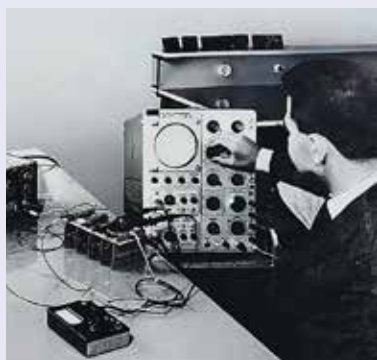


TIRES

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 process 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 14 R&D centers in:
Italy, USA, Vietnam, China,
and Germany

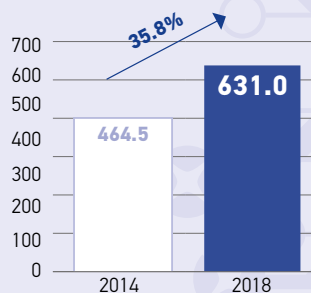
**1,200
patents**
filed and more than
350 in approval

**3,000⁺
Employees**

in 27 countries:
21% Americas,
56% EMEA, 23% APAC

**A constant
growth**

(total revenues
mln Euros)



**10%
Revenues**

invested in
R&D

10 Manufacturing and Repair facilities

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



WHY DATALOGIC



- ✦ **Unique Player** in both automatic data capture and industrial automation
- ✦ Recognized worldwide **leader**
- ✦ **Global player** expanding in different verticals
- ✦ Leading **innovator**
- ✦ Reliable products for **all needs**
- ✦ Wide range of **customizable service solutions** worldwide



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 five 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 ENABLING

Datalogic products also detect and locate parts during the manufacturing process enabling robot guidance and full automated processes (Sensors, Smart Cameras and Vision Systems). All this process can be safely automatized 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.



TIRES SMART MANUFACTURING

WORK IN PROCESS TRACEABILITY

Tracking and Traceability are critical aspects in tire manufacturing. Tires are tracked during every step of the production process: from raw materials through tire assembly to the end-of-line sorting, the ability to read bar codes on tires is a necessary, but difficult, task. It calls for omni-directional reading of low aspect ratio bar codes, whose quality degenerates during the manufacturing process. If the correct technology is not applied, it may result in loss of production efficiency, additional manual handling and extra costs for compliance management. Datalogic provides a complete state-of-the-art portfolio of both fixed and hand-held readers allowing to identify tires along every stage of the manufacturing process.



PROCESS AUTOMATION

Driven by Industry 4.0, tire production is aiming to highly flexible workflows, maximum productivity and efficiency. Sensors and Safety devices in a smart factory are the key enablers that help to realize the biggest benefits of this revolution. Sensors can provide continuous status updates which can then be compared with a “digital twin” – a simulation of the system that runs at 100% efficiency. Deviations can be quickly detected, trends can be easily monitored and predictive maintenance programs can be then deployed. Safety devices guarantee safe operation to the personnel working in the shop floor while minimizing the manufacturing downtime thanks to advanced and customized monitoring of dangerous areas.



INTRALOGISTICS

Alongside the production area, intralogistics represents a critical area for tire manufacturers. An efficient management of logistic flows inside the company turns into remarkable cost savings as well as shorter lead times and better trade working capital. In warehouse and end-of-line operations, workers have to track and identify tires in real time during picking, inventory management and order fulfillment processes. The Datalogic portfolio of industrial hand held readers, tablets, mobile and vehicle mount computers are the optimal choice for any application requiring reliable data collection in mobility offering maximum performances from short to long distance reading, state of the art operating systems and ruggedness in an ergonomic design.



DATALOGIC SOLUTIONS FOR TIRES

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.



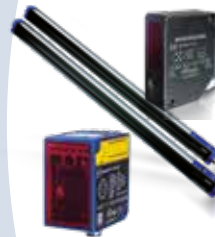
GUIDANCE

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 Automotive 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.



We provide the best custom center

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 the marking of data directly onto parts (Direct Part Marking - DPM), with a broad range of **laser markers** powered by the three main laser technologies i.e. Fiber, DPSS and CO2 fulfilling every customer need for permanent high quality marking on any material.

Moving to 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.

Fixed barcode readers and laser markers can be also combined together through **MARVIST™** (Mark Read Verify Integrated Solution) the software suite allowing laser markers to interact with AutoID code reader seamlessly for in-line validation of marked codes.

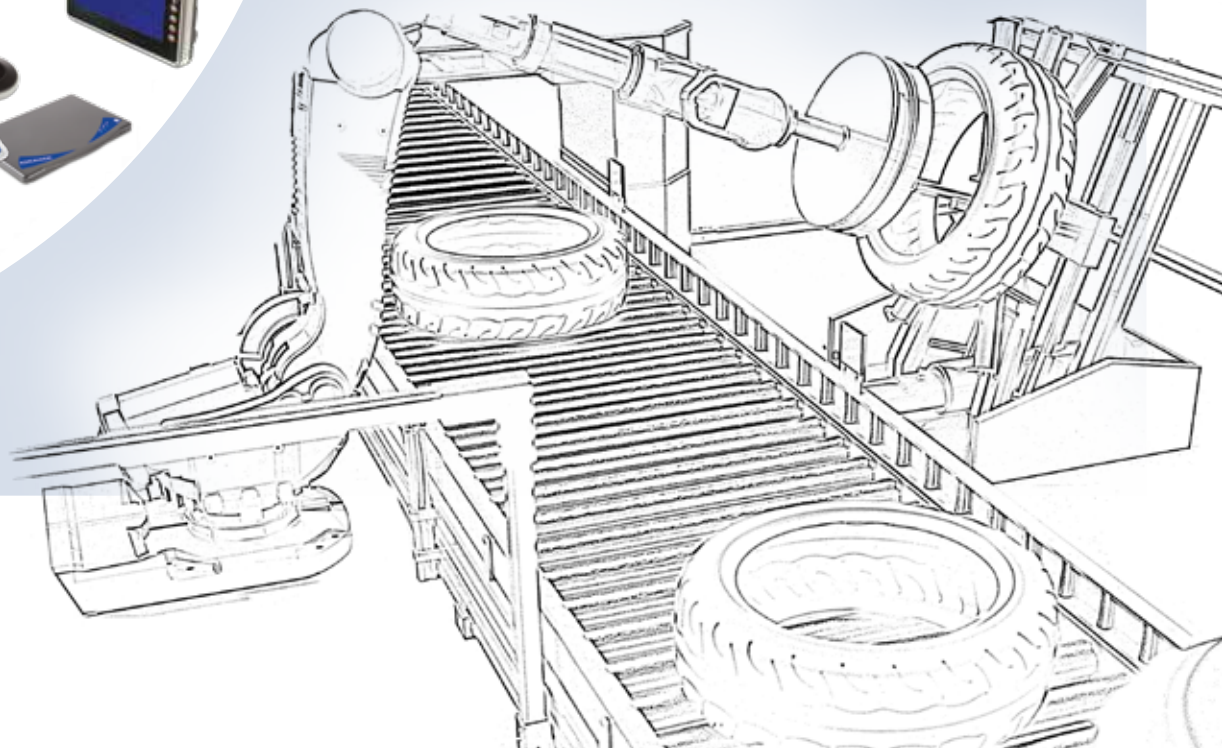
The barcode reading product portfolio is then enriched by the widest range of **rugged or general purpose handheld scanners** equipped with powerful state-of-the-art scan engines to tackle even the most challenging applications like DPM or long distance 2D code reading.

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.

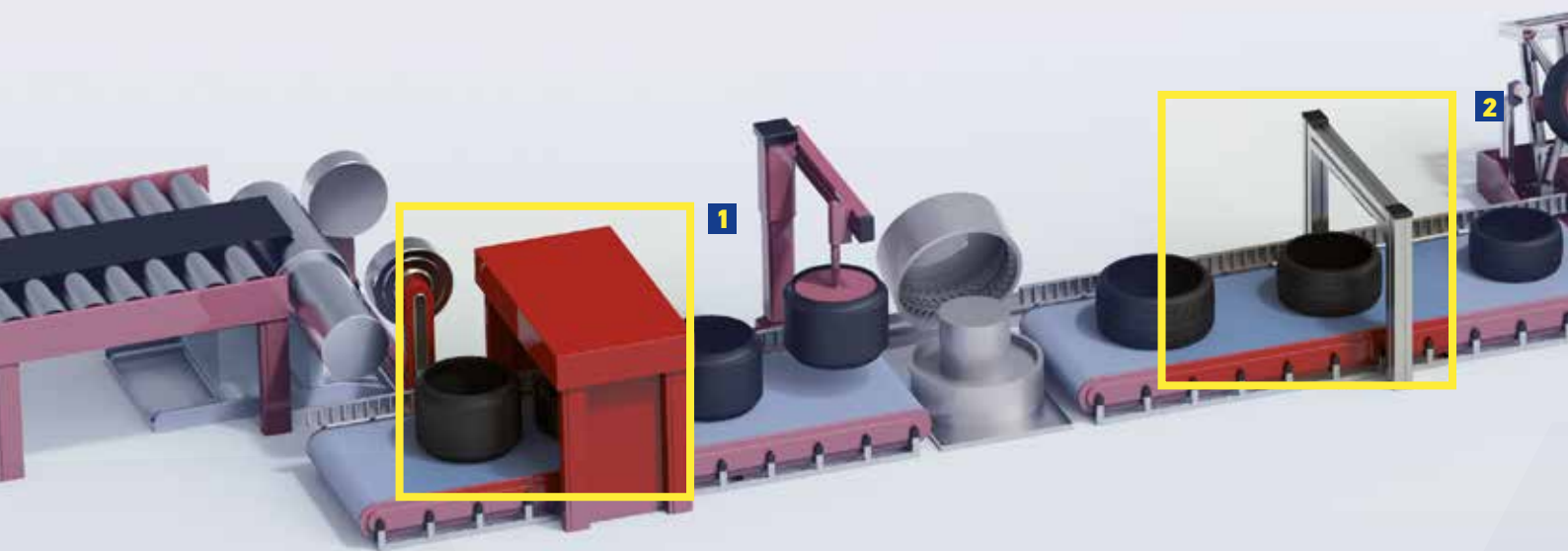
The barcode reader portfolio is then completed by an extensive range of **mobile computers** ranging from well-established industrial rugged **Portable Data Terminals (PDT)** with physical keyboard to Android™ powered full touch **Portable Digital Assistant (PDA)**. The mobile computer portfolio also 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 automotive 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 serial or lot numbers.

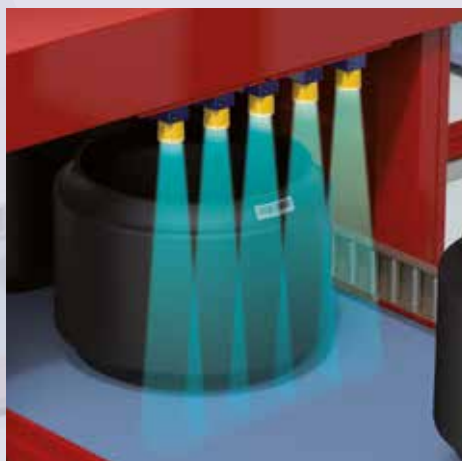
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WORK IN PROCESS TRACEABILITY

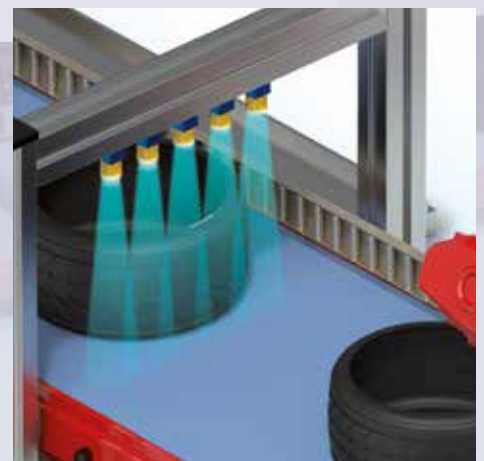


1. LABELING VERIFICATION

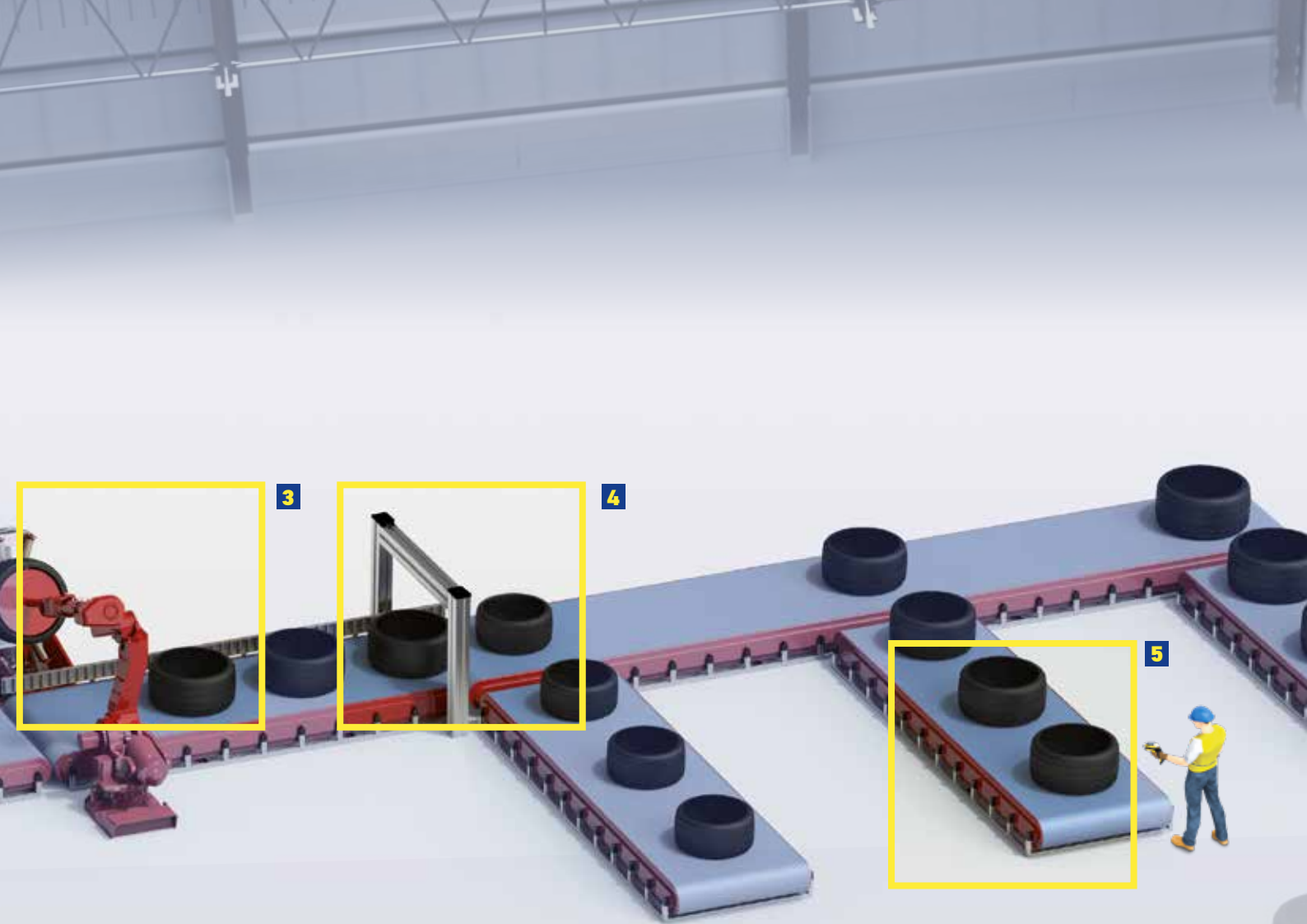


A bar code label is applied to “Green Tire” for complete tracking of the tire through the manufacturing process.

2. CURING PROCESS CONTROL



Each tire is identified before the vulcanizing process in order to match the specific tire to the correct curing press and process setup.

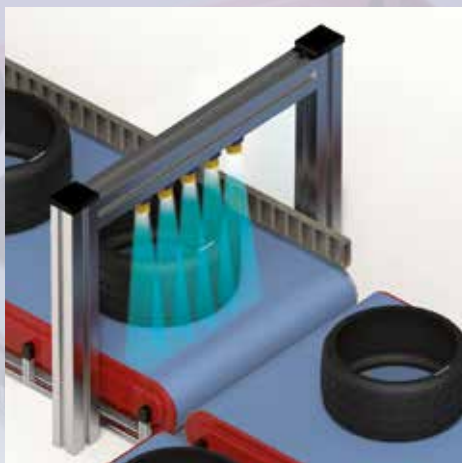


3. FINAL FINISHING AND INSPECTION



Tires are identified and tracked as they progress through rough manufacturing and into final finishing and inspection stations.

4. SORTING AND SHIPPING



Tire bar codes are identified at shipment processing to correctly direct them to a distribution network or their final destination.

5. MANUAL SORTATION

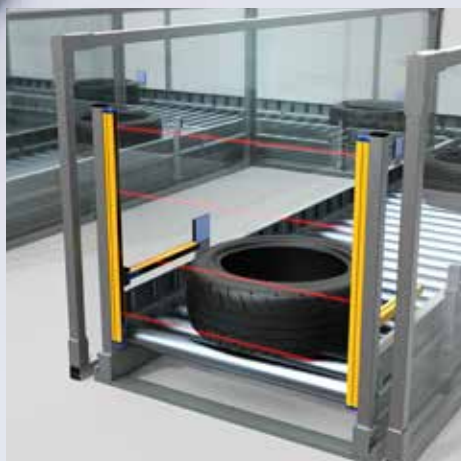


Tires are manually identified by operators using hand held bar code readers.

PROCESS AUTOMATION



1. SORTING AREA PROTECTION WITH SAFETY LIGHT CURTAIN

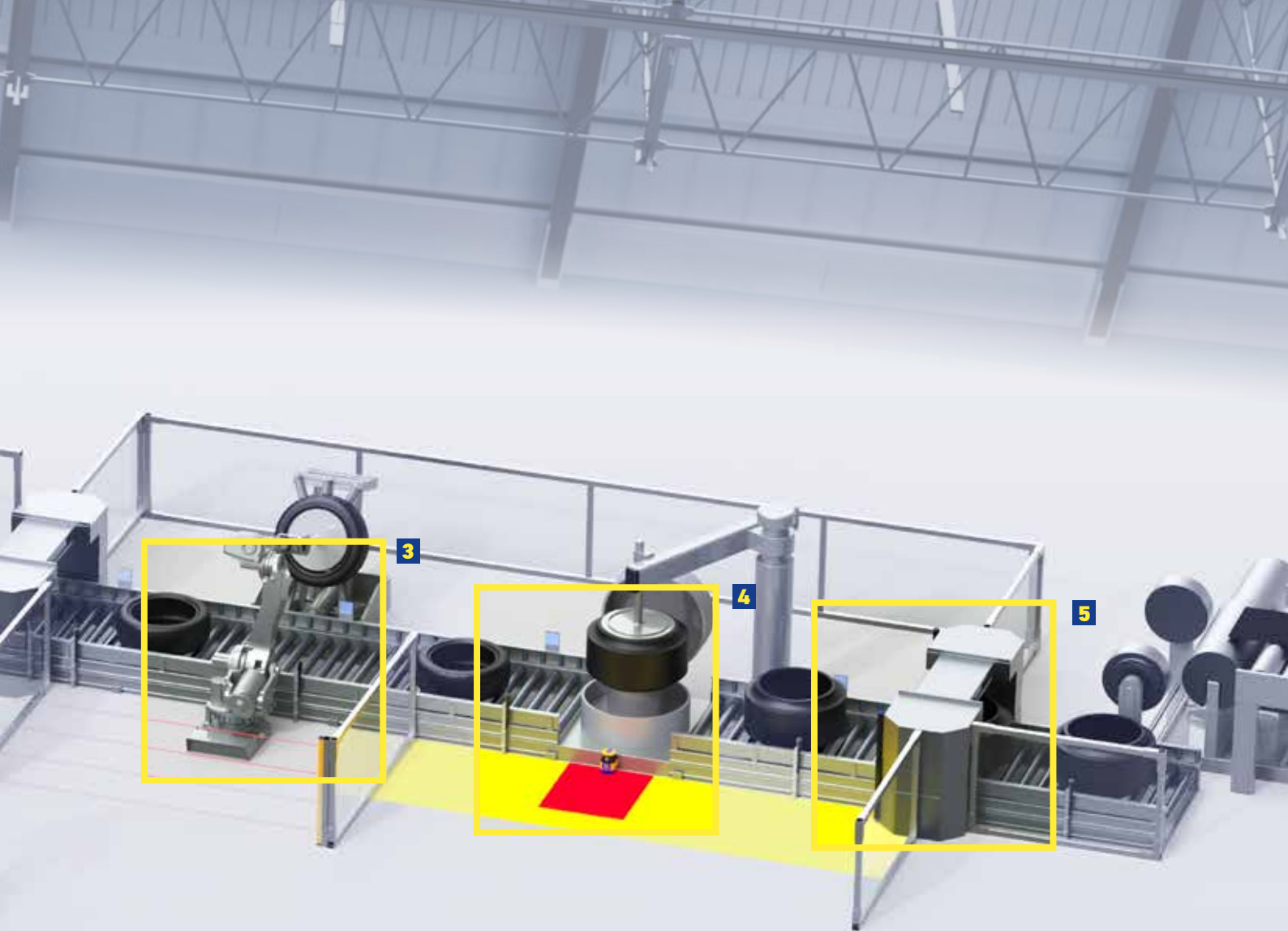


The safety light curtain with integrated muting function is used to protect the sorting area. The muting function allows tires to be taken by a forklift for handling and warehousing management. The integrated muting function provided by the SG4 safety light curtains ensures that work can be carried out ergonomically and efficiently in the sorting area.

2. TIRE DETECTION ON THE BELT



The S100 miniature sensors detect tires on the roller conveyor to manage the production processes. The missing sensitive adjustment on the S100 sensor allows the user to avoid tampering, increasing the efficiency of the plant and drastically reducing the maintenance activity.

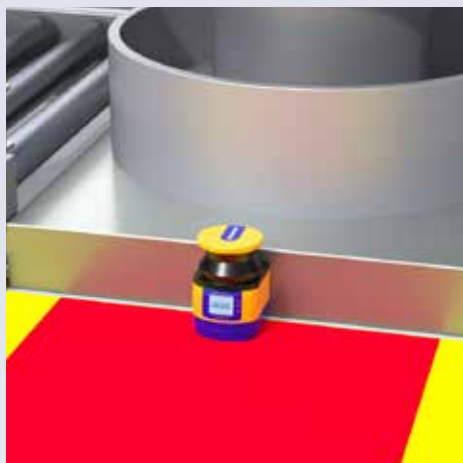


3. POSITIONING OF THE TIRE IN THE GRIPPER



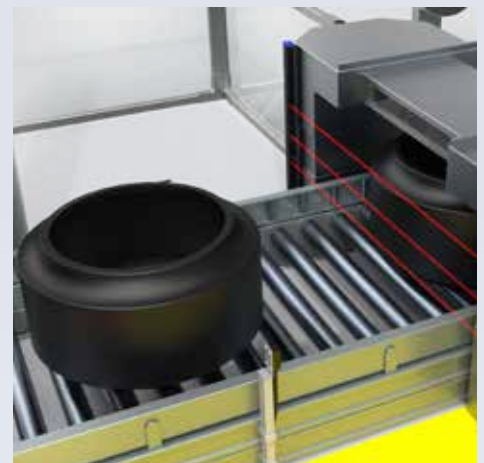
The machine has to control the distance between the gripper and the tire in order to grab the tire correctly. The S8 background suppression sensor with laser emission allows the user to verify the presence and the positioning of the tire.

4. HAZARDOUS AREA PROTECTION AT THE REWORKING STATION



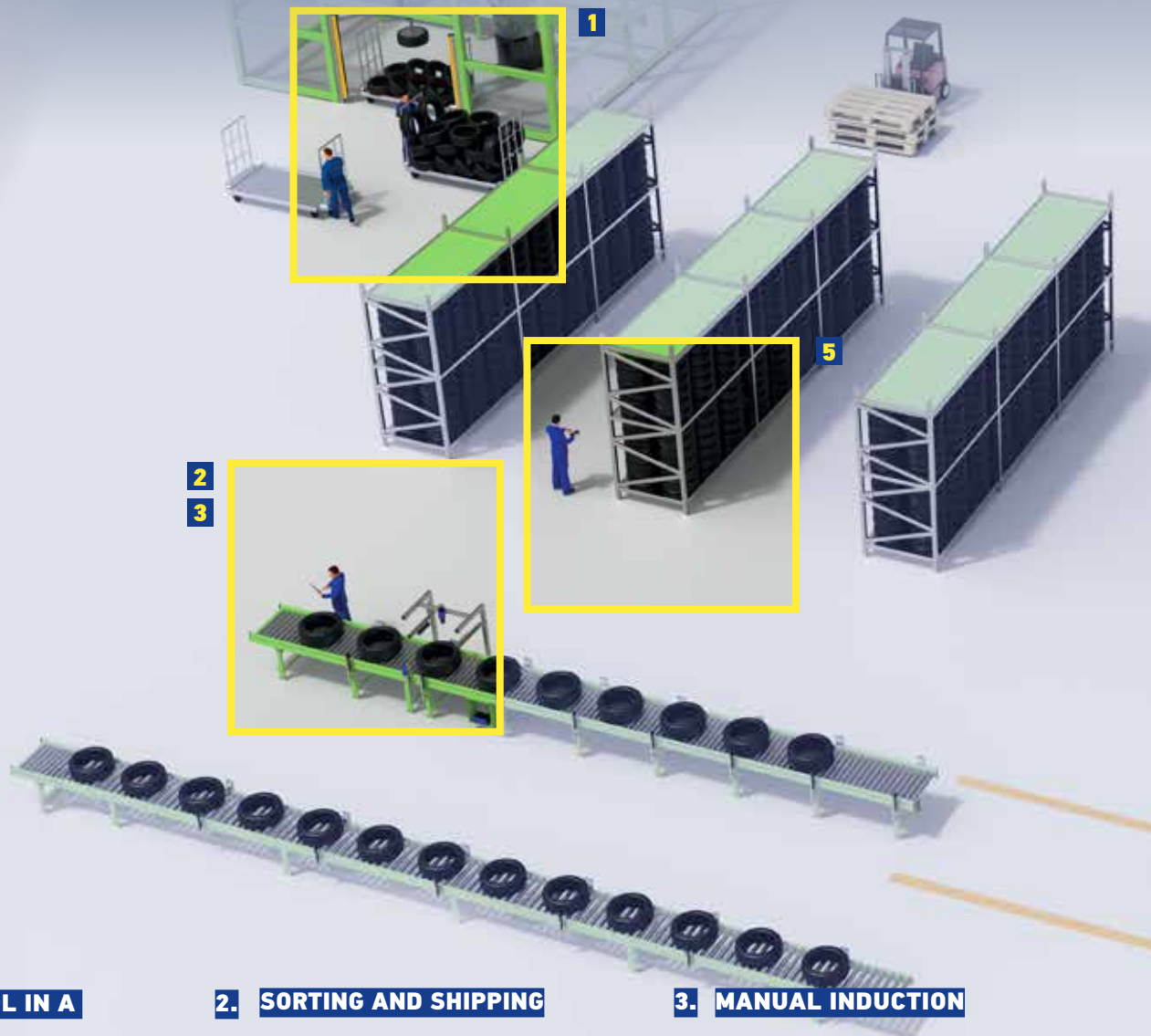
The Laser Sentinel protects the hazardous area in front of tire vulcanizing machines. Because of the two protective fields, the Laser Sentinel can independently manage the slow down and the stopping of the robot arm. Independent management of the processes allows users to increase the plant productivity.

5. TIRE HEIGHT MEASUREMENT



The height of the tire is measured to ensure the correct handling in the production processes. The DS2 Area Sensor is able to measure the height of the tire to its millimeter measurement precision and send the data through the Ethernet communication to the system.

INTRALOGISTICS



1. ACCESS CONTROL IN A ROBOT CELL



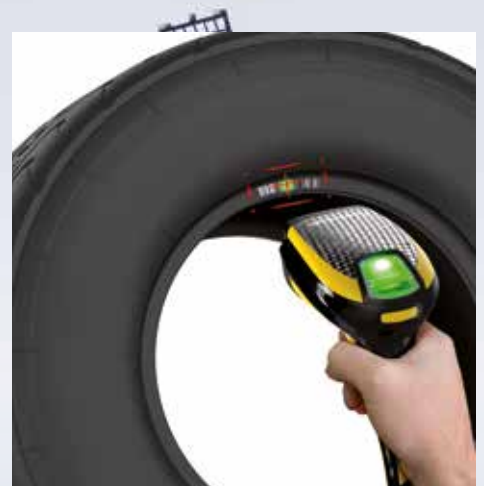
SG4 safety light curtains are used to prevent a hazardous area from being accessed by any person. SG4 safety light curtains stop the robot arm during the material trolley replacement by the worker. A manual restart phase is required when the operator leaves the hazardous area to reboot the robot arm.

2. SORTING AND SHIPPING



High speed conveyors move product past Datalogic fixed scanners that provide flexible and robust identification supporting the shipping process.

3. MANUAL INDUCTION



Tires are manually inducted into an automatic warehousing system using Datalogic industrial hand held scanners.



4



6

4. FORKLIFT SOLUTIONS

5. WAREHOUSE MANAGEMENT

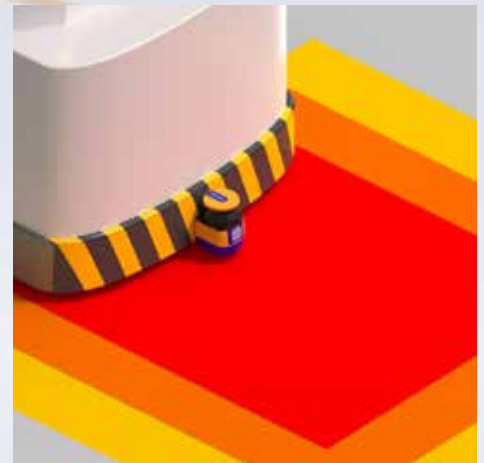
6. AUTO GUIDED VEHICLE PROTECTION



Vehicle Mounted Computers paired with wired or wireless bar code readers allow the user to easily navigate the order and work with pick-up lists on the screen.



A wide range of solutions from Datalogic including hand held scanners, smart cameras, fixed readers and mobile computers deliver error-free warehouse operations processing.



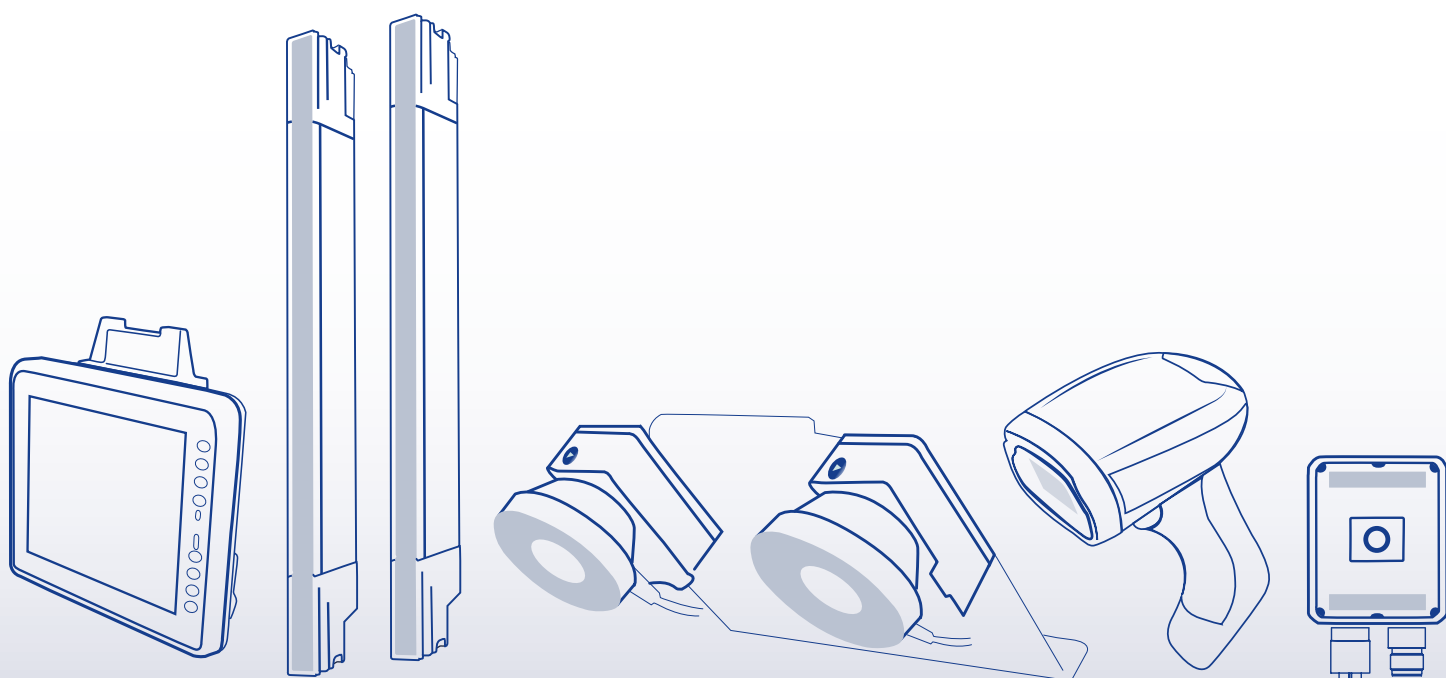
Laser Sentinel is used on automated guided vehicles (AGV) to protect operators from moving on the floor and to avoid collisions with other vehicles or materials placed on the floor. Its compact size has the capability to manage warning and protective fields according to the vehicle speed, allowing an increase in the safety level and the productivity of the plant.

TIRES




PRODUCTS

and SERVICES

PORTFOLIO



STATIONARY INDUSTRIAL SCANNERS

	MATRIX 120™	MATRIX 210™	MATRIX 220™
	 <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"> Dynamic focus liquid lens models Outstanding decoding capability on DPM and printed 1D & 2D standard codes Straight and right angle models for smart mounting 	 <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 Range	WVGA models 25-190 mm [1.0-7.5 in] 1.2 MP models 25-220 mm [1.0-8.7 in]	30 to 190 mm / 1.2 to 7.5 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)	Fixed or Variable, Electronic focus control model	<u>1.3 MP models:</u> Electronic for liquid lens models (LQL-9mm) - Manual for fixed lens models (LNS-6mm, LNS-9mm, LNS-12mm, LNS-16mm) <u>2 MP models:</u> 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 with Global Shutter WVGA - 752 x 480	<u>1.3 MP models:</u> CMOS sensor SXGA - 1280x1024 px <u>2 MP models:</u> CMOS sensor UXGA - 1600x1200 px
Frame rate	57 frame/s (WVGA model) 36 frame/s (MP model)	60 frames/s	<u>1.3 MP models:</u> 60 frame/s <u>2 MP models:</u> 45 frame/s
Readable Codes	1D Codes: all standard 1 dimensional symbologies 2D Codes: Data Matrix, QR Code, Micro QR, Maxicode, Aztec Postal Codes: Royal Mail, Japan Post, Planet, Postnet and many more		Omnidirectional on any code type
IP Rating	IP65 sulfur gas resistant		IP65, IP67 sulfur gas resistant
Temperature Range	0 to 45 °C [32 to 133 °F]	0 to 50 °C / 32 to 122 °F	<u>1.3 MP models:</u> Manual Focusing models: 0° to 50 °C (32 to 122°F) - Electronic Liquid Lens models: 0° to 45 °C (32 to 113°F) <u>2 MP models:</u> 0 to 45 °C (32 to 113 °F)
Case Material	Zama (Zinc Alloy) - Plastic reading window cover	Aluminum, plastic protective windows cover	<u>1.3 MP & Diffused 2 MP models:</u> Aluminum case and plastic protective window cover <u>Standard and Polarized 2MP models:</u> 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)	Straight optic: 50 x 25 x 45 mm / 1.9 x 0.9 x 1.7 in Right angle optic: 54 x 32 x 45 mm /2.1 x 1.2 x 1.7 in	<u>1.3 MP & Standard/Polarized 2 MP models:</u> 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° <u>Diffused 2MP models:</u> 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)	204 gr / 7.2 oz with cable	<u>1.3 MP models:</u> 238 g (8.3 oz.) with lens and internal illuminator <u>Standard 2MP models:</u> 9 mm lens: 250 g/8.8 oz 16 mm lens: 273 g/9.6 oz <u>Polarized 2 MP models:</u> 9 mm lens: 274 g/9.6 oz <u>Diffused 2MP models:</u> 9 and 16 mm lenses: 236 g/8.3 oz
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)	RS-232/RS-422/RS-485 USB 2.0 in RS-232 MODE Ethernet 10/100	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
Fieldbus	Profinet I/O embedded Additional fielbus available with CBX & QLM accessories		Profinet I/O and ETHERNET/IP industrial fieldbus embedded
XPress Interface™	YES		
Digital Inputs	2 SW Programmable (PNP/NPN)	2 opto-isolated. Polarity insensitive and SW Programmable.	
Digital Outputs	2 SW Programmable (PNP/NPN)	2 SW programmable optocoupled	3 configurable outputs: NPN, PNP, PP short-circuit protected
Device Programming	Windows™ based SW (DL.CODE™) via Ethernet		

STATIONARY INDUSTRIAL SCANNERS

MATRIX 300N™



- High power illuminators for long range reading distances
- High performance DPM reading
- Both manual and electronic focus control options

MATRIX 410N™



- Patented ultra-fast strobed lighting with stable effect for operator
- Patent Pending Packtrack 2D for short object gapping in sortation applications
- Single reading point or multiple device cluster with easy and flexible configuration

MATRIX 450N™



- Gigabit Ethernet integrated connectivity
- Adjustable focus through C-Mount lenses
- White and blue lighting options continuous, no-flashing lighting

Reading Range

Standard models
9 mm lens: 20-650 mm [0.78 to 25.5 in]
16 mm lens: 40-1200 mm [1.57 to 47.2 in]
Polarized models
9 mm lens: 20-350 mm [0.78 to 13.7 in]
Diffused models
9 mm lens: 20-50 mm [0.78 to 13.7 in]
16 mm lens: 40-450 mm [1.57 to 17.7 in]

50-2000 mm [1.97 - 78.74 in]

300-3000 mm [11.81 - 118.11 in]

Focusing System

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)

Adjustable Focus

Adjustable Focus

Sensor

1.3 MP models: CMOS sensor SXGA - 1280x1024 px
2 MP models: CMOS sensor UXGA - 1600x1200 px

CMOS sensor SXGA - 1280x1024 px
CMOS sensor UXGA - 1600x1200 px

CCD sensor - 2448 x 2050 px

Frame Rate

1.3 MP models: 60 frame/s
2 MP models: 45 frame/s

60 frames/s (SXGA model)
45 frames/s (UXGA model)

15 frames/s

Readable Codes

1D and Stacked: IL 2/5, Code 128, Code 39, EAN/UPC, PDF417, Micro PDF417, Pharmacode, GS1 DataBar (RSS) family, and many more.
2D: Data Matrix, QR Code, Micro QR, Maxicode, Aztec, Microglyph Postal: Royal Mail, Japan Post, Planet, Postnet and many more

Multilabel / Multicode Reading

YES

IP Rating

IP65 and IP67

IP67

IP65

Operating Temperature

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)

0 to 50 °C / 32 to 122 °F

Case Material

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

Aluminum

Dimensions (Typical Value)

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)

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]

Weight

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

482g [17 oz] with lens and internal illuminator

3 kg [105.8 oz] with lens

YAG Laser Protection

YES

Embedded Communication Interfaces

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

- 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

ID-Net™ Interface

YES

Fieldbus

YES
Profinet I/O Embedded Additional fieldbus available with CBX and QLM

YES
CBX, QLM external devices

Ethernet

YES - embedded

XPress Interface™

YES

Digital Inputs

Two optocoupled and polarity insensitive

2 SW programmable, optocoupled and polarity insensitive

Digital Outputs

Three Outputs: Configurable NPN, PNP, PP short-circuit protected (using CBX the first 2 outputs are optocoupled)




3 SW programmable, optocoupled

Device Programming

DL.CODE™ Windows-based software (programming via Ethernet or Serial Interface) with Javascript output formatter Host Mode programming
X-PRESS™ Human Machine Interface

Windows™ based SW (DL.CODE™) via Ethernet




STATIONARY INDUSTRIAL SCANNERS

XRF410™	STS400™ - Passenger Light Truck Tires	STS400™ - Commercial Vehicle Tires
 <ul style="list-style-type: none">• Easy to select the correct model: no technical analysis is required• Easy to install: the XRF410N is factory assembled and configured• Fully capable of successfully scanning hard-to-read, damaged or poor quality bar codes	 <ul style="list-style-type: none">• Easy to install and maintain (100% pre-assembly calibration)• Simple and lean: regulated render layout, eliminating articulated mounting patterns• Long-term reliability with no moving on-board• Single head fast replacement through ATS400 Kit	
860 to 1670 mm / 33.8 to 65.7 in	890 to 1140 mm / 35 - 44.9 in	880 - 1280 mm / 34.6 - 50.4 in
CMOS sensor SXGA (1280 x 1024) 1.3 MP CCD sensor UXGA (1600x1200) 2 MP	CCD sensor UXGA (1600x1200) 2 MP	
CMOS: 60 frames/s; CCD: 45 frames/s	15 frames/s	
1D and Stacked: IL 2/5, Code 128, Code 39, EAN/UPC, PDF417, Micro PDF417, Pharmacode, GS1 DataBar (RSS) family, and many more. 2D: Data Matrix, QR Code, Micro QR, Maxicode, Aztec, Microglyph Postal: Royal Mail, Japan Post, Planet, Postnet and many more	1D and Stacked: IL 2/5, Code 128, Code 39, Code 32, MSI, Std 2 of 5, Matrix 2 of 5, Interleaved 2 of 5, Codabar, Code 93, EAN/UPC, PDF417, Micro PDF417, Pharmacode, GS1 DataBar (RSS) family, Composite Symbolologies 2D: Data Matrix ECC200, QR Code, Micro QR, Maxicode, Aztec Code Postal: Australia Post, Royal Mail 4 State Customer, Kix Code, Japan Post, Planet, Postnet, Intelligent Mail, Swedish Post	
Omnidirectional on any code type		
YES		
10 to 30 VDC; 5 - 8 W	24 VDC ; 1.35 A	24 VDC ; 1.71 A
IP67	IP65	
0 to 50 °C / 32 to 122 °F		
Aluminum		
320x230x166.5 mm / 12.6x9x6.55 in 320x242.75x167.5 mm / 12.6x9.55x6.59 in	STS400-006: 785x223x149 mm / 30.91x8.78x5.87 in	STS400-106: 800x241x176 mm / 31.50x9.49x6.93 in
3600 g to 4920 g / 127 to 173.5 oz	STS400-006: 10 kg / 22.05 lb	STS400-106: 10 kg / 22.05 lb
RS232 / RS422 / RS485 Ethernet IEEE 802.3 10 Base T and IEEE 802.3U 100 BaseTX compliant	RS232/RS422/RS485 Ethernet IEEE 802.3 10 Base T and IEEE 802.3U 100 BaseTX compliant	
YES		
Profinet I/O Embedded Additional fielbus available with CBX & QLM accessories	YES Available with external device	
YES - embedded		
YES		
Two SW programmable, optocoupled and polarity insensitive	Input 1 (External Trigger) Input 2 Opto-coupled and polarity insensitive	
Two SW programmable optocoupled + one non-optocoupled	Output 1 and Output 2 Opto-coupled	
Windows™ based SW DL.CODE™	Windows™ based SW (Visiset) Serial Host Mode Programming sequences	

MOBILE COMPUTERS

	SKORPIO™ X4	FALCON™ X4	MEMOR™ 10
	 <ul style="list-style-type: none"> • 2 choices of Operating Systems: Windows Embedded Or Android™ Operating Systems • 1D and 2D choices of scan engine • Standard and extended battery 	 <ul style="list-style-type: none"> • Choice of windows embedded or Android™ operating systems • Full-shift hot swappable battery • Choice 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 cradle • Dual band Wi-Fi including the latest 802.11ac standard and 802.11r/k for fast roaming • Full suite of cellular connectivity for voice and data, featuring LTE-Advanced/4G+
Operating System	Windows Embedded Compact 7 / Android v4.4		Google Android 8.1 (Oreo) with Google Mobile Services (GMS)
CPU, Processor	TI OMAP4 @ 1 GHz		2 GHz Octa-core
Memory: RAM / ROM	RAM: 1 GB; Flash: 8 GB		RAM: 3 GB; Flash: 32 GB
Display	Transflective TFT / LCD, QVGA 240 x 320 px; 3.2 in diagonal	Transflective TFT / LCD, QVGA 240 x 320 px; 3.5 in diagonal	5.0 in IPS; 720 x 1280 px HD resolution
1D/Linear Codes/2D Codes/ 2D Imager	YES	YES, including new Near/Far Auto Range capability	YES
Wireless Charging	---		YES
Local Wireless Radio (Wi-Fi, Bluetooth)	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)
Wireless Wide Area Network (WWAN)	---		LTE-Advanced/4G+; Cat 6
Wired Communications	RS-232; USB; Ethernet		USB 2.0 Client
Keypad / Keyboard Options	50-key full alphanumeric, 38-key functional; 28-key numeric keyboard	29-Key (also in functional version); 52-Key	3 programmable keys
Camera	---		13 MP color
Voice Capability			VoiP
IP Rating	IP64	IP65	
Drop to Concrete	1.8 m / 6.0 ft		1.5m / 5ft
Operating Temperature	-10 to 50 °C [14 to 122 °F]	-20 to 50 °C [-4 to 122 °F]	
Weight	Hand held (w/stan. battery): 388 g / 13.7 oz Pistol grip (w/stan. battery): 482 g / 17.0 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	<u>Rhino II</u> : 10.4 inch XGA 1024 x 768, 350 NITS 12.1 inch XGA, 1024 x 768, 500 NITS <u>SH15</u> : XGA 1024 x 768, 400 NITS <u>SH21</u> : 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	<u>Rhino II</u> : 10 in Standard Model: 3.6 Kg / 7.9 lb 12 in Standard Model: 4.7 Kg / 10.4 lb <u>SH15</u> : 6.5 Kg / 14.3 lbs <u>SH21</u> : 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

S8 ADVANCED COMPACT SENSOR	S100 MINIATURE SENSOR	DS2 AREA SENSOR
		
<ul style="list-style-type: none">• Compact dimensions• Contrast and luminescence sensors• Wide range of optic functions• Very high resolution on LASER models	<ul style="list-style-type: none">• Universal mounting holes• Anti-tampering sensor (no adjustment)• M8 connector and cable models• PNP or NPN models with LIGHT/DARK selection by wire	<ul style="list-style-type: none">• Measurement light array with IR parallel beams• Controlled heights from 150 to 2100 mm / 5.9 to 82.6 in• 5 m or 10 m / 16 or 32 ft operating distance
10 to 30 VDC		+24 VDC ± 20%
red LED 660 nm (mod. S8...B/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...B/M)	red LED 632 nm (mod. S100...B/C/D/M01) IR LED 860 nm (mod. S100...A/G/Txx/M10)	IR LED 880nm
---		150 to 1650 mm / 5.9 to 64.9 in
---		6 to 25 mm / 0.2 to 0.9
<u>Through beam</u> 0 to 25 m / 0 to 82.0 ft <u>Polarized retroreflective</u> 0.1 to 5 m / 0.3 to 16.4 ft 0 to 10 m / 0 to 32.8 ft (class 2 LASER) <u>Retroreflective for transparent (coaxial)</u> 0 to 0.8 m / 0 to 2.6 ft (T51), 0 to 2 m / 0 to 6.5 ft (T53, T50) <u>Diffuse proximity</u> 0 to 500 mm / 0 to 19.6 in <u>Background suppression</u> 50 to 300 mm / 1.9 to 11.8 in 20 to 200 mm / 0.7 to 7.8 in (class 2 LASER) <u>Background suppression for clear detection</u> 100...300 mm (LED) 50 to 150 mm / 1.9 to 5.9 in (class 2 LASER) <u>Contrast sensor</u> 10 mm / 0.3 in <u>Luminescence sensor</u> 10 to 30 mm / 0.3 to 1.1 in	<u>Through beam</u> 12 m / 39.3 ft Retroreflective 7 m / 22.9 ft <u>Polarized Retroreflective (long range)</u> 5.5 m / 18 ft <u>Polarized Retroreflective (short range)</u> 3 m / 9.8 ft <u>Transparent Retroreflective (short range)</u> 500 mm / 19.6 in <u>Transparent Retroreflective (long range)</u> 2 m / 6.5 ft <u>Diffused proximity (short range)</u> 300 mm / 11.8 in <u>Diffused proximity (long range)</u> 500 mm / 19.6 in <u>Fixed focus</u> 70 mm / 2.7 in <u>Background Suppression (short range)</u> 100 mm / 3.9 in <u>Background Suppression (long range)</u> 200 mm / 7.8 in	5 to 10 m / 16.4 to 32.8 ft
8-turn distance adjustment trimmer (mod. S8...M53/M) LIGHT / DARK mono-turn trimmer (mod. S8...B/C/F/T51) teach-in push button (mod. S8...M53/W03/W13/T53/U) remote input (mod. S8...W/U/T50/T53)	remote teach-in (mod. S100...Mxx/Txx)	Dip-switches Graphic interface
Yellow OUTPUT/ALARM LED Green POWERED LED	Yellow OUTPUT LED (excl. mod. G) Green POWER LED (mod. S100...G)	Yellow OUTPUT LED Red ALARM LED Green POWERED LED
PNP or NPN		PNP; 0...10Vdc analog output
100mA		
---	---	RS-485; Ethernet
1 ms (mod. S8...M53/M) 500 µs (mod. S8...B/F/C) 250 µs (mod. S8...T) 100 µs (Laser vers. mod. S8...M) 50 µs (mod. S8...W00/W03 e Laser mod. S8...B) 20 µs (mod. S8...W13) 250 µs...1 ms (mod. S8...U)	2 ms (mod. S100...FG) 1 ms (mod. S100...A/Bxx/C/D/Mxx/Txx)	5 to 90ms
500 Hz (mod. S8...M53/M) 1 kHz (mod. S8...B/F/C) 2 kHz (mod. S8...T) 5 kHz (Laser vers. mod. S8...M) 10 kHz (mod. S8...W00/W03 e Laser mod. S8...B) 25 kHz (mod. S8...W13) 500 Hz...2 kHz (mod. S8...U)	250 Hz (mod. S100...FG) 500 Hz (mod. S100...A/Bxx/C/D/Mxx/Txx)	---
M8 4-poles connector, 150 mm length Ø 4 mm cable with M12 4-pole connector (pig-tail vers.)	2 m cable, 4 wires M8 connector, 4-poles	M12 4-pole connector (TX), M12 8-pole and M12 4-pole type D connector (RX)
IP69K (Stainless Steel vers.), IP67	IP67 (EN 60529)	IP65 (EN 60529)
according to EN 60947-5-2		
0.5 mm / .001 in amplitude, 10 to 55 Hz frequency, for every axis (EN60068-2-6)	0.5 mm / .001 in amplitude, 10 to 55 Hz (EN60068-2-6)	
11 ms (30 G) 6 shock for every axis (EN60068-2-27)		
ABS, Stainless Steel AISI 316L	ABS body, PMMA indicators cover	Aluminium
PC lens, PMMA window -10 to +55°C / 14 to 131 °F -20 to +70°C / 68 to 158 °F	PC lens, PMMA window -25 to 55°C / -13 to 131 °F -40 to 70 °C / -40 to 158 °F	PMMA 0 to 50°C / 32 to 122°F -25 to 70°C / -13 to 158 °F
12 g / 0.4 oz max. conn. vers., 50 g / 1.7 oz pig-tail vers., 70 g / 2.4 oz max. (mod. S8-M)	50 g / 1.7 oz max. cable vers., 10 g / 0.3 oz max. connector vers.	2 to 5 Kg / 4.4 to 11.0 Lb

SAFETY



- More than 72 m² safely monitored, with 5.5 m / 180.4 ft over 275°
- 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 symultaneous 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 zone	---	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-SAxx 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

SG4 BODY COMPACT SAFETY LIGHT CURTAIN



- 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)

Type (EN61496-1)	4
PL (EN ISO 13849-1)	E
SIL (IEC 61508)	3
Power supply	24 VDC ± 20%
Light emission	IR 880 nm
Protective height	515 mm / 20.2 in (2 beams) 815 mm / 32.0 in (3 beams) 915 or 1,215 mm / 36.0 or 47.8 in (4 beams)
Resolution	315 mm / 12.4 in (4 beams) 415 mm / 16.3 in (3 and 4 beams) 515 mm / 20.2 in (2 beams)
Operating distance	0.5 to 50 m / 1.6 to 164 ft (S version) 0.5 to 3 m / 1.6 to 9.8 ft (L or T version)
Indicators	Yellow POWERED/SINC LED Red SAFE BREAK LED Green NORMAL OP LED
Setting	Dip-switches
Safety output	2 PNP outputs (2 NPN on request) short-circuit protection max: 1.4A at 55°C / 131 °F min: 1.1A at -10°C / 14 °F
Safety output current	0.5 A max / each output
Response time	14 to 16 ms
Connection	M12 connector, 4 poles on EMITTER M12 connector 8 poles on RECEIVER
Mechanical protection	IP 65 (EN 60529)
Ambient light rejecton	according IEC-61496-2
Vibrations	0.35 mm / .01 in wide, 10 to 55 Hz frequency 20 sweep for each axis, 1 octave/min (EN 60068-2-6)
Shock resistance	16 ms (10 G) 1.000 shock for each axis (EN 60068-2-29)
Housing material	Painted alluminium (yellow RAL 1003)
Lens material	PMMA
Operating temperature	0 to 55 °C / 32 to 131 °F
Storage temperature	- 25 to 70 °C / -13 to 158 °F

HAND HELD SCANNERS

	POWERSCAN™	GRYPHON™ 4500
	 <ul style="list-style-type: none"> • Different reading technologies to fit all applications • 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)
Reading technology	Linear Imager, Laser, Area imager	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	DPM Model	
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	PM9100, PM93XX AR, PM9500	---
Batch mode capability	YES	
Battery type	Li-Ion 2150 mAh	Li-Ion 3250 mAh
Battery life - Scans between charge	60,000 +	GBT: 80,000 + / GM: 60,000 +

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-Tires-ENA4
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