26G Radar Level Meter

1. Product Overview

This series of radar level meter adopted 26G high frequency radar sensor, the maximum measurement range can reach up to 70 meters. Antenna is optimized further processing, the new fast microprocessors have higher speed and efficiency can be done signal analysis, the instrumentation can be used for reactor, solid silo and very complex measurement environment.

● Principle

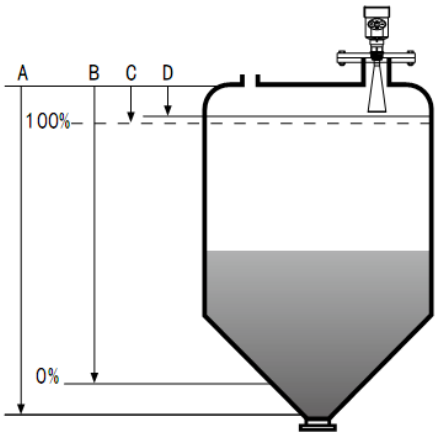
Radar level transmitter antenna microwave pulse is narrow, the downward transmission antenna. Microwave exposure to the medium surface is reflected back again by the antenna system receives, sends the signal to the electronic circuit automatically converted into level signals (because the microwave propagation speed, electromagnetic wave to reach the target and the reflected back to the receiver this time is almost instantaneous).

A Range set

B Low adjustment

C High

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).*

● The characteristics of 26G radar level meter:

- Small antenna size, easy to install; Non-contact radar, no wear, no pollution.
- Almost no corrosion, bubble effect; almost not affected by water vapor in the atmosphere, the temperature and pressure changes.
- Serious dust environment on the high level meter work has little effect.
- A shorter wavelength, the reflection of solid surface inclination is better.
- Beam angle is small, the energy is concentrated, can enhance the ability of echo and to avoid interference.
- The measuring range is smaller, for a measurement will yield good results.

- High signal-to-noise ratio, the level fluctuation state can obtain better performance.
- High frequency, measurement of solid and low dielectric constant of the best choice.

2. Product Introduction

805

Application： All kinds of corrosive liquid
Measuring Range：10 meters
Process Connection： Thread, Flange
Medium Temperature： -40℃ ~ 120℃
Process Pressure： -0.1~0.3 MPa
Accuracy： ± 5mm
Protection Grade： IP67
Frequency Range： 26GHz
Signal Output：4... 20mA/HART (Two-wire / Four)
RS485/ Modbus
Explosion-proof Grade： Exia ⅡC T6 Ga

806

Application：Liquid
Measuring Range：30 meters
Process Connection：Thread, Flange
Medium Temperature：-40℃~ 150℃
Process Pressure：-0.1 ~ 4.0 MPa
Accuracy： ± 3mm
Protection Grade：IP67
Frequency Range： 26GHz
Signal Output：4... 20mA/HART (Two-wire / Four)
RS485/ Modbus
Explosion-proof Grade： Exia ⅡC T6 Ga

807

Application：Hygienic liquid storage,
Corrosive container
Measuring Range：20 meters
Process Connection：Flange
Medium Temperature：-40℃ ~ 150℃
Process Pressure：-0.1 ~ 4.0MPa
Accuracy：± 3mm
Protection Grade：IP67
Frequency Range：26GHz

Signal Output：4... 20mA/HART (Two-wire / Four)
RS485/ Modbus
Explosion-proof Grade：Exia ⅡC T6 Ga

808

Application：Solid material, Strong dust
Measuring Range： 70 meters
Process Connection：Universal Flange
Medium Temperature： -40℃ ~ 250℃
Process Pressure： -0.1 ~ 0.1 MPa
Protection Grade： IP67
Accuracy： ± 15mm
Frequency Range：26GHz
Signal Output：4... 20mA/HART (Two-wire / Four)
RS485/ Modbus
Explosion-proof Grade：Exia ⅡC T6 Ga

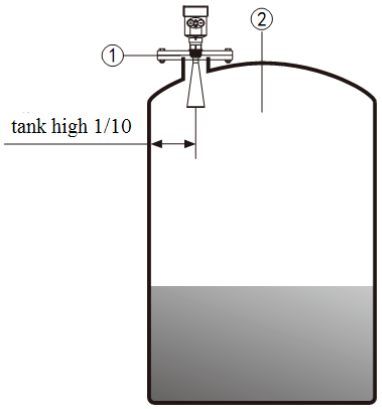
809

Application：Solid particles, Powder
Measuring Range：30 meters
Process Connection：Thread, Flange
Medium Temperature：-40℃ ~ 250℃
Process Pressure：-0.1 ~ 4.0MPa
Accuracy：± 10mm
Protection Grade：IP67
Frequency Range：26GHz
Signal Output：4... 20mA/HART (Two-wire / Four)
RS485/ Modbus
Explosion-proof Grade：Exia ⅡC T6 Ga

810

Application：Solid material, Strong dust,
Measuring Range：70 meters
Process Connection：Universal Flange
Medium Temperature： -40℃ ~ 250℃
Process Pressure：-0.1 ~ 0.1MPa
Accuracy： ± 15mm
Protection Grade：IP67
Frequency Range：26GHz
Signal Output：4... 20mA/HART (Two-wire / Four)
RS485/ Modbus
Explosion-proof Grade：Exia ⅡC T6 Ga

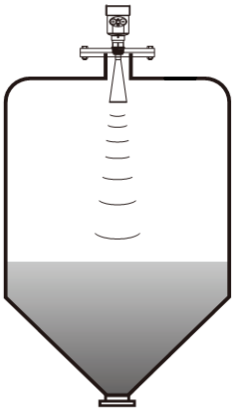
3. The Installation Requirements



- **Installation guide:**

Be installed in the diameter of the 1/4 or 1/6.
Note: the distance between the tank wall
minimum distance should be tank high 1/10.

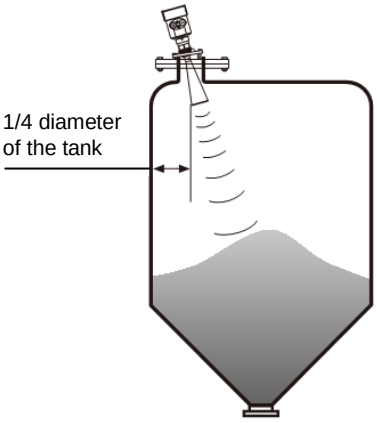
Note: ① datum
②The container center or axis of symmetry



- The top conical tank level, can be installed at the top of the tank is intermediate, can guarantee the measurement to the conical bottom.

- A feed antenna to the vertical alignment surface. If the surface is rough, stack angle must be used to adjust the angle of cardan flange of the antenna to the alignment surface.

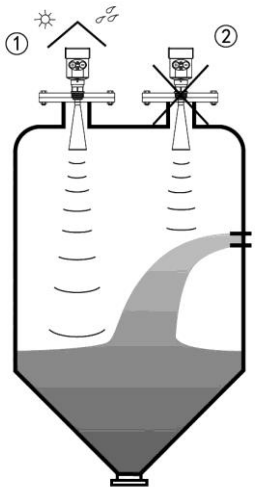
(Due to the solid surface tilt will cause the echo attenuation, even Loss of signal.)



- **Typical installation errors：**

➢ Conical tank cannot be installed above the feed port.

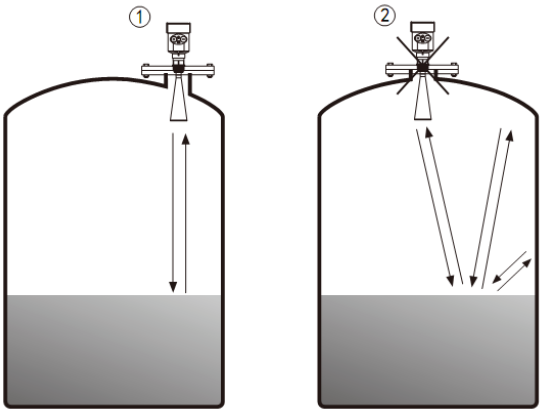
Note: outdoor installation should adopt sunshade.



① Correct
② Error rainproof measures

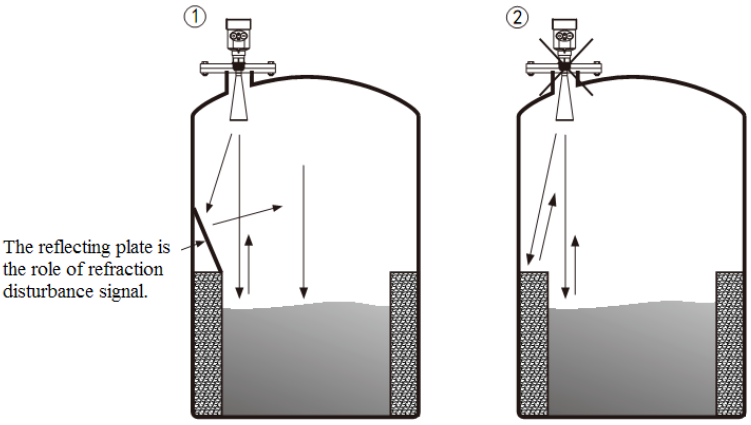
- The instrument cannot be installed in the arched or domed roof intermediate. In addition to produce indirect echo is also affected by the echoes. Multiple echo can be larger than the real value of signal echo, because through the top can concentrate multiple echo. So cannot be installed in a central location.

①Correct
②Error



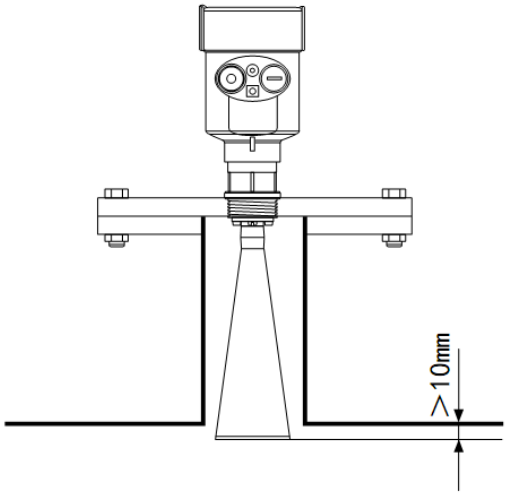
- There are obstacles affecting measurement needed reflection plate.

① Correct
② Error



- **Height of nozzle:**

Antenna extends into the tank at least 10mm distance.



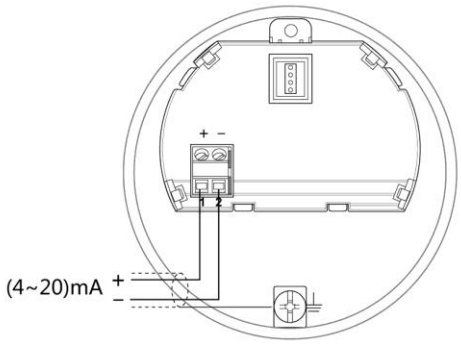
4. The Electrical Connection

- **The power supply voltage:**

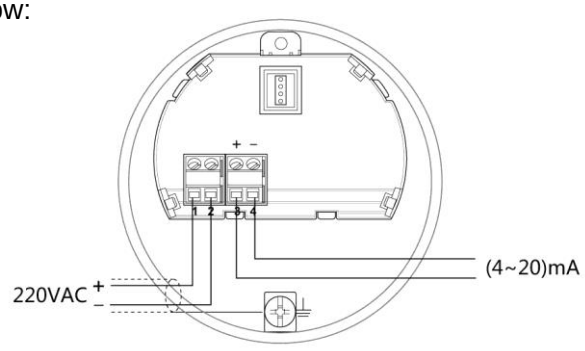
(4~20)mA/HART (Two wire system)	The power supply and the output current signal sharing a two core shield cable. The supply voltage range see technical data. For intrinsically safe type must be a safety barrier between the power supply and the instrument.
(4~20)mA/HART(Four wire system)	Separate power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

- **Connection mode:**

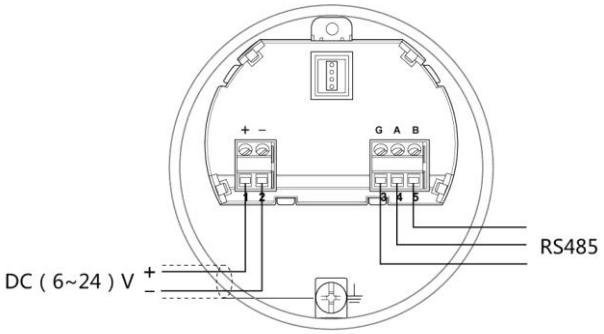
➢ 24V two wire wiring diagram as follows:



➢ 220V four wire connection is as below:



- 24V RS485/Modbus wiring diagram as follows:



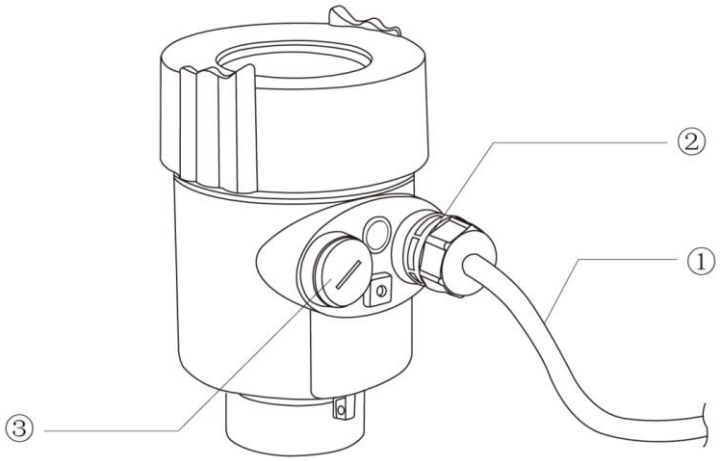
Safety instructions:

- Please observe the local electrical code requirements!
- Please comply with local requirements for personnel health and safety regulations. All electrical components of instrument operation must be completed by the formal training of professionals.
- Please check the instrument nameplate to provide product specifications meet your requirements. Please make sure that the power supply voltage and instrument nameplate on the requirements.

Protection grade:

This instrument meets the protection class IP66/67 requirements, please ensure the waterproof cable sealing head. The following diagram:

:



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

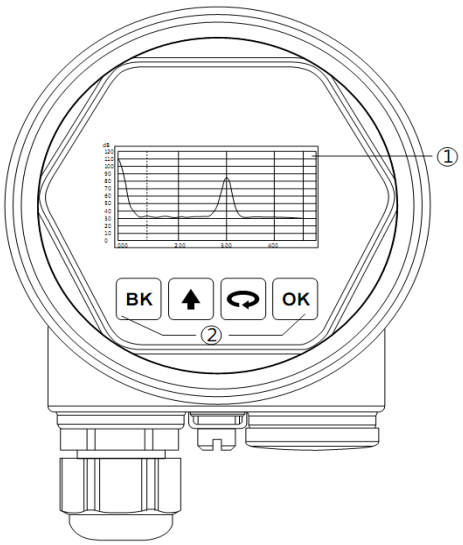
5. Instrument Commissioning

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

- **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



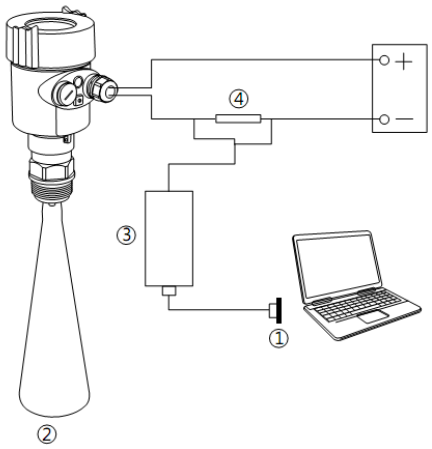
① Liquid crystal display(LCD)

② The key

- **PC debugging:**

Connected to PC by HART

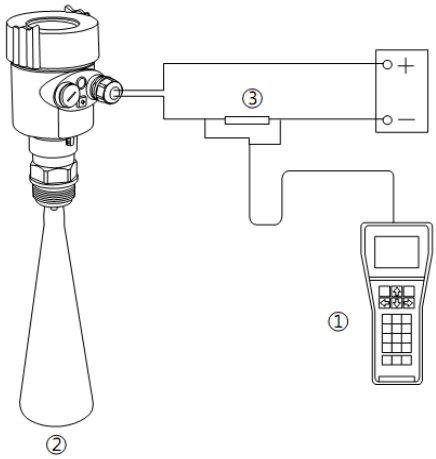
① RS232 interface or USB interface
② Radar level meter
③ HART adapter
④ 250 Ω resistor



24 VDC
Power Supply

- **HART handheld programmer:**

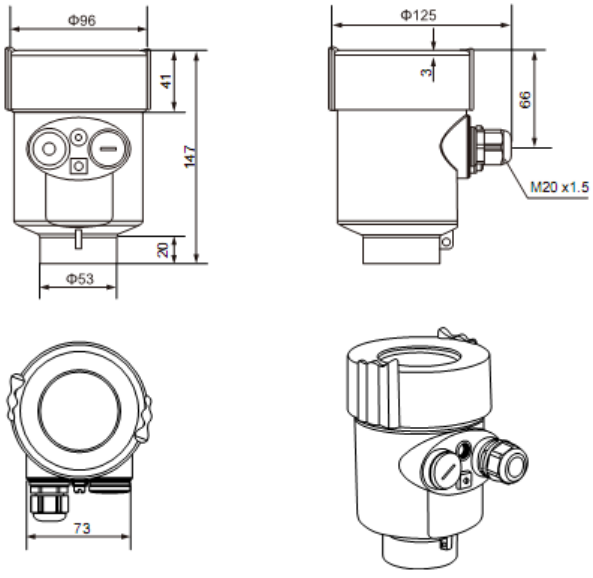
① HART handheld programmer
② Radar level meter
③ 250 Ωresistor



24 VDC
Power Supply

6. Structure Size (Unit: mm)

- **The outer shell**:



- **Appearance size:**

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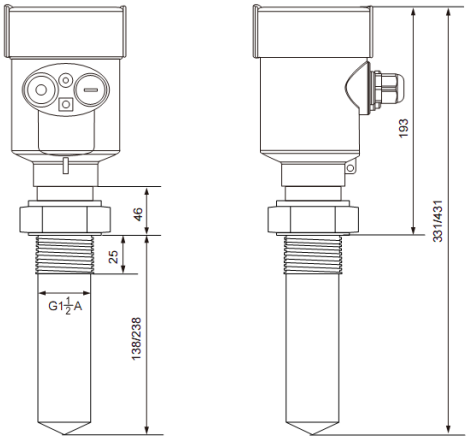

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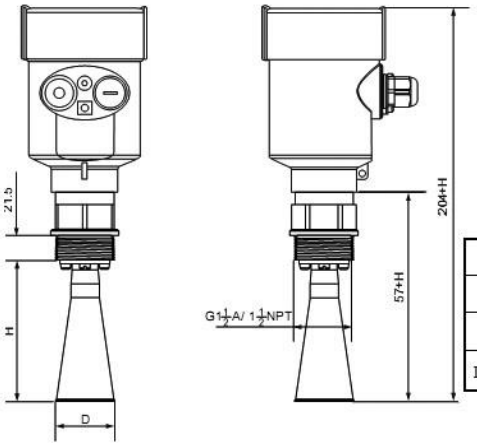

Flange	The bell diameterD	Bell mouth heightH
DN50	φ46	140
DN80	φ76	227
DN100	φ96	288

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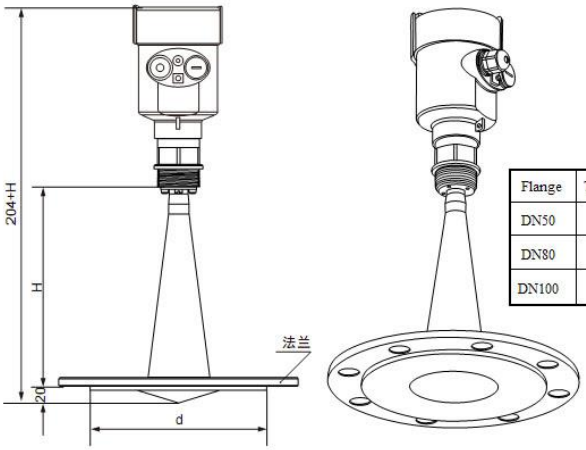

Flange	The bell diameterD	Bell mouth height H	PTFE plate d
DN50	φ46	140	99
DN80	φ76	227	132
DN100	φ96	288	156

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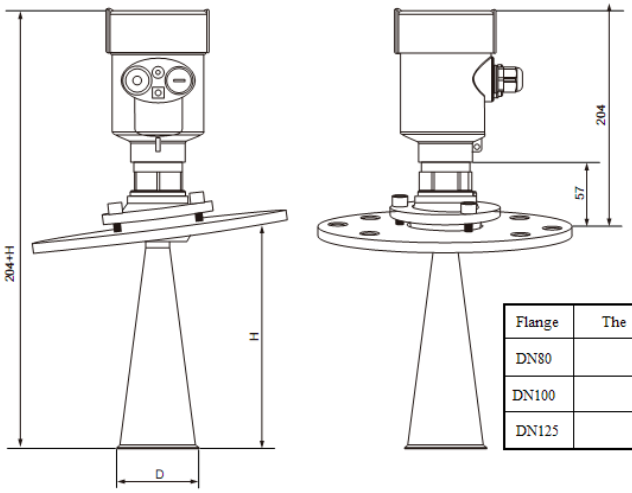
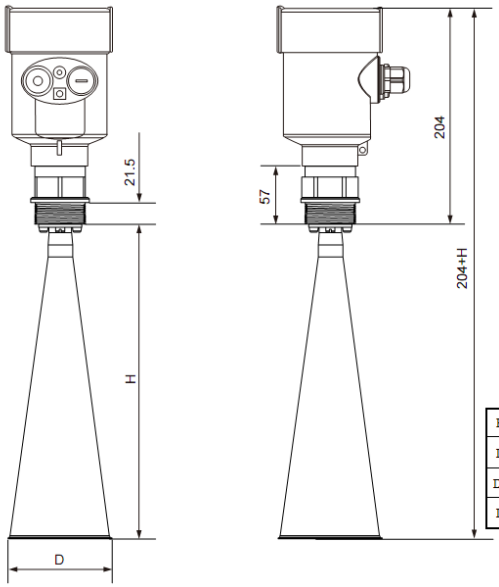


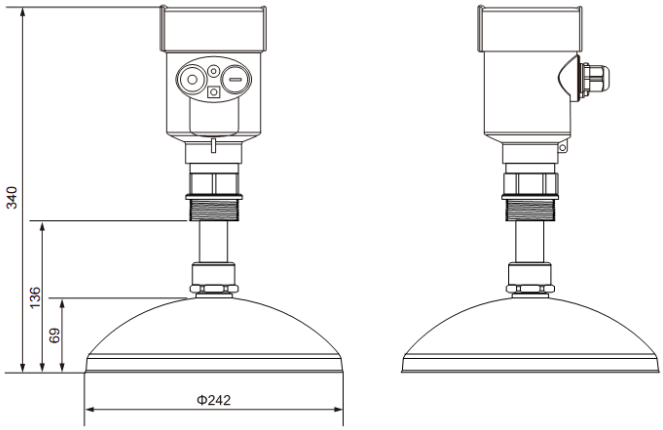
Flange	The bell diameterD	Bell mouth heightH
DN80	φ76	227
DN100	φ96	288
DN125	φ123	620

809

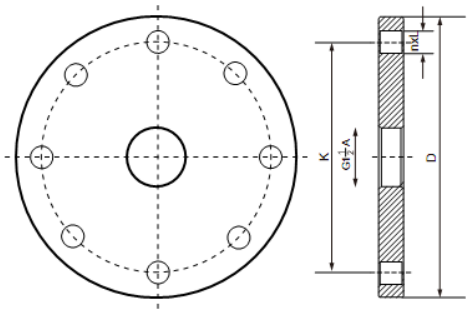


Flange	The bell diameterD	Bell mouth heightH
DN80	φ76	227
DN100	φ96	288
DN125	φ123	620

810



- **Flange type:**



Specifications	Outer diameterD	Center Kong JuK	The number of holes n	ApertureL
DN50	φ165	φ125	4	18
DN80	φ200	φ160	8	18
DN100	φ220	φ180	8	18
DN125	φ250	φ210	8	18
DN150	φ285	φ240	8	22
DN200	φ340	φ295	12	22
DN250	φ405	φ355	12	26

7. 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

Two wire system

The standard type	(16 ~ 26) V DC
Intrinsically safe	(21.6 ~ 26.4) V DC
Power dissipation	max 22.5mA / 1W
Allowable ripple	
- <100Hz	Uss<lV
- (100～100K) Hz	Uss<l0mV

The cable parameters

Cable entrance / plug	One M20xl.5 cable entrance
	One blind plug
Terminal	Conductor cross section 1.0mm²

Output parameters

The output signal	(4 ~ 20) mA/RS485
Communication protocol	HART
Resolution	1.6u A
Fault signal	Constant current output; 20. 5mA
	22mA
	3.9mA
The integral time	(0 ~ 50) s, adjustable

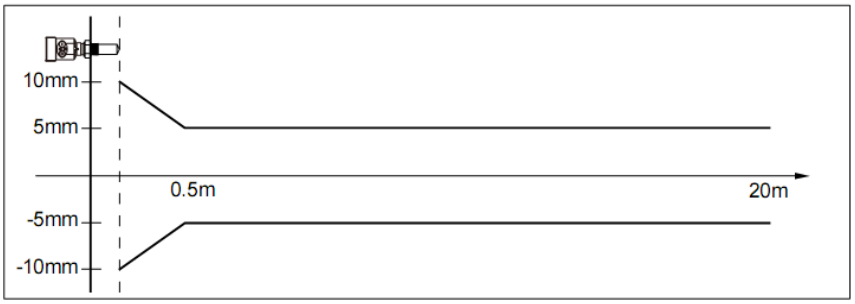
Blind area the ends of the antenna

The maximum distance measurement	70 meters
Microwave frequency	26GHz
Communication interface	HART communication protocol
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	(-40～100) ℃
Process temperature (the temperature of the antenna part)	(-40～250)℃
Pressure	Max.4MPa
Seismic	Mechanical vibration l0m/s², (10 ~ 150) Hz

8. Meter Linearity

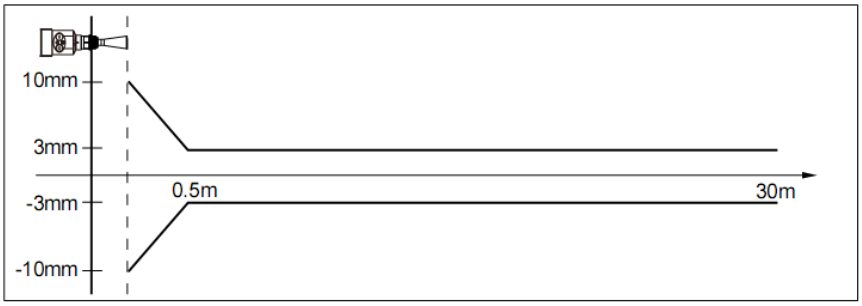
805

Emission angle 20°
Precision See chart



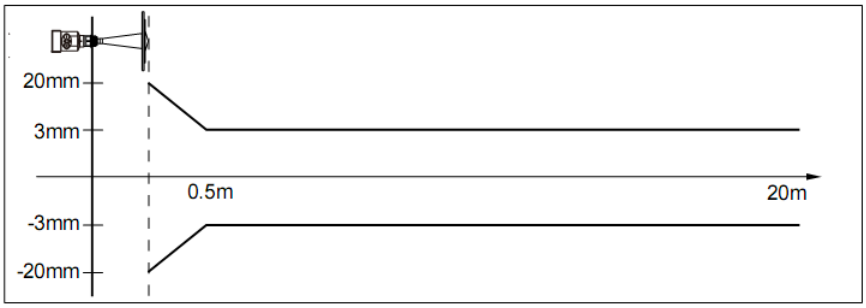
806

Emission angle	Depending on the size of the antenna
- ¢ 46mm	18°
- ¢ 76mm	12°
- ¢ 96mm	8°
- ¢ 121mm	6°
Precision	See chart



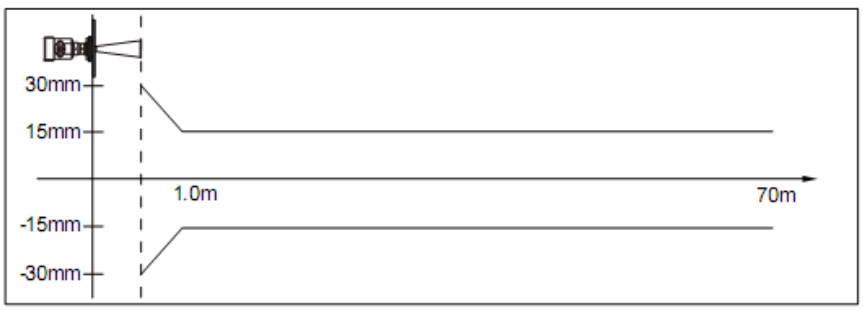
807

Emission angle	Depending on the size of the antenna
- ¢ 46mm	18°
- ¢ 76mm	12°
- ¢ 96mm	8°
Precision	See chart



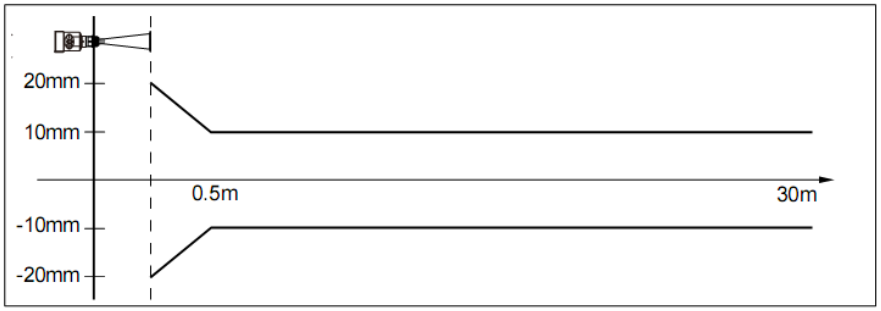
808

Emission angle	Depending on the size of the antenna
- ¢ 46mm	182°
- ¢ 76mm	12°
- ¢ 96mm	8°
- ¢ 121mm	6°
Precision	See chart



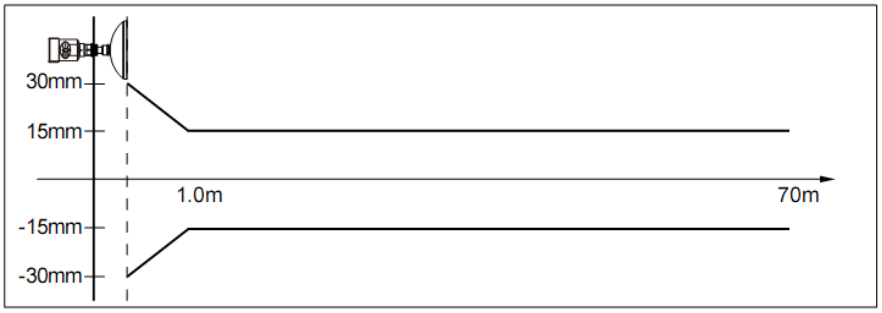
809

Emission angle	Depending on the size of the antenna
- ¢ 76mm	12°
- ¢ 96mm	8°
- ¢ 121mm	6°
Precision	See chart



810

Emission angle	Depending on the size of the antenna
- ¢ 196mm	4°
- ¢ 242mm	4°
Precision	See chart



9. Product Model Selection

- **805**

License							
P Standard (Non-explosion-proof)							
I Intrinsically safe (Exia IIC T6 Ga)							
G Intrinsically safe type, Flameproof (Exd (ia) IIC T6 Ga)							
	Antenna Type / Material / Temperature						
	F Sealing horn / PTEE / -40... 120 ℃						
		Process Connection / Material					
		G Thread G1½″ A					
		N Thread 1½″ NPT					
		A Flange DN50 /PP					
		B Flange DN80 /PP					
		C Flange DN100 /PP					
		Y Special Custom-tailor					
			The Outlet Pipe Length of the Container				
			A Outlet pipe 100mm				
			B Outlet pipe 200mm				
				The Electronic Unit			
				2 (4~20) mA / 24V DC / Two wire system			
				3 (4~20) mA / 24V DC / HART two wire system			
				4 (4~20) mA / 220V AC / Four wire system			
				5 RS485 / Modbus			
					Shell / Protection Grade		
					L Aluminum / IP67		
					G Stainless Steel 304 / IP67		
						Cable Line	
						M M 20x1.5	
						N ½″ NPT	
							Field Display/The Programmer
							A Belt
							X Without

- **806**

License							
P Standard (Non-explosion-proof)							
I Intrinsically safe (Exia IIC T6 Ga)							
G Intrinsically safe type, Flameproof (Exd (ia) IIC T6 Ga)							
	Process Connection / Material						
	G Thread G1½"A / Stainless Steel 304						
	N Thread 1½" NPT / Stainless Steel 304						
	A Flange DN50 / Stainless Steel 304						
	B Flange DN80 / Stainless Steel 304						
	C Flange DN100 / Stainless Steel 304						
	Y Special Custom-tailor						
		Antenna Type / Material					
		A Horn Antenna Φ46mm / Stainless Steel 304					
		B Horn Antenna Φ76mm / Stainless Steel 304					
		C Horn Antenna Φ96mm / Stainless Steel 304					
		Y Special Custom-tailor					
			Seal Up / Process Temperature				
			V Viton / (-40~150) ℃				
			K Kalrez / (-40~250) ℃				
				The Electronic Unit			
				2 (4~20) mA / 24V DC / Two wire system			
				3 (4~20) mA / 24V DC / HART two wire system			
				4 (4~20) mA / 220V AC / Four wire system			
				5 RS485 / Modbus			
					Shell / Protection Grade		
					L Aluminum / IP67		
					G Stainless Steel 304L/ IP67		
						Cable Line	
						M M 20x1.5	
						N ½" NPT	
							Field Display/The Programmer
							A Belt
							X Without

- **807**

License
P Standard (Non-explosion-proof)
I Intrinsically safe (Exia IIC T6 Ga)
G Intrinsically safe type, Flameproof (Exd (ia) IIC T6 Ga)

Process Connection / Material
B Flange DN80 / Stainless Steel 304
C Flange DN100 / Stainless Steel 304
D Flange DN125 / Stainless Steel 304
E Flange DN150 / Stainless Steel 304
F Flange DN200 / Stainless Steel 304
H Flange DN250 / Stainless Steel 304
Y Special Custom-tailor

Antenna Type / Material
B Horn Antenna Φ46mm / Stainless Steel 304
C Horn Antenna Φ76mm / Stainless Steel 304
D Horn Antenna Φ96mm / Stainless Steel 304

Seal Up / Process Temperature
V Viton / (-40~150) ℃
K Kalrez / (-40~250) ℃

The Electronic Unit
2 (4~20) mA / 24V DC / Two wire system
3 (4~20) mA / 24V DC / HART two wire system
4 (4~20) mA / 220V AC / Four wire system
5 RS485 / Modbus

Shell / Protection Grade
L Aluminum / IP67
G Stainless Steel 304L/ IP67

Cable Line
M M 20x1.5
N ½″ NPT

Field Display/The Programmer
A Belt
X Without

- **808**

License
P Standard (Non-explosion-proof)
I Intrinsically safe (Exia IIC T6 Ga)
G Intrinsically safe type, Flameproof (Exd (ia) IIC T6 Ga)

Process Connection / Material
G Thread G1½″A / Stainless Steel 304
N Thread 1½″ NPT / Stainless Steel 304
B Flange DN80 / Stainless Steel 304
C Flange DN100 / Stainless Steel 304
D Flange DN125 / Stainless Steel 304
E Flange DN150 / Stainless Steel 304
F Flange DN200 / Stainless Steel 304
H Flange DN250 / Stainless Steel 304
M Flange DN80 / Cardan joint (Nickel plated carbon steel)
K Flange DN100 / Cardan joint (Nickel plated carbon steel)
T Flange DN125 / Cardan joint (Nickel plated carbon steel)
Z Flange DN150 / Cardan joint (Nickel plated carbon steel)
W Flange DN200 / Cardan joint (Nickel plated carbon steel)
V Flange DN250 / Cardan joint (Nickel plated carbon steel)
Y Special Custom-tailor

Antenna Type / Material
B Horn Antenna Φ76mm / Stainless Steel 304
C Horn Antenna Φ96mm / Stainless Steel 304
D Horn Antenna Φ121mm / Stainless Steel 304

Seal Up / Process Temperature
V Viton / (-40~150) ℃
K Kalrez / (-40~250) ℃

The Electronic Unit
2 (4~20) mA / 24V DC / Two wire system
3 (4~20) mA / 24V DC / HART two wire system
4 (4~20) mA / 220V AC / Four wire system
5 RS485 / Modbus

Shell / Protection Grade
L Aluminum / IP67
G Stainless Steel 304L/ IP67

Cable Line
M M 20x1.5
N ½″ NPT

Field Display/The Programmer
A Belt
X Without

- **809**

License
P Standard (Non-explosion-proof)
I Intrinsically safe (Exia IIC T6 Ga)
G Intrinsically safe type, Flameproof (Exd (ia) IIC T6 Ga)

Process Connection / Material
G Thread G1½″A / Stainless Steel 304
N Thread 1½″ NPT / Stainless Steel 304
B Flange DN80 / Stainless Steel 304
C Flange DN100 / Stainless Steel 304
D Flange DN125 / Stainless Steel 304
E Flange DN150 / Stainless Steel 304
F Flange DN200 / Stainless Steel 304
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M Flange DN80 / Cardan joint (Nickel plated carbon steel)
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W Flange DN200 / Cardan joint (Nickel plated carbon steel)
V Flange DN250 / Cardan joint (Nickel plated carbon steel)
Y Special Custom-tailor

Antenna Type / Material
B Horn Antenna Φ76mm / Stainless Steel 304
C Horn Antenna Φ96mm / Stainless Steel 304
D Horn Antenna Φ121mm / Stainless Steel 304

Seal Up / Process Temperature
V Viton / (-40~150) ℃
K Kalrez / (-40~250) ℃

The Electronic Unit
2 (4~20) mA / 24V DC / Two wire system
3 (4~20) mA / 24V DC / HART two wire system
4 (4~20) mA / 220V AC / Four wire system
5 RS485 / Modbus

Shell / Protection Grade
L Aluminum / IP67
G Stainless Steel 304L/ IP67

Cable Line
M M 20x1.5
N ½″ NPT

Field Display/The Programmer
A Belt
X Without

- **810**

License									
P Standard (Non-explosion-proof)									
I Intrinsically safe (Exia IIC T6 Ga)									
G Intrinsically safe type, Flameproof (Exd (ia) IIC T6 Ga)									
	Process Connection / Material								
	G Thread G1½″A / Stainless Steel 304								
	N Thread 1½″ NPT / Stainless Steel 304								
	B Flange DN80 / Stainless Steel 304								
	C Flange DN100 / Stainless Steel 304								
	D Flange DN125 / Stainless Steel 304								
	E Flange DN150 / Stainless Steel 304								
	F Flange DN200 / Stainless Steel 304								
	H Flange DN250 / Stainless Steel 304								
	M Flange DN80 / Cardan joint (Nickel plated carbon steel)								
	K Flange DN100 / Cardan joint (Nickel plated carbon steel)								
	T Flange DN125 / Cardan joint (Nickel plated carbon steel)								
	Z Flange DN150 / Cardan joint (Nickel plated carbon steel)								
	W Flange DN200 / Cardan joint (Nickel plated carbon steel)								
	V Flange DN250 / Cardan joint (Nickel plated carbon steel)								
	Y Special Custom-tailor								
		Antenna Type / Material							
		B Horn Antenna Φ196mm / Stainless Steel 304							
		C Horn Antenna Φ242mm / Stainless Steel 304							
			Seal Up / Process Temperature						
			V Viton / (-40~150) ℃						
			K Kalrez / (-40~250) ℃						
				The Electronic Unit					
				2 (4~20) mA / 24V DC / Two wire system					
				3 (4~20) mA / 24V DC / HART two wire system					
				4 (4~20) mA / 220V AC / Four wire system					
				5 RS485 / Modbus					
					Shell / Protection Grade				
					L Aluminum / IP67				
					G Stainless Steel 304L/ IP67				
						Cable Line			
						M M 20x1.5			
						N ½″ NPT			
							Field Display/The Programmer		
							A Belt		
							X Without		

Model selection data sheet

Customer information
Company: Contact person:
Address: Post code:
Telephone: Fax:
Mobile phone: E-mail:
Date:
Certificate
Standard type (non-explosion proof) Intrinsically type (Ex ib IIB T5) Intrinsically type (Ex ib IIC T6 Gb)
Intrinsically type +marine approval (Ex ib IIC T6 Gb) Intrinsically + explosion proof type (Ex d ib IIC T6 Gb)
Tank/container information:
Tank type: Storage tank Reaction tank
Separation tank Marine tank
Tank structure:
Tank material : Tank pressure :
Tank size:
Height of tank: m Diameter of tank: m
Top of a tank:
Arch Flat top Open Conic top
Bottom of a tank:
Tapered Flat Inclined Arc
Installation position:
Top Side Bypass pipe Wave guide pipe Extension pipe (important information):
Extension pipe height (Length): mm,
Extension pipe diameter: mm
Measuring medium:
Medium name: Liquid Solid Mixed Medium temperature: Dielectric constant:
Adhesive: Yes No Stirring: Yes No

Process connection:

Thread: G1½ 1½ NPT

Flange (DN=) Flange (ANSI=)

Power supply:

24V DC 2-wire 24V DC 4-wire 220V AC 6V DC 12V DC

Output:

4-20mA Hart RS485/Modbus

Display:

With display and programmer Without display and programmer

Automatización e instrumentación de procesos
Instrumental Solution Srl
info@solution.com.ar
Castellanos 317 (2000) Rosario Santa Fe
3416938211