

# Bio-sensing radar General development version

Suggestions for radar housing design

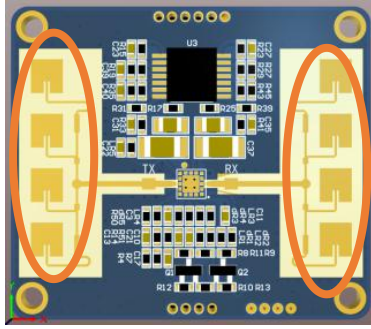
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Instructions for use (Ver. 1.0)

## Radar Module Housing Design Reference

### 1. How radar works:

The radar antenna transmits electromagnetic waves through the plastic casing and receives the returned electromagnetic wave signals.



The part enclosed in yellow is the radar antenna

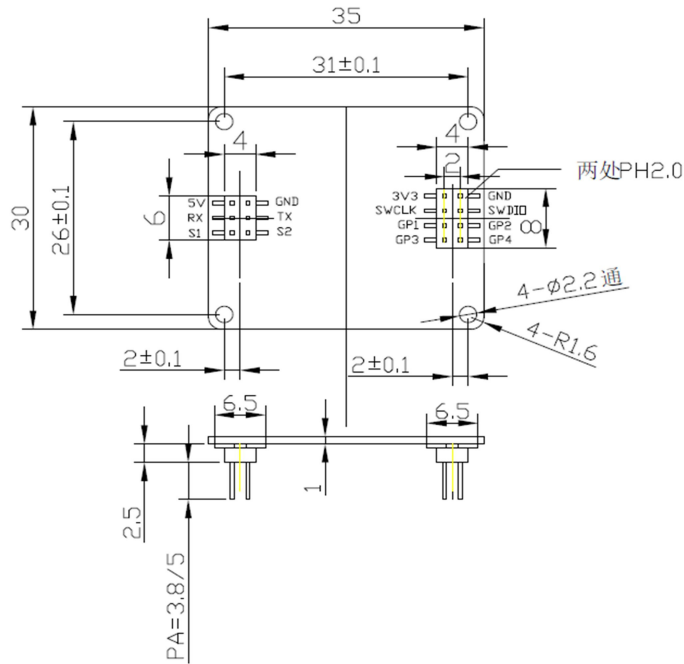
### 2. Shell basics:

- 1) The surface facing the radar module needs to be flat, and the radar surface area is preferably more than 40mm \* 40mm
- 2) The surface facing the radar module cannot contain metal or metallic paint to avoid signal attenuation
- 3) The surface material facing the radar module can be ABS+PC
- 4) Power supply line access, consider embedded or conventional USB port or DC port
- 5) An external power supply ( $\geq 0.8\text{w}$  power consumption) is required to consider the power supply wiring
- 6) Equipped with buttons to meet basic distribution network requirements
- 7) Radar module double row pin height can be selected, usually 3.8mm pin, plus the base is 6.3mm, please consider the product thickness.

- 8) Whether to connect to light, infrared, 4G SIM card, if necessary, reserve an opening

### 3. Structural design points:

- 1) The thickness of the surface facing the radar module should not exceed 1.2mm
- 2) It is most appropriate to keep the distance between the antenna surface of the radar module and the surface of the casing at about 3mm.
- 3) Radar antenna and other heights, try not to be blocked by pillars or other components
- 4) The power supply part should have a clear distance from the radar module part (strong electricity needs to be isolated) to avoid interference
- 5) The layout of communication modules such as WiFi and ZigBee needs to be considered. The radar module is on the surface, and the communication module can be under the PCBA.
- 6) Considering the working status of the LED, the light transmission design of the distribution network indicator light, and the light guide column.
- 7) Consider the compatibility of this structure and whether it meets the size of multiple communication methods such as 4G, Wi-Fi, Zigbee, BT, etc.
- 8) Standard radar module size

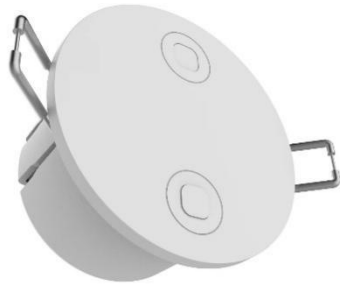


### 4. Power Requirements:

- 1) Weak current input: It is recommended to use a power supply input greater than 5V to avoid insufficient power supply of the radar in some installation scenarios, such as 9v/12v DC head, if a USB port is required, the adapter must be 9v/12v.
- 2) PCBA needs 5V, and meets >500mA current input.
- 3) You can use the built-in or external adapter power supply of the whole machine, and the adapter chooses 5V 1A
- 4) It is best to reserve 12V power input interface, dry contact interface, 485 communication interface

### 5. Appearance structure reference

- 1) Embedded installation at the top (engineering end, fixed by drilling), strong current equipment, two zero live wires exposed  
  
Applicable to hotel, real estate, office and other engineering installations



- 2) Rear installation on the top (fixed by screws, non-drilled), high-power equipment, the equipment includes the terminal block of the neutral wire



- 3) Inclined installation: DC head power supply products, fixed installation, fixed angle, detection area as shown in the red box



- 4) Horizontal installation, 86-box form, high-power equipment, the

equipment includes the terminal block of the neutral wire



- 5) The angle can be adjusted, and it can meet the requirements of top and inclined installation at the same time



- 6) Others: Radar products are human tactile sensors, which solve the privacy problem of cameras. It is recommended that the casing should not be too big or too conspicuous to reduce customers' misunderstanding of monitoring equipment.

## 6. Historical version update instructions

Revision	Release Data	Summary	Author
V1.0_0606	2022/6/6	Adjust the cover of a document	Mark