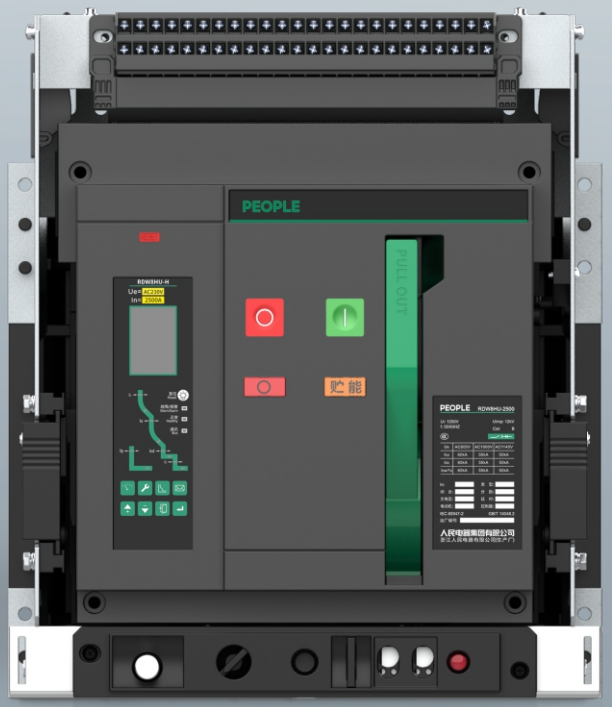
PEOPLE
ELECTRIC




# RDW8HU series high voltage intelligent universal circuit breaker

## Higher breaking and short-time tolerance

A full range of Icu, Ics, Icw, up to 85kA, leading the industry in performance,Meet the continuity and stability of power supply.

## Excellent long life and reliability

Maximum mechanical life up to 20,000 times, electrical life up to 7,000 times, Innovative arc-extinguishing chamber design, truly achieve zero arc-flying.

## Improved protection and selectivity

2500, 4000, 6300 three shell frames provide more selectivity and impact pressure resistance Up to 12kV, to meet more industry requirements.

## Multifunctional intelligent controller

LCD display intelligent controller for complete protection, measurement, Maintenance and communication functions.

# RDW8HU series high voltage intelligent universal circuit breaker

## Product overview

RDW8HU series universal circuit breaker (hereinafter referred to as circuit breaker), suitable for AC 50Hz/60Hz, rated current 630 ~ 6300A, rated insulation voltage 1250V, rated working voltage of AC800, Ac1000, In the AC1140V distribution network, it is used to distribute power and protect lines and power equipment from overload, undervoltage, short circuit, single-phase grounding and other faults, and it has isolation function. Circuit breakers have a variety of The protection function, while achieving highly accurate selective protection, can also avoid unnecessary sudden power failure, improve the reliability and safety of the power supply system. Products comply with: GB/T 14048.2 standard.

## Selection guide

| RDW8 | HU | 25 | 16 | 3 | H | Drawer level | AC230V | No undervoltage |
|---|---|---|---|---|---|---|---|---|
| Product code | Breaking grade | Frame current | Rated current | Number of poles | controller | Installation mode | Control voltage | attachments |
| High voltage intelligent<br>Universal circuit breaker | HU | 25:2500(06-25)<br>40:4000(08-40)<br>63:6300(40-63) | 06:630A<br>08:800A<br>10:1000A<br>12:1250A<br>16:1600A<br>20:2000A<br>25:2500A<br>29:2900A<br>32:3200A<br>36:3600A<br>40:4000A<br>50:5000A<br>63:6300A | 3:3P<br>4:4P | M: Standard type<br>(Digital display)<br>R: Enhanced type<br>(Liquid crystal Display)<br>H: Advanced type<br>(LCD with communication) | Drawer level<br>Drawer vertical<br>Fixed level<br>Fixed vertical | AC230V<br>AC400V<br>DC220V<br>DC110V | Interphase partition<br>Quadruple transformation<br>Door frame<br>No undervoltage<br>Undervoltage instantaneous<br>Under calendering time<br>Mechanical interlocking<br>Mechanical interlocking<br>One lock, one key<br>Two locks and one key<br>Three locks, two keys<br>It's 50-50<br>Six on, six off |

RDW8HU default standard configuration: shunt, closing, electric operation, 4 group conversion, door frame, interphase partition

For example: need to order a RDW8HU-2500, three-pole drawer, rated current 1250A, intelligent controller for R type, control voltage AC230V,

Expressed as: RDW8HU-25 12/3R drawer level AC230V without undervoltage.

# RDW8HU series high voltage intelligent universal circuit breaker

## Normal working conditions and installation conditions

### Normal working condition

☐ The ambient air temperature is -5℃ ~ +40℃, and the average value of 24h does not exceed +35℃;
Note: If the upper limit exceeds +40 ℃ or the lower limit is lower than -5 ℃, the user needs to negotiate with the manufacturer.
☐ The elevation of the installation site does not exceed 2000m;
Note: Consult with the manufacturer for the circuit breaker used in the working environment with an altitude of more than 2000m.
☐ The relative humidity of the atmosphere does not exceed 50% when the ambient air temperature is +40℃; It can have higher relative humidity at lower temperatures; For example, the wettest month has an average maximum relative humidity of 90%, while the
The average minimum temperature of the month is +20 ℃, and treatment measures should be taken for the occasional condensation due to temperature changes.
☐ The pollution level is 3;
☐ When the rated working voltage of the main circuit is AC800V ~ AC1140V, the control circuit and auxiliar y circuit need to be isolated from the main circuit by transformer, and the maximum working voltage of the control circuit and auxiliar y circuit is AC400V, control circuit and auxiliar y circuit installation categor y is Ⅲ;
☐ The circuit breaker is suitable for electromagnetic environment A;
☐ Use categor y B.

### Normal installation condition

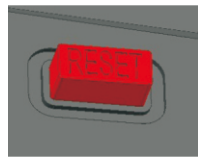
☐ Installation of fixed circuit breaker: The circuit breaker is placed in the distribution cabinet and secured with M10(more than 2500A shell frame) bolts and washers.
The circuit breaker is installed smoothly without additional mechanical stress
Avoid circuit breaker damage or poor contact of main busbar;
☐ Installation of drawer type breaker: Remove the circuit breaker body from the drawer seat, install the drawer seat in the distribution cabinet first,
and tighten with M10(more than 2500A shell frame) bolts and washers. Circuit breaker mounting level
Stable, there should be no additional mechanical stress, so as to avoid circuit breaker damage or poor contact between the main bus and the secondar y circuit,
after the completion of the circuit breaker body into the drawer seat connection position;
☐ The circuit breaker should be installed in a place without explosion risk and conductive dust, without enough to corrode metal and destroy insulation;
☐ The protection level is IP20. When the circuit breaker is installed in the cabinet and the door frame is installed, the protection level can reach Ip40.
Normal storage and transport conditions
☐ The lower limit of temperature is not less than -25℃, the upper limit is not more than +55℃; Relative humidity (+25℃) does not exceed 95%;
☐ The product should be handled gently during transportation, and should not be inverted to avoid violent collision.

# RDW8HU series high voltage intelligent universal circuit breaker

## Circuit breaker operating condition

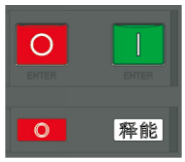
□ Operating status of the intelligent controller


Intelligent controller working status



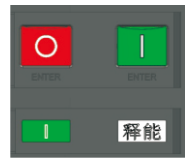

When the intelligent controller is in the protected state,
the circuit breaker is disconnected and the circuit is cleared
After the fault, press this button, the circuit breaker can be closed normally.

## Operating mechanism working status

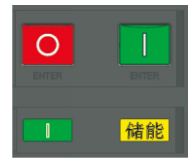



The circuit breaker is off
and has no energy storage


The circuit breaker is off and
the energy storage is complete




Circuit breaker closed
and no energy storage state




Circuit breaker closed and energy
storage completed state

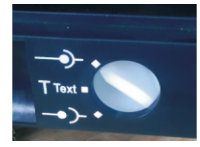
## Drawer seat working condition

In "separate", "test", "connect"
In three positions,
the position lock is locked,
and the crank cannot
Operation (locked state)

After the position lock is locked,
you need to continue operating the shake
Handle, press the position lock button to release the lock
(Unlocked state)


In the "Separate" position,
both the main circuit and the
secondary circuit are disconnected


In the "Test" position,
the main circuit is disconnected
and the secondary circuit is connected




In the "Connect" position,
both the main circuit and the
secondary circuit are connected

# RDW8HU series high voltage intelligent universal circuit breaker

## Technical parameters and performance

| Number of poles | 3P/4P | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Frequency | 50/60Hz | | | | | | | | |
| Rated operating voltage Ue(V) | AC800V/AC1000V/AC1140V | | | | | | | | |
| Rated impulse withstand voltage Uimp(kV) | AC12kV | | | | | | | | |
| Rated insulation voltage Ui(V) | AC1250V | | | | | | | | |
| Frame grade | 25HU | | | 40HU | | | 63HU | | |
| In(A) | | | | | | | | | |
| 630 | • | | | | | | | | |
| 800 | • | | | • | | | | | |
| 1000 | • | | | • | | | | | |
| 1250 | • | | | • | | | | | |
| 1600 | • | | | • | | | | | |
| 2000 | • | | | • | | | | | |
| 2500 | • | | | • | | | | | |
| 2900 | | | | • | | | | | |
| 3200 | | | | • | | | | | |
| 3600 | | | | • | | | | | |
| 4000 | | | | • | | | • | | |
| 5000 | | | | | | | • | | |
| 6300 | | | | | | | • | | |
| Breaking capacity | AC800V | AC1000V | AC1140V | AC800V | AC1000V | AC1140V | AC800V | AC1000V | AC1140V |
| Rated limit short-circuit breaking capacity Icu(kA) | 60 | 55 | 50 | 75 | 60 | 60 | 85 | 66 | 66 |
| Rated operating short-circuit breaking capacity Ics(kA) | 60 | 55 | 50 | 75 | 60 | 60 | 85 | 66 | 66 |
| Rated short-term endurance Icw/1s(kA) | 60 | 55 | 50 | 75 | 60 | 60 | 85 | 66 | 66 |
| Full segment time time (no additional delay) | 25~30ms | | | | | | | | |
| Closing time | ≤70ms | | | | | | | | |
| Mechanical life (with maintenance) | 20000 | | | 20000 | | | 13000 | | |
| Mechanical life (no maintenance) | 10000 | | | 10000 | | | 6500 | | |
| Electrical life | 7000 | | | 6000 | | | 1500 | | |
| Connection mode (horizontal) | • | | | | | | | | |
| Connection mode (vertical) | • | | | | | | | | |
| Connection mode (top horizontal and bottom vertical) Connection mode (vertical up and horizontal down) | • | | | | | | | | |

Note: The mechanical life of drawer seat is 100 times, from "separation" to "connection" to "separation" is once, and the operation cycle is 1 time /2min.

# RDW8HU series high voltage intelligent universal circuit breaker

## Power loss

| Product model | Frame current (A) | Power loss (W) | |
|---|---|---|---|
| | | Drawer type /4P | Fixed /4P |
| RDW8HU-2500 | 2500 | 625 | 320 |
| RDW8HU-4000 | 4000 | 960 | 510 |
| RDW8HU-6300 | 6300 | 1270 | 830 |

Note: Circuit breaker power consumption is the total power consumption measured by the rated shell current, this data can only be used as a general selection guide, can not be used as a power loss in actual use.

It is recommended that the cross-sectional area of the external conductor correspond to the rated current of the circuit breaker to ensure the normal operation of the circuit breaker.

| Rated current (A) | External copper bar Width x thickness (mm) | Number of roots per terminal | Cross-sectional area per terminal ($mm^2$) |
|---|---|---|---|
| 630 | 40×5 | 2 | 400 |
| 800 | 50×5 | 2 | 500 |
| 1000 | 60×5 | 2 | 600 |
| 1250 | 80×5 | 2 | 800 |
| 1600 | 100×5 | 2 | 1000 |
| 2000 | 100×5 | 3 | 1500 |
| 2500 | 100×5 | 4 | 2000 |
| 2900 | 100×10 | 3 | 3000 |
| 3200 | 100×10 | 4 | 4000 |
| 3600 | 100×10 | 5 | 5000 |
| 4000 | 100×10 | 5 | 5000 |
| 5000 | 100×10 | 6 | 6000 |
| 6300 | 100×10 | 8 | 8000 |

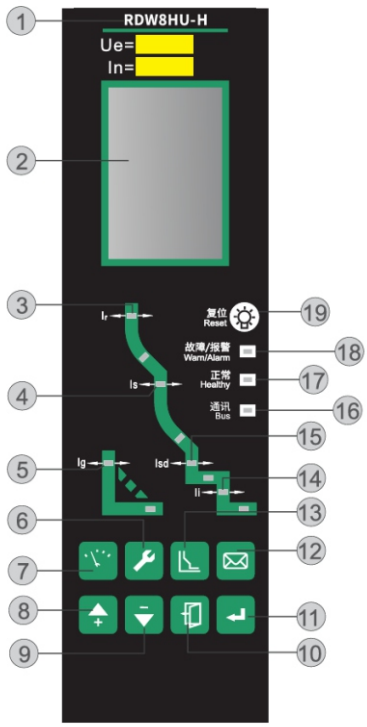
## Coefficient of capacity reduction at altitude

| Altitude (m) | 2000 | 3000 | 4000 | 5000 |
|---|---|---|---|---|
| Working current reduction coefficient | 1 | 0.93 | 0.88 | 0.82 |
| Short-circuit breaking capacity reduction factor | 1 | 0.83 | 0.71 | 0.63 |
| Power frequency withstand voltage (V) | 3500 | 3150 | 2500 | 2000 |

# RDW8HU series high voltage intelligent universal circuit breaker

## Intelligent controller protection features (liquid crystal type)

Intelligent control page description




RDW8DC Intelligent controller interface

1. **Intelligent controller model** (corresponding product model);
2. **LCD liquid crystal display window**: can display each phase current Value, voltage value, setting parameter, fault current Flow, trip time and information query parameters;
3. **Overload long delay fault indication**;
4. **Short circuit short delay inverse time fault indication**;
5. **Ground or neutral fault indication**;
6. **Setting key**: Quickly switch to the parameter setting main menu, (in the password input interface is"Right" key);
7. **Measurement key**: Quickly switch to the measurement default main menu, (under the password input interface is "Left" key);
8. **Up key**: Move the menu content up at the current level, or change the selection up Parameters;
9. **Down key**: Move menu contents down at the current level, or change the selection down Parameters;
10. **Back key**: Exit the current level to enter the upper-level menu, or cancel the current parameter the selection of;
11. **Ok key**: Enter the next level menu that the current item points to, or proceed to the current parameter Select, store the changes made;
12. **Query key**: Switch to the history and maintenance theme menu;
13. **Protection parameter setting key**: Switch to the protection parameter setting theme menu;
14. **Short circuit instantaneous fault indication;**
15. **Short-circuit short-delay fixed time fault indication;**
16. **Communication indication** :Profibus: no communication when off, communication constant light;
    Modbus: turns off when no communication is available and blinks when communication is available.
17. **Normal indication**: in the power state, the working state is normal, the LED is always green flashing;
18. **Fault/alarm indication**: the "fault/alarm" LED does not light up during normal operation; breakdown When tripping, the "Fault/alarm" LED is red and flashes rapidly; In case of alarm When the LED red constant bright;
19. **Reset button**: When the intelligent controller is in the fault/alarm state, it needs to restore to normal work State, press this key to clear the intelligent controller fault/alarm indication.

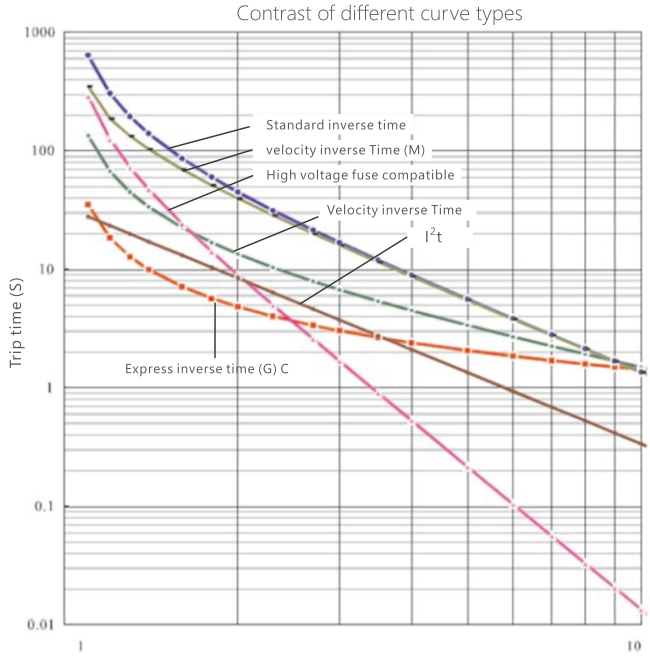
# RDW8HU series high voltage intelligent universal circuit breaker

| Action current set value Ir | | (0.4～1.0)In+OFF | | | | | | | | Current tolerance | | | | ±10% | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Applied current I | | | | | | | | | | Set a trip time | | | | | | | |
| 1.05Ir | | | | | | | | | | >2h does not trip | | | | | | | |
| 1.3Ir | | | | | | | | | | < 1h Trip | | | | | | | |
| Protection characteristic type | Fault current | Set time Tr (s) | | | | | | | | | | | | | | | |
| SI Standard inverse time | 1.5Ir | 0.61 | 0.98 | 1.47 | 2.46 | 3.68 | 4.91 | 6.14 | 9.21 | 11.05 | 17.19 | 24.56 | 36.84 | 49.13 | 61.41 | 73.69 | 85.97 |
| | 2Ir | 0.36 | 0.57 | 0.86 | 1.43 | 2.15 | 2.87 | 3.58 | 5.37 | 6.45 | 10.03 | 14.33 | 21.49 | 28.65 | 35.82 | 42.98 | 50.15 |
| | 6Ir | 0.14 | 0.22 | 0.33 | 0.55 | 0.82 | 1.1 | 1.37 | 2.06 | 2.47 | 3.84 | 5.48 | 8.22 | 10.96 | 13.7 | 16.45 | 19.19 |
| | 7.2Ir | 0.12 | 0.2 | 0.3 | 0.5 | 0.74 | 0.99 | 1.24 | 1.86 | 2.23 | 3.48 | 4.97 | 7.45 | 9.93 | 12.42 | 14.9 | 17.38 |
| VI velocity inverse time | 1.5Ir | 2 | 3.2 | 4.8 | 8 | 12 | 16 | 20 | 27 | 36.6 | 56 | 80 | 120 | 160 | 200 | 240 | 280 |
| | 2Ir | 1 | 1.6 | 2.4 | 4 | 6 | 8 | 10 | 13.5 | 18 | 28 | 40 | 60 | 80 | 100 | 120 | 140 |
| | 6Ir | 0.2 | 0.32 | 0.48 | 0.8 | 1.2 | 1.6 | 2 | 2.7 | 3.6 | 5.6 | 8 | 12 | 16 | 20 | 24 | 28 |
| | 7.2Ir | 0.16 | 0.26 | 0.39 | 0.65 | 0.97 | 1.29 | 1.61 | 2.18 | 2.9 | 4.52 | 6.45 | 9.68 | 12.9 | 16.13 | 19.35 | 22.58 |
| EI(G) Express inverse time(General distribution protection) | 1.5Ir | 8 | 12.8 | 19.2 | 32 | 48 | 64 | 80 | 108 | 144 | 224 | 320 | 480 | 640 | 800 | 960 | 1000 |
| | 2Ir | 3.33 | 5.33 | 8 | 13.33 | 20 | 26.67 | 33.33 | 45 | 60 | 93.33 | 133.33 | 200 | 266.67 | 333.33 | 400 | 433.33 |
| | 6Ir | 0.29 | 0.46 | 0.69 | 1.14 | 1.71 | 2.29 | 2.86 | 3.86 | 5.14 | 8 | 11.43 | 17.14 | 22.86 | 28.57 | 34.29 | 37.14 |
| | 7.2Ir | 0.2 | 0.31 | 0.47 | 0.79 | 1.18 | 1.57 | 1.97 | 2.66 | 3.58 | 5.51 | 7.87 | 11.8 | 15.74 | 19.67 | 23.6 | 25.57 |
| EI(M) Express inverse time(Motor protection) | 1.5Ir | 6.22 | 9.96 | 14.93 | 24.89 | 37.34 | 49.78 | 62.23 | 84.01 | 112.01 | 174.24 | 248.91 | 373.37 | 497.82 | 622.28 | 746.73 | 208.96 |
| | 2Ir | 2.95 | 4.72 | 7.07 | 11.79 | 17.69 | 23.58 | 29.48 | 39.79 | 53.06 | 82.53 | 117.9 | 176.86 | 235.81 | 294.76 | 353.71 | 383.19 |
| | 6Ir | 0.28 | 0.45 | 0.68 | 1.13 | 1.69 | 2.26 | 2.82 | 3.81 | 5.08 | 7.9 | 11.29 | 16.94 | 22.58 | 28.23 | 33.88 | 36.7 |
| | 7.2Ir | 0.2 | 0.31 | 0.47 | 0.78 | 1.17 | 1.56 | 1.95 | 2.63 | 3.51 | 5.46 | 7.8 | 11.7 | 15.61 | 19.51 | 23.41 | 25.36 |
| HV High voltage fuse compatible | 1.5Ir | 2.46 | 3.94 | 5.91 | 9.85 | 14.77 | 19.69 | 24.62 | 33.23 | 44.31 | 68.92 | 98.46 | 147.69 | 196.92 | 246.15 | 295.38 | 320 |
| | 2Ir | 0.67 | 1.07 | 1.6 | 2.67 | 4 | 5.33 | 6.67 | 9 | 12 | 18.67 | 26.67 | 40 | 53.33 | 66.67 | 80 | 86.67 |
| | 6Ir | 0.01 | 0.01 | 0.02 | 0.03 | 0.05 | 0.06 | 0.08 | 0.1 | 0.14 | 0.22 | 0.31 | 0.46 | 0.62 | 0.77 | 0.93 | 1 |
| | 7.2Ir | 0 | 0.01 | 0.01 | 0.01 | 0.02 | 0.03 | 0.04 | 0.05 | 0.07 | 0.1 | 0.15 | 0.22 | 0.3 | 0.37 | 0.45 | 0.48 |
| $I^2T$ Universal inverse time protection | 1.5Ir | 15 | 30 | 60 | 120 | 240 | 360 | 480 | 600 | 720 | 840 | 960 | | | | | |
| | 2Ir | 8.44 | 16.88 | 33.75 | 67.5 | 135 | 202.5 | 270 | 337.5 | 405 | 472.5 | 540 | | | | | |
| | 6Ir | 0.94 | 1.88 | 3.75 | 7.5 | 15 | 22.5 | 30 | 37.5 | 45 | 52.5 | 60 | | | | | |
| | 7.2Ir | 0.65 | 1.3 | 2.6 | 5.21 | 10.42 | 15.63 | 20.83 | 26.04 | 31.25 | 36.46 | 41.67 | | | | | |

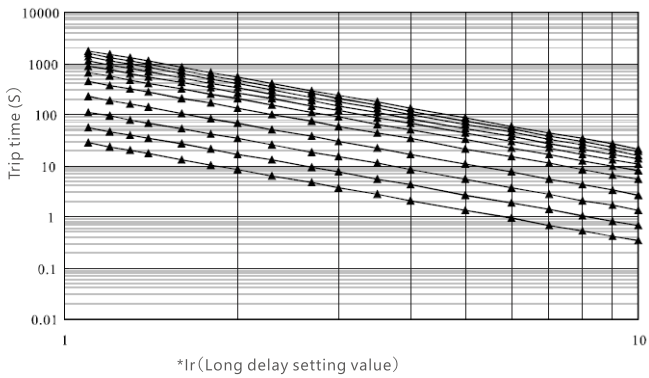
Note: Intelligent controller long delay protection feature factory default is $I^2T$ universal inverse time protection: I2TL=(1.5Ir) 2tL, tL - long delay 1.5Ir setting time, TL - Long delay action time. Operation time error ±15%

# RDW8HU series high voltage intelligent universal circuit breaker

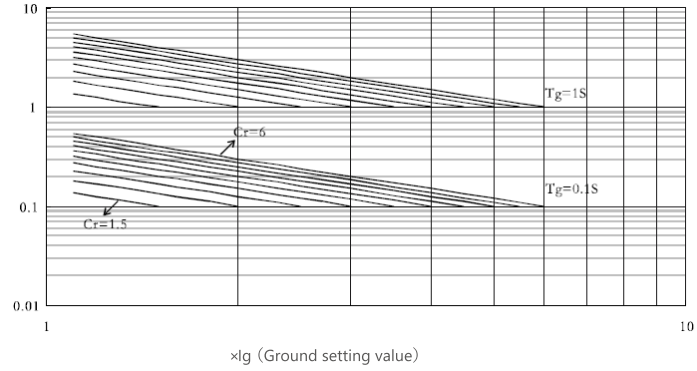
Contrast of different curve types




$I^2T$ graph




Ground protection



# RDW8HU series high voltage intelligent universal circuit breaker

## Protection features of intelligent controller

☐ The protection feature of intelligent controller has inverse time limit and fixed time limit.

When the fault current exceeds the inverse time limit setting value, the controller delays protection according to the specified time limit。

☐ The inverse time curve conforms to the characteristic curve $I^2t$

## Overload long delay protection feature

Overload long delay protection action threshold

☐ <1.05Ir：>2hnon-trip

☐ ≥1.3：<1htrip

☐ IrCurrent setting range：(0.4~1.0)In+OFF

## Inverse time action characteristics $I^2T=(1.5Ir)^2Tr$

| Set the multiple of current | Action time (s) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5Ir | 15 | 30 | 60 | 120 | 240 | 360 | 480 | 600 | 720 | 840 | 960 |
| 2Ir | 8.44 | 16.88 | 33.75 | 67.5 | 135 | 202.5 | 270 | 337.5 | 405 | 472.5 | 540 |
| 6Ir | 0.94 | 1.88 | 3.75 | 7.5 | 15 | 22.5 | 30 | 37.5 | 45 | 52.5 | 60 |
| 7.2Ir | 0.65 | 1.3 | 2.6 | 5.21 | 10.42 | 15.63 | 20.83 | 26.04 | 31.25 | 36.46 | 41.67 |

Note:T--- Fault action delay time Tr --- Long delay time set value Allowable error in operation time±15%

## Short circuit delay protection feature

Short circuit delay protection action threshold

☐ <0.9Isd：inaction；

☐ >1.1Isd：action

☐ IsdCurrent setting range：(1.5~15)Ir+OFF

| Current | Action time | | | | | |
|---|---|---|---|---|---|---|
| Isd<I≤8Ir | inverse time | Action characteristic | $I^2t=(8Ir)^2tsd$ | | | |
| | | Setting time s | 0.1 | 0.2 | 0.3 | 0.4 |
| I≥1.1Isd | Set a time limit, the minimum time is the return time | Setting time s | 0.1 | 0.2 | 0.3 | 0.4 |
| | | Min s | 0.08 | 0.14 | 0.23 | 0.35 |
| | | Max s | 0.14 | 0.2 | 0.32 | 0.5 |

Notes:Isd-Short delay current setting I --- Fault current value Ir --- Long delay setting value t --- Fault action delay time tsd — Short delay inverse time set value action time tolerance error±20%

## Short circuit instantaneous protection feature

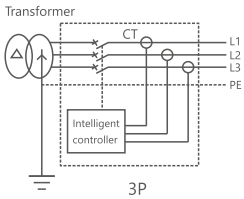
| Operation current set value | (1.0~20)In+OFF | Current tolerance | ±10% |
|---|---|---|---|
| Action characteristic | ≤0.85Ii inaction | | |
| | >1.15Iiaction | | |

# RDW8HU series high voltage intelligent universal circuit breaker

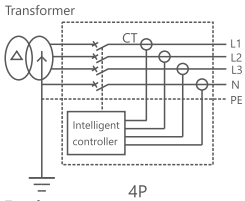
## Ground fault protection features

| Ground protection current setting Ig | | | | |
|---|---|---|---|---|
| Action current setting value Ig | | (0.2~1.0)In+OFF | Current tolerance | ±10% |
| Action characteristic | | <<0.8Ig inaction | | |
| | | ≥1.1Ig inaction | | |
| Action time Tg<br>Time tolerance ±10% | Set a time limit | 0.1~1s+OFF | | |
| | Inverse time shear coefficient Cr | 1.5~6+OFF | | |
| | Inverse time limit formula | t=TgxCrxIg/I t-Delay time Tg-Set delay time<br>Cr-shearing factor Ig-Set operating Current I-Ground fault current | | |

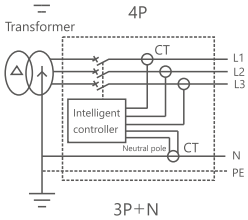
## Ground fault protection method and electrical schematic diagram



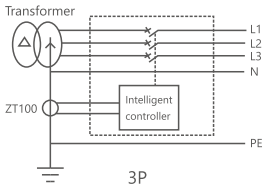
3P



4P



3P+N



3P

Method 1 (difference type)

☐ TN-C, TNC-S and TN-S power distribution systems use three-pole circuit breakers without neutral current transformers。
☐ The ground fault protection signal is the vector sum of the three-phase current。
☐ The protection feature is fixed time or inverse time protection。

Method 2 (difference type)

☐ TN-S power distribution system adopts four-pole circuit breaker and built-in neutral current transformer。
☐ The ground fault protection signal is the four-phase current vector sum。
☐ The protection feature is fixed time or inverse time protection。

Method 3 (Difference type)

☐ TN-S power distribution system uses three-pole circuit breaker and external neutral current transformer。
☐ The ground fault protection signal is the sum of three-phase current and N-phase current vector。
☐ The protection feature is fixed time or inverse time protection。
☐ Note: The length of the neutral current transformer conductor is not greater than 2m。

Mode 4 (ground current mode)

☐ The ground current protection type distribution system uses three-pole circuit breaker and external neutral line current transformer。
☐ Attach a special current transformer。
☐ The distance between the special current transformer and the circuit breaker is not more than 10m。

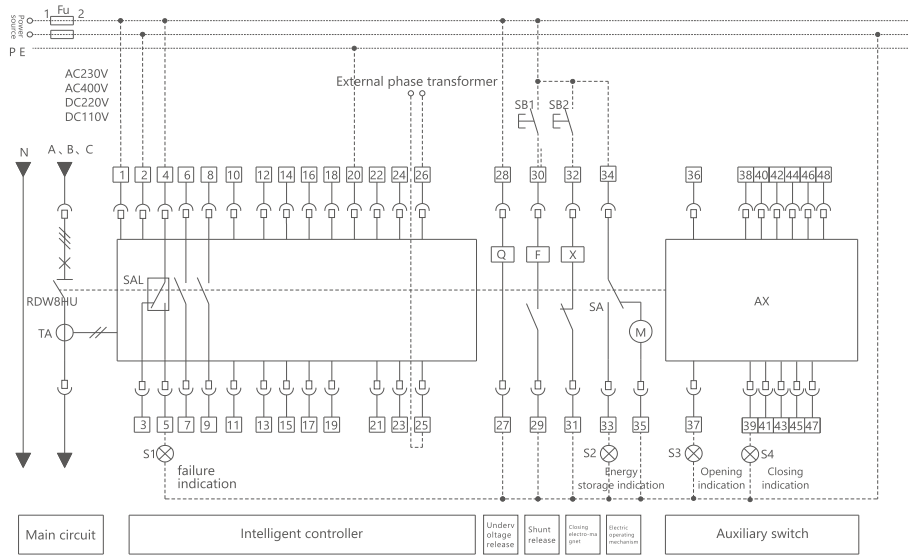
## Factory setting value of intelligent controller

| Trip cur vel $I^2t$ | Long delay | | Short time delay | | instant | Ground fault | | Thermal memory |
|---|---|---|---|---|---|---|---|---|
| | IR | tR | Isd | ts | Ii | Ig | tg | |
| | 1.0In | 15s | 8Ir1 | 0.4s | 12In | OFF | / | 20min |

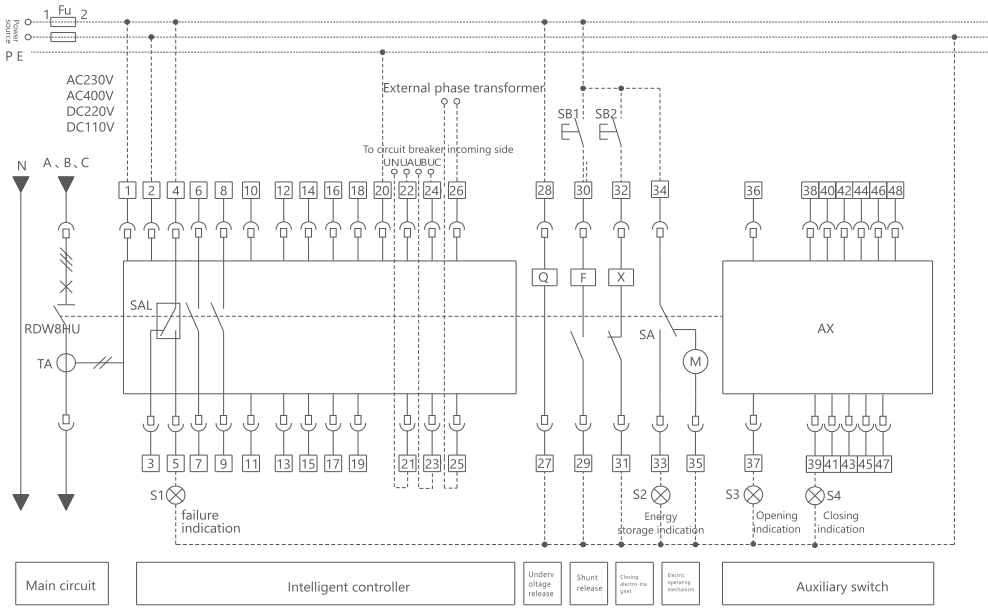
# RDW8HU series high voltage intelligent universal circuit breaker

## Circuit breaker control circuit wiring diagram

RDW8HU-2500/4000/6300 M-type secondary circuit wiring diagram

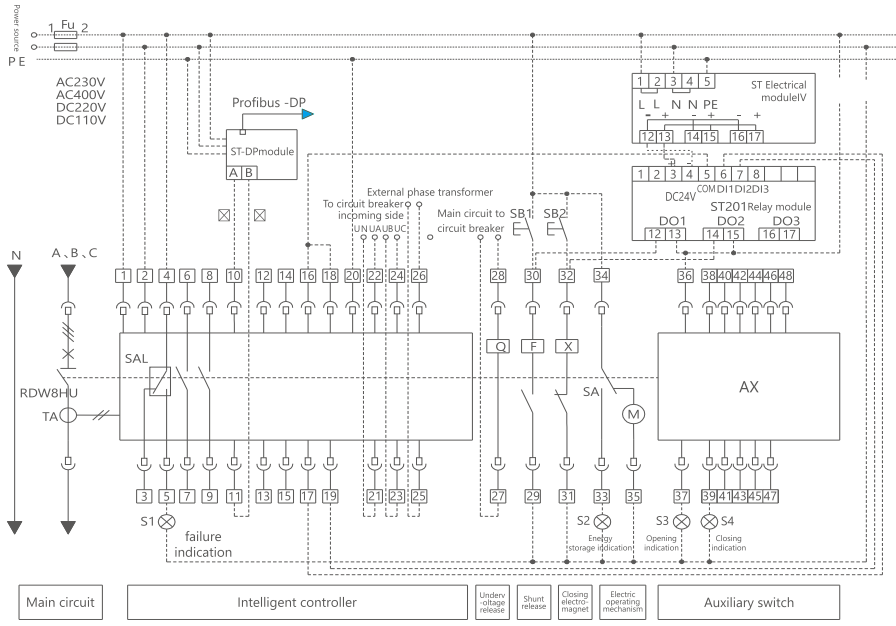



RDW8HU-2500/4000/6300 R-type secondary circuit wiring diagram



# RDW8HU series high voltage intelligent universal circuit breaker

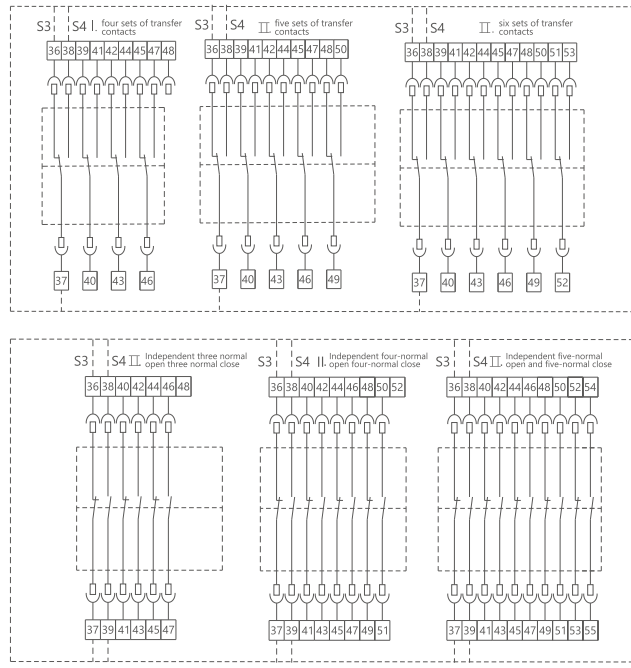
RDW8HU-2500/4000/6300　　H-type secondary circuit wiring diagram




Note: The dotted part is connected by the user. If the intelligent controller, undervoltage release device, shunt release device, closing electromagnet, electric operating mechanism and other voltages are different, they should be connected to different power sources respectively. The undervoltage releaser must be directly connected to the main circuit power supply, when the rated working voltage of the main circuit is AC800V~AC1140V, the control circuit and auxiliary circuit need to be isolated from the main circuit with a transformer, and the maximum working voltage of the control circuit and auxiliary circuit is AC400V.

# RDW8HU series high voltage intelligent universal circuit breaker

RDW8HU-2500/4000/6300 auxiliary switch type (default is four sets of transfer contacts)




RDW8HU-2500/4000/6300 M-type secondary circuit wiring diagram terminal function and symbol interpretation

| Terminal number | Function Description | Symbol | Paraphrase | Remark |
|---|---|---|---|---|
| 1、2 | Auxiliary power input: AC230V, AC400V, DC220V, DC110V | RDW8HU | RDW8HU universal circuit breaker | |
| 3、4、5 | Fault trip auxiliary contact, contact capacity: AC250V, 3A | S1~S4 | Signal lamp | User provided |
| 20 | Ground (PE) | TA | Current transformer | |
| 27、28 | Undervoltage release | SAL | microswitch | |
| 29、30 | Shunt release | SB1 | Opening button | User provided |
| 31、32 | Closing electromagnet | SB2 | Closing button | User provided |
| 33、34、35 | Electric operating mechanism (electric energy storage), 37 connected with green line, 38 connected with black line, 39 connected with red line | X | Closing electromagnet | |
| 36~48 | Auxiliary contact terminal | F | Shunt release | |
| | | Q | Undervoltage release | |
| | | M | Electric operating mechanism | |
| | | SA | Electric operating mechanism travel switch | |
| | | Fu | fuse | User provided |
| | | PE | Ground wire | |
| | | N | Neutral (N phase) | |
| | | A、B、C | Phase line | |
| | | AX | Auxiliary contact | |

# RDW8HU series high voltage intelligent universal circuit breaker

RDW8HU-2500/4000/6300 R-type secondary circuit wiring diagram terminal function and symbol interpretation

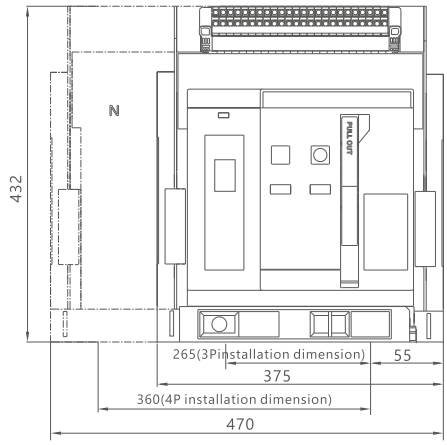
| Terminal number | Function Description | Symbol | Paraphrase | Remark |
|---|---|---|---|---|
| 1、2 | Auxiliary power input: AC230V, AC400V, DC220V, DC110V | RDW8HU | RDW8HU universal circuit breaker | |
| 3、4、5 | Fault trip auxiliary contact, contact capacity: AC250V, 3A | S1~S4 | Signal lamp | User provided |
| 20 | Ground (PE) | TA | Current transformer | |
| 21、22、23、24 | Voltage signal measurement, 21 is connected to phase N, 22 is connected to phase A, 23 is connected to phase B, 24 is connected to phase C | SAL | microswitch | |
| 27、28 | Undervoltage release | SB1 | Opening button | User provided |
| 29、30 | Shunt release | SB2 | Closing button | User provided |
| 31、32 | Closing electromagnet | X | Closing electromagnet | |
| 33、34、35 | Electric operating mechanism (electric energy storage), 37 connected with green line, 38 connected with black line, 39 connected with red line | F | Shunt release | |
| 36~48 | Auxiliary contact terminal | Q | Undervoltage release | |
| ★Since the main circuit voltage of this series is high voltage, the voltage signal measurement of R/H type controller 21, 22/23, 24 needs to be connected to the voltage conversion module。 | | M | Electric operating mechanism | |
| | | SA | Electric operating mechanism travel switch | |
| | | Fu | fuse | User provided |
| | | PE | Ground wire | |
| | | N | Neutral (N phase) | |
| | | A、B、C | Phase line | |
| | | AX | Auxiliary contact | |

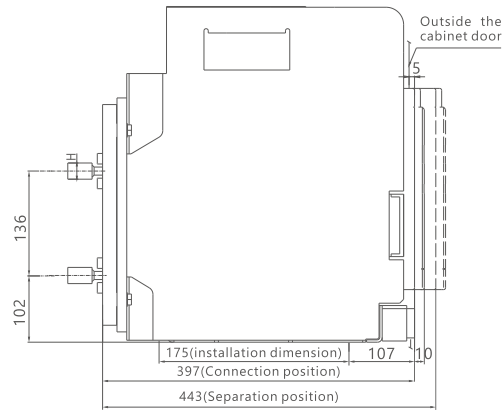
RDW8HU-2500/4000/6300 H-type secondary circuit wiring diagram terminal function and symbol interpretation

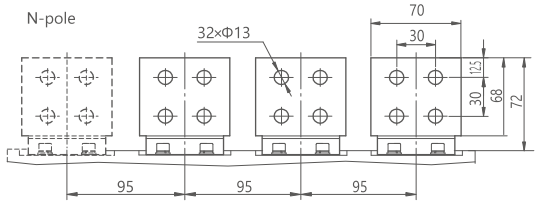
| Terminal number | Function Description | Symbol | Paraphrase | Remark |
|---|---|---|---|---|
| 1、2 | Auxiliary power input: AC230V, AC400V, DC220V, DC110V | RDW8HU | RDW8HU universal circuit breaker | |
| 3、4、5 | Fault trip auxiliary contact, contact capacity: AC250V, 3A | S1～S4 | Signal lamp | User provided |
| 10、11 | Communication interface output, 10 is (+),11 is (-); (Note: Default Modbus-RTU communication mode)) | TA | Current transformer | |
| 12～15 | DO1, programmable signal output, contact capacity: AC250V, 3A | SAL | microswitch | |
| 14、15 | DO2DO3, opening signal output, contact capacity: AC250V, 3A | SB1 | Opening button | User provided |
| 16、17 | DO4, closing signal output, contact capacity: AC250V, 3A | SB2 | Closing button | User provided |
| 18、19 | Ground (PE) | X | Closing electromagnet | |
| 20 | Voltage signal measurement, 21 is connected to phase N, 22 is connected to phase A, 23 is connected to phase B, 24 is connected to phase C | F | Shunt release | |
| 21、22、23、24 | External N transformer input | Q | Undervoltage release | |
| 25、26 | Undervoltage release | M | Electric operating mechanism | |
| 27、28 | Shunt release | SA | Electric operating mechanism travel switch | |
| 29、30 | Closing electromagnet | Fu | fuse | User provided |
| 31、32 | Electric operating mechanism (electric energy storage), 37 connected with green line, 38 connected with black line, 39 connected with red line | PE | Ground wire | |
| 33、34、35 | Auxiliary contact terminal | N | Neutral (N phase) | |
| 36~48 | | A、B、C | Phase line | |
| ★Since the main circuit voltage of this series is high voltage, the voltage signal measurement of R/H type controller 21, 22/23, 24 needs to be connected to the voltage conversion module。 | | AX | Auxiliary contact | Selective assembly |
| | | ST-DPmodule | This parameter is required when the communication mode is Profibus-DP | Selective assembly |
| | | STPower module | Communication function when needed | Selective assembly |
| | | ST201Relay module | Communication function when needed | |

# RDW8HU series high voltage intelligent universal circuit breaker

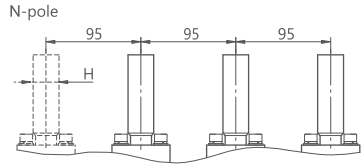
RDW8HU-2500 Intelligent universal Circuit breaker (Drawer type)



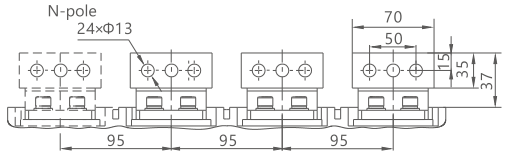



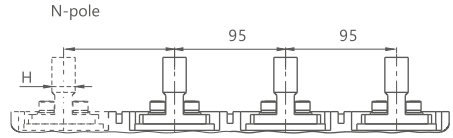

Default factory: Horizontal wiring and phase spacing (long row)



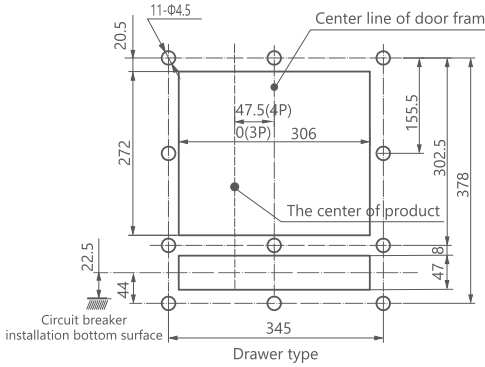

Vertical connection and phase spacing（long row)



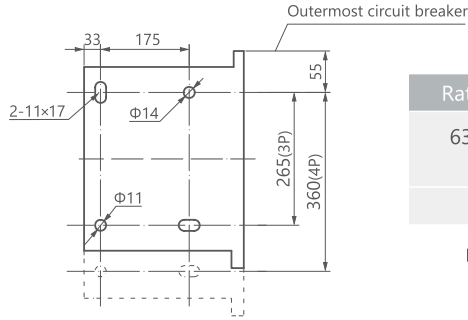

Horizontal connection and phase spacing (short row)




Vertical connection and phase spacing（short row)




RDW8DC-2500 Drawer type circuit breaker panel opening size



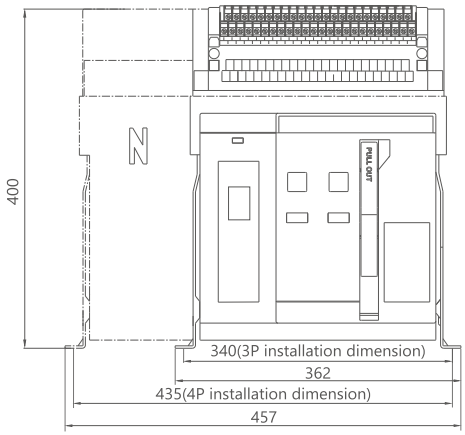

Installation dimension diagram

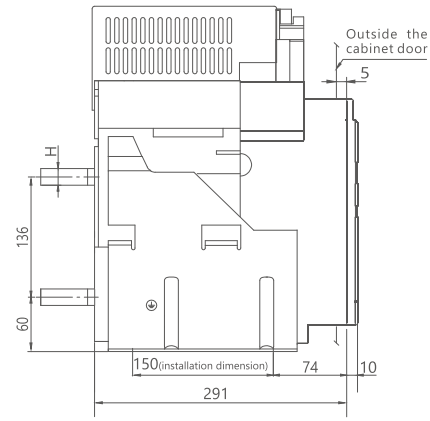
| Rated current (A) | Busbar thickness H (mm) |
|---|---|
| 630、800、1000、1250、1600 | 15 |
| 2000、2500 | 20 |

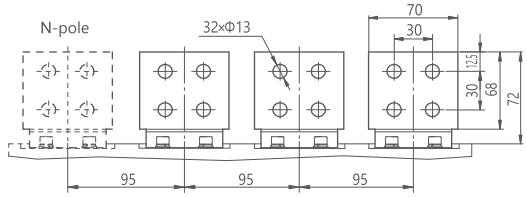
RDW8HU-2500 The current corresponds to the busbar thickness

# RDW8HU series high voltage intelligent universal circuit breaker

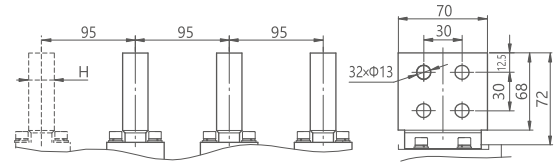
RRDW8HU-2500 Intelligent universal Circuit breaker (fixed)



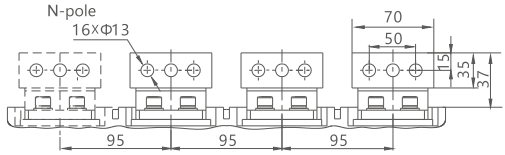



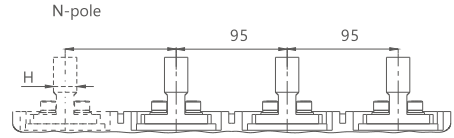

Horizontal wiring and phase spacing



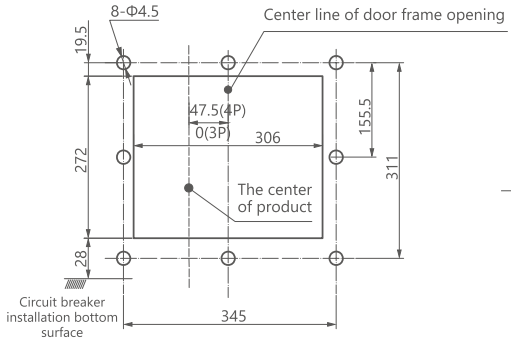

Vertical connection and phase spacing



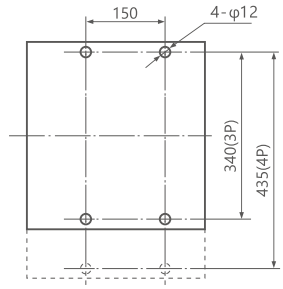

Horizontal wiring and phase spacing(short row)




Vertical connection and phase spacing(short row)




RDW8DC-2500 fixed circuit breaker panel opening size



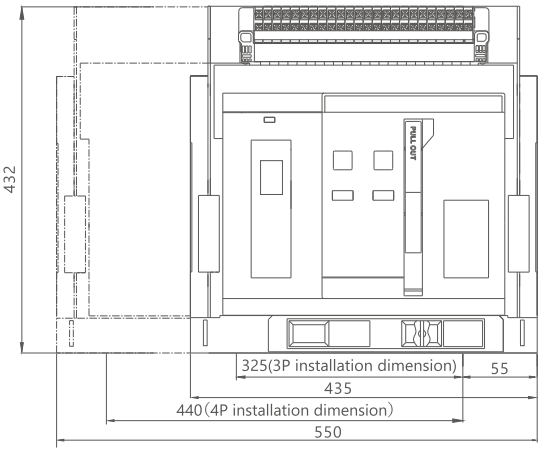

Installation dimension diagram

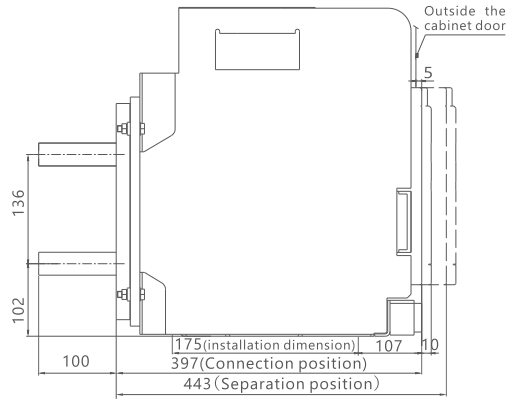
| Rated current (A) | Busbar thickness H (mm) |
|---|---|
| 630、800、1000、1250、1600 | 15 |
| 2000、2500 | 20 |

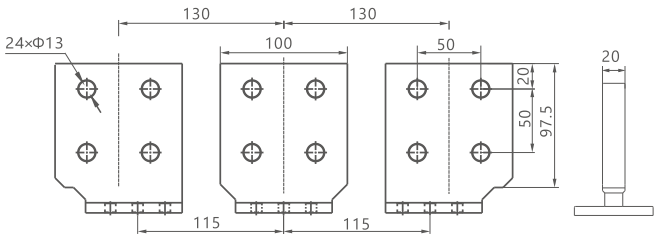
RDW8HU-2500 The current corresponds to the busbar thickness

# RDW8HU series high voltage intelligent universal circuit breaker

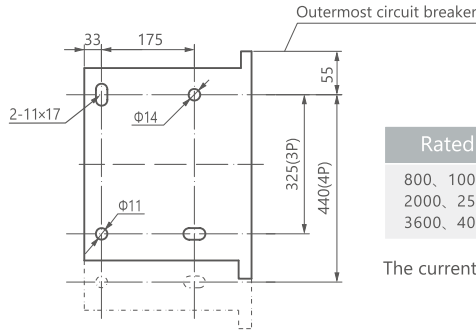
RDW8HU-4000 Intelligent universal Circuit breaker (Drawer type)



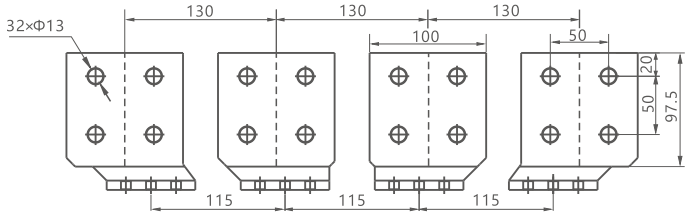

Horizontal wiring and phase spacing(3P)



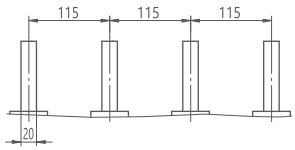

Installation dimension diagram

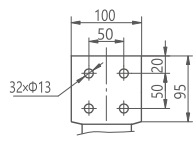
| Rated current (A) | Busbar thickness H (mm) |
|---|---|
| 800、1000、1250、1600、2000、2500、2900、3200、3600、4000 | 20 |

The current corresponds to the busbar thickness

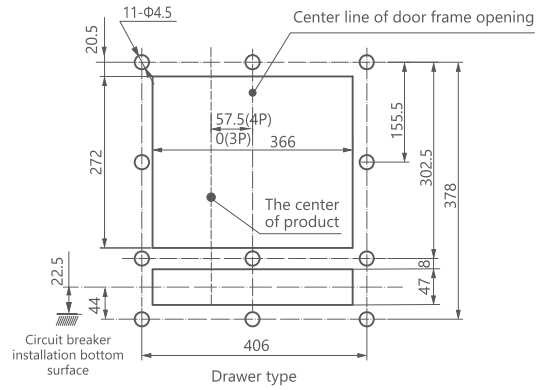



Horizontal wiring and phase spacing(4P)



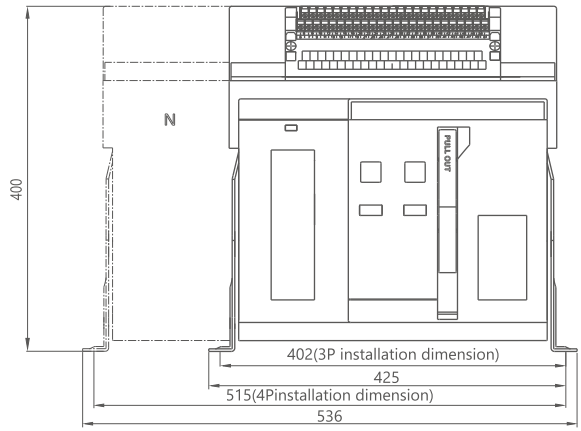

Vertical connection and phase spacing

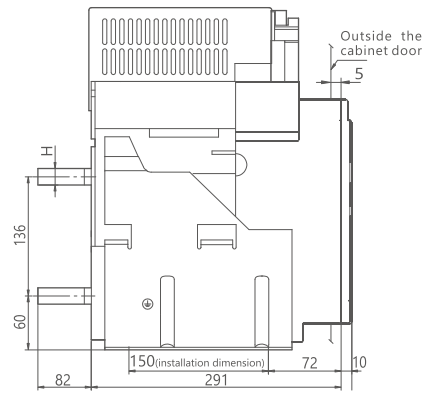


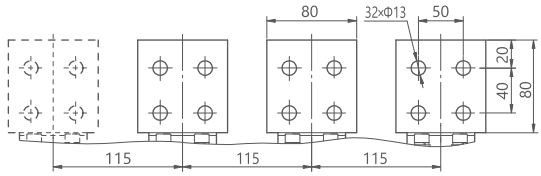

RDW8HU-4000 drawer type circuit breaker panel opening size

# RDW8HU series high voltage intelligent universal circuit breaker

RDW8HU-4000 Intelligent universal Circuit breaker (fixed)



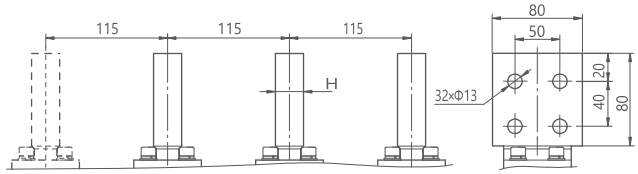



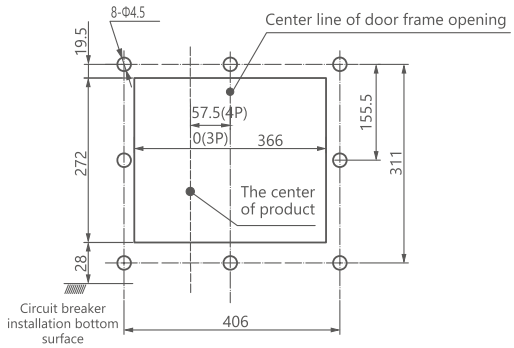

Horizontal wiring and phase spacing

| Rated current (A) | Busbar thickness H (mm) |
|---|---|
| 800、1000、1250<br>1600、2000、2500<br>2900、3200、3600<br>4000 | 20 |

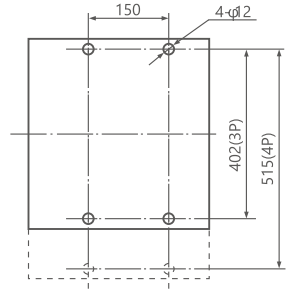
The current corresponds to the busbar thickness




Vertical connection and phase spacing



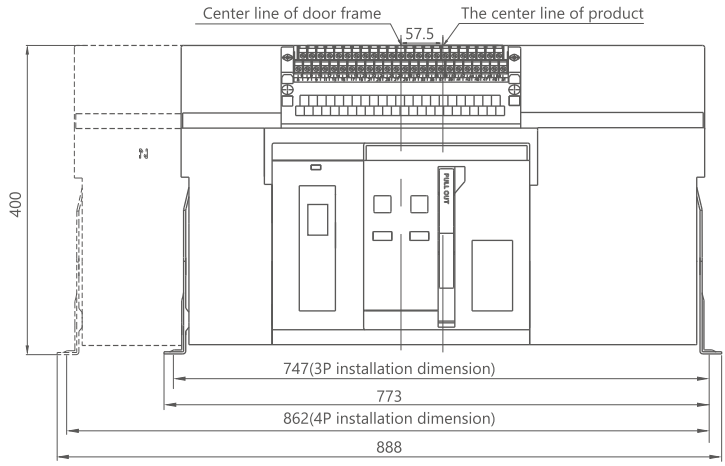

RDW8HU-4000 fixed circuit breaker panel opening size

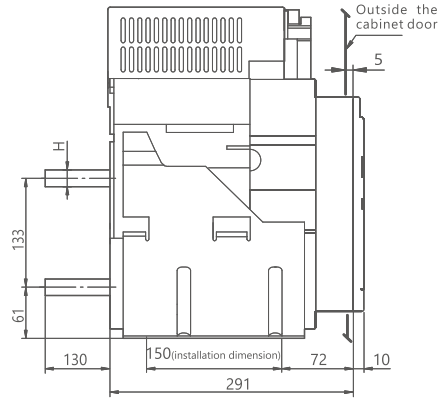


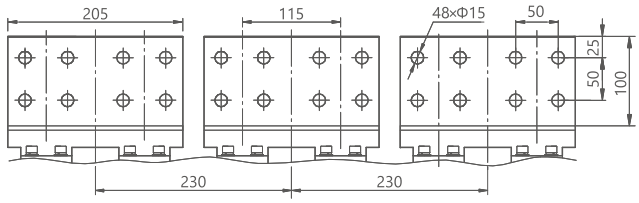

Installation dimension diagram

# RDW8HU series high voltage intelligent universal circuit breaker

RDW8HU-6300 Intelligent universal Circuit breaker (fixed)

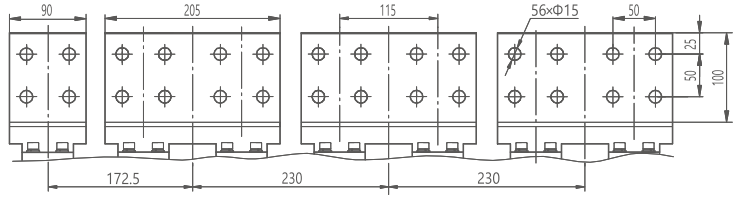


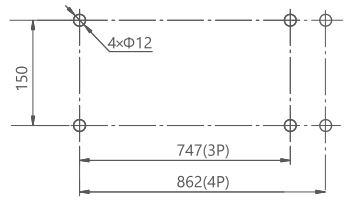




| Rated current (A) | Busbar thickness H (mm) |
|---|---|
| 4000 | 25 |
| 5000~6300 | 30 |

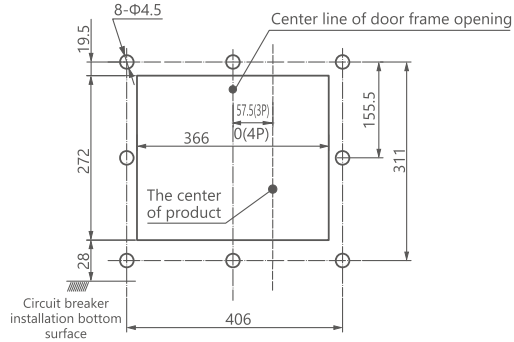
3P Horizontal wiring and phase spacing




4PHorizontal wiring and phase spacing



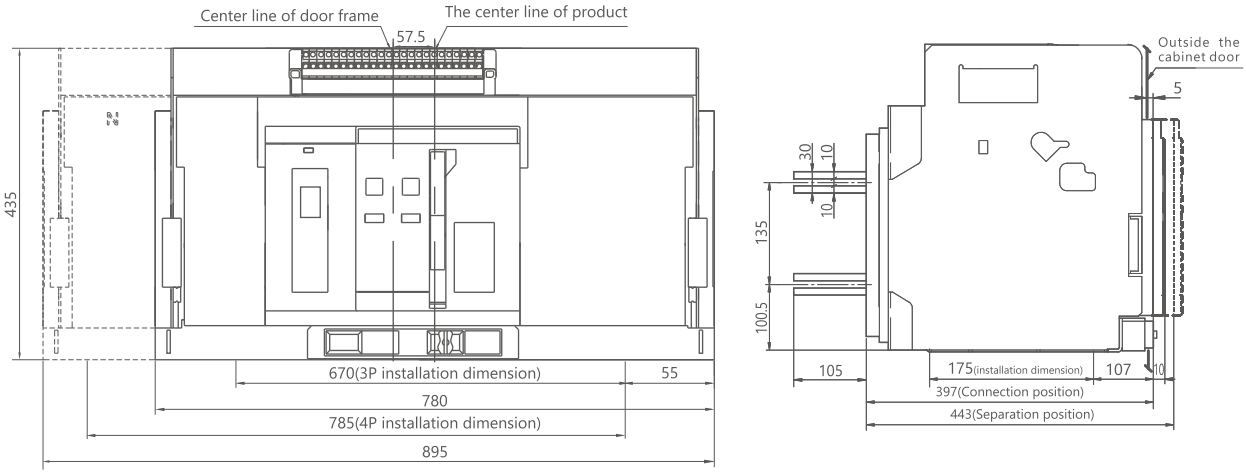

Installation dimension diagram

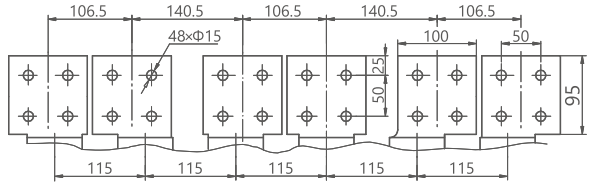



RDW8HU-6300 fixed circuit breaker panel opening size

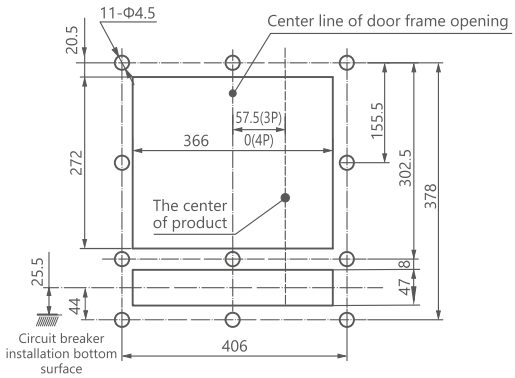
# RDW8HU series high voltage intelligent universal circuit breaker

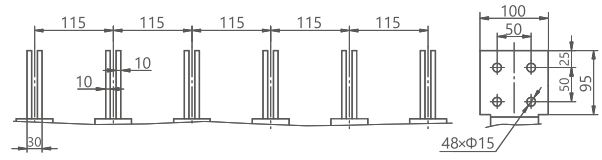
RDW8HU-6300 Intelligent universal Circuit breaker (Drawer type)




3P Horizontal wiring and phase spacing



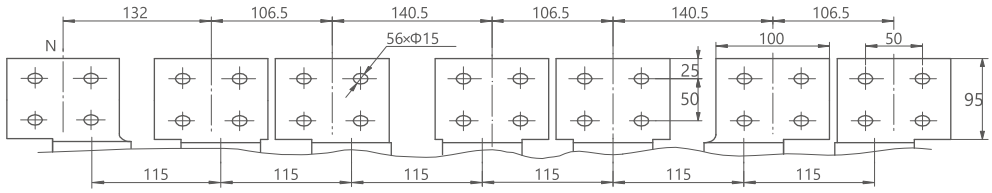




3P Vertical connection and phase spacing

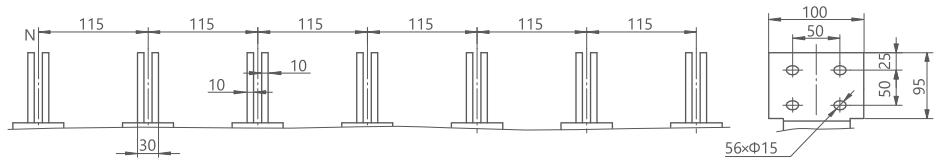
RDW8HU-6300 Drawer type circuit breaker panel opening size

# RDW8HU series high voltage intelligent universal circuit breaker

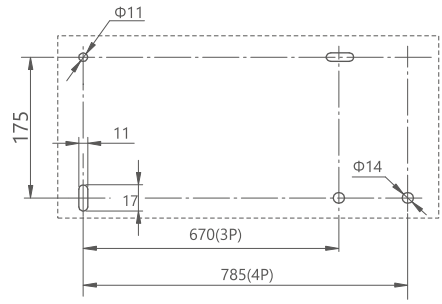
RDW8HU-6300 Intelligent universal Circuit breaker (Drawer type)




4P Horizontal wiring and phase spacing




4P Vertical connection and phase spacing




Installation dimension diagram

# RDW8HU series high voltage intelligent universal circuit breaker

## Accessories

### Remote operation

RDW8-2500~6300
Closing electromagnet

☐ Closing electromagnet

| Operating voltageUs | AC230V | AC400V | DC220V | DC110V |
|---|---|---|---|---|
| Operating voltage range | (85~110)%Us | | | |
| Starting current | 1.3A | 0.7A | 1.3A | 2.5A |
| Suction time | ≤60ms | | | |

Note: When the circuit breaker completes the storage operation and is in the normal opening state, the circuit breaker can be controlled remotely by the closing electromagnet to close the circuit breaker quickly

RDW8-2500~6300
Shunt release

☐ Shunt release

| Operating voltageUs | AC230V | AC400V | DC220V | DC110V |
|---|---|---|---|---|
| Operating voltage range | (70~110)%Us | | | |
| Starting current | 1.3A | 0.7A | 1.3A | 2.5A |
| Suction time | ≤30ms | | | |

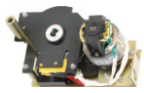
Note: When the circuit breaker is in the closing state, the shunt trip device can be remotely controlled to quickly disconnect the circuit breaker

RDW8-2500~6300
Undervoltage release

☐ Undervoltage release

| Operating voltageUs | AC230V | AC400V |
|---|---|---|
| Operating voltage range | (35~70)%Ue | |
| Reliable closing voltage range | (85~110)%Ue | |
| Unable close voltage range | ≤35%Ue | |
| Power dissipation | 20VA | |
| Above RDW5-2500 tripping time | Short time 0.5s、1s、3s、5s | |

Note: 1. When the undervoltage release is not powered, the circuit breaker can not be closed;
2. Within 1/2 delay trip time, when the operating voltage is restored to more than 85%Ue, the circuit breaker will continue to open;
3. In lightning-prone areas and unstable power supply voltage grids, it is recommended to use an undervoltage release device with delay to prevent the circuit breaker from being disconnected due to short-term voltage reduction



RDW8-2500~6300
Energy storage motor

☐ Energy storage motor

| Operating voltageUs | AC230V | AC400V | DC220V | DC110V |
|---|---|---|---|---|
| Operating voltage range | (85~110)%Us | | | |
| Energy storage time | 5s | | | |
| RDW5-2500 power consumption | 110VA | | 110W | |
| Above RDW5-4000 | 150VA | | 150W | |

Note: 1. Realize electric circuit breaker energy storage and automatic re-energy storage operation after circuit breaker closing, so that the circuit breaker can be re-closed immediately after breaking;
2. You can also manually store energy during circuit breaker maintenance

# RDW8HU series high voltage intelligent universal circuit breaker

## Lock and interlo

Drawer operation padlock

☐Drawer operation padlock

1.The body of the drawer circuit breaker is pulled out of the card plate and locked with a padlock when it is in the "separate" position. After being locked, the body cannot be shaken to the "test" or "connect" position. (Padlock user

Key lock

☐Key lock

1.Key lock Locks the circuit breaker in the off position. The circuit breaker can be closed only when the lock is opened by the key and the key is not removed

2.There are three types of commonly used Key locks: one-lock key, two-lock key, and three-lock two key

Note: Two-lock and three-lock are used in two-line and one-link distribution systems

Position Door interlock

☐Position Door interlock

1..When the drawer type circuit breaker body is in the "test" or "connection" position, the cabinet door is prohibited to open, and when the circuit breaker body is in the "separate" position, the cabinet door is allowedto open。

Drawer position locking mechanis

☐ Position Door interlock

1.In the drawer type circuit breaker, the lock device of the circuit breaker"connection", "test" and "separation" position, the three positions of the circuit breaker are displayed through the indicating window, the advance and retreat handle is locked in the exact position, and the lock can be

Mechanical interlocking

☐ Mechanical interlocking

1.There are lever interlocks and cable interlocks

2.Using lever interlocking, two or three circuit breakers can only be installed vertically, using cable interlocking, circuit breakers can be installed horizontally and vertically

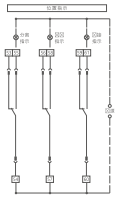
## indicating contactor

RDW8-2500~6300 Auxiliary switch

☐Auxiliary contact

| Rated operational voltage | AC230V | AC400V | DC220V | DC110V |
|---|---|---|---|---|
| Conventional thermal current | 6A | | | |
| Rated control capacity | 300VA | | 60W | |

Notes：1.Default configuration: Four sets of conversion contacts 2.Other types: four normal open four normal close, six groups of conversion contacts, six normal open six normal close



Position signal device wiring diagram

☐Position signal device wiring diagram

1.Drawer type optional accessories

2.The three-position indicating contact is installed on the drawbar to indicate the position of the circuit breaker in the drawer

3.When the circuit breaker is in the connected position, see the wiring diagram on the

# RDW8HU series high voltage intelligent universal circuit breaker

## Protection

Door fram

☐Door fram

1.The Door frame is installed on the door where the circuit breaker is installed in the power distribution cabinet, and plays a sealing and beautiful role with up to the protection level。

Phase partitio

☐Phase partitio

1.It is vertically installed between the bus terminals of each phase of the circuit breaker to enhance the insulation between phases of the circuit breaker

## Controller accessories

N-class current transforme

☐N-class current transformer

1.In the 3P+N grounding mode, the external transformer used to measure the neutral phase current is installed on the wiring busbar by the user
2.Choose between ground transformer and leakage transformer

Ground current transformer

☐Ground current transform

1.The special external transformer used to measure the neutral phase current can protect the grounding fault of the breaker at the same time
2.The grounding mode is ground current return
3.Only applicable to R/H controllers
4.Choose one of the three external transformers and leakage transformers with N phase

Auxiliary power module

☐Auxiliary power module

1.The input voltage: AC230V/AC400V/DC110V DC220V (optional);
2.Auxiliary power module can provide power not less than 9.6W,DC24V power supply, can output four sets of wiring terminals, can provide power for intelligent controller, relay module；
3.The installation method is 35mm standard guide rail or direct installation。

Relay module

☐Relay module

1.Input voltage: DC24V
2.Contact capacity: AC250V10A; DC28V10A
3.If the switching capacity of the circuit breaker is large, the Relay module switches the circuit breaker to the relay Module.
4.The installation method is 35mm standard guide rail or direct installation

Voltage conversion module

☐Voltage conversion module

1.The voltage conversion module is designed to extend the voltage measurement range of the intelligent controller and can be used for expansion when the bus voltage is high. The module must be used together with the controller。

# RDW8HU series high voltage intelligent universal circuit breaker

## Order specificatio

Company Contacts Contact number Order quantity (units) Order date

| Product model number | RDW8HU-2500☐ | RDW8HU-4000☐ | RDW8HU-6300☐ |
|---|---|---|---|
| Rated current(A) | ☐630 ☐800 ☐1000 ☐1250 ☐1600 ☐2000 ☐2500 | ☐800 ☐1000 ☐1250 ☐1600 ☐2000 ☐2500 ☐2900 ☐3200 ☐3600 ☐4000 | ☐4000 ☐5000 ☐6300 |
| Number of pol | ☐3 poles ☐4 poles | | |
| Installation mode | ☐fixed type ▫Fixed type | | |
| Connection mod | ☐Vertical connection ☐Upper horizontal droop direct line ☐Connect cables vertically up and horizontally down ☐Other wiring modes | | |
| Rated operational voltage | ☐AC800V ☐AC1000V ☐AC1140V | | |
| Intelligent controller selection | Type | ☐M standard form(Digital display) ☐R Enhanced type(Liquid crystal display) ☐H advanced type(LCD with communication) | |
| | Control voltage | ☐AC23OV ☐AC400V ☐DC220V ☐DC110V ☐DC24V | |
| | Protection parameter setting | Default factory Settings: Ir=1In,Tr=15s; Fixed duration Isd=8Ir,Tsd=0.4s; Inverse time limit Isd=OFF;<br>Ii=12 In; Ig is OFF digit: IG_0.4 in inverse time shear coefficient k=OFF,Tg=OFF<br>LCD: grounding protection OFF, grounding alarm OFF | |
| | | Long delay protection Ir | Ir= In(Select or OFF from 0.4 to 1.0)<br>Tr(1.5Ir)= s(at 15, 30, 60... Select from 960) Note: Digits only go up to 480 |
| | | Short circuit delay protection Is | sd= Ir(Select or OFF from 1.5 to 15)<br>☐Set the time limit Tsd=__s(liquid crystal is selected in 0.4~1.0; The number is selected from 0.1 to 1.0); ☐ Inverse time limit Tsd=0.1Tr |
| | | Short circuit instantaneous protection Ii | I= _In(Select or OFF from 1.0 to 20), the maximum value is 100kA |
| | | Ground protection Ig | g= In(Select or OFF from 0.2 to 1.0)<br>Tg= s(Select from 0.1 to 1.0<br>Inverse time-bound shear coefficient k= (Select or OFF in 1.5~6 |
| | Optional function | ☐Reclosing function (Type R, Type H) ☐Communication function: Modbus protocol (Default, provided for H-mode)<br>☐profibus | |
| Standard accessory | Closing electromagnet | ☐AC23OV ☐AC400V ☐DC220V ☐DC110V | |
| | Shunt relea | ☐AC23OV ☐AC400V ☐DC220V ☐DC110V | |
| | Energy storage motor | ☐AC23OV ☐AC400V ☐DC220V ☐DC110V | |
| | Auxiliary switc | ☐Four groups of changeover contacts ☐Four normal open four normal closed ☐Six groups of conversion contacts<br>☐Six normal open six normal close☐Special form | |
| Ptional accessories | Undervoltage release | ☐AC23OV ☐AC400V | |
| | | ☐Instantaneous (default) ☐0.5s ☐1s ☐3s ☐5s | |
| | Opening lock device | ☐One circuit breaker with one lock and one key ☐Two circuit breakers with two locks and one key<br>☐Three circuit breakers with three locks and two keys ☐Special form (customized according to user requirements) | |
| | Mechanical interlocking | Two circuit breakers ☐Pole interlock (upper and lower interlock) ☐Steel cable interloc | |
| | | Three circuit breakers ☐Pole interlock (upper and lower interlock) ☐Steel cable interloc | |
| | Other | ☐Residual current transformer ☐External neutral line current transformer ☐Phase partition ☐Power adapter<br>☐Relay module ☐Communication Conversion module (Profibus-DP) ☐Drawer seat three-position loc | |

Note 1: If the user has other special requirements, please consult with the manufacturer before ordering;
Note 2: The optional functions and accessories of the circuit breaker are not included in the standard configuration of the circuit breaker, and the cost is calculated separately;
Note 3: The auxiliary switch of fixed circuit breaker has no six normal open and six normal