Blue Jay Technology Co., Ltd

Technology of Electrical Automatic

V6.2022



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DC Power System



Blue Jay Technology Catalogue

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About Blue Jay Technology



INTRODUCTION

Chongqing Blue Jay Technology Co., Ltd. was founded by engineers with many years of experience. Focuses on the development, production and sales of power automation monitoring products and energy metering instruments. We also provide third-party procurement services in industrial automation signal acquisition, signal transmission, and execution operating device etc.

WHAT WE CAN DO

Because of possessing the miniaturization, intelligentizing and integration, the characteristics of high sensitivity, our products can be used in high anti-interference, adapting strong electric field, strong magnetic field, outdoors, tunnels, basement and other harsh environment, such as power system distribution equipment, gardening, cultivation of greenhouse crops, storage of grain and supplies, hospitals, R&D institutes and other special occasions which also have requirement on monitoring and control.

CUSTOMER SERVICE

Our main goal is the customer first. The technical support department solves all doubts and requirements from users by telephone, fax, Internet, etc. Product and service quality, respect for the environment and for health and safety. In order to continue improving each and every day, both in terms of the quality of our company and the service we provide to our clients.

"Honesty and quality, customer and service first" is our eternal aim.



Introduction

DC circuits are becoming more prevalent through increases in renewable energy applications, and microgrid technology. Amount of equipment that requires a reliable power supply to function smoothly is steadily growing. With the proliferation of DC circuits, metering and protection of the DC system request automatic technical installations.

High-capacity DC power systems are widely used in power plants, communication base stations, charging piles and other fields as an IT power system. As input to unearthed systems, battery or a generator be used as independent power source. Since no active conductor is connected to earth with a low resistance, no high fault current flows in the event of a short circuit to exposed conductive part or an earth fault. As required by the standards, an insulation monitoring device is mandatory in an IT system.

DC metering systems now feature many of the key features found in AC metering including data logging and a wealth of communication protocols. Monitoring these applications allows for energy production before conversion, or tracking amount lost before conversion, measuring efficiencies, and tracking performance.

Blue Jay provide ground fault detector and system isolation monitor for the IT system, provide safety protection of DC power system. different series DC metering solutions able to track the performance of DC systems over multiple parameters. ampere hour monitoring and data logging. Discharge testor can provide battery cell health and activating the battery to keep it working at its best status. You can find various device here used in DC circuit.

Application

- DC Excitation Systems.
- Light Rail Transit Systems.
- EV Charging Monitoring.
- Data Center.
- Cellular Tower Energy Monitoring.
- DC Energy Management Systems.
- ${\boldsymbol{\cdot}}$ Power Distribution for Telecommunication Room.
- Solar Photovoltaic Systems.
- Industrial DC Control Systems.
- Metallurgy and Electroplating Industries.
- Wind Power Generation.









Modular Rectifier System

Introduction

SET rectifier system use advanced modular design, with multiple rectifier modules together in one 19" rack box. Makes it flexible to provide enough power supply for Telecom and Power Industrial equipment use.

The power output of rectifier can flexible configuration, depending on equipped different quantities of rectifier modules. It can provides stable DC output to regular load, battery float charging, and batteryequalized charging. Output constant DC charge power, works automatically according to the load demands.

Main Features

- Modular design, N + 1, easy for expansion.
- Hot-swappable modules, safe and convenient replacement.
- Free output voltage regulation.
- Free output current limit setting.
- ${\scriptstyle \bullet}$ With a standard RS-232/485 interface.
- Battery management include:
- Real-time battery voltage monitoring;
- Charge and discharge current;
- Automatic control for boost charge and float charge;
- Charge temperature compensation.
- Various protection function:
- Input and output over /under voltage;
- Over temperature;
- Short circuit.

Production standards

Classification: IP20;

- EMC: EN55022:2010+AC:2011; EN55024:2010; EN61000-3-2:2014; EN61000-3-3:2013;
- LVD: EN60335-2-29:2004+A2:2010; EN60335-1:2012+A11:2014; EN62233:2008.









Measurement Parameter

| Μ | lodel | SET24 | SFT48 | SET110 | SET125 | SET220 | | | | |
|------------------|------------------------------|---|---------------|-----------------|-----------|------------|--|--|--|--|
| AC Input Voltage | | 185~290Vac normal output 85~185Vac reduce power output | | | | | | | | |
| | Frequency | | 50 |)/60Hz optional | | | | | | |
| | Rating | 24Vdc | 48Vdc | 110Vdc | 125Vdc | 220Vdc | | | | |
| | Range | 21~29Vdc | 42~59Vdc | 90~150Vdc | 90~150Vdc | 190~300Vdc | | | | |
| | Single Module Max Current | 70A | 50A | 20A | 20A | 10A | | | | |
| | Power Factory | ≥ 0.99 | | | | | | | | |
| | Efficiency | ≥ 95% | | | | | | | | |
| | Unbalance | ≤ 3% | | | | | | | | |
| | Load regulation | | ≤ 0.5% | | | | | | | |
| | RS232 or RS485 | Default | | | | | | | | |
| | TCP/IP SNMP | Optional | | | | | | | | |
| | Dry Contact | 2* Main loop trip DO, 3* Alarm DO | | | | | | | | |
| Wide frequency | noise voltage | ≤50mV @3.4kHz ~ 150kHz ≤20mV @0.15MMhz ~ 30MHz | | | | | | | | |
| Ripple & Noise | | | 2 | .00m Vpp Max | | | | | | |
| Transient respo | nse recovery time | < 200uS | | | | | | | | |
| Transient respo | nse overshoot range | | | ≤ 0.5% | | | | | | |

Typical Diamension





Front view







Size:mm



19'' Rack-Mount Inverter

Introduction

OPT-R pure sine wave inverter is specially designed for electricity and communication systems. Inverter's feature an integrated utility bypass and pure sine wave from a dc source. Suit for computers and other electrical equipment.

To prepare for the instability of the city electricity and power cuts. It also prevents various distortions of utility power, such as power supply voltage drop, surge voltage, spike voltage, and broadcast frequency interference.

Main Features

- Pure sinewave includes Utility bypass & transfer.
- Intelligent Microprocessor-Based Control.
- 19Inch 1U/2U/4U Rack Mount.
- Power Factor 0.8.
- Low EMI/RFI Emissions.
- $\boldsymbol{\cdot}$ User-Friendly LCD and LED Displays.
- Default RS232 Communication port.
- $\boldsymbol{\cdot}$ SNMP Communication Option.
- IEC-60950 compliant.

Production standards

EMI: EN IEC 61000-6-3:2021;
 IMMUNITY: EN IEC 61000-6-1:2019.
 Conducted immunity: IEC 61000-4-6.









Measurement Parameter

| | Model | OPT-R3 | OPT-R4 | OPT-R5 | OPT-R6 | OPT-R8 | OPT-R10 | | | | | |
|-----------|-----------------------|---|--------------------------|--------------------------------|-----------------------------------|---------------------------|---------|--|--|--|--|--|
| | Rated voltage** | 24V/48V/110V/220V/240Vdc | | | | | | | | | | |
| DC Input | Rated current** | Depends on rated voltage | | | | | | | | | | |
| | Working voltage range | Depends on rated voltage | | | | | | | | | | |
| | Reverse noise Current | | | ≤1(|)% | | | | | | | |
| | Allow voltage | | | 220Vac | ±20% | | | | | | | |
| innut | Current | 10.8A | 14.5A | 18.2A | 21.8A | 29A | 36A | | | | | |
| | Conversion interval | ≤5ms | | | | | | | | | | |
| | Capacity* | 3KVA | 4KVA | 5KVA | 6KVA | 8KVA | 10KVA | | | | | |
| | Power | 2400W | 3200W | 4000W | 4800W | 6400W | 8000W | | | | | |
| | Voltage & frequency | 220Vac±3% & 50Hz±0.1% | | | | | | | | | | |
| | Current | 10.8A | 14.5A | 18.2A | 21.8A | 29A | 36.3A | | | | | |
| AC Output | THD | ≤3% @Linear load | | | | | | | | | | |
| | Dynamic Response | 5% @Load 25%~100% | | | | | | | | | | |
| | Over load ability | 10mins @100%~125%; 15seconds @125%~150%; Shut down immediately over 150% | | | | | | | | | | |
| | Efficiency | ≥85% @80% Resistive load | | | | | | | | | | |
| | Insulation strength | | 150 | 0Vac, 1min (ir | nput and outp | out) | | | | | | |
| | Noise | | | ≤40dB@1me | ter distance | | | | | | | |
| Others | Operating temperature | | | -25°C^ | √+50°C | | | | | | | |
| | Humidity | | | 0~90%, r | no cooling | | | | | | | |
| | Altitude | | | ≤10 | 00m | | | | | | | |
| | Weight/Kg | 12kgs | 13kgs | 14kgs | 15kgs | 20kgs | 22kgs | | | | | |
| | rotect function | Input lo | ower voltage, protect | input overvo ion, output sh | ltage protect Iort circuit pro | ion; output o otection | verload | | | | | |

Notes:

* AC output with ±100W error of the rated capacity **DC input extension table:

| Rated voltage | | 24Vdc | 48Vdc | 110Vdc | 220Vdc | 240Vdc |
|-------------------------------|---------|-------------|-----------|----------|-----------|-----------|
| Working voltage range | | 20V~30.5V | 40V~58.8V | 90V~145V | 180V~270V | 200V~300V |
| Start up / Boot voltage range | | 21.5V~29.5V | 42V~57V | 94V~142V | 190V~265V | 210V~295V |
| | @3 KVA | 117A | 57A | 24.9A | 12.4A | 11.7A |
| | @4 KVA | | 77A | 33.4A | 16.7A | 15.6A |
| Data current input | @5 KVA | | 98A | 36.6A | 18.3A | 19.6A |
| kate current input | @6 KVA | / | 117A | 51.3A | 22A | 23.5A |
| | @8 KVA | | 156A | 68A | 34.2A | 34.2A |
| | @10 KVA | | 196A | 85A | 42.7A | 39A |





ZJB-101 110V/220V Battery Online Monitor



ZJB-101 online monitoring system consists with battery cell acquisition module and monitoring host device. It provide real-time string voltage, charge / discharge status detect, export current, cell current & voltage, internal resistance etc. It also provide automatic balance function of battery cell, to keep the voltage at a reasonable float charging range, prolong the service life of the battery.

Comm port allow build remote monitor system, provide reliable and effective management method for the battery bank management, reduce risk of power interruption caused by power failure.

Main Features

- Independent sampling channel, fuse to protect battery safety.
- Cell monitoring module equipped external temperature sensor.
- Automatically switch three working modes: Equalization operations, Internal resistance test, Voltage and temperature monitoring.
- Automatic determine battery opened loop or offline status.
- Detect and display charge and discharge capacity of the battery bank.
- Alarm record with time stamp for battery unexpect status, minimun 1min record interval for all battery cell.
- 4.0 inch TFT screen.
- USB interface for export record data.
- Provide Visual & sound alarm notice, with DO passive node for connect other device.
- Ethernet interface, RS232 and RS485 interfaces for build SCADA.



Technical characteristics

| Battery bank monitoring | |
|-----------------------------|----------------------------------|
| Voltage | 0~999.99V |
| Accuracy | 0.10% |
| Current | 0~999.99A |
| Accuracy | ±0.5% for Shunt, ±1% for Hall CT |
| Battery cell monitoring | |
| Cell voltage | 0~20.000V |
| Accuracy | 0.1% @ ±30% rated voltage |
| Cell internal resistance | 0~65535uOhm |
| Accuracy | 5% |
| Cell temperature | 0-99.9°C |
| Accuracy | ±0.5°C |
| Call capacity display | 9999.9AH @ 1Sec detect interval |
| Others | |
| Float charging equalization | 10mV |
| Battery cell qtys | ≤240cells |
| Cell rated voltage | 2V, 4V, 6V, 12V |
| System info record | 1000lists |
| Alarm info display | 240lists |
| Alarm info record | 1000lists |
| Working voltage | AC220V & DC110/220V |
| Communication interface | RS485 / RS232 / Ethernet opional |

ZJB-DT

Battery Bank Discharge Tester

Description

ZJB-DT is highly intelligent battery charge and discharge tester. It can be used as the discharge load in the battery off-line state, and realize the constant discharge of the set value by continuously regulating the discharge current. the tester records all valuable and continuous real-time data during the process.

Friendly HMI provide a variety of configuration and data review, user can download record data to USB. PC host operation software can generate the curves and reports needed.

Main Features

- Intelligent SCM ARM control, 7-inch 1024*600 LCD display.
- Discharge load use PTC ceramic resistor, avoid red heat for a safer discharge process.
- Remote battery data collector use wireless, multiple band design for 4 device working in one site.
- Each device support max 25 cell collection boxes, each box connect 12 batteries, total 300 battery cell detecting.
- User free to configuration charge/discharge termination threshold.
- Provide software export record & curve report for further analysis.
- Various alarm function, provide automatic protection in over-temperature /voltage/current status.
- With RS485 port for remote control.





Technical characteristics

| ery Bank Voltage | DC110V or DC220V |
|----------------------|---|
| ge/discharge voltage | DC88V-264V |
| ge/discharge current | Charge 60A; Discharge 60A |
| er Supply | AC220V (-20%-+30%) |
| ery cell voltage | 2V/4V/6V/12V optional Max 300 batteries |
| rol precision | Discharge current ≤±1%; Group terminal voltage ≤±0.1%; Cell voltage ≤±0.05% |
| nunication | RS485+ USB interface |
| storage capacity | 8G SD card and 16G USB flash drive |
| perature & Humidity | -5-50°C, 0-90% (40±2°C) |
| ation | Rated elevation of 4000m |
| ing mode | Standalone mode; Parallel master mode; Parallel slave mode; Remote controlled mode |
| ection performance | Over voltage protection; Under voltage stop; Over current protection; Over temperature protection; Wiring reversed protection |

P-08



DC Batteries

DC Batteries

KP series

Nickel-cadmium Battery

Description

KP series nickel-cadmium pocket type can be divided into low rate (KPL), medium rate (KPM) and high rate (KPH) based on their discharge current. It tailored for superior performance at high temperature, high discharge, fast charge, long-term float or trickle charge.

They have advantage of high power and energy density, high efficiency of charge/discharge, a low cycle life, usually used for Railway DC power supply, Windenergy/Solar systems, Telecom station, Lighting, UPS, Transport Vehicles etc.

Main Features

- Large range of working temperature,-25°C to 45°C.
- Long service life: more than 20 years.
- Excellent charging efficiency and low rate of self discharge.
- Low maintenance cost and replacement cost.
- High resistance to mechanical and electrical abuse.



Technical characteristics

| lodel | KPL Series | KPM Series | KPH Series | | | | | |
|-----------------------|-------------------------------------|--------------------------|------------------------|--|--|--|--|--|
| Battery Type | Low Discharge Rate | Medium Discharge Rate | High Discharge Rate | | | | | |
| Rated Capacity (Ah) | 10-1200Ah | 10~1100Ah | 10~400Ah | | | | | |
| Discharge Rate | 0.5C 5A | 3.5C 5A | 7.5C 5A | | | | | |
| Iominal Voltage (V) | | 1.2V | | | | | | |
| Discharge Performance | 8h | @ 0.2C 5A, 20 | °C | | | | | |
| loat Charging Voltage | | $1.4 \sim 1.44 V$ | | | | | | |
| Charge Method | C | onstant Curren | t | | | | | |
| Cycle Life | 50 | 00 to 5000 cycle | 25 | | | | | |
| nternal Resistance | | Approx. 30mΩ | | | | | | |
|)perating Temp. | | 25±10°C | | | | | | |
| lormal Temp. | | -25°C to 45°C | | | | | | |
| Container Material | ABS/PP optional | | | | | | | |
| erminal | M8/M10/M16/M10*1.5/M20*1.5 optional | | | | | | | |
| Design life | More than 20 years | | | | | | | |
| Veight(Kg) | 1-62KG | 1.2-68.3KG | 2.15-27KG | | | | | |

DC/DG series **AMG/GEL Lead-acid**

Battery

Description

DC (AGM Deep Cycle) series is specially designed for frequent cyclic discharge. By using strong grids and specially designed active material, the DC series battery offers 30% more cyclic life than the standby series. It is suitable for UPS, solar & wind energy, telecom system, electric power system, electric vehicles, golf cars, etc.

DG (GEL Deep Cycle)series is pure GEL battery with 15~20 years floating design life, it is ideal for standby or frequent cyclic discharge applications under extreme environments. By using strong grids, high purity lead and patented Gel electrolyte, the DG series offers excellent recovery after deep discharge under frequent cyclic discharge use, and can deliver 400 cycles at 100% DOD. Suitable for solar, CCTV, marine, RV and deep discharge UPS, communication , and telecommunication , etc.

Main Features

- Sealed (VRLA) AGM/GEL type Batteries.
- Good electrical conductivity and high capacity.
- $\bullet \ {\rm High \ current \ charge-discharge \ performance.}$
- Small internal resistance, low self-discharge rate.
- Easy to install design.
- High reliability and safety.
- Deep cycle design, 800cycles~2500cycles.





Technical characteristics

| | DC Series DG Series | |
|-------------------|---|------------------------------|
| ery Type | AGM Deep Cycle | GEL Deep Cycle |
| nal Voltage (V) | 2v/6V/12V | 6V/12V |
| d Capacity (Ah) | 2V@ 200-3000Ah 6V@180-225Ah 12V@26-260Ah | 6V@100-335Ah 12V@26-260Ah |
| Charging Voltage | 13.6 V~13.8 V @ 25°C Temperature Compensation: -3mV/°C/Cel | |
| e Use Voltage | 14.6 V~14.8 V @ 25°C Temperature Compensation: -4mV/°C /Cell | |
| nal Resistance | Approx. 5 mΩ | |
| ating Temperature | Discharge: -20°C ~60°C Charge: 0°C ~50°C Storage: -20°C ~60°C | |
| inal | M5/M6/M8 optional | |
| ainer Material | A.B.S. UL94-HB, UL94-V0 Optional | |
| gn life | 12 years 15 years | |
| ht(Kg) | 4.92-13.46Kg | |
| | | |



DC Circuit Metering

DCEM

4 channels **DC energy meter**

Description

DCEM are special design for DC circuit metering, multi-channels design can reduced the hardware cost of project. Meter body provide AXU terminal for external Hall CT, accept up to 3000A four channel amp reading and energy consumption value record.

Optional analog, digital, relay and alarm output is available via field-swappable plug-in communications modules. Also provide onboard RS485 serial communication port (MODBUS RTU) to send data to the external systems.

Typical wiring





Technical characteristics

| Power supply: Power Supply Consumption | 85~265VDC/AC 20~60VDC optinal < 4 VA | |
|---|--|--|
| Measurement: | | |
| Current signal Hall CT external AUX Voltage signal | 0 - 4VDC (hall CT access) +/-15V Typical 300V Max up to 1000V | |
| Measurement channel | 4 channels | |
| Precision | 0.5 class (depends on CT) | |
| Isolation: | | |
| Insulation Resistor >100M Ω AC 2kV / 1min between AUX to current signal / DI / RS485 AC 1kV / 1min between current signal to DI / RS485 AC 2kV / 1min between voltage to AUX / DI / RS485 | | |
| Communication port | | |
| Digital Link DO port | RS485 MODBUS-RTU 2 channels (Optional) 4 channels (Optional) | |
| DI poit | Ri<500Ω ON / Ri>100kΩ OFF | |
| Other: | | |
| Ambient Temp. / Humi. Dimensions | -10 ~ 55 C / ≦93% RH 87.3*132*46.5mm (L * H * D) | |

DP-M8

8 channels isolated **DC Monitor**

Description

DP-M8 meter is an advanced solution for multichannel metering in DC system. It provides 8 channels, full isolated for collect voltage, current, power data and energy generate & consumption data.

With RS485 communication interface, DP-M8 can be connected to the monitoring center or on-site host. It is a high-performance automatic metering device suitable for solar plant and Telecom server room, BMS application in UPS system etc.

Typical wiring



External CT access

Isola





Technical characteristics

| Power supply: | |
|---|--|
| Power Supply | 9~30VDC or 9~57VDC |
| Consumption | < 4 VA |
| Measurement: | |
| Current signal | 1mA, 20mA, 100mA, 1A, 5A, 10ADC over 10A use external CT or Hall CT |
| Voltage signal (Optional) | 75mV, 1V, 5V, 10V, 50V, 100V, 250V, 400V (Default 100V) |
| Frequency response | 0-1000Hz |
| Sampling ratio | 20ms~1000ms adjustment, (default 100ms) |
| Load Resistance | Current: <0.15V / channel Voltage: >2Kohm/V |
| Precision | 0.2% F.S |
| Isolation: | |
| Insulation Resistor | >100MΩ |
| AC 2.5kV / 1min between A | UX to current signal / DI / RS485 |
| AC 1.5kV / 1min between cu | urrent signal to DI / RS485 |
| AC 2.5kV / 1min between voltage to AUX / DI / RS485 | |
| Communication port | |
| Digital Link | RS485 MODBUS-RTU |
| Other: | |
| Ambient Temp / Humi | -20 ∾ 20 C / ≤03% PH |
| Dimensions | 120*110.5*50mm (L * H * D) |



DC Circuit Metering

FL DC Shunt

Description

HDT hall effect current sensor is an open loop device based on the measuring principle of the hall effect, with a galvanic isolation between primary and secondary circuit. It provides accurate electronic measurement of DC currents.

The Hall effect current sensor provides strong electrical isolation between the output of the sensor and the current carrying conductor.

Typical shape















Technical characteristics

| Material | Copper+Manganin, Copper with nickel plated |
|--------------------------|---|
| Current Rating | 1 ~ 4000A: 0.5%; 5000 ~ 10000A: 1% (Default) |
| Operating Temperature | -40°C ~+60°C |
| Voltage Drop | 50mV/ 60mV/ 75mV/ 100mV(optional) |
| Accuracy Class | 0.5 or 0.2 (Customized 0.01) |
| Material | Copper + Manganin, Copper with nickel plated |
| Overload Capacity | 120% Of Rated Current For 2H |
| Application | Use For DC Digital Amp Meter |
| The load under the heat: | ≤80°C @ 50A Max ≤120°C @ Other |

Ordering Infomation

FL-1-2/3

| PN Code | Optional Type & Description |
|-----------------|---|
| 1 Style | 2/2A/2B: China type 2C: With patented; 2D: DIN43703 type 2F: Air cooling type; 2S Water cooling type 13: Russian type]; 15: USA type 19: Soldering use type 21: Taiwan export type 27: High accuracy(0.2) 28: High accuracy(0.1) 29: Bend type; 39: Middle type U: U shape; P: slice shape P1: Slice shape with non-inductive T1: Pawed type applied type type |
| 2 Rated current | Value 1A-15000A |
| 3 Voltage drop | 10mV ~ 800mV Blank: 75mV |

HDT HALL Effect CT

Description

HDT hall effect current sensor is an open loop device based on the measuring principle of the hall effect, with a galvanic isolation between primary and secondary circuit. It provides accurate electronic measurement of DC currents.

The Hall effect current sensor provides strong electrical isolation between the output of the sensor and the current carrying conductor.

Main Features

- Accuracy class: 0.5%.
- Multiple current input options for wide compatibility.
- Two available output options: 4-20mA or 0-5V.
- Features a hinged split-core design for fast installation.
- Measure up to 1000A DC current (depending on model).
- Choose uni-directional or bi-directional measurements.





Technical characteristics

| Туре | HDT-100A | HDT-200A | HDT-300A | HDT-400A | HDT-500A |
|-----------------|----------------------------|----------|----------|----------|----------|
| | 100A | 200A | 300A | 400A | 500A |
| ure range C) | 0-150A | 0-300A | 0-450A | 0-600A | 0-750A |
| l output | 4V @Ip=±iIpn DC | | | | |
| y voltage | ± 12V, ±15V, ±24V Optional | | | | |
| r Consume | <25mA | | | | |
| t voltage | ±20mV @ Ip=0 | | | | |
| etic oftset | ±20mV @ Ip= ±Ipn-0 | | | | |
| t drift | ≤±1mV/°C @ -40 ~ +85°C | | | | |
| ıt dnft | ≤±1mV/°C @ -40 ~ +85°C | | | | |
| rity | ≤1%FS @ Ip=0-±Ipn | | | | |
| onse time | ≤7us @ 50A/uS,10%-90% | | | | |
| nic | 2.5KV @ 50HZ.AC.1min | | | | |



BLUE JAY Technology of Electrical Automatic

DC Insulation monitoring

ZJJ Panel mounting Insulation monitoring relay

Description

ZJJ DC insulation monitoring relay monitors the insulation of the DC bus, and it sends alarm signal when the bus-to-ground insulation drops to a certain value, also it is panel mounted type, and the relay has a highsensitivity grounding resistance monitoring and display circuit, it is great significance for the safe operation of the DC system.

Main Features

- Monitoring of the DC circuit bus bar insulation resistance RF to earth.
- LCD screen display resistance value.
- Bridge balance method for resistance measurement.
- \bullet Adjustable response value ranges of 0-100 k $\Omega.$
- Smaller short-circuit grounding current for safe operation.

Application

- DC or AC/DC main circuits.
- UPS systems, battery systems.
- $\boldsymbol{\cdot}$ IT systems with high leakage capacitances.
- DC charging stations for electric vehicles.



Technical characteristics

| Model | ZJJ-4S |
|------------------------------|---|
| Input voltage | 300-1200VDC |
| Power supply voltage | 90-150VDC 180-300VDC |
| Power supply current | 7-20mA |
| Operating temperature | -40°C ~ 70°C, 85% |
| Measuring resistance | 0~199.9ΚΩ |
| Precision | V=220V (5%) |
| Short circuit ground current | V=220V (2mA) |
| Alarm setting range | 0~100ΚΩ |
| Action return factor | Rs=50KΩ(95%-98%) |
| Output contact capacity | Sensitive load=5mS(DC220V0.2A) Resistive load(DC220V 2A) |

Typical Schematic



DCG

Din-Rail mounting Insulation relay

Description

DCG series DC insulation monitor is based on RS485 Modbus protocol, suitable for EV DC charging system, photovoltaic system, energy storage system, DC power grid and other DC systems under 1000V.

This device has the function of insulation monitoring start and stop, insulation monitoring can be real-time monitoring of positive and negative poles to the ground insulation resistance, the monitoring result is nota affected by DC voltage changing, is not affected by the positive and negative poles insulation resistance symmetry.

Main Features

- Monitoring of the DC circuit bus bar insulation resistance RF to earth.
- Bridge balance method for resistance measurement.
- Single channel and dual-channels type optional.
- Wider DC insulation monitoring range DC0~1000V.
- Faster monitoring speed of turning on.
- Communicate with RS485 Modbus networks
- Adaptive capacitance to ground.
- Simple device setting by DIP switch.





Technical characteristics

| DCG-UBC1DCG-UBCH2t channelsSingle channelDual channelsbitage range $0 \sim 100V$ r supply $9 \sim 30VDC$ r supply $9 \sim 30VDC$ tion resistance range $1K\Omega \sim 10M\Omega$ tion monitoring accuracy $\leq 3K\Omega + 10\% (100 - 300V)$ sige temperature $-40^{\circ}C \sim 125^{\circ}C$ ating temperature & humidity $-40^{\circ}C \sim 70^{\circ}C,85\%$ tion pressure test $<2mA$ unicationRS485 Modbuslation typeDin Rail mount | | | |
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| Nitage range $0 \sim 1000V$ r supply $9 \sim 30VDC$ rtion resistance range $1K\Omega \sim 10M\Omega$ tion monitoring accuracy $\leq 3K\Omega + 10\%(100 - 300V)$ urement accuracy $\leq 3K\Omega + 5\%$ ($300 - 1000V$)ge temperature $-40^{\circ}C \sim 125^{\circ}C$ ating temperature & humidity $-40^{\circ}C \sim 70^{\circ}C,85\%$ ne pressure test $< 2mA$ unicationRS485 Modbuslation typeDin Rail mount | ct channels | Single channel | Dual channels |
| r supply $9 \sim 30 \text{VDC}$ tion resistance range $1 \text{K} \Omega \sim 10 \text{M} \Omega$ tion monitoring accuracy $\leq 3 \text{K} \Omega + 10\% (100 - 300 \text{V})$ urement accuracy $\leq 3 \text{K} \Omega + 5\% (300 - 1000 \text{V})$ urement accuracy $\leq 2 \text{V} + 0.3\%$ ge temperature $-40^{\circ}\text{C} \sim 125^{\circ}\text{C}$ ating temperature & humidity $-40^{\circ}\text{C} \sim 70^{\circ}\text{C},85\%$ ne pressure test $<2\text{m}\text{A}$ runicationRS485 Modbuslation typeDin Rail mount | oltage range | 0~1000V | |
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| $\leq 3K\Omega + 10\%(100-300V)$ $\leq 3K\Omega + 5\%(300-1000V)$ urement accuracy $\leq 2V+0.3\%$ ge temperature $-40^{\circ}C \sim 125^{\circ}C$ ating temperature & humidity $-40^{\circ}C \sim 70^{\circ}C,85\%$ ate pressure test $<2mA$ unicationRS485 Modbuslation typeDin Rail mount | lation resistance range | 1ΚΩ~10ΜΩ | |
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| lation type Din Rail mount | munication | RS485 Modbus | |
| | allation type | Din Rail mount | |

Typical Schematic

Dual channel type







DC Insulation monitoring

ZJS-102 DC System Insulation Monitoring

Description

ZJS-102 Insulation monitoring system is a high accurate and secure online monitoring equipment for DC system insulation. It is designed for the measurement of different types of ground fault, insulation decreasing, AC signal interruption, DC signal interruption and so on.

Monitor detect DC leakage current, mixed with balanced & unbalanced bridge detection mode, can display leakage current of each sub export loops. It integrates voltage transient capture and current synchronous detection, records voltage and current fault curves to achieve instantaneous grounding monitoring and line selection alarm functions.

Main Features

- Monitoring various faults in the DC system: all types of grounding, abnormal voltage, voltage difference.
- Monitoring AC cross-current faults in DC systems.
- Monitoring DC system mutual channeling (ring network) faults.
- It can accurately detect the distributed capacitance of the DC system to the ground.
- Detect the leakage current of all branches.
- With battery pack grounding monitoring and positioning functions.
- Multi-caliber open and closed CT can meet all usage scenarios.



Technical characteristics

| Detect range of insulation res | istance to ground |
|--------------------------------|--|
| Ground impedance | 0 - 50Kohm |
| Insulation reduction | 50-300Kohm |
| Balance compensation bridge | 40K, 60K, 120K; |
| Detect voltage range | |
| Positive to ground voltage | 0 - 300V |
| Negative to ground voltage | 0 - 300V |
| Total system voltage | 0- 300V |
| AC interference voltage | 0- 300V |
| Voltage monitoring error | ≤0.5% |
| Real-time current | |
| Current display resolution | 0.01mA |
| Current display channels | ≤240 |
| Current sensor range | 10mA, 20mA, 50mA, 100mA optional |
| History record | |
| Insulation fault location | ±1pcs in battery bank |
| Number of the record list | 2000 lists, every list include 32 channels |
| Recording frequency | 1KHz, 500Hz, 250Hz, 125Hz configuraion |
| Waveforms capture | 8 lists per record |
| Others | |
| Passive nodes | 7 output |
| Fault indicator lights | 6pcs |
| Distributed capacitance | 0-200uF |
| Communication interface | RS485 / Ethernet |
| | |

Ordering Notes:

1. Rated voltage of the DC system.

- 2. Monitored loops in the DC system.
- 3. Comm protocol request when work with other SCADA.
- 4. If dual bus DC system, please provide schematic drawing.
- 5. Please provide outline diagram of install site.



