



# **Pyroelectric Infrared Sensor (Model: RD-623)**

## **User's Manual**

Version: 3.1

Valid from: 2014-05-01

Zhengzhou Winsen Electronics Technology Co., Ltd

# Statement

This manual copyright belongs to Zhengzhou Winsen Electronics Technology Co., LTD. Without the written permission, any part of this manual shall not be copied, translated, stored in database or retrieval system, also can't spread through electronic, copying, record ways.

Thanks for purchasing our product. In order to let customers use it better and reduce the faults caused by misuse, please read the manual carefully and operate it correctly in accordance with the instructions. If users disobey the terms or remove, disassemble, change the components inside of the sensor, we shall not be responsible for the loss.

The specific such as color, appearance, sizes &etc, please in kind prevail.

We are devoting ourselves to products development and technical innovation, so we reserve the right to improve the products without notice. Please confirm it is the valid version before using this manual. At the same time, users' comments on optimized using way are welcome.

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.**

**May 1<sup>st</sup>, 2014**

## RD-623 Pyroelectric Infrared Sensor

Pyroelectric Infrared Sensor detects the infrared radiation by using the temperature-dependent feature. It suppresses the interference caused by temperature change adopts the method of dual sensing elements complementary which improves the stability of the sensor. This PIR sensor can be widely used in safety device, burglar alarm, automatic door, auto light control and intelligent toys.



### Features:

- \* High sensitivity and excellent signal to noise ratio
- \* High temperature-dependent stability
- \* Strong anti-jamming ability (e.g. vibration, radio-frequency interference etc.)
- \* High value with competitive price

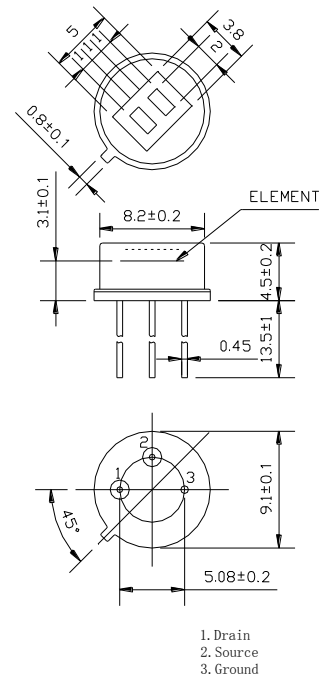
### Applications

Safety Alarm  
Electricity Lighting  
House-hold and other fields

### Parameters

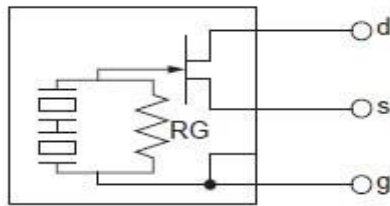
Table 1

Model No.	RD-623
Standard Encapsulation:	TO-5
Infrared receiving Electrode	2×1mm, 2 sensitive elements
Window Size:	3.8×5mm
Receiving Wavelength:	7~14μm
Transmittance	>75%
Output signal peak[Vp-p]	3500mV
Sensitivity	3200V/W
Detection Rate (D*):	$1.4 \times 10^8 \text{ cmHz}^{1/2}/\text{W}$
Noise peak[Vp-p]:	<70mV
Output balance degree:	<10%
Source Voltage:	0.2~1.5V
Working Voltage:	2~15V
Working temperature:	-30~70°C
Storage temperature:	-40~80°C
Incidence angle map:	

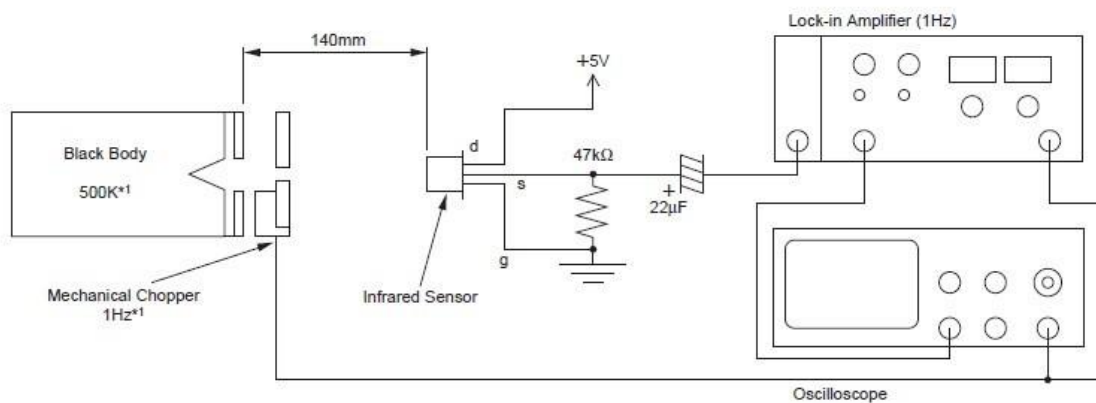


Component Structure

## Basic Testing Circuits

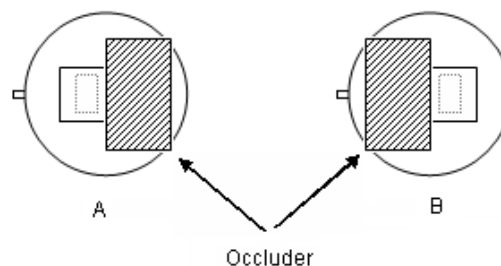


### Test Method:



### Testing Conditions:

- ◆ Environment Temperature: 25°C
- ◆ Blackbody temperature: 420K
- ◆ Modulation frequency 1HZ, 0.3 ~ 3.5HZ Δf
- ◆ Magnification: 72.5 dB



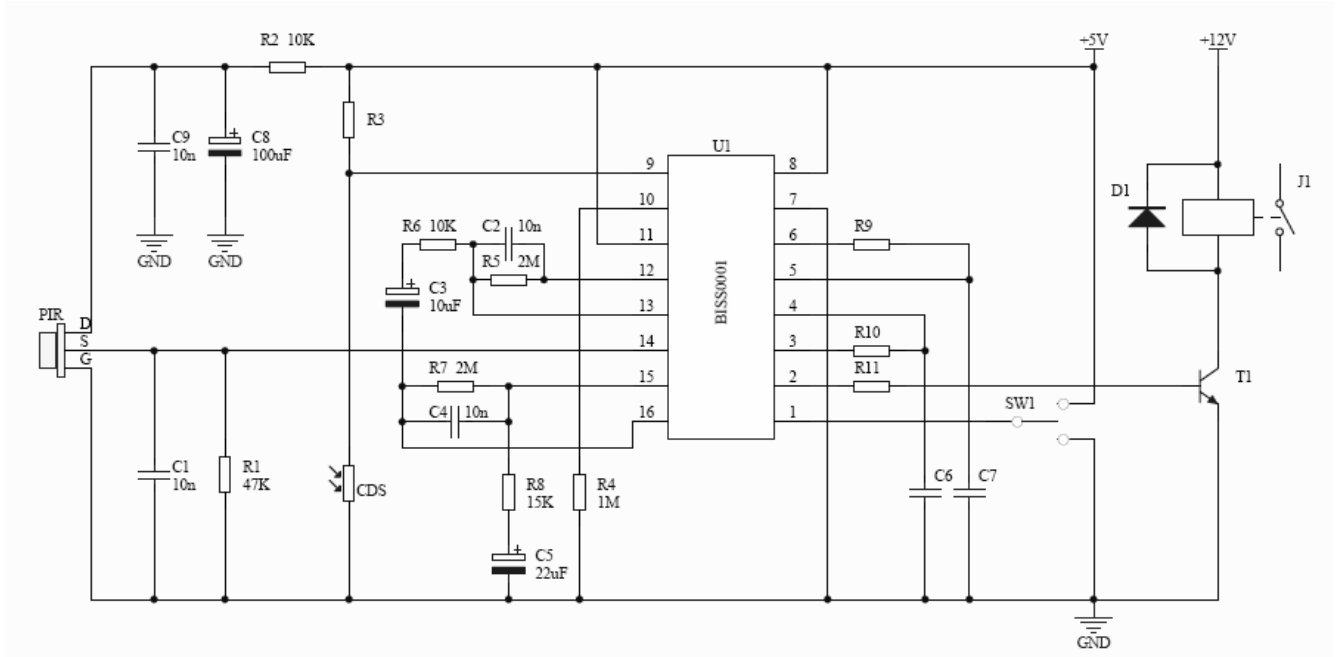
Dual sensor sensitivity can be got by detecting each cell's sensitivity and calculate in following formula:

$$\text{Balance degree} = |V_A - V_B| / (V_A + V_B) \times 100\%$$

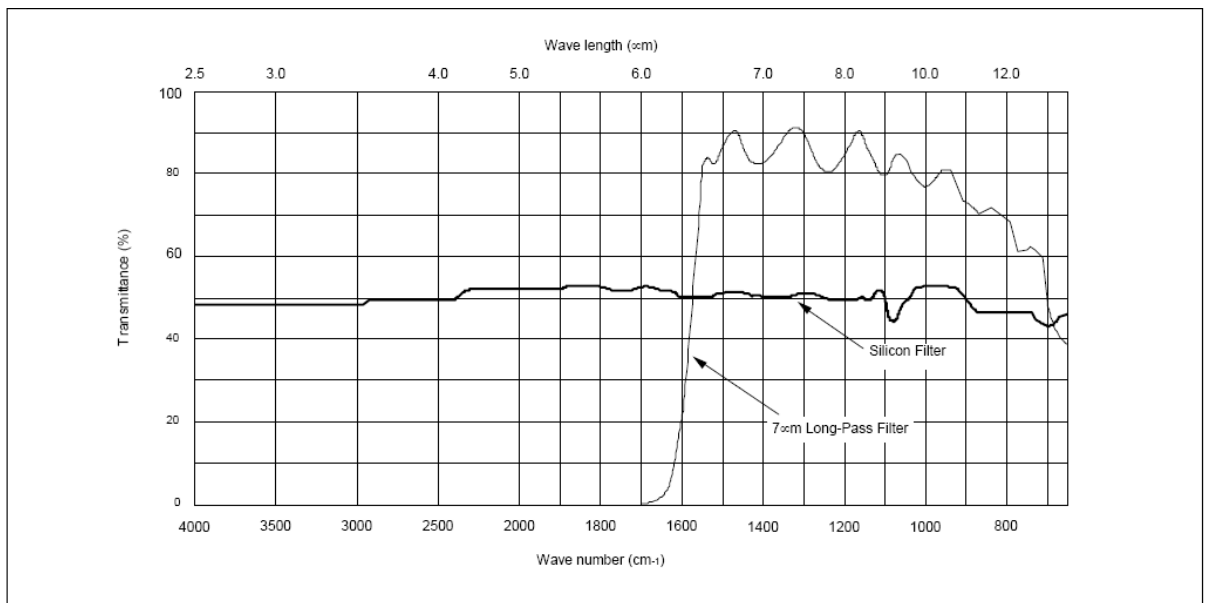
$V_A$  = Surface A sensitivity ( mVp-p )

$V_B$  = Surface B sensitivity ( mVp-p )

**Typical application circuit:**



**The receiving wavelength of the window material:**



**Cautions:**

1. The sensor's parameter is obtained by standard testing condition after 1 minute's settling time.
2. Please pay attention on Sensor's window direction, must combine with Fresnel lens to get a perfect detecting angle.
3. Sensors detecting distance is affected by ambient temperature, moving objects' temperature ,Fresnel lens, Amplifier amplification factor, The comparator threshold voltage setting...etc. please take a comprehensive consideration of various parameters when using the sensors.
4. Please do not touch the window area to avoid damaging to the optical filter.
5. Please handle the sensor with care when using it.
6. Please add Rc filter circuit to the sensor's power supply side when design the circuits.(please take typical application circuits for R2,C8 and C9 as reference)
7. Please try to use hand soldering and make the soldering time as short as possible.
8. Please get electrostatic protective measures when using this product.

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

**Zhengzhou Winsen Electronics Technology Co., Ltd**

**Add:** No.299, Jinsuo Road, National Hi-Tech Zone,  
Zhengzhou 450001 China

**Tel:** +86-371-67169097/67169670

**Fax:** +86-371-60932988

**E-mail:** [sales@winsensor.com](mailto:sales@winsensor.com)

**Website:** [www.winsen-sensor.com](http://www.winsen-sensor.com)