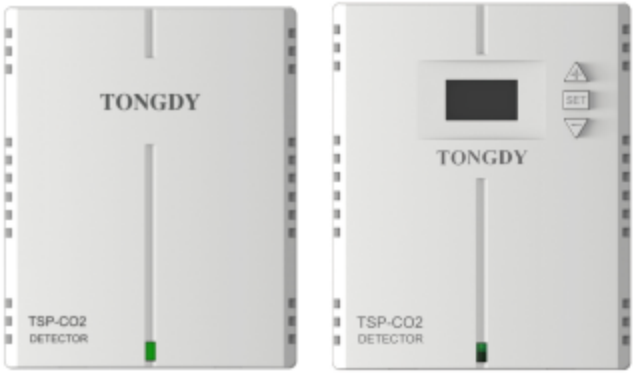
Carbon Dioxide Detector

—With Control Output

Model#: TSP-CO2 Series



- **Perfect carbon dioxide transmitter/controller**
- **Temperature and RH detection is optional**
- **NDIR infrared CO2 sensor with patented self calibration**
- **One or two 0~10VDC/4~20mA linear outputs for CO2 or CO2/Temp.**
- **PID control output selectable for CO2 measurement**
- **LED light selectable between 3-color mode and working mode**
- **Modbus RS485 communication interface**
- **Optional OLED screen displays measurements**
- **One relay output optional for a ventilator or a CO2 generator**
- **Buzzer alarm provided for the model with a relay on/off output**
- **CE approval**

Features

- Design for real time measuring ambiance carbon dioxide and temperature and relative humidity
- NDIR infrared CO_2 sensor inside with special Self Calibration. It makes CO2 measurement more accurate and more reliable.
- Up to 10 years lifetime of CO_2 sensor
- Provide one or two 0~10VDC/4~20mA linear output for CO2 or CO2/temp.
- PID control output can be selected for CO2 measurement
- 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 for the relay control models
- 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	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
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	0~2000ppm (default) 0~5000ppm (selected in the advanced setup)	
CO_2 Accuracy	± 60ppm + 3% of reading or ±75ppm (whichever is greater)	
Temperature dependence	0.2% FS per℃	
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℃/-4~140F (default) 0~100%RH	
Accuracy	Temp.: <± 0.5℃@25℃ 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.)

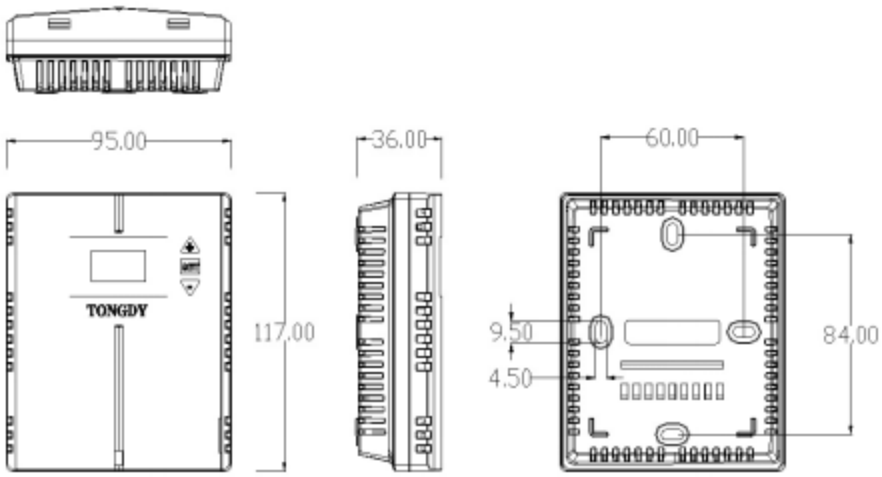
Y: relay output
- 0- no relay output
- 1- 1x relay output

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

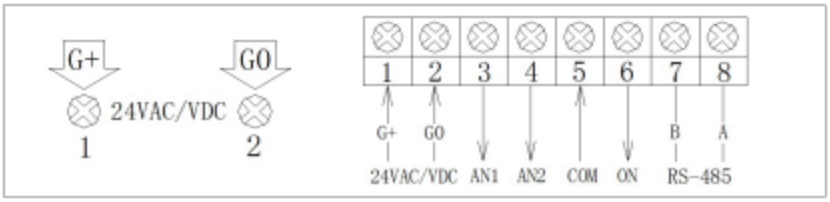
T/TH: temperature and RH option
- T- temperature detection
- TH- temperature & RH detection
- No T/TH suffix indicates no temperature or/and RH detection

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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