

Retro-Reflex Sensor

Universal

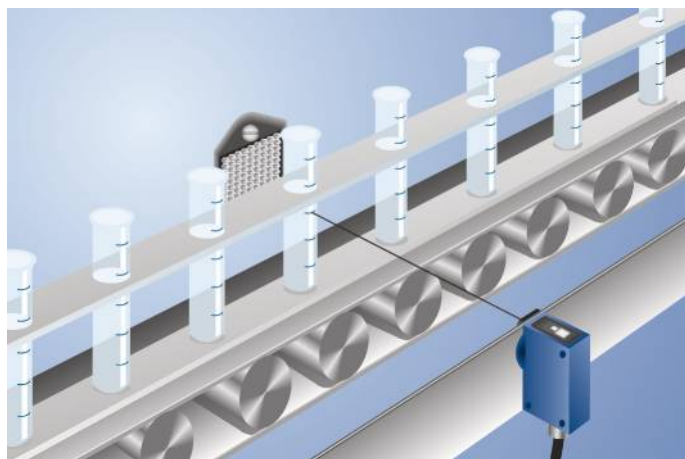
P1RL003

Part Number



- IO-Link 1.1
- Laser class 1
- Simple installation
- Teach-in, external teach-in

The retro-reflex sensor works with a fine laser beam and a reflector. The focused laser class 1 laser beam detects objects, e.g. during assembly, feed or presence checks, from 1 mm in size over the entire range. The IO-Link interface can be used to configure retro-reflex sensors (PNP/NPN, NC/NO, switching distance) and to output switching states and signal values.



Technical Data

Optical Data

Range	12000 mm
Reference Reflector/Reflector Foil	RQ100BA
Smallest Recognizable Part	see Table 2
Switching Hysteresis	< 5 %
Light Source	Laser focused (red)
Wavelength	655 nm
Polarization Filter	yes
Service Life (T = +25 °C)	100000 h
Laser Class (EN 60825-1)	1
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)	< 40 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	-25...60 °C
Switching Output Voltage Drop	< 2 V
NPN 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
Protection Class	III
FDA Accession Number	2411239-000

Mechanical Data

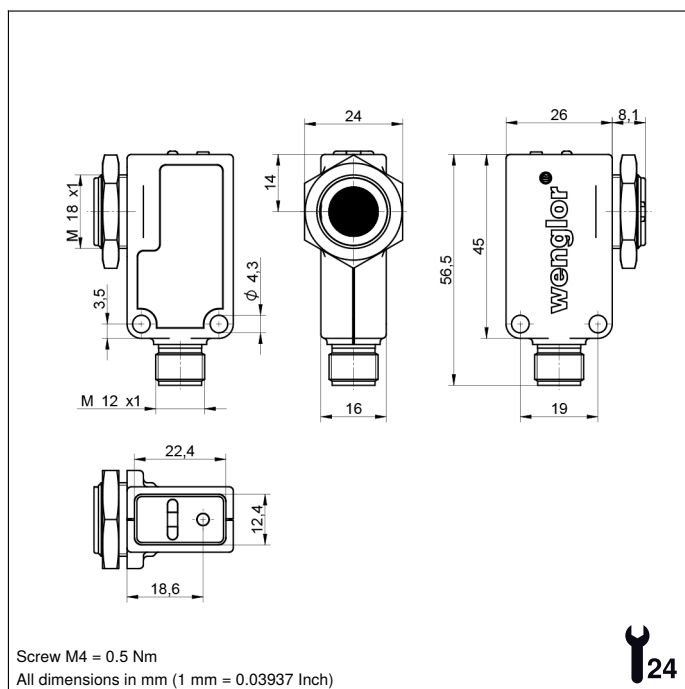
Setting Method	Teach-In
Housing Material	Brass, nickel-plated
Housing Material	Plastic, PBT
Full Encapsulation	yes
Degree of Protection	IP67/IP68
Connection	M12 × 1; 4-pin

Safety-relevant Data

MTTFd (EN ISO 13849-1)	2817,28 a
IO-Link	●
NPN NC	●
External teach-in input	●
Connection Diagram No.	709
Control Panel No.	A51
Suitable Connection Equipment No.	2
Suitable Mounting Technology No.	150 370

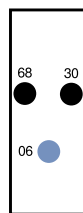
Complementary Products

Dust Extraction Tube STAUBTUBUS-01
IO-Link Master
Reflector, Reflector Foil
Software

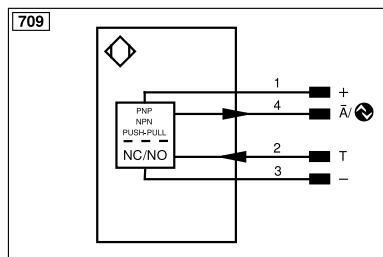


Ctrl. Panel

A 51



06 = Teach Button
30 = Switching Status/Contamination Warning
68 = supply voltage indicator



Legend			
+	Supply Voltage +	nc	Not connected
-	Supply Voltage 0 V	U	Test Input
~	Supply Voltage (AC Voltage)	Ū	Test Input inverted
A	Switching Output (NO)	W	Trigger Input
Ā	Switching Output (NC)	W-	Ground for the Trigger Input
V	Contamination/Error Output (NO)	O	Analog Output
Ȳ	Contamination/Error Output (NC)	O-	Ground for the Analog Output
E	Input (analog or digital)	BZ	Block Discharge
T	Teach Input	Amv	Valve Output
Z	Time Delay (activation)	a	Valve Control Output +
S	Shielding	b	Valve Control Output 0 V
RxD	Interface Receive Path	SY	Synchronization
TxD	Interface Send Path	SY-	Ground for the Synchronization
RDY	Ready	E+	Receiver-Line
GND	Ground	S+	Emitter-Line
CL	Clock	⊥	Grounding
E/A	Output/Input programmable	SnR	Switching Distance Reduction
IO-Link	IO-Link	Rx+/-	Ethernet Receive Path
PoE	Power over Ethernet	Tx+/-	Ethernet Send Path
IN	Safety Input	Bus	Interfaces-Bus A(+)/B(-)
OSSD	Safety Output	La	Emitted Light disengageable
Signal	Signal Output	Mag	Magnet activation
BI_D+/-	Ethernet Gigabit bidirect. data line (A-D)	RES	Input confirmation
ENo RS422	Encoder 0-pulse 0/0 (TTL)	EDM	Contact Monitoring
PT	Platinum measuring resistor	ENAR422	Encoder A/Ā (TTL)
		ENBR422	Encoder B/Ā (TTL)
		ENA	Encoder A
		ENB	Encoder B
		AMIN	Digital output MIN
		AMAX	Digital output MAX
		ACK	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	1,2 m	6 m	12 m
Light Spot Diameter	10 mm	60 mm	70 mm

Table 2

Distance, Sensor to Reflector	1,2 m	6 m	12 m
Smallest Recognizable Part	1 mm	2 mm	2 mm

Feasible reflector distance

Reflector type, mounting distance

RQ100BA	0...12 m	RR25KP	0...1,5 m
RE18040BA	0...8 m	RR21_M	0...5 m
RQ84BA	0...12 m	ZRAE02B01	0...3,5 m
RR84BA	0...11 m	ZRME01B01	0...2 m
RE9538BA	0...3,5 m	ZRME03B01	0...3 m
RE6151BM	0...9 m	ZRMR02K01	0...2 m
RR50_A	0...9 m	ZRMS02_01	0...4 m
RE6040BA	0...9 m	RF505	0...2 m
RE8222BA	0...6 m	RF508	0...2 m
RE3220BM	0...3,5 m	RF258	0...2 m
RE6210BM	0...3,5 m	ZRAF08K01	0...2 m
RR25_M	0...5 m	ZRDF03K01	0...7 m

