

OPERATION

Make sure to configure the thermostat or compatible device for a 10K Ohm wired outdoor sensor. Installer setup options vary according to thermostat/device model.

The C7089U Outdoor Sensor converts outdoor ambient temperature to a resistance that the thermostat can interpret.

The C7089U has a negative temperature coefficient (TC), which means that resistance decreases as the temperature increases. See Table 1.

CHECKOUT

Allow C7089U Outdoor Sensor to absorb outdoor air for a minimum of twenty minutes before taking a reading.

With an accurate thermometer ($\pm 1\text{ }^{\circ}\text{F}$ [$0.5\text{ }^{\circ}\text{C}$]) measure the temperature at the sensor location, allowing time for the thermometer to stabilize before reading.

To verify sensor resistance, remove one wire from one of the C7089U 60-in. leadwires. Use an ohmmeter to measure the resistance across the sensor. Then verify the sensor accuracy with the temperature/resistance in Table 1.

CALIBRATION

The C7089U Outdoor Sensor is calibrated at the factory and cannot be recalibrated in the field.

Table 1. Sensor Resistance at Outdoor Temperature .

Outdoor Temperature		Ohms of Resistance
$^{\circ}\text{F}$	$^{\circ}\text{C}$	
-40	-40	195652
-38.2	-39	184917
-36.4	-38	174845
-34.6	-37	165391
-32.8	-36	156512
-31	-35	148171
-29.2	-34	140330
-27.4	-33	132957
-25.6	-32	126021
-23.8	-31	119493
-22	-30	113347
-20	-28.9	106926
-18	-27.8	100923
-16	-26.7	95310
-14	-25.6	90058
-12	-24.4	85124
-10	-23.3	80485
-8	-22.2	76137
-6	-21.1	72060
-4	-20.0	68237
-2	-18.9	64631
0	-17.8	61246
2	-16.7	58066
4	-15.6	55077
6	-14.4	53358
8	-13.3	49598
10	-12.2	47092
12	-11.1	44732
14	-10.0	42506
16	-8.9	40394
18	-7.8	38400
20	-6.7	36519
22	-5.6	34743
24	-4.4	33063
26	-3.3	31475
28	-2.2	29975
30	-1.1	28558
32	0.0	27219
34	1.1	25949
36	2.2	24749
38	3.3	23613
40	4.4	22537
42	5.6	21516

Table 1. Sensor Resistance
at Outdoor Temperature (Continued).

Outdoor Temperature		Ohms of Resistance
°F	°C	
44	6.7	20546
46	7.8	19626
48	8.9	18754
50	10.0	17926
52	11.1	17136
54	12.2	16387
56	13.3	15675
58	14.4	14999
60	15.6	14356
62	16.7	13743
64	17.8	13161
66	18.9	12607
68	20.0	12081
70	21.1	11578
72	22.2	11100
74	23.3	10644
76	24.4	10210
78	25.6	9795
80	26.7	9398
82	27.8	9020
84	28.9	8659
86	30.0	8315
88	31.1	7986

Table 1. Sensor Resistance
at Outdoor Temperature (Continued).

Outdoor Temperature		Ohms of Resistance
°F	°C	
90	32.2	7672
92	33.3	7372
94	34.4	7086
96	35.6	6813
98	36.7	6551
100	37.8	6301
102	38.9	6062
104	40.0	5834
106	41.1	5614
108	42.2	5404
110	43.3	5203
112	44.4	5010
114	45.6	4826
116	46.7	4649
118	47.8	4479
120	48.9	4317
122	50	4160
123.8	51	4026
125.6	52	3896
127.4	53	3771

Home and Building Technologies

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