

Retro-Reflex Sensor

Universal

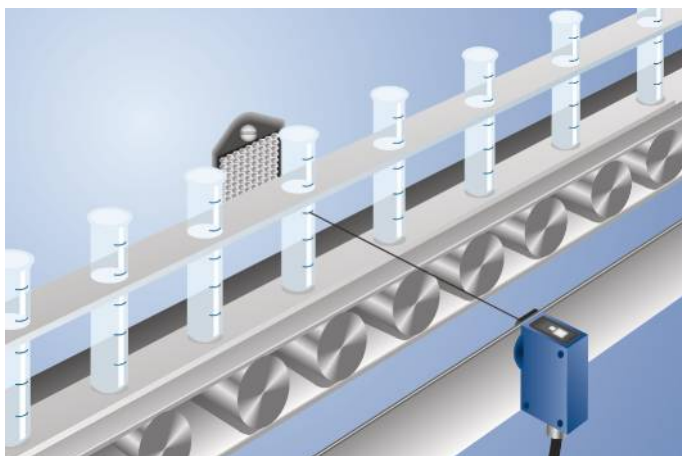
P1RL002

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.

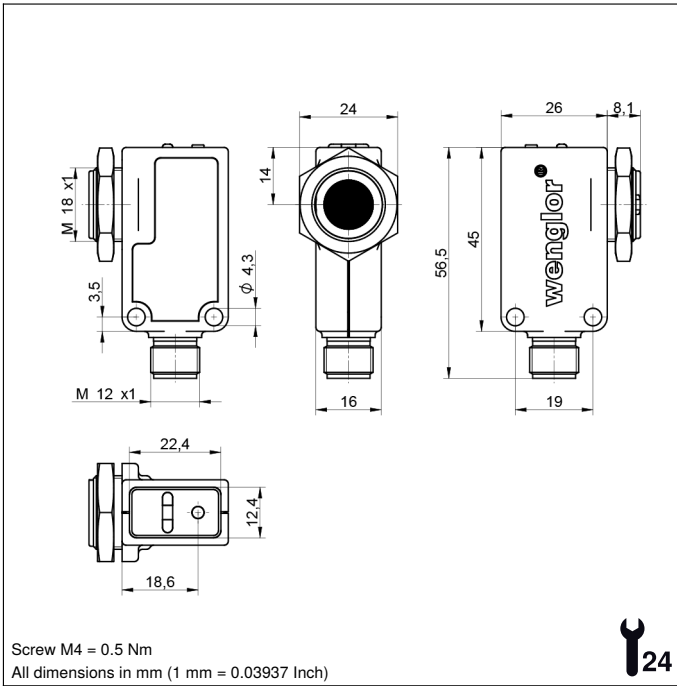


Technical Data

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
PNP 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	●
PNP NC	●
External teach-in input	●
Connection Diagram No.	709
Control Panel No.	A51
Suitable Connection Equipment No.	2
Suitable Mounting Technology No.	150 370

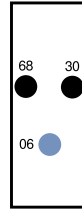
Complementary Products

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

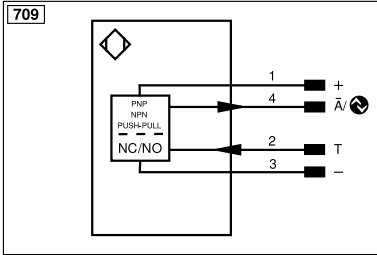


Ctrl. Panel

A 51



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



Legend					
+	Supply Voltage +	nc	Not connected	ENBRS422	Encoder B/B̄ (TTL)
-	Supply Voltage 0 V	U	Test Input	ENA	Encoder A
~	Supply Voltage (AC Voltage)	Ū	Test Input inverted	ENB	Encoder B
A	Switching Output (NO)	W	Trigger Input	AMIN	Digital output MIN
Ā	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
V̄	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
BI_D+/-	Ethernet Gigabit bidirect. data line (A-D)	RES	Input confirmation	PK	Pink
ENo RS422	Encoder 0-pulse 0/0̄ (TTL)	EDM	Contact Monitoring	GNYE	Green/Yellow
PT	Platinum measuring resistor	ENARS422	Encoder A/Ā (TTL)		

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

