

Carbon Dioxide Controller



Applications

- For BAS and HVAC systems
- VAV terminal control
- Used in all ventilation systems



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Product No: TSP-CO2 Series

- Integrate CO2 transmitter and controller into one unit
- Temperature and RH detection is optional
- NDIR infrared CO2 sensor with patented self calibration
- One or two analog outputs for CO2 or CO2/Temp.
- Linear output or PID control output for CO2
- LED light with 3-color mode or working mode selectable
- Modbus RS485 communication interface
- Optional OLED screen displays measurements
- One relay output with two control modes chosen
- Buzzer alarm available with a relay on/off output

Features

- Real time measuring ambience carbon dioxide and temperature and relative humidity
- NDIR infrared CO2 sensor with Self Calibration which makes CO2 measurement more accurate and reliable.
- Up to 15 years lifetime of CO2 sensor
- Provide one or two 0~10VDC/4~20mA which can be chosen linear outputs or PID control output
- One passive relay output is optional. It can control a fan or a CO2 generator. The control mode is easily selected.
- The 3-color LED indicates three CO2 level ranges
- Optional OLED screen displays CO2/Temp/RH measurements
- Buzzer alarm available
- RS485 interface with Modbus RTU
- 24VAC/VDC power supply
- CE-approval

Specifications

General Data			
Power supply	24VAC/VDC± 10%		
Consumption	3.5 W max. ; 2.0 W avg.		
Analog outputs	One 0~10VDC/4~20mA for CO2 measurement Two 0~10VDC/4~20mA for CO2/Temperature measurements PID control output is selectable		
Relay output	One passive relay output (max.5A) with the control mode selection (control a fan or a CO2 generator)		
RS485 interface	Modbus protocol, 4800/9600(default)/19200/38400bps; 15KV antistatic protection, independent base address.		
LED light selectable	<table border="1"> <tr> <td>3-color mode (default) Green: ≤1000ppm Orange: 1000~1400ppm Red: >1400ppm Red flashing: CO2 sensor faulty</td> <td>Working light mode Green on: working Red flashing: CO2 sensor faulty</td> </tr> </table>	3-color mode (default) Green: ≤1000ppm Orange: 1000~1400ppm Red: >1400ppm Red flashing: CO2 sensor faulty	Working light mode Green on: working Red flashing: CO2 sensor faulty
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OLED Display	Display CO2 or CO2/temp. or CO2/Temp./ RH measurements		
Operation condition	-20~60℃; 0~99%RH, non condensing		
Storage condition	0~50℃, 0~60%RH		
Net Weight / Dimensions	190g /117mm(H)×95mm(W)×36mm(D)		
Installation	wall mounting with 65mm×65mm or 2"×4" wire box		
Housing and IP class	PC/ABS fireproof plastic material, protection class: IP30		



Standard	CE approval
Carbon Dioxide	
Sensing element	Non-Dispersive Infrared Detector (NDIR)
CO ₂ measuring range	0~2,000ppm (default) 0~5,000ppm (selected in the advanced setup)
CO ₂ Accuracy	±60ppm + 3% of reading or ±75ppm (whichever is greater)
Temperature dependence	0.2% FS per°C
Stability	<2% of FS over life of sensor (10 year typical)
Pressure dependence	0.13% of reading per mm Hg
Calibration	ABC Logic Self Calibration Algorithm
Response time	<2 minutes for 90% step change typical
Signal update	Every 2 seconds
Warm-up time	2 hours (first time) / 2 minutes (operation)
Temperature and RH (option)	
Temperature sensor (selectable)	Digital integrated temperature and humidity sensor SHT, or NTC thermistor
Measuring range	-20~60°C/-4~140F (default) 0~100%RH
Accuracy	Temp.: <±0.5°C@25°C RH: <±3.0%RH (20%~80%RH)

Models Guide

TSP - CO₂ - A X Y Z - T/TH - P

A: OLED display with buttons

- D- with OLED and buttons (for Y=1)
- B- no OLED and buttons

X: analog output

- 0- no analog output
- 1- 1x analog output (for CO₂)
- 2- 2x analog output (for CO₂ & Temp.)

Y: relay output

- 0-no relay output
- 1- 1x relay output

Z: communication interface

- 0- no communication interface
- 1-Modbus RS485 interface

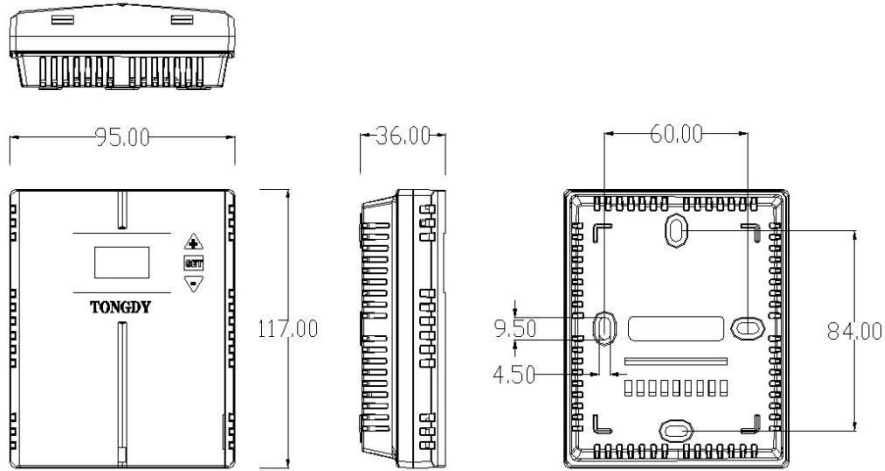
T/TH: temperature and RH option

- T- temperature detection
- TH- temperature & RH detection
- No T/TH suffix indicates no temperature or/and RH detection

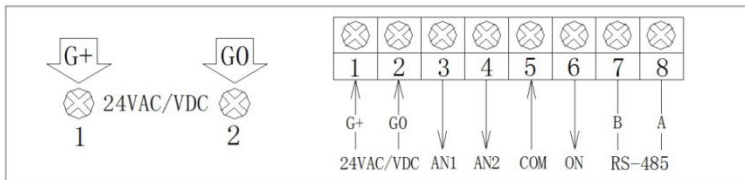
P: type of analog output

- V- 0~10VDC output (default)
- A- 4~20mA output
- P- PID output

Mounting and Dimensions



Wiring Diagram



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