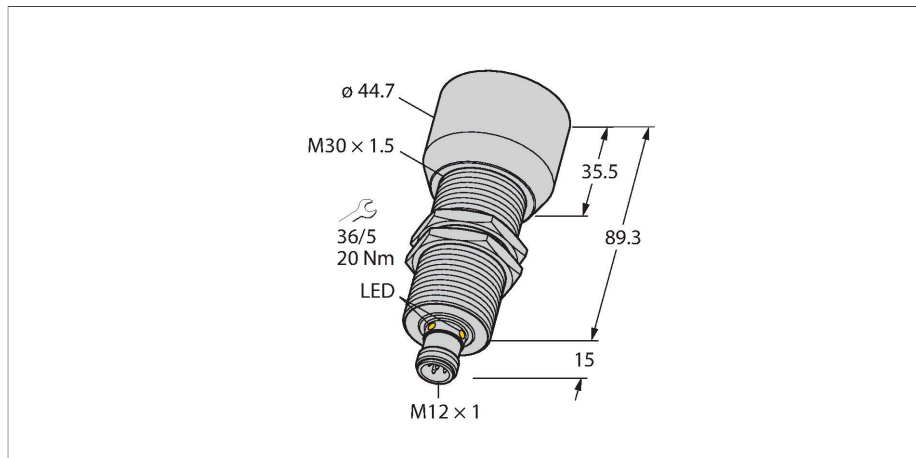


# DR7.5WE-M30E-2UPN8X2-H1141

## Radar Sensor – Distance/Object Detection



### Technical data

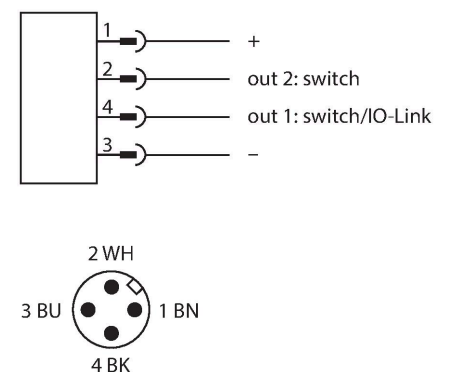
Type	DR7.5WE-M30E-2UPN8X2-H1141
ID	100030151
Measuring principle	Radar
Linearity deviation	10 mm
Edge lengths of the nominal actuator	100 mm
Hysteresis	≤ 50 mm
<b>Electrical data</b>	
Operating voltage $U_B$	18...33 VDC
Ripple $U_{ss}$	≤ 10 % $U_{Bmax}$
DC rated operating current $I_o$	≤ 250 mA
No-load current	≤ 150 mA
Residual current	≤ 0.1 mA
Short-circuit protection	yes/Cyclic
Voltage drop at $I_o$	≤ 2 V
Wire break/reverse polarity protection	yes/yes
Communication protocol	IO-Link
Output function	4-wire, NO/NC programmable, PNP/NPN
Output 1	IO-Link/switching output
Output 2	Switching output
Load resistance voltage output	≥ 2 kΩ
Load resistance current output	≤ 0.5 kΩ
Readiness delay	≤ 450 ms
<b>IO-Link</b>	
IO-Link specification	V 1.1
IO-Link port type	Class A
Communication mode	COM 2 (38.4 kBaud)
Process data width	48 bit



### 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
- 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 wave radars have the disadvantage that they cannot measure distances due to lack of time reference. Such a time reference for distance

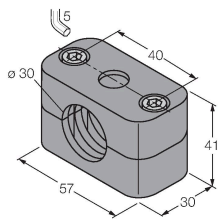
Technical data

Measured value information	32 bit
Switchpoint information	2 bit
Frame type	2.2
Minimum cycle time	5 ms
Function pin 4	IO-Link
Function Pin 2	DI
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

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.

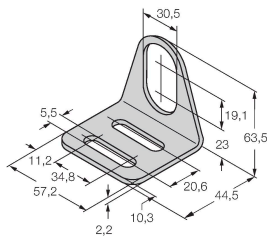
Accessories

BSS-30 6901319



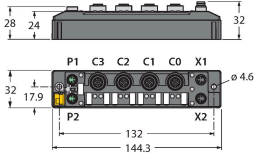
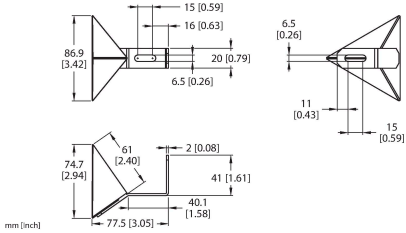
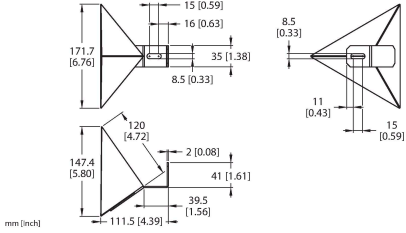
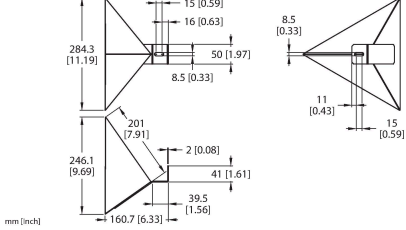
Mounting clamp for smooth and threaded barrel sensors; material: Polypropylene

MW30 6945005



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

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