



Sensing & Inspection Technologies

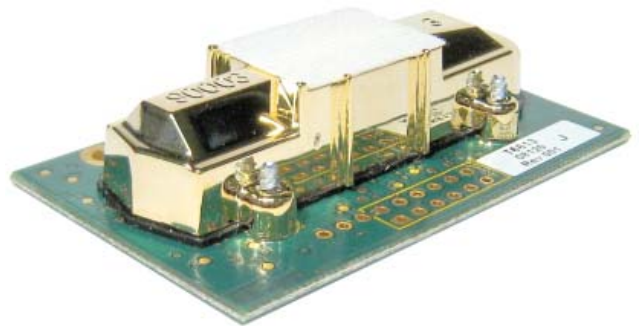
Telaire 6613 CO₂ Module

Small, Compact CO₂ Module Designed to Integrate Into Existing Controls and Equipment

The Telaire® 6613 CO₂ Module is designed to meet the volume, cost, and delivery expectations of Original Equipment Manufacturers (OEMs). The module is ideal for customers who are familiar with the design, integration, and handling of electronic components.

All units are factory calibrated to measure CO₂ concentration levels up to 2000 ppm. Telaire dual channel sensors are available for higher concentrations.

By joining GE Sensing & Inspection Technologies, Telaire® can now offer high-volume manufacturing capabilities, a global sales force, and additional engineering resources to support your sensing application needs.



Features

- An affordable gas sensing solution for OEMs.
- A reliable sensor design based on 15 years of engineering and manufacturing expertise.
- Flexible CO₂ sensor platform designed to interact with other microprocessor devices.
- Eliminates the need for calibration in most applications with Telaire's patented ABC Logic™ software. Lifetime calibration warranty.



Telaire 6613 CO₂ Module Specifications

Method

Non Dispersive Infrared (NDIR), gold plated optics, diffusion or flow through sampling (with Telaire's Patented ABC Logic Self Calibrated Algorithm)

Measurement Range

400 to 2000 ppm

Dimensions

2.25 in X 1.365 in X 0.60 in
(57.15 mm X 34.67 mm X 15.24 mm)

Accuracy*

@72°F (22°C) when compared against a certified factory reference ± 40 ppm + 2% of reading up to 1250 ppm

Temperature Dependence

0.2% FS per °C

Stability

< 2% of FS over life of sensor (15 year typical)

Pressure Dependence

0.135 of reading per mm Hg

Calibration Interval

Not required

Response Time

< 2 minutes for 90% step change typical

Signal Update

Every 4 seconds

Warm Up Time

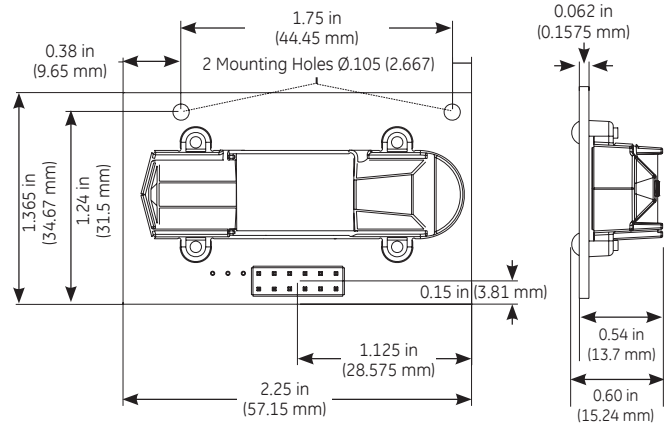
- < 2 minutes (operational)
- 10 minutes (maximum accuracy)

Operating Conditions

- 32°F to 122°F (0°C to 50°C)
- 0 to 95% RH, non condensing

Storage Conditions

-40°F to 158°F (-40°C to 70°C)



Output

Digital

UART @ 19200 Baud (Please call for detailed product specifications).

Analog

0.8 to 4 VDC

Power Supply Requirements

5 VDC regulated ($\pm 5\%$)

Power Consumption

- 0.90 watts peak
- 0.165 watts average

Interface Connections

Designed for 12 pin male header with 0.1 in (2.54 mm) spacing. Header not included.

Flow Rates (Via Flow Ports)

Flow through version 40 to 50 cc/min

Warranty Terms

12 months

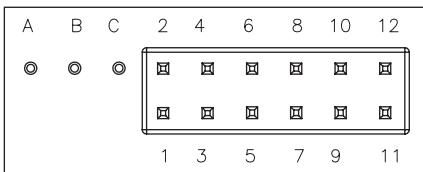
* Handling and OEM assembly may affect factory calibration. Specified accuracy is after 21 days of continuous operation with ABC Logic.

Automatic Background Logic, or ABC Logic, is a patented self-calibration technique that is designed to be used in applications where concentrations will drop to outside ambient conditions (400 ppm) at least three times in a 14 day period, typically during unoccupied periods.

**Full accuracy to be achieved utilizing ABC Logic. With ABC Logic enabled, the sensor will typically reach its operational accuracy after 25 hours of continuous operation at a condition that it was exposed to ambient reference levels of air at 400 ppm ±10 ppm CO₂. Sensor will maintain accuracy specifications with ABC Logic enabled, given that it is at least four times in 21 days exposed to the reference value and this reference value is the lowest concentration to which the sensor is exposed. ABC Logic requires continuous operation of the sensor for periods of at least 24 hours. Note: Applies when used in typical residential ambient air. Consult GE if other gases or corrosive agents are part of the application environment.*

Pin Designations

Connector Pinout	Function
A	TX (UART)
B	RX (UART)
C	V+ (5 VDC)
1	V+ (5 VDC)
2	GND
3	GND
4	AV OUT (0 to 4 VDC)
5	No Connect
6	No Connect
7	No Connect
8	No Connect
9	No Connect
10	TX (UART)
11	RX (UART)
12	GND



Module 6613-F (Flow Through)

The diffusion membrane is replaced with a non-permeable seal. The two flow ports can be used for flow through sampling. Flow rate of 40 to 50 cc/min required.

Handling and Installation

The T6613 CO₂ OEM modules are infrared gas sensors on a printed circuit board and should be treated carefully. Precautions should be taken to observe specified limits and prevent damage from electrostatic discharge or rough handling. Please refer to ANSI/ESD S20. 20-1999 for more information on preventing ESD damage and IPC 610 Rev D for more information on proper electronic assembly practices.

Calibration

GE does not recommend the customer recalibrate the T6613 module after installation. The sensor ABC Logic algorithm will begin after 24 hours, adjusting the sensor measurement resulting in sensor-to-sensor consistency. If immediate consistency is desired, the sensors may be single point calibrated using pre-mixed reference gas or ambient air measured by a reference sensor.

Available Models

Part Number	Sampling Method
T6613	Diffusion
T6613-F	Flow Through

面向物联传感应用，公司长期致力于室内环境空气品质及有害气体监控产品的技术开发，并提供相关配套的传感器、IC、模块、设备以及行业应用方案支持，技术应用涉及温湿度传感、压力传感、气体传感、加速度传感等监测领域，产品涵盖 Freescale、TI、Sharp、GE(Amphenol)安费诺、Silicon Labs、PLX、Micron、Sensirion、SenseAir、ST、City、Honeywell、Measurement(Humirel)精量等国际知名品牌，服务客户遍及石油化工、电力电子、汽车智能、空气净化、楼宇暖通、医药监测、食品安全、现代农业等众多终端。

产品及子类		重点品牌及代表性物料型号
环境 传 感 器	温湿度传感器	Sensirion/Silicon Labs/MEAS/ST/TI 等公司的 SHT1X/2X/7X 温湿一体系列, SI7020/21 系列, HTU20/21D, HTS221、HDC1000/1008 系列, HYT221/271/939, 铂电阻/NTC 热电阻/湿敏电阻等
	PM2.5 粉尘 颗粒物传感器	SHARP 公司的 GP2Y1010AU0F/GP2Y1050AU0F/GP2Y1051AU0F 及 GE 公司 SM-PWM-01A 等模块
	CO2 二氧化 碳传感器	GE 公司 T6613\T6615 二氧化碳模块、SenseAir 公司 K30/S8 模块、ELT 公司 B530 系列等模块
	多参数环境 传感器模块	MSM-1401/1403/1405/1408/1411/1413/1415/1418 等集合温湿度、粉尘颗粒物、二氧化碳和 VOC 空气质量传感器的含 RS232/485/WIFI 接口的多参数环境传感器模块
	差压传感器	Sensirion /FSL 公司的 SDP600/1000/2000/1108/2108 系列, MPL 系列 MEMS 压力传感器系列
	电化学毒气 传感器	美国高顿公司的 CO2 传感器、CO 气体传感器、H2S 传感器、H2S 气体传感器、O2 传感器、氨气传感器、氯气传感器、毒气传感器、有毒气体传感器、电化学气体传感器、电化学传感器等
半 导 体 元 器 件	CPU/MCU/ARM/DS P 微处理器	KINETIS 微控制器 (MK60DN512), MSP430 系列, C8051 系列, LPC 系列, STC 系列, PIC 系列 Freescale 公司的 IMX 处理器 (MCIMX536), STM32 系列, LPC2000/3000 系列嵌入式处理器
	数据转换器 ADC	TI/ADI 公司数据转换器全系列产品, 典型的如 AFE5805ZCF、AD600 等
	存储器 SDRAM	镁光/HYNIX 公司的 MT29F256/128/64 系列, H5DU 系列, FIFO 系列
	PCI-E 接口	PCI9054\PEX8112\8619\8632\8648, TL16C550/552/554/S5920/S5933 系列
	无线连接	TI 公司 CC3000\CC2530F256\CC2591\CC2540\CC1101 系列 WIFI 及 ZIGBEE 无线技术
		SIMCOM 公司的 SIM900B\900A\900D\900S 等 GSM/GPRS 通讯模块
	以太网口	MARVELL 公司 88E 系列 PHY(以太网)收发器, 88W 系列无线连接
		DM9000\DM9161 系列、CS8900 系列、RTL8019\8139\8201 系列、LXT970/971 等 PHY 收发器
	USB 并口	CY7C63001/68013/SL811, USBN9603/9604 及 PDIUSBD12 系列 USB 接口器件
	RS232/485	RS232/422/485 系列接口器件, FT232 等串口产品
电源芯片 (可编程)	Micrel 全系列电源芯片;DIALOG 公司 DA9053-3HHA1/FHA1 系列可编程电源, 与 FSL 的 IMX515/535/536 系列处理器搭配使用	