

CO₂ Sensor RX-9

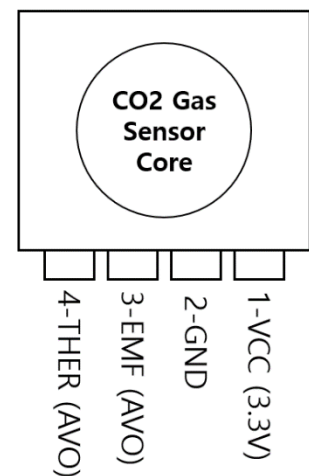
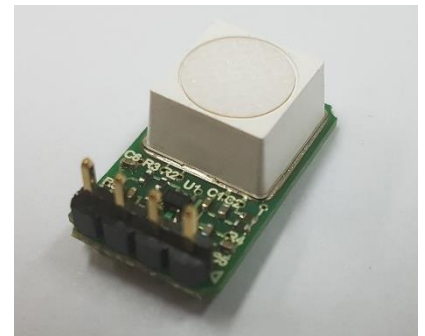
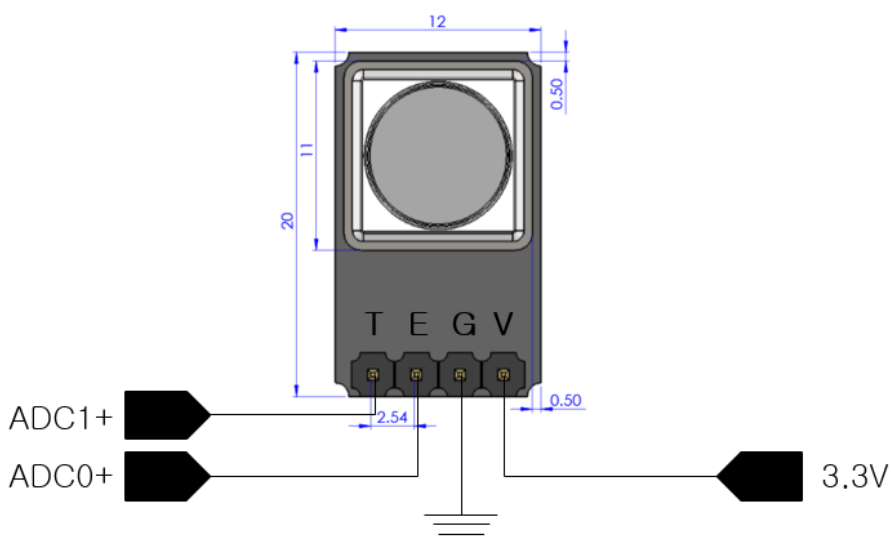
Features

- Electrochemical type CO₂ gas sensor
- High reliability performance
- Long life time, 10 years with algorithm
- Fast response time
- 3.3V operating
- Super compact size module (20 x 12 mm)
- 4 Pin sensor
- Suitable to indoor environment.

Applications

- Indoor air quality maintenance system
 - Home net room panel
 - Air conditioner
 - Air cleaner
 - Diffuser
 - Climate control system
 - Total heat exchanger
- IOT based indoor watching system
 - Security
 - Home automation
 - Set-top box
 - Lighting

CO₂ sensor overview



CO₂ Sensor Module

Jul. 2018

Sensor & electrical performance specification (T_a = 25°C)

Parameters		Condition	Symbol	Min	Typ	Max	Unit
Gas	Target gas	-	T _{Gas}	CO ₂			-
Data	Sensor type	-	EC	Solid Electrochemical			
	Detection range	-	DD _R	400-5,000			ppm
	Resolution	-	D _R	1, depends on ADC resolution			ppm
Time	Life-time	-	T _{LT}	10			Years
	Warm-up	-	T _{WU}	3	5	-	min
INPUT	Voltage	-	I _V	3.25	3.3	3.35	V
Power	Current Consumption	Vin = 3.3V	P _A	0.10	0.11	0.12	A
	Warm-up consumption		P _W	-	0.15	0.2	A
Output	EMF	Vin = 3.3V	V _E	0	-	3.3	V
	THER	Vin = 3.3V	V _T	0	-	3.3	V
Resolution	ADC Resolution (of Master)	Vin = 3.3V		10			bit
Ambient	Operating Temp	-	O _T	-20	0	50	°C
	Operating Humidity	No condensing	O _H	0	-	95	%
	Storage Temp	-	S _T	-40	25	105	°C
	Storage Humidity	Pack in moisture proof bag	S _H	5	-	90	%
Calibration		-	CAL	With ABC algorithm ¹⁾			-

1) ABC algorithm is provided by documents and sample code. Contact supplier.

Absolute Maximum Ratings

	Description	Min	Max	Unit
Voltage	Supply Voltage	3.2	3.4	V
Current	Supply Current	100	220	mA
Temperature	Pin		115	°C

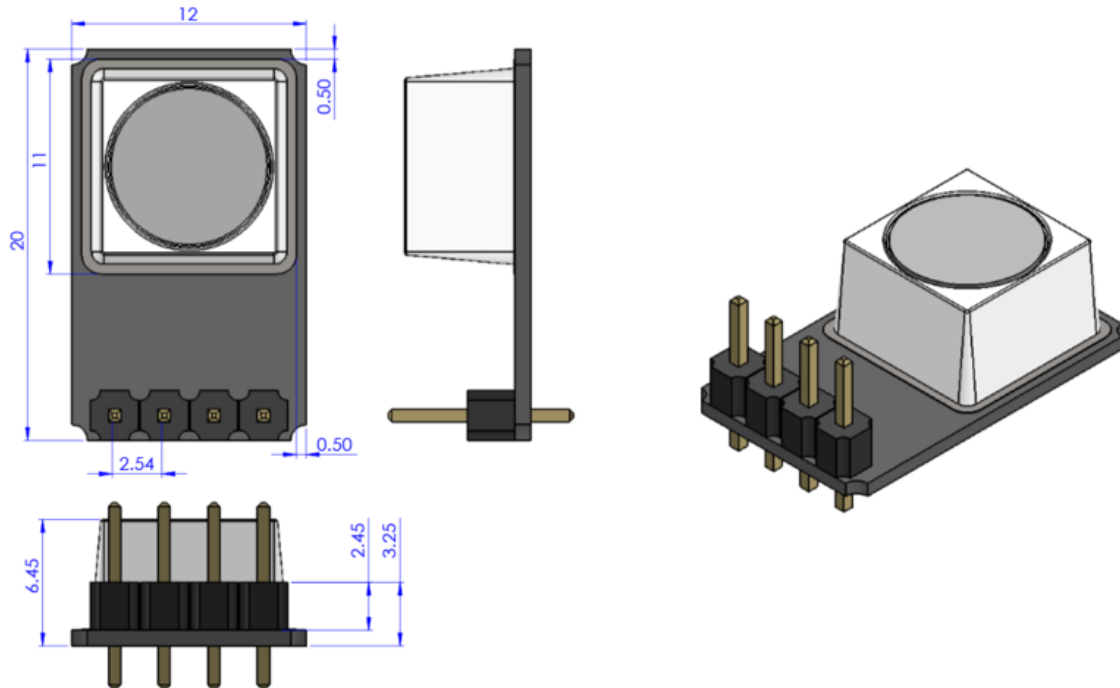
ESD Ratings

		Value	Unit
V(ESD) Electrostatic discharge	Human-body model(HBM), per ANSI/ESDA/JEDEC JS-001	±2,000	V
	Charged-device model(CDM) per JEDEC specification JESD22-C101	±500	V

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Module Overview



Theory of operation

The RX-9 CO₂ sensor is simple. it transmits the analog of sensor and temperature. User prepare the MCU with more than 2 ADC pin and 3.3V power source. ADC should be prepared 10 bit or more precise one. 3.3V Power source can endure 200 mA of current and heat.

Supplier will share the factory calibration data with product. User will write the factory calibration data to their system to show more specified concentration of CO₂. But if you don't want it, you can use RX-9 without factory calibration data to show the freshness gauge not ppm level.

Algorithm of operation like ABC(Auto Baseline Calibration) and CO₂ ppm conversion and various calculation equation is supported by manufacturer.

Terminal descriptions

Pin No.	Symbol	Description
1	VCC	3.3V in (Voltage is very important)
2	GND	GND
3	EMF	Electro Motive Force of CO ₂ Sensor Core
4	THER	Thermistor for temperature compensation for sensor

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