

Retro-Reflex Sensor for Transparent Objects

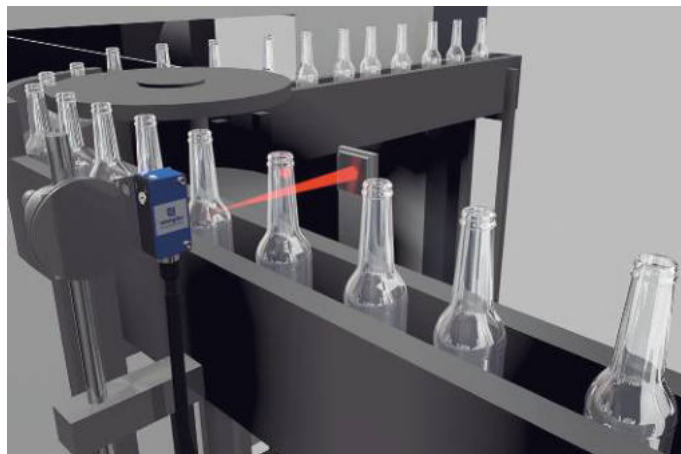
P1KK003

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 clear glass recognition 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.

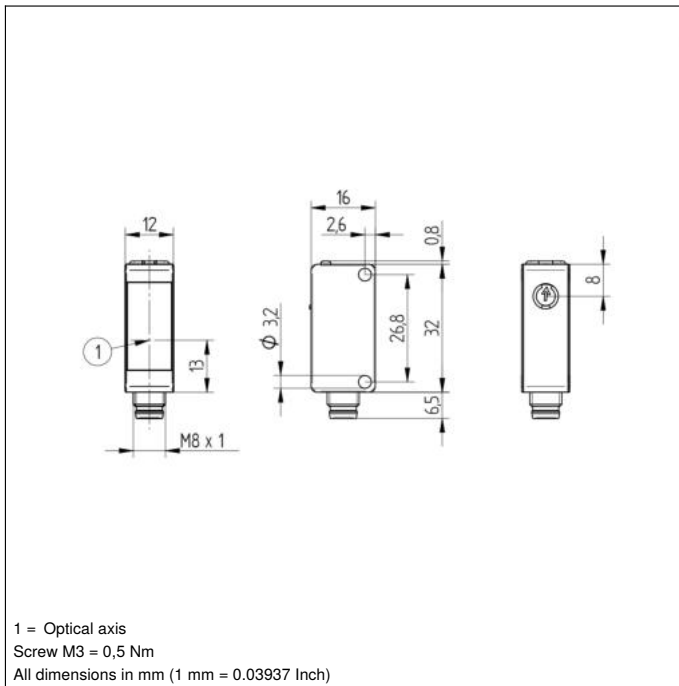


Technical Data

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	●
NPN NO/NC antivalent	●
Connection Diagram No.	213
Control Panel No.	1K1
Suitable Connection Equipment No.	7
Suitable Mounting Technology No.	400

Complementary Products

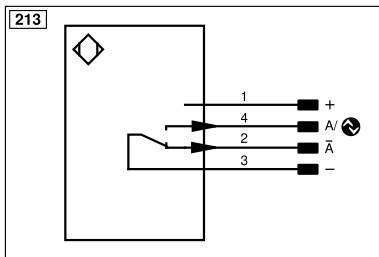
IO-Link Master
Reflector, Reflector Foil
Software



Ctrl. Panel



05 = Switching Distance Adjuster
30 = Switching Status/Contamination Warning
68 = supply voltage indicator



Legend					
+	Supply Voltage +	nc	Not connected	ENBRS422	Encoder B/B (TTL)
-	Supply Voltage 0 V	U	Test Input	ENA	Encoder A
~	Supply Voltage (AC Voltage)	Ü	Test Input inverted	ENB	Encoder B
A	Switching Output (NO)	W	Trigger Input	AMIN	Digital output MIN
Ä	Switching Output (NC)	W-	Ground for the Trigger Input	AMAX	Digital output MAX
V	Contamination/Error Output (NO)	O	Analog Output	AOK	Digital output OK
Y	Contamination/Error Output (NC)	O-	Ground for the Analog Output	SY In	Synchronization In
E	Input (analog or digital)	BZ	Block Discharge	SY OUT	Synchronization OUT
T	Teach Input	Amv	Valve Output	OLT	Brightness output
Z	Time Delay (activation)	a	Valve Control Output +	M	Maintenance
S	Shielding	b	Valve Control Output 0 V	rsv	Reserved
RxD	Interface Receive Path	SY	Synchronization	Wire Colors according to DIN IEC 60757	
TxD	Interface Send Path	SY-	Ground for the Synchronization	BK	Black
RDY	Ready	E+	Receiver-Line	BN	Brown
GND	Ground	S+	Emitter-Line	RD	Red
CL	Clock	±	Grounding	OG	Orange
E/A	Output/Input programmable	SnR	Switching Distance Reduction	YE	Yellow
IO-Link	IO-Link	Rx+/-	Ethernet Receive Path	GN	Green
PoE	Power over Ethernet	Tx+/-	Ethernet Send Path	BU	Blue
IN	Safety Input	Bus	Interfaces-Bus A(+)/B(-)	VT	Violet
OSSD	Safety Output	La	Emitted Light disengageable	GY	Grey
Signal	Signal Output	Mag	Magnet activation	WH	White
BL_D+/-	Ethernet Gigabit bidirect. data line (A-D)	RES	Input confirmation	PK	Pink
ENo RS422	Encoder 0-pulse 0/Ü (TTL)	EDM	Contact Monitoring	GNYE	Green/Yellow
PT	Platinum measuring resistor	ENARIS422	Encoder A/Ä (TTL)		

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	RR25KP	0...0,25 m
RE18040BA	0...1,5 m	RR21_M	0...0,6 m
RQ84BA	0...1,5 m	ZRAE02B01	0...0,6 m
RR84BA	0...1,5 m	ZRME01B01	0...0,25 m
RE9538BA	0...0,7 m	ZRME03B01	0...0,65 m
RE6151BM	0...1,3 m	ZRMR02K01	0...0,4 m
RR50_A	0...1,5 m	ZRMS02_01	0...0,55 m
RE6040BA	0...1,4 m	RF505	0...0,5 m
RE8222BA	0...1 m	RF508	0...0,5 m
RR34_M	0...1 m	RF258	0...0,45 m
RE3220BM	0...0,6 m	ZRDF03K01	0...1,1 m
RE6210BM	0...0,6 m	ZRDF10K01	0...1,2 m
RR25_M	0...0,7 m		

