

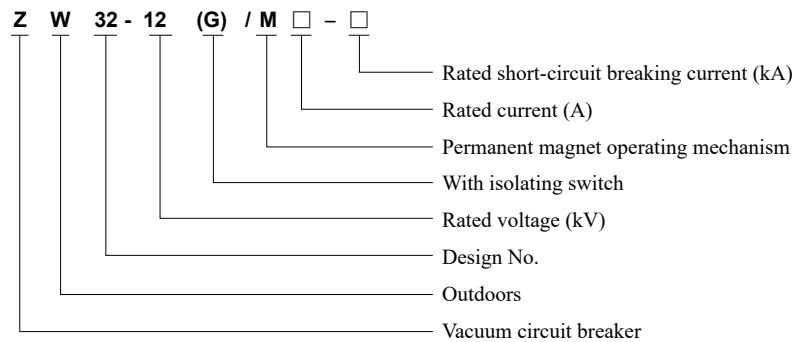
# ZW32-12(G) Outdoor High-Voltage AC Permanent Magnet Vacuum Circuit Breaker



## 1 Product overview

- 1.1 Three-phase AC 50Hz outdoor high-voltage switchgear, used in the 10kV electrical power systems of rural power grid and urban power grid for opening and closing load current, overload current, and short circuit current, and in other similar applications.
- 1.2 Available standards  
 GB/T 1984-2014 High-voltage alternating-current circuit-breakers  
 GB/T 11022-2011 Common specifications for high-voltage switchgear and controlgear standards  
 DL/T 402-2016 High-voltage alternating-current circuit-breakers

## 2 Type designation



## 3 Product parameters

No.	Parameter Name		Unit	Value	
1	Rated voltage		kV	12	
2	Rated current		A	630、1250	
3	Rated frequency		Hz	50	
4	Rated insulation level	Power frequency withstand voltage for 1 minute	Dry test	Phases-phase voltage, Voltage to ground: 42 Break voltage: 48	
			Wet test	34	
		Lightning impulse withstand voltage (peak)	Phases-phase voltage, Voltage to the ground: 75 Break voltage: 85		
5	Rated circuit-breaker breaking current		kA	20	25
6	Rated short-circuit making current (peak)		kA	50	63
7	Rated peak withstand current		kA	50	63
8	4s thermal stability current		kA	20	25
9	Rated operating sequence			O-0.3s-CO-180s-CO	
10	Closing time		ms	≤50	
11	Opening time			≤50	
12	Rated short-circuit breaking current ON/OFF times		Times	30	
13	Mechanical life			10000	
14	Control circuit and auxiliary circuit, power frequency withstand voltage for 1 minute		V	2000	
15	Rated operating voltage and auxiliary voltage			DC220/110	
16	Rated current of overcurrent trip coil		A	5	
17	Allowable wear thickness of dynamic and static contacts in arc extinguish chamber		mm	3	

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### 4 Working environment conditions

- 4.1 Ambient air temperature: Max. temperature: +45°C; Min. temperature: -40°C; Max. daily temperature difference: 25K;
- 4.2 Relative humidity: Daily mean is not greater than 95%, and monthly mean is not greater than 90%;
- 4.3 Altitude: Not higher than 2000m;
- 4.4 Wind: Not exceed 35m/s (equivalent to air pressure 700Pa);
- 4.5 Pollution grade: Grade IV;
- 4.6 Radial thickness of ice: 10mm;
- 4.7 Earthquake resistance: horizontal acceleration:  $0.3g/s^2$ ; vertical acceleration:  $0.2g/s^2$ ;
- 4.8 Installed in places free of fire, explosion, chemical corrosion and frequent severe vibration.

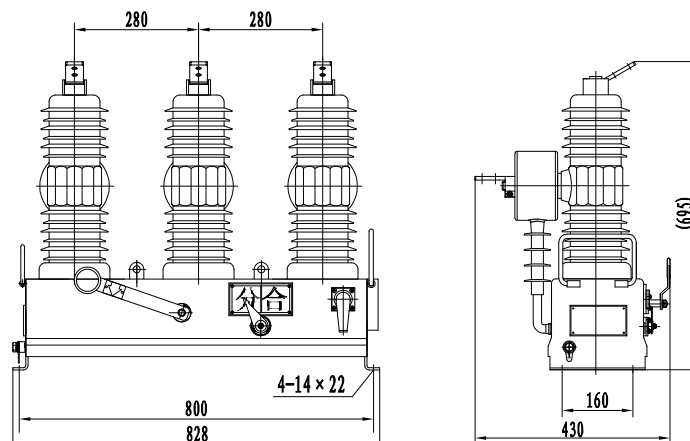
Please contact the manufacturer for customizing those failed to follow the normal working conditions.

### 5 Technical features of product

- 5.1 The product mainly consists of three-phase pole, spring operating mechanism, drive system, conducting loop, control unit and housing (made of ordinary carbon steel spray or stainless steel). The overall structure is of the three-phase pole type with miniaturization design, full-closed structure and good sealing property, especially suitable for cold and wet areas;
- 5.2 The efficient and reliable permanent magnet operating mechanism (electric OFF/ON; electric ON and manual OFF) or the dual mechanism of permanent magnet mechanism plus spring mechanism is used to realize manual ON function. The operating mechanism is sealed in the box to effectively prevent rust to parts, guaranteeing the reliable action of mechanism;
- 5.3 The pole is made of imported epoxy resin and coated with silicone rubber featuring with high temperature, low temperature, ultraviolet ray and aging resistance;
- 5.4 An external two-phase or three-phase protective current transformer is provided to realize overcurrent protection and fault current quick-break protection together with permanent magnet controller, and the protection delay time can be adjustable;
- 5.5 The interphase protection CT and zero-sequence CT integrated structure can be configured to realize parameter setting, single-phase grounding protection, three-section protection, reclosing, and fault accident memory together with the intelligent controller (the external power supply PT is used to supply the operating power); the controller has the corresponding communication module with data uploading to master station, fault feedback and "four-remote" functions to form an intelligent circuit breaker achieving distribution network automation;
- 5.6 The circuit breaker can be equipped with an isolating knife switch (at single or dual sides) with three-phase linkage to form an obvious isolating distance at the incoming (outgoing) side; a reliable mechanical anti-misoperation interlock is provided between the main switch and the isolating switch to guarantee safe and reliable operation.

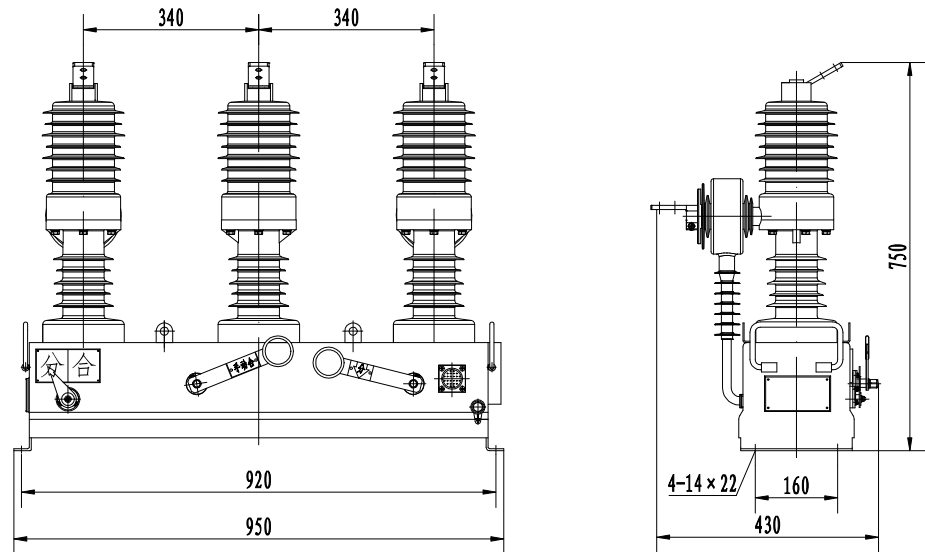
### 6 Outline and installation dimensions

#### 6.1 Outline of ZW32-12M circuit breaker (with CT for miniaturization)

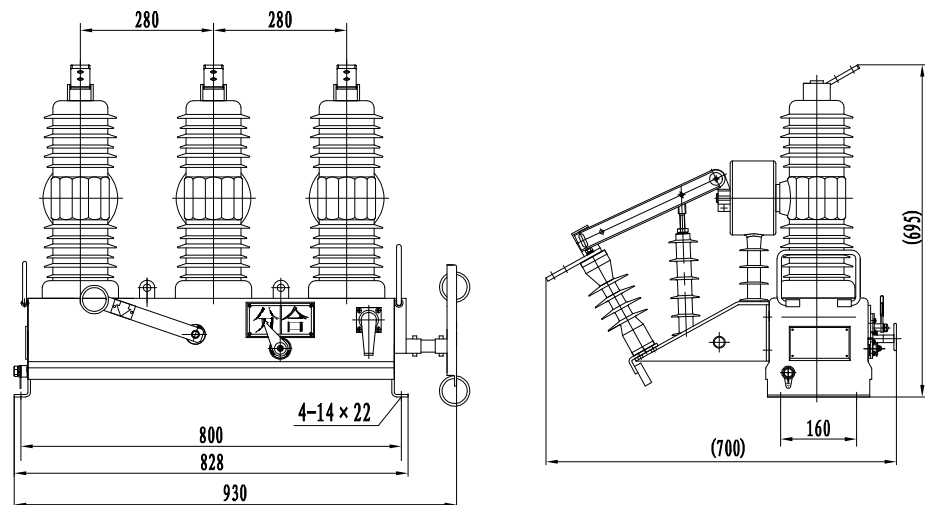


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6.2 Outline of ZW32-12M circuit breaker (with CT for conventional)

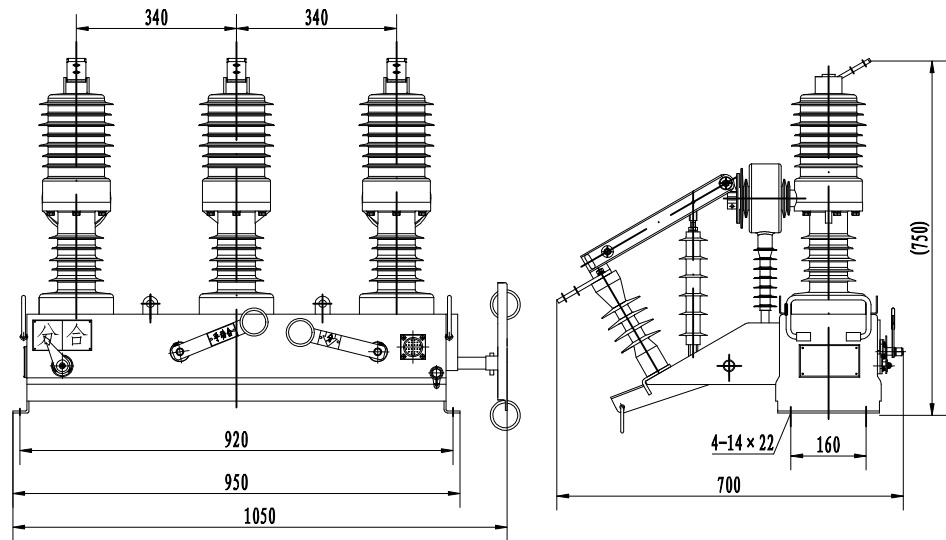


6.3 Outline of ZW32-12G/M circuit breaker (with CT for miniaturization)

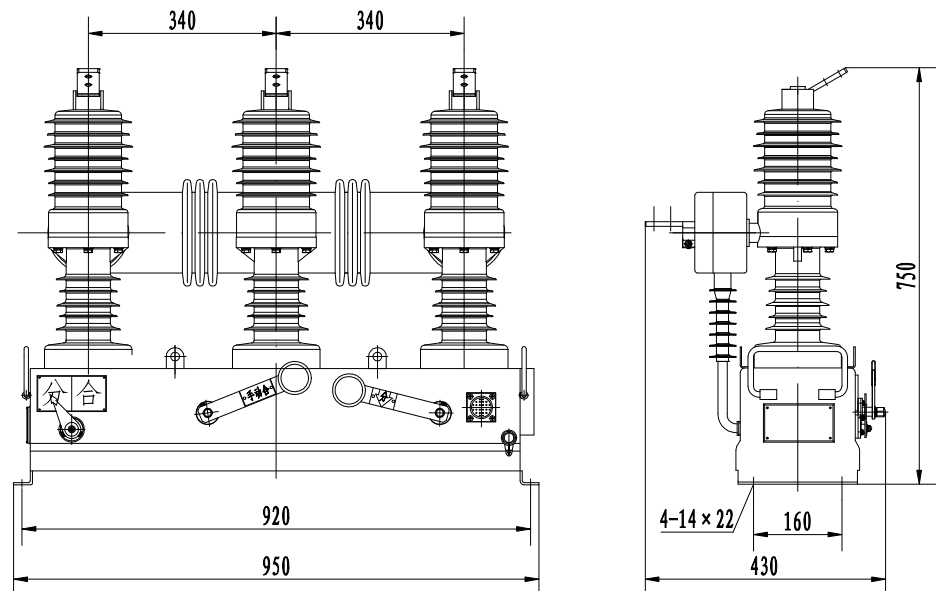


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6.4 Outline of ZW32-12G/M circuit breaker (with CT for conventional)

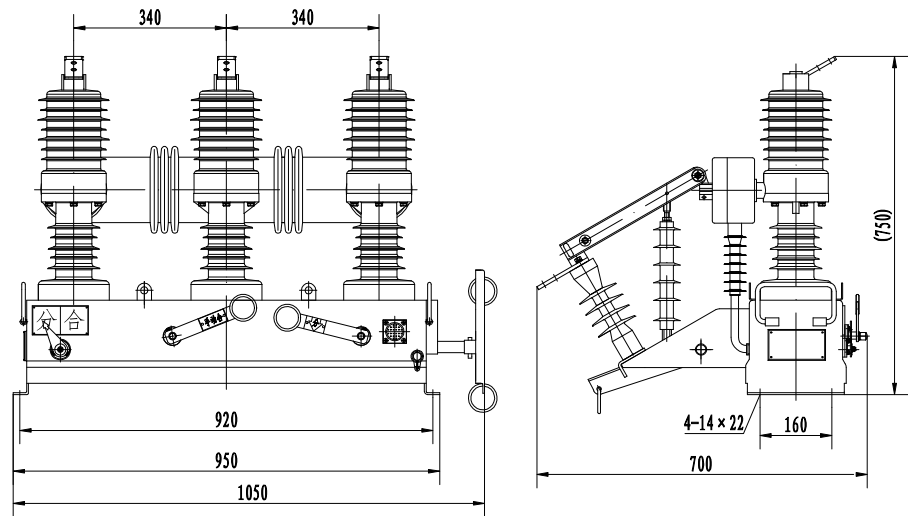


6.5 Outline of ZW32-12M circuit breaker (intelligent)

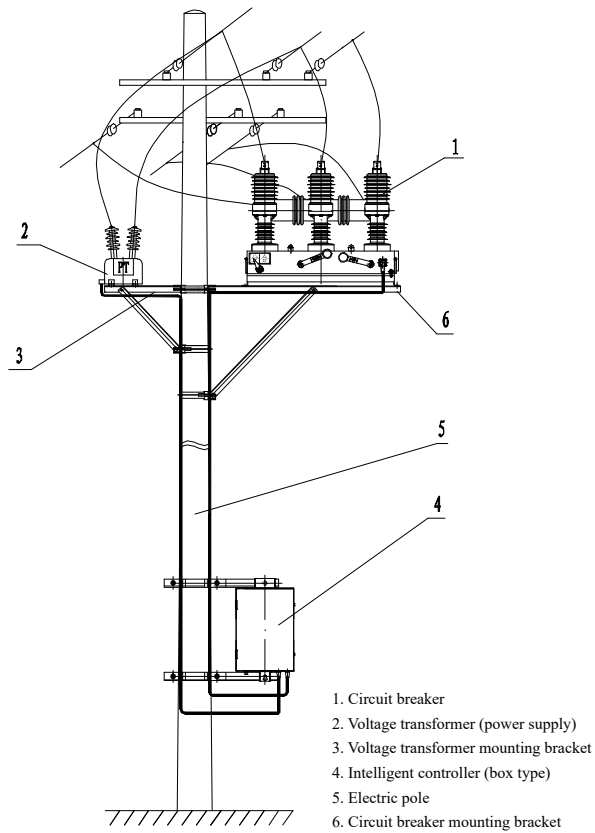


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6.6 Outline of ZW32-12G/M circuit breaker (intelligent)



6.7 Outline of ZW32-12M circuit breaker installation diagram (intelligent)



## ZW32-12(G) Outdoor High-Voltage AC Permanent Magnet Vacuum Circuit Breaker

### 7 Order information

- 7.1 Product model, name, specification, and quantity;
- 7.2 Rated current, rated short-circuit breaking current;
- 7.3 Pole type (split type, integrated type or solid-sealed type);
- 7.4 Three-phase or two-phase current transformer transformation ratio, accuracy and capacity;
- 7.5 Zero-sequence transformer (independent or combined) transformation ratio, accuracy and capacity;
- 7.6 Operating mechanism type (single or dual mechanism) and operating voltage;
- 7.7 Configuration requirements of voltage transformer (quantity, transformation ratio, accuracy and capacity);
- 7.8 Configuration requirements of controller (structure type, functions, and interfaces);
- 7.9 Names and quantity of accessories or spare parts;
- 7.10 For special requirements, please contact our company and sign the technical agreement.

## ZW32-12(G) Outdoor High-Voltage AC Permanent Magnet Vacuum Circuit Breaker

### 8 Order technology confirmation form

#### Order technology confirmation form for ZW32(F)-12(G)/M Outer Permanent Magnet Vacuum Circuit Breaker

Determine your requirements according to the items listed in table below:

Current grade	Rated current (A): <input type="checkbox"/> 630 <input type="checkbox"/> 1250
	Rated short-circuit breaking current (kA): <input type="checkbox"/> 20 <input type="checkbox"/> 25
Qty. (pcs)	
Pole type	<input type="checkbox"/> Split type (standard configuration) <input type="checkbox"/> Solid-sealed type <input type="checkbox"/> Integrated type
Phase distancing	<input type="checkbox"/> 340mm (Standard configuration) <input type="checkbox"/> 280mm (Solid-sealed or integrated customized)
Housing requirement	<input type="checkbox"/> Carbon steel spray <input type="checkbox"/> Stainless steel polishing (standard configuration) <input type="checkbox"/> Others: _____
Permanent magnet operating mechanism and operating voltage	<input type="checkbox"/> Monostable (Standard configuration) <input type="checkbox"/> Bistable stat <input type="checkbox"/> Permanent magnet (monostable) – spring dual mechanism
	<input type="checkbox"/> DC220V <input type="checkbox"/> Others: _____
Isolating knife switch requirements	<input type="checkbox"/> No (standard configuration) <input type="checkbox"/> With single-side isolation <input type="checkbox"/> With dual-side isolation
Zero-sequence transformer (not required for common type)	<input type="checkbox"/> 20/1 (Standard configuration) <input type="checkbox"/> Combined <input type="checkbox"/> Others: _____
Configuration requirements for current transformer	<input type="checkbox"/> No <input type="checkbox"/> Two-phase (standard configuration) <input type="checkbox"/> Three-phase
	<input type="checkbox"/> Standard configuration: 200-400-600/5, accuracy: Grade 10P; connected to: ___/5 before shipment; <input type="checkbox"/> Others: _____
Configuration requirements for voltage transformer	<input type="checkbox"/> No (standard configuration) <input type="checkbox"/> Single-side PT <input type="checkbox"/> Dual-side PT
	<input type="checkbox"/> Transformation ratio 10/0.22kV; capacity 300VA; <input type="checkbox"/> Others: _____
Controller requirements	Cover-type: <input type="checkbox"/> Common type <input type="checkbox"/> Intelligent type (with GPRS) Box-type: <input type="checkbox"/> Common type <input type="checkbox"/> Intelligent type (with GPRS) Others: _____
Mounting bracket requirements	<input type="checkbox"/> No (standard configuration) <input type="checkbox"/> With single-pole bracket (hot dip galvanizing) <input type="checkbox"/> Others: _____
Other special requirements	Ordering unit (seal)
	Sign: Confirmation date: Tel:

Note: If not ticked, all options shall be manufactured according to the TENGEN's standard configurations.