MACHINE VISION
AND OPTICAL IDENTIFICATION

Архангельск (8182)63-90-72
Астана (7172)727-132
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06

Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16

Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13

Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Киргизия (996)312-96-26-47   **Р**оссия (495)268-04-70   **К**азахстан (772)734-952-31

balluff.nt-rt.ru || bfd@nt-rt.ru

**Quality assurance with
industrial grade image processing**

MACHINE VISION

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Inter-faces

Safety

Industrial Networking

Software and System Solutions

Power Supply

Connectivity

Accessories

Machine Vision from Balluff ensures quality and flexibility in modern production facilities. Through the use of industrial image processing our machine vision products provide reliable defect detection and, thereby, ensure exact quality control. All functions of the sensors can be flexibly combined.

Features

- High cost-effectiveness and potential for cost reduction
- Less scrap thanks to early defect detection
- High system uptime when changing batches

BAI BVS – Balluff Vision Solutions

BVS-COCKPIT NO EXPERTISE REQUIRED

The BVS Cockpit user interface makes it easy to access all functions. You can intuitively set up our cameras with no prior knowledge. In short: our camera concept is designed for everyone.
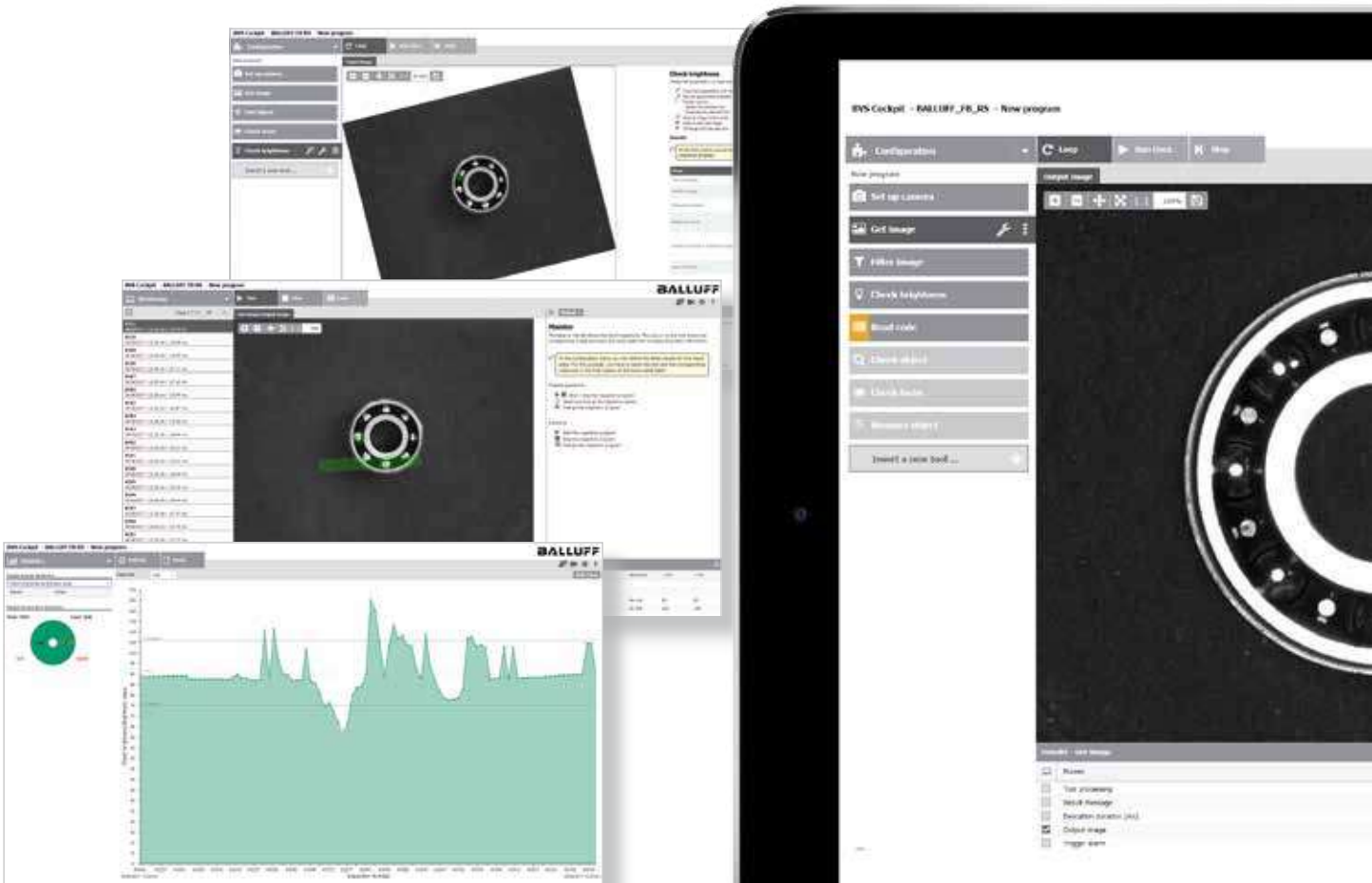
Configuration

Individual tools are combined into an inspection program. A program includes the camera setting, image processing tools and definition of the results data.
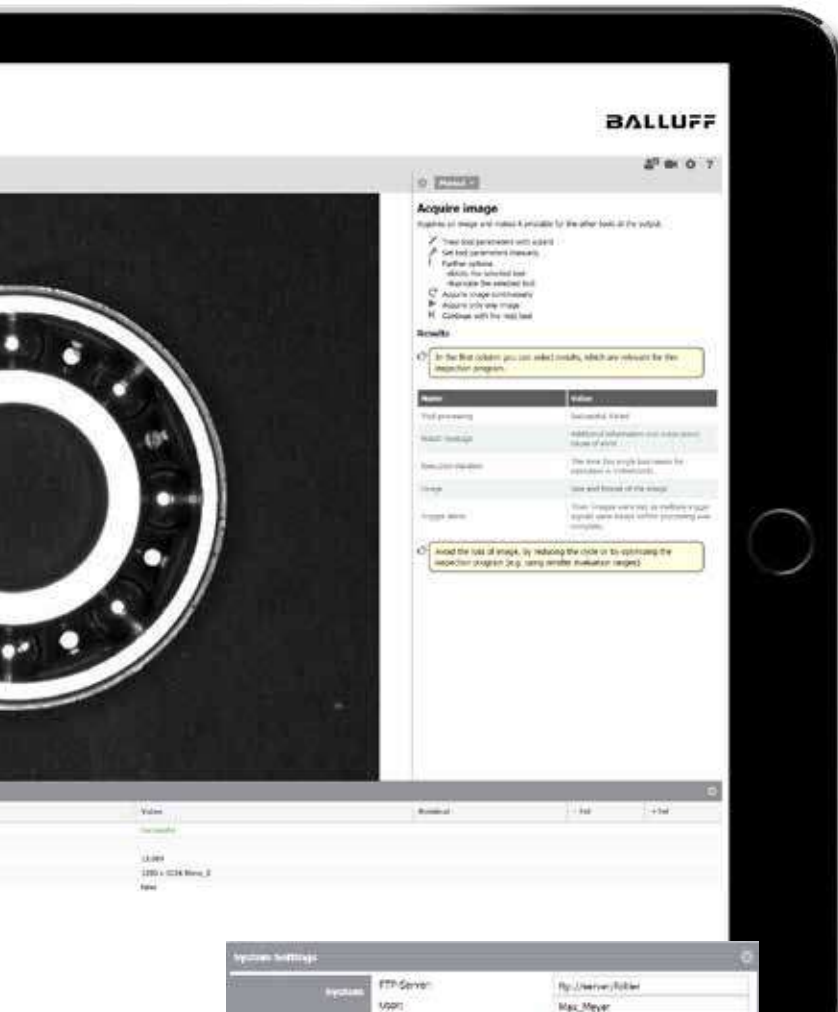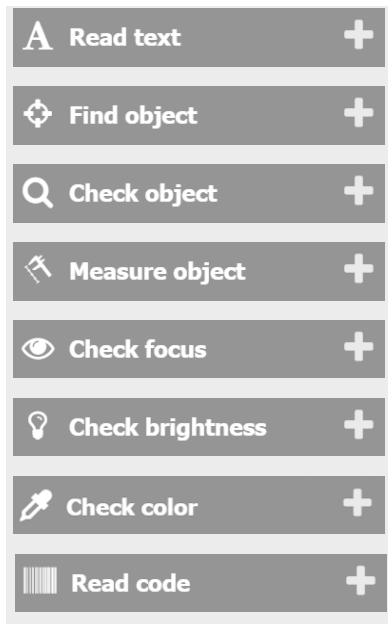
Monitor

The monitor shows you the current inspection program. The SmartCamera can store up to 100 inspection programs which you can select individually either directly or through the controller.

Statistics

While the camera is performing an inspection you can access the statistics, view the entire production quality and analyze the results parameters statistically and in timely fashion. Just a click lets you switch from a graph point to the associated inspection display in Monitor mode.

Image processing tools

Simple to use, flexible and reliable. The SmartCamera offers intuitive operation and simple to use tools which are based on industry-standard HALCON basic algorithms – all of which ensures you of fast and reliable solutions.

- **A** Read text +
- ✛ Find object +
- Q Check object +
- ⚒ Measure object +
- 👁 Check focus +
- ♀ Check brightness +
- ✎ Check color +
- ▥ Read code +

Interface tools

Results can be passed dynamically to the appropriate interface for the particular industrial system.

- ← Get Inputs +
- ➡ Receive data +
- → Set Outputs +
- ➡ Send results +
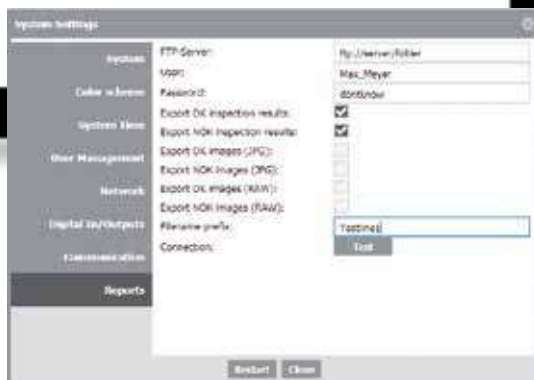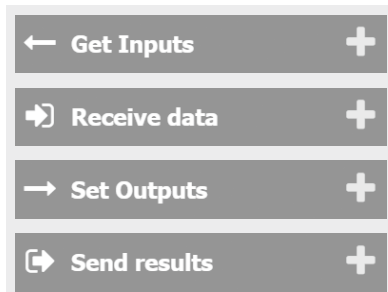
Store test reports

You can automatically create a results report in XML-format after each inspection and save the associated images to an FTP server. The storage condition can be defined with filter settings (ok/nok).
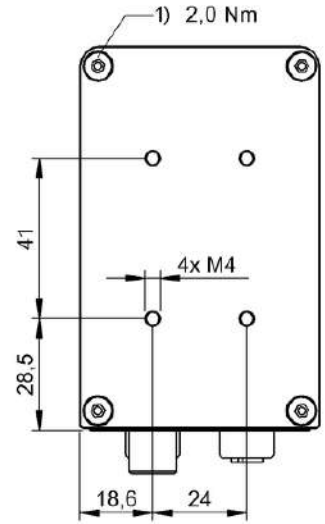
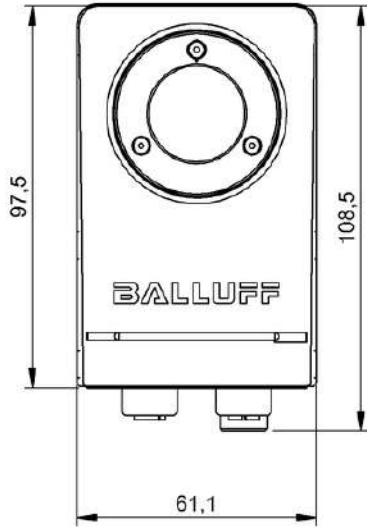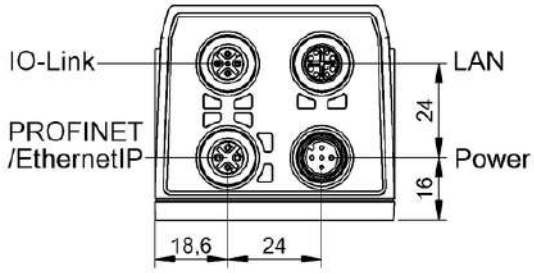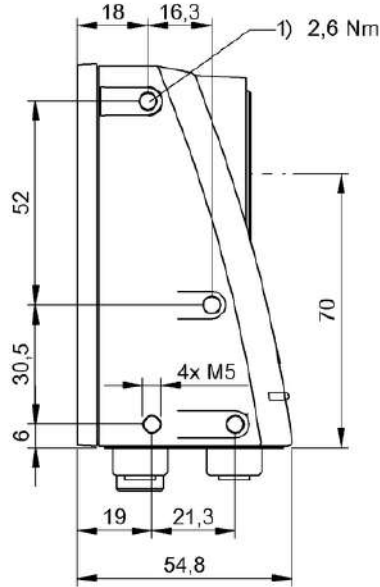**Definition of inputs and outputs**

Up to eight digital channels are assigned to electrical connector pins by type, function and time behavior.

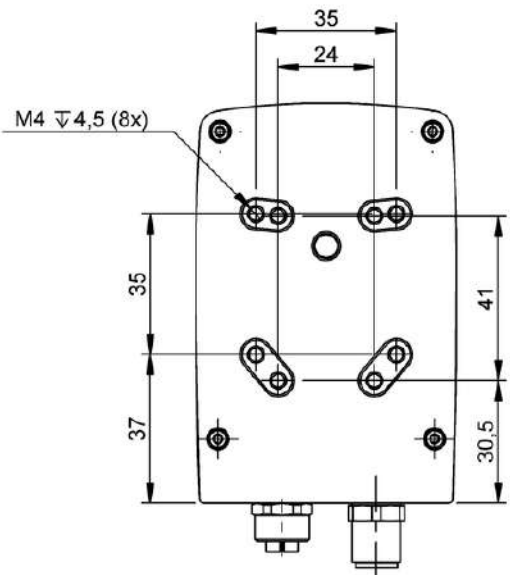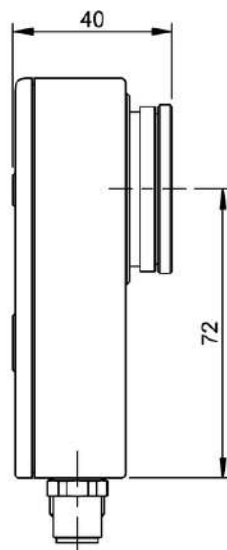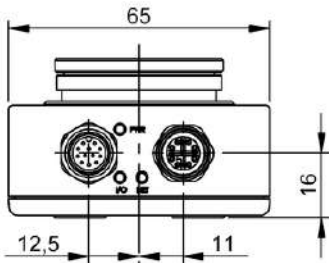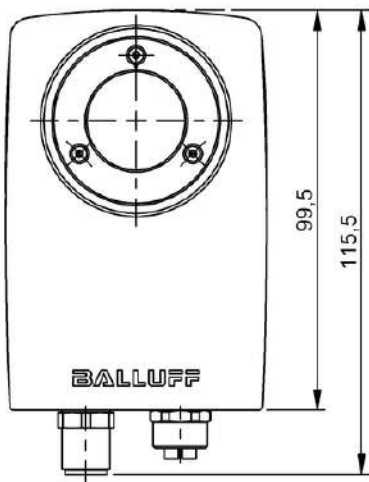|	BVS003P BVS SL-C1280Z00-07-000	BVS003R BVS SL-C1280Z00-07-001	BVS003T BVS SL-M1280Z00-07-000	
Application	Object tracking, code+text analysis, Object verification	Object tracking	Object tracking, code+text analysis, Object verification	
Image resolution	1280 x 1024 pixels	1280 x 1024 pixels	1280 x 1024 pixels	
Sensor type Vision	CMOS 1/1,8" color global shutter	CMOS 1/1,8" color global shutter	CMOS 1/1.8" monochrome global shutter	
Housing material	Aluminum, Painted	Aluminum, Painted	Aluminum, Painted	
Dimension	65 x 40 x 99.5 mm	65 x 40 x 99.5 mm	65 x 40 x 99.5 mm	
Switching output	6x IO configurable	6x IO configurable	6x IO configurable	
Interface	LAN (Gigabit Ethernet), Ethernet TCP/UDP, RS232	LAN (Gigabit Ethernet), Ethernet TCP/UDP, RS232	LAN (Gigabit Ethernet), Ethernet TCP/UDP, RS232	
Operating voltage Ub	19.2...26 VDC	19.2...26 VDC	19.2...26 VDC	
Ambient temperature	0...55 °C	0...55 °C	0...55 °C	
Approval/Conformity	CE, EAC, WEEE	CE, EAC, WEEE	CE, EAC, WEEE	
Protection degree	IP67, with protective tube	IP67, with protective tube	IP67, with protective tube	
Productview	Page 514	Page 514	Page 514	

	BVS003U BVS SL-M1280Z00-07-001	BVS002F BVS SC-C1280Z00-30-000	BVS002C BVS SC-M1280Z00-07-000	BVS002A BVS SC-M1280Z00-30-000	BVS0033 BVS SC-M1280Z00-30-020
	Object tracking	Object tracking, code+text analysis, Object verification	Object tracking, code+text analysis, Object verification	Object tracking, code+text analysis, Object verification	Object tracking, code+text analysis, Object verification, Hdevelop interface
	1280 x 1024 pixels	1280 x 1024 pixels	1280 x 1024 pixels	1280 x 1024 pixels	1280 x 1024 pixels
	CMOS 1/1.8" monochrome global shutter	CMOS 1/1,8" color global shutter	CMOS 1/1,8" monochrome global shutter	CMOS 1/1.8" monochrome global shutter	CMOS 1/1.8" monochrome global shutter
	Aluminum, Painted	Aluminum, Painted	Aluminum, Painted	Aluminum, Painted	Aluminum, Painted
	65 x 40 x 99.5 mm	62 x 55 x 110 mm	62 x 55 x 110 mm	62 x 55 x 110 mm	62 x 55 x 110 mm
	6x IO configurable	2x IO configurable	8x IO configurable	2x IO configurable	2x IO configurable
	LAN (Gigabit Ethernet), Ethernet TCP/UDP, RS232	LAN (Gigabit Ethernet), Profinet / EtherNet/IP, IO-Link	LAN (Gigabit Ethernet)	LAN (Gigabit Ethernet), Profinet / EtherNet/IP, IO-Link	LAN (Gigabit Ethernet), Profinet / EtherNet/IP, IO-Link
	19.2...26 VDC	19.2...28.8 VDC	19.2...28.8 VDC	19.2...28.8 VDC	19.2...28.8 VDC
	0...55 °C	0...55 °C	0...55 °C	0...55 °C	0...55 °C
	CE, EAC, WEEE	CE, cULus, WEEE, EAC	CE, cULus, WEEE, EAC	CE, cULus, WEEE, EAC	CE, cULus, WEEE, EAC
	IP67, with protective tube	IP67, with protective tube	IP67, with protective tube	IP67, with protective tube	IP67, with protective tube
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1) Tightening torque

BVS002F, BVS002A, BVS0033

BVS003P, BVS003R, BVS003T, BVS003U

Sensors

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Software and System Solutions

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Accessories

I/O Light

LAN

I/O

Power

24

16

18,6

24

97,5

108,5

BALLUFF

61,1

18   16,3

1)   2,6 Nm

52

30,5

6

70

4x M5

19   21,3

54,8

1)   2,0 Nm

41

4x M4

28,5

18,6   24
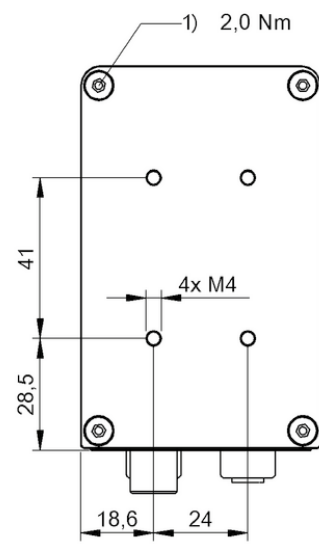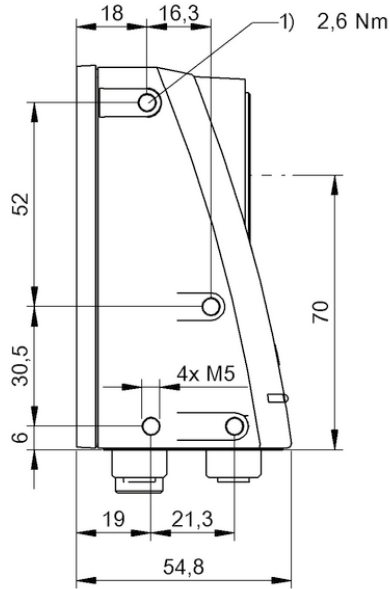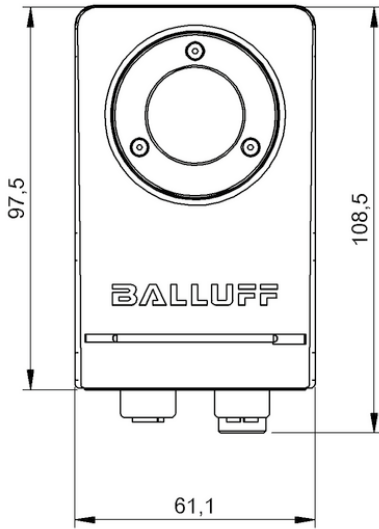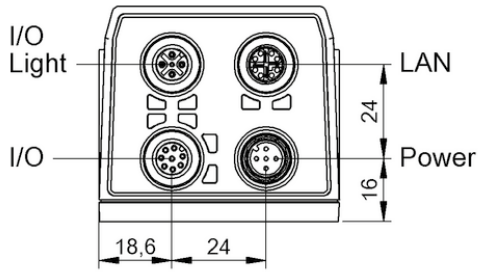
1) Tightening torque

BVS002C

	BVS003C BVS CA-GX0-0016ZC-111C41-XAS2	BVS003A BVS CA-GX0-0016ZG-112C41-XAS2	BVS0035 BVS CA-GX0-0124AC-111C41-XAS2	
Version	GigE Vision industrial camera	GigE Vision industrial camera	GigE Vision industrial camera	
Interface	Gigabit Ethernet, PoE	Gigabit Ethernet, PoE	Gigabit Ethernet, PoE	
Lens mount	C-Mount	C-Mount	C-Mount	
Dimension	40 x 40 x 68.7 mm	40 x 40 x 68.7 mm	40 x 40 x 68.7 mm	
Sensor type Vision	1/2.9" global shutter CMOS	1/2.9" global shutter CMOS	1.1" global shutter CMOS	
Sensor chip	Sony IMX273	Sony IMX273	Sony IMX304	
Image resolution	1.6 MP (1456 x 1088 pixels)	1.6 MP (1456 x 1088 pixels)	12.4 MP (4112 x 3008 pixels)	
Housing material	Aluminum	Aluminum	Aluminum	
Image formats	BayerRG8, BayerRG10, BayerRG12, BayerRG16, BayerRG12Packed, BayerRG12p	Mono8, Mono10, Mono12, Mono14, Mono16, Mono12Packed, Mono12p	BayerRG8, BayerRG10, BayerRG12, BayerRG16, BayerRG12Packed, BayerRG12p	
Operating voltage Ub	11...25 VDC, PoE	11...25 VDC, PoE	11...25 VDC, PoE	
Ambient temperature	0...45 °C	0...45 °C	0...45 °C	
Approval/Conformity	CE, EAC, WEEE, cULus	CE, EAC, WEEE, cULus	CE, EAC, WEEE, cULus	
Protection degree	IP67	IP67	IP67	
Productview	Page 520	Page 520	Page 520	

Sensors

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Power Supply

Connectivity

Accessories

	BVS0034 BVS CA-GX0-0124AG-112C41-XAS2	**BVS0039** BVS CA-GX0-0032AC-111C41-XAS2	**BVS0038** BVS CA-GX0-0032AG-112C41-XAS2	**BVS0037** BVS CA-GX0-0051AC-111C41-XAS2	**BVS0036** BVS CA-GX0-0051AG-112C41-XAS2
	GigE Vision industrial camera	GigE Vision industrial camera	GigE Vision industrial camera	GigE Vision industrial camera	GigE Vision industrial camera
	Gigabit Ethernet, PoE	Gigabit Ethernet, PoE	Gigabit Ethernet, PoE	Gigabit Ethernet, PoE	Gigabit Ethernet, PoE
	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount
	40 x 40 x 68.7 mm	40 x 40 x 68.7 mm	40 x 40 x 68.7 mm	40 x 40 x 68.7 mm	40 x 40 x 68.7 mm
	1.1" global shutter CMOS	1/1.8" global shutter CMOS	1/1.8" global shutter CMOS	2/3" global shutter CMOS	2/3" global shutter CMOS
	Sony IMX304	Sony IMX265	Sony IMX265	Sony IMX264	Sony IMX264
	12.4 MP (4112 x 3008 pixels)	3.2 MP (2064 x 1544 pixels)	3.2 MP (2064 x 1544 pixels)	5.1 MP (2464 x 2056 pixels)	5.1 MP (2464 x 2056 pixels)
	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
	Mono8, Mono10, Mono12, Mono14, Mono16, Mono12Packed, Mono12p	BayerRG8, BayerRG10, BayerRG12, BayerRG16, BayerRG12Packed, BayerRG12p	Mono8, Mono10, Mono12, Mono14, Mono16, Mono12Packed, Mono12p	BayerRG8, BayerRG10, BayerRG12, BayerRG16, BayerRG12Packed, BayerRG12p	Mono8, Mono10, Mono12, Mono14, Mono16, Mono12Packed, Mono12p
	11...25 VDC. PoE	11...25 VDC, PoE	11...25 VDC, PoE	11...25 VDC, PoE	11...25 VDC, PoE
	0...45 °C	0...45 °C	0...45 °C	0...45 °C	0...45 °C
	CE, EAC, WEEE, cULus	CE, EAC, WEEE, cULus	CE, EAC, WEEE, cULus	CE, EAC, WEEE, cULus	CE, EAC, WEEE, cULus
	IP67	IP67	IP67	IP67	IP67
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	BVS003N BVS CA-SF2-0016ZC-111121-XAS2	BVS003M BVS CA-SF2-0016ZG-112121-XAS2	BVS003F BVS CA-SF2-0124AC-111121-XAS2	
Version	USB3 Vision industrial camera	USB3 Vision industrial camera	USB3 Vision industrial camera	
Interface	USB 2.0 / 3.0	USB 2.0 / 3.0	USB 2.0 / 3.0	
Lens mount	C-Mount	C-Mount	C-Mount	
Dimension	40 x 40 x 50.9 mm	40 x 40 x 50.9 mm	40 x 40 x 50.9 mm	
Sensor type Vision	1/2.9" global shutter CMOS	1/2.9" global shutter CMOS	1.1" global shutter CMOS	
Sensor chip	Sony IMX273	Sony IMX273	Sony IMX304	
Image resolution	1.6 MP (1456 x 1088 pixels)	1.6 MP (1456 x 1088 pixels)	12.4 MP (4112 x 3008 pixels)	
Housing material	Aluminum	Aluminum	Aluminum	
Image formats	BayerRG8, BayerRG10, BayerRG12, BayerRG16, RGB8Packed, BGR8Packed, BGRA8Packed, BGR10V2Packed, YUV422Packed, YUV422_YUYVPacked, YUV444Packed, RGB8, BGR8, BGRa8, RGB10p32, YUV422_8_UYVY, YUV422_8, YUV8_UYV, YUV411_8_UYYVYY, BayerRG12p	Mono8, Mono10, Mono12, Mono14, Mono16, Mono12p	BayerRG8, BayerRG10, BayerRG12, BayerRG16, RGB8Packed, BGR8Packed, BGRA8Packed, BGR10V2Packed, YUV422Packed, YUV422_YUYVPacked, YUV444Packed, RGB8, BGR8, BGRa8, RGB10p32, YUV422_8_UYVY, YUV422_8, YUV8_UYV, YUV411_8_UYYVYY, BayerRG12p	
Operating voltage Ub	11...25 VDC	11...25 VDC	11...25 VDC	
Ambient temperature	0...45 °C	0...45 °C	0...45 °C	
Approval/Conformity	CE, EAC, WEEE, ULus	CE, EAC, WEEE, ULus	CE, EAC, WEEE, ULus	
Protection degree	IP30	IP30	IP30	
Productview	Page 520	Page 520	Page 520	

|	BVS003E BVS CA-SF2-0124AG-112121-XAS2	BVS003L BVS CA-SF2-0032AC-111121-XAS2	BVS003K BVS CA-SF2-0032AG-112121-XAS2	BVS003J BVS CA-SF2-0051AC-111121-XAS2	BVS003H BVS CA-SF2-0051AG-112121-XAS2
	USB3 Vision industrial camera	USB3 Vision industrial camera	USB3 Vision industrial camera	USB3 Vision industrial camera	USB3 Vision industrial camera
	USB 2.0 / 3.0	USB 2.0 / 3.0	USB 2.0 / 3.0	USB 2.0 / 3.0	USB 2.0 / 3.0
	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount
	40 x 40 x 50.9 mm	40 x 40 x 50.9 mm	40 x 40 x 50.9 mm	40 x 40 x 50.9 mm	40 x 40 x 50.9 mm
	1.1" global shutter CMOS	1/1.8" global shutter CMOS	1/1.8" global shutter CMOS	2/3" global shutter CMOS	2/3" global shutter CMOS
	Sony IMX304	Sony IMX265	Sony IMX265	Sony IMX264	Sony IMX264
	12.4 MP (4112 x 3008 pixels)	3.2 MP (2064 x 1544 pixels)	3.2 MP (2064 x 1544 pixels)	5.1 MP (2464 x 2056 pixels)	5.1 MP (2464 x 2056 pixels)
	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
	Mono8, Mono10, Mono12, Mono14, Mono16, Mono12p	BayerRG8, BayerRG10, BayerRG12, BayerRG16, RGB8Packed, BGR8Packed, BGRA8Packed, BGR10V2Packed, YUV422Packed, YUV422_YUYVPacked, YUV444Packed, RGB8, BGR8, BGRa8, RGB10p32, YUV422_8_UYVY, YUV422_8, YUV8_UYV, YUV411_8_UYYVYY, BayerRG12p	Mono8, Mono10, Mono12, Mono14, Mono16, Mono12p	BayerRG8, BayerRG10, BayerRG12, BayerRG16, RGB8Packed, BGR8Packed, BGRA8Packed, BGR10V2Packed, YUV422Packed, YUV422_YUYVPacked, YUV444Packed, RGB8, BGR8, BGRa8, RGB10p32, YUV422_8_UYVY, YUV422_8, YUV8_UYV, YUV411_8_UYYVYY, BayerRG12p	Mono8, Mono10, Mono12, Mono14, Mono16, Mono12p
	11...25 VDC	11...25 VDC	11...25 VDC	11...25 VDC	11...25 VDC
	0...45 °C	0...45 °C	0...45 °C	0...45 °C	0...45 °C
	CE, EAC, WEEE, ULus	CE, EAC, WEEE, ULus	CE, EAC, WEEE, ULus	CE, EAC, WEEE, ULus	CE, EAC, WEEE, ULus
	IP30	IP30	IP30	IP30	IP30
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1) Tightening torque

BVS003C, BVS003A, BVS0035, BVS0034, BVS0039, BVS0038, BVS0037, BVS0036
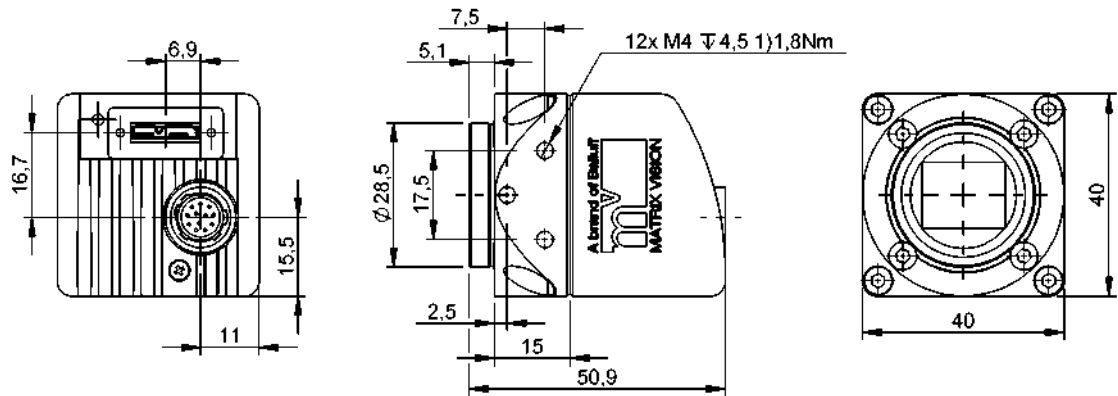
1) Tightening torque

BVS003N, BVS003M, BVS003F, BVS003E, BVS003L, BVS003K, BVS003J, BVS003H

Short description	
Software type	
Use	
Software version	
Scope of delivery	
System requirements - CPU	
System requirements - RAM	
Supported web browsers	
Supported operating systems	
Productview	

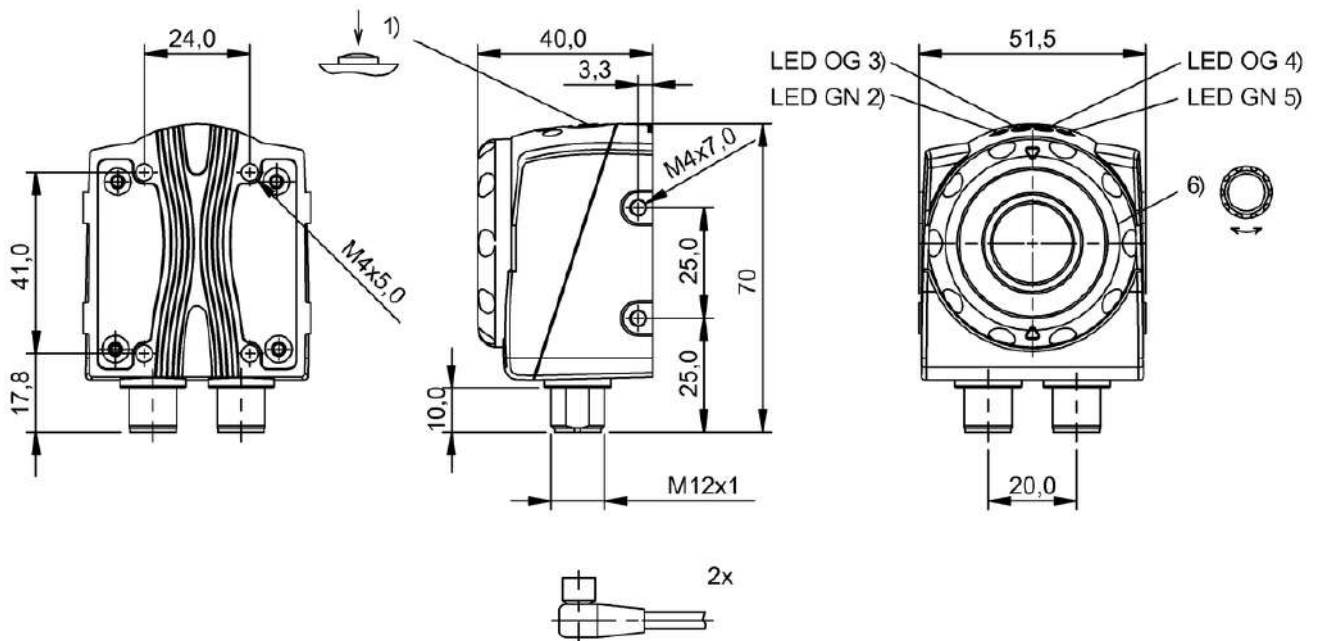| BAI000Z	BAE0103
BAI BVS-CA-EPC-001	BAE PD-VS-014-05
BVS Cockpit Software	SmartVision Controller
Configuration software	—
for industrial cameras BVS CA	Accessories for industrial cameras
—	—
Software on USB stick, License dongle (HALCON 13.0.2) on USB stick	USB stick with HALCON license, Mounting material
Dual Core 2 GHz	—
2 GB	—
Mozilla Firefox (Version 24), Google Chrome (Version 32.0), Windows Internet Explorer (Version 10)	—
Windows 7 (64 bit) or higher	—
	Page 524
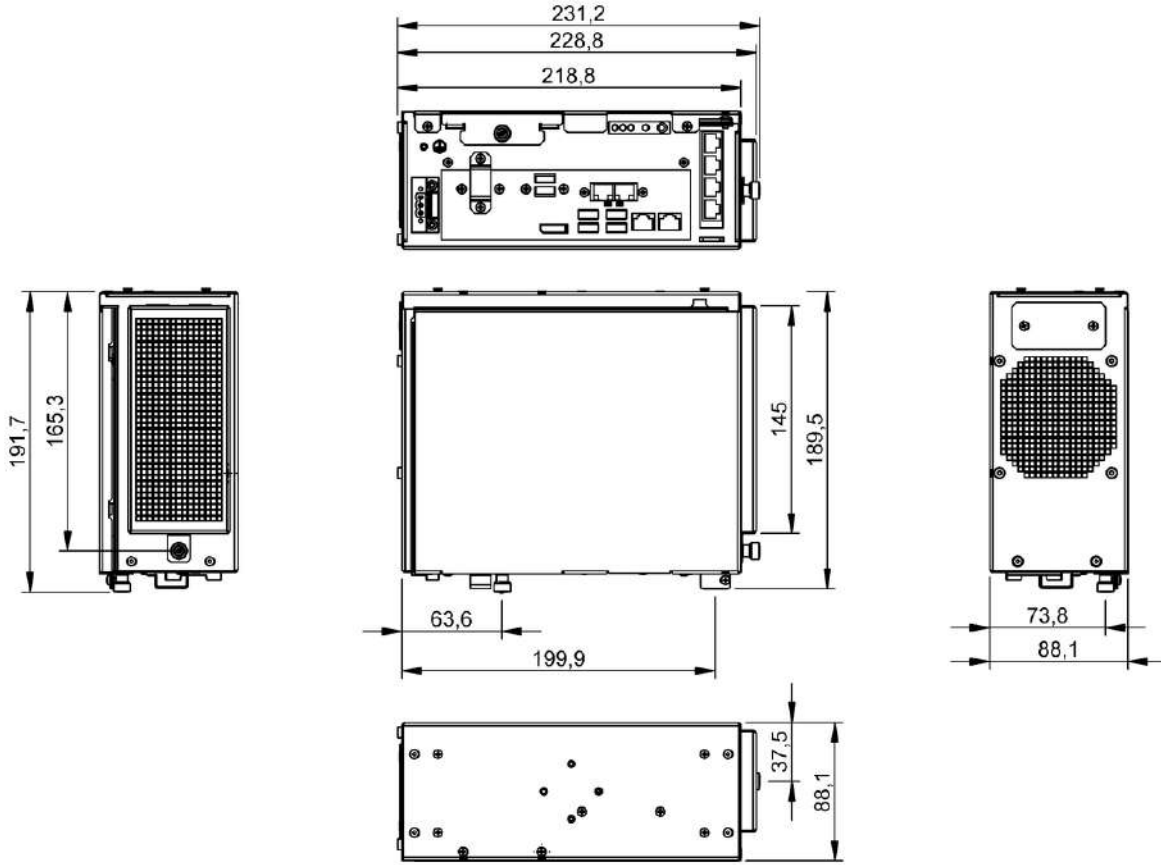
BAE0103

	BVS001F BVS UR-3-105-E	BVS001H BVS UR-3-101-E	BVS001J BVS UR-3-103-E	
Sensor type Vision	CMOS image sensor black-white	CMOS image sensor black-white	CMOS image sensor black-white	
Image resolution	VGA 640 x 480 pixels	VGA 640 x 480 pixels	VGA 640 x 480 pixels	
Detection rate typ.	3…40 Hz	3…40 Hz	3…40 Hz	
Application	360° detection, Barcode-, 2D-, OCR identification	360° detection, Barcode-, 2D-, OCR identification	360° detection, Barcode-, 2D-, OCR identification	
Range	50…1000 mm	50…1000 mm	50…1000 mm	
Field of view	34 x 25 mm ... 676 x 507 mm	24 x 18 mm ... 480 x 360 mm	16 x 12 mm ... 320 x 240 mm	
Focal length	6.0 mm	8.0 mm	12.0 mm	
Light type	Infrared	Infrared	Infrared	
Housing material	Aluminum, die-cast ABS	Aluminum, die-cast ABS	Aluminum, die-cast ABS	
Dimension	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm	
Switching output	3x PNP normally open (NO)	3x PNP normally open (NO)	3x PNP normally open (NO)	
Interface	RS232 (9.6...115.2 kBaud)	RS232 (9.6...115.2 kBaud)	RS232 (9.6...115.2 kBaud)	
Connection 1	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded	
Connection 2	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded	
Operating voltage Ub	22...26 VDC	22...26 VDC	22...26 VDC	
Ambient temperature	-10...55 °C	-10...55 °C	-10...55 °C	
Approval/Conformity	CE, cULus	CE, cULus	CE, cULus	
Protection degree	IP54	IP54	IP54	
Productview	Page 528	Page 528	Page 528	

	BVS001K	BVS001L	BVS001M	BVS001N	BVS001P
	BVS UR-3-107-E	BVS UR-3-005-E	BVS UR-3-001-E	BVS UR-3-003-E	BVS UR-3-007-E
	CMOS image sensor black-white	CMOS image sensor black-white	CMOS image sensor black-white	CMOS image sensor black-white	CMOS image sensor black-white
	VGA 640 x 480 pixels	VGA 640 x 480 pixels	VGA 640 x 480 pixels	VGA 640 x 480 pixels	VGA 640 x 480 pixels
	3…40 Hz	3…40 Hz	3…40 Hz	3…40 Hz	3…40 Hz
	360° detection, Barcode-, 2D-, OCR identification	360° detection, Barcode-, 2D-, OCR identification	360° detection, Barcode-, 2D-, OCR identification	360° detection, Barcode-, 2D-, OCR identification	360° detection, Barcode-, 2D-, OCR identification
	230...1000 mm	50...1000 mm	50...1000 mm	50...1000 mm	50...1000 mm
	55 x 42 mm ... 240 x 180 mm	34 x 25 mm ... 676 x 507 mm	24 x 18 mm ... 480 x 360 mm	16 x 12 mm ... 320 x 240 mm	43 x 32 mm ... 240 x 180 mm
	16.0 mm	6.0 mm	8.0 mm	12.0 mm	16.0 mm
	Infrared	LED, red light	LED, red light	LED, red light	LED, red light
	Aluminum, die-cast ABS	Aluminum, die-cast ABS	Aluminum, die-cast ABS	Aluminum, die-cast ABS	Aluminum, die-cast ABS
	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm
	3x PNP normally open (NO)	3x PNP normally open (NO)	3x PNP normally open (NO)	3x PNP normally open (NO)	3x PNP normally open (NO)
	RS232 (9.6...115.2 kBaud)	RS232 (9.6...115.2 kBaud)	Ethernet 10/100 Base T	Ethernet 10/100 Base T	Ethernet 10/100 Base T
	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded
	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded
	22...26 VDC	22...26 VDC	22...26 VDC	22...26 VDC	22...26 VDC
	-10...55 °C	-10...55 °C	-10...55 °C	-10...55 °C	-10...55 °C
	CE, cULus	CE, cULus	CE, cULus	CE, cULus	CE, cULus
	IP54	IP54	IP54	IP54	IP54
	Page 528	Page 528	Page 528	Page 528	Page 528

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Safety

Industrial Networking

Software and System Solutions

Power Supply

Connectivity

Accessories

1) Teach-in reference image, 2) Operating voltage, 3) Output 1 active, 4) Output 2 active, 5) Connection with PC, 6) Focus

BVS001F, BVS001H, BVS001J, BVS001K, BVS001L, BVS001M, BVS001N, BVS001P

	BVS0016 BVS 0I-3-155-E	BVS0015 BVS 0I-3-151-E	BVS0017 BVS 0I-3-153-E	
Sensor type Vision	CMOS image sensor black-white	CMOS image sensor black-white	CMOS image sensor black-white	
Image resolution	VGA 640 x 480 pixels	VGA 640 x 480 pixels	VGA 640 x 480 pixels	
Detection rate typ.	3…50 Hz	3…50 Hz	3…50 Hz	
Application	360° detection	360° detection	360° detection	
Range	50...1000 mm	50...1000 mm	50...1000 mm	
Field of view	34 x 25 mm ... 676 x 507 mm	24 x 18 mm ... 480 x 360 mm	16 x 12 mm ... 320 x 240 mm	
Focal length	6.0 mm	8.0 mm	12.0 mm	
Light type	Infrared	Infrared	Infrared	
Housing material	Aluminum, die-cast ABS	Aluminum, die-cast ABS	Aluminum, die-cast ABS	
Dimension	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm	
Switching output	3x PNP normally open (NO)	3x PNP normally open (NO)	3x PNP normally open (NO)	
Interface	Ethernet 10/100 Base T	Ethernet 10/100 Base T	Ethernet 10/100 Base T	
Connection 1	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded	
Connection 2	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded	
Operating voltage Ub	22...26 VDC	22...26 VDC	22...26 VDC	
Ambient temperature	-10...55 °C	-10...55 °C	-10...55 °C	
Approval/Conformity	cULus, CE	cULus, CE	cULus, CE	
Protection degree	IP54	IP54	IP54	
Productview	Page 532	Page 532	Page 532	

BVS0018 BVS OI-3-157-E	BVS000L BVS OI-3-055-E	BVS000J BVS OI-3-051-E	BVS000K BVS OI-3-053-E	BVS000W BVS OI-3-057-E
CMOS image sensor black-white	CMOS image sensor black-white	CMOS image sensor black-white	CMOS image sensor black-white	CMOS image sensor black-white
VGA 640 x 480 pixels	VGA 640 x 480 pixels	VGA 640 x 480 pixels	VGA 640 x 480 pixels	VGA 640 x 480 pixels
3…50 Hz	3…40 Hz	3…40 Hz	3…40 Hz	3…40 Hz
360° detection	360° detection	360° detection	360° detection	360° detection
180...1000 mm	50...1000 mm	50...1000 mm	50...1000 mm	180...1000 mm
43 x 32 mm ... 240 x 180 mm	34 x 25 mm ... 676 x 507 mm	24 x 18 mm ... 480 x 360 mm	16 x 12 mm ... 320 x 240 mm	43 x 32 mm ... 240 x 180 mm
16.0 mm	6.0 mm	8.0 mm	12.0 mm	16.0 mm
Infrared	LED, red light	LED, red light	LED, red light	LED, red light
Aluminum, die-cast ABS	Aluminum, die-cast ABS	Aluminum, die-cast ABS	Aluminum, die-cast ABS	Aluminum, die-cast ABS
51.5 x 70 x 40 mm	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm
3x PNP normally open (NO)	3x PNP normally open (NO)	3x PNP normally open (NO)	3x PNP normally open (NO)	3x PNP normally open (NO)
Ethernet 10/100 Base T	Ethernet 10/100 Base T	Ethernet 10/100 Base T	Ethernet 10/100 Base T	Ethernet 10/100 Base T
M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded
M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded
22...26 VDC	22...26 VDC	22...26 VDC	22...26 VDC	22...26 VDC
-10...55 °C	-10...55 °C	-10...55 °C	-10...55 °C	-10...55 °C
cULus, CE	cULus, CE	cULus, CE	cULus, CE	CE, cULus
IP54	IP54	IP54	IP54	IP54
Page 532	Page 532	Page 532	Page 532	Page 532

Sensors

RFID

Machine Vision and Optical Identification
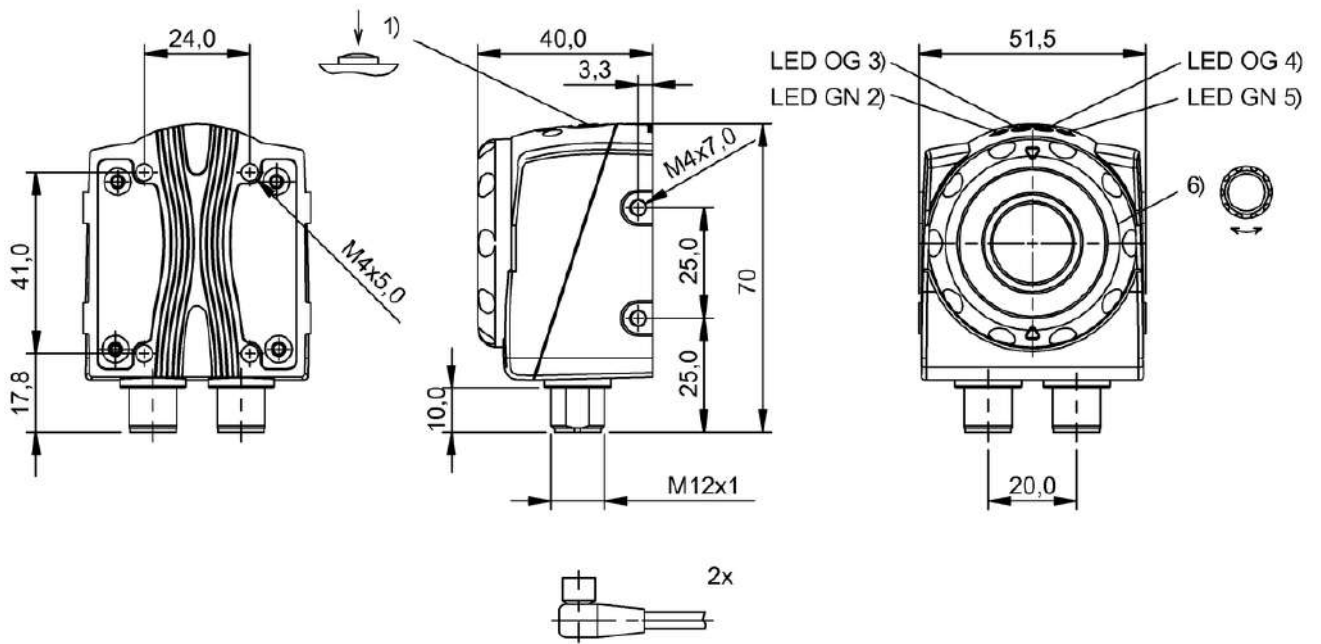
Human Machine Interfaces

Safety

Industrial Networking

Software and System Solutions

Power Supply

Connectivity

Accessories

1) Teach-in reference image, 2) Operating voltage, 3) Output 1 active, 4) Output 2 active, 5) Connection with PC, 6) Focus
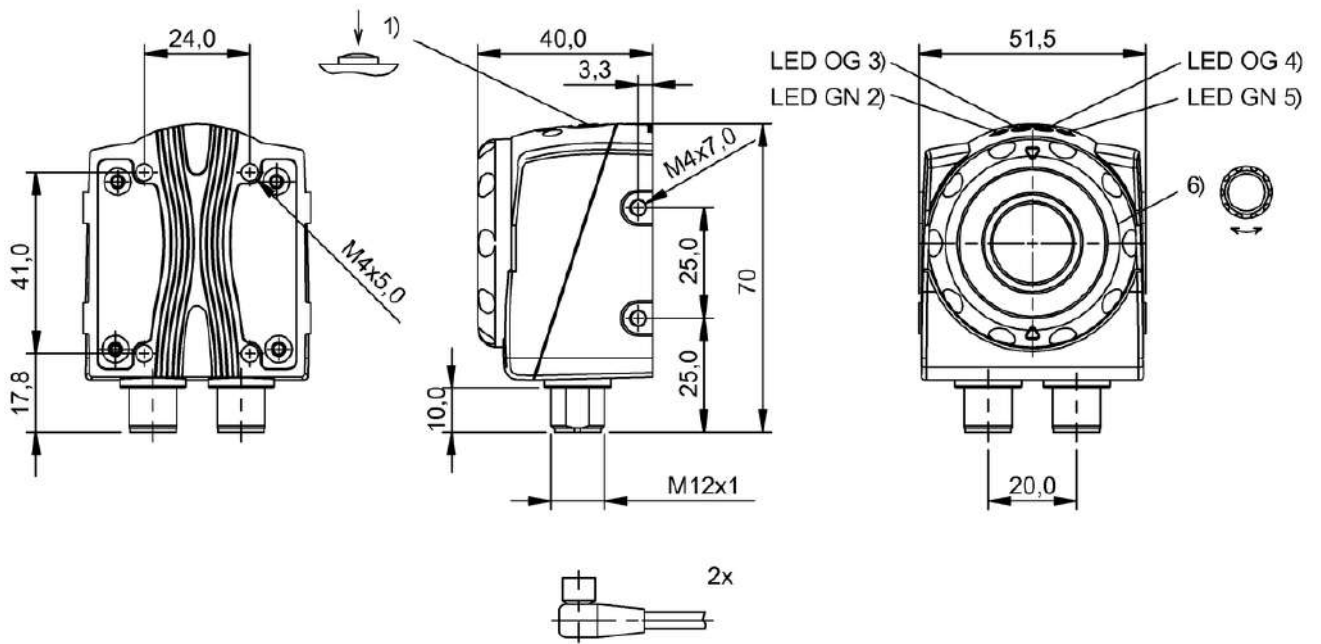
BVS0016, BVS0015, BVS0017, BVS0018, BVS000L, BVS000J, BVS000K, BVS000W

	BVS0013 BVS 0I-3-105-E	
Sensor type Vision	CMOS image sensor black-white	
Image resolution	VGA 640 x 480 pixels	
Detection rate typ.	3…15 Hz	
Range	50...1000 mm	
Field of view	34 x 25 mm ... 676 x 507 mm	
Focal length	6.0 mm	
Light type	Infrared	
Housing material	Aluminum, die-cast ABS	
Dimension	51.5 x 70 x 40 mm	
Switching output	3x PNP normally open (NO)	
Interface	Ethernet 10/100 Base T	
Connection 1	M12x1-Male, 8-pole, A-coded	
Connection 2	M12x1-Male, 4-pole, D-coded	
Operating voltage Ub	22...26 VDC	
Ambient temperature	-10...55 °C	
Approval/Conformity	CE, cULus	
Protection degree	IP54	
Productview	Page 536	

	BVS0014 BVS OI-3-101-E	BVS0012 BVS OI-3-103-E
	CMOS image sensor black-white	CMOS image sensor black-white
	VGA 640 x 480 pixels	VGA 640 x 480 pixels
	3…15 Hz	3…15 Hz
	50...1000 mm	50...1000 mm
	24 x 18 mm ... 480 x 360 mm	16 x 12 mm ... 320 x 240 mm
	8.0 mm	12.0 mm
	Infrared	Infrared
	Aluminum, die-cast ABS	Aluminum, die-cast ABS
	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm
	3x PNP normally open (NO)	3x PNP normally open (NO)
	Ethernet 10/100 Base T	Ethernet 10/100 Base T
	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded
	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded
	22...26 VDC	22...26 VDC
	-10...55 °C	-10...55 °C
	cULus, CE	cULus, CE
	IP54	IP54
	Page 536	Page 536
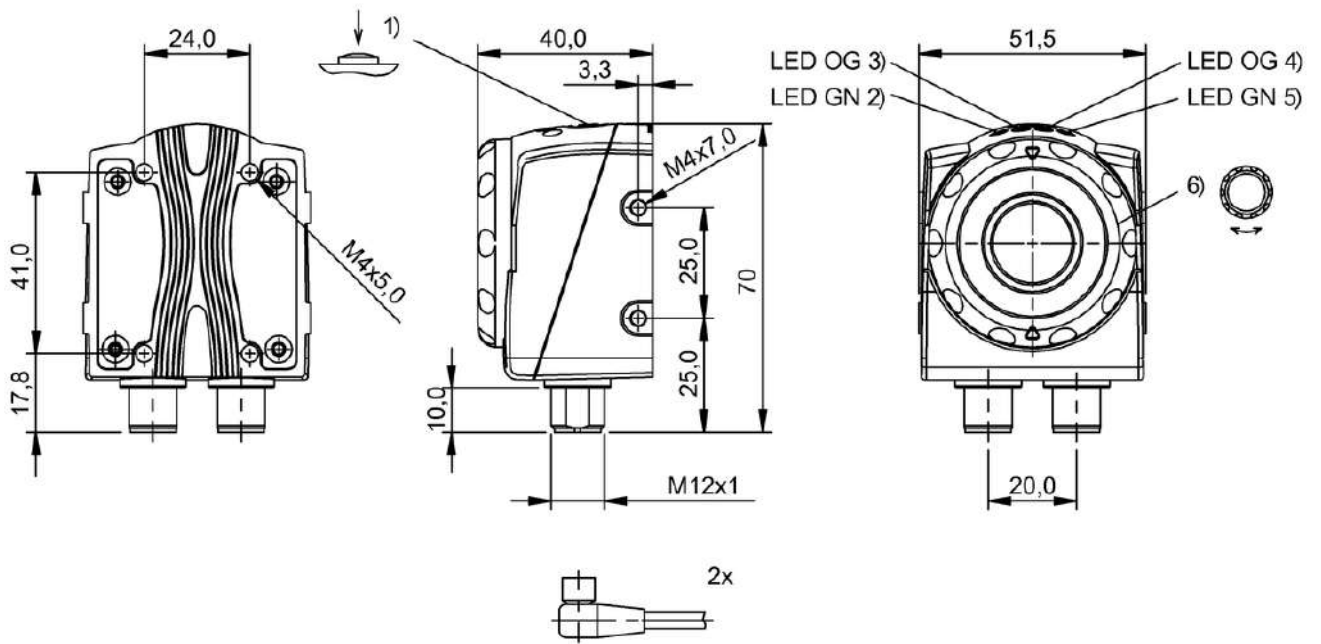
1) Teach-in reference image, 2) Operating voltage, 3) Output 1 active, 4) Output 2 active, 5) Connection with PC, 6) Focus

BVS0013, BVS0014, BVS0012

	BVS000E BVS OI-3-005-E	
Sensor type Vision	CMOS image sensor black-white	
Image resolution	VGA 640 x 480 pixels	
Detection rate typ.	3…15 Hz	
Range	50...1000 mm	
Field of view	34 x 25 mm ... 676 x 507 mm	
Focal length	6.0 mm	
Light type	LED, red light	
Housing material	Aluminum, die-cast ABS	
Dimension	51.5 x 70 x 40 mm	
Switching output	3x PNP normally open (NO)	
Interface	Ethernet 10/100 Base T	
Connection 1	M12x1-Male, 8-pole, A-coded	
Connection 2	M12x1-Male, 4-pole, D-coded	
Operating voltage Ub	22...26 VDC	
Ambient temperature	-10...55 °C	
Approval/Conformity	cULus, CE	
Protection degree	IP54	
Productview	Page 540	

BVS0003 BVS 0I-3-001-E	**BVS0005** BVS 0I-3-003-E
CMOS image sensor black-white	CMOS image sensor black-white
VGA 640 x 480 pixels	VGA 640 x 480 pixels
3…15 Hz	3…15 Hz
50...1000 mm	50...1000 mm
24 x 18 mm ... 480 x 360 mm	16 x 12 mm ... 320 x 240 mm
8.0 mm	12.0 mm
LED, red light	LED, red light
Aluminum, die-cast ABS	Aluminum, die-cast ABS
51.5 x 70 x 40 mm	51.5 x 70 x 40 mm
3x PNP normally open (NO)	3x PNP normally open (NO)
Ethernet 10/100 Base T	Ethernet 10/100 Base T
M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded
M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded
22...26 VDC	22...26 VDC
-10...55 °C	-10...55 °C
cULus, CE	cULus, CE
IP54	IP54
Page 540	Page 540

1) Teach-in reference image, 2) Operating voltage, 3) Output 1 active, 4) Output 2 active, 5) Connection with PC, 6) Focus

BVS000E, BVS0003, BVS0005

Secure identification and decoding of objects

OPTICAL
IDENTIFICATION

Optical identification via 1D and 2D barcodes is an established way to identify components and objects and precisely manage systems and processes. Our broad range of offerings in this area includes stationary barcode readers, mobile handheld readers and accessories for standard and industrial grade applications.

The most important benefits

- Reliable traceability of products and assembly
- Application areas: control supply processes (e.g., Kanban system), production control, optical tool identification
- Simple startup

Barcodes	
2D codes	
Application	
Image resolution	
Sensor type Vision	
Housing material	
Dimension	
Switching output	
Interface	
Operating voltage Ub	
Ambient temperature	
Approval/Conformity	
IP rating	
Productview	

BVS0029 BVS SC-M1280Z00-30-010	**BVS003W** BVS SL-M1280Z00-07-010
GS1 Databar, GS1-128, UPC-A, UPC-E, EAN-8, EAN-13, 2/5 Industrial, 2/5 Interleaved, Codabar, Code 128, Code 39, Code 93, MSI, UPC-A, UPC-E	GS1 Databar, GS1-128, UPC-A, UPC-E, EAN-8, EAN-13, 2/5 Industrial, 2/5 Interleaved, Codabar, Code 128, Code 39, Code 93, MSI, UPC-A, UPC-E
Aztec Code, Data Matrix ECC 200, GS1 Aztec Code, GS1 Data Matrix, GS1 QR Code, Micro QR Code, PDF 417, QR code	Aztec Code, Data Matrix ECC 200, GS1 Aztec Code, GS1 Data Matrix, GS1 QR Code, Micro QR Code, PDF 417, QR code
Object tracking, code+text analysis	Object tracking, code+text analysis
1280 x 1024 pixels	1280 x 1024 pixels
CMOS 1/1.8" monochrome global shutter	CMOS 1/1.8" monochrome global shutter
Aluminum, Painted	Aluminum, Painted
62 x 55 x 110 mm	65 x 40 x 99.5 mm
2x IO configurable	6x IO configurable
LAN (Gigabit Ethernet), Profinet / EtherNet/IP, IO-Link	LAN (Gigabit Ethernet), Ethernet TCP/UDP, RS232
19.2...28.8 VDC	19.2...26 VDC
0...55 °C	0...55 °C
CE, cULus, WEEE, EAC	CE, EAC, WEEE
IP67, with protective tube	IP67, with protective tube
Page 546	Page 546

IO-Link

PROFINET
/EthernetIP

LAN

Power

24

16

18,6 24

97,5 108,5

BALLUFF

61,1

18 16,3 1) 2,6 Nm

52

30,5

6

4x M5

19 21,3

54,8

70

1) 2,0 Nm

41

28,5

4x M4

18,6 24

1) Tightening torque

BVS0029

65

16

12,5 11

PWR
IO

40

99,5
115,5

BALLUFF

72

35
24

M4 ⍂ 4,5 (8x)

35
37

41
30,5
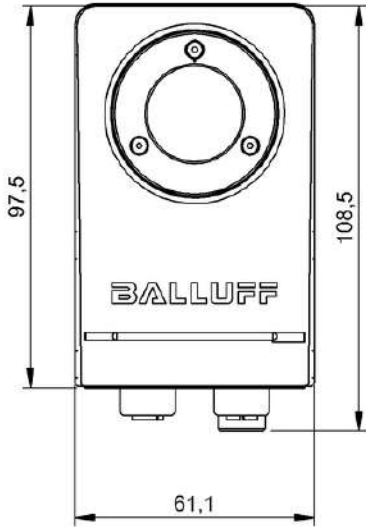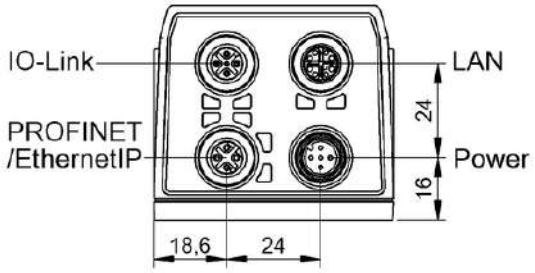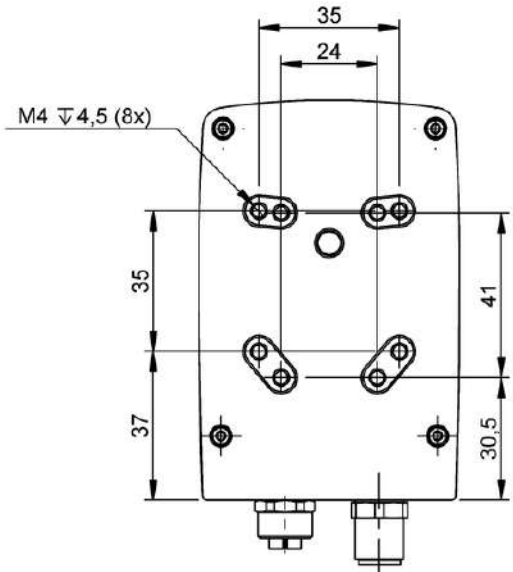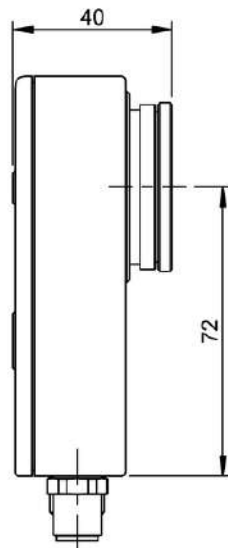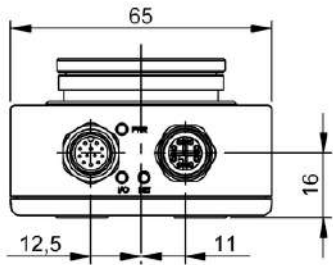
BVS003W

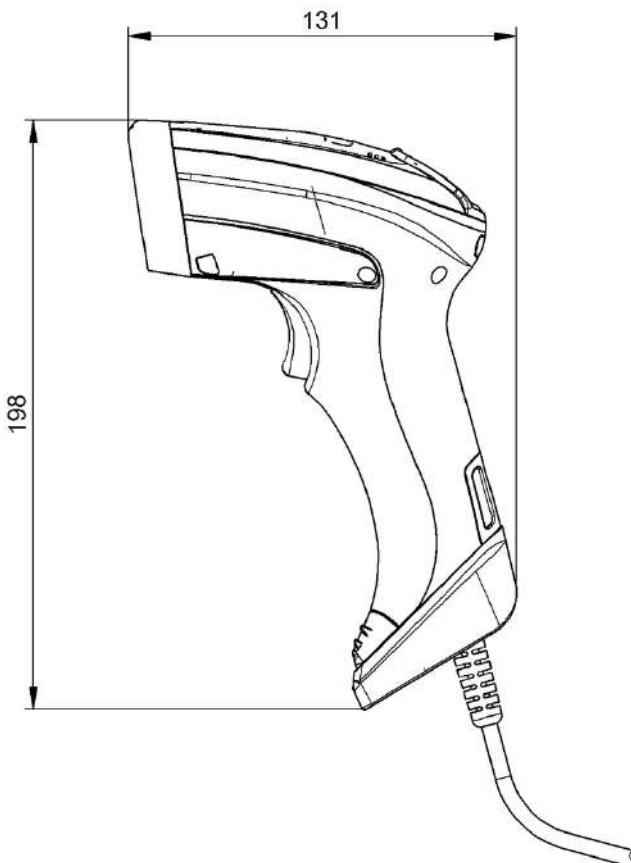|	BVS001Z BVS HS-PB-DPW-MZ-01	
Drop protection	≥ 50 drops, 2.0 m on concrete	
Barcodes	GS1 Databar linear codes UPC/EAN (A, E, 13, 8) UPC/EAN with P2/ P5 Addons UPC/EAN Coupons ISBN Code128 EAN128 ISBT128 Code39 Code39 Full ASCII Code39 CIP Code 32 Codabar Interleaved 2 of 5 IATA Industrial 2 of 5 standard 2 of 5 Code11 MSI Plessey Code 93 Follet 2/5	
2D codes	Aztec Code, China Han Xin Code, China Sensible Code, Data Matrix, Maxicode, Micro QR Code, QR code	
Stacked codes	Micro PDF417, Macro PDF, GS1 DataBar Stacked, GS1 DataBar Expanded Stacked, PDF417, GS1 DataBar Stacked Omnidir, GS1 DataBar Composites, EAN/JAN Composites, UPC A/E Composites	
Read distance	Datamatrix: 2…10.5 cm at 10 mil, Datamatrix: 2.6…5.2 cm at 4 mil, Code 39: 1.2…9.0 cm at 5 mil, Code 39: 2.5…7.8 cm at 2.5 mil	
Light type illumination	LED White light	
Interface	Bluetooth 2.0 (2.4 GHz)	
Protection degree	IP65	
Productview	Page 550	

BVS001Y	BVS001T	BVS001U
BVS HS-PB-HDW-MZ-01	BVS HS-PC-DPW-MA-01	BVS HS-PC-HDW-MA-01
≥ 50 drops, 2.0 m on concrete	≥ 50 drops, 2.0 m on concrete	≥ 50 drops, 2.0 m on concrete
GS1 Databar linear codes UPC/EAN (A, E, 13, 8) UPC/EAN with P2/ P5 Addons UPC/ EAN Coupons ISBN Code128 EAN128 ISBT128 Code39 Code39 Full ASCII Code39 CIP Code 32 Codabar Interleaved 2 of 5 IATA Industrial 2 of 5 standard 2 of 5 Code11 MSI Plessey Code 93 Follet 2/5	GS1 Databar linear codes UPC/EAN (A, E, 13, 8) UPC/EAN with P2/ P5 Addons UPC/ EAN Coupons ISBN Code128 EAN128 ISBT128 Code39 Code39 Full ASCII Code39 CIP Code 32 Codabar Interleaved 2 of 5 IATA Industrial 2 of 5 standard 2 of 5 Code11 MSI Plessey Code 93 Follet 2/5	GS1 Databar linear codes UPC/EAN (A, E, 13, 8) UPC/EAN with P2/ P5 Addons UPC/ EAN Coupons ISBN Code128 EAN128 ISBT128 Code39 Code39 Full ASCII Code39 CIP Code 32 Codabar Interleaved 2 of 5 IATA Industrial 2 of 5 standard 2 of 5 Code11 MSI Plessey Code 93 Follet 2/5
Aztec Code, China Han Xin Code, China Sensible Code, Data Matrix, Maxicode, Micro QR Code, QR code	Aztec Code, China Sensible Code, Data Matrix, Maxicode, Micro QR Code, QR code	Aztec Code, China Sensible Code, Data Matrix, Maxicode, Micro QR Code, QR code
GS1 DataBar Expanded Stacked, GS1 DataBar Stacked Omnidir, GS1 DataBar Stacked, Macro PDF, GS1 DataBar Composites, EAN/JAN Composites, Micro PDF417, UPC A/E Composites, PDF417	PDF417, Macro PDF, GS1 DataBar Stacked Omnidir, GS1 DataBar Composites, GS1 DataBar Stacked, GS1 DataBar Expanded Stacked, Micro PDF417, UPC A/E Composites, EAN/JAN Composites	Micro PDF417, GS1 DataBar Composites, Macro PDF, GS1 DataBar Stacked, GS1 DataBar Expanded Stacked, GS1 DataBar Stacked Omnidir, PDF417
Datamatrix: 2…20 cm at 10 mil, Datamatrix: 2…6 cm at 4 mil, Code 39: 3…110 cm at 40 mil, Code 39: 2…6 cm at 2.5 mil	Datamatrix: 2…10.5 cm at 10 mil, Code 39: 2.5…7.8 cm at 2.5 mil, Code 39: 1.2…9.0 cm at 5 mil, Datamatrix: 2.6…5.2 cm at 4 mil	Code 39: 2…6 cm at 2.5 mil, Code 39: 3…110 cm at 40 mil, Datamatrix: 2…6 cm at 4 mil, Datamatrix: 2…20 cm at 10 mil
LED White light	LED White light	LED White light
Bluetooth 2.0 (2.4 GHz)	RS232/ USB	RS232/ USB
IP65	IP65	IP65
Page 550	Page 550	Page 550

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BVS001Z, BVS001Y

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BVS001T, BVS001U

	BVS001C BVS ID-3-105-E	BVS0019 BVS ID-3-101-E	BVS001A BVS ID-3-103-E	
Barcodes	Interleaved 2-of-5,Code 39, Code 128, Pharma-code,Codabar, EAN 8, EAN 13, UPC-E, UPC-A	Interleaved 2-of-5,Code 39, Code 128, Pharma-code,Codabar, EAN 8, EAN 13, UPC-E, UPC-A	Interleaved 2-of-5,Code 39, Code 128, Pharma-code,Codabar, EAN 8, EAN 13, UPC-E, UPC-A	
2D codes	Data Matrix ECC 200, QR code, Mini QR	Data Matrix ECC 200, QR code, Mini QR	Data Matrix ECC 200, QR code, Mini QR	
Stacked codes	PDF417	PDF417	PDF417	
Application	Multi-Code-Reading, Verifying character strings	Multi-Code-Reading, Verifying character strings	Multi-Code-Reading, Verifying character strings	
Image resolution	VGA 640 x 480 pixels	VGA 640 x 480 pixels	VGA 640 x 480 pixels	
Sensor type Vision	CMOS image sensor black-white	CMOS image sensor black-white	CMOS image sensor black-white	
Range	50...1000 mm	50...1000 mm	50...1000 mm	
Field of view	34 x 25 mm ... 676 x 507 mm	24 x 18 mm ... 480 x 360 mm	16 x 12 mm ... 320 x 240 mm	
Focal length	6.0 mm	8.0 mm	12.0 mm	
Light type	Infrared	Infrared	Infrared	
Housing material	Aluminum, die-cast ABS	Aluminum, die-cast ABS	Aluminum, die-cast ABS	
Dimension	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm	
Switching output	3x PNP normally open (NO)	3x PNP normally open (NO)	3x PNP normally open (NO)	
Interface	Ethernet 10/100 Base T, RS232 (9.6...115.2 kBaud)	Ethernet 10/100 Base T, RS232 (9.6...115.2 kBaud)	Ethernet 10/100 Base T, RS232 (9.6...115.2 kBaud)	
Connection 1	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded	
Connection 2	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded	
Operating voltage Ub	22...26 VDC	22...26 VDC	22...26 VDC	
Ambient temperature	-10...55 °C	-10...55 °C	-10...55 °C	
Approval/Conformity	cULus, CE	cULus, CE	cULus, CE	
Protection degree	IP54	IP54	IP54	
Productview	Page 554	Page 554	Page 554	

	BVS001R BVS ID-3-005-E	BVS0001 BVS ID-3-001-E	BVS000T BVS ID-3-003-E	BVS000Y BVS ID-3-007-E	
	Interleaved 2-of-5,Code 39, Code 128, Pharma-code,Codabar, EAN 8, EAN 13, UPC-E, UPC-A	Interleaved 2-of-5,Code 39, Code 128, Pharma-code,Codabar, EAN 8, EAN 13, UPC-E, UPC-A	Interleaved 2-of-5,Code 39, Code 128, Pharma-code,Codabar, EAN 8, EAN 13, UPC-E, UPC-A	Interleaved 2-of-5,Code 39, Code 128, Pharma-code,Codabar, EAN 8, EAN 13, UPC-E, UPC-A	
	Data Matrix ECC 200, QR code, Mini QR	Data Matrix ECC 200, QR code, Mini QR	Data Matrix ECC 200, QR code, Mini QR	Data Matrix ECC 200, QR code, Mini QR	
	PDF417	PDF417	PDF417	PDF417	
	Multi-Code-Reading, Verifying character strings	Multi-Code-Reading, Verifying character strings	Multi-Code-Reading, Verifying character strings	Multi-Code-Reading, Verifying character strings	
	VGA 640 x 480 pixels	VGA 640 x 480 pixels	VGA 640 x 480 pixels	VGA 640 x 480 pixels	
	CMOS image sensor black-white	CMOS image sensor black-white	CMOS image sensor black-white	CMOS image sensor black-white	
	50...1000 mm	50...1000 mm	50...1000 mm	150...1000 mm	
	34 x 25 mm ... 676 x 507 mm	24 x 18 mm ... 480 x 360 mm	16 x 12 mm ... 320 x 240 mm	43 x 32 mm ... 240 x 180 mm	
	6.0 mm	8.0 mm	12.0 mm	16.0 mm	
	LED, red light	LED, red light	LED, red light	LED, red light	
	Aluminum, die-cast ABS	Aluminum, die-cast ABS	Aluminum, die-cast ABS	Aluminum, die-cast ABS	
	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm	51.5 x 70 x 40 mm	
	3x PNP normally open (NO)	3x PNP normally open (NO)	3x PNP normally open (NO)	3x PNP normally open (NO)	
	RS232 (9.6...115.2 kBaud), RS232 (9.6...115.2 kBaud)	Ethernet 10/100 Base T, RS232 (9.6...115.2 kBaud)	Ethernet 10/100 Base T, RS232 (9.6...115.2 kBaud)	Ethernet 10/100 Base T, RS232 (9.6...115.2 kBaud)	
	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded	M12x1-Male, 8-pole, A-coded	
	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded	M12x1-Male, 4-pole, D-coded	
	22...26 VDC	22...26 VDC	22...26 VDC	22...26 VDC	
	-10...55 °C	-10...55 °C	-10...55 °C	-10...55 °C	
	CE, cULus	cULus, CE	CE, cULus	CE, cULus	
	IP54	IP54	IP54	IP54	
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Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Safety

Industrial Networking

Software and System Solutions

Power Supply

Connectivity

Accessories

1) Teach-in reference image, 2) Operating voltage, 3) Output 1 active, 4) Output 2 active, 5) Connection with PC, 6) Focus

BVS001C, BVS0019, BVS001A, BVS001R, BVS0001, BVS000T, BVS000Y