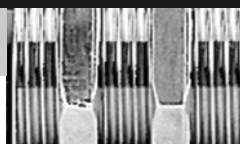
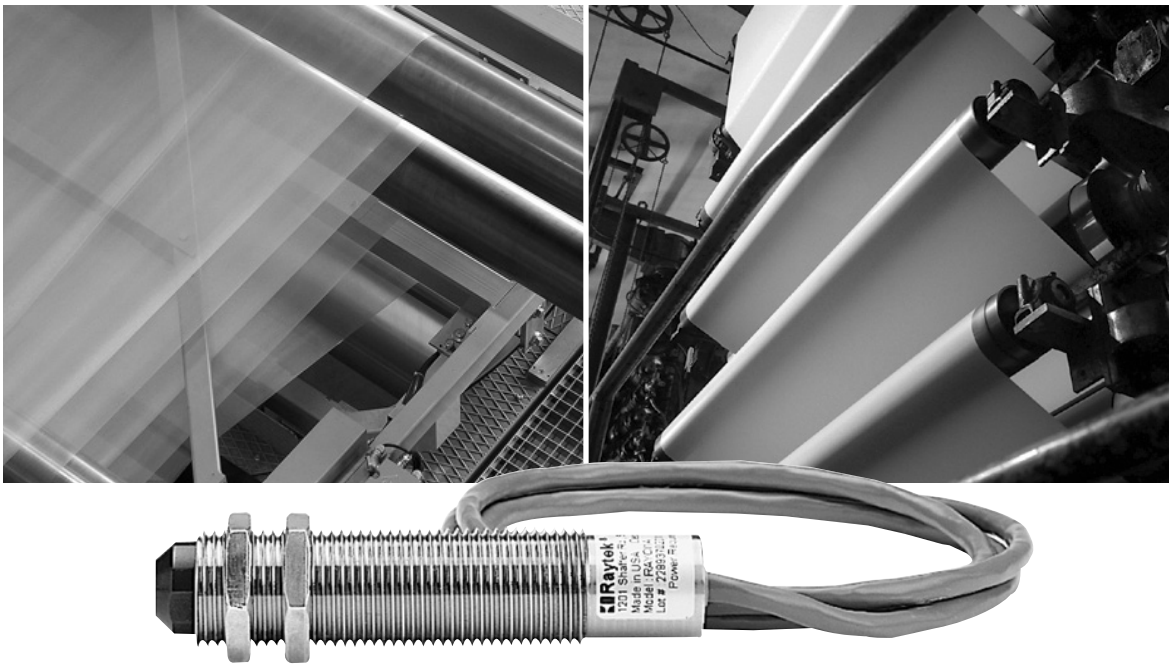


# CI

## Noncontact Temperature Measurement for Industrial Applications



Raytek®
A Fluke Company

## CI Highlights

- **Type J or K, or 0-5 V output**
- **Two models cover temperature ranges from 0°C to 500°C (32°F to 932°F)**
- **IP 65 (NEMA-4) stainless steel electronics housing**
- **4:1 optics at 90% energy**
- **350 mSec (95%) response time**
- **Powered by 12–24 VDC at 20 mA**
- **Accessories for cooling and air purging**

The Raytek CI model provides the advantages of infrared temperature measurement in a compact, low cost, integrated sensor. Designed for easy integration into a standard 4-wire system, the CI sensor can easily replace traditional contact probes with a J-type or K-type thermocouple output, or with a 0-5 volt output if your application is susceptible to noise or requires a longer cable run.

The CI sensor is designed to measure target temperatures ranging from 0°C to 500°C (32°F to 932°F). The CI unit's onboard electronics are protected by a rugged IP 65 (NEMA-4) stainless steel housing, allowing the sensor to function in ambient temperatures to 70°C (160°F) without cooling. With water cooling, the CI sensor can withstand ambient temperatures to 260°C (500°F).

Because the CI unit has the same 50 Ohm output impedance as a thermocouple, it functions accurately—without offset errors—when used in conjunction with the thermocouple break protection circuitry in most controllers, displays, and transmitters.

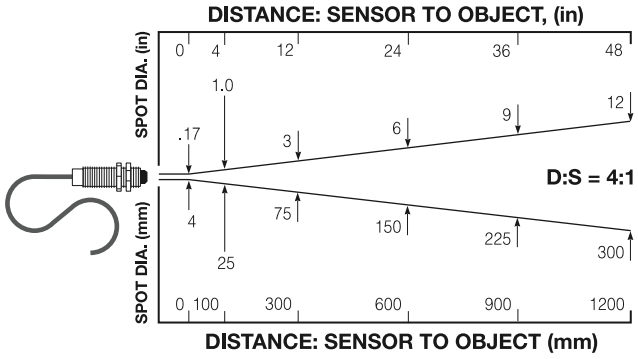
Compact. Easy to install. Affordable. The Raytek CI sensor is ideal for both OEM and end-user applications.

# Measurement Specifications

| Model | Output | Overall Temp. Range | Accuracy |
|---|---|---|---|
| CI1A | J Thermocouple | 0ºC to 350ºC (32ºF to 662ºF) | 0ºC to 115ºC (32ºF to 240ºF) ±3ºC (±6ºF) |
| CI2A | K Thermocouple | | 116ºC to 225ºC (241ºF to 440ºF) larger of ±5% |
| CI3A | Voltage | | 226ºC to 350ºC (441ºF to 662ºF) >±5% |
| CI1B | J Thermocouple | 30ºC to 500ºC (86ºF to 932ºF) | 100ºC to 500ºC (212ºF to 932ºF) larger of ±2% or ±3º C (±6ºF) |
| CI2B | K Thermocouple | | 30ºC to 99ºC (86ºF to 211ºF) ±6ºC (±10ºF) |
| CI3B | Voltage | | |

| | |
|---|---|
| Spectral Response | 7 to 18 microns |
| System Repeatability | ±1% of measured value or ±1°C (2°F), whichever is greater |
| Temperature Resolution | <0.5°C or 1°F |
| Reponse Time (95%) | 350 mSec |
| Emissivity | Fixed at 0.95 |

# Nominal Optical Specifications




D:S is the optical resolution expressed as a ratio of the distance to the resolution spot divided by the diameter of the spot.

Optical resolution for the CI sensor is 4:1. Nominal spot size based on 90% energy.

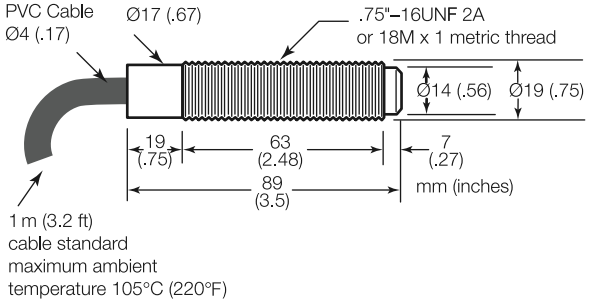
# Electrical Specifications

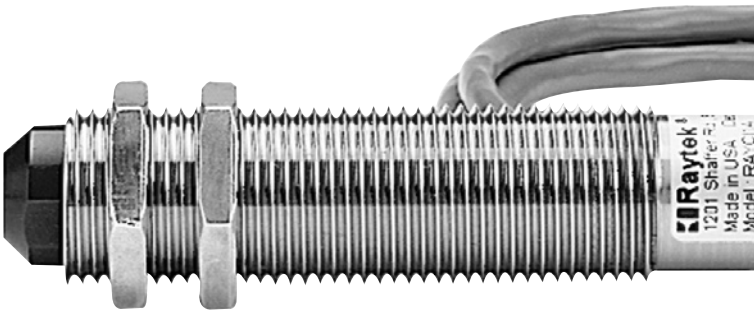
| | |
|---|---|
| Outputs | User-selectable thermocouple output (model specific, either J or K) or voltage output 10 mV/°C |
| Cable Length | 1 m (3.2 ft) standard, longer cables optional |
| Output Impedance | 50 ohms |
| Minimum Load Impedance | 50K ohms |
| Power Supply | 12–24 VDC (≤ 2.5% ripple) @ 20 mA |

# Sensor Specifications

| | |
|---|---|
| Environmental Rating | IP 65 (NEMA-4) |
| Ambient Temperature Range<br>With air cooling<br>With water cooling | 0ºC to 70°C (32ºF to 160°F)<br>0ºC to 90°C (32ºF to 200°F)<br>0ºC to 260°C (32ºF to 500°F) |
| Storage Temperature | -30ºC to 85°C (-22ºF to 185°F) |
| Relative Humidity | 10 to 95%, non-condensing |
| Shock | IEC 68-2-27 (MIL STD 810D) 50 g's, 11 mSec, any axis |
| Vibration | IEC 68-2-27 (MIL STD 810D) 3 g's, any axis, 11–200 Hz |
| Weight | 130 g (4.5 oz) |

# Sensor Dimensions

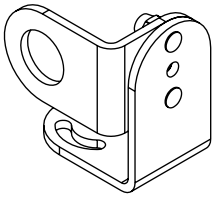


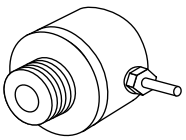




# Accessories Options

Each CI sensor includes two mounting nuts, 1m (3.2ft.) of cable, and an operator's manual. Longer cables up to 15m (50ft.) maximum are available and must be specified at the time of order.

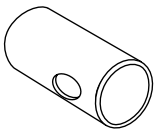
Adjustable or fixed mounting bracket for sensing head (XXXCIADJB or XXXCIACFB)

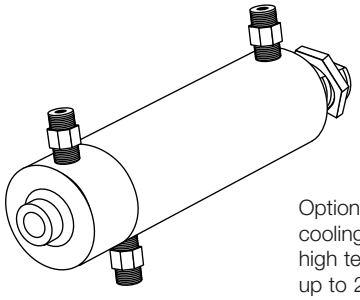




Air purge jacket to keep lens or right angle mirror clean (XXXCIAP or XXXCIACAPM for metric version)

Right angle mirror to ease installation into tight locations (XXXCIACRA)





Optional water/air cooling/purging system for high temperature environments up to 260°C (500°F)

Optional cooling jacket must be specified at the time of order.

RAYCI

| A | B | C |
|---|---|---|
| ☐ | ☐ | ☐☐☐☐ |
| Model | Temperature Range | Options |

| Model | Description |
|---|---|
| RAYCI | Raytek infrared temperature sensor |
| **Code A** | **Response** |
| 1 | Type J Thermocouple Output |
| 2 | Type K Thermocouple Output |
| 3 | Voltage Output (Linear 10 mV / ºC, scaled 0-5V) |
| **Code B** | **Temperature Range** |
| A | ±2% or ±3ºC accuracy between 0ºC and 115ºC (32ºF to 240ºF) |
| B | ±2% or ±3ºC accuracy between 100ºC and 500ºC (212ºF to 932ºF) |
| **Code C** | **Options** |
| M | 18Mx1 metric thread on sensor in place of standard thread |
| W | Water cooled jacket with bulit-in air purging and 1m (3') high temperature cable |
| **Typical Model Number** | **RAYCI1AW** |

## The Worldwide Leader in Noncontact Temperature Measurement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