

# JFR484 Radar Wave Level Gauge

## INTRODUCTION

The JFR4 radar wave level meter is a smart, non-contact solids level-measuring instrument that uses 80GHz high-frequency. The antenna is further enhanced for optimal processing. The new, fast microprocessor can perform signal analysis and processing at a faster rate, ideal for level measurement in storage tanks and solid silos.

Provides RS-485 digital signals and emits 4~20mA analog signals, which can be easily connected to back-end extension applications.

The product is dustproof and waterproof, suitable for outdoor or industrial environments, and can be used for industrial measurement of barrels and tanks, and other measurement of solids in industrial and environmental applications.

## WORKING PRINCIPLE

The radar level gauge transmits a continuous radar wave signal from the antenna. This signal is a frequency-modulated continuous wave (FMCW). There is a frequency difference between the continuous wave emitted from the radar level gauge antenna and the echo returned from the surface of the object. The frequency difference is proportional to the distance between the antenna and the surface of the object. After receiving the echo, the electronic components are processed using a unique high-precision algorithm, the Fast Fourier Transform (FFT), which enables the instrument to accurately measure the height of the liquid level.

## SCOPE OF APPLICATION

It is used to monitor material levels and measure barrels and tanks in industrial, food, cement plants and other sectors.

- Flour, cement powder, etc. material level measurement

## SPECIFICATIONS

Medium	Solids
Measurement range	35m/85m
Frequency	80GHz
Antenna type	High gain speaker (76D)
Power supply	24VDC
Power consumption	Two-wires/four-wires: Max.0.54W
Resolution	1.6 uA
Blind spot	0.4m/0.5m
Accuracy	±1mm
Analog output	4-20mA
Digital communication	RS485
Beam angle	4°
Operating temp. range	-40~120°C

Antenna material	φ76mm SUS304/SUS316L
Operating pressure	0~40bar
Fault output	20.5mA ; 22mA ; 3.9mA
Damping time	0~100s adjustable
Cover window	PC
Cover seal material	Fluorine rubber
Cover material	Aluminum shell/IP67 (two-wire type) Double-cavity aluminum /IP67 (four-wire type)
Cable inlet	M20*1.5(cable outer diameter:6~9mm) Blind plug 20*1.5
Weight	2 kg (Depends on the process connection)
Shock resistance	Mechanical vibration 10m/s <sup>2</sup>

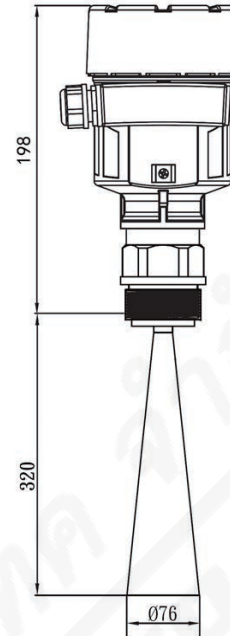


## FEATURES

- Non-contact measurement, no wear and tear, and no pollution.
- Small antenna size, easy to install.
- Short wavelength, reflects well on inclined surfaces.
- The measurement blind spot is small; therefore having a good advantage when measuring small storage tanks. ; The beam angle is small, the energy is concentrated, and the echo ability is enhanced, making it conducive in avoiding interfering objects.
- Unaffected by temperature and pressure changes.
- Dust environments can also accurately read the real-time echo.
- High signal-to-noise ratio, even in the case of fluctuations.
- The 80GHz frequency is the best choice for measuring solid and low dielectric constant media, and it is suitable for the measurement of material working conditions with the dielectric constant of the medium under test  $\geq 1.8$ .

## APPEARANCE SIZE

(unit: mm)



## ORDER INFORMATION

**JFR48400 -** <sup>09</sup><sup>10</sup> **0 B** <sup>13</sup><sup>14</sup><sup>15</sup><sup>16</sup><sup>17</sup><sup>18</sup> **A C** <sup>21</sup> **A** <sup>23</sup> **A B**

<sup>09</sup> Measuring distance

D : 35m      E : 85m

<sup>10</sup> Antenna type

I :  $\phi$ 76mm Lens antenna/SUS304  
J :  $\phi$ 76mm Lens antenna/SUS316L

Connection

<sup>13</sup> <sup>14</sup>

Flange connection

AK : JIS-FF  
AO : ANSI-FF  
AS : DIN-FF

<sup>15</sup> <sup>16</sup>

B5 : 3"

B7 : 4"

E4 : DN80

E5 : DN100

<sup>17</sup> <sup>18</sup>

42 : 10Kg/cm2

48 : 150Lbs

58 : PN16

<sup>21</sup> Output/Input

A : 4~20mA / 24V DC Two-wire

C : 4~20mA / 24V DC Four-wire

E : RS485 / Modbus(Housing/Ingress Protection, choose C)

<sup>23</sup> Housing/Ingress Protection

C : Aluminium/IP67(Ps. Two-wire)

D : Double cavity aluminum/IP67(Ps. Four-wire)

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