EASY TO INSTALL

REMOTE SETTING

NON-CONTACT MEASUREMENT

EXTENSIVE APPLICATIONS

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JFR3 FMCW
Radar Level Transmitter

FineTek

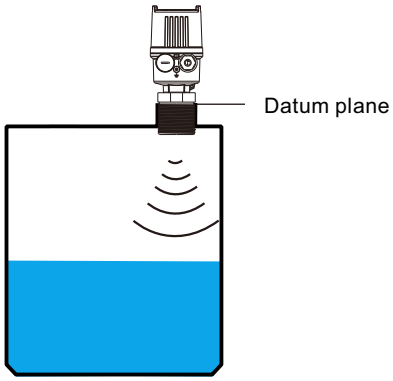
Innovation · Quality · Sharing

INTRODUCTION

JFR3 FMCW radar level transmitter is a non-contact measuring device, suitable for liquid level measurement in most tanks. It is easy to install, convenient to maintain, and can be used in corrosive applications. With its high precision and stability, it is widely used in liquid level detection and process control in the industrial field.

FMCW radar (JFR) adopts a high frequency (GHz level) scanning method; electromagnetic waves are transmitted from the antenna to the target to be measured, then reflected to the receiver over time. During this period, a frequency difference will appear, which can be further calculated to obtain the distance from the transmitting end to the measured object.

FineTek FMCW radar uses K Band frequency scanning, with a measurement bandwidth of around 1 GHz. The frequency difference is processed by Fast Fourier Transformation (FFT) which can accurately distinguish the main signal from background noise or echoes. Using a phase-lock Loop (PLL) circuit will result in a high accuracy and reliable measurement.



SPECIFICATION

Model	2-Wire / 4-Wire
Medium	Liquid
Min. Dielectric constant	≧ 2
Measuring range	10M(JFR301) / 12M(JFR300)/15M(JFR361)
Accuracy	< 2.5m,± 5mm > 2.5m,± 0.2% F.S
Repeatability	±3 mm
Ambient temperature	-40~+75 °C
Proccess temperature	-40~+80 °C
Operating pressure	-1~+10 bar
Power supply	20~36Vdc(2-wire) / 8~36Vdc(4-wire)
Analog output	Loop power 4~20mA (2-wire) / 4~20mA Source(4-wire)
Digital communication	N/A(2-wire) / RS-485(4-wire)
Local display	Five-digit Backlight LCM
Housing material	Aluminum Alloy Ip67
Frequency	26 GHz
Antenna material	PTFE(JFR300)/POM(JFR301)/ Aluminum alloy(JFR361)
Beam angle	12°(JFR300)/16°(JFR301)/8°(JFR361)
Blind distance	350mm underneath the bench-mark / 200mm underneath the bench-mark

* Can connect up to 32 units of JFR3 when using RS-485 communication.
* We recommend maximum of 25 units of JFR3 for best result when using RS-485 communication

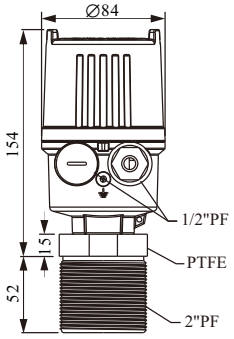
FEATURES

- Non-contact measurement.
- Able to measure corrosive & toxic liquids, hydrocarbons and slurries.
- Measurement unaffected by specific gravity, temperature, viscosity or foam.
- Echo wave display – resulting in accurate adjustment and parameter setting.
- Measuring range scanning, background noise editing & removal, save function.
- Able to indicate distance, material level, percentage and current 4~20mA.
- Language selection of traditional Chinese, simplified Chinese, English.
- Low power consumption: max 480mW @ 24Vdc(2-Wire).
- 4mA、20mA is Analog output.
- Can be calibrated and parameterized using FAS software for PC.

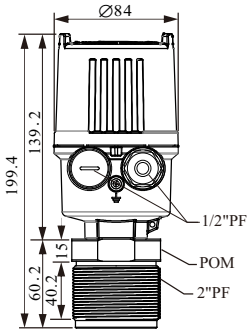
DIMENSION

(Unit:mm)

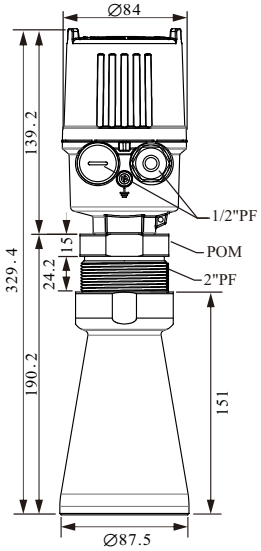
Standard type-JFR300



Hydrographical type-JFR301



Hydrographical type-JFR361



ENVIRONMENTAL APPLICATION

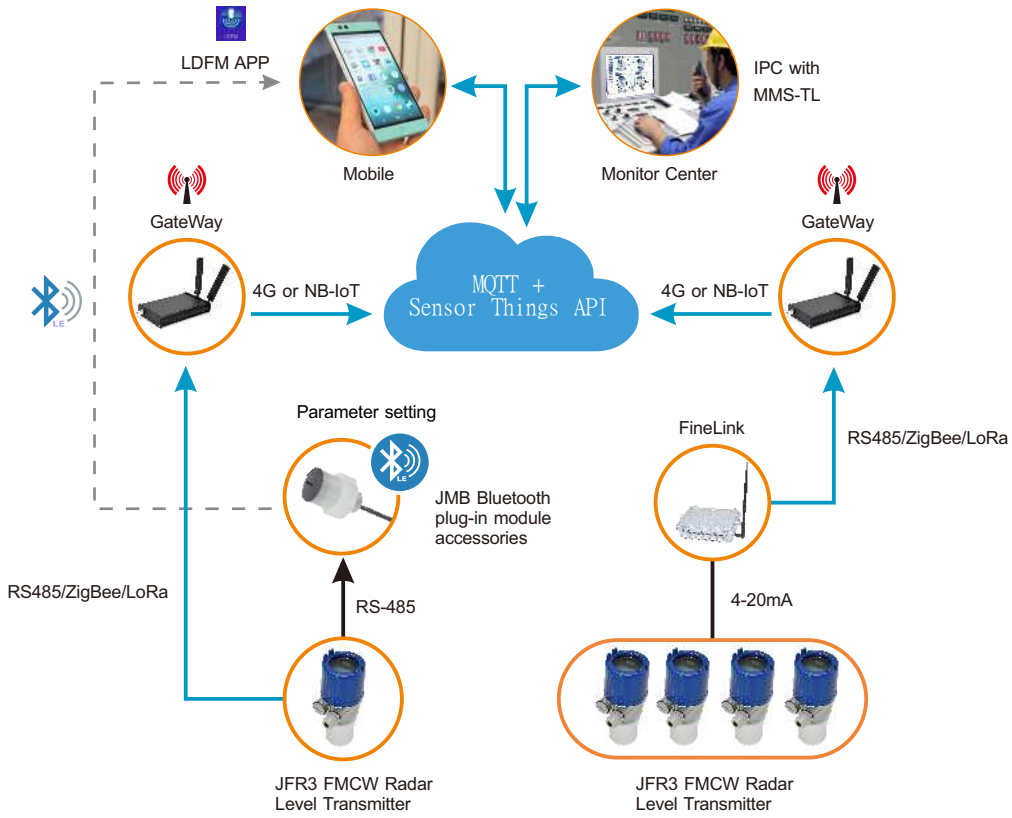
1. With an onsite universal level gauge display, it can be used for distance measurement, liquid level measurement, stock indication or pump control.
2. Liquid level monitoring of raw water, recycled water or wastewater in various applications such as storage tanks, rivers, channels, pools etc.
3. Liquid level measurement in process tanks with mediums such as water, grease, resin, paint, heavy oil, beverage, etc.

APPLICATION

Support MQTT Cloud & Sensor Things API

JFR3 combines GateWay (4G / NB-IoT) to access the Internet. The level measurement data can be uploaded to the cloud through MQTT. Users can acquire and analyze data on the cloud platform.

Sensor Things API is an "Open Geospatial Consortium (OGC) standard" that provides an open and unified framework. It defines the "semantics" of the IoT information at the application.



Example

■ Short Antenna Type (Hydrographical) - JFR301

Installation onsite

Measuring range: 10m
Application: Pond, throttle pond, detention basin.

■ Storage Application - JFR300

Can be used in plastic storage tanks. The low dielectric constant of plastic makes radar wave signals have a penetrating property.
It can be directly top-mounted, without drilling holes for the flange extension tube and it won't damage the integrity of the storage.
Measuring range: 12m

Installation On Site

ORDER INFORMATION

JFR3 FMCW Radar Level Transmitter

-Standard type (JFR300)-

JFR30000-C121AAB20300㉑BA

㉑ Output / Input

A: 4-Wire , 8-36Vdc With RS-485 , (No Local Display)
B: 4-Wire , 8-36Vdc With RS-485 and 4-20mA , (Local Display)
C: 2-Wire , Loop Power 20~36Vdc , 4-20mA , (Local Display)

-Hydrographical type(JFR301)-

JFR30100-C217AAB20300㉑BA

㉑ Output / Input

B: 4-Wire , 8-36Vdc With RS-485 and 4-20mA , (Local Display)
C: 2-Wire , Loop Power 20~36Vdc , 4-20mA , (Local Display)

-Hydrographical type(JFR361)-

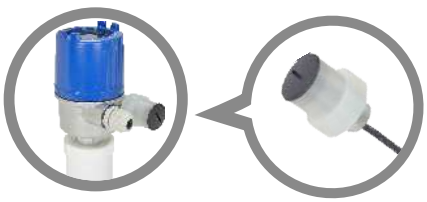
JFR3G100-C3MHAAB20300㉑BA

㉑ Output / Input

B: 4-Wire , 8-36Vdc With RS-485 and 4-20mA , (Local Display)
C: 2-Wire , Loop Power 20~36Vdc , 4-20mA , (Local Display)

MODEL NUMBER / ORDER CODE COMPARISON TABLE

Model Number	Order Code
JFR300	JFR30000-C121AAB20300□BA
JFR301	JFR30100-C217AAB20300□BA
JFR361	JFR3G100-C3MHAAB20300□BA



Bluetooth plug-in module accessories(4-Wire)
Order Code: JMB10000-501A503

JFR3 signal anxiliary neck accessories
Order Code: JFRAM3P-MA21010501

JFR3 display type cover protector accessories
Order Code: HP420–L090256001

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