



FRFI

RF admittance/ capacitance level transmitter

RF Admittance Level sensor FRFI series adopts advanced RF admittance technology and overcomes the defects that the capacitor level sensor could not eliminate the effect by conductive hanging material. The instrument operates reliably and various technical indexes have archived the international level, which is widely used in control and alarm of liquid, pulp, powder, material level. It is not affected by water vapor, dust or the influence of condensation, with the long-term stable operation, high sensitivity, Good linearity, high temperature resistance, resistance to high pressure, etc.

Product series



Structure Principle

RF Admittance Level Sensor FRFI series consists of sensor unit and electronic unit. Making the medium among in electrode and metal barrels of wall be a capacitor then put a high frequency signal in the electrode, there will be a small current through the medium back to the barrel wall at the electrode. As the change of material level within the tank, Capacitance between electrodes and the tank wall changed, too. Solid state electronic circuit capacitance level meter will continuously monitor the change, And this change compares with a very stable reference circuit. And then output a signal which is proportional to the level of precision of 4-20 ma current.

Technical Parameters

Power supply : 18V-30VDC

Output: 4-20mA (two wire)

Output mode: level mode or distance mode

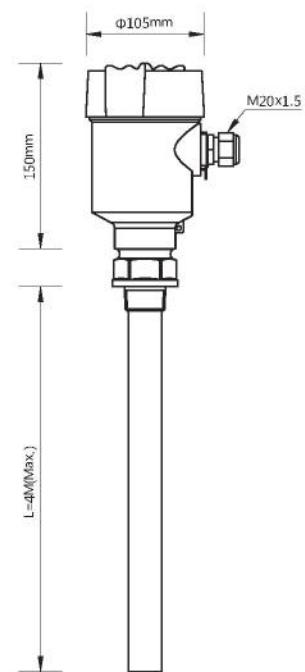
Ambient Temperature: -40°C ~70°C

Maximum load : 24VDC 350Ω

Response Time: Standard: 1s, 1-30s adjustable

Precision : ±1%

Measuring range: Maximum 15000 pf, maximum distance of 100 m (different sensor for different maximum range)



Product outline

Electrode Model Selection

| Electrode No. | Electrode form & Typical Application | Operating Temperature & Operating Pressure | Length Inserted | Electrode Material |
|---------------|--|--|-----------------|--------------------|
| 01 | Standard Type Used in liquid, light pulp, particles | 121°C /1.38MPa | 150 ~ 10000mm | 316SS and PTFE |
| 11 | Heavy Hanging Type Used in stirred liquid, thick pulp, particles | 121°C /1.38MPa | 150 ~ 1000mm | 316SS and PTFE |
| 21 | High Temperature Type Used in liquid, light pulp, particles | 180°C /1.38MPa | 150 ~ 10000mm | 316SS and PTFE |
| 31 | Anticorrosion Type Used in liquid, light pulp, particles | 121°C /1.38MPa | 150 ~ 5000mm | PTFE |

Model Selection Table



Model : FRFI-XXXX-S21-X-X
Application: Conductive liquid, pulp, particles
Temperature/pressure : 230°C /3MPa
Process connection : 3/4"NPT
Sensor type : SUS304/TFE



Model : FRFI-XXXX-S23-X-X
Application : Large-range of isolated powder
Temperature/pressure : 120°C /3.5MPa
Process connection : 3/4"NPT
Sensor type : SUS304/PVDF



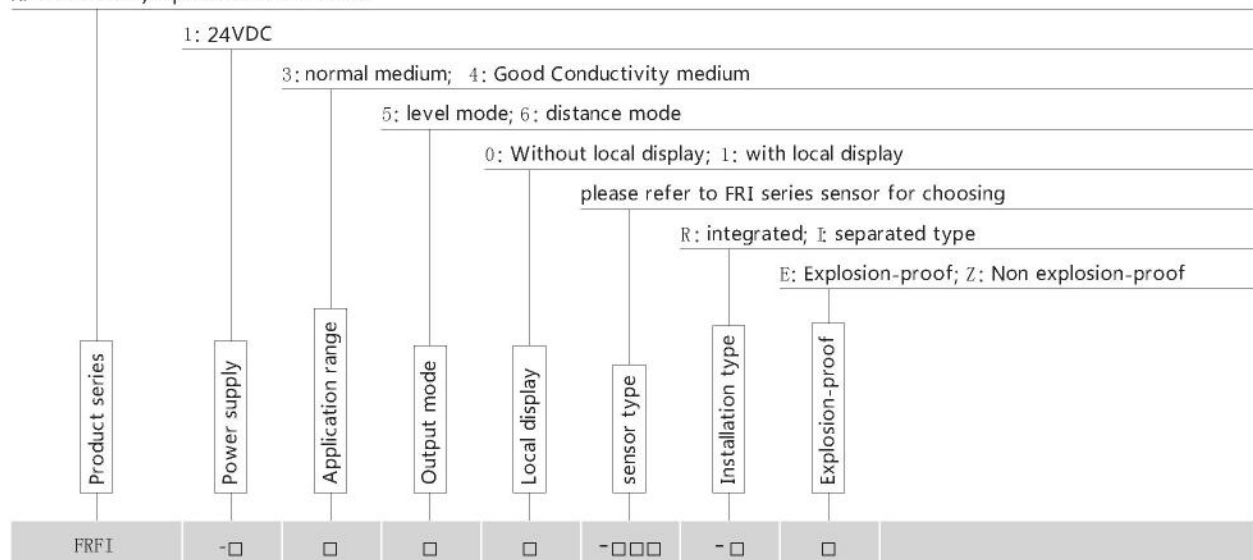
Model : FRFI-XXXX-S22-X-X
Application : large-range of conductive liquid and interface
Temperature/pressure : 200°C /3MPa
Process connection : 3/4"NPT
Sensor type : SUS304/FEP



Model : FRFI-XXXX-S24-X-X
Application : Isolated powder, ash
Temperature/pressure : 230°C / normal pressure
Process connection : 3/4"NPT
Sensor type : SUS304

Selection table

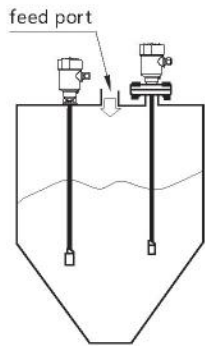
RF admittance/capacitance level sensor



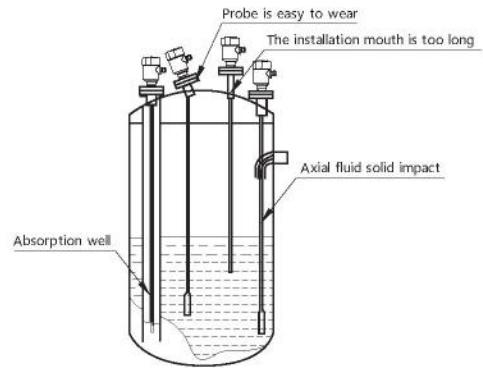
FRFI series RF admittance level sensor option

| Sensor signal | Temp & pressure | Maximum length | Sensor material | Sensor outline | Installation size | Application |
|---------------|------------------------|--------------------------|-----------------|--|--------------------|---|
| S21 | 230°C /3MPa | 5m | 304SS/PTFE | Φ: 18mm Two-level lever | 3/4" NPT or 1" NPT | Temperature in medium voltage, general application of conductive liquid, slurry, particles |
| S22 | 200°C /3MPa | 20m | 304SS/FEP | Φ: 2.7mm Two-level lever | 3/4" NPT | Big range, conductive, Liquid, the interface |
| S23 | 120°C /3MPa | 30m | 304SS/PVDF | Φ: 8mm Two-level lever | 3/4" NPT | Big range, medium viscosity conductive liquid and powder |
| S24 | 200°C /normal pressure | Φ:4mm 15mm Φ:8mm 30mm | 304SS/PTFE | Φ: 4mm/8mm Two-level lever | 3/4" NPT | Big range, insulation powder |
| S25 | 200°C /2MPa | 5mm | 304SS/FEP | Φ: 12mm Two-level lever | 3/4" NPT | Strong acid and alkali, corrosion of the flange |
| S26 | 230°C /3MPa | 5mm | 304SS/PTFE | Φ: 18mm Two-level lever or double lever | 3/4" NPT Flange | Double sheath material with lever refer to the subgrade used in Strong corrosion, non-metallic containers |

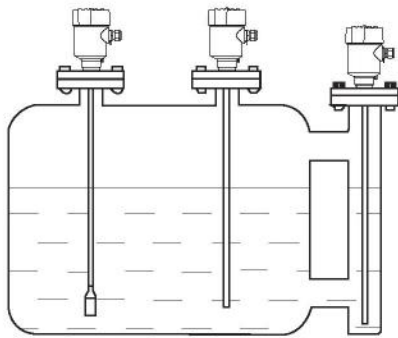
FRFI series RF admittance level sensor option



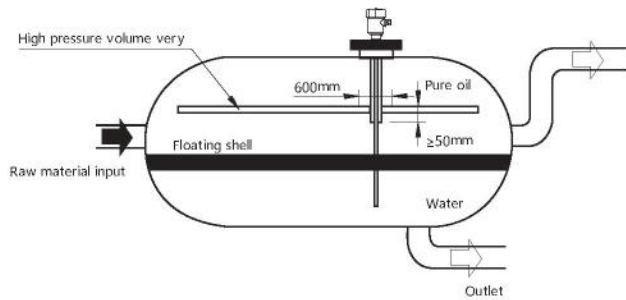
Solid warehouse installation schematic diagram



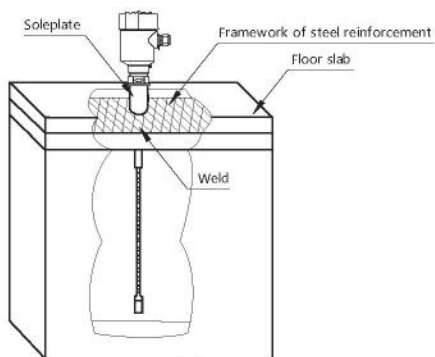
Wrong installation schematic diagram



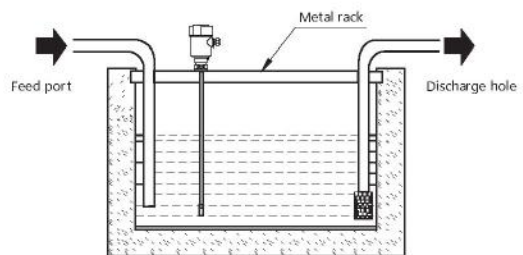
Liquid storage installation schematic diagram



Electrical schematic off



Non-metallic warehouse installation schematic diagram



Open pool installation schematic diagram