

FOOD & BEVERAGE

Solution Guide



DATALOGIC AT A GLANCE



Datalogic began its entrepreneurial adventure in 1972, when **Dr. Romano Volta** started developing and producing optical-electronic control appliances for the packaging, textile and ceramics sectors. Romano Volta sensed the revolutionary scope of the bar code and started developing a manual reader able to read it, combining electronics, mechanics, optics and information technology. In 1974 Datalogic brought this technology into the Retail world, in a supermarket in Troy, Ohio and then applied it to the whole industrial world, giving life to the only true Bar Code Company at a global level.

Today, Datalogic is a global leader in the automatic data capture and factory automation markets, specialized in the design and production of bar code readers, mobile computers, sensors for detection, measurement and safety, RFID, vision and laser marking systems. Throughout the entire value chain, Datalogic solutions increase the efficiency and quality for processes in the Retail, Manufacturing, Transportation & Logistics and Healthcare industries.

**45+
years**
of experience

500 engineers
in 11 R&D centers and 3 DL
Labs in: Italy, USA, Vietnam,
China, and Germany

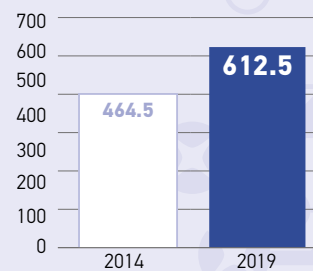
**1,200+
patents**
filed and more than
350 in approval

**3,000+
Employees**

in 28 countries:
20% Americas,
57% EMEA, 23% APAC

**A constant
growth**

(total revenues
Mil Euros)



**10,6%
Revenues**

invested in
R&D

10 Manufacturing and Repair facilities

in US, Brazil, Hungary, Slovakia, Italy, China, Vietnam and Australia



WHY DATALOGIC



- ✦ **Dominant player** in both automatic data capture and industrial automation markets
- ✦ Recognized global **leader**
- ✦ **Deep expertise** in every target industries
- ✦ Leading **innovator**
- ✦ Top performing products for **all needs**
- ✦ **Close to customers** worldwide presence with thoroughly tailored services
- ✦ **End-to-End Solutions** to streamline any process
- ✦ **Strong culture** of high values



DATALOGIC FOR INDUSTRY 4.0

“Unique portfolio provider of smart, interconnected devices able to protect, identify, sense, check and mark. We’re focused on Automotive, Electronics, Packaging and General Manufacturing customers in the Industrial Production world”

MANUFACTURING

TECHNOLOGIES FOR DATA GENERATION...

The technologies used to generate data by Datalogic can be divided into four categories. They depend on the type and function of the product data or production process: marking (Laser Markers), scanning (Bar Code Readers and Vision Systems), writing and reading (Readers and RFID tags), object and physical feature scanning (Photoelectric Sensors, Smart Cameras and Vision Systems).

...AND AUTOMATION IMPLEMENTATION

Datalogic products also detect and locate parts during the manufacturing process enabling robot guidance and fully automated processes (Sensors, Smart Cameras and Vision Systems). This can all be safely automated thanks to solutions for machine safeguarding and robotic cell protection (Safety Barriers and Laser Scanners).

In all these cases the Datalogic components are perfectly integrated within the systems described by Industry 4.0 through interfaces and standard Industrial Ethernet protocols. In accordance with another Industry 4.0 requirement, Datalogic solutions include smart functions for communication, self-configuration and self diagnostics.



PACKAGING SMART MANUFACTURING

SMART DEVICES ENABLING INDUSTRY 4.0

Driven by Industry 4.0, the packaging industry is aiming for highly flexible workflows, while maximizing productivity and efficiency.

Sensors and Safety devices in a smart factory are the key enabler that will help to perform the biggest benefits of this revolution.

Smart Sensors help to maximize productivity and reduce machinery downtimes, event data warning messages can be used to prevent potential failures and call for maintenance.

Image based barcode readers are also compatible with all OPC UA Clients working in accordance with the AutoID Companion Specification, which integrates automatic data capture and identification technologies into the Industry 4.0 communication through the Industrial Internet of Things (IIoT).



SENSOR SOLUTIONS FOR FOOD & BEVERAGE

Datalogic provides a complete Sensor Portfolio that is perfectly fit to provide the state-of-the-art solutions for detection and inspection on any automated product line. From specific sensors for labelling or color mark detection up to light grid systems or stainless steel sensors for hygienic requirements. The Datalogic sensor offering is able to provide the right solution to cover the entire production processes. Distance sensor based on TOF or triangulation technology and smart sensor for simple inspection quality check complete the sensor offer adding values for Customer.



TOTAL TRACEABILITY

Product traceability is becoming more and more important in any industry and requires the identification of items along every manufacturing and intra-logistic process, from raw material receiving down to finished good shipment passing through work-in-progress management and monitoring. Datalogic provides a wide portfolio of products and solutions to solve any traceability need: fixed barcode readers to be installed onto manufacturing equipment, handheld readers or mobile computers for manual scanning operations, smart camera and vision systems to validate lines of text such as expiration dates, batch or serial numbers. In addition to the aforementioned technologies, Datalogic is also able to provide devices able to identify objects with innovative approaches like invisible Digimarc® or Pattern Matching by means of graphical features.



DATALOGIC SOLUTIONS FOR PACKAGING

SAFETY

Datalogic offers a complete line of **type 2 and type 4 safety light curtains** for point protection and access control in dangerous areas, with basic and advanced functions, such as integrated muting, blanking, and cascade.

Laser Sentinel, a new family of safety laser scanners, provides a solution for safe monitoring of a two-dimensional area with high level detection performances in compact dimensions. All needed functions for its flexible use in horizontal, vertical and dynamic applications are available.

GUIDANCE

The IMPACT Software, powering all Datalogic **Machine Vision** devices ranging from **compact smart cameras** to **high-end vision processors**, is the ideal platform to develop Robot or Laser guidance applications. Powerful state-of-the-art pattern matching algorithms combined with advanced camera calibration and data communication functionalities result in quick and seamless application deployment.

MEASUREMENT

A wide range of laser **Time of Flight (TOF)** and **Ultrasonic** technology based sensors, commonly used in level and position control, as well as **measurement light grids**, with different heights and resolutions together with easy and effective programming modality, applied in the precise and accurate detection of the material dimensions during working compose the Datalogic measurement portfolio.

DETECTION

Datalogic offers a best-in-class comprehensive product portfolio of **sensors** mainly based on light technology. Color or luminescence sensors as well as slot sensor for counting or positioning, background suppression and polarized retro-reflex sensors with LED or LASER emission are some of the solutions available for Food & Beverage applications. Complete the offer a wide range of **inductive sensors** and **rotary encoders**.

INSPECTION

IMPACT Software Suite, with over 120 inspection tools and 50 user interface controls, allows users to create unique inspection programs and develop user interfaces quickly and easily. Feature locating, flaw detection, surface inspection, pattern matching, measurement and color analysis are just few examples of the wide range of tools available to perform an accurate and 24/7 consistent quality inspection of the production thus reducing the non-quality costs and recall rate.



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Custom
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best

TRACEABILITY

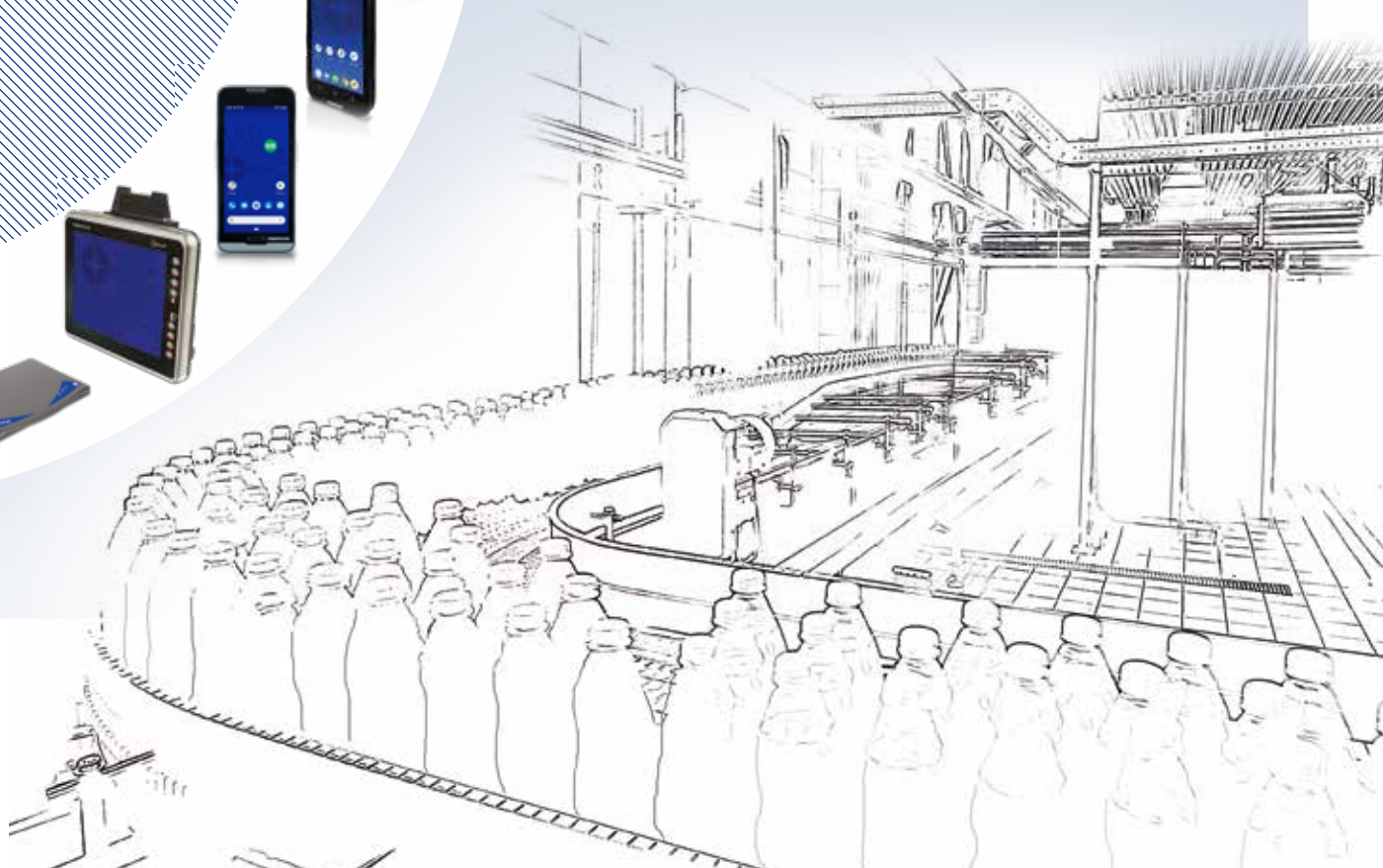
Datalogic offers the most comprehensive portfolio of products and solutions in the marketplace to deploy total traceability systems for components, sub-assemblies and finished goods. Starting from fixed **1D and 2D unattended barcode readers**, based on cutting-edge technologies such as imagers, electronic focus control, powerful lighting systems and equipped with the most recent communication protocols like industrial fieldbus and OPC-UA.

The barcode reading product portfolio is then enriched by the widest range of **rugged or general purpose handheld scanners** equipped with powerful state-of-the-art scan engines to tackle even the most challenging applications like DPM or long distance 2D code reading. The Datalogic cordless handheld readers embed unique technologies like wireless charging, STAR radio proprietary narrow-band for two-way communication and long-lasting batteries to maximize the life of the device and the return of investment.

The barcode reader portfolio is then completed by an extensive range of **mobile computers** ranging from well-established industrial rugged **Portable Data Terminals (PDT)** with physical keyboard to Android™ powered full touch **Portable Digital Assistant (PDA)**. The mobile computer portfolio also includes two other important families: rugged **vehicle mount computers** to provide forklift operators with a sturdy multi-touch interface to the Warehouse Management System and **industrial tablets** with great ergonomics and Gorilla® glass screen enabling a wide range of applications.

Additional opportunities to implement traceability solutions for packaging come from other technologies mastered by Datalogic among which a selection of Ultra High Frequency (UHF) **RFID** devices and **Optical Character Recognition (OCR)** capabilities with smart cameras and vision processors to read text strings such as batch or lot numbers.

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offering
quality



INBOUND LOGISTICS

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1. FORKLIFT SOLUTION



The PowerScan 2D Auto-Range ensures high reading performances of both 1D and 2D codes even at far operating distances. Combined with the SD9030 dongle and the Rhino II vehicle mount computer, it represents a complete solution for forklifts allowing operator to scan items with no need to get off the vehicle.

2. PICKING



In warehouse operations, workers have to track and report the picked parts in real time. The Falcon X5 mobile computers are the optimal choice for any application requiring reliable data collection in mobility offering maximum performances and ruggedness in an ergonomic design and including a new Mid Range 2D imager for improved DoF and an improved near-far Extra Long Range.



3. INBOUND QUALITY CONTROL



Material receiving results in a variety of activities including part identification and defective part notification (including visual information). Memor 10 PDA is the ideal operator companion enabling a wide range of different applications exploiting the power and flexibility of Android OS.

4. LOAD VERIFICATION ON ROBOT GRIPPER



In warehouse operations automated de-palletizing is enabled by means of robots. The S3Z photoelectric sensors, placed on the robot gripper is used to verify for a loss of load during the movement of the robot arm.

5. SAFETY POINT AND ACCESS CONTROL



Palletizing cells require protection around the entrance and exit to allow for the detection and prevention of injuring a nearby operator. SG4 Extended with full Muting and Blanking features allows for a fully flexible access protection. Easy to use push buttons or GUI makes the programming simple and a perfect fit for every application.

BEVERAGE PRIMARY PACKAGING



2

1. 360° BARCODE READING

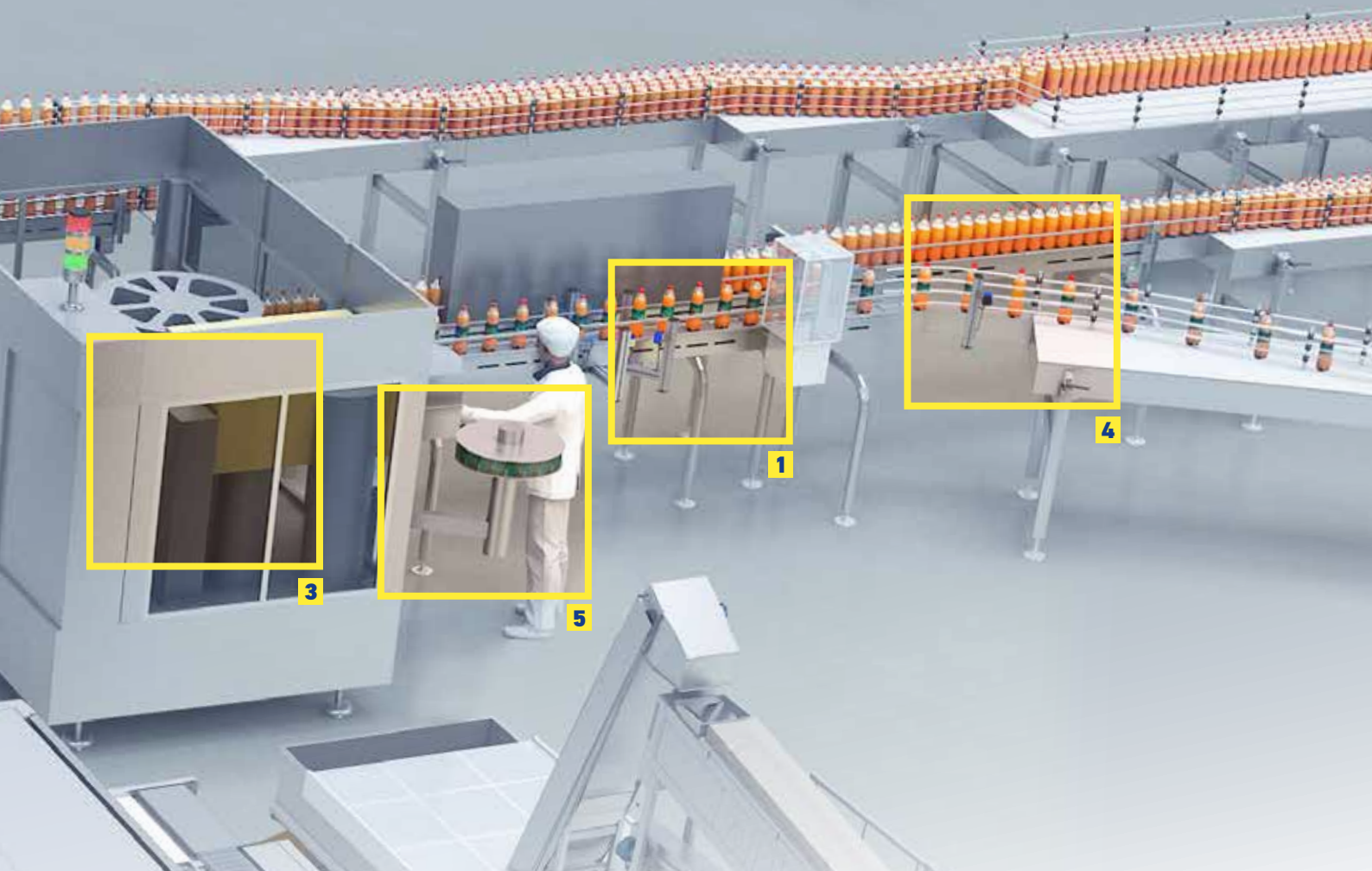


Reading barcodes on round fast-moving objects with random orientation is a challenging task that can be solved using an array of Matrix 220 readers connected and synchronized through the proprietary ID-Net connection protocol.

2. CLEAR DETECTION



In production lines for the beverage industry a very critical application is the detection of clear objects. The best solution for this is a retro-reflex polarized sensor with coaxial optics; this type of sensor provides accurate and reliable detection on clear objects.



3. CAP PRESENCE VERIFICATION



In the filling machines a quality issue is the verification of the presence of the bottles cap. The Smart-VS vision sensor is the most suitable solution for this verification.

4. LABEL CONTROL



Label check is a typical need in labelling machines to prevent issues such as missing labels or mis-labelled products. The DataVS2 vision sensors are able to reliably detect these production errors and can be quickly programmed by non-expert users thanks to the easy-to-use Graphical User Interface.

5. PACKAGING MATERIAL LOAD CONTROL



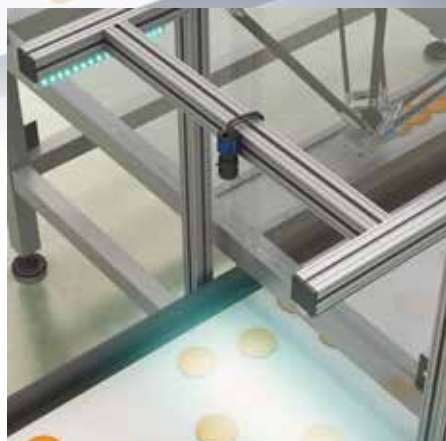
When loading the wrapping material into the machine, operators have to double check they have selected the correct one. This verification can be automated by using an industrial handheld reader like the Powerscan.

FOOD PRIMARY PACKAGING

1

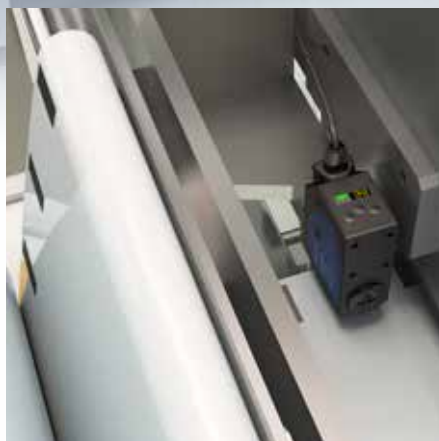


1. ROBOT GUIDANCE



Robots are being used more and more in packaging processes to increase the flexibility of manufacturing lines. Vision systems based on the powerful MX-E vision controller running the IMPACT software can be deployed in order to accurately locate the item to grab and drive the robot in the corresponding picking position.

2. REGISTRATION MARK DETECTION



Packaging machines typically operate on continuous cycle, to package food and non food materials. Contrast sensors are used to detect registration marks on the package in order to synchronize the packaging phases.

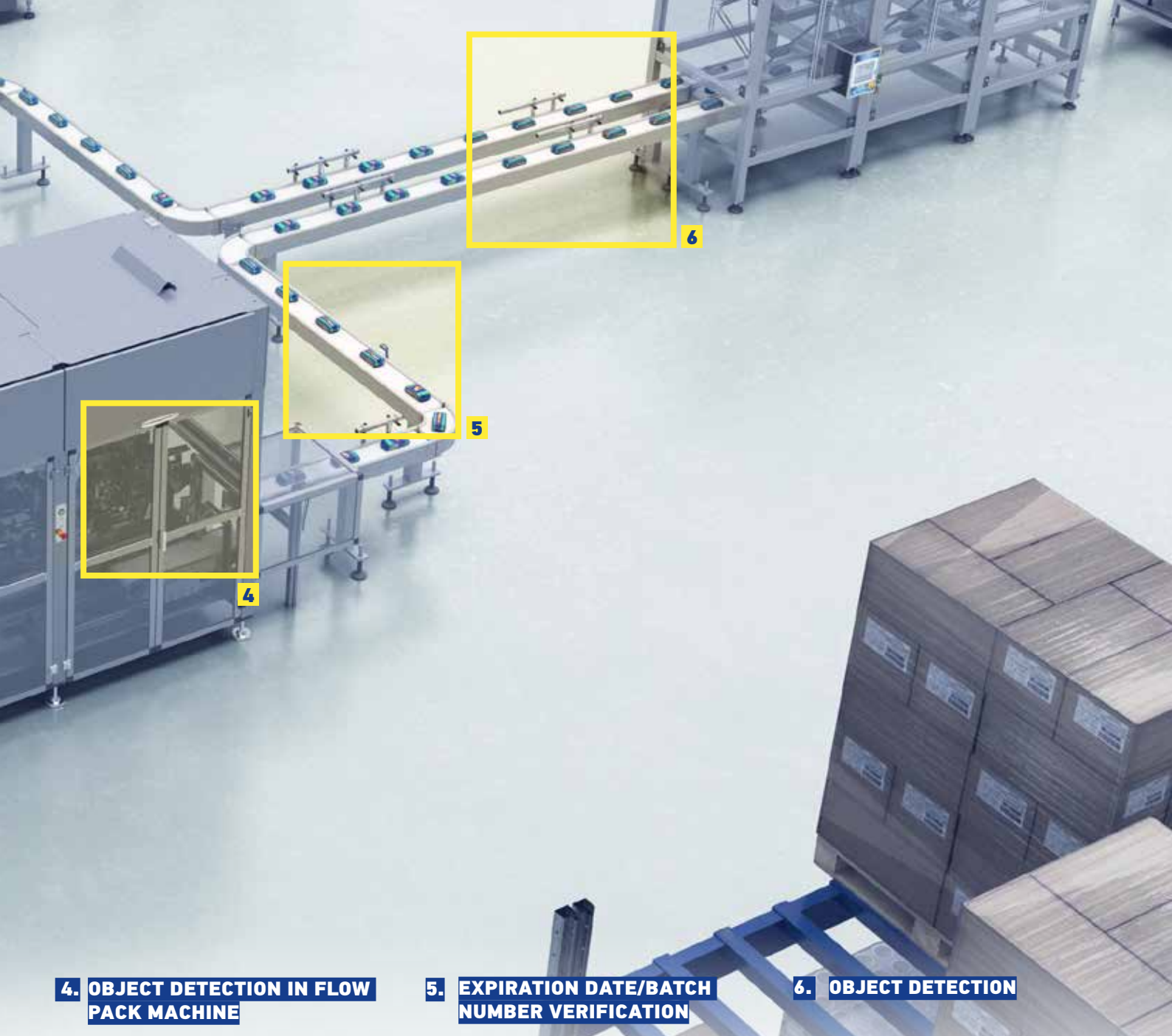
2



3. PACKAGING MATERIAL VERIFICATION



F&B customers typically have to manage a very wide range of products on the same manufacturing line featuring different graphics according to the flavour, language, brand, etc... Matrix 120 is an extremely compact reader that can be embed into any space of the machine to verify the correctness of the packaging material.



4. OBJECT DETECTION IN FLOW PACK MACHINE



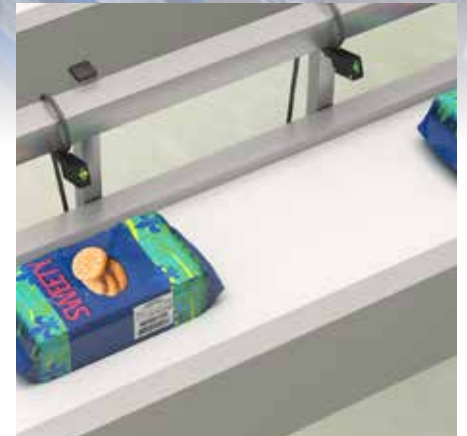
The HFFS machines operate on continuous cycle, taking the plastic wrap from a reel and sealing it around the product. The Area Sensor is used to detect different objects inside the plastic wrap.

5. EXPIRATION DATE/BATCH NUMBER VERIFICATION



In food & beverage the widest majority of goods must display information like expiration date and batch number. The P-Series smart camera is able to perform OCR reading thus verifying the readability and content of these text strings preventing quality issues as missing or wrong characters.

6. OBJECT DETECTION



The HFFS machines operate on continuous cycle, taking the plastic wrap from a reel, sealing it all around the product. BKGD suppression or polarized sensors are typically used to detect the material on the belt.

FOOD SECONDARY PACKAGING

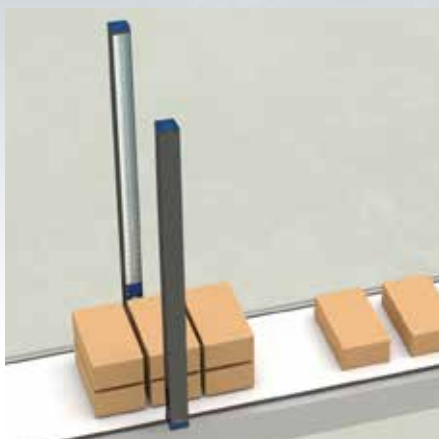


1. CASE PACKER POINT PROTECTION



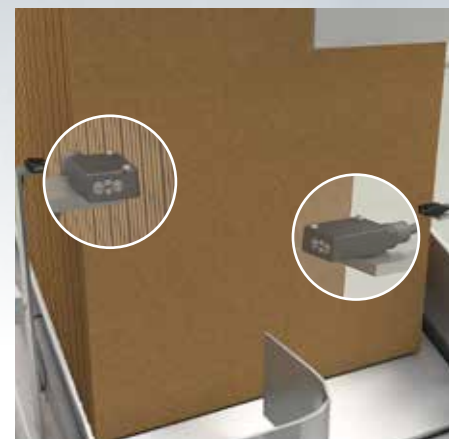
Light curtains allow safe entry to potentially dangerous operations. The ideal hazardous point protection involves minimizing ergonomic restraints and maximizing secure detection. SLIM Safety light curtains fit perfectly into the machine frame even when very little space is available.

2. BUNDLE INTEGRITY VERIFICATION IN A CASE PACKER

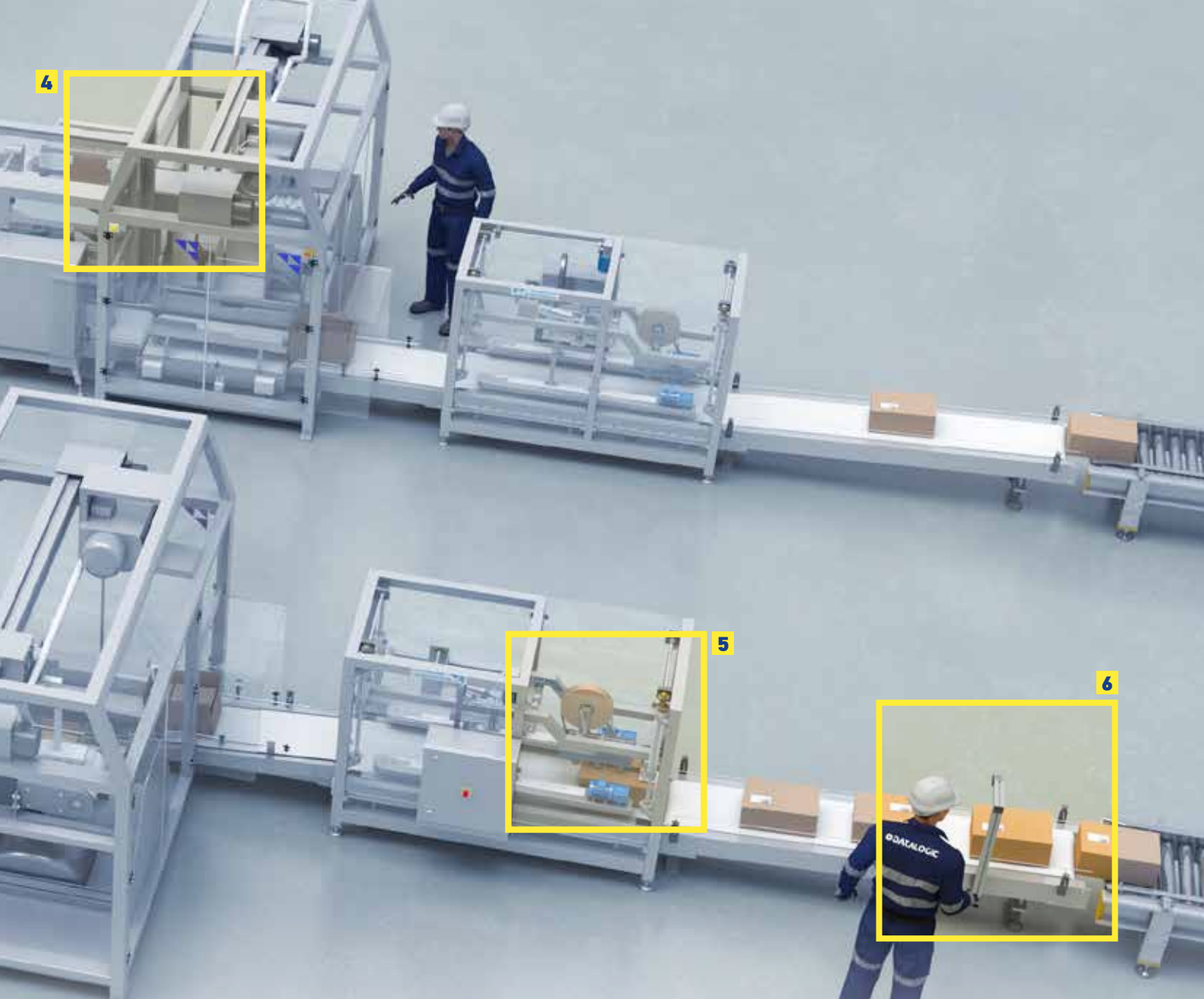


In the automatic case-packers a quality issue is the verification of the bundle completeness before the insertion of it into the case. Light grid system is used to measure the height of the bundle in order to verify that the right number of packages are wrapped and ready to be inserted into the case.

3. CARDBOARD PRESENCE CONTROL IN A CASE PACKER



The Automatic case-packers are used to solve the works of forming, loading and sealing of cases. Photoelectric sensors are used to verify the presence and the position of the cases in order to guarantee the right process.



4. BARCODE READING ON LABEL APPLICATOR

5. LABEL COUNTING

6. BARCODE READING ON BUNDLES



Matrix 120 is the most compact image-based barcode reader available on the market. Thanks to its reduced dimensions, it can be easily mounted directly onto label applicators thus allowing to double check the applied label instantaneously and detecting errors immediately.

Food and Beverage manufacturing requires complete traceability throughout the process, any changes or variations in this process must be caught immediately. Ensuring that the correct label matches the correct product is a necessity.

Single packages are often grouped into bundles. In order to ensure the traceability of products, labels with barcodes are usually applied on bundles and have to be read automatically. The Matrix 300N, features a 2MP high resolution imager and powerful lighting system, allowing it to read barcodes over a wide field of view.

OUTBOUND LOGISTICS



1. SAFETY ACCESS CONTROL IN A PALLETIZER

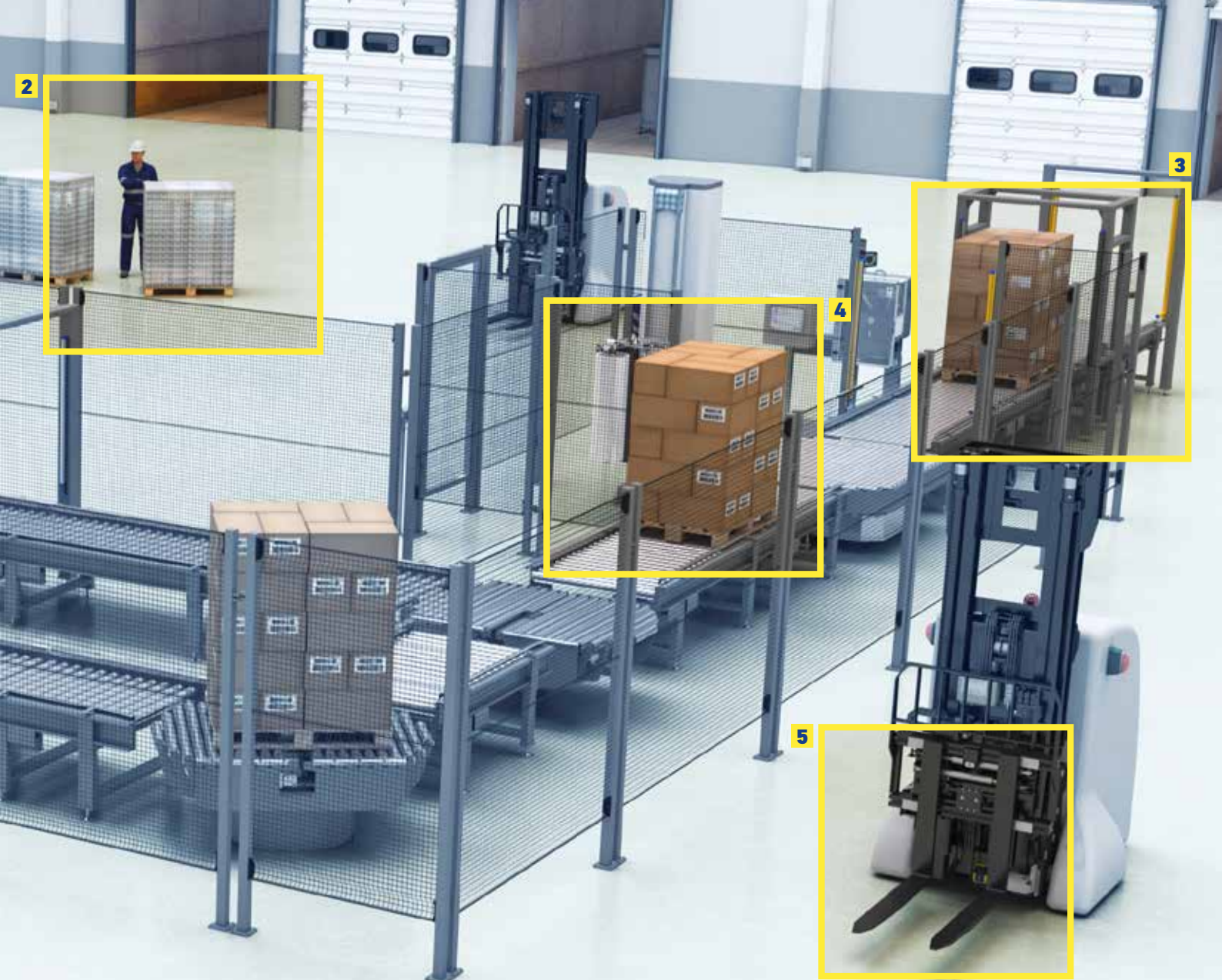


A palletizer can be very dangerous for nearby operators, especially when they must access the pallet after the robot is finished. SG4 Body Compact with pre-mounted, pre-cabled and pre-aligned muting arms fulfils completely this requirement reducing installation costs without jeopardizing the safety level.

2. TRACEABILITY IN WAREHOUSE OPERATIONS



Inventory management requires periodic verification of the goods stored in different locations. The Taskbook, a rugged tablet with optional handgrip that integrates a 2D imager and a hot swappable battery, represents the most efficient solution for tracking allowing one hand scan on 24/7 basis.



3. PALLET SCANNING



When dealing with pallets with unknown label position, a very powerful scanner is needed for barcode reading. Thanks to the high imager resolution and extremely powerful lighting system, Matrix 450N delivers high reading rate on wide Field of View and extended Depth of Field.

4. PALLET HEIGHT CONTROL



Sensors are used on automatic wrapping machines to verify the presence and position of the pallets. Distance sensors can be used to perform an accurate and reliable detection of the pallets.

5. AGV ANTI-COLLISION






The Laser Sentinel safety laser scanner can be used to prevent the collision of the AGV with persons, vehicles, or material. Laser Sentinel has configurable safety and warning fields that can be activated dynamically according to the speed or direction of travel.




FOOD & BEVERAGE PRODUCTS and SERVICES PORTFOLIO






VISION SYSTEMS

| | DATA VS2 | P SERIES | MX-E SERIES |
|--|---|--|---|
| |  <ul style="list-style-type: none"> • Three available versions for efficient Object Recognition (OBJ), Advanced Object Recognition (AOR) and Identification (ID). • 360 ° pattern match for the models advanced • TURBO mode to double the processing speed |  <ul style="list-style-type: none"> • Right-angle IP67 rated enclosure with rotating connectors • VGA (640x480) or 1.3 MP (1280x1024) with color or grey-scale imagers • Embedded interchangeable lenses and illuminators |  <ul style="list-style-type: none"> • Multi-camera vision processors • GigE Vision camera connectivity • Four different models with different processing capabilities |
| Format | Right angle | Right angle (with rotating connectors) | --- |
| Imager | 640x480, 60fps | 640 x 480, 1/4" CMOS, 120 fps 1280 x 1024, 1/1.8" CMOS, 60 fps | Support for up to eight POE GigE cameras 640 x 480 up to 2448 x 2048 (up to 16MP with 3rd party cameras). |
| Image | 8 bit grayscale | 8 bit grayscale 24 bit color | Area Scan grayscale, Area Scan Color, Linescan |
| Lens mount | Embedded lenses | | C-Mount and F-Mount |
| Processor | 480 MHz DSP | 660 MHz DSP | Intel® Celeron 1047UE 1.4 Ghz – dual core (MX-E20) Intel® Celeron 1020E 2.2 Ghz – dual core (MX-E40) Intel® Core i7 3615QE 2.3 Ghz – quad core (MX-E80) Intel® Core i7-7700T up to 3.80 Ghz – quad core (MXE-90) |
| On-board image buffering | --- | Up to 16 | --- |
| On-board Program Storage | 20 inspection files | 256 MB flash | 60GB (MX-E20/40) 128GB (MX-E80) |
| Dedicated on-board Optically isolated i/o | 4PNP outputs (OBJ & AOR models) 3PNP outputs (ID Model) 1 input inspection selection -1 trigger (OBJ & AOR models) 1 trigger (ID and PRO models) | 2 INPUT 3 OUTPUT | MX-E20/40/80: 32x opto-isolated digital inputs / outputs, (16 IN - 16 OUT), NPN or PNP MX-E90: 16in 16out single I/O card programmable |
| RS-232 Serial | YES (ID and PRO models) | YES | |
| Ethernet | 10/100Mbps Ethernet | YES Supports Ethernet/IP, Modbus TCP and OPC, Profinet | |
| External button | YES | | --- |
| Power supply | 24 Vdc ±10 % | 10 - 30 Vdc | 24 Vdc +/- 25% |
| Consumption (output current excluded) | 100 mA at 24 Vdc (without illuminator) | 0.7 - 0.2A | 5.5 A @ 24 Vdc |
| Dimensions | 69.8 x 51.5 x 40 mm [27.4 x 20.3 x 1.6 in] | 95 x 54 x 43 mm [3.7 x 2.1 x 1.7 in] Connector @ 0° 75 x 54 x 62 mm [3.0 x 2.1 x 2.4 in] Connector @ 90° | 270 x 130 x 255 mm [10.6 x 5.1 x 10 in] |
| IP rating | IP50 | IP67 | IP20 |
| Operating temperature | -10 ... +50°C [14 to 122 °F] | 0 to 50° C [32 to 122° F] | |
| Humidity (non-condensing) | 0 to 90% | | 10 to 90% |

STATIONARY INDUSTRIAL SCANNERS

| | MATRIX 120™ | MATRIX 220™ | MATRIX 300N™ |
|--|---|---|---|
| |  <ul style="list-style-type: none"> Ultra compact dimensions for easy integration Smart user selectable focus for high application flexibility ESD and Polarized Versions |  <ul style="list-style-type: none"> All-In-One DPM illuminator for strong DPM reading performance Smart electronic focus control for high reading flexibility New multicore image processing platform excellent for high speed applications |  <ul style="list-style-type: none"> High power illuminators for long range reading distances High performance DPM reading Both manual and electronic focus control options |
| Reading distance (min / max) | WVGA models 25-190 mm [1.0-7.5 in] 1.2 MP models 25-220 mm [1.0-8.7 in] | STD-W & STD-W HP models 7 mm lens: 40-400 mm [1.6-15.7 in] 12 mm lens: 40-600 mm [1.6-23.6 in] DPM-R & DPM-B models 7 & 12 mm lenses: 40-300 mm [1.6-11.8 in] DPM-R HP models 7 mm lens: 40-400 mm [1.6-15.7 in] 12 mm lens: 40-600 mm [1.6-23.6 in] | <u>Standard models</u> 9 mm lens: 20-650 mm [0.78 to 25.5 in] 16 mm lens: 40-1200 mm [1.57 to 47.2 in] <u>Polarized models</u> 9 mm lens: 20-350 mm [0.78 to 13.7 in] <u>Diffused models</u> 9 mm lens: 20 -50 mm [0.78 to 13.7 in] 16 mm lens: 40-450 mm [1.57 to 17.7 in] |
| Focusing system | Manual adjustment in three precalibrated positions (45, 70, 125mm - WVGA; 45, 80, 125 mm - 1.2 MP) | Electronic focus control | 1.3 MP models: Electronic for liquid lens models (LQL-9mm) - Manual for fixed lens models (LNS-6mm, LNS-9mm, LNS-12mm, LNS-16mm) 2 MP models: Electronic Focus Control with Liquid Lens (LQL-9mm, LQL-16mm) |
| Sensor | CMOS sensor WVGA - 752x480 px CMOS sensor 1.2 MP - 1280x960 px | CMOS sensor - 1280x960 px | 1.3 MP models: CMOS sensor SXGA - 1280x1024 px 2 MP models: CMOS sensor UXGA - 1600x1200 px |
| Frame rate | 57 frame/s (WVGA model) 36 frame/s (MP model) | 45 frames/s | 1.3 MP models: 60 frame/s 2 MP models: 45 frame/s |
| Code reading capabilities | Omnidirectional on any code type | | |
| IP rating | IP65 | IP65, IP67 | |
| Temperature range | 0 to 45 °C [32 to 133 °F] | -10 to 50°C [14 to 122 °F] | 1.3 MP models: Manual Focusing models: 0° to 50 °C (32 to 122°F) - Electronic Liquid Lens models: 0° to 45 °C (32 to 113°F) 2 MP models: 0 to 45 °C (32 to 113 °F) |
| Case material | Zama (Zinc Alloy) - Plastic reading window cover | Aluminum case and plastic protective window cover | 1.3 MP & Diffused 2 MP models: Aluminum case and plastic protective window cover Standard and Polarized 2MP models: Aluminum case and black aluminum protective window cover |
| Dimensions (typical value) | 45.4 x 31.1 x 23.5 mm [1.8 x 1.2 x 1 in] (SER+USB model) 45.4 x 48.5 x 23.5 mm [1.8 x 1.9 x 1 in] (SER+ETH model) | 78 x 47 x 38 mm [3.07 x 1.85 x 1.50 in] Connector at 0° 57 x 47 x 58 mm [2.63 x 1.85 x 2.30 in] Connector at 90° | 1.3 MP & Standard/Polarized 2 MP models: 95 (height) x 54 (width) x 45 (length) mm (3.7 x 2.1 x 1.8 in) Connector at 0° 75 (h) x 54 (w) x 64 (l) mm (3.0 x 2.1 x 2.5 in) Connector at 90° Diffused 2MP models: 95 (h) x 54 (w) x 43 (l) mm (3.7 x 2.1 x 1.7 in) - Connector at 0° 75 (h) x 54 (w) x 62 (l) mm (3.0 x 2.1 x 2.4 in) |
| Weight | 117 g [4.1 oz] with cable (SER+USB model) - 200 g [7.1 oz] with cable (SER+ETH model) | 173 gr [6.1 oz] | 1.3 MP models: 238 g (8.3 oz.) with lens and internal illuminator Standard 2MP models: 9 mm lens: 250 g/8.8 oz 16 mm lens: 273 g/9.6 oz Polarized 2 MP models: 9 mm lens: 274 g/9.6 oz Diffused 2MP models: 9 and 16 mm lenses: 236 g/8.3 oz |
| Yag laser protection and ESD safe | NO | YES, available as front cover accessory | YES |
| POE models | --- | YES | |
| Embedded communication interfaces | RS-232/RS-422/USB 2.0 high speed (USB-CDC, USB-HID) Main RS-232 or RS-422 FD (2400 to 115200 bit/s) | All models except PoE: - Ethernet 10/100 Mbit/s: TCP/IP, UDP, FTP and Fieldbus PROFINET IO, Ethernet IP, Modbus TCP - Serial RS-232/RS422FD up to 115.2 Kbit/s + Serial Aux RS-232 (only Serial Aux RS-232 for PoE models) - OPC UA | Ethernet 10/100 Mbit/s: Ethernet IP, TCP/IP, UDP, FTP, Modbus TCP, PROFINET IO Serial RS232/RS422FD up to 115.2 Kbit/s + Aux RS232 |
| Xpress interface™ | YES | | |
| Digital inputs | 2 SW Programmable (PNP/NPN) | All models except PoE: 2 inputs opto-coupled and polarity insensitive PoE models: 1 input opto-coupled and polarity insensitive | 2 optocoupled and polarity insensitive |
| Digital outputs | 2 SW Programmable (PNP/NPN) | 3 Outputs (not available on PoE models): Configurable NPN, PNP, PP short-circuit protected | 3 Outputs: Configurable NPN, PNP, PP short-circuit protected (using CBX the first 2 outputs are optocoupled) |
| Device programming | Windows™ based SW (DL.CODE™) via Ethernet | | DL.CODE™ Windows-based software (programming via Ethernet or Serial Interface) with Javascript output formatter Host Mode programming X-PRESS™ Human Machine Interface |

STATIONARY INDUSTRIAL SCANNERS

| MATRIX 410N™ | MATRIX 450N™ | DS5100 |
|---|---|---|
| <div></div> <ul style="list-style-type: none">Patented ultra-fast strobed lighting with stable effect for operatorPatent Pending Packtrack 2D for short object gapping in sortation applicationsSingle reading point or multiple device cluster with easy and flexible configuration | <div></div> <ul style="list-style-type: none">Gigabit Ethernet integrated connectivityAdjustable focus through C-Mount lensesWhite and blue lighting options continuous, no-flashing lighting | <div></div> <ul style="list-style-type: none">Medium, Long Range, Linear and Oscillating Mirror models, selectable focus for high application flexibilitySelectable focus systemDisplay and multi-language messages |
| 50-2000 mm [1.97 - 78.74 in] | 300-3000 mm [11.81 - 118.11 in] | Medium range: 200 - 1000 mm [7.87 - 39.3 in] Long Range: 300 - 1400 mm [11.8 - 55.11 in] |
| Adjustable Focus | Adjustable Focus | Mechanically adjustable focus with locking |
| CMOS sensor SXGA - 1280x1024 px CMOS sensor UXGA - 1600x1200 px | CCD sensor - 2448 x 2050 px | --- |
| 60 frames/s (SXGA model) 45 frames/s (UXGA model) | 15 frames/s | 800 scan/s |
| Omnidirectional on any code type | | over than +/-45° |
| IP67 | IP65 | |
| 0 to 50 °C [32 to 122 °F] | 0 to 50 °C [32 to 122 °F] | 0 to 50 °C [32 to 122 °F] |
| Aluminum | | |
| 123 x 60.5 x 87 mm [4.84 x 2.38 x 3.42 in] with protective lens cover | 170 x 200 x 150 mm [6.69 x 7.87 x 5.90 in] | DS5100-X2XX LIN: 101 x 85 x 42 mm (3.98 x 3.35 x 1.65 in) OM: 116.7 x 123.6 x 48.4 mm (4.60 x 4.86 x 1.90 in) DS5100-X3XX LIN: 101 x 104.2 x 42 mm (3.98 x 4.1 x 1.65 in) OM: 116.7 x 142.9 x 48.4 mm (4.60 x 5.626 x 1.90 in) DS5100-X4XX LIN: 117.75 x 104.6 x 42 mm (3.98 x 4.12 x 1.65 in) OM: 125.8 x 143.3 x 48.4 mm (4.95 x 5.64 x 1.90 in) |
| 482g [17 oz] with lens and internal illuminator | 3 kg [105.8 oz] with lens | DS5100-X2XX LIN: 580 g OM: 775 g DS5100-X3XX LIN: 520 g OM: 715 g DS5100-X4XX LIN: 550 g OM: 745 g |
| YES (with accessories) | --- | |
| --- | | |
| --- | | |
| - Ethernet 10/100 Mbit/s: PROFINET-IO, Ethernet/IP, TCP/IP, FTP, Modbus TCP - Serial: RS232 / RS422 FD, Serial Aux RS232 | - Ethernet 10/100 Mbit/s: TCP/IP, Ethernet IP and Modbus TCP - Serial: RS232 / RS422 FD, Serial Aux RS232 | - Ethernet 10/100 Mbit/s: Ethernet/IP, Ethernet TCP/IP, PROFINET-IO and Modbus TCP - Serial: Main port RS232/RS485 FD Serial Aux RS232 |
| YES | | |
| 2 SW programmable, optocoupled and polarity insensitive | | DS5100-X2XX: 2 Input (optocoupled, NPN/PNP) DS5100-X3XX: 2 Input (optocoupled, NPN/PNP) DS5100-X4XX: 1 Input (optocoupled, NPN/PNP) |
| 3 SW programmable, optocoupled | | DS5100-X2XX: 2 Outputs (optocoupled) DS5100-X3XX: 2 Outputs (non-optocoupled) DS5100-X4XX: --- |
| Windows™ based SW (DL.CODE™) via Ethernet | | Windows™ based SW (Genius) |

SAFETY

SLS STAND ALONE



SLS MASTER/SLAVE



- More than 72 m² safely monitored, with 5.5 m / 180.
- High detection performances in compact size
- Advanced dust filtering

| | | |
|--|--|------------------------|
| Type (EN61496-1) | 3 | |
| PL (EN ISO 13849-1) | d | |
| SIL (IEC 61508) | 2 | |
| Detection capability | 30/40/50/70/150 mm [1.2/1.6/2/2.8/5.9 in] selectable | |
| Angular resolution | 0.1° | |
| Safety zone operating range | 0.05 - 5.5 m [0,16 - 18 ft] | |
| Warning zone max operating range | 0.05 - 40 m [0,16 - 131,2 ft] with remission of target = 90% (white) | |
| Max. number of simultaneous warning zones | 2 | |
| Max. opening angle | 275° | |
| Tolerance zone | 100 mm [3.9 in] | |
| Power supply (Vdd) | 24 Vdc ± 20% | |
| Output current | 0.25 A max / each OSSD | |
| Output Capacitive load | 2.2 uF @ 24Vdc max | |
| Input Load current | 6 ... 15 mA | |
| Input saturation voltage | > 15 V | |
| Input Capacitive Load | 22 uF | |
| Operating temperature | -10 to 50 °C [14 to 122 °F] | |
| Storage temperature | -20 to 70 °C [-4 to 158 °F] | |
| Humidity | 15 to 95 % (no condensation) | |
| IP rating | IP65 (EN 60529) | |
| Connector used | M12 8 pin | M12 17 pin + M12 8 pin |
| Safety Outputs (OSSDs) | 1 x 2 | 3 x 2 |
| Configurable Inputs/Output | 3 | 18 |
| Response time | | |
| for main unit | Min: 62 ms; Max: 482 ms | |
| for any additional slave unit | --- | 10 ms |
| Max. Zone sets number in any activation order (*1): | | |
| with 1 safety zone | 3 | 70 |
| with 1 safety zone + 1 warning zone | 2 | 70 |
| with 1 safety zone + 2 warning zones | --- | 70 |
| with 2 safety zones | --- | 70 |
| with 2 safety zones + 1 warning zone | --- | 70 |
| with 2 safety zones + 2 warning zones | --- | 70 |
| with 3 safety zones | --- | 70 |
| Max. Zone sets number in a particular activation order (*2): | 6 (*2) | --- |
| Zone set input switching time | Min: 30 ms; Max: 5000 ms | |
| Manual / automatic restart | YES | |
| Reset (power cycle) | YES | |
| Total Muting (monodirectional or bidirectional) | YES | |
| Partial muting, dynamic for 1st OSSDs couple | YES | |
| Reference Points | YES | |
| Override | YES (*3) | YES |
| Muting Lamp | YES | |
| Muting Enable | YES (*3) | YES |
| Clean Window Alarm | --- | YES |
| Generic Fault Alarm | YES | |
| Shut off | YES | |
| Advanced Measurement data | YES (*4) | YES (*5) |
| Measurement data angular resolution | 0.1° | |

NOTES

(*1) The max number of zone sets switching is reached when all available inputs are used for zone set switching




(*2) With 1 safety zone only, up to 3 zone sets are available in any activation order. Up to 6 are available only using some allowed activation order. Refer to Manual and GUI for details.

(*3) Override Input, Muting Enable input and Muting Lamp output on SLS-SAX are mutually exclusive

(*4) Using the programming connector on the front of the device

(*5) Using the rotating connector in the back of the device




SAFETY

| | SG4 EXTENDED | SG4 BODY COMPACT MUTING | SLIM |
|---------------------------------|--|--|--|
| |  |  |  |
| | <ul style="list-style-type: none"> Up to 20m / 65.6 ft operating range and 1800mm / 5905.5 ft protected height Cascade connection of up to 3 units Ethernet Interface for programming, monitoring and error logging | <ul style="list-style-type: none"> Controlled heights of 500, 800, 900 and 1200 mm [19.6, 31.4, 35.4, 47.2 in] Simple configuration through DIP switches Integrated muting lamp (only on muting models) | <ul style="list-style-type: none"> SLIM profile: 15 x 32 mm [0.6 x 1.2 in] 34 different protection lengths, with 30 mm [1.1 in] modularity from 150 to 1200 mm Cascadable up to 3 units |
| Type (EN61496-1) | 4 | | 2/4 |
| PL (EN ISO 13849-1) | e | | c/e |
| SIL (IEC 61508) | 3 | | 1/3 |
| Resolution | 14, 30 mm [0.55, 1.18 in] | 315 mm [12.4 in] (4 beams) 415 mm [16.3 in] (3 and 4 beams) 515 mm [20.2 in] (2 beams) | 14 - 24 - 34 mm [0.5, 0.9, 1.3 in] |
| Protected height | 300 - 1800 mm [11.8 - 70.8 in] (with 150 mm [5.9 in] steps) | 515 mm [20.2 in] (2 beams) 815 mm [32 in] (3 beams) 915 or 1215 mm [36 or 47.8 in] (4 beams) | 150 210 270 ... 1200 (with 30 mm steps) |
| Operating distance | 0.2 to 7 m / 6.5 - 22.9 ft (14 mm [0.5 in] resolution) 0.2 to 20 m / 6.5 to 65.6 ft (30 mm [1.1 in] resolution) | 0.5 to 50 m / 0.16 - 164 ft | 0.2 ... 6 m / 6.5 - 16.6 ft |
| Dead zone | No dead zone | --- | No dead zone |
| Power supply (Vdd) | 24 Vdc ± 20 | | 24 Vdc ± 20% |
| Outputs | 2 PNP, with short circuit protection 2 PNP | 2 PNP | 2 PNP |
| Output current | 0.5 A max/each output | | 0.3 A max / each output |
| Capacitive load | 2.2 uF @ 24Vdc max | 65 nF max at 25°C [77 °F] | 1 uF @ 24Vdc max |
| Response time | 13 to 33 ms depending on model | 14 to 16 ms depending on model | RT = 7 ... 17 ms (14 mm [0.5 in] resolution) RT = 7 ... 13 ms (24 mm [0.9 in] resolution) RT = 7 ... 15 ms (34 mm [1.3 in] resolution) Cascade Response time (up to 3 units) ≤ 20ms |
| Cable length (for power supply) | 50 m / 164 ft max | | 20 m / 65.6 ft max |
| Operating temperature | 0 to 50 °C [32 to 122 °F] | 0 to 55 °C [32 to 131 °F] | -10 ... 55 °C [14 to 131 °F] |
| Humidity | 15 to 95 % (no condensation) | | -25° ... 70°C [-13 to 158 °F] |
| IP rating | IP65 (EN 60529) | | |
| Anti-interference coding | YES | --- | --- |
| Muting | YES | | |
| Partial muting | YES | | |
| Override | YES | | |
| Floating blanking | YES | | |
| Fixed blanking | YES | | |
| Reduced resolution | YES | | |

MOBILE COMPUTERS

| SKORPIO™ X5 | FALCON™ X4 | MEMOR™ 10 |
|--|---|---|
|  |  |  |
| <ul style="list-style-type: none">Featuring Google OS Android™ 10 with GMSDesigned for the harshest environmentsWireless charging option available | <ul style="list-style-type: none">Choice of windows embedded or Android™ operating systemsFull-shift hot swappable batteryChoice of 1D or 2D imagers featuring Datalogic's patented 'Green Spot', plus new 2D Auto Range option | <ul style="list-style-type: none">Wireless charging eliminates all contacts on the device and cradleDual band Wi-Fi including the latest 802.11ac standard and 802.11r/k for fast roamingFull suite of cellular connectivity for voice and data, featuring LTE-Advanced/4G+ |
| Google Android 10 with Google Mobile Services (GMS) and Android Enterprise Recommended (AER) | Windows Embedded Compact 7 / Android v4.4 | Google Android 8.1 (Oreo) with Google Mobile Services (GMS) |
| Qualcomm SD660 Octa-core 2.2 GHz | TI OMAP4 @ 1 GHz | 2 GHz Octa-core |
| RAM: 3 / 4 GB; Flash: 32 / 64 GB | RAM: 1 GB; Flash: 8 GB | RAM: 3 GB; Flash: 32 GB |
| 4.3 inch TFT / Transflective LCD with 800 x 480 WVGA pixel resolution; LED backlight and integrated touch screen | Transflective TFT / LCD, QVGA 240 x 320 px; 3.5 in diagonal | 5.0 in IPS; 720 x 1280 px HD resolution |
| YES, including a new Mid Range 2D imager for improved DoF and a new and improved near-far Extra Long Range | YES, including Near/Far Auto Range capability | YES |
| YES | --- | YES |
| IEEE 802.11 a/b/g/n/ac and 802.11 d/e/h/i/k/r/v/w/mc IPv4, IPv6, 2x2 MU-MIMO for higher throughput and coverage Class 2, Bluetooth V5.0 | TI Wi-Link 8, IEEE 802.11 a/b/g/n; Bluetooth® v4 / BLE (Android models); Bluetooth® v2.1 + EDR (WEC7 models); MIMO | Bluetooth® v4.2 (Classic Bluetooth wireless technology and BLE) |
| --- | | LTE-Advanced/4G+; Cat 6 |
| USB Type-C: USB 3.1 gen 1 Gigabit Ethernet connectivity | RS-232; USB; Ethernet | USB 2.0 Client |
| 47-key full alphanumeric, 38-key functional; 28-key numeric keyboard | 29-Key (also in functional version); 52-Key | 3 programmable keys |
| --- | --- | 13 MP color |
| VoiP | | VoiP |
| IP65 | | |
| 1.8 m / 6.0 ft | | 1.5m / 5ft |
| -20 to 50 °C [-4 to 122 °F] | | |
| Hand held (w/stan. battery): 488 g [17.2 oz] Pistol grip (w/stan. battery): 600 g [21.1 oz] | Hand held: 602.0 g / 21.4 oz Pistol grip: 668.0 g / 23.6 oz | 285.0 g / 10.0 oz |





MOBILE COMPUTERS

| | MEMOR™ 20 | RHINO II™ and SH15/SH21 | TASKBOOK |
|--|---|--|--|
| |  <ul style="list-style-type: none"> • Stunning 5.7" Full HD display in 18:9 ratio with Gorilla™ hardened glass • Superior Qualcomm Snapdragon SD660 Octa-core platform clocked at 2.2 GHz for top performance with Android™ 9 (Pie), GMS and AER • Most rugged PDA with an IP65 and IP67 sealing rating and 1.8 m / 6.0 ft repeated drops |  <ul style="list-style-type: none"> • 10 , 12, 15, 21 inch high resolution color display • Operating System: WEC7, Windows 7 Emb, Windows 10 IoT or Android 7.1 • Capacitive multi-touch screen with gloves support or resistive touch screen for cold/freezer environments |  <ul style="list-style-type: none"> • 7 inch e 10 inch with Corning Gorilla Glass • Operating System: Windows 10 IoT • Dock Station with AC or DC power supply and handgrip available* |
| Operating System | Android v9.0 (Pie) GMS | WEC7, Windows Embedded Standard 7, Windows 10 IoT Enterprise 64 bit, Android 7.1 | Windows® 10 IoT Enterprise 64-bit |
| CPU, Processor | Qualcomm SD660 Octa-core 2.2 GHz | Proc. ARM 4 x 1.0 GHz; Proc. Intel E3826 2 x 1.46 GHz Intel Atom E3845 Quad Core 1.91 GHz Intel i5-5350U Dual Core 1.8 GHz | Intel E3826 2 x 1.46GHz |
| Memory: RAM / ROM | System RAM: 4 GB; eMMC Flash: 64 GB | RAM: 1/2 Gb (Arm), 4 GB (Intel) 16 GB (i5) Storage: 32 GB CFAST/SD Card | RAM: 4 GB |
| Display | 5.7" Full HD display in 18:9 ratio with Gorilla™ hardened glass Second display on top for enriched Android notifications: 0.7 inch POLED | Rhino II: 10.4 inch XGA 1024 x 768, 350 NITS 12.1 inch XGA, 1024 x 768, 500 NITS SH15: XGA 1024 x 768, 400 NITS SH21: FHD 1920 x 1080, 350 NITS | 7 in: WSVGA 1024 x 600, 420 cd/m² 10 in: WXGA 1280 x 800, 350 cd/m² |
| 1D/Linear Codes/2D Codes/2D Imager | YES | --- | --- |
| Wireless Charging | WPC Qi EPP compliant; 15W fast charging | --- | --- |
| Local Wireless Radio (Wi-Fi, Bluetooth) | Bluetooth wireless technology v5.0 (Classic Bluetooth wireless technology and BLE) | Wi-Fi 802.11 a/b/g/n (2.4 & 5 GHz); Cisco CCX v4; Bluetooth® v4.0 | Wi-Fi 802.11 a/b/g/n/ac/r; Bluetooth® v4.0 |
| Wireless Wide Area Network (WWAN) | LTE-Advanced / 4G+; CAT 9; Dual Nano SIM • EMEA and ROW Configuration: GSM: Quad band; WCDMA: B1/2/5/8; FDD_LTE: B1/3/5/7/8/20/28 • North America Configuration (AT&T and Verizon certified): GSM: Quad band; WCDMA: B1/2/4/5/8; FDD_LTE: B1/2/4/5/7/12/13/17/25/26/30; VoLTE enabled | --- | --- |
| Wired Communications | USB-C: High Speed USB 3.1 gen1 Host and Client; Gigabit Ethernet connectivity (via 3-slot dock) | Ethernet; USB; RS-232 (5 and 12 V) | On the device: USB-C On the docking station: Ethernet; USB; RS-232 |
| Keypad / Keyboard Options | Physical Keys: 2 side scan keys; Power On/Off; Volume Up/ Down; 3 Android soft keys; Fingerprint sensor | 4 programmable keys; Customizable Software Keyboards | 1 programmable key; Customizable Software Keyboards |
| Camera | Rear Camera: Resolution: 13 megapixel; Illumination: User controllable LED flash; Lens: Auto focus Front Camera: Resolution: 8 megapixel; Fixed focus | --- | 5 MP color rear camera |
| Voice Capability | Advanced cellular connectivity for voice and data, featuring LTE and Dual SIM | --- | --- |
| IP Rating | IP65 and IP67 | | IP65 |
| Drop to Concrete | 1.8 m / 6.0 ft | --- | 1.2 m / 4.0 ft |
| Operating Temperature | Operating: -20 to 50 °C / -4 to 122 °F | Standard Model: -20 to 50 °C [-4 to 122 °F] Freezer Model: -30 to 50 °C [-22 to 122 °F] | -20 to 55 °C [-4 to 131 °F] |
| Weight | With Battery: 295 g / 10.4 oz | Rhino II: 10 in Standard Model: 3.6 Kg / 7.9 lb 12 in Standard Model: 4.7 Kg / 10.4 lb SH15: 6.5 Kg / 14.3 lbs SH21: 10.8 Kg / 23.8 lbs | 7 in 733 g / 25.8 oz 10 in 1044 g / 36.8 oz |




Notes

* Mobile handgrip with optional hot swappable battery and Standard or Auto Range 2D Imager; Standard range up to 1.1 m / 43 inches; Auto Range up to 15 m / 50 ft




SENSORS

| | SMALL | S3Z | S8 |
|--|---|---|---|
| |  <ul style="list-style-type: none"> 15mm, 20mm, 30mm and 50mm fixed focus proximity 1,5m retroreflective and 1m polarized retroreflective 2m through beam models Amplified NPN or PNP output with NO-NC output |  <ul style="list-style-type: none"> 50-250 mm background suppression 0.7 m proximity, 150 mm with narrow beam / 4 m polarized retroreflective / 15 m through beam Light and dark trimmer models |  <p> IO-Link</p> <ul style="list-style-type: none"> Compact dimensions (14x42x25 mm) [0.04x0.13x0.08 in] Background suppression for transparent and shiny objects Extremely focused spot, under 1 mm (LASER models) |
| Power supply | 10 ... 30 Vdc (limit values) | 15 - 30 Vdc (limit values) | 12 ... 30 Vdc (battery inversion protected) |
| Consumption (output current excluded) | 20 mA max. | 30 mA max. (LED mod.) 35 mA max. (Laser mod.) | 30 mA; 35 mA (mod. S8...M01); 20 mA (mod. S8...F), 15 mA (mod. S8...G) max.; 40mA max. all IO-Link Models |
| Light emission | red LED 640 nm | red LED 650 nm (mod. S3Z...T51) red LED 665 nm (mod. S3Z...B01/C01) red LED 670 nm (mod. S3Z...M01) IR LED 850 nm (mod. S3Z...C11) IR LED 870 nm (mod. S3Z...F01/G00) red Laser 650 nm (mod. S3Z...B01/F01/G00/M01) | red LED 660 nm (mod. S8...B01/C/M/G/T) RGB LEDs: blue 465 nm, green 520 nm, red 630nm with automatic selection (mod. S8...W) UV LED 375 nm (mod. S8...U) red Laser 645..665 nm (mod. S8...B51/B53/M) Class 1 |
| Setting | no setting needed | sensitivity trimmer, 6 turns screw (mod. S3Z...M01), LIGHT/DARK trimmer model available (mod.S3Z...-PP, -NN) | 8-turn distance adjustment trimmer (mod. S8...M53/M) teach-in push button (mod. S8...B53/B53...OZ/ M53/W03/W03...OZ/W13/T53...OZ/U03/ U03...OZ) remote input (mod. S8...M53) mono-turn trimmer (mod. S8...B01/C/F/M/T51) T51)T51) |
| Operating mode | LIGHT mode on N.O. output/DARK mode on N.C. output | LIGHT/DARK trimmer (Laser mod. S3Z...-PP, -NN), LIGHT (mod. S3Z...-PL, -NL), DARK (mod. S3Z...-PD, -ND) | automatic auto adjustment (mod. S8...W/T50) remote input (mod. S8...M53) LIGHT / DARK mono-turn trimmer (mod. S8...B/C/F/T51/T53/U) |
| Indicators | yellow OUTPUT LED excl. mod. G00 green POWER LED | yellow OUTPUT LED, green STABILITY LED (mod. S3Z...B01/C01/C11/F01), POWER ON LED (mod. S3Z...G00) | yellow OUTPUT LED (all models excl. mod. S8...G), OUTPUT/ALARM LED (mod. S8...M53/M/C) green POWER LED |
| Output | PNP or NPN; NO; NC | PNP or NPN (short circuit protection) | PNP or NPN N.O. ; PNP/NPN/Push Pull fully configurable outputs for all IO-Link models (S8...B53/T53/W03/U03...OZ) |
| Output current | 50 mA max. | 100 mA max. | 100 mA (overload protection and short circuit) |
| Response time | 700 µs 1,3 ms (mod. SM...F00/G00) | 1 ms max. (LED mod.) 250 µs max. (Laser mod.) | 1 ms (mod. S8...M53/M) 500 µs (mod. S8...B/F/C) 250 µs (mod. S8...T/T53...OZ IO-Link) 100 µs (Laser vers. mod. S8...M) 50 µs (mod. S8...W00/W03/W03...OZ IO-Link and Laser mod. S8...B51/B53...OZ IO-Link) 20 µs (mod. S8...W13) 250 µs...1 ms (mod. S8...U) and U03...OZ IO-Link |
| Switching frequency | 700 Hz 385 Hz (mod. SM...F00/G00) | 500 Hz max. (LED mod.) 2 kHz max. (Laser mod.) | 500 Hz (mod. S8...M53/M) 1 kHz (mod. S8...B/F/C) 2 kHz (mod. S8...T/T53...OZ IO-Link) 5 kHz (Laser vers. mod. S8...M) 10kHz (mod. S8...W00/W03/W03...OZ IO-Link and Laser mod. S8...B51/B53...OZ IO-Link) 25 kHz (mod. S8...W13) 500 Hz...2 kHz (mod. S8...U) and U03...OZ IO-Link |
| Connection | 2 m cable Ø -2,5 mm | 2 m cable Ø 3,5 mm, M8 4-pole connector | M8 4-pole connector, 150 mm length Ø 4 mm cable with M12 4-pole connector (pig-tail vers.) |
| IP rating | IP67 | | IP67, IP69K (mod. S8-M) |
| Housing material | Polycarbonate | body PBT, indicators cover PC | ABS, Stainless Steel AISI 316L |
| Lens material | PMMA, glass (mod. B00) | PMMA, PC (mod. S3Z...B01) | window in PMMA; lens in PC |
| Operating temperature | -20 ... 55 °C | -25 to 55 °C (LED mod.), -10 to 55 °C (Laser mod.) | -10 ... 55 °C |
| Storage temperature | -30 ... 75 °C | -40 to 70 °C (LED mod.), [-40 to 158 °F] -25 to 70 °C [-13 to 158 °F] (Laser mod.) | -20 ... 70 °C |
| Weight | 22 g | 50 g max cable vers. , 10 g max conn. vers. | 12 g max. conn. vers., 50 g pig-tail vers., 70 g max. (mod. S8-M) |




SENSORS

| | SR23 | SRX3 | S70 |
|--|--|---|---|
| |  <ul style="list-style-type: none"> Up to 0,5 mm of minimum size labels/gap 5 mm slot width 50 mm slot depth |  <ul style="list-style-type: none"> Slot size 3mm High resolution up to 2 mm label gap M8/M12 connector with PNP or NPN output and ext TEACH |  <p>IO-Link</p> <ul style="list-style-type: none"> High speed models: 200 µs...5 ms with dual digital displays Super high speed models: 10 µs...1ms Analog output models |
| Power supply | 10 ... 30 Vdc (reverse polarity protection) | 12...30 Vdc | 10...30 V (current output models and digital output models) 12...30 (voltage output models) |
| Consumption (output current excluded) | 30 mA max. | < 55mA | 40 mA max. (standard display mode), 30 mA max. (ECO display mode) |
| Light emission | IR LED 850 nm | Ultrasonic technology 330kHz | red 660 nm (mod. S70...E1, S70...E3) red 635 nm (mod. S70...E2) |
| Setting | SET push-button | 300 mm | +/-SET/- push-button, LIGHT/DARK switch, RUN/PRG/ADJ mode switch |
| Indicators | yellow OUTPUT LED green READY LED | yellow OUTPUT LED green READY LED | yellow OUTPUT LED red SIGNAL LEVEL 4-digit display green THRESHOLD 4-digit display |
| Output | PNP or NPN | | PNP or NPN PNP and push-pull (IO-Link mod. S70...PZ) |
| Output current | 100 mA max. | 250 mA max. | 100 mA max. |
| Response time | 40 µs max. | 1ms | <u>Super high speed</u> : 10 µs (S70...E2) <u>High speed</u> : 200 µs (S70...E1), 15 µs (S70...E2), 250 µs (S70...E3) <u>Fast</u> : 50 µs (S70...E2), 500 µs (S70...E3) <u>Standard</u> : 500 µs (S70...E1), 250 µs (S70...E2), 1 ms (S70...E3) <u>Medium range</u> : 500 µs (S70...E2) <u>Long range</u> : 2 ms (S70...E1), 1 ms (S70...E2), 4 ms (S70...E3) <u>Extra long range</u> : 5 ms (S70...E1), 12 ms (S70...E3) |
| Switching frequency | 12 kHz max. | 500 hz | S70...E1: 2,5 kHz (High Speed), 1 kHz (Standard), 250 Hz (Long Range), 100 Hz (Extra Long Range) S70...E2: 50 kHz (Super High Speed), 33 kHz (High Speed), 10 kHz (Fast), 2 kHz (Standard), 1 kHz (Medium Range), 500 Hz (Long Range) S70...E3: 1 kHz (High Speed), 500 Hz (Fast), 250Hz (Standard), 62,5 Hz (Long Range), 20 Hz (Extra Long Range) |
| Connection | M8 4-pole connector, 2 m cable | M12 5 pin | 2 m cable, M8 4-pole connector |
| IP rating | IP65 | IP54 | IP50, NEMA 1 |
| Housing material | Aluminum (Zama) | Aluminium | ABS and polycarbonate |
| Lens material | PC | ceramics ultrasonic piezo capsule | PMMA |
| Operating temperature | -20 ... 55°C | 0 °C ... +50 °C | -10 ... 55 °C |
| Storage temperature | -20 ... 70°C | -25 °C ... +75 °C | -25 ... 85 °C |
| Weight | 85 g cable vers., 46 g M8 conn. vers. | 300g | 69 g max. cable vers., 21 g max. conn. vers. |

SENSORS

| | TL46 | S62 | S65-M |
|--|--|--|--|
| |  <p>IO-Link</p> <ul style="list-style-type: none"> Wide-spectrum RGB or white LED emission 5 different models: basic, standard, enhanced, low jitter, color mode Very low jitter down to 7µs (TL46-WJ...) |  <ul style="list-style-type: none"> Sensors with red, infrared LED or LASER emission Background suppression from 3 cm to 2 m Multivoltage 24-240Vac/24-60Vdc with Relay output |  <p>IO-Link</p> <ul style="list-style-type: none"> Long Range background suppression detection up to 5m Risk-free Infrared LED emission and embedded green LED pointer Two independent fully programmable outputs NPN/PNP or IO-Link connection models |
| Power supply | 10 ... 30 Vdc (limit values) | 10 ... 30 Vdc (mod. S62...2/5) 24...240 Vac/ 24...60 Vdc (mod. S62...1) | 24 VDC ± 20% |
| Consumption (output current excluded) | 40 mA max. at 24 VDC (mod. TL46-A) 50 mA max. at 24 VDC (mod. TL46-W/WJ) 85 mA max. at 24 VDC 24 VDC with bargraph ON in threshold adjustment mode, 55 mA max at 24 VDC with bargraph OFF in normal functioning mode (mod. TL46-WL) 35 mA max. at 24 VDC (mod. TL46-WLF/WE) 30mA (mod. TL46-WH...PZ, TL46-W...PZ) | 30 mA max. (mod. S62...2/5) 3 VA max. (mod. S62...1) | < 2.2 W (excluding any loads) |
| Light emission | white LED 400-700 nm (mod. TL46-A-4xx); red LED 630 nm (mod. TL46-A-6xx) blue LED 465nm/green LED 520 nm/red LED 630 nm (mod. TL46-W/WL/WLF/WE/WJ/WH...PZ/W...PZ) | red LED 640 nm (mod. S62-PA...A/B/C/G/M01/M05/M11/M15) IR LED 880 nm (mod. S62-PA...M21/M25/M31/M35) red Laser 645...665 nm (mod. S62-PL) | LED IR / 850 nm |
| Setting | SET push-buttons (mod. TL46-W/WL/WLF/WH...PZ/W...PZ) sensivity trimmer (mod. TL46-A) | sensitivity adjustment trimmer | Teach-in buttons SET1, SET2 |
| Operating mode | DARK/LIGHT selection by switch (mod. TL46-A); automatic DARK/LIGHT selection (mod. TL46-W/WL/WJ) automatic DARK/LIGHT selection in the target/background detection, selectable via wire in the dynamic detection (mod. TL46-WLF/WE/WH) | mono-turn LIGHT/DARK trimmer (mod. S62...RX/PN) | Dark/Light Two independent outputs two setting points PNP/NPN output setting |
| Indicators | yellow OUTPUT LED green READY LED, orange DELAY LED and KEYLOCK (mod TL46-W/WJ/W...PZ) green READY LED, 4-digit display/DELAY LED/KEYLOCK LED mod. TL46-WLF/WE/WH...PZ orange ARROWS (mod. TL46-A), DELAY LED and KEYLOCK LED 5-segment bargraph (mod. TL46-WL) | yellow OUTPUT LED green STABILITY LED, POWER LED (S62...G) | 2 yellow output status led 1 green power 1 PNP green indicator 1 NPN green indicator |
| Output | PNP (mod. TL46-WJ); PNP or NPN; PNP/NPN (mod. TL46-W/WL/WLF/WE by part number); PP/PNP/NPN (TL46-W/WH...PZ); analog output (mod. TL46-A/W/WL) | PNP or NPN N.O./N.C. (mod. S62...PP/NN); NPN/ PNP (mod. S62...PN); electromechanical SPDT 250 Vac/30 Vdc (mod. S62...RX) | Can be set up (PNP NPN / Light Dark) 100mA max. |
| Output current | 100mA | 100 mA max. (mod. S62...2/5), 2 A max. (mod. S62...1) | 100mA load per each output |
| Response time | 100 µs (mod. TL46-WE, TL46-WH...PZ color mode) 33 µs (mod. TL46-W) 25 µs (mod. TL46-A/WL) 20 µs (mod. TL46-W...PZ) 16 µs (mod. TL46-WLF/WE contrast mode) 10 µs (mod. TL46-WJ) 6 µs (mod. TL46-WH...PZ) | 25 ms (mod. S62...1) 1,5 ms (mod. S62...M3x) 1 ms (mod. S62...2/5-F/G/M2x) 500 µs (mod. S62-PA...2/5-A/B/C/M0x/M1x) 200 µs (mod. S62-PL...B/C/M11) 140 µs (mod. S62-PL...M01) | 8.5 msec max. |
| Switching frequency | 10 kHz (mod. TL46-WE, TL46WH...PZ color mode) 15 kHz (mod. TL46-W) 20 kHz (mod. TL46-A/WL) 30 kHz (mod. TL46-WLF/WE contrast mode) 50 kHz (mod. TL46-WJ) 70 kHz (mod. TL46-WH...PZ) | 20 Hz (mod. S62...1) 330 Hz (mod. S62...M3x) 500 Hz (mod. S62...2/5-F/G/M2x) 1 kHz (mod. S62-PA...2/5-A/B/C/M0x/M1x) 2,5 kHz (mod. S62-PL...B/C/M11) 3,5 kHz (mod. S62-PL...M01) | <65Hz |
| Connection | M12 5-pole connector | M12 4-pole connector, 2 m Ø 4 mm cable vers., 2 m Ø 5 mm cable vers. | M12 - 5 poles |
| IP rating | | IP67 | |
| Housing material | aluminium | ABS | Body ABS / Display POLYESTER |
| Lens material | PMMA (mod. TL46-A, TL46-W), glass (mod. TL46-W-815G/WL/WLF/WJ/WE) | PMMA window, polycarbonate lens | PMMA |
| Operating temperature | -10 ... 55 °C | | -15°... 55 °C (with device ON) |
| Storage temperature | -20 ... 70 °C | | -25 ... +70 °C |
| Weight | 170 g max. | | 50 g max. |

SENSORS

| | SMART-VS | DS1 | DS2 |
|--|--|---|--|
| |  <ul style="list-style-type: none"> Machine Learning Assisted Setting No vision Tools programming required Fast and easy Settings such as Standard Photosensor Reduced cost of ownership and maintenance Bright and visible Red LED pointer and powerful white polarized light illuminator |  <ul style="list-style-type: none"> 4 mm resolution and 1 ms response time 100 to 300 mm controlled height Operating distance up to 4 m PNP digital and 0-10 V analog outputs Adjustment trimmer |  <ul style="list-style-type: none"> 6 or 25 mm resolution Relative measurement precision ± 6 mm or ± 22.5 mm 150 - 1650 mm controlled heights Operating distance up to 10 m PNP and 0-10 V Analog output and RS485 or Ethernet interface |
| Power supply | 10 to 30 Vdc | 24 Vdc $\pm 15\%$ | 24 Vdc $\pm 20\%$ |
| Consumption (output current excluded) | 0.40 - 0.14 A (4.2 W) | on emitter unit (TX): 150 mA max. on receiver unit (RX): 50 mA max. load excluded | 250 mA max. load excluded |
| Light emission | polarized white light illuminator | IR LED 880 nm | |
| Response time | 50 ms | 1...2,75 ms | 5...90 ms |
| Setting | TEACH-IN Push Button | adjustment trimmer (mod. DS1...PV) | Dip-switches Graphic interface |
| Indicators | 4 Status LED's + 1 Yellow output LED | yellow OUTPUT LED green POWER ON LED | |
| Operating distance | 50...150 mm | 0,15...0,8 m (SD) 0,15...2,1 m (LD) 0,2...4 m (HD) | 0,3...5 m (res= 6mm) 0,3...10 m (res=25mm) |
| Output | Three output PNP/NPN/PP | PNP; analog output | |
| Output current | 100 mA | 100 mA | |
| Saturation voltage | 2,2V | 1,5 V max. | |
| Connection | M12 17poles power and I/O's connector M12 Ethernet X-coded connector | M12 4-pole connector (TX), M12 5-pole connector (RX) | M12 4-pole connector (TX), M12 8-pole and M12 4-pole type "D" connector (RX) |
| Dielectric strength | 500 Vac, 1 min between electronics and housing | 500 Vac, 1 min between electronics and housing | |
| Insulating resistance | >20 M Ω , 500 Vdc between electronics and housing | >20 M Ω , 500 Vdc between electronics and housing | |
| Mechanical protection² | IP65 and IP67 | IP65 (EN 60529) | |
| Vibrations | 14 mm @ 2 to 10 Hz; 1.5 mm @ 13 to 55 Hz; 2 g @ 70 to 500 Hz; 2 hours on each axis | 0,5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6) | |
| Shock resistance | 30 g; 11 ms; 3 shocks on each axis | 11 ms (30 G) 6 shock for every axis (EN60068-2-27) | |
| Housing material | aluminum | black electro-painted aluminum | painted aluminum (Pulverit 5121/0085 Black) |
| Lens material | PMMA | PMMA | |
| Operating temperature³ | -10 to 50 °C [14 to 122 °F] | 0 ... 50 °C | |
| Storage temperature | -20 to 70 °C [-4 to 148 °F] | -25...70°C | |
| Approximate dimensions (mm) | Std SPH connector at 0° (H x W x L) 78 x 47 x 38 mm [3.1 x 1.9 x 1.5 in] Std SPH connector at 90° (H x W x L) 58 x 47 x 58 mm [2.3 x 1.9 x 2.3 in] | 22x43x(150/350) | 35x40x(256...1726) |
| Weight | 173 g [6.1 oz] | 300 g (mod. DS1...010) 400 g (mod. DS1...015) 600 g (mod. DS1...030) | 1,9 - 4,6 kg |

2 When correctly connected (fully tightened) to IP67 cables with seals.

3 High ambient temperature applications should use metal mounting bracket for heat dissipation.

HAND HELD SCANNERS

| | POWERSCAN™ | GRYPHON™ 4500 |
|---|--|---|
| |  <ul style="list-style-type: none"> • Different reading technologies to fit all applications • Example of ruggedness and durability • Datalogic's STAR Cordless System 2.0 proprietary narrow band radio • 3-second battery replacement |  <ul style="list-style-type: none"> • Ultimate design and undisputed ergonomics • High-res megapixel sensor for outstanding results • Wireless charging (no need for contact cleaning or maintenance procedures) • Powerful long lasting battery easy replaceable |
| Reading technology | Area imager, Linear Imager, Laser | Area Imager |
| Reading range | Instinctive / Distance Auto Range DPM Models: Contact / Instinctive | Distance |
| Aiming system | Laser line, 4-Dot/Center Cross Aimer, Frame Aimer/Center Cross | 4-Dot/Center Cross Aimer |
| Wide scan angle | Yes (95XX model) | --- |
| Bar codes | 1D and 2D | 1D, 2D and Dotcode |
| Direct Part Marked (DPM) codes | YES | --- |
| Image capture | YES | |
| Reads from smartphone or screen displays | YES | |
| Datalogic's 'green spot' technology | YES | |
| IP rating | IP65 | IP52 |
| Drop to concrete | 2.0 m [6.6 ft] | 1.8 m [5.9 ft] |
| Factory warranty | 3 Years | GD4500: 5 Years; GBT4500, GM4500: 3 Years |
| Wireless technology (Star / Bluetooth®) | Bluetooth® 3.0 STAR: 433 or 910 MHz | Bluetooth® 4.0 STAR: 433 or 910 MHz |
| Wireless range - travel distance from base | BT: Up to 100 m [328 ft] 433: Up to 100 m [328 ft] 910: Up to 400 m [1,312 ft] | BT: Up to 100 m [328 ft] STAR: Up to 50 m [164 ft] |
| Display / keypad for 2-way communication | PM9501, PM9100, PM93XX AR | --- |
| Batch mode capability | YES | |
| Battery type | Li-Ion battery pack | |
| Battery life - Scans between charge | 60,000 + | GBT: 80,000 + / GM: 60,000 + |
| Communication interfaces | TCP/IP, PROFINET-IO and Ethernet IP through FBC9080 Fieldbus converter | |

DATALOGIC PROFESSIONAL SERVICES

DATALOGIC PROFESSIONAL SERVICE PROGRAMS THAT MEET YOUR EVERY NEED

Whatever your service need, Datalogic can help. Our technicians average over 13 years of experience spanning multiple device generations—and their knowledge stays fresh through continuous training. Explore all of our Service offerings with your Datalogic Authorized Reseller to find the programs that best meet your needs and keep your Datalogic solution working at peak efficiency throughout its lifecycle.



Personalized solutions and installations: EASEOFBUILD program

We work with you to design installations that fit your workflow and timing. Datalogic-trained technicians carefully install, configure and commission your solution to ensure optimum performance, backed up by a component onsite warranty covering any startup issues.



Continued training: EASEOFTRAIN program

Our customizable training programs help your operators and onsite IT and maintenance staff get the most out of your Datalogic solutions. We offer a range of training opportunities at our facilities, at regional training events, or online.



Preventative Maintenance: EASEOFPM program

Keep your equipment in top operating condition with onsite preventative maintenance. PM service not only increases equipment life but ensures peak efficiency and lowest cost.



Technical support: EASEOFSUPPORT program

Get help fast with our 24/7, “follow-the-sun” phone support programs. Datalogic can tailor service-level agreements to your specific needs with worldwide coverage, and add-ons including technician dispatch should an issue require on-site assistance.



Extended service: EASEOFCARE program

Your business is not one-size-fits-all, and neither are our equipment service plans. EASEOFCARE extended repair is flexible, customizable and responsive. Four convenient subscriptions that cover needs from overnight replacement to five-day repair.



Customized application management: EASEOFDEV program

Make your Datalogic solution work its hardest with our custom integration and development services. Experienced engineers customize your solution, integrating components from different vendors to meet your specific needs, so your solution performs exactly the way you envision.



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**Subzero models are not available for offer, sale or distribution in Germany.*

SG-Food&Beverage-ENA4
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