# DATASENSING

easing automation challenges

# WHAT IS DATASENSING ?

**DATASENSING** is **DATALOGIC** Sensor&Safety-MV business unit and **M.D. MICRO DETECTORS**.

**DATASENSING** is two companies with 50 years of history, **together more than 100 years on**

**DATASENSING** is developing, manufacturing and supplying **Machine Vision, Sensor and Safety**

**DATASENSING** is **222 product lines** and more than **22500 standard and custom part numbers**

**DATASENSING** is reaching **76 mi. € sales revenues** and **more than 350 employees worldwide**

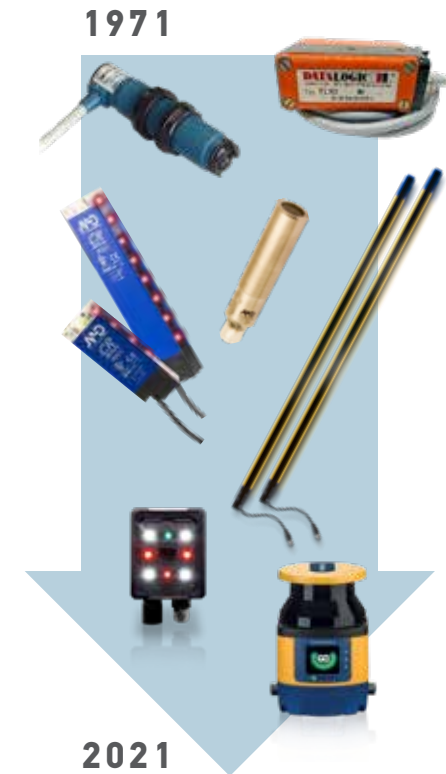**DATASENSING** is present worldwide, with **HQ in Italy and main offices in Europe, China and US**

**DATASENSING** is sustainable with many **Environmental**, **Social**, and **Governance (ESG) initiatives**

**DATASENSING** is **easing automation challenges:** machine vision deep learning, sensors & safety

**DATASENSING** is focused on industrial automation, **from production to internal logistics of goods**

**DATASENSING** is **Your top of mind partner** to innovate sensing solutions for industrial automation

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

**1971**

**2021**

Micro Detectors
Italian Sensors Technology

⊕DATALOGIC
EMPOWER YOUR VISION

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# MACHINE VISION

- **SMART CAMERA**

- **INDUSTRIAL CAMERA**

- **INDUSTRIAL VISION PROCESSOR**

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

Smart cameras and industrial vision processors offers 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, vision processors enable high-end multi camera machine vision solutions.

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

Machine vision accessories range from filters and lenses to lighting, cables and interfaces, brackets and enclosures.

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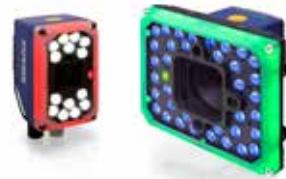easing automation challenges

## Smart Cameras

**NEW!**

### P1X

CE

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.

### P2X

CE

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.

### A30/T4X

CE

Stand-alone, general purpose Smart Cameras that can be installed even in harsh industrial environments thanks to their robust IP67 rated housing.

## Vision processors

### MX-E

CE

Industrial Machine Vision Processors providing the highest performance in image processing with unmatched flexibility through GigE multi-camera connectivity support.

## Cameras

### E/M CAMERAS

CE

Range of GigE industrial digital cameras featuring latest CMOS imagers with resolutions from VGA up to 5MP.

**technical data**

**P1X**
- 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

**P2X**
- 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

**A30/T4X**
- Imagers: VGA (A30 and T40), 2MP (T47), 5MP (T49)
- C-Mount lenses delivering high image quality and installation/field-of-view flexibility
- Digital I/Os: 2 IN / 3 OUT
- Connectivity: EtherNet/IP, ModBus, RS232, Ethernet TCP/IP
- Sturdy industrial IP67 housing for applications in harsh environments
- Configuration through IMPACT Software

**MX-E**
- 3 different computing power models: MX-E25 (entry level), MX-E45 (mid-range), MX-E90 (high-end)
- Support from 2 to 8 independent GigE cameras simultaneously connected
- Digital I/Os: 16 IN / 16 OUT (NPN or PNP)
- Connectivity: PROFINET, EtherNet/IP, ModBus, RS232, Ethernet TCP/IP
- Configuration through IMPACT Software including advanced algorithms
- State-of-the-art Windows 10 IoT operating system

**E/M CAMERAS**
- Resolutions ranging from VGA up to 5 MP, available both in monochrome or color
- Linescan cameras with resolution from 2K up to 8K pixels
- Industry-proven GigE Vision connectivity standard
- Compact dimensions simplifying mechanical installation
- C-Mount lens support for extreme mounting flexibility

**P1X**
- Packaging machinery
- Automotive
- General manufacturing

**P2X**
- Packaging machinery
- Robot guidance
- Electronics
- Automotive

**A30/T4X**
- Automotive
- Electronics
- Transportation & Logistics

**MX-E**
- Electronics
- Robot Guidance
- Packaging machinery

**E/M CAMERAS**
- Electronics
- Robot Guidance
- Packaging machinery

# *SENSORS*

- **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.

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## Tubular (M18) NEW! (M12) (M18)

### S5N / S5

IO-Link ECOLAB
c(UL)us Ex IP69K CE

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 Diversey models (S5N...NA...) are also available.

### DM

c(UL)us Ex CE

M12 Photoelectric Sensors with different models with Teach-in button for easy adjustment.

### SS/FA  FAL/FBL FF

c(UL)us Ex CE
ECOLAB
Diversey

Wide range of models of M18, photoelectric Sensors: general porpouse, laser and  for harsh enviroments and food and beverage, ECOLAB and DIVERSY tested.

### SM-ALL

c(UL)us CE

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.

### S70/S7/FY

IO-Link
c(UL)us CE

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.

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**technical data**

| S5N / S5 | DM | SS/FA FAL/FBL FF | SM-ALL | S70/S7/FY |
|---|---|---|---|---|
| • Diffuse proximity up to 700 mm<br>• Background suppression up to 150 mm<br>• Contrast sensor 10 mm ±2 mm<br>• All the optic functions are available<br>• Robust EMI immunity<br>• Improved ambient light immunity<br>• M18 flat plastic with universal mounting<br>• Available in M18 metal housing<br>• Axial or radial optics, cable or connector<br>• Standard 4-wire NO-NC NPN or PNP output<br>• Complete configuration of the NPN/PNP output and L/D models (S5)<br>• IO-Link V1.1 COM 2 Smart sensor profile<br>• INOX AISI 316 L models are available<br>• S5N...NA compliant with Ecolab and Diversy | • Infrared emission<br>• Diffuse up to 300 mm<br>• Polarized  2.5 m<br>• Through-beam 4m<br>• PNP or NPN output with remote Teach-in<br>• Cable 2 m or M12 plug connection<br>• 4 wires selectable NO/NC output<br>• IP67 plastic miniature case | • Red, infrared and laser emission<br>• Models with and without adjustment<br>• Adjustment trimmer, teach in button  and Innovative inductive Teach-in function through sensors's housing  (FF)<br>• Diffuse up to 1.5 m<br>• Polarized up 4,5m and 30m (Laser)<br>• Through-beam up 20m and 50m (laser)<br>• For transparent objects up 1,5m<br>• Background Suppression up to 300 mm (laser emissinon 150 mm)<br>• Available with plastic and metal housing<br>• AISI316L Stainless steel housing (FF)<br>• IP67- IP68, IP69K (FF)<br>• Axial or right angle optical<br>• Ecolab and Diversey certification<br>• M18 or smooth housing | • Fixed focus proximity 15, 20, 30, 50 cm<br>• 1.5 m retroflective and 1 m polarized retroflective<br>• 2 m through beam models<br>• Amplified NPN or PNP output with NO-NC output<br>• 4 wires connection with 2 m Cable<br>• IP67 Plastic subminiature case | • Diffuse fiber optics up to 500 mm (S70)<br>• Through beam fiber optics up to 1800 mm (S70)<br>• Red or White LED emission for contrast detection<br>• Double 4-digit  display (S70)<br>• 4-digit  display and Teach-in or trimmer setting (S7)<br>• 10 bits (1024 points) or 12 bits (4096 points) resolution<br>• Switching Freq. 1kHz, Fast 5 kHz, Ultra-fast 10 kHz and 50 kHz<br>• NPN or PNP output with 2 m cable or M8 connector<br>• Configurable timing function for turn-ON/OFF delay<br>• IP67 plastic case, fiber glass reinforced<br>• Wide range of optical fibers |

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|---|---|---|---|---|
| • Processing and Packaging<br>• Conveyors, material handling<br>• Ceramics intralogistics<br>• Automated warehousing | • Packaging line<br>• Assembly machine | • Ceramic intralogistic<br>• Processing and Packaging<br>• Wood and glass industries<br>• Assembly machine<br>• Conveyor line | • Processing and Packaging<br>• Electronics assembling<br>• Small appliance and vending machines | • Processing and Packaging<br>• Electronics assembly<br>• Pharmaceutical industry |

## Miniature

**NEW!**

**NEW!**

### S100
**IO-Link**
c UL us  CE
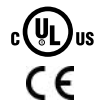
Universal miniature photoelectric sensor with best price on the market, standard miniature dimension and universal mounting feature for quick and easy mechanical and electrical installation.

### S3Z
c UL us
CE

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

### S3N
c UL us  CE
**IO-Link**

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.

### QM
c UL us
CE

Wide range of models of cubic miniaturized sensors.

### QF
c UL us
**ECOLAB**
IP69K  CE

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

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**technical data**

| S100 | S3Z | S3N | QM | QF |
|---|---|---|---|---|
| • Through beam 12 m | • Diffuse proximity 15 or 70 cm | • All models with visible and bright red emission | • Red and infrared emission | • Red and infrared emission |
| • Retroreflective 7 m | • Background suppression Red LED or Laser 50-300 mm | • LED and Laser emission models | • Background Suppression up 400 mm | • Diffuse up to 1 m |
| • Polarized retroreflective 3 m and 5.5 m | • Polarized RRX 4 m, Coaxial for Trasp. 2 m, Laser 10 m | • All optic functions are also available with Teach-in | • Diffuse up to 1.5 m | • Background Suppression up to 200 mm |
| • Diffuse proximity 30 and 50 cm | • Through-beam 15 m and Laser 30 m | • Multiple Background suppression functions | • For transparent objects up to 4 m | • AISI316L Stainless steel housing |
| • Fixed focus 70 mm | • 3 wire connection with 2 m Cable or M8 connector | • Shiny and clear object detection | • Through-beams up to 30 m | • IP67, IP68, IP69K degree |
| • Background suppression 100 mm and 200 mm | • IP67 Plastic miniature case | • Single, Double trimmer & Push Button models | • PNP and NPN -NO/NC output | • 4 wires PNP or NPN NO + NC output |
| • NPN or PNP output with L/D input | • M3 threaded holes on the front side | • Diffuse proximity up to 100 cm | • 2 m cable, M8 4 poles connectors and pig-tails M12 and M8 | |
| • 2 m cable or M8 connector version | | • Background suppression up to 300 mm (LED trimmer version) | | |
| • IP67 plastic miniature case | | • Polarized RRX 5m | | |
| • M3 x 4 slotted holes on the back side | | • Coaxial for transparent 2m, Laser 10 m | | |
| • M3 threaded holes on the front side | | • Through-beam 15 m and Laser 30 m | | |
| | | • Connection with 2 m Cable or M8 connector | | |
| | | • Rugged IP67 Plastic miniature case | | |
| | | • M3 threaded holes on the front side with metal inserts | | |
| | | • State of the art IO-Link connectivity with extended Smart Tasks | | |

| S100 | S3Z | S3N | QM | QF |
|---|---|---|---|---|
| • Processing and Packaging | • Processing and Packaging | • Conveyor and logistic lines | • Conveyor and logistic lines | • Food industries |
| • Conveyor lines, material handling | • Electronics assembling | • Food, cosmetic and Pharma industries | • Food, cosmetic and Pharma industries | • Chemical industries |
| • Automated warehousing | • Small machinery and access control | • Wood and glass industries | • Wood and glass industries | • Process application |
| | | • General purpose | • General purpose | |
| | | • Automatic machines | • Automatic machines | |

## Compact

**NEW!**

### S8

**IO-Link**
c UL us | Ex
ECOLAB
Diversey | IP69K | CE

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.

**50 x 50**

### S62

c UL us | CE

50 x 50 Standard universal sensor with improved performance and pricing. Wide range of optic functions in a compact industry format with stadard 50 x 50 mm housing, mounting holes, installation and wiring.

## Maxi

### S300 PA/PR

c UL us | Ex
CE

Heavy duty, multi-voltage sensors with terminal block and internal relay Durability for integration in outdoor applications and harsh environments.

## Slot

### SR21/SR23

c UL us | CE

High-resolution, very fast response time fork sensor for precise positioning, applying and printing of labels, even when integrated in fast machinery and processes.

### SRF/FC5/FC6/FC7

c UL us | CE

Optical slot sensors with high precision, for detection of objects, labels and trasparent film.

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**technical data**

**S8**
- Background suppression 50-300 mm, Laser 20-200 mm
- Background suppression for transparent objects with reflective background
- Polarized retroreflective 5 m, Laser 10 m, Coaxial for transparent objects 2 m
- RGB Contrast sensor 6-12 mm, 25 kHz switch. freq.
- UV Luminescence sensor 10-30 mm, 2 kHz switch. freq.
- NO-NC outputs with 2 m Cable or M8 connector
- IP 67 Plastic case and IP69K stainless steel version (ECOLAB and DIVERSEY)
- Compact dimensions (14 x 42 x 25 mm)
- Stainless Steeel AISI 316 L models ATEX 3DG

**S62**
- Diffuse proximity 90 or 200 cm, Laser 90 cm
- Background suppression 30, 60, 120, 200 cm, Laser 15, 35 cm
- Retroreflex 13 m, Polarized 8 m, Laser 20 m
- Through beam 25 m
- 10-30 Vdc version with NO-NC, NPN or PNP output
- Multivoltage 24-240 Vac/24-60 Vdc with Relay output
- 2 m cable or M12 rotatable connector

**S300 PA/PR**
- Diffuse proximity 2 m (-PA), 5 m (-PR)
- Background suppression 2 m (-PA), 2.5 m (-PR)
- Polarized retroreflex 7 m (-PA), 22 m (-PR)
- Through beam 50 m (-PA), 60 m (-PR)
- 10-30 Vdc version with NPN or PNP outputs
- Multi-voltage with Relay output and terminal block
- Configurable timing function for turn-ON/OFF delay
- IP67 plastic case, fiber glass reinforced
- I/O link connection
- M3 x 4 slotted holes on the back side
- M3 threaded holes on the front side

**SR21/SR23**
- Slot width 2 mm or 5 mm and depth 50 mm for normal label or booklet label detection
- Up to 20 µs response time and 25 kHz switching frequency
- IR LED emission for label detection on translucid reel
- Red/Green LED emission for color mark detection
- Auto-Set for Teach-in or dynamic threshold setting
- NPN and PNP outputs with M8 4-pole connector
- Compact and robust metal case with IP65 protection
- Ecolab and Diversey certification

**SRF/FC5/FC6/FC7**
- Red, infrared and laser emission
- Wide range of models, width 2 mm up 180 mm and depth up 120 mm
- Minimum object detection up 0.05 mm (laser)
- Dynamic and static Teach-in via cable or by buttons
- NPN and PNP output with M8-4 poles
- NPN or PNP Lo/Do output with M8 3 poles

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**S8**
- Processing and Packaging
- Food and Beverage Industry
- Cosmetic and Pharmaceutical industry
- Electronics assembling

**S62**
- Processing and packaging
- Conveyor lines, material handling
- Automotive assembly, intra-logistic

**S300 PA/PR**
- End-of-line packaging, palletizers
- Outdoor or indoor gates control
- Manufacturing plants

**SR21/SR23**
- Packaging and labeling machinery
- Print and apply systems

**SRF/FC5/FC6/FC7**
- Packaging and labels lines
- Beverege and glass industries
- Electronic industries
- Edge detection

### TL46

IO-Link
cULus CE

**ULTRA FAST** | **LOW JITTER** | **COLOR MODE** | **ADVANCED MONITORING**

High resolution, White, Red or RGB emission, very fast response time Thanks to its new Low jitter models performs very precisely in packaging machinery and synchronization based mark detection, even when used in extremely fast processes.

• Operating distance 6-12 mm (80 mm with acc. lens)
• Bright light emission with Red, White, or RGB LED
• Mark/Background automatic, manual and dynamic setting
• Contrast / Color detection mode
• Trimmer or Teach-in setting with 4 digit display version
• Very fast switching frequency 15, 20, 25, 30 or 50 kHz
• Very high precision model with less than 7 us jitter
• Extended Smart functions and diagnostic with accelerometer models
• Configurable NPN/PNP and 0-5 V analogue output
• Standard metal case with IP67 protection and IP69K

• Packaging and labeling
• Food & Bev., Cosmetic, Pharma industry
• Printing machinery

### LD46

cULus CE

UV high power emission LED with high sensitivity Precise packaging machinery synchronization or material sorting and selection based on luminescent "invisible" mark detection.

• High power UV light emission at 375 nm wavelength
• Operating distance 10-20, 20-40, or 30-50 mm
• Teach-in setting and manual threshold adjustment
• 5 segments bar graph for sensitivity level indication
• Fast response time 250 µs and switching freq. 2 kHz
• NPN and PNP outputs and and 0-5 V analogue output
• Standard metal case with IP67 protection
• Soiling indicator and Alarm Output.
• Sturdy metal Die-cast zinc IP67 housing

• Packaging and labeling
• Food & Bev., Cosmetic, Pharma industry
• Printing machinery

### S67-Y

cULus CE

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.

• Operating distance 50...300 mm (Y03)
• Operating distance 100...600 mm (Y13)
• Resolution of 10 um @ 50mm. distance on white 90% remission. (Y03)
• Response time less than 0.9 ms (Y03)
• Linearity error of +/-0.03 mm @ 50 mm range. (Y03)
• Analog Voltage models with 0V-10V protected output.
• Analog Current models with 4-20 mA protected output.
• IP67 compact metal housing

• Metal working
• Assembly lines
• Automotive industries

### S65-M

IO-Link
cULus CE

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.

• Long Range background suppression detection up to 5 m
• Cost effective solution for precise and reliable detection
• Risk-free Infrared LED emission and embedded green LED pointer
• Glossy and clear object surface detection model available
• Two independent fully programmable outputs
• NPN/PNP or IO-Link connection models
• Rugged plastic housing in compact 50 x 50 x 24 mm format
• Standard M12 8-poles connector

• Presence of all medium and large sized objects on conveyors
• Critical object detection in front of problematic background

### S85

cULus CE

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.

• Time Of Flight (TOF) sensor with Red Laser emission
• Detection and measurement range up to 10 or 20 m
• 1 mm resolution/repeatability and 7 mm accuracy
• 4-20 mA or 0-10 V scalable analog output and 2 push-pull digital outputs
• RS485 serial interface
• Built-in graphic display and push buttons
• PNP switching output and 0-10 V analog output

• Packaging end of line
• Paper reel unwinding control
• Automated warehousing
• Trans-elevator and crane
• Automotive assembling lines
• Non-LFT measurement in logistic

technical data

## Area

### AS1/DS1

High resolution area sensor and measurement of small objects crossing the area, even in a random positions.

### BX10/ BX80

IP69K

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

### CX0/CX2

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

### CR0/CR1/CR2

IO-Link

Retroreflective Polarized Area Sensors.

**NEW!**

## Smart Sensor

**NEW!**

### SMART-VS

• AI enabled
• MLAS – Machine Learning Assisted Setting

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.

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**technical data**

| AS1/DS1 | BX10/BX80 | CX0/CX2 | CR0/CR1/CR2 | SMART-VS |
|---|---|---|---|---|
| • AS1 Area Sensor for small object detection<br>• DS1 Light Array for small object measurement<br>• Minimum object detection Ø 6 mm or flat 0.2 x 75 mm<br>• Minimum measurement resolution 7 mm or 4mm<br>• Heights ranging from 100 mm (16 beams) to 300 mm (48 beams)<br>• Standard distance 2 m and Long distance up to 4 m<br>• PNP switching output and 0-10 V analog output | • Control heights up to 90mm<br>• Standard distance 2 m, models with maximum distance up to 6 m<br>• PNP and NPN switching output<br>• Models with syncronization by Cable<br>• Models with IP69K protection degree<br>• Models with aluminium enclose and air cooling inlet<br>• ATEX models 2GD and 3GD | • Control heights from 160 mm to 960 mm<br>• Sensing distance up to 6 m<br>• Pitch 5 mm, 10 mm, 20 mm<br>• PNP and NPN outputs, 0-10 V and 4-20 mA analogue outputs and PNP and 0-10 V outputs<br>• Adjustment by teach-in via Cable<br>• Blanking function | • Control heights from 70 mm to 310 mm<br>• Sensing distance up to 4.5 m<br>• Adjustment with Teach-in button<br>• Optical pitch 10 mm<br>• PNP and NPN outputs<br>• Blanking function | • Machine Learning Assisted Setting<br>• No vision Tools programming required<br>• No need of skilled installers just photosensor like setting<br>• Deterministic response time 50 ms<br>• 50...150 mm detection distance<br>• TEACH Button and comprehensive UI with 5 status LEDs<br>• 50...150 mm operating distance with electronic focus control<br>• Smart-VS Plus model available to handle more images and more connectivity features |
| • Processing and Packaging<br>• Food, Cosmetic and Pharma industries<br>• Electronics and mechanical assembly<br>• Conveyor lines and sorting systems | • Processing and Packaging machinery<br>• Conveyor lines and Intralogistic<br>• Metal working | • Processing and Packaging machinery<br>• Automation Assembly<br>• General manufactoring | • Conveyour and logistic lines<br>• Food, cosmetic and Pharma industries<br>• Wood and glass industries<br>• Automatic machines | • Processing and packaging<br>• Transport and handling lines<br>• Assembly lines<br>• Food & Beverage<br>• Bottling lines<br>• Machines for the Cosmetic and Pharmaceutical sector |

| Inductive miniature ø3-M8 | Inductive miniature cubic | Inductive cubic 40x40 | Inductive standard ø6.5-M30 | Inductive multivoltage M12-M30 |
|---|---|---|---|---|
| **AA/AB/AC/AD/AES/AHS** | **IL5/IL8/IL9/IL1** | **IS40** | **AH/AE/AM/AK/AT/IS** | **V3/V*2** |
| Miniaturized inductive sensors from diameter ø3 mm to M8. Where small spaces required small dimensions. | Cubic inductive sensors: 5 x 5 mm, 8 x 8 mm (with top and centre detection head), 10 x 28 x 16 mm. | 40 x 40 mm. Versatile and flexible for various applications in the machinery thanks to the connector rotable in any direction. | From diameter ø 6,5 mm to M30. Reliable detection of any metal part. | AC sensors with M12, M18 and M30 housing (V*2 series). AC/DC sensors with M8, M12, M18 and M30 housing (V3 series) |

**technical data**

| | | | | |
|---|---|---|---|---|
| • Sensing distance from 0.6 mm (ø3) to 2 mm (M8)<br>• Shielded models.<br>• AISI303 housing.<br>• NPN or PNP, NO or NC<br>• IP67 protection degree | • 5 x 5 mm with sensing distance of 0.8 mm and 1.5 mm<br>• 8 x 8 mm with sensing distance of 1.5 mm, 2 mm and 2.5 mm<br>• 10 x 28 mm with sensing distance of 3 mm and 6 mm<br>• NPN or PNP, NO or NC | • 40 x 40 x 118 mm: terminal block, 15 mm (shielded), 30 mm (unshielded).<br>• 40 x 40 x 66 mm: M12 plug, 15 mm (shielded)<br>• PNP or NPN, NO+NC.<br>• AC/DC, NO or NC<br>• Models with analogue outputs 0-20 mA: 7...20 mm (shielded) | • Diameters ø 6,5 mm, M8, M12 and M30.<br>• Single and double range<br>• Shielded or unshielded models<br>• NO/NC, NPN or PNP output and programmable versions | • Shielded and unshielded models<br>• V*2 series available with standard distance<br>• V3 series available with enhanced distance<br>• V3 series models protected against short circuits in AC and DC! |
| • Grippers.<br>• Electric spindle.<br>• Rotary actuators | • Grippers.<br>• Tobacco industry. | • Processing and Packaging machinery<br>• Assembling and conveyor lines<br>• Metal working and machine tools | • Processing and Packaging machinery<br>• Assembling and conveyor lines.<br>• Metal working and machine tools. | • Processing and Packaging machinery.<br>• Assembling and conveyor lines<br>• Metal working and machine tools |

## Inductive high-performance

M8 - M30

### FM/PF

c(UL)us (Ex) ECOLAB CE IP69K



From M8 to M30 housing.
AISI316L full metal body (FM series)
Designed for Food & Beverage applications (PF series)

technical data

- 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...+100°C
- IP69K protection degree

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

## Cylindrical Capacitive

M12 - M30

### C12/C18/C30

c(UL)us CE



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 Capacitive

### CQ50/CQ55

c(UL)us CE



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

| M12 | **NEW!** | M18 | M30 | M18 | M18 - M30 | **NEW!** |

## UM1

IO-Link
c UL us
CE

M12 ultrasonic sensor. Where narrow acustic cone, reduced blind zone and higher switching frequency are required.

## UK1/UK6

IO-Link
c UL us
Ex CE
IP69K

M18 ultrasonic sensors, with both standard or short body (where application ask for a limited installation space).

## UT1B/UT2F/UT5L

IO-Link
c UL us
CE
IP69K

M30 ultrasonic sensors, from ø30 mm transducer to large front transducer for longer detection distances.

## US18-PA/PR

CE

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.

## UFT/UFK

IO-Link
ECOLAB
CE IP69K
c UL us

M18 and M30 full metal ultrasonic sensors for extreme applications (food and pharma).

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**technical data**

- Sensing distance 20 mm...200 mm
- Nickel-plated housing
- M12 plug output
- PNP, NPN, Analogue (current or voltage), IO-Link outputs
- Remote adjustment via cable
- 7° acustic cone, with the possibility of mounting a cone narrower
- IP67 protection degree

- Sensing distance from 300 mm to 2200 mm
- Plastic housing models and stainless steel models
- PNP, NPN, Analogue (current or voltage), IO-Link outputs, double digital or mixed outputs (standard )
- Adjustment via Teach-in button (standard body) or via cable (short body)
- M12 plug and cable output
- IP67 protection degree

- Sensing distance from 3500 mm to 8000 mm
- Plastic housing models and stainless steel models
- PNP, NPN, Analogue (current or voltage), IO-Link outputs, double digital or mixed outputs
- Models with remote Teach-in and models with the Teach-in button
- M12 plug and cable output;
- IP67 protection degree

- Sensing distance 30...300 mm
- Analog model resolution: 0.5 mm (SLOW mode), 1 mm (FAST mode)
- M18 tubular plastic housing with axial and right angle sensing
- Discrete bipolar output (1 NPN and 1 PNP) or with 4-20 mA or 0-10 V analog output
- Models with remote teaching and models with the Teach-in button
- M12 plug
- IP67, NEMA 6-P

- Sensing distance from 1000 mm (M18) to 2500 mm (M30)
- Full metal housing AISI316L stainless steel
- IO-Link adjustment
- PNP, NPN, Analogue (current and voltage) output
- M12 plug output
- IP69K protection degree
- ECOLAB certification

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- Level detection within narrow amphoules (pharma)
- glass or Wood panels detection in very limited spaces

- Solar energy
- Wood and glass
- Agriculture
- Zootechnics

- Level detection within tanks and silos
- Agriculture

- Grippers.
- Electric spindle.
- Rotary actuators

- Food industry
- Pharma industry

## Cubic

### US18-PL

US18-PL series provides a wide operating range and fast operating frequency, they are available in cubic style with M18 mounting and discrete outputs.

### UQ1

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

technical data

- Sensing distance 50...500 mm
- Repeatibility: 0.7 mm
- Cubic housing with M18 right angle mounting
- Discrete PNP or NPN output
- Models with remote teaching and models with the teach-in button
- M12 plug
- IP67, NEMA 6-P rated

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

- Packaging machines
- Beverage & Bottling
- Automotive assembling line
- Pharma industry

- Food industry
- Pharma industry

## Fork

### FC8

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

### 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.

- High resolution up label 2 mm with gap 2 mm
- High swithing 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

- 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

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

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

# 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.

DATASENSING
easing automation challenges

**Safety Light curtains**

## SH4

CE  TÜV  c(UL)us

**NEW!***

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.

## SG2/4

CE  TÜV  c(UL)us

Finger and hand presence safety detection with basic functions
High reliability, easy installation and alignment, cost effective solution for simple protection needs.

## SG4 EXTENDED

CE  TÜV  c(UL)us
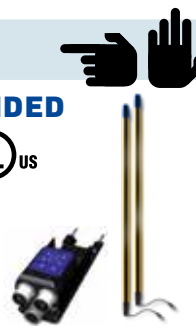
Finger and hand safety detection with possibility of configuration of advanced functions through pushbuttons or Graphic User Interface. Extended flexibility that fits a diverse range of machine needs, combined with possibility of Ethernet connection for remote monitoring.

## SG BODY / SG BODY REFLECTOR

CE  TÜV  c(UL)us

Body safety protection and perimeter access control
High reliability, easy installation and alignment, cost effectiveness.

## SLIM

CE  TÜV  c(UL)us

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

**technical data**

**SH4**
- Safety Type 4 (Pl=e, SIL3)
- Resolution Finger 14 mm; Hand 30mm; Body 2, 3, 4 beams
- Zero dead zone on all finger/hand resolutiong models
- Controlled heights from 300 to 2250 mm (n x 150 mm)
- Operating distance: Finger 10 m; Hand 20 m; Body 70 m
- Basic models: Auto restart, alignment
- Standard models: Auto/Manual restart, EDM, 2 signals T/L muting, DIP-SW configurable
- Advanced models: Partial muting, fixed and floating Blanking, wireless diagnostic and programming.

**SG2/4**
- Safety Type 2 (Pl=c, SIL1); Safety Type 4 (Pl=e, SIL3)
- Resolution Finger 14 mm; Hand 30mm; Pres. 50/90 mm
- Controlled heights from 150 to 1800 mm (n x 150 mm)
- Operating distance: Finger 6 m; Hand 19 m; Pres. 9/19 m
- Auto/Manual restart; EDM; Anti-interference coding
- Easy and cost effective standard M12 5-pole connector

**SG4 EXTENDED**
- Programmable Safety Light Curtain Type 4 (Pl=e, SIL3)
- Resolution: Finger 14 mm; Hand 30 mm
- Controlled heights from 300 to 1800 mm (n x 150 mm)
- Operating distance: Finger 7m; Hand 20m
- Compact; No dead zone; up to 3 cascadable units
- Fully programmable: Auto/Man restart, EDM, coding, Muting (T/L, total/partial, with/without timeout, etc.)
- Fixed/floating blanking; reduced resolution function
- Ethernet Port, SG Dongle and Graphic User Interface

**SG BODY / SG BODY REFLECTOR**
- 35 x 40 mm standard compact profile
- 2, 3 or 4 beams for Body protection and access control
- Controlled heights of 500, 800, 900, 1200 mm
- Long operating distance up to 50 m
- Dip-switch configuration of Auto/Man, EDM, Coding
- Muting version with L or T integrated arms and lamp
- Easy and cost effective standard M12 connectors

**SLIM**
- 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)

**SH4 applications**
- Automatic machinery
- Material handling
- Processing & packaging machines
- Automotive, metalworking, presses
- Palletizers
- Automatic assembly machines and lines

**SG2/4 applications**
- Automatic machinery
- Metalworking, Woodworking
- Manufacturing (textile, ceramics, etc)
- Material handling, assembly lines

**SG4 EXTENDED applications**
- Processing and packaging machines
- Automotive, metalworking, presses
- Manufacturing assembly lines

**SG BODY applications**
- Palletizers/depalletizers
- Conveyor lines
- Automated warehousing
- Manufacturing lines

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

*Launch planned in 2022, the certification will be completed before the market introduction.

| | Safety laser scanner | | Lidar | Encoder |
|---|---|---|---|---|

| SG4-H | SLS | PROFISAFE SLS **NEW!*** | LGS **NEW!** | ENC |
|---|---|---|---|---|
| CE TÜV c UL us | CE TÜV c UL us | PROFIsafe PROFINET CE TÜV c UL us | CE | CE |

| SG4-H | SLS | PROFISAFE SLS | LGS | ENC |
|---|---|---|---|---|
| Finger protection in applications where high hygienic requirements need frequent cleanings with higly corrosive detergents. The first safety light curtain with stainless steel housing and glass. | 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. | 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, general machinery and processes plant integrated with PROFINET / PROFIsafe. | Lidar Guidance Scanner (LGS-N50) is a compact, rugged navigation Lidar based on time-of-flight (TOF) infrared laser technology to provide a complete offering for the market of Automated and Laser Guided Vehicles (AGV/LGV) or Forklifts (AGF), used for intralogistics and manufacturing. | 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. |

**technical data**

| SG4-H | SLS | PROFISAFE SLS | LGS | ENC |
|---|---|---|---|---|
| • Safety Type 4 (Pl=e, SIL3); <br>• Resolution: 14 mm <br>• Protected height: 150/300/450 mm <br>• Operating distance: 0.2 ...6m <br>• Outputs: 2 PNP; Output current: 0.5 A max/each output <br>• Mechanical protection: IP69K <br>• Restart: Automatic | • Type 3 / PL d / SIL 2 <br>• Max. distance: up to 5.5 m (safe) for 70 mm resolution <br>• Opening angle: 275° <br>• Minimum response time: 62 ms <br>• STANDALONE version: - pigtail with M12 connector - up to 6 switchable zone sets <br>• 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 <br>• Programming, monitoring and measurement data: Ethernet <br>• Dimensions (w,d,h): 102 , 112.5 , 152 mm <br>• Auto/manual restart, EDM, partial dynamic muting, override, speed measurement, shut off <br>• Fast replacement | • Type 3 / PL d / SIL 2 <br>• Max. distance: up to 5.5 m (safe) for 70 mm detection capability <br>• Opening angle: 275° <br>• Minimum response time: < 90 ms <br>• Up to 70 switchable zone sets <br>• Fieldbus integration by Profinet / Profisafe standard <br>• Programming, monitoring and measurement data: Ethernet <br>• Up to 5 local I/O available <br>• Dimensions (w,d,h): 102 , 112.5 , 152 mm (without system plug ) <br>• Auto/manual restart, EDM, partial dynamic muting, override, speed measurement, shut off <br>• Fast replacement | • ToF technology on infrared laser <br>• 2D Measurement data for natural or marker navigation <br>• 360° measurement for all-round scanning <br>• Differentiation between natural objects and reflectors <br>• Scanning rate 10/15/20/25 Hz <br>• Measurement rate 60000 points/s <br>• Measurement range: 0.2 - 2 m with 1.8% reflectivity / 0.2 - 15 m with 10% reflectivity / 0.2 - 50 m with 80% reflectivity <br>• Dimensions (w,d,h): 95 x 97 x 116 mm <br>• Communication interface: IEEE 802.3u 100 Mbps Ethernet <br>• Configuration software: Any web browser (configuration through web server) | • AMT series multiturn absolute serie <br>• AST series absolute single turn series <br>• ENC41 low cost and effective incremental series <br>• ENC58 easy motion control incremental series <br>• OEK-4 easy belt motion control <br>• IEP58 programmable encoder series <br>• MW metric wheels up to 500 mm / 10000 PPR = 0.05 mm per pulse |

| SG4-H | SLS | PROFISAFE SLS | LGS | ENC |
|---|---|---|---|---|
| • Liquid filling machines <br>• Powder filling machines <br>• Closing and cap sealing machines | • Processing machines. <br>• Metal working. <br>• Food and bevedage applications. <br>• Application with increased temperature range requirements. | • Processing machines. <br>• Metal working. <br>• Food and bevedage applications. <br>• Application with increased temperature range requirements. | • Automated Guided Vehicles (AGV) <br>• Laser Guided Vehicles (LGV) <br>• Automated Guided Forklifts (AGF) <br>• Autonomous Mobile Robot (AMR) | • Motion control <br>• Position and lenght measurement |

*Launch planned in 2022, the certification will be completed before the market introduction.

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