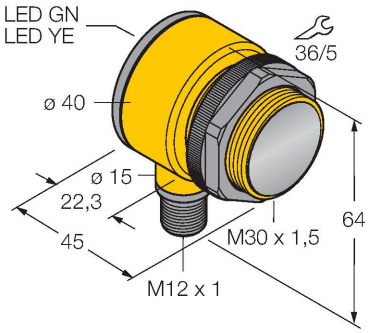
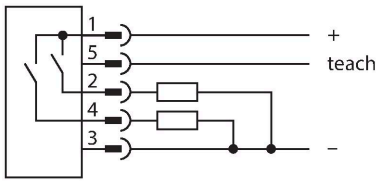
T30R-4545-KDQ
Radar Sensor
With Switching Outputs and IO-Link



Features

- Protection class IP67
- Male connector, M12 × 1, 5-pin
- FMCW radar (frequency-modulated continuous wave radar), detects stationary and moving objects
- Approved for USA, Europe, UK, Australia and New Zealand
- Max. range 10 m
- Operating voltage 10…30 VDC
- Two PNP/NPN switching outputs, IO-Link

Wiring diagram



Technical data

Type	T30R-4545-KDQ
ID	3808910
Radar data	
Function	Proximity switch
Frequency band	F band, ISM region
Frequency range	122.25–123 GHz
Modulation	FMCW (Frequency Modulated Continuous Wave)
Range	150…10000 mm
Number of radio channels	1
Antenna connection	Internal, planar
Output power EIRP	20 dBm/100 mW EIRP
Repeatability	1 mm
Electrical data	
Operating voltage U_B	10…30 VDC
No-load current	≤ 100 mA
Short-circuit protection	yes/Cyclic
Reverse polarity protection	yes
Communication protocol	IO-Link
Output function	NO/NC programmable, PNP/NPN
Output 2	PNP/NPN; NC/NO
Readiness delay	≤ 300 ms
Response time typical	< 6 ms
Setting option	Vision Software and Firmware Push Button

Functional principle

An FMCW radar is a Frequency Modulated Continuous Wave radar. FMCW is the English abbreviation for Frequency Modulated Continuous Wave. Unmodulated continuous wave radars have the disadvantage that they cannot measure distances due to the lack of a time reference. Such a time reference for measuring the distance of stationary objects can be generated by means of frequency modulation. Using this method, a signal is emitted which continually changes frequency. A periodic frequency that increases and decreases linearly is used to limit the frequency range and to simplify the signal evaluation. The factor for the rate of change df/dt remains constant. If an echo signal is received, then this has a runtime delay as with the pulse radar, and thus a different frequency that is proportional to the distance. As a result, unlike with unmodulated Continuous Wave (CW) radars, both stationary and moving objects can be detected.

Conformity
CE
ISM defined in ITU-R 5.138, 5.150 and 5.280
ETSI/EN 300 440
FCC part 15
RSS-210
ANATEL Category II
CMIIT Category G
ARIB STD T-73
KC mark — MSIP/RRA
NCC

Technical data

Mechanical data	
Design	Rectangular with thread, T30R
Dimensions	52.9 x 40.6 x 63.8 mm
Housing material	Plastic, PBT, Yellow
Electrical connection	Connector, M12 × 1
Ambient temperature	-40…+65 °C
Protection class	IP67
Power-on indication	LED, Green
Switching state	LED, Yellow
Excess gain indication	LED, red
Tests/approvals	
Approvals	CE UKCA UL Listed