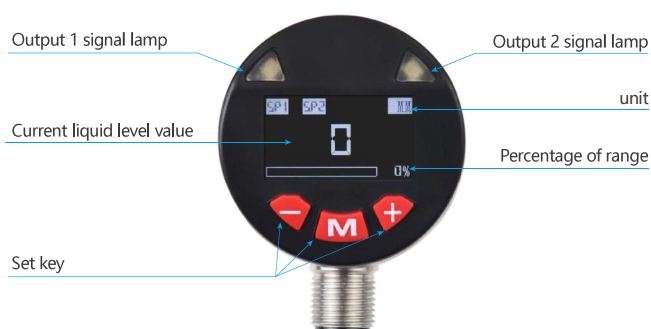




Product principle

The FRKA series uses radar-type principle sensors for liquid level measurement. The signals are processed by the rear processing circuit and then converted into standard industrial electrical signals for output and display. The radar-type sensor is equipped with internal electrodes that interact with the metal tank or container to generate capacitance values. These capacitance values change as the medium volume in the cavity increases or decreases, thereby determining the liquid level value of the medium.

Panel diagram



Product features

- All-metal casing design
- Color LCD display
- The button design and user-friendly menu make the product usage more convenient.
- Multiple connection methods can fully meet various specific installation requirements.
- The 330° rotatable display head can ensure the best performance under different installation methods.
- High viscosity medium, strong anti-fouling ability

Product Application

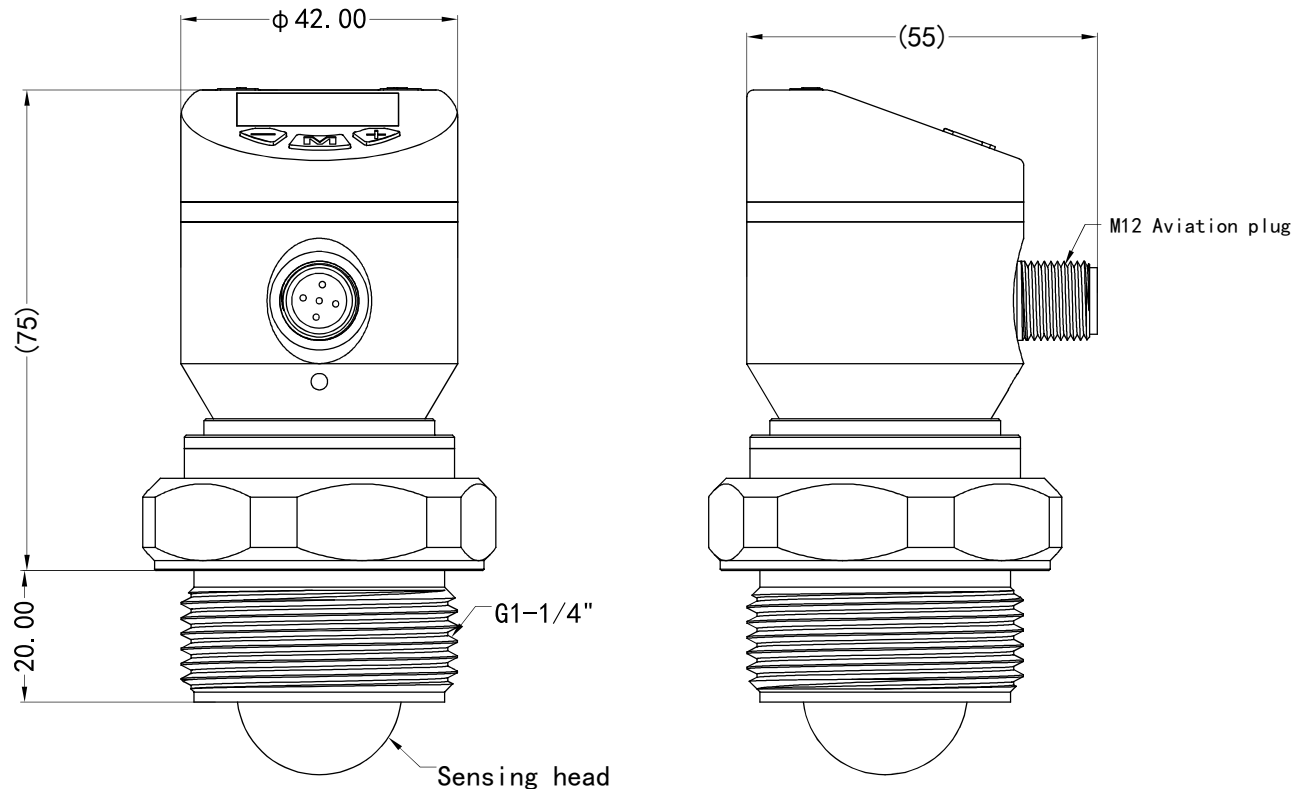
- Can be applied to various liquid level measurements of solids

Technical Specifications

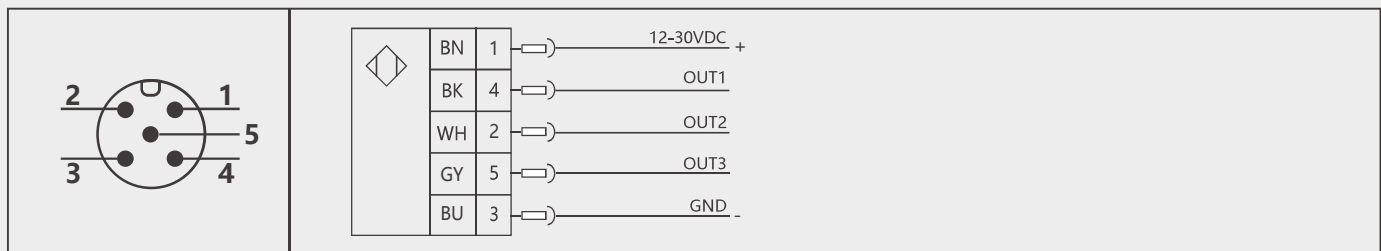
- ◇ Measurement range: 500...30000mm (top blind zone 50mm)
- ◇ Measured medium: Liquid/Solid
- ◇ Pressure resistance: 10 bar
- ◇ Accuracy: $\pm 2\text{mm}$
- ◇ Power supply voltage: 16... 28Vdc
- ◇ No-load current consumption: $\leq 30\text{mA}$, when powered by 24Vdc
- ◇ Switch output
- ◇ Output type: PNP / NPN / Normally Open / Normally Closed can be set
- ◇ Output current: $< 500\text{mA}$
- ◇ Current-mode analog output
- ◇ Output type: Three-wire 0... 20mA/4... 20mA option
- ◇ Load RA: $RA \leq 500\text{ ohms}$
- ◇ Linearity: $\leq \pm 1.5\%$ of the range
- ◇ Voltage-type analog output
- ◇ Output type: three-wire 0... 5V/1... 5V optional
- ◇ Load RA: $RA > 10\text{Kohm}$
- ◇ Linearity: $\leq \pm 1.5\%$ of the range
- ◇ Wiring protection: Inverting, overload, short circuit protection
- ◇ Display: Color LCD display
- ◇ Temperature
- ◇ Operating temperature: $-20...80^{\circ}\text{C}$
- ◇ Medium temperature: $-20...80^{\circ}\text{C}$
- ◇ Storage temperature: $-30...80^{\circ}\text{C}$
- ◇ Materials
- ◇ Shell: Stainless steel 304
- ◇ Probe: Stainless steel 304 (outer layer PTFE)
- ◇ Protection level: IP67
- ◇ Outlet method: M12×1 connector directly attached wire

FRKA Radar-type Liquid Level Sensor

Dimension drawing (mm)



Wiring diagram



A3: Two switches + one analog (4-20mA)

colour	stitch	instructions	Colour	stitch	instructions	Colour	stitch	instructions
BN	1	power supply (+)	BU	3	power supply (-)	GY	5 (OUT3)	Level: 4-20mA (factory default)
BK	4 (OUT1)	Level switch PNP (Factory default) Level switch NPN	WH	2 (OUT2)	Level switch PNP (Factory default) Level switch NPN			

V5: Two switches + one analog (1-5V)

colour	stitch	instructions	Colour	stitch	instructions	Colour	stitch	instructions
BN	1	power supply (+)	BU	3	power supply (-)	GY	5 (OUT3)	Level: 1-5V
BK	4 (OUT1)	Level switch PNP (Factory default) Level switch NPN	WH	2 (OUT2)	Level switch PNP (Factory default) Level switch NPN			

Selection Table

FRKA-	A3	G112M	500	Detailed description
FRKA-				Radar liquid level sensor
	A3			Output signal: Two switch outputs + analog output (4...) 20mA)
	V5			Output signal: Two switch outputs + analog output (1...) 5V)
		G112M		Process connection: G1-1/2 external thread
		G114M		Process connection: G1-1/4 external thread
		F25		Process connection: DN25 flange connection
		F50		Process connection: DN50 flange connection
			500	Measurement range: 500mm
			1000	Measurement range: 1000mm
			1500	Measurement range: 1500mm
			2000	Measurement range: 2000mm
			2500	Measurement range: 2500mm
			...	...
			30000	Measurement range: 30000mm

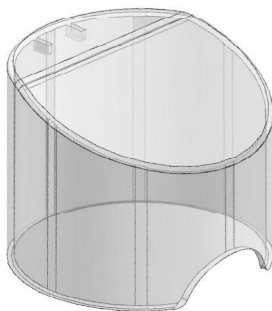
Special requirements can be customized.

Optional accessories - Electrical accessories (M12-5Pin: Factory default ZL05-PC02G)

name	Outline drawing/dimension drawing (unit :mm)	material	Model number	Shielded wire	M12*1-5Pin self-connector/Dimensions (Unit :mm)	Model number
M12*1-5Pin (2m cable)		PUR	ZL05-PU02G	- P		GL05 (4 Pin connector)
M12*1-5Pin (5m cable)			ZL05-PU05G			
M12*1-5Pin (10m cable)			ZL05-PU010G			
M12*1-5Pin (2m cable)		PVC	ZL05-PC02G			WL05 (5 Pin connector)
M12*1-5Pin (5m cable)			ZL05-PC05G			
M12*1-5Pin (10m cable)			ZL05-PC010G			
M12*1-5Pin (2m cable)		PUR	ZL05-PU02W			
M12*1-5Pin (5m cable)			ZL05-PU05W			
M12*1-5Pin (10m cable)			ZL05-PU010W			
M12*1-5Pin (2m cable)		PVC	ZL05-PC02W			
M12*1-5Pin (5m cable)			ZL05-PC05W			
M12*1-5Pin (10m cable)			ZL05-PC010W			

Optional accessories - Protective cover

Color crystal screen series (switch) sensor protection cover



Order number: KTCS33661