PERFECT CLIMATE
COMFORT CENTER™

TRADELINE®

C7089A Outdoor Sensor

INSTALLATION INSTRUCTIONS

APPLICATION

The C7089 Outdoor Sensor is used with the PC8900 Perfect Climate Comfort Center™ Control System and the W8900 Remote Module. It senses the outdoor temperature for display on the PC8900 at the touch of a key. The sensor is encapsulated to protect against water and contaminants, and includes 60 in. leadwires.

SPECIFICATIONS

Operating Ambient Temperature Range:
-40 to 128°F (-40 to 53°C)

Operating Relative Humidity:
5% to 95% noncondensing

Dimensions in inches (millimeters):
2-1/4 (57) x 3/8 (10) with 60 (1524) leadwires

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 connecting wiring to prevent electrical shock or equipment damage.

Location and Mounting (Fig. 1)

Mount the sensor where:

- setting can not be tampered with.
- there is good air circulation.
- it can measure the true outdoor ambient temperature.
- surface is flat.
- the wire distance between the C7089 and W8900 is less than 200 feet.

Do *not* mount the sensor:

- in the direct sunlight.
- where hot or cold air blows on the sensor. Discharge line from an outdoor compressor unit, vent or fan will cause inaccurate temperature readings.
- where snow, ice or debris can cover it.

Use the following steps to mount the sensor:

1. Remove the sensor from the mounting clip.
2. Mark the area on the surface where the C7089 mounting clip will be mounted.
3. Mount the clip.

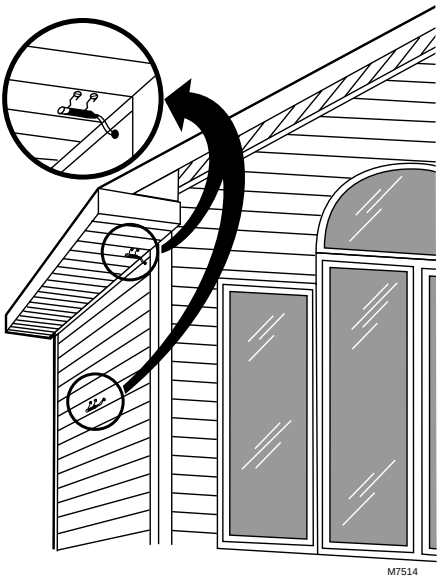


Fig. 1. Typical locations for outdoor sensor.

Wiring

CAUTION

Keep wiring at least one foot away from large inductive loads such as motors, line starters, lightning ballasts, and large power distribution panels. Failure to follow these wiring practices can introduce electrical interference (noise), which can cause erratic system operation. Use shielded cable to reduce interference when rerouting is not possible. Ground the shielded cable to the GND terminal on the W8900.

IMPORTANT

Erratic temperature readings from a sensor can occur as a result of any of the wiring practices described below. These practices must be avoided to assure proper operation. Use shielded cable to reduce interference when rerouting of sensor wiring is not possible.

a. Do not route temperature sensor wiring with building power wiring, next to control contactors or near light dimming circuits, electric motors or welding equipment.

b. Avoid poor wiring connections.

c. Avoid intermittent or missing building earth ground.

CAUTION

Disconnect the power supply before connecting the wiring to prevent electrical shock or equipment damage.

Wiring must comply with applicable codes, ordinances and regulations.

1. Wire the C7089 Outdoor Sensor to the terminals marked OUT on the W8900 Remote Module. If the leadwire provided with the C7089 is not long enough, run cable to a hole at the selected C7089 location. Color-coded, 18-gauge thermostat wire is recommended. For an example of general wiring of the C7089, see Fig. 2. Pigtail wiring can be used.
2. Mount the C7089 in its mounting clip.
3. Plug wiring hole using nonhardening caulk or putty.

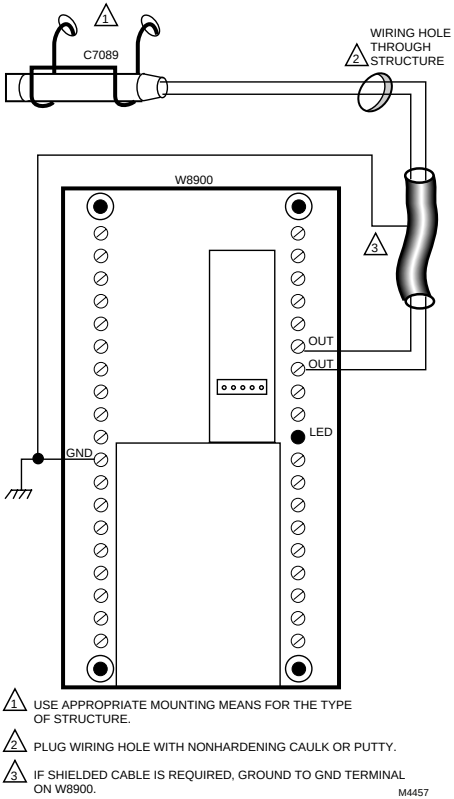
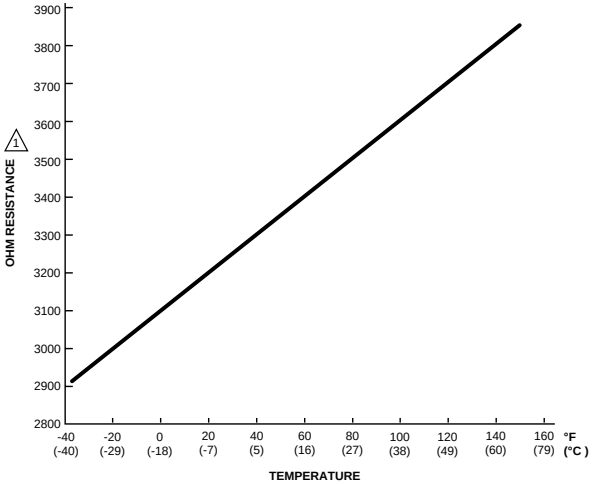


Fig. 2. Wiring diagram for the C7089 Outdoor Sensor to the W8900 Remote Module.

OPERATION

The C7089 Outdoor Sensor converts outdoor ambient temperature to a resistance that the W8900 Remote Module can interpret. The W8900 Remote Module in turn sends a signal to the PC8900 where the outdoor temperature is displayed when the CHECK key is pressed. The C7089 has a positive temperature coefficient (PTC), which means that the resistance increases as the temperature increases. Fig. 3 shows the resistance characteristics of the C7089 Sensor.



1 RESISTANCE INCREASES 4.84 OHMS PER 1°F CHANGE OR 8.7 OHMS PER 1°C CHANGE.

M6358

OUTDOOR TEMPERATURE		OHMS OF RESISTANCE
°F	°C	
-40	-40.0	2929 to 2905
-35	-37.2	2953 to 2929
-30	-34.4	2978 to 2953
-25	-31.7	3002 to 2978
-20	-28.9	3026 to 3002
-15	-26.1	3050 to 3026
-10	-23.3	3074 to 3050
-5	-20.6	3099 to 3074
0	-17.8	3123 to 3099
5	-15.0	3147 to 3123
10	-12.2	3171 to 3147
15	-9.4	3195 to 3171
20	-6.7	3220 to 3195
25	-3.9	3244 to 3220
30	-1.1	3268 to 3244
35	1.7	3292 to 3268
40	4.4	3316 to 3292
45	7.2	3341 to 3316
50	10.0	3365 to 3341
55	12.8	3389 to 3365
60	15.6	3413 to 3389
65	18.3	3437 to 3413
70	21.1	3462 to 3437
75	23.9	3486 to 3462
80	26.7	3510 to 3486
85	29.4	3534 to 3510
90	32.2	3558 to 3534
95	35.0	3583 to 3558
100	37.8	3607 to 3582
105	40.6	3631 to 3607
110	43.3	3655 to 3631
115	46.1	3679 to 3655
120	48.9	3703 to 3679
120	51.7	3728 to 3703
130	54.4	3752 to 3728
135	57.2	3776 to 3752
140	60.0	3800 to 3776
145	62.8	3824 to 3800
150	65.6	3849 to 3824

Fig. 3. C7089A sensor resistance vs. temperature performance characteristics.

CHECKOUT

Allow the C7089 Outdoor Sensor to soak in the outdoor air for a minimum of five minutes before taking a reading.

With an accurate thermometer (±1°F [0.5°C]), measure the temperature at the sensor location, allowing time for the thermometer to stabilize before reading. Press the CHECK key on the PC8900 until the display shows OUT followed by the temperature reading. See Fig. 4. The PC8900 reading should match the reading taken outdoors.

To verify the resistance of the sensor, remove one wire from one of the C7089 wiring terminals. Use an ohmmeter to measure the resistance across the sensor. Then verify sensor accuracy with the temperature/resistance curve of Fig. 3.

CALIBRATION

The C7089 Outdoor Sensor is calibrated in the factory and cannot be recalibrated in the field.

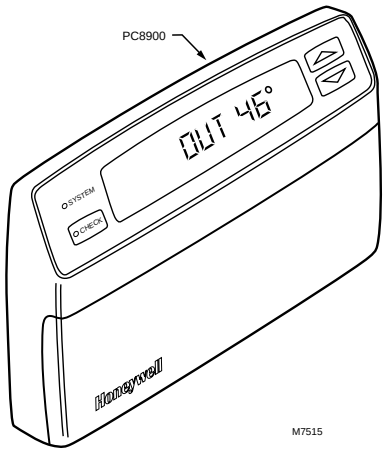


Fig. 4. Outdoor temperature display on the PC8900.

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