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EXPLORER

SAFELY EXPLORING
LEADING SMART FUTURE

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COMPANY PROFILE

Huanyu High-Tech Co., Ltd. is a high tech enterprise focusing on the development, manufacturing and marketing of low-voltage electrical components. Established on Zhejiang High Tech. Co, Ltd of Huanyu Group in early 2021, we are a joint venture of Huanyu Group, a large national conglomerate company, and Eaton Group, a global power management company.

Our products are widely used in many applications including power grids, network communications, new energy, metallurgy, chemical industry, transportation, manufacturing and construction, serving various well-known customers such as the State Grid, China Southern Power Grid, Evergrande Real Estate, Vanke, Country Garden, Poly Real Estate, R&F Properties, the Three Gorges of the Yangtze River, Daqing Oilfield, Jiangsu Power Grid, Xi'an Jiaotong University, Guangzhou Baiyun Airport, Shanghai Disney, China FAW, China Railway, and China Railway Construction. Now we have 10+ integrated service centers, 30+ sales offices, 600+ terminal image specialty shops, and over 800 sales outlets in mainland China.

We have been awarded the National Contract-honoring and Trustworthy Enterprise, National Customer-satisfied Enterprise, National High-Tech Enterprise, Zhejiang Well-known Trade Name, Zhejiang Green Enterprise, Zhejiang Major Taxpayer, and Wenzhou Mayor Quality Award. In addition, we have been certified with ISO9001 Quality Management System, ISO14001 Environmental Management System and ISO45001 Occupational Health and Safety Management System, and passed more than 10 international certification including the KEMA standard of Netherlands, UL standard of the United States, CE standard of the European Union, TüV standard of Germany, FI standard of France, and CB system.We have a national post-doctoral research station, a provincial technology research institute, and a nationally accredited CNAS laboratory. We also have more than 100 national invention patents and utility model patents, and has implemented the National Torch Plan and major provincial scientific research and development projects. Our products have been rated as China Famous Brand Products, National Customer-satisfied Products, and Zhejiang Famous Brand Products. Besides, we have been awarded Zhejiang Manufacturing Quality Certificate and have the right to use Zhejiang "Pin", a word mark meaning quality.

Committed to smart electric to make life better, we will continue to focus on product innovation, talent development, and smart manufacturing, to build a modernized global electrical enterprise.

Safe Exploring,
Leading Smart Future

New design

Fully enhanced performance
Zero arcing is achieved

Optimized frame sizes
Improve cost effectiveness

Improved breaking capacity
Basic and high breaking
types are available

-35℃~+70℃

Can be used in severe
application environment
Ambient temp
from -40℃to +70℃

Real-time monitoring of internal
temperature
Safer and more reliable

Intelligent controllers
With improved features
such as measurement, query
and setting

USB interface and WIFI
function are available
Easy to operat

Superior long life
Highly reliable

CONTENT

EXW3 Air Circuit Breaker

Functions and Features

Product description

The EXW3 air circuit breaker (hereafter as the circuit breakers) are suitable for use in electrical distribution networks of AC 50/60Hz, with the rated operating voltage of 690V and rated current of 6,300A and below, for power distribution, feeding and generation protection to protect circuits and power equipment from hazards due to overload, under-voltage, over-voltage, voltage/current unbalance, short-circuit, and ground faults. The circuit breakers can also be used directly to protect motors and generators from overload, undervoltage and short circuit faults. Equipped with intelligent controllers as core parts, the circuit breakers can offer precise selectivity protection to avoid unnecessary power outage and improve power supply reliability, continuity and safety. Open communication interface options are available, to enable four major remote functions and meet the requirements of control centers and automation systems.

The circuit breakers meet GB/T14048.2 and IEC 60947-2 standards.

Model meaning

EXW3	N	-	2000	D	/	3	2000A	□
Air circuit breaker	Breaking capacity		(A) frame size	Installation		Number of poles	Rated current	Control voltage
EXW3	N : (basic type) H : (high breaking type)		2000 4000 6300	D : draw-out F : fixed		3 : 3P 4 : 4P	630A ⋮ 6300A	AC230V AC400V DC220V DC110V

M1	□	□	□	□	□
Controller type	Mounting method	Auxiliary switch	Door +frame sealing ring	Inter-phase partition	Under-voltage release
M1 : Mic1.0 M2 : Mic2.0 M5 : Mic5.0	H:Horizontal V:Vertical	4NOs/4NCs 6NOs/6NCs	Draw-out fixed	2片(3P) 3片(4P)	AC230V AC400V

□	□	□	□	□
Key lock	Mechanic interlocking	Dual-power controller	External transformer	Other
One lock, one key Two locks and one key Three locks and two keys	Lever interlock Steel cable interlock	Dual-power controller Three-power controller Bus controller	N-phase current transformer Ground current transformer Leakage current transformer	Optional functions

Normal operating conditions

1.Applicable temperature:
- Suitable for use at -5℃ to +40℃;
- Also for use at -40℃ to +70℃ (Mic1.0 standard type), and -25℃ to +70℃ (Mic2.0 multi-function type, and Mic5.0 intelligent type)

2.Altitude: ≤2,000m at the mounting site;
3.Atmospheric conditions:
- Air relative humidity: ≤50% at the maximum temperature of +40℃,and a higher relative humidity is allowed when at a lower temperature;
- For example, at 20℃, the humidity is 90%, and special measures should be taken for occasional condensation due to temperature change;

4.Pollution level: Level 3;
5.Mounting category:
- IV for circuit breaker's main circuit, under-voltage release coil, and power transformer's primary coil
- III for other auxiliary circuits and control circuits

6.Utilization category: B

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EXW3 Air Circuit Breaker

Functions and Features

Classifications

1.By mounting method: Fixed type and withdrawable type
2.By operating mode: Motor operating and manual operating (for maintenance and repair)
3.By the number of poles: 3P and 4P
4.By release type: Intelligent controller, under-voltage instantaneous (or time delay) release, and shunt release
5.By intelligent over-current controller function: Mic5.0 (intelligent type), Mic2.0 (multi-function type); Mic1.0 (standard type). See Table 1 for the functions of these three types of controllers

Table 1

Controller type	Mic1.0 standard type Digital display	Mic2.0 multi-function type LCD display	Mic5.0 intelligent type LCD display with communication
Standard functions	▫ Overload long delay protection ▫ Overload thermal memory ▫ Short-circuit short delay protection ▫ Short circuit instantaneous protection ▫ Grounding protection (differential type) ▫ Neutral line protection (4P,3P+N) ▫ MCR and HSISC protection ▫ Current measurement (phase pole, N pole) ▫ LED fault status indication ▫ Fault record and query ▫ Historical current peak record ▫ Alarm history record query ▫ Fault trip signal output ▫ Self-diagnosis function ▫ Self-diagnosis function ▫ Simulation tripping test function ▫ Contact wear equivalent (alarm)% query ▫ USB interface function	▫ Overload long delay protection ▫ Fault record and query ▫ Overload thermal memory ▫ Historical current peak record ▫ Short-circuit short delay protection ▫ Alarm history record query ▫ Short circuit instantaneous protection ▫ Fault trip signal output ▫ Grounding protection (differential type) ▫ Self-diagnosis function ▫ Neutral line protection ▫ Simulation trip test function (4P, 3P+N) ▫ Contact wear equivalent (alarm)% query ▫ Current unbalance protection ▫ Load monitoring ▫ Number of operations query ▫ Current measurement (phase pole, N pole) ▫ Clock function ▫ LED fault status indication ▫ I/O setting function ▫ Password setting function ▫ USB interface function	▫ Overload long delay protection ▫ Demand measurement (power) ▫ Overload thermal memory ▫ Power measurement (active power, reactive power, apparent power) ▫ Short-circuit short delay protection ▫ Short circuit instantaneous protection ▫ Power factor measurement ▫ Grounding protection (differential type) ▫ Energy measurement (active energy, reactive energy, apparent energy) ▫ Neutral line protection(4P, 3P+N) ▫ Current unbalance protection ▫ Harmonic measurement ▫ Mcr and hsisc protection ▫ Thermal capacity measurement ▫ Load monitoring ▫ led fault status indication ▫ Voltage unbalance protection ▫ Historical current peak record ▫ Under-frequency, over-frequency protection ▫ Alarm history record query ▫ Phase protection ▫ Fault trip signal output ▫ Current measurement (phase pole, N pole) ▫ Self-diagnosis function ▫ Phase sequence detection ▫ Simulation trip test function ▫ Frequency measurement ▫ Contact wear equivalent (alarm)% query ▫ Number of operations query ▫ Clock function ▫ I/O setting function ▫ Password setting function ▫ USB interface function ▫ Communication (MODBUS-RTU)
Optional functions	▫ Overload pre-alarm ▫ Grounding alarm ▫ Remote controller reset ▫ External transformer function ▫ Dedicated for wind power and photovoltaic use ▫ Over-temperature environment (-40℃ ~ +70℃) ▫ WIFI wireless connection function ▫ Leakage protection function (with dedicated transformer, no grounding protection function)	▫ Overload pre-alarm ▫ Leakage protection function (with dedicated transformer, no grounding protection function) ▫ Grounding alarm ▫ Over temperature protection and alarm ▫ Zone selectivity interlocking ▫ MCR and HSISC protection ▫ Residual current protection ▫ Voltage (phase voltage, line voltage, voltage unbalance rate) ▫ Remote controller reset ▫ Automatic reclosing function (for photovoltaic) ▫ External transformer function ▫ Dedicated for wind power and photovoltaic use ▫ Over-temperature environment (-40℃ ~ +70℃) ▫ Under voltage, over voltage protection ▫ Voltage unbalance protection ▫ Phase sequence protection ▫ Under frequency, over frequency protection ▫ Demand value protection (current) ▫ Reverse power protection ▫ Lack of phase protection ▫ WIFI wireless connection function	▫ Overload pre-alarm ▫ Grounding alarm ▫ Over temperature protection and alarm ▫ Zone selectivity interlocking ▫ Residual current protection ▫ Voltage (phase voltage, line voltage, voltage unbalance rate) ▫ Remote controller reset ▫ Automatic reclosing function (for photovoltaic) ▫ Wireless remote control (mobile phone control) ▫ WIFI wireless connection function ▫ External transformer function ▫ Dedicated for wind power and photovoltaic use ▫ Over-temperature environment (-40℃ ~ +70℃) ▫ Leakage protection function (with dedicated transformer, no grounding protection function)

Technical data and performance

1. Technical data

Frame size(Inm)		EXW3-2000		EXW3-4000		EXW3-6300	
		N	H	N	H	N	H
Rated operating In(A)		630、800、1000 1250、1600、2000		2000、2500、3200、4000		4000、5000、6300	
Neutral pole rated rurrent In(A)		100%In		100%In		50%In	
Rated operated voltage Ue(V)		AC400/415/440/690					
Rated frequency		50/60Hz					
Number of poles		3P/4P					
Rated impulse withstand voltage Uimp(kV)		AC12					
Rated insulation Voltage Ui(V)		AC1000					
Power frequency withstand voltage(V)		AC3500					
Rated short-circuit breaking capacity Icu (kA)	AC400V/415V	85	85	85	100	120	125
	AC440V/690V	50	65	65	70	85	100
Operating short-circuit breaking capacity Ics(kA)	AC400V/415V	65	85	70	85	100	125
	AC440V/690V	50	65	65	70	85	100
Rated short-time withstand current Icw/1s (kA)	AC400V/415V	65	85	70	85	100	125
	AC440V/690V	50	65	65	70	85	100
Rated short-circuit making capacity Icm (kA)	AC400V/415V	187	187	187	220	264	275
	AC440V/690V	110	143	143	154	187	220
Utilization category		B					
Breaking time		≤30 ms					
Marking time		=70ms					
Electrical life(times) ≤2500 1time/3min >2500 1time/6min	400V	10000		6000		5000	
	690V	6000		3500		2000	
Mechanical life(times) ≤2500 1time/3min >2500 1time/6min	Without maintenance	15000		15000		10000	
	With maintenance	20000		20000		15000	
Mechanical life of drawer type (times) 1time/2min		1000		600		600	
Incomming methed		Incomming methed					
Flashover distance(mm)		0					
Installation methed		Fixed type or withdrawable type					

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2、Protection features and functions of the intelligent over-current controllers

Figure 1. Standard inverse time

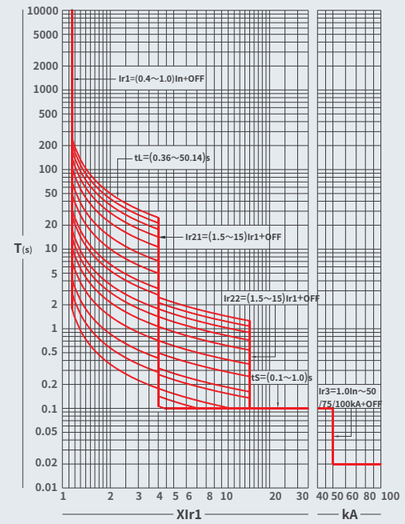


Figure 2. Grounding fault protection

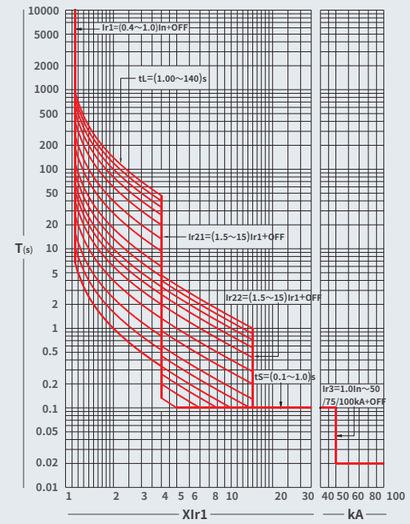


Figure 3. Extremely fast inverse time (general protection)

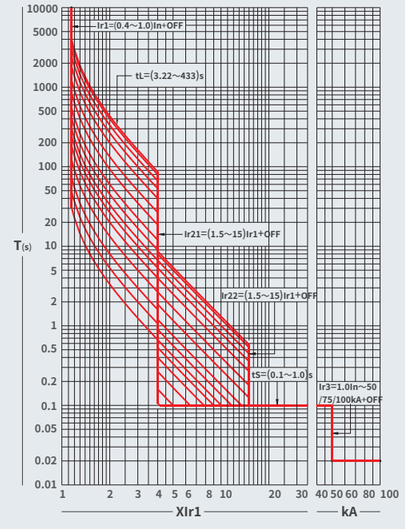


Figure 4. Extremely fast inverse time (motor protection)

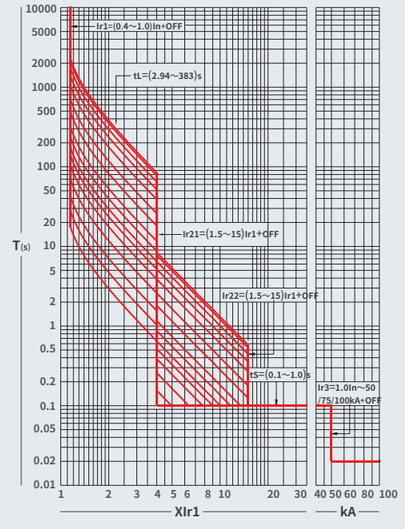


Figure 5. High-voltage fuse compatible

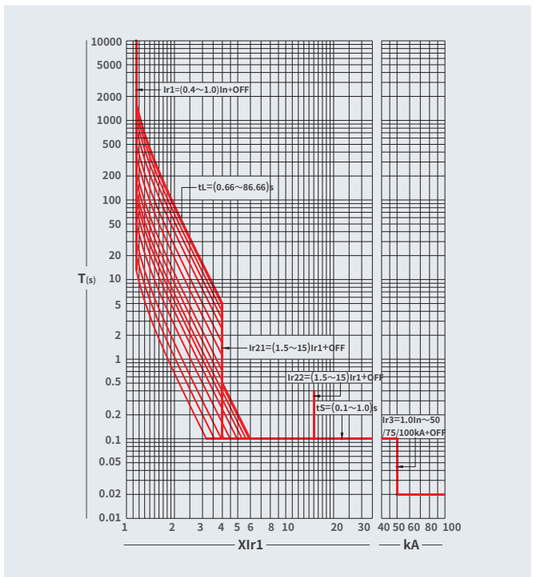


Figure 6. Extremely fast inverse time 2 (general protection)

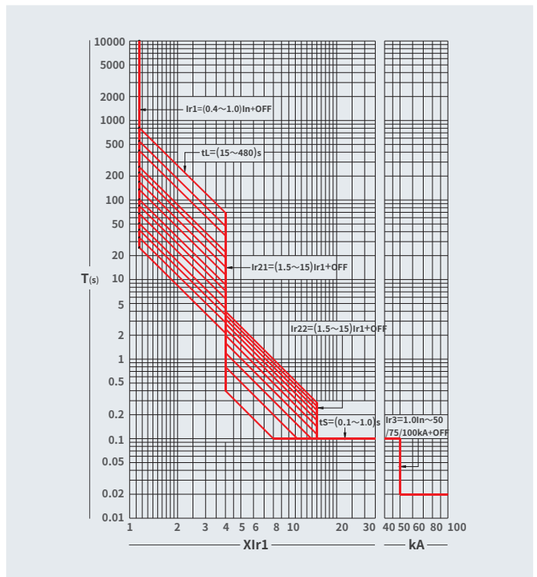


Figure 7. Asymmetric grounding protection

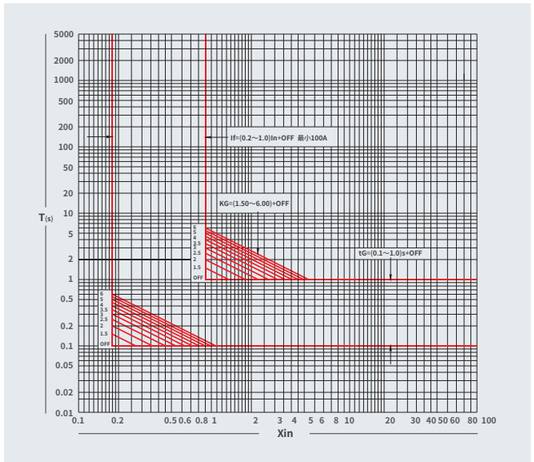
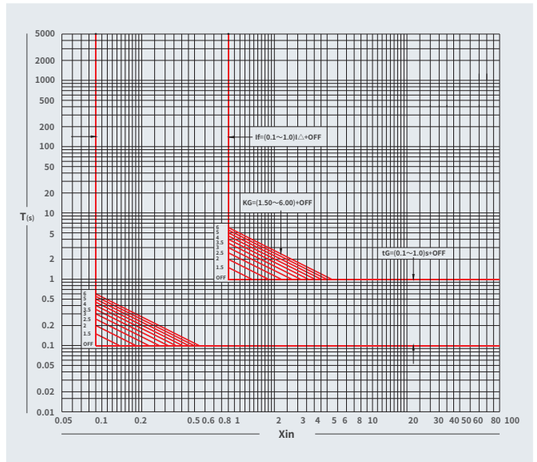


Figure 8. Leakage protection (with external residual current transformer)



3.1.1 Current setting values Ir and allowable errors of the release

Long delay		Short delay		Instantaneous		Grounding fault	
Ir	Allowable error	Isd	Allowable error	Ii	Allowable error	Ig	Allowable error
(0.4~1)In+OFF	±10%	(1.5~15)In+OFF	±10%	(1.0~20)In+OFF	±15%	(0.2~1.0)In+OFF	±10%

Note: When with three-stage protection, the settings cannot be cross-set, and Ir < Isd < Ii.

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Functions and Features

3.1.2 Function description

- Major protection functions (controller's functions are set to requirements upon factory delivery; please contact us for resetting)

Includes long delay over-load protection, short-circuit short-time fixed time and inverse time protection, short-circuit instantaneousprotection, grounding or residual current fixed time and inverse time protection, N-phase protection, current unbalance protection due to phase loss , and load inverse time monitoring.

- Measurement and operation monitoring

Real-time measurement of various power grid operating parameters, such as frequency, power factor, active power, etc.; real-time indication of operating status, such as, fault status, alarm status, system self-diagnosis status, normal operation status, and etc.

- Query function

Operation parameter query, protection parameter setting query, historical fault record query, self-diagnosis fault information query and power grid measurement parameter query

- Parameter setting function

The following protection parameters can be directly set on the controller panel: overload long delay protection's current and time, short-circuit short delay protection's inverse time current and fixed time current and time, instantaneous protection's current, load monitoring's current and time, N-phase protection settings, grounding or residual current protection's current and time and inverse time coefficient, current unbalance protection's unbalance rate and time, and harmonics Influence factor.

- The following operations can also be performed on the controller panel: system clock adjustment (only available after selected), and setting all internal system parameters that can be set by the programmer (programmer is not required, but authorization password is required).

- Programming interface function

An interface with the programmer is available, to modify some specific parameters, such as, signal output contact's function setting, voltage measurement's wiring method, system clock, protection characteristic curve, thermal memory function, communication address, communication baud rate, and etc.

- Communication network function (only available for Mic5.0 intelligent controller)The controller provides a standard RS485 interface and ensures data transmission through Modbus or Profibus-DP or DeviceNet protocols, to meet the "four remote" requirements in different monitoring systems.

- Test function

The test function offers two types: instantaneous tripping simulation test and non-tripping simulation test:

(1) Instantaneous tripping simulation test: Instantaneous tripping test can be performed on the circuit breaker, with the action time

(2) inherent to the circuit breaker to be displayed after the action time.

(3) Non-tripping simulation test: Select simulation test current for the system's non-tripping test. Test current, system delay action time

(4) under the test current, and fault category of the simulation test will be displayed in turn after the test is completed.

- Self-diagnosis function

Diagnose and alarm when faults occur in the controller itself.

- Fault clock function (optional)

Record the time when the fault occurs Th, including the year, month, day, hour, minute and second when the fault occurs, with up to 8 records.

- Historical data recording function (optional)

Record four-phase current, three-phase voltage, frequency, power, power factor, and active power, every half an hour, for three months.

- Load monitoring protection function

Load monitoring is to control different loads of the circuit breaker to ensure the power supply to the main loads as much as possible. Load monitoring can be used for pre-alarming and branch load control. The controller can be programmed to output two passive signal contacts for load monitoring.

- MCR ON-OFF and over-limit trip function (optional)

ON-OFF means that the power grid is already in a fault state before the circuit breaker is closed, a current greater than MCR set value is generated upon closing, and the controller opens the circuit breaker instantaneously through an analog circuit. This function only works at the moment of closing (within 100ms).

Over-limit tripping means that when the circuit breaker is in normal operation, if the short-circuit current exceeds a certain value (usually the ultimate current of the circuit breaker), the controller will instantaneously break the circuit breaker through an analog circuit. This function is not subject to instantaneous settings.

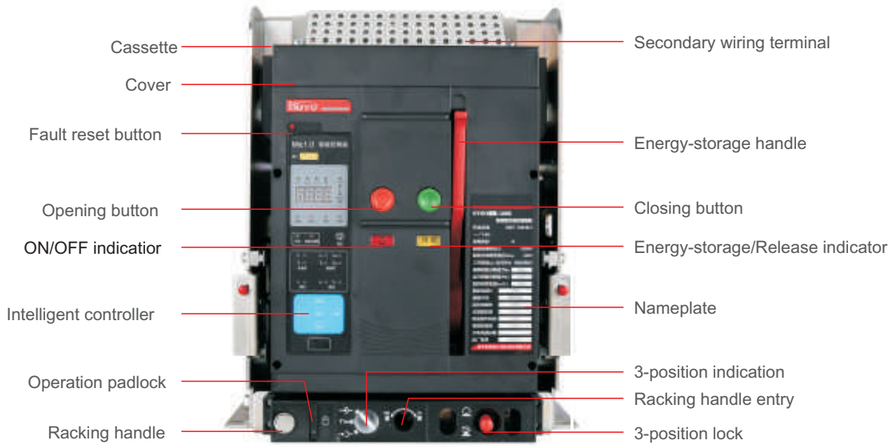
- Communication protocol

Includes an internal Modbus-RTU, and can be transferred to Profibus-DP or DeviceNet through an external module.

Structure description

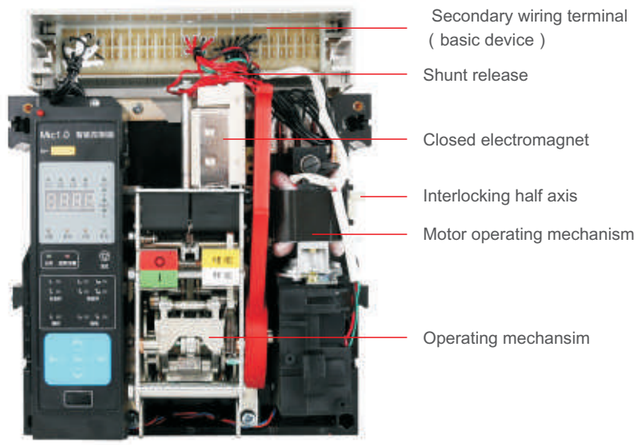
The circuit breaker offers compact structure and modular feature. The contact system is enclosed between two insulating bottom plates with a separate structure. Each phase contact is separated into independent small cells. The intelligent controller, operating mechanism, manual operator and motor operator are arranged in the front to form their own independent unit. In case of any fault, the unit can be removed and replaced as a whole (see Figure 6 and Figure 7).

Figure 5. Operating instruction diagram of EXW3 series air circuit breaker



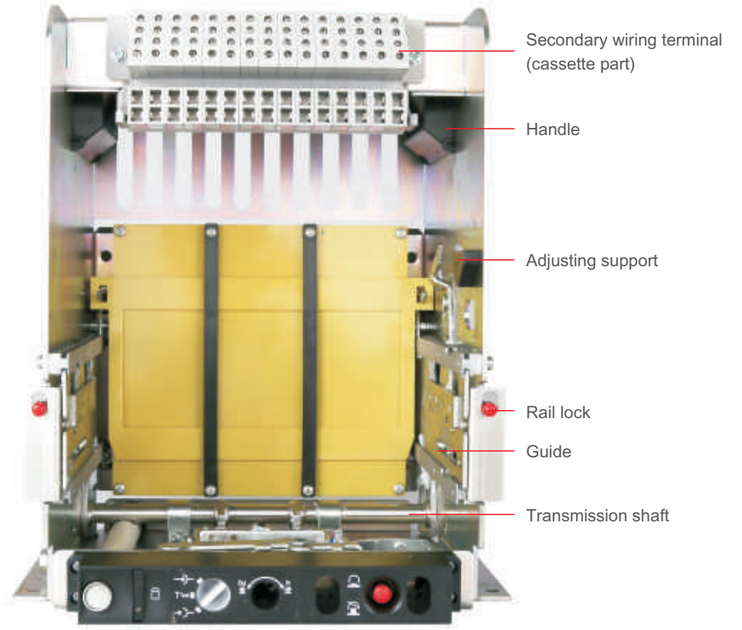
EXW3-1600/3withdrawable circuit breaker

Figure 6. Internal diagram of EXW3 series air circuit breaker



EXW3-1600/3basic device

Figure 7. EXW3 series air circuit breaker cassette



EXW3-1600/3cassette

1: Withdrawable circuit breaker

The withdrawable circuit breaker is composed of the basic device and drawer. On both sides of the cassette, there are guide rails with movable guide plates on them, and the circuit breaker's basic device seats on the left and right guide plates. The withdrawable circuit breaker is connected to the main circuit by plugging the busbar of the basic device into the bridge contact on the cassette. Rotate the racking handle in the lower support of the cassette, to achieve three working positions of the withdrawable circuit breaker (position indications near the racking handle).

-"Connect" position: The main circuit and secondary circuit are both connected.

-"Test" position: The main circuit is disconnected and separated by the insulating partition. Only the secondary circuit is connected, and the necessary operating test can be performed.

-"Disconnect" position: The main circuit and secondary circuit are both disconnected. To remove the basic device in the "Disconnect" position, remove the racking handle first.

The withdrawable circuit breaker is equipped with a mechanical interlocking device, and can be closed only in Connect position or the test position. It cannot be closed between the "Connect" and "Test" positions

2: Interlocking mechanism

The interlocking mechanism is mounted on the right-side panel of the circuit breaker.

Use a steel cable interlocking for circuit breakers placed side by side (Figure 8). And use a connecting rod interlock for circuit breakers placed in stack (Figure 9). When one circuit breaker is in the closed state, the other cannot be closed. The interlocking mechanism is installed by users themselves.

Figure 8. Interlocking circuit breakers placed side by side

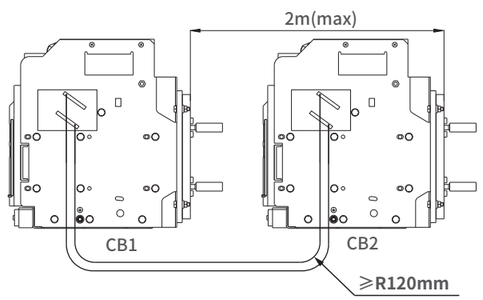
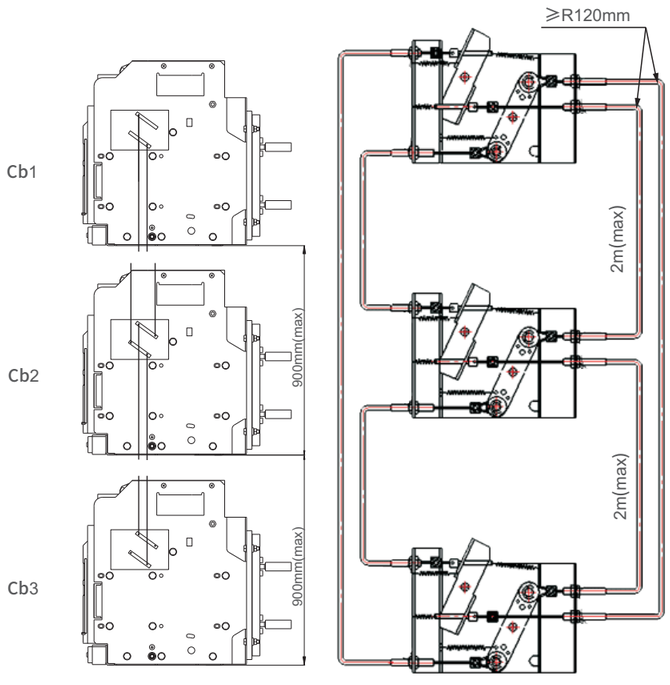


Figure 9. Use a connecting rod interlock for circuit breakers placed in stack (Figure 9 is for three breakers. To interlock two breakers, just remove the top one)



Connecting rod to interlock three Circuit breakers diagram

Steel cable to interlock three circuit breakers diagram

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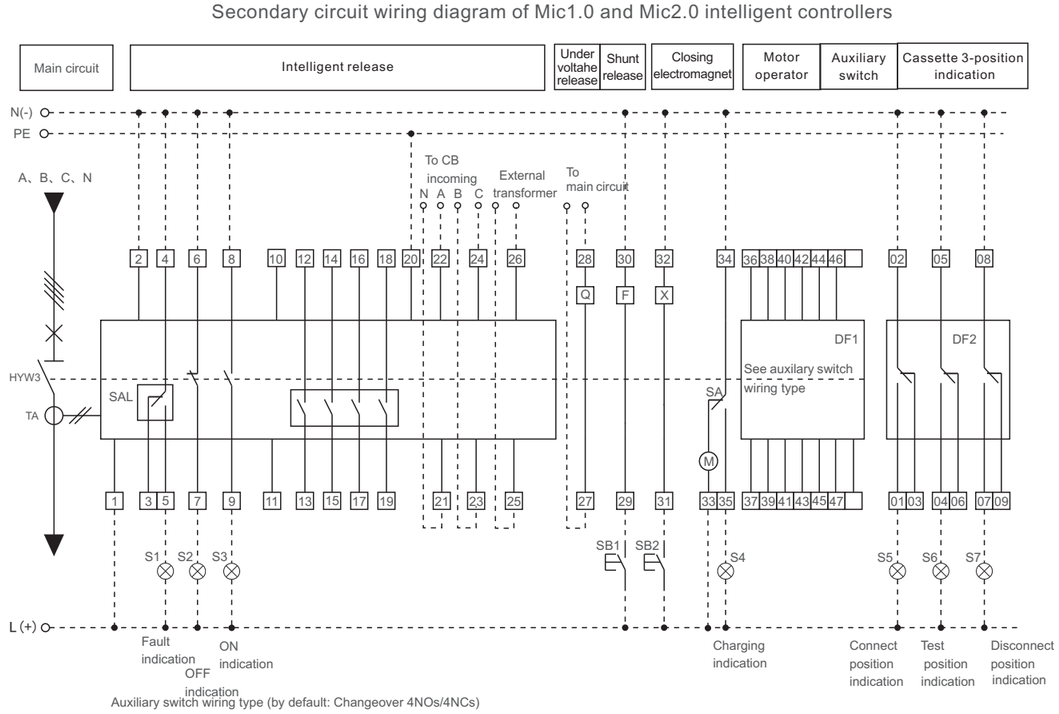
EXW3 Air Circuit Breaker
Functions and Features

Wiring diagrams

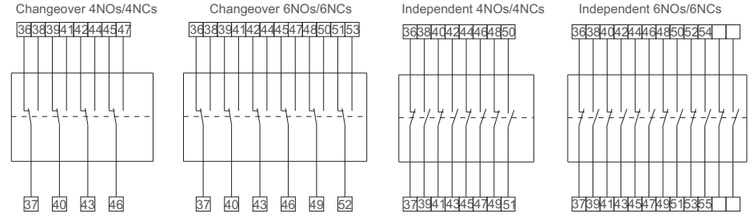
Secondary circuit wiring diagram

1) Dotted lines indicate wirings made by users themselves. No wiring is needed when relevant optional accessory is not ordered;
2) Power supplies should be connected separately to accessories such as intelligent controller, under-voltage release, shunt release, closing electromagnet, and motor operator, when their voltages are different;
3) The under-voltage release is directly connected to the main circuit's incoming end, with its maximum operating voltage not exceeding the rated operating voltage. When the operating voltage of the main circuit is above the rated operating voltage, a transformer is needed to have it drop to the rated operating voltage.
4) The cassette three-position indication function is only optional for withdrawable circuit breakers;
5) With DC (DC110V, DC24V) operating power supply for the intelligent controller, first connect the ST power module (optional), then the intelligent controller 1#, 2#.

Secondary circuit wiring diagram of Mic1.0 and Mic2.0 intelligent controllers



Auxiliary switch wiring type (by default: Changeover 4NOs/4NCs)



Secondary circuit wiring diagram terminal functions of Mic1.0 and Mic2.0 intelligent controllers

Terminal No.	Function description	Remark
1、2	Auxiliary power input：AC220V、AC380V、DC220V、DC110V	
3、4、5	Fault trip auxiliary contact, contact capacity：AC250V、3A	
6、7	Circuit breaker status auxiliary contact (NC), contact capacity：AC250V、3A	
8、9	Circuit breaker status auxiliary contact (NO), contact capacity：AC250V、3A	
20	Grounding（PE）	
21、22、23、24	Voltage signal measurement: 21 to N, 22 to A, 23 to B, 24 to C	Optional function
25、26	External transformer input (residual current transformer, neutral transformer, ground current transformer)	Optional function and accessory
27、28	Under-voltage release	Optional accessory
29、30	Shunt release	
31、32	Closing electromagnet	
33、34、35	Motor operator	
36～……	Df1 auxiliary switch terminal	

Secondary circuit wiring diagram terminal functions of Mic5.0 intelligent controllers

Terminal No.	Function description	Remark
1、2	Auxiliary power input：AC220V、AC380V、DC220V、DC110V	
3、4、5	Fault trip auxiliary contact, contact capacity：AC250V、3A	
6、7	Circuit breaker status auxiliary contact (NC), contact capacity：AC250V、3A	
8、9	Circuit breaker status auxiliary contact (NO), contact capacity：AC250V、3A	
10、11	Communication interface output, 10 to A, 11 connected to B	By default: Modbus
12～19	Signal input and output, 12 and 13 are DO1; 14, 15 are DO2; 16, 17 are DO3; 18, 19 are DO4	Per function requirements
20	Grounding（PE）	
21、22、23、24	Voltage signal measurement: 21 to N, 22 to A, 23 to B, 24 to C	
25、26	External transformer input (residual current transformer, neutral transformer, ground current transformer)	Optional function and accessory
27、28	Under-voltage release	Optional accessory
29、30	Shunt release	
31、32	Closing electromagnet	
33、34、35	Motor operator	
36～……	DF1 auxiliary switch terminal	

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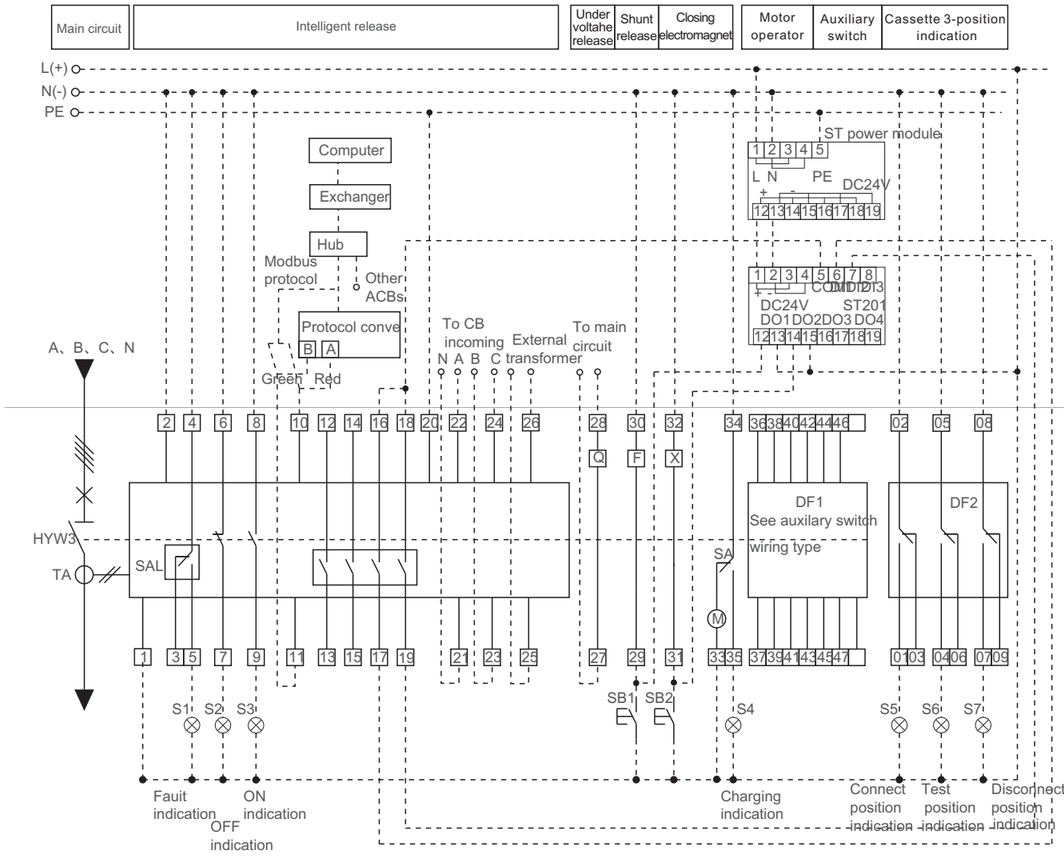
Industrial Control And Protection

EXW3 Air Circuit Breaker
Functions and Features

Wiring diagram legend description

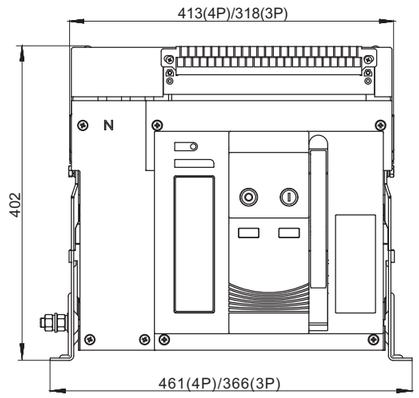
Legend	Description	Remark	Legend	Description	Remark
EXW3	EXW3 series air circuit breaker		PE	Ground wire	
S1～S7	Signal lamp	Supplied by user	L(+)、N(-)	Control power supply (DC L for positive, N for negative)	
TA	Current transformer		A、B、C、N	Main circuit phase line	
SAL	Micro switch		DF1	Auxiliary switch	Type optional
SB1	Opening button	Supplied by user	DF2	Cassette 3-position electrical indicating switch	Optional accessory
SB2	Closing button	Supplied by user	ST power module	Provide 24V DC power supply	Optional accessory
X	Closing electromagnet		ST201	Relay	Optional accessory
F	Shunt release		Protocol converter	Except for Modbus protocol, other protocols need to be configured	Optional accessory
Q	Under-voltage release	Optional accessory			
M	Motor operator				
SA	Motor operator travel switch				

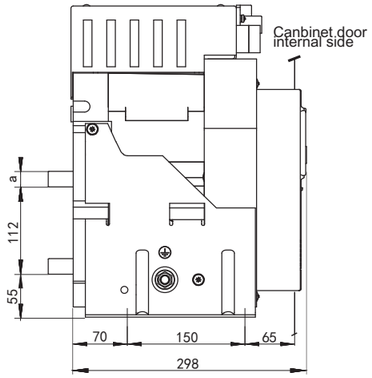
Secondary circuit wiring diagram of Mic1.0 and Mic2.0 intelligent controllers

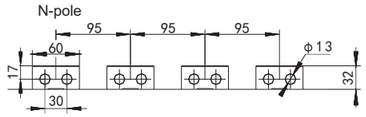


Outlines and mounting dimensions

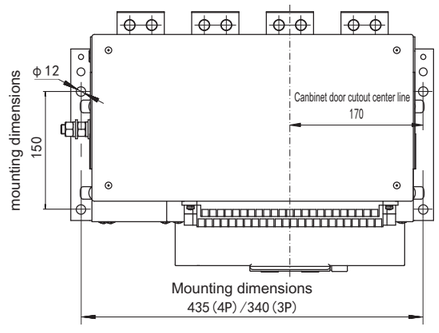
EXW3-2000 fixed type outlines and mounting dimensions

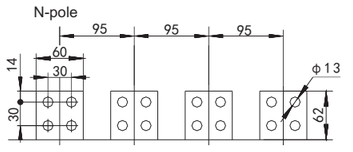




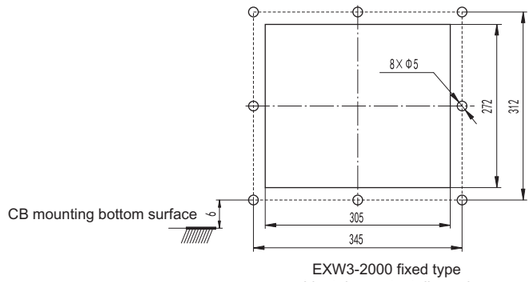


N type 2000A and below horizontal wiring dimensions





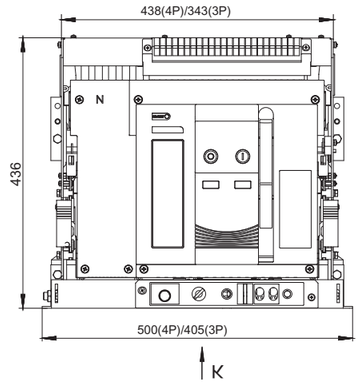
N type 2000A、H type horizontal wiring dimensions

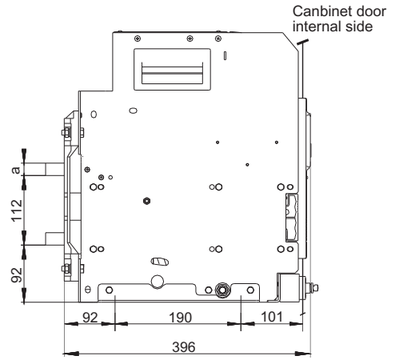


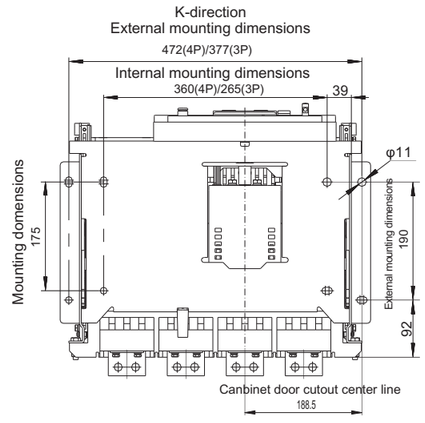
EXW3-2000 fixed type
canbinet door cutout dimensions

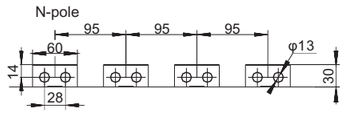
In（A）	a(mm)
≤1250	10
1600	15
2000	20

EXW3-2000 withdrawable type outlines and mounting dimensions (select one type from either internal or external mounting dimensions)

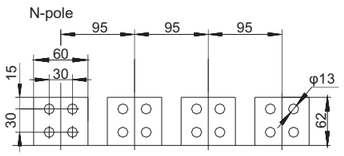




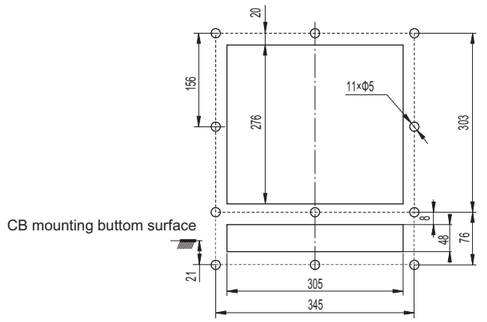




N type 2000A and below horizontal wiring dimensions



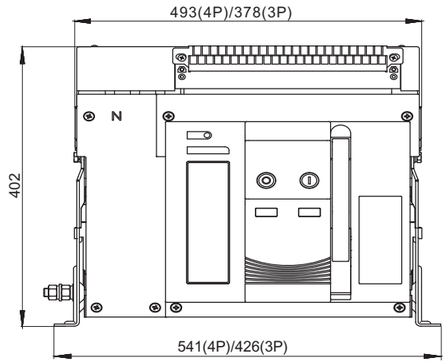
N type 2000A、H type horizontal wiring dimensions

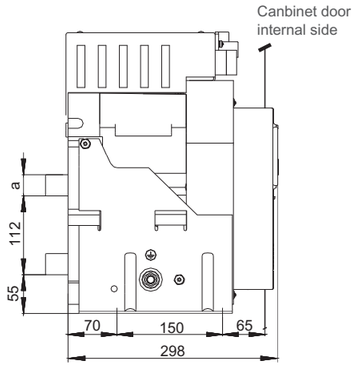


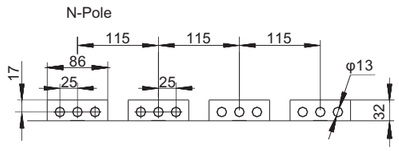
EXW3-2000 Withdrawable
Canbinet door cutout dimensions

In (A)	a(mm)
≤1250	10
1600	15
2000	20

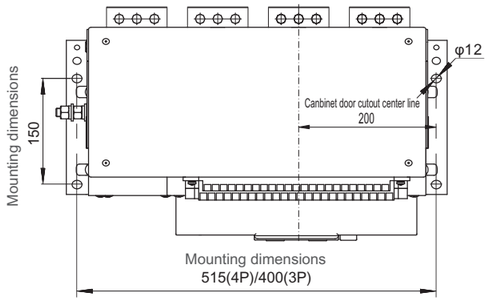
EXW3-4000 fixed type outlines and mounting dimensions

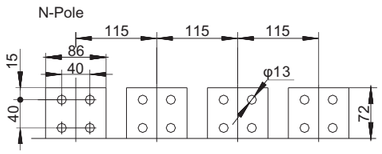




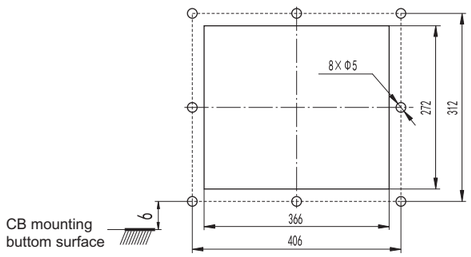


N type 3200A and below horizontal dimensions





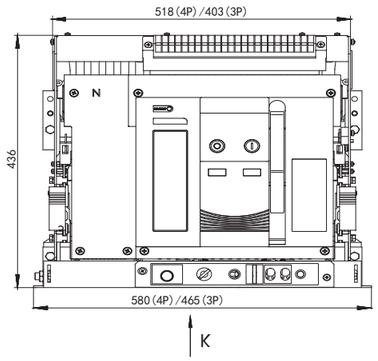
N type 4000A、H type horizontal dimensions

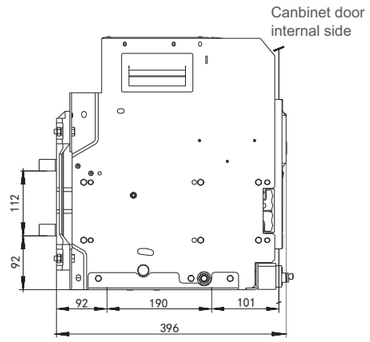


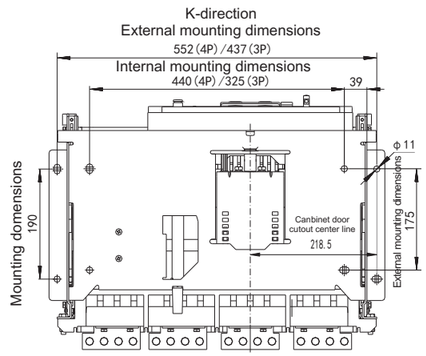
EXW3-4000 fixed type
canbinet door cutout dimensions

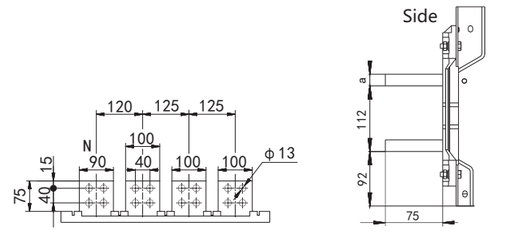
In (A)	a(mm)
2000、2500	20
3200、4000	30

EXW3-4000 withdrawable type outlines and mounting dimensions (select one type from either internal or external mounting dimensions)

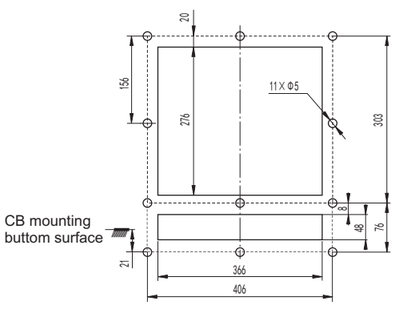






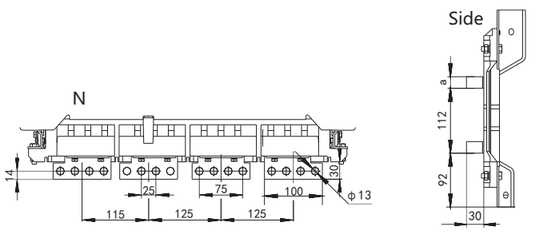


Inm=3200 H type horizontal wiring dimensions

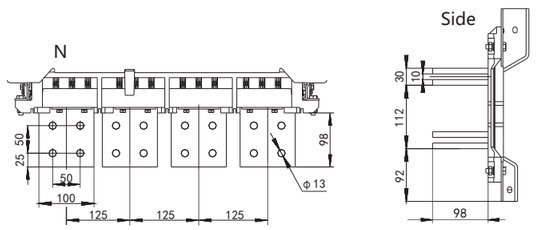


Canbinet door cutout dimensions

In (A)	a(mm)
2000、2500	20
3200、4000	30

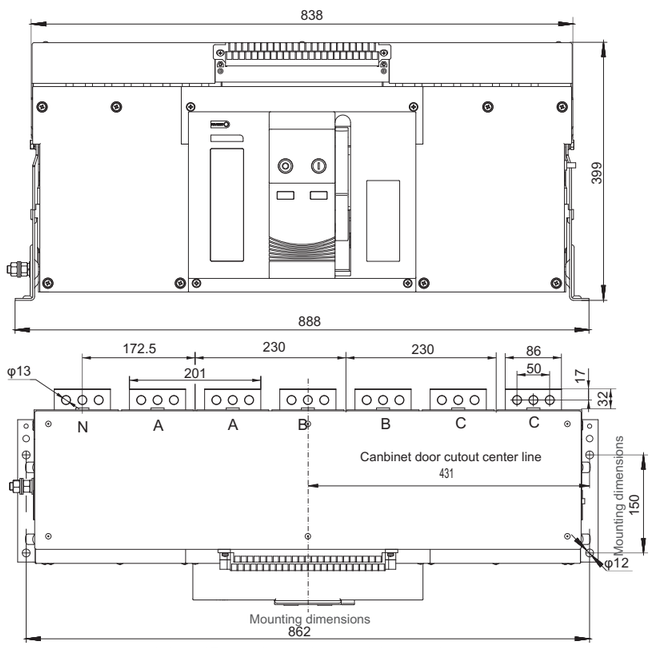


Inm=3200A N type horizontal wiring dimensions

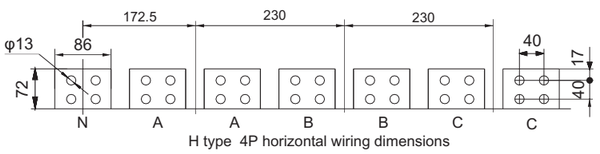


Inm=4000A horizontal wiring dimensions

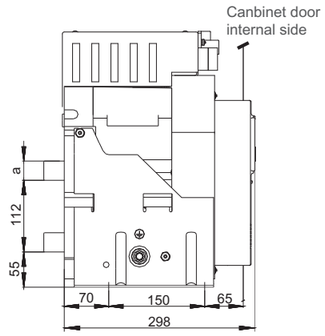
EXW3-6300 fixed type outlines and mounting dimensions



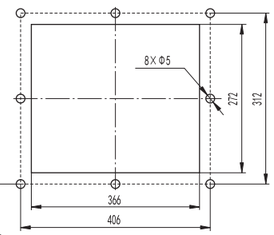
N type 4P mounting and horizontal wiring dimensions



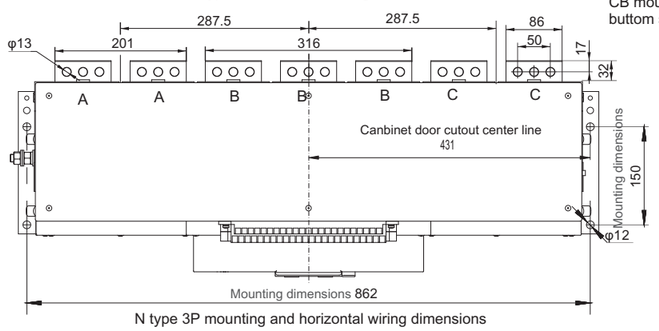
H type 4P horizontal wiring dimensions



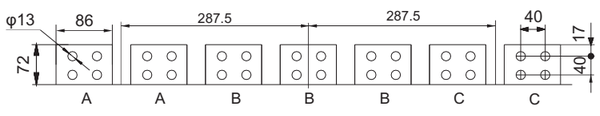
In (A)	a(mm)
4000、5000	20
6300	30



CB mounting
buttom surface fixed type canbinet door cutout dimensions



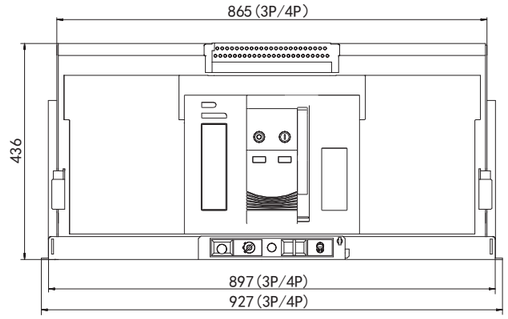
N type 3P mounting and horizontal wiring dimensions

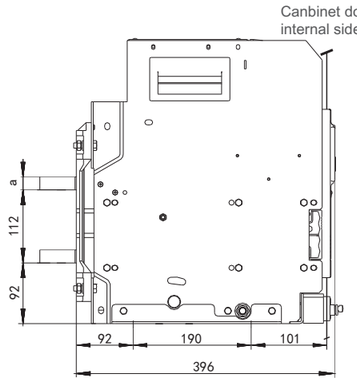


H type 3P horizontal wiring dimensions

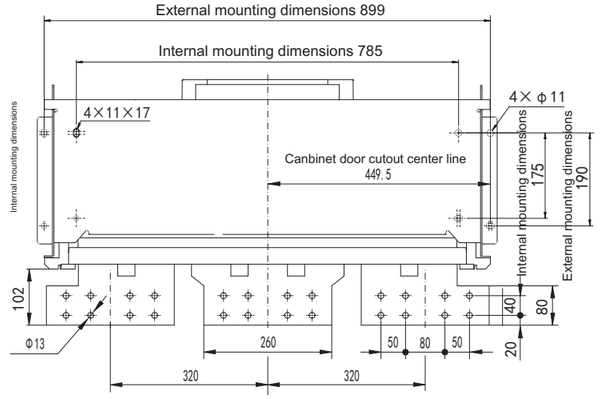
Note：For Phase A、B and C, two wirings in the same phase are to be made by users themselves

EXW3-6300 withdrawable type outlines and mounting dimensions (select one type from either internal or external mounting dimensions)



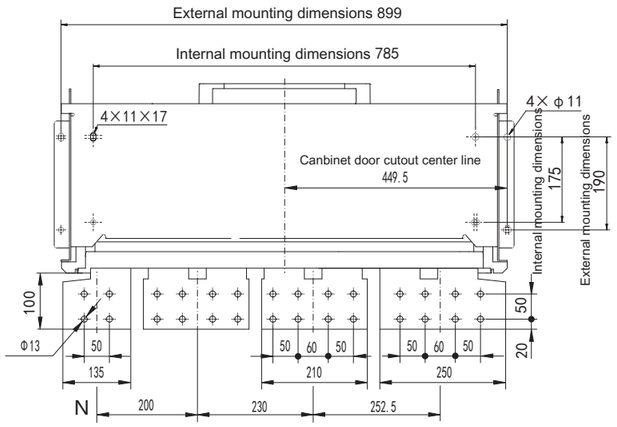


Horizontal wiring dimensions

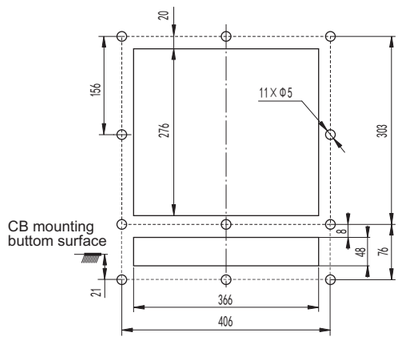


3P Mounting and horizontal wiring dimensions

In(A)	a(mm)
4000、5000	20
6300	30

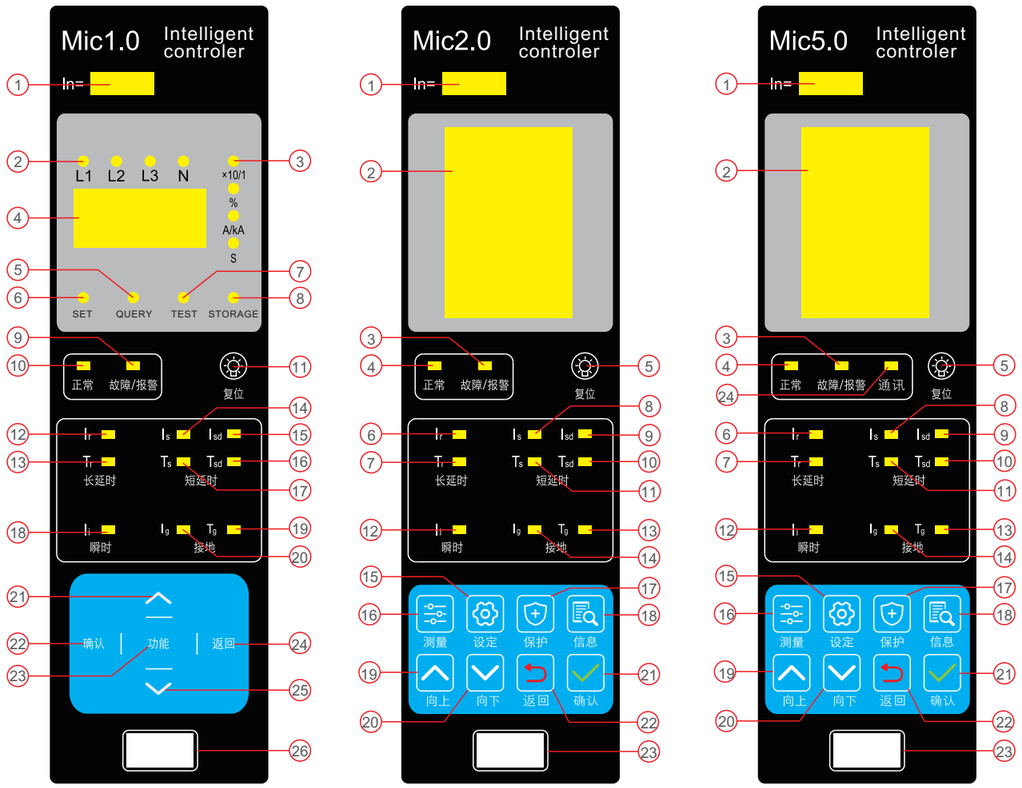


4P Mounting and horizontal wiring dimensions



EXW3-6300 withdrawable canbinet door cutout dimensions

Controller panel structure



Standard type(digital display)

Multifunctional type (LCD display)

Intelligent type (LCD display with communication)

Note: Due to rapid upgrade of intelligent controllers, the actual controller type shall prevail, not limited to the above-mentioned controller types.Relevant functions can be tailor-made to your requests.

EXPLORER
Industrial Control And Protection

EXW3 Air Circuit Breaker
Functions and Features

Interface legend, indicator and button descriptions of Mic1.0 standard controllers

1	In	Circuit breaker's rated current
2	L1, L2, L3 and N indicators	During normal operation, L1, L2, L3 and N - Phase A, B, C and N – current indicators is lit on in turn
3	Parameter indicator	X10/1 indicates the number of CB operations, % indicates the percentage of contact wear, A/kA indicates ampere/kla for current; indicates second for time
4	Digital display window	Parameters such as current, voltage, frequency, settings, and faults are displayed in this window indicates second for time
5	"Query" indicator	The indicator is always lit on, allowing people to view historical fault information
6	"Setting" indicator	The indicator is always on, allowing people to view or modify the settings of various protection characteristic parametersnd for time
7	"Test" indicator	The indicator is always on, allowing people to perform a tripping test.
9	"Fault/Alarm" indicator	The indicator is not lit on during normal operation; the indicator flashes, indicating a fault occurs in the system
10	"Normal" indicator	The indicator should always flash after the controller is powered up. The indicator is off, indicating the controller is not working properly and should be replaced
11	Reset key	Reset to the initial operating state due to a fault tripping or in the alarming state
12	"Ir" indicator	When setting current protection parameters, the indicator is always on, indicating that the long delay protection current value is being setimmediately
13	"Tr" indicator	When setting current protection parameters, the indicator is always on, indicating that the long delay time value is being set
14	"Is" indicator	When setting current protection parameters, the indicator is always on, indicating that the short delay inverse-time protection current value is being set
15	"Isd" indicator	When setting current protection parameters, the indicator is always on, indicating that the short delay fixed-time protection current value is being set
16	"Isd" indicator	When setting current protection parameters, the indicator is always on, indicating that the short delay fixed-time delay time value is being set
17	"Ts" indicator	When setting current protection parameters, the indicator is always on, indicating that the short delay inverse-time delay time value is being set
18	"Ii" indicator	When setting current protection parameters, the indicator is always on, indicating that the instantaneous protection current value is being set
19	"Tg" indicator	When setting current protection parameters, the indicator is always on, indicating that the ground fault delay time value is being set
20	"Ig" indicator	When setting current protection parameters, the indicator is always on, indicating that the ground fault protection current value is being set
21	^ Up key	During normal operation, press the Test key once, and the controller sends out instantaneous tripping signal to test the circuit breaker's actuation performance
22	"Enter" key	Enter into the next-level menu of the item pointed by the cursor, or select the current parameter, or save the modification
23	"Function" key	Can view or modify various protection characteristic parameter settings
25	v Down key	The indicator is always lit on during normal operation, and off due to self-diagnosis fault and power fault

Interface legend, indicator and button descriptions of Mic2.0 and Mic5.0 multifunction controllers

No.	Legend or name	L(mm)
1	In	Circuit breaker's rated current
2	LCD screen	Display all measurement parameters, system setting parameters, protection setting parameters and all information in Chinese language during normal operation
3	“Fault/Alarm” indicator	The indicator is not lit on during normal operation; the indicator flashes, indicating a fault occurs in the system
4	“Normal” indicator	The indicator should always flash after the controller is powered up. The indicator is off, indicating the controller is not working properly and should be replaced
5	Reset key	Reset to the initial operating state due to a fault trip or in the alarming state
6	“Ir” indicator	When setting current protection parameters, the indicator is always on, indicating that the long delay protection current value is being set
7	“Tr” indicator	When setting current protection parameters, the indicator is always on, indicating that the long delay time value is being set
8	“Is” indicator	When setting current protection parameters, the indicator is always on, indicating that the short delay inverse-time protection current value is being set
9	“Isd” indicator	When setting current protection parameters, the indicator is always on, indicating that the short delay fixed-time protection current value is being set
10	“Tsd” indicator	When setting current protection parameters, the indicator is always on, indicating that the short delay fixed time delay time value is being set
11	“Ts” indicator	When setting current protection parameters, the indicator is always on, indicating that the short delay inverse-time delay time value is being set
12	“Ii” indicator	When setting current protection parameters, the indicator is always on, indicating that the instantaneous protection current value is being set
13	“Tg” indicator	When setting current protection parameters, the indicator is always on, indicating that the ground fault delay time value is being set
14	“Ig” indicator	When setting current protection parameters, the indicator is always on, indicating that the ground fault protection current value is being set
15	Set key	Quickly switch to the main menu of "System Settings”
16	Measure key	Quickly switch to the main menu of "operating Parameters”
17	Protect key	Quickly switch to the main menu of "Protection Settings”
18	Information key	Quickly switch to the main menu of "Information Query”
19	Up key	Move the cursor up, change the selected parameter up, or display the position to the left
20	Down key	Move the cursor down, or change the selected parameter down, or display the position to the right
21	Enter key	Enter into the next-level menu of the item pointed by the cursor, or select the current parameter, or save the modification
22	Return key	Exit the current menu and enter the previous menu, or cancel the modification to current parameters
23	Test interface	Programming and communication interface
24	“Communication” indicator	Exit the current menu and enter the previous menu, or cancel the modification to current parameters

EXPLORER
Industrial Control And Protection

EXW3 Air Circuit Breaker
Functions and Features

1600A frame size closing electromagnet

2500A and above frame size closing electromagnet

1600A frame size shunt release

2500A and above frame size shunt release

1600A frame size under-voltage release

2500A and above frame size under-voltage release

Inter-phase partition

Accessories

Closing electromagnetic

The closing electromagnet offers remote control to close the circuit breaker quickly, after the circuit breaker is fully charged and back in normally open state.

Operating voltage Us	AC230V	AC400V	DC220V	DC110V
Operating voltage range	(85~110)%Us			
Starting current	1.3A	0.7A	1.3A	2.5A
Circuit breaker response time	=60ms			

Shunt release

The shunt release offers remote control to open the circuit breaker quickly,when the circuit breaker is in closed state.

Operating voltage Us	AC230V	AC400V	DC220V	DC110V
Operating voltage range	(70~110)%Us			
Starting current	1.3A	0.7A	1.3A	2.5A
Circuit breaker response time	=30ms			

Under-voltage release

When the undervoltage release is not powered on, the circuit breaker cannot be closed; the undervoltage release of 2500A and above frame size offer two types: absorbing-assisted (without delay function) and self-absorbing;

Operating voltage Us	AC230V	AC400V
Opening voltage range	(35~70)%Ue	
Reliable closing voltage range	(85~110)%Ue	
No closing voltage range	=35%Ue	
Power loss	20VA	
Delay tripping time	Instantaneous,0.5s,1s,3s,5s	

Note 1: Within 1/2delay tripping time, the circuit breaker will not open when the operating voltage is restored to above 85% Ue;

Note 2: In areas with frequent thunder and lightning, and at power grids with unstable power supply voltage, it is recommended to use an under-voltage release with delay function to prevent the circuit breaker from being opened due to short-time voltage drop;

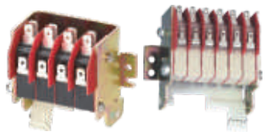
Note 3: The maximum delay time for under-voltage delay tripping time is 10s, and up to 5s for maximum zero-voltage delay tripping time (Consult the manufacturer upon ordering).

Inter-phase partition

The inter-phase partition is mounted vertically between wiring busbars at each phase of the circuit breaker, to increase inter-phase insulation capacity

1600A frame size charging motor

2000A and above frame size charging motor



1600A frame size auxiliary switch

2500A and above frame size auxiliary switch

Key lock

Mode 1: 1 power supply / 1 load

circuit diagram	possible operating mode
QF	QF
	0
	1

Charging motor

Motor charging can be achieved for the circuit breaker with automatic recharging after the breaker is closed, to enable the breaker to perform closing operation again immediately after opened.

Operating voltage Us	AC230V	AC400V	DC220V	DC110V
Operating voltage range	(85~110)%Us			
Charging time	=7s(Cycle time :=once/min)			
EXW3-1600 power loss	75VA		75VA	
EXW3-2000/2500 power loss	85VA		85VA	
EXW3-3200/4000 power loss	110VA		110VA	
EXW3-6300 power loss	150VA		150VA	

Note: Manual charging operation can also be performed during circuit breaker maintenance

Auxiliary switch

Default type: Changeover 4NOs/4NCs

Other types: Independent 4NOs/4NCs, changeover 6NOs/6NCs, independent 6NOs/6NCs

Rated operating voltage	AC230V	AC400V	DC220V	DC110V
Conventional thermal current	6A			
Rated control capacity	300VA		60VA	

■Key lock

Circuit breaker unlocking operation:
The key can be inserted into the lock when the gap on the key corresponds to the red dot of the lock. Turn the key clockwise to the rightmost position, that is, to-unlock state. At this point, the key cannot be pulled out directly, and the circuit breaker can be closed.

Circuit breaker locking operation:
First, press the breaker's opening button, and then turn the key counterclockwise to the leftmost position to remove the key. At this point, the circuit breaker cannot be closed.

Note 1: The following example about power supply modes is for reference only. Interlocking devices can be mounted according to the actual power supply system needs on site. Or consult the manufacturer.

One lock and one key:
A circuit breaker is equipped with a lock and a key. In the locked state, it is not allowed to close the circuit breaker.

Note 1: QF for HYW3 circuit breakers; 0 for circuit breaker opening; 1 for circuit breaker closing

EXPLORER
Industrial Control And Protection

EXW3 Air Circuit Breaker
Functions and Features

Ordering instruction

Company: Contact person: Contact number: Order QTY: (units) Order date :

Product model	☐ EXW3-2000		☐ EXW3-4000		☐ EXW3-6300		
	☐ N	☐ H	☐ N	☐ H	☐ N	☐ H	
Rated current	☐ 630 ☐ 800 ☐ 1000 ☐ 1250 ☐ 1600 ☐ 2000		☐ 2000 ☐ 2500 ☐ 3200 ☐ 4000		☐ 4000 ☐ 5000 ☐ 6300		
Number of poles	☐ 3P ☐ 4P _____						
Mounting method	☐ Fixed type ☐ Withdrawable type						
Breaking capacity	☐ N:basic type ☐ H:high breaking type						

Intelligent controller selection	Type	☐ Mic1.0(standard type, digital display) ☐ Mic2.0(multi-function type, LCD display) ☐ Mic5.0(intelligent type, LCD display with communication)
	Rated voltage	☐AC230V ☐AC400V ☐DC220V ☐DC110V ☐DC24V
	Protection data setting	Factory default setting：Ir=1In，Tr=15s；fixed time Isd=8Ir,Tsd=0.4s；inverse time Is=4Ir； Ii=1 2In；Ig=OFF (opening default value Ig=I n, inverse time shearing factor k = OFF, Tg=0.4s }
	Long delay protection Ir	Ir= _____ In(from 0.4 to 1.0, or OFF) Tr(1.5 Ir)= _____ s(from 15, 30, 60, to 960)
	Short-circuit short delay protection Isd	Isd=_____Ir(from 1.5 to 15, or OFF) ☐Fixed time Tsd=_____s(from 0.1 to 0.4)
	Short-circuit Ii	Ii= _____ In(from 1.0 to 20, or OFF), max. = 100kA
	Ground protection Ig	Ig= _____ In(from 0.2 to 1.0, or OFF) Tg=_____s(from 0.1 to 1.0) Inverse time shearing factor k=_____ (from 1.5 to 6, or OFF)
	Optional function	☐ Voltage measurement ☐ Frequency measurement ☐ Voltage unbalance rate measurement ☐ Phase sequence detection ☐ Power measurement ☐ Power factor measurement ☐ Temperature control monitoring ☐ Electric energy measurement ☐ Zone interlock (ZSI) function ☐ Harmonic measurement ☐ Over-voltage protection ☐ Under-voltage protection ☐ Voltage unbalance protection ☐ Over-frequency protection ☐ Under-frequency protection ☐ Phase sequence protection ☐ Reverse power protection ☐ Demand protection ☐ Demand measurement (current, power) ☐ Residual operating current protection ☐ Load monitoring function ☐ Neutral line protection ☐ DI input function ☐ DO output function ☐ Communication function: Modbus protocol (Mic5.0 standard) ☐ Internet of things function (wifi GPRS)
Accessory equipped as standard	Closing electromagnet	☐AC230V ☐AC400V ☐DC220V ☐DC110V
	Shunt release	☐AC230V ☐AC400V ☐DC220V ☐DC110V
	Motor charger	☐AC230V ☐AC400V ☐DC220V ☐DC110V
	Auxiliary switch	☐ Changeover (4NOs/4NCs) ☐ Independent (4NOs/4NCs) ☐ Changeover (6NOs/6NCs) ☐ Independent (6NOs/6NCs) ☐ Special type (Note: HYW3-1600 device can be equipped with Changeover 4NOs/4NCs or Changeover 6NOs/6NCs)
	Escutcheon sealing ring	☐ Fixed type ☐ Withdrawable type
	Under-voltage release	☐ Self-absorbing ☐ Absorbing-assist (by default)
		☐ AC230V ☐ AC400V
		☐Instantaneous ☐0.5s ☐1s ☐3s ☐5s ☐ Instantaneous (by default)
Optional accessory	Key lock	☐ One circuit breaker with one lock and one key ☐ Two circuit breakers with two locks and one key ☐ Three circuit breakers with three locks and two keys ☐ Special type (can be customized to user requirements)
	Mechanic interlocking	Two circuit breakers ☐ Lever interlock (upper and lower interlock) ☐ Steel cable interlock
		Three circuit breakers ☐ Lever interlock (upper and lower interlock) ☐ Steel cable interlock (Remarks: two methods - two closings/one opening or one closing/two openings - are available)
	Dual-power controller	☐ Dual power supply ☐ Three power supply ☐ Two power supply + bus tie (Remarks: with fire control, generator or communication functions, please specify)
	Others	☐Leakage current transformer ☐N-phase current transformer ☐Ground current transformer ☐Power adapter ☐Door interlock ☐Relay module ☐Protocol conversion module(Profibus-DP、Device Net) ☐ Cassette electrical three-position lock ☐Charging-ready electrical indication ☐ON/OFF button lock

Note 1: Please consult the manufacturer prior to ordering for additional special requirements ;
Note 2: Optional functions and accessories are not included in the standard offering of the circuit breaker. Please order them separately
Note 3: Mechanical interlock should be selected together with the dual-power supply controller