SENSORS

Product Group Guide

DATALOGIC
EMPOWER YOUR VISION

SENSORS & SAFETY

Datalogic has more than 40 years of experience in the sensors and safety sector, developing their first product, a Photoelectric Sensor, in 1972. Today, Datalogic is one of the largest manufacturers of sensor and safety products worldwide.

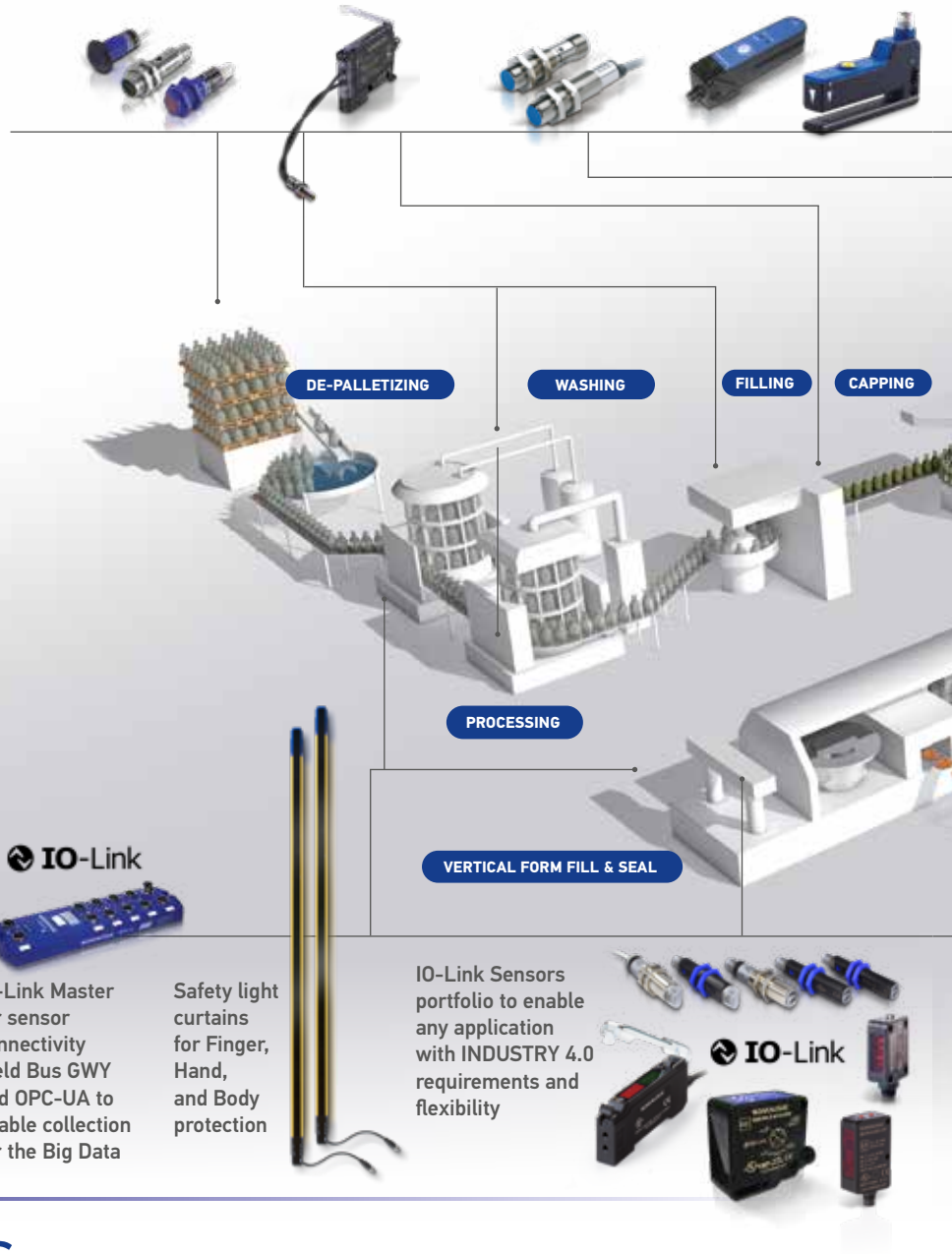
Datalogic is the market leader in Italy for photoelectric sensors and safety light curtains, ranking among the main manufacturers in Europe.

Datalogic's Sensors and Safety portfolio solves customer applications in Factory Automation, specializing in Processing and Packaging machinery, and Automated Material Handling Systems related to Manufacturing Industries such as Automotive, Electronics, Pharmaceutical, Food & Beverage, Paper and Printing, Wood-working, Ceramics, Glass, Textiles etc. Datalogic is continuosly improving and renewing its wide sensor portfolio with new product lines and accessories, specifically developed for IO-Link connectivity offering a complete solution range for any INDUSTRY 4.0 application.

Tubular, Miniature and Fiber Optic sensors for object detection

Inductive proximity sensors

Fork sensors for label detection



APPLICATIONS

- De-Palletizing
- Washing
- Filling
- Capping
- Labeling
- Case Packing
- Stretch-wrapping
- Palletizing
- Storage & Retrieval
- Cartoning
- Wrapping
- Vertical Form Fill & Seal
- Processing

IO-Link Master for sensor connectivity Field Bus GWY and OPC-UA to enable collection for the Big Data

Safety light curtains for Finger, Hand, and Body protection

IO-Link Sensors portfolio to enable any application with INDUSTRY 4.0 requirements and flexibility

SENSOR PRODUCTS

SENSORS PRODUCT RANGE

Photoelectric Sensors

Universal function

- M18 Tubular
- Fiber optic
- MINI size
- MIDI size
- MAXI size

Application specific function

- Fork
- Contrast/ Colour
- Luminescence
- Area/ Dimensions
- Distance
- Smart Vision

other sensors

- Inductive
- Ultrasonic
- Encoders

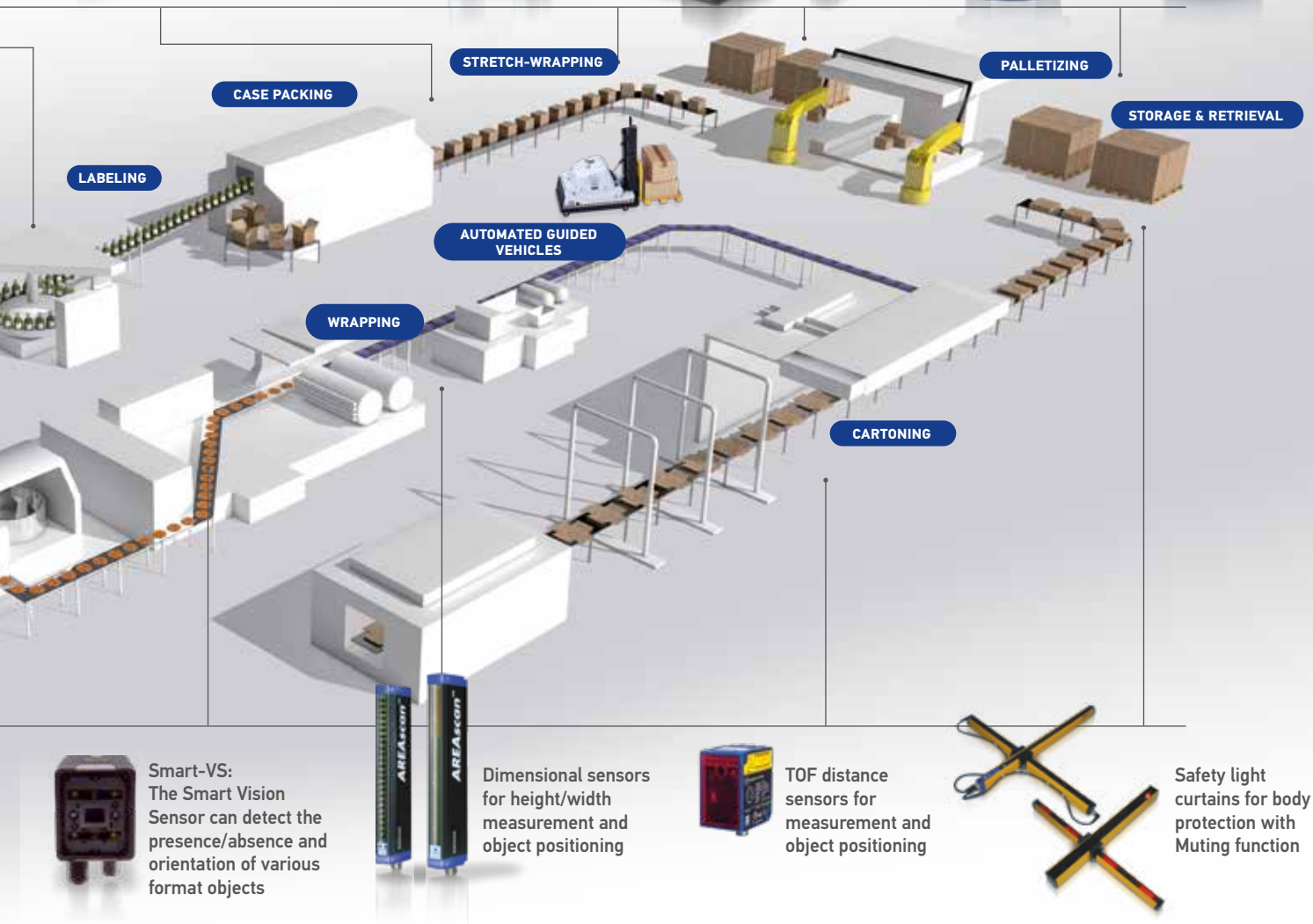
Contrast and Luminescence sensors

Area sensors

Maxi and Compact sensors for object detection

Safety laser scanner for area protection and AGV navigation

Lidar Guidance Scanner for navigation



Smart-VS:
The Smart Vision Sensor can detect the presence/absence and orientation of various format objects

Dimensional sensors for height/width measurement and object positioning

TOF distance sensors for measurement and object positioning

Safety light curtains for body protection with Muting function

SAFETY PRODUCTS

SAFETY PRODUCT RANGE

Safety Light Curtains Type 2 and Type 4

- High / Low Resolution
- Finger protection
- Hand protection
- Body protection
- Presence control
- Base / Extended Functionalities
- Auto / Man restart
- Ext device monitoring
- Muting
- Override
- Blanking
- Cascadable

other safety products

- Controller
- Light beam
- Module
- Relay unit
- Accessories

Safety Laser Scanner

- Stand Alone
- Master/Slave

AGV Navigation LIDAR

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Subminiature sensors

SM-ALL

The smallest photoelectric sensor with all universal optic functions
Detection of hard to reach objects or in small spaces

Technical data

- Fixed focus proximity 15, 20, 30, 50cm
- 1,5m retroflective and 1m polarized retroflective
- 2m through beam models
- Amplified NPN or PNP output with NO-NC output
- 4 wires connection with 2m Cable
- IP67 Plastic subminiature case

Applications

- Processing and Packaging machinery
- Electronics assembling
- Small appliance and vending machines

Miniature sensors

S100 IO-Link

Universal Miniature Photoelectric Sensor
Cost saving: best price on the market
Space saving: standard miniature dimension and universal mounting
Time saving: quick and easy mechanical and electrical installation

Technical data

- Through beam 12m
- Retroreflective 7m
- Polarized retroreflective 3m and 5,5m
- Diffuse proximity 30 and 50cm
- Fixed focus 70mm
- Background suppression 100mm
- NPN or PNP output with L/D input
- 2m cable or M8 connector version
- IP67 plastic miniature case
- M3x4 slotted holes on the back side
- M3 threaded holes on the front side

Applications

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

Miniature sensors

S3Z

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

Technical data

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

Applications

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

APPLICATIONS PHOTOELECTRIC SENSORS

Area sensors

AS1/DS1

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

Technical data

- AS1 Area Sensor for small object detection
- DS1 Light Array for small object measurement
- Minimum object detection Ø 6mm or flat 0.2x75mm
- Minimum measurement resolution 7mm or 4mm
- Heights ranging from 100mm (16 beams) to 300mm (48 beams)
- Standard distance 2m and Long distance up to 4m
- PNP switching output and 0-10 V analog output

Applications

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

Dimensional sensors

DS2

Dimensional sensor with extended controlled heights
Set controls based on height or width measurement and object positioning

Technical data

- Measurement light array with IR parallel beams
- Controlled heights from 150 to 2400mm (n x 150mm)
- Standard resolution 25mm, high resolution 6mm
- Standard distance 5 m and Long distance 10m
- PNP switching output with configurable function
- 0-10 V analog output with configurable function
- RS-485 or Ethernet port and Graphic User Interface

Applications

- Secondary Packaging eg. cartons
- Automated vertical warehouses
- Automotive assembly eg. paint shop
- Non-LFT measurement in logistics

Distance sensors

S65-M IO-Link

Cost Effective Long Range Background Suppressor with Time Of Flight (TOF) technology and Infrared emission

Technical data

- Long Range background suppression detection up to 5m
- Cost effective solution for precise and reliable detection
- Risk-free Infrared LED emission and embedded green LED pointer
- Two independent fully programmable outputs
- NPN/PNP or IO-Link connection models
- Rugged plastic housing in compact 50x50x24 mm format

Applications

- Presence of all medium and large sized objects on conveyors
- Critical object detection in front of problematic background
- Positioning tasks in palletizing
- Position limiter for deck and robot in automotive manufacturing
- Collision prevention limit switch for AGV applications
- Check filling level for liquid and objects

Miniature sensors

S45

High performance sensor with teach-in regulation and rugged plastic housing IP69K and Ecolab tested. All-in-one sensor family with LED and Laser emission for easy mounting and installing

Technical data

- RED and Laser emissions
- Precise risk free laser class 1 emission
- Diffused LED proximity 800mm
- Background Suppression 400mm
- Retroreflective Laser 15m / LED 7m
- Through beam Laser 20m / LED 15m
- IP69K housing
- 2m Cable or M8 4 connector version
- PNP or NPN output with remote teach-in input

Applications

- Processing and Packaging machinery
- Cosmetic and Pharmaceutical industry
- Electronics assembling
- Conveyor lines, material handling

M18 tubular sensors

S5N IO-Link

The first tubular sensor line with all optic functions and IO-Link V1.1 smart sensor profile on the market becoming a reference point for the Industry 4.0.

Technical data

- Diffuse proximity upto 700mm
- Background suppression upto 150mm
- Contrast sensor 10mm ±2 mm
- All the basic optic functions available
- Improved EMI immunity
- Improved ambient light immunity
- M18 flat plastic with universal mounting
- Available in M18 metal housing
- Axial or radial optics, cable or connector
- Standard 4-wire NO-NC NPN or PNP output
- IO-Link V1.1 COM 2 Smart sensor profile

Applications

- Processing and Packaging machinery
- Conveyor lines, material handling
- Ceramics intralogistics
- Automated warehousing

Compact sensors

S62

50x50 Standard universal sensor with improved performance and pricing Standardization of the same 50x50mm housing, mounting holes, installation and wiring for all optic functions

Technical data

- Diffuse proximity 90 or 200cm, Laser 90cm
- Background suppression 30, 60, 120, 200cm, Laser 15, 35cm
- 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 24-240Vac/24-60Vdc with Relay output
- 2m cable or M12 rotatable connector

Applications

- Processing and packaging machinery
- Conveyor lines, material handling
- Automotive assembly, intra-logistics

Distance sensors

S85

Long distance sensor based on TOF Accurate controls based on a target object distance and improved cost saving

Technical data

- Time Of Flight (TOF) sensor with Red Laser emission
- Detection and measurement range up to 10 or 20m
- 1mm resolution/repeatability and 7mm accuracy
- 4-20mA or 0-10V scalable analog output and 2 push-pull digital outputs
- RS485 serial interface
- Built-in graphic display and push buttons
- Standard M12 8-poles connector
- IP67 compact metal housing

Applications

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

Fork sensors

SR21/SR23

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

Technical data

- Slot width 2mm or 5mm and depth 50mm 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

Applications

- Packaging and labeling machinery
- Print and apply systems

Fork sensors

SRX3

High resolution, fast response time Execution of precise positioning, applying and printing of labels, even with any type/ format of labels and bearer tapes, transparent on transparent and metallic ink

Technical data

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

Applications

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

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Fiber Optic Amplifiers

S70 IO-Link

High resolution, fiber optic sensor detection of small objects through fiber optic cable, even in confined spaces and high temperature environments. Sensor can be installed at distance far from detection object

Technical data

- Diffuse fiber optics up to 500mm
- Through beam fiber optics up to 1800mm
- Red or White LED emission for contrast detection
- Double 4-digit display
- 4-digit display and teach-in or trimmer setting
- 10 bits (1024 points) or 12 bits (4096 points) resolution
- Switching Freq. 1kHz, Fast 5kHz, Ultra-fast 10kHz and 50kHz
- NPN or PNP output with 2m cable or M8 connector
- I/O link connection

Applications

- Processing and Packaging machinery
- Electronics assembly
- Pharmaceutical industry

Compact sensors

S8 IO-Link

Extremely high performance
Solves difficult detection applications (i.e. target objects that are too small, too fast, too clear, too shiny)

Technical data

- Background suppression 50-300mm, Laser 20-200mm
- Background suppression for transparent objects with reflective background
- Polarized retroreflective 5m, Laser 10m, Coaxial for transparent objects 2m
- RGB Contrast sensor 6-12mm, 25 kHz switch. freq.
- UV Luminescence sensor 10-30mm, 2kHz switch. freq.
- NO-NC outputs with 2m Cable or M8 connector
- IP 67 Plastic case and IP69K stainless steel version
- Ecolab and Diversey certification

Applications

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

Maxi sensors

S300-PA/PR

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

Technical data

- 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

Applications

- End-of-line packaging, palletizers
- Outdoor or indoor gates control
- Manufacturing plants

APPLICATIONS PHOTOELECTRIC SENSORS

Contrast sensors

TL46 IO-Link

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

Technical data

- Operating distance 6-12mm (80mm with acc. lens)
- Bright light emission with Red, White, or RGB LED
- Mark/Background automatic, manual and dynamic setting
- 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
- Configurable NPN/PNP and 0-5 V analogue output
- Standard metal case with IP67 protection and IP69K

Applications

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

Luminescence sensors

LD46

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

Technical data

- High power UV light emission at 375 nm wavelength
- Operating distance 10-20, 20-40, or 30-50mm
- 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

Applications

- Packaging and labeling machinery
- Food, Cosmetic and Pharma industries
- Ceramic tiles selection and sorting
- Wood working

Vision sensors

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.

Technical data

- Machine Learning Assisted Setting
- No vision Tools programming required
- No need of skilled installers just photosensor like setting
- Deterministic response time 50ms
- TEACH Button and comprehensive UI with 5 status LEDs
- 50...150mm operating distance with electronic focus control
- Bright Red LED pointer and powerful white light illuminator
- Ethernet com available with intuitive WEB Server GUI

Applications

- Processing and packaging machinery
- Transport and handling lines
- Assembly lines
- Food & Beverage
- Bottling lines
- Machines for the Cosmetic and Pharmaceutical sector

SENSORS ACCESSORIES

IO-Link Master

CBX-8IOL-XXXX

This IO-Link Master features an IP67 housing with eight M12 IO-Link ports class B and L-Coded power connectors for harsh environments. This industrial IO-Link gateway has the capability to communicate directly through OPC-UA to the cloud.

Technical data

- Eight M12 IO-Link ports class B to PROFINET or EthernetIP
- Up to eight sensor or actuator connections on a single master
- L-Coded power connectors
- Rugged IP67 housing design
- Direct Sensor IODD handling
- Dual Ethernet ports
- Additional digital input on every port
- Power port sharing capability
- Easy WEB interface for easy setting

Applications

- IO-Link to Field Bus gateway
- Direct interface with HMI and SCADA systems with separate channel from controlling sistem to ensure extensive data collection
- All manufacturing industries which complies with INDUSTRY 4.0 application requirements

Reflectors

R-SERIES

Datalogic offers different types of reflectors featuring different dimensions and reflection degree. Microprism reflectors are available for laser emission.

Technical data

- Reflector in PMMA plastic
- Support material Support in ABS
- Prismatic Tape for LED and Laser applications
- Micro granular material tape are available
- Mechanical protection IP67
- Operating temperature -30 ... +70°c

Applications

- Retroreflex Laser and LED emitters
- Light Barrier mode detection
- Primary and secondary packaging industries
- Intralogistic and Material handling applications

Fiber Optic Cables

OF/OFA-SERIES

Datalogic offers a wide range of fiber optic cables available in two different lines: OF series for standard applications and OFA series for specialistic applications, such as 90° optics as well as fixed focus optics.

Technical data

- Flexible models
- High temperature models (up to 125 °C)
- Fiber array with parallel beams for proximity or through beam detection
- Fixed focus proximity with axial, radial or lateral optics
- Proximity with 90° optics self-contained
- Focusing, collimating and deviating lenses

Applications

- All possible optical functions for any detection purposes
- Very small application layout
- Very precise object detection
- Long range applications
- Light arrays models

COMPLEMENTARY PRODUCTS

Ultrasonic sensor

US

Distance measurement
Accurate positioning or distance control, immune to object color or light reflection

Technical data

- Square miniature or M18 background suppression with range 5 - 50cm and through beam up to 60cm
- M30 with range 0.2 - 2 m and min object 10mm
- M50 with range 0.2 - 8 m and min object 20mm
- Teach-in push-button and remote teach input
- NPN and PNP switching outputs for object detection
- 0-10 V or 4 – 20 mA analog out for distance measure
- High resolution to 1mm or 0.1% of distance range

Applications

- Packaging machinery
- Beverage and bottling plants
- Paper reel unwinding control

Inductive proximity

IS

Non-contact detection
Cost effective and reliable detection of any metal part

Technical data

- Standard proximity M4, M5, M8, M12, M18, M30
- Double range (i.e. M12 4mm, M18 14mm, M30 20mm)
- Unshielded or shielded models for flush mounting
- Nickel brass or stainless steel short and long housing
- Ecolab and Diversey certifications for industrial detergents
- Multi-voltage, Metal face, Weld field immune models
- NO/NC, NPN or PNP output and programmable versions.

Applications

- Processing and Packaging machinery
- Assembling and conveyor lines
- Metal working and machine tools

Optical encoders

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.

Line overview

- 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

Applications

- Motion control
- Web speed or tension control
- Conveying
- Automated packaging machinery

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