

DR Series Radar Distance Sensors



Sensors For Harsh Environments

With the DR series, Turck offers robust radar sensors for distance measurement at a range of up to 15 meters. They are built for harsh environments found in factories, outdoors or mobile applications. The robust 122 GHz devices with protection class IP67/69K are shock resistant up to 100 g and are suitable for distance measurement in port logistics and other challenging outdoor conditions in which optical or ultrasonic sensors are often ruled out due to their limited range or interference factors such as dust, wind or light.

The sensor can be programmed using our Turck Automation Suite (TAS) software along with a Turck IO-Link Master. The software's user interface simplifies setup and offers a real-time display of the signal curve. This is especially valuable when configuring filters to suppress interference or in complicated mounting situations. When mounted in direct proximity to

each other, the Frequency Modulated Continuous Wave (FMCW) measuring principle of the devices prevents any mutual interference between the signals.

All DR-M30-IOL sensors feature IO-Link as well as an analog and switching output, whereby the analog output can also be configured as a second switching output. In conventional applications, the devices can also be operated without IO-Link which allows the device to be powered by supply voltages as low as 10 VDC making these sensors suitable for mobile applications.

Applications for the DR sensors include monitoring loads on conveyors, vehicle positioning to dock door alignment, non-contact level and height measurement in bins and storage tanks, in shipyards and mobile equipment for determining position, and many more.

Your Benefits:

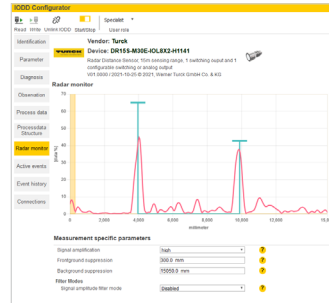
- Rated up to IP69K, providing reliability in harsh environmental conditions
- Simple data visualization and sensor configuration using Turck's IO-Link master or with a PC via a USB IO-Link adapter
- Foreign object suppression using distance and signal intensity filters
- Three-stage signal amplification for improved sensor performance
- Non-contact solution with up to 15 meter detection range

Technical Data



Environmentally resistant

Radar technology is known for its ability to withstand various environmental conditions. Harsh factors like dust, fog, wind, and temperature fluctuations minimally affect this sensor's measurement capabilities.



Data visualization

Target position and signal integrity can be visualized like never before using the Turck Radar Monitor. This visualization greatly simplifies the commissioning process and greatly reduces the potential for improper device parameterization and target signal interference.

General data

Radar Data	
Frequency range	122...123 GHz
Resolution	1 mm
Minimum measuring range/minimum switching range	500 mm/50 mm
Linearity error	≤ ± 0.1 %
Edge lengths of the nominal actuator	100 mm
Output power	10 dBm (ERP), 20 dBm (EIRP)
Electrical Data	
Operating voltage w/ IO-Link	18...33 VDC
Operating voltage w/o IO-Link	10...33 VDC
Residual ripple	< 10 % U _{ss}
DC rated operational current	≤ 250 mA
No-load current	≤ 100 mA
Output function	NC/NO programmable, PNP/NPN, analog output and 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	3 ms
Profile support	Smart Sensor Profile
Mechanical Data	
Design/dimensions	Threaded barrel, M30E/Ø 44.7 × 104.3 mm
Housing material	Stainless steel, 1.4401 (AISI 316) PFTE
Max. tightening torque of housing nut	75 Nm
Ambient temperature	-25...+65 °C
Type of protection	IP67, IP69K
Vibration resistance	20 g (10...2000 Hz), EN 60068-2-6
Shock resistance	100 g (11 ms)
EMC	EN 61000-6-2:2019 ETSI EN 301489-3 v.1.6.1
Approvals	CE, ETSI, FCC, UL, UKCA

Typical device data

Type Designation	ID	Range	Opening Angle	Output
DR15S-M30E-IOL8X2-H1141	100030148	15 m	15° (± 7.5°)	IO-Link, 4...20 mA/0...10 V, one switching output
DR15S-M30E-2UPN8X2-H1141	100030149	15 m	15° (± 7.5°)	IO-Link, 2 x NC/NO programmable PNP/NPN switching outputs