Venticator - VC1008F

Carbon dioxide sensor / transmitter

PRODUCT DESCRIPTION

The Venticator, VC1008F is a simple, low cost, state-of-the-art, maintenance-free infrared carbon dioxide transmitter for installation in the climate zone or in the ventilation duct.

The VC1008F measures the carbon dioxide concentration in the ambient air up to 2,000 ppm and transforms the data into 0-10 V and 4-20mA output signals.

VC1008F helps you save money by decreasing your energy consumption while maintaining a healthier indoor climate!

VC1008F
IP20 wall housing
without display

VC1008F-KS
IP65 ductl housing
without LC display

FEATURES

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

- measurement range: 0 - 2 000 ppm CO_2
- two analogue outputs:
  OUT1: 0 - 10 V (= 0 - 2 000 ppm CO_2)
  OUT2: 4 – 20mA (= 0 - 2 000 ppm CO_2)
  OUT3: Voltage-free contact pre-set @1,000ppm
- maintenance-free in normal applications
- non-frill design; cost-optimized for connection to DDCs
- Two different housing options:
  1) IP20 wall housing
  2) IP65 duct housing

APPLICATIONS

VC1008F is an extremely cost-effective sensor/transmitter for building climate control and other processes where measurement of carbon dioxide concentration is required.

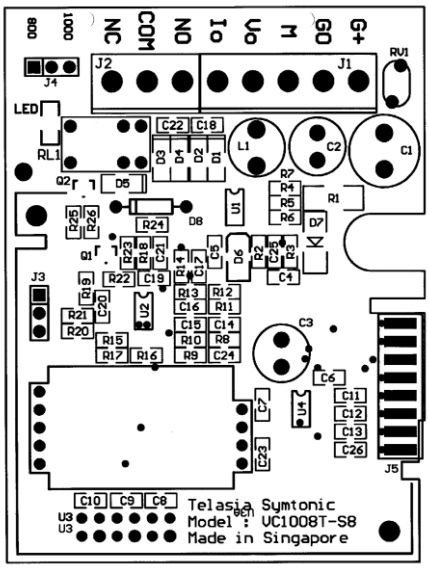
By controlling the ventilation based on actual demand, it helps to reduce energy consumption while maintaining a healthy indoor climate!

The two different housing options and output configurations (current and voltage signal) makes the *VC1008F* most suitable for general applications.

CONNECTIONS

Screw terminals

1	**G+**	24 V AC/DC (+)
2	**G0**	System ground (-)
3	**M**	Signal ground, internally connected G0
4	**Vo**	Linear output (+) 0-10 V = 0 – 2 000 ppm CO_2
5	**Io**	Linear output (+) 4-20mA = 0 – 2 000 ppm CO_2
6	**NO**	Normally opened contact of relay output
7	**COM**	Common contact of relay output
8	**NC**	Normally closed contact of relay output



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 VC1008F unit and for the control system***

VC1008F technical specification (rev nr: 120601)

General Performance

Compliance with	EMC directive 89/336/EEC
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 95% RH (non-condensing)
Operating Environment	residential, commercial and industrial spaces [1]
Warm-up Time	≤ 1 min. (@ full specs ≤ 15 minutes)
Sensor Life Expectancy	> 15 years
Maintenance Interval	no maintenance required [2]

Electrical

Power Input	24 VAC/VDC ±20%, 50 Hz (half-wave rectifier input)
Power Consumption	< 1 Watt average
Connection screw terminal	4 x 1,5 mm^2 for power input (G+, G0), voltage output (Vo), current output (Io) And relay contacts (NC, NO & COM).

CO_2 Measurement

Sensing method	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]	± 70 ppm ± 3 % of reading
Annual Zero Drift [2]	< ± 10 ppm
Pressure Dependence	+ 1.6 % reading per hPa
Installation support	Background level calibration adjustment with jumper trigger (bCAL).

Outputs

Voltage signal terminal CO2 [3]

Vo linear conversion range	0 -10 VDC for 0 - 2 000 $ppm_{vol.}$
Io linear conversion range	4 – 20mA for 0 - 2 000 $ppm_{vol.}$
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

Relay output

Relay contact setting	pre-set at 1,000ppm with hysterisis of 100ppm
Relay contact rating	isolated N.O. & N.C., 1mA/5V up to 1A, 24V ac/dc

Housing options

WALL HOUSING (standard)

Dim.: 100 x 80 x 27 mm (H x W x D)
Protection class: IP20
60 mm hole separation for European standard J-boxes.

VC1008F

DUCT HOUSING (model –*KS*)

Dim.: 142 x 84 x 46 mm (H x W x D)
Duct probe length: 245 mm
(adjustable according to duct dimension)
Protection class: IP65

VC1008F-KS

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.