Typical temperature probe installation in transformer windings

**Advantages and features**

- Accurate direct temperature reading of winding’s hot spots:
  - Predicts or adjusts dynamic loading of high voltage transformers
  - Prevents premature failures
  - Provides cost effective monitoring of transformer

- Extends transformer life:
  - Helps estimate insulation degradation rate
  - Complements predictive hot-spot algorithm simulations

**Qualitrol-Neoptix other services and products**

- Complete range of accessories
  Neoptix offers several accessories to use with your temperature system, from the transport cases to ultra resistant Kevlar™ reinforced patch cords. We will provide everything you need for a complete and fully operational installation.

- Calibration certificate
  If needed, Neoptix will service and repair your fiber optic temperature system and we will provide you with a NIST traceable calibration certificate.

- Extended warranty
  Neoptix also offers extended warranty for complete coverage of your signal conditioners and accessories.

No matter where in the world you are located, there are two things you can count on from the services you receive from Neoptix: high professional standards and the ability to deliver quality products. Neoptix grows progressively by ensuring that each new member of the team embodies the culture of dedication to excellence that is part of the firm’s reputation.

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Qualitrol / Neoptix instruments and probes are field proven for reliable and accurate solutions, from design and testing up to online transformer hot spot measurement.

## Optical sensors and accessories

### T2™ oil-immersed probe
- Ruggedized temperature probe
- Specifically designed for oil filled and dry type transformers
- 1 to 25 meters length
- Dielectric connectors and probe tips with disks are available
- Oil-permeable PTFE Teflon™ jacket with 3 mm Teflon™ spiral-wrap reinforcement
- Meets ASTM D149 and D2413

### TX panel feedthrough temperature probe
- Tx model panel feedthrough fiber optic temperature probe has been specifically designed for monitoring temperature through panel or tank walls
- Built-in ST connector
- No moving parts
- Vacuum or pressure
- Compatible with all systems

### Optical feedthrough
- Transformer tank wall optical feedthrough for T2™ temperature probe
  - Based on solder glass bonding technology for a permanent oil-tight sealing
  - 1/4 NPT-M ANSI threads
- Transformer tank wall plate
  - Ruggedized optical extension cable for linking transformer to signal conditioner
  - 1 to 500 meters length
  - 3 mm O.D. polyurethane jacket reinforced with Kevlar threads
  - Carbon steel, stainless or aluminium

### Transformer tank wall plate
- Oxygen monitor model 509-300 for detailed advanced control or load tap changer
- 4 X 20 display with backlight
- Available with 1 to 16 optical channels

### External extension cable
- Cooling monitor model 509-200 for advanced control or load tap changer
- Multi-Channel OmniFlex-2
- Portable Nomad-Touch
- T/Guard Link
- T/Guard 405
- T/Guard 408 & 408XT
- 507DW & 509DW

### Systems for QC and testing facilities
- Multi-Channel OmniFlex-2
- Portable battery-operated fiber optic signal conditioner with USB and datalogging
  - One optical channel
  - Runs on internal Li-ion batteries
  - Optical power meter, ideal for testing probes
  - Color and touch VGA LCD display
  - USB communication port
  - Internal 32 MB datalogging
  - Compatible with Neoptix OptiLink™ and OptiLink-II™ control and datalogging software

### Systems for your dry/oil filled transformers and LTCs
- Field upgradeable, up to 104 channels
  - Hot swappable modules
  - Selection of modules, to suit your needs:
    - Fast 4-channel modules (10 Hz)
    - Sequential 4- and 8-channel modules (250 msDC per channel)
  - CPU module, with web server and TCP/IP connectivity
  - Color and touch VGA LCD display
  - Chassis can accommodate 6 or 13 modules
  - Optional analog output module (16 ch per module)
  - Built-in datalogging (7 GB)

### Systems for your dry/oil filled transformers and LTCs
- T/Guard Link
  - Small form factor fiber optic signal conditioner for winding monitoring for all size transformers
  - 2 versions: Fluorescence and GaAs technologies
  - Available with 1 to 8 optical channels
  - Multiple modules can be tied together with Modbus up to 256 channels
  - Small footprint (180 x 113 mm)
  - 4-20 mA analog outputs
  - RS-485 port, with ASCII and Modbus communication
  - 32 MB datalogging is standard
  - Compatible with Neoptix OptiLink™ and OptiLink-II™ control and datalogging software

### T/Guard 405
- Cost-effective fiber optic signal conditioner for winding monitoring
  - Replacement for the original Neoptix T/Guard system
  - Available with 2 to 16 optical channels
  - Larger LED high visibility display
  - 4-20 mA analog outputs
  - RS-485 port, with ASCII and Modbus communication

### T/Guard 408 & 408XT
- Full-featured multi-channel system for transformer monitoring, with alarm and cooling control
  - Available with 4, 6, 8, 10, 12 or 16 optical channels
  - Large LED high visibility display
  - 4-Form-C relays with galvanic isolation
  - 4-20 mA analog outputs
  - Serial protocols including Modbus and 61850
  - Smart Grid protocols (XT) including IEC 61850
  - Light source superior to transformer's life
  - Large LED high visibility display
  - Available with 2 to 16 optical channels
  - 2 or 4 GB data logging on-board memory
  - Integrated Web Server with IP address (XT)
  - Compatible with Qualitrol Optilink™ and Optilink-II™ control and datalogging software

### JBox2™ protective box
- Large LED high visibility display
- Available with 4, 6, 8, 10, 12 or 16 optical channels
- 4-20mA analog outputs
- 8 Form-C relays with galvanic isolation
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- Available with 4, 6, 8, 10, 12 or 16 optical channels
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- 8 Form-C relays with galvanic isolation

### NEMA protective enclosure
- Meets NEMA 4-12/IP66 standards
- Available with automated dust, dirt and oil splashing
- 100BASE-FX fiber communication option
- T/Guard Link
- T/Guard 405
- T/Guard 408 & 408XT
- 507DW & 509DW

### 507DW & 509DW
- Intelligent transformer monitor with direct viewing
  - All the features of the QUALITROL 509 ITM
  - Real-time comparison of calculated and direct hot spot winding temperatures for verification of transformer operation to OEM specification
  - Available with 1 to 16 optical channels
  - 4 X 20 display with backlight
  - Cooling monitor model 509-200 for advanced control or load tap changer
  - Monitor model 509-300 for detailed performance monitoring
  - New supports GaAs and Fluorescence technologies

### JBox2™ protective box
- Smart Grid protocols (XT) including IEC 61850
- Serial protocols including Modbus and 61870
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- 8 Form-C relays with galvanic isolation
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## The most complete product line of optical temperature sensors for the T&D industry

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