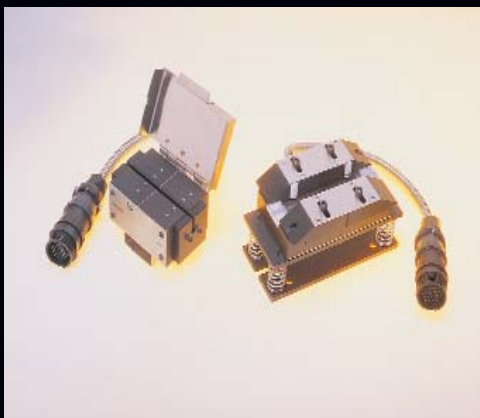
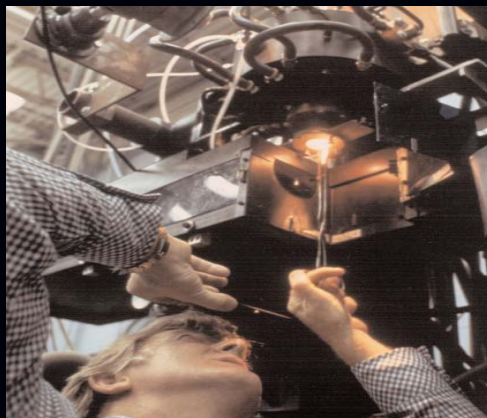


Ircon CHF family of products

**Non-contact Convective Heat Flow
Temperature Measurement Solutions
with Dual Sensor Design**



Your Process in a New Light



Introduction

The Ircon CHF (Convective Heat Flow) systems are a family of products for non contact temperature measurement of small wires, flat surfaces, and fiber optic fibers. The CHF system is a non-contact, auto-calibrating temperature measuring system. The system consists of a temperature sensing head placed near the product to be measured; a cable; and an electronics unit. The electronics unit uses a microprocessor to process the temperature signals from the sensing head to control the sensing head temperature and for the temperature computation. The indicator has a digital temperature display and provides linear analog and digital outputs that can be used for monitoring or controlling temperatures.

Advantages

The auto-calibrating CHF system eliminates manual online calibration procedures necessary with the older single-sensor designs. Two matched heat flow sensors are used. Each sensor operates at a different known temperature and by measuring the temperatures in the sensors and the heat flow signals, a microprocessor indicator calculates the product temperature.

Benefits

Accuracy is not affected by emissivity or product surface conditions. The presence of oil, water, vapors, dust and other contaminants have no effect on the temperature measurement and there is a very high temperature measurement repeatability. And, there is simple on-line calibration for specific application use.

How the Auto-Calibrating system works

The auto-calibrating system employs two matched heat flow sensors of the same sensitivity operating at two different known temperatures. The signals from the two heat flow sensors result from the conductive / convective heat flow rates between the sensors and the product. The auto-calibrating system diagram shows the relationship of moving product to the two sections ("A" and "B") of the sensing head and the heat transfer equations which govern the energy exchange and resulting signals from the two heat flow sensors in the two sections of the sensing head.

Applications

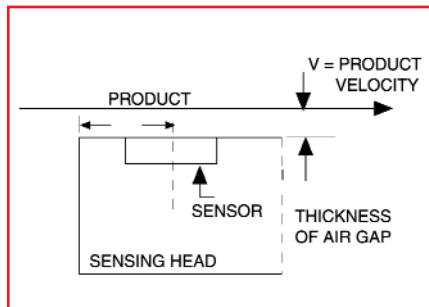
The CHF products are used throughout the world on many of the following applications:

- Wire preheater prior to extrusion of coating on wire
- Heat treating of wire
- Drawing of wire
- Cable insulation curing
- Copper and aluminum wire or rod processing

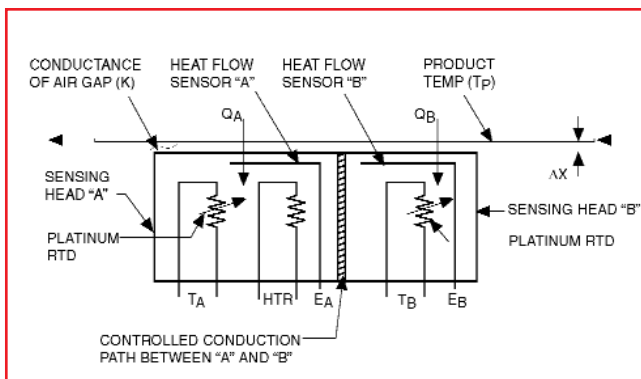
Applications (continued)

Optical fiber series applications include measuring the temperature for:

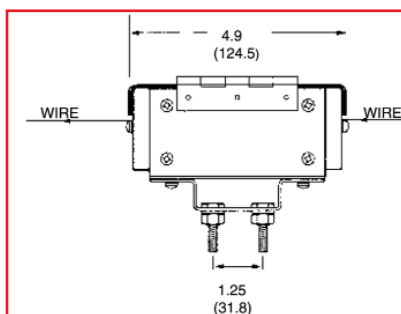
- After UV curing of inner and/or outer primary polymer coating
- Prior to inner and/or outer primary polymer coating
- After curing of coloring ink



Product surface velocity related to the thickness of the air gap between the product and sensors, and the distance of travel from the leading edge of the sensing head to the sensor.



Auto-calibrating system diagram showing relationship of moving product to the "A" and "B" sections of the sensing head and the heat transfer equations.



Model H-7503 wire temp sensing head (side view)

Active Heat Flow



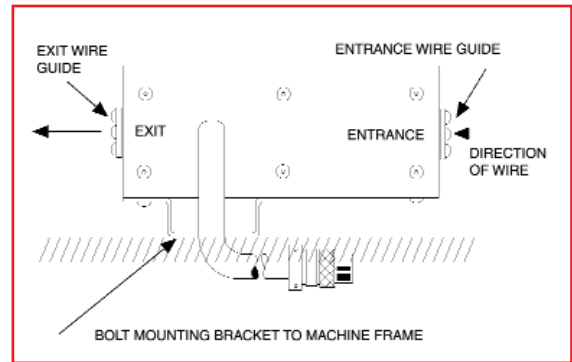
Model 7501, 7505 and 7506 Wiretemp Sensing Heads

These models are designed to measure the temperature of fine wires and filaments. The temperature measuring range is 150 to 525°F or 0 to 275°C.

H-7501 - Wire size:
 0.012 to 0.090 inches
 0.305 to 2.29 mm
 Maximum surface velocity:
 $96 / [(1.230 - D)^2]$ ft/min.
 $96 / [(2.228 - .0713 D)^2]$ m/min.

H-7505 - Wire size:
 0.050 to 0.200 inches
 1.27 to 5.08 mm
 Maximum surface velocity:
 $96 / [(0.071 - D)^2]$ ft/min.
 $96 / [(.1286 - .0713 D)^2]$ m/min.

H-7506 - Wire size:
 0.075 to 1.25 mm
 0.003 to 0.050 inches
 Maximum surface velocity:
 $96 / [(0.071 - D)^2]$ ft/min.
 $96 / [(.1286 - .0713 D)^2]$ m/min.



Model H-7501 and H7506 exit and entrance wire guide with bolt mounting bracket diagram.

Model H-7503 Wiretemp Sensing Head

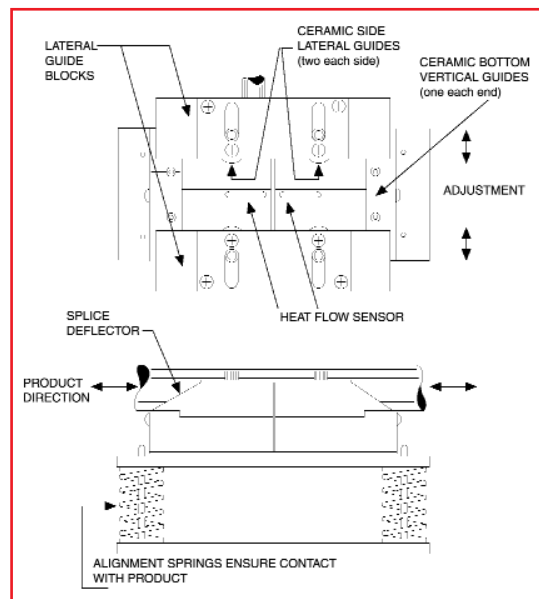
This model is used for wire temperature but has the feature of an open slot for easy installation and operation. The most popular application is in extrusion lines where the Wiretemp is used to control the wire temperature prior to the coating of the wire. Temperature range is 50 to 525°F or 10 to 275°C.
 Note: see side view drawing on preceding page.

H-7503 - Wire size:
 0.005 to 0.090 inches (0.12 to 2.0 mm)
 Maximum surface velocity:
 8200 ft/min. (2500 m/min.)

Model H-7504 Cabletemp Cable Sensing Head

This model is designed for larger size wires and cables. Temperature range is 50 to 525°F or 10 to 275°C.

H-7504 - Wire size:
 0.145 to 1.50 inches (3.6 to 37.5mm)
 Maximum surface velocity:
 7500 ft/min. (2273 m/min.)

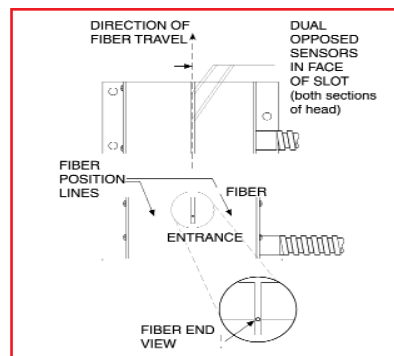


Model H7504 cable sensing head diagram

Model H-7202 Optical Fiber

This instrument is designed for the temperature measurement of an optical fiber before and after the coating of the fiber. Temperature range is 50 to 525°F or 10 to 275°C.

H-7202 - Optical fiber size:
 125 to 500 microns diameter
 Maximum surface velocity:
 4950 ft/min. (1500m/min.)



Model H-7202 optical fiber diagram

The Convective Heat Flow (CHF) family of products for non-contact temperature measurement of wires and fibers

CHF-7000 and CHF-7100 Temperature Indication

Ircon provides two temperature indicator models that include both analog and digital outputs. Model CHF 7000 is the bench top portable indicator, and model CHF-7100 is the 19" rack panel mount indicator.

Standard features:

- Selectable °F or °C
- Selectable 4-20 mA or 0-10 Vdc linear outputs
- RS-232 communications which can be used to set all parameters remotely
- Field selectable power 85 to 240 Vac, 50/60 Hz

Specifications

Indicator

Display: 0.5" LED, 4 digit
Serial output: RS-232C
Analog output: 4-20 Ma, 0-10 Vdc
Power requirements: 85 to 132 Vac, 50/60 Hz; 198 to 264 Vac, 50/60 Hz
Ambient temperature: 32 to 122°F (0 to 50°C)
Response Time: 1 second to 95% of scale

Sensor

Accuracy: $\pm 0.5\%$ full scale, ± 1 digit
Repeatability: $\pm 0.25\%$, ± 1 digit
Resolution: ± 1.0 °F or °C
Temperature range: 50 to 525°F or 10 to 275°C
Cable length: 10 feet, standard

Note: For cable lengths other than standard, contact Ircon factory.

Ordering Information

Indicator model	Type
CHF-7000	Bench style
CHF-7100	Rack style

Sensor model	Application
H-7501	Wire, machine mount
H7505	Wire, machine mount
H-7506	Wire, machine mount
H-7503	Wire , small diameter
H-7504	Large wire and cable
H-7202	Machine mount, optical fiber

Note: For wire and cable products too large or too hot for the CHF instruments, please contact Ircon for information on our complete line of two color non-contact infrared instruments. These instruments can measure temperature from 150°F or 80°C and can provide linear analog and digital outputs as well as full PID control loops.

All specifications subject to change without notice.

For more information call IRCON at 1-800-323-7660, visit our Web site at www.ircon.com, or email us at info@ircon.com



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