Retro-Reflex Sensor

P1KL020

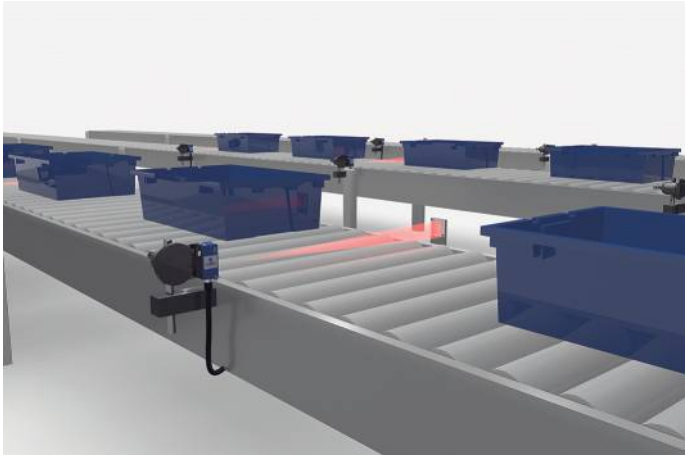
Part Number

PNG smart



- **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.



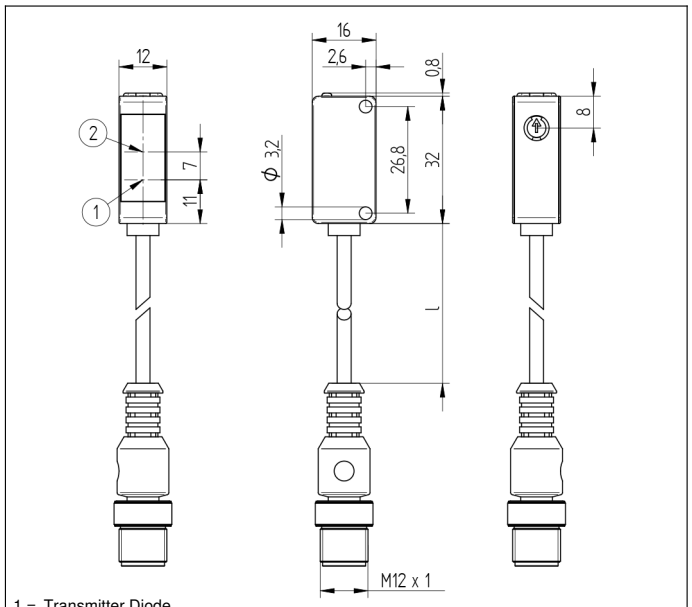
Technical Data

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 (Ub = 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 and Overload Protection	yes
Reverse Polarity Protection	yes
Lockable	yes
Interface	IO-Link V1.1
Protection Class	III
Mechanical Data	
Setting Method	Potentiometer
Housing Material	Plastic
Degree of Protection	IP67/IP68
Connection	M12 × 1; 4-pin
Cable Length	100 cm
Optic Cover	PMMA
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	2808,97 a
IO-Link	●
PNP NC	●
Connection Diagram No.	1014
Control Panel No.	1K1
Suitable Connection Equipment No.	2
Suitable Mounting Technology No.	400

* Temperature range with permanently installed cable, bending radius: > 20 mm

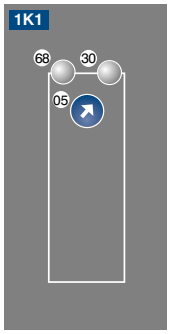
Complementary Products

IO-Link Master
Reflector, Reflector Foil
Software

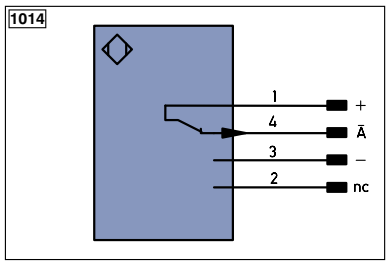


1 = Transmitter Diode
2 = Receiver Diode
Screw M3 = 0,5 Nm
All dimensions in mm (1 mm = 0.03937 Inch)

Ctrl. Panel



05 = Switching Distance Adjuster
30 = Switching Status/Contamination Warning
68 = Supply Voltage Indicator



Legend

+	Supply Voltage +
–	Supply Voltage 0 V
~	Supply Voltage (AC Voltage)
A	Switching Output (NO)
Ā	Switching Output (NC)
V	Contamination/Error Output (NO)
V̄	Contamination/Error Output (NC)
E	Input (analog or digital)
T	Teach Input
Z	Time Delay (activation)
S	Shielding
RxD	Interface Receive Path
TxD	Interface Send Path
RDY	Ready
GND	Ground
CL	Clock
E/A	Output/Input programmable
	IO-Link
PoE	Power over Ethernet
IN	Safety Input
OSSD	Safety Output
Signal	Signal Output
Bl_D+/-	Ethernet Gigabit bidirect. data line (A-D)
EN0 RS422	Encoder 0-pulse 0-0̄ (TTL)
PT	Platinum measuring resistor
nc	not connected
U	Test Input
Ū	Test Input inverted
W	Trigger Input
W–	Ground for the Trigger Input
O	Analog Output
O–	Ground for the Analog Output
BZ	Block Discharge
AW	Valve Output
a	Valve Control Output +
b	Valve Control Output 0 V
SY	Synchronization
SY–	Ground for the Synchronization
E+	Receiver-Line
S+	Emitter-Line
⏚	Grounding
SnR	Switching Distance Reduction
Rx+/–	Ethernet Receive Path
Tx+/–	Ethernet Send Path
Bus	Interfaces-Bus A(+)/B(–)
La	Emitted Light disengageable
Mag	Magnet activation
RES	Input confirmation
EDM	Contactor Monitoring
ENA RS422	Encoder A/Ā (TTL)
ENB RS422	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 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	RR21_M	0,01...1,1 m
RE18040BA	0,01...4,5 m	Z90R004	0,15...1,65 m
RQ84BA	0,01...4,5 m	Z90R005	0,15...2,3 m
RR84BA	0,01...4,5 m	ZRAE02B01	0,01...2 m
RE9538BA	0,01...2 m	ZRME01B01	0,01...0,9 m
RE6151BM	0,01...3,5 m	ZRME03B01	0,01...1,6 m
RR50_A	0,01...3 m	ZRMR02K01	0,01...1 m
RE6040BA	0,01...3,5 m	ZRMS02_01	0,01...1 m
RE8222BA	0,01...2,5 m	RF505	0,02...1,9 m
RR34_M	0,01...0,6 m	RF508	0,02...1,7 m
RE3220BM	0,01...1,5 m	RF258	0,02...1,4 m
RE6210BM	0,01...1,5 m	ZRDF03K01	0,03...3 m
RR25_M	0,01...1,3 m	ZRDF10K01	0,03...3,5 m
RR25KP	0,01...0,8 m		

Specifications are subject to change without notice