

GREYSTONE ENERGY SYSTEMS INC

CARBON DIOXIDE & TEMPERATURE DETECTORS CDD4 Series



Space w/Setpoint, Override
& LCD



Space w/ No Options



Duct

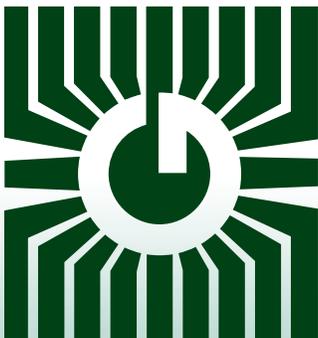


Outside

Precision carbon dioxide control/sensing

FEATURES:

- Space, Duct & Outside Models
- 2 Available Ranges
- CO₂, Temperature Outputs
- Optional Slidepot and/or Override
- 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

CO₂ DETECTOR w/ Optional Temperature Sensor

SPECIFICATIONS:

General Specifications:

Power Supply.....	20-28 Vac/dc (non-isolated half-wave rectified)
Output Signals.....	4-20 mA active (sourcing), 0-5 Vdc or 0-10 Vdc (field selectable)
Consumption.....	Space/Duct/Outside: 100 mA max @ 24 Vdc, 185 mA max @ 24 Vac (with all options) Outside w/ Heater: 140 mA @ 24V max
Output Drive Capability.....	Current: 550 ohms max Voltage: 10 Kohm min
Output Resolution.....	10 bit PWM
Protection Circuitry.....	Reverse voltage protected, overvoltage protected
Operation Conditions.....	Space (10), Duct (20) and Outside (40): 0° - 50°C (32° -122°F), 0-95% RH non-condensing. Outside w/ Heater (30): -40° - 50°C (-40° - 122°F), 0-95% RH non-condensing.
Sensor Coverage Area.....	100 m ² (1000 ft ²) typical
Wiring Connections.....	Screw terminal block (14 to 22 AWG)
External Dimensions.....	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 Outside: 110mm W X 180mm H X 89mm D (7.125" X 4.33" X 3.5")
Enclosure Ratings.....	Space: IP30 (NEMA 1) Duct: IP64 (NEMA 3R) Outside: IP64 (NEMA 3R)

CO₂ Signal:

Measurement Type.....	CDD4A: Non-Dispersive Infrared (NDIR), diffusion sampling CDD4B: Dual Channel Non-Dispersive Infrared (NDIR), diffusion sampling
Measurement Range.....	CDD4A: 0 - 2000 ppm standard, programmable to 7500 ppm CDD4B: 0 - 20,000 ppm standard, programmable span from 2000 to 20,000 ppm
Standard Accuracy.....	±75 PPM @ 1000 ppm @ 22°C (72°F) or 10% of reading (whichever is greater)
Temperature Dependence.....	0.2% FS per °C
Stability.....	CDD4A: < 2 % FS over life of sensor (15 years typical) CDD4B: < 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

Optional Temperature Signal:

Sensing Element.....	Various RTDs or thermistors as a 2-wire resistance output (See ordering chart)
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Optional Relay Output:

Contact Ratings.....	Form A contact (N.O.), 2 Amps @ 140 Vac, 2 Amps @ 30 Vdc
Relay Trip Point.....	CDD4A: Programmable 500-5000 ppm via keypad CDD4B: Programmable 500-15,000 ppm via keypad
Relay Hysteresis.....	CDD4A: Programmable 25-200 ppm via keypad CDD4B: Programmable 25-500 ppm via keypad

LCD Display:

Resolution.....	1 ppm CO ₂
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 Override Switch.....Front panel push-button available as two-wire dry-contact output

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

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.

FEATURES:

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

OPTIONS:

- Temperature sensor output
- LCD
- Slidepot
- Override switch
- Control relay
- Custom logos

PRODUCT ORDERING INFORMATION:

MODEL	Description
CDD4A	Carbon Dioxide Detector (CO ₂), 0-2000 ppm, Field Selectable Output w/ Optional Temperature Sensor
CDD4B	Carbon Dioxide Detector (CO ₂), 0-20,000 ppm, Field Selectable Output w/ Optional Temperature Sensor

CODE	Enclosure
10	Space
20	Duct
30	Outside Air w/ heated enclosure
40	Outside Air

CODE	LCD Display
0	Concealed
1	Viewable (Not available on Outside enclosure)

CODE	Optional Temperature Sensor
T2	100 Ω Platinum, IEC 751, 385 Alpha, thin film
T5	1801 Ω, NTC Thermistor, ±0.2°C
T6	3,000 Ω, NTC Thermistor, ±0.2°C
T7	10,000 Ω, type 3, NTC Thermistor, ±0.2°C
T8	2.252 KΩ NTC Thermistor, ±0.2°C
T9	100,000 Ω, NTC Thermistor, ±0.2°C
T12	1000 Ω Platinum, IEC 751, 0.385 Alpha, thin film
T13	1000 Ω Nickel, 6370 ppm/K, Class B, DIN 43760
T14	10,000 Ω type 3, NTC Thermistor, ±0.2°C c/w 11k shunt resistor
T20	20,000 Ω, NTC Thermistor, ±0.2°C
T23	1000 Ω Nickel, 6180 ppm/K, Class B, DIN 43760
T24	10,000 Ω, type 2, NTC Thermistor, ±0.2°C

CODE	Setpoint Adjustment (Available on Space only)
-	No Setpoint Adjustment
P	Setpoint Adjustment

CODE	Momentary Override (Available on Space only)
-	No Override
S	Override Switch

CODE	Relay Output
-	No Relay
R	Relay

CDD4A	10	1	T7	P	S	-	← Typical Model Number
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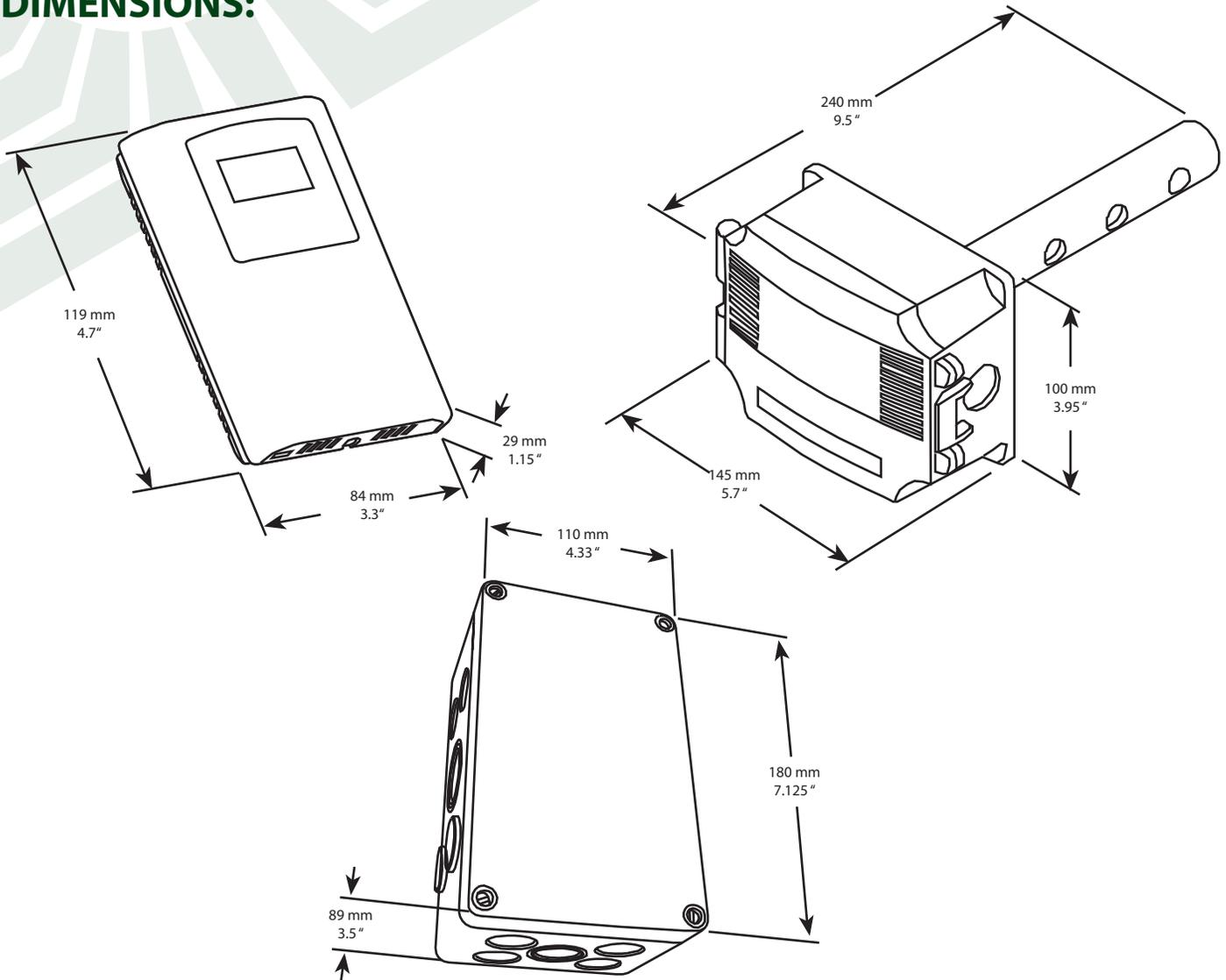
Example: Space CO₂, 0-2000 ppm w/ LCD, 10KΩ, Type 3 Thermistor, Setpoint Adjustment, & Override Switch

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

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:



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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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