

# BVS Vision Sensors

## Vision-based Identification

The Balluff BVS Vision Sensor is the perfect choice to insure a reliable, flexible and productivity increasing vision-based quality solution. The BVS offers a full tool box of advanced machine vision functions that can be combined to reliably solve error proofing, quality checking and bar code reading applications. With the BVS, recognizing defects on multiple part types early in the production process is possible using the same sensor. In-process inspection job changing eliminates sensor arrays and complex costly hardware, increasing reliability and quality while reducing overall costs.



# BVS Vision Sensors

## Vision-based identification

BVS Vision Sensors – Overview and examples	256
BVS-E Identification	264
BVS-E Standard	266
BVS-E Universal	268
BVS-E Vision Sensor Monitor	270
BAV Balluff Added-Value Kits	271

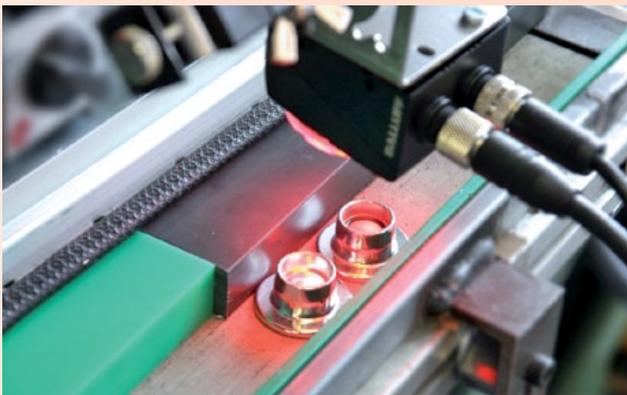


Technical information and definitions can be found on **page 354**

BVS Vision Sensors  
The best combination of vision sensing  
simplicity and functionality

# Easy to use

## As simple as a sensor



In most production situations, vision systems can be overkill – too expensive, too much functionality, and just too complex. Instead, Balluff Vision Sensors are easy to set up, simple to use, and quicker to return your initial investment.

The BVS Vision Sensor is a powerful error proofing tool that can be used in almost any area of your manufacturing process. It provides reliable part or feature presence/absence and position detection, plus dimension verification and accurate barcode reading with crisp and reliable resolution. The BVS has far more functionality than any discrete sensor, sensor array, or vision product in its class.

### Reduces Costs

- Single-unit operation replaces expensive, cumbersome multi-sensor solutions
- Four models with multiple performance levels to choose from provide multiple price points based on functionality
- Single easy to use software package minimizes setup time and cuts startup costs
- Provides vision performance at smart sensor pricing

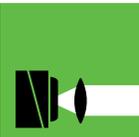
### Increases Product Quality

- Eliminates unreliable manual inspection
- Allows 100% quality checking instead of audit checking
- Provides the resolution needed for reliable quality inspection
- Enables automated barcode reading

### Increases Productivity

- Improves line speed and error proofing by eliminating the need for manual inspection
- Minimizes false code reads with very high code resolution for greater reliability
- Catches errors sooner to reduce unplanned downtime and scrap
- Reduces planned downtime with greater functionality and flexibility

**BVS Vision Sensors**  
**The best combination of vision sensing**  
**simplicity and functionality**



- BVS Vision Sensors – As simple as a sensor**
- BVS-E Identification
- BVS-E Standard
- BVS-E Advanced
- BVS-E Universal
- BVS-E Vision Sensor Monitor
- BAV Balluff Added-Value Kits

## Product overview – The models at a glance

BVS will optimize your inspection process control, regardless of which version you use in your application. Benefits include greater efficiency and process reliability.

Each of these models are available in four different focal lengths, red or infrared light source and two or more digital outputs.

The following provides an overview of the different features and special functions to help you select the right Vision Sensor for your application.

There are four different model types available:

- **BVS-E Identification – Easily and reliably read a large number of codes**
- **BVS-E Standard – Sensor of choice for simple error proofing tasks**
- **BVS-E Universal – versatile tools for demanding quality checking and part positioning**
- **BVS-E Monitor – a small and easy to use visualization accessory compatible for each BVS-E model**



**BVS-E Identification**

**BVS-E Standard**

**BVS-E Universal**

Features	BVS-E Identification	BVS-E Standard	BVS-E Universal
Tools	3	7	14
Features per inspection	up to 32	up to 32	up to 255
Connection	Single or networked by PC	Single or networked by PC	Single or networked by PC
Bus interface	Ethernet/RS232		Ethernet/RS232
Typical detection rate	up to 40 Hz	15 Hz	up to 40 Hz
Working distance	50...1000 mm		
	180...1000 mm		
Focal length	6 mm		
	8 mm		
	12 mm		
	16 mm		
Lighting	LED, red light		
	LED, infrared		
Degree of protection per IEC 60529	IP 54	IP 54	IP 54
Ambient temperature range T <sub>a</sub>	-10...+55 °C	-10...+55 °C	-10...+55 °C
Digital outputs	2 (+1 optional)	3 (+1 optional)	2 (+1 optional)

Main applications	Easily and reliably read 1D and 2D Codes or verify characters	For simple error proofing and quality checking tasks	Versatile tools for 360° error proofing, code reading, process control and part positioning
The benefits to you	<ul style="list-style-type: none"> <li>■ 1D codes: detects or reads most common barcodes</li> <li>■ 2D codes: detects or reads Data Matrix codes</li> <li>■ Verifies characters</li> <li>■ Process results via RS232 or TCP/IP</li> </ul>	<ul style="list-style-type: none"> <li>■ Short setup times and convenient format change on the PC</li> <li>■ Flexible adaptation to your process by simply activating the relevant inspections via the PLC control</li> <li>■ Simultaneous checking of multiple features</li> </ul>	<ul style="list-style-type: none"> <li>■ Precisely locate and verify your part with 360° contour based tools</li> <li>■ Position and processing results available via RS232 or TCP/IP</li> <li>■ One versatile sensor with all functions</li> </ul>

From page	264	266	268
-----------	-----	-----	-----

# BVS Vision Sensors

## Tool overview

All variants include a mix of features. Define your application needs and select the right version according to its features. The BVS offers the best solutions in its product class for every application.

		BVS-E Identification	BVS-E Standard	BVS-E Universal
	<b>Check brightness</b> <ul style="list-style-type: none"> <li>Identify different types and parts</li> <li>Check illumination brightness</li> <li>Detect the function of a display</li> </ul>		■	■
	<b>Compare contrast</b> <ul style="list-style-type: none"> <li>Monitor presence of labels</li> <li>Detect a label</li> <li>Check completeness</li> </ul>		■	■
	<b>Count edges</b> <ul style="list-style-type: none"> <li>Monitor the number of pins on ICs</li> <li>Check threads for completeness</li> <li>Monitor the quality of gear wheels</li> </ul>		■	■
	<b>Compare width</b> <ul style="list-style-type: none"> <li>Check for presence (e.g. lids)</li> <li>Differentiate parts</li> <li>Monitor location and orientation</li> </ul>		■	■
	<b>Detect pattern</b> <ul style="list-style-type: none"> <li>Check parts quality</li> <li>Differentiate types</li> </ul>	■	■	■
	<b>Check contour</b> <ul style="list-style-type: none"> <li>Check for absence of burrs and flashing</li> <li>Differential parts shapes</li> </ul>		■	
	<b>Monitor position</b> <ul style="list-style-type: none"> <li>Monitor level</li> <li>Position parts and products</li> <li>Position labels</li> </ul>		■	■
	<b>360° defect finder</b> <ul style="list-style-type: none"> <li>Quality check on parts</li> <li>Completeness check of parts</li> <li>Nominal/Actual comparison</li> </ul>			■
	<b>360° contour count</b> <ul style="list-style-type: none"> <li>Verify correct number of parts</li> <li>Presence absence of parts (e.g. screws)</li> <li>Filling control (e.g. blisters)</li> </ul>			■
	<b>360° contour match</b> <ul style="list-style-type: none"> <li>Robot control (via Ethernet interface)</li> <li>Align parts independent from background</li> </ul>			■
	<b>Compare character (OCV)</b> <ul style="list-style-type: none"> <li>Check labels</li> <li>Monitor printing (e.g. ensure correct dates for different lots)</li> <li>Check logos</li> </ul>	■		■
	<b>360° position detection</b> <ul style="list-style-type: none"> <li>Align parts</li> <li>Robot control (via Ethernet interface)</li> <li>Inspection irrespective of the position</li> </ul>			■
 	<b>Detect and identify barcode and Data Matrix code</b> <ul style="list-style-type: none"> <li>Code verification</li> <li>Documentation of parts used</li> <li>Verify characters</li> </ul>	■		■



**BVS Vision Sensors – As simple as a sensor**

BVS-E Identification  
 BVS-E Standard  
 BVS-E Advanced  
 BVS-E Universal  
 BVS-E Vision Sensor Monitor  
 BAV Balluff Added-Value Kits

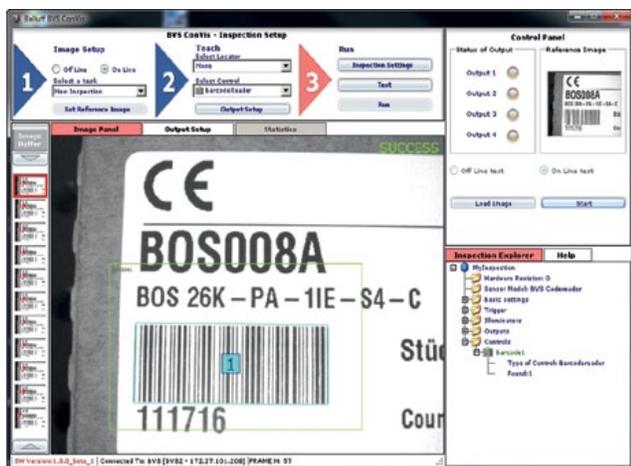
# BVS Vision Sensors

## BVS ConVis Vision Sensor software

### One software package – whichever BVS you use

The ConVis software detects the connected BVS vision sensor automatically. You can use the software to simulate all sensor models and establish whether an alternative sensor model is compatible with your application. The software guides you, step-by-step, through your sensor setup. The onscreen setup guide offers additional help for each step if you need it.

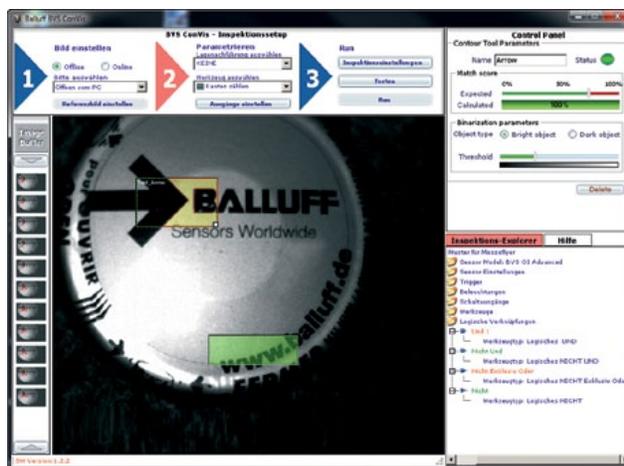
## BVS-E Identification



### BVS-E Identification

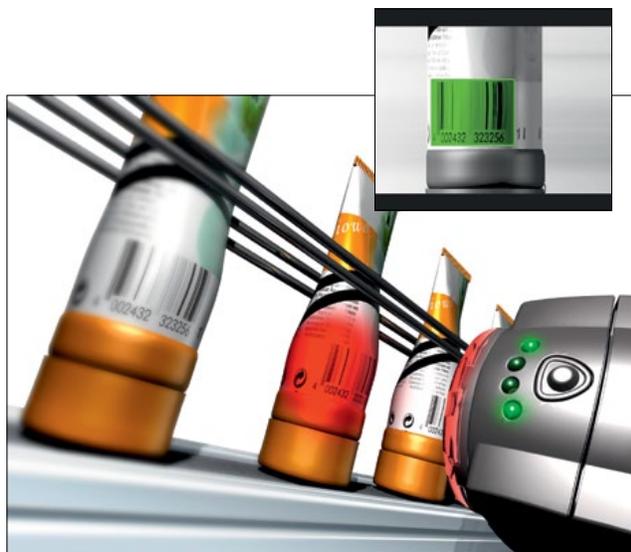
This version allows you to detect and read all standard codes available on the market. Barcodes or Data Matrix codes within the field of view are read and inspected and/or output via the serial interface, depending on the settings. The large number of codes that the sensor can recognize allows you to use devices capable of reading varying code types.

## BVS-E Standard



### BVS-E Standard

The standard version of the Vision Sensor software has the following features: 20 inspection memory slots, free rotation of tools and a zoom function. You have the choice of seven independent tools. Needless to say, free software updates are included and existing sensors can be updated easily.



### Detecting and reading barcodes

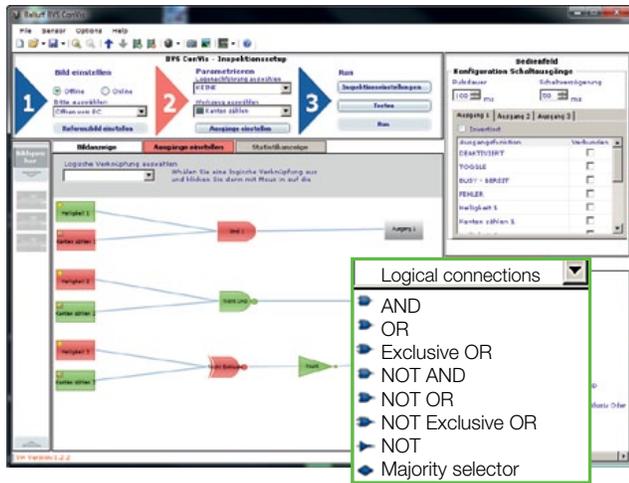
Barcodes are a way of uniquely identifying products during the manufacturing process. The BVS-E Identification incorporates two modes: 1. a taught-in barcode is inspected and an OK/NOK signal is output. 2. any code is read and output via the serial interface.



### Detecting location

In the feeder on an oscillating conveyor, screws are provided for assembly. With the BVS you prevent problems, since incorrectly located screws or different screw types are immediately detected and shunted out.

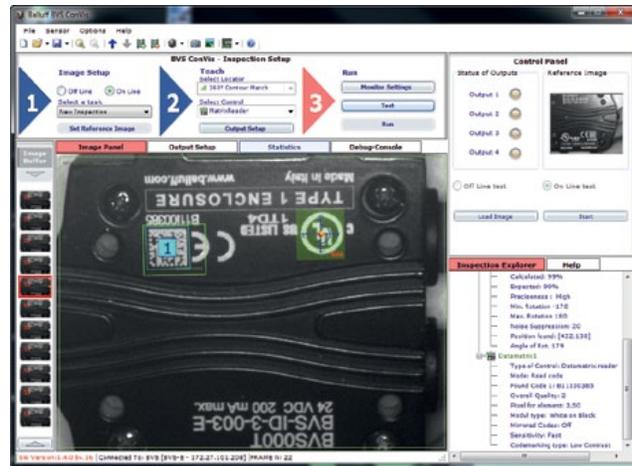
## BVS-E Universal



### BVS-E Universal

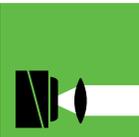
The BVS-E Universal offers all the features of the standard version in addition to 360° position detection and logical linking. These features allow the combination of a maximum of 255 tools as well as full utilization of the digital outputs.

## BVS-E Universal



### BVS-E Universal

The application range of the BVS Universal includes part presence checks, reading and verifying codes to demanding part positioning applications. The new powerful 360° contour match tools allow for the locating, verifying and counting of rotated parts in your application. The detected part location can then be transmitted to a PLC or Robot using the built in communication interface.



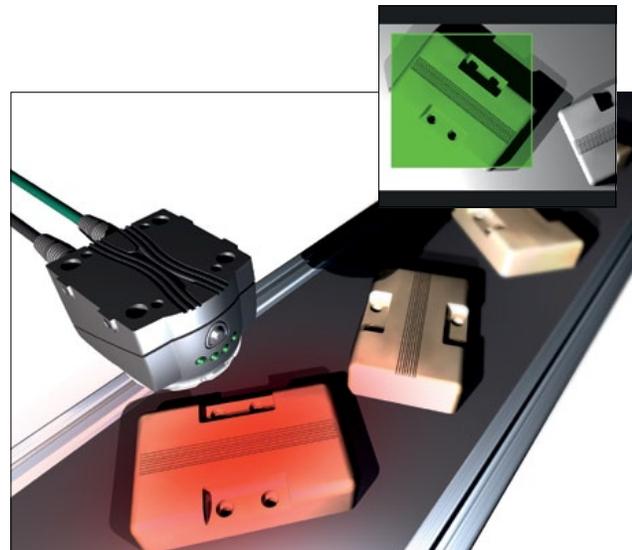
### BVS Vision Sensors – As simple as a sensor

- BVS-E Identification
- BVS-E Standard
- BVS-E Advanced
- BVS-E Universal
- BVS-E Vision Sensor Monitor
- BAV Balluff Added-Value Kits



### Checking for completeness

After manual assembly, the completeness of a product is checked. Three flexibly configurable outputs allow you for example to monitor the completeness of each series or special features.



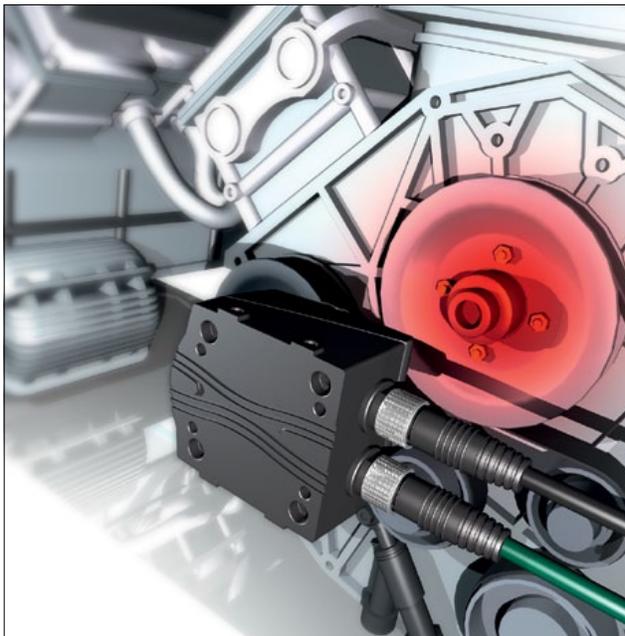
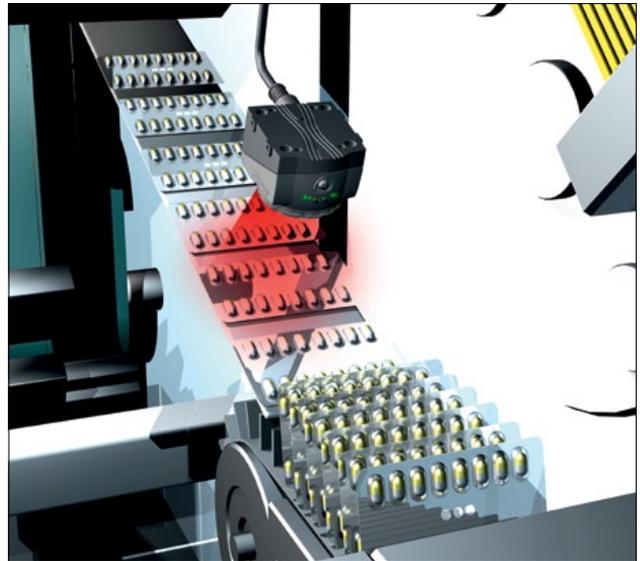
### Check contour

Injection molded parts need to be checked at the inspection station: Defective parts or parts with flashing are shunted out for special rework.



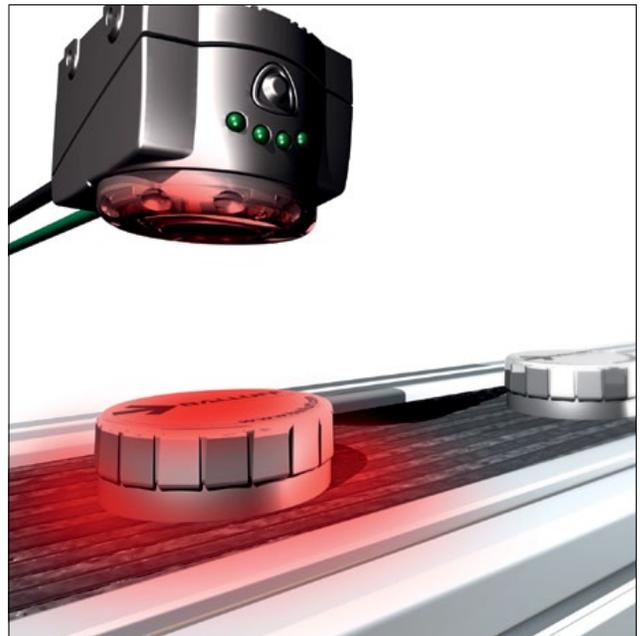
### Checking blister filling

Tablet blisters are inspected after the automated filling process as a form of quality assurance measure. Check whether each nest is filled and the correct preparation is inserted. Reconfigurations, even in-process, are always possible. So you always remain flexible. Monitor your production using the BVS with absolute reliability.



### Checking for presence

V-belt pulleys are attached using four nuts. The Vision Sensor checks the presence of all nuts at any one time, simultaneously and independently of the alignment position.



### Check labeling and correct positioning

Quality assurance requires that cans are checked for correct printing in any position. The 360 degree Contour match locates the can and also checks the print. It can be combined with other tool the BVS offers, so some could check if barcodes are readable or if the labels are correct. The position of the label can be found and sent via RS232 or Ethernet to a PLC or robot.



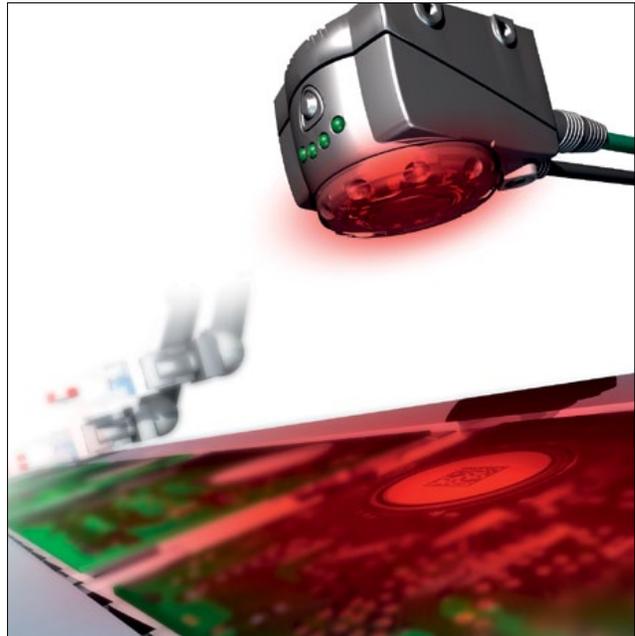
### Checking bottle caps

To seal bottles perfectly, the cap needs to be seated correctly. Leave the inspection to our Vision Sensor. It checks positions absolutely reliably and reduces scrap while simultaneously increasing productivity. When formats are changed, reconfigurations are even possible in-process.



### Detecting and reading Data Matrix codes

Data Matrix codes are used in industrial environments. This BVS tool also incorporates two modes: 1. a taught-in Data Matrix code is inspected and an OK/NOK signal is output. 2. any code is read and output via the serial interface so that you always know what is happening during the production process.



### Verify position

Each package requires a label. But sometimes the label is located in the wrong place. With the BVS Vision Sensor you check exactly whether the label is present and whether it is properly applied.



### BVS Vision Sensors – As simple as a sensor

- BVS-E Identification
- BVS-E Standard
- BVS-E Advanced
- BVS-E Universal
- BVS-E Vision Sensor Monitor
- BAV Balluff Added-Value Kits

Check the marking on your products. Regardless of whether you label them with 1D codes (barcodes) or 2D codes (Data Matrix codes), the BVS reads all common codes on the market. Text and sequences of numbers such as code plain text can be verified using OCV. The result: "Inspection OK" or "Inspection not OK".

If you need to view the read code data to find out which parts are being processed, you can output it via the RS232 or Ethernet interface.

- Simple operation
- Read several codes in an inspection simultaneously
- Output code data via RS232 or Ethernet interface
- Verify character strings
- Change between inspections via PLC
- Codes read in any position
- Extensive range of accessories
- Function module for PLC available



Series		
Style		
Lens, focal length		
Red light	PNP	<b>Ordering code</b>
		Part number
Infrared light	PNP	<b>Ordering code</b>
		Part number
Supply voltage $U_B$		
Switching inputs		
Switching outputs		
Interface		
Rated operating current $I_o$		
Configuration interface		
Parameter configuration		
Typ. detection rate		
Image sensor		
Working range		
Working distance, Field of view (horizontal×vertical)		
Lighting		
Eye safety per IEC 62471		
Dimensions		
Connection		
Degree of protection per IEC 60529		
Ambient temperature range $T_a$		



### Readable barcodes

- Interleaved 2-of-5
- Code 39
- Code 128
- Pharmacode
- Codabar
- EAN 8
- EAN 13
- UPC-E
- UPC-A
- PDF 417



### Readable Data Matrix codes

- ECC 200  
(suitable for high and low contrast, for directly marked and mirrored codes)

Refer to the Technical section for optical and electrical information. To define the field of view and working distance, use the distance calculator at: [www.balluff.us/vision](http://www.balluff.us/vision)

Refer to the Accessories section for a wide variety of external illuminators and mounting brackets. Refer to the Connectivity section for a selection of compatible connectors.



# BVS Vision Sensors

## Detecting and identifying varied codes



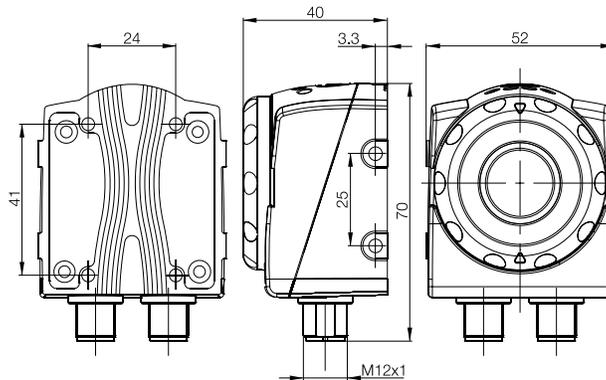
Vision sensor	Vision sensor	Vision sensor
<b>BVS-E Identification</b>	<b>BVS-E Identification</b>	<b>BVS-E Identification</b>
Wide-angle lens, 6 mm	Standard lens, 8 mm	Telephoto lens, 12 mm
<b>BVS001R</b>	<b>BVS0001</b>	<b>BVS000T</b>
BVS ID-3-005-E	BVS ID-3-001-E	BVS ID-3-003-E
<b>BVS001C</b>	<b>BVS0019</b>	<b>BVS001A</b>
BVS ID-3-105-E	BVS ID-3-101-E	BVS ID-3-103-E
24 V DC $\pm 10\%$	24 V DC $\pm 10\%$	24 V DC $\pm 10\%$
1x Trigger	1x Trigger	1x Trigger
1x lighting synchron., 2x PNP	1x lighting synchron., 2x PNP	1x lighting synchron., 2x PNP
RS232, Ethernet TCP/IP	RS232, Ethernet TCP/IP	RS232, Ethernet TCP/IP
100 mA	100 mA	100 mA
Ethernet 10/100 Base T	Ethernet 10/100 Base T	Ethernet 10/100 Base T
ConVis for Windows	ConVis for Windows	ConVis for Windows
3...40 Hz (depending on evaluation function)	3...40 Hz (depending on evaluation function)	3...40 Hz (depending on evaluation function)
CMOS-SW-VGA 640x480	CMOS-SW-VGA 640x480	CMOS-SW-VGA 640x480
50...1000 mm	50...1000 mm	50...1000 mm
50 mm, 1000 mm, 34x25 mm 676x507 mm	50 mm, 1000 mm, 24x18 mm 480x360 mm	50 mm, 1000 mm, 16x12 mm 320x240 mm
LED, incident light, deselectable	LED, incident light, deselectable	LED, incident light, deselectable
Exempt group	Exempt group	Exempt group
58x52x40 mm	58x52x40 mm	58x52x40 mm
2x M12 connector, 8- and 4-pin	2x M12 connector, 8- and 4-pin	2x M12 connector, 8- and 4-pin
IP 54	IP 54	IP 54
-10...+55 °C	-10...+55 °C	-10...+55 °C



BVS Vision Sensors – As simple as a sensor

### BVS-E Identification

- BVS-E Standard
- BVS-E Advanced
- BVS-E Universal
- BVS-E Vision Sensor Monitor
- BAV Balluff Added-Value Kits



50 mm      150 mm      500 mm      1000 mm

Working distance,	<b>6 mm</b> Wide-angle lens	34x25 mm	101x76 mm	338x253 mm	676x507 mm
Field of view	<b>8 mm</b> Standard lens	24x18 mm	72x54 mm	240x180 mm	480x360 mm
(horizontalxvertical)	<b>12 mm</b> Telephoto lens	16x12 mm	48x36 mm	160x120 mm	320x240 mm

\* Working range 180 to 1000 mm

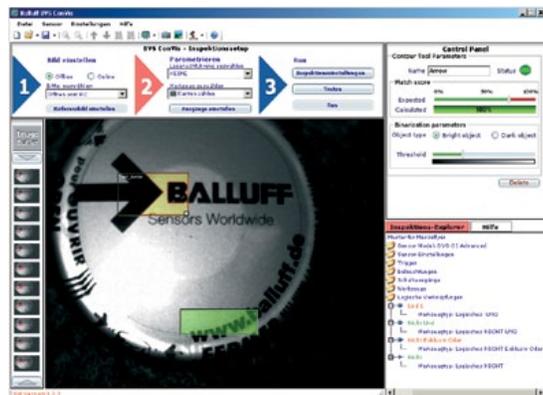
# BVS Vision Sensors

## For increased quality and productivity

# Standard Measurement

Inspect and monitor your production process with the BVS-E Standard. Choose the correct tool for your application from a large selection and set up your inspection. You can replace several sensors with a combination of tools. If different components are used, activate the relevant inspection via the PLC control to allow production to continue seamlessly without requiring a teach-in/setup process.

- Simple operation
- Convenient setup
- Reliable evaluation
- Extensive range of accessories
- Function module for PLC available



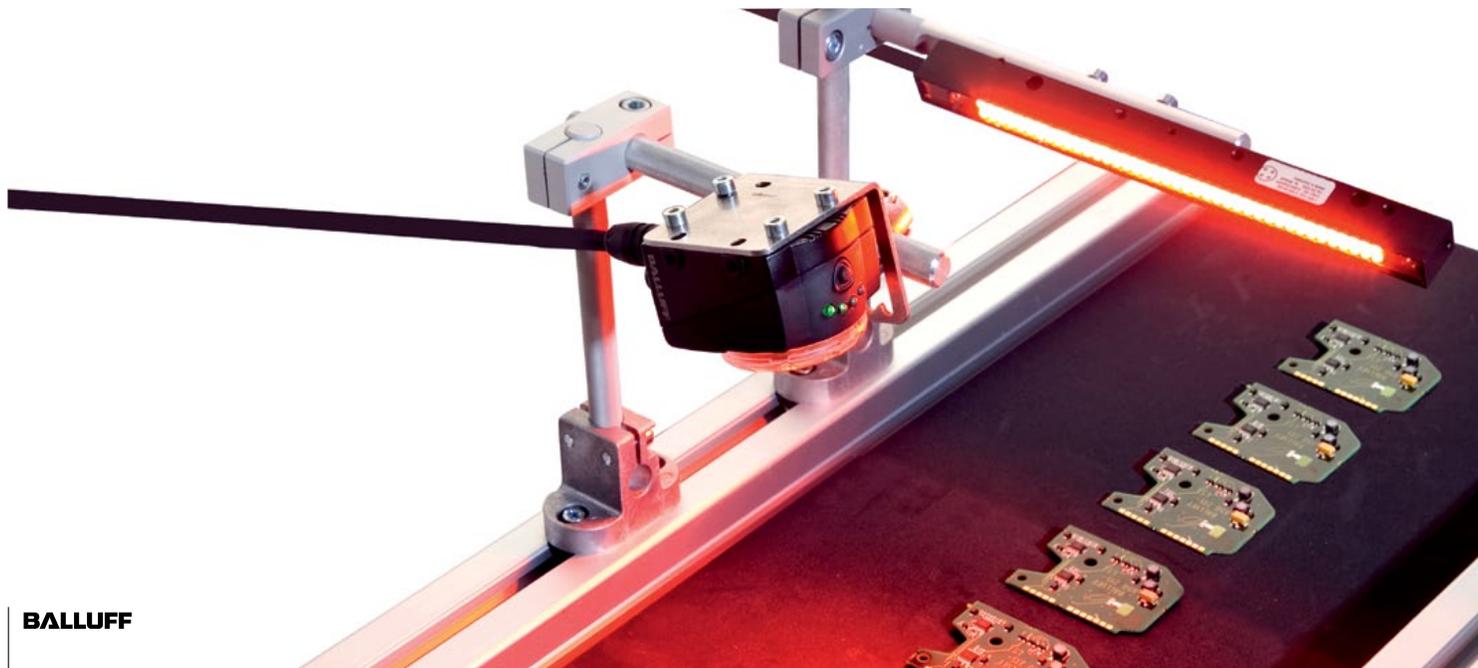
### Software

- 20 inspection memory cells
- Free rotation of tools
- Zoom function
- Existing sensors updated at no extra cost
- Seven independent tools

Series			
Style			
Lens, focal length			
Red light	PNP	<b>Ordering code</b>	
		Part number	
	NPN	<b>Ordering code</b>	
		Part number	
Infrared light	PNP	<b>Ordering code</b>	
		Part number	
Supply voltage $U_B$			
Switching inputs			
Switching outputs			
Rated operating current $I_B$			
Configuration interface			
Parameter configuration			
Typ. detection rate			
Image sensor			
Working range			
Working distance,			
Field of view (horizontal×vertical)			
Lighting			
Eye safety per IEC 62471			
Connection			
Degree of protection per IEC 60529			
Ambient temperature range $T_a$			

Refer to the Technical section for optical and electrical information. To define the field of view and working distance, use the distance calculator at: [www.balluff.us/vision](http://www.balluff.us/vision)

Refer to the Accessories section for a wide variety of external illuminators and mounting brackets. Refer to the Connectivity section for a selection of compatible connectors.

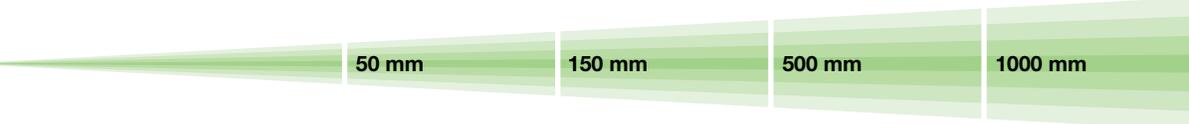
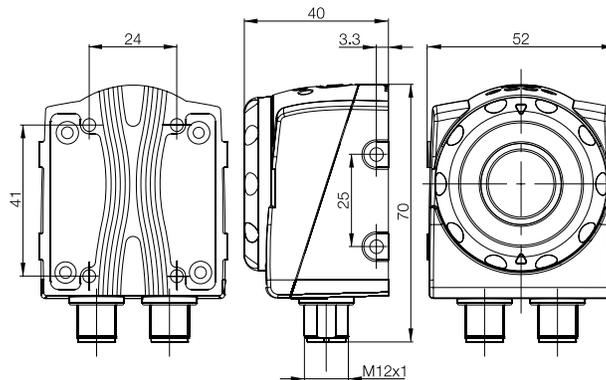


# BVS Vision Sensors

## For increased quality and productivity



Vision sensor		Vision sensor		Vision sensor	
<b>BVS-E Standard</b>		<b>BVS-E Standard</b>		<b>BVS-E Standard</b>	
Wide-angle lens, 6 mm		Standard lens, 8 mm		Telephoto lens, 12 mm	
<b>BVS000E</b>		<b>BVS0003</b>		<b>BVS0005</b>	
BVS OI-3-005-E		BVS OI-3-001-E		BVS OI-3-003-E	
<b>BVS000C</b>		<b>BVS0004</b>		<b>BVS0006</b>	
BVS OI-3-006-E		BVS OI-3-002-E		BVS OI-3-004-E	
<b>BVS0013</b>		<b>BVS0014</b>		<b>BVS0012</b>	
BVS OI-3-105-E		BVS OI-3-101-E		BVS OI-3-103-E	
24 V DC ±10 %		24 V DC ±10 %		24 V DC ±10 %	
1× Trigger, 1× Select		1× Trigger, 1× Select		1× Trigger, 1× Select	
1× lighting synchron. or 1× PNP, 3× PNP or NPN configurable		1× lighting synchron. or 1× PNP, 3× PNP or NPN configurable		1× lighting synchron. or 1× PNP, 3× PNP or NPN configurable	
100 mA		100 mA		100 mA	
Ethernet 10/100 Base T		Ethernet 10/100 Base T		Ethernet 10/100 Base T	
ConVis for Windows		ConVis for Windows		ConVis for Windows	
3...15 Hz (depending on evaluation function)		3...15 Hz (depending on evaluation function)		3...15 Hz (depending on evaluation function)	
CMOS-SW-VGA 640×480		CMOS-SW-VGA 640×480		CMOS-SW-VGA 640×480	
50...1000 mm		50...1000 mm		50...1000 mm	
50 mm, 1000 mm, 34×25 mm 676×507 mm		50 mm, 1000 mm, 24×18 mm 480×360 mm		50 mm, 1000 mm, 16×12 mm 320×240 mm	
LED, incident light, deselectable		LED, incident light, deselectable		LED, incident light, deselectable	
Exempt group		Exempt group		Exempt group	
2× M12 connector, 8- and 4-pin		2× M12 connector, 8- and 4-pin		2× M12 connector, 8- and 4-pin	
IP 54		IP 54		IP 54	
-10...+55 °C		-10...+55 °C		-10...+55 °C	



		50 mm	150 mm	500 mm	1000 mm
Working distance,	<b>6 mm</b> Wide-angle lens	34×25 mm	101×76 mm	338×253 mm	676×507 mm
Field of view	<b>8 mm</b> Standard lens	24×18 mm	72×54 mm	240×180 mm	480×360 mm
(horizontal×vertical)	<b>12 mm</b> Telephoto lens	16×12 mm	48×36 mm	160×120 mm	320×240 mm

\* Working range 180 to 1000 mm



BVS Vision Sensors – As simple as a sensor  
 BVS-E Identification  
**BVS-E Standard**  
 BVS-E Advanced  
 BVS-E Universal  
 BVS-E Vision Sensor Monitor  
 BAV Balluff Added-Value Kits

# BVS Vision Sensors

## The highest versatility

In addition to the standard functions of the BVS-E, the universal vision sensor also monitors the rotational position. It can detect objects regardless of the location and position. Production can be monitored more efficiently through shorter process times and the option of using logical functions to combine individual checks.

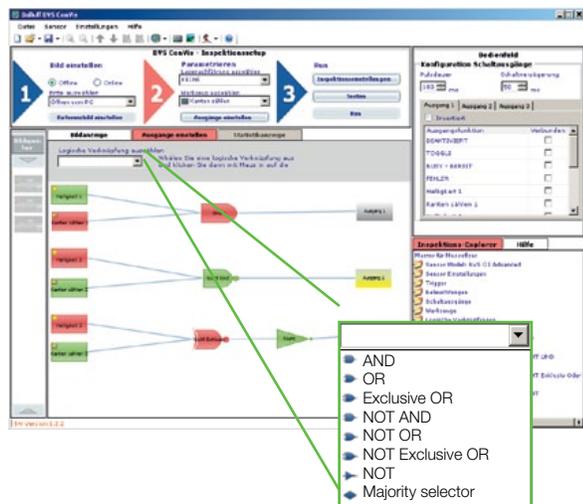
- The most versatile functionality – lowers user stock requirements.
- Contour based analysis – precisely locate and verify your part
- Ethernet TCP/IP, RS232 interface – part position and checking results for more process information
- Fast code location and verification – reliably identify your parts at higher part rates.

The application range of the BVS Universal includes part presence checks, reading and verifying codes to demanding part positioning applications.

The new powerful 360° contour match tools allow for the locating, verifying and counting of rotated parts in your application. The detected part location can then be transmitted to a PLC or Robot using the built in communication interface.

Up to 40 linear and Data Matrix codes per second can be reliably located and verified, providing outstanding performance for this class of vision sensor.

### Logical connections



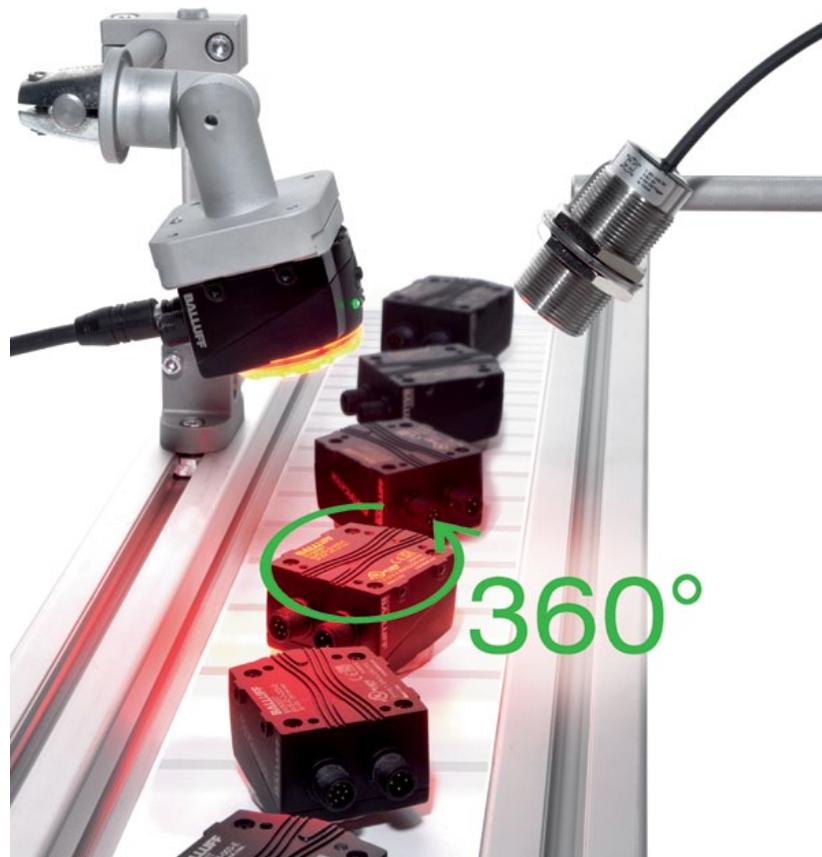
Refer to the Technical section for optical and electrical information. To define the field of view and working distance, use the distance calculator at: [www.balluff.us/vision](http://www.balluff.us/vision)

Refer to the Accessories section for a wide variety of external illuminators and mounting brackets. Refer to the Connectivity section for a selection of compatible connectors.

# Universal Barcode and Measurement



Series		
Style		
Lens, focal length		
Red light	PNP	<b>Ordering code</b> Part number
Infrared light	PNP	<b>Ordering code</b> Part number
Supply voltage $U_B$		
Switching inputs		
Switching outputs		
Interface		
Rated operating current $I_o$		
Configuration interface		
Parameter configuration		
Typ. detection rate		
Image sensor		
Working range		
Working distance,		
Field of view (horizontal×vertical)		
Lighting		
Eye safety per IEC 62471		
Connection		
Degree of protection per IEC 60529		
Ambient temperature range $T_a$		

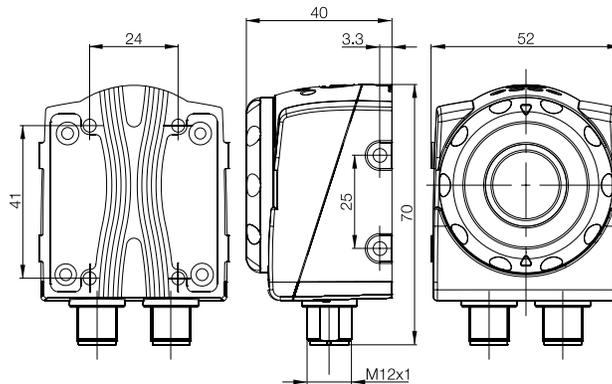


# BVS Vision Sensors

## The highest versatility



Vision sensor <b>BVS-E Universal</b> Wide-angle lens, 6 mm <b>BVS001L</b> BVS UR-3-005-E <b>BVS001F</b> BVS UR-3-105-E 24 V DC $\pm 10\%$ 1x Trigger 1x lighting synchron. or 1x PNP, 2x PNP RS232, Ethernet TCP/IP 100 mA Ethernet 10/100 Base T ConVis for Windows 3...40 Hz (depending on evaluation function) CMOS-SW-VGA 640x480 50...1000 mm 50 mm, 1000 mm, 34x25 mm 676x507 mm LED, incident light, deselectable Exempt group 2x M12 connector, 8- and 4-pin IP 54 -10...+55 °C	Vision sensor <b>BVS-E Universal</b> Standard lens, 8 mm <b>BVS001M</b> BVS UR-3-001-E <b>BVS001H</b> BVS UR-3-101-E 24 V DC $\pm 10\%$ 1x Trigger 1x lighting synchron. or 1x PNP, 2x PNP RS232, Ethernet TCP/IP 100 mA Ethernet 10/100 Base T ConVis for Windows 3...40 Hz (depending on evaluation function) CMOS-SW-VGA 640x480 50...1000 mm 50 mm, 1000 mm, 24x18 mm 480x360 mm LED, incident light, deselectable Exempt group 2x M12 connector, 8- and 4-pin IP 54 -10...+55 °C	Vision sensor <b>BVS-E Universal</b> Telephoto lens, 12 mm <b>BVS001N</b> BVS UR-3-003-E <b>BVS001J</b> BVS UR-3-103-E 24 V DC $\pm 10\%$ 1x Trigger 1x lighting synchron. or 1x PNP, 2x PNP RS232, Ethernet TCP/IP 100 mA Ethernet 10/100 Base T ConVis for Windows 3...40 Hz (depending on evaluation function) CMOS-SW-VGA 640x480 50...1000 mm 50 mm, 1000 mm, 16x12 mm 320x240 mm LED, incident light, deselectable Exempt group 2x M12 connector, 8- and 4-pin IP 54 -10...+55 °C
---	---	---



50 mm

150 mm

500 mm

1000 mm

Working distance,	<b>6 mm</b> Wide-angle lens	34x25 mm	101x76 mm	338x253 mm	676x507 mm
Field of view	<b>8 mm</b> Standard lens	24x18 mm	72x54 mm	240x180 mm	480x360 mm
(horizontalxvertical)	<b>12 mm</b> Telephoto lens	16x12 mm	48x36 mm	160x120 mm	320x240 mm

\* Working range 180 to 1000 mm



# BVS Vision Sensors

## See what the sensor sees

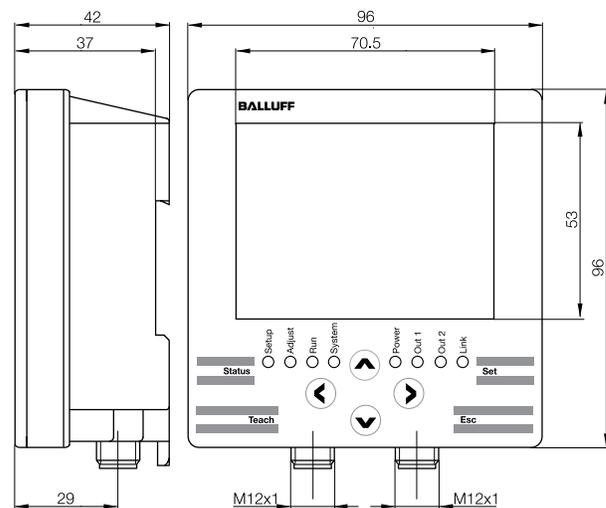
- Simple, self-explanatory operation
- Can be retrofitted on all existing sensors
- Clearly arranged presentation of process statistics and sensor results
- Access for operators, setters and administrators can be controlled by passwords
- Memory for 20 inspections
- Connection to sensor via direct link or network (TCP/IP)

Do you want to see what the sensor sees? You wish to increase your inspection quality with the use of statistical values? And to simply adapt your inspection to changes in components? We have a simple solution: the Vision Sensor Monitor.

It visualizes the sensor images and inspection results and displays the process statistics in a simple overview graphic. The detection of unwanted deviations thus becomes really simple. If an inspection feature changes, such as a sell-by date, authorized users can then adapt the inspection criteria even without a PC. Lengthy setting work is therefore no longer necessary. The monitor allows simple switching between two inspections. The easy-to-use, intuitive user interface of the monitor can be controlled by operating buttons and is available in multiple languages.



Model	Vision Sensor Monitor	
Type	BVS-E	
PNP	<b>Ordering code</b>	<b>BAE00EH</b>
	Part number	BAE PD-VS-002-E
Supply voltage $U_B$	24 V DC $\pm 10\%$	
Dimensions	96x96x42.4 mm	
Connection	2x M12 connector, 4-pin	
Degree of protection per IEC 60529	IP 40	
Ambient temperature $T_a$	-10...+55 mm	
Display	3.5" color LCD	



# BVS Vision Sensors

## Sensors and accessories – neatly packed

Ever experienced this?  
 You ordered the Vision Sensor BVS with connecting cable.  
 During initial operation, however, you determine that the parameterization cables and mounting brackets are still missing.

This is why we have integrated the Vision Sensor BVS with accessories for you in a package. You only have to order one item and you have everything you need to operate the sensor.  
 An Added-Value Kit contains a Vision Sensor in a design of your choice, including software CD and operating instructions, mounting bracket and installation accessories, supply and parameterization cables, which means you only have to connect a 24-V power supply unit. If you do not happen to have a power supply unit, needless to say we can also supply you with one.



Description		Added-Value Kit with Vision Sensor BVS	
		Contains red light sensor	Contains infrared light sensor
<b>Identification series</b>	6-mm lens	<b>Ordering code</b>	<b>SET0128</b>
		Part number	BAV BP-PH-00076-01
	8-mm lens	<b>Ordering code</b>	<b>SET012J</b>
		Part number	BAV BP-PH-00017-01
	12-mm lens	<b>Ordering code</b>	<b>SET0129</b>
		Part number	BAV BP-PH-00077-01
<b>Standard series</b>	6-mm lens	<b>Ordering code</b>	<b>SET012K</b>
		Part number	BAV BP-PH-00018-01
	8-mm lens	<b>Ordering code</b>	<b>SET012A</b>
		Part number	BAV BP-PH-00078-01
<b>Standard series</b>	6-mm lens	<b>Ordering code</b>	<b>SET012P</b>
		Part number	BAV BP-PH-00022-01
	8-mm lens	<b>Ordering code</b>	<b>SET012I</b>
		Part number	BAV BP-PH-00020-01
<b>Standard series</b>	12-mm lens	<b>Ordering code</b>	<b>SET012M</b>
		Part number	BAV BP-PH-00069-01
	6-mm lens	<b>Ordering code</b>	<b>SET012N</b>
		Part number	BAV BP-PH-00021-01
<b>Universal series</b>	8-mm lens	<b>Ordering code</b>	<b>SET0123</b>
		Part number	BAV BP-PH-00070-01
	6-mm lens	<b>Ordering code</b>	<b>SET014U</b>
		Part number	BAV BP-PH-00092-03
<b>Universal series</b>	8-mm lens	<b>Ordering code</b>	<b>SET014R</b>
		Part number	BAV BP-PH-00092-01
	12-mm lens	<b>Ordering code</b>	<b>SET014Y</b>
		Part number	BAV BP-PH-00092-05
<b>Universal series</b>	12-mm lens	<b>Ordering code</b>	<b>SET014Z</b>
		Part number	BAV BP-PH-00092-06
<b>Contents</b>		Vision sensor, mounting bracket, installation accessories, connector, software CD and operating instructions	



BVS Vision Sensors – As simple as a sensor  
 BVS-E Identification  
 BVS-E Standard  
 BVS-E Advanced  
 BVS-E Universal  
**BVS-E Vision Sensor Monitor**  
**BAV Balluff Added-Value Kits**