



P-Series Smart Cameras

Product Overview

October, 2014

New P-Series Smart Cameras



Machine Vision Made Easy

Compact
...Fully-embedded
...Modular
...Smart Cameras

P-Series Smart Cameras Positioning

Performance / Flexibility

Vision Processors

Smart Cameras

Vision Sensors

DataVS2

P-series

A-series

T-series

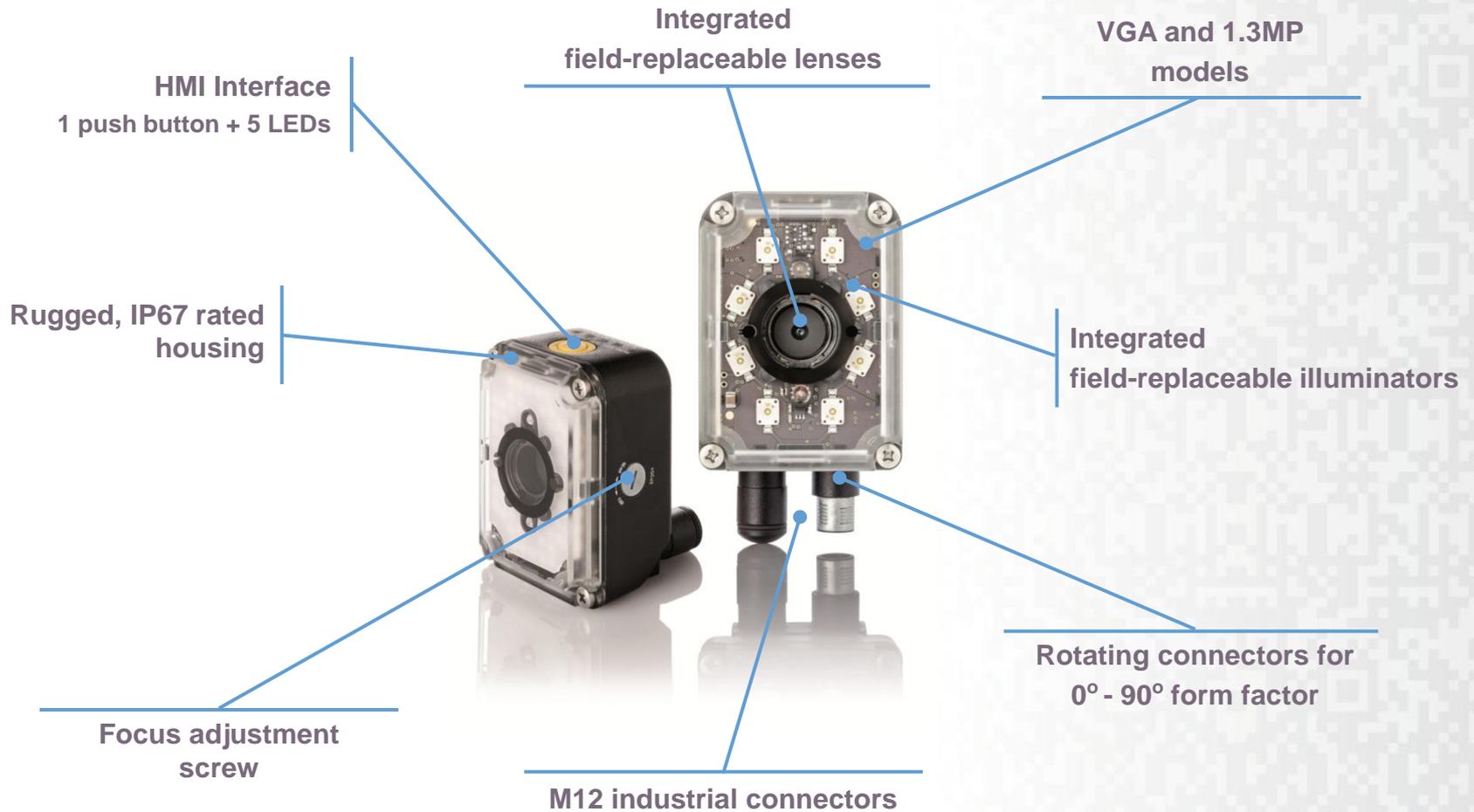
MX-Series Processor

M-Cameras



Price

P-Series at a glance

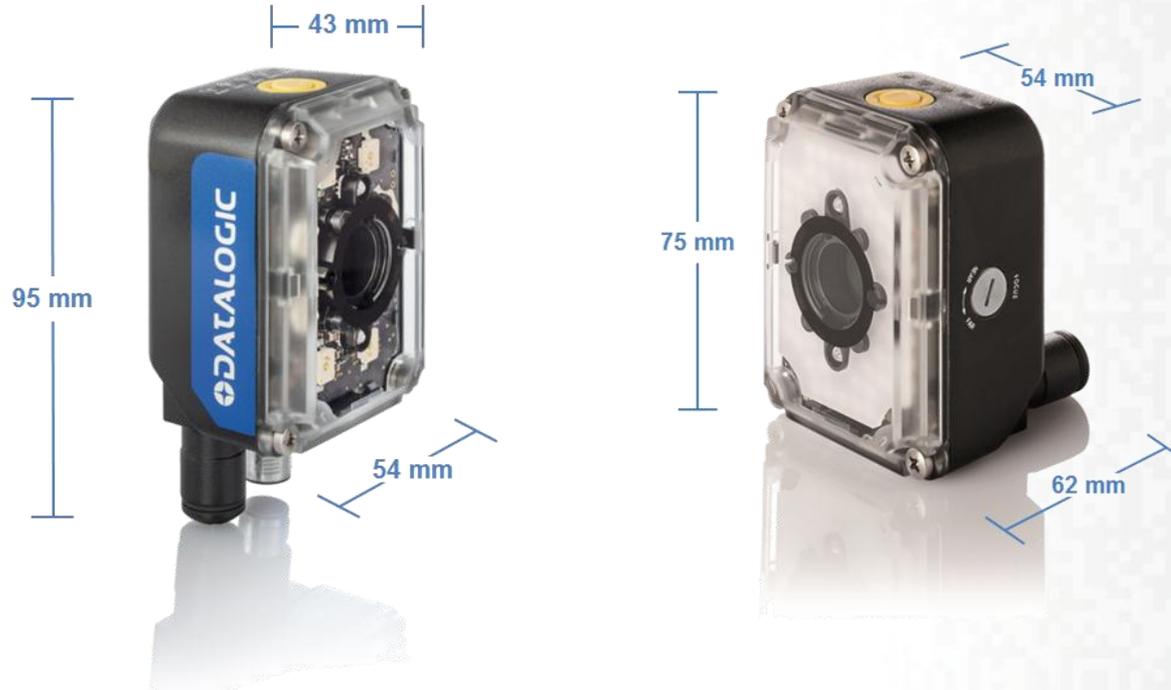


P-Series Technical Data

	P10	P15
Imager	640x480 (VGA) monochrome CMOS (1/4")	1280x1024 (1.3MP) monochrome CMOS (1/1.8")
Frame rate	120 fps	60 fps
Lens options	6mm / 9mm / 12mm / 16mm / 25 mm	
Lighting options	Wide angle 8 LEDs: Red, White, IR, Blue Multi-chain 50 LEDs: Red, White, Blue	
Processor	660 MHz DSP	
Dedicated I/O	1 IN	
Configurable I/O	1 IN – 3 OUT	
RS232	Embedded	
RAM	256 MB	
Storage	256 MB	
Protection class	IP67	
Certifications	CE, CSA	



Rotating Connectors and Compact Dimensions



The compact dimensions together with the rotating connectors result in **extraordinary mounting flexibility** allowing cable connections to either the bottom or back-side of the product.

Product Modularity: Lenses



6mm



9mm



12mm



16mm



25mm

Five different lens options are available:

- 6 mm
- 9 mm
- 12 mm
- 16 mm
- 25 mm*

Lenses are field-replaceable and can be quickly mounted/unmounted.

**requires an additional spacer sold together with the 25mm lens*

Product Modularity: Illuminators /1

P-Series illuminators are fully embedded and can be easily mounted and replaced by removing the front plastic window. Seven different models are available:



Wide angle model

- 8 powerful LEDs
- Maximum performance and robust lighting even at far operating distances
- Four different color options:

Red



White



Infrared*



Blue



Multi-chain model

- 50 small LEDs with embedded diffuser
- Extremely uniform lighting in the Field Of View even at close distances
- Three different color options:

Red



White



Blue

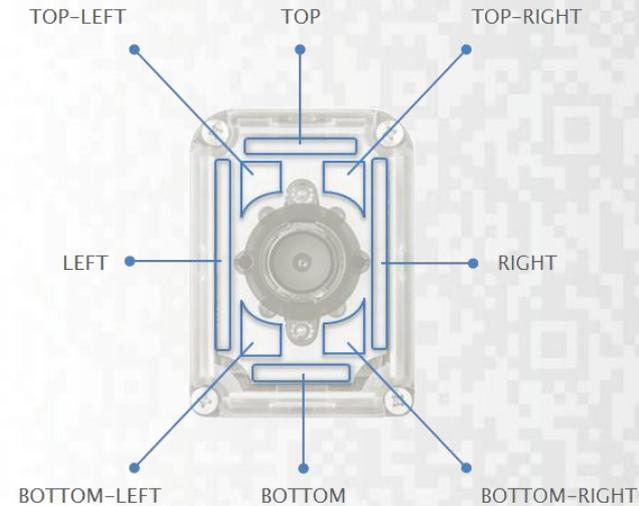


** IR bandpass filters are available as separate accessories.*

Product Modularity: Illuminators /2

The multi-chain illuminator models feature 8 segments that can be switched on/off independently delivering superior lighting flexibility.

Application example:



Switching off the bottom segments allows to reduce the glare in the bottom area of the Field Of View thus making the light intensity more uniform.

Connectivity /1

The P-Series Smart Cameras are fully compatible with the existing A30/T4x-Series breakout boards. Customers can use either the simple, cost effective and compact terminal block with DB25 connector or an industrialized sturdy CBX connection box.



Terminal block, DB25 female connector

- I/O breakout board
- Spring clamp terminal block
- DIN RAIL mounting



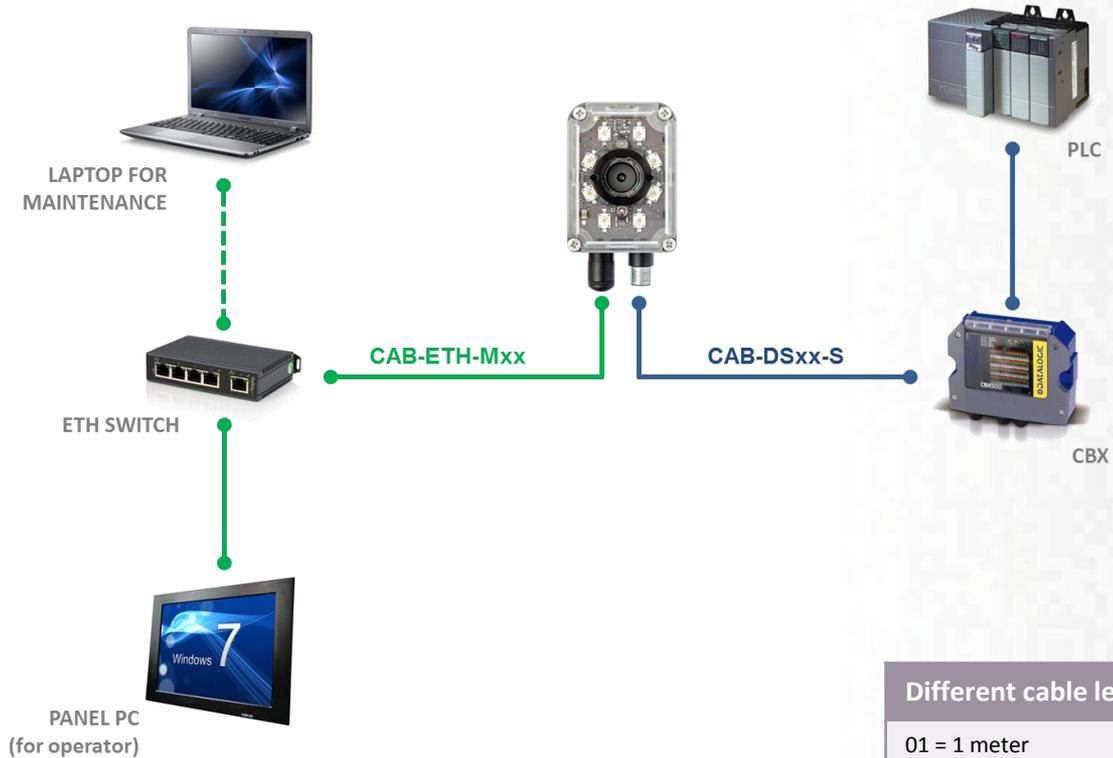
CBX500 and CBX800 connection boxes

- IP65 (NEMA 4) protection class
- I/O breakout board
- Connectivity to Profibus fieldbus*
- Through-hole compression connectors
- Spring clamp terminal block

* To connect P-Series to Profibus, use CBX800 connection box and BM300 or BM310 fieldbus modules.

Connectivity /2

Typical system layout



Different cable lengths available (xx)

01 = 1 meter

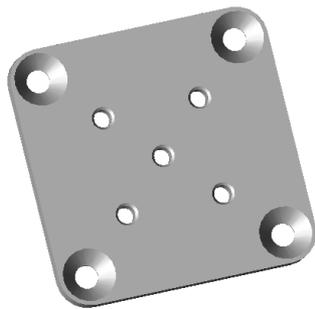
05 = 5 meters

03 = 3 meters

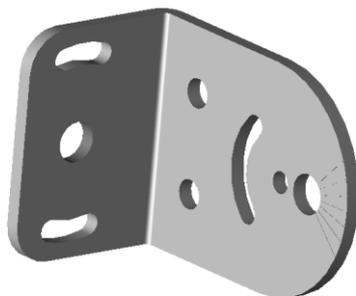
10 = 10 meters

Device mounting

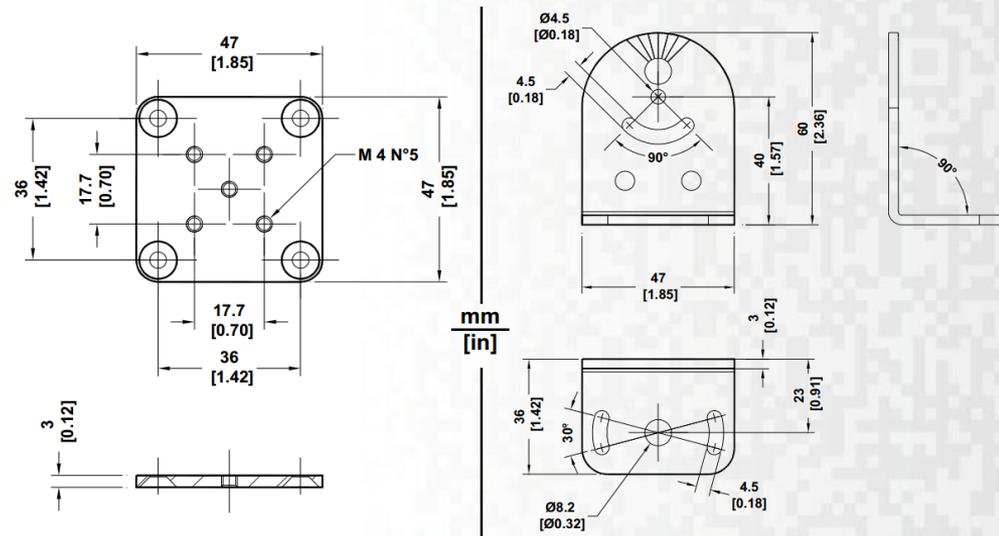
Mounting brackets and mounting plates are supplied with P-Series to make device mounting on machines extremely quick and easy.



Mounting plate



L-shaped mounting bracket



Industrial Design

Despite its compact dimensions, the P-Series is an **extraordinarily rugged smart camera**. The full metal housing is **IP67 rated**, designed for harsh industrial environments with presence of dust and water.



- IP67 rated housing
- M12 sealed connectors
- 10-30 VDC power supply
- 0 to 50° C (32 to 122° F) operating temp.
- 0 to 90% non-condensing humidity

The characteristics listed above make P-Series suitable for even the **most demanding industries**, such as Food & Beverage, Pharmaceutical and Automotive.

Impact Lite /1



IMPACT LITE is the new software application that powers the new P-Series. In this new version, all functionalities have been reshaped resulting in **easier and faster programming** while maintaining the IMPACT look and feel.

- Reduced toolset
- Limited number of tools per inspection
- Setup panel
- Image-In task only
- Improved usability

Impact Lite /2

❑ Reduced toolset

IMPACT LITE features a selection of the most commonly used inspection tools. This set of algorithms have been chosen by 30+ year experienced Datalogic specialists to meet the typical application requirements while keeping the device configuration quick and easy.

Image Filtering

- Edge Enhancement
- Morphology Dilate
- Morphology Erode

Locating

- Blob
- Circle Gauge
- Line Find
- Origin
- Pinpoint Pattern Find

Flaw Detection

- Average Intensity
- Blob
- Contrast – Multiple ROI
- Greyscale Template

Feature Finding

- Average Intensity
- Blob
- Circle Gauge
- Contrast – Multiple ROI
- Edge Point Find
- Line Find
- Wide Edge Point Find

Measurement

- Circle Gauge
- Line Find
- Line Gauge
- Line Gauge Dual ROI
- Multiple Point to Point Measurements

Readers

- Code Reader
- OCR*

Communication

- Discrete Input
- Discrete Output
- Serial Port Out
- TCP/IP Port Out
- Image Archiving

Logic

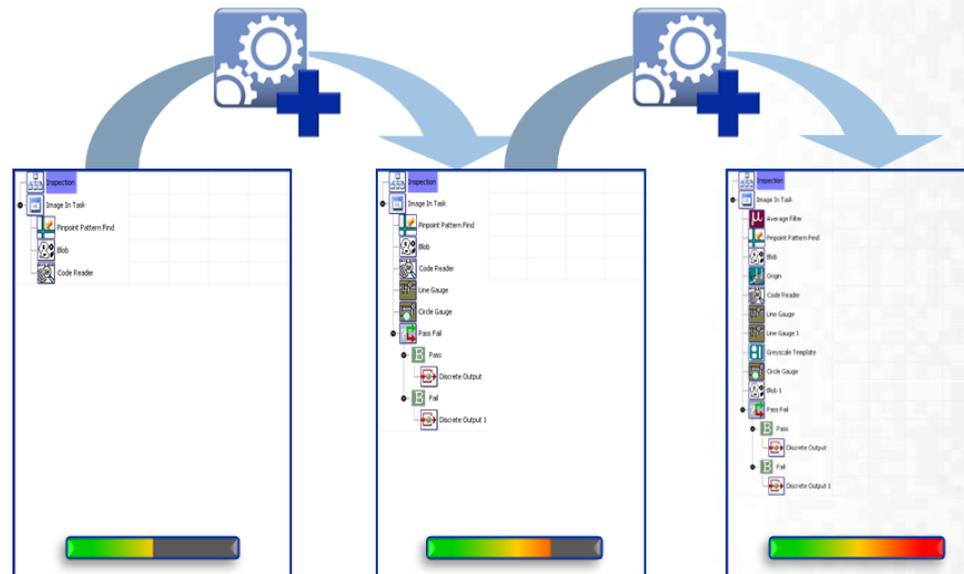
- Counter
- Pass Fail
- Switch
- String Builder

**OCR tool can be enabled with a separate license, similar to other IMPACT devices.*

Impact Lite /3

❑ Limited number of tools per inspection

A maximum number of tools per inspection have been introduced in order to avoid overly complex inspection programs that usually turn into hard-to-debug machine vision applications.



Each tool has a specific weight. An indicator is displayed below the inspection tree showing the remaining capacity. When the maximum capacity is reached, no further tool can be added.

Impact Lite /4

❑ Setup panel

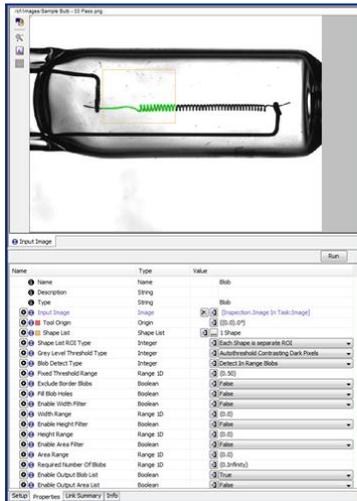
The tool's parameter setup can be done exclusively through the Setup Panel using graphical controls: sliders, combo boxes, radio buttons. The Properties and Link Summary panels are not shown nor accessible. This simplifies the tool configuration since only the most important parameters are displayed to the user.



SETUP



PROPERTIES



LINK SUMMARY



Impact Lite /5

❑ Image-In task only

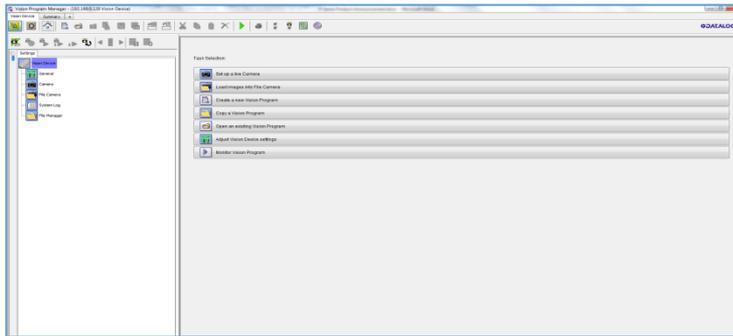
Vision programs have been limited to only one task (Image In) in order to keep the device configuration easy to manage and avoid too much complexity.



Impact Lite /6

❑ Improved usability

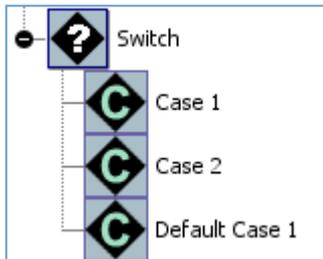
Several software enhancements have been introduced to streamline the configuration process and make the user interface easier to use and more intuitive.



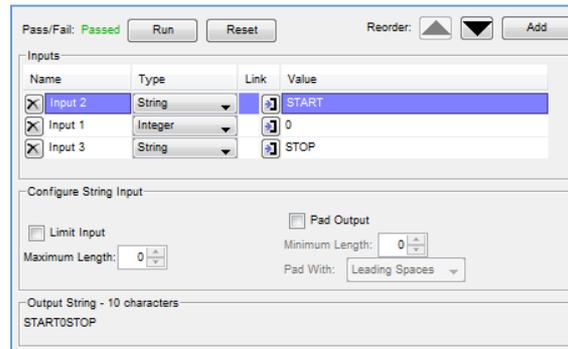
New welcome screen with task selection buttons



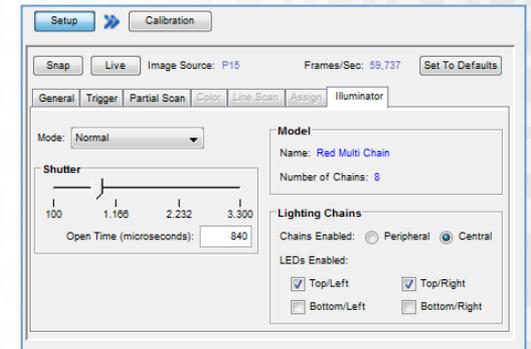
New style for configuration steps



New switch tool



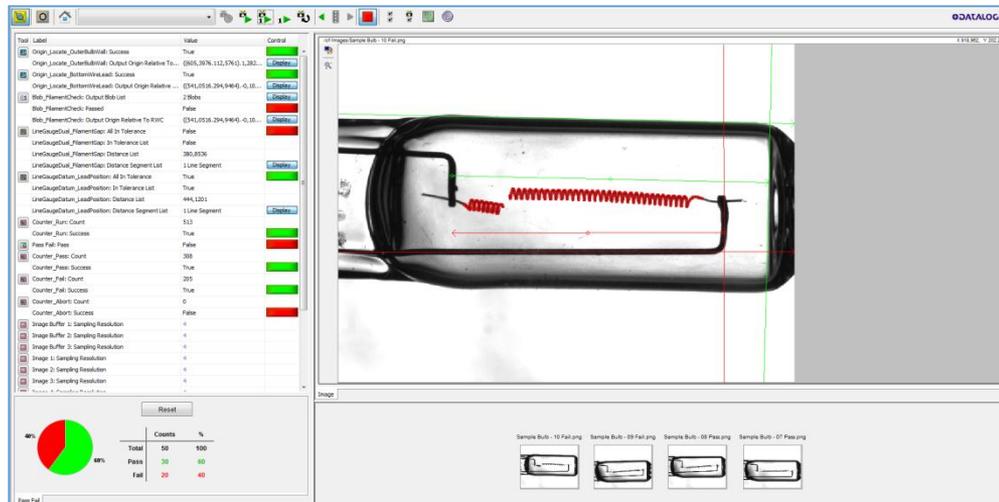
New string builder tool



Illuminator setup panel

Impact Lite /7

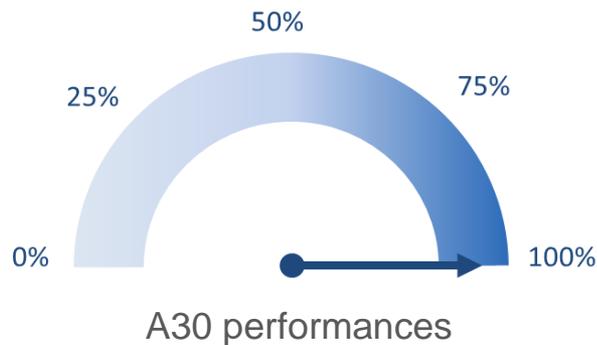
The IMPACT LITE software include the **VPM Display**, a pre-configured monitoring software application that allows operators to supervise the quality control results as well as the machine vision device behavior. The VPM Display does not require any kind of programming or configuration as the panel is **automatically generated** when configuring the smart camera.



- Live image displaying
- OK/NOK overall statistics
- Inspection switching
- Tool results (logic and numeric)
- Overlay graphic enable/disable
- Input setup

Performance

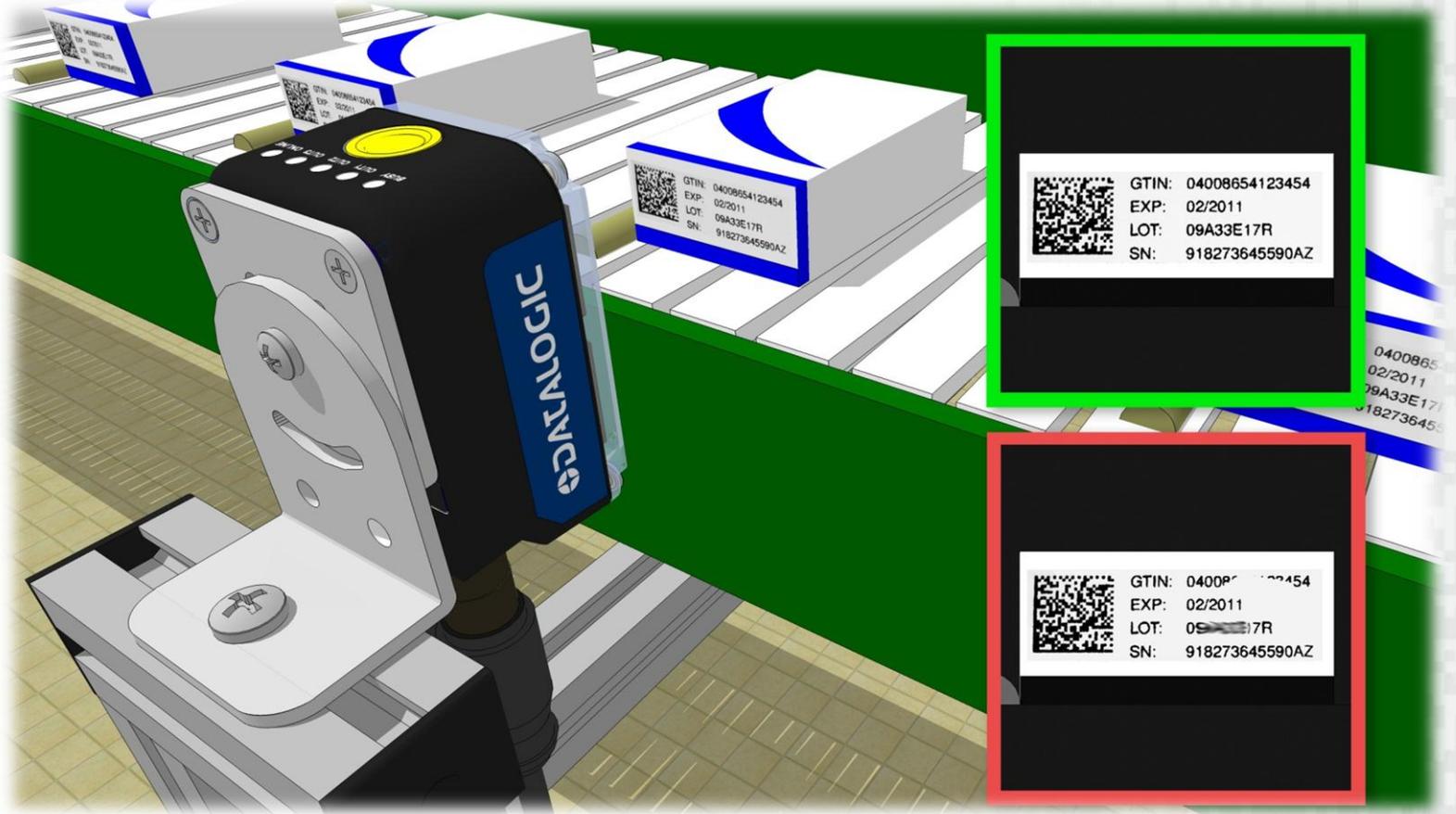
The P-Series smart cameras are equipped with powerful and efficient DSP processors delivering excellent performance with low power consumption and heat generation.



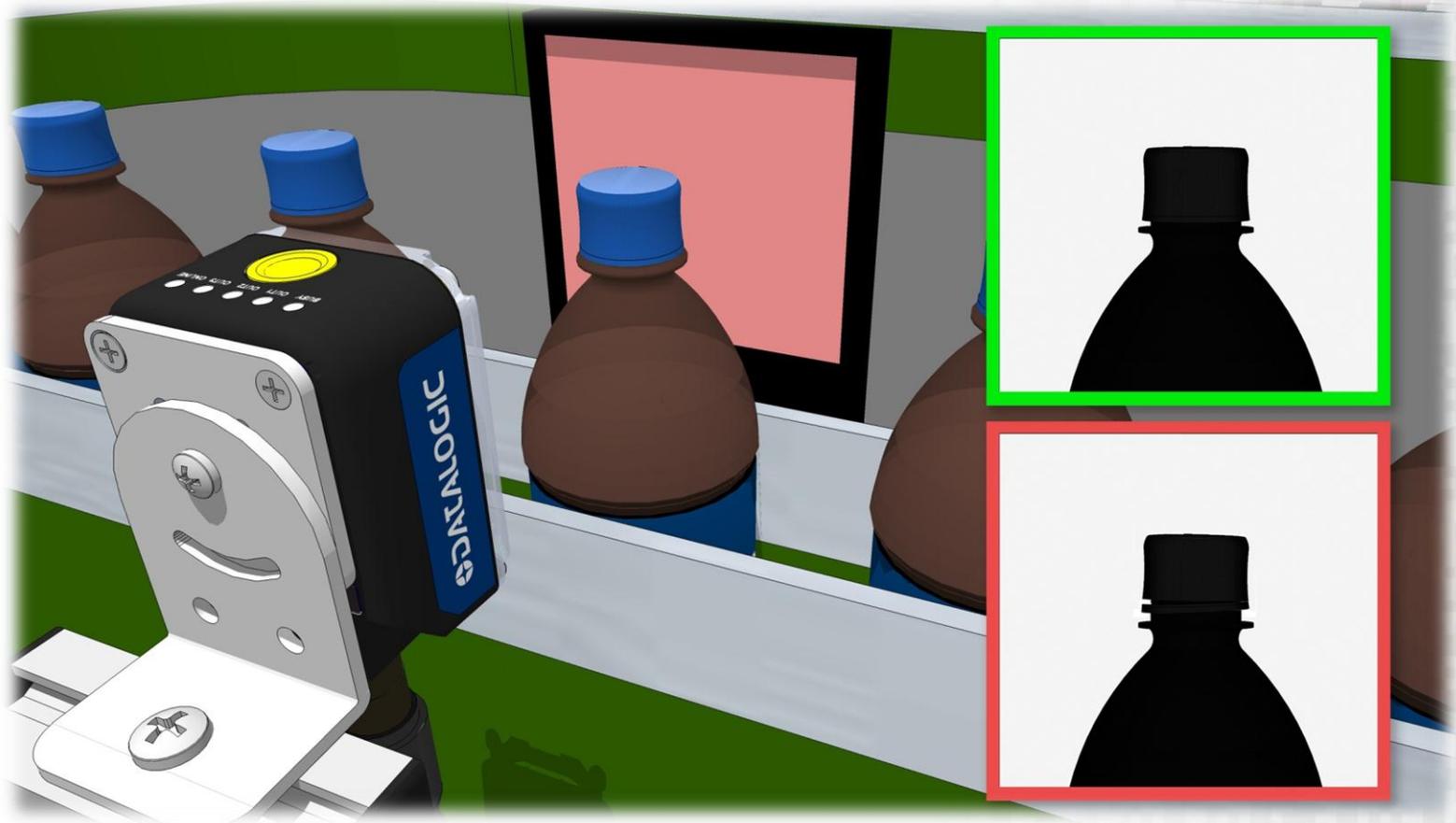
With a 660 MHz processor, the computing time of the cost-effective and compact P-Series is just 20% higher compared to A30 models*.

** Speed test average results on selected images.
Please note that values may vary according to the specific image and/or setting.*

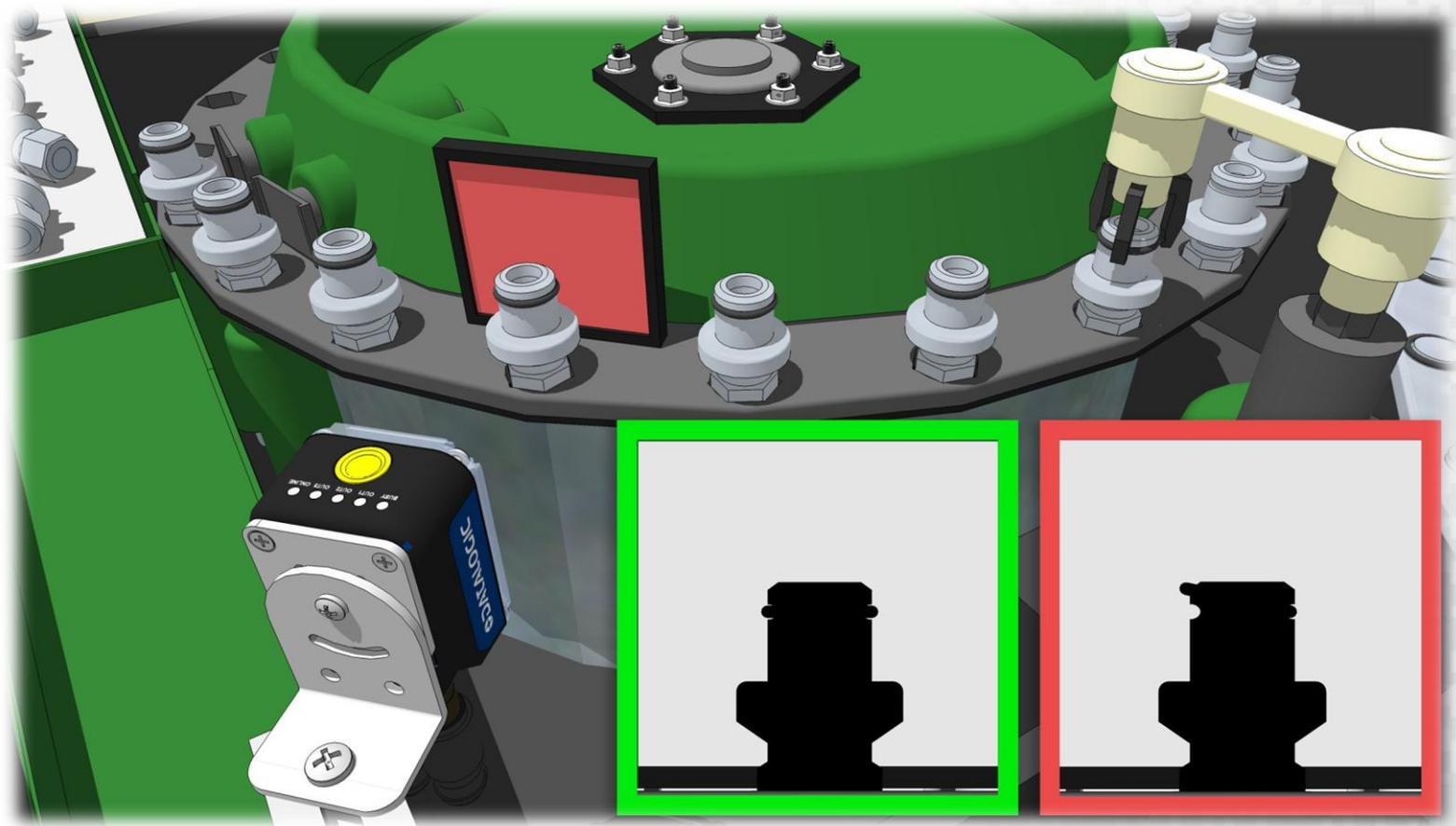
Application Example /1



Application Example /2



Application Example /3



P-Series Starter Kit

Promotional starter kits are available to promote the new P-Series.



Each kit includes:

- P10 smart camera
- Lens kit: 6mm, 9mm, 12mm, 16mm
- Infrared (IR) bandpass filter
- Illuminator kit: red wide angle, white wide angle, blue wide angle, IR wide angle, red multi-chain, white multi-chain, blue multi-chain
- Ethernet connection cable (3m)
- Power & I/O connection cable (3m)

Demo kits can be ordered with the following part number:

937700003 - P-Series Starter Kit

Item list

Order Number	Description	
SMART CAMERAS		
937700000	P10, Grayscale, 640x480, 120 FPS, 1/4" CMOS	
937700001	P15, Grayscale, 1280x1024, 60 FPS, 1/1.8" CMOS	
ILLUMINATORS		
95A901780	Lighting, P-Series, Wide angle 8 LEDs, red	
95A901790	Lighting, P-Series, Wide angle 8 LEDs, white	
95A901800	Lighting, P-Series, Wide angle 8 LEDs, blue	
95A901810	Lighting, P-Series, Wide angle 8 LEDs, IR	
95A901820	Lighting, P-Series, Multi-chain 50 LEDs, red	
95A901830	Lighting, P-Series, Multi-chain 50 LEDs, white	
95A901840	Lighting, P-Series, Multi-chain 50 LEDs, blue	
OPTICS		
95A901730	Micro Video Lens, P-Series, 6mm	
95A901740	Micro Video Lens, P-Series, 9mm	
95A901750	Micro Video Lens, P-Series, 12mm	
95A901760	Micro Video Lens, P-Series, 16mm	
95A901770	Micro Video Lens, P-Series, 25mm	Available in Dec. 2014
95A901850	Filter, P-Series, IR bandpass filter	
95A901860	Micro Video Lens, P-Series, 25mm with IR bandpass filter	Available in Dec. 2014
I/O CABLES		
93A050058	Cable, PWR & I/O, CAB-DS01-S, P-Series to CBX (DB25), 1m	
93A050059	Cable, PWR & I/O, CAB-DS03-S, P-Series to CBX (DB25), 3m	
93A050060	Cable, PWR & I/O, CAB-DS05-S, P-Series to CBX (DB25), 5m	
93A051390	Cable, PWR & I/O, CAB-DS10-S, P-Series to CBX (DB25), 10m	
ETHERNET CABLES		
93A051346	Cable, Ethernet, CAB-ETH-M01 M12-IP67 to RJ45, 1m	
93A051347	Cable, Ethernet, CAB-ETH-M03 M12-IP67 to RJ45, 3m	
93A051348	Cable, Ethernet, CAB-ETH-M05 M12-IP67 to RJ45, 5m	
93A051391	Cable, Ethernet, CAB-ETH-M10 M12-IP67 to RJ45, 10m	
I/O BOARDS		
95A906346	I/O Board, A30/T4x, Female DB25	
93A301068	I/O Board, A30/T4x, CBX500 CONN. BOX	
93A301077	I/O Board, A30/T4x, CBX800 GATEWAY	
93ACC1810	BM300 PROFIBUS MODULE	
93ACC1811	BM310 PROFIBUS IP65 MODULE	
93ACC1821	BA100 DIN RAIL ADAPTERS	
93ACC1822	BA200 BOSCH ADAPTERS	
SOFTWARE LICENSES		
95A906540	License, OCR, Smart Camera	

This presentation contains statements that are neither reported financial results nor other historical information. These statements are forward-looking statements. These forward-looking statements rely on a number of assumptions and are subject to a number of risks and uncertainties, many of which are outside the control of Datalogic S.p.A., that could cause actual results to differ materially from those expressed in or implied by such statements, such as future market conditions, currency fluctuations, the behavior of other market participants and the actions of governmental and state regulators

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