

Retro-Reflex Sensor

Universal

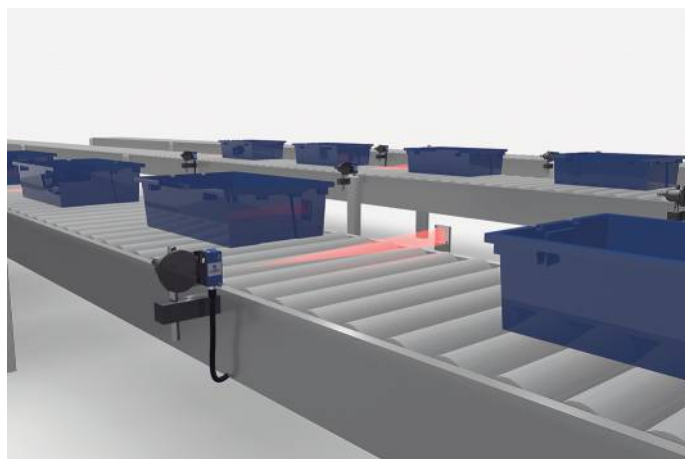
P1KL002

Part Number



- Also suitable for glossy and reflective objects
- Condition monitoring
- High switching frequency
- IO-Link 1.1

The retro-reflex sensor 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.



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	Plastic, ABS/PC
Degree of Protection	IP67
Degree of Protection	IP68
Connection	M8 × 1; 4-pin
Optic Cover	Plastic, PMMA

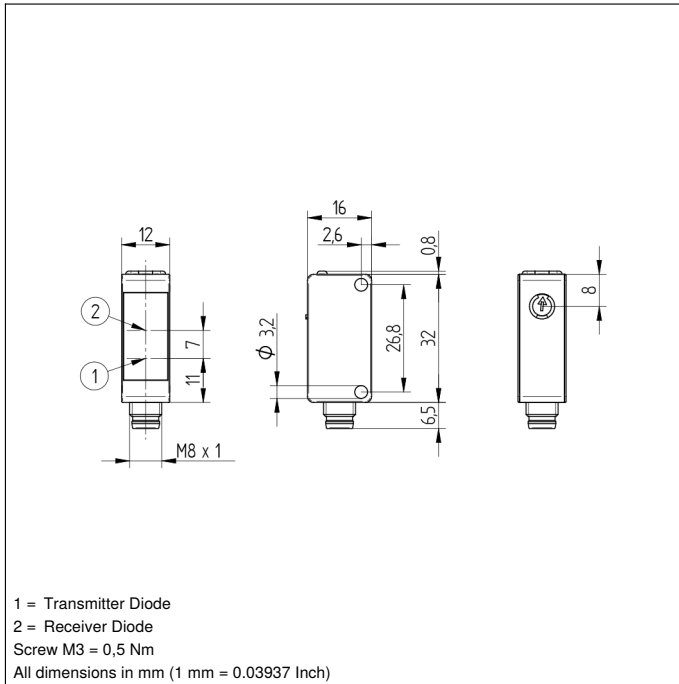
Safety-relevant Data

MTTFd (EN ISO 13849-1)	2808,97 a
Scope of delivery	1 × initial start-up instructions
	1 × sensor

IO-Link	●
PNP NC, PNP NO	●
Connection Diagram No.	215
Control Panel No.	1K1
Suitable Connection Equipment No.	7
Suitable Mounting Technology No.	400

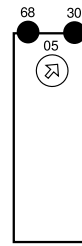
Complementary Products

IO-Link Master
Reflector, Reflector Foil
Software

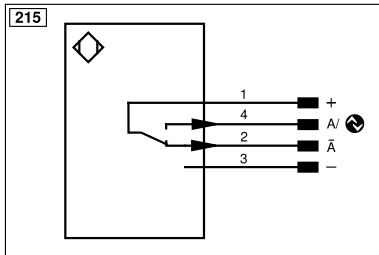


Ctrl. Panel

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
Ṽ	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	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
BI_D+/-	Ethernet Gigabit bidirect. data line (A-D)	RES	Input confirmation
ENo RS422	Encoder 0-pulse 0/0 (TTL)	EDM	Contactor Monitoring
ENAR5422	Encoder A/Ā (TTL)		
ENBR5422	Encoder B/B̄ (TTL)		
ENA	Encoder A		
ENb	Encoder B		
AMIN	Digital output MIN		
AMAX	Digital output MAX		
ACK	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	Z1KC001	0,03...9,7 m
RR25_M	0,01...1,3 m	Z90R012	0,015...1,75
RR25KP	0,01...0,8 m	Z90R013	0,015...2,8 m
RR21_M	0,01...1,1 m	Z90R014	0,03...2,6 m
Z90R004	0...1,65 m	Z90R015	0,03...1,35 m

