

TSPOT® Flush Mount Temperature Sensor

ATS2010K

FEATURES

- **±2% Accurate 10K Thermistor Sensing Element**
- **Wide Measurement Range of -35°F to +240°F**
- **1" Diameter, Flush Paintable Probe**
- **Snaps Flush Into ¾" Hole in Drywall or Wood**
- **Two 24 AWG Pigtail Leads**
- **Includes Insulated Wire Splice Connectors**

APPLICATIONS

- **Indoor Temperature Measurement**
- **Outdoor Temperature Measurement**
- **Zoning**
- **HVAC Monitoring and Control**
- **Energy Conservation**
- **Window Covering Control**

DESCRIPTION

The ATS2010K TSPOT (pronounced "tee-spot") is a rugged temperature sensor that permits inconspicuous operation both indoors and out. Its compressible nylon collar allows it to snap easily into a ¾" diameter hole placed in either drywall or wood. Small size, rugged construction and pigtailed wire connections afford easy installation. The unobtrusive styling, high reliability and exceptional accuracy of the ATS2010K make it a logical choice for many HVAC control and home automation projects.

An installed ATS2010K appears as a low profile, one-inch diameter disk that may be painted to match any decor. Two Teflon insulated 24 AWG, stranded wires allow easy hookup with a compatible home automation controller or data acquisition system. These wires have bared (pigtailed) ends and are not polarized.

The ATS2010K is a low voltage device and should be adequately isolated from high voltage (110/220 VAC) wiring or devices. Please observe your local electrical code when installing low voltage devices.

The ATS2010K contains a thermal probe in the form of a solid aluminum disk that is one inch in diameter by 0.080" (80 thousandths) thick. The probe is attached to a special nylon housing that places a compressible nylon collar against the rear rim of the probe. The length of the housing referenced to the back of the probe is about 0.5" and the compressible collar acts to hold the ATS2010K in place without the use of adhesive when mounting in walls made of sheet rock or wood paneling. Within the nylon housing, a thermistor temperature sensor is thermally bonded to the rear of the aluminum probe and then fully encapsulated in a special epoxy designed to insulate and protect the sensor as well as to relieve strain on the two hookup wires.



ATS2010K – Uninstalled View

SPECIFICATIONS

Sensing Element	10K NTC Thermistor
Accuracy	+/- 0.36°F (+32°F to +158°F)
Temperature Range	-35°F to +240°F
Connection	Two 4", 24 AWG pigtails, Solder or Butt Splice
Mounting	Snaps flush into drywall or wood
Color	Paintable flush probe

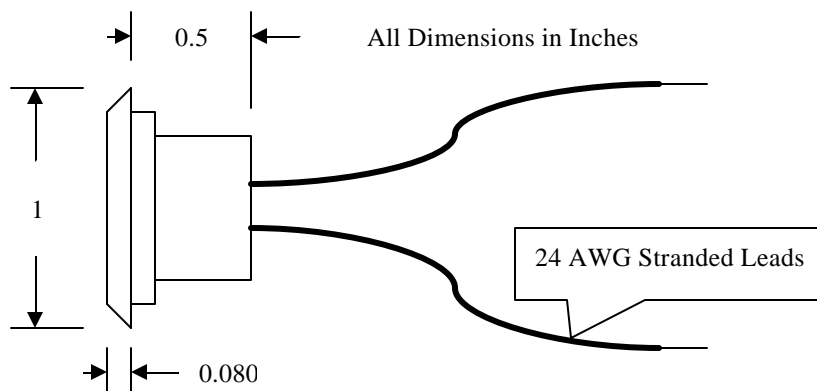
THERMISTOR CHARACTERISTICS

The ATS2010K contains a NTC thermistor temperature sensing element, which provides a nominal resistance value of 10,000 Ohms (i.e. 10K Ohms) at 77°F. "NTC" stands for "negative temperature coefficient", which means that the thermistor's resistance value will increase as the temperature falls and decrease as the temperature rises. The thermistor accuracy is +/- 0.36°F from +32°F to +158°F. The following table describes the nominal value at 5°F steps in the temperature range of -35°F to +240°F.

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10K-OHM THERMISTOR TEMPERATURE VS. RESISTANCE TABLE

TEMP (°F)	RESISTANCE (OHMS)	TEMP (°F)	RESISTANCE (OHMS)	TEMP (°F)	RESISTANCE (OHMS)
-35	203,600	+60	14,780	+155	2,098
-30	173,600	+65	13,150	+160	1,920
-25	148,300	+70	11,720	+165	1,759
-20	127,100	+75	10,460	+170	1,614
-15	109,200	+80	9,354	+175	1,482
-10	94,070	+85	8,378	+180	1,362
-5	81,230	+90	7,516	+185	1,254
0	70,320	+95	6,754	+190	1,156
+5	61,020	+100	6,078	+195	1,066
+10	53,070	+105	5,479	+200	984.0
+15	46,270	+110	4,947	+205	909.8
+20	40,420	+115	4,472	+210	841.9
+25	35,390	+120	4,049	+215	779.8
+30	31,060	+125	3,671	+220	723.0
+35	27,310	+130	3,333	+225	671.0
+40	24,060	+135	3,031	+230	623.3
+45	21,240	+140	2,759	+235	579.5
+50	18,790	+145	2,515	+240	539.4
+55	16,650	+150	2,296		



ATS2010K INSTALLATION INSTRUCTIONS

1. Locate an appropriate site to install the ATS2000A and drill a 3/4" diameter hole. For HVAC control, it is not recommended to install an ATS2000A where it may be exposed to temperature extremes such as in direct sunlight or near an air duct.
2. Run cable containing at least two individually insulated wires between the ATS2010K location and a controller or data acquisition system location. Shielded cable is recommended.
3. At the ATS2010K location, strip about 3/16" of insulation from the ends of the cable wires, and then connect each wire to one of the ATS2010K wires using the supplied wire nuts or other appropriate connection device.
4. At the controller location, strip about 3/16" of insulation from the ends of the cable wires, and then connect. Note that the controller manufacturer may require that the controller be powered OFF before connecting or disconnecting wires.
5. Connect the cable shield, if any, to earth ground or alternately to the power supply common terminal.
6. Carefully press fit the ATS2010K into the predrilled 3/4" hole.

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