



Venticator - VC2008F

Carbon dioxide sensor / transmitter

PRODUCT DESCRIPTION

The Venticator, VC2008F 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 VC2008F 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.

VC2008F helps you save money by decreasing your energy consumption while maintaining a healthier indoor climate!



VC2008F
IP20 wall housing
without display



VC2008F-KS
IP65 duct 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 CO₂
- two analogue outputs:
OUT1: 0 - 10 V (= 0 - 2 000 ppm CO₂)
OUT2: 4 - 20mA (= 0 - 2 000 ppm CO₂)
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

VC2008F is an extremely cost-effective sensor/transmitter for building climate controls and other processes where measurement of carbon dioxide concentration is required.

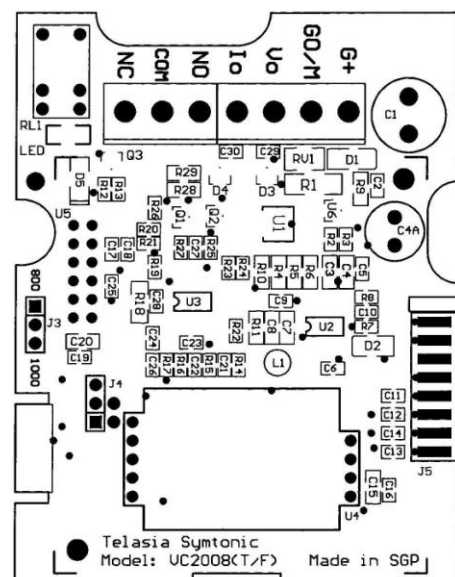
By controlling the ventilation based on actual demand, it helps to reduce energy consumption while maintaining a healthy indoor climate!

The two different housing options and output configurations (current and voltage signal) makes the VC2008F most suitable for general applications.

CONNECTIONS

Screw terminals

1	G+	24 V AC/DC (+)
2	GO/M	System ground (-)
3	Vo	Linear output (+) 0-10 V = 0 - 2 000 ppm CO ₂
4	Io	Linear output (+) 4-20mA = 0 - 2 000 ppm CO ₂
5	NO	Normally opened contact of relay output
6	COM	Common contact of relay output
7	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 VC2008F unit and for the control system

Telasia Symtonic Pte Ltd

• 18, Sin Ming Lane, #07-02, Midview City • Singapore 573960 • Phone no.: +65 66594882 • Fax no.: +65 6659 4885 •
Homepage: www.telasia.net • E-mail: contactus@telasia.net

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VC2008F technical specification (rev nr: 200908)

General Performance

Compliance with	EMC directive 2014/30/EU
Operating Temperature Range	0 - 50 °C
Storage Temperature Range	-40 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%, 50/60 Hz (half-wave rectifier input)
Power Consumption	< 1 Watt average
Connection screw terminal	7 x 1,5 mm ² for power input (G+, G0), voltage output (Vo), current output (Io) and relay contacts (NC, NO & COM).

CO₂ 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 < 2 min. diffusion time
Repeatability	± 20 ppm ± 1 % of reading
Accuracy ²	± 70 ppm ± 3 % of reading
Annual Zero Drift ²	< ± 10 ppm; normal ventilation application with ABC turn ON
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 ppmvol.
Io linear conversion range	4 – 20mA for 0 - 2 000 ppmvol.
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 hysteresis of 200ppm
Relay contact rating	isolated N.O. & N.C., 1mA/5V up to 1A, 24V ac/dc

Options

- **A** option for +/- (30ppm +3% of reading) * *different sensor module is used.*
- **0.5% (-0.6%)** optional measuring range 0 ~ 5.000ppm (6,000ppm)
- **2%** optional measuring range 0 ~ 2% CO₂
- **5%** optional measuring range 0 ~ 5% CO₂

Housing options

WALL HOUSING (standard)

Dim.: 110 x 80 x 27 mm (H x W x D)
Protection class: IP20
Material : ABS FR
Mounting : European & US Std mounting



VC2008F

DUCT HOUSING (model –KS)

Dim.: 142 x 84 x 46 mm (H x W x D)
Duct probe length: 140 mm
Protection class: IP65
Material : ABS FR



VC2008F-KS

Note 1: The SO₂ 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 uncertainty.

Note 3: The specifications are valid for the output load connected to ground G0. Other outputs and measurement ranges are available per request.

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