

Your Global Automation Partner

TURCK

LRS Series Radar Sensors for Level Measurement



FMCW Radar sensors with IO-Link

The IO-Link-capable radar sensors of the recently developed LRS Series complete Turck's portfolio for level measurement in the 0.35 to 10 meter range. The new devices with protection to IP67/69K are especially recommended for level applications in factory automation, in which optical or ultrasonic sensors are unsuitable due to disturbance factors such as dust, wind or light.

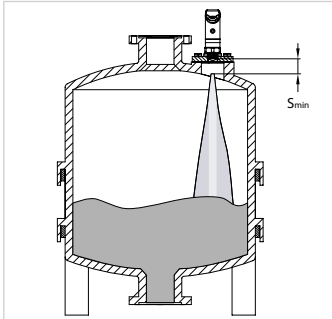
The freely radiating LRS radar sensors also offer detailed analysis functions which were previously only possible in the high-end radar sensors used in the process industry. The absence of a metal guide probe enables the sensor to be used easily in hygiene applications and simplifies commissioning.

The touchpad of the LRS series with capacitive buttons and a translucent front cap is based on the same concept as Turck's Fluid 2.0 sensor platform, and enables the output of distance, level and volume values. The LRS sensors are available either with two switching outputs or with one switching and one analog output. Thanks to their additional IO-Link interface and intelligent decentralized signal preprocessing, all variants provide a large quantity of additional information for processing in condition monitoring applications in IIoT: besides signal strength, this includes temperature values, operating hours or switching cycles. Users of Turck's IO-Link master can call up the Turck Radar Monitor via the IO-Link configurator without any additional software. The configuration tool offers access to all relevant parameters.

Your benefits

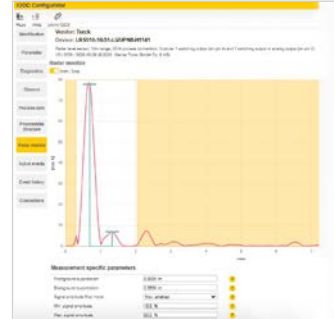
- Insensitive to harsh environmental conditions
- Distance, level and volume measurement in a single unit
- Simple sensor data visualization and configuration via Turck's IO-Link masters
- Foreign object suppression via distance and signal intensity filter
- Identical look and feel to other fluid sensors from Turck's Fluid 2.0 portfolio

Technical Data



Suitable for tanks up to 10 m

Optimally suited for use in tanks up to 10 m. The narrow opening angle reduces interference from foreign objects or can be easily filtered out with the help of the Turck Radar Monitor.



Data visualization

The Turck Radar Monitor visualizes the sensor data, making the sensor alignment much easier. All other sensor-specific parameters and filters can also be set directly and according to the application.

General data

Radar data	
Frequency range	122...123 GHz
Range	35...1000 cm
Resolution	1 mm
Minimum size measuring range/switching range	500 mm
Linearity tolerance	≤ ± 0.1 %
Edge length of the standard target	100 mm
Radiant power	10 dBm (ERP), 20 dBm (EIRP)
Electrical data	
Ripple	< 10 % U _{ss}
DC rated operational current	≤ 250 mA
No-load current	≤ 100 mA
Output function	NC/NO contact programmable, PNP/NPN, analog output or IO-Link
Switching frequency	≤ 10 Hz
Typical response time	< 10 ms
IO-Link	
IO-Link specification	V 1.1, Class A
Communication mode	COM 2 (38.4 Kbaud)
Process data width	32 bit
Minimum cycle time	3ms
Profile support	Smart Sensor Profile
Mechanical data	
Dimensions	Ø 38 x 127.1 mm
Housing material	Stainless steel/plastic, 1.4404 (AISI 316L)/Grilamid TR90 UV
Ambient temperature	-25...+65 °C
Pressure resistance	0...16 bar
Type of protection	IP67, IP69K
Vibration resistance	IEC 60947-5-2
EMC	EN 60068-2-27, EN 60068-2-6
Approvals	CE, UL, ETSI EN 305550-2, FCC/CFR.47 Part 15

Device data

Type code	Opening angle	Operating voltage	Output	Process connection
LRS510-10-51-LI2UPN8-H1141	10°	18...33 VDC	4...20 mA/0...10 V, IO-Link	G3/4"
LRS510-10-69-LI2UPN8-H1141	5°			G1"
LRS510-10-34-LI2UPN8-H1141	10°			NPT3/4"
LRS510-10-57-LI2UPN8-H1141	5°			NPT 1"
LRS510-10-51-2UPN8-H1141	10°	10...33 VDC	Switching output, IO-Link	G3/4"
LRS510-10-69-2UPN8-H1141	5°			G1"
LRS510-10-34-2UPN8-H1141	10°			NPT3/4"
LRS510-10-57-2UPN8-H1141	5°			NPT 1"

