

# Retro-Reflex Sensor for Clear Glass Recognition

## P1KK004

Part Number



- Condition monitoring
- Dynamic readjustment of the switching threshold
- High-end
- IO-Link 1.1
- Special for glass, PET and films

The retro-reflex sensor for clear glass recognition works with red light and a reflector. It has a 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 sensors (PNP/NPN, NC/NO, switching distance, error output), 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.

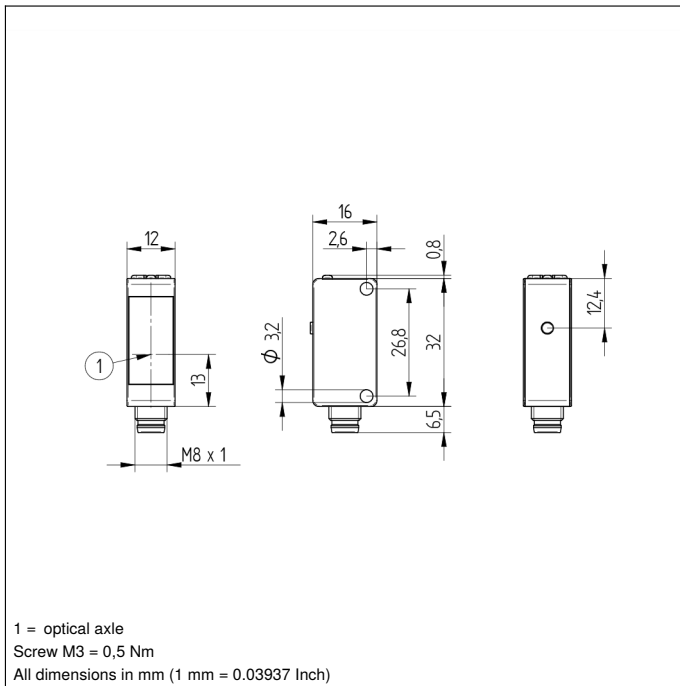


### Technical Data

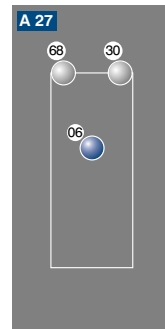
Optical Data	
Range	2000 mm
Reference Reflector/Reflector Foil	RQ100BA
Clear Glass Recognition	yes
Smallest Recognizable Part	see Table 2
Switching Hysteresis	< 5 %
Light Source	Red Light
Polarization Filter	yes
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Light Spot Diameter	see Table 1
Single-Lens Optic	yes
Electrical Data	
Supply Voltage	10...30 V DC
Supply Voltage with IO-Link	18...30 V DC
Current Consumption (U <sub>b</sub> = 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 and Overload Protection	yes
Reverse Polarity Protection	yes
Lockable	yes
Teach Mode	NT, MT
Interface	IO-Link V1.1
Data Storage	yes
Protection Class	III
Mechanical Data	
Setting Method	Teach-In
Housing Material	Plastic
Degree of Protection	IP67/IP68
Connection	M8 × 1; 4-pin
Optic Cover	PMMA
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	2207,95 a
IO-Link	●
NPN NO	●
Connection Diagram No.	<b>221</b>
Control Panel No.	<b>A27</b>
Suitable Connection Equipment No.	<b>7</b>
Suitable Mounting Technology No.	<b>400</b>

### Complementary Products

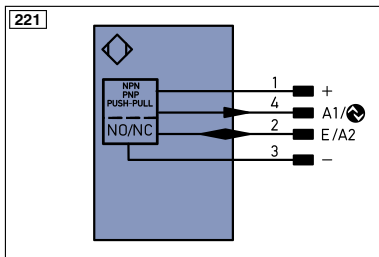
IO-Link Master	
Reflector, Reflector Foil	
Software	



### Ctrl. Panel



- 06 = Teach Button
- 30 = Switching Status/Contamination Warning
- 68 = Supply Voltage Indicator



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
Z	Time Delay (activation)	AWV	Valve Output
S	Shielding	a	Valve Control Output +
RxD	Interface Receive Path	b	Valve Control Output 0 V
TxD	Interface Send Path	SY	Synchronization
RDY	Ready	SY-	Ground for the Synchronization
GND	Ground	E+	Receiver-Line
CL	Clock	S+	Emitter-Line
E/A	Output/Input programmable	±	Grounding
	IO-Link	S <sub>n</sub> R	Switching Distance Reduction
PoE	Power over Ethernet	Rx+/-	Ethernet Receive Path
IN	Safety Input	Tx+/-	Ethernet Send Path
OSSD	Safety Output	Bus	Interfaces-Bus A(+)/B(-)
Signal	Signal Output	La	Emitted Light disengageable
Bl_D+/-	Ethernet Gigabit bidirect. data line (A-D)	Mag	Magnet activation
EN0 <sub>RS422</sub>	Encoder 0-pulse 0-0 (TTL)	RES	Input confirmation
		EDM	Contactur Monitoring
		EN <sub>RS422</sub>	Encoder A/Ā (TTL)
		EN <sub>BPS422</sub>	Encoder B/B̄ (TTL)
		EN <sub>A</sub>	Encoder A
		EN <sub>B</sub>	Encoder B
		A <sub>MIN</sub>	Digital output MIN
		A <sub>MAX</sub>	Digital output MAX
		A <sub>OK</sub>	Digital output OK
		SY <sub>in</sub>	Synchronization In
		SY <sub>OUT</sub>	Synchronization OUT
		OL <sub>T</sub>	Brightness output
		M	Maintenance
		rsv	reserved
		Wire Colors according to DIN IEC 757	
		BK	Black
		BN	Brown
		RD	Red
		OG	Orange
		YE	Yellow
		GN	Green
		BU	Blue
		VT	Violet
		GY	Grey
		WH	White
		PK	Pink
		GNVE	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	RR25KP	0...0,4 m
RE18040BA	0...1,9 m	RR21_M	0...0,85 m
RQ84BA	0...2 m	ZRAE02B01	0...0,85 m
RR84BA	0...2 m	ZRME01B01	0...0,4 m
RE9538BA	0...0,95 m	ZRME03B01	0...0,85 m
RE6151BM	0...1,7 m	ZRMR02K01	0...0,55 m
RR50_A	0...2 m	ZRMS02_01	0...0,75 m
RE6040BA	0...1,8 m	RF505	0...0,65 m
RE8222BA	0...1,35 m	RF508	0...0,65 m
RR34_M	0...1,3 m	RF258	0...0,55 m
RE3220BM	0...0,8 m	ZRAF08K01	0...0,65 m
RE6210BM	0...0,8 m	ZRDF03K01	0...1,5 m
RR25_M	0...0,9 m	ZRDF10K01	0...1,55 m

