

# YCW1 Series Air Circuit Breaker

## General

YCW1 series intelligent air circuit breakers (hereinafter called ACB) are applied for the network circuit of AC 50Hz, 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.

## Type designation

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



- Rated current in scope of frame current  
 2000 Type-in: 630A, 800A, 1000A, 1250A, 1600A, 2000A;  
 3200 Type-in: 2000A, 2500A, 3200A;  
 6300 Type-in: 4000A, 5000A, 6300A;
- Pole number  
 3-default, 4-4 pole
- Installation  
 Fixed type-horizontal, vertical  
 Draw out type-horizontal, vertical  
 Note: 2000 type have vertical wiring, others are horizontal wiring
- Control unit  
 L type-dial switch mode, over-current protection (overload, short delay, instantaneous).  
 2M type-digital display, over-current protection (overload, short delay, instantaneous), 4P or 3P+N have earthing protection (3M type is LCD display).  
 2H type-communication function, digital display, over-current protection (overload, short delay, instantaneous), 4P or 3P+N have earthing protection (3H type is LCD display).
- Common use accessory  
 Closing electromagnet-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 contact-standard type (4a4b), special type (5a5b, 6a6b)  
 Note: a-normal open, b-normal close
- Optional accessory  
 Mechanical inter-lock:  
 one circuit breaker (1lock+1key)  
 two circuit breaker (steel cable inter-lock, connecting rod inter-lock, 2lock+1key)  
 three circuit breakers (3locks+2keys, connecting rod inter lock)  
 Automatic power transfer system  
 Current transformer connected with neutral lead



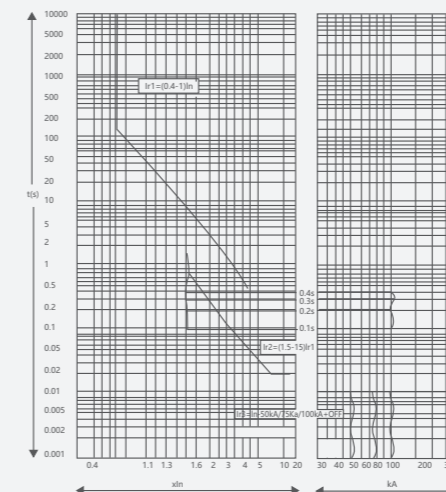
# YCW1 Series Air Circuit Breaker

## Operation conditions

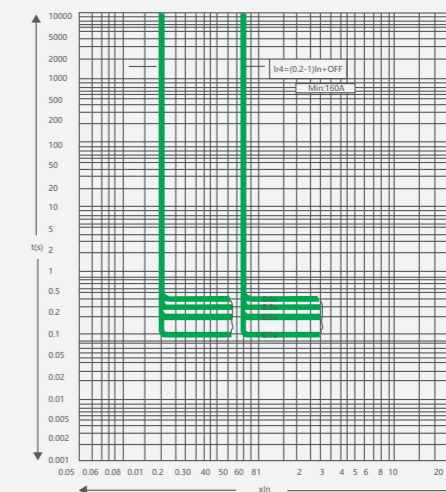
Item	Description
Ambient temperature	-5°C~+40°C (except special order products)
Altitude	≤2000m
Pollution grade	3
Safety category	Main circuit and undervoltage tripping coil is IV, other auxiliary and control circuit is III
Installation position	Vertical installed, tilt not exceed 5 degree
Environmental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

## Specifications

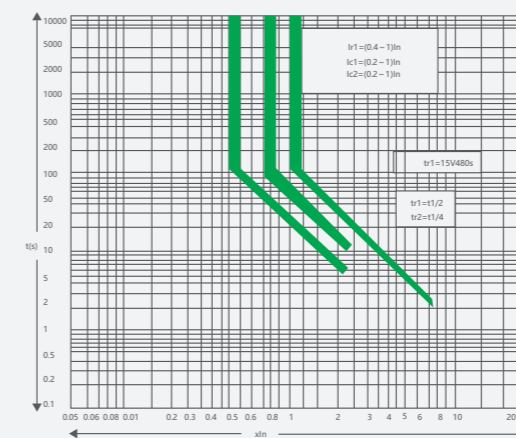
### Curves



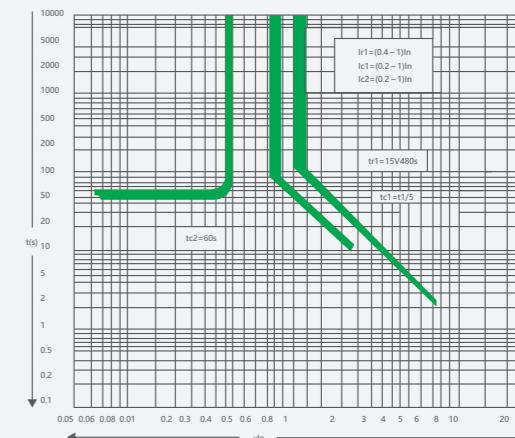
YCW1-2000~6300 Over current release time/current characteristic curve



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



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



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

## Distribution Apparatus

### YCW1 Series Air Circuit Breaker

Data

Type		YCW1-2000	YCW1-3200	YCW1-6300	
Pole		3P, 4P	3P, 4P	3P, 4P	
Using category		B	B	B	
Rated current I <sub>n</sub>	A	630, 800, 1000 1250, 1600, 2000	2000, 2500, 3000	4000, 5000, 6300	
Rated frequency	Hz	50	50	50	
Rated operation voltage U <sub>e</sub>	V	400, 690	400, 690	400, 690	
Rated insulation voltage U <sub>i</sub>	V	800	800	800	
Arcing distance	mm	0	0	0	
Rated impulse withstanding voltage U <sub>imp</sub>	V	8000	8000	8000	
Rated operation short circuit breaking capacity I <sub>cs</sub> (O-t-CO)	400V	kA	40	65	100
	660V	kA	40	50	65
Rated limiting short circuit breaking capacity I <sub>cu</sub> (O-t-CO)	400V	kA	65	80	120
	660V	kA	50	65	75
Rated short time withstanding current I <sub>cw</sub> (O-t-CO, AC400V 0.4S)	400V	kA	40	50	80
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	μΩ	11	9	-
	Draw out type	μΩ	20	14	10
Dimensions (L×W×H)	3P fixed type	mm	362×323×402	422×323×402	
	3P draw out type	mm	375×461×452	435×471×452	
	4P fixed type	mm	457×323×402	537×323×402	
	4P draw out type	mm	470×461×452	550×471×452	
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

## Distribution Apparatus

### YCW1 Series Air Circuit Breaker

Overload protection data

Overload protection	YCW1-2000~6300						
Adjust scope I <sub>r1</sub>	(0.4-1)I <sub>n</sub> (pole difference 2%)						
1.05 I <sub>r1</sub>	h	≥2h non-tripping					
1.3 I <sub>r1</sub>	h	≤1h tripping					
1.5 I <sub>r1</sub>	s	15	30	60	120	240	480
2.0 I <sub>r1</sub>	s	8.4	16.9	33.7	67.5	135	270
Accuracy	%	±15					

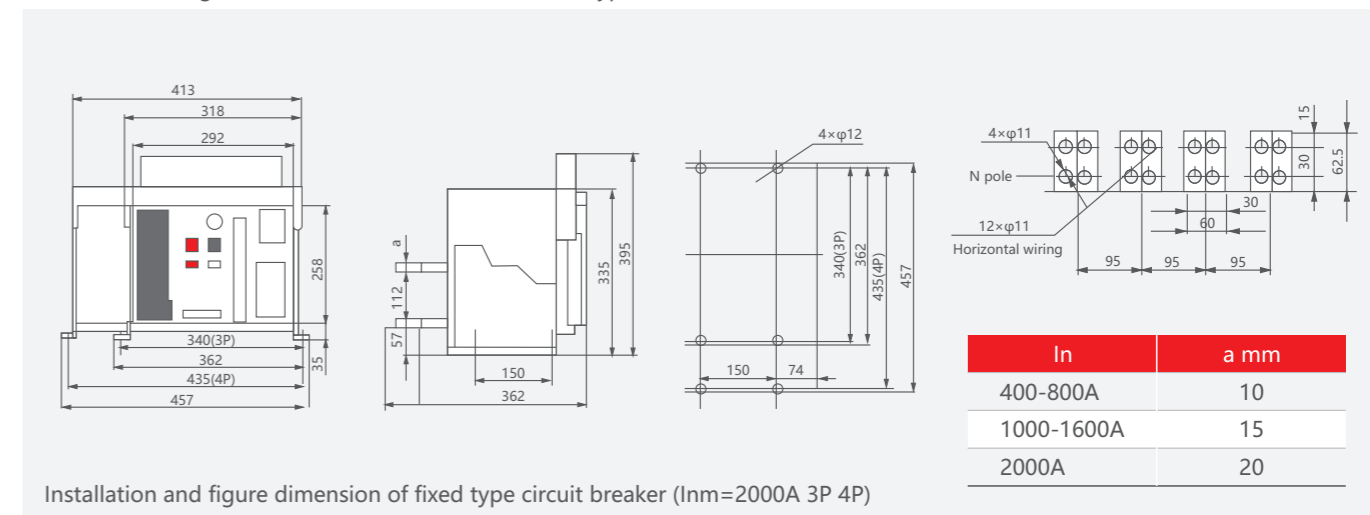
Short circuit, short time delay		YCW1-2000~6300					
Adjust scope I <sub>r1</sub> I <sub>r2</sub>		(0.4-15)I <sub>n</sub> (pole difference 2%)					
Delay time t <sub>r2</sub>	ms	100, 200, 300, 400					
Accuracy	%	±15					

Short circuit, instantaneous		YCW1-2000	YCW1-3200	YCW1-6300
Adjust scope I <sub>r1</sub> I <sub>r3</sub>		1I <sub>n</sub> -50kA	1I <sub>n</sub> -75kA	1I <sub>n</sub> -100kA
Accuracy	%	±15	±15	±15

Load monitoring output		YCW1-2000~6300		
Load adjust scope I <sub>c1</sub>		(0.2-1)I <sub>n</sub> (pole difference 2%)		
Delay time t <sub>c1</sub>		t <sub>r1</sub> ×0.5		
Load adjust scope I <sub>c2</sub>		(0.2-1)I <sub>n</sub> (pole difference 2%)		
Delay time t <sub>c2</sub>		t <sub>r1</sub> ×0.25 (anti-time limit)		
Accuracy	s	60 (set time limit)		
	%	±10		

### Overall and mounting dimensions

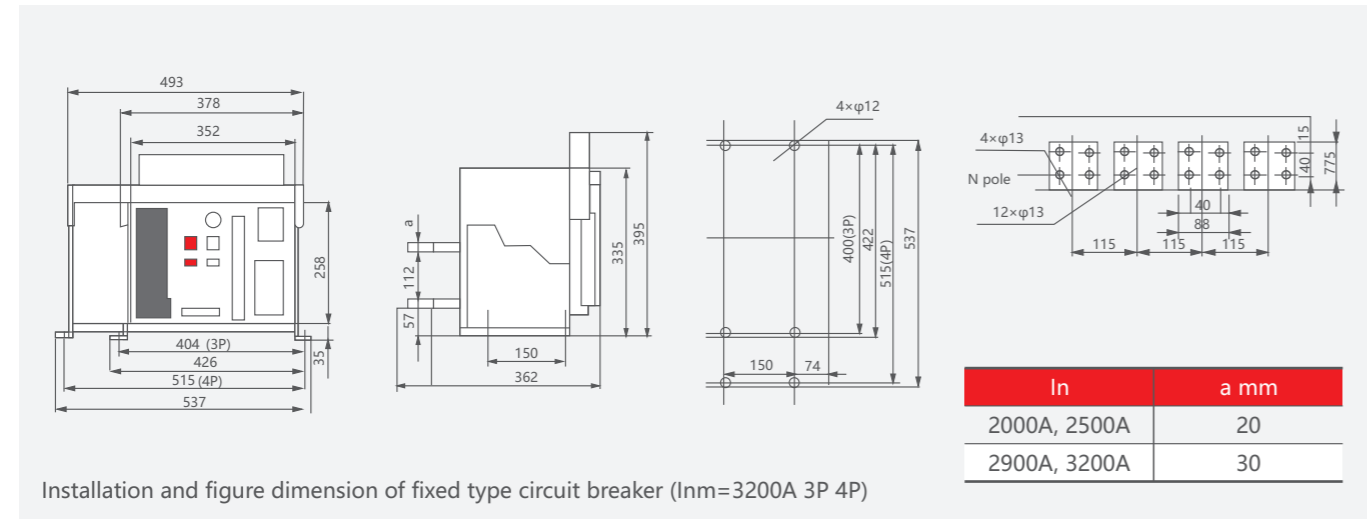
Installation and figure dimension of YCW1-2000A fixed type circuit breaker



## Distribution Apparatus

### YCW1 Series Air Circuit Breaker

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

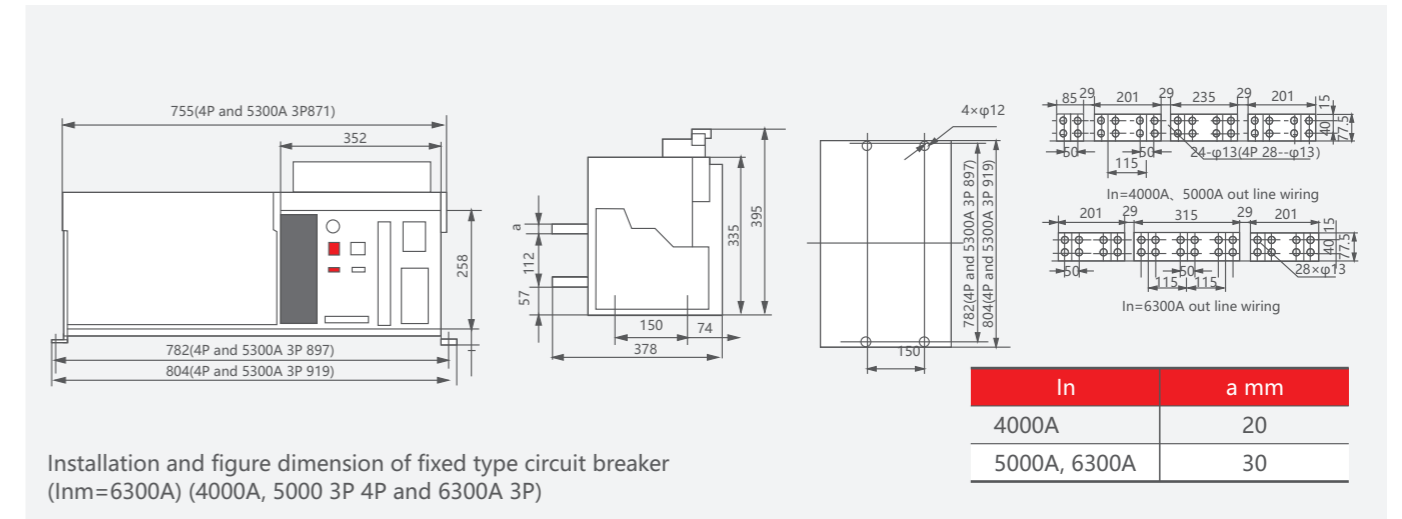


Installation and figure dimension of fixed type circuit breaker (Inm=3200A 3P 4P)

## Distribution Apparatus

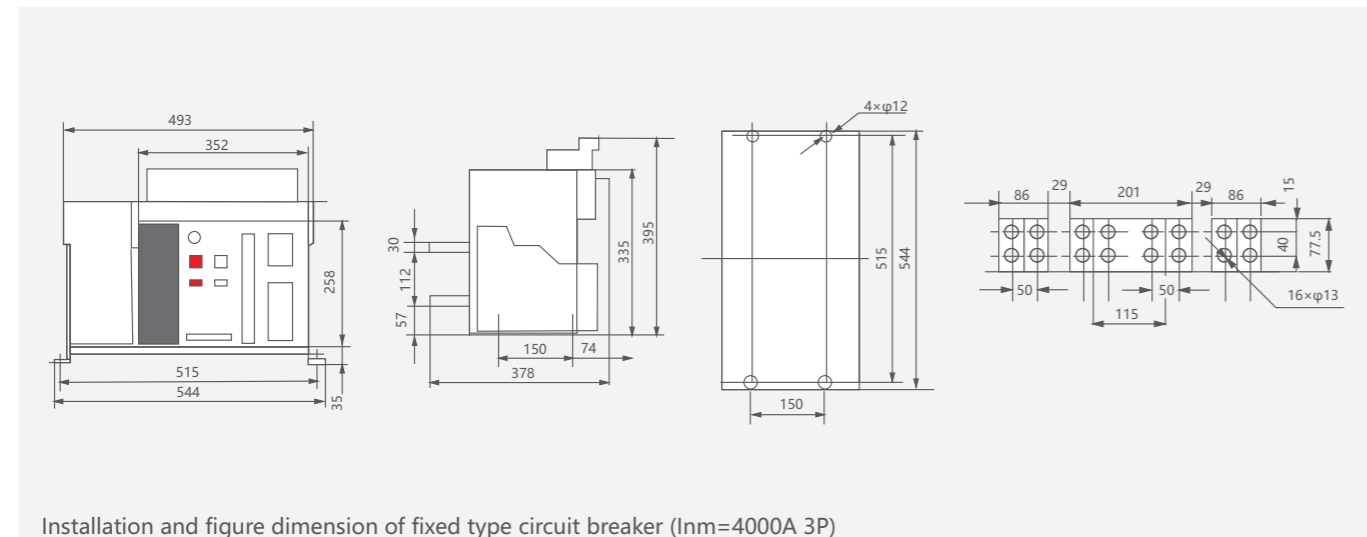
### YCW1 Series Air Circuit Breaker

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



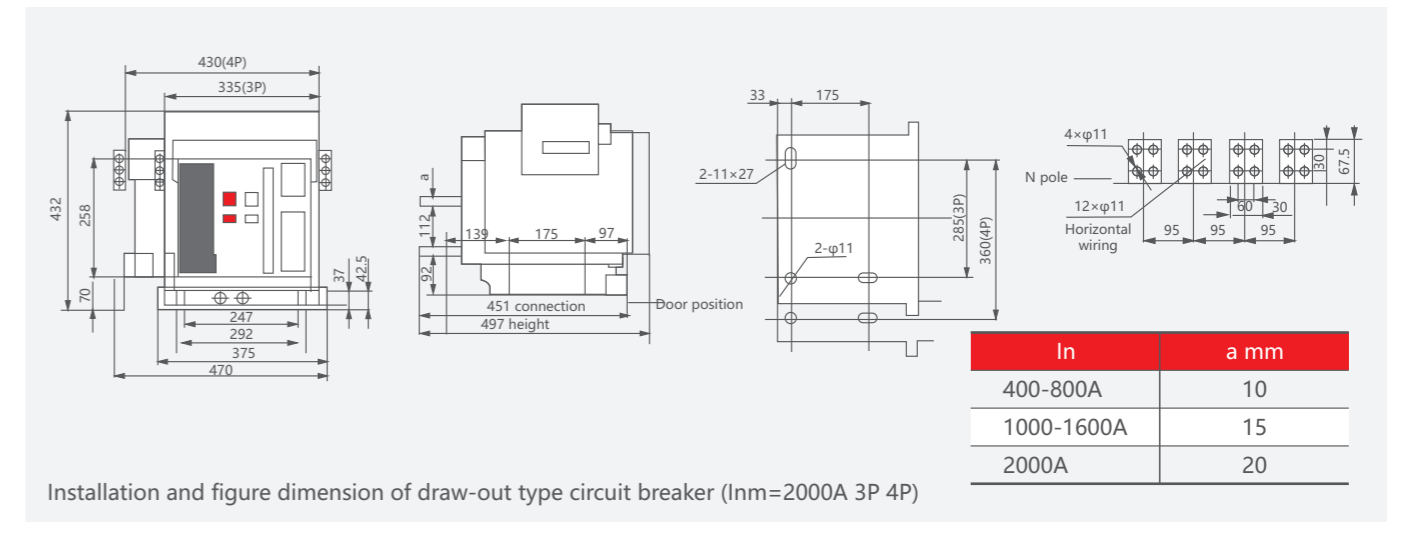
Installation and figure dimension of fixed type circuit breaker (Inm=6300A) (4000A, 5000 3P 4P and 6300A 3P)

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



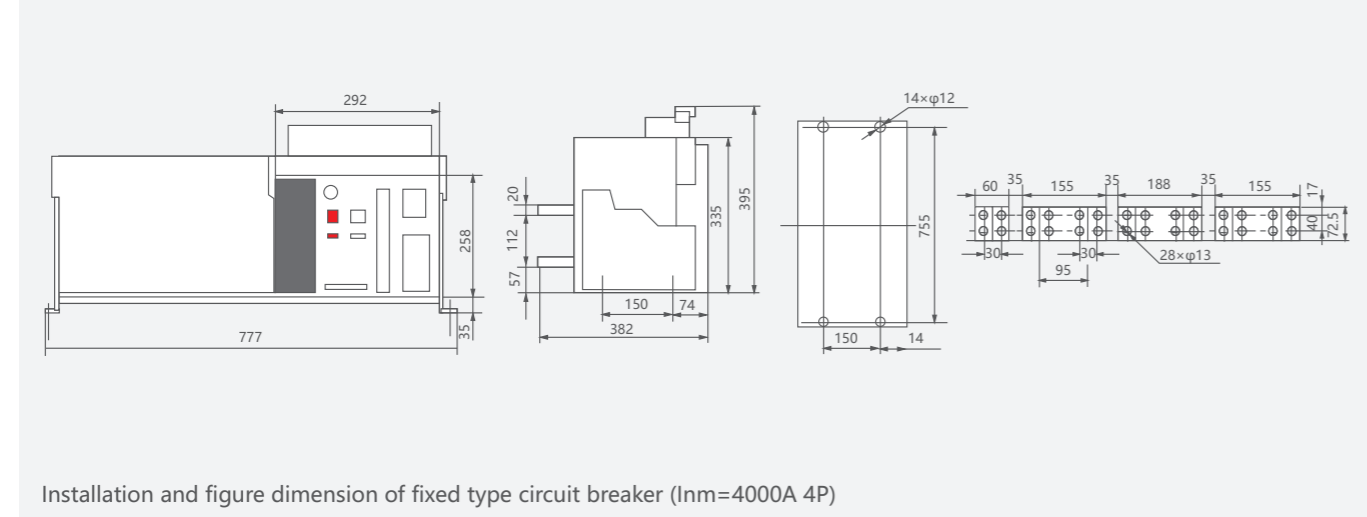
Installation and figure dimension of fixed type circuit breaker (Inm=4000A 3P)

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



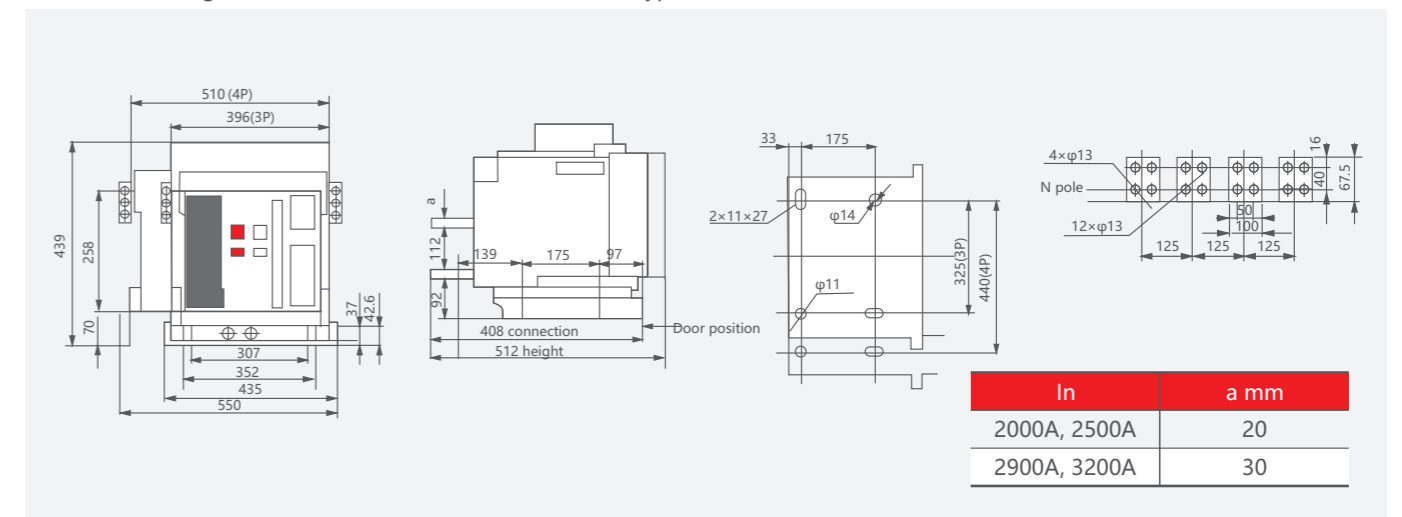
Installation and figure dimension of draw-out type circuit breaker (Inm=2000A 3P 4P)

Installation and figure dimension of YCW1-4000A 4P fixed type circuit breaker



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

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

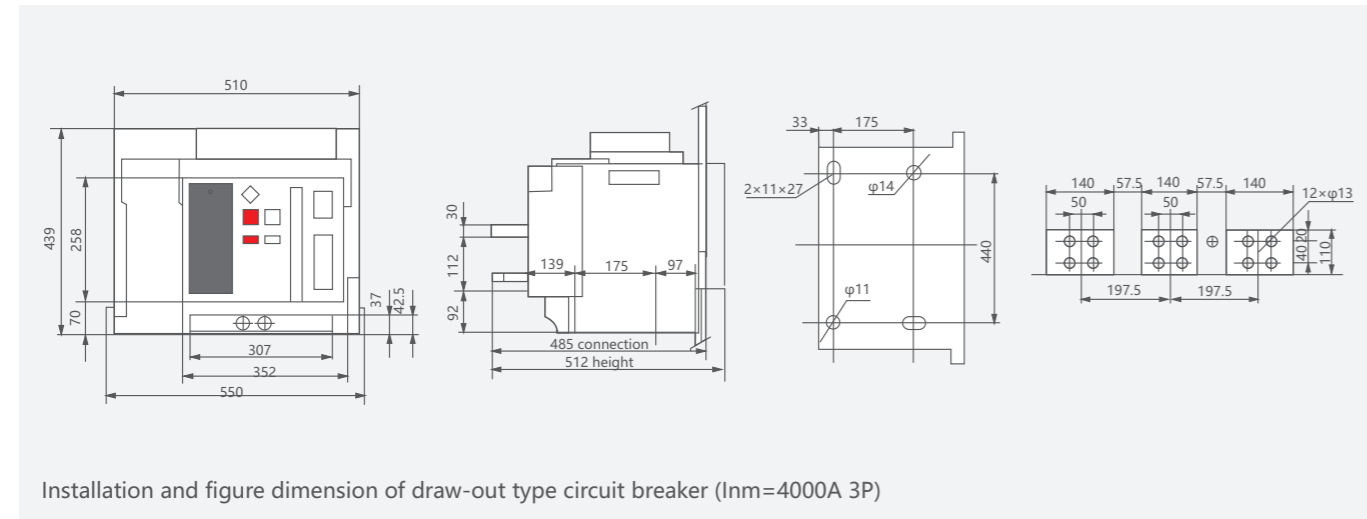


Installation and figure dimension of fixed type circuit breaker (Inm=4000A 4P)

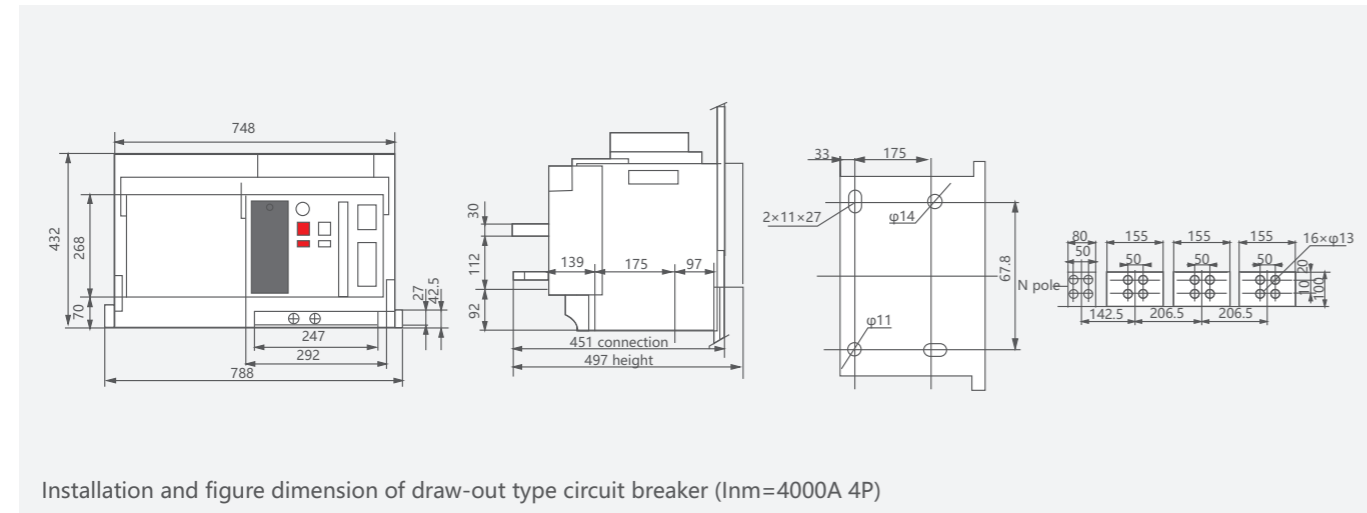
## Distribution Apparatus

### YCW1 Series Air Circuit Breaker

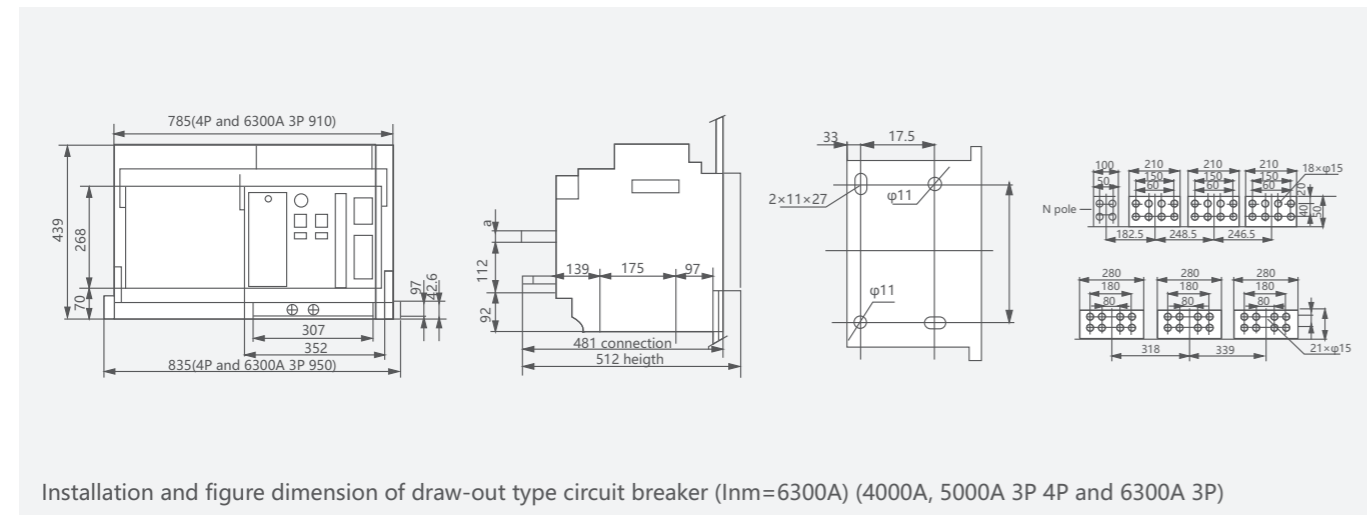
Installation and figure dimension of YCW1-4000A draw-out type circuit breaker



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



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

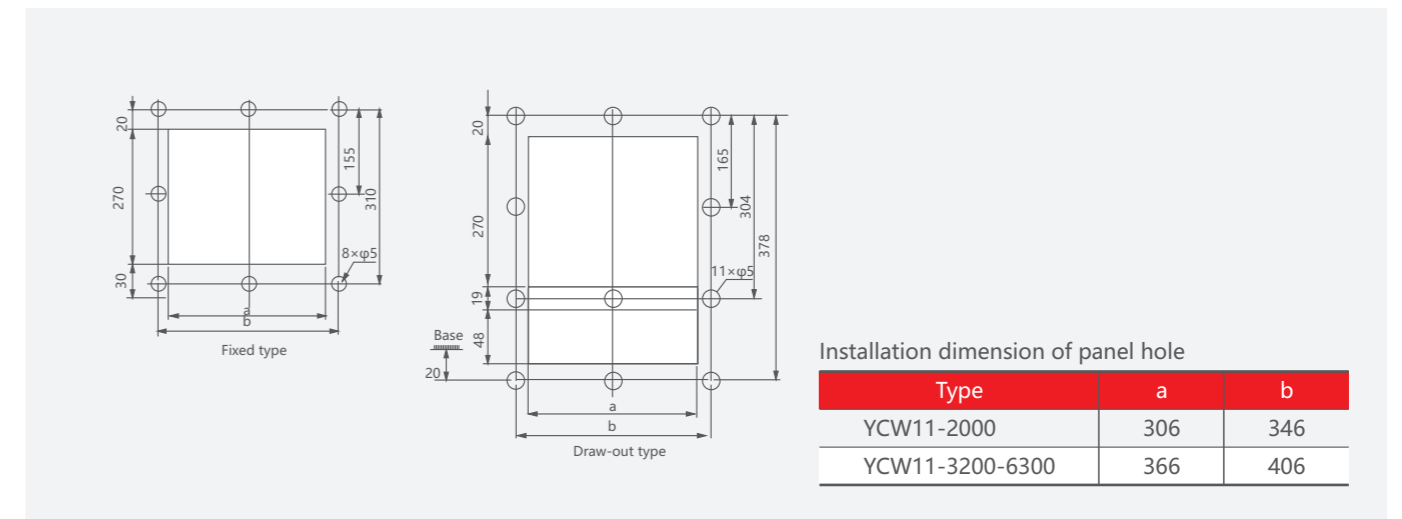


## Distribution Apparatus

### YCW1 Series Air Circuit Breaker

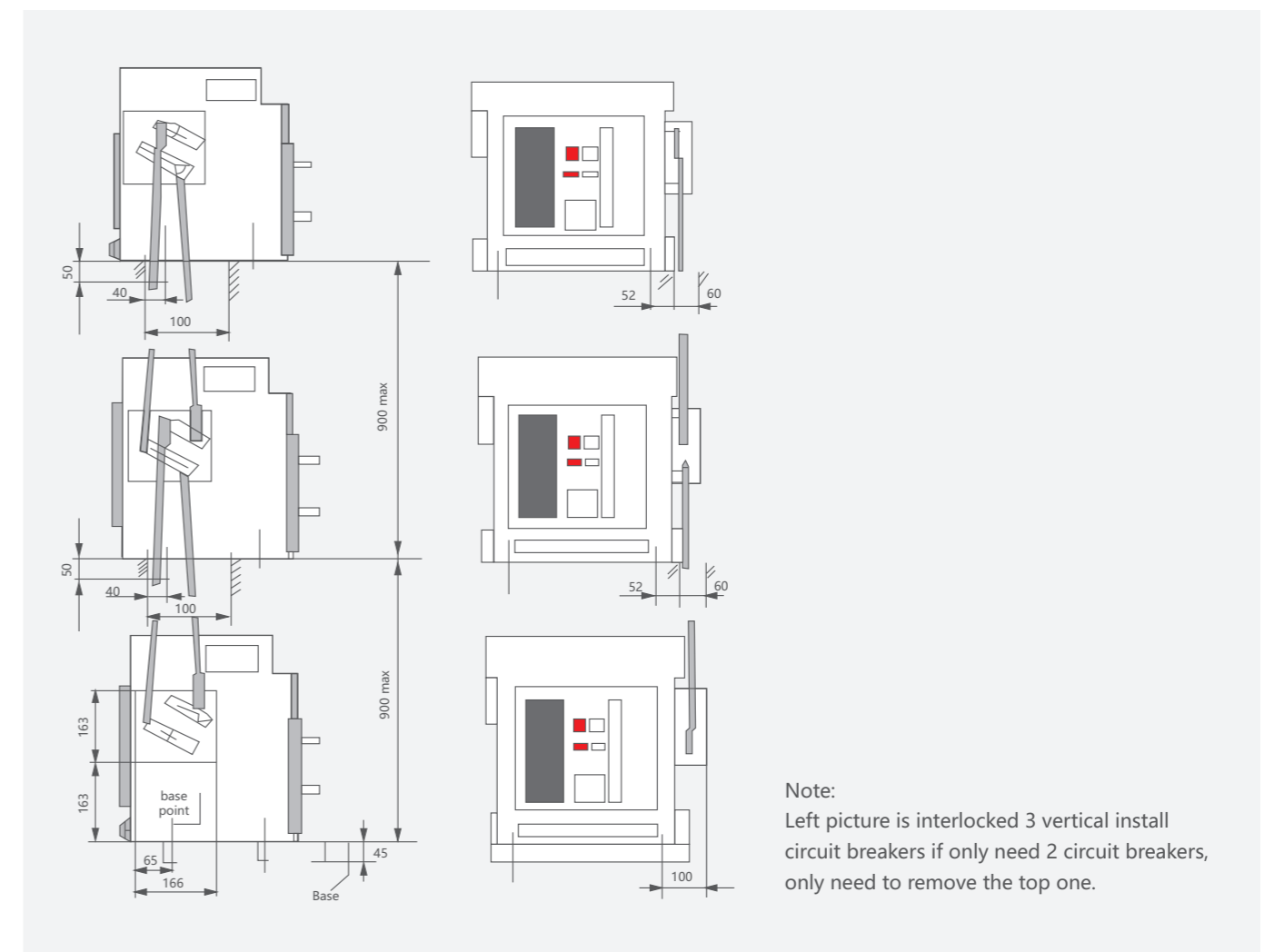
Installation and figure dimension of draw-out type circuit breaker (Inm=3200A 3P 4P)

Dimension of panel hole see picture and table Unit:mm



Interlock device of circuit breaker see picture Unit:mm

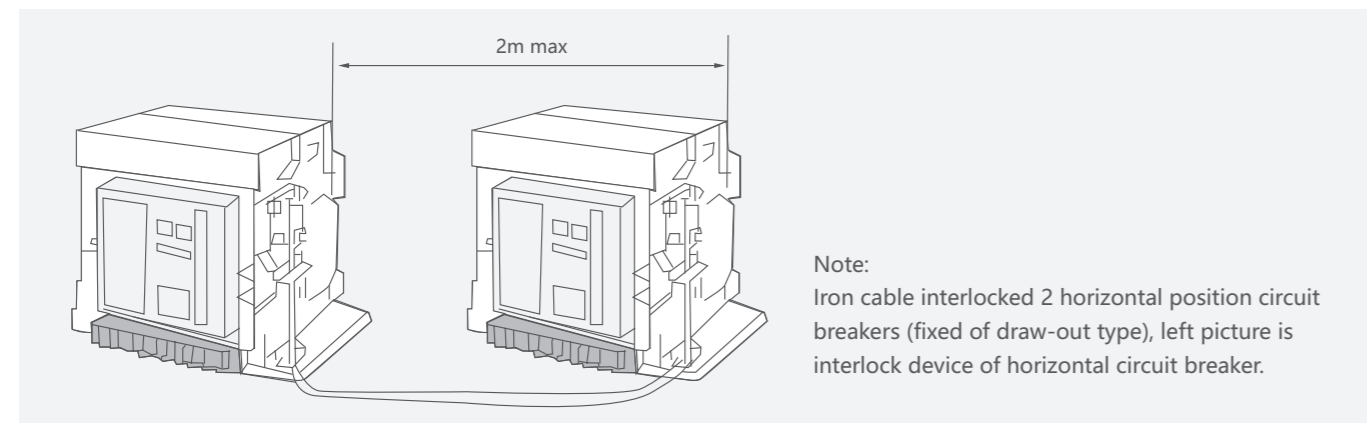
Interlock device of vertical install circuit breaker




## Distribution Apparatus

### YCW1 Series Air Circuit Breaker

Interlock device of horizontal install circuit breaker



### 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, I <sub>max</sub> IG(earth), IG(Neutral)
Voltage (select 2) Power (select 2)	Digital display	Can display U <sub>12</sub> , U <sub>23</sub> , U <sub>31</sub> , U <sub>min</sub> 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 log 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		Send the error signal


## Distribution Apparatus


### YCW1 Series Air Circuit Breaker


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

### Electrical accessories

Under-voltage release	Rated working voltage U <sub>e</sub> (V)	AC400 AC230
	Acting voltage (V)	(0.35~0.7) U <sub>e</sub>
	Reliable close voltage (V)	(0.85~1.1) U <sub>e</sub>
	Non close voltage (V)	≤0.335U <sub>e</sub>
	Power loss	12VA (YCW1-1000 5VA)

Shunt release	Rated control power voltage U <sub>s</sub> (V)	AC400 AC230 DC220 DC110
	Acting voltage (V)	(0.7~1.1) U <sub>e</sub>
	Power loss	40VA 40W (YCW1-1000 5VA)
	Open time	less than 30ms

Close electromagnetic iron	Rated control power voltage U <sub>s</sub> (V)	AC400 AC230 DC220 DC110
	Acting voltage (V)	(0.85~1.1) U <sub>e</sub>
	Power loss	40VA 40W (YCW1-1000 5VA)
	Open time	less than 70ms

Motor operating device	Rated control power voltage U <sub>s</sub> (V)	AC400 AC230 DC220 DC110
	Acting voltage (V)	(0.85~1.1) U <sub>e</sub>
	Power loss	40VA 40W (YCW1-1000 5VA)
	Open time	less than 5s



# YCW1 Air Circuit Breaker

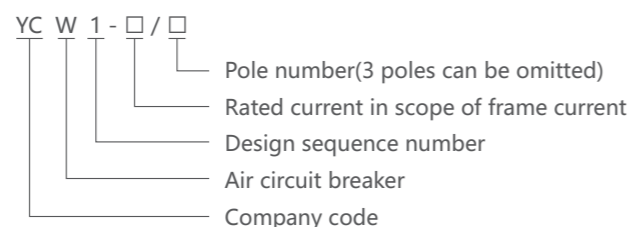


## YCW1-1000 Intelligent Air Circuit Breakers

### General

YCW1-1000 series intelligent air circuit breakers(hereinafter called ACB) are applied for the network circuit of AC 50Hz,rated voltage 400V,690V and rated current up to 1000A.Mainly used for distributing energy and protecting the circuit and power supply device against short-circuit,undervoltage,single-phase ground fault etc. The ACB have 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 confirm with IEC60947-2,GB14048.2.

### Type designation



Category

Installation: Fixed type, draw out type.

Operation: Motor-driven, hand.

### Main Technical Parameters

Type	YCW1-1000				
Rated short circuit breaking capacity	I <sub>cu</sub> =42kA 400V		I <sub>cs</sub> =I <sub>cu</sub> /1s=30kA 400V		
	I <sub>cu</sub> =25kA 690V		I <sub>cs</sub> =I <sub>cu</sub> /1s=20kA 690V		
Rated current I <sub>n</sub> (A)	200	400	630	800	1000
Pole	3P, 4P				
Rated operation voltage U <sub>e</sub> (V)	400				
Rated insulation voltage U <sub>i</sub> (V)	690				
N pole max continuous current I <sub>n</sub> (A)	100%I <sub>n</sub>				
Breaking time (ms)	23~32				
Control unit	Standard (M)	●	●	●	●
	Multi-function (H)	●	●	●	●
Operation life	Electrical	1000			
	Mechanical	maintenance-free 3000 maintenance 10000			
Connection mode	Horizontal, vertical				
Weight	3P/4P draw out type	38/55			
	3P/4P fixed type	22/26.5			

# YCW1 Air Circuit Breaker

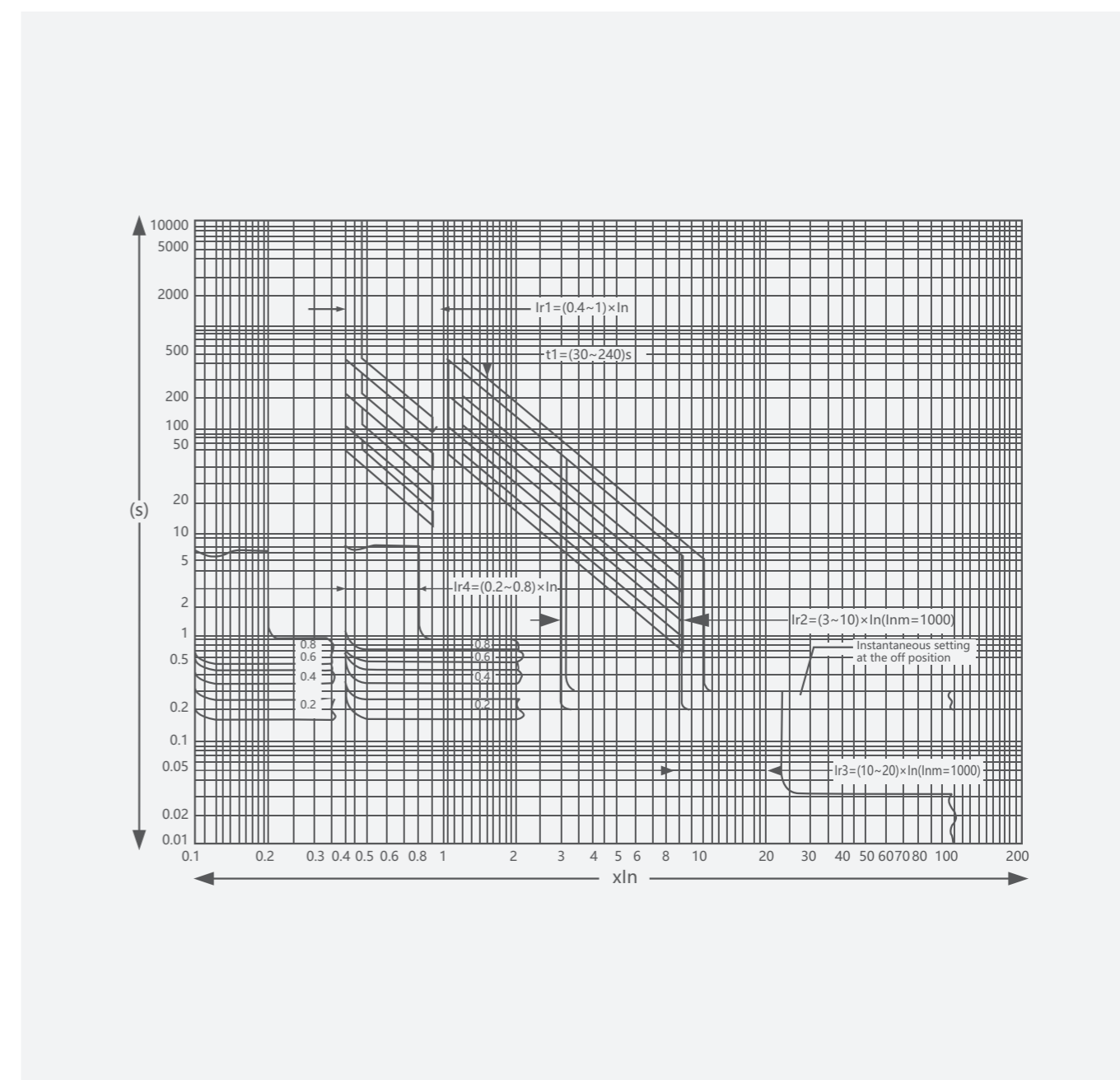
## Intelligent controller protection characteristic

Definite setting and error for Intelligent Controller

Long time-delay	Short time-delay		Instantaneous		Earthing fault	
	I <sub>r1</sub>	I <sub>r2</sub>	Error	I <sub>r3</sub>	Error	I <sub>r3</sub>
(0.4~1)I <sub>n</sub>	(1.5~15)I <sub>n</sub>	±10%	1I <sub>n</sub> ~30kA	±15%	(0.2~1)I <sub>n</sub>	±10%
(0.4~1)I <sub>n</sub>	☆(2~10)I <sub>n</sub>	±10%	☆(5~20)I <sub>n</sub>	±15%	☆(0.2~0.8)I <sub>n</sub>	±10%

Note: L type intelligent controller setting with ☆

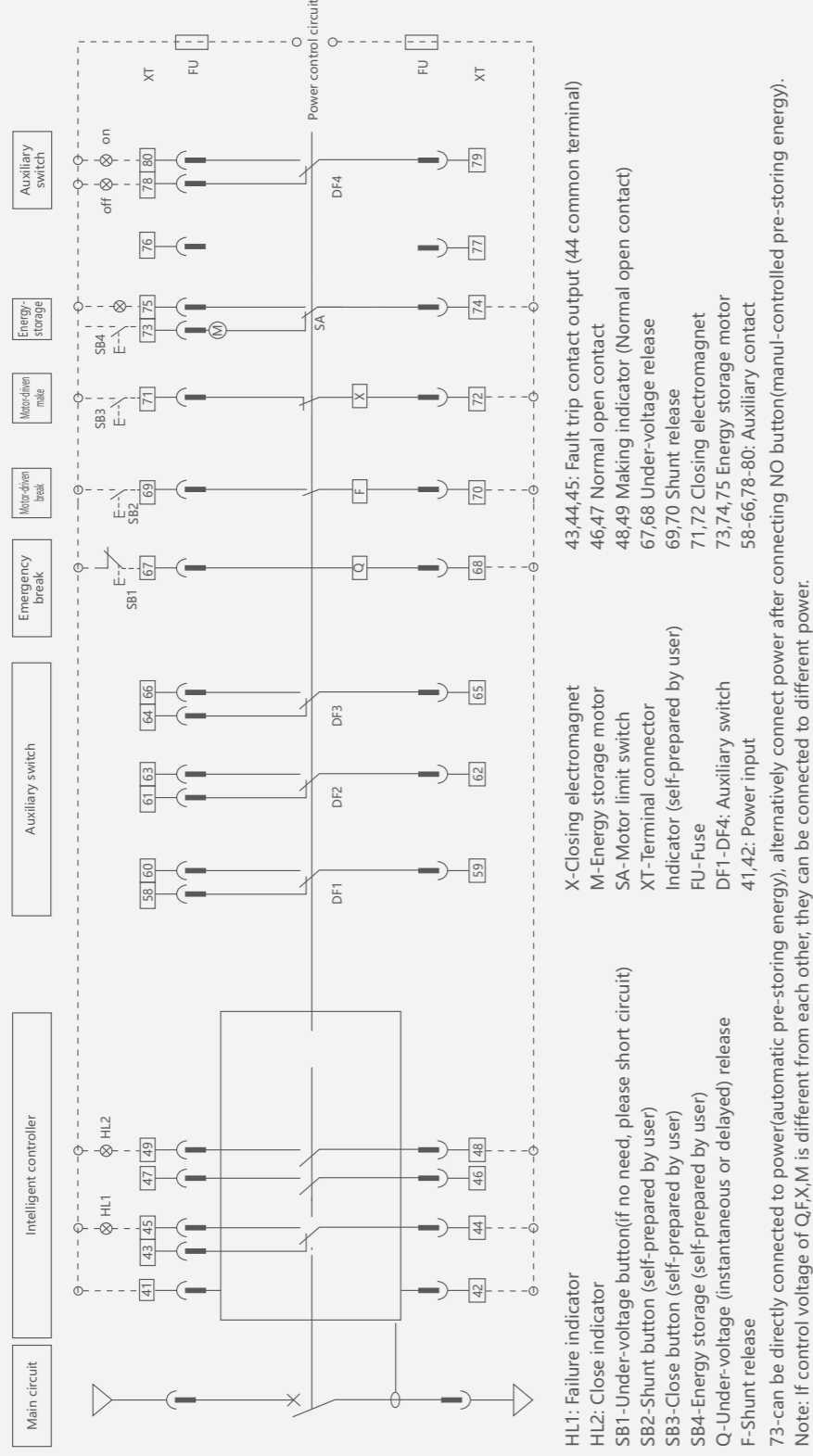
## Over-current and earthing fault characteristic curve figure



Secondary circuit wiring

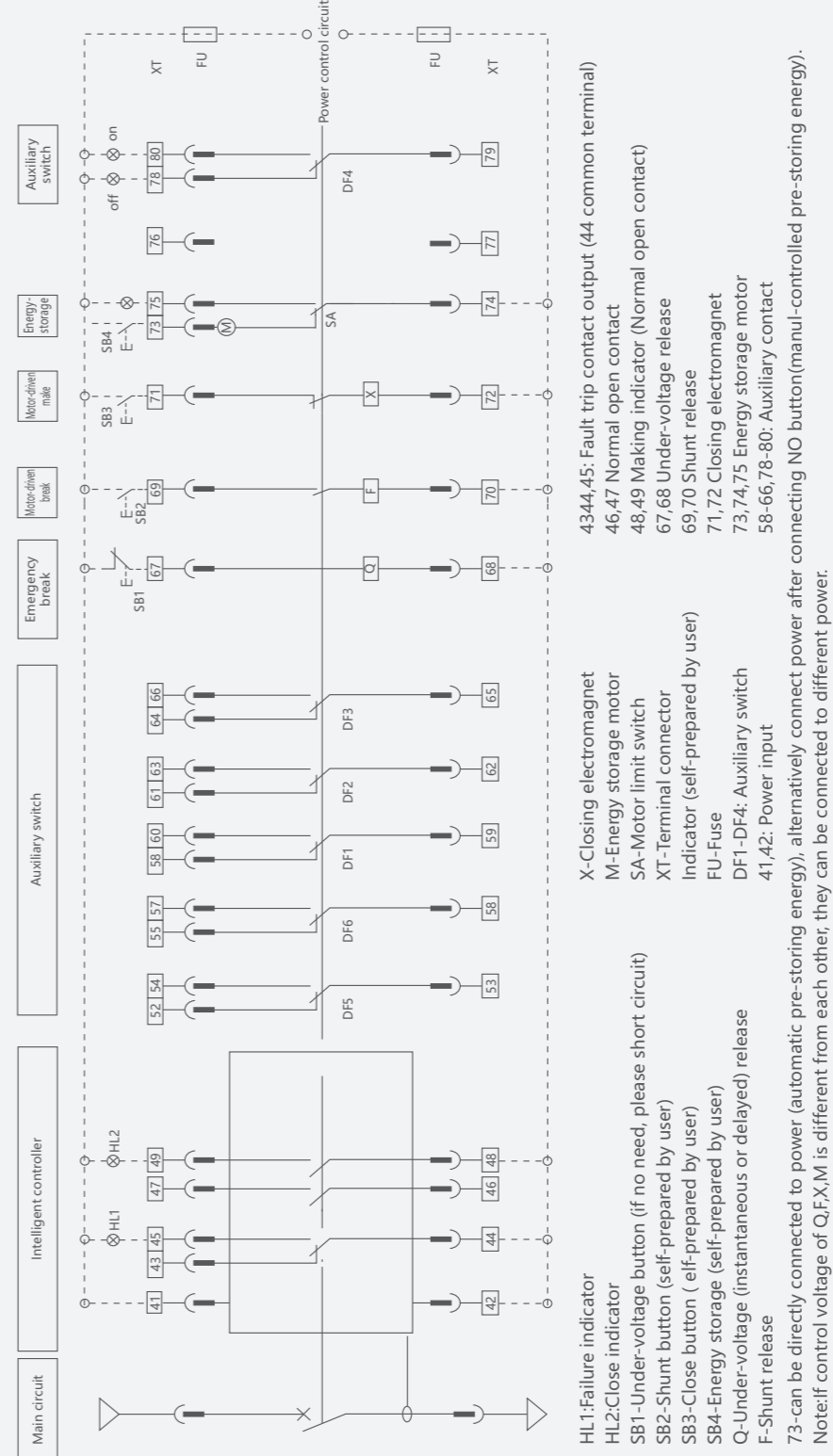
The circuit breaker has 40pcs terminal connector, please refer to picture1, picture2, picture3.

Auxiliary contact and four groups change over contact circuit wiring (Standard type)

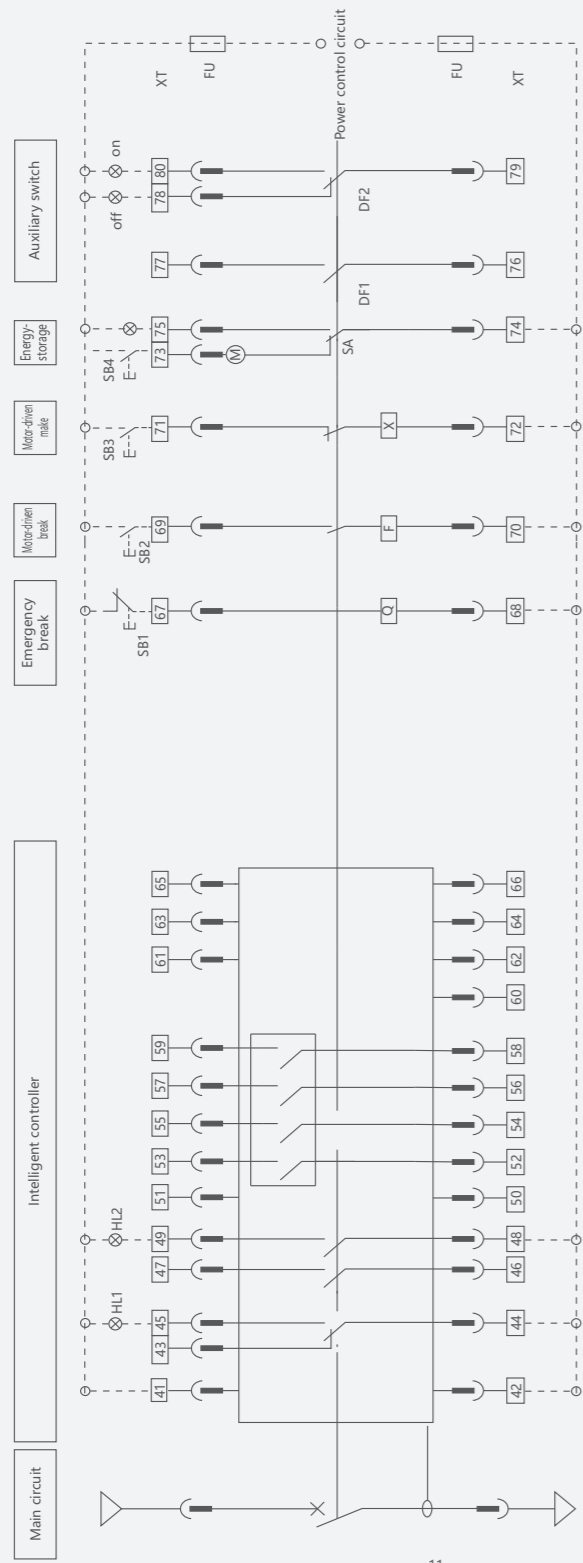


Picture 1 YCW1-1000 Intelligent Air circuit breaker Secondary circuit wiring

Auxiliary contact and six groups change over contact circuit wiring (Special type)



Picture 2 YCW1-1000 Intelligent Air circuit breaker Secondary circuit wiring

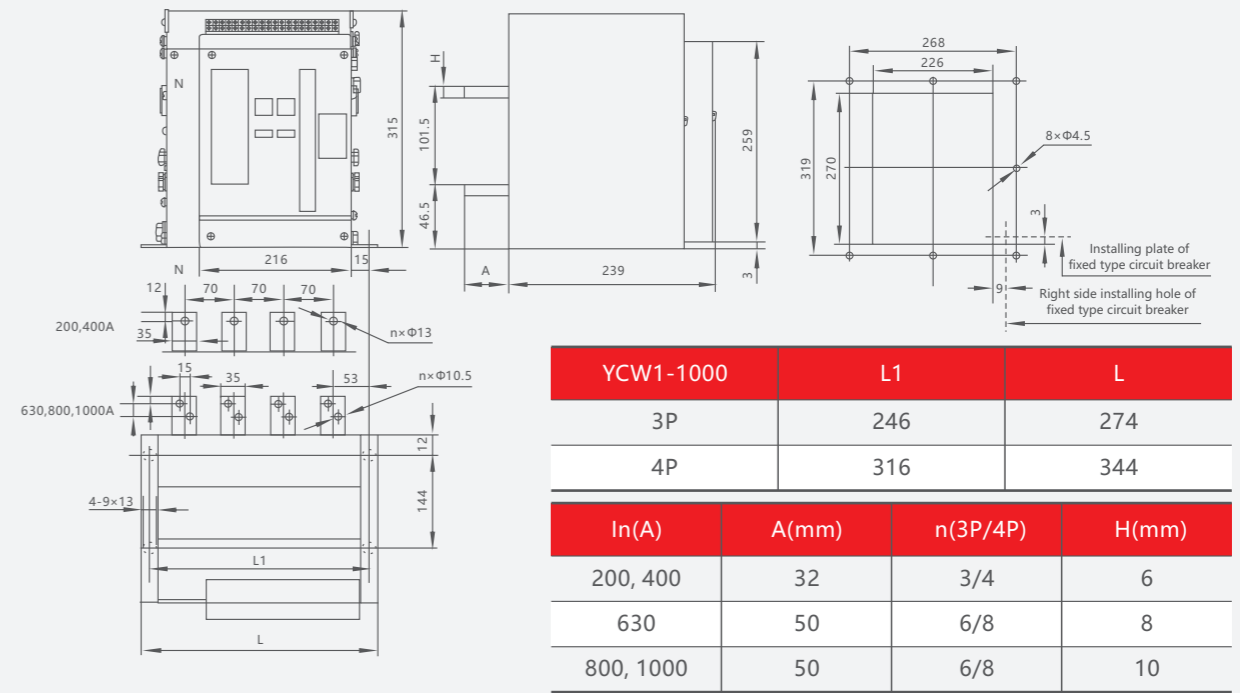


- HL1: Failure indicator
  - HL2: Close indicator
  - SB1: Under-voltage button (if no need, please short circuit)
  - SB2: Shunt button (self-prepared by user)
  - SB3: Close button (self-prepared by user)
  - SB4: Energy storage (self-prepared by user)
  - Q: Under-voltage (instantaneous or delayed) release
  - F: Shunt release
  - X: Closing electromagnet
  - M: Energy storage motor
  - SA: Motor limit switch
  - 73: can be directly connected to power (automatic pre-storing energy), alternatively connect power after connecting NO button (manual-controlled pre-storing energy).
  - Note: if control voltage of Q, F, X, M is different from each other, they can be connected to different power.
- 
- XT: Terminal connector
  - Indicator (self-prepared by user)
  - FU: Fuse
  - DF1-DF4: Auxiliary switch
  - 41,42: Power input
  - 43,44,45: Fault trip contact output(4 common terminal)
  - 46,47 Normal open contact
  - 48,49 Making indicator (Normal open contact)
  - 50,51: Communication output
  - 52,53: Load control 1 output(Signal of relay contact)
  - 54,55: Load control 2 output(Signal of relay contact)
- 
- 56,57: Signal of remote control break
  - 58,59: Signal of remote control make
  - 60: PE line
  - 61: N phase input
  - 62,63,64: A, B, C three phase voltage input
  - 65,66: Connect to the N phase current transformer input
  - 67,68 Undervoltage release
  - 69,70 Shunt release
  - 71,72 Closing electromagnet
  - 73,74,75 Energy storage motor
  - 76-80: Auxiliary contact

Picture 3 YCW1-1000H Intelligent air circuit breaker secondary connection diagram

Overall and Installation Dimension

YCW1-1000 Fixed type



YCW1-1000 Draw out type

