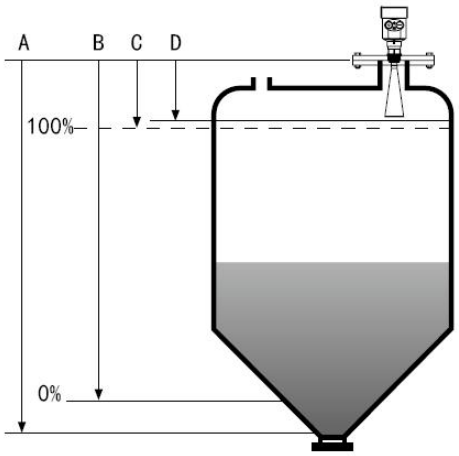
26GHz Radar Level Meter

Product catalog

Model： 908/ 909

Product Overview

Radar level meter antenna by narrow microwave pulse, the pulse propagation in space at the speed of light, meet the measured medium surface, the part of the energy to be reflected back, by the same antenna. Emission pulses and the time interval of the received pulse and the antenna to the measured medium surface is proportional to the distance. Due to the electromagnetic wave propagation and very high speed, pulse and receiving pulse time interval is very small (nanosecond) it is difficult to confirm, 90X series of 26G radar level meter adopts a special demodulation technology, can accurately identify the transmitted pulse and pulse interval, thus further calculate the antenna to the measured medium surface distance.



A Range Set

B Low Adjustment

C High Adjustment

D Blind Area

Datum measurement: Screw thread bottom or the sealing surface of the flange

Note: Make sure the radar level meter the highest level cannot enter the measuring blind area (Figure D shown below).

Characteristics of water conservancy industry application:

- Radar level meter adopts a recommended industry emission frequency of 26GHz, so it has beam angle is small, concentrated energy, has stronger anti-interference ability and greatly improves the precision and reliability of measurement.
- Small antenna size, easy to install and dustproof cover antenna protection device.
- Light weight about 1KG, easy to install.
- The measurement range of up to 70 meters, covering a large reservoir water level measurement.
- With a variety of output circuit interface and data acquisition system.
- The pulse working mode, radar level meter transmit power is very low, no harm to human body and environment.

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Application: Rivers, Lakes, Shoal
Measuring Range: 30 meters
Process Connection: Thread G1½ A″ /Frame /Flange
Temperature: -40℃ ~ 100℃
Process Pressure: Normal pressure
Precision: ± 3mm-± 5mm
Frequency Range: 26GHz
Protection Grade: IP67 / IP65
Power Supply: (6 - 24V) DC / Four-wire
24V DC / Two wire
The Signal output: RS485 / Modbus (6~24V DC)
4~20mA / Hart Two wire (24V DC)
The Scene Display: Optional
Shell: Aluminum / Plastic

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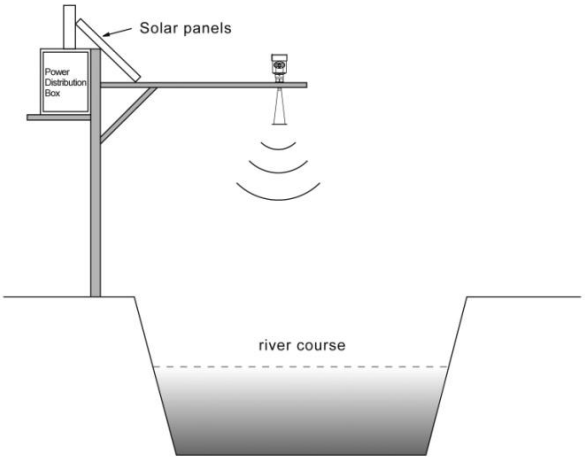
Application: Rivers, Lakes, Shoal
Measuring Range: 70 meters
Process Connection: Thread G1½ A″ /Frame /Flange
Temperature: -40℃ ~ 100℃
Process Pressure: Normal pressure
Precision: ± 10mm
Frequency Range: 26GHz
Protection Grade: IP67 / IP65
Power Supply: (6 - 24V) DC / Four-wire
24V DC / Two wire
The Signal output: RS485 / Modbus (6~24V DC)
4~20mA / Hart Two wire (24V DC)
The Scene Display: Optional
Shell: Aluminum / Plastic

1. Installation

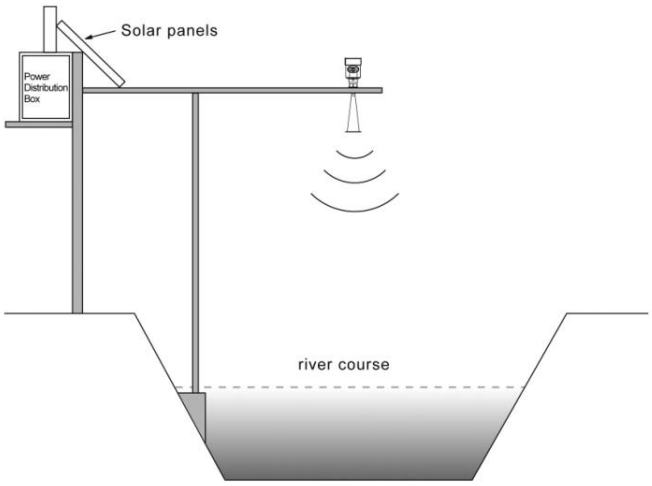
- **Preparation before installation:**

➢ Please pay attention to the following matters, to ensure that the instrument can be installed correctly:
➢ Please reserve enough space for installation.
➢ Please avoid installing occasions strong vibration.

- **Illustration and installation position**



Schematic diagram of radar and stent



Schematic diagram of radar and stent

Note: Radar antenna microwave pulse, have a certain emission angle. From the lower end of the antenna to be measured between the surface of the medium, and a transmitter shall be no obstruction in the region of the microwave beam radiation. Therefore, the installation should be avoided as far as possible shelter facilities, shall be carried out "false echo study" when necessary. Also note that when installing devices: the highest level measured shall enter blind; instrument must be connected to the earth, increasing the lightning protection measures; outdoor shade should be taken, rain measures.

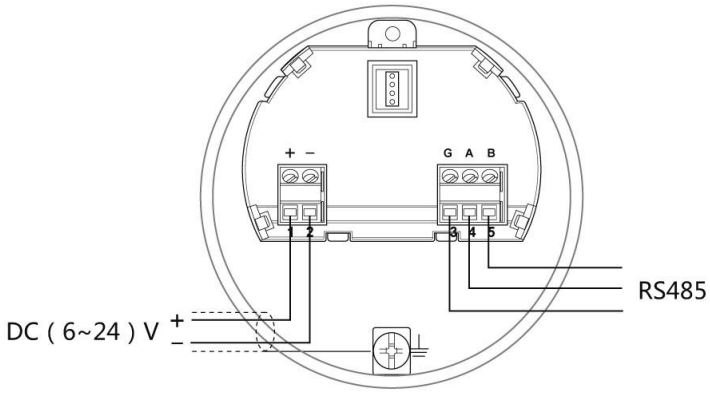
2. Electrical Connection

Power Supply voltage

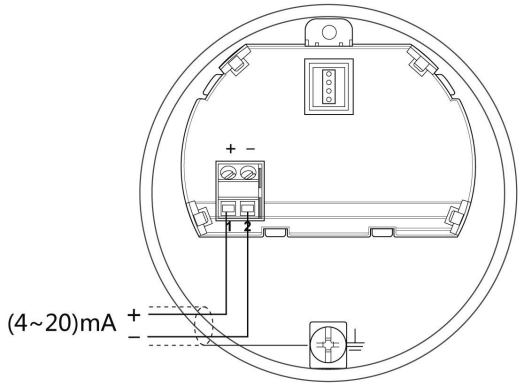
RS485/Modbus	power supply and Modbus signal lines separated respectively using a shielded cable, the power supply voltage range of see technical data.
(4~20)mA/HART (Two wire system)	The power supply and the output current signal sharing a two core shield cable. The supply voltage range see technical data. For intrinsically safe type must be a safety barrier between the power supply and the instrument.

Connection mode

- The RS485/Modbus wiring diagram as follows:



- 24V two wire wiring diagram as follows:



Safety instructions

Please make sure that the sealing head is not damaged.

Please make sure that the cable is not damaged.

Please make sure that the cable for use with electrical connection specification.

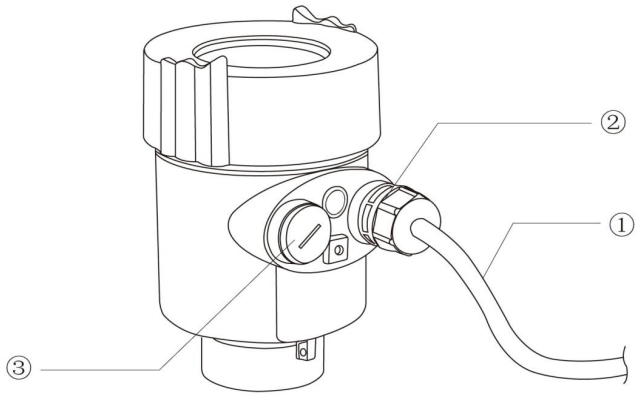
Cable into the electrical interface before its curved downward, ensure that the water will not flow into the shell, see the①

Tighten the cable seal head, see the②

Please electrical interface will not use blind plug tight, see the③

Protection grade

This instrument meets the protection grade IP66/67 requirements, please ensure the waterproof cable sealing head.



How to install to meet the requirements of IP67:

Please make sure that the sealing head is not damaged.

Please make sure that the cable is not damaged.

Please make sure that the cable for use with electrical connection specification.

Cable into the electrical interface before its curved downward, ensure that the water will not flow into the shell, see the①

Tighten the cable seal head, see the②

Please electrical interface will not use blind plug tight, see the③

3.Instrument Commissioning

- **There are three kinds of debugging method:**
  1) Display / Keyboard
  2) Host debugging

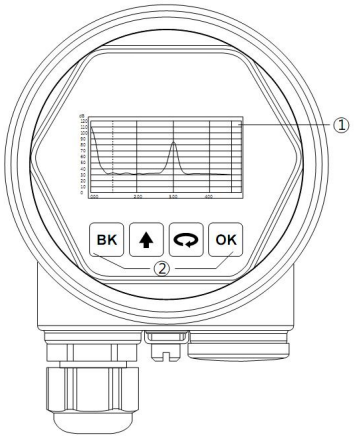
- **Display / Keyboard:**

Please debug the instrumentation by four buttons on the display screen. There are three debug menu languages optional. After debugging is generally used only for display, through the glass window can read measured value very clearly.

Display / Keyboard

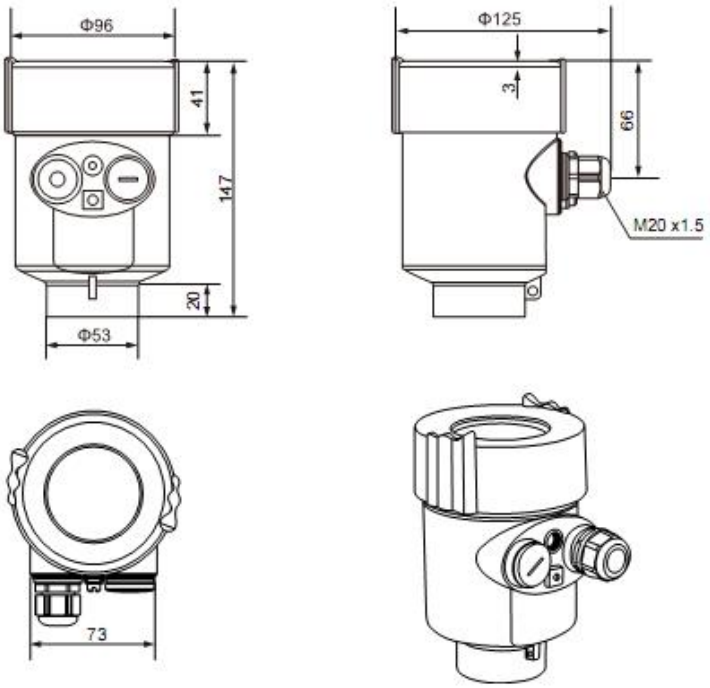
① Liquid crystal display(LCD)

② The key



3. **Structure Size** (Unit: mm)

- **The outer shell**:



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- **Appearance size:**

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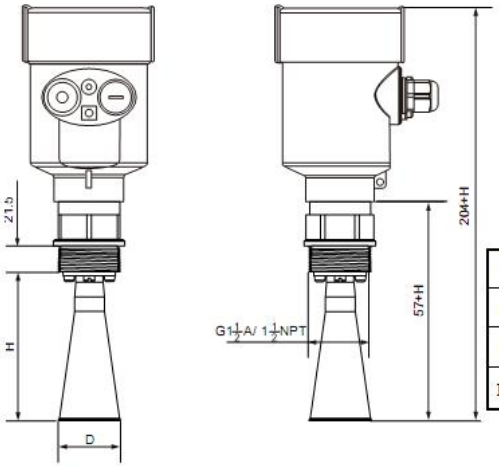

Flange	The bell diameterD	Bell mouth heightE
DN50	φ46	140
DN80	φ76	227
DN100	φ96	288

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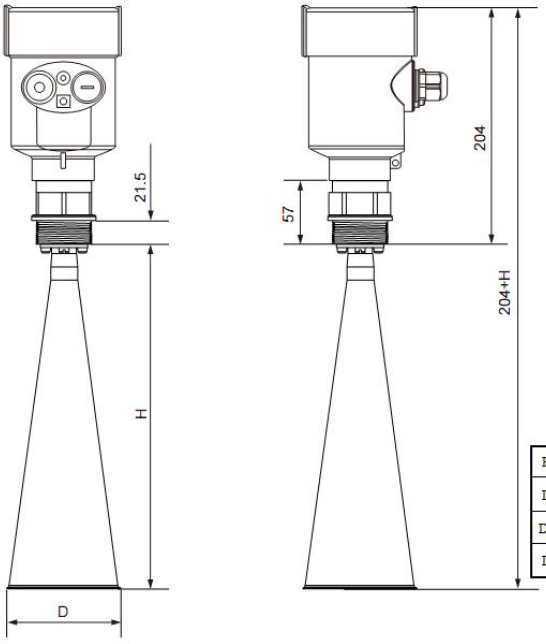
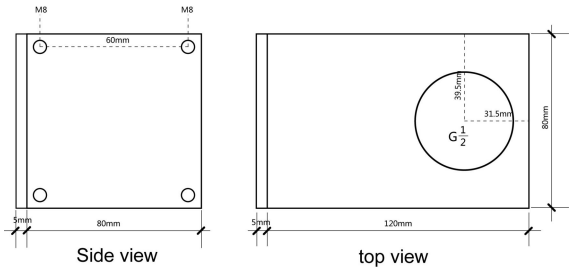


Flange	The bell diameterD	Bell mouth heightH
DN80	φ76	227
DN100	φ96	288
DN125	φ123	620

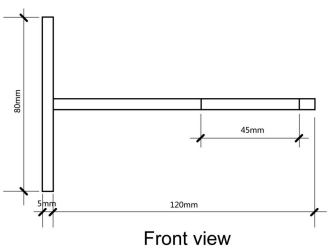
Attachment bracket dimension drawing

- **Connection**

✧ Standard bracket



Side view top view



Front view

✧ With canopy bracket
✧ Thread G1½ "A connection
✧ G1½ mounting base connection

4. Technical Parameters

The outer shell	
The seal between the shell and the shell cover	Silicone rubber
Casing window	Polycarbonate
The ground terminal	Stainless steel

The power supply voltage

Four wire system (6～24) V DC / RS485 Modbus / Power dissipation 90mW
Two wire system DC 24V / 4~20mA / Power dissipation 0.75W

Allowable ripple

- <100Hz Uss<lV
- (100～100K) Hz Uss<l0mV

The cable parameters	
Cable entrance / plug	1 M20xl.5 cable entrance 1 blind plug
Terminal	Conductor cross section 1.0mm²

Output parameters	
The output signal	RS485 Modbus (6~24V DC) 4~20mA / Hart Two wire (24V DC)
Communication protocol	Modbus control / HART
Resolution	1.6μA
Fault signal	Constant current output; 20. 5mA 22mA 3.9mA
The integral time	(0 ~ 36) s, adjustable

Blind area	the ends of the antenna

The maximum distance measurement	908	30 meters
	909	70 meters
Microwave frequency	26GHz	

The measurement interval	about 1 second (depending on the parameter settings)
Adjust the time	about 1 second (depending on the parameter settings)
Display resolution	1 mm
Working storage and transportation temperature	(-40～70) ℃
Process temperature (the temperature of the antenna part)	(-40～100)℃
Pressure	Normal atmospheric pressure
Seismic	Mechanical vibration l0m/s², (10 ~ 150) Hz

5. Meter Linearity

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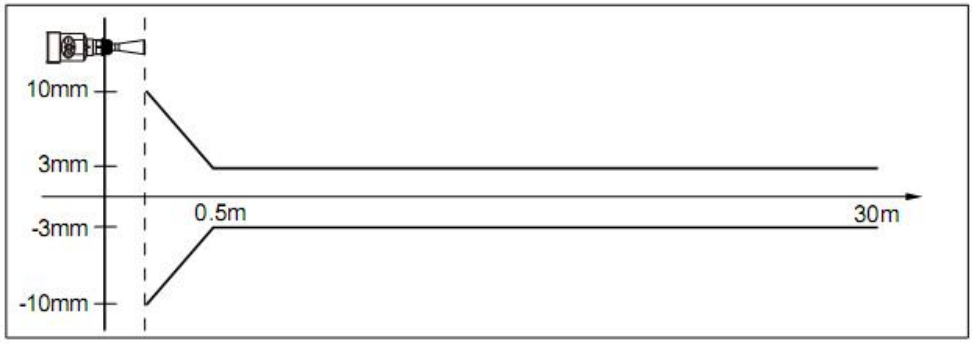
Emission angle	Depending on the size of the antenna
-℄76mm	10°
-℄96mm	8°
Precision	See chart



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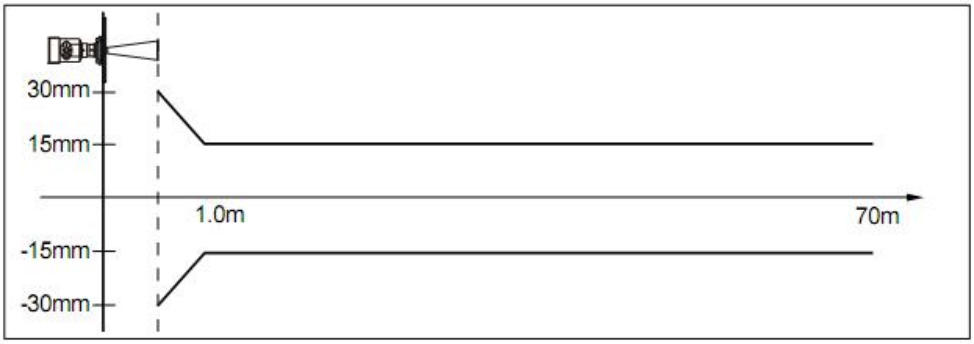
Emission angle	Depending on the size of the antenna
-℄76mm	10°
-℄96mm	8°
-℄121mm	6°
Precision	See chart



6. Product Model Selection

- **908**

License
P standard (non-explosion-proof)

Process connection / materials
G Standard bracket
N With canopy bracket
M Thread G1½ "A connection，304 stainless steel
H G1½ mounting base connection
Y Special custom

Antenna type / materials
A horn antenna with 76mm/ 304 stainless steel
B horn antenna with 96mm/ 304 stainless steel
Y special custom

Seal / process temperature
V common seal / (-40~150) ℃

The electronic unit
V RS485 Modbus / (6~24V)DC Four wire system
W （4~20）mA / 24V DC Two wire system

Shell / protection class
L aluminum /IP67
G Plastic /IP65

Cable line
M M20 x l. 5
N ½〃NPT

The scene shows / programming
A belt
X Without

- **909**

License

P standard (non-explosion-proof)

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N With canopy bracket

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H G1½ mounting base connection

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