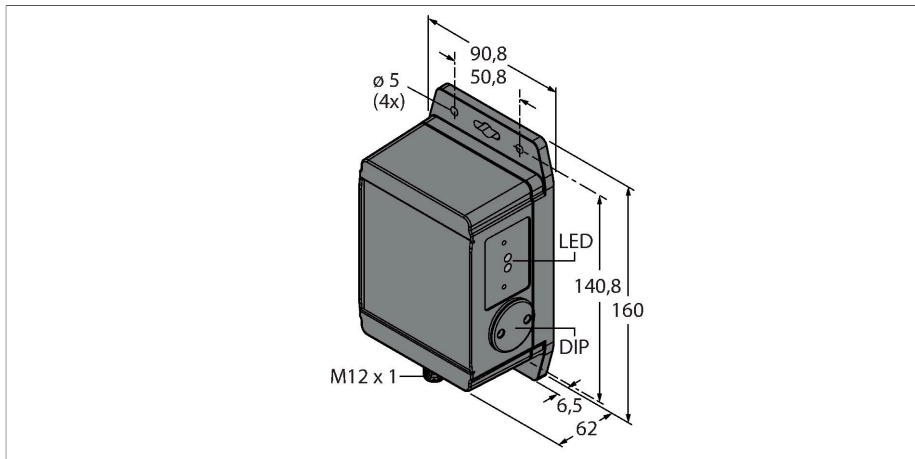


# Q120RA-EU-AF2Q

## Radar Sensor

### With Switching Outputs



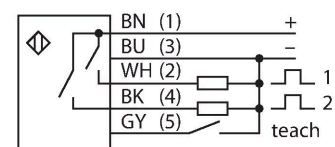
#### Technical data

Type	Q120RA-EU-AF2Q
ID	3025378
<b>Radar data</b>	
Function	Proximity switch
Operating mode	Time-of-Flight
Frequency band	K band, ISM region
Frequency range	24.05 - 24.25 GHz
Modulation	FMCW (Frequency Modulated Continuous Wave)
Range	2000...40000 mm
Edge lengths of the nominal actuator	500 mm
Number of radio channels	1
Duty cycle	100 %
Antenna connection	Internal, planar
Antenna gain	17.5 dBi
Antenna pattern	12o (Azimuth) / 25o (Elevation)
Side-lobe suppression	15 dB (Azimuth) / 15 dB (Elevation)
Output power ERP	5 dBm / 3.3 mW ERP
Output power EIRP	20 dBm / 100 mW EIRP
Field strength max.	88-20log(m) dBuA/m bzw. 24-20log(m) dBmW/m2
<b>Electrical data</b>	
Operating voltage	12...30 VDC
No-load current	≤ 100 mA
Short-circuit protection	yes / Cyclic
Reverse polarity protection	yes

#### Features

- M12 × 1 male, 5-pin
- Protection class IP67
- FMCW radar (frequency-modulated continuous wave radar), detects stationary and moving objects
- Approved for Europe (incl. UK), Australia, New Zealand, Japan and China
- Max. range 40 m
- Configuration via DIP switch
- Operating voltage 12...30 VDC
- 2 PNP/NPN switching outputs

#### Wiring diagram



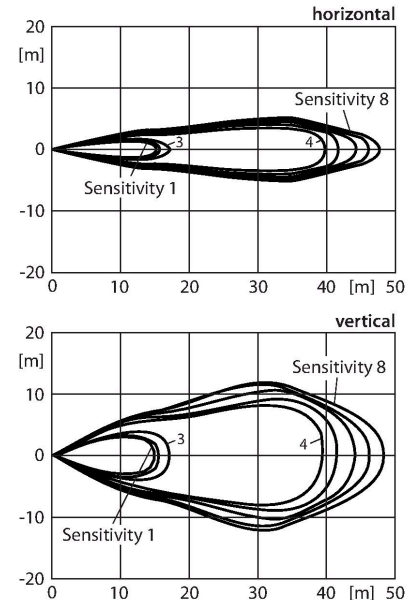
#### Functional principle

A PCR (Pulse Coherent Radar) device transmits a short, powerful pulse lasting a few microseconds and receives the reflected echo from objects. In contrast to continuously transmitting wave radars, the transmitter is already switched off before the end of the measurement process. The distance measurement to the object is carried out using a transit time method. As a result, unlike 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

## Excess Gain Curve



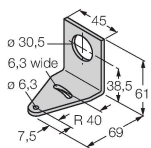
## Technical data

Output function	NO/NC programmable, PNP/NPN
Readiness delay	≤ 2000 ms
Response time typical	< 15 ms
Setting option	DIP switch Vision Software and Firmware
<b>Mechanical data</b>	
Design	Rectangular, Q120
Dimensions	62 x 90.8 x 159.5 mm
Housing material	Plastic, ABS/Polycarbonate, Black
Electrical connection	Connector, M12 × 1, PVC
Number of cores	5
Ambient temperature	-40...+65 °C
Protection class	IP67
Power-on indication	LED, Green
Switching state	LED, Yellow
Excess gain indication	LED, red
<b>Tests/approvals</b>	
MTTF	98 years acc. to SN 29500 (Ed. 99) 40 °C
Approvals	CE

## Accessories

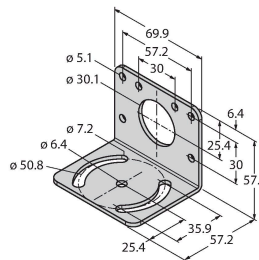
**SMB30A** 3032723

Mounting bracket, rectangular, stainless steel, for sensors with 30mm thread



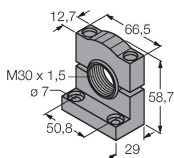
**SMB30MM** 3027162

Mounting bracket, rectangular, stainless steel, for sensors with 30 mm thread, wide holes for accurate alignment



**SMB30SC** 3052521

Mounting bracket, PBT black, for sensors with 30 mm thread, rotatable



Accessories

Dimension drawing	Type	ID	
	WKC4.5T-2/TEL	6625028	Connection cable, M12 female connector, angled, 5-pin, cable length: 2 m, jacket material: PVC, black; cULus approval
	RKC4.5T-2/TEL	6625016	Connection cable, M12 female connector, straight, 5-pin, cable length: 2 m, jacket material: PVC, black; cULus approval

Accessories

Dimension drawing	Type	ID	
	SMBWSQ120	3026881	Protective cap prevents water film or ice formation on the face, needed for rain or snow
	BRTR-CC20E	3011118	Radar reflector, large tetrahedron, protected by plastic, 7-fold function reserve at a distance of 6 m, optional