



## **Retro-Reflex Sensors with Light Band**

Object Detection with Full Bandwidth

With its light band sensor, wenglor has developed a two-dimensional light barrier for the detection of objects with varying shapes or perforated surfaces. Simply pressing the teach-in key is sufficient in order to reliably detect position on the basis of the front edge without any programming effort at all.

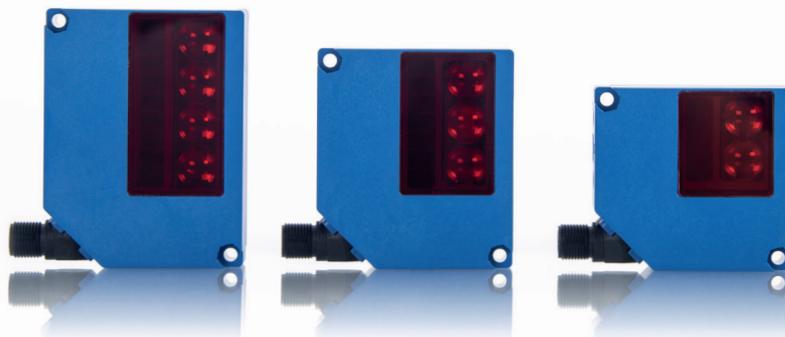
In addition to convenient operation, Retro-Reflex Sensors with Light Band are distinguished by their economic efficiency. As compared with previous solutions using several light barriers or light curtains, a single Retro-Reflex Sensor with Light Band suffices for precise position detection.

**Take advantage of the full bandwidth for object detection!**





- Selection of various light band heights: 27, 42 and 54 mm
- Large range of up to 2.5 m
- High-precision optics detect even transparent, dark and glossy objects
- Homogeneous laser light band detects extremely small parts of down to 4 mm
- Quick initial start-up thanks to teach-in function
- Suppression of uneven conveyor belt areas with dynamic teach-in function
- Increased system availability and reduced maintenance effort thanks to dynamic readjustment of the switching threshold



# Thought Through All the Way Down to the Smallest Detail

## Ingenious Design for Increased Installation Flexibility

Specially developed reflectors for  
additional functional reliability

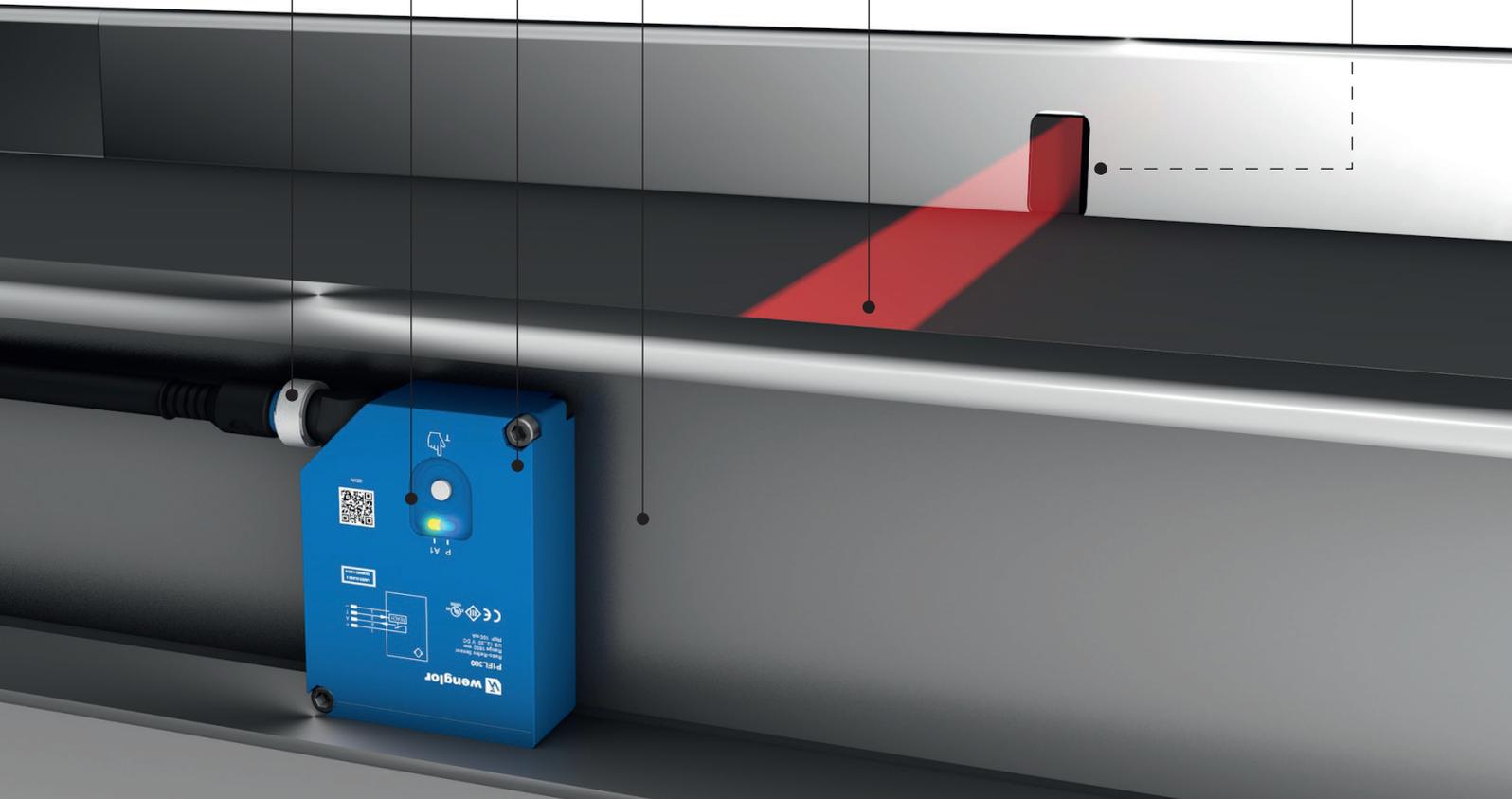
No protruding  
screws or teach-in key  
for flush installation

Various attachment options with M4  
through-bolts or M4 press-fit sleeves

Flexible mounting options  
with 180° rotatable plug

Space-saving installation in the  
side panel thanks to the compact  
and extremely narrow housing

Homogeneous light band permits  
precise alignment of the bottom  
edge to the conveyor belt plane



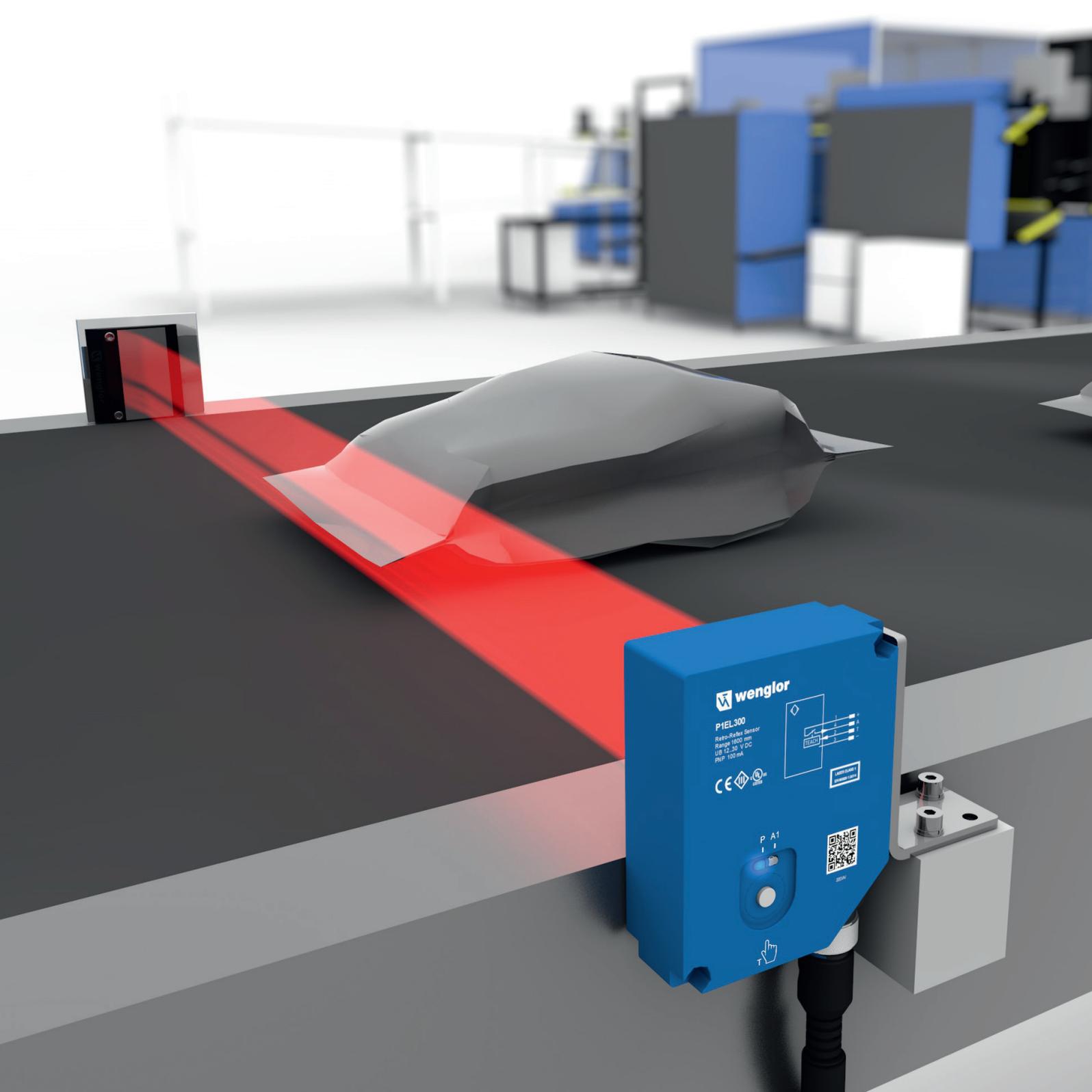
# Save Time Thanks to Easy Use

Intelligent Teach-In Functions Make Child's Play of Initial Sensor Start-Up



- Easy sensor setup by simply pressing the teach-in key
- Precision at the touch of a button with precision teach-in for the detection of small parts down to 4 mm
- Dynamic teach-in mode for the suppression of uneven conveyor belt areas
- External teach-in via the controller with 24 V voltage signal

Discover all of the product advantages in detail on  
[www.wenglor.com/Light-Band-Sensors](http://www.wenglor.com/Light-Band-Sensors)



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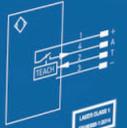
P1EL300

Photo-Reflex Sensor

Range: 1000 mm

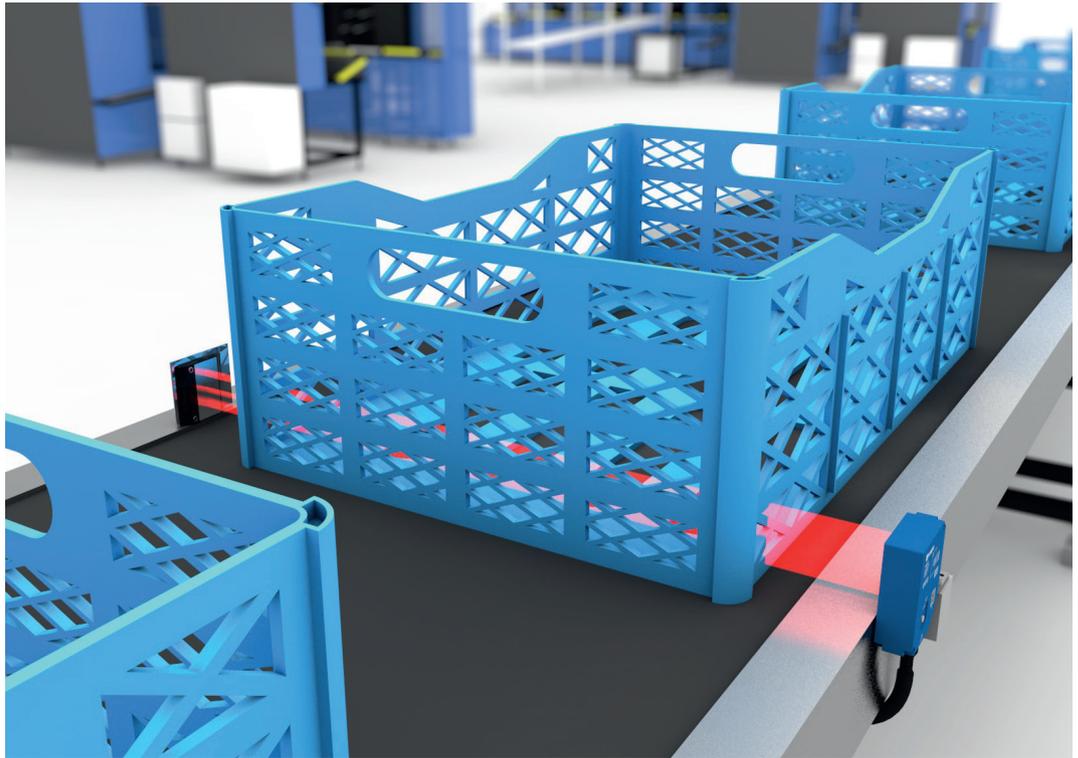
12-24 V DC

PIF: 100 ms



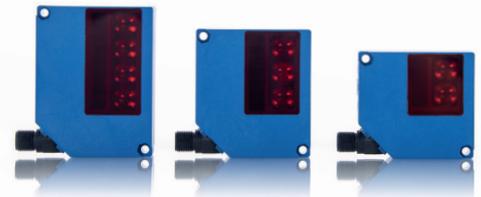
P A1





Retro-Reflex Sensors with Light Band accurately detect the front edges of various objects regardless of their position on the conveyor belt. Consequently, the sensors are especially effective for the avoidance of bottlenecks and jams. This results in higher system productivity.

The sensors are also ideally suited for identifying the structures of perforated objects as homogeneous surfaces. This makes them perfect for multifunctional use and flexible production in lot sizes of all the way down to 1.



Watch application videos on [www.wenglor.com/Light-Band-Sensors](http://www.wenglor.com/Light-Band-Sensors)

# Retro-Reflex Sensor with Light Band

## P1ELx00

Order Number



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

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 plane. 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	2,500 mm
Smallest detectable part	See table
Light source	Laser (red)
Wavelength	650 nm
Service life (ambient temp. = +25° C)	100,000 h
Laser class (EN60825-1)	1
Maximum permissible ambient light	10,000 lux
Electrical Data	
Supply voltage	12 ... 30 V DC
Current consumption (operating voltage = 24 V)	≤ 30 mA
Temperature range	-30 ... 60° C
Switching output voltage drop	< 2.5 V
Switching current, PNP switching output	100 mA
Switching output residual current	< 50 μA
Short-circuit proof	Yes
Reverse polarity protected	Yes
Overload-proof	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
PNP NO	●
Connection diagram no.	150
Control panel no.	1E1
Suitable connection equipment no.	2
Suitable mounting technology no.	110 111 112

### Accessory Products

PNP-NPN converter BG2V1P-N-2M
Reflector, reflector foil

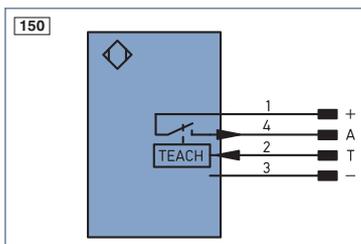


	P1EL100	P1EL200	P1EL300
Light band height	27 mm	42 mm	54 mm
Housing dimensions	59 × 63 × 27 mm	71 × 63 × 27 mm	83 × 63 × 27 mm
Reference reflector / reflector foil	Z90R007	Z90R008	Z90R009
Switching frequency	275 Hz	175 Hz	125 Hz
Response time	1.8 ms	2.9 ms	4 ms

Smallest detectable part	P1EL100 & P1EL200		P1EL300	
Distance, sensor to reflector	0,35...1,6 m	1,6...2,5 m	0,4...1,6 m	1,6...2,5 m
Smallest detectable part	4 mm*	10 mm	4 mm*	10 mm

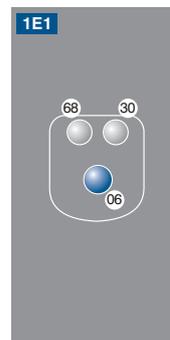
\* The smallest detectable part depends on the utilized teach-in mode, sensor/reflector distance, and alignment to the reflector:  
 Teach-in for interference-free detection: 5 mm  
 Teach-in for precise detection: 4 mm

### Connection Diagram



- + Positive supply voltage
- 0 V supply voltage
- A NO switching output
- T Teach-in input

### Control Panel



- 06 = Teach-in key
- 30 = Switching status indicator / contamination warning
- 68 = Supply voltage indicator

### Permissible Distance from the Reflector

Reflector Type, Mounting Clearance

ZRDF03K01	0,40...1,6 m
ZRDF10K01	0,40...1,6 m
Z90R004	0,40...1,6 m
Z90R005	0,40...1,6 m
Z90R007	0,35...2,5 m
Z90R008	0,35...2,5 m
Z90R009	0,35...2,5 m

[www.wenglor.com](http://www.wenglor.com)