HWM510 26G HZ Radar Level Meter

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1.Overview

The HWM510 is a 26G HF radar level measuring instrument with a maximum distance of 30 meters. The antenna is farther optimized, and the new fast microprocessor allows for higher-rate signal analysis, allowing the instrument to be used in complex measurement conditions such as reactors, temperature, pressure, and slightly corrosive liquids.

Working principle：
The radar level antenna transmits a narrower microwave pulse and is transmitted downward through the antenna. After the microwave contacts the surface of the measured medium, it is reflected back and received by the antenna system again. The signal is transmitted to the electronic circuit and automatically converted into a level signal (because the microwave propagates at a very fast speed, the electromagnetic wave reaches the target and is reflected back to the receiver. The time used is almost instantaneous).

The reference plane for measurement is: the bottom surface of the thread or the sealing surface of the flange.
Note: When using the radar level timer, make sure that the highest level cannot enter the measurement dead zone (the area shown in D in the figure).

2.Features

- The antenna size is small and easy to install; non-contact radar, no wear and no pollution.
- Almost free from corrosion and foam; almost unaffected by changes in water vapor temperature and pressure in the atmosphere
- The beam angle is small, the energy is concentrated, and the echo capability is enhanced while avoiding interference.
- The measurement blind zone is smaller, and good results can also be obtained for small can measurement.
- High signal-to-noise ratio, even in the case of fluctuations, can get better performance.Using advanced microprocessors and unique EchoDiscovery echo processing technology, it can be applied to a variety of complex conditions.

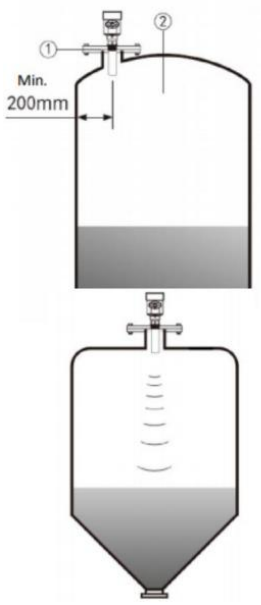
3.Technical Parameters

HYM270
Applications： Liquid, temperature pressure slightly corrosive liquid
Frequency range： 26G
Antenna： horn (stainless steel 316L)
Measuring range： 80m

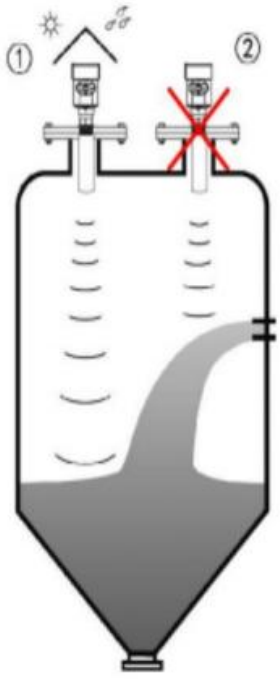
Frequency range： 26GHz
Accuracy： ±3mm
Process temperature： -40~+80°C, -40∽+130°C
Process pressure： -0.1 ∽4.0Mpa
Process connection： Flange (selective)
Protection class: IP67
Explosion-proof grade: Exia II CT6(selective)
Signal output： 4...20mA/HART/RS485/Modbus...

4. Mounting Requirements

Mounting Position
Minimum distance of 200mm between instrument and vessel ail during installation
1. Reference Plane
2.Center of Vessel or Symmetrical Axis



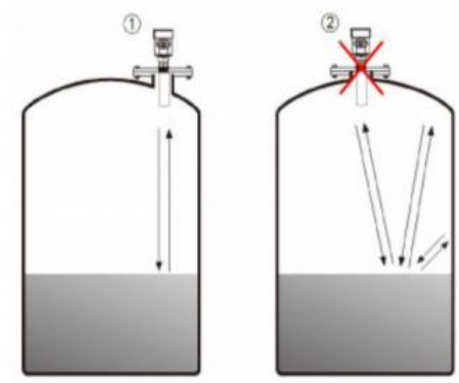
The best mounting position for a conical vessel with flat top is the center of its top, as the effective measurement can reach the bottom of vessel.



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

Rights and Wrongs in Mounting

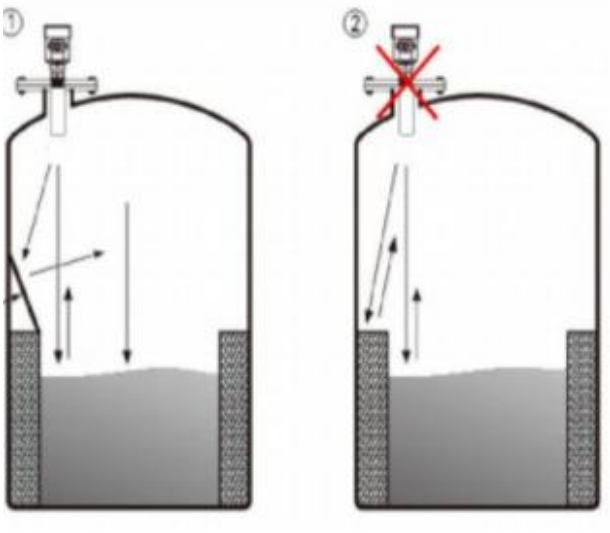
1.Correct
2. Wrong:Instruments are mounted in the center of concave or arched vassal tops, which results in multiple echoes.



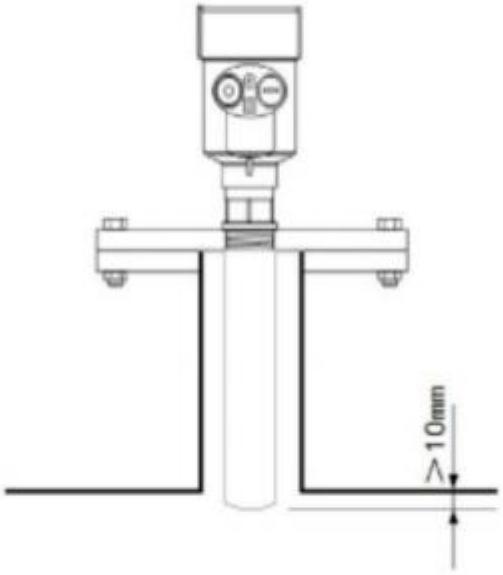
Reflector installation

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.

1.Correct
2. Wrong



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



5.Electrical Connection

• Power Supply

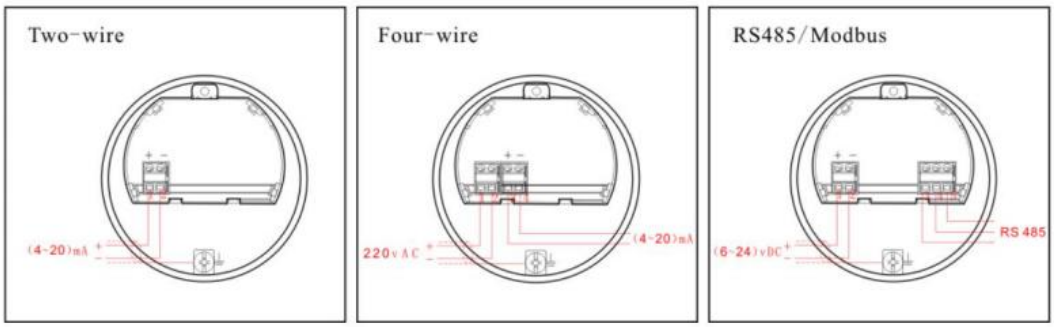
Two-wire

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. 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 cables in the event of electromagnetic Connection cable with special earth wire can be used as feeder cable. Connection cable with special earth wire can be used as feeder cable.

Four-wire

Power supply and current signal are carried by two 2-wire connection cables respectively. 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. 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 in order to dampen the low frequency grounding current and avoid the disturbance caused by high frequency signals



•Safety instruction

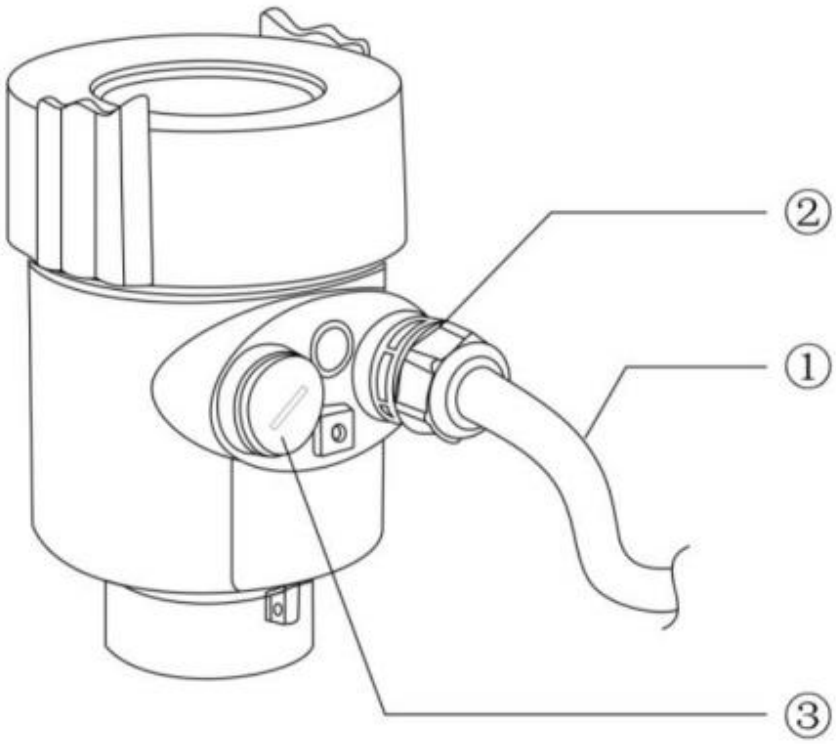
1)Please comply with the local electrical installation code requirements!

2)Please comply with local codes of health and safety.All operation of the electrical components of the instrument musl be completed by a professional trained professional.

3)Please check the nameplate of the instrument to ensure that the product specifications meet your requirements.Please ensure that the supply voltage is consistent with the requirements on the instrument nameplate.

•Protection class：

This instrument fully meets the requirements of protection grade ip66/67, please ensure the waterproof of cable seal head.The diagram below:



Please ensure that the scaling head is not damaged.
Please make sure the cable is not damaged.
Please ensure that the cables used comply with the electrical connection specification.
Bend the cable down before entering the electrical interface to ensure water
It does not flow into the shell, see ①
Please tighten the cable seal head and see②
Please plug the unused electrical interface in blind. See③

6.Adjustment Instructions

Three adjustment methods available for HYM806

• Display/Adjustment Module

Debug your meter by displaying four buttons on the screen.The language of the debug menu is optional.After debugging, it is generally used only to show that the measured value can be clearly read through the glass window.

1.LCD
2.Adjustment Keypad

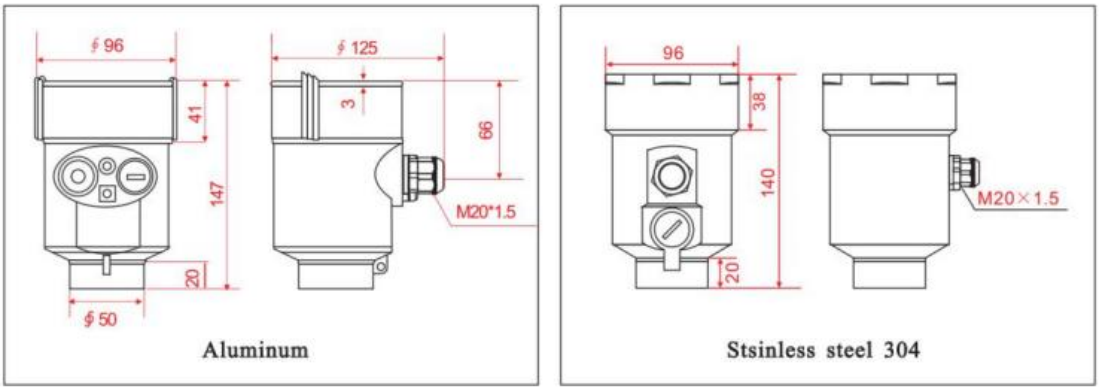
• Adjustment software ware

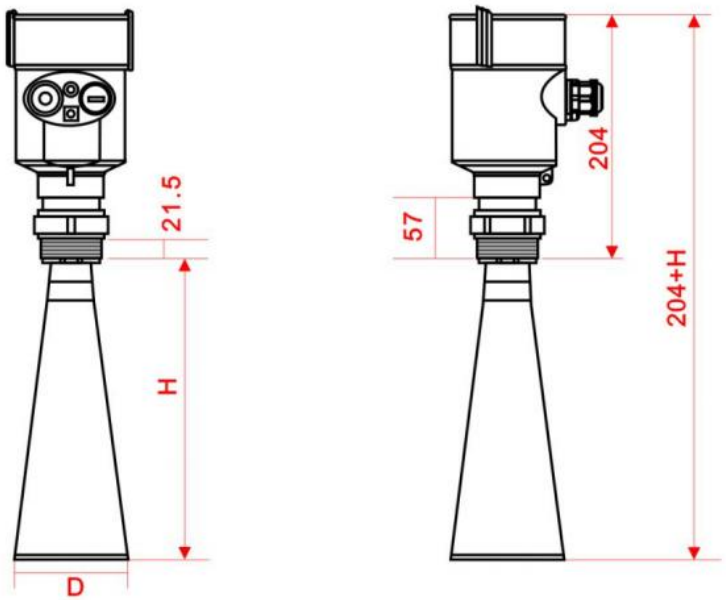
©RS232 connect cable or USB port
②Radar level meter
③HART
④Resistance: 250Q

• HART handheld programmer
①RS232 connect cable or USB port
②Radar level meter
③Resistance: 250Q

7.Dimensional Drawings

Dimensions of the shell structure of the radar level meter (unit: mm)
There are two types of radar level meter:
One is the cast aluminum shell and the other is a stainless steel case.Customized design can be made according to customer requirement and site condition





8.Technical Specifications

Housing Material	Steel 316L	
Seal Ring Between Housing and Housing Cover	Silicon	
View Point window on housing	Polycarbonate	
Ground terminal	Stainless Steel	
Power		
	Two-wire	standard version: (16~36)VDC
		Intrinsic safe version: (21.6~26.4)VDC
		Power consummption: max.22.5m.A
		Ripple allowed
		-<100Hz Uss<lV
		-(<100-<100K) HzUss<10mV
	Four-wire/two	intrinsic safe+explosion proof (21.6~26.4) V DC
	-chamber	Power consumption max.IVA.1W
Cable	Cable entry/plug one cable entry of M20x1.5, one blind of M20xl.5	
	Spring Connection terminal Application for cables with cross section of 2.5mm2	
Output		
Output signal	4~20mA/HART	
Resolution	1.6 u a	
Fault signal	Constant current output:20.5mA: 22mA: 3.9mA	
Integration time	0~50 seconds.adjustable	
Blind spot	end of antenna	
Max measurement distance	80m	
Microwave frequency	26GHz	
Measurement interval	about I sec.(depend on parameter settings)	
Adjustment time	about I sec.(depend on parameter settings)	
Resolution on display	1mm	
Temperature for storage/transport	(40~80)℃	
Process temperature (probe)	(-40~250)℃	
Relative humidity	<95%	
Pressure	Max4MPa	
Vibration proof	mechanical vibration 10m/s*(10~150)Hz	

Ordering Guide

Item NO.	Type						
HWM510	Radar Level Meter						
	Code	Type					
	F80	Flange DN80					
	F100	Flange DN100					
	Other	Customized					
		Code	Temperature				
		N	Normal 40~+80° C				
		H	High -40~+130° C				
			Code	Supply Power			
			V1	24VDC			
			V2	220VAC			
				Code	Length of the probe		
				B	Horn Antenna		
					Code	Output	
					B1	4-20mA	
					B1A	4-20mA four wires	
					B7	RS485	
					B8	HART	
						Code	
						L	-0.1~4Mpa
HWM510	F80	N	V1	B	B1	L	