

Retro-Reflex Sensor for Transparent Objects

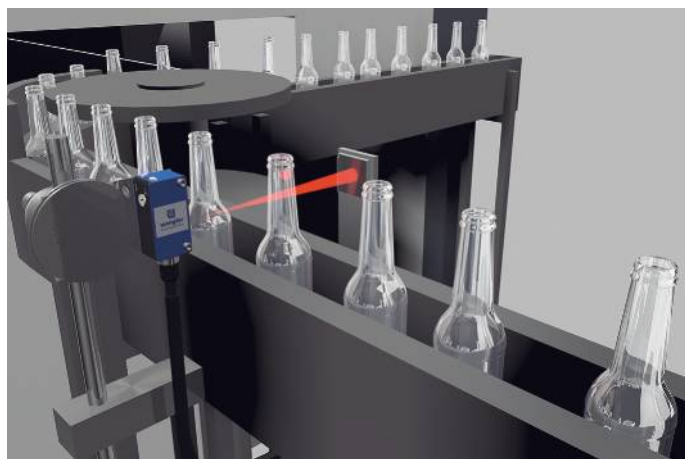
P1KK001

Part Number



- Condition monitoring
- IO-Link 1.1
- No blind spot from single-lens optics
- Special for glass, PET and films

The retro-reflex sensor for transparent objects works with red light and a reflector. Where conventional retro-reflex light barriers reach their limits, this retro-reflective barrier for clear glass recognition ensures that extremely shiny objects like glass, PET bottles, trays or film can be detected. Via the single-lens optic without blind spots, the sensor can detect objects even through small holes and gaps. 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.

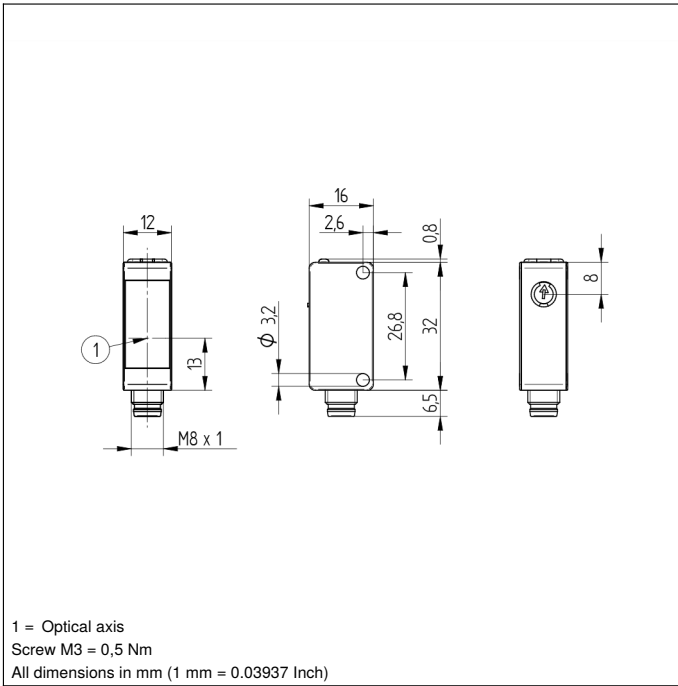


Technical Data

Optical Data	
Range	1500 mm
Reference Reflector/Reflector Foil	RQ100BA
Clear Glass Recognition	yes
Smallest Recognizable Part	see Table 2
Switching Hysteresis	< 5 %
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
Single-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	< 5 %
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	M8 × 1; 4-pin
Optic Cover	PMMA
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	2414 a
IO-Link	●
PNP NC, PNP NO	●
Connection Diagram No.	215
Control Panel No.	1K1
Suitable Connection Equipment No.	7
Suitable Mounting Technology No.	400

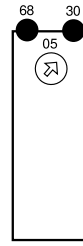
Complementary Products

IO-Link Master	
Reflector, Reflector Foil	
Software	

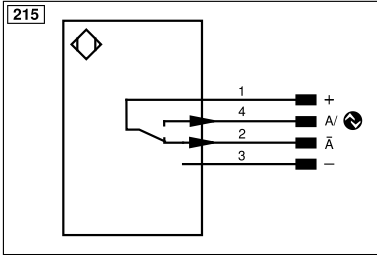


Ctrl. Panel

1K1



05 = Switching Distance Adjuster
 30 = Switching Status/Contamination Warning
 68 = 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)
ȳ	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	IO-Link
PoE	Power over Ethernet
IN	Safety Input
OSSD	Safety Output
Signal	Signal Output
BI_D+/-	Ethernet Gigabit bidirect. data line (A-D)
ENo RS422	Encoder 0-pulse 0/0 (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
Amv	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	Contact Monitoring
ENARs422	Encoder A/Ā (TTL)
ENBRS422	Encoder B/Ĕ (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	1 m	1,5 m
Light Spot Diameter	20 mm	90 mm	130 mm

Table 2

Distance, Sensor to Reflector	0,2 m	1 m	1,5 m
Smallest Recognizable Part	0,7 mm	6 mm	10 mm

Feasible reflector distance

Reflector type, mounting distance

RQ100BA	0...1,5 m	Z90R005	0...1,1 m
RE18040BA	0...1,5 m	ZRAE02B01	0...0,6 m
RQ84BA	0...1,5 m	ZRME01B01	0...0,25 m
RR84BA	0...1,5 m	ZRME03B01	0...0,65 m
RE9538BA	0...0,7 m	ZRRM02K01	0...0,4 m
RE6151BM	0...1,3 m	ZRMS02_01	0...0,55 m
RR50_A	0...1,5 m	RF505	0...0,5 m
RE6040BA	0...1,4 m	RF508	0...0,5 m
RE8222BA	0...1 m	RF258	0...0,45 m
RR34_M	0...1 m	ZRDF03K01	0...1,1 m
RE3220BM	0...0,6 m	ZRDF10K01	0...1,2 m
RE6210BM	0...0,6 m	Z1KC001	0...0,4 m
RR25_M	0...0,7 m	Z90R012	0...0,4 m
RR25KP	0...0,25 m	Z90R013	0,03...0,9 m
RR21_M	0...0,6 m	Z90R014	0...0,7 m
Z90R004	0...0,7 m	Z90R015	0...0,45 m

