



PRODUCT OVERVIEW

LEVEL MEASUREMENT

MAC Sensor Co.,LTD.
Changsha City,Hunan,China
<http://www.macsensor.com>

TEL: +86-731-89975636 / 89975645

MQ8 Series 76-81GHz Continuous Frequency Modulation Wave Radar Level Meter

PROFILE

The MQ8 76-81GHz frequency modulated continuous wave (FMCW) radar level sensor supports both four-wire and two-wire system applications. Depending on the model, the maximum measurement range can reach up to 120 meters, with a blind spot of just 10 cm. Its higher operating frequency and shorter wavelength make it particularly suitable for solid material applications. The radar operates by transmitting and receiving electromagnetic waves through lenses, offering distinct advantages in environments with high dust levels and extreme temperatures (up to +200°C). Available in both flange and threaded mounting options, it ensures easy and straightforward installation.



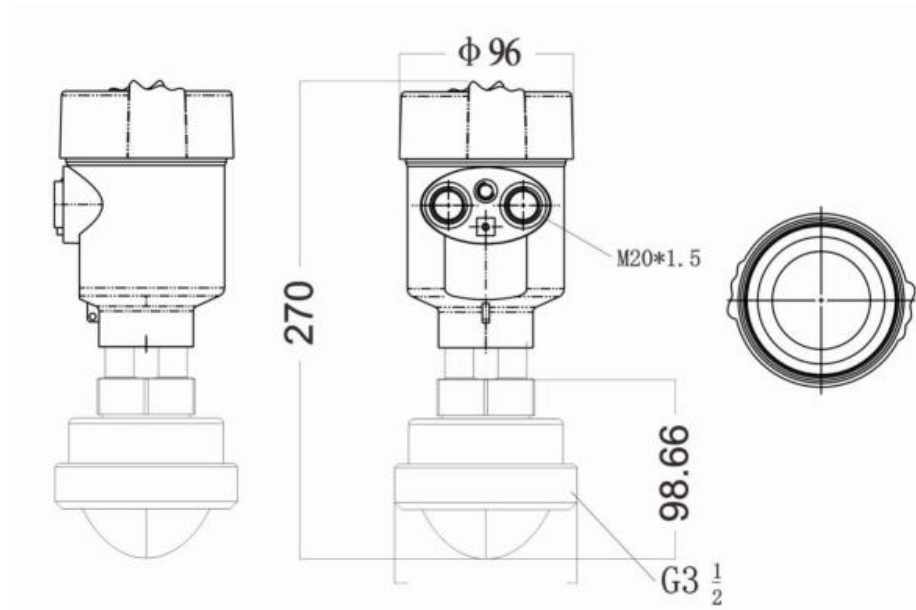
FEATURES

- Based on the self-developed CMOS millimeter wave RF chip, a more compact RF architecture, a higher signal-to-noise ratio, and a smaller blind area are realized.
- 5GHz working bandwidth enables higher measurement resolution and accuracy.
- The narrowest antenna beam angle is 3°, the interference in the installation environment has less impact on the instrument, and it's more convenient to install.
- The wavelength is shorter and has better reflection characteristics on solid surface, so it does not need to use a universal flange for aiming.
- It supports Bluetooth debugging of mobile phones to facilitate the maintenance of on-site personnel (future versions will support this)

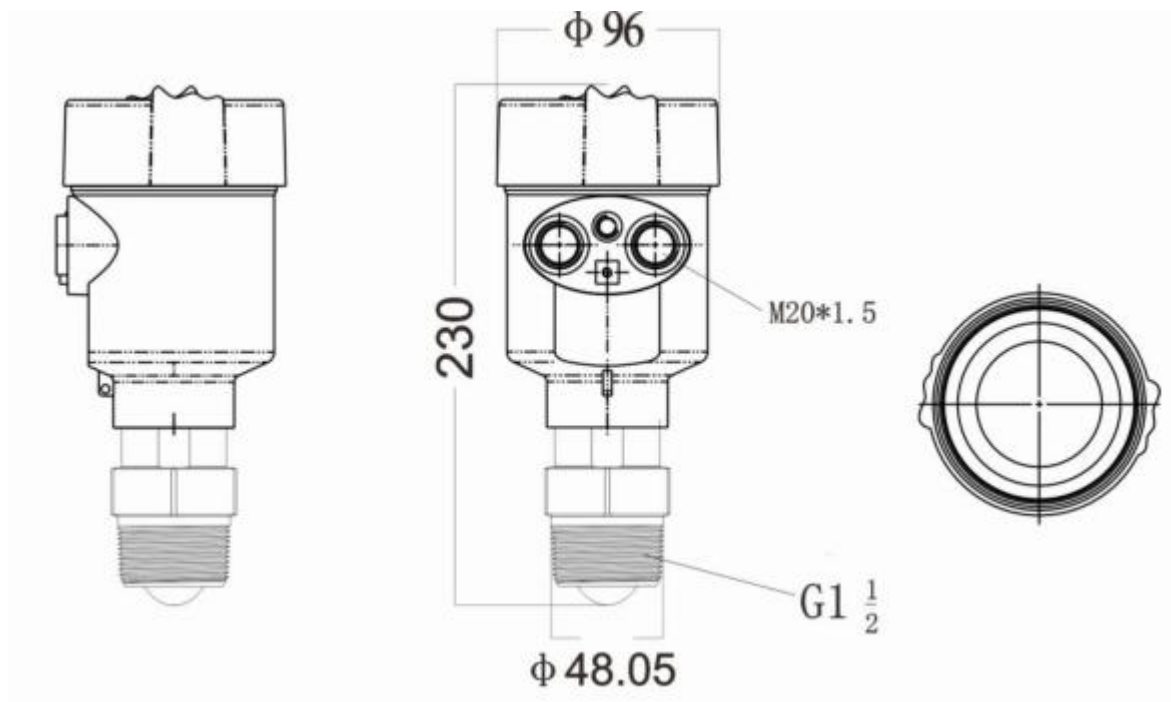
SPECIFICATIONS

Transmission frequency	76GHz~81GHz, FM scanning frequency width 5GHz
Measuring range	0.2-120m
Measurement accuracy	±1mm(<30m); ±5mm(>30m)
Beam angle	3°, 6°
Range of dielectric constant used	≥2
Power supply range	18-28 V DC, four wire system (<1W)
Communication mode	HART/MODBUS bus
signal output	4-20mA or RS485
Industrial temperature/humidity	-40~85°C/≤95%RH
Shell material	Aluminum alloy, stainless steel
Antenna type	Lens antenna, which can be equipped with lens antenna shield/anti-corrosion antenna/antenna cooling paste/quartz isolation flange
Process pressure	-0.1-1.6MPa
Product size	Ø100*270mm
Cable entry	M20*1.5
Recommended cable	AWG18 or 0.75mm ²
Protection grade	IP67
Installation mode	Thread or flange

DIMENSIONS



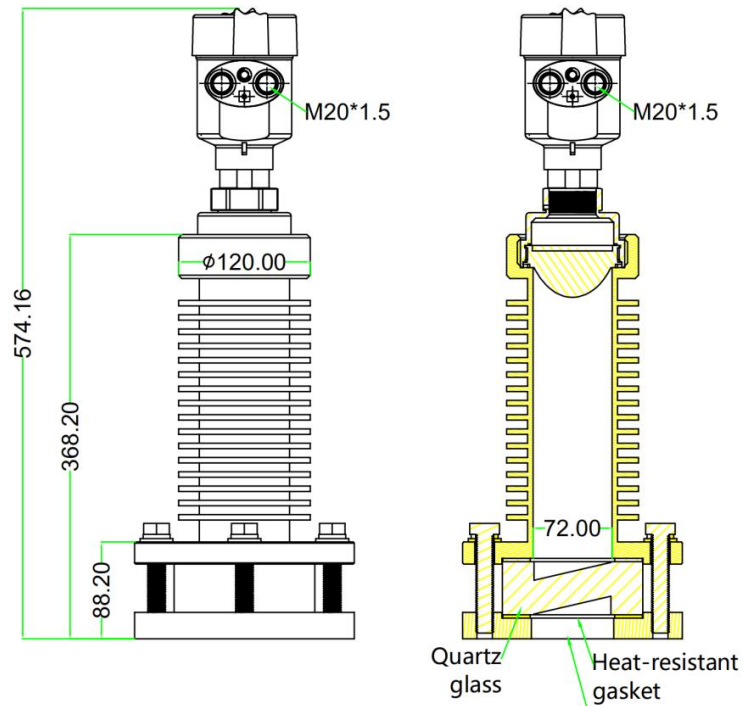
With 3° antenna beamwidth



With 6° antenna beamwidth

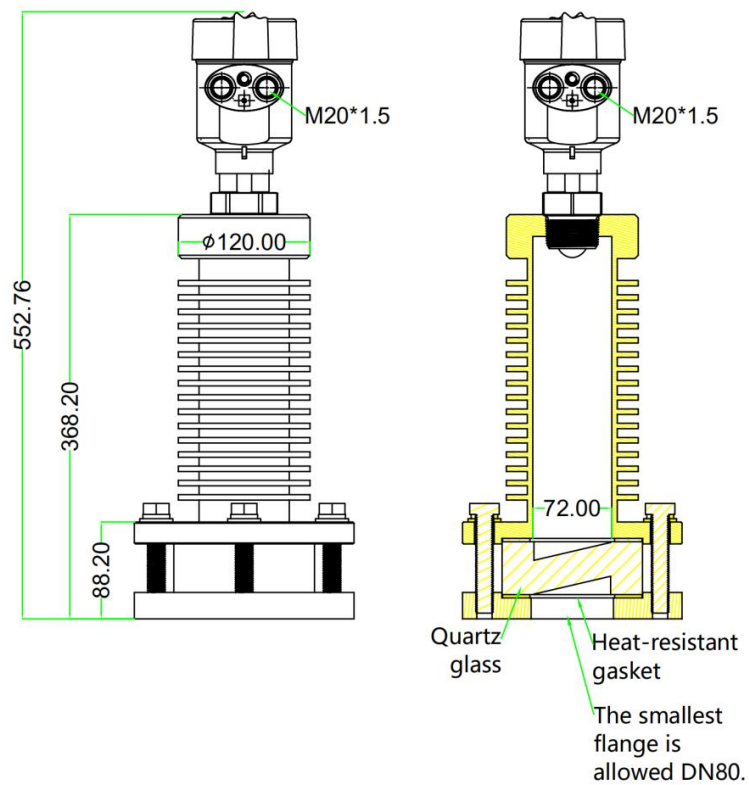
Dimensions of version with a high temperature flange

With 3° antenna beamwidth



The smallest flange is allowed DN80.

With 6° antenna beamwidth



The smallest flange is allowed DN80.

Order Information

80G conventional large lens

Model	MQ80-A
Frequency range	76~81GHz
Application range	slightly corrosive liquid, stirring, water vapor condensation
Measuring range	120 m
Signal output	4~20mA/HART (two-wire/four-wire) RS485/Modbus
Process connection	flange, thread
Medium temperature	-30°C to +80 °C
Process pressure	-0.1 to 0.3Mpa
Measurement accuracy	±2mm / ±1mm
IP rating	IP67
Shell material	aluminum casting/stainless steel

**80G conventional large lens with universal blowing**

Model	MQ80-B
Frequency range	76~81GHz
Application range	Strong dust, solid, block, powder
Measuring range	120 m
Signal output	4~20mA/HART (two-wire/four-wire) RS485/Modbus
Process connection	Universal flange
Medium temperature	-40°C to +120 °C
Process pressure	-0.1 to 0.6Mpa
Measurement accuracy	±2mm / ±1mm
IP rating	IP67
Shell material	aluminum casting/stainless steel



80G conventional small lens

Model	MQ80-C
Frequency range	76~81GHz
Application range	Slightly corrosive liquid, stirring, condensation
Measuring range	120 m
Signal output	4~20mA/HART (two-wire/four-wire) RS485/Modbus
Process connection	Flange, thread
Medium temperature	-40°C to +120 °C
Process pressure	-0.1 to 0.3Mpa
Measurement accuracy	±2mm / ±1mm
IP rating	IP67
Shell material	aluminum casting/stainless steel

**80G anti-corrosive large flat lens**

Model	MQ80-D
Frequency range	76~81GHz
Application range	Strong corrosive liquid, stirring, water vapor, condensation
Measuring range	120 m
Signal output	4-20mA/HART (two-wire/four-wire) RS485/Modbus
Process connection	Flange, thread
Medium temperature	-40°C to +120 °C
Process pressure	-0.1 to 0.5Mpa
Measurement accuracy	±2mm / ±1mm
IP rating	IP67
Shell material	aluminum casting/stainless steel



80G anti-corrosive large flat lens

Model	MQ80-E
Frequency range	76~81GHz
Application range	High temperature environment, strong corrosive liquid, stirring, water vapor, condensation
Measuring range	120 m
Signal output	4-20mA/HART (two-wire/four-wire) RS485/Modbus
Process connection	Flange, thread
Medium temperature	-40℃ to +200℃
Process pressure	-0.3 to 1.6Mpa
Measurement accuracy	±2mm / ±1mm
IP rating	IP67
Shell material	aluminum casting/stainless steel

**80G anti-corrosive small flat lens**

Model	MQ80-F
Frequency range	76~81GHz
Application range	strong corrosive liquid, stirring, water vapor, condensation
Measuring range	120 m
Signal output	4-20mA/HART (two-wire/four-wire) RS485/Modbus
Process connection	Flange, thread
Medium temperature	-40℃ to +120℃
Process pressure	-0.1 to 1.6Mpa
Measurement accuracy	±2mm / ±1mm
IP rating	IP67
Shell material	aluminum casting/stainless steel



Product Selection Table

Item	Example
Model No.	MQ80
A=Type A B=Type B C=Type C D=Type D E=Type E F=Type F	A
Measuring Range	
*** m(max 120m)	12
Signal Output	
3=4-20 mA+HART 5= RS485 Modbus	3
Process connection	
T=Thread F=Flange Y=Customized	F
Housing Material	
L=Cast Aluminum (typical) G=304 Stainless steel S=316L stainless steel	L
Flange Material	
G=304 Stainless steel(typical) S=316L stainless steel X=Not applicable	G
Display	
D=Double displays X=Standard display(typical)	X
Temperature	
A=Normal temperature B=By customized	A

Model example: MQ80A123FLGXA