



# SMART SENSORS

SUPPLIERS OF INFORMATION FOR INDUSTRY 4.0

Efficient detection of machine reality

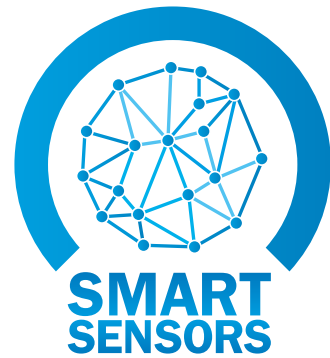
**SICK**  
Sensor Intelligence.

# SMART SENSORS FOR EFFICIENT MACHINE COMMUNICATION

Networked production and control processes in complex machine environments determine the industrial future and make Industry 4.0 possible in the first place. Smart Sensors already support dynamic, real-time-optimized, and self-organized industry processes. They record real operational statuses, turn these into digital data, and share them automatically with the process controller.

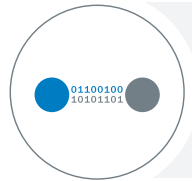
The added value of sensor communication depends significantly on the quality and stability of the delivered data. In order to create the best-possible basis for a future-ready automation system, SICK has equipped its Smart Sensors with four special properties.





## MORE EFFICIENCY: FOUR DIMENSIONS OF SMART SENSOR TECHNOLOGY

**Enhanced Sensing**  
Top sensor performance  
for stable processes



**Efficient Communication**  
Flexibility and transparency  
at the lowest field level

**&** Enhanced Sensing and Efficient Communication characterize every Smart Sensor.

**Diagnostics**  
Highest availability levels thanks  
to predictive maintenance



**Smart Tasks**  
Tailor-made information  
directly from the sensor

**+** Some Smart Sensors also offer Diagnostic and/or Smart Task functions. See pages 14/15 for more details.



## FOUR DIMENSIONS OF SMART SENSOR TECHNOLOGY: ENHANCED SENSING

The highest possible level of stability during object detection and recording of measured values is the basis for every Smart Sensor. Benefit from our experience spanning over 70 years in the development and application of groundbreaking sensor technology.

Smart Sensors automatically detect faults during operation and actively troubleshoot problems that may arise. They actively help the fitter to find the ideal operating point as they are being installed. Many Smart Sensors even offer various operating modes including manual adjustment of detection or measurement parameters to enable them to be dynamically adapted to tasks as necessary.

### At a glance

- Advanced adjustments
- Predefined operating modes
- Compensation for faults
- Active installation and alignment support

**“Enhanced Sensing” provides reliable detection and measurement results, which has a direct impact on plant availability.**



## Enhanced Sensing: added value for your application

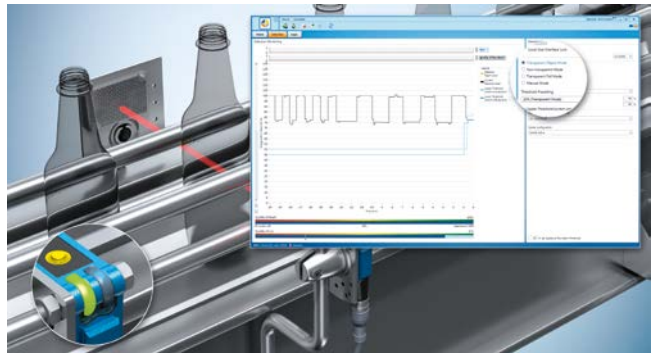
### Advanced adjustments

- Accurate and reliable object detection for optimal measurement results
- Individual and fast adjustment for virtually any application up to manual mode
- Stable production processes
- Protection against tampering by selectively disabling control elements



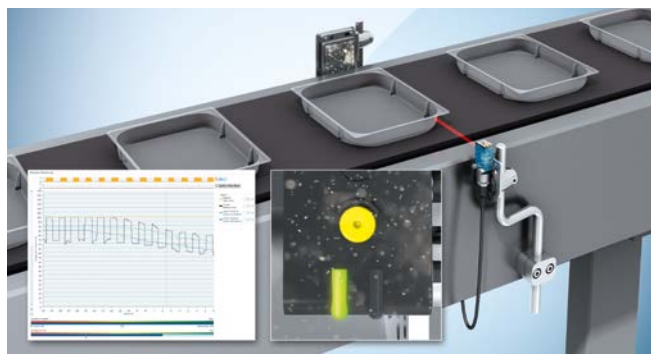
### Predefined operating modes for demanding applications

- Easy and fast commissioning
- Accurate object detection even with demanding applications
- Application know-how from SICK available at a click



### Simple compensation in case of faults

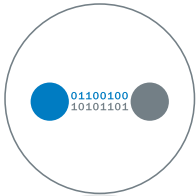
- Prevention of false detections
- Accurate object detection even with demanding applications
- Stable and reliable sensor signals



### Installation feedback

- Fast calibration and commissioning
- Prevention of unwanted sensor operation in the peripheral area





## FOUR DIMENSIONS OF SMART SENSOR TECHNOLOGY: EFFICIENT COMMUNICATION

With superordinate control systems, Smart Sensors communicate via IO-Link: The stable communication channel which is used across the globe for sensors and actuators at the lowest field level offers many practical advantages in day-to-day industrial operation.

Smart Sensors are diligent data collectors and intelligent analysts. They share this knowledge with their environment via their integrated IO-Link interface in real time. Smart Sensors are always responsive to all types of control commands. For example, they can receive new parameter sets within seconds – for flexible production up to batch size 1. Even if a device is defective, the most recently used parameter set can be automatically transferred to the replacement sensor via IO-Link. This enables plug and play to become a reality.

### At a glance

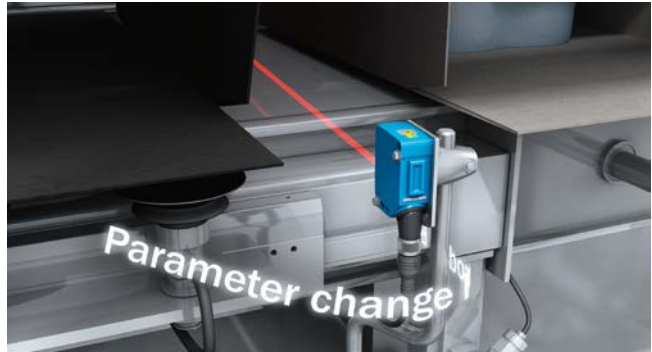
- Flexible manufacturing systems up to batch size 1 requirements
- Fast commissioning and plug and play device replacement with automated setting of sensor parameters
- Continuous digital data transmission
- Device validation, logging and e-parts lists

**Efficient Communication enables bidirectional data transfer between control unit and sensor – for batch size 1, flexible processes and easy service.**



**Efficient Communication: added value for your application****Flexible manufacturing and batch size 1**

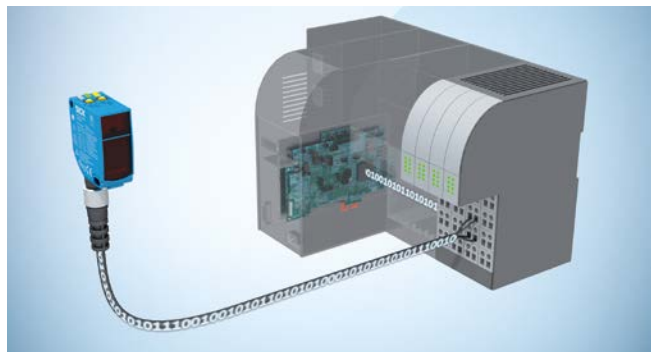
- Higher productivity through reduction of machine down-times for product changeovers
- The greatest possible flexibility and accuracy thanks to dynamic parameter adjustments of sensors during operation – also for batch size 1
- Automated sensor parameterization by the control unit prevents incorrect settings during manual changeover
- Improving variability of systems helps reduce costs

**Fast commissioning and plug and play device replacement with automated setting of sensor parameters**

- Streamlined commissioning via sensor parameterization by the control unit
- Faster plug and play sensor replacement improves machine availability
- Sensor replacement can also be performed by untrained personnel
- Remote configuration of sensor equipment mounted at inaccessible locations

**Continuous digital data transmission**

- Improved signal quality with fully digital transmission from the sensor to controls; classical transfer of analog values (0-10 V, 4-20 mA)
- Use of unshielded standard cable reduces costs
- High electromagnetic compatibility (EMC)

**Device validation, logging and e-parts list**

- High transparency: sensor replacements and parameter changes can be logged
- Protection against tampering by selectively disabling control elements
- Safe operation: commissioning of unapproved devices can be prevented
- Automatically generate e-parts list using smart sensors currently installed in the machine





## FOUR DIMENSIONS OF SMART SENSOR TECHNOLOGY: DIAGNOSTICS

With the Diagnostics functions, you always know the condition of your process and every single sensor. They comprise automated sensor self-monitoring or process parameter monitoring for preventative device and system maintenance.

Smart Sensors will even send a notification independently if safe operation is at risk. Thanks to predictive maintenance, flexible, needs-based maintenance schedules can be created, helping reduce service costs. If problems should arise, however, the cause can be easily determined thanks to comprehensive visualization options, avoiding unplanned system downtimes.

### At a glance

- Sensor self-monitoring during setup and operation
- Continuous monitoring of key process parameters
- Visualization of detection signals and parameters for detailed process and detection analysis

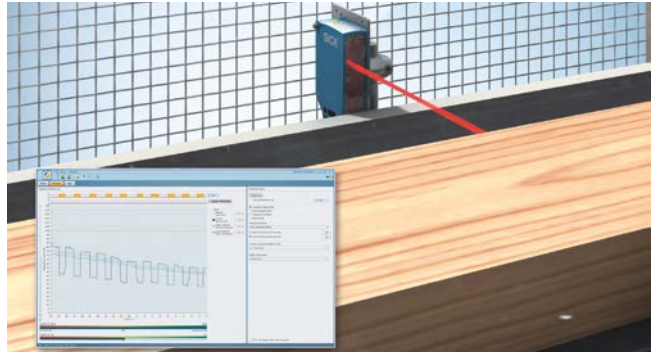
**The dimension Diagnostics allow operators to look into the future, in order to detect process deviations in advance and prevent unplanned system downtimes.**



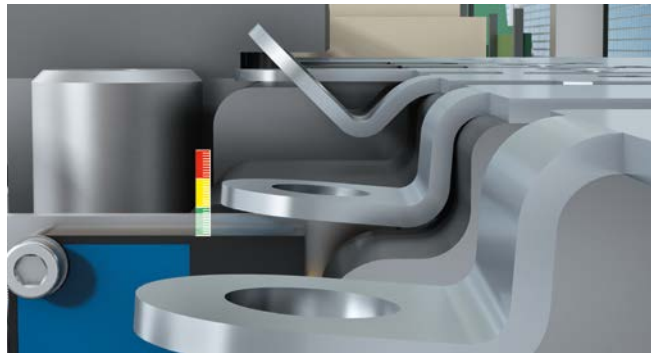


**Diagnostics: added value for your application****Sensor self-monitoring during setup and operation**

- Advance detection of disturbances prevents unplanned system downtimes
- Predictive remote maintenance enables accurate service schedules and saves money and time
- Time-consuming troubleshooting is no longer necessary, as the service message can be accurately localized

**Monitoring of key process parameters**

- Ensuring product quality through monitoring of production parameters
- Advance detection of disturbances prevents unplanned system downtimes
- Predictive remote maintenance enables accurate service schedules and saves time, money and stress
- Time-consuming troubleshooting is no longer necessary, as the service message can be accurately localized

**Visualization of detection signals and parameters for detailed process and detection analysis**

- More transparency in the production process for a better understanding of procedures
- Fast troubleshooting in case a fault occurs
- Visualization of process changes





## FOUR DIMENSIONS OF SMART SENSOR TECHNOLOGY: SMART TASKS

In these times of “big data”, it is important not to lose sight of the big picture. For that reason, Smart Tasks processes the diverse sensor signals for detection and measurement, linking them to signals from an external sensor if necessary. Only the process information that is actually necessary is generated – in line with the task configured in the system. This saves time during data evaluation in the control, accelerates machine processes, and makes high-performance, cost-intensive additional hardware unnecessary.

### At a glance

- Decentralized signal analysis directly at the sensor
- Faster signal capture and processing
- With Smart Tasks, the Smart Sensors provide the information that the system process actually requires – without separate data processing in the control unit

**Smart Tasks enable data to be processed directly in the sensor. This leads to faster data transmission, leaner structures and cost benefits for your process.**



**Examples of Smart Tasks: added value for your application****Speed and length measurement**

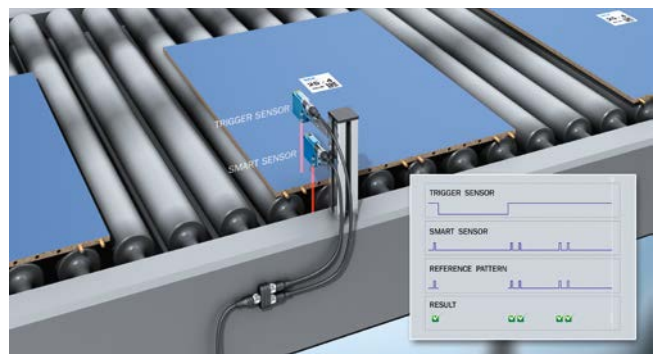
- Determining object speed independent of slippage for more accurate measurement results
- Easy sorting and classification of detection objects based on the object length – independent of conveyor speed
- High flexibility when determining the measuring point
- No corruption of measurement results due to controller cycle times

**Object and gap monitor**

- Monitoring of object lengths and distances for faster capture of nonconforming conditions
- Simply processed signals for layered control level or for direct and fast removal of defective product
- No corruption of measurement results due to controller cycle times

**Placement analysis**

- Direct capture of the equipment, for example, of a work-piece carrier moving past, by assessing the signal pattern directly in the Smart Sensor to provide quality monitoring or process control
- Reliably capture the equipment during the running process – also with different travel speeds
- Cost effective and low complexity

**Counter and debouncing**

- Easy and fast completeness check at the same time as interference suppression
- Accurate measurements: no “swallowing” of individual, very rapid counter pulses due to controller cycle times



For more Smart Tasks visit [www.sick.com/smart-sensors](http://www.sick.com/smart-sensors) or upon request.

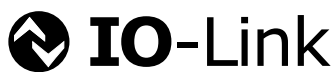
# DIGITAL DATA TRANSMISSION IN THE AUTOMATION NETWORK WITH IO-LINK

## IO-Link

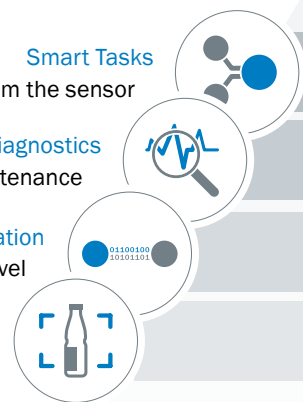
Smart sensors offer additional utilization potential which extends far beyond straightforward binary 0/1 switching signals. A consistent communication concept right down to the lowest field level is crucial for exploiting the potential of state-of-the-art sensors and actuators and for making machines and plants more productive as a result. IO-Link has been used to define an open interface between sensors and actuators as well as input/output assemblies. IO-Link involves a point-to-point connection that may be located underneath any given network. A sensor produces and consumes signals (binary switching, analog, input, output) that are transmitted directly via IO-Link in a digitized format.

## Integration of smart sensors into the machine network

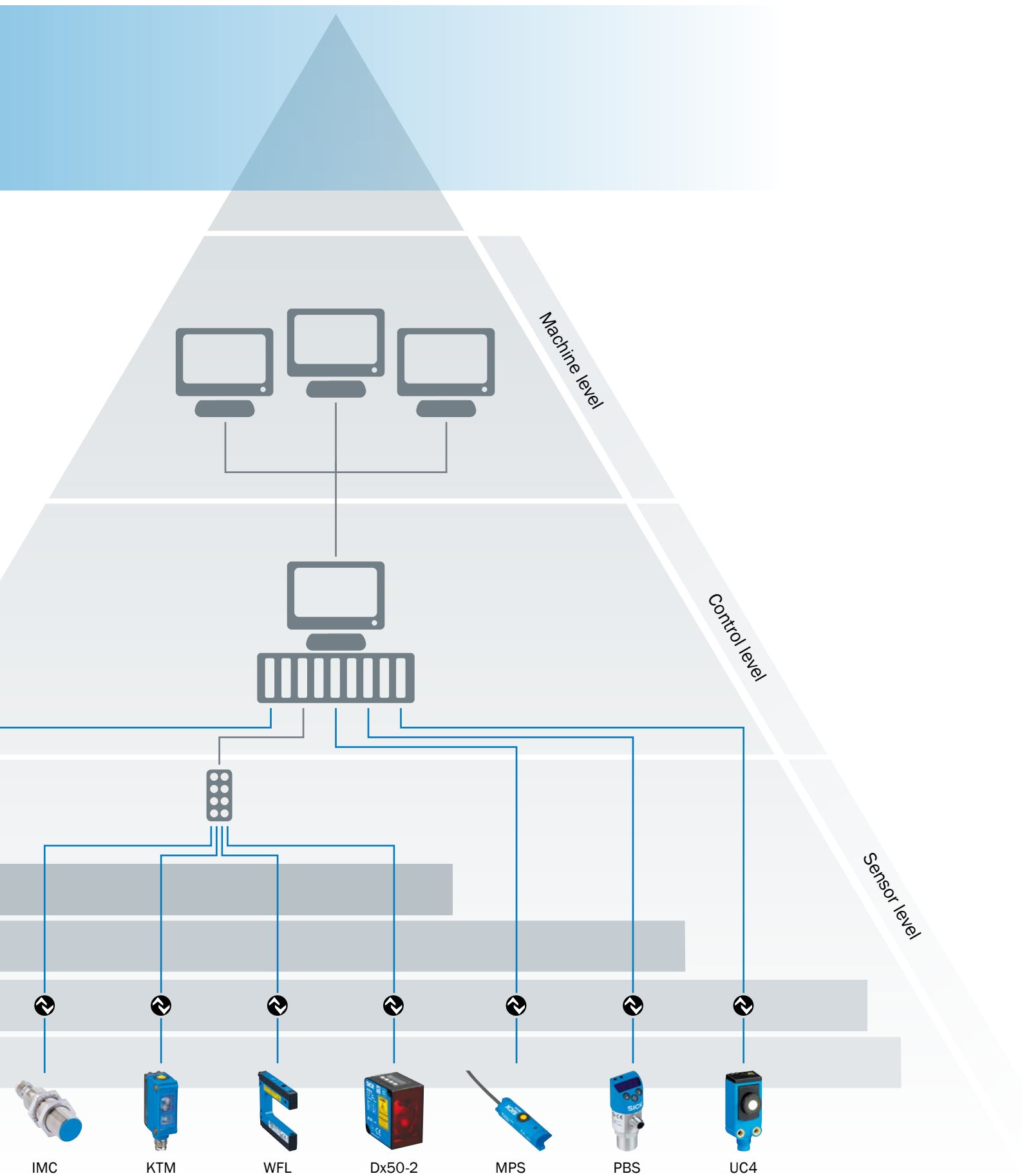
Seamlessly integrated into an automation network, the various sensors enable direct communication with the control across various field levels, depending on their smart functionality. This direct link creates the ideal condition for increasing flexibility, reliability, and cost-efficiency in the automated production process.



- Smart Tasks**  
Tailor-made information directly from the sensor
- Diagnostics**  
Highest availability levels thanks to predictive maintenance
- Efficient Communication**  
Flexibility and transparency at the lowest field level
- Enhanced Sensing**  
Top sensor performance for stable processes







W4S-3






















## SMART SENSORS IN THE SICK PORTFOLIO

Smart sensors provide the essential input for every process chain: information for the intelligent factory in Industry 4.0. All sensors include “Enhanced Sensing” and “Efficient Communication,” whereas “Diagnostics” and “Smart Tasks” are optional dimensions of smart sensor technology.

	W2S-2	WTT2SL-2	W4-3	W4S-3	W9-3	W12-3	W16	W26	WTT12L	Glare	DeltaPac	IMC	IMB
 Enhanced Sensing	■	■	■	■	■	■	■	■	■	■	■	■	■
 Efficient Communication	■	■	■	■	■	■	■	■	■	■	■	■	■
 Diagnostics	■		■	■	■	■	■	■		■		■	■
 Smart Tasks	■	■	■	■	■	■	■	■		■		■	
Outer dimension/inner dimension													
Placement analysis						■							
Speed measurement													
Speed and length monitoring				■									
Height measurement of free space													
Position classification of hole													
Position classification of object													
Presence detection of holes													
Logic	■	■	■	■	■	■	■	■				■	
Presence detection of objects													
Object and gap monitor				■									
Object recognition													
Profile detection													
Time stamp										■			
Time stamp and debouncing				■		■							
Counter										■			
Counter and debouncing		■	■	■	■	■	■	■				■	
Time measurement and debouncing		■	■	■	■	■	■	■				■	
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We have summarized an overview of the most important smart sensor product families for you. The “Smart Tasks” shown here as examples can also be applied to other smart sensors or be complemented by tasks programmed according to customer specifications.

	IMF	MPA	MPS	MZT8	MZC1	MZ2Q	KTM Prime	KTS/KTX	CSM	MLG2	LUTM	LUT9	WF	WFL	WFS	TIM1xx	Dx35	Dx50-2	OD1000
																			
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	UM18	UC4	UC30	AHS/AHM36 IO-Link	AHS/AHM36 IO-Link Inox	LFP Inox	LFP Cubic	PBS	PBS Hygienic	PAC50	TBS	DOSIC®
 Enhanced Sensing												
 Efficient Communication	■	■	■	■	■	■	■	■	■	■	■	■
 Diagnostics						■	■	■	■	■	■	
 Smart Tasks												
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### W2S-2 – At a glance

- Sensor with background suppression and without any significant black/white shift
- PinPoint 2.0 LED with extended sensing distances and high operating reserves
- A variety of application possibilities thanks to clearly-defined laser-like or

- line-shaped light spots
- Detection of highly-transparent and reflective objects using sensors with V-optics
- Photoelectric retro-reflective sensor with autocollimation and a clearly visible light spot

### Your benefits

- Machine design flexibility: the ultra-compact sensors offer above-average sensing ranges and provide space-saving installation
- Remote setup: sensors installed in confined spaces can be set and monitored remotely via IO-Link
- High operational safety: ultrablack objects are detected with a reflectance of 1%
- Maximum reliability during object detection and option of a space-saving

- machine design without reflectors or through-beam systems
- Quick and easy commissioning: the photoelectric retro-reflective sensor with autocollimation provides a clearly visible light spot for high process reliability
- Universal application possibility: wide range of models enclosed in a rugged housing
- Proven mounting and housing design

→ [www.sick.com/W2S-2](http://www.sick.com/W2S-2)

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.



### W2SG-2 – At a glance

- Extremely high sensor size to sensing distance ratio
- High switching point accuracy
- Teach-in functions enable reliable settings
- Automatic switching threshold adap-

- tion
- Single-lens autocollimation for visibility through apertures and drill holes
- Flexible sensor settings, monitoring, advanced diagnostics, and display thanks to IO-Link

### Your benefits

- Machine design flexibility: the ultra-compact sensors offer above-average sensing distances and provide space-saving installation
- Remote setup: sensors installed in confined spaces can be set and monitored remotely via IO-Link.
- High operational reliability and system throughput: all familiar, highly-transparent objects are reliably

- detected
- Precise switching characteristics and a high detection quality guarantee an universal object detecting
- Universal use: conventional mounting and housing design
- The precise light spot of the PinPoint 2.0 LED enables the use of very small reflectors and reflector surfaces

→ [www.sick.com/W2SG-2](http://www.sick.com/W2SG-2)

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### WTT2SL-2 – At a glance

- Miniature design 7.7 x 27.5 x 13.5 mm
- Scanning ranges up to 800 mm
- Time-of-flight technology
- Infrared light
- Laser class 1
- Single teach-in button

### Your benefits

- The extremely small design with scanning ranges of up to 800 mm opens new opportunities in machine design
- Easy and precise sensor setting with standard teach-in procedure from SICK
- Laser class 1 and therefore eye-safe
- High availability and long-term use in grippers thanks to soft, durable cable entry and rugged housing

→ [www.sick.com/PowerProx\\_Micro](http://www.sick.com/PowerProx_Micro)

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.



### W4-3 – At a glance

- Best background suppression sensor in its class
- Universal use of PinPoint technology in all variants
- BGS proximity sensor with laser-like light spot for precise detection tasks
- Reliable setting via 5-turn potentiometer, teach-in button, teach-in via cable or IO-Link
- Flexible sensor settings, monitoring, advanced diagnostics, and visualization thanks to IO-Link

### Your benefits

- Low-cost integration due to optimal machine integration in areas with limited space
- Application versatility due to reliable detection of shiny or jet-black objects
- Rugged mounting system with M3 threaded metal inserts reduces maintenance costs due to a long service life
- High immunity to ambient light reduces downtime caused by false trips
- Clearly visible light spot simplifies alignment
- IO-Link provides easy data access from the PLC
- Quick and easy configuration
- Quick and easy integration using function blocks

→ [www.sick.com/W4-3](http://www.sick.com/W4-3)

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.





### W4-3 Glass – At a glance

- Fast and reliable setup via teach-in pushbutton
- Continuous threshold adjustment technology to detect objects in changing conditions such as temperature, contamination and reflector

### Your benefits

- Reliable and quick setting via the push of a button
- Flat housing design eliminates alignment or mounting brackets, which saves time and money
- Low-cost machine integration due to small dimensions that enable mount-

wear

- Versions without polarizing filters to better detect depolarizing objects such as PET bottles, CD sleeves and shrink-wrapped, glossy objects

→ [www.sick.com/W4-3\\_Glass](http://www.sick.com/W4-3_Glass)

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.



### W4S-3 – At a glance

- Best background suppression sensor in its class
- Universal use of PinPoint LED technology in all models
- BGS proximity sensor with laser-like light spot for precise detection tasks

### Your benefits

- Application versatility due to reliable detection of shiny, transparent or jet-black objects
- Very quick and easy alignment due to the highly visible, intense PinPoint LED light spot
- Rugged mounting system with M3 threaded metal inserts reduces maintenance costs due to a long service life

- Reliable setting via 5-turn potentiometer, teach-in pushbutton, teach-in via cable or IO-Link
- Flexible sensor settings, monitoring, advanced diagnostics, and visualization thanks to IO-Link

- Background suppression sensors with a laser-like light spot reduce costs and installation of additional protective measures by replacing laser sensors
- IO-Link provides easy data access from the PLC
- Quick and easy configuration
- Quick and easy integration using function blocks

→ [www.sick.com/W4S-3](http://www.sick.com/W4S-3)

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### W4S-3 Glass – At a glance

- Continuous threshold adaption of the switching threshold compensates for environmental changes
- Single-lens autocollimation optics
- Simple setting either via teach-in pushbutton, cable or IO-Link
- PinPoint LED technology with a small,

highly visible, well-defined light spot enables high reserve levels when using small reflectors

- Flexible sensor settings, monitoring, advanced diagnostics, and visualization thanks to IO-Link

### Your benefits

- Optimal detection of any kind of transparent object
- Quick and easy operation via the push of a button – automatic setting of the correct switching threshold
- Less downtime due to a Continuous Threshold Adaption which compensates for changing environmental conditions, including temperature, dust and drift effects

- The well-defined, highly visible intense light spot provides quick and reliable alignment
- IO-Link provides easy data access from the PLC
- Quick and easy configuration
- Quick and easy integration using function blocks
- Easy device replacement and identification

→ [www.sick.com/W4S-3\\_Glass](http://www.sick.com/W4S-3_Glass)

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.



### W4SL-3 – At a glance

- Precise laser light spot, laser class 1
- Teach-in pushbutton can be switched between detection of transparent and non-transparent objects
- Sensing ranges between 25 mm and 60 m
- Latest SICK proprietary ASIC and la-

ser technologies with second emitter LED to provide outstanding background suppression and ambient light immunity

- Choice of adjustment via teach-in button, potentiometer, cable, or IO-Link

### Your benefits

- Precise laser light spot for highly accurate switching behavior
- High optical ambient light immunity reduces incorrect switching and thus machine downtime, even when modern energy-saving lamps are used
- The highest degree of machine design flexibility BGS (background suppression) eliminates the effect of undesired background reflections. In addition, autocollimation allows

detection through small drilled holes

- One device for detecting both transparent objects and the smallest non-transparent objects, thus reducing the variety of sensors and saving on storage costs
- IO-Link facilitates initial system performance diagnostics and uses additional sensor functions (optional) to reduce complex control programming

→ [www.sick.com/W4SL-3](http://www.sick.com/W4SL-3)

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.



**W4SLG-3 – At a glance**

- Precise laser light spot, laser class 1
- Teach-in button can be switched between detection of transparent and smallest non-transparent objects
- Continuous threshold adaptation provides automated adjustment to changes in light conditions
- Sensing ranges up to 4.5 m
- Autocollimation optics prevent blind spots
- Choice of adjustment via teach-in button, potentiometer, cable, or IO-Link

**Your benefits**

- One device for detecting both transparent objects and the smallest non-transparent objects at sensing ranges up to 4.5 m, thus reducing the variety of sensors and saving on storage costs.
- Highly visible, uniform laser light spot with a sharp contour to facilitate alignment
- The highest degree of machine design flexibility. Autocollimation permits detection even through small drilled holes.
- High-quality sensor manufacturing and testing reduce maintenance costs
- Established and proven housing design for easy installation
- IO-Link facilitates initial system performance diagnostics and uses additional sensor functions to reduce complex control programming



→ [www.sick.com/W4SLG-3](http://www.sick.com/W4SLG-3)

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.

**W9-3 – At a glance**

- High-performance sensor in ultra-rugged VISTAL™ housing
- PinPoint LED for highly visible and precise light spot
- Two emitter LEDs for best-in-class background suppression
- Variable mounting with M3 or M4 hole pattern
- Wide range of connection options

**Your benefits**

- Robustness with the VISTAL™ housing
- Best in class performance
- Wide variance in connection, mounting and optic



→ [www.sick.com/W9-3](http://www.sick.com/W9-3)

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.





### W9-3 Glass – At a glance

- High-performance sensor in ultra-rugged VISTAL™ housing
- Best-in-class optical performance for transparent object detection
- Continuous threshold adaption
- PinPoint LED for highly visible and precise light spot
- Variable mounting with M3 or M4 hole pattern
- Wide range of connection options

### Your benefits

- Tough VISTAL™ housing provides reliable installation and operation
- Best-in-class optical performance
- Wide variety of connection, mounting and optical possibilities to solve many different applications

→ [www.sick.com/W9-3\\_Glass](http://www.sick.com/W9-3_Glass)

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.



### W9L-3 – At a glance

- Tough VISTAL™ housing
- Precise laser light spot
- Photoelectric proximity sensor in laser classes 1 and 2
- Photoelectric retro-reflective sensor with autocollimation optics and polarizing filter; models available for clear material detection
- Through-beam photoelectric sensors with sensing ranges of up to 60 m
- SIRIC technology
- Connections: M8 and M12 plugs, cable as well as cable with plug
- M3 and M4 hole pattern

### Your benefits

- Precise detection of small objects and object features
- Detection of objects even through small openings
- Less machine downtime due to stable VISTAL™ housing as well as the suppression of optical interference
- The longest detection and sensing ranges in its class
- Best-in-class background suppression for photoelectric proximity sensors
- No blind spots, detection of shiny objects using photoelectric retro-reflective sensors
- A wide variety of connection and mounting options
- Highly visible light spot simplifies alignment

→ [www.sick.com/W9L-3](http://www.sick.com/W9L-3)

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.





### W9LG-3 – At a glance

- Rugged VISTAL® housing
- Precise laser light spot, laser class 1
- Continuous adjustment of switching threshold (CTA)
- Autocollimation optics and polarizing filter
- Teach-in
- SIRIC technology by SICK
- Connections: M8 and M12 male connectors, cable as well as cable with male connector
- M3 and M4 hole pattern

### Your benefits

- Precise detection of small objects and object features
- Detection of objects even through small openings
- Best-in-class for detecting transparent objects
- Less machine downtime thanks to the stable VISTAL™ housing
- No blind spots, also detects shiny objects
- Wide range of connection options
- Multiple mounting options
- Highly visible light spot simplifies alignment

→ [www.sick.com/W9LG-3](http://www.sick.com/W9LG-3)

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.



### W12-3 – At a glance

- Best-in-class optical performance due to superior OES technology
- Autocollimation with retro-reflective sensors
- Background and foreground suppression with second emitter LED on proximity sensors
- Highly visible, precise light spot and high-energy IR transmitters
- Rugged die-cast zinc housing, optional with Teflon® coating
- Mounting options with through holes, base blind holes, oblong through holes and dovetail
- Flexible sensor settings, monitoring, advanced diagnostics, and visualization thanks to IO-Link

### Your benefits

- Reliable detection due to superior ASIC (application-specific integrated circuit) technology and immunity to optical interference factors from the industrial environment
- PinPoint LED technology provides a bright, small and precise light spot that enables quick and easy sensor alignment
- Precise switching characteristics ensure reliable object detection, reducing downtime caused by re-adjusting sensors during recipe changes
- Wide range of products enclosed in a rugged metal housing enables application flexibility in a broad range of industrial environments
- Flexible mounting options reduce installation time
- IO-Link provides easy data access from the PLC
- Quick and easy configuration
- Quick and easy integration using function blocks

→ [www.sick.com/W12-3](http://www.sick.com/W12-3)

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.





### W12G – At a glance

- Rugged die-cast zinc housing with optional Teflon® coating
- Reliable detection of transparent objects
- Precise autocollimation optics
- Robust sensors for industrial use
- Precise PinPoint LED
- Dovetail mounting – mounting holes and oblong holes
- Highly visible status LEDs
- Flexible sensor settings, monitoring, advanced diagnostics, and visualization thanks to IO-Link

### Your benefits

- Reliable detection of transparent objects, from PET bottles to transparent film, thanks to superior chip technology
- Resistance to interference from the industrial environment
- Easy and fast sensor alignment with bright, very small, and highly precise light spot thanks to PinPoint technology
- Precise switching characteristics, fast response times, and high detection quality for universal object detection
- Designed for industrial applications – maximum resistance to mechanical, thermal, chemical, and electromagnetic loads
- Flexible mounting and installation due to rotatable male connectors and versatile mounting options
- IO-Link provides easy data access from the PLC
- Quick and easy configuration

→ [www.sick.com/W12G](http://www.sick.com/W12G)

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.



### W16 – At a glance

- Technologies: ClearSens, LineSpot, TwinEye with OptoFilter
- BluePilot: Optical alignment aid, adjustment of the sensing range via Teach-Turn adjustment with optical sensing range indicator or via IO-Link
- PinPoint LED: Light-intensive red sender LED
- Smart Sensor: Enhanced Sensing, IO-Link, Diagnostics, Smart Tasks

### Your benefits

- Usability and uniform operation thanks to optical quality display on the housing or conveniently via IO-Link display
- Simplification when aligning the light beam to the reflector, the receiver or to an object thanks to the highly-visible light spot of the PinPoint LED combined with the optical LED
- Very high reliability thanks to new detection technologies as well as high optical ruggedness
- The Smart Sensor makes machine processes quicker, more efficient and transparent, enables predictive maintenance and is thereby a trailblazer for Industry 4.0 applications

→ [www.sick.com/W16](http://www.sick.com/W16)

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.







### W26 – At a glance

- Technologies: ClearSens, LineSpot, TwinEye with OptoFilter
- BluePilot: Optical alignment aid, adjustment of the sensing range via Teach-Turn adjustment with optical sensing range indicator or via IO-Link
- PinPoint LED: Light-intensive red sender LED
- Smart Sensor: Enhanced Sensing, IO-Link, Diagnostics, Smart Tasks

### Your benefits

- Usability and uniform operation thanks to optical quality display on the housing or conveniently via IO-Link display
- Simplification when aligning the light beam to the reflector, the receiver or to an object thanks to the highly-visible light spot of the PinPoint LED combined with the optical LED
- Very high reliability thanks to new detection technologies as well as high optical ruggedness
- The Smart Sensor makes machine processes quicker, more efficient and transparent, enables predictive maintenance and is thereby a trailblazer for Industry 4.0 applications

→ [www.sick.com/W26](http://www.sick.com/W26)

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.



### WTT12L – At a glance

- Time-of-flight technology
- Laser class 1, red and infrared light
- Sensing range for object detection: 5 cm to 4 m
- Switching frequencies of up to 1,000 Hz
- Minimum distance between object and background: 6 mm
- VISTAL™ housing
- Up to 3 independently adjustable switching outputs or one analog output
- IO-Link available as an option (distance value, 8 switching points, smart sensor functions)

### Your benefits

- Reliable object detection at high sensing ranges and large detection angles, e.g., even with shiny or jet-black surfaces
- Highly visible light spot simplifies alignment of the red-light versions
- Precise, simple adjustment with potentiometer, teach-in button, or display
- Laser class 1 and therefore eye-safe
- High levels of availability and durability. Rugged even when subjected to high mechanical loads thanks to VISTAL™ housing.
- The world's smallest sensor housing ensures great flexibility when designing machines
- IO-Link extends functionality

→ [www.sick.com/PowerProx](http://www.sick.com/PowerProx)

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.





### Glare – At a glance

- Object detection and differentiation on the basis of surface gloss level
- Configurable in many different operating modes to meet the requirements of any application
- Integrated alignment aid
- Integrated automation functions
- Two digital push-pull outputs and one configurable input
- Sensitivity adjusts to object properties
- IO-Link provides easy data access from the PLC
- Quick and easy configuration

### Your benefits

- Quick installation via alignment mode
- Integrated key lock reduces the risk of operating errors and tampering
- Sensitivity adjustments increase the system's operational safety
- Teach-in via the single teach-in button or SOPAS operating software facilitates quick and easy operation
- Reliable gloss identification regardless of color, labeling or structure
- increases operational safety
- State-of-the-art detection method makes it possible to conduct inspections at lower costs than with camera solutions
- Sensor's resistance to object fluctuations increases operational safety
- Flexible sensor settings, monitoring, advanced diagnostics, and visualization thanks to IO-Link

→ [www.sick.com/Glare](http://www.sick.com/Glare)

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.



### DeltaPac – At a glance

- Delta-S technology®, four PinPoint 2.0 LEDs and two energy scales, combined with SIRIC® and distance measurement technology
- Able to detect object contours with radii of up to 20 mm in any direction
- For belt speeds up to 3.0 m/s or production rates of up to 200,000 packages per hour
- Preconfigured sensors or custom setting of four operating modes via IO-Link
- Compact housing (42 mm x 42 mm x 45 mm) with an IP 67 enclosure rating

### Your benefits

- Selective process optimization: information about the number of packages in the process enables better production monitoring
- Better space utilization: no mechanical devices are required to isolate packages, reducing the width of packaging systems and saving space
- Better time management: packages run in push-push mode, which prevents collisions and toppling, and reduces machine downtime
- Stable production for reduced energy consumption
- Fast and intuitive commissioning due to pre-configuration
- Maximum flexibility in the types of objects used thanks to the option of custom-setting four operating modes via IO-Link
- Space-saving mounting due to compact housing

→ [www.sick.com/DeltaPac](http://www.sick.com/DeltaPac)

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.





### IMC – At a glance

- Types: M8 to M30; IQ10 and IQ12
- Four programmable switching points or windows at an Sn of up to 20 mm
- Freely programmable output function
- Enclosure rating: IP 68, IP 69K
- Temperature range: –40 °C to +75 °C
- Rugged stainless-steel or VISTAL housing
- Logic, counter, time measurement, or temperature monitoring function
- IO-Link 1.1

### Your benefits

- Advanced diagnostic options ensure stable processes
- Programmable switching thresholds and windows make predictive maintenance easier and reduce machine downtimes
- Switching point teaching enables precise object positioning without the need for time-consuming adjustment
- Reduced costs as fewer sensors or sensor variants are required
- Stable signals thanks to integrated debounce function
- Reduced project planning and cabling work as complex tasks are easy to implement directly in the process
- Future-proof thanks to IO-Link 1.1 communication

→ [www.sick.com/IMC](http://www.sick.com/IMC)

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.



### IMB – At a glance

- Types: M8 to M30
- Extended sensing ranges: 2 mm to 20 mm
- Electrical configuration: DC 3-/4-wire, DC 2-wire
- Enclosure rating: IP 68, IP 69K
- Temperature range: –40 °C to +100 °C
- Rugged stainless-steel housing; plastic sensing face
- Optical adjustment indicator, IO-Link-ready
- Resistant to oils and cooling lubricants; suitable for use outdoors

### Your benefits

- Straightforward product selection as fewer sensor variants are required – one sensor suits a whole range of applications
- Stable processes thanks to extended, highly precise sensing ranges enabled through the use of the latest SICK ASIC technology
- Reduced machine downtimes thanks to longer sensor service life, even in harsh working conditions
- Quick and easy installation thanks to optical adjustment indicator and self-locking nuts
- High degree of flexibility and communication options thanks to IO-Link
- Easy to implement customer-specific variants within the standard product portfolio

→ [www.sick.com/IMB](http://www.sick.com/IMB)

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.





### IMF – At a glance

- Types: M8 to M30
- Extended sensing ranges: 2 mm to 20 mm
- Electrical configuration: DC 3-/4-wire
- Enclosure rating: IP 68, IP 69K
- Temperature range: -40 °C to +100 °C

### Your benefits

- Reliable processes thanks to extended, highly accurate sensing ranges enabled through the use of SICK ASIC technology
- Reduced machine downtimes thanks to a longer service life, even when subjected to frequent cleaning cycles

- Food-compatible stainless-steel housing, plastic sensing face
- Optical adjustment indicator, IO-Link-ready
- Resistant to industrial cleaning agents, Ecolab-certified

→ [www.sick.com/IMF](http://www.sick.com/IMF)

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.



### MPA – At a glance

- Position sensor for use on pneumatic cylinders
- Sensor variants with measuring ranges of 107 mm to 1,007 mm
- Analog outputs (for current or voltage), switching output, and IO-Link

### Your benefits

- Straightforward installation as no position elements or additional mechanical components are required for coupling with the piston rod
- Can be integrated into the machine at any time, as the sensor is attached to the cylinder externally
- Easy adjustment of sensor settings and parameters during operation using a teach pad or IO-Link

- Mounting with adapters on a multitude of cylinder types (tie-rod cylinders, round body cylinders, profile cylinders)

- More flexibility compared to conventional cylinder sensors, as it is possible to define multiple switching points in the smallest of spaces
- Maximum reliability thanks to the rugged aluminum housing and non-contact measurement principle
- Advanced diagnostic options thanks to data transmission via IO-Link

→ [www.sick.com/MPA](http://www.sick.com/MPA)

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.





### MPS-T – At a glance

- Position sensor for direct mounting in T-slots on pneumatic cylinders
- Sensor variants with measuring ranges of 32 mm to 256 mm
- Analog outputs (for current or voltage), switching output, and IO-Link

- Mounting on other cylinder types (e.g., round body cylinders) is possible with adapters

### Your benefits

- Rapid mounting and exchange of sensors with drop-in
- Straightforward installation as no additional mechanical components or position elements are required
- Can be integrated into the machine at any time, as the sensor is attached to the cylinder externally
- Easy adjustment of sensor settings and parameters during operation

- using a teach field or IO-Link
- More flexibility compared to conventional cylinder sensors, as it is possible to define multiple switching points in the smallest of spaces
- Long service life thanks to non-contact measurement principle
- Advanced diagnostic options thanks to data transmission via IO-Link

→ [www.sick.com/MPS-T](http://www.sick.com/MPS-T)

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.



### MPS-C – At a glance

- Position sensor for direct mounting in C-slots on pneumatic cylinders and grippers
- Sensor variants with measuring ranges of 25 mm to 200 mm

- Analog outputs (for current or voltage), switching output, and IO-Link
- Mounting on other cylinder types (e.g., round body cylinders) is possible with adapters

### Your benefits

- Rapid mounting and exchange of sensors with drop-in
- Straightforward installation as no additional mechanical components or position elements are required
- Can be integrated into the machine at any time, as the sensor is attached to the cylinder externally
- Easy adjustment of sensor settings and parameters during operation

- using a teach pad or IO-Link
- More flexibility compared to conventional cylinder sensors, as it is possible to define multiple switching points in the smallest of spaces
- Excellent reliability thanks to the rugged sensor design and non-contact measurement principle
- Advanced diagnostic options thanks to data transmission via IO-Link

→ [www.sick.com/MPS-C](http://www.sick.com/MPS-C)

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.





### MZT8 – At a glance

- Can be used in all standard cylinders, linear slides, and grippers using the T-slot and – with the help of adapters – in round rod, tie-rod, and profile cylinders, and cylinders with a dove-tail groove
- Drop-in mounting from above simplifies handling and assembly

### Your benefits

- Can be used at temperatures up to 100 °C
- Very rugged housing with enclosure rating IP 67, IP 68, or IP 69K extends the service life of the sensor
- Increases machine output through precise switching at the first attempt
- Quick and easy mounting using an Allen key or flat-head screwdriver

- Locking screw combines an Allen key and slotted screw
- High-temperature variants: temperature-resistant up to 100 °C
- Very short sensor housing for use in short stroke cylinders
- Enclosure ratings: IP 67, IP 68, IP 69K

→ [www.sick.com/MZT8](http://www.sick.com/MZT8)

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.



### MZC1 – At a glance

- Can be used in all standard cylinders, linear slides, and grippers using the C-slot and – with the help of adapters – in round rod, tie-rod, and profile cylinders
- Drop-in mounting from above simplifies handling and assembly

### Your benefits

- A sensor for a wide range of applications: The sensor design fits into all standard C-slots used around the world, regardless of the cylinder profile or make
- Quick and easy mounting using an Allen key or flat-head screwdriver
- Low maintenance costs as the sensor is resistant to shock and vibration, meaning it does not slide about in

the slot

- Locking screw combines an Allen key and slotted screw
- LED for indicating the output state
- Enclosure ratings: IP 67, IP 68, IP 69K
- Saves time on initial installation and when replacing devices as the sensor can be easily inserted into the slot from above. The end caps of the cylinder do not have to be removed.
- Very rugged housing with enclosure rating IP 67, IP 68, or IP 69K extends the service life of the sensor

→ [www.sick.com/MZC1](http://www.sick.com/MZC1)

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.





### MZ2Q-T – At a glance

- Can be used in all standard cylinders, linear slides, and grippers using the T-slot and – with the help of adapters – in round rod, tie-rod, and profile cylinders, and cylinders with a dove-tail groove
- Drop-in mounting from above simplifies handling and assembly

- Easy adjustment of two switching points via teach-in pushbutton
- LEDs for indicating the two switching points
- Detection range up to 50 mm stroke

### Your benefits

- One sensor, two switching points: Reduces commissioning time and costs
- Maximum flexibility thanks to a detection zone up to 50 mm
- Suitable for precise pneumatic applications due to intuitive and precise definition of two switching points

- Quick and easy installation and sensor replacement thanks to drop-in sensor mounting
- Flexible sensor settings, monitoring, advanced diagnostics and visualization through IO-Link (depending on type)

→ [www.sick.com/MZ2Q-T](http://www.sick.com/MZ2Q-T)

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.



### MZ2Q-C – At a glance

- Can be used in all standard cylinders, linear slides, and grippers using the C-slot and – with the help of adapters – in round rod, tie-rod, and profile cylinders
- Drop-in mounting from above simplifies handling and assembly

- Easy adjustment of two switching points via teach-in pushbutton
- LEDs for indicating the two switching points
- Detection range up to 50 mm stroke

### Your benefits

- One sensor, two switching points: Reduces commissioning time and costs
- Maximum flexibility thanks to a detection zone up to 50 mm
- Suitable for precise pneumatic applications due to intuitive and precise definition of two switching points

- Quick and easy installation and sensor replacement thanks to drop-in sensor mounting
- Flexible sensor settings, monitoring, advanced diagnostics and visualization through IO-Link (depending on type)

→ [www.sick.com/MZ2Q-C](http://www.sick.com/MZ2Q-C)

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.





### KTM Prime – At a glance

- Small, tried-and-tested housing, also available in stainless steel
- High grayscale resolution
- Very large dynamic range means reliable detection of contrasts on glossy

### Your benefits

- Small housing allows installation even where space is limited
- Powerful, fast contrast sensor ensures high machine throughput
- Three-color LED technology allows a reliable process, with contrast marks detected even in conditions with weak contrast ratios
- Good contrast resolution and a very large dynamic range ensure good detection performance on glossy materials, thus increasing the range

- materials
- Static and dynamic teach-in in one variant
- Switching frequency: 15 kHz
- KTM Prime with IO-Link functions

of application possibilities

- Various teach-in methods enable more flexible commissioning
- Long service life, even in harsh environments, thanks to stainless steel housing; as a result, excellent system throughput and low spare parts costs
- Enhanced diagnostics and visualization of sensor parameters, as well as quick and easy format changes, since parameter settings can be downloaded via IO-Link

→ [www.sick.com/KTM\\_Prime](http://www.sick.com/KTM_Prime)

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.



### KTX Prime – At a glance

- TwinEye-Technology for increased depth of field and sensing distance tolerance
- 50 kHz switching frequency and 5 μs jitter
- Large dynamic range means reliable detection of contrasts on glossy

### Your benefits

- 1:1 replacement for existing KT series - assembly compatibility
- TwinEye-Technology for better performance on glossy or jittering materials - less machine downtime and more process stability
- Multi-functional sensor adjustment for individual sensor adjustment
- Excellent contrast resolution and a large dynamic range for good perfor-

- materials
- 7-segment display
- Color mode
- Assembly feedback
- IO-Link and automation functions
- Flexible sensor setting thanks to various sensor parameters

mance on complex materials

- High flexibility thanks to a range of teach-in processes
- Integrated color mode - stable detection even with complex color differences
- Job storage in sensor - flexible process design and format change
- Diagnostics and visualization as well as easy format change via IO-Link

→ [www.sick.com/KTX\\_Prime](http://www.sick.com/KTX_Prime)

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.







### KTS Prime – At a glance

- TwinEye-Technology for increased depth of field and sensing distance tolerance
- 50 kHz switching frequency and 5  $\mu$ s jitter
- Large dynamic range means reliable detection of contrasts on glossy materials
- 7-segment display
- Color mode
- Assembly feedback
- IO-Link and automation functions
- Flexible sensor setting thanks to various sensor parameters

### Your benefits

- Small design for installation even where space is limited
- TwinEye-Technology for better performance on glossy or jittering materials - less machine downtime and more process stability
- Multi-functional sensor adjustment for individual sensor adjustment
- Excellent contrast resolution and a large dynamic range for good performance on complex materials
- High flexibility thanks to a range of teach-in processes
- Integrated color mode - stable detection even with complex color differences
- Job storage in sensor - flexible process design and format change
- Diagnostics and visualization as well as easy format change via IO-Link

→ [www.sick.com/KTS\\_Prime](http://www.sick.com/KTS_Prime)

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.



### CSM – At a glance

- Color sensor in a new miniature housing
- Static and teach-in method for 1 color using control cable or control panel
- Over IO-Link up to 8 colors teachable
- Switching frequency: 1.7 kHz
- Sensing distance: 12.5 mm
- Compatibility with older color sensors thanks to cable with male connector M12

### Your benefits

- Fast, seamless integration into existing applications thanks to a new miniature housing, saving time and money
- Increased switching frequency for improved machine productivity
- Flexible application possibilities thanks to a wide range of color tolerances
- Enhanced, intelligent diagnostics and visualization, as well as quick and easy format changes, thanks to IO-Link function
- Quick and easy installation cuts down on installation time
- Sorting processes are simplified by the distinction of up to 8 colors in one job

→ [www.sick.com/CSM](http://www.sick.com/CSM)

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.





### MLG-2 Prime – At a glance

- High-resolution light grid: with beam separation of 5 mm, 10 mm, 20 mm, 25 mm, 30 mm and 50 mm
- Available with three push-pull switching outputs or two analog outputs
- Display configuration with selected, pre-programmed measuring functions
- Monitoring height up to 3.2 m
- Operating range up to 8.5 m
- Optical synchronization of sender and receiver
- Cloning function via IO-Link
- Temperature range from -30 °C to +55 °C

### Your benefits

- Easy concept: Time and cost savings due to simple configuration and quick commissioning
- Modular concept offers the perfect solution every time from a single source
- Two optical synchronization beams increase operational safety
- Simple maintenance without the need for specialist staff thanks to the cloning function with IO-Link
- Direct configuration on the device display for quick commissioning
- IO-Link as an interface for configuration, measured data transfer and diagnostics
- Minimal specialist knowledge required by the user thanks to the intuitive arrangement of the most essential functions
- Extremely high operational safety due to rugged aluminum housing

→ [www.sick.com/MLG-2\\_Prime](http://www.sick.com/MLG-2_Prime)

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.



### MLG-2 Pro – At a glance

- High-resolution light grid: With beam separation of 2.5 mm, 5 mm, 10 mm, 20 mm, 25 mm, 30 mm and 50 mm
- “High-speed scan” function with triple scanning speed
- “Transparent mode” function for detecting transparent materials
- Measuring cross-beam, measuring 4 x zones, 2 x holding functions
- Can be switched to high-resolution evaluation with accuracy levels of up to 2 mm
- Data compression: Run length coding

### Your benefits

- “High-speed scan” function offers short response times for safely detecting objects traveling at high speeds
- Modular concept offers the perfect solution every time from a single source
- “High measurement accuracy” function for detecting small objects reliably
- “Transparent mode” function for reliably detecting and measuring transparent objects
- SOPAS configuration software with menu-driven wizard saves time during the configuration process
- Simple maintenance without the need for specialist staff thanks to the cloning function with IO-Link
- High reliability due to ambient light immunity

→ [www.sick.com/MLG-2\\_Pro](http://www.sick.com/MLG-2_Pro)

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.





### LUTM – At a glance

- Luminescence sensor in a miniature housing
- Static and dynamic teach-in methods in a single variant
- Reliable detection even at a low level luminescence
- Switching frequency: 6 kHz
- Operating range: 8 ... 20 mm
- IO-Link function
- Compatibility with older LUT sensors thanks to cable with male connector M12

### Your benefits

- Miniature housing enables installation in small spaces
- Quick and easy commissioning saves time and costs
- Increased switching frequency for improved machine productivity
- Enhanced, intelligent diagnostics and visualization of sensor parameters, as well as quick and easy format changes, thanks to IO-Link function

→ [www.sick.com/LUTM](http://www.sick.com/LUTM)

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.



### LUT9 – At a glance

- Simple teach-in
- Operating range up to 250 mm
- Version with IO-Link for remote monitoring
- Bar graph display provides information about the luminescence intensity
- High speed (6.5 kHz), standard (2.5 kHz), high resolution (500 Hz) models
- Additional optical filters suppress background luminescence
- Fiber-optic cable connection (with 20 mm lens)
- Switching and analog output

### Your benefits

- Simple sensitivity adjustment via teach-in for optimum adaptation to the application
- Long sensing distance tolerance leads to less mechanical height adjustments of the sensor on the machine
- Using IO-Link, the sensor can be configured and monitored by the central control system, enabling simple, cost-effective diagnostics and data collection
- Bar graph display provides continual process control through easy visualization of the luminescence intensity
- Filters ensure that background luminescence is reliably suppressed, ensuring greater process reliability
- Interchangeable lenses for different sensing distances and the second light exit provide flexibility
- High detection reliability ensures the process and reduces downtime
- Select speed or high resolution, making it ideal for any application.

→ [www.sick.com/LUT9](http://www.sick.com/LUT9)

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.





### WF – At a glance

- Infrared light source
- Simple and precise setting of the switching threshold via IO-Link, teach-in button, or plus/minus buttons
- Fast response time: 100 µs
- PNP and NPN switching output
- Light/dark switching function
- Stable aluminum housing with IP 65 enclosure rating
- Smart sensor with integrated IO-Link interface

### Your benefits

- Fast response time and fine resolution ensure reliable detection even at very high object speeds
- Infrared light source provides excellent ambient light immunity
- User-friendly setting via IO-Link, teach-in button, or plus/minus buttons
- A wide range of different fork sizes
- enables flexible installation
- Stable aluminum housing for use in harsh industrial environments
- Thanks to IO-Link or external teach-in, the switching threshold can be adapted while the process is running, increasing process reliability
- Easy to access data from the PLC via IO-Link

→ [www.sick.com/WF](http://www.sick.com/WF)

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.



### WFL – At a glance

- Very precise Class 1 laser
- Simple and precise setting of the switching threshold via IO-Link, teach-in button, or plus/minus buttons
- Fast response time: 100 µs
- PNP and NPN switching output
- Light/dark switching function
- Stable aluminum housing with IP 65 enclosure rating
- Smart sensor with integrated IO-Link interface

### Your benefits

- A highly precise laser beam ensures consistent measurement accuracy along the entire measuring range and reliable detection of extremely small objects
- A visible laser beam enables easy alignment and fast adjustment
- Reliable and simple setting via teach-in button ensures high process reliability
- A wide range of different fork sizes increases mounting flexibility
- Stable aluminum housing for use in harsh industrial environments
- Thanks to IO-Link or external teach-in, the switching threshold can be adapted while the process is running, increasing process reliability
- Easy to access data from the PLC via IO-Link

→ [www.sick.com/WFL](http://www.sick.com/WFL)

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.





### WFS – At a glance

- Housing with slim forked shape
- Simple and precise setting of the switching threshold via IO-Link, teach-in button, or plus/minus buttons
- Light/dark switching function

- Fast response time: 50  $\mu$ s
- PNP or NPN switching output
- Plastic housing with IP 65 enclosure rating
- Smart sensor with integrated IO-Link interface

### Your benefits

- Flexible and simple mounting directly on the edge of a label dispenser ensures a high level of accuracy in the process
- Small housing allows simple installation even where space is limited
- User-friendly adjustment allows easy and quick commissioning
- Fast response times enable precise

detection – even at very high track speeds

- Thanks to IO-Link or external teach-in, the switching threshold can be adapted while the process is running, increasing process reliability
- Easy to access data from the PLC via IO-Link

→ [www.sick.com/WFS](http://www.sick.com/WFS)

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.



### TiM1xx – At a glance

- Small, simple, and cost-effective sensor for area monitoring
- Monitoring of an area of up to 15.7 m<sup>2</sup>
- Low weight of just 90 g
- Field evaluation using integrated soft-

ware algorithms

- Low power consumption of typically 2.2 W
- Configuration and cloning using IO-Link
- Industrial design

### Your benefits

- Low installation effort thanks to monitoring of a 200° field of view
- Low overall operating costs
- Low space requirements thanks to compact dimensions
- Rapid commissioning thanks to simple configuration of the detection zone with software

- Low installation costs and rapid replacement thanks to rotatable connector, IO-Link, and parameter cloning
- Particularly suitable for use in battery-operated vehicles thanks to low power consumption

→ [www.sick.com/TiM1xx](http://www.sick.com/TiM1xx)

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.





### Dx35 – At a glance

- Maximum reliability, immunity to ambient light, and best price/performance ratio thanks to HDDM technology
- Measuring range of 0.05 m to 12 m for natural objects or 0.2 m to 35 m on reflective tape
- Devices with analog and switching output, or just switching
- Infrared or red laser in class 1 or class 2
- Repeatability: 0.5 mm to 5 mm
- Small housing size
- IO-Link

### Your benefits

- Precise and reliable measurement regardless of object color extends run time and process quality
- A small size and blind zone make flexible mounting possible when space is limited
- Optimum solution thanks to flexible settings for speed, range and repeatability
- Flexible interface use: 4 mA to 20 mA, 0 V to 10 V, PNP output, NPN output, or IO-Link – making machine integration simple
- Offering easy alignment, optimal performance or inconspicuous measurement, versatile light senders make it an ideal solution for all scenarios
- Low investment costs and high performance levels guarantee a quick return on investment
- IO-Link offers full process control, from commissioning to service
- A wide variety of control options ensures rapid commissioning and fast batch changes

→ [www.sick.com/Dx35](http://www.sick.com/Dx35)

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.



### Dx50-2 – At a glance

- Measuring range up to 10 m on black targets and up to 30 m on white targets within a compact housing
- Output rate up to 3,000/s
- Repeatability: 0.5 mm to 5 mm
- Reliable, patented HDDM time-of-flight technology
- Withstands extreme temperatures from –40 °C to +65 °C thanks to rugged metal housing
- Shape comparison integrated in sensor
- IO-Link, analog and switching output
- Display with intuitive menu structure and easy teach option
- Enclosure rating IP 65 and IP 67

### Your benefits

- A wide measuring range and a compact housing increase the number of application possibilities
- Very high throughput thanks to a high measuring frequency
- Precise and reliable measurement regardless of object color improves uptime and process quality
- Withstands harsh ambient conditions thanks to ruggedness, a wide temperature range, and ambient light immunity
- Integrated shape comparison for straightforward checking and sorting of objects
- Fast and easy commissioning via intuitive display menu structure, easy-teach option, Wireless LAN, multifunctional input, or IO-Link saves time
- Full process control with IO-Link from commissioning to maintenance
- Three switching modes provide a simple solution for demanding applications

→ [www.sick.com/Dx50-2](http://www.sick.com/Dx50-2)

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.





### OD1000 – At a glance

- Large measuring range of up to 1 m
- Simple setting via OLED display or SOPAS configuration software
- Standalone device without external amplifier unit
- Rugged metal housing
- Adjustable analog output (mA/V) and push-pull switching output with IO-Link
- Precise measurement regardless of color or surface
- Versatile mounting possibilities

### Your benefits

- Optimization of the process quality due to high precision and linearity over the entire measuring range
- Quick commissioning due to variable mounting and innovative operating concept
- Simple and cost-saving integration via OLED display and IO-Link interface
- Suitable for harsh ambient condition due to rugged metal housing
- High machine availability thanks to reliable, quick, and precise measurement results on a wide range of surfaces
- Intelligent measured value filter and analysis algorithm for safe and stable measurement in every application

→ [www.sick.com/OD1000](http://www.sick.com/OD1000)

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.



### UM18 – At a glance

- Reliable measurement, regardless of material color, transparency, gloss, or ambient light
- Sensing ranges up to 1,300 mm
- Short metal or plastic M18 housing from 42 mm in length
- Straight or angled design
- Immune to dirt, dust, humidity, and fog
- Versatile interfaces including IO-Link available

### Your benefits

- Four sensing ranges up to a total of 1,300 mm for countless application possibilities
- Easy integration due to a short M18 housing, straight or angled
- Measurement filters and variants with temperature compensation for reliable measurement results and very high process reliability
- Rugged, one-piece housing ensures highest plant availability
- Synchronization or multiplex mode for the simultaneous use of up to 50 sensors increases application flexibility and process reliability
- Various output signals for solving complex applications
- Teach-in via cable prevents unintentional sensor adjustment, reducing machine downtime
- Rugged, reliable ultrasound technology

→ [www.sick.com/UM18](http://www.sick.com/UM18)

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.





### UC4 – At a glance

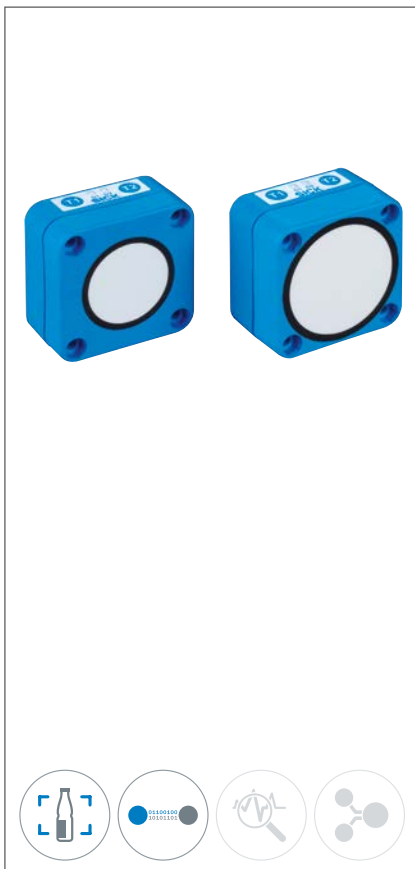
- Reliable measurement, regardless of material color, transparency, gloss, or ambient light
- Ultrasonic technology in a small housing
- Detection, measurement, and positioning with ultrasonic technology
- Variants with PNP/NPN switching output, analog output or push-pull output with IO-Link
- Teach-in button
- Precise background suppression
- Immune to dirt, dust, humidity, and fog

### Your benefits

- Mini housing allows for quick and easy integration, even in the most confined spaces
- Teach-in button for fast and easy commissioning
- Integrated temperature compensation ensures high measurement accuracy at all times for optimum process quality
- Various operating modes provide optimal application flexibility and solutions, which increase reliability and productivity
- Full mechanical compatibility to photoelectric sensors allows for the use of the suitable technology for every application without machine modification
- The sensor's immunity to optically difficult environment enables it to take accurate measurements even in dirty, dusty, humid, and foggy conditions

→ [www.sick.com/UC4](http://www.sick.com/UC4)

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.



### UC30 – At a glance

- Reliable measurement, regardless of material color, transparency, gloss, or ambient light
- Rugged housing with teach-in buttons
- Sensing ranges up to 8,000 mm
- Analog output, push-pull switching output with IO-Link or two PNP/NPN switching outputs
- Immune to dirt, dust, humidity, and fog
- Adjustable sensitivity

### Your benefits

- Compact cubic housing for straightforward machine integration
- Rugged, plastic housing ensures highest plant availability
- Various output signals for solving complex applications available
- IO-Link with many diagnostic options for fault-free operation and simple maintenance
- Teach-in buttons for fast and easy commissioning
- Rugged ultrasonic technology, measures reliably even in dirty, dusty, humid, and foggy conditions
- Integrated temperature compensation ensures high measurement accuracy at all times for optimum process quality

→ [www.sick.com/UC30](http://www.sick.com/UC30)

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.







### AHS/AHM36 IO-Link – At a glance

- Compact 36 mm absolute encoder with maximum 24 bits (AHM36) or 12 bits (AHS36)
- Face mount flange, servo flange, blind hollow shaft
- Rotatable M12 male connector or cable connection
- Process data communication via IO-Link
- Configuration via IO-Link or SOPAS
- IP65 enclosure rating
- Operating temperature range: -20 °C ... +70 °C

### Your benefits

- Quick and easy mechanical installation due to a rotatable male connector or cable connection, various mounting hole patterns, and many different shafts
- Easy and economical integration of the encoder into various higher-level networks via IO-Link interface
- Easy encoder configuration via IO-Link master or SOPAS
- Rugged, reliable and fully-magnetic sensors, can also be used in harsh environments
- Space-saving and cost-effective design for applications where space is tight
- High performance at a cost-efficient price

→ [www.sick.com/AHS\\_AHM36\\_IO-Link](http://www.sick.com/AHS_AHM36_IO-Link)

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.



### AHS/AHM36 IO-Link Inox – At a glance

- Compact 36 mm absolute encoder with maximum 26 bits (AHM36) or 14 bits (AHS36)
- Housing, flange, shaft made of stainless steel 1.4305
- IP69 enclosure rating
- Face mount flange, servo flange, blind hollow shaft
- M12 male connector or cable connection
- Configuration and process data communication via IO-Link
- Operating temperature range: -40 °C ... +85 °C

### Your benefits

- High resistance to environmental influences due to stainless-steel design
- Enclosure rating IP69 and shaft sealing ring for optimal tightness
- Easy and economical integration of the encoder into various higher-level networks via IO-Link interface
- Easy encoder configuration via IO-Link master or SOPAS
- Quick and easy mechanical installation with various mounting hole patterns and many different shafts
- Rugged, reliable, fully-magnetic sensors which can also be used in harsh environments

→ [www.sick.com/AHS\\_AHM36\\_IO-Link\\_Inox](http://www.sick.com/AHS_AHM36_IO-Link_Inox)

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.





### LFP Inox – At a glance

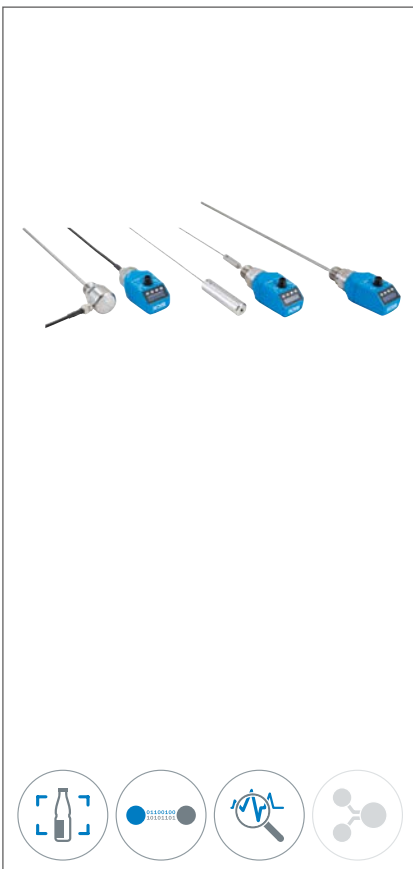
- Level measurement in hygienic applications
- Rod probe can be cut to length manually up to 4,000 mm long with Ra ≤ 0.8 μm
- Process temperature up to 180 °C, process pressure up to 16 bar
- CIP/SIP-resistant
- High enclosure rating: IP 67 and IP 69K, autoclavable
- Interchangeable hygienic process connections
- 3 in 1: combines display, analog output, and binary output
- Remote amplifier with process connection
- IO-Link 1.1

### Your benefits

- Rugged design increases service life
- High flexibility – rod probe can be cut to length and connection concept is interchangeable
- Cost savings as a result of multiple output signals: one system for both point level and continuous level measurement
- Maintenance-free and easy to commission without calibration, saving time and money
- Remote display of measured values and saves space

→ [www.sick.com/LFP\\_Inox](http://www.sick.com/LFP_Inox)

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.



### LFP Cubic – At a glance

- Level sensor for liquids
- No mechanical moving parts
- Interchangeable rod probe which can be cut to lengths between 200 mm and 2,000 mm (cable probe up to 4,000 mm)
- Resistant to deposit formation
- Process temperature up to 100 °C, process pressure up to 10 bar
- 3 in 1: combines display, analog output (according to NAMUR NE 43), and binary output
- High enclosure rating of IP 67, rotatable housing and remote amplifier
- IO-Link 1.1

### Your benefits

- Rugged design increases service life
- High flexibility with interchangeable rod probe or cable probe that can be cut to length
- Cost savings due to multiple output signals: One system for both point level and continuous level measurement
- Maintenance-free and easy to commission without calibration, saving time and money
- Titanium process connection is highly resistant to chemicals
- Compact, rotatable housing and remote amplifier for flexible installation
- High availability, even when several sensors are installed in parallel, since there is no mutual device interference
- Universal technology facilitating calibration-free measurement saves time and money

→ [www.sick.com/LFP\\_Cubic](http://www.sick.com/LFP_Cubic)

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.





### PBS – At a glance

- Electronic pressure switch with display for monitoring pressure in liquids and gases
- Precise sensor technology with stainless steel membrane
- Integrated process connections manufactured from high-quality stainless steel
- Pressure values indicated on display. Output states are indicated separately via wide-angle LEDs.
- Unit of pressure value in display can be switched
- Min/max memory
- Password protection
- IO-Link

### Your benefits

- Quick and easy setup and operation due to three large pushbuttons and clear display
- Perfect display readability and optimal cable routing due to rotatable housing
- No compromises: Individual solutions through a variety of configurations
- Universal application due to fully welded, highly durable stainless steel membrane
- Saves space and costs: no adapters required due to broad range of standard process connections
- Highly reliable due to application of proven technologies and high-quality materials, water resistance according to IP 65 and IP 67 as well as excellent overpressure safety
- Ultimate system availability: IO-Link enables fast, reliable parameter setting when changing over products

→ [www.sick.com/PBS](http://www.sick.com/PBS)

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.



### PBS Hygienic – At a glance

- Hygienically-graded pressure switch with display for the food and beverage industry
- Wetted parts are made from stainless steel 1.4435
- Individually programmable switching outputs and analog output
- Pressure values are indicated on the display
- Unit of pressure value in the display can be switched
- Output states are indicated separately via large LEDs
- IO-Link

### Your benefits

- Safe hygienic operation due to flush-mounted, highly resistant stainless steel membrane and hygienic process connections
- Suitability for CIP and SIP ensures high system availability
- Safe and easy setup with three large pushbuttons and legible, rotatable display
- Rotatable housing for optimum cable routing
- Wide range of available configurations enable customer-specific solutions
- High reliability: Corrosion-resistant design of wetted parts and housing with IP 65 and IP 67 enclosure ratings
- Ultimate system availability: IO-Link enables fast, reliable parameter setting when changing over products

→ [www.sick.com/PBS\\_Hygienic](http://www.sick.com/PBS_Hygienic)

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.





### PAC50 – At a glance

- Electronic pressure switch for pneumatic applications
- Large display shows system pressure, output states and set switching points
- Three large function keys and intuitive menu navigation
- Measuring range for gauge pressure (vacuum and overpressure)
- Individually programmable switching outputs and optional analog output
- Installation on a mounting rail, wall or in a control panel
- IO-Link

### Your benefits

- Bi-color display (green/red) clearly shows the output state to recognize whether the pressure is within the target range
- Quick overview of important system parameters due to advanced display functions
- Intuitive operation allows simple and quick commissioning
- Pressure connections on the back and bottom, various mounting options and configurable output signals provide installation flexibility
- High reliability due to the rugged design (IP 65/IP 67 enclosure rating) and proven technology
- Low storage costs since a few product variants are able to meet a broad range of application requirements
- Reduced downtime when changing the format or replacing the sensor thanks to IO-Link

→ [www.sick.com/PAC50](http://www.sick.com/PAC50)

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.



### TBS – At a glance

- Large display, IO-Link 1.1
- Individually programmable transistor outputs PNP or NPN, optional analog output 4 mA ... 20 mA or 0 V ... 10 V
- Round connector M12 x 1
- Measuring ranges -20 °C ... +120 °C
- Pt1000 element, accuracy class A
- (IEC 60751)
- Various insertion lengths and connection threads
- Wetted parts made from corrosion-resistant stainless steel 1.4571
- Enclosure rating IP 65 and IP 67

### Your benefits

- Quick and safe set-up through superior ease of use
- Compact dimensions and rotatable housing facilitate integration
- Very reliable: splash-proof housing, high-grade materials, rugged design, and field-proven technology
- Very good long-term stability, accuracy and linearity
- Quick response time
- Versatile configuration allows for optimal solutions for specific requirements

→ [www.sick.com/TBS](http://www.sick.com/TBS)

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.





### DOSIC® – At a glance

- Flow measurement for water and oil-based liquids
- Seal-free stainless-steel 316L sensor with  $Ra \leq 0.8$
- Straight, self-draining measuring tube
- Compact design with short installa-

### Your benefits

- Flexible measurement system for all industries and liquids
- Versatile use for conductive and non-conductive liquids and temperature measurement
- Short installation lengths and a compact design enable installation in applications with limited space
- Food-safe thanks to rust-free stain-

tion lengths

- Configurable digital outputs
- Temperature measurement
- IP 67/69 enclosure rating, CIP/SIP-compatible, IO-Link version 1.1

less steel and hygienic design

- Quick installation without medium calibration
- User-friendly application thanks to rotatable housing and display
- Straight measuring tube reduces pressure loss, thus reducing energy costs

→ [www.sick.com/DOSIC](http://www.sick.com/DOSIC)

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.




## Accessories



### Connection systems

#### Modules and gateways




#### Cloning module

	Brief description	Type	Part no.
	IO-Link version V1.1, Port class 2, PIN 2, 4, 5 galvanically connected, Supply voltage 18 V DC ... 32 V DC (limit values, operation in short-circuit protected network max. 8 A)	IOLP2ZZ-M3201 (SICK Memory Stick)	1064290

#### Connection modules

	Brief description	Type	Part no.
	IO-Link (V1.1) Device with Automation Function Counter and Debouncing. Connectors: M12, 5-pin, Operating Voltage: 18-32V DC, Transfer: COM 2 (38,4 kBaud)	AKS-IXD1CXD15KXA71 (Counter Stick)	1082625
	IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24V / 1A	IOLA2US-01101 (SiLink2 Master)	1061790

#### Fieldbus modules

	Brief description	Type	Part no.
	EtherCAT IO-Link Master, IO-Link V1.1, power supply via 7/8" cable 24 V / 8 A, fieldbus connection via M12 cable	IOLG2EC-03208R01 (IO-Link Master)	6053254
	EtherNet/IP IO-Link Master, IO-Link V1.1, power supply via 7/8" cable 24 V / 8 A, fieldbus connection via M12-cable	IOLG2EI-03208R01 (IO-Link Master)	6053255
	PROFINET IO-Link Master, IO-Link V1.1, Class A port, power supply via 7/8" cable 24 V / 8 A, fieldbus connection via M12 cable	IOLG2PN-03208R01 (IO-Link Master)	6053253

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**Training and education**  
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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 8,800 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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