

# PRODUCT GUIDE



# >Sensors



# 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 **top-10 manufacturers** in Europe by market share\*

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.

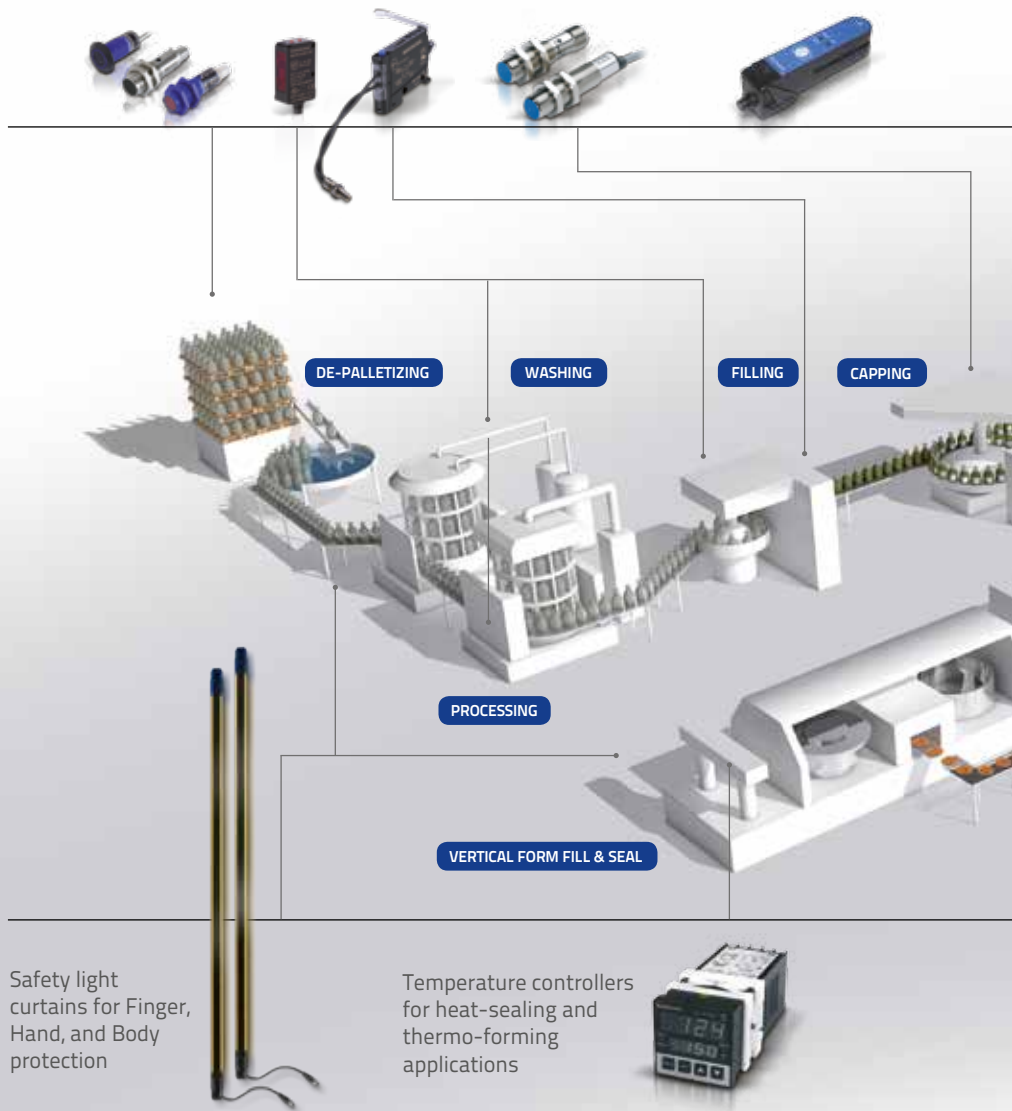
\* (source: based on VDC 2010 - 2011)

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

Tubular, Miniature and Fiber Optic sensors for object detection

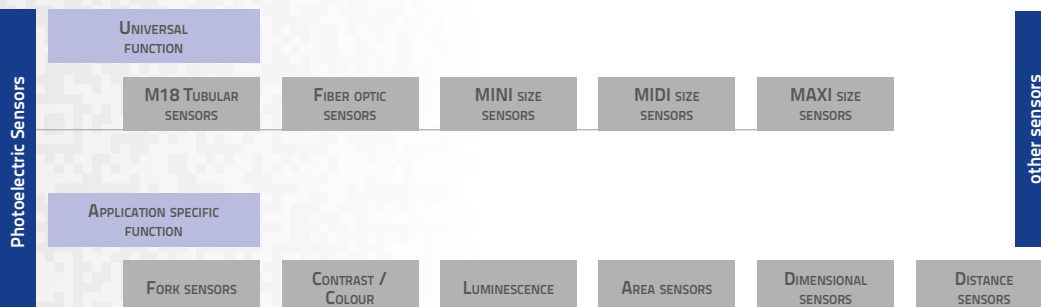
Inductive proximity sensors

Fork sensors for label detection



## SENSOR PRODUCTS

### SENSORS PRODUCT RANGE



Inductive  
Ultrasonic  
Capacitive  
Temperature

Contrast and Luminescence sensors

Area sensors

Maxi and Compact sensors for object detection



LABELING

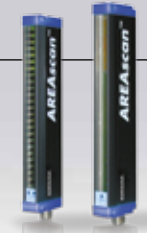
STRETCH-WRAPPING

PALLETIZING

STORAGE & RETRIEVAL

WRAPPING

CARTONING



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

<p>High / Low Resolution</p>	<p>FINGER PROTECTION</p>	<p>HAND PROTECTION</p>	<p>BODY PROTECTION</p>	<p>PRESENCE CONTROL</p>	<p>Controller</p> <p>Light beam</p> <p>Module</p> <p>Relay unit</p> <p>Accessories</p>	
<p>Base / Extended Functionalities</p>	<p>AUTO / MAN RESTART</p>	<p>EXT DEVICE MONITORING</p>	<p>MUTING</p>	<p>OVERRIDE</p>		<p>BLANKING</p>

other safety products

## 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
- Retroreflex 1.5 m and Polarised 1 m
- Through-beam 2 m
- NPN or PNP version with NO-NC outputs
- 4 wires connection with 2m Cable
- IP67 Plastic subminiature case

## APPLICATIONS

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

## 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
- Polarised RRR 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

## 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

## 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  $\mu$ s response time and 25 kHz switching frequency
- IR LED emission for label detection on translucent 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

## Contrast sensors



## TL46

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  $\mu$ s jitter
- Configurable NPN/PNP and 0-5V analogue output
- Standard metal case with IP67 protection and IP69K (S45W)

## APPLICATIONS

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



#### Miniature sensors

### S100

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



#### 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 250µs and switching freq. 2kHz
- NPN and PNP outputs 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



#### Compact sensors

### S8

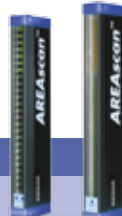
Extremely high performance  
Solves difficult detection applications (i.e. target objects that are too small, too fast, too clear, too shiny)

#### TECHNICAL DATA

- Background suppression 50-300mm, Laser 20-200mm
- Background suppression for transparent objects with reflective background
- Polarised 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



#### 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



#### Compact sensors

### S62

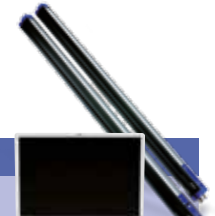
50x50 Standard universal sensor with improved performance and pricing  
Standardization of the same 50x50mm housing, mounting holes, installation and wiring for all optic functions

#### 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



#### 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



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

#### 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

#### 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

#### M18 tubular sensors

### S15



Short barrel and IP69K protection plastic or stainless steel case  
Space and cost saving, performs in harsh environments including in water-jets and aggressive cleaning agents

#### TECHNICAL DATA

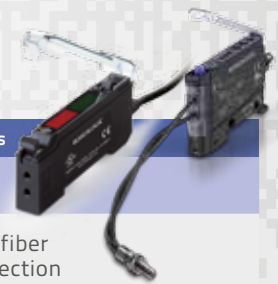
- Diffuse proximity 10, 35, or 100cm, fix focus 5cm
- Background suppression 40-120mm
- Retroreflex 5 m, Polarised 4m, for Transparent 1m
- Through beam 20m
- L/D input, 2m Cable, M12 connector, or pig-tail vers.
- IP69K Plastic or Stainless steel case
- Johnson Diversey certification for industrial detergents

#### APPLICATIONS

- Processing and Packaging machinery
- Assembly and conveyor lines

#### Fiber Optic Amplifiers

### S7/S70



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

#### M18 tubular sensors

### S50/S51



Standardization of the same M18 housing with mounting holes, installation and wiring for all optic functions. Further cost saving with S51 basic line

#### TECHNICAL DATA

- Diffuse proximity 10, 40, or 70cm, and Laser 35cm
- Fix-focus 100mm and Background suppr. 50-100mm
- Polarised RRR 4m, Laser 16 m, for Transparent 1m
- Through-beam 20m and Laser 60m
- Contrast sensor 10mm, Luminescence sensor 20mm
- 2m Cable or M12 connector with NO-NC outputs
- Axial or Radial optics, Plastic flat or Metal M18 case

#### APPLICATIONS

- Processing and Packaging machinery
- Assembly and conveyor lines
- Automatic material handling
- Automated warehousing

## Incremental encoders

**ENC41/ENC58**

Versatile and flexible incremental encoders with compact and standard dimensions.  
Hollow or solid shaft and universal output circuit

## TECHNICAL DATA

- Plastic or aluminium housing Ø41mm and Ø58mm
- Hollow or solid shaft
- Resolution from 1 to 10000 PPR
- 1.5m cable connection
- AB0/AB0 output signals
- Smart Push-Pull & Line-Drive output
- Power supply 5 – 30 Vdc

## APPLICATIONS

- Working and assembly lines
- Packaging machinery
- Light conveyors

## Programmable incremental encoders

**IEP58**

Programmable incremental encoder reduces storage cost and downtime with to customer specific programming.

## TECHNICAL DATA

- Standard housing Ø 58mm
- Resolution from 1 to 16384 PPR
- 1.5m cable connection
- AB0/AB0 output signals
- Smart Push-Pull & Line-Drive output
- Power supply 5 – 30 Vdc

## APPLICATIONS

- Automated machinery
- Conveyor lines

## Absolute encoders

**AST58/AMT58**

Compact optical single and multi-turn encoder  
Extremely high accuracy  
Serial interface SSI up to 25 bit  
Modular fieldbus ProfiBus, Profinet; EtherCat, DeviceNet, CanOpen up to 30 bit.

## TECHNICAL DATA

- Aluminium anticorodal metal case Ø58mm
- Solid shaft Ø6 or 10mm, hollow shaft Ø15mm
- M12, M23, or 1.5m cable connection
- Power supply 7.5 – 34 Vdc

## APPLICATIONS

- Motion control
- Automated machinery
- Length measurement/positioning

## 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

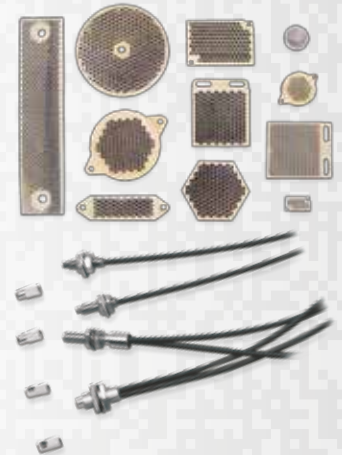
## TECHNICAL DATA

- 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 certification 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

## SENSORS ACCESSORIES



- High efficiency reflectors for longer operating distance
- Micro-prismatic reflectors for high resolution detection
- High temperature, Extra-flexible, High efficiency fibers
- Fiber optics light array, Fiber units with focusing lens
- Cables with axial or right angle M8 or M12 connectors
- Plastic support and metal bracket for sensor mounting

## HEADQUARTERS

### Datalogic Automation Srl

Via Lavino, 265  
40050 Monte San Pietro - Bologna - Italy  
Tel: +39 051/6765611  
info.automation.it@datalogic.com

## BRANCHES AND SALES OFFICES

### EUROPE

#### BENELUX

##### Datalogic Automation Benelux

Newtonweg 3  
4104 BK Culemborg - The Netherlands  
Tel. +31 345/589489  
info.automation.nl@datalogic.com

#### FRANCE

##### Datalogic Automation Srl

Succursale en France  
Le Parc Technologique de Lyon  
333 cours du 3ème Millénaire - Le Pôle  
69800 Saint Priest  
Tél. +33 (0)4/72476180  
info.automation.fr@datalogic.com

#### GERMANY

##### Datalogic Automation Srl

Niederlassung Central Europe  
Gottlieb-Stoll-Straße 1,  
73271 Holzmaden  
Tel. +49 7023 7453-100  
info.automation.de@datalogic.com

#### ITALY

##### Datalogic Automation Italy

Via Lavino, 265  
40050 Monte San Pietro - Bologna  
Tel. +39 051/6765611  
info.automation.it@datalogic.com

Via Taormina 1  
20093 - Cologno Monzese (MI) Italy  
Tel. +39 02 25151211  
info.automation.it@datalogic.com

Via Le Gorrey, 10 11020, Donnas - Aosta  
Tel. +39-0125-8128201  
info.automation.it@datalogic.com

## SPAIN

### Datalogic Automation Iberia

Sucursal en España  
C/ Frederic Mompou 4 esc A, 4ª puerta 3ª  
08960 Sant Just Desvern - Barcelona  
Tel. +34 (0)93/4772059

## NORDIC

### Datalogic Automation AB

Höjdrodergatan 21  
21239 Malmö - Sweden  
Tel. +46 (0)40/385000  
info.automation.se@datalogic.com

## UNITED KINGDOM

### Datalogic Automation UK

Datalogic House  
Dunstable Road, Redbourn - Hertfordshire  
AL3 7PR  
Tel. +44 (0) 1582 791750  
info.automation.uk@datalogic.com

## TURKEY

### Datalogic ADC Turkey

Merkezi İtalya İstanbul Merkez Şubesi Süleyman  
Seba Cad. No:48 BJK Plaza A. Blok Kat:4 D.44  
34357 - İstanbul - Turkey  
Tel. +90 212 396 1550  
info.adc.tr@datalogic.com

## NORTH AMERICA

### Datalogic Automation Inc

511 School House Road  
Telford, PA 18969-1196 - United States  
Tel. +1-800-BAR-CODE or +1-215-723-0981  
info.automation.us@datalogic.com

### Datalogic Automation Inc

**MACHINE VISION**  
5775 W Old Shakopee Rd  
STE 160, Bloomington, MN 55437  
United States  
Tel. +1-952-996-9500  
info.automation.us@datalogic.com

## SOUTH AMERICA

### Datalogic Brazil

Avenida Olivio Roncoletta, 465  
Bairro Vila Hortolandia Jundiá (SP), Brazil  
Tel. +55 11 29232600  
info.automation.br@datalogic.com

## APAC

### Australia-New Zealand

#### Datalogic Automation Pty Ltd

Unit 130, 45 Gilby Road  
Mt Waverley - Victoria, 3149 - Australia  
Tel. +61 (0)3/95589299  
info.automation.au@datalogic.com

## CHINA

### Datalogic Automation Asia

2nd Floor, 10 Building, Dayuan Industrial Zone,  
No.1, Pingshan 1st Road,  
Liuxuan Blvd. Xili, Nanshan District,  
518054, Shenzhen, China  
Tel: +86 (0)755-8629 6779  
info.automation.cn@datalogic.com

R206, 2F, No. 1288 Longdong Avenue,  
Pudong New Area,  
Shanghai, 201203  
Tel: +86 (0)21-5836 6692  
info.automation.cn@datalogic.com

Floor 20, Room 2019, Building 2,  
16 West Nan San Huan Road  
Fengtai District, Beijing  
Tel: +86 (0)10-8757 6375  
info.automation.cn@datalogic.com

1202, Excellence Build, 128 Yanji Road,  
Shibe District, Qingdao, China  
Tel: +86 (0)532 55787889

## JAPAN

### Idec Auto-Id Solutions Corporation

8-10, Shioe 5-chome, Amagasaki Hyogo,  
Japan 661-0976  
Tel. +81-6-7711-8880  
www.idec.com

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