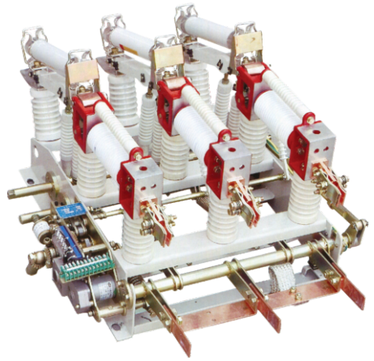
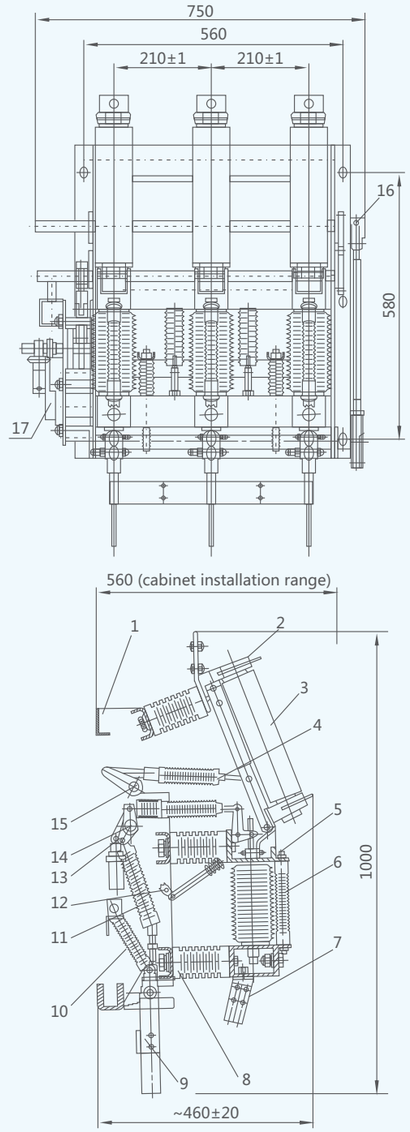
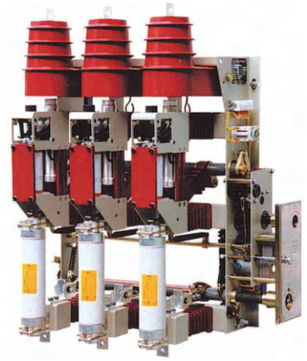


FZN21-12D/T630-20
FZRN21-12D/T125-31.5

Outline and Mounting Dimensions



1. Cabinet bracket 2. Disconnector 3. Fuse 4. Insulated tension pole
5. Upper bracket 6. Vacuum interrupter 7. Static contact 8. Insulator
9. Grounding knife 10. Grounding knife spring 11. Opening spring
12. The tripping driving device 13. Insulated tension pole 14. Main axle
15. Layshaft 16. Adjusting yoke 17. Spring operating mechanism



FZN25-12D/T630-20
FZRN25-12D/T125-31.5

General Introduction

FZN25, FZRN25 type vacuum load switch and composite apparatus, suitable for three-phase AC 50Hz ring network or terminal power supply and industrial electrical equipment, for load control and short circuit protection use, load switch open and close the closed loop current, no-load transformer and cable charging current, composite apparatus can break any current till rated short circuit current.

Adopt the straight move or isolating fracture and vacuum interrupter linkage. With function of manual and electric operation.

FZN25, FZRN25 special transmission structure design, arc extinguish chamber only withstand voltage in the moment of closing and breaking, small size, low price.

FZN25, FZRN25 can realize isolation fracture and arc extinguish chamber fracture disposable operating.

FZN25, FZRN25 has a grounding switch mutual linkage grounding valve between the static contact and movable conductive cylinder, ensures safety and convenient maintenance.

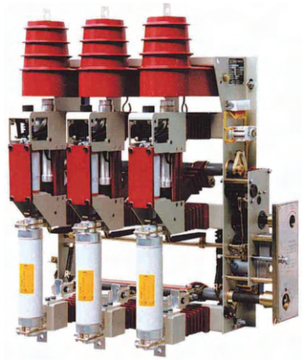
Working Conditions

1. Ambient air temperature: upper limit +40℃, lower limit -25℃ (allow storage at -30℃), 24h average value is not higher than +35℃;
2. Altitude: no more than 1000m;
3. Relative humidity: daily average value is not greater than 95%, monthly average is not greater than 90%;
4. Earthquake intensity: do not exceed 8 degree;
5. The surrounding air is not corrosive and flammable gas, steam and other significant pollution;
6. No regular violent vibration;
7. Contamination grade: II class;

Model and Meaning

F Z N 25 - 12 D / T 630 - 20

- 20 — Rated short-time withstand current
- 630 — Rated current (A)
- T — Spring mechanism
- D — With grounding knife switch
- 12 — Rated voltage
- 25 — Design code
- N — Indoor
- Z — Vacuum
- F — Load switch



FZN25-12D/T630-20
FZRN25-12D/T125-31.5

F Z R N 25 - 12 D / T 125 - 31.5

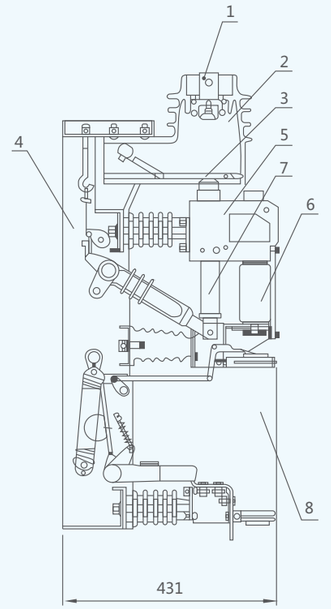
- Rated short-time withstand current
- Rated current (A)
- Spring mechanism
- With grounding knife switch
- Rated voltage
- Design code
- Indoor
- With fuse
- Vacuum
- Load switch

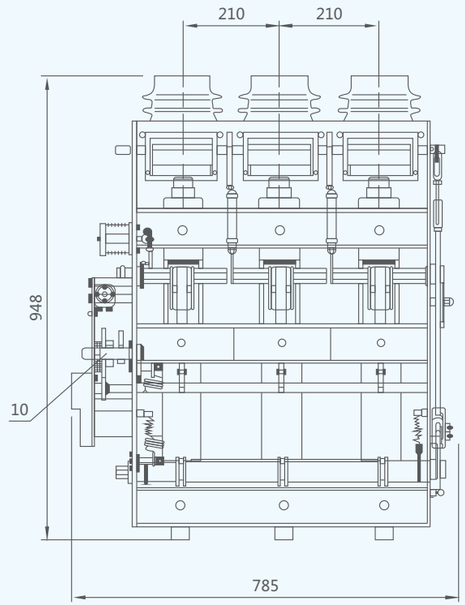
Technical Specification

Item	Unit	FZN25-12D/ T630-20	FZRN25-12D/ T125-20
Voltage, current parameters			
Rated voltage	kV	12	
Rated frequency	Hz	50	
Rated current	A	630	125
Rated short time power frequency withstand voltage (1min)	kV	Interrupter fracture 30; phase to earth 42; isolation fracture 48	
Rated lightning impulse withstand voltage (peak)	kV	Phase to earth 75; isolation fracture 85	
Rated peak withstand current	kA	50	-
4s rated short-time withstand current	kA	20	-
Rated active load breaking current	A	630	-
Rated loop breaking current	A	630	-
Rated cable charging breaking current	A	10	-
Interrupting no load transformer capacity	kVA	1250	-
Rated short-circuit breaking current	kA	-	31.5
Rated transfer current, rated AC current	A	-	2000
Fuse type			SDLAJ-12 SFLAJ-12
The impactor energy output	J		2-5 (medium)
Rated short-circuit closing current	kA	50	
Grounding switch rated stability current	kA	50	
Grounding switch 2S thermal stability current	kA	20	
The auxiliary circuit rated voltage	V	≅220/110	
Mechanical life	times	10000	

FZN25-12D/T630-20 Type
Indoor AC High-voltage Vacuum Load Switch
FZRN25-12D/T125-31.5 Type
Indoor AC High-voltage Vacuum Load Switch Fuse Combination

Outline and Mounting Dimensions





FZW28-12F

General Introduction

>>Automatic removal of single-phase grounding fault

When the single-phase grounding fault happens in user branch line, the boundary switch open automatically, the other branch user of substation and feeder line do not feel the failure.

>>Automatic isolation interphase short circuit fault

The user side happens phase short-circuit fault, boundary switch off immediately after trip protection in substation. Substation coincidence, the fault line is automatically isolated, the other branch user on the feeder to restore power supply quickly (the equivalent of a transient fault).

>>Fast locate the fault position

Boundary switch protection action caused by user fault branch, only responsibility users power fault and the initiative to submit fault information, the power company can quickly send officials to troubleshooting; if the boundary switch equipped with such as a communication module, information will be submitted to the power management center autimatically.

>>To monitor the user load

Boundary switch can be configured with wired or wireless communications accessories, monitoring data will be transmitted to the power management center, realize remote real-time data monitoring of user load.

Working Conditions

1. Altitude: ≤ 2000 meters;
2. Environment temperature: -40℃ ~+85℃;
3. Relative humidity: ≤ 90% (25℃);
4. The maximum daily temperature difference: 25℃;
5. Protection grade: IP67;
6. The maximum ice thickness: 10mm.

Model and Meaning

F Z W 28 - 12 F / □ - □

- Rated short-time withstand current (kA)
- Rated current (A)
- Boundary type
- Rated voltage (kV)
- Design code
- Conditions of use: outdoor
- Arc extinguishing media: vacuum
- Load switch

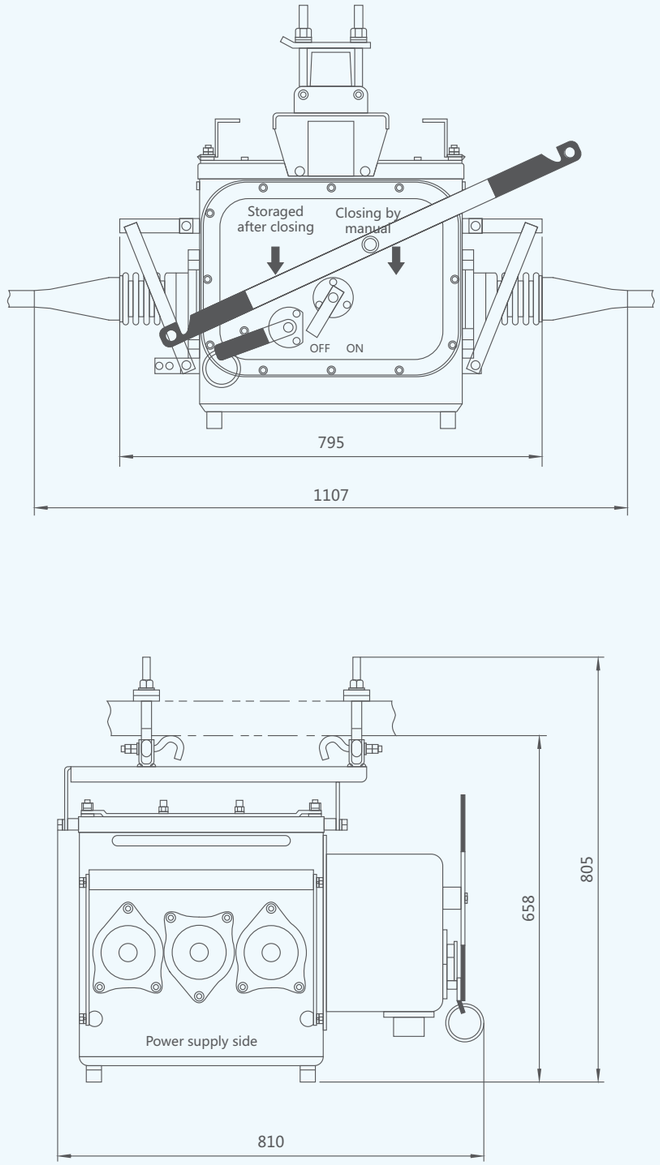
Technical Specification

Item	Unit	Parameter
The switch body		
Rated voltage	kV	12
Power frequency insulation withstand voltage (Interphase and phase to ground / fracture)	kV	42/48
Lightning impulse withstand voltage (Interphase and phase to ground / fracture)	kV	75/85 (peak)
Rated current	A	630
Rated short-time withstand current	A	16
Rated thermal stability time	S	2
Rated short-circuit close current (peak)	kA	40
Rated dynamic stability current (peak)	kA	40
Rated cable charging breaking current	A	20
Rated switching unloaded transformer inductor current	A	< 5
Mechanical life	times	10000
Measurement and control unit		
Type		FDR-100
Input voltage		AC220±20%
Input voltage frequency	Hz	50
The output voltage (opening operation)		DC48V
Interphase short-circuit protection setting current value		0.2-1.0 adjustable
Grounding protection of zero sequence current setting value		10-200mA adjustable
Grounding protection action time setting value		0-10s adjustable
Setting value permitted error		±5%
Insulation resistance (external terminal to ground / input terminal to output terminal)		> 100MΩ/DC500V
Power frequency withstand voltage (ibid.)		2000V/1min
Impulse withstand voltage (ibid.)		5000V, 1.2/50μs The positive and negative three times each

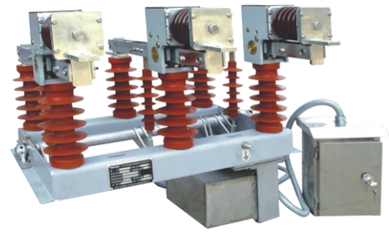
FZW28-12F Type
Outdoor AC Boundary Vacuum Load Switch

FZW28-12F

Outline and Mounting Dimensions



FZW32-12 (40.5) Type
Outdoor High Voltage Isolating Vacuum Load Switch



FZW32-12(40.5)

General Introduction

FZW32-12 (40.5) type outdoor high voltage isolating vacuum load switch is a new type of load switch which is the integration of mature experience of domestic existing load switch and advanced technology design of external. This load switch is composed of isolating switch, vacuum interrupter and operating mechanism and other parts. By using the principle of vacuum interrupter, with strong arcing ability, reliable performance, long service life, small volume, no explosion danger, no pollution etc advantage. The product can be used in transmission and distribution system of electric power, metallurgy, mine, chemical industry and other departments as control equipment, especially suitable for frequent operation place.

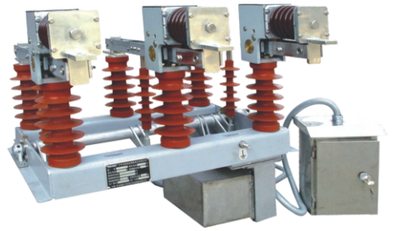
Working Conditions

1. Ambient temperature: upper limit +40℃, lower limit -30℃;
   Days difference does not exceed 32K;
2. Altitude: 1000m and the following areas;
3. Wind pressure: no more than 700Pa (corresponding to the wind speed 34m/s);
4. Air pollution level: IV class
5. Earthquake intensity: do not exceed 8 degree;
6. Ice thickness: no more than 10mm.

Model and Meaning

F Z W 32 - 12(40.5) / □ - □

- Rated short-time withstand current (kA)
- Rated current (A)
- Rated voltage(KV)
- Design code
- Outdoor type
- Dielectric (vacuum)
- Load switch

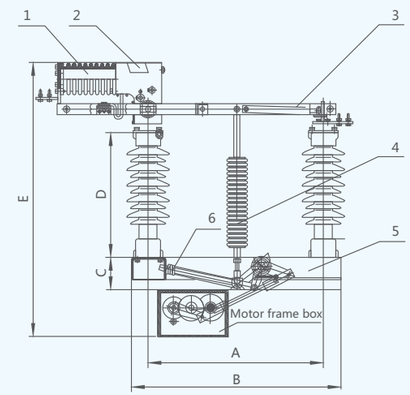


FZW32-12(40.5)

Technical Specification

Item			Unit	Parameter	
Load switch main technical parameters and mechanical properties					
Rated voltage			kV	12	40.5
Rated current			A	630	1250
Rated frequency			Hz	50	50
Rated peak withstand current			kA	50	63
Rated short-time withstand current			kA	20	25
Rated short-time withstand current duration			S	4	4
Rated active load breaking current			A	630	1250
Rated closed loop breaking time			A	630	1250
Rated cable charging breaking current			A	10	10
5% at rated active load breaking current			A	31.5	63
Rated no-load transformer breaking current rated capacity			kVA	1250	1250
Rated short-circuit closing current			kA	50	63
The main circuit of electronic			μΩ	≤150	≤100
1min power frequency withstand voltage(RMS)	Dry test	Between poles and poles to the ground	kV	42	95
	Wet test	Isolating fracture	kV	48	110
		Between poles and poles to the ground	kV	30	85
Lightning impulse withstand voltage (peak)		Between poles and poles to the ground	kV	75	185
		Isolating fracture	kV	85	215
Mechanical life			times	10000	10000
Three-phase, switching in different period			ms	≤5	≤5
The contact blade just close position deviation			mm	≤2	≤2
The main contact blade pressure			N	300±30	450±50
The contact blade distance			mm	≥180	≥380
Manual operating torque			Nm	≤200	≤300
Load switch vacuum arc extinguishing chamber assembly and adjustment technology					
Open clearance between contacts			mm	5±1	18±1
Average opening speed			m/s	1.1±0.2	1.6±0.2
Three phase opening different period			ms	≤5	≤5
Three phase closing different period			ms	≤5	≤5
Distance between the charged body and the pole to ground			mm	> 200	> 380

Outline and Mounting Dimensions



1. The vacuum interrupter assembly
2. The opening spring
3. The isolation knife assembly
4. Insulated tension pole
5. Base
6. Spring past middle

Model specification	Main dimensions (mm)				
	A	B	C	D	E
FZW32-12/630-20	400	480	80	220	755
FZW32-40.5/1250-25	770	920	100	560	1236

FZW32-12 (40.5) type outdoor high voltage isolating vacuum load switch adopts the vacuum arc extinguish chamber, no explosion danger, no maintenance. The load switch isolation knife linkage with a three-phase vacuum interrupter, breaking and closing operation in good same period, and with reliable isolation fracture when breaking, namely has the function of isolation switch. Most of the switch body parts are made of stainless steel materials, the base frame is made by stainless steel materials or hot dip galvanizing and UV protection coating processing material, can effectively prevent corrosion and rusting, ensure the normal operation in the outdoor environment. Switch knife with a pressure spring, ensure that contact with sufficient contact pressure, such not only convenient operation, and can guarantee the reliability of switching.

The isolating fracture and arc fracture of the load switch are in parallel during the opening and closing process, the arc fracture as arc, does not bear the load current task, while the isolation fracture only undertake the load current and short circuit closing task, not to participate in the arc, which not only simplifies the arc structure, and the whole structure of switch simple, stable performance; installation and operation convenient and reliable, long service life. It is a kind of economic, ideal outdoor switchgear.

The handle hook rod actuator; the operating handle is mounted on the load switch spindle end, and fastened by nuts, both ends of the handle are marked with "opening", "closing" instructions, the operator may according to need to use hook rod to hook the end of" opening" or "closing" , to make the spindle rotate, spring past middle mechanism drive the isolation knife assembly and vacuum interrupter actuator motion, namely relize the switch breaking and closing. (this applies to 12kV)

Under rod mechanism operating; the load switch is installed at the upper part of the wire rod, operating mechanism is arranged in the lower part, ensure that the handle keep away from the ground not more than 1100mm, if the operation of connecting rod is more than three meters should add support guide in the middle of rod. (operating mechanism and guide support as the product accessories supply to the user) (this applies to 12kV)

Electric operation (this applies to 12kV/40.5kV)