DC INSULATION MONITORING DEVICES



Introduction

DC insulation monitoring devices are specially designed to monitor the insulation status in DC electrical systems. By measuring the insulation resistance in the electrical system, this device can provide high-precision, real-time monitoring and feedback to ensure that the insulation of the electrical system is in a safe state.

The DC insulation monitoring system can quickly detect many DC leakage conditions, including DC ground faults, insulation degradation, AC signal intrusion, and DC signal mutual intrusion. Usually used in DC power supply systems, such as solar power stations, DC transmission system, electric vehicle charging stations.

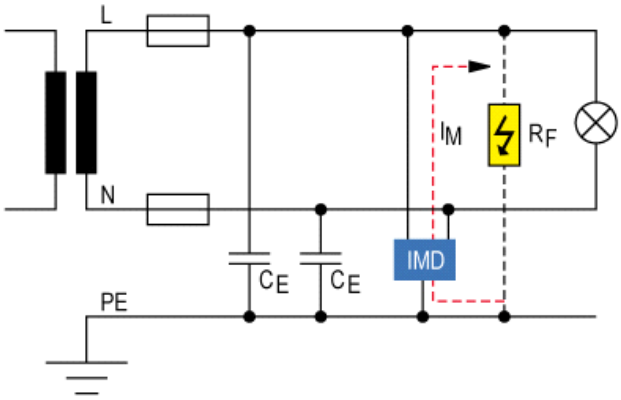
Main Features

- Automatic alarm system.
- Multiple fault type detection.
- High voltage withstand ability.
- Easy installation and maintenance.
- Real time monitor insulation status.
- RS485 remote monitoring and control.
- Widely used in DC power supply systems.
- High-precision measurement resistance changes.

Application

- Solar power station.
- DC transmission system.
- Railway electrical system.
- New energy storage system.
- Power electronic equipment.
- Electric vehicle charging station.

Working Principle



ZJS-102 DC INSULATION MONITOR

Introduction

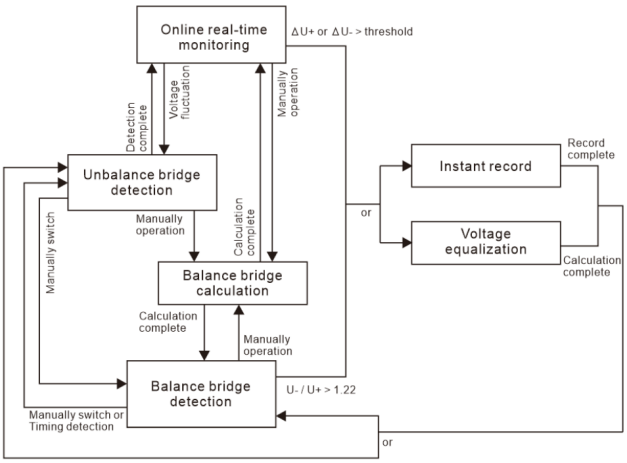
ZJS-102 DC system insulation monitor is a professional online monitoring equipment that uses balanced and unbalanced bridge detection technology to effectively eliminate the interference of distributed capacitance in the system. ZJS-102 can display the leakage current of each circuit in real time and has complete DC insulation fault monitoring functions, including single-point grounding, multi-point grounding, busbar two-pole grounding, etc.

ZJS-102 use transient alarm waveform capture and current synchronous detection technology, the insulation monitoring system records voltage and current fault curves, realizes instantaneous ground monitoring and ground fault location functions, and is an ideal choice for DC power system safety protection.

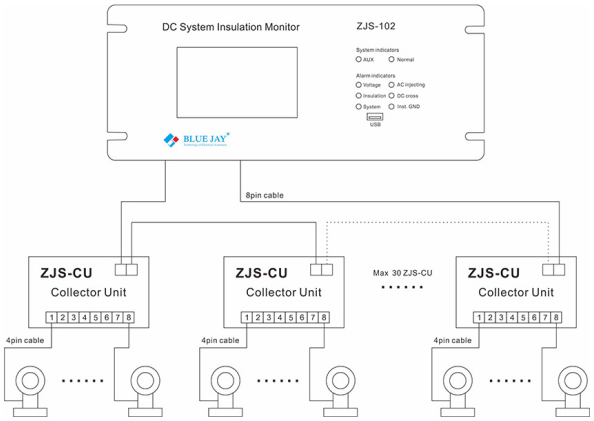
Main Features

- Circuit insulation classification alarm.
- Instantaneous ground event recording.
- Historical data analysis and download.
- Max support monitoring 240 branches.
- RS485 remote management and control.
- System distributed capacitance detection.
- Continuous insulation monitoring and alarm.
- Real-time monitoring and alarming of AC /DC voltage.
- High-precision 16-bit AD converter, PLC integrated digital output.

Working Principle



Wiring Method



Technical Characteristics

Monitoring range of system insulation resistance to ground	
Earthing alarm	0-99.9K
Pre-warning	100-999.9K
Monitoring and detect range of branch insulation resistance to ground	
0-300K	
Working voltage range	
Positive pole to ground	0-300V
Negative pole to ground	0-300V
System voltage	0-300V
AC injection voltage	0-280V
Busbar-II system voltage (DC cross detect)	0-300V
Battery bank insulation fault location error	±1 cell
Alarm history record	
Record list quantities	2000 lists
Each record alarm list volume	≤32 branches
Real-time leakage current measurement	
Screen display resolution	0.01mA
Current sensor range	10mA, 20mA, 50mA, 100mA optional
Each ZJS-102 port detect current volume	≤ 240 branches
Each ZJS-CU collector unit connected current sensor	≤8
Instant event record	
Capture sampling ratio	1KHz, 500Hz, 250Hz, 125Hz configurable
Record quantities	2000
Waveforms for each instantaneous event	8
Others	
Passive digital output	7
Fault alarm indicator	6
Distributed capacitance range of the system	0-200uF

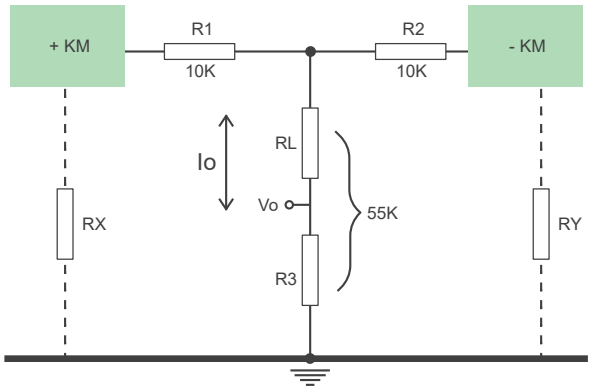
ZJJ SERIES DC INSULATION MONITOR

Introduction

ZJJ series DC insulation monitoring relay is an advanced device specially designed for monitoring the insulation condition of DC busbar. Using a fully calculated hardware voltage dividing circuit, it can directly display the ground resistance value, solving the problem of old-fashioned relays that only display the ground current or have no display. A highly sensitive ground resistance monitoring and display circuit can quantitatively evaluate the insulation degree of the DC system, which is crucial to ensuring the safe operation of the system.

The ZJJ series DC ground fault detector monitors the insulation condition of the DC busbar and the grounding resistance of the positive and negative buses online in real time. It adopts a fully static circuit, including a highly sensitive ground resistance monitoring and display circuit. When the insulation monitor is lower than the set value, a warning signal is issued. ZJJ-4SA adopts panel installation, while ZJJ-4SC adopts Din-rail installation.

Working Principle

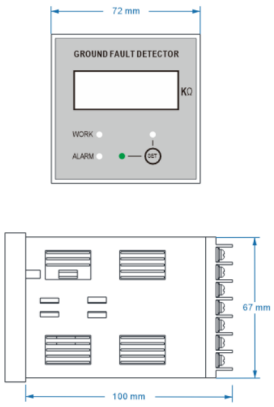


Main Features

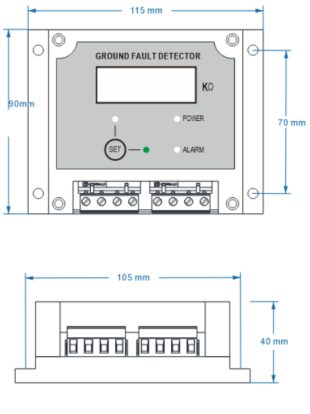
- Bridge balance method for resistance measurement.
- Smaller short-circuit grounding current for safe operation.
- Alarm resistance threshold online display and direct setting.
- Terminals are pluggable for easy maintenance and replacement.
- Monitoring the DC circuit bus bar's RF to earth insulation resistance.
- Direct LCD busbar grounding resistance values, positive and negative.
- Reinforced shell, modular structure, high reliability.
- Wide monitoring voltage, 48-1000V, working voltage 24-220V can be customized, adjustable response value ranges of 0-100kΩ.

Dimension

ZJJ-4SA: Panel Mounting



ZJJ-4SC: Din-rail Mounting



Technical Characteristics

Parameters	ZJJ-4SA	ZJJ-4SC
Input voltage	0-300VDC	0-1000VDC
Power supply voltage	Self-powered	85-265 VAC/DC
Power supply current	7-20mA	
Measuring resistance	0~99.9KΩ	0~1999.9KΩ
Relay capacity	10A@250VAC / 30VDC	2A@250VAC
Measurement accuracy	V=220V (5%)	V=1000V (5%)
Alarm setting range	0~100KΩ	0~990KΩ
Short circuit ground current	V=220V (2mA)	
Action return factor	Rs=50KΩ(95%-98%)	
Output contact capacity	Sensitive load=5mS(DC220V0.2A) Resistive load(DC220V 2A)	
Installation	Panel mounting	Din-rail mounting
Operating temperature	-40°C ~ 70°C, RH 85%	