



### HIGHLIGHTS

- Self powered
- True thermocouple output (over specified temperature ranges)
- Repeatable within 0.01 °C
- Intrinsically Safe
- Hermetically sealed (NEMA 4X, IP67)
- Built in air purge with cooling capacity to 400 °F (204 °C)
- True thermocouple output with t/c wire
- Reliable
- Stable and minimal drifting
- Fast response time

### APPLICATIONS

- Graphics
- Plastics
- Food Processing
- Web Drying
- Electrical Power
- Glass
- Laminating
- Medical Diagnostics
- Packaging
- Paint Curing
- Automotive
- Injection Molding
- Thermal Forming
- Machining
- Asphalt
- Agriculture
- Pharmaceutical
- Semiconductor
- Textiles
- Aerospace

GENERAL SPECIFICATIONS	
ENVIRONMENTAL RATING	NEMA 4X, IP67
AMBIENT TEMPERATURE WITHOUT COOLING (SS models) WITHOUT COOLING (ABS models) IRT/c.3X, .3SV WITH COOLING IRT/c.5, .10 WITH COOLING	0 to 185 °F (-18 to 85 °C) 0 to 160 °F (-18 to 71 °C) 0 to 240 °F (-18 to 116 °C) 0 to 400 °F (-18 to 204 °C)
HOUSING	Stainless steel and ABS plastic, hermetically sealed, Intrinsically Safe, cable shield grounded to housing and electrically isolated from signal (on stainless steel models only)
ELECTRICAL SPECIFICATIONS	
OUTPUTS	J, K, E, or T thermocouple output (IRT/c.10, IRT/c.07, & microIRT/c's are K only)
POWER SUPPLY	NONE required, Self Powered
COLD JUNCTION COMPENSATION	By measuring instrument, as with conventional thermocouples
OUTPUT IMPEDANCE	3 to 8 kohms
CABLE (Stainless steel model)	Twisted shielded pair of base thermocouple material (J, K, etc.), 3 ft (0.9 m) std length, teflon sheathed, rated to 392 °F (200 °C) continuous service
ABS Plastic models	Thermocouple extension grade, PVC jacket, unshielded
MEASUREMENT SPECIFICATIONS	
SPECTRAL RESPONSE	6.5 to 14µm
ACCURACY	±2% (or ± 2 °C) of reading, whichever is greater
AMBIENT TEMPERATURE COEFFICIENT	0.02% of reading/ °F (0.04%/ °C) (See Tech Note #90)
EMISSIVITY	0.9 for non-metal surfaces
REPEATABILITY	< 0.01 °C (0.02 °F)
RESOLUTION	0.0001 °C
RESPONSE TIME CONSTANT	0.1 seconds

## MECHANICAL SPECIFICATIONS

	IRt/c.01	IRt/c.01Z	IRt/c.03	IRt/c.07	IRt/c	IRt/c.1X	IRt/c.SV
Sensing Range	-50 to 550 °F (-46 to 288 °C)				-50 to 1200 °F (-46 to 649 °C)		
Optimum Range Selections	Nine models per t/c type (see Temperature Selection Guide)						
Minimum Spot Size	0.3" (8 mm)		0.25" (6 mm)	0.75" (19 mm)	0.3" (8 mm)		
Field of View (non-focus)	1:1 (60°) approx.		3:1 (17°) approx.	7:1 (8°) approx.	1:1 (60°) approx.		
Dimensions	1.28" x 0.71" Dia. (32.5 x 20 mm)			3.25" x 1.18" (82.5 x 29.97 mm)	1.75" x 0.50" (44 x 13 mm)	1.43" x 0.50" (36 x 13 mm)	2.27" x 0.50" (57.8 x 13 mm)
Weight (w/cable)	1.4 oz (40 g)			2.3 oz (65 g)	1.4 oz (40 g)		

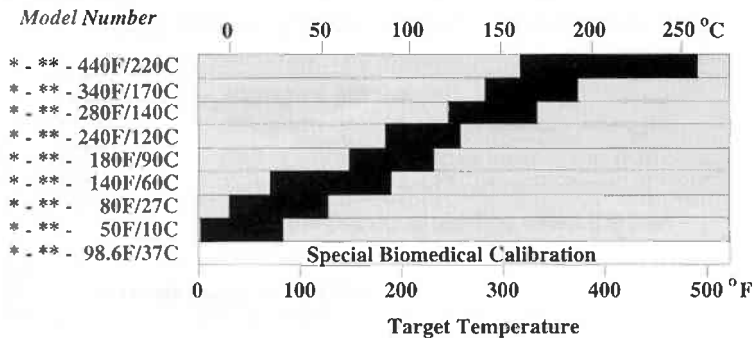
	IRt/c.2	IRt/c.3X	IRt/c.3SV	IRt/c.5	IRt/c.10	microIRt/c	microIRt/c.SV	microIRt/c.4	microIRt/c.4SV
Sensing Range	-50 to 1200 °F (-45 to 650 °C)								
Optimum Range Selections	Nine models per t/c type (see Temperature Selection Guide)							K t/c only 414 to 464 °F (212 to 240 °C)	
Minimum Spot Size	0.16" (4 mm)	0.25" (6 mm)	0.20" (5 mm)	0.8" (20 mm)		0.1" (3 mm)			
Field of View (non-focus)	2:1 (35°) approx.	3:1 (17°) approx.		5:1 (11°) approx.	10:1 (6°) approx.	1:2 (100°) approx.		4:1 (14°) approx.	
Dimensions	2.5" x 0.5" Dia. (63.5 x 12.7 mm)	1.8" x 0.5" Dia. (44.7 x 12.7 mm)	2.3" x 0.5" Dia. (57.8 x 12.7 mm)	3.4" x 1.4" Dia. (86.4 x 35.6 mm)	3.8" x 1.4" Dia. (96.5 x 35.6 mm)	1.00" x 0.25" Dia. (25.4 x 6.4 mm)	1.47" x 0.3" Dia. (37.3 x 7.6 mm)	1.00" x 0.3" Dia. (25.4 x 7.6 mm)	1.47" x 0.3" Dia. (37.3 x 7.6 mm)
Weight (w/cable)	1.6 oz (45 g)	1.4 oz (40 g)	1.6 oz (45 g)	6.5 oz (184 g)		1 oz (28 g)	1 oz (28 g)	1 oz (28 g)	1.4 oz (40g)

## SELECTING A PRE-CALIBRATED IRt/c

Ordering information: (Model) - (Thermocouple Type) - (Pre-Calibrated Temperature Range)

1. Select IRt/c (\*) model. Example: IRt/c.3X
2. Select the thermocouple type (\*\*) desired (J, K etc.), add it to the model name. Example: IRt/c.3X-K
3. Select the target temperature range. For example, to control a lamination process at 200 °F (93 °C), look at the following target temperature table for 200 °F (93 °C). Note the black area in the table indicates the "180F/90C" pre-calibrated range. Add this to complete your selection.

Example: IRt/c.3X –K– 180F/90C



**Note:** The above table indicates the temperature ranges where the IRt/c's match standard thermocouple signals. This allows for highly accurate measurement and control in the ranges selected. IRt/c's require no power supply and can be connected directly to thermocouple inputs of controllers, PLC's, transmitters, and other t/c devices. In addition, all IRt/c sensors are useable over the entire specified target temperature range for each sensor. Signal output tables and polynomials are available from Exergen.