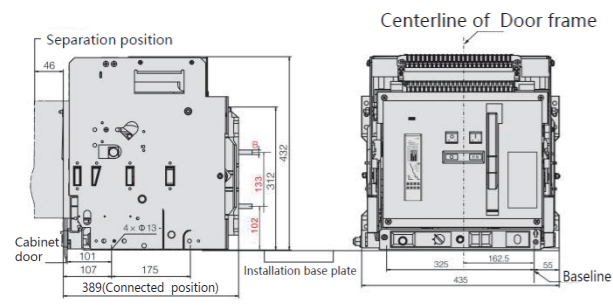
TAW-4000 Draw-out ACB(4P)

◆ TAW-4000/2000A~ 4000A Fixed type

TAW-4000 Fixed ACB(3P)

TAW-4000 Fixed ACB(4P)
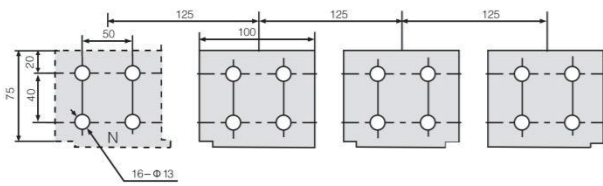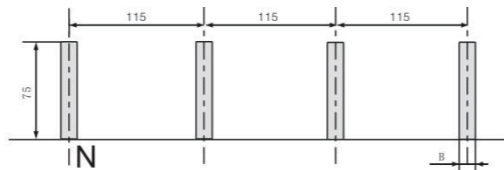
A
C
B

A
C
B

◆ Standard horizontal wiring

◆ Vertical wiring

◆ Standard horizontal wiring

◆ Vertical wiring

Internal installation dimensions

External installation dimensions

Rated current(A)	Dimensions(mm)
2000、2500	20
2900、3200 3600、4000	30
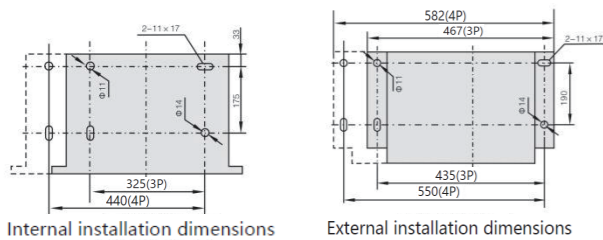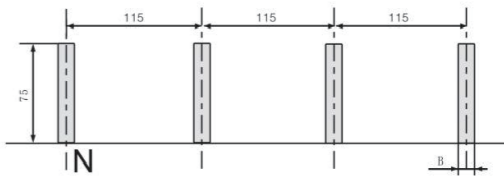
Installation dimensions
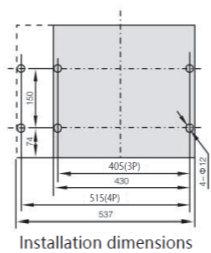
Rated current(A)	Dimensions(mm)
2000、2500	20
2900、3200 3600、4000	30

Door frame size and installation hole spacing

◆ TAW-1600（200A-1600A 3P/4P）

Fixed ACB

Draw-out ACB

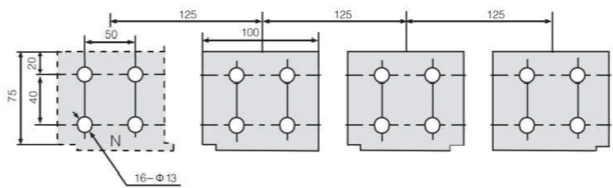Bottom surface of circuit breaker installation
Center of installation hole on the right side of ACB

Bottom surface of circuit breaker installation
Center of installation hole on the right side of ACB

◆ TAW-2000/2500（630A-2500A 3P/4P）

Fixed ACB

Draw-out ACB

The rightmost side of ACB mounting plate

The rightmost side of ACB mounting plate

Bottom surface of ACB installation

Bottom surface of ACB installation
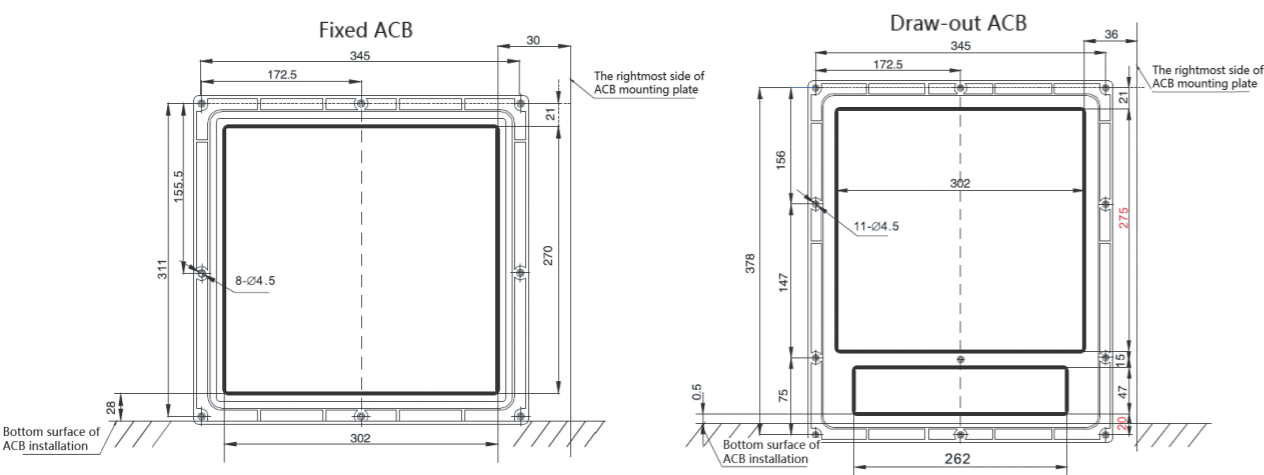
◆ TAW-3200/4000（2000A-4000A 3P/4P）

Fixed ACB

Draw-out ACB

The rightmost side of ACB mounting plate

The rightmost side of ACB mounting plate

Bottom surface of ACB installation

Bottom surface of ACB installation
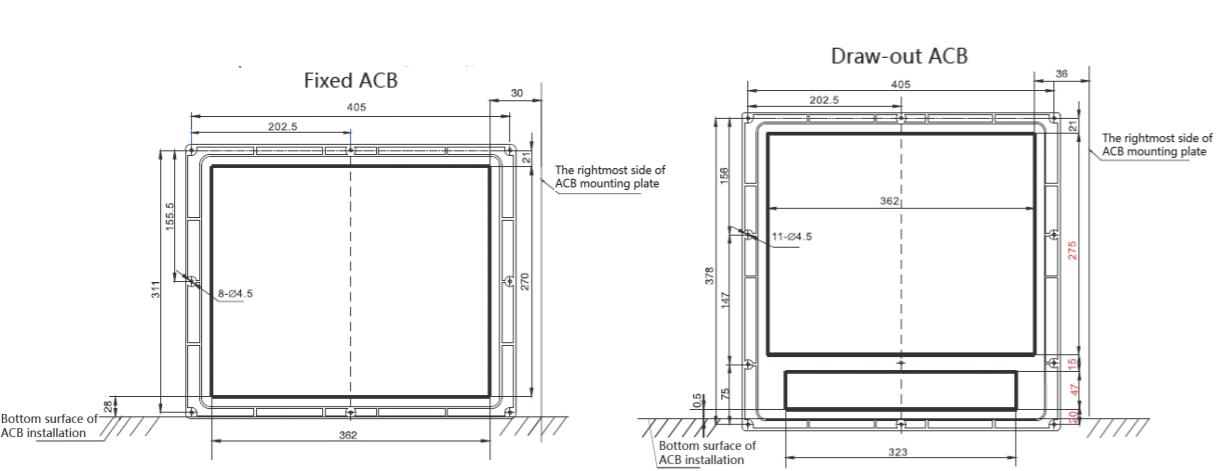
Electrical drawings

◆ TAW Electrical diagram(M/3M controller unit)
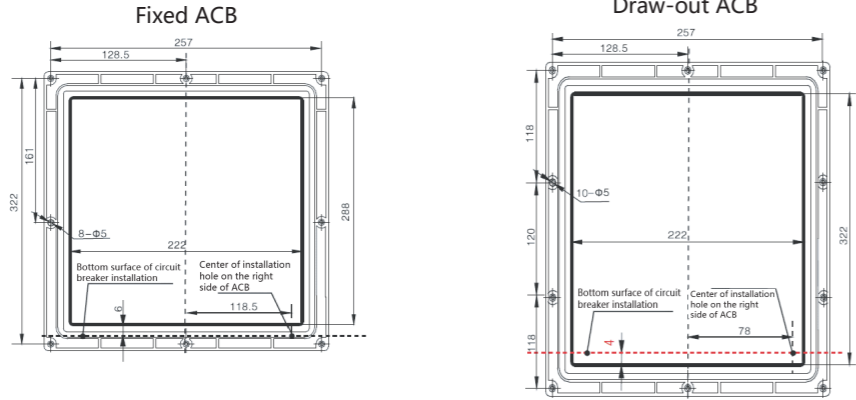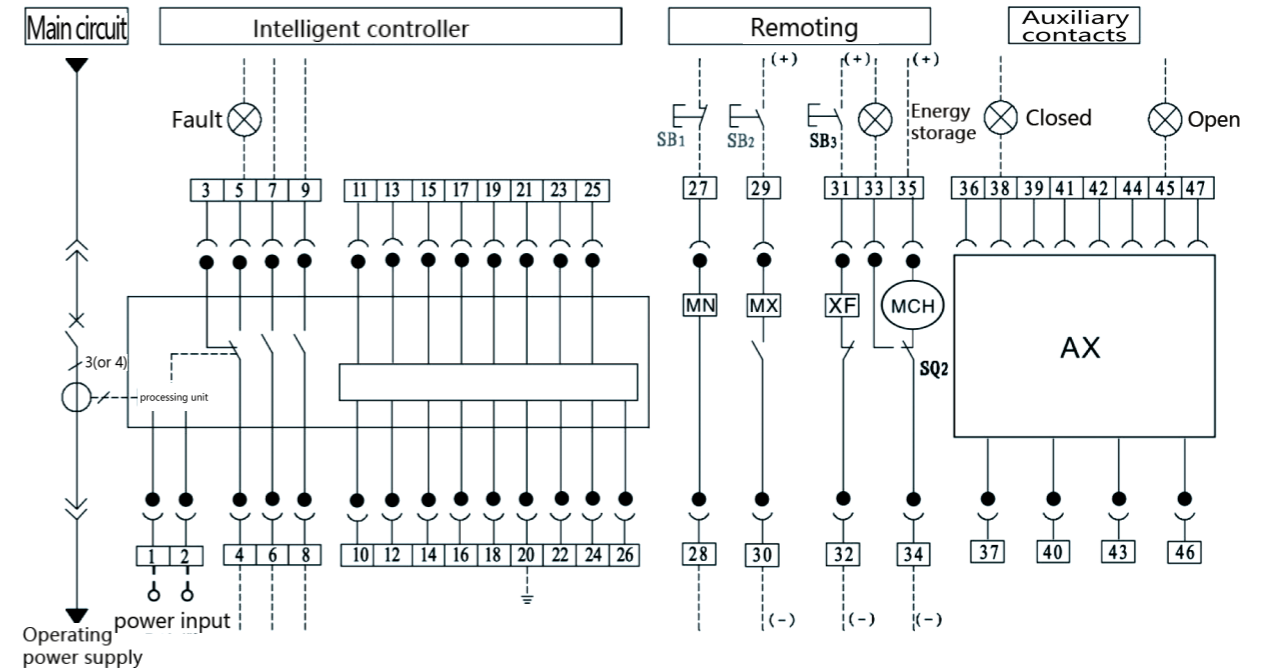
Main circuit | Intelligent controller | Remoting | Auxiliary contacts

Fault
Energy storage
Closed
Open

3(or 4)

processing unit

AX

Operating power supply
power input
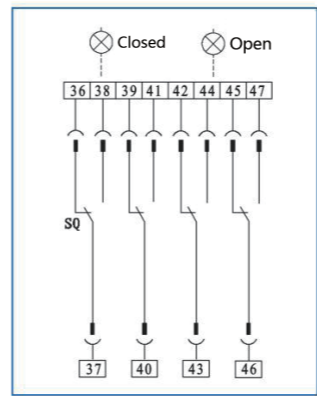
SB1 Undervoltage button
SB2 Shunt button
SB3 Closing button

MN Undervoltage, voltage loss instantaneous or delayed release device
XF Closed electromagnet
MX Shunt release

MCH Motor driven Operating Mechanism
AX Auxiliary contacts
SQ2 Motor micro switch

Notes:
(1) If the control power supply voltage of MX, XF, and MCH is different, they can be connected to different power sources separately. MX and XF belong to short-term working components, with power on time(50ms+-10ms)
(2) Terminal 35 # can be directly connected to the power supply or connected to the power supply after connecting the normally open button in series.
(3) User provided Button, indicator light.
(4) When the working power of the intelligent controller is AC power, there is no need for a power module, and terminals 1 # and 2 # can be directly connected to the power supply.
(5) The position indicator contacts are optional for users.

The type of Auxiliary contacts

Ⅰ、Four contacts(default configuration)

Closed   Open

Ⅱ、Six contacts

Closed   Open

Ⅲ、4NO4NC

Closed   Open

A C B (left side margin)

Main circuit | Intelligent controller | Emergency open | Electric open | Electric closing | Energy storage indication | Auxiliary contacts

L1
N
PE
Fu

ST–DP Device

HL3

Fault indication | Closed indication | Modbus–RTU

SB1 SB2 SB3

Open Closed

HL1 HL2

Green
3 5 7 9 11 13 15 17 19   Un U2 21 23   25 27 29 31 33 35 37 39 41 43 45 47

Intelligent controller

MN MX XF   MCH

AX

TA

1 2 4 6 8 10 12 14 16 18 20 22 24   26 28 30 32 34 36 38 40 42 44 46
Red   U1 U3

No power module required for AC220V, AC230V,AC380V, AC400V

+ − DC24V

SB1 Undervoltage button
SB2 Shunt button
SB3 Closing button

MN Undervoltage, voltage loss instantaneous or delayed release device
XF Closed electromagnet
MX Shunt release

MCH Motor driven Operating Mechanism
AX Auxiliary contacts

Power input terminal is 1#&2#.When DC is applied, 1 # is the positive pole.
3 #, 4 #, and 5 # are the contact outputs of fault trip. Contact capacity is AC380V,5A.
6#,7#,8#,9# are the auxiliary contacts for the two sets of states of ACB. Contact capacity is AC380V,5A.
10#,11# are communication outgoing lines of RS485A&RS485B.
12#,13#(Contact 1,the alarm for load 1),and 14#,15#(Contact 2,the alarm for load 2),and 16#,17#(Contact 3,remote control opening),and
18#,19#(Contact 4,remote control closing)--Four sets of signal contact outputs of the controller. Contact capacity is 5A/
AC240VAC,7A/24VDC.
20#:Ground wire protection
21#~24#:Voltage signal input terminal, 21# is N-phase voltage input,22# is A-phase voltage input,23# is B-phase voltage input,24# is C-phase voltage input.
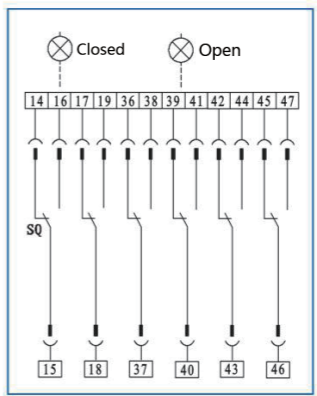25#&26#： External transformer input terminal

Notes:(1)If the control power supply voltage of MX, XF, and MCH is different, they can be connected to different power sources
separately. MX and XF belong to short-term working components, with power on time(50ms+-10ms
(2)Terminal 35 # can be directly connected to the power supply or connected to the power supply after connecting the
normally open button in series.
(3)User provided Button, indicator light.
(4)21#,22#,23#,24#: Input voltage not exceeding 440V.
(5)When the working power of the intelligent controller is AC power, there is no need for a power module, and terminals 1 #
and 2 # can be directly connected to the power supply.
(6)The position indicator contacts are optional for users.
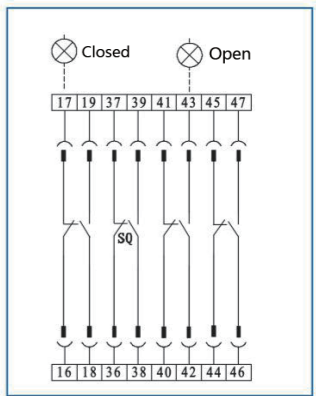
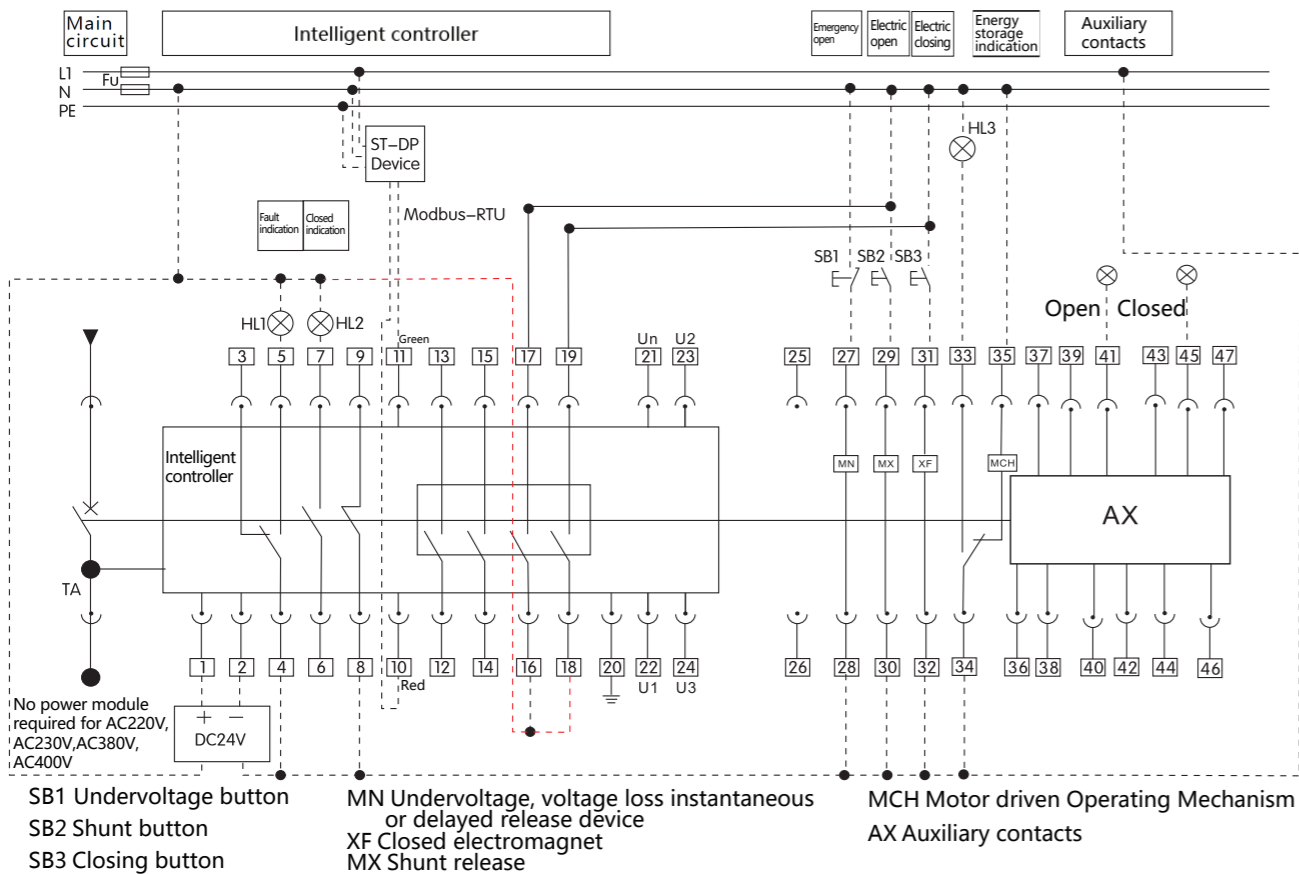The type of Auxiliary contacts

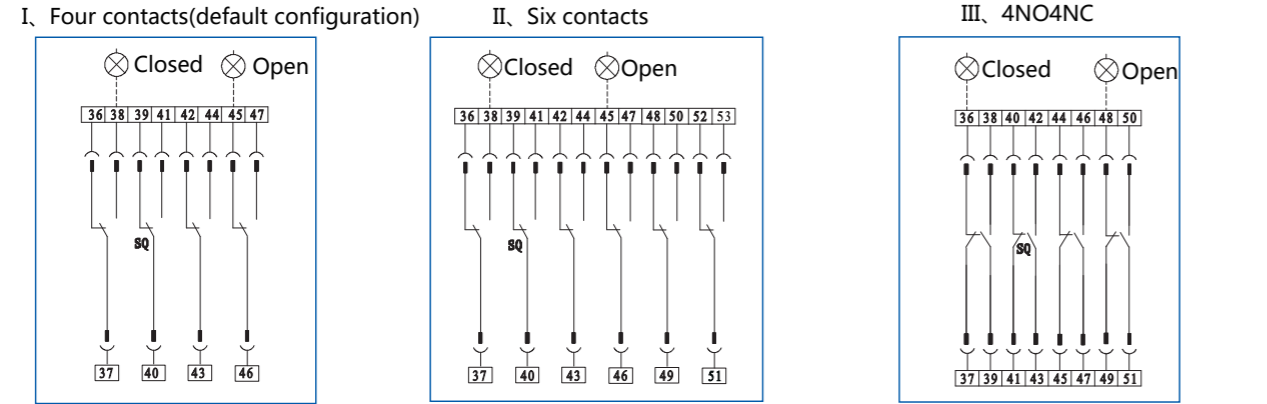I、Four contacts(default configuration)   II、Six contacts   III、4NO4NC

Closed Open   Closed Open   Closed Open

36 38 39 41 42 44 45 47   36 38 39 41 42 44 45 47 48 50 52 53   36 38 40 42 44 46 48 50

SQ   SQ   (SQ)

37 40 43 46   37 40 43 46 49 51   37 39 41 43 45 47 49 51

To ensure the safety of your personal and electrical equipment, before putting ACB into operation, users must ensure that:
◆The user must carefully read manual of ACB before installation and use.
◆ACB must be used under normal working conditions.
◆Before installation, check whether the specifications of ACB meet the usage requirements.
◆Before installation, measure the insulation resistance of ACB with a 500V megger , the insulation resistance should not be less than 20 ℃± 5 ℃ in the surrounding air temperature and 50%~70% relative humidity 500 M Ω, otherwise it should be dried and used only after the insulation resistance meets the requirements.
◆When installing ACB,its installation surface should be in a horizontal position and fixed with M10 bolts.
◆During installation, please be careful not to let conductive foreign objects fall into ACB.
◆During installation, the conductive busbar connected to ACB should be flat and free from additional mechanical stress.
◆During installation, ACB must be reliably protected and grounded, with clear grounding symbols at the grounding point.
◆After the installation of ACB, the following operational tests must be carried out before the main circuit is powered on to ensure that everything is normal before it can be officially powered on.
◆ It is necessary to carefully check for any foreign objects falling into ACB. If any are found, they must be thoroughly removed and ACB must be kept clean.
◆Connect the secondary circuit according to the relevant wiring diagram, and check the working voltage and reality of the shunt release, closing electromagnet, electric operating mechanism, intelligent controller, etc
Check if the voltage of the power supply matches, and then power on the secondary circuit.
◆After the energy storage motor drives the mechanism to store energy, press the closing button (electric or manual) to close ACB.
◆Press the open button (electric or manual) to open ACB.
◆ Use the intelligent controller to test the function of reliably opening ACB, After the test is completed, press the "RESET" reset button.
◆When manually storing energy, the handle on the front panel should be pulled up and down, and after seven actions, the panel will display "energy storage". And with a click, the energy storage ends.
ACB can only be put into operation after it has been proven to operate normally through the above steps of testing!!!

◆During use, each rotating part should be regularly injected with lubricating oil.
◆Dust should be regularly brushed to maintain good insulation of ACB.
◆The contact system should be regularly checked, especially after each short-circuit current break.
◆ Inspection content:
Whether the arc extinguishing cover is intact;
Whether the contact points are in good condition;
Are the fasteners at each connection loose.