



Making Industries Smarter

The Next Generation
of Photoelectronic Sensors

Technology



Communication



Performance



Functional
Principles



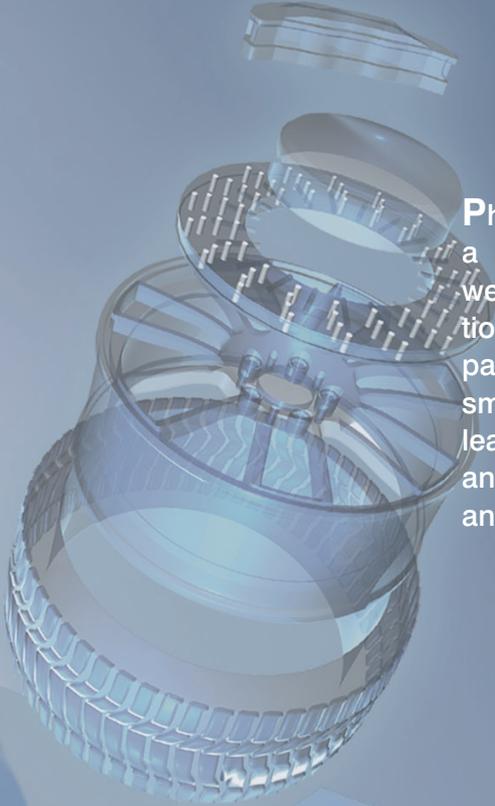
Housing
Formats





“Sensors are the most important components of smart machines.”

Dr. Alexander Ohl
Development Director, wenglor sensoric



Photoelectronic Next Generation stands for a new age of smart photoelectronic sensors. wenglor's portfolio provides a unique combination of the communication and performance capabilities which are required to make machines smart in the first place. As thinking, networked, learning sense organs, PNG//smart sensors are an integral constituent of automated production and logistics processes.



PNG//smart

Unique Communication and Performance

PNG//smart sensors are the result of a unique combination consisting of an intelligent interface and precision wenglor technology. They flexibly exchange process and parameters data and, thanks to accurately targeted optics and a balanced switching point, they transmit highly precise results in real-time.



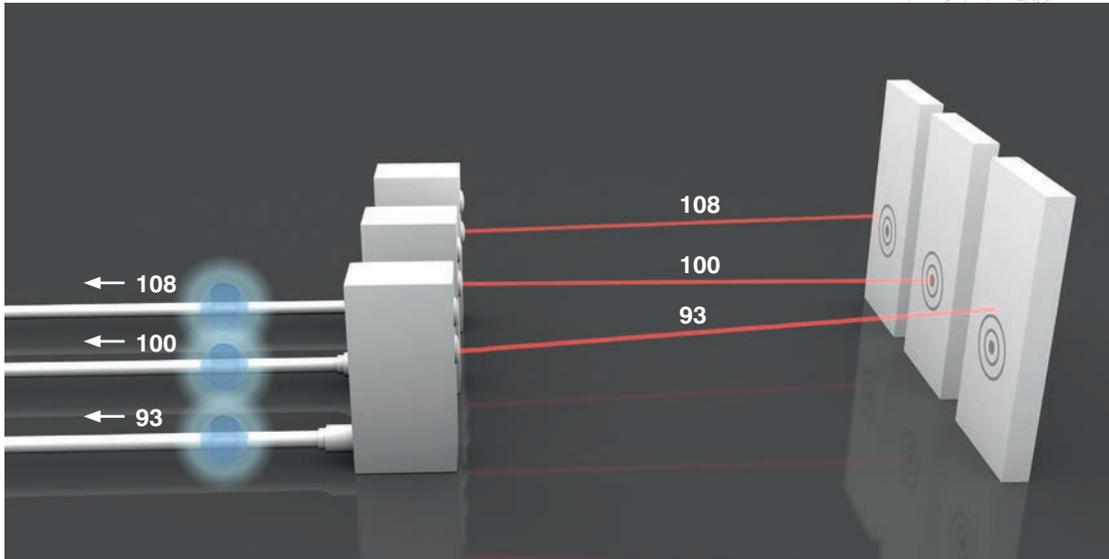
Communication



Performance

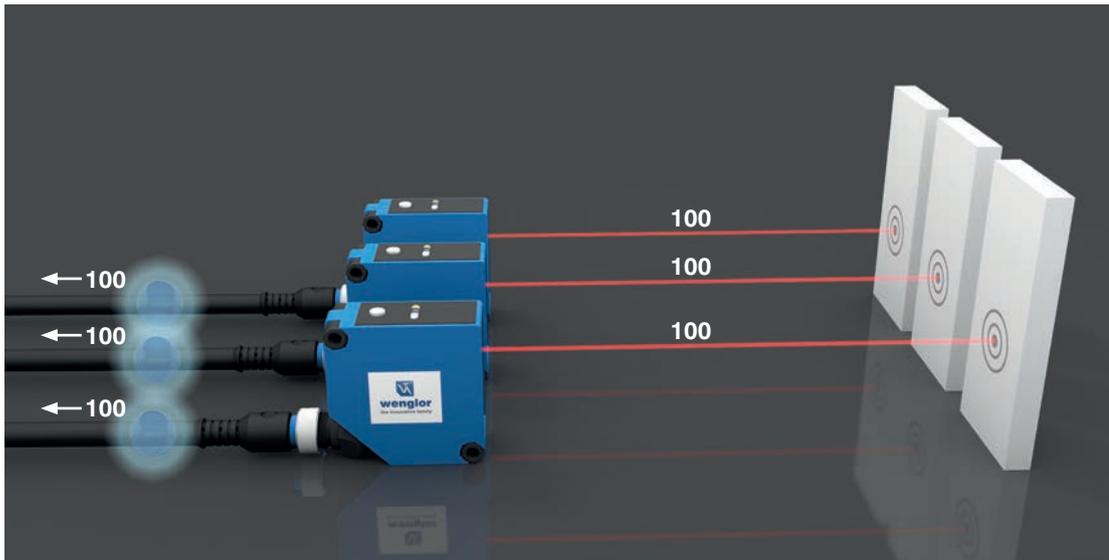


Non-Targeted Optics and Non-Balanced Switching Point



The position of the spot varies in the case of sensors without targeted optics. Acquired data vary as well in the case of non-balanced switching points. Consequently, data communicated from different sensors are not comparable.

With Targeted Optics and Balanced Switching Point



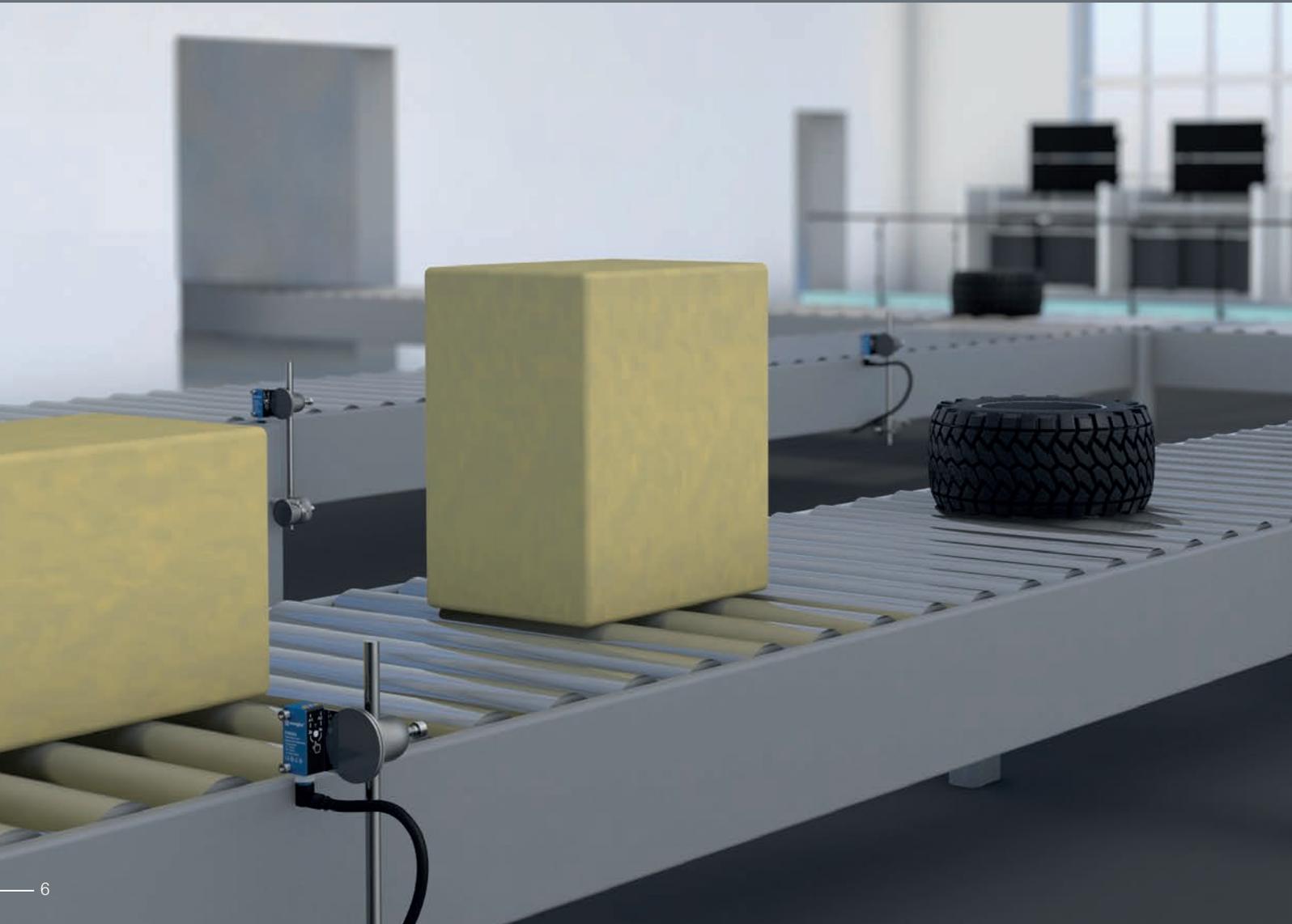
In the case of targeted optics and balanced switching points, data obtained from the different sensors are comparable.



Communication

Speaking and Understanding the Language of Industry

Digital production of the future is already possible today with PNG//smart sensors. Equipped with the latest IO-Link version, the intelligent sensors permit highly flexible production and, at the same time, increase efficiency – by means of quick initial start-up, reduced idle time and consistent quality assurance.



Manufacturing Lot Size 1

Ongoing production processes can be flexibly switched over to another product with the help of PNG//smart sensors. Costly setup time is eliminated for batch changes. This results from the sensors' capability to exchange information with each other, as well as with actuators. The respective data are conditioned and processed by the sensors. This permits networked communication from machine to machine, by means of which the entire value chain can be optimized.



Predictive Maintenance

The sensors generate and transmit additional diagnostics and status data (condition monitoring). Analysis of this data makes it possible to plan maintenance work in advance and avoid downtime in production.



Simple Configuration

wenglor wTeach2 software is available free of charge and assures easy handling when configuring sensors – including evaluation and visualization of measurement and diagnostics data.



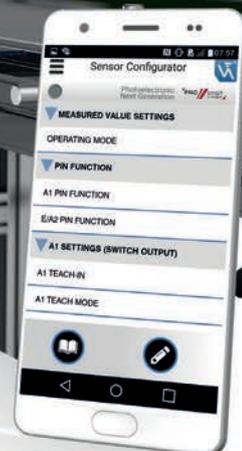
Integration into Existing Systems

PNG//smart sensors communicate with all common control systems via the IO-Link interface and can thus be easily integrated into existing networks.



Wireless Presettings via NFC

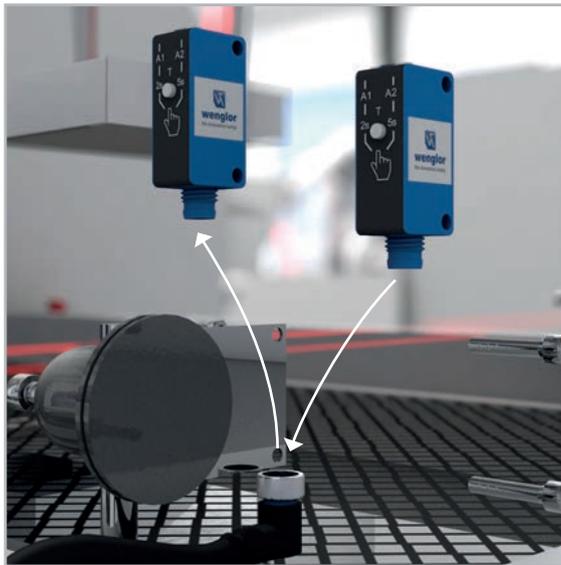
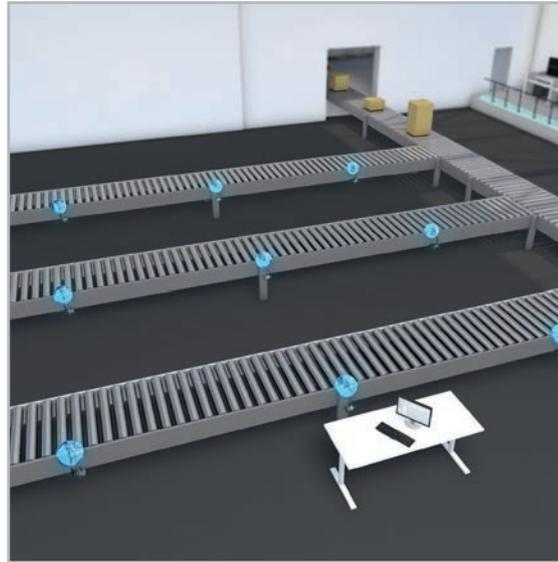
PNG//smart sensors can even be configured in the de-energized state before installation – simply, while on-the-go using a smart phone or a tablet with the wenglor app.





Quick Initial Start-Up

Set up once – duplicate as often as you'd like. The PNG//smart sensor configuration can be stored to the controller and transferred to other applications by simply clicking a button, regardless of your current location.



Plug & Play with Data Storage

If a sensor is replaced, stored parameters are transferred automatically to the new sensor making replacement possible without programming.



wenglor offers intelligent communication via  **IO-Link** in other product categories as well:



Ultrasonic Sensors



Inductive Sensors



Fluid Sensors



Photoelectronic Sensors

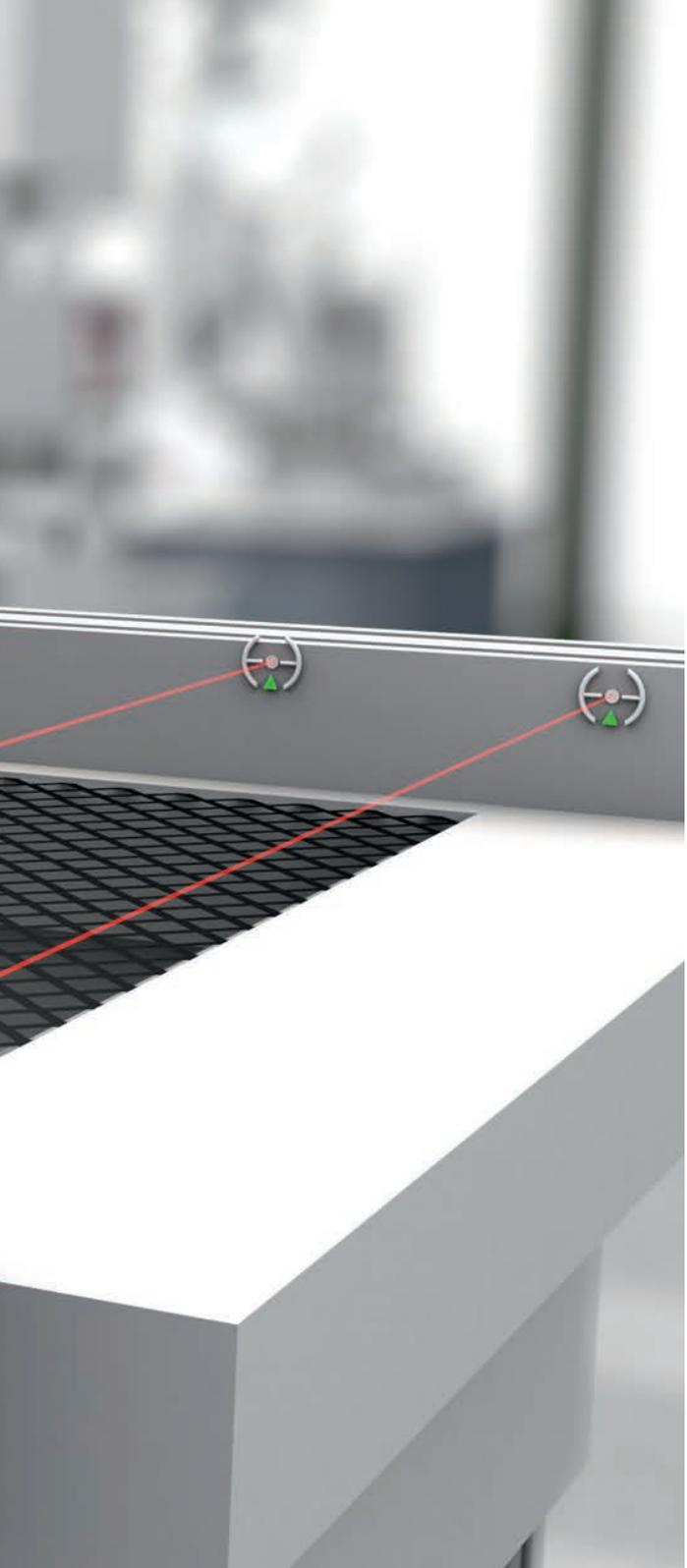
Performance

Innovative wenglor Technologies for Maximum Precision

wenglor's latest ASIC¹ development and precisely targeted optics provide for maximum precision and reliability of each individual PNG//smart sensor. Sensors with this technology perform better than ever before.



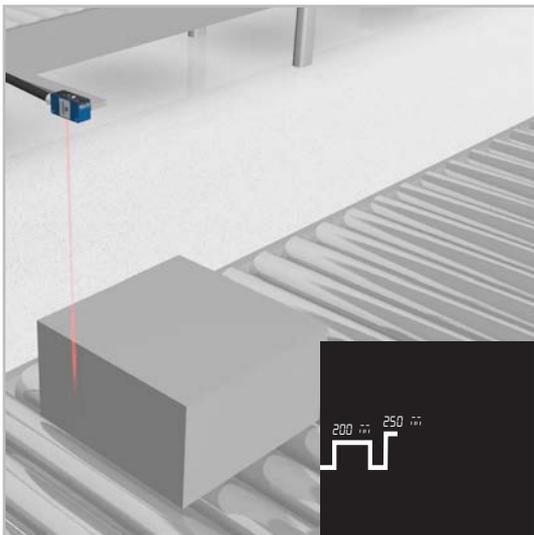
¹ ASIC = Application-Specific Integrated Circuit



Installation Without Mounting System

Optics targeted at the factory and the balanced switching point assure that PNG//smart sensors with identical settings always deliver exactly the same results. This means that they can be secured in matching fixtures without a complex mounting system. This not only saves time and money during initial start-up, it also results in additional flexibility for the integration of sensors into the existing design of the respective equipment or an automated vehicle system. In combination with data storage, PNG//smart sensors also offer the world's first plug & play solution which doesn't require any reprogramming or readjustment.



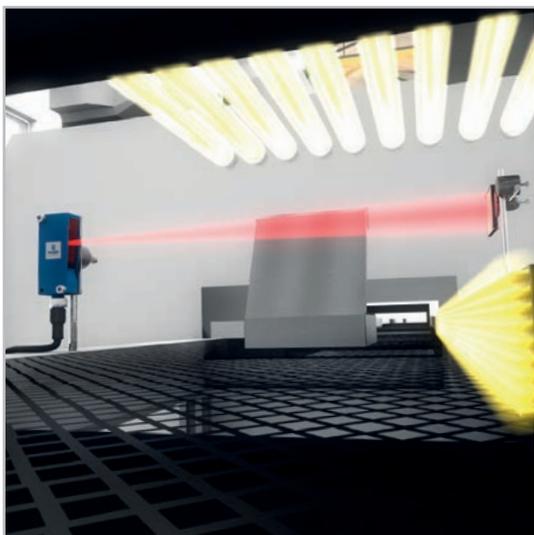
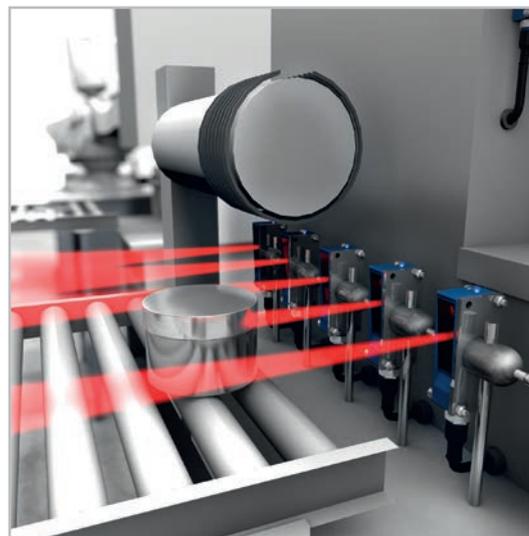


Flexible Switching or Measurement

Switching statuses or distance values can be read out via the IO-Link interface. Flexible setting options reduce type diversity within the respective systems and minimize inventory costs.

Reliable Object Detection

Whether black, glossy or transparent: PNG//smart sensors detect objects regardless of their color, shape or surface structure.



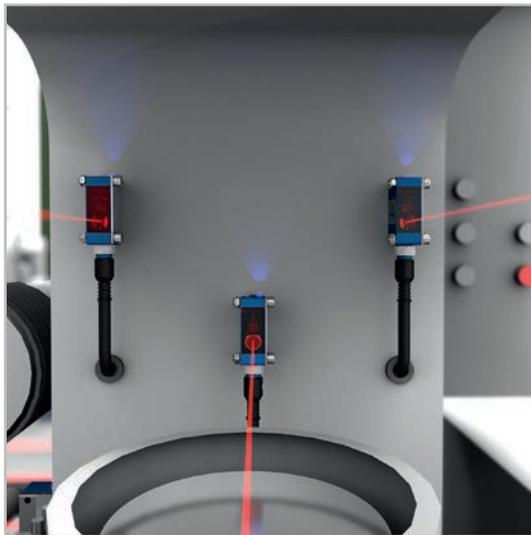
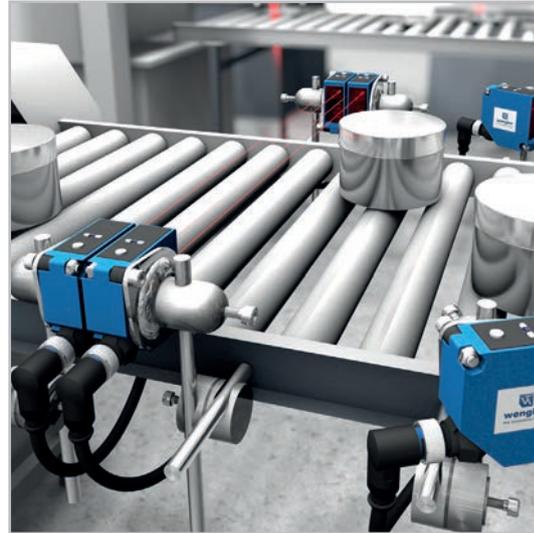
Insensitive to Interference

The sensors are insensitive to interference such as ambient light or electromagnetic influences thanks to specially developed processes.

No Reciprocal Influence Thanks to WinTec

PNG//smart sensors don't influence each other when they're mounted directly next to or opposite each other. This makes a great number of queries possible in very tight spaces.

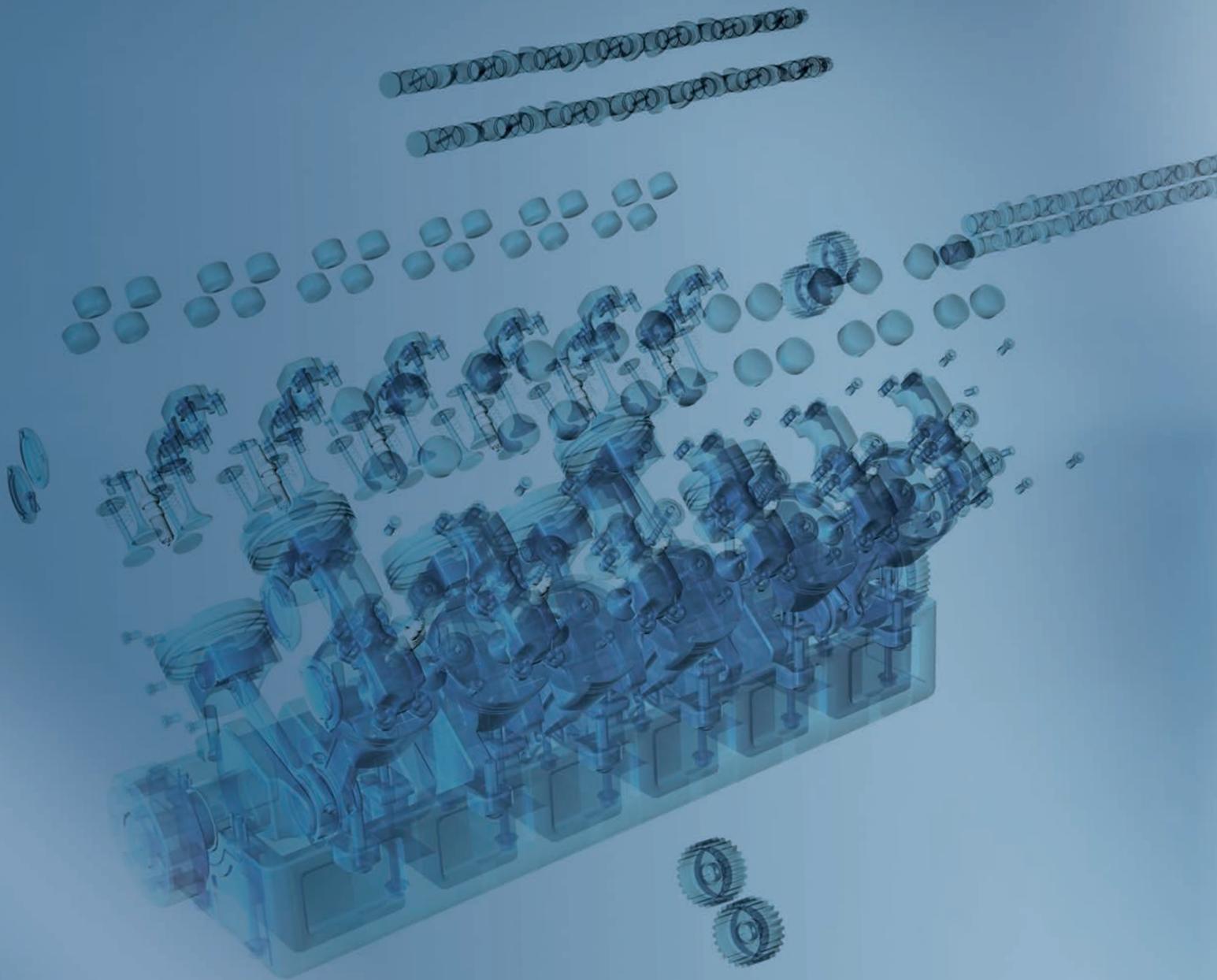
WinTec



Safety Thanks to Laser Class 1

PNG//smart generation laser sensors are entirely safe for the human eye. As a result, they can be used on moving fixtures such as robot arms and shuttles. Warnings and complex protective measures are unnecessary.





Inspiring Contactless Object Detection



Industry is inspired by the great variety of functions provided by the PNG//smart series – with an ideal solution for every application. Seven optical functional principles based on various light sources result in the largest possible selection of sensors for Industry 4.0.

- Long-Range Laser Distance Sensors
- Energetic Reflex Sensors
- Reflex Sensors with Background Suppression
- Universal Retro-Reflex Sensors
- Retro-Reflex Sensors for Transparent Objects
- Through-Beam Sensors
- Reflex Light Barriers



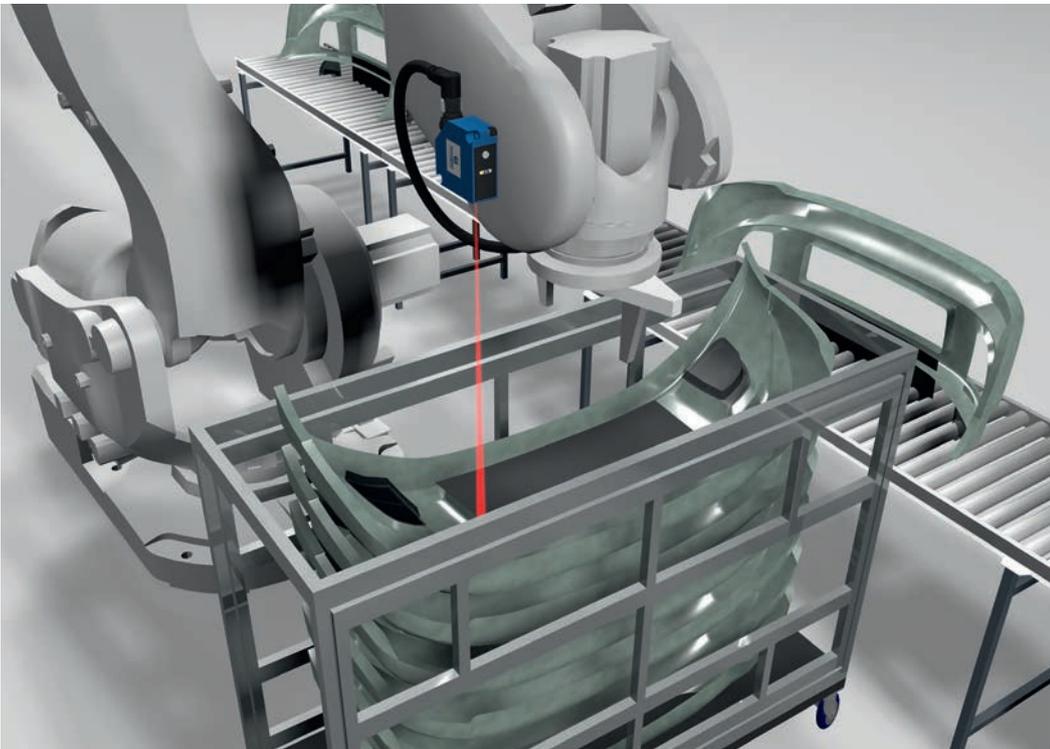
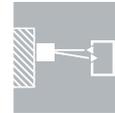
Packaging Industry

Reflex sensors with background suppression and blue light are especially well-suited for the detection of dark or glossy packages.



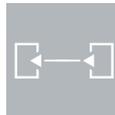
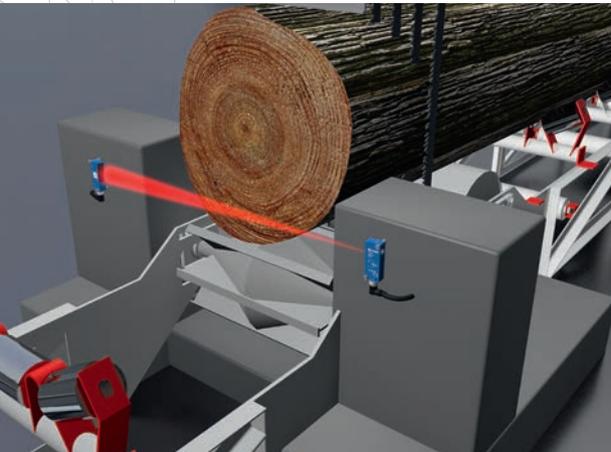
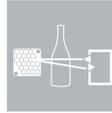
Automotive Industry

A smooth flow of materials is of decisive significance for trouble-free production. Reflex sensors with background suppression monitor material supplies for this reason, for example in automobile manufacturing.



Beverages Industry

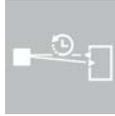
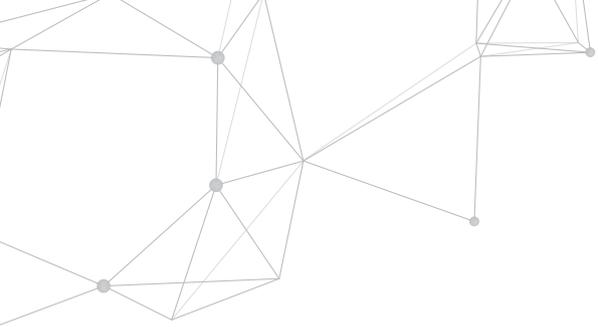
Retro-reflex sensors for transparent objects reliably detect transparent objects such as trays or PET and glass bottles with the help of a reflector. The sensors are equipped with an intelligent function for dynamic readjustment of the switching threshold in order to ensure precise object detection in the long-term. They automatically adjust the switching threshold in the event of contamination, aging or temperature fluctuation. Thanks to their single-lens optics without blind spot, retro-reflex sensors for clear glass recognition are capable of detecting objects through small openings such as drill holes or gaps.



Woodworking Industry

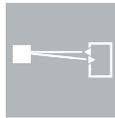
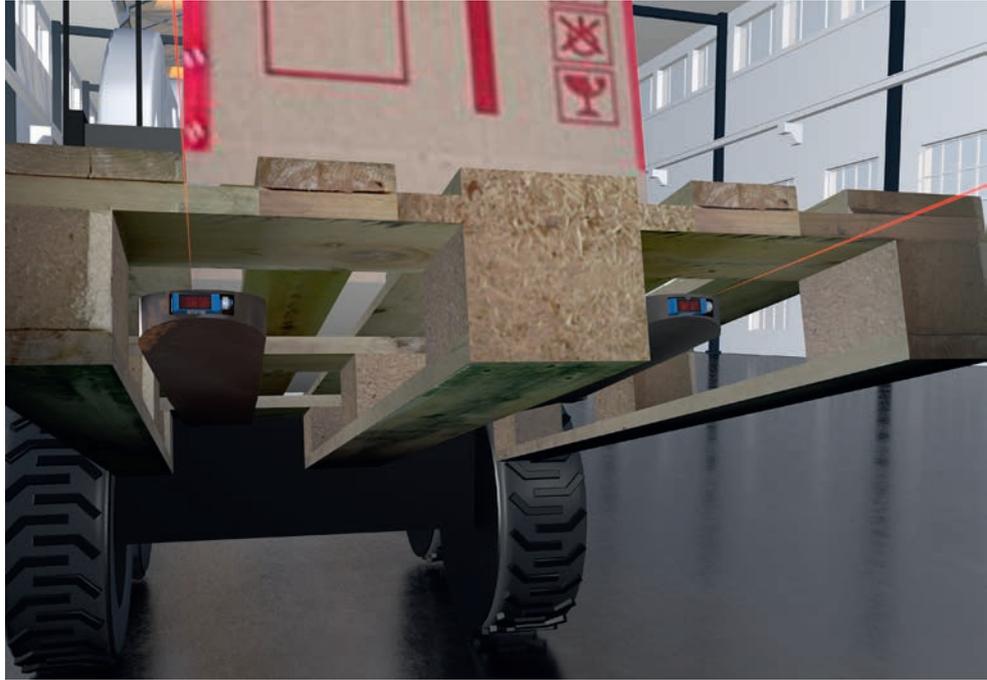
Highly strict demands are placed on photoelectronic sensors in the woodworking industry due to the dusty working environment. Thanks to heightened light intensity, wenglor's through-beam sensors are perfectly reliable even in adverse environments. Additional diagnostics and status data from the condition monitoring function, as well as a contamination warning, make the sensors ideal for use under the conditions which prevail in the woodworking industry.





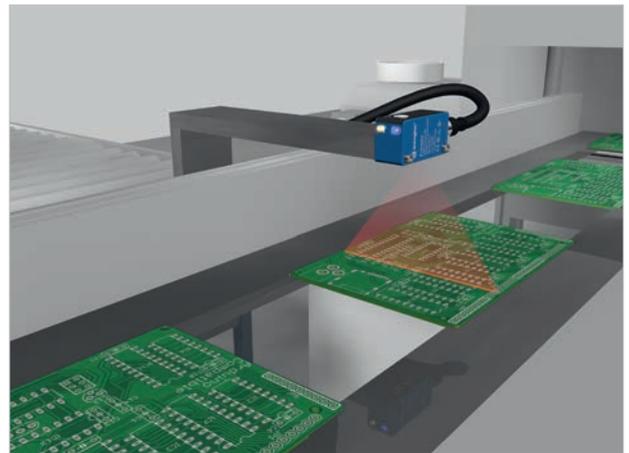
Logistics

In Logistics 4.0, unmanned transport systems such as forklifts and shuttles are used to transport goods through logistics centers. Thanks to their compact housings, long-range laser distance sensors can be easily integrated into the vehicles in order to guide them through their environment without colliding and safely load or unload materials. With switching distances of up to 3000 mm and unparalleled performance where the detection of black and glossy objects is concerned, PNG//smart sensors are first choice for intralogistics experts.



Electronics Industry

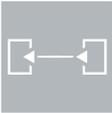
Due to their stamped or perforated surfaces, PCBs are difficult to detect. wenglor has developed a reflex sensor especially for this application which features a spot in the form of a line which accurately detects PCBs. Notches, holes or components on the PCBs don't disturb the sensor. The reflex sensor can also be used to reliably detect objects whose position on the conveyor belt varies.

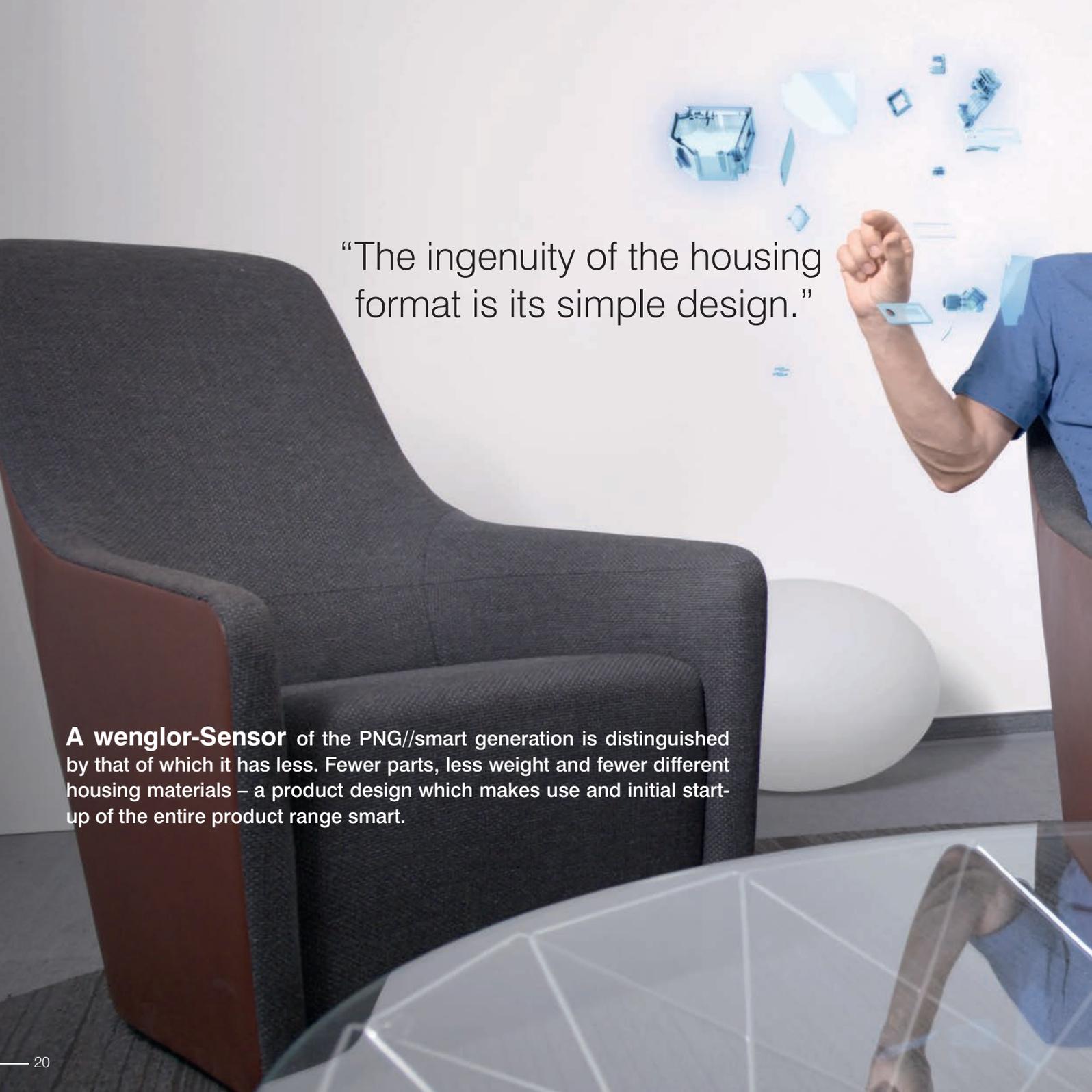




Packaging Industry

Reflex light barriers detect even transparent packages which are located between the barrier and a specified background without the help of reflectors. This eliminates costs associated with mounting systems and reflectors, and offers additional installation flexibility. Reflex light barriers can be used throughout the entire packaging process – from monitoring the flow of materials in filling systems right on up to checking for the presence of packages.



A person in a blue shirt is interacting with a futuristic, glowing blue interface of floating geometric shapes and icons in a modern office setting. The interface consists of various blue, semi-transparent shapes and icons, including a cube, a sphere, and a rectangular prism, arranged in a circular pattern. The person's hand is raised, pointing towards the interface. In the foreground, a dark grey armchair with a reddish-brown side panel is visible. The background is a plain white wall with a large white sphere on the floor.

“The ingenuity of the housing format is its simple design.”

A wenglor-Sensor of the PNG//smart generation is distinguished by that of which it has less. Fewer parts, less weight and fewer different housing materials – a product design which makes use and initial start-up of the entire product range smart.



PNG//smart Housing Formats

Potentiometer or teach-in key for ideal settings



Ultramodern wenglor ASIC technology with integrated IO-Link 1.1



Precisely targeted optics



Housing made of special plastic or stainless steel with molded-on plug for best possible sealing and resistance to mechanical stress



Status indicators visible around the entire 360° spectrum

High-performance optics for best performance



Robust, easy to clean PMMA disc



Rugged plastic or stainless steel housing with IP67 / IP68 / IP69K



Innovative lightweight design for applications on robot arms and unmanned transport systems

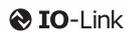


Expanded temperature range of -40 to +60° C



Efficient power consumption conserves resources

Switching distance
adjustment via IO-Link



1K

Miniature design: 32 × 16 × 12 mm

Innovative lightweight design | 4 g

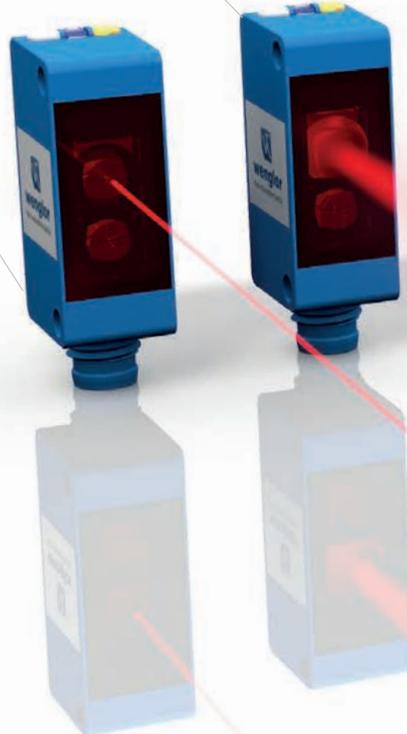
Diverse connection options

With WinTec technology
der wintec.

Background suppression
with large detection
ranges of up to 300 mm

2 mutually independent
switching outputs

With potentiometer
or teach-in



Innovative display unit for simple alignment and accurate diagnosis



1N

Printed QR code for quick access to product information



Reliable configuration via NFC – even in the de-energized state

Compact housing
75 × 32.5 × 18 mm

With potentiometer or teach-in

2 mutually independent switching outputs

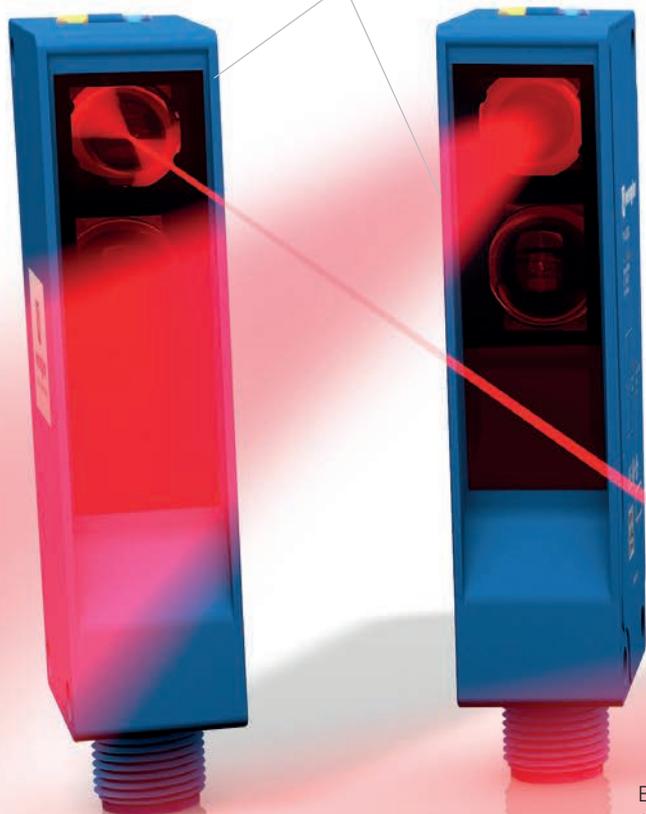
Protective housing for adverse environments

Large ranges of up to 60 m

Switching distance adjustment via IO-Link



Background suppression with visible red light and large detection ranges of up to 1.2 m





Reliable configuration via NFC – even in the de-energized state



Printed QR code for quick access to product information

1P

With WinTec technology **der wintec.**

With potentiometer or teach-in

Compact housing 50 × 50 × 20 mm

Large ranges of up to 20 m

Protective housing for adverse environments

Switching distance adjustment via IO-Link
 IO-Link

Innovative display unit for simple alignment and accurate diagnosis

Background suppression with visible red light and large detection ranges of up to 1 m

2 mutually independent switching outputs

Unparalleled performance for the detection of black objects



Non-destructive and captive laser labeling
for permanent visibility



2K

Completely visible
LEDs

ECOLAB
Resistant to cleaning agents
with ECOLAB approval

Miniature design
35.5 × 18.5 × 17 mm

With potentiometer
or teach-in

IP69K degree of
protection

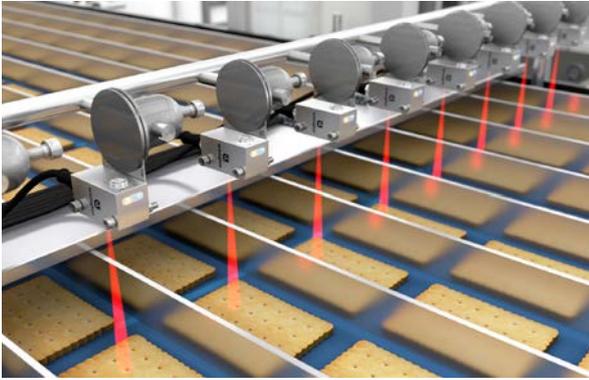
Robust stainless steel 316L
housing for harsh and cleaning-
intensive environments

Flexible mounting with
elongated hole
(25.4 – 26.8 mm)

Resistant to
coolants and lubricants

3-pin/4-pin
connection variants



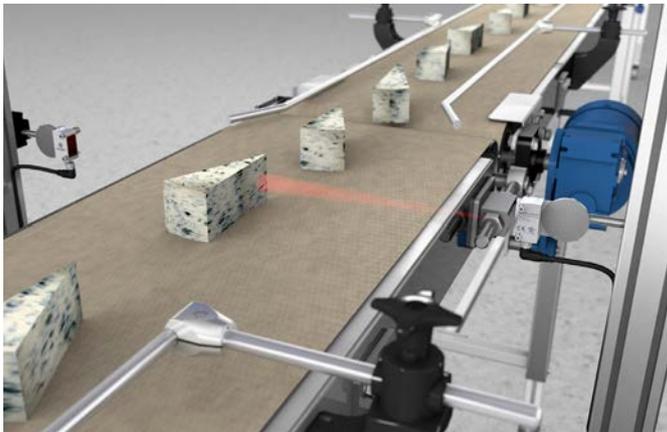
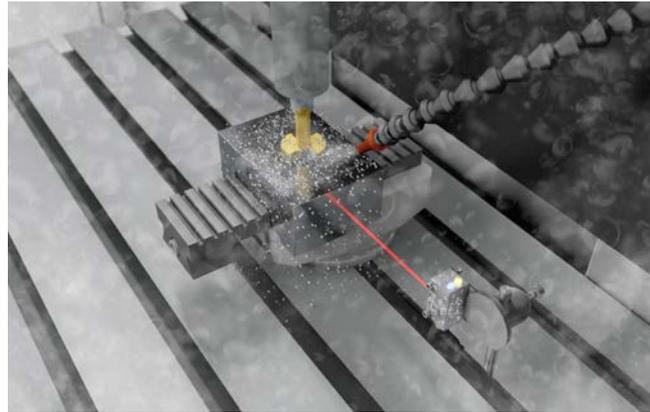


Detection of Biscuit Cookies

In the production of biscuit cookies, the objects must be transported and gripped between different processes on multi-lane conveyor belts. Thanks to the stainless steel 316L housing, the sensors are ideal for demanding cleaning processes at high temperatures.

Position Sensing of Material on Lathes

In CNC lathes, raw material is secured in clamping devices before the machining process begins. The robust stainless steel 316L housing (degree of protection IP69K) is resistant to aggressive coolants, lubricants or metal shavings generated during the turning process.



Leading Edge Detection of Soft Cheese

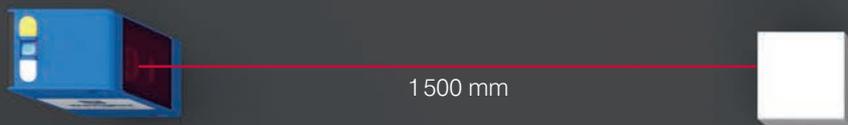
In the production of soft cheese, the wedge-shaped pieces of cheese are transported to the packing station on conveyor belts. Thanks to the robust stainless steel housing that is resistant to cleaning agents and has IP69K degree of protection, even high-pressure cleaning at up to 80 °C is possible.



Functional Principle

Upper range limit

Long-Range Laser Distance Sensors



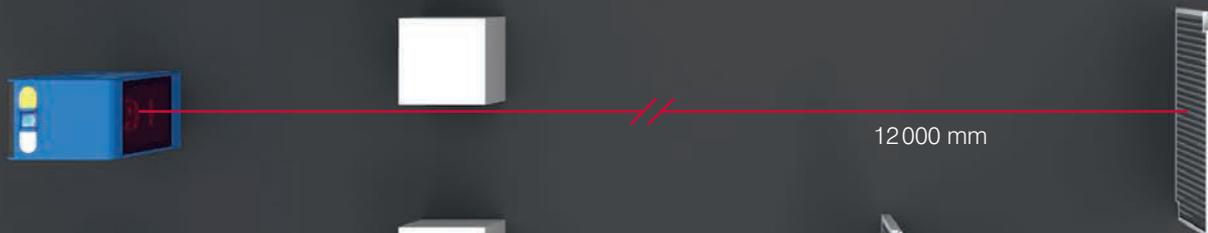
Energetic Reflex Sensors



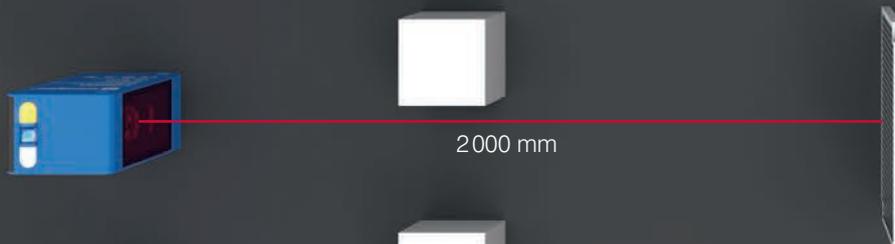
Reflex Sensors with Background Suppression



Universal Retro-Reflex Sensors



Retro-Reflex Sensors for Transparent Objects



Through-Beam Sensors



Connection

Light source

Spot



Cable end: M12 × 1
Cable
Plug: M8 × 1



Laser (red) class 1
Laser (infrared) class 1



Triple dot
Dot



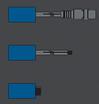
Plug: M8 × 1



LED (red)



Dot
Line



Cable end: M12 × 1
Cable
Plug: M8 × 1



LED (red)



Laser (red) class 1



Dot



LED (blue)



Laser (red) class 2



Dot



Cable end: M12 × 1
Cable
Plug: M8 × 1



LED (red)



Laser (red) class 1



Dot



Plug: M8 × 1



LED (red)



Dot



Cable end: M12 × 1
Cable
Plug: M8 × 1



LED (red)



Laser (red) class 1



Dot

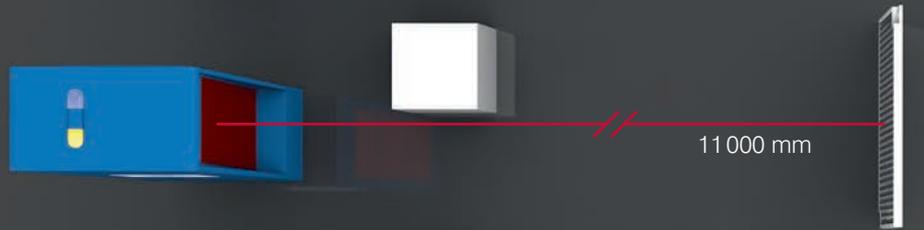
Functional Principle

Upper range limit

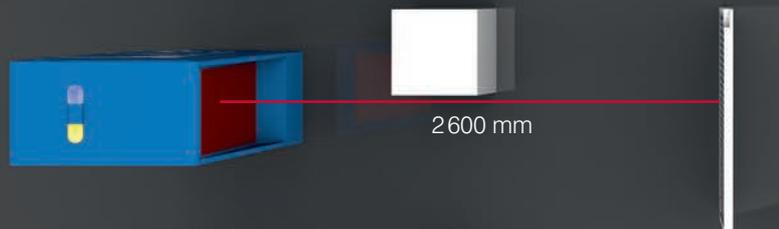
Reflex Sensors with Background Suppression



Universal Retro-Reflex Sensors



Retro-Reflex Sensors for Transparent Objects



Through-Beam Sensors



Connection

Light source

Spot



Functional Principle

Upper range limit

Long-Range Laser Distance Sensors



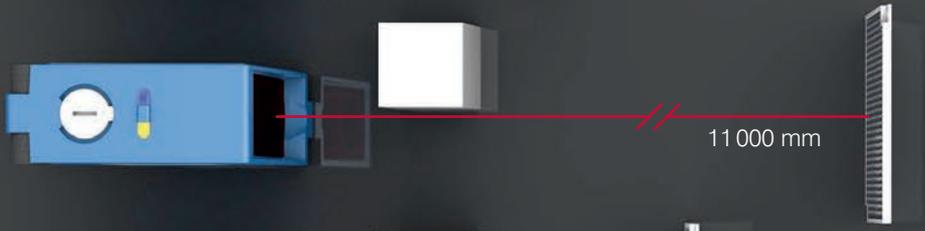
3 000 mm

Reflex Sensors with Background Suppression



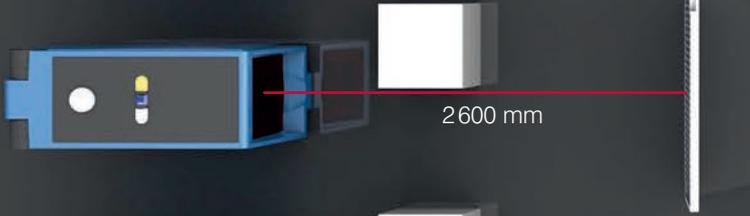
1 000 mm

Universal Retro-Reflex Sensors



11 000 mm

Retro-Reflex Sensors for Transparent Objects



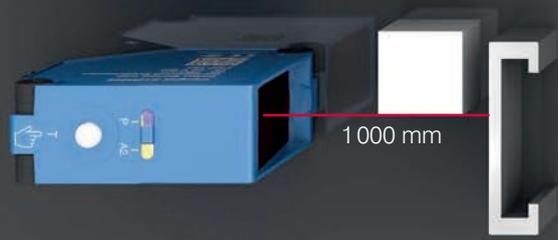
2 600 mm

Through-Beam Sensors



20 000 mm

Reflex Light Barriers



1 000 mm

Connection

Light source

Spot



Plug: M12 × 1



Cable end: M12 × 1



Laser (red) class 1



Dot



Plug: M12 × 1



LED (red)



Laser (red) class 1



Dot



LED (blue)



Dot



Plug: M12 × 1



LED (red)



Laser (red) class 1



Dot



Plug: M12 × 1



LED (red)



Dot



Plug: M12 × 1



LED (red)



Dot



Plug: M12 × 1



LED (red)



Dot

Functional principle

Upper detection range limit

Long-Range
Laser Distance
Sensors



Energetic
Reflex Sensors



Reflex Sensors with
Background Suppression



Universal Retro-Reflex
Sensors



Retro-Reflex Sensors
for Transparent Objects



Through-Be-
am Sensors



Connection type

Light source

Light spot

 Plug: M8 × 1  Laser (red) class 1  Triple dot

 Plug: M8 × 1  LED (red)  Dot

 Plug: M8 × 1  LED (red)  Laser (red) class 1  Dot

 LED (blue)  Dot

 Plug: M8 × 1  LED (red)  Dot

 Laser (red) class 1

 Plug: M8 × 1  LED (red)  Dot

 Plug: M8 × 1  LED (red)  Dot

 Laser (red) class 1

Detailed information concerning products can be found in the technical data sheets at: www.wenglor.com/pngsmart



wenglor
the innovative family



www.wenglor.com



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