FACTOCOMPONENTS
INDUSTRIAL SUPPLIES AND MANUFACTURING EQUIPMENT

Supmea®

Radar level transmitter
WSR700 series Datasheet

Level radar transmitter WSR700

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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℃). 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

WSR700

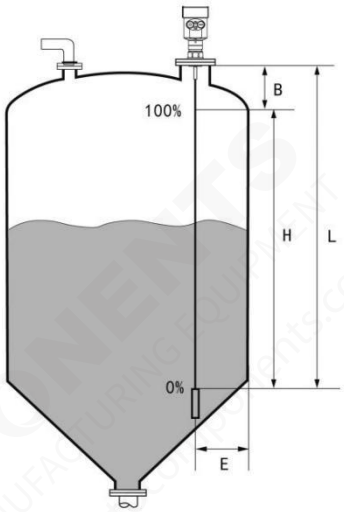
Features

- 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

Level radar transmitter WSR700

Principle

High-frequency microwave pulses issued by the guided wave radar propagate along detection components (steel cable or steel rod), met 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.

Level radar transmitter WSR700

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℃/humidity≤95%RH; T1:-40~200℃; T2:-40~500℃; T3:-40~1000℃
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 0.75mm²
Ingress protection	IP67
Mounting method	Thread or flange

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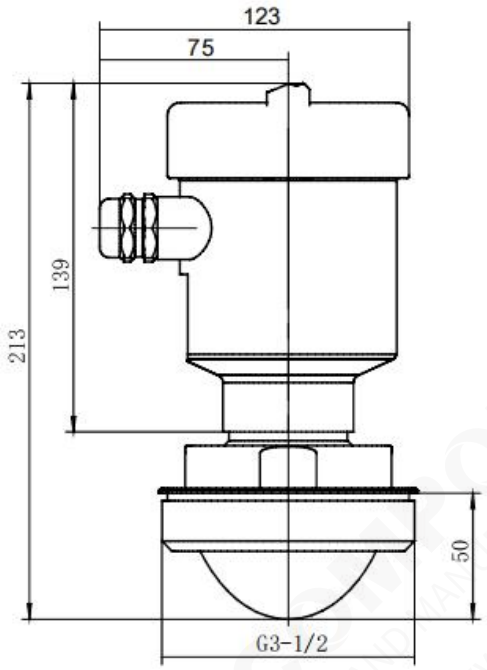
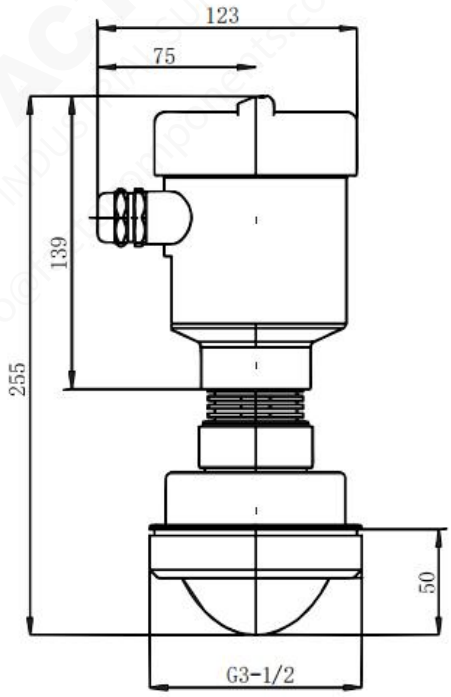
Dimension



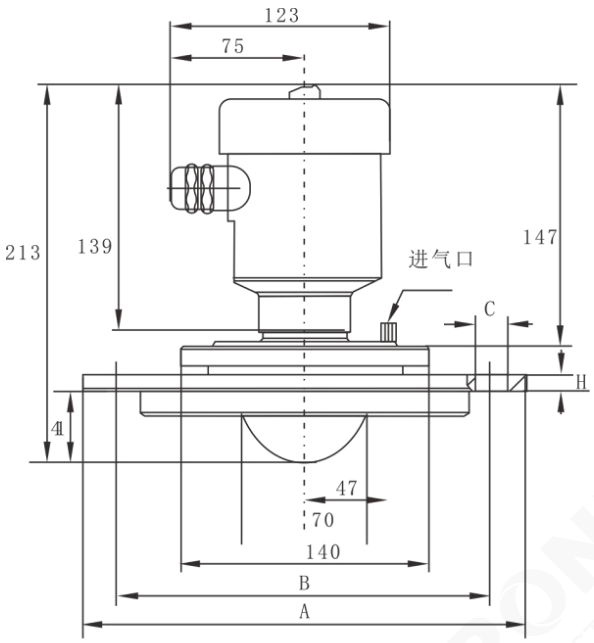
Normal temperature pipe threaded connection



Note: This model needs to be equipped with a high temperature version of the electronic module

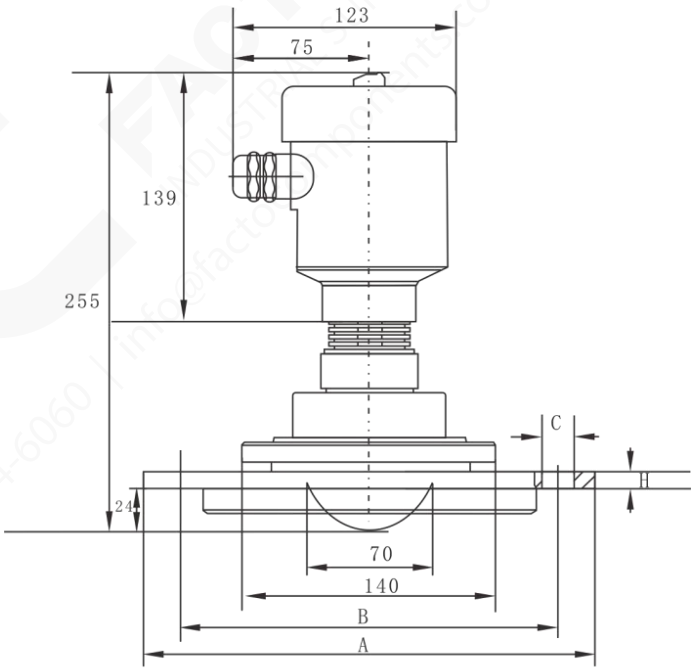
High temperature (-40...200°C) pipe thread connection

Level radar transmitter WSR700



	A	B	C	H
DN80	Φ190	Φ150	4-Φ18	15
DN100	Φ210	Φ170	4-Φ18	15
DN125	Φ240	Φ200	8-Φ18	17
DN150	Φ265	Φ225	8-Φ18	17
DN200	Φ320	Φ280	8-Φ18	19

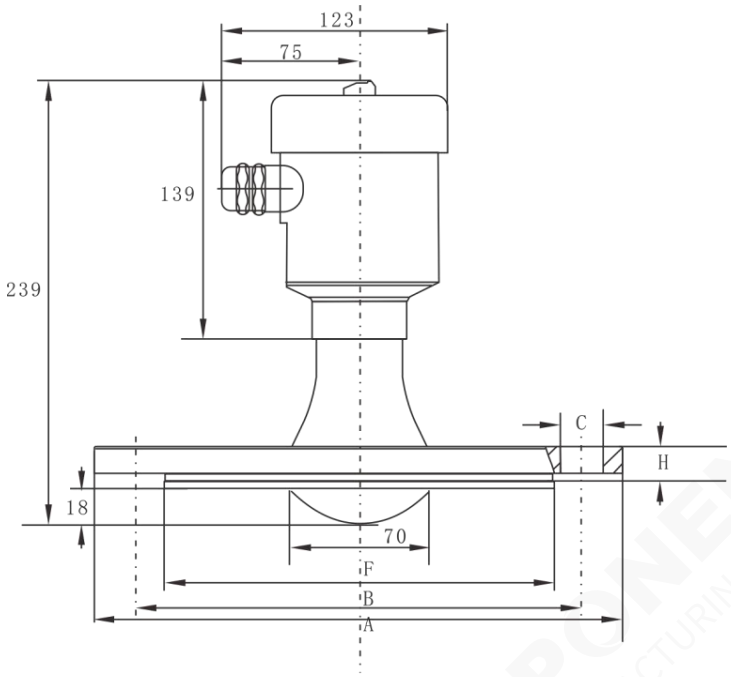
Normal temperature universal flange structure



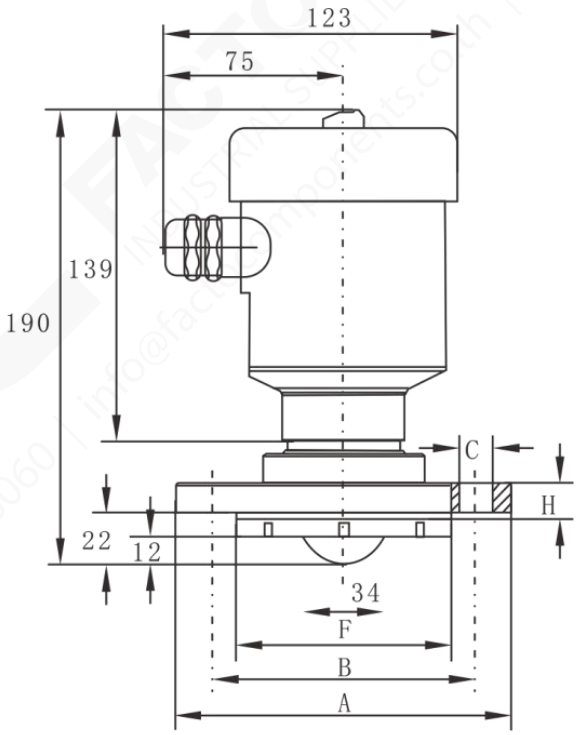
	A	B	C	H
DN80	Φ190	Φ150	4-Φ18	15
DN100	Φ210	Φ170	4-Φ18	15
DN125	Φ240	Φ200	8-Φ18	17
DN150	Φ265	Φ225	8-Φ18	17
DN200	Φ320	Φ280	8-Φ18	19

High temperature (-40...200℃) universal flange structure

Level radar transmitter WSR700



	A	B	C	F	H
DN80	Φ190	Φ150	4-Φ18	Φ128	18
DN100	Φ210	Φ170	4-Φ18	Φ148	18
DN125	Φ240	Φ200	8-Φ18	Φ178	20
DN150	Φ265	Φ225	8-Φ18	Φ202	20
DN200	Φ320	Φ280	8-Φ18	Φ258	22



	A	B	C	F	H
DN50	Φ140	Φ110	4-Φ14	Φ90	16
DN100	Φ160	Φ130	4-Φ14	Φ110	16

Normal temperature anti-corrosion flange structure

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Ordering code

WSR700-B-10-A-G1-A-1-A																Description
WSR700	-		-	-	-	-	-	-	-	-	-	-	-	-	-	
Medium	A															Liquid
	B															Solid Powder
Range		10														10m
		20														20m
		30														30m
		60														60m
		XX														Other
Output and power supply			A2													Two-wire 4-20mA+HART
			SE													4-20mA+RS485，24VDC
			B3													Two-wire 4-20mA+HART+Bluetooth
			B5													4-20mA+RS485+Bluetooth，24VDC
			B4													Two-wire 4-20mA+HART+Bluetooth，220VAC
			B6													4-20mA+RS485+Bluetooth，220VAC
Thread Type				LB												G1 1/2
				LE												HG/T20592 PN10 DN50
				FP												HG/T20592 PN10 DN80
				FQ												HG/T20592 PN10 DN100
				FR												HG/T20592 PN10 DN125
				FS												HG/T20592 PN10 DN150
				FT												HG/T20592 PN10 DN80 Swivel
				FU												HG/T20592 PN10 DN100 Swivel
				FV												HG/T20592 PN10 DN150 Swivel
				FW												HG/T20592 PN10

												DN150 Swivel
		XX										Other
Antenna and Thread Type Material		1										Polytetrafluoroethylene (PTFE), 304SS
		2										Polytetrafluoroethylene (PTFE), SS316L
		3										Polytetrafluoroethylene (PTFE)
		9										Other
High Temperature Resistance			TC									'-40-80℃
			TF									'-40-150℃
			XX									Other
Accessories				EJ								Plastic ABS Air Duster
				EM								Installation bracket 304SS