GREYSTONE

ACCURACY BY DESIGN

CARBON DIOXIDE (CO_2) DETECTORS
CDD1 Series

Space

Duct Mount

Precision carbon dioxide control/sensing

FEATURES:

- Space and duct models
- Adjustable range models
- Optional on-board relay
- Optional LCD display
- Custom logos available

Peace of mind through reliable gas sensors

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

CO_2 DETECTOR

FEATURES:

- Menu driven set-up
- 0-2000 PPM default CO_2 range
- Field programmable ranges
- Patented self-calibration algorithm
- Guaranteed 5 year calibration interval
- Easily field calibrated
- Accepts AC/DC power
- Duct or wall mount models
- Voltage and current output signals

OPTIONS:

- LCD
- RS-485 network communication
- Field calibration kits
- Control relay

PRODUCT ORDERING INFORMATION:

MODEL	Description
CDD1A	Carbon Dioxide Detector (CO_2), Non-Dispersive Infrared (NDIR) sensor

CODE	Enclosure and Outputs
3	Space ABS c/w 4-20 mA, 0-5 Vdc and 0-10 Vdc outputs
6	Duct ABS c/w Sampling Tube, 4-20 mA, 0-5 Vdc and 0-10 Vdc outputs

CODE	Circuit Board Relay
00	No Relay
10	One Relay (DPDT, N.O. or N.C., 5A @ 24 VDC)

CODE	LCD
0	No LCD
1	LCD

CODE	Options
-MOD	Modbus Communication

CDD1A	6	00	1	-MOD	← Typical Model Number
Example:	**Duct**	**No Relay**	**LCD**	**and Modbus communication**	

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

SPECIFICATIONS:

Measurement	Non-Dispersive Infrared (NDIR)
Sample Method	Diffusion or flow through, sample tube for duct
Range	0-2000 ppm standard, programmable from 1000 up to 7500 ppm in 500 ppm increments
Standard Accuracy	±75 PPM @ 1000 ppm @ 22°C (72°F) when compared to certified calibration gas
Operation Conditions	0˚-50°C (32˚-122°F), 0-95% RH non-condensing.
Temperature Dependence	0.2% FS per °C
Stability	< 2 % FS over life of sensor (15 years typical)
Output Signal	4-20 mA active (sourcing) or 0-5Vdc and 0-10Vdc, jumper selectable
Output Drive Capability	550 ohm max for current output 10 Kohm max for voltage output
Output Resolution	10 bit PWM
Pressure Dependence	0.13% of reading per mm Hg
Altitude Correction	Programmable from 0-5000 ft in 500 ft increments
Response Time	< 2 minutes for 90% step change
Warm-up Time	< 2 minutes
Power Supply	20-30 Vac/dc (non-isolated half-wave rectified)
Consumption	140 mA @ 24V maximum (40 mA typical)
Input Voltage Effect	Negligible over specified operating range
Protection Circuitry	Reverse voltage protected and output limited
LCD Display (optional)	LCD for displaying PPM level (required for field programming), 1 ppm resolution, 28mm W x 13mm H (1.1" x 0.5") alpha-numeric 2 line x 8 character
Relay Output (optional)	One form C contact (N.O. and N.C.), status LED, 5 amp @ 250 Vac, 5 amp @ 30 Vdc, p.f. = 1
Programming and Selection	Via internal push-buttons and jumper
Wiring Connections	Screw terminal block (14 to 22 AWG)
External Dimensions	Space/Duct ABS - 124mm W x 183mm H x 43mm D (4.9" x 7.22" x 1.7")
Enclosure Ratings	IP21, NEMA 1

ACLP SOFTWARE AND 5-YEAR CALIBRATION GUARANTEE

ACLP SOFTWARE

ACLP (Automatic Calibration Logic Program) software utilizes the computing power in the sensor's on-board microprocessor to remember the lowest CO_2 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.

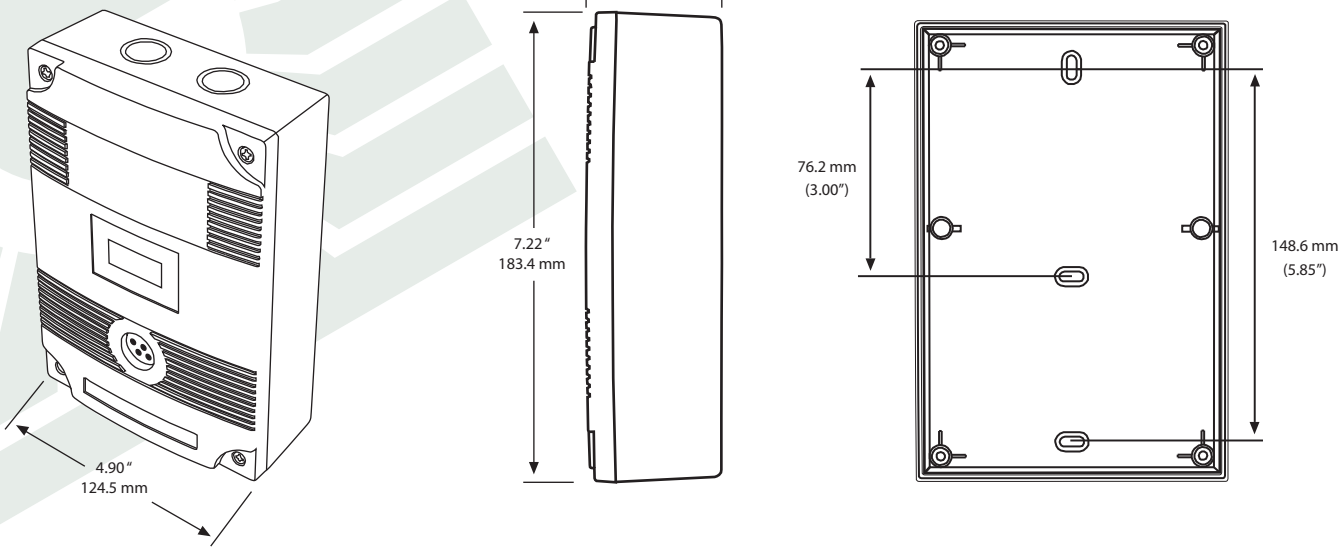
5-YEAR CALIBRATION GUARANTEE

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 CO_2 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.

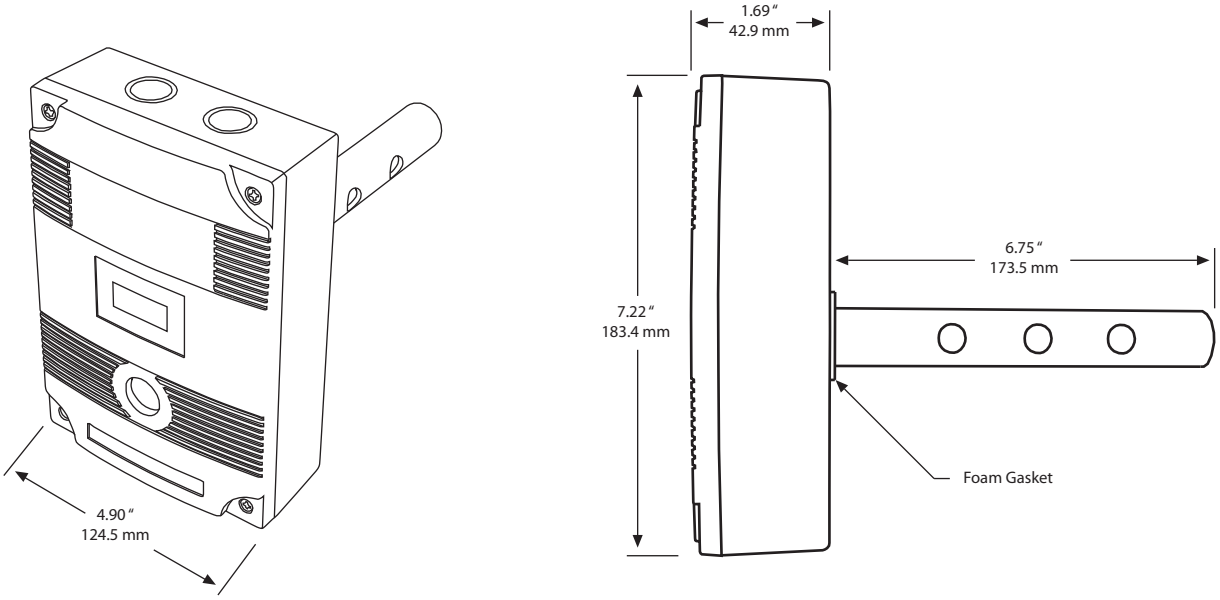
OPTIONAL MODBUS COMMUNICATION

Modbus communication is optional and the correct device must be ordered to have this capability. Modbus is a network protocol for industrial manufacturing environments. The detector communicates on a standard Modbus network using either of two transmission modes: RTU (Remote Terminal Unit) or ASCII (American Standard Code for Information Interchange). The hardware interface is RS-485. Select the desired mode along with the other parameters using the Configuration Menu. For complete protocol details, see the document titled CO2/RH/T Detector - Modbus Implementation Specification.

DIMENSIONS nts



Space ABS Enclosure



Duct ABS Enclosure

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RoHS COMPLIANT

Greystone Energy Systems Inc. is one of North America's largest ISO registered manufacturers of HVAC sensors and transducers 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.

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