

# QUALITROL® T2™ PROBE



Fiber optic temperature probe for transformers

## Field proven high accuracy probe for measuring hot spot temperature

- 200 micron fiber, providing the best flexibility and endurance in the industry
- Long term survivability, zero-drift results
- Does not require recalibration or complex input to operate
- Withstands kerosene desorption, long term oil immersion and vibrations
- Surpasses ASTM dielectric strength standards, and PD requirements
- Suitable for UHV and HVDC windings, for power transformers and reactors
- Dielectric connector and retaining disk options are also available

### Product Summary

**Description** Robust, oil-permeable Qualitrol Neoptix T2™ temperature probes for highly accurate measurements of power transformer temperatures. Optimized for installation in standard winding spacers for direct measurements; and any other locations inside the transformer tank.

**Application** For use inside oil-filled or dry-type power transformers and reactors. Can also be used for any other applications where high electromagnetic fields are present, such as in switchgears, tap changers, busbars, etc. Compatible with all Qualitrol® intelligent transformer monitors, and all Neoptix optical conditioner systems.

Fibers by 



Sensor area: 300  $\mu$  O.D.  
Material: GaAs  
Resistivity:  $10^7 \Omega$ -m

Crystal bonding optimized for long term thermal and mechanical stresses  
Continuous longitudinal slit allowing perfect oil penetration throughout probe length  
US patent 8568025

Polyimide tubing  
Dielectric strength: > 22,000 V/mm  
Tested per ASTM D149

Optical fiber glass/quartz with polyimide coating (200  $\mu$ m diameter)  
Dielectric strength: >15,000 V/mm

High performance epoxy bonding  
Dielectric strength: > 17,000 V/mm

PTFE Teflon™ internal tube and reinforcement spiral wrap  
Dielectric strength : >18,000 V/mm

**QUALITROL®**  
Defining Reliability



**Field proven high accuracy probe for measuring hot spot temperature**

- Direct measurements inside transformer yield highly accurate temperature readings, reducing risk of failure or unnecessary reduction in transformer life
- Tens of thousands already installed and in service

**Long term, drift-free survivability**

- All materials have exceptional dielectric and chemical resistance properties
- GaAs mounting ensures extreme resistance to vibrations and thermal stresses (patented)

**Does not require recalibration or complex input to operate**

- Based on Gallium Arsenide (GaAs) measurement principle

**Surpasses ASTM dielectric strength standards for use inside transformers**

- Patented longitudinal slit insures perfect oil impregnation over entire probe length, for negligible PD operation

**Retaining disk option**

- Offers the strongest retaining force in the industry, > 40 N. Simplifies probe installation

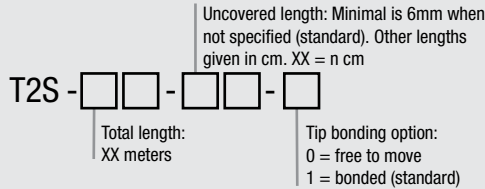
**Optional dielectric connector**

- Field installable: Allows on-site extension and repair of probes

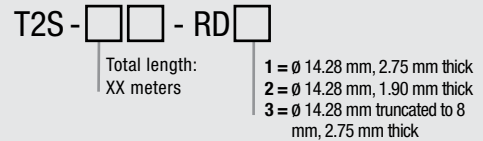
## TECHNICAL SPECIFICATIONS

<b>Environmental</b>	Certification	ASTM D149 and ASTM D2413 Partial discharge < 5 pC
	Chemical resistance	Oil, solvent and chemical resistance (kerosene, etc.)
	Measurement range	-80 to 250 °C
	Probe oil permeability	Patented longitudinal continuous slit on cable ensures perfect oil impregnation
<b>Mechanical</b>	Connector type	Telecom multimode ST connector
	Probe material	All highly resistant materials (chemical, dielectric and temperature): Teflon™, Torlon™, polyimide, epoxy and glass optical fiber
	Probe sensor	Gallium Arsenide. Contact measurement with sensitive area of 300 μ O.D.
	Probe lengths	1 to 15 meters, in increments of 1 meter. Special request up to 500 meters
<b>Specifications</b>	Accuracy	±1 °C (system accuracy)
	Response time	250 milliseconds
	Ordering code	

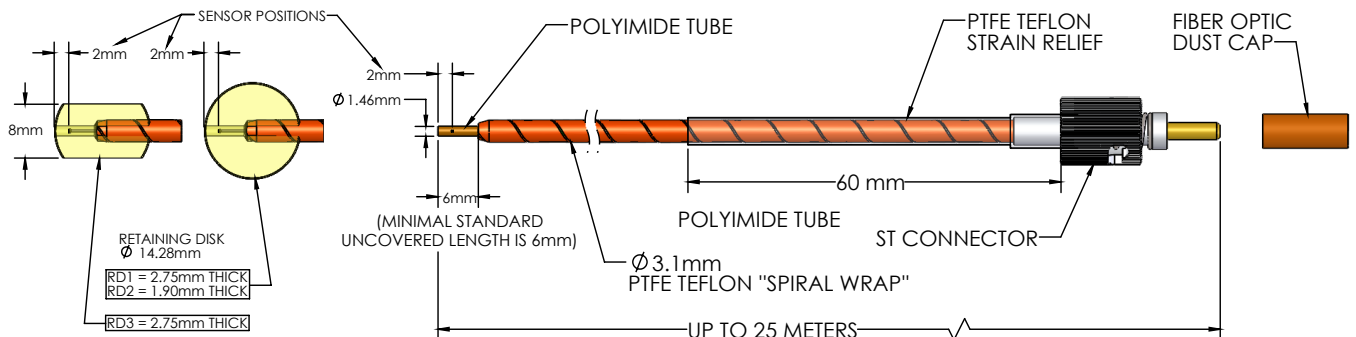
### Standard configuration:



### With retaining disk (14.28 mm O.D.):



Disk installation kit: NXP-631



### About QUALITROL®:

QUALITROL® manufactures substation and transformer monitoring and protection devices used by electric utilities and manufacturing companies. It is the global leader in sales and installations of transformer asset protection equipment, fault recorders, and fault locators. Established in 1945, QUALITROL® produces thousands of different types of products on demand, each customized to customers' unique requirements.  
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