

# Smart IRt/c™



## Infrared Temperature Sensor

	0-5V	0-10V	4-20mA	RS232
<b>Sensing Range</b>	Standard Ranges 0-250 °C, 0-100 °C other Ranges Factory Selectable			0-250 °C
<b>Ambient Temperature Range</b>	0 °C to 70 °C (internal case temperature)			
<b>Storage Temperature Range</b>	-10 °C to 70 °C			
<b>Field of View of Sensing Element</b>	3:1 (distance:spot) approx. 17° 5:1, 20:1 and 40:1 available			
<b>Minimum Spot size</b>	5 mm (0.2") (16 mm (0.625") on 20 and 40:1's)			
<b>Dominant Spectral Response</b>	5 to 14 μ			
<b>Impedance</b>	Less than 1 Kohms		50 ohm max	NA
<b>Emissivity Setting (ε)</b>	0.90 can be factory adjusted			
<b>Measurement Type</b>	Thermopile			
<b>Resolution</b>	10 bit***		4 Digit w/ floating decimal	
<b>Update Time</b>	Less than 250ms after first reading**			
<b>Response Time (95% of step change)</b>	Less than 650 ms**			
<b>Bandwidth</b>	Typically 5Hz			
<b>First Reading in</b>	Less than 2 seconds			
<b>Accuracy (Includes Repeatability and Interchangeability)</b>	Typically: ±1 °C (±1.8 °F) or 1% of reading at ε 0.9			
<b>Recommended Power Supply</b>	12 ± 10% V DC or 24 ± 10% V DC; depending on model			
<b>Power Accepted*</b>	Shuts off when voltage is functionally low*			
<b>Power Consumption</b>	12V power less then 400mW 24V Power less than 800 mW			
<b>Dimensions</b>	Contact Exergen for Drawing			
<b>Housing</b>	Zinc-Aluminum Alloy Z-12 (ISO/DIS 301)			
<b>Sensor Connection</b>	3 foot pigtail		DB9 and loose power wires	
<b>Recommended Air Purge Pressure</b>	3 PSI - Contact Exergen for Pressure\Flow\Error Graphs			
<b>Maximum Air Pressure</b>	20 PSI - may cause reading errors			
<b>Air Cleanliness</b>	Instrument Air is Recommended, ANSI/ISA-7.0.01-1996			
<b>Humidity</b>	Non-Condensing - ISA-71.01-1985 Environment Class C Severity X			
<b>Shock</b>	100G			
<b>Weight</b>	Approximately 200 grams (7oz.)			
<b>LED</b>	Constantly on for normal operation			

\* The unit will not give an error message if the input voltage exceeds recommended high limit, but functionality or accuracy is not guaranteed when exceeding the Recommended Power Supply voltage.

\*\* At room temperature

\*\*\* Current Output 10bit 0-20mA

Note: Specifications contained herein are preliminary. For additional or updated specifications please contact Exergen Corporation.

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ERROR MESSAGES						
Condition	Priority	LED Display	0-5V	0-10V	4-20mA	RS-232
Low Power	1	OFF	Under 0.1V	Under 0.1V	Under 4mA	Not Implemented
Hardware Internal Errors	2, 13	Uniform Flash	Over 4.9V	Over 9.8V	Over 19.7mA	Not Implemented
Vsig-Offset High	3	Uniform Flash	Over 4.9V	Over 9.8V	Over 19.7mA	Not Implemented
Vsig-Offset Low	4	Uniform Flash	Over 4.9V	Over 9.8V	Over 19.7mA	Not Implemented
EMI	5	Uniform Flash	Over 4.9V	Over 9.8V	Over 19.7mA	Not Implemented
Range Error	6	Uniform Flash	Over 4.9V	Over 9.8V	Over 19.7mA	Not Implemented
High Ambient	7	Long Flash**	Over 4.9V	Over 9.8V	Over 19.7mA	Not Implemented
Low Ambient	8	Short Flash*	Over 4.9V	Over 9.8V	Over 19.7mA	Not Implemented
Too Much Heat Flow	9	Long Flash**	Over 4.9V	Over 9.8V	Over 19.7mA	Not Implemented
Too Little Heat Flow	10	Short Flash*	Over 4.9V	Over 9.8V	Over 19.7mA	Not Implemented
High Target	11	Long Flash**	Over 4.9V	Over 9.8V	Over 19.7mA	Not Implemented
Low Target	12	Short Flash*	Over 4.9V	Over 9.8V	Over 19.7mA	Not Implemented

\*Six counts off one count on

\*\*Six counts on one count off

PIN OUT					
Carol C074 Series/Belden 953 Series/Alpha 630 Series					
Pin	Color	Function	Pin	Color	Function
1	White	Positive Output Signal	6	Brown	TA Pull Down Pin / IO option
2	Green	Reference Output Signal	7	Yellow	RS232_TXD / IO option
3	Red	Positive Power	8	Violet	RS232_RXD / IO option
4	Black	Ground	9	Blue	RS232 RTD (READY TO SEND)
5	Bare	Shield	10	Orange	RS232_CTS (CLEAR TO SEND)

ORDERING INFORMATION							
SmartIRt/c-F-P-O-T							
F	FIELD OF VIEW	P	POWER	O	OUTPUT	T	TEMPERATURE RANGE
.3	3:1	12V	12 VDC	05	0-5V	100C	0-100C
.5	5:1	24V	24 VDC	010	0-10V	250C	0-250C
.20	20:1			420	4-20 mA	500C	0-500C
.40	40:1			232	RS232	1000C	0-1000C

**OPTION:** Add Ta to any part # to add ambient temperature option to output ambient temperature surrounding sensor

**NOTE:** 0-10V only available in 24VDC and RS232 only available in 12VDC from 0-250C

**Example:** SmartIRt/c.3-24V-420-250C (3:1 field of view, 24VDC power, 4-20mA output from 0-250C)  
or  
SmartIRt/c.3-24V-420-250C-Ta (with 4-20mA outputting target temperature and ambient temperature from 0-250C)