

TIRES

Manufacturing & Traceability

Solution Guide



DATALOGIC SOLUTIONS FOR TIRES

“We deliver complete traceability, safe automation, and intelligent intralogistics for the tire industry, enhancing productivity, quality, and safety across the entire product lifecycle.”

TIRES MANU FACTU RING



THE GENERATION OF CRITICAL DATA

Datalogic's technologies for generating data are grouped into four key categories, each based on the type and function of the data or production process. Laser Markers are used for permanent marking, while Barcode Readers and Vision Systems handle high-speed scanning. RFID Readers and Tags enable both writing and reading of data, offering bidirectional communication. For detecting objects and physical features, Datalogic employs Photoelectric Sensors, Smart Cameras, and Vision Systems ensuring precise data capture and product inspections throughout production.



IMPROVING AUTOMATION AND EFFICIENCY

Beyond data generation, Datalogic technologies also play a critical role in automation. Our Sensors, Smart Cameras, and Vision Systems enable accurate part detection and positioning, allowing for efficient robot guidance and fully automated workflows. To ensure safety in these advanced environments, Datalogic offers robust solutions such as Safety Light Curtains and Laser Scanners, providing reliable protection for machines and robotic cells during operation.

In all these applications, Datalogic components are seamlessly integrated into advanced smart manufacturing systems via standard Industrial Ethernet protocols and modern interface technologies. Aligned with the latest digital transformation requirements, Datalogic solutions offer intelligent features such as real-time communication, self-configuration, and self-diagnostics, ensuring maximum efficiency, adaptability, and insight across connected operations.



THE FUTURE OF TIRE MANUFACTURING

Tire manufacturing demands reliable traceability at every stage, from raw materials to final sorting. Reading barcodes on tires is challenging due to low aspect ratios and degradation during production. Datalogic offers a comprehensive range of advanced fixed and handheld readers designed to ensure accurate, omnidirectional barcode capture throughout the entire manufacturing process, maximizing productivity and traceability.



FACTORY AUTOMATION

Driven by smart manufacturing and digital transformation, tire production is evolving toward highly flexible workflows with maximum efficiency. In these intelligent environments, sensors and safety devices play a crucial role. Sensors deliver continuous status updates, enabling real-time comparisons with a digital twin, an ideal simulation of peak performance. This allows quick detection of deviations, trend analysis, and deployment of predictive maintenance. Safety devices ensure worker protection while minimizing downtime through advanced, tailored monitoring of hazardous zones, unlocking both operational safety and manufacturing continuity in the modern factory.

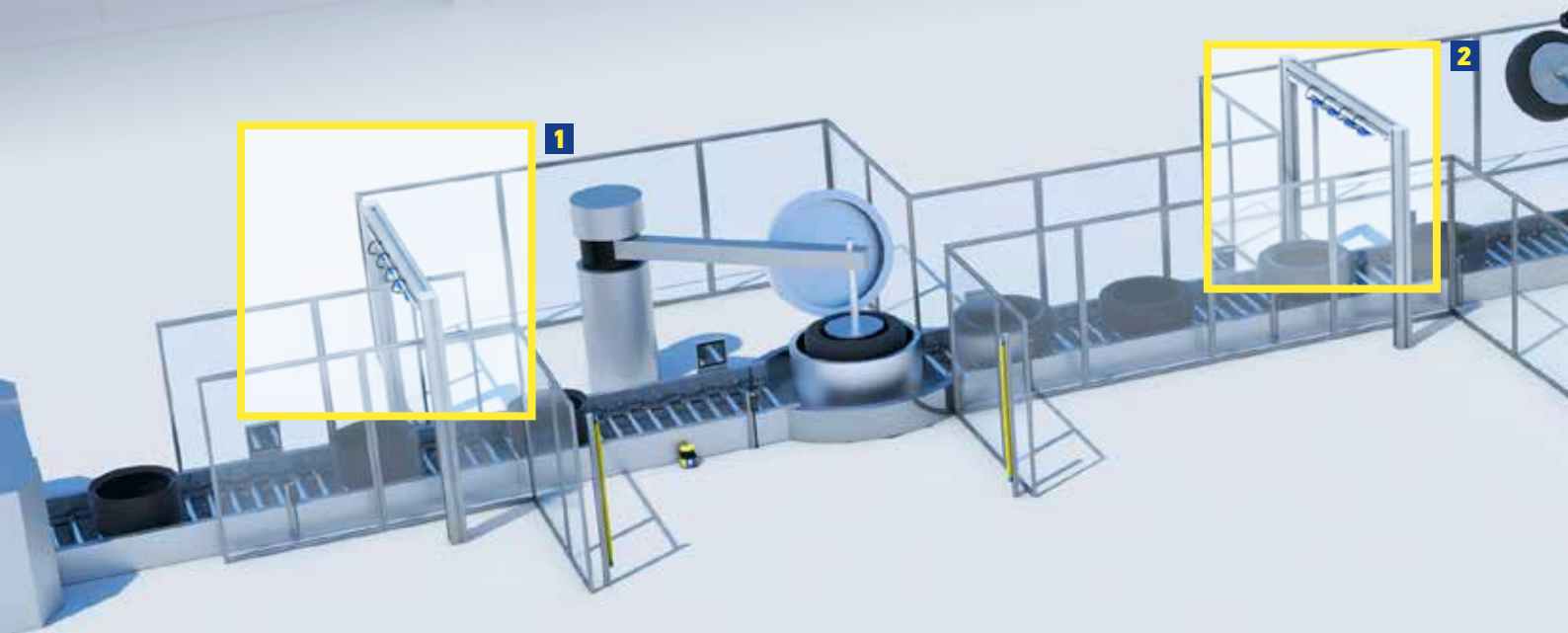


INTRALOGISTICS

In modern tire manufacturing, intralogistics is key to optimizing efficiency, reducing costs, and accelerating lead times. Real-time tire tracking during picking, inventory, and order fulfillment enhances operational agility and working capital. Datalogic's advanced portfolio, including industrial handheld scanners, rugged tablets, mobile devices, and vehicle-mount computers, delivers high-performance, mobile data capture across all logistics tasks. Reliable short- and long-range reading, robust operating systems, and ergonomic designs, our solutions support connected, intelligent logistics, driving productivity across the warehouse and end-of-line operations in today's smart, data-driven supply chains.



MANUFACTURING & TRACEABILITY



1. GREEN TIRE IDENTIFICATION



Labels are placed on challenging surfaces due to position, angle, or dynamics. Datalogic offers a Plug & Play reader array for fast, reliable scanning

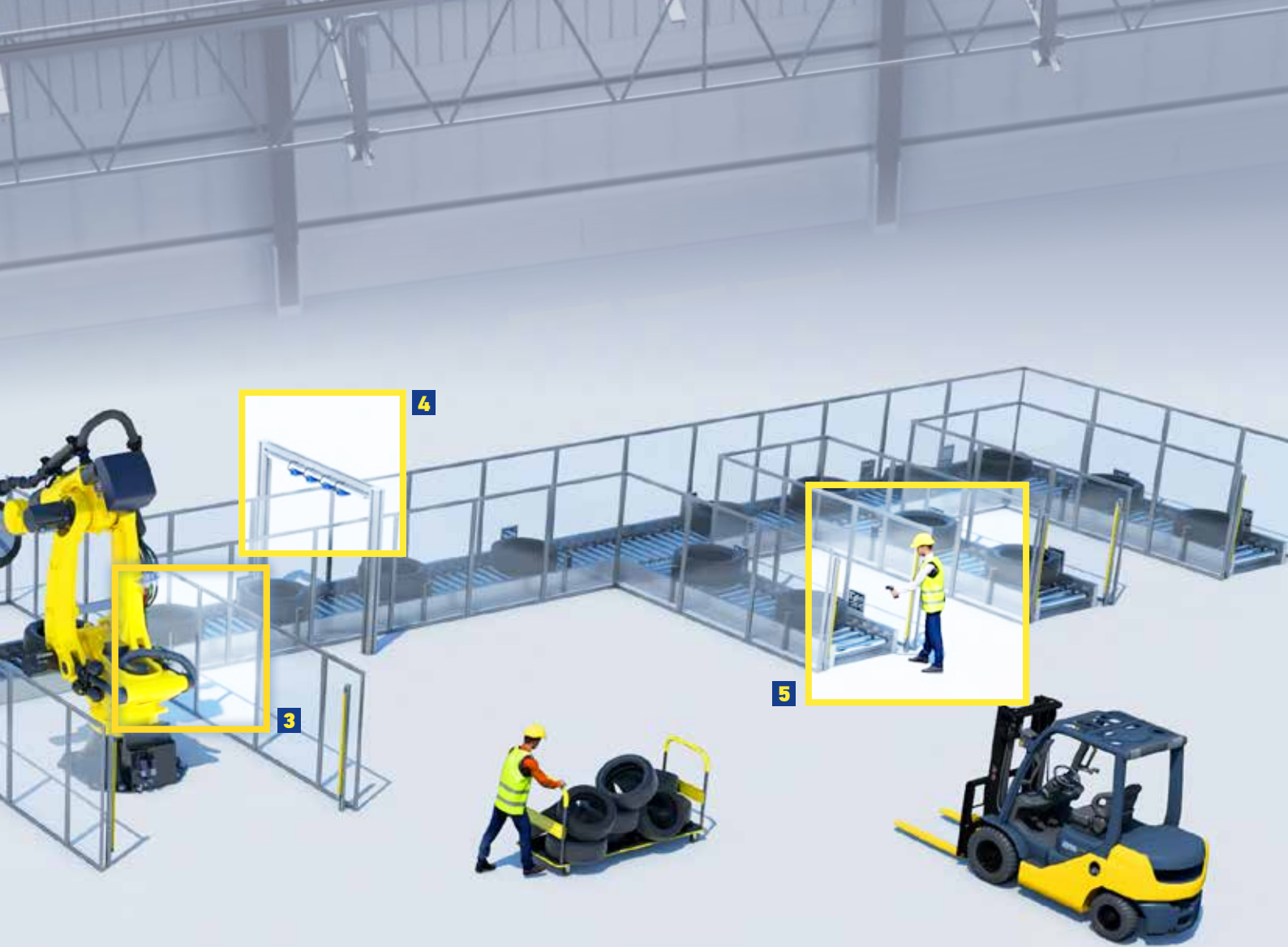
2. CURING PROCESS CONTROL



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



Supplied with a Connection Box featuring a display for easy access to system data



3. FINAL FINISHING AND QUALITY INSPECTION



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

4. SORTING ON CONVEYOR



The modular solution delivers over 99.9% read rate and covers wide conveyors and deep fields of view

5. MANUAL HANDLING



Tires are manually identified by operators in specific production steps using rugged handheld barcode readers.

MANUFACTURING AUTOMATION

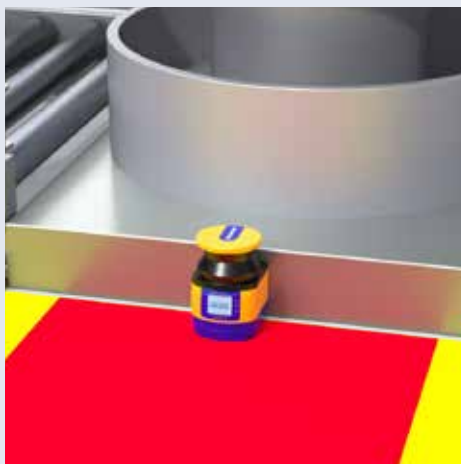


1. TIRE HEIGHT MEASUREMENT



The height of the tire is measured to ensure the correct handling in the production processes. The DS4 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.

2. 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.

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.

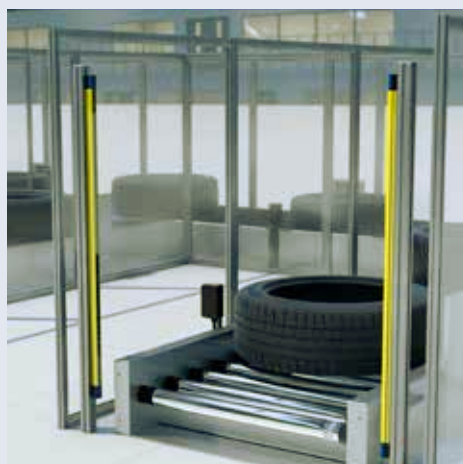


4. TIRE DETECTION ON BELT

5. SORTING AREA PROTECTION WITH SAFETY LIGHT CURTAIN



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.



The SH4 safety light curtain is used to safeguard the sorting area during tire handling by forklifts. The SH4 AP retroreflective model with body protection cuts installation costs with one-sided cabling. Optional muting enables tire transfer on conveyors without interrupting the workflow.

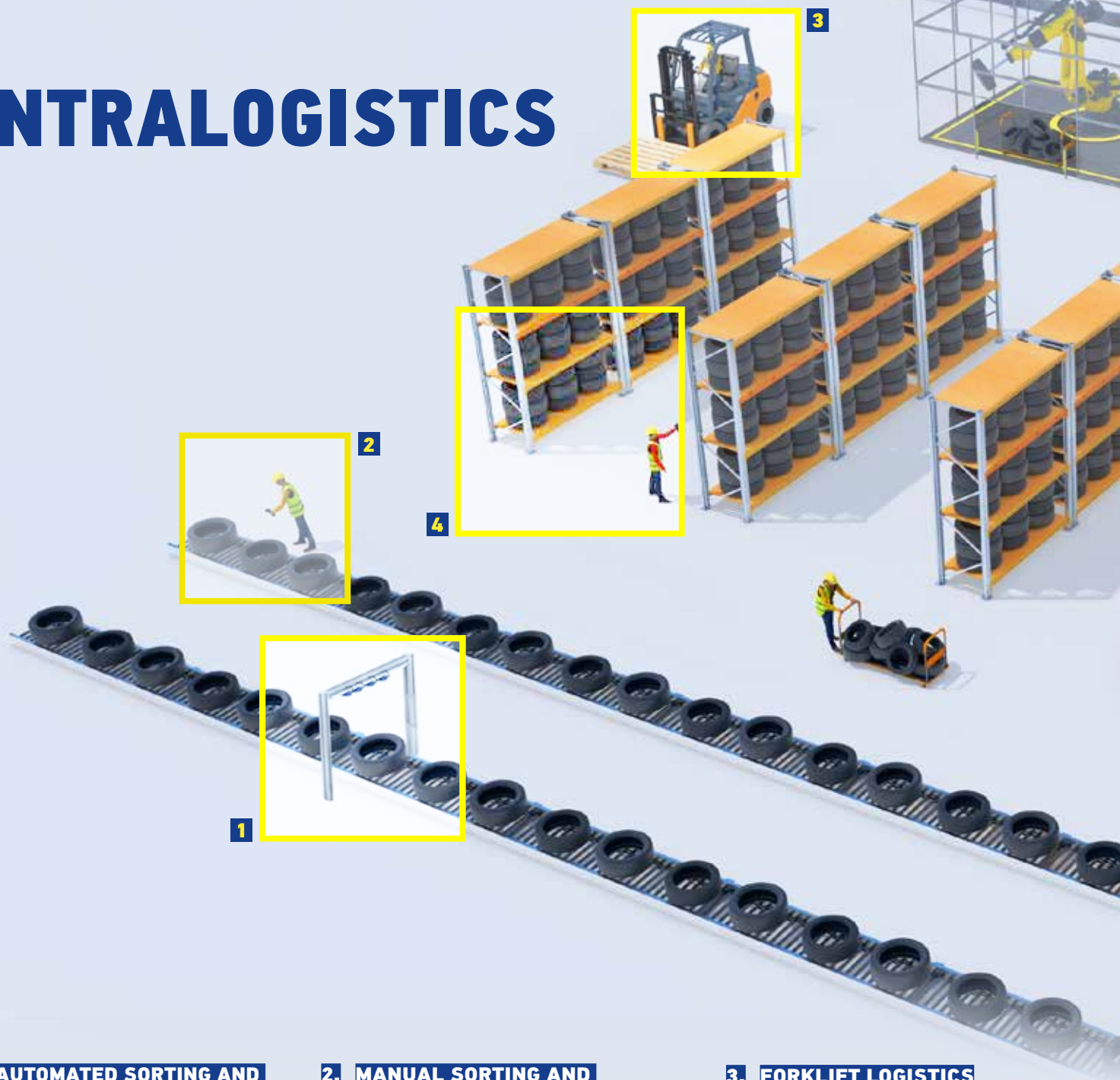
RESISTANCE IN HARSH ENVIRONMENT

SULFUR GAS RESISTENT



Thanks to introduction of a certified solution with conformal protective coating, the SLS SV-5796 and Matrix family allows to keep an excellent device's life-time even in the most challenging environments with presence of sulfur based gasses

INTRALOGISTICS



1. AUTOMATED SORTING AND SHIPPING



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

2. MANUAL SORTING AND HANDLING

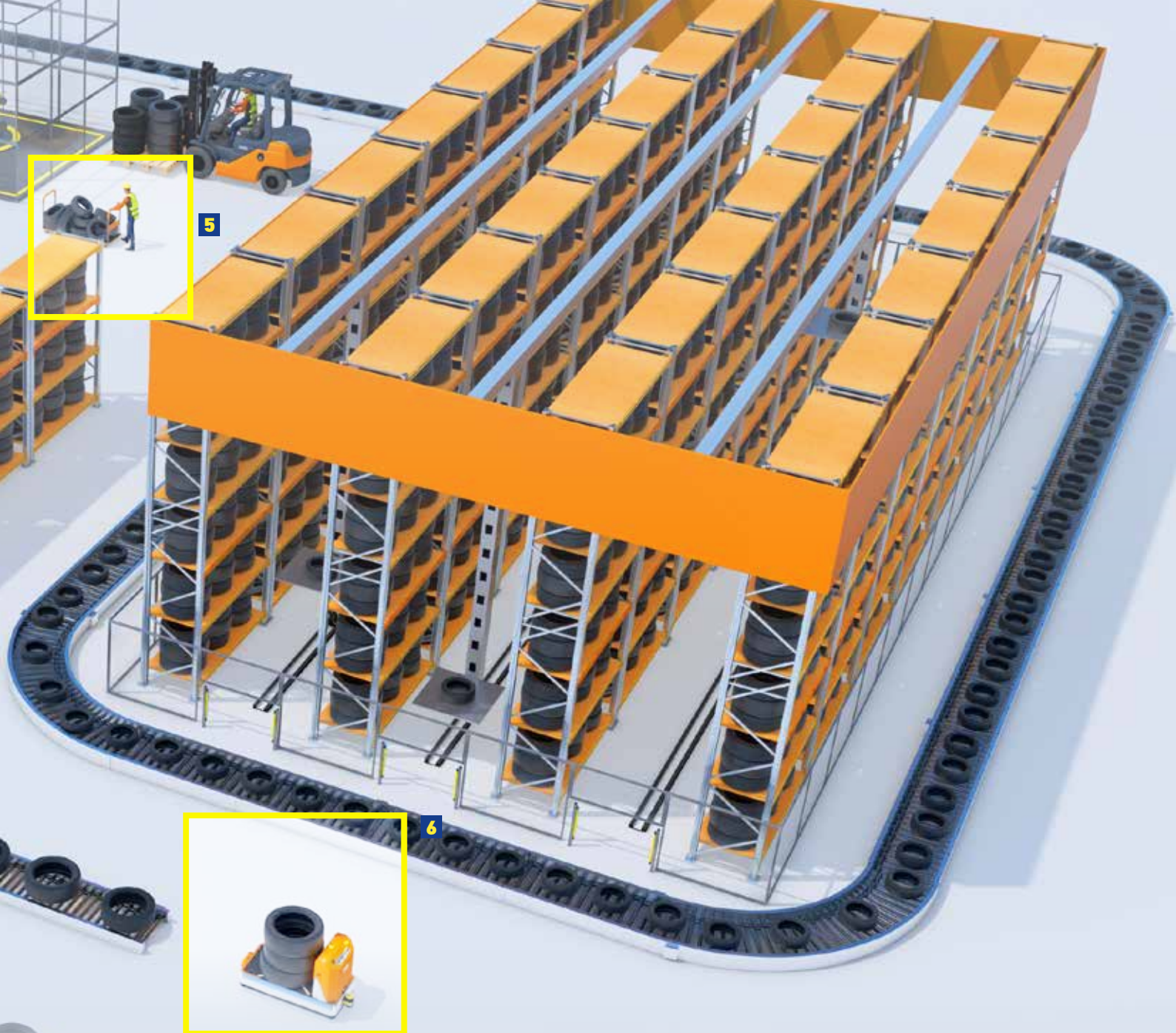


Tires are manually inducted into an automatic warehousing system using Datalogic industrial handheld scanners such as PowerScan 9600.

3. FORKLIFT LOGISTICS



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



4. WAREHOUSE MANAGEMENT

5. MEMOR 30-35 WITH CODISCAN

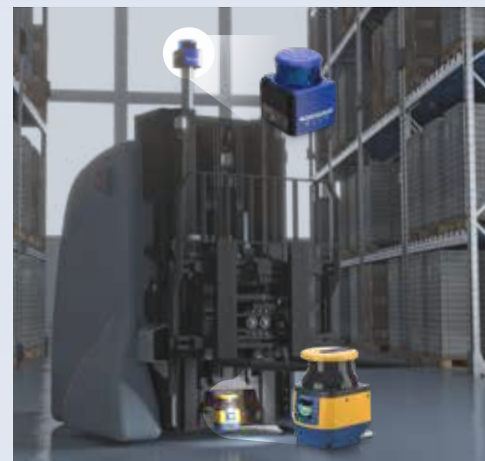
6. AUTOMATED INTRALOGISTICS



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



CODiScan enables operators to scan keeping both hands free—ideal for handling heavy or bulky tires. The Memor 30 ensures fast, reliable data capture even on curved or low-contrast surfaces commonly found on tires and labels.



LGS Lidars and SLS Safety Laser Scanners are used to guide Autonomous vehicles while avoiding dangerous collisions with operators or other goods or equipment.

THE POWER OF STS320

On Board Full Industrial Connectivity

- Embedded on board Ethernet protocols: **TCP/IP, UDP, FTP** and **Fieldbus PROFINET IO, EtherNet IP, Modbus TCP**
- **Serial RS232**
- **USB HID** keyboard emulation through converter cable
- **ID-NET™** reader clustering/networking on single side and multi-side applications



Ease of setup and use

- Patented **Green spot** and **Red spot**
- **Aiming system** for quick setup during installation
- **X-PRESS™** intuitive Human Machine Interface with Push Button
- **7 LEDs** (Status, Communication, Trigger, Good, Read, Ready, Power on, Network) for easy of use and setup



Rotating connectors

- **Rotating connectors** for compact and flexible installation



Top Industrial grade

- **Extreme Industrial grade**, IP rate and wide operating temperature range for harsh environments
- **Sulfur gas resistance** according to ISO EN 60068-2-43 to safely work in the green tires vulcanization process environment



Web Interface

- **DL.CODE Web Monitoring** for remote access to the reader from any mobile device
- **DL.CODE Web Device Discovery** to quickly access all the readers in the network
- Integration in **WebSentinel Plus** supervisory software and **WebSentinel Plus Investigator**
- **Web Mosaic view** to monitor all the readers



DL.CODE software

- **DL.CODE™ configuration software** is a market recognized standard in ease of installation and configuration, compatible with latest Windows OS version

PRODUCT PORTFOLIO

STATIONARY INDUSTRIAL SCANNERS



MATRIX 220™



- Sulfur gas resistance available for all models
- NEW XAI DPM models for ultimate DPM reading performances
- "Smart Intelligence" AI powered software
- New "Decode X" multithread platform excellent for both DPM and high speed applications
- Smart electronic focus control for high reading flexibility



MATRIX 320



- Sulfur gas resistance available for all models
- Innovative platform and sensor with outstanding Field of View (FoV) and Depth of Field (DoF)
- Smart configurable lighting solutions with more color options in three power versions
- Configurable 360° multicolor visual feedback
- Liquid lens remote focus control for extreme flexibility in production
- Matrix 320X Premium available: can capture and process twice as many images as the standard version in a given time period



STS320



- Compact and out of the box solution for the quickest installation on the field
- Run time diagnostics and unreadable code classification to increase the overall productivity
- Live and high-speed image saving for post processing analysis
- Web interface and configurable 360-degree visual read feedback
- New web Mosaic view to monitor all the readers



WEBSSENTINEL PLUS



- Very advanced monitor
- Offers key features, benefits, and insights to end-users and System Integrators specializing in Factory Automation and Transportation and Logistics.



WEBSSENTINEL PLUS INVESTIGATOR



- No Read Root Cause Automated aggregation in classes
- Printing Quality Trend evaluation
- Analysis Result at Parcel Level
- Full integration within Websentinel Plus platform



CODISCAN



MOBILE COMPUTERS

- Flexible Bluetooth wearable scanner with multiple comfortable mounting options: hand, neck, belt/pocket
- Small, lightweight super reliable device
- 2 working shifts and up to 12,000 scans with a single charge
- Best-in-class scanning performances reduce TCO: 1D/2D Datalogic decoding library, smart-aiming system, Green Spot, 3 high-visible LEDs, audio and vibration feedback



MEMOR™ 30/35 family



- Complete range of mid-tier mobile computers with top data capture performance: 2 scan engines with a range up to 10mt, front/rear camera, green spot good read technology
- Streamlined future-proof computing & connectivity: Qualcomm 2.4 GHZ Octa core platform, 5G and WIFI 6E, Android 13
- Easy of use & versatile solution: 6" display, 12h swappable battery, multiple modular charging solutions, full accessory range
- Proven reliability & TCO: IP68 dust and water protection, wireless charging battery and cradles, full software suite to enhance optimization, deployment and protection of the asset



MEMOR™ 12/17 family



- Effortless scanning at fast pace in any environment with Green Spot technology
- Reliable and stable connectivity in crowded environments: Wi-Fi 6/6E, Bluetooth 5.3, 5G + Qualcomm 4490 platform
- Rugged and high-quality display: 6" inch capacitive multi-touch, FHD+ display, G67
- Ultimate flexibility with three different charging options: USB-C, Wired cradles, Wireless cradles
- Quick and Effortless Payments with Multi-Side NFC reading technology



SKORPIO™ X5



- Largest 4.3" high visibility display in its class
- Scan engine: 1D Imager, 2D Imager Standard Range, Mid-Range and near/far Extra-Long-Range Imager
- Handheld and/or Pistol-grip form with 3 keyboard layouts
- Fully rugged 1.8 m drop and IP65 rating
- Choice between Wireless Charging or Wired versions with dedicated docks



RHINO II™ and SH15/SH21



- 10, 12, 15, 21 inch high resolution color display
- Operating System: Windows 10 IoT or Android 7.1
- Capacitive multi-touch screen with gloves support or resistive touch screen for cold/freezer environments



POWERSCAN 9600 SERIES



HANDHELD SCANNERS

- Standard Range (SR) and High Performance (HP) for standard / high resolution codes
- 1D/2D Auto Range series, able to scan at very short distances up to very far barcodes
- PowerScan 9600 DPX series for traceability of DPM and label-based codes
- Wireless Charging technology
- Center of gravity design and modular cradle design for multiple connectivity



POWERSCAN 9600 RFID



- Scan 1D/2D barcodes, and Digimarc
- UHF RFID Read/Write capabilities
- Capture and transfer color images
- Full keypad and large display option
- Ultra-reliable charging system based on inductive charging technology

PRODUCT PORTFOLIO *by* DATA SENSING easing automation challenges



P2X-SERIES



- Field replaceable illuminators, lenses and filters
- High computing power
- 360° visual feedback



P3X-SERIES

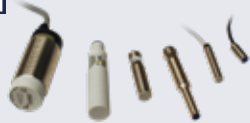


- High-end smart camera providing state of the art computing performance. With resolutions up to 5MP, P3x enables high-accuracy Quality inspection and measurement applications.

MACHINE VISION



INDUCTIVE SENSORS Ø3-Ø6.5 / M8-M30



- Wide portfolio with different formats and connectivity
- High reliability and state of the art detection quality
- Very high range of application also in harsh environment



UF/UK/UQ/UT IO-Link



- Wide range of housing formats and materials. Stainless Steel AISI 316L available
- High mechanical protection degree IP68, IP69K with ECOLAB certification
- Wide connectivity range



SMALL



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

SENSORS



S70 IO-Link



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



S8 IO-Link



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



S300-PA/PR



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

SENSORS



AS1/DS1



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



DS4



- Controlled heights from 300 to 3000mm
- 5, 10 or 25mm pitch
- Operating distance up 13m
- Crossed or parallel beams
- Opaque and Transparent detection
- Outputs: analogue and digital, RS485, Ethernet TCP/IP
- Fully configurable via IO-Link or through WiFi with GUI



S65-M IO-Link



- Cost-Effective Long-Range Background Suppressor with Time Of Flight (TOF) technology and Infrared Emission
- Risk-free Infrared LED emission and embedded green LED pointer
- Two independent fully programmable outputs

SENSORS



SH4



- Complete line of finger/hand/body resolution safety light curtains
- Base, Standard and Advanced models to cover all applications
- Advanced alignment tools and wireless diagnostics and programmability



SH4 ACTIVE/PASSIVE



- 2, 3 and 4 beams retroreflective version of SH4
- 500, 800, 900 and 1200 mm monitored heights
- Save installation costs with only one side connected to the machine



SLIM



- 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

SAFETY AND GUIDANCE



MX-E-SERIES



- Multi-camera vision processors
- GigE Vision camera connectivity
- Four different models with different processing capabilities



MX-G2000



- Industrial vision processor with PEKAT VISION deep learning
- The MX-G2000 integrates the 12th generation INTEL chipset and NVIDIA RTX GPU providing the highest computing power to run both PEKAT VISION deep learning and IMPACT rule-based algorithms



PEKAT DEEP-LEARNING SOFTWARE



- Software solution based on proprietary advanced deep-learning algorithms and neural networks
- Ease of use and wide hardware compatibility, with preferential hardware being the MX-G2000
- Universal application for various manufacturing solutions in quality control and defect detection



S100 IO-Link



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



S3N IO-Link



- High performance in standardized miniature housing
- Replaces larger sensors and fits in limited space in smaller machinery
- Miniaturized fast and precise mark reader is also available



S5N IO-Link



- First tubular sensor line with all optic functions and IO-Link V1.1 smart sensor profile on the market becoming a reference point for the Industry 4.0.
- All the basic optic functions available
- M18 flat plastic with universal mounting or available in M18 metal housing
- Axial or radial optics, cable or connector



S62



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



TL46 IO-Link



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



LD46



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



SMART-VS



- The smart vision sensor enabled with A.I. and empowered by machine learning assisted setting algorithms.
- Simply clever solution for all your presence and orientation object detection applications



S85



- Long distance sensor based on TOF
- Accurate controls based on a target object distance and improved cost saving
- Measuring range up to 10m or 20m [32.8 - 65.6 in]
- 1 mm resolution, 7 mm [0.02 in] accuracy, 1 mm repeatability



SR21/SR23



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



SRX3



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



LASER SENTINEL MASTER/REMOTE



- More than 72 m2 safely monitored, with 5.5 m / 180.4 ft over 275°
- Master/remote topology with up to 4 units
- 3 simultaneous areas detected / up 70 zone set
- Advanced dust filtering



LASER SENTINEL PROFISAFE



- System integration command by Profinet/Profisafe fieldbus
- More than 72 m2 safely monitored, with 5.5 m / 180.4 ft over 275°
- 8 simultaneous areas detected / up 70 zone set
- Advanced dust filtering



LGS-N25



- High precision up to 25m
- 360° scan view with 0,25° resolution
- Very compact housing 65x65x70 mm
- Suitable for mapping, navigation and object profiling also for outdoor



LGS-A10



- Object detection up to 10m
- 360° scan view with 0,25° resolution
- Very compact housing 65x65x70 mm
- 3 simultaneous output and 16 different zone set
- Suitable for collision avoidance, object detection, shape recognition also for outdoor



LGS-N50



- High precision up to 50 meters
- 360° scan view with 0.06° resolution
- Compact housing 95 x 97 x 116 mm

Datalogic at a glance

Datalogic Group is a global leader in the **automatic data capture and factory automation** markets. It is well known around the world for designing and producing barcode readers, mobile computers, sensors for detection, measurement and safety, RFID, machine vision and laser marking systems. Datalogic solutions help customers increase the quality of their processes in the **Retail, Manufacturing, Transportation & Logistics, and Healthcare** industries.

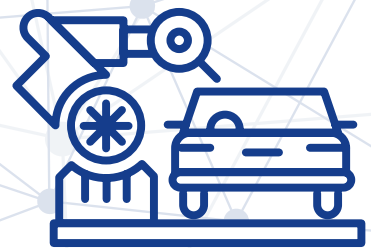
The Group has **50 years of history** behind it, during which enormous successes have been achieved: **8 R&D centers and 3 DL Labs in Italy, USA, Vietnam, and China; 9 manufacturing and repair facilities** in USA, Hungary, Slovakia, Italy, China, Vietnam, and Australia; a **portfolio of about 1,200 patents and patent applications** in multiple jurisdictions; thousands of prestigious partners and customers spread across five continents.

Datalogic Group has **offices in 27 countries worldwide**, with the headquarters in Bologna, Italy. It is through the close cooperation of **about 3,000 employees** that Datalogic can boast some of the most remarkable automatic data capture and factory automation solutions available today in the market.

DATALOGIC TARGET INDUSTRIES



RETAIL



MANUFACTURING

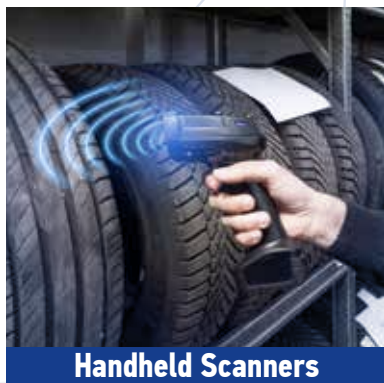


TRANSPORTATION
& LOGISTICS



HEALTHCARE

DATALOGIC PRODUCT RANGE



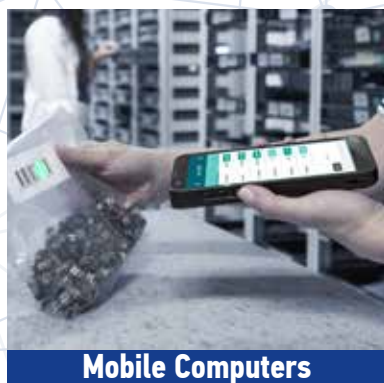
Handheld Scanners



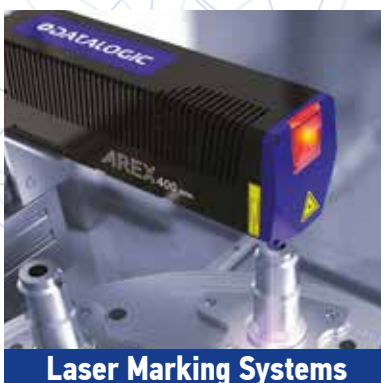
Fixed Retail Scanners



Stationary Industrial Scanners



Mobile Computers



Laser Marking Systems



OEM Barcode Readers



RFID Systems



Sensors & Safety
by **DATASENSING**



Machine Vision
by **DATASENSING**



CUSTOMER SERVICE

Datalogic's Customer Service offers a wide and complete range of post-sales services. It is organized in three levels of support, in order to guarantee the most appropriate professional assistance based on the specific problem. Datalogic's Customer Service can deploy in each territory a team of multi-lingual professionals, with a broad technical expertise across the whole product range. Our standard service portfolio includes: warranty extension, fast turnaround time for repairs, 24/7/365 phone support, next day on-site intervention and site audits. Datalogic can tailor the service offering to your specific needs. Our experts will support every stage of your projects, from feasibility study to extended post-sales support, performing, when necessary, root cause analysis and remediation.



EASEOFCARE Service Programs

Datalogic's EASEOFCARE Service Programs provide superior life-cycle support to ensure that products are always operating at peak performance. A variety of Service Programs are available to match your business requirements:



**FAST REPAIR TURNAROUND
(OVERNIGHT/2 DAYS)**



**ACCIDENTAL DAMAGE
COVERAGE**



**BOTH WAYS FREIGHT PAID
BY DATALOGIC**



**DATALOGIC SHIELD
FOR MOBILE PRODUCTS
INCLUDED**



**3-5 YEARS CONTRACT
SERVICE OPTIONS**

Please contact your sales representative to find out what type of services are available in your region.

www.datalogic.com

