

26G High frequency radar level transmitter manual

Product overview

1, the introduction

GRD98 series sensors are 26 g hf radar level meter, measuring maximum distance of 70 meters. Antenna is further optimization, new rapid microprocessor can undertake higher rate of signal analysis and processing, make the instrument can be used in the reaction kettle, some complex measuring conditions, such as solid bin.

2, measuring principle,

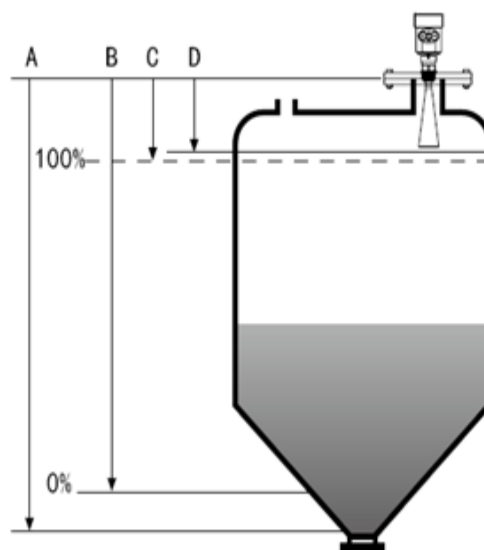
Launch a narrow microwave pulse radar thing location antenna, the antenna downward transmission, microwave access to the surface of the measured medium is reflected by the antenna system again after receiving, sending signals to the electronic circuit parts automatically converted into material level signal (target because of microwave transmission speed, the electromagnetic wave and the reflected back the receiver to get back to the time is almost instant).

A . range settings

B. low level adjustment

C. high level adjustment

D. blind zone range



Measurement datum is: thread bottom and flange sealing surface.

Note: the use of radar thing location timing, it is important to ensure the highest level can not enter the measuring blind area the area shown in (D).

26G radar level meter features:

1. antenna size is small, easy to install, non-contact radar, no wear, no pollution.
2. almost not affected by corrosion, bubble, is almost not affected by water vapor in the atmosphere, temperature and pressure changes.
3. serious dust environment on high frequency level meter.
4. have a shorter wavelength, the tilt in the solid surface has a better reflection of.
5. beam Angle is small, the energy concentration, to enhance the ability of echo again at the same time to avoid distractions.
6. measuring blind area smaller, for a small tank measurement will obtain good effect.
7. high signal-to-noise ratio, even in the case of volatility can obtain better performance.
8. high frequency, it is the best choice for measuring solid medium and low dielectric constant.

3.Product introduction

GRD981

Should use: all kinds of corrosive liquid

Measuring range: 20 meters

The process connection: thread, flange

Medium temperature: - 40 ~ 120 °C

The process pressure: 0.1 ~ 0.3 MPa

accuracy : + / - 5 mm

Protection grade: IP67

Frequency range: 26 GHz

Explosion-proof grade: Exd IIC T6 Gb

Signal output: 4 ~ 20 ma/HART (two) line/four line RS485 /

Modbus



GRD982

Should use: heat resistance, pressure, slight corrosion fluid
Measuring range: 30 meters
The process connection: thread, flange
Medium temperature: - 40 ~ 250 °C
The process pressure: 0.1 ~ 4.0 MPa
Fine degrees: + / - 3 mm
Protection grade: IP67
Frequency range: 26 GHZ
Explosion-proof grade: Exd IIC T6 Gb
Signal output: 4 ~ 20 ma/HART (two) line/four line RS485 /
Modbus



GRD983

Should be used: solid material, strong dust, easy to
crystallization, condensation
Measuring range: 70 meters
The process connection: universal flange
Medium temperature: - 40 ~ 250 °C
The process pressure: 0.1 ~ 0.3 MPa
Fine degrees: plus or minus 15 mm
Protection grade: IP67
Frequency range: 26 GHZ explosive-proof grade: Exd IIC T6
Gb
Signal output: 4 ~ 20 ma/HART (two) line/four line RS485 /
Modbus



GRD984

Should use: solid material, strong dust, easy to crystallization, condensation

Measuring range: 70 meters

The process connection: thread, flange

Medium temperature: - 40 ~ 250 °C

The process pressure: 0.1 ~ 0.3 MPa

Fine degrees: plus or minus 15 mm

Protection grade: IP67

Frequency range: 26 GHz

Explosion-proof grade: Exd IIC T6 Gb

Signal output: 4 ~ 20 ma/HART (two) line/four line RS485 / Modbus



GRD985

Should be used: solid particles, powder

Measuring range: liquid/solid piece of 20 meters / 30 meters
solid powder 15 meters

The process connection: thread, flange

Medium temperature: - 40 ~ 250 °C

The process pressure: 0.1 ~ 4.0 MPa (flat flange)

0.1 ~ 0.3 MPa (universal flange)

Fine degrees: plus or minus 10 mm

Protection grade: IP67

Frequency range: 26 GHz

Explosion-proof grade: Exd IIC T6 Gb

Signal output: 4 ~ 20 ma/HART (two) line/four line RS485 / Modbus



GRD986

should use: health liquid storage containers, strong corrosion resistance

Measuring range: 20 meters

The process connection: flange

Medium temperature: - 40 ~ 150 °C

The process pressure: 0.1 ~ 0.3 MPa

Fine degrees: + / - 3 mm

Protection grade: IP67

Frequency range: 26 GHz

Explosion-proof grade: Exd IIC T6 Gb

Signal output: 4 ~ 20 ma/HART (two) line/four line RS485 / Modbus



4. The installation guide

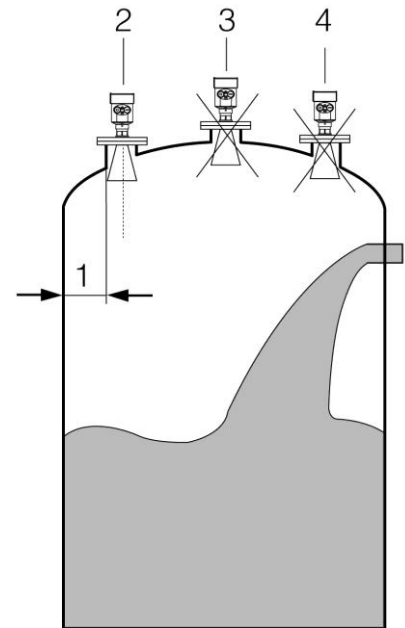
1, the installation instructions

recommend position (2), the walls of the tank wall to install a short tube distance shall meet the following requirements: the best distance from the tank wall 1/4 or 1/6 of the tank diameter, distance to the tank wall, the minimum installation for 1/10 of the measurement range.

For example: 10 m liquid storage tanks, tank wall, the minimum installation should be 1 m distance. cannot be installed on into the top of the mouth (4).

cannot be installed in the center position (3), if the installation in the center, will produce multiple false echo, echo interference can cause real signal loss.

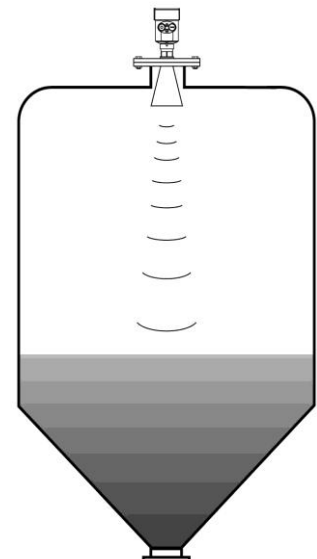
if you can't keep distance between the tank wall, the impaction of the medium can cause false echo, adhesion when debugging instrument should be false echo storage.



2, the installation of tapered tank

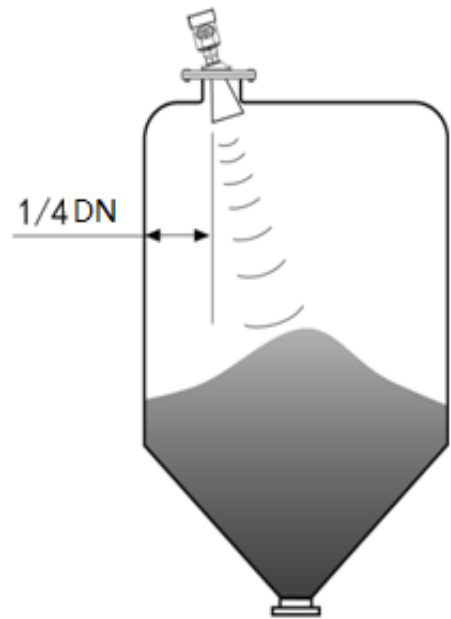
Cone top plane, can be installed on the roof right in the middle, can guarantee

the measurement to the bottom of the cone.



3, have a heap of material storage tank

Have a windrow antenna to the vertical alignment of material surface .If the surface is uneven, Angle of large universal flange must be used to adjust the Angle of speakers make the horn on the material surface as far as possible.(due to the tilt of the solid surface can cause echo attenuation, or even a loss of signal)

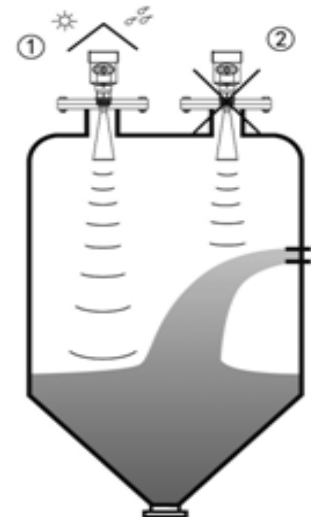


the incorrect erection of the typical:

∅ tapered tank cannot be installed above the into the mouth.

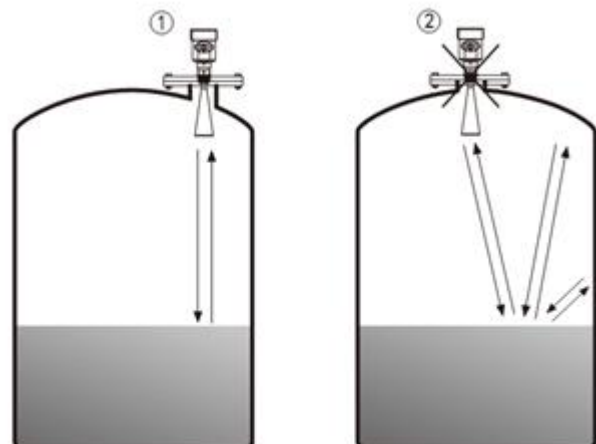
Note: at the same time outdoor sunshade, rainproof measures should be taken during installation.

- (1) the right
- (2) errors



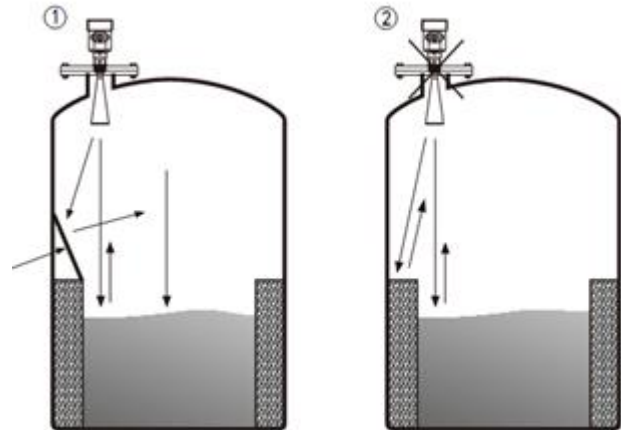
∅ instrument cannot be installed in the middle of the arch or circular roof, in addition to produce indirect echoes will be affected by multiple echo. Multiple echo may is greater than the real echo signal threshold, because through the top concentration multiple echo. So can't installed in a central location.

- (1) the right
- (2) errors



∅ when tank have obstacles affect the measurement, will add baffle to normal measurement.

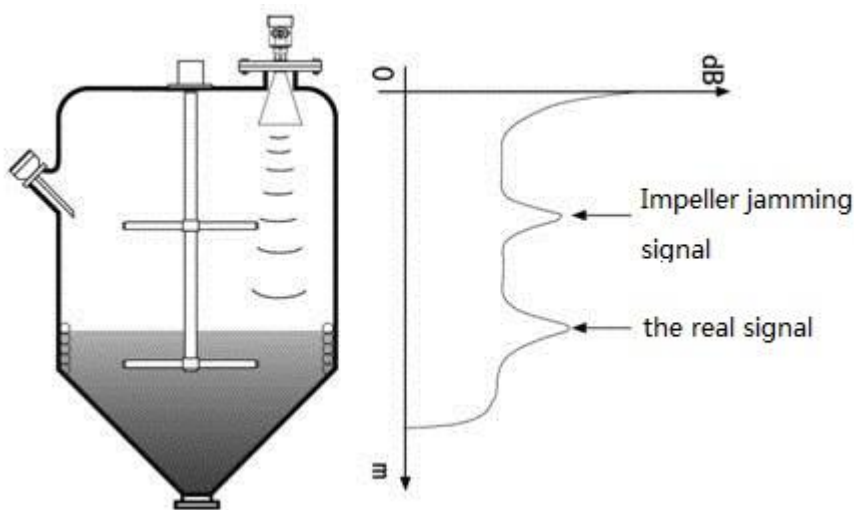
- 1 the right
- 2 errors

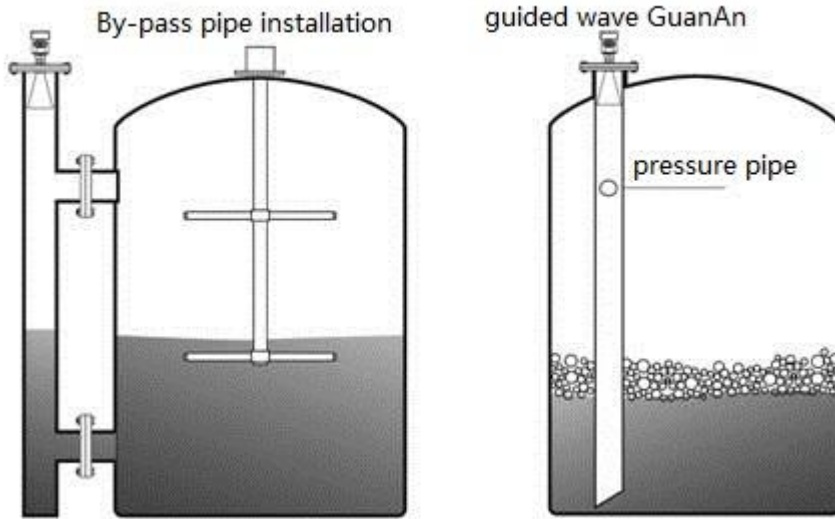


Guided wave tube in the measurement

Emission of microwave beam radiation area is disabled by such things as a ladder, limit switches, heating equipment, support, etc., can cause interference, cause measurement error.

If the affected need to add guided wave tube was measured.

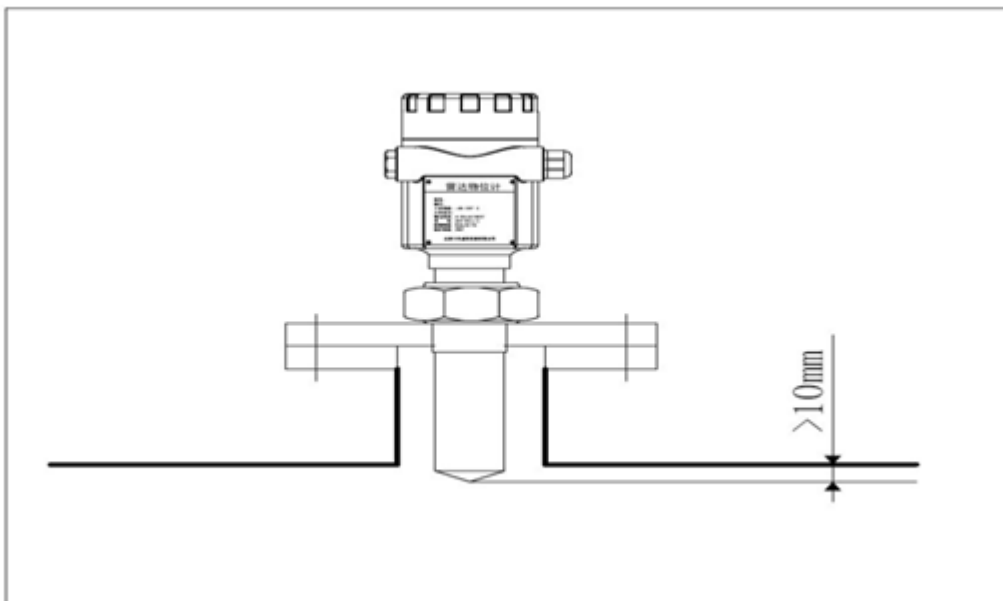


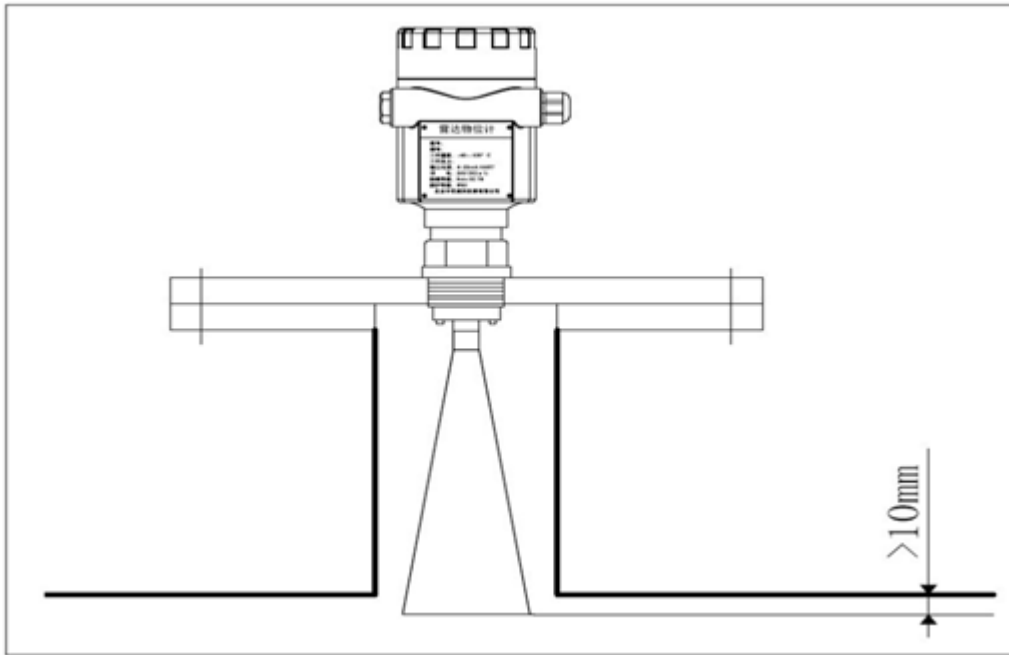


Note: such as hole diameter (5 ~ 10) mm

The diameter of the guided wave tube at least 50 mm and a smooth inner wall to
Can only measure the liquid medium, viscous medium can't measure with guided
wave tube

Ø over height requirement: must ensure that the antenna to the jar at least 10 mm
distance





Electrical connections

1, the power supply voltage

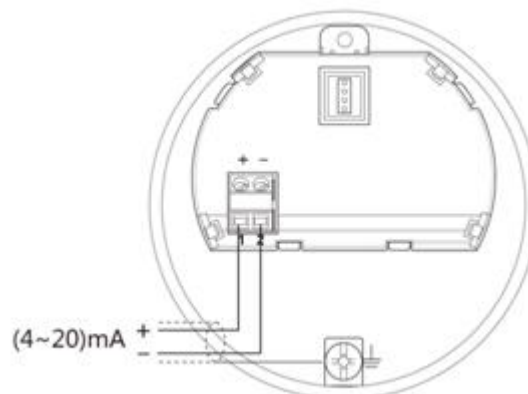
(4 ~ 20 mA/HART (two wire system) power supply and the output current signal a sharing core shielded cable. Specific see technical data for the power supply voltage range. For this safety type must be between power supply and the instrument with a safety barrier.

4 ~ 20 mA/HART (four wire) separate power supply and current signal, each using a power cable. Specific see technical data for the power supply voltage range.

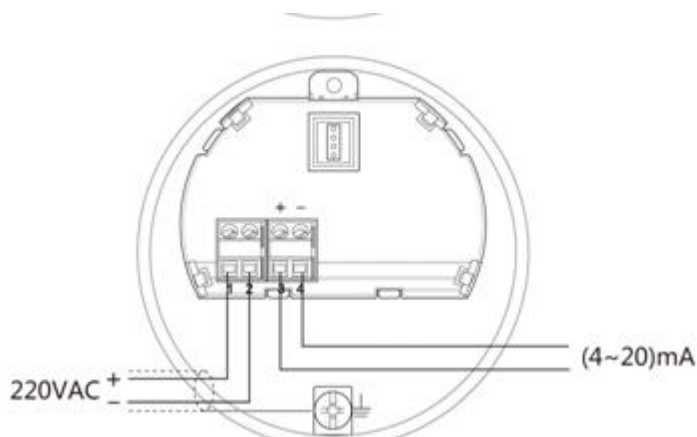
RS485 / Modbus power supply and Modbus signal lines divide and use a shielded cable respectively, specific see technical data for the power supply voltage range.

2, connection mode,

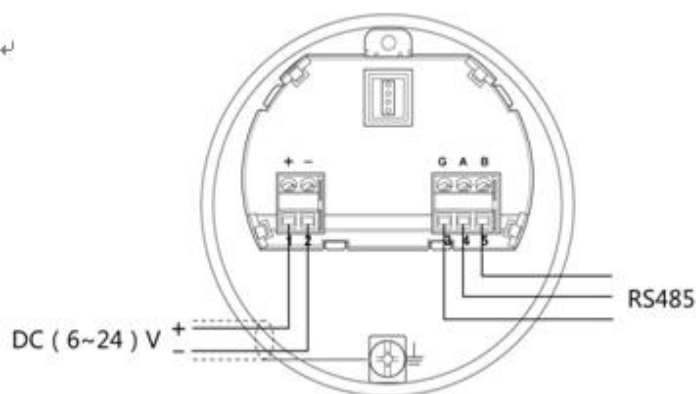
24 v two-wire system wiring diagram:



220 v four wire wiring diagram:



24 v RS485 / Modbus wiring diagram:



safety instruction

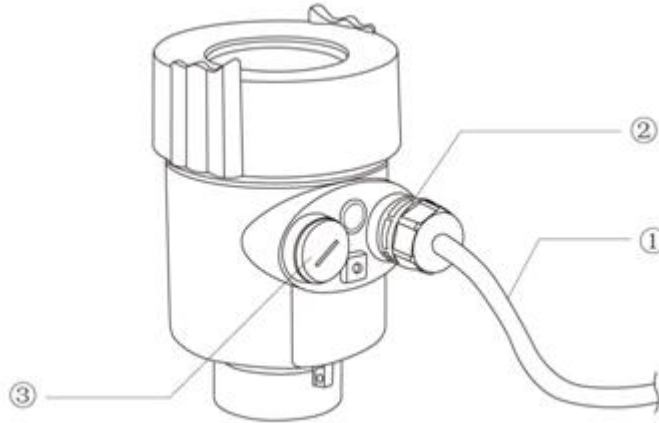
Please comply with local electrical installation code requirements!

Please comply with local requirements for personnel health and safety procedures. All electrical components for instrument operation must be performed by been properly trained professionals.

Please check the instrument nameplate to ensure that the product specifications meet your requirements. Please make sure that the power supply voltage to the demands of the instrument on the nameplate.

protection grade

This instrument can completely satisfy the requirements of protection grade IP66/67, please make sure that the cable seal waterproof. The diagram belows:



How to ensure that meet the requirements of IP67 installation:

Please ensure that the sealing head intact

Please make sure that the cable is not damaged

Please ensure that the cable used in line with the requirements of electrical connection in the specification

Before entering the electrical interface, the cable bending down, to ensure that water will not flow into the shell, as shown in (1)

Please tighten the cable seal head, see (2)

Please return the unused electrical interfaces to blind plugging plugging tight, see (3)

Commissioning

three debug method:

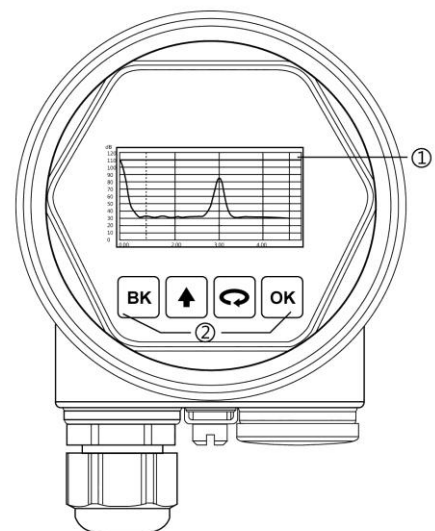
- 1) show/button
- (2) the upper machine debugging
- (3) HART handheld programmer

show/button

By showing the four buttons on the screen for debugging, debugging menu language is optional. After debugging, generally only for display, through the glass Windows can read very clearly the measured values.

Show/button

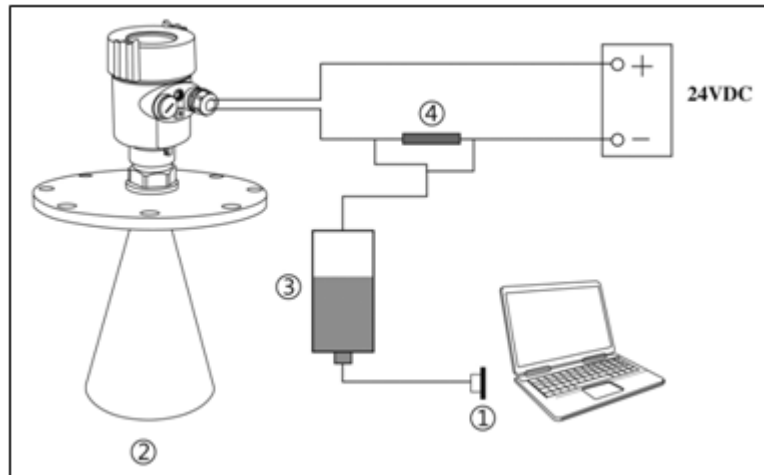
- (1) liquid crystal display (LCD)
- (2) button



PC debugging

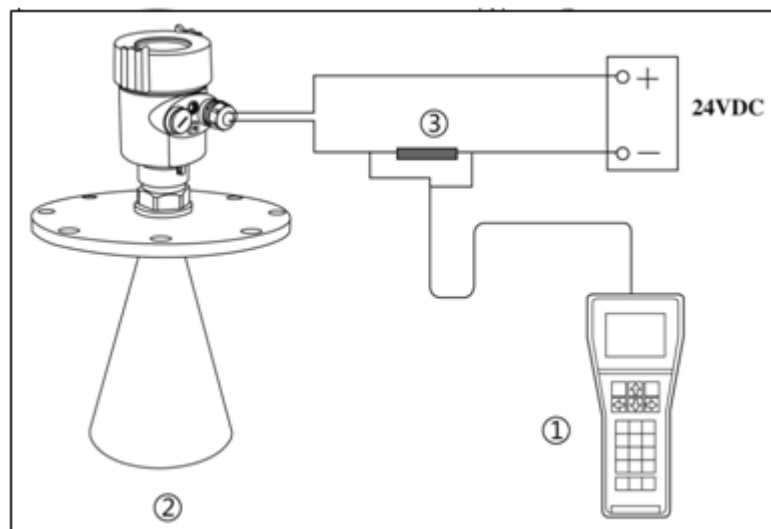
Are connected to the PC by HART

- (1)/RS232 interface or USB interface
- (2) radar level meter
- (3) the HART adapter
- (4) 250 Ω resistance



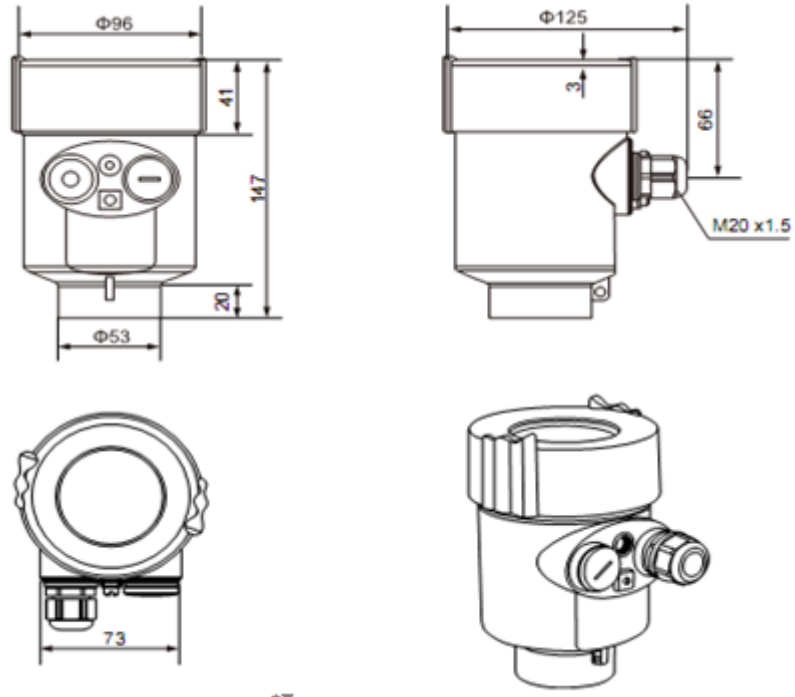
HART handheld programmer programming

- (1)HART handheld programmer
- (2) radar level meter
- (3) 250 Ω resistance



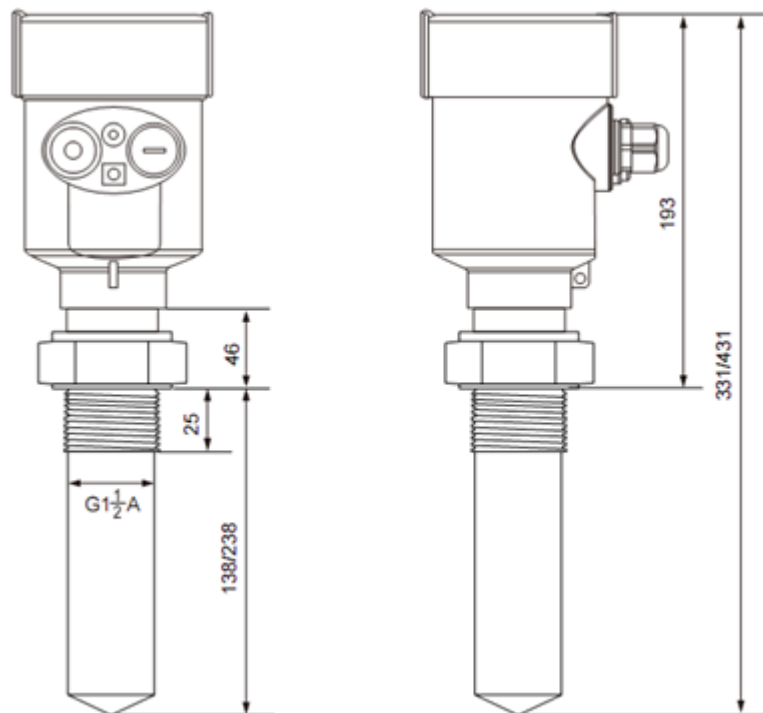
Structure size

Shell



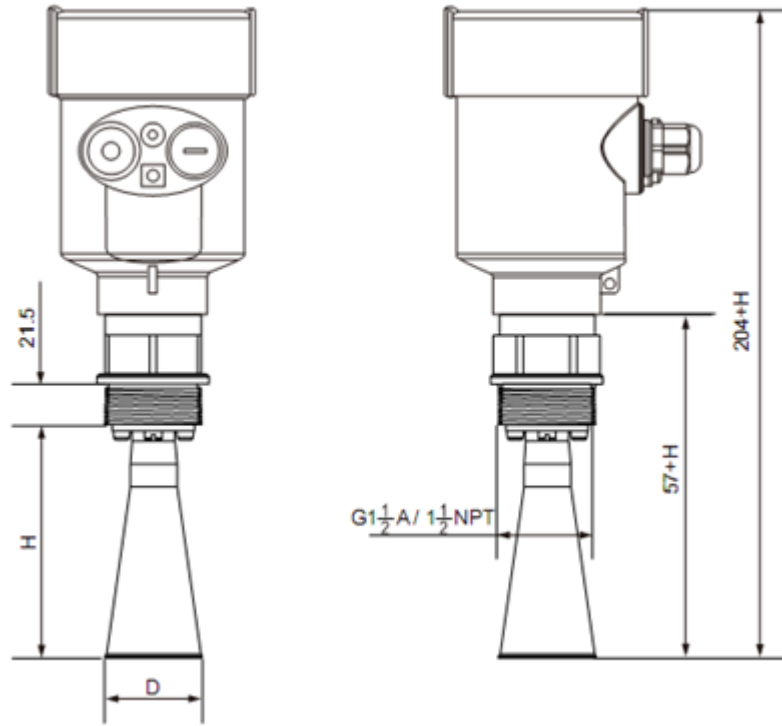
appearance size

GRD 981

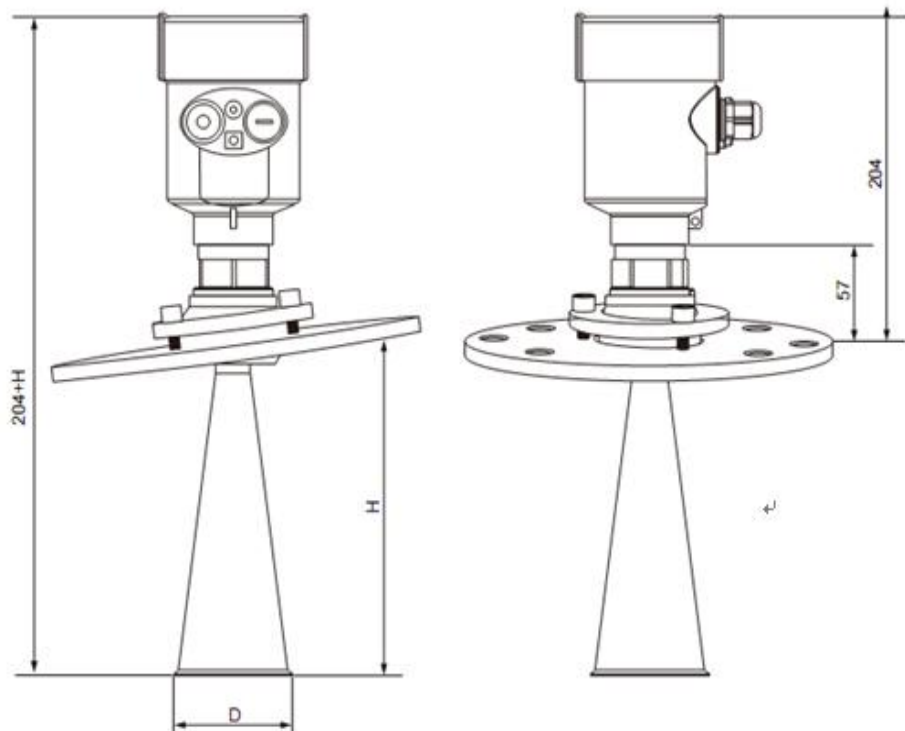




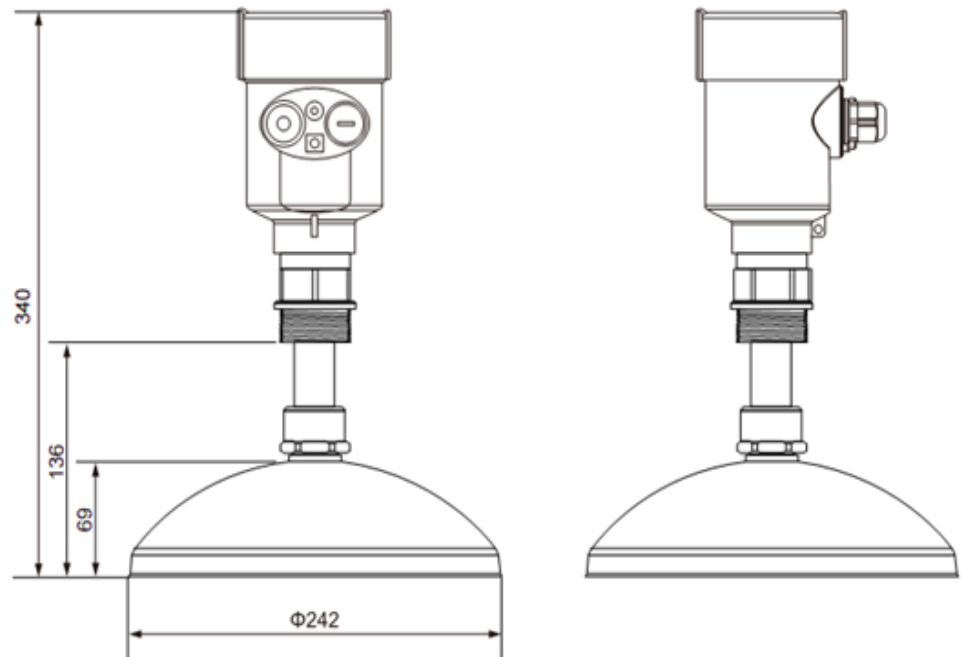
GRD 982



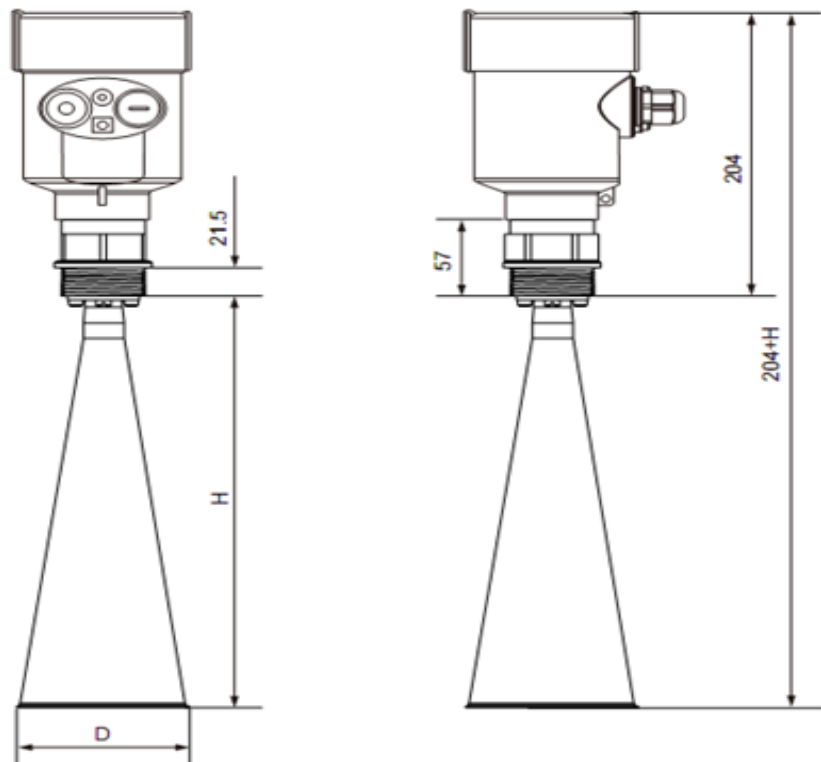
GRD 983



GRD 984

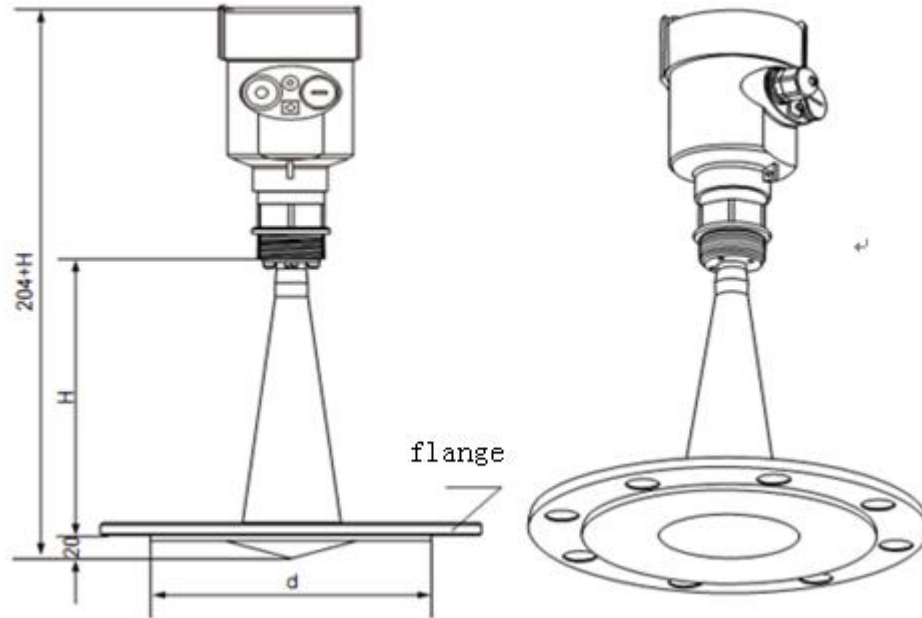


GRD 985

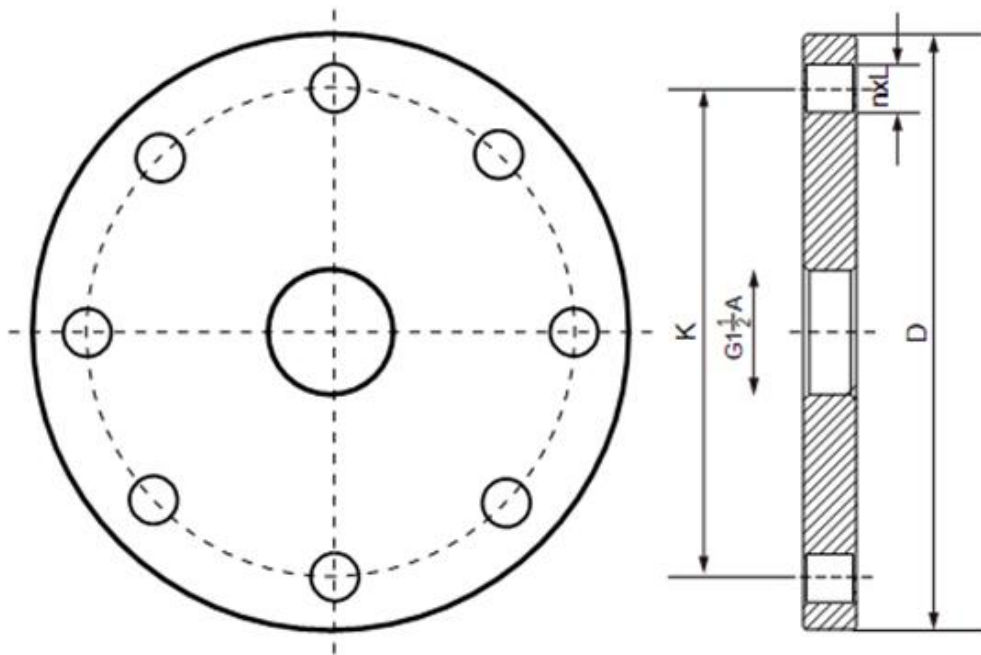




GRD 986



Flange type ;





Diameter	D	K	N	L
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