



**Baumer**  
Passion for Sensors

# *VeriSens*<sup>®</sup> Vision Sensors

Image-based quality control – easy and intuitive



Eyeing  
your  
quality.

Compliments of [Phase1tech.com](http://Phase1tech.com)

# Simply focused on the essentials.

Baumer is a globally leading company for sensor solutions designed for factory and process automation. More than 2,000 employees in 36 subsidiaries in 18 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.

If standard products meet their limits, we work together with our customers to develop customized components which will perfectly match the application.  
The result: Your decisive competitive edge.

Compliments of PleaseTech.com



# 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*® vision sensors offer all these benefits – and still many more.

## What exactly is a *VeriSens*® vision sensor?

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

## How does a *VeriSens*® vision sensor work?

*VeriSens*® acquires images, evaluates them and communicates the results to the system control or to individual components in your system. It is configured once using a PC to set image acquisition parameters, select image tools for feature checking and to set up the required interfaces.

## Where does *VeriSens*® make the most sense?

*VeriSens*® 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*® is also the optimum component for checking (even different) batches in the line or communicating collected data.

## *VeriSens*® 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 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



OK



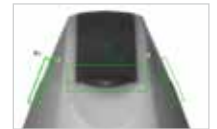
NOK



## Packaging industry

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

**Example:** Inspection of forward cap alignment



OK



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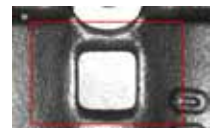
## Automotive industry

- 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)



OK



NOK



## 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



OK



NOK



# 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 lense 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.



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

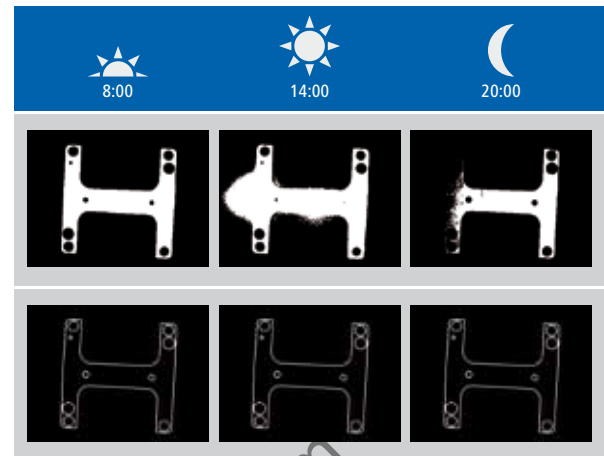
Do you want to benefit from the flexibility and versatility of image-based product verification as well? As a compact image processing system in the shape of a sensor, VeriSens® is an ideal component which comes with all the necessary hardware and software and is also intuitively configurable using a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

# What makes *VeriSens*® so special for our customers?

- Patented Baumer *FEX*® image processor – inspired by nature  
*VeriSens*® acts like human beings who can still recognize trees and houses clearly by their contours even in dismal weather: The patented *FEX*® 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.

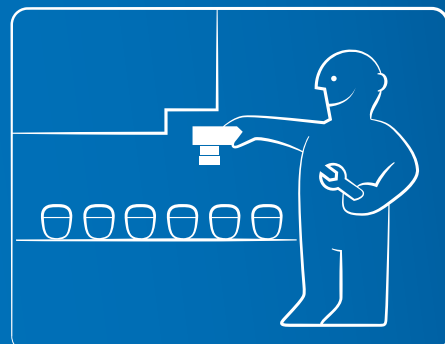
- *FEXLoc*® part location – to simplify the machine design  
The location of parts during feeding does not matter to *VeriSens*®. Reliable 360° part recognition enables virtual object alignment to check the correct positions. This means that mechanical part alignment is no longer necessary. All XF, XC,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

- C-mount with integrated flash controller – flexibility combined with convenience  
A free choice of lenses and special illuminations are frequently required when it comes to solving complex application needs. To meet these requirements, *VeriSens*® XC not only comes with a standardized C-mount lens interface, but also offers some very special features: *VeriSens*® can power external illuminations as well as optionally generate the flash impulse (to 48 V / 4 A) important for multiplying brightness. No need to worry about external flash controllers and their programming.



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

## Easy to use.





- **Clarity – in everything you do**

The vision sensor can be fully configured in four clear steps via the standardized user interface featured in all series. Even first-time users often need just a few minutes to configure their first job, so they gain time for other tasks.

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



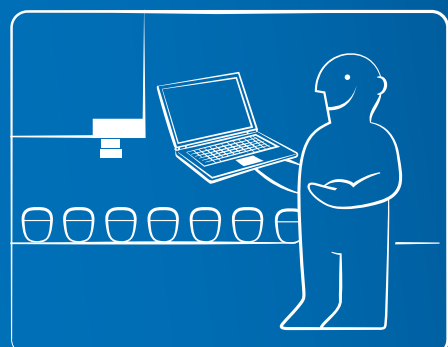
- ***VeriSens*® web interface – configurable user interface for operation**

A configurable human-machine interface is already integrated for customers who want to configure *VeriSens*® 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. These functions can be implemented by a software update.

The *VeriSens*® web interface runs in standard web browsers and does not require any plug-ins.



# Easy to configure.



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

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

*VeriSens*® vision sensors offer a device-specific wide range of feature checking tools, which are already included with the purchase of a device. 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**

Depending on the application, operation with a higher image resolution might be necessary, e. g. if smallest details in a large area have to be identified.

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.

- **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.

- **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.

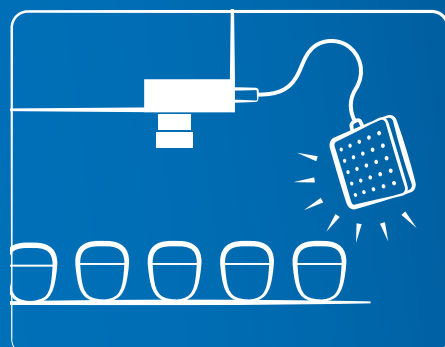
- **Easy verification of inspection tasks**

*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).

## 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.

- **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 IP 67 design made entirely of metal**

*VeriSens*® features a robust aluminum housing – suitable also for use in harsh industrial environments. *VeriSens*® XC even provides modular lens protection for changeable lenses – which can be appropriately configured for the respective 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**

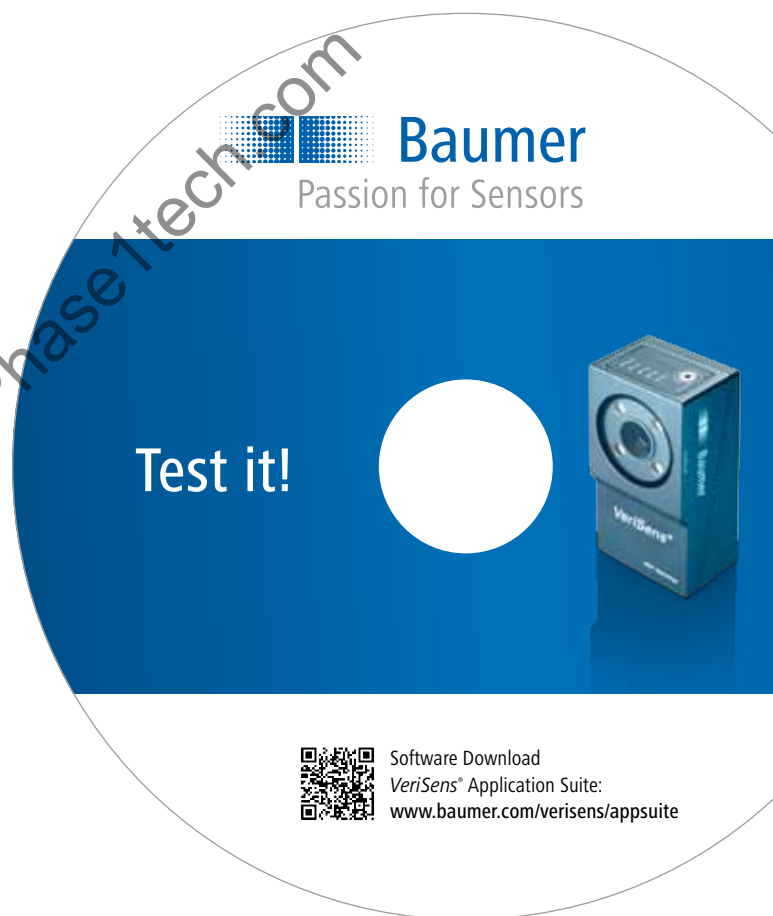
The Ethernet interface integrated in all models allows remote access (including gateway and NAT support) via the *VeriSens*® Application Suite to enable worldwide product access.

- **Integrated FTP client**

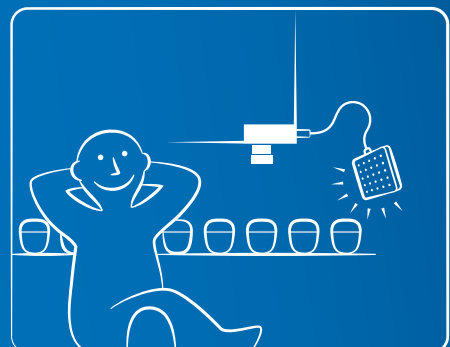
To store live and defect images for tracking or later analysis and / or visualization as easily as possible, all *VeriSens*® vision sensors support FTP servers.

- **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.



## Absolutely ingenious.





## XF / XC series – everything included.

*VeriSens*® of the XC and XF series offer the entire range of functions of up to 19 different tools for feature checks.

*VeriSens*® XF-200 and XC-200 models can also read and verify characters and numbers as well as matrix and barcodes.

All models communicate inspection results not only via digital I/Os, but also results and default values via the process interface.

Special feature of the *VeriSens*® XC series: Lenses and illuminations are freely selectable. A standardized C-mount interface

is provided for lenses. External illuminations are supplied by standardized connectors (pin layout published). Adapter cables

are also offered. Thanks to an integrated flash controller, external illuminations are powered by *VeriSens*® and can flash with up to 48 V and 4 A to increase brightness.

### Your benefits at a glance

- All available *VeriSens*® feature checking tools
- 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.

Product	Item number	Type name	Lens/Illumination	Resolution [px]	Sensor type
XF series	11039658	VS XF100M03W10EP	10 mm / White, integrated	752 × 480	CMOS 1/3"
	11039659	VS XF100M03W16EP	16 mm / White, integrated	752 × 480	CMOS 1/3"
	11102229	VS XF100M03I10EP	10 mm / Infrared, integrated	752 × 480	CMOS 1/3"
	11039656	VS XF200M03W10EP	10 mm / White, integrated	752 × 480	CMOS 1/3"
	11039657	VS XF200M03W16EP	16 mm / White, integrated	752 × 480	CMOS 1/3"
	11089899	VS XF200M03I10EP	10 mm / Infrared, integrated	752 × 480	CMOS 1/3"
XC series	11086398	VS XC100M03X00EP	C-mount / Integrated flash controller	640 × 480	CCD 1/4"
	11086399	VS XC100M12X00EP	C-mount / Integrated flash controller	1280 × 960	CCD 1/3"
	11086410	VS XC100M20X00EP	C-mount / Integrated flash controller	1600 × 1200	CCD 1/1.8"
	11086175	VS XC200M03X00EP	C-mount / Integrated flash controller	640 × 480	CCD 1/4"
	11086176	VS XC200M12X00EP	C-mount / Integrated flash controller	1280 × 960	CCD 1/3"
	11086177	VS XC200M20X00EP	C-mount / Integrated flash controller	1600 × 1200	CCD 1/1.8"





## XF-100 / 200

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:

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

## XC-100 / 200

Extended flexibility thanks to C-mount interface at the same functionality as XF series

- A free choice of lenses (C-mount) and matching lens protection thanks to modular tube system
- Integrated flash controller for external illumination
- Illumination actuation in same software as parameter setting
- CCD sensor with resolution of 0.3 MP / 1.2 MP / 2 MP

Additionally in XC-200:

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







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

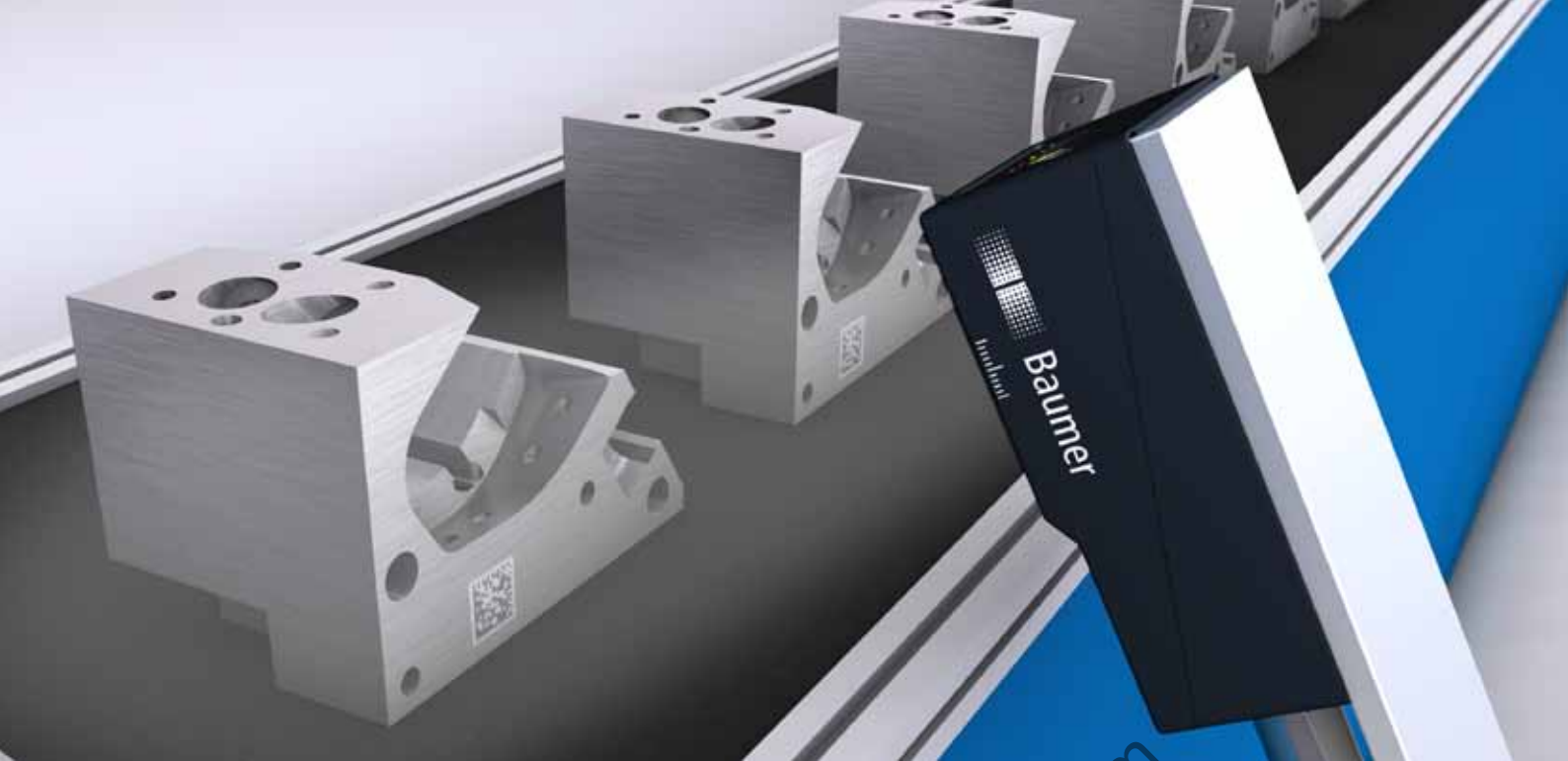
VeriSens® of the CS and ID series offer a powerful range of functions focused on the main task: The CS series is equipped with all the tools needed for checking and sorting products, while the ID series includes reliable text and code readers for identification tasks. Both series are especially suited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

### 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

Product	Item number	Type name	Lens/Illumination	Resolution [px]	Sensor type
CS series	11048500	VS CS100M03W10EP	10 mm / White, integrated	752 × 480	CMOS 1/3"
	11076261	VS CS100M03W16EP	16 mm / White, integrated	752 × 480	CMOS 1/3"
	11089900	VS CS100M03I10EP	10 mm / Infrared, integrated	752 × 480	CMOS 1/3"
	11093026	VS CS100M03I16EP	16 mm / Infrared, integrated	752 × 480	CMOS 1/3"
ID series	11048489	VS ID100M03W10RP	10 mm / White, integrated	752 × 480	CMOS 1/3"
	11076263	VS ID100M03W16RP	16 mm / White, integrated	752 × 480	CMOS 1/3"
	11048484	VS ID110M03W10EP	10 mm / White, integrated	752 × 480	CMOS 1/3"
	11089896	VS ID110M03I10EP	10 mm / Infrared, integrated	752 × 480	CMOS 1/3"



## 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




















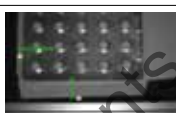








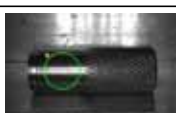
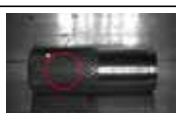

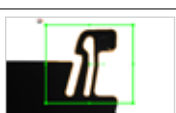



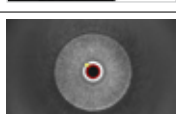

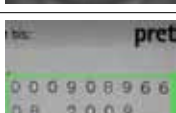
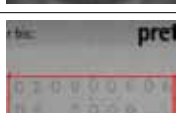
- Reading 1D and 2D codes (incl. GS1 codes)
- Code quality rating according to ISO / IEC 15415 / 15416 and AIM DPM-1-2006
- RS485 interface for optional use





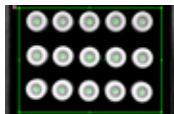
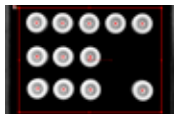



**ID-110 – Text and Code Reader:**

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

# VeriSens® feature checks & features

Part location			XC-100	XC-200	XF-100	XF-200	CS-100	ID-110	ID-100
	<b>Part location on contours</b> 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°		
	<b>Part location on edges</b> 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</b> 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> 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-100	XF-200	CS-100	ID-110	ID-100
	<b>Distance</b> Determines the distance between two edges.			•	•	•	•	•	
	<b>Circle</b> Determines the diameter, location and roundness in comparison to a reference circle.			•	•	•	•	•	
	<b>Angle</b> Determines the angle between two edges.			•	•	•	•		
	<b>Count edges</b> Determines the number of edges along a tracing ray.			•	•	•	•		
	<b>Point position</b> Determines the coordinates of one point.			•	•	•	•		
Feature comparison			XC-100	XC-200	XF-100	XF-200	CS-100	ID-110	ID-100
	<b>Count contour points</b> Determines the number of contour points within a working area.			•	•	•	•	•	
	<b>Contour comparison</b> Compares the contour of a taught-in part with the contour of the current part.			•	•	•	•	•	•
	<b>Brightness</b> Determines the average brightness in a working area.			•	•	•	•	•	
	<b>Contrast</b> Calculates the contrast in a working area.			•	•	•	•		

Feature comparison (continuation)			XC-100	XC-200	XF-100	XF-200	CS-100	ID-110	ID-100
	<b>Area size</b> Determines the area of bright or dark regions in the image. Determines the total area or the largest continuous area.	 	•	•	•	•			
	<b>Count areas</b> Counts the continuous bright or dark regions visible in the image area.	 	•	•	•	•			
	<b>Pattern comparison</b> Compares the working area with a taught-in pattern.	 	•	•	•	•			

Identification			XC-100	XC-200	XF-100	XF-200	CS-100	ID-110	ID-100
	<b>Barcode</b> Reads barcodes. Determines quality according to ISO/IEC 15416, result is output via process interface, can be compared to a set value.	 		•		•		•	•
	<b>Matrix code</b> Reads matrix codes (ECC 200, 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.	 		•		•		•	•
	<b>Text</b> Reads numbers and characters. Characters read are output via process interface, can be compared to a set value.	 		•		•		•	

Features VeriSens®	XC-100	XC-200	XF-100	XF-200	CS-100	ID-110	ID-100
Optics: 10 mm   16 mm   C-mount	-   -   •	-   -   •	•   •   -	•   •   -	•   •   -	•   -   -	•   •   -
Illumination: White   Infrared (daylight filter integrated)   Integrated flash controller for external illumination	-   -   •	-   -   •	•   •   -	•   •   -	•   •   -	•   •   -	•   -   -
Configurable web interface (live image, job switching, retrieving defect images)	•	•	•	•	•	•	•
Save images via FTP	•	•	•	•	•	•	•
Configuration via Ethernet	•	•	•	•	•	•	•
Process linkage: Digital I/Os	5   5	5   5	5   5	5   5	5   5	5   5	5   3
Process interface: Ethernet   RS485	•   -	•   -	•   -	•   -	-   -	•   -	•   •
Baumer FEX® image processor	4.0	4.0	4.0	4.0	3.5	3.5	3.5
FEXLoc® (360° part location)	•	•	•	•	•		
User administration / Password protection	•	•	•	•		•	•
Coordinate conversion	•	•	•	•			
Flexible result conjunction	•	•	•	•			
Identification functions: Code   Text	-   -	•   •	-   -	•   •	-   -	•   •	•   -
High-speed mode	•	•	•	•			
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 (monochrome)	CCD (1/4")	CCD (1/3")	CCD (1/1.8")	CMOS (1/3")
LED illumination	Integrated flash controller for external illumination			White (LED class: Risk group 1 low risk, EN 62471:2008) Infrared (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> High-resolution mode High-speed mode (Binning 2 × 2)	Max. 50 insp./sec. Max. 100 insp./sec.	Max. 12 insp./sec. Max. 25 insp./sec.	Max. 7 insp./sec. Max. 15 insp./sec.	Max. 50 insp./sec. 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 VDC			
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> ID-100: 1-3
<b>Communication</b> Initial setup Process interface	Ethernet (10 Base-T / 100 Base-TX) TCP/IP (Ethernet) <sup>2)</sup> , RS485 <sup>3)</sup>			<sup>2)</sup> except CS-100 <sup>3)</sup> ID-100 only
Integr. flash controller	XC series			XF series   CS series   ID series
Voltage (permanent)	--- 12 VDC or --- 24 VDC			—
Voltage (pulsed)	┐ 24 VDC or ┐ 48 VDC			—
Current (permanent)	I <sub>max</sub> = 800 mA at --- 24 VDC			—
Current (pulsed)	I <sub>max</sub> = 4 A at ┐ 48 VDC			—
Flash time	Max. 1 ms (Duty Cycle max. 1:10)			—
Operating conditions	XC series			XF series   CS series   ID series
Operating temperature	+5 ... +50 °C			
Humidity	0 ... 90 % (non-condensing)			
Protection class	IP 67 (XC series: with tube)			
Vibration load	IEC 60068-2-6, IEC 60068-2-64			
Mech. shock resistance	EN 60068-2-27			
Mechanical data	XC series			XF series   CS series   ID series
Width × Height × Depth	53 mm × 99.5 mm × 49.8 mm (without lens / tube)			53 mm × 99.5 mm × 38 mm
Material	Housing: Aluminum, Cover glass tube: PMMA			Housing: Aluminum, Cover glass: PMMA <sup>4)</sup>
Weight	300 g (without lens / tube)			250 g
Code types / OCR	Model: XC-200			Models: XF-200   ID-110   ID-100
Barcode <sup>5)</sup>	2/5 Industrial, 2/5 Interleaved, Codabar, Code 39, Code 93, Code 128, PharmaCode EAN 8, EAN 13, UPC-A, UPC-E: Base code + variants Add-On 2, Add-On 5 GS1 DataBar (RSS): Limited, Expanded, Expanded Stacked GS1 DataBar (RSS-14): Base code + variants Truncated, Stacked, Stacked Omnidir 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 + - . : / ( )			

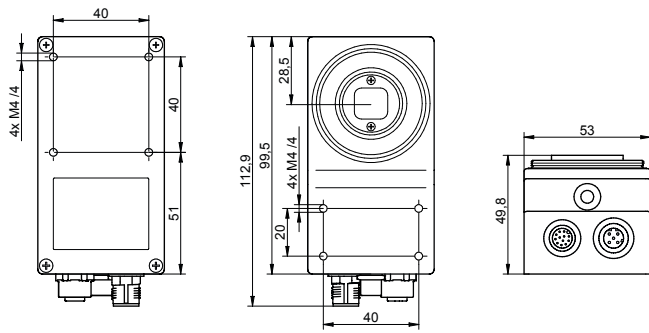
<sup>4)</sup> for XF-200, XF-100, CS-100, ID-110 with infrared illumination: daylight filter integrated

<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

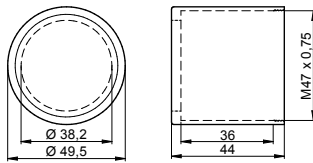
<sup>6)</sup> XF-200, XC-200, ID-110 only



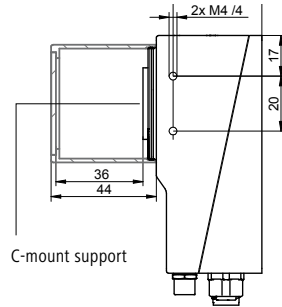
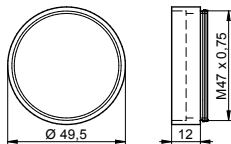
## Scale drawing (XC series)



XC Tube



XC Tube Module



Dimensions in mm

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



1: PWR (+18-30 VDC)	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>

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



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

<sup>1)</sup> on device

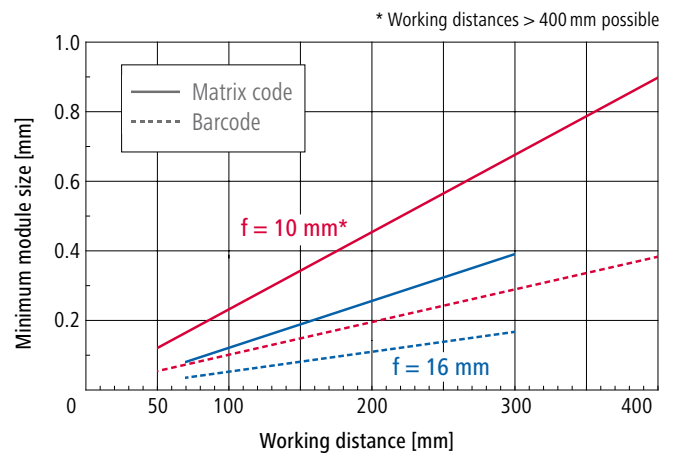
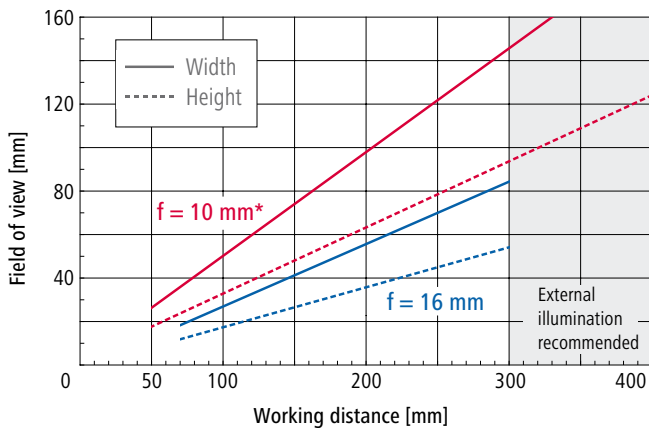
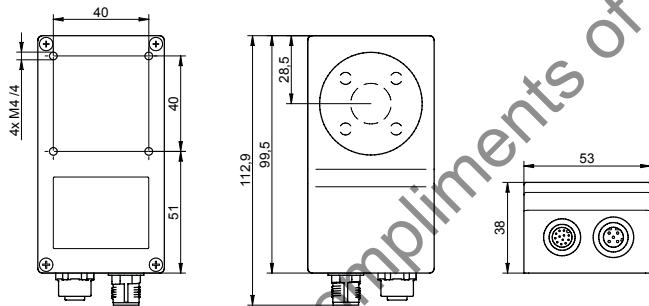
<sup>2)</sup> RS485: ID-100 only

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

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

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

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



FCC depending on model

# System design

## Lab setup accessories (optional)

11048083	Connecting cables <i>VeriSens</i> <sup>®</sup> , 2 m, ready-for-use DC socket
11079750	Power supply 24 V / 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

## Connecting cables shielded, to free cable end

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

## Changeable lenses (*VeriSens*<sup>®</sup> XC series only)

See on reverse

## Lens accessories (optional)

11088325	XC Tube, length 44 mm (included in delivery)
11089149	XC Tube Module, tube extension 12 mm
11010529	Close-up ring set 6-part, 0.5 / 1 / 5 / 10 / 20 / 40 mm
11092000	Pentax <sup>®</sup> polarization filter <sup>1)</sup> , linear, filter thread 27 mm
11006551	Pentax <sup>®</sup> color filter <sup>1)</sup> (red), filter thread 27 mm

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

## 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)

11093293  
(X-PPC-710-V1107, 10.4", 1024 × 768 px, Stylus)



## Illumination cables (*VeriSens*<sup>®</sup> XC series only)

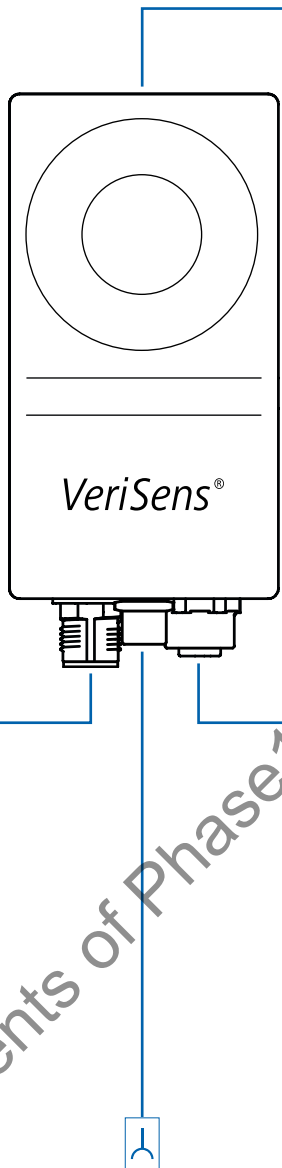
11088882	1.5 m	Extension cable shielded, male conn. straight M8, to female conn. straight M8	
11089179	0.3 m	Adapter cable, male connector straight M8, to JST SMP-03V (3-pin)	
11089178	0.3 m	Adapter cable, male connector straight M8, to JST SMP-02V (2-pin)	
10163693	2 m	Adapter cable, free cable end,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

## Illumination brackets

11092203	Set of mounting brackets, small (57 mm) for LED ring light FLDR-i90B-W to <i>VeriSens</i> <sup>®</sup> XC series	
11092204	Set of mounting brackets, large (93 mm) for LED ring light FLDR-i90B-W to <i>VeriSens</i> <sup>®</sup> XC series	
11076264	Illumination mounting kit for VB Bar Light 74 (Item No. 11081785) to <i>VeriSens</i> <sup>®</sup>	

## External illumination modules

See on reverse













Changeable lenses (C-mount)

Item No.	Type name	Focal distance	Aperture speed range	Min. distance	Max. lens length <sup>1)</sup>
11037579	Obj Pentax H416(KP) 1.2 / 4.2 mm <sup>2) 3)</sup>	4.2 mm	F1.6 - C	0.20 m	48 mm
11002840	Obj Pentax H612A(KP) 1.2 / 6 mm <sup>2) 3)</sup>	6 mm	F1.2 - C	0.20 m	46 mm
11002877	Obj Pentax C815B(KP) 1.5 / 8.5 mm <sup>3)</sup>	8.5 mm	F1.5 - C	0.20 m	40 mm
11004362	Obj Pentax H1214-M(KP) 1.4 / 12 mm <sup>2)</sup>	12 mm	F1.4 - 16	0.25 m	29 mm
10170039	Obj Pentax C1614-M(KP) 1.4 / 16 mm	16 mm	F1.4 - 16	0.25 m	34 mm
11002222	Obj Pentax C2514-M(KP) 1.4 / 25 mm	25 mm	F1.4 - 16	0.25 m	33 mm
11003417	Obj Pentax C3516-M(KP) 1.6 / 35 mm	35 mm	F1.6 - 16	0.45 m	36 mm
11012785	Obj Pentax C5028-M(KP) 2.8 / 50 mm	50 mm	F2.8 - 22	0.90 m	34 mm
11003041	Obj Pentax C7528-M(KP) 2.8 / 75 mm <sup>3)</sup>	75 mm	F2.8 - 32	0.70 m	70 mm

<sup>1)</sup> Measured from C-mount support (see XC series scale drawing)  
<sup>2)</sup> Incompatible to VeriSens® with sensor format 1/1.8" (VS XC100M20X00EP, VS XC200M20X00EP)  
<sup>3)</sup> XC Tube Module (Item No. 11089149) is required in the following quantity:  
1 piece for Item No. 11002840 / 11002877, 2 pcs for Item No. 11037579, 3 pcs for Item No. 11003041

External illumination modules

Item No.	Type name	Product description	External dimension Illuminated area	
11085869	FLDR-i90B-W	LED ring light, XCF <sup>4)</sup> , white, 30 cm cable	Ø 93.5 mm, H=24.6 mm Ø 87.5 mm	
11090900	FLDR-i90B-IR24	LED ring light, XCF <sup>4)</sup> , IR 880 nm, 30 cm cable	Ø 93.5 mm, H=24.6 mm Ø 87.5 mm	
11081785	VB Bar Light 74	LED bar light, XCP <sup>5)</sup> , white, 40 cm cable	75 × 30 mm, H=60 mm 65 × 22 mm	
11086539	FLDL-i150x15-W	LED bar light, XCF <sup>4)</sup> , white, diffuse, 100 cm cable	158 × 17.5 mm, H=20 mm 148 × 15 mm	
11086540	FFPR-i100-W	LED dark field light, XCF <sup>4)</sup> , white, diffuse, 30 cm cable	Ø 100 mm, H=40 mm Ø 94.6 mm	
11086541	FLDM-Si100-W	LED dome light, XCF <sup>4)</sup> , white, 30 cm cable	Ø 130 mm, H=623 mm Ø 80 mm	
11086535	FLDM-Si250-W	LED dome light, XCF <sup>4)</sup> , white, 30 cm cable	Ø 280 mm, H=133 mm Ø 220 mm	
11086536	FLDL-TP-Si36-W	LED back light, XCF <sup>4)</sup> , white, diffuse, 100 cm cable	47 × 47 mm, H=15 mm 36 × 36 mm	
11086538	FLDL-TP-Si85x77-W	LED back light, XCF <sup>4)</sup> , white, diffuse, 100 cm cable	95 × 95 mm, H=15 mm 85 × 77 mm	
11086537	FLDL-TP-Si200x100-W	LED back light, XCF <sup>4)</sup> , white, diffuse, 100 cm cable	214 × 112 mm, H=25 mm 200 × 100 mm	

<sup>4)</sup> XCF: XC compatible, continuous and flash mode possible  
<sup>5)</sup> XCP: XC compatible, only continuous mode possible

Modular system design VeriSens® XC series



- 1 Integrated flash controller
- 2 Direct connection for external illumination
- 3 Free choice of lenses
- 4 Modular tube system
- 5 Free choice of illuminations

# Worldwide presence.



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