



# Application Note

## *VC1008T* *CO<sub>2</sub> transmitter*

### General

The IAQ-sensor product **VC1008T** is used to measure indoor air carbon dioxide concentration in rooms. **VC1008T-R** is the model with a relay contact output and **VC1008T-Pt1K (or NTC10K)** comes with passive temperature sensing elements. All models are available in wall mounting as well as for duct mounting.

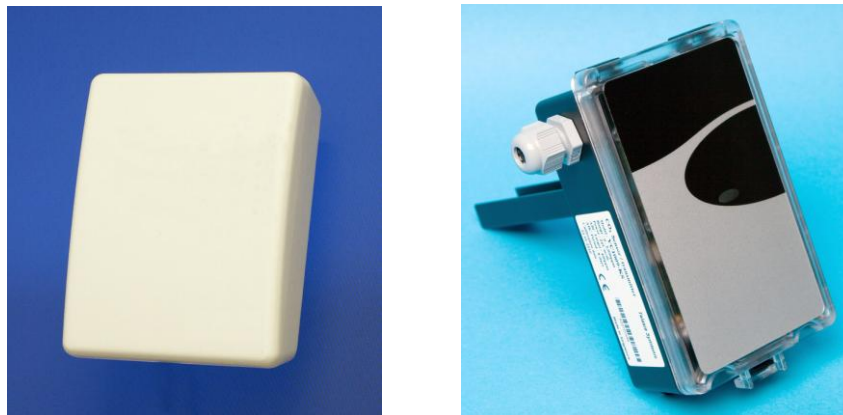


Figure 1. **VC1008T** in wall mounting and duct mounting

Terminal	Default Output	Default Output Range
V <sub>o</sub>	0...10VDC	0...2000 ppm CO <sub>2</sub>
I <sub>o</sub>	4...20mA	0...2000 ppm CO <sub>2</sub>

Table I. Default output configurations for **VC1008T**

## Output Configurations

The sensors/controllers are supplied from the factory (unless otherwise ordered) with 0...10VDC and 4 ... 20mA linear outputs for  $V_o$  and  $I_o$  (see Table I). Alternative measuring ranges or start points of the outputs may be specified in options (up to 5000ppm) when ordering.

## Maintenance

The **VC1008T** is basically maintenance free. An internal self adjusting calibration function takes care of normal long term drift associated to the CO<sub>2</sub> sensor. To secure the highest accuracy, a first time checking at installation and a re-calibration interval of five years is recommended between CO<sub>2</sub> calibrations, unless some special situations have occurred.

Two mode of re-calibration is available; namely the Zero Calibration (ZC) and Background Calibration (BC)



Figure 2 The **VC1008T** PCB

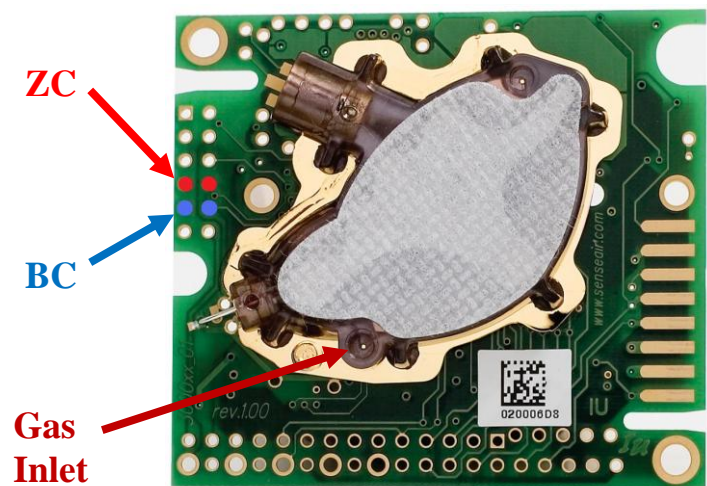


Figure 3. K30 CO2 Sensor module

## Calibration

Two modes of calibration are available with **VC1008T** series; namely Zero Calibration (ZC) and Background Calibration (BC). In both modes, proper environmental conditions must be established before calibration can be performed.

### Zero Calibration, ZC

With zero calibration (ZC), the sensor should be put in a condition where CO<sub>2</sub> molecules in the air sampling chamber is completely depleted; that is, free of CO<sub>2</sub> molecules. Typically this is achieved by flowing N<sub>2</sub> gas into the gas inlet hole, through the gas sampling chamber. Once such condition exists, ZC can be performed by shorting ZC line to GND for approximately 10 seconds. [User should measure the output signal to affirm the re-calibration process].

## **Background Calibration, BC**

With background calibration (BC), the sensor should be put into an environment where the surrounding CO2 concentration is approximately 400ppm (or 0.04%). Such condition exists when the CO2 concentration resemble the fresh air CO2 level. [for instance, place the sensor near the opened window]

The background calibration, BC can be performed by shorting BC line to GND for approximately 10 seconds. [User should measure the output signal to affirm the re-calibration process].

## **WARRANTY AND LIMITATION OF LIABILITY**

1. Telasia Symtonic warrants that for a period of twelve (12) months following receipt by Buyer the Product supplied by Telasia Symtonic to Buyer will be, under normal use and care, free from defects in workmanship or material and to be in material conformity with Telasia Symtonic's specifications. Units returned to Telasia Symtonic for warranty repairs shall be shipped to Telasia Symtonic, at Buyer's expense, according to Telasia Symtonic's instruction. Within ninety (90) days of the receipt of product, Telasia Symtonic shall replace or repair such units and shall ship them to Buyer's designated return destination freight pre paid.

2. Warranty Limitations. This warranty does not extend to any unit that has been subject to misuse, neglect or accident; that has been damaged by causes external to the unit; that has been used in violation of Telasia Symtonic's instructions; that has been affixed to any non-standard Accessory attachment; or that has been modified, disassembled, or reassembled by anyone other than Telasia Symtonic. The retailer is not responsible for any consequential loss or damages, which may occur by reason of purchase and use of this product. The warranty is, in any event, strictly limited to the replacement/repair of the product.

3. The retailer is not responsible for any consequential loss or damages, which may occur by reason of purchase and use of this product. The warranty is, in any event, strictly limited to the replacement/repair of the product

**This product is in accordance with the EMC Directive 89/336/EEC and the Low Voltage Directive 73/23/EEC including amendments by the CE-marking Directive 93/68/EE.**

**C The product fulfils the following demands:**

**EN50081-1, EN55011(B)**

**EN50082-2, EN61000-4-2,-3,-4,-5, Level3**

