

GREYSTONE

ENERGY SYSTEMS INC.

CARBON DIOXIDE, TEMPERATURE & HUMIDITY DETECTORS CDD5 Series



Space w/Setpoint,
Override & LCD



Space w/ No Options

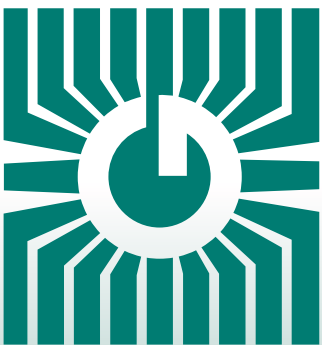


Duct

Precision carbon dioxide control/sensing

FEATURES:

- Space or Duct Models
- 2 Available Ranges
- CO₂, Temperature & Humidity Outputs
- Optional Slidepot and/or Override
- Optional On-board Relay
- Optional LCD Display
- Custom Logos Available



*Peace of mind
through reliable
gas monitoring*

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

CO₂, TEMPERATURE & HUMIDITY DETECTOR

SPECIFICATIONS:

General Specifications:

Power Supply
Output Signals

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

Current 4-20mA (Model CDD5A & C) or

Voltage 0-5 Vdc or 0-10 Vdc (Model CDD5B & D)

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)

Current: 550 ohms max **Voltage:** 10 Kohm min

10 bit PWM

Reverse voltage protected and output limited

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

100 m² (1000 ft²) typical

Screw terminal block (14 to 22 AWG)

Space: 84mm W x 119mm H x 29mm D (3.3" x 4.7" x 1.15")

Duct: 145mm W x 100mm H x 63mm D (5.7" x 3.95" x 2.5")

Duct Probe: 177mm (7") long x 25.4mm (1") diameter

Space: IP30 (NEMA 1)

Duct: IP65 (NEMA 4X)

Consumption

Output Drive Capability

Output Resolution

Protection Circuitry

Operation Conditions

Sensor Coverage Area

Wiring Connections

External Dimensions

Enclosure Ratings

CO₂ Specifications:

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, 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)

Temperature 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 Specifications:

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

Humidity Specifications:

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

LCD Display:

Resolution

1 ppm CO₂, 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

Optional Setpoint Adjustment

Type

Front panel slidepot, 2 wire resistance output

Range

0K to 10K Ω standard

Custom spans available

1K, 2K, 5K, 10K or 20K Ω

Optional Manual Override

Type

Front panel, momentary pushbutton

Ratings

50 mA @12 Vdc, N.O., SPST

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

CDD5A & B: Programmable 25-200 ppm via keypad

CDD5C & D: Programmable 25-500 ppm via keypad

Relay Hysteresis

CO₂, TEMPERATURE & HUMIDITY DETECTOR

FEATURES:

- Menu driven set-up
- 0-2000 or 0-20,000 ppm CO₂ ranges
- Patented self-calibration algorithm
- Guaranteed 5 year calibration interval
- Temperature & Humidity Outputs
- Easily field calibrated
- Accepts AC/DC power

OPTIONS:

- LCD
- Slidepot
- Override Switch
- Control relay
- Custom Logos

PRODUCT ORDERING INFORMATION:

MODEL	Description
CDD5A	Carbon Dioxide Detector (CO ₂), 0-2000 ppm, Temperature & Humidity sensor w/4-20 mA Outputs
CDD5B	Carbon Dioxide Detector (CO ₂), 0-2000 ppm, Temperature & Humidity sensor w/ 0-10 Vdc or 0-5 Vdc outputs
CDD5C	Carbon Dioxide Detector (CO ₂), 0-20,000 ppm, Temperature & Humidity sensor w/4-20 mA Outputs
CDD5D	Carbon Dioxide Detector (CO ₂), 0-20,000 ppm, Temperature & Humidity sensor w/ 0-10 Vdc or 0-5 Vdc outputs

CODE	Enclosure
10	Space
20	Duct

CODE	LCD Display
0	Concealed
1	Viewable

CODE	Setpoint Adjustment (Available on Space only)
-	No Setpoint Adjustment
P	0-10K linear slide pot for set point control (Other ranges available, contact Greystone)

CODE	Momentary Override (Available on Space only)
-	No Override
S	Front panel push button momentary switch (NO)

CODE	Relay Output
-	No Relay
R	Relay

CDD5A	10	1	P	S	-	← Typical Model Number
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Example: Space CO₂, 0-2000 ppm, Temperature & RH, 4-20 mA, w/ LCD, Setpoint Adjustment, & Override Switch

Greystone Energy Systems Inc. reserves the right to make design modifications without prior notice.

ACLP SOFTWARE

ACLP (Automatic Calibration Logic Program) software utilizes the computing power in the sensor's on-board microprocessor to remember the lowest CO₂ concentration that takes place every 24 hours. The sensor assumes this low point is at outside levels. The sensor is also smart enough to discount periodic elevated readings that might occur if for example a space was used 24 hours per day over a few days. Once the sensor has collected 14 days worth of low concentration points, it performs a statistical analysis to see if there has been any small changes in the sensor reading over background levels that could be attributable to sensor drift. If the analysis concludes there is drift, a small correction factor is made to the sensor calibration to adjust for this change.

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 CO₂ 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.

DIMENSIONS:

