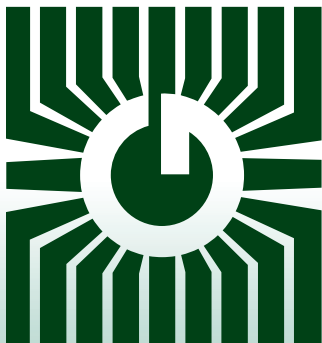


GREYSTONE

ACCURACY BY DESIGN



CARBON DIOXIDE (CO₂) DETECTORS CDD Series



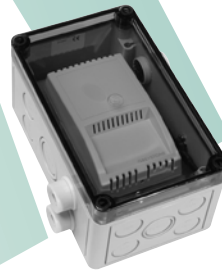
Corporate Space



Executive Space



Duct Mount



Outside Air

Precision carbon dioxide control/sensing

FEATURES:

- Space, duct and outside air models
- Adjustable range models
- Temperature sensor available on some models
- CO₂, temperature & humidity combination model
- Custom logos available

*Peace of mind
through reliable
gas sensors*

GREYSTONE HAS AN ISO 9001 REGISTERED QUALITY SYSTEM

CO₂ DETECTOR

FEATURES:

- Menu driven set-up
- 0-2000 PPM default CO₂ 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
- Temperature sensors and transmitters
- Relative humidity sensor
- 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
1	Corporate Space c/w 4-20 mA and 0-5 Vdc outputs (CO ₂ , Modbus and optional relay only)
2	Corporate Space c/w 4-20 mA and 0-10 Vdc outputs (CO ₂ , Modbus and optional relay only)
3	Space ABS c/w 4-20 mA, 0-5 Vdc and 0-10 Vdc outputs (CO ₂ , Modbus and optional relay only)
4	Executive Space c/w 4-20 mA, 0-10 Vdc outputs and optional Temperature Sensor
5	Executive Space c/w 4-20 mA, 0-5 Vdc outputs and optional Temperature Sensor
6	Duct ABS c/w Sampling Tube, 4-20 mA, 0-5 Vdc and 0-10 Vdc outputs
7	Executive Space c/w 4-20 mA output for CO ₂ , Relative Humidity and Temperature
8	Executive Space c/w 0-5 Vdc and 0-10 Vdc output for CO ₂ , Relative Humidity and Temperature

CODE	Circuit Board Relay (only available on models CDD1A1, 2, 3 & 6)
00	No Relay
10	One Relay (DPDT, N.O. or N.C., 5A @ 24 VDC)

CODE	LCD
0	No LCD
1	LCD

CODE	Options (Optional temperature sensor only available on the CDD1A4 & CDD1A5 series)
-MOD	Modbus Communication (Not available on CDD1A4 & CDD1A5 series)
-T2	PT100-100 ohm Platinum, IEC 751, 385 Alpha, thin film
-T5	1801 ohm, NTC Thermistor, ±0.2°C
-T6	3,000 ohm, NTC Thermistor, ±0.2°C
-T7	10,000 ohm, type 3, NTC Thermistor, ±0.2°C
-T8	2.252 K ohm NTC Thermistor, ±0.2°C
-T9	100,000 ohm, NTC Thermistor, ±0.2°C
-T12	PT1000-1000 ohm Platinum, IEC 751, 0.385 Alpha, thin film
-T13	1000 ohm nickel
-T14	10,000 ohm type 3, NTC Thermistor, ±0.2°C c/w 11k shunt resistor
-T20	20,000 ohm, NTC Thermistor, ±0.2°C
-T24	10,000 ohm, type 2, NTC Thermistor, ±0.2°C
-OSA	Outside Mounting Enclosure (CDD1A4 and CDD1A5 only)

CDD1A	4	00	1	-MOD	← Typical Model Number
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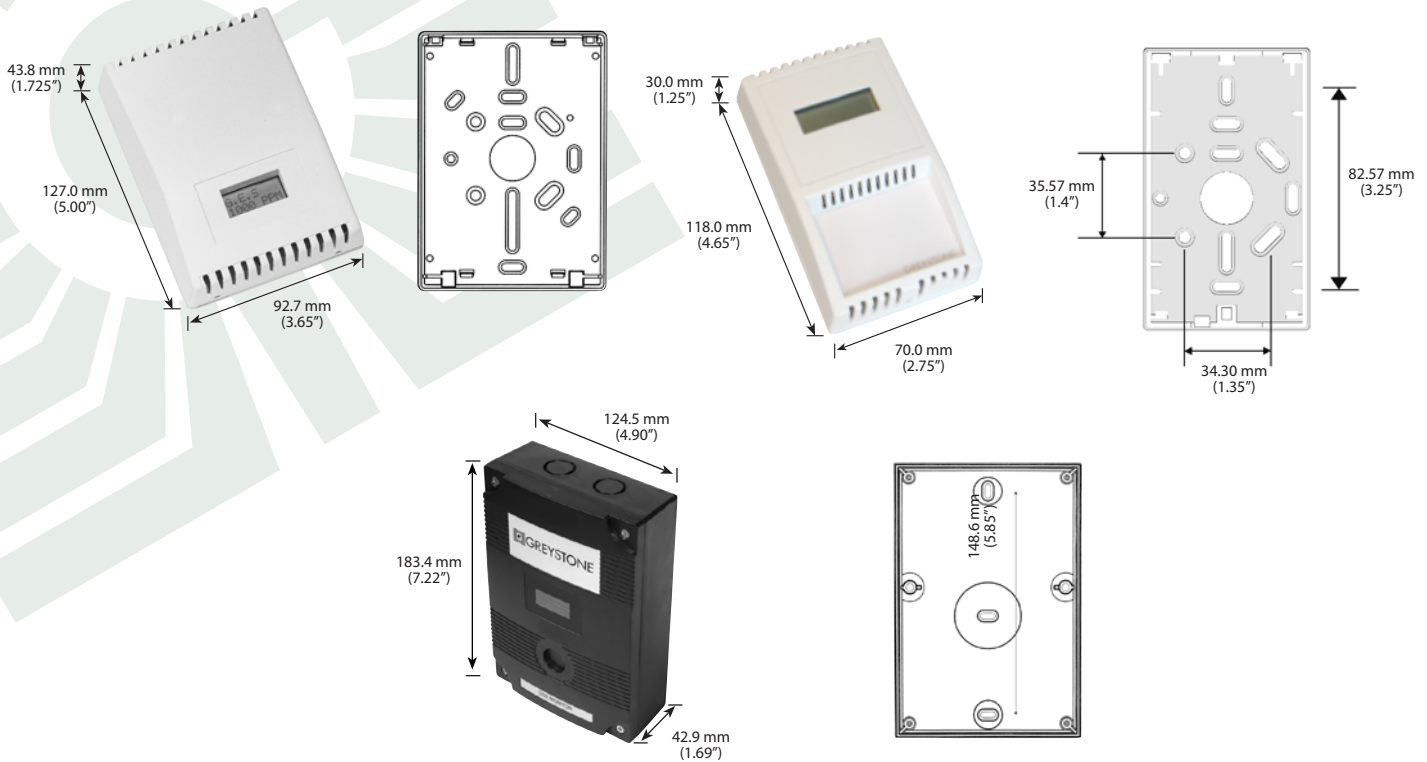
Example:	CO ₂ /Temp/Humidity	Executive	No Relay	LCD and Modbus communication
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Greystone Energy Systems Inc. reserves the right to make design modifications without prior notice.

SPECIFICATIONS:

SPECIFICATIONS	CDD1A1, CDD1A2, CDD1A3, CDD1A6XXX	CDD1A7 & CDD1A8	CDD1A4 & CDD1A5
Range	0 - 2000 ppm standard, programmable from 1500 up to 10,000 ppm		0-2000 ppm
Standard Accuracy	±50 PPM or +3% of reading @22°C (72°F) when compared to certified calibration gas		
Sensing Element	Non-Dispersive Infrared (NDIR)		
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), 0-5Vdc and 0-10Vdc, jumper selectable (Note correct part number)	4-20 mA active (sourcing) or 0-5Vdc and 0-10Vdc	4-20 mA active (sourcing) 0-5Vdc(1A5) or 0-10Vdc(1A4)
Output Drive Capability	Current - 550 ohm max Voltage - 10 Kohm min	550 ohm max for current output 2 Kohm max for voltage output	Current - 550 ohm max Voltage - 10 Kohm min
Pressure Dependence	0.13% of reading per mm Hg		
Altitude Correction	Programmable from 0-5000 ft in 500 ft increments		Not Applicable
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	140mA @ 24V maximum (40mA typical)	125mA @ 24V maximum (70mA typical)	65mA @ 24V maximum (25mA 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 characters	LCD for displaying PPM level 0-2000, 0-100%RH and 0-35°C (32-95°F) temperature, 33mm W x 14mm H (1.3" x 0.55")	LCD for displaying PPM level 0-2000, 1 ppm resolution, 33mm W x 14mm H (1.3" x 0.55")
Relay Output (optional)	One Form C contact (N.O. and N.C.), status LED, 5 amps @ 250 Vac, 5 amps @ 30Vdc, p.f. = 1	Not Available	Not Available
Programming and Selection	Via internal push-buttons and jumper		Via internal push-buttons
Temperature Sensor	Not Applicable	10K ohm curve matched Thermistor	Optional Thermistor or RTD
Temperature Output Range	Not Applicable	0-35°C (32-95°F) or 0-50°C (32-122°F) Programmable	Not Applicable
Temperature Output Accuracy	Not Applicable	±0.2°C (±0.4°F)	Not Applicable
Humidity Sensor	Not Applicable	Thermoset Polymer Based Capacitive	Not Applicable
Humidity Output Range	Not Applicable	0-100%	Not Applicable
Humidity Output Accuracy	Not Applicable	±2% RH	Not Applicable
Humidity Response Time	Not Applicable	15 Seconds Typical	Not Applicable
Humidity Output Hysteresis	Not Applicable	±2% RH	Not Applicable
Humidity Stability	Not Applicable	±1% RH typical @ 50% RH in 5 years	Not Applicable
Wiring Connections	Screw terminal block (14 to 22 AWG)		
External Dimensions	Corporate Space - 91mm W x 127mm H x 43mm D (3.6" x 5" x 1.7") Space / Duct ABS - 124mm W x 183mm H x 43mm D (4.9" x 7.22" x 1.7")	Executive Space - 71mm W x 119mm H x 32mm D (2.8" x 4.7" x 1.25")	Executive Space - 71mm W x 119mm H x 32mm D (2.8" x 4.7" x 1.25")

DIMENSIONS nts



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 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.



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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.

GREYSTONE HAS AN ISO 9001 REGISTERED QUALITY SYSTEM