QUALITROL® CAB-699
Fiber optic temperature probe

Field proven high accuracy probe for measuring hot spot temperature

- Long term, drift-free survivability
- Does not require recalibration or complex input to operate
- Withstands kerosene desorption, heat runs, oil immersion and vibration
- Surpasses ASTM dielectric strength standards for use inside transformers

Product Summary

**Description**  Robust, oil-permeable Neoptix T2™ temperature probes for highly accurate measurement of power transformer temperatures. Installed within standard spacer or directly onto any other location inside transformer windings to directly measure ‘hot spot’ temperature.

**Application**  For use inside oil-filled or dry-type electrical transformers. Compatible with QUALITROL® intelligent transformers monitors with direct winding.

- **Sensitive area**
  - Material: GaAs
  - Resistivity: 10³ Ω-m

- **Continuous longitudinal slit allowing perfect oil flow throughout probe length (patent pending)**

- **Virgin PTFE Teflon®, sheath**
  - Dielectric strength: >18000 V/mm (ASTM D149)
  - Dielectric constant: 2.1 @ 1 Mhz

- **Optical fiber glass/quartz fiber with 20µ polyimide coating**
  - Dielectric strength: >15000 V/mm
  - Dielectric constant: > 3.5 @ 1 MHz

- **High performance epoxy**
  - Dielectric strength: > 17000 V/mm
  - Dielectric constant: 3.01 @ 1kHz/25°C

- **PTFE Teflon®, spiral wrap reinforcement**
QUALITROL® CAB-699 fiber optic temperature probe

Field proven high accuracy probe for measuring hot spot temperature
- Direct measurement inside transformer yields highly accurate temperature readings reducing risk of failure or unnecessary reduction in transformer life
- Thousands are currently installed and in service

Long term, drift-free survivability
- All materials have high dielectric and chemical resistant properties
- ST type connectors resist failure due to vibration

Does not require recalibration or complex input to operate
- Galium arsenide (GaAs) measurement principle

Surpasses ASTM dielectric strength standards for use inside transformers
- Unique, patent-pending longitudinal slit enables uniform contact with transformer oil over entire probe length
- Verified by Weidmann

**TECHNICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Environmental</th>
<th>Certification</th>
<th>ASTM-D 149 and ASTM-D 2413</th>
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<tbody>
<tr>
<td>Chemical resistance</td>
<td>Solvent and chemical resistant (kerosene, etc.)</td>
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<tr>
<td>Measurement range</td>
<td>-40°F to 392°F (-40°C to 200°C)</td>
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<tr>
<td>Survivability range</td>
<td>-328°F to 572°F (-200°C to 300°C)</td>
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<tr>
<td>Probe permeability</td>
<td>Longitudinal continuous slit (patent pending) on cable insures uniform oil impregnation into sheath</td>
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<tr>
<th>Mechanical</th>
<th>Connector type</th>
<th>Standard fiber optic ST</th>
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<tr>
<td>Probe material</td>
<td>Chemically resistant, inert and dielectric materials; quartz optical fiber</td>
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<tr>
<td>Probe sensitive area</td>
<td>Direct point measurement with sensitive area of 400 microns O.D.</td>
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<tr>
<td>Standard probe length</td>
<td>4, 6, 8, 10 meters (custom lengths available up to 25 meters upon request)</td>
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<tr>
<th>Specifications</th>
<th>Accuracy</th>
<th>± 1.8°F (± 1°C)</th>
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<tr>
<td></td>
<td>Response time</td>
<td>500 milliseconds</td>
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