

Radar level transmitter

WSR550 series Datasheet



Level radar transmitter WSR550



The 76-81GHz series products refer to frequency modulated continuous wave (FMCW) radar products operating at 76-81GHz, supporting four-wire and two-wire applications. The product has multiple models, the range can reach 120m, and the blind zone can reach 8 cm. Because of its higher operating frequency and shorter wavelength, it is especially suitable for solid applications. The working method of transmitting and receiving electromagnetic waves through the lens has unique advantages in high dust and harsh temperature environments (+200°C). The instrument provides flange or thread connection, which makes installation convenient and easy.

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

Features

- Range: M1-10m, M2-20m, M3-30M, M6-60m, MB-120m
- Can be used in stirring, steam, dust, crystallization occasions
- Abundant physical interfaces: 4~20mA (2 channels optional), HART,AUTBUS
- Fieldbus Foundation, ProfibusPA, NB-IoT, etc.
- Support Bluetooth debugging function
- Support low dielectric constant (less than 1.5) medium TBF tank bottom reflection measurement
- Support backlight display



WSR550

Principle

High-frequency microwave pulses issued by the guided wave radar propagate along detection components (steel cable or steel rod), meet the media to be measured, since the dielectric constant of the mutation, cause reflections, a portion of the pulse energy is reflected back. Transmit pulse and the reflected pulse is proportional to the distance and the time interval measured media.

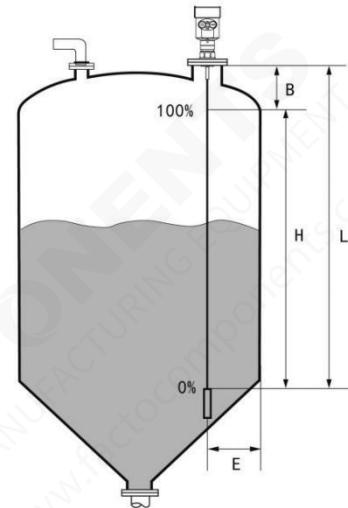
Explanation:

H--- Measuring range

L---Empty distance

B---The top of the blind

E---The minimum distance from the probe to the tank wall



--Blind spot is the minimum distance between the top of the highest material surface materials and measurement reference point.

--The bottom of the blind refers to a distance near the very bottom of the cable can not be accurately measured.

--Between the top and bottom of the blind is blind effective measure distances.

Note:

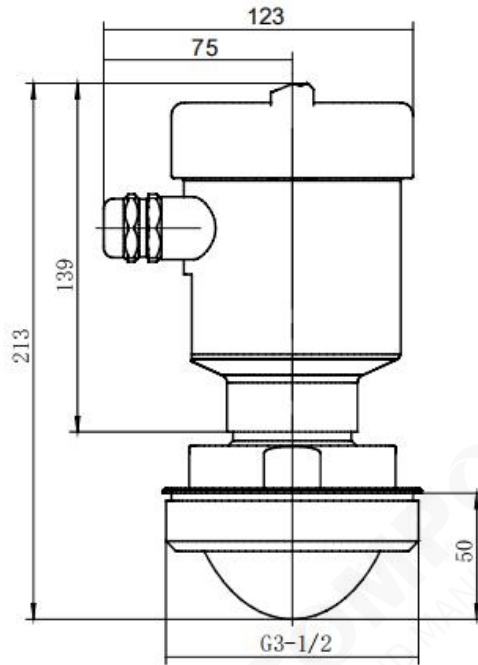
In order to ensure the accuracy of level measurement, the material should be located between the top and bottom of the blind the blind.

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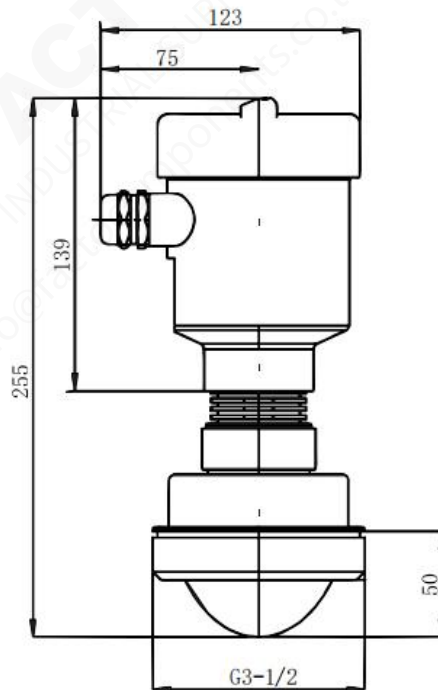


Parameters	
Transmit frequency	76GHz~81GHz
Range	0.08 m ~10m; 0.08~20m; 0.08 m ~30m; 0.3 m~60m; 0.6 m~120m
Accuracy	±1mm
Measurement interval	Fastest 100ms
Beam angle	3°/8°/20°
Dielectric constant range	≥2
Power supply	12~28VDC
Communication	MODBUS, HART
Signal output	4~20mA or RS-485
Fault output	3.8mA, 4mA, 20mA, 21mA, hold
On-site operation/programming	128×64 dot matrix display/4 buttons; configurable host computer setting software
Industrial temperature/humidity	T0:-40~85°C/humidity≤95%RH; T1:-40~200°C; T2:-40~500°C; T3:-40~1000°C
Shell material	Aluminum alloy, stainless steel
Process connection	Pipe thread/universal flange/anti-corrosion flange/sanitary chuck/quartz isolation flange
Process pressure	-0.1~2MPa
Dimension	φ 100*270mm
Connection	M20*1.5
Recommended wire	AWG18 or 0.75mm ²
Ingress protection	IP67
Mounting method	Thread or flange

Dimension

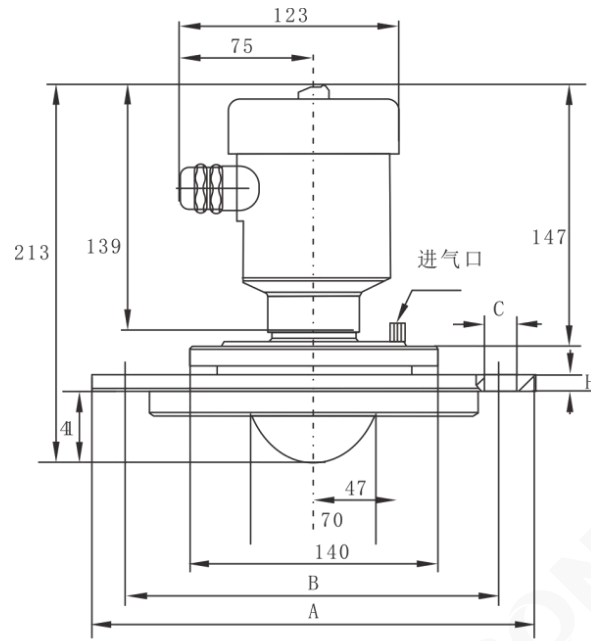


Normal temperature pipe threaded connection



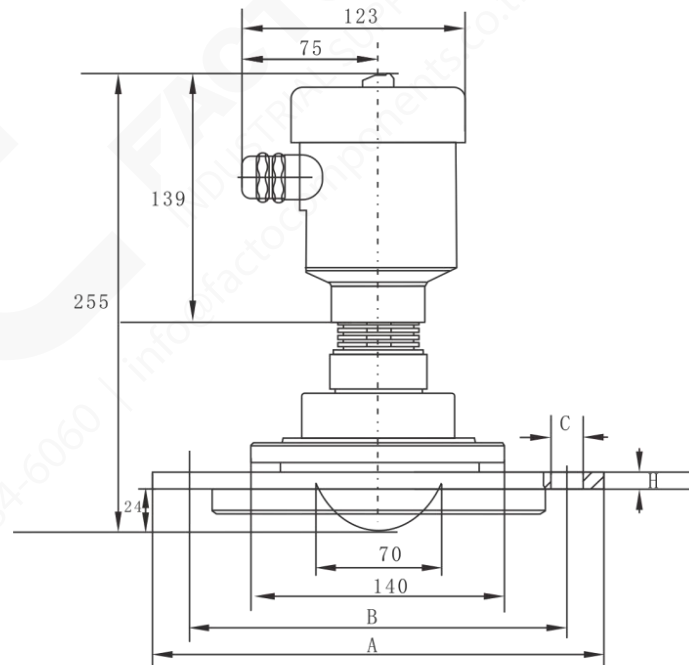
Note: This model needs to be equipped with a high temperature version of the electronic module
High temperature (-40...200°C) pipe thread connection

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	A	B	C	H
DN80	φ 190	φ 150	4-φ 18	15
DN100	φ 210	φ 170	4-φ 18	15
DN125	φ 240	φ 200	8-φ 18	17
DN150	φ 265	φ 225	8-φ 18	17
DN200	φ 320	φ 280	8-φ 18	19

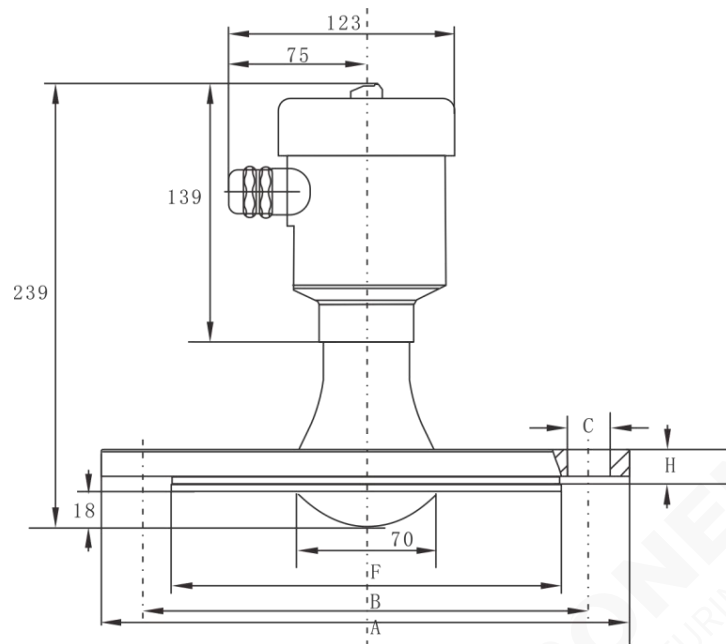
Normal temperature universal flange structure



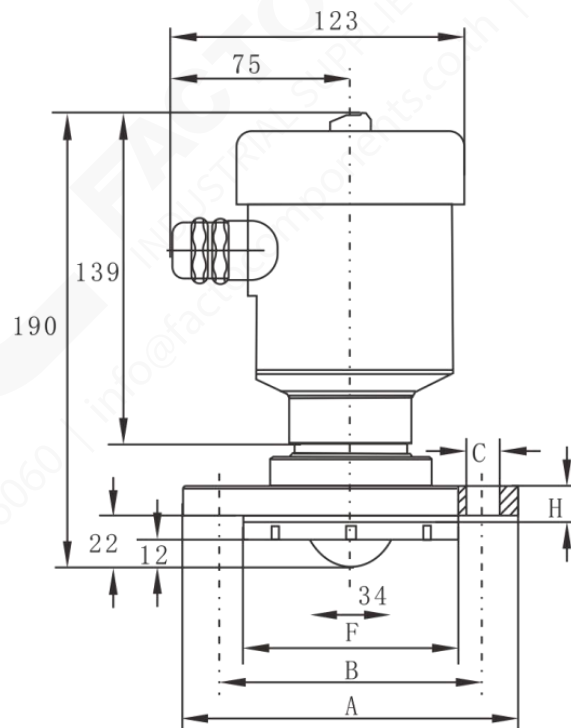
	A	B	C	H
DN80	φ 190	φ 150	4-φ 18	15
DN100	φ 210	φ 170	4-φ 18	15
DN125	φ 240	φ 200	8-φ 18	17
DN150	φ 265	φ 225	8-φ 18	17
DN200	φ 320	φ 280	8-φ 18	19

High temperature (-40...200°C) universal flange structure

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	A	B	C	F	H
DN80	φ 190	φ 150	4-φ 18	φ 128	18
DN100	φ 210	φ 170	4-φ 18	φ 148	18
DN125	φ 240	φ 200	8-φ 18	φ 178	20
DN150	φ 265	φ 225	8-φ 18	φ 202	20
DN200	φ 320	φ 280	8-φ 18	φ 258	22



	A	B	C	F	H
DN50	φ 140	φ 110	4-φ 14	φ 90	16
DN100	φ 160	φ 130	4-φ 14	φ 110	16

Normal temperature anti-corrosion flange structure

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Ordering code

WSR550-B-10-A-G1-A-1-A													Description	
WSR550	-													Liquid
Medium	B													Solid
	D													10m
		10												20m
Range		20												30m
		30												60m
		60												Two-wire
Output and power supply			A											4-20mA+HART, 24VDC
			B											Four-wire
														4-20mA+485, 24VDC (>10m)
				G1										G1 1/2 thread
				G3										G3 1/2 thread
				F1										HG/T20592 PN16 DN50 flange
				F2										HG/T20592 PN16 DN80 flange
				F3										HG/T20592 PN16 DN80 flange
				F4										HG/T20592 PN16 DN100 flange
Process connection				F5										HG/T20592 PN16 DN125 flange
				F6										HG/T20592 PN16 DN150 flange
				F7										HG/T20592 PN10 DN80 universal flange
				F8										HG/T20592 PN10 DN100 universal flange
				XX										HG/T20592 PN10 DN150 universal flange
				G1										Others
Antenna and process connection material				A										PTFE, 304SS
				B										PTFE, 316LSS
				C										PTFE
				X										Others

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Heat resistance temperature	1							80°C
	2							150°C
	9							Others
Electrical interface, shell material and ingress protection	A							M20*1.5 cable gland, aluminum alloy, IP67
	X							Others

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