Datasheet

Radar Level Transmitter

SUP-WSR550

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Datasheet

Level Radar Transmitter
SUP-WSR550

The (76 – 81) GHz series refers to Frequency Modulated Continuous Wave (FMCW) radar instruments operating within the (76 – 81) GHz band, supporting both four-wire and two-wire applications. Multiple models are available, with a measuring range of up to 60 m and a minimum blind zone as small as 8 cm.
Due to their higher operating frequency and shorter wavelength, these radars are particularly well-suited for solid level measurement. Utilizing a lens-based electromagnetic wave transmission and reception design, they offer unique advantages in environments with heavy dust or extreme temperatures.
The instruments are available with either flange or threaded process connections, ensuring convenient and flexible installation.

Applications

- Chemical industry
- Solids level measurement
- Sewage treatment
- Mining industry
- Paper and Pulp Industry
- Boiler Engineering
- Liquid and solid powder measure
- Acids, bases or other corrosive media

SUP-WSR550

Features

- Based on the self-developed CMOS millimeter wave RF chip, a more compact RF architecture, a higher signal-to-noise ratio, and nearly zero blind zone are realized.
- 5GHz working bandwidth means higher easurement resolution and accuracy.
- 3 ° antenna beam angle, so the interference in the environment has less impact on the instrument, and the installation is more convenient.
- Shorter wavelength yields good reflection properties on sloped solids, so aiming towards material angle of repose is usually not necessary.
- Remote debugging and remote upgrading is supported to reduce the cost of field personnel.

Parameters	
Input	
Measured Variables	Level / Liquid Level
Range	0.08 m ~10m；0.08~20m；0.08 m ~30m；0.3 m~60m
Beam Angle	3°/8°
Transmit Frequency	76GHz~81GHz
Output	
Transmitter Output	4~20mA
Communication Output	RS-485,MODBUS, HART
Fault Output	3.8mA, 4mA, 20mA, 21mA, hold
Power Supply	
Power Supply	15~28VDC;220VAC
Power Consumption	Maximum Power Consumption 2 W
Cable Entry	M20*1.5 Cable Gland
Cable Specification	AWG or 0.75mm^2
Performance Parameters	
Accuracy	Liquid measurement:±2mm Solid measurement:±5mm
Resolution	Display Resolution:1 mm Distance Resolution:3 cm
Measurement Interval	1s
Process Conditions	
Dielectric Constant Range	≥2
Process Pressure	-0.1~2 MPa
Process Temperature	（-40~80）℃ /（-40~150）℃ Note: Other temperature ranges available upon request
Environmental Conditions	
Storage Temperature	-40~80℃
Protection Rating	IP67
Material	
Shell Material	Aluminum Alloy or Stainless Steel

Wiring

24VDC Four-wire Wiring

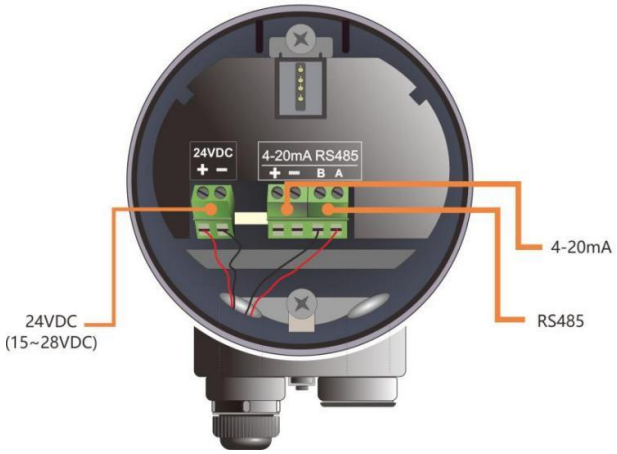


Figure 1　24VDC Four-wire Wiring Diagram

24VDC Two-wire Product Wiring Diagram

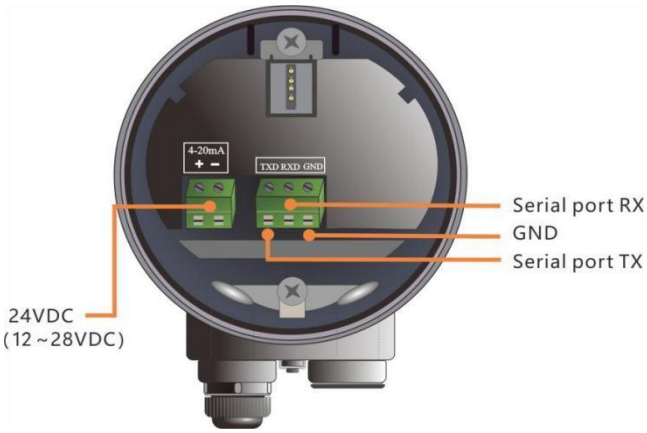


Figure 2　24VDC Two-wire Wiring Diagram

220VAC Four-wire Product Wiring Diagram

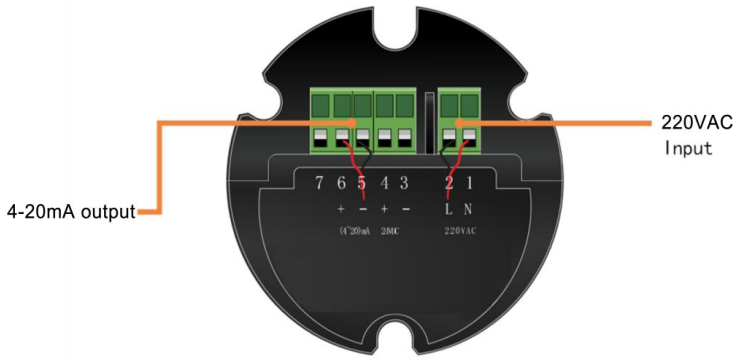
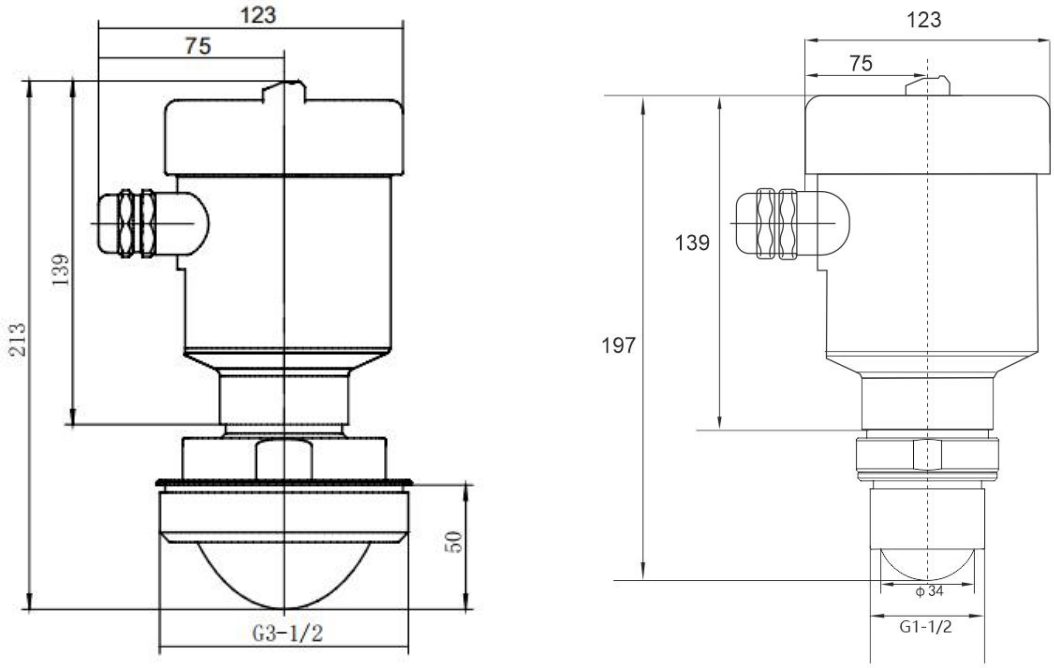


Figure 3　220VAC Four-wire Wiring Diagram

Dimension

Threaded Connection Structure



G3 1/2 thread　　G1 1/2 thread

Figure 4　Dimensional Drawing of Standard Temperature Threaded Connection Structure (Unit: mm)

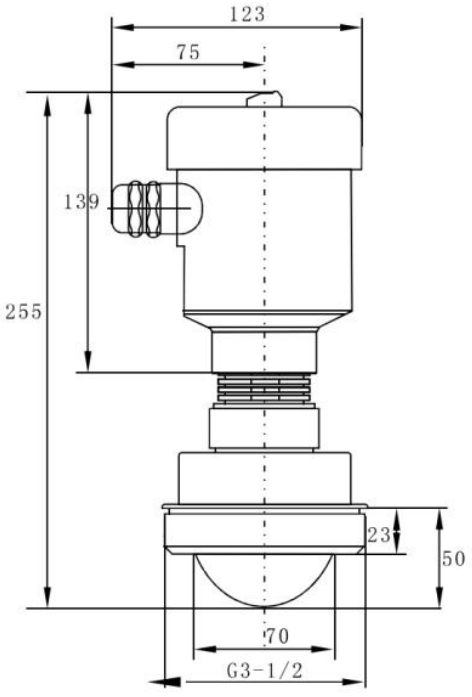
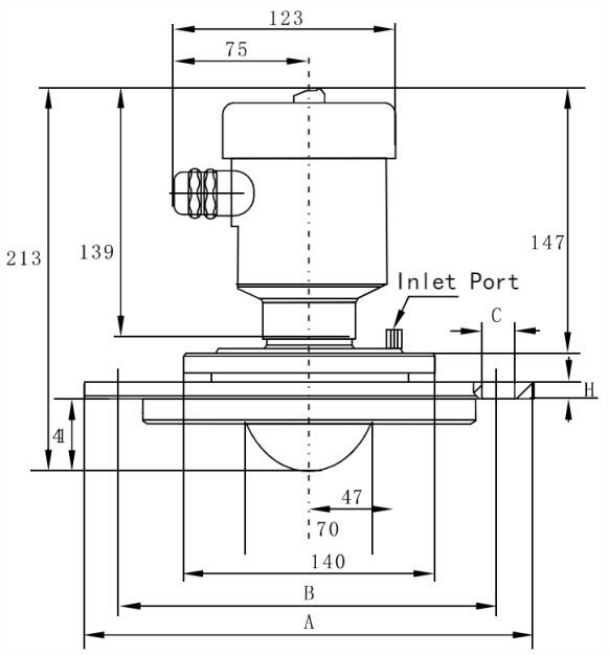


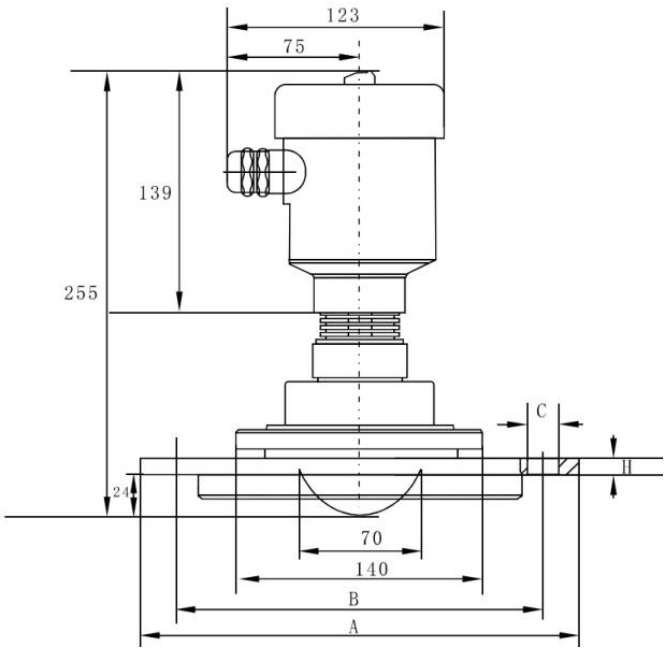
Figure 5　Dimensional Drawing of High-Temperature Threaded Connection Structure (Unit: mm)

Universal Flange Structure



	A	B	C	H
DN80	Φ200	Φ160	8-Φ18	15
DN100	Φ220	Φ180	8-Φ18	15
DN125	Φ250	Φ210	8-Φ18	17
DN150	Φ285	Φ240	8-Φ18	17
DN200	Φ340	Φ295	8-Φ18	19

Figure 6 Dimensional Drawing of Standard Temperature Universal Flange Structure (Unit: mm)

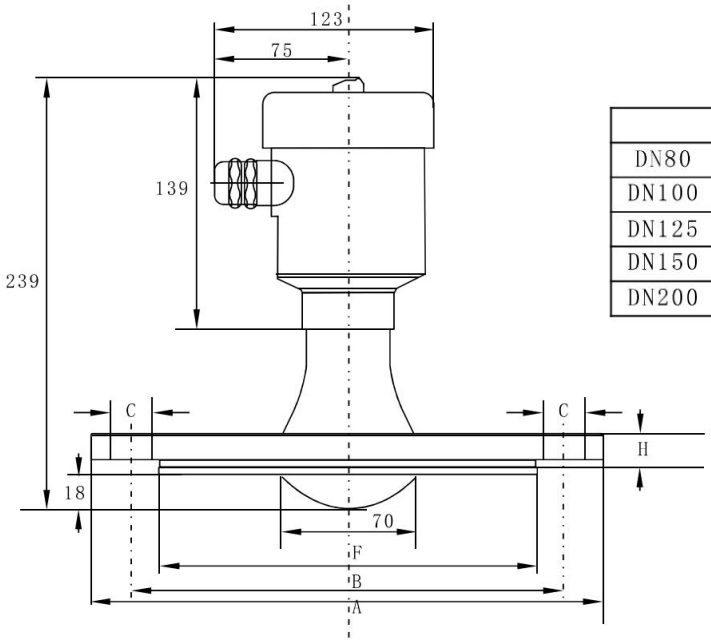


	A	B	C	H
DN80	Φ200	Φ160	4-Φ18	15
DN100	Φ220	Φ180	4-Φ18	15
DN125	Φ250	Φ210	8-Φ18	17
DN150	Φ285	Φ240	8-Φ18	17
DN200	Φ340	Φ295	8-Φ18	19

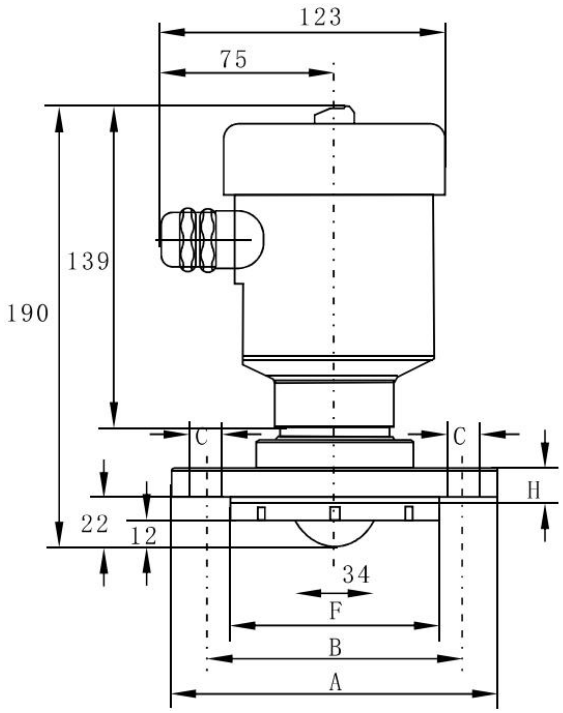
Figure 7 Dimensional Drawing of High-Temperature Universal Flange Structure (Unit: mm)

Corrosion-Resistant Flange Structure

Corrosion-Resistant Flange Structure (Standard Temperature & Pressure)



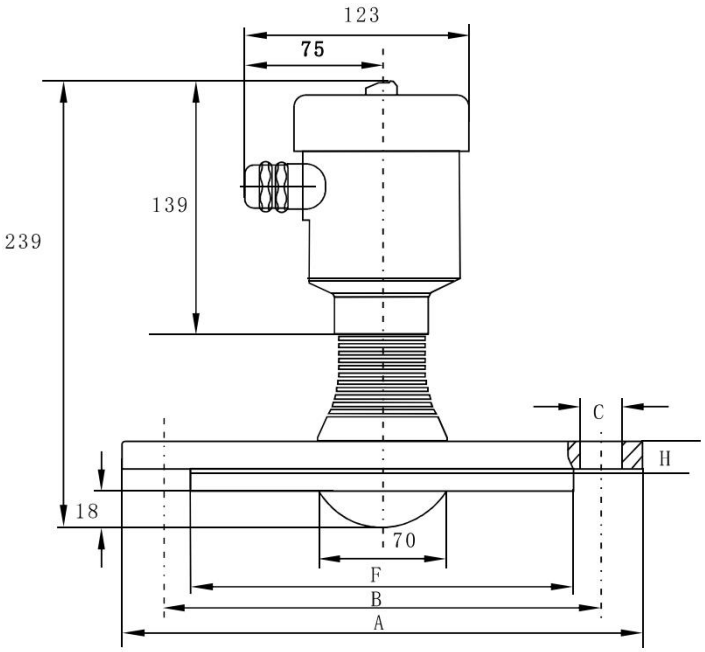
	A	B	C	F	H
DN80	Φ200	Φ160	4-Φ18	Φ128	18
DN100	Φ220	Φ180	4-Φ18	Φ148	18
DN125	Φ250	Φ210	8-Φ18	Φ178	20
DN150	Φ285	Φ240	8-Φ18	Φ202	20
DN200	Φ340	Φ295	8-Φ18	Φ258	22



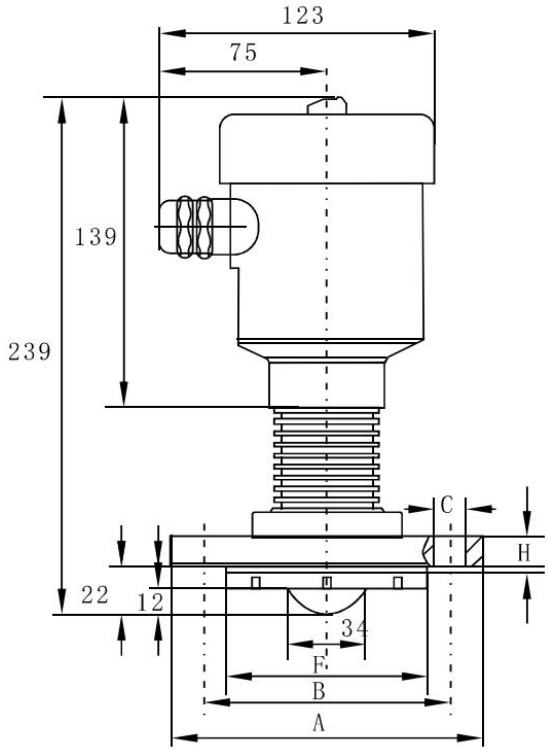
	A	B	C	F	H
DN50	Φ165	Φ125	4-Φ14	Φ90	16
DN100	Φ220	Φ180	4-Φ14	Φ110	16

Figure 8 Dimensional Drawing of Corrosion-Resistant Flange Structure, Standard Temperature and Pressure (Unit: mm)

Corrosion-Resistant Flange Structure (High Temperature & Pressure)



	A	B	C	F	H
DN80	Φ200	Φ160	8-Φ18	Φ138	20
DN100	Φ220	Φ180	8-Φ18	Φ158	22
DN125	Φ250	Φ210	8-Φ18	Φ188	22
DN150	Φ285	Φ240	8-Φ22	Φ212	24
DN200	Φ340	Φ295	12-Φ22	Φ268	26



	A	B	C	F	H
DN50	Φ140	Φ110	4-Φ14	Φ90	16
DN65	Φ160	Φ130	4-Φ14	Φ110	16

Figure 9 Dimensional Drawing of Corrosion-Resistant Flange Structure, High Temperature and Pressure (Unit: mm)

Ordering code

SUP-WSR550-A-10-A2-LB-1-TC-WH								Description
SUP-WSR550	-		-	-	-	-	-	
Measuring Medium	A							Liquid
	B							Solid Powder
Measurement Range		10						10m
		20						20m
		30						30m
		60						60m
		XX						Others
Output and Power Supply			A2					Two-Wire System 4-20mA+HART
			SE					4-20mA+RS485，24VDC
			B3					Two-Wire System 4-20mA+HART+Bluetooth
			B5					4-20mA+RS485+Bluetooth，24VDC
			B4					Two-Wire System 4-20mA+HART+Bluetooth，220VAC
			B6					4-20mA+RS485+Bluetooth，220VAC
Thread Type				LB				G1 1/2 Thread
				LE				G3 1/2 Thread
				FP				HG/T20592 PN16 DN50
				FQ				HG/T20592 PN16 DN80
				FR				HG/T20592 PN16 DN100
				FS				HG/T20592 PN16 DN125
				FT				HG/T20592 PN16 DN150
				FU				HG/T20592 PN10 DN80 Universal Flange
				FV				HG/T20592 PN10 DN100 Universal Flange
				FW				HG/T20592 PN10 DN150 Universal Flange
				XX				Others

Antenna Type and Process Connection Material	1			Polytetrafluoroethylene (PTFE), 304SS
	2			Polytetrafluoroethylene (PTFE), 316LSS
	3			Polytetrafluoroethylene (PTFE)
	9			Others
Heat Resistance Temperature		TC		-40-80℃
		TF		-40-150℃
		XX		Others
Electrical Interface, Housing Material and Level of Protection			WH	M20×1.5 Cable Gland，Aluminum Alloy，IP67
			XX	Others