Laser Methane Sensor Module

（**Model No.：MH-L9041A**）

Manual

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Zhengzhou Winsen Electronics Technology Co., Ltd

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Zhengzhou Winsen Electronics Technology CO., LTD

MH-L9041A Laser Methane Sensor Module

Product Profile

MH-L9041A 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 various complex environment.
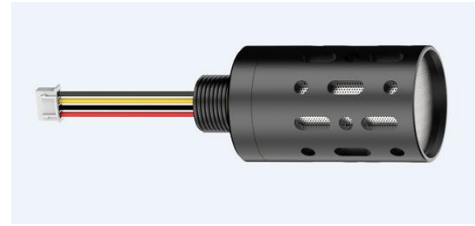
The module has Standard mechanical thread connection and TTL digital communication interface, the output data is stable without zero drift, and the product is free of calibration and maintenance, which is convenient for customers to integrate and engineering application.

Feature

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

Application

Petroleum, chemical, mining
Natural gas pipeline, galcon,
LPG stations
Coal mine safety monitoring
Gas pipeline leak monitoring
Underground pipe rack
Gas leakage monitoring
Marsh gas monitoring and other related safety and testing field

Parameters - Table1.

Model No.	MH-L9041A
Working principle	Laser
Detection Gas	CH4
Detection Range	3~100%LEL
Detection Accuracy	±3%LEL
Repeatability	1% *(Note1)
Resolution	0.2%LEL
Response time	≤ 15s(cold boot)
Working Voltage	DC (3.6~5)V
Average Current	≤ 60 mA @25℃
Working conditions	-20~60℃; 0-99%RH (no condensation) 80~116kpa
Storage conditions	-40~85℃ 0-95%RH(no condensation)
Output	UART (TTL 3.3V)
Size	Φ40mm*68mm
Weight	About 120g
Life	≥5 years

Note1: Test conditions is warm-up time 15s, 20.00%LEL CH4 standard gas, testing time is 1min.

Leading gas sensing solutions supplier in China!
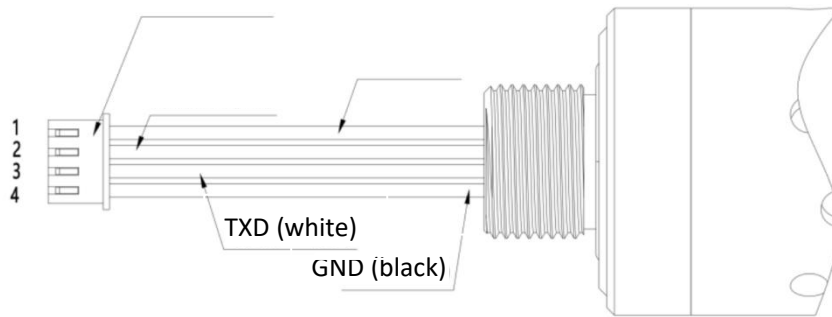
Pins order

Cable length is 14cm

*Type of terminal: PH2.54-4P(pitch 2.54mm)   **Fig1**. Pins order

Pins Description   Table2.

Pin No.	Description
Pin1 red	VCC
Pin2 yellow	RXD
Pin3 white	TXD
Pin4 black	GND

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 ℃, 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, pre-output 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℃, 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℃, 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℃, and the signal strength is 829.00. The output is as follows:
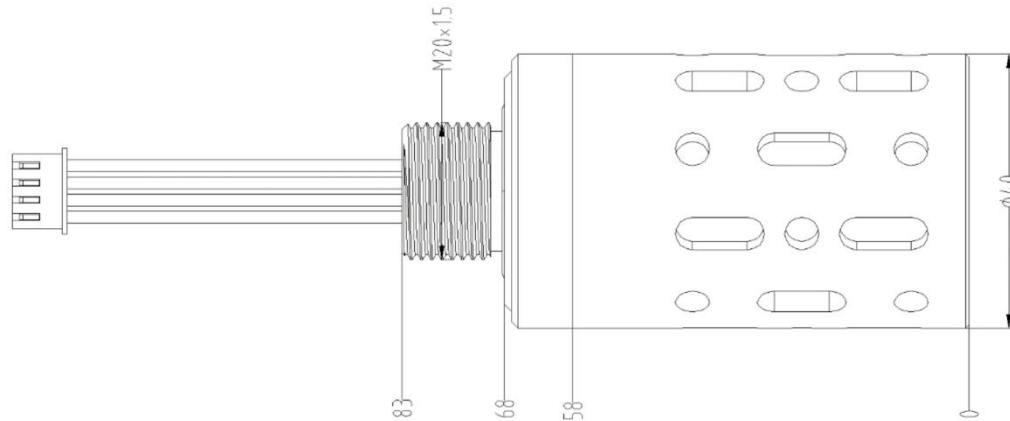
+020.10 -09.4 0829.00 00 23 <CR><LF>;

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.

Product Sizes (mm)