



产品规格书 Product Details Specification

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FR-18-GP	A 2	2023.08.10	1/5

■ 产品概述 Product Overview

FR-18-GP是一款测距传感器，主要由PSD(位置探测器)、IRED(红外线发射二极管)及信号处理电路组成。由于采用三角测量法，物体反射率的多样性、环境温度和工作时间不易对距离检测产生影响，该设备能输出与检测距离相对应的电压。因此，该传感器也可以用作接近传感器。

FR-18-GP is a distance measuring sensor unit, composed of an integrated combination of PSD(position sensitive detector), IRED (infrared emitting diode) and signal processing circuit. The variety of the reflectivity of the object, the environmental temperature and the operating duration are not influenced easily to the distance detection because of adopting the triangulation method. This device outputs the voltage corresponding to the detection distance. So this sensor can also be used as a proximity sensor.

■ 主要特性 Features

- ✦ 测距范围：10~80cm
Distance measuring range : 10 to 80 cm
- ✦ 模拟输出型
Analog output type
- ✦ 包装尺寸：29.5x13x13.5mm
Package size : 29.5x13x13.5mm
- ✦ 电流：30 mA
Consumption current : Typ.30 mA
- ✦ 电压：4.5 ~ 5.5V
Supply voltage : 4.5 to 5.5 V



■ 应用场景 Applications

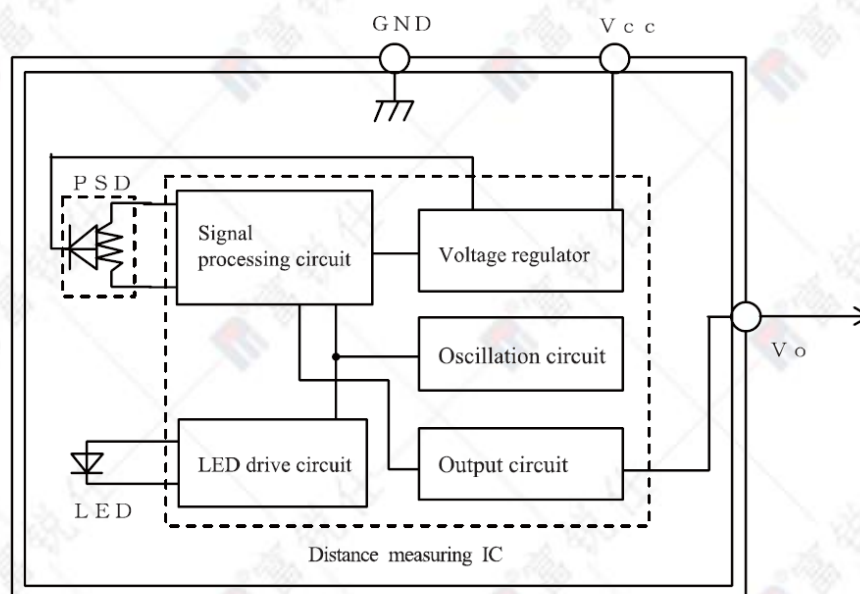
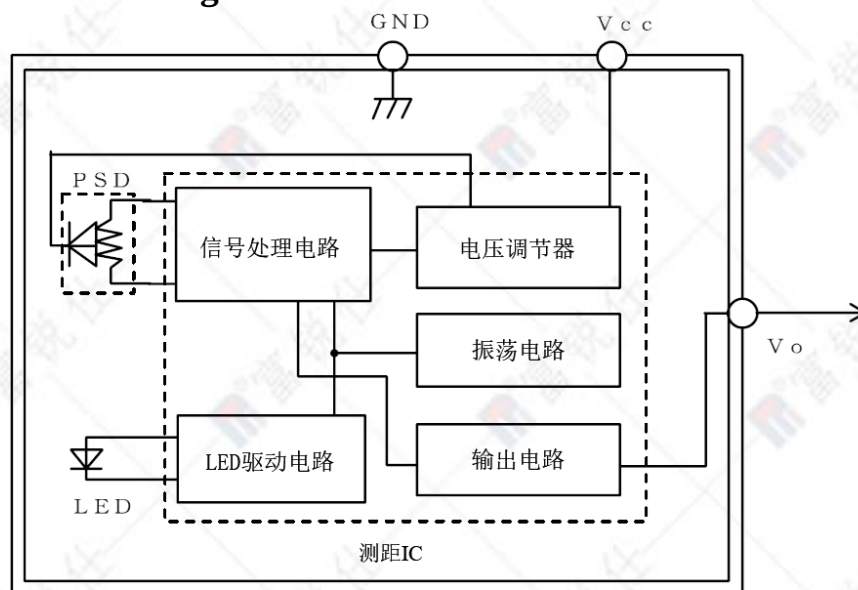
1. 非接触式开关（卫生设备、照明控制等）
Touch-less switch (Sanitary equipment, Control of illumination, etc.)
2. 扫地机器人
Robot cleaner
3. 自动化机器（取款机、复印机、自动售货机）
Sensor for energy saving (ATM, Copier, Vending machine)
4. 游乐设备（街机、游戏机）
Amusement equipment (Robot, Arcade game machine)



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■ 测距IC Distance measuring IC





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■ 绝对最大额定值 Absolute Maximum Ratings

($T_a=25^{\circ}\text{C}$, $V_{CC}=5\text{V}$)

参数Parameter	符号Symbol	范围Rating	单位Unit
电压Supply voltage	V_{CC}	-0.3 ~ +7	V
输出端电压 Output terminal voltage	V_O	-0.3 ~ $V_{CC}+0.3$	V
工作温度 Operating temperature	T_{opr}	-10 ~ +60	$^{\circ}\text{C}$
储存温度 Storage temperature	T_{stg}	-40 ~ +70	$^{\circ}\text{C}$

■ 光电特性 Electro-optical Characteristics

参数Parameter	符号 Symbol	条件 Conditions	最小值 MIN.	典型值 TYP.	最大值 MAX.	单位 Unit
平均电流 Average supply current	I_{CC}	$L^*=80\text{cm}$	/	30	40	mA
测量范围 Distance measuring	ΔL		10	/	80	cm
输出电压Output voltage	V_O	$L=80\text{cm}$	0.25	0.4	0.55	V
输出电压变量 Output voltage differential	ΔV_O	10cm~80cm	1.65	1.9	2.15	V

*L: 与反射物的距离

■ 推荐运行条件 Recommended operating conditions

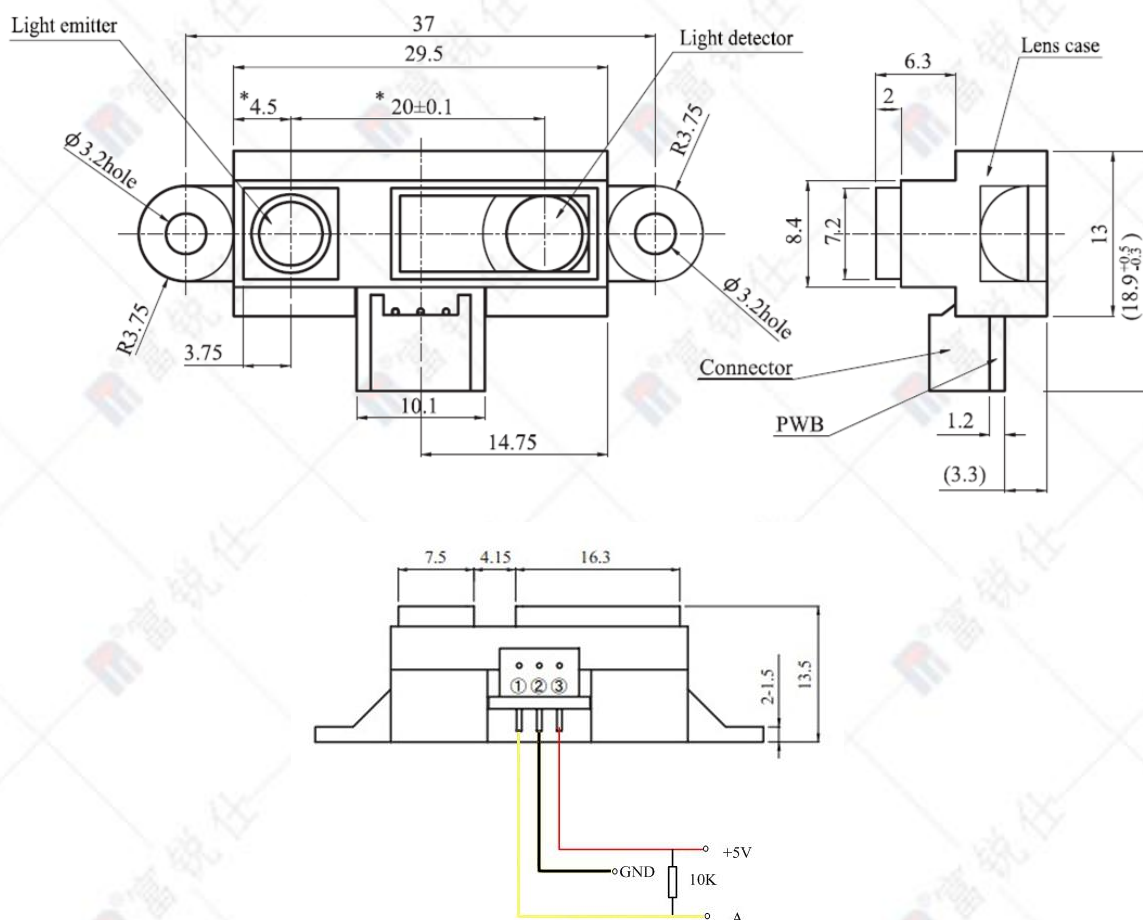
参数Parameter	符号Symbol	范围Rating	单位Unit
电压Supply voltage	VCC	4.5~5.5	V



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■ 尺寸 Size



1. 标有*的尺寸表示镜头中心位置的尺寸。

The dimensions marked * are described the dimensions of lens center position.

2. 未指定的公差应为 ± 0.3 mm。

Unspecified tolerances shall be ± 0.3 mm.

3. 括号中的尺寸仅供参考。

The dimensions in parenthesis are shown for reference.



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■ 注意事项 Notes

1.保持产品镜头的清洁，灰尘、水或者油会降低产品的特性。

The lens of this device needs to be kept clean. There are cases that dust, water or oil and so on deteriorate the characteristics of this device.

2.本产品不能水洗，洗涤会使光学性能变差。

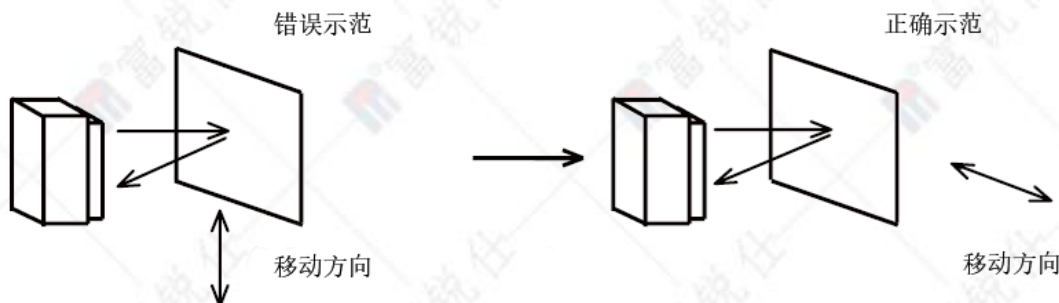
Please don't do washing. Washing may deteriorate the characteristics of optical system and so on.

3.当探测器暴露在太阳、钨丝灯等直射光下时会出现无法准确测量距离的情况。

When the detector is exposed to the direct light from the sun, tungsten lamp and so on, there are cases that it can not measure the distance exactly.

4.为了减小测量偏差，建议将传感器移动方向与产品中心线垂直。

In order to decrease deviation of measuring distance by moving direction of the reflective object, it shall be recommended to set the sensor that the moving direction of the object and the line between emitter center and detector center are vertical.



5.组装本产品时请注意不要对传感器和 PCB 造成过大的压力。

Please be careful not to cause any excessive pressure on the sensor package and also on the PCB while assembling this product.

6.东莞富锐仕公司只承担本产品自身不良问题，对不良品进行退换处理，不承担其它费用责任。

Dongguan Forest company only bear the problems of the product itself, and return or exchange the defective products, do not accept other expenses.

7.东莞富锐仕公司的产品验收期为15天。验收期过后视为产品验收合格，东莞富锐仕公司不再接受退货。

The product acceptance period of Dongguan Forest company is 15 days. After the acceptance period, the product shall be deemed to have passed acceptance, and Dongguan Forest Company will not accept the returns.



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■ 附页 Appendix

测距特性示例（输出） Example of distance measuring characteristics(output)

