



Level Measurement Expert

Pulse Radar Level Instrument

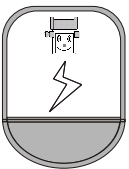
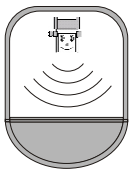
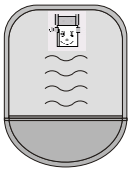




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1. For your safety

- **Authorised personal**

All operations described in this operating instructions manual must be carried out only by trained specialist personnel authorised by the plant operator.

During work on and with the device the required personal protective equipment must always be worn.

- **Appropriate use**

Operational reliability is ensured only if the instrument is properly used according to the specifications in the operating instructions manual as well as possible supplementary instructions.

- **FCC Certification**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

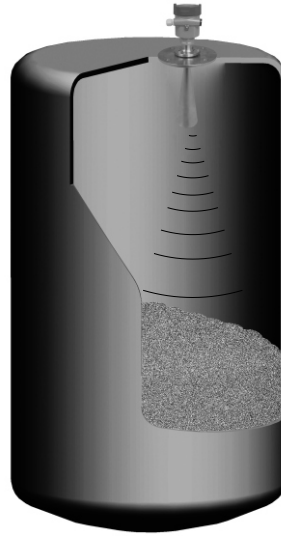
Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Warning: User must keep a safety distance of at least 20cm from the antenna.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

2. Measurement Principle



- Principle

The extremely narrow microwave pulse emitted by the antenna on radar level instrument can travel at the speed of light and part of its energy, which is reflected off the surface of target medium, is received by the very same antenna. The time lapse between pulse emission and reception by the antenna is proportional to the distance between the surface of target medium and the reference point on antenna. However, due to the fact that the electromagnetic wave is transmitted at extremely high speed, which leads to the tiny time lapse (nanosecond level) and makes it difficult to be identified, GDRD series of radar level instrument have adopted a special demodulation technology, enabling itself to detect the time lapse between pulse emission and reception correctly, and eventually generate accurate measurement result.

- Features

The pulse radar level instrument, adopted K band range as transmission frequency, which make this series have specialties as below: Small beam angle, which centralize energy, make GDRD high ability of anti-jamming, hence high accuracy and reliable. Small antenna size, easy to mount and easy to equip extra dust protection. Small blind zone, good accuracy even for small vessels. Shorter wave-length, suitable for small power.

Equipped with advanced microprocessor and unique EchoDiscovery echo processing technology, the radar level instrument can be used under various hazardous process conditions

The pulse radar level instrument, with pulses as its working tool and extremely low emission power, can be mounted on various metal or nonmetal vessels, harmless towards the environment and human beings.

3 Product Overview

GDRD61



GDRD55



| | | | |
|---|---------------------------------|-----------------------|---|
| Application : | Liquid | | Liquid |
| Max Measurement Range: : Measurement Accuracy: | Common 30m ±3mm | Enhanced 70m ±10mm | Level measurement in liquids, especially highly erosive liquids 10m ±5mm |
| Process Temperature: | (-40~100)° C | | (-40~130)° C |
| Process Pressure: | Ordinary pressure | | (-0.1~0.3)MPa |
| Signal Output: Power: | (4~20) mA/HART 2-wire(DC24V) | | (4~20)mA/HART 2-wire (DC24V) |
| Display module : | None | | |
| Housing: | Pa66 | | A |
| Process Connection: | Lifting frame or 1'NPT | | F |
| Flange Accessories: | | | L |
| Antenna: | | | R |

GDRD56



Liquid
 Level measurement in liquids, under certain temperature and pressure, mildly erosive liquids
 30m
 ±3mm

(-40~80)° C
 (-40~130)° C
 (-60~250)° C
 (-60~400)° C
 Normal
 (-0.1~4) MPa
 (-0.1~40) MPa

(4~20)mA/HART
 2-wire (DC24V)

Optional

A

H/I/J/K

L/M/P

T/V

GDRD57



Liquid
 Level measurement of highly erosive medium under certain pressure/temperature limit and suitable for
 20m
 ±3mm

(-40~150)° C

(-0.1~0.5)MPa

(4~20)mA/HART
 2-wire (DC24V)

Optional

A

U

GDRD58



Solid
strong dew/dust/crystal

70m
±15mm

(-40~80)° C
(-40~120)° C
(-60~250)° C
(-60~400)° C

Normal
(-0.1~4) MPa
(-0.1~40) MPa

(4~20)mA/HART
2-wire (DC24V)

Optional

A

H/I/J/K

L/M/P

T/V

GDRD59



Solid
Normal Temperature/Normal Pressure

15m
±10mm

(-40~80)° C

Normal

(4~20)mA/HART
2-wire (DC24V)

Optional


A

G






L/M/N

T




● Housing

| | |
|---------------|---|
| |  |
| Serial number | A |
| Material | Aluminium |
| Specialty | |






● Process Connection

| | | | | | |
|---------------|---|---|---|---|---|
| |  |  |  |  |  |
| Serial number | F | H | I | J | K |
| Material | PFA | Stainless Steel | Stainless Steel\\ (Huff) | Stainless Steel | Stainless Steel Flange |
| Pressure | (-0.1~0.3)MPa | (-0.1~4)MPa | (-0.1~0.5)MPa | (-0.1~4)MPa | (-0.1~40)MPa |
| Temperature | (-40~130)°C | (-60~150)°C | (-60~130)°C | (-60~250)°C | (-60~400)°C |

● Flange Accessories

| | | | |
|---------------|---|---|---|
| |  |  |  |
| Serial number | L | M | P |
| Material | (PTFE/PP) Flange | Stainless Steel Flange | Stainless Steel Gimbal Flange |
| Specialty | Rust tolerated | High temp./High Pressure | High temp./Normal Pressure |

● Antenna

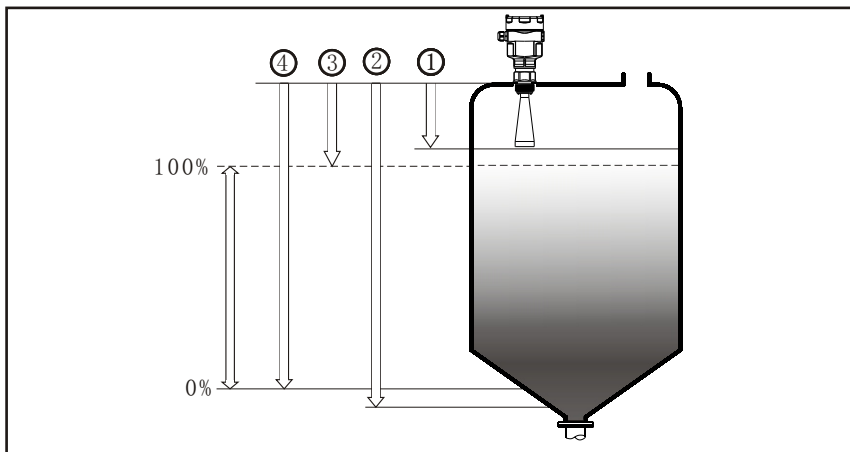
| | | | | | |
|---------------|---|---|---|---|---|
| |  |  |  |  |  |
| Serial number | R | T | U | V | W |
| Material | | Stainless steel | PFA | Stainless steel (PFA shield) | Stainless steel |
| Specification | Φ44/Length86 | Φ48/Length140 Φ78/Length227 Φ98/Length288 Φ123/Length620 | Dn80 DN100 | Φ98/300 Φ123/625 | Φ198 Φ246 |
| Specialty | Normal Temperature | Temperature tolerated/ Pressure tolerated | Rust tolerated/ Pressure tolerated | Normal Temperature/ Normal Pressure | Temperature tolerated/ Pressure tolerated |

4. Mounting Requirements

● Basic Requirements

There is a certain existing beam angle while the antenna transmitting microwave pulses. There should be no barriers between the lower edge of antenna and surface of measured medium. Therefore it is highly recommended to avoid facilities inside vessels, such as ladders, limit switches, heating spirals, struts and etc, during the mounting process. "False echo learning" must be carried out during the installation in this case. Furthermore, microwave beams must NOT intersect the filling streams. Be cautions during the installation: the highest level of target medium must NOT enter into blanking zone; the instrument must keep certain distance to vessel walls; every possible measure needs to be taken to position the instrument so that the direction of antenna emission is perpendicular to the surface of measured medium. The installation of instruments in explosion proof area must abide by relevant local or federal safety regulations. Stainless steel housing should be used for intrinsically safe explosion proof version, which is also applicable in explosion proof areas. The instrument must be connected with ground in this case.

● Illustrations

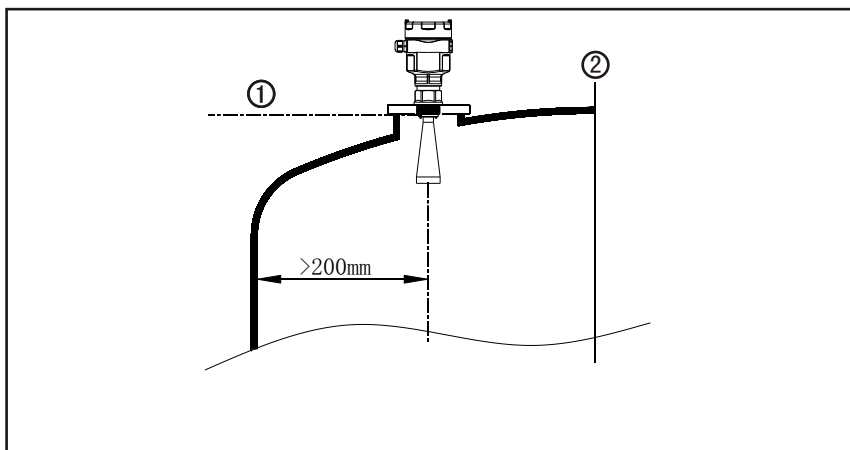


The reference plane is the thread or flange surface

1. Blanking Zone(menu1.9)
2. Empty(menu1.8)
3. Max. Adjustment(menu1.2)
4. Min. Adjustment(menu1.1)

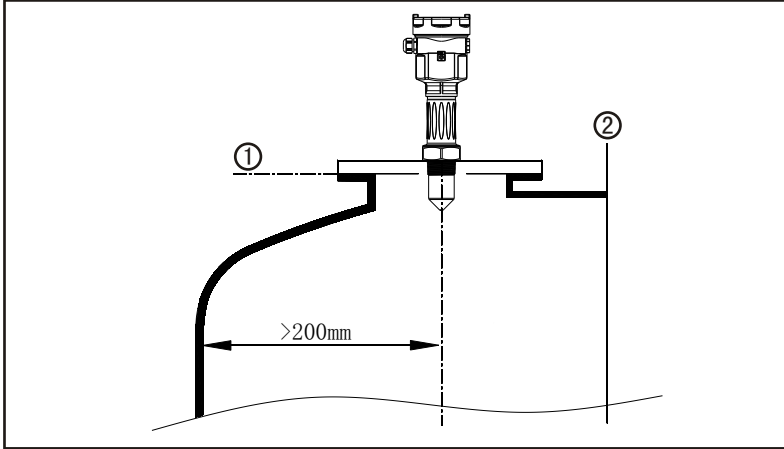
Note: The highest level of measured medium must not enter into vblanking zone while radar level measurement instrument is in operation.

● Mounting Position

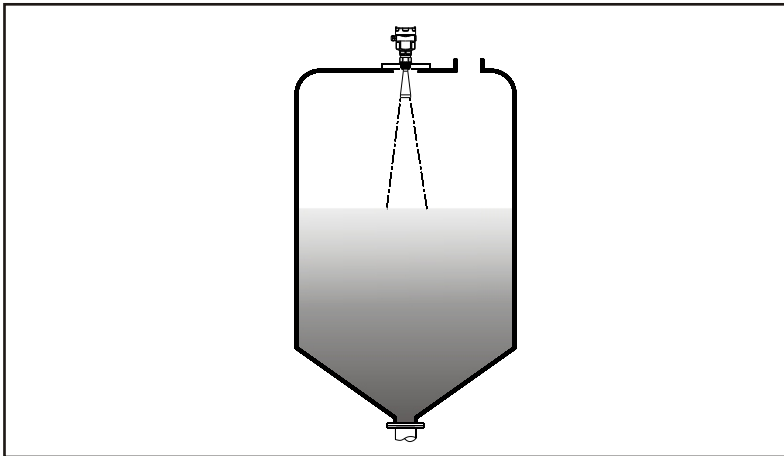


Minium distance of 500mm between instrument and vessel wall during installation

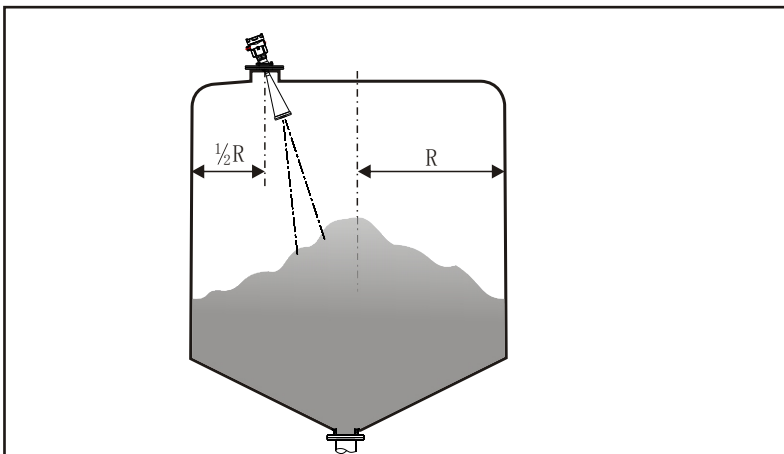
- 1.Reference Plane
- 2.Center of Vessel or Symmetrical Axis



- 1. Reference Plane
- 2. Center of Vessel or Symmetrical Axis

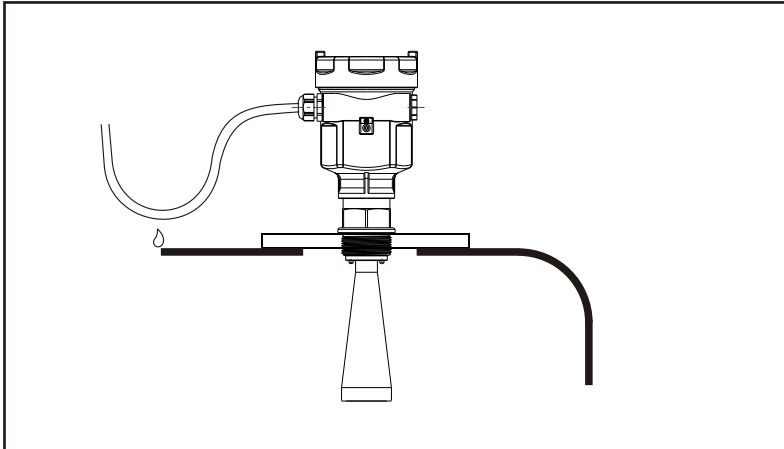


The best mounting position for a conical vessel with flat top is the center of its top, as the effective measurement can reach the bottom of vessel.



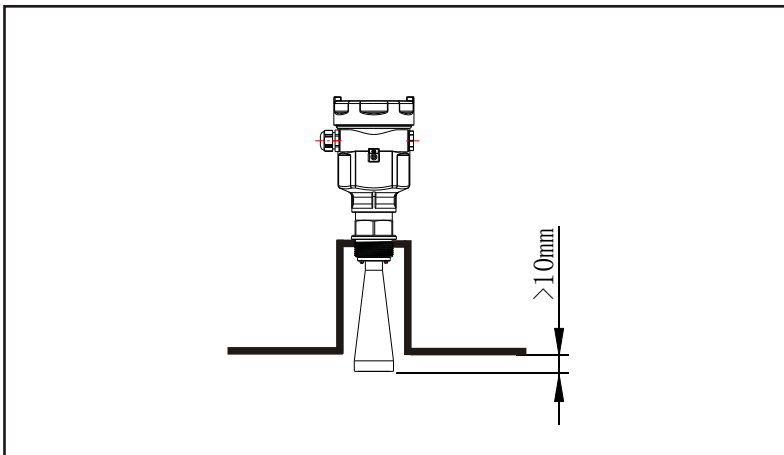
Installation with Gimbal

- Damp-proof



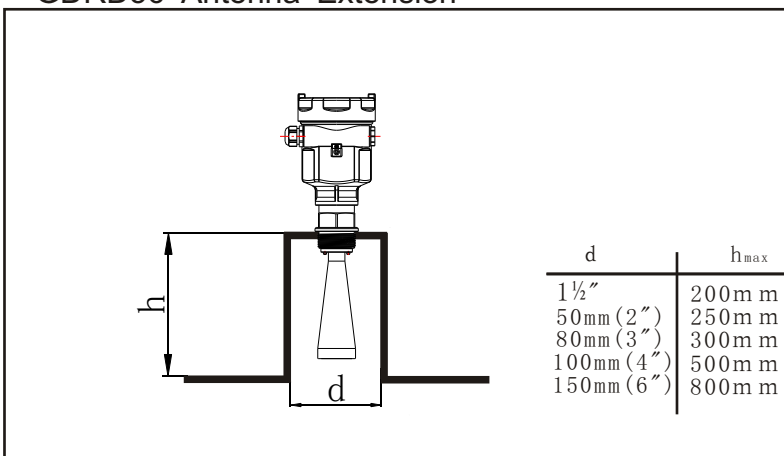
In order to avoid dampness under outdoor or humid indoor conditions or for those instruments mounted on cooling/heating vessels, seal rings used on cables should be screwed tight, plus the cable must be bended downward outside cable entry, indicated on the diagram below

- Antenna Extension



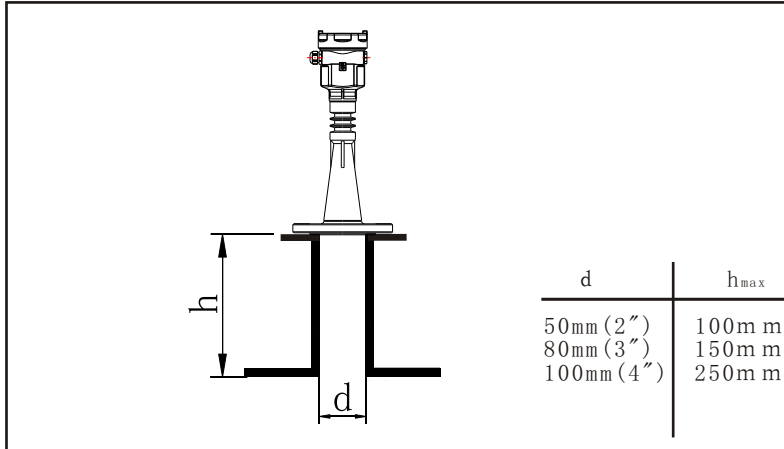
The transducer end must at least protrude 10mm out of socket.

GDRD56 Antenna Extension

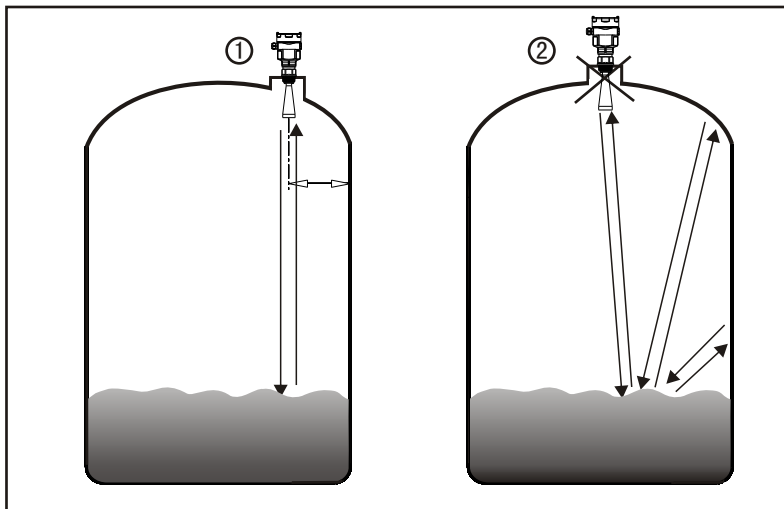


If the senser is mounted in a socket extension that is too long, strong false echoes are generated which enterfeere with the measurement. Make sure that the horn antenna protrudes out of the socket piece.

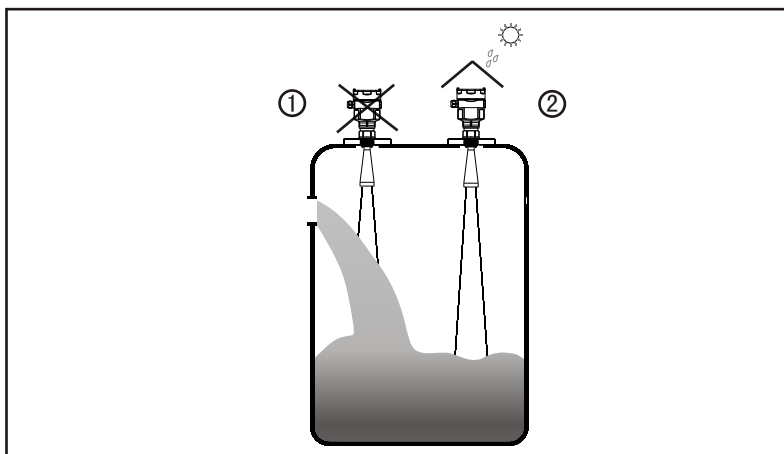
GDRD57 Extension pipe demnstration



● Rights and Wrongs in Mounting

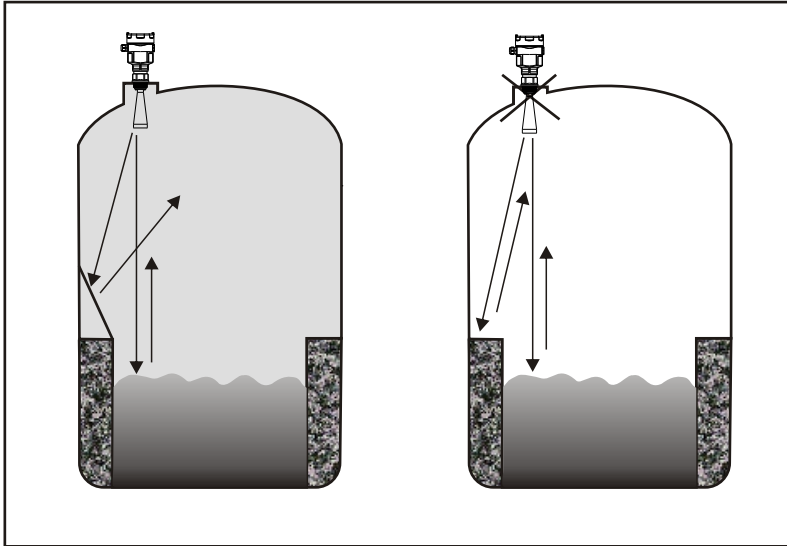


1. Correct
2. Wrong: Instruments are mounted in the center of concave or arched vessel tops, which results in multiple echoes.



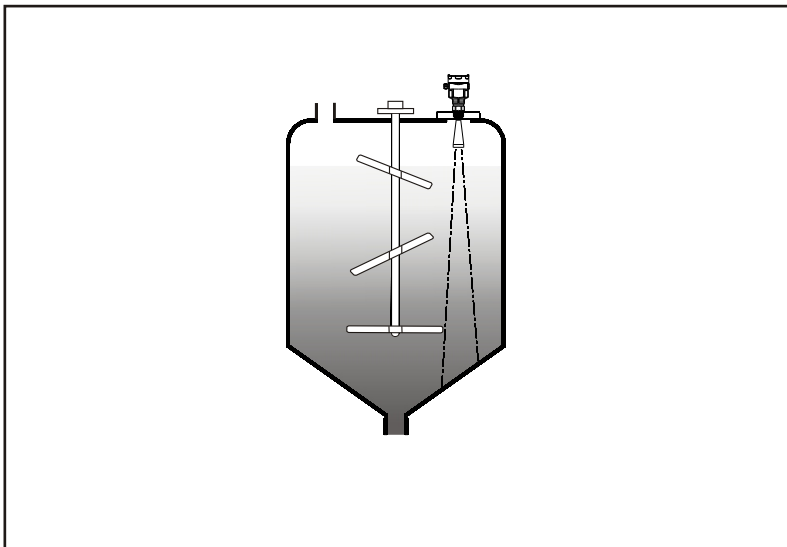
1. Wrong: Mount the instrument in/above filling stream, which results in the measurement of filling stream not the target medium.
2. Correct:

- Reflection board installation



If there are barriers in vessels, it is required to mount baffle-board, by doing this, the echo reflected by the barrier will be reflected out. And “False Echo Storage” will be applied.

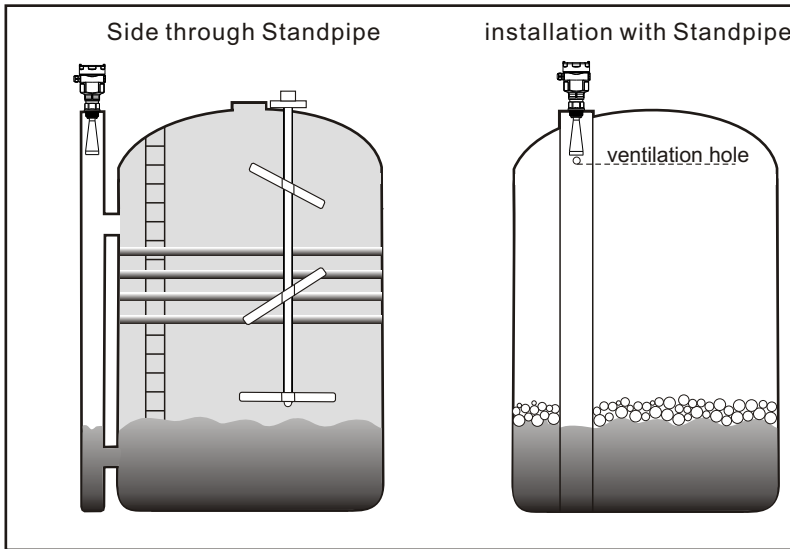
- Agitator



If there are agitators in vessels, instrument must be mounted as far away from agitators as possible. Once installation completed, a “false echo learning” should be carried out while agitators in motion to eliminate negative influence caused by false echo of agitators. You are advised to opt for installation with standpipe if foam or wave is generated due to the action of agitators.

- Installation with Standpipe

By using standpipe, the influence of foams can be reduced.



You are advised to opt for installation with standpipe (or bypass tube) to avoid the influence on measurement caused by barriers inside vessels or foam generation.

It is advised to install antenna inside of the standpipe to avoid the error caused by foam. The minimum inner diameter of standpipe should be 50mm. Avoid large cracks or welding seam when connecting standpipe. False echo storage must be carried out as well in this case.

Note: You must NOT mount instrument inside standpipe while measuring adhesive medium.

5 Electrical Connection

Power Supply

20mA/HART(2-Wire) Power supply and current signal are carried by the same two-wire connection cable. See the Technical Specifications of this guide for detailed requirement on power supply. A safety barrier should be placed between power supply and instrument for intrinsically safe version.

See the Technical Specifications of this guide for detailed requirement on power supply. Earth-connected current output can be used for standard version of level instruments, while the explosion proof version must be operated with a floating current output. Both instruments and earth terminals should be connected with ground firmly and securely. Normally you can either choose to connect with the earth terminal on vessel or adjacent ground in case of plastic vessels.

Cable Connection

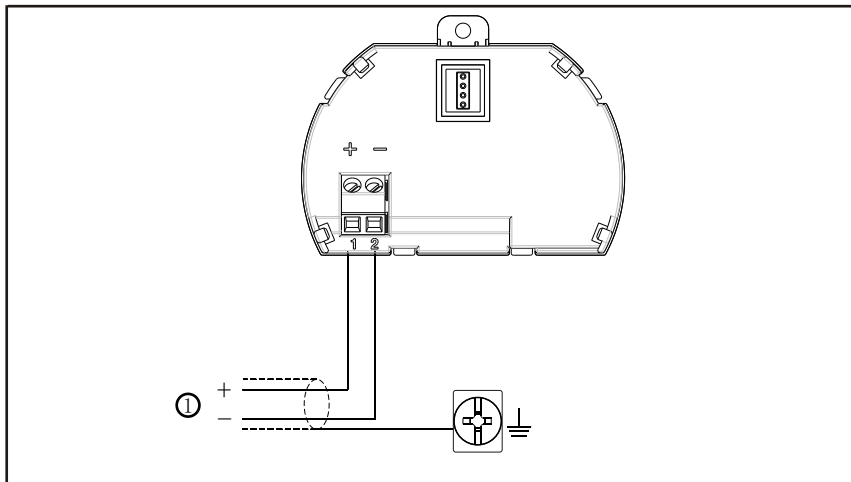
General Introduction Standard 2-wire cable with outside diameter of 5...9mm, which assures the seal effect of cable entry, can be used as feeder cable. You are recommended to use screened

Shielding & Grounding

The two ends of shielded cable must be connected with earth terminal. The shielded cable must be connected with inner earth terminal directly inside the transducer, while the outside earth terminal on housing must be connected with ground. In the event of earth-connected current, the shielding side of shielded cable must be connected to ground potential via a ceramic capacitor (e.g. : $1 \mu F$ 1500V) in order to dampen the low frequency grounding current and avoid the disturbance caused by high frequency signals

Wiring Diagram

2-wire

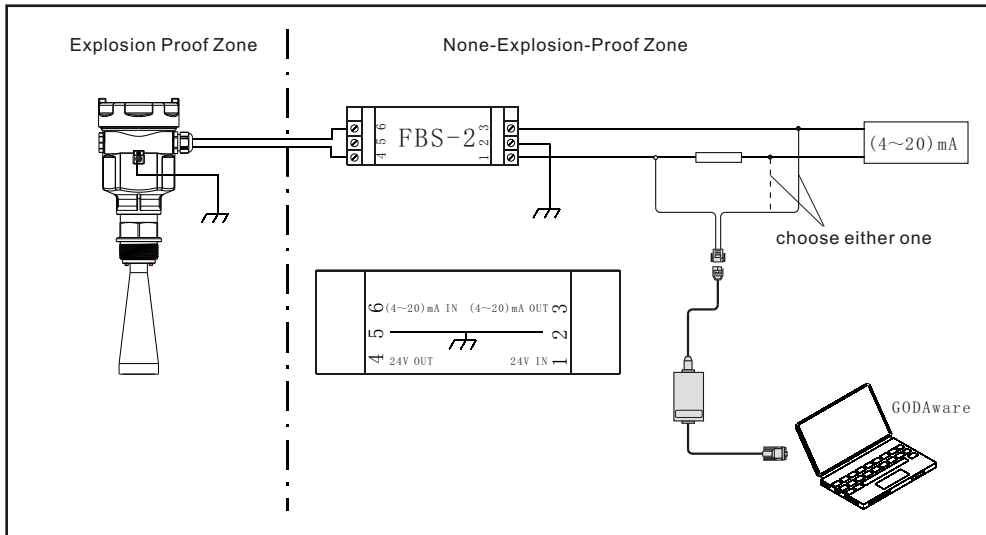


2-wire wiring used for HART
1) Power Supply and Signal Output

- Explosion Proof Connection

This product is an intrinsic safety explosion proof version (Exia II C T6 Ga) with stainless steel housing and plastic-encapsulated internal structure aimed to prevent sparks resulted from transducer and circuit malfunction from leaking out. It is applicable for the non-contact continuous level measurement of flammable medium under the level of explosion proof inferior to Exia II C T6 Ga. You are required to use series (intrinsic safety explosion proof: [Exia] II C, voltage of power supply: 24V DC±10%, short-circuit current: 114mA, operating current: 4...20mA) of safety barriers, which are supplementary to this product, for the power supply of this product.

All connection cables must be screened with max. length of 500m. Stray capacitor $\leq 0.1 \mu\text{F/Km}$, stray inductance $\leq 1\text{mH/Km}$. The level measurement instrument must be connected to ground potential and unapproved supplementary devices are not allowed to use.



Adjust with GODAware

6 Adjustment Instructions

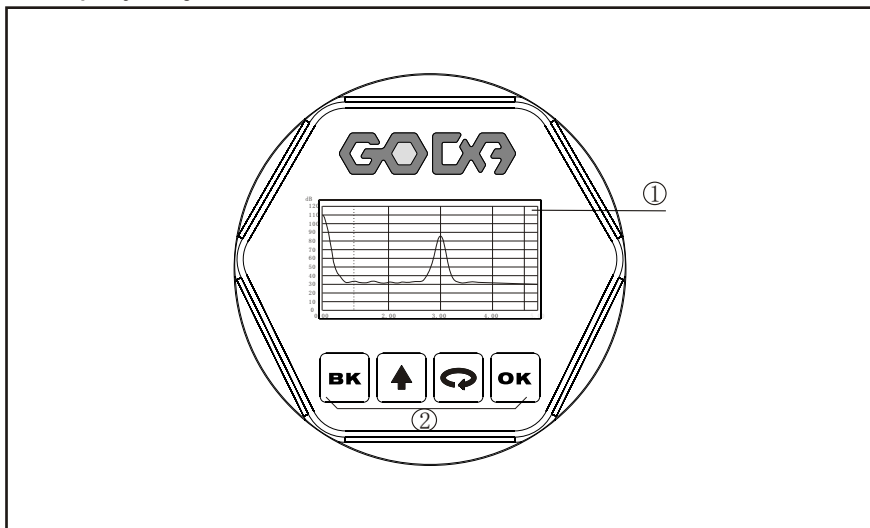
● Adjustment Methods

Three adjustment methods available for GDRD series :

- 1.Display/Adjustment Module
- 2.Adjustment software GODAware
- 3.HART handheld programmer

ViewPoint is a pluggable display/adjustment module. The adjustment can be done through operating with four buttons on ViewPoint. Optional menu operation languages are available for selection. ViewPoint is only used for display after adjustment in that the measurement results can be seen clearly through the glass window.

Display/Adjustment Module



1 LCD 2 Adjustment Keypad

[OK]Keypad

- Enter programming mode;
- Confirm programming options;
- Confirm modifications to parameters.

[↻]Keypad

- Choose programming options;
- Choose the digit of parameters to edit;
- Display the contents of parameters.

[↑]Keypad

- Modify parameter values.

[BK]Keypad

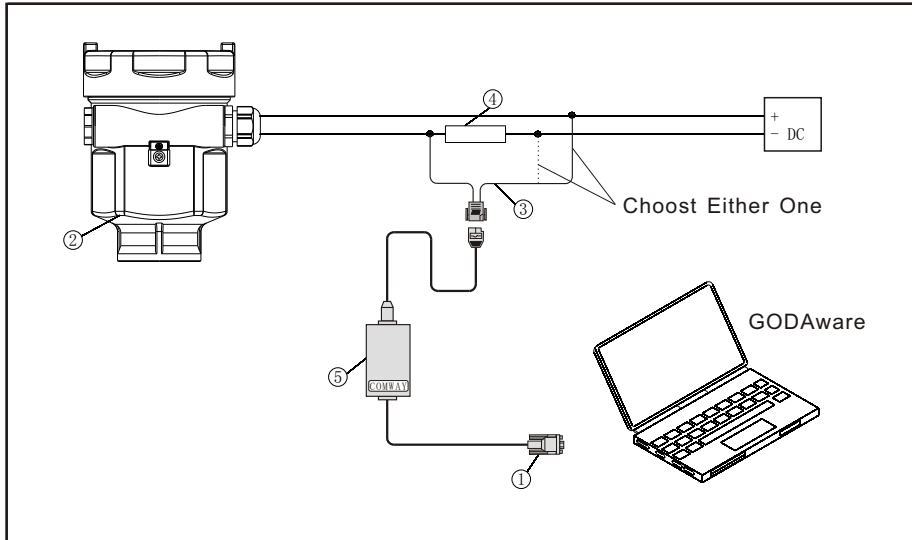
- Programming mode exit;
- Return to higher menu level.

Shortcut

- [BK]Display Echo wave

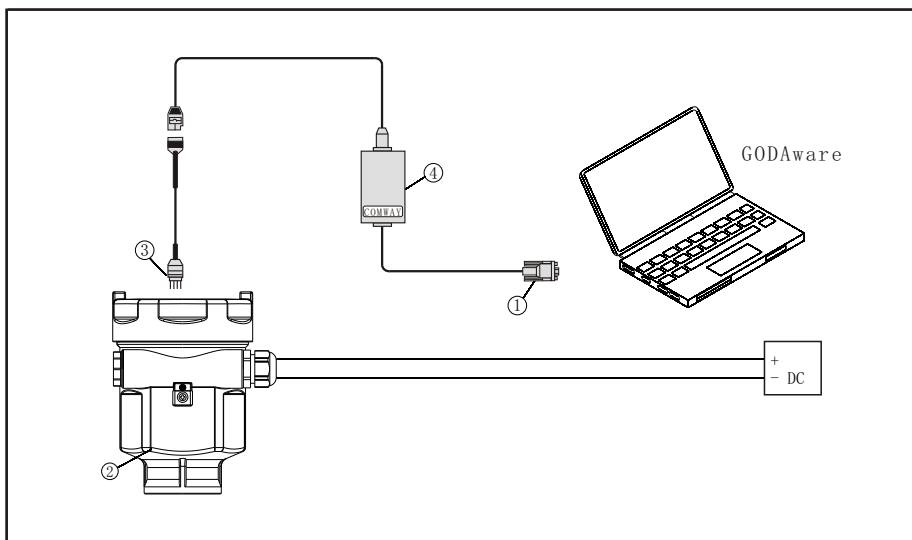
● GODAware

Connect with another unit through HART.



- 1 RS232 Connect Cable/USB port
- 2 GDRD series
- 3 HATR pont adapter used on COMWAY convertor
- 4 250 ohm Resistance
- 5 COMWAY Converter

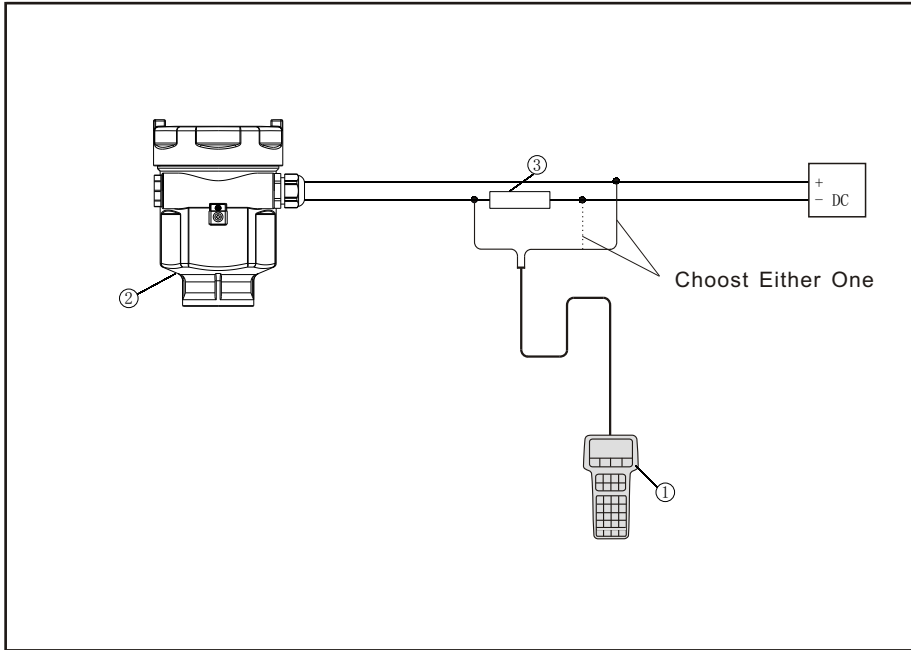
Connect with another unit through I²C.



- 1 RS232 Connect Cable/USB port
- 2 GDRD series
- 3 I²C adapter pont used on MOMWAY convertor
- 4 COMWAY Converter

HART Handheld Programmer

Adjust GDRD series with HART Handheld Programmer

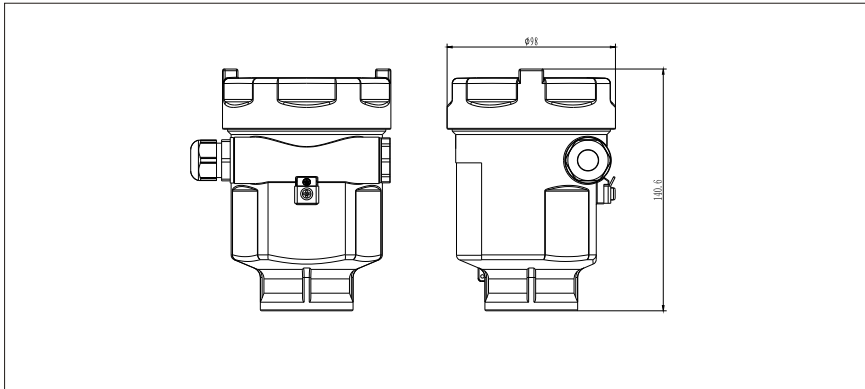


1 HART Handheld Programmer

2 GDRD series

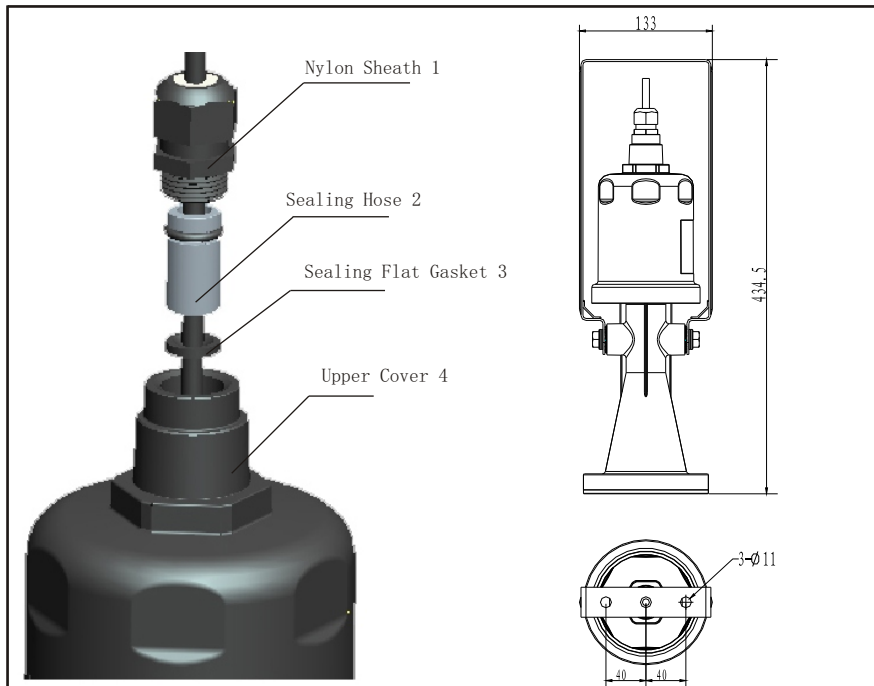
3 250 ohm Resistance

7 Dimension (Unit: mm)



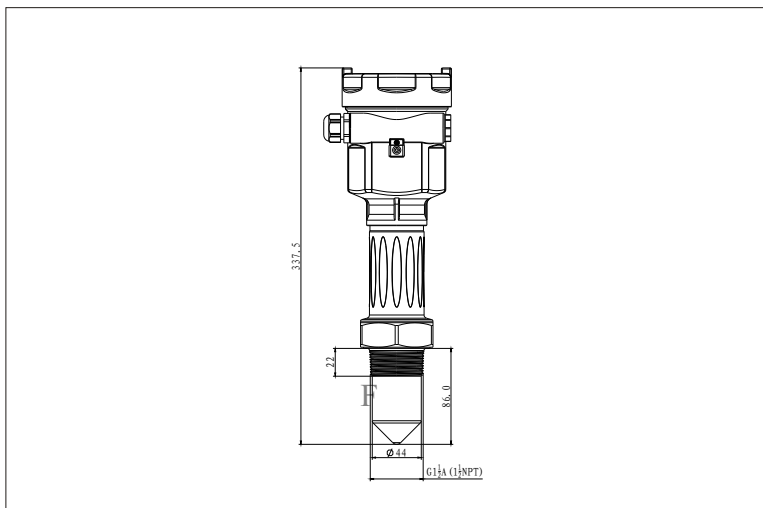
Housing

Material: AL/PBT/316L

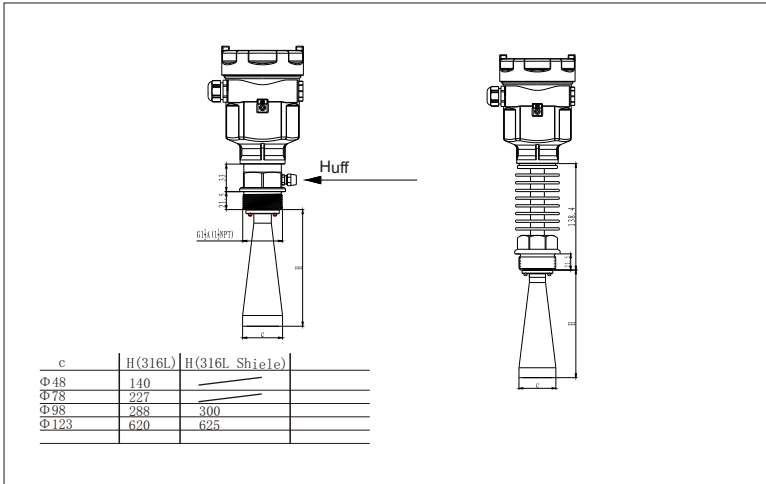


GDRD61

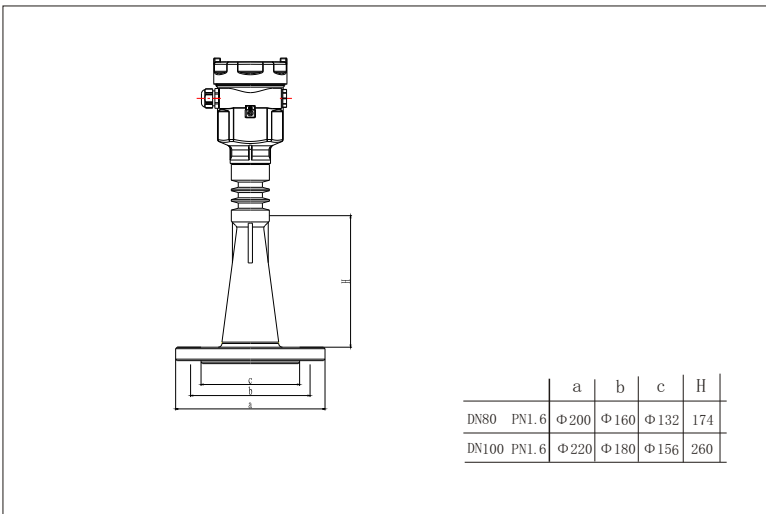
Note: To install from 4 to 1.
To remove from 1 to 4.



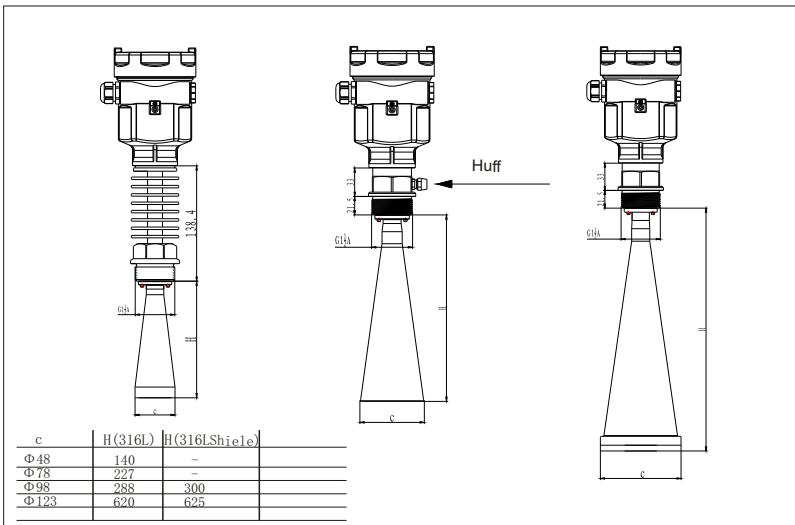
GDRD55 Threaded Vision



GDRD56 Threaded Vision

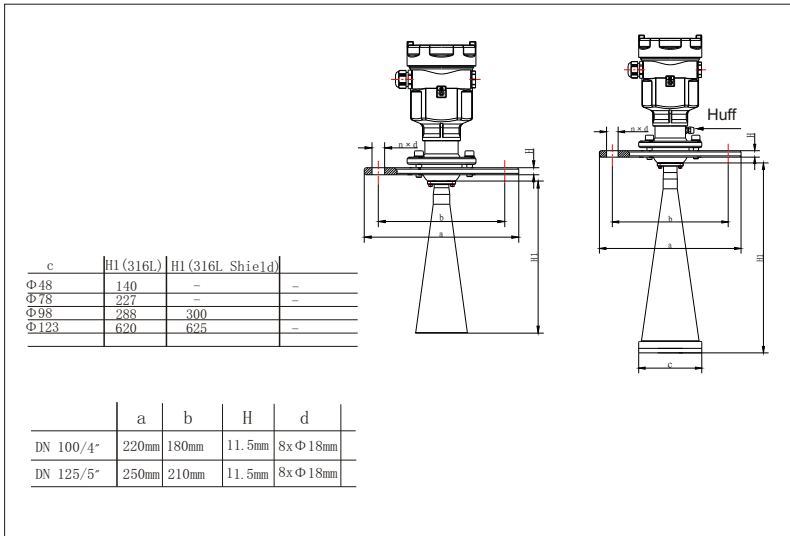


GDRD57 Flange Version

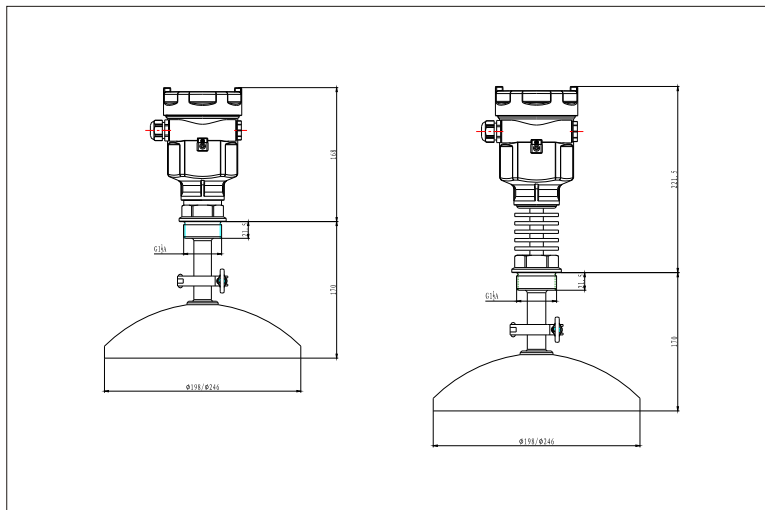


GDRD58 Threaded Vision

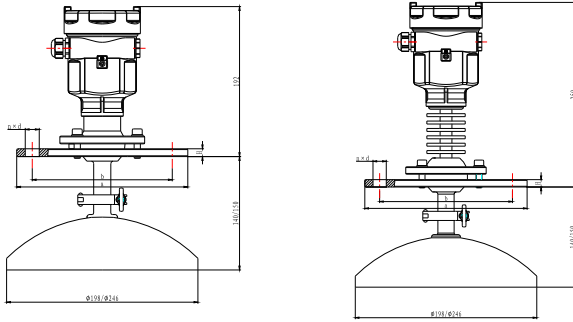
GDRD58 Gimbal Flange



GDRD58/59 Threaded Vision



GDRD58/59 Gimbal Flange



| | a | b | H | d |
|------------|-------|-------|------|------------|
| DN 100/4° | 220mm | 180mm | 10mm | 4 × φ 18mm |
| DN 125/5° | 250mm | 210mm | 10mm | 4 × φ 18mm |
| DN 150/6° | 285mm | 240mm | 10mm | 4 × φ 22mm |
| DN 200/8° | 340mm | 295mm | 10mm | 4 × φ 22mm |
| DN 250/10° | 405mm | 355mm | 10mm | 4 × φ 26mm |

8 Technical Specifications

- General Parameters

| series/Type | GDRD55 | GDRD56 | GDRD57 | GDRD58 | GDRD59 | GDRD61 |
|--------------------|-------------|-----------------------------|-------------|----------------------------|----------------------------|----------------|
| Process Connection | ThreadG1½A | ThreadG1½A | | ThreadG1½A | ThreadG1½A | Lifting Frame |
| | Thread1½NPT | Thread1½NPT | Flange 316L | Flange 316L | Flange 316L | Thread 1½NPT |
| Material | PP/PFA | Stainless Steel 316L PFA | PFA | Stainless Steel316L PFA | Stainless Steel316L PFA | Aluminum PP |

| | |
|---|--------------------------------|
| Housing | Aluminium,Stainless Steel 316L |
| Seal ring between housing and housing cover | Silicone |
| ViewPoint window on housing | Polycarbonate |
| Ground terminal | Stainless Steel |

| | | |
|---------|--|--|
| Weight | Weight | |
| | -GDRD61 | 1.6kg |
| | -GDRD55 | 1kg (Depend on process connections and housings) |
| | -GDRD56 | 2kg (Depend on process connections and housings) |
| | -GDRD57 | 3kg (Depend on process connections and housings) |
| | -GDRD58 | 7kg (Depend on process connections and housings) |
| -GDRD59 | 2kg (Depend on process connections and housings) | |

| | | |
|-----------------|-----------------------|---------------------|
| Power 2-wire | Standard Version | (21.6~26.4)V DC |
| | Power Consumption | max.22.5mA |
| | Ripple Allowed | |
| | -<100Hz | U _{ss} <1V |
| - (100~100K)Hz | U _{ss} <10mV | |

| | | |
|---------------------|----------------------------|---|
| Parameters on Cable | Cable Entry/Plug | One cable entry of M20x1.5 (cable diameter of 5~9mm) , one binding of M20x1.5 |
| | Spring Connection Terminal | Applicable for cables with cross section of 2.5mm ² |

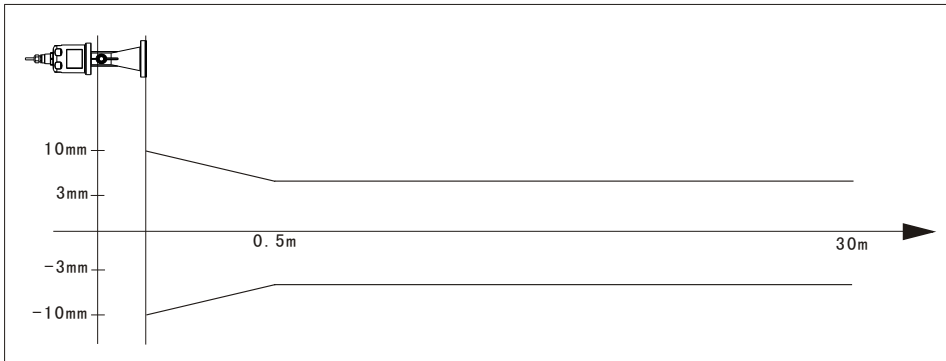
| | | |
|--------|-------------------------|--|
| Output | Output Signal | 4...20mA/HART |
| | Resolution | 1.6μA |
| | Fault Signal | Constant current output: 20.5mA; 22mA; 3.9mA |
| | -2-wire load resistance | See diagram below |
| | Integration Time | 0...40sec, adjustable |

| | | | |
|----------------------------|-----------------------------------|---|--------------|
| ● Characteristic parameter | Blanking Distance | End of Antenna | |
| | Max Measurement Distance | | |
| | | -GDRD55 | 10m (liquid) |
| | | -GDRD56 | 30m (liquid) |
| | | -GDRD57 | 20m (liquid) |
| | | -GDRD58 | 70m (solid) |
| | | -GDRD59 | 15m (solid) |
| | -GDRD61/61L | 30m/70m (liquid) | |
| | Measurement Interval | About 1sec (Depend on parameter settings) | |
| | Adjustment Time | About 1sec (Depend on parameter settings) | |
| | Resolution of Display | 1mm | |
| | Accuracy | See the diagram below | |
| | Temperature for Storage/Transport | (-40~100)°C | |
| | Process Temperature (Probe) | | |
| | -GDRD55 | (-40~130)°C | |
| | -GDRD56 | (-60~400)°C | |
| | -GDRD57 | (-40~150)°C | |
| | -GDRD58 | (-60~400)°C | |
| | -GDRD59 | (-40~200)°C | |
| | -GDRD61 | (-40~100)°C | |
| | Relative Humidity | <95% | |
| | Pressure | Max. 40MPa | |
| | Vibration Proof | Mechanical vibration 10m/s 10m ² /s , 10~150Hz | |

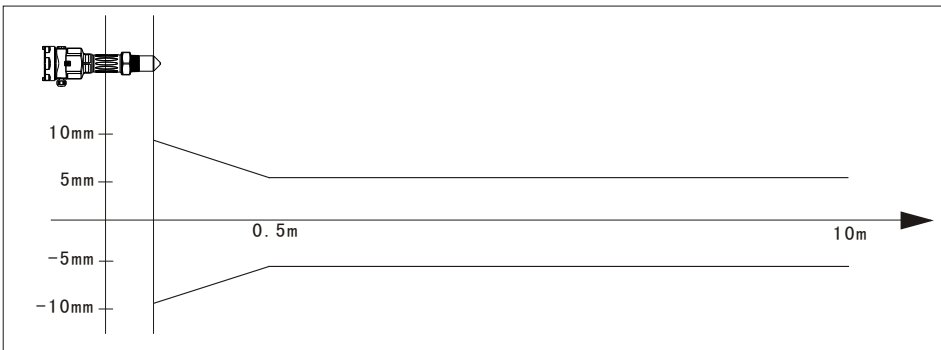
GDRD61

Accuracy

See the diagram below



GDRD55



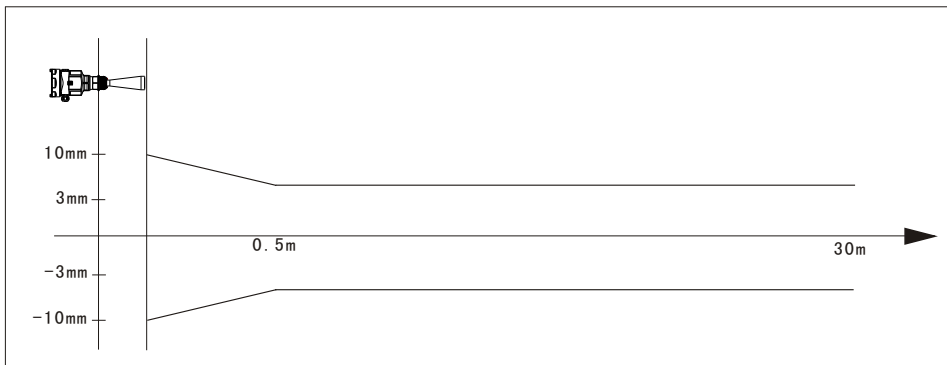
Accuracy See the diagram left

1) The generation of accurate measurement results needs longer time than usual in the event of drastic level changes(mx. Error 10%).

GDRD56

Accuracy

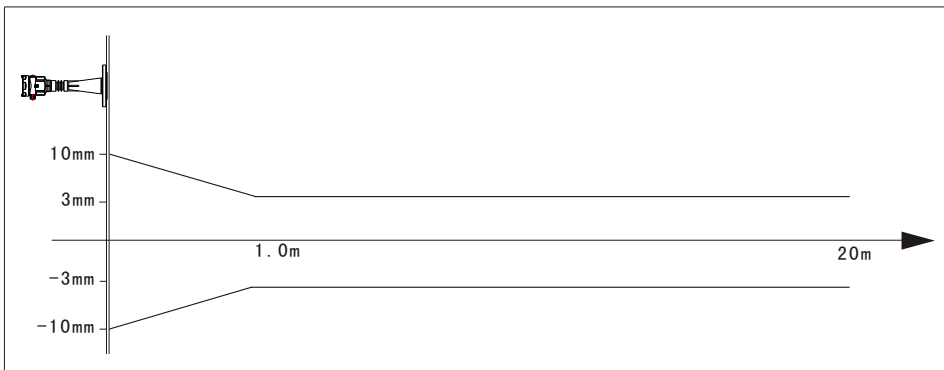
See the accuracy illustration diagram below



GDRD57

Accuracy

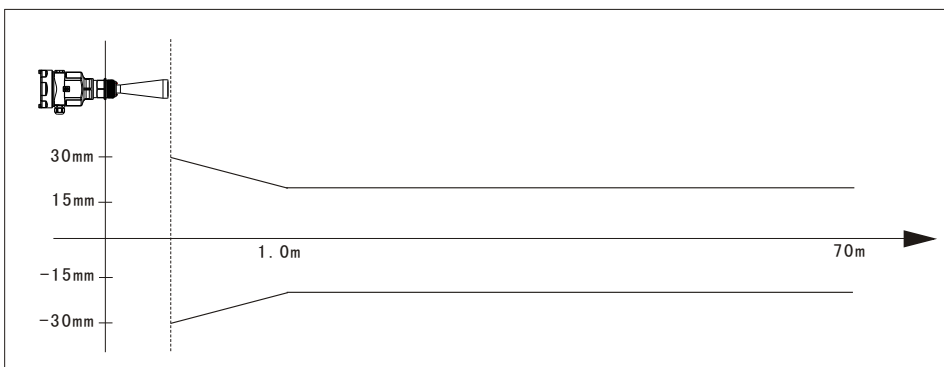
See the accuracy illustration diagram below



GDRD58

Accuracy

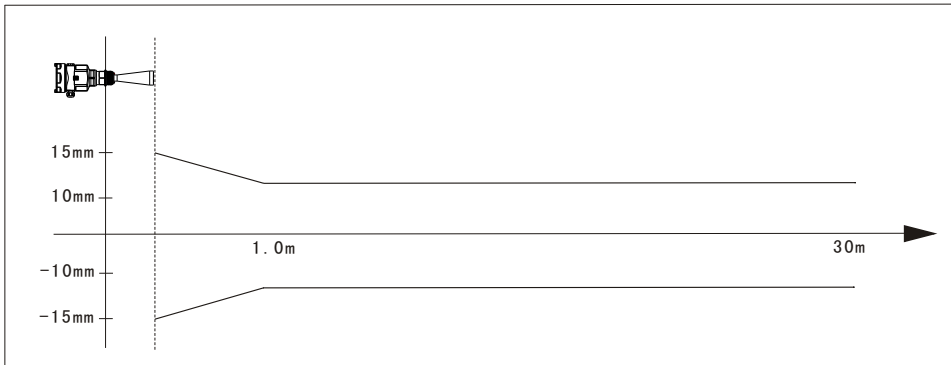
See the accuracy illustration diagram below



GDRD59

Accuracy

See the accuracy illustration diagram below



9 Selection & Ordering Information

● GDRD55

| |
|--|
| Explosion Proof Approval |
| P Standard |
| I Intrinsically Safe (Exia IIC T6 Ga) |
| Shape of Antenna/Material/Process Temperature |
| B (R) Airproof Horn Φ 78mm/L86/PTFE/(-40~130)°C |
| Process Connection/Material |
| GP (F) Thread G1½A |
| NP (F) Thread 1½NPT |
| Length of Vessel Socket |
| A NO |
| Electronic |
| B (4~20) mA/HART2-Wire |
| Housing/Protection |
| A Aluminium/IP67 |
| Cable Entry |
| M M20x1.5 |
| N ½NPT |
| Display/Programming |
| A Yes |
| X No |

● GDRD56

| | | | |
|--|--------|----------|---------------------|
| Explosion Proof Approval | | | |
| P Standard | | | |
| I Intrinsically Safe (Exia IIC T6 Ga) | | | |
| Shape of Antenna/Material/Process Temperature | | | |
| C (T)Horn Φ78mm/L227/Stainless Steel 316L | | | |
| H (T)Horn Φ98mm/L288/Stainless Steel 316L | | | |
| J (T)Horn Φ123mm/L620/Stainless Steel 316L | | | |
| Z (Z)Horn Φ78mm/Flexible/Stainless Steel 316L | | | |
| Process Connection/Material | | | |
| GP (H)thread G1½A/Stainless Steel 316L | | | |
| GA (H)thread 1½NPT/Stainless Steel 316L | | | |
| GB (G)thread G1½A/PP | | | |
| GC (J)thread G1½A/Stainless Steel 316L/temperature (-60~250)°C | | | |
| GE (I)thread G1½A/Stainless Steel 316L (Huff) | | | |
| Flange/Material | | | |
| Material Spec. Code | PP (L) | PTFE (L) | Stainless Steel (M) |
| DN50 | FA | FB | FC |
| DN80 | GA | GB | GC |
| DN100 | HA | HB | HC |
| DN125 | IA | IB | IC |
| F0 No | | | |
| Seal/Process Temperature | | | |
| 2 Viton (-60~150)°C | | | |
| 3 Kalrez (-60~250)°C | | | |
| 4 Graphite (-60~400)°C | | | |
| Electronic | | | |
| B (4~20)mA/HART 2-Wire | | | |
| Housing/Protection | | | |
| A Aluminium/IP67 | | | |
| Cable Entry | | | |
| M M20x1.5 | | | |
| N ½NPT | | | |
| Display/Programming | | | |
| A Yes | | | |
| X No | | | |


● GDRD57

| | |
|---------------------------|-------------------------------------|
| Explosion Proof Approval | |
| P | Explosion Proof Approval |
| I | Intrinsically Safe (Exia IIC T6 Ga) |
| Shape of Antenna/Material | |
| C | (U)Stainless Steel&PFA Flange DN80 |
| D | (U)Stainless Steel&PFA Flange Dn100 |
| Electronic | |
| B | (4~20)mA/HART 2-Wire |
| Housing/Protection | |
| A | Aluminium/IP67 |
| Cable Entry | |
| M | M20x1.5 |
| N | 1/2NPT |
| Display/Programming | |
| A | Yes |
| X | No |

● GDRD58

| | | | | | | |
|---|--------|----------|---------------------|--------------------|-------------------------------------|-----|
| Explosion Proof Approval | | | | | | |
| P Explosion Proof Approval | | | | | | |
| I Intrinsically Safe (Exia IIC T6 Ga) | | | | | | |
| Shape of Antenna/Material | | | | | | |
| C (T)Horn Φ78mm/L227/Stainless Steel316L | | | | | | |
| H (T)Horn Φ98mm/L288/Stainless Steel316L | | | | | | |
| J (T)Horn Φ123mm/L620/Stainless Steel316L | | | | | | |
| M (V)Horn Φ98mm/L300/Stainless Steel316L/PFA Shield | | | | | | |
| P (V)Horn Φ123mm/L625/Stainless Steel316L/PFA Shield | | | | | | |
| Q (W)Paraboloid Φ198mm/Stainless Steel316L | | | | | | |
| R (W)Paraboloid Φ246mm/Stainless Steel316L | | | | | | |
| Z (Z)Horn Φ78mm/Flexible/Stainless Steel316L | | | | | | |
| Process Connection/Material | | | | | | |
| GP (H) Thread G1½A/Stainless Steel316L | | | | | | |
| GA (H) Thread 1½NPT/Stainless Steel316L | | | | | | |
| GB (G) Thread G1½A/PP | | | | | | |
| GC (J) Thread G1½A/Stainless Steel316L/ Temperature (-60~250)°C | | | | | | |
| GE (I) Thread G1½A/Stainless Steel316L (Huff) | | | | | | |
| GF (E) Thread G1½A/Stainless Steel316L/Temperature (-60~250)°C | | | | | | |
| Flange/Material | | | | | | |
| Material Spec. Code | PP (L) | PTFE (L) | Stainless Steel (M) | Gimbal Flange (PP) | (N) Gimbal Flange (Stainless Steel) | (P) |
| DN50 | FA | FB | FC | - | - | |
| DN80 | GA | GB | GC | - | - | |
| DN100 | HA | HB | HC | HD | HE | |
| DN125 | IA | IB | IC | ID | IE | |
| F0 No | | | | | | |
| Seal/Process Temperature | | | | | | |
| 2 Viton (-60~150)°C | | | | | | |
| 3 Kalrez (-60~250)°C | | | | | | |
| 4 Graphite (-60~400)°C | | | | | | |
| Electronic | | | | | | |
| B (4~20)mA/HART 2-Wire | | | | | | |
| Housing/Protection | | | | | | |
| A Aluminium/IP67 | | | | | | |
| Cable Entry | | | | | | |
| M M20x1.5 | | | | | | |
| N ½NPT | | | | | | |
| Display/Programming | | | | | | |
| A Yes | | | | | | |
| X No | | | | | | |

● GDRD59

| | | | | |
|---|--------|----------|---------------------|-------------------------------------|
| Explosion Proof Approval | | | | |
| P Explosion Proof Approval | | | | |
| I Intrinsically Safe (Exia IIC T6 Ga) | | | | |
| Shape of Antenna/Material | | | | |
| C (T)Horn Φ78mm/L227/Stainless Steel316L | | | | |
| H (T)Horn Φ98mm/288/Stainless Steel316L | | | | |
| J (T)Horn Φ123mm/L620/Stainless Steel316L | | | | |
| M (V)Horn Φ98mm/L300/Stainless Steel316L/PFA Shield | | | | |
| P (V)Horn Φ123mm/L625/Stainless Steel316L/PFA Shield | | | | |
| Q (W)Parabolic Φ198mm/Stainless Steel316L | | | | |
| R (W)Parabolic Φ246mm/Stainless Steel316L | | | | |
| Z (Z)Horn Φ78mm/Flexible | | | | |
| Process Connection/Material | | | | |
| GP (H) Thread G1½A/Stainless Steel316L | | | | |
| GA (H) Thread 1½NPT/Stainless Steel316L | | | | |
| GB (G)thread G1½A/PP | | | | |
| GE (I) Thread G1½A/Stainless Steel316L (Huff) | | | | |
| GF (E) Thread G1½A/Stainless Steel316L/Temperature (-60~250)°C | | | | |
| Flange/Material | | | | |
|  | PP (L) | PTFE (L) | Stainless Steel (M) | Gimbal Flange (Stainless Steel) (P) |
| DN50 | FA | FB | FC | - |
| DN80 | GA | GB | GC | - |
| DN100 | HA | HB | HC | HE |
| DN125 | IA | IB | IC | IE |
| DN150 | JA | JB | JC | JE |
| DN200 | KA | KB | KC | KE |
| DN250 | LA | LB | LC | LE |
| FO No | | | | |
| Seal/Process Temperature | | | | |
| 2 Viton (-60~80)°C | | | | |
| 3 Kalrez (-60~250)°C | | | | |
| Electronic | | | | |
| B (4~20) mA/HART 2-Wire | | | | |
| Housing/Protection | | | | |
| A Aluminium/IP67 | | | | |
| Cable Entry | | | | |
| M M20x1.5 | | | | |
| N ½NPT | | | | |
| Display/Programming | | | | |
| A Yes | | | | |
| X No | | | | |



● GDRD61

| | |
|------------------------------------|---|
| Explosion Proof Approval | |
| P | Standard(max measurement range of 30m) |
| I | Intrinsically Safe Exia IIC T6 Ga |
| L | Enhanced(max measurement range of 70m) |
| Shape of Antenna/Material | |
| P | Horn Φ 78mm/L221/PA66 |
| Process Connection/Material | |
| GB | THREAD 1" NPT PP |
| GD | LIFTING FRAME |
| Electronic | |
| B | (4~20)MA/HART |
| Housing/Protection | |
| A | IP68 |
| Programming | |
| A | Yes |
| X | No |
| Sunshield | |
| A | Yes |
| X | No |
| Cable | |
| | A Standard twin-core shielded (length of 10m) B Length of twin-core shielded(length:X m) C Length of 7-core shielded lead(length:X m) |

10 Application Questionnaire

Approvals

- Standard Version
 Intrinsically Safe Version (Exia IIB T6 Ga)
 Intrinsically Safe Version (Exia IIC T6 Ga)
 Intrinsically Safe Version+Explosion Proof (Exdia [ia Ga] IIC T6 Gb)

Measured Medium

Name _____
 Condition Liquid Solid Form Mass Particle Dust)
 Temperature: Min. _____ °C Norm. _____ °C Max. _____ °C
 Surface Flat Turbulent Agitated Vortex
 Dielectric Constant $\epsilon_r < 3$ $\epsilon_r > 3$

Atmosphere

Atmosphere Form Foam Dust Deposit Vapour
 Atmosphere Pressure Min. _____ Norm. _____ Max. _____

Vessel

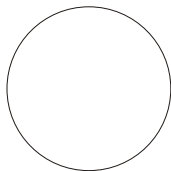
Shape of Top Flat Arch Conical Horizontal
 Height _____ Diameter _____
 Critical Information
 Nozzle Length: _____ Nozzle Diameter: _____ Measurement Range: _____

Process Connection

Thread (G $\frac{3}{4}$ A $\frac{3}{4}$ NPT G1A G1A, M105x2 G1 $\frac{1}{2}$ A 1 $\frac{1}{2}$ NPT G2A)
 Flange (DN=) Swivelling Holder

Installation

Mode: Top Side
 Filling Stream inlet position and installation position (Please specify in the diagram below)



Circular Vessel



Square Vessel

Power Supply 220V AC 2-wire 24V DC 3-wire 24V DC 4-wire 24V DC

Communication (4~20) mA/HART

Display Yes No

Customer Information

Contact: _____
 Company: _____
 Address: _____
 P. C.: _____ Tel: _____
 Email: _____ Fax: _____

Please give brief explanation on the application of instrument:

Date: _____



Beijing GODA Instruments Co., Ltd.



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