PaintChecker
Industrial Sensors

Whether it's glossy paint, rough powder coating, thick glass ceramic, tiny components or application in the tightest of spaces, we offer the right sensors for every application - small, light, eye-safe, and ideally suited for robot mounting.

HIGHLIGHTS

- Robust, photo-thermal measurement process for various material combinations
- Maximum durability, energy efficiency and vibration resistance thanks to semiconductor light sources
- Small measurement spot for corners, edges and hard-to-reach areas
- Compact design – can be used in the tightest of spaces
- Minimum weight – ideal for robot mounting
- High-power versions for thick layers and large measuring distances
- Eye-safe models, with patented LARES technology

PaintChecker Industrial *Laser Sensors*

The OptiSense laser sensors use a diode laser as a light source - with all the advantages of semiconductor technology, such as long durability, high efficiency and absolute vibration resistance. We have versions with a tiny measurement spot for micro-mechanical applications and special angle sensors with folded optics and a particular small measurement distance that can be used even in the tightest of spaces. Models equipped with the eye-safe LARES® technology, which protects eyes, can be operated without any further protective measures.

PaintChecker Industrial *LED Sensors*

Our LED sensors have a larger measurement field than laser versions and are particularly suitable for rough and grainy surfaces of powders and pastes. Depending on the coating material, you can select between infrared and UV excitation models. Of course, coatings on non-metallic surfaces can be measured as well. The compact sensors in the cube-shaped housing offer particularly flexible mounting thanks to the selectable orientation of the cable connector. At the same time, the large contact area ensures optimal heat dissipation.

PaintChecker Industrial *High-power Variants*

Photo-thermal measurements on thick layers containing large amounts of glass or metal require stronger lighting. In addition, the power requirement increases with the distance between the sensor and the component.

For these applications, high-power sensors with the same external dimensions are available, which, in addition to more power output and a larger measurement distance, also feature a higher energy density, so that in many cases precise positioning of the part to be measured is not required.

Technical Data | Industrial Sensors							
Model	**Angle-LLP1.6**	**Angle-LHP1.6**	**Tube-LLP3.5**	**Tube-LHP3.5**	**Tube-LHP10**	**Cube-LEDR3.3**	**Cube-LEDB3.3**
Order number	S21-0700-003	S21-0700-007	S21-0700-004	S21-0700-005	S21-0700-006	S21-0600-005	S21-0600-006
Design	Laser, Angle		Laser, Cylinder			LED, Cube	
Measurement range	1 - 1000 µm						
Measurement rate	max. 2.5 Hz						
Measurement time	125 - 1000 ms						
Duty Cycle	33 %						
Max. On-time	1s						
Operating mode	pulsed operation						
Resolution	1 % of reading (typical)						
Accuracy	3 % of reading (typical)						
Measuring distance from lens	16 mm		35 mm		100 mm	33 mm	
Distance tolerance	± 1 mm		± 2.5 mm		± 5 mm	± 3 mm	
Angular tolerance	± 15 °						
Size of measuring field Ø	0.2 mm		0.3 mm		0.5 mm	1 mm	
Optical power	650 mJ	1250 mJ	650 mJ	1250 mJ	1250 mJ	1150 mJ	250 mJ
Wavelength	1470 nm					980 nm	365 nm
Laser class	1M	3R	1M	3R		Risk 1	Risk 3
Eye safety	yes	no	yes	no		yes	
Dimensions (L x W x H)	87 x 28 x 41 mm		Ø30 x 102 mm			50 x 51.6 x 55 mm	
Weight	180 g		150 g			280 g	
IP Code	IP 50						

Safety Redefined
LARES® -technology

OptiSense LARES® stands for **LA**ser **R**adiation **E**ye **S**afety and is the intelligent solution to ever-increasing requirements in the field of person and eye protection, which set the strictest standards, especially when handling lasers.

Thanks to our patented LARES® technology, operators, machinery and environment at the manufacturing and processing location are reliably protected.

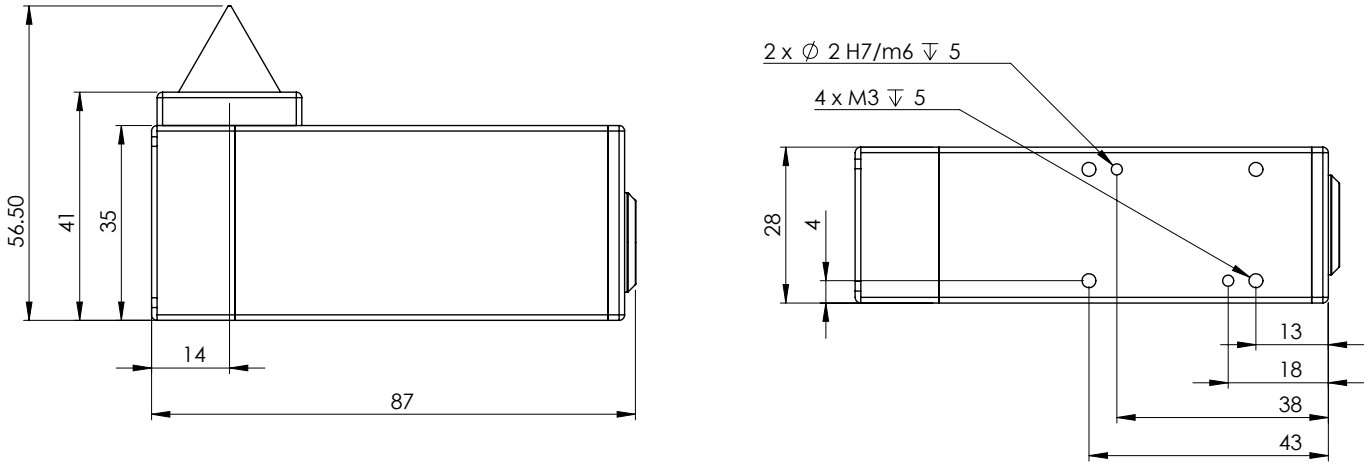
All sensors with the LARES® logo are eye-safe. They can be used directly and without any restrictions in almost all areas of application and can be operated without anytechnical protection measures.
The designation of a laser protection supervisor, which is mandatory for laser radiation hazardous to eyes, and the briefing and instructing the operating personnel, which must be properly documented, can thus be omitted with.

Delivery Contents & Accessories

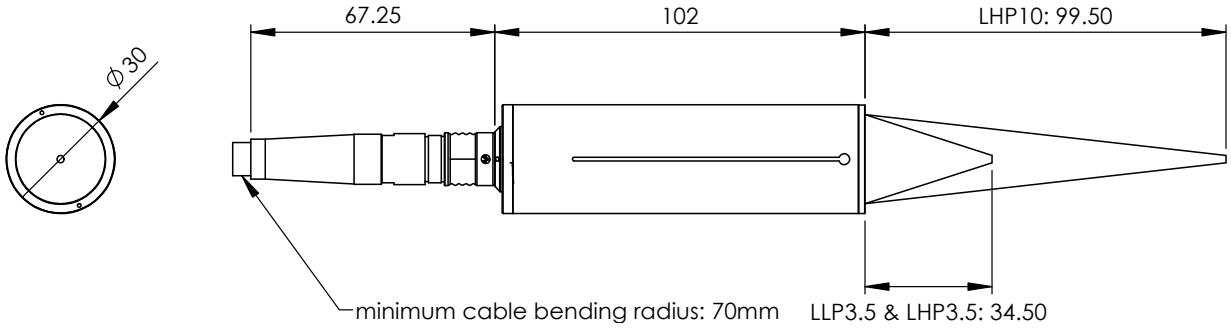
Delivery Contents
- Sensor

Accessories
- Cable
- Sensor holder on request

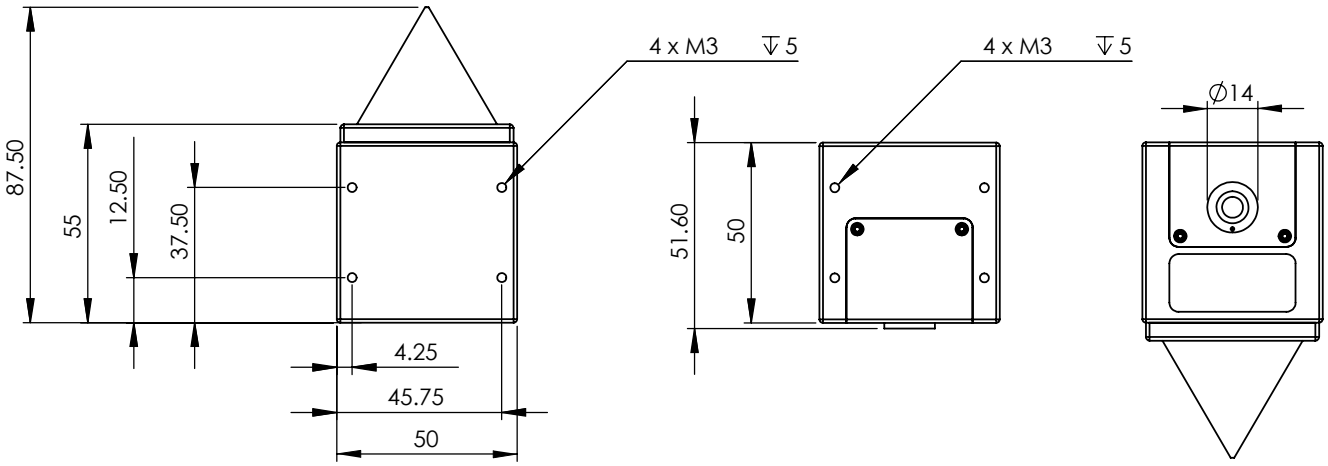
Dimensional Drawing Industrial Sensors | **Angle LLP1.6, LHP1.6**



Dimensional Drawing Industrial Sensors | **Tube LLP3.5, LHP3.5, LHP10**



Dimensional Drawing Industrial Sensors | **Cube LEDB3.3, LEDR3.3**



Application Matrix | Industrial Sensors									
Substrate	**Coating**	**Coating Condition**	Angle-LLP1.6	Angle-LHP1.6	Tube-LLP3.5	Tube-LHP3.5	Tube-LHP10	Cube-LEDR3.3	Cube-LEDB3.3
Metal	CDC	dry	■	■		■	■		
	Pigmented paint	wet / dry	■	■	■	■	■	■	■
	Clear coat	wet / powdered	■	■	■	■	■	■	■
	UV paint	wet / cured	■	■	■	■	■	■	■
	Zinc dust	dry	■	■	■	■	■		
	Bonding agent	wet / cured					■	■	■
	Powder coating	powdered					■	■	■
	Adhesive	wet / dry			■		■	■	■
	Rubber coating	dry			■		■	■	■
Rubber	Bonded coating	dry			■		■	■	
	Adhesive	wet / cured			■		■	■	
Ceramic	Pigmented paint	dry			■		■	■	■
	Powder slurry	pre-dried				■	■	■	■
	Conductive paste	pre-dried	■		■		■	■	■
Glass	Pigmented paint	wet / dry	■	■	■	■	■	■	■
	Bonding agent	pre-dried	■		■		■	■	■
	Conductive paste	pre-dried	■		■		■	■	■
Plastic	Bonding agent	wet / dry					■	■	■
	Laser paint	dry	■		■		■	■	■
	Clear coat	wet / dry			■	■	■		■
	Powder coating	powdered					■	■	■
	Rubber coating	dry			■		■	■	■

Note: Some applications require special system calibration, which OptiSense offers.

Available from:

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OptiSense is certified according to DIN EN ISO 9001:2015
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