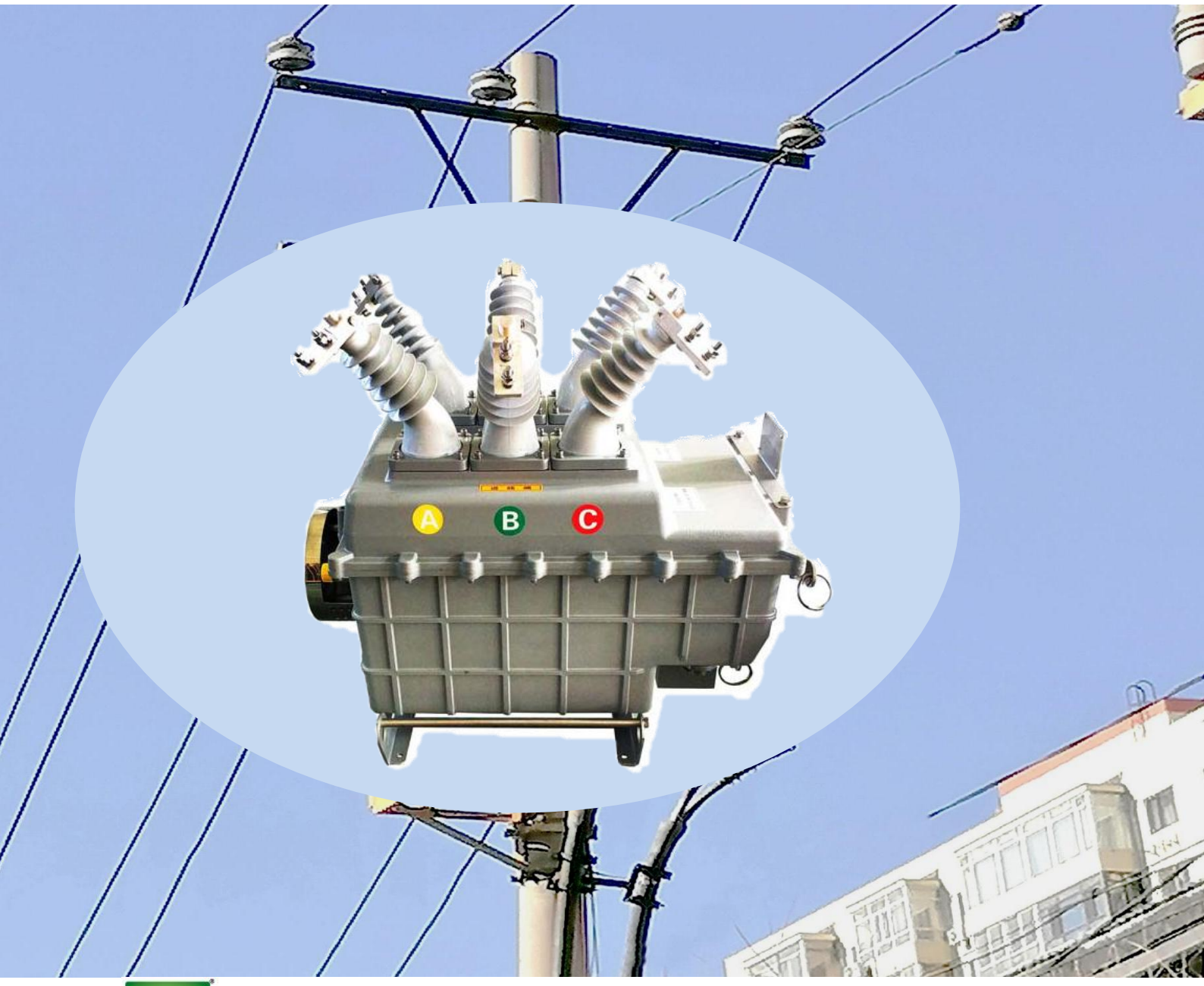
ZW68-12/T630-20

Outdoor high-voltage AC vacuum circuit breaker



Shenyang Huade High Technology Electric Co., Ltd

Product Overview

ZW68-12 outdoor high-voltage AC circuit breaker is an outdoor high-voltage AC switchgear with three-phase AC 50Hz and rated voltage of 12kV, which is mainly used for breaking and closing load current, overload current and short-circuit current in power system. The products completely comply with GB11022, GB1984, DL/T402 and the general technical specifications of 12kV-24kV outdoor pole-mounted circuit breakers of State Grid Corporation of China, and have passed all type tests. It is suitable for protection and control in power distribution systems of substations and industrial and mining enterprises, and is more suitable for rural power grids and places with frequent operation. It can also be used as a sectional switch of a power grid, and can realize distribution network automation after being added with a controller.

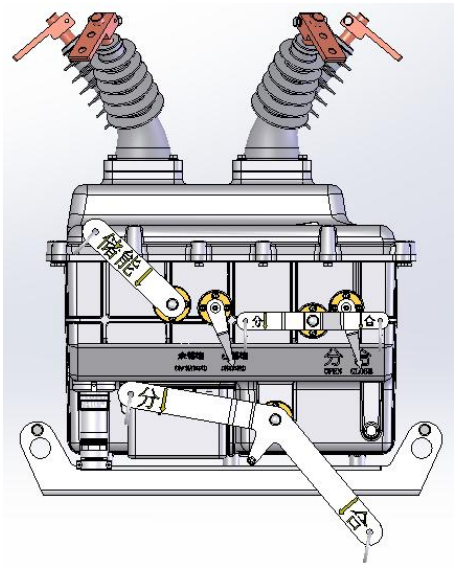
✧ The environment-friendly dry air is adopted as an insulating medium, so that the use of sulfur hexafluoride is avoided, low-temperature liquefaction risk is avoided, ensuring environment-friendly, safe and maintenance-free performance.

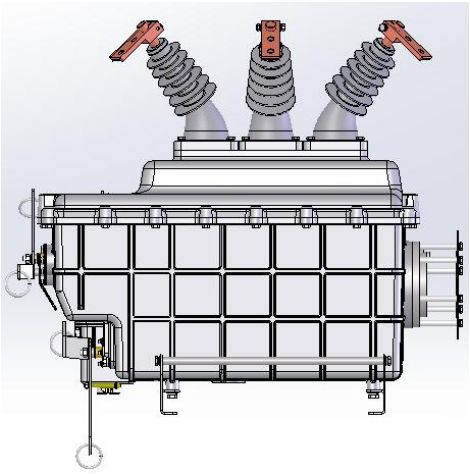
✧ The pole-mounted circuit breaker and the FTU feeder terminal can operate normally at the air temperature between the minimum temperature of -40℃ and the maximum temperature of +55℃, and have the characteristics of anti-condensation and anti-pollution, and are specially used for outdoor operation environment.

✧ Based on the design concept of full insulation, full sealing and miniaturization, the VCB, DS, CT, PT and operating mechanism and other components are all installed in sealed tank, making the product have the advantages of compact structure, high protection level, safety and convenient transportation.

✧ The high-quality connectors used in external accessories are easy to connect and reliable to plug in. The current loop has an open circuit prevention function and can be plugged in and out at will during line operation.

✧ The product has intelligent function and can realize the automatic functions of distribution network such as line loss measurement, earthing fault line selection and line protection. The FTU feeder terminal is configured to support various power communication protocols such as wireless public network and optical fiber Ethernet. Configure backup power supply to ensure switch control and communication power consumption within 48 hours after line power failure.



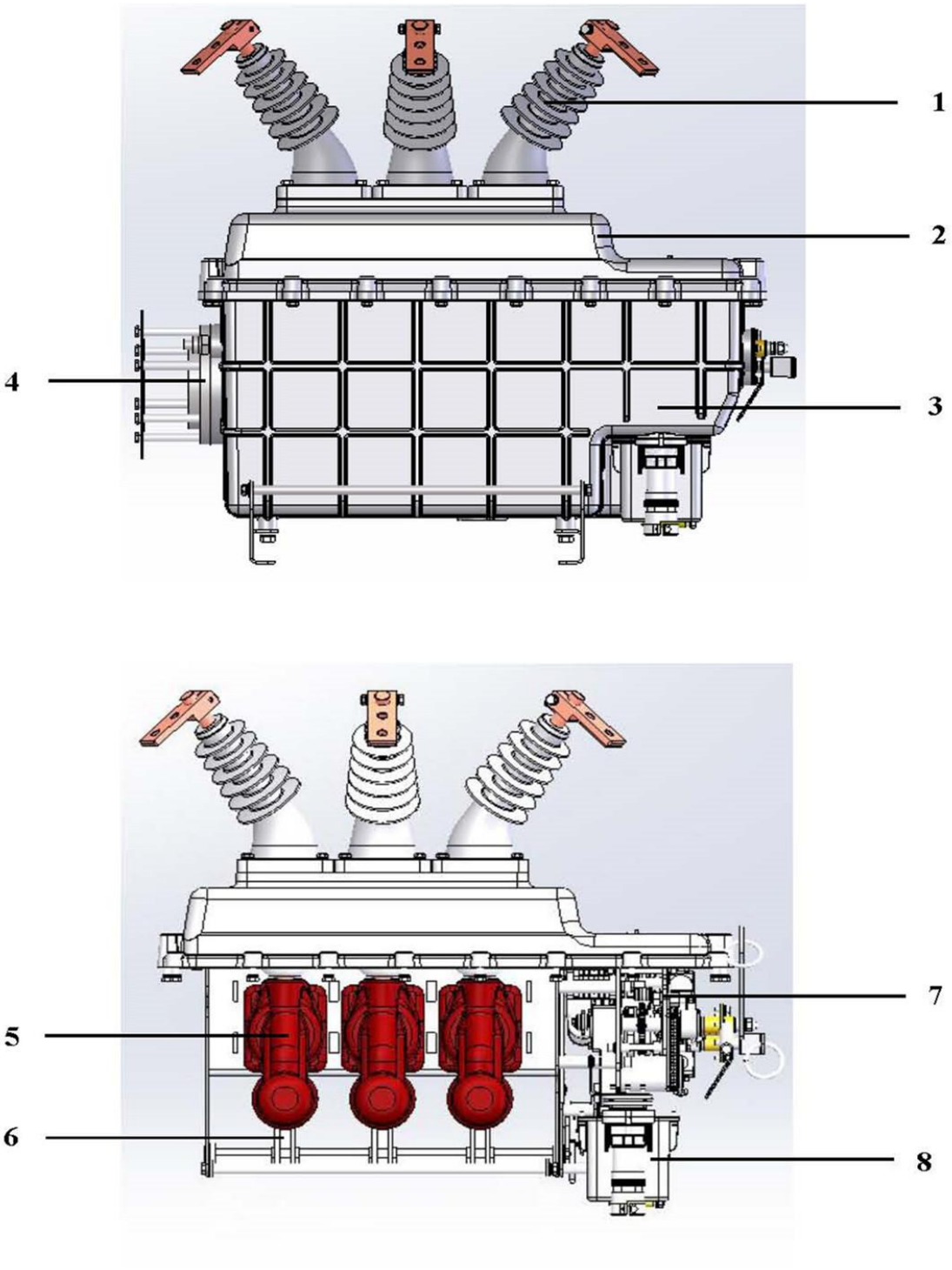


Normal service conditions

- ✧ Ambient air temperature: minimum temperature -40℃, maximum temperature +55℃; daily temperature variation: ≤25℃.
- ✧ Maximum solar radiation: ≤ 1000W/m^2.
- ✧ Altitude: ≤ 1000m.
- ✧ Wind speed ≤ 34m/s.
- ✧ Seismic intensity: ≤8 degrees.
- ✧ Working places: no flammable, explosive, chemical corrosion or severe vibration.
- ✧ Pollution grade: d.

Product structure

1. The integrated, fully-insulated and fully-sealed design is adopted, and the solid-sealed vacuum circuit breaker body, direct-acting disconnecting switch (non-open type), current transformer, voltage sensor and operating mechanism are all sealed in the same box, thereby enhancing the corrosion resistance and prolonging the service life of the main components.
2. It adopts cast aluminum box filled with environment-friendly dry air with good insulation performance to realize maintenance-free operation.
3. It's built-in phase current, zero-sequence current sensor and bushing voltage sensor, with high acquisition precision and convenient installation, meeting the use requirements of line loss measurement and line protection.
4. The configured distribution automation terminal FTU can be equipped with various communication modules, supporting various power communication protocols such as wireless public network and optical fiber Ethernet.
5. The breaker body and the disconnector shall be provided with mechanical interlock to prevent mis-operation.
6. The disconnecting switch is operated manually, and the circuit breaker can be operated electrically or manually. There is an operating handle installed with lifting ring outside the enclosure, which is convenient for the operation and maintenance .



1 Insulation bushing 2-Upper enclosure 3-Lower enclosure
4-Rupture disc 5-Embedded pole 6-Disconnecting switch
7-Circuit breaker operating mechanism
8-Disconnecting switch operating mechanism

ZW68-12 Typical layout

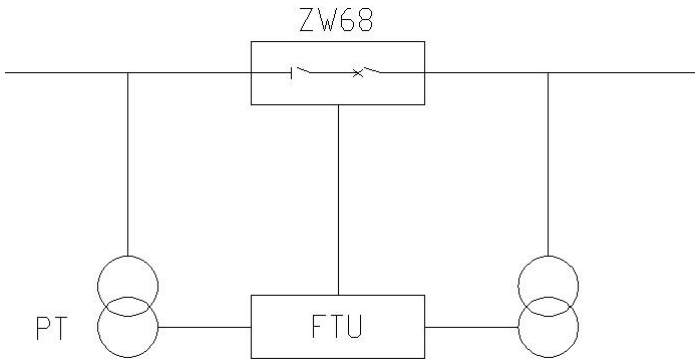
Technical parameters

No.	Item		Unit	Value	
1	Rated voltage		kV	12	
2	Rated insulation level	1min power frequency withstand voltage (phase-to-phase, phase-to-earth (wet test)/isolating distance)	kV	42/48	See ★Note 1
		Lightning impulse withstand voltage (phase, phase/isolating distance)		75/85	
3	Rated frequency		Hz	50	
4	Rated current		A	630	
5	Rated short-time withstand current		kA	20	
6	Rated peak withstand current		kA	50	
7	Rated short-circuit current dduration		s	4	
8	Rated short-circuit breaking times		Time	30	
9	Rated short-circuit breaking current	Effective value of AC component	kA	20	
		DC component		52%	
10	Rated operating sequence			O-0.3s-CO-180s-CO	
11	Rated short circuit making current		kA	50	
12	Rated out-of-step breaking current			5	
13	Rated out-of-phase breaking current		kA	17.4	
14	Rated capacitive switching current (Class C2)	Rated cable charging breaking current (effective value)	A	25	
15	Rated resistance of main circuit		μΩ	≤200	
16	Mechanical life	Circuit Breaker (CB)	Time	10000	
		Disconnecting switch (manual)		3000	
17	1min power frequency withstand voltage of secondary circuit		kV	2	
18	Auxiliary and control loop	Rated supply voltage	V	DC:220、110、48 AC:220、110	
		Rated supply frequency	Hz	50	
19	Terminal static load	Static horizontal force	N	Longitudinal: 500; Horizontal: 400	
		Static vertical force		Up: 500; Down: 500	
20	Rated pressure (20℃ absolute pressure)		Mpa	0.02	
21	Annual leakage rate		Year	≤0.1%	
22	Partial discharge		pC	＜20	
23	Moisture content of dry air (20℃)		μL/L	≤150（handover acceptance value）	
				≤300（allowable operating value）	
24	Protection level oof gas-filling compartments		IP67		
25	Overall dimension mm (LxWxH)		920x720x830		
26	Weight		175 kg		

★Note 1: When the dielectric test of outdoor circuit breaker is conducted at an altitude higher than 1000m, the phase to earth and phase to phase outer insulation withstand voltage shall be corrected according to the provisions of 2.3.2 of GB/T11022;

Note 2: Parameters 8-14 in the table are only applicable to circuit breaker unit.

Typical installation diagram of10kV pole-mounted circuit



breaker in distribution network:

Feeder terminal FTU:

Features

■ Three remote functions: remote measurement, remote signaling and remote control

■ Protection function: three-phase three-section overcurrent protection function, zero sequence protection function, reclosing and locking reclosing function;

■ Intelligent distributed logic function: realize local fault clearing, automatic fault isolation, automatic transfer power supply and automatic power supply recovery in non-fault section; Logic manual, automatic reset and other functions;

■ Remote/local operation: remote/local on/off operation is mutually locked, and the control outlet is controlled by the on/off of soft and hard strap;

■Power function: double-way power switching, automatic seamless switching to backup power supply in case of AC power failure, and automatic management (battery activation, alarm and protection) for backup power supply;

■ Communication function: with multiple network ports and serial ports, it supports multiple communication protocols;

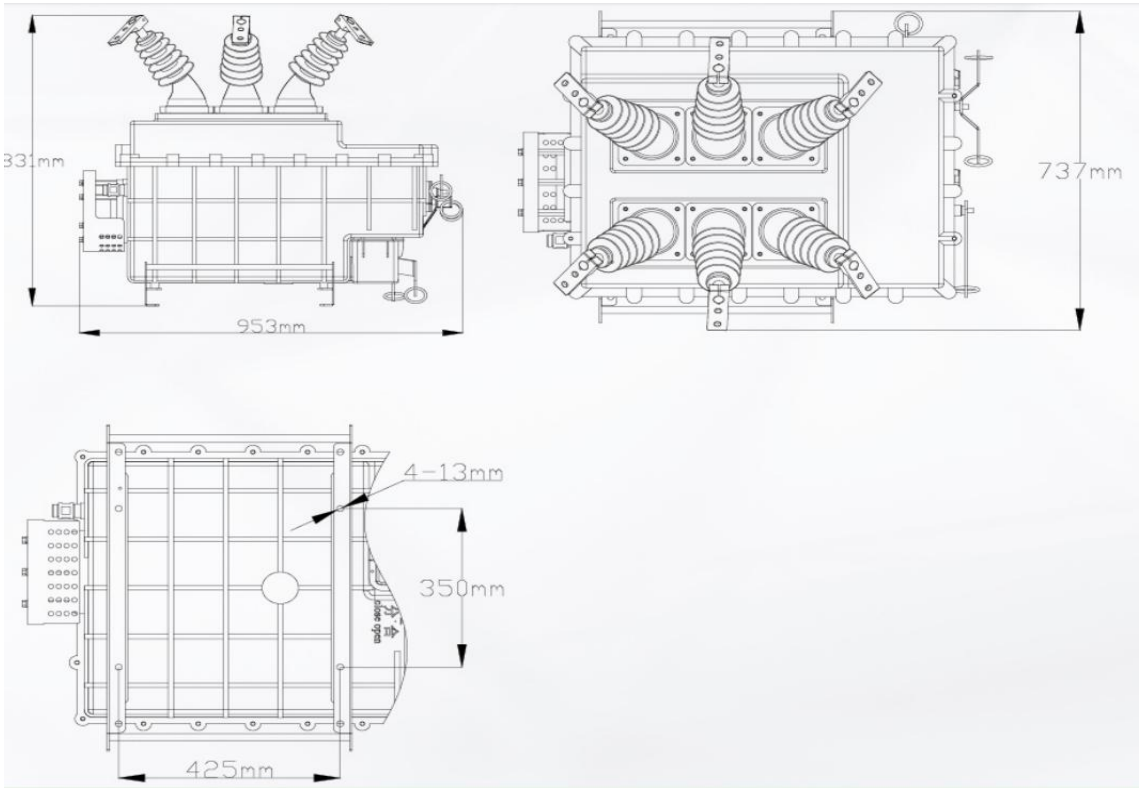
■ Wireless communication: it's capable of wireless communication through touch notebook;

■ Status indication: there are obvious local status indication signals such as operation, communication and line failure;

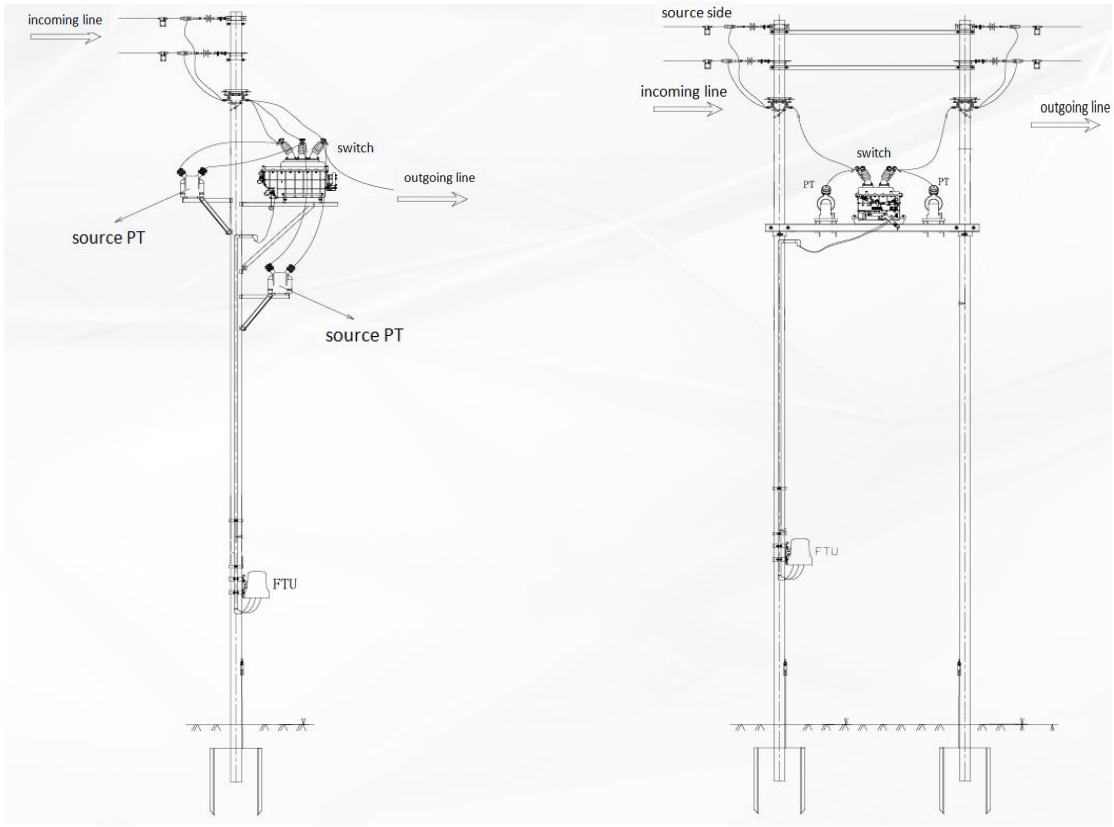
■Data processing function: arbitrary configuration and combination of data transmitted by the master station; distribution transformer load rate, three-phase imbalance, telemetering out-of-limit, extreme value, qualification rate statistics, etc.;

■Extended functions: fault indicator signal reception and forwarding; single-phase earthing fault detection..

Installation method:



ZW68 outline drawing and installation dimensions diagram



ZW68 installation drawing

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