

Low Voltage Distribution Transformers with Continuous Thermal Monitoring

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Catalog

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Continuous Thermal Monitoring of Low Voltage Transformers

Intent:

- The thermal monitor is the latest technology, replacing hinged doors and IR windows to provide a continuous thermal monitoring solution.
- Loose electrical connections at the coil taps and the transformer terminals allow contamination to get between current carrying parts. These dirty and/or loose connections increase the resistance, causing the temperature of the connection to exceed the thermal rating of the cable insulation.
- System specifically designed to provide continuous, predictive monitoring of low voltage transformer connection.

Features:

- Identifies cable connection whose temperature exceeds the 194°F (90°C) required rating of cable insulation, which can cause a malfunction due to insulation overheating.
- Visible LED lights, allowing monitoring by end users 24/7. This is an improvement over the “snap shot” obtained during annual inspection or IR scans by service personnel.
- Option to connect to monitoring software via RS-485.
- Relay outputs (Normally Closed or Normally Open) allows connection of device to external circuit, such as a warning device (lights, klaxon, etc.) or a shunt trip primary circuit breaker for shutting down the transformer when a hot spot is detected.
- Provides thermal monitoring of the incoming, outgoing, and factory power connection points.

Top Mounted:



- Mounted on the top of the DOE 2016 EX product offering, minimizing the impact of floor space required for the transformer installation.

NOTE: No impact on ceiling mounting bracket clearance for support rods.

Inside the Enclosure:

- Overcurrent protection
- dc power supply
- Two data cards
 - Monitoring H1, H2, H3, X1, X2, X3
 - Monitoring tap jumpers (six locations)

Reset button

- LED monitor two types of connections
 - Terminals (H1, H2, H3, X1, X2, X3) input/output power
 - Tap Jumpers-loose and/or dirty tap jumpers are a main source of overheating.
- Quick connect thermal couple-routed via two access points in the bottom

Front View of the Thermal Monitor Enclosure



- LEDs glow green when the temperature is below the UL® 194°F (90°C) requirement on the thermal couples.
- LEDs flash red when temperature exceeds 194°F (90°C); the temperature point can be specified by customer if the factory setting is not acceptable.

Inside the Transformer:

- Factory-installed thermal couples are connected to incoming and outgoing landing pads (H and X terminals) and tap jumper leads at the coil and the terminals.



- Cables are routed so that they will not interfere with customer connections and wire bending radius or side access.



Recommended text to add to specification:

Bolted electrical connections shall be monitored for high resistance via thermo couples connected to monitoring device for continuous survey. Set at 194°F (90°C) with a LED indicators on the transformer green for operating within design parameters, and flashing red when exceeding those parameters.

NOTE: Customer should specify thermal monitor when a thermographic survey is required to check electrical connections for high resistance via temperature.

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