

# Transmitter

## IRt/c.XMTR

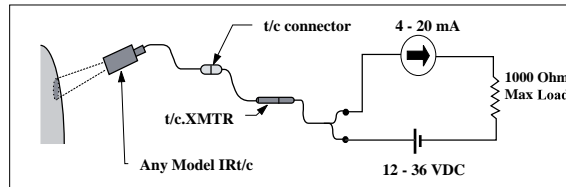
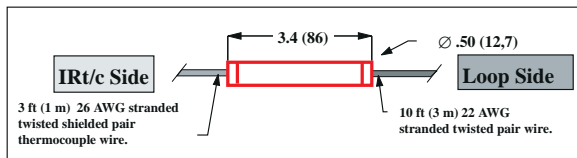
### In-Line Pre-Calibrated 4-20 mA Transmitter



The t/c.XMTR is specifically designed to interface any model IRt/c by a simple thermocouple connector or splice. The two wire current loop can be used in any conventional 4-20mA, 0-5V or 0-10V circuit that is scaled for the temperature range of interest.

For OEMs, IRt/c sensors and t/c.XMTR can be supplied pre-wired together.

- Use any existing wiring, for easy low cost installation
- Use existing PLC, computer or controller inputs
- In line design requires no mechanical support
- Pre-calibrated for IRt/c type, no span or zero adjustment necessary
- Hermetically sealed construction exceeds NEMA 4, 4X, IP65, 66, 67
- Stainless Steel construction can withstand harsh environments



	J150 K150	J500 K500	J1200 K1200	K2100	S3000
Temperature at 4 mA	32°F (0°C)				
Temperature at 20 mA	150°F (65°C)	500°F (260°C)	1000°F (540°C)	2000°F (1100°C)	3000°F (1650°C)
Accuracy	±0.1% F.S. conversion of thermocouple mV input to mA output				
Speed of Response	160 msec (10Hz bandwidth)				
Operating Range	32 to 158°F (0 to 70°C)				
Temperature Drift	<0.02% F.S. per °C				
Output Noise	<1nv rms (100Hz bandwidth)				
Input Break Indication	Upscale: goes to >20 mA				
Power Supply @ Load Storage Temperature	12 VDC minimum @10; to 22 VDC minimum @1K -85 to 257°F (-65 to 125°C)				
Weight	2.4 oz (68 g) with cables				
Housing	Stainless steel, hermetically sealed, meets or exceeds all applicable NEMA ratings, housing electrically isolated from signal.				



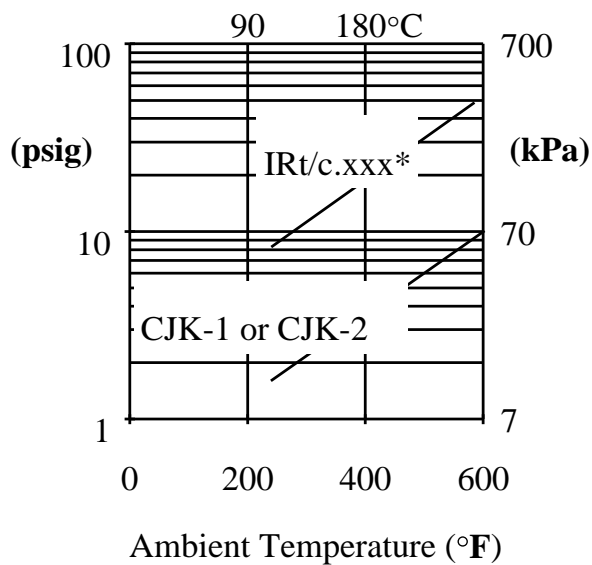
# IRt/c for Ambient >100°C Cooling Requirements

Up to 450°F (230°C), air alone can provide sufficient cooling with the Cooling Jacket Kit. As the Air Cooling Chart illustrates, considerably less air is required to cool an IRt/c with a CJK-1 or CJK-2, than an IRt/c.5. For this reason, the IRt/c is recommended for hot areas if it is possible to bring the sensor close to the target.

The air cooling chart extends above the recommended 450°F (230°C), and can be used there, but caution is advised due to the possible effects of hot spots.

If air consumption is of concern, or if ambient temperatures are above 450°F (230°C), water cooling is recommended. A small amount of purge air is also recommended when water cooling (see Tech Note #15).

## Air Cooling Chart



## Air Flow Requirements

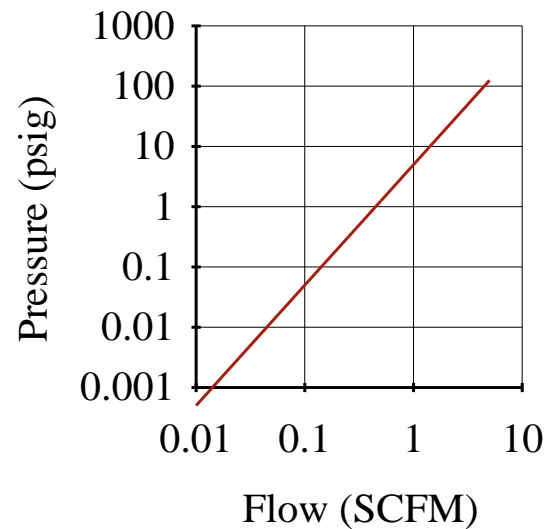


Chart applies to standard ovens. For forced convection ovens, multiply air pressure by 3, or add external sleeve with insulating stagnant air gap.

**Air pressure required to cool IRt/c with CJK-1 or CJK-2 at various ambient temperatures, compared to requirement for IRt/c models with built-in air cooling.**

**To estimate air flow requirements, select the pressure required from the Air Cooling Chart, and read air flow above.**

**\*All other IRt/c's with built-in air cooling.**

## CJK-1

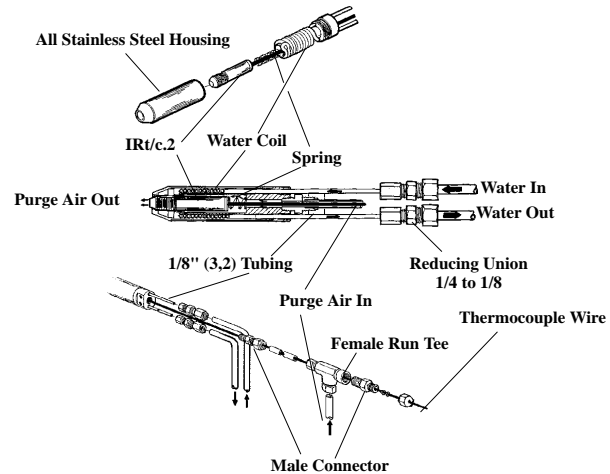
for IRt/c, IRt/c.3X, IRt/c.1X  
Water/Air Cooling

A convenient and inexpensive kit makes it possible to use the IRt/c with air, water, or both for service in harsh environments. Measuring only 1" x 4.16" (25 x 106 mm) overall, the CJK-1 is physically small enough to fit into tight areas and closely monitor process temperatures from the optimum position - up close. With its all stainless steel housing, it can withstand the harshest environments.

Extraordinarily efficient in design, the CJK requires only .05 gpm (190 cc/min) of water and 0.1 CFM (3000 cc/min) of air to protect an IRt/c at 1000°F (540°C).

### Features

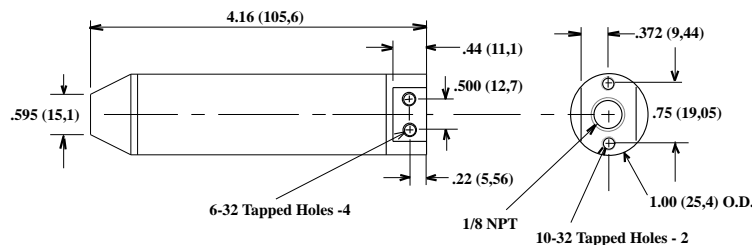
- Small size - 1" dia. x 4.16" lg. (25 x 106mm)
- Stainless steel housing
- Seamless copper monotube cooling coil
- Complete equipment for air cooling and/or water cooling
- Air purge included
- Super-efficient design for low air and water use
- Fits IRt/c, IRt/c.1X, IRt/c.3X
- Water cooling to 1000°F (540°C) with as little as 0.05 gpm (190 cc/min) and 0.1 CFM (3000 cc/min) of air



**Water Cooling Configuration.**  
All fittings required are supplied.  
Water flow > .05 gpm (190 cc/min).

The water cooling system consists of a seamless monotube, in order to eliminate the possibility of leaking joints. For convenience, the seamless tubing extends 3 ft (1 m) from the rear of the housing.

### CJK-1 Housing Dimensions



# Cooling Jacket Kits

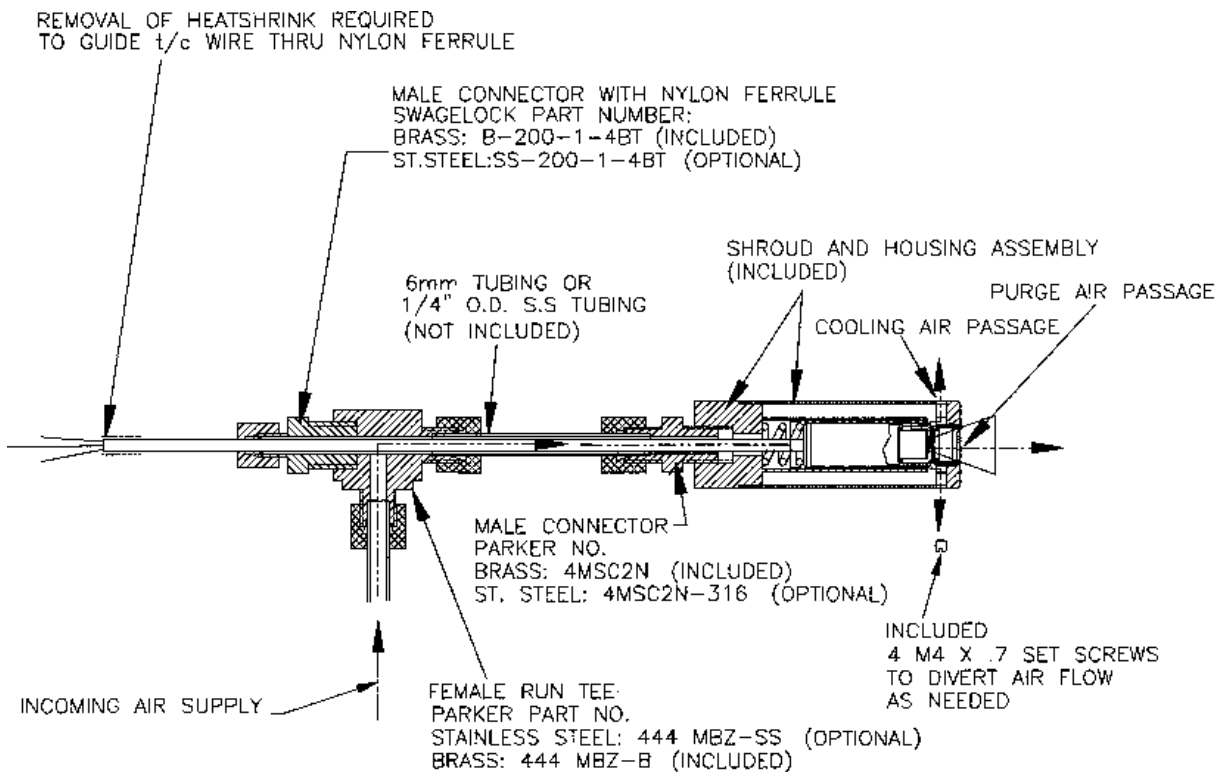
## CJK-2

For IRt/c.3X only  
Air Only Cooling



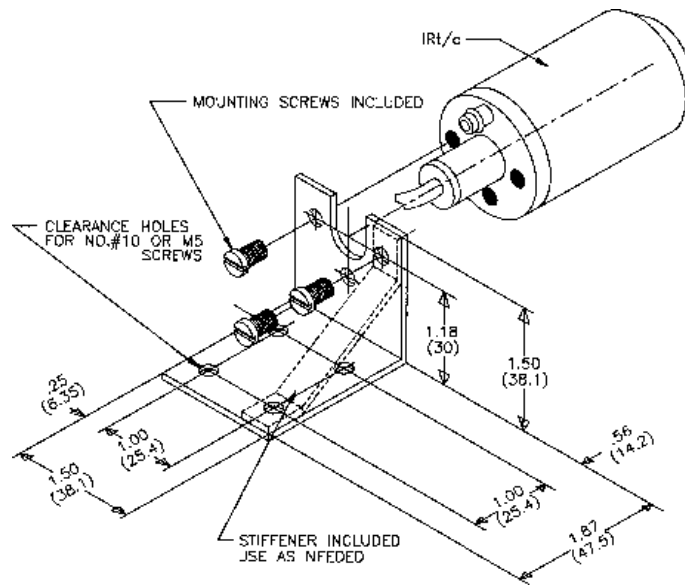
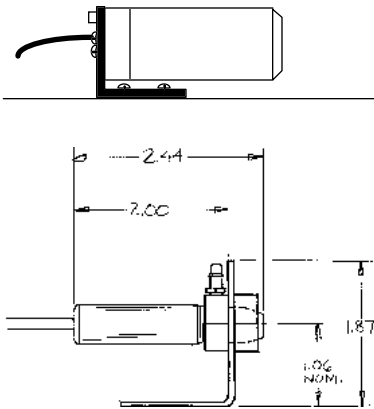
### Features

- Cooling up to 750°F (450°C)
- Small size - 1" dia. x 3" lg. (76 x 25.4mm)
- Stainless steel housing
- Available with brass or stainless fittings
- Air purge included
- Ultra-efficient design for low air consumption and maximum cooling efficiency
- Side venting for variable air flow



## MB-1

### Multi-Purpose Mounting Bracket



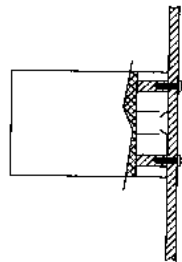
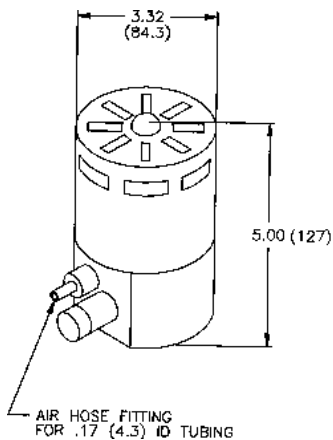
## APK-1, APK-2

### Pumps for Purge Air APK-1 120VAC APK-2 12VDC

The convenient Air Pump Kit allows for fast and easy installation of an air source suitable for maintaining optical cleanliness of IRt/c's in dirty, dusty environments. Its air flow is sufficient to keep up to five IRt/c.2, or one IRt/c.5 clean. Additionally, the air flow is sufficient to allow an IRt/c.2 to operate in ambients up to 240°F (115°C). The pump can be mounted on either horizontal or vertical surfaces.

#### Specifications:

- Air Pump - 120VAC, 120 cu.in./min (1960cc/min). Available in 12VDC.
- Vinyl Tubing - 10 ft (3m), .25" (6mm) OD, .17" (4mm) ID.
- Standoff Mounts - allow pump to be secured vertically or horizontally.



VERTICAL MOUNTING

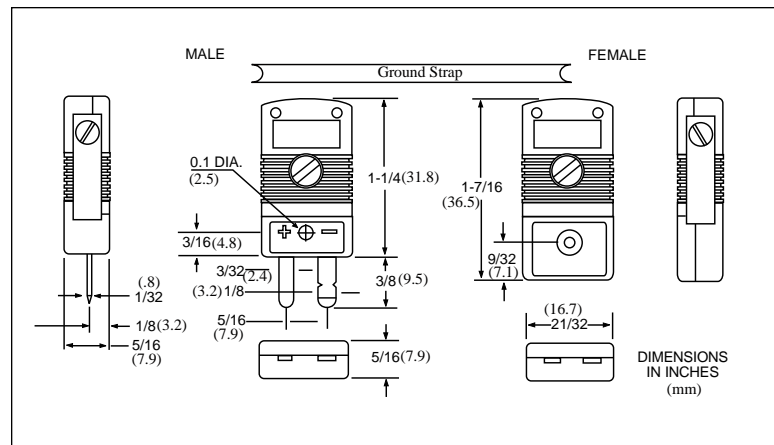
## Connector Kit

### Thermocouple Connectors with Shield

- Easy Installation of IRt/c, with up to 1000' (300 m) Extension Cable
- Connector Ground Protects Against Electrical Noise Errors
- Write-On Area for Easy Identification
- Superior Mechanical Connection Prevents Signal Loss due to Vibration or Wire Movement
- Rugged Glass-Filled Nylon Shell Rated to 425°F (218°C)
- High Purity Thermocouple Alloy Pins and Sockets
- Available in J, K, E, T Types

to assure high accuracy. Each connector includes a write-on insert and an external ground strap to maintain the electrical connection of the ground wire and strengthen the mechanical connection between connectors.

The new IRt/c miniature low noise connectors are designed to provide an easy connection of ground wires to IRt/c's and extension wire. The drain wire of a 20 AWG twisted shield cable or the shield of the overbraided wire is crimped and held in place by the internal hardware. They have excellent thermal and electrical characteristics

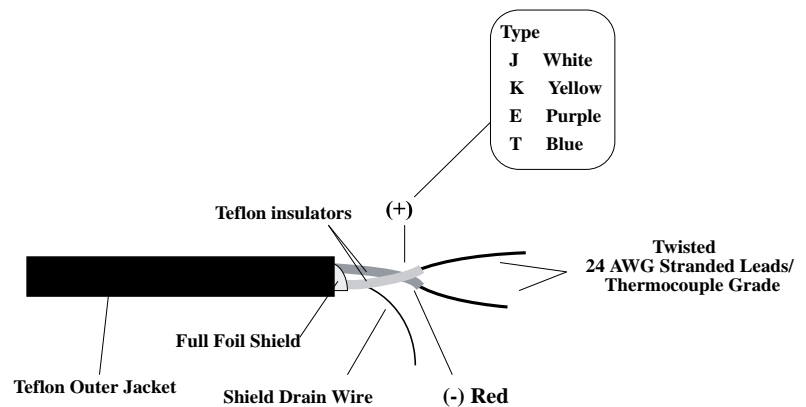


## T/C Cable

### Twisted Shielded Pair Extension Cable

- Twisted Shielded Pair for High Noise Rejection
- Can Be Used Up To 1000' (300 m) Length
- FEP Teflon Jacket/Insulators - Service Temperature to 392°F (200°C)
- Highest Accuracy - Thermocouple Grade Wire
- Available In J, K, E, T Types

Although commonly available thermocouple extension wire may be used with IRt/c's, twisted shielded pair wire is preferred due to its much superior noise rejection characteristics. This feature is particularly important when using IRt/c's with long extensions in electrically noisy environments, due to the relatively high impedance of IRt/c's compared to ordinary thermocouples.

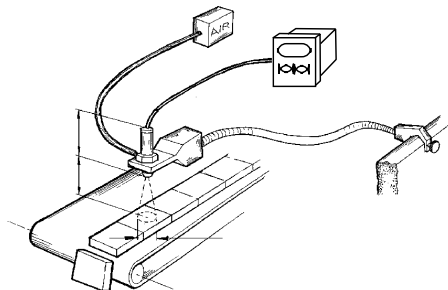
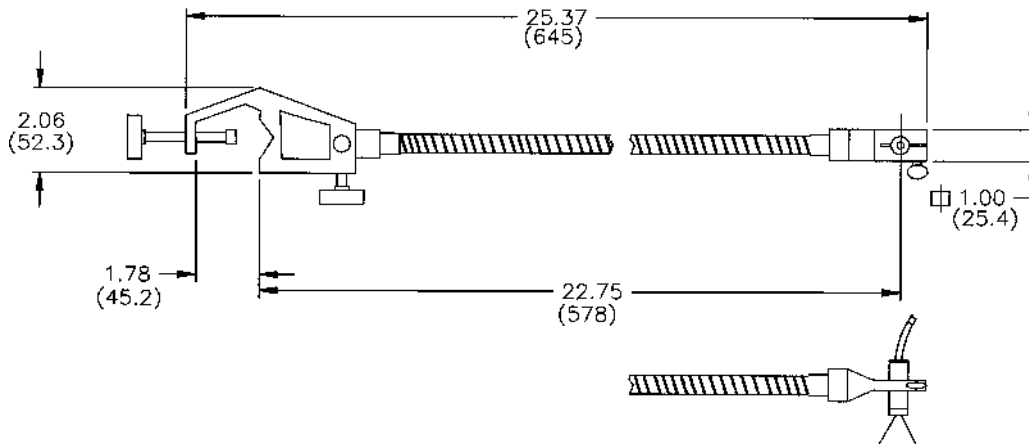


# Gooseneck Mounting Kit

## GMK-1

For fast, convenient testing of IRt/c's

For fast and convenient mounting of IRt/c's, especially for testing, the Gooseneck Mounting Kit provides an inexpensive method to quickly install an IRt/c directly on the production line. Its heavy duty design provides excellent stiffness for reliable positioning. Clamps are fabricated of aluminum for durable performance. The sensor clamp fits all IRt/c models (the MB-1 Mounting Bracket is required for Adjustable IRt/c models),



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