BREAKERS

TIPO V-YCW1

V-YCW1 Air Circuit Breaker

1. General

V-YCW1 series intelligent air circuit breakers(hereinafter called ACB)are applied for the network circuit of AC 60Hz,rated voltage 400V,690V and rated current between 630A and 6300A.Mainly used for distributing energy and protecting the circuit and power supply device against short-circuit,undervoltage,single-phase ground fault,etc.The ACB has intelligent protection function and the key parts adopt intelligent release.The release can make the accurate selective protection,which can avoid cutting off the power and improve the reliability of power supply.

The products conform with IEC60947-1,IEC60947-2 standards.

2. Type designation

V-YCW1- 2000 / 3 + Installation + Control unit +Common use accessory + Optional accessory

Rated current in scope of frame current	Pole number	Installation	Control unit	Common use accessory	Optional accessory
2000 Type-In: 630A,800A, 1000A,1250A, 1600A,2000A; 3200 Type-In: 2000A,2500A, 3200A; 6300 Type-In: 4000A,5000A, 6300A;	3-default 4-4 pole	Fixed type-horizontal, vertical Draw out type-horizontal, vertical Note:2000 type have vertical wiring, others are horizontal wiring	L type-protection of overload long time-delay,short circuit short time-delay,short circuit instantaneous and function of current flash columns instruction. M type- protection of overload long time-delay,short circuit short time-delay,short circuit instantaneous, earth fault and function of digital current display,and self-diagnosis,fault memory. H type- protection of overload long time-delay,short circuit short time-delay,short circuit instantaneous, earth fault and function of digital current display,and self-diagnosis, fault memory and load monitoring (communication)	Shunt release-AC230V,AC400V,DC220V Undervoltage release-AC230V,AC400V, undervoltage instantaneous, undervoltage time-delay Release (close) magnetic iron-AC230V, AC400V,DC220V Electric operation mechanism-AC230V, AC400V,DC110V,DC220V Auxiliary switch-standard type (4a4b), special type (5a5b,6a6b) Note:a-normal open, b-normal close	Mechanical inter-lock: one circuit breaker (1lock+1key) two circuit breakers (steel cable inter-lock, connecting rod inter-lock,2 locks+1key) three circuit breakers (3locks+2keys, connecting rod inter lock) Automatic power transfer system Current transformer connected with neutral lead

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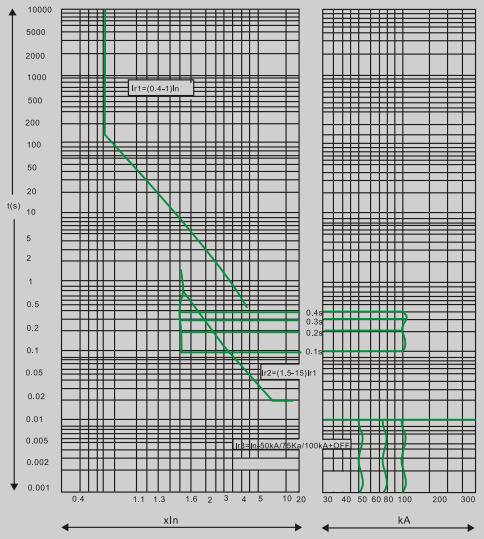
3. Operation Conditions

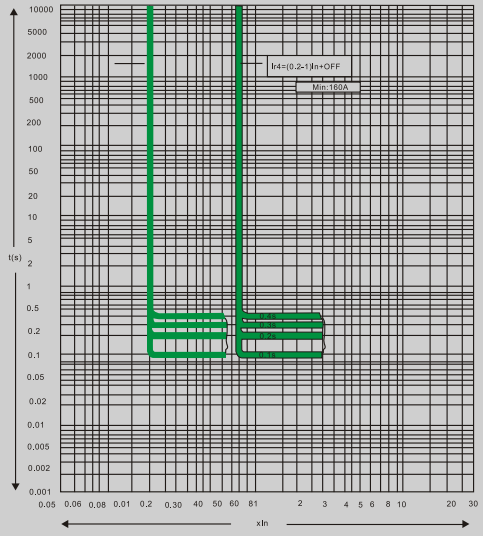
Item	Description
Ambient temperature	-5℃~+40℃(except special order products)
Altitude	≤2000m
Pollution grade	3
Safety category	Main circuit and undervoltage tripping coil is Ⅳ,other auxiliary and control circuit is Ⅲ
Installation position	Vertical installed,tilt not exceed 5 degree
Environmental protection	Most of parts use recyclable and degradable materials
Isolating function	With isolating function

4. Specifications

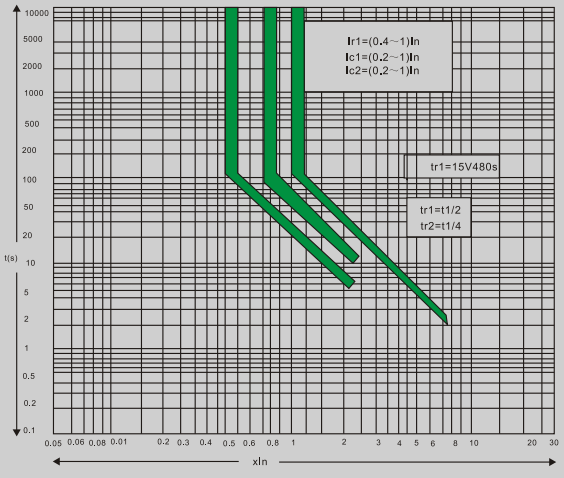
Curves



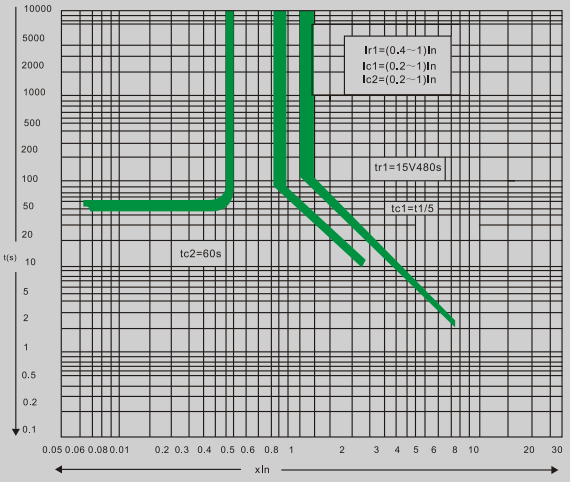
V-YCW1-2000～6300 Over current release time/current characteristic curve



V-YCW1-2000～6300 Earth fault protection time/current characteristic curve



V-YCW1-Load monitoring (1) time/current characteristic curve



V-YCW1-Load monitoring (2) time/current characteristic curve

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4.1 Data

Type			V-YCW1-2000	V-YCW1-3200	V-YCW1-6300
Pole			3P,4P	3P,4P	3P,4P
Using category			B	B	B
Rated current In		A	630,800,1000,1250,1600,2000	2000,2500,3000	4000,5000,6300
Rated frequency	AC	Hz	50	50	50
Rated operation voltage Ue		V	400,690	400,690	400,690
Rated insulation voltage Ui		V	800	800	800
Arcing distance		mm	0	0	0
Rated impulse withstanding voltage Uimp		V	8000	8000	8000
Rated operation short circuit breaking capacity Ics(O-t-CO-t-CO)	400V	kA	50	80	100
	690V	kA	40	50	75
Rated limiting short circuit breaking capacity Icu(O-t-CO)	400V	kA	80	100	120
	690V	kA	50	65	85
Rated short circuit closing capacity Icm	400V	kA	176	220	264
	690V	kA	105	143	187
Rated short time withstanding current Icw (O-t-CO,AC400V 0.4S)	400V	kA	50	65	85
Operation life	Per hour	Times	20	20	10
	Electrical	Times	1000	500	500
	Mechanical	Times	10000	5000	5000
Full breaking time		ms	20~30	20~30	20~30
Full closing time		ms	55~70	55~70	55~70
Power consumption	3P	W	360	1200	2000
	4P	W	450	1750	2300
Resistance of each pole	Fixed type	μ Ω	11	9	-
	Draw out type	μ Ω	20	14	10
Dimensions (LxWxH)	3P fixed type	mm	362x323x402	422x323x402	
	3P draw out type	mm	375x461x452	435x471x452	
	4P fixed type	mm	457x323x402	537x323x402	
	4P draw out type	mm	470x461x452	550x471x452	
Approximate weight	3P fixed type	kg	41	55	
	3P draw out type	kg	71	95	245
	4P fixed type	kg	51.5	65	-
	4P draw out type	kg	86	115	260

4.2 Overload protection data

Overload protection		V-YCW1-2000~6300
Adjust scope Ir1		(0.4-1)In (pole difference 2%)
1.05 Ir1	h	⩾2h non-tripping
1.3 Ir1	h	⩽1h tripping
Delay time tr1 when current is 2.0In	s	3.32,5.32,8.00,13.3,20,26.6,33.3,45,60,93.3,133,200,266,333,400,433
Delay time tr1 when current is 3.0In	s	1.25,2,3,5,7.5,10,12.5,16.8,22.5,35,50,75,100,125,150,162
Accuracy	%	±10

Short circuit, short time delay		
Adjust scope Ir1 Ir2		(0.4-15)In (pole difference 2%)
Delay time tr2	ms	100,200,300,400
Accuracy	%	±10

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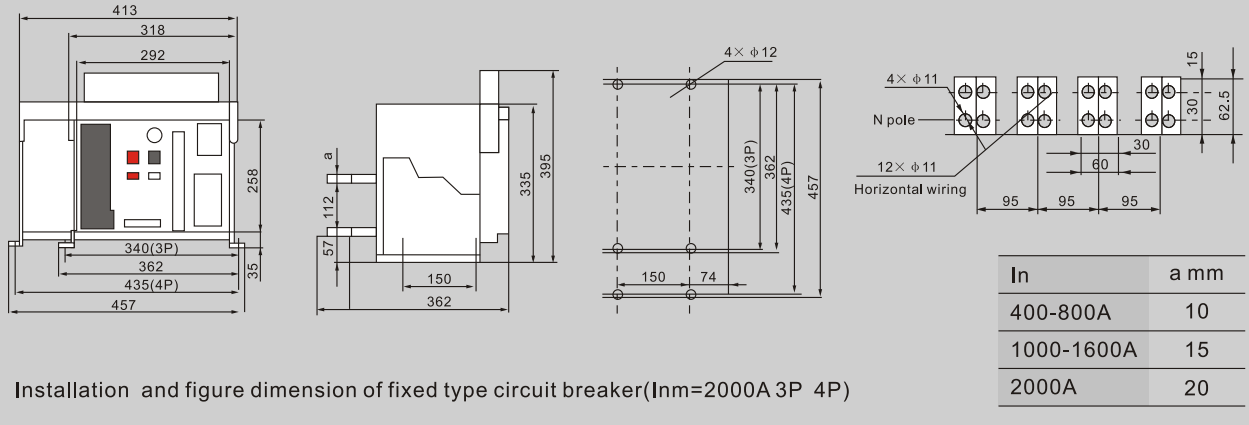
Short circuit, instantaneous				
		V-YCW1-2000	V-YCW1-3200	V-YCW1-6300
Adjust scope Ir1 Ir3		1In-50kA	1In-75kA	1In-100kA
Accuracy	%	±15	±15	±15

Grand fault protection		
Adjust scope Ir1 Ir4		(0.2-0.8) In (max. 1200A, min. 160A)
Delay time tr4	ms	100,200,300,400
Accuracy	%	±10

Load monitoring output		
Load adjust scope Ic1		(0.2-1) In (pole difference 2%)
Delay time tc1		tr1X0.5
Load adjust scope Ic2		(0.2-1) In (pole difference 2%)
Delay time tc2		tr1X0.25 (anti- time limit)
Accuracy	s	60 (set time limit)
	%	±10

5. Overall and mounting dimensions(mm)

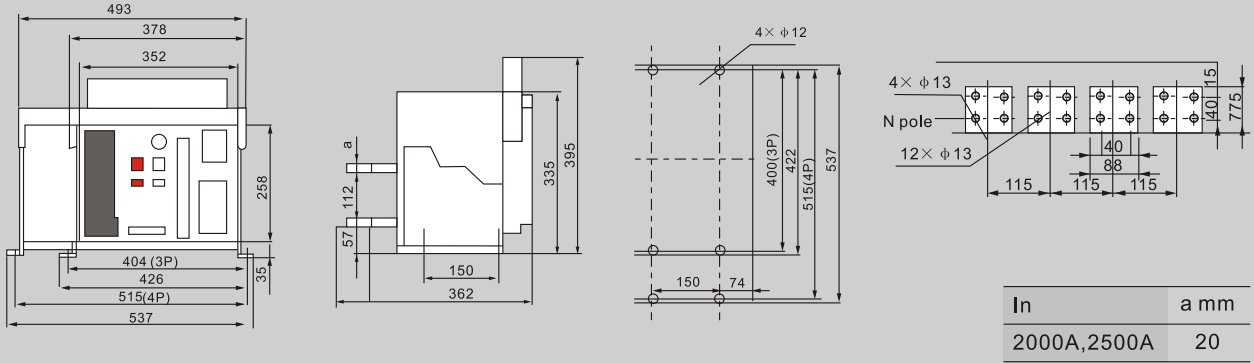
Installation and figure dimension of V-YCW1-2000A fixed type circuit breaker



In	a mm
400-800A	10
1000-1600A	15
2000A	20

Installation and figure dimension of fixed type circuit breaker(Inm=2000A 3P 4P)

Installation and figure dimension of V-YCW1-3200A fixed type circuit breaker



In	a mm
2000A,2500A	20
2900A,3200A	30

Installation and figure dimension of fixed type circuit breaker(Inm=3200A 3P 4P)

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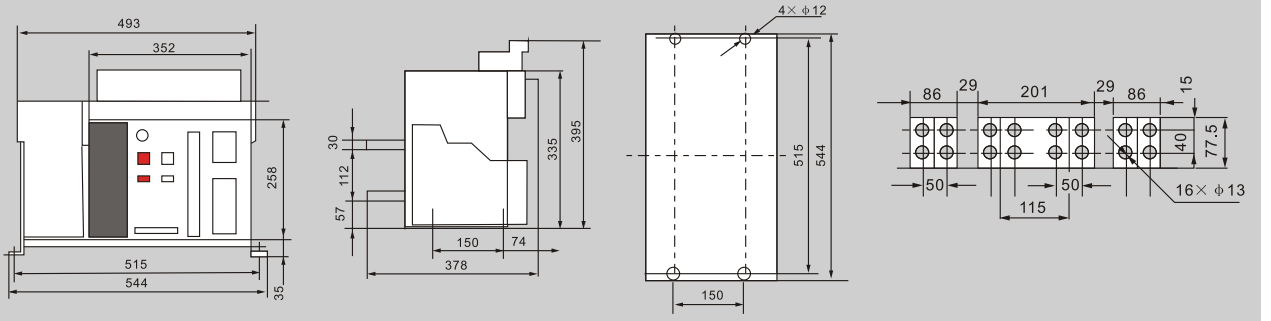
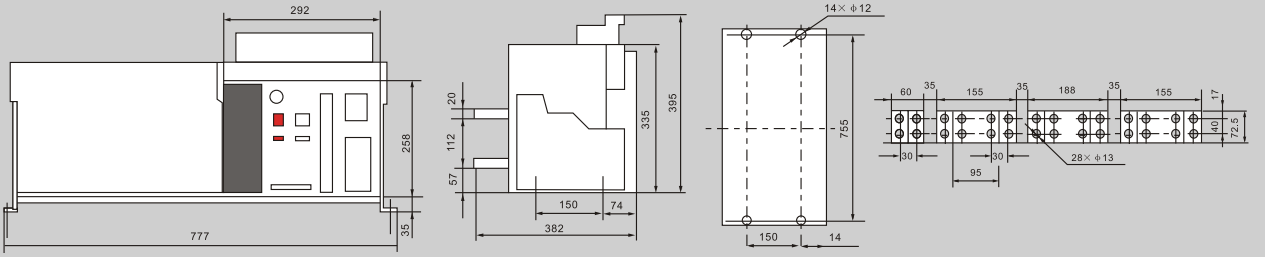
Installation and figure dimension of V-YCW1-4000A fixed type circuit breaker

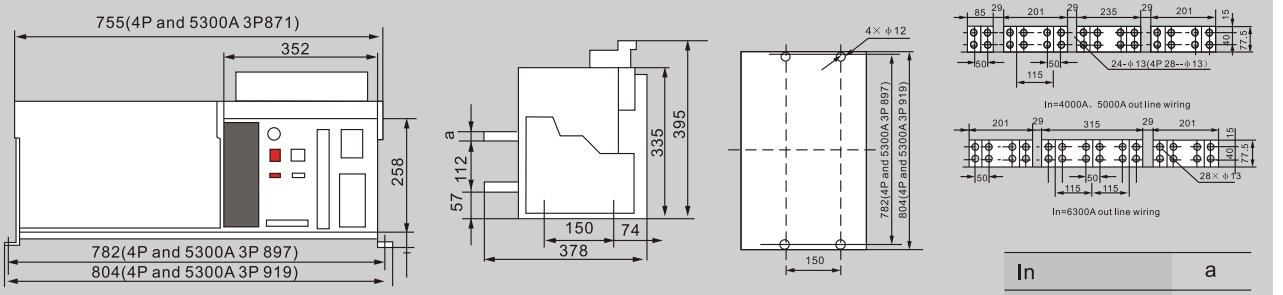


installation and figure dimension of fixed type circuit breaker(Inm=4000A 3P)



Installation and figure dimension of fixed type circuit breaker(Inm=4000A 4P)

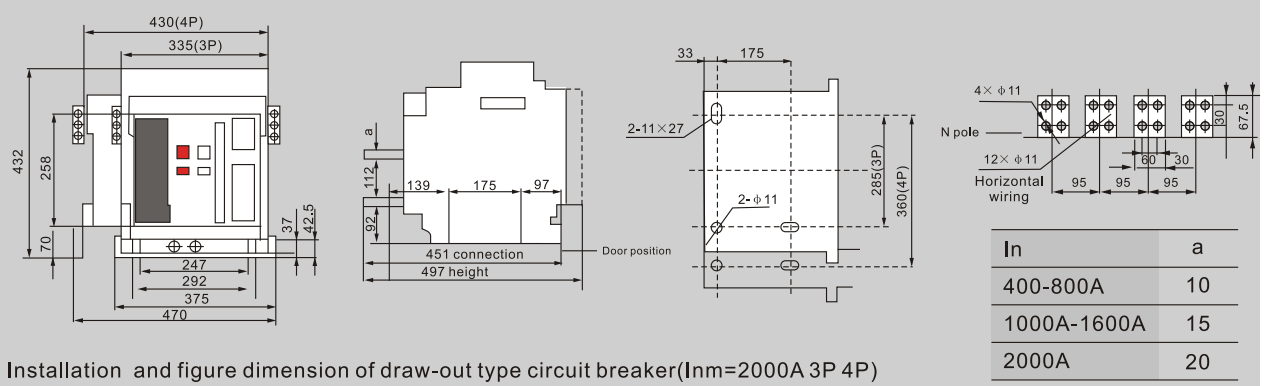
Installation and figure dimension of V-YCW1-6300A fixed type circuit breaker



In	a
4000A	20
5000A 6300A	30

Installation and figure dimension of fixed type circuit breaker(Inm=6300A)(4000A,5000 3P 4P and 6300A 3P)

Installation and figure dimension of V-YCW1-2000A draw-out type circuit breaker



In	a
400-800A	10
1000A-1600A	15
2000A	20

Installation and figure dimension of draw-out type circuit breaker(Inm=2000A 3P 4P)

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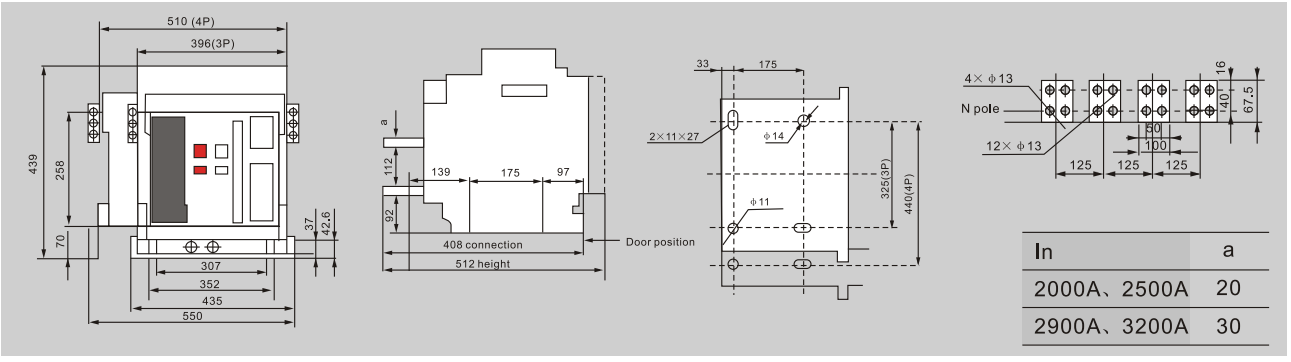
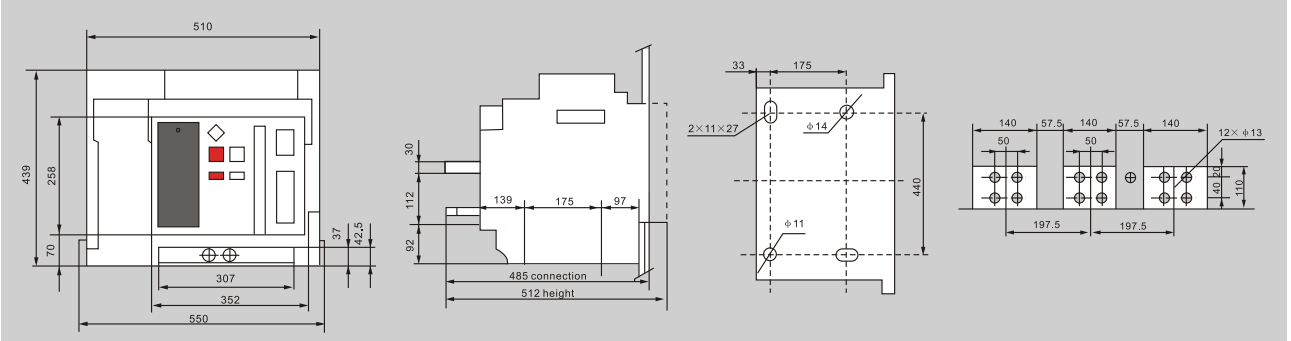
Installation and figure dimension of V-YCW1-3200A draw-out type circuit breaker



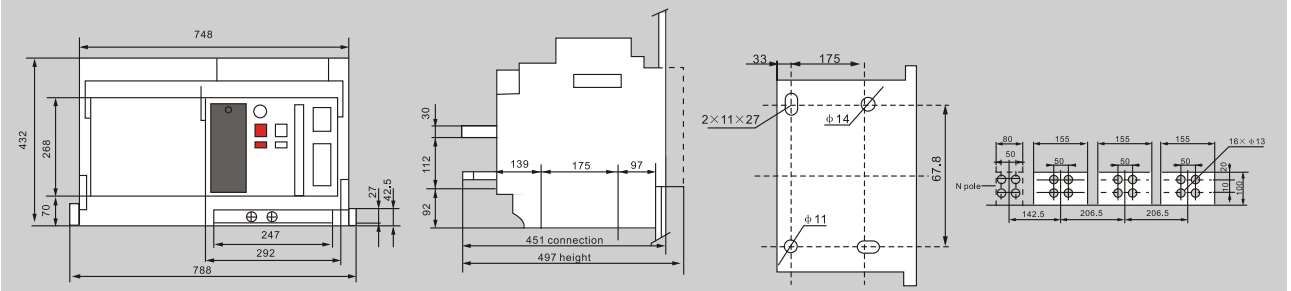
In	a
2000A、2500A	20
2900A、3200A	30

Installation and figure dimension of V-YCW1-4000A draw-out type circuit breaker



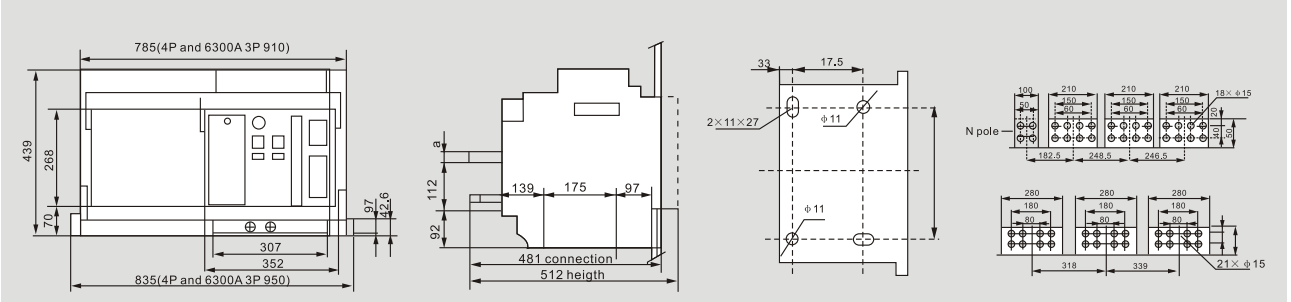
Installation and figure dimension of draw-out type circuit breaker(Inm=4000A 3P)

Installation and figure dimension of V-YCW1-4000A (4P) draw-out type circuit breaker



Installation and figure dimension of draw-out type circuit breaker(Inm=4000A 4P)

Installation and figure dimension of V-YCW1-6300A draw-out type circuit breaker



Installation and figure dimension of draw-out type circuit breaker(Inm=6300A)(4000A,5000A 3P 4P and 6300A 3P)

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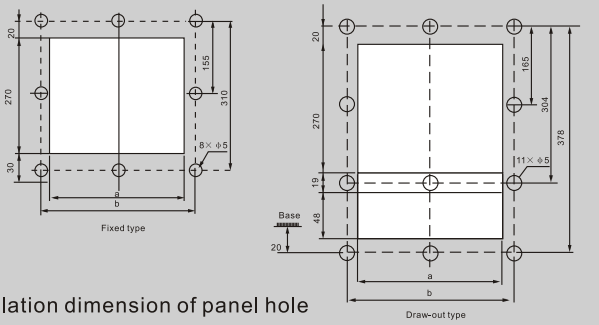
Installation and figure dimension of draw-out type circuit breaker(Inm=3200A 3P 4P)

Dimension of panel hole see picture and table Unit:mm



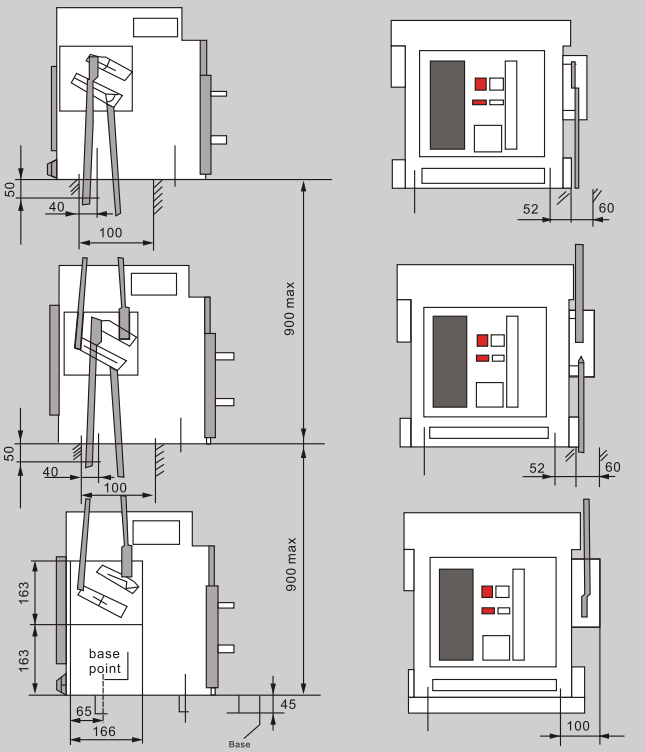
Installation dimension of panel hole

Installation dimension of panel hole

Type	a	b
V-YCW11-2000	306	346
V-YCW11-3200-6300	366	406

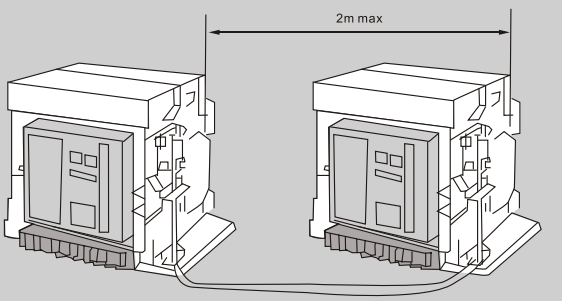
Interlock device of circuit breaker see picture Unit:mm

Interlock device of vertical install circuit breaker



Note:
Left picture is interlocked 3 vertical install circuit breakers If only need 2 circuit breakers, only need to remove the top one.

Interlock device of horizontal install circuit breaker



Note:
Iron cable interlocked 2 horizontal position circuit breakers(fixed or draw-out type),left picture is interlock device of horizontal circuit breaker.

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6. Characteristic of intelligent controller

Basic function		
Overload long time-delay anti-time limit protection		
Short circuit short time-delay anti-time limit protection		
Short circuit short time-delay timing protection		
Short circuit instantaneous protection		
Insulate earth fault protection		
Display function		
Current (select 1)	Digital display	Can display L1,L2,L3,Imax IG (earth),IG (Neutral)
Voltage (select 2) Power (select 2)	Digital display	Can display U12,U23,U31,Umin
		P
Power factor (select 2)		COSΦ
Warning function		
Over current fault warning	Light-emitting diodes on panel	After fault trip indicator light corresponding
Fault category identification	Light-emitting diodes on panel	Overload long time-delay
		Short circuit short time-delay
		Short circuit instantaneous
		Earth fault
Fault phase sequence	**Digital display**	**Display the fault phase sequence**
Current		Breaking current
Time display		Breaking time
Contact loss indication	**Digital display**	**Display percentage of loss**
Self-diagnosis function	Digital display	Send the error signal
Testing function		
Panel key	Tripping	Test the time current characteristic of release and situation of operation device
Remote monitoring function	Non-tripping	Test the time current characteristic of release

Remote monitoring code signal optocoupler	**Relay (contain power) module**	**Output of various working condition**
Communication function		
Communicate type	RS485 (communication)I/O	User should consult with the manufacturer

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7. Electrical accessories

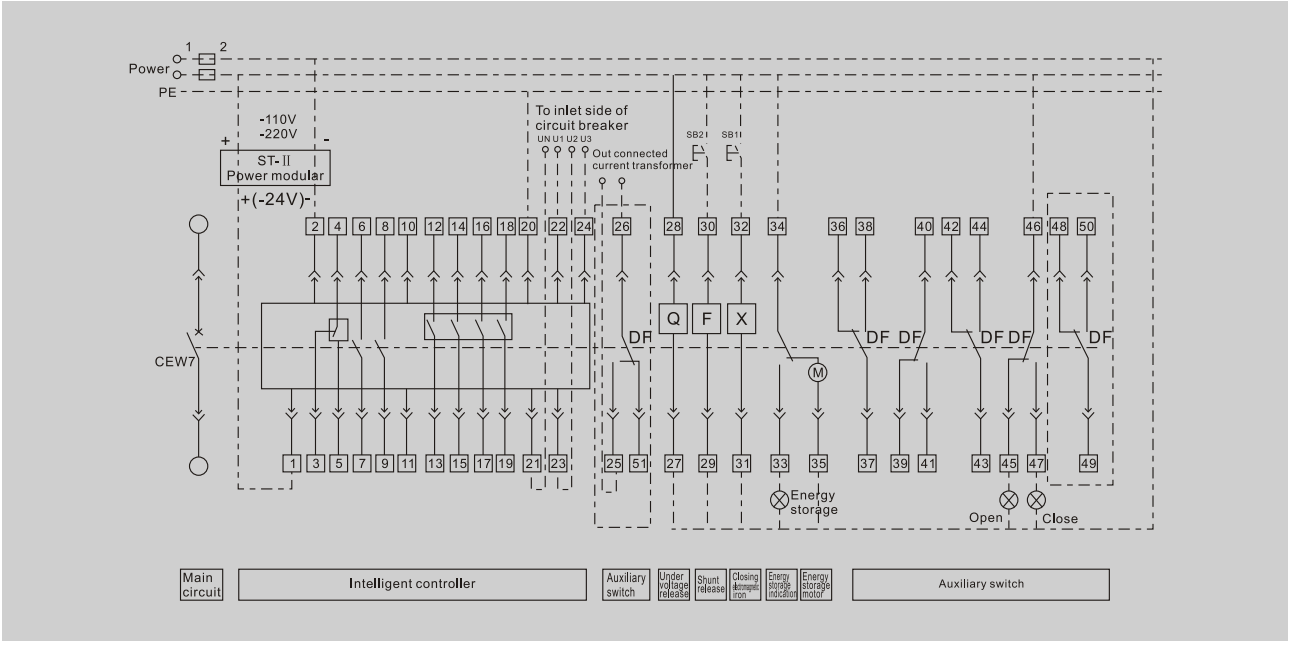
Under-voltage release	Rated working voltage Ue(V)	AC400 AC230
	Acting voltage (V)	(0.35~0.7) Ue
	Reliable close voltage (V)	(0.85~1.1) Ue
	Non close voltage (V)	≤0.35Ue
	Power loss	12VA(V-YCW1-1000 5VA)

Shunt release	Rated control power voltage Us(V)	AC400 AC230 DC220 DC110
	Acting voltage (V)	(0.7~1.1)Ue
	Power loss	40VA 40W(V-YCW1-1000 5VA)
	Open time	less than 30ms

Close electromagnetic iron	Rated control power voltage Us(V)	AC400 AC230 DC220 DC110
	Acting voltage (V)	(0.85~1.1)Ue
	Power loss	40VA 40W(V-YCW1-1000 5VA)
	Open time	less than 70ms

Motor operating device	Rated control power voltage Us(V)	AC400 AC230 DC220 DC110
	Acting voltage (V)	(0.85~1.1)Ue
	Power loss	192VA 192W(V-YCW1-1000 80VA)
	Energy saving time	less than 5s

8. V-YCW1–2000~6300 L, M type wiring scheme of secondary loop



8.1 Lead connector function:

- 1# and 2# auxiliary power input terminal,1# is positive under AC.
- 3#,4# and 5# faulty tripping contact output(4# is public terminal),contact capacity:
- 6#,7#,8# and 9# two groups circuit breaker status auxiliary terminal,contact capacity:
- 12#,13# (contact 1):14#,15#(contact 2),16#,17#(contact 3)
- 18#,19#(contact 4)--4 faulty of controller (overload,short time-delay,instantaneous,earthing faulty)
- Signal contact output (Programmable)
- Contact capacity:5A/240VAC,72A/24VDC
- 20#--protected earthing line
- 21#,22#,23#,24# voltage signal input terminal, note: the order can't be wrong (correct order is UN,U1,U2,U3)
- 25#,26#--out connected current transformer input terminal (with earthing protected)

8.2 Components:

- Q-Under voltage release (can be series connected with emergency stop pushbutton)
- F-Shunt release (Don't connected with normal open auxiliary contact when delivered)
- X-Closing electromagnetic iron (Don't connected with normal close auxiliary contact when delivered)
- DF-Auxiliary switch
- M-Motor

Note:

- If the voltage of control power of Q,F,X,M is different, they can be connected with different power (the dotted line in picture should be connected by user)
- Terminal 35 can be connected with power directly (pre-energy storage automatically),and also can be series connected with normal open switch before connected with power (manual pre-energy storage)
- The product with 6 open and 6 close auxiliary switch without earthing protect function,5 open 5 close and 6 open 6 close is 51 circuit.
- ST-II power modular is DC modular,AC power connected with 1# and 2# terminal directly,pole and in-out line terminal can not be wrong.(the ST-II of draw out type was connected when delivered)
- 25# and 16# is out connected current transformer terminal under 47 circuit (with earthing protected)
- 25#,26# and 51# connected as a normal open and close contact under 51 circuit (without earthing protected)