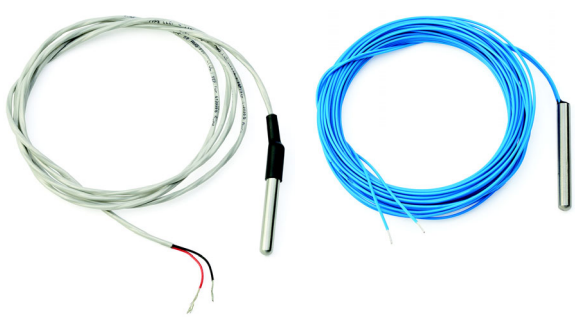
Honeywell

SP3000, PT3000 Sensors

PRODUCT DATA



APPLICATION

The SP3000 Temperature Sensors are for use with electronic controllers where linear PTC sensors are required (T7075, Series 1000, W7100, W7600, W7620, R7380J,L) in immersion or strap-mounted discharge applications.

FEATURES

- **Requires no settings or calibration.**
- **Platinum positive temperature coefficient (PTC) sensing element.**
- **Resistance range is 2900 to 4400 ohms.**
- **Suitable for mounting in immersion well.**
- **Can be strapmounted to discharge pipe of boiler or chiller.**

SPECIFICATIONS

IMPORTANT:

The specifications given in this publication do not include normal manufacturing tolerances. Therefore, an individual unit may not exactly match the listed specifications. Also, this product is tested and calibrated under closely controlled conditions and some minor differences in performance can be expected if those conditions are changed.

ELECTRICAL RATING: 30 Vac maximum.

TEMPERATURE SENSOR RESISTANCE:
(see Fig. 3)

Temperature °C	-10	0	10	20	30	40
Temperature °F	14	32	50	68	86	104
Resistance in ohms—SP3000	3,178	3,266	3,353	3,440	3,527	3,613

SENSING ACCURACY: +/-2° F [1.1° C].

AMBIENT TEMPERATURE RANGES:

Operating and Shipping:
For SP3000-2 and SP3000-15: -40 to +302° F (-40 to +150° C)
For SP3000-WR: -40 to +248° F (-40 to +120° C)

DIMENSIONS: See Fig. 1 and 2.

TABLE A	
ITEM NUMBER	LEAD LENGTH INCHES (MM)
SP3000-2	24 (610)
SP3000-15	180 (4572)

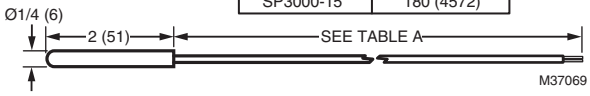


Fig. 1. Approximate dimensions of SP3000-2 and SP3000-15 Encapsulated Temperature Sensor in in. (mm).

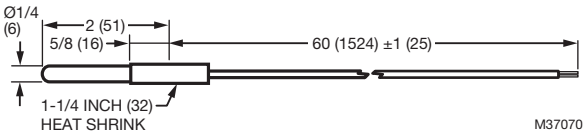


Fig. 2. Approximate dimensions of SP3000-WR Encapsulated Temperature Sensor in. (mm).

31-00132-02

INSTALLATION

When Installing This Product...

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.

⚠ CAUTION

Disconnect power supply before making wiring connections to prevent electrical shock or equipment damage.

Location and Mounting

The SP3000 Encapsulated Temperature Sensor can be installed by strapping the sensor to the outside of a boiler or chiller output pipe, or by placing the sensor in the fluid of a boiler or chiller using an immersion well. Instructions for both types of installations follow.

Strapping The SP3000 To A Boiler Or Chiller Output Pipe

Some applications require that the sensor be strapped to the outside of a pipe. Strap-on mounting avoids the need for an immersion well and pipe fittings, and also eliminates the system draining, refilling, and bleeding necessary to install the immersion well.

External mounting of the sensor produces a slight offset in the temperature control point. The control temperature could be increased up to 5° F [2.8° C] with a bare sensor strapped to the discharge pipe. Use a heat conductive compound and apply insulation around the SP3000 and pipe to decrease the temperature offset. Obtain any necessary straps, clamps and insulation locally.

The sensor bulb should be located at a point on the discharge pipe approximately 3 ft [1 m] from the boiler or chiller.

1. Remove any insulation on the pipe, leaving about 6 in. [15 cm] of the pipe exposed. With care, most insulating materials may be able to be reused to cover the sensor when the installation is complete.
2. Clean the pipe surface for good sensor-to-pipe contact. Apply heat conductive compound to the pipe at the selected location.
3. Press the sensor bulb into the heat conductive compound and fasten to the discharge pipe with 105900 Pipe Clamp, duct hanger wire or with metal hose clamps.

IMPORTANT:

Erratic temperature readings from a sensor can be caused by the wiring practices described below. These must be avoided to assure proper operation. Use shielded cable to reduce interference if rerouting of sensor wiring is not possible.

1. *Do not route temperature sensor wiring with building power wiring, next to control contactors or near light dimming circuits, electric motors or welding equipment.*
2. *Avoid poor wiring connections.*
3. *Avoid intermittent or missing building earth ground. Do not mount sensor in incorrect environment.*

Resistance in the SP3000 Sensor wiring positively offsets the temperature sensed by 1 degree F for every 4.8 ohms [8.6 ohms/°C] of resistance. Use larger gauge wire when longer lengths are necessary.

OPERATION AND CHECKOUT

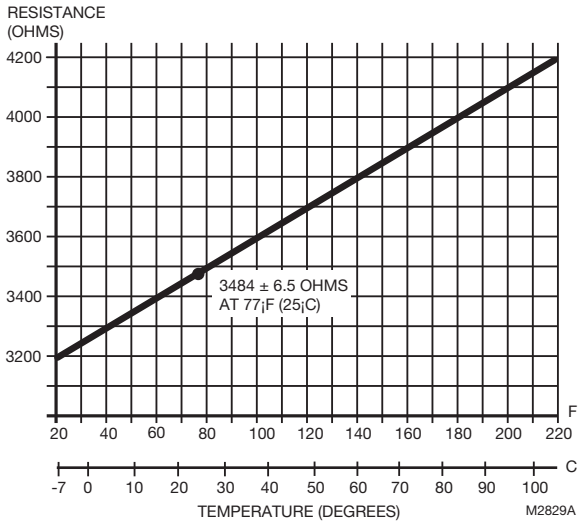


Fig. 3. SP3000 temperature/resistance curve.

Home and Building Technologies

In the U.S.:

Honeywell

715 Peachtree Street NE

Atlanta, GA 30308

customer.honeywell.com

Honeywell

31-00132—02 M.S. Rev. 04-20
Printed in United States