

# DATA SENSING

easing automation challenges



# OUR EXPERTISE MAKES YOUR WORK EASIER

Datasensing is merging Datalogic's Sensor & Safety and Machine Vision business unit with M.D. Micro Detectors, both with 50 years of experience and representing the history of sensors in Italy since the early '70s.

Our company is developing, manufacturing and supplying Machine Vision, Sensor and Safety, with more than 200 product lines, including 22500 standard and custom part numbers, protected by over 100 patents.

Our products are designed to inspect, detect and protect your production in better and easier way, with diffused applications in industrial automation of manufacturing and intralogistics processes.

Datasensing means high technology and innovative products... but it's the experience of our extraordinary people that makes the difference, from pre-sales to order processing and post-sales.

We have a global presence, with Headquarters in Italy and offices in Europe, China and US, together with a qualified network of distribution partners in all countries.

Datasensing not only focus on products, but also on Environmental, Social and Governance initiatives, as reducing the impact of products, production and logistics.

*Our Mission is to create added value through smart sensing solutions based on sustainable standard and custom products, developed with care and leading know how.*

*Our Vision is to be the top of mind partner to innovate sensing solutions for industrial automation.*



# **MACHINE VISION**

- **SMART CAMERA**
- **INDUSTRIAL CAMERA**
- **INDUSTRIAL VISION PROCESSOR**
- **DEEP LEARNING SOFTWARE**





Machine Vision offers the widest range of smart devices for in-line automated inspection and factory automation.

Smart cameras, industrial vision processors and machine vision software offer multiple solutions covering a wide range of performance and price point requirements.

Machine vision solutions can be used to identify parts through barcode, by reading characters (OCR), or recognizing patterns; to detect defects and locating parts; to guide robots' arms; to help control the process of the manufacturing line.

Smart cameras mean the flexibility of a full-blown vision system packed

into a compact housing, thus simplifying the device integration on the machine.

Industrial vision processors and cameras offer cutting edge image processing capabilities, enabling high-end multi camera machine vision solutions.

Deep Learning software addresses high-end quality inspection applications providing reliable results even in challenging and variable situations.

The easy and intuitive IMPACT configuration software is common to all smart cameras and industrial vision processors. It features over 120 inspection tools and controls to create unique inspection programs and develop user interfaces quickly and easily.



## SMART CAMERA

### P1X



Ultra-compact cost effective smart camera offering advanced vision system functionalities in a fully embedded stand-alone device. The P1x Series is available with monochrome or color image sensors in two different resolutions: VGA and 1.3 MP.



- Imagers: VGA and 1.3MP, CMOS mono or color
- Lens options: 6, 9, 12, 16, 25mm focal lengths
- Illuminators: Red, Blue, Infrared, White (polarized versions available)
- Digital I/Os: 2 IN / 3 OUT
- Connectivity: PROFINET, EtherNet/IP, ModBus, RS232, Ethernet TCP/IP
- Rotating connectors for straight vs 90° mounting
- IP67 rated housing
- Configuration through IMPACT Software

- Packaging machinery
- Automotive
- General manufacturing

### P2X



Industrial smart camera providing exceptional inspection performance in a compact housing. State-of-the-art CMOS imagers with resolutions up to 2MP deliver maximum image quality.



- Imagers: WVGA and 2MP, CMOS mono or color
- Lens options: Micro-video (6, 8, 12.5 and 17.5mm) or C-Mount
- Illuminators: Red, Blue, Infrared, White (polarized versions available)
- Digital I/Os: 2 IN / 3 OUT
- Connectivity: PROFINET, EtherNet/IP, ModBus, RS232, Ethernet TCP/IP
- Rotating connectors for straight vs 90° mounting
- IP67 rated housing
- Configuration through IMPACT Software including advanced algorithms

- Packaging machinery
- Robot guidance
- Electronics
- Automotive

### P3X



High-end smart camera providing state of the art computing performance. With resolutions up to 5MP, P3x enables high-accuracy quality inspection and measurement applications.



- Imagers: WVGA, 2MP and 5MP, CMOS mono or color
- Lens options: Micro-video (6, 8, 12.5 and 17.5 mm) or C-Mount
- Illuminators: Red, Blue, Infrared, White (polarized versions available)
- Digital I/Os: 2 IN / 3 OUT
- Connectivity: PROFINET, EtherNet/IP, ModBus, RS232, Ethernet TCP/IP
- Rotating connectors for straight vs 90° mounting
- IP67 rated housing
- Configuration through IMPACT Software including advanced algorithms

- Electronics
- Robot guidance
- Automotive



VISION PROCESSOR	CAMERA	ACCESSORIES
<p data-bbox="174 183 280 223"><b>MX-E</b></p>  <p data-bbox="174 438 548 566">Industrial Machine Vision Processors providing the highest performance in image processing with unmatched flexibility through GigE multi-camera connectivity support.</p> <p data-bbox="190 622 336 670"><b>CE UK CA</b></p>	<p data-bbox="571 183 649 223"><b>E/M</b></p>  <p data-bbox="571 438 945 518">Range of GigE industrial digital cameras featuring latest CMOS imagers with resolutions from VGA up to 5MP.</p> <p data-bbox="582 622 728 670"><b>CE UK CA</b></p>	<p data-bbox="969 183 1220 223"><b>ACCESSORIES</b></p>  <p data-bbox="969 438 1339 518">Wide range of illuminators, lenses, filters, mounting unit and cables for vision sensors and cameras to fit any application.</p> <p data-bbox="981 622 1126 670"><b>CE UK CA</b></p>
<ul data-bbox="174 742 548 1149" style="list-style-type: none"> <li>• 3 different computing power models: MX-E25 (entry level), MX-E45 (mid-range), MX-E90 (high-end)</li> <li>• Support from 2 to 8 independent GigE cameras simultaneously connected</li> <li>• Digital I/Os: 16 IN / 16 OUT (NPN or PNP)</li> <li>• Connectivity: PROFINET, EtherNet/IP, ModBus, RS232, Ethernet TCP/IP</li> <li>• Configuration through IMPACT Software including advanced algorithms</li> <li>• State-of-the-art Windows 10 IoT operating system</li> </ul>	<ul data-bbox="571 742 945 1085" style="list-style-type: none"> <li>• Resolutions ranging from VGA up to 5 MP, available both in monochrome or color</li> <li>• Linescan cameras with resolution from 2K up to 8K pixels</li> <li>• Industry-proven GigE Vision connectivity standard</li> <li>• Compact dimensions simplifying mechanical installation</li> <li>• C-Mount lens support for extreme mounting flexibility</li> </ul>	<ul data-bbox="969 742 1339 925" style="list-style-type: none"> <li>• Spot, ring, linear, backlight, dome, co-axial illuminators available with different color wavelengths</li> <li>• Micro-video, C-Mount, F-Mount and telecentric lenses</li> <li>• Selections of optical filters to be mounted on camera lenses</li> </ul>
<ul data-bbox="174 1204 392 1284" style="list-style-type: none"> <li>• Electronics</li> <li>• Robot Guidance</li> <li>• Packaging machinery</li> </ul>	<ul data-bbox="571 1204 784 1284" style="list-style-type: none"> <li>• Electronics</li> <li>• Robot Guidance</li> <li>• Packaging machinery</li> </ul>	

## DEEP LEARNING SW

### PEKAT



A state of the art software solution for industrial visual inspection and quality assurance based on proprietary advanced deep-learning algorithms and neural networks.

- Ease of use and wide hardware compatibility
- Universal application
- Fast integration
- Anomaly detection
- Surface quality inspection
- Object detection & classification
- Text reading & verification

- Automotive
- Packaging
- Electronics

# *SENSOR*

- PHOTOELECTRIC
- INDUCTIVE
- CAPACITIVE
- ULTRASONIC



Sensors are essential in industrial automation to detect the presence of objects or parts, inspect the integrity or correct assembly, measure the dimension, distance or positioning.

Photoelectric are the most diffused and available in many different sizes, version, and functionalities, ranging from smallest to fastest objects, clear or shiny surfaces, color or invisible fluorescent marks, including dimension or distance measurement.

Inductive proximity are specific for metal parts detection at short distance, also in harsh environments with dust, liquids, oil or grease.

Capacitive sensors are used for detecting liquids or powder, also inside opaque and non-metal containers.






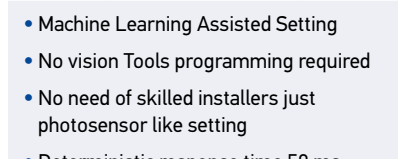
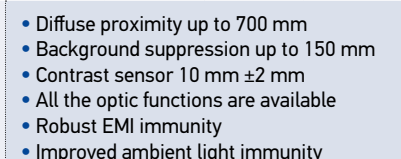
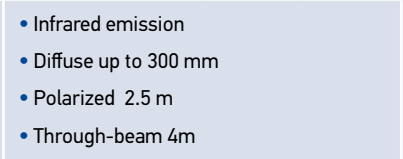
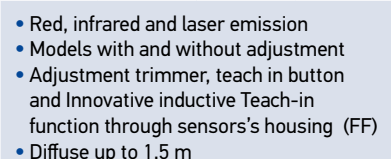
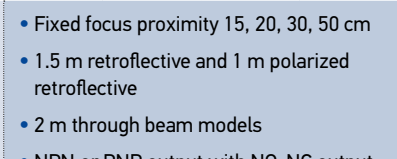
Ultrasonic sensors are suitable for transparent object detection (plastic film, glass, labels), with distance measurement capability.

Accessories include brackets and cables, IO-Link Master, fiber optics and reflectors for photoelectrics.

Manufacturing applications are widespread in automotive and electronics plants; food & beverage and pharmaceutical, processing and packaging machinery; woodworking, metalworking, textile, ceramic, glass, stones, paper, etc.

Logistics applications are automated material handling, conveyors, storage and retrieval, automated warehouses, distribution centers.



SMART SENSOR	TUBULAR		SUB-MINIATURE	
<p><b>SMART-VS</b></p>	<p><b>S5N / S5</b></p>	<p><b>DM</b></p>	<p><b>SS/FA/FAL/FF</b></p>	<p><b>SM-ALL</b></p>
				
<p>The smart vision sensor enabled with A.I. and empowered by machine learning assisted setting algorithms. Simply clever solution for all your presence and orientation object detection applications.</p>	<p>The first tubular sensor line with all optic functions and IO-Link V1.1 smart sensor profile on the market, a reference point for the Industry 4.0. Stainless steel AISI 316 L IP69K ECOLAB and Diversy models (S5N... NA...) are also available.</p>	<p>M12 Photoelectric Sensors with different models with Teach-in button for easy adjustment.</p>	<p>Wide range of models of M18, photoelectric Sensors: general purpose, laser and for harsh environments and food and beverage, ECOLAB and DIVERSY tested.</p>	<p>The subminiature photoelectric sensor with all universal optic functions. Precise and effective detection also for hard application to reach objects in compact machineries with narrow spaces.</p>
				
<ul style="list-style-type: none"> <li>• Machine Learning Assisted Setting</li> <li>• No vision Tools programming required</li> <li>• No need of skilled installers just photosensor like setting</li> <li>• Deterministic response time 50 ms</li> <li>• 50...150 mm detection distance</li> <li>• TEACH Button and comprehensive UI with 5 status LEDs</li> <li>• 50...150 mm operating distance with electronic focus control</li> <li>• Smart-VS Plus model available to handle more images and more connectivity features</li> </ul>	<ul style="list-style-type: none"> <li>• Diffuse proximity up to 700 mm</li> <li>• Background suppression up to 150 mm</li> <li>• Contrast sensor 10 mm ±2 mm</li> <li>• All the optic functions are available</li> <li>• Robust EMI immunity</li> <li>• Improved ambient light immunity</li> <li>• M18 flat plastic with universal mounting</li> <li>• Available in M18 metal housing</li> <li>• Axial or radial optics, cable or connector</li> <li>• Standard 4-wire NO-NC NPN or PNP output</li> <li>• Complete configuration of the NPN/PNP output and L/D models (S5)</li> <li>• IO-Link V1.1 COM 2 Smart sensor profile</li> <li>• INOX AISI 316 L models are available</li> <li>• S5N...NA compliant with Ecolab and Diversy</li> </ul>	<ul style="list-style-type: none"> <li>• Infrared emission</li> <li>• Diffuse up to 300 mm</li> <li>• Polarized 2.5 m</li> <li>• Through-beam 4m</li> <li>• PNP or NPN output with remote Teach-in</li> <li>• Cable 2 m or M12 plug connection</li> <li>• 4 wires selectable NO/NC output</li> <li>• M12 metallic housing</li> </ul>	<ul style="list-style-type: none"> <li>• Red, infrared and laser emission</li> <li>• Models with and without adjustment</li> <li>• Adjustment trimmer, teach in button and Innovative inductive Teach-in function through sensors's housing (FF)</li> <li>• Diffuse up to 1.5 m</li> <li>• Polarized up 4,5m and 30m (Laser)</li> <li>• Through-beam up 20m and 50m (Laser)</li> <li>• For transparent objects up 1,5m</li> <li>• Background Suppression up to 300 mm (laser emission 150 mm)</li> <li>• Available with plastic and metal housing</li> <li>• AISI316L Stainless steel housing (FF)</li> <li>• IP67- IP68, IP69K (FF)</li> <li>• Axial or right angle optical</li> <li>• Ecolab and Diversy certification</li> <li>• M18 or smooth housing</li> </ul>	<ul style="list-style-type: none"> <li>• Fixed focus proximity 15, 20, 30, 50 cm</li> <li>• 1.5 m retroreflective and 1 m polarized retroreflective</li> <li>• 2 m through beam models</li> <li>• NPN or PNP output with NO-NC output</li> <li>• 4 wires connection with 2 m Cable</li> <li>• IP67 Plastic subminiature case</li> </ul>
<ul style="list-style-type: none"> <li>• Processing and packaging</li> <li>• Transport and handling lines</li> <li>• Assembly lines</li> <li>• Food &amp; Beverage</li> <li>• Bottling lines</li> <li>• Machines for the Cosmetic and Pharmaceutical sector</li> </ul>	<ul style="list-style-type: none"> <li>• Processing and Packaging</li> <li>• Conveyors, material handling</li> <li>• Ceramics intralogistics</li> <li>• Automated warehousing</li> </ul>	<ul style="list-style-type: none"> <li>• Packaging line</li> <li>• Assembly machine</li> </ul>	<ul style="list-style-type: none"> <li>• Ceramic intralogistic</li> <li>• Processing and Packaging</li> <li>• Wood and glass industries</li> <li>• Assembly machine</li> <li>• Conveyor line</li> </ul>	<ul style="list-style-type: none"> <li>• Processing and Packaging</li> <li>• Electronics assembling</li> <li>• Small appliance and vending machines</li> </ul>

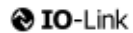


### MINIATURE

S100	S3Z	S3N	QM	QM
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Universal miniature photoelectric sensor with best price on the market, standard miniature dimension and universal mounting feature for quick and easy mechanical and electrical installation.



- Through beam 12 m
- Retroreflective 7 m
- Polarized retroreflective 3 m and 5.5 m
- Diffuse proximity 30 and 50 cm
- Fixed focus 70 mm
- Background suppression 100 mm and 200 mm
- NPN or PNP output with L/D input
- 2 m cable or M8 connector version
- IP67 plastic miniature case
- M3 x 2 slotted holes on the back side
- M3 threaded holes on the front side

- Processing and Packaging
- Conveyor lines, material handling
- Automated warehousing



High performance in standardized miniature housing. Replaces larger sensors and fits in limited space in smaller machinery.

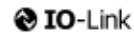


- Diffuse proximity 15 or 70 cm
- Background suppression Red LED or Laser 50-300 mm
- Polarized RRX 4 m, Coaxial for Trasp. 2 m, Laser 10 m
- Through-beam 15 m and Laser 30 m
- 3 wire connection with 2 m Cable or M8 connector
- IP67 Plastic miniature case
- M3 threaded holes on the front side

- Processing and Packaging
- Electronics assembling
- Small machinery and access control



Top performances in a very rugged and miniaturized standard housing. Complete solution for any detection application in any automation industry. Available with trimmer and Teach-in models with high connectivity features thanks to extended IO-Link communication.



- Bright LED and Laser emission models
- Teach in and trimmer adjustment models
- Smart Background suppression functions
- Shiny and clear object detection
- Diffuse proximity up to 100 cm
- LED Background supp. up to 800 mm (on White)
- Polarized LED RRX 7 m, Laser 12 m
- Coaxial RRX for transparent 2 m
- Through beam LED 15 m and Laser 30 m
- Very High speed and very low jitter
- Connection with 2 m cable, pig tail and M8 connector
- Rugged IP67 Plastic miniature case
- Mounting threaded M3 metal inserts
- IO-Link double channel with smart task

- Conveyor and logistic lines
- Food, cosmetic and Pharma industries
- Wood and glass industries
- General purpose



Wide range of models of cubic miniaturized sensors.



- Red and infrared emission
- Background Suppression up 400 mm
- Diffuse up to 1.5 m
- For transparent objects up to 4 m
- Through-beams up to 30 m
- PNP and NPN -NO/NC output
- 2 m cable, M8 4 poles connectors and pig-tails M12 and M8

- Conveyor and logistic lines
- Food, cosmetic and Pharma industries
- Wood and glass industries
- General purpose
- Automatic machines

IP69K













Cubic miniaturized IP69K photoelectric sensors for harsh environments and food and beverage applications.



- Red and infrared emission
- Diffuse up to 1 m
- Background Suppression up to 200 mm
- AISI316L Stainless steel housing
- IP67, IP68, IP69K degree
- 4 wires PNP or NPN NO + NC output

- Food industries
- Chemical industries
- Process application

COMPACT		MAXI	FORK	
S8	S62	S300 PA/PR	SR21/SR23	SRF/FC5/FC6/FC7
 <p>IP69K</p>	 <p>50 x 50</p>			
<p>The Compact sensor format to solve difficult detection applications (i.e. target objects that are too small, too fast, too clear, too shiny). Performance oriented family available also with AISI 316L housing models.</p>	<p>50 x 50 Standard universal sensor with improved performance and pricing. Wide range of optic functions in a compact industry format with standard 50 x 50 mm housing, mounting holes, installation and wiring.</p>	<p>Heavy duty, multi-voltage sensors with terminal block and internal relay. Durability for integration in outdoor applications and harsh environments.</p>	<p>High-resolution, very fast response time fork sensor for precise positioning, applying and printing of labels, even when integrated in fast machinery and processes.</p>	<p>Optical slot sensors with high precision, for detection of objects, labels and transparent film.</p>
				
<ul style="list-style-type: none"> <li>• Background suppression 50-300 mm, Laser 20-200 mm</li> <li>• Background suppression for transparent objects with reflective background</li> <li>• Polarized retroreflective 5 m, Laser 10 m, Coaxial for transparent objects 2 m</li> <li>• RGB Contrast sensor 6-12 mm, 25 kHz switch. freq.</li> <li>• UV Luminescence sensor 10-30 mm, 2 kHz switch. freq.</li> <li>• NO-NC outputs with 2 m Cable or M8 connector</li> <li>• IP 67 Plastic case and IP69K stainless steel version (ECOLAB and DIVERSEY)</li> <li>• Compact dimensions (14 x 42 x 25 mm)</li> <li>• Stainless Steel AISI 316 L models ATEX 3DG</li> </ul>	<ul style="list-style-type: none"> <li>• Diffuse proximity 90 or 200 cm, Laser 90 cm</li> <li>• Background suppression 30, 60, 120, 200 cm, Laser 15, 35 cm</li> <li>• Retroreflex 13 m, Polarized 8 m, Laser 20 m</li> <li>• Through beam 25 m</li> <li>• 10-30 Vdc version with NO-NC, NPN or PNP output</li> <li>• Multivoltage 24-240 Vac/24-60 Vdc with Relay output</li> <li>• 2 m cable or M12 rotatable connector</li> </ul>	<ul style="list-style-type: none"> <li>• Diffuse proximity 2 m (-PA), 5 m (-PR)</li> <li>• Background suppression 2 m (-PA), 2.5 m (-PR)</li> <li>• Polarized retroreflex 7 m (-PA), 22 m (-PR)</li> <li>• Through beam 50 m (-PA), 60 m (-PR)</li> <li>• 10-30 Vdc version with NPN or PNP outputs</li> <li>• Multi-voltage with Relay output and terminal block</li> <li>• Configurable timing function for turn-ON/OFF delay</li> <li>• IP67 plastic case, fiber glass reinforced</li> <li>• I/O link connection</li> <li>• M3 x 4 slotted holes on the back side</li> <li>• M3 threaded holes on the front side</li> </ul>	<ul style="list-style-type: none"> <li>• Slot width 2 mm or 5 mm and depth 50 mm for normal label or booklet label detection</li> <li>• Up to 20 µs response time and 25 kHz switching frequency</li> <li>• IR LED emission for label detection on translucent reel</li> <li>• Red/Green LED emission for color mark detection</li> <li>• Auto-Set for Teach-in or dynamic threshold setting</li> <li>• NPN and PNP outputs with M8 4-pole connector</li> <li>• Compact and robust metal case with IP65 protection</li> <li>• Ecolab and Diversey certification</li> </ul>	<ul style="list-style-type: none"> <li>• Red, infrared and laser emission</li> <li>• Wide range of models, width 2 mm up 180 mm and depth up 120 mm</li> <li>• Minimum object detection up 0.05 mm (laser)</li> <li>• Dynamic and static Teach-in via cable or by buttons</li> <li>• NPN or PNP output with M8-4 poles</li> <li>• NPN or PNP Lo/Do output with M8 3 poles</li> </ul>
<ul style="list-style-type: none"> <li>• Processing and Packaging</li> <li>• Food and Beverage Industry</li> <li>• Cosmetic and Pharmaceutical industry</li> <li>• Electronics assembling</li> </ul>	<ul style="list-style-type: none"> <li>• Processing and packaging</li> <li>• Conveyor lines, material handling</li> <li>• Automotive assembly, intra-logistic</li> </ul>	<ul style="list-style-type: none"> <li>• End-of-line packaging, palletizers</li> <li>• Outdoor or indoor gates control</li> <li>• Manufacturing plants</li> </ul>	<ul style="list-style-type: none"> <li>• Packaging and labeling machinery</li> <li>• Print and apply systems</li> </ul>	<ul style="list-style-type: none"> <li>• Packaging and labels lines</li> <li>• Beverage and glass industries</li> <li>• Electronic industries</li> <li>• Edge detection</li> </ul>



### COLOUR, CONTRAST & LUMINESCENCE

### DISTANCE MEASUREMENT

TL46	LD46	S67-Y	S65-M	S85
<p>ULTRA FAST    LOW JITTER    COLOR MODE    ADVANCED MONITORING</p>  <p>Very high resolution, White, Red or RGB emission, very fast response time Thanks to its new very Low jitter models performs ultra precisely in packaging machinery and synchronization based mark detection, even when used in extremely fast processes.</p> <p>CE    UK CA    cUL US</p> <p>IO-Link</p>	 <p>UV high power emission LED with high sensitivity Precise packaging machinery synchronization or material sorting and selection based on luminescent "invisible" mark detection.</p> <p>CE    UK CA    cUL US</p>	 <p>Class 2 laser distance sensor based on triangulation with a resolution of 10 um. S67-Y is available as long range (Y13) or Short range (Y03) with analog output.</p> <p>CE    UK CA    cUL US</p>	<p>50 x 50</p>  <p>Cost effective Long Range Background Suppressor with Time Of Flight (TOF) technology and Infrared emission in a compact and standard 50 x 50 sturdy housing. Equipped by a powerful green pointer for easy target alignment.</p> <p>CE    UK CA    cUL US</p> <p>IO-Link</p>	 <p>Long range distance sensor with Time Of Flight technology in diffuse mode. High resolution and accuracy available in two models up 10 m. and up to 20 m. Graphic display model available with Push button TEACH IN Adjustment in a compact sturdy metal housing.</p> <p>CE    UK CA    cUL US</p>
<ul style="list-style-type: none"> <li>• Operating distance 6-12 mm (80 mm with acc. lens)</li> <li>• Bright light emission with Red, White, or RGB LED</li> <li>• Mark/Background automatic, manual and dynamic setting</li> <li>• Contrast / Color detection mode</li> <li>• Trimmer or Teach-in setting with 4 digit display version</li> <li>• Very fast switching frequency 15, 20, 25, 30 or 50 kHz</li> <li>• Very high precision model with less than 7 us jitter</li> <li>• Extended Smart functions and diagnostic with accelerometer models</li> <li>• Configurable NPN/PNP and 0-5 V analogue output</li> <li>• Standard metal case with IP67 protection and IP69K</li> </ul>	<ul style="list-style-type: none"> <li>• High power UV light emission at 375 nm wavelength</li> <li>• Operating distance 10-20, 20-40, or 30-50 mm</li> <li>• Teach-in setting and manual threshold adjustment</li> <li>• 5 segments bar graph for sensitivity level indication</li> <li>• Fast response time 250 μs and switching freq. 2 kHz</li> <li>• NPN and PNP outputs and and 0-5 V analogue output</li> <li>• Standard metal case with IP67 protection</li> <li>• Soiling indicator and Alarm Output.</li> <li>• Sturdy metal Die-cast zinc IP67 housing</li> </ul>	<ul style="list-style-type: none"> <li>• Operating distance 50...300 mm (Y03)</li> <li>• Operating distance 100...600 mm (Y13)</li> <li>• Resolution of 10 um @ 50mm. distance on white 90% remission. (Y03)</li> <li>• Response time less than 0.9 ms (Y03)</li> <li>• Linearity error of +/-0.03 mm @ 50 mm range. (Y03)</li> <li>• Analog Voltage models with 0V-10V protected output</li> <li>• Analog Current models with 4-20 mA protected output</li> <li>• IP67 compact metal housing</li> </ul>	<ul style="list-style-type: none"> <li>• Long Range background suppression detection up to 5 m</li> <li>• Cost effective solution for precise and reliable detection</li> <li>• Risk-free Infrared LED emission and embedded green LED pointer</li> <li>• Glossy and clear object surface detection model available</li> <li>• Two independent fully programmable outputs</li> <li>• NPN/PNP or IO-Link connection models</li> <li>• Rugged plastic housing in compact 50 x 50 x 24 mm format</li> <li>• Standard M12 8-poles connector</li> </ul>	<ul style="list-style-type: none"> <li>• Time Of Flight (TOF) sensor with Red Laser emission</li> <li>• Detection and measurement range up to 10 or 20 m</li> <li>• 1 mm resolution/repeatability and 7 mm accuracy</li> <li>• 4-20 mA or 0-10 V scalable analog output and 2 push-pull digital outputs</li> <li>• RS485 serial interface</li> <li>• Built-in graphic display and push buttons</li> <li>• PNP switching output and 0-10 V analog output</li> </ul>
<ul style="list-style-type: none"> <li>• Packaging and labeling</li> <li>• Food &amp; Bev., Cosmetic, Pharma industry</li> <li>• Printing machinery</li> </ul>	<ul style="list-style-type: none"> <li>• Packaging and labeling</li> <li>• Food &amp; Bev., Cosmetic, Pharma industry</li> <li>• Printing machinery</li> </ul>	<ul style="list-style-type: none"> <li>• Metal working</li> <li>• Assembly lines</li> <li>• Automotive industries</li> </ul>	<ul style="list-style-type: none"> <li>• Presence of all medium and large sized objects on conveyors</li> <li>• Critical object detection in front of problematic background</li> </ul>	<ul style="list-style-type: none"> <li>• Packaging end of line</li> <li>• Paper reel unwinding control</li> <li>• Automated warehousing</li> <li>• Trans-elevator and crane</li> <li>• Automotive assembling lines</li> <li>• Non-LFT measurement in logistic</li> </ul>

**AREA**

**FIBER OPTIC**

AS1/DS1	BX10/BX80	CX0/CX2	CR0/CR1/CR2	S70/S7/FY
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High resolution area sensor and measurement of small objects crossing the area, even in a random positions.

IP69K



Compact Area Sensors. Detection of small object in the controlled area, crossed beams.



Slim Area Sensors, detection and measurement with crossed and parallel beams.



Retroreflective Polarized Area Sensors.



The compact and advanced fiber optic amplifier sensors with competitive price and features, double display, high speed and contrast sensitivity models are also available including IO-Link connectivity.



- AS1 Area Sensor for small object detection
- DS1 Light Array for small object measurement
- Minimum object detection Ø 6 mm or flat 0.2 x 75 mm
- Minimum measurement resolution 7 mm or 4 mm
- Heights ranging from 100 mm (16 beams) to 300 mm (48 beams)
- Standard distance 2 m and Long distance up to 4 m
- PNP switching output and 0-10 V analog output

- Control heights up to 90mm
- Standard distance 2 m, models with maximum distance up to 6 m
- PNP and NPN switching output
- Models with synchronization by Cable
- Models with IP69K protection degree
- Models with aluminium enclose and air cooling inlet
- ATEX models 2GD and 3GD

- Control heights from 160 mm to 960 mm
- Sensing distance up to 6 m
- Pitch 5 mm, 10 mm, 20 mm
- PNP and NPN outputs, 0-10 V and 4-20 mA analogue outputs and PNP and 0-10 V outputs
- Adjustment by teach-in via Cable
- Blanking function

- Control heights from 70 mm to 310 mm
- Sensing distance up to 4.5 m
- Adjustment with Teach-in button
- Optical pitch 10 mm
- PNP and NPN outputs
- Blanking function

- Diffuse fiber optics up to 500 mm (S70)
- Through beam fiber optics up to 1800 mm (S70)
- Red or White LED emission for contrast detection
- Double 4-digit display (S70)
- 4-digit display and Teach-in or trimmer setting (S7)
- 10 bits (1024 points) or 12 bits (4096 points) resolution
- Switching Freq. 1kHz, Fast 5 kHz, Ultra-fast 10 kHz and 50 kHz
- NPN or PNP output with 2 m cable or M8 connector
- Configurable timing function for turn-ON/OFF delay
- IP67 plastic case, fiber glass reinforced
- Wide range of optical fibers

- Processing and Packaging
- Food, Cosmetic and Pharma industries
- Electronics and mechanical assembly
- Conveyor lines and sorting systems

- Processing and Packaging machinery
- Conveyor lines and Intralogistic
- Metal working

- Processing and Packaging machinery
- Automation Assembly
- General manufacturing





- Conveyour and logistic lines
- Food, cosmetic and Pharma industries
- Wood and glass industries
- Automatic machines

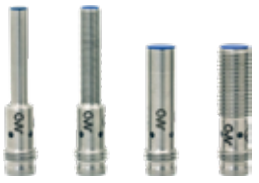




- Processing and Packaging
- Electronics assembly
- Pharmaceutical industry



### ACCESSORIES FOR PHOTOELECTRIC SENSORS

### SPECIALTY

Optic fiber	Reflector	INC	VBR	FL
 <p>Complete range of universal plastic and glass optic fibers for coaxial, diffuse, through-beam and area detection.</p> <p>CE UK CA</p>	 <p>Prismatic and microcube reflectors for photoelectric sensors available in many different shapes, dimensions and efficiency.</p> <p>CE UK CA</p>	 <p>M18 inclinometer sensor with AISI31L full metal stainless steel housing.</p> <p>CE UK CA</p>	 <p>M18 vibration sensor with AISI31L full metal stainless steel housing.</p> <p>CE UK CA Ex</p>	 <p>Compact cylindrical photoelectric sensor through-beam high power and wide angle use in washdown environment.</p> <p>CE UK CA</p>
<ul style="list-style-type: none"> <li>• Glass and plastic fibres</li> <li>• Extra-flexible versions</li> <li>• High-temperature versions (up to 250°C)</li> <li>• High-efficiency versions</li> <li>• Focusing, collimating and deviating lenses</li> </ul>	<ul style="list-style-type: none"> <li>• Self adhesive paper for polarised sensors</li> <li>• Plastic reflectors</li> <li>• Plastic reflectors with micro prism for laser sensors</li> </ul>	<ul style="list-style-type: none"> <li>• MEMS inside</li> <li>• Single axis</li> <li>• 0...360°</li> <li>• Resolution: 0,025°</li> <li>• RS485 + analogue output</li> </ul>	<ul style="list-style-type: none"> <li>• MEMS inside</li> <li>• 3-axes</li> <li>• Working frequency: 0...400 Hz (VBR1) or 0...1250 Hz (VBR2)</li> <li>• RS485 + analogue output</li> </ul>	<ul style="list-style-type: none"> <li>• Compact cylindrical body with M18 for fixed</li> <li>• Through-beam: 2 models</li> <li>• Standard and high distance, up 30 m</li> <li>• Plug and play, not adjustment</li> <li>• Wide beam</li> <li>• Coded emission anti mutual interference system</li> <li>• IP69K on optical head</li> </ul>
<ul style="list-style-type: none"> <li>• Beverage &amp; Bottling</li> <li>• Packaging lines</li> <li>• Electronics</li> </ul>		<ul style="list-style-type: none"> <li>• Sluice gates position for water control</li> <li>• Automotive</li> <li>• Solar panel position for green energy production</li> </ul>	<ul style="list-style-type: none"> <li>• Industrial air conditioning</li> <li>• Escalators</li> <li>• Optical sorting machines</li> <li>• Shaft rotation</li> <li>• Paper &amp; cardboard industry</li> </ul>	<ul style="list-style-type: none"> <li>• Washdown environment (carwash)</li> <li>• Logistics</li> </ul>

MINIATURE CYLINDRICAL	MINIATURE CUBIC	CUBIC	STANDARD	MULTIVOLTAGE
<b>AA/AB/AC/AD/AES/AHS</b>	<b>IL5/IL8/IL9/IL1</b>	<b>IS40</b>	<b>AH/AE/AM/AK/AT/IS</b>	<b>V3/V*2</b>
<p>ø3 - M8</p>  <p>Miniaturized inductive sensors from diameter ø3 mm to M8. Where small spaces required small dimensions.</p> <p>CE UK CA cUL US Ex</p>	 <p>Cubic inductive sensors: 5 x 5 mm, 8 x 8 mm (with top and centre detection head), 10 x 28 x 16 mm.</p> <p>CE UK CA cUL US Ex</p>	<p>40 x 40</p>  <p>40 x 40 mm. Versatile and flexible for various applications in the machinery thanks to the connector rotatable in any direction.</p> <p>CE UK CA</p>	<p>ø6.5 - M30</p>  <p>From diameter ø 6,5 mm to M30. Reliable detection of any metal part.</p> <p>CE UK CA cUL US</p>	<p>M8 - M30</p>  <p>AC sensors with M12, M18 and M30 housing (V*2 series). AC/DC sensors with M8, M12, M18 and M30 housing (V3 series).</p> <p>CE UK CA cUL US</p>
<ul style="list-style-type: none"> <li>• Sensing distance from 0.6 mm (ø3) to 2 mm (M8)</li> <li>• Shielded models.</li> <li>• AISI303 housing.</li> <li>• NPN or PNP, NO or NC</li> <li>• IP67 protection degree</li> </ul>	<ul style="list-style-type: none"> <li>• 5 x 5 mm with sensing distance of 0.8 mm and 1.5 mm (IL5 series)</li> <li>• 8 x 8 mm with sensing distance of 1.5 mm, 2 mm and 2.5 mm (IL8/IL9 series)</li> <li>• 10 x 28 mm with sensing distance of 3 mm and 6 mm (IL1 series)</li> <li>• NPN or PNP, NO or NC</li> </ul>	<ul style="list-style-type: none"> <li>• 40 x 40 x 118 mm: terminal block, 15 mm (shielded), 30 mm (unshielded).</li> <li>• 40 x 40 x 66 mm: M12 plug, 15 mm (shielded)</li> <li>• PNP or NPN, NO+NC.</li> <li>• AC/DC, NO or NC</li> <li>• Models with analogue outputs 0-20 mA: 7...20 mm (shielded)</li> </ul>	<ul style="list-style-type: none"> <li>• Diameters ø 6,5 mm, M8, M12, M18 and M30</li> <li>• Single and double range</li> <li>• Shielded or unshielded models</li> <li>• NO or NC, NPN or PNP output and programmable versions</li> </ul>	<ul style="list-style-type: none"> <li>• Shielded and unshielded models</li> <li>• V*2 series available with standard distance</li> <li>• V3 series available with enhanced distance</li> <li>• V3 series models protected against short circuits in AC and DC!</li> </ul>
<ul style="list-style-type: none"> <li>• Grippers.</li> <li>• Electric spindle</li> <li>• Rotary actuators</li> </ul>	<ul style="list-style-type: none"> <li>• Grippers</li> <li>• Tobacco industry</li> </ul>	<ul style="list-style-type: none"> <li>• Processing and Packaging machinery</li> <li>• Assembling and conveyor lines</li> <li>• Metal working and machine tools</li> </ul>	<ul style="list-style-type: none"> <li>• Processing and Packaging machinery</li> <li>• Assembling and conveyor lines</li> <li>• Metal working and machine tools</li> </ul>	<ul style="list-style-type: none"> <li>• Processing and Packaging machinery</li> <li>• Assembling and conveyor lines</li> <li>• Metal working and machine tools</li> </ul>



### HIGH PERFORMANCE

#### FM/PF

M8-M30



From M8 to M30 housing.  
AISI316L housing full metal body (FM series). (M8-M30)  
Designed for washdown applications (PF series). (M12-M18)



ECOLAB

- Enhanced distance
- FM series: high resistance to impact on the sensors' head (up to IK10 for M30 models)
- PF series: working temperature range -40°C...+80°C and -25°C...+110°C
- IP69K protection degree

- Processing machines
- Metal working
- Washdown applications
- Application with increased temperature range requirements

### CYLINDRICAL

#### C12/C18/C30

M12-M30



From M12 to M30.  
Detection of all types of materials: solids, liquids, powders.



- Plastic and metal housing
- Sensitivity up to 25 mm
- High immunity to EM noises

- Level detection
- Detection of composite materials

### CUBIC

#### CQ50/CQ55



CQ50: flat sensor with fixed working distance.  
CQ55: compact housing with sensitivity adjustment.



- CQ50: designed for civil application. NPN or PNP, NO or NC
- CQ55: designed for industrial application. Enhanced immunity to EM noises

- Level detection
- Detection of composite materials

### FOOD

#### C18FT/C30FT



M18 and M30 capacitive sensors suitable for applications in food and beverage and pharmaceutical industries.



ECOLAB

IO-Link

- PTFE housing FDA compliant
- IP69K and IP68 mechanical protection
- ECOLAB certified sensors
- IO-Link communication
- High EMC immunity

- Liquid or powder level measurement
- Bottle filling control
- Bottle cap control
- Detection of food presence inside package

**TUBULAR**

**CUBIC / M18**

UK1/UK6	UT 1B/UT2F/UT5L	US18-PA/PR	UFT	US18-PL
M18	M30	M18	M30 IP69K	
				
<p>M18 ultrasonic sensors, with both standard or short body (where application ask for a limited installation space).</p>	<p>M30 ultrasonic sensors, from ø30 mm transducer to large front transducer for longer detection distances.</p>	<p>US18-PA/PR series guarantees a small blind zone providing a wide operating range, are available in two different barrel housings with discrete or analog output.</p>	<p>M30 full metal ultrasonic sensors for extreme applications (food and pharma).</p>	<p>US18-PL series provides a wide operating range and fast operating frequency, they are available in cubic style with M18 mounting and discrete outputs.</p>
<p>CE UK CA cULus Ex</p>	<p>CE UK CA cULus</p>	<p>CE UK CA</p>	<p>CE UK CA cULus ECOLAB</p>	<p>CE UK CA cULus</p>
<p>IO-Link</p>			<p>IO-Link</p>	
<ul style="list-style-type: none"> <li>• Sensing distance from 300 mm to 2200 mm</li> <li>• Plastic housing models and stainless steel models</li> <li>• PNP, NPN, Analogue (current or voltage), IO-Link outputs, double digital or mixed outputs (standard)</li> <li>• Adjustment via Teach-in button (standard body) or via cable (short body)</li> <li>• M12 plug and cable output</li> <li>• IP67 protection degree</li> </ul>	<ul style="list-style-type: none"> <li>• Sensing distance from 3500 mm to 8000 mm</li> <li>• Plastic housing models and stainless steel models</li> <li>• PNP, NPN, Analogue (current or voltage), IO-Link outputs, double digital or mixed outputs</li> <li>• Models with remote Teach-in and models with the Teach-in button</li> <li>• M12 plug and cable output;</li> <li>• IP67 protection degree</li> </ul>	<ul style="list-style-type: none"> <li>• Sensing distance 30...300 mm</li> <li>• Analog model resolution: 0,5 mm (SLOW mode), 1 mm (FAST mode)</li> <li>• M18 tubular plastic housing with axial and right angle sensing</li> <li>• Discrete bipolar output (1 NPN and 1 PNP) or with 4-20 mA or 0-10 V analog output</li> <li>• Models with remote teaching and models with the Teach-in button</li> <li>• M12 plug</li> <li>• IP67, NEMA 6-P</li> </ul>	<ul style="list-style-type: none"> <li>• Sensing distance: 2500 mm</li> <li>• Full metal housing AISI316L stainless steel</li> <li>• IO-Link adjustment</li> <li>• PNP, NPN, Analogue (current and voltage) output</li> <li>• M12 plug output</li> <li>• IP69K protection degree</li> <li>• ECOLAB certification</li> </ul>	<ul style="list-style-type: none"> <li>• Sensing distance 50...500 mm</li> <li>• Repeatability: 0.7 mm</li> <li>• Cubic housing with M18 right angle mounting</li> <li>• Discrete PNP or NPN output</li> <li>• Models with remote teaching and models with the teach-in button</li> <li>• M12 plug</li> <li>• IP67, NEMA 6-P rated</li> </ul>
<ul style="list-style-type: none"> <li>• Solar energy</li> <li>• Wood and glass</li> <li>• Agriculture</li> <li>• Zootechnics</li> </ul>	<ul style="list-style-type: none"> <li>• Level detection within tanks and silos</li> <li>• Agriculture</li> </ul>	<ul style="list-style-type: none"> <li>• Grippers.</li> <li>• Electric spindle</li> <li>• Rotary actuators</li> </ul>	<ul style="list-style-type: none"> <li>• Food industry</li> <li>• Pharma industry</li> </ul>	<ul style="list-style-type: none"> <li>• Packaging machines</li> <li>• Beverage &amp; Bottling</li> <li>• Automotive assembling line</li> <li>• Pharma industry</li> </ul>



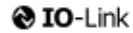
**FORK**

**ACCESSORIES FOR ALL TYPE OF SENSORS**

**UQ1**



M18 thread + cubic housing ultrasonic sensor with both the advantages of a cylindrical and a cubic sensor for the mounting conditions.



- 300 mm to 1200 mm
- Plastic housing
- PNP, NPN, Analogue (current or voltage), IO-Link outputs, double digital or mixed outputs (standard body)
- Adjustment via Teach-in button
- M12 plug in
- IP67 protection degree

- Food industry
- Pharma industry

**FC8**



Ultrasonic slot sensors with high switching frequency to detect any type of labels opaque and transparent.



- High resolution up label 2 mm with gap 2 mm
- High switching frequency 1500 Hz
- Dynamic and static teach-in via cable or by buttons
- Aluminium housing
- NPN and PNP output with M8 4-poles
- Rugged and sturdy aluminium housing

- Packaging and labeling lines
- Detection transparent, opaque and metallic labels
- double sheet detection

**SRX**



SRX-3 introduces state-of-the-art ultrasonic technology able to detect any type of label dispensed on any type of roll support, allowing seamless detection of transparent label on clear roll support or to check single/double clear films.



- Dynamic or static teach models
- Slot size 3 mm
- High resolution up to 2 mm label gap
- M8 connector with PNP or NPN output
- M12 connector with PNP/NPN output and external Teach-in
- Rugged and sturdy aluminium housing

- Detection of transparent, opaque, or metallic ink labels
- Double sheet detection
- Adhesive surface detection

**Mounting**



Mounting brackets with different shapes and materials. Optics adapters like shutters, slits, focal lenses and beam adapters.



- Brackets for cylindrical sensors
- Brackets for rectangular sensors
- Shutters, right angle beam adapters and focalizer for optical sensor

**Connection**



M8 and M12 standard connectors and cables available with different lengths, materials, poles numbers and configuration.



- M8 and M12 with PVC or PUR cable
- M8 and M12 field attachable connectors
- IP67 and IP69K protection degree
- Models from -40°C to 105°C
- Sensor tester with digital and analogue output

# ***SAFETY & GUIDANCE***

- SAFETY LIGHT CURTAIN
- SAFETY LASER SCANNER
- LIDAR
- ENCODER





Safety devices are mandatory for operator's protection in potentially hazardous areas, plants or machinery.

Safety optoelectronic devices are safety light barriers, curtains, grids, light beams and control units, used for the detection of finger, hand, arm, body, or presence detection in fixed applications.

Safety laser scanners are suitable for configurable area protection or even dynamic applications, in particular robotic cells and automated guided vehicles (AGV).

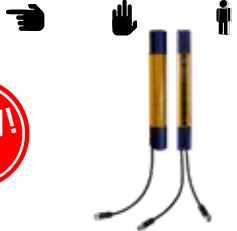

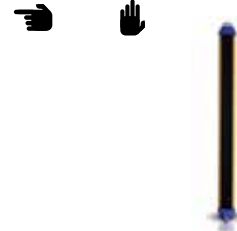

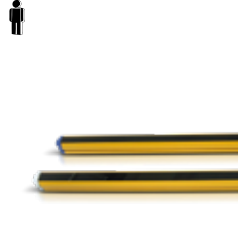


Safety accessories include cables, connection box, brackets, IP69K protection tubes, lens shield, laser pointer, test pieces.

Manufacturing industry applications include automotive and electronics plants, especially robotic cells; food & beverage, pharmaceutical, chemical goods processing and packaging machines; any machinery used in woodworking, metalworking, textile, ceramic, glass, stones, paper, etc.

Logistics applications are diffused in automated material handling, conveyors, storage and retrieval, automated warehouses, and AGV. Furthermore, logistics applications are integrated by Lidars for guidance and navigation, and encoders for the vehicle speed measurement.



## SAFETY LIGHT CURTAIN

SH4	SH4 REFLECTOR	SG2/SG4	SG4 EXTENDED	SG BODY / REFLECTOR
 <p><b>NEW!</b></p>	 <p><b>NEW!</b></p>			
<p>A complete family of state-of-the-art safety light curtains, covering all resolutions and functionality levels. From basic to wireless programmable models, all needs covered.</p>	<p>Retroreflector version of SH4 series, with base, standard and advanced functionality, with only one side active, to reduce installation costs in body protection applications.</p>	<p>Finger and hand presence safety detection with basic functions High reliability, easy installation and alignment, cost effective solution for simple protection needs.</p>	<p>Finger and hand safety detection with possibility of configuration of advanced functions through pushbuttons or Graphic User Interface. Extended flexibility that fits a diverse range of machine needs, combined with possibility of Ethernet connection for remote monitoring.</p>	<p>Body safety protection and perimeter access control High reliability, easy installation and alignment, cost effectiveness.</p>
				
<ul style="list-style-type: none"> <li>• Safety Type 4 (Pl=e, SIL3)</li> <li>• Resolution Finger 14 mm; Hand 30mm; Body 2, 3, 4 beams</li> <li>• Zero dead zone on all finger/hand resolution models</li> <li>• Controlled heights from 300 to 2250 mm (n x 150 mm)</li> <li>• Operating distance: Finger 10 m; Hand 20 m; Body 70 m</li> <li>• Basic models: Auto restart, alignment</li> <li>• Standard models: Auto/Manual restart, EDM, 2 signals T/L muting, DIP-SW configurable</li> <li>• Advanced models: Partial muting, 4-signals T muting fixed and floating Blanking, wireless diagnostic and programming</li> </ul>	<ul style="list-style-type: none"> <li>• Safety Type 4 (Pl=e, SIL3)</li> <li>• Resolution Body 2, 3, 4 beams</li> <li>• Controlled heights: 500/800/900/1200 mm</li> <li>• Operating distance: 2/4 beams: 8 m; 3 beams: 6.5 m</li> <li>• Basic models: Auto restart, alignment</li> <li>• Standard models: Auto/Manual restart, EDM, 2 signals T/L muting, DIP-SW configurable</li> <li>• Advanced models: Partial muting, wireless diagnostic and programming, 4-signals T muting</li> </ul>	<ul style="list-style-type: none"> <li>• Safety Type 2 (Pl=c, SIL1); Safety Type 4 (Pl=e, SIL3)</li> <li>• Resolution Finger 14 mm; Hand 30mm; Pres. 50/90 mm</li> <li>• Controlled heights from 150 to 1800 mm (n x 150 mm)</li> <li>• Operating distance: Finger 6 m; Hand 19 m; Pres. 9/19 m</li> <li>• Auto/Manual restart; EDM; Anti-interference coding</li> <li>• Easy and cost effective standard M12 5-pole connector</li> </ul>	<ul style="list-style-type: none"> <li>• Programmable Safety Light Curtain Type 4 (Pl=e, SIL3)</li> <li>• Resolution: Finger 14 mm; Hand 30 mm</li> <li>• Controlled heights from 300 to 1800 mm (n x 150 mm)</li> <li>• Operating distance: Finger 7 m; Hand 20 m</li> <li>• Compact; No dead zone; up to 3 cascable units</li> <li>• Fully programmable: Auto/Man restart, EDM, coding, Muting (T/L, total/partial, with/without timeout, etc.)</li> <li>• Fixed/floating blanking; reduced resolution function</li> <li>• Ethernet Port, SG Dongle and Graphic User Interface</li> </ul>	<ul style="list-style-type: none"> <li>• 35 x 40 mm standard compact profile</li> <li>• 2, 3 or 4 beams for Body protection and access control</li> <li>• Controlled heights of 500, 800, 900, 1200 mm</li> <li>• Long operating distance up to 50 m</li> <li>• Dip-switch configuration of Auto/Man, EDM, Coding</li> <li>• Muting version with L or T integrated arms and lamp</li> <li>• Easy and cost effective standard M12 connectors</li> </ul>
<ul style="list-style-type: none"> <li>• Automatic machinery</li> <li>• Material handling</li> <li>• Processing &amp; packaging machines</li> <li>• Automotive, metalworking, presses</li> <li>• Palletizers</li> <li>• Automatic assembly machines and lines</li> </ul>	<ul style="list-style-type: none"> <li>• Automatic machinery</li> <li>• Material handling</li> <li>• Processing &amp; packaging machines</li> <li>• Palletizers</li> </ul>	<ul style="list-style-type: none"> <li>• Automatic machinery</li> <li>• Metalworking, Woodworking</li> <li>• Manufacturing (textile, ceramics, etc)</li> <li>• Material handling, assembly lines</li> </ul>	<ul style="list-style-type: none"> <li>• Processing and packaging machines</li> <li>• Automotive, metalworking, presses</li> <li>• Manufacturing assembly lines</li> </ul>	<ul style="list-style-type: none"> <li>• Palletizers/depalletizers</li> <li>• Conveyor lines</li> <li>• Automated warehousing</li> <li>• Manufacturing lines</li> </ul>



### ACCESSORIES

#### SLIM



Ultra-compact safety light curtain with finger and hand resolution for applications where space saving and mechanical flexibility is a must.



#### SG4-H



Finger protection in applications where high hygienic requirements need frequent cleanings with highly corrosive detergents. The first safety light curtain with stainless steel housing and glass.



#### Light curtains acc.



Wide range of interfaces and mechanical accessories for mounting and protecting light curtains. Dedicated accessories for quick installation of muting sensors.



- Safety Type 2 (Pl=c, SIL1); Safety Type 4 (Pl=e, SIL3)
- Resolution: 14/24/34 mm
- Protected height: 150, 210, 270 ... 1200 mm
- (with 30 mm steps)
- Operating distance: 0.2 ... 6 m
- Outputs: 2 PNP; Output current: 0.3 A max / each output
- Mechanical protection: IP65
- Restart: Manual/Automatic
- Other functions: External Device Monitoring (EDM)

- Automatic assembly machines & lines
- Primary packaging machinery
- Cutting machinery
- Automatic and semi-automatic quality inspection
- Material handling machinery

- Safety Type 4 (Pl=e, SIL3);
- Resolution: 14 mm
- Protected height: 150/300/450 mm
- Operating distance: 0.2 ... 6m
- Outputs: 2 PNP; Output current: 0.5 A max/each output
- Mechanical protection: IP69K
- Restart: Automatic

- Liquid filling machines
- Powder filling machines
- Closing and cap sealing machines

- Relay interfaces
- Muting arms
- Protective stands
- Adjustable mirrors stands
- IP69K protections
- Laser pointer

**SAFETY LASER SCANNER**

**SLS**



LASER SENTINEL is the innovative solution for safe area protection in a large variety of applications in automation and intralogistic industries. It offers a complete and flexible solution for the safeguard of robotic cells, automated guided vehicles and general machinery.



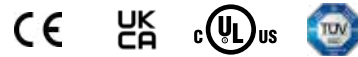
- Type 3 / PL d / SIL 2
- Max. distance: up to 5.5 m (safe) for 70 mm resolution
- Opening angle: 275°
- Minimum response time: 62 ms
- STANDALONE version: - pigtail with M12 connector - up to 6 switchable zone sets
- MASTER-SLAVE version: - M12 connector - rotating connectors for programming and connection to slaves-safe communication between up to 4 scanners - up to 70 switchable zone sets
- Programming, monitoring and measurement data: Ethernet
- Dimensions (w,d,h): 102 , 112.5 , 152 mm
- Auto/manual restart, EDM, partial dynamic muting, override, speed measurement, shut off
- Fast replacement

- Processing machines.
- Metal working.
- Food and beverage applications.
- Application with increased temperature range requirements.

**SLS PROFISAFE**



LASER SENTINEL is the innovative solution for safe area protection in a large variety of applications in automation and intralogistic industries. It offers a complete and flexible solution for the safeguard of robotic cells, automated guided vehicles and general machinery with Profinet and Profisafe fieldbus integration



- Type 3 / PL d / SIL 2
- Max. distance: up to 5.5 m (safe) for 70 mm resolution
- Opening angle: 275°
- Minimum response time: up to 86 ms
- switchable zone sets : up to 70
- Simultaneous safety/warning areas : Up to 8
- Programming, monitoring and measurement data: Ethernet
- Fieldbus integration :Profinet and Profisafe
- Dimensions (w,d,h): 112 x 120 x 160 mm
- Auto/manual restart, EDM, partial dynamic muting, override, shut off, dynamic reference points
- Fast replacement

- Processing machines
- Manufacturing processes protection
- Intralogistic lines protection
- Automated Guided Vehicles ( AGV )

**ACCESSORIES**

**Laser scanner acc.**



Mounting and protection brackets, together with peripheral modules and interfaces to expand the devices application range.



- Adjusting bracket
- Protective bracket
- Memory module
- Optic window
- Relay interfaces
- Window cleaning-kit



## LIDAR

### LGS-N50



Lidar Guidance Scanner is a compact, rugged navigation Lidar based on time-of-flight (TOF) infrared laser technology for the market of Automated and Laser Guided Vehicles or Forklifts, used for intralogistics and manufacturing.



- ToF technology on infrared laser
- 2D Measurement data for natural or marker navigation
- 360° measurement for all-round scanning
- Differentiation between natural objects and reflectors
- Scanning rate 10/15/20/25 Hz
- Measurement rate 60000 points/s
- Measurement range: 0.2 - 2 m with 1.8% reflectivity / 0.2 - 15 m with 10% reflectivity / 0.2 - 50 m with 80% reflectivity
- Dimensions (w,d,h): 95 x 97 x 116 mm
- Communication interface: IEEE 802.3u 100 Mbps Ethernet
- Configuration software: Any web browser (configuration through web server)

- Automated Guided Vehicles (AGV)
- Laser Guided Vehicles (LGV)
- Automated Guided Forklifts (AGF)
- Autonomous Mobile Robot (AMR)

### LGS-N25



LGS-N25 is a really miniaturized rugged navigation Lidar based on time-of-flight (TOF) infrared laser technology for the market of Automated and Laser Guided Vehicles or Forklifts, used for intralogistics, manufacturing, agriculture and working means



- ToF technology on infrared laser
- 2D Measurement data for natural or marker navigation
- Available for outdoor
- 360° measurement for all-round scanning
- Scanning rate 10/15/25 Hz
- Angular resolution : up to 0,25°
- Scan Rate : up to 25 Hz
- Measurement range: 0.1 - 5 m with 2 % reflectivity / 0.1 - 10 m with 10% reflectivity / 0.1 - 25 m with 80% reflectivity
- Dimensions (w,d,h): 65 x 65 x 70 mm
- Communication interface: IEEE 802.3u 100 Mbps Ethernet
- Configuration software: Any web browser (configuration through web server)

- Automated Guided Vehicles (AGV)
- Automated Guided Forklifts (AGF)
- Autonomous Mobile Robot (AMR)
- Agriculture machine, access monitoring

### LGS-A10



LGS-A10 is a really miniaturized rugged collision avoidance Lidar based on time-of-flight (TOF) infrared laser technology used for the market of Automated and Laser Guided Vehicles or Forklifts, intralogistics, manufacturing, agriculture and working means and more.



- ToF technology on infrared laser
- 2D Measurement data for natural or marker navigation
- Available for outdoor
- 360° measurement for all-round scanning
- Scanning rate 10/15/25 Hz
- Angular resolution : up to 0,25°
- Response time: up to 40 ms
- Up to 3 simultaneous outputs
- Up to 15 different zone set
- Measurement range: 0.1 - 5 m with 2 % reflectivity / 0.1 - 10 m with > 10% reflectivity
- Dimensions (w,d,h): 65 x 65 x 70 mm
- Communication interface: IEEE 802.3u 100 Mbps Ethernet
- Configuration software: LGS-PRO User Interface

- Automated Guided Vehicles (AGV)
- Automated Guided Forklifts (AGF)
- Autonomous Mobile Robot (AMR)
- Agriculture machine, access control

## ENCODER

### ENC



Encoder standard industrial line, very effective about price/ performance ratio, high resolution and accuracy. Available with integrated Fieldbus interfaces, offering the highest resolution and accuracy for precision motion control and length measurement.



- AMT series multiturn absolute serie
- AST series absolute single turn series
- ENC41 low cost and effective incremental series
- ENC58 easy motion control incremental series
- OEK-4 easy belt motion control
- IEP58 programmable encoder series
- MW metric wheels up to 500 mm / 10000 PPR = 0.05 mm per pulse

- Motion control
- Position and length measurement

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