

Reflex Light Barrier

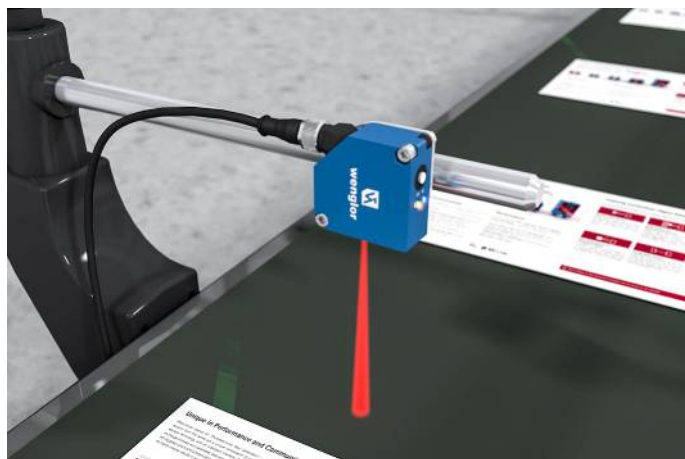
P1PM104

Part Number



- Dynamic readjustment of the switching threshold
- IO-Link 1.1
- No blind spot
- Recognition of high-gloss and jet black objects
- Teach-in on moving background, such as feed belts

The reflex light barriers work with red light and detect objects both via the intensity of the backscattered light and via the distance to a previously taught-in reference background. Thanks to the combined detection principle, the sensors are suitable for contactless object detection without a reflector, regardless of color, shape or surface. Due to their large range, reflex light barriers enable ejection and presence check applications as well as object detection on wide feed belts. The IO-Link interface can be used to configure reflex light barriers (PNP/NPN, NC/NO, teach-in mode) as well as for reading out switching statuses.



Technical Data

Optical Data	
Range	1000 mm
Reference Background	White, 90% remission
Switching Hysteresis	< 5 %
Light Source	Red Light
Service Life (T = +25 °C)	100000 h
Max. Ambient Light	10000 Lux
Light Spot Diameter	see Table 1
Two-Lens Optic	yes

Electrical Data	
Supply Voltage	15...30 V DC
Supply Voltage with IO-Link	18...30 V DC
Current Consumption (U _b = 24 V)	< 30 mA
Switching Frequency	900 Hz
Switching Frequency (interference-free mode)	450 Hz
Response Time	0,6 ms
Response time (interference-free mode)	1,1 ms
Temperature Drift	< 10 %
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
Interface	IO-Link V1.1
Protection Class	III

Mechanical Data	
Setting Method	Teach-In
Housing Material	Plastic
Degree of Protection	IP67/IP68
Connection	M12 × 1; 4-pin
Optic Cover	Plastic, PMMA

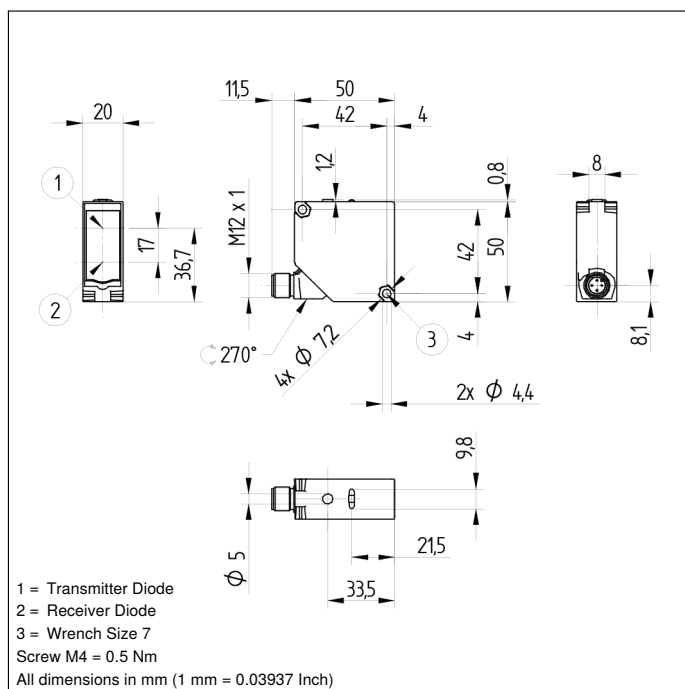
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	803,65 a

NPN NO	●
External teach-in input	●
IO-Link	●

Connection Diagram No.	865
Control Panel No.	A34
Suitable Connection Equipment No.	2
Suitable Mounting Technology No.	380

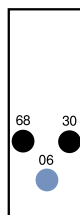
Complementary Products

IO-Link Master	
Set Protective Housing Z1PS001	
Software	

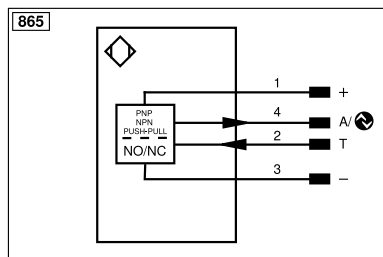


Ctrl. Panel

A34



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
BL_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	ENARIS422	Encoder A/A (TTL)
		ENBRIS422	Encoder B/B (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

Range	100 mm	500 mm	1000 mm
Light Spot Diameter	16 mm	22 mm	33 mm

Permissible background distance

Background type, mounting distance

white (90 %)	0,1...1 m	black (6 %)	0,1...0,45 m
grey (18 %)	0,1...0,7 m	Stainless Steel	0,1...1 m