PYTHIA TECHNOLOGIES

TEMPERATURE SENSOR · TS1

The room temperature behind every staging decision.

The TS1 is a wall-mount room sensor with a Type II 10K thermistor, the sensor the Smart Panel AC4 uses to stage cooling units up and down. One comes with every SPAC4. It wires with two conductors and needs no power.



10K Type II

NTC thermistor: 10,000 Ω at 77 °F (25 °C), the curve the SPAC4 and SPDM expect

±0.4 °F

accuracy at 77 °F (±0.22 °C at 25 °C)

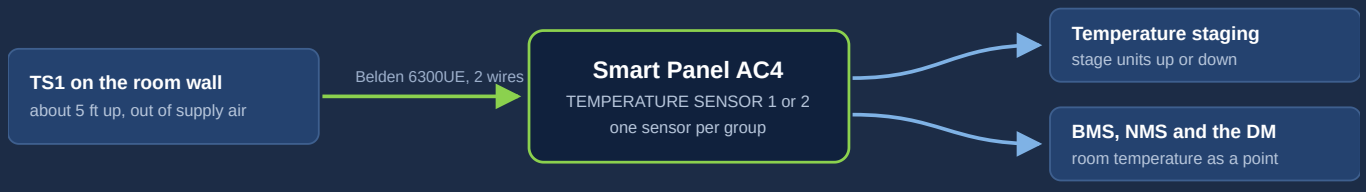
2 wires

non-polarized, no power supply, on the same Belden 6300UE as the rest of the panel

Included

one TS1 ships with every Smart Panel AC4; spares and second-group sensors available

HOW IT CONNECTS



Matched to the panel

Type II 10K, the sensor type the SPAC4 and SPDM inputs read.

No power needed

A thermistor: two conductors, either way round.

Low profile

ABS housing on a universal wall mounting plate.

Easy to check

Measure it with a meter and compare with the table on page 2.

INSTALLATION

Mount it where the room really is.

The SPAC4 stages on what the TS1 reads, so its location matters more than anything else in the install.

Where to mount

An interior wall in the room the units cool, about 5 ft (1.5 m) up. Out of supply air and sunlight, away from doors, lights and equipment exhaust.

Wiring

Belden 6300UE to **TEMPERATURE SENSOR 1** or **2**, on the **two lower screws**. Either lead to either screw. Shield grounded at the panel only.

SPAC4 setup

Set the group's **Staging Sensor** to **Type II 10K**, °F or °C. A group without its own sensor can use the other group's (**Sensor Source**).

Two groups

One TS1 is included, normally for Group 1. Order a second TS1 to give Group 2 its own sensor in its own area.

Keep it quiet

Run sensor cable away from power wiring and out of line-voltage conduit. Never apply voltage to a sensor input.

Check it

Disconnect the leads at the panel, measure the resistance and compare it with the table below at room temperature.

SPECIFICATIONS AND RESISTANCE TABLE

SENSOR	
Element	NTC thermistor, 10K Type II (10,000 Ω at 77 °F / 25 °C)
Accuracy	±0.4 °F at 77 °F (±0.22 °C at 25 °C)
Output	Resistance; two wires, non-polarized; no power
Leads	Two, red and green
PHYSICAL	
Housing	ABS plastic, low-profile wall mount, NEMA 1 (indoor)
Size	4.50 × 2.80 × 1.09 in (114 × 71 × 28 mm), H × W × D
Weight	0.3 lb (136 g)
Operating	−40 to 140 °F (−40 to 60 °C)
USE	
Works with	SPAC4 Temperature Sensor 1 and 2; SPDM Sensor 1 and 2; any Type II 10K input
Cable	Belden 6300UE (shielded)
Included	One with each Smart Panel AC4
Warranty	1 year

°F	°C	Ohms	°F	°C	Ohms
32.0	0	32,650	77.0	25	10,000
41.0	5	25,392	78.8	26	9,572
50.0	10	19,901	80.6	27	9,165
59.0	15	15,712	82.4	28	8,777
64.4	18	13,681	86.0	30	8,057
68.0	20	12,493	89.6	32	7,402
69.8	21	11,942	95.0	35	6,531
71.6	22	11,419	104.0	40	5,326
73.4	23	10,922	113.0	45	4,368
75.2	24	10,450	122.0	50	3,602

Type II 10K curve. Resistance falls as temperature rises.

Not detected or very low

Open circuit: loose screw, broken conductor or leads on the upper screws.

Very high reading

Short circuit: conductors touching or a nicked cable. The meter reads near 0 Ω.

A few degrees off

Location: supply air, sunlight or a heat source. Compare with a thermometer.

Jumps around

Noise: cable next to power wiring, or the shield grounded at both ends.

Need a spare or a second-group sensor?

Order TS1 sensors with your SPAC4 or any time after.

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