

# PHRD 90 Series Radar Level Meter

## Catalogue



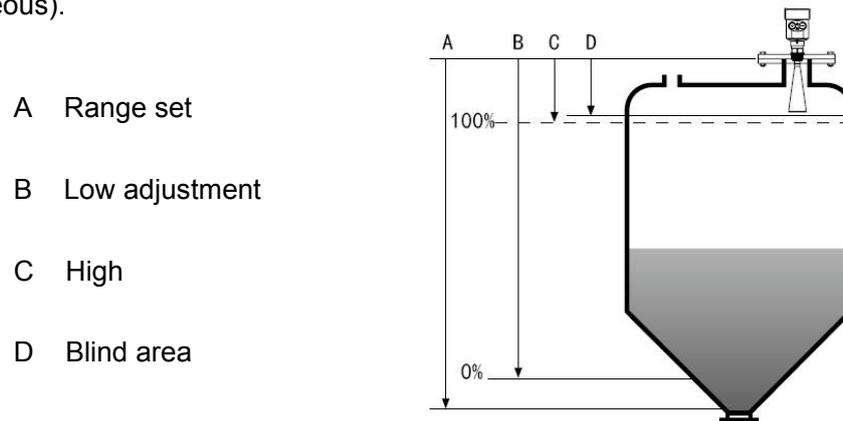
## ➤ 26G Radar Level Meter

### 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).



**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

### RD91



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

### RD92



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

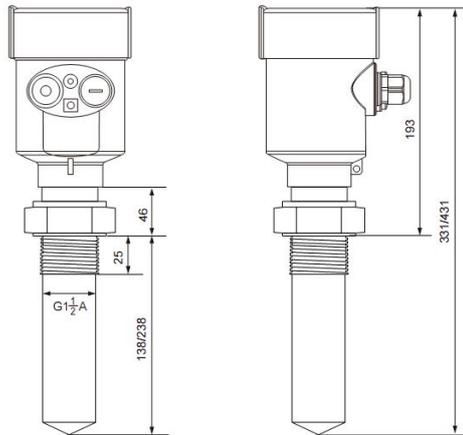
### RD93



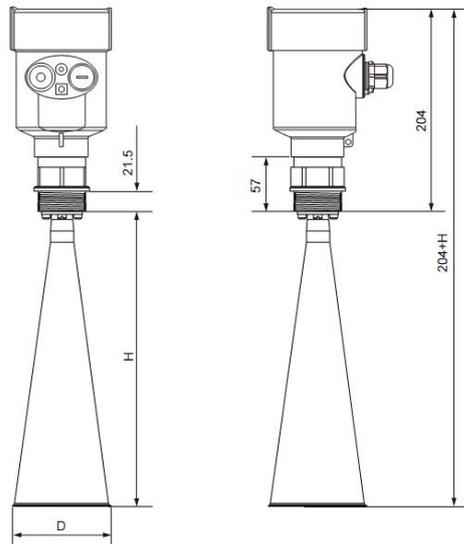
Application: Solid material, Strong dust  
 Measuring Range: 70 meters  
 Process Connection: Universal Flange  
 Medium Temperature:  $-40^{\circ}\text{C} \sim 250^{\circ}\text{C}$   
 Process Pressure:  $-0.1 \sim 0.1 \text{ MPa}$   
 Protection Grade: IP67  
 Accuracy:  $\pm 15\text{mm}$   
 Frequency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

➤ ● Appearance size:

**RD91**

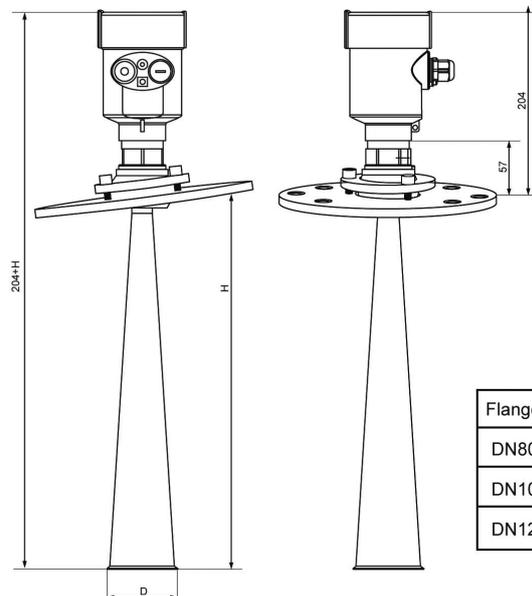


**RD92**



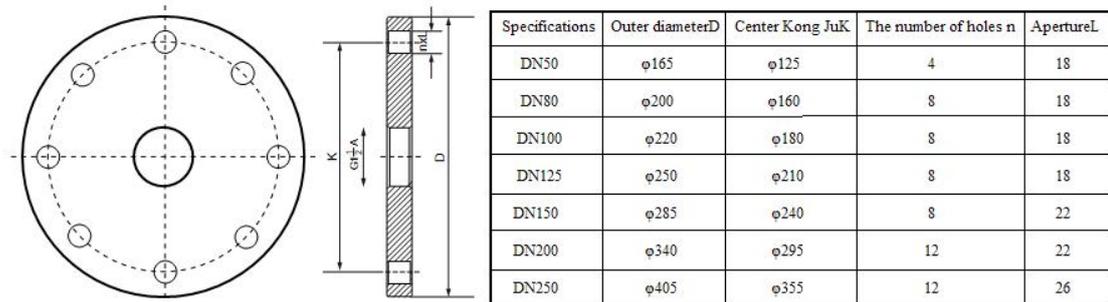
Flange	The Bell Diameter D	Bell height H
DN50	Φ46	140
DN80	Φ76	227
DN100	Φ96	288

**RD93**



Flange	The Bell Diameter D	Bell height H
DN80	Φ76	227
DN100	Φ96	288
DN125	Φ121	620

● **Flange type:**



### 3. 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	U <sub>ss</sub> <IV
- (100~100K) Hz	U <sub>ss</sub> <10mV

#### The cable parameters

Cable entrance / plug	One M20x1.5 cable entrance One blind plug
Terminal	Conductor cross section 1.0mm <sup>2</sup>

#### 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

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<b>The maximum distance measurement</b>	70 meters
<b>Microwave frequency</b>	26GHz
<b>Communication interface</b>	HART communication protocol
<b>The measurement interval</b>	about 1 second (depending on the parameter settings)
<b>Adjust the time</b>	about 1 second (depending on the parameter settings)
<b>Display resolution</b>	1 mm
<b>Working storage and transportation temperature</b>	(-40~100) °C
<b>Process temperature</b> (the temperature of the antenna part)	(-40~250)°C
<b>Pressure</b>	Max.4MPa
<b>Seismic</b>	Mechanical vibration 10m/s <sup>2</sup> , (10 ~ 150) Hz

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## 4. Product Model Selection

- RD91

### License

- P Standard (Non-explosion-proof)
- I Intrinsically safe (Exia IIC T6 Ga)
- D Flameproof (Exd IIC T6 Gb)

### Antenna Type / Material / Temperature

F Sealing horn / PTEE / -40... 120 °C

### 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 With
- X Without

- **RD92**

**License**

- P Standard (Non-explosion-proof)
- I Intrinsically safe (Exia IIC T6 Ga)
- D Flameproof (Exd IIC T6 Gb)

**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) °C
- K Kalrez / (-40~250) °C

**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 With
- X Without

● **RD93**

**License**

- P Standard (Non-explosion-proof)
- I Intrinsically safe (Exia IIC T6 Ga)
- D Flameproof (Exd IIC T6 Gb)

**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) °C
- K Kalrez / (-40~250) °C

**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 With
- X Without



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