CO_2 Room Sensor, BAPI-Stat 3 Enclosure

Air Quality Sensors

Rev. 10/14/14

Features & Options

- Automatic Barometric Pressure and Temperature Compensation
- Optional Temperature, Temperature Setpoint, Override and Humidity
- Optimized for Periodically Unoccupied or Continuously Occupied Areas

The BAPI CO_2 Sensor is an accurate and reliable way of incorporating demand controlled ventilation into a building's HVAC strategy. It measures the CO_2 in a range of 0 to 2,000 ppm with a field selectable output of 0 to 5 or 0 to 10 VDC.

The Single Beam (ACD) unit has been optimized for periodically unoccupied areas and features automatic background calibration over a long time period to reduce drift. The Dual Channel (DCD) "24/7" unit has been optimized for continuously occupied areas and features a three-point calibration process for enhanced stability, accuracy and reliability.

Air pressure changes from altitude or weather patterns can affect the output of CO_2 sensors, even putting them outside of their specified accuracy. The BAPI unit has a built-in barometric sensor that continuously compensates the output for accurate readings despite the weather or altitude of the installation.

The unit can be ordered as CO_2 alone, or with optional temp, temp setpoint, override and humidity. The large format display is easy to read and alternates between the measured values (CO_2, Temperature or Humidity). The display is also field adjustable between °F or °C and all the displayed values may be turned on or off by an HVAC technician.

Optional indication of the CO_2 level as "Good, Fair or Poor" is available as a three-color LED on the unit or as an arrow on the display.

CO_2 Sensors with Temp. Setpoint and Override.

The top unit has the CO_2 Level of "Good, Fair or Poor" shown by an arrow on the display. The bottom unit has the CO_2 level shown by a 3-color LED.

Specifications

Power for 0 to 5 VDC Outputs:
9 to 35 VDC @ 50mA avg, 200 mA max (9 to 24 VDC recomm.)

Power for 0 to 10 VDC Outputs:
15 to 35 VDC @ 50mA avg, 200 mA max (15 to 24 VDC recomm.)

Sensing Elements:
ACD Unit CO_2: Single Beam Non-Dispersive Infrared (NDIR)
DCD Unit CO_2: Dual Channel Non-Dispersive Infrared (NDIR)
Humidity: Capacitive Polymer ±2% RH Accuracy

Temperature Sensor:
Thermistor, RTD or Semiconductor

Operating Environment:
32 to 122°F (0 to 50°C)
0 to 95%RH non-condensing

Material ABS Plastic, Material Rated UL94V-O

CO_2 Detection Range: 0 to 2000 ppm

Start-Up Time: 10 Minutes

Response Time: Less Than 2 Minutes (after Start-Up Time)

Mounting: 2"x4" J-Box or drywall – screws provided

CO_2 Accuracy (Single Beam ACD Units):
400 to 1,250 ppm: ±30ppm or 3% of reading, whichever is greater
1,250 to 2,000 ppm: ±5% of reading + 30ppm

CO_2 Accuracy (Dual Channel DCD "24/7" Units):
±75ppm

LCD Display:
Main Display: 0.76" 4-digit Numeric (Numeric Values)
Minor Display: 0.34" 3-digit Alpha-Numeric (PPM, %RH, °F, °C)
Occupied/Unoccupied BAPI Man Icon: (Blk=Occupied)

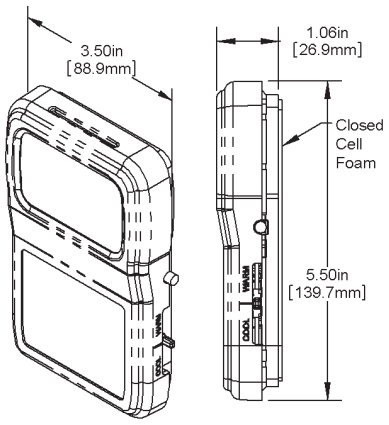
Measurement Offsets: (Field Adjustable)
±5° (F or C) in 0.1° increments
±5% RH in 0.1% RH increments

Override Output:
Contact .... SPST, 24V AC/DC, 0.5A max
Sensor ..... Shorts Out direct temperature sensor
Setpoint .... Contact in parallel, resistive setpoint only

LED CO_2 Level Indicator:
Good, Green < 1,000 PPM
Fair, Orange = 1,000 to 1,500 PPM
Poor, Red > 1,500 PPM

Certifications: RoHS

Warranty Period: 2 Years from manufacture date



Building Automation Products, Inc. • 750 North Royal Avenue, Gays Mills, WI 54631 USA
Tel: +1-608-735-4800 • Fax: +1-608-735-4804 • Email: sales@bapihvac.com • Web: www.bapihvac.com

Ordering Information **BAPI-Stat 3 Style Room CO2 Sensor with Optional Temperature and Humidity Sensing**

BA/

Temperature Display Mode

BS3F	Temperatures Displayed in °F (Temperature is displayed by default but can be turned off by the user. See instruction sheet.)
BS3C	Temperatures Displayed in °C (Temperature is displayed by default but can be turned off by the user. See instruction sheet.)
BS3X	No LCD Display

CO_2 Output

-ACD05	CO_2 as 0 to 2,000 PPM, 0 to 5 VDC output, Single Beam Automatic Background Calibration unit for periodically unoccupied areas
-ACD10	CO_2 as 0 to 2,000 PPM, 0 to 10 VDC output, Single Beam Automatic Background Calibration unit for periodically unoccupied areas
-DCD05	CO_2 as 0 to 2,000 PPM, 0 to 5 VDC output, Dual Channel Calibration "24/7" unit for continuously occupied areas
-DCD10	CO_2 as 0 to 2,000 PPM, 0 to 10 VDC output, Dual Channel Calibration "24/7" unit for continuously occupied areas

Humidity Transmitter (Omit if not required)

-H205	±2% Humidity Transmitter, 0 to 5 VDC output
-H210	±2% Humidity Transmitter, 0 to 10 VDC output
-H212	±2% Humidity Transmitter, 2 to 10 VDC output

Setpoint Display Options (Skip if not required)

-#

Desired Range	Designator	Desired Range	Designator
-2 to +2	**P**	60 to 80 °F or 15 to 27 °C	**E**
-3 to +3	**A**	65 to 80 °F or 18 to 27 °C	**F**
-5 to +5	**B**	70 to 74 °F or 21 to 23 °C	**L**
50 to 90 °F or 10 to 32 °C	**C**	45 to 96 °F or 7 to 36 °C	**G**
55 to 85 °F or 13 to 30 °C	**D**		

Setpoint Output Value Range (Skip if not required)

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Desired Range	Designator	Desired Range	Designator
674 to 274 Ω	**23**	15 to 5 kΩ	**61**
800 to 1200 Ω	**25**	0 to 20 kΩ	**80**
1800 to 2200 Ω	**27**	4.75 to 24.75 kΩ	**81**
0 to 1 kΩ	**40**	7.87 to 27.87 kΩ	**83**
500 to 1500 Ω	**41**	10 to 30 kΩ	**84**
2 to 3 kΩ	**42**	0 to 100 kΩ	**90**
0 to 10 kΩ	**60**	0 to 5 V*	**00***

Additional Setpoint Ranges are Available. See App. Notes Pg. 2 for complete list.

SETPOINT LEGEND (insert Designator #)

Legend Range	Designator	Legend Range	Designator
No Legend	**L0**	COOL/WARM	**L6**

Additional Legends are Available. Call BAPI for more information.

Sensor Type (If resistive sensor required)

-0	100 Platinum RTD, 100Ω @ 0°C, 0.385Ω/°C temp coeff.
-1375	1K Platinum RTD, 1,000Ω @ 0°C, 3.75Ω/°C temp coeff.
-1NI	1K Nickel RTD, 1,000Ω @ 21°C, 5Ω/°C temp coeff.
-1	1K Platinum RTD, 1,000Ω @ 0°C, 3.85Ω/°C temp coeff.
-2	2K Silicon RTD, 2,000Ω @ 20°C, 8Ω/°C temp coeff.
-18	1.8K Thermistor, 1,800Ω @ 25°C
-3	3K Thermistor, 3,000Ω @ 25°C
-33	3.3K Thermistor, 3,300Ω @ 25°C
-102	10K-2 Thermistor, 10,000Ω @ 25°C
-103	10K-3 Thermistor, 10,000Ω @ 25°C
-10311	10K-3[11K] Thermistor, 5,238Ω @ 25°C, 11KΩ shunt resistor
-20	20K Thermistor, 20,000Ω @ 25°C
-50	50K Thermistor, 50,000Ω @ 25°C
-100	100K Thermistor, 100,000Ω @ 25°C
-592	AD592 Semiconductor, 273 µA @ 0°C

Override Configuration (Must select one)

-J	Override as a Separate Output.* (Dry contact only, not intended to switch a load.)
-N	Override in Parallel (//) with Sensor
-P	Override in Parallel (//) with Setpoint: NOT available on voltage setpoint models
-Z	No Override. (Needed if no override is required)

Optional Communication Jack (*Mounted in unit's base*)

-C11L	RJ11 (4 pin) Style Jack with Leads
-C11LT	RJ11 (4 pin) Style Jack with Leads and Terminal Block
-C35L	3.5 mm Phono Jack w/ Leads Attached
-C35LT	3.5 mm Phono Style Jack with Leads and Terminal Block
-C22L	RJ22 (4 pin) Style Jack with Leads Attached
-C22LT	RJ22 (4 pin) Style Jack with Leads and Terminal Block

Optional Test and Balance Switch

-TB	Three Position Switch

Differential Ground – Setpoint & Temp Sensor (Skip if not required)

-DF	Differential Ground (Default is Common Ground, Only add -DF if required)

CO_2 Level Indication (Must select one)

-LED	Green/Orange/Red LED on Logo Plate to Indicate CO_2 PPM Level. Includes Legend for Good, Fair and Poor.
-ARW	Black Arrow on Display to Indicate CO_2 PPM Level. Includes Legend Below Display for Good, Fair and Poor
-BNK	No LED or Arrow Indicators, No Legend

EXAMPLE

BA/	BS3F	-ACD05	-H205	-A	80L6	-0	-J	-C11L	-TB		-LED

Example Part Number: BA/BS3F-ACD05-H205-A80L6-0-J-C11L-TB-LED

Your Part Number:

Call BAPI if you have questions about the above ordering/pricing grid or the configuration of the product you are ordering.

*Not available with Differential Ground (-DF) option