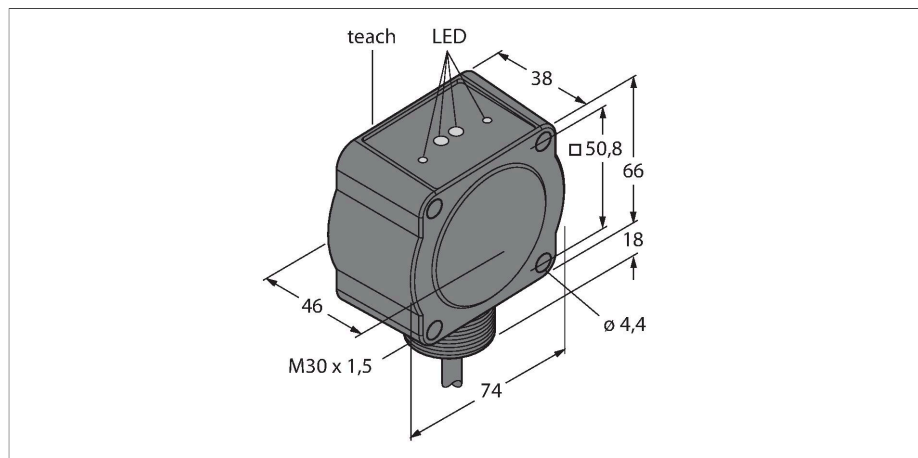


# QT50R-EU-AFS

## Radar



### Technical data

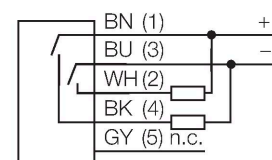
Type	QT50R-EU-AFS
ID	3054270
<b>Radar data</b>	
Function	Proximity switch
Operating mode	Time-of-Flight
Frequency band	K-Band, ISM Region
Frequency range	24.05 - 24.25 GHz
Modulation	FMCW (Frequency Modulated Continuous Wave)
Range	2000...3500 mm
Edge lengths of the nominal actuator	200 mm
Number of 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/m2
<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



### Features

- Cable, 2m
- 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 3.75 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

Readiness delay	≤ 2000 ms
Response time typical	< 30 ms
Setting option	DIP switch Vision Software and Firmware
Mechanical data	
Design	Rectangular, QT50
Dimensions	46.1 x 74.1 x 88.8 mm
Housing material	Plastic, ABS/Polycarbonate, Black
Electrical connection	Cable, 2 m, 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
Tests/approvals	
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

