GREYSTONE ENERGY SYSTEMS INC

CARBON DIOXIDE, TEMPERATURE & HUMIDITY DETECTORS
CDD5 Series

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

GREYSTONE HAS AN ISO 9001 REGISTERED QUALITY SYSTEM
CO₂, TEMPERATURE & HUMIDITY DETECTOR

SPECIFICATIONS:

**General Specifications:**
- **Power Supply:** 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 @ 24Vac, 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)

**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
- **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
**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:**

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<th>MODEL</th>
<th>Description</th>
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<td>CDD5A</td>
<td>Carbon Dioxide Detector (CO₂), 0-2000 ppm, Temperature &amp; Humidity sensor w/4-20 mA Outputs</td>
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<tr>
<td>CDD5B</td>
<td>Carbon Dioxide Detector (CO₂), 0-2000 ppm, Temperature &amp; Humidity sensor w/0-10 Vdc or 0-5 Vdc outputs</td>
</tr>
<tr>
<td>CDD5C</td>
<td>Carbon Dioxide Detector (CO₂), 0-20,000 ppm, Temperature &amp; Humidity sensor w/4-20 mA Outputs</td>
</tr>
<tr>
<td>CDD5D</td>
<td>Carbon Dioxide Detector (CO₂), 0-20,000 ppm, Temperature &amp; Humidity sensor w/0-10 Vdc or 0-5 Vdc outputs</td>
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**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: