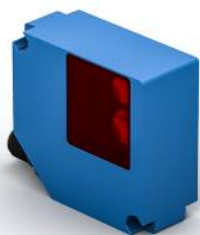


# Retro-Reflex Sensor with light band

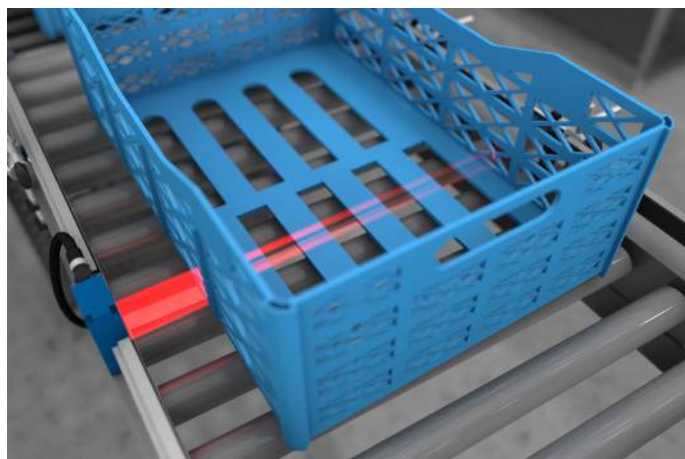
## P1EL101 LASER

Part Number



- Compensation of uneven conveyor belt areas with dynamic teach-in
- Dynamic readjustment of the switching threshold
- Flexible mounting options thanks to 180° rotatable plug
- Precise front edge detection with non-uniform objects

The Retro-Reflex Sensor with Light Band scans a significantly larger range than a retro-reflex sensor with a dot-shaped light spot. This makes it ideally suitable for reliably detecting the front edges of objects with irregular shapes or variable sizes. The sensor's collimated laser light band is absolutely homogeneous and can thus be precisely aligned to the conveyor belt's level. The sensor detects objects as small as just four millimeters. The compact format can be integrated into the smallest of spaces, for example in the side panels of conveyor systems.



### Technical Data

Optical Data	
Range	2500 mm
Reference Reflector/Reflector Foil	Z90R007
Smallest Recognizable Part	see Table 1
Light Source	Laser (red)
Wavelength	650 nm
Service Life (T = +25 °C)	100000 h
Laser Class (EN 60825-1)	1
Max. Ambient Light	10000 Lux
Light Strip Height	27 mm

Electrical Data	
Supply Voltage	12...30 V DC
Current Consumption (U <sub>b</sub> = 24 V)	< 30 mA
Switching Frequency	275 Hz
Response Time	1,8 ms
Temperature Range	-30...60 °C
Switching Output Voltage Drop	< 2,5 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
Protection Class	III
FDA Accession Number	2310248-000

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

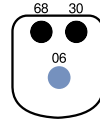
Safety-relevant Data	
MTTFd (EN ISO 13849-1)	1942,78 a

PNP NC	●
Connection Diagram No.	151
Control Panel No.	1E1
Suitable Connection Equipment No.	2
Suitable Mounting Technology No.	110

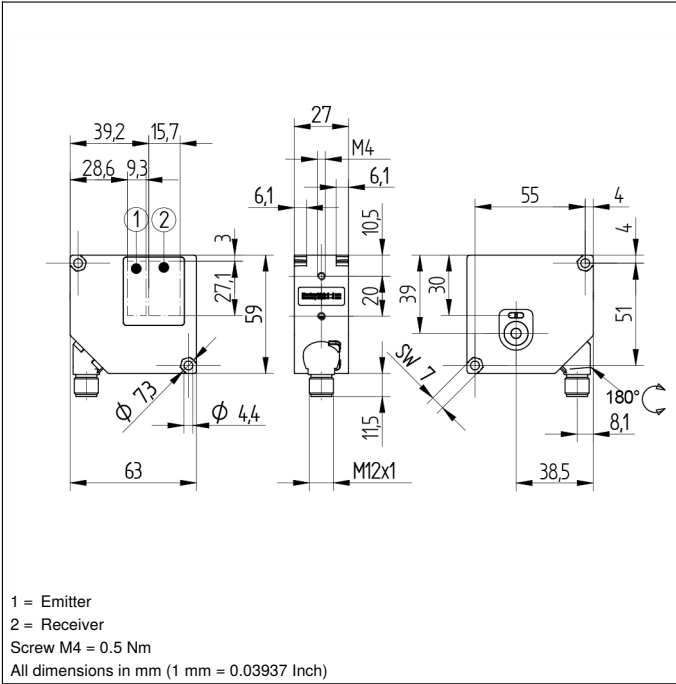
### Complementary Products

PNP-NPN Converter BG2V1P-N-2M

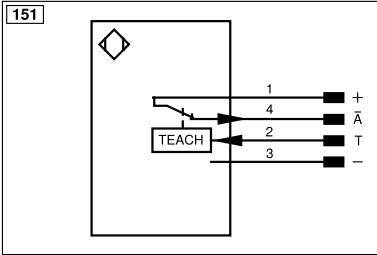
### Ctrl. Panel

**1E1**


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



1 = Emitter  
 2 = Receiver  
 Screw M4 = 0.5 Nm  
 All dimensions in mm (1 mm = 0.03937 Inch)



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
ȳ	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		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**

Distance, Sensor to Reflector	0,35 ... 1,60 m	1,60 ... 2,50 m
Smallest Recognizable Part	4 mm	10 mm

### Feasible reflector distance

Reflector type, mounting distance

Z90R004	0,4...1,6 m	Z90R009	0,35...2,5 m
Z90R005	0,4...1,6 m	ZRDF03K01	0,4...1,6 m
Z90R007	0,35...2,5 m	ZRDF10K01	0,4...1,6 m
Z90R008	0,35...2,5 m		

