TEXAS INSTRUMENTS

NEW FROM TI GAS SENSORS

4GS CARBON DIOXIDE SENSOR

TI's next generation CO_2 sensor, the 4GS, will positively change your perception of infrared gas sensors.

Infrared carbon dioxide sensors have been regarded by the engineering community as accurate, reliable, long life instruments. Typically, they have also been considered too costly and complex, and user *unfriendly* for installation and field service personnel.

Now, with Texas Instruments' innovative reference channel design combined with on-board configuration and calibration software, you can have the high performance of infrared sensing , low acquisition and life-cycle costs , compact packaging and ease of use with the TI-4GS.

Texas Instruments, well known for technology leadership, has designed and manufactured HVACR sensors and controls for more than 40 years at its' Versailles, KY, USA location. Whether your application is an individual HVACR installation or the engineering of Building System Controls, TI has a dedicated staff of design and application engineers to support your needs.

Give us a call or visit our website for more information at:

- **(606)873-2756 or (606)873-2774 (fax)**
- **E-mail to: gas-sensor@ti.com**
- **Visit: http://www.ti.com/mc/docs/gas-sensor/docs/index.htm**



TI-4GS

The 4GS CO2 sensor is suitable for applications in HVAC demand ventilation, Indoor Air Quality Instrumentation, and other industrial uses:

- **Quick, easy set-up**
  - **Configure the unit's span point, relay set point and select output options in software directly at the sensor, based on your specific needs**
  - **NO computer or RS-232 interface required for adjustments to the TI-4GS**
  - **Unique two-pushbutton design of the TI-4GS controls all configuration and calibration on the unit with menu driven software displayed on the LCD**
- **Fast, high reliability mounting -**
  - **Housed in an ABS case sized for both U.S. and European electrical outlet boxes, or standard drywall mount installations**
  - **Does not require calibration upon installation (unlike other IR sensors)**
  - **The unit is ESD protected inside the mounting case...no need to ever handle the sensor circuit board directly**
- **Low operating costs**
  - **Do a quick zero-cal with a single push-button stroke for quick service. 4GS cal cycle recommendation: 3 years**

(see 4GS specifications on reverse page)

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300 North Main Street
Versailles, KY 40383
U.S.A.

TI-4GS Product Specfication (refer to factory for additional information

ITEM	*CHARACTERISTICS*
Sensing Method	NDIR - Non Dispersive Infrared
Gas sampling mode	Diffusion and/or pump capability
Sensing Range	0-2000 ppm, 0-5000 ppm, both user adjustable
Accuracy	• 0-1500 ppm: +/- 75 ppm > 1500 ppm: +/- 5% (readings @ standard pressure 760 mm Hg & 25°C)
Pressure effect	0.19% of reading per mm Hg
Repeatability	+/- 8 ppm
Warm up time	< 90 seconds
Response time @ 500 ml/min flow rate	• < 30 seconds to 63% of step change • < 60 seconds to 100% of step change
Calibration interval	• 3 years recommended. • NO need to calibrate on installation.
Output voltage	Linearized 0-10V standard, 1K Ohm output impedance
Output options	• 0-5, 0-10V software adjustable linear outputs • 4-20mA current loop: hardware adjustable • Liquid Crystal Display: two line, alpha-numeric ppm display User defined upper ppm setting from 300 ppm to 5K ppm, software adjustable in 100 ppm increments via LCD or TI Interface Keypad (TIK). • Relay output: trip point software adjustable in 100 ppm increments from 300 to 5K using LCD or TIK (factory set at 1000 ppm)
Output relay de-actuation	100 ppm below relay set point
Output relay rating	10 mA - 500 mA @ 24 VAC or 30 VDC
Power requirements	24V AC/DC Nominal, < 3W
Operating temperature range	0°C to +50°C
Operating humidity range	5-95 %, non-condensing
Storage temperature range	-40°C to +70°C. Display version: -20°C to +70°C
Duct mount configuration	Optional accessory configuration available
Dimensions	3.84" x 3.84" x 1.1"
Materials	Case - ABS, UL94VO

Patents	Patents pending

The 4GS Gas Sensor is available in a variety of configurations. Sensor options are found in the table below. Standard configurations are factory preset as noted, however, units can easily be adjusted by OEM/field user in the range from 30 to 5000 ppm, or physical selection between 4-20mA or voltage outputs via jumper onboard.

4GS Standard Configurations	
Part Number	*Description*
4GS-1	Standard HVAC configuration, 0-2K range, voltage output, wall mount case
4GS-2	Custom configuration, see table below
4GS-4	HVAC configuration, 0-2K range, 4-20mA and relay outputs, wall mount case

The 4GS series comes with several optional features. To order this product in a configuration that will suit your application, please consult the following chart.

Typical Part #	**4GS-2**	***-2***	***C***	***D***	***R***
Variation	*Type*	*Sensing Range*	*Case*	*Display*	*Relay*
Available Options – Part number choices are in **BOLD**	Custom config. of the 4GS	**2** - 0-2K ppm **5** - 0-5K ppm	**C** – wall mount case *Blank for unit without a case*	**D** – front panel LCD display *Blank for no display*	**R** – relay output *Blank for no relay*

For OEM or special applications, please consult the factory.

Optional accessories for the 4-GS include:

Part Number	*Description*
4GS-DM-KIT	Duct mount kit with aspiration box, venturi tube and mounting hardware
4GS-PT-KIT	Pitot tube kit with pitot tube, vinyl tubing, filter and mounting hardware

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