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ACCURATE FLOW CONTROL & MEASUREMENT INSTRUMENTS

Radar level transmitter
RD series Datasheet

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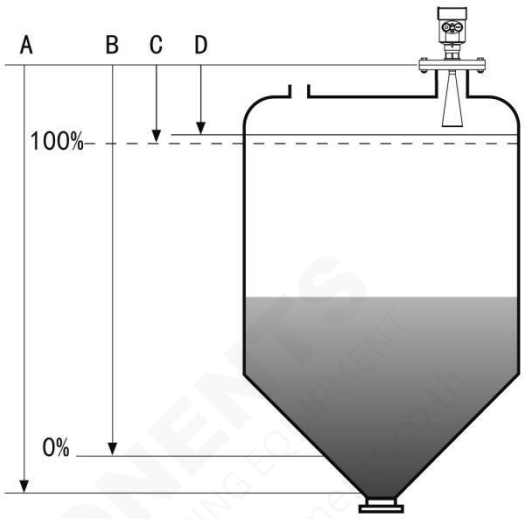
Radar level transmitter

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.

Radar level transmitter

Type overview

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

Radar level transmitter

Type overview

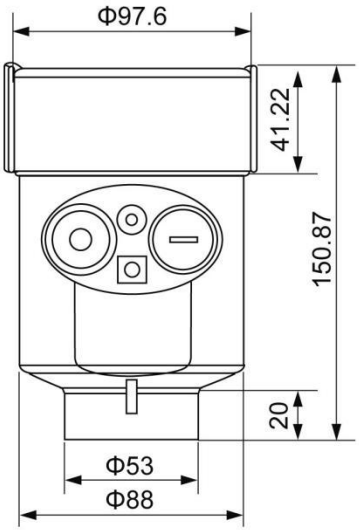
RD903	RD904	RD905
		
Application: Solid material, Strong dust, easy to crystallize, condensation occasion	Application: Temperature resistant, pressure resistant, slightly corrosive liquid	Application: Solid particles, Powder
Measuring Range:70 meters	Measuring Range:80 meters	Measuring Range:30 meters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

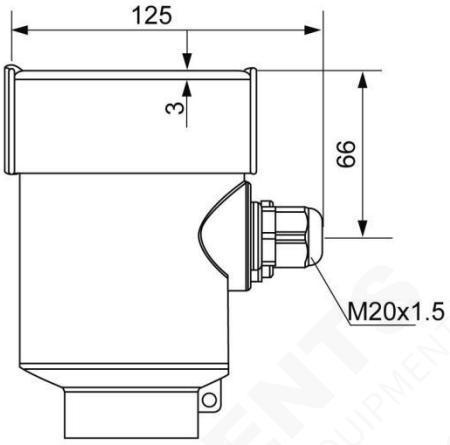
Radar level transmitter

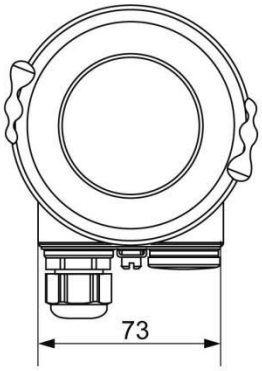
RD906	RD908	RD909
		
Application: Hygienic liquid storage, Corrosive container	Application: Rivers, lakes, shoal	Application: Rivers, lakes, shoal
Measuring Range: 20 meters	Measuring Range: 30 meters	Measuring Range: 70 meters
Process Connection: Flange	Process Connection: Thread G1½ A"/Frame /Flange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

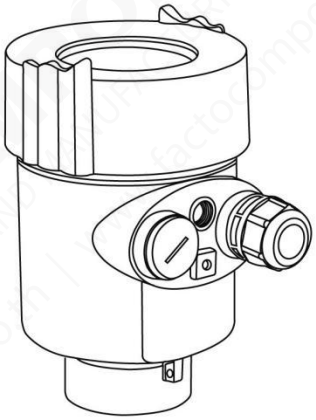
Radar level transmitter

Dimension

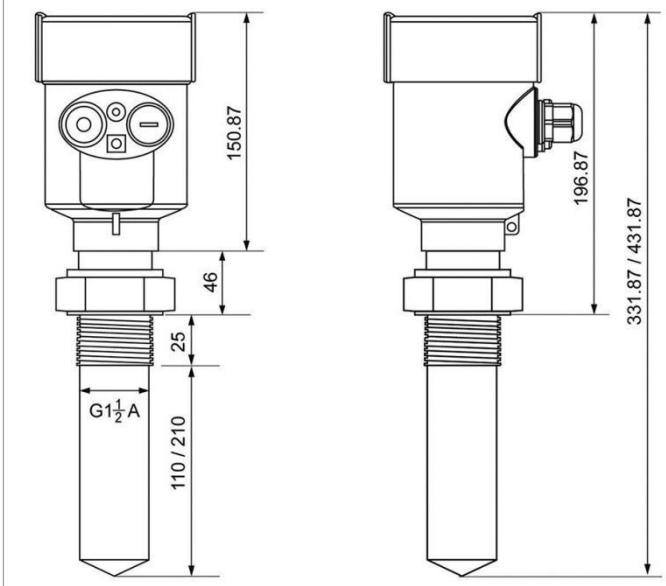




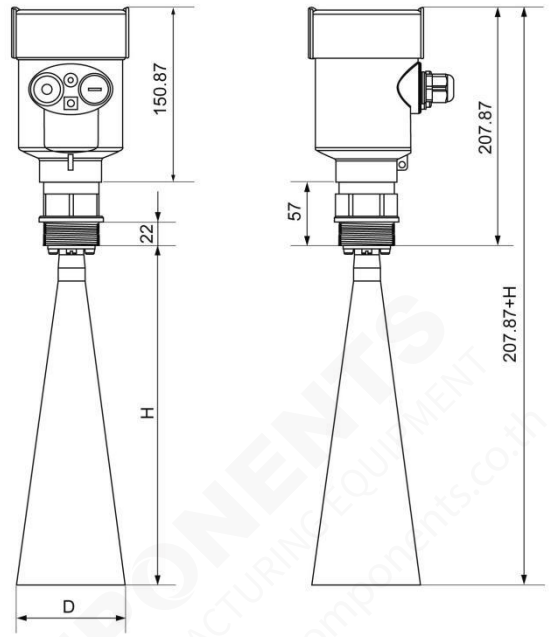




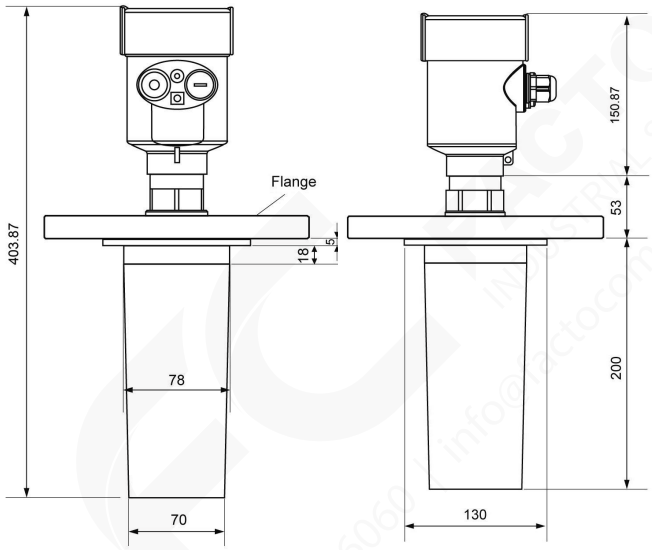
Radar level transmitter



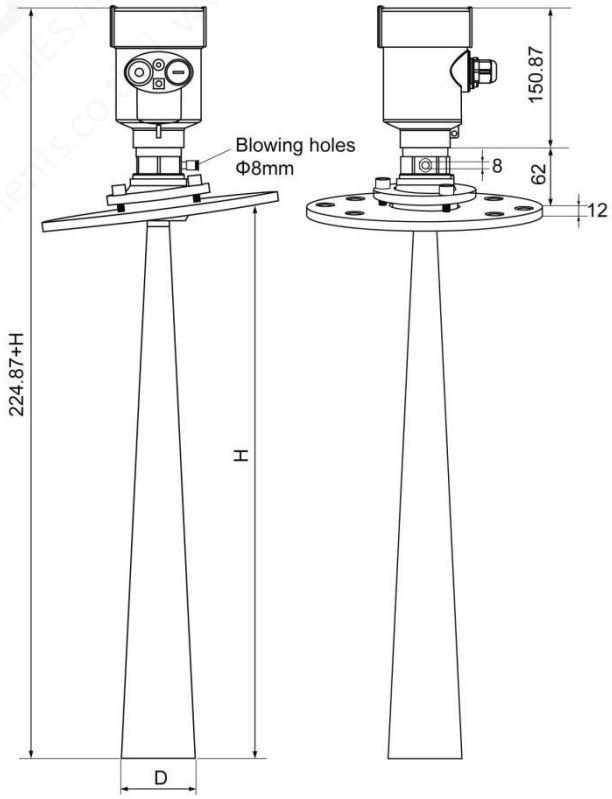
RD901



RD902

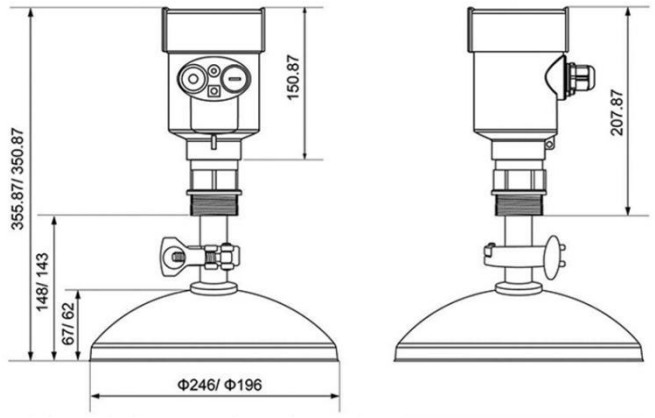


RD902T

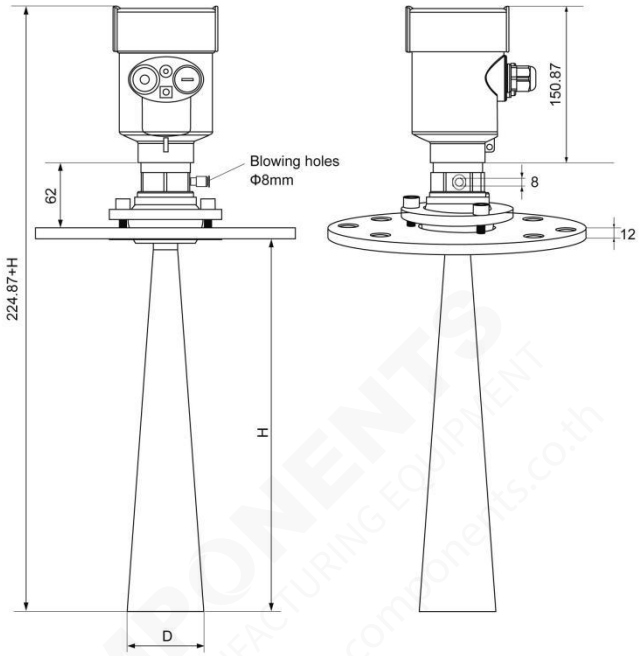


RD903

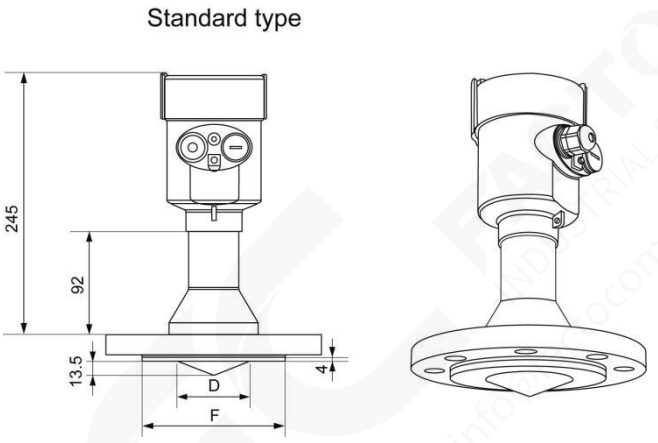
Radar level transmitter



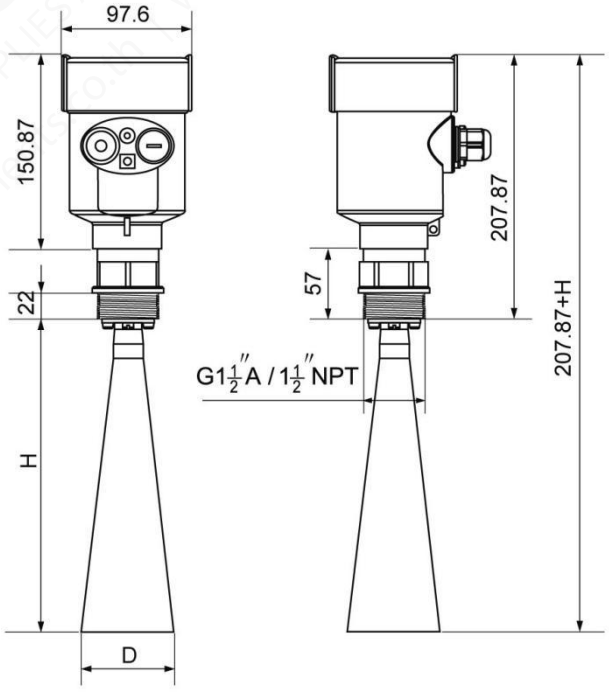
RD904



RD905

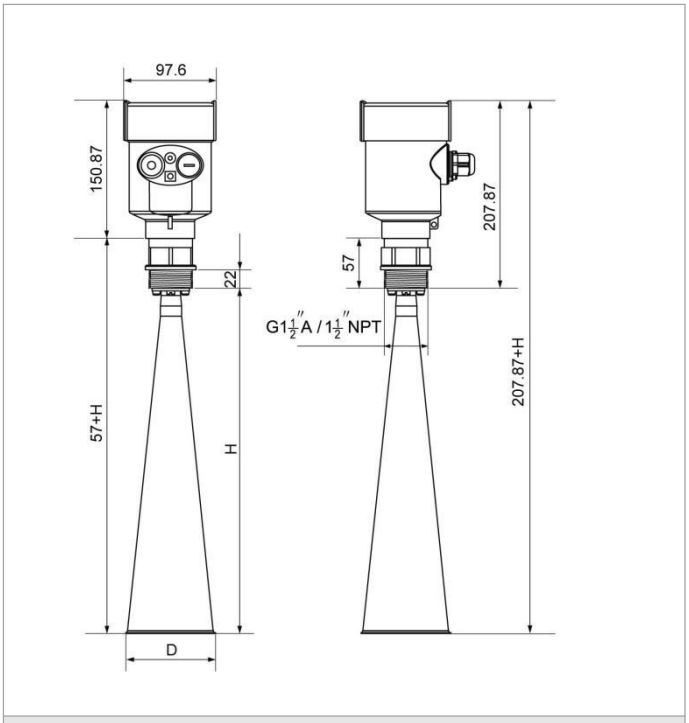


RD906



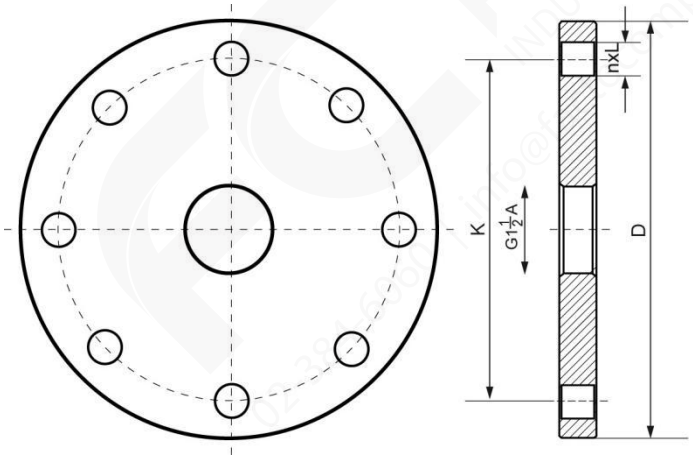
RD908

Radar level transmitter



RD909

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

Radar level transmitter

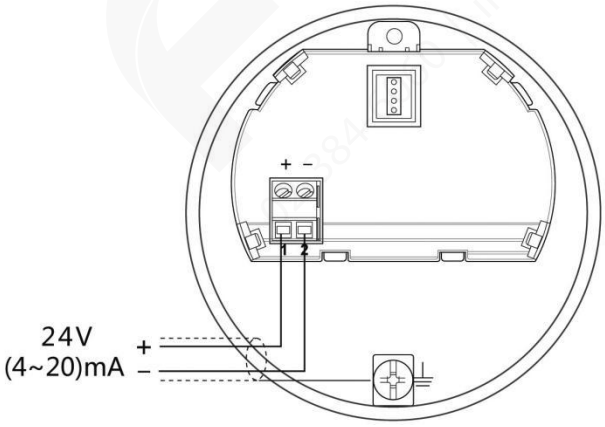
Electrical Connection

The power supply voltage

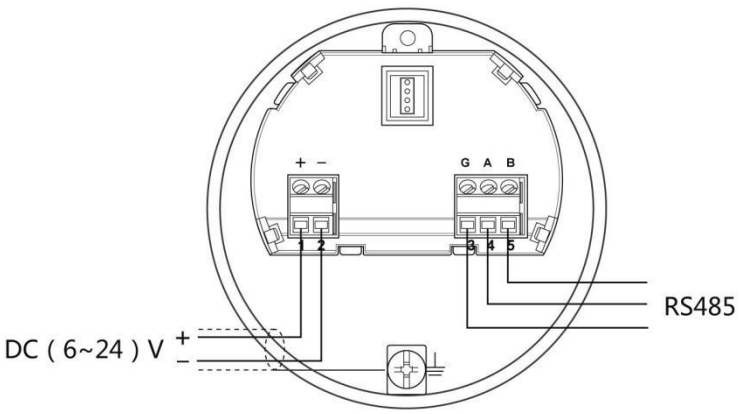
➢ (4~20)mA/HART (Two wire system)	The power supply and the output current signal sharing a two core shield cable. The supply voltage range see technical data. For intrinsically safe type must be a safety barrier between the power supply and the instrument.
➢ (4~20)mA/HART(Four wire system)	Separate power 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:



Radar level transmitter

Ordering code

Model: SUP-RD														
Medium	MM1													Liquid
	MM2													Solid powder
	MM3													Solid particles
	MM4													Solid block
	MM5													Water conservancy project
	MMZ													Otther
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												Other
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

Radar level transmitter

	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