

Global Network

Panasonic
ideas for life

- North America
- Europe
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Panasonic Electric Works

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▶ Singapore	Panasonic Electric Works Asia Pacific Pte. Ltd.	101 Thomson Road, #25-03/05, United Square, Singapore 307591, Tel. (06255) 5473, Fax (06253) 5689



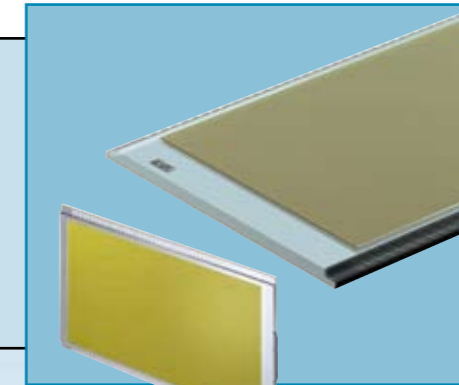
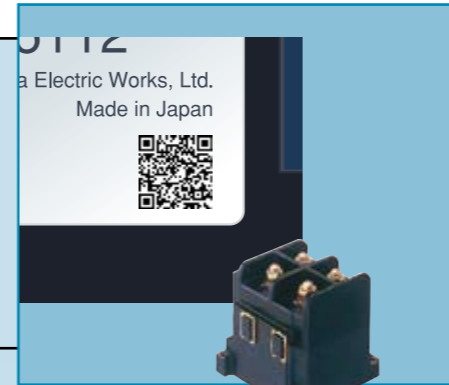
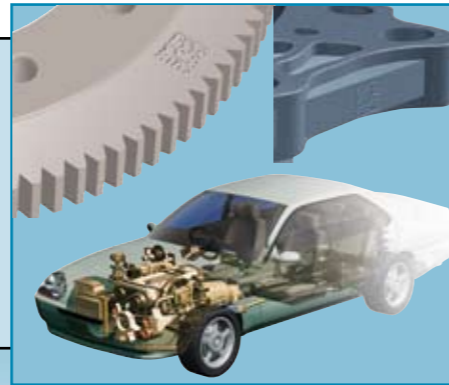
PD60/65 2D Code Readers





2D code readers PD60/65

Overview



PD60

[Stationary type]

Field of view	From 2×1.6mm to 30×25mm (12 different models)
Integrated light	White LED
Light configuration	4 control sections
Protection construction	IP67G *1
Read method	Triggered by I/O
Pre-processing	FPGA pre-processing + Software pre-processing

*1 Fulfills IP67G only when USB connector cap is fitted.

PD65

[Hand-held type]

Field of view	12×10mm or 25×20mm
Integrated light	White LED
Light configuration	Dual side lighting/diffuse lighting
Protection construction	IP67G *1
Read method	Triggered by button push
Pre-processing	FPGA pre-processing + Software pre-processing

- *All-in-one design: LED lighting, optics, camera, CPU and interfaces in one compact unit*
- *Suitable for Data Matrix ECC200 code and QR code*
- *Particularly suitable for direct marks on metal (DPM)*
- *Can read 2D codes made by inkjet printing, laser marking, stamping, engraving, etc.*
- *Easy installation and easy setup*
- *Accurate, high-speed reading*
- *Real time image transfer and storage*
- *Rugged IP67G metal body *1*

2D code readers PD60/65

Common features

Integrated design

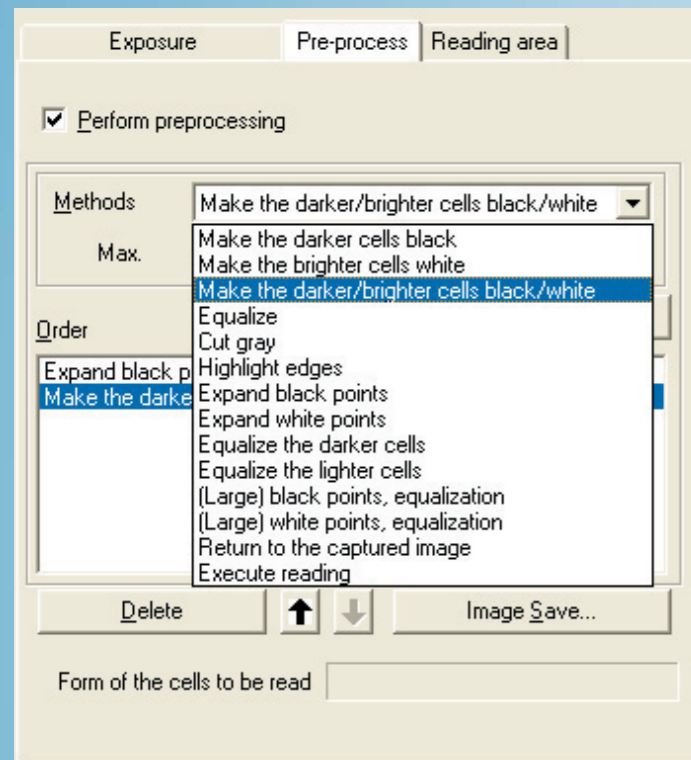
All components for lighting, optics, image acquisition (camera) and signal processing (CPU) are combined in one unit and are mutually optimized to ensure that reading codes is performed quickly, reliably and with virtually no maintenance.



Compact and place-saving solution ✓

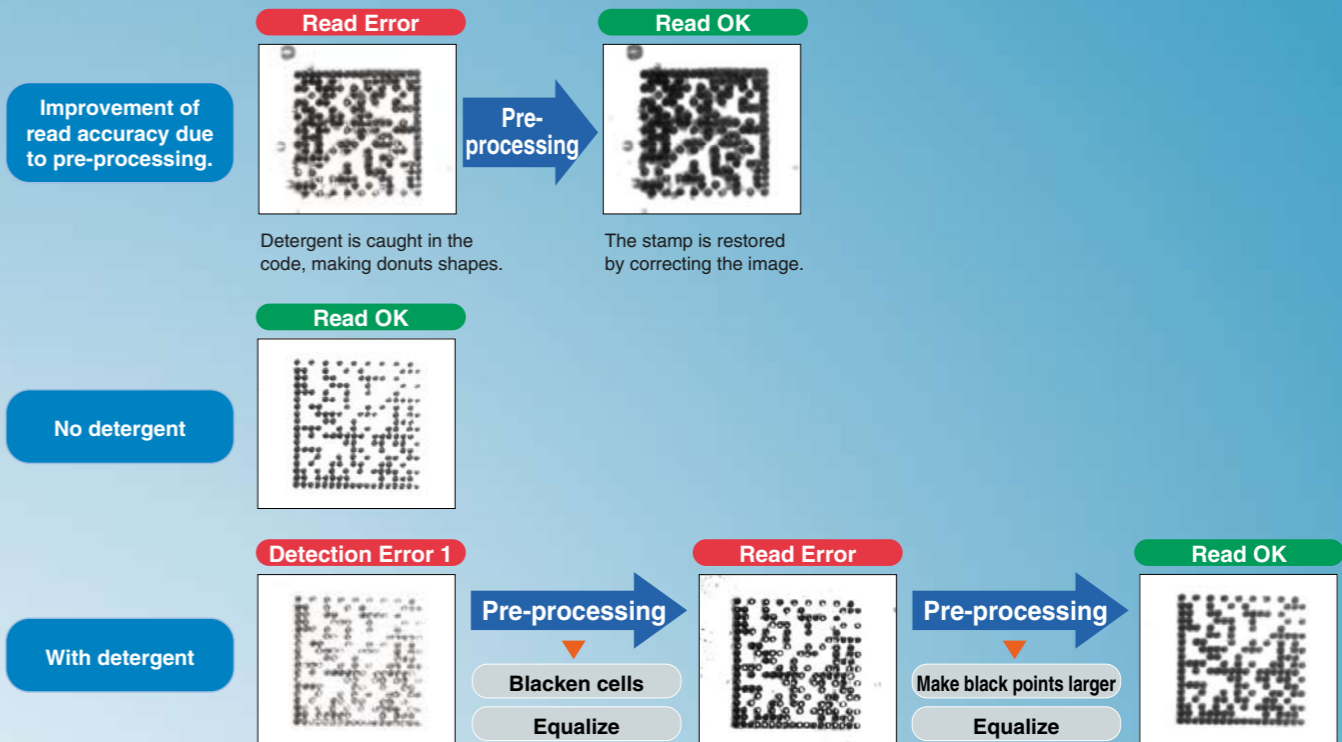
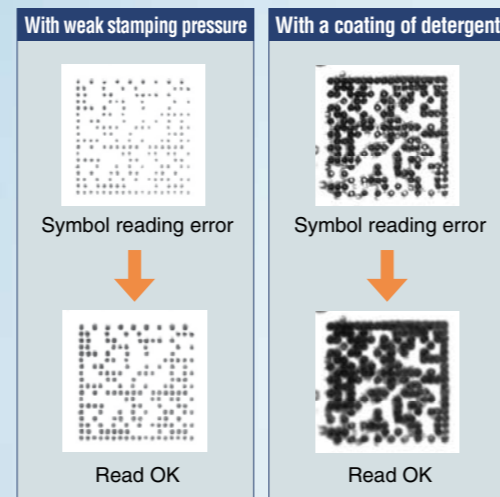
Reliable code reading for DPM

Various original pre-processing algorithms are applied to allow decoding even 2D codes that are difficult to read.



14 types of pre-processing are available. Settings are made by simply selecting from a pull-down menu.

We have significantly improved the accuracy of reading direct marking on metal (which is highly problematic for automatic reading) and image detection abilities by using our new pre-processing functions and library.



Code reading even under difficult conditions ✓

Real time image transfer and storage

Images with read errors (or all images) can be stored in the main unit. In addition, using the free utility tool - PDTOOL—images can be transferred to a PC and stored in specified orders in real time.



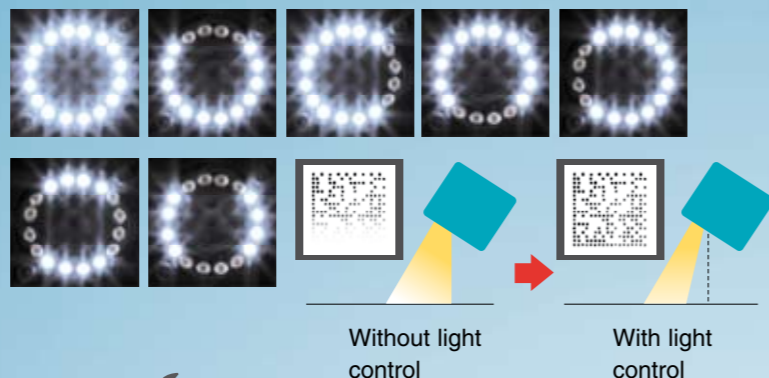
Traceability made easy ✓

Stationary 2D code reader PD60

The hardware



PD60



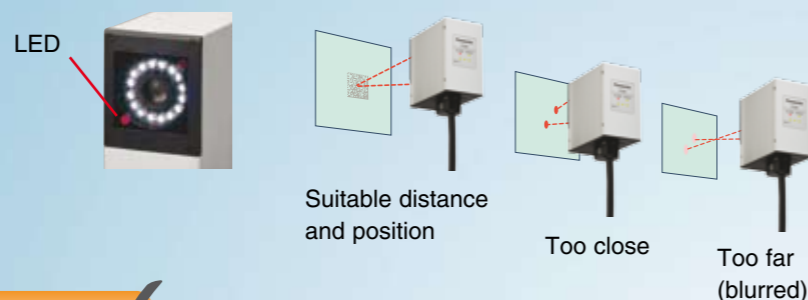
Illumination control

The integrated LED illumination of PD60 can be activated completely or only partially.

Evenly illuminated objects for reliable reading ✓

Easy installation

Two LEDs project red spots on the working surface. The correct working distance is indicated when the two spots intersect and appear as one. This combined spot also shows the centre of the inspection area, which is useful for aligning the sensors' field of view.



Easy and time-saving installation ✓

Long range type

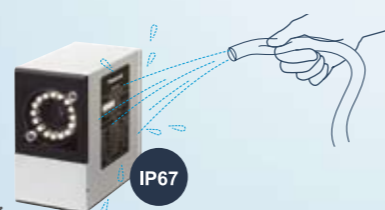
A long range type with 200mm working distance is available.



High flexibility referring machine construction design ✓

Robust aluminium body

PD60 can be used in harsh industrial environments. Its compact aluminium housing and robust connectors conform to the protection class IP67G.



Save and long-lasting equipment for industrial environment ✓

Hand-held 2D code reader PD65

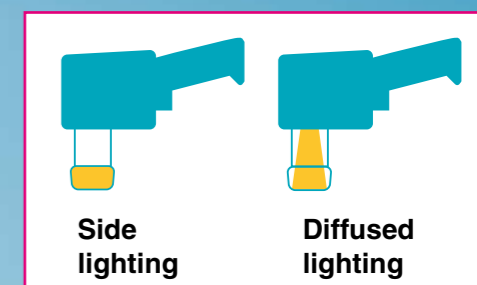
The hardware



PD65

Automatic light switching

Reading under the optimum lighting conditions is made possible by the automatic light switching function. It switches between two lighting patterns which grants greater reading.



Optimum reading conditions ✓

Dual signal notification

Whether reading is possible or not will be confirmed visually during operation.

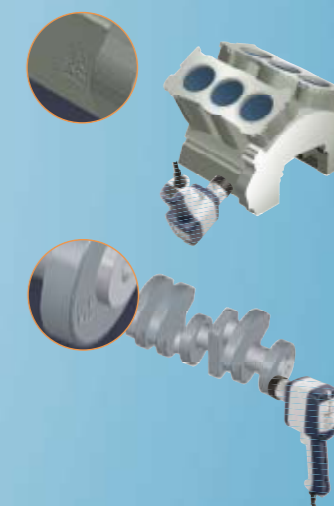
Read OK
Green light + buzzer
Read not possible
Orange light



Instant reading confirmation ✓

Handy and robust

Due to its ergonomic design it can also easily be used with gloves. For reading the hand reader gets pointed on a particular part and the reading process starts by pressing the trigger.



Applicable in rugged environment ✓

2D code readers PD60/PD65

The software

Overview

Easy-to-use setup software PDTOOL

You can configure the PD60/65 with our free-of-charge Windows-based software PDTOOL. First-time users easily grasp the settings principles and are aided by such functions as auto-teaching. PDTOOL provides the customer with several convenient functions:

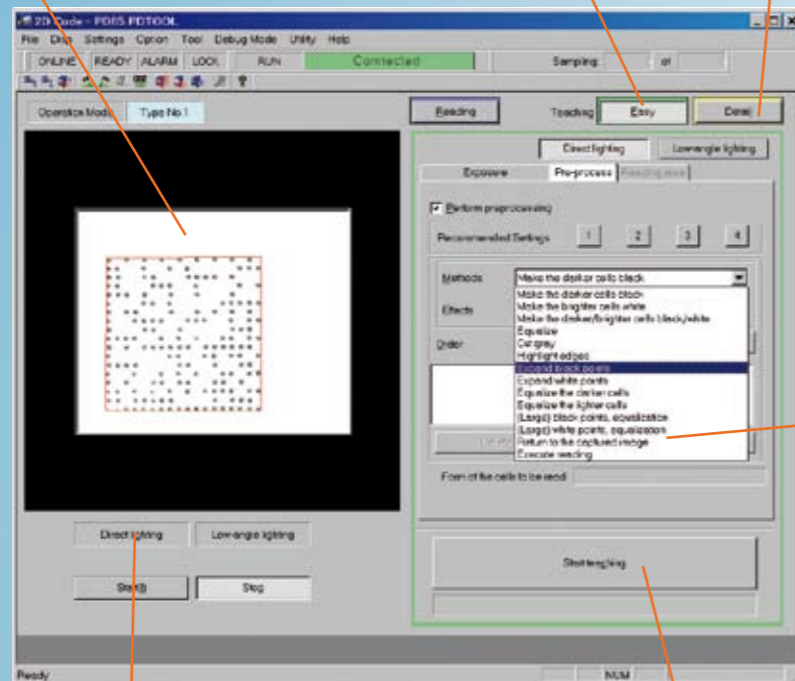
1. Clear and well structured user interface
2. Simple setup – one step automatic settings
3. Individual adjustments possible if necessary



Just use the mouse to move the inspection area position or change the size.

The easy setting mode allows even inexperienced users to come to a suitable setup in a short time.

The detail setting mode allows you to configure the code setting, settings for black/white reversed code and horizontally flipped code, etc.



Several pre-processing algorithms allow reliable code reading even for difficult-to-read codes.

The lighting mode will be indicated.

After setting the inspection area, you can perform teaching with one click using a non-defective code sample. The exposure time and the 2D code type are automatically detected, eliminating complicated setting processes.

PDTOOL can be downloaded free of charge from our Website:
www.panasonic-electric-works.com

Technical specifications

Main units

PD60 (stationary)				
Part number	ANPD060-02	ANPD060-04	ANPD060-05	ANPD060-06
Installation distance	15 ± 0.5mm	50 ± 2.5mm	27 ± 1.0mm	30 ± 1.5mm
Field of view X x Y	2 x 1.6mm	4 x 3.2mm	5 x 4mm	6 x 4.8mm
Part number	ANPD060S10	ANPD060-10	ANPD060-12	ANPD060-15
Installation distance	45 ± 2.0mm	100 ± 5.0mm	110 ± 5.5mm	65 ± 3.0mm
Field of view X x Y	10 x 8mm	10 x 8mm	12 x 10mm	15 x 12mm
Part number	ANPD060-20	ANPD060S25	ANPD060-25	ANPD060-30
Installation distance	80 ± 4.0mm	105 ± 5.0mm	200 ± 10.0mm	55 ± 2.5mm
Field of view X x Y	20 x 16mm	25 x 20mm	25 x 20mm	30 x 25mm
PD65 (hand-held)				
Part number	ANPD065-12		ANPD065-25	
Field of view X x Y	12 x 10mm		25 x 20mm	

General specifications

Item	Specifications	
	PD60 (stationary)	PD65 (hand-held)
Type		
Image capture element	Black/white C-MOS with 352 x 288 pixels (100,000 pixels)	
Detection capability	5 or more pixels per cell	
Processing time	30 to 200ms	
Operation voltage	24VDC	
Light source / configuration	White LED / 4 control sections	White LED / dual light (side/diffuse)
Light lifetime	Min. 30000 hours, (50% light intensity remains, 25°C, internal trigger: ON, read time: 6 ms, exposure time: 3ms)	
Shutter timing	0.03 to 50ms	
Height-adjustment indicator	Red LED	
Interfaces	Parallel: 2 x In, 3 x Out (photo-coupler) Serial: RS-232C, USB 1.1	
Supported OS	Windows 98SE, Me, 2000, XP	
Current consumption	0.5A max.	
Ambient temp.	0 to 40°C (usage)	
Ambient humidity	35 to 85% RH (at 25°C no freezing or condensation)	
Protection category	IP67G (with protection cap)	
Weight	Approx. 500g	Approx. 700g

2D code reading

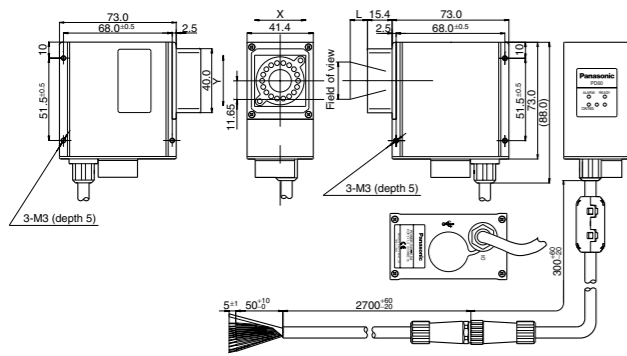
Item	Specifications	
	PD60 (stationary)	PD65 (hand-held)
Type		
Readable code type	OR Code	Type 1 and type 2, symbol size: 21 x 21 to 49 x 49 modules, error correction: levels L, M, Q, H the type, matrix size and error correction level are automatically identified
	Micro-QR	Type 1 and type 2, symbol size: 11 x 11 to 17 x 17 modules, error correction: levels L, M, Q the type, matrix size and error correction level are automatically identified
	Data Matrix ECC200	Symbol size: 11 x 11 to 17 x 17 modules (square codes), symbol size: 8 x 18, 8 x 32, 12 x 26, 12 x 36, 16 x 36, 16 x 18 modules (rect. codes), the matrix size is automatically identified
Others	Supports black/white reversed codes, horizontally flipped codes and dots	

PD60/PD65

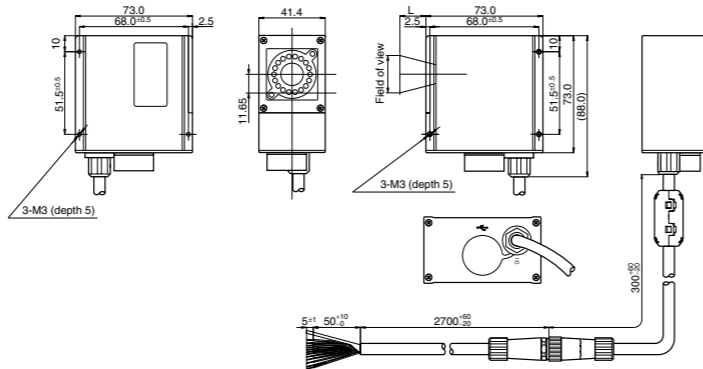
Technical specifications

Dimensions

- PD60 ①
ANPD060-02, ANPD060-04

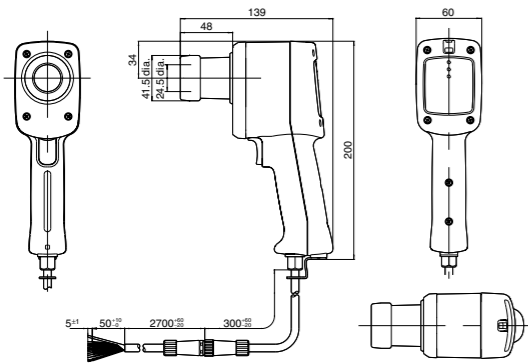


- PD60 ②
Other part numbers

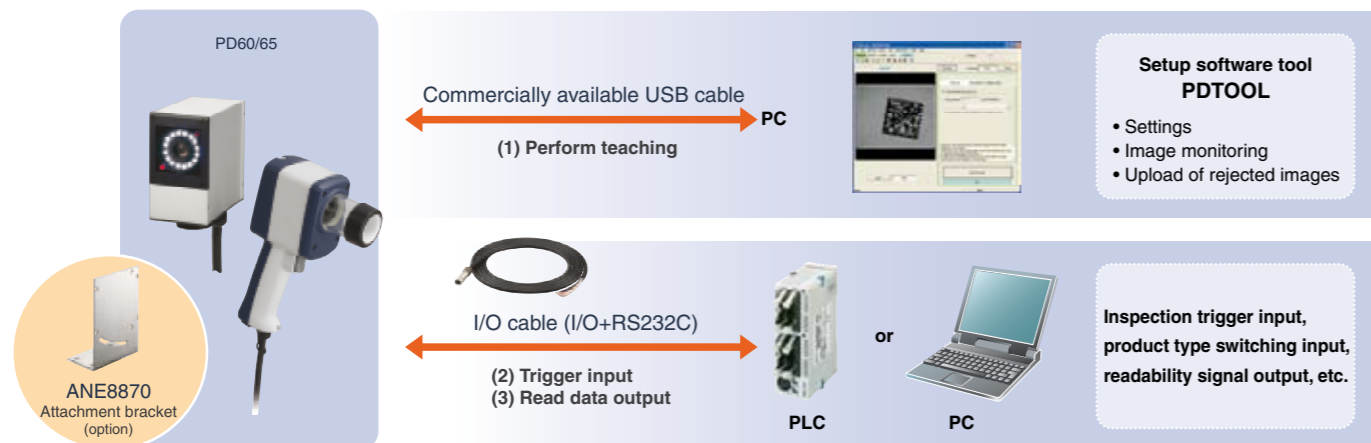


All units in mm.

- PD65
ANPD065-12



Interfaces



Related products



Vision sensors

Our LightPix AE20 combines the ease of use of a conventional photoelectric sensor with the inspection possibilities of an entry-level vision system. It is fast, cost-effective and suitable for various two-dimensional sensing tasks.



Compact Machine Vision systems Imagechecker A100/200

A100/200 Machine Vision systems are our entry-level compact system with multi-purpose functionality. With dimensions of just 120 x 40 x 70mm, the A-Series Imagechecker is one of the smallest of its kind. It allows high-speed, dual-camera processing (A200) with a robust and mature stand-alone hardware.



Color image processing systems AX40

Once color-related product failures require detection, AX40 is the perfect solution. It evaluates images of up to two cameras with respect to minute color differences, checks objects features, measures dimensions, compares patterns and much more.



High-speed machine vision system PV310

PV310 combines the merits of A- and AX-Series Imagecheckers. Furthermore, it is equipped with a second processor and thus allows ultra high-speed inspection. With the optional camera switching unit, inspection with up to 4 cameras can be realized.



PC-based Machine Vision

P400 and P400S Imagecheckers represent the next generation of PC-based Machine Vision. The systems are user-friendly and offer multiple functions for a wide range of sophisticated industrial inspection applications. High-end solutions materialize with a simple mouse-click.



Laser marking systems

Accurate and distinct non-removable marking of almost any product can be achieved with our laser markers. We offer various CO₂ and FAYb models ranging from 12 to 30 Watt.