Ventilation Sensor – VS08

Carbon dioxide sensor / transmitter

PRODUCT DESCRIPTION

The Ventilation Sensor, VS08 is a state-of-the-art, low cost, maintenance-free infrared carbon dioxide (CO2) sensor/transmitter for installation in the ventilation duct. The VS08 measures the CO2 concentration in the ambient air up to 2,000 ppm and transforms the data into 0-10 V or 4-20mA output signals.

With CO2 demand controlled ventilations, VS08 helps to save money by decreasing the energy consumption while maintaining a healthier indoor climate!

VS08-W (wall mount)
Carbon Dioxide (CO2)
sensor/transmitter

FEATURES

Using patented state-of-the-art gold-plated infrared (NDIR) wave-guide technology and offers reliable measurements

- measurement range: 0 - 2 000 ppm CO2
- analogue outputs:
    OUT: 0 - 10 V (= 0 - 2 000 ppm CO2)
       or 4 – 20mA (= 0 - 2 000 ppm CO2)
- maintenance-free in normal applications
- high tolerance to extreme humidity environment conditions
- comply to EN50121-3-2 EMC standard
- non-frill design, direct DDC connection
- optional ranges 0-2% or 0-5%
- Two different mounting options:
    1) IP65 duct housing (model : VS08-K)

    2) IP65 wall mount (model: VS08-W, note: direction of sensor facing downwards)
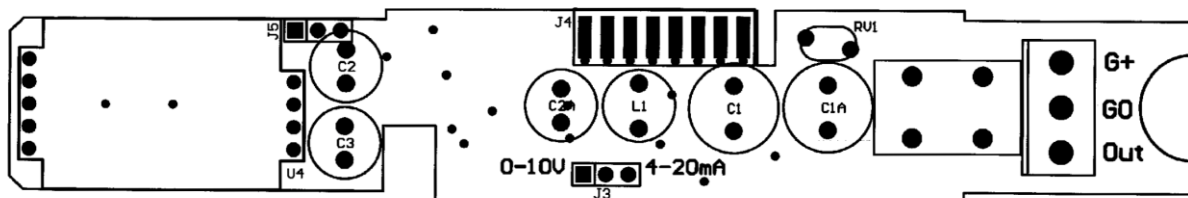
APPLICATIONS

VS08 is a cost-effective sensor/transmitter for building climate control and other processes where measurement of carbon dioxide concentration is required.

By controlling the ventilation based on actual demand, it helps to reduce energy consumption while maintaining an acceptable and healthy indoor climate!

With high tolerance to extreme humidity environment, the VS08 is ideal for applications in greenhouses, mushroom farming and AHUs in high RH regions.

The compliance of stringent EMC specification allows VS08 to be installed as a rolling stock apparatus in trains and subway cabins.

CONNECTIONS   *Screw terminals*

1	G+	24 V AC/DC (+)
2	G0	System ground (-)
3	Out	Signal output, 0-10V or 4-20mA (jumper select)

Power supply has to be connected to G+ and G0. G0 is considered as system ground. If the analogue output is connected to a controller *the same ground reference has to be used for the VS08 unit and for the control system*

Telasia Symtonic Pte Ltd

VS08 technical specification (rev nr: 080101)

General Performance

Compliance with .... EMC directive 89/336/EEC & EN50121-3-2
Operating Temperature Range .... 0 - 50 °C
Storage Temperature Range .... -40 to +70 °C (display model -D: -20 to +70 °C)
Operating Humidity Range .... 0 to 100% RH (sensor in powered-up condition)
Operating Environment .... residential, commercial and industrial spaces [1]
Warm-up Time .... ≤ 1 min. (@ full specs ≤ 15 minutes)
Sensor Life Expectancy .... > 15 years
Duct air velocity ………………………………… Direct insertion sensor, no minimum speed requirement
Maintenance Interval .... no maintenance required [2] (with ABC algorithm)

Electrical

Power Input .... 24 VAC/VDC ±20%, 50 Hz or 60Hz (half-wave rectifier input)
Power Consumption .... < 1 Watt average
Connection screw terminal .... 3 x 1,5 mm^2 for power input (G+, G0), voltage output (Out)

CO_2 Measurement

Sensing method .... Non-dispersive infrared (NDIR) wave-guide technology with Automatic
                                                                     Background Calibration (ABC) and passive gas diffusion (no moving parts)
Response Time ($T_{1/e}$) .... < 10 sec. @ 30 cc/min. flow rate
                                                                     < 3 min. diffusion time
Repeatability .... ± 20 ppm ± 1 % of reading
Accuracy [2] .... ± 30 ppm ± 3 % of reading
Annual Zero Drift [2] .... < ± 10 ppm (with ABC function)
Pressure Dependence .... + 1.6 % reading per hPa
Installation support .... background level calibration adjustment jumper trigger (bCAL).

Outputs

Voltage signal terminal CO2 [3]
Voltage or current output ………………………..Jumper selection
Vo linear conversion range............................. 0 -10 VDC for 0 - 2 000 ppm$_{vol.}$ (optional 0 – 2%)
Io   linear conversion range .... 4 – 20mA for 0 - 2 000 ppm$_{vol.}$ (optional 0 – 2%)
D/A resolution .... 10 bits, 10 mV or 0.016mA
D/A conversion accuracy................................. ± 2 % of reading ± 50 mV
Electrical characteristics................................. Voltage output - R_{OUT} < 100 Ohm, R_{LOAD} > 5 kOhm
                                                                     .... Current output – R_{LOAD} < 500 Ohm

Mounting options

WALL HOUSING (standard)

Dim.: 140mm x 30mm diameter
Protection class: IP65

DUCT HOUSING

Dim.: 145mm x 30mm diameter
Duct probe length: 130 mm
Protection class: IP65

VS08-W

VS08-K

Note 1:   The SO$_2$ enriched environments are excluded.
Note 2:   In normal IAQ applications (@ NTP). Accuracy is defined after minimum 3 weeks of continuous operation.
              The tolerance of the span calibration gas (2 % unless otherwise requested) and test gas adds to the total incertainty.
Note 3:   The specifications are valid for the output load connected to ground G0. Other outputs and measurement ranges are available per request.