# $CO_2$ Duct Transmitter

With Temperature and RH% Detection

Model: TG9XX8

- **Real time detection carbon dioxide of the air duct**
- **Detection high accuracy temperature and relative humidity**
- **Smart sensor probe can be easily installed into any air duct**
- **With the water-proof and porous film around the sensor probe**
- **Up to 3xanalog linear outputs for measurements**
- **Modbus RS485 interface**
- **With or without LCD display**
- **CE-approval**

## Features

- Designed for real time detecting carbon dioxide, temperature or relative humidity in air ducts.
- NDIR infrared CO2 sensor inside with special Self Calibration and up to 15 years' lifetime. It makes CO2 measurement more accurate and reliable.
- Digital temperature & humidity sensor provides the high accuracy measurement in full range.
- Provides up to 3 analog outputs (0~10VDC or 4~20mA or 0~5VDC) for CO2 temperature and relative humidity.
- Modbus RS485 communication interface.
- The end user can adjust CO2/Temp. range which correspond with the analog outputs via Modbus, also can preset the inverse proportion liner outputs for some different applications.
- With LCD or without LCD selectable
- LCD display real-time measurements of CO2, temperature and relative humidity.
- Simple and smart design for the installation of sensor probe, which has a water-proof and porous film
- Extendable probe meets more air duct systems
- 24VAC/VDC power supply.
- EU standard and CE-approval.

## Detection Focus

✓ **Carbon Dioxide ($CO_2$)**

Indoor $CO_2$ level is a universal accepted parameter for the condition of indoor ventilation and air quality.

A time period can be preset from 1 to 24 hours, e.g. 5 hours, then the monitor can display $CO_2$ average level during this period, which provides an objective and true data for the measurement of the air quality in a certain space.

- Non-dispersive infrared (NDIR) $CO_2$ sensor with more than 10-year lifetime
- ABC self-calibration technology guarantees reliable $CO_2$ measurement
- $CO_2$ range: 0~2000ppm/0~5000ppm optional
- Rapid response, high stability and consistency



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✓ **Temperature and humidity**

Combined digital temperature and humidity sensor with high accuracy and stability. It also has compensation to $CO_2$ and air quality which makes the measurements more accurate by minimizing environmental effects.

## Typical Applications

- Building management for office areas and residental
- Ventilation control system

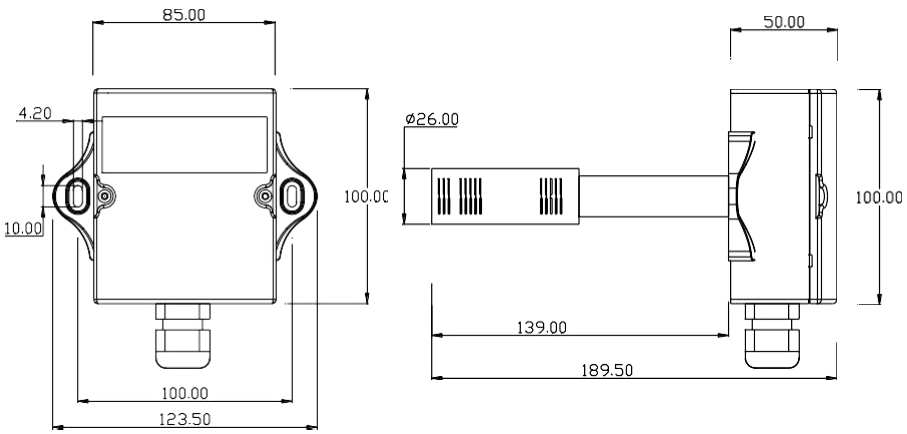
## Specifications

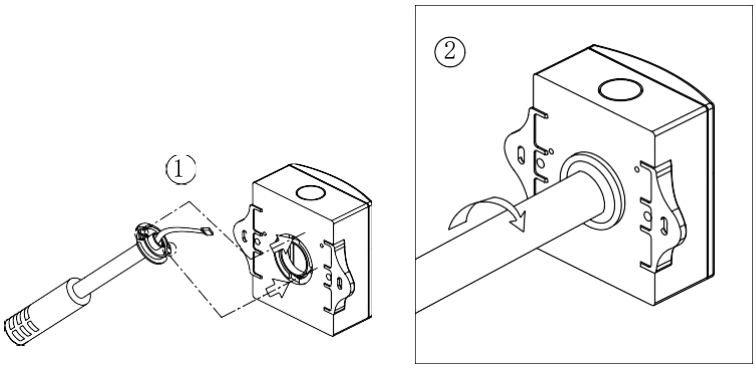
| Monitoring parameters | $CO_2$ | Temperature | Relative humidity |
|---|---|---|---|
| **Sensing element** | Non-Dispersive Infrared Detector (NDIR) | Digital combined temperature and humidity sensor | |
| **Measuring range** | 0~2000ppm(default)<br>0~5000ppm<br>(selectable in the order) | 0℃~50℃(32℉~122℉)<br>(default) | 0~100%RH |
| **Display Resolution** | 1ppm | 0.1℃ | 0.1%RH |
| **Accuracy@25℃(77℉)** | ±60ppm + 3% of reading | ±0.5℃ (0℃~50℃) | ±3%RH (20%-80%RH) |
| **Life time** | 15 years (normal) | 10 years | |
| **Calibration cycle** | ABC Logic Self Calibration | —— | —— |
| **Response Time** | <2 minutes for 90% change | <10 seconds to reach 63% | |
| **Warm up time** | 2 hours (first time)<br>2 minutes (operation) | | |
| **Electrical Characteristics** | | | |
| **Power supply** | 24VAC/VDC | | |
| **Consumption** | 3.5 W max. ; 2.5 W avg. | | |
| **Analog Outputs** | Two or three analog outputs<br>0~10VDC(default) or 4~20mA (selectable by jumpers)<br>0~5VDC (selected at place the order)<br>Can be set the inverse proportion linear output by Modbus | | |
| **Modbus RS485 interface (optional)** | RS-485 with Modbus protocol, 19200bps rate, 15KV antistatic protection, independent base address | | |
| **Conditions of Using and Installation** | | | |
| **Operation conditions** | 0~50℃(32~122℉); 0~95%RH, non condensing | | |
| **Storage conditions** | 0~50℃(32~122℉)/ 5~80%RH | | |
| **Weight** | 320g | | |
| **Installation** | Fixed on the air duct with 100mm installation hole size | | |
| **IP class of the housing** | IP50 for no LCD<br>IP40 for with LCD | | |
| **Standard** | CE-Approval | | |

## Dimensions & Mounting

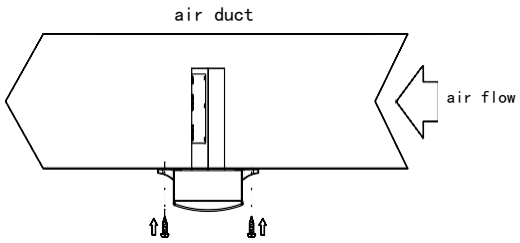
**Duct mounted**

| | |
|---|---|
| Probe Length | 139.00mm |
| | can be extended |
| | to 139+70mm |
| Probe Diameter | Ø26.00mm |
| Installation Holes | 100mm |




Install or move the probe




The air flow direction

## Models Information

**TG9$X_1$ $X_2$ 8 L – Y02/05 E –Tab**

**$X_1$:** analog output
- **3-** 3Xanalog outputs for CO2 + Temperature + Humidity
- **1-** 1xanalog output for CO2
- **0-** no analog output

**$X_2$:** Modbus interface
- **1-** with Modbus interface
- **0-** no Modbus interface

**8:** CO2 sensor code

**L:** LCD display

Non-required option. No **L** indicates no LCD

**Y:** default output type
- **A-** 4~20mA
- **V-** 0~10VDC (default)
- **V5-** 0~5VDC (can't be changed to another output by jumpers)

**02/05:** CO2 measurement range
02- 0~2000ppm (default)
05- 0~5000ppm

**E:** extended duct probe up to 209mm
Non-required option. No **E** indicates the standard probe length of 139mm

**Tab:** temperature scaling
**T05:** 0℃~50℃(32℉~122℉) (default)
**T06:** 0℃~60℃(32℉~140℉)
No this item indicates no output for temperature measurement.

## Shipping Information

| | |
|---|---|
| Indiv. Ctn. Dim | 185mm×130mm×110mm |
| Master Ctn. Qty | 20 |
| Master Ctn. Dim | 44cm(L) X32cm (W) X32cm (H) |
| Master Ctn. Wt. (volume weight) | 15.0KG |

## Wiring Diagram