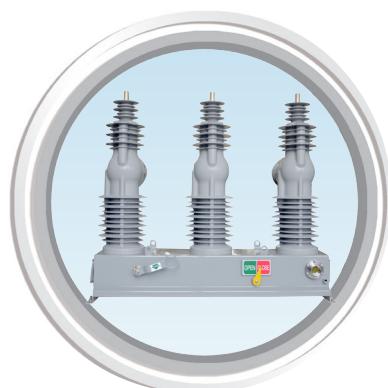
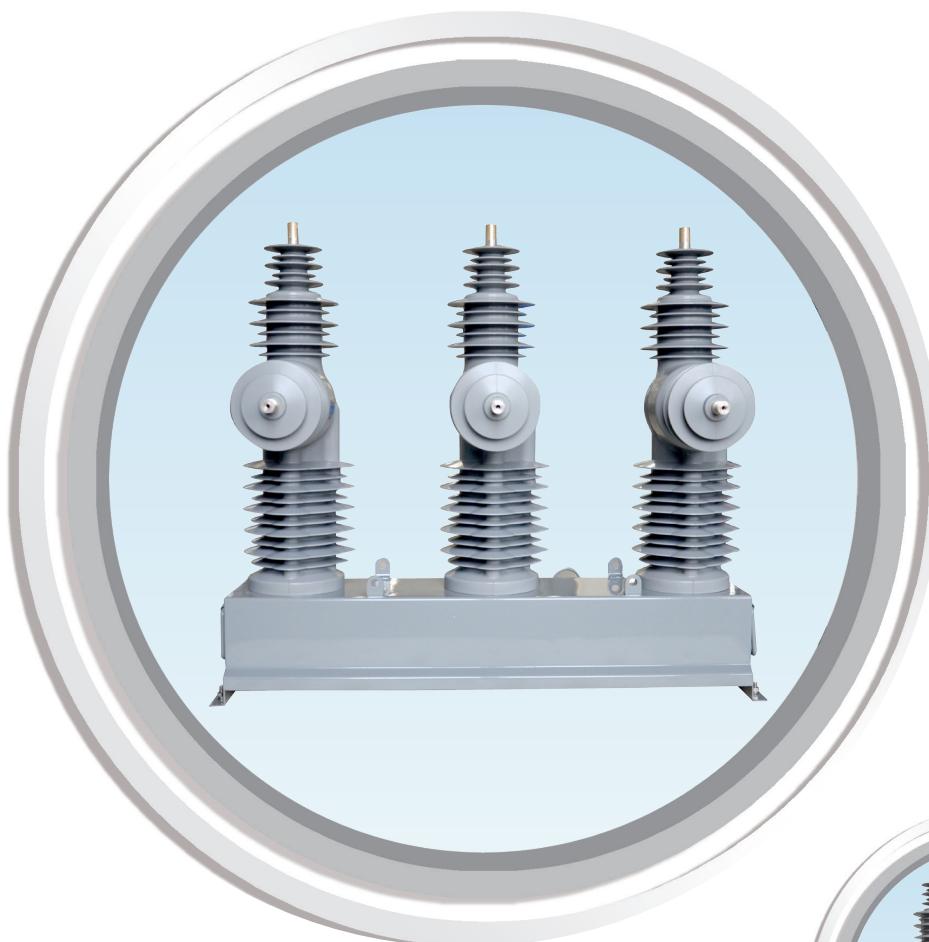


Solid Insulated Vacuum Recloser (SVR)

SVR are designed for use on overhead distribution lines as well as distribution substation applications for all voltage levels up to 27kV and 38kV



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Feature

Reliability

- 10,000 times mechanical endurance
- UV resistant solid insulation material
- 100% Factory Acceptance Testing
- Single molded design ensure longer creepage distance

Maintenance-free

- Solid insulation material enables application under high contamination environment
- Magnetic Actuator with few moving parts
- Painted Stainless steel enclosure and operation shaft guarantee maximum corrosion protection

Environmentally Friendly

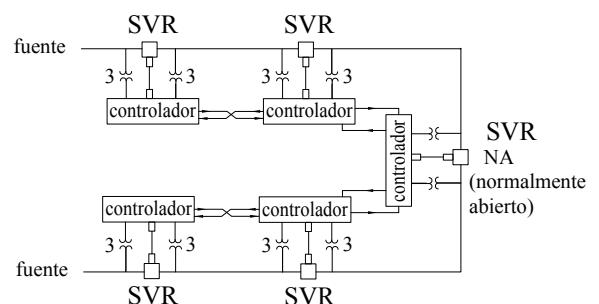
- SF6 free
- Altitude:3000m
- Operating temperature:-40 to 55°C
- Maximum solar radiation:1.1 kW/m²
- Icing thickness: 20mm
- Pollution level: IV-Very Heavy
- Seismic intensity:≤8
- Wind pressure:≤34 m/s
- Humidity:Daily Average ≤95%; MonthlyAverage≤90%

Flexibility and Compatibility

- Compatible with controller or relays from other brands
- Various selections of cable connection interfaces

Smart Grid and Automation

- Encapsulated 3 current transformers(±0.2%)
- Encapsulated 6 voltages sensors maximum(±5%)



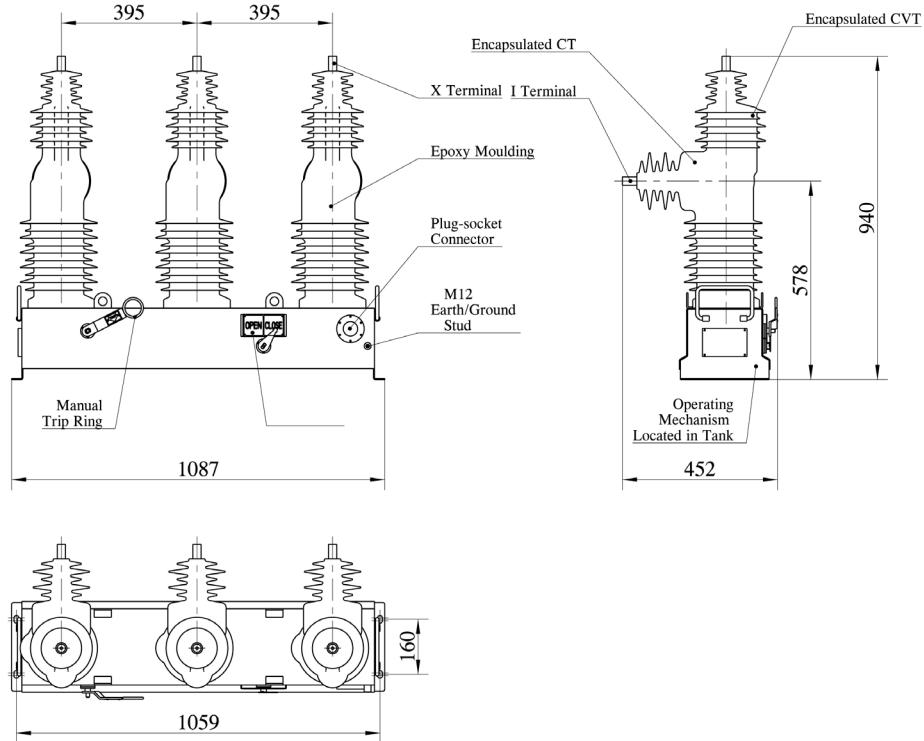
Type Test

DNV·GL KEMA

SOJO Electric SVR automatic recloser has passed the complete type tests in accordance with relevant IEC and IEEE standards and has been granted KEMA certificates.

Product Dimension

27/38kV



Technical Data

No.	Item	Unit	Data	
			27kV	38kV
1	Rated Voltage	kV	27	38
2	Rated Frequency	Hz	50/60	50/60
3	Rated Current	A	800	630/800
4	Rated Short Circuit Breaking Current	KA	12.5/16	12.5
5	Rated Peak Withstand Current	KA	31.5/41.5	31.5
6	Rated Short Time Withstand Current / Duration	KA/s	12.5/3 16/3	12.5/3
7	Rated Short-circuit Making Current (peak)	KA	31.5/41.5	31.5
8	Rated cable-charging current switching	A	5/5	
9	Rated line-charging current switching	A	40/25	
10	Mechanism Duration	Ops	10000	
11	1 min Power Frequency Withstand Voltage	Wet	kV	50
		DRY	kV	60
				70 (80) ¹
12	Rated lightning impulse withstand voltage (BIL)	kV	150	170 (200) ¹
13	Rated operating sequence		O-0.2s-CO-2s-CO-2s-CO	
14	Number of max. tripping operations	n	4	
15	Actuator type		Magnetic1	
16	Standards		IEC 62271-111:2019 IEEE C37-60:2018	
17	Pollution level as defined in IEC 60815		IV - Very Heavy	
18	Protection degree		IP67	
19	Ambient air temperature range	°C	-40 to +55	
20	Current sensing technology per phase		current transformer	
21	Voltage sensing technology per phase		voltage sensor	
22	Controller(IED)		INGEPAC DA PT (also compatible with other brands)	

¹ 80 kV dielectric and spring mechanism products available by special order. Please contact Beijing SOJO Electric Co., Ltd. for further information.

SJFD2000 Microprocessor Recloser Controller

SJFD2000 multifunctional devices offer a comprehensive solution for protecting and controlling distribution feeders or reclosers. Optionally they can provide loop automation. Besides the main protection functions, they include monitoring and operation features as well as logic programming, and events and fault reporting providing comprehensive switchgear (circuit breaker, recloser or LBS) management local and remote capabilities.

SJFD2000 is a cost-effective solution for protection and control systems for which IEC 61850 standard compliance is required, including access in other protocols and web services as well.

Main Features

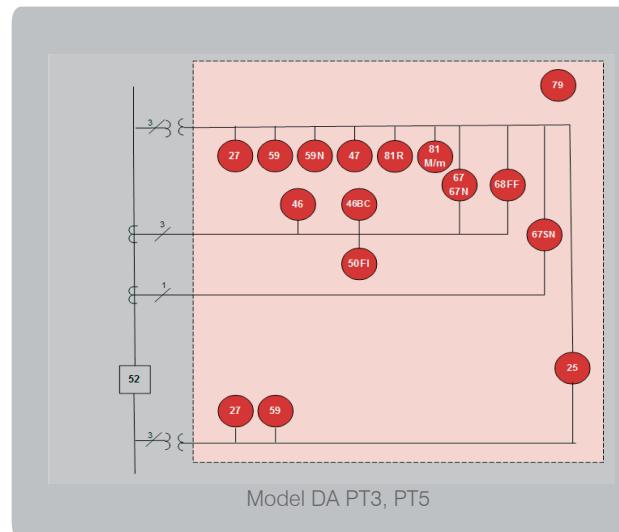
- Protection for Medium Voltage feeders
- Overhead switchgear control
- Local operation and setting by means of a graphic display, and remotely through serial and Ethernet protocols
- User-friendly configuration and supervision software. The device data model is integrated automatically to the software when connected, not needing any previous configuration work configuration
- All the main communication protocols used in electrical substations environment are available in all the devices of the INGEPAC DA range
- Wide range current inputs allowing the same device to be connected to 1A and 5A CT secondary
- Sensor voltage inputs or conventional transformers
- User logic signals according to the IEC 61131-3 standard
- Different options for programmable digital inputs and outputs number
- Local signalling through programmable LED indicators
- Circuit breaker and operation monitor
- Fault location
- Faults and events recording
- Automatic reclosing function, for application in overhead lines
- Synchronisation by IRIG-B or through communications



Options

- With display, for flush mounting or without display, for back plate surface mounting
- Supply voltage: 24/48 Vdc or 125/220 Vdc
- Voltage inputs from Voltage transformers or from sensors / resistive or capacitive dividers
- Loop Automation function
- Full boards configurations with up to 45 digital inputs and 21 digital outputs, or 36 digital inputs and 26 digital outputs
- Optic arc-flash protection for MV switchgear, together with INGEPAC-AFD optic sensors
- Serial and Ethernet communication both copper or fibre optic

Functions



Protection Functions

50/51 (67)
 50N/51N (67N)
 50SN/51SN (67SN) SEF Sensitive
 Earth Fault
 67IN Isolated neutral directional /
 compensated neutral
 46TOC (67Q), 46LOC(67Q)
 46BC Broken conductor
 2nd harmonic restraint
 27
 59
 59N Neutral overvoltage
 47 V2 overvoltage
 81M/m
 81R Rate Of Change Of Frequency
 (ROCOF)
 27 (B Side)
 59 (B Side)

HCL High current locking
 CLP Cold load pickup
 HLT Hot Line Tag
 Function 86
 50BF Breaker failure

Optic arc-flash protection for MV switchgear

Fault locator

Monitoring Units

68FF Fuse failure
 Breaker Monitoring
 kl2 per pole
 Closing and trip circuit monitoring
 Excessive number of trips
 Breaker status logic
Automation
 25 Synchrocheck
 79 Auto-reclose
 Sequence coordination
 Loop Automation (PT3 and PT5)
 Auto-sectionlizing (PT4 and PT5)

Communications

Front port: Ethernet RJ45
 Rear ports: 1 serial RS232/485
 and 2 Ethernet
 Protocols: IEC 61850 Ed.2,
 DNP3.0, IEC60870-5-103,
 IEC60870-5-104
 Modbus RTU Master protocol for
 other devices integration
 Web and FTP server

Data Acquisition Functions

Phase and neutral current
 Side A and B voltage
 Active and reactive power
 Active and reactive energy
 counters, both directions
 Event recording and fault reports
 Oscillography
 Measurements historical data
 record

Synchronisation

SNTP and IRIG-B input

Local Interface

Keyboard and operational buttons
 (optional)
 Graphic display (optional)

Applications

- Main protection & control in feeders
- Reclosers management
- Load Break Switches management
- Backup protection in high-voltage lines, transformers and generators.

Standards and Tests

Electromagnetic and Insulation Tests

Measurements of conducted radioelectric disturbances	EN55022	Ripple on dc input power port	IEC61000-4-17
Measurements of radiated disturbance field strength	EN55022	Damped oscillatory wave immunity	IIEC61000-4-18
Insulation resistance measurement	IEC60255-5	Voltage dips, short interruptions and voltage variations immunity	IEC61000-4-29
Dielectric withstand	IEC60255-5	Power frequency immunity	IEC60255-22-7
Impulse voltage	IEC60255-5	Withstand to radiated electromagnetic interference from transceivers	IEEE C37.90.2
Electrostatic discharge immunity	IEC61000-4-2		
Radiated radiofrequency electromagnetic field immunity	EN 61000-4-3	Climatic	
Electrical fast transient/burst immunity	IEC61000-4-4	Cold	IEC 60068-2-1
Surge immunity	IEC61000-4-5	Dry heat	IEC 60068-2-2
Immunity to conducted disturbances, induced by radio-frequency fields	IEC61000-4-6	Change of temperature	IEC 60068-2-14
Power frequency magnetic field immunity test	IEC61000-4-8	Damp heat, cyclic	IEC 60068-2-30
Impulse magnetic field immunity	IEC61000-4-9	Damp heat, steady	IEC 60068-2-78
Damped oscillatory magnetic field immunity	IEC61000-4-10		
		Mechanical	
		Vibration	IEC 60255-21-1/ EN 60068-2-6
		Shock and bump	IEC 60255-21-2/ EN 60068-2-27
		Seismic	EN 60255-21-3
		Random vibrations	IEC 60068-2-64

SOJO also offers Solid Dielectric Switchgear including:



SVI-12kV-20kA/25kA



SVI-24kV-20kA



SVI-36kV-31.5kA

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