

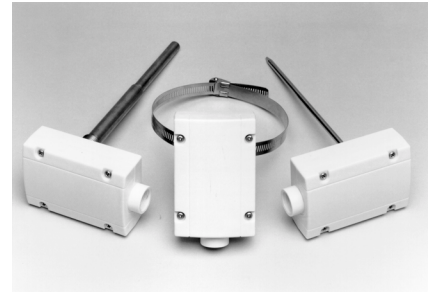
## Infinity

### Duct & Immersion Temperature Sensors

Andover Controls Duct and Immersion Temperature Sensors provide accurate measurement of air temperature and fluid as part of an Andover Controls building automation system. Both the duct and immersion sensors have a wide operating range of -30° to 230°F (-34° to 110°C), making them suitable for all types of duct, pipe and tank temperature applications.

The sensor's design completely seals the sensing element, a precision 10K thermistor, within a stainless steel tube. The tube is filled with thermal epoxy, making it immune to moisture and condensation.

The sensor's housing is a two-piece, plenum-rated plastic enclosure designed so that the sensor can be replaced without having to remove the housing. Simply take off the cover, withdraw the existing sensing element, and replace with a new sensor.



#### FEATURES

- **Accurate, Reliable Type III Thermistor**
- **Completely Encapsulated for Protection From Moisture or Condensation**
- **Easy Installation & Wiring**
- **Immersion Sensor Utilizes Nema Type 4 Design**
- **Fast & Efficient Removal of the Sensing Element—No Need to Replace the Entire Unit**
- **Brass or Stainless Steel Thermowells Available in Different Sizes**
- **Money Saving Bulk Packs**

## **DUCT SENSOR**

The duct sensor is designed for direct mounting on sheet metal duct systems. You simply secure the base to a duct using 3 standard sheet metal screws. The probe is then inserted through the hole in the base and tightened. The sensor wiring is guided into the 3/4" opening at the bottom of the base and connected to the probe using the two wire nuts included with the sensor.

Four lengths of duct sensor are available: 4", 6", 9" and 15.75" (400mm). An optional O-Ring/Gasket kit is available if the sensor is being mounted outside or in a high moisture environment. Also available is a Duct-to-Immersion Conversion kit that allows you to easily convert all or part of your duct sensor inventory for immersion applications.

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## **IMMERSION SENSOR**

The immersion sensor uses the same housing as the duct sensor, but includes a mounting bracket for securing the thermowell. In addition, the immersion sensor comes equipped with gaskets at all potential leakage points, providing a Nema 4 waterproof enclosure.

Brass or Type 304 stainless steel thermowells are available in 4" and 6" immersion lengths. They are available with either a 1/2" or 3/4" threaded NPT connection. To utilize existing Andover 1/2" or 3/4" NPT thermowells with the immersion sensor, an optional adapter is available.

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## **STRAP-ON SENSOR**

The strap-on sensor is designed for direct application to pipe surfaces for chilled or hot water measurement. It uses the same housing as both the duct and immersion sensors, but includes a strap for pipes 2 to 6 inches in diameter.

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## SPECIFICATIONS

### GENERAL

<b>Sensing Element:</b>	Type III Thermistor, 10,000 ohms @ 77°F								
<b>Range:</b>	-30° to 230°F (-34° to 110°C)								
<b>Accuracy:</b>	± .36°F from 32° to 158°F (± .2°C from 0° to 70°C) ± .90°F (± .5°C) over full range								
<b>Stability:</b>	Thermistor will not deviate from accuracy spec for minimum of 5 years								
<b>Thermal Epoxy:</b>	High resistivity epoxy filling probe's length.								
<b>Housing:</b>	Two piece Polylac, Grade PA765; Plenum-rated (UL-94-5V Flame Retardant Rating)								
<b>Wiring Connections:</b>	Wire nuts								
<b>Wire Size:</b>	22 gauge, 2 conductor, unshielded								
<b>Maximum Distance to Sensor:</b>									
<b>(with less than .1° F error)</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;"><b>Temperatures below 75°F:</b></td> <td>1550 ft. (22 gauge wire)</td> </tr> <tr> <td></td> <td>3900 ft. (18 gauge wire)</td> </tr> <tr> <td><b>Temperatures above 160°F:</b></td> <td>125 ft. (22 gauge wire)</td> </tr> <tr> <td></td> <td>310 ft. (18 gauge wire)</td> </tr> </table>	<b>Temperatures below 75°F:</b>	1550 ft. (22 gauge wire)		3900 ft. (18 gauge wire)	<b>Temperatures above 160°F:</b>	125 ft. (22 gauge wire)		310 ft. (18 gauge wire)
<b>Temperatures below 75°F:</b>	1550 ft. (22 gauge wire)								
	3900 ft. (18 gauge wire)								
<b>Temperatures above 160°F:</b>	125 ft. (22 gauge wire)								
	310 ft. (18 gauge wire)								

### DUCT SENSOR

<b>Probe Diameter:</b>	.25 " (.635 cm)
<b>Probe Lengths:</b>	4", 6", 9" and 15.75" (400 mm)
<b>Probe Material:</b>	Stainless Steel, Type 316
<b>Electrical Piping Connection:</b>	1/2" NPSM Female Thread

### IMMERSION SENSOR

<b>Thermowell Material:</b>	Brass or Type 304 Stainless Steel		
<b>Thermowell Piping Connection:</b>	1/2" or 3/4" Male NPT		
<b>Thermowell Dimensions:</b>	3/4" (1.9cm) shank diameter (3/4" NPT)		
	5/8" (1.6cm) shank diameter (1/2" NPT)		
	Overall Length	Insertion Length	
4" Sensor:	4" (10.16 cm)	2.5" (6.35 cm)	
6" Sensor:	6" (15.24 cm)	4.5" (11.43 cm)	

### STRAP-ON SENSOR

<b>Strap Length:</b>	Appropriate for 2 to 6-inch diameter pipes
<b>Probe Material:</b>	Aluminum

## ORDERING INFORMATION

### DUCT TEMPERATURE SENSORS

Duct Temperature Sensor, 4" Probe	TT-D-4-1
Duct Temperature Sensor, 6" Probe	TT-D-6-1
Duct Temperature Sensor, 9" Probe	TT-D-9-1
Duct Temperature Sensor, 15.75" Probe	TT-D-15.75-1

### IMMERSION TEMPERATURE SENSORS

Immersion Sensor, 4"	TT-I-4-1
Immersion Sensor, 6"	TT-I-6-1

### THERMOWELLS

4" Well, Brass, 1/2" NPT	W-B-4-1/2-1
6" Well, Brass, 1/2" NPT	W-B-6-1/2-1
4" Well, Brass, 3/4" NPT	W-B-4-3/4-1
6" Well, Brass, 3/4" NPT	W-B-6-3/4-1
4" Well, Stainless Steel, 1/2" NPT	W-S-4-1/2-1
6" Well, Stainless Steel, 1/2" NPT	W-S-6-1/2-1
4" Well, Stainless Steel, 3/4" NPT	W-S-4-3/4-1
6" Well, Stainless Steel, 3/4" NPT	W-S-6-3/4-1

All Duct & Immersion Sensors and Thermowells are available in Bulk Packs of 4, 12 & 16

### STRAP ON SENSOR

Strap On Sensor	TT-ST
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**TYPE III 10,000 ohm at 77°F +/- 0.36°F from 32°F**

TEMP ° F	RESISTANCE	TEMP ° F	RESISTANCE	TEMP ° F	RESISTANCE	TEMP ° F	RESISTANCE	TEMP ° F	RESISTANCE
-30	173631.00	26	34463.00	82	8948.38	138	2866.02	194	1083.680
-29	168222.00	27	33570.70	83	8753.48	139	2812.89	195	1066.400
-28	162998.00	28	32704.20	84	8563.39	140	2760.90	196	1049.440
-27	157954.00	29	31862.80	85	8377.98	141	2710.00	197	1032.800
-26	153083.00	30	31045.70	86	8197.12	142	2660.18	198	1016.460
-25	148378.00	31	30252.00	87	8020.69	143	2611.42	199	1000.420
-24	143833.00	32	29481.10	88	7548.56	144	2563.68	200	984.671
-23	139442.00	33	28732.20	89	7680.64	145	2516.94	201	969.213
-22	135200.00	34	28004.60	90	7516.78	146	2471.18	202	954.036
-21	131101.00	35	27297.70	91	7356.90	147	2426.37	203	939.136
-20	127139.00	36	26610.80	92	7200.88	148	2382.50	204	924.506
-19	123310.00	37	25943.40	93	7048.62	149	2339.54	205	910.141
-18	119609.00	38	25294.70	94	6900.01	150	2297.47	206	896.036
-17	116031.00	39	24664.20	95	6754.96	151	2256.28	207	882.184
-16	112571.00	40	24051.40	96	6613.38	152	2215.93	208	868.582
-15	109226.00	41	23455.60	97	6475.18	153	2176.41	209	855.224
-14	105992.00	42	22876.50	98	6340.25	154	2137.70	210	842.104
-13	102863.00	43	22313.40	99	6208.53	155	2099.78	211	829.219
-12	99837.30	44	21765.90	100	6079.91	156	2062.64	212	816.563
-11	96910.20	45	21233.50	101	5954.33	157	2026.25	213	804.133
-10	94078.40	46	20715.70	102	5831.70	158	1990.60	214	791.922
-9	91338.60	47	20212.20	103	5711.95	159	1955.67	215	779.928
-8	88687.30	48	19722.40	104	5594.99	160	1921.45	216	768.145
-7	86121.60	49	19245.90	105	5480.76	161	1887.92	217	756.569
-6	83638.40	50	18782.40	106	5369.19	162	1855.07	218	745.197
-5	81234.80	51	18331.50	107	5260.20	163	1822.87	219	734.024
-4	78908.00	52	17892.80	108	5153.74	164	1791.32	220	723.047
-3	76655.30	53	17465.90	109	5049.73	165	1760.39	221	712.260
-2	74474.20	54	17050.40	110	4948.11	166	1730.09	222	701.662
-1	72362.10	55	16646.10	111	4848.82	167	1700.38	223	691.247
0	70316.70	56	16252.60	112	4751.81	168	1671.26	224	681.013
1	68335.60	57	15869.60	113	4657.01	169	1642.72	225	670.956
2	66416.70	58	15496.80	114	4564.37	170	1614.74	226	661.071
3	64557.90	59	15133.80	115	4473.83	171	1587.31	227	651.357
4	62756.90	60	14780.40	116	4385.34	172	1560.42	228	641.810
5	61012.00	61	14436.40	117	4298.85	173	1534.05	229	632.426
6	59321.10	62	14101.30	118	4214.30	174	1508.20	230	623.202
7	57682.40	63	13775.10	119	4131.66	175	1452.86		
8	56094.30	64	13457.30	120	4050.86	176	1458.00		
9	54554.90	65	13147.90	121	3971.87	177	1433.63		
10	53062.60	66	12846.40	122	3894.64	178	1409.72		
11	51615.90	67	12552.80	123	3819.13	179	1386.28		
12	50213.10	68	12266.80	124	3745.29	180	1363.29		
13	48853.00	69	11988.10	125	3673.09	181	1340.74		
14	47533.90	70	11716.60	126	3602.47	182	1318.62		
15	46254.70	71	11452.00	127	3533.41	183	1296.92		
16	45013.90	72	11194.20	128	3465.86	184	1275.64		
17	43810.30	73	10943.00	129	3399.79	185	1254.76		
18	42642.60	74	10698.10	130	3335.17	186	1234.28		
19	41509.80	75	10459.40	131	3271.95	187	1214.18		
20	40410.50	76	10226.80	132	3210.10	188	1194.46		
21	39343.90	77	10000.00	133	3149.59	189	1175.12		
22	38308.70	78	9778.91	134	3090.38	190	1156.14		
23	37304.00	79	9563.35	135	3032.46	191	1137.51		
24	36328.80	80	9353.18	136	2974.77	192	1119.23		
25	35382.10	81	9148.24	137	2920.30	193	1101.29		

## ORDERING INFORMATION

### ACCESSORIES

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Duct-to-Immersion	TT-CONVRSN-KIT
Conversion Kit:	
Well Adapter Kit:	Stainless Steel: W-ADAPTER-SS Brass: W-ADAPTER-B
Replacement Sensor:	4": TT-RPLC-4 6": TT-RPLC-6 9": TT-RPLC-9 15.75": TT-RPLC-15.75
O-Ring/Gasket Kit:	TT-O-RING-KIT

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