INTEC CONTROLS

Product Data

I-10KAN Series
I-10KCP Series
I-3K Series
I-1.8K Series
I-20K Series

Temperature Sensor

Thermistor

Product Description

The I-10KAN (Type III), I-10KCP (Type II), I-3K, I-1.8K and I-20K Series temperature sensors are thermistor type sensors. These sensors provide a predictable output over a specified temperature range to meet each manufacturer's required input values. (See web page for complete curve chart specifications.)

These units are offered in Room, Room with Set Point, Room with Override, Room with Setpoint and Override, and Room w/ Setpoint, Override, and RJ11 Jack, Duct and Duct without Box, Immersion, Stainless Plate, Raw, Bendable Copper and Stainless Steel Rigid Averaging, Strap-On, Bullet Probe, Button Sensor, and Outdoor Air Configurations.

All IN*TEC* Room sensors may be ordered with an optional setpoint (see chart on the following page), override or with a 4 pin RJ11 or 6 pin RJ12 communication jack with terminal blocks, for remote programming. These units are also available with a 1/8" RS232 Stereo Jack.

Attributes

- **Offer high accuracy and interchangeability over a wide temperature range.**
- **Higher resistance output relative to Platinum RTD's**
- **Non-polarity sensitive**

Applications

- **OEM / Industrial**
- **Light Industrial**
- **DDC Systems**

Product Specifications

Sensor Output	10K Ohms @ 77ºF (25ºC) Type III 10K Ohms @ 77ºF (25ºC) Type II 3K Ohms @ 77ºF (25ºC) 1.8K Ohms @ 77ºF (25ºC) 20K Ohms @ 77ºF (25ºC)
Accuracy (0 to 70ºC)	+/-0.2ºC (+/-0.36ºF)
Stability	+/- 0.13ºC (0.23ºF)
Operating Temperature Range	-40 to 302ºF (-40 to 150ºC)
Operating Humidity	0 to 90% RH non-condensing
Interchangeability	+/- 0.2ºC (+/-0.36ºF)
Power Dissipation Constant	3 mW / ºC
For sensors with Display option, see **LCD Series** Temp display cut sheet	

I-100KAN, I-100KCP, I-3K, I-1.8K and I-20K Thermistor Resistance - Temperature Chart

		I-10KAN	I-10KCP	I-3K	I-1.8K	I-20K
Temperature		**Resistance**				
°C	**°F**	**Ohms**	**Ohms**	**Ohms**	**Ohms**	**Ohms**
-40	**-40**	239,686.0	336,450.0	100,935.0	39,024.0	806,800.0
-35	**-31**	179,200.0	242,660.0	72,798.0	29,358.0	574,400.0
-30	**-22**	135,185.0	176,960.0	53,088.0	22,284.0	413,400.0
-25	**-13**	102,861.0	130,410.0	39,123.0	17,074.8	300,400.0
-20	**-4**	78,913.0	97,072.0	29,122.0	13,192.2	220,600.0
-15	**5**	61,020.0	72,951.0	21,885.0	10,276.2	163,500.0
-10	**14**	47,543.0	55,326.0	16,598.0	8,067.6	122,280.0
-5	**23**	37,313.0	42,326.0	12,698.0	6,382.8	92,240.0
0	**32**	29,490.0	32,650.0	9,795.0	5,085.0	70,160.0
5	**41**	23,457.0	25,391.0	7,617.0	4,078.8	53,780.0
10	**50**	18,780.0	19,899.0	5,970.0	3,294.0	41,560.0
15	**59**	15,130.0	15,711.0	4,713.0	2,676.6	32,340.0
20	**68**	12,263.0	12,492.0	3,748.0	2,188.8	25,360.0
25	**77**	10,000.0	10,000.0	3,000.0	1,800.0	20,000.0
30	**86**	8,194.0	8,057.0	2,417.0	1,488.6	15,892.0
35	**95**	6,752.0	6,531.0	1,959.0	1,237.7	12,704.0
40	**104**	5,592.0	5,326.0	1,598.0	1,034.5	10,216.0
45	**113**	4,655.0	4,368.0	1,311.0	868.9	8,264.0
50	**122**	3,893.0	3,602.0	1,081.0	733.1	6,722.0
55	**131**	3,271.0	2,986.0	895.8	621.5	5,498.0
60	**140**	2,760.0	2,488.0	746.3	529.4	4,520.0
65	**149**	2,339.0	2,083.0	624.8	452.7	3,734.0
70	**158**	1,990.0	1,752.0	525.5	388.8	3,100.0
75	**167**	1,700.0	1,479.0	443.8	335.2	2,586.0
80	**176**	1,458.0	1,255.0	376.6	290.2	2,166.0
85	**185**	1,255.0	1,070.0	320.9	252.0	1,823.0
90	**194**	1,084.0	915.4	274.6	219.8	1,540.0
95	**203**	939.3	786.6	236.0	192.2	1,306.0
100	**212**	816.8	678.6	203.6	168.7	1,113.0
105	**221**	712.6	587.6	176.3	148.4	951.0
110	**230**	623.6	510.6	153.2	131.1	815.8
115	**239**	547.3	445.2	133.6	116.1	702.2
120	**248**	481.8	389.6	116.9	103.1	606.4
125	**257**	425.3	341.9	102.6	91.9	525.6
130	**266**	376.4	301.0	90.3	82.1	456.8
135	**275**	334.0	265.8	79.7	73.5	398.4
140	**284**	297.2	235.4	70.6	66.0	348.4
145	**293**	265.1	209.0	62.7	59.4	305.6
150	**302**	237.0	186.1	55.8	53.6	268.8

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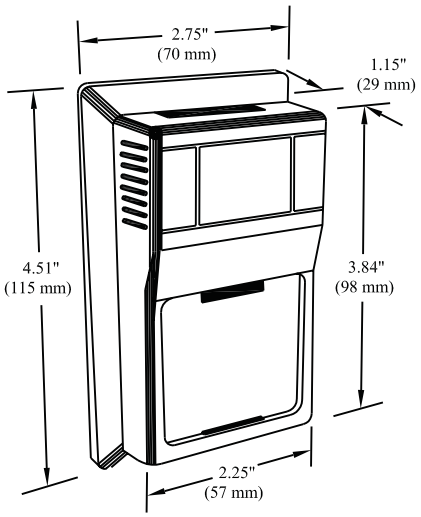
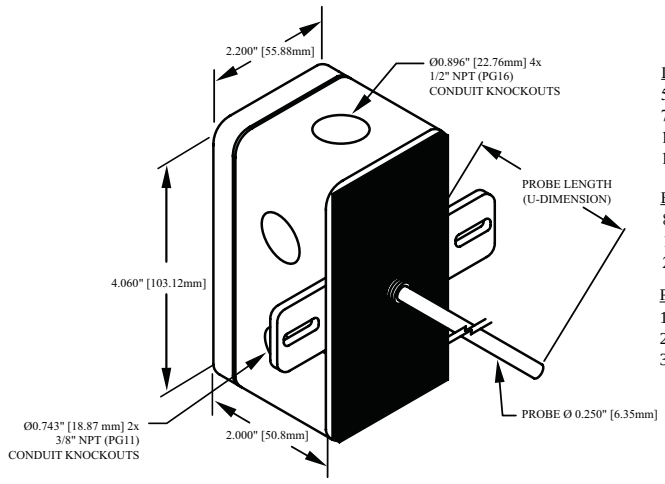
Room



Duct / Bendable & Rigid Averaging

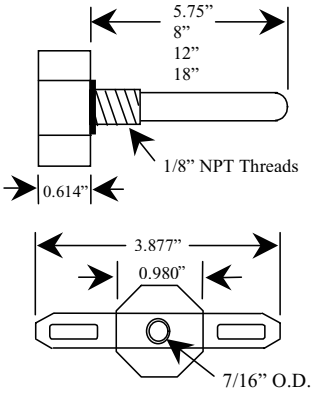


Duct Insertion (U-Dimension)
5 .5" (89 mm)
7.5" (191 mm)
11.5" (292 mm)
17.5" (445 mm)

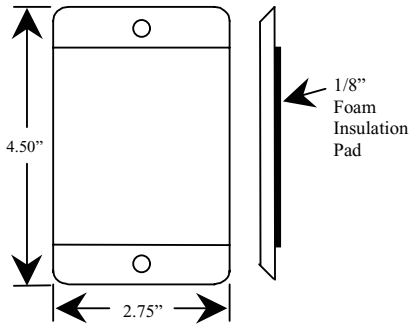
Bendable Averaging
8' (2.4 m)
12' (3.7 m)
24' (7.3 m)

Rigid Averaging
17.625" (448mm)
23.625" (600 mm)
35.625" (905mm)

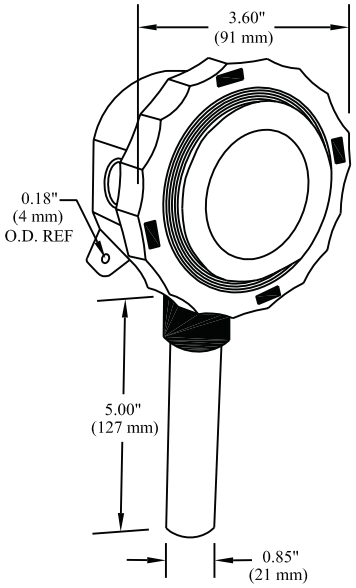
Duct without Box



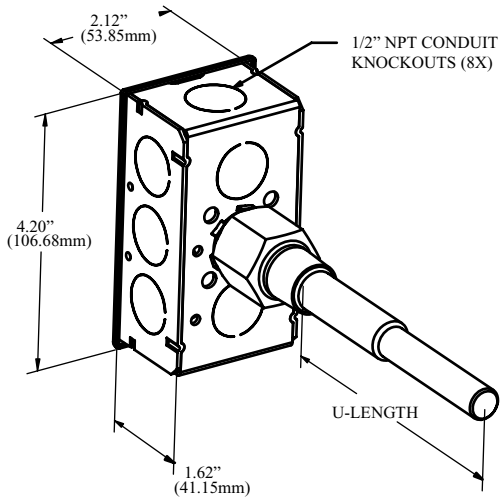
Stainless Plate



Outside Air

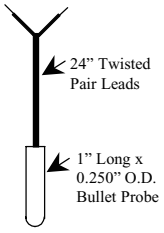


Immersion

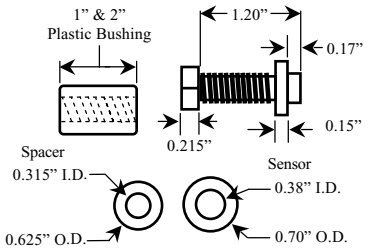


Well Insertion (U-Length)
2.50" (64 mm)
4.00" (102 mm)
6.25" (158.75 mm)

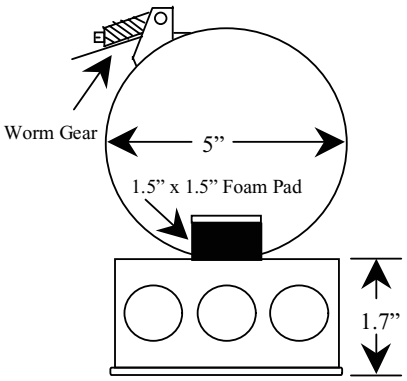
Bullet Probe



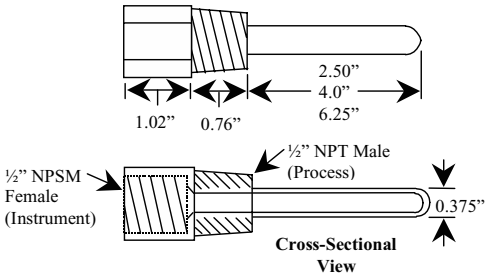
Button Sensor



Strap-On



Thermowell



Ordering Information

Sensor
I- [ ]

10KCP (Type II)
10KAN (Type III)
3K
1.8K
20K

Configuration
-[ ]

R - Room
RS - Room w/ Setpoint***
RO - Room w/ Override
RSO - Room w/ Setpoint & Override***
D - Duct 4", 8", 12", 18"
DO -Duct without box 4", 8", 12", 18"
I - Immersion 2.5", 4", 6"
A - Bendable Copper Averaging 8', 12', 24'
FA - Flexible Averaging Cable, 8', 12', 24'
RA - Rigid Averaging 18", 24", 36"
S - Strap On
O - Outdoor Air
RP - Remote Probe w/6' Leads
SP - Stainless Plate
BP - Bullet Probe
W - Raw
W-6' - Raw Sensor w/6'Leads
BBS - Brass Button Sensor
SBS - Stainless Button Sensor

Communication Jack[1]
-[ ]

J4 (4 Pin RJ11)
J6 (6 Pin RJ12)
S232 (Stereo Jack)

Display[1]
-[ ]

( ) No Display (Standard)
(L) LCD Display (Degrees F)
(LC) LCD Display (Degrees C)

Housing Type[2]
-[ ]

Add-On Options
(BB) NEMA 3R
(4X) NEMA 4X

[1]These Options are only available on IN*TEC*'s Room Configurations.

[2]Standard Housing Types:

- Plastic Housing for Duct and Averaging sensors
- Galvanized Junction Box for Immersion and Strap-On sensors

Add-on option (BB) NEMA 3R housing is not available for Strap-On sensors

RS / RSO* ** setpoint adjuster option requires additional ordering decisions for the following:

Pot Value[1]
-[ ]

400
1K
2K
3K
5K
8.5K
10K
20K
100K

Setpoint Indicator[1]
-[ ]

Cool | Warm
55 to 85
10 to 30° C

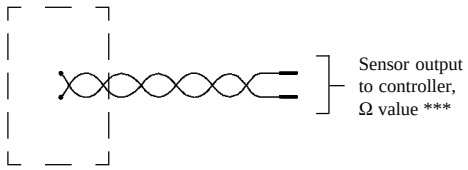
Pot Action[1]
-[ ]

DA (Direct)
RA (Reverse)

Wiring Configuration

Thermistor Temperature Sensor Types

- Duct • Immersion • Averaging
- Strap-On • Outdoor • Remote Probe
- Bullet Probe • Stainless Plate • Button Sensor



All non-room types are supplied with 22 AWG (0.34 mm^2) lead wires and can be hooked up with any crimp style or wire nut wire connectors.

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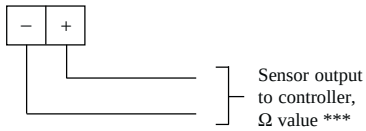
*** All sensor connections are **non-polarity** and **non-positive sensitive**.

*** It is recommended to us 18-22 AWG (0.75-0.34 mm^2) twisted pair wires or shielded cable for all sensor installations.

Thermistor Temperature Room Sensors, without any options

Terminal connector block



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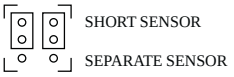
Thermistor Temperature Room Sensors with options:

- Tenant override
- Setpoint adjuster
- Communication jack

Jumper Tenant Override Selector:



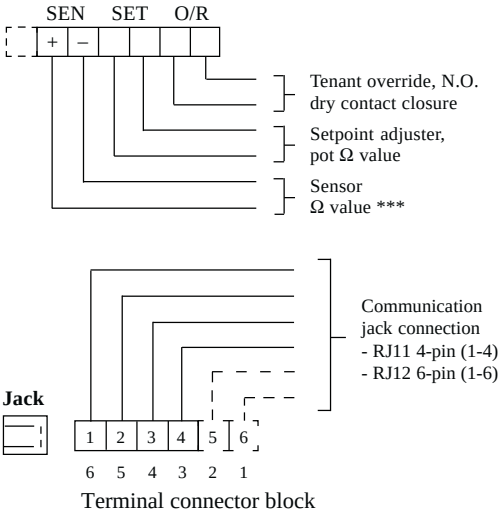
- Shorten sensor, set jumpers vertically over both top pins (Factory set)

Override push-button SW1

- Dry contact closure, set jumpers vertically over both bottom pins (requires separate wire connection to controller)

Terminal connector block

Outputs to Controller:



Terminal connector block

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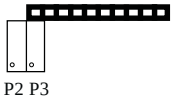
Wiring Configuration

Thermistor Temperature Room Sensor w/ LCD Display
and with options:

- Tenant override
- Setpoint adjuster

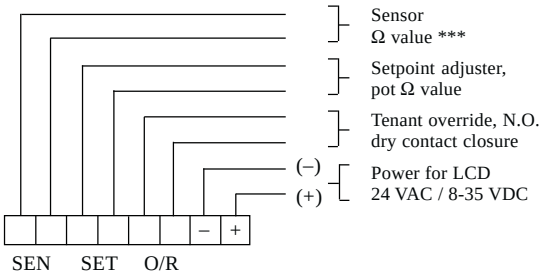
LCD display 10-pin connector



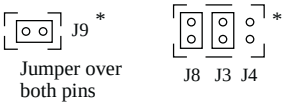
P2 = Zero offset adj.
P3 = Span adj.
(Factory calibrated)

Override push-button SW1

Outputs to Controller:



Jumper Tenant Override Selector:



* Factory set for room sensor with setpoint adjuster

- Shorten sensor with setpoint adjuster, jumpers set vertically over both J8 and J3 pins, and jumper horizontal over both J9 pins
- Shorten sensor w/o setpoint adjuster, jumpers set vertically over both J3 and J4 pins
- Dry contact closure, remove jumpers from J8, J3, J4 pins and J9 remains jumped (requires separate wire connection to controller)

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Thermistor Temperature Room Sensors w/ LCD Display
and with options:

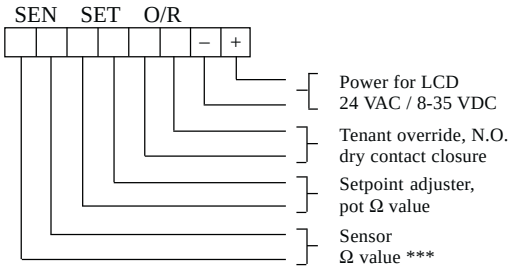
- Tenant override
- Setpoint adjuster
- Communication jack

LCD display 10-pin connector

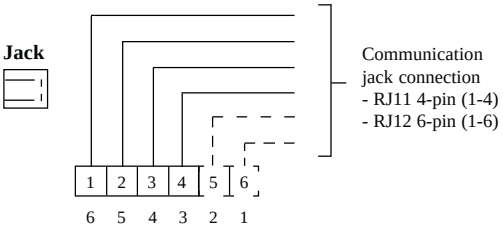
P3 = Span adj.

P2 = Zero offset adj.
(Factory calibrated)

Terminal connector block Outputs to Controller:



SW1 Override push-button



Jumper Tenant Override Selector:

- Shorten sensor set jumpers horizontally over both left pins (Factory set)
- Dry contact closure, jumpers set horizontally over both bottom pins (requires separate wire connection to controller)

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