

隔空智能



ATS58-4020, ATS58-3220, ATS58-3020 5.8GHz Microwave Motion sensor

FCC ID: 2AVK2-ATS58-4020

Made in China

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Content

ATS58-4020, ATS58-3220, ATS58-3020 User Guide	3
Description.....	3
Radar Sensor’s illustration	3
Input and Output Interface.....	4
Specifications	4
Switch situation between test mode and common mode	5
High and low sensitivity for distance detected	5
Light-dependent detection	6
Installation Notes.....	6
Revision history	6

ATS58-4020, ATS58-3220, ATS58-3020 User Guide

1. Description

ATS58-4020, ATS58-3220, ATS58-3020 is a high performance radar sensor operating in 5.8G band, as compare with the traditional 5.8G radar module, the sensor seems quite simple because of AT5810 which is a single-chip radar designed by Air Touch, the chip integrates 5.8G TRX and IF amplifier to simplify radar design and improve the system performance. Antenna is another key factor for radar system, the module integrates TX antenna and RX antenna in the same PCB whose size the size is only 40mm*20mm. The sensor can be applied in many cases that need motion detect such as smart home, IOT and intelligent lighting, it's the best choice for motion sensor light T8.

2. Radar Sensor's illustration

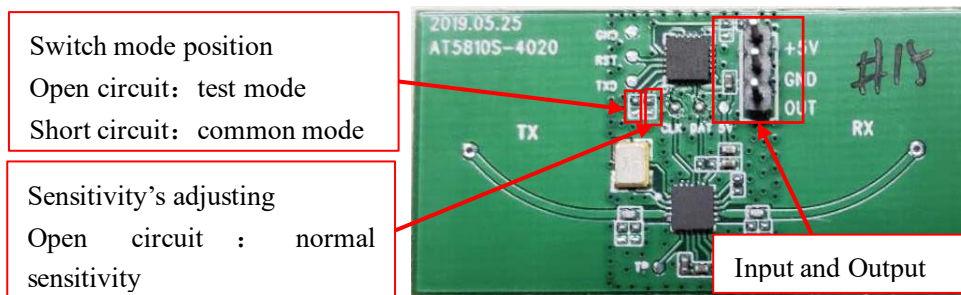


Figure 1 ATS58-4020, ATS58-3220, ATS58-3020 Radar Sensor's facade

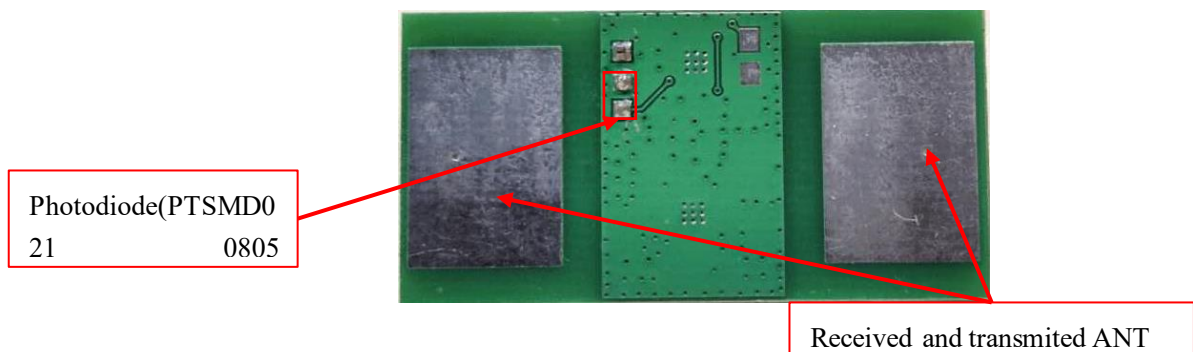


Figure 2 ATS58-4020, ATS58-3220, ATS58-3020 Radar Sensor's obverse

3. Input and Output Interface

ATS58-4020, ATS58-3220, ATS58-3020 can be embedded in end product with three contact PINs, the PIN space is 2mm, below is the detail description about the interface:

Pin Name	Function	Note
VCC	Power supply	VCC is 5V by default, external LDO is needed if VCC higher than 6V. Driver current should be better than 50mA.
GND	Ground PIN	
OUT	Output control	Output is 5V TTL by default, could be PWM if needed

4. Specifications

Parameters	Min.	Typical	Max.	Unit	Note
Frequency	5725		5875	MHz	
TX Power			0.5	mW	
Input VCC	4.5	5	5.5	V	Without external LDO
Output High Level		Vcc		V	
Output Low Level		0		V	
Current		35		mA	
Mounting Height		5		M	Can be tuned if needed
Detection Radius		5		M	Related to mounting height
Hold time		30		S	Can be tuned if needed
Daylight sensor		10		Lux	Can be tuned if needed
Operating	-30		85	° C	

temperature					
-------------	--	--	--	--	--

5. Switch situation between test mode and common mode

ATS58-4020, ATS58-3220, ATS58-3020 will output control signal automatically when the moving object enters the range, and keep the control signal for 2 seconds(test mode) after it no longer detects any object moving, that means the hold time is 2s by default, the hold time can be changed to 30s(common mode) by removing the resistor highlight in Figure 1.

6. High and low sensitivity for distance detected

The module is set to normal sensitivity state by default, the detection area can be enlarged by adding a 0 ohm resistor showed in figure 1.

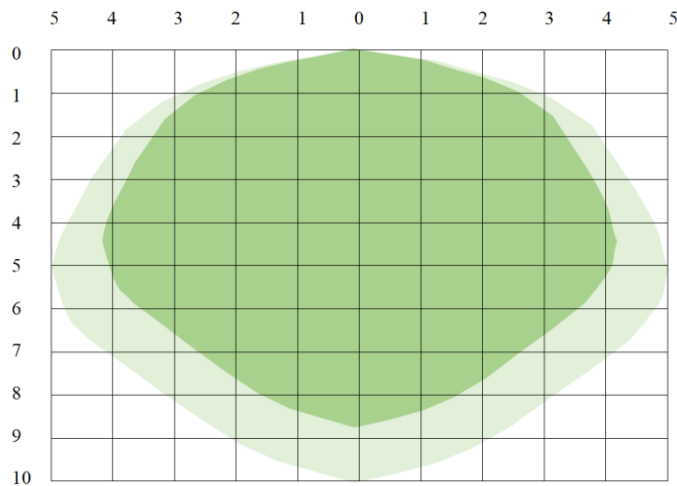


Figure 3 a example of ATS58-4020, ATS58-3220, ATS58-3020’s detection pattern

7. Light-dependent detection

According to the Figure 1, there is no daylight sensor by default, an additional light sensor is needed to have build-in dusk to dawn sensor, in that case, updating software is also necessary.

8. Installation Notes

- Antenna is sensitive to metal, don't put anything with metal in front of the antenna, thin plastic and glass is acceptable, however, don't let the antenna cling to the cover, the gap between the antenna and the cover should be more than 2mm;
- Try to set the antennas in parallel to each other when there are multi radar sensors in the same space, make sure the gap between two sensors is more than 1m;
- Power frequency may cause serious interference for radar signal, try to put LED driver far away from the antenna, don't fix the LED driver in front of the antenna;
- Power consumption for the sensor is about 35mA, make sure the current-driving capability for LED driver is better than 50mA.

9. Revision history

Revision	Release Date	Description
1.0	2019/06/10	Initial version
1.1	2019/07/11	Update power supply parameters

10. Requirement of FCC KDB 996369 D03 for module certification:

10.1 List of applicable FCC rules:

The module complies with FCC Part 15.249

10.2 Summarize the specific operational use conditions:

The module has been certified for Fix, Mobile, Portable applications. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

10.3 Limited module procedures:

The module has not its own RF shielding, which belong to Limited module

Standard requires:

Clear and specific instructions describing the conditions, limitations and procedures for third-parties to use and/or integrate the module into a host device (see Comprehensive integration instructions below).

Resolve: Supply example as follows:

Installation Notes:

- 1) ATS58-4020, ATS58-3220, ATS58-3020 module Power supply range is DC 4.5~5.5V, when you use ATS58-4020, ATS58-3220, ATS58-3020 modules design product, the power supply cannot exceed this range.
- 2) When connect ATS58-4020, ATS58-3220, ATS58-3020 module to the host device, the host device must be power off.
- 3) Make sure the module pins correctly installed.
- 4) Make sure that the module does not allow users to replace or demolition
- 5) The module is typical installed and assembled into a lamp and turns the lamp to be a radar induction lamp. After assembled, the transmitter part of the module faces to the screw side which is made of the material of aluminum of the lamp. The screw side becomes a big shielding part to cover the module.

10.4 Trace antenna designs:

Not applicable.

10.5 RF exposure considerations:

This equipment complies with FCC's RF radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must not be collocated or operating in conjunction with any other antenna or transmitter.

隔空智能

10.6 Antennas:

Type	Gain	Impedance	Application
PCB type FA Antenna	2.3dBi	50 Ω	Fixed, Mobile, Portable

The antenna is permanently attached, can't be replaced.

10.7 Label and compliance information

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or

television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The system integrator must place an exterior label on the outside of the final product housing the ATS58-4020 Modules. Below is the content that must be included on this label.

The host product Labeling Requirements:

NOTICE: The host product must make sure that FCC labeling requirements are met. This includes clearly visible exterior label on the outside of the final product housing that displays the contents shown in below:

Contains FCC ID: 2AVK2-ATS58-4020

隔空智能

10.8 Information on test modes and additional testing requirements:

When testing host product, the host manufacture should follow FCC KDB Publication 996369 D04 Module Integration Guide for testing the host products. The host manufacturer may operate their product during the measurements. In setting up the configurations, if the pairing and call box options for testing does not work, then the host product manufacturer should coordinate with the module manufacturer for access to test mode software.

10.9 Additional testing, Part 15 Subpart B disclaimer:

The modular transmitter is only FCC authorized for the specific rule parts (FCC Part 15.249) list on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed when contains digital circuitry.

10.10 Information on test modes and additional testing requirements:

When testing host product, the host manufacture should follow FCC KDB Publication 996369 D04 Module Integration Guide for testing the host products.

The host product shall work normally, all the transmitters installed must be operating, investigate the fundamental and unwanted/spurious emissions with the modular transmitter(s) operating in a normal mode. When testing for emissions from the unintentional radiator, the transmitter shall be placed in the receive mode or idle mode if possible, if receive mode only is not possible, test laboratories may need to add attenuation or filters depending on the signal strength of any active beacons (if applicable) from the enabled radio(s).