

# VeriSens<sup>®</sup> vision sensors

Image-based quality control – easy and intuitive.



Eyeing  
your  
quality.

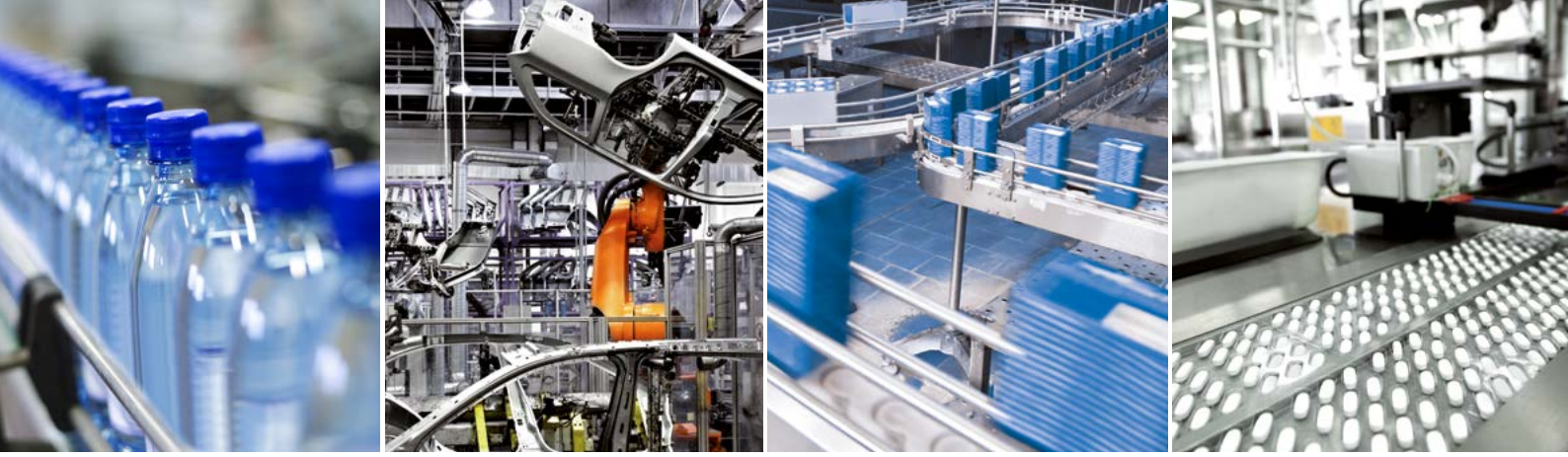
# Simply focused on the essentials.

Baumer is a globally leading company for sensor solutions designed for factory and process automation. More than 2,300 employees in 37 subsidiaries in 19 countries are at your service around the world.

Baumer ranks with its powerful vision sensors among the world's most successful suppliers in this product category. Our customers profit from a structured product portfolio with high functionality and innovative features.

Everything we do is governed by our mission to continuously improve our products and shape technological developments. At the same time we focus on high performance, outstanding quality and convenience – giving you more time for solving your application needs.

Where standard products come to their limits, we develop market-oriented, customised components in close cooperation with our customers. The result: Your decisive competitive edge.



## The right vision sensor for your application.

Are you looking for a sensor where maximum functional and operational flexibility go together with easy process integration? *VeriSens*<sup>®</sup> vision sensors offer all these benefits – and still many more.

### What exactly is a *VeriSens*<sup>®</sup> vision sensor?

*VeriSens*<sup>®</sup> is a compact image processing system in the shape of a sensor. An image sensor, illumination (or illumination connection), optics (also changeable lenses), hardware/software, as well as Ethernet and digital interfaces, e.g. for PLC connection, are integrated in a compact, industry-suited housing. After typical one-time configuration on PC, a vision sensor is ready to perform a specific task like a conventional sensor.

*VeriSens*<sup>®</sup> vision sensors solve inspection tasks and can perform up to 32 feature checks simultaneously.

### How does a *VeriSens*<sup>®</sup> vision sensor work?

*VeriSens*<sup>®</sup> acquires images, evaluates them and communicates the results to the system control or to individual components in your system. Initial configuration on PC allows you entry of image acquisition parameters, selecting tools for feature checks and setup of the required interfaces.

### Where does *VeriSens*<sup>®</sup> make the most sense?

*VeriSens*<sup>®</sup> vision sensors tap their full potential of efficiency wherever various features must be checked in parallel or part locations vary, tasks which usually are only mastered by sophisticated sensor technology. This also includes applications where a visual inspection is advisable and/or contactless checks are required. An intelligent sensor like *VeriSens*<sup>®</sup> is also the optimum component for checking (even different) batches in the line or communicating collected data.

## *VeriSens*<sup>®</sup> vision sensors at a glance

- Wide variety of feature checks with one single sensor:
  - Presence and completeness checks
  - Determination or inspection of object position and location
  - Reading and verifying human-readable imprints (OCR / OCV)
  - Reading and checking matrix codes and barcodes including GS1 codes
- Easy configuration within a few minutes
- Compact, industry-suited IP 67 or IP 69K metal housing
- Wide range of connection options via digital I/Os and Ethernet

# VeriSens® – tried and tested in many industries.

We have earned a reputation supplying the automotive, food and beverage as well as packaging industry where we have acquired many years of expertise. We are also close to the medical and pharmaceutical sector by supplying sensor technology to perform inspection tasks and to provide vital findings.

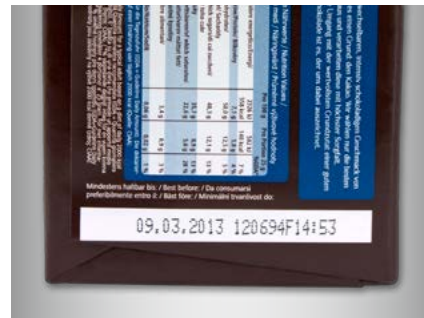
Every industry has its particular needs. We would like to give you a brief overview of how and where our detection and inspection technology is applied.



## Food and beverage industry

- Checking best-before dates
- Presence and position of straws on primary packaging
- Position of safety closures
- and much more

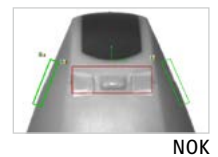
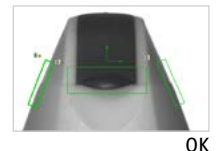
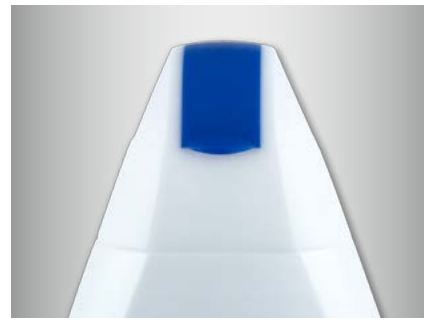
Example: Inspection of best-before dates



## Packaging industry

- Cap monitoring
- Foil wrapping seams
- Label inspection (logo, text, code, product content, etc.)
- and much more

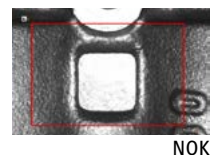
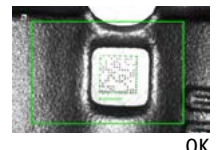
Example: Inspection of forward cap alignment



## Automotive industry

- Assembly monitoring
- Code reading with quality rating
- Detection of overmolding, injection molding errors, scratches, chippings, etc.
- and much more

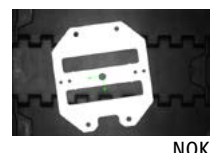
Example: Reading directly marked matrix codes (DPM)



## Assembly / handling

- Position detection for pick & place
- Presence check and position monitoring of components
- Position of protective caps or plugs
- and much more

Example: Position detection of blanked parts for pick & place



# Inspired by nature.

## Flexibility

We recognize objects in their entirety and this way can easily determine their position.

## Object recognition

We can identify objects even in weak light – namely, by their contour.

## Clearly focused

We can focus on specific details.



## Robust

Our sensitive eye lens is protected by the flexible eyelid.

## Communicative

Our eyes are linked to the high-speed network of our nervous system.

## A clever mind on top

The eye requires intelligence.

## Light conditions

Using artificial illuminations we can see even in weak light.

# Our technology as evolution.

## Flexibility

No matter how something is positioned on the conveyor belt – the integrated 360° *FEXLoc*® part recognition always keeps *VeriSens*® feature checks on track.

## Object recognition

*VeriSens*® features a contour-based mode of operation – in real time calculated by the patented Baumer *FEX*® image processor.

## Clearly focused

*VeriSens*® offers free choice of lenses to ensure optimum object focusing.

## Robust

Every *VeriSens*® provides at least IP 67 protection. Industry-suited metal housing and modular tube system protect the entire vision sensor, even including the changeable lens.

## Clever technology combined

*VeriSens*® is a perfectly harmonized system to see, decide, communicate – and even to learn new things.

## Communicative

*VeriSens*® provides results or receives defaults – quickly and reliably via 5 digital outputs and / or Ethernet.

## Light conditions

*VeriSens*® features integrated machine vision illumination. Besides powering external illumination, the models of the XC series are the only vision sensors with fully integrated flash controller to multiply brightness.

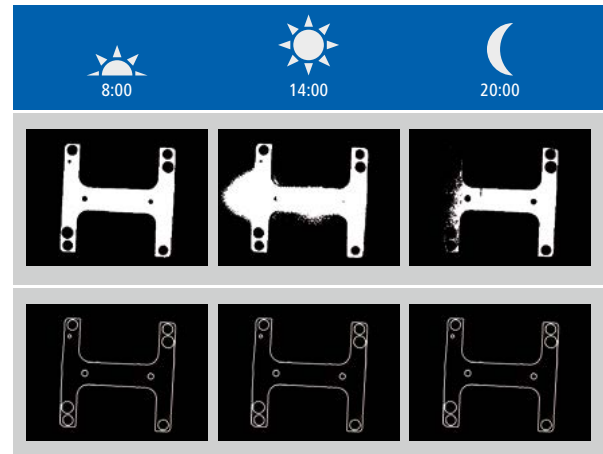


***VeriSens*® – even faster and more objective than nature.**

Do you want to benefit from the flexibility and versatility of image-based product verification as well? As a compact image processing system in the shape of a sensor, *VeriSens*® is an ideal component which comes with all the necessary hardware and software and is also intuitively configurable using a PC.

# What makes *VeriSens*<sup>®</sup> so special for our customers?

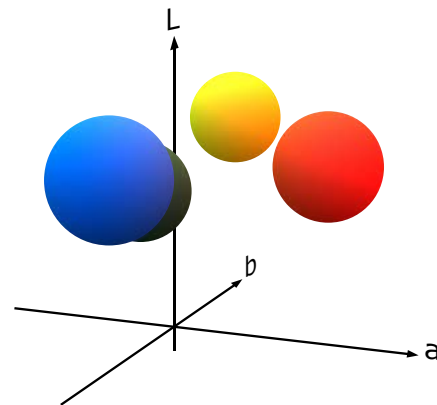
- **Patented Baumer *FEX*<sup>®</sup> image processor – inspired by nature**  
Process deviations caused by varying light conditions, irregularities in surface smoothness or background effects might impair image processing. *VeriSens*<sup>®</sup> acts like human beings who can still recognize trees and houses clearly by their contours even in dismal weather: The patented *FEX*<sup>®</sup> image processor calculates contours in real time where others discern only shades of gray. Contour-based image processing works reliably and quickly – even in difficult ambient light conditions.



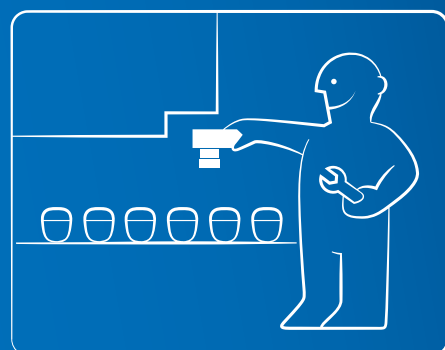
Object identification with conventional image processing (top)  
Contour processing with Baumer *FEX*<sup>®</sup> image processor (bottom)

- **C-Mount with fully integrated flash controller – flexibility plus simplicity**  
Particularly in complex applications, vision sensors require maximum flexibility in the selection of lens and illumination. And besides standard C-mount interface for modular tube systems, capabilities of powering external illumination are a must. *VeriSens*<sup>®</sup> XC provides some more decisive added value: It is the first vision sensor platform with self-generated 48 V / 4 A flash pulse. Hence, expensive external flash controllers and the entailed programming effort belong to the past.

- **See the right colors even faster – with *Color FEX*<sup>®</sup> in 3D**  
*Color FEX*<sup>®</sup> is the unique, intelligent assistant for quick and intuitive setup of 3D color identification and definition. Object colors and shades are automatically identified and visualized in 3D. This allows for extremely intuitive and self-explaining setup of quick and reliable color inspection.



Easy  
to use.

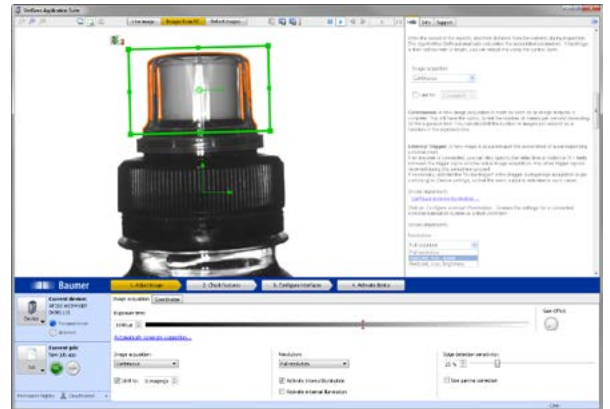




- **Clarity – in everything you do**

Vision sensor operation never can be too easy. All series can be fully configured in four clear steps with the user-friendly software *VeriSens*<sup>®</sup> Application Suite. Even first-time users often need just a few minutes to configure their first job, so they gain time for other tasks.

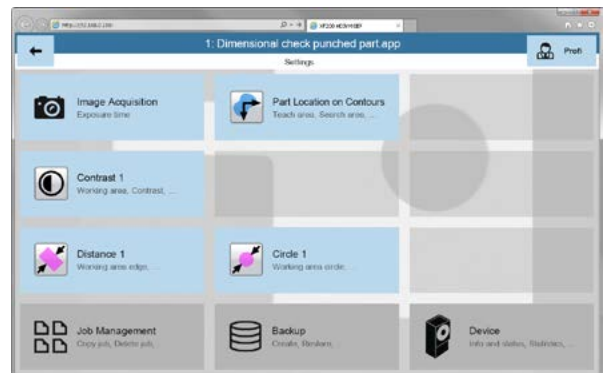
*VeriSens*<sup>®</sup> optical character recognition (OCR) offers another special feature: it works without prior font training and can be set up with just a few clicks.



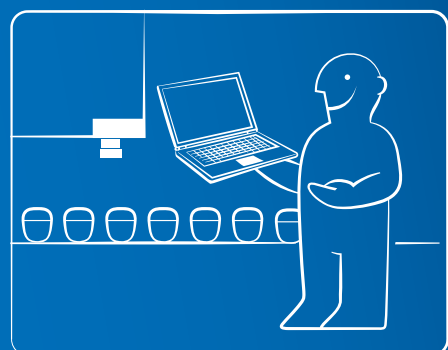
- ***VeriSens*<sup>®</sup> web interface – configurable user interface for operation**

A configurable human-machine interface is already integrated for customers who want to configure *VeriSens*<sup>®</sup> also during the production process. It is the first user interface of a vision sensor that can be adapted regarding functional range, user groups and design with just a few clicks, saving users standard programming work.

The *VeriSens*<sup>®</sup> web interface runs in any current browser without needing plug-ins.



Easy  
to configure.



# One of the most powerful vision sensors in its class.

- **FEXLoc® part location – to simplify the machine design**

The location of parts during feeding does not matter to *VeriSens*®. Reliable 360° part recognition enables virtual object alignment to check the correct positions. This means that mechanical part alignment is no longer necessary. All XF, XC, and CS series models are equipped with integrated *FEXLoc*® part location.

- **19 different tools for up to 32 feature checks per inspection task**

Purchasing a *VeriSens*® vision sensor includes a broad selection of product-specific tools for feature checks that can be immediately accessed. Up to 32 different feature checks can be combined with up to 19 different tools in one inspection task.

- **Up to 2 megapixel image resolution**

Application requirements may call for higher image resolution, for example where having to catch very fine details throughout an extended area. Experience has shown that VGA resolution is sufficient for the majority of applications. Changing to a *VeriSens*® with a resolution of 1.2 MP or 2 MP is possible at any time and does not require additional training.

- **Productivity through parallelism**

*VeriSens*® vision sensors operate extremely efficient thanks to image analysis in parallel to image acquisition. Depending on the scope of feature checking, up to 6,000 inspections per minute can be performed – enabling integration of *VeriSens*® into the line even in fast production processes so that defective parts are removed as early as possible.

- **On stand-by for test – Product simulators provide clarity before purchasing**

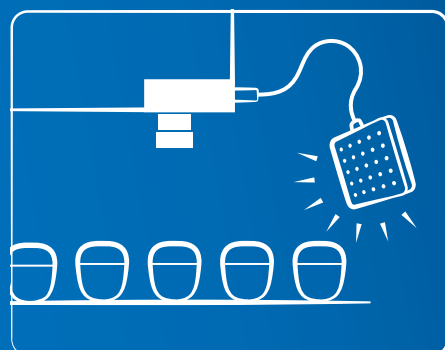
Have we raised your interest? You can start immediately without purchasing a device first. If a software CD is not enclosed in this brochure, the software can also be downloaded at [www.baumer.com/verisens/appsuite](http://www.baumer.com/verisens/appsuite).

The software contains product simulators for every device – a standard digital camera is also adequate as an image source. You can test all feature checks (principally without image focusing or hardware adjustment) – software installation is not required.

## At a glance

In one single inspection *VeriSens*® can check e.g. the position of an object, the distance between two edges, the diameter of a bore hole, the content as well as printing quality of labeling, the content of a matrix code and optionally 27 additional features.

# Absolutely powerful.



# Intelligent features which support you in solving your application.

## ■ Easy verification of inspection tasks

*VeriSens*° vision sensors offer an integrated test function which enables you to have images collected during a test run sorted according to good and reject parts in order to evaluate the reliability of the inspection task you created. The test function includes further useful features – ranging from statistical data processing including histogram representation to data export (CSV format).

## ■ Open system

With *VeriSens*° the choice is yours: You can select touch screens, lenses and illuminations from our extensive range of accessories or you can take these components from your own stock.

## ■ Industry-suited design with IP 67 resp. IP 69K protection

*VeriSens*° vision sensors come in robust aluminium respectively stainless steel housing that is up to harsh industrial environments. *VeriSens*° XC even provides modular lens protection for changeable lenses – since it can be appropriately configured to match the particular lens length.

## ■ Clear access rights for user groups

*VeriSens*° vision sensors feature an integrated user management with password protection, for example, to prevent modification of device settings by machine operators.

## ■ Wide range of interfaces

Up to 5 digital inputs and outputs, process interface (depending on model) for result output and/or device control or encoder interface for path-based triggering and ejection – *VeriSens*° is prepared for almost any integration method. Prefabricated function blocks are available for the Siemens *SIMATIC*° S7.

## ■ Remote access under control

The Ethernet interface integrated in all models allows remote access (including gateway and NAT support) via the *VeriSens*° Application Suite to enable worldwide product access.

## ■ Integrated FTP client

To store live and defect images for tracking or later analysis and / or visualization as easily as possible, all *VeriSens*° vision sensors support FTP servers.

## ■ Data backup

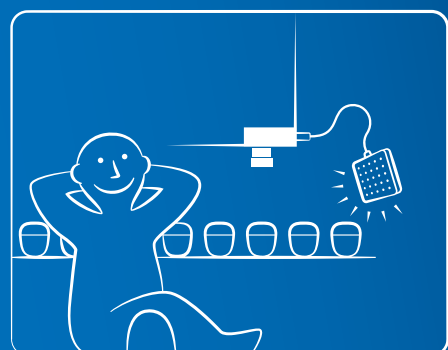
All *VeriSens*° vision sensors support service and commissioning through a backup & restore function for the device software settings and inspection tasks stored in the device, to enable easy backup or transmission of this data to other devices.

## The support of PROFINET® with additional benefits

The *VeriSens*° PROFINET° gateway with integrated PROFINET° switch allows for PROFINET° networking of up to four *VeriSens*° vision sensors with serial communication interface (RS485). The sensor's Ethernet port remains free for parallel *VeriSens*° visualization via the integrated web interface or for saving defect images on FTP server.



# Absolutely ingenious.



# VeriSens® vision sensors

Compact image processing systems in the shape of a sensor.

## XF series

- Image evaluation: monochrome
- Includes all VeriSens® feature checks (up to 19)
- Integrated optics, 10 mm or 16 mm
- Integrated illumination, white or infrared
- Housing: aluminum (IP 67) or stainless steel (IP 69K)

## XC series

- Image evaluation: monochrome or color
- Includes all VeriSens® feature checks (up to 19)
- C-mount and free choice of lenses
- Fully integrated flash controller
- Industry-suited aluminium housing (IP 67)

## CS/ID series

- Image evaluation: monochrome
- Selected VeriSens® feature checks (up to 7)
- Integrated optics, 10 mm or 16 mm
- Integrated illumination, white or infrared
- Industry-suited aluminium housing (IP 67)



# VeriSens® Application Suite

One configuration software to fit all.

## Tutorials, Videos

- Commissioning tutorials
- Tutorials to get started
- Useful information

## Latest software

- Installation files
- Software version without installation package
- Test images

## Documentation

- Quick Start Guide
- Technical documentation
- PROFINET® GSD file



Software Download  
*VeriSens®*  
Application Suite



## XF series – the vision sensors with everything inside.

*VeriSens*® of the XF series offer the entire functionality range of up to 19 monochrome feature checks.

Furthermore, *VeriSens*® XF-200 / 205 models can also read and verify characters and numbers as well as matrix and barcodes. All models communicate the inspection outcome not only by digital I/Os, but results and default values also via the process interface.

Alternatively to integrated white illumination, infrared with integrated daylight filter eliminates potential daylight impact. The not visible flashing will not bother any staff in the operating range.

*VeriSens*® in stainless steel design with IP 69K protection

The XF-105 / 205 vision sensors meet the very stringent hygiene requirements by washdown design in high-quality stainless steel.

*VeriSens*® PROFINET® gateway

The *VeriSens*® PROFINET® gateway available as an accessory allows for parallel interfacing of up to four *VeriSens*® on PROFINET®. Furthermore, it integrates a switch to ease implementation of linear network topologies. The *VeriSens*® Ethernet port remains available for image processing visualization on the web interface or for image saving on FTP server.

### Your benefits at a glance

- Full range of *VeriSens*® tools for monochrome feature checks
- High-speed mode with up to 100 checks per second
- 360° part recognition using *FEXLoc*® for part location
- Coordinate conversion, process interface, user level, and test mode, etc.

# XF-100 / 200 (IP 67) XF-105 / 205 (IP 69K)

Wide range of functions for complex inspection tasks

- High-performance 360° part recognition powered by *FEXLoc*® technology
- Coordinate conversion with correction for perspective and lens distortion
- Configurable process interface and flexible result conjunction
- User levels and password protection against unauthorized changes
- With integrated illumination (white / infrared) and optics (10 mm / 16 mm)



Additionally in XF-200 / 205:

Identification functions for optical characters (OCR / OCV) and 1D / 2D codes (incl. GS1)

Additionally in XF-105 / 205:

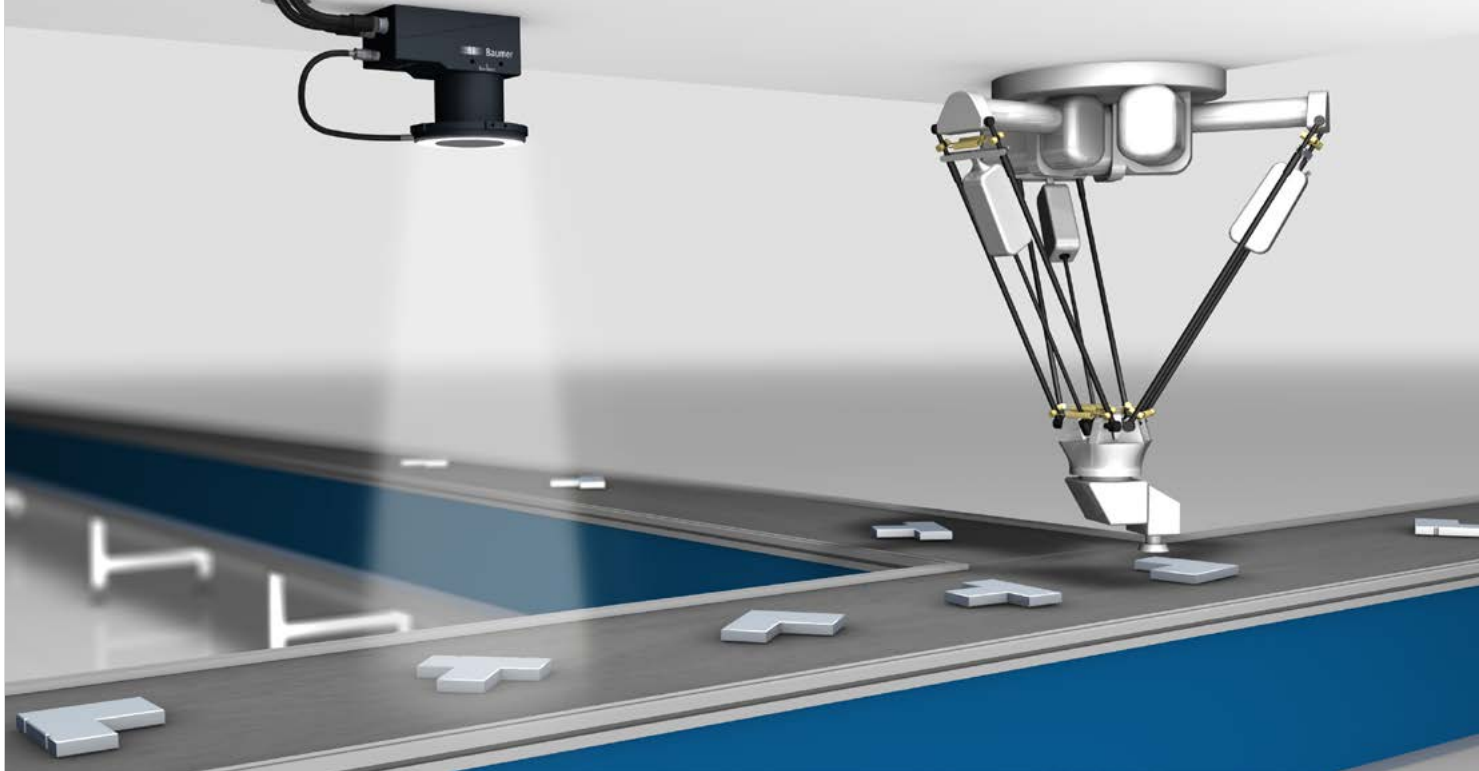
Housing with high IP 69K protection (stainless steel 1.4404)



| Product <sup>1)</sup>  | Article number | Type name        | Optics / Illumination (integrated) | Process interface                         |
|--|----------------|------------------|------------------------------------|---|
| <br>XF series | 11039658       | VS XF100M03W10EP | 10 mm / White                      | TCP   UDP (Ethernet)                      |
|  | 11039659       | VS XF100M03W16EP | 16 mm / White                      | TCP   UDP (Ethernet)                      |
|  | 11128420       | VS XF100M03W10RP | 10 mm / White                      | TCP   UDP (Ethernet), RS485 <sup>2)</sup> |
|  | 11128422       | VS XF100M03W16RP | 16 mm / White                      | TCP   UDP (Ethernet), RS485 <sup>2)</sup> |
|  | 11102229       | VS XF100M03I10EP | 10 mm / Infrared                   | TCP   UDP (Ethernet)                      |
|  | 11112924       | VS XF100M03I16EP | 16 mm / Infrared                   | TCP   UDP (Ethernet)                      |
|  | 11128424       | VS XF100M03I10RP | 10 mm / Infrared                   | TCP   UDP (Ethernet), RS485 <sup>2)</sup> |
|  | 11039656       | VS XF200M03W10EP | 10 mm / White                      | TCP   UDP (Ethernet)                      |
|  | 11039657       | VS XF200M03W16EP | 16 mm / White                      | TCP   UDP (Ethernet)                      |
|  | 11128423       | VS XF200M03W10RP | 10 mm / White                      | TCP   UDP (Ethernet), RS485 <sup>2)</sup> |
| <br>XF series | 11127070       | VS XF105M03W10EP | 10 mm / White                      | TCP   UDP (Ethernet)                      |
|  | 11127048       | VS XF105M03I10EP | 10 mm / Infrared                   | TCP   UDP (Ethernet)                      |
|  | 11127047       | VS XF105M03I16EP | 16 mm / Infrared                   | TCP   UDP (Ethernet)                      |
|  | 11127049       | VS XF205M03W10EP | 10 mm / White                      | TCP   UDP (Ethernet)                      |
|  | 11128398       | VS XF205M03W16EP | 16 mm / White                      | TCP   UDP (Ethernet)                      |
|  | 11128399       | VS XF205M03I10EP | 10 mm / Infrared                   | TCP   UDP (Ethernet)                      |

<sup>1)</sup> all models with 752 × 480px resolution and 1/3" CMOS sensors (monochrome)

<sup>2)</sup> supporting VeriSens® PROFINET® gateway (Article No. 11135780)



## XC series – everything included.

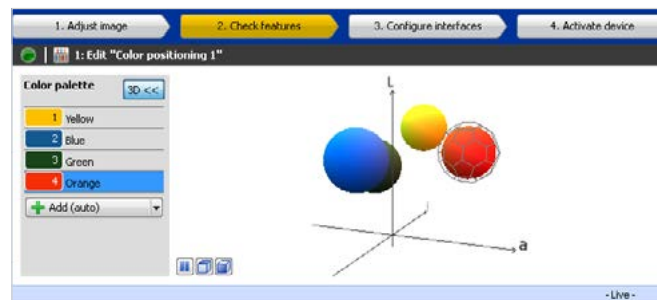
The *VeriSens*® XC series opens up the universal XF functionalities for applications with user-specific lenses and illumination or where color is an additional feature check.

Besides mandatory C-mount for modular tube systems, *VeriSens*® XC is the first vision sensor platform with fully integrated flash controller to enable quick and efficient solutions even in complex applications. By powering external illumination it eliminates the need for additional hardware and furthermore even flashes with the required pulse of up to 48 V and 4 A. High-performance CCD sensors with resolutions up to 2 megapixel meet even advanced application requirements. The *VeriSens*® XC series is also available with color sensors and *Color FEX*® functionality.

### Your benefits at a glance

- Full range of *VeriSens*® feature checks (monochrome, color)
- Fully integrated flash controller (48 V / 4 A)
- Innovative color setup by *Color FEX*® 3D color assistant
- C-mount interface, free choice of lenses
- IR or daylight filter, independent of lens (as an accessory)

### Color setup with *Color FEX*®



Baumer makes color verification an easy thing. With *Color FEX*® incorporating the idea of an intelligent assistant, *VeriSens*® offers a unique functionality. After teaching the relevant object colors within the sensor-defined color range, color tolerances are visualized by the radius of 3D spheres which are verified upon collisions with each other. The color defined in the sphere center is assigned a name by the system – which means, a yellow area is also named yellow.



# XC-100/200

C-mount for enhanced flexibility and similar XF functionality

- A free choice of lenses (C-mount) and matching lens protection thanks to modular tube system
- Fully integrated flash controller for external illumination systems
- Configuration of illumination and flash in parallel to parameterization
- Resolutions:  
 CCD sensor (monochrome) with 0.3 MP / 1.2 MP / 2 MP  
 CCD color sensor with 0.3 MP / 1.2 MP



Additionally in XC-200:

Identification functions for optical characters (OCR/OCV) and 1D/2D codes (incl. GS1)



## Modular system design



| Product <sup>1)</sup>  | Article number | Type name        | Resolution [px] | Sensor type | Process interface                         |
|--|----------------|------------------|-----------------|-------------|---|
| <br>XC series | 11086398       | VS XC100M03X00EP | 640 × 480       | 1/4" CCD    | TCP   UDP (Ethernet)                      |
|  | 11086399       | VS XC100M12X00EP | 1280 × 960      | 1/3" CCD    | TCP   UDP (Ethernet)                      |
|  | 11086410       | VS XC100M20X00EP | 1600 × 1200     | 1/1.8" CCD  | TCP   UDP (Ethernet)                      |
|  | 11128425       | VS XC100M03X00RP | 640 × 480       | 1/4" CCD    | TCP   UDP (Ethernet), RS485 <sup>2)</sup> |
|  | 11128426       | VS XC100M12X00RP | 1280 × 960      | 1/3" CCD    | TCP   UDP (Ethernet), RS485 <sup>2)</sup> |
|  | 11128429       | VS XC100M20X00RP | 1600 × 1200     | 1/1.8" CCD  | TCP   UDP (Ethernet), RS485 <sup>2)</sup> |
|  | 11086175       | VS XC200M03X00EP | 640 × 480       | 1/4" CCD    | TCP   UDP (Ethernet)                      |
|  | 11086176       | VS XC200M12X00EP | 1280 × 960      | 1/3" CCD    | TCP   UDP (Ethernet)                      |
|  | 11086177       | VS XC200M20X00EP | 1600 × 1200     | 1/1.8" CCD  | TCP   UDP (Ethernet)                      |
| <br>XC series | 11116656       | VS XC100C03X00EP | 640 × 480       | 1/4" CCD    | TCP   UDP (Ethernet)                      |
|  | 11116724       | VS XC100C12X00EP | 1280 × 960      | 1/3" CCD    | TCP   UDP (Ethernet)                      |
|  | 11128427       | VS XC100C03X00RP | 640 × 480       | 1/4" CCD    | TCP   UDP (Ethernet), RS485 <sup>2)</sup> |
|  | 11128428       | VS XC100C12X00RP | 1280 × 960      | 1/3" CCD    | TCP   UDP (Ethernet), RS485 <sup>2)</sup> |

<sup>1)</sup> all models with C-mount and fully integrated flash controller

<sup>2)</sup> supporting VeriSens® PROFINET® gateway (Article No. 11135780)



## CS / ID series – specialists for special tasks.

*VeriSens*® of the CS and ID series offer a powerful range of functions focused on the main task: The CS series is equipped with all the tools needed for checking and sorting products, while the ID series includes reliable text and code readers for identification tasks. Both series are especially suited for the first steps in image-based object checking.

The unified user interface featured in all series enables switching to the more powerful XF and XC series models without additional training.

### *VeriSens*® with integrated infrared illumination

Infrared (IR) illumination adds two more benefits to *VeriSens*®: Flash operation beyond human eyesight capabilities will not bother any staff within the *VeriSens*® operating range. Secondly, the integrated daylight cut filter eliminates ambient light impact in the image processing task.

### Your benefits at a glance

- Particularly conceived for tasks in checking and sorting or for reading plain text and 1D / 2D codes
- 360° part recognition using *FEXLoc*® for part location at changing positions
- Part sorting using 5 freely definable outputs
- Optical character recognition and verification (OCR / OCV) without font training

# CS-100

Presence and completeness checks,  
position and location control

- 360° part recognition using *FEXLoc*® for part location at changing positions
- Up to 32 features can be checked simultaneously
- Part sorting using 5 freely definable outputs
- Encoder interface for path-based triggering and ejection

# ID-100 / 110

ID-100 – Code Reader:

Reading matrix codes and barcodes

- Reading 1D and 2D codes (incl. GS1 codes)
- Code quality rating according to ISO / IEC 15415 / 15416 and AIM DPM-1-2006
- RS485 interface for optional use

ID-110 – Text and Code Reader:

Reading human-readable characters with quality rating

- Reading different fonts without time-consuming font training (also Dot Matrix)
- Checking correctness and quality of plain text (OCR / OCV)
- Reading 1D / 2D codes (functionality like ID-100)
- Checking fixed and variable data





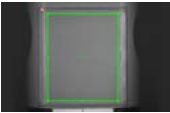
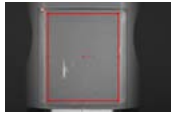


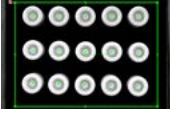













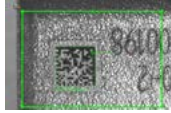



| Product <sup>1)</sup> | Article number | Type name        | Lens / Illumination (integrated) | Process interface                         |
|-----------------------|----------------|------------------|----------------------------------|---|
| CS series             | 11048500       | VS CS100M03W10EP | 10 mm / Weiss                    |   |
|                       | 11076261       | VS CS100M03W16EP | 16 mm / Weiss                    |   |
|                       | 11089900       | VS CS100M03I10EP | 10 mm / Infrarot                 |   |
|                       | 11093026       | VS CS100M03I16EP | 16 mm / Infrarot                 |   |
| ID series             | 11048489       | VS ID100M03W10RP | 10 mm / Weiss                    | TCP   UDP (Ethernet), RS485 <sup>2)</sup> |
|                       | 11076263       | VS ID100M03W16RP | 16 mm / Weiss                    | TCP   UDP (Ethernet), RS485 <sup>2)</sup> |
|                       | 11048484       | VS ID110M03W10EP | 10 mm / Weiss                    | TCP   UDP (Ethernet)                      |
|                       | 11089896       | VS ID110M03I10EP | 10 mm / Infrarot                 | TCP   UDP (Ethernet)                      |
|                       | 11138199       | VS ID110M03I10RP | 10 mm / Infrarot                 | TCP   UDP (Ethernet), RS485 <sup>2)</sup> |

<sup>1)</sup> all models with 752 × 480px resolution and 1/3" CMOS sensors (monochrome)

<sup>2)</sup> supporting VeriSens® PROFINET® gateway (Article No. 11135780)

# VeriSens® product features

| Part location                           |  |  |  | XC-100               | XC-200 | XF-105<br>XF-100 | XF-205<br>XF-200 | CS-100 | ID-110 | ID-100 |
|---|--|--|--|----------------------|--------|------------------|------------------|--------|--------|--------|
|   | <b>Part location on contours (FEXLoc)</b><br>Determines the location and rotational position of a part based on its contours. All subsequent feature checks are aligned according to the determined position.                                      |  |  | 360°                 | 360°   | 360°             | 360°             | 360°   |        |        |
|   | <b>Part location on edges (FEXLoc)</b><br>Determines the location and rotational position of a part from a single edge or two edges at right angles to each other. All subsequent feature checks are aligned according to the determined position. |  |  | •                    | •      | •                | •                |        |        |        |
|   | <b>Part location on circle (FEXLoc)</b><br>Determines the location and rotational position of circular parts. All subsequent feature checks are aligned according to the determined position.  |  |  | •                    | •      | •                | •                |        |        |        |
|   | <b>Part location on text line</b><br>Determines the location and rotational position of text within a working area. The text may change during this task. All subsequent feature checks are aligned according to the determined position.          |  |  | •                    | •      | •                | •                |        | •      |        |
| Geometry                                |  |  |  | XC-100               | XC-200 | XF-105<br>XF-100 | XF-205<br>XF-200 | CS-100 | ID-110 | ID-100 |
|   | <b>Distance</b><br>Determines the distance between two edges.  |  |  | •                    | •      | •                | •                | •      |        |        |
|   | <b>Circle</b><br>Determines the diameter, location and roundness in comparison to a reference circle.  |  |  | •                    | •      | •                | •                | •      |        |        |
|   | <b>Angle</b><br>Determines the angle between two edges.  |  |  | •                    | •      | •                | •                |        |        |        |
|   | <b>Count edges</b><br>Determines the number of edges along a tracing ray.  |  |  | •                    | •      | •                | •                |        |        |        |
|   | <b>Point position</b><br>Determines the coordinates of one point.  |  |  | •                    | •      | •                | •                |        |        |        |
| Feature comparison (monochrome / color) |  |  |  | XC-100 <sup>2)</sup> | XC-200 | XF-105<br>XF-100 | XF-205<br>XF-200 | CS-100 | ID-110 | ID-100 |
|   | <b>Count contour points</b><br>Determines the number of contour points within a working area.  |  |  | • •                  | •      | •                | •                | •      |        |        |
|   | <b>Contour comparison</b><br>Compares the contour of a taught-in part with the contour of the current part.  |  |  | • •                  | •      | •                | •                | •      | •      |        |
|   | <b>Brightness</b><br>Determines the average brightness in a working area.  |  |  | • -                  | •      | •                | •                | •      |        |        |
|   | <b>Contrast</b><br>Calculates the contrast in a working area.  |  |  | • -                  | •      | •                | •                |        |        |        |
|   | <b>Color identification</b><br>Identifies color within the operating range and its deviation from the reference color.   |  |  | - •                  |        |                  |                  |        |        |        |

| Feature comparison (monochrome/color)   |   |  |   | XC-100 <sup>2)</sup> | XC-200 | XF-105<br>XF-100 | XF-205<br>XF-200 | CS-100 | ID-110 | ID-100 |
|---|---|--|---|----------------------|--------|------------------|------------------|--------|--------|--------|
|    |  | <b>Area size</b><br>Identifies light or dark respectively color-defined areas in the image. Determines the total area or the largest continuous area.  |       | • •                  | •      | •                | •                |        |        |        |
| 1 ms  |   |  |   |                      |        |                  |                  |        |        |        |
|    |  | <b>Count areas</b><br>Counts the visible continuous light or dark respectively color-defined areas in the image.   |       | • •                  | •      | •                | •                |        |        |        |
| 5 ms  |   |  |   |                      |        |                  |                  |        |        |        |
|    |  | <b>Pattern comparison</b><br>Compares the working area with a taught-in pattern.   |       | • •                  | •      | •                | •                |        |        |        |
| 0,4 ms  |   |  |   |                      |        |                  |                  |        |        |        |
|    |   | <b>Color positioning</b><br>Verifies presence of defined colors within defined image sections.   |       | - •                  |        |                  |                  |        |        |        |
|   |   |  |   |                      |        |                  |                  |        |        |        |
| Identification  |   |  |   | XC-100               | XC-200 | XF-105<br>XF-100 | XF-205<br>XF-200 | CS-100 | ID-110 | ID-100 |
|    |   | <b>Barcode</b><br>Reads barcodes. Determines quality according to ISO/IEC 15416, result is output via process interface, can be compared to a set value.   |       |                      | •      |                  | •                |        | •      | •      |
| 20 ms   |   |  |   |                      |        |                  |                  |        |        |        |
|    |   | <b>Matrix code</b><br>Reads matrix codes (ECC200, GS1, QR, PDF417). at any angle of rotation. Determines quality according to ISO/IEC 15415 or AIM DPM-1-2006, result is output via process interface, can be compared to a set value. |     |                      | •      |                  | •                |        | •      | •      |
| 35 ms   |   |  |   |                      |        |                  |                  |        |        |        |
|  |   | <b>Text</b><br>Reads numbers and characters. Characters read are output via process interface, can be compared to a set value.   |   |                      | •      |                  | •                |        | •      |        |
| 50 ms   |   |  |   |                      |        |                  |                  |        |        |        |

<sup>1)</sup> Typical calculation time with default parameters at 752 × 480 px resolution (might be extended by properties of the inspected object and sensor resolution)

<sup>2)</sup> Feature checks of «Feature comparison» available with XC-100: «•|•» corresponds to sensor type «monochrome | color»

| Features VeriSens®         |  | XC-100 | XC-200 | XF-105<br>XF-100 | XF-205<br>XF-200 | CS-100 | ID-110 | ID-100 |
|----------------------------|--|--------|--------|------------------|------------------|--------|--------|--------|
| <b>Image acquisition</b>   | Optics: 10 mm   16 mm   C-mount  | - - •  | - - •  | • • -            | • • -            | • • -  | • • -  | • • -  |
|                            | Illumination: White   Infrared   Fully integrated flash controller for external illumination<br>(infrared: integrated daylight filter 780nm) | - - •  | - - •  | • • -            | • • -            | • • -  | • • -  | • • -  |
|                            | Configurable web interface (live image, job switching, retrieving defect images)   | •      | •      | •                | •                | •      | •      | •      |
|                            | Save images via FTP  | •      | •      | •                | •                | •      | •      | •      |
|                            | Configuration via Ethernet   | •      | •      | •                | •                | •      | •      | •      |
| <b>Functionalities</b>     | Process linkage: Digital I/Os  | 5/3-5  | 5/3-5  | 5/3-5            | 5/3-5            | 5/5    | 5/3-5  | 5/3    |
|                            | Providing partial results via digital I/Os at different times  | •      | •      | •                | •                |        |        |        |
|                            | Process interface: Ethernet   RS485 (model-specific)<br>(PROFINET® via RS485 gateway)  | • •    | • •    | • •              | • •              | - -    | • •    | • •    |
|                            | Baumer FEX® image processor  | •      | •      | •                | •                | •      | •      | •      |
|                            | Color FEX® intelligent 3D color assistant (model-specific)   | •      |        |                  |                  |        |        |        |
|                            | User administration / Password protection  | •      | •      | •                | •                |        | •      | •      |
|                            | Coordinate conversion  | •      | •      | •                | •                |        |        |        |
| <b>Process integration</b> | Flexible result conjunction  | •      | •      | •                | •                |        |        |        |
|                            | Result conjunction with integrated digital inputs  | •      | •      | •                | •                |        |        |        |
|                            | Identification functions: Code   Text  | - -    | • •    | - -              | • •              | - -    | • •    | • •    |
|                            | Test functionality   | •      | •      | •                | •                | •      | •      | •      |
|                            | High-speed mode (monochrome only)  | •      | •      | •                | •                |        |        |        |
|                            | Gamma correction   | •      | •      | •                | •                |        |        |        |

# Technical data

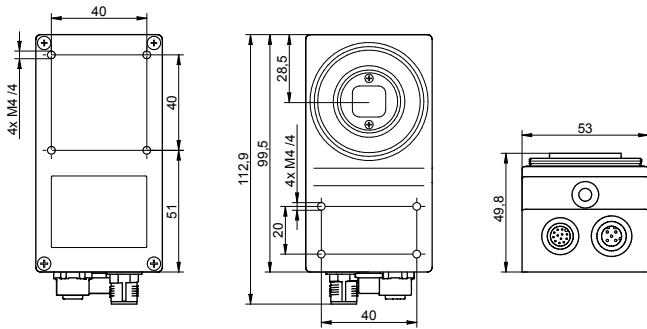
| General data   | XC series   |  |   | XF series   CS series   ID series   |
|--|---|--|---|---|
| Resolution   | 640 × 480 px  | 1280 × 960 px                            | 1600 × 1200 px                          | 752 × 480 px  |
| Sensor   | 1/4" CCD (monochrome, color)  | 1/3" CCD (monochrome, color)             | 1/1.8" CCD (monochrome)                 | 1/3" CMOS (monochrome)  |
| LED illumination   | Fully integrated flash controller for external illumination   |  |   | White (LED class: Risk group 1 low risk, EN 62471:2008)<br>Infrared (860 nm) (LED class: free group risk-free, EN 62471:2008) |
| Lens   | Changeable lens (C-mount)   |  |   | f = 10 mm (integrated)   f = 16 mm (integrated)   |
| Min. object distance   | Depending on changeable lens  |  |   | 50 mm   70 mm   |
| Max. object distance   | Depending on changeable lens  |  |   | ∞   300 mm  |
| <b>Speed</b><br>High-resolution mode<br>High-speed mode<br><small>(limited resolution, monochrome)</small> | Max. 50 insp./sec.<br>Max. 100 insp./sec.   | Max. 12 insp./sec.<br>Max. 25 insp./sec. | Max. 7 insp./sec.<br>Max. 15 insp./sec. | Max. 50 insp./sec.<br>Max. 100 insp./sec. (XF series only)  |
| Defect image memory  | 32  | 8  | 4                                       | 32  |
| Number of jobs   | Up to 255 on the device (can be exchanged via process interface)  |  |   |   |
| Features per job   | 32  |  |   |   |
| Electrical data  | XC series   |  |   | XF series   CS series   ID series   |
| Power supply   | === 18 ... 30 VDC   |  |   |   |
| Power consumption  | Typical 5 W (I <sub>max</sub> = 1.5 A at 24 V)  |  |   | Typ. 5 W (I <sub>max</sub> = 1 A at 24 V)   |
| Inputs   | 8 ... 30 V DC   |  |   |   |
| Outputs  | PNP 100 mA  |  |   |   |
| Digital input  | Trigger, Job selection, External teach-in, Encoders (CH-A, CH-B) 500 kHz  |  |   |   |
| Digital output   | Pass/Fail 1-5 <sup>1)</sup> , Flash Sync, Alarm, Camera Ready, Output Enable  |  |   | <sup>1)</sup> VS xxxxxxxxxxxxRP: 1-3  |
| <b>Communication</b><br>Initial setup<br>Process interface   | Ethernet (10BASE-T / 100BASE-TX)<br>TCP UDP (Ethernet) <sup>2)</sup> , RS485 <sup>3)</sup> , PROFINET <sup>®</sup> via gateway <sup>3)</sup>  |  |   | <sup>2)</sup> except CS-100 <sup>3)</sup> VS xxxxxxxxxxxxRP only  |
| Integr. flash controller   | XC series   |  |   | XF series   CS series   ID series   |
| Voltage (permanent)  | === 12 V DC or === 24 V DC  |  |   | –   |
| Voltage (pulsed)   | ┌ 24 V DC or ┌ 48 V DC  |  |   | –   |
| Current (permanent)  | I <sub>max</sub> = 800 mA at === 24 V DC (+/-10 %, at least +/- 100 mA, at 25 °C)   |  |   | –   |
| Current (pulsed)   | I <sub>max</sub> = 4 A at ┌ 48 V DC (+10/-20 %, at least +/- 100 mA, at 25 °C)  |  |   | –   |
| Flash time   | Max. 1 ms (Duty Cycle max. 1:10)  |  |   | –   |
| Operating conditions   | XC series   |  |   | XF series   CS series   ID series   |
| Temperature  | Housing temperature: max. +50 °C / Operating temperature: +5 ... +50 °C / Storage temperature: -20 ... +70 °C   |  |   |   |
| Humidity   | 0 ... 90 % (non-condensing)   |  |   |   |
| Protection class   | IP 67 (XC series: with tube)  |  |   | IP 67 or IP 69K (model-specific)  |
| Vibration load   | IEC 60068-2-6, IEC 60068-2-64   |  |   |   |
| Mech. shock resistance   | EN 60068-2-27   |  |   |   |
| Mechanical data  | XC series   |  |   | XF series (XF series in IP 69K)   CS series   ID series   |
| Width × Height × Depth   | 53 mm × 99.5 mm × 49.8 mm (without lens / tube)   |  |   | 53 mm × 99.5 mm (107.5 mm) × 38 mm  |
| Material   | Housing: aluminum<br>Cover glass tube: PMMA   |  |   | Housing: aluminum (IP 69K: stainless steel 1.4404)<br>Cover glass: PMMA <sup>4)</sup>   |
| Weight   | 300 g (without lens / tube)   |  |   | 250 g   |
| Code types / OCR   | Model: XC-200   |  |   | Models: XF-200 / 205   ID-110   ID-100  |
| Barcode <sup>5)</sup>  | 2/5 Industrial, 2/5 Interleaved, Codabar, Code 39, Code 93, Code 128, PharmaCode<br>EAN 8, EAN 13, UPC-A, UPC-E: Base code + variants Add-On 2, Add-On 5<br>GS1 DataBar (RSS): Limited, Expanded, Expanded Stacked<br>GS1 DataBar (RSS-14): Base code + variants Truncated, Stacked, Stacked Omnidir<br>GS1 128 |  |   |   |
| Matrix code <sup>5)</sup>  | DataMatrix (ECC 200), GS1-DataMatrix, QR, PDF417  |  |   |   |
| Font <sup>6)</sup>   | Many font styles (recommended: sans serif, proportional), Dot Matrix, Characters: A-Z a-z 0-9 + - . : / ( )   |  |   |   |

<sup>4)</sup> for XF-100 / 105, XF-200 / 205, CS-100, ID-110 with infrared illumination: daylight filter 780 nm integrated

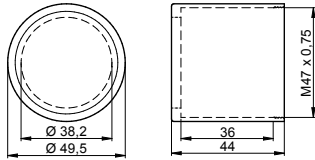
<sup>5)</sup> incl. quality rating of all barcodes according to ISO/IEC 15416 as well as all matrix codes according to ISO/IEC 15415 or AIM DPM-1-2006

<sup>6)</sup> XF-200 / 205, XC-200, ID-110 only

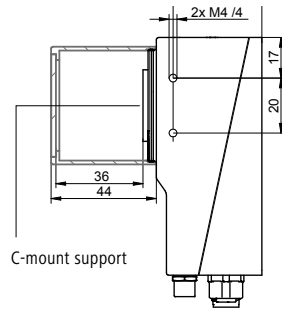
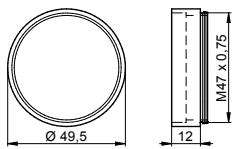
### Scale drawing (XC series)



XC Tube



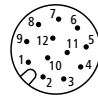
XC Tube Module



C-mount support

Dimensions in mm

### Electrical connection <sup>1)</sup> M12 / 12-pin



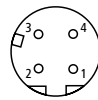
|                        |                                 |
|------------------------|---------------------------------|
| 1: Power (+18-30 V DC) | 7: OUT3                         |
| 2: Ground              | 8: IN3                          |
| 3: IN1 (Trigger)       | 9: OUT4   RS485+ <sup>2)</sup>  |
| 4: OUT1                | 10: IN4                         |
| 5: IN2                 | 11: IN5                         |
| 6: OUT2                | 12: OUT5   RS485- <sup>2)</sup> |

### Electrical connection illumination <sup>1)3)</sup> M8 / 4-pin <sup>4)</sup>



|  |
|--|
| 1: +24 V or +48 V Flash                |
| 2: +12 V or +24 V Flash                |
| 3: Ground                              |
| 4: Flash Sync <sup>5)</sup> PNP 100 mA |

### Ethernet connection <sup>1)</sup> M12 / 4-pin



|        |
|--------|
| 1: TD+ |
| 2: RD+ |
| 3: TD- |
| 4: RD- |

<sup>1)</sup> on device

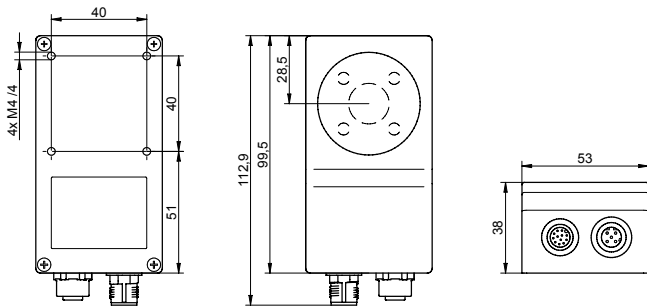
<sup>2)</sup> RS485: VS xxxxxxxxxxxRP only

<sup>3)</sup> XC series only

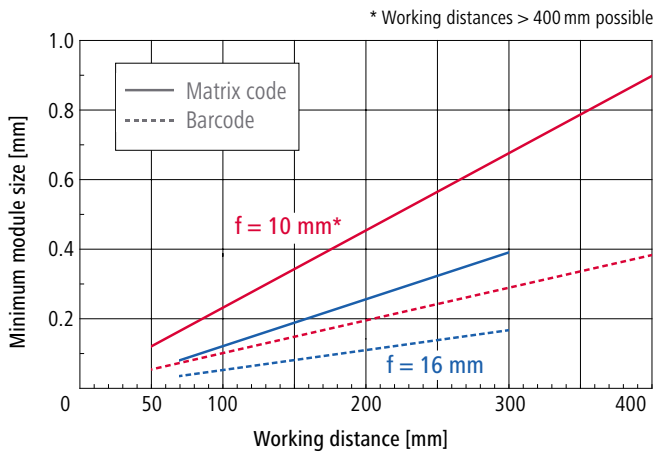
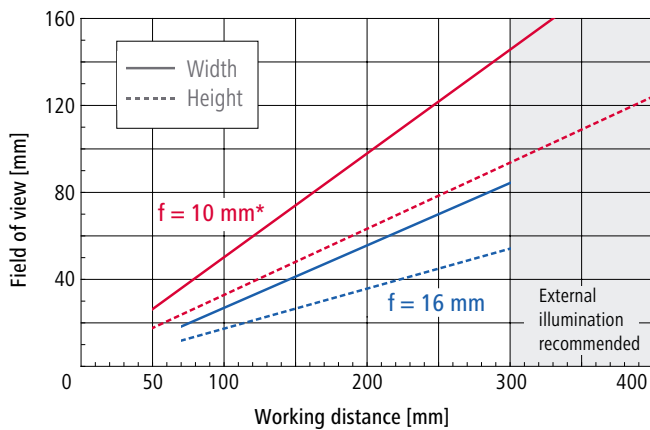
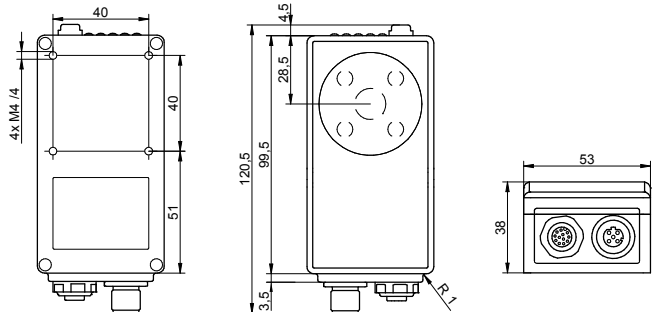
<sup>4)</sup> voltage outputs configurable by software

<sup>5)</sup> voltage according to power supply

### Scale drawing (XF | CS | ID series)



### Scale drawing (XF series in IP 69K)



# System design

## Lab setup accessories (optional)

|          |   |
|----------|---|
| 11048083 | Connecting cables VeriSens®, 2 m, ready-for-use DC socket |
| 11079750 | Power supply 24V / 1 A, plugs for EU, US, UK, AU, KR      |
| 11051407 | Laboratory stand, hinged bracket, mounting material       |

## Mounting accessories (optional)

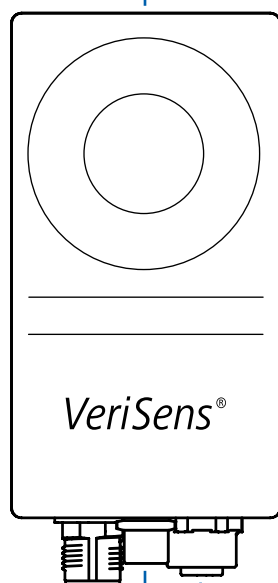
10159905

Straight mounting



10159906

90° mounting angle



## Changeable lenses (VeriSens® XC series only)

See on reverse

## Lens accessories (optional)

|          |   |
|----------|---|
| 11088325 | XC Tube, M47, length 44 mm (scope of delivery VeriSens® XC)             |
| 11089149 | XC Tube Module, M47, tube extension 12 mm                               |
| 11010529 | Close-up ring set 6-part, 0.5 / 1 / 5 / 10 / 20 / 40 mm                 |
| 11092000 | Pentax® polarization filter <sup>1)</sup> , linear, filter thread 27 mm |
| 11006551 | Pentax® color filter <sup>1)</sup> (red), filter thread 27 mm           |
| 11097573 | IR cut filter, C-mount, height 2,5 mm, screw-in tool                    |
| 11097576 | Daylight filter, C-mount, height 2,5 mm, screw-in tool                  |

<sup>1)</sup> Compatible to lenses with Article No. 11002840 / 11002877 / 11004362 / 10170039 / 11002222 / 11003417 / 11012785

## Connecting cables<sup>2)</sup> shielded, to free cable end

|          |      |
|----------|------|
| 11048452 | 2 m  |
| 11043780 | 5 m  |
| 11048455 | 10 m |
| 11048456 | 2 m  |
| 11043785 | 5 m  |
| 11048458 | 10 m |



<sup>2)</sup> suitable for drag chains

## PROFINET® gateway (optional)

11135780

VeriSens® PROFINET® gateway with integrated switch



## Ethernet cables shielded, to RJ-45 plug

|      |          |
|------|----------|
| 2 m  | 11048502 |
| 5 m  | 10165276 |
| 10 m | 11051929 |
| 2 m  | 11048592 |
| 5 m  | 11048594 |
| 10 m | 11051950 |

## Monitor (All-in-one PC, optional)

11122988

ZVP-ALL\_IN\_ONE\_PC.DE (10,4", 1024 × 768 px, Stylus)

11093293

ZVP-ALL\_IN\_ONE\_PC.EN (10,4", 1024 × 768 px, Stylus)



## Illumination cables (VeriSens® XC series only)

|          |       |   |  |
|----------|-------|---|--|
| 11088882 | 1.5 m | Extension cable shielded, male conn. straight M8, to female conn. straight M8 |  |
| 11136134 | 0.3 m | Extension cable shielded, male conn. straight M8, to female conn. straight M8 |  |
| 11089179 | 0.3 m | Adapter cable, male connector straight M8, to JST SMP-03V (3-pin)             |  |
| 11089178 | 0.3 m | Adapter cable, male connector straight M8, to JST SMP-02V (2-pin)             |  |
| 10163693 | 2 m   | Adapter cable, free cable end, to female connector straight M8                |  |

## Set of mounting brackets (VeriSens® XC series only)

|          |   |
|----------|---|
| 11092203 | VB Fix Kit FLDR-i90B, small (57 mm)   |
| 11092204 | VB Fix Kit FLDR-i90B, large (93 mm) for LED ring light FLDR-i90B-W to VeriSens® XC series |

|          |   |
|----------|---|
| 11136136 | VB Fix Kit RONDOLX, small (57 mm)   |
| 11136139 | VB Fix Kit RONDOLX, large (93 mm) for LED ring light ZVI-RONDOLX_24VDC_x to VeriSens® XC series |



## External illumination modules

See on reverse





## Changeable lenses (C-mount)

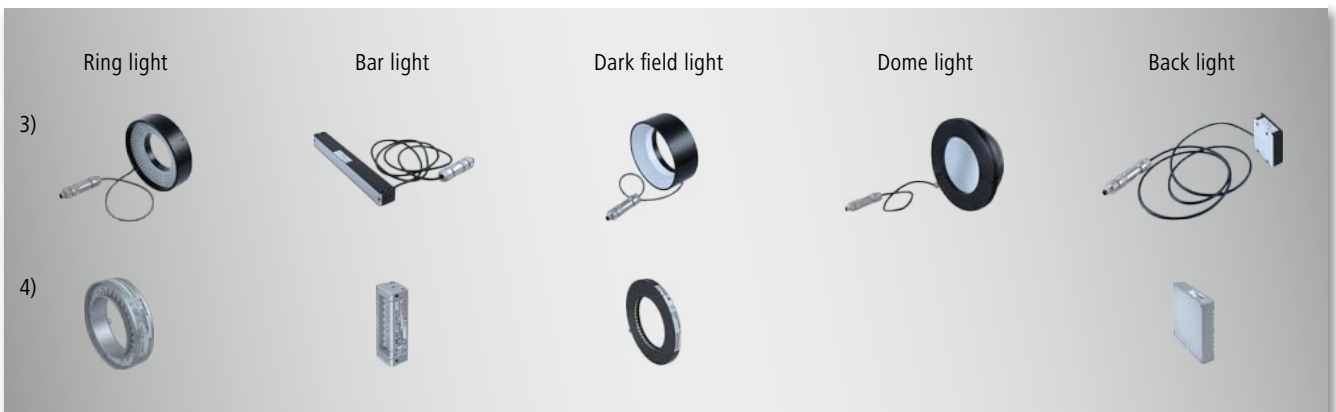
| Article No. | Type name                       | Focal distance | Aperture speed range | Minimum distance | Maximum lens length <sup>1)</sup> | XC Tube Module (Article No. 11089149) |
|-------------|---------------------------------|----------------|----------------------|------------------|-----------------------------------|---------------------------------------|
| 11037579    | ZVL-FL-HC0416X-VG <sup>2)</sup> | 4,2 mm         | F1,6 - C             | 0,20 m           | 44 mm                             | 1 piece                               |
| 11002840    | ZVL-FL-HC0612A-VG <sup>2)</sup> | 6 mm           | F1,2 - C             | 0,20 m           | 46 mm                             | 1 piece                               |
| 11002877    | ZVL-FL-CC0815B-VG               | 8,5 mm         | F1,5 - C             | 0,20 m           | 40 mm                             | 1 piece                               |
| 11004362    | ZVL-FL-HC1214-2M <sup>2)</sup>  | 12 mm          | F1,4 - 16            | 0,25 m           | 29 mm                             | –                                     |
| 10170039    | ZVL-FL-CC1614-2M                | 16 mm          | F1,4 - 16            | 0,25 m           | 34 mm                             | –                                     |
| 11002222    | ZVL-FL-CC2514-2M                | 25 mm          | F1,4 - 16            | 0,25 m           | 33 mm                             | –                                     |
| 11003417    | ZVL-FL-CC3516-2M                | 35 mm          | F1,6 - 16            | 0,45 m           | 36 mm                             | –                                     |
| 11012785    | ZVL-FL-CC5028-2M                | 50 mm          | F2,8 - 22            | 0,90 m           | 34 mm                             | –                                     |
| 11003041    | ZVL-FL-CC7528-2M                | 75 mm          | F2,8 - 32            | 0,70 m           | 70 mm                             | 3 pcs                                 |

<sup>1)</sup> Measured from C-mount support (see XC series scale drawing)

<sup>2)</sup> Incompatible to VeriSens<sup>®</sup> with sensor format 1/1.8" (VS XC100M20X00EP, VS XC200M20X00EP)

## External illumination modules (assembled for VeriSens<sup>®</sup> XC series)

| Article No.                                       | Type name                         | Product description                  | Cable [cm]  | Illuminated area [mm] | Outer dimensions [mm] | Height [mm] |
|---|-----------------------------------|--------------------------------------|---|-----------------------|-----------------------|-------------|
| <b>Cable with M8/4-pin connector<sup>3)</sup></b> |                                   |                                      |    |                       |                       |             |
| 11085869  | FLDR-i90B-W                       | LED ring light, white                | 30  | Ø 87                  | Ø 93.5                | 24.6        |
| 11090900  | FLDR-i90B-IR24                    | LED ring light, IR 875 nm            | 30  | Ø 87                  | Ø 93.5                | 24.6        |
| 11086539  | FLDL-i150x15-W                    | LED bar light, white, diffuse        | 100   | 148 × 15              | 158 × 17.5            | 20          |
| 11086540  | FFPR-i100-W                       | LED dark field light, white, diffuse | 30  | Ø 94.6                | Ø 100                 | 40          |
| 11086541  | FLDM-i100-W                       | LED dome light, white                | 30  | Ø 80                  | Ø 130                 | 61          |
| 11086535  | FLDM-i250-W                       | LED dome light, white                | 30  | Ø 220                 | Ø 280                 | 134         |
| 11086536  | FLDL-TP-Si36-W                    | LED back light, white, diffuse       | 100   | 36 × 36               | 47 × 47               | 15          |
| 11086538  | FLDL-TP-Si85x77-W                 | LED back light, white, diffuse       | 100   | 85 × 77               | 95 × 95               | 15          |
| 11086537  | FLDL-TP-Si200x100-W               | LED back light, white, diffuse       | 100   | 200 × 100             | 228 × 116             | 23.5        |
| 11095910  | FLFL-Si60-IR24                    | LED back light, IR 850 nm, diffuse   | 100   | 60 × 60               | 94 × 94               | 10          |
| <b>With M8/4-pin connector<sup>4)</sup></b>       |                                   |                                      |  |                       |                       |             |
| 11130179  | ZVI-RONDOLX_24VDC_weiss_120°      | LED ring light, white, 120°          | –   | Ø 67                  | Ø 101                 | 24          |
| 11130176  | ZVI-RONDOLX_24VDC_IR850nm_50°     | LED ring light, IR 850 nm, 50°       | –   | Ø 67                  | Ø 101                 | 24          |
| 11130150  | ZVI-RONDOLX_24VDC_IR850nm_120°    | LED ring light, IR 850 nm, 120°      | –   | Ø 67                  | Ø 101                 | 24          |
| 11130185  | ZVI-TOPLINED1_24VDC_weiss_120°    | LED bar light, white, 120°           | –   | 78 × 25               | 78 × 25               | 23          |
| 11130186  | ZVI-TOPLINED1_24VDC_SHweiss_120°  | LED bar light, SH white, 120°        | –   | 78 × 25               | 78 × 25               | 23          |
| 11130187  | ZVI-TOPLINED1_24VDC_rot617nm_30°  | LED bar light, red 617 nm, 30°       | –   | 78 × 25               | 78 × 25               | 23          |
| 11135012  | ZVI-TOPLIGHT80_24VDC_rot617nm_30° | LED bar light, red 617 nm, 30°       | –   | 87 × 87               | 87 × 87               | 20          |
| 11130183  | ZVI-ARCUSM_24VDC_weiss_120°       | LED dark field light, white, diffuse | –   | Ø 68                  | Ø 120                 | 9,5         |
| 11130181  | ZVI-HILIGHT80_24VDC_weiss         | LED back light, white, diffuse       | –   | 78 × 78               | 87 × 87               | 20          |
| 11130182  | ZVI-HILIGHT120_24VDC_weiss        | LED back light, white, diffuse       | –   | 118 × 118             | 127 × 127             | 20          |



<sup>3)</sup> supplier: Falcon Illumination MV GmbH & Co. KG

<sup>4)</sup> supplier: Büchner Lichtsysteme GmbH

<sup>5)</sup> connector directly on the device

# Worldwide presence.



## Africa

Algeria  
Cameroon  
Côte d'Ivoire  
Egypt  
Morocco  
Reunion  
South Africa

## America

Brazil  
Canada  
Colombia  
Mexico  
United States  
Venezuela

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India  
Indonesia  
Israel  
Japan  
Kuwait  
Malaysia  
Oman  
Philippines  
Qatar  
Saudi Arabia  
Singapore  
South Korea  
Taiwan  
Thailand  
UAE

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Czech Republic  
Denmark  
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Hungary  
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Martinique  
Netherlands  
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