M-PACT PLUS
Air Circuit Breakers

GEIS

GEIS-Continue the GE Legacy

- Spun off of GE Industrial Solutions' China Business in December 2019
- A key platform for GE's medium and low voltage Electrical distribution & Control (ED&C) product lines: China for China and China for the World
  - Cast Coil Transformers Center of Excellence
  - Global ACB (400-6400A, 100KA), IEC/UL/GB Standard
  - Medium Voltage Equipment and Breaker: IEC, NEMA, GB
  - GE "Global Star Facility"
  - China Technology Center: NPI, Value Engineering
- Leading Technologies
  - Critical Power: ATS, Paralleling Switchgear, APF, SVG
  - New Electrification applications: EV Charging, PCM Energy Storage System
  - Micogrid: Multisource Power Supply, Integrated Energy Center, Ipv6 Compatible Gateway

The Evolution of Business and Brand

North America NEMA/UL	IEC Product Line Wiring Devices	Corporate Drives Brand Consolidation	IEC, GB, UL Continue GE Legacy

Note: AEG brand is also used in China

MEX Air Circuit Breakers

MEX Air Circuit Breaker

MEX air circuit breakers are GEIS new product series, a new generation of products developed from the classic ME air circuit breaker series. They inherit the advantages and application experience of the ME air circuit breaker family, and are upgraded with new digital intelligent control in combination with the current digital power environment. As a low-voltage air circuit breaker applicable worldwide, it complies with the standard platform requirements of GB, IEC and UL。

The entire series is divided into 3 frame current levels, with rated currents ranging from 400A to 6400A. 3-pole and 4-pole products are available, with rated breaking capacity up to 150kA and rated voltage up to AC1150V. The unique product design combines fast tripping under high fault current performance and the need for selective protection under low fault currents。

The new generation of intelligent control unit uses the latest technology to enable the circuit breaker to provide safer and more reliable circuit protection, multiple electrical parameter measurement and display.Available via Modbus,4G, Bluetooth, NFC, plug-and-play bus, APP online monitoring and other methods to achieve. Interconnection of circuit breakers. Bluetooth remote control provides a safe way to operate circuit breakers, which improves the safety of on-site operations. NFC can also read the circuit breakers in the event of a power outage. Stored circuit breaker data.

Characteristic

-High performance, complete range of products, selectivity and fast disconnection, reliability and safety

-A new generation of intelligent control unit with multiple human-machine interaction modes.

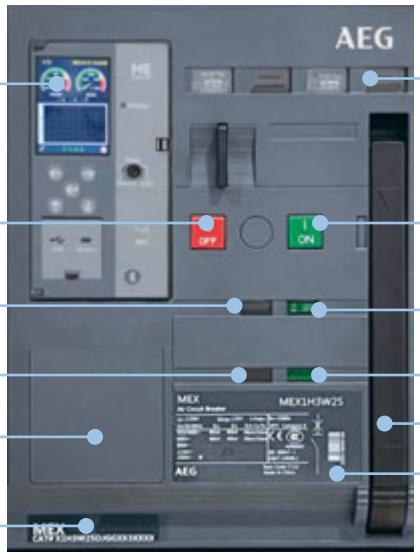
-Easy to use, easy to install optional mounting parts

-Universal field-installable accessories

ME Air Circuit Breaker Family

Appearance characteristics

Circuit breaker front panel



Circuit breaker nameplate

Intelligent control unit

-The main LCD display and the following menu settings allow customers to set parameters through this menu, display electrical parameters.

-Monitor circuit breaker and control unit status, read trip fault causes, history and data.

Manual/automatic reset switch button

Touch-sensitive parameter setting/browsing buttons

NFC

Data reading interface

Bluetooth

A complete range of high performance products

MEX full range of air circuit breakers are divided into 3 basic frame current levels, with rated current ranging from 400 to 6400A, and 3-pole and 4-pole products are available.

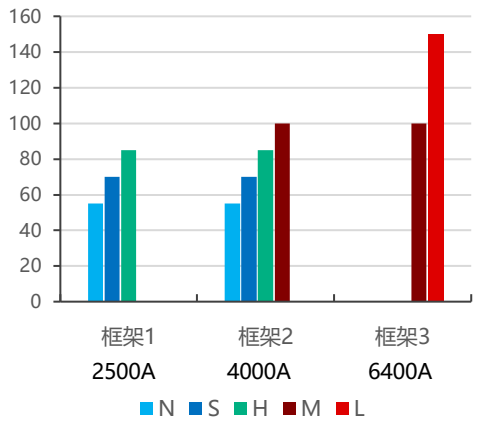
The full range of products provides a variety of breaking capacity levels, and the rated operating short-circuit breaking capacity is equal to 100% of the rated ultimate short-circuit breaking capacity (Ics = 100% Icu).

The rated current range of frame 1 is from 400 to 2500A, no derating is required within 50 degrees Celsius, and the rated working voltage can reach AC 690V. At AC415V, the breaking capacity (Icu=Ics) level is 55, 70 and 85kA.

The rated current range of frame 2 is from 400 to 4000A, no derating is required within 50 degrees Celsius, and the rated working voltage can reach AC 1150V. Under AC415V, the breaking capacity (Icu=Ics) level is 55, 70, 85 and 100 kA

For breaking capacity of working voltage of AC690V and above, please refer to the technical data sheet.

AC415V breaking capacity，Icu=Ics，kA

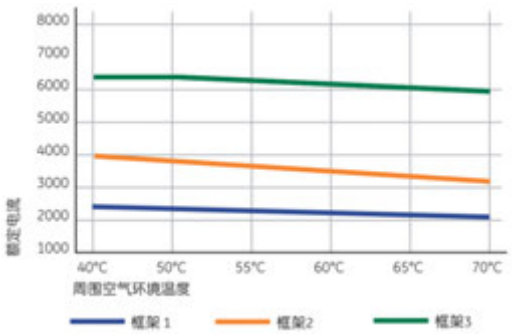


Rated current in switch cabinet

The rated current of a circuit breaker refers to the rated current of the circuit breaker in an open environment. However, actual users may be more concerned about the rated current of the circuit breaker when it is used in a switch cabinet.

The rated current of the circuit breaker used in the switch cabinet depends on the power loss of the circuit breaker itself and thus on the
The temperature rise caused in the switch cabinet。

The MEX full range of air circuit breakers has low power loss per pole, thus allowing
The circuit breaker is used in a higher ambient temperature. This excellent feature can be seen in the derating curves of fixed and withdrawable circuit breakers at different ambient temperatures as shown in the left figure



Selectivity, fast disconnection and high reliability

Selectivity and fast breaking characteristics

MEX full range of air circuit breakers can quickly cut off fault current in 30 milliseconds or less under extreme shortcircuit fault current , while also ensuring the needs of circuit selective protection.。
The circuit breaker will remain closed in the following cases: When the short-circuit fault current value is within the settable multiple and delay time range of the short-circuit short-time delay protection, or within 15 milliseconds when the short-circuit fault current value has reached the settable multiple of the instantaneous protection.

This short-circuit protection device and the provided setting range reliably ensure that under normal circumstances, the requirement that the lower-level circuit breaker preferentially disconnects the fault current is met

Reliability

MEX full range of air circuit breakers is a new generation of excellent products based on more than 70 years of experience in designing and manufacturing low voltage air circuit breakers.

A new generation of leading circuit breakers, perfectly combining the advantages of previous generations of circuit breakers ME05, ME07, ME09 (MPACT), MEG (GG) series with new contemporary advanced technologies.

This greatly increases the mechanical and electrical life of the product, both in manual operation and in electrical operation with a shunt/undervoltage release installed.

Security

In order to minimize the damage caused by sudden short-circuit faults to operators working in front of the power distribution system, the MEX full range of air circuit breakers can be equipped with a protection function called RELT.

This function allows the circuit breaker to trip quickly (within 40 milliseconds) when the short-circuit current is small, thereby protecting the safety of operators to the greatest extent.

RELT protection trip (with feedback) can input the trip command through the secondary terminal of the circuit breaker or the communication interface.

In the case of rapid tripping

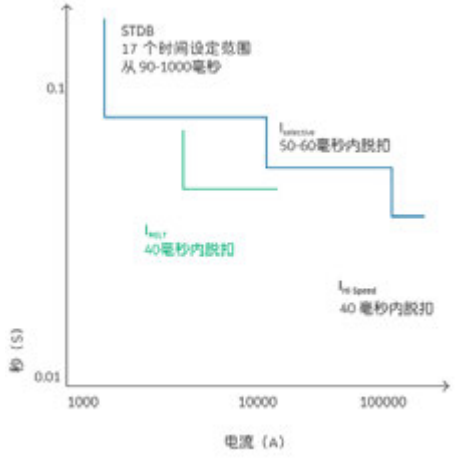
Guaranteed selective protection

A standard easy-to-use control unit provides a wide range of overcurrent protection settings and delay time curves.

The need for reliable selective protection is met, thereby simplifying and economical the installation design of the equipment

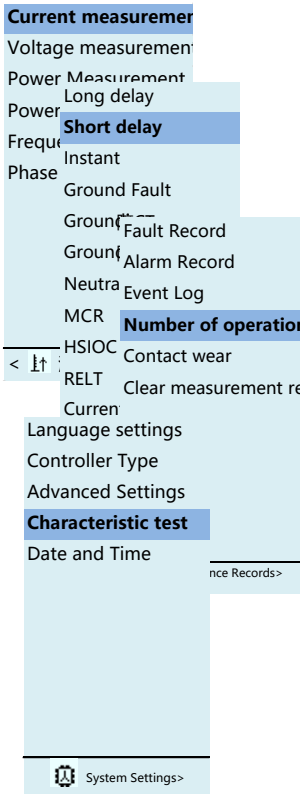
ME07，ME09（MPACT） Air Circuit Breaker

MEG/GG Air Circuit Breaker



Protect

ME intelligent control unit



A new generation of advanced intelligent control units

MEX full range of air circuit breakers, you can choose 3 basic models of ME digital control unit A, P and X. It has a unified LCD display design, provides ammeter function, convenient and accurate function menu keyboard, wide range of parameters and current range settings.

All function menu settings can be realized through 4 setting buttons and one confirmation button, so the parameters of the equipment can be set quickly and accurately. Users can easily choose manual or automatic fault reset on the panel.

When the external power module is not powered, the control unit can also be activated via an external test module with battery.

Main adjustable options

Ir-overload protection long delay

Long-delay overload protection setting (Ir), the setting range is adjustable from 0.2-1 In, the step size is 0.1*In or 1A. Overload long-delay tripping time setting range is 0-24s, which can meet the overload protection requirements of different downstream loads.

Isd- short circuit short delay protection

The short-circuit short-delay protection setting can be adjusted from 1.5-10 Ir (long delay setting value) in steps of 0.5*Ir or 1A. Short circuit short delay Tsd provides two modes: definite time and inverse time, and the setting time is 0-0.4s.

Ii- short circuit instantaneous protection

The short-circuit instantaneous protection setting can be adjusted from 2-15In, with a step size of 1*In or 1A. The short-circuit instantaneous protection is set to ensure that the lower pole circuit breaker is disconnected first.

Other protective features

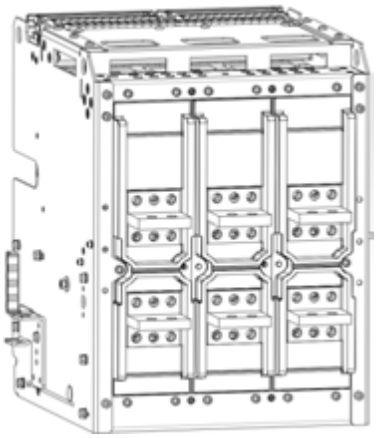
Other optional protection functions include RELT, vector and ground fault protection, independent ground fault CT protection, voltage protection, frequency protection, power protection, etc. For details, please refer to the control unit section of the catalog.

Parameter measurement, relay and communication functions

The control unit can provide Modbus RTU or 4G communication function, and capture and record overload, short circuit and ground trip events at the same time, and optional short circuit fault waveform capture and recording function.

Breaker

Easy installation and versatility



Easy to install

MEX full range of air circuit breakers, providing fixed and withdrawable types. Each form makes full use of the rated current of the circuit breaker when installed in a cabinet or equipment.

The circuit breaker has an independent structure for each pole, uniform dimensions in height and depth, and panel opening dimensions.

This greatly simplifies the structural design when the circuit breaker is installed in the cabinet and equipment (1).

The basic width dimension of the circuit breaker optimizes the installation space of the incoming and outgoing busbars and cables. Fixed and withdrawable circuit breakers provide standard rear horizontal terminals for convenient connection with the busbar.

The circuit breaker's mounting bracket allows for easy customer installation.

The secondary wiring of all accessories is connected through a terminal box with 39 or 78 terminals installed on the top of the circuit breaker. The terminals allow the connection of wires not exceeding 2.5mm², or connection with standard plug-in terminals.

Flexible circuit breaker combinations

Usually, circuit breakers are supplied as a complete unit. However, the unique modular structure design and field-installable control unit and accessories design allow circuit breakers to be supplied as components and provided locally (2).

Flexible connection terminals

In addition to the standard rear horizontal connection terminals, various types of connection terminals can also be provided.

Fixed circuit breakers can additionally be provided with rear vertical terminals and front terminals

The withdrawable short circuit breaker base provides standard T-type or L-type terminals for rear horizontal connection terminals. Customers can rotate the terminals 90 degrees to allow the change from rear horizontal terminal to rear vertical terminal. Front terminal connection is also available (3).

(1) Only the width dimension changes

(2) Training and authorization are required

(3) Up to 4000A

Universal field-installable accessories

Universal internal accessories

The full range of internal accessories and automatic energy storage motors are common. Up to 4 combinations of closing/opening, undervoltage, and electrical interlock coils can be installed. Auxiliary contacts, alarm contacts, circuit breaker position contacts, coil indication contacts, and circuit breaker status contacts can be installed.

The indication window on the circuit breaker panel allows the user to clearly observe which internal accessories are installed and their operating voltage and frequency.

All accessories are factory installed or field installable by the customer, this design feature applies to all 3 frames.

Universal external accessories

A variety of general external accessories are available for customers to choose from. For details, please refer to the accessories section of this catalog.

There are 5 types of split position locks with different lock cylinders for customers to choose from.

Provide various types of 2-way or 3-way fixed or withdrawable circuit breaker mechanical interlocking devices. Customers can realize the logical interlocking function between circuit breakers according to the actual combination of incoming power supply.

All key interlock mechanisms must be assembled by the factory before leaving the factory, and mechanical interlock mechanisms can be installed by customers on site.

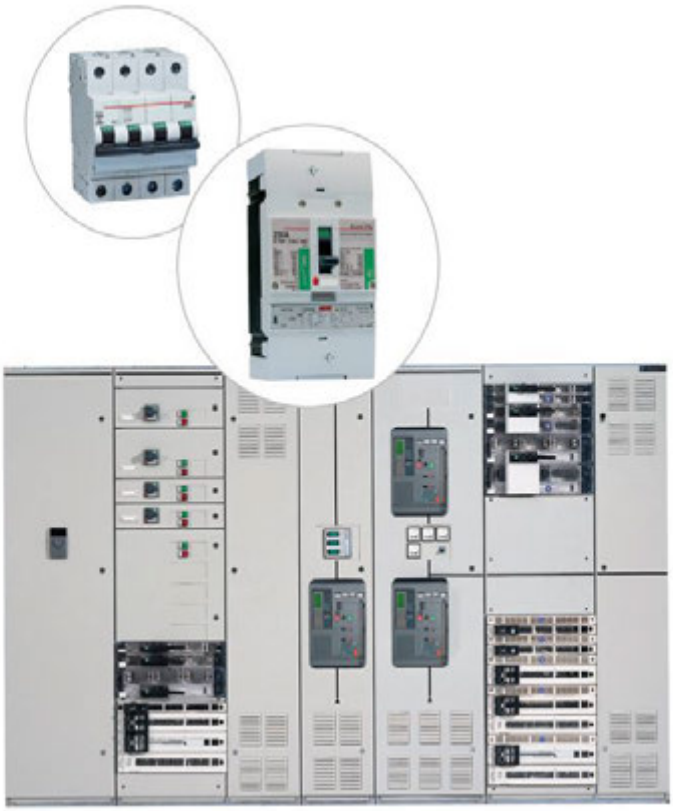
Note: There are two types of automatic energy storage motors, one for frame 1 and one for frame 2 and frame 3.

System low voltage power distribution solution

Through scientific management tools such as 6 Sigma, computer simulation technology, and lean production, the MEX full range of air circuit breakers will comprehensively enhance customer expectations of products in terms of manufacturing quality and safety.

We are committed to developing products in a wide range to continuously meet the changing needs of customers and market competition. We are constantly self-driven to meet customer demand for products with newer and more revolutionary low-voltage power distribution solutions.

The new generation of MEX full series of air circuit breakers, together with the existing Elfa series of miniature circuit breakers and M series of molded case products, form a complete high-performance low-voltage power distribution and protection solution. They provide a complete coordinated protection solution that is widely applicable to commercial, industrial and residential markets.



Quick selection circuit breaker model

MEX
product series
MEX series
Air circuit breaker

1	
Frame	
1	Frame 1
2	Frame 2
3	Frame 3

N		
Breaking capacity		
N	55kA	Frame 1 and 2
S	70kA	Frame 1 and 2
H	85kA	Frame 1 and 2
M	100kA	Frame 2 and 3
L	150kA	Frame 3
C	66kA [1]	Frame 2
F	66kA [2]	Frame 2
H	80kA [2]	Frame 3

3	
Poles	
3	3P
4	4P

W	
Mounting type	
W	Draw-out type
F	Fixed type

32	
Rated current	
04	400A
06	630A
08	800A
10	1000A
12	1250A
16	1600A
20	2000A
25	2500A
32	3200A
40	4000A
50	5000A
64	6400A

A03
ME control unit
A03
A06
A13
A16
P13H
P16H
X13H
X16H
Unprotected [3]

Note: 1) Under AC800V voltage;

2) Under AC1150V voltage;

3) When the control unit is not selected, an unprotected circuit breaker (with isolation function) is provided

4) Dividing ability, all series Icu=100%Ics

5) When the N, S, H, and M breaking parameters in the table are AC415V, please refer to the technical data table for the breaking capacity of other voltage levels.

ME Control Unit

Basic type	Model code	Major function
Current type	A03	LSI three-section protection, current measurement, optional communication [6]
	A06	LSIG four-section protection, current measurement, optional communication [6]
	A13	LSI three-section protection, current measurement, optional communication
	A16	LSIG four-section protection, current measurement, optional communication
Power type	P13H	LSI three-section protection, current, voltage, power, frequency measurement and protection, optional communication
	P16H	LSIG four-section protection, current, voltage, power, frequency measurement and protection, optional communication
Metrological type	X13H	LSI three-section protection, full electrical measurement and protection, metrology, waveform capture, Bluetooth, NFC, optional communication
	X16H	LSIG four-section protection, full electrical measurement and protection, metrology, waveform capture, Bluetooth, NFC, optional communication

6) A03, A06 control unit, optional communication module supports telemetry, telesignaling and teleadjustment functions; if you need communication to achieve four remote functions, please select other control units;

Selection example

Requirements: Rated current 2500A, 3P, drawer type, short circuit breaking capacity 70kA, LSI three-stage protection, current measurement

Model:MEX1S3W25A03

MEX Main parameters and specifications of circuit breakers

Frame type	Breaking code	Rated current	Rated voltage	Icu	Ics	Icw
Frame 1	N	400-2500A	AC415V	55kA	55kA	55kA
			AC690V	45kA	45kA	55kA
	S	400-2500A	AC415V	70kA	70kA	70kA
			AC690V	55kA	55kA	70kA
	H	400-2500A	AC415V	85kA	85kA	70kA
			AC690V	66kA	66kA	70kA
Frame 2	N	3200-4000A	AC415V	55kA	55kA	55kA
			AC690V	55kA	55kA	55kA
	S	3200-4000A	AC415V	70kA	70kA	70kA
			AC690V	66kA	66kA	70kA
	H	400-4000A	AC415V	85kA	85kA	85kA
			AC690V	85kA	85kA	85kA
	M	400-4000A	AC415V	100kA	100kA	85kA
			AC690V	85kA	85kA	85kA
	C	400-4000A	AC800V	66kA	66kA	66kA
	F	400-4000A	AC1150V	66kA	66kA	66kA
Frame 3	M	3200-6400A	AC415V	100kA	100kA	100kA
			AC690V	100kA	100kA	100kA
	L	3200-6400A	AC415V	150kA	150kA	100kA
			AC690V	100kA	100kA	100kA
			AC1150V	65kA	65kA	65kA
	H	3200-6400A	AC1150V	80kA	80kA	80kA

Circuit breaker standard configuration

Drawer type circuit breaker

- Circuit breaker body and drawer base
- Control unit
- Energy storage motor, closing coil, shunt release coil
- 4NO+4NC power type auxiliary contact
- External power supply for 220V AC/24V DC control unit
- Standard door frame
- Rear T or L terminals

Fixed circuit breaker

- Fixed circuit breaker body
- Control unit
- Energy storage motor, closing coil, shunt release coil
- 4NO+4NC power type auxiliary contact
- External power supply for 220V AC/24V DC control unit
- Standard door frame

Drawer type complete circuit breaker-quick selection

Breaking code	Frame	Rated Current	Drawer 3-pole	Drawer 4-pole	+	Control unit
N AC 415V Icu=Ics=55kA Icw=55kA	1	400	MEX1N3W04	MEX1N4W04		A03
		630	MEX1N3W06	MEX1N4W06		A06
		800	MEX1N3W08	MEX1N4W08		A13
		1000	MEX1N3W10	MEX1N4W10		A16
		1250	MEX1N3W12	MEX1N4W12		P13H
		1600	MEX1N3W16	MEX1N4W16		P16H
		2000	MEX1N3W20	MEX1N4W20		X13H
		2500	MEX1N3W25	MEX1N4W25		X16H
	2	3200	MEX2N3W32	MEX2N4W32		NON
		4000	MEX2N3W40	MEX2N4W40		
S AC 415V Icu=Ics=70kA Icw=70kA	1	400	MEX1S3W04	MEX1S4W04		
		630	MEX1S3W06	MEX1S4W06		
		800	MEX1S3W08	MEX1S4W08		
		1000	MEX1S3W10	MEX1S4W10		
		1250	MEX1S3W12	MEX1S4W12		
		1600	MEX1S3W16	MEX1S4W16		
		2000	MEX1S3W20	MEX1S4W20		
		2500	MEX1S3W25	MEX1S4W25		
	2	3200	MEX2S3W32	MEX2S4W32		
		4000	MEX2S3W40	MEX2S4W40		
H AC 415V Icu=Ics=85kA Icw=70kA	1	400	MEX1H3W04	MEX1H4W04		
		630	MEX1H3W06	MEX1H4W06		
		800	MEX1H3W08	MEX1H4W08		
		1000	MEX1H3W10	MEX1H4W10		
		1250	MEX1H3W12	MEX1H4W12		
		1600	MEX1H3W16	MEX1H4W16		
		2000	MEX1H3W20	MEX1H4W20		
		2500	MEX1H3W25	MEX1H4W25		
H AC 415/690V Icu=Ics=85kA Icw=85kA	2	400	MEX2H3W04	MEX2H4W04		
		630	MEX2H3W06	MEX2H4W06		
		800	MEX2H3W08	MEX2H4W08		
		1000	MEX2H3W10	MEX2H4W10		
		1250	MEX2H3W12	MEX2H4W12		
		1600	MEX2H3W16	MEX2H4W16		
		2000	MEX2H3W20	MEX2H4W20		
		2500	MEX2H3W25	MEX2H4W25		
		3200	MEX2H3W32	MEX2H4W32		
		4000	MEX2H3W40	MEX2H4W40		
M AC 415V Icu=Ics=100kA Icw=85kA	2	400	MEX2M3W04	MEX2M4W04		
		630	MEX2M3W06	MEX2M4W06		
		800	MEX2M3W08	MEX2M4W08		
		1000	MEX2M3W10	MEX2M4W10		
		1250	MEX2M3W12	MEX2M4W12		
		1600	MEX2M3W16	MEX2M4W16		
		2000	MEX2M3W20	MEX2M4W20		
		2500	MEX2M3W25	MEX2M4W25		
		3200	MEX2M3W32	MEX2M4W32		
		4000	MEX2M3W40	MEX2M4W40		

Drawer type complete circuit breaker-quick selection

Breaking code	Frame	Rated Current	Drawer 3-pole	Drawer 4-pole	+	Control unit
M AC 415/690V Icu=Ics=100kA Icw=100kA	3	3200	MEX3M3W32	MEX3M4W32		A03
		4000	MEX3M3W40	MEX3M4W40		A06
		5000	MEX3M3W50	MEX3M4W50		A13
		6400	MEX3M3W64	MEX3M4W64		A16
						P13H
L AC 415/690V Icu=Ics=150kA Icw=100kA	3	3200	MEX3L3W32	MEX3L4W32		P16H
		4000	MEX3L3W40	MEX3L4W40		X13H
		5000	MEX3L3W50	MEX3L4W50		X16H
		6400	MEX3L3W64	MEX3L4W64		NON

High voltage circuit breaker:

C AC 800V Icu=Ics=66kA Icw=66kA	2	400	MEX2C3W04	MEX2C4W04
		630	MEX2C3W06	MEX2C4W06
		800	MEX2C3W08	MEX2C4W08
		1000	MEX2C3W10	MEX2C4W10
		1250	MEX2C3W12	MEX2C4W12
		1600	MEX2C3W16	MEX2C4W16
		2000	MEX2C3W20	MEX2C4W20
		2500	MEX2C3W25	MEX2C4W25
		3200	MEX2C3W32	MEX2C4W32
		4000	MEX2C3W40	MEX2C4W40
F AC 1150V Icu=Ics=66kA Icw=66kA	2	400	MEX2F3W04	MEX2F4W04
		630	MEX2F3W06	MEX2F4W06
		800	MEX2F3W08	MEX2F4W08
		1000	MEX2F3W10	MEX2F4W10
		1250	MEX2F3W12	MEX2F4W12
		1600	MEX2F3W16	MEX2F4W16
		2000	MEX2F3W20	MEX2F4W20
		2500	MEX2F3W25	MEX2F4W25
		3200	MEX2F3W32	MEX2F4W32
		4000	MEX2F3W40	MEX2F4W40
L AC 1150V Icu=Ics=65kA Icw=65kA	3	3200	MEX3L3W32	MEX3L4W32
		4000	MEX3L3W40	MEX3L4W40
		5000	MEX3L3W50	MEX3L4W50
		6400	MEX3L3W64	MEX3L4W64
H AC 1150V Icu=Ics=80kA Icw=80kA	3	3200	MEX3H3W32	MEX3H4W32
		4000	MEX3H3W40	MEX3H4W40
		5000	MEX3H3W50	MEX3H4W50
		6400	MEX3H3W64	MEX3H4W64

Fixed complete circuit breaker-quick selection

Breaking code	Frame	Rated Current	Drawer 3-pole	Drawer 4-pole	+	Control Unit
N AC 415V Icu=Ics=55kA Icw=55kA	1	400	MEX1N3F04	MEX1N4F04		A03
		630	MEX1N3F06	MEX1N4F06		A06
		800	MEX1N3F08	MEX1N4F08		A13
		1000	MEX1N3F10	MEX1N4F10		A16
		1250	MEX1N3F12	MEX1N4F12		P13H
		1600	MEX1N3F16	MEX1N4F16		P16H
		2000	MEX1N3F20	MEX1N4F20		X13H
		2500	MEX1N3F25	MEX1N4F25		X16H
	2	3200	MEX2N3F32	MEX2N4F32		NON
		4000	MEX2N3F40	MEX2N4F40		
S AC 415V Icu=Ics=70kA Icw=70kA	1	400	MEX1S3F04	MEX1S4F04		
		630	MEX1S3F06	MEX1S4F06		
		800	MEX1S3F08	MEX1S4F08		
		1000	MEX1S3F10	MEX1S4F10		
		1250	MEX1S3F12	MEX1S4F12		
		1600	MEX1S3F16	MEX1S4F16		
		2000	MEX1S3F20	MEX1S4F20		
		2500	MEX1S3F25	MEX1S4F25		
	2	3200	MEX2S3F32	MEX2S4F32		
		4000	MEX2S3F40	MEX2S4F40		
H AC 415V Icu=Ics=85kA Icw=70kA	1	400	MEX1H3F04	MEX1H4F04		
		630	MEX1H3F06	MEX1H4F06		
		800	MEX1H3F08	MEX1H4F08		
		1000	MEX1H3F10	MEX1H4F10		
		1250	MEX1H3F12	MEX1H4F12		
		1600	MEX1H3F16	MEX1H4F16		
		2000	MEX1H3F20	MEX1H4F20		
		2500	MEX1H3F25	MEX1H4F25		
H AC 415/690V Icu=Ics=85kA Icw=85kA	2	400	MEX2H3F04	MEX2H4F04		
		630	MEX2H3F06	MEX2H4F06		
		800	MEX2H3F08	MEX2H4F08		
		1000	MEX2H3F10	MEX2H4F10		
		1250	MEX2H3F12	MEX2H4F12		
		1600	MEX2H3F16	MEX2H4F16		
		2000	MEX2H3F20	MEX2H4F20		
		2500	MEX2H3F25	MEX2H4F25		
		3200	MEX2H3F32	MEX2H4F32		
		4000	MEX2H3F40	MEX2H4F40		
M AC 415V Icu=Ics=100kA Icw=85kA	2	400	MEX2M3F04	MEX2M4F04		
		630	MEX2M3F06	MEX2M4F06		
		800	MEX2M3F08	MEX2M4F08		
		1000	MEX2M3F10	MEX2M4F10		
		1250	MEX2M3F12	MEX2M4F12		
		1600	MEX2M3F16	MEX2M4F16		
		2000	MEX2M3F20	MEX2M4F20		
		2500	MEX2M3F25	MEX2M4F25		
		3200	MEX2M3F32	MEX2M4F32		
		4000	MEX2M3F40	MEX2M4F40		

Fixed complete circuit breaker-quick selection

Breaking code	Frame	Rated Current	Drawer 3-pole	Drawer 4-pole	+	Control Unit
M AC 415/690V Icu=Ics=100kA Icw=100kA	3	3200	MEX3M3F32	MEX3M4F32		A03
		4000	MEX3M3F40	MEX3M4F40		A06
		5000	MEX3M3F50	MEX3M4F50		A13
		6400	MEX3M3F64	MEX3M4F64		A16
						P13H
L AC 415/690V Icu=Ics=150kA Icw=100kA	3	3200	MEX3L3F32	MEX3L4F32		P16H
		4000	MEX3L3F40	MEX3L4F40		X13H
		5000	MEX3L3F50	MEX3L4F50		X16H
		6400	MEX3L3F64	MEX3L4F64		NON
High voltage circuit breaker:						
C AC 800V Icu=Ics=66kA Icw=66kA	2	400	MEX2C3F04	MEX2C4F04		
		630	MEX2C3F06	MEX2C4F06		
		800	MEX2C3F08	MEX2C4F08		
		1000	MEX2C3F10	MEX2C4F10		
		1250	MEX2C3F12	MEX2C4F12		
		1600	MEX2C3F16	MEX2C4F16		
		2000	MEX2C3F20	MEX2C4F20		
		2500	MEX2C3F25	MEX2C4F25		
		3200	MEX2C3F32	MEX2C4F32		
		4000	MEX2C3F40	MEX2C4F40		
F AC 1150V Icu=Ics=66kA Icw=66kA	2	400	MEX2F3F04	MEX2F4F04		
		630	MEX2F3F06	MEX2F4F06		
		800	MEX2F3F08	MEX2F4F08		
		1000	MEX2F3F10	MEX2F4F10		
		1250	MEX2F3F12	MEX2F4F12		
		1600	MEX2F3F16	MEX2F4F16		
		2000	MEX2F3F20	MEX2F4F20		
		2500	MEX2F3F25	MEX2F4F25		
		3200	MEX2F3F32	MEX2F4F32		
		4000	MEX2F3F40	MEX2F4F40		
L AC 1150V Icu=Ics=65kA Icw=65kA	3	3200	MEX3L3F32	MEX3L4F32		
		4000	MEX3L3F40	MEX3L4F40		
		5000	MEX3L3F50	MEX3L4F50		
		6400	MEX3L3F64	MEX3L4F64		
H AC 1150V Icu=Ics=80kA Icw=80kA	3	3200	MEX3H3F32	MEX3H4F32		
		4000	MEX3H3F40	MEX3H4F40		
		5000	MEX3H3F50	MEX3H4F50		
		6400	MEX3H3F64	MEX3H4F64		

Technical Data

Technical Data Of MEX1 Air Circuit Breaker					
Breaking capacity code			N	S	H
Rated current	In	A	400-2500	400-2500	400-2500
Number of poles			3P, 4P	3P, 4P	3P, 4P
Rated insulation voltage	Ui	V	12 50	12 50	12 50
Rated impulse withstand voltage	Uimp	kV	12	12	12
Rated work voltage	Ue	V	AC415/690	AC415/690	AC415/690
Utilization category			B	B	B
Isolation function			Yes	Yes	Yes
Rated current of neutral pole			100% phase line	100% phase line	100% phase line
Breaking parameters					
Rated ultimate short-circuit breaking capacity Icu	AC415V	kA	55	70	85
	AC690V	kA	45	55	66
Rated operating short-circuit breaking capacity Ics	AC415V	kA	55	70	85
	AC690V	kA	45	55	66
Rated short-circuit withstand current Icw (1s)	AC415V	kA	55	70	70
	AC690V	kA	55	70	70
Rated short-circuit withstand current Icw (3s)	AC415V	kA	-	55	55
	AC690V	kA	-	55	55
Rated short-circuit making capacity Icm	AC415V	kA	121	154	187
	AC690V	kA	99	121	145
ME control unit					
	A-type	Current type	□	□	□
	P -type	Power type	□	□	□
	X -type	Metrological type	□	□	□
Unprotected circuit breaker			□	□	□
Operating performance					
Mechanical life	With maintenance	times	40000	40000	40000
	Maintenance-free	times	25000	25000	25000
Electrical life, AC415V, maintenance-free					
	400-1600A	times	12000	12000	12000
	2000A	times	10000	10000	10000
	2500A	times	8000	8000	8000
Full breaking time		ms	≤ 30	≤ 30	≤ 30
Closing time		ms	≤ 60	≤ 60	≤ 60
Installation					
Fixed type					
	Height	mm	442	442	442
	Width3P	mm	343	343	343
	Width4P	mm	443	443	443
	Depth	mm	355	355	355
Available wiring mode	Horizontal rear wiring		■	■	■
	Vertical rear wiring		□	□	□
Weight	3P	kg	64	64	64
	4P	kg	75	75	75
Drawer type					
	Height	mm	464	464	464
	Width 3P	mm	360	360	360
	Width 4P	mm	460	460	460
	Depth	mm	485	485	485
Available wiring mode	Horizontal rear wiring(1)		■	■	■
Weight	3P	kg	109	109	109
	4P	kg	121	121	121

Note: ■ Standard configuration □ Optional configuration; (1) The rear T terminal can be flipped, suitable for rear horizontal and vertical wiring schemes

Technical Data

Technical Data Of MEX2 Air Circuit Breaker						
Breaking capacity code			N	S	H	M
Rated current	In	A	3200-4000	3200-4000	3200-4000	3200-4000
Number of poles			3P, 4P	3P, 4P	3P, 4P	3P, 4P
Rated insulation voltage	Ui	V	1250	1250	1250	1250
Rated impulse withstand voltage	Uimp	kV	12	12	12	12
Rated work voltage	Ue	V	AC415/690	AC415/690	AC415/690	AC415/690
Utilization category			B	B	B	B
Isolation function			Yes	Yes	Yes	Yes
Rated current of neutral pole			100% phase line	100% phase line	100% phase line	100% phase line
Breaking parameters						
Rated ultimate short-circuit breaking capacity Icu	AC415 V	kA	55	70	85	100
	AC690 V	kA	55	66	85	85
Rated operating short-circuit breaking capacity Ics	AC415 V	kA	55	70	85	100
	AC690 V	kA	55	66	85	85
Rated short-circuit withstand current Icw (1s)	AC415 V	kA	55	70	85	85
	AC690 V	kA	55	70	85	85
Rated short-circuit withstand current Icw (3s)	AC415 V	kA	55	55	55	66
	AC690 V	kA	55	55	55	66
Rated short-circuit making capacity Icm	AC415 V	kA	121	154	187	220
	AC690 V	kA	121	145	187	187
ME control unit						
	A-type	Current type	□	□	□	□
	P-type	Power type	□	□	□	□
	X-type	Metrological type	□	□	□	□
Unprotected circuit breaker			□	□	□	□
Operating performance						
Mechanical life	With maintenance	times	30000	30000	30000	30000
	Maintenance-free	times	20000	20000	20000	20000
Electrical life, AC415V, maintenance-free						
	400-1600A	times	-	-	12000	12000
	2000 A	times	-	-	10000	10000
	2500 A	times	-	-	8000	8000
	3200 A		7000	7000	7000	7000
	4000 A		6000	6000	6000	6000
Full breaking time		ms	≤ 30	≤ 30	≤ 30	≤ 30
Closing time		ms	≤ 60	≤ 60	≤ 60	≤ 60
Installation						
Fixed type						
	Height	mm	442	442	442	442
	Width 3P	mm	436	436	436	436
	Width 4P	mm	566	566	566	566
	Depth	mm	355	355	355	355
Available wiring mode	Horizontal rear wiring		■	■	■	■
	Vertical rear wiring(1)		□	□	□	□
Weight	3P	kg	84	84	84	84
	4P	kg	96	96	96	96
Drawer type						
	Height	mm	464	464	464	464
	Width3P	mm	460	460	460	460
	Width4P	mm	590	590	590	590
	Depth	mm	488	488	488	488
Available wiring mode	Horizontal rear wiring(2)		■	■	■	■
Weight	3P	kg	156	156	156	156
	4P	kg	174	174	174	174

Note: ■ Standard configuration □ Optional configuration;

(1) Additional connecting fittings shall be required for vertical rear wiring. It is recommended to use vertical wiring for 4000A

(2) The rear T terminal can be flipped, suitable for horizontal and vertical wiring schemes. It is recommended to use vertical wiring for 4000A.

MEX Air Circuit Breaker

Technical Data

Technical Data Of MEX3 Air Circuit Breaker					
Breaking capacity code				M	L
Rated current	In	A		3200-6400	3200-6400
Number of poles				3P, 4P	3P, 4P
Rated insulation voltage	Ui	V		1250	1250
Rated impulse withstand voltage	Uimp	kV		12	12
Rated work voltage	Ue	V		AC415/690	AC415/690
Utilization category				B	B
Isolation function				Yes	Yes
Rated current of neutral pole				100% phase line	100% phase line
Breaking parameters					
Rated ultimate short-circuit breaking capacity Icu	AC415V	kA		100	150
	AC690V	kA		100	100
Rated operating short-circuit breaking capacity Ics	AC415V	kA		100	150
	AC690V	kA		100	100
Rated short-circuit withstand current Icw (1s)	AC415V	kA		100	100
	AC690V	kA		100	100
Rated short-circuit withstand current Icw (3s)	AC415V	kA		85	85
	AC690V	kA		85	85
Rated short-circuit making capacity Icm	AC415V	kA		220	330
	AC690V	kA		220	220
ME control unit					
	A-type		Current type	□	□
	P-type		Power type	□	□
	X-type		Metrological type	□	□
Unprotected circuit breaker				□	□
Operating performance					
Mechanical life	With maintenance		times	20000	20000
	Maintenance-free		times	12500	12500
Electrical life, AC415V, maintenance-free					
	3200A		times	12000	12000
	4000A			10000	10000
	5000A		times	8000	8000
	6400A		times	6000	6000
Full breaking time			ms	≤ 30	≤ 30
Closing time			ms	≤ 60	≤ 60
Installation					
Fixed type					
	Height		mm	442	442
	Width 3P		mm	736	736
	Width 4P		mm	966	966
	Depth		mm	355	355
Available wiring mode	Horizontal rear wiring			■	■
	Vertical rear wiring(1)			□	□
Weight	3P		kg	141	141
	4P		kg	153	153
Drawer type					
	Height		mm	443	443
	Width 3P		mm	743	743
	Width 4P		mm	943	943
	Depth		mm	522	522
Available wiring mode	Horizontal rear wiring(2)			■	■
Weight	3P		kg	291	291
	4P		kg	313	313

Note: ■ Standard configuration □ Optional configuration;

(1) Additional connecting fittings shall be required for vertical rear wiring. It is recommended to use vertical wiring for 6400A

(2) The rear T terminal can be flipped, suitable for horizontal and vertical wiring schemes. It is recommended to use vertical wiring for 6400A.

MEX Air Circuit Breaker

Technical Data

Technical Data Of MEX High-voltage Air Circuit Breaker

Short-circuiter shell				MEX2		MEX3	
Unprotected circuit breaker			C	F	L	H
Rated current	In	A	400-4000	400-4000	3200-6400	3200-6400
Number of poles			3P, 4P	3P, 4P	3P, 4P	3P, 4P
Rated insulation voltage	Ui	V	1250	1250	1250	1250
Rated impulse withstand voltage	Uimp	kV	12	12	12	12
Rated work voltage	Ue	V	AC800	AC1150	AC1150	AC1150
Utilization category			B	B	B	B
Isolation function			Yes	Yes	Yes	Yes
Rated current of neutral pole			100% phase line	100% phase line	100% phase line	100% phase line
Breaking parameters						
Rated ultimate short-circuit breaking capacity Icu	AC415/690/800V	kA	66	-	-	-
	AC415/690/1150V	kA	-	66	65	80
	AC415/690/1500V		-	-	-	-
Rated operating short-circuit breaking capacity Ics	AC415/690/800V	kA	66	-	-	-
	AC415/690/1150V	kA	-	66	65	80
	AC415/690/1500V		-	-	-	-
Rated short-circuit withstand current Icw (1s)		kA	66	66	65	80
Rated short-circuit withstand current Icw (3s)		kA	55	55	-	-
Rated short-circuit making capacity Icm		kA	145	145	143	176
ME control unit						
A-type	Current type		□	□	□	□
P -type	Power type		□	□	□	□
X -type	Metrological type		□	□	□	□
Unprotected circuit breaker			□	□	□	□
Operating performance						
Mechanical life		times	30 000	30 000	20 000	20 000
		times	20 000	20 000	12 500	12 500
Full breaking time		ms	≤30	≤30	≤30	≤30
Closing time		ms	≤60	≤60	≤60	≤60
Installation						
Fixed type						
	Height	mm	442	442	442	442
	Width3P	mm	436	436	736	736
	Width4P	mm	566	566	966	966
	Depth	mm	355	355	355	355
Available wiring mode	Horizontal rear wiring		■	■	■	■
	Vertical rear wiring(1)		□	□	□	□
Weight	3P	kg	84	84	141	141
	4P	kg	96	96	153	153
Drawer type						
	Height	mm	464	464	443	443
	Width 3P	mm	460	460	743	743
	Width 4P	mm	590	590	943	943
	Depth	mm	488	488	522	522
Available wiring mode	Horizontal rear wiring(2)		■	■		■
Weight	3P	kg	156	156	291	291
	4P	kg	174	174	313	313

Note: ■ Standard configuration □ Optional configuration;

(1) Additional connecting fittings shall be required for vertical rear wiring. It is recommended to use vertical wiring for Frame 2@4000A and Frame 3@6400A

(2) The rear T terminal can be flipped, suitable for horizontal and vertical wiring schemes. It is recommended to use vertical wiring for Frame 2@4000A and Frame 3@6400A

ME new generation of advanced intelligent control unit

The MEX full range of circuit breakers can be equipped with three basic types of digital electronic control units: A, P and X. Each basic type of control unit has the same appearance design, a wide rated current setting range (0.2-1In), and a simple and accurate circuit breaker parameter setting menu.

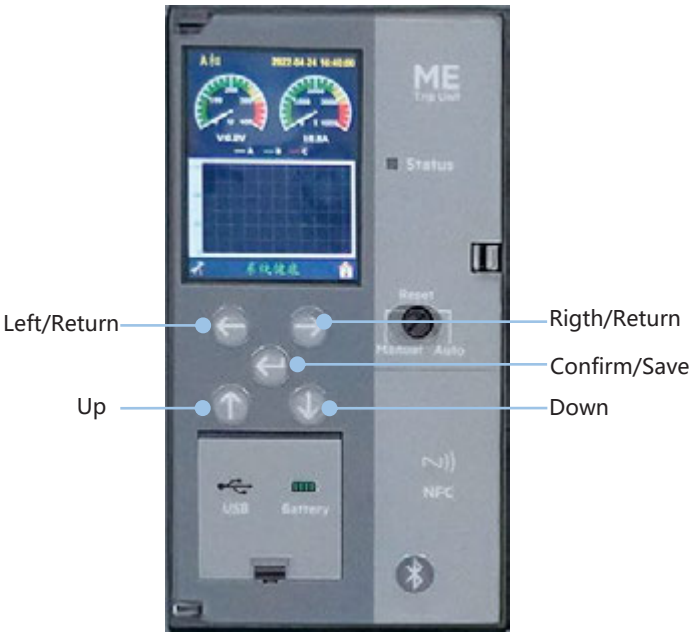
Type:

A-control unit provides ammeter function

P-type control unit provides current, voltage, power and frequency measurement functions

X-type control unit provides full power measurement, large screen color display, metering function

Through 4 setting keys and one confirmation key, the function menu of the control unit can be set conveniently and accurately.



When the device is not powered on, the control unit can be activated by a power module that is standardly configured with the circuit breaker. During normal operation, the control unit is powered by the built-in induction coil of the circuit breaker or an external auxiliary power module. Without external power supply, the control unit is activated when the circuit breaker is loaded and the load current reaches 20% of the rated current of the circuit breaker.

The internal battery of the A and P type control units can also power the control unit without power (X type needs to use an external power supply). When the "Left/Back" button on the control unit is pressed, the internal battery will activate the control unit and keep the LCD lit for 10 seconds after the button is released. After the control unit is activated, the customer can set basic parameters of the control unit, browse the ammeter and event recording functions.

The control unit can also be powered by a DC 5V power supply through the USB interface, and parameters can be set and read by connecting to a host computer.

X-type can set protection parameters and read electrical parameters through Bluetooth function. Connecting DO and opening and closing buttons can realize Bluetooth control of circuit breaker opening and closing actions.

Basic Protection

		A03	A06	A13	A16	P13H	P16H	X13H	X16H	Default setting
Control unit interface	LCD display screen	●	●	●		●	●	●	●	
	Touch key	-	-	-	-	-	-	●	●	
	Language options: Chinese/English	●	●	●	●				●	Chinese
	Adjustable manual and automatic reset devices	●	●						●	
Overload long delay protection Ir	Ir setting range: 0.2-1In, step size: 1A	●	●	●	●	●	●	●	●	1xIn
	Setting range of tripping time tr: 0.5-24s, step size: 0.1s	●	●	●	●	●	●	●	●	0.1s
	Short-circuit short delay protection status setting, closed/tripped	●	●						●	Tripped
Short-circuit short delay protection Isd	Isd setting range: 1.5-10Ir, step size: 1A, OFF	●	●						●	1.5xIn
	Setting range of tripping time Tsd (I2T ON): 0.1-0.4s, step size: 0.1s	●	●						●	
	Setting range of tripping time Tsd (I2T OFF) : 0-0.4s, step size: 0.1s	●	●	●						0.1s
Short-circuit instantaneous protection Ii	Short-circuit instantaneous protection status setting, closed/tripped	●	●		●	●	●		●	Tripped
	Ir setting range, 2-15In, step size: 1A	●	●						●	2xIn
Ground fault protection Ig	Ground fault protection status setting, closed/tripped/alarm	-	●	-	●	-	●	-	●	Closed
	Ig setting range: 0.2-1In, step size: 1A (accuracy: ± 10%)	-	●	-	●	-	●	-	●	0.2xIn
	Setting range of tripping time Tg (I2T ON): 0.1-0.4s, step size: 0.1s	-	●	-	●	-	●	-	●	0.1s
	Setting range of tripping time Tg (I2T OFF): 0-0.4s, step size: 0.1s	-	●	-	●	-	●	-	●	0.1s
Ground fault CT protection	Ground fault CT protection status setting, closed/tripped/alarm	-	●	-	●	-	●	-	●	Closed
	Ig setting range: 0.2-1In, step size: 1A (accuracy: ± 10%)	-	●	-	●	-	●	-	●	0.2xIn
	Setting range of tripping time Tg (I2T ON): 0.1-0.4s, step size: 0.1s	-	●	-	●	-	●	-	●	0.1s
	Setting range of tripping time Tg (I2T OFF): 0-0.4s, step size: 0.1s	-	●	-	●	-	●	-	●	0.1s
Ground fault warning	Pre-alarm mode setting, disabled/GFSUM/GFCT	-	●	-	●	-	●	-	●	Closed
	Operating value setting range: 120-1200A, step size: 1A	-	●	-	●	-	●	-	●	200A
	Pre-alarm time: 1-10s, step size: 0.1s	-	●	-	●	-	●	-	●	10
	Return value setting range: 120-1200A, step size: 1A	-	●	-	●	-	●	-	●	120A
	Return time: 1-10s, step size: 0.1s	-	●	-	●	-	●	-	●	10
Neutral line protection (N-phase protection)	N-phase protection mode setting, closed/tripped	○	○	○	○	○	○	○	○	Tripped
	N-phase action value: 50%-160%	○	○	○	○	○	○	○	○	100%
MCR and HSIOC protection	MCR protection mode, tripped/closed	●	●						●	Tripped
	MCR action value, 30In/short-term withstand capacity	●	●	●	●	●	●		●	30In
	HSIOC protection mode, tripped	●	●	●	●				●	Tripped
	HSIOC action value, 30In/short-term withstand capacity	●	●						●	30In
	Non tripping time: > 20ms	●	●	●	●	●			●	
	Maximum tripping time: ≤ 80ms	●	●	●	●				●	
Double short-circuit protection (RELT)	RELT status setting, closed/tripped	●	●						●	Closed
	RELT threshold setting: 2-15In, step size: 1A	●	●	●	●	●			●	10In
	Non tripping time: > 20ms	●	●	●	●	●	●	●	●	
	Maximum tripping time: ≤ 80ms	●	●						●	

●: Standard configuration ○: Optional configuration -: Not available

Advanced Protection

		A03	A06	A13	A16	P13H	P16H	X13H	X16H	Default setting
Overvoltage and undervoltage protection	Protection mode setting, closed/tripped/alarm	-	-	-	-	●	●	●	●	Closed
	Operating value setting: 20V-1500V, step size: 1V (accuracy: ± 10%)	-	-	-	-	●	●	●	●	280V
	Time setting, 0.1-300s, step size: 1s	-	-		-	●	●	●	●	10s
	Return value, 20V-1500V, step size: 1V	-	-	-	-	●	●	●	●	360 V
	Return time; 0.1-300s, step size: 1s	-	-	-	-	●	●	●	●	10s
Voltage unbalance protection	Protection mode setting, closed/tripped/alarm	-	-	-	-	●	●	●	●	Closed
	Action value setting: 2%-90%, step size: 1% (accuracy: ± 10%)	-	-	-	-	●	●	●	●	20%
	Protection time setting, 0.1-300s, step size: 1s	-	-	-	-	●	●	●	●	10s
	Return value: 2%-90%, step size: 1% (accuracy: ± 10%)	-	-	-	-	●	●	●	●	10%
	Return time; 0.1-300s, step size: 1s	-	-		-	●	●	●	●	10s
Under-frequency protection	Protection mode setting, closed/tripped/alarm	-	-	-	-	●	●	●	●	Closed
	Operating value setting 40-70Hz, step size: 0.1Hz (accuracy: ± 10%)	-	-	-	-	●	●	●	●	45
	Protection time setting, 0.1-300s, step size: 1s	-	-	-	-	●	●	●	●	10s
	Return value: 40-70Hz, step size: 0.1Hz (accuracy: ± 10%)	-	-	-	-	●	●	●	●	49
	Return time; 0.1-300s, step size: 1s	-	-		-	●	●	●	●	10s
Overfrequency protection	Protection mode setting, closed/tripped/alarm	-	-	-	-	●	●	●	●	Closed
	Operating value setting 40-70Hz, step size: 0.1Hz (accuracy: ± 10%)	-	-	-	-	●	●	●	●	55
	Protection time setting, 0.1-300s, step size: 1s	-	-	-	-	●	●	●	●	10s
	Return value: 40-70Hz, step size: 0.1Hz (accuracy: ± 10%)	-	-	-	-	●	●	●	●	51
	Return time: 0.1-300s, step size: 1s	-	-		-	●	●	●	●	10s
Control unit Reverse power protection	Protection mode setting, closed/tripped/alarm	-	-	-	-	●	●	●	●	Closed
	Protection action value setting: 50-5000kW, step size: 10kW (accuracy: ± 10%)	-	-	-	-	●	●	●	●	55
	Protection time setting, 0.1-300s, step size: 1s	-	-	-	-	●	●	●	●	10s
	Return value: 50-5000kW, step size: 10kW (accuracy: ± 10%)	-	-	-	-	●	●	●	●	51
	Return time; 0.1-300s, step size: 1s	-	-		-	●	●	●	●	10s
Phase sequence protection	Protection mode setting, closed/tripped/alarm	●	●	●	●	●	●	●	●	Closed
	Operating value: a-b-c/a-c-b	●	●	●	●	●	●	●	●	a-b-c
Others:	Zone interlock protection	-	-	●	●	●	●	●	●	
	Communication [1]	○	○	○	○	○	○	○	○	
	DC 24V power supply	●	●	●	●	●	●	●	●	
	Test module	○	○		○	○	○	○	○	

●: Standard configuration ○: Optional configuration -: Not available

Note: 1) A03 and A06 control units for optional communication modules, supporting functions of telemetering, remote signaling, and remote regulating; if four remote controls shall be realized, choose other control units;

Measurement And Maintenance

		A03	A06	A13	A16	P13H	P16H	X13H	X16H	Default setting
Measurement function	Current measurement (Ia, Ib, Ic, In, Ig, IgCT)	●	●	●	●	●	●	●	●	
	Voltage measurement (Ua, Ub, Uc, Uab, Uac, Ubc)	-	-	-	-	●	●	●	●	
	Total electricity consumption (kW · h)	-	-	-	-	-	-	●	●	
	Active power measurement (L1, L2, L3) (kW)	-	-	-	-	●	●	●	●	
	Reactive power measurement (L1, L2, L3) (kVar)	-	-	-	-	●	●	●	●	
	Apparent power measurement (L1, L2, L3) (kVA)	-	-	-	-	●	●	●	●	
	Power factor (L1, L2, L3)	-	-	-	-	●	●	●	●	
	Frequency measurement	-	-	-	-	●	●	●	●	
	Phase detection	-	-	-	-	●	●	●	●	
	Waveform capture							●	●	
Maintenance function	Fault record	●	●	●	●	●	●	●	●	
	Alarm record	●	●	●	●	●	●	●	●	
	Event record	●	●	●	●	●	●	●	●	
	Number of operations	●	●	●	●	●	●	●	●	
	Contact wear loss	●	●	●	●	●	●	●	●	

●: Standard configuration ◯: Optional configuration -: Not available

Function menu

On the control unit, press the left key to light up the screen.

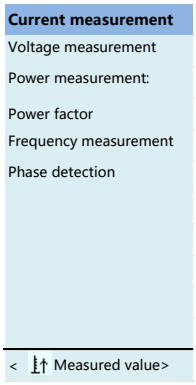
and right arrow keys to enter the corresponding protection menu, measurement menu, maintenance record menu, system setting menu and other interfaces to complete all function settings and parameter viewing.

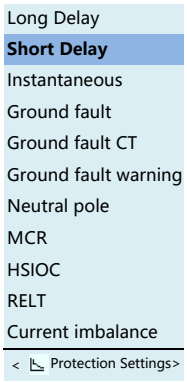
Measurement

You can select the meter function through the display screen and press the "left key" and "right key". Press the "confirm key" to enter different electrical parameter display options, and press the "up key" and "down key" to read and observe load current, voltage, apparent, active, reactive power and other electrical parameters. All currents and voltages are measured based on true effective values (RMS).

The control units of the MEX full range of circuit breakers all provide ammeter functions, while the ME-P and ME-X types provide other complete electrical parameter measurement functions.

The ammeter and electrical parameter measurement functions require an internal power supply, an external battery pack, and a grid power supply to power the control unit. The complete electrical parameter measurement function requires an external 3-phase voltage transformer and transmitter





Protect

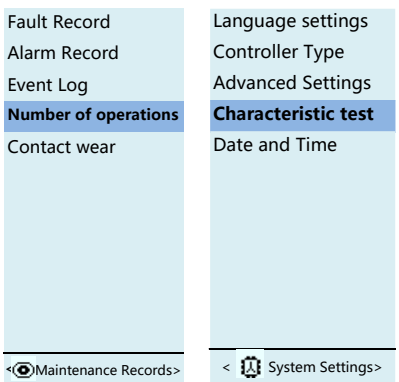
The control unit of the MEX full series circuit breaker can provide overload long delay (Ir), overload long delay adjustable delay curve (tr), short circuit short delay protection function (Isd, tsd) adjustable and short circuit instantaneous protection function (Ii) adjustable. According to the different models selected by the customer, the control unit also has other advanced protection functions: ground fault, overvoltage, undervoltage, phase sequence, current imbalance, power, frequency, input/output relay, zone interlocking, waveform capture, etc. The specific functional details will be described in detail in this section.

Maintain records

Use the display screen and press the "left key" and "right key" to select and enter the "maintenance record" function menu. Press the confirmation key to view the corresponding records. You can view data such as fault records, alarm records, event records, and operation times. This function requires an external 24VDC power supply to ensure the continuous operation of the control unit and record complete event records.

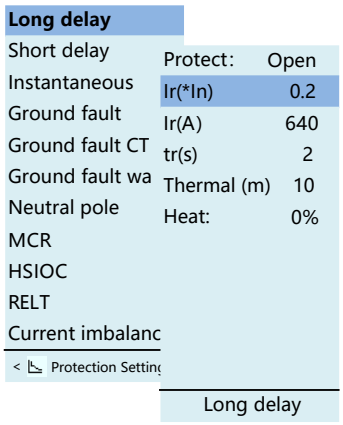
System settings

Enter the "System Settings" function through the display and press the "Left" and "Right" keys. This menu can set the control unit's language type, time, etc.



Overload long delay protection

The long-time overload protection is based on the actual RMS current of each phase and neutral line.



Overload long delay protection value setting

Overload long delay protection setting is:

- Ir: Overload long-time tripping current setting value
- tr: Overload long delay tripping time setting value, under 6 Ir

Set Up	Unit	Scope	Step size	Factory settings
Ir	**A**	**(0.2-1) xIn**	**1A或0.1xIn**	**1 xIn**
tr	S	0.5-24	0.1	4

Overload long delay protection characteristics

tr=0.5-24, step size 0.1

Protective features::

I< 1.05 × Ir: No tripping

I > 1.2 × Ir: Trip

The Tr overload long-time protection time delay applies to cold conditions for a phase or neutral current equal to 6×Ir.

When the current is greater than Isd or Ii, the tripping time acts according to the time of short delay and instantaneous protection.

Long delay minimum tripping time 500ms

Tr(@6×Ir)	0.5s	1s	2s	4s	8s	12s	16s	20s	24s
1.5 × Ir	12.5s	25s	50s	100s	200s	300s	400s	500s	600s
6×Ir	0.5s	1s	2s	4s	8s	12s	16s	20s	24s
7.2×Ir	0.34s	0.69s	1.38s	2.76s	5.52s	8.3s	11s	13.8s	16.6s

Short circuit short delay protection

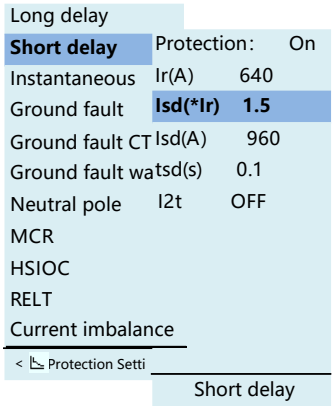
The short-circuit short-time protection is based on the true rms current of the phases.

Short circuit short delay protection value setting

Short-circuit short-time delay protection helps protect equipment from phase-to-phase short circuits and phase-to-ground short circuits and is fully selective.

It includes two characteristics: definite time and inverse time, depending on the state of the 12t setting.

Short circuit short delay tripping protection accuracy: ±10% The operating time of the short-time protection depends on the tsd time delay. They are suitable for I2T ONOFF。



Set Up	Unit	Scope	Step size	
Isd	A	(1.5~10) ×Ir, OFF	1A	1.5×Ir
Tsd (I²T ON)	s	0.1~0.4	0.1	-
Tsd (I²T OFF)	s	0~0.4	0.1	0.1

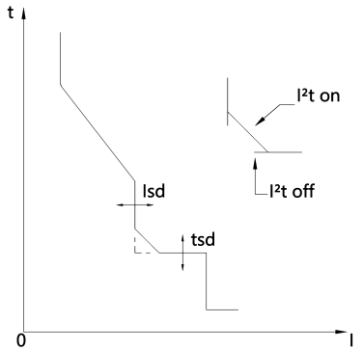
Short circuit short delay protection characteristics:

I²T ON tripping curve (I<10Ir),

T=(10/N)^2*tsd,

N=I/Ir,

tsd=0.1,0.2,0.3,0.4



Characteristic:	Current multiple (I/Isd)	Agreed tripping time
No action characteristics	<0.9	No tripping
Action characteristics	>1.1	Trip
Action delay	≥1.1	See table below

• I²t ON tripping time (I≥10Ir)

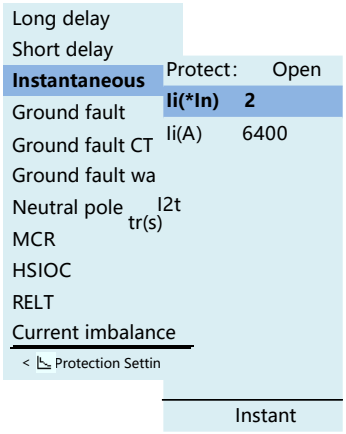
Tsd	0.1s	0.2s	0.3s	0.4s
Inactive time:	> 80ms	> 160ms	> 260ms	> 360ms
Maximum trip time:	< 140ms	< 240ms	< 340ms	< 440ms

• I²t OFF Trip time

Tsd	0s	0.1s	0.2s	0.3s	0.4s
Inactive time:	> 20ms	> 80ms	> 160ms	> 260ms	> 360ms
Maximum trip time:	< 80ms	< 140ms	< 240ms	< 340ms	< 440ms

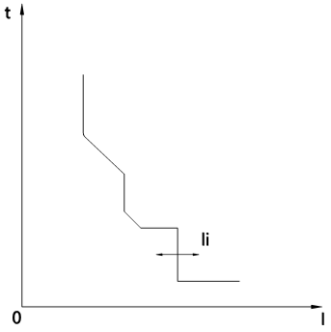
Short circuit instantaneous protection

Instantaneous protection protects the equipment against short circuits between phase and phase, phase and neutral, and phase and ground. The protection operates with a definite time characteristic. The device trips when the set current is exceeded without further time delay.。



Short circuit instantaneous protection value setting

Set up	Unit	Scope	Step size	
Ii	-	Ask for	-	Trip
Ii	A	(2~15) ×In	1A	2.0×In



Short circuit short delay protection characteristics

I< 0.9 × Ii: No tripping

I > 1.1 × Ii: Trip

Characteristic	Unit	
No trip time	ms	>20
Maximum trip time	ms	≤80

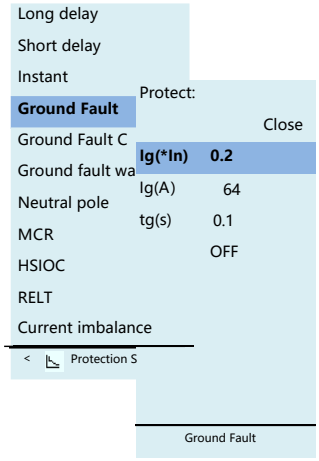
Ground fault protection

The ground fault protection is based on the true rms current of the phases.

Ground fault protection can prevent phase-to-ground faults and is suitable for TN-S (three-phase five-wire) systems.

Can be used with other grounding systems.

The ground fault current is calculated or measured based on the circuit breaker configuration as shown in the following table



Ground fault protection calculation method

Circuit breaker configuration	Ig (ground fault current)
3P	Ig=IA+IB+IC
4P	Ig=IA+IB+IC+IN
3P+N(T)	Ig=IA+IB+IC+IN(ENCT)
3P/4P(W)	Ig=IW

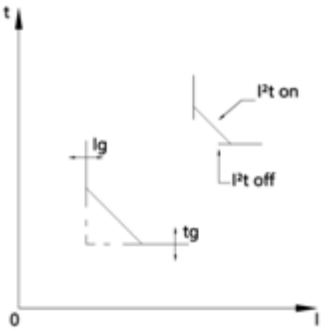
Ground fault protection switch and setting

Set Up	Unit	Scope	Step Size	Accurancy
Ig	-	Close/trip	-	Closure
Ig	A	Ig=(0.2-1)In	1A	0.2 In ±10%

Ground fault protection characteristics

The operating time of the ground fault protection depends on the tg time delay. They apply to I2T ON or OFF.

tg	0s	0.1s	0.2s	0.3s	0.4s	
I²T ON	-	0.1s	0.2s	0.3s	0.4s	0.1
I²T OFF	0s	0.1s	0.2s	0.3s	0.4s	0.1



I²t ON tripping time (I<In)

T=(1/N)^2*tg,

N=I/In,

tg=0.1,0.2,0.3,0.4

Protective features:

I< 0.9 × Ig: No trippingI

> 1.1 × Ig: Trip

• I²t ON Tripping time (I≥In)

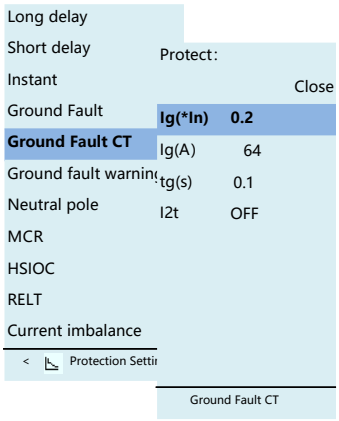
tg	0.1s	0.2s	0.3s	0.4s
No tripping time	> 80ms	> 160ms	> 260ms	> 360ms
Maximum tripping time	< 140ms	< 240ms	< 340ms	< 440ms

• I²t OFF Tripping time

tg	0	0.1s	0.2s	0.3s	0.4s
No tripping time	> 20ms	> 80ms	> 160ms	> 260ms	> 360ms
Maximum tripping time	< 80ms	< 140ms	< 240ms	< 340ms	< 440ms

Ground fault CT protection

It is applicable to leakage faults caused by insulation damage of equipment or leakage faults caused by human contact with exposed conductive parts. The leakage trip value I△n is directly expressed in amperes and has nothing to do with the rated current of the circuit breaker. The signal acquisition method is zero-sequence sampling, which requires an external rectangular transformer; this sampling has high accuracy and sensitivity and is suitable for the protection of smaller currents.



Set Up	Unit	Scope	Step size		Accurancy
Ig启用	-	Close/Trip	-	Closure	
Ig阀值	A	Ig=(0.2-1)In	1A	0.2 In	±10%

The operating time of the ground fault protection depends on the tg time delay. They are suitable for I2T ON or OFF.

tg	0s	0.1s	0.2s	0.3s	0.4s	出厂设置
I²T ON	-	0.1s	0.2s	0.3s	0.4s	0.1
I²T OFF	0s	0.1s	0.2s	0.3s	0.4s	0.1

I²t ON tripping time I<In)；T=(1/N)^2*tg,

N=I/In,；tg=0.1,0.2,0.3,0.4

• I²t ON tripping time (I≥In)

tg	0.1s	0.2s	0.3s	0.4s
No tripping time	> 80ms	> 160ms	> 260ms	> 360ms
Maximum trip time	< 140ms	< 240ms	< 340ms	< 440ms

• I²t OFF tripping time

Lodelay

tg	0	0.1s	0.2s	0.3s	0.4s
No tripping time	> 20ms	> 80ms	> 160ms	> 260ms	> 360ms
Maximum trip time	< 80ms	< 140ms	< 240ms	< 340ms	< 440ms

Protective features:

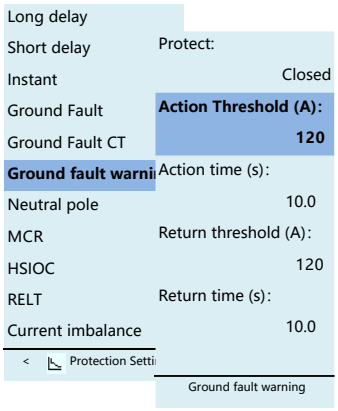
I< 0.9 × Ig：No tripping

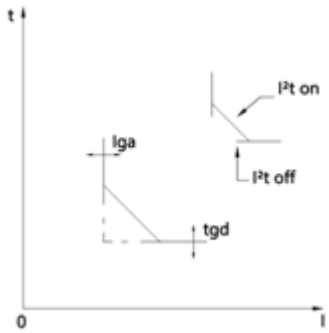
I > 1.1 × Ig：Trip

Ground fault warning

The ground fault alarm function and the ground fault protection function are independent of each other and exist at the same time with their own independent setting parameters. The alarm function works in the same way as the ground fault protection, using the same sensors, the same curves and protection time. The ground fault alarm is based on the sum of the currents of the phase and neutral lines or external transformers, current ground loop current transformers connected to the control unit through modules.

Powered by internal CT, no external power supply required.





Ground fault warning settings

Set up	Unit	Scope	Step size	Factory settings	Accurancy
Ground fault warning mode	-	Close,GFSUM,GFCT	-	Closure	
Grounding and alarm action values	A	120-1200A	1A	200A	±10%
Grounding pre-alarm time	s	1-10	0.1s	10	>400ms: ±10% ≤400ms: See 12t OFF short-time delay tripping time
Ground fault alarm return value	A	120-1200A	1A	120A	±10%
Ground fault alarm return time	S	1-10	0.1s	10	>400ms: ±10% ≤400ms: See 12t OFF short-time delay tripping time

Protective features:

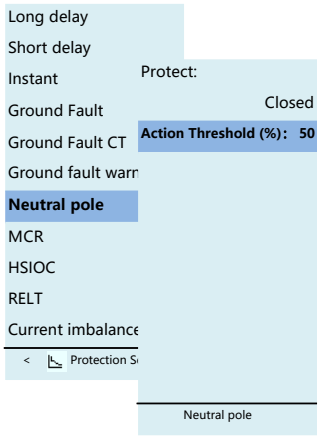
I< 0.9 × Ig: No tripping

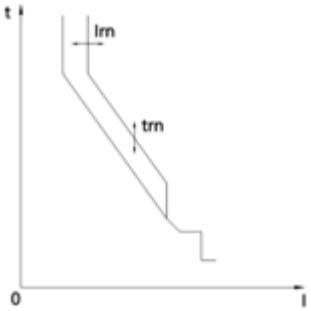
I > 1.1 × Ig: Trip

Neutral line protection (N phase protection)

In actual applications, the cable and current characteristics used in the neutral phase are often very different from those of the other three phases. Different protections need to be implemented for the neutral according to different application situations. When the neutral line is thin, the semi-fixed value method can be used for protection; when the neutral line is the same as other phases, the full-fixed value method can be used for protection; when the harmonics in the power grid are heavy, the 1.6 times fixed value protection method can be used for protection.

The setting of neutral line protection is only for long-time delay protection, and other protection settings are the same as the phase line protection settings.





Description of the switch types corresponding to MEX neutral line protection

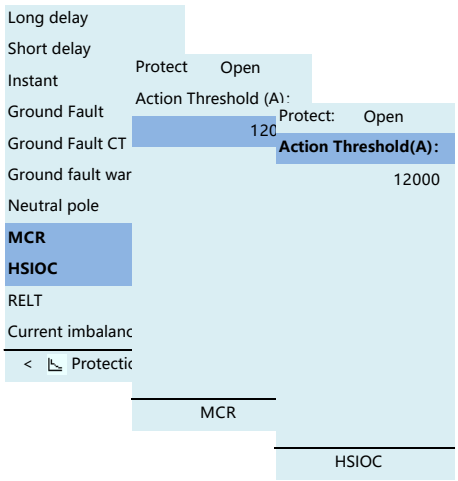
Serial Number	Breaker	Neutral protection
1	3PT-three-pole circuit breaker	-
2	3P+N-three-pole circuit breaker+external neutral line RC	0%，50%，100%，160%
3	4PT-four-pole circuit breaker	0%，50%，100%，160%

Neutral line protection (N phase protection) setting

Set Up	Unit	Scope	Factory setting
N-phase protection mode	-	Close/Trip	Trip
N phase action value	A	50%-160%	100%

MCR and HSIOC protection

MCR protection is a closing short-circuit protection for the circuit breaker itself; when an over-limit fault current occurs, MCR protection protects the circuit breaker's connection capacity to prevent the circuit breaker from connecting a current exceeding the connection limit capacity and causing damage to the switch, and takes effect at the moment the circuit breaker is closed (within 120ms); HSIOC protection protects the circuit breaker's ultimate carrying capacity to prevent the switch from carrying a current exceeding the graded breaking capacity, and takes effect 120ms after closing.



MCR and HSIOC protection parameter settings

Set Up	Unit	Scope	Factory setting
MCR protection	-	Trip/Close	Trip
MCR Action value	A	30In or short-time	30In

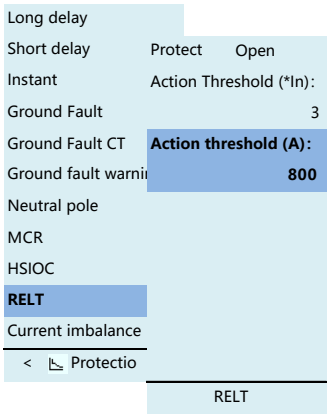
Set Up	Unit	Scope	Factory setting
HSIOC Protection	-	Trip/Close	Trip
HSIOC Action Value	A	30In or short-time	30In

MCR and HSIOC protection action characteristics

Set Up	Unit	
No tripping time	ms	>20
Maximum tripping time	ms	≤80

Double short circuit protection (RELT)

Double short-circuit protection is a duplication of the ME control unit's settings for instantaneous short-circuits, so that the protection can be adjusted to suit when the circuit breaker is supplied by two sources with significantly different short-circuit currents, e.g. the circuit breaker is supplied by the mains or by a generator. Tripping occurs when the set current is exceeded, without further time delay. Can be triggered automatically via the menu or remote input.



RELT protection setting parameters

Set Up	Unit	Scope	Step Length	
RELT Enabled	-	Trip/Close	-	Trip
RELT Threshold	A	(2~15) In	1A	10In

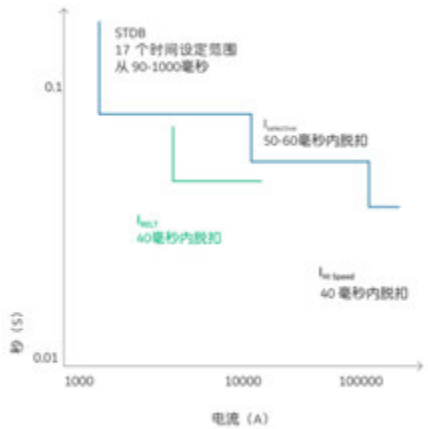
Tripping time

Set Up	Unit	
No tripping time	ms	>20
Maximum tripping time	ms	≤80

Double short circuit protection features:

I < 0.9 × IRELT: No Tripping

I > 1.1 × IRELT: Trip



Current imbalance protection

The current unbalance protection protects against phase failure and three-phase current unbalance, and performs protection actions according to the unbalance rate between the three-phase currents. When the execution mode is alarm, its action principle is the same as that of grounding protection.

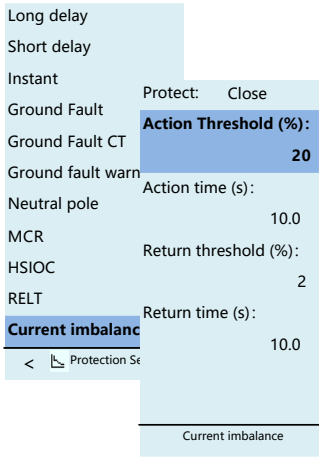
Calculation method of imbalance rate:

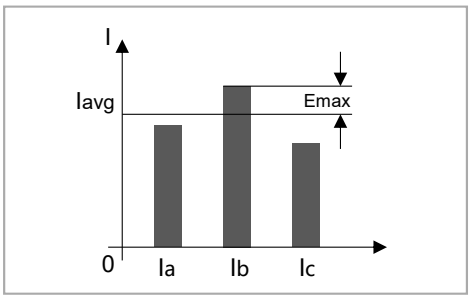
$$Iunbal = \frac{|Emax|}{Iavg} \times 100\%$$

Iavg:average value of the true effective value (RMS) of the three-phase current Ia, Ib, Ic:

$$Iavg = \frac{I_a + I_b + I_c}{3}$$

Emax: The maximum difference between each phase current and Iavg.





Current imbalance protection settings

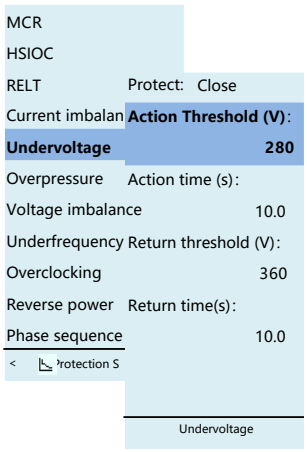
Set Up	Unit	Scope	Step Size	Factory Settings	Accurancy
Current unbalanced mode	-	Shuntdown/Trip/Alarm	-	Closure	-
Current unbalance action value	%	2%~90%	1%	20%	±10%
Current imbalance time	s	0.1~300s	0.1s	10s	>400ms: ±10% ≤400ms: See I²t OFF short-time delay tripping time
Current imbalance return value	%	2%~90%	1%	2%	±10%
Current imbalance return time	s	0.1~300s	0.1s	10s	>400ms: ±10% ≤400ms: See I²t OFF short-time delay tripping time

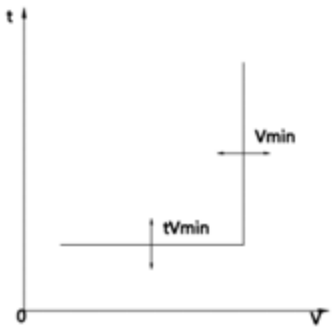
Note: The current accuracy of X-type control unit is ±1%

Under voltage protection

The control unit measures the true effective value of the primary circuit voltage. When the three phase-to-phase voltages (line voltages) or phase-to-neutral line (phase voltages) are all less than the set value, that is, the maximum value of the three voltages is less than the undervoltage protection set value, the undervoltage protection is activated; when the maximum value of the three line voltages is greater than the return value, the alarm action is returned.

The control unit needs to be powered by an external 24V power supply.





Voltage imbalance protection settings

Set Up	Unit	Scope	Step Length	Factory settings	Accuracy
Under voltage protection mode	-	Shutdown/Trip/Alarm	-	Closure	-
Undervoltage protection action value	V	20V ~ 1500V	1V	280V	±5%
Undervoltage protection time	s	0.1~300s	0.1s	10s	>400ms: ±10% ≤400ms: See I²t OFF short-time delay tripping time
Undervoltage protection return value	%	20V ~ 1500V	1V	360V	±5%
Undervoltage protection return time	s	0.1~300s	0.1s	10s	>400ms: ±5% ≤400ms: See I²t OFF short-time delay tripping time

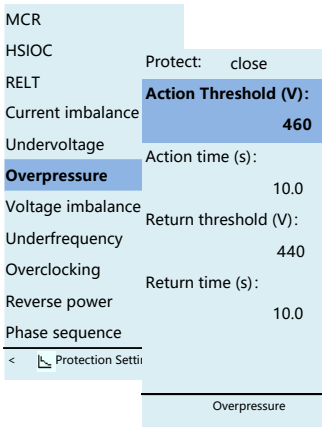
Note: The accuracy of X-type control unit is ±1%

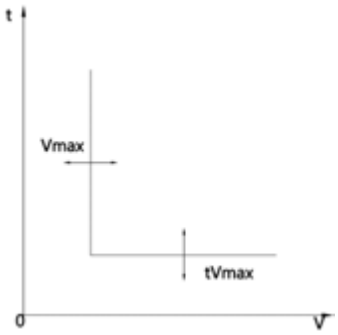
Overvoltage protection

The control unit measures the true effective value of the primary circuit voltage. When the three phase-to-phase voltages (line voltages) or phase-to-neutral line (phase voltages) are all greater than the set value, that is, the minimum value of the three voltages is greater than the overvoltage protection set value, the overvoltage protection is activated; when the minimum value of the three voltages is less than the return value, the alarm action returns.

When the minimum line voltage is greater than the action threshold, the alarm or trip delay is started. When the action delay time is up, the alarm or trip signal is issued, and the overvoltage fault DO is activated. When the execution mode is alarm, after the alarm is activated, when the minimum line voltage is less than the return threshold, the return delay is started. When the return delay time is up, the alarm is removed, and the overvoltage fault DO is returned.

Powered by an external 24V power supply.





Overvoltage protection settings

Set Up	Unit	Scope	Step Length	Factory settings	Accuracy
Overvoltage protection mode	-	Shutdown/Trip/Alarm	-	Closure	-
Overvoltage protection action value	V	20V ~ 1500V	1V	460V	±10%
Overvoltage protection time	s	0.1~300s	0.1s	10s	>400ms: ±10% ≤400ms: See I²t OFF short-time delay tripping time
Overvoltage protection return value	%	20V ~ 1500V	1V	440V	±10%
Overvoltage protection return time	s	0.1~300s	0.1s	10s	>400ms: ±10% ≤400ms: See I²t OFF short-time delay tripping time

Note: The accuracy of X-type control unit is ±1%

Voltage imbalance protection

Voltage unbalance protection is based on the unbalance rate between the three line voltages. Its operating principle is the same as that of overvoltage protection.

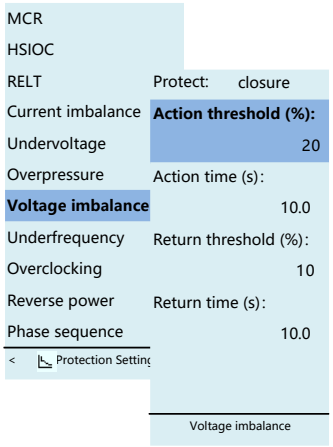
Calculation method of imbalance rate:

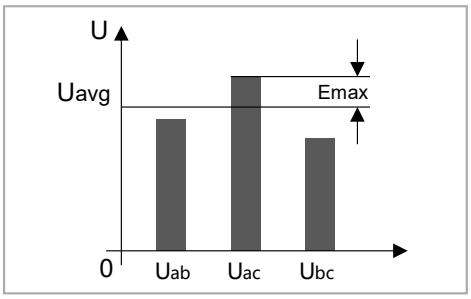
$$Uunbal = \frac{|Emax|}{Uavg} \times 100\%$$

Uavg: average value of the true effective value (RMS) of the three-phase line voltage

$$Uavg = \frac{Uab + Uac + Ubc}{3}$$

Emax: The maximum difference between each line voltage and the average value





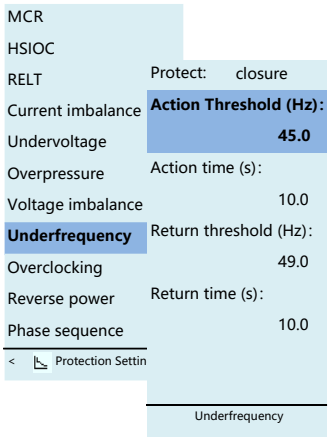
Voltage imbalance protection settings

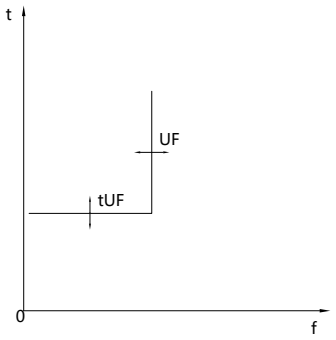
Set Up	Unit	Scope	Step Length	Factory settings	Accuracy
Voltage imbalance protection mode	-	Shutdown/Trip/Alarm	-	关闭	-
Voltage unbalance protection action value	%	2%~90%	1%	20%	±10%
Voltage imbalance protection time	s	0.1~300s	0.1s	10s	>400ms: ±10% ≤400ms: See I²t OFF short-time delay tripping time
Voltage unbalance protection return value	%	2%~90%	1%	10%	±10%
Voltage unbalance protection return time:	s	0.1~300s	0.1s	10s	>400ms: ±10% ≤400ms: See I²t OFF short-time delay tripping time

Under frequency protection

The control unit detects the frequency of the system voltage and can provide protection for over-frequency or under-frequency. The action principle and action characteristics of over-frequency and under-frequency protection are the same as those of over-voltage and under-voltage protection.

Powered by an external 24V power supply.





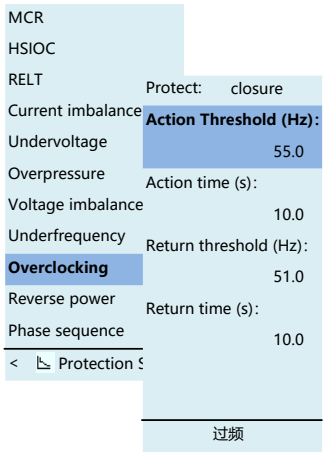
Underfrequency protection settings

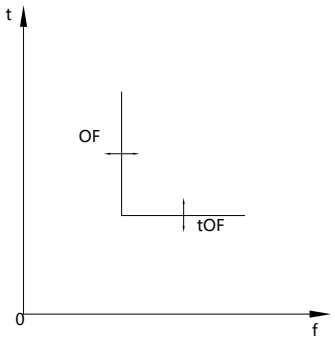
Set Up	Unit	Scope	Step Length	Factory settings	Accuracy
Underfrequency protection mode	-	Shutdown/Trip/Alarm	-	Closure	-
Underfrequency protection action value	Hz	40～70	0.1Hz	45	±10%
Underfrequency protection time	s	0.1～300s	0.1s	10s	>400ms：±10% ≤400ms：See I²t OFF short-time delay tripping time
Underfrequency protection return value	Hz	40～70	0.1 Hz	49	±10%
Underfrequency protection return time	s	0.1～300s	0.1s	10s	>400ms：±10% ≤400ms：See I²t OFF short-time delay tripping time

Over frequency protection

The control unit detects the frequency of the system voltage and can provide protection for over-frequency or under-frequency. The action principle and action characteristics of over-frequency protection are the same as those of over-voltage and under-voltage protection.

Powered by an external 24V power supply.





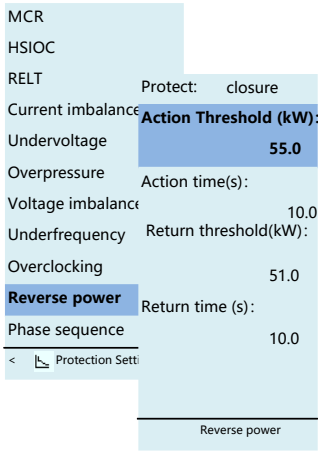
Overfrequency protection settings

Set up	Unit	Scope	Step Length	Factory settings	Accuracy
Overfrequency protection mode	-	Shutdown/Trip/Alarm	-	Closure	-
Overfrequency protection action value	Hz	40～70	0.1 Hz	55	±10%
Overfrequency protection time:	s	0.1~300s	0.1s	10s	>400ms：±10% ≤400ms：See I²t OFF short-time delay tripping time
Overfrequency protection return value	Hz	40～70	0.1 Hz	51	±10%
Overfrequency protection return time	s	0.1~300s	0.1s	10s	>400ms：±10% ≤400ms：See I²t OFF short-time delay tripping time

Reverse power protection

Reverse power protection is also called reverse active power protection. It takes the sum of the three-phase active power. When the power flow direction is opposite to the power direction set by the user and is greater than the set value, the protection starts. The power direction and power supply line direction are set in the "Meter Settings" menu and must be consistent with the actual application. Its action principle is the same as overvoltage protection.

Powered by an external 24V power supply.

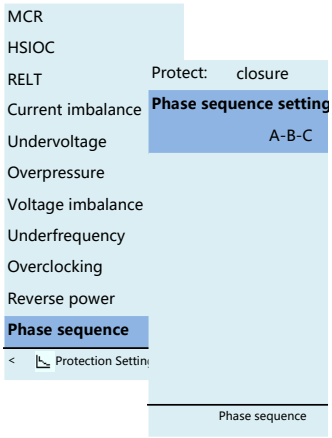


Reverse power protection settings

Set Up	Unit	Scope	Step Length	Factory settings	Accuracy
Reverse power protection mode	-	Shutdown/Trip/Alarm	-	Closure	-
Reverse power protection action value	kW	50～5000	10	55	±10%
Reverse power protection time	s	1～300s	0.1s	10s	>400ms：±10% ≤400ms：See I²t OFF short-time delay tripping time
Reverse power protection return value	kW	50～5000	10	51	±10%
Reverse power protection return time	s	1～300s	0.1s	10s	>400ms：±10% ≤400ms：See I²t OFF short-time delay tripping time

Phase sequence protection

The phase sequence detection is taken from the primary voltage. When the detected phase sequence is the same as the start value setting direction, the protection is activated. The protection action characteristic is instantaneous. When one or more phase voltages do not exist, this function automatically exits.



Phase sequence protection settings

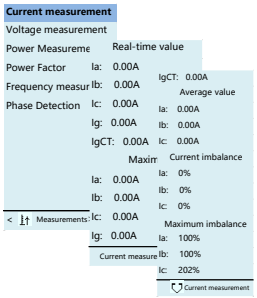
Step Up	Unit	Scope	Step Length	Factory settings	Accuracy
Phase sequence protection mode	-	Shutdown/Trip/Alarm	-	Closure	-
Phase sequence protection action value		a-b-c/a-c-b	-	a-b-c	

Electrical parameter measurement

Ammeter

The MEX control unit provides current measurement function, which can measure the current of each phase and the current of the connected

Ground current, current average, current unbalance and minimum unbalance.



Standard Configuration | ME-A | ME-P | ME-X

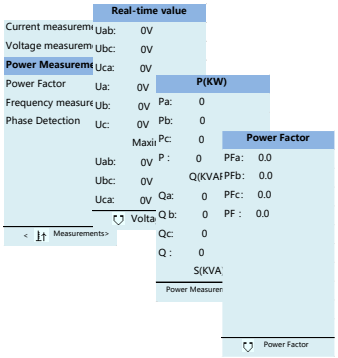
Electrical parameter measurement

The ME-P and ME-X control units provide comprehensive electrical parameter measurement functions, allowing customers to browse real-time data of multiple electrical parameters. The menu on the right lists most parameter measurement functions. After entering the "Measurement" menu, users can select and browse the corresponding measurement functions.

It can measure and display the maximum, minimum, average and voltage unbalance of the voltage. Users can choose to view the line voltage or phase voltage type according to their needs.

Provides required power measurement functions, including effective power P (kW), apparent power Q (KVA) and reactive power S (KVAR).

The ME control unit provides advanced measurement functions such as power factor, frequency, phase, etc.



Standard Configuration | ME-P | ME-X

Voltage measurement and external power supply

To use the above-mentioned perfect electrical parameter measurement function, it is necessary to measure the voltage of the three phases and the neutral line and feed this data back to the control unit. The P-type and X-type control units of the MEX circuit breaker provide standard voltage measurement and transmission modules for the control unit to measure voltage parameters safely and reliably.

Appendix | ME-P | ME-X

External additional power supply and reset settings

External additional power supply

The application of advanced functions of the control unit requires an external 24VDC power supply for continuous power supply. The auxiliary power unit module can convert the corresponding grid voltage to 24V DC. This module can also be used as a load

Parameterize the control unit for low currents (<20%).

In addition, the test module can also be used to temporarily power the control unit.

The test module has a built-in 24V DC battery pack module.

Standard configuration | ME-A | ME-P | ME-X

Reset settings

Usually, the circuit breaker trips when the circuit breaker is tripped due to a circuit fault. The user needs to carefully check the specific cause of the fault in the lower circuit. After confirming the cause of the fault and eliminating the fault, the circuit breaker is allowed to be reset and reclosed. The ME electronic control unit provides a complete fault tripping record function to help customers analyze the cause, level, and location of the fault and take corresponding measures.

In order to track the occurrence of faults, the control unit provides a trip reset function, which is usually a manual reset. However, customers can also set the trip reset to manual reset or automatic reset through the selection knob on the panel. If the circuit breaker needs to be reset remotely, the selection button on the panel can be set to manual reset, and a remote reset coil can be equipped to realize the circuit breaker trip reset function.

Standard configuration | ME-A | ME-P | ME-X

Communication function

The optional communication function of the control unit has full-duplex Modbus RTU and 4G communication functions. The communication function requires an external 24V DC power supply, and the Modbus requires a power capacity of no less than 90mA.

The control unit with communication function can set parameters through the panel or communication at the same time, including overcurrent protection setting and protection relay setting.

The control unit complies with the Modbus communication protocol and the 2-wire RS485 interface, and the baud rate can be set to 4800, 9600, or 19200.

	ME-A	ME-P	ME-X
Optional Configuration			

NFC funciont

All ME control units are equipped with NFC near-field communication function, which uses short-range wireless communication, integrates RFID and interoperability technology, and supports the use of compatible devices to quickly and easily identify and exchange data with MEX air circuit breakers at close range.
Using NFC function to exchange data with MEX at close range does not require external power supply.

	ME-A	ME-P	ME-X
Standard Configuration			

Bluetooth function

The ME-X control unit is equipped with Bluetooth data connection function as standard, which can identify and read the data of the circuit breaker within 10m. At the same time, by using the ME applet, the status of the circuit breaker can be checked and the circuit breaker can be remotely controlled. Remote control requires connection to the opening and closing coil.

	ME-X
Optional Configuration	

Metering function

ME air circuit breakers have developed into intelligent circuit breakers that integrate protection and power management. The X-type control unit, based on the provision of multiple power protection and measurement functions, adopts power metering standards to design and select components and manufacturing process requirements for circuit breakers and their control units, improves circuit breaker protection accuracy, and meets customers' power management requirements in most applications.

The X-type control unit can measure current with an accuracy of ±1%, voltage with an accuracy of ±1%, and power with an accuracy of ±1%. (at 0.2-1In and Ue)

Optional Configuration — ME-X

Waveform capture and analysis function

When a fault current occurs, it is very important to accurately record the fault information. The ME-X control unit provides a waveform capture function that can clearly record the fault event. This function can record and save the fault current waveform.

The user can record this waveform to the client through the software module, reset the control unit, and clear the waveform capture record for the next recording. The captured waveform can be analyzed using the background management suite.

Optional Configuration — ME-X

Test module

The test module is used to verify the good coordination between the circuit breaker and the control unit. This module has a built-in 24V DC battery pack, which can be used to power the control unit when there is no load current in the distribution network. There is a test port on the panel of the control unit for connecting to the test module.

The ME management software toolkit allows the user to monitor, configure and even test trip curves via a laptop

Optional Configuration — ME-A — ME-P — ME-X

Protection relay: relay input/ output

Relay input DI

Provides 2 relay input functions.

Each relay input can select OFF/TRIP/RELT (choose one from three), the configuration is as follows:

DI	Function	Describe
Set options	OFF	Closure
	TRIP	After the input signal, the circuit breaker outputs a trip pulse to the flux coil, causing the circuit breaker to trip.
	RELT	After input signal, RELT setting value is enabled. (RELT must be set to remote)

Relay output DO

Provides 4 relay output functions. The first group is automatically assigned to the circuit breaker closing, and the second group is automatically assigned to the circuit breaker opening. Each relay output can be selected

EVENT/ALARM/TRIP (choose one from three), each function submenu has multiple options, see the table below for details

DO	Function	Describe
Setting options	EVENT	Action event
		Submenu: NONE (no output), REMOTE-OFF (remote opening), REMOTE-ON (remote closing), RELT-ON (double short-circuit protection)
	ALARM	Send an alarm command, and the circuit breaker will execute the alarm after receiving it
		Submenu: ALL, SELF-TEST, CONT (electrical contact life), PS (phase sequence), OF (overfrequency protection), UF (underfrequency protection), RP (reverse power protection), VU (voltage imbalance protection), OV (overvoltage protection), UV (undervoltage protection), IU (current imbalance protection), N-ST (N-phase short circuit short delay protection), N-LT (N-phase overload long delay protection), GFCT (ground leakage protection), GFSUM (ground fault protection), GA (ground alarm), LT (overload long delay protection), NONE (no output)
	TRIP	Send output command, circuit breaker receives trip pulse, flux trips, circuit breaker trips
		ALL (all), PS (phase sequence), OF (overfrequency protection), UF (underfrequency protection), RP (reverse power protection), VU (voltage unbalance protection), OV (overvoltage protection), UV (undervoltage protection), IU (current unbalance protection), N-I (N-phase short circuit instantaneous protection), N-ST (N-phase short circuit short delay protection), N-LT (N-phase overload long delay protection), RELT (double short circuit protection), HSIOC (restricted short circuit instantaneous protection), MCR (closed short circuit protection), GF CT (ground leakage protection), GF SUM (ground fault protection), I (short circuit instantaneous protection), ST (short circuit short delay protection), LT (overload long delay protection), NONE (no output)

Optional Configuration — ME-A — ME-P — ME-X

Note: A03 and A06 do not have relay input and output configuration

MEX Circuit Breaker Use and Operation

The spring energy storage mechanism of the MEX circuit breaker can be charged manually or automatically. The manual energy storage handle (1) is used to manually operate the spring energy storage mechanism. It takes about ten operations to complete the energy storage. The spring energy storage indicator (2) is used to indicate the status of the spring energy storage mechanism, which is fully charged (red), charging (yellow), and the mechanism has released energy (green). After the energy storage is completed, the circuit breaker is ready to close the indicator contact (3) to indicate that the circuit breaker is ready to close (1). At this time, the circuit breaker can be opened and closed by the opening and closing buttons (4 and 5). The padlock device (6) allows customers to hang up to 3 padlocks. This device can prevent unauthorized personnel from accidentally closing the circuit breaker.

Customers can also remotely store energy and open and close circuit breakers through electric energy storage motors, closing coils, and shunt releases.

The circuit breaker contact status indicator (7) indicates whether the circuit breaker is in the closed position or the open position. This device is directly connected to the mechanical mechanism and the contact system of the circuit breaker, meeting the requirement of the isolation function for "visible contact position", and can be used as an isolation switch.

The mechanical mechanism of the circuit breaker is a free tripping mechanism, and an anti-tripping system design is adopted. The open position lock device (8) (optional function) is used to prevent unauthorized personnel from accidentally closing the circuit breaker. When the key is not inserted into the lock cylinder and rotated to the "closed" position, the circuit breaker cannot be closed. A maximum of 5 different lock cylinders are provided.

The circuit breaker can provide up to 4 operating coils, and can be installed with a combination of a closing coil, a shunt release, and an undervoltage coil. There are 4 transparent indication windows (9) above the front panel of the circuit breaker, so that customers can directly observe the combination of coil installation.

Circuit breaker front panel

MEX circuit breakers are available in fixed and withdrawable types. Fixed circuit breakers can be installed on a bracket or wall mounted, with the primary busbar directly connected to the circuit breaker. The withdrawable circuit breaker has a separate body and base, and is installed and connected on the base.

Fixed circuit breakers are directly installed and connected to the primary side. When removing the circuit breaker, all fixed connections need to be removed.

The withdrawable circuit breaker body and base are separated, and the body can be easily drawn into and out of the base.

The circuit breaker is provided with 4NO+4NC auxiliary contacts as standard. All secondary connections are made through the 39-wire secondary terminal block (10) on the top of the circuit breaker. The secondary terminal block can be lead-sealed and has an IP20 protection rating.

MEX Circuit Breaker Use and Operation

Pull out the base of the circuit breaker

When removing the circuit breaker, the fixed circuit breaker needs to disconnect the upper power supply and remove all fixed connections and primary side connections. For the withdrawable circuit breaker, it is not necessary to disconnect the upper power supply and remove all fixed connections and primary side connections. The movable part can be directly pulled out from the base quickly and effectively.

When periodic maintenance of the lower circuit is required, the mobile part can be easily and quickly pulled out from the base to ensure complete isolation of the power supply and the minimum maintenance time required for the system. The base (1) is separated from the mobile part and directly connected and fixed to the bracket and the primary side. The mobile part can be easily and quickly inserted into the base. The manual rocker (2) is placed in the storage hole of the base. After the manual rocker is taken out, folded and fixed, it is inserted into the rocker transmission mechanism (3) of the base. The mobile part can be pulled into the base by shaking the rocker clockwise, and the mobile part can be pulled out of the base by shaking the rocker counterclockwise. The mobile part can be placed in one of the following three positions.

Connected position: Circuit breaker and base in fully connected position

Test position: The primary connection between the circuit breaker and the base is completely disconnected, and the secondary control circuit

Isolation position: Circuit breaker and base are in the fully disconnected position

The position indicating device (4) is used to indicate whether the circuit breaker is in the connection position, the test position or the isolation position. When the moving part of the circuit breaker is moved out of the base, the safety baffle will automatically isolate the primary live part to prevent the user from touching the live conductor.

We can also provide a variety of accessories such as position contacts, mechanical interlocks, anti-misinsertion accessories, IP54 panels, key locks, etc. (See the relevant chapters)

All circuit breaker bases are supplied with a primary connection busbar, rocker, safety baffle, and IP20 39-pin secondary terminal box as standard.

Electric operation of circuit breakers (electric energy storage motors)

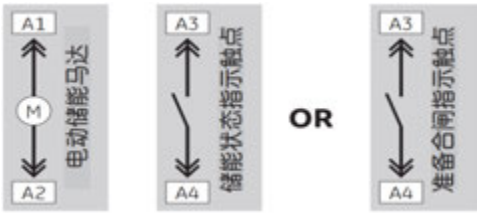
Electric energy storage mechanism

The full range of MEX circuit breakers offers electric motor energy storage devices for remote or automatic energy storage of the spring energy storage mechanism. This device can be factory installed or installed on site by the customer. It is very easy to install with only 3 screws. When the spring energy storage mechanism of the circuit breaker has released energy, this device will automatically store energy in the mechanism for the next quick closing of the circuit breaker. The full energy storage time is less than 4 seconds. The user can choose to install the "spring energy storage indication contact" for remote indication of the energy storage status, or the "circuit breaker ready to close indication contact" to indicate the energy storage status and the state of the circuit breaker being able to be closed.

The motor energy storage device provides a wide range of AC and DC operating voltages. It allows an operating frequency of 2 times per minute, and its operating life is equivalent to the maintenance-free mechanical life of the circuit breaker. At the same time, the MEX series circuit breaker can also provide remote closing/opening coils to realize remote opening/closing operations of the circuit breaker.

Wiring

The wiring terminals of the energy storage mechanism are located at the secondary terminal box A on the top of the fixed and withdrawable circuit breakers.



Electrical characteristics

Control voltage	Frame 1	Frame 2 & 3
	Energy storage motor	Energy storage motor
	Power loss	
24-30V DC	300W	480W
110-130V DC		
220 - 250V DC		
110-130V AC	350VA	560VA
220-240V AC		
380-400V AC		

Circuit breaker closing coil

Closing coil

When the energy storage mechanism of the circuit breaker has completed energy storage, the circuit breaker can be remotely closed through the closing coil.

This device can be pre-installed in the factory or installed on site. At the same time, the coil is designed for bayonet installation, so it is very easy to install.

Its operating life is equivalent to the maintenance-free operating mechanical life of the circuit breaker.

Wiring

The wiring terminals of the closing coil and the communication closing coil are located on the secondary side of the fixed and withdrawable circuit breakers.

Terminal box A.

Electrical characteristics

AC	DC	Power loss
-	24V	350 VA Pull in
110-130V	110-130V	
220-240V	220-240V	
380-415V	-	

Shunt, undervoltage release and remote reset coil

Shunt release

The shunt release is used to remotely open the circuit breaker. When the shunt release is energized, it will drive the circuit breaker's opening mechanism to ensure rapid disconnection of the circuit breaker's main contacts. (50 ms)

The shunt release of the MEX circuit breaker allows it to remain energized for a long time. When the shunt release remains energized, it can prevent the circuit breaker from closing again. A maximum of 2 shunt releases can be installed on the circuit breaker.

This device can be pre-installed in the factory or installed on site. At the same time, the coil is designed for bayonet installation, so it is very easy to install.

A wide range of AC and DC operating voltages are available. Its operating life is equivalent to the maintenance-free mechanical life of the circuit breaker.

Undervoltage release

The undervoltage release is used to open the circuit breaker when the grid voltage is lower than the designed threshold value, and prevent the circuit breaker from closing again under this condition. When the undervoltage release loses power, it will drive the circuit breaker's opening mechanism to ensure rapid disconnection of the circuit breaker's main contacts (50ms). And when the voltage does not return to the threshold value defined by IEC 60947, it prevents the circuit breaker from closing. In order to prevent the circuit breaker from malfunctioning due to short-term voltage fluctuations, the undervoltage release has a built-in 50 milliseconds delay action time. A circuit breaker is allowed to install up to 2 undervoltage releases.

This device can be pre-installed in the factory or installed on site. At the same time, the coil is designed for bayonet installation, so it is very easy to install.

Provides a wide range of AC and DC operating voltages. Allows an operating frequency of 2 times per minute, and its operating life is equivalent to the maintenance-free operating mechanical life of the circuit breaker.

Remote reset coil

The remote reset coil is used to remotely reset the circuit breaker. When the remote reset coil is energized, the remote reset mechanism inside the control unit mounting bracket is driven to realize the reset function of the control unit.

If you need to remotely reset the circuit breaker, you can set the selection button on the panel to manual reset, and equip it with a remote reset coil to achieve the function of circuit breaker trip reset. This device can be pre-installed in the factory or installed on site. At the same time, this coil is a bayonet design, which is very easy to install.

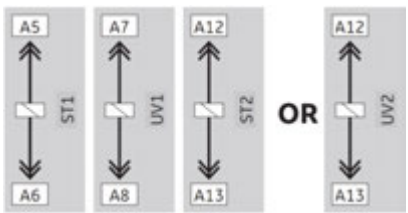
Electrical characteristics

AC	DC	功率损耗
--	24V	350VA / 350W 吸合 60 VA / 50W 保持
110-130V	110-130V	
220-240V	220-240V	
380-415V	--	

Wiring

The wiring terminals of the shunt and undervoltage release are located at the secondary terminal box A of the fixed and withdrawable circuit breakers. A maximum of 3 such releases can be installed, and the following figure shows the possible combinations.

Frame 1&2&3



Undervoltage delay module

An external undervoltage delay tripping device is used in series with the undervoltage coil to provide 0-3 seconds adjustable undervoltage delay tripping protection. This device can prevent the circuit breaker from tripping due to transient faults in the grid voltage.

In addition, the MEX circuit breaker can provide a 3-phase or 3-phase with neutral undervoltage protection device, which also provides a voltage fault alarm output contact function and trips the circuit breaker at the same time.

Electrical characteristics

AC	DC	Power loss
110-130V	--	350VA Pull-in
--	110-130V	
220-240V	220-240V	60 VA Keep
380-415V	--	

Auxiliary contact

The auxiliary contacts are used to indicate the position of the main contacts of the circuit breaker and operate strictly synchronously with the main contacts.

The standard configuration of the MEX series circuit breakers provides a combination of 3 normally open and 3 normally closed auxiliary contacts.

Customers can also add more auxiliary contacts and combinations of normally open and normally closed contacts as needed.

Optional auxiliary contact combinations

- Power type auxiliary contact 4NO+4NC
- Power type auxiliary contact 8NO+8NC
- Power type auxiliary contact 4NO+4NC
- Power type auxiliary contact 4NO+4NC

The device can be pre-installed at the factory or installed on site. Auxiliary contact module Installation is very simple and quick.

Wiring

The auxiliary contact terminals are located at the secondary terminal boxes A and B on the top of the fixed and withdrawable circuit breakers.

Electrical characteristics of power auxiliary contacts

AC		DC	
Voltage	Current	Voltage	Current
110-130V	AC21 - 15A AC23 - 10A	24V	DC21 -15A
220-240V	AC21 - 10A AC23 - 5A	110-130V (3)	DC21 -10A
380-440V	AC21 - 5A AC23 - 2.5A	250V (4)	DC21 -5A

Minimum operating current 0.16A, 8V DC

Electrical characteristics of signal type auxiliary contacts

AC		DC	
Voltage	Current	Voltage	Current
250V	AC21-0.1A	8-30V	DC21-0.1A

Minimum operating current 1mA, 5V DC

(1) Standard configuration 4NO & 4NC power auxiliary contacts: A03 and A06 control units
Extensions not supported

(2) Applicable to frame types 1, 2, and 3 (see the secondary wiring diagram section for auxiliary contact wiring terminals)

(3) 3 contacts connected in series

(4) 6 contacts connected in series

Alarm contacts and withdrawable position contacts

Alarm contact

The alarm contact is used to indicate when the circuit breaker is tripped due to a circuit fault. The contact is in the form of a mechanical switching contact.

This device can be pre-installed at the factory or installed on site. The alarm contact module is very easy and quick to install. When using this function, the reset setting of the circuit breaker must be set to the manual reset position.

Wiring

The wiring terminals of the alarm contacts are located at the secondary terminal box A on the top of the fixed and withdrawable circuit breakers.

Electrical characteristics of alarm contacts

AC		DC	
Voltage	Current	Voltage	Current
250V	AC21-6A	125V	DC21-0.4A
		250V	DC21-0.2A

Minimum operating current 0.16A 、 5V DC

Withdrawable position contacts

The mobile part of the withdrawable circuit breaker can be inserted into the base and moved to any of the 3 positions using a rocker.

Connect, test, isolate location

The withdrawable position indicator contact is used to indicate the position of the movable part of the withdrawable circuit breaker on the base. When the movable part of the circuit breaker is in the isolation position, the main circuit and secondary circuit wiring are disconnected, and only the secondary part of the position indicator contact remains connected. The withdrawable position indicator contact can provide a choice of 1 or 2 changeover contacts in each position.

This device can be pre-installed in the factory or installed on site by the customer

The wiring terminals of the three withdrawable position contacts are in the secondary terminal box on the left side of the withdrawable circuit breaker base

Electrical characteristics of withdrawable position contacts

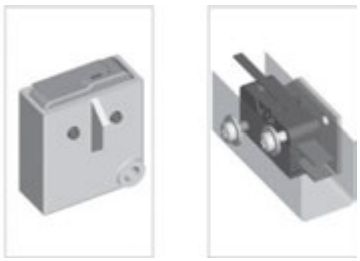
AC		DC	
Voltage	电流	Voltage	Current
250V	AC21-10A	125V	DC21-0.5A
		250V	DC21-0.25A

Energy storage indication and ready-to-close contacts

When the circuit breaker is equipped with an electric energy storage motor, one of the two types of indication contacts can be installed. The energy storage indication contact is used to indicate the energy storage status of the energy storage mechanism. The ready-to-close indication contact will only operate when all the following conditions are met.

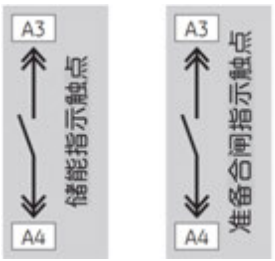
-> Circuit breaker is in the OFF position
-> The energy storage mechanism has stored energy
-> The key lock and mechanical interlock of the circuit breaker are in the position that allows closing.
-> No opening hold command
-> No closing hold command

This device is available in 1NO configuration.



Wiring

The wiring terminals of the alarm contacts are located at the secondary terminal box A on the top of the fixed and withdrawable circuit breakers.



Electrical characteristics of power contacts

AC		DC	
Voltage	Current	Voltage	Current
250V	AC21-6A	125V	DC21-0.4A
		250V	DC21-0.2A

Minimum operating current 0.16A 、 5V DC

Electrical characteristics of signal contacts (1)

AC		DC	
Voltage	Current	Voltage	Current
125V	AC21-0.1A	8-30V	DC21-0.1A

Minimum operating current 0.16A 、 5V DC

(1) 储The energy storage indication contact does not provide a signal contact

Mechanical interlocking between multiple circuit breakers

Mechanical interlock of circuit breaker

When multiple low-voltage circuit breakers are used in a multi-power system, multiple logical combinations of mechanical interlocks are required to maintain interlocks when switching power sources synchronously or alternately.

MEX circuit breakers as incoming line circuit breakers can provide various electrical and mechanical interlocking logic combinations. Mechanical interlocking accessories can be installed on fixed and withdrawable circuit breakers, installed on the left side of the circuit breaker to achieve direct mechanical interlocking function.

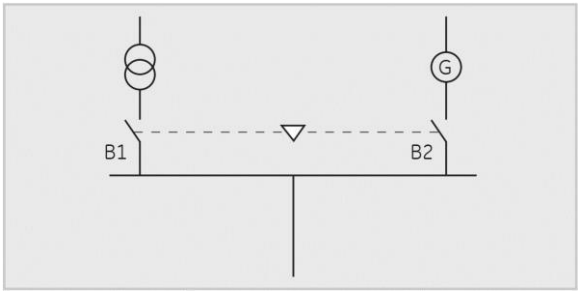
This device consists of two parts, the mechanism installed on the side of the fixed circuit breaker and the withdrawable circuit breaker, which can only be pre-installed in the factory. The flexible steel cable that can be installed on the field is available in different lengths of 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, and 4.0 meters for customers to choose.

Any interlocking logic can be implemented on different types of circuit breakers, and interlocking between 2-way or 3-way circuit breakers can be achieved between fixed/drawable types, circuit breakers with different numbers of poles, and circuit breakers with different rated currents.

Interlocking between two circuit breakers

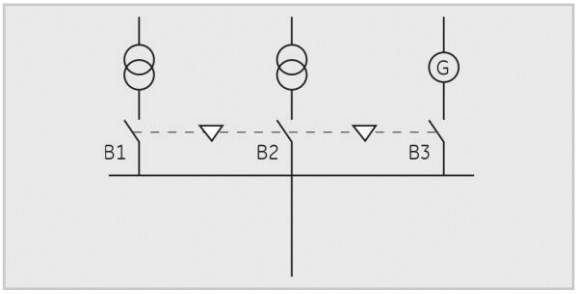
Interlocking type A: only one circuit breaker (B1 or B2) is allowed to be closed at the same time.

Each circuit breaker needs to be factory installed with a Type A interlock mechanism, which requires two flexible steel cables.



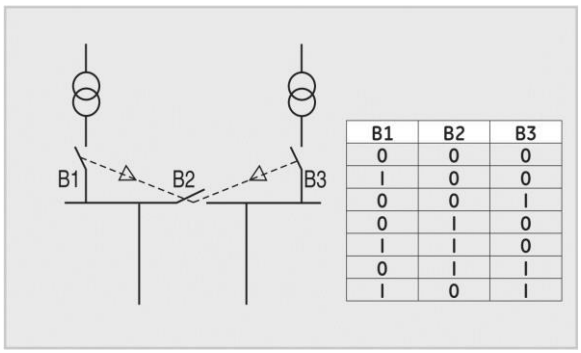
Interlocking type B between 3 circuit breakers

Interlock type B, only one of the three circuit breakers is allowed to be closed at the same time (B1, B2 or B3). Each circuit breaker needs to be factory-installed with a type B interlock mechanism and six flexible steel cables.e steel cables.



Interlock type C between 3 circuit breakers

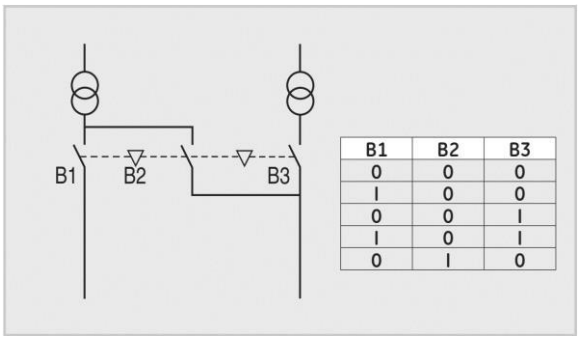
Interlock type C, only one or two of the three circuit breakers are allowed to be closed at the same time (see diagram). Each circuit breaker needs to be factory-installed with a C-type interlock mechanism, which requires six flexible steel cables.



B1	B2	B3
0	0	0
I	0	0
0	0	I
0	I	0
I	I	0
0	I	I
I	0	I

Interlock type D between 3 circuit breakers

Interlock type D, only one or two of the three circuit breakers are allowed to be closed at the same time (see diagram). Circuit breakers B.1 and B.3 need to be factory installed with type A interlock mechanism, circuit breaker B.2 needs to be factory installed with type D interlock mechanism, which requires four flexible steel cables.



B1	B2	B3
0	0	0
I	0	0
0	0	I
I	0	I
0	I	0

Circuit breaker and base locking accessories, door interlocks, insertion recognition devices

Padlocking device for circuit breaker and base

MEX circuit breakers provide two standard padlock devices: A padlock device with a hole diameter of 5-8mm is provided on the panel of the circuit breaker body, allowing customers to lock the circuit breaker in the open position.

Key lock mechanism for base

The base of frame 1/2/3 type circuit breakers can be installed with a padlock, which can lock the moving part of the circuit breaker in the test position or isolation position. The circuit breaker can only be withdrawn and inserted after the key is unlocked.

Push button padlock device for panel

In order to prevent unauthorized personnel from operating the opening and closing of the circuit breaker, the circuit breaker is provided with a padlock device for the opening and closing buttons on the operation panel. This device provides a padlock position with a hole diameter of 5-8mm, which is used to lock the manual opening and closing buttons on the panel.

Insert identification device

The optional insertion recognition device installed on the base can prevent the wrong specification of the circuit breaker body from being inserted into the base. Before using and installing this device, the recognition logic of the device must be pre-set.

Opening position key lock

A key lock device for the off position is provided on the panel of the circuit breaker panel to lock the circuit breaker in the off position. The circuit breaker can only be closed when the key is inserted into the lock and rotated to the closing position

Up to 4 key locks can be installed on the frame 1/2/3 type circuit breaker panel.

Install accessories

Mechanical operation counter

This device is easy to install and can be used with manually or electrically operated circuit breakers. The counter accurately records the cumulative number of circuit breaker closing operations, and the recorded data can be clearly seen on the panel.

The mechanical and electrical life of the circuit breaker can be extended with limited maintenance. The mechanical counter helps customers understand the number of operations and perform necessary maintenance.

Transformer, Rogowski coil

The control unit of the MEX circuit breaker provides ground fault protection. For 3-pole circuit breakers used in 3-phase 5-wire systems, an external fourth-pole neutral line sensor with a separate installation kit is required. See this catalog for the control unit to select the corresponding sensor specifications.

Contact wear indication

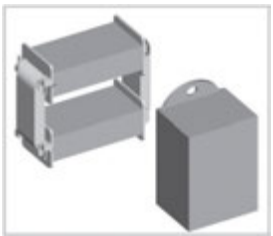
The contact wear indicator can be installed on the main contacts of the withdrawable circuit breaker. Customers can directly observe the wear condition of the main contacts through this device, helping customers decide whether limited maintenance is needed on the circuit breaker.

Current Transformer, CT

The control unit of the MEX circuit breaker provides ground fault protection. In most applications the customer only needs to install an additional neutral sensor in the fourth pole. However, for some specific applications another additional sensor is required.

Unlimited earth-fault protection combines the functions of UEF, REF and SEF protections and requires an additional current transformer.

For such applications, a current transformer with a separate mounting kit and a current transformer installed externally on the corresponding ground side is required. See the control unit in this catalog for the current transformer of the corresponding specification.



Install accessories

Wall mounting accessories

MEX circuit breakers are usually designed to be installed in low voltage distribution cabinets. In some cases, circuit breakers; adopt the front wiring method and need to be wall-mounted.

Frame 1 and 2 fixed circuit breakers provide wall-mounted accessories to help customers achieve wall-mounted installation.

Face cover protection level

All circuit breakers are delivered with an operating panel flange for door mounting, with a protection level of IP31. If customers require a panel with a higher protection level, please contact us.

Secondary terminal box

A 39-hole secondary terminal box is installed on the upper end of the base of the fixed circuit breaker and the withdrawable circuit breaker: (Terminal Box A). When the number of terminals required by the factory-installed accessories selected by the customer exceeds the number of terminal box A, a second terminal box (Terminal Box B) will be installed.

When the customer purchases the accessories for field installation and installs it by himself, the second terminal box (terminal box B) can also be supplied separately and installed by the customer as needed. The fixed circuit breaker can be installed with a 39-hole or 78-hole terminal box B, and the withdrawable base can be installed with a 39-hole terminal box B.

Circuit breaker lifting adapter

All MEX series circuit breakers can be provided with a matching lifting lug:

Lifting adapter allows users to lift the circuit breaker with standard lifting equipment.

GLB1 is suitable for frame 1 and 2 type circuit breakers, up to 4000A. GLB3 is suitable for frame 3 type circuit breakers, up to 6400A.

MEX Circuit Breaker Use and Operation

Grounding device

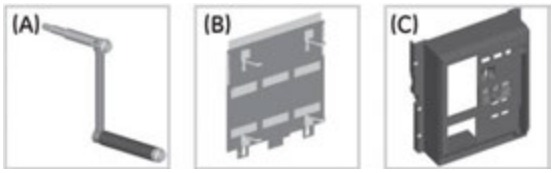
MEX circuit breakers can be equipped with a grounding device. This will allow the incoming cables and busbars to be grounded safely and reliably when the system is being repaired.

This device is supplied separately from the circuit breaker and its short-time withstand current is equivalent to the Icw of the circuit breaker.

Spare parts for circuit breakers - general purpose

The components of MEX circuit breakers do not require maintenance during their entire life cycle, however some of the following components are susceptible to operational damage.

Base: Pull-out in/out rocker
Safety bezel
Circuit breaker body: front panel

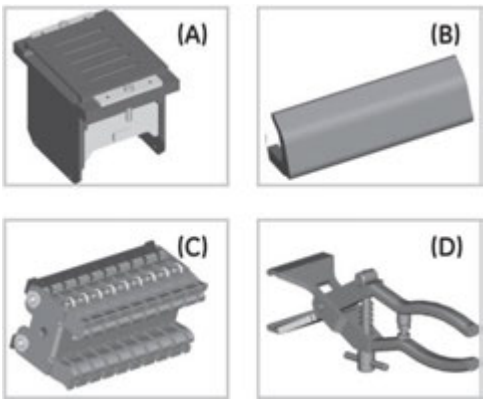


Spare parts for circuit breakers - maintenance purposes

MEX circuit breakers are provided with periodic maintenance accessories, which need to be replaced under certain circumstances.

If such repairs or replacement accessories are required, please contact the local office or after-sales department to obtain necessary technical support and consultation.

A. Arc extinguishing hood of circuit breaker
B. Arc contact of static contact
C. Pull-out row contacts
D. Row contact installation pliers



MEX internal accessories

Energy storage motor	Voltage level:	Model	Order Code	Model	Order Code
		Energy storage motor frame type 1		Energy storage motor frame 2, 3 type	
	24-30V DC	GM01024D	X407700	GM02024D	X407725
	110-130V DC	GM01110D	X407706	GM02110D	X407731
	220V DC	GM01220D	X407720	GM02220D	X407722
	110-130V AC	GM01120A	X407712	GM02120A	X407737
	220-250V AC	GM01240A	X407714	GM02240A	X407739
	380-415V AC	GM01400A	X407716	GM02400A	X407741

Closing coil	Model	Order Code
	24V DC	GCCN024D	X407861
	110-130V AC/DC	GCCN120	X407867
	220-240V AC/DC	GCCN240	X407869
	250-277V AC	GCCN277	X407870
	380-415V AC	GCCN400A	X407877

Trip coil	Model	Order Code	Model	Order Code
	Undervoltage trip coil		Shunt trip coil	
	24V DC	GUVT024D	X407795	GSTR024D	X407770
	110-130V AC/DC	GUVT120	X407801	GSTR120	X407776
	220-240V AC/DC	GUVT240	X407803	GSTR240	X407778
	250-277V AC	GUVT277	X407805	GSTR277	X407780
	380- 415V AC	GUVT400A	X407807	GSTR400A	X407782

Fault remote reset coil	Model	Order Code
	24V DC	GRRC024D	X407760
	110-130V AC/DC	GRRC110	X407762
	220-240V AC/DC	GRRC230	X407764

Auxiliary contacts	Indication contact		
	Auxiliary contacts Frame 1/2/3 type	Model	Order Code
	Power contacts 4NO & 4NC	XAUX4	X407886
	Power contacts 8NO & 8NC (1)	GAUX6	X407887
	Power contact 4NO&4NC + signal contact type 4NO&4NC (1)	GAUX8	X407888

Alarm contact	Contact Type	Model	Order Code
		Alarm contact Frame 1/2/3 type	
	1个 Changeover contact (power type)	GBAT1	X407891
	1个 Changeover contact (signal type)	GBATS1	X407890

Indication contact	Contact Type	Model	Order Code	Model	Order Code
		Power Contacts		Signal contact	
	Circuit breaker ready to close indication contact 1 NO	GRTC1	X407897	GRTC2	X407899
	Circuit breaker ready to close indication contact 1NC	GRTC4	X407911	GRTC5	X407912

Position contacts (withdrawable base) Contact type	Model	Order Code	Model	Order Code	Model	Order Code
	Position contacts Frame 1		Position contacts Frame 2		Position contacts Frame 3	
	1个 Changeover contact	XCPS1	X407921	X2CPS1	X407921F2	GCPS1	X407922
	2个 Changeover contact	XCPS2	X407926	X2CPS2	X407926F2	GCPS2	X407923
	2个 Changeover contact (1NO/1NC Power Type, 1NO/1NC Signal Type)	XCPSA	X407927	X2CPSA	X407927F2	GCPSA	X407925

Note (1): A03 and A06 control units only support 4NO+4NC power contacts.

MEX internal accessories

Field installable

Possible combinations and maximum number of internal accessories

Energy storage motor type 1 and 2	Closing coil	Undervoltage trip coil	Shunt trip coil	Power auxiliary contacts NO + NC	Signal type auxiliary contact NO + NC	Alarm contact	Circuit breaker ready to close indication contact	Energy storage spring indicator contact	Withdrawable circuit breaker Position indication contact	Grounding device	Mask button padlock
1	1	2	1	8	0	1	1	0	2	1	1
1	1	1	2	8	0	1	1	0	2	1	1
1	1	1	0	8	0	1	1	0	2	1	1
1	1	0	1	8	0	1	1	0	2	1	1
1	1	2	1	8	0	1	0	1	2	1	1
1	1	1	2	8	0	1	0	1	2	1	1
1	1	1	0	8	0	1	0	1	2	1	1
1	1	0	1	8	0	1	0	1	2	1	1
1	1	2	1	4	4	1	1	0	2	1	1
1	1	1	2	4	4	1	1	0	2	1	1
1	1	1	0	4	4	1	1	0	2	1	1
1	1	0	1	4	4	1	1	0	2	1	1
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1	1	0	1	4	4	1	0	1	2	1	1
1	1	2	1	4	0	2	0	1	2	1	1
1	1	1	2	4	0	2	0	1	2	1	1
1	1	1	0	4	0	2	0	1	2	1	1
1	1	0	1	4	0	2	0	1	2	1	1

*TDM type (undervoltage delay trip) is installed by the customer on the outside of the circuit breaker

MEX Mounting accessories

Mechanical safety lock (1)		Description	Type	Model	Order number
	Frame 1/2/3 type	Installation on circuit breaker (mechanism open position lock) (1)	A锁	PT32412	X407970
			B锁	PT33221	X407971
			C锁	PT12123	X407972
			D锁	PT32312	X407973
			E锁	PT22131	X407974
		1-4 padlocks can be installed on the panel at the same time			

Operation counter	Description	Type	Order number
	Record the number of mechanical opening/closing times of circuit breaker	GMCN	408035

(1) The mechanism open position lock includes the mechanism, lock core and key. The user needs to select the model according to the lock core type. This open position lock is configured for a single circuit breaker. If interlocking is required, each circuit breaker needs to be configured.

MEX Installation accessories, separate from the circuit breaker, need to be installed on site by the user

Mechanical interlock	Description				Model	Ordering code	Model	Ordering code	Ordering code
	Mechanical interlock configuration				Fixed circuit breaker (frame 1, 2, 3 type)		W. circuit breaker	Frame 1, 2	Frame 3
	Type	Breaker 1	Breaker 2	Breaker 3					
	A	OFF	OFF		One set per circuit breaker		One set per circuit breaker		
		ON	OFF		GI2FAD	407900	XI2WAD/GI2WAD	X407901	407901
		OFF	ON						
	B	OFF	OFF	OFF	One set per circuit breaker		One set per circuit breaker		
		ON	OFF	OFF	GI3FB	407902	XI3WB/GI3WB	X407903	407903
		OFF	ON	OFF					
		OFF	OFF	ON					
	C	OFF	OFF	OFF					
		ON	OFF	OFF					
		OFF	OFF	ON	One set per circuit breaker		One set per circuit breaker		
		OFF	ON	OFF	GI3FC	407904	XI3WC/GI3WC	X407905	407905
		ON	ON	OFF					
		OFF	ON	ON					
		ON	OFF	ON					
	D	OFF	OFF	OFF	Circuit breakers 1 and 3 need to be equipped with one set each		Circuit breakers 1 and 3 need to be equipped with one set each		
		ON	OFF	OFF	GI2FAD	407900	XI2WAD/GI2WAD	X407901	407901
		OFF	OFF	ON					
		ON	OFF	ON	Circuit breakers 2 need to be equipped with one set each		Circuit breakers 2 need to be equipped with one set each		
		OFF	ON	OFF	GI3FDT	407906	XI3WDT/GI3WDT	X407907	407907

Mechanically interlocked wire rope (1)	Type	Description		Description	Model	Ordering Code
	Mechanical interlocking form	Interlock configuration				
	A	Each circuit breaker is equipped with 1 wire rope, select the corresponding wire rope length	Optional wire rope length	Wire rope length 1 m	GCB1	407990
	B	Each circuit breaker is equipped with 2 wire ropes. Select the corresponding wire rope length.		Wire rope length 1.5 m	GCB2	407991
	C	Each circuit breaker is equipped with 2 wire ropes. Select the corresponding wire rope length.		Wire rope length 2 m	GCB3	407992
	D	Each circuit breaker 1 and 3 is equipped with 1 wire rope, and the corresponding wire rope length is selected Circuit breaker 2 is equipped with 2 wire ropes. Select the corresponding wire rope length.		Wire rope length 2.5 m	GCB4	407993
				Wire rope length 3 m	GCB5	407994
				Wire rope length 3.5 m	GCB6	407995
				Wire rope length 4 m	GCB7	407996

MEX installation accessories, separate from the circuit breaker, need to be installed on site by the user

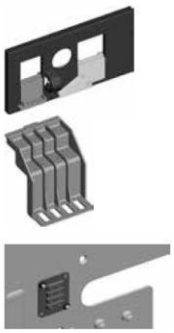
Undervoltage release delay module TDM (1)	Voltage level	Model	Ordering code
	110-130V DC	GTDM120D	X407819
	220-240V DC	GTDM240D	X407821
	110-130V AC	GTDM120A	X407818
	220-240V AC	GTDM240A	X407820
	250-277V AC	GTDM277A	X407822
	380-415V AC	GTDM400A	X407824

Circuit breaker grounding device	Voltage level	Model	Ordering code	Model	Ordering code
	MEX Frame 1	3 Poles		4 Poles	
	Up to 1600A	G16H4ED	407930	G16H6ED	407931
	Up to 2000A	G20H4ED	407932	G20H6ED	407933
	MEX Frame 2				
	Up to 4000A	G40M4ED	407934	G40M6ED	407935
	MEX Frame 3				
	Up to 6400A	G64M4ED	407936	G64M6ED	407937

ME- Accessories for control units	Voltage level	Model	Model	Ordering code
	Voltage measurement module 690V	Each phase of the circuit breaker must be equipped with a voltage measurement module (2)	XMPU1	X408790
	Voltage measurement module 800V		XMPU2	X408791
	Voltage measurement module 1500V		XMPU3	X408792
	Test/Battery Module		XTUTK20	X407999
	Communication module 4G			X408793
	Communication module Modbus		MEC2R	X408794

(1) External circuit breaker accessories, DIN rail mounting, used in conjunction with the internal accessory undervoltage release
(2) When the control unit needs voltage measurement and display function, this voltage measurement module must be installed externally.

MEX Mounting accessories

Operation accessories	Description		Model	Ordering Code	
	**Circuit breaker front panel**				
	Circuit breaker front panel 1/2/3		GPBD	408040	
	Operating Instructions				
	Contact wear indicator frame 1/2/3		GCNTW	408036	
	Base				
	Insert identification device		XREPM	X408041	

Door flange and door interlock	Description		Model	Ordering Code	
	Door frame for fixed circuit breaker 1/2/3 (1)		GDPRF	408025	
	Door frame of withdrawable circuit breaker 1/2 (1)		XDPRW	X408026	
	Door frame of withdrawable circuit breaker 3 (1)		GDPRW	408026	
	Circuit breaker front cover IP54				

Phase partition(2)	Description		Model	Ordering Code	
	Fixed	Frame 1	XJP1	X408056A	单片(2)
		Frame 2	XJP2	X408056B	单片(2)
		Frame 3	XJP3	X408056C	单片(2)
	Fixed				
		Frame 1/ Frame 2	XJPC1	X408057A	单片(2)
		Frame 3	XJPC3	X408057B	单片(2)

Phase partition (2) Extended					
	Fixed				
		Frame 2	XJP2G	X408056BG	单片(2)
		Frame 3	XJP3G	X408056CG	单片(2)

Fixed circuit breaker top arc shield	Suitable for high voltage applications above 690V			
	Metal material + insulation treatment type	Frame 2	GF2ARCC3F_ST	408062ARCST
	Metal material + insulation treatment type	Frame 3	GF3ARCC3F_ST	408063ARCST
	High strength plastic type	Frame 2	GF2ARCC3F	408062ARCC
	High strength plastic type	Frame 3	GF3ARCC3F	408063ARCC

(1) This accessory is standard configuration for the circuit breaker and is in spare part form.
(2) Phase partition, 3-pole circuit breaker configuration quantity per unit * 2, 4-pole circuit breaker configuration quantity per unit * 3

Instrument transformers for ME control units

Rated current (A)	Frame 1		Frame 2		Frame 3	
	Model	Ordering code	Model	Ordering code	Model	Ordering code
400A	X04HNRC	X408000	X04HNRC	X408000		
630A	X06HNRC	X408001	X06HNRC	X408001		
800A	X08HNRC	X408002	X08HNRC	X408002		
1000A	X10HNRC	X408003	X10HNRC	X408003		
1250A	X12HNRC	X408004	X12HNRC	X408004		
1600A	X16HNRC	X408005	X16HNRC	X408005		
2000A	X20HNRC	X408006	X20HNRC	X408006		
2500A			X25MNRC	X408162		
3200A			X32LNRC	X408186	X32LNRC	X408186
4000A			X40LNRC	X408187	X40LNRC	X408187
5000A					X50LNRC	X408188
6400A					X64LNRC	X408189

- For earth fault protection, vector and measurement mode
- Rogowski coil

Rated current (A)	Frame 1		Frame 2		Frame 3	
	Model	Ordering code	Model	Ordering code	Model	Ordering code
400A	G04HNCT	408300	G04HNCT	408300		
630A	G07HNCT	408301	G07HNCT	408301		
800A	G08HNCT	408302	G08HNCT	408302		
1000A	G10HNCT	408303	G10HNCT	408303		
1250A	G13HNCT	408304	G13HNCT	408304		
1600A	G16HNCT	408305	G16HNCT	408305		
2000A	G20HNCT	408006	G20HNCT	408006		
2500A			G25MNCT	408322		
3200A			G32LNCT	408331	G32LNCT	408331
4000A			G40LNCT	408332	G40LNCT	408332
5000A					G50LNCT	408333
6400A					G64LNCT	408334

- For ground fault protection, direct measurement of ground current Zero sequence current transformer
- Components include a current transformer and a current transmitter

MEX Circuit breaker spare parts

Pull-out joystick	Description	Frame 1		Frame 2		Frame3	
		Model	Ordering code	Model	Ordering code	Model	Ordering code
	Spare manual joystick	GRHN	408043	GRHN	408043	GRHN	408043
Front panel of the circuit breaker (1)							
	Mask	GFA4	X408028	GFA4	X408028	GFA4	X408028
	Mask with key lock	GRONCS	X407984	GRONCS	X407984	GRONCS	X407984
Pull-out row contacts	**The code contains a contact of one pole**						
	400-1600A						
	400-1250A	G13HCLS	408097				
	1600A	G16HCLS	408100				
	2000A	G20HCLS	408103				
	≥2000A			G20MCLS	408106		
	2500A			G25MCLS	408109		
	3200A			G32MCLS	408117		
	4000A			G40MCLS	408120		
	5000A					G50LCLS	408145
	6400A					G64LCLS	408148
	Installation pliers for row contacts	GUNI	408047	GUNI	408047	GUNI	408047
Installation pliers for row contacts							
	Fixed circuit breaker 39个	GSDFTR1	408052	GSDFTR1	408052	GSDFTR1	408052
	Fixed circuit breaker 78个	GSFDTR2	408029	GSFDTR2	408029	GSFDTR2	408029
	Withdrawable circuit breaker	GSDWTR	408054	GSDWTR	408054	GSDWTR	408054
	39个Binding post (2 can be installed at the same time)						

(1) When ordering, please provide the manufacturing code of the original circuit breaker

Transportation, installation and primary wiring

Electrical clearance

Modern circuit breakers are usually designed to interrupt extremely high short-circuit fault currents in a very limited time. When the circuit breaker interrupts the fault, arc gas and a small amount of conductive particles will be ejected.

The MEX low voltage circuit breaker is designed to minimize ejection, but the minimum electrical installation clearance requirements on the front and sides of the installation space still need to be considered.

For the maintenance of fixed circuit breakers, the arc extinguishing chamber of the circuit breaker needs to be removed. Therefore, the minimum installation space on the side needs to be reserved as shown in the left figure.

Minimum installation clearance for fixed circuit breakers		
	Metal partition	Insulation partition
A(1)	160	160
B1	30	30
B2	30	30

Minimum installation clearance for withdrawable circuit breakers		
	Metal partition	Insulation partition
A	0	0
B1	30	30
B2	30	30

(1) This minimum size requirement ensures that the arc extinguishing chamber can be removed on site.

MEX application description for wind power generation at AC1140V and above:

1) For wind power generation applications with AC1140V and above, the low-voltage switchgear or box-type transformer where the circuit breaker is located needs to be separated according to Type 4b of "GB7251.12-2013 Low-voltage complete switchgear and control equipment (Part 2 Complete power switchgear and control equipment)";

2) For wind power generation applications with AC1140V or above, phase partitions must be installed on the circuit breaker or disconnector;

3) For wind power generation applications with AC1140V or above, the copper busbars connecting the circuit breakers in the switch cabinet need to be equipped with heat shrink tubing;

4) Application conditions with a frequency lower than 50Hz will reduce the short-circuit breaking capacity of the circuit breaker;

Carry

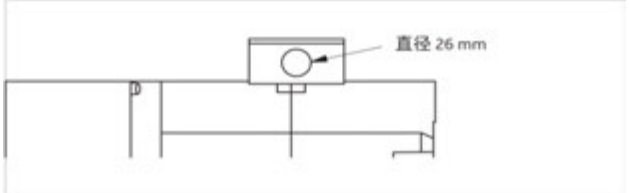
The frame 1/2/3 fixed circuit breaker and the withdrawable movable part have a retractable lifting lug on each side, which can be used to carry the circuit breaker.
There are 4 reinforced M10 lifting holes on both sides of the pull-out base for transporting the base.

Recommended cross-sectional area of primary busbar connection

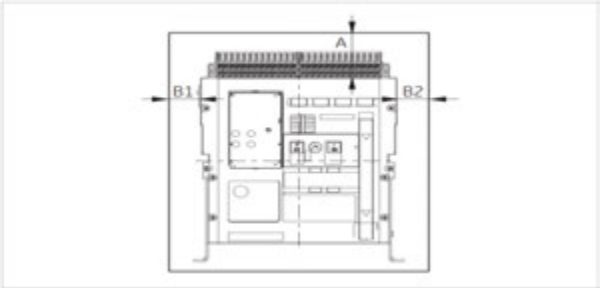
The diagram on the right lists the recommended busbar cross-sections for connection to the corresponding circuit breakers. For the available rated currents (with temperature derating) for this busbar cross-section, see the next page.

Frame 1/2/3 type

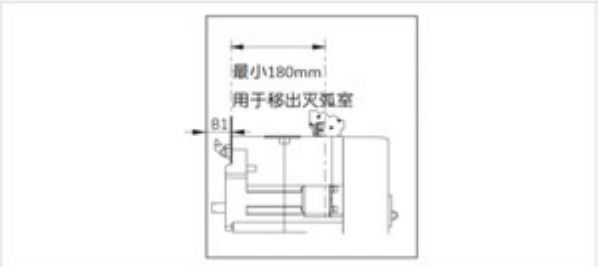
Fixed/draw-out side



Minimum front installation space for fixed/drawable type



Minimum installation space for fixed side



In（A）	MEX框架类型	建议的母线截面
400	MEX1，MEX2	1 x 40 x 10 or 1 x 80 x 5 or 2 x 40 x 5
630	MEX1，MEX2	1 x 50 x 10 or 1 x 100 x 5 or 2 x 50 x 5
800	MEX1，MEX2	1 x 50 x 10 or 1 x 100 x 5 or 2 x 50 x 5
1000	MEX1，MEX2	1 x 60 x 10 or 2 x 60 x 5
1250	MEX1，MEX2	2 x 40 x 10 or 2 x 80 x 5
1600	MEX1，MEX2	2 x 50 x 10 or 2 x 100 x 5
2000	MEX1，MEX2	3 x 50 x 10 or 3 x 100 x 5
2500	MEX1，MEX2	4 x 50 x 10 or 4 x 100 x 5
3200	MEX2，MEX3	4 x 100 x 10
4000	MEX2	4 x 100 x 10 Plus 1 x 100 x 5
4000	MEX3	4 x 100 x 10
5000	MEX3	5 x 120 x 10 or 6 x 100 x 10
6400	MEX3	7 x 120 x 10 or 8 x 100 x 10

Note: When frame 2@4000A and frame 3@6400A are used for horizontal wiring, it is recommended to add

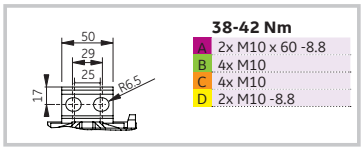
Connect the copper bar cross section, or strengthen the heat dissipation measures, or use it at reduced capacity

—Wiring once

Frame 1

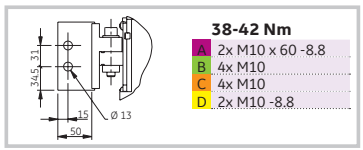
Fixed

N type 400-1600A rear horizontal



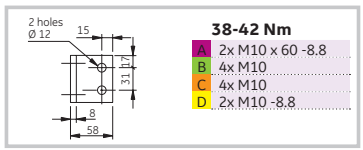
Fixed

400-2500A Rear Vertical



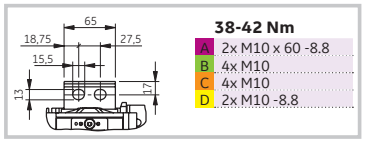
Draw-out

400-2500A Rear horizontal or vertical



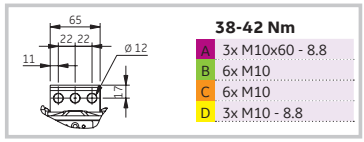
Fixed

S、H type 400-1600A Back Level



Fixed

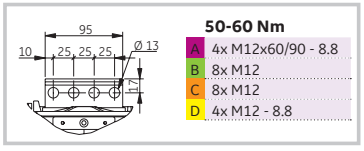
2000-2500A Back Level



Frame 2

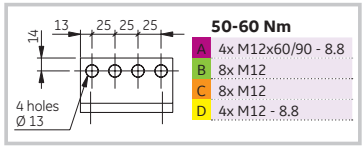
Fixed

400-4000A Rear horizontal or vertical



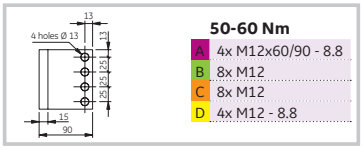
Draw-out(1)

400-3200A Rear horizontal or vertical



Draw-out

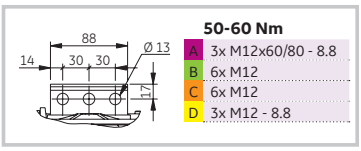
4000A Rear vertical only



Frame 3

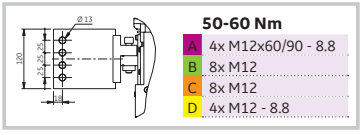
Fixed

4000-6400A Back Level



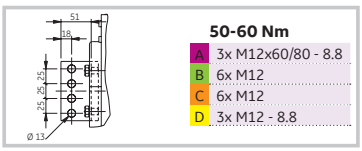
Fixed

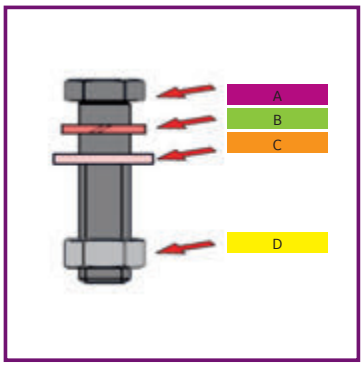
5000-6400A Rear Vertical



Draw-out(2)

4000-5000A After the level or 4000-6400A Rear Vertical





(1)When frame 2@4000A and frame 3@6400A are used for horizontal wiring, it is recommended to increase the cross-section of the connecting copper bar. Or strengthen the heat dissipation measures, or reduce the capacity
(2)The withdrawable frame type 3 has two terminal blocks for each pole input and output.

Power loss and derating characteristics for ambient temperatures greater than 50°C

Standard

The standards for low-voltage switchgear are defined by EN60439-1, EN 50298 and IEC 60890. The definition of the temperature rise calculation method in low-voltage switchgear is included. The calculation is mainly based on the power consumption and installation method of the equipment. It is necessary to calculate the total power consumption of the equipment, cables and busbars and then calculate the temperature rise in the switchgear. For ordinary applications, the temperature rise in the switchgear should not exceed 50K.

Apply

The manufacturer of low-voltage switchgear can calculate the temperature rise inside the cabinet based on the power consumption of the equipment inside the cabinet. The temperature rise depends on the type of cabinet, ventilation conditions, and the installation position and form of the equipment inside the cabinet.

MEX circuit breaker

The design of the MEX circuit breaker ensures the minimum power loss per pole and provides the highest possible rated current value available in the switch cabinet. The following table lists the derating of the power consumption per pole and rated current of the circuit breaker at different open ambient temperatures. This table is based on the connection busbar of the circuit breaker as rear vertical wiring. For the recommended cross-sectional area and contact area of the busbar connection, see Chapter D.2.

Circuit breaker frame type	Frame	In (A)	(W)	Ambient temperature				
				≤50°C	55°C	60°C	65°C	70°C
				Maximum allowable current for vertical wiring behind fixed circuit breakers				
MEX1	1	400	2,29	400	400	400	400	400
MEX2	2	400	1,66	400	400	400	400	400
MEX1	1	630	5,68	630	630	630	630	630
MEX2	2	630	4,13	630	630	630	630	630
MEX1	1	800	9,15	800	800	800	800	800
MEX2	2	800	6,66	800	800	800	800	800
MEX1	1	1000	14,3	1000	1000	1000	1000	1000
MEX2	2	1000	10,4	1000	1000	1000	1000	1000
MEX1	1	1250	22,3	1250	1250	1250	1250	1250
MEX2	2	1250	16,3	1250	1250	1250	1250	1250
MEX1	1	1600	36,6	1600	1600	1600	1600	1600
MEX2	2	1600	26,6	1600	1600	1600	1600	1600
MEX1	1	2000	57,2	2000	2000	2000	2000	2000
MEX2	2	2000	41,6	2000	2000	2000	2000	2000
MEX1	1	2500	90.3	2500	2375	2250	2190	2125
MEX2	2	2500	65,0	2500	2500	2500	2500	2500
MEX2	2	3200	106	3200	3200	3200	3150	3100
MEX3	3	3200	66,6	3200	3200	3200	3200	3200
MEX2	2	4000	166	4000	3750	3600	3500	3400
MEX3	3	4000	104	4000	4000	4000	4000	4000
MEX3	3	5000	163	5000	5000	5000	4900	4800
MEX3	3	6400	266	6400	6300	6200	6100	6000
				Maximum allowable current for vertical wiring behind withdrawable circuit breaker				
MEX1	1	400	4,78	400	400	400	400	400
MEX2	2	400	3,74	400	400	400	400	400
MEX1	1	630	11,9	630	630	630	630	630
MEX2	2	630	9,29	630	630	630	630	630
MEX1	1	800	19,1	800	800	800	800	800
MEX2	2	800	15,0	800	800	800	800	800
MEX1	1	1000	29,9	1000	1000	1000	1000	1000
MEX2	2	1000	23,4	1000	1000	1000	1000	1000
MEX1	1	1250	46,7	1250	1250	1250	1250	1250
MEX2	2	1250	36,6	1250	1250	1250	1250	1250
MEX1	1	1600	76,5	1600	1600	1600	1600	1600
MEX2	2	1600	59,9	1600	1600	1600	1600	1600
MEX1	1	2000	120	2000	2000	2000	2000	2000
MEX2	2	2000	93,6	2000	2000	2000	2000	2000
MEX1	1	2500	187.2	2500	2315	2250	2190	2125
MEX2	2	2500	146	2500	2500	2500	2500	2500
MEX2	2	3200	240	3200	3200	3200	3100	3000
MEX3	3	3200	106	3200	3200	3200	3200	3200
MEX2	2	4000	374	4000	3700	3600	3500	3400
MEX3	3	4000	166	4000	4000	4000	4000	4000
MEX3	3	5000	260	5000	5000	5000	4900	4800
MEX3	3	6400	426	6400	6300	6200	6100	6000

Power loss and derating characteristics for ambient temperatures greater than 50°C

MEX circuit breaker

Customers can also choose to connect the busbars as rear horizontal wiring or front wiring. The following table lists the power consumption per pole and rated current derating of the circuit breaker at different open ambient temperatures.

This table is based on the circuit breaker's busbar connection method of rear horizontal wiring or front wiring. For the recommended cross-sectional area and contact area of the busbar connection, see P66 of this chapter.

Circuit breaker model	Frame	In (A)	(W)	Ambient temperature				
				≤50°C	55°C	60°C	65°C	70°C
				Maximum allowable current for horizontal or front wiring of fixed circuit breakers				
MEX1	1	400	2,29	400	400	400	400	400
MEX2	2	400	1,66	400	400	400	400	400
MEX1	1	630	5,68	630	630	630	630	630
MEX2	2	630	4,13	630	630	630	630	630
MEX1	1	800	9,15	800	800	800	800	800
MEX2	2	800	6,66	800	800	800	800	800
MEX1	1	1000	14,3	1000	1000	1000	1000	1000
MEX2	2	1000	10,4	1000	1000	1000	1000	1000
MEX1	1	1250	22,3	1250	1250	1250	1250	1250
MEX2	2	1250	16,3	1250	1250	1250	1250	1250
MEX1	1	1600	36,6	1600	1600	1600	1600	1600
MEX2	2	1600	26,6	1600	1600	1600	1600	1600
MEX1	1	2000	57,2	2000	2000	2000	2000	2000
MEX2	2	2000	41,6	2000	2000	2000	2000	2000
MEX1	1	2500	89.4	2500	2315	2125	2000	2000
MEX2	2	2500	65,0	2500	2500	2500	2500	2500
MEX2	2	3200	106	3200	3200	3100	3050	3000
MEX3	3	3200	66,6	3200	3200	3200	3200	3200
MEX2	2	4000	(1)	(1)	(1)	(1)	(1)	(1)
MEX3	3	4000	104	4000	4000	4000	4000	4000
MEX3	3	5000	163	5000	5000	5000	4875	4750
MEX3	3	6400	(1)	(1)	(1)	(1)	(1)	(1)
				Maximum allowable current for horizontal or front wiring of withdrawable circuit breaker				
MEX1	1	400	4,8	400	400	400	400	400
MEX2	2	400	3,74	400	400	400	400	400
MEX1	1	630	11,9	630	630	630	630	630
MEX2	2	630	9,3	630	630	630	630	630
MEX1	1	800	19,1	800	800	800	800	800
MEX2	2	800	15,0	800	800	800	800	800
MEX1	1	1000	29,9	1000	1000	1000	1000	1000
MEX2	2	1000	23,4	1000	1000	1000	1000	1000
MEX1	1	1250	47	1250	1250	1250	1250	1250
MEX2	2	1250	36,6	1250	1250	1250	1250	1250
MEX1	1	1600	77	1600	1600	1600	1600	1600
MEX2	2	1600	60	1600	1600	1600	1600	1600
MEX1	1	2000	120	2000	2000	2000	2000	2000
MEX2	2	2000	94	2000	2000	2000	2000	2000
MEX1	1	2500	186.4	2500	2315	2125	2000	2000
MEX2	2	2500	146	2500	2500	2500	2500	2500
MEX2	2	3200	240	3200	3200	3200	3200	2900
MEX3	3	3200	106	3200	3200	3200	3200	3200
MEX2	2	4000	(1)	(1)	(1)	(1)	(1)	(1)
MEX3	3	4000	166	4000	4000	4000	4000	4000
MEX3	3	5000	260	5000	5000	5000	4850	4700
MEX3	3	6400	(1)	(1)	(1)	(1)	(1)	(1)

(1) 此额定电流等级的产品建议使用垂直接线端子的连接方式。应用于水平接线时，建议增加连接铜排截面，增强散热方式，或降容使用

Selective protective coordination

When a circuit fault occurs in the low-voltage power distribution system network, the circuit breaker closest to the fault point is required to disconnect the faulty circuit, and the rest must remain closed and provide reliable power supply.

We call this feature selective protection coordination.

If this function is not strictly considered and applied in the power distribution network, it is very likely that when a small overcurrent fault occurs in the lower-level circuit, the upper-level circuit breaker will trip at the same time, expanding the scope of the fault and the reliability of power supply.

The control unit of the MEX circuit breaker integrates a variety of protection characteristic curves, which can achieve complete current selective non-protection requirements with the lower-level low-voltage distribution circuit. The following table lists the recommended protection current and curve settings for the MEX circuit breaker and the lower-level circuit breaker.

The table lists the selective protection coordination under the conditions of the recommended setting values.

				Recommended MEX circuit breaker settings				
Lower level circuit breaker		Setting Category		Ir or Ie set up	tr Curve Settings	Isd Settings	Tsd Curve Settings	I 设定
R+ MCCB								
FD& FE frame	LTMD	Ir	Ratio & Band	1,6 x	1s			Minimum setting 5kA -FD160, 7kA - FE160, 9kA - FE250 or I = 'OFF'
		Im	Ratio & Band			1,6 x	0.1s	
FD& FE frame	GTM	Ir	Ratio & Band	1,6 x	1s			
		Im	Ratio & Band			1,6 x	0.1s	
FE frame	PremEon	Ir	Ratio & Band	1,3 x				
		LTD line	Band		4s			
		LTD Motor	Band		12s			
		Ist	Ratio & Band			1,35 x	0.1s	
FG frame	PremEon	Ir	Ratio & Band	1,3 x				
		LTD line	Band		4s			
		LTD Motor	Band		12s			
		Ist	Ratio & Band			1,35 x	0.1s	
FG frame	PremEon	Ir	Ratio	1,3 x				Minimum setting 14kA -FG400, 18kA - FG630 or use ZSI or I = 'OFF'
		LTD cl.1.25	Band		1s			
		LTD cl. 2.5	Band		2s			
		LTD cl. 5	Band		4s			
		LTD cl.10	Band		8s			
		LTD cl.20	Band		16s			
		LTD cl.30	Band		20s			
		Ist	Band			1,35 x		
		STD=400ms	Band				0.4s	
		STD=300ms	Band				0.3s	
		STD=200ms	Band				0.2s	
		STD=100ms	Band				0.1s	
		STD=40ms	Band				s	
FK frame	PremEon	Ir	Ratio & Band	1,4 x	4s			
		Ist	Ratio			1,35 x		
		STD	Band				0.2s	
FK frame	PremEon	Ir	Ratio	1,4 x				Minimum setting 18kA -FK800 20kA - FK1000 20kA - FK1250 28kA - FK1600 or use ZSI or I = 'OFF'
		LTD cl. 5	Band		4s			
		LTD cl.10	Band		8s			
		LTD cl.20	Band		20s			
		LTD cl.30	Band		24s			
		Ist	Ratio					
		STD=300ms	Band				0.4s	
		STD=200ms	Band				0.3s	
		STD=100ms	Band				0.2s	
MEX	ME-A, P & X	Ir	Ratio	1,25 x				
		LTD class	Band		2 higher			
		Ist	Ratio			1,25 x		
		STD band min. until 11	Band				2 higher	
		STD band ≤12					1 higher	
工业熔断器GL/Gg 型	----	Current rating	Ratio & Band	2 x	F20	ST = 8 x Ir, STDB band 5 and I = 12 x Ie		

Selection protection coordination table with lower level equipment

Lower level circuit breaker	Control unit	MEX1N	MEX1S	MEX2S	MEX2H 400-2000	MEX2H 2500-4000	MEX2M 2500-4000	MEX3M 3200-4000	MEX3M 4000-6400	MEX3L 4000-6400
R⁺ MCCB										
FD& FE frame C, E, V, S tiers	All	T	T	T	T	T	T	T	T	T
FD& FE frame N tier	All	T	T	T	T	T	T	T	T	T
FD& FE frame H tier	All	T	T	T	T	T	T	T	T	T
FD& FE frame L tier	All	T	T	T	T	T	T	T	T	T
FG frame N tier	All	T	T	T	T	T	T	T	T	T
FG frame H tier	All	T	T	T	T	T	T	T	T	T
FG frame L tier	All	T	T	T	T	T	T	T	T	T
FK frame N tier	All	T	T	T	T	T	T	T	T	T
FK frame H tier	All	T	T	T	T	T	T	T	T	T
FK frame L tier	All	T	T	T	T	T	T	T	T	T
MEX ACB										
MEX1N	All	55kA(2)	T	T	T	T	T	T	T	T
MEX1S	All	55kA(2)	70kA(2)	70kA(2)	T	T	T	T	T	T
MEX2H 400-2000	All	55kA(2)	70kA(2)	70kA(2)	85kA(2)	85kA(2)	85kA(2)	T	T	T
MEX2H 2500-4000	All	--	--	70kA(2)	--	85kA(2)	85kA(2)	T	T	T
MEX2M 2500-4000	All	--	--	70kA(2)	--	85kA(2)	85kA(2)	T	T	T
MEX3M 4000-6400	All	--	--	--	--	--	--	--	100kA(2)	100kA(2)
MEX3L 4000-6400	All	--	--	--	--	--	--	--	100kA(2)	100kA(2)
Industrial fuses GL/Gg type	----	T	T	T	T	T	T	T	T	T

(1) T = Full selectivity within the Icu range of the upper circuit breaker or the lower circuit breaker (the smaller of the two).

(2) The values in the table represent short-circuit instantaneous protection as "ON", and are reduced by 10% if they are "OFF".

Circuit protection

MEX circuit breakers are used to protect busbar cables, downstream equipment and devices in low-voltage power distribution systems in a variety of different environments. They monitor and protect all potential short-circuit faults under these environments and conditions, and meet the electrical requirements for circuit protection.

Environment

MEX circuit breakers meet the environmental requirements of industrial applications and comply with the requirements for circuit breaker use environments defined in the relevant standard EN60947-2. For use scenarios that exceed the above environmental requirements, see the description of the use environment section of this chapter.

Maximum short circuit current

The circuit breaker must be able to reliably disconnect the maximum short-circuit current that may occur at its installation point. The maximum short-circuit breaking capacity of the MEX circuit breaker can be found in the Technical Data section of this catalog.

Circuit load

The electrical equipment and devices in the circuit determine the load current Ib of the circuit. The setting of the load current Ir of the circuit breaker is adjustable to meet the requirements of different loads for the required load current.

Current short-circuit fault

In some short-circuit events, a short-circuit current of a smaller value will be generated due to the large system impedance of the circuit. In this case, the circuit breaker must also effectively detect this small current short-circuit fault and reliably disconnect the fault before the short-circuit capacity that the electrical equipment or bus cable can bear is reached.

Ground fault current

When a ground fault occurs, it will cause non-live parts to be energized and thus cause damage to equipment and personnel, so the circuit breaker must reliably disconnect this fault current. The TN system standard defines the disconnection time under this fault current.

MEX circuit breakers can reliably disconnect ground faults within this defined time range.

相对零电压 U0	最大分断时间（AC系统）
127V	0,8 sec.
230V	0,4 sec.
400V	0,2 sec.
> 400V	0,1 sec.

MEX provides a variety of protection devices to meet the circuit protection needs of different users.

Overload protection device

Provides overload protection settings that can be accurately set and have a wide setting range. The setting value is adjustable from 0.2-1 of the rated current of the circuit breaker, allowing customers to set the setting current to the maximum limit to match the load current Ib.

Short circuit short delay protection

This device provides short-circuit short-time delay protection characteristics and a wide setting range of 2-12 times. The setting of short-circuit short-time delay protection parameters needs to be carried out according to the characteristics of different protected devices. This protection is used to detect and cut off smaller short-circuit currents, and in some cases cut off ground fault currents.

MEX circuit breakers provide a wide adjustment range to meet the protection needs of different types of equipment and upper and lower level selective protection.

Ground fault protection

The ground fault protection is used to detect and disconnect the ground fault current and provides a wide protection setting range from 0.2 to 1In and two ground fault protection modes.

One is to calculate the vector sum of the three-phase current and the neutral current. If the vector sum is not 0 and exceeds the set value, an alarm will be issued or the circuit breaker will be disconnected.

The other is to directly detect the grounding current at the neutral line grounding point. If the grounding current value is greater than the set value, an alarm will be issued or the circuit breaker will be disconnected.

MEX circuit breakers provide a variety of protection delay tripping curves to meet the needs of upper and lower level selective protection.

Short circuit instantaneous protection

Short-circuit instantaneous protection is used to detect and disconnect high-current short-circuit fault currents and provides a wide protection setting range from 2 to 15 In;

This protection device is generally used to limit the occurrence of large short-circuit currents in the circuit. When the short-circuit fault current in the circuit is greater than the set value, the circuit breaker will be disconnected instantly without any manually settable delay time.

The short-circuit instantaneous protection of the MEX circuit breaker can meet the needs of selective protection within two cycles, and also provides regional interlocking protection function

Generator, motor, capacitor and transformer protection

Application of MEX circuit breaker in automatic switching of dual power sources (ATS)

MEX circuit breakers provide customers with a variety of additional protection functions. For detailed descriptions, please refer to the specific description in Chapter B. Here is a brief description of the requirements of various applications for circuit breakers.

Generator protection settings

The overload and short-circuit protection of the generator requires that its action delay time is short under overcurrent conditions, so as to quickly disconnect the overcurrent fault and protect the safety of other electrical equipment.

Therefore, it is necessary to adjust the setting value of the protection device accordingly according to the actual overload and short-circuit tolerance characteristics of the generator.

For circuit breakers used to protect generator equipment, it is recommended that customers set the overload protection curve to the fast tripping curve and the short-circuit protection to 2.5Ir.

At the same time, the 3-phase undervoltage protection function of ME-P can also be considered.

Motor protection settings

When the motor is in the starting state, its starting current will be much greater than the current in normal operation. The starting currents of different motor models vary greatly, and it is necessary to ensure that this current does not cause malfunction of the protection device.

IEC 60947-4 defines 4 different tripping classes.

Tripping level	Tripping time requirements		
	1.2 x In	1.5 x In	7.2 x In
10A	t < 2 hours	t < 2 min.	2 ≤ t < 10 sec.
10	t < 2 hours	t < 4 min.	4 ≤ t ≤ 10 sec.
20	t < 2 hours	t < 8 min.	6 ≤ t ≤ 20 sec.
30	t < 2 hours	t < 12 min.	9 ≤ t ≤ 30 sec.

This table can also be extended to include trip class 40 (trip time at 7.2xIn is 15-40 seconds). For circuit breakers used for motor protection, it is recommended that the customer set the overload protection to slow protection (TR setting between 8s and 24s curves).

When the motor is started, a very large short-time surge current will also be generated, which is very likely to cause the short-circuit protection device of the short-circuit device to operate. It is recommended that the customer set the short-circuit short-time delay protection device to 12xIr and 100 milliseconds delay time (Tsd is 0.1s). If the customer only sets the short-circuit instantaneous protection, the setting value should be at least 12xIe.

When the motor overload protection trips, the motor and cable are still hot. Immediately restarting the motor may cause overheating and damage to the motor and circuit. At this time, the overload protection must also have a thermal memory function to prevent the user from restarting the motor before the specified cooling time is reached.

Remark

For the meaning of the abbreviated terms, see the Control Unit section. (tr&Tsd)

In addition, in order to prevent some other faults such as motor phase loss or motor stall, additional protection devices are required.

The control unit of the MEX circuit breaker can provide some other standard motor protection devices, such as thermal memory function, 3-phase undervoltage protection, 3-phase current unbalance protection, etc.

Capacitor protection

Circuit breakers are designed to be used in very extreme conditions of connection and disconnection. Generally speaking, disconnecting and connecting capacitor bank loads will not affect the protection performance and life of the circuit breaker. However, the current generated during capacitor switching and operation is likely to cause malfunction of the circuit breaker. At this time, it is not only necessary to consider the nominal rated capacity of the capacitor, but also the manufacturing tolerance of the capacitor (10%) and the overload of the capacitor caused by harmonics in the power grid (assuming 30%). The circuit breaker must be set accordingly according to these conditions.

LV/LV transformer protection

Generally speaking, when a low voltage transformer is connected, a very large surge current will be generated, which can reach 15 to 25 times the rated capacity of the transformer within half a cycle. Factory test data show that the primary side protection device of the low voltage transformer must not malfunction under the current listed in the table below.

Transformer capacity	Switch on surge current		
	The first cycle	The second cycle	The third cycle
< 50 kvA	25 x In	12 x In	5 x In
⩾ 50 kvA	15 x In	8 x In	3.5 x In

It is recommended that users set the short-circuit short-time delay protection device to at least 8xIr and a delay time of not less than 100ms (Tsd is set to 0.1s). If it is instantaneous protection, set the instantaneous protection to 15xIe of the instantaneous protection.

Dual power switching

MEX circuit breakers can provide mechanical interlocking devices for 2-way or 3-way circuit breakers and a unique electrical interlocking device to achieve complete interlocking function between circuit breakers.

Usage environment

Ambient air temperature

MEX circuit breakers are designed for normal use in an ambient temperature range of -5°C to +70°C, and are allowed to be used in an ambient temperature of -20°C with a certain reduction in electrical and mechanical life.

In order to prevent the circuit breaker from running at a higher temperature and affecting its electrical and mechanical life, it must be properly derated when the ambient temperature is greater than +50℃.

Storage temperature

The circuit breaker can be stored normally under ambient temperature conditions of -40℃ to +70℃.

Altitude

When the circuit breaker is used at an altitude below 2000m, its performance will not change and no derating is required. When the altitude exceeds 2000m, see the corresponding derating factor in the table below.

Altitude derating factor			
Altitude	**≤ 2000M**	**2500M**	**4000M**
Voltage (Ue)	1	0,95	0,8
Voltage (In)	1	0,99	0,96

Other atmospheric conditions

MEX circuit breakers comply with the requirements for ambient temperature and relative humidity defined in clause 6.1.3.1 of EN 60947. They also comply with the requirements defined in the following standards.

Standard	Test content
IEC 68-2-1	Dry cold test
IEC 68-2-2	Dry heat test
IEC 68-2-3	Damp heat test
IEC 68-2-11	Salt spray test
IEC 68-2-14	Temperature alternation test
IEC 68-2-30	Humidity and heat cycle test
IEC 721	Weather resistance

Earthquake resistance

It complies with the requirements of Lloyd's Register, Germanischer Lloyd and American Bureau of Shipping on the seismic resistance of circuit breakers, and also complies with the requirements of the following standards.

标准	试验内容
IEC 68-2-6	震动测试
IEC 68-2-27	冲击测试
IEC 68-2-29	撞击测试
IEC 68-2-31	跌落测试

Other

MEX circuit breakers meet the requirements of ROHS European environmental certification

The circuit breaker is CE marked.

Electromagnetic compatibility

The control unit of the MEX circuit breaker complies with the requirements of EN 60947-2 and IEC1004 regarding electromagnetic interference immunity.

Low frequency disturbance immunity test in power grid

EN 60947-2 Appendix F Clause F4.1 defines the anti-disturbance capability of the control unit when non-sinusoidal harmonic currents appear, including the following test contents.

- 50 or 60HZ current fundamental wave contains 3rd harmonic components for anti-disturbance capability.
- 50 or 60HZ current fundamental wave contains 5th harmonic components for anti-disturbance capability
- Anti-disturbance capability of 50 or 60HZ current fundamental wave containing 3rd, 5th and 7th harmonic components.
- Current sag and interruption tests
- Test of power frequency change, from 45-60HZ, step size 1Hz

Electrostatic Disturbance Immunity Test

According to the definition of EN60947 Appendix F and IEC1004-2. - Level 4, the corresponding voltage is 15kV.

Electromagnetic field disturbance immunity test

According to the definition of EN60947 Appendix F Clause F7 and IEC1000-4-3.

- Level 4, radio frequency electromagnetic field radiation 30V/m.

High frequency disturbance immunity test

According to the definition of EN60947 Appendix F Clause F5 and IEC1000-4-5.

- Level 4, electrical fast transient/burst peak voltage 4kV

Conducted transient immunity test

According to the definition of EN60947 Appendix F Clause F5 and IEC1000-4-5.
- Level 4, surge voltage 1.2uS/50us6KV, surge current 8us/20us 3KA.

Dry heat test

According to EN60947 Appendix F Clause F8 definition

- meets the requirements of this test.

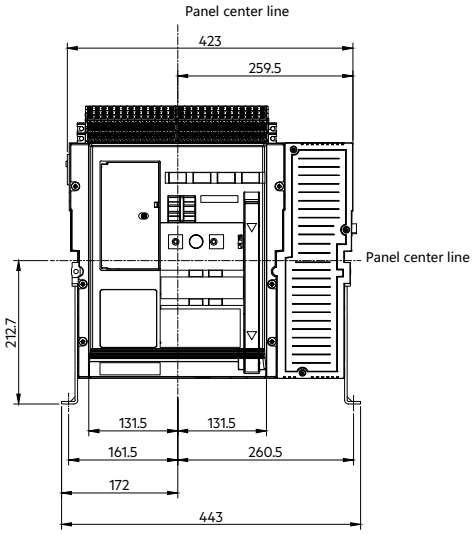
Damp heat test

According to EN60947 Appendix F Clause F9 definition

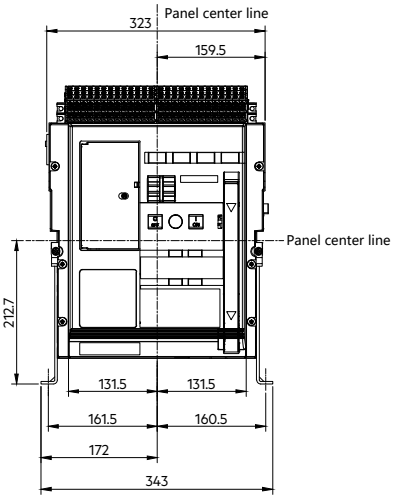
- During the 28-day damp heat cycle test, the control unit operated without error.

MEX1，Fixed

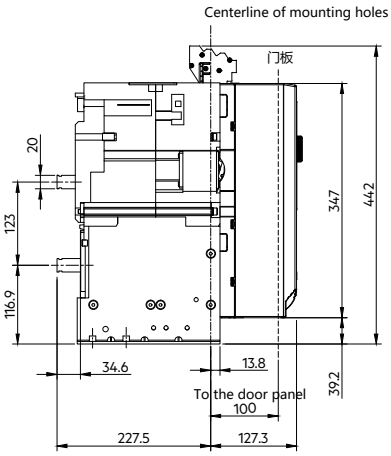
4 Front view



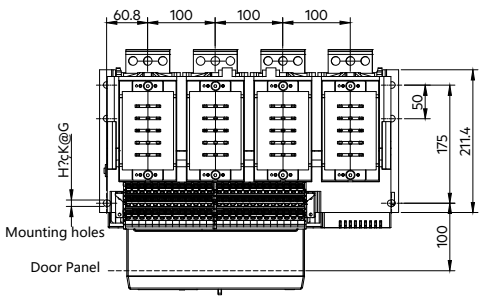
3 Front view



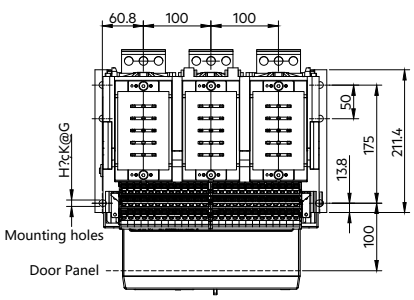
Side View



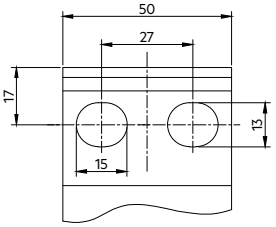
4 Extreme top view



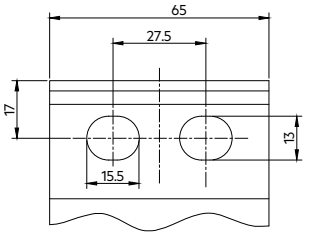
3 Extreme top view



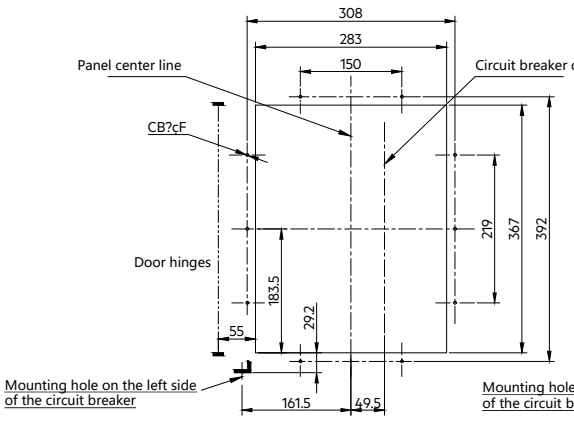
400-1600A N Type
Connect busbar



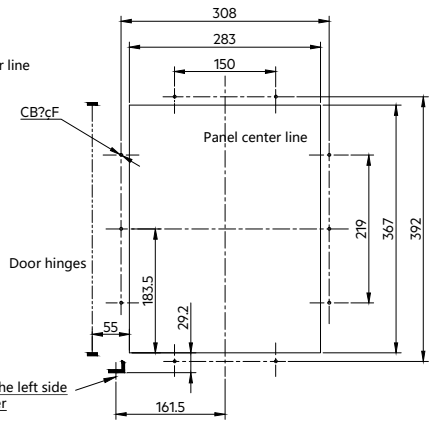
400-1600A S H Type
Connect busbar



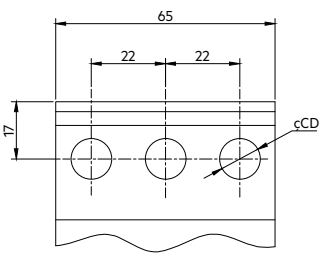
4 Pole plate opening size



3 Pole plate opening size

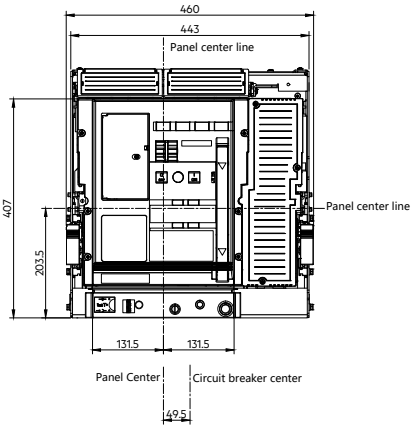


2000-2500A N S H Type
Connect busbar

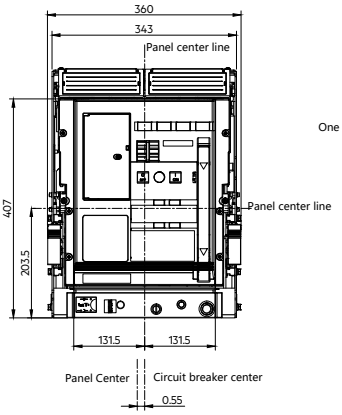


MEX1，Draw-out

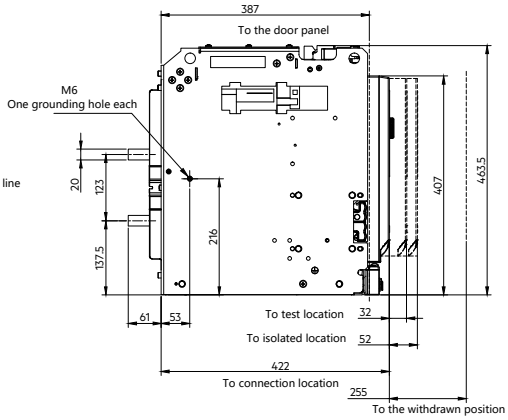
4 Front view



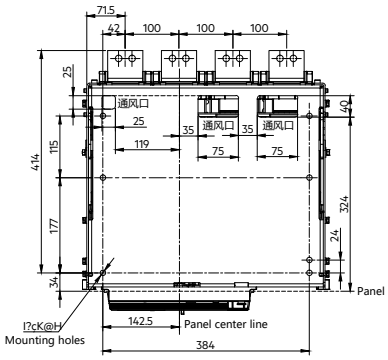
3 Front view



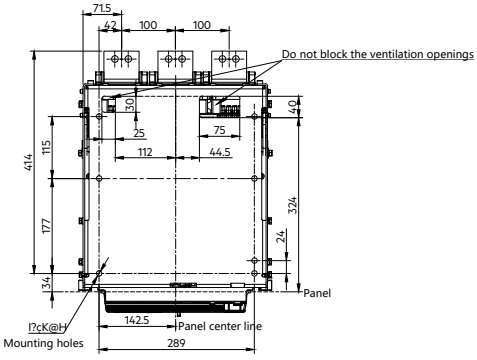
Side View



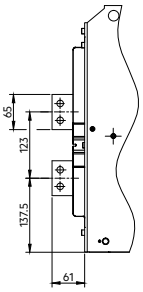
4 Bottom hole installation dimensions in top view



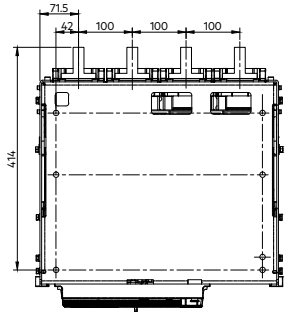
3 Bottom hole installation dimensions in top view



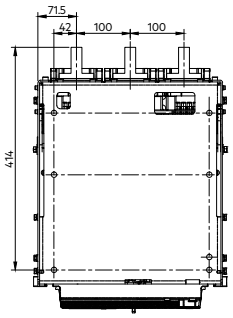
垂直连接侧视图



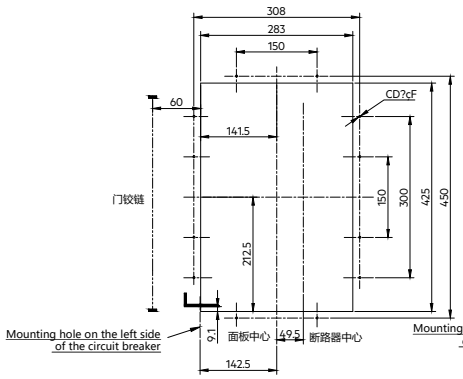
4 Top view of vertical connection



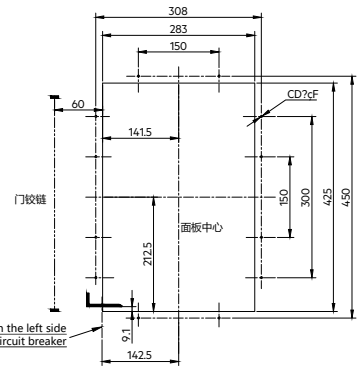
3 Top view of vertical connection



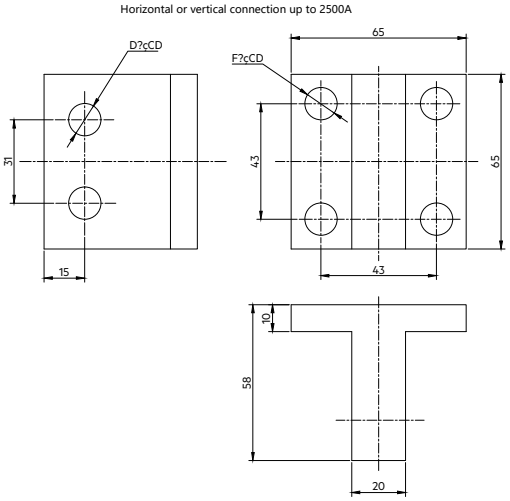
4 Pole plate opening size



3 Pole plate opening size

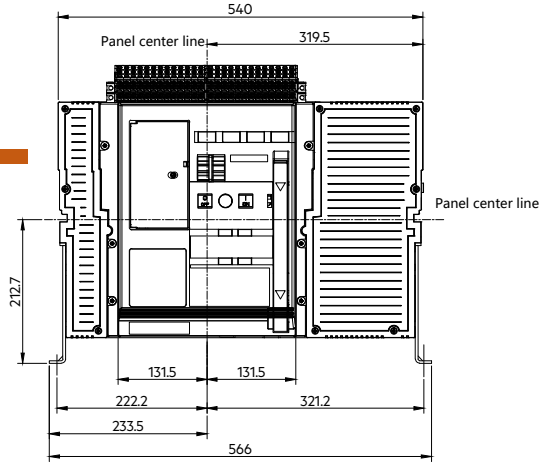


Horizontal or vertical connection up to 2500A

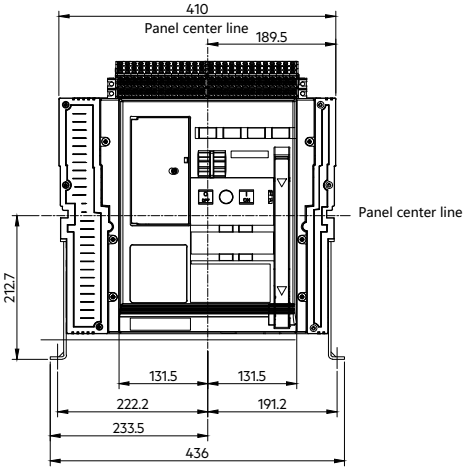


MEX2，Fixed

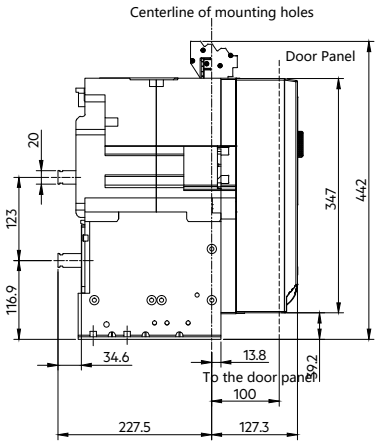
4 Front view



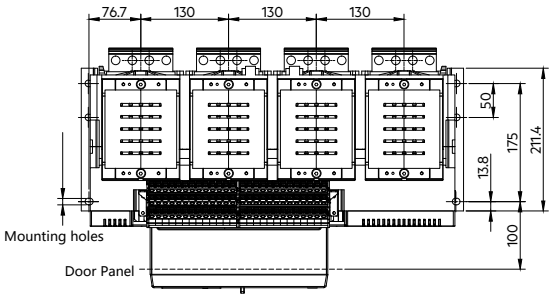
3 Front view



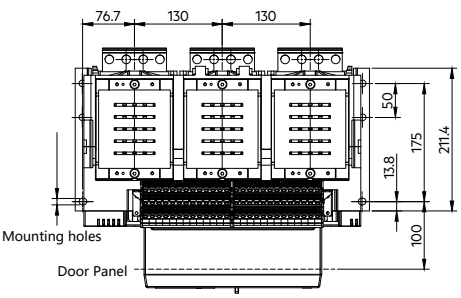
Side View



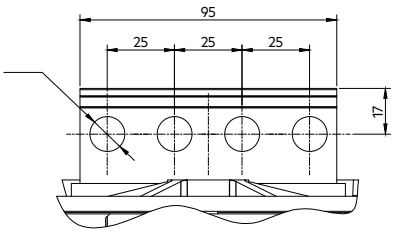
4 Extreme top view



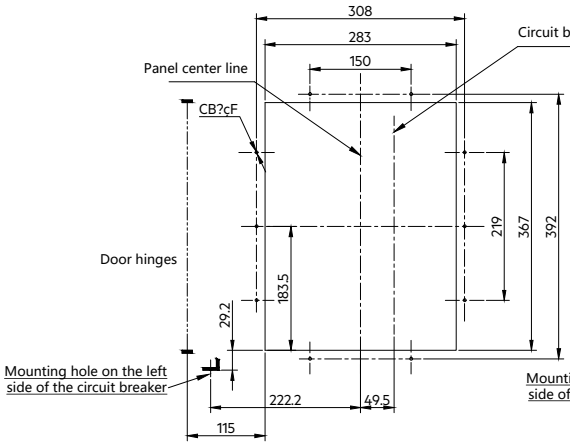
3 Extreme top view



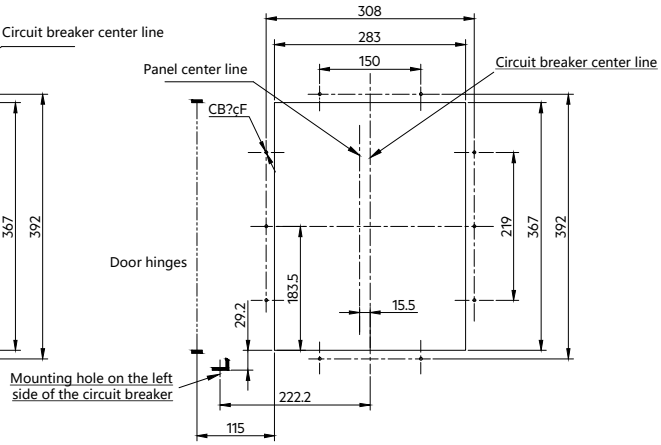
Standard primary connection busbar



4 Pole plate opening size

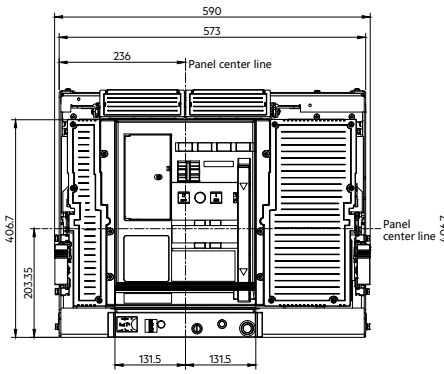


3 Pole plate opening size

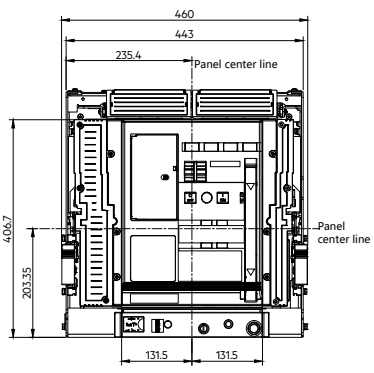


MEX2，Draw-out

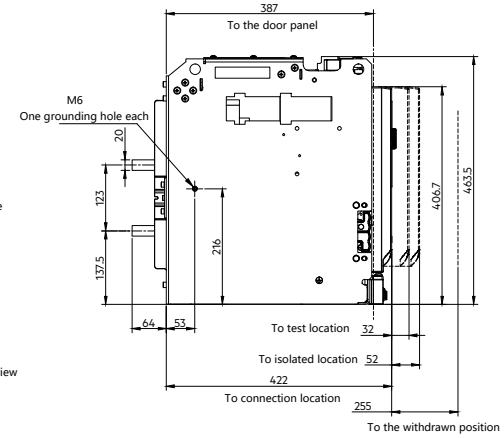
4 Front view



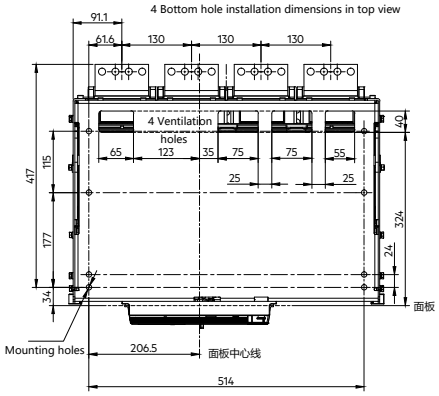
3 Front view



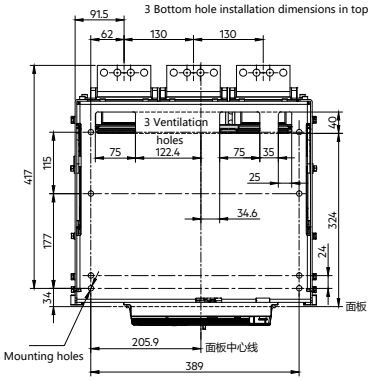
Side View



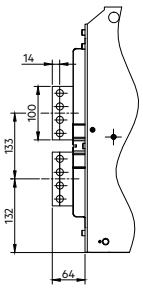
4 Bottom hole installation dimensions in top view



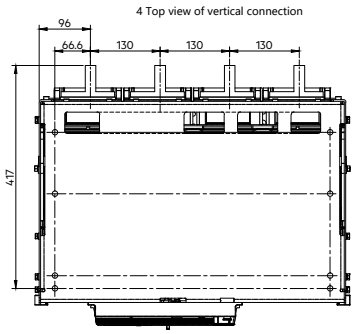
3 Bottom hole installation dimensions in top view



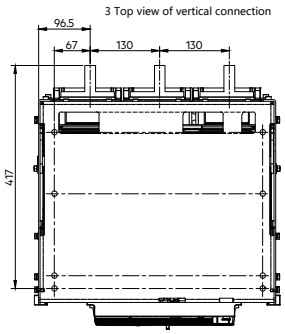
Vertical connection side view



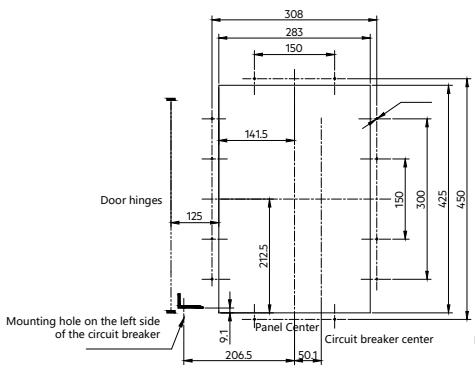
4 Top view of vertical connection



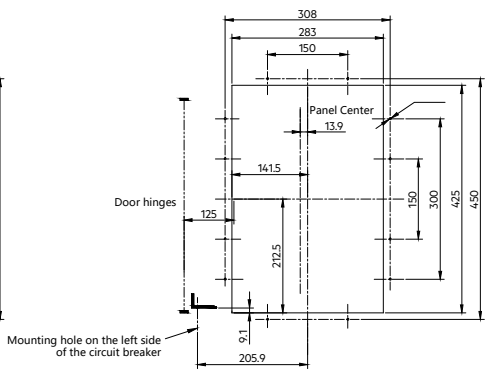
3 Top view of vertical connection



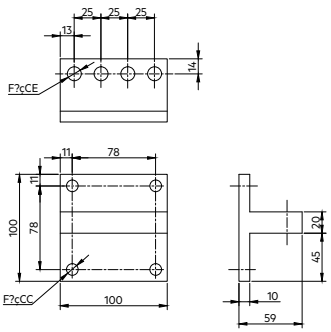
4 Pole plate opening size



3 Pole plate opening size



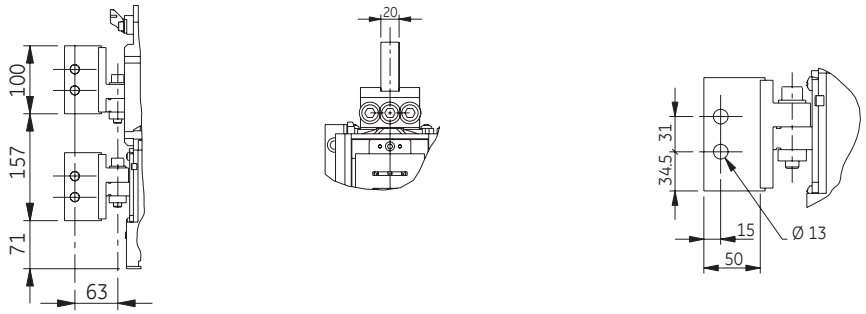
通用T型母排水平或垂直安装



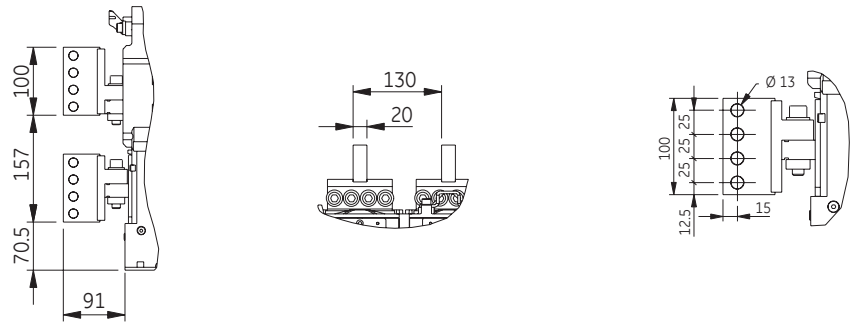
注：MEX2 4000A应用于水平接线时，建议增加连接铜排截面或加强散热措施，或降容使用。

MEX1，MEX2，Fixed type Optional primary wiring busbar size

Frame 1 Fixed rear vertical wiring 2500A



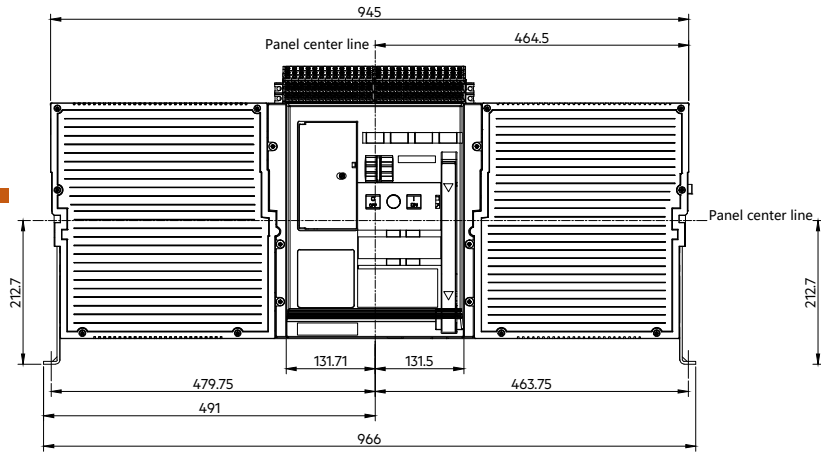
Frame 2 fixed rear vertical wiring



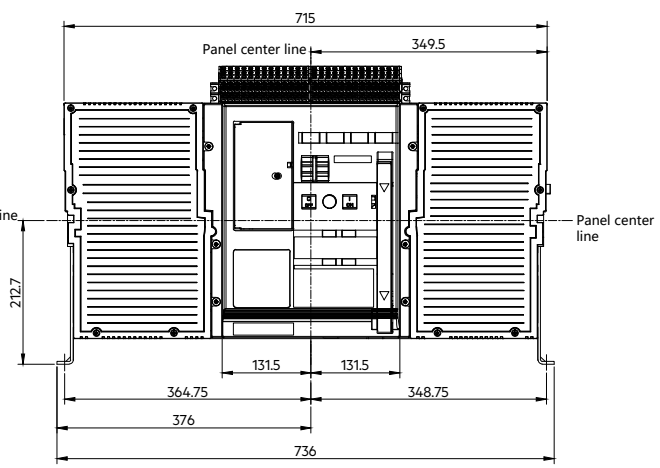
Note: When MEX2, 4000A is used for horizontal wiring, it is recommended to increase the cross-section of the connecting copper bar, or strengthen the heat dissipation measures, or reduce the capacity.

MEX3 Fixed

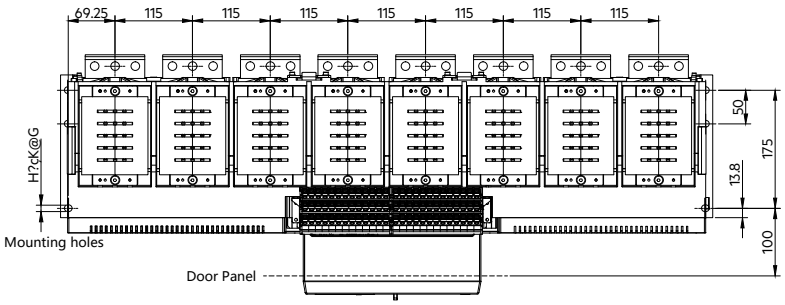
4 Front view



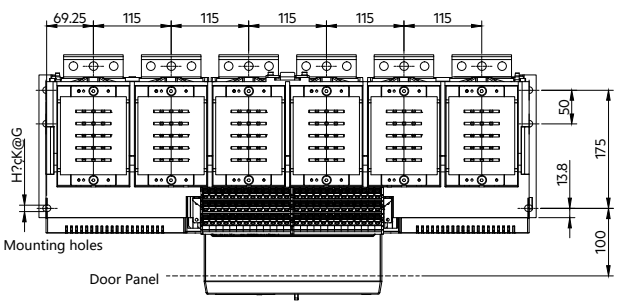
3 Front view



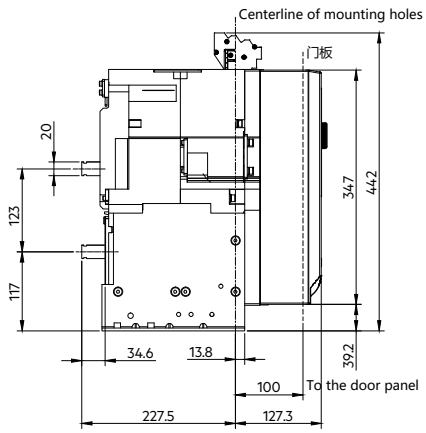
4 Extreme top view



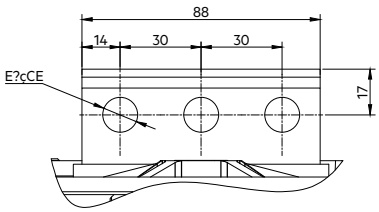
3 Extreme top view



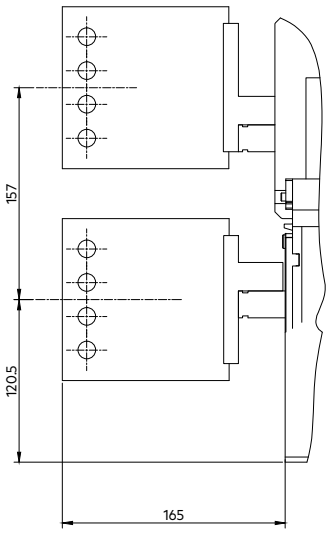
Side View

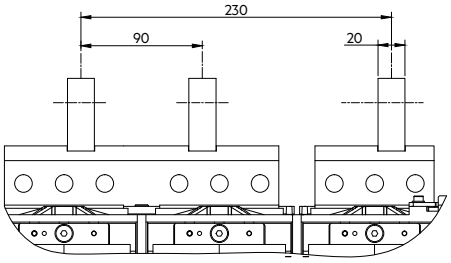


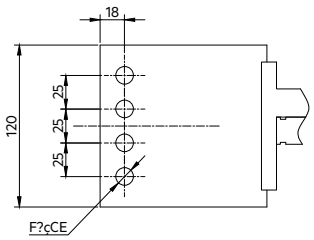
Standard rear horizontal connection busbar maximum connection to5000A



Standard rear vertical connection busbar maximum connection to 6400A



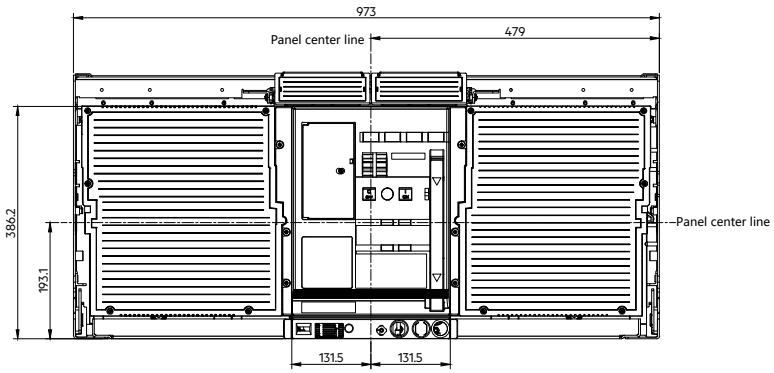




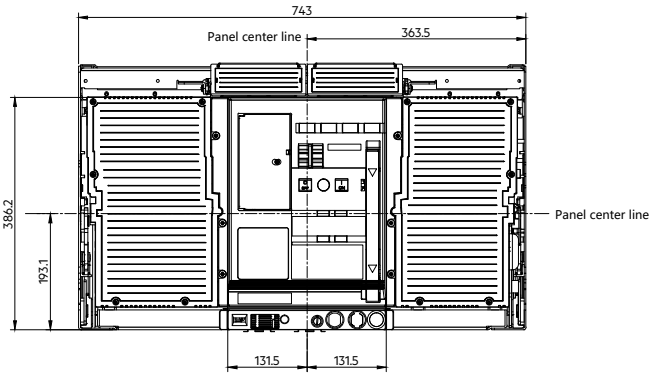
Note: When 6400A is used for horizontal wiring, it is recommended to increase the cross-section of the connecting copper busbar or strengthen the heat dissipation measures, or use it with reduced capacity.

MEX3 Draw-out

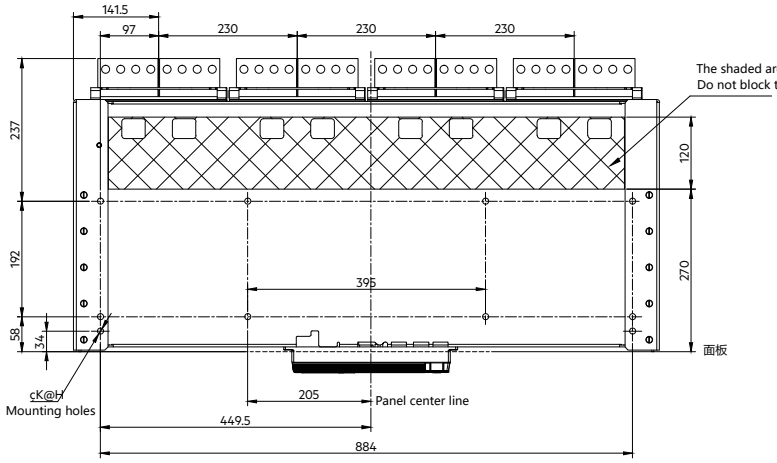
4 Front view



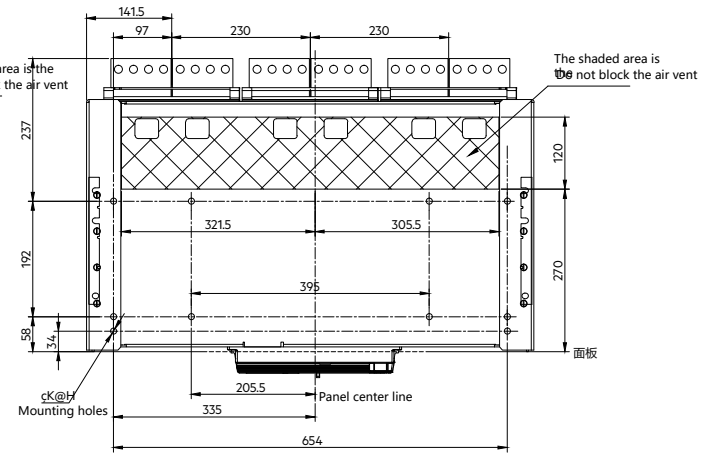
3 Front view



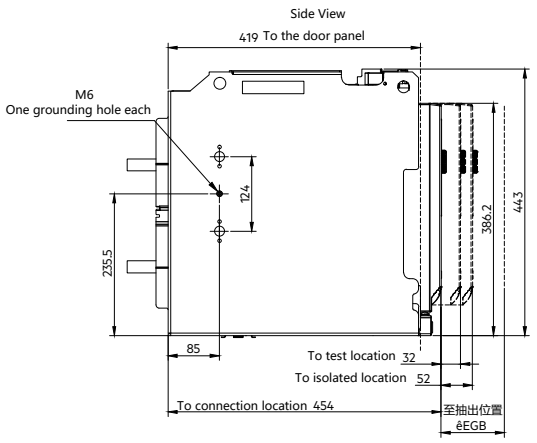
4 Bottom hole installation dimensions in top view



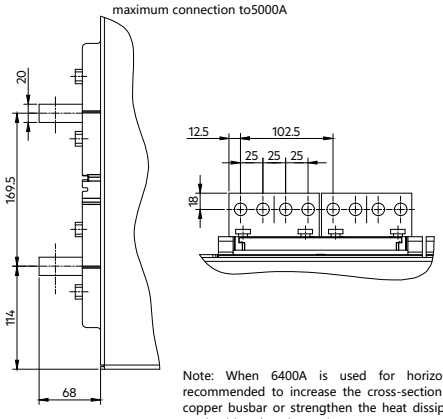
3 ottom hole installation dimensions in top view



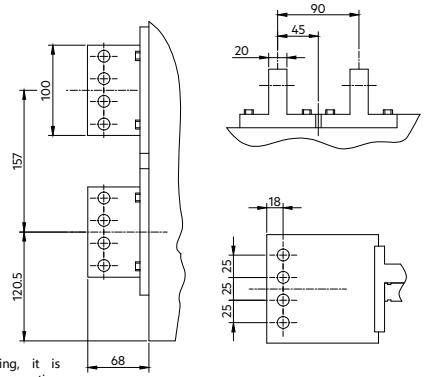
Side View



Standard rear horizontal connection busbar maximum connection to5000A



Standard rear vertical connection busbar maximum connection to 6400A

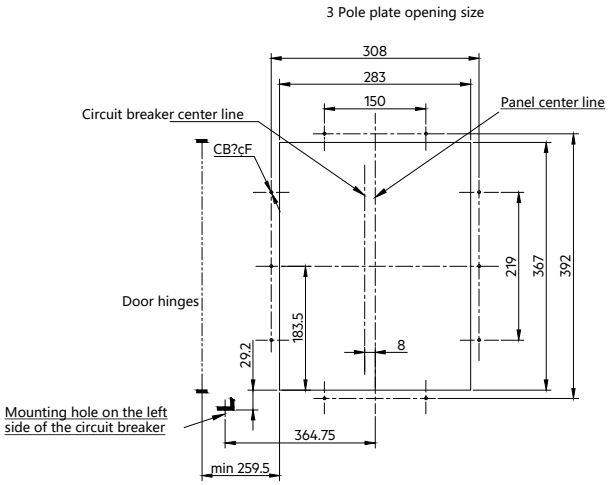


Note: When 6400A is used for horizontal wiring, it is recommended to increase the cross-section of the connecting copper busbar or strengthen the heat dissipation measures, or use it with reduced capacity.

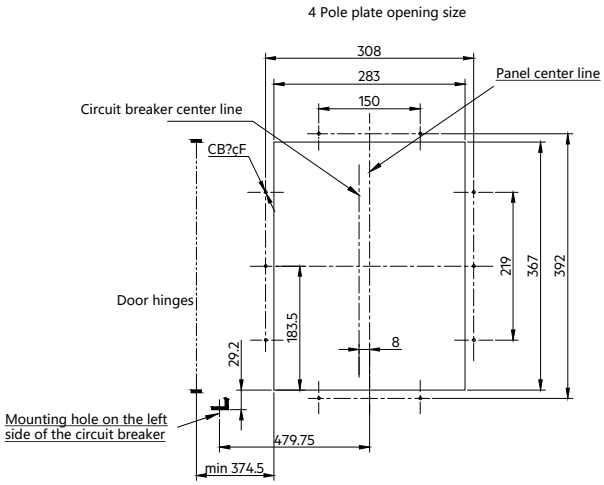
MEX3 Door panel opening size

MEX3 Fixed door panel opening size

3 Pole plate opening size

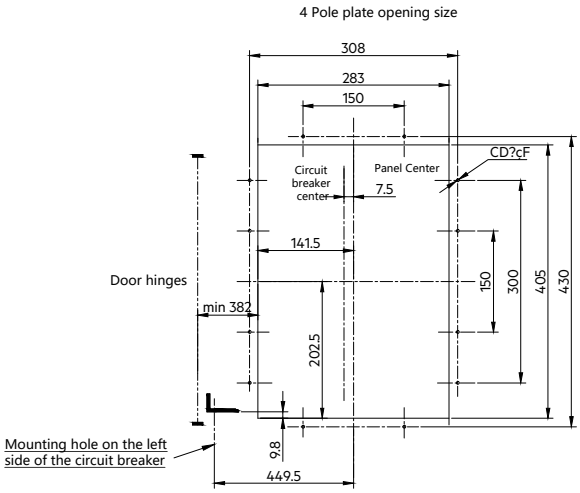


4 Pole plate opening size

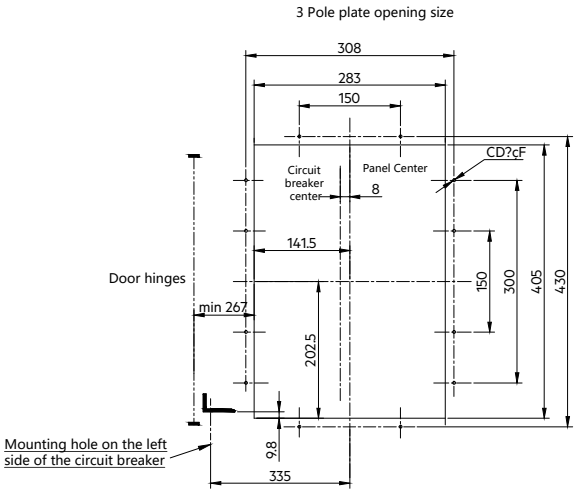


MEX3 Pull-out door panel opening size

4 Pole plate opening size

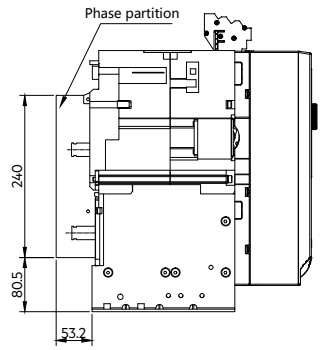


3 Pole plate opening size

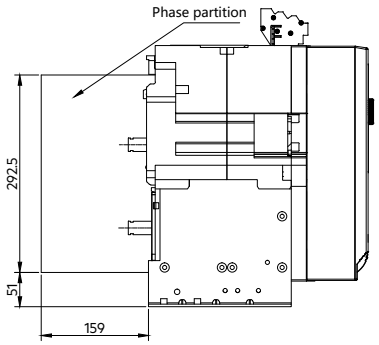


MEX phase barrier dimensions

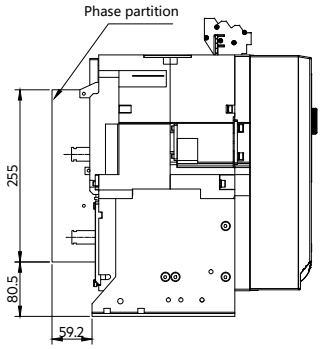
MEX1、2 Fixed conventional phase partition dimensions



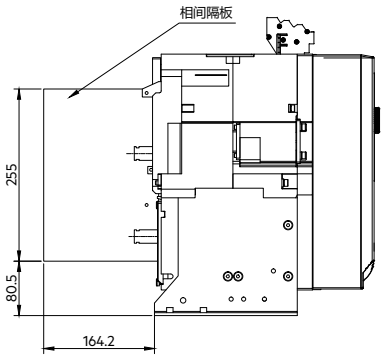
MEX2 Fixed extended phase partition size



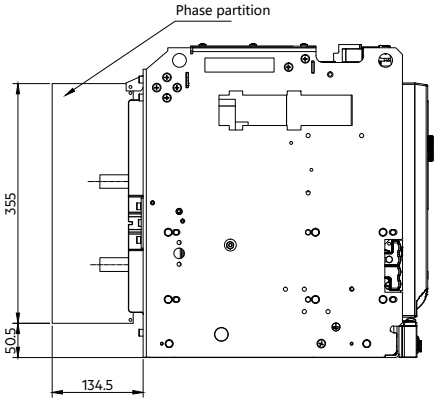
MEX3 Fixed conventional phase partition dimensions



MEX3 Fixed extended phase partition size

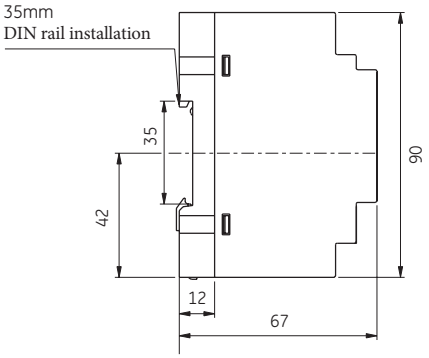


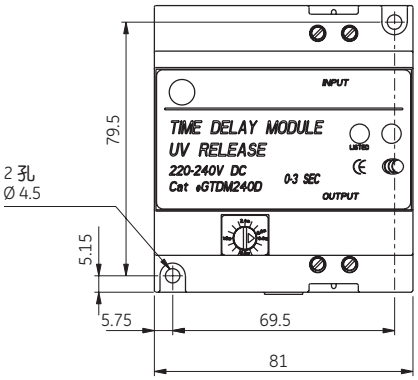
MEX Withdrawable phase partition size



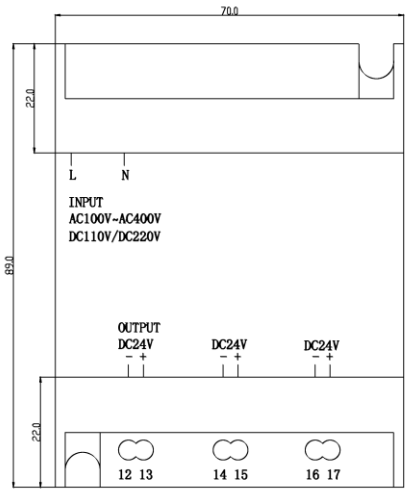
UVR delay module, external power module

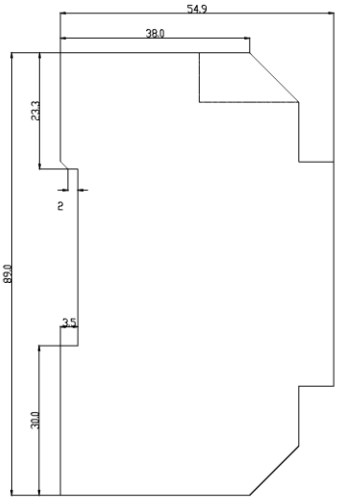
UVR delay module



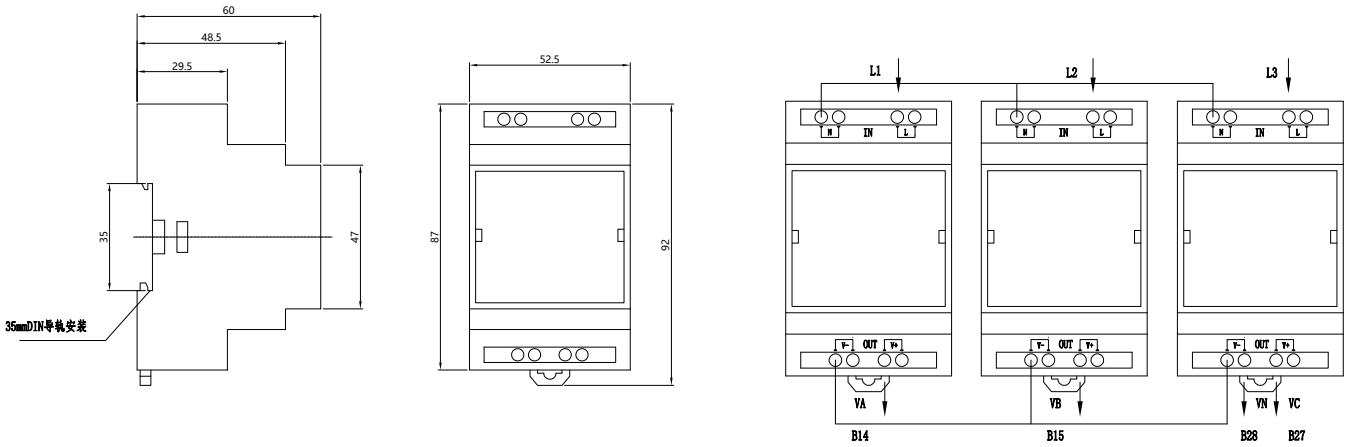


24V External power module

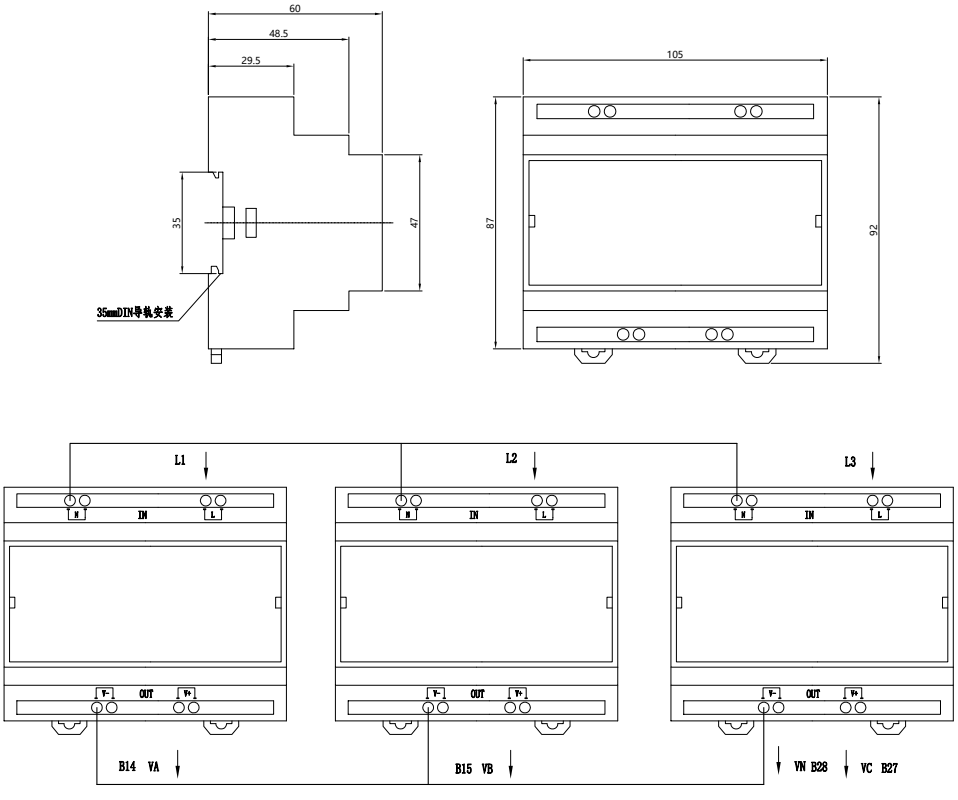




Voltage measurement module 400/690/800V system

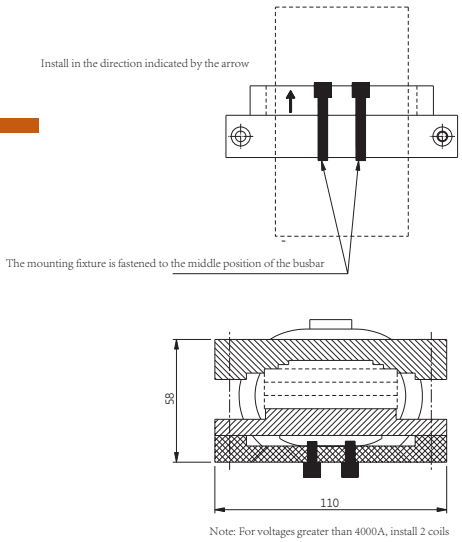


Voltage measurement module 1140V system

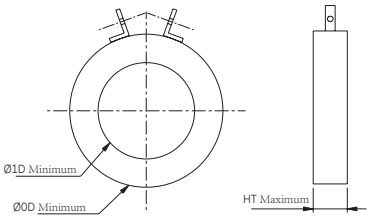


Rogowski coil, current transformer, door interlock mechanism, wall mounting accessories

External Rogowski coil

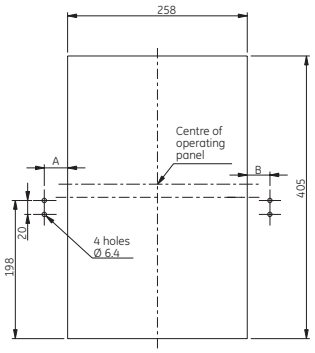


External current transformer

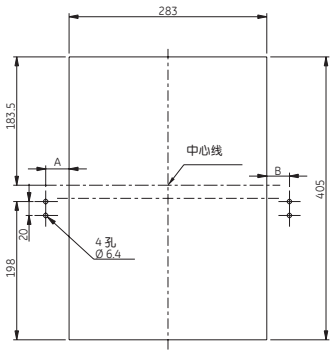


Rated current	1D	0D	HT
400A	94	144	24
630A	85	135	30
2000A	87	151	31
3200A	84	154	34
4000A	81	154	57
5000A	85	198	58
6400A	85	210	65

Door interlock

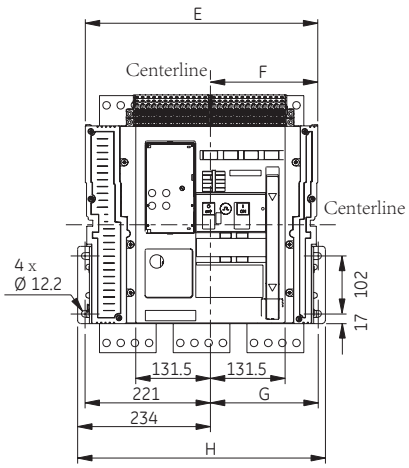


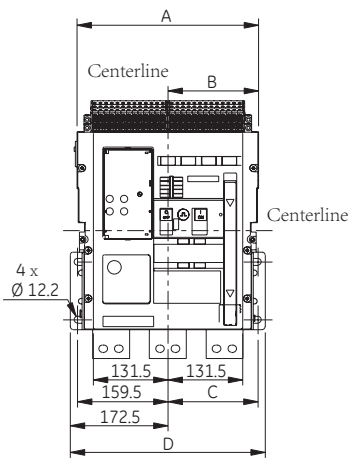
Frame	A
F1-3P	30
F1-4P	100



Frame	A	B
F1-3P	33.5	32.5
F1-4p	33.5	132.5
F2-3P	98.5	67.5
F2-4P	98.5	197.5
F3-3P	240.5	225.5
F3-4P	355.5	340.5

Wall mounting (fixed and withdrawable, one-time connection for front wiring)

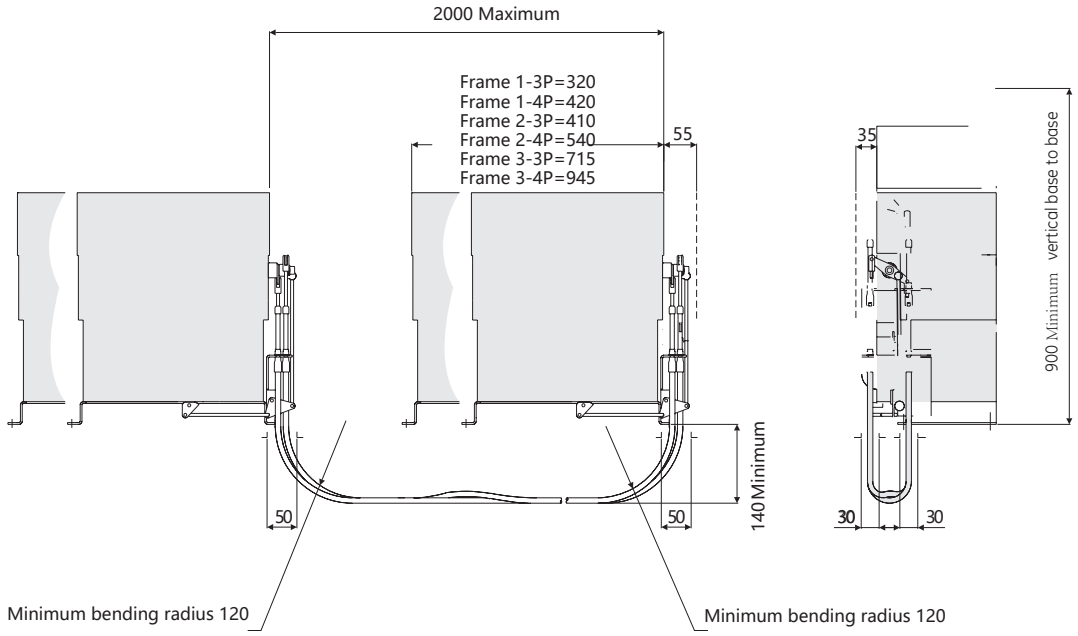




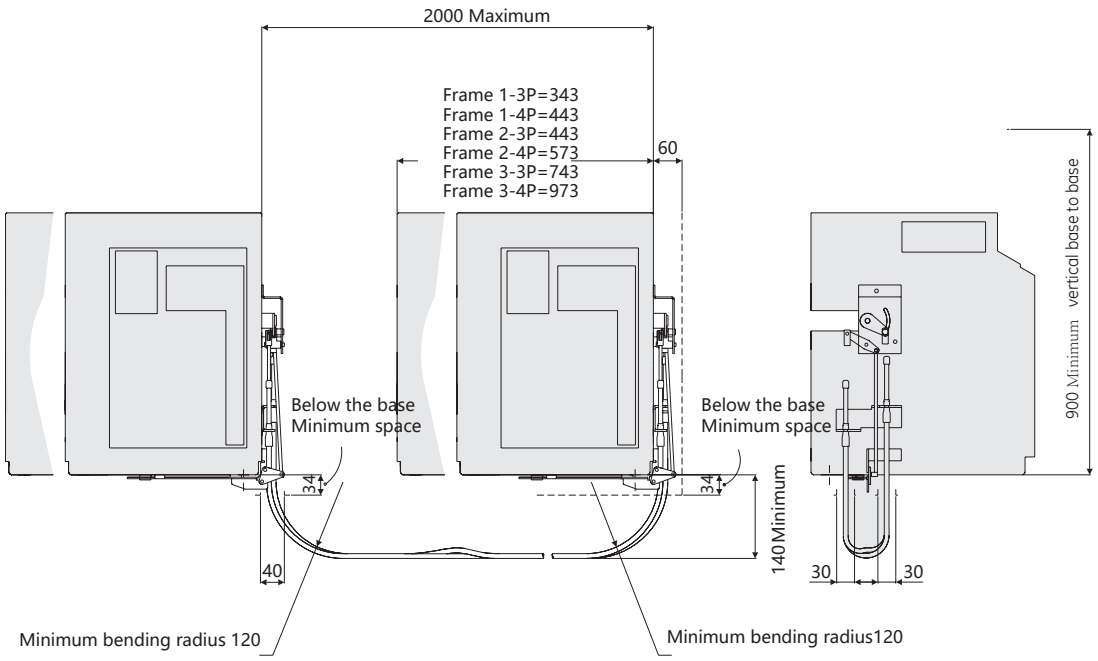
	3 Poles	4 Poles
A	320	420
B	159.5	259.5
C	158.5	258.5
D	344	444
E	410	540
F	189.5	319.5
G	190	320
H	437	567

2-way mechanical interlocking mechanism

2-way mechanical interlock / fixed - front wiring / rear wiring

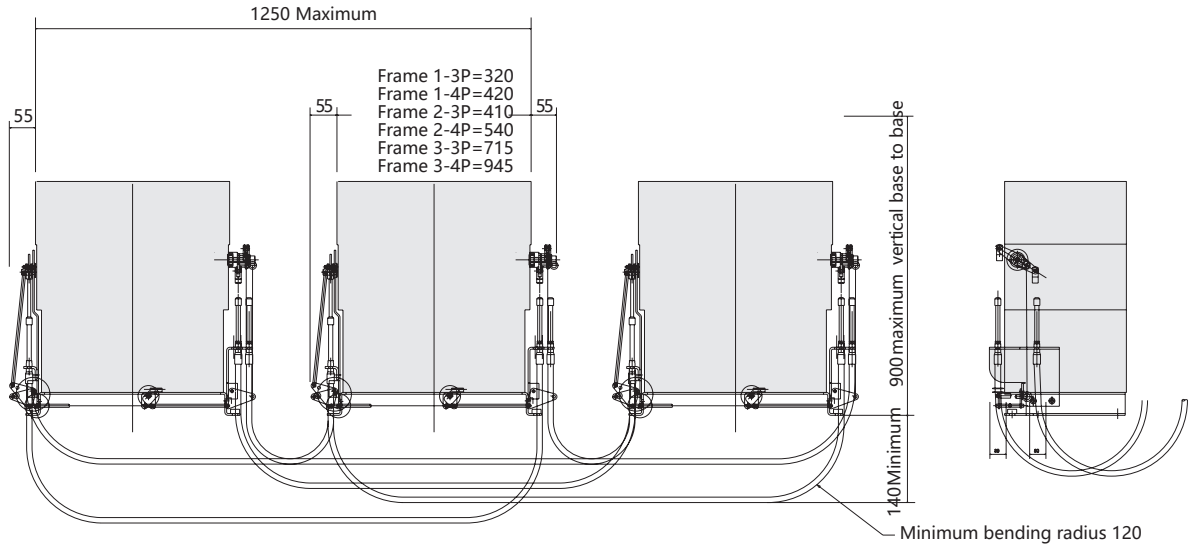


2-way mechanical interlock / withdrawable - front wiring / rear wiring

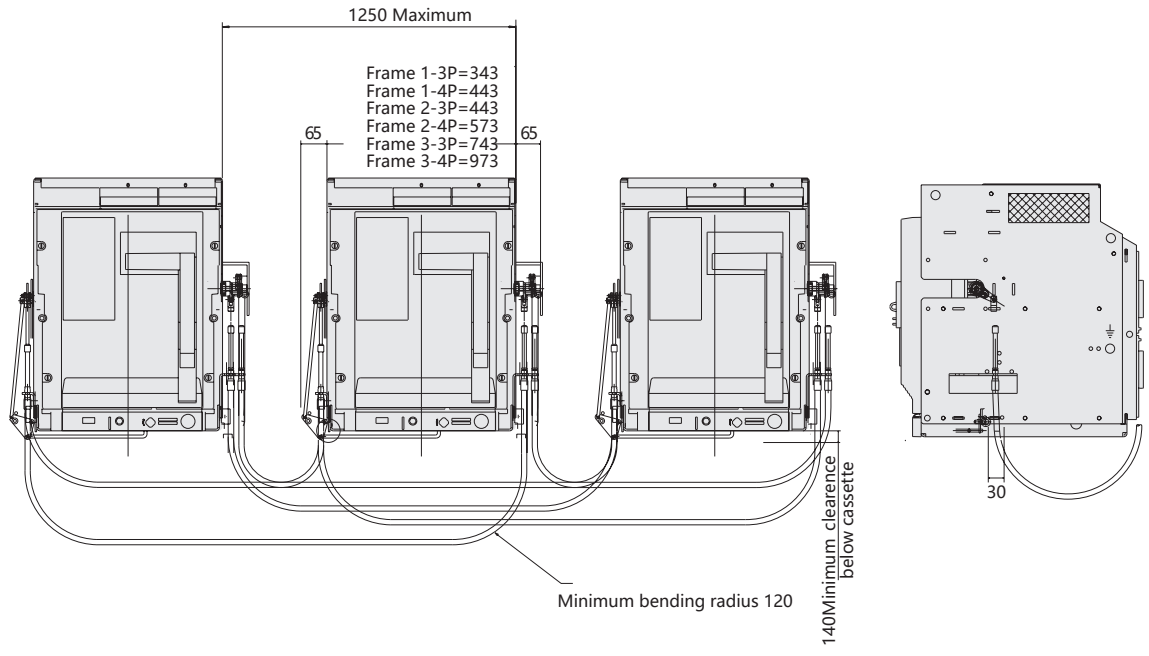


3-way mechanical interlocking mechanism

33-way mechanical interlock / fixed - front wiring / rear wiring

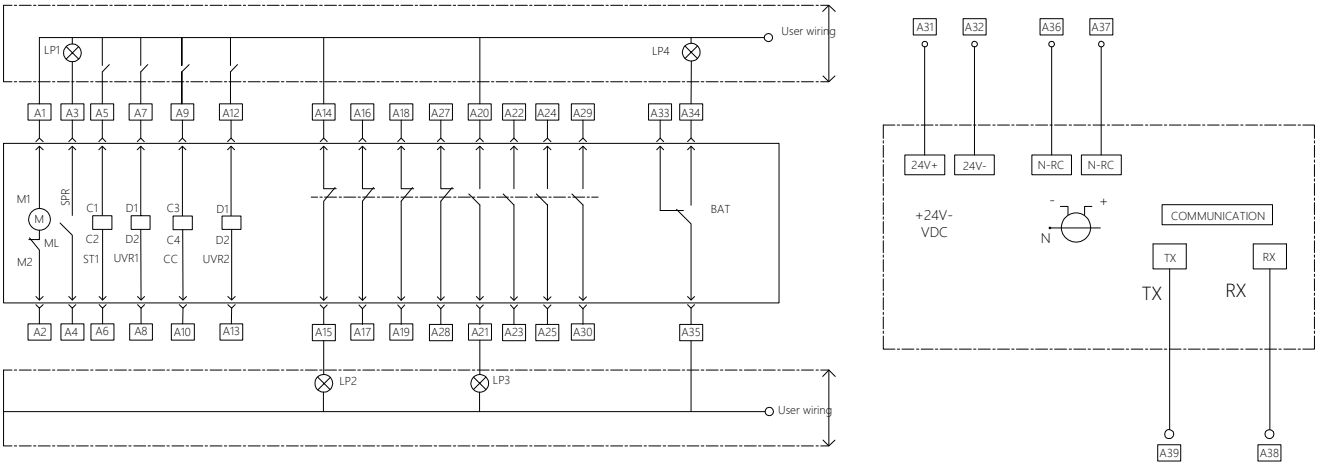


3 Mechanical interlocking mechanism / withdrawable - front wiring / rear wiring

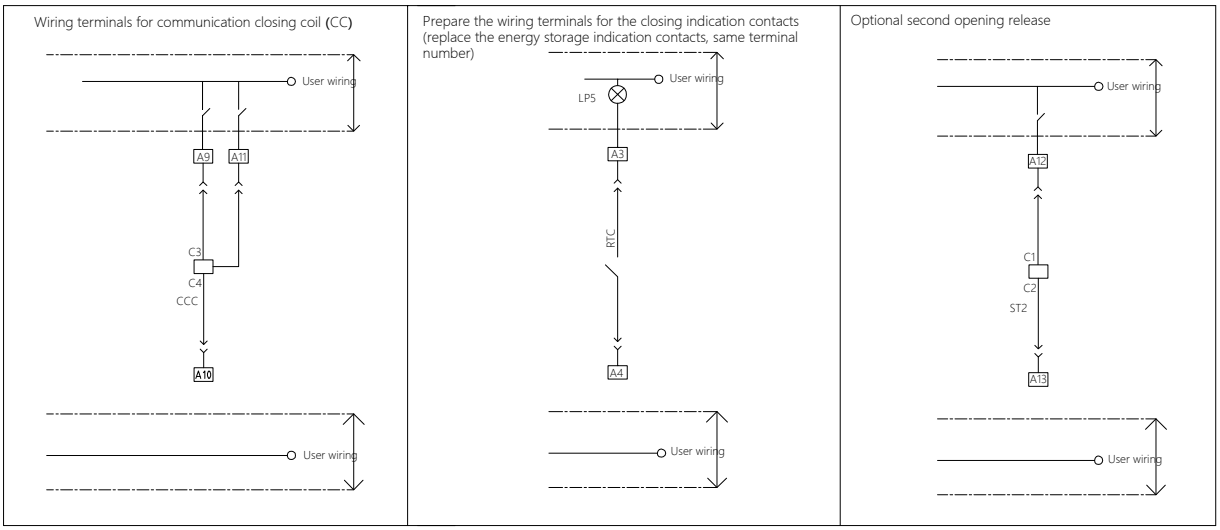


ME control unit secondary wiring terminal diagram

Terminal box A standard wiring diagram



Wiring diagram for optional functions of terminal box A



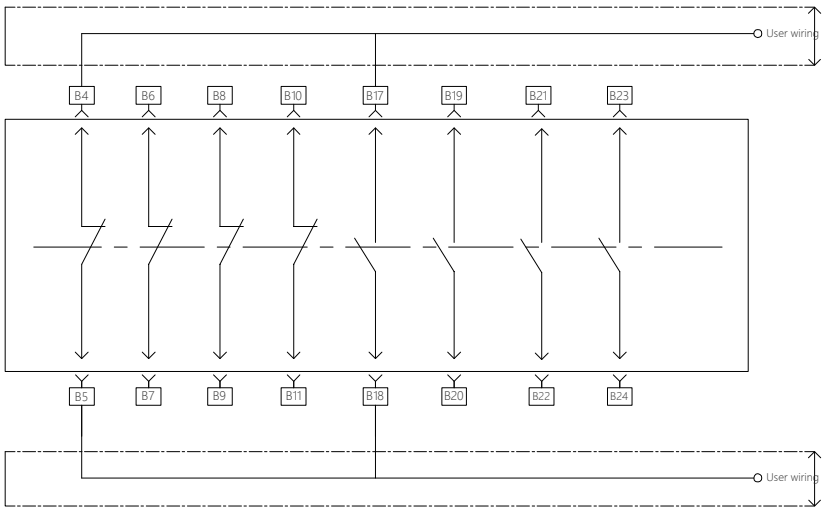
Symbol description:

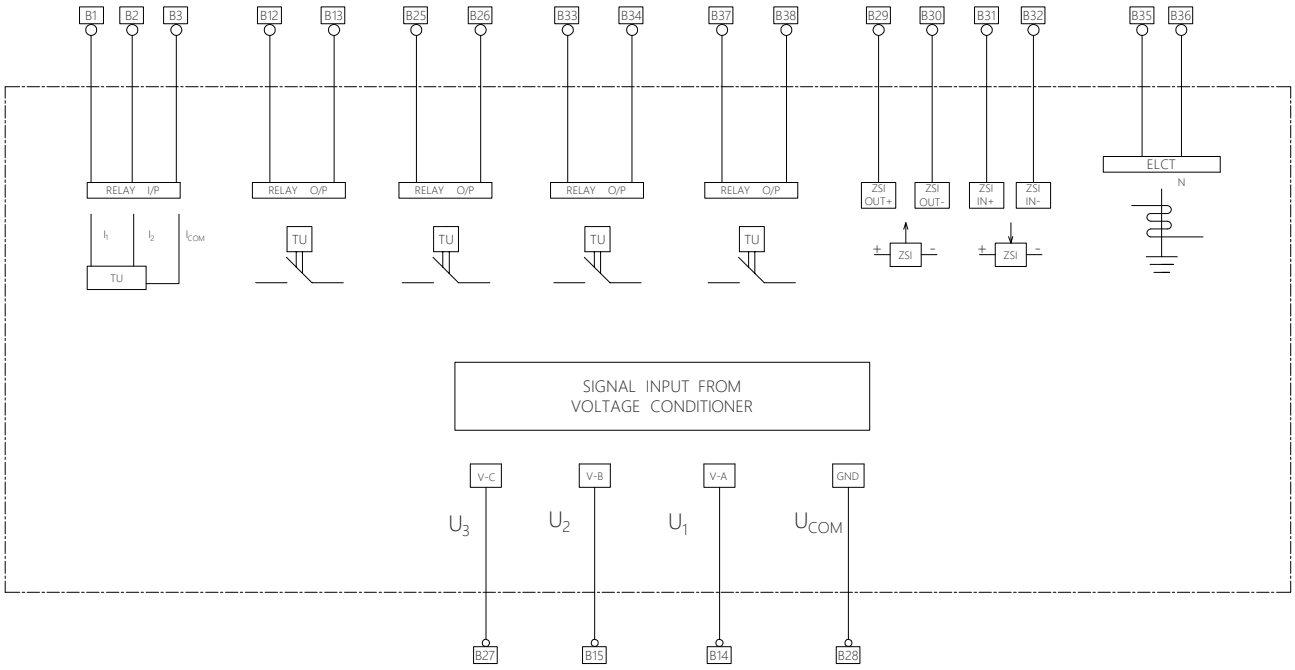
CC: Closing coil
ST: Shunt release
UVR: Undervoltage Release
SPR: Spring energy storage state
RTC: Ready to close
M: Energy storage motor
BAT: Alarm switch

CCC: Communication closing coil
24V+/24V-: External auxiliary power module for control unit
N-RC: External Rogowski coil for neutral line
RXD: Communication port
TXD: Communication port
A14-A19、A27-A28: Normally closed contacts of the transfer switch
A20-A25、A29-A30: Normally open contacts of the transfer switch

ME control unit secondary wiring terminal diagram

Terminal box B standard wiring diagram (Not applicable to A03 and A06 control units)





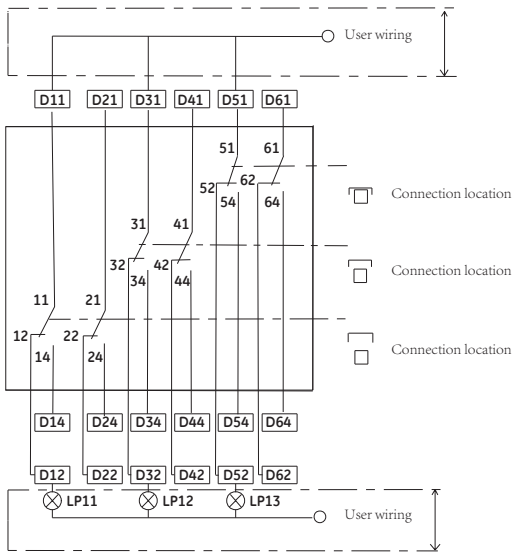
Symbol description:

ELCT: Grounding point CT input
RELAY O/P: Relay output terminal
RELAY I/P: Relay input terminal
A/V-B/V-C: Voltage transmitter input
GND: voltage ground

ZSI OUT: Zone interlock protection output terminal
ZSI OUT: Zone interlock protection input terminal
B4-B11: Normally closed contacts of the transfer switch
B17-B24: Normally open contact of transfer switch

Secondary wiring

Optional base position indicator contacts



User external instructions section

LP11: Circuit breaker in isolation position
LP12: Circuit breaker in test position
LP13: Circuit breaker in connected position

Ordering information

1.订单号：	2.交货日期：	3.中标盘厂：	4.定购台数：	台
5.项目名称：	6.订购者：	7.行业：		

技术规范					
产品型号 MEX ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐			产品类型	☐ 抽屉式	☐ 固定式
额定工作电压	☐ AC415V	☐ AC690V	☐ AC800V	☐ AC1140V	
框架1，400-2500A	☐ N分断, 55/45kA, AC415/690V		☐ S分断, 70/55kA, AC415/690V		☐ H分断, 85/66kA, AC415/690V
框架2，400-4000A	☐ N分断, 55/55kA, AC415/690V		☐ S分断, 70/66kA, AC415/690V		☐ H分断, 85/85kA, AC415/690V
	☐ M分断, 100/85kA, AC415/690V				
	☐ C分断, 66kA, AC800V		☐ F分断, 66kA, AC1140V		
框架3，3200-6400A	☐ M分断, 100kA, AC415/690V		☐ L分断, 150/65kA, AC690/1140V		☐ H分断, 80kA, AC1140V

额定电流	☐ 400A	☐ 630A	☐ 800A	☐ 1000A	☐ 1250A	☐ 1600A
	☐ 2000A	☐ 2500A	☐ 3200A	☐ 4000A	☐ 5000A	☐ 6400A
极数	☐ 3极		☐ 4极，中性线右置（标准配置）		☐ 4极，中性线左置	
抽屉式母排连接类型	☐ T型母排后水平接线 (1)		☐ T型母排后垂直接线			
固定式母排连接类型	☐ 标准后水平接线		☐ 上端后垂直转接端子		☐ 下端后垂直转接端子	

控制单元	☐ A03	☐ A06	☐ A13	☐ A16	
	☐ P13H	☐ P16H	☐ X13H	☐ X16H	☐ 无保护
接地保护类型	☐ 外置中性线RC（UEF）		☐ 外置接地保护CT（SEF）		
扩展功能	☐ Modbus通讯模块		☐ DI/DO模块		
辅助电源模块	☐ 宽电压模块，AC 100-400V ，DC 110/220V				
控制电压					

储能电机	☐ DC24V	☐ AC/DC110-130V	☐ AC/DC220-240V	☐ AC250-277V	☐ AC380-415V
合闸线圈	☐ DC24V	☐ AC/DC110-130V	☐ AC/DC220-240V	☐ AC250-277V	☐ AC380-415V
分闸线圈	☐ DC24V	☐ AC/DC110-130V	☐ AC/DC220-240V	☐ AC250-277V	☐ AC380-415V
欠压线圈	☐ DC24V	☐ AC/DC110-130V	☐ AC/DC220-240V	☐ AC250-277V	☐ AC380-415V
欠压延时模块	☐ DC24V	☐ AC/DC110-130V	☐ AC/DC220-240V	☐ AC250-277V	☐ AC380-415V

辅助触点	☐ 功率型4NO+4NC	☐ 功率型8NO+8NC(2)	☐ 功率型4NO+4NC,信号型4NO+4NC(2)
报警触点	☐ 功率型1NO+1NC	☐ 信号型1NO+1NC	
	☐ 机械计数器	☐ 准备合闸触点1NO	
抽屉式底座三位置触点	☐ 功率型1NO+1NC	☐ 功率型2NO+2NC	
	☐ 功率型1NO+1NC，信号型1NO+1NC		

分闸位置锁	☐ A锁	☐ B锁	☐ C锁	☐ D锁	☐ E锁
机械钢丝绳联锁类别	☐ 联锁A	☐ 联锁B	☐ 联锁C	☐ 联锁D	
机械钢丝绳长度	☐ 1.5m		☐ 2m		☐ 3m
	☐ 分闸按钮挂锁装置		☐ 相间隔板		
如有其他特殊要求请在此备注					

客户签章：

断路器标准配置：储能马达（带信号输出），合闸线圈，分闸线圈，4NO+4NC功率型报警触点，控制单元的外置辅助电源，标准门框，抽屉式断路器的抽架，后T型或L型接线端子（抽屉式）

注1：框架2@4000A，框架3@6400A应用于水平接线时，建议增加连接铜排截面，或加强散热措施，或降容使用

注2：A03、A06控制单元不支持扩展功率型8NO+8NC，功率型4NO+4NC及信号型4NO+4NC辅助触点

GEIS

官方网址：www.aeg-imc.com
热线电话：400-820-5234

样本如有修改，恕不另行通知
版本号：LV_CAQ_2024V01