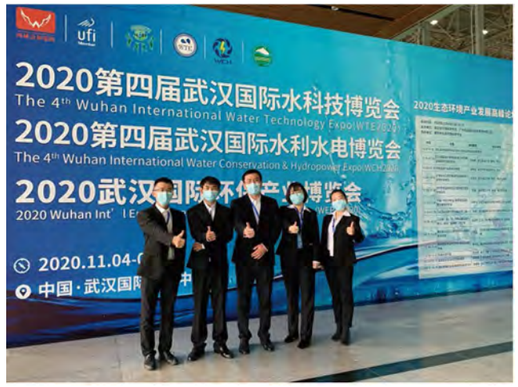


FMCW 80G Radar Level Transmitter(WERD-9X)

RD-9X FMCW Radar Level Transmitter

Overview

RD-9X series radar level sensor is one kind of level measuring instrument which uses FMCW (Frequency Modulated Continuous Wave) special millimeter wave technology , the working frequency is 76-81Ghz. The signal output has options : 2 wires 4-20mA, 4 wires 4-20mA or RS485. The max range can reach 120m, and the blind zone of 8cm. The antenna beam angle is about 3°,the outstanding performance makes it is workable for the accurate measurement of liquids, solids, and powder materials.

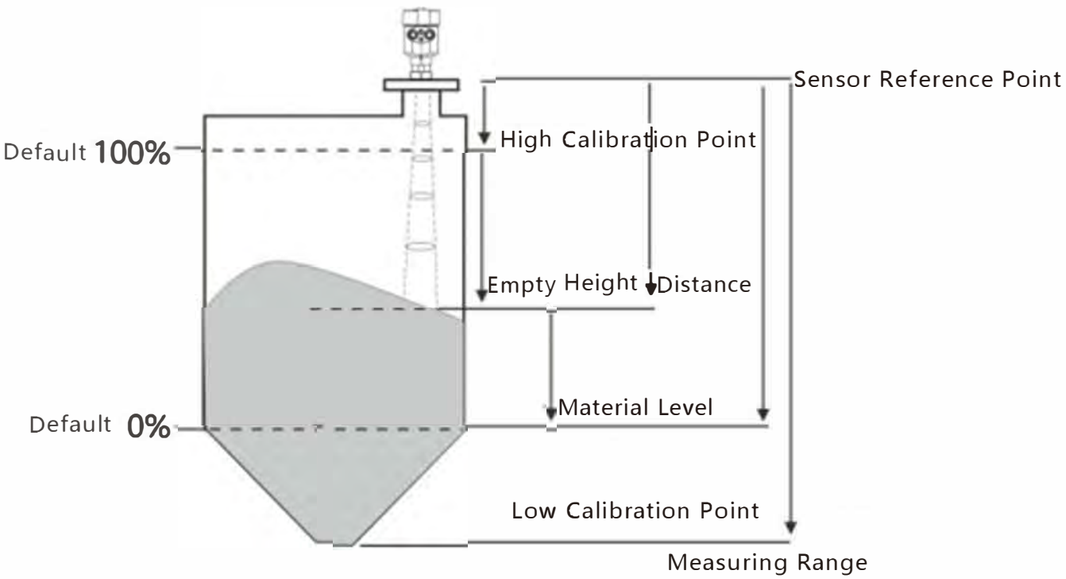
Principle

The radar level sensor emits linear frequency modulated pulse signal, and captures the echo wave reflected by the barriers on the path of wave spreading. It combines this two signals by “mixer”, and get an intermediate frequency signal
(IF), we will get the distance what we want by process this signal and calculation.

Advantages

1. Based on the complementary metal-oxide-semiconductor transistor (CMOS) components with high compact architecture, gives higher signal to noise ratio and smaller blind zone.
2. SGHz working bandwidth means higher measurement resolution and accuracy.
3. 3° antenna beam angle, so the interference in the environment has less impact on the instrument and the installation is more convenient.
4. Shorter wavelength offers better reflection performance on solid surface, so the universal flange is not necessary.
5. Supporting remote debugging and upgrading, reduce waiting time and improve the working efficiency.

Distance : Real Time Value = Distance
Material Level: Real Time Value = Low Calibration Point - Distance (Min Is 0)
Empty Height: Real Time Value = Distance - High Calibration Point (Min Is 0)



WERD-90

Application	Liquid (NO Corrosion)
Measuring Range	0~150m
Antenna Type	Lens (32mm)/PTFE
Mounting Thread	Thread /Flange ≥DN80
Beam angle	7°-8°
Response Time	<0.6s (Due To Parameter Setting)
Medium Temperature	(40~120) ℃
DK Value Of Medium	>1.5
Process Pressure	(0.1~2) MPa
Accuracy	2mm (≤35m); 5mm (35m-150m)
Signal Output	(4~20) mA HART; RS485 MODBUS-RTU
Working Frequency	(76 ~ 81) GHz
Protection Grade	IP68
Explosion proof Grade	Ex d[ia Ga] IIC T6 Gb

Unit	Code	Parameters
Instrument Type	P	Standard
	F	Explosion-Proof
Housing/ Protection Grade	L	Aluminum Alloy/IP68
	G	Aluminum Alloy Dual Chamber/IP67
	Y	Special Terms
Process Connection	G	Thread G1.5"/3" /3.5"
	Y	Flange
Electronic Unit	2	2 wires (4~20) mA ;24VDC/HART
	3	4 wires (4~20) mA ;220V AC
	4	4 wires (4~20) mA ; RS485 MODBUS-RTU
	Y	Special Terms
Cable Inlet	M	M20*1.5
	N	NPT 1/2
Material Type	L	Liquid
Measuring Range	1	(0~30) m
	2	(0~60) m
	3	(0~150) m
Special Terms	Y	Special Terms

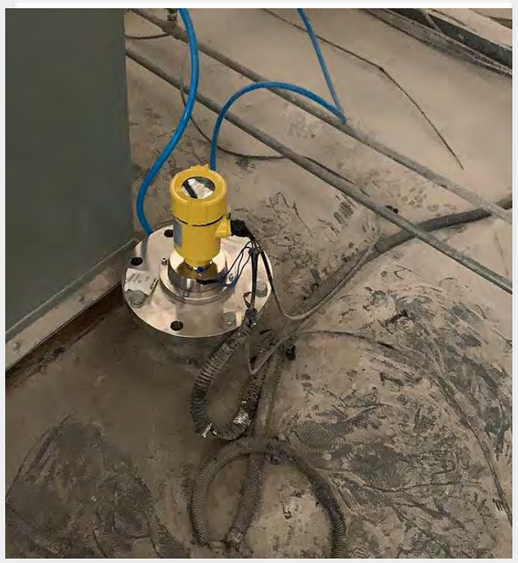
WERD-90S

Application	Liquids (NO Corrosion)
Measuring Range	0～10m
Antenna Type	Lens (32mm) /PTFE
Mounting Thread	Thread / Flange
Beam angle	7-8°
Response Time	<0.6s (Due To Parameter Setting)
Medium Temperature	(-40～120) ℃
DK Value Of Medium	>1.5
Process Pressure	(-0.1～0.3) MPa
Accuracy	<2mm
Signal Output	(4～20) mA HART
Working Frequency	(76 ～ 81) GHz
Explosion proof Grade	Ex d[ia Ga] IIC T6 Gb

Unit	Code	Parameters
Instrument Type	P	Standard
	F	Explosion-Proof
Housing/ Protection Grade	L	Aluminum Alloy/IP68
	G	Aluminum Alloy Dual Chamber/IP67
	Y	Special Terms
Antenna Type	2	Lens/PTFE G1.5
	3	Anti-Corrosive
Process Connection	G	Thread G1.5
	Y	Flange
Electronic Unit	2	2 Wires (4～20) mA 24VDC/HART
	3	4 Wires (4～20) mA 220V AC
	Y	Special terms
Cable Inlet	M	M20*1.5
	N	NPT1/2
Material Type	L	Liquid
Special Terms	Y	Special terms

WERD-91

Application	Corrosive liquids ;Hygienic ; Heavy Steam /Bubble
Measuring Range	0～150m
Antenna Type	Lens (42mm;46mm;76mm)/PTFE
Mounting Thread	Thread /Flange ≥DN80
Beam angle	6°
Response Time	<0.6s (Due To Parameter Setting)
Medium Temperature	(40～200) ℃
DK Value Of Medium	>1.5
Process Pressure	(0.1～2) MPa
Accuracy	2mm (≤35m) ; 5mm (35m-120m)
Signal Output	(4～20) mA HART ; RS485 MODBUS-RTU
Working Frequency	(76 ~ 81) GHz
Protection Grade	IP68
Explosion proof Grade	Ex d[ia Ga] IIC T6 Gb



Unit	Code	Parameters
Instrument Type	P	Standard
	F	Explosion-Proof
Housing/ Protection Grade	L	Aluminum Alloy/IP68
	G	Aluminum Alloy Dual Chamber/IP67
	Y	Special Terms
Process Connection	G	Thread G1.5/3/3.5
	Y	Flange
Electronic Unit	2	2 wires (4～20) mA ;24VDC/HART
	3	4 wires (4～20) mA ;220V AC
	4	4 wires (4～20) mA ; RS485 MODBUS-RTU
	Y	Special Terms
Cable Inlet	M	M20*1.5
	N	NPT 1/2
Material Type	L	Liquid
Measuring Range	1	(0～30) m
	2	(0～60) m
	3	(0～150) m
Special Terms	Y	Special Terms

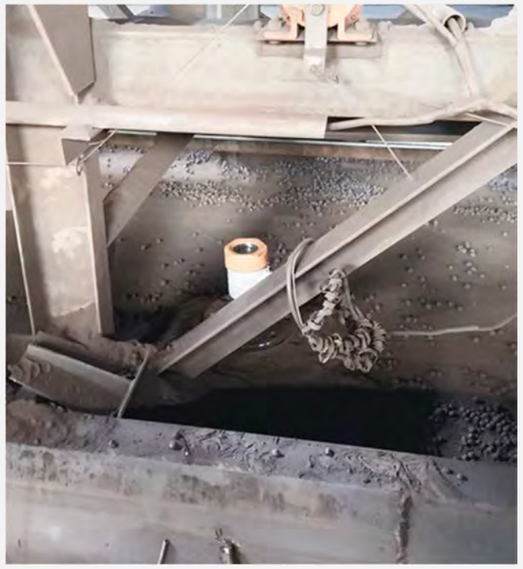
WERD-91S

Application	Corrosive liquids ;Hygienic ; Heavy Steam /Bubble
Measuring Range	0～10m
Antenna Type	Lens (42mm;46mm;76mm)/PTFE
Mounting Thread	Thread G1.5 /Flange
Beam angle	6°
Response Time	<0.6s (Due To Parameter Setting)
Medium Temperature	(40～120) ℃
DK Value Of Medium	>1.5
Process Pressure	(0.1～1) MPa
Accuracy	2mm
Signal Output	(4～20) mA HART ; RS485 MODBUS-RTU
Working Frequency	(76 ~ 81) GHz
Protection Grade	IP68
Explosion proof Grade	Ex d[ia Ga] IIC T6 Gb

Unit	Code	Parameters
Instrument Type	P	Standard
	F	Explosion-Proof
Housing/ Protection Grade	L	Aluminum Alloy/IP68
	G	Aluminum Alloy Dual Chamber/IP67
	Y	Special Terms
Process Connection	G	Thread G1.5
	Y	Flange
Electronic Unit	2	2 wires (4～20) mA ;24VDC/HART
	3	4 wires (4～20) mA ;220V AC
	4	4 wires (4～20) mA ; RS485 MODBUS-RTU
	Y	Special Terms
Cable Inlet	M	M20*1.5
	N	NPT 1/2
Material Type	L	Liquid
Measuring Range	1	(0～10) m
Special Terms	Y	Special Terms

WERD-91L

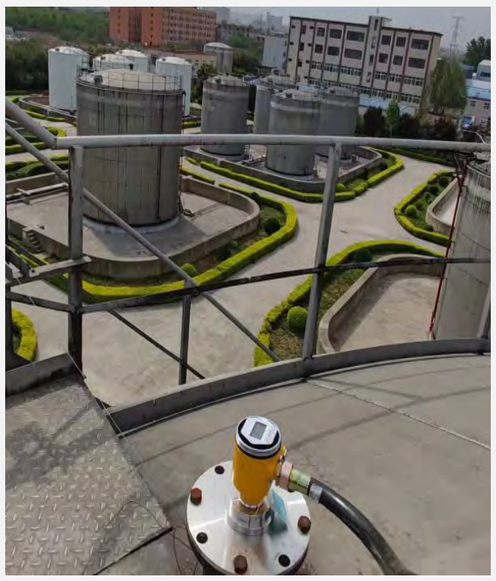
Application	**Liquid (Water or Corrosive Liquids)**
Measuring Range	0～150m
Antenna Type	Lens /PTFE
Mounting Thread	Flange (≥DN80) Or Bracket
Beam Angle	3°
Response Time	<0.6s (Due To Parameter Setting)
Medium Temperature	(40～80) ℃
DK Value Of Medium	>1.5
Process Pressure	(0.1～4) MPa
Accuracy	<2mm
Signal Output	4 wires (4～20) mA , RS485 MODBUS-RTU, SDI-12
Working Frequency	(76 ～ 81) GHz



Unit	Code	Parameters
Instrument Type	P	Standard
	Y	Special Terms
Housing/ Protection Grade	L	Aluminum Alloy/IP68
	G	Aluminum Alloy Dual Chamber/IP67
	Y	Stainless steel
Antenna Type	2	76mm antenna
Process Connection	G	Flange DN80 PN10
	B	Bracket
	C	Flange DN100 PN10
	Y	Special Terms
Electronic Unit	3	4 wires (4～20) mA 24VDC/HART
	4	4 wires RS485 MODBUS-RTU + (4-20) mA
	5	4 wires (4～20) mA 220V AC
	6	SDI-12+(4～20) mA 24VDC
	Y	Special Terms
Cable Inlet	M	M20*1.5
	N	NPT1/2
Material Type	L	Water
	S	Corrosive Liquids
	D	Other
Special Terms	Y	Special Terms

WERD-92

Application	Solid ,Solid with dust ,,Powder
Measuring Range	0～150m
Antenna Type	Lens (76mm)/PTFE
Mounting	Universal flange with purging
Beam Angle	3°
Response Time	<0.6s (Due To Parameter Setting)
Medium Temperature	(-40～120) ℃
DK Value Of Medium	>1.5
Process Pressure	(-0.1～2) MPa
Accuracy	<2mm
Signal Output	(4～20) mA HART , RS485 MODBUS-RTU
Working Frequency	(76 ～ 81) GHz
Protection Grade	IP68
Explosion Proof Grade	Ex d[ia Ga] IIC T6 Gb



Unit	Code	Parameters
Instrument Type	P	Standard
	F	Explosion Proof
Housing/ Protection Grade	L	Aluminum Alloy/IP68
	G	Aluminum Alloy Dual Chamber/IP67
	Y	Special Terms
Antenna Type	1	Lens/PTFE
	3	Other
Process Connection	G	Flange DN80 PN10
	B	Flange DN100 PN10
	L	Flange DN125
	C	Flange DN150
	K	Flange DN200
	Y	Special Terms
Electronic Unit	2	2 Wires (4～20) mA 24VDC/HART
	3	4 Wires (4～20) mA 220V AC
	4	4 wires (4～20) mA RS485 MODBUS-RTU
	Y	Special terms
Cable Inlet	M	M20*1.5
	N	NPT1/2
Material Type	L	Solid
	S	Solid with dust
	D	Powder
Measuring Tange	1	(0～30) m (
	2	0～60) m
	3	(0～150) m
Special Terms	Y	Special Terms

WERD-92S

Application	Solid ，Solid with Dust, Powder
Measuring Range	0～10m
Antenna Type	Lens (42mm;46 mm;76 mm) /PTFE
Mounting Thread	Universal flange with purging
Beam Angle	3°
Response Time	<0.6s (Due To Parameter Setting)
Medium Temperature	(-40～120) ℃
DK Value Of Medium	>1.5
Process Pressure	(-0.1～2) MPa
Accuracy	<2mm
Signal Output	(4～20) mA HART
Working Frequency	(76 ~ 81) GHz
Explosion Proof Grade	Ex d[ia Ga] IIC T6 Gb

Unit	Code	Parameters
Instrument Type	P	Standard
	F	Explosion Proof
Housing/ Protection Grade	L	Aluminum Alloy/IP68
	G	Aluminum Alloy Dual Chamber/IP67
	Y	Special Terms
Antenna Type	1	Lens/PTFE
	3	Other
Process Connection	G	Flange DN80
	B	Flange DN100
	L	Flange DN125
	C	Flange DN150
	K	Flange DN200
	Y	Special Terms
Electronic Unit	2	2 Wires (4～20) mA 24VDC/HART
	3	4 Wires (4～20) mA 220V AC
	Y	Special terms
Cable Inlet	M	M20*1.5
	N	NPT1/2
Material Type	S	Solid
Special Terms	Y	Special Terms

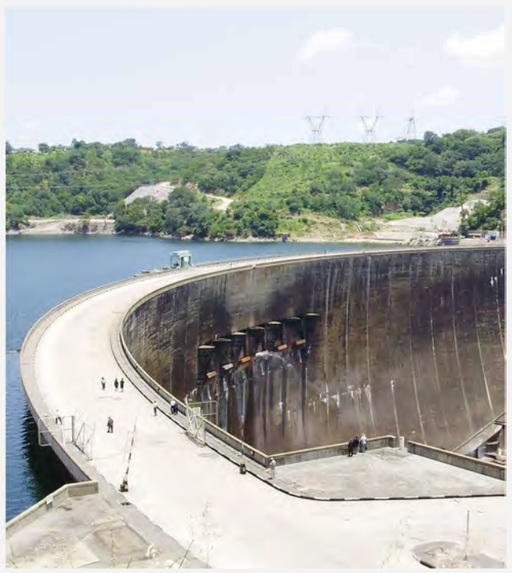
WERD-92E Economical Model of WERD-92 Series

Application	Solid ,Solid with Dust ,Powder
Measuring Range	0～120m
Antenna Type	Lens (76mm)/PTFE
Mounting	Universal flange with purging
Beam Angle	3°
Response Time	<0.6s (Due To Parameter Setting)
Medium Temperature	(-40～120) ℃
DK Value Of Medium	>1.5
Process Pressure	(-0.1～2) MPa
Accuracy	<2mm
Signal Output	(4～20) mA HART , RS485 MODBUS-RTU
Working Frequency	(76 ～ 81) GHz
Protection Grade	IP68
Explosion Proof Grade	Ex d[ia Ga] IIC T6 Gb

Unit	Code	Parameters
Instrument Type	P	Standard
	F	Explosion Proof
Housing/ Protection Grade	L	Aluminum Alloy/IP68
	G	Aluminum Alloy Dual Chamber/IP67
	Y	Special Terms
Antenna Type	1	Lens/PTFE
	3	Other
Process Connection	G	Flange DN80 PN10
	B	Flange DN100 PN10
	L	Flange DN125
	C	Flange DN150
	K	Flange DN200
	Y	Special Terms
Electronic Unit	2	2 Wires (4～20) mA 24VDC/HART
	3	4 Wires (4～20) mA 220V AC
	4	4 wires (4～20) mA RS485 MODBUS-RTU
	Y	Special terms
Cable Inlet	M	M20*1.5
	N	NPT1/2
Material Type	L	Solid
	S	Solid with dust
	D	Powder
Measuring Tange	1	(0～30) m
	2	(0～60) m
	3	(0～150) m
Special Terms	Y	Special Terms

WERD-9H

Application	**Water Level Masurement**
Measuring Range	0～30m
Antenna Type	Integrated lens antenna design
Mounting method	Installing by bracket
Beam Angle	6°
Ambient temperature	(-40～85) ℃
Accuracy	±3mm
Signal Output	RS485 MODBUS-RTU or wireless
Working Frequency	(76 ~ 81) GHz
Protection Grade	IP67



Unit	Code	Parameters
Lens	B	With lens , beam angle 6°
Communication	R	RS485 Communication
	N	NB lot Communication
	G	4G All networks
	L	LoRa Communication
	Y	Special terms
Installation bracket	W	With installing bracket
	N	Without installing bracket
Measuring Range	1	(0～10) m
	2	(0～20) m
	3	(0～30) m
	Y	Special Terms
Special Terms	Y	Special Terms