GE
Digital Energy

Intellix* MO150

specification sheet

Description

The Intellix MO150 is an intelligent, dynamic transformer monitoring system designed to provide comprehensive monitoring and interactive condition diagnostics for oil-insulated transformers used by electrical utilities and large industries.

Functionality

The Intellix MO150 system is designed to collect, process, analyze and interpret critical operations on data obtained from various sensors. It incorporates onboard intelligence, which utilizes the monitored transformer's characteristics along with real-time measurements to automatically compute on-line state-of-the-art mathematical transformer models based on IEEE® or IEC® standards. The on-line models of the system include:

- MVA model which computes apparent power on primary, secondary or tertiary winding
- Winding hot-spot temperature model which computes the hot-spot temperature of each winding where load current is measured
- Moisture in the thin conductor insulation and in the barrier insulation which computes the moisture content of each
- Insulation aging which computes aging acceleration factor from IEEE or IEC guidelines
- Tap changer thermal model which computes temperature difference between the LTC tank and main transformer oil tank
- Tap changer position tracking model as the tap position transitions are recorded and tracked
- Cooling control for management and operation of the transformer cooling system
- Cooling efficiency which monitors actual efficiency of the cooling system

Electronic Controller



Microprocessor based

- Watchdog
- Clock
- Memory storage
- More than 3700 historical alarms and events
- More than 4900 historical service logs (once per day)
- More than 100 days of short term logging (15 min intervals)

Components

- Basic embedded software
- Backlit graphic LCD display: 128 x 64 pixels; seven lines of 20 text columns
- Membrane keypad with eight functions: up, down, left, right, escape and three interactive keys
- Four LED indicators: power, "System OK," Alarm One and Alarm Two
- Internal temperature controlled

Communications

- Local serial RS-232 link: connector type DB-9M; dielectric withstand: 1500 V RMS
- RS-485 port
- Remote communication via LAN and modem

Inputs and Outputs

Analog inputs

Quantity: eight inputs, dielectric withstand: 1500 V RMS: configurable to the following two options:

- RTD input; model PT-100; range: 0-270 Ω; accuracy: ± 0.15 Ω
- 4-20 mA isolated input (active/passive); wetting: 24 Vdc; maximum load: 40 mA; maximum input impedance: 220 Ω; accuracy: ± 0.01 mA

AC Analog inputs

Quantity: Five inputs, dielectric withstand: 2000 V RMS; input impedance: 150 Ω

- Three inputs for transformer winding currents H, X and Y (clamp-on CT's 50 mV/A)
- Two inputs for fan group current

Digital Inputs

Quantity: Two dry contacts with 24-Vdc wetting and dielectric withstand: 1500 V RMS:

- Status of group 1 of the cooling system
- Status of group 2 of the cooling system

Digital Outputs

Quantity: Five SPDT relays; 1.5 A @ 240 V; galvanic isolation: 1500 V RMS:

- Three system alarms: System OK, Alarm One (high) and Alarm Two (high-high)
- Two outputs: cooling control banks 1 and 2

Power Supply

Universal Switching Power Supply

- Dielectric withstand: 2000 V RMS
- Voltage: 100-230 Vac ± 10%, single phase
- Frequency: 50/60 Hz ± 5%
- Power consumption: 58 VA maximum

Housing

- Aluminum with black paint

Cabinet

- Type NEMA® 4X
- Stainless steel; oven baked powder paint
- 71.1 cm high x 59.7 cm wide x 19.7 cm deep (28 x 23.5 x 7.75 in)
- Weight: 28.5 kg (63 lb)
- Front door with window
- Twelve perforated openings with plugs in the bottom plate for the cables
- Four vibration-absorbing rubber pads for mounting
- Mounted on support or transformer tank wall

Environmental

- Operating temperature: -40 to +55 °C (-40 to +131 °F)
- Storage temperature: -40 to +85 °C (-40 to +185 °F)

Battery

- Type AA, lithium high-energy
- Voltage: 3.6 volts
- Life: Five years

Fuse

- 2A

Standards Compliance

Emissions

- EN 55022–Conducted & radiated emissions

Immunity

- EN 55022–Radio-frequency disturbances
- EN 61000-4-2–Electrostatic discharge
- EN 61000-4-3–RFI/EMI susceptibility
- EN 61000-4-4–Electrical fast transients
- EN 61000-4-5–Surge immunity
- EN 61000-4-6–Conducted radio frequency
- EN 61000-4-11–Voltage dips, interruptions & variations
- ENV 50204–Radiated electromagnetic field immunity
- Specific voltage immunity test (ref HQ SN62.1008d)

Safety, Environment, Vibration & Other

- EN 61010-1–Product safety
- IEC, 60068-2-1–Cold
- IEC, 60068-2-2–Dry heat
- IEC, 60068-2-6–Vibration behavior & endurance
- IEC, 60068-2-30–Damp heat
- IEC, 60255-5–Dielectric strength (pending)
- IEC, 60255-21-1A–Vibration (Severity 1)
- IEC, 60255-22-1–Withstand impulse & high frequency disturbance

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