

1) LED 1, 2) LED 2, 3) Optical axis receiver, 4) Optical axis emitter



Basic features

Approval/Conformity	CE UKCA cULus WEEE Ecolab
Basic standard	IEC 60947-5-2
Operating mode	SIO Mode IO-Link Mode
Principle of operation	Photoelectric sensor
Scope of delivery	Mounting instruction
Secondary features for condition monitoring	Vibration monitoring Inclination monitoring and installation aid Internal temperature monitoring Internal humidity detection
Series	R254K
Style	Square

Electrical connection

Connection	Connector, M12x1-Male, 4-pin
Contact, surface protection	Gold plated
Polarity reversal protected	yes
Protection against device mix-ups	yes
Short-circuit protection	yes

Display/Operation

Display	2x tricoloured - LED
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Electrical data

Load capacitance max. at Ue	100 nF
No-load current I ₀ max. at Ue	30 mA
Operating voltage U _b	10...30 VDC
Protection class	II
Rated insulation voltage U _i	75 V DC
Rated operating current I _e	100 mA
Rated operating voltage U _e DC	24 V
Ready delay t _V max.	300 ms
Residual current I _r max.	500 µA
Ripple max. (% of U _e)	10 %
Switching frequency	250 Hz 500 Hz (Speed mode)
Turn-off delay t _{OFF} max.	2 ms
Turn-on delay t _{ON} max.	2 ms
Utilization category	DC-13
Voltage drop U _d max. at I _e	2.5 V

Environmental conditions

Ambient temperature	-40...70 °C
Contamination scale	3
EN 60068-2-27, Shock	Half-sinus, 30 g _n , 11 ms, 3x6
EN 60068-2-6, Vibration	10...55 Hz, amplitude 0.5 mm, 3x30 min
IP rating	IP67, IP6K9K

Functional safety

MTTF (40 °C)	167.6 a
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IO-Link

IO-Link Profil IDs	0x0001 SSP0 0x0007 SSP2.4 0x0008 SSP2.5 0x0009 SSP2.6 0x4000 Identification and Diagnosis
IO-Link function classes	0x8001 Binary Data Channel 0x8007 Single Value Teach 0x8008 Two Value Teach 0x8009 Dynamic Teach 0x800C Transducer Disable
Supported IO-Link Profiles	Common Profile Legacy Smart Sensor Profile Smart Sensor Profile - Adjustable Switching Sensor

Interface

Analog output	Analog, current 4...20 mA
Baud rate	COM3 (230,4 kBaud)
Interface	IO-Link 1.1
Process data IN	1 byte
Process data OUT	1 byte
Process data cycle min.	3 ms
Switching output	Pin 2: PNP/NPN/push-pull NO/NC Pin 4: Push-pull NO/NC
Time function	Single pulse On/off delay

Material

Housing material	PA 12 PA PACM 12
Material sensing surface	PA PACM 12

Mechanical data

Dimension	20.4 x 60.3 x 49.5 mm
Mounting part	Screw M4

Optical features

Ambient light max.	10000 Lux
Average power P ₀ max.	280 µW
Beam characteristic	Focus, typical at 400 mm
Laser class per IEC 60825-1	1
Light spot size	0.4 x 1.3 mm at 250 mm
Light type	Laser red light
Principle of optical operation	Diffuse sensor, triangulation
Pulse duration t max.	100 µs
Pulse frequency	0.5 kHz
Pulse power P _p max.	5.6 mW
Special optical feature	Background suppression CCD technology
Switching function, optical	Light/dark switching
Wave length	655 nm

Range/Distance

Hysteresis H max.	10 mm
Hysteresis H typ. (% of S _r)	3 %
Range	30...250 mm
Rated operating distance S _n	250 mm Adjustable
Repeat accuracy	± 0.25 mm
Temperature drift max. (% of S _r)	10 %

Remarks

For additional information, refer to user's guide.

Order accessories separately.

The sensor is functional again after the overload has been eliminated.

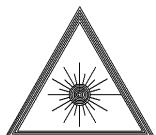
Reference object (target) for diffuse sensor: gray card, 200 x 200, 90 % remission, axial approach.

For more information about MTTF and B10d see MTTF / B10d Certificate

Indication of the MTTF- / B10d value does not represent a binding composition and/or life expectancy assurance; these are simply experiential values with no warranty implications. These declared values also do not extend the expiration period for defect claims or affect it in any way.

Connector Drawings**Wiring Diagrams**

Pin	
1	L+ (Operating voltage +, SIO 10...30V, IO-Link 18...30 V)
2	I/Q (Digital input / digital output / analog output)
3	L- (Operating voltage -)
4	C/Q (IO-Link communication / digital output in SIO mode)

Opto Symbols**Warning Symbols**

LASER CLASS 1 per IEC 60825-1: 2014-05