GE
Sensing

Features

- Telaire's patented Absorption Infrared™ CO_2 gas sensor provides high accuracy in a compact low cost package
- Patented Automatic Background Calibration (ABC) Logic™ CO_2 sensor self-calibration system eliminates the need for manual calibration in most applications (see ABC Logic section)
- 15 years of Telaire experience and reliability built-in
- Gold-plated optical CO_2 sensor increases sensor life and durability
- 10k Ω thermistor provides accurate space temperature measurement
- Slide potentiometer (5031 model only) adjusts the temperature setpoint during occupied periods
- Push button allows for overriding the night setback feature during unoccupied periods
- Attractive low profile case suits your building decor
- Removable terminal blocks provide quick, easy wiring. Compatible with standard US and European junction boxes
- Gas permeable, water resistant diffusion filter prevents particulate and water contamination of the sensor
- Dual analog outputs (VDC & mA)
- On-board RJ45 jack allows for easy connection to your building automation network
- Life time calibration guarantee
- Measures temperature and CO_2 simultaneously

Telaire® Airestat® 5030/5031

CO_2 and Temperature Sensor

Telaire Airestat 5030/5031 is a Telaire product. Telaire has joined other GE high-technology sensing businesses under a new name– GE Industrial, Sensing.

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The Telaire Airestat 5030 and 5031 are the industry's first carbon dioxide (CO_2) and temperature sensors designed for retrofit or new installations. By combining two sensors in one package, installation and maintenance is greatly simplified.

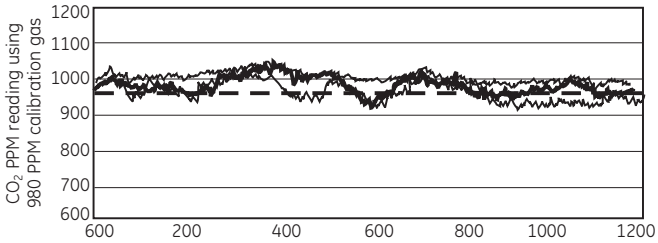
Typical applications for the Airestat 5030 and 5031 include:

- Office buildings
- Conference rooms
- Schools
- Retail stores
- Restaurants
- Gymnasiums
- Movie theaters

ABC Logic Provides Automatic Calibration

Telaire's Airestat commercial grade CO_2/temperature controllers use the patented ABC Logic CO_2 self-calibration system that virtually eliminates the need for maintenance in applications where the indoor CO_2 level drops to outside levels during unoccupied periods (e.g. during evening hours). ABC Logic is a special software routine in the sensor that remembers the CO_2 background readings for 14 consecutive evenings and calculates if there is sensor drift and then corrects for it. The figure in the next column shows the results of monitoring three sensors using ABC Logic over three years. It shows sensor accuracy staying well within the ±100 ppm accuracy specifications of the sensor.

ABC Logic will not work properly in applications where the space is unoccupied for less than four hours a day or where there are other internal sources of CO_2 in the building such as in breweries, wineries, greenhouses or occupational health settings.



Tracking of CO_2 sensor calibration accuracy of three sensors using ABC Logic self calibration system over three years

Lifetime Calibration Guarantee

Telaire is serious about stability and backs the Airestat 5030 and 5031 sensor with a lifetime calibration guarantee. If an Airestat 5030 or 5031 sensor drifts out of calibration range, it can be sent back to Telaire for a free factory calibration. Further information on the guarantee is provided with every product.

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5030/5031 Specifications

RJ45 Network Connection

The Telaire Airestat 5030 and 5031 sensors have an onboard RJ45 jack that allows you to easily connect a laptop computer or other monitoring device to your building automation network. Simply connect your three network wires to the terminal block and you are ready to communicate. Please note that this network connection is a pass-through connection and will not allow direct access to the CO_2 and temperature readings. The readings from the sensor are only communicated via the analog outputs on the sensor.

Airestat Thermistor Output

Temp°C	Temp°F	Resistance
-40	-40	335,671
-35	-31	242.195
-30	-22	176,683
-25	-13	130,243
-20	-4	96,974
-15	5	72,895
-10	14	55,298
-5	23	42,314
0	32	32,650.8
5	41	25,395.5
10	50	19,903.5
15	59	15,714.0
20	68	12,493.7
25	77	10,000
30	86	8,056.0
35	95	6,530.1
40	104	5,324.9
45	113	4,366.9
50	122	3,601.0
55	131	2,985.1
60	140	2,487.1
65	149	2,082.3
70	158	1,751.6

Engineering

The CO_2/temperature sensor shall be the Telaire Airestat 5030 or 5031 (with slide potentiometer) non-dispersive infrared CO_2 sensors with thermistor made with by Telaire (805-685-4000). The diffusion gas chamber in the CO_2 sensor should incorporate a gold-plated reflective light pipe or waveguide surrounded by a gas permeable teflon based hydrophobic diffusion filter that prevents particulate and water contamination of the sensor. The sensor shall have a lifetime calibration guarantee. The CO_2 sensor shall provide simultaneous analog output in volts and milli-amps. The CO_2 sensor shall incorporate ABC Logic software for self-correction of drift to better than ±20 ppm per year. The sensor shall have accuracy of @ 72°F (22°C) when compressed against a certified factory reference ±40 ppm 3% of reading. The temperature sensor is a 10k Ω thermistor providing a type "D" output with an accuracy of ± 2.5% at 77°F (25°C). The sensor shall have a night setback override button that shorts the thermistor output when depressed. The 5031 model shall have a 0 to 100k Ω slide potentiometer for adjusting the temperature setpoint during occupied periods. For ease of installation, the sensor shall have field-wiring terminals on the board.

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5030/5031 Specifications

CO_2 Sensor

Method
- Single beam, Absorption Infrared
- Diffusion sample method
- ABC Logic Enabled

Measurement Range
0 to 2000 ppm

Accuracy
@ 72°F (22°C) when compared against a certified factory reference ±40 ppm 3% of reading

Temperature Dependence
0.2% FS per °C

Stability
<2% of FS over life of sensor/15 years

Response Time 0 to 90%
< 2 minutes

Warm-Up Time @ 77°F (25°C)
< 2 minutes

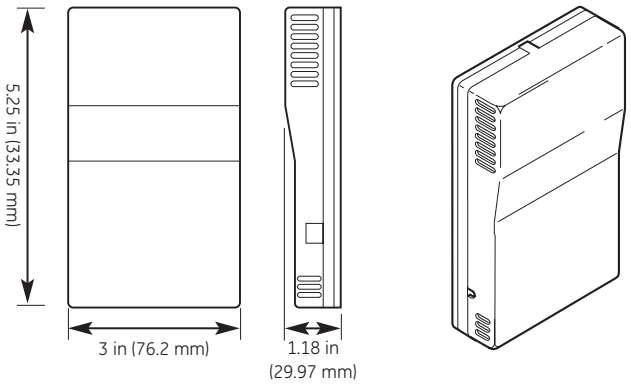
Operating Conditions
- 59°F to 89.6°F (15°C to 32°C)
- 0 to 95% RH, non-condensing

Storage temperature
-4°F to 160°F (-20°C to 70°C)

Agency Certification
FCC Part 15 Class B, CE, and CA Energy Commission

Temperature Sensor

Thermistor
10k Ω +/-2.5% @ 77°F (25°C)
(see Thermistor resistance Table)



Telaire Airestat 5030/5031 dimensions

Night Setback Override Button
Shorts the thermistor output when depressed

Slide Potentiometer (5031 Only)
- Left (stop): 0k Ω (±5k Ω)
- Center: 50k Ω (±7.5k Ω)
- Right (stop): 100k Ω (±15 Ω)

Input/Output

Power
- 18 to 30 VAC RMS, 50/60 Hz half-wave rectified
- 18 to 42 VDC polarity protected
- 1.75 VA maximum average power
- 3.25 VA peak power

Analog Output
- 0 to 10 VDC (Source 100 mA, Sink 10mA)
- 4 to 20 mA (RLmax = 500 Ω)
- Outputs available simultaneously

Wiring
18 to 28 AWG stranded copper wire only.

Warranty/Other

Warranty
18 months parts and labor

Calibration
Lifetime calibration guarantee

920-331A

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