מד מפלס רדאר SCH MRA 80GHZ

Safety warning

· Do not use in environments with flammable, explosive or corrosive gases.

· Do not make the RS485 communication cable too long.

· Do not disassemble, repair or modify this product without permission

Precautions

· Be sure to perform wiring with the power disconnected. Miswiring may cause a malfunction.

· The maximum permissible supply voltage of the sensor is 10% of the rated Voltage. ,make sure that the supply voltage must be within the rated value before

switching on the power.

· Please use the load at the rated value.

· RS485 signal line, 4-20mA signal line can not be shorted with the power supply, otherwise it will cause product failure or damage the product.

· When mounting the sensor, do not subject the sensor to severe external forces (e.g., hammer blows, etc.), as this may damage the sensor's performance.

· Do not bend the lead-in portion of the cable with brute force and avoid applying pressure such as pulling.

· If there is a large amount of dust and oil, the millimeter wave radar sensor head needs to be cleaned regularly to avoid adherents affecting the measurement accuracy.

Disposal

· Please observe local regulations when disposing of this product and work together to protect the natural environment. Do not dispose of old batteries in household waste; do not throw them away, improper disposal may pollute the environment.

Product presentation

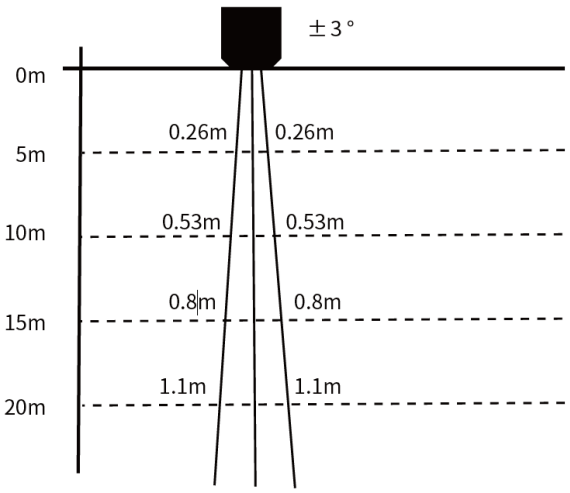
80GHz millimeter wave radar sensor adopts millimeter wave non-contact radar testing technology, through the radar transmit signal to the reflection of the liquid and solid surface correlation to achieve high-precision distance testing. The radar signal measurement is stable, and anti-interference ability is strong, suitable for a variety of environments of liquid level and material level test: such as rivers and lakes of high-precision liquid level test, chemical liquid level test, material position test and so on.

Working principle

Millimeter wave radar sensor adopts the working mode of transmit – reflect - receive, through the antenna to transmit millimeter wave to the object to be measured, reflected by the object to be measured, and then received by the antenna through the calculation of the time from th e transmission to the reception of the distance to the surface of the object to be measured is directly proportional to the distance to be measured. Through multiple measurements and calculations, the distance information of the object tobe measured is obtained.

Installation

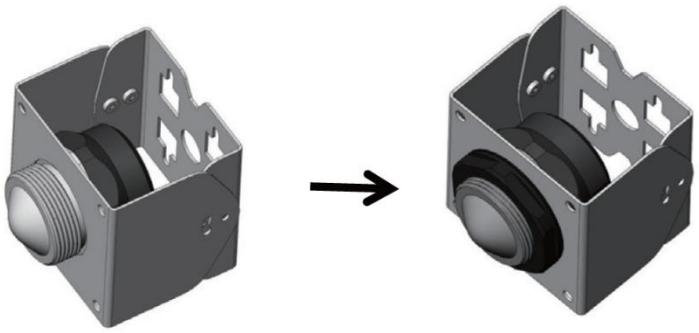
For example, if you are measuring the water surface of a river, you need to choose the installation location to ensure that the radar waves cover the water surface and avoid the influence of buildings, eddies and aquatic plants in the water, which may cause the radar waves to cover the ground or obstructions and result in erroneous measurements. The coverage is approximated as a circle as shown in the figure below



After the installation is completed, it must ensure that the millimeter-wave radar sensor detection plane and the horizontal plane to maintain parallel. SCH MRA millimeter-wave radar sensor can be debugged with the help of the software of the upper computer when installing, and to ensure that the millimeter wave radar sensor mounting height is within the measurement range.

1.Hexagon socket head cap screws for fixing the limit sensor bracket.

2.After installing the millimeter wave radar sensor into the bracket, first install the spacer, then fix the bolt to complete the fixing between the millimeter wave radar sensor and the bracket; The installation demonstration is shown in the figure.



Installation demonstration

Installation should ensure the following:

1.The internal antenna of the product is aligned with the reflecting surface, and the antenna surface and the reflecting surface should be parallel (millimeter wave emission in the direction normal to the reflecting surface).

2.Avoid strong reflective interference between the product and the object to be measured, if it can not be avoided, you need to communicate with the technical staff to assess the use of this product.

3.The product protection class is IP67, the operating temperature is -40~+65℃, it is forbidden to use beyond the range of required using conditions.

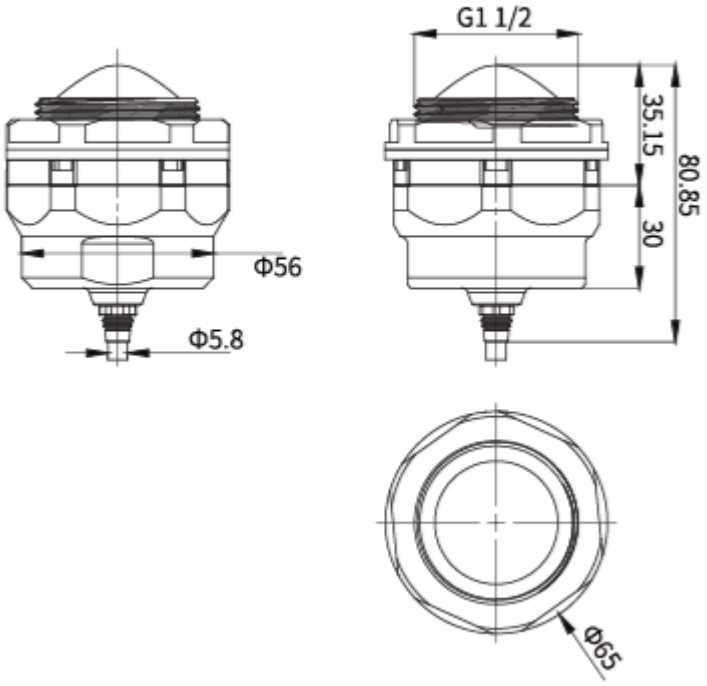
■ Technical specifications

Output type	NPN/PNP/PP+RS485+4...20mA
Operating frequency	80GHz
Operating power (EIRP)	27dBm
Modulation method	FMCW
Bandwidths	3500MHz
Detection medium	Needs to be evaluated against media RCS
Measurement range	0.05~20m(depending on the size of the RCS of the object to be measured, the maximum distance will deviate)
Repeatability	±1mm
Measurement resolution	0.1mm
Beamwidth	Horizontal: ±3°, vertical: ±3°
Operating Voltage	10~30VDC
Operating current	Max 30V/30mA
Consumption power	⩽1W
Protection circuit	Reverse polarity, short circuit protection, overload protection, surge protection
Interface	RS485, 4-20mA, Two-way switching
Output	NPN/PNP/PP, NO/NC adjustable
Switching output load current	⩽200mA
Switching output voltage drop	<2.5V
Analogue output load resistance	<390Ω
Service environment	Operating Temp: -40℃...+65℃, Storage Temp: -45℃...+80℃, Pressure: 1bar
Protection degree	IP67
Vibration resistance	10...55Hz double amplitude 2mm(2 hours each in X, Y, Z directions)
Impact resistance	500m/s²(about 50G), three time each in X, Y, Zdirections
Housing material	Aluminium & PTFE
Dimension	80mm*65mm*65mm
Weight	300g
Connection method	2mPVC cable(Φ5.8, 8pin)
Accessories	Fixing bracket set, mounting screws, radar fixing spacer, radar fixing nut

■ Wiring diagram

Pin	Definitions	Color
1	VCC (10~30VDC)	Brown
2	GND	Blue
3	RS485A	White
4	RS485B	Black
5	OUT1	Red
6	OUT2	Purple
7	4-20mA+	Pink
8	4-20mA-	Black

■ Dimensions



■ Accessory dimensions