



starkstrom

a Progility company

Powering Healthcare

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Earth Fault Detection System – EDS400



Overview

The medical Earth Fault Detection System EDS400 is specially designed for monitoring and locating earth faults in isolated powers systems, according to IEC61557-8, IEC61557-9, IEC60364-7-710, MEIGaN 2.0 and HTM06-01.

The system includes an Insulation-Monitor, the Earth Fault Detection System (EDS), the capability to view power-network values and status-values of the connected isolated power-network and communicate the information using digital data communication techniques.

The main advantage of the EDS is that the exact location of the earth fault is detected and communicated thus enabling rapid, safe and effective earth fault correction.

Features

The system incorporates the following features:

- Insulation Monitoring – Continually monitors the insulation resistance of the connected network and alarms when the measured insulation value drops below the set point value.
- Earth-Fault Detection System (EDS) – Identifies the location of a detected earth fault, thus permitting fault detection and identification without having to isolate parts of the network in event of an earth fault
- Transformer Load Monitoring – The measured load is continuously compared with an editable alarm set point and if the threshold is exceeded an over-current alarm is activated.
- Transformer Temperature Monitoring – Transformer temperature is continuously monitored by a thermal sensor which rise an over temperature alarm if excess temperature is detected or if a broken control cable occurs.
- Digital Inputs - Each input is configurable as normally open or normally closed thus enabling a wide range of third party equipment to be connected.
- Web server (over TCP/IP) – When connected to a computer, the status of the unit can be communicated to a connected computer.
- Email Alarm Notification. Using SMTP functionality, the controller can transmit predefined e-mails containing status information and time stamp. The content of the e-mail ca be configured as required to include sender ddress, recipient address and types of alarm.
- Volt Free Outputs



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Product Specification

General

Nominal ac isolation voltage..... AC500V
Contact circuits..... AC250V
Insulation group to
DIN VDE 0110 (01.89)..... dirty group 3
AC Test Voltage

- Electronic - relay contacts..... AC3000V
- Operation class.....continuous
- Supply voltage UsAC230V

Relay contact one volt-.....free changeover
Switching capacity 1100VA
Nominal contact voltage250V
Continuous current5A
Breaking capacity at AC220V , cos.phi=0,4.....3A

Mechanical

Ambient temperature

- Operation -10°C .. +60°C
- Storage -40°C .. +80°C
- Humidity classification to DIN 40 040 F

Ingress protection to DIN 40 050IP30
Terminals to VBG4IP20
Mounting

- Direction equal
- Rail Mounting..... DIN EN 60 715

Terminals

- Typeplugable screw terminals
- wire capacity 0,5 .. 2,5mm²

Weight.....~500g
Dimensions.....22,5mm x 115mm x 110mm

Requirements on IT-Network

Nominal voltage AC 230V (50/60Hz)
max line capacitance to earth0,5µF/Phase
max load current through CT 100A
max differential current through CT 70mA

Insulation Monitor

Rated voltage for measuring circuit..... AC250V
Measuring voltage..... DC15V
Measuring current.....max.65µA DC
internal resistance (Terminal L1,L2 to PE) 240kΩ
Response value

- Adjustable 50kΩ .. 500kΩ
- Hysteresis..... ca.20%

Transformer Load-Monitor

- Transformer ratio1:1000

Load.....~30Ω

Load.....~30Ω

Adjustable response.....5A .. 50A

Hysteresis ca.20%

Temperature-Monitor

- Trip resistance R_δ (Terminals Z1/Z2).>3,5kΩ

Remote Alarm Output

Transfer Mode.....special mode for RA001

Wiring

- Type of cable..... screened, twisted pair
- Max length1000m

Search Current Generation

Measurement current

- load-independent dc current..... ≤1mA
- direction..... pulsing +/-

Impedance between line and earth

- during search (minimum)50kΩ
- maximal>250kΩ
- during pause>10MΩ

Measurement Circuits

Max count of measurement circuits 16
CT connection controlyes
tripping current DC 0,4mA
measurement time (all circuits) <120s
Length CT connection wire

- twisted pair < 1m
- screened, twisted pair > 1 - 10m
- capacity ≥0,5mm²

Digital Inputs

Channels 4
configurableNO/NC

Digital Communication

RS485 with ModBus RTU Protocol

- Driver output RS485, 2 wire
- Data-bits 8
- Stop-bits..... 2
- Parityno
- ProtocolModBus-RTU
- operation-modeSlave
- Address-Range 0..31

Web Server

Physical Connection 10BaseT Ethernet
Protocol TCP/IP