CP01

Fixed gas detector

Operation manual

Please read this manual carefully and thoroughly
before using this product

Ver：HWWM161229CG

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Tel: + 86-755-83289036 Fax: + 86-755-83289052 E-mail: sales@isweek.com

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1. Brief introduction

CP01 fixed gas detector is designed for use in the non-explosive environment to monitor gas concentration of combustible gas (LEL) or toxic gas. With high-quality electrochemical/catalytic gas sensor and excellent craftwork, it has advantages of good repeatability, disturbing-proof against temperature and humidity, long life-span and easily operation.

2. Specifications

Gas	Range	Resolution	L-alarm	H-alarm
LEL	0-100%LEL	1%LEL	20%LEL	50%LEL
CO	0-1000PPM 0-500PPM	1PPM	35PPM	200PPM
H_2S	0-100PPM	1PPM	10PPM	15PPM
O_2	0-30%VOL	0.1%VOL	19.5%VOL	23.5%VOL
NH_3	0-100PPM	1PPM	25PPM	50PPM

Sampling: Diffuse naturally
Response time: ＜60s
Power supply: DC24V±25%
Consumption: 2W
Working condition: Tem.: －20℃～50℃ Hum.: ≤95%
Protection grade: IP65
Signal output: 4-20mA signal or RS485 signal
Air pressure: 86kPa～106kPa
Cable: 4-20mA output 1.5 mm^2×3 field cable
RS485 output 1.5 mm^2×4 field cable
Dimension: L×B×H: 165×118×62(mm)
Weight: ≤500g

3. Structure

The detector is made up of housing, electric circuit and gas sensor. The configuration is as shown in the following sketch map:

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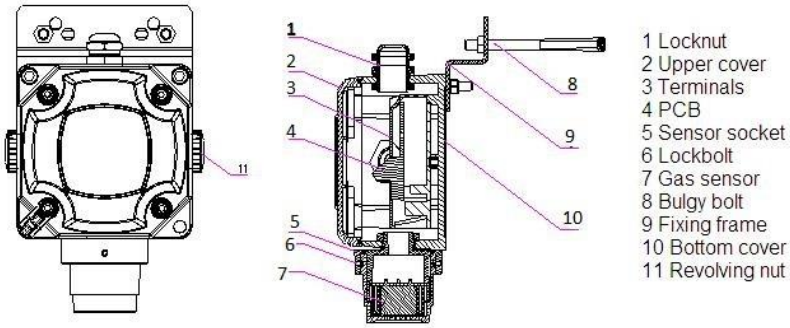


Fig. 1 Configuration

4. Installation and wire connection

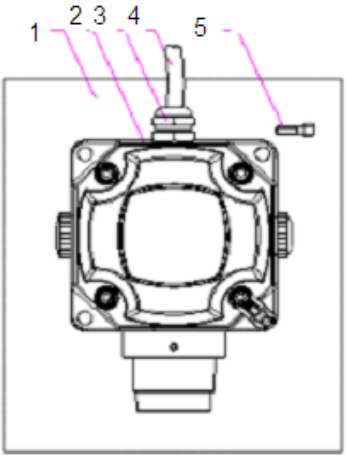
4.1 Installation position

a) Please install the gas detector within 1 meter near to the gas valve, pipeline connector, gas output mouth or easily leakage point. Please keep it far away from high temperature and humidity.
b) Installation height:
Gas lighter than the air, 1m lower than the ceiling;
Gas heavier than the air: 0.3-0.6m above the ground.
c) If installed in large area, installation of 1pc every 10-12 square meters can also have good detection result.
d) When installing it, please ensure the gas sensor head downward, locknut screwed completely, well covered.

4.2. Installation methods

Please choose the places without corrosive gas, lampblack, dust and avoid waterlogging etc. in the detection field. Please refer to the suitable installation method as follows:

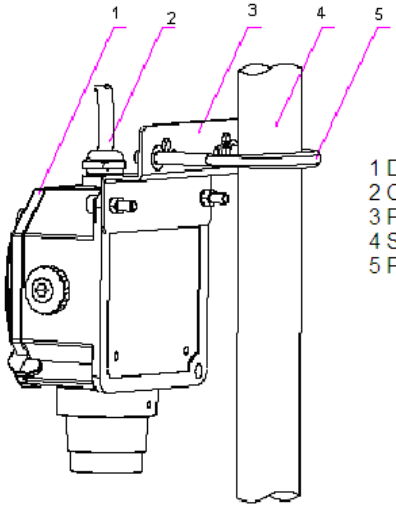
Method 1(Wall-mounted): If the user need to install the detector on the wall, please choose an appropriate metope according to the
transmitter structure dimension in, and then fix the transmitter using 3pcs of M6×20 bulge bolts to fix the detector in the corresponding installed orifice, and then fix it.



1 Wall
2 Detector
3 Locknut
4 Wire
5 Bulgy bolt

Fig. 2 Method 1

Method 2. If there is siphon with G1/2 screw thread in installed places, please connect the 2 terminals of the detector with the transferring tie-ins, then connect and screw down the pipe screw thread nut and fix the detector on the siphon.



1 Detector
2 Cable
3 Fixing frame
4 Siphon
5 Fixing parts

Fig. 3 Method 2

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4.3 Wire connection

- The wire between gas controller and the detector should be more than 1.5 mm^2 (≤1000m).
- After the detector is installed correctly according to the above methods (4.1), open the up-cover of the detector and screw off the locknut. Pull in the wire into the detector through the lock connector. Then connect the wire to the terminals of the detector according to the marks on the circuit.
- The connection is as shown in the following sketch map. Fig. 4 is the wire connection of 4-20mA gas detectors and Fig. 5 is of RS485 detectors.
- Please pay attention to the correspondence of the wires.
- After connecting wires correctly, pull out the extra wire and screw on the locknut, tighten the rubber air-proof circle and fixed the wire.
- After all connection is correct, fix the up-cover with M4×8 bolts. According to the spot condition, you can also first connect the wires and then install the detector.

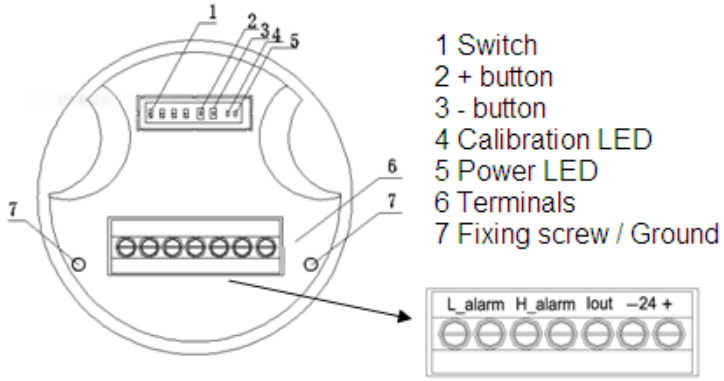
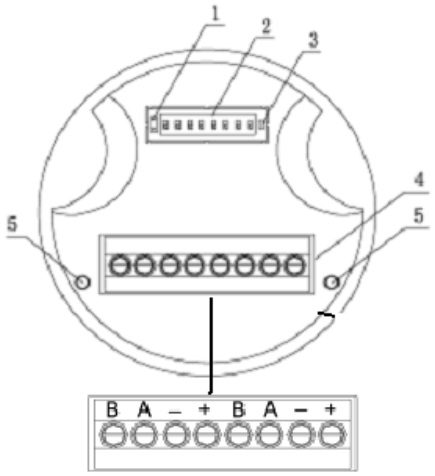


Fig. 4 Wire connection of 4-20mA output



1 End resistance jumper
2 Switch
3 Power LED
4 Terminals
5 Fixing screws / Ground

Fig. 5 Wire connection of RS485 output

5. RS485 addressable code setting

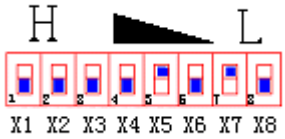
The addressable code is set by the second to eighth switch. Calculation by binary system, the right is low digit and the left is high digit. Put the switch upside, it means 1; switch downside, means 0. Each switch means in turns means1, 2, 4, 8, 16, 32, 64. Calculation formula is as follows:

ADD= X2 ×64+X3 ×32+X4 ×16+X5 ×8+X6 ×4+X7 ×2+X8 ×1

Note: X2 to X8 can only be 1 or 0.

For example: From low to high digits, the second and forth switches are upside, then X7=X5=1, and the other is 0. Then the formula is as follows:

ADD=0 ×64+0 ×32+0 ×16+1 ×8+0 ×4+1 ×2+0 ×1=10



At the end of this manual please kindly find the Address Code blank.

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6. Calibration

After using for some time, the accuracy of the sensor will be influenced due to the sensor shift. The sensor should be calibrated by professional person according to the following steps:

6.1 4-20mA detector calibration

a) Zero calibration:

Put the detector into the clean air at least 10 minutes, press S2 and S3 together about 1-2 seconds. At the moment, the Green light will flash from keeping on. The detector can be calibrated now. Put the first switch of S1 on the place of "ON", and then red LED begins to flicker for about 10minutes. During this time, inject Nitrogen or synthetic air into the sensor by 0.5L/min flow. And then put the first switch of S1 on the place of "OFF". Then the Red light will flash several times and be off. Zero calibration will be ok.

b) Alarm level calibration:

- Prepare one bottle of span gas. Generally it's half of the whole range(e.g. Methane is 50%LEL) or other span gas;
- Prepare Gas flow meter;
- Press S2 and S3 together for 1-2 seconds. The green light will be from keeping on to flash. The detector enters calibration status. Switch the third digit to "on". (i.e. 50%F.S.) The red light will flash. The corresponding calibration point is as the following table.

Switch location	Calibration point	Switch location	Calibration point
	Zero calibration		10%F.S.
	40%F.S.		20%F.S.
	50%F.S.		60%F.S.
Note: The black block means the switch location			

Connect the calibration gas and flow meter by pipe correctly. Turn on the calibration gas and adjust the gas flow meter. Connect the pipe with detectors calibration cap. Then the calibration gas will diffuse into the sensor. After about 2minutes, the display of controller will be the same as the calibration point. Then turn the switch to "off". The detector remembers the value. The red light will flash several times and then be off.

Turn off the calibration gas and take off the pipe. The calibration will be finished.

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Note: During calibration, please don't adjust any of all the potentiometers.

6.2 RS485 detector calibration

The calibration should be carried out when connecting with our control panel. For details, please refer to the manuals of the control panel.

7. Precautions

1 Do not use the detector in the explosive environment.
2 Avoid dropping it from higher place or shaking it acutely.
3 Please avoid colliding the electric circuit and the detector during installation.
4 The user is not allowed to replace any part of the detector freely.
5 Please avoid installing it on the heat source nor shaking source.
6 Avoid fast flowing gas passed the sensor directly, otherwise it would affect the testing result.
7 Do not use the transmitter in high gas concentration much higher than its detection range, or would shorten the sensor life. If the detection gas such as mixed combustible gas, liquid steam etc. which is different with calibration gas, there it would be certain error between testing results and actually gas concentration.
8 In order to keep the detector accuracy, it's better to make calibrate every half a year.

8. Trouble shooting guidance

Fault description	Reason	Settlement
No response to gas	Sensor broken	Replace sensor
	Circuit fault	Contact seller
Abnormal connection	Wrong wire connection	Check the connection
	Circuit fault	Contact seller

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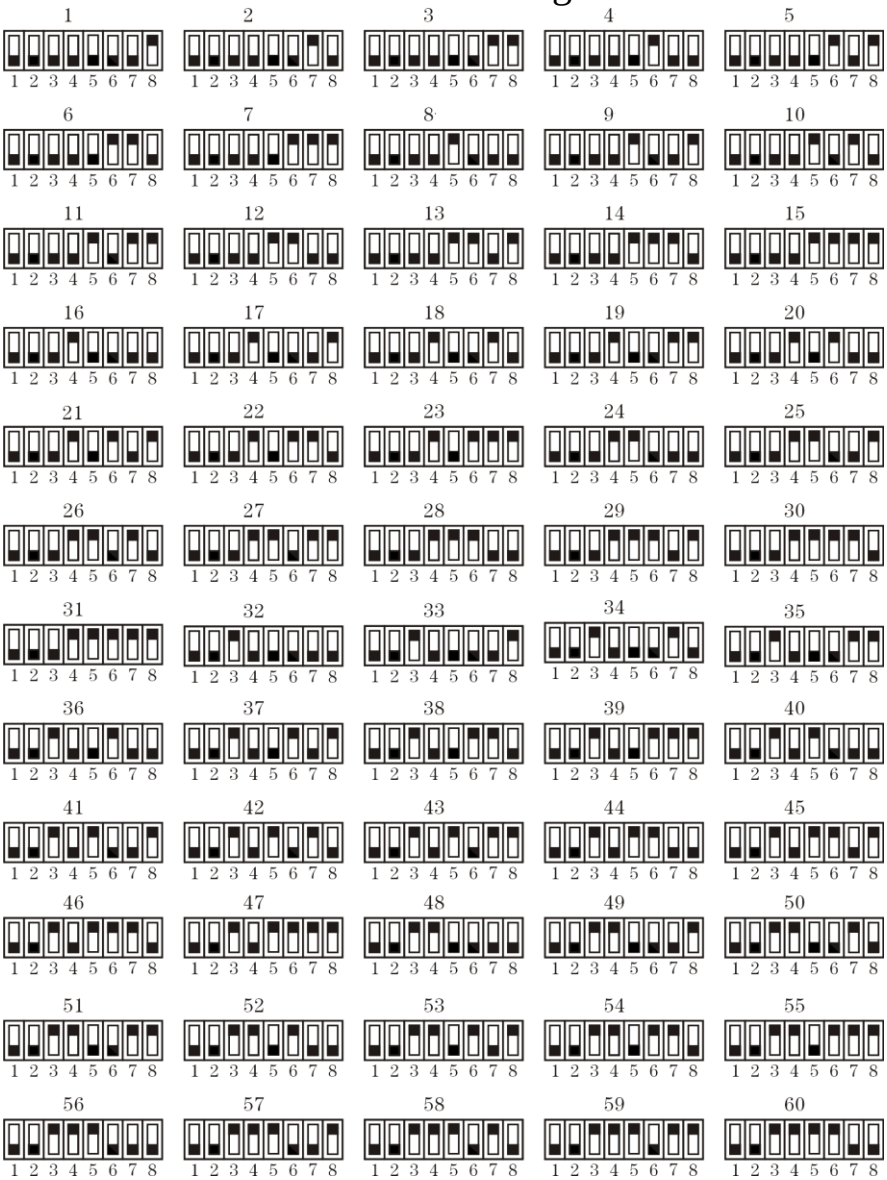
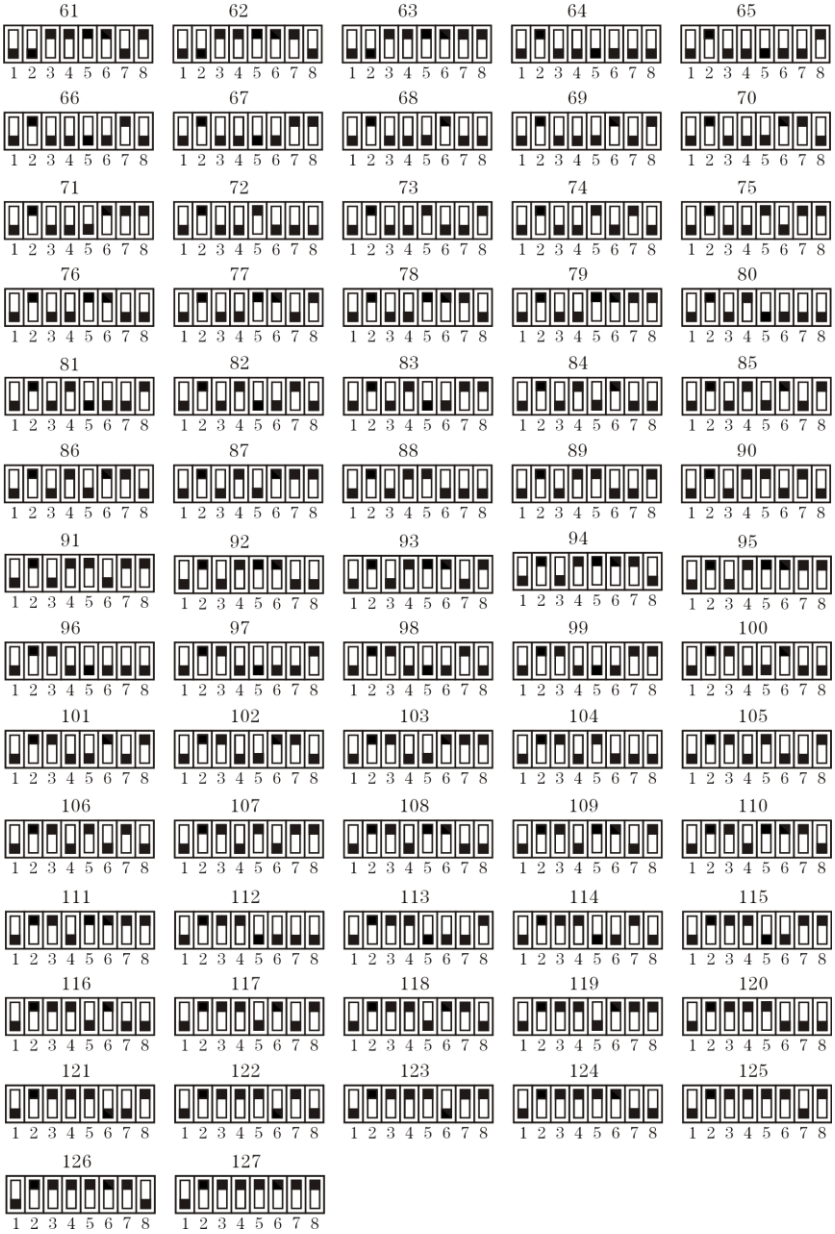
Attachment 1

Address code settings





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