



## Product Overview

The AX-GS-CD-DT Carbon Dioxide Duct mounted Transmitter uses Infra-red technology to monitor CO<sub>2</sub> concentration levels and output a corresponding analogue signal or communication over Modbus, depending on model. The unit is intended for use in return air ducts, to provide a proportional signal to control ventilation and hence maintain air quality.

The AX-GS-CD-DT transmitters automatically calibrate over their lifetime, using ABC logic.

## Features

- Duct mounting
- Monitors CO<sub>2</sub> over range of 400-2,000ppm
- Separate field configurable output for each parameter
- Offset function for field calibration for each parameter
- Lifetime auto-calibration
- Clear backlit display

## Product Specifications

Power Supply:	24Vac/dc ±10%
Ambient Temp. Range:	0 to 50°C, 0-95% RH non condensing
Analogue Output:	0-10V, 0-5V, 2-10V at minimum load 1KΩ
Modbus Output:	RS485 - RTU
Output Range:	CO <sub>2</sub> : 400-2,000ppm Temperature: 0-50°C
Accuracy:	CO <sub>2</sub> : ±40ppm +2% Temperature: <0.5°C
Stability:	Self-calibrating <2% FS over life of sensor (typical 10 yrs)
Materials:	ABS, Polycarbonate. Protection IP54
Dimensions:	Enclosure: 120 x 96 x 45mm Probe: 188mm (L) x 12mm (Dia)
Sensor Type:	CO <sub>2</sub> : Non-dispersive Infra-red Temperature: NTC 10K
Calibration Interval:	Daily (refer to ABC logic)
Conformity:	CE marked, EMC, RoHS, WEEE
Country of Origin:	Finland

## Order Codes

AX-GS-CD-DT	Duct Mounted CO <sub>2</sub> Sensor, 188mm probe, 24Vac/dc supply
AX-GS-CD-DTLC	Duct Mounted CO <sub>2</sub> Sensor with LCD, 188mm probe, 24Vac/dc supply
AX-GS-CD-DTM	Duct Mounted CO <sub>2</sub> Sensor, 188mm probe, 24Vac/dc supply, Modbus
AX-GS-CD-DTMLCD	Duct Mounted CO <sub>2</sub> Sensor with LCD, 188mm probe, 24Vac/dc supply, Modbus

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### Mounting Instructions

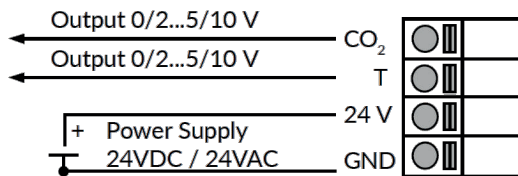
The AX-GS-CD-DT range includes a mounting flange and screws to enable installation directly in to the duct. The device must be mounted with the cable gland facing downwards.

### Automatic Calibration

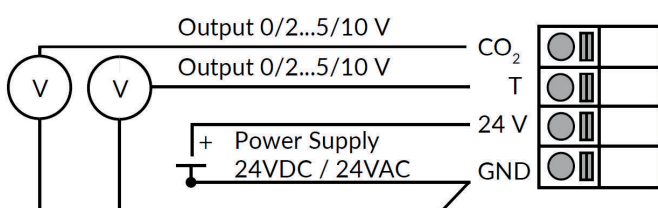
The ABC (Automatic Background Calibration) program utilises the computing power in the sensors onboard microprocessor to remember the lowest CO<sub>2</sub> concentration that takes place every 24 hours. The transmitter assumes this low point is at outside levels. The automatic calibration logic requires that the space in which the transmitter is used needs to be unoccupied for four hours per day, so that the indoor CO<sub>2</sub> concentration drops to the outside level.

Note - this sensor should NOT be used where it does not experience a periodic drop to outside levels (i.e. where occupancy is 24 Hrs/ 7 days/week).

### Connections



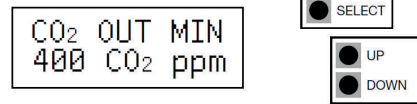
When using long connection wires it may be necessary to use a separate GND wire for voltage output current to prevent measurement distortion. This will depend on the cross section and length of the wires being used. If long and/or small cross section wires are used, supply current and wire resistance may generate a voltage drop in the common GND wire, resulting in a distorted output measurement.



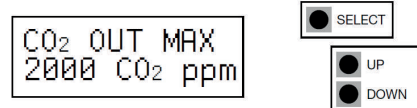
### Configuration

Activate the device Menu by pushing the select button for 2 seconds.

Select the CO<sub>2</sub> low limit for output band: 0-1900ppm.



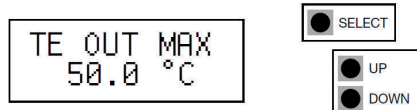
Select the CO<sub>2</sub> high limit for output band: 500-2000ppm



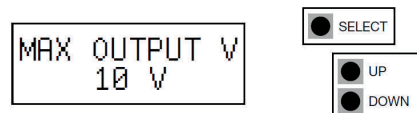
Select the temperature low limit for output band: 0-45°C



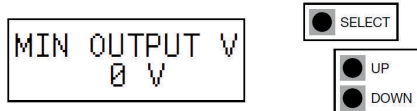
Select the temperature high limit for output band 5-50°C



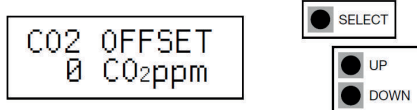
Select the output maximum voltage: 5V / 10V



Select the output minimum voltage: 0V / 2V



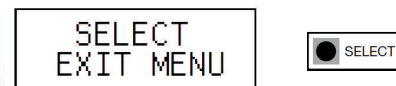
Select CO<sub>2</sub> offset: Offset function enables field calibration. This is necessary in demanding applications requiring annual calibration.



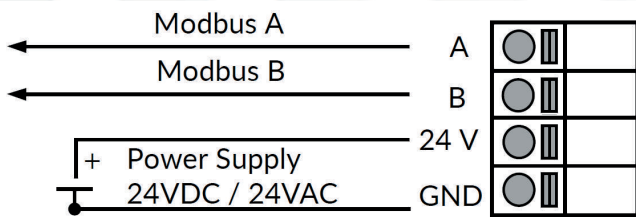
Select temperature offset:



Push the select button to exit the menu:



## Modbus Connections



## Configuration

Enter the configuration Menu by holding Select button for 2 seconds

Select the address for Modbus communication (1-247)

ADDRESS  
99

SELECT  
 UP  
 DOWN

Select the baud rate: 9600/19200/38400

BAUD RATE  
9600

SELECT  
 UP  
 DOWN

Select the parity bit: None/Even/Odd

PARITY BIT  
NONE

SELECT  
 UP  
 DOWN

Select CO<sub>2</sub> offset: ±200 CO<sub>2</sub> ppm. The offset feature allows for field calibration. This is often necessary in demanding applications where annual calibration is required.

CO<sub>2</sub> OFFSET  
0 CO<sub>2</sub>ppm

SELECT  
 UP  
 DOWN

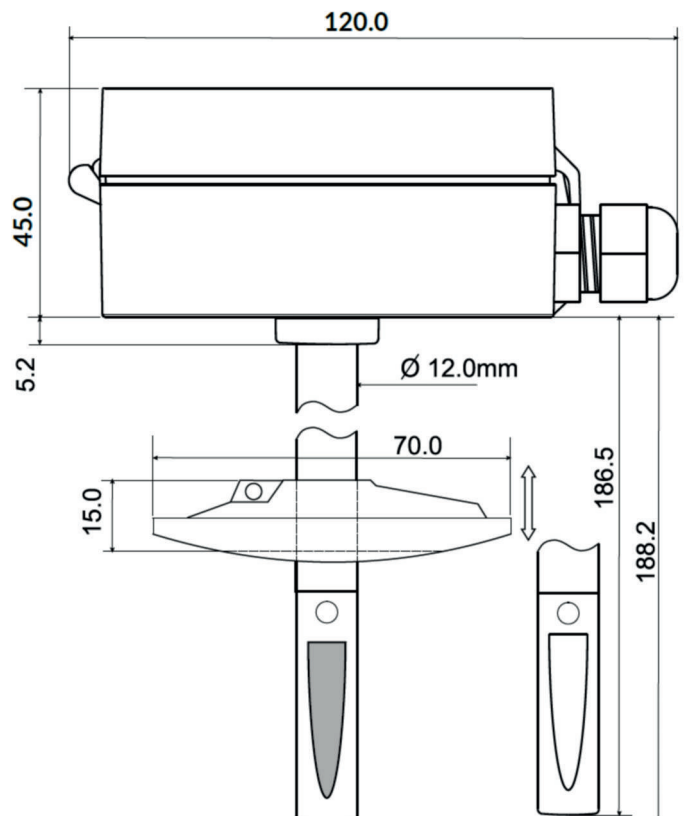
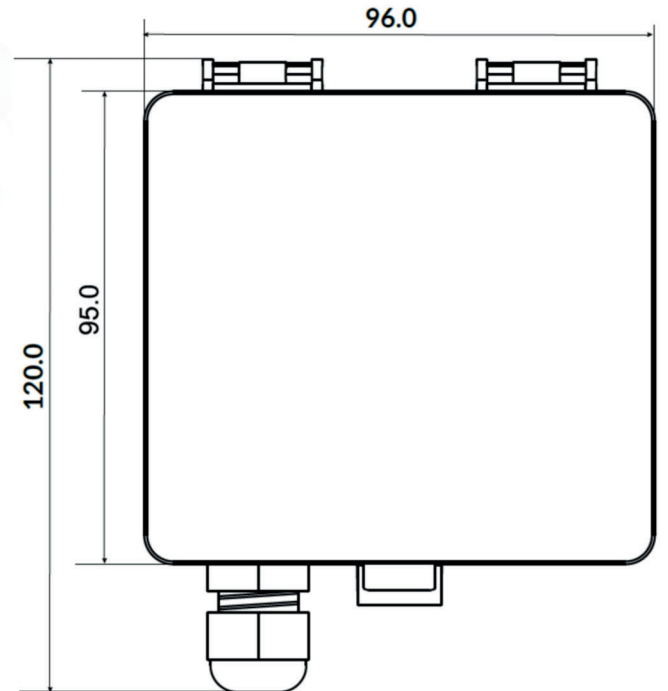
Select the temperature offset: ±5°C or ±9°F

TE OFFSET  
0.0 °C

SELECT  
 UP  
 DOWN

Exit the menu by pushing select

## Dimensions



## Datasheet Contents

Every effort has been taken in the production of this data sheet to ensure accuracy. Axio do not accept responsibility for any damage, expense, injury, loss or consequential loss resulting from any errors or omissions. Axio has a policy of continuous improvement and reserves the right to change this specification without notice.