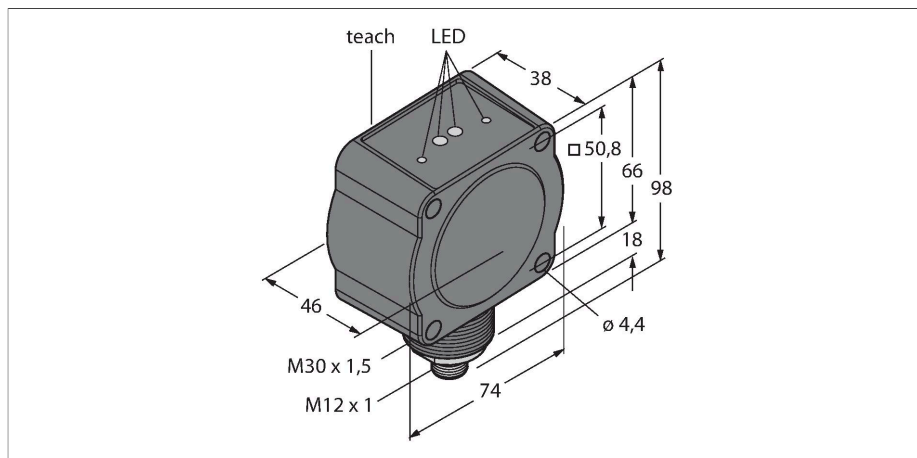


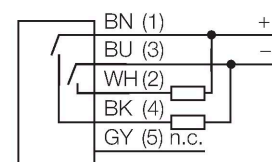
# QT50R-EU-AFHQ Radar



## Features

- M12 × 1 male connector, 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 24 m
- Configuration via DIP switch
- Operating voltage 12...30 VDC
- PNP/NPN switching output

## Wiring diagram



## Functional principle

An FMCW radar is a frequency modulated continuous wave radar. Unmodulated continuous wave radars cannot measure distance 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.

Conformity  
CE

## Technical data

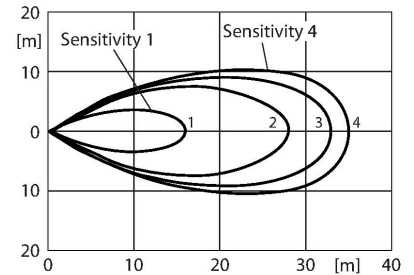
Type	QT50R-EU-AFHQ
ID	3025370
<b>Radar data</b>	
Function	Proximity switch
Operating mode	Time-of-Flight
Frequency band	K-Band, ISM Region
Frequency range	24.05 - 24.25 GHz
Modulation	FMCW (Frequency Modulated Continuous Wave)
Range	2000...24000 mm
Edge lengths of the nominal actuator	200 mm
Number of radio channels	1
Duty cycle	100 %
Antenna connection	Internal, planar
Antenna gain	15 dBi
Antenna pattern	45° (Azimuth) / 38° (Elevation)
Side-lobe suppression	13 dB (Azimuth) / 13 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 or 24-20log(m) dBmW/m <sup>2</sup>
<b>Electrical data</b>	
Operating voltage	12...30 VDC
No-load current	≤ 100 mA
Short-circuit protection	yes / Cyclic
Reverse polarity protection	yes
Output function	NO/NC programmable, PNP/NPN

## Technical data

Readiness delay	≤ 2000 ms
Response time typical	< 30 ms
Setting option	DIP switch Vision Software and Firmware
<b>Mechanical data</b>	
Design	Rectangular, QT50
Dimensions	46.1 x 74.1 x 99.7 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	100 years acc. to SN 29500 (Ed. 99) 40 °C
Approvals	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

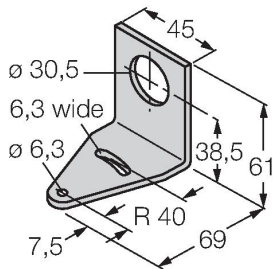
## Excess Gain Curve



## Accessories

SMB30A

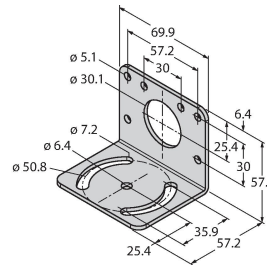
3032723



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

SMB30MM

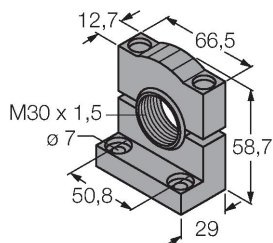
3027162



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, female M12, angled, 5-pin, cable length: 2 m, sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see <a href="http://www.turck.com">www.turck.com</a>
	RKC4.5T-2/TEL	6625016	Connection cable, female M12, straight, 5-pin, cable length: 2 m, sheath material: PVC, black; cULus approval; other cable lengths and qualities available, see <a href="http://www.turck.com">www.turck.com</a>

Accessories

Dimension drawing	Type	ID	
	QT50RCK	3079975	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