

PLR

ACCURATE PART LOCALIZATION FOR RELIABLE
ROBOT HANDLING

Robot guidance systems / 3D machine vision

SICK
Sensor Intelligence.



ACCURATE LOCATING OF SHEET METAL COMPONENTS

Automated handling of sheet metal components makes car body manufacturing or household appliance manufacturing more efficient. The displacement of parts in their containers, if by only a few millimeters, poses risks however. Without a reliable guidance system, a robot may not be able to grip a part, thereby causing an unplanned stop. Or it may miss the designated gripping positions and cause damage to the part or other components.

The PLR robot guidance system ensures accurate and reliable performance even if a part is not perfectly placed. It combines 2D and 3D vision for accurate 6DoF measurement, and its automated gripper correction calculation compensates positioning deviations for problem-free parts handling.

+ Usability

- The intuitive design of the hardware and software user interface make PLR easy to set up and operate
- Configuration takes just 4 simple steps: Aligning the robot and the sensor coordinate system, teaching in the part, defining the picking position, saving the configuration
- The PLR interface is directly connected to the robot

+ Cost efficient solution

- No more stops due to inaccurate parts placement
- With PLR, no precision racks are needed
- No manpower is tied up at the robot cell
- PLR doesn't impact robot cycle time

+ Used with major robot brands

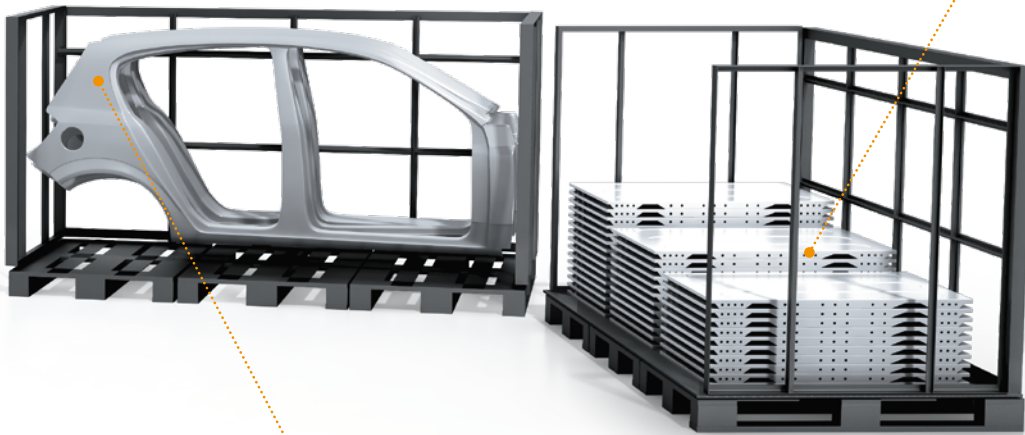
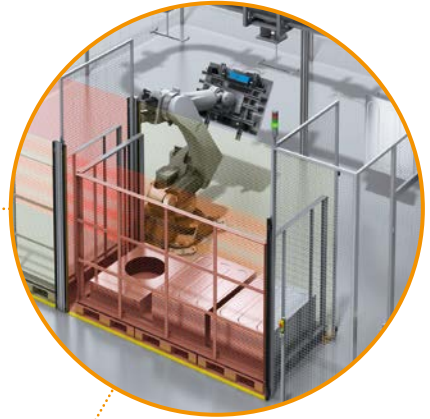
- Ethernet interface, compatible with all major robot brands
- Sample robot programs available from SICK
- Profinet interface available



+ Sensor fusion by PLF app (add-on)

- PLF combines multiple sensors and merges all measurement data for the robot
- High measurement accuracy, particularly for large parts, where precision gripping by the robot is required

Home appliances industry
Picking of stamped sheet metal components



Automotive industry
De-racking of vehicle body sections

ACCURATE PART LOCALIZATION FOR RELIABLE ROBOT HANDLING



Product description

PLR is a sensor system designed for robotic handling of parts in carriers. It is a stand-alone device that comes complete with everything needed for easy setup, simple integration with the robot, and swift maintenance of the system in operation. The system is operated via an integrated web server and can be set up in no time at all. It combines 2D and 3D vision technology to provide a unique

solution that can be used whenever reliable material handling is essential, even under varying conditions. PLR is factory-calibrated with preloaded software, meaning it is ready to use right out of the box. Installation and configuration of the device can be accomplished in only a matter of minutes. Now PLR is ready for operation.

At a glance

- Precise and rapid part localization
- Combined 2D and 3D measurement
- Robot gripper correction calculation
- Web-server-based user interface
- Tools for easy integration with the robot
- Combination of multiple devices possible

Your benefits

- PLR negates the need for precision racks or manual parts handling
- Cost-effective, stand-alone device connected directly to the robot
- The unique combination of 2D and 3D imaging techniques provides the reliability and flexibility needed for problem-free material handling operation
- The functions for robot alignment and gripper position correction make it easy for the integrator to work with PLR
- Web-server-based UI simplifies configuration and maintenance work
- A device installed in production can be replaced in less than 15 minutes
- Combining results from multiple devices allows even parts without defined features to be located



Additional information

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→ www.sick.com/PLR

For more information, simply enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.



Detailed technical data

The exact device specifications and performance data of the product may deviate from the information provided here, and depend on the application in which the product is being used and the relevant customer specifications.

Features

	PLR3200-01	PLR3200-02
Industries	Automotive and parts suppliers Electronics and solar	
Tasks	Position determination	
Example volume of view (L x W x H)	260 mm x 260 mm (typical)	
Measurement range	265 mm ... 515 mm	630 mm ... 880 mm
Light source	Laser, 660 nm LED, 630 nm	
Laser class	2	
LED class	Risk group 1 (low risk, IEC62471 : 2006)	

Performance

	PLR3200-01	PLR3200-02
Part localization time	< 500 ms	
Part localization accuracy ¹⁾	± 0.5 mm, ± 0.1°	± 0.8 mm, ± 0.2°
Output data	X, Y, Z (mm) roll, pitch, yaw (degrees)	

¹⁾ Depending on working distance.

Interfaces

Ethernet	✓
Data transmission rate	100 Mbit/s
Protocol	TCP/IP XML and CSV (robot), TCP/IP (operator)
Electrical connection	M12 male connector, 8-pin, x-coded
Supply voltage	✓
Electrical connection	M12, 4-pin, A-coded
Operator interfaces	Web server

Mechanics/electronics

	PLR3200-01	PLR3200-02
Supply voltage	24 V DC, ± 20 %	
Power consumption	10 W, ± 20 %	
Current consumption	1.2 A	
Housing material	Aluminum (anodised)	
Window material	Glass with exchangeable PMMA window	
Dimensions, system (L x W x H)	225 mm x 90 mm x 84 mm	275 mm x 90 mm x 84 mm
Weight	2.4 kg	
Enclosure rating	IP65	

Ambient data

Ambient operating temperature	0 °C ... +45 °C
Ambient storage temperature	-20 °C ... +70 °C
Permissible relative humidity	35% ... 85%
Shock load	15 g, 3 x 6 directions
Vibration resistance	5 g (58 Hz ... 150 Hz)

Ordering information

Type	Measurement range	Part no.
PLR3200-01	265 mm ... 515 mm	1097315
PLR3200-02	630 mm ... 880 mm	1099062

Accessories

Mounting systems

Device protection (mechanical)


	Brief description	Type	Part no.
	Accessories for PLR3200-01, PLR3200-02	Welding protection window set	2104594

Mounting brackets and plates

	Brief description	Type	Part no.
	Accessories for PLB3200-01, PLR3200-02	Mounting bracket for PLR system	2103419

Connection systems

Plug connectors and cables

	Accessory family	Short description	Type	Part no.
	Other connectors and cables	Robot-suitable cable set for current and Ethernet, 10m	Cable set for PLR system	1100829


Reflectors and optics

Illuminations

	Brief description	Type	Part no.
	Accessories for PLR3200-01, PLR3200-02	LED illumination spare parts set	2106895

Further accessories

Calibration tools

	Description	Type	Part no.
	Target object for aligning a PLR coordinate system, gray, 216 mm x 162 mm	Alignment plate for PLR	5332927

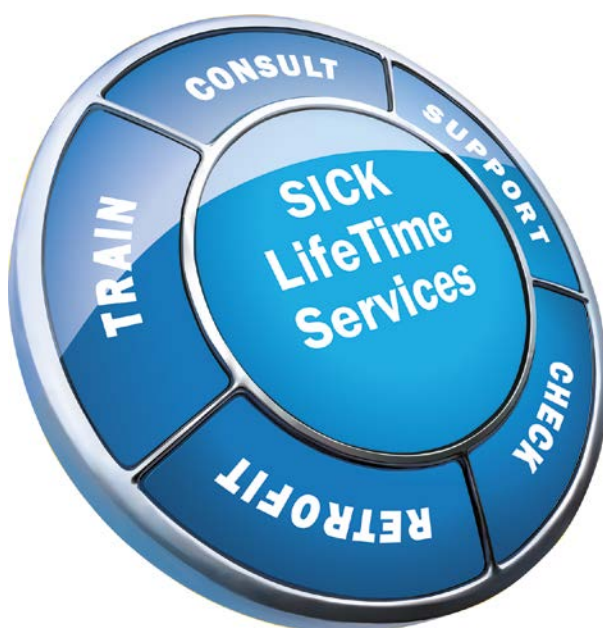
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SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 9,700 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, SICK is always close to its customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents, and preventing damage to the environment.

SICK has extensive experience in various industries and understands their processes and requirements. With intelligent sensors, SICK delivers exactly what the customers need. In application centers in Europe, Asia, and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes SICK a reliable supplier and development partner.

Comprehensive services round out the offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

That is “Sensor Intelligence.”

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Detailed addresses and further locations → www.sick.com