FR-LS20L

Long range Sensor main unit Sanitary model

*Please note that accessories depicted in the image are for illustrative purposes only and may not be included with the product.

Specifications

Model		FR-LS20L
Type		Long range Sanitary model
Measuring range		Up to 15 m 49.2'*1
Display range		Up to 25 m 82.0'*1
Measurable dielectric constant of medium		2 or higher*2
Resolution		1 mm 0.04"
Precision		Up to 0.1 m 0.3': ±10 mm 0.39"; 0.1 to 10 m 0.3' to 32.8' : ±1 mm 0.04"; 10 to 15 m 32.8' to 49.2': ±2 mm 0.08" *3
Response time		0.4 s, 1.5 s, 4 s (default value), 10 s
Tank pressure		-0.1 to +1 Mpa
Material	Tank interior	Lens: PTFE Ferrule Internal Packing: EPDM (when using OP-88920) Ferrule: SUS316L (when using OP-88888/88889)
	Housing	SUS304
Connection diameter		2 S ferrule
Output	No. of control outputs	Maximum 5
	Control output/auxiliary output	NPN/PNP open collector (switching type) 30 VDC or less, max 50 mA for each Residual voltage of 1.4 V or less (50 mA or less) N.O./N.C. Switching type IO2 is switchable to IO-Link
	Analog output	0–20 mA/4–20 mA maximum load resistance 260 Ω (Response time: 0.2 s after judgment output is confirmed [90% response])
External input		—
Network compatibility		IO-Link v1.1/COM2
Analog output accuracy	Resolution	1 mm 0.04"*4
	Zero accuracy	±0.1 mA (zero point = 4 mA)*4
	F.S. accuracy	±0.2 mA (full-scale = 20 mA)*4
Power supply	Power voltage	24 VDC + 25%/–20% Including ripple Class 2 or LPS
	Power consumption	106 mA or less (Excluding Load Current)
Environmental resistance	Ambient temperature	−20°C to +60°C*5*6 -4°F to+140°F (no freezing)
	Relative humidity	Up to 85% RH (no condensation)
	Temperature of coupling used	–20 to +100°C -4°F to+ 212°F (no freezing)*5*6
	Vibration resistance	10–500 Hz Power spectral density: 0.816 G^2; X, Y and Z directions
	Shock resistance	100 m/s^2 (10 G), 16 ms pulses, 1000 times each for X, Y and Z directions
Enclosure rating		IP67 (IEC60529), IP69K (ISO20653)

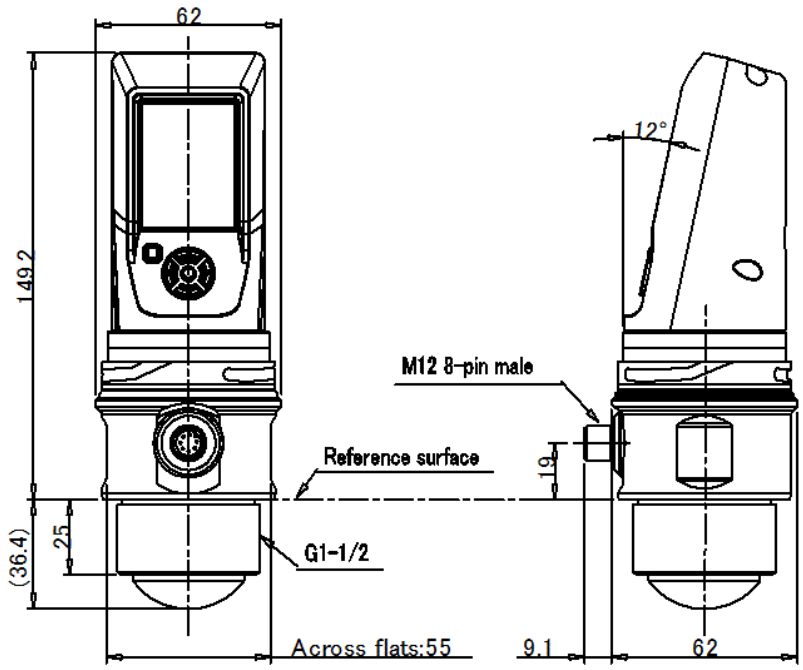
Protection circuit	Protection against reverse power connection, power supply surges, output overcurrent protection, and output surges
Weight	Approx. 900 g 31.75 oz

*1 Guaranteed value in water with the recommended installation. Static water can be measured up to the edge of the lens. An undetectable area on the short-range side is created due to the environment and measurement medium. The maximum measuring distance is also shortened.
*2 Measurement may not be possible depending on the shape and environment of the target.
*3 This is the guaranteed value from verification performed at KEYENCE inspection facilities. Measurement errors may occur depending on the customer's environment.
*4 This is the guaranteed value from verification performed at KEYENCE inspection facilities with a load resistance of 250 Ω. Measurement errors may occur depending on the customer's environment.
*5 The FR-S01 and FR-LM20L/LP20L can be used up to an ambient temperature setpoint of 10°C 50°F by selecting "Off when not in Operation" under "Screen Brightness."
*6 When performing SIP with FR-S01/FR-LM20L/LP20L/LS20L, be sure to turn off the power and perform at an ambient temperature of 40°C 104°F or less and an internal temperature of 130°C 266°F or less for up to one hour. In addition, always install the KEYENCE optional ferrule mounting bracket and internal gasket.

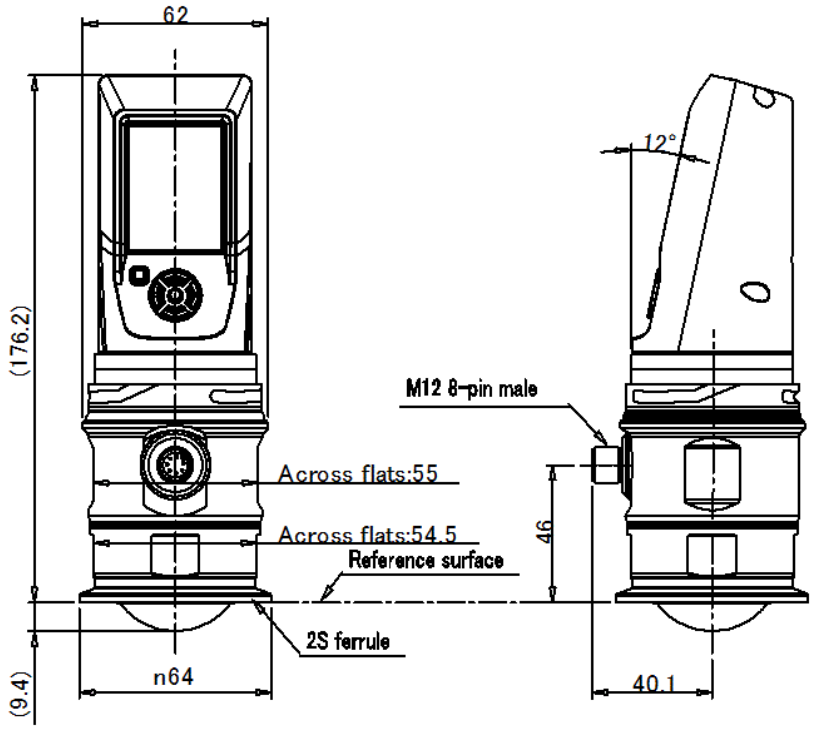
Dimensions

* Download CAD file or product manual for larger image/text and more detail.

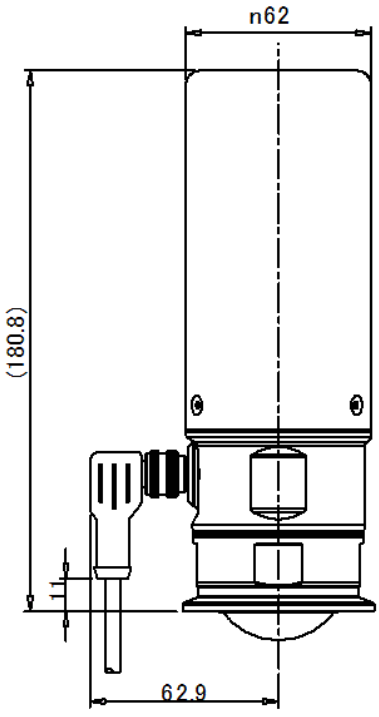
FR-LS20(L)



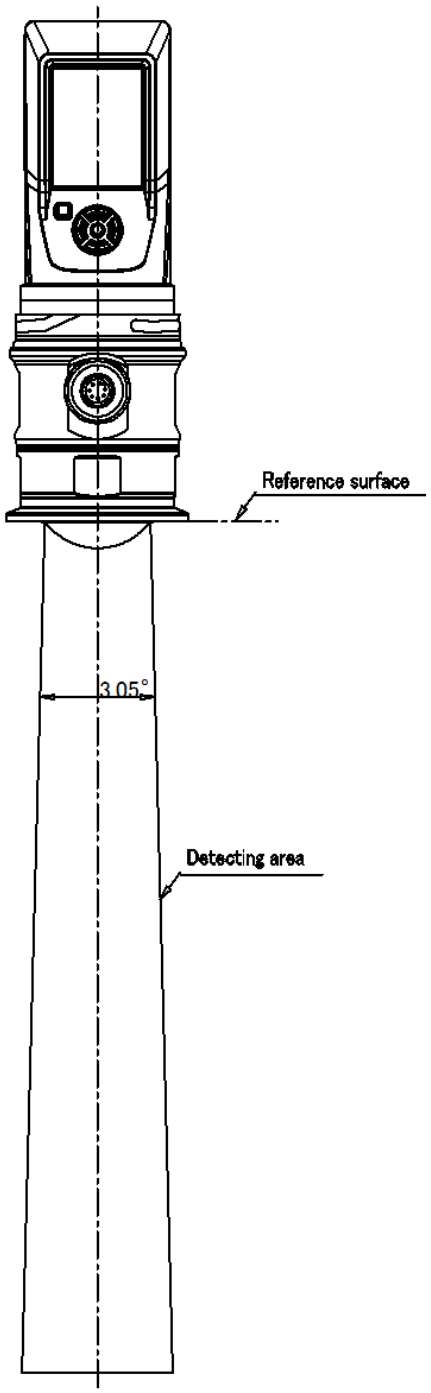
When ferrule mounting bracket (OP-88888/88889) is installed



When protection cover and cable is installed



Detecting area for water based liquid (typical value)



Detecting area for oil based liquid or powder (typical value)