



Pyroelectric Flame Sensor Module (Model:ZRP330)

User's Manual

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Zhengzhou Winsen Electronics Technology Co., Ltd

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Zhengzhou Winsen Electronics Technology CO., LTD.

ZRP330 Pyro-electric Flame sensor module

ZRP330 is a flame detection module based on the infrared principle. It uses pyroelectric sensors and high-performance microprocessors. It is a flame detection module designed through the combination of different sensors. It has a built-in high-speed microcontroller to collect sensor signals and use reliable and efficient algorithms to effectively judge the fire. The interface is simple and the output signals are complete. Simply design a simple power circuit and relay circuit to develop a complete flame detector, shortening the product development cycle.

Features:

Adopt large field of view angle, high detection rate, and low microphone effect sensor;

Combining multiple combustion substances to establish a data model with low false alarm rate; M4 core high-speed microcontroller with fast response and low power consumption.

Applications:

Space industry, storage facilities, printing industry, paint manufacturing, pharmaceutical industry, power generation facilities, machinery and automobile manufacturing, petroleum and petrochemical industry, etc.

Parameters:

Model	ZRP330
Detection object	Hydrocarbon combustion
Spectral range	3.8~5.0um
Operating voltage	5V±0.2 DC
Operating current	≤10mA
Interface level	0~3.3V
Output signal	High and low levels can be used to drive relays
	PWM, can be used as a 4-20mA control signal
Operating environment	Temperature: -10~55°C
	Humidity: 15%~90% RH (without condensation)
Dimension	Ø50mm*H21.5mm
Response time	Four levels are represented by the number of green LED flashes, with the green light flashing every 3 seconds representing the alarm time

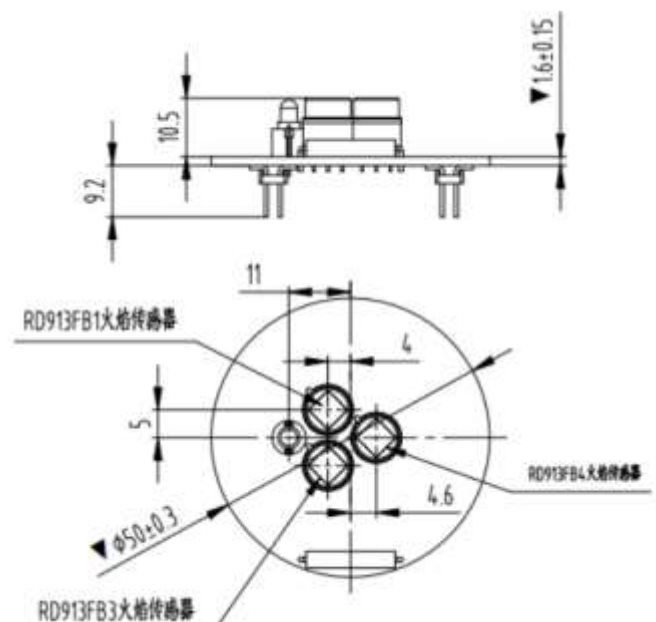


Figure 1: Structural dimensions

	level. Level I: 6-10 seconds, used in non-interference environments and fast alarm situations; Level II: 15-18 seconds, used in non-interference environments and reliable alarm situations; Level III: 22-26 seconds, used in environments with interference and reliable alarm situations; Level IV: 3-4 seconds, used to demonstrate rapid alarms.
Adjust method	Magnetic rod adjustment
Detecting distance	60m@0.3m*0.3m(Fuel: n-heptane)

Interface definition description:

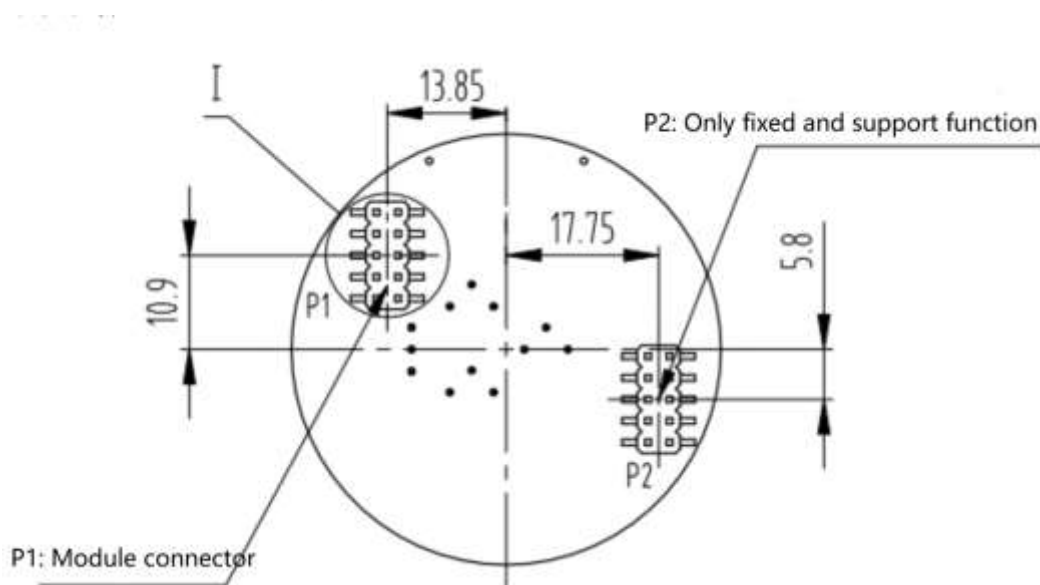


Figure 2: Pins definition description

P1 pins	Definition
1, 2	+5.0V
3, 4	GND
5, 6	Fault relay control can be used as a fault relay driving signal when designing the entire machine. The working process of this signal is to power on the high level and maintain it until the entire machine is powered off. The level range is 0-3.3V.

7, 8	Alarm relay control can be used as an alarm relay driving signal when designing the entire machine. The working process of this signal is: no fire alarm, output low level; If there is a fire alarm, output a high level and maintain it. The matching range is 0-3.3V
9, 10	PWM output, designed as a 4-20mA control signal for the entire machine, with no fire alarm duty cycle of 12% and corresponding current of 4mA; There is a fire alarm, with a duty cycle of 45% and a corresponding current of 15mA.

Response time adjustment

The factory default response time is level II (green light flashes twice every 3 seconds). You can also refer to the response time level in Table 1 and determine the current level of the module based on the number of green light flashes every 3 seconds. If you want to adjust the response time, you can use a magnetic rod to adjust it within 2-3 cm above the plastic sealed reed tube of the module. When the magnetic rod triggers the reed tube, the green LED indicator light will turn red and remain until the magnetic rod is removed. After successful adjustment, the flashing frequency of the green LED will change every 3 seconds. The response time level can be adjusted according to Table 1, and the flashing frequency represents the current alarm delay. Users can set according to their actual scenarios.

Notes:

- When take out the module from the packaging, the operator should wear static protective tools, otherwise it may cause breakdown of internal components of the sensor.
- Sensors should not be subjected to mechanical pressure, otherwise it may cause damage to the sensor window or internal components.
- During use, it is important to avoid dropping the module, otherwise the sensor may be damaged due to vibration.
- Do not touch the sensor window directly with hard objects or hands. If there is dirt, alcohol can be used to wipe it off.

Note: To keep continual product development, we reserve the right to change design features without prior notice.

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