

Retro-Reflex Sensor for Transparent Objects

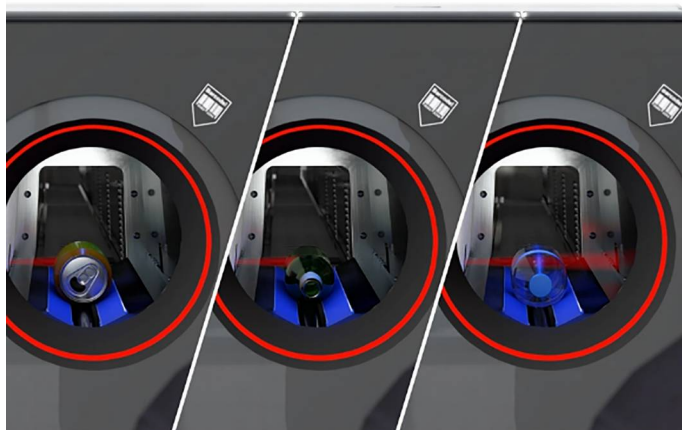
P1KK012

Part Number



- Dynamic readjustment of the switching threshold
- IO-Link 1.1
- Presence control in reverse vending machines (RVMs)
- Special for glass, PET and films
- Teach-free

These sensors are designed for reliable detection of bottles and cans in reverse vending machines (RVMs). The retro-reflex sensor for transparent objects, such as clear glass, works with red light and a reflector. It has an IO-Link interface with a data storage function as well as additional configuration and diagnostic options. The interface can also be used to configure the sensor settings as well as for reading out switching statuses and signal values. The dynamic readjustment of the switching threshold function automatically adjusts this for contamination, aging or temperature deviations, meaning that these factors have almost no effect on functionality.

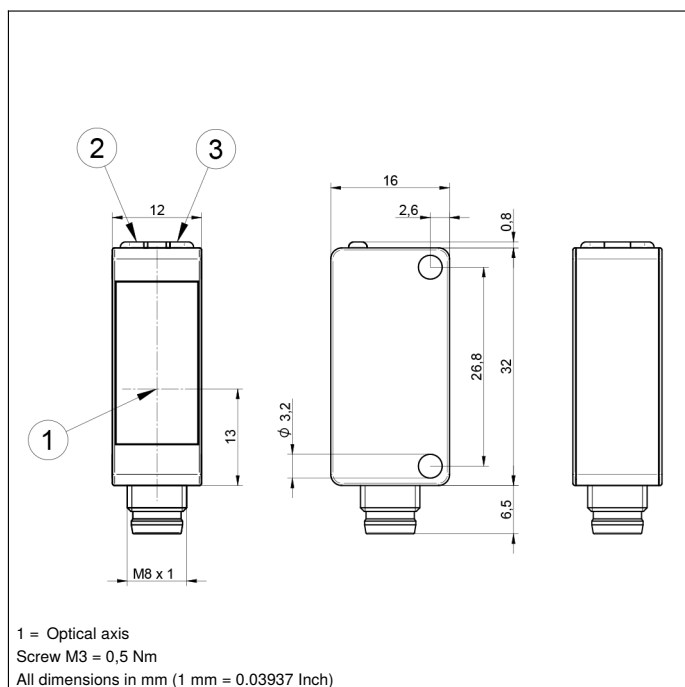


Technical Data

Optical Data	
Range	2000 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
Optics	Single-Lens Optic
Optical axis	Aligned
Switching point	Calibrated
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	1000 Hz
Switching frequency (speed mode)	2000 Hz
Response Time	0,5 ms
Response time (speed mode)	0,25 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 Protection	yes
Reverse Polarity Protection	yes
Overload Protection	yes
Lockable	yes
Teach Mode	NT, MT
Interface	IO-Link V1.1
Data Storage	yes
Protection Class	III
Mechanical Data	
Setting Method	Teach-free
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)	2207,95 a
Scope of delivery	1 × initial start-up instructions 1 × sensor
IO-Link	●
PNP NC	●
Connection Diagram No.	870
Suitable Connection Equipment No.	7
Suitable Mounting Technology No.	400

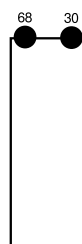
Complementary Products

IO-Link Master
Reflector, Reflector Foil
Software

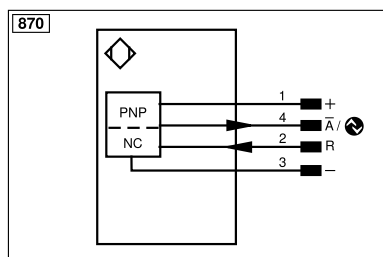


Ctrl. Panel

1K5



30 = Switching Status/Contamination Warning
68 = Power LED



Legend					
+	Supply Voltage +	PT	Platinum measuring resistor	ENAR5422	Encoder A/Ä (TTL)
-	Supply Voltage 0 V	nc	Not connected	ENBR5422	Encoder B/ß (TTL)
~	Supply Voltage (AC Voltage)	U	Test Input	ENa	Encoder A
A	Switching Output (NO)	Ü	Test Input inverted	ENb	Encoder B
Ä	Switching Output (NC)	W	Trigger Input	AMIN	Digital output MIN
V	Contamination/Error Output (NO)	W-	Ground for the Trigger Input	AMAX	Digital output MAX
Û	Contamination/Error Output (NC)	O	Analog Output	AOK	Digital output OK
E	Input (analog or digital)	O-	Ground for the Analog Output	SY In	Synchronization In
T	Teach Input	BZ	Block Discharge	SY OUT	Synchronization OUT
R	Reset 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		
RDY	Ready	E+	Receiver-Line	BK	Black
GND	Ground	S+	Emitter-Line	BN	Brown
CL	Clock	±	Grounding	RD	Red
E/A	Output/Input programmable	SnR	Switching Distance Reduction	OG	Orange
IO-Link	IO-Link	Rx+/-	Ethernet Receive Path	YE	Yellow
PoE	Power over Ethernet	Tx+/-	Ethernet Send Path	GN	Green
IN	Safety Input	Bus	Interfaces-Bus A(+)/B(-)	BU	Blue
QSSD	Safety Output	La	Emitted Light disengageable	VT	Violet
Signal	Signal Output	Mag	Magnet activation	GY	Grey
BI_D+/-	Ethernet Gigabit bidirect. data line (A-D)	RES	Input confirmation	WH	White
ENo RS422	Encoder 0-pulse 0/0 (TTL)	EDM	Contact Monitoring	PK	Pink
				GNYE	Green/Yellow

Table 1

Working Distance	0,5 m	1,3 m	2 m
Light Spot Diameter	30 mm	100 mm	150 mm

Table 2

Distance, Sensor to Reflector	0,4 m	1 m	2 m
Smallest Recognizable Part	2 mm	5 mm	8 mm

Feasible reflector distance

Reflector type, mounting distance

RQ100BA	0...2 m	Z90R006	0...1 m
RE18040BA	0...1,1 m	ZRAE02B01	0...0,7 m
RQ84BA	0...1,6 m	ZRME01B01	0...0,25 m
RR84BA	0...1,9 m	ZRME03B01	0...0,9 m
RE9538BA	0...0,7 m	ZRMR02K01	0...0,35 m
RE6151BM	0...1,5 m	ZRMS02_01	0...0,45 m
RR50_A	0...1,05 m	RF505	0...0,4 m
RE6040BA	0...1,2 m	RF508	0...0,4 m
RE8222BA	0...0,85 m	RF258	0...0,4 m
RR34_M	0...1 m	ZRAF08K01	0...0,4 m
RE3220BM	0...0,7 m	ZRDF03K01	0...1,2 m
RE6210BM	0...0,45 m	ZRDF10K01	0...1,3 m
RR25_M	0...0,55 m	Z90R012	0...0,55 m
RR25KP	0...0,3 m	Z90R013	0,02...1,3 m
RR21_M	0...0,5 m	Z90R014	0...0,97 m
Z90R004	0...0,7 m	Z90R015	0...0,65 m
Z90R005	0...1 m		

