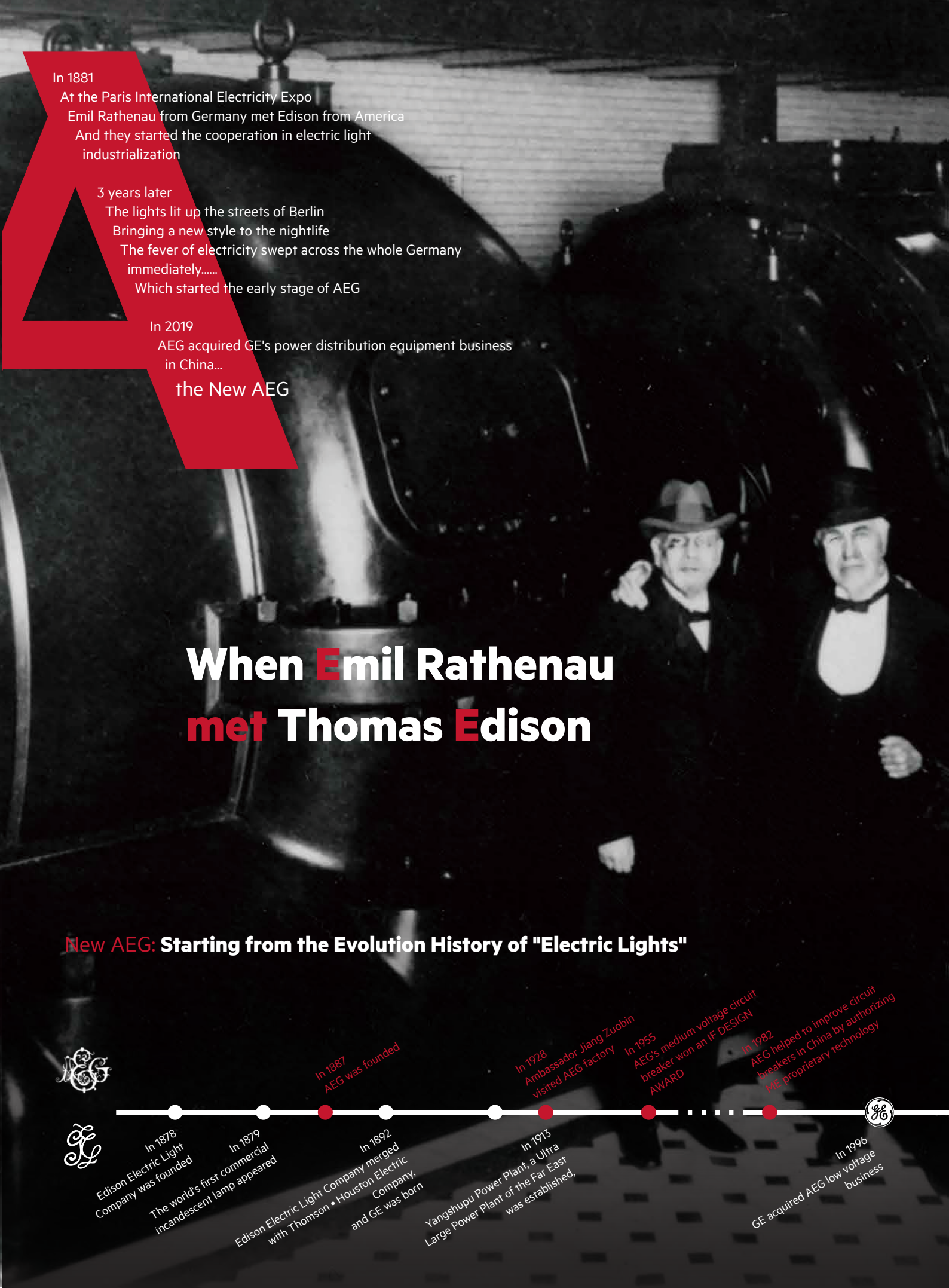
AEG

Product Catalogue



In 1881
At the Paris International Electricity Expo
Emil Rathenau from Germany met Edison from America
And they started the cooperation in electric light industrialization

3 years later
The lights lit up the streets of Berlin
Bringing a new style to the nightlife
The fever of electricity swept across the whole Germany immediately.....
Which started the early stage of AEG

In 2019
AEG acquired GE's power distribution equipment business in China...
the New AEG

When Emil Rathenau met Thomas Edison

New AEG: **Starting from the Evolution History of "Electric Lights"**

In 1878
Edison Electric Light Company was founded

In 1879
The world's first commercial incandescent lamp appeared

In 1887
AEG was founded

In 1892
Edison Electric Light Company merged with Thomson • Houston Electric Company, and GE was born

In 1913
Yangshupu Power Plant, a Ultra Large Power Plant of the Far East was established.

In 1928
Ambassador Jiang Zuobin visited AEG factory

In 1955
AEG's medium voltage circuit breaker won an IF DESIGN AWARD

In 1982
AEG helped to improve circuit breakers in China by authorizing ME proprietary technology

In 1996
GE acquired AEG low voltage business

A Centennial Legend, A Continuation of “Unlooked-for Chance”

In 1883 - Emil Rathenau officially entered into the cooperation with Thomas Edison to produce and promote incandescent lamps

In 1887 - AEG was founded with electric light business as its core

In 1996 - GE acquired AEG's low voltage electrical appliances business

In 2009 - AEG returns to China to expand the market

In 2019 - AEG acquired GE's power distribution equipment business in China

In 2000
GE breaker Co., Ltd. was founded
GE Guangdian Electronics Co., Ltd. was founded

In 2009
AEG returned to China

In 2017
AEG's VL vacuum circuit breaker won an IF DESIGN AWARD

In 2018
ABB acquired GEIS's global business

ALWAYS AN IDEA AHEAD

Full-Range Products of AEG

Catalogue

Medium Voltage (MV) Product Series

Low Voltage (LV) Product Series

Critical Power Product Series

US5.0 Dry Air Gas Insulated Ring Main Unit

US5.0 Dry Air Gas Insulated Ring Main Unit

Quick Model Selection

US5.0	-12	C	/630	-20	L
Product series	Rated voltage	Type of switchgear	Rated current	Rated breaking current	Type of extension
	12-12kV	C: Load switch	630-630A	20-20kA	L: Left-extensible
		F: Load switch fuse modular cabinet			R: Right-extensible
		CB: Vacuum circuit breaker			LR: Extensible on both side
		AM: Metering			Blank: Non-extensible
		D: Cable connection			
		CPT: Voltage transformer			
		ATS: Dual power switchgear			
		CI: Busbar load switch			
		CBI: Busbar vacuum circuit breaker			

Product Overview

The ALPS US5.0 dry air gas insulated ring main unit is a new generation AEG environmental-friendly switchgear that breaks current based on the dry air gas insulation and vacuum arc extinguishing technology. All HV live parts of the switchgear are enclosed in a stainless steel gas tank without affection by the environment and with an excellent safety performance.

The ALPS US5.0 dry air gas insulated ring main unit is also provided with those outstanding characteristics from ALPS US3.0, such as compact structure and maintenance-free, and composed of main functional units including load switch module, circuit breaker module and related extension scheme. It can be extended in any direction through bus connectors, and the incoming and outgoing lines are plug-in cables arranged freely according to different design schemes for different power distribution tasks.

The ALPS US5.0 dry air gas insulated ring main unit can be integrated with the distribution terminal DTU, and meet the needs of intelligent grid feeder automation and load management through functions such as remote signaling, telemetry, and remote control, achieving digitized measurement, networked control, status visualization and information interaction, and satisfying the construction requirement of a distributed "zero-power-outage" self-healing system.

Product Features

- Using dry air as the insulation medium, truly achieving environmental protection since no greenhouse gases are used;
- Long-life, maintenance-free vacuum arc extinguishing chamber is used for breaking current, achieving a reliable performance;
- Live parts are fully enclosed without affection by the operating environment;
- 3mm stainless steel gas tank, fully automatic laser welding process, 40+ years of maintenance-free safety;
- Modular structure and plug-in design, flexible use of various functional units, easy and quick on-site installation;
- Complete design schemes, provided with functions such as telemetry and remote control, relay protection and auto transfer system, meeting requirements of various application scenarios.

US5.0 Dry Air Gas Insulated Ring Main Unit

Key Technical Parameters

Item	Unit	Value
Rated voltage	kV	12
Rated frequency	Hz	50
Rated insulation level		
Power frequency withstand voltage (1 min)	kV	42 (phase-phase, phase-earth), 48 (distance)
Lightning impulse withstand voltage (peak)	kV	75 (phase-phase, phase-earth), 85 (distance)
Rated current of main busbar	A	630
Protection level (gas tank/outer casing)		IP67/IP4X
Rated filling level of dry air (20 °C, gauge pressure)	Mpa	0.04
Annual leakage rate	%/ year	≤ 0.01

Load switchgear

Item		Unit	value
Rated short time withstand current	Main circuit / grounding switch	kV/s	20/4
Rated peak withstand current	Main circuit / grounding switch	kV	50
Rated short-circuit making current		kA	50
Rated active load breaking current		A	630
Rated closed loop breaking current		A	630
Rated active load breaking current (5%)		A	31.5
Rated cable-charging breaking current		A	40
Rated active load breaking times		Times	200
Short-circuit making (load switch/grounding switch)		Times	5/5
Mechanical life (load switch/grounding switch)		Times	5000/3000

Integrated electrical cabinet

Item	Unit	value
Rated current	A	Depending on the fuse
Rated short-circuit breaking current	kA	31.5
Rated short-circuit closing current	kA	80
Rated transfer current	A	1600

Circuit breaker cabinet

Item		Unit	value
Rated short time withstand current	Main circuit / grounding switch	kV/s	20/4
Rated peak withstand current	Main circuit / grounding switch	kV	50
Rated short-circuit making current		kA	50
Rated short-circuit breaking times		Times	50
Rated operating sequence			O-0.3s-CO-180s-CO
Grounding switch short-circuit making		Times	5
Mechanical life (vacuum circuit breaker / isolation switch / grounding switch)		Times	20000/3000/5000

US3.0 Gas Insulated Ring Main Unit

US3.0 Gas Insulated Ring Main Unit

Quick Model Selection

US3.0
Product series

-12
Rated voltage
12-12kV
24-24kV

C
Type of switchgear
C: Load switch
F: Combined fuse-switch
CB: Vacuum circuit breaker
AM: Metering
D: Cable connection
CPT: Voltage transformer
ATS: Auto transfer switch
CI: Load switch busbar
CBI: Vacuum circuit breaker busbar

/630
Rated current
630-630A
1250-1250A

-20
Rated breaking current
20-20kA
25-25kA

L
Type of extension
L: Left-extensible
R: Right-extensible
LR: Extensible on both side
Blank: Non-extensible

Product Overview

ALPS US3.0 SF_6 gas insulated ring main unit is applicable to 12~24kV power distribution systems, which provides a variety of systematic solutions for industrial and commercial areas with ring network power supply, dual radiation power supply, and cable feeder networks, and the areas with large power supply loads and high density such as rural townships in a flexible and changeable combination of functions.

ALPS US3.0 SF_6 gas insulated ring main unit is based on SF_6 gas insulation. All HV live parts of the switchgear are enclosed in the SF_6 gas tank, so that they are not affected by the environment and maintenance-free with high safety. The unit is in a compact modular structure, with load switch, load switch-fuse combination equipment, isolating switch-breaker and other main switches to form separate functional units in a form of sealed gas tank. The bus bar can be extended arbitrarily in the left and right directions through bus connectors. It can be arranged arbitrarily according to different design schemes for different power distribution tasks.

Product Features

- **Reliability**
  - The mechanical lives of the circuit breaker, load switch and grounding switch can reach 10000, 6000 and 3500 times, respectively.
  - The 3mm stainless steel gas tank, based on automatic laser welding, can meet the requirements of safe use for more than 40 years, truly free of maintenance.
- **Safety**
  - The bursting point of the explosion-proof membrane is accurately designed to be 2.5 times the standard atmospheric pressure, effectively ensuring the personal and equipment safety in case of arcing.
  - The full series is designed for flood control, so that the safety of maintenance personnel can be ensured even in case of flooding, and the power supply can be quickly restored after flooding.
  - The protection levels of standard equipped gas tanks and cabinets are IP67 (up to IP68), and IP42, respectively, which can help to effectively prevent the equipment from being damaged by pollution, condensation, chemicals and small animals.
- **Environmental protection**
  - Based on the special seal design, the gas leakage can be reduced to 0.01%/year, which is far lower than the national standard, minimizing the impact on the environment.
  - Designed with recovery of SF_6 ensuring the safe and thorough recovery of SF_6 at the end of the life cycle.

US3.0 Gas Insulated Ring Main Unit

Key Technical Parameters

Item	Unit	Value	
Rated voltage.	kV	12	24
Rated frequency	Hz	50	50
Rated insulation level	kV		
Power frequency withstand voltage (1 min)	kV	42 (phase-phase, phase-earth), 48 (dist.ance)	65 (phase-phase, phase-earth), 79 (dist.ance)
Lightning impulse withstand voltage (peak)	kV	95 (phase-phase, phase-earth), 110 (dist.ance)	125 (phase-phase, phase-earth), 145 (dist.ance)
Rated current of main busbar	A	630,1250	630
Mechanical life (circuit breaker / load switch / grounding switch / isolating switch)	Times	10,000/6,000/3,500/3,000	10,000/5,000/3,000/3,000
Protection level (gas tank / outer casing)		IP67/IP42	IP67/IP4X
Rated filling level of SF6 (20°C)	Mpa	0.03	0.03
Thickness of stainless steel gas tank	mm	3.0	3.0
Annual leakage rate	%/ year	0.01	0.01

Load switchgear

Item	Unit	Value		
Rated current	A		630	630
Rated short time withstand current	kA	Main circuit / grounding switch	20/4s; 25/4s	20/4s
		Grounding connection circuit	17.4/4s; 21.7/4s	17.2/4s
Rated peak withstand current	kA	Main circuit / grounding switch	50, 63	50
		Grounding connection circuit	43.5 , 54.2	43.5
Rated short-circuit making current	kA		50, 63	50

Combined electrical cabinet

Item	Unit	Value		
Rated current	A		Depends on the fuse	Depends on the fuse
Rated short-circuit breaking current	kA		31.5	31.5
Rated short-circuit making current	kA		80	80
Rated transfer current	A		1600	1300

Circuit breaker cabinet

Item	Unit	Value			
Rated current	A		630	1250	630
Rated short time withstand current	kA	Main circuit / grounding switch	20/4s, 25/4s	25/4s	20/4s
		Grounding connection circuit	17.4/2s , 21.7/2s	21.7/2s	17.4/2s
Rated peak withstand current	kA	Main circuit / grounding switch	50, 63	63	50
		Grounding connection circuit	43.5, 54.2	54.2	43.5

VL Vacuum Circuit Breaker

VL Vacuum Circuit Breaker

Quick Model Selection

VL	-12	M	E	/1250	-31.5	B	W
Product series	**Rated voltage**	**Operating Mechanism**	**Form of main circuit**	**Rated current**	**Rated breaking current**	**Installation position**	**Installation mode**
	12-12kV	M: Permanent magnet	E: Embedded pole	630-630A	25-25kA	Blank: Mid-installation	W: Withdrawable
	17.5-17.5kV	Null: Spring		1250-1250A	31.5-31.5kA	B: Floor	F: Fixed
	24-24kV			1600-1600A	40-40kA		
	40.5-40.5kV			2000-2000A	50-50kA		
				2500-2500A			
				3150-3150A			
				4000-4000A			
				5000-5000A			

Product Overview

The VL MV vacuum circuit breaker is the perfect combination of AEG's reliable vacuum interrupter R&D and manufacturing technology, as well as advanced operating mechanism R&D, design and production technology. The VL vacuum circuit breaker fully complies with GB, DL and IEC standards, and can be widely used in the protection and control of MV power distribution systems in energy source, infrastructure, industrial, commercial and civil buildings, especially in newly constructed or expanded MV substations, as well as scenarios with different loads to be switched and frequently operated.

Product Features

- **High-performance vacuum arc extinguishing**
  - The one-time seal-exhaust technology greatly simplifies the manufacturing process and improves the reliability, stability and consistency of the product.
  - The longitudinal magnetic field arc extinguishing technology increases the operating life and strengthens the arc extinguishing ability.
  - The use of high-quality bellows enhances the air tightness and reliability, and prolongs the performance life.
- **Trans era ASP embedded pole**
  - The new thermoplastic insulation casing is applied innovatively under an established new environmental protection standard, and can be completely recycled.
  - Lower weight higher toughness, impact resistance, corrosion resistance and low temperature resistance.
- **Newly developed monostable permanent magnet mechanism**
  - Simple in structure and small in size, and parts and components reduced by 70% compared with spring and electromagnetic mechanisms.
  - Magnetic materials are stable without mechanical wear, truly achieving long life and maintenance-free operation, and comprehensively overcoming mechanical failures.
  - The switching-in state can be maintained stablly, avoiding bouncing after switching-in.
- **Technologically advanced spring operating mechanism**
  - GAL-II independent modular spring operating mechanism with parts and components reduced by 20%, and mechanical life of 60,000 operations.
  - Excellent surface protection, ensuring reliable operation of the mechanism in harsh environments.
    Self-lubricating bearings meeting special requirements, ensuring long life of GAL mechanisms and achieving maintenance free.
- **Intelligent configuration**
  - The chassis is made based on the industry's most advanced black zinc plating process, with salt spray resistance for 500hrs in the test.
  - Intelligent monitoring and real-time sensing of temperature changes at key points of the circuit breaker; perfect mechanical characteristics and secondary element monitoring for timely finding out and mastering the circuit breaker performance; provided with a handcart-type motor drive function to achieve remote input and output control under one-click sequential control; provided with digital analysis and complete functions such as predicting possible faults and achieving pre-maintenance.

VL Vacuum Circuit Breaker

Key Technical Parameters

Item		Unit	Value			
Rated voltage		kV	12	17.5	24	40.5
Rated frequency		Hz	50/60	50/60	50/60	50/60
Rated insulation level		kV				
Power frequency withstand voltage (1 min)		kV	42	38	65	95
Lightning impulse withstand voltage (peak)		kV	75	95	125	185
Rated current		A	630, 1250, 1600, 2000, 2500, 3150, 4000*, 5000*	630, 1250, 1600, 2000, 2500, 3150, 4000*	630, 1250, 1600, 2000, 2500, 3150*	630, 1250, 1600, 2000, 2500, 3150
Rated short-circuit breaking current		kA	25, 31.5 , 40, 50	25, 31.5 , 40	25, 31.5	25, 31.5 , 40
Rated peak withstand current		kA	63, 100, 125 , 135	63, 80, 100	63, 80	63, 80, 100
Rated short time withstand current 4s		kA	25, 31.5 , 40, 50	25, 31.5 , 40	25, 31.5	25, 31.5 , 40
Operating mechanism			Spring Permanent magnet	Spring	Spring	Spring
Three-phase switching asynchrony		ms	≤ 2	≤ 2	≤ 2	≤ 3
Bounce time after close		ms	≤ 2	≤ 2	≤ 2	≤ 3
Arcing time		ms	≤ 10	≤ 10	≤ 10	≤ 10
Closeing time	Spring	ms	30~70	30~70	30~70	30~70
	Permanent magnet	ms	30~70			
Opening time	Spring	ms	20~50	20~50	20~50	20~50
	Permanent magnet	ms	20~50			
Mechanical life		Times	60,000 (630A~1600A) 30,000 (2000A~5000A) 100,000 (Permanent magnet)	10,000	30,000	10,000
Electrical endurance		Times	≤ 40kA 100 50kA 30	E2	30	30

* Forced air cooling is required.

VB2 Plus Vacuum Circuit Breaker

VB2 Plus Vacuum Circuit Breaker

Quick Model Selection

VB2 Plus	-12	/T	1250	-31.5	W
Product series	Rated voltage	Operating mode	Rated current	Rated breaking current	Installation mode
	12-12kV	T: Spring	630-630A	25-25kA	W: Withdrawable
	17.5-17.5kV		1250-1250A	31.5-31.5kA	F: Fixed
	24-24kV		1600-1600A	40-40kA	
			2000-2000A		
			2500-2500A		
			3150-3150A		
			4000-4000A		

*Please consult the company for specifications of 5000A and 50kA

Quick Model Selection

VB	-40.5	/T	1250	-31.5	B	W
Product series	Rated voltage	Operating mode	Rated current	Rated breaking current	Installation position	Installation mode
	40.5-40.5kV	T: Spring	630-630A	25-25kA	Blank: Mid-installation	W: Withdrawable
			1250-1250A	31.5-31.5kA	B: Floor	F: Fixed
			1600-1600A			
			2000-2000A			
			2500-2500A			
			3150-3150A			

Product Overview

The VB2 Plus vacuum circuit breaker is an indoor three-phase AC device used within a rated voltage range of 12kV-40.5kV, which can be used for electrical equipment control and protection in industrial and mining enterprises, power plants and substations. The product complies with GB, DL and IEC standards, especially suitable for frequent work. The circuit breakers can be mounted in a fixed or removable switchgear, as the best choice for control and protection of medium voltage distribution systems.

Product Features

- **High-performance vacuum arc extinguishing**
  - The one-time seal-exhaust technology greatly simplifies the manufacturing process and improves the reliability, stability and consistency of the product.
  - The longitudinal magnetic field arc extinguishing technology increases the operating life and strengthens the arc extinguishing ability.
  - The use of high-quality bellows enhances the air tightness and reliability, and prolongs the performance life.
- **Embedded pole by APG casting**
  - The HV circuit is completely enclosed in solid insulating material with a high tightness and insulation.
- **Modular spring operating mechanism**
  - The modular spring operating mechanism is simple in concept and easy to use, and its mechanical life can reach up to 30000 operations.
  - Excellent surface protection ensuring reliable operation of the mechanism in harsh environments.
  - Self-lubricating bearings meeting special requirements, ensuring the long life of the mechanism and achieving maintenance free operation.
- **Intelligent configuration**
  - Intelligent monitoring, and real-time sensing of temperature changes at key points of the circuit breaker; perfect mechanical characteristics and secondary element monitoring for timely finding out and mastering the circuit breaker performance breaker; provided with a handcart-type motor drive function to achieve remote input and output control under one-click sequential control; provided with digital analysis and complete functions such as predicting possible faults and achieving pre-maintenance.

VB2 Plus Vacuum Circuit Breaker

Key Technical Parameters

Item		Unit	Value			
Rated voltage		kV	12	17.5	24	40.5
Rated frequency		Hz	50/60	50/60	50/60	50/60
Rated insulation level		kV				
Power frequency withstand voltage (1 min)		kV	42	38	65	95
Lightning impulse withstand voltage (peak)		kV	75	95	125	185
Rated current		A	630, 1250, 1600, 2000, 2500, 3150, 4000*	630, 1250, 1600, 2000, 2500, 3150, 4000*	630, 1250, 1600, 2000, 2500, 3150*	630, 1250, 1600, 2000, 2500, 3150*
Rated short-circuit breaking current		kA	25, 31.5, 40	25, 31.5, 40	25, 31.5	25, 31.5 , 40
Rated peak withstand current		kA	63, 80, 125	63, 80, 100	63, 80	63, 80, 100
Rated short time withstand current 4s		kA	25, 31.5, 40	25, 31.5, 40	25, 31.5	25, 31.5 , 40
Operating mechanism			Spring	Spring	Spring	Spring
Three-phase switching asynchrony		ms	≤ 2	≤ 2	≤ 2	≤ 3
Bounce time after close		ms	≤ 2	≤ 2	≤ 2	≤ 3
Arcing time		ms	≤ 10	≤ 10	≤ 10	≤ 10
Closing time	Spring	ms	30~70	30~70	30~70	30~70
Opening time	Spring	ms	20~50	20~50	20~50	20~50
Mechanical life		Times	30,000	10,000	30,000	10,000
Electrical endurance		Times	50	E2	30	30

* Forced air cooling is required

VB2 Plus G-15 Generator Vacuum Circuit Breaker

VB2 Plus G-15 Generator Vacuum Circuit Breaker

Quick Model Selection

VB2 Plus G
Product series

-15
Rated voltage
15-15kV

/T
Operating mode
T: Spring

4000
Rated current
2500-2500A
3150-3150A
4000-4000A
5000-5000A

-40
Rated breaking current
31.5-31.5kA
40-40kA
50-50kA

W
Installation mode
W: Withdrawable
F: Fixed

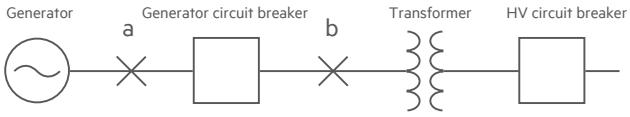
*Please contact us for detailed information about specs of 2000A and below

Product Features

The fault conditions near the generator power supply are more harsh than those in the normal distribution circuit. It is necessary to design and develop a special vacuum circuit breaker for protecting the generator considering these special fault characteristics. The VB2 Plus G generator vacuum circuit breaker meets the international double standards of IEC/IEEE 62271-37-01, and has passed the full-set test in the KEMA laboratory.

Product Features

- The maximum rated current reaches 5000A and the maximum short-circuit breaking capacity reaches 50kA;
- The DC component of the system source reaches 75%, and that of the generator source reaches 130%;
- The rise rate of the recovery voltage (RRRV) has been verified by KEMA.
- It is easy to operate, simple to maintain, and can provide comprehensive protection. It is mainly used in distributed energy, marine gas backup generators, mining power plants, small-sized hydroelectric generators, and small-sized steam turbine generators.



a: System Source

b: Generator source

Key Technical Parameters

Item	Unit	Value
Rated voltage	kV	15
Rated current	A	2500/3150/4000/5000
Rated power frequency withstand voltage (1min)	kV	42
Rated lightning impulse withstand voltage	kV	95
Rated frequency	Hz	50/60
Rated short-circuit breaking current	kA	31.5/40/50
Rated short time withstand current (3s)	kA	31.5/40/50
Rated peak withstand current	kA	86.3/110/137
Rated short-circuit making current	kA	86.3/110/137
Rated operating sequence		CO-30min-CO
Mechanical life	Times	10000
DC component	%	75%
Peak of transient recovery voltage	kV	27 (system source, generator source) 39 (out-of-phase breaking)
Transient RRRV	kV/ μs	3.5 (System source) 3.5 (Generator source) 3.3 (out-of-phase breaking)

WCH Vacuum Contactor

WCH Vacuum Contactor

Quick Model Selection

WCH
Product series

-7.2
Rated voltage
7.2-7.2kV
12-12kV

P
Hold mode
M: Mechanical hold
E: Electrical hold
P: Permanent magnet hold

/M
Fuse protection mode
M: Motor protection
T: Transformer protection
Null: No fuse

80
Current of fuse
6.3, 10~355A

-50
Breaking current of fuse
50kA

Product Overview

The WCH MV vacuum contactor has a new generation electromagnetic / permanent magnet operating mechanism and a high-performance vacuum interrupter, providing excellent electrical and mechanical performances. The product complies with the standards of GB, DL and IEC, and can be used in three-phase AC systems with rated voltages of 12kV and below and rated frequencies of 50/60HZ, especially suitable for the control and protection of electrical equipment such as motors, transformers, capacitor banks and scenarios requiring frequent start-stop or switching.

Product Features

- Supporting rated current up to 630A, with a mechanical life up to 1 million operations based on the electromagnetic / permanent magnet operating mechanism.
- Flexible to mount for both withdrawable and fixed types, meeting the requirements of miniaturized switchgears.
- Adhering to German exquisite quality with an industrial product appearance design, and ensuring personal and equipment safety with excellent insulation performance.
- Provided with silver-plated spring contact fingers in the base groove, ensuring electrical and thermal stability.

Key Technical Parameters

Item		Unit	Value	
Rated voltage		kV	7.2	12
Rated frequency		Hz	50/60	50/60
Rated insulation level		kV		
Power frequency withstand voltage (1 min)		kV	32	42
Lightning impulse withstand voltage.(peak)		kV	60	75
Rated current		A	400/630	
Rated breaking current		A	4000/6300	
Rated making current		A	4000/6300	
Rated short time withstand current 4s		kA	4/6.3	
Overload withstand current 1s		kA	8/9.5	
Rated takeover current		A	3200	3200
Operating mechanism			EM / Permanent magnet	EM / Permanent magnet
Closing time	Mechanical hold	ms	≤ 100	≤ 100
	Electrical hold		≤ 150	≤ 150
	Perm.magnet hold		≤ 70	≤ 70
Opening time	Mechanical hold	ms	≤ 70	≤ 70
	Electrical hold		≤ 100	≤ 100
	Perm.magnet hold		≤ 50	≤ 50
Mechanical life		Times	1,000,000	1,000,000
Electrical endurance	Rated current	Times	1,000,000	1,000,000
	AC-3		250,000	250,000
	AC-4		10,000	10,000

CR193 Electromagnetic Vacuum Contactor

CR193 Vacuum Contactor

Quick Model Selection

CR193	-7.2	M	/M	80	-50
product series CR193 vacuum contactor	**Voltage level** 7.2-7.2kV 12-12kV	**Holding mode** M: Mechanical retention E: Electrical retention	**Protection method of fuse** M: Motor protection T: Transformer protection None: No fuse	**Current of fuse** 6.3 、 10~355A	**Breaking current of fuse** 50kA

Product Overview

The CR193 MV vacuum contactor has a new generation electromagnetic operating mechanism and a high- performance vacuum interrupter, providing excellent electrical and mechanical performances. The product complies with the standards of GB, DL and IEC, and can be used in three-phase AC systems with rated voltages of 12kV and below and rated frequencies of 50/60HZ, especially suitable for the control and protection of electrical equipment such as motors, transformers, capacitor banks and scenarios requiring frequent start-stop or switching.

Product Features

- Based on the rated current of 400A, providing optional mechanical and electrical hold modes, with a mechanical life up to 1 million operations.
- Flexible to mount for both withdrawable and fixed types, meeting the requirements of miniaturized switchgears.
- Adhering to German exquisite quality with an industrial product appearance design, and ensuring personal and equipment safety with excellent insulation performance.
- Provided with silver-plated spring contact fingers in the base groove, ensuring electrical and thermal stability.

Key Technical Parameters

Item		Unit	Value	
Rated voltage		kV	7.2	12
Rated frequency		Hz	50/60	50/60
Rated insulation level		kV		
Power frequency withstand voltage (1 min)		kV	32	42
Lightning impulse withstand voltage. (peak)		kV	60	75
Rated current		A	400	
Rated breaking current		A	4000	
Rated making current		A	4000	
Rated short time withstand current 4s		kA	4	
Overload withstand current 1s		kA	8	
Rated takeover current		A	3200	3200
Operating mechanism			EM mech.	EM mech.
Closing time	Mechanical hold	ms	≤ 100	≤ 100
	Electrical hold		≤ 150	≤ 150
Opening time	Mechanical hold	ms	≤ 70	≤ 70
	Electrical hold		≤ 100	≤ 100
Mechanical life		Times	1,000,000	1,000,000
Electrical endurance	Rated current	Times	1,000,000	1,000,000
	AC-3		250,000	250,000
	AC-4		10,000	10,000

MEX Air Circuit Breaker

MEX air circuit breaker

Rapid selection of model

MEX
product series MEX series Air circuit breaker

1	
Molded case type	
1	Cabinet 1
2	Cabinet 2
3	Cabinet 3

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

3	
Breaking capacity	
3	Grade 3
4	Grade 4

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) At AC800V voltage; 2) At AC1150V voltage; 3) An unprotected circuit breaker (with disconnecting function) will be provided when the control unit is not selected 4) Breaking capacity (Icu) of the full series is equal to 100% of Ics; 5) When the parameter of N, S, H, and M breaking displayed in the table is AC415V, the corresponding breaking capacity for other voltage levels is detailed in the technical data sheet.

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

Note: 6) 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;
Selection example
Requirement: Rated current: 2500A, 3P, drawer type, short-circuit breaking capacity: 70kA, LSI three-section protection, current measurement
Model: MEX1S3W25A03

Standard configuration of circuit breaker

Drawer type circuit breaker

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

MEX Air Circuit Breaker

Air overview

Frame type	Breaking code	Rated current	Rated voltage	Icu	Ics	Icw
Cabinet 1	N	400 - 25 00A	AC415V	55 kA	55 kA	55kA
			AC690V	45 kA	45 kA	55kA
	S	400 - 25 00A	AC415V	70 kA	70 kA	70 kA
			AC690V	55 kA	55 kA	70 kA
	H	400 - 25 00A	AC415V	85 kA	85kA	70 kA
			AC690V	66kA	66 kA	70 kA
Cabinet 1	N	32 00-4000A	AC415V	55kA	55 kA	55kA
			AC690V	55 kA	55 kA	55 kA
	S	32 00-4000A	AC415V	70 kA	70kA	70 kA
			AC690V	66 kA	66 kA	70 kA
	H	400 - 40 00A	AC415V	85kA	85 kA	85kA
			AC690V	85 kA	85 kA	85 kA
	M	400 - 40 00A	AC415V	100kA	100kA	85kA
			AC690V	85 kA	85 kA	85 kA
	C	400 - 40 00A	AC800V	66 kA	66 kA	66 kA
	F	400 - 40 00A	AC 11 50V	66 kA	66 kA	66 kA
Cabinet 1	M	3200-6400A	AC415V	100kA	100kA	100kA
			AC690V	100kA	100kA	100kA
	L	3200-6400A	AC415V	150kA	150kA	100kA
			AC690V	100kA	100kA	100kA
			AC 11 50V	65 kA	65 kA	65 kA
	H	3200-6400A	AC 11 50V	80 kA	80 kA	80 kA

Product overview

- China CCC/CQC, EU CE/CB, North America UL certification
- Icu = Ics up to 150kA, rated current: 6,400 A, high voltage up to AC1, 150V/80kA
- Full electrical measurement and protection: voltage/current protection, reverse power protection, current setting range: 0.2-1xIn
- Record overload, short circuit, and grounding events, and capture optional fault waveform
- Color display of control unit large screen, with red full screen fault alarm
- RELT short-circuit allowable energy limit, dual settings, protection operation safety
- Patented design of dislocation deionization partition arc extinguishing, with high voltage and high breaking
- Mechanical life up to 40,000 cycles
- Suitable for use under the temperature between -40°C and 70°C at an altitude of 2,000 meters without capacity reduction
- Interconnection with circuit breakers can be achieved through Modbus, Bluetooth, NFC, APP online monitoring, and other ways

MEX Air Circuit Breaker

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 service 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
	Width3P	mm	360	360	360
	Width4P	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

MEX Air Circuit Breaker

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 service 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
	Width3P	mm	436	436	436	436
	Width4P	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 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 service 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
	Width3P		mm	736	736
	Width4P		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
	Width3P		mm	743	743
	Width4P		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 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 service 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
	Width3P	mm	460	460	743	743
	Width4P	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 cabinet 2@4000A and cabinet 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 cabinet 2@4000A and cabinet 3@6400A

MEX Air Circuit Breaker

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

MEX Air Circuit Breaker

Advanced protection

		A03	A06	A13	A16	P13H	P 16 H	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;

MEX Air Circuit Breaker

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	●	●	●	●	●	●	●	●	
	Number of operations	●	●	●	●	●	●	●	●	

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

M-PACT Air Circuit Breaker

M-PACT Air Circuit Breaker

Quick Model Selection

MP
M-PACT air circuit breaker

A	
Ultimate breaking capacity	
A	50kA
D	70kA
H1	80kA
H2	80kA

3	
Number of poles	
3	3-pole
4	4-pole

1	
Frame grade	
1	Frame 1
2	Frame 2

F	
Installation mode	
F	Fixed
W	Withdrawable

16	
Rated current	
04	400A
08	800A
10	1000A
12	1250A
16	1600A
20	2000A
25	2500A
32	3200A
40	4000A

+

Electronic trip
MPRO20
MPRO30
MPRO40
MPRO40+

Example

Withdrawable circuit breaker, 3 poles, frame 1, In=1600A, Icu=70kA; Circuit breaker code: MPD31W16

Please contact your local office for AC500V/690V.
Note: Undervoltage coil - UV, undervoltage delay trip coil - UVTD
Note: Frame 1, operating voltage 690V, short-circuit breaking capacity 65kA, breaking code D2.

Standard Configuration

Note: The following shows the standard components for the circuit breaker.
1. 24V DC auxiliary power supply.
2. IP30 door flange.
3. T-type terminal for withdrawable circuit breaker (L-type terminals are used for A breaking 1600A and below).
4. 5NO+3NC auxiliary contact
5. The 4th pole current transformer of 3-pole circuit breaker with grounding fault protection
6. Safety baffle

Functions of Electronic Trip

Model	Function
M-pro20	LSI protection, current measurement, LCD
M-pro30	LSI protection, optional grounding protection; Current measurement, LCD, DI/DO interface
M-pro40	LSI protection, optional grounding protection; Current measurement, LCD, with communication DI/DO interface
M-pro40+	LSI protection, optional grounding protection; Full electrical parameter measurement, LCD, with communication DI/DO interface

Note:
L-Overload long delay protection
S-Short-circuit short time delay protection
I - Instantaneous protection

Grounding fault protection scheme:
UEF - Providing protection for lower equipment and cables
REF - Providing protection for upper main equipment and cables for the circuit breaker
SEF - Providing backup options for grounding fault protection for upper and lower cables and equipment

Example for selection of grounding fault protection :
If the circuit breaker needs to provide a grounding protection for the lower equipment and cables, the selection of electronic trip should be: Mpro30+UEF

Product Overview

- Rated current: 400-4000A, Icu=Ics=Icw: up to 80kA, rated voltage: 415/690V
- LCD, with optional current or electrical parameter options
- Unique energy protection: precise protection for frequent minor faults
- Comprehensive grounding fault: complete UEF, REF, SEF coverage
- The positive and negative use of the arc extinguishing chamber can help to extend the full life cycle of the circuit breaker
- Visual accessories window, user-friendly operation interface

M-PACT Air Circuit Breaker

Quick Model Selection of M-PACT Air Circuit Breakers

Rated current In (A)			400	800	1000	1250	1600	2000	2500	3200	4000
A breaking level	F	3P	MPA31F04	MPA31F08	MPA31F10	MPA31F12	MPA31F16	MPA31F20	MPA31F25	MPA32F32	MPA32F40
		4P	MPA41F04	MPA41F08	MPA41F10	MPA41F12	MPA41F16	MPA41F20	MPA41F25	MPA42F32	MPA42F40
	W	3P	MPA31W04	MPA31W08	MPA31W10	MPA31W12	MPA31W16	MPA31W20	MPA31W25	MPA32W32	MPA32W40
		4P	MPA41W04	MPA41W08	MPA41W10	MPA41W12	MPA41W16	MPA41W20	MPA41W25	MPA42W32	MPA42W40
D breaking level	F	3P	MPD31F04	MPD31F08	MPD31F10	MPD31F12	MPD31F16	MPD31F20	MPD31F25	MPD32F32	MPD32F40
		4P	MPD41F04	MPD41F08	MPD41F10	MPD41F12	MPD41F16	MPD41F20	MPD41F25	MPD42F32	MPD42F40
	W	3P	MPD31W04	MPD31W08	MPD31W10	MPD31W12	MPD31W16	MPD31W20	MPD31W25	MPD32W32	MPD32W40
		4P	MPD41W04	MPD41W08	MPD41W10	MPD41W12	MPD41W16	MPD41W20	MPD41W25	MPD42W32	MPD42W40
H[1] breaking level	F	3P	-	MPH132F08	MPH132F10	MPH132F12	MPH132F16	MPH132F20	MPH132F25	MPH132F32	MPH132F40
		4P	-	MPH142F08	MPH142F10	MPH142F12	MPH142F16	MPH142F20	MPH142F25	MPH142F32	MPH142F40
	W	3P	-	MPH132W08	MPH132W10	MPH132W12	MPH132W16	MPH132W20	MPH132W25	MPH132W32	MPH132W40
		4P	-	MPH142W08	MPH142W10	MPH142W12	MPH142W16	MPH142W20	MPH142W25	MPH142W32	MPH142W40
H[2] breaking level	F	3P	-	MPH232F08	MPH232F10	MPH232F12	MPH232F16	MPH232F20	MPH232F25	MPH232F32	MPH232F40
		4P	-	MPH242F08	MPH242F10	MPH242F12	MPH242F16	MPH242F20	MPH242F25	MPH242F32	MPH242F40
	W	3P	-	MPH232W08	MPH232W10	MPH232W12	MPH232W16	MPH232W20	MPH232W25	MPH232W32	MPH232W40
		4P	-	MPH242W08	MPH242W10	MPH242W12	MPH242W16	MPH242W20	MPH242W25	MPH242W32	MPH242W40

Example of directed model selection: MPD41W20 + MPRO20

M-PACT Air Circuit Breaker

Technical Data List of M-PACT Series

Technical Parameters

Rated current setting range (40°C)				400		800				1000				1250			
Life (switching operations)																	
Mechanical life (with maintenance)				40000		40000		25000		40000		25000		40000		25000	
Mechanical life (w/o maintenance)				25000		25000		15000		25000		15000		25000		15000	
Electrical life (at rated current)				10000		10000		10000		10000		10000		10000		10000	
Rated operating voltage (50/60 Hz)	Ue	V		690		690				690				690			
Rated insulation voltage (50/60 Hz)	Ui	V		1000		1000				1000				1000			
Rated impulse withstand voltage	Uimp	V		12000		12000		12000		12000		12000		12000		12000	
Number of poles				3 & 4		3 & 4				3 & 4				3 & 4			
Capacity of the fourth pole				100%		100%				100%				100%			
Application category				A	D	A	D	H1	H2	A	D	H1	H2	A	D	H1	H2
Frame grade				1	1	1	1	2	2	1	1	2	2	1	1	2	2
Rated ult. short-circuit breaking capacity	Icu	kA (rms)	220V	50	70	50	70	80	80	50	70	80	80	50	70	80	80
			415V	50	70	50	70	80	80	50	70	80	80	50	70	80	80
			500V	-	50	-	50	-	80	-	50	-	80	-	50	-	80
			600V	-	50	-	50	-	65	-	50	-	65	-	50	-	65
			690V	-	50	-	50	-	65	-	50	-	65	-	50	-	65
Rated operating short-circuit breaking capacity	Ics	kA (rms)	220V	50	65	50	65	80	80	50	65	80	80	50	65	80	80
Breaking capacity			415V	50	65	50	65	80	80	50	65	80	80	50	65	80	80
			500V	-	50	-	50	-	80	-	50	-	80	-	50	-	80
			600V	-	50	-	50	-	65	-	50	-	65	-	50	-	65
			690V	-	50	-	50	-	65	-	50	-	65	-	50	-	65
Rated short time withstand current																	
1s	Icw 415/690VAc	kA (rms)		50	65/50	50	65/50	65	80	50	65/50	65	80	50	65/50	65	80
3s	Icw	kA (rms)		-	50	-	50	-	-	-	50	-	-	-	50	-	-
Rated short-time making capacity	Icm	kA (peak)	415V	105	143	105	143	176	176	105	143	176	176	105	143	176	176
			500V	-	143	-	143	-	176	-	143	-	176	-	143	-	176
			600V	-	105	-	105	-	143	-	105	-	143	-	105	-	143
			690V	-	84	-	84	-	105	-	84	-	105	-	84	-	105
Power consumption (F)		W		15	10	63	43	23	20	106	68	36	32	175	105	60	53
Power consumption (W)		W		30	21	127	86	49	43	211	135	77	68	351	211	128	113

Any design and technology are subject to change without prior notice.

Selective protection

The following table shows the selective protection requirements that meet the upper and lower-level circuit breakers.

	Lower-level									
Upper-level	-	400	800	1000	1250	1600	2000	2500	3200	4000
	400	-	-	-	-	-	-	-	-	-
	800	Yes	-	-	-	-	-	-	-	-
	1000	Yes	-	-	-	-	-	-	-	-
	1250	Yes	Yes	-	-	-	-	-	-	-
	1600	Yes	Yes	Yes	-	-	-	-	-	-
	2000	Yes	Yes	Yes	Yes	-	-	-	-	-
	2500	Yes	Yes	Yes	Yes	Yes	Yes	-	-	-
	3200	Yes	Yes	Yes	Yes	Yes	Yes	-	-	-
	4000	Yes	Yes	Yes	Yes	Yes	2000	Yes	-	-

Altitude

When the circuit breaker is used at an altitude below 2000m, there is no change in performance and it does not need to be derated. When it is used at an altitude above 2000m, see the corresponding derating factor in the table below.

Altitude	Derating factor corresponding to altitude		
Voltage (Ue)	≤2000M	2000M	4000M
Current (In)	1	0.95	0.8
	1	0.99	0.96

Ambient temperature derating factor

The M-PACT air circuit breaker can work at a temperature higher than 40℃ in certain installation conditions, but its rated current should be derated according to the following table: (see table below)

Ambient temperature	Rated current (A)							
	800	1000	1250	1600	2000	2500	3200	4000
50℃	800	1000	1250	1600	2000	2450	3200	3727
60℃	800	1000	1250	1445	2000	2232	3200	3367
65℃	800	1000	1250	1364	2000	2092	3019	3175
70℃	800	1000	1250	1280	1970	1970	2831	2978

M-PACT Air Circuit Breaker

Technical Data List of M-PACT Series

Technical Parameters

Rated current setting range (40℃)				1600		2000		2500		3200		4000	
Life (switching operations)													
Mechanical life (with maintenance)				40000	25000	40000	25000	40000	25000	25000		25000	
Mechanical life (w/o maintenance)				25000	15000	25000	15000	25000	15000	15000		15000	
Electrical life (at rated current)				10000	10000	8000	8000	8000	8000	7000	7000	6000	6000
Rated operating voltage (50/60 Hz)	Ue	V		690		690		690		690		690	
Rated insulation voltage (50/60 Hz)	Ui	V		1000		1000		1000		1000		1000	
Rated impulse withstand voltage	Uimp	V		12000	12000	12000	12000	12000	12000	12000		12000	

Number of poles				3 & 4				3 & 4				3 & 4				3 & 4				3 & 4			
Capacity of the fourth pole				100%				100%				100%				100%				100%			
Application category				A	D	H1	H2	A	D	H1	H2	A	D	H1	H2	A	D	H1	H2	A	D	H1	H2
Frame grade				1	1	2	2	1	1	2	2	1	1	2	2	2	2	2	2	2	2	2	2
Rated ult. short-circuit breaking capacity	Icu	kA (rms)	220V	50	70	80	80	50	70	80	80	50	70	80	80	50	70	80	80	50	70	80	80
Breaking capacity			415V	50	70	80	80	50	70	80	80	50	70	80	80	50	70	80	80	50	70	80	80
			500V	-	50	-	80	-	50	-	80	-	50	-	80	-	-	-	80	-	-	-	80
			600V	-	50	-	65	-	50	-	65	-	50	-	65	-	-	-	65	-	-	-	65
			690V	-	50	-	65	-	50	-	65	-	50	-	65	-	-	-	65	-	-	-	65
Rated operating short-circuit breaking capacity	Ics	kA (rms)	220V	50	65	80	80	50	65	80	80	50	65	80	80	50	65	80	80	50	65	80	80
Breaking capacity			415V	50	65	80	80	50	65	80	80	50	65	80	80	50	65	80	80	50	65	80	80
			500V	-	50	-	80	-	50	-	80	-	50	-	80	-	-	-	80	-	-	-	80
			600V	-	50	-	65	-	50	-	65	-	50	-	65	-	-	-	65	-	-	-	65
			690V	-	50	-	65	-	50	-	65	-	50	-	65	-	-	-	65	-	-	-	65
Rated short time withstand current																							
1s	Icw 415/690VAc	kA (rms)		50	65	65	80	50	65	65	80	50	65	65	80	50	65	65	80	50	65	65	80
3s	Icw	kA (rms)		-	50	-	-	-	50	-	-	-	50	-	-	-	-	-	-	-	-	-	-
Rated short-time making capacity	Icm	kA (peak)	415V	105	143	143	176	105	143	176	176	105	143	176	176	105	143	176	176	105	143	176	176
			500V	-	143	-	143	-	143	-	176	-	143	-	176	-	-	-	176	-	-	-	176
			600V	-	105	-	105	-	105	-	143	-	105	-	143	-	-	-	143	-	-	-	143
			690V	-	84	-	84	-	84	-	105	-	84	-	105	-	-	-	105	-	-	-	105
Power consumption (F)		W		284	284	196	98	86	224	163	143	351	351	255	223	418	418	418	366	571	571	571	571
Power consumption (W)		W		574	574	392	209	184	490	347	306	765	765	542	478	888	888	888	783	1224	1224	1224	1224

Any design and technology are subject to change without prior notice.

Note: Frame 1, working voltage 690V, short-circuit breaking capacity 65kA, breaking code D2

Installation dimensions

Frame grade	Rated current (A)	Pole	Type	Height	Width	Depth
1	400 to 2500	3	W	440	329	422
			F	430	342	352
		4	W	440	429	422
			F	430	442	352
2	800 to 4000	3	W	440	419	424
			F	430	432	352
		4	W	440	549	424
			F	430	562	352

*Please specify the left and right positions of the 4-pole neutral line in the order format. If not specified, the default center line is set to the right. (Facing the operation panel)

Recommended busbar size

Complying with GB14048.2

Rated current (A)	Copper bar size / phase
400	2 x 50 x 5
800	2 x 50 x 5
1000	2 x 60 x 5
1250	2 x 100 x 5
1600	2 x 100 x 5
2000	3 x 100 x 5
2500	4 x 100 x 5
3200	4 x 100 x 10
4000	4 x 100 x 10 + 1 x 100 x 5

Weight (kg)

		A		D		H	
Fixed circuit breaker ACB	Frame	3-P.	4-P.	3-P.	4-P.	3-P.	4-P.
400 to 1600A	1	39	49	39	49	/	/
2000 to 2500A	1	43	54	43	54	/	/
800 to 3200A	2	53	68	53	68	53	68
4000A	2	53	68	53	68	53	68

Withdrawable circuit breaker ACB	Frame	3-P.	4-P.	3-P.	4-P.	3-P.	4-P.
400 to 1600A	1	68	79	68	79	/	/
2000 to 2500A	1	74	85	74	85	/	/
800 to 3200A	2	90	109	90	109	90	109
4000A	2	113	128	113	128	113	128

Electronic Trip

Trip performance parameters

Technical standard and accessories (1) for M-pro 20, 30, 40	20	30		40		40+	
M-pro		**L**	**H**	**L**	**H**	**L**	**H**
Long delay protection Ir							
- Selected debugging from 0.4 to 1.0 × In, step size 0.01	×	×	×	×	×	×	×
Long delay characteristics							
- IEC255 standard, 80 nodes	×	×	×	×	×	×	×
Short delay definite time protection							
- 1.5, 2, 4, 6, 8, 10, 12 × Ir	×	×	×	×	×	×	×
Short delay definite time characteristics							
- Instantaneous, 0-1s step, 0.1s	×	×	×	×	×	×	×
Short time I^2t magnification							
- 0.1 times longer delay	×	×	×	×	×	×	×
- Multiplication, 1.5, 2, 3, 4, 6, 8, 10, 12 × Ir	×	×	×	×	×	×	×
Grounding fault protection							
- Only UEF	-	○	○	○	○	○	○
- Comprehensive UEF, REF&SEF	-	○	○	○	○	○	○
- Grounding fault magnification, closed, 0.1 to 1.0 × In step size 0.01	-	○	○	○	○	○	○
- Grounding fault magnification, 1 (closed), 1.5, 2, 2.5, 3, 4, 5, 6	-	○	○	○	○	○	○
Thermal memory							
- Adjustable instantaneous time 10, 20, 30, 45, 601, 2018, 180 min	×	×	×	×	×	×	×
Communication							
MODBUS RTU	-	-	-	×	×	×	×
Output							
Four output relay contacts, rated value 1A 24/28V DC or 110/220V AC	-	×	×	×	×	×	×
Input							
Four editable inputs	-						
24-48V DC	-	×		×		×	
110-130V DC or 110-250V AC	-		×		×		×
Indication							
- LED indications corresponding to different faults	×	×	×	×	×	×	×
- Displaying different fault codes through communication	-	-	-	×	×	×	×
- Normal LED indication	×	×	×	×	×	×	×
- Warning LED indication	×	×	×	×	×	×	×
Other standard function							
- Electronic operation counter	×	×	×	×	×	×	×
Mechanical	○	○	○	○	○	○	○
- Contact wear indication	-	×	×	×	×	×	×
- Trip record	×	×	×	×	×	×	×
- Ammeter	×	×	×	×	×	×	×
Trip alarm switch 1NO (mechanical)	○	○	○	○	○	○	○
Trip reset							
- Manual (button)	×	×	×	×	×	×	×
- Automatic	×	×	×	×	×	×	×
Test connector							
-16-channel DIL type	×	×	×	×	×	×	×
Measurement function							
- Ammeter	×	×	×	×	×	×	×
- Voltmeter	-	-	-	-	-	×	×
- Active power	-	-	-	-	-	×	×
- Reactive power	-	-	-	-	-	×	×
- Power factor	-	-	-	-	-	×	×
- Peak power	-	-	-	-	-	×	×
- Required power	-	-	-	-	-	×	×
- Frequency	-	-	-	-	-	×	×

× Standard function ○ Optional function

M-PACT compact air circuit breaker

M-PACT compact air circuit breaker

Rapid selection of model

MP
Product series M-PACT air circuit breaker

N		
Breaking capacity		
N	Icu	65kA
	Ics	55kA
	Icw	50kA

3	
Number of poles	
3	Grade 3
4	4 poles

0	
Molded case type	
0	Cabinet 0

W	
Mounting mode	
W	Drawer type
F	Fixed type

10	
Rated current	
04	400A
06	630A
08	800A
10	1000A
12	1250A

Mpro2M
Control unit
Mpro2M

Mpro control unit

Basic type	Model code	Major function
Mpro control unit	2M	Standard configuration: LSI three-section protection, current measurement, LCD display
Optional functions	MPN0UEF	Vector and ground protection
	MPN0NP	Neutral phase protection
	MPN0OPL	Opening position lock
	MPN0WPFA	Drawer rack position contact

Selection example

Requirement: Rated current: 1000A, 3P, drawer type, ultimate short-circuit breaking capacity: 65kA, LSI three-section protection, current measurement

M-PACT compact air circuit breaker

Technical data of M-PACT compact air circuit breaker			
Breaking capacity code			N
Rated current	In	A	400 - 1250
Number of poles			3P, 4P
Rated insulation voltage	Ui	V	1000
Rated impulse withstand voltage	Uimp	kV	12
Rated work voltage	Ue	V	AC415
Utilization category			B
Isolation function			Yes
Rated current of neutral pole			100% phase line
Breaking parameters			
Rated ultimate short-circuit breaking capacity Icu	AC415V	kA	65
Rated service short-circuit breaking capacity Ics	AC415V	kA	55
Rated short-circuit withstand current Icw (1s)	AC415V	kA	50
Rated short-circuit making capacity Icm	AC415V	kA	143
Mpro control unit			
	Mp ro2M	L	■
		S	■
		I	■
		G	□
Operating performance			
Mechanical life	With maintenance	次	20000
	Maintenance-free	次	10000
Electrical life, AC415V, maintenance-free			
	400 - 1250A	次	6000
Full breaking time		ms	≤ 30
Closing time		ms	≤ 70
Installation			
Fixed type			
	Height	mm	322
	Width 3P	mm	281
	Width 4P	mm	351
	Depth	mm	237
Available wiring mode	Horizontal rear wiring		■
Weight	3P	kg	25
	4P	kg	32
Drawer type			
	Height	mm	354
	Width3P	mm	308
	Width4P	mm	378
	Depth	mm	339
Available wiring mode	Horizontal rear wiring		■
Weight	3P	kg	40
	4P	kg	50

Note: ■ Standard configuration, □ Optional configuration;

M-PACT compact air circuit breaker

Mpro2M intelligent control unit		
		Mpro2M
Protection function	Overload long delay protection	●
	Short-circuit short delay (definite time) protection	●
	Short-circuit short delay (inverse time) protection	●
	Short-circuit instantaneous protection	●
	Thermal memory	●
	Ground protection	○
	MCR (breaking of making current)	●
	HSISC (out-of-limit tripping)	●
	Current unbalance protection	●
	Neutral line protection	○
Measurement function	Current measurement	●
Maintenance function	Tripping test	●
	Self diagnostic function	●
	Lock function	●
	Number of operations	●
	Tripping record (8 times)	●
	Alarm record (8 times)	●
External power supply	AC220V	○
	AC380V	○
	DC24V	○

R*FD/FE/FG molded case circuit breaker

R+ Molded Case Circuit Breaker

Quick Model Selection

- **Molded case circuit breaker with thermomagnetic protection**

FD	N	36	TD	063	ED	
Frame current	Breaking capacity	Number of poles	Protection type	Rated current	Frame section	Type
FD： In 160A	S - 36kA[1]	36 - 3-pole with 3-protection	TD - LTMD[4]	TD: 016, 020, 025, 032, 040, 050, 063, 080, 100, 125, 160A	ED: In<80A FD Frame	Null: Fixed type
	N - 50kA	436 - 4-pole with 3-protection[2]	TG - GTM[5]	TG: 025, 032, 040, 050, 063, 080, 100, 125, 160A	GD: In>=80A FD Frame	
	H - 80kA	46 - 4-pole with 4-prot.[3]	MC - Mag.break[6]	MC: 003, 007, 012.5, 020, 030, 050, 080, 100A		
	L - 150kA[7]					

(1) S-36kA is only suitable for LTMD protection.
(2) The 4-pole with 3-protection is not suitable for S-36kA breaking.
(3) The 4-poles with 4-protection is not suitable for magnetic protection.
(7) L-150kA breaking is not suitable for TG-GTM protection.
(4) Thermomagnetic protection of LTMD circuit, LT: 0.8~1 In setting; I (transient interruption): 10 x In fixed (160A is 8 x In fixed)
(5) GTM generator protection, LT: 0.8~1In setting; I (transient interruption): 4 x In fixed (25, 32A is 5 x In fixed)
(6) Mag. Break is only for magnetic protection; Magnetic protection: 10~15 x In adjustable

FE	N	36	TA	160	J	F
Frame current	Breaking capacity	Number of poles	Protection type	Rated current	Frame section	Type
FE： In 160/250A	V - 36kA[1]	36 - 3-pole with 3-protection	TA - LTM[4]	TA: 025, 032, 040, 050, 063, 080, 100, 125, 160, 200, 250A	J: In<=160A FE Frame	Null: Fixed type
	N - 50kA	436 - 4-pole with 3-protection[2]	TD - LTMD[6]	TD: 100, 125, 160, 200, 250A	K: In>160A FE Frame	
	H - 80kA	46 - 4-pole with 4-prot.[3]	TG - GTM[7]	TG: 100, 125, 160, 200, 250A		
	L - 150kA[7]		MC - Mag.break[8]	MC: 050, 080, 100, 125, 160, 200, 250A		

(1) The V-36kA is only suitable for LTM protection of 250A Frame.
(2) The 4-pole with 3-protection is not suitable for S-36kA breaking.
(3) The 4-pole with 4-protection is not suitable for magnetic protection.
(4) Thermomagnetic protection of LTM, LT: 0.8~1 In setting; I (transient interruption): 8 x In fixed (25~63A), 5~10 x In adjustable (80~250A).
(5) The rated current of 250 Frame is 200, 250A, and the maximum current of 160 Frame is 160A.
(6) Enhanced thermomagnetic protection of LTMD, LT: 0.8~1 In setting; I (transient interruption): 5~10 x In adjustable
(7) GTM generator protection, LT: 0.8~1 In setting; I (transient interruption): 3~5 x In adjustable
(8) Mag. Break is only for magnetic protection; Magnetic protection: 10~15 x In adjustable

- **Molded case circuit breaker with electronic protection**

FE	N	37	HA	250	L	F
Frame current	Breaking capacity	Number of poles	Protection type	Rated current	Frame section	Type
FE： In 160/250A[1]	N - 50kA	37 - 3-pole with 3-protection	HA-LSoI Standard electronic distribution protection[3]	HA: 25, 63, 100, 160, 250, 400, 630A	J: In<=160A FE Frame	Null: Fixed type
FG： In 400/630A[2]	H - 80kA	47 - 4-pole with 4-protection[2]	HN - I, Electronic magnetic motor protection only 4	HN: 250, 400, 500A	K: In>160A FE Frame	
	L - 150kA		HH-LSI, Electronic high-performance distribution protection 5	HH: 25, 63, 100, 160, 250, 400, 630A	L: In<400A FE Frame	
			HD-LI(G), HD-LI (G), electronic high-performance motor protection[6]	HD: 25, 63, 100, 160, 250, 400, 500A	N: In>400A FE Frame	
			HG-LSIG, Electronic high-performance distribution with grounding protection[7]	HG: 25, 63, 100, 160, 250, 400, 630A		

(1) Current levels of FE160 frame: 25, 63, 100, 160A; Current level of FE250 frame: 250A; FE frame HA, HH, HD are only suitable for 3P. For electronic FE frame 4P, please choose HG.
(2) Current level of FG400 frame: 250, 400A; Current levels of FG630 frame: 500A (suitable for HN and HD), 630A (suitable for HA, HH, HG).
(3) HA, LSOI - 3-step protection, LT: Ir=0.4~1xIn; ST: Isd=1.5~0xIr; Ii: 14xIn (FE, 25-250A), 13xIn (FG, 250-400A), 11xIn (FG, 630A).
(4) The electronic HN-I is only suitable for magnetic protection, current 250A, 400, 500A; Ii: 2-13xIn.
(5) HH, LSI- high-performance 3-step protection, LT: Ir=0.4~1xIn; ST: Isd=1.5~10xIr, Tsd=0~0.4s; Ii: 2~15xIn （FE, 25-250A), 2~13xIn (FG, 250-400A), 2~11xIn (FG, 630A).
(6) HD, LI (G) - High performance motor protection, LT: Ir=0.4~1xIn; Ii: 6-15xIn (FE, 25-250A), 4-13xIn (FG, 250-500A); GF: Ig=0.2~1xIn (only suitable for FG frame, 250-500A); Locked rotor protection, phase imbalance protection.
(7) HG, LSIG - high-performance 4-step protection, LT: Ir=0.4~1xIn; ST: Isd=1.5~0xIr, Tsd=0~0.4s; Ii: 2-15xIn (FE, 25-250A), 2-13xIn (FG, 250-400A), 2-11xIn (FG, 630A) GF: Ig=0.2~1xIn, Tg=0.1~0.4s.
(8) The HD and HG high-performance protection units can be provided with communication functions, however, additional communication and power modules should be configured. Users can also use their own DC24V power supply.

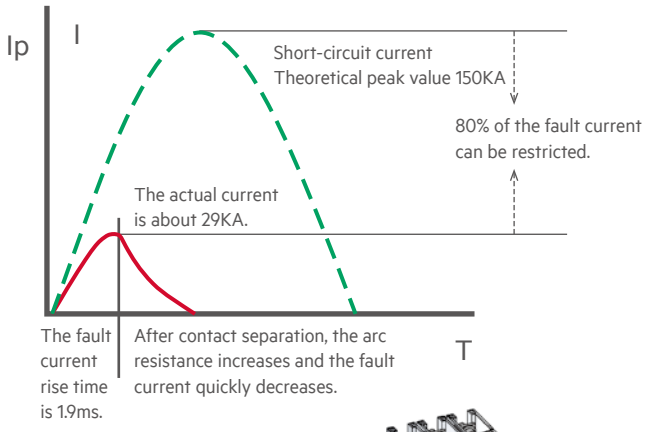
Accessories

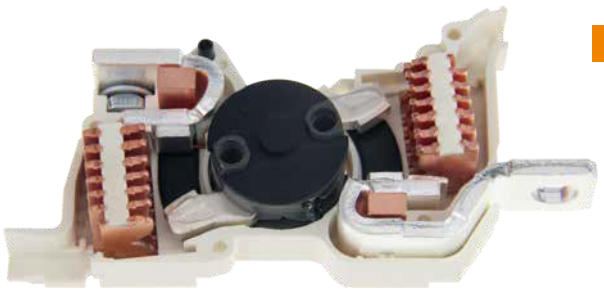
EM: Electric operating mechanism
RH: Rotation handle
SHT: Shunt trip
UVR: Undervoltage trip
AS: Auxiliary contact
AM: Mechanical alarm contact
AT: Alarm contact
RCD: Leakage protection
PM: Plug-in type
F: Fixed-type

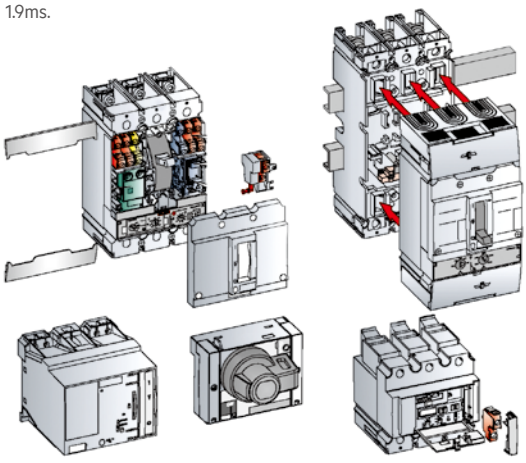
R*FD/FE/FG molded case circuit breaker

Product Overview

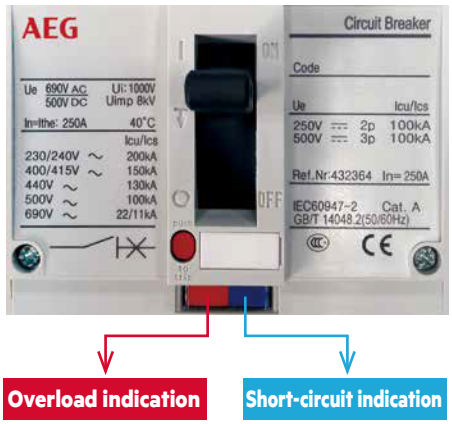
- Rotating double-break-point contact MCCB design: High breaking capacity, up to 150kA for Icu=Ics, extremely high reliability;
- Leading cascading technology: Providing the highest system selectivity and improving the reliable protection of the entire distribution network;
- Dedicated visual fault diagnosis window, which can help to quickly determine the fault type and take the most appropriate measure;
- The circuit breaker is set at the switching-in position. When the cover is removed, the circuit breaker will automatically trip immediately to ensure a safe operation;
- Providing an interchangeable tripping unit function, which can be easily adjusted according to the on-site load;
- All internal accessories are universal for AC and DC operation;
- Upward and downward leading-in, with no reduction in breaking capacity; The on-trip-off can be used 20000 times







Unique fault indication window



As an upgraded product of Record Plus, the R*molded case circuit breaker means not only a new product for the related model, function and technical platform system, but also an improvement for the insulation voltage and the breaking capacity of the circuit breaker under 690V.

R*FD/FE/FG molded case circuit breaker

Technical Data List of R+ Molded Case Circuit Breaker Series

FD

FE

Circuit breaker model		FD160				FE160		
Name		S	N	H	L	N	H	L
IEC60947-2 standard								
Number of poles		3 , 4				3 , 4		
Rated insulation voltage	Ui (V)	800				1000		
Rated impulse withstand voltage	Uimp (kV)	8				8		
Rated operating voltage Ue	V AC	690				690		
	V DC	500				500		
Line protector								
Application category		A				A		
Suitable for use as an isolator	FWD opening and closing	Yes				Yes		
Rated current Ith=Ie	Current at 40℃: A	160				160		
Ultimate breaking capacity Icu [kA]	230/240V AC	50	85	100	200	85	100	200
	400/415V AC	36	50	80	150	50	80	150
	440V AC	25	30	65	130	42	65	130
	500V AC	18	22	36	50	30	50	100
	690V AC	6	8	10	12	10	22	75
	250V DC single-pole	25	40	65	100	50	85	100
	500V DC double-pole	25	40	65	100	50	85	100
Breaking capacity Ics (%Icu)	≤500V	100%	100%	100%	100%	100%	100%	100%
	690V AC	70%	60%	50%	50%	100%	75%	25%
Life (CO operation)	Mechanical	25000				40000		
	Electrical, unit In	10000				11000		15000
Trip unit	Interchangeable	No				Yes		
	Thermomagnetic line protection	-				LTM		
	Thermomagnetic generator protection	-	GTM		-	GTM		
	Thermomagnetic selection	LTMD				LTMD		
	Only for magnetic protection	-	Mag Break ™			Mag Break ™		
	Electronic selection	-				PremEon S		

R*FD/FE/FG molded case circuit breaker

Technical Data List of R+ Molded Case Circuit Breaker Series

FE

FG

Circuit breaker model		FE250				FG400			FG630		
Name		V	N	H	L	N	H	L	N	H	L
IEC60947-2 standard											
Number of poles		3 , 4				3 , 4			3 , 4		
Rated insulation voltage	Ui (V)	1000	1000			1000			1000		
Rated impulse withstand voltage	Uimp (kV)	8	8			12			12		
Rated operating voltage Ue	V AC	500	690			690			690		
	V DC	440	500			-			-		
Line protector											
Application category		A				A			A		
Suitable for use as an isolator	FWD opening and closing	Yes				Yes			Yes		
Rated current Ith=Ie	Current at 40℃: A	250				400			630		
Ultimate breaking capacity Icu [kA]	230/240V AC	65	85	100	200	85	100	200	85	100	200
	400/415V AC	36	50	80	150	50	80	150	50	80	150
	440V AC	25	42	65	130	42	65	130	42	65	130
	500V AC	18	30	50	100	30	50	100	30	50	100
	690V AC	6	10	15	50	25	25	50	25	25	50
	250V DC single-pole	25	50	85	100	-	-	-	-		
						-			-		
	500V DC double-pole	-	50	85	100						
Breaking capacity Ics (%Icu)	≤500V	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	690V AC	100%	100%	75%	50%	72%	72%	50%	72%	72%	50%
Life (CO operation)	Mechanical	25000				20000			20000		
	Electrical, unit In	10000				13000			8500		
Trip unit	Interchangeable	No	Yes			Yes			Yes		
	Thermomagnetic line protection	LTM	-			-			-		
	Thermomagnetic generator protection	-	GTM								
	Thermomagnetic selection	-	LTMD								
	Only for magnetic protection	-	Mag Break™			PremEon S			PremEon S		
	Electronic selection	-	PremEon S			PremEon S			PremEon S		

RC* GB molded case circuit breaker

RC + Molded Case Circuit Breaker - Thermomagnetic

Quick Model Selection

GB
Product series
RC+ series
GB molded case circuit breaker

250	
Frame grade	
160	160 Frame
250	250 Frame
400	400 Frame

S	
Breaking capacity	
S	Icu=35kA
N	Icu=50kA

3	
Number of poles	
3	3-Pole
4	4-Pole

TM	
Trip	
TM	Line thermomagnetic protection
MC	Only magnetic motor prot

250	
Rated current	
010	10A
...	...
250	250A
...	...
400	400A

GB
Product series
RC+ series
GB molded case circuit breaker

630	
Frame grade	
630	630 Frame
800	800 Frame

S	
Breaking capacity	
S	Icu=35kA
N	Icu=65kA

3	
Number of poles	
3	3-Pole
4	4-Pole

TM	
Trip	
TM	Thermomagnetic protection of line
MC	Only magnetic motor prot

630	
Rated current	
500	500A
...	...
630	630A
...	...
800	800A

Example of thermomagnetic type selection:
The functional requirements are line thermomagnetic protection, breaking 50kA, rated current 200A, 3-pole; Complete model: GB250N3TM200

Common accessories
Auxiliary contact: FAS
Alarm contact: BAM
Auxiliary+alarm contact: FASBAM
Shunt: SHT
Under voltage: UVR

Overview of RC+ Specs

TM MC

GB160	**35kA**	3P	4P	■	■	■	■	■	■	■	■	■	■	■	■	■	■											
	50kA	3P	4P	■	■	■	■	■	■	■	■	■	■	■	■	■	■											
GB250	**35kA**	3P	4P										■	■	■	■	■	■	■	■								
	50kA	3P	4P										■	■	■	■	■	■	■	■								
GB400	**35kA**																			■	■	■	■					
	50kA	3P	4P																	■	■	■	■					
GB630	**35kA**	3P	4P																					■	■			
	65kA	3P	4P																					■	■			
GB800	**35kA**																								■	■	■	
	65kA	3P	4P																						■	■	■	
	Rated current			**10**	**16**	**20**	**25**	**32**	**40**	**50**	**63**	**80**	**100**	**125**	**140**	**160**	**180**	**200**	**225**	**250**	**315**	**350**	**400**	**500**	**630**	**700**	**800**	

RC* GB molded case circuit breaker

Technical Data of Thermomagnetic Molded Case Circuit Breakers



Breaker model			GB160		GB250		GB400		GB630		GB800	
Number of poles			3P, 4P		3P, 4P		3P, 4P		3P, 4P		3P, 4P	
Rated insulation voltage Ui		V	1000		1000		1000		1000		1000	
Rated impulse withstand voltage Uimp		kV	8		8		8		8		8	
Rated operating voltage AC		V	400		400		400		400		400	
Application category			A		A		A		A		A	
Suitable for use as an isolator	Clear ON-OFF indication		YES		YES		YES		YES		YES	
Agreed thermal current Ith		A	160		250		400		630		800	
Rated current		A	10-160		100-250		250-400		500-630		630-800	
Breaking code			S	N	S	N	S	N	S	N	S	N
Ultimate short-circuit breaking capacity Icu	AC400V	kA	35	50	35	50	35	50	35	65	35	65
Operating short-circuit breaking capacity Ics	AC400V	kA	26	50	26	50	35	50	35	65	35	65
Trip unit												
Thermomagnetic protection of line		TM	□		□		□		□		□	
Only magnetic motor prot		MC	□		□		□		□		□	
Life												
Mechanical life		Times	20000		20000		10000		10000		10000	
Electrical life		Times	8000		8000		7500		7500		7500	
Internal accessory function												
Auxiliary contact			□		□		□		□		□	
Alarm contact			□		□		□		□		□	
Shunt trip			□		□		□		□		□	
Installation												
Fixed type			■		■		■		■		■	
Plug-in type			□		□		□		□		□	
Withdrawable type			-		-		□		□		□	
Size W x H x D	3P	mm	90x155x72		105x165x72		140x257x103		210x275x103		210x275x103	
	4P	mm	120x155x72		140x165x72		185x257x103		280x275x103		280x275x103	
Executive standard for circuit breakers			GB14048.2/IEC60947-2									

■ Standard □ Optional - N/A

1) Only upward leading-in and downward leading-out are allowed for the circuit breaker, reverse wiring is not allowed;

2) The used interphase insulating barriers are standard.

RC* GB molded case circuit breaker

Quick Model Selection of RC+ Molded Case Circuit Breaker Series

Quick Model Selection

- **Leakage protection**

GE	
Product series	
RC + series	
GE molded case circuit breaker	

250	
Frame grade	
100	100 Frame
250	250 Frame
400	400 Frame
800	800 Frame

N	
Breaking capacity	
N	Icu=50kA

3	
Number of poles	
3	3-pole
4	4-pole

TM	
Trip	
TM	Thermomagnetic protection of line

250	
Rated current	
016	16A
...	...
250	250A
...	...
700	700A

U	
Leakage function	
U	0.03A, 0.1A, 0.3A, 0.5A Non-delayed
X	0.1A, 0.3A, 0.5A Delay time adjustable
B	1A, 3A, 10A Delay time adjustable

Example for leakage type selection:
Functional requirements: Thermomagnetic distribution protection, breaking 50kA, rated current 100A, 4-pole, U-type non-delayed leakage;
The complete model is: GE100N4TM100U

Overview of RC+ Specs

GE

GE100	**50kA**	3P	4P	■	■	■	■	■	■	■	■	■												
GE250	**50kA**	3P	4P									■	■	■	■	■	■	■	■					
GE400	**50kA**	3P	4P																■	■	■	■		
GE800	**50kA**	3P	4P																				■	■	■
Rated current				**16**	**20**	**25**	**32**	**40**	**50**	**63**	**80**	**100**	**125**	**140**	**160**	**180**	**200**	**225**	**250**	**315**	**350**	**400**	**500**	**630**	**700**

Leakage type and setting range

Residual current type	I△n range	Delay action	Applicable shell frame
U	0.03A, 0.1A, 0.3A, 0.5A	Non-delayed action	GE100/250/400/800
X	0.1A, 0.3A, 0.5A	Delay time adjustable	GE100/250/400/800
B	1A, 3A, 10A	Delay time adjustable	GE100/250/400/800

Rated residual short-circuit making (breaking) capacity I△m: 25% Icn
Rated residual non-operating current I△no: 50% I△no

Leakage Action Time

Residual current type		1x I△n	2x I△n	3x I△n	4x I△n
Non-delayed	Breaking time, s	≤0.2	≤0.1	≤0.04	≤0.04
Delay	Breaking time, s	≤ 0.25, 0.9, 1.9			
	Ultimate non-driving time △t, s	0.1, 0.5, 1			

RC* GB molded case circuit breaker

Technical Data of Residual Current Operated Molded Case Circuit Breakers



Breaker model			GE100	GE250	GE400	GE800
Number of poles			3P, 4P	3P, 4P	3P, 4P	3P, 4P
Rated insulation voltage Ui		V	1000	1000	1000	1000
Rated impulse withstand voltage Uimp		kV	8	8	8	8
Rated operating voltage AC		V	400	400	400	400
Application category			A	A	A	A
Suitable for use as an isolator	Clear ON-OFF indn		YES	YES	YES	YES
Agreed thermal current Ith		A	100	250	400	800
Rated current		A	16-100	100-250	250-400	500-700
Breaking code			**N**	**N**	**N**	**N**
Ultimate short-circuit breaking capacity Icu	AC400V	kA	50	50	50	50
Operating short-circuit breaking capacity Ics	AC400V	kA	50	50	50	50
Trip unit						
Thermomagnetic protection of line		TM	■	■	■	■
Leakage type						
			U, X, B	U, X, B	U, X, B	U, X, B
Life						
Mechanical life		Times	20000	20000	10000	10000
Electrical life		Times	8000	8000	7500	7500
Internal accessory function						
Auxiliary contact			□	□	□	□
Alarm contact			□	□	□	□
Shunt trip			□	□	□	□
Installation						
Fixed type			■	■	■	■
Plug-in type			□	□	□	□
Withdrawable type			-	-	□	□
Size W x H x D	3P	mm	90x155x97	105x165x105	140x257x103	210x275x103
	4P	mm	120x155x97	140x165x105	185x257x103	280x275x103
Executive standard for circuit breakers			GB14048.2/IEC60947-2			

■ Standard □ Optional - N/A
1) Only upward leading-in and downward leading-out are allowed for the circuit breaker, reverse wiring is not allowed;
2) The used interphase insulating barriers are standard.

Elfa Miniature Circuit Breaker

Elfa A6 AC type

Quick Model Selection

A6
Product series A6 series Mini circuit breaker

M	
Breaking capacity	
M	6kA
S	10kA

1	
Number of poles	
1	1-Pole
2	2-Pole
3	3-Pole
4	4-Pole

C	
Tripping curve	
B	B-type
C	C-type
D	D-type

16	
Rated current	
01	1A
...	... ...
16	16A
...	... ...
63	63A

Elfa A6 DC type

Quick Model Selection

A6
Product series A6 series Mini circuit breaker

S	
Short-circuit breaking capacity	
S	10kA (single-pole 125V)
L	10kA (single-pole 125V)

DC	
Type	
DC	DC protection

1	
Number of poles	
1	1-Pole
2	2-Pole

C	
Tripping curve	
B	B-type
C	C-type

16	
Rated current	
01	1A
...	... ...
16	16A
...	... ...
63	63A

Elfa A6M compact type

Quick Model Selection

A6
Product series A6 series Mini circuit breaker

M	
Breaking capacity	
M	6kA

5	
Number of poles	
5	Compact 1P + N

C	
Tripping curve	
C	C-type

16	
Rated current	
06	6A
...	... ...
16	16A
...	... ...
40	40A

Elfa A6M integrated leakage

Quick Model Selection

A6
Product series A6 series Mini circuit breaker

M	
Breaking cap	
M	6kA

R	
Type	
R	Compact 1P+N Residual current protection operated
V	Compact 1P+N residual current protection action, 18mm

C	
Tripping curve	
C	C-Type

16	
Rated current	
06	6A
...	... ...
16	16A
...	... ...
40	40A

/

030	
Rated residual operating cur	
030	30mA

Residual current protection	
N/A	AC type
H	A type

Elfa Miniature Circuit Breaker

Elfa A6 pre-fabricated leakage

Quick Model Selection

A6
Product series A6 series Mini circuit breaker

M	
Breaking cap	
M	6kA
S	10kA

ED	
Type	
ED	Assembly -type Residual current protection operated
DM	Pre-fabricated electromagnetic residual current protection action

2	
Number of poles	
2	2-pole
3	3-pole
4	4-pole

C	
Tripping curve	
C	C-Type
D	D-Type

16	
Rated current	
06	6A
...	... ...
16	16A
...	... ...
63	63A

/

030	
Rated residual operating current	
030	30mA
100	100mA

Residual current protection	
N/A	AC type
H	A type

Elfa A6 disconnect switch

Quick Model Selection

A6M
Product series A6 series

1	
Number of poles	
1	1-pole
2	2-pole
3	3-pole
4	4-pole

T	
Protection type	
T	Isolating switch

040	
Rated current	
040	40A
063	63A
080	80A
100	100A
125	125A

Elfa A6 Accessories

Quick Model Selection

H6	
Product series	
H6	Aux. contact
S6	Alarm contact

NFAN	
Product series	
NFAN	Shunt trip AC220V
NFAD	Shunt trip DC24V

Product Overview

- Rated current of circuit breaker 1-63A, rated current of isolating switch 40-125A;
- Rated short-circuit breaking capacity: 6kA, 10kA;
- Electronic/electromagnetic residual current protection device
- Terminal kit for easy installation and high reliability;
- Glow-wire test of Insulated molded case at 960°C.

Elfa Miniature Circuit Breaker

Elfa E90/E90SUC Standard Miniature Circuit Breaker

Quick Model Selection

E9
Product series E90 mini circuit breaker series

1
Number of poles
1-1P
2-2P
3-3P
4-4P

S
Breaking Capacity
S: 10kA breaking
Null: 6kA breaking

UC
Application Scenarios
UC: for DC (10kA, 0.5~63A)
Null: for AC

C
Tripping curve
B-B type trip 3~5 In
C-C type trip 5~10 In
D-D type trip 10~20 In (Applicable to AC)

16
Rated current
0.5-0.5A
01-1A
02-2A
04-4A
06-6A
10-10A
16-16A
20-20A
25-25A
32-32A
40-40A
50-50A
63-63A

N
N pole
N: the number of poles is 3P+N or 1P+N
Null: W/o N pole

+

H
Accessory
H: Aux. contact
S/H: Fault contact
NF: Shunt trip
UVR: Undervoltage trip

Product Overview

- Rated voltage: AC230/400V, DC220/440V
- Rated current: 0.5-125A
- Rated short-circuit breaking capacity: 6, 10kA
- Tripping curve: B, C, D
- Number of poles: 1P, 2P, 3P, 4P, 1P+N, 3P+N
- Current limiting level: 3
- The full series (including power leakage products) allow upward and downward leading-in, without affection on the performance

Elfa ASR isolating switch

Quick Model Selection

ASR
Product series ASR series isolating switch

1
Number of poles
1-1P
2-2P
3-3P
4-4P

063
Rated current
040-40A
063-63A
0100-100A

Elfa Miniature Circuit Breaker

Elfa EC90 Compact Miniature Circuit Breaker

Quick Model Selection

EC9
Product series EC90 series Compact mini circuit breaker Icn： 6kA

1
Number of poles
1-1P
2-2P

C
Tripping curve
B-B type trip 3~5 In Applicable to 1P+N
C-C type trip 5~10 In

16
Rated current
02-2A
04-4A
06-6A
10-10A
16-16A
20-20A
25-25A
32-32A
40-40A

N
N pole
N: Tthe number of poles is 3P+N or 1P+N
Null: W/o N pole

R
Position of N pole
R-N poles are on the right

EC90 Compact MCB Series

- The 2P product is only 18 mm wide;
- Reducing the installation space by 50% to achieve a better experience;
- Applicable to AC and DC with a pioneering design concept;
- Rated operating voltage:
  AC 240/415V
  DC 250V (connected in series, with no requirement for polarity)
- Rated current: 2-40A
- Providing functions of short-circuit, overload, isolation protection for 2-pole products.

Elfa Miniature Circuit Breaker

Elfa E9D Electronic Residual Current Protection Circuit Breaker

Quick Model Selection

E9D	C	16	/	030	G	+	H
Product series E9D series Electronic 1P+N residual current protection circuit breaker Icn: 6kA	**Tripping curve** C-C type trip 5~10 In	**Rated current** 06-6A 10-10A 16-16A 20-20A 25-25A 32-32A 40-40A		**Residual operating current** 030-30mA	**Overvoltage protection** G: With overvoltage protection Null: W/o overvoltage protection		**Accessories** H: Aux. contact S/H: Fault contact NF: Shunt trip UVR: Undervoltage trip

Elfa E9D/D90 Electronic Residual Current Protection Circuit Breaker

Quick Model Selection

HD90	C	16	/	030	+	H
Product series Electromagnetic 1P+N residual current protection circuit breaker Icn: 6kA HD90: A-type residual operating current protection D90: AC-type residual operating current protection	**Tripping curve** C-C type trip 5~10 In	**Rated current** 04-4A 06-6A 10-10A 16-16A 20-20A 25-25A 32-32A 40-40A		**Residual operating current** 030-30mA 300-300mA		**Accessories** H: Aux. contact S/H: Fault contact NF: Shunt trip UVR: Undervoltage trip

Electromagnetic Leakage Module of Elfa HD/D Miniature Circuit Breaker

Quick Model Selection

HD9	2	32	/	030
Product series Electromagnetic mini circuit breaker leakage module HD9: A type residual operating current protection D9: AC type residual operating current protection	**Number of poles** 2-2P 4-4P, 63A or below 5-4P, 32A or below, 36 mm wide	**Applicable current level of mini circuit breaker** 32-32A or below 63-63A or below		**Residual operating current** 030-30mA 300-300mA

E90 Leakage Protector Series

- E9D Electronic integrated residual current protection circuit breaker (36 mm wide)
- HD9 Additional electromagnetic residual current protector
  Residual current type: A
- D9 Additional electromagnetic residual current protector
  Residual current type: AC

E9SPD surge protector

E9SPD Surge Protector

Quick Model Selection

E9SPD	-	I	40	/	1N	R
Product series E9SPD surge protector series		**Protection type** I: Class 1 surge protector II: Class 2 surge protector	**Discharge current** 15: 15kA, Class 1 surge 20: 20kA, Class 2 surge 40: 40kA, Class 2 surge 60: 60kA, Class 2 surge 80: 80kA, Class 2 surge 100: 100kA, Class 2 surge		**Number of poles** 1N ： 1P+N 2 ： 2P 3 ： 3P 3N ： 3P+N 4 ： 4P	**Remote signalling** Null: W/o remote signaling terminal R: With remote signaling terminal

Note: 15kA is suitable for T1 surge protectors, which is corresponding to the impulse discharge current.
Other discharge current levels are suitable for T2 surge protectors, which is corresponding to the maximum discharge current.

Product Overview

- 10/350μs, 8/20μs lightning waveform protection, providing complete LV distribution lightning protection solutions;
- High operating voltage, up to 385V for continuous operation;
- Short response time, 25ns;
- Low residual voltage, allowing long-term safe operation, with a minimum value of 1.6kV (L-N)
- Product fault indication window, enabling on-site monitoring of SPD status;
- Remote signaling terminal, realizing remote feedback and background monitoring.

Function Parameters

Model			E9SPD-I15	E9SPD-II20	E9SPD-II40	E9SPD-II60	E9SPD-II80	E9SPD-II100
Test category			I/T1	II/T2	II/T2	II/T2	II-T2	II/T2
Rated voltage	AC	V	230	230	230	230	230	230
Maximum continuous operating voltage	L-N	V	385	385	385	385	385	385
	N-PE	V	255	255	255	255	255	255
Rated frequency		Hz	50/60	50/60	50/60	50/60	50/60	50/60
Nominal discharge current In L-N	8/20 μs	kA	30	20	40	60	80	100
Nominal discharge current In N-PE	8/20 μs	kA	100	10	20	30	40	50
Maximum impulse current Iimp L-N	10/350 μs	kA	15	-	-	-	-	-
Maximum impulse current Iimp N-PE	10/350 μs	kA	60	-	-	-	-	-
Voltage protection level	L-N	kV	2.1	1.6	1.8	2	2.2	2.4
	N-PE	kV	2.5	1.5	1.5	1.5	1.5	2
Response time	L-N	ns	≤ 25					
	N-PE	ns	≤ 100					
Maximum backup fuse		A	200	80	125	200	250	315
Short-circuit current tolerance	AC	kA	0.6	0.6	0.6	0.6	0.6	0.6
Storage temperature.range		℃	-40~+80					
Operating temperature. range		℃	-40~+70					
Protection level			IP20					
Altitude for normal use		m	-500~+3000					

Special protection device for E9SCB surge protector

Special protection device for E9SCB surge protector

Rapid selection of model

E9SCB	-	I	15	/	1
AEG product series Special protection device for E9SCB surge protector		**Test category** I: SPD specific protection device for Class I test II: SPD specific protection device for Class II test	**Maximum impulse current** 15 : Iimp : 15kA		**Number of poles** 1 : 1 pole 2 : 2 pole 3 : 3 pole 4 : 4 pole

40	
Maximum discharge current	
40 :	Imax : 40kA
80 :	Imax : 80kA

Note: 15kA is suitable for T1 surge protector, corresponding to impulse discharge current value
40/80kA is suitable for T2 surge protector, corresponding to the maximum discharge current value

Product overview

- The rated current of the selected backup protection devices is relatively high, so that when there is low short-circuit current in the SPD branch, it will not reach the instantaneous value of the circuit breaker or fuse (5 to 7 times In), and the short-circuit current will not be cut off in time. At this time, the SPD is prone to catching fire and exploding.
- The low short-circuit operating current of standby surge protection is much lower than that of ordinary standby protection device. It can cut off low short-circuit current of 3A or more in an extremely short time, covering a wider range of power frequency overcurrent protection to provide more precise short-circuit protection. Product fault indication window will locally monitor SPD status remote signaling terminal, provide remote feedback, and realize background monitoring.
- E9SCB has surge withstand capacity of up to 15kA for 10/350 μ s waveforms, and up to 80kA for 8/20 μ s waveforms.

unctional parameters

Product model		E9SCB-I15	E9SCB-II40	E9SCB-II80
Test category		I/T1	II/T2	II/T2
Rated voltage	AC	230V/400V	230V/400V	230V/400V
Rated frequency	Hz	50/60Hz	50/60Hz	50/60Hz
Number of poles	Poles	1P/2P/3P/4P	1P/2P/3P/4P	1P/2P/3P/4P
Maximum impulse current Iimp (10/350μs)	kA	15	/	/
Maximum discharge current Imax (8/20μs)	kA	/	40	80
Nominal discharge current In	kA	50	20	40
Rated short-circuit capacity Icn	kA	100	50	50
Voltage protection level Up	kV	2.5	2.5	2.5
Rated impulse withstand voltage Uimp	kV	6	6	6
Minimum instantaneous operating current Ii	A	5	5	5
Minimum delay operating current Id	A	3	3	3
Wiring capability	Flexible wire	2.5~25mm²	2.5~25mm²	2.5~25mm²
	Hard wire	2.5~35mm²	2.5~35mm²	2.5~35mm²
Incoming method		Incoming line up and down	Incoming line up and down	Incoming line up and down
Ultimate torque	N·m	5	5	5
Mechanical life	times	6000	6000	6000
Protection level		IP20	IP20	IP20
Damp heat resistance performance		Class 2 （GB 2423 ）	Class 2 （GB 2423 ）	Class 2 （GB 2423 ）

AIC Variable Frequency Drive

AIC LV Frequency Converter

- High speed stabilization accuracy and wide speed regulation range: under a vector control, the speed stabilization accuracy can reach up to ±0.2%, and the speed regulation range can reach up to 1:200.
- Low speed and high torque: with a high low-frequency torque, it can carry 150% of rated load at 0.5Hz and realize high torque startup.
- Strong anti-interference capability: provided with surge current absorption circuit and three-anti paint coating.
- Multiple panel long-distance external leads: LED or LCD is optional, and the external lead distance can reach up to 100 m.
- Anti- voltage sag: in case of voltage sag, the speed can be adjusted to realize energy feedback and avoid shutdown due to no voltage.
- Intelligent remote control: standard RS485 communication interface, realizing the synchronous operation of multiple converters controlled by the host computer.

Function Parameters

	AIC100 series	AIC316 series
Adaptive motor	0.75~500kW	0.75~500kW
Rated voltage	380V	380V
Frequency	Carrier frequency: 1.5kHz~12kHz	Carrier frequency: 1.5kHz~12kHz
Output voltage	3-phase 380V (-15%~+10%)	3-phase 380V (-15%~+10%)
Start / control mode	V/F control, vector control	V/F control, vector control
Overload capacity	120% rated current 60 s	150% rated current 60 s
Digital input	8DI, 2AI	8DI, 2AI
Analog output	2AO	2AO
Protection functions	Input phase loss, output phase loss, input undervoltage, DC overvoltage, overcurrent, variable frequency drive overload, motor overload, current stall, overheating, and external interference, etc.	Input phase loss, output phase loss, input undervoltage, DC overvoltage, overcurrent, variable frequency drive overload, motor overload, current stall, overheating, external interference and pressure control, etc.
Communication function	1-channel RS485 communication, standard Modbus-RTU protocol	1-channel RS485 communication, standard Modbus-RTU protocol

AIC Variable Frequency Drive

AIC100 LV Variable Frequency Drive Series

Quick Model Selection

AIC100	-	400	T4	BE	+	YLD
Product series AIC100 LV variable frequency drive		**Power** 0R7: 0.75kW 400: 400kW	**Rated input voltage** T4: 400V	**Structure** BE: Wall-mounted Type		**Extension function** YLD: Remote control box YLD 1: Remote shield wire 1m YLD 3: Remote shield wire 3m

Note:
1) Generally, AIC100 is provided with a potentiometer and a 1-channel RS485 communication;
2) There is no built-in filter for 15kW or below, and a built-in C3 filter is contained for 18.5~400kW.
3) A built-in braking unit is contained for 45kW or below, and an external optional braking unit can be equipped for 55kW or above;
4) DC reactors are not supported for 45kW or below; DC reactors are optional externally for 55~400kW;
5) The remote control box needs to be provided externally for 15kW or below.

AIC316 LV Variable Frequency Drive Series

Quick Model Selection

AIC316	-	500	T4	BE	+	YLD
Product series AIC316 LV variable frequency drive		**Power** 0R7: 0.75kW 500: 500kW	**Rated input voltage** T4: 400V	**Structure** BE: Wall-mounted Type GE: Cabinet Type		**Extension function** YLD: Remote control box YLD 1: Remote shield wire 1m YLD 3: Remote shield wire 3m

Note:
1) Generally, AIC316 is provided with a potentiometer and a 1-channel RS485 communication;
2) There is no built-in filter for 11kW or below, and a built-in C3 filter is contained for 15~500kW.
3) A built-in braking unit is contained for 0.75~37kW or below, and an external optional braking unit can be equipped for 45kW or below;
4) DC reactors are not supported for 37kW or below; DC reactors are optional externally for 55~400kW; variable frequency drives of 45kW and above are provided a built-in DC reactor;
5) The remote control panel box needs to be provided externally for 11kW and below.

MAST Auto Transfer Switch System

MAST Auto Transfer Switch System

Quick Model Selection

MAST
Product series MAST Auto transfer

-12
Rated voltage
12-12kV
24-24kV

/630
Rated current
630-630A
1250-1250A
1600-1600A
2000-2000A
2500-2500A

-25
Rated breaking current
25-25kA
31.5-31.5kA

C
Structure
C: Integrated*
S: Split-type
TB: bypass type

*For more specs, please contact our company

Product Overview

The MAST auto transfer switch system is mainly used in important load networks such as data centers, highways, medical facilities, banking systems, airports, telecommunications semiconductors. In case of mains failure or power failure, the auto transfer switch system can be used to switch to standby power supplies such as Diesel generator power supply to ensure the normal operation of important loads. For the switching process, the lower level loads can be switched, cut off and unloaded step by step.

In case of a mains failure, it can cut off the corresponding load outgoing breaker according to the diesel generator conditions in the preset order; after cutting off the load, it switches off all the mains power circuit breakers, and switches on the reserve power circuit breaker (diesel generator); after the reserve power circuit breaker (diesel generator) is switched, it delays the input of load outgoing breakers according to the preset sequence, to realize the load switching in steps.

Product Features

- Designed in both integrated and split-type structures to meet the needs of customers in different industries.
- Switchable control unit for line protection.
- Electrical interlocking, mechanical interlocking, program interlocking, achieving a comprehensive interlocking configuration
- Provided with automatic and manual switching modes. The automatic mode can be set as automatic switching and automatic-recovery, automatic switching and non-automatic recovery, and mutual backup, and step-by-step load switching is supported.
- The bypass product is optional. When the active equipment fails, the system can supply power to the load in bypass mode to avoid the single point fault of system.

Key Technical Parameters

Item		Unit	Parameter
Rated voltage		kV	12 、 24
Rated voltage (1 min)		kV	42
Rated lightning impulse (1.2/50 μs)		kV	75
Rated frequency		Hz	50/60
Rated curent(Main busbar)		A	630/1250/1600/2000/2500/ 3150/4000
Rated short time withstand curent (rms 4s)		kA	25/31.5/40/50
Rated peak withstand current		kA	63/80/125/135
IP level	Outer casing		IP4X
	Compartment		IP2X
Internal arcing protection grade			IAC A FLR 31.5kA/1s

MEAT Auto Power Transfer System

MEAT Auto Power Transfer System

Quick Model Selection

MEAT
Product series MEAT automatic power transfer system

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

D
Breaking capacity
D: Icu=70kA, Ics=Icw=65kA
H1: Icu=Ics=80kA, Icw=65kA
H2: Icu=Ics=Icw=80kA
M: Icu=Ics=Icw=100kA

3
Number of poles
3: 3 poles
4: 4 poles

E2
Controller
E2: Two power supplies
E3: Two power supplies with bus tie circuit breaker

Standard Configuration Scheme for MEAT:

- **Circuit breaker installation mode:**
  A withdrawable air circuit breaker is configured generally.
- **Circuit breaker protection unit:**
  For 400-4000A, a 3-step LSI protection is configured, and other protections are optional.
- **Breaking capacity:**
  For 400-4000A, D breaking products are provided generally; For 5000-6400A, M breaking products are provided generally.
- **Number of poles:**
  3P or 4P can be selected depending on the system requirements.
- **Certification:**
  Overall CCC certificate of MEAT

Non-Standard Configuration Scheme for MEAT:

The non-standard configuration of MEAT can be selected depending on the function parameters of the air circuit breaker, which can also be determined by contacting us on 400-820-5234.

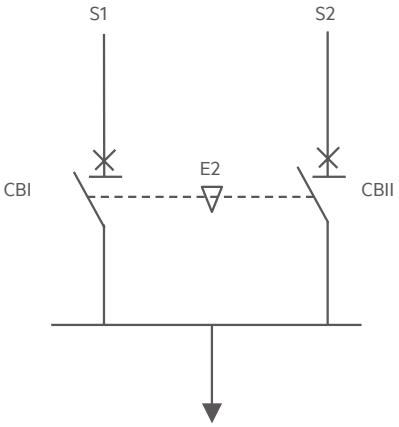
MEAT Auto Power Transfer System

Product Overview

The MEAT auto power transfer system, based on flexible combination of air circuit breaker and E2/E3 controllers, allows reliable switching of multi-power supplies, and realize the function of two incoming lines with one bus-tie. The MEAT controller can help to monitor undervoltage, overvoltage and phase loss of two power supplies. In case of exceptions from any phase of the power supply circuit, the controller can automatically send the switching command to the air circuit breaker according to the preset program.

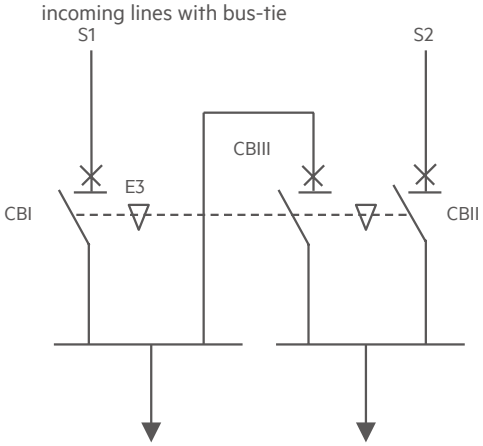
E2 controller

- Mains - mains, control the transfer between two mains;
- Mains - generator, control the transfer between mains and generator.



E3 controller

- Mains - mains, control the transfer between two incoming lines with bus-tie



Key Technical parameters

Controller model	E2	E3
Rated voltage	AC230V	AC230V
Rated frequency	50Hz	50Hz
Aux. power supply	DC24V	DC24V
Test power supply	S1/S2 (L-N)	S1/S2 (L-N)
Undervoltage setting (L-N)	150-218V	150-218V
Overvoltage setting (L-N)	242-300V	242-300V
Auto switching and automatic-recovery	■	■
Auto switching and non-automatic recovery	■	■
Generator start	■	-
Bus-tie functions	-	■
Manual operation	■	■
Remote operation	■	■
Fire control linkage	■	■
Communication function	■	■
Communication protocol	Modbus	Modbus

MARS PC-Level Auto transfer Switch

AT30 Industrial-Level Auto Transfer Switch

Quick Model Selection

AT30	P	II	-	100	/	4	MT100
Product series AT30 series Industrial-level auto transfer switch	**Product type** PC-grade	**Rank** III-2-position III-3-position		**Rated current** 16-16A 100-100A 250-250A 400-400A 630-630A 4000-4000A		**Number of poles** 3 - 3P 4 - 4P 3N - Neutral line overlap	**Controller type** MT100: Intelligent controller MT200: Multifunctional controller H: Standard controller

Note:
For 3-position 800A or above products, please contact us.
For 2-position products, the neutral line overlap can be selected for transfer.
The maximum value can reach up to 630A.
H-type controllers are suitable for 800A and above, MT type controller should be selected for scenarios below 800A.

Product Overview

- PC-level industrial auto transfer switch;
- Rated current: 16-2500A;
- Transfer time: ≤ 100ms, full series
- Test category: AC-33A, full series
- Optional neutral line overlap transfer function
- Electrical and mechanical interlocking

Controller

- Foolproof secondary terminal design, achieving safe and convenient introduction of power from the main circuit;
- Adjustable delay time switching;
- For monitoring parameters such as voltage loss, phase loss, undervoltage, overvoltage, underfrequency, overfrequency, phase sequence, of commonly used power supplies, and quickly switching to a backup power supply in case of the above faults;
- Optional automatic switching and recovery, automatic switching and non-automatic recovery, and mutual backup;
- Communication function provided generally;
- Manual operation, automatic mode, remote control, fire control linkage and communication operation modes provided.

MARS PC-Level Auto Transfer Switch

AT20 Auto Transfer Switch

Quick Model Selection

AT20	II	-	630	/	4	EH
Product series AT20 series Auto transfer switch	**Rank** III-2-position III-3-position		**Rated current** 160-160A 630-630A		**Number of poles** 3-3P 4-4P	**Controller type** EA: Standard controller EH: Intelligent controller M: Split intelligent controller

Note: The standard wire length for the M-type split controller is 1.8m. Please contact AEG for other lengths.

Product Overview

- PC building-level auto transfer switch;
- The listed AC-33B with a making and breaking capacity of 10Ie is used;
- Transfer speed<100ms;
- New excitation drive mechanism.

Controller

- Integrated / split-type, three types controllers available;
- Functions regarding overvoltage / undervoltage, voltage loss, phase loss, phase sequence etc. are provided;
- The controllers can be extended to cabinet door display units through a data cable;
- Programmable output interface, convenient for flexible configuration.

Performance Parameters

Specs.	AT20			
Rated operating current Ie (A)	16, 32, 40, 63	80, 100, 125	160, 200, 250	300, 400, 630
Rated insulation voltage Ui (V)	AC 800			
Rated operating voltage (V)	AC 400			
Rated operating frequency (Hz)	50			
Application category	AC-33B			
Number of poles	3, 4	3, 4	3, 4	3, 4
Transfer position	II/III	II/III	II/III	II/III
Product type	Dedicated integrated PC-grade			
Rated limiting short-circuit current (kA)	120			
Rated breaking and making capacity	10Ie			
Mechanical life	10,000 times	10,000 times	10,000 times	10,000 times
Electrical life	6,000 times	6,000 times	6,000 times	6,000 times
Conversion time	< 100ms			
Control circuit	Rated control power supply voltage AC 220V 50Hz, 85%~110% Ue			
Auxiliary circuit	2NO AC 110V5A/220V3A DC 220V/0.2A			

MARS PC-Level Auto Transfer Switch

AT10 Auto Transfer Switch

Quick Model Selection

AT10	P	II	-	200	/	3	C
Product series AT10 series Auto transfer switch	**Product type**	**Rank**		**Rated current**		**Number of poles**	**Controller type**
	PC-grade	II-2-position, maximum 400A		16-16A		3-3P	Type A: Terminal type, maximum 400A
		III-3-position		.....		4-4P	Type B: Integrated type, LCD type, maximum 250A
				125-125A		3N - Neutral line overlap	Type C: Split type, intelligent type, LCD type, maximum 800A
				.....			Type D: Split type, intelligent type, LCD type, 1000-2500A
				250-250A			
				.....			
				800-800A			
				.....			
				2500-2500A			

Product Overview

- PC-grade auto transfer switch;
- Two or three-level options;
- Application category AC-33B, making and breaking capacity 10Ie;
- Rated current: 16-2500A;
- Quick excitation drive mechanism;
- The operating mechanism has a reliable mechanical interlocking device, ensuring that both the common and backup power supply cannot be switched on at the same time under any circumstances;

Controller

- Full function protection and switching;
- Common and standby power supply for voltage loss, phase loss, undervoltage, overvoltage protection monitoring;
- Integrated / split controller, user-friendly operation control;
- Manual, automatic, button and remote communication control for easy experience;
- Automatic switching and automatic recovery, automatic switching and non-automatic recovery, and mutual backup, on-site options;
- Support mains-mains and mains-generator modes;
- Fire control linkage function;
- Adjustable transfer delay and return delay.

Specs.	AT10P-63	AT10P-125	AT10P-250	AT10P-800	AT10P-1250	AT10P-2500
Number of poles	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P	3P, 4P
Rated operating current (A)	16-63	80-125	160-250	300-800	1000-1250	1600-2500
Making and breaking capacity	10xIe	10xIe	10xIe	10xIe	10xIe	10xIe
Main contact positions	2- / 3-position	2- / 3-position	2- / 3-position	3-position	3-position	3-position
Controller type	A/B/C	A/B/C	A/B/C	C	D	D

MARS CB level automatic transfer switch

AT10B CB level automatic transfer switch

Rapid selection of model

AT10	B	-	63	/	4	B
Product series AT10 series automatic transfer switch	**Model of transfer switch** B：CB level		**Rated current** 16-16A ..... 63-63A 630-630A		**Number of poles** 3-3 pole 4-4 pole	**Controller** B-B controller

Note:
1.63A products and below use A6 series miniature circuit breakers as actuators, while 80-630A products use Z6 series molded case circuit breakers as actuators.
2. Type B controller is applied for molded case products.
3. Please contact AEG for special requests.

Product overview

- CB level dual power switch
- Rated current: 16-630A
- Utilization category: AC-33B/33iB
- Capable of overload, short circuit, overvoltage/undervoltage, phase loss protection, and other functions
- Select high breaking AEG circuit breakers
- Isolation between sampling and control circuits to improve EMC performance of product;
- Comprehensive control functions, with three-phase detection, fire linkage, generator start/stop, and on-site adjustable conversion delay.

Controller characteristics and functions

- Work mode and conversion parameters can be set on-site through buttons
- The display screen directly shows the active and standby power supply parameters and control parameters
- Standard fire linkage function, capable of receiving passive fire signals and providing a group of feedback signals
- Have generator start/stop function and set generator start/stop delay
- The controller can be installed on the cabinet door through a connecting cable to facilitate user to operate and maintain

AE Protection Relay

Protection Relay of 3AE Microcomputer Series

Product Overview

- Using high-performance ARM microprocessors with high integration, powerful functions and quick speed;
- The analog input, switch input, power input, and communication interface parts are subject to transformer isolation and photoelectric isolation;
- Big wide-temperature-range screen LCD human-machine interface, multi-layer menu display, multifunctional buttons and easy operation;
- Internally integrated RTC clock, a 10-year stable operation ensured thanks to the battery;
- Powerful waveform recording function, with waveform including fault analog quantity and input data, and formats complying with the COMTRADE standard;
- Software and hardware self-check function and adjustment-free circuit design, achieving easier debugging;
- Optional operating power levels including DC24, DC48V, AC/DC110V, and AC/DC220V;
- 9-channel input collection, internal collection at the switching-in and switching-out positions;
- Class 0.5 current and voltage measurement accuracy, Class 2 electrical degree, SOE resolution ≤ 2ms.

Key Electrical Parameters

Item	Spec.
Operating power supply	DC24, DC48V, AC/DC110V, AC/DC220V (please specify it when ordering)
Allowable deviation	± 20%, ripple coefficient not higher than 5%
Rated frequency	50Hz
Power consumption	DC power circuit: maximum power consumption < 5W
	AC current circuit: not exceeding 1VA per phase
	AC voltage circuit: At rated voltage, not exceeding 0.5VA per phase
Overload capacity	Output contact: Continuously connect at DC220V and 5A
	Power circuit: Normal operation at 80%~120% rated voltage
	AC voltage: 1.2 times the rated voltage for continuous operation
	Measured current: 1.2 times the rated current for continuous operation
	Protection current: Twice the rated current, long-term continuous operation 10 times the rated current, allowed for 16s 40 times the rated current, allowed for 1 second

Fixed Value Range

Item	Spec.
Maximum setting range of fixed value	Voltage element: 0-456V
	Current element: 0-100A
	Frequency: 45.00Hz~55.00Hz
	Time element: 0.00s~100s
Action error	Current setting: ≤ ± 3% setting value or ± 50mA
	Voltage setting: ≤ ± 3% setting value or ± 1V
	Frequency setting: ≤ ± 0.02Hz
	Inherent action time: ≤ 45ms at 1.2 times the setting value
	Other action time: not exceeding ± 1% or 40m

MS10 Intelligent Meter

MS10F Multifunctional Meter Series

Quick Model Selection

MS10F	96	3	1	1G	+	DI
Product series	**External dimension**	**Number of phases**	**Rated current input**	**Rated voltage input**		**Extension function**
MS10F multifunctional meter	96: 96 square	3: 3-phase 3-wire	1: 1A	1G: 100V		DI: 2 or up to 4-channel switch input
	72: 72 square	4: 3-phase 4-wire	5: 5A	4G: 400V		DO: 2 or up to 4-channel switch output (2-channel PO optional)
						C: Up to 2-channel RS485 communication
						AO: Up to 4-channel analog output
						F: hourly electricity consumption
						2PO: 2-channel kwh meter pulse outputs

MS10E Intelligent Digital Display Meter Series

Quick Model Selection

MS10E	A	96	3	1	0	+	+2DI
Product series	**Type**	**External dimension**	**Number of phases**	**Rated current input**	**Rated voltage input**		**Extension function**
MS10E intelligent digital display meter	A: Ammeter	48: 48 square (Single phase only)	1: Single phase	0: None (select this item for voltage and frequency meter)	0: None (select this item for ammeter)		2DI: 2-channel switch input
	U: Voltmeter	72: 72 square	3: 3-phase 3-wire	1: 1A	1: 100V		4DI: 4-channel switch input
	P: Active power meter	96: 96 square	4: 3-phase 4-wire	5: 5A	4: 400V		1DO: 1-channel switch output
	PF: Power factor meter						2DO: 2-channel switch output
	F: Frequency meter						C: 1-channel RS485 communication
	H: Watt-hour meter						AO: 1-channel analog output

MS10 Intelligent Meter

Product Overview

- With a 32-bit CPU microprocessor, it has powerful data acquisition and processing capabilities.
- Accurate in measurement to class 0.2 for current and voltage, class 0.5 for energy.
- Friendly man-machine interface and LCD display.
- Comprehensive fault diagnosis functions, including over-limit alarm, fault record and 32 SOE event records.
- Full electrical parameter measurement, with statistics of voltage, current imbalance, 2nd~63rd harmonic THD, multiple rate, load percentage, and demand.
- Enabling extension of 2-channel RS485 communication and redundant configuration, achieving remote monitoring.

Parameter Functions

	MS10F	MS10EA/U/P/H/F/PF
Power supply	85 ~ 265VAC/100 ~ 300VDC	85 ~ 265VAC/90 ~ 300VDC
Measurement	U, I, P, kWh, F, PF	I / U / P / kWh
Accuracy	U, I: class 0.2, kWh: class 0.5	I: class 0.5 / U: class 0.5 / P: class 1 / kWh: class 1
IO configuration	DI, DO, AO, PO	DI, DO, AO
Auxiliary function	2nd~63rd harmonic, demand statistics, multiple rate, SOE, alarm	Alarm
Communication function	RS485 communication (Modbus-RTU communication protocol)	RS485 communication (Modbus-RTU communication protocol)
Operating temperature.	-10℃ ~+50℃	-10℃ ~+50℃
Overall dim. (L*W mm)	96*96, 72*72	96*96, 72*72, 48*48

PE Reactive Power Compensation

LV Power Capacitor

Quick Model Selection

PSC
Product types
PSC Power capacitor

37
Rated capacity
10: 10kvar
.....
37: 37kvar

T
Product series
S: Single phase
T: Three phase

525
Rated voltage
280: 280V
300: 300V
480: 480V
525: 525V
690: 690V

D
Connection mode
D: Delta
S: Star
P: Single phase

Product Overview

- Advanced polypropylene film technology with strong self-healing ability;
- Continuous overload current capacity of up to 2 In;
- Capable of withstanding surge current of 200 x In;
- Ultra long service life, up to 130,000 hours;
- Product with dual explosion-proof protection relying on internal fuse and nitrogen valve.

Parameter Functions

	PSC series
Rated voltage	280V 、 300V 、 440V 、 480V 、 525V 、 690V
Rated frequency	50/60Hz
Max current allowed	1.5IN （0~15.9kVar ）、2IN （15.9kVar 以上）
Surge current	200IN
Capacitance tolerance	±5%
Dielectric	Polypropylene film
Filler	Resin
Ambient temperature.	-40/D, maximum temperature. +55℃, daily average maximum +45℃, annual average maximum +35℃, min. -40℃
Altitude	≤ 4000m
Service life	> 130000h

PE Reactive Power Compensation

LV Filter Reactor

Quick Model Selection

AL
Product types
PSR filter reactor

50
Rated capacity
5: 5kvar
.....
50: 50kvar

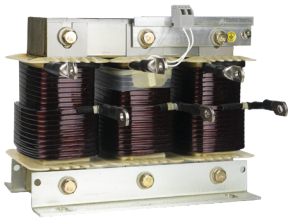
F
Product series
F

400
Rated voltage
280 ： 280V
400 ： 400V
480 ： 480V
525 ： 525V
690 ： 690V

A7
Reactance ratio
A7: 7% three-phase
A14: 14% three-phase

Product Overview

- Long-term stable operation of the reactor ensured thanks to the used Class H insulation materials;
- Strong overload capacity, up to 1.8Ip/In-0.8T;
- Adopt high-quality oriented silicon steel sheets, with linearity up to 1.8In
- High stability based on the vacuum overvoltage injection process;
- Harmonic distortion adaptation rate of up to 35%.



Parameter Functions

	PSR series
Rated voltage	280V 、 400V 、 480V 、 525V 、 690V
Rated frequency	50/60Hz
Inductance difference	-2%~+3%
Withstand voltage (winding)	3kV/1min
Insulation grade	T50/H
Linearity	1.5~1.8IN
Protection level	IP00
Operating temperature.	Q > 30
Altitude	-40 ℃ ~+50 ℃
	< 1000m, 2000m optional

PE Reactive Power Compensation

PFC Power Factor Controller Series

Quick Model Selection

RE	12	PFC	400	B
Product type	**Control output channels**	**Product series**	**Rated voltage**	**Function**
	12: 12 channels	PFC	400: 400V (RE00/03)	B: Standard
	18: 18 channels		440: 440V (RE06/12/18 、RO)	NB: Extended
	00: 4 expandable modules, 32 channels in total		690: 690V	
	03: 8 expandable modules, 64 channels in total			

Product Overview

- Accurate in AC sampling and measurement with full digital design.
- Friendly man-machine interface and LCD.
- 3-phase / split-phase / and mixed compensation, supporting different controllers for control.
- Overvoltage, harmonic voltage, harmonic current and overtemperature protection function provided.
- Provided with RS485 communication interface, achieving remote monitoring.

Parameter Functions

	PFC series
Operating power supply	100~240VAC (85~265VAC/DC non-modular)
Control output	12-channel, 18-channel, 32-channel, 64-channel
Communication interface	RS485 communication
Display	LCD
Compensation mode	Co-compensation, split compensation, mixed compensation
Protection function	Overvoltage, harmonic voltage, harmonic current and overtemperature protection function provided
Protection level	Front panel IP54, back IP20
Altitude	< 2000m
Ambient temperature.	-25℃~ +75℃
Dimension	Panel size: 144×144 (mm), opening size: 138×138 (mm)

PE Reactive Power Compensation

SE Thyristor Switch Series

Quick Model Selection

SE	100	CLC	400	H	50
Wiring method	**Model code**	**Product series**	**Rated voltage**	**Control mode**	**Rated frequency**
SE thyristor switch	90: 45kvar available for split compensation 100: 50kvar available for co-compensation	CLC	400: 400V	H: 2-phase (co-compensation) Y: 3-phase (split compensation)	50: 50Hz

Product Overview

- Zero-crossing switching, quick response, without inrush current and impact.
- Switching with high-quality thyristor, with reverse withstand voltage of 1800V.
- Service life: over 100,000h, maintenance-free, switching time: below 20ms.
- Built-in cooling fan with automatic start / stop control.
- Integrated in a compact size for easy installation.
- Thyristor protected effectively relying on the temperature control technology.

Parameter Functions

	CLC series
Control voltage	DC10~15V
Control mode	Three-phase, single-phase
Response time	≤ 20ms
Inrush current	Less than 2 times the rated current
Communication	Modbus-RTU
Ambient temperature	-40℃~ +70℃
Altitude	< 2000m

ASW Active Power Filter

ASW Active Power Filter Series

Quick Model Selection

ASW	4L	-	300	/	380	M
Product series ASW LV active power filter	**Wiring method**		**Compensation current**		**Rated voltage**	**Structure**
	3L: 3-phase 3-wire		Rack-mounted: 30A, 50A, 100A (380V)		380: 380V	M: Rack-mounted module
	4L: 3-phase 4-wire		Wall mounted: 30A, 50A, 100A (380V)		690: 690V	B: Wall-mounted
			Wall mounted: 50A, 150A, 200A (690V)			G: Cabinet type (composed of rack-mounted modules)
			Cabinet type: 30~600A (single cabinet, 380V, 690V)			

Product Overview

- Supporting filtering 2nd~61st harmonic (optional). Harmonic filtering rate: over 97%;
- Quick control with a response time below 10 ms, improving the instantaneous stability.
- Friendly human-machine interaction experience with an 8-inch LCD touch screen.
- Three-level main circuit, ensuring lower power consumption and higher efficiency.
- Modular design, including 30A, 50A and 100A modules, achieving easy installation, maintenance and expansion.
- Various optional compensation modes, achieving harmonic control, reactive power compensation and distribution on demand for unbalanced current compensation.

Parameter Functions

	Rack-mounted module	Wall-mounted	Cabinet type
Power grid voltage	380V (-20%~+20%)		
Power grid frequency	50/60±5Hz		
Wiring method	3-phase 3-wire, 3-phase 4-wire		
Capacity	30A, 50A, 100A		
Harmonic frequency	2~61 harmonic compensations		
Compensation efficiency	> 97%		
Response time	≤ 10ms		
Compensation mode	Harmonic, reactive power, 3-phase unbalance		
Protection function	Grid overvoltage/undervoltage, grid overfrequency/underfrequency, reverse input voltage sequence, overcurrent, overheating, overload, bus short circuit, etc.		
Noise	≤ 65dB		
Altitude	≤ 2000m		
Ambient temperature.	-40℃~ +70℃		
Communication interface	RS485/RS232		
Dimension W*H*D (mm)	30A ： 500*90*550 50A ： 500*90*710 100A ： 520*202*715	30A ： 450*550*90 50A ： 450*120*705 100A ： 470*735*250	1000*2200*800

Note:

Note:

AEG

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