

## TEMPPLATE® Decora Temperature Sensor

## ATP1000

### FEATURES

- Analog Fahrenheit Temperature Sensor
- 1 Analog Output Scaled at +10mV/°F
- Wide Measurement Range of +32°F to +212°F
- Typical Accuracy is ±1.2°F at +77°F
- Mounts into a Standard J-Box or Mud Ring
- Screw-Down Terminal Block Connector
- Includes Hardware, Trim Plate & Termination Filter
- White Standard, Other Colors Available

### APPLICATIONS

- Zoning / Damper Control
- Indoor Temperature Measurement
- HVAC Monitoring and Control
- Energy Conservation
- Window Covering Control

### DESCRIPTION

The ATP1000 is an elegant, inexpensive, temperature sensing wall plate designed to monitor ambient indoor temperature. The attractive Decora styling, sturdy construction, high reliability and high accuracy of the ATP1000 make it a logical choice for HVAC control and home automation projects.

The ATP1000 contains a strategically positioned, low profile temperature probe. Labeled screw-down wire connections afford easy installation. Special insulation is located behind the sensor.

Operation of the ATP1000 is extremely simple. Just connect a regulated power supply voltage between +5Vdc and +30Vdc to the +V terminal with the supply common connected to the GND terminal. Once powered, the ATP1000 produces a linearly scaled analog signal proportional to temperature on the OUT terminal, referenced to the GND terminal.

The signal present on the OUT terminal is a voltage between zero and +5V that is proportional to temperature. This signal may be conveyed by more than 1000 feet of wire to the input of a compatible home automation controller or data acquisition system. An electronic filter is provided to help maintain signal accuracy as required. The filter should be placed between the output signal and ground near the home automation controller or data acquisition system.

Cable containing at least three 24AWG or larger conductors may be used to connect the ATP1000 to a controller. Shielded cable is recommended for long runs or electrically “noisy” environments. Connect the cable shield to ground (power supply common) near the home automation controller or data acquisition system only.



ATP1000 – Front & Rear Views

The ATP1000 is a low voltage device and should not occupy a junction box also containing high voltage (110/220 Vac) wiring or devices. Please observe your local electrical code when installing low voltage devices.

### ANALOG OUTPUT

The signal available on the OUT terminal of the ATP1000 provides a direct reading of temperature using a common digital voltmeter. For example, a temperature reading of 75.3°F produces an analog signal of (0.010V/°F x 75.3°F) = 0.753V. By simply moving the decimal point two places to the right (i.e. multiplying by 100) the proper value of 75.3°F may be derived.

### TECHNICAL SPECIFICATIONS

The ATP1000 interconnect is defined in the following table:

**ATP1000 CONNECTOR:** Three-position screw-down type

Terminal#	Signal	I/O	Description
1	+V	I	Voltage wrt the GND terminal
2	OUT	O	Temperature Signal Output
3	GND	I	Ground (Power Supply Common)

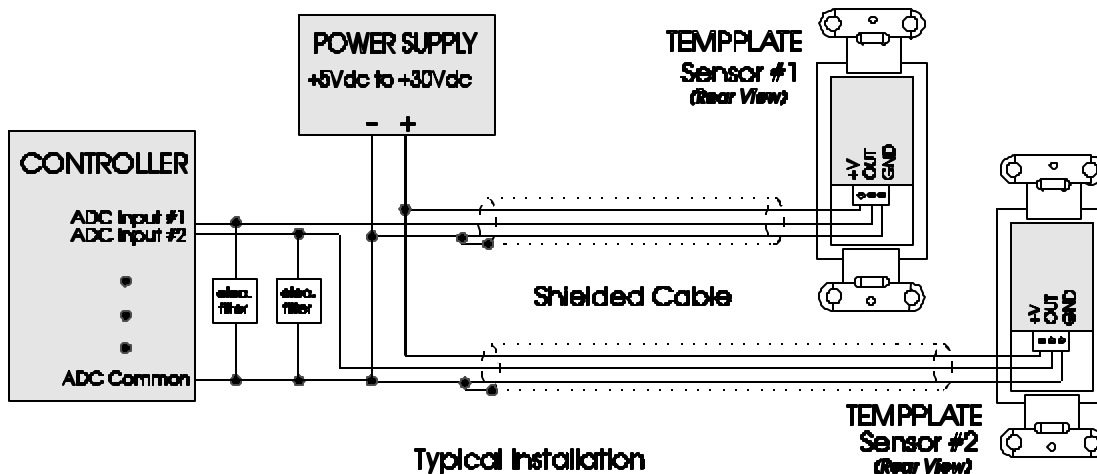
# Automated Environmental Systems, LLC

## ATP1000 TECHNICAL SPECIFICATIONS:

PARAMETERS	MINIMUM	TYPICAL	MAXIMUM
Temperature Measurement Range	0 °F		+212.0 °F
Accuracy	±3.0 °F	±1.2 °F (@77°F)	
Output Signal Range (+10.0 mV/°F Scale Factor)	0 Vdc		+2.120 Vdc
Recommended Operating Temperature Range	+32.0 °F		+212.0 °F
Operating Voltage Range	+5.0 Vdc	+12.0 Vdc	+30.0 Vdc
Operating Current		+0.2 mAdc	+0.3 mAdc

## SUGGESTED INSTALLATION INSTRUCTIONS

1. Choose a shielded cable containing at least three individually insulated 24AWG to 22AWG wires. (A shielded cable with two individually insulated wires may be used with the shield used to connect GND from the ATP1000 to the controller).
2. Identify which wires will be individually connected to the +V, GND and OUT terminals of the ATP1000 terminal block. It is recommended to use the color red for +V (power), black for GND (ground) and white for OUT (temperature signal) where practical.
3. Strip about a ¼” of insulation from the ends of the three selected wires on each end of the cable. Verify that the bare ends of the individual wires are separated and are not touching each other, or anything else conductive, on either end of the cable.
4. On the *controller end* of the cable, set up a direct current power supply, using a voltmeter, to provide between +5Vdc and +30Vdc.
5. Turn OFF the power supply, then connect the power supply to the cable observing the predefined color code.
6. Turn ON the power supply.
7. On the *sensor end* of the cable, use a voltmeter to verify that the proper dc voltage appears between predefined wire colors.
8. Turn OFF the power supply.
9. On the *sensor end* of the cable, connect each wire of the cable to its corresponding label on the ATP1000 terminal block.
10. Turn ON the power supply.
11. On the *controller end* of the cable, use a voltmeter to measure the voltage between the OUT wire and the GND wire. Verify that the measured voltage is within the zero to +5Vdc range.
12. Turn OFF the power supply.
13. On the *controller end* of the cable, connect the OUT wire to the ADC (analog-to-digital converter) input of the controller. Connect the GND wire, shield and power supply common (negative terminal) to the ADC common of the controller. At this time you may also connect the termination filter, supplied with the ATP1000, between the OUT wire and the GND wire. The termination filter is not polarized, so either end can be connected to either wire.
14. Install the ATP1000 in its junction box or mud ring then install the wall plate.



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