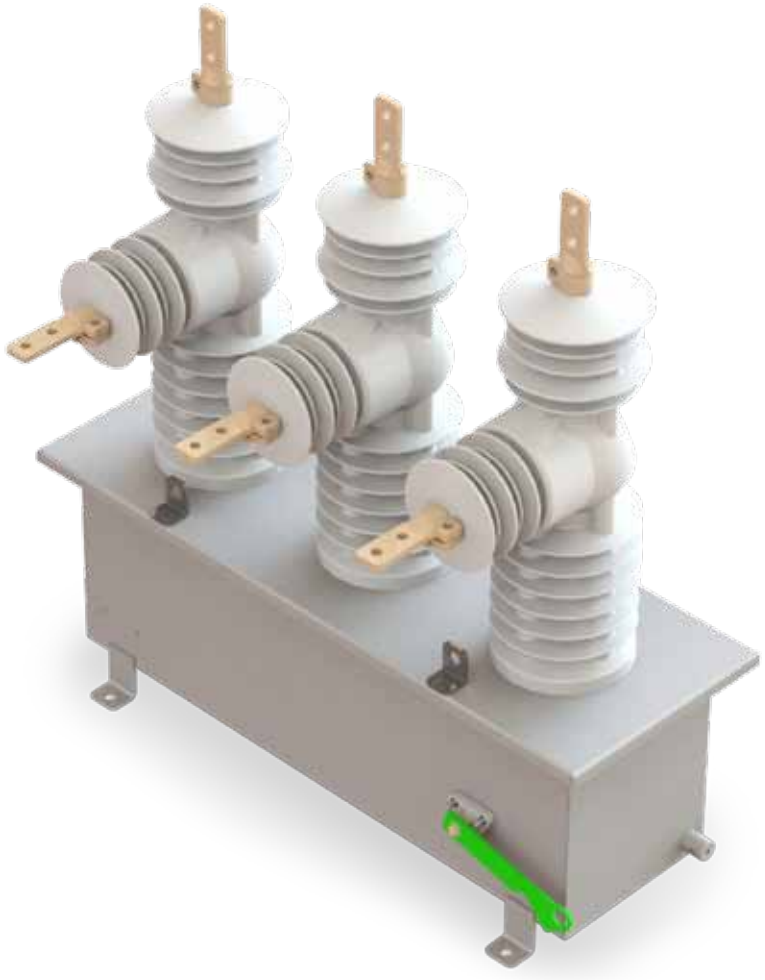
Gas / Epoxy Insulated Automatic Circuit Recloser

- Design Concept & Advantage
- Technical Data
- Testing



Design Concept & Advantages

- High Reliability of property for Recloser
- Compact and light weight design
- Modular design using PMA
- Mechanical operating Stability
- Easy installation and maintenance free
- High quality EPOXY resin(EPOXY Insulation type)
- High quality SF6 Gas(SF6 Gas Insulation type)
- All functions necessary for such applications – sensing, control and communications

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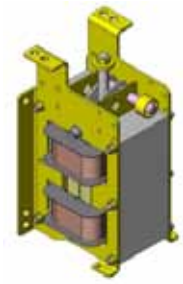
2 

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ILJIN's Automatic Circuit Recloser(ACR) is designed for use on overhead distribution lines as well as distribution substation applications for voltage classes of 17/27/38 kV respectively.

The product is supplied complete with the ACR Control Cubicle. The ACR Control Cubicle is a microprocessor based controller that provides the protection, data logging and communications function in a single device.

ILJIN's ACR has been designed for use as a stand alone device or can be easily integrated into distribution automation and remote control schemes using the inbuilt communications capability.

The product has been extensively type tested by independent and ILJIN Electric laboratories to ensure long life reliability.

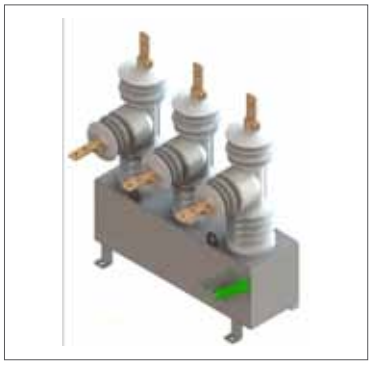
The in-built user configurable distribution automation functionality can be used with or without a communications system and will reduce outage time and increase profitability in your network.

Technical Data

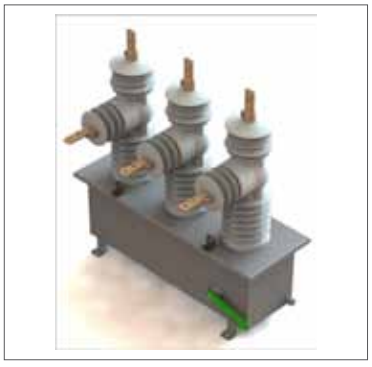
Epoxy Insulated Type

Rating		Unit	17.5 kV	27 kV	38 kV
Type		kV	IJ-SR1	IJ-SR2	IJ-SR3
Applied Standard		-	IEC 62271-111	IEC 62271-111	IEC 62271-111
Operation type		-	Manual/Motorized	Manual/Motorized	Manual/Motorized
Rated Voltage		kV	17.5	27	38
Rated Frequency		Hz	50/60	50/60	50/60
Rated Continuous Current		A	630/800	630	630/800
Rated Short-time Current		kA	16/3 sec	16/3 sec	16/3 sec
Rated Short-circuit Making Capacity		kAp	40/41.6	40/41.6	40/41.6
Power Frequency withstand Voltage		kV	50	60	70
Impulse withstand Voltage		kV	110	150	170
Mechanical / Full Load Operations		times	30,000	30,000	30,000
Size *1 (WxHxD)	Main Body	mm	850 x 950 x 500	950 x 1085 x 540	1145 x 1250 x 610
	Controller	mm	500 x 660 x 250	500 x 660 x 250	500 x 660 x 250
Net Weight *1	Main Body	kg	110	140	180
	Controller	kg	55	55	55

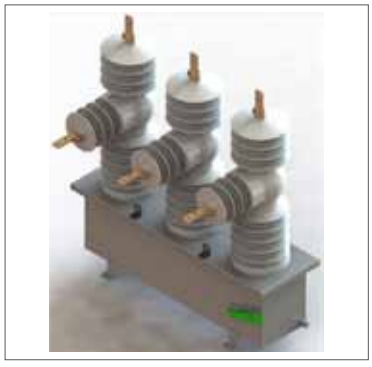
*1: It changes according to customers' requirements.



• IJ-SR1



• IJ-SR2



• IJ-SR3

Technical Data

Controller

Fault Detection and Protection

- Directional phase and ground O/C
- Directional SEF
- High current trip and lockout
- Directional negative sequence O/C
- Under and over voltage protection
- Under and over frequency protection
- Loss of phase protection
- Broken conductor
- Inrush restraint and cold load pickup
- Hot line tag
- Sequence coordination
- Auto-reclosing
- Built-in 44 time-current curves
- Alternate settings
- 4 setting groups
- Automatic Loop Restoration

Status Monitoring for Switch and Control

- Breaker's contact position
- Gas Pressure
- Manual Trip Handle
- Loaded and Unloaded Battery, and Charger
- AC Power
- Self-Diagnostics
- Selected Control Source
- Outer Door
- Control Inhibit
- Charge Completion of Capacitor Bank
- Recloser Wear Monitor
- VT Failure Supervision
- 4 Spare Inputs

Control Outputs

- Open and close operation
- Battery test and reset fault targets
- Reset alarm / demand / energy / operation
- Count / trip count / fault count / outage count
- 4 spare outputs

Counters

- Reclosing sequence count
- Cumulative outage count and duration
- Cumulative trip duration by control
- Energies and operations count

Metering

- Three-phase voltage on ABC and RST side
- Three-phase current and neutral current
- Measured Ig, only using a zero phase sequence CT
- Frequency for reference phase
- Symmetrical components
- Demand current and power
- Power(Active, Reactive, Apparent)
- Energies(4-Quadrant metering)
- Displacement power factor
- Current and voltage THD
- Voltage and current unbalance
- Temperature inside control
- Loaded and unload battery and charging voltage
- Phase difference between each side

Status Monitoring for Line

- Synchronism check
- Live and dead line for each phase
- Loss of phase for 1 or 2 phase
- Livebus and deadbus for 3 phase
- Overload current, phase rotation and power flow direction
- Voltage sag and swell
- Cumulative outage duration and counts

Communication and Protocol

- SCADA port
  - 2 built-in EIA 232 ports, 1 EIA 485 port and 10/100 Base-T Ethernet port
  - Supported protocol – DNP 3.0 over serial/Ethernet, IEC 60870-5-101/104
- Maintenance port
  - 1 EIA 232 port
  - Independent connection from SCADA connection via Ethernet port
  - Connection via Bluetooth interface
  - Modbus protocol
- Optional GPS interface and Bluetooth connection

Recording

- Functional and system events
- Operating events and self-diagnostics events
- Fault events and fault waveforms
- Demand current and power
- Store up to 1,024 events and 8 waveforms

Testing

ILJIN has the newest test equipment and the ability to perform type tests and routine tests to comply with IEC standards.

TYPE TEST

- Dimension Check
- Dielectric Tests
- Radio Influence voltage Tests
- Measurement of the resistance of circuits
- Temperature rise Test
- Short time withstand current and peak withstand current tests
- Verification of the protection
- Tightness Tests
- EMC Tests
- Switching Tests
- Partial discharge Test
- Time-current Test
- Mechanical Duty Test

ROUTINE TEST

- Dimension Check
- Dielectric test
- Tests on auxiliary and control circuits
- Measurement of the resistance
- Tightness test
- Reclosing and over-current trip test
- Partial discharge test
- Mechanical operations tests

TYPE TEST CERTIFICATION