P1EL300 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**

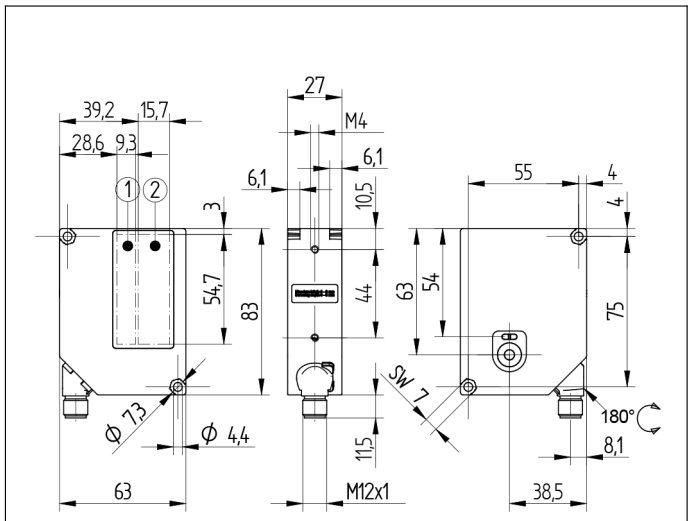
The Retro-Reflex Sensor with Light Band scans a significantly larger range than a retro-reflex sensor with a dot-shaped light spot. This makes it ideally suitable for reliably detecting the front edges of objects with irregular shapes or variable sizes. The sensor's collimated laser light band is absolutely 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	Z90R009
Smallest Recognizable Part	see Table
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	54 mm
Electrical Data	
Supply Voltage	12...30 V DC
Current Consumption (Ub = 24 V)	< 30 mA
Switching Frequency	125 Hz
Response Time	4 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
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)	1599,51 a
PNP NO	●
Connection Diagram No.	150
Control Panel No.	1E1
Suitable Connection Equipment No.	2
Suitable Mounting Technology No.	112

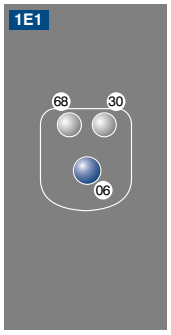
Complementary Products

PNP-NPN Converter BG2V1P-N-2M

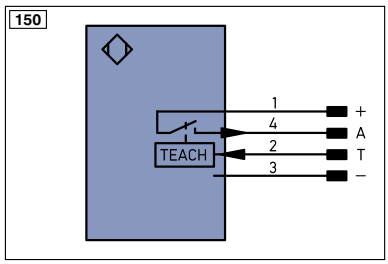


1 = Emitter
2 = Receiver
Screw M4 = 0,5 Nm
All dimensions in mm (1 mm = 0.03937 Inch)

Ctrl. Panel



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



Legend

+	Supply Voltage +
–	Supply Voltage 0 V
~	Supply Voltage (AC Voltage)
A	Switching Output (NO)
Ā	Switching Output (NC)
V	Contamination/Error Output (NO)
V̄	Contamination/Error Output (NC)
E	Input (analog or digital)
T	Teach Input
Z	Time Delay (activation)
S	Shielding
RxD	Interface Receive Path
TxD	Interface Send Path
RDY	Ready
GND	Ground
CL	Clock
E/A	Output/Input programmable
	IO-Link
PoE	Power over Ethernet
IN	Safety Input
OSSD	Safety Output
Signal	Signal Output
BI_D+/-	Ethernet Gigabit bidirect. data line (A-D)
EN0 RS422	Encoder 0-pulse 0-0̄ (TTL)
PT	Platinum measuring resistor
nc	not connected
U	Test Input
Ū	Test Input inverted
W	Trigger Input
W–	Ground for the Trigger Input
O	Analog Output
O–	Ground for the Analog Output
BZ	Block Discharge
AW	Valve Output
a	Valve Control Output +
b	Valve Control Output 0 V
SY	Synchronization
SY–	Ground for the Synchronization
E+	Receiver-Line
S+	Emitter-Line
⏚	Grounding
SnR	Switching Distance Reduction
Rx+/–	Ethernet Receive Path
Tx+/–	Ethernet Send Path
Bus	Interfaces-Bus A(+)/B(–)
La	Emitted Light disengageable
Mag	Magnet activation
RES	Input confirmation
EDM	Contactor Monitoring
ENA RS422	Encoder A/Ā (TTL)
ENB RS422	Encoder B/B̄ (TTL)
ENA	Encoder A
ENB	Encoder B
AMIN	Digital output MIN
AMAX	Digital output MAX
AOK	Digital output OK
SY In	Synchronization In
SY OUT	Synchronization OUT
OLT	Brightness output
M	Maintenance
rsv	reserved

Wire Colors according to 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

Distance, Sensor to Reflector	0,40 ... 1,60 m	1,60 ... 2,50 m
Smallest Recognizable Part	4 mm	10 mm

Feasible reflector distance

Reflector type, mounting distance

Z90R009	0,4...2,5 m	**ZRDF10K01**	0,4...1,6 m
ZRDF03K01	0,4...1,6 m		