

InfraRail GT Fiber Optic System

Non Contact Temperature Measurement for Glass Furnace Applications



InfraRail GT Fiber Optics System with Type F sensor and cable

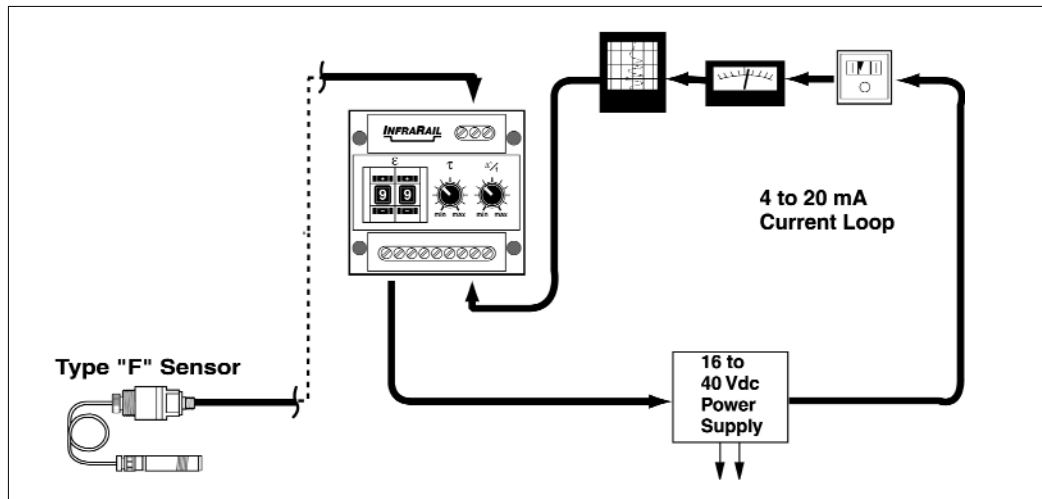
IRCON's InfraRail GT Fiber Optic offers the powerful features and affordable price of the standard InfraRail infrared thermometer — along with the flexibility and ruggedness provided by an optical system using fiber optics. The InfraRail GT's unique focusable reimaging lens assembly and fiber optic cable offer the opportunity to sight on targets where direct sighting is impossible or, as in the case of glass furnaces, where extremely high ambient temperatures are present.

Measuring temperatures in a glass furnace with a conventional infrared thermometer can be difficult. Because high ambient temperatures are often encountered around a furnace, a water-cooled assembly on the sensing head

is generally required. But the InfraRail GT solves this problem. While the silicon sensor operates in a cool environment, the focusable reimaging lens (via fiber optic cable) operates near the high-temperature glass furnace *without water cooling*. This eliminates the cost of installing expensive water piping and prevents costly damage should the water piping leak. And because it is non-contact, any chance of contamination of the material in process is eliminated.

Because the InfraRail GT uses a quick-release air purge assembly on the reimaging lens, installation and maintenance is fast and simple.

InfraRail GT Fiber Optic System



InfraRail GT Fiber Optic system components

InfraRail GT Components

The basic components of the InfraRail GT fiber optic system consists of

- DIN-rail mounted signal conditioner/transmitter
- Type F fiber optic sensor
- 16 to 40 Vdc power supply (optionally available)
- Digital temperature indicator (optionally available)

The InfraRail GT Fiber Optic is used to measure temperatures of the crown, side walls, breast wall, checkers and molten glass temperature in the furnace forehearth and runners. The entire assembly consists of:

- InfraRail DIN-rail mounted Signal Processor with response time adjustment, digital emissivity setting, and and 4 to 20 mA linear output
- Fiber Optic Sensor
- 25 ft (7.6 m) of Fiber Optic Cable
- Focusable Reimaging Lens
- Model AAQ-1 Quick-Release Air Purge Assembly
- Model MB-2 Angle Mounting Bracket
- 12 inch (305 mm) Model SI-12 Inconel Sight Tube

The model SI-24 inconel sight tube optional accessory measuring 24 in (610 mm) may be purchased to replace those supplied with the InfraRail GT.(610 mm).

The InfraRail sensor operates at a 0.7 to 1.0 μm wavelength. The sensor is a rugged, inherently stable silicon photodiode with proven performance for over 35 years on glass furnace installations. The signal processor can be mounted up to 1000 ft (300 m) from the sensor and requires a simple two-wire shielded cable for transmitting the sensor signal to the indicator. The Reimaging Lens has a focal range of 10 in. (254 mm) to infinity.

Most components are interchangeable for easy routine maintenance. For more details, refer to InfraRail catalog DN-08.

Ambient Specifications

Temperature Limit

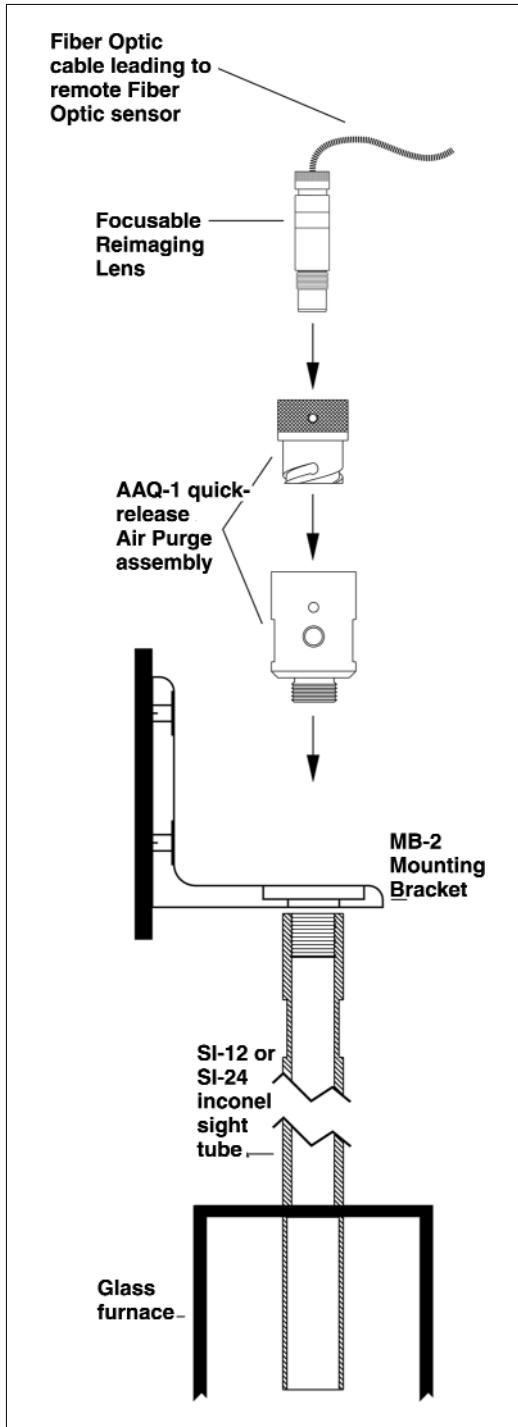
Inconel Sight Tube	2000°F (1093°C)
Focusable Reimaging Lens	400°F (200°C)
Fiber Optic Cable	400°F (200°C)
Fiber Optic Sensor	200°F (95°C)

Temperature Range and Resolution

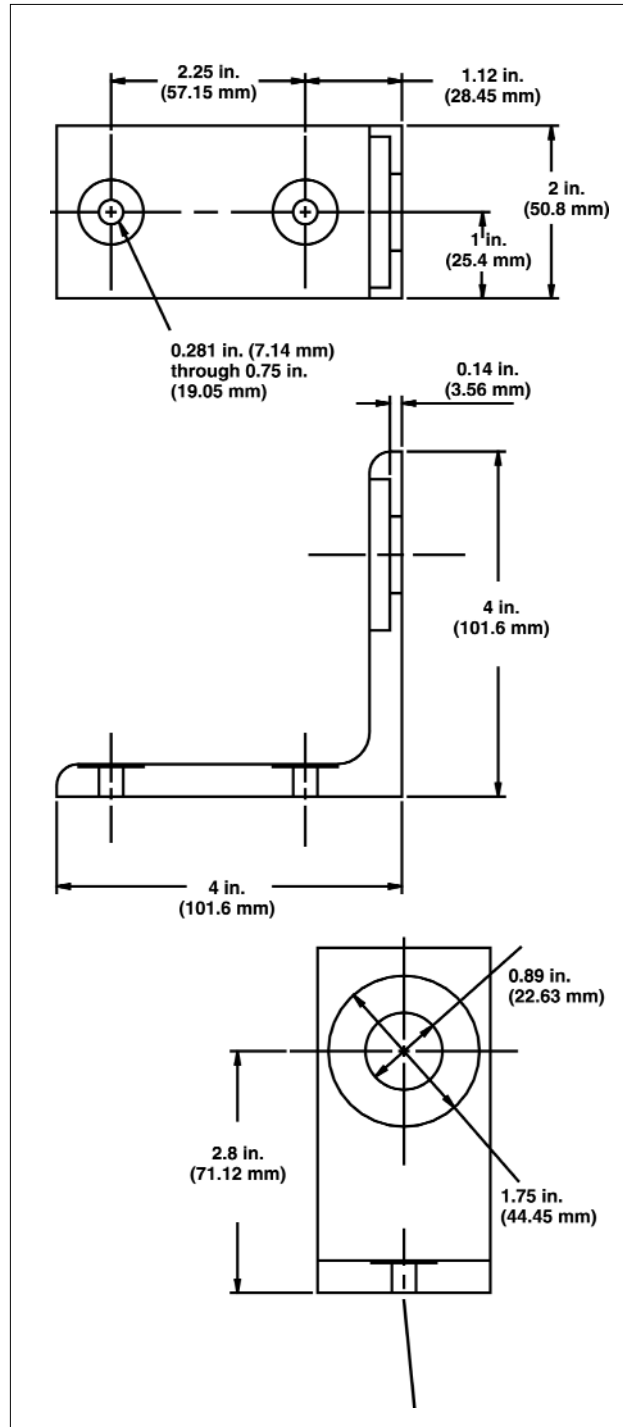
Model GT-101	1500 to 2500°F	D/60
Model GT-102	1800 to 3200°F	D/60
Model GT-103	800 to 1300°C	D/60
Model GT-104	900 to 1600°C	D/60
Model GT-105	1000 to 1400°C	D/60

Note: Special temperature ranges are available on request.

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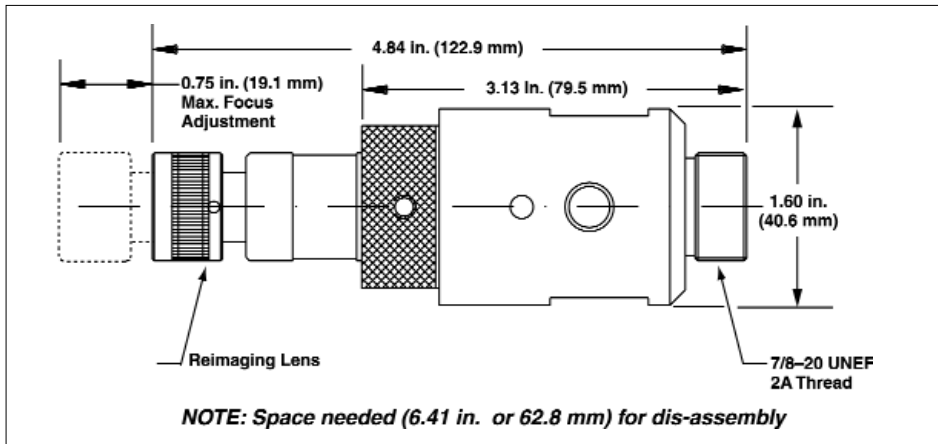


Standard configuration using MB-2 angle mounting bracket

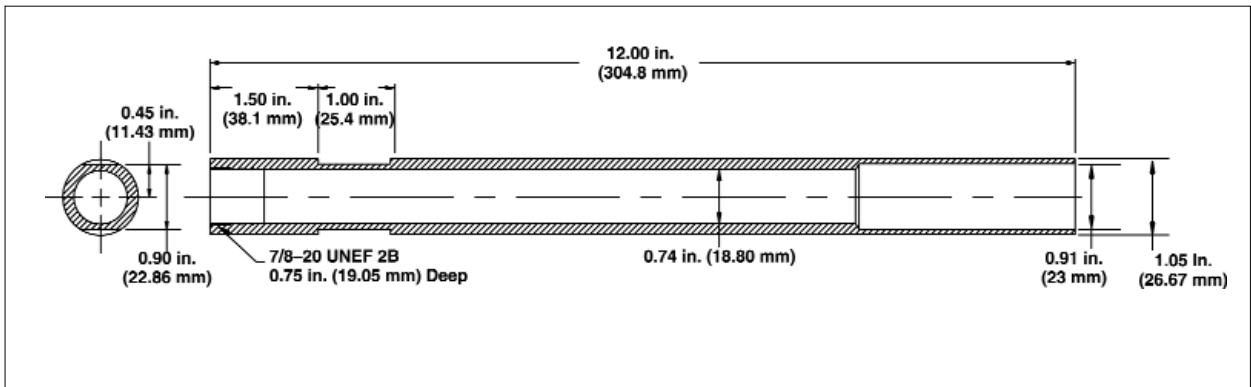


Model MB-2 dimensions

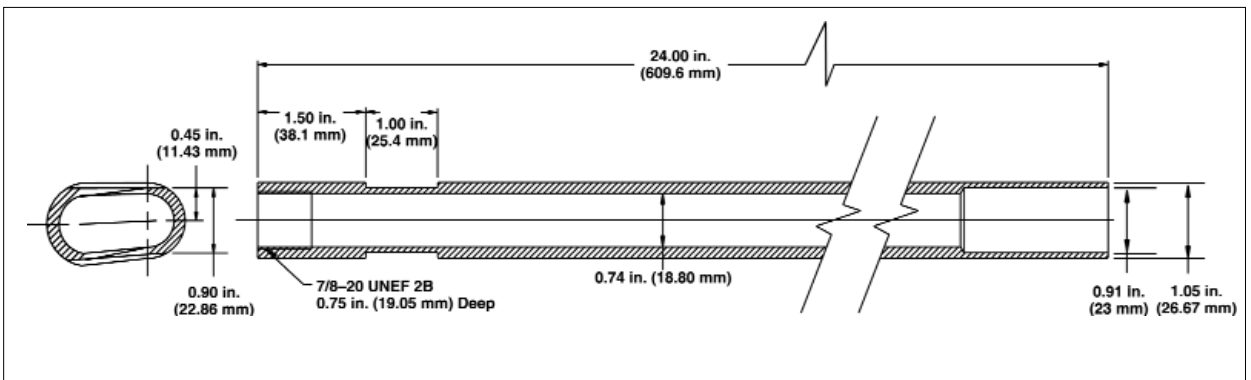
InfraRail GT Fiber Optic System



Model AAQ-1 dimensions



Model SI-12 dimensions



Model SI-24 dimensions



NIST Calibration Provider



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