



# Laser Methane Sensor Module for Home Use

(Model No.: MH-L9043A)

# Manual

Version: V1.0

Issue Date:2023.03.12

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Please keep the manual properly, in order to get help if you have questions during the usage in the future.

Zhengzhou Winsen Electronics Technology CO., LTD

## MH-L9043A Laser Methane Sensor Module for Home Use

### Product Profile

MH-L9043A laser methane sensor module adopts laser spectral absorption detection technology, the sensor has stable and reliable performance and long service life. The module has the characteristics of strong corrosion resistance, high precision, fast response, low power consumption and can be used in the home kitchen environment.



The module adopts TTL data communication interface, the data is stable without zero drift, and the product is free of calibration and maintenance, which is convenient for customers to integrate and engineering application.

### Feature

Good consistency, Fast response, High precision, Long life  
 Good water vapor resistance, Good anti-interference performance

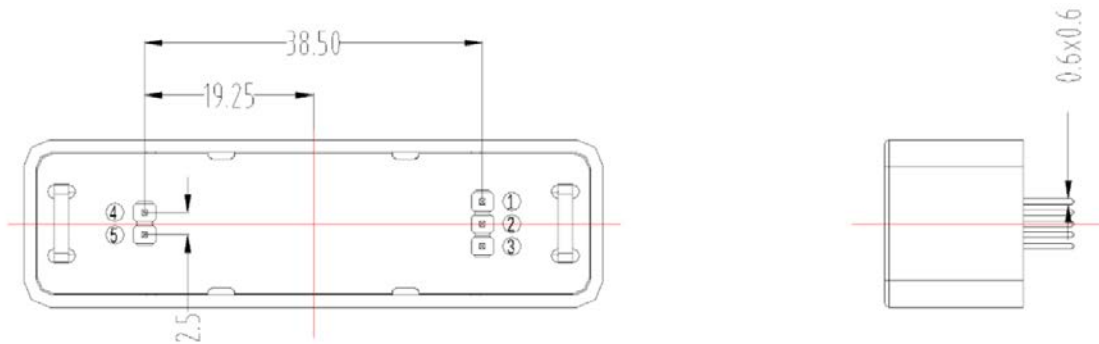
### Application

Methane gas alarm for home use

### Parameters Table1.

Model No.	MH-L9043A
Working principle	Laser
Detection Gas	CH <sub>4</sub>
Detection Range	3~20%LEL
Detection Accuracy	±3%LEL
Repeatability	2% (test conditions: warm-up time is 15s, 20.00%LEL CH <sub>4</sub> standard gas, testing time is 1min)
Resolution	0.5%LEL
Response time	≤ 15s(cold boot)
Working Voltage	DC (3.6~5)V
Average Current	≤ 60 mA @25°C
Working conditions	-20~60°C 0-99%RH(no condensation) 80~116kpa
Storage conditions	-40~85°C 0-95%RH(no condensation)
Output	UART (TTL 3.3V)
Size	66mm*19mm*15.8mm
Weight	About 15g
Life	≥5 years

**Pins order**



**Fig1.** Pins order

**Pins Description Table2.**

Pin No.	Description
Pin1/3	VCC
Pin2	GND
Pin4	RXD
Pin5	TXD

**Communication Protocol**

**1. Hardware connection**

Sensor's VCC-RXD-TXD-GND connects to user's VCC-TXD-RXD-GND respectively. Users must use 3.3V TTL level, if you use RS232 level, it must be switched.

**2. General Settings**

Table 3

Baud Rate	115200
Data Byte	8
Stop Byte	1
Parity	None
Flow control	None

**3. Protocol instruction**

Data description:

Module data output form is ACSII fixed-length string , a total of 29 bytes, the specific format is as follows:

**symbol xxx. xx space symbol nn.n space pppp.pp space SS space HH<CR><LF>**

symbol xxx. xx represents the concentration, the unit is %LEL, the range is +000.00~+999.99;

symbol nn.n represents the temperature, the unit is °C, the range is -99.9 ~ +99.9.

pppp.pp indicates the signal strength, unit is none, range 0000.00 ~ 4095.00, normal range 400.00 ~ 4000.00;

SS is module status code, please see Table 4;

HH is the XOR check value of the first 24 bytes (in the green area of example 1). The check byte is output in the form of two characters; <CR><LF> represents a carriage return newline character.

Within 2 seconds after the module is initially powered on, preoutput two groups of data in the preceding data output format to represent the module communication is normal. Only the temperature values are valid measurements.

For example:

Example 1. The current temperature is 26.1 ° C. The output is as follows after the initial power-on for 2 seconds:

```
+000.00 +26.1 0000.00 00 0B <CR><LF>
```

```
+000.00 +26.1 0000.00 00 0B <CR><LF>
```

When the module is in the continuous detection status:

Example 2. The current concentration is 0.00%LEL, the temperature is 21.4°C, and the signal strength is 1001.01. The output is as follows:

```
+000.00 +21.4 1001.01 00 28 <CR><LF>
```

Example 3. The current concentration is 2.10%LEL, the temperature is -9.4°C, and the signal strength is 829.00. The output is as follows:

```
+ 002.10 -09.4 0829.00 00 25 <CR><LF>;
```

Example 4. The current concentration is 20.10%LEL, the temperature is -9.4°C, and the signal strength is 829.00. The output is as follows:

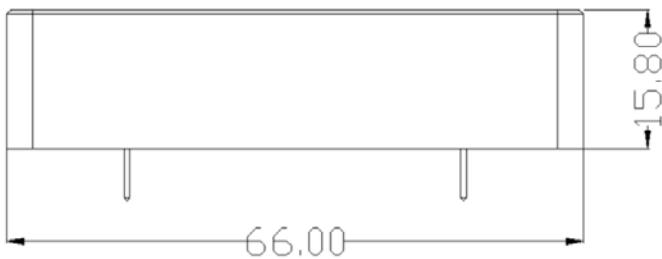
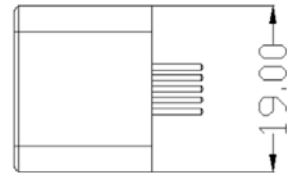
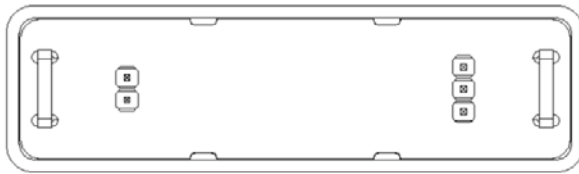
```
+020.10 -09.4 0829.00 00 23 <CR><LF>;
```

**Table4-Status Code**

Status Code	Meaning	Description
00	Normal Working status	
01	Optical path fault	Signal strength is out of normal range
02	Temperature acquisition is abnormal	Temperature sensor fault
03	Laser temperature control is abnormal	temperature control fault

## Cautions

- 1.The sensor vent hole should not be blocked when the sensor is installed and used.
- 2.Do not disassemble the sensor at will;
- 3.The air hole of the sensor shall not be blocked or polluted, and liquid and debris shall not be allowed to enter the gas pipeline of the sensor;
- 4.The sensor shall not be subjected to excessive impact or vibration;
- 5.Do not use the sensor if the shell is damaged or deformed.

**Szies**

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