Datasheet: C100 Sensor

The C100 is a high performance, general-purpose CO2 sensor. It has analogue and digital electronic interface options that provide a temperature compensated and linearized CO2 measurement over a wide sensing range from 0 to 200ppm, which can be customized to suit specific customer product requirements.

The C100 is used in a wide range of applications – processing industries, agriculture, re-breathers, laboratory and incubators, education, landfill monitoring, portable equipment, personal gas sensors and many more.

Technology

The GSS C100 sensor uses proven non-dispersive (NDIR) LED technology to detect and monitor the presence of carbon dioxide gas from 0 to 2% volume. The patented technology utilizes unique III-V solid state light emitting diodes and photodiodes, replacing high cost incandescent light sources and pyroelectric detectors used in standard NDIR sensors.

Features

Real time sensing

Low power consumption – typically 100mW (Spec dependent)

High poison resistance & long term stability

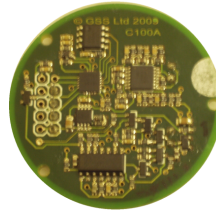Various voltages available from 3.3v to 5.5v

20mm package

Benefits

Wide range of applications

Low cost High accuracy

Fully linearized temperature compensated output.

Low power consumption, suitable for battery and portable applications

Applications

Modified Atmospheres

Indoor Air Quality

Stowaway Detection

Cellar & Gas Stores

Boats (Engine and Galley)

Greenhouses

Land Fill Gas

Confined Spaces

Refrigeration Plant

Domestic Boilers

Automotive

Tunnels

Mining

Combustion Control

In Vehicle Drowsiness

Classroom Monitoring

Incubators (Poultry)

Shipping Containers

Aircraft Atmospheres

Atmospheric Research

Diving Gas & Equipment

Cryogenics

Industrial Plant Rooms

Ventilation Management

Car Parks

C100 Digital Connections

0V	Zero Volts Power supply
Rx	Serial Receive Line
Tx	Serial Transmit Line
5V	5V Power Supply

Technical Specifications

General Performance

Warm up time ………………………………………….. < 2 minutes (operational)
10 minutes (for maximum accuracy)
Operating Conditions ………………………………….. -25°C to 55°C
0 to 95% RH, non-condensing
Recommended Storage ……………………………. -30°C to +70°C

CO2 Measurement

Sensing Method ……………………………………….. Non-dispersive infrared (NDIR) absorption
Gold-plated optics
Patented Solid state source and detector
Sample Method ……………………………………….. Diffusion
Measurement Range ………………………………….. 0%-2%
Accuracy …………………………………………………. ±50 ppm +/- 5% of reading [1]
Non Linearity ……………………………………….. < 1% of FS
Pressure Dependence …………………………………. 0.13% of reading per mm Hg
Operating Pressure Range ………………………… 500mb to 40 bar [2]
Response Time ………………………………………… 4 secs to 2 mins (user Configurable) [3]

Electrical/Mechanical

Power Input……………………………………………. 3.3 to 3.6 Volt DC, <30mA average (250mA peak)
4.7 to 5.5 Volt DC, <20mA average (220mA peak)
Analogue Output Module available – 0.5 to 4.0 Volt
Power Consumption ………………………………< 100 mWatts average
Dimensions …………………………………………. 5.1 x 5.7 x 1.4 cm (Length x Width x approximate Height)
Wired Connections ………………………………… Molex 533981071 locking header plug. The mating part is Molex 51021-1000.
Solder connection to four plated through holes.

Temperature Measurement [4]

Measurement Range …………………………………. -25 to +55 °C
Digital Resolution ………………………………….. +/- 0.1 °C
Absolute accuracy …………………………………. +/- 2 °C
Relative accuracy …………………………………. +/- 0.2 °C

Note 1: Measure at STP.
Note 2: External Pressure calibration required.
Note 3: User Configurable Filter Response.
Note 4: Temp measurement is for indication only Non calibrated.