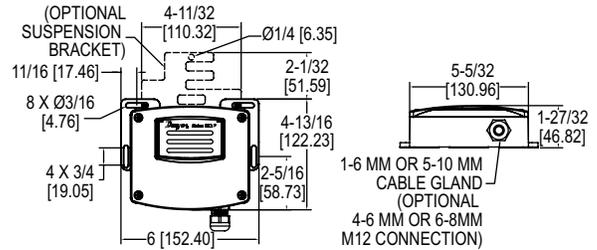




Series CDWP Carbon Dioxide Transmitter

Specifications - Installation and Operating Instructions



The **Series CDWP Carbon Dioxide Transmitter** accurately monitors the CO₂ concentration in industrial and indoor environments to help achieve energy savings. The CDWP utilizes a rugged IP54 aluminum housing with an exterior gray finish coat that was tested to withstand a 168 hour salt spray corrosion test. This ruggedized housing helps to protect the sensor from splashing liquid and airborne dust or debris making the Series CDWP a great fit for animal husbandry applications and confined feeding operations.

Automated CO₂ Baseline Correction (ABC)

The Series CDWP CO₂ transmitters are maintenance free instruments with the ability to adjust the CO₂ calibration by using the on-board ABC logic for intermittently occupied spaces. The ABC algorithm accounts for long term drift by making small adjustments to its zero calibration point based on the lowest CO₂ readings it measures. CO₂ calibration adjustments are made every eight days by the ABC algorithm. For environments occupied 24 hours per day it is recommended to periodically expose the CO₂ sensor to outside ambient air.

INSTALLATION



Disconnect power supply before installation to prevent electrical shock and equipment damage.

Make sure all connections are in accordance with the job wiring diagram and in accordance with national and local electrical codes. Use copper conductors only.

NOTICE

Use electrostatic discharge precautions (e.g., use of wrist straps) during installation and wiring to prevent equipment damage.

NOTICE

Avoid locations where severe shock or vibration, excessive moisture or corrosive fumes are present.

NOTICE

Do not exceed ratings of this device, permanent damage not covered by warranty may result.

NOTICE

Upon powering the transmitter, the firmware version will flash on the display. A warm up period of 30 minutes is required for the transmitter to adjust to the current CO₂ concentration.

NOTICE

Self calibration feature of the transmitter requires exposure to normal outdoor equivalent carbon dioxide level once every thirty days.

SPECIFICATIONS

Sensor: NDIR, 15 year life expectancy.

Range: CO₂: 0 to 2000, 0 to 5000, or 0 to 10000 PPM (depending on model).

Accuracy: CO₂: ±40 PPM + 3% of reading (2000 PPM CO₂); ±50 PPM + 5% of reading (5000 PPM CO₂); ±50 PPM + 10% of reading (10000 PPM CO₂).**

Response Time: 2 min for 90% step change.

Temperature Limits: 32 to 122°F (0 to 50°C).

Humidity Limits: 0 to 85% (non-condensing).

Power Requirements: 16-35 VDC or 19-28 VAC.

Power Consumption: Average: 2 W; Peak: 3.75 W.

Output: Current: 4-20 mA (max. 500 Ω); Voltage: 0-5 VDC or 0-10 VDC (min. 500 Ω).

Enclosure Rating: IP54.

Compliance: CE.

**The specified CO₂ accuracy is only guaranteed after three weeks of continuous operation in environments which are intermittently occupied.

SUSPENSION MOUNTING

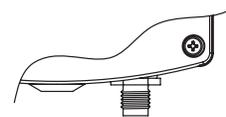
To suspend the CDWP from the ceiling, loop the end of the power cord and feed it through the hole at the base of the bracket and hook the loop on the prong.



Figure 1: CDWP suspension bracket

M12 Connector Option

The M12 Connection option allows for easy removal of the CDWP before site cleaning operations.



M12 CONNECTOR
FITS 4-6MM OR
6-8MM CABLE

Figure 2: Diagram of M12 connector

Power Supply

Choose a power supply with a voltage and current rating sufficient to meet the power specifications under all operating conditions. If the power supply is unregulated, make sure the output voltage remains within the required voltage range under all power line conditions.

CURRENT / VOLTAGE OUTPUTS

The transmitter may be wired for current or voltage output for CO₂.

WIRING

Use a minimum of 22 AWG to maximum 18 AWG wire for wiring to terminal blocks. Refer to Figure 3 for wiring Information.

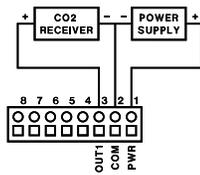


Figure 3: Active output wiring diagram

DIP SWITCH SETTINGS

To access the DIP SWITCH, remove the cover of the unit. The DIP SWITCH is located on the circuit board.

DIP Switch Position 1: CO₂ Output Selection

ON: Output set to voltage output
 OFF: Output set to current output

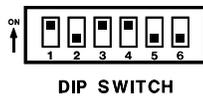


Figure 4: Diagram of DIP SWITCH

DIP Switch Position 2: Not Used in this product

DIP Switch Position 3 & 4: Current or Voltage Output Range Selection

Output Range	DIP Switch 3 Position	DIP Switch 4 Position
2-10 V 4-20 mA	ON	OFF
0-10 V 0-20 mA	OFF	OFF
0-5 V 0-10 mA	OFF	ON
1-5 V 2-10 mA	ON	ON

Dip Switch Position 5: Menu Access

ON: Menu Enabled
 OFF: Menu Disabled

DIP Switch Position 6: Not used in this product

Remote Display

The Series CDWP menu parameters can be set up and configured using a remote display tool, A-449. The mini USB plug of the remote display plugs into the receptor at the lower left hand corner of the PCBA when the cover is removed.

EDITING MENU PARAMETERS

Before any adjustment can be made to the transmitter, the Menu Lockout Dip Switch must be set to the "On" position (see DIP switch #5)

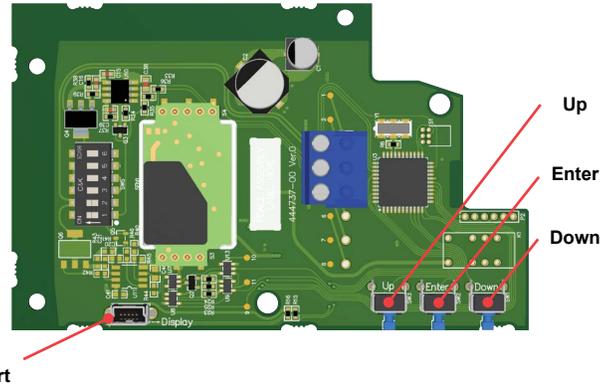


Figure 5: Circuit board inside of housing

ACCESSING MENU PARAMETERS

- Step 1: To enter the menu structure, press Up button and Down button simultaneously for 5 seconds (display will show RON parameter).
- Step 2: Press Up button or Down button to cycle between menu items.
- Step 3: Press Enter to edit the value for the displayed menu item (SET will appear on display).
- Step 4: Press Up button or Down button to adjust the value of the menu item.
- Step 5: Press Enter button to save the changes (SET will disappear).
- Step 6: Repeat Steps 2 through 5 for each of the parameters.
- Step 7: To exit the menu at any time, press and hold Up button and Down button simultaneously for 5 seconds or wait 10 seconds without pushing any buttons.

Menu Descriptions

MAX	Maximum CO ₂ Value Displays the highest CO ₂ concentration value observed by the sensor since the last power cycle or reset. Reset the MAX CO ₂ concentration by pressing and holding the ENTER button for 1 second.	TOL	Temperature low output range (Series CDT with active temperature only) Sets the temperature for the lowest output (4 mA or 0 VDC). Low limit: 32.0°F/0.0°C Factory setting: 32.0°F/0.0°C High limit: 122.0°F/50.0°C
RON	Relay on set point Sets the CO ₂ concentration which the optional relay is energized (also concurrently energizes the front facing LED for -S models). Low limit: 0 PPM Factory setting: 1100 PPM High limit: 2000/5000 PPM (depending on model)	TOH	Temperature high output range (Series CDT with active temperature only) Sets the temperature for the highest output (20 mA, 5 VDC or 10 VDC). When TOH is set above TOL, the transmitter is direct acting and the output will increase with an increase in temperature. When TOH is below TOL, the transmitter is reverse acting and the output will increase with a decrease in temperature. Low limit: 32.0°F/0.0°C Factory setting: 122.0°F/50.0°C High limit: 122.0°F/50.0°C
ROF	Relay off set point Sets the CO ₂ concentration which the optional relay is de-energized (also concurrently de-energizes the front facing LED for -S models). Setting value lower than RON provides direct action for detecting high concentrations of CO ₂ . Setting value higher than RON provides indirect action for detecting low concentrations of CO ₂ . Up button and Down button on the LCD display will be lit to indicate when the relay is energized. Low limit: 0 PPM Factory setting: 1050 PPM High limit: 2000/5000 PPM (depending on model)	HOL	Humidity low output range (Series CDTR only) Sets the humidity for the lowest output (4 mA or 0 VDC). Low limit: 0.0% Factory setting: 0.0% High limit: 100.0%
DSP	Display configuration Determines the LCD display configuration during normal operation. The LCD display can indicate the CO ₂ concentration, temperature, relative humidity (Series CDTR only) and CO ₂ concentration combined with temperature or relative humidity (Series CDTR only). CH CO ₂ concentration and relative humidity (Series CDTR only) CT CO ₂ concentration and temperature TH Temperature and relative humidity (Series CDTR only) C CO ₂ concentration only T Temperature only H Relative humidity only (Series CDTR only)	HOH	Humidity high output range (Series CDTR only) Sets the humidity for the highest output (20 mA, 5 VDC or 10 VDC). When HOH is set above HOL, the transmitter is direct acting and the output will increase with an increase in humidity. When HOH is below HOL, the transmitter is reverse acting and the output will increase with a decrease in humidity. Low limit: 0.0% Factory setting: 100.0% High limit: 100.0%
UNI	Units selection Temperature and barometric pressure measurements can be displayed in US engineering units or SI engineering units. The factory default is to display US engineering units. US units °F for temperature and in Hg for barometric pressure SI units °C for temperature and hPa for barometric pressure	BAR	Barometric pressure Sets the typical barometric pressure for the location where the transmitter is mounted. The factory setting is for standard pressure at sea level. Adjusting the barometric pressure gives a more accurate measurement, especially at higher elevations. Refer to the elevation charts in Figure 7 for typical barometric pressures at a given elevation. Low limit: 20.0 in Hg/677 hPa Factory setting: 29.9 in Hg/1013 hPa High limit: 32.0 in Hg/1084 hPa
OFT	Temperature Offset Allows the user to add an offset to the measured temperature. Range: ±5°C in 0.5°C increments (±9°F in 1°F increments) Factory Default: 0°C	ABC	Automated Baseline Correction Enables/disables the Automated Baseline Correction algorithm for disabling in locations that experience elevated levels of CO ₂ due to constant occupancy of the area. Select "ON" to enable ABC and select "OFF" to disable ABC. Factory Default: ON
OFH	Humidity Offset (CDTR only) Allows the user to add an offset to the measured relative humidity. Range: ±10% in 1% increments Factory Default: 0% RH	RST	Reset to Factory Defaults Resets all menu settings to their default value, and clears zero and span. YES - Press and hold -- button for several seconds to reset settings NO - Press -- button to exit this menu item without resetting
COL	CO ₂ low output range Sets the CO ₂ concentration for the lowest output (4 mA or 0 VDC). Low limit: 0 PPM Factory setting: 0 PPM High limit: 2000/5000 PPM (depending on model)		
COH	CO ₂ high output range Sets the CO ₂ concentration for the highest output (20 mA, 5 VDC or 10 VDC). When COH is set above COL, the transmitter is direct acting and the output will increase with an increase in CO ₂ level. When COH is below COL, the transmitter is reverse acting and the output will increase with a decrease in CO ₂ level. Low limit: 0 PPM Factory setting: 2000/5000 PPM (depending on model) High limit: 2000/5000 PPM (depending on model)		

MAINTENANCE/REPAIR

Upon final installation of the Series CDWP, no routine maintenance is required. The Series CDWP is not field serviceable and it is not possible to repair the unit. Field repair should not be attempted and may void warranty.



This symbol indicates waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your Local Authority or retailer for recycling advice.

WARRANTY/RETURN

Refer to "Terms and Conditions of Sale" in our catalog and on our website. Contact customer service to receive or obtain a Return Materials Authorization number (RMA) before shipping the product back for repair. Be sure to include a brief description of the problem plus any additional application notes.

US Customary Units		SI Units	
ft	in Hg	m	hPa
0	29.92	0	1013
400	29.50	100	1002
800	29.10	200	990
1200	28.69	300	979
1600	28.29	400	968
2000	27.90	500	957
2400	27.51	600	946
2800	27.13	700	935
3200	26.76	800	924
3600	26.39	900	914
4000	26.02	1000	904
4400	25.66	1100	893
4800	25.30	1200	883
5200	24.95	1300	873
5600	24.60	1400	863
6000	24.26	1500	853
6400	23.93	1600	844
6800	23.60	1700	834
7200	23.27	1800	824
7600	22.94	1900	815
8000	22.63	2000	806
8400	22.31	2100	797
8800	22.00	2200	787
9200	21.70	2300	779
9600	21.40	2400	770
10000	21.40	2500	761

Figure 7: Elevation chart