Grove Oxygen Sensor Pro

SKU: 101020912

Features:

* High sensitivity and Accuracy to toxic gas

* Long life, low power consumption

* Good stability

* UART and analog voltage signal output

Application:

* Portable gas detector

* Fixed gas alarm and detector

GGC2330 is a general-purpose and high-performance gas module with electrochemical gas sensors. It uses three electrodes, electrochemical gas sensor and high-performance micro-processor. By installing different gas sensor, the module could detect relevant gas. It is with built-in temperature sensor to make temperature compensation, which makes it could detect the gas concentration accurately. It has the digital output and analog voltage output at the same time which facilities the usage and calibration and shorten the development period. It is a combination of mature electrochemical detection principle and sophisticated circuit design, to meet customers' different detection needs.

Dimensions:

Tolerance: ±0.25mm

Unit: mm
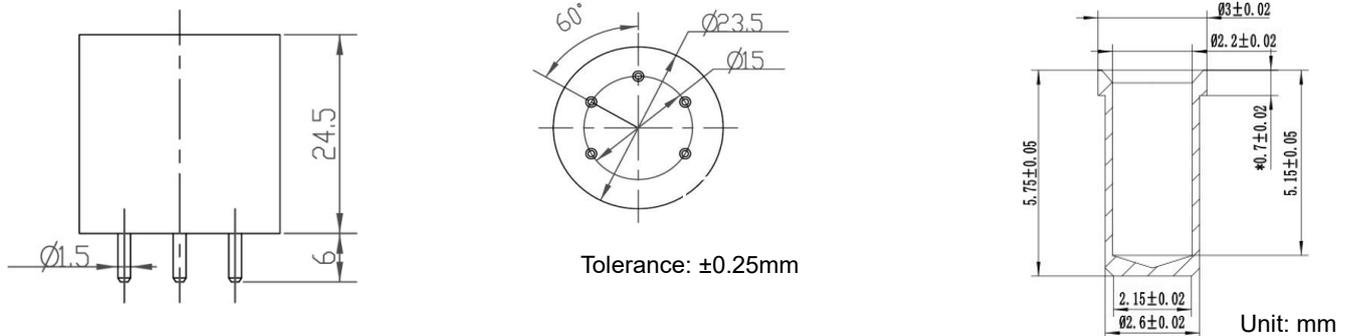
Specification:

Item	Specification
Target Gas	O2
Measurement Range	Refer table 2
Operating Voltage	5±0.1V DC
Operating Current	＜ 5 mA
Output	UART(TTL electrical Level, 3V) Analog voltage(refer table 2 for sensor original amplifying signal)
Operating Conditions	-20～25℃/15～90%RH(no condensation)
Storage Conditions	-20～50℃/15～90%RH(no condensation)
Size	ø23.5mm*24.5mm
Life Expectancy	2 years(in air)

Measurement Range and signal output

Table 2

Target Gas	O2
Measurement Range	0-25%VOL
Resolution	0.1 %VOL
Output in the Air(V0)	1.5-0 V
Response Time(T90)	≤15S

Pin definition

Pin	Function
GND	Ground
VCC	Power supply
VO	Voltage output
RXD	Serial port input
TXD	Series port output
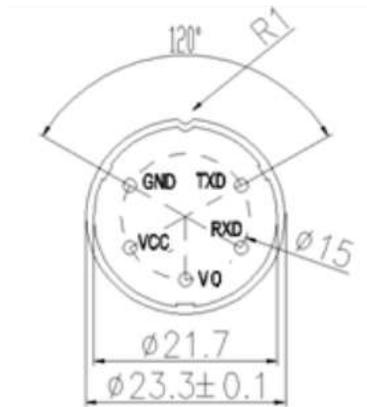
Bottom view
Unit: mm

Communication Protocol

1. Setting

Item	Parameter
Baud rate	9600
Data bits	8
stop bit	1
check bit	no

2. Communication Specification

The default communication type is active upload and it sends gas concentration every other one second (the seneentration is 16 hexadecimal). Send 0x78 command to change communication type. After changing the communication type to 0x04 (Q&A type), only by receiving the 0x86 command (reading concentration value command), current concentration value can be sent. The recommended communication period is 1 second.

Commands

Active send mode

Receive	0	1	2	3	4	5	6	7	8
	Start byte	Command	Concentration value		--	--	--	--	Checksum
	0xFF	0x86	High byte	Low byte	0	0	0	0	7A
EXP.	FF 86 00 00 00 00 00 00 7A （concentration value is 0）								

Gas concentration value = (gas concentration high byte *256 + gas concentration low byte) * resolution.

0X78 - to change the communicate type (communication type: 0x03 active upload type, 0x04 question and answer type)

1	0x78	Change communication type								
		0	1	2	3	4	5	6	7	8
Send		Start Byte	Address	Demand	Communication Type	--	--	--	--	Checksum
		0XFF	0X01	0x78	0x04	0	0	0	0	0x83
EXP.	FF 01 78 04 00 00 00 00 83 (change to question and answer type)									
Receive		0	1	2	3	4	5	6	7	8
		Start Byte	Command	Return calibration	--	--	--	--	--	Checksum
		0XFF	0X78	Success: 1 Failure: 0	0	0	0	0	0	0x87 0x88
EXP	FF 78 01 00 00 00 00 00 87									

0x86 — To read the concentration value

1	0x86	read the concentration value								
		0	1	2	3	4	5	6	7	8
Send		Start Byte	Address	Command	--	--	--	--	--	Checksum
		0XFF	0X01	0x86	0	0	0	0	0	0x79
EXP.	FF 01 86 00 00 00 00 00 79									
Receive		0	1	2	3	4	5	6	7	8
		Start Byte	Command	Concentration value		--	--	--	--	Checksum
		0XFF	0X86	High byte	Low byte	0	0	0	0	7A
EXP.	FF 86 00 00 00 00 00 00 7A (concentration value is 0)									

Gas concentration value = (gas concentration high byte *256 + gas concentration low byte) * resolution.

4.Checksum and calculation

Check byte = 1st to 7th byte accumulation sum (excluding 0th byte 0xFF), after inversion, add 1.

Cautions

* Please do not take away or plug the sensor in the module
* It is prohibited to weld the pins of the module. The socket could be welded.
* Sensor shall avoid organic solvent, coatings, medicine, oil and high concentration gases
* Excessive impact or vibration should be avoided
* Please keep the modules warming up for at least 5 minutes when first using
* Please do not use the modules in systems which related to human being's safety.
* Please do not use the modules in strong air convection environment.
* Please do not expose the modules in high concentration organic gas for a long time.

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