

Silver Automation Instruments

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# **Measuring Principle**

#### • Principle

The extremely narrow microwave pulse emitted by the antenna on radar level instrument can travel at the speed of light and part of its energy, which is reflected off the surface of target medium, is received by the very same antenna. The time lapse between pulse emission and reception by the antenna is proportional to the distance between the surface of target medium and the reference point on antenna

#### • SDRD 56-2 Used in Radar water conservation Industry

We recommend SDRD 56-2 for water conservation industry which has the following merits:

--Small bean angle, which centralize energy, makes SDRD 56-2 high ability of anti-jamming.

--Small antenna size, easy to install; dust cover to protect the antenna

--Light weight, around 1 kg, easy to install;

--Max measuring range is 70m, can be used in large reservoirs

--Variable output and integral with the system

--Adapts SDRD Series EchoDiscovery Technology, can be used in different applications

--26GHz Pulse, low transmitting power and no harm to person.

## **Product Overview**



Application:	liquids				
Max. range:	30m & 70m				
Process connection:	Screw, flanges				
Process temperature:	-40~100° C				
Process pressure:	Atmospheric pressure				
Accuracy:	3mm for 30m;10mm for 70m				
Output:	RS485/MODBUS				
Power supply:	DC6V-24V				
Display:	Optional				
Housing:	Plastic				
Process Connection:	PP + Stainless steel				
Antenna:	Stainless steel				
Dust Cover	Optional				

# **Mounting Requirement**

#### Basic Requirement

► There is an emission angle for antenna; There should be no any obstacle within the area where the microwave beam covered.

- ► Any shield devices should be avoided, better to learn some "false echo" knowledge;
- Microwave beam should not cross with water flow;
- The highest level should not be in blanking area;
- The radar level meter should be grounded, and take thunder prevention methods;

#### • Illustrations



- 1. Blanking Zone
- 2. Set range
- 3. Max. adjustment
- 4. Min. adjustment

The reference plane is the thread or flange surface.

Note: the highest level should not be in the blanking zone as 1 show above.



Mounting place

1. Reference plane

The radar level meter should keep distance between the wall at least 200mm.

#### • Weather Proof



• Typical Wrong Installation



Radar level meters which are installed outdoors need to take following methods to protect the radar:

- 1. Tightly screw the cable glands
- 2. Curve the cable where near the electrical port downward.

- Wrong: do not install the radar level meter above the pouring flow ; the measuring media is water surface not water flow;
- 2. Correct: Weather proof measurements have been taken.

• Reflector Installation



If there are obstacles such as dam to affect measuring, reflectors are recommended. Or adjust mounting places; When necessary, "false echo" should be learned.

## **Electrical Connection**

#### • Power supply

RS485/MODBUS (DC6V-24V Power supply) (DC6V-24V Power supply) Isolation RS485 output, Supporting MODBUS Communication Protocol; Other Communication protocol is available Power supply can outer diameter is 5-9mm, cable gland should be sealed. Shield cable is required when there is electromagnetic interference

#### • Wring



#### 1. 1,2 power supply 6~24VDC

2. 4,5,6 RS485 Output

# **Adjustment Instructions**

#### Adjust methods:

- 1. Display/bottoms
- 2. Host Computer software SDRD ware

[OK]Keypad -Enter programming mode; -Confirm programming options; -Confirm modifications to parameters.

[ A ]Keypad -Modify parameter values. -Choose display mode

Shortcut [ B K ]Display Echo wave [ • ]Keypad
-Choose programming options;
-Choose the digit of parameters to edit;
-Display the contents of parameters.

[вк] Keypad -Programming mode exit; -Return to higher menu level.

#### Display/bottoms



1. LCD Display; 2. Bottoms

Dimensional Drawing (unit:mm)





A/B/G Housing Mateiral:PBT/AL/ 316L

D/H Housing





• SDRD56-2 Screw type



с	H(316L)	H (316L WITH COVER)
948	140	
Þ78	227	
Þ98	288	300

# **Technical Specifications**

#### • General Parameters

	Process Connection	ThreadG1 <sup>1</sup> / <sub>2</sub> A			
	Antenna Material	Stainless steel 316L/PTFE			
	Housing	Aluminum,plastic,ss316L			
	Seal ring between housing and housing cover	Silicone			
	ViewPoint window on housing	Polycarbonate			
	Ground terminal	Stainless Steel			
	Weight	1kg (Depend on process connections and			
		housings			
Power supply	Power supply	6~26 V DC			
	Power Consumption	max.12 mA(12V)			
Cable Entry/Plug	Cable Entry/Plug	One cable entry of M20x1.5(cable			
		diameter of $5 \sim 9$ m), one binding of			
		M20x1.5			
	Connection Terminal	Applicable for cables with cross section			
		of 2.5mm <sup>2</sup>			
Origination	DC 407				
Output	K5485	SV Electrical level BS485			
		Sv Electrical level, KS465			
Charactoristi	a noromotor	Baud rate 9.0Kops, data format 8M			
• Characteristic	Blanking Zone				
	Max Measuring rangeSDRD56-2	30m liquid			
		70m liquid			
	Spidtol 2	, on nquiu			
	Microwave frequency	26GHz			
	Measurement Interval	About 1sec(Depend on parameter			
		settings)			
	Adjustment Time	About 1sec(Depend on parameter			
		settings)			
	Resolution of Display	1 mm			
	Accuracy	See accuracy figures			
	Temperature for Storage/Transport	(-40∼100)°C			
	Process Temperature	(-40∼100)°C			
	Relative Humidity	<95%			

SDRD56-2	3Db Beam Angle	
	-Φ48mm	18°
	-Φ75mm	12°
	-Φ98mm	8°
	-Φ123mm	6°
	Accuracy	See diagram below



SDRD56L-2	3Db Beam Angle					
	-Ф48mm	18°				
	-Φ75mm	12°				
	-Ф98mm	8°				
	-Φ123mm	6°				



# **Selection & Ordering Information**

#### SDRD56-2

Тур	Туре									
Р	Star	ndard t	type ( 1	30m le	vel rar	nge)				
L	Enhanced type (70m level range)									
	Ant	Antenna/Material								
	В	Horn	Horn Φ48mm/Stainless Steel 304							
	С	Horn	Iorn Φ78mm/Stainless Steel 304							
	Н	Horn Φ98mm/Stainless Steel 304								
	Х	Special Demand								
		Process Connection								
		GB	Three	ad G1½"A/PP						
		GX	Spec	ial De	al Demand					
			Flange/mateiral							
			F0	None	None					
			FA	Flang	Flange DN50/PP					
			GA	Flang	Flange DN80/PP					
			HA	Flang	Flange DN100/PP					
			FX	Spec	Special Demand					
				Seal/Process Temperature						
				V	V Viton(-40~150) ° C					
					Elect	ronic				
					R	RS48	35/Modbus			
					Х	Spec	ial Demand			
						Hous	ing/Protection			
						Α	Aluminium/IP67			7
						В	Plastic /IP67			
						D	Alun	ninium	(2-0	chamber)/IP67
							Cable Entry			
							М	M M20x1.5		
							Ν	½NPT		
								Display/Programming		Programming
								А	Ye	S
								Х	No	
								Sunshade Cover		nshade Cover
								A Yes		
									Х	No