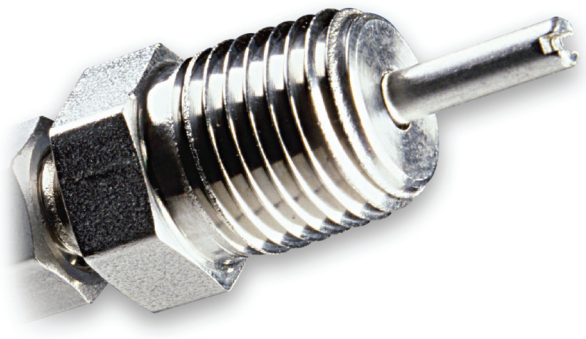
PRODUCT DATASHEET

# FRI Refractive Index Sensor



## Key Features

- From 1.0000 to 1.7000 RI range
- Intrinsically safe
- Immune to EMI/RFI
- Resolution of 0.0001 RI or 0.036% of Oil Concentration Ratio in refrigerant
- In-situ measurement

## Applications

- Industrial environments
- In-situ process monitoring
- Chemical applications
- Harsh and hazardous environments
- Research and development
- Quality control

**The FRI is a fiber optic refractive index sensor, ideal for refractive index measurement of fluids in industrial, chemical and food processing industry applications. Frequently used for Oil Concentration Ratio measurement, this field-proven solution is an invaluable asset for engineers working in instrumentation.**

The FRI is a miniature sensor that provides in-situ refractive index measurements and allows continuous monitoring of any process, whether industrial, chemical of food-engineering, thus eliminating manual sampling and measurements repeatability problems. These sensors are also designed to withstand variable temperature, EMI and vibration conditions.

Research engineers working in cooling systems development, those involved in any area where fluids chemistry and fluids quality control are applied, may now improve process and product technology by monitoring the performance of specific properties over time. This will provide accurate information on changes in the refractive index during the operation, the manufacturing process or throughout the lifetime of a product. The use of the FRI refractive index sensor allows a complete refractive index analysis in the most challenging environments.

Our unique design is based on the variation of a liquid-filled Fabry-Perot optical cavity length to precisely determine the refractive index of the liquid. The liquid-filled optical cavity length varies in direct proportion with the refractive index of the liquid sample. The refractive index measurement is achieved by measuring the Fabry-Perot cavity length using white light interferometer technology.

The fiber optic signal conditioner has the capability to perform the refractive index measurement under challenging conditions of temperature, EMI, humidity and vibration with uncomplicated calibration tasks that the user can perform.

The FRI fiber optic refractive index sensor provides the industry with better and more reliable refractive index measurements for existing applications, and with extended capabilities for new applications requiring continuous in-situ monitoring of fluids refractive index under adverse conditions.

The FRI fiber optic refractive index sensors are available in a miniature package (FRI-BA model) or in a rugged stainless steel package (FRI-NP model), suitable for industrial applications.

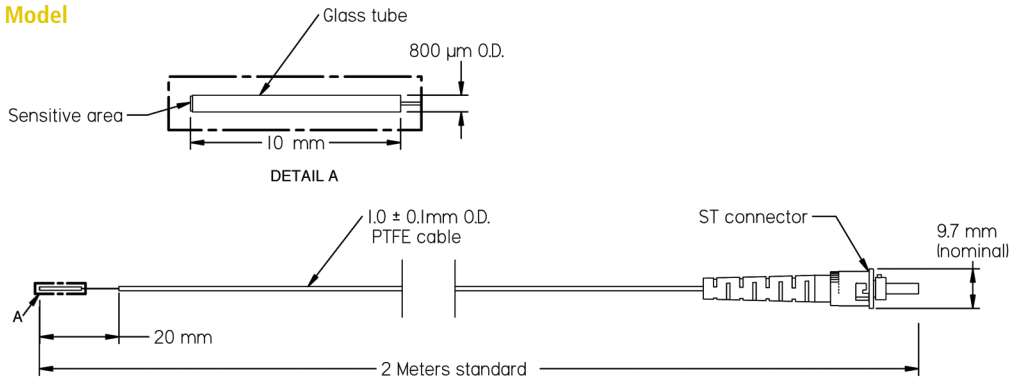
## Specifications

| | |
|---|---|
| **Refractive index range** | From 1.0000 to 1.7000 RI |
| **Resolution**[1] | 0.0001 RI or 0.036% of Oil Concentration Ratio in refrigerant |
| **Accuracy** | ±0.0005 RI |
| **Connector type** | ST connector |
| **Operating temperature** | 0°C to 100°C (32°F to 212°F ) |

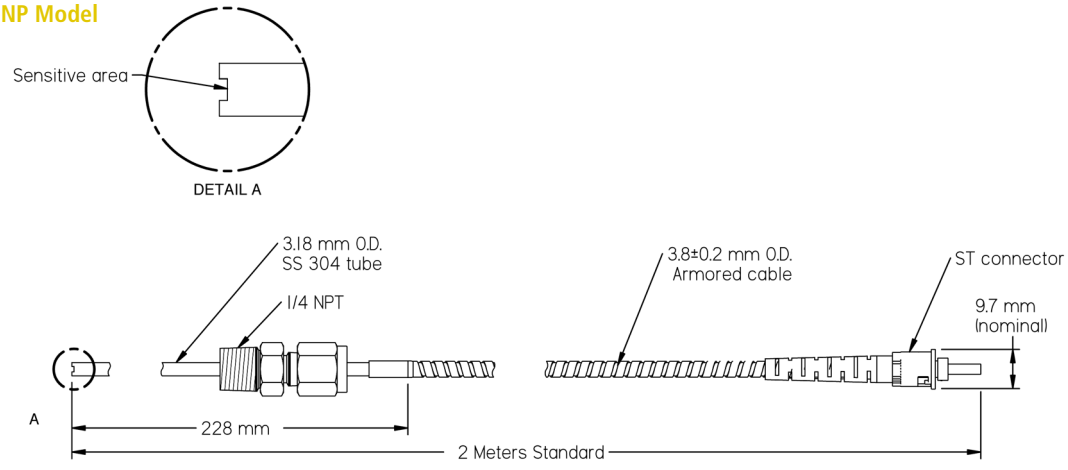
*1. Signal conditioner dependent.*

## FRI Dimensions

### FRI-BA Model




### FRI-NP Model




Drawing Numbers SCH-00508 – SCH-00509

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DOC: MC-00006R10