

# CO<sub>2</sub>+ AIR QUALITY DETECTOR -DUCT MOUNT WITH TEMPERATURE AND RH% DETECTION

## PRODUCT BROCHURE

### HDM-TG9-X182 SERIES

#### PRODUCT DETAIL

- Real time detection carbon dioxide and air quality (VOC)
- Air Quality inside an air duct
- Detection high accuracy temperature and relative humidity
- Smart sensor probe with extendable probe may be easily installed into any air duct
- With the water-proof and porous film around the sensor probe
- Up to 3 analog linear outputs for 3 measurements
- Modbus RS485 interface for 4 measurements
- With or without LCD display
- CE-approval

#### APPLICATION

- Building ventilation control systems
- Industrial ventilation control systems
- Airport, train station, shopping centre, office, classroom and other public places for air quality measurement and indication



#### FEATURES

- Designed for real time detection of carbon dioxide, air quality, temperature or relative humidity inside air ducts
- NDIR infrared CO<sub>2</sub> sensor inside with auto self-calibration and up to 15 years sensor life
- MOS sensor with high sensitivity for VOCs
- Digitally compensated temperature and humidity sensor provides a high accuracy measurement in full range
- Provide up to 3 analog outputs (0~10VDC or 4~20mA or 0~5VDC) for CO<sub>2</sub>, air quality (VOC) and temperature/relative humidity
- Modbus RS485 interface provide outputs for CO<sub>2</sub>, temperature, humidity and air quality (VOC)
- With LCD or without LCD (selectable options)
- LCD displays real-time measurements of CO<sub>2</sub>, air quality (VOC), temperature and relative humidity
- Simple and smart probe design incorporates a water-proof but porous membrane for reliable functioning
- Extendable probe suitable to various air duct systems
- 24VAC/VDC power supply
- EU standard and CE-approval

# DETECTION PARAMETERS

## CARBON DIOXIDE (CO<sub>2</sub>)

Measurement of indoor CO<sub>2</sub> levels is a universally accepted parameter for the indoor air quality in order to control ventilation. Ampcontrol CO<sub>2</sub> duct monitoring range provides class leading features such as:

Non-dispersive infrared (NDIR) CO<sub>2</sub> sensor with more than 10-year lifetime

Automated self-calibration technology guarantees reliable CO<sub>2</sub> measurement

CO<sub>2</sub> range: 0~2000ppm/0~5000ppm optional

Rapid response, high stability and consistency

- Ampcontrol IAQ VOC sensors utilise gas sensitive MEMS semiconductor technology. This offers rapid response, high sensitivity; excellent accuracy, long term stability and low drift characteristics with 5~7 years life time
- Highly sensitive to volatile gases like ammonia, toluene, formaldehyde, alcohol, H<sub>2</sub>S and cigarette smoke, etc.

Ampcontrol IAQ range uses combined digital temperature and humidity sensor with high accuracy and stability.

Built in digital compensation to CO<sub>2</sub> and air quality sensors makes measurements more accurate by offsetting environmental effects.

## TEMPERATURE AND HUMIDITY

The air quality sensor is a mix gases VOC sensor with high sensitivity for VOC (volatile organic compounds) such as ammonia, toluene, formaldehyde and cigarette smoke, alcohol, H<sub>2</sub>S, and carbon monoxide. It is important to measure and record indoor air quality in real time and long term. Ampcontrol IAQ VOC sensor responds quickly to any change in the concentration of these gases.

SPECIFICATIONS				
Parameters	CO <sub>2</sub>	Air Quality (VOC's)	Temperature	Relative humidity
Sensing element	Non-Dispersive Infrared Detector (NDIR)	MEMS type	Digital combined temperature and humidity sensor	
Measuring range	0~2000ppm(default) 0~5000ppm (selectable in the order)	1~30ppm	0~50°C default -20~60°C selectable	0~100%RH
Display Resolution	1ppm	5ppm	0.1°C	0.1%RH
Accuracy @ 25°C	±30ppm + 3% of reading	±10%	±0.5°C	±3%RH
Life time	15 years (normal)	5~7 years	10 years	
Calibration cycle	Auto Self Calibration	---	---	---
Response Time	<2 minutes for 90% change	<1 minute (for 10ppm H <sub>2</sub> S, 30ppm ethanol) <5 minute (for a cigarette) in 20m <sup>2</sup> room	<10 seconds to reach 63%	
Warm up time	72 hours (initial) ,1 hour (operation)			

## SPECIFICATIONS

### Electrical Characteristics

Power supply	24VAC/VDC
Power Consumption	3.5 W max. ; 2.5 W avg.
Outputs	Up to three analog outputs 0~10VDC (default) or 4~20mA (selectable by jumpers) 0~ 5VDC (selected while placing order, user cannot change later)

### Additional Data, Dimensions and Approvals

Operation conditions	-20~60°C; 0~95%RH, non-condensing
Storage conditions	0~50°C / 20~60%RH
Weight	240g
Dimensions	130mm(L)×85mm(W)×36.5mm(H)
Installation	Wall mount (65mm×65mm or 85mm×85mm or 2"×4" wire box)
Housing IP class	PC/ABS, protection class: IP30
Standard	CE-Approval
Modbus interface	RS-485 with Modbus protocol, 19200bps rate, 15KV antistatic protection, independent base address

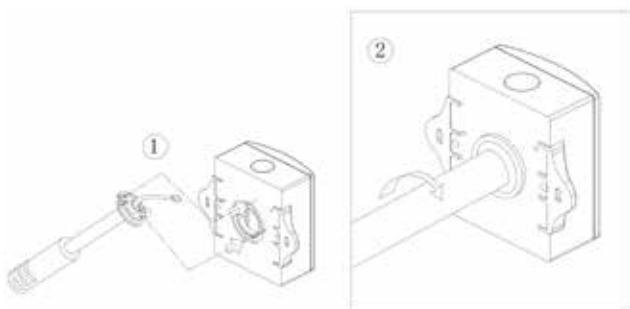
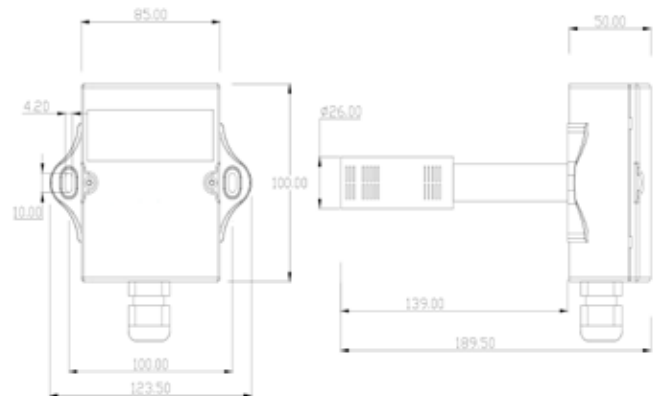
## DIMENSIONS AND MOUNTING

Duct mountable

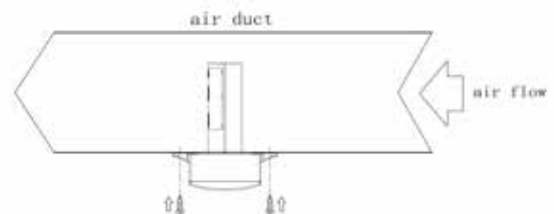
Probe Length: 139.00mm  
can be extended to 139+70mm

Probe Diameter: Ø26.00mm

Installation Holes: 100mm



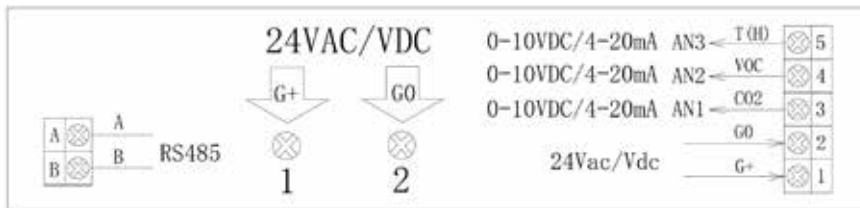
Install or move the probe



Air flow direction

## DIMENSIONS AND MOUNTING CONT.

### WIRING DIAGRAM



## MODEL SELECTION

HDM-TG9- X 1 8 2 L - Y O2/05 E - Tab

- X: analog output
  - 3- 3 x analog outputs for CO2 + Air Quality (VOC) + Temp. /RH (selectable by jumpers)
  - 2- 2 x analog outputs for CO2 + Air Quality (VOC)
  - 0- no analog output
- 1: Modbus interface (with outputs for real-time measurement of CO2+ Air Quality (VOC) +Temp. +RH)
- 8: CO2 sensor code
- 2: Air Quality (VOC) sensor code
- L: LCD display  
No L means no LCD
- Y: Analog output type
  - A- 4~20mA (selectable via jumpers)
  - V- 0~10VDC (default)
  - V5- 0~5VDC (NOTE: If 0~5VDC is selected, then options of 0~10VDC or 4~20mA will not be available)
- O2/05: CO2 measurement range
  - O2- 0~2,000ppm (default)
  - O5- 0~5,000ppm
- E: extended duct probe up to 209mm  
No E indicates the standard probe length of 139mm
- Tab: temperature scaling
  - T05: 0~50°C default
  - T06: 0~60°CWithout the item option indicates no output for temperature measurement.