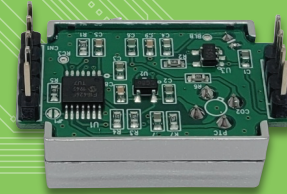


CO₂ Sensor



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Smart NDIR CO₂ Sensor for Indoor Air Quality

Introduction

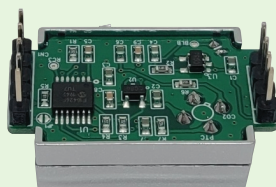
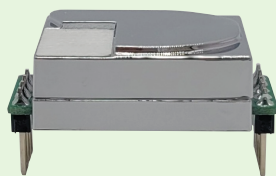
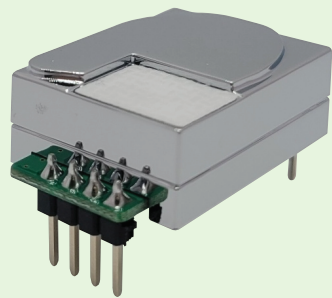
POC2021-3 is a NDIR(Non-Dispersive Infrared) CO₂(carbon dioxide) gas sensor. It uses infrared wavelength of 4.26 micrometer to detect a CO₂ concentration. A single IR lamp and single thermopile sensor are optically arranged by precision optical design. It has high accuracy and long lifetime and optional temperature compensation. It is widely used in Indoor Air Quality monitor, air purifier and building management, automotive, Agricultural HVAC application.

Features

- Advanced NDIR design
- Low cost version for popular application Lead free and ROHS directive compliant
- The detection range of CO₂ 400~5000 ppm
- Compact size and Light weight 26.1(W) x 10.1(T) x 19.8 (D) mm, 5.7 gram.

Interface

UART, 38400 Baud Rate

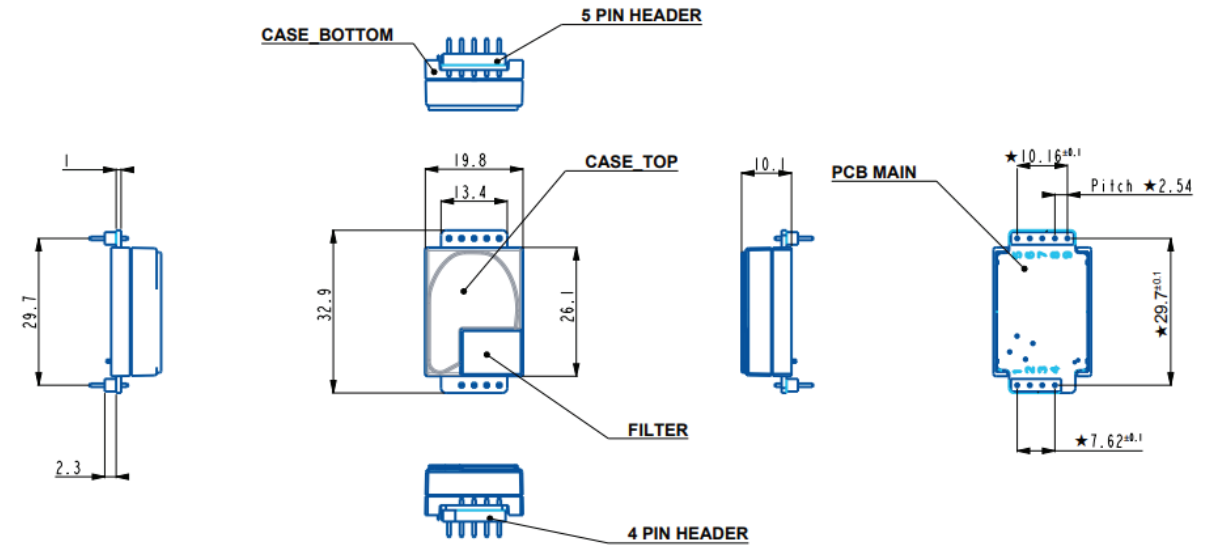


Specification

Parameter	Index	unit
Measurement Range	400~5000	ppm
Resolution	1	ppm
Maximum Consistency Error	± (50 ppm + 3 % Reading)	
Time to first reading	<30	Second (s)
DC Power Supply	Typ:5.0 / Min:4.5 / Max:5.5	Volt (V)
Active Current	200 mA peak, 25 mA average	Milliampere (mA)
Interface Level	L <0.8 @3.3 / H>2.7@3.3	Volt (V)
Working Temperature Range	-50~50	°C
Working Humidity Range	0~85 % non condensed	
Storage Temperature Range	-40~+85	°C
Life Time	>7	Year (Y)
Physical Size*	33 x 20 x 10.5	mm
Pin Gap	2.54	mm

Note1: The physical size is not including the length of Pin

Sensor Dimension



UART Interface

- 9,600BPS, 8bit, No parity, 1 stop bit

Request Format

Byte	1	1	1	1
Value	0xF1	0xF2	0x01	0x1C
Description	Start Byte	Command	Check Sum	

Response Format

Byte	1	2	3	4	5	6	7	8
Value	0xF1	0xF2	0x02	MSB	LSB	0x00	0x00	CS
Description	Start Byte	Command	CO ₂ Value		-	Check Sum		

Ex) 451 ppm -> 0xF1 - 0xF2 - 0x02 - 0x01 - 0xC3 - 0x00 - 0x00 - 0x57

Hex, 0x1C3 = Decimal, 451

Checksum = (NOT (Byte1+Byte2+Byte3+Byte4+Byte5+Byte6+Byte7))+1

Protocol Format

Byte	1	1	1	1	1	1	1	1	1	1	1	
Value	D6	D5	D4	D3	D2	D1	<SP>	'p'	'p'	'm'	<CR>	<LF>
Description	CO ₂ density is indicated as string Maximum length is 6 bytes.						Space	ppm			Carriage Return	Line Feed
Example	0x20		0x70		0x70		0x6D		0x0D		0x0A	

• The protocol format conforms to the ASCII format. • All communications are separated by <CR> <LF>. • The length between D6 and D1 depends on the CO₂ concentration.

Handle with care

