



MS10-1918S26M4-3V3-G-NLS-MCU

10GHz Radar Sensor Module Data Sheet

MS10-1918S26M4-3V3-G-NLS-MCU is a
miniaturized 10G radar sensor module launched by
MoreSense.

Revision History

Version	Description	Release Date
V1.0	Initial Version	2022- 11- 14

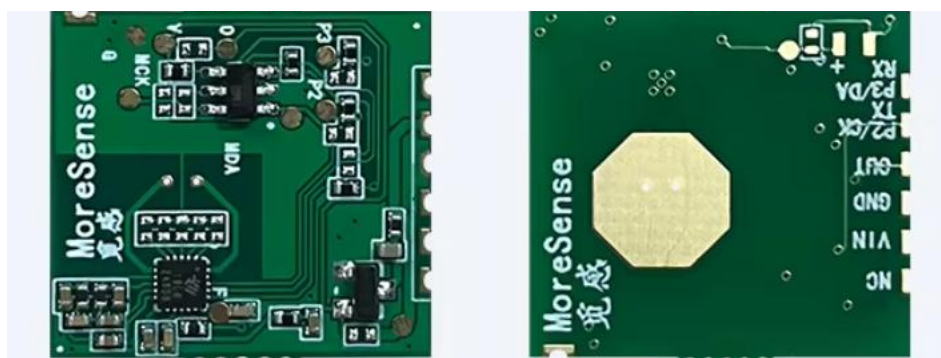
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1 Product Description

MS10-1918S26M4-3V3-G-NLS-MCU is a miniaturized 10G radar sensor module launched by MoreSense. This module uses high-performance radar sensors combined with miniaturized planar antennas to achieve a size of 19 x 18mm while ensuring the performance of the sensor.

This module integrates an adaptive calibration algorithm, which can effectively solve all kinds of interference and greatly improve the reliability and practicability of the sensor. The module adopts an ultra low-power consumption architecture, which has low power consumption and supports wide voltage, and can support battery application.



2 Product Feature

- ★Work in 10.5GHz~10.55GHz frequency band;
- ★Microwave radar sensor based on Doppler effect;
- ★Can penetrate thin non-metallic materials such as acrylic and glass;
- ★ Support two working modes of normal power consumption and ultra-low power consumption;
- ★Not affected by ambient temperature, humidity, airflow, dust, noise, brightness etc.;
- ★ Support standard I2C interface, which can be interconnected with other MCU or sensors;
- ★Meet the certification standards such as FCC, RED, CE and ETL;

3 Application

This module can be used for smart door locks, low-power IPCs, night lights and other products and scenarios that require automatic sensing such as smart lighting, smart home, energy saving, courtyards, and security monitoring.



Smart Lock



Cabinet Light



Intelligent Toilet



Intelligent Lighting



Parking Space Detection



Smart Home

4 Module Parameter

Type	Parameter	Value
RF Parameter	Certification Standards	FCC/CE/SRRC/RoHS
	Frequency Range	10.5GHz~10.55GHz
	Transmit Power	-4dBm
	Antenna	Built-in; Flat Antenna
Hardware Parameter	Data Interface	GPIO
	Operating Voltage	2.5-4.8V (Typical Value)
	Operating Current	26mA (high power mode) / 51uA (low power mode)
	Operating Temperature	-20°C- 85°C
	Storage Temperature	-40°C- 150°C
	Humidity	<85%
	Dimension	40mmx7mm
Default Parameter	Power-On Self-Test Time	2s
	Sensing Output Level	3.3V
	Silent Output Level	0V
	Sensing Output Time	30s
	Inducting Distance	About 8m
	Customizing the Largest Sensing Distance	10m
	Max. Induction Radius with Hanging Height 3m	3-4m
	Setting Parameter Method	IO/UART/IIC Setting Parameter

5 Pin Definition

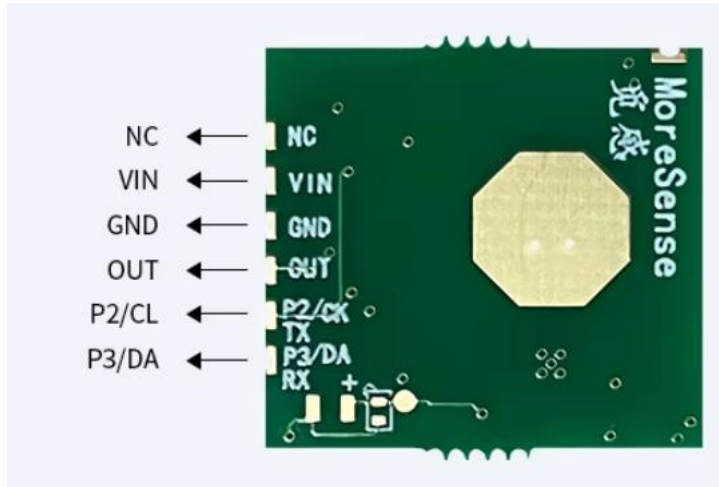
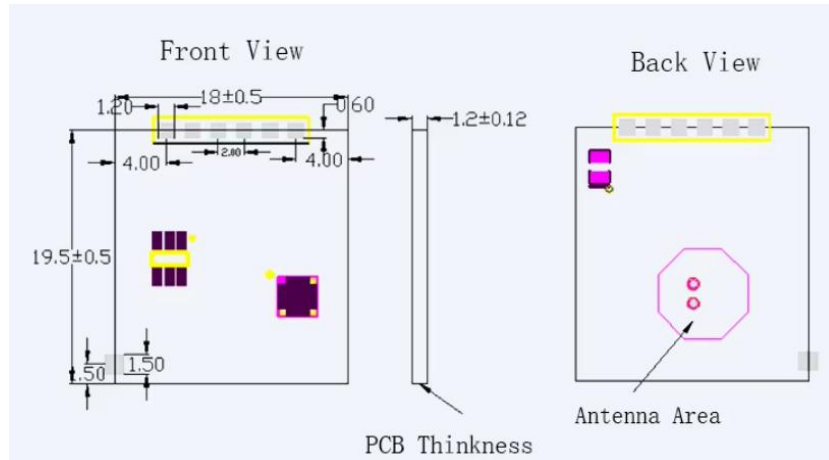


Table 1 MS10-1918S26M4-3V3-G-NLS-MCU Pin Function Definition

#	Name	Type	Description
1	SDA/RX/P3	I/O	UART Receiving
2	SCK/TX/P2	I/O	UART Transmitting
3	OUT		Sensing Signal Output
4	GND		Grounded
5	VIN		Power Supply
6	NC		Not Used

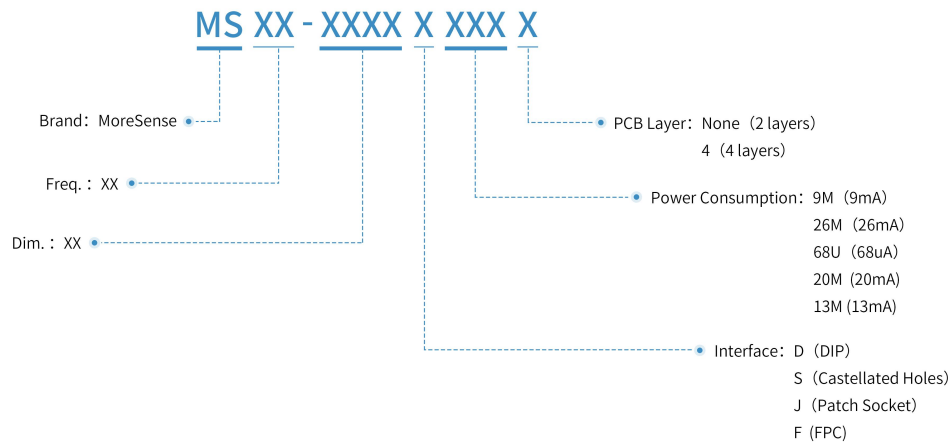
Note: I:Input O:Out T:High impedance state

6 Module Dimension



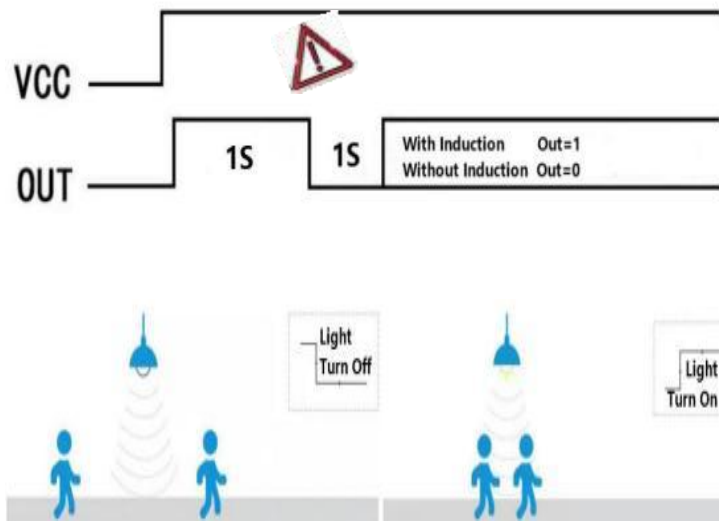
Unit :mm

7 Name Rule



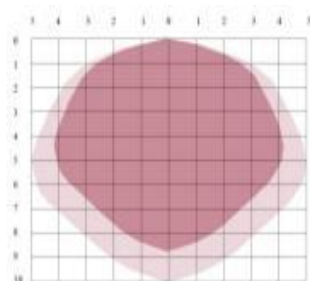
8 Operation Guideline

8.1 Module OUT RAM Timings



8.2 Induction Range

The sensing sensitivity of radar sensor can be configured by MCU. 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

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.

10 Customization

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

: Supporting : Supported

11 Hardware Typical Application

