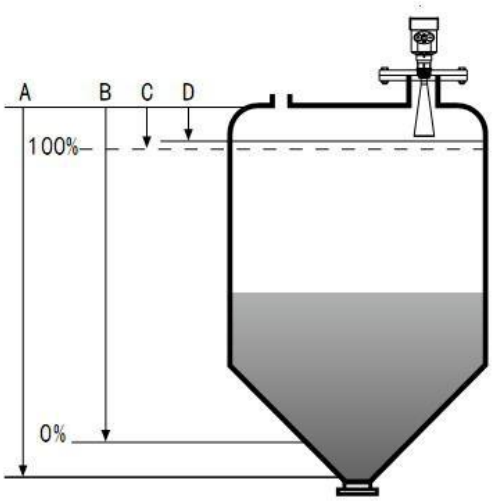
26GHz High Frequency Radar Level Transmitter Instruction

1. Product Description

RD1000A Series Radar Level Transmitter is high-frequency level measurement instruments with the maximum measuring distance up to 70 meters. The antenna is further optimized, and the new-type microprocessor can perform higher rate of signal analysis and processing, making the instrument available for complex measurement conditions, such as reactors, solid silos.

Principle

Radar level antenna emits narrow microwave pulses that transmitted down by the antenna. The microwave comes into contact with the measured medium surface then reflected back and receiving by the antenna system. The signal is transmitted to electronic circuit and partly convert to level signals (as the microwave featured with high propagation speed, it's almost instantaneous for the electromagnetic waves to reach the target and return to the receiver)



A	Measuring range setting
B	Min. adjustment
C	Max. adjustment
D	Near blanking

Note: When applying the radar level transmitter, make sure that the highest material level cannot reach the measurement blind spot (the territory that indicate as D)

Features of 26GHz Radar Level Transmitter

·Small antenna size, easy to install; non-contact radar, no wear, no pollution.

·Almost free from corrosion, foam impact; hardly affected by the change of the temperature, pressure and water vapor in the atmosphere.

·Severe dust environment is not likely to affect the work of the high-frequency level transmitter.

·Shorter wavelength can achieve better reflection for the inclined solid surface.

·The small field angle and energy concentration, enhanced echo capabilities, and beneficial to avoid interference.

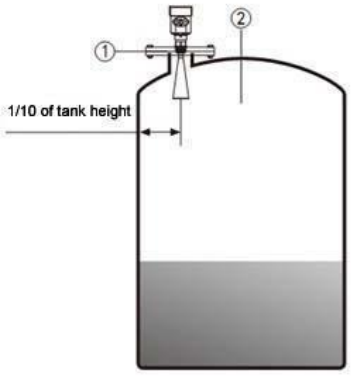
·Minimized measuring blind spot can gain better result of small tank

measurement. ·High SNR, even in the case of fluctuations can result in better

performance. ·High frequency, the best choice to measure solids and low dielectric media.

2. Installation Requirements

Installation Guideline

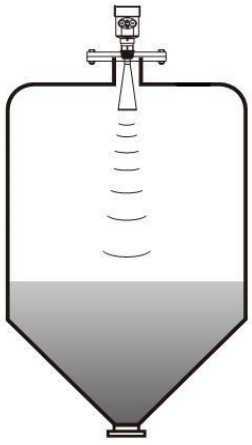


Installed in a quarter or sixth of the diameter. Note: The minimum distance from the tank wall shall be tenth of the tank height.

Note: ①datum plane

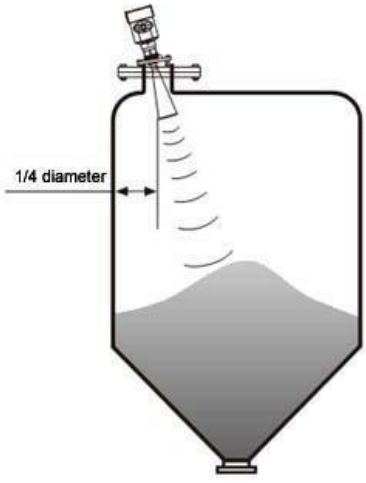
②vessel center or axis of symmetry

For conical tank top plane, it can be installed on the middle of the tank top to ensure the measurement of the conical bottom.



When there's the material pile, the antenna need to perpendicularly alignment to the material surface. If the material is uneven, and the heap angle is large then the universal flange is needed to adjust the horn angle to aim the charge level.

(Due to the inclination of the solid surface

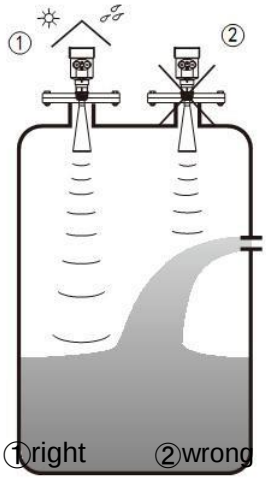


it will cause the echo decay, or even

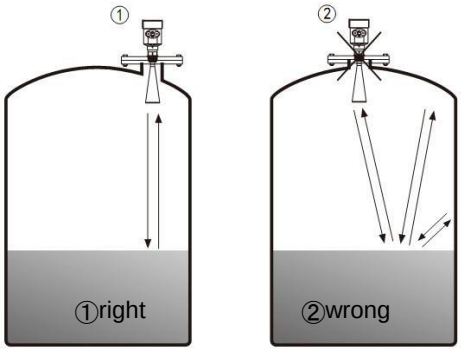
the signal loss problem)

Radar cannot be installed above the tapered tank into the mouth;

In outdoor installation, sunshade and rainproof measures should be taken.



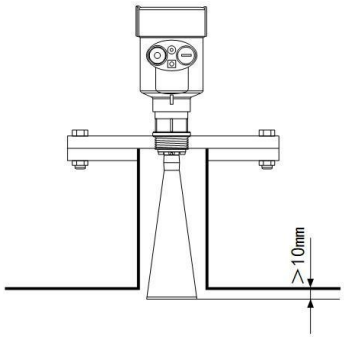
Instrument cannot be installed in the middle of the arch or round tank top. In addition to indirect echo, it will be affected by multiple echo. The multiple echoes may be larger than the true echo signal threshold, because the top can be concentrated by multiple echoes. It cannot be installed in a central position.



When the tank obstacles affect the measurement, the reflect board must be installed for proper measurement.

①right ②wrong

The pipe joint height requirements: it must ensure that the antenna extends into the tank for at least 10mm.



3. Electrical connection

Supply voltage

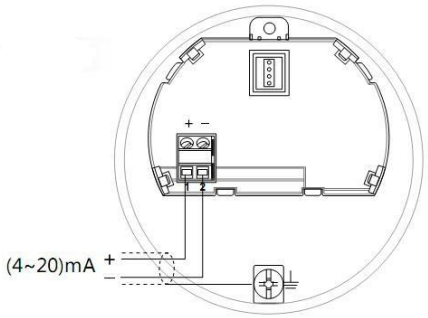
(4～20) mA/HART (two-wire) Power supply and output current signals share a two-core shielded cable. Specific supply voltage ranges see technical data. For intrinsically safe power supply, guard grating should be added between supply power and the instrument.

(4～20) mA/HART (four-wire) Power supply and current signal is separated by individually using a cable. Specific supply voltage ranges see technical data.

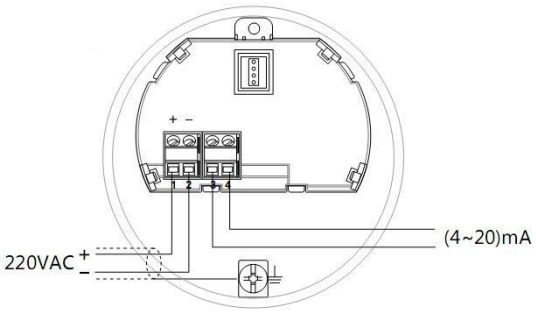
RS485/Modbus The supply voltage and Modbus signal line respectively use a shield cable. Specific supply voltage ranges see technical data.

Connection type

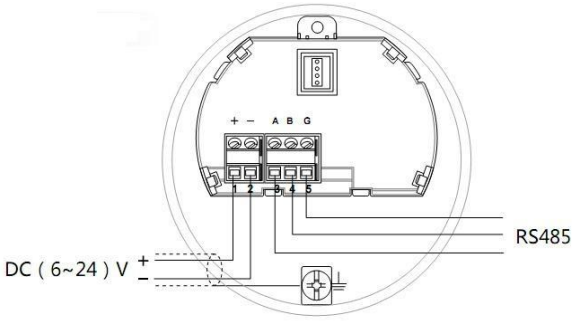
24V two-wire wiring diagram:



220V four-wire wiring diagram:



24V RS485/Modbus wiring diagram：



Safety guidance

Please comply with local electrical installation regulations requirements! Please abide by local health and safety personnel procedures requirements.

All operations on the instrument electrical components must be done by properly trained professionals.

Please check the meter nameplate to ensure that product specifications meet your requirements. Make sure that the supply voltage fit the meter nameplate requirement.

Protection grade

The instruments fully meet the requirements of protection class IP66/67; make sure the cable sealing head waterproofness. As shown below: