MACHINE VISION

Product Group Guide

DATALOGIC
EMPOWER YOUR VISION

MACHINE VISION

The Machine Vision product line of Datalogic encompasses the widest range of intelligent devices for in-line automated inspection and factory automation. Leveraging the experience of thousands of successful machine vision installations throughout the world, Datalogic has become a recognized world leader in machine vision innovation and has brought unique benefits to customers:

From smart vision sensors to multi-camera high-end systems: we have got you covered!

Our complete family of smart vision sensors, smart cameras and industrial vision processors offers multiple solutions covering a wide range of performance and price point requirements. Products are designed and developed by our engineers to meet all your manufacturing inspection needs and to get your application up and running faster than anyone else in the industry.

Enabling Industry 4.0

A crucial role in the creation of "smart factory" for Industry 4.0 will be played by companies that are able to generate data. Our machine vision solutions can be used to identify parts through barcode, reading characters (OCR) or recognizing patterns. By detecting defects and locating parts our systems are able to guide robots and other automation to help control the process of the manufacturing line. Data is key and machine vision is able to provide what is needed in today's environment.

A single software platform for all smart cameras and vision processors

Our intuitive IMPACT programming software is common to all smart cameras and industrial vision processors. This means no operator cross-training and no need to maintain different software platforms— just select the hardware you want and go! Transfer inspection programs from a smart camera to an industrial vision processor and back again without redeveloping the application.

Global reach

Together with our global distribution and integration partners we pride ourselves on providing a level of training and support that is unmatched in the industry. We listen, then execute – turning our customers' requirements into solutions faster than anyone else.
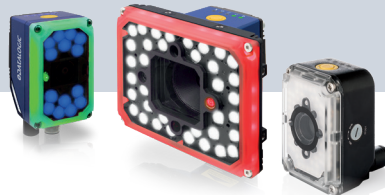
Smart vision sensors

Smart vision sensors are ideal to tackle entry-level machine vision applications by offering easy and quick setup at a very affordable price.

Smart cameras

Smart cameras offer the flexibility of a full-blown vision system packed into a compact housing thus simplifying the device integration on the machine.

Vision processors

By offering cutting edge image processing capabilities, vision processors enable high-end multi camera machine vision solutions.

SMART VISION SENSORS

SMART-VS

The Smart-VS is a Smart Vision Sensor with learning ability and sensor setting simplicity suitable for any presence and orientation object detection. The Smart-VS can solve all the applications when a very simple and easy installing procedure is requested without the need of specific smart camera skills. Empowered by AI technology and thanks to its customized machine learning algorithms it can easily learn the "good" and "not good" objects fast and reliably. The Smart-VS is the right solution for all the applications where the integration of sensors is too complicated or where the use of vison system is not affordable.

AI enabled   MLAS - Machine Learning Assisted Setting

Benefits

- Sensor-like configuration with no need of technical machine vision know-how

- Quick and intuitive teach in procedure dramatically reducing set-up time

- Extremely low total cost of ownership thanks to its innovative ease of use and smart concept

Technical data

- Operating distance: 50...150 mm
- FOV area @ 50 mm: 22 mm (H) x 16 mm (V)
- FOV area @ 150 mm: 55 mm (H) x 41 mm (V)
- Response Time: 50 ms
- Configuration: Push button or Web-Interface

DATAVS2

The DataVS2 smart vision sensor series presents all the characteristics to solve machine vision applications in a flexible and intuitive way. DataVS2 is a completely embedded device: the optic, the LED illuminator and the electronics are included in an extremely compact housing. The sensor is configured via PC through Ethernet communication. The configuration software is supplied with the product and it has been developed in order to lead the customer through the configuration process step by step.

Benefits

- Easy-to-use graphical interface not requiring specific machine vision skills

- Wide range of inspection tools delivering outstanding application flexibility

- VSM display support offering cost-effective operator HMI

Technical data

- Imager: 640 x 480 pixels, CMOS monochrome
- Lens options: 6, 8, 12, 16mm focal lengths
- Illuminators: Red or Infrared
- Models: Object Recognition (OBJ), Advanced Object Recognition (AOR), Identification (ID) and Professional (PRO)
- Configuration: DataVS2 GUI

APPLICATIONS

- Label presence
- Part assembling verification
- Cap orientation
- Printing verification on label

SMART CAMERAS

P1x SERIES

The P1x Series is an ultra-compact cost effective smart camera offering advanced vision systems functionalities in a fully embedded stand-alone device. The P1x Series is available with monochrome or color image sensors in two different resolutions: VGA and 1.3MP. Lenses, illuminators and filters are fully interchangeable and can be mounted and replaced by the user. Powered by IMPACT, the P1x Series is the perfect product to tackle machine vision applications where compactness and price/performance ratio are the most important buying criteria.

Benefits

- Interchangeable illuminators, lenses and filters optimizing image acquisition according to application requirements
- Compact dimensions and rotating connectors to mount the device even in narrow spaces
- Models running IMPACT Lite version providing easier configuration for entry-level applications

Technical data

- Imager: VGA and 1.3MP, CMOS mono or color
- Lens options: 6, 9, 12, 16, 25mm focal lengths
- Illuminator: Red, Blue, White, Infrared (polarized versions available)
- Digital I/Os: 2 IN / 3 OUT
- Configuration: IMPACT Software
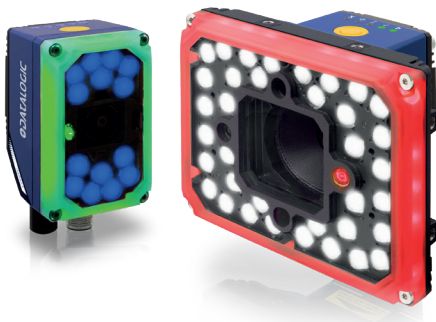
P2x SERIES

The P2x Series is an industrial smart camera providing exceptional inspection performance. P2x Series embedded 2 megapixel resolution imager enables high accuracy applications such as measurement or robot guidance requiring precise part location. P2x Series Smart Cameras feature one of the most sophisticated optical designs available on the market. Illuminator LEDs embed TIR lenses to convey the maximum amount of light onto the Field-of-View. Top class lenses and state-of-the-art CMOS imager deliver maximum image quality.

Benefits

- State-of-the-art computing power enabling all advanced algorithms available in IMPACT software
- Crisp and bright images thanks to advanced optical design
- Intuitive 360° visual feedback providing inspection results to operators with no need of additional HMI software application

Technical data

- Imager: WVGA and 2MP, CMOS mono or color
- Lens options: 6, 8, 12.5, 17.5mm focal lengths
- Illuminator: Red, Blue, White (polarized versions available)
- Digital I/Os: 2 IN / 3 OUT
- Configuration: IMPACT Software

APPLICATIONS

- Robot guidance
- Component assembling verification
- Lot number and best before date OCR reading
- Label position, orientation and color

SMART CAMERAS
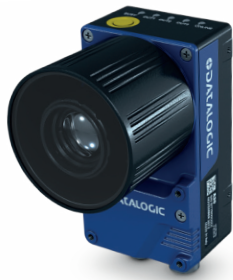
A SERIES

The A30 Series is a stand-alone, general purpose Smart Camera that can be installed even in harsh industrial environments thanks to its IP67 rated housing. The A30 Series features a VGA (640x480) CCD imager, built-in discrete I/Os as well as Ethernet and Serial interfaces. Thanks to the ultimate programming flexibility offered by IMPACT software, the A30 Series represents the answer to every machine vision need.

Benefits

- Sturdy industrial housing for applications in harsh environments
- C-Mount lenses delivering high image quality and installation/field-of-view flexibility
- Excellent price/performance ratio

Technical data

- Imager: VGA, CCD mono
- Lens options: C-Mount lenses
- Illuminator: External only
- Digital I/O: 2 IN / 3 OUT
- Configuration: IMPACT Software
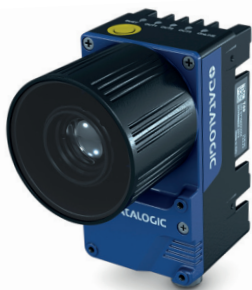
T SERIES

The T Series smart camera provides customers with outstanding performance in an industrialized and compact package. Equipped with a powerful 1.1 GHz processor, the T Series performance is exceptional in value and functionality. The T Series comes in 3 different camera resolutions (VGA, 2MP and 5MP) all in a sealed, industrially hardened enclosure for maximum protection.

Benefits

- Industrial housing for applications in harsh environments
- C-Mount lenses delivering high image quality and installation/field-of-view flexibility
- High-resolution models enabling ultra high accuracy inspection applications

Technical data

- Imager: VGA, 2MP and 5MP, CCD mono
- Lens options: C-Mount lenses
- Illuminator: External only
- Digital I/O: 2 IN / 3 OUT
- Configuration: IMPACT Software
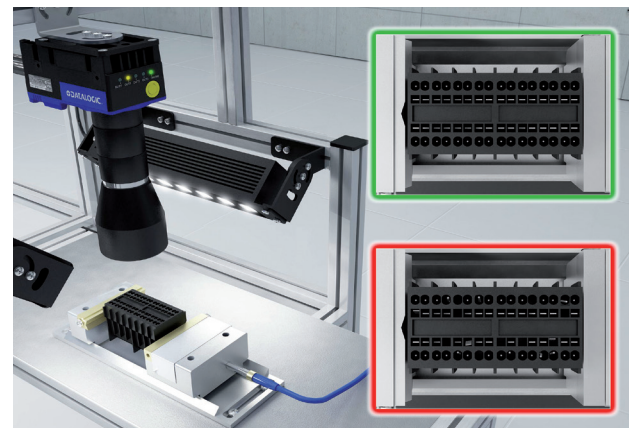
APPLICATIONS

- Medical device assembly control
- Component alignment/positioning
- Packaging/sealing verification
- Vial in tray counting

VISION PROCESSORS

MX-E SERIES

The MX-E Series of Industrial Vision Processors provides the highest performance in image processing with unmatched flexibility through GigE multi-camera connectivity support. The MX-E Series allows users to choose the level of system performance and complexity based on their application needs. Three different MX-E models are available, each featuring the latest processors and high speed PoE (Power over Ethernet) camera ports. MX-E vision processors are equipped with NPN or PNP digital I/O and power up to 8 Gigabit PoE cameras.

M/E SERIES CAMERAS

The MX-E Series supports a series of grayscale and color cameras utilizing the GigE Vision standard. Thanks to their small housing, the cameras allow for easy installation in locations where space is constrained.
The cameras are the ideal solution for fast embedded vision system integration and ensures an outstanding price/performance ratio. High resolution and frame rate guarantee superior image acquisition for tackling most complex machine vision applications.

Mono model	Color model	Resolution	Imager type	Frame/Line per sec.
E101	E101C	640 x 480	Area, global shutter	376
E151	E151C	1280 x 1024	Area, global shutter	88
E181	E181C	1920 x 1200	Area, global shutter	50
E198	E198C	2448 x 2048	Area, global shutter	23
M197	M197C	2592 x 1944	Area, rolling shutter	14
M565	-	2048	Linescan	51 KHz
M570	-	4096	Linescan	26 KHz
M575	-	6144	Linescan	17 KHz
M580	-	8192	Linescan	12 KHz

Benefits

- Cutting edge computing power thanks to state-of-the-art chipsets and Operating System

- Supporting a wide range of area and linescan cameras to tackle the widest range of inspection applications

- Seamless integration with standard factory networks and secondary software packages

Technical data

- Chipset: Celeron dual core (MX-E25/45), Intel Core i7 (MX-E90)

- Supported cameras: Up to 2 (MX-E25), up to 4 (MX-E45), up to 8 (MX-E90)

- Digital I/Os: 16 IN / 16 OUT

- Operating system: Windows 10 IoT Enterprise

- Configuration: IMPACT Software

APPLICATIONS

- **Electronic assembling verification**
- **Robot guidance**
- **High accuracy part location**
- **Item sortation**

IMPACT SOFTWARE

IMPACT Software Suite, with over 120 software tools and controls, allows to create unique inspection programs and develop user interfaces quickly and easily. All this can be done without the loss of functionality, like traditional configurable systems, no programming is required. IMPACT Software Suite also provides a Software Development Kit (SDK) that guarantees full integration of vision systems monitoring capabilities into HMI software applications. IMPACT SDK is the ideal solution for Original Equipment Manufacturers (OEM) that need to create a single control point for the whole manufacturing line. One software – countless applications!

VPM — Vision Program Manager (VPM)
Graphical user interface to configure all Datalogic Smart Cameras and Vision Processors

CPM — Control Panel Manager (CPM)
Graphical user interface to develop stand-alone User Interfaces for vision applications

SDK — Software Development Kit (SDK)
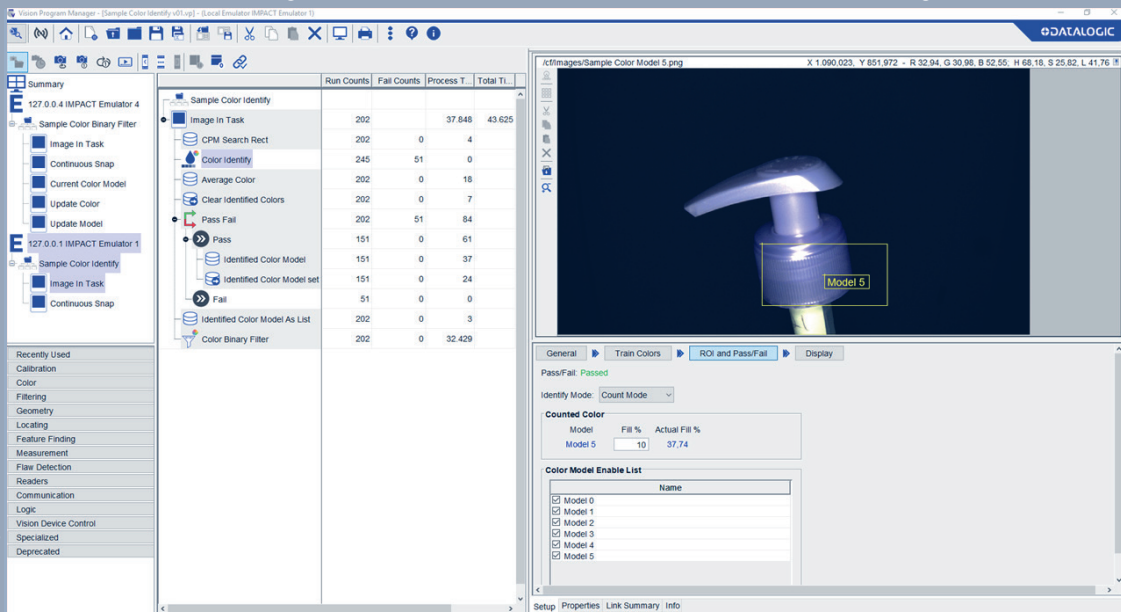To integrate machine vision monitoring capabilities into third party client HMI

DEVICE TREE

INSPECTION TREE

WORKING IMAGE

TOOL PALETTE

PARAMETERS SETUP

IMPACT SOFTWARE TOOLS

- Locating
- Calibration
- Filters
- Colors
- Code reader
- Measurement
- Flaw detection
- Logic
- OCR/OCV
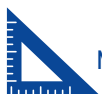
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