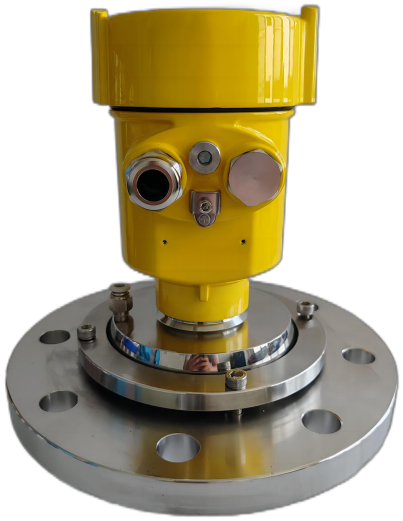
DATASHEET

Level

76-81GHz FMCW Radar Level Sensor

PWL-R800 Series



Features

- 76-81GHz FMCW radar
- Millimeter wave RF chip, higher signal-to-noise ratio, smaller blind area
- 5GHz working frequency bandwidth, higher resolution and precision
- Narrowest 3°antenna beam angle, less impact from interference in the installation environment
- IP67 protection level
- Support HART, RS485 Modbus RTU protocol
- Support to adjust measuring range and set measuring mode to be level or distance
- Accuracy ±1mm/±5mm/±10mm according to range and medium

Description

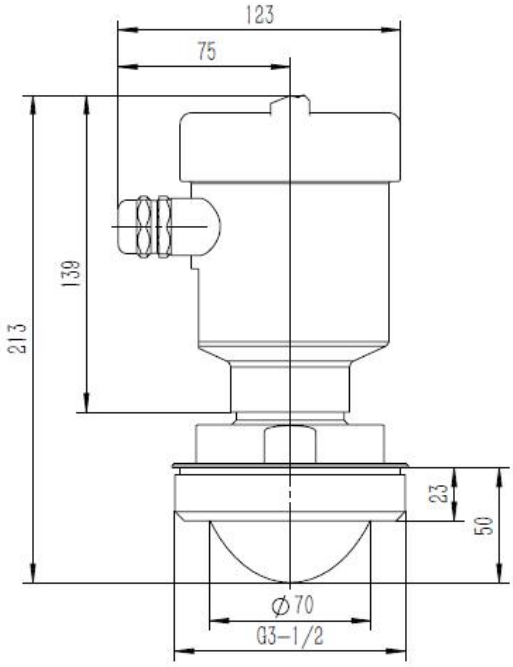
PWL-R800 Series is 76-81GHz Frequency Modulated Continuous Wave (FMCW) radar level meter. It has a higher operating frequency and a shorter wavelength, is particularly suitable for not only liquid but also solid applications. The working method of transmitting and receiving electromagnetic waves through an antenna has unique advantages in high dust and harsh temperature environments (+200℃). The instrument provides flange or threaded fixing methods, making installation convenient and easy.

There are several models for different applications, the maximum measuring range can be 120m and measuring accuracy ±1mm, supporting 4-wire and 2-wire signal output. The blind area is 10cm.

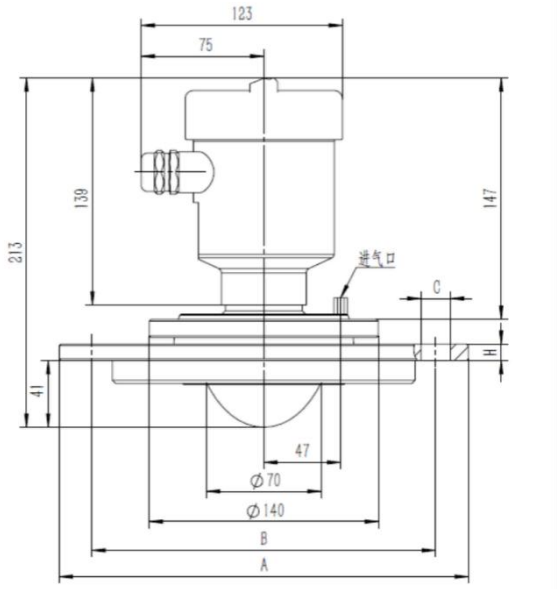
Specifications

Model	PWL-R800 Series
Frequency	76GHz ~ 81GHz, 5GHz FMCW bandwidth
Measuring Range	0.08 ~35m (For liquids) 0.3 ~60m (For solids) 0.6 ~ 120m (For solids and liquids)
Accuracy	±1mm for range ≤ 10m ±5mm for range 11~30m ±10mm for range >30m
Beam Angle	3°, 8°
Blind Zone	0.25-1.2m (According to the range)
Dielectric Constant Range	≥2
Power Supply	18 ~28 VDC (Typical); 220VAC optional
Communication	HART/MODBUS
Signal Output	4-20mA or RS485
Enclosure	Aluminum alloy, stainless steel
Antenna Type	Lens antenna/anti-corrosive antenna/high-temperature type
Cable Entry	M20 x 1.5
Recommend Cable	AWG18 or 0.75mm²
Process Temperature	-40 ~ 85℃
Process Pressure	-0.1~1.6MPa
Protection Level	IP67
Installation Method	Threaded or flanged
Package	About 7.5KGS / 34*28*29cm

Dimensions

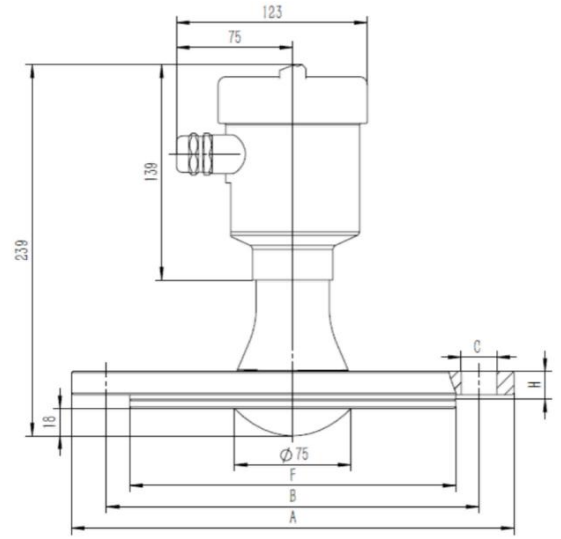


Thread Connection For Normal Temperature



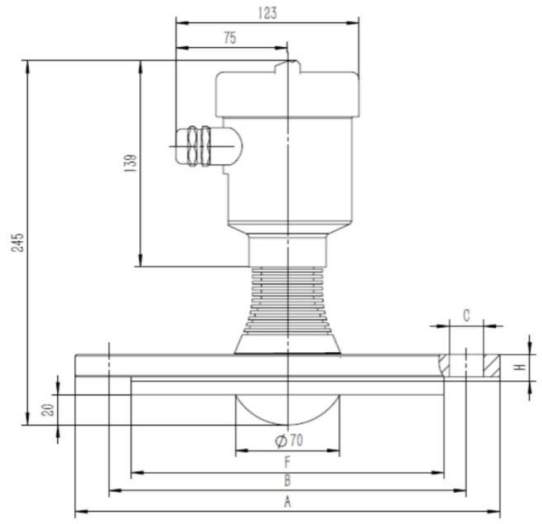
	A	B	C	H
DN80	Φ200	Φ160	8-Φ16	15
DN100	Φ220	Φ180	8-Φ16	15
DN125	Φ250	Φ210	8-Φ16	17
DN150	Φ285	Φ240	8-Φ20	17
DN200	Φ315	Φ270	8-Φ20	19

Universal Flange Connection For High Temperature



	A	B	C	H
DN80	Φ200	Φ160	8-Φ16	15
DN100	Φ220	Φ180	8-Φ16	15
DN125	Φ250	Φ210	8-Φ16	17
DN150	Φ285	Φ240	8-Φ20	17
DN200	Φ315	Φ270	8-Φ20	19

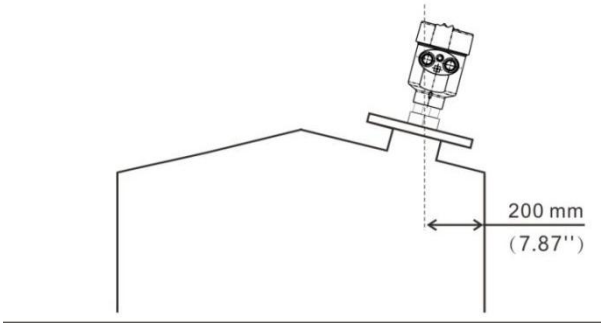
Flange Connection For Anti-Corrosive



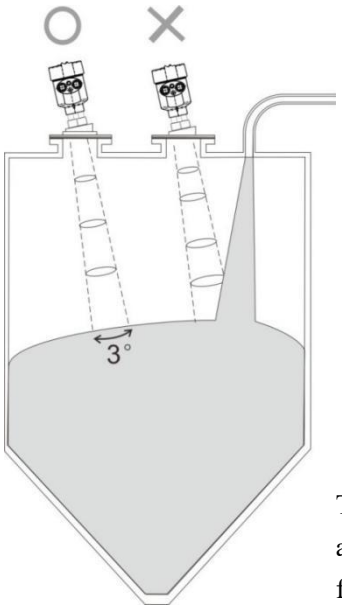
	A	B	C	H
DN80	Φ200	Φ160	8-Φ16	15
DN100	Φ220	Φ180	8-Φ16	15
DN125	Φ250	Φ210	8-Φ16	17
DN150	Φ285	Φ240	8-Φ20	17
DN200	Φ315	Φ270	8-Φ20	19

Flange Connection For Anti-Corrosive And High Temperature

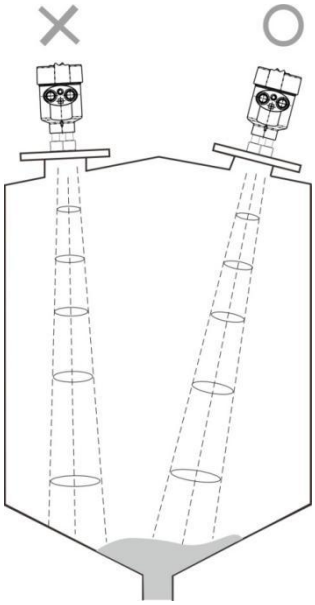
Installation



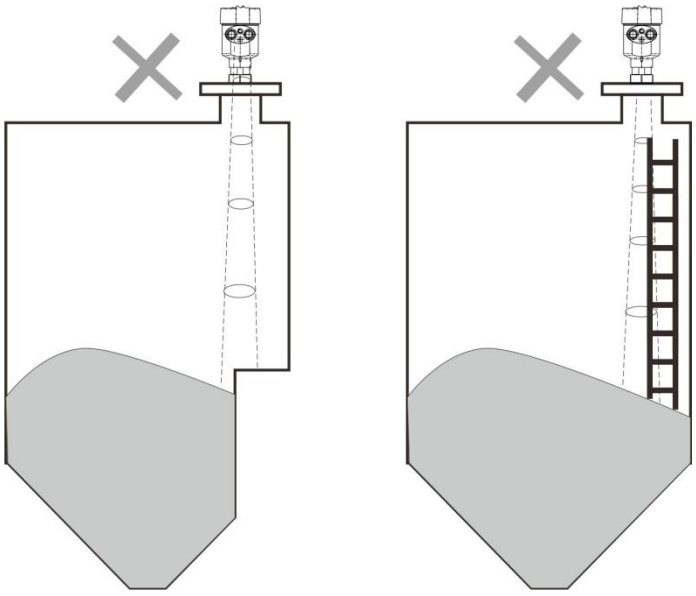
Meter should be at least 20cm distance away from the wall of tank.



The beam angel of antenna should be away from fill port.



When conical tanks, try to ensure the beam hits the bottom of the tank, to ensure the accuracy.



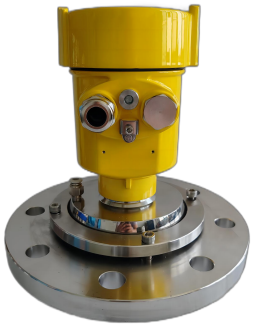
Notes:

1. Try to let the beam vertically target the material level;
2. Ensure there are no interference objects within the beam range, such as ladders, steps, or agitator.

Model Introduction

80GHz Small Lens Antenna Radar Level Sensor		
	Model	**PWL-R801**
	Application	Slightly corrosive liquid, stirring, water vapor, condensation
	Measuring Range	120m
	Signal Output	4-20mA/HART(2-wire, 4wire)/RS485 Modbus
	Process Connection	Flange, thread
	Media Temperature	-30~70℃
	Process Pressure	-0.1 ~ 0.3 MPa
	Accuracy	±1mm/±5mm/±10mm
	IP Rating	IP67
	Explosion-proof	Ex d ia IIC T6 Gb/Ex dD A21 IP68 T80℃
	Enclosure Material	Aluminum/Stainless Steel

80GHz Large Lens Antenna Radar Level Sensor		
	Model	**PWL-R802**
	Application	Slightly corrosive liquid, stirring, water vapor, condensation
	Measuring Range	120m
	Signal Output	4-20mA/HART(2-wire, 4wire)/RS485 Modbus
	Process Connection	Flange, thread
	Media Temperature	-30~80℃
	Process Pressure	-0.1 ~ 0.2 MPa
	Accuracy	±1mm/±5mm/±10mm
	IP Rating	IP67
	Explosion-proof	Ex d ia IIC T6 Gb/Ex dD A21 IP68 T80℃
	Enclosure Material	Aluminum/Stainless Steel

80GHz Large Lens Antenna with Universal Flange Blowing Function Radar Level Sensor		
	Model	**PWL-R803**
	Application	Strong dust, solids, powder, block
	Measuring Range	120m
	Signal Output	4-20mA/HART(2-wire, 4wire)/RS485 Modbus
	Process Connection	Universal flange
	Media Temperature	-30~100℃(200℃ by customized)
	Process Pressure	-0.1~0.1MPa
	Accuracy	±1mm/±5mm/±10mm
	IP Rating	IP67
	Explosion-proof	Ex d ia IIC T6 Gb/Ex dD A21 IP68 T80℃
	Enclosure Material	Aluminum/Stainless Steel

80GHz Large Flat Lens Anti-corrosive Radar Level Sensor		
	Model	**PWL-R804**
	Application	Strong corrosive liquid, stirring, water vapor, condensation
	Measuring Range	120m
	Signal Output	4-20mA/HART(2-wire, 4wire)/RS485 Modbus
	Process Connection	Flange, thread
	Media Temperature	-30~100℃
	Process Pressure	-0.1 ~ 0.1 MPa
	Accuracy	±1mm/±5mm/±10mm
	IP Rating	IP67
	Explosion-proof	Ex d ia IIC T6 Gb/Ex dD A21 IP68 T80℃
	Enclosure Material	Aluminum/Stainless Steel

80GHz Large Flat Lens Anti-corrosive High Temperature Radar Level Sensor		
	Model	**PWL-R805**
	Application	High temperature condition, strong corrosive liquid, stirring, water vapor, condensation
	Measuring Range	120m
	Signal Output	4-20mA/HART(2-wire, 4wire)/RS485 Modbus
	Process Connection	Flange, thread
	Media Temperature	-40~200℃
	Process Pressure	-0.1 ~ 1.6 MPa
	Accuracy	±1mm/±5mm/±10mm
	IP Rating	IP67
	Explosion-proof	Ex d ia IIC T6 Gb/Ex dD A21 IP68 T80℃
	Enclosure Material	Aluminum/Stainless Steel

***Tell us medium / which application / measuring range / working temperature / pressure range / signal output / what you wanna to realize, our sales engineer will recommend suitable model for you.*