Making Industries Smarter

The Next Generation of Photoelectronic Sensors
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.

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

Dr. Alexander Ohl
Development Director, Wenglor sensoric
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.

Non-Targeted Optics and Non-Balanced Switching Point

In the case of sensors without targeted optics, the position of the spot varies. 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 PNGi/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 PNGi/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.
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.

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.

¹ ASIC = Application-specific Integrated Circuit
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.

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.

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.

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.

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

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WinTec
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.

- High-performance distance sensors
- Reflex sensors
- Reflex sensors with background suppression
- Retro-reflex sensors
- Retro-reflex sensors for clear glass recognition
- Through-beam sensors
- Reflex light barriers

Technology
Funktionsprinzipien

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- Reflex light barriers
Beverages Industry
Retro-reflex sensors for clear glass recognition 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.

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.

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.
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.

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.

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, high-performance 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.
“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
- Precisely targeted optics
- Status indicators visible around the entire 360° spectrum
- High-performance optics for best performance
- Robust, easy to clean PMMA disc
- Ultramodern wenglor ASIC technology with integrated IO-Link 1.1
- Housing made of special plastic with molded-on plug for best possible sealing and resistance to mechanical stress
- Innovative lightweight design | 4 g
- Switching distance adjustment via IO-Link
- Diverse connection options
- Background suppression with large detection ranges of up to 300 mm
- With potentiometer or teach-in
- Expanded temperature range of −40 to +60°C
- Efficient power consumption conserves resources
- Rugged plastic housing with IP67 / IP68
- High-performance optics for best performance
- With WinTec technology
- 2 mutually independent switching outputs
Protective housing for adverse environments

Innovative display unit for simple alignment and accurate diagnosis.

Printed QR code for quick access to product information.

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

Innovative display unit for simple alignment and accurate diagnosis.

Switching distance adjustment via IO-Link.

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

2 mutually independent switching outputs.

Unparalleled performance for the detection of black objects.

With WinTec technology.

Compact housing 75 x 32.5 x 18 mm.

Large ranges of up to 60 m.

Large ranges of up to 20 m.

Protective housing for adverse environments.

With potentiometer or teach-in.

2 mutually independent switching outputs.

With WinTec technology.

Compact housing 56 x 50 x 20 mm.

Large ranges of up to 20 m.

Protective housing for adverse environments.

Switching distance adjustment via IO-Link.

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

2 mutually independent switching outputs.

Unparalleled performance for the detection of black objects.

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

Retro-reflex sensors for clear glass recognition

Through-beam sensors

Reflex light barriers

Upper range limit

Functional Principle

High-performance distance sensors

Reflex sensors with background suppression

Retro-reflex sensors

Retro-reflex sensors for clear glass recognition

Connection

Plug: M12 x 1
Cable end: M12 x 1

Light source

Laser (red) class 1
LED (red)
LED (blue)

Spot

Dot

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