


YCW8-□HU series

OPERATION INSTRUCTION

CNC

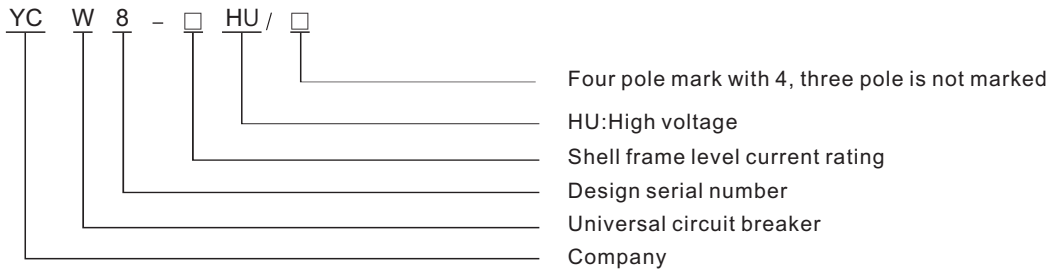
Deliver
Power For Better Life

 Before installing and using this product, please read this manual carefully and pay more attention to safety.

■ Standards

YCW8-□HU series intelligent universal circuit breaker (referred to as circuit breaker), suitable for AC 50Hz, rated working voltage 800V/1140V, rated working current 4000A. Below the distribution network, used to distribute power and protect lines and power equipment from overload, undervoltage, short circuit, grounding and other faults. The circuit breaker adopts an intelligent controller with accurate selective protection and multi-function, with complete protection functions. It is especially suitable for the distribution network that needs to improve power supply reliability and avoid unnecessary power failure. The 3H intelligent controller has a communication interface, which is easy to connect with the field bus, and can realize the four functions of "telemetry", "remote, adjustment", "remote, control" and "remote message", and meet the requirements of control automation. The electric leakage transformer and the corresponding intelligent controller can realize the electric leakage protection. The circuit breaker has the isolation function, with the symbol " — / — X — ".

■ Model and meaning



■ The circuit breaker meets the following standards

- ◆ IEC60947-1 General provisions of low-voltage switchgear and control equipment
- ◆ IEC60947-1 General provisions of low-voltage switchgear and control equipment
- ◆ IEC60947-4-1 Low-voltage switchgear and control equipment electromechanical contactor and motor starter

■ Installation environment requirements

The circuit breaker shall be installed in a dry, dust-free, non-corrosive gas and explosive dangerous medium without impact. If the environment can not meet this condition, the protection degree of the complete set of equipment should be improved accordingly. The specific requirements are shown in the table below:

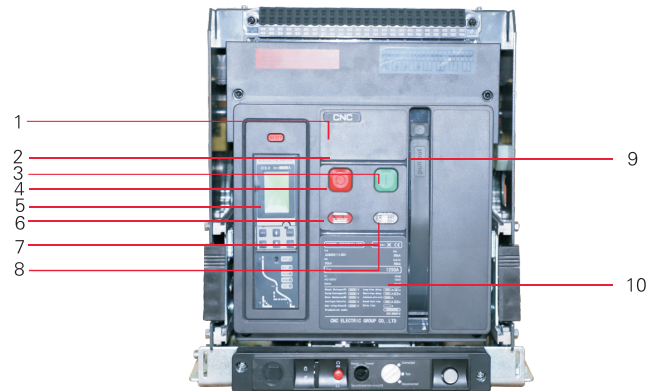
| Item | Specification |
|---------------------------|---|
| Ambient temperature | Electrical and mechanical characteristics are applicable to the ambient temperature -5°C ~ +40°C (certification), the ambient temperature is not greater than +40°C, the capacity reduction coefficient refer to the manual |
| Relative humidity | When the highest temperature is +50°C, the relative humidity of the air does not exceed 50%, and a high relative humidity can be allowed at a lower temperature. For example, the relative humidity can be allowed to reach 90% at 20°C |
| Height | ≤2000m, according to the specification for the capacity reduction factor over 2000m |
| Installation requirements | Breaker mounting vertical slope ≤5° |
| Pollution degree | Degree 3 |
| Use classes | B |
| Protection degree | The circuit breaker is installed in the cabinet room, with door frame IP40 |

■ Before installation

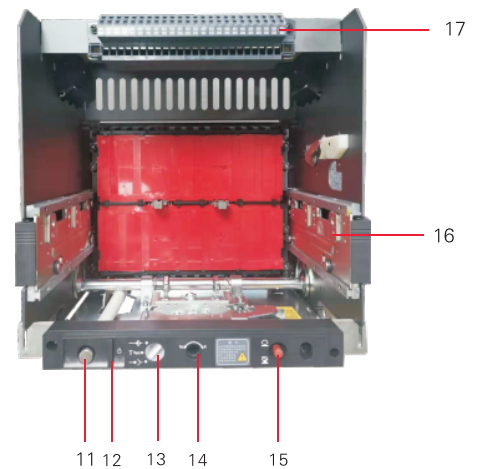
Before installation, check the insulation resistance of the circuit breaker with 500VDC megohms meter according to the regulations, and the surrounding temperature is $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ and 50%~70% should be not less than 500 M Ω . The insulation resistance test parts are: between the phases and between the ground and between the phases and poles when the circuit breaker is closed.

■ Structure

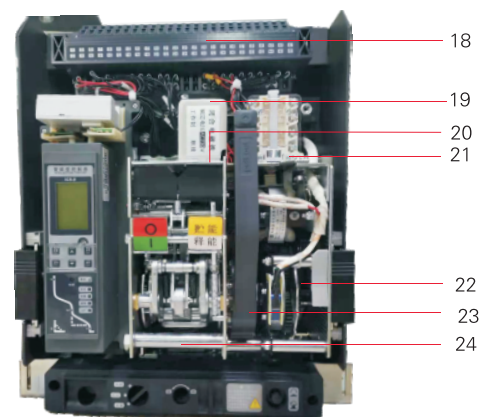
1. Fault trip reset button
2. Open position lock
3. Closing button (I)
4. Opening button (O)
5. Intelligent control unit
6. Main contact position indicator
(I: Closed, O: Open)
7. Close-enabled indicator
8. Energy storage/discharge indicator
9. Manual energy storage handle
10. Technical parameters



11. Handle and storage hole (drawer-type only)
12. Drawer-type "separate" position safety padlock
13. "Separate" "Test" "Connect" position indicator
14. Handle operating hole
15. Three-position lock reset button
16. Slide rail (drawer type only)
17. Control circuit terminal block (static)



18. Control circuit terminal block (moving)
19. Shunt release
20. Closing electromagnet
21. Auxiliary switch
22. Motor energy storage motor
23. Manual energy storage handle
24. Operating mechanism



■ Use and scope of use

| Model | | YCW8 | YCW8 |
|--|-------------------------|-------------------------------------|--|
| Frame rating current Inm (A) | | 2500 | 4000 |
| Rated operating current, In (A) | | 630,800,1000 1250,1600,2000,2500 | 2000,2500,2900,3200, 3600,3900,4000 |
| Frequency(Hz) | | 50 | 50 |
| Rated operating voltage Ue (V) | | 800,1140 | 800,1140 |
| Rated insulation voltage Ui (V) | | 1140 | 1140 |
| Rated impact withstand voltage Uimp (kV) | | 12 | 12 |
| Power frequency withstand voltage U (V)1min | | 3500 | 3500 |
| Number of poles | | 3P/4P | 3P/4P |
| Rated ultimate short-circuit breaking capacity (RMS Value)Icu(kA) | 800/1140V | 50 | 50 |
| Rated operating short-circuit breaking capacity (RMS Value) Ics (kA) | 800/1140V | 50 | 50 |
| Rated short-time withstand current(1s) RMS value) Icw (kA) | 800/1140V | 50 | 50 |
| Full break time (no additional delay) (ms) | | 12-18 | 12-18 |
| Closing time (ms) | | ≤60 | ≤60 |
| Operating performance | Electrical life(times) | 2000 | 2000 |
| | Mechanical life (times) | maintenance-free | 10000 |
| | | maintenance required | 20000 |
| | | | 20000 |

■ Basic functions and optional functions

I(M)



Digital display type

Digital display type

- Over-plant long delay'short circuit short delay, short circuit instantaneous protection
- Function test
- Fault memory
- Thermal memory
- Fault status indication and numerical value display
- Earth fault protection

Additional features

- Signal relay output
- MCR and over-limit trip
- Load monitoring
- Voltage measurement

3M/3H



LCD Type

Basic functions

- Overload long delay,short circuit short delay,short circuit instantaneous
- Function test
- Fault memory
- Thermal memory
- Self diagnosis
- Current measurement
- Fault status indication and numerical display
- Communication function 3H
- Contact wear indication 3H
- Operation count record 3H
- Earth fault protection

Additional features

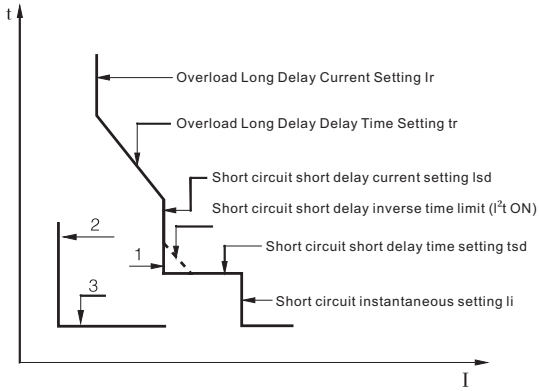
- Current imbalance protection
- Signal relay output
- Load monitoringMCR
- MCR and over-limit trip
- Power measurement
- Power measurement
- Power factor measurement
- Energy measurement
- Zone interlocking
- Harmonic measurement
- Voltage protection
- Voltage measurement

■ Use and scope of use

| Model | M | 3M | 3H |
|---|---|----|----|
| Overload-long time delay protection | ■ | ■ | ■ |
| Short-circuit and short-delay protection | ■ | ■ | ■ |
| Short circuit instantaneous protection | ■ | ■ | ■ |
| Earth fault protection | ■ | ■ | ■ |
| Current imbalance protection | - | □ | □ |
| Function test | ■ | ■ | ■ |
| Fault memory | ■ | ■ | ■ |
| Signal contact output | □ | □ | ■ |
| Thermal memory | ■ | ■ | ■ |
| Self diagnosis | ■ | ■ | ■ |
| MCU operation indication | - | - | - |
| Current bar graph display | - | - | - |
| Current measurement | ■ | ■ | ■ |
| MCR and overlimit trip | □ | □ | □ |
| Load monitoring | □ | □ | □ |
| Fault status indication and numerical display | ■ | ■ | ■ |
| Voltage measurement | □ | □ | ■ |
| Power factor measurement | - | □ | ■ |
| Power measurement | - | □ | □ |
| Electric energy measurement | - | □ | □ |
| Communication function | - | - | ■ |
| Contact wear indication | - | □ | ■ |
| Zone interlocking | - | □ | □ |
| Harmonic measurement | - | □ | □ |
| Voltage protection | - | □ | □ |
| Operation count record | - | □ | ■ |

Description; ■ represents basic function; □ represents optional; - indicates no such function.

Overcurrent protection function



1. Short circuit delay timing limit (I^2t_{OFF})
2. Earth fault current setting (I_g)
3. Earth fault delay time (t_g)

Overload long-delay protection

- ◆ Overload long delay reverse time limit protection, setting current I , adjustable;
- ◆ Overload long delay delay time, adjustable U

Short circuit short delay protection (OK-OFF)

- ◆ Short circuit short delay reverse time limit protection ($\%n$), setting current I_s adjustable;
- ◆ Short circuit short delay delay time t_{sd} adjustable

Short-circuit instantaneous protection

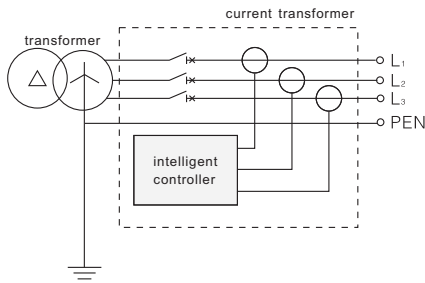
- ◆ Short circuit instantaneous (shutdown-OFF) sketch current I is adjustable

Short-circuit fault protection (OK-OFF)

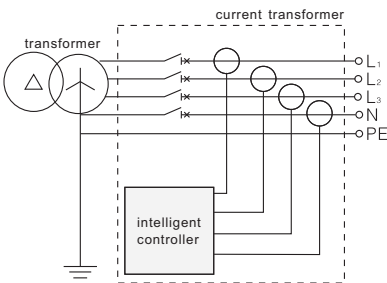
- ◆ Earth fault set time limit or reverse time limit protection, setting current I_g adjustable;
- ◆ The delay time t_g is adjustable;
- ◆ After the delay time is OFF, it will only alarm without disconnecting

Long delay, short delay, instantaneous, grounding protection specificity

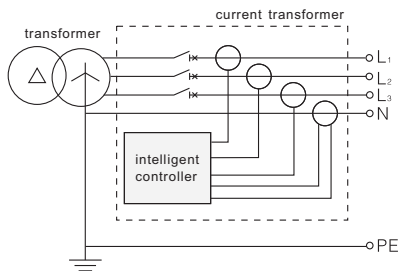
Method 1



Method 2



Method 3



Polar fault protection mode:

Mode 1: TN-C, TN-C-S, TN-S power distribution system, select YCW8 triple pole circuit breaker without additional external neutral line N current transformer

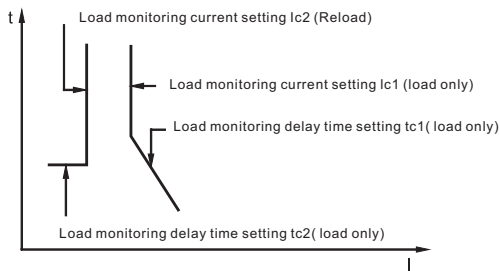
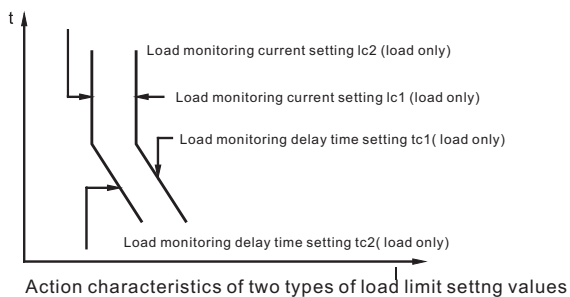
- ◆ Earth fault protection signal takes the vector sum of the three-phase currents.
- ◆ The protection feature is the fixed time limit or the reverse time limit protection.

Mode 2: The YCW8 quadropole circuit breaker is selected in the TN-S power distribution system

- ◆ Earth fault protection signal takes the three-phase current and N-phase current vector and.
- ◆ The protection feature is the fixed time limit or the reverse time limit protection.

Mode 3: YCW8 tripole circuit breaker is selected in TN-S distribution system

- ◆ External neutral wire N current transformer is used for earth fault protection (25 and 26 secondary circuit terminals), and the maximum distance of the transformer is 2m.
- ◆ Earth fault protection signal takes the three-phase current and N-phase current vector and,
- ◆ The protection feature is the fixed time limit or the reverse time limit protection



Action characteristics of one type of load limit and one type of reset/reload setting value.

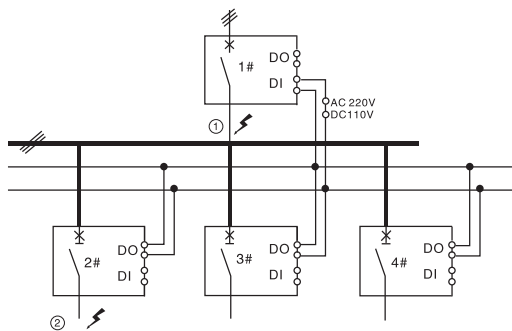
Load monitoring function

- ◆ To monitor the subordinate unimportant load and ensure the power supply of the main system;
- ◆ There are two options for load monitoring, and users can choose either one. The setting values of load monitoring current are I_{c1} and I_{c2} , generally $I_{c1} \geq I_{c2}$;
- ◆ Method 1: It can control two lower level loads. When the operating current of the main circuit exceeds I_{c1} and I_{c2} successively, it will delay t_{c1} and t_{c2} respectively and send a contact signal. The controller will issue a command to break the two controlled loads.
- ◆ Method 2: Only control one lower level load. When the main circuit's operating current exceeds I_{c1} , a contact signal is issued after a delay of t_{c1} , and the controller sends a command to cut off this load. If the operating current of the main circuit is lower than I_{c2} and the duration is t_{c2} after cutting off this load, the controller can send another signal to command the disconnected load to be connected (reloaded) and restore the power supply to the load.
- ◆ The load monitoring signals (1) and (2) corresponding to I_{c1} and I_{c2} are output through the secondary circuit terminal of the circuit breaker to output contact signals. When the signal is sent, it is also indicated by the LED of the intelligent controller.

Zone interlock

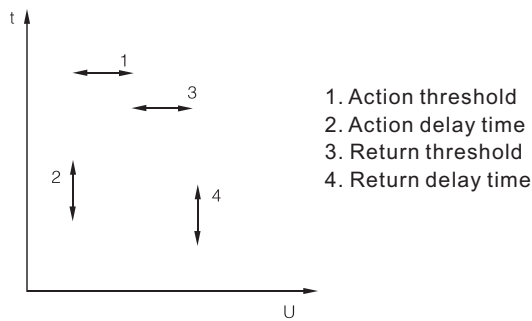
Zone selectivity interlocking includes short-circuit interlocking and earth-fault interlocking. In the same electric circuit with two or more interconnected circuit breakers in a hierarchical relationship:

- ◆ When the short circuit or earth fault is on the outgoing side of the lower circuit (such as position 2) (2# ~4# circuit breaker), the lower circuit breaker trips and sends a zone or interlocking trip signal to the upper-level circuit breaker. The upper-level circuit breaker (1# circuit breaker) receives the zone interlocking trip signal and initiates a delay based on the short circuit or earth fault protection setting. If the fault current is eliminated during the delay process of the upperlevel circuit breaker, the protection is restored, and the upper-level circuit breaker remains unaffected. However, if the lower-level circuit breaker trips and the fault current is not eliminated, the upper-level circuit breaker acts based on the short circuit or earth fault protection setting and disconnects the faulty circuit.
- ◆ When a short circuit or ground fault occurs between the upper-level circuit breaker (1#) and the lower-level circuit breakers (2#-4# circuit breakers), such as at position ①, the upper-level circuit breaker does not receive a zone interlocking signal. As a result, it instantaneously trips and rapidly disconnects the faulty circuit.
- ◆ Parameter settings
- ◆ The upper-level circuit breaker has at least one DI (Digital Input) configured for zone interlocking detection.
- ◆ The lower-level circuit breaker has at least one DO (Digital Output) configured for zone interlocking signal output.



Zone interlocking schematic diagram

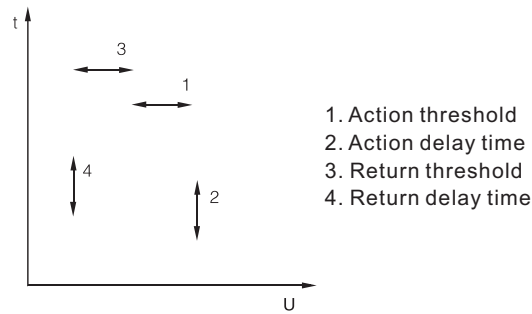
■ Voltage protection



Undervoltage protection action principle

■ Undervoltage protection

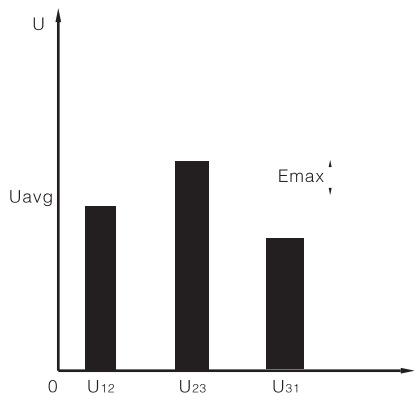
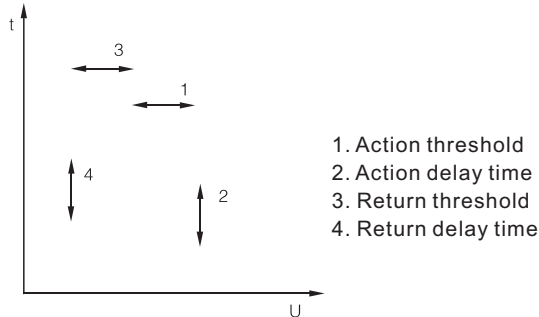
- ◆ The intelligent controller measures the true effective value of the primary circuit voltage. When the voltage of all three lines is less than the set value, the maximum value of the voltage of all the three lines is less than the undervoltage protection setting; when the maximum value of the voltage of all three lines is greater than the return value, the alarm action is returned.
- ◆ Action characteristics: When the maximum voltage value is below the trip threshold (1), initiate an alarm or trip delay. Upon reaching the action delay time (2), issue an alarm or trip signal, indicating an undervoltage fault. When the maximum voltage value exceeds the return threshold (3), initiate a return delay. Upon reaching the return delay time (4), remove the alarm, indicating the undervoltage fault has returned.



Overvoltage protection action principle

■ Overvoltage protection

- ◆ The intelligent controller measures the true effective value of the primary circuit voltage. When the voltage of the three lines is greater than the set value, then the minimum voltage of the three lines is greater than the overvoltage protection setting; when the voltage of the three lines is less than the return value, the alarm action returns.
- ◆ Action characteristics: When the minimum line voltage exceeds the trip threshold (1), initiate an alarm or trip delay. Upon reaching the action delay time (2), issue an alarm or trip signal, indicating an overvoltage fault. When the operating mode is set to alarm, after the alarm action, initiate a return delay when the minimum line voltage falls below the return threshold (3). Upon reaching the return delay time (4), remove the alarm, indicating the overvoltage fault has returned.



Voltage unbalance

■ Level instability rate protection

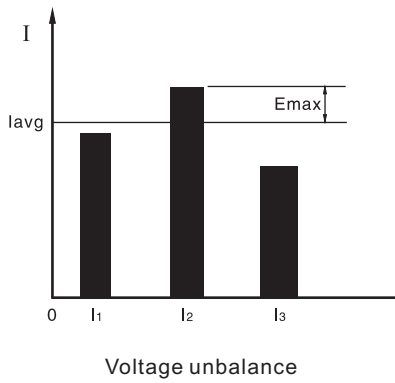
- ◆ Voltage unbalance protection operates based on the unbalance ratio between the three line voltages. The intelligent controller measures the voltage unbalance ratio, and when it exceeds the trip threshold, the protection is activated. When the voltage unbalance ratio falls below the return threshold, an alarm action is initiated to return. Calculation method of voltage imbalance rate:
- ◆ Action characteristics: When the voltage unbalance ratio exceeds the trip threshold (1), initiate an alarm or trip delay. Upon reaching the action delay time (2), issue an alarm or trip signal, indicating a voltage unbalance fault. When the operating mode is set to alarm, after the alarm action, initiate a return delay when the voltage unbalance ratio falls below the return threshold (3). Upon reaching the return delay time (4), remove the alarm, indicating the voltage unbalance fault has returned.
- ◆ Calculation method of voltage unbalance rate:

$$U_{\text{unbal}} = \frac{E_{\text{max}}}{U_{\text{avg}}} \times 100\%$$

$$U_{\text{avg}} = \frac{U_{12} + U_{23} + U_{31}}{3}$$

E_{max} : Maximum difference between the line voltage and the average value.

U_{avg} : The average value of the sum of the effective values of the three-phase line voltages.



■ Current unbalance rate protection

- ◆ Current unbalance protection safeguards against phase loss and three-phase current imbalances, based on the unbalance ratio between the three-phase currents.
- ◆ Calculation method of unbalance rate:

$$I_{unbal} = \frac{|E_{max}|}{I_{avg}} \times 100\%$$

$$I_{avg} = \frac{I_1 + I_2 + I_3}{3}$$

\$E_{max}\$: is the maximum difference between current and \$I\$.

\$I_{avg}\$: is the average value of the effective values of the three-phase line currents

■ Harmonic measurement

- ◆ The intelligent controller can measure the fundamental wave current, fundamental wave voltage, fundamental wave phase voltage, fundamental wave power and 3-31 times each odd harmonic current content (HRI_h), harmonic and wave voltage content (HRU_h). Total harmonic current distortion rate [THD_i, thd_i], harmonic voltage total distortion rate [THD_u, thd_u] harmonic content rate (HR)
- The ratio of the root of square value of the h th harmonic component to the root of square square value of the fundamental component (expressed as a percentage).

The h th harmonic current content rate is expressed as HRI_h.

$$HRI_h = \frac{I_h}{I_{1-1}} \times 100\%$$

Note: Note: \$I_h\$ the formula, \$I_h\$ represents the h-th harmonic of phase A

The h-harmonic voltage content is expressed as HRU_h.

$$HRU_h = \frac{U_h}{U_{12-1}} \times 100\%$$

Total harmonic distortion rate (THD, THd)

The ratio of harmonic content in periodic AC flow to the root mean square value of its fundamental component (THD) is expressed in percentage.

Note: \$I_h\$ the formula, \$I_n\$ represents the h-th harmonic current of phase A (root mean square value); \$U_h\$ is the h-th harmonic line voltage (root mean square value) between A-B phases. The ratio (thd) of the harmonic content in periodic traffic flow to the root mean square value of that periodic traffic flow is expressed as a percentage.

$$THD_i = \frac{\sqrt{\sum_{h=2}^{\infty} I_h^2}}{I_{1-1}} \times 100\%$$

$$THD_u = \frac{\sqrt{\sum_{h=2}^{\infty} U_h^2}}{U_{1-1}} \times 100\%$$

Note: \$I_h\$ the formula, \$I_n\$ is the h-th harmonic current of phase A (root mean square value); \$U_h\$ is the h-th harmonic line voltage (root mean square value) between A-B phases.

$$thd_i = \frac{\sqrt{\sum_{h=2}^{\infty} I_h^2}}{I_{1-1}} \times 100\%$$

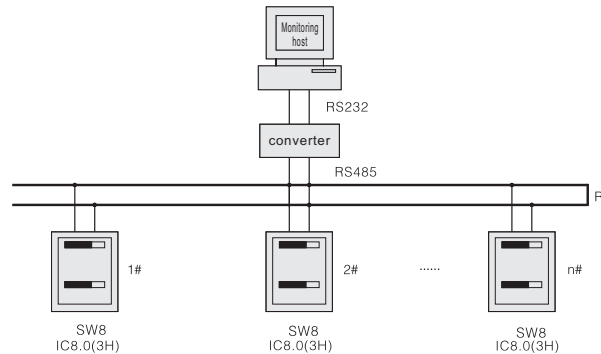
$$thd_u = \frac{\sqrt{\sum_{h=2}^{\infty} U_h^2}}{U_{1-1}} \times 100\%$$

■ Communication

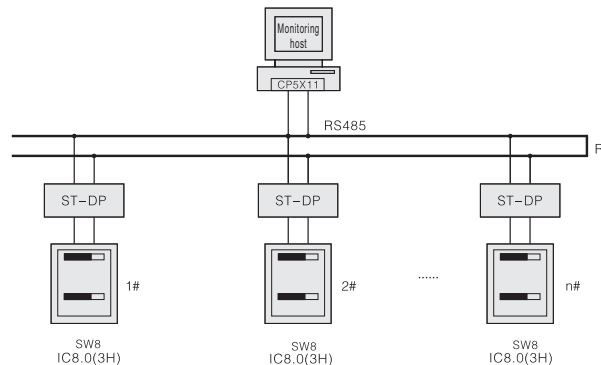
The remote "four remote" function of the circuit breaker can be achieved through the communication port. Namely, "remote control", "remote communication", "remote adjustment", and "telemetry".

The communication protocol uses Modbus RTU, Profibus DP, or Device mode, with a standard RS-485 interface. The baud rate and communication address can be set through a programmer. The maximum wiring distance is 1.5km, and one line can simultaneously connect 250 communicable circuit breakers. The communication line is a twisted pair shielded wire, and the communication distance can be extended by installing a relay.

- ◆ Communication Network Connection Diagram I
Apply Modbus-RTU protocol



- ◆ Communication Network Connection Diagram II
Applying the Profibus-DP protocol



ST-DP is a communication module, with the main station card position SIEMENS Company's CP5 × 11Rt: Network terminal resistance, usually 120Ω

■ Contact wear instructions

The current wear situation of the contact can be displayed on the panel of the intelligent controller. The factory display value is 100%, which means that the contact is not worn. When the display value drops to 60%, an alarm signal will be issued to remind the user to take maintenance measures in time. After the contact is replaced, the contact can be restored to the initial wear value by setting.

■ Self diagnosis

When the intelligent controller microprocessor malfunctions or the ambient temperature around the microprocessor exceeds 80 °C ± 5 °C, an alarm signal is immediately issued.

■ Self diagnosis

- ◆ MCR function: During the closing process of the circuit breaker or during the initialization of the controller during power on, if a short circuit short delay fault occurs, it can immediately switch to instantaneous opening.
- ◆ HSISC function: When the short-circuit current of the circuit breaker exceeds a certain limit during normal operation, the controller sends a signal to break the circuit breaker, which is not affected by the instantaneous short-circuit protection setting value.

| Making, breaking and over-limit tripping protection | | |
|---|-------------------|---|
| Making and breaking | Action threshold | 15 kA ~ 100 kA (step size: 1 kA) |
| | Default set value | 50 kA (In not more than 2000A) 60 kA (In more than 2000A) |
| Overlimit trip | Action threshold | 15 kA ~ 100 kA (step size: 1 kA) |
| | Default set value | 65kA(2500HU),80kA(4000HU) |

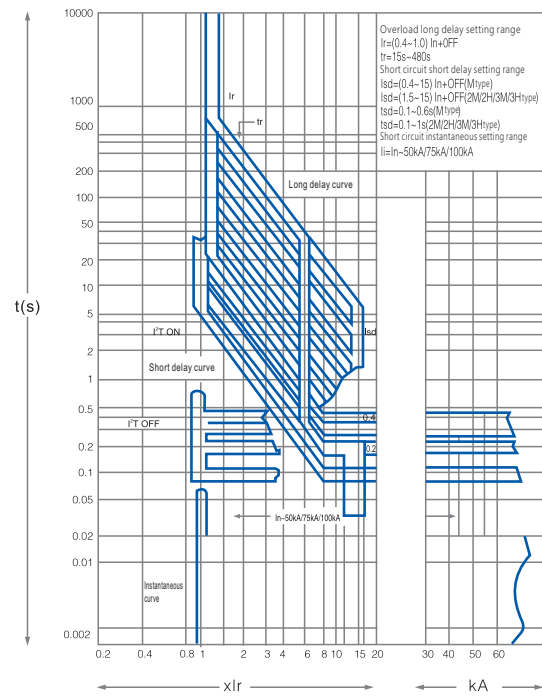
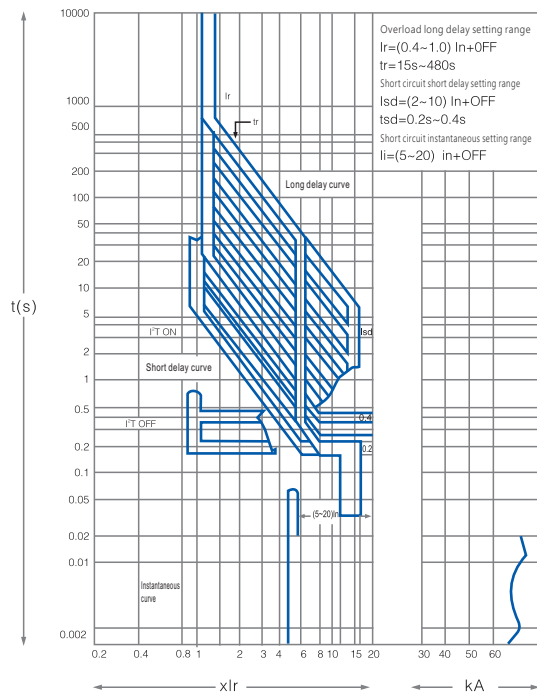
■ Fault memory function

After the circuit breaker encounters a fault split, the intelligent controller can display the fault type, fault phase and fault current value, and the breaking action time value.

■ Signal contact output

The controller has the signal contact output setting function, the specific signal output can contact our company.

| Contact default settings | | | | |
|--------------------------|-------------------|-------------------|----------------------------|-----------------------|
| | Contact 1 | Contact 2 | Contact 3 | Contact 4 |
| M/3M | Load monitoring 1 | Load monitoring 2 | Self-diagnosis fault alarm | Failure trip |
| 3H | Load monitoring 1 | Load monitoring 2 | Remote control gate | Remote control switch |



■ Overload long delay protection

| | | | | | | | | |
|---|----------------------|--|---|------|------|------|-----|-----|
| Setting current I _r adjustment range | | M/3M/3H | (0.4-1.0) × I _n + OFF (Incremental adjustment by 1A) | | | | | |
| Action time tolerance ± 15% | voltage | Occupation during action | | | | | | |
| | ≤ 1.05I _r | No action within 2 hours | | | | | | |
| | ≥ 1.3I _r | Move within 1 hour | | | | | | |
| | 1.5I _r | Set time T _r (s) | 15 | 30 | 60 | 120 | 240 | 480 |
| | 2.0I _r | Action time T _r (s) | 8.4 | 16.9 | 33.8 | 67.5 | 135 | 270 |
| | 7.2I _r | Action time T _r (s) | 0.65 | 1.3 | 2.6 | 5.2 | 10 | 21 |
| Thermal memory function | | 30min + OFF (can be eliminated by power outage) | | | | | | |
| N-phase overload and overcurrent characteristics | | 100% I _n or 50% I _n (applicable for 3P + N or 4P products) | | | | | | |

■ Short-circuit and short-delay protection

| | | | | | | | | |
|---|-------|---|--|---|------|------|------|------|
| Fixed current I _{sd} adjustment range | | | M | (0.4-15) × I _n + OFF (Incremental adjustment by 1A) | | | | |
| | | | 3M/3H | (1.5-15) × I _n + OFF (Incremental adjustment by 1A) | | | | |
| voltage tolerance ± 10%, action time tolerance ± 15% | M | voltage | Action time | | | | | |
| | | I ≥ I _{sd} , I ≤ 8I _r | Inverse time limit $T = (8I_r)^2 \times t_{sd} / I^2$ I - actual current | | | | | |
| | | I ≥ I _{sd} , I > 8I _r , or I ≥ I _{sd} I ≤ 8I _r Inverse time limit OFF | Time time t _{sd} (s) | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 |
| | | | Return time (s) | 0.06 | 0.16 | 0.26 | 0.35 | 0.44 |
| | 3M/3H | Time limit extension | Time limit setting time I _{sd} (s) | 0.1~1s (level difference 0.1s)+OFF (fixed time limit closed, inverse time limit 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 function | | | 15min + OFF (can be eliminated by power outage) | | | | | |

■ Short-circuit instantaneous protection

| | | |
|--------------------------------|---------|--|
| Set the current I _i | M/3M/3H | I _n ~50kA+OFF(W3-1600/2500) I _n ~75kA+OFF(W3-4000/7500) |
|--------------------------------|---------|--|

■ Earth fault protection

| | | | |
|---|-------------------|-----------------------------|--|
| Fixed current I _g adjustment range (A) | | M/3M/3H | (0.2~1.0) × I _n + OFF (with M minimum of 100A / 2H) |
| Setting current I _g adjustment range (A) | constant time-lag | Set Time T _g (s) | 0.1~1s (0.1-1s class difference 0.1s) |
| | constant time-lag | Set Time T _g (s) | 0.1-1s (0.1-estimated difference 0.1s) |

■ Load monitoring

| | | |
|----------|--|--|
| Method 1 | Setting current I_{c1} , I_{c2} adjustment range (A) | $(0.2-1.0) \times I_n + \text{OFF}$ |
| | Delay characteristics t_{c1} , t_{c2} (S) | $t_{c1}=(0.2-0.8) \times t_r$, $t_{c2}(0.2-0.8) \times t_r$ |
| Method 2 | Setting current I_{c1} , I_{c2} adjustment range (A) | $(0.2-1.0) I_n + \text{OFF}$ |
| | Delay characteristics t_{c1} , t_{c2} (S) | $t_{c1}=(0.2-0.8) \times t_r$ |
| | | Fixed time $t_{c2}=60\text{s}$ |

■ Voltage unbalance protection

| | | |
|--|---|----------------------|
| Action threshold | 2%~30% (grade difference of 1%) | |
| Action delay time (s) | 0.2~60 (grade difference of 1%) | |
| Return threshold (working in "Alarm") | 2%~30% (1% grade difference) is not greater than the action threshold | |
| Return delay time (s) (when working mode is "alarm") | 0.2~60 (grade difference of 1%) | |
| Alarm contact output | Selectable | |
| Performance characteristic | Actual voltage unbalance / Set fixed value | Agreed tripping time |
| | <0.9 | No action |
| | <1.1 | Time limit action |

Note: Delay tolerance is $\pm 10\%$

■ Undervoltage protection

| | | |
|---------------------------------|---|---|
| Action threshold value (V) | 100-Return value (step 1) | |
| Action Delay time (s) | 0.2~60 (step length 0,1) | |
| Return threshold value (V) | Action threshold-1200 (step length 1) | |
| Return time delay (s) | 0.2~60 (step length 0,1) | |
| Action or alarm characteristics | Voltage multiple (U_{\max} Action threshold) | Agreed tripping or alarm time |
| | <0.9 | Fixed time limit action or alarm, contact point (optional) output |
| | ≥ 1.1 | No action or no alarm, no contact output |

Note: Delay tolerance is $\pm 10\%$

■ Current unbalance protection

| | |
|---|--|
| Unbalance rate to adjust the overall range | 40%~100%+OFF |
| Action characteristics or the alarm characteristics | ≤ 0.98 , no action |
| | <1.16, Delay delay of the action |
| Delay time (s) | 0.1~1.0s+OFF (OFF: only alarm and no action, grade difference 0.1 S) |

■ Overvoltage crowbar

| | | |
|---------------------------------|--|---|
| Action threshold value (V) | Return valve value ~1200 (step length 1) | |
| Action Delay time (s) | 0.2~60 (step length 0.1) | |
| Return threshold value (V) | 100~ Action threshold (step length 1) | |
| Return time delay (s) | 0.2~60 (step length 0.1) | |
| Action or alarm characteristics | Voltage multiple (Umax / action valve) | Aped withholding or alarm time |
| | <0.9 | No action or no alarm, no contact (optional)output |
| | <1. 1 | Fixed time limit action or alarm, contact point (optional) output |

Note: Delay tolerance is $\pm 10\%$

■ Earth leakage protectio

| | | |
|----------------------------|------------------------------------|----------------------|
| Action current IAn (A) | 0.5~30 (grade difference 0.1 A) | |
| Delay Time TAn (s) | 0~0.83 | |
| Performance characteristic | Current multiple of I / Δn | Agreed tripping time |
| | <0. 8 | No action |
| | $\geq 1. 0$ | Time limit action |

Note: Delay tolerance

■ Leakage protection action delay

| | | | | | | | | | | | | |
|------------------|--------------------------------|------|------|------|------|------|------|------|------|------|------|---------|
| 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 | instant |
| Fault current | Maximum disconnection time (s) | | | | | | | | | | | |
| I Δn | 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 Δn | 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 Δn | 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 Δn | | | | | | | | | | | | |

■ Users have no special requirements, and the intelligent controller is set up as follows

| | | |
|--|-----------------|--|
| Overload-long time delay protection | I _r | 1I _n |
| | t _r | 60s |
| Short-circuit and short-delay protection | I _{sd} | 6I _n |
| | t _{sd} | 0.4s |
| Short circuit instantaneous protection | I _i | 10I _n |
| Earth-fault protection | I _g | 0.8 I _n or 1200A (take the minimum value) |
| Load monitoring | I _{c1} | 1I _n |
| | I _{c2} | 1I _n |

Single-phase earth leakage protection refers to the metallic grounding protection with fault current above a few hundred amps, generally used for neutral direct grounding system. The controller is divided into two different protection modes, one is the difference type (T). The controller can be protected into three forms: 3 PT, 4 PT and (3P + N), see Figure 3, Figure 4 and Figure 5 respectively. The other is the ground current type (W), where the controller directly takes an additional current transformer output current signal between the neutral point of the main power source and the ground for protection, and the transformer N line and PE

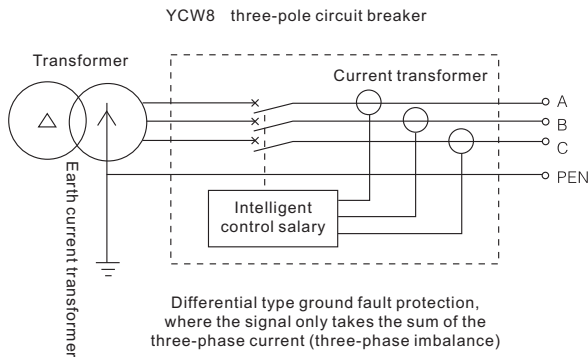


Figure 3 3PT grounding difference type

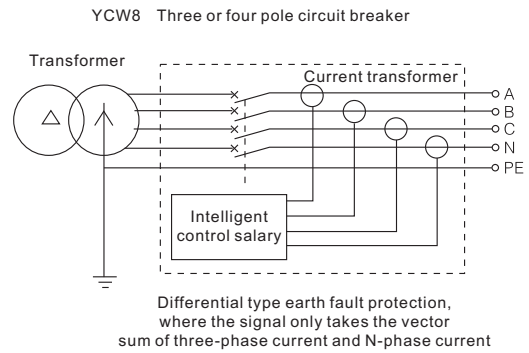


Figure 4 4PT grounding difference type

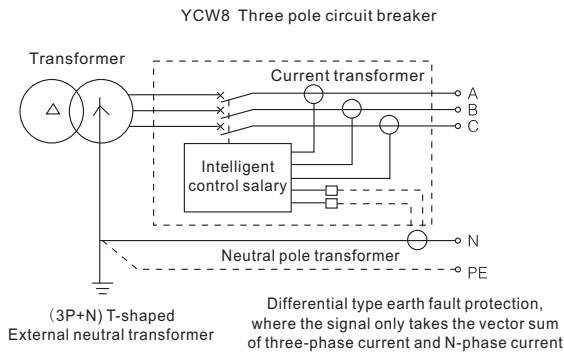


Figure 5 (3P+N) T grounding difference type

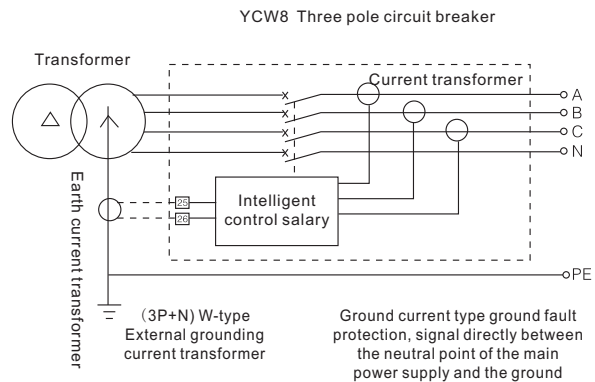


Figure 6 grounding current type

Leakage protection mainly takes signals through zero sequence transformers, which have high flexibility and are suitable for grounding protection of several ampere high resistance grounding systems, as well as direct grounding systems. Generally, it only alarms and does not trip, and the circuit breaker can also be disconnected when needed. The connection method is shown in Figure 7 and Figure 8. In addition, there are two types of load circuit (ZCT) or transformer grounding wire (ZT).

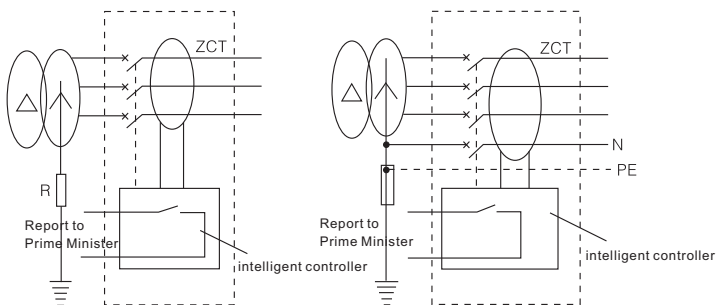


Figure 7 Leakage Load Circuit Type

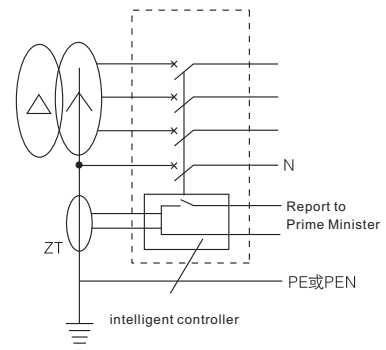


Figure 8 Grounding Line of Leakage Transformer

■ Power consumption (ambient temperature+40°C)

| Model | Power dissipation (W) | |
|-------------|-----------------------|-------------|
| | Fixed type | Drawer type |
| YCW8-2500HU | 240 | 360 |
| YCW8-4000HU | 600 | 800 |

■ Lineup coefficient

The following table shows the ability of the circuit breaker to continuously carry current under the working environment temperature and the heating conditions specified in IEC 60974-1.

| The ambient operating environment | | +40°C | +45°C | +50°C | +55°C | +60°C |
|---|-----------|-------|---------|---------|---------|---------|
| Continuous carrying current carrying capacity | Inm=2500A | 1Inm | 0.97Inm | 0.91Inm | 0.87Inm | 0.82Inm |
| | Inm=4000A | 1Inm | 0.96Inm | 0.90Inm | 0.86Inm | 0.80Inm |

If the altitude exceeds 2000m in the applicable working environment, the power frequency withstand voltage can be corrected according to the following table:

| Altitude (m) | 2000 | 3000 | 4000 | 5000 |
|--|------|------|------|------|
| Power frequency withstand voltage (V) | 3500 | 3150 | 2500 | 2000 |
| Working current correction system | 1 | 0.93 | 0.88 | 0.82 |
| Correction coefficient for short-circuit breaking capacity | 1 | 0.83 | 0.71 | 0.63 |

■ Copper row specifications

| Rated current of shell frame level Inm (A) | Rated current In (A) | Copper row specifications | |
|--|----------------------|---------------------------|--------------------|
| | | Radical | Dimensions (mm×mm) |
| 2500 | 630 | 2 | 60×5 |
| | 800 | 2 | 60×5 |
| | 1000 | 2 | 80×5 |
| | 1250 | 3 | 80×5 |
| | 1600 | 3 | 80×5 |
| | 2000 | 3 | 80×10 |
| | 2500 | 3 | 80×10 |
| 4000 | 2000 | 2 | 100×10 |
| | 2500 | 3 | 100×10 |
| | 2900 | 3 | 100×10 |
| | 3200 | 4 | 100×10 |
| | 3600 | 4 | 100×10 |
| | 3900 | 4 | 100×10 |
| | 4000 | 5 | 100×10 |

■ Electric accessories



◆ Undervoltage/loss of voltage release

| | | |
|--|-----------------|-------|
| Rated working voltage U_e (V) | AC400 | AC230 |
| Undervoltage release operating voltage (V) | $(0.35-0.7)U_e$ | |
| Loss of voltage release operating voltage (V) | $\leq 0.35U_e$ | |
| Reliable closing voltage under undervoltage (V) | $(0.85-1.1)U_e$ | |
| Unable to reliably close under undervoltage energy (V) | $\leq 0.35U_e$ | |
| Power consumption | 12VA | |



◆ Shunt release

Can be remotely operated to disconnect the circuit breaker

| | | | |
|---------------------------------------|-----------------|-------|-------|
| Rated control power voltage U_e (V) | AC400 | AC230 | AC220 |
| Action voltage | $(0.85-1.1)U_e$ | | |
| Instantaneous current (A) | 1.2 | 1 | |
| Closing time (ms) | 50ms \pm 10ms | | |



◆ Closing electromagnet

After the energy storage is completed, the closing electromagnet can instantly release the energy stored by the operating mechanism, causing the circuit breaker to quickly close.

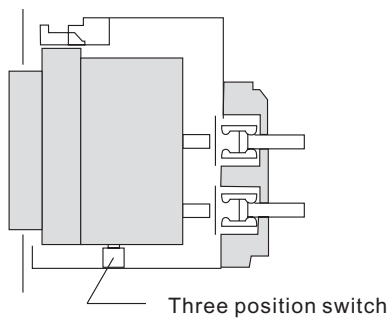
| | | | |
|---------------------------------------|-----------------|-------|-------|
| Rated control power voltage U_e (V) | AC400 | AC230 | AC220 |
| Action voltage | $(0.85-1.1)U_e$ | | |
| Instantaneous current (A) | 1.2 | 1 | |
| Closing time (ms) | 50ms \pm 10ms | | |



◆ Auxiliary switch

| | | |
|-----------------------------------|--|------------------------|
| Rated operating voltage U_e (V) | Convended heating current I_{th} (A) | Rated control capacity |
| AC400 | 6 | 300VA |
| AC230 | | |
| DC220 | | 60W |

The standard type of the auxiliary switch is 4 normally open, 4 normally closed conversion contact



◆ Three-position switch

The three position switch is mainly suitable for indicating the separation, testing, and connection status of drawer type circuit breakers;

The separation position is equipped with one normally open and one normally closed contact;

The test position is equipped with one normally open and one normally closed contact point;

The connection position is equipped with one normally open and one normally closed contact point;

| | | |
|---------------------|--------|---------------|
| Rated voltage U_e | | Rated heating |
| The AC-AC50Hz | AC250 | 3 |
| | AC380 | 1 |
| Direct-current | VDC220 | 0.3 |
| Use category | | AC-15, AC-12 |
| | | DC-12 |

◆ "Three-position" wiring diagram

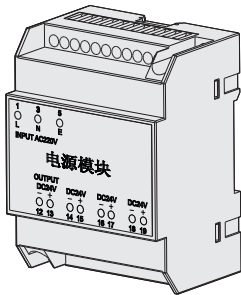
| | | |
|-------------------|------------------|------------------|
| Separation ●—○ | Trial T Test | Linkage —● |
| 02—○ 03 —○ 01 | 05—○ 06 —○ 07 | 08—○ 09 —○ 07 |



◆ Electric operating mechanism

The circuit breaker has the functions of motor energy storage and automatic energy re storage (the circuit breaker can also store energy manually)

| | | |
|-------------------------|---------|------|
| Shell grade | 2500 | 4000 |
| Operation voltage (V) | 230/400 | |
| Power | 85W | 110W |
| Energy storage time (s) | < 7S | |



◆ Power-supply module

Input power supply: AC230 V/AC400V / DC110V / DC220V(optional); Auxiliary power supply must be provided when using the ground protection, communication, thermal memory function or requiring the circuit breaker to maintain the input and output signal in the switch state.

When the DC intelligent controller is selected, the DC power supply must be converted to DC24V through the DC power supply module, and then provided to the intelligent controller.



The ST201 relay expansion module

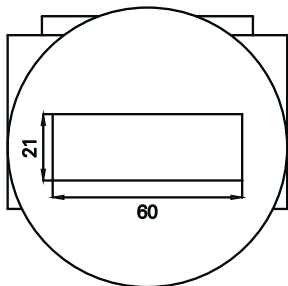
The working power supply of the relay expansion module is supplied by DC24V, and DC24V is provided by the ST-IV power module.

The DO / DI signal unit output by the controller is generally used for fault alarm or indication. When the controller switch or the load capacity is large, the DO / DI control signal sent by the controller should be amplified through the ST201 relay module. The overall and mounting dimension is the same as ST-IV power supply module.

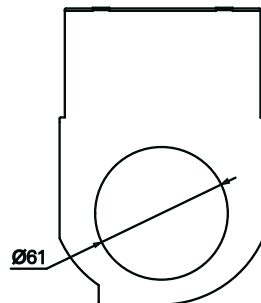
■ External, neutral wire (N phase) transformer (T)

When used in the (3P + N) distribution system with the tripole circuit breaker (the intelligent controller unit should choose type IU 4.0), installed on the neutral line N, the maximum distance from the installation point is 2m.

The three specifications are as follows:



YCW8-2500 shell frame
630A-2500A

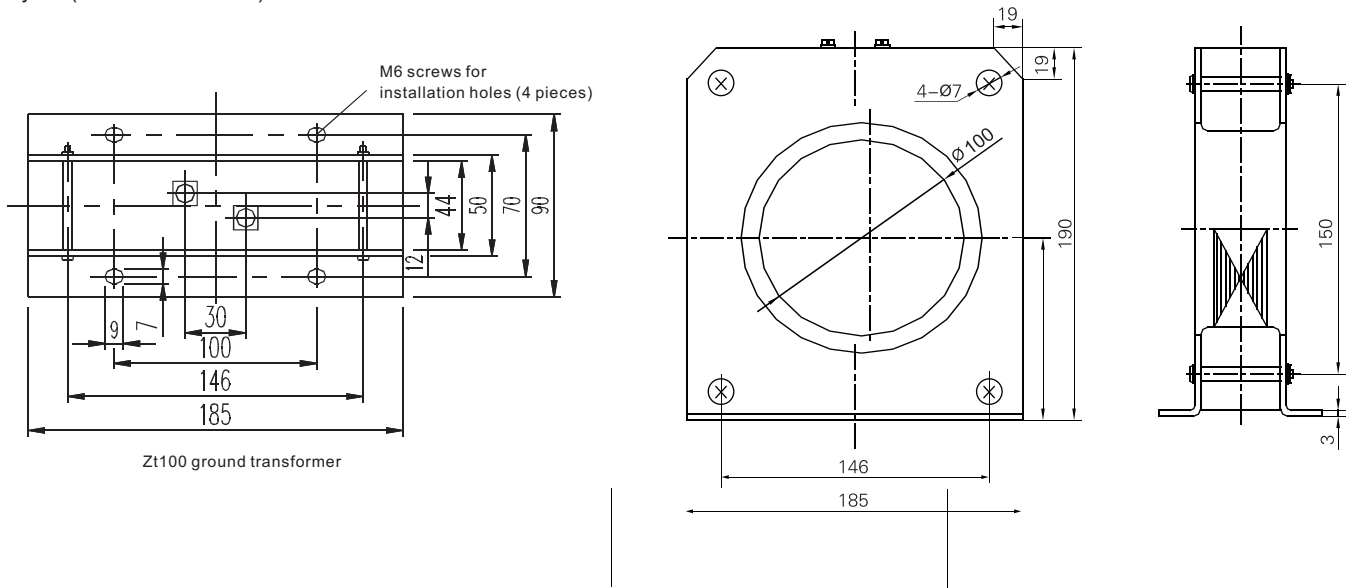


YCW8-4000 shell frame
2000A-4000A

If the N-phase busbar is too wide and the existing external N-phase mutual inductor cannot meet the requirements, our company can also provide flexible mutual inductors. The flexible mutual inductors can accommodate busbars with a width of 100mm and above.

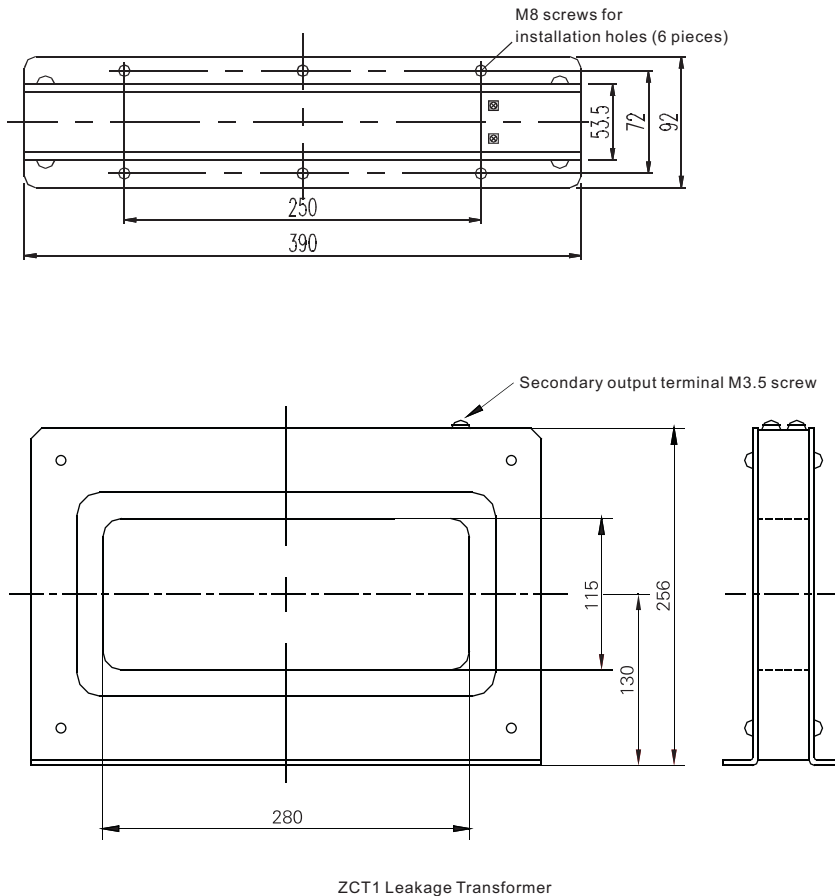
External ground current transformer

The external ground current transformer (ZT100) is used when the controller is set to ground current protection (W). The turns ratio of the transformer is as follows: 1A rated current for the controller (below 3200A), and rated current of the controller divided by 5A (3200A and above).



External zero-sequence leakage current transformer

The controller is used when the grounding protection is leakage protection (E), and the external zero sequence leakage transformer is ZCT1 transformer, with a transformation ratio of 30A/20mA.



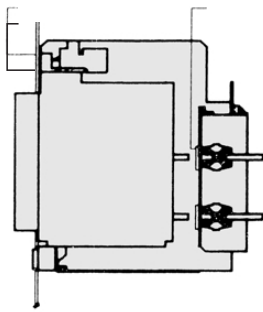
◆ Electrical indication device for drawer position of circuit breaker

The electrical indication device is installed inside the dry drawer and provides electrical status signals corresponding to the "separated," "test," and "connected" positions of the drawer seat when the drawer-style circuit breaker body and the drawer seat are in these three Characteristics positions.

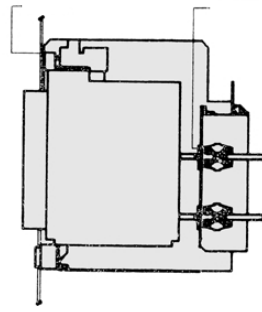
| | |
|--------------------------------------|-----|
| Rated working voltage U_e (V) | 230 |
| Agreed heating current I_{the} (A) | 10 |
| Rated working current I_e (A) | 1.5 |

■ Characteristics

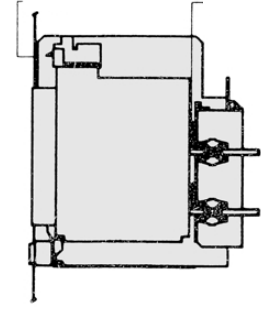
Separated, test and connected position status



The main circuit and the auxiliary circuit are all disconnected

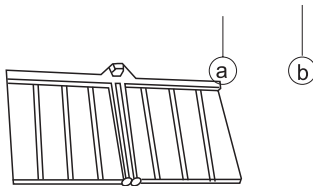


The main circuit is disconnected and the auxiliary circuit is switched on. The safety baffle is closed, and the necessary tests can be conducted.



The main circuit and the auxiliary circuit are connected to the safety baffle to open.

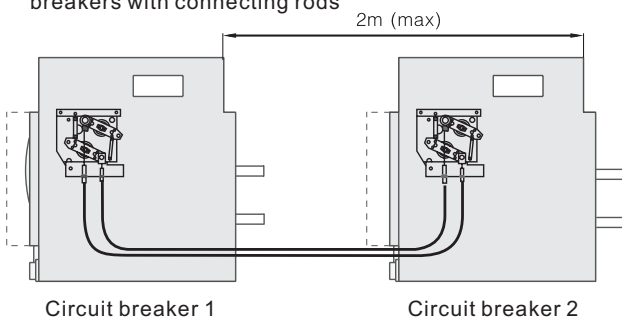
■ Circuit breaker drawer seat connection, test, separation device



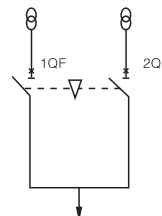
- ◆ A Padlock device (User-supplied Padlock) for locking the user drawer in "Separated," "B Separation, test, interlock and unlocking device of circuit breakers
- ◆ For engaging or disengaging the hand-operated handle in automatic lock finding. It prevents malfunctions caused by improper operation of the handle in the "Separated," "Test," or "Connected" positions.
- ◆ Lock position is released
After the position red interlocking device pops up, to operate the handle again, you must first press the synonym of the red interlocking device to operate the manual handle.
- ◆ Interphase partition
Vertically installed between the terminal blocks of the fixed part of the drawer type circuit breaker, to strengthen the insulation strength of the busbar connection and prevent arc expansion inside the circuit breaker.
- ◆ Three locks and two keys
The three lock two key 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 rotate clockwise. At this point, the circuit breaker can be closed, but the key cannot be removed. If the key is removed, the circuit breaker needs to be opened, the opening button needs to be pressed, and the key needs to be turned counterclockwise and taken out. At this point, the circuit breaker cannot be closed.

◆ Mechanical interlocking

Interlocking of two flat circuit breakers with steel cables or interlocking of two stacked circuit breakers with connecting rods



Circuit diagram Possible operating modes

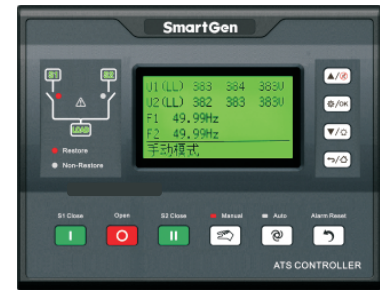


| 1QF | 2QF |
|-----|-----|
| 0 | 0 |
| 0 | 1 |
| 1 | 0 |

■ Dual power supply automatic switching system

◆ Main performance features

1. All parameters and programmable ports are digitally adjusted, can realize the site and monitoring center setting, important parameters adopt a two-level password, to prevent non-professional misoperation;
2. The microprocessor-based system features an LCD display with backlighting for Chinese language output, and operation is facilitated through touch-sensitive buttons.
3. It has switch closing and tripping functions, as well as an automatic re-closing feature in case of power failure. If the voltage of the other road is normal, it will automatically switch to another road;
4. With automatic / manual state switch, enabling manual operation to forcibly open or close the switch under manual mode;
5. Closing output can be set as a pulse or continuous output;
6. The site can be set to the load / no load mode for generator set test operation;
7. Generator set with timer control function, capable of setting single run, monthly run, or weekly run, with the option to run with or without load. It can control the cyclic operation of two generator sets, and the running time of the generator sets as well as the interval shutdown time can be configured;
8. The 8 LED indicator lights can clearly display the working status of the switch and the controller;
9. The DC power supply has a wide voltage range and can withstand momentary peaks up to 50V;
10. Equipped with switchable delay (i.e., intermediate position dwell time), the delay time can be set;
11. Can query the current controller status (including input port, overvoltage, undervoltage, and other internal switch states);
12. With RS-485 isolated communication interface, with adjustable baud rate and communication address. Can implement "remote control, remote measurement, remote signaling" functions using the Modbus communication protocol for dual power source switching;
13. Real-time calendar and clock functionality.
14. It has the alarm function of switching fault, generator fault and other general faults;
15. 40 historical records can be recycled, including the time of record preservation, automatic / manual conversion, fault cause, switch status during conversion, power parameters, etc.
16. With the engine start function, and can set the conditions for engine start;
17. The input can be connected to the auxiliary contact of two-way transfer switches, the output is the passive contact of the relay output;
18. With 5 function configurable output and 4 function configurable input;
19. With the remote control interlocking function, the output control port remains unchanged in the original state in the interlocked state;
20. Protection degree: IP55-with added waterproof rubber ring, IP42-without added waterproof rubber ring.



■ Technical data

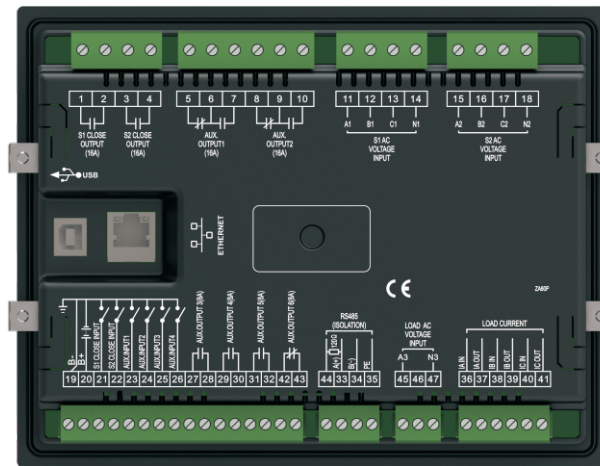
1. Power source:

- DC input: 8~35V (access when the start signal of the engine is required);
AC input: Derived from Phase A/Neutral voltage of Circuit I and Circuit II. As long as one of the circuits has power, it can operate. The voltage range is 160-280V.
2. Input three-phase voltage: 50-280V (single-phase)/80-480V (three-phase)
50Hz/60Hz; Input three-phase current: 0-5A (rated)
3. Overall power consumption < 3V (standby mode 2VA)
4. Output capacity of closing and opening relay: 16AAC250V passive output;
5. Programmable relay output capacity: 16A/10AAC250V passive output;
6. Digital Input: Active when grounded;
7. Communication method: Standard configuration includes one local RS232 and one remote isolation RS485-I. MODBUS protocol, user can choose the second remote isolation RS485 II, and the function can be customized;
8. Working conditions: temperature -25 °C ~ +70 °C, humidity of 20%~90%;
9. Insulation strength: AC 1.5KV/1min between input/output/power supply, leakage current 5mA.
10. Weight: 0.8-1.0kg.

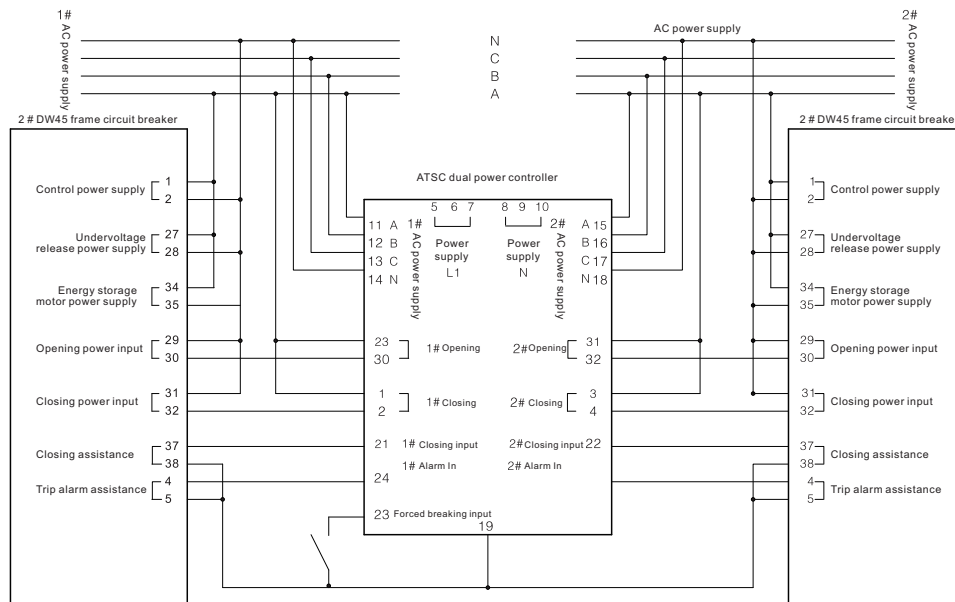
◆ Communication parameters

1. Remote isolation RS485-I
Module address: 1-254, user can set it by themselves
Wave rate: 9600 (1200, 2400, 4800, 9600, 19200, 57600bps)
Data bits: 8 bits
Stop bit: 1 bit (1 bit, 2 bits)
Check bit: No check (no check, even check, odd check)
2. Remote isolation RS485 II
This isolation RS485 can be optional for users or customized from the manufacturer.

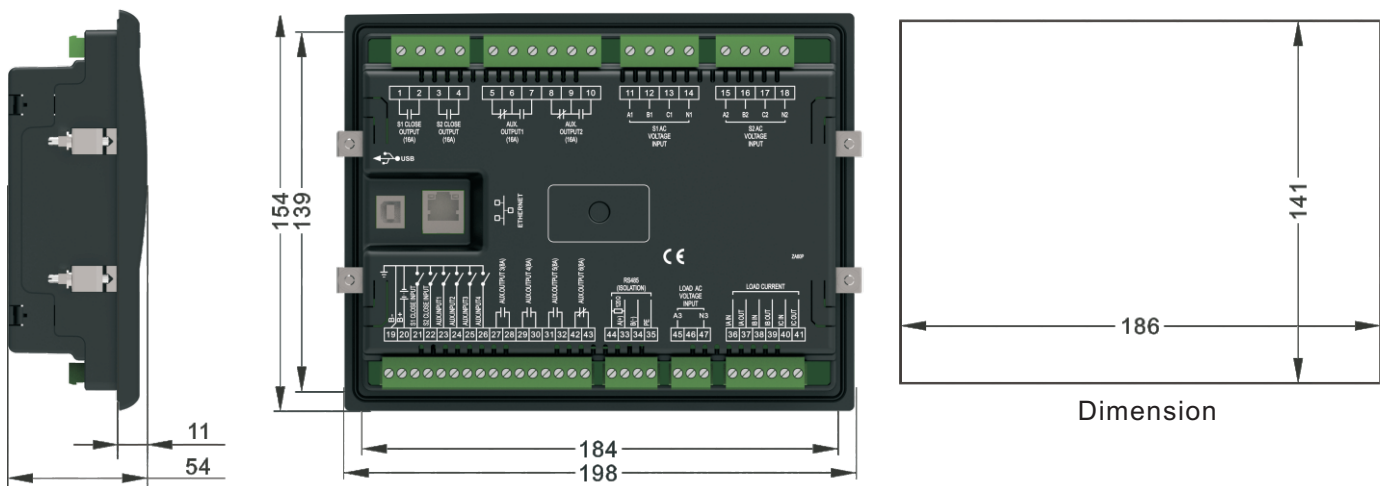
Terminal function definition



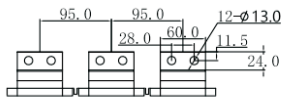
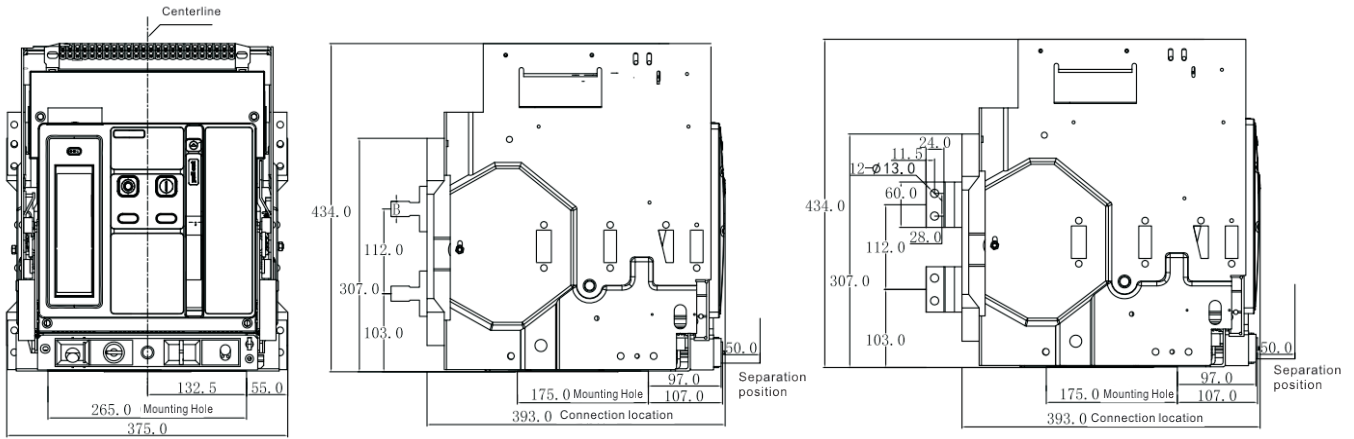
Typical wiring diagram



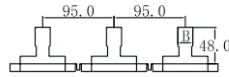
Dimension



■ YCW8-2500HU/3P drawer type dimensions and installation drawing



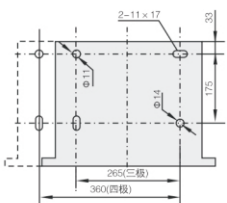
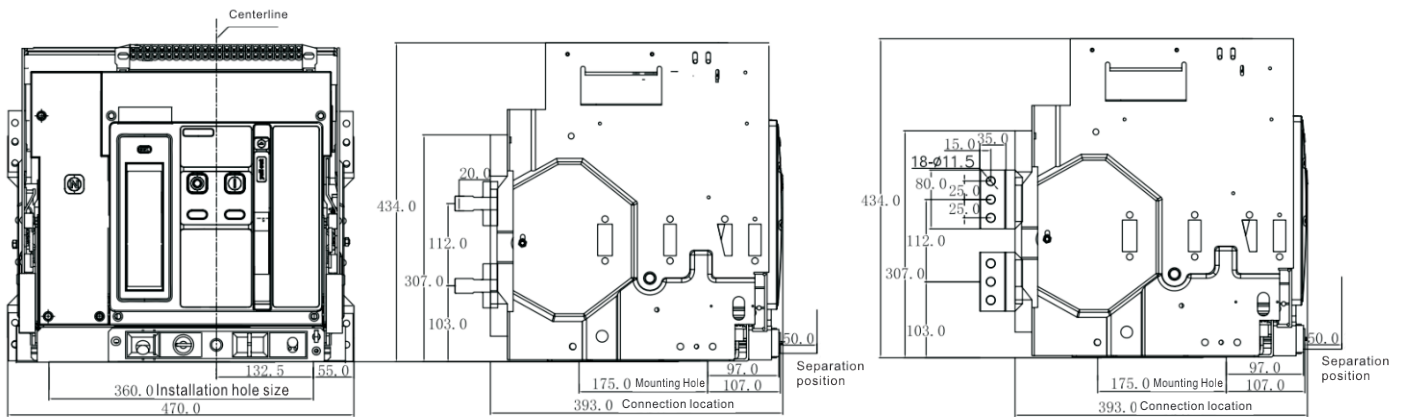
Horizontal wiring



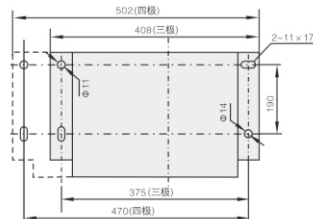
Vertical wiring

| Current | SizeB(mm) |
|-------------|-----------|
| 630A-800A | 10 |
| 1000A-1600A | 15 |
| 2000A | 20 |

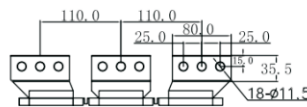
YCW8-2500HU/3P $I_n \leq 2000A$



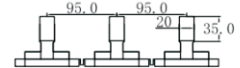
Internal installation dimensions



External installation dimensions



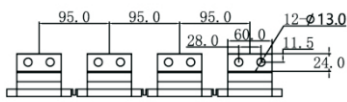
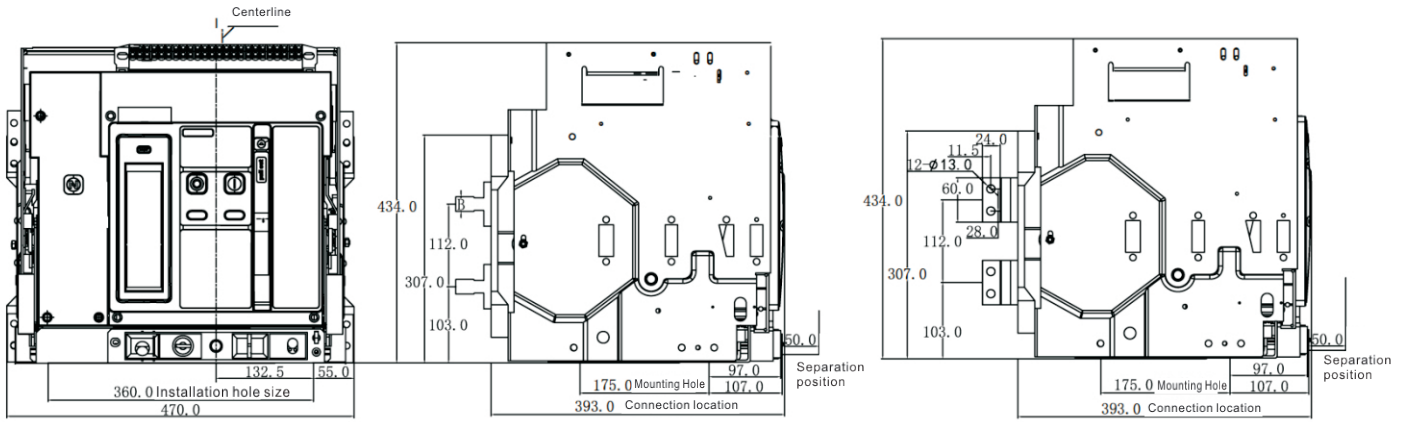
Horizontal wiring



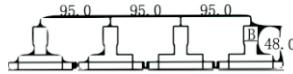
Vertical wiring

YCW8-2500HU/3P $I_n = 2500A$

■ YCW8-2500HU/4P drawer type dimensions and installation drawing



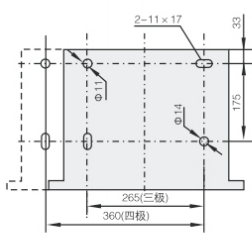
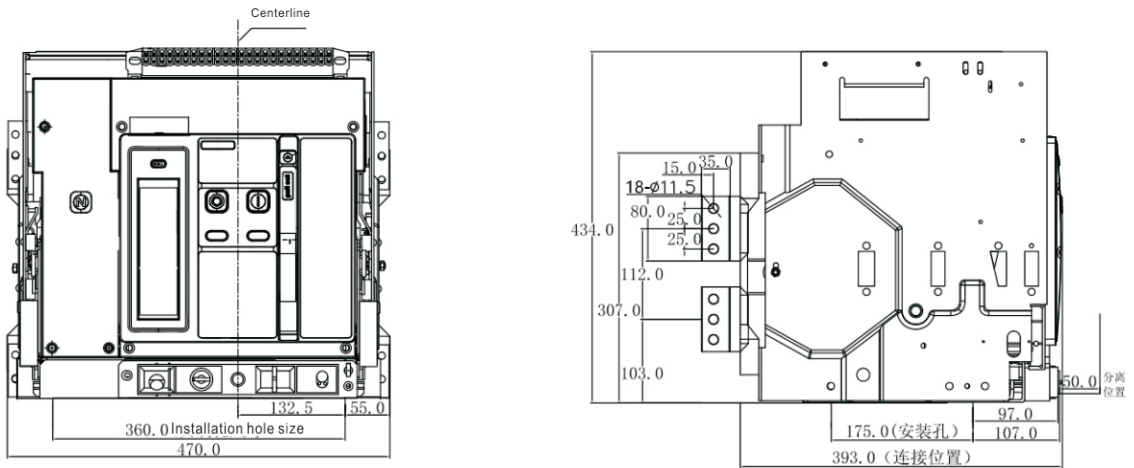
Horizontal wiring



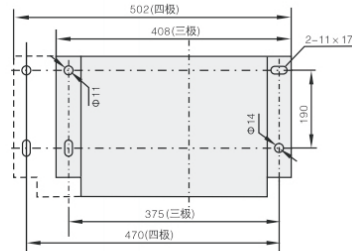
Vertical wiring

| Current | SizeB(mm) |
|-------------|-----------|
| 630A-800A | 10 |
| 1000A-1600A | 15 |
| 2000A | 20 |

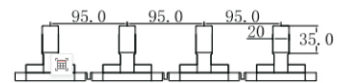
YCW8-2500HU/4P $I_n \leq 2000A$



Internal installation dimensions



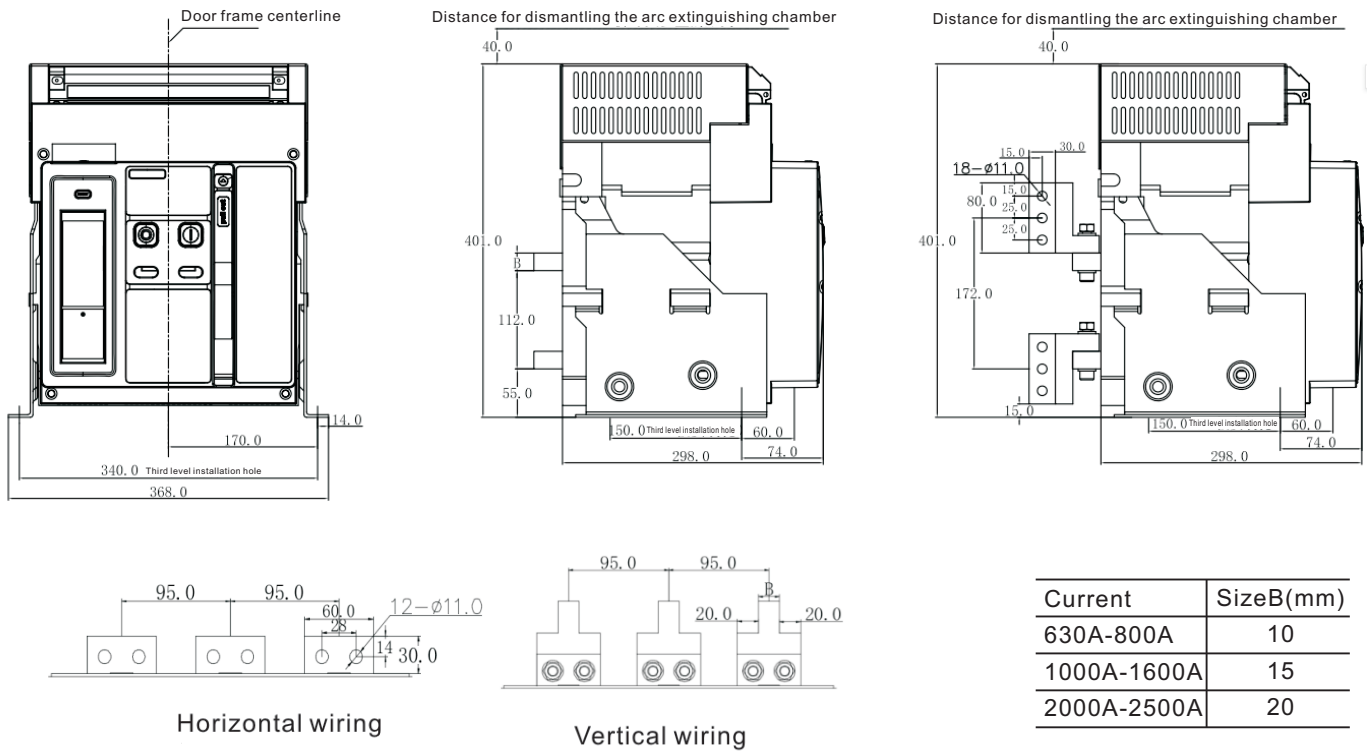
External installation dimensions



Horizontal wiring

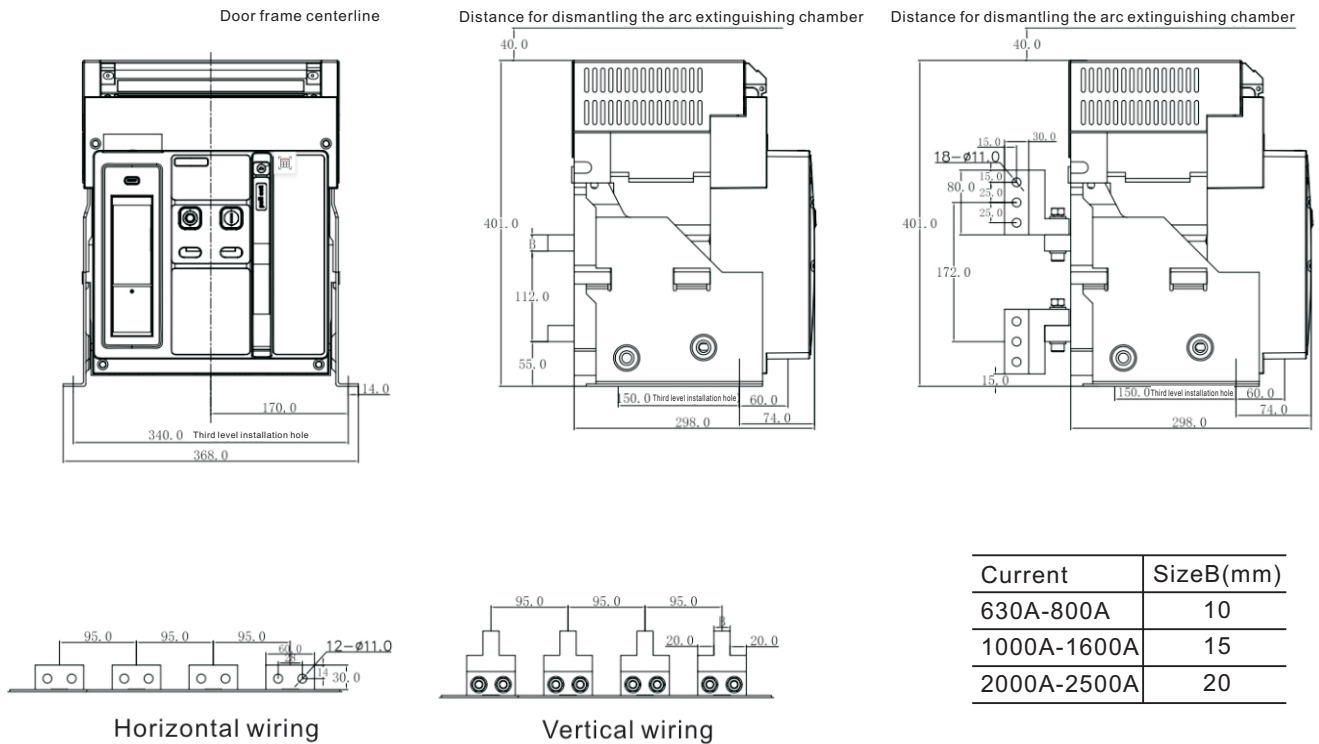
YCW8-2500HU/4P $I_n = 2500A$

■ YCW8-2500HU/3P fixed dimensions and installation drawings

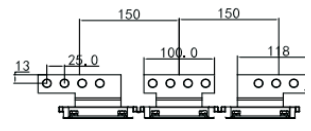
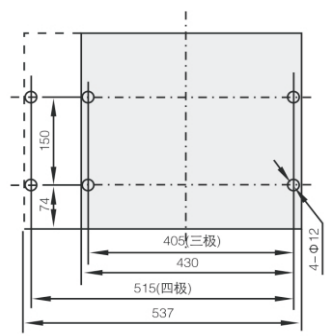
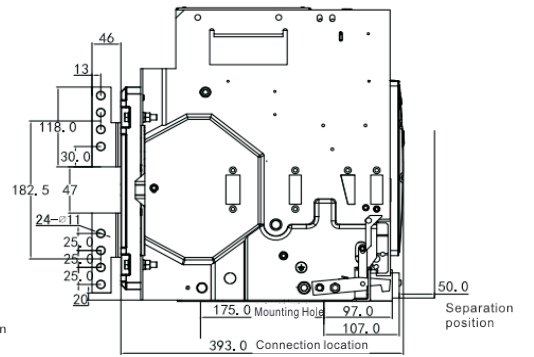
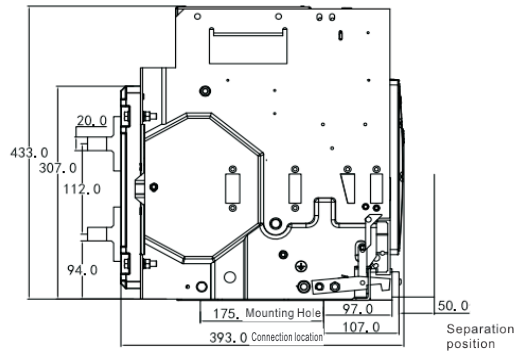
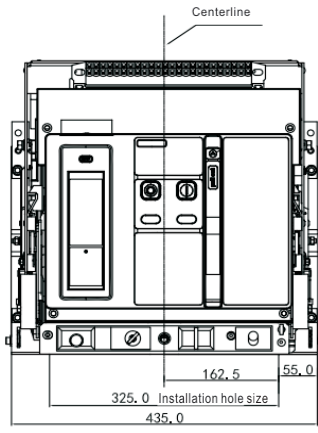


■ YCW8-2500HU/4P fixed dimensions and installation drawings

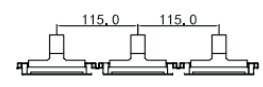
垂直接线



■ YCW8-4000HU/3P drawer type dimensions and installation drawing

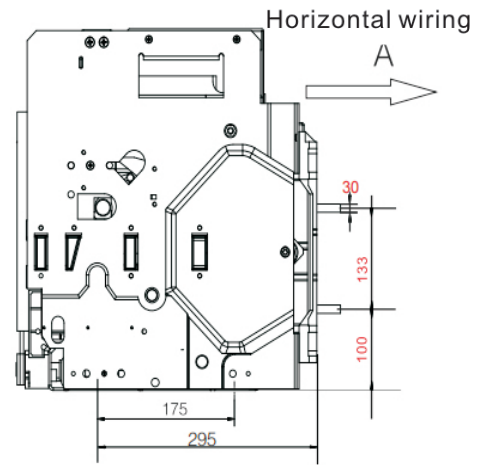
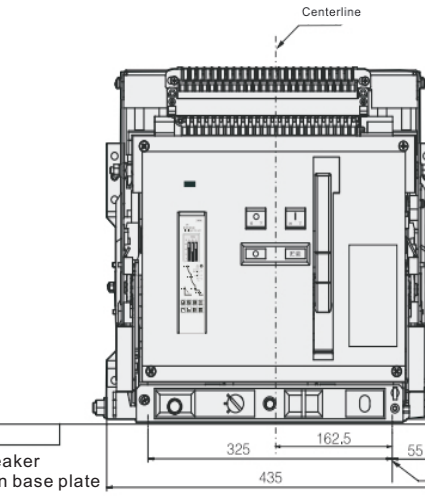
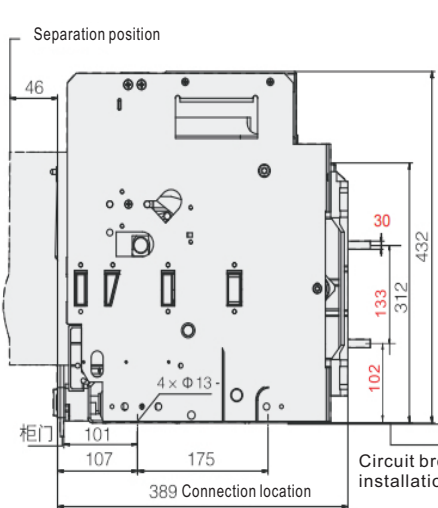


Horizontal wiring



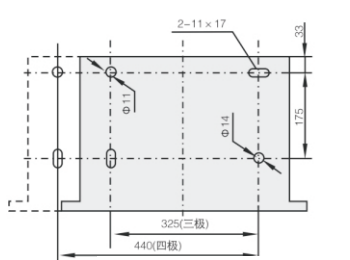
Vertical wiring

YCW8-4000HU/3P $I_n \leq 3200A$

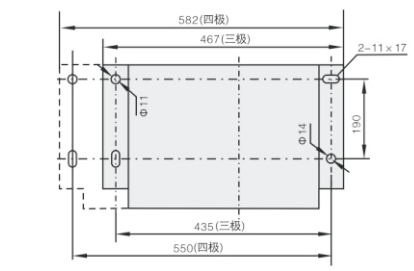


Horizontal wiring

Circuit breaker installation base plate

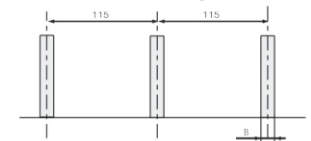


Internal installation dimensions

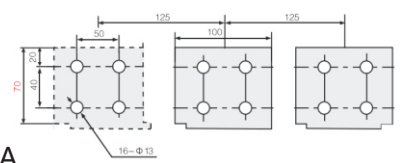


External installation dimensions

◆ Vertical wiring

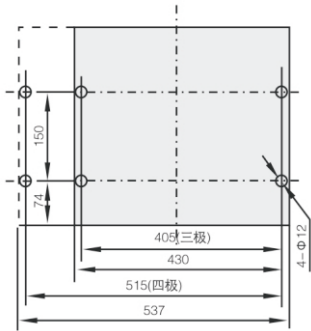
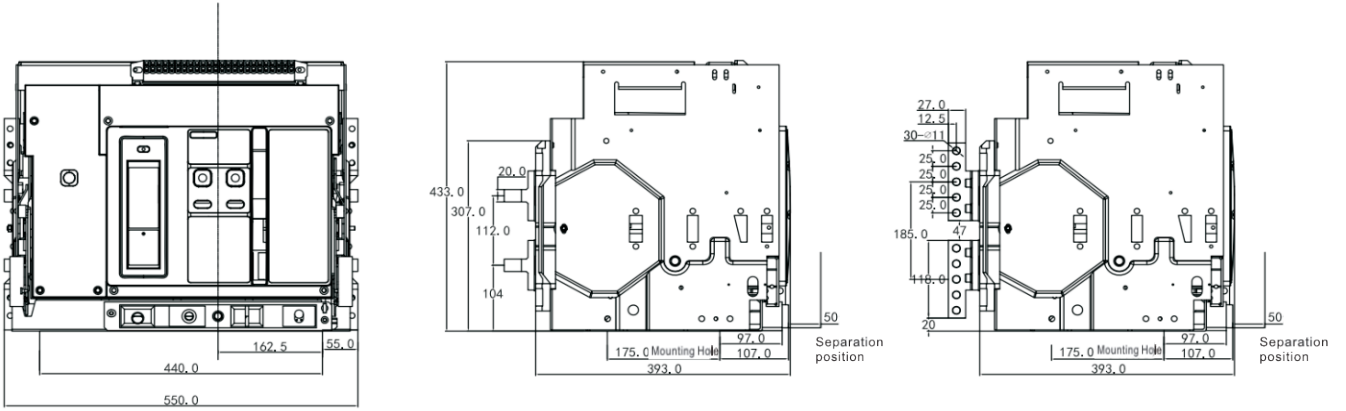


◆ Standard horizontal wiring

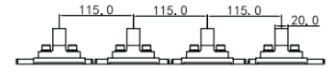


YCW8-4000HU/3P $3200 < I_n \leq 4000A$

■ YCW8-4000HU/4P drawer type dimensions and installation drawing

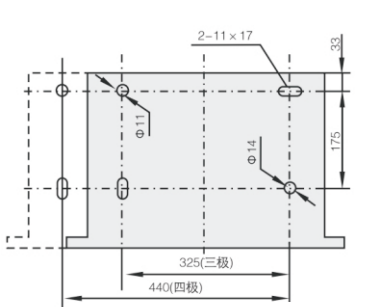
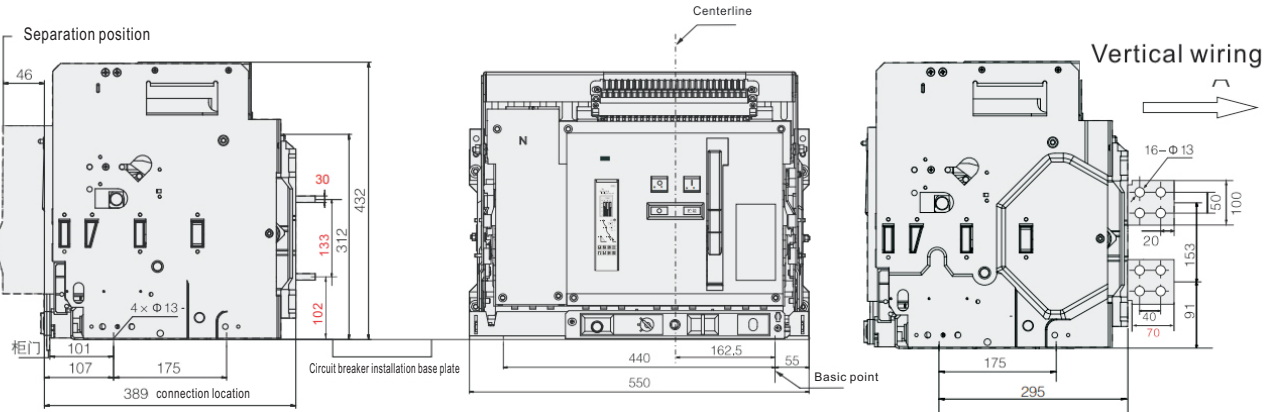


Horizontal wiring

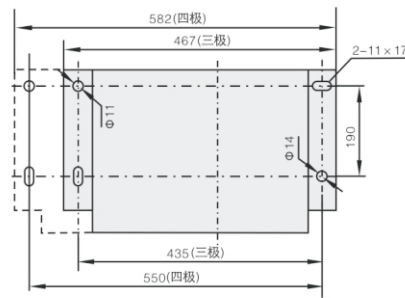


Vertical wiring

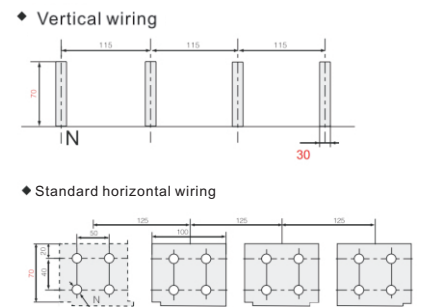
YCW8-4000HU/4P $I_n \leq 3200A$



Internal installation dimensions



External installation dimensions

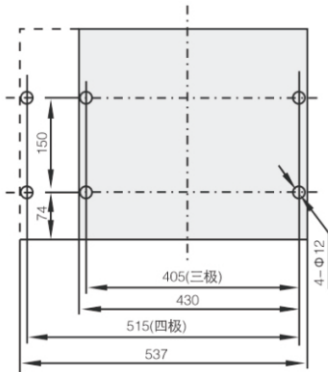
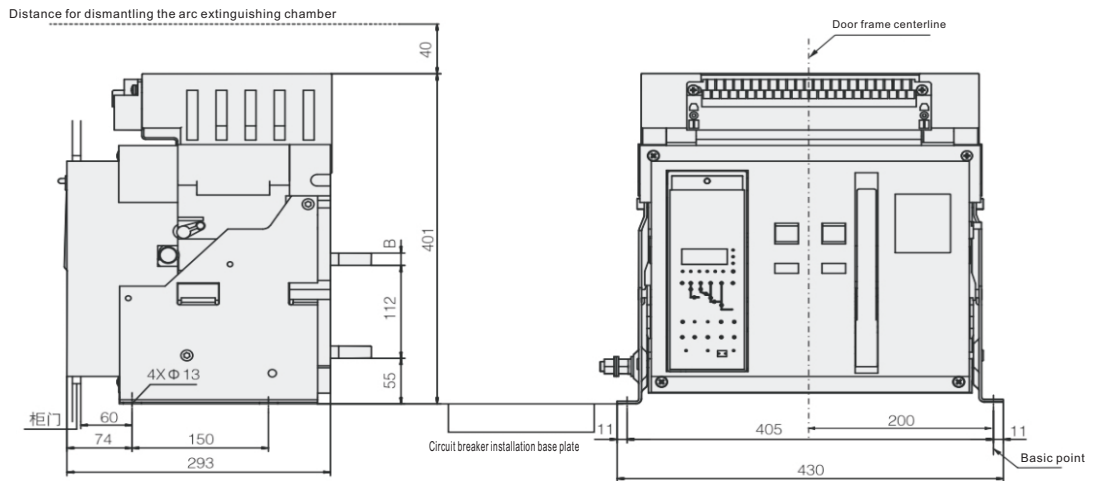


◆ Vertical wiring

◆ Standard horizontal wiring

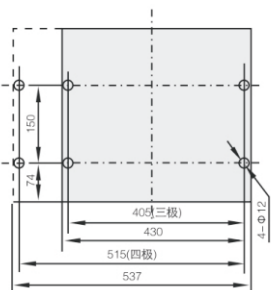
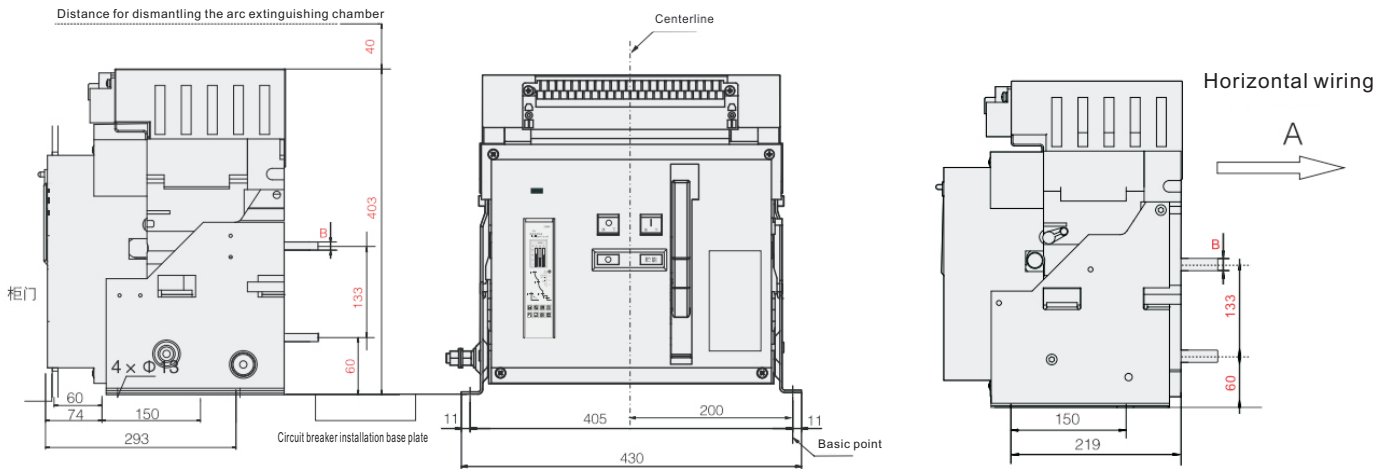
YCW8-4000HU/4P $3200A < I_n \leq 4000A$

■ YCW8-4000HU/3P fixed dimensions and installation drawings

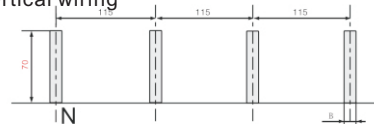


| Current | SizeB(mm) |
|-----------|-----------|
| 2000,2500 | 20 |
| 2900,3200 | 30 |

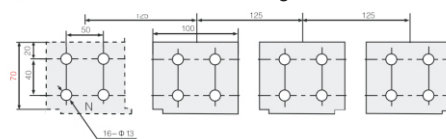
YCW8-4000HU/3P $I_n \leq 3200$



◆ Vertical wiring

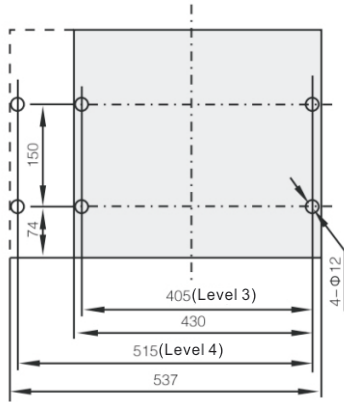
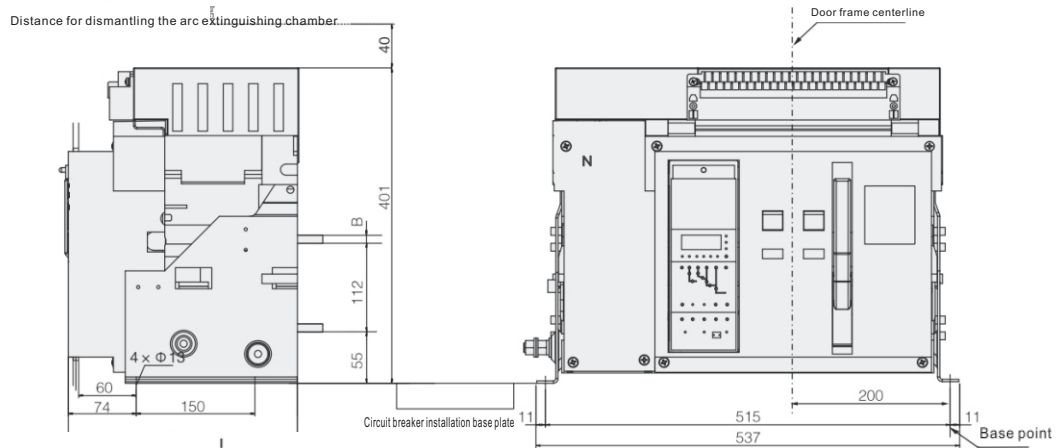


◆ Standard horizontal wiring



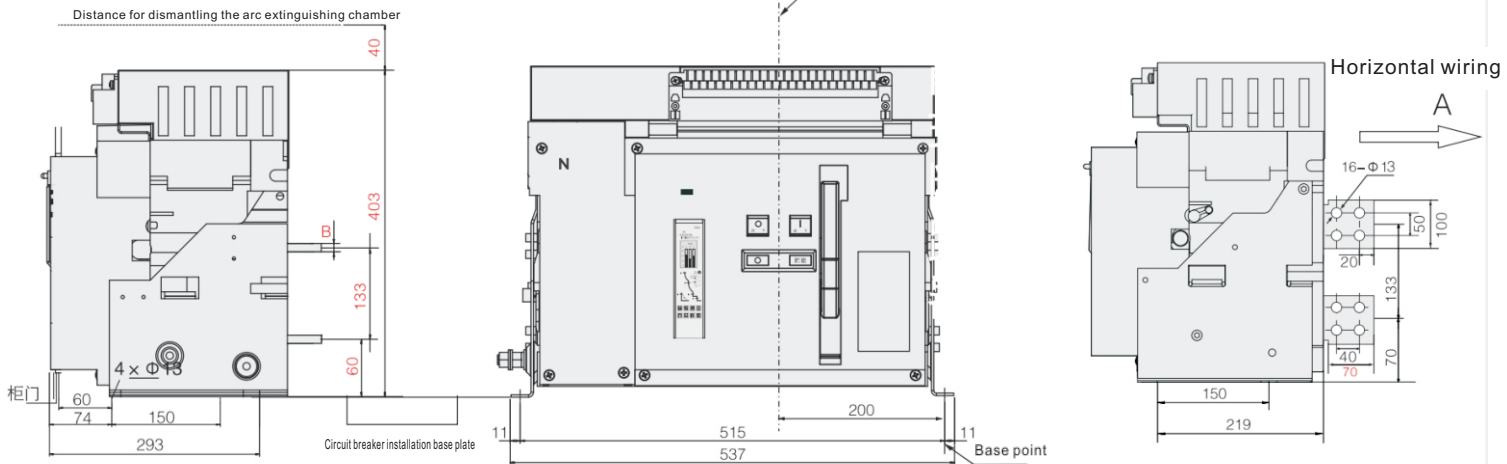
YCW8-4000HU/3P $3200A < I_n \leq 4000A$

■ YCW8-4000HU/4P fixed dimensions and installation drawing

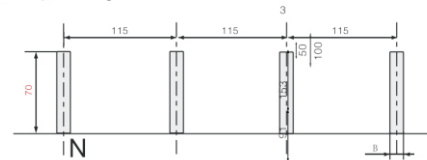


| Current | SizeB(mm) |
|-----------|-----------|
| 2000,2500 | 20 |
| 2900,3200 | 30 |

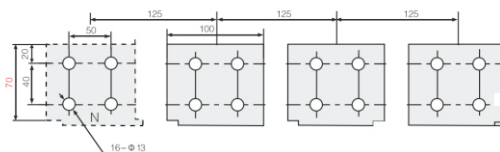
YCW8-4000HU/4P $I_n \leq 3200$



◆ Vertical wiring



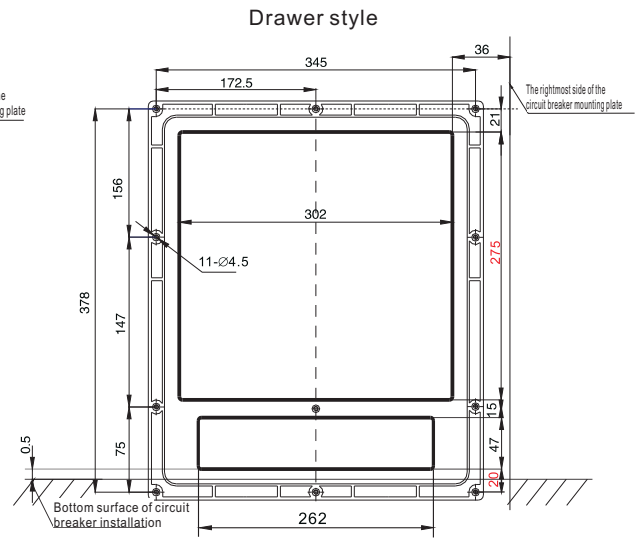
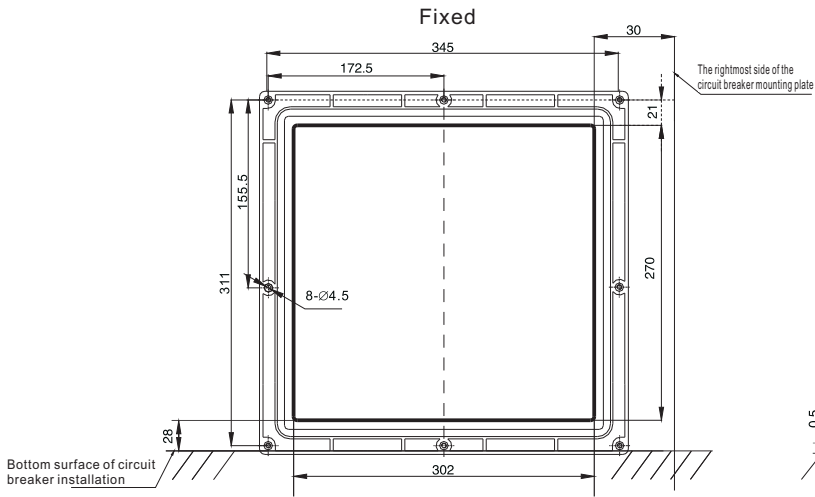
◆ Standard horizontal wiring



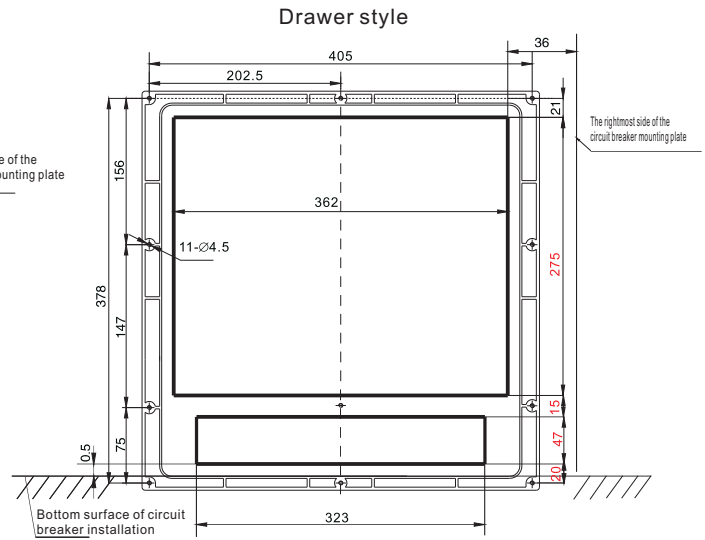
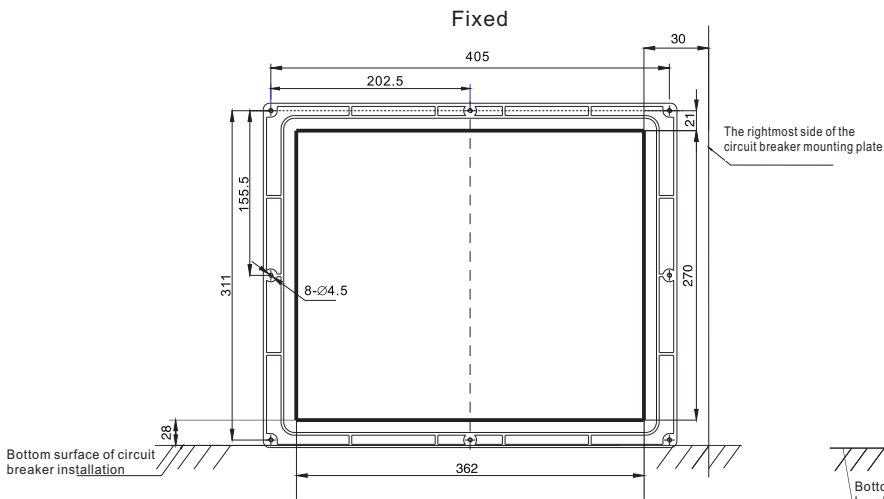
YCW8-4000HU/4P $3200A < I_n \leq 4000A$

■ Door frame size and installation hole spacing

◆ YCW8-2500HU(630A~2500A 3class,4class)

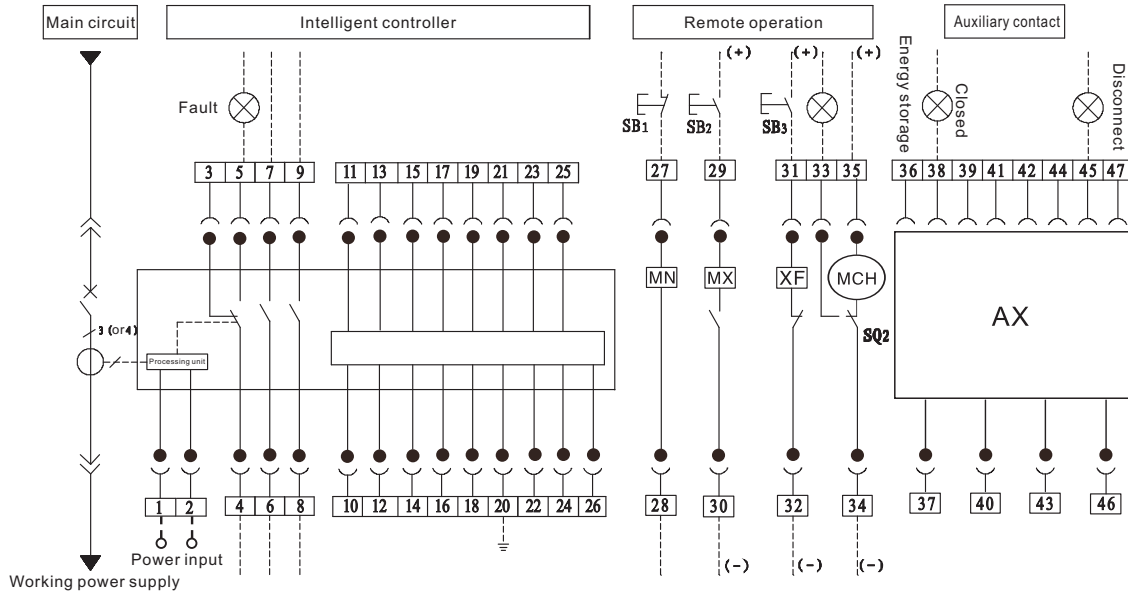


◆ YCW8-4000HU(2000A~4000A 3class,4class)



■ Mechanical accessories

◆ YCW8 electrical circuit diagram (with M / 3M intelligent controller configuration)



SB1 undervoltage button
SB2 shunt button
SB3 closing button

MN undervoltage, voltage loss instantaneous or delayed release
XF closing electromagnet
MX shunt release

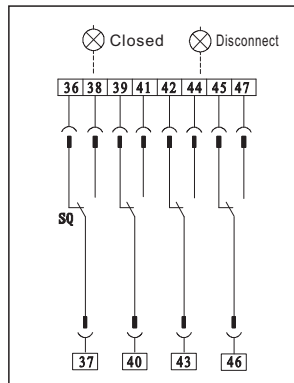
MCH energy storage motor
AX auxiliary contact
SQ2 motor microswitch

Note:

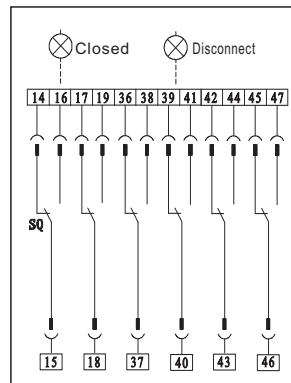
- (1) If the control power supply voltage of MX, XF, and MCH is different, they can be connected to different power sources separately. XF and MX belong to short-term working components, and the power on time is (50ms ± 10ms)
- (2) Terminal 35 can be directly connected to the power supply (automatic pre energy storage) or connected in series to the normally open button and then connected to the power supply (manual pre energy storage).
- (3) The buttons and indicator lights are provided by the user.
- (4) When the working power supply of the intelligent controller is AC power, there is no need for a power module, and terminals 1 # and 2 # are directly connected to the power supply;
- (5) The position indication contact is optional for the user.

AX auxiliary contact type for users to use

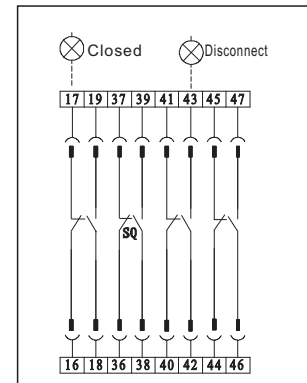
I. Four sets of conversion contacts (default configuration)



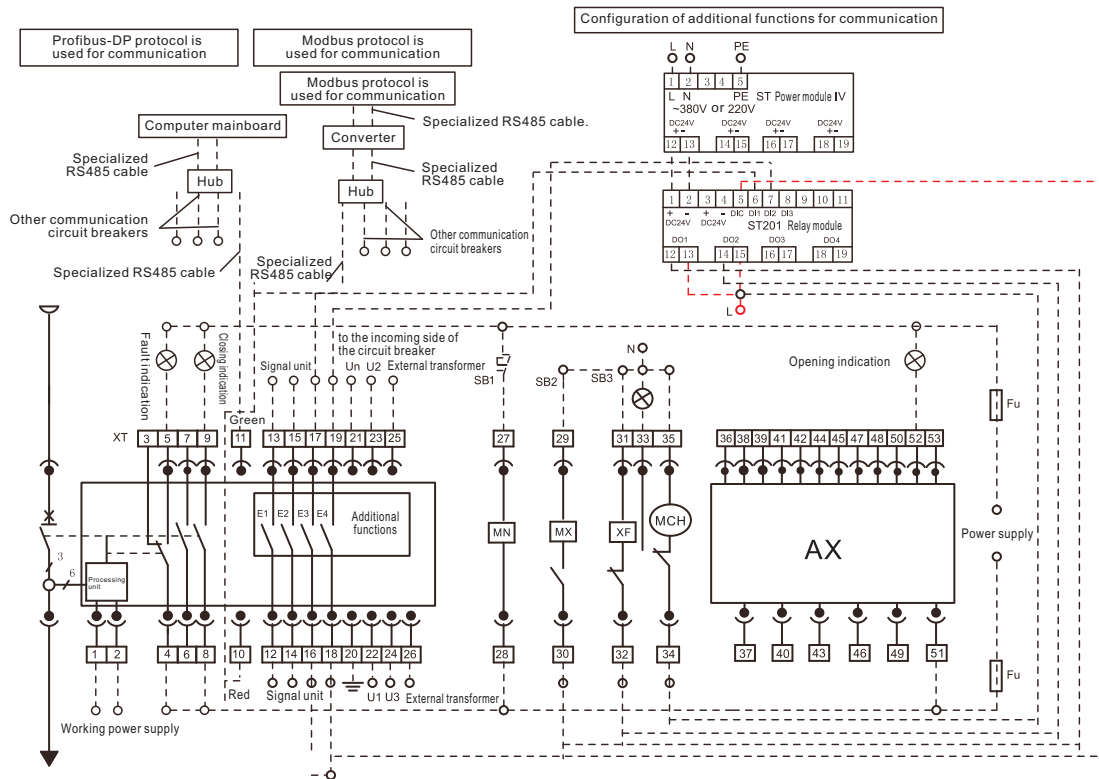
II. Six sets of conversion contacts



III. four normally open and four normally closed contacts



◆ YCW8 Electrical Circuit Diagram (Configuration 3H Intelligent Controller)



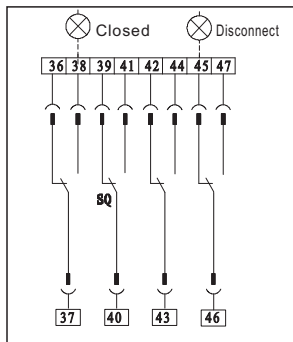
- SB1 undervoltage button
- SB2 shunt button
- SB3 closing button
- MN undervoltage, voltage loss instantaneous or delayed release
- XF closed electromagnet
- MX shunt release
- MCH energy storage motor
- AX auxiliary contact
- SQ2 motor microswitch

1 #, 2 #: Pin is the auxiliary power input terminal, and pin 1 # is the positive terminal in DC
 3 #, 4 #, 5 #: Fault tripping contact output (four is the common terminal), contact capacity: A380V, 5A
 6 #, 7 #, 8 #, 9 #: Two sets of circuit breaker status auxiliary contacts, contact capacity: AC380v, 5A10 # and 11 #: pins are RS485A and RS485B communication pins respectively
 12 #, 13 # (contact 1, load 1 alarm), 14 #, 15 # (contact 2, load 2 alarm), 16 #, 17 # (contact 3, remote opening), and 18 #, 19 # (contact 4, remote closing): Four sets of signal contact outputs of the controller. Contact capacity: 5A/240VAC 7A/24VDC
 20 #: The pin is the protective ground wire.
 21 #~24 #: Pins are voltage signal input terminals, 21 # N-phase voltage input, 22 # A-phase voltage input, 23 # B-phase voltage input, and 24 # C-phase voltage input. 25 #, 26 #: Pins are the input terminal of the external transformer.

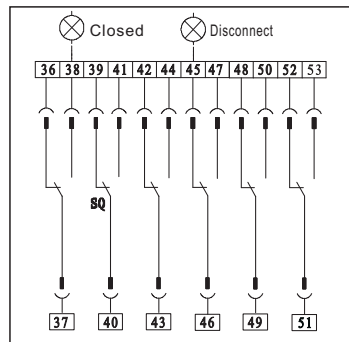
- Note:
- (1) If the control power supply voltage of MX, XF, and MCH is different, they can be connected to different power sources separately. MX belong to short-term working components, and the power on time is (50ms ± 10ms)
 - (2) Terminal 35 can be directly connected to the power supply (automatic pre energy storage) or connected in series to the normally open button and then connected to the power supply (manual pre energy storage).
 - (3) The buttons and indicator lights are provided by the user.
 - (4) The input phase voltage of 21 # 22 # 23 # 24 # is not greater than 690V.
 - (5) When the working power supply of the intelligent controller is AC power, there is no need for a power module, and terminals 1 # and 2 # are directly connected to the power supply;
 - (6) The position indication contact is optional for the user.

AX auxiliary contact type for users to use

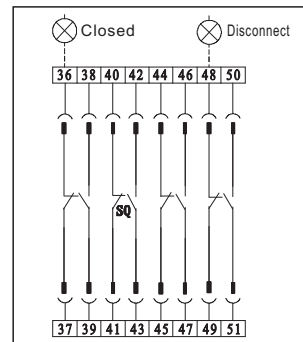
I. Four sets of conversion contacts (default configuration)



II. Six sets of conversion contacts



III. four normally open and four normally closed contacts



■ Installation and usage warnin

To ensure your personal safety and the safety of electrical equipment, users must follow the following instructions before operating the circuit breaker:

- ◆ Carefully read the user manual before installing and using the circuit breaker.
- ◆ The circuit breaker should be used under normal working conditions.
- ◆ Before installation, check if the specifications of the circuit breaker meet the requirements.
- ◆ Before installation, measure the insulation resistance of the circuit breaker using a 500V megohmmeter. At an ambient air temperature of 20 ± 5 and relative humidity of 50%~70%, the insulation resistance should be no less than 500M Ω . If it is lower, dry it until the insulation resistance meets the requirement before use.
- ◆ During installation, ensure that the mounting surface of the circuit breaker is horizontal and fix it using M10 bolts.
- ◆ Take care to prevent conductive foreign objects from falling into the circuit breaker during installation.
- ◆ Ensure that the conductive busbar connected to the circuit breaker is flat and free from additional mechanical stress.
- ◆ Reliable protective grounding must be provided for the circuit breaker, and clear grounding symbols should be used to mark the grounding point.
- ◆ After the circuit breaker is installed, perform the following operational tests before energizing the main circuit to ensure everything is functioning properly.
- ◆ Thoroughly check for any foreign objects inside the circuit breaker and remove them if necessary. The circuit breaker must be clean and free from debris.
- ◆ Connect the secondary circuit according to the relevant wiring diagram and check if the working voltages of the shunt release, closing electromagnet, motor operating mechanism, and intelligent controller match the actual power supply voltage. Then, energize the secondary circuit.
- ◆ After the motor operating mechanism is charged, press the "Close" button (either electrically or manually) to close the circuit breaker.
- ◆ Press the "Open" button (either electrically or manually) to open the circuit breaker.
- ◆ Use the test function of the intelligent controller to reliably trip the circuit breaker. After testing, press the RESET button to reset.
- ◆ During manual charging, operate the handle on the front panel up and down seven times until the display on the rear panel shows "Charging" and hear a "click" sound, indicating the end of charging. The circuit breaker can only be put into operation after successfully completing the above steps and verifying the operation!

■ Maintenance

- ◆ During usage, lubricating oil should be regularly injected into all rotating parts.
- ◆ Dust should be regularly brushed off to maintain good insulation of the circuit breaker.
- ◆ The contact system should be regularly inspected, especially after each short-circuit current interruption.
- ◆ Inspection items include:

Whether the arc extinguishing cover is intact.

Whether the contact contact is in good condition.

Whether there is any looseness in the fasteners of various connection points.

Ordering Specifications

(Please type a ✓ or fill in the number orally)

| User unit | Order number | Order date |
|--------------------------------------|---|--|
| YCW8 - _____ HU | | |
| Install the structure | <input type="checkbox"/> - Fixed <input type="checkbox"/> - Drawer style | |
| Number of poles | <input type="checkbox"/> -3P <input type="checkbox"/> -4P <input type="checkbox"/> -3P+N (with external N current transformer) | |
| Rated current | In= _____ A | |
| Product type | <input type="checkbox"/> - Non standard - conventional (standard configuration) <input type="checkbox"/> - GD Plateau, Low Temperature <input type="checkbox"/> - TH Wet Stick | |
| Intelligent controller | Controller voltage | <input type="checkbox"/> -AC230V <input type="checkbox"/> -AC400V <input type="checkbox"/> -DC110V <input type="checkbox"/> -DC220V |
| | Controller type | <input type="checkbox"/> IC5.0 (M digital standard configuration) <input type="checkbox"/> IC6.0 (3M LCD) <input type="checkbox"/> LC8.0 (3H LCD+communication) |
| Factory parameters | Overload long delay current I_r = _____ A Time t_r = _____ s ; Short circuit instantaneous current I_l = _____ A ; Short circuit short delay current I_{sd} = _____ A Time t_{sd} = _____ s ; Earth fault current I_g = _____ A Time t_g = _____ s Note: When there are no special requirements, the current and time setting values of the controller are set according to the factory values. | |
| Mode of connection | 2500 shell frame | <input type="checkbox"/> - Horizontal wiring (standard configuration) <input type="checkbox"/> - Vertical wiring |
| | | <input type="checkbox"/> - Hybrid wiring (upper horizontal, lower vertical) <input type="checkbox"/> - Hybrid wiring (upper vertical, lower horizontal) |
| | 4000 shell frame | <input type="checkbox"/> - Horizontal wiring (standard configuration) <input type="checkbox"/> - Vertical wiring |
| | | <input type="checkbox"/> - Hybrid wiring (Top horizontal, bottom vertical) <input type="checkbox"/> - Hybrid wiring (upper vertical, lower horizontal) |
| Auxiliary contact | 2500 or 4000 shell frame | <input type="checkbox"/> - 4 sets of conversion auxiliary contacts (standard) <input type="checkbox"/> - 6 sets of conversion auxiliary contacts (with common points) <input type="checkbox"/> - 4 normally open and 4 normally closed (no common point) |
| | | <input type="checkbox"/> - 6 normally open and 6 normally closed (no common point) <input type="checkbox"/> - <input type="checkbox"/> Normally open <input type="checkbox"/> Normally closed |
| Shunt release | <input type="checkbox"/> -AC230V <input type="checkbox"/> -AC400V <input type="checkbox"/> -DC110V <input type="checkbox"/> -DC220V | |
| Closing electromagnet | <input type="checkbox"/> -AC230V <input type="checkbox"/> -AC400V <input type="checkbox"/> -DC110V <input type="checkbox"/> -DC220V | |
| Energy storage motor | <input type="checkbox"/> -AC230V <input type="checkbox"/> -AC400V <input type="checkbox"/> -DC110V <input type="checkbox"/> -DC220V | |
| Undervoltage release | <input type="checkbox"/> -AC230V <input type="checkbox"/> -AC400V <input type="checkbox"/> - Instantaneous type <input type="checkbox"/> - Delayed <input type="checkbox"/> S | |
| Undervoltage release | <input type="checkbox"/> -AC230V <input type="checkbox"/> -AC400V <input type="checkbox"/> - Delayed <input type="checkbox"/> S | |
| Mechanical interlock | Two circuit breakers <input type="checkbox"/> - Steel cable interlocking <input type="checkbox"/> - Linkage interlocking | |
| Open position lock | <input type="checkbox"/> - One lock, one key <input type="checkbox"/> - Two locks and two keys <input type="checkbox"/> - Three locks and two keys <input type="checkbox"/> - Five locks and three keys <input type="checkbox"/> - ABC lock | |
| Other optional items | <input type="checkbox"/> - Interphase partition <input type="checkbox"/> - Connection test and separation position indication contact signal output (both one normally open and one normally closed) | |
| | <input type="checkbox"/> - Button lock <input type="checkbox"/> - Counter (above 2500 shell frames) <input type="checkbox"/> - Temperature alarm protection device (3M or 3H controller must be selected) | |
| | <input type="checkbox"/> - ST-201 Relay Module <input type="checkbox"/> - Power module (default to be consistent with the controller's working power supply) | |
| Dual power automatic transfer switch | <input type="checkbox"/> - ATS controller Note: 1. Equipped with mechanical interlocking, please select the type; 2. Under-voltage protection is included, no need to choose an under-voltage protector; 3. Electrical accessories must choose AC230V working voltage. | |

Notes: ■- Basic configuration □ - Optional configuration, if selected □ , mark ✓ inside

(1) The regular ordering of the product is for distribution protection.

(2) If users choose to use a controller, additional functions can be added at an extra cost.

(3) Due to continuous technological improvements, technical specifications are subject to change without prior notice.

(4) The copyright and interpretation rights of this product's manual belong to the company.



CERTIFICATE

Product Model: YCW8-□ HU series

Inspector: CNC009

Production date: Printed on the product
or package.

This product is qualified according
to the delivery inspection

CNC ELECTRIC

Tel: 0086-577-61989999 Fax: 0086-577-61891122

wwwcncele.com E-mail: cncele@cncele.com

CNC

YCW8-□ HU series