



ZP04 Combustible Gas
Detection Module
(Model:ZP04)

Manual V1.2

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ZP04 Combustible Gas Detection Module

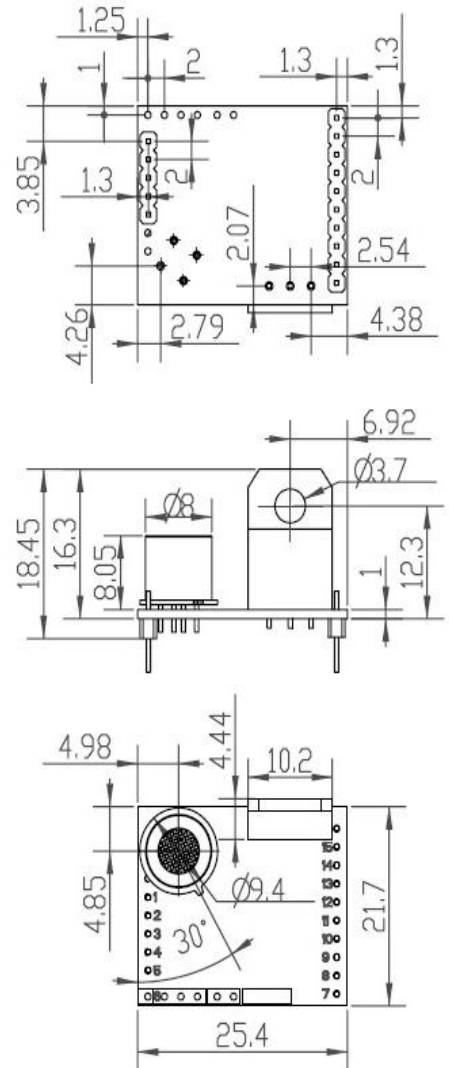
Profile

ZP04 adopts plat surfaced semiconductor sensor, which has basic functions of household gas leak alarm, electric power light, warm-up light, fault lamp, output signal of alarm lamp; buzzer, relay, output signal of electromagnetic valve; input signal of testing button, canceling warm-up button input. This module can be used for complete device development of household gas leak alarm.



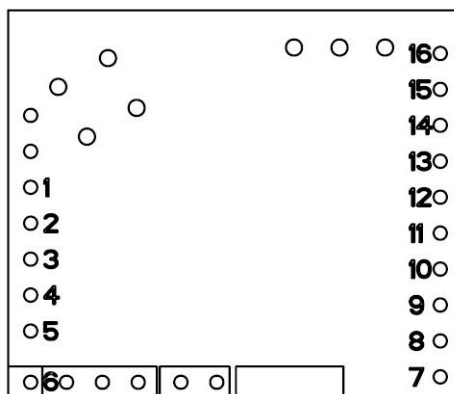
Parameters

Model	ZP04
Detection Gas	Natural gas
Detection Range	1~25%LEL
Type of sensor	Flat surfaced semiconductor type
Response time	< 30s
Resume time	< 30s
Working Voltage	9~12 V
Working Current	< 80mA
Output	To be external connection with 4 LED, 2 buttons, 1 buzzer, 1 DC relay and 1 electromagnetic valve
Accuracy	±3%LEL(under 25°C)
Expected Lifespan	>2 years
Standard Working Conditions	Temperature: -10~55°C Humidity: 0~95%RH
Storage Conditions	Temperature: -20~70°C Humidity: 20%~95%RH
Dimension	25.4×21.7×22.6mm(L×W×H)



Pin Function Description

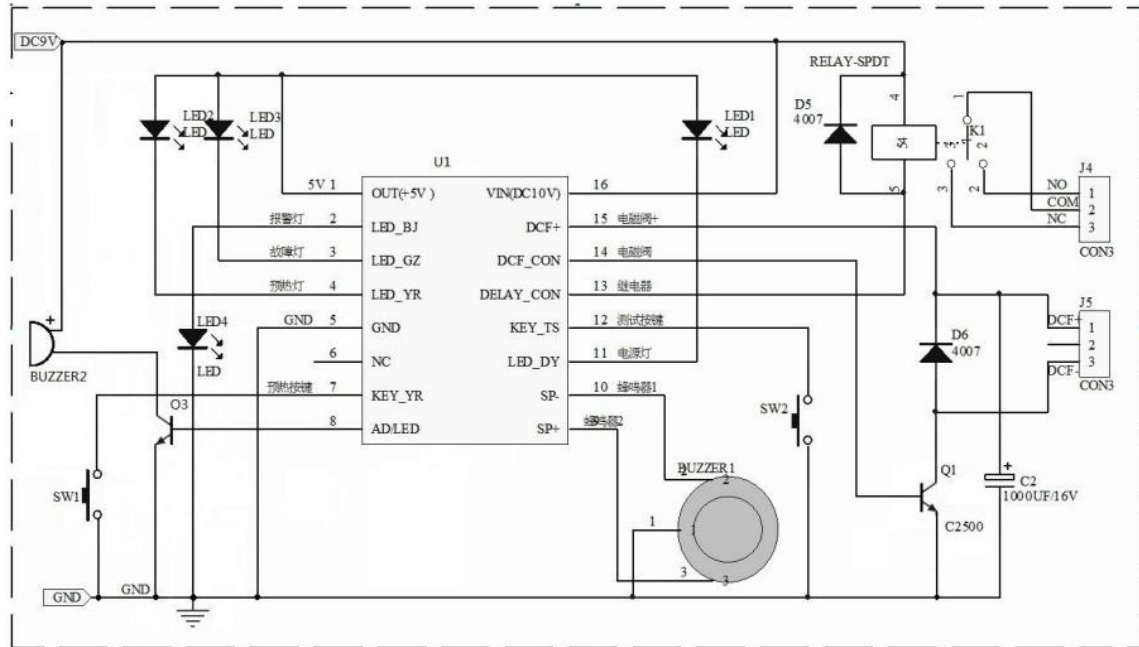
Fig2. ZP02 Pins



Pin No.	Function	Functional description
Pin1	DC5V	+5V output
Pin2	Alarm lamp LED drive	To output high level when alarming
Pin3	Fault lamp LED drive	To output low level when it has fault
Pin4	Warm-up lamp LED drive	To output low level during the warm-up course
Pin5	GND	Direct current supply
Pin6	NC	Hang in the air
Pin7	Warm-up button keystroke	To cancel warm-up by knobbing down this button during the warm-up course
Pin8	Electric magnetic buzzer drive	To control the conducting of electric magnetic buzzer
Pin9	Buzzer drive 1	Piezoelectric buzzer (three-terminal)oscillator output
Pin10	Buzzer drive 2	Piezoelectric buzzer (three-terminal)oscillator output
Pin11	Electric Power lamp LED drive	To output low level during normal operating period
Pin12	Test button keystroke	To detect basic function by knobbing down this button during normal operating period
Pin13	Relay drive	When giving alarm ,to output low level and connect with relay directly
Pin14	Electromagnetic valve drive	When giving alarm ,to output high level(specific refer to application circuit)
Pin15	Electromagnetic valve drive	To charge electromagnetic valve in voltage regulation and capacity during normal operating period
Pin16	Vin	Module power input

Application Principles

This module can be used for complete device development of household gas leak alarm.



ZP04 reference diagram of application principle

Diagram of application principle BOM

No	Material label	Material name	Model and specification of material	Quantity
1	U1	Module	ZP0 module	1
2	D5、D6	Kenotron tube	1N4007	2
3	LED1	Light emitting diode	Green	1
4	LED2、LED3	Light emitting diode	Yellow	2
5	LED4	Light emitting diode	Red	1
6	K1	Electromagnetic relay	DC9V	1
7	Q1	Audion	C2500	1
8	BUZZER1	Buzzer	9V piezoelectric buzzer	1
9	SW1、SW2	touch switch		2
10	C2	electrolytic capacitor	1000uF/16V	1
11	Q3	Audion	9013	1
12	BUZZER2	electric magnetic buzzer	9V electric magnetic buzzer	1

Installation instruction

This module connects with external part by adopting PH2.0 configuration of single-row inserting pin. When using it, you just need insert the module into pre-set circuit. If the joint strength of the module need to be enhanced, you can weld the module on the circuit board directly.

Cautions

1 .Following conditions must be prohibited

1.1 Exposed to organic silicon steam

Module will lose sensitivity and never recover if it absorbs organic silicon steam. Module must avoid exposing to silicon bond, fixture, silicon latex, putty or plastic contain silicon environment.

1.2 High Corrosive gas

If the sensors are exposed to high concentration corrosive gas (such as H₂S, SO_x, Cl₂, HCl etc.), it will not only result in corrosion of sensors structure, also it cause sincere sensitivity attenuation.

1.3 Touch water

Sensitivity of the sensors will be reduced when splattered or dipped in water.

1.4 Freezing

Do avoid icing on sensor's surface, otherwise sensing material will be broken and lost sensitivity.

2 .Following conditions must be avoided

2.1 Water Condensation

Indoor conditions, slight water condensation will influence sensors' performance lightly. However, if water condensation on sensing material surface and keep a certain period, sensors' sensitive will decrease.

2.2 Used in target gas with high concentration

No matter the sensor is electrified or not, if it is placed in high gas concentration for long time, sensors characteristic will be affected. If lighter gas sprays the sensor, it will cause extremely damage.

2.3 Long time storage

The sensors resistance will drift reversibly if the module is stored for long time without electrify, this drift is related with storage conditions. Modules should be

stored in airproof bag without volatile silicon compound. For the modules with long time storage but no electrify, they need long galvanical aging time for stability before using. The suggested aging time as follow:

Stable3.

Storage Time	Suggested aging time
Less than one month	No less than 48 hours
1 ~ 6 months	No less than 72 hours
More than six months	No less than 168 hours

2.4 Long time exposed to adverse environment

No matter the modules electrified or not, if exposed to adverse environment for long time, such as high humidity, high temperature, or high pollution etc., it will influence the module's performance badly.

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