

Datasheet  
Radar level transmitter  
SUP-RD

Medium for:  
Liquids, Solids

**Supmea<sup>®</sup>**

Committed to process automation solutions

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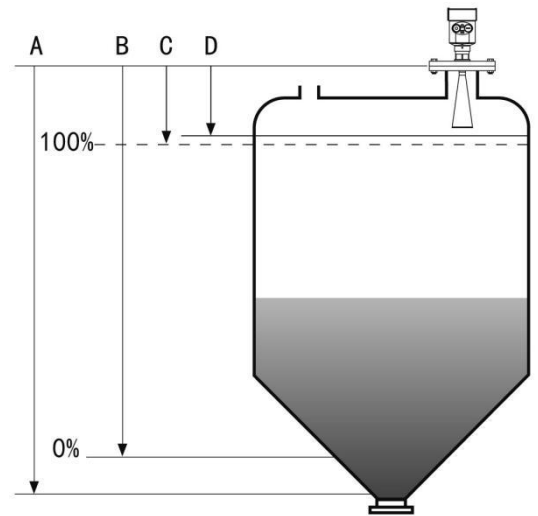
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## Measuring principle

When the product surface reflects the pulse, the meter receives the reflection. Then the device calculates how long it took the pulse to return and translates that time delay into a level measurement.

The level of the liquid (or solid) is measured by radar signals transmitted from the antenna at the tank top. After the radar signal is reflected by the liquid surface the echo is picked up by the antenna. As the signal is varying in frequency the echo has a slightly different.



- A Range set
- B Low adjustment
- C High
- D Blind area

**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).

## Advantages


Non-contact radar technology is characterized by extremely high accuracy. The measurement is influenced neither by fluctuating product features nor by changing process conditions such as temperature, pressure or strong dust generation. The user-friendly adjustment without vessel filling and emptying saves time.

### The characteristics of 26G radar level meter

- (1) Small antenna size, easy to install; Non-contact radar, no wear, no pollution.
- (2) Almost no corrosion, bubble effect; almost not affected by water vapor in the atmosphere, the

- temperature and pressure changes.
- (3) Serious dust environment on the high level meter work has little effect.
- (4) A shorter wavelength, the reflection of solid surface inclination is better.
- (5) Beam angle is small, the energy is concentrated, can enhance the ability of echo and to avoid interference.
- (6) The measuring range is smaller, for a measurement will yield good results.
- (7) High signal-to-noise ratio, the level fluctuation state can obtain better performance.
- (8) High frequency, measurement of solid and low dielectric constant of the best choice.

**Type overview**

RD901	RD902	RD902T
		
<p>Application: Corrosive liquid</p>	<p>Application: Slightly corrosive liquid</p>	<p>Application: Temperature resistant, pressure resistant, slightly corrosive liquid</p>
<p>Measuring Range: 10 meters</p>	<p>Measuring Range: 30 meters</p>	<p>Measuring Range: 20 meters</p>
<p>Process Connection: Thread, Flange</p>	<p>Process Connection: Thread, Flange</p>	<p>Process Connection: Thread, Flange</p>
<p>Process Temperature: -40°C~130°C</p>	<p>Process Temperature: -40°C~250°C</p>	<p>Process Temperature: -40°C~130°C(Standard type) -40°C~250°C(High temp. type)</p>
<p>Process Pressure: -0.1 ~ 0.3 MPa</p>	<p>Process Pressure: -0.1 ~ 4.0 MPa</p>	<p>Process Pressure: -0.1 ~ 2.0 MPa</p>
<p>Accuracy: ± 5mm</p>	<p>Accuracy: ± 3mm</p>	<p>Accuracy: ± 3mm</p>
<p>Protection Grade:IP67</p>	<p>Protection Grade:IP67</p>	<p>Protection Grade:IP67</p>
<p>Frequency Range: 26GHz</p>	<p>Frequency Range: 26GHz</p>	<p>Frequency Range: 26GHz</p>
<p>Supply: 2-wire (DC24V) 4-wire (DC24V /AC220V)</p>	<p>Supply: 2-wire (DC24V) 4-wire (DC24V /AC220V)</p>	<p>Supply: 2-wire (DC24V) 4-wire (DC24V /AC220V)</p>
<p>Signal Output: 4-20mA /HART (2-wire / 4-wire) RS485/ Modbus</p>	<p>Signal Output: 4-20mA /HART (2-wire / 4-wire) RS485/ Modbus</p>	<p>Signal Output: 4-20mA/RS485/ Modbus</p>
	<p>Outer covering: Aluminum / plastic / stainless steel</p>	

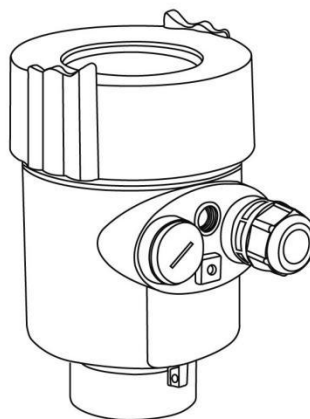
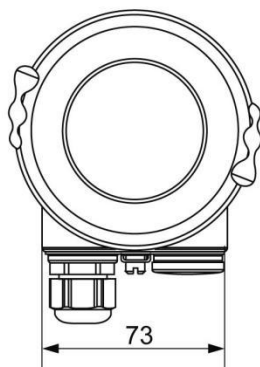
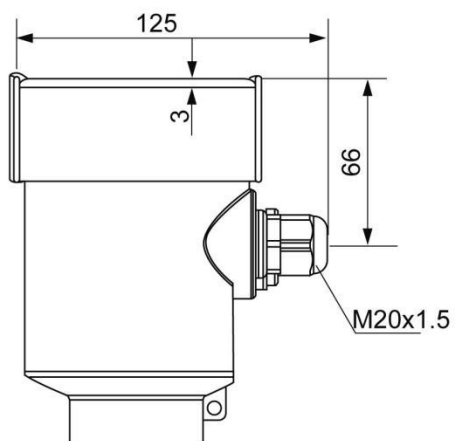
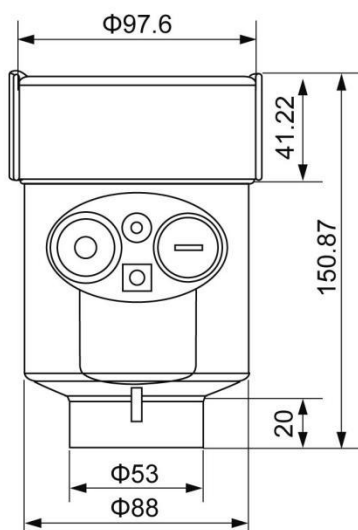
**Type overview**

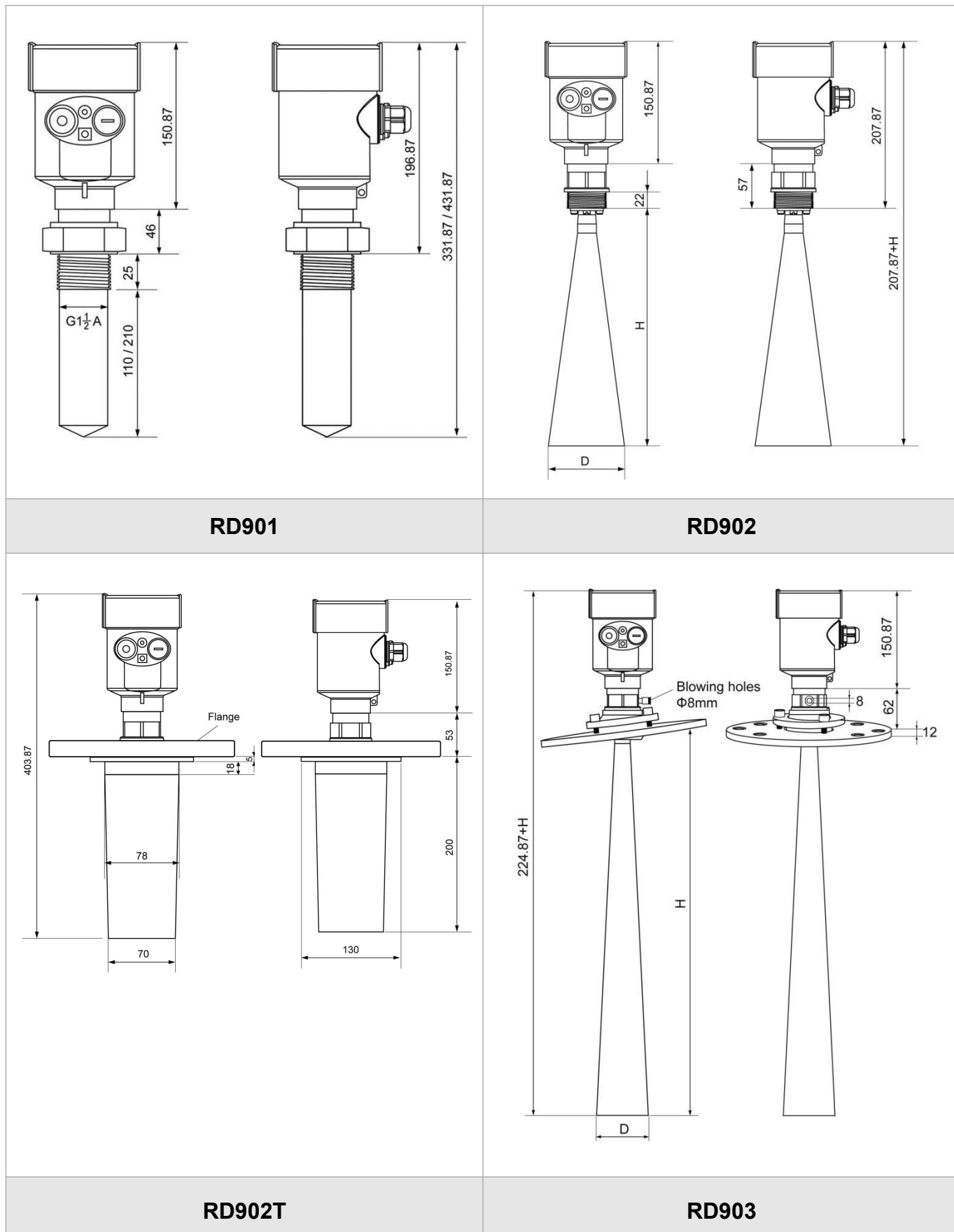
RD903	RD904	RD905
		
<p>Application: Solid material, Strong dust, easy to crystallize, condensation occasion</p>	<p>Application: Temperature resistant, pressure resistant, slightly corrosive liquid</p>	<p>Application: Solid particles, Powder</p>
<p>Measuring Range:70 meters</p>	<p>Measuring Range:80 meters</p>	<p>Measuring Range:30 meters</p>
<p>Process Connection :Universal flange</p>	<p>Process Connection: Thread, Flange</p>	<p>Process Connection: Thread, Flange</p>
<p>Process Temperature: -40℃~250℃</p>	<p>Process Temperature: -40℃~250℃</p>	<p>Process Temperature: -40℃~250℃</p>
<p>Process Pressure: -0.1 ~ 0.3 MPa</p>	<p>Process Pressure: -0.1 ~ 0.3 MPa</p>	<p>Process Pressure: -0.1~4.0 MPa(Flat flange) -0.1 ~ 0.3 MPa(Universal flange)</p>
<p>Accuracy: ± 15mm</p>	<p>Accuracy: ± 15mm</p>	<p>Accuracy: ± 10mm</p>
<p>Protection Grade: IP67</p>	<p>Protection Grade: IP67</p>	<p>Protection Grade: IP67</p>
<p>Frequency Range: 26GHz</p>	<p>Frequency Range: 26GHz</p>	<p>Frequency Range: 26GHz</p>
<p>Supply: 2-wire (DC24V) 4-wire (DC24V /AC220V)</p>	<p>Supply: 2-wire (DC24V) 4-wire (DC24V /AC220V)</p>	<p>Supply: 2-wire (DC24V) 4-wire (DC24V /AC220V)</p>
<p>Signal Output: 4-20mA / RS485/ Modbus</p>	<p>Signal Output: 4-20mA /RS485/ Modbus</p>	<p>Signal Output: 4-20mA /RS485/ Modbus</p>

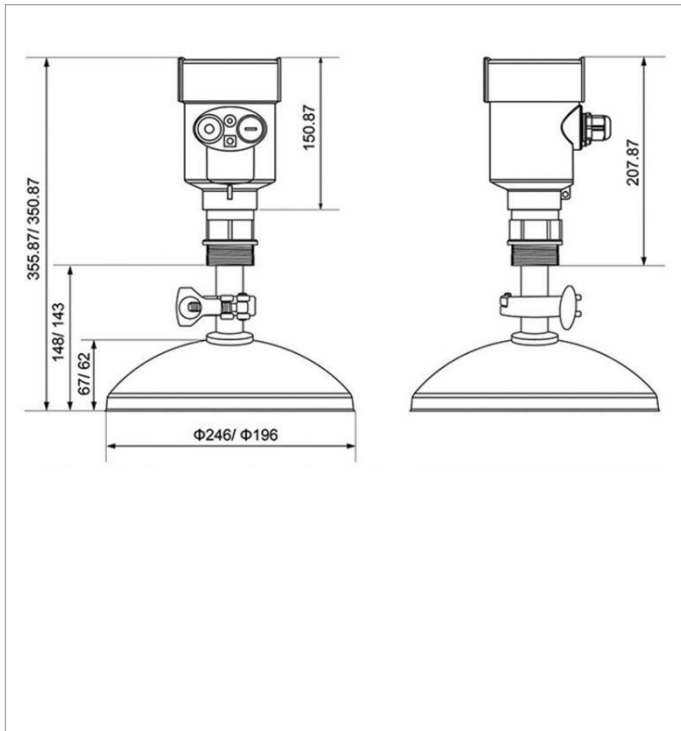
**Type overview**

RD906	RD908	RD909
		
<p>Application: Hygienic liquid storage, Corrosive container</p>	<p>Application: Rivers, lakes, shoal</p>	<p>Application: Rivers, lakes, shoal</p>
<p>Measuring Range: 20 meters</p>	<p>Measuring Range: 30 meters</p>	<p>Measuring Range: 70 meters</p>
<p>Process Connection: Flange</p>	<p>Process Connection: Thread G1½ A"/Frame /Flange</p>	<p>Process Connection: Thread G1½ A"/Frame /Flange</p>
<p>Process Temperature: -40°C~150°C</p>	<p>Process Temperature: -20°C~100°C</p>	<p>Process Temperature: -20°C~100°C</p>
<p>Process Pressure: Normal pressure</p>	<p>Process Pressure: Normal pressure</p>	<p>Process Pressure: Normal pressure</p>
<p>Accuracy: ± 3mm</p>	<p>Accuracy: ± 3mm</p>	<p>Precision: ±10mm</p>
<p>Protection Grade: IP67</p>	<p>Protection Grade: IP67/ IP65</p>	<p>Protection Grade: IP67/ IP65</p>
<p>Frequency Range: 26GHz</p>	<p>Frequency Range: 26GHz</p>	<p>Frequency Range: 26GHz</p>
<p>Supply: 2 wire (DC24V) 4-wire (DC24V /AC220V)</p>	<p>Power Supply: 4-wire (6 - 24VDC) 2-wire (24V DC)</p>	<p>Supply: 4-wire (6 - 24VDC) 2-wire (24V DC)</p>
<p>Signal output: 4-20mA /RS485/ Modbus</p>	<p>Signal output: 4-20mA /RS485/ Modbus</p>	<p>Signal output: 4-20mA /RS485/ Modbus</p>

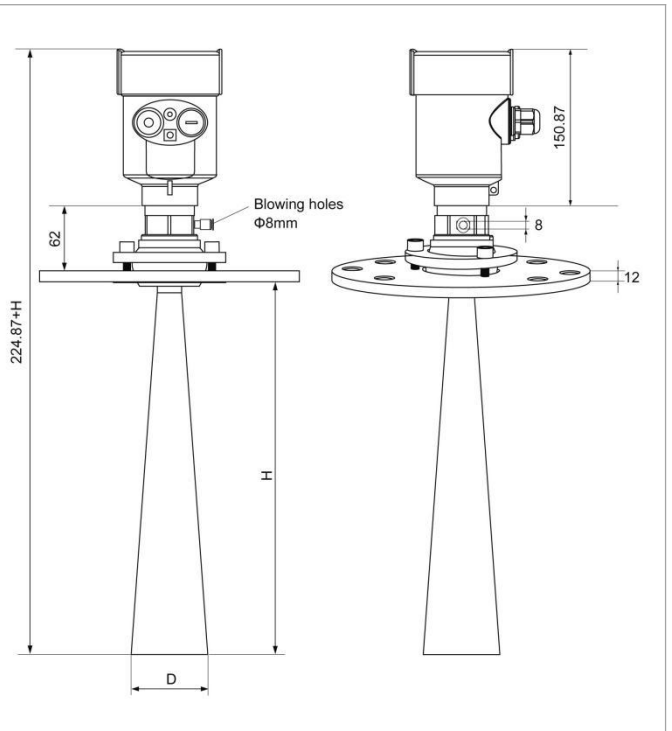
Dimension



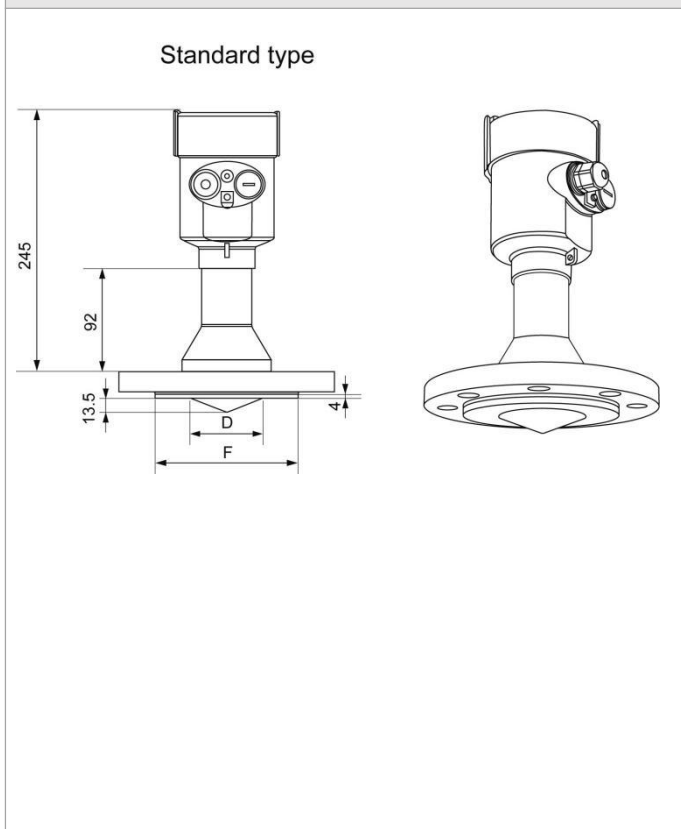




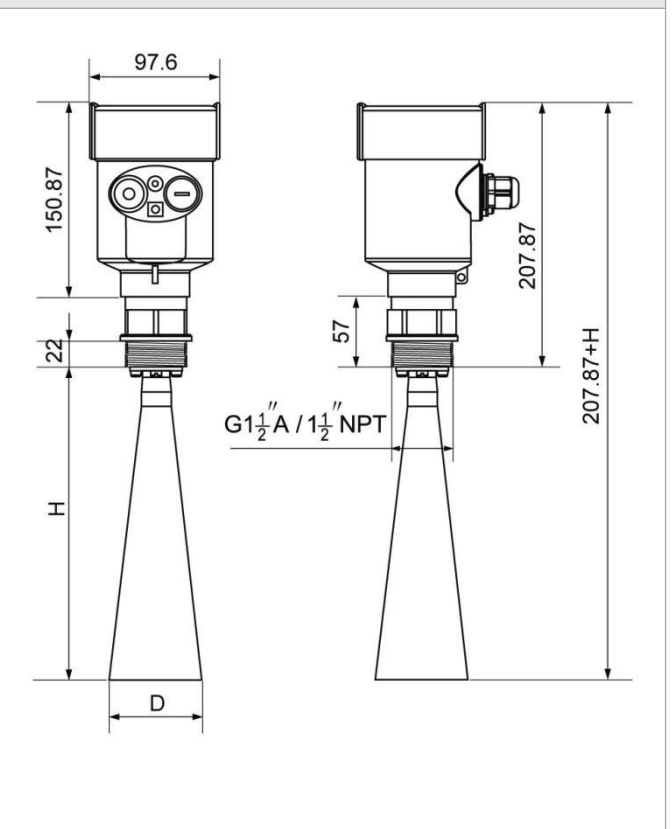
**RD904**



**RD905**

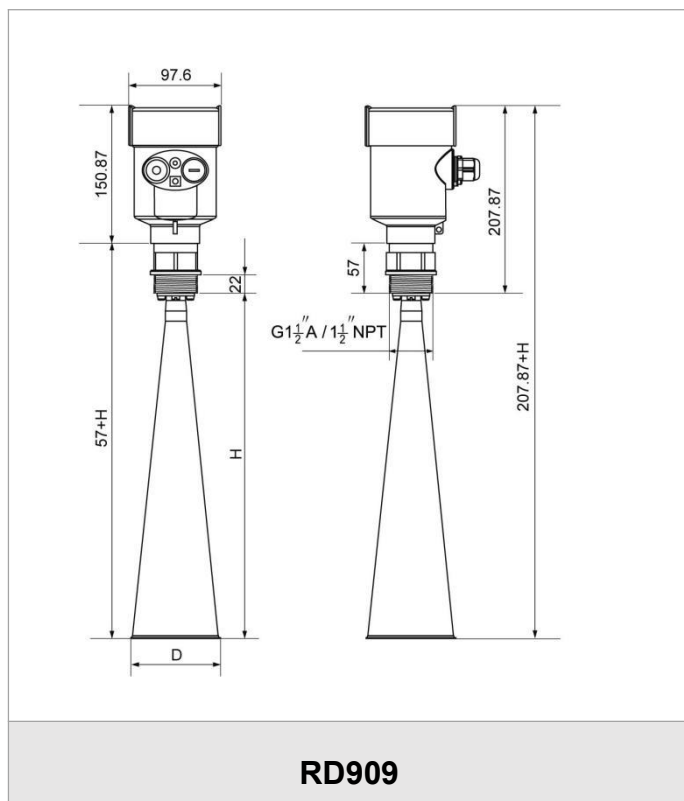


**RD906**

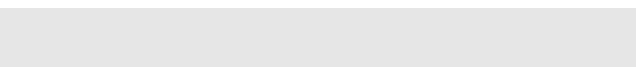
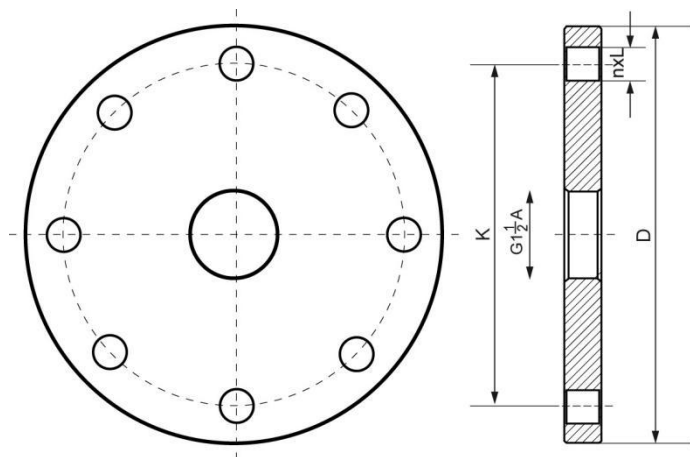


**RD908**





**Dimension**



**Flange Selection Tables**

Specification	Outer diameter D	Hole center distance K	Number of Holes n	Hole diameter 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

**Electrical Connection**

**The power supply voltage**

- (4~20)mA/HART (Two wire system)

The power supply and the output current signal sharing a two core shield cable. The supply voltage range see technical data. For intrinsically safe type must be a safety barrier between the power supply and the instrument.

- (4~20)mA/HART(Four wire system)

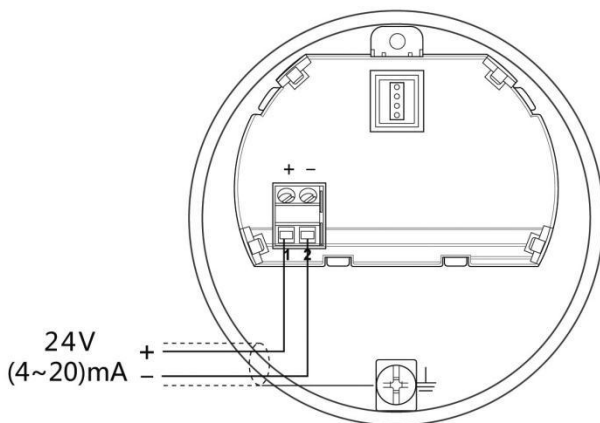
Separate power supply and the current signal, respectively using a two-core shielded cable. The supply voltage range see technical data.

- RS485 / Modbus

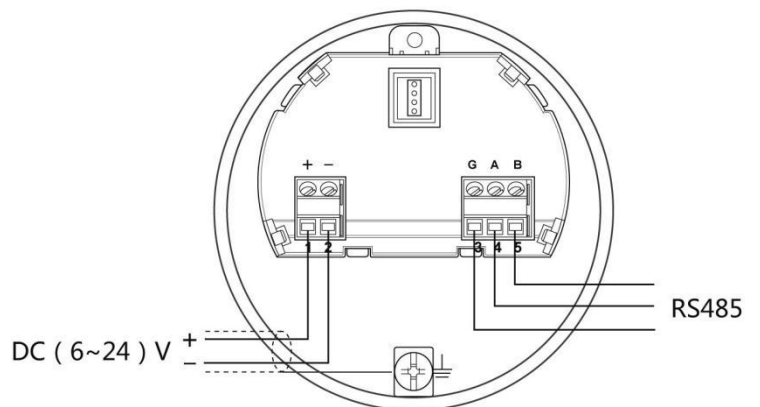
Power supply and Modbus signal line separated respectively using a two-core shielded cable, the power supply voltage range see technical data.

**Connection mode**

- ▶ 24V two wire wiring diagram as follows:



- ▶ 6~24V RS485/Modbus wiring diagram as follows:



**Ordering code**

Model: SUP-RD												
Medium	MM1											Liquid
	MM2											Solid powder
	MM3											Solid particles
	MM4											Solid block
	MM5											Water conservancy project
	MMZ											
Range	RT1											0 - 10m
	RT2											0 - 15m
	RT3											0 - 20m
	RT4											0 - 25m
	RT5											0 - 30m
	RT6											0 - 35m
	RT7											0 - 40m
	RT8											0 - 45m
	RT9											0 - 50m
	RT10											0 - 55m
	RT11											0 - 70m
	RTZ											
Display	DT0											Without display
	DT1											With display
Output	O1											Two-wire 4 - 20mA output
	O2											Four-wire 4 - 20mA output
Communication protocol	D0											Without
	D1											RS485
	D2											HART
Power supply				V1								AC220V

	V2								DC24V
Installation	I1								G1/2(Threaded installation)
	I2								NPT1/2(Threaded installation)
	I3								DN80(Flange installation)
	I4								DN100(Flange installation)
	I5								DN125(Flange installation)
	I6								DN150(Flange installation)
	Iz								Other
Diameter of bell mouth	BD1								76mm
	BD2								96mm
	BD3								121mm
Pressure	P1								-0.1 - 0.3MPa
	P2								-0.1 - 4MPa
	PZ								Other
Temperature	T1								-40 - 150℃
	T2								-40 - 250℃
Material	B1								304 stainless steel
	B2								316L stainless steel
	B3								PTFE
Ingress Protection	IP1								IP67
	IP2								IP65
Accessories	AT0								Without Accessories
	AT1								Purge
	AT2								Dust cover



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