

Retro-Reflex Sensor

Universal

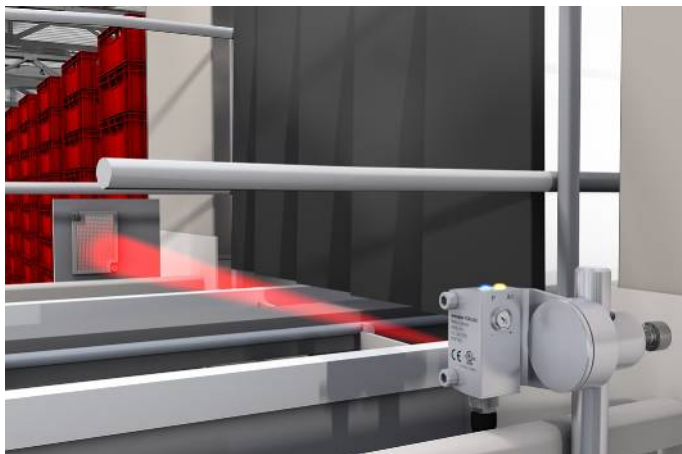
P2KL002

Part Number



- Also suitable for glossy and reflective objects
- Condition monitoring
- High switching frequency
- Robust stainless steel housing with IP69K

The retro-reflex barrier works with red light and a reflector. It also reliably detects objects with reflective or glossy surfaces at high speeds. Thanks to its great range, the sensor can, for example, be used to manage feed and presence controls as well as to detect objects on wide feed belts. The IO-Link interface can be used to configure retro-reflective barriers (PNP/NPN, NC/NO, switching distance), as well as for reading out switching statuses and signal values. The robust V4A (1.4404/316L) stainless steel housing is resistant to oils and coolants, as well as cleaning agent.

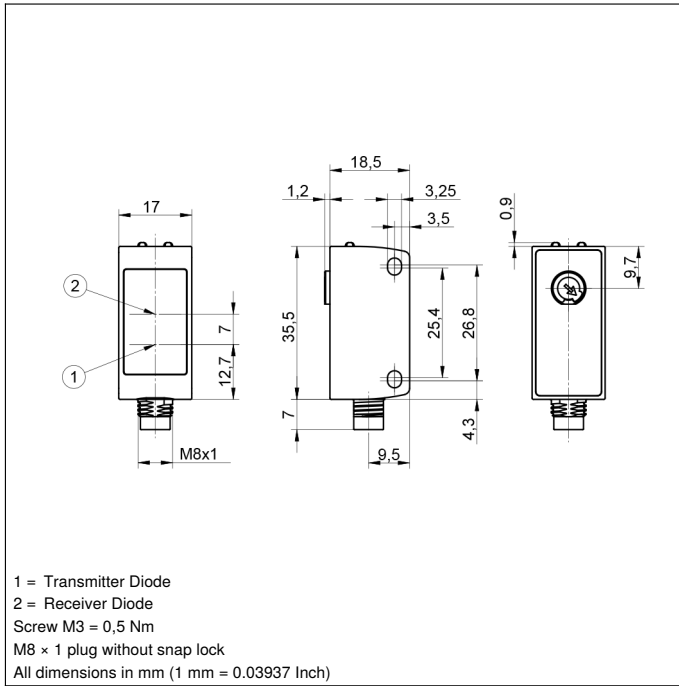


Technical Data

Optical Data	
Range	5000 mm
Reference Reflector/Reflector Foil	RQ100BA
Smallest Recognizable Part	see Table 2
Switching Hysteresis	< 10 %
Light Source	Red Light
Polarization Filter	yes
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Light Spot Diameter	see Table 1
Two-Lens Optic	yes
Electrical Data	
Supply Voltage	10...30 V DC
Supply Voltage with IO-Link	18...30 V DC
Current Consumption (U _b = 24 V)	< 20 mA
Switching Frequency	2000 Hz
Switching frequency (speed mode)	3500 Hz
Response Time	0,25 ms
Response time (speed mode)	0,14 ms
Temperature Drift	< 10 %
Temperature Range	-40...60 °C
Switching Output Voltage Drop	< 2 V
Switching Output/Switching Current	100 mA
Residual Current Switching Output	< 50 μA
Short Circuit Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Interface	IO-Link V1.1
Protection Class	III
Mechanical Data	
Setting Method	Potentiometer
Housing Material	Stainless steel, V4A (1.4404 / 316L)
Degree of Protection	IP68
Degree of Protection	IP69K
Connection	M8 × 1; 4-pin
Optic Cover	Plastic, PMMA
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	2756,38 a
Scope of delivery	1 × initial start-up instructions 1 × sensor
Approvals	Ecolab
IO-Link	●
PNP NC, PNP NO	●
Connection Diagram No.	215
Control Panel No.	1K1
Suitable Connection Equipment No.	7
Suitable Mounting Technology No.	400

Complementary Products

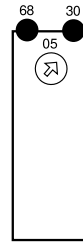
IO-Link Master	
Reflector, Reflector Foil	
Software	



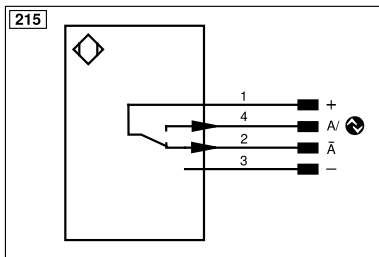
1 = Transmitter Diode
 2 = Receiver Diode
 Screw M3 = 0,5 Nm
 M8 x 1 plug without snap lock
 All dimensions in mm (1 mm = 0.03937 Inch)

Ctrl. Panel

1K1



05 = Switching Distance Adjuster
 30 = Switching Status/Contamination Warning
 68 = Power LED



Legend			
+	Supply Voltage +	PT	Platinum measuring resistor
-	Supply Voltage 0 V	nc	Not connected
~	Supply Voltage (AC Voltage)	U	Test Input
A	Switching Output (NO)	Ū	Test Input inverted
Ā	Switching Output (NC)	W	Trigger Input
V	Contamination/Error Output (NO)	W-	Ground for the Trigger Input
V̄	Contamination/Error Output (NC)	O	Analog Output
E	Input (analog or digital)	O-	Ground for the Analog Output
T	Teach Input	BZ	Block Discharge
R	Reset input	Amv	Valve Output
Z	Time Delay (activation)	a	Valve Control Output +
S	Shielding	b	Valve Control Output 0 V
RxD	Interface Receive Path	SY	Synchronization
TxD	Interface Send Path	SY-	Ground for the Synchronization
RDY	Ready	E+	Receiver-Line
GND	Ground	S+	Emitter-Line
CL	Clock	⊕	Grounding
E/A	Output/Input programmable	SnR	Switching Distance Reduction
	IO-Link	Rx+/-	Ethernet Receive Path
PoE	Power over Ethernet	Tx+/-	Ethernet Send Path
IN	Safety Input	Bus	Interfaces-Bus A(+)/B(-)
QSSD	Safety Output	La	Emitted Light disengageable
Signal	Signal Output	Mag	Magnet activation
Bl_D+/-	Ethernet Gigabit bidirect. data line (A-D)	RES	Input confirmation
ENo RS422	Encoder 0-pulse 0/0 (TTL)	EDM	Contactor Monitoring
		ENARs422	Encoder A/Ā (TTL)
		ENBRs422	Encoder B/B̄ (TTL)
		ENA	Encoder A
		ENB	Encoder B
		AMIN	Digital output MIN
		AMAX	Digital output MAX
		Aok	Digital output OK
		SY In	Synchronization In
		SY OUT	Synchronization OUT
		OLT	Brightness output
		M	Maintenance
		rsv	Reserved
		Wire Colors according to DIN IEC 60757	
		BK	Black
		BN	Brown
		RD	Red
		OG	Orange
		YE	Yellow
		GN	Green
		BU	Blue
		VT	Violet
		GY	Grey
		WH	White
		PK	Pink
		GNYE	Green/Yellow

Table 1

Working Distance	0,2 m	2 m	5 m
Light Spot Diameter	30 mm	180 mm	400 mm

Table 2

Distance, Sensor to Reflector	1 m	2,5 m	5 m
Smallest Recognizable Part	10 mm	20 mm	30 mm

Feasible reflector distance

Reflector type, mounting distance

RQ100BA	0,01...5 m	Z90R005	0...2,3 m
RE18040BA	0,01...4,5 m	ZRAE02B01	0,01...2 m
RQ84BA	0,01...4,5 m	ZRME01B01	0,01...0,9 m
RR84BA	0,01...4,5 m	ZRME03B01	0,01...1,6 m
RE9538BA	0,01...2 m	ZRMR02K01	0,01...1 m
RE6151BM	0,01...3,5 m	ZRMS02_01	0,01...1 m
RR50_A	0,01...3 m	RF505	0,02...1,9 m
RE6040BA	0,01...3,5 m	RF508	0,02...1,7 m
RE8222BA	0,01...2,5 m	RF258	0,02...1,4 m
RR34_M	0,01...1,6 m	ZRDF03K01	0,03...3 m
RE3220BM	0,01...1,5 m	ZRDF10K01	0,03...3,5 m
RE6210BM	0,01...1,5 m	Z90R012	0,2...1,2 m
RR25_M	0,01...1,3 m	Z90R013	0,01...2,85 m
RR25KP	0,01...0,8 m	Z90R014	0,02...8,1 m
RR21_M	0,01...1,1 m	Z90R015	0,01...1,3 m
Z90R004	0...1,65 m		

