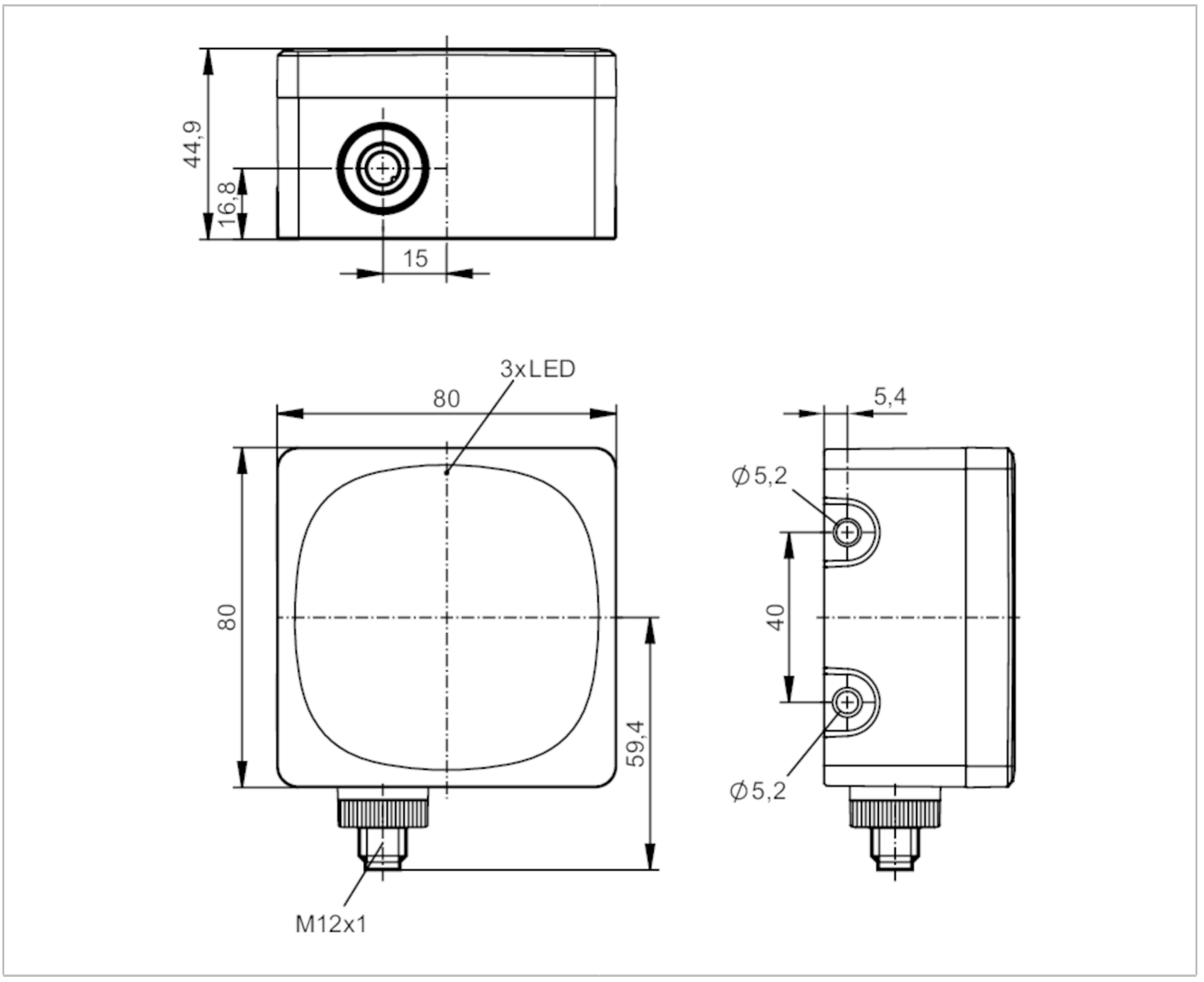
R2D100

Radar area sensor

R2DAAF6KG/US/IO-Link



Product characteristics		
Communication interface		IO-Link
Housing		rectangular
Dimensions	[mm]	80 x 80 x 45
Digital		
Electrical design		PNP/NPN; (parameterisable)
Output function		normally open / normally closed; (parameterisable)
Application		
Radio approval for		EU/RED; United Kingdom
Note on radio approval		The list of countries applying the European Radio Equipment Directive 2014/53/EU (RED) can be found under “Downloads”.
Electrical data		
Operating voltage	[V]	10...30 DC; (to SELV/PELV ; energy-limited circuits according to IEC/UL 61010-1 3rd ed. cl. 9.4)

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Current consumption	[mA]	< 300; (mean value: 150 mA)	
Power consumption	[W]	21; (maximum)	
Protection class		III	
Reverse polarity protection		yes	
Max. power-on delay time	[ms]	1000	
Operating frequency [GHz]		60...64	
Mean power spectral density EIRP [dBm/MHz]		-15	
Mean radiated power EIRP [dBm]		15	
Inputs / outputs			
Total number of inputs and outputs		3	
Inputs			
Inputs		IN1	activation/deactivation of the radar
Outputs			
Total number of outputs		2	
Output signal		OUT1	switching signal; IO-Link
		OUT2	switching signal; analogue signal
Short-circuit protection		yes	
Type of short-circuit protection		pulsed	
Overload protection		yes	
Analogue			
Analogue current output	[mA]	4...20, invertible; (scalable)	
Max. load	[Ω]	500; (< 250 Ω: Ub 16...30 V DC; 250...500 Ω: Ub 18...30 V DC)	
Analogue voltage output	[V]	0...10, invertible; (scalable)	
Min. load	[Ω]	2000	
Digital			
Electrical design		PNP/NPN; (parameterisable)	
Output function		normally open / normally closed; (parameterisable)	
Max. voltage drop switching output DC	[V]	2.5	
Permanent current rating of switching output DC	[mA]	200	
Detection zone			
Range	[m]	0.1...50; (referred to E23014)	
Angle of aperture cylindrical	[°]	horizontal	140
		vertical	50
Measuring/setting range			
Measuring range	[m]	0.1...50; (see diagram:)	
Sampling rate	[Hz]	20	
Accuracy / deviations			
Hysteresis	[mm]	5; (parameterisable)	
Temperature coefficient analogue output		± 0,1	

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[% of the span / 10 K]		
Repeatability analogue output [% of the span]	< 0,1	
Linearity error of analogue output [% of the span]	± 0,15	
Precision analogue output [% of the span]	± 0,2 (in addition to the accuracy specifications in the further data section)	
Software / programming		
Parameter setting options	only via IO-Link	
Interfaces		
Communication interface	IO-Link	
Transmission type	COM3 (230,4 kBaud)	
IO-Link revision	1.1	
SDCI standard	IEC 61131-9	
Profiles	**Function class**	**Designation**
	0x0030	BLOB transfer
	0x4000	Identification and Diagnosis
	0x8101	Locator
	0x8102	ProductURI
SIO mode	yes	
Required master port type	A	
Min. process cycle time [ms]	3.2	
IO-Link process data (cyclical)	**function**	**bit length**
	distance	32
	speed	32
	Power	8
	RCS	8
	sensor inclination	1
	device status	4
	binary switching information	4
IO-Link functions (acyclical)	application specific tag; operating hours counter; number of trigger events; internal temperature; ROI setting; Schaltverzögerungen; Sender abschaltbar	
Supported DeviceIDs	**Type of operation**	**DeviceID**
	default	1519
Note	For further information please see the IODD PDF file under "Downloads"	
Operating conditions		
Ambient temperature [°C]	-40...80	
Note on ambient temperature	without using the analogue output: -40...85 °C	
Storage temperature [°C]	-40...85	
Protection	IP 65; IP 66; IP 67; IP 69K; (with mounted connectors or protective caps)	
Tests / approvals		
EMC	DIN EN 61000-4-2 ESD	4 kV CD / 8 kV AD
	DIN EN 61000-4-3 HF radiated	10 V/m
	DIN EN 61000-4-4 Burst	2 kV
	DIN EN 61000-4-6 HF conducted	10 V
	DIN EN 61000-6-2	immunity / industrial environments
	EN 55032 emission	Class A
Impact resistance	IEC 62262	IK06 (1J)

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Vibration resistance		DIN EN 60068-2-6 Fc	10 g 10 frequency cycles, 1 octave/minute, in 3 axes
Shock resistance		DIN EN 60068-2-27 Ea	50 g 11 ms half-sine; 10 shocks each in every direction along the 3 coordinate axes
Continuous shock resistance		DIN EN 60068-2-29 Eb	40 g 6 ms half-sine; 4,000 shocks each in every direction along the 3 coordinate axes
Fast temperature change		DIN EN 60068-2-14 Na	TA = -40°C; TB = 85°C; t1 = 30 min; t2 = < 30 s; 300 cycles
Salt spray test		DIN EN 60068-2-11 Ka	8 test cycles
Electrical protection		DIN EN 61010-2-201	electric shock / electrical supply only via SELV/PELV circuits
MTTF	[years]	53	

Mechanical data

Weight	[g]	402.05
Housing		rectangular
Mounting		flush mountable
Dimensions	[mm]	80 x 80 x 45
Materials		housing: PA; radome: PEI; Sealing: HNBR

Displays / operating elements

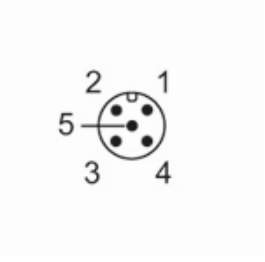
Display	switching status	2x LED, yellow
	operation	1x LED, green
	errors	1x LED, red

Remarks

Pack quantity	1 pcs.

Electrical connection

Connector: 1 x M12; coding: A



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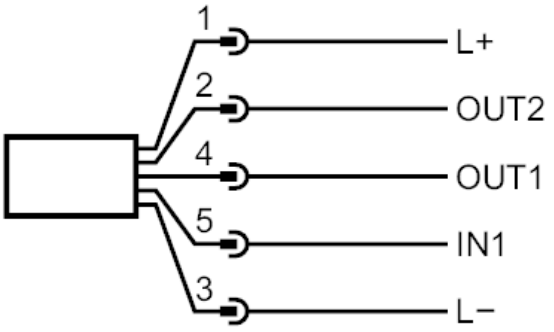
Connection



OUT1:	switching output IO-Link
OUT2:	switching output analogue output
IN1:	activation/deactivation of the radar

Other data

Operating mode	standard	Long range, high velocity
max. distance	0.1...20 m	0.25...30 m
distance resolution	100 mm	360 mm
horizontal angular resolution (azimuth)	10 °	10 °
distance accuracy	± 5 mm	± 15 mm
max. velocity	± 6 m/s	± 15 m/s
velocity resolution	± 0.25 m/s	± 0.38 m/s
speed accuracy	± 0.01 m/s	± 0.04 m/s
Switching frequency	20 Hz	20 Hz

distance	referred to E23013
Resolution	for the detection of two objects of the same size
accuracy	for a strong, point-shaped target

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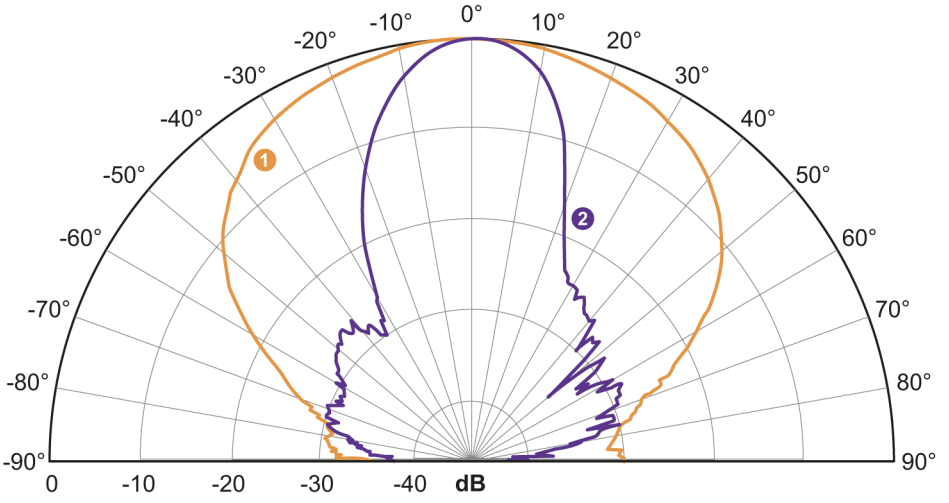
Diagrams and graphs

Detection zone



1: azimuth

2: elevation

conditions

Reflector: 4.3“ Trihedral Corner Reflector (SAJ043-S1)

RCS: 8 dBm²

distance: 5 m

operating frequency: 62 GHz