



MACHINE VISION

SOFTWARE
VISION SENSORS
ID READERS

 **di-soric**

THE BEST IMAGE PROCESSING SOFTWARE ON THE MARKET

Simple and intuitive software

Vision sensors and ID readers are only as good as their software. This is why our image capture devices use nVision-i and, in addition to their ease of operation, feature industry-leading algorithms and comprehensive expandability – you only pay for the functions that you need.

Another advantage is the constant further development of nVision-i, allowing you to continue to rely on software that is always up to date in the future.



nVISION-i

The most flexible and intuitive software
for ID readers and Vision sensors

Optimal application solutions

Working distance, depth of field at the inspection object, resolution of the inspection object and the size of the field of view play a decisive role in a successful solution.

Our Machine Vision sensors offer you the necessary flexibility to meet these requirements.

Additionally, we offer you an extensive portfolio of lighting for diverse lighting scenarios, which contribute to the feasibility and stability of your solutions.



THE RIGHT DEVICE FOR EVERY APPLICATION

From the fast ID reader to the Vision sensor at the smart camera level

You just want to capture codes quickly, perform presence checks or immediately solve complex applications at the smart camera level?

We have the right solution for you for every application.

Vision sensors and ID readers

Design 6



Vision sensors and ID readers

Design 5



nVision-i	The software for the Vision sensors and ID readers	4
	The image processing tools	12
Vision sensors	CS-52 – compact Vision sensors with 4x processing speed	16
	CS-60 – Vision sensors with 1x processing speed	18
	CS-62 – high-end Vision sensors with 4x processing speed	19
ID readers	ID-520 – compact, fast, and flexible code readers	22
	ID-600/ID-620 – the fast, flexible code readers	24
Data	Fields of view	28
	The technical data of the series	32

SOFTWARE

nVISION-i

The most important component of our Machine Vision systems

nVision-i performs parameterization and programming of the Vision sensors and ID readers on your computer until jobs are created that are then loaded onto the devices ready for use. It contains an emulator that can be used to simulate our Vision sensors and fixed-mounted ID readers.



What is possible with nVision-i?

From simple standard tasks to complex tasks at the smart camera level, any conceivable application is possible and can be implemented with the right hardware:

Functions		ID readers	Vision sensors	Application examples
Localization	Surfaces, edges, shapes	–	✓	▪ Position check
	Characters and text	+	+	▪ Label fit check
	Codes	✓	+	▪ Tracking
Detection	Brightness/Contrast	–	✓	▪ Presence checks
	Area pixels	–	✓	▪ Completeness inspections
	Edge pixels	–	✓	▪ Capture of 1D, 2D codes and directly marked codes (DMC)
	Codes	✓	+	▪ Optical Character Recognition (OCR) and Optical Character Verification (OCV)
	Characters and text	+	+	▪ Text capture
Counting	Surfaces, edges, shapes	–	✓	▪ Counting a wide range of different elements
	Characters and text	+	+	▪ Completeness inspections
	Codes	✓	+	
Measurement	Angles, circles, distance, point-to-point, point-to-line	–	+	▪ A wide variety of measurements on objects in pixels and millimeters
				▪ Size accuracy checks
Smart	Further processing of determined values	+	+	▪ Identification of defects
				▪ Customizable visualization
Web interface via IP address		+	+	▪ Solution for a complex application
				▪ More precise evaluation
Calibration and image optimization		✓	✓	▪ Results display of all tools in the browser
		✓	✓	▪ Reliable results with real values

✓ Included in the nVision-i basic version

⊕ Available as an upgrade

✓ ⊕ Suitable (CS-52, CS-62: even in complex applications)

* CS-60 is suitable in simple applications with these functions

EXTENSIONS

nVISION-i

You only pay for the tools that you need

Start with the most affordable basic model of an ID reader or Vision sensor and use the included standard tools for simple applications. As application requirements grow, you always have the option to add additional tools and can minimize the cost of replacing equipment by performing simple, cost-effective software upgrades on your existing hardware.

Upgrade licenses:

The upgrades ID Pro, OCR and Smart are available for fixed-mounted ID readers, and all upgrades are available for Vision sensors. We recommend the CS-52 or CS-62 for extensive jobs due to the processing speed.



Measurement

The upgrade provides the functions of angle measurement, circle measurement, measurement of distances from lines to lines, from points to lines and from points to points.



ID

The upgrade includes functions for localization, detection and counting of 1D and 2D codes. Using the code, its x/y position can be used for tracking the following tools.

(Prerequisite for ID Pro license)



ID Pro

The upgrade enhances the sensor with the capability to read directly marked codes on difficult surfaces with high performance and to perform code grading (based on ISO 15415).

(Prerequisite: ID license)



OCR

The upgrade includes functions for localization, character and text detection and counting of characters in a wide variety of fonts.

More about measuring, ID/ID Pro and OCR on page 14 et seq.



OCV

The upgrade includes a feature that verifies characters and text for accuracy, full legibility, and expected quality based on defined references.

(Prerequisite: OCR license)



Smart

Maximum flexibility at the smart camera level to solve even complex applications and, for example, for further processing of all determined values.

More information, plus examples, on page 10.



Custom

The software is customized for you with the function and operation you require, in line with the look and feel of your corporate design.

More information: Individual standards on page 39.

You can find all the information on nVision-i, upgrades and functions, including downloads + ordering, on www.di-soric.com:



nVISION-i

Intuitive operation with high-performance tools

Save time

Not just because of the interface which is clear, intuitive and simple to operate, but also because of the high-performance tools, which are consistently optimized at the highest quality and with the highest level of performance.

The visualization of the pipeline and linking of individual tasks in the logic tool enable the greatest degree of versatility and high speed in the use of the application.

Inspection tools can be inserted into the pipeline and moved via drag & drop

Measured values and test results/status are shown directly in the pipeline on the tool

Smart tool

More about the advantages of the smart tool on page 6/7

Logic tool for linking individual tasks

More about the advantages of the logic tool on the following pages

Job Slot: 1 Job Name: pcb detections

Close Job Save Delete Tool Override Free Running Trigger Once Zoom In Zoom Out Reset Zoom Area Edge Shape Barcode OCR Brightness Contrast Area Pixels Edge Pixels Barcode Text Areas Edges Shapes

Detect Area Pixels

Area: 1313 px
Center (px): (421.06 px, 291.81 px)
Center (mm): -

Count Edges left 1

Count: 14

Count Edges left 2

Count: 14

Smart Tool Contact

Detect Brightness

Average: 31.21
Minimum: 0
Maximum: 85
Measures: 3 Items

Locate Edge top

Line (px): (1056.50 px, 353.27 px)
(852.49 px, 353.82 px)
Line (mm): 179.85°

Locate Edge right

Line (px): (1087.44 px, 402.50 px)
(1086.74 px, 611.50 px)
Line (mm): 90.19°

Locate Edge left

Line (px): (798.94 px, 408.50 px)
(798.38 px, 617.50 px)
Line (mm): 90.15°

Locate Edge bottom

Line (px): (1047.50 px, 657.14 px)
(867.50 px, 657.96 px)
Line (mm): 179.74°

Position Chip

Drilling 1

Circle (px): (69.94 px, 135.24 px)
r = 20.08 px
Circle (mm): -
Completeness: 100

Logic

IP Address: 127.0.0.1 Sensor Name: Emulator

Detect Area Pixels Parameters

Shape of ROI: ☒ Rectangle ☐ Circle ☐ Ring ☐ Polygon

Threshold: ☐ Dark areas ☒ Light areas ☐ Manual ☐ Adaptive

Image preprocessing: None

Geom. Center: ☐

Tool active: ☒

Filtering

Smoothing: 2

Ignore areas touching ROI: ☐

Filter area: ☐

Filter size: ☐

Filter roundness: ☐

Count

Minimum: 1200

FAULTY SOLDERING

DRILLING

<https://www.di-soric.com>

Coordinates: (99, 1126) | Color: 255

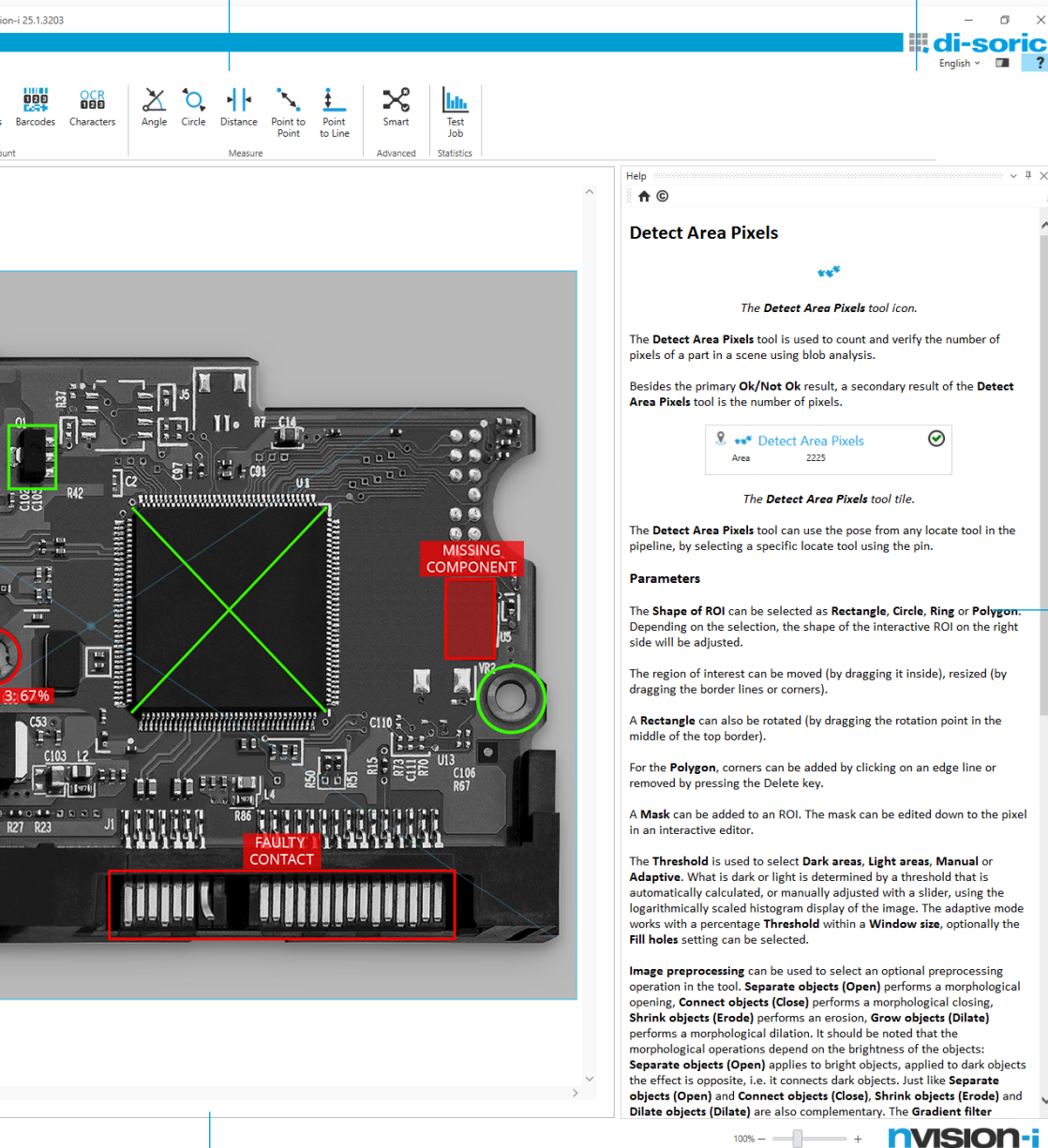
Direct and simple input of the search criteria and limit values for the evaluation criteria of the tools enables fast configuration

Intuitive and user-friendly menu for functions and tools

Contextual help (can be displayed as needed)

Menu guidance in 7 languages

Can toggle between German, English, French, Italian, Spanish, Chinese and Korean



Context-sensitive description of the tools

To ensure optimal use with their complete functionality

Image viewing for control and analysis during operation

Clear visualization of tools and results

More information

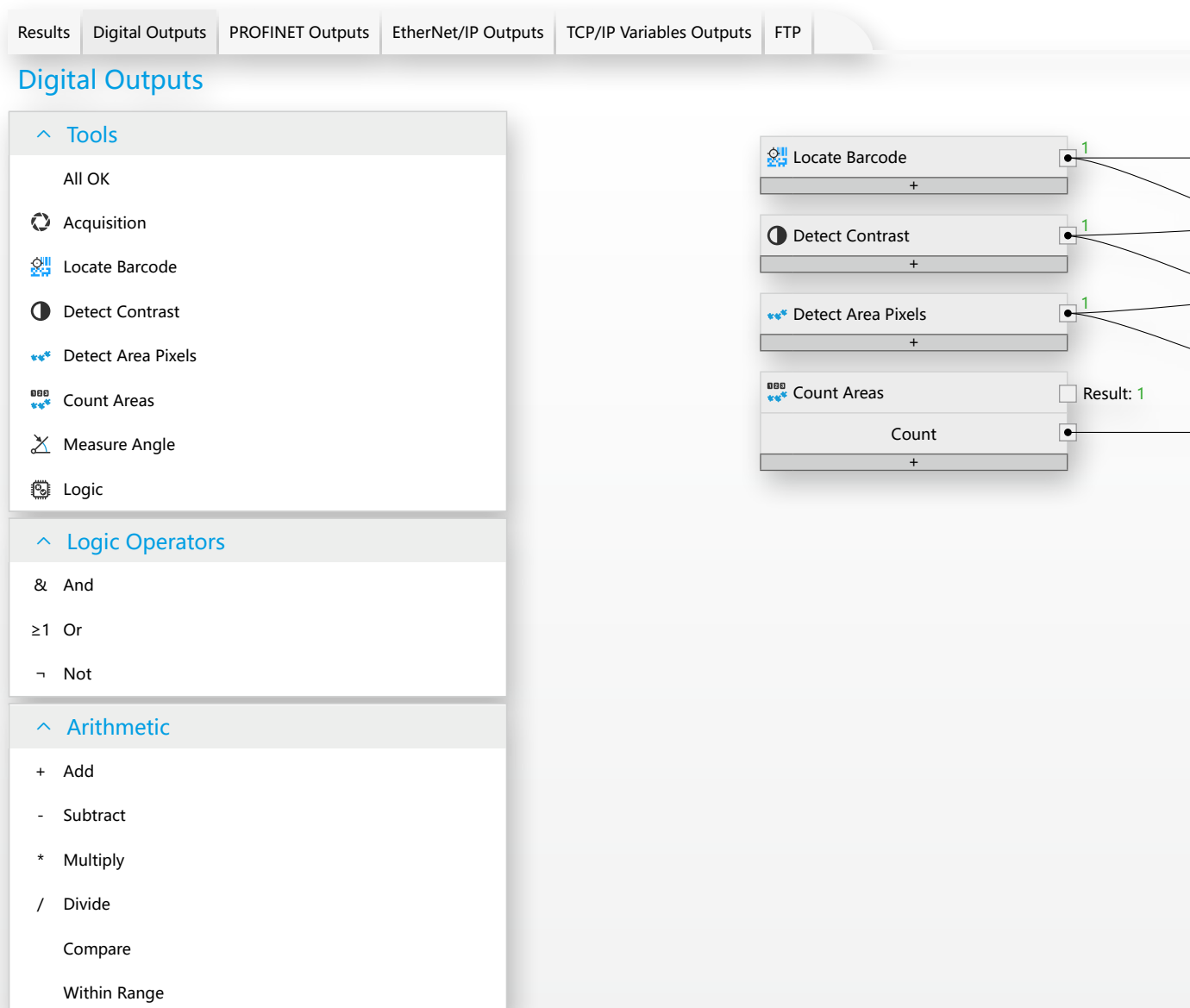
You will find the following on our website for nVision-i, including a download with integrated emulators for our Vision sensors and ID readers:



nVISION-i Logic tool

Free linking of results of multiple tools to create an overall result

Enables high performance – without PLC utilization – as it is performed directly in the device. Another advantage is the high degree of flexibility: the measured values or results can be addressed at any point on the fieldbus.



Free links in a clear layout

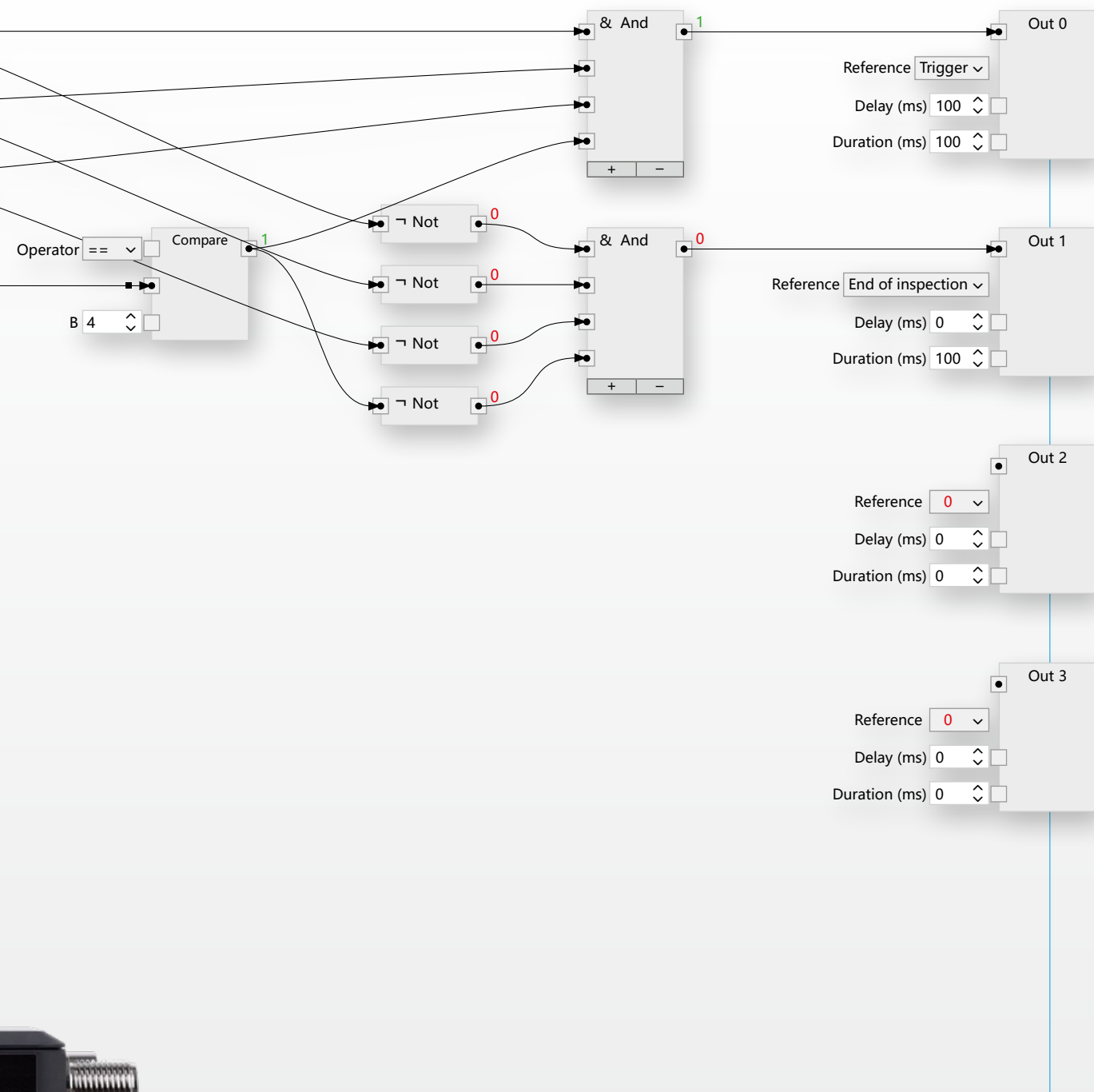
The graphically oriented logic tool is based on a function plan (FUP), whereby a clear display is possible, even in more complex functions. This, in turn, ensures that the implementation of the behavior of inputs and outputs is simple and highly transparent.

This eliminates the need for training and orientation, since the procedure is already familiar from daily use of PLC programming.



Optimally positioned values for the PLC

Oftentimes, other software on the market is only capable of writing results to a single specific location from which the PLC retrieves them. Here nVision-i can respond easily to the requirements on the PLC side and send values to the optimum position for the PLC – simpler programming, higher efficiency.



nVISION-i smart tool

Simple linking of tools, results and functions with flexible visualization for solving complex applications

The smart tool can be used to perform a variety of tasks:

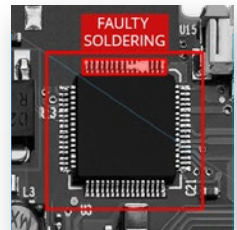
- Activation of individual tools
- Status transfer to the next acquisition
- Free creation and design of visualizations
- Calculation and design of partial results
- Calculating intersection points
- Design of any tracking
- Design of linking values
- Creation of reference geometry

Visualization of quality defects

Smart tool for visualization:

A faulty component is displayed and, in addition, the fault source is highlighted.

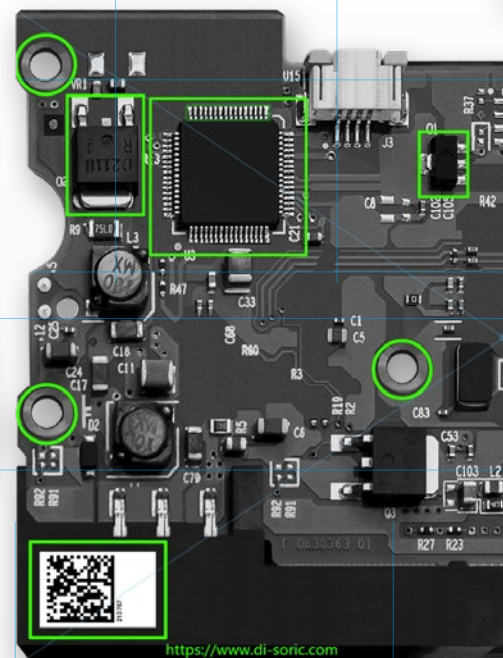
Check with standard surface tool



Circular scanning and visualization at the smart camera level

Verification to the precise degree using 360 search beams: Evaluation of individual search beams to check the completeness of a circle.

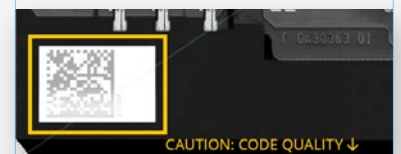
Visualized percentage of the completeness of a circle using a smart tool.



Visualization of the readability and quality of codes

The smart tool interprets the return value of the ID module and displays the code content if the code can be read, or a freely definable string ("NO READ") if it cannot be read.

The same applies to a decline in code quality: If the code quality is poorer, a yellow-orange warning message with "CAUTION: CODE QUALITY ↓" could also be output to enable a response before components are printed with unreadable codes.



Even when there are many different variants, parts are reliably captured without changing jobs. In addition, the visualization and design can be easily modified.

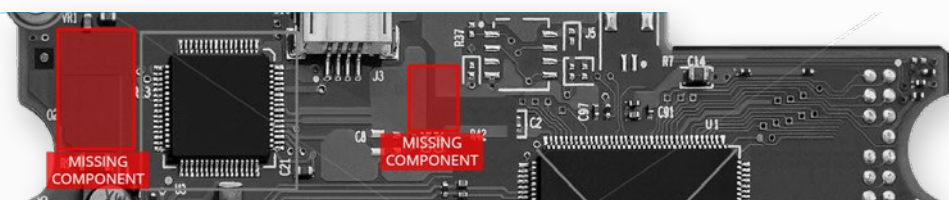
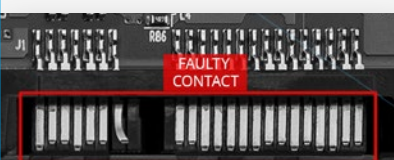
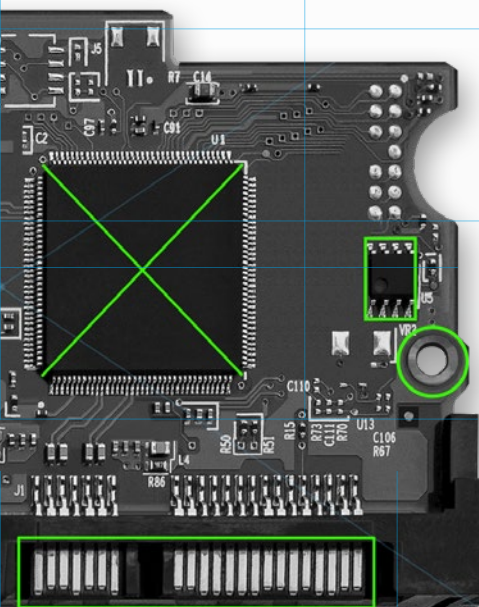
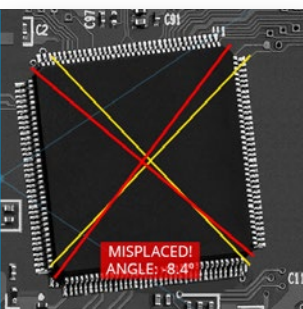
The high-performance software enables teach-in and a check of complex patterns, including coordinate-based control – even in the case of moving parts.

Geometric functions for exact tracking or measurement

The exact position of the chip is determined by smart tool geometries:

- The intersection points of the edges form the corner points.
- The center point of the chip is determined by the corner points.
- The center point and lines can be used to output the X/Y offset and the rotation angle.

For visualization: Green = OK; if NOK, the lines are shown in red while the yellow lines show the correct taught-in alignment



Completeness inspection at the smart camera level

The presence of components is checked using the standard tool "Brightness".

The smart tool shows the missing components, including dimensions – if just a single part of a component is missing, the error area is modified accordingly.

Processing lists of results

The standard tool "count edges" determines the left and right edges of the contacts. To check the parallelism, the top and bottom edges are captured using two separate "count edges" tools and stored in a list.

These lists can be processed with the smart tool function "Transform List", ensuring that the distances between individual edges can be calculated from the results.

Then, both lists are merged using "Accumulate List", enabling a comparison of the top distances with the bottom distances to check the parallelism.

nVISION-i

standard functions

Simple and fast

Via comprehensive image processing tools in the basic version, both the verification of the quality and completeness of parts, as well as their localization and the transmission of determined positions by way of various communication interfaces, can be done using our Vision sensors.

Demanding tasks, such as quality inspections of highly reflective objects and applications in changing ambient lighting situations or at high speeds are reliably performed.

As standard, fixed-mounted ID readers come with an ID function:
The localization, detection and counting of 1D-and 2D codes, as well as easily readable, directly marked codes (see page 15, "ID").

LOCATING areas, edges and shapes

LOCATE AREA

The tool "Locate Area" is used in order to locate a part in a scene using Blob analysis.

Optional features provide a wide variety of results, such as the number of holes, the circumference and the shape of the area.

Filtering for the size and shape simplify job creation.

The same options and filters are in the "Counting" module.

The screenshots in the second row show results from filtering by shape.

Locate Area

Area : 33851px

Locate Area

Area : 34160px

Locate Area

Area: 48655px

Locate Area

Area: 85860px

LOCATE EDGE

Finds an edge within the defined search field and serves as a guide for subsequent tools

Locate Edge

Angle : 90°

Locate Edge

Angle : 81°

LOCATE SHAPE

Compares learned patterns within the defined working area and also serves as position correction for subsequent tools.

Various methods, such as correlation (grayscale-based), geometric (edge-based), keypoint (calculated by software), result in the best possible image results.

The eraser function for removing interfering contours (line 2) simplifies definition of the test field.

The same methods and functions are also in the "Counting" module.

Locate Shape

Score : 100%

Locate Shape

Score : 0%

Locate Shape

Locate Shape

⚙️

⬇️⚙️

⚙️🔍

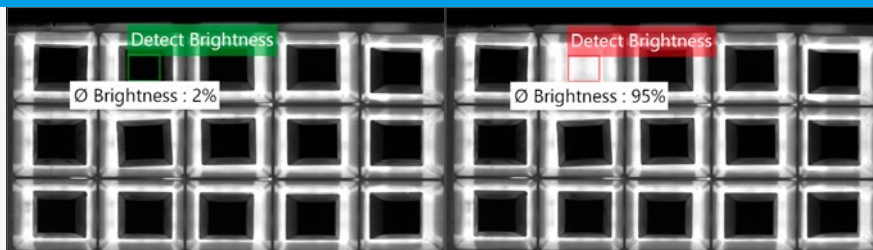
DETECTION of the presence/absence of a feature based on pixel values and contrast



DETECT BRIGHTNESS

Detects the average brightness as a function of the threshold range within a defined area in the image

Multi-ROIs substantially reduce the parameterization work



DETECT CONTRAST

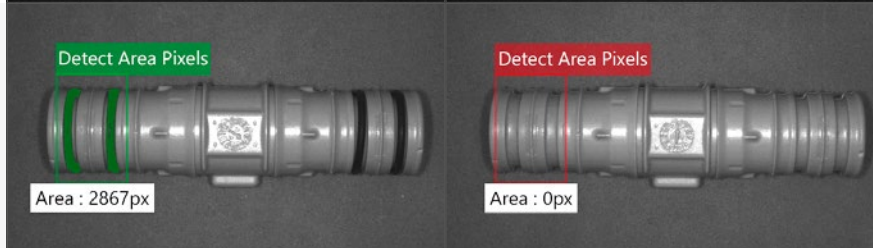
Detects the contrast as a function of the threshold range within a defined area in the image

Multi-ROIs substantially reduce the parameterization work



DETECT AREA PIXELS

Detects the number of pixels as a function of the threshold range within a defined area in the image



DETECT EDGE PIXELS

Detects the number of edge pixels as a function of the threshold range within a defined area in the image

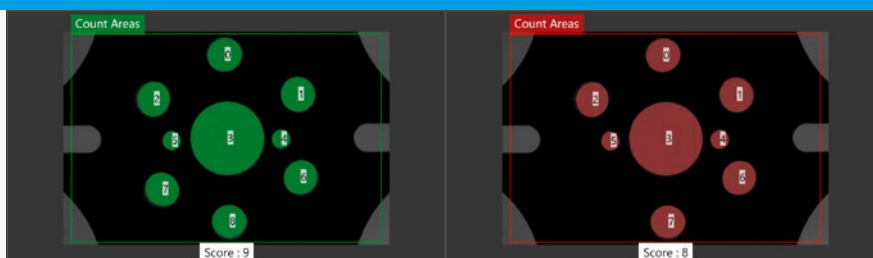


COUNTING of areas, edges and shapes



COUNT AREAS

Determines the number of contiguous dark or bright regions (see also "Locate Area")



COUNT EDGES

Determines the number of edges along a line/search beam



COUNT SHAPES

Identifies and counts objects whose contour matches the learned contour (see also "Locate Shape")



nVISION-i

optional extensions

Functional enhancements on demand

The upgrade licenses add functions to our Vision sensors such as measurement of angles, diameters and circularity, distances and spacing in mm and pixels localization, detection and counting of 1D and 2D codes and – as with fixed-mounted ID readers– for detecting directly marked codes on difficult surfaces and localizing, detecting and counting characters.

Instead of investing in new hardware when application requirements increase, the required function is simply added to the di-soric Vision sensors and fixed-mounted ID readers as needed, significantly reducing costs.

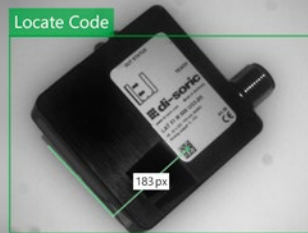
MEASUREMENT: Measurement of angles, diameters, circularity, distances and spacing in mm and pixels			
MEASURE ANGLE Determines the angle of an edge			
MEASURE CIRCLE Determines the diameter and circularity – down to the exact degree, e.g., for checking drill holes for breakouts or residue			
MEASURE DISTANCE The slider determines the distance between 2 edges			
MEASURE POINT-TO-POINT Measures the distance between 2 contour patterns, 2 circles or mixed points			
MEASURE POINT-TO-LINE Measures the distance between a point (from blob, contour pattern, circle or edge) and a line/edge			

ID: Locating, detecting and counting 1D, 2D and DM codes (standard for ID-600 ID readers)



LOCATE CODE

Finds a code within the defined search field and serves as a guide for subsequent tools. Efficient in label fit check



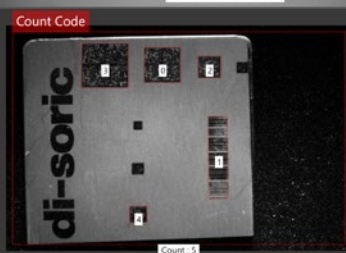
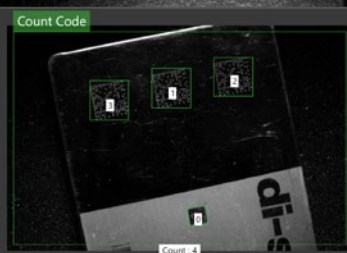
DETECT CODE

Decodes all codes and can evaluate the content using different criteria (regular expressions)



COUNT CODE

Enables multiple recognition of different codes

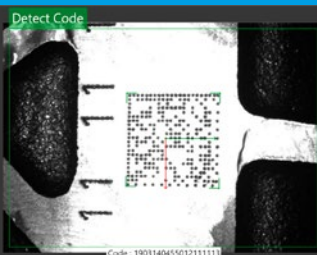


ID PRO: Detect hard-to-detect directly marked codes on difficult surfaces



DETECTING (DPM) CODE

This upgrade enables high-performance reading of hard-to-read, directly marked codes on difficult surfaces and code grading



OCR: Locating, detecting and counting characters (nVision-i Version 24.2 and later)



LOCATE TEXT

Finds characters within the defined search field and serves as a guide for subsequent tools. Efficient in label fit check



DETECT TEXT

Finds characters and can evaluate the content using different criteria (regular expressions)



COUNT CHARACTERS

Counts the number of different characters in the search field



OCV: Verification of recognized characters for accuracy, complete legibility and expected quality (starting with nVision-i V26.1)



VISION SENSOR

CS-52

For space-constrained applications

The CS-52 combines the high performance of the CS-62 series with an ultra-compact design and a cable outlet aligned with the optical axis. In addition to a high resolution of up to 3.2 megapixels, it offers first-class image processing thanks to the seamlessly scalable nVision-i software, which delivers smart camera-level performance.

The CS-52 is our recommended choice for space-constrained applications and retrofits, as it is easy to integrate and is also ideally suited for small test features.

Ideal for applications:

- in very compact machines and small inspection stations
- where higher resolution is required, such as for small features, small codes, etc.
- with limited installation space
- with a short working distance using a 3.6 mm lens. Also available are focal lengths of 8, 16, and 25 mm for medium and longer distances.
- that need to be updated with a modern, future-proof retrofit



Features of the CS-52 vision sensors

Four focal lengths available

to meet all standard application requirements for short and medium working distances

Robust, compact housing

with IP50 protected against dust

Built-in white LED lighting

Optimal commissioning via software-controlled lighting

Supported industry protocols

Digital I/O, TCP/IP, HTTP, FTP/SFTP, Profinet and Ethernet/IP

APPLICATION EXAMPLES

CS-52

Assembly and handling technology

Hole detection for screw positioning in battery modules



The CS-52 Vision sensor is mounted directly on a robot's screwdriver tool to determine the exact position of screw holes in battery modules. As the screw is fed in, the sensor detects the position of the hole and transmits the calculated offset to the robot for precise positioning of the screwdriver.

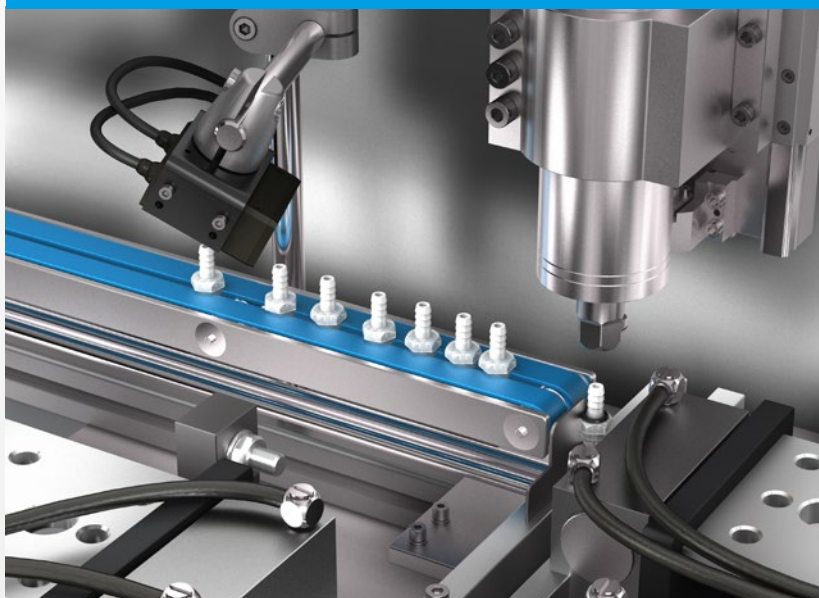
Thanks to its compact design and the cable outlet routed toward the flange, the CS-52 can be integrated directly into the tool in a space-saving manner, achieving high positioning accuracy while maintaining short cycle times.

Vision sensor

CS52-BM33-EP5/400

Quality inspection

Inspection of O-rings in compact assembly environments (retrofit)



The CS-52 is used for subsequent inspection of O-rings in existing assembly processes. O-rings are automatically applied to sleeves, and process variations can result in defective or missing seals. Since image processing was not originally planned, there is very limited space available for integration.

Thanks to its ultra-compact design, the CS-52 is easy to retrofit and enables reliable inspection of the presence and proper seating of O-rings directly during the process.

Vision sensor

CS52-BM48-EP5/300

Simple, seamless integration

Thanks to user-friendly, intuitive software and high-performance image processing tools

Image correction and calibration

For improving image quality and conversion of pixel values to real values (mm)

Upgrade function

Upgrades for MEASUREMENT, ID, ID Pro, OCR, and SMART are available through a simple licensing model



EtherNet/IP™

VISION SENSOR CS-60

For simple applications

The CS-60 Vision sensor impresses with its extensive, upgradeable software, a clever and robust illumination concept, its M12 interchangeable lenses and extensive optical accessories.

If you want an affordable Vision sensor with easy-to-configure software, good performance and seamless startup, we recommend the CS-60.

Ideal for applications:

- With simple alignment checks and position checks
- With fewer variants
- For which product lifecycles are not the top priority



Shared features of the CS-60 and CS-62 Vision sensors

Comprehensive focal lengths through M12 interchangeable lenses

To satisfy all common application requirements in the industrial Vision sensor area

Simple, seamless integration

Thanks to user-friendly, intuitive software and high-performance image processing tools

Integrated LED lighting in red and white

High-power lighting can be switched in the software for optimal startup at a high speed and at a large working distance

Image correction and calibration

For improving image quality and conversion of pixel values to real values (mm)

VISION SENSOR CS-62

For fast and complex applications at the smart camera level

While boasting all the advantages of the CS-60, the CS-62 Vision sensor also impresses thanks to its quad-core processor with up to 4x processing speed* in complex applications and at high speeds.

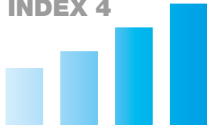
The CS-62, with its expanded image nVision-i processing tools, achieves the performance and functional scope of a smart camera at the price of a Vision sensor.



Ideal for applications:

- For which parts with a wide variety of variants need to be reliably captured without changing jobs
- That link calculations of individual tools to a desired action, e.g. when checking the size and position accuracy of non-rectangular labels
- That are very extensive and, for example, require many individual checks to determine the end result

PERFORMANCE INDEX 4



* In application-dependent comparison with the CS-60

Supported industry protocols

Digital I/O, TCP/IP, HTTP, FTP/SFTP, REST API, Profinet and Ethernet/IP



EtherNet/IP™

Upgrade function

The upgrades MEASUREMENT, ID, ID Pro, OCR and SMART are available as a software extension to the standard version (Localization, Detection, Counting), through a simple licensing model

Robust, compact housing with IP67

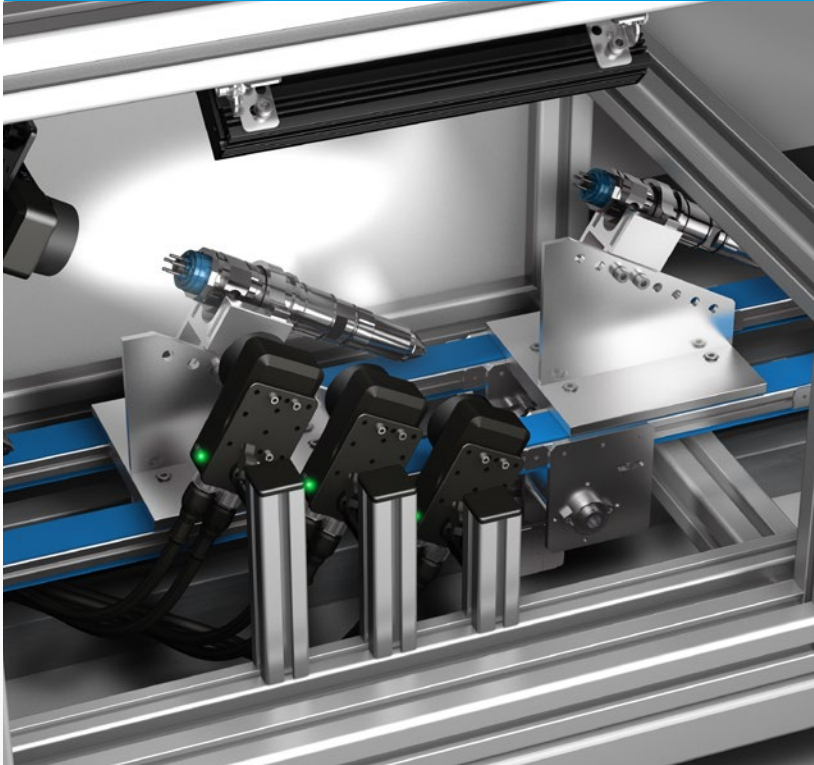
For use in wash-active factory environments without attaching additional protective equipment

APPLICATION EXAMPLES

CS-60

Assembly and handling technology

Quality inspection of components



A product is checked for the required quality before packaging. Different product characteristics and image field sizes make the highest demands on the flexibility of the Vision sensor and on illumination.

For an optimal inspection image, the direct bright field illumination, integrated in the CS-60, with various filter attachments and indirect through-light with the BE-B bar light are used.

Vision sensor

CS60-BM28-EP15/300

Assembly and handling technology

Completeness inspection with the transfer of position to parts handling



The product quality and position is checked by the CS-60 at the interface to the next process step.

Through its adaptation options relating to working distance and image field (changing lenses), as well as the internal high power illumination, the CS-60 delivers the depth of field required for the representation of the entire product characteristics in the inspection image. The robot is thus enabled to grasp safely.

Vision sensor

CS60-BM38-EP15/400ID

APPLICATION EXAMPLES

CS-62

Packaging technology

OCR on tubular bag packaging



Directly marked text must be read on tubular bag packaging.

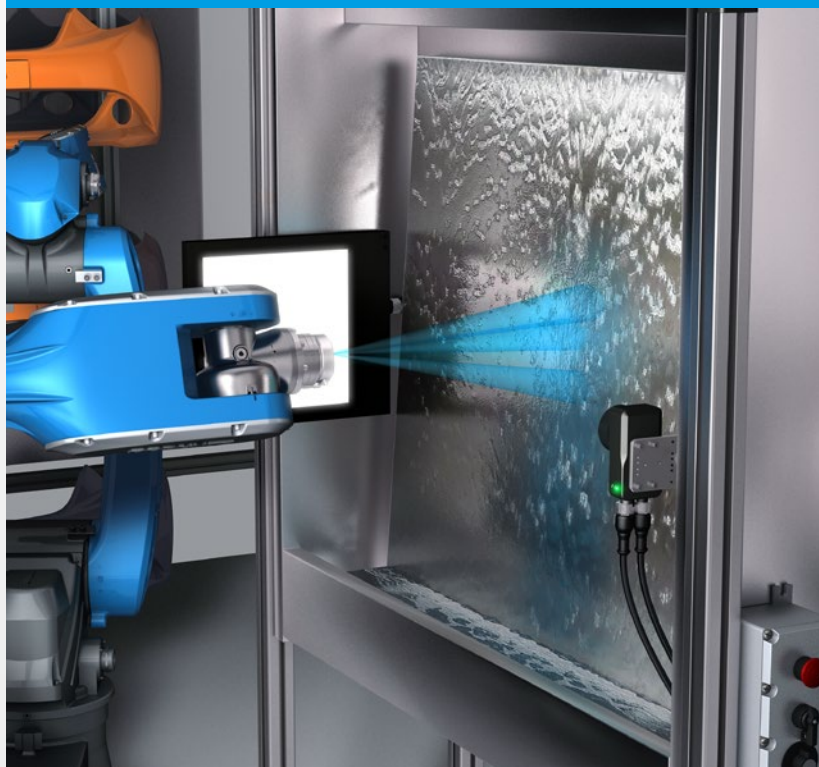
Thanks to its high performance, the CS62 is ideal for the speed below 100 ms that this application requires.

Vision sensor

CS62-BM38-EP15/400ID/OCR

Assembly and handling technology

Paint dispenser on robot



The spray pattern of a painting robot is monitored to ensure that there are not any clogged nozzles.

In this process, the shape of the paint jet is analyzed over a certain time period and an overall result is output at the end.

The Measurement module is used to measure the paint jet.

The SMART module processes all of the results directly in the CS62 using multiple image acquisitions.

Vision sensor

CS62-BM38-EP15/500/Smart

FIXED-MOUNTED ID READERS

ID-520

Code reader for small codes and confined installation spaces

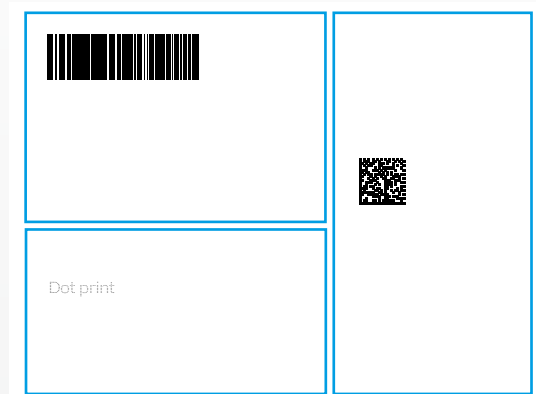
The ID-520 ID reader is the reliable solution for 1D, 2D and direct-printed codes in tight installation spaces. With a resolution of up to 3.2 megapixels, the ultra-compact ID-520 is ideal for reading very small codes and small text.

The ID-520 is the ideal solution for applications that require a compact, lightweight ID reader for reading small codes and characters.

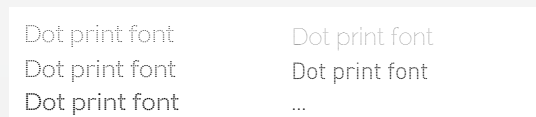
Ideal for applications:

- in very compact machines
- where a higher resolution is required, such as for small codes and small text, or a combination of code and OCR
- that need to be updated with a modern, future-proof retrofit

Search field(s) in the field of view:



OCR also with complex fonts:



PERFORMANCE INDEX 4



Features of the ID-520 ID readers

Four focal lengths available

to meet all standard application requirements for short and medium working distances

Robust, compact housing

with IP50 protected against dust

Built-in white LED lighting

Optimal commissioning via software-controlled lighting.

Supported industry protocols

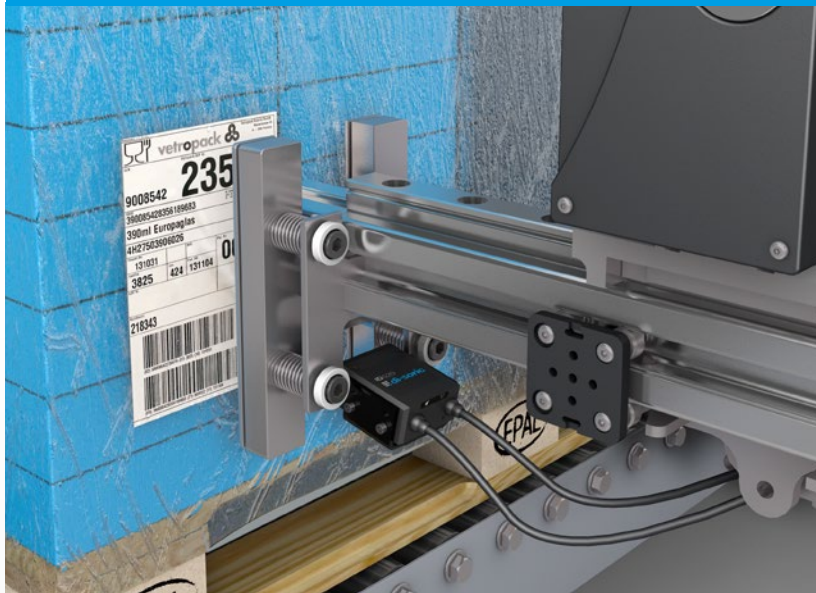
Digital I/O, TCP/IP, HTTP, FTP/SFTP, Profinet and Ethernet/IP

APPLICATION EXAMPLES

ID-520

Packaging technology

Code verification at the pallet labeler



The ID-520 is mounted directly on the arm of a pallet labeler and checks the applied code immediately after the labeling process. As the labeling arm returns to its starting position, the code reader scans the barcode on the label and transmits the result to the control system.

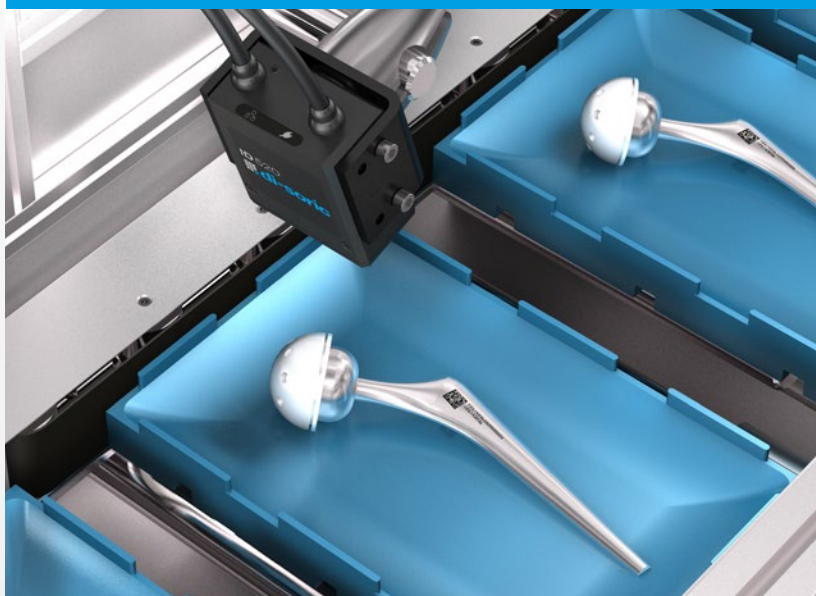
Thanks to its compact design and short focal length of 3.6 mm, the ID-520 can read codes reliably even at very close range, enabling early and stable code capture without the need for an additional inspection station.

ID reader

ID520-BM33-EP5/300PRO

Quality inspection

UDI verification on medical devices (code and plain text)



To comply with regulatory requirements, medical devices must be labeled with a Unique Device Identifier (UDI) consisting of a 2D code and plain-text labeling. The ID-520 reads the UDI code on implants, such as artificial hip joints, and verifies the information contained therein by comparing it with the printed text.

Thanks to its high resolution of 3.2 MP, even very small codes and characters are reliably recognized. Its compact design allows it to be integrated into space-constrained inspection stations directly within the production process.

ID reader

ID520-BM48-EP5/300OCR

Simple, seamless integration

Thanks to user-friendly, intuitive software and high-performance image processing tools

Image correction and calibration

to improve image quality and, consequently, the readability of codes and text

Upgrade function

The ID PRO, OCR and SMART upgrades are available through a simple licensing model.

FIXED-MOUNTED ID READERS

ID-600

Smart production ready

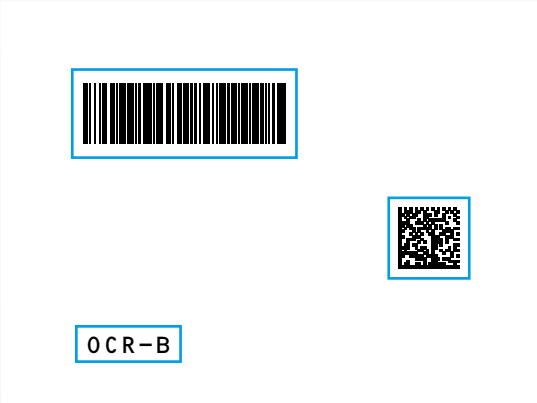
The ID-600 impresses with its market-leading decoding algorithms, extensive, upgradeable software, clever and robust illumination concept, its M12 interchangeable lenses and wide range of optical accessories.

If you want an affordable ID reader for fixed code positions with easy-to-configure software, high performance and seamless startup, we recommend the ID-600.

Ideal for applications:

- With all common 1D and 2D code types and easy-to-detect, directly marked codes
- For fast code capture in defined search areas with low tolerance
- In which easy-to-read, standard text types are to be captured with OCR

Search field(s) in the field of view:



OCR with all common fonts:

Default font	Default font
Default font	Default font
Default font	...



Shared features of the ID-600 and ID-620 ID readers

Comprehensive focal lengths through M12 interchangeable lenses

To satisfy all common application requirements in the industrial Vision sensor area

Simple, seamless integration

Thanks to user-friendly, intuitive software and high-performance image processing tools

Integrated LED lighting in red and white

High-power lighting can be switched in the software for optimal startup at a high speed and at a large working distance.

Image correction and calibration

to improve image quality and, consequently, the readability of codes and text

FIXED-MOUNTED ID READERS

ID-620

For large search areas and dot print

Thanks to its quad-core processor, the ID-620 ID reader is great at processing codes and text in large search areas and quickly capturing complex fonts in OCR.

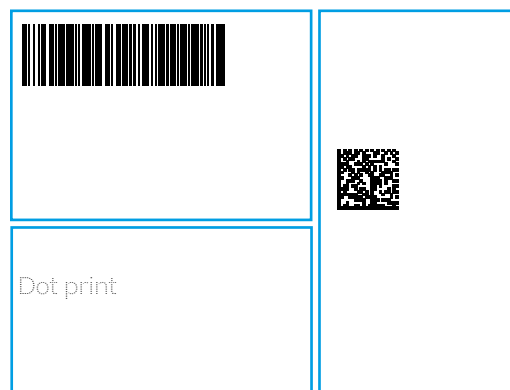
The ID-620 is the ideal solution for applications with large search areas or reading dot-print text at high processing speeds.



Ideal for applications:

- For which codes or text are to be captured in a large search field
- For which OCR dot-print fonts need to be read
- That are very extensive and, for example, require many individual checks to determine the end result

Search field(s) in the field of view:



OCR also with complex fonts:

Dot print font	Dot print font
Dot print font	Dot print font
Dot print font	...

Supported industry protocols

Digital I/O, TCP/IP, HTTP, FTP/SFTP, REST API, Profinet and Ethernet/IP



Upgrade function

The upgrades ID PRO, OCR and SMART are available as a software extension to the standard version (ID), either separately or as a bundle, through a simple licensing model.

Robust, compact housing with IP67

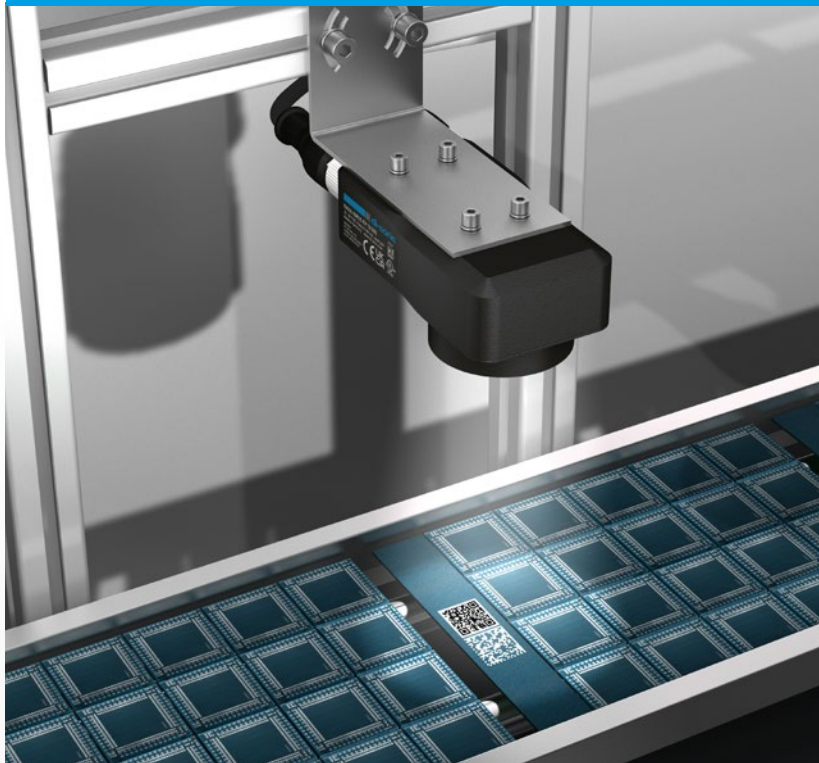
For use in working environments with active washing without attaching additional protective equipment

APPLICATION EXAMPLES

ID-600

Assembly and handling technology

Quality inspection and capture of Data Matrix and QR codes in the feed



An ID-600 captures direct-marked Data Matrix and QR codes simultaneously. For precise tracking in the part feeding, the codes are linked directly in the code reader via the Logic tool. This allows a faulty batch to be quickly identified in the case of NOK components.

For quality assurance, the images are also transferred via an FTP server.

Fixed-mounted ID readers
ID600-BM38-EP15/300PRO

Secondary packaging

Quality inspection and capture of the barcodes



An ID-600 performs a quality inspection of barcodes on products before packing them into larger containers. This ensures that only products with perfectly readable barcodes are packaged together.

Due to the versatility of the ID-600, this type of quality inspection can also be retrofitted in existing packaging lines.

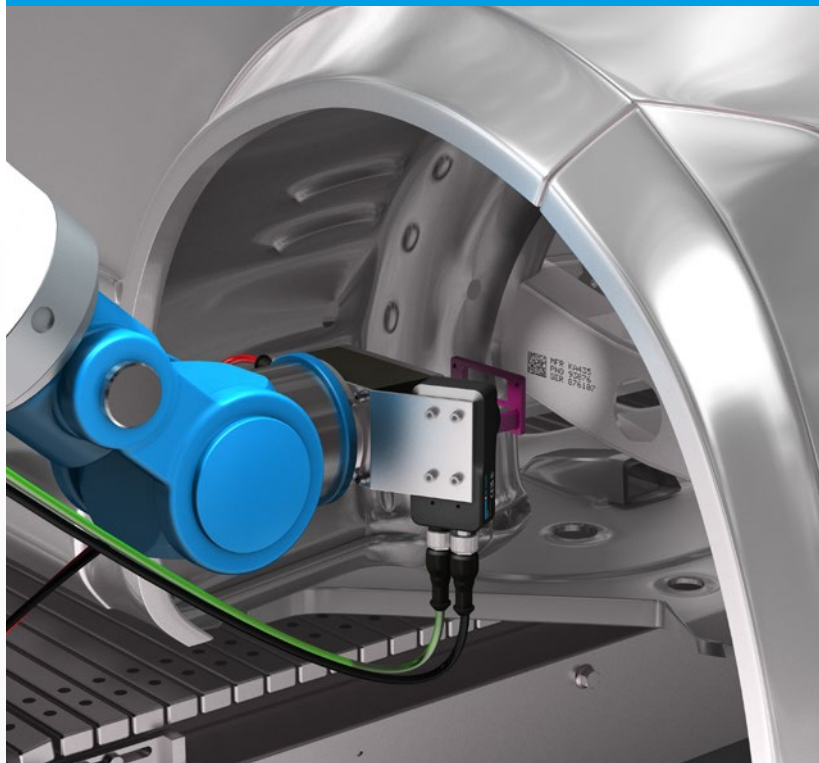
Fixed-mounted ID readers
ID600-BM38-EP15/300

APPLICATION EXAMPLES

ID-620

Assembly and handling technology

Verification of vehicle identification using DMC and plain text



In the body shop, each car body is marked with a unique serial number before painting to ensure complete traceability.

To do this, mark a DMC and the VIN directly on the front wheel well. The ID620 reads both the DMC and the plain text and verifies the contents directly within the sensor.

Reading dot print fonts with direct marking requires the high performance of the ID620.

Fixed-mounted ID readers
ID620-BM38-EP15/300OCR

Packaging

Checking for completeness of products in shipping boxes



The ID620 reads and counts all the codes in a large shipping box to verify that the packages are complete.

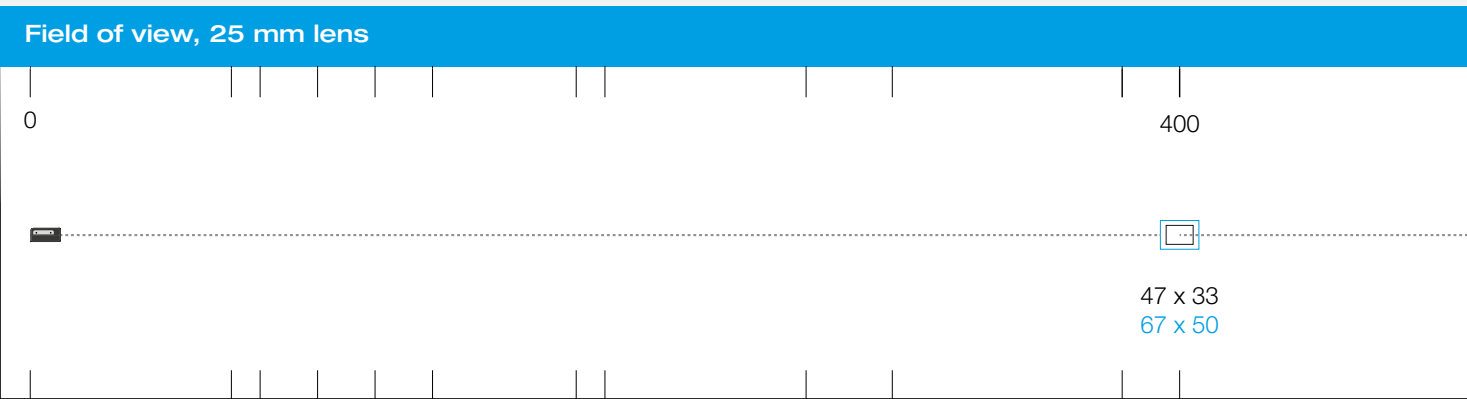
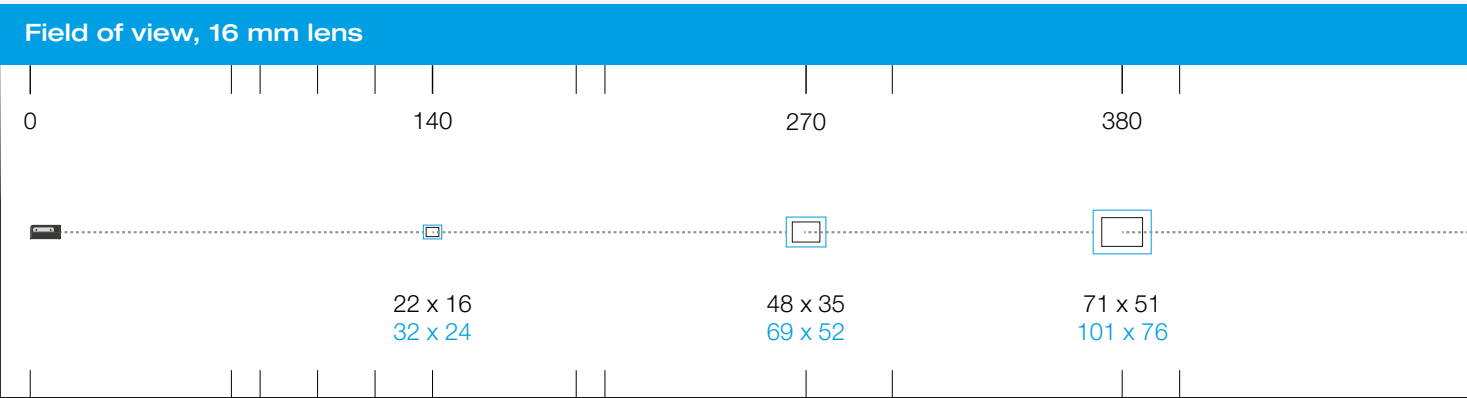
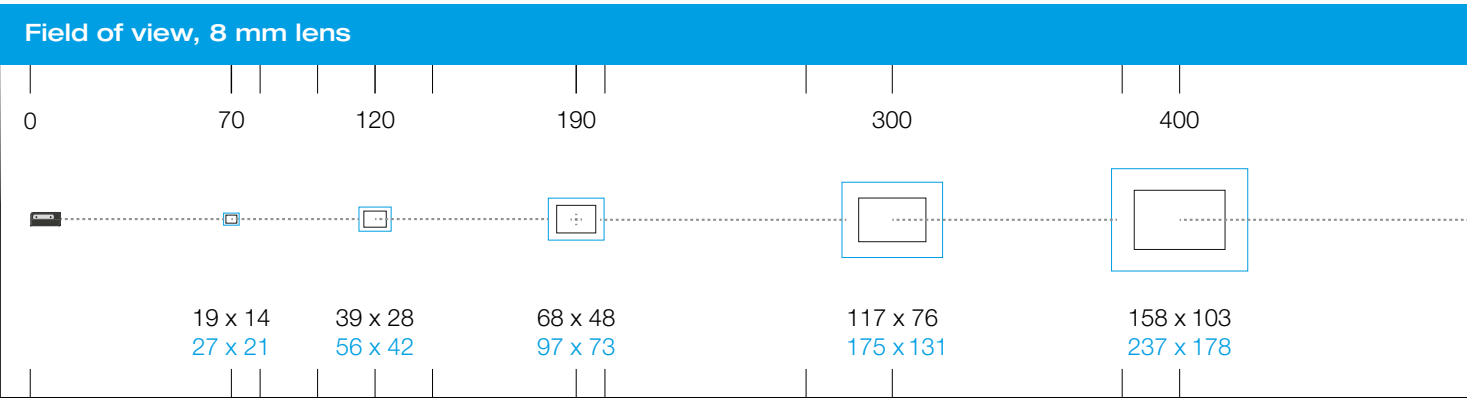
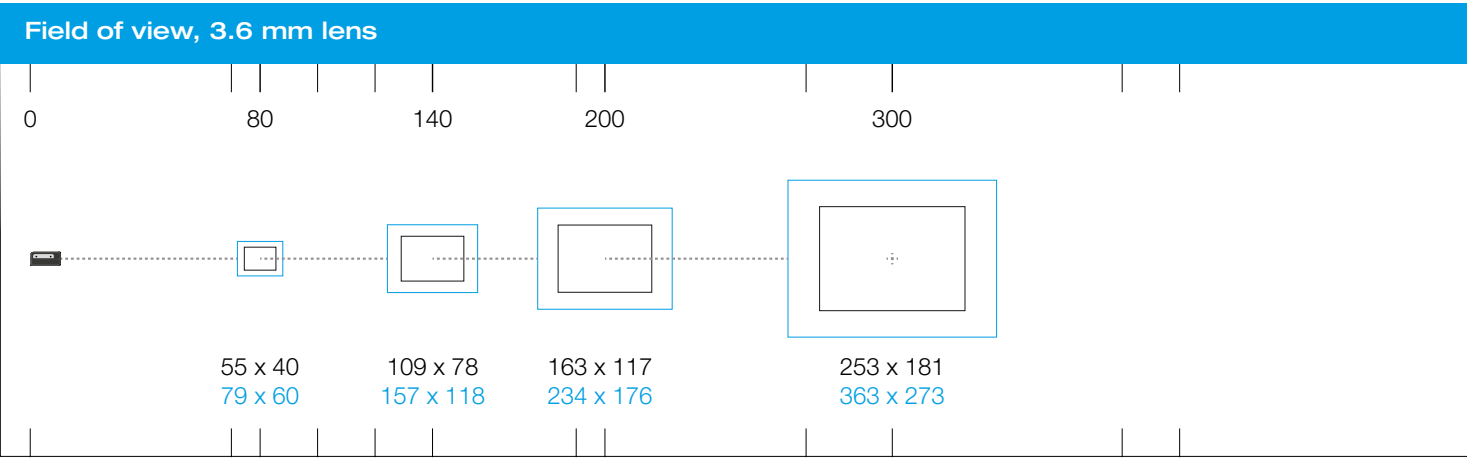
Thanks to the ID620's high processing power, scanning can be performed across a large search area in a single pass.

Two BEK-A200-G1T-K-BS units ensure uniform illumination and consistent reading results even at long working distances.

Fixed-mounted ID readers
ID620-BM38-EP15/300

FIELDS OF VIEW

The tables show the representation of fields of view with the available lenses at various working distances for our Vision sensors-and fixed-mounted ID readers with 1440 x 1080 pixels (1.58 MP) and 2064 x 1552 pixels (3.2 MP).



CS-52 / ID-520

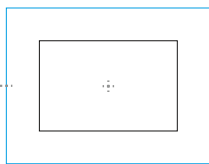
Working distance: Back edge sensor to worktop.
Depth of sensor: 53.70 mm.

Working distance in mm



Field of view in mm at 1.58 MP, 1440 x 1080 pixels
Field of view in mm at 3.2 MP, 2064 x 1552 pixels

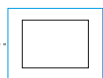
600



240 x 157
361 x 271

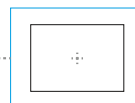


600



115 x 83
165 x 124

830



162 x 116
232 x 174

550

700

980



66 x 47
95 x 71



86 x 61
122 x 92



122 x 87
175 x 131

FIELDS OF VIEW

The tables show the representation of fields of view with the available lenses at various working distances for our Vision sensors-and fixed-mounted ID readers with 736 x 480 pixels (0.3 MP) and 1440 x 1080 pixels (1.58 MP).



CS-60 / CS-62 / ID-600 / ID-620

Working distance: Back edge sensor to worktop.

Depth of sensor: 34 mm.

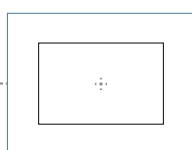
Working distance in mm

Field of view in mm at 0.3 MP, 736 x 480 pixels

Field of view in mm at 1.58 MP, 1440 x 1080 pixels



515



206 x 134

309 x 232

500



98 x 64

147 x 110

650



129 x 84

194 x 145

800



160 x 105

240 x 180

500



62 x 40

92 x 69

700



88 x 58

132 x 99

900



125 x 81

188 x 141

TECHNICAL DATA

CS-52

Resolution CS52-BMXY	3Y: 1440 (H) x 1080 (V)			4Y: 2064 (H) X 1552(V)					
Focal length CS52-BMXY	X3: 3.6 mm			X8: 8 mm		X16: 16 mm		X25: 25 mm	
	CS52-BMXY-EP5/300	CS52-BMXY-EP5/300ID	CS52-BMXY-EP5/300ID/OCR	CS52-BMXY-EP5/400	CS52-BMXY-EP5/400ID	CS52-BMXY-EP5/400ID/OCR	CS52-BMXY-EP5/500	CS52-BMXY-EP5/500ID	CS52-BMXY-EP15/500ID/OCR
Included modules									
▪ Localization	■	■	■	■	■	■	■	■	■
▪ Part recognition	■	■	■	■	■	■	■	■	■
▪ Counting	■	■	■	■	■	■	■	■	■
▪ Measuring				■	■	■	■	■	■
▪ ID (reading 1D/2D/DPM codes)		■	■		■	■		■	■
▪ OCR (character recognition)			■			■			■
▪ Smart tool (nVision-i Release 25.1 and later)							■	■	■
Upgrade modules:									
▪ Measuring	■	■	■						
▪ ID (reading 1D/2D/DPM codes)	■			■			■		
▪ ID Pro (ID upgrade*) ▪ Reading difficult DPM codes ▪ Code grading (based on ISO 15415)	■	■	■	■	■	■	■	■	■
▪ OCR (character recognition)	■	■		■	■		■	■	
▪ OCV (Character verification*, starting with nVision-i 26.1)	■	■	■	■	■	■	■	■	■
▪ Smart tool (nVision-i Release 25.1 and later)	■	■	■	■	■	■			
▪ Customization	■	■	■	■	■	■	■	■	■
Pixel size (µm)	2.25 µm (H) × 2.25 µm (V)								
Shutter	global								
Max. image frequency (fps)	40 fps								
Processor	Quad core								
Processing speed	4x								
Scope of delivery	CS52 Vision sensor, Allen wrench for focus adjustment								
Housing dimensions H/W/D	25/45/53.7 mm								
Cable length	2 x pigtail 250 mm								
Service voltage	21 to 28 VDC								
Working distance (from the rear edge of the device)	70 – 980 mm								
Internal lighting	4x LED white								
Flash memory/number of jobs	16 GB/to 255								
Focusing	Adjustable focus via a set screw on the back								
Interfaces & protocols	Digital I/O, TCP/IP, Profinet, Ethernet/IP								
Digital inputs/outputs	2 (including Trigger) / 4 (including Ready)								
Image storage	Via FTP/manually in the software								
Protection class	IP50								

* The ID Pro upgrade only works with an existing ID license; the OCV upgrade only works with an existing OCR license.

NOTES

TECHNICAL DATA

CS-60



	CS60-BM28-EP15/300	CS60-BM28-EP15/300ID	CS60-BM28-EP15/400	CS60-BM28-EP15/400ID	CS60-BM38-EP15/300	CS60-BM38-EP15/300ID	CS60-BM38-EP15/400	CS60-BM38-EP15/400ID	CS60-BM38-EP15/400ID/OCR
Included modules									
▪ Localization	■	■	■	■	■	■	■	■	■
▪ Part recognition	■	■	■	■	■	■	■	■	■
▪ Counting	■	■	■	■	■	■	■	■	■
▪ Measuring			■	■			■	■	■
▪ ID (reading 1D/2D/DPM codes)		■		■		■		■	■
▪ OCR (character recognition)									■
▪ Smart tool (nVision-i Release 25.1 and later)									
Upgrade modules:									
▪ Measuring	■	■			■	■			
▪ ID (reading 1D/2D/DPM codes)	■		■		■		■		
▪ ID Pro (ID upgrade*) ▪ Reading difficult DPM codes ▪ Code grading (based on ISO 15415)	■	■	■	■	■	■	■	■	■
▪ OCR (character recognition)					■	■	■	■	
▪ OCV (Character verification*, starting with nVision-i 26.1)					■	■	■	■	■
▪ Smart tool (nVision-i Release 25.1 and later)	■	■	■	■	■	■	■	■	■
▪ Customization	■	■	■	■	■	■	■	■	■
Optical format	1/4"				1/2.9"				
Resolution	736 (H) x 480(V)				1440 (H) x 1080(V)				
Pixel size (µm)	4.5 x 4.5				3.45 x 3.45				
Shutter	global				global				
Max. image frequency (fps)	30				30				
Processor	Single core								
Processing speed	1x								
Scope of delivery	CS-60 Vision sensor, O-S1-S-080-40 lens, lens cap								
Housing dimensions H/W/D	85/45/34 mm								
Service voltage	18 to 30 VDC								
Working distance	1 Vision sensor with S-mount - 4 lenses: 50 – 1500 mm								
Focal length	Variable - S-mount: 3.6, 8, 16, 25 mm								
Internal lighting	Switchable integrated illumination: High Power red, High Power white								
Flash memory/number of jobs	16 GB/to 255								
Focusing	Variable focus with aperture 4 and 8								
Interfaces & protocols	Digital I/O, TCP/IP, Profinet, Ethernet/IP (nVision-i Release 24.1 and later)								
Digital inputs/outputs	2 + 1 external trigger/4 + 1 ready signal								
Image storage	Via FTP/manually in the software								
Protection class	IP67								

* The ID Pro upgrade only works with an existing ID license; the OCV upgrade only works with an existing OCR license.

TECHNICAL DATA

CS-62



	CS62-BM38-EP15/300	CS62-BM38-EP15/300ID	CS62-BM38-EP15/300ID/OCR	CS62-BM38-EP15/400	CS62-BM38-EP15/400 ID	CS62-BM38-EP15/400 ID/OCR	CS62-BM38-EP15/500	CS62-BM38-EP15/500 ID	CS62-BM38-EP15/500 ID/OCR
Included modules									
▪ Localization	■	■	■	■	■	■	■	■	■
▪ Part recognition	■	■	■	■	■	■	■	■	■
▪ Counting	■	■	■	■	■	■	■	■	■
▪ Measuring				■	■	■	■	■	■
▪ ID (reading 1D/2D/DPM codes)		■	■		■	■		■	■
▪ OCR (character recognition)			■			■			■
▪ Smart tool (nVision-i Release 25.1 and later)							■	■	■
Upgrade modules:									
▪ Measuring	■	■	■						
▪ ID (reading 1D/2D/DPM codes)	■			■			■		
▪ ID Pro (ID upgrade*) ▪ Reading difficult DPM codes ▪ Code grading (based on ISO 15415)	■	■	■	■	■	■	■	■	■
▪ OCR (character recognition)	■	■		■	■		■	■	
▪ OCV (Character verification*, starting with nVision-i 26.1)	■	■	■	■	■	■	■	■	■
▪ Smart tool (nVision-i Release 25.1 and later)	■	■	■	■	■	■			
▪ Customization	■	■	■	■	■	■	■	■	■
Optical format	1/2.9"								
Resolution	1440 (H) x 1080(V)								
Pixel size (µm)	3.45 x 3.45								
Shutter	global								
Max. image frequency (fps)	30								
Processor	Quad core								
Processing speed	4x								
Scope of delivery	CS-62 Vision sensor, O-S1-S-080-40 lens, lens cap								
Housing dimensions H/W/D	85/45/34 mm								
Service voltage	18 to 30 VDC								
Working distance	1 Vision sensor with S-mount - 4 lenses: 50 – 1500 mm								
Focal length	Variable - S-mount: 3.6, 8, 16, 25 mm								
Internal lighting	Switchable integrated illumination: High Power red, High Power white								
Flash memory/number of jobs	16 GB/to 255								
Focusing	Variable focus with aperture 4 and 8								
Interfaces & protocols	Digital I/O, TCP/IP, Profinet, EtherNet/IP-certification								
Digital inputs/outputs	2 + 1 external trigger/4 + 1 ready signal								
Image storage	Via FTP/manually in the software								
Protection class	IP67								

* The ID Pro upgrade only works with an existing ID license; the OCV upgrade only works with an existing OCR license.



TECHNICAL DATA ID-520

	ID520-BMXY-EP5/300	ID520-BMXY-EP5/300PRO	ID520-BMXY-EP5/300OCR	
Tools:				
▪ Reading 1D codes	■	■	■	
▪ Reading 2D codes	■	■	■	
▪ Reading stacked codes	■	■	■	
▪ Reading DPM codes	■	■	■	
▪ Reading hard-to-read DPM codes		■		
▪ Code grading based on ISO 15415		■		
▪ OCR (nVision-i Release 24.2 and later)			■	
Upgrade options:				
▪ ID Pro* ▪ Reading hard-to-read DPM codes ▪ Code grading (based on ISO 15415)	■		■	
▪ OCR (nVision-i Release 24.2 and later)	■	■		
▪ OCV* (nVision-i Release 26.1 and later)	■	■	■	
▪ Smart tool (nVision-i Release 25.1 and later)	■	■	■	
▪ Customization	■	■	■	
Resolution ID520-BMXY	ID520-BM3Y: 1440 (H) x 1080 (V) px ID520-BM4Y: 2064 (H) x 1552 (V) px			
Pixel size (µm)	2.25 µm (H) x 2.25 µm (V)			
Shutter	global			
Max. image frequency (fps)	40			
Scope of delivery	Code Reader ID520, Allen wrench for focus adjustment			
Housing dimensions H/W/D	25/45/53.7 mm			
Cable length	2 x pigtail 250 mm			
Service voltage	21 to 28 VDC			
Working distance	70 – 980 mm			
Focal length ID520-BMXY	X3: 3.6 mm X8: 8 mm X16: 16 mm X25: 25 mm			
Internal lighting	4x LED white			
Flash memory/number of jobs	16 GB/to 255			
Focusing	Adjustable focus via a set screw on the back			
Interfaces & protocols	Digital I/O, TCP/IP, Profinet, EtherNet/IP			
Digital inputs/outputs	2 (including Trigger) / 4 (including Ready)			
Image storage	Via FTP/SFTP/manually in the software			
Supported codes				
1D codes (barcodes)	Code 39 Code 93 Code 128 Codebar	GS1 Databar RSS 14 GS1 Databar Limited GS1 Databar Expanded Pharmacode	UPC A UPC E EAN 8 EAN 13	Code 2of5 Interleaved Code 2of5 Matrix Code 2of5 Straight Code 2of5 HongKong Code 2of5 NEC Code 2of5 IATA
2D codes	Aztec Code Data Matrix Dot Code		QR 2005 QR Micro QR Model 1	
Stacked codes	GS1 Databar RSS 14 Stacked GS1 Databar Expanded Stacked		PDF 417 PDF 417 Micro	

* The ID Pro upgrade only works with an existing ID license; the OCV upgrade only works with an existing OCR license.



TECHNICAL DATA ID-600/ID-620

	ID600- BM28-EP15/300	ID600- BM28-EP15/300 PRO	ID600/ID620- BM38-EP15/300	ID600/ID620- BM38-EP15/300 PRO	ID600/ID620- BM38-EP15/300 OCR
Tools:					
▪ Reading 1D codes	■	■	■	■	■
▪ Reading 2D codes	■	■	■	■	■
▪ Reading stacked codes	■	■	■	■	■
▪ Reading DPM codes	■	■	■	■	■
▪ Reading hard-to-read DPM codes		■		■	
▪ Code grading based on ISO 15415		■		■	
▪ OCR (nVision-i Release 24.2 and later)					■
Upgrade options:					
▪ ID Pro* ▪ Reading hard-to-read DPM codes ▪ Code grading (based on ISO 15415)	■		■		■
▪ OCR (nVision-i Release 24.2 and later)			■	■	
▪ OCV* (nVision-i Release 26.1 and later)			■	■	■
▪ Smart tool (nVision-i Release 25.1 and later)	■	■	■	■	■
▪ Customization: ▪ Individual adaptation of the software to requirements/corporate design	■	■	■	■	■
Resolution	736 (H) x 480(V)		1456 (H) x 1088(V)		
Pixel size (µm)	3.45 x 3.45		3.45 x 3.45		
Shutter	global		global		
Max. image frequency (fps)	30		30		
Scope of delivery	ID-600 fixed-mounted ID reader, O-S1-S-080-40 lens, lens cap				
Housing dimensions H/W/D	85/45/34 mm				
Service voltage	18 to 30 VDC				
Working distance	1 ID reader with S-mount – 4 lenses: 50 – 1500 mm				
Focal length	Variable - S-mount: 3.6, 8, 16, 25 mm				
Internal lighting	Switchable integrated illumination: High Power red, High Power white				
Flash memory/number of jobs	16 GB/to 255				
Focusing	Variable focus with aperture 4 and 8				
Interfaces & protocols	Digital I/O, TCP/IP, Profinet, Ethernet/IP (nVision-i Release 24.1 and later)				
Digital inputs/outputs	2 + 1 external trigger/4 + 1 ready signal				
Image storage	Via FTP/SFTP/manually in the software				
Supported codes					
1D codes (barcodes)	Code 39 Code 93 Code 128 Codebar	GS1 Databar RSS 14 GS1 Databar Limited GS1 Databar Expanded Pharmacode	UPC A UPC E EAN 8 EAN 13	Code 2of5 Interleaved Code 2of5 Matrix Code 2of5 Straight Code 2of5 HongKong Code 2of5 NEC Code 2of5 IATA	
2D codes	Aztec Code Data Matrix Dot Code		QR 2005 QR Micro QR Model 1		
Stacked codes	GS1 Databar RSS 14 Stacked GS1 Databar Expanded Stacked		PDF 417 PDF 417 Micro		

* The ID Pro upgrade only works with an existing ID license; the OCV upgrade only works with an existing OCR license.

ACCESSORIES

MACHINE VISION



Customized accessories

It is not only the quality of the sensors that plays a major role in the process-reliable detection of parts and objects. The accessories are also very important. They can ensure flexible, stable mounting, secure signal transmission and much more.



Lights for Vision sensors

There are applications that have special requirements regarding the illumination of objects. di-soric has an extensive portfolio of lights for industrial image processing and identification that satisfy these requirements.



INDIVIDUAL STANDARDS

We are happy to customize our standard products according to your requirements – ask us.

The screenshot displays the di-soric nVision-i software interface. The main window shows a 3D model of a PCB assembly with various components highlighted. The left sidebar contains a list of detection tools, including 'Detect Area Pixels', 'Count Edges left 1', 'Count Edges left 2', 'Smart tool Contact', 'Detect Brightness', 'Locate Edge top', 'Locate Edge right', 'Locate Edge left', and 'Locate Edge bottom'. The 'Detect Area Pixels' tool is selected, showing its parameters: Shape of ROI (Rectangle, Mask), Threshold (0 to 255), and Image processing (None, Darken, Lighten). The right sidebar shows the 'Detect Area Pixels' tool icon and its description: 'The Detect Area Pixels tool icon. The Detect Area Pixels tool is used to count and verify the number of pixels of a part in a scene using Web analysis. Besides the primary OK/Not OK result, a secondary result of the Detect Area Pixels tool is the number of pixels.' Below this, the 'Parameters' section explains the ROI shape options and the threshold setting.

ID reader or Vision sensor and nVision-i in your corporate design?

Individual standards make it possible.

YOU WANT MORE?

Further information can be found in our product overview in the brochure "Vision ID Lights" or on our website: www.di-soric.com

Would like to speak directly with one of our employees?

Customer Service:
Phone: +49 7181 9879 - 710
customer-service@di-soric.com

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