



MS58-2220D20M4-LDO-W-3D-LS-RXS
MoreSense 5.8G Radar Sensor Module
Data Sheet V1.0

Revision History

Revision	Description	Release Date
V1.0	MS58-2220D20M4 Data Sheet Initial Version	2023-6-26

Proprietary Statement:

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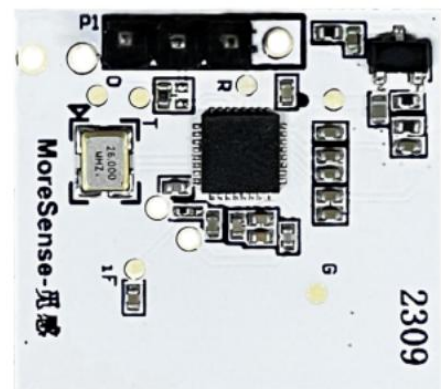
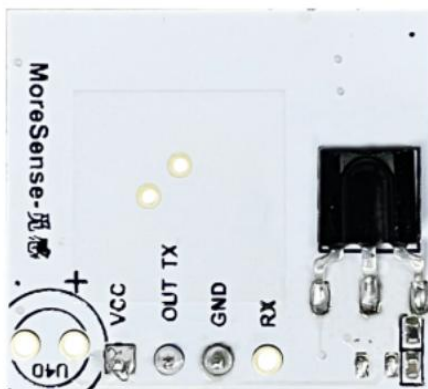
1 Product Description

MS58-2220D20M4 is a miniaturized 5.8G radar sensor module with IR remote launched by MoreSense. This module integrated IR&radar sensor's function which realizing IR remote to adjust parameters such as sensing distance, light-on time, light sensor, light controlling.

The sensor can detect that if there have the moving objects in the region by frequent difference between the transmit and receive signals (Doppler Principle) or high-frequency electromagnetic waves. The sensor is not affected by ambient temperature, humidity, airflow, dust, noise, brightness and so on. With a built-in multi-filter algorithm, the module has a strong anti-jamming capability and its signal can penetrate glass, axle and other non-metallic materials.

The sensor can be used to detect various scenes of human being or moving target sensing, including including Smart Home, Smart Doorbell, Smart Door Lock, etc. It is especially suitable for low-power battery-powered scenes such as night lights, solar street lights and wireless cameras.

The module comes with default parameters from the factory, and the attributes of the module can be flexibly modified by infrared remote control when in use.



2 Product Features

- a. Working Frequency Band: 5.8G ISM Frequency Band;
- b. Microwave sensor based on Doppler effect;
- c. Sensing distance and delay time can be adjusted flexibly according to different application;
- d. Using mature CMOS technology to achieve fully integration of ultra-cost-effective;
- e. The chip has a built-in LDO that supports wide-voltage power supply;
- h. Support IR remote.

3 Key Application

- Intelligent Lighting: Corridor Lights; Ceiling Lights; Disinfection Lights; Miner's Lamps...

4 Parameter

Type	Parameter	Value
RF Parameter	Frequency Range	5.725GHz-5.875GHz
	Transmit Power	-4dBm ± 1dBm
	Antenna	Built-in;Flat Antenna
Hardware Parameter	Data Interface	GPIO
	Operating Voltage	12-24V(typical value)
	Operating Current	23mA
	Operating Temperature	-40°C- 85°C
	Storage Temperature	-40°C- 125°C
	Humidity	<85%
	Dimension	22mm x 20mm
Default Parameter	Power-On Self-Test Time	15s
	Sensing Output Level	5V
	Silent Output Level	0V
	Sensing Output Time	15s(adjustable)
	Max. Inducting Distance	15m
	Max. Induction Radius with Hanging Height 3m	5m
	Setting Parameter Method	IR Remote

5 Pin Definition

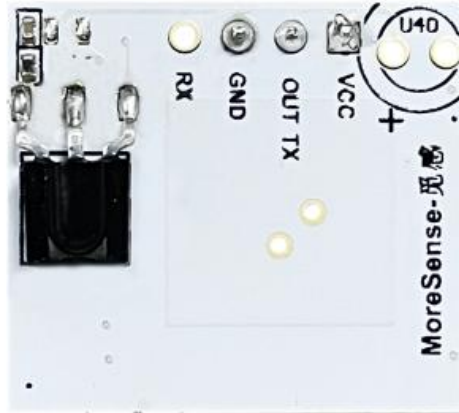
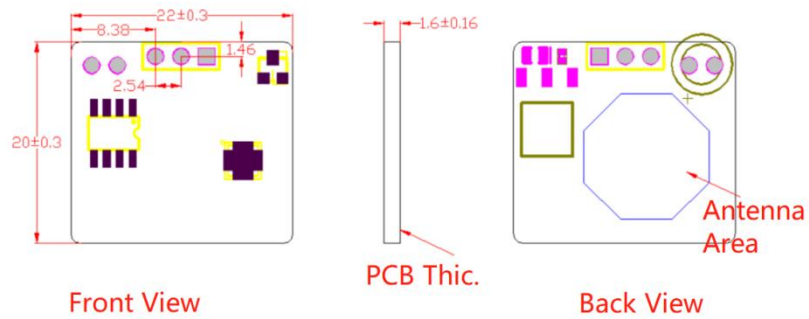


Table.1 MS58-2220D20M4 Pin Function Definition

Pin	Name	Type	Discription
1	VCC		Power Supply
2	OUT/TX	I/O	Sensing Signal Output or switching to UART TX
3	GND		Ground
4	RX	I/O	UART RX

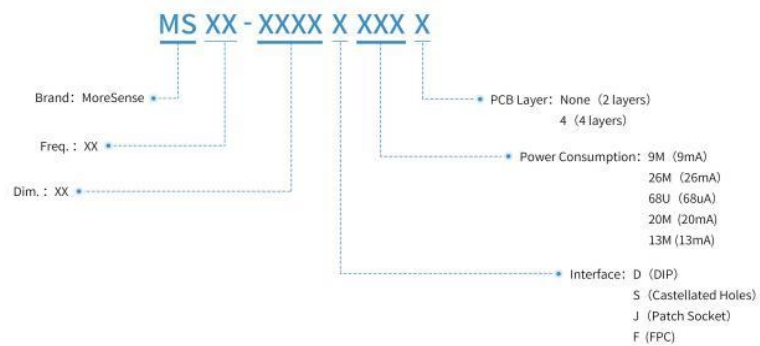
I:Input O:Out

6 Module Dimension

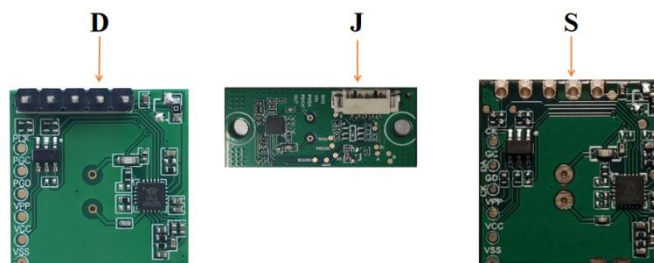


Unit:mm

7 Name Rules

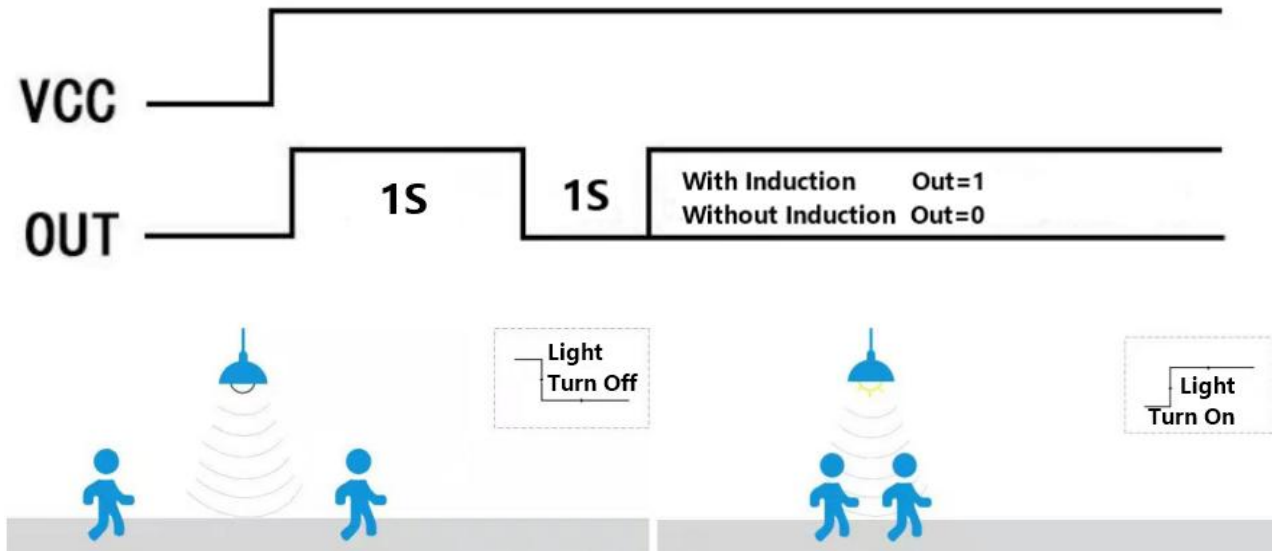


④Interface



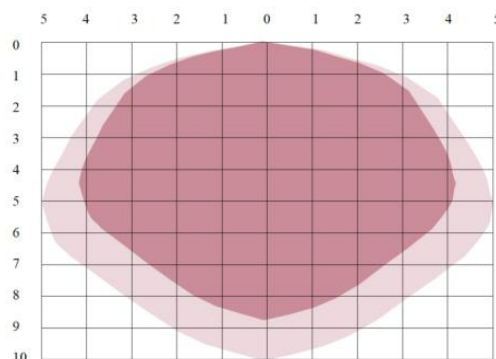
8 Operation Guideline

8.1 Module OUT RAM Timings



8.2 Induction Range

The actual sensing distance can be adjusted according to the needs. The above is the schematic diagram of radar detection range in case of high hanging. If the sensitivity is set higher, the detection range will be correspondingly larger. In the figure, the dark area is the high sensitivity area that the object can be fully detected, while the light area is the low sensitivity area that the object can be detected basically. The actual product structure and assembling environment also affect the distance and angle of radar detection.



9 Precautions



Precautions

※ Try to avoid placing the radar antenna in the direction of large metal equipment or pipes, etc.

※ The front of the antenna should be installed without a metal shell or components to avoid shielding the signal.

※ The power frequency will interfere with the radar signals. During installation, it should avoid forwarding the AC drive power supply, staying away from AC power lines, rectifier bridges and other lines.

※ Covers such as glass, acrylic, or plastic are allowed, but there should be a proper clearance area in front of the antenna, and a minimum spacing of 5mm or more is recommended.

※ During installing multiple radar modules, please try to ensure that the antennas of each radar module are parallel to each other, avoiding positive irradiation between the antennas, and to maintain more than 1 m of space between the modules.

※ The radar module's power supply drive capacity needs to be greater than 50mA, otherwise it will cause the sensor to work abnormally.

10 Customization

Power Supply Voltage	Sensing Out Method	Setting Parameter	Supplement
<input type="checkbox"/> 3.3V	<input checked="" type="checkbox"/> IO Out (Reverse Supported)	<input type="checkbox"/> IO Setting Para.	<input checked="" type="checkbox"/> Light Sensor
<input type="checkbox"/> 5V	<input type="checkbox"/> UART	<input type="checkbox"/> UART	<input type="checkbox"/> Power Management Function
<input checked="" type="checkbox"/> 12V	<input checked="" type="checkbox"/> PWM	<input checked="" type="checkbox"/> IR Remote	—
<input checked="" type="checkbox"/> 24V	—	—	—

: Supporting : Supported