



# GREYSTONE ENERGY SYSTEMS INC

## ROOM CO<sub>2</sub>, TEMP & HUMIDITY DETECTOR CDD5 Series

The CDD5\*10 series uses a highly accurate and reliable Non-dispersive Infrared (NDIR) sensor to monitor CO<sub>2</sub>, a precision thermistor to monitor temperature and a thermoset polymer based capacitance sensor to measure humidity levels combined with state-of-the-art digital linearization and temperature compensated circuitry in an attractive, low profile enclosure for room applications and provides 3 analog outputs. Optional setpoint slidepot, momentary override and adjustable relay output are also available.



### SPECIFICATION:

Power Supply.....20-28 Vac/dc (non-isolated half-wave rectified)

Output Signals.....**Current** 4-20mA (Model CDD5A & C)  
**Voltage** 0-5 Vdc or 0-10 Vdc (Model CDD5B & D)

Consumption.....**Current:** 145 mA max @ 24Vdc, 260 mA max @ 24 Vac (with all options)  
**Voltage:** 85 mA max @ 24 Vdc, 150 mA max @ 24 Vac (with all options)

Output Drive Capability...**Current:** 550 ohms max  
**Voltage:** 10 Kohm min

Output Resolution.....10 bit PWM

Protection Circuitry.....Reverse voltage protected and output limited

Operation Conditions...0°-50°C (32°-122°F),  
0-95% RH non-condensing.

Sensor Coverage Area...100 m<sup>2</sup> (1000 ft<sup>2</sup>) typical

Wiring Connections.....Screw terminal block (14 to 22 AWG)

External Dimensions.....84mm W x 119mm H x 29mm D  
(3.3" x 4.7" x 1.15")

Enclosure Ratings.....IP30 (NEMA 1)

**CO<sub>2</sub> Signal:**

Measurement Type.....**CDD5A & B:** Non-Dispersive Infrared (NDIR), diffusion sampling  
**CDD5C & D:** Dual Channel Non-Dispersive Infrared (NDIR), diffusion sampling

Measurement Range.....**CDD5A & B:** 0 - 2000 ppm  
**CDD5C & D:** 0 - 20,000 ppm standard, programmable span from 2000 to 20,000 ppm

Standard Accuracy.....**CDD5A & B:** ±30 PPM + 3% of reading with Auto Cal on  
**CDD5C & D:** ±75 PPM or 10% of reading (whichever is greater)

Temp. Dependence.....0.2% FS per °C

Stability.....**CDD5A & B:** < 2 % FS over life of sensor (15 years typical)  
**CDD5C & D:** < 5 % FS over life of sensor (15 years typical)

Pressure Dependence...0.13% of reading per mm Hg

Altitude Correction.....Programmable from 0-5000 ft via keypad

Response Time.....<2 minutes for 90% step change typical

Warm-up Time.....<2 minutes

**Temperature Signal:**

Sensing Element.....10K thermistor, ±0.2°C (±0.2 °C)

Range.....0° to 35°C (32° to 95°F) or 0° to 50°C (32° to 122°F) selectable via keypad

**RH Signal:**

Sensing Element.....Thermoset polymer based capacitive

Accuracy.....± 2% RH

Range.....0 - 100% RH, non-condensing

Hysteresis.....± 3% RH

Response Time.....15 seconds typical

Stability.....± 1.2% RH typical @ 50% RH in 5 years

### PART NUMBER SELECTED

### PRODUCT SELECTION INFORMATION:

MODEL	Product Description
<b>CDD5A10</b>	Room Carbon Dioxide Sensor, 0-2000 ppm, 4-20 mA
<b>CDD5B10</b>	Room Carbon Dioxide Sensor, 0-2000 ppm, 0-5 or 0-10 Vdc
<b>CDD5C10</b>	Room Carbon Dioxide Sensor, 0-20,000 ppm, 4-20 mA
<b>CDD5D10</b>	Room Carbon Dioxide Sensor, 0-20,000 ppm, 0-5 or 0-10 Vdc

CODE	Display
0	Concealed
1	Viewable

CODE	Options (Multiple selections can be made) (Leave blank if no options required)
P	Linear slide pot for set point control
S	Exposed push button momentary switch - N.O.
R	Relay Output

### LCD Display:

Resolution.....1 ppm CO<sub>2</sub>, 1% RH, 1°C (1°F)

Size.....1.4" w x 0.6" h (35 mm x 15 mm) alpha-numeric 2 line x 8 character

Backlight.....Enable or disable via keypad

**Override Switch**.....Front panel push-button available as two-wire dry-contact output

**Setpoint Control**.....Front panel slidepot available as two-wire resistive output, 0-10 KΩ standard

### Optional Relay Output:

Contact Ratings.....Form A contact (N.O.), 2 Amps @ 140 Vac, 2 Amps @ 30 Vdc

Relay Trip Point.....**CDD5A & B:** Programmable 500-2000 ppm via keypad  
**CDD5C & D:** Programmable 500-15,000 ppm via keypad

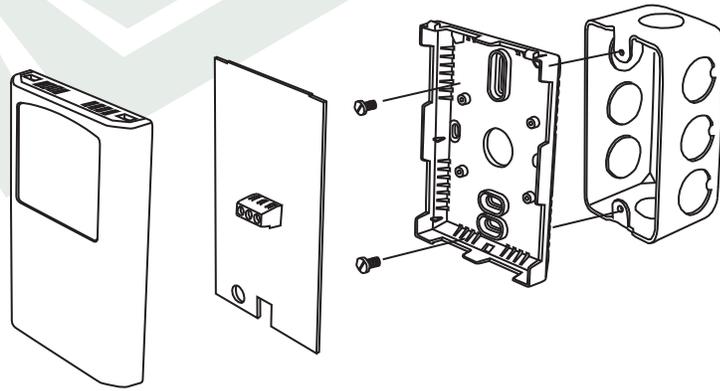
Relay Hysteresis.....**CDD5A & B:** Programmable 25-200 ppm via keypad  
**CDD5C & D:** Programmable 25-500 ppm via keypad

## TYPICAL INSTALLATION:

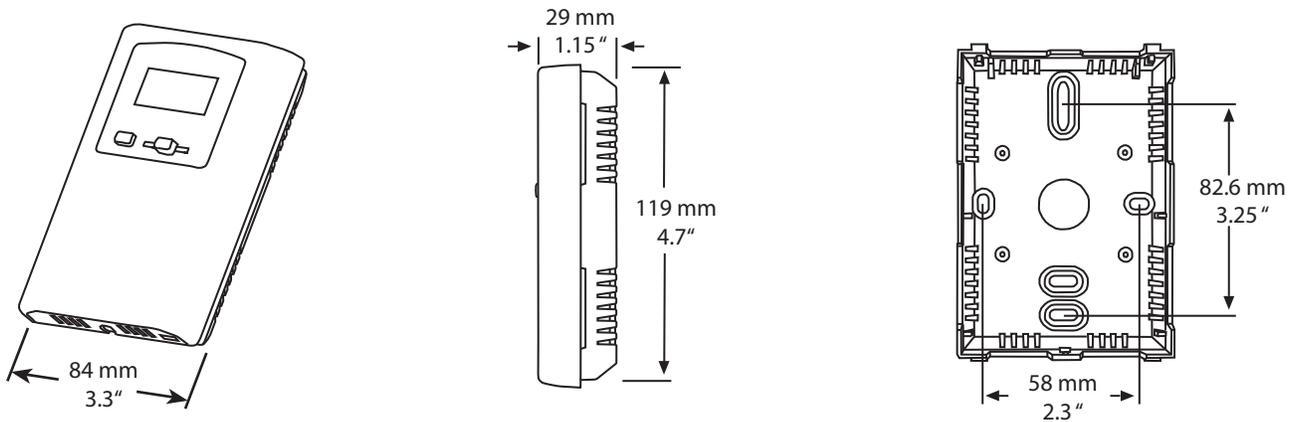
For complete installation and wiring details, please refer to the product installation instructions.

The CDD5 series can be mounted directly to a single gang electrical box or directly to a wall. The backplate includes many mounting hole configurations to allow for mounting on a variety of electrical boxes.

The basic CDD5 has a 5 wire configuration with a screw block terminal provided for connection to the Building Automation System.



## DIMENSIONS:



## 5-YEAR CALIBRATION GUARANTEE

Based on the results of years of testing of ACLP software, Greystone now offers a 5-year calibration guarantee on all its CDD series wall and duct mount sensors used for CO<sub>2</sub> based ventilation control when operated in an environment that can utilize ACLP software. If the sensor is found to be out of calibration more than 150 PPM as compared to a calibration gas or recently calibrated reference, Greystone will provide a free factory calibration of the sensor if returned to Greystone. This guarantee only applies if the sensor is operated in an environment where inside levels periodically drop to outside concentrations (i.e. during evenings or weekends when there is no occupancy) as is required by ACLP software. If a space does not experience a periodic drop to outside levels (i.e. where occupancy is 24 hours, 7 days/week), ACLP software should be deactivated. With ACLP deactivated (via menu buttons), calibration may be required every 2 to 3 years.



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**RoHS**  
COMPLIANT



*Greystone Energy Systems Inc. is one of North America's largest ISO registered manufacturers of HVAC/R sensors and transmitters for Building Automation Management Systems.*

*We have conscientiously established a worldwide reputation as an industry leader by maintaining leading-edge design technology, prompt technical support, and a commitment to on-time deliveries. We take pride in our Quality Management System which is ISO 9001 certified, assuring our customers of consistent product reliability.*

GREYSTONE HAS AN **ISO 9001** REGISTERED QUALITY SYSTEM