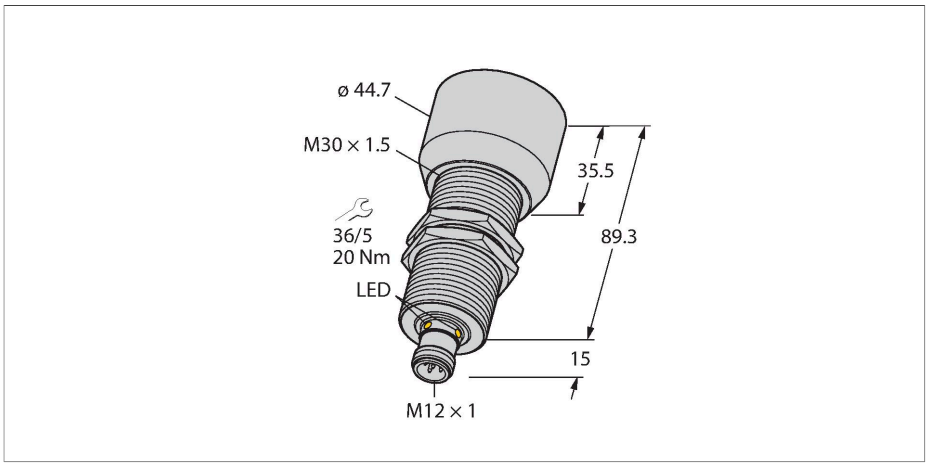
DR7.5WE-M30E-IOL8X2-H1141
Radar Sensor – Distance/Object Detection



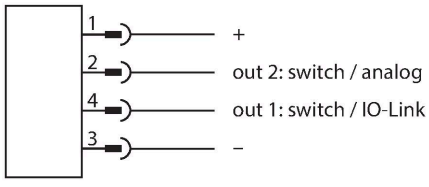
Technical data

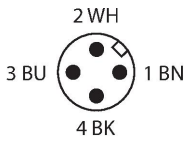
Type	DR7.5WE-M30E-IOL8X2-H1141
ID	100030150
Measuring principle	Radar
Linearity deviation	10 mm
Edge lengths of the nominal actuator	100 mm
Hysteresis	≤ 50 mm
Electrical data	
Operating voltage U_B	18…33 VDC
Ripple U_{ss}	≤ 10 % U_{Bmax}
DC rated operating current I_e	≤ 250 mA
No-load current	≤ 150 mA
Residual current	≤ 0.1 mA
Short-circuit protection	yes/Cyclic
Voltage drop at I_e	≤ 2 V
Wire break/reverse polarity protection	yes/yes
Communication protocol	IO-Link
Output function	4-wire, NO/NC programmable, PNP/NPN, analog output
Output 1	IO-Link
Output 2	Analog output
Voltage output	0…10 V
Current output	4…20 mA
Load resistance voltage output	≥ 2 kΩ
Load resistance current output	≤ 0.5 kΩ
Readiness delay	≤ 450 ms
IO-Link	
IO-Link specification	V 1.1
IO-Link port type	Class A

Features

- Blind zone: 35 cm
- Range: 15 m
- Resolution: 1 mm
- Cone angle of the radar beam: Wide ±15°
- Approved acc. to ETSI 305550-2
- Approved acc. to FCC/CFR 47 Part 15.
- M12 × 1 male connector, 4-pin
- Operating voltage 18…33 VDC
- Operating voltage 10…33 VDC (in SIO mode)
- Switching output switchable between PNP/NPN
- Analog output switchable between 4… 20 mA/0…10 V
- Automatic current/voltage detection
- IO-Link
- M30 cylindrical design, stainless steel

Wiring diagram





Functional principle

FMCW radar stands for frequency modulated continuous wave radar. FMCW is the English abbreviation for Frequency Modulated Continuous Wave. Non-modulated continuous

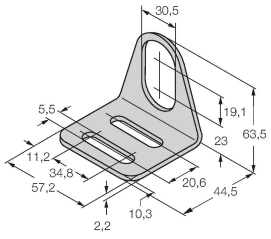
Technical data

Communication mode	COM 2 (38.4 kBaud)
Process data width	48 bit
Measured value information	32 bit
Switchpoint information	1 bit
Frame type	2.2
Minimum cycle time	5 ms
Function pin 4	IO-Link
Function Pin 2	Analog
Maximum cable length	20 m
Profile support	Smart Sensor Profile
Mechanical data	
Design	Threaded barrel, M30
Dimensions	113.9 mm
Housing material	Stainless steel, 1.4401 (AISI 316) PTFE
Active area material	Plastic
Max. tightening torque of housing nut	75 Nm
Electrical connection	Connector, M12 × 1
Ambient temperature	-25…+65 °C
Storage temperature	-40…+85 °C
EMV	EN 61000-6-2:2019 ETSI EN 301489-3 v.1.6.1
Shock resistance	100 g (11 ms)
Protection class	IP67 IP69K
	Not assessed by UL
MTTF	187 years
Power-on indication	LED, Green
Switching state	2-color LED, Yellow

wave radars have the disadvantage that they cannot measure distances due to lack of time reference. Such a time reference for distance measurement of stationary objects can be generated by means of frequency modulation. Using this method, a signal is emitted which continually changes the frequency. A periodic, linear frequency which varies upwards and downwards 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.

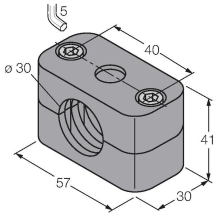
Accessories

MW30 6945005



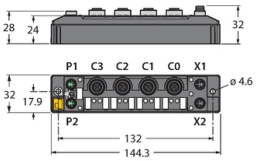
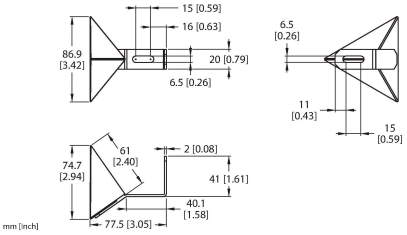
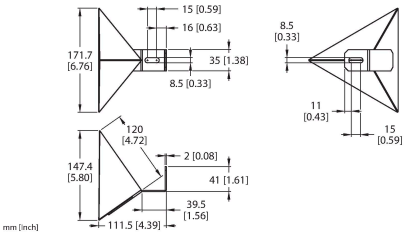
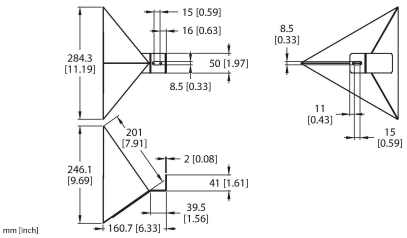
Mounting bracket for threaded barrel sensors; material: Stainless steel A2 1.4301 (AISI 304)

BSS-30 6901319



Mounting clamp for smooth and threaded barrel sensors; material: Polypropylene

Accessories

Dimension drawing	Type	ID	
	TBEN-S2-4IOL	6814024	Compact multiprotocol I/O module, 4 IO-Link Master 1.1 Class A, 4 universal PNP digital channels 0.5 A
	RR-6	100047726	Stainless steel radar reflector, optimized detection performance of an object, cathetus length: 60 mm, RadarCrossSection: 10 m² (cf. automobile), reliable object detection up to 6.5 m
	RR-12	100047727	Stainless steel radar reflector, optimized detection performance of an object, cathetus length: 120 mm, RadarCrossSection: 250 m² (cf. HGV), reliable object detection up to 15 m
	RR-20	100047728	Stainless steel radar reflector, optimized detection performance of an object, cathetus length: 200 mm, RadarCrossSection: 1115 m² (cf. ship), reliable object detection up to 25 m