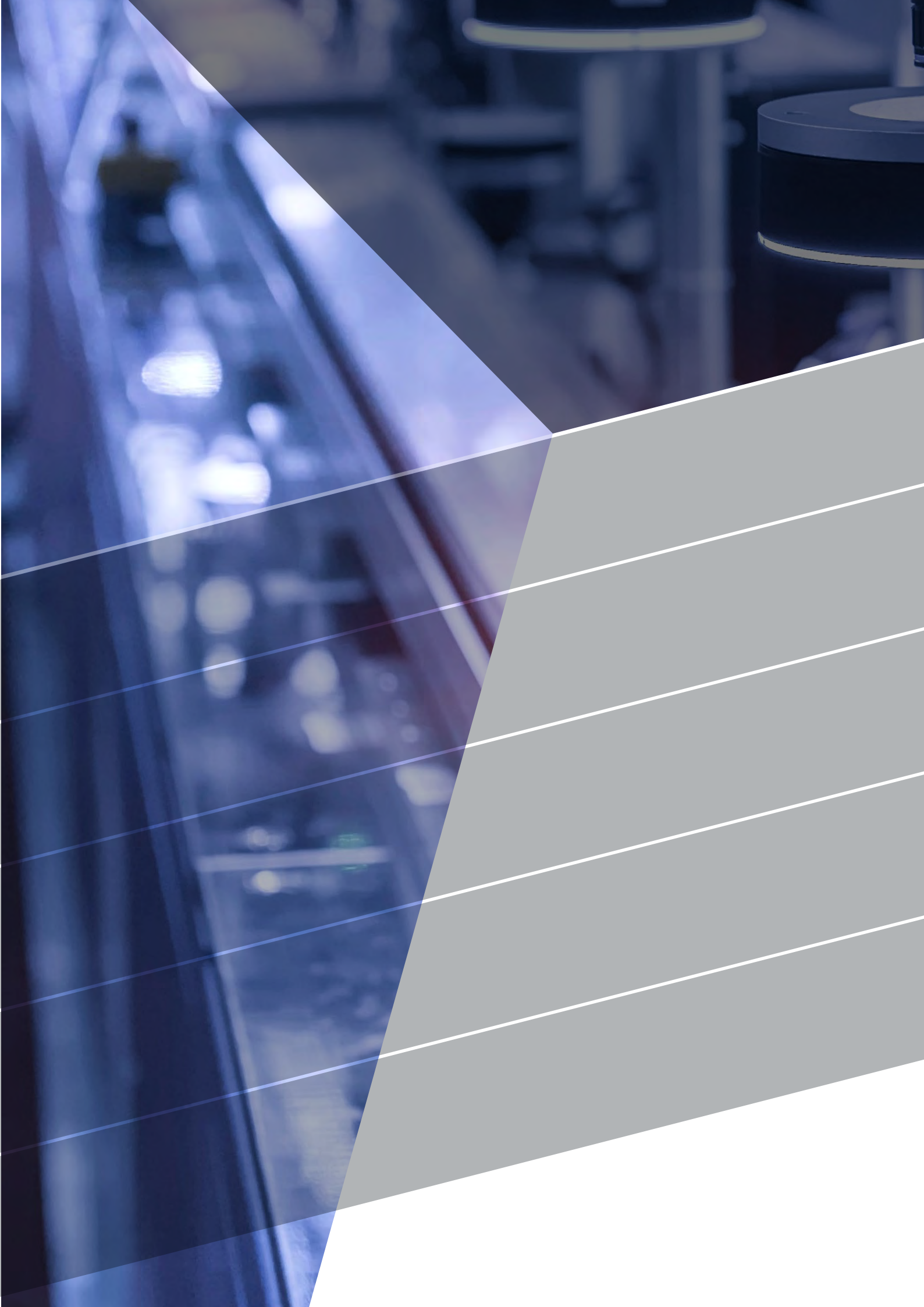
BALLUFF

DELIVERING INSIGHTS FOR INDUSTRIAL APPLICATIONS

Vision Select Series

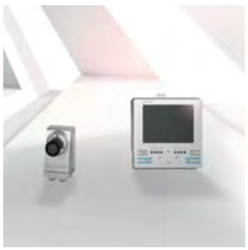


CONTENTS

4
VISION SOLUTION OVERVIEW

Smart Camera
Industrial Camera
Cockpit Software

22
MACHINE VISION AND OPTICAL IDENTIFICATION

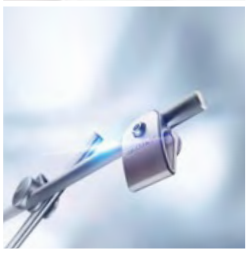


Industrial Cameras
Controllers

40
LIGHTING FOR VISION SYSTEMS AND MACHINES

Field Lights
Background Lights
Ring Lights
Strip Lights
Coax Lights
Spot Lights
Laser Modules
Machine Lights

80
ACCESSORIES



Camera Lenses
Spacer Rings
Optical Filters
Protective Covers

98
FASTENING TECHNOLOGY

Mounting Systems
Mounting Brackets
Connectors

CONNECTIVITY 120

POWER SUPPLIES 168

BASICS AND GLOSSARY 180

⚠ WARNING

- Read, understand, and follow warnings and manual. Failure to do so could result in serious injury or death.
- NEVER USE AS A SENSING DEVICE FOR PERSONNEL PROTECTION
- Does NOT include self-checking redundancy circuitry required for use in personnel safety applications
- Does NOT meet OSHA and ANSI standards for point-of-operation devices

Balluff, Inc. · www.balluff.com · 1-800-543-8390

Balluff Vision Solutions

INDUSTRIAL IMAGE PROCESSING WITHOUT LIMITS.

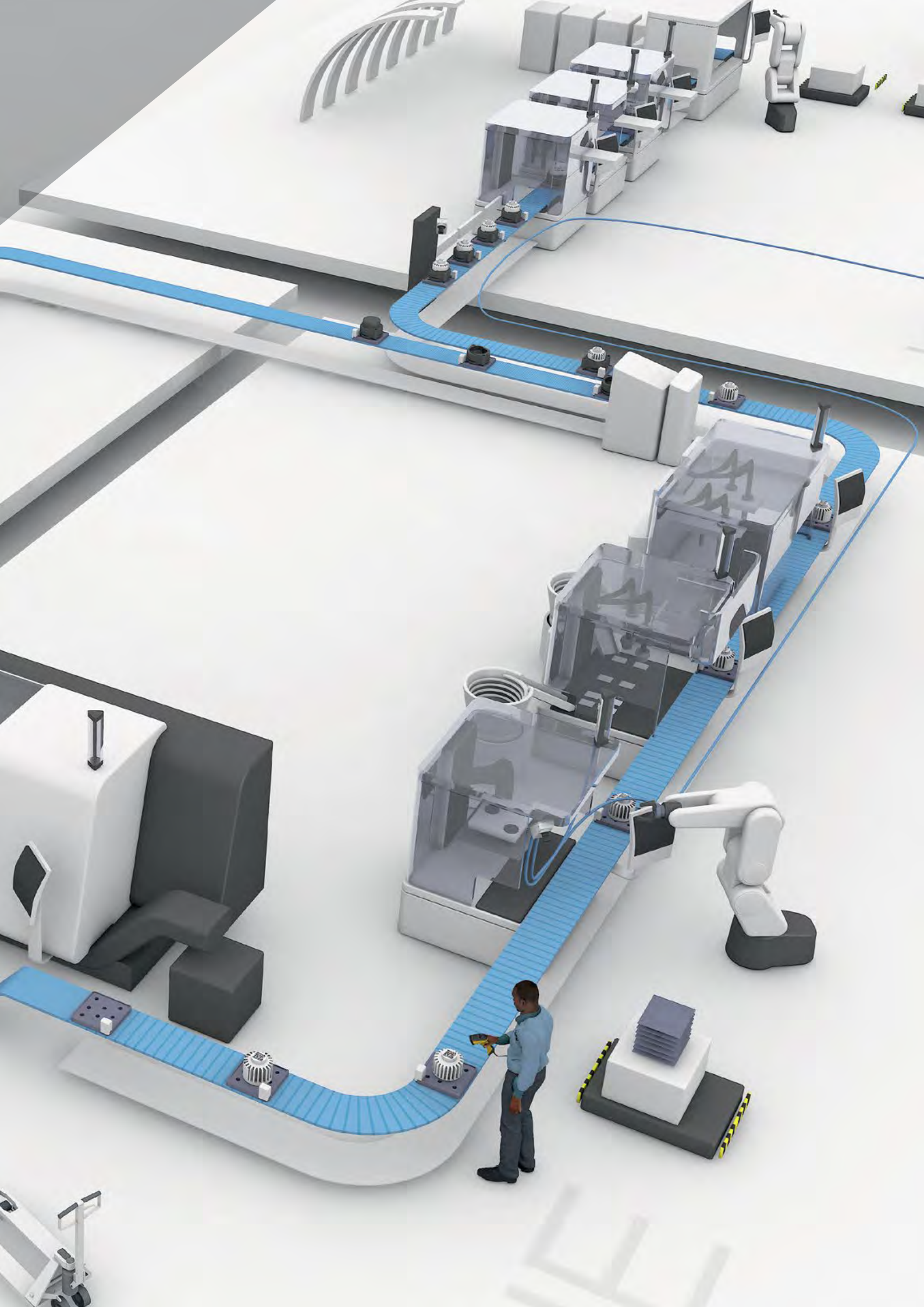
innovating automation

Outstandingly well-positioned for modern production

Industrial image processing is indispensable for modern, flexible manufacturing. It ensures product quality and enables efficient manufacturing processes. Balluff BVS vision solutions open up a variety of powerful applications for visual quality control, identification and positioning. Whatever you need to do, the possibilities of our portfolio for industrial image processing are virtually unlimited: whether monitoring position, size, orientation and distance of objects, checking for completeness, traceability of data or quality checking each individual production stage.

With our Smart Vision solutions you uncover processing errors early, enable fast corrections and prevent scrap batches to reduce your costs. And best of all: our image processing products are simple to set up and intuitive to operate – with no prior knowledge.

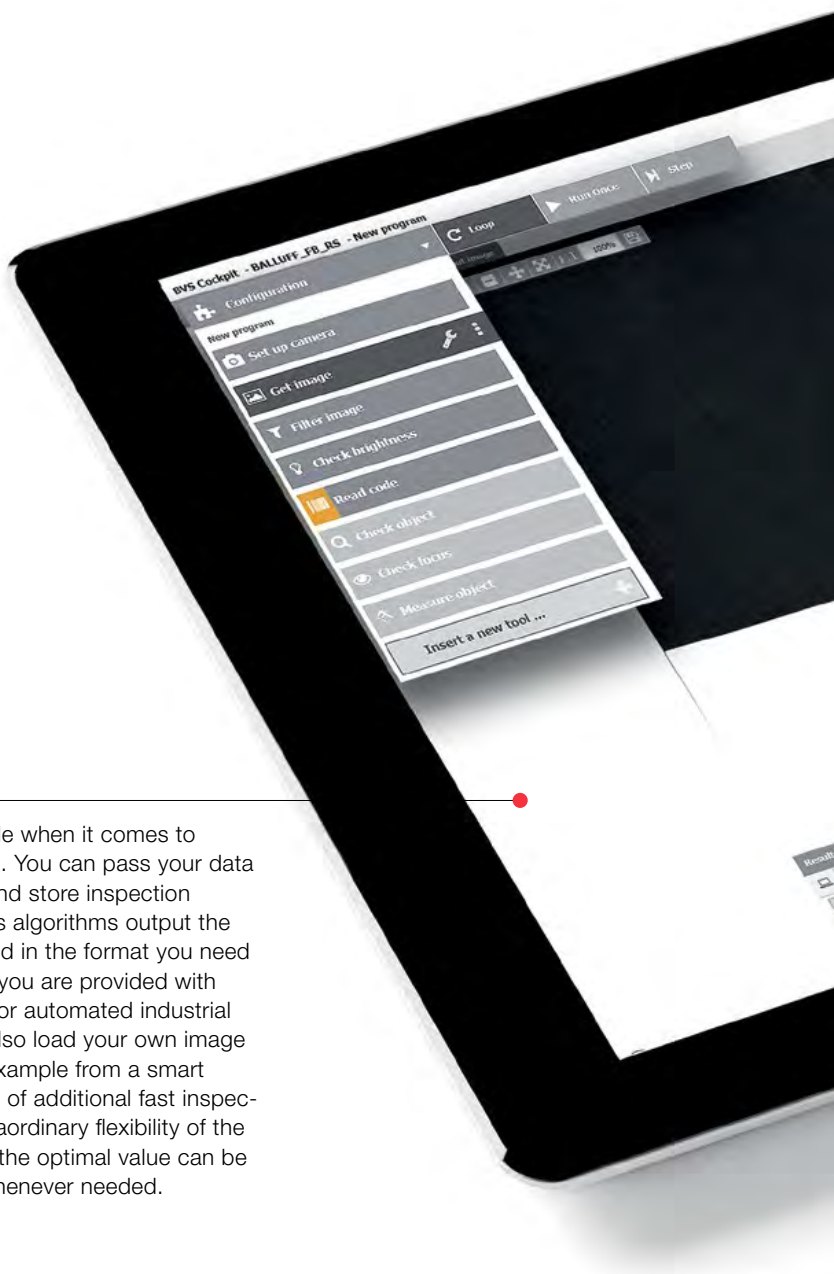
You also stabilize your entire production process with our cameras because these can be configured so that only the information needed for the controller flows through the process network. All other data are sent to a separate Gigabit Ethernet network. This minimizes data load and secures your process network.



Versatile in use – easy to operate

SMART VISION SOLUTIONS.

innovating automation



They are also highly flexible when it comes to selecting camera versions. You can pass your data directly to the controller and store inspection reports. Intelligent analysis algorithms output the results on the interface and in the format you need them. To accomplish this you are provided with various interfaces suited for automated industrial systems. Since you can also load your own image files to the cameras, for example from a smart phone, you can make use of additional fast inspection possibilities. The extraordinary flexibility of the image processing means the optimal value can be obtained from the data whenever needed.

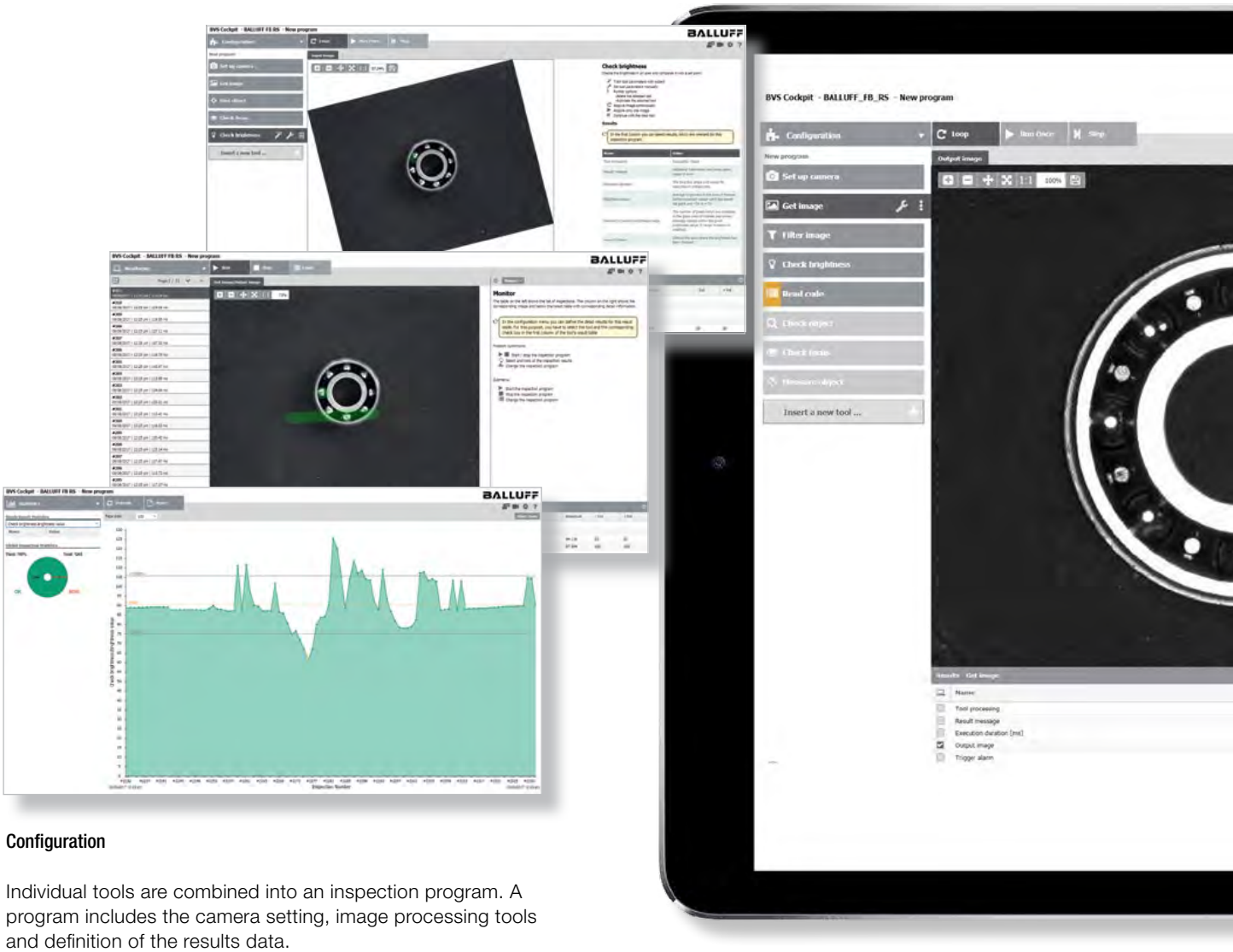
For system support we have integrated online help and user interface manuals. The design of the system architecture means these – as well as the program, calibration templates and statistical evaluation – are always up-to-date.

Our Smart Vision solutions open up a variety of applications for image processing according to individual specifications. The SmartCamera and Industrial Camera are simple and intuitive to operate thanks to the well-designed BVS Cockpit software. The user interface shows you all the important functions. Both the monitor as well as the configuration and statistics modes are clearly represented. For all the tools you see only the parameters needed for the setting, so that you can conveniently adapt both our SmartCamera and our Industrial Camera to your needs. Selecting the hard- and software makes the functional scope easy to scale.

Intuitive

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

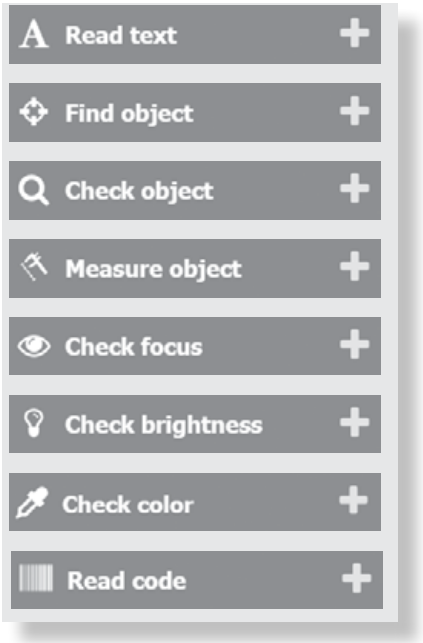
The monitor shows you the current inspection program. The SmartCamera can store up to 100 inspection programs which you can select individually either directly or through the controller.

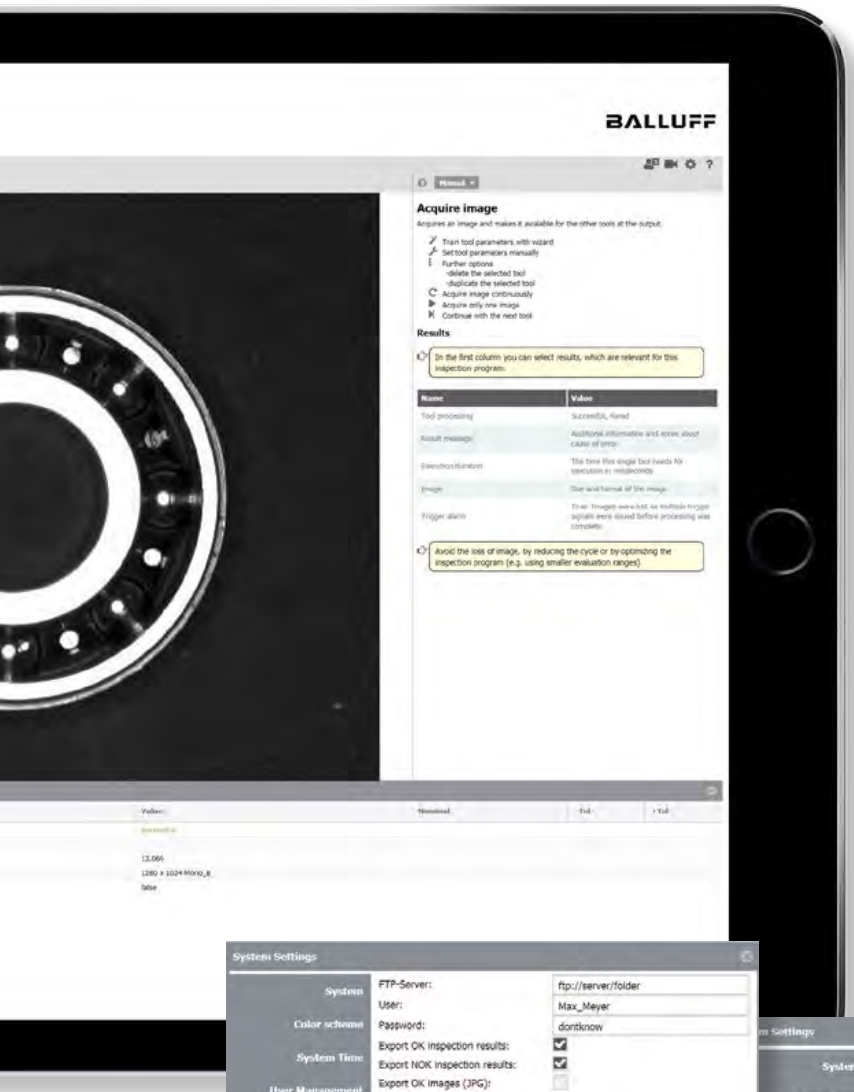
Statistics

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 in-spection display in Monitor mode.

Image processing tools

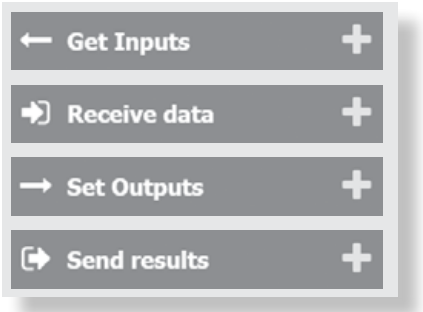
Simple to use, flexible and reliable. The SmartCamera offers intuitive operation and simple to use tools which are based on industry-standard HALCON basic algorithms – all of which ensures you of fast and reliable solutions.

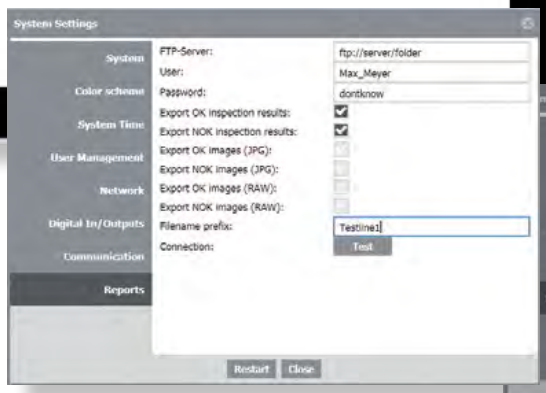




Interface tools

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





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.

Easy to integrate, cost-saving and flexible

SMARTCAMERA

	BVS002C	BVS002A	BVS0029	BVS002F	BVS0033
Description	SMARTCAMERA IO	SMARTCAMERA Fieldbus	SMARTCAMERA Ident	SmartCamera Color	SmartCamera HDevelop
Application area	Identification, general image analysis	Identification, general image analysis	Identification	Identification, general image analysis	Identification, general image analysis, HDevelop Script Import
Principle	CMOS, 1/1.8", monochrome, Global Shutter	CMOS, 1/1.8", monochrome, Global Shutter	CMOS, 1/1.8", monochrome, Global Shutter	CMOS, 1/1.8", color, Global Shutter	CMOS, 1/1.8", monochrome, Global Shutter
Image resolution	1280 × 1024 pixels	1280 × 1024 pixels	1280 × 1024 pixels	1280 × 1024 pixels	1280 × 1024 pixels
Lens	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount
Data memory	4 GB	4 GB	4 GB	4 GB	4 GB
System interface	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet
Process interface	TCP, UDP	Profinet, Ethernet/IP, TCP, UDP, IO-Link	Profinet, Ethernet/IP, TCP, UDP, IO-Link	Profinet, Ethernet/IP, TCP, UDP, IO-Link	Profinet, Ethernet/IP, TCP, UDP, IO-Link
Digital interface	8 × I/O (potential isolation)	8 × I/O	8 × I/O	8 × I/O	8 × I/O
Housing material	Painted aluminum	Painted aluminum	Painted aluminum	Painted aluminum	Painted aluminum
Size	62 × 55 × 110 mm	62 × 55 × 110 mm	62 × 55 × 110 mm	62 × 55 × 110 mm	62 × 55 × 110 mm
Weight	360 g	360 g	360 g	360 g	360 g
Type of protection IEC 60529	IP67 (with protective tube)	IP67 (with protective tube)	IP67 (with protective tube)	IP67 (with protective tube)	IP67 (with protective tube)
Operating temperature	0...+55 °C	0...+55 °C	0...+55 °C	0...+55 °C	0...+55 °C

Protective tube, lens, filter, light, connection cable – available separately. For detailed product information, see page 24 and 25.

Smart

WITH APPLICATION-SPECIFIC INFORMATION

Versatile linking to the production environment

IO VARIATIONS

- TCP-/IP-LAN connection (Gigabit Ethernet) and up to eight freely programmable, potential-isolated in-/outputs
- Lights can be directly controlled

FIELDBUS VERSIONS

- TCP-/IP-LAN connection (Gigabit Ethernet)
- Profinet or Ethernet/IP process interface
- For simple networking with IO-Link master 1.1 components
- Up to eight freely programmable in-/outputs
- Reduces load on the process network: optional separation of process data and reports with images
- Lights can be directly controlled

Configuration and process control are integrated

The SmartCamera includes the complete user interface software. The image processing tools are based on the HALCON function library.

HALCON a product of MVTec

The images are recorded at the highest quality, analyzed as appropriate for the application, and passed along to the controller. Use the serial number to access the SmartCamera from common Web browsers (Google Chrome, Mozilla Firefox, Internet Explorer, Edge). This enables simple remote access even from distant locations. Integrated process controls such as brightness, focus or status indication can be set as desired.

Flexible data preparation for the system environment

The SmartCamera has flexibility for linking to the system environment. Configure and assign individual signals as required. Results data can also be variously defined and formatted. The SmartCamera passes these data to the host control system. Likewise, the object data and serial numbers can be integrated into the inspection sequence.

To minimize data load and secure the process network, you can configure the camera so that only the information the controller needs runs through the process network. All other data are sent to a separate Gigabit Ethernet network. Alternately, a simple software click allows combined operation over a network connection.

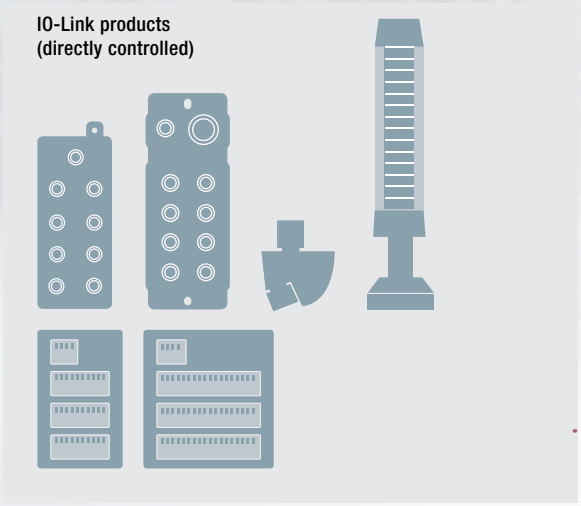
Designed for industry

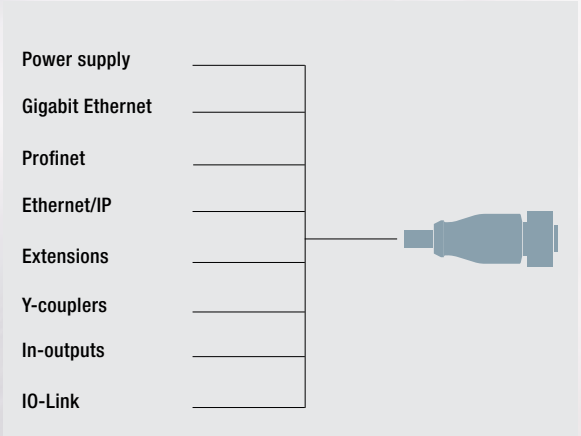
- Rugged IP67 enclosure
- Flexible mounting
- Standardized M12 connection for all interfaces

Versatile – for optimal results

SOLUTION OVERVIEW.

innovating automation





PLC

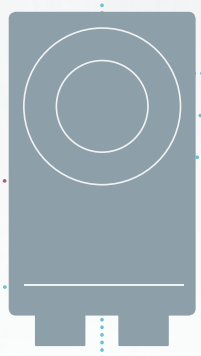
EtherNet/IP™

PROFINET®

Display

12" Windows 10 IOT

Power supply units



SmartCamera
monochrome,
color, IO, fieldbus

Optics

C-mount lens
6...75 mm focal length

Filters
Polarizing, red, infrared

Protection tube
Aluminum 40 or 71 mm

Lights

Ring light
100 mm
red/white/
infrared

Line light
85 ...200 mm
red/white/
infrared

Machine light
170...300 mm
white

Dark Field
Light
90 mm red

Background
light
25 ...300 mm
red/infrared

Coaxial light
50/100 mm
red

Spot light
12 ...30 mm
red/infrared

Line laser

Fast, compact and high-performance

INDUSTRIAL CAMERA

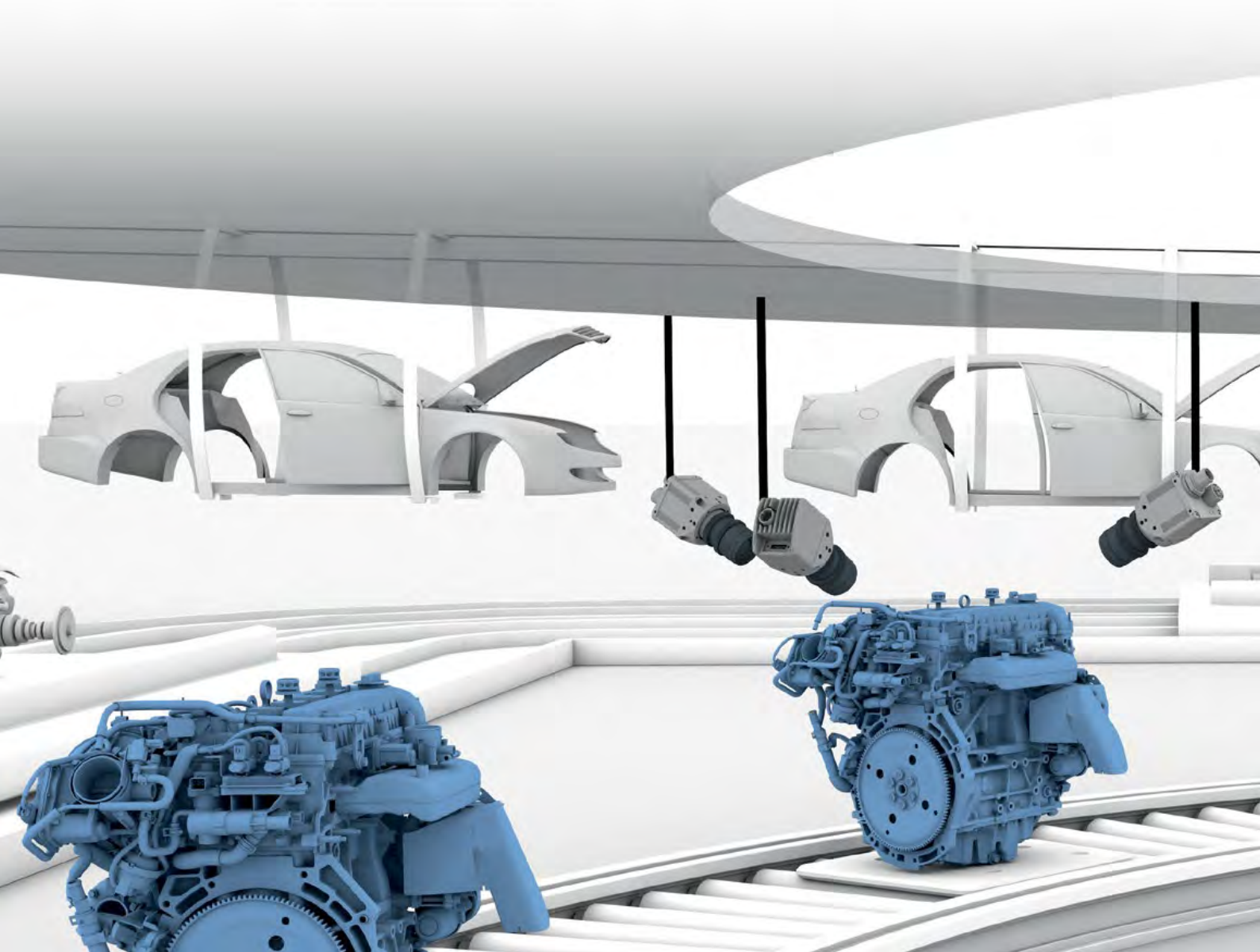
High-performance industrial system with BVS Cockpit and industrial controller

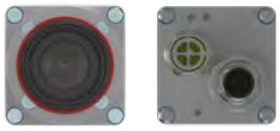
With our Industrial Cameras you use outstanding images and profit from extremely fast image transfer. Select between color or black-and-white and four different image resolutions. This offers you great flexibility in installation because wherever you locate the camera, its high resolution guarantees you tack sharp images even over large image fields – and therefore the best inspection results. Also good to know: their compact form factor makes installation possible even in tight spaces.

For use with the BVS Cockpit system, our Industrial Cameras need an industrial controller into which the software is integrated. Since you can enable multiple cameras simultaneously on one controller, you are able to perform multiple inspections.

For example, one inspection can involve different angles of view at the same time. This not only increases the quality of the inspection, but is also especially cost-saving, since you can easily and simply initiate multiple queries and process their results simultaneously via the industrial controller.

The BVS Cockpit is also an integral part of this high-performance camera, so that like the SmartCamera it is highly user-friendly. You can conveniently perform setup to your individual requirements with no previous knowledge or expertise. And its various interfaces with GigE or USB3 mean the Industrial Camera can be integrated into any industrial network.





Optimized recording of inspection images

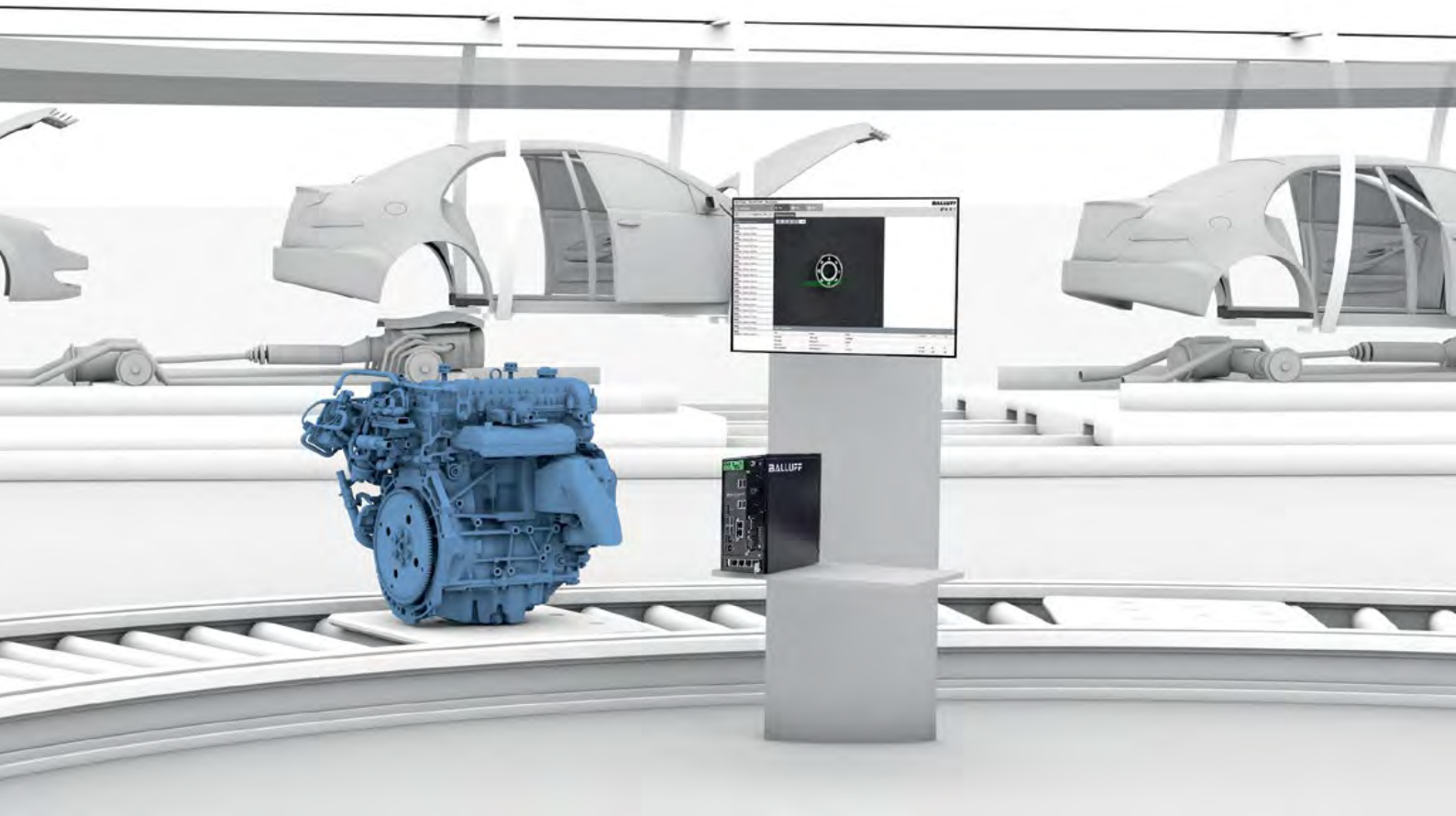
GIGE VARIANTS
- GigE-Vision interface plus four inputs and four outputs
- Standard-Gen<i>Cam programming interface

Optimized recording of inspection images

USB3 VARIANTS
- USB3-Vision interface plus two inputs and four outputs
- Standard-Gen<i>Cam programming interface

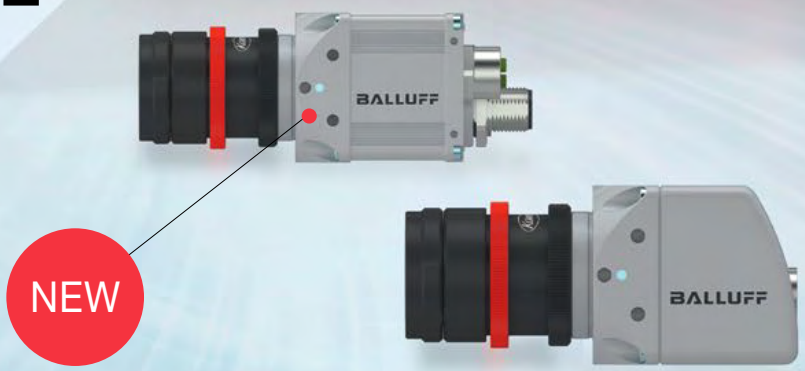
Process and analyze multiple camera image data and forward the results

SMARTVISION CONTROLLER
- Multiple USB3 or GigE camera connections
- Versatile LAN and process interfaces



High-performance cameras for economical solutions

INDUSTRIAL CAMERAS



INDUSTRIAL CAMERA	GigE Vision	USB3 Vision
Monochrome, 1.6 MP	BVS002H	BVS002T
Color, 1.6 MP	BVS002J	BVS002U
Monochrome, 3.2 MP	BVS002K	BVS002W
Color, 3.2 MP	BVS002L	BVS002Y
Monochrome, 5.1 MP	BVS002M	BVS002Z
Color, 5.1 MP	BVS002N	BVS0030
Monochrome, 12.4 MP	BVS002P	BVS0031
Color, 12.4 MP	BVS002R	BVS0032
Dimension	68,7 × 40 × 40 mm	37,7 × 40 × 40 mm
Sensor chip	CMOS	CMOS
Lens	C-Mount	C-Mount
Data interface	GigE-Vision	USB3-Vision
Digital interface	4 inputs, 4 outputs	2 inputs, 4 outputs
Operating temperature	0...+45 °C	0...+45 °C
Housing material	Coated aluminum	Coated aluminum
Weight	157 g	94 g

Protective tube, lens, filter, light, connection cable – available separately. For detailed product information, see page 28 through 31.

SMARTVISION
CONTROLLER

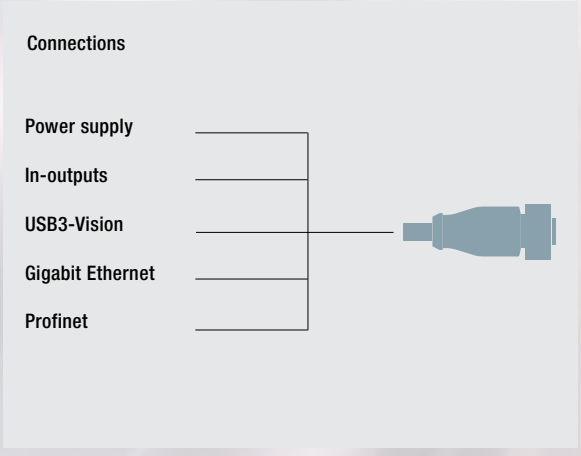
	BAE0103
Description	SmartVision Controller
Dimension	192 × 229 × 88 mm
Power supply	15...24 V
Operating system	Linux, BVS-Cockpit
Processor	i7 – 6700TE
RAM	16 GB DDR4
Hard drive	256 GB SSD
Interfaces	2 × LAN 4 × GigE-LAN 4 × USB3 4 × USB2 2 × Profinet
Application software	BVS-Cockpit with HALCON license
Operating temperature	+10...+50 °C
Housing material	Steel sheet metal, coated
Weight	2700 g

Power supply and mounting system included in scope of delivery. For detailed product information, see page 36

Versatile – for optimal results

SOLUTION OVERVIEW.

innovating automation



PLC

PROFINET

SmartVision Controller

GigE VISION

USB3 VISION

Industrial Camera, monochrome, color, GigE or USB3, IO

Power supply units

Optics

C-mount lens
6...75 mm focal length

Filters
Polarizing, red, infrared

Lights

Ring light
100 mm
red/white/
infrared

Line light
85 ...200 mm
red/white/
infrared

Machine light
170...300 mm
white

Dark Field Light
90 mm red

Background light
25 ...300 mm
red/infrared

Coaxial light
50/100 mm
red

Spot light
12 ...30 mm
red/infrared

Line laser

Smart quality inspection

TRACEABILITY

Vision solutions for secure identification and decoding of objects

Our range of services for optical identification includes stationary barcode readers, mobile handheld readers and accessories for standard and industrial grade applications. All devices offer decoding options for the standard 1D or 2D barcodes. Their use lets you reliably trace products and assembly operations. For example in production control, controlling replenishment processes such as kanban systems, or for optical tool identification. And all the devices are simple to place in service.

You can choose industrial grade handhelds with outstanding read performance and mobile versions that offer maximum freedom of movement. The rugged readers combine maximum reading performance with user friendliness.

Also available are handhelds for reading all common 1D and 2D, stacked barcodes and post codes. These can be used in any orientation (up to 40° of tilt) and while moving. For example in-house logistics, storage space assignment in the area for small parts storage, commissioning or document management. They are intuitive to operate, and the ergonomic shape and low weight eliminate fatigue and are easy on the user's hands.

Our stationary code readers in the compact housing reliably read 1D or 2D as well as stacked codes at up to 40 times per second. It makes no difference whether the codes were adhered with a label, printed on, laser etched or directly marked. Even position deviations are not a problem.

RS232/USB	BVS001W	BVS001T			
Bluetooth 3.0/RS232	BVS0020	BVS001Z			
Bluetooth 3.0/USB 3	BVS0021				
Ethernet 10/100 Base T			BVS0001	BVS0019	
Gigabit Ethernet					BVS0029
Application area	Identification Barcode, 2D	Identification Barcode, 2D, DMC	Identification Barcode, 2D	Identification Barcode, 2D	Identification Barcode, 2D, OCR
Image resolution			640 × 480 pixels	640 × 480 pixels	1280 × 1024 pixels
Focal length			8 mm	8 mm	C-Mount
Illumination	LED, red light	LED white light	LED, red light	Infrared	
Process interface					Profinet, Ethernet/IP, TCP, UDP, IO-Link
Digital interface			1 × Trigger, 1 × Select, 3 × Output	1 × Trigger, 1 × Select, 3 × Output	8 × I/O
Size	163 × 41 × 91 mm	212 × 74 × 110 mm	51.5 × 70 x 40 mm	51.5 × 70 × 40 mm	62 × 55 × 110 mm
Weight	200 g	330 g	122 g	122 g	360 g
Type of protection IEC 60529	IP42	IP65	IP54	IP54	IP67 (with protective tube)
Operating temperature	0...+50 °C	–20…+50 °C	–10…+55 °C	–10…+55 °C	0...+55 °C

More products can be found at www.balluff.com

Simple production testing

OBJECT DETECTION

Reliable defect detection through exact quality inspection

Vision sensors from Balluff meet the rising demands for maximum quality and great flexibility in modern production facilities. They detect, inspect and verify plain text. They provide reliable defect detection and thereby ensure an exact quality control. You can flexibly combine all the functions, so that you master a variety of inspection operations with just one sensor.

We offer various models for your individual requirements: a Standard version with seven independent inspection tools and up to twenty storable inspections, so that your production keeps running seamlessly even when changing tools. This is because for each changing batch the inspection task can be simply changed.

The Advanced version also guarantees high system availability in demanding and fast-running applications. This model offers all the features of the Standard version plus 360° location detection as well as logical operations for different features.

The Universal vision sensor is the all-rounder with a broad range of application possibilities. It also stands out with high-speed responsiveness. Up to 40 barcodes and DataMatrix codes per second can be read and verified. And with its especially powerful, contour-based image processing tools you can locate, inspect and count all the parts in any rotational orientation.

LED red light, focal length 6mm	BVS000E	BVS000L	BVS001L
Infrared, focal length 6mm	BVS0013	BVS0016	BVS001F
LED red light, focal length 8mm	BVS0003	BVS000J	BVS001M
Infrared, focal length 8mm	BVS0014	BVS0015	BVS001H
LED red light, focal length 12 mm	BVS0005	BVS000K	BVS001N
Infrared, focal length 12mm	BVS0012	BVS0017	BVS001J
LED red light, focal length 16 mm		BVS000W	BVS001P
Infrared, focal length 16mm		BVS0018	BVS001K
Description	BVS E Standard	BVS E Advanced	BVS E Universal
Application area	Standard tools (brightness, contrast, edge, pattern)	Standard tools, 360° pattern check, results linking	Standard tools, identification, 360° pattern check, contour tool, OCV, results linking
Image resolution	640 × 480 pixels	640 × 480 pixels	640 × 480 pixels
Working distance	50…1000 mm	50…1000 mm	50…1000 mm
System interface	Ethernet 10/100 Base T	Ethernet 10/100 Base T	Ethernet 10/100 Base T
Digital interface	1 × Trigger, 1 × Select, 3 × Output	1 × Trigger, 1 × Select, 3 × Output	1 × Trigger, 1 × Select, 3 × Output
Size	51.5 × 70 × 40 mm	51.5 × 70 × 40 mm	51.5 × 70 × 40 mm
Weight	122 g	122 g	122 g
Type of protection IEC 60529	IP54	IP54	IP54
Operating temperature	–10…+55 °C	–10…+55 °C	–10…+55 °C
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

Quality assurance with industrial grade image processing

MACHINE VISION

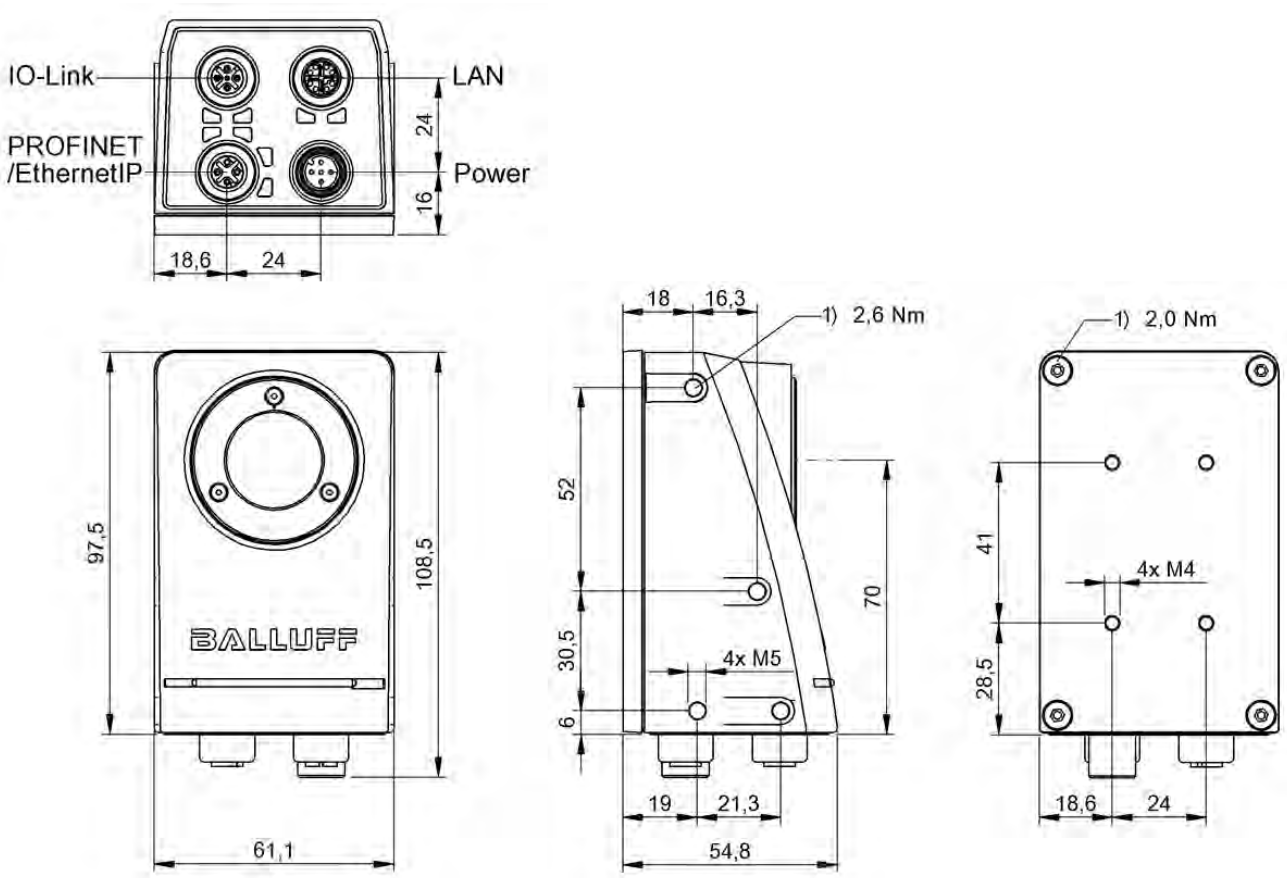
Machine Vision from Balluff ensures quality and flexibility in modern production facilities. Through the use of industrial image processing our machine vision products provide reliable defect detection and, thereby, ensure exact quality control. All functions of the sensors can be flexibly combined.

The most important benefits

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

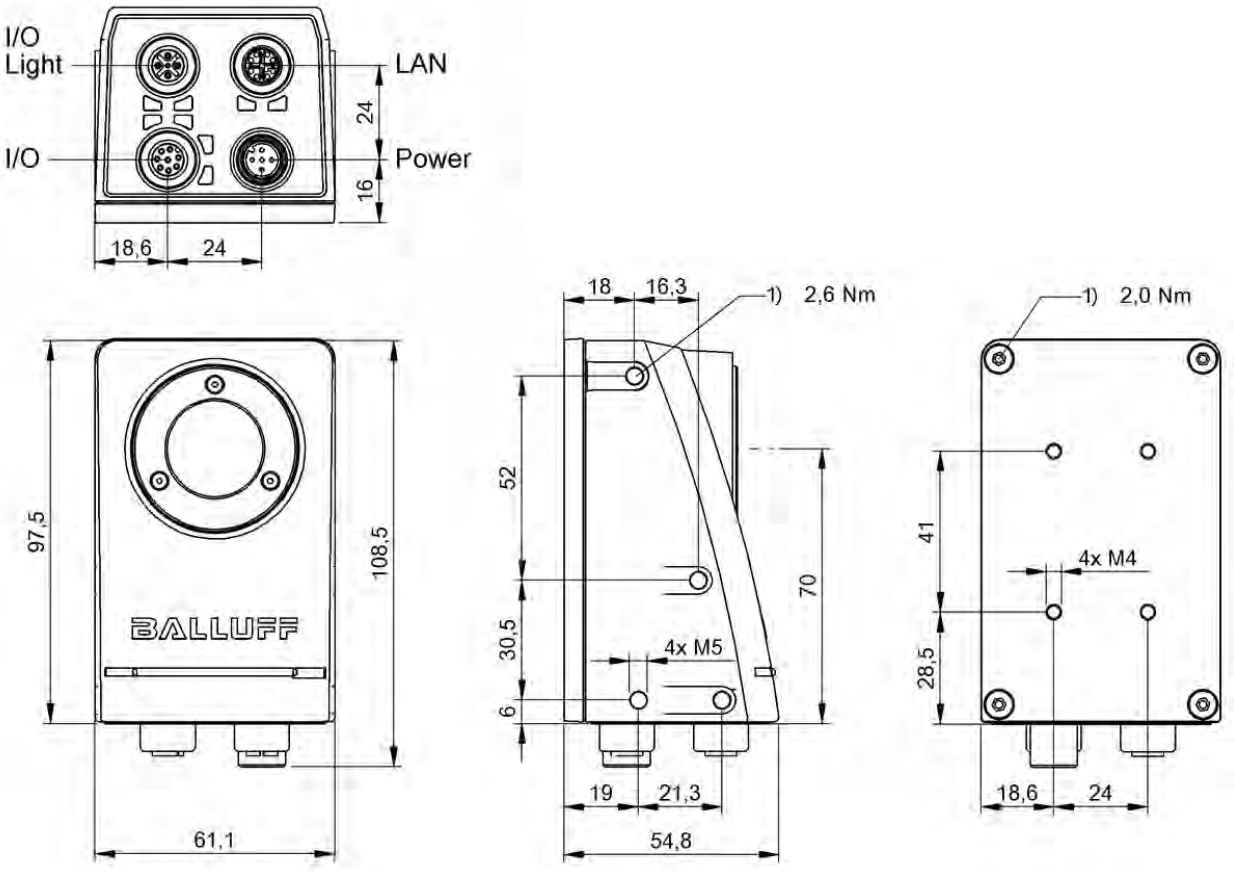
	BVS002F BVS SC-C1280Z00-30-000	
Application	Object inspection, Analyze color, Range, Object detection, Positioning, Barcode-, 2D-, OCR identification	
Image resolution	1280 x 1024 pixels	
Sensor type Vision	CMOS 1/1,8“ color global shutter	
Housing material	Aluminum	
Dimension	62 x 55 x 110 mm	
Switching output	2x IO configurable	
Interface	LAN (Gigabit Ethernet), Profinet/EtherNet/IP, IO-Link	
Operating voltage Ub	19.2...28.8 VDC	
Ambient temperature	0...55 °C	
Approval/Conformity	CE, UL-FILE E227256, Vol.X1, BIS	
Protection degree	IP67 with protection tube	
Power	M12x1-male, 4-pin, A-coded	
IO-Link	M12x1-female, 4-pin, A-coded	
Fieldbus	M12x1-female, 4-pin, D-coded	
LAN	M12x1-female, 8-pin, X-coded	

	BVS002C BVS SC-M1280Z00-07-000	**BVS002A** BVS SC-M1280Z00-30-000	**BVS0033** BVS SC-M1280Z00-30-020
	Object inspection, Range, Object detection, Positioning, Barcode-, 2D-, OCR identification	Object inspection, Range, Object detection, Positioning, Barcode-, 2D-, OCR identification	Object inspection, Range, Object detection, Positioning, Barcode-, 2D-, OCR identification, HDevelop script import
	1280 x 1024 pixels	1280 x 1024 pixels	1280 x 1024 pixels
	CMOS 1/1.8“ monochrome global shutter	CMOS 1/1.8“ monochrome global shutter	CMOS 1/1.8“ monochrome global shutter
	Aluminum	Aluminum	Aluminum
	62 x 55 x 110 mm	62 x 55 x 110 mm	62 x 55 x 110 mm
	8x IO configurable	2x IO configurable	2x IO configurable
	LAN (Gigabit Ethernet)	LAN (Gigabit Ethernet), Profinet/EtherNet/IP, IO-Link	LAN (Gigabit Ethernet), Profinet/EtherNet/IP, IO-Link
	19.2...28.8 VDC	19.2...28.8 VDC	19.2...28.8 VDC
	0...55 °C	0...55 °C	0...55 °C
	CE, UL-FILE E227256, Vol.X1, BIS	CE, UL-FILE E227256, Vol.X1, BIS	CE, UL-FILE E227256, Vol.X1, BIS
	IP67 with protection tube	IP67 with protection tube	IP67 with protection tube
	M12x1-male, 4-pin, A-coded	M12x1-male, 4-pin, A-coded	M12x1-male, 4-pin, A-coded
	M12x1-female, 4-pin, A-coded	M12x1-female, 4-pin, A-coded	M12x1-female, 4-pin, A-coded
	M12x1-female, 4-pin, D-coded	M12x1-female, 4-pin, D-coded	M12x1-female, 4-pin, D-coded
	M12x1-female, 8-pin, X-coded	M12x1-female, 8-pin, X-coded	M12x1-female, 8-pin, X-coded



1) Tightening torque

BVS002F, BVS002A, BVS0033



1) Tightening torque

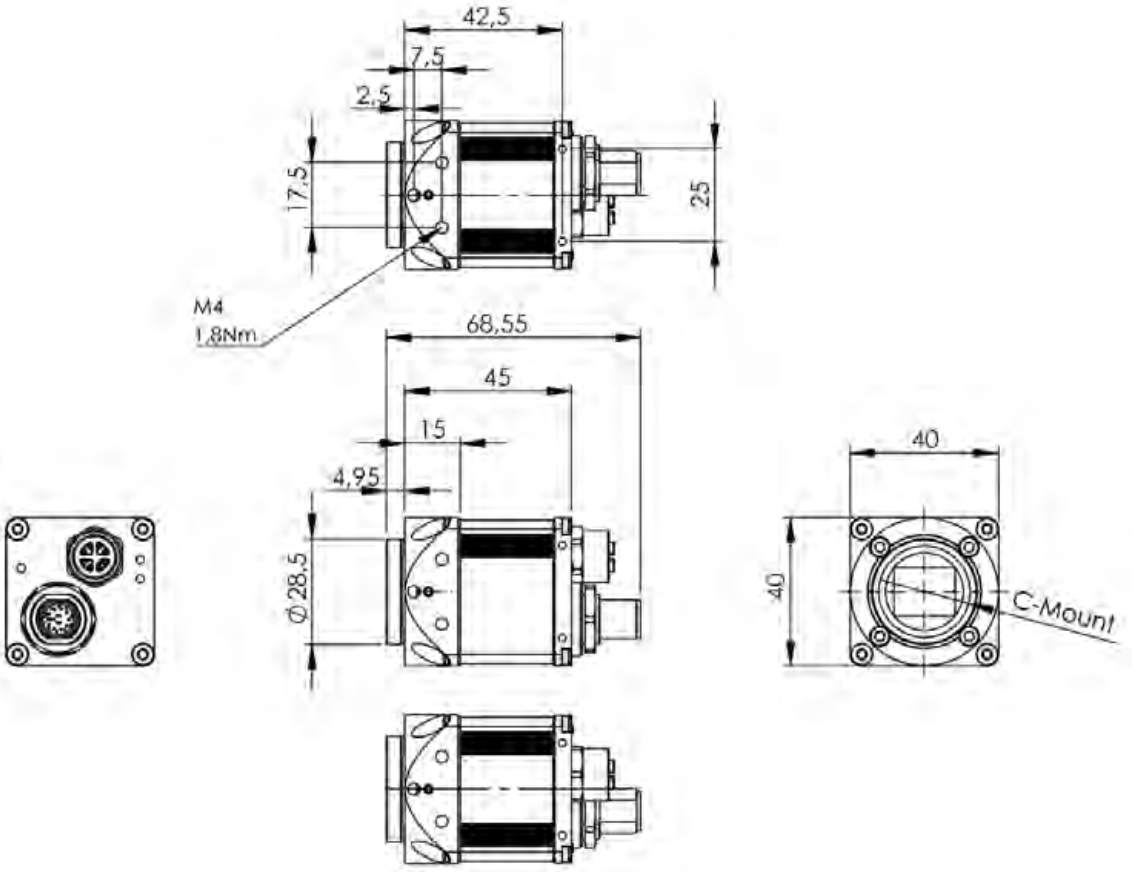
BVS002C

	BVS002J BVS CA-C1456Z00-31-000	**BVS002H** BVS CA-M1456Z00-31-000	**BVS002L** BVS CA-C2064Z00-31-000	
Principle of operation	Industrial camera	Industrial camera	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	CMOS 1/2,9“ color global shutter	CMOS 1/2,9“ monochrome global shutter	CMOS 1/1,8“ color global shutter	
Image resolution	1456 x 1088 pixels	1456 x 1088 pixels	2064 x 1544 pixels	
Housing material	Aluminum	Aluminum	Aluminum	
Image formats	Mono8, Mono10, Mono12, Mono14, Mono16, Mono12Packed, Mono12p	Mono8, Mono10, Mono12, Mono14, Mono16, Mono12Packed, Mono12p	Mono8, Mono10, Mono12, Mono14, Mono16, Mono12Packed, Mono12p	
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, FCC, RoHS, EMVA 1288, EAC	CE, FCC, RoHS, EMVA 1288, EAC	CE, FCC, RoHS, EMVA 1288, EAC	
Protection degree	IP40	IP40	IP40	
Power I/O	M12x1-male, 12-pin, A-coded	M12x1-male, 12-pin, A-coded	M12x1-male, 12-pin, A-coded	
LAN	M12x1-female, 8-pin, X-coded	M12x1-female, 8-pin, X-coded	M12x1-female, 8-pin, X-coded	

BVS002K BVS CA-M2064Z00-31-000	**BVS002N** BVS CA-C2464Z00-31-000	**BVS002M** BVS CA-M2464Z00-31-000	**BVS002R** BVS CA-C4112Z00-31-000	**BVS002P** BVS CA-M4112Z00-31-000
Industrial camera	Industrial camera	Industrial camera	Industrial camera	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
CMOS 1/1.8“ monochrome global shutter	CMOS 2/3“ color global shutter	CMOS 2/3“ monochrome global shutter	CMOS 1,1“ color global shutter	CMOS 1,1“ monochrome global shutter
2064 x 1544 pixels	2464 x 2056 pixels	2464 x 2056 pixels	4112 x 3008 pixels	4112 x 3008 pixels
Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
Mono8, Mono10, Mono12, Mono14, Mono16, Mono12Packed, Mono12p	Mono8, Mono10, Mono12, Mono14, Mono16, Mono12Packed, Mono12p	Mono8, Mono10, Mono12, Mono14, Mono16, Mono12Packed, Mono12p	Mono8, Mono10, Mono12, Mono14, Mono16, Mono12Packed, Mono12p	Mono8, Mono10, Mono12, Mono14, Mono16, Mono12Packed, 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, FCC, RoHS, EMVA 1288, EAC	CE, FCC, RoHS, EMVA 1288, EAC	CE, FCC, RoHS, EMVA 1288, EAC	CE, FCC, RoHS, EMVA 1288, EAC	CE, FCC Class B, RoHS, EMVA 1288, EAC
IP40	IP40	IP40	IP40	IP40
M12x1-male, 12-pin, A-coded	M12x1-male, 12-pin, A-coded	M12x1-male, 12-pin, A-coded	M12x1-male, 12-pin, A-coded	M12x1-male, 12-pin, A-coded
M12x1-female, 8-pin, X-coded	M12x1-female, 8-pin, X-coded	M12x1-female, 8-pin, X-coded	M12x1-female, 8-pin, X-coded	M12x1-female, 8-pin, X-coded

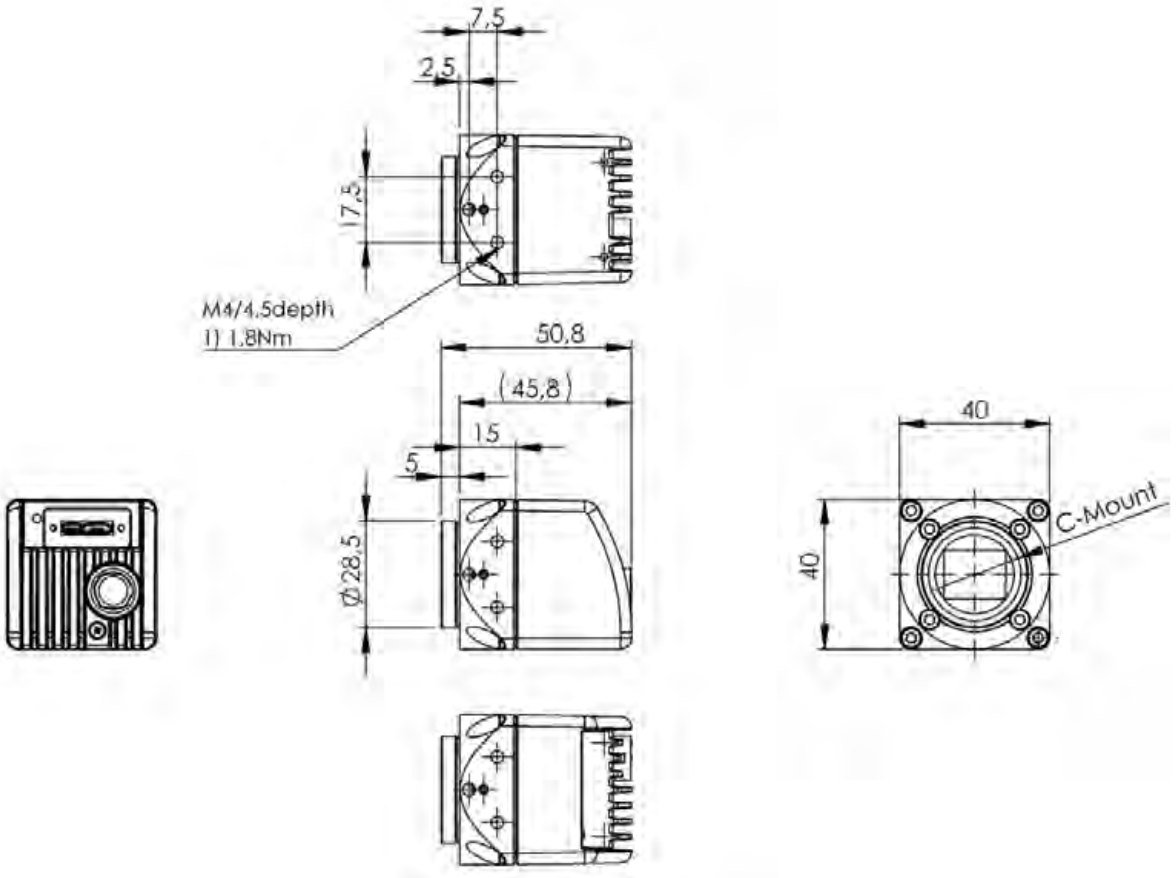
	BVS002U BVS CA-C1456Z00-35-000	**BVS002T** BVS CA-M1456Z00-35-000	**BVS002Y** BVS CA-C2064Z00-35-000	
Principle of operation	Industrial camera	Industrial camera	Industrial camera	
Interface	USB 2.0 / 3.0	USB 2.0 / 3.0	USB 2.0 / 3.0	
Lens mount	C-Mount	C-Mount	C-Mount	
Dimension	40 x 37.7 x 40 mm	40 x 37.7 x 40 mm	40 x 37.7 x 40 mm	
Sensor type Vision	CMOS 1/2,9“ color global shutter	CMOS 1/2,9“ monochrome global shutter	CMOS 1/1,8“ color global shutter	
Image resolution	1456 x 1088 pixels	1456 x 1088 pixels	2064 x 1544 pixels	
Housing material	Aluminum	Aluminum	Aluminum	
Image formats	Mono8, Mono10, Mono12, Mono12p, Mono14, Mono16	Mono8, Mono10, Mono14, Mono16, Mono12, Mono12p	Mono8, Mono10, Mono12, Mono12p, Mono14, Mono16	
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, FCC, RoHS, EMVA 1288, EAC	CE, FCC, RoHS, EMVA 1288, EAC	CE, FCC, RoHS, EMVA 1288, EAC	
Protection degree	IP40	IP40	IP40	
Power I/O	Circular Push Pull, male, 12-pin, size 10	Circular Push Pull, male, 12-pin, size 10	Circular Push Pull, male, 12-pin, size 10	
USB	USB 3.0 Micro-B-female, 10-pole	USB 3.0 Micro-B-female, 10-pole	USB 3.0 Micro-B-female, 10-pole	

	BVS002W BVS CA-M2064Z00-35-000	**BVS0030** BVS CA-C2464Z00-35-000	**BVS002Z** BVS CA-M2464Z00-35-000	**BVS0032** BVS CA-C4112Z00-35-000	**BVS0031** BVS CA-M4112Z00-35-000
	Industrial camera	Industrial camera	Industrial camera	Industrial camera	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 37.7 x 40 mm	40 x 37.7 x 40 mm	40 x 37.7 x 40 mm	40 x 37.7 x 40 mm	40 x 37.7 x 40 mm
	CMOS 1/1.8“ monochrome global shutter	CMOS 2/3“ color global shutter	CMOS 2/3“ monochrome global shutter	CMOS 1,1“ color global shutter	CMOS 1,1“ monochrome global shutter
	2064 x 1544 pixels	2464 x 2056 pixels	2464 x 2056 pixels	4112 x 3008 pixels	4112 x 3008 pixels
	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
	Mono8, Mono10, Mono12, Mono12p, Mono14, Mono16	Mono8, Mono10, Mono12, Mono12p, Mono14, Mono16	Mono8, Mono10, Mono12, Mono12p, Mono14, Mono16	Mono8, Mono10, Mono12, Mono12p, Mono14, Mono16	Mono8, Mono10, Mono12, Mono12p, Mono14, Mono16
	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, FCC, RoHS, EMVA 1288, EAC	CE, FCC, RoHS, EMVA 1288, EAC	CE, FCC, RoHS, EMVA 1288, EAC	CE, FCC, RoHS, EMVA 1288, EAC	CE, FCC, RoHS, EMVA 1288, EAC
	IP40	IP40	IP40	IP40	IP40
	Circular Push Pull, male, 12-pin, size 10	Circular Push Pull, male, 12-pin, size 10	Circular Push Pull, male, 12-pin, size 10	Circular Push Pull, male, 12-pin, size 10	Circular Push Pull, male, 12-pin, size 10
	USB 3.0 Micro-B-female, 10-pole	USB 3.0 Micro-B-female, 10-pole	USB 3.0 Micro-B-female, 10-pole	USB 3.0 Micro-B-female, 10-pole	USB 3.0 Micro-B-female, 10-pole



1) Tightening torque

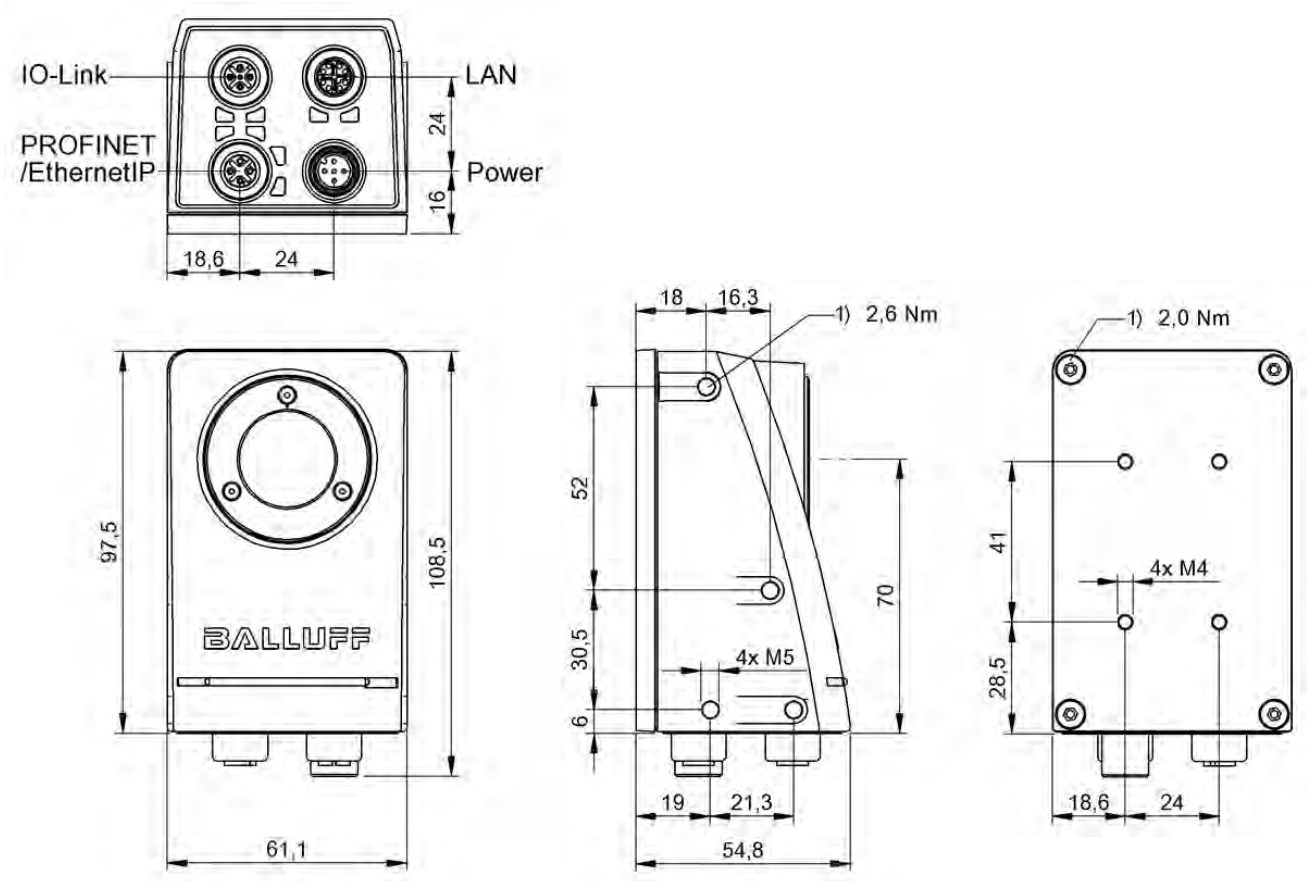
BVS002J, BVS002H, BVS002L, BVS002K, BVS002N, BVS002M, BVS002R, BVS002P



1) Tightening torque

BVS002U, BVS002T, BVS002Y, BVS002W, BVS0030, BVS002Z, BVS0032, BVS0031

	BVS0029 BVS SC-M1280Z00-30-010
Barcodes	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
2D codes	Aztec Code, Data Matrix ECC 200, GS1 Aztec Code, GS1 Data Matrix, GS1 QR Code, Micro QR Code, PDF 417, QR code
Application	Barcode-, 2D-, OCR identification
Image resolution	1280 x 1024 pixels
Sensor type Vision	CMOS 1/1.8“ monochrome global shutter
Housing material	Aluminum
Dimension	62 x 55 x 110 mm
Switching output	2x IO configurable
Interface	LAN (Gigabit Ethernet), Profinet / EtherNet/IP, IO-Link
Operating voltage Ub	19.2...28.8 VDC
Ambient temperature	0...55 °C
Approval/Conformity	CE, UL-FILE E227256, Vol.X1, BIS
Protection degree	IP67 with protection tube
Power	M12x1-male, 4-pin, A-coded
IO-Link	M12x1-female, 4-pin, A-coded
Fieldbus	M12x1-female, 4-pin, D-coded
LAN	M12x1-female, 8-pin, X-coded

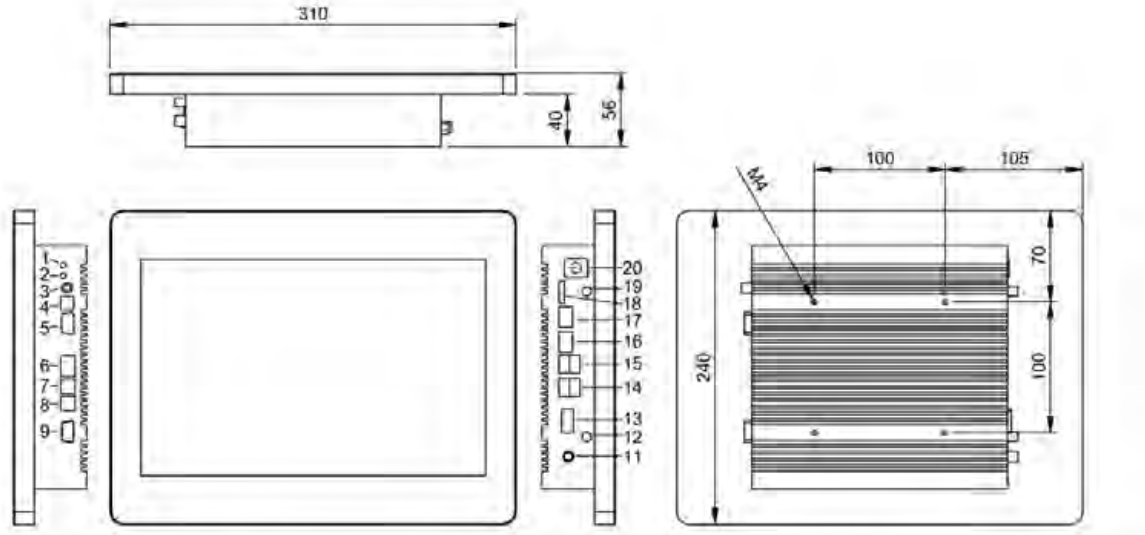


1) Tightening torque

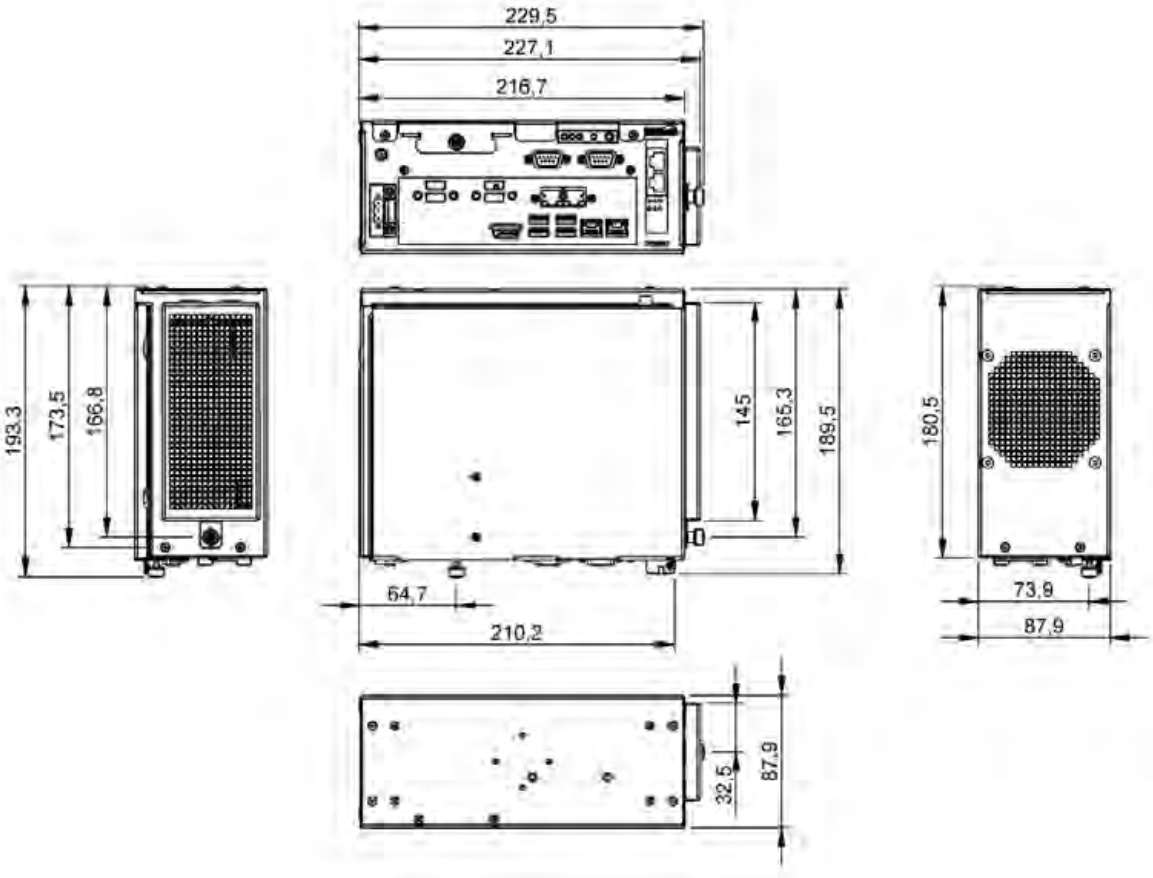
BVS0029

	BAE00WC BAE PD-VS-011-01	
Short description	Touchpanel PC	
Supported operating systems	Windows 10 (32/64 bit)	
CPU	—	
Working memory	—	
Hard drive	—	
Dimension	310 x 56 x 240 mm	
Mounting	VESA 100 mm	
Display	12.1“	
Ambient temperature	10...40 °C	
Approval/Conformity	CE	

	BAE0103 BAE PD-VS-014-05	**BAI000Z** BAI BVS-CA-EPC-001
	SmartVision Controller	BVS Cockpit Software V 2.3, (for industrial cameras BVS CA)
	—	Windows 7 (64 bit) or higher, Dual Core 2 GHz
	Intel® Core i7-6700TE	—
	16 GB DDR4	—
	256 GB 2.5“ SATA SSD	Software on USB stick, Licence dongle (HALCON 13.0.2) on USB stick
	191 x 88 x 216 mm	—
	Wall and DIN rail mount	Mozilla Firefox (Version 24), Google Chrome (Version 32.0), Windows Internet Explorer (Version 10)
	—	—
	10...50 °C	—
	CE, EAC	CE, WEEE



BAE00WC



BAE0103

Optimum lighting conditions for your application

LIGHTING FOR VISION SYSTEMS AND MACHINES

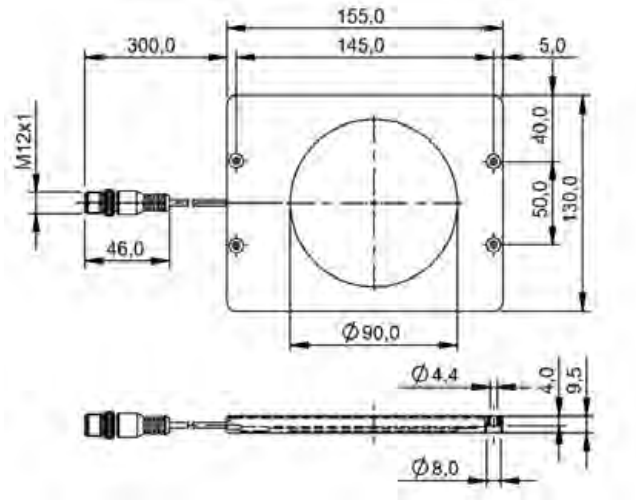
Balluff offers a wide range of rugged lights for your various installation spaces and tasks: for optimal lighting conditions in image processing and for machine lighting.

The energy-saving and long-lasting LED technology impresses with its homogeneous optical properties. Moreover, Balluff lighting options guarantee eye safety in accordance with IEC 62471. You can select between red light, white light, infrared light or laser variants.

The most important benefits

- Highest quality (extensive EMC tests, high protection class)
- Easy and fast assembly
- Simple startup
- Rugged, long service life

	BAE00AM BAE LX-VS-DR090
Connection	Cable with connector, M12x1 male, 4-pin, 0.30 m
Version	Dark field light
Dimension	130 x 9.5 x 155 mm
Rated operating voltage Ue DC	24 V
Current draw max.	416 mA
Operating mode	Normal
Material	Aluminum anodized, black PMMA
Illumination area	Ø 90 mm
Light type	LED, red light
Wave length	617 nm
Illuminence (0.1 m)	2250 Lux
Ambient temperature	-10...55 °C
Approval/Conformity	CE, EAC
Protection degree	IP40



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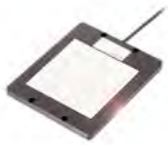
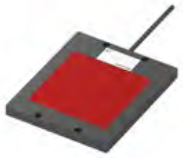
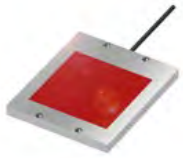


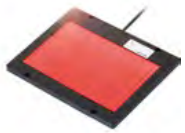
	BAE00KR BAE LX-VS-HI050	BAE00FR BAE LX-VS-HI100	
Connection	Cable with connector, M12x1 male, 4-pin, 0.30 m	Cable with connector, M12x1 male, 4-pin, 0.30 m	
Version	Background light	Background light	
Dimension	80 x 9.5 x 105 mm	130 x 12 x 155 mm	
Rated operating voltage Ue DC	24 V	24 V	
Current draw max.	375 mA	500 mA	
Operating mode	Normal	Normal	
Digital inputs	Trigger	Trigger	
Material	Aluminum anodized, black Glass PMMA	Aluminum anodized, black Glass PMMA	
Illumination area	50 x 50 mm	100 x 100 mm	
Light type	LED infrared	LED infrared	
Wave length	875 nm	875 nm	
Illuminence (0.1 m)	—	—	
Beam angle	35 ° x 35 °	55° x 55°	
Ambient temperature	-10...55 °C	-10...55 °C	
Approval/Conformity	CE, EAC	CE, EAC	
Protection degree	IP54	IP54	

	BAE00KP BAE LX-VS-HI150	BAE00JE BAE LX-VS-HI200	BAE00WM BAE LX-VS-HI300	BAE000E BAE LX-VS-HR025
	Cable with connector, M12x1 male, 4-pin, 0.30 m	Cable with connector, M12x1 male, 4-pin, 0.30 m	Cable with connector, M12x1 male, 4-pin, 0.30 m	Cable with connector, M12x1 male, 4-pin, 0.30 m
	Background light	Background light	Background light	Background light
	130 x 9.5 x 205 mm	180 x 9.5 x 255 mm	255 x 9.5 x 330 mm	43 x 9.5 x 64.5 mm
	24 V	24 V	24 V	24 V
	830 mA	708 mA	1500 mA	208 mA
	Normal	Normal	Normal	Normal
	Trigger	Trigger	Trigger	—
	Aluminum anodized, black Glass PMMA	Aluminum anodized, black Glass PMMA	Aluminum anodized, black Glass PMMA	Aluminum anodized, black Glass PMMA
	150 x 100 mm	200 x 150 mm	300 x 200 mm	25 x 25 mm
	LED infrared	LED infrared	LED infrared	LED, red light
	875 nm	875 nm	875 nm	617 nm
	—	—	—	350 Lux
	80 ° x 60 °	100 ° x 80 °	—	40 ° x 40 °
	-10...55 °C	-10...55 °C	-10...55 °C	-10...55 °C
	CE, EAC	CE, EAC	CE, EAC	CE, EAC
	IP54	IP54	IP54	IP54

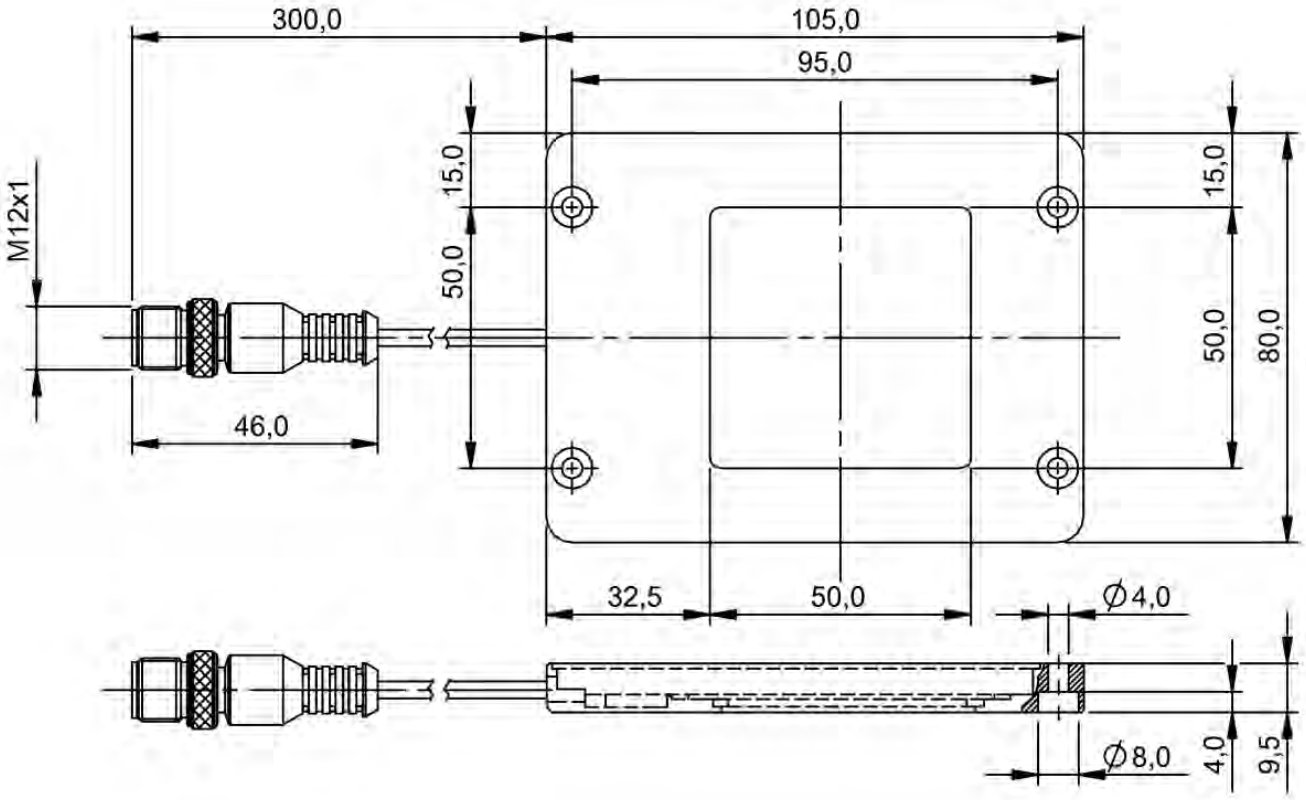


	BAE000F BAE LX-VS-HR050	BAE000H BAE LX-VS-HR100	
Connection	Cable with connector, M12x1 male, 4-pin, 0.30 m	Cable with connector, M12x1 male, 4-pin, 0.30 m	
Version	Background light	Background light	
Dimension	80 x 9.5 x 105 mm	130 x 12 x 155 mm	
Rated operating voltage Ue DC	24 V	24 V	
Current draw max.	250 mA	416 mA	
Operating mode	Normal	Normal	
Digital inputs	Trigger	Trigger	
Material	Aluminum anodized, black Glass PMMA	Aluminum anodized, black Glass PMMA	
Illumination area	50 x 50 mm	100 x 100 mm	
Light type	LED, red light	LED, red light	
Wave length	617 nm	617 nm	
Illuminence (0.1 m)	1250 Lux	3700 Lux	
Beam angle	42 ° x 42 °	55° x 55°	
Ambient temperature	-10...55 °C	-10...55 °C	
Approval/Conformity	CE, EAC	CE, EAC	
Protection degree	IP54	IP54	

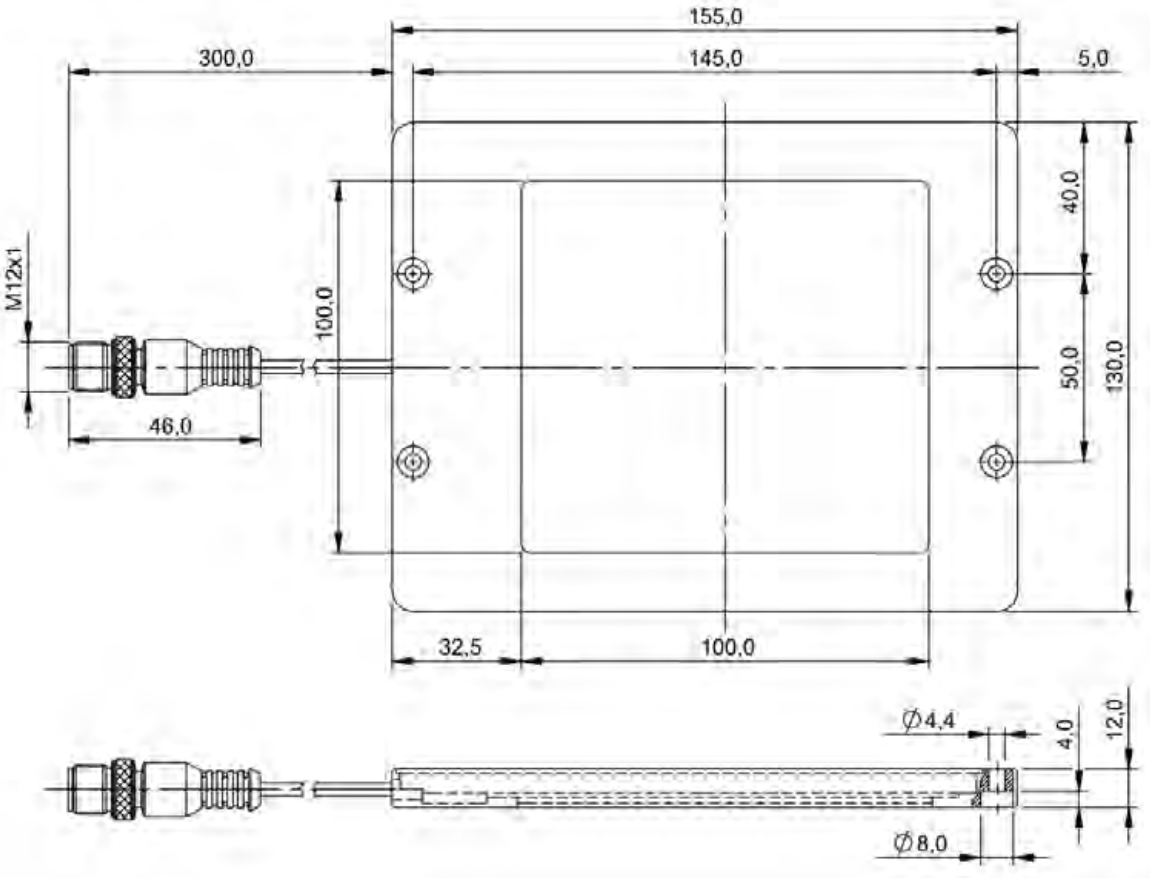




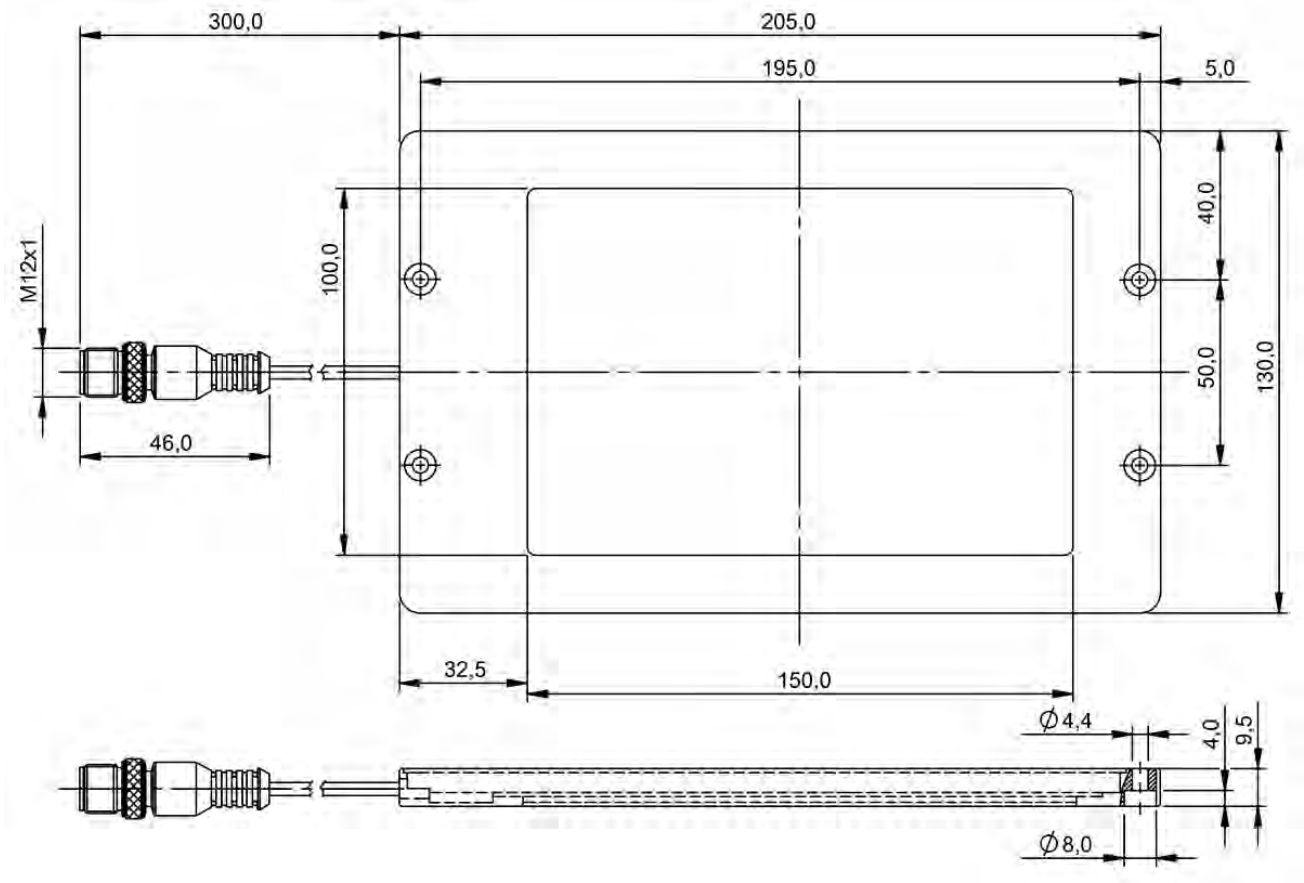
	BAE00JF BAE LX-VS-HR100-E	BAE00C5 BAE LX-VS-HR150	BAE00JC BAE LX-VS-HR200	BAE00MU BAE LX-VS-HR300
	Cable with connector, M12x1 male, 4-pin, 030 m	Cable with connector, M12x1 male, 4-pin, 0.30 m	Cable with connector, M12x1 male, 4-pin, 0.30 m	Cable with connector, M12x1 male, 4-pin, 0.30 m
	Background light	Background light	Background light	Background light
	130 x 12 x 155 mm	130 x 9.5 x 205 mm	180 x 9.5 x 255 mm	255 x 9.5 x 330 mm
	24 V	24 V	24 V	24 V
	416 mA	500 mA	625 mA	1000 mA
	Normal	Normal	Normal	Normal
	Trigger	Trigger	Trigger	Trigger
	Stainless steel (1.4301) Glass PMMA	Aluminum anodized, black Glass PMMA	Aluminum anodized, black Glass PMMA	Aluminum anodized, black Glass PMMA
	100 x 100 mm	150 x 100 mm	200 x 150 mm	300 x 200 mm
	LED, red light	LED, red light	LED, red light	LED, red light
	617 nm	617 nm	617 nm	617 nm
	3700 Lux	4800 Lux	5100 Lux	4750 Lux
	55° x 55°	80 ° x 60 °	100 ° x 80 °	—
	-10...55 °C	-10...55 °C	-10...55 °C	-10...55 °C
	CE, EAC	CE, EAC	CE, EAC	CE, EAC
	IP69K	IP54	IP54	IP54



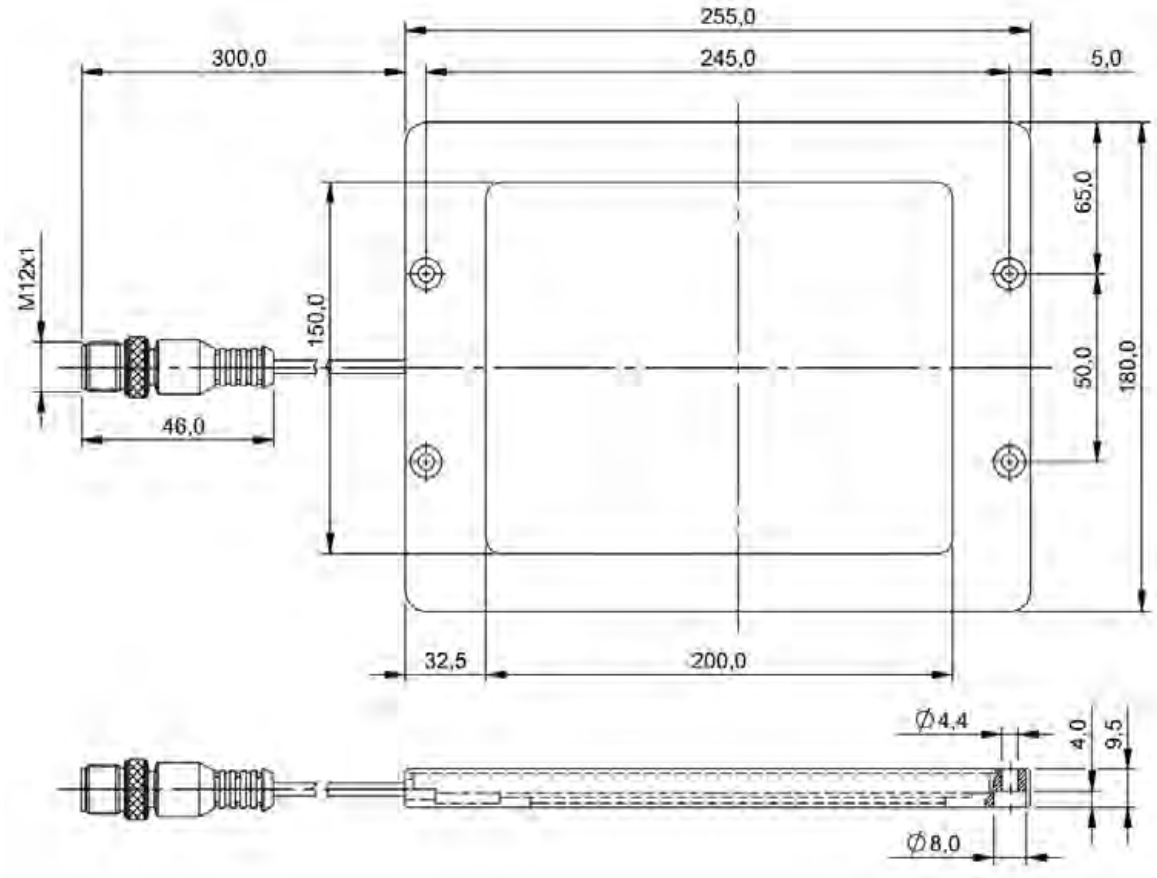
BAE00KR, BAE000F



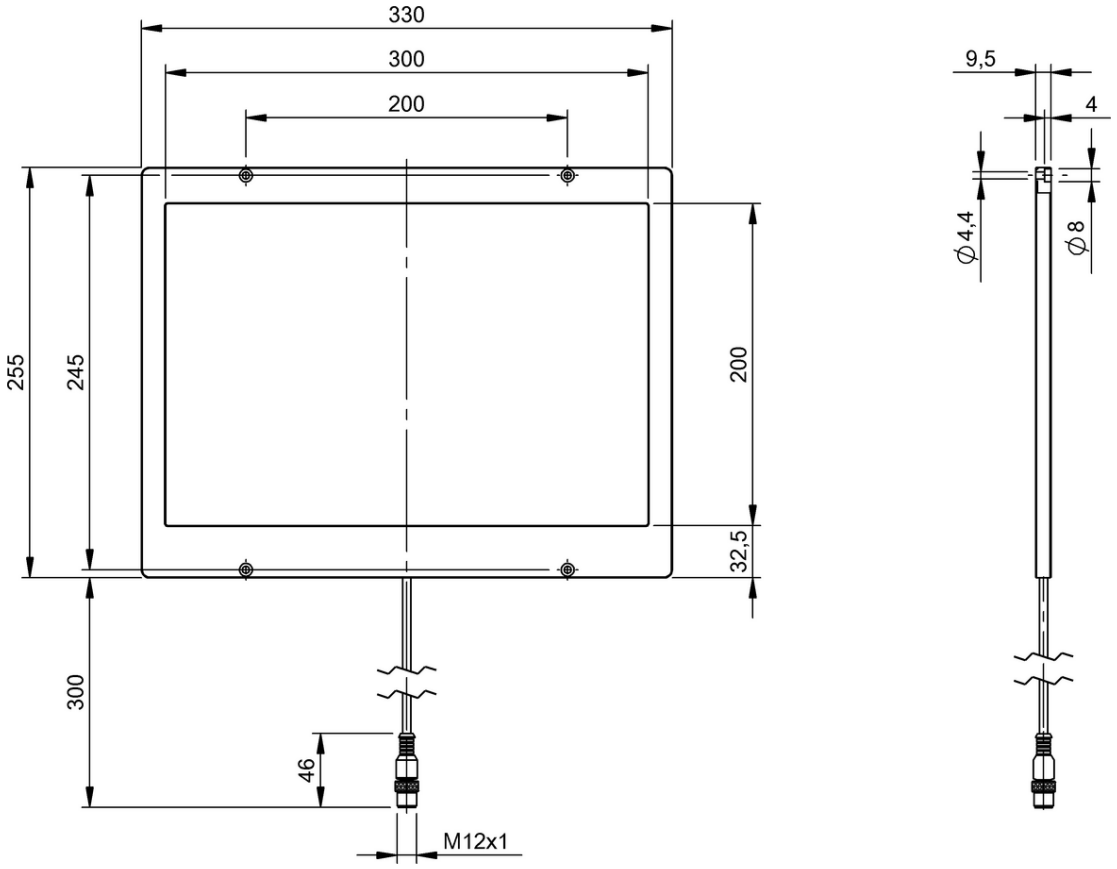
BAE00FR, BAE000H, BAE00JF



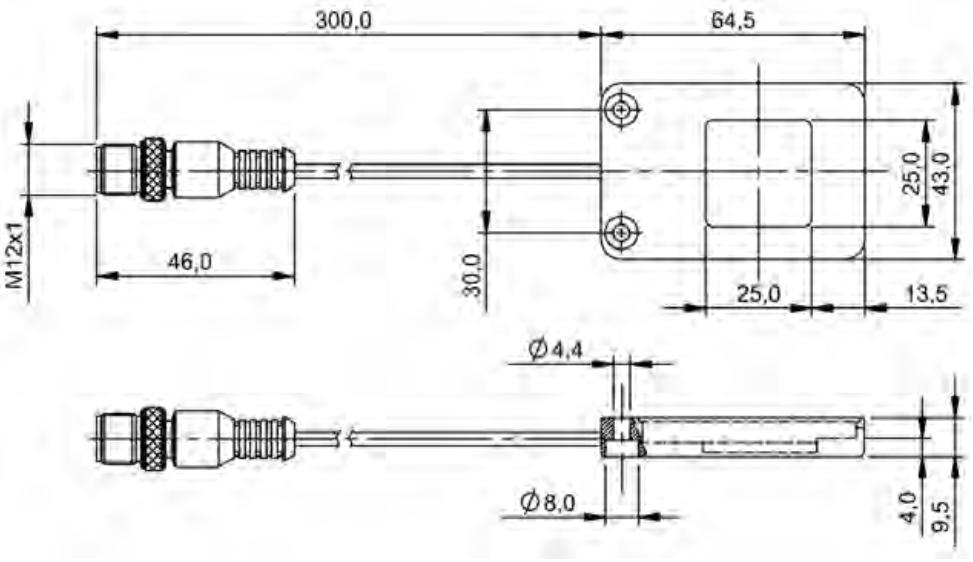
BAE00KP, BAE00C5



BAE00JE, BAE00JC



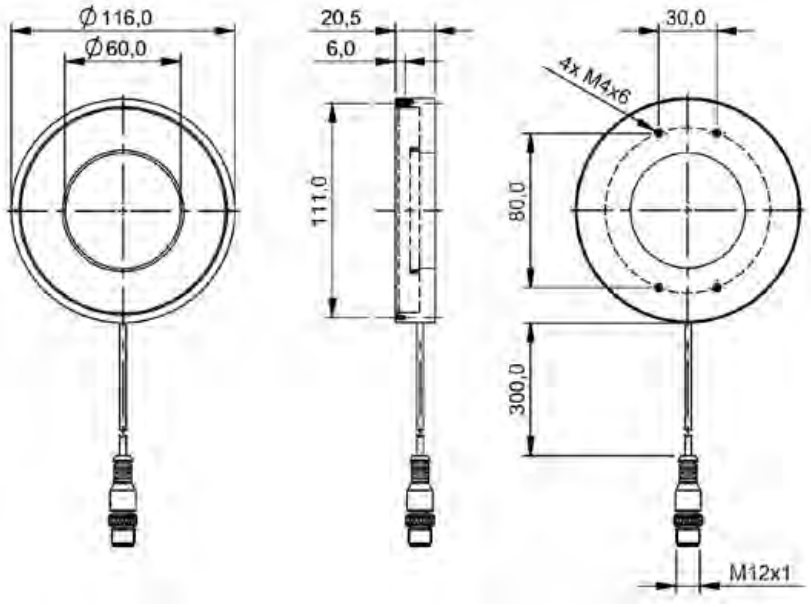
BAE00WM, BAE00MU



BAE000E

	BAE000K BAE LX-VS-RI100	
Connection	Cable with connector, M12x1 male, 4-pin, 0.30 m	
Version	Ring light	
Dimension	Ø 116 x 20.5 mm	
Rated operating voltage Ue DC	24 V	
Current draw max.	750 mA, 1370 mA (Boost mode)	
Operating mode	Normal, Boost	
Material	Aluminum anodized, black Glass	
Illumination area	Ø 100 mm/Ø 60 mm	
Light type	LED infrared	
Wave length	875 nm	
Illuminence (0.1 m)	—	
Beam angle	30 °	
Ambient temperature	-10...55 °C	
Approval/Conformity	CE, EAC	
Protection degree	IP54	

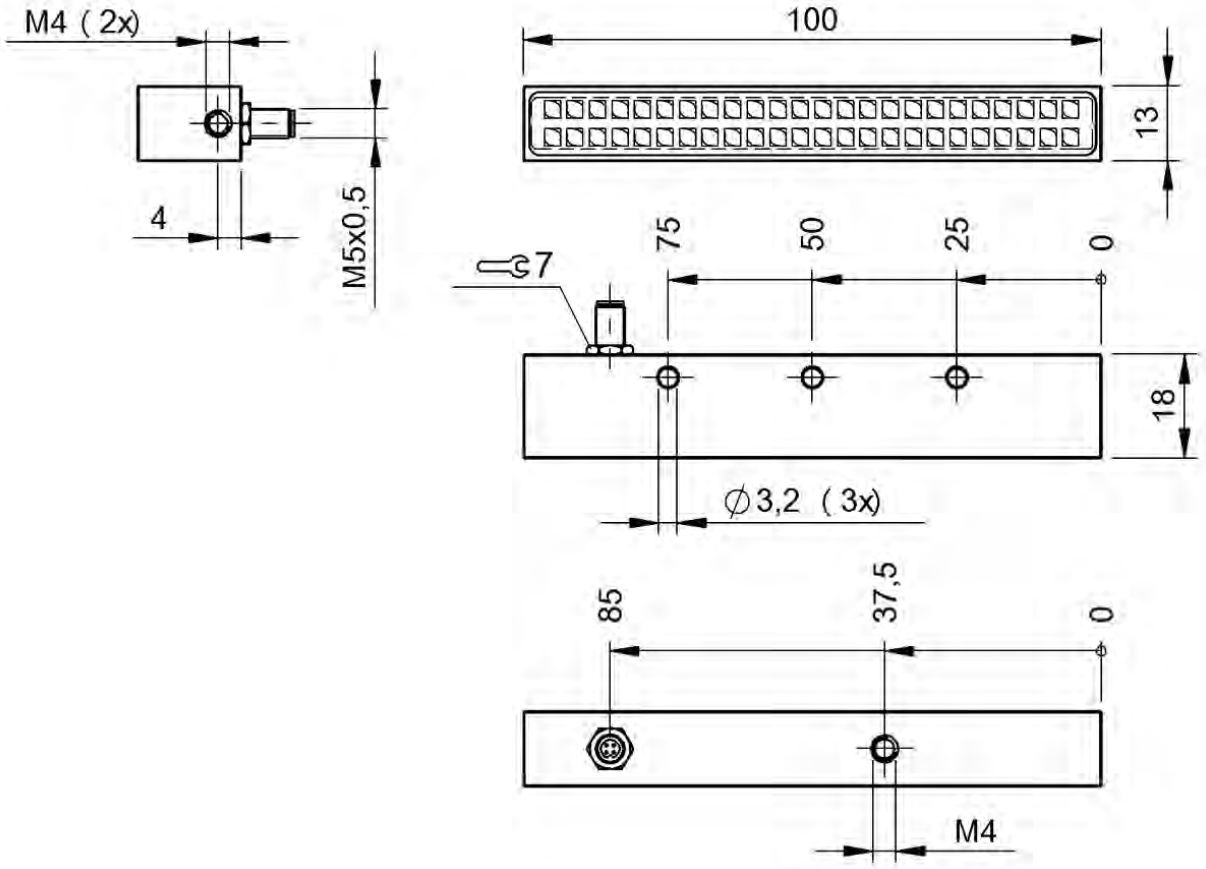
	BAE000J BAE LX-VS-RR100	BAE00AN BAE LX-VS-RW100
	Cable with connector, M12x1 male, 4-pin, 0.30 m	Cable with connector, M12x1 male, 4-pin, 0.30 m
	Ring light	Ring light
	Ø 116 x 20.5 mm	Ø 116 x 20.5 mm
	24 V	24 V
	830 mA, 1370 mA (Boost mode)	410 mA, 830 mA (Boost mode)
	Normal, Boost	Normal, Boost
	Aluminum anodized, black Glass	Aluminum anodized, black Glass
	Ø 100 mm/Ø 60 mm	Ø 100 mm/Ø 60 mm
	LED, red light	LED white light
	617 nm	–
	19000 Lux 32500 Lux (Boost mode)	8500 Lux 16100 Lux (Boost mode)
	30 °	30 °
	-10...55 °C	-10...55 °C
	CE, EAC	CE, EAC
	IP54	IP54



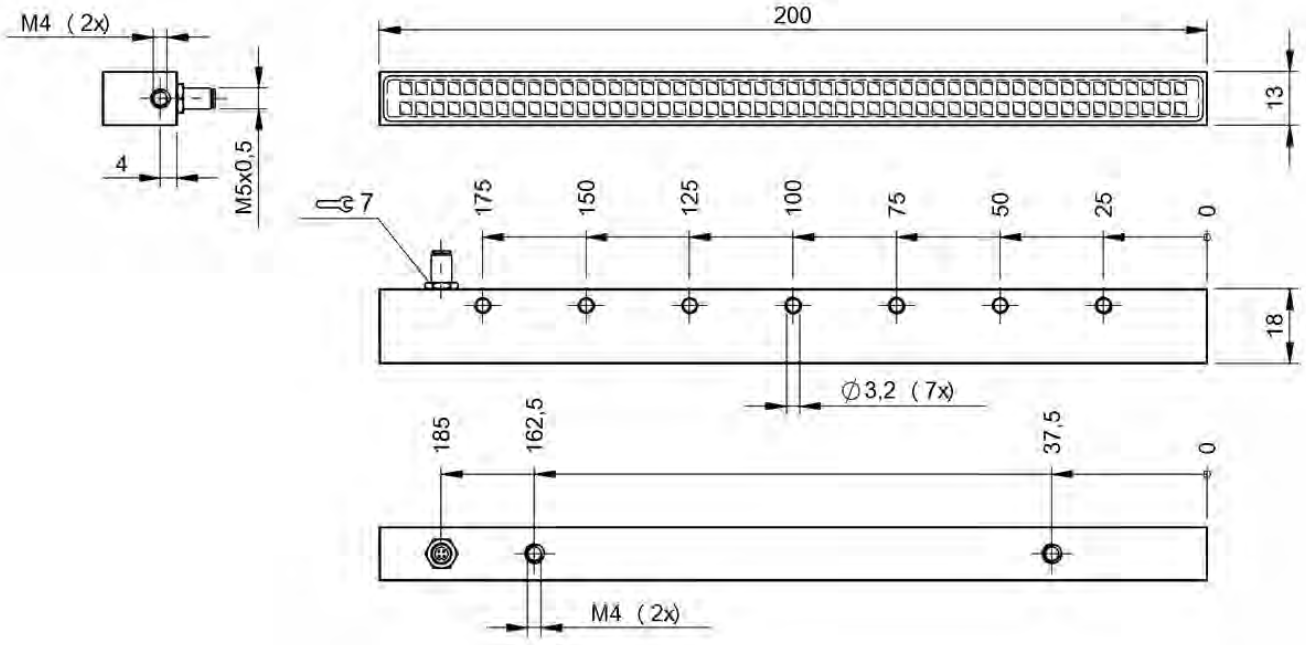
BAE000K, BAE000J, BAE00AN

	BAE00NU BAE LX-VS-LI100-S26	BAE00NZ BAE LX-VS-LI200-S26	
Connection	Connector, M5x0.5 male, 4-pin	Connector, M5x0.5 male, 4-pin	
Version	Strip light	Strip light	
Dimension	13 x 100 x 18 mm	13 x 200 x 18 mm	
Rated operating voltage Ue DC	24 V	24 V	
Current draw max.	170 mA, 375 mA (Boost mode)	290 mA, 710 mA (Boost mode)	
Operating mode	Normal, Boost	Normal, Boost	
Digital inputs	Trigger	Trigger	
Material	Aluminum anodized, black Glass	Aluminum anodized, black Glass	
Illumination area	95 x 10 mm	195 x 10 mm	
Light type	LED infrared	LED infrared	
Wave length	875 nm	875 nm	
Illuminence (0.1 m)	—	—	
Color temperature	—	—	
Beam angle	75 ° x 30 °	115 ° x 35 °	
Ambient temperature	-10...55 °C	-10...55 °C	
Approval/Conformity	CE, EAC	CE, EAC	
Protection degree	IP54	IP54	

	BAE00NT BAE LX-VS-LR100-S26	BAE00NY BAE LX-VS-LR200-S26	BAE00NW BAE LX-VS-LW100-S26	BAE00P0 BAE LX-VS-LW200-S26
	Connector, M5x0.5 male, 4-pin	Connector, M5x0.5 male, 4-pin	Connector, M5x0.5 male, 4-pin	Connector, M5x0.5 male, 4-pin
	Strip light	Strip light	Strip light	Strip light
	13 x 100 x 18 mm	13 x 200 x 18 mm	13 x 100 x 18 mm	13 x 200 x 18 mm
	24 V	24 V	24 V	24 V
	170 mA, 375 mA (Boost mode)	290 mA, 710 mA (Boost mode)	125 mA, 250 mA (Boost mode)	170 mA, 450 mA (Boost mode)
	Normal, Boost	Normal, Boost	Normal, Boost	Normal, Boost
	Trigger	Trigger	Trigger	Trigger
	Aluminum anodized, black Glass	Aluminum anodized, black Glass	Aluminum anodized, black Glass	Aluminum anodized, black Glass
	95 x 10 mm	195 x 10 mm	95 x 10 mm	195 x 10 mm
	LED, red light	LED, red light	LED white light	LED white light
	617 nm	617 nm	—	—
	6400 Lux 13500 Lux (Boost mode)	7150 Lux 15100 Lux (Boost mode)	2800 Lux 6200 Lux (Boost mode)	3000 Lux 7850 Lux (Boost mode)
	—	—	5600 K	5600 K
	75 ° x 30 °	115 ° x 35 °	80 ° x 35 °	120 ° x 40 °
	-10...55 °C	-10...55 °C	-10...55 °C	-10...55 °C
	CE, EAC	CE, EAC	CE, EAC	CE, EAC
	IP54	IP54	IP54	IP54

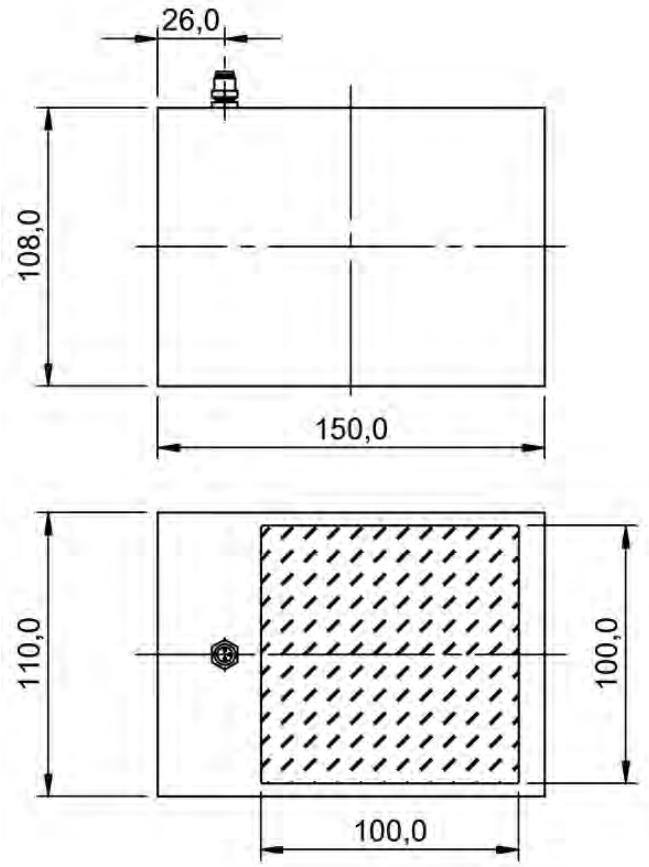


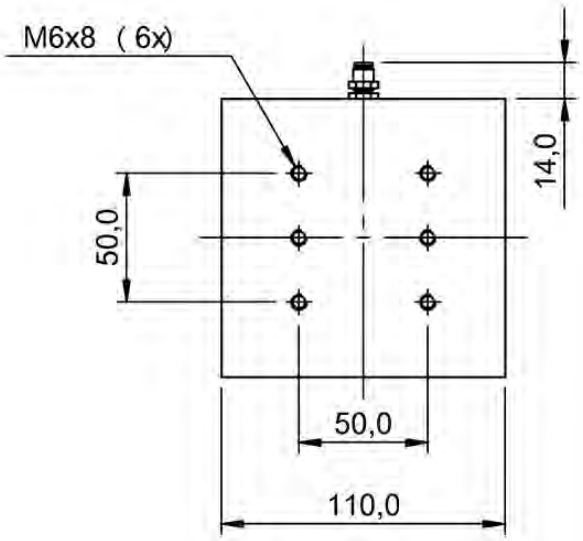
BAE00NU, BAE00NT, BAE00NW



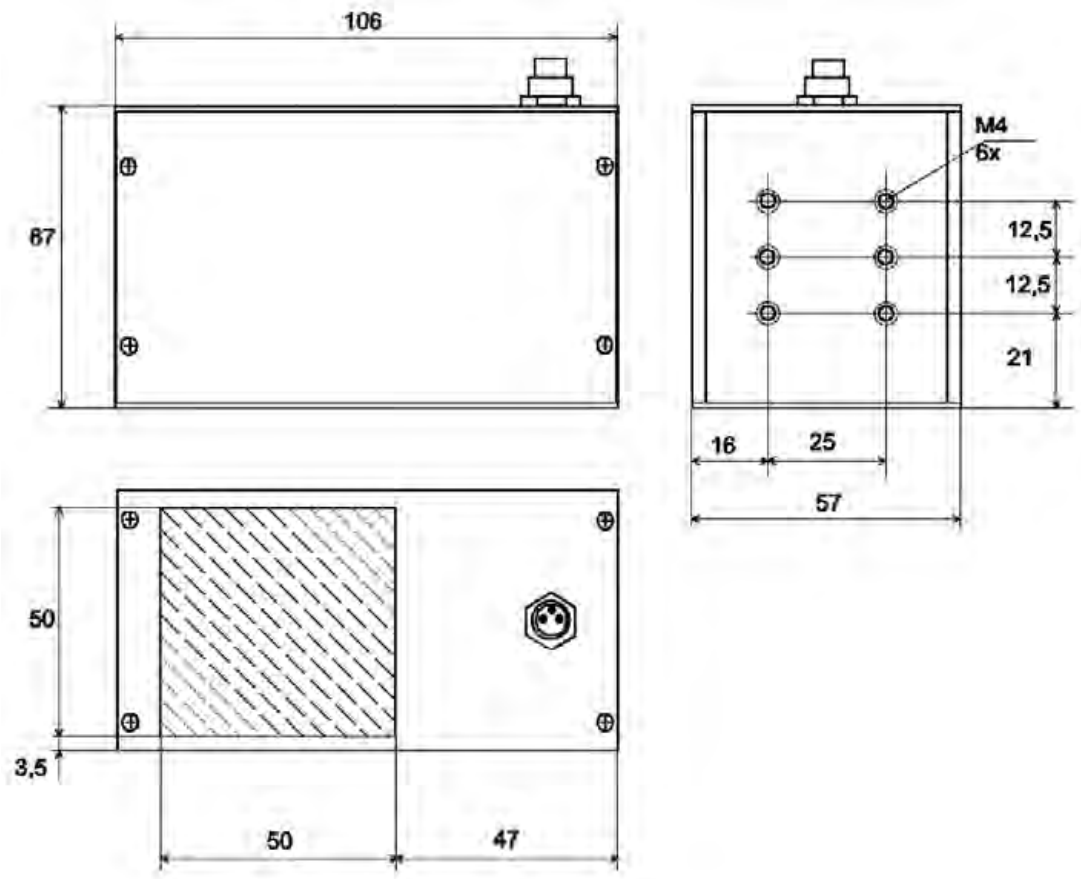
BAE00NZ, BAE00NY, BAE00P0

	BAE00JA BAE LX-VS-OR100	BAE00J9 BAE LX-VS-OR50
Connection	Connector, M8x1 male, 3-pin	Connector, M8x1 male, 3-pin
Version	Coax lighting	Coax lighting
Dimension	150 x 110 x 108 mm	106 x 57 x 67 mm
Rated operating voltage Ue DC	24 V	24 V
Current draw max.	625 mA	250 mA
Operating mode	Normal	Normal
Material	Aluminum anodized, black Glass	Aluminum anodized, black Glass
Illumination area	100 x 100 mm	50 x 50 mm
Light type	LED, red light	LED, red light
Wave length	630 nm	630 nm
Illuminence (0.1 m)	3550 Lux	1150 Lux
Beam angle	105 ° x 105 °	30 ° x 30 °
Ambient temperature	-10...55 °C	-10...55 °C
Approval/Conformity	CE, EAC	CE, EAC
Protection degree	IP54	IP54


26,0
108,0
150,0
110,0
100,0
100,0

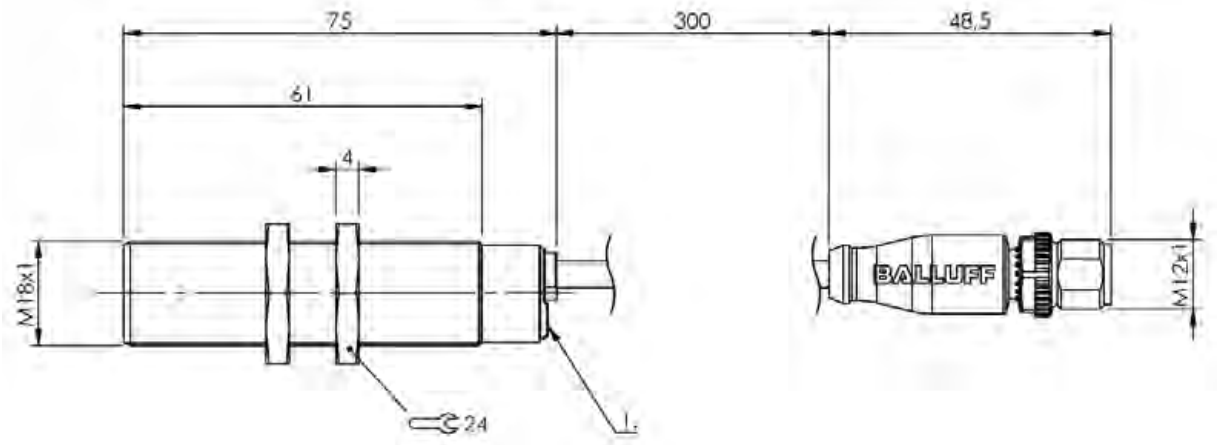

M6x8 (6x)
14,0
50,0
50,0
110,0

BAE00JA


106
67
50
3,5
50
47
M4
6x
12,5
12,5
21
16
25
57

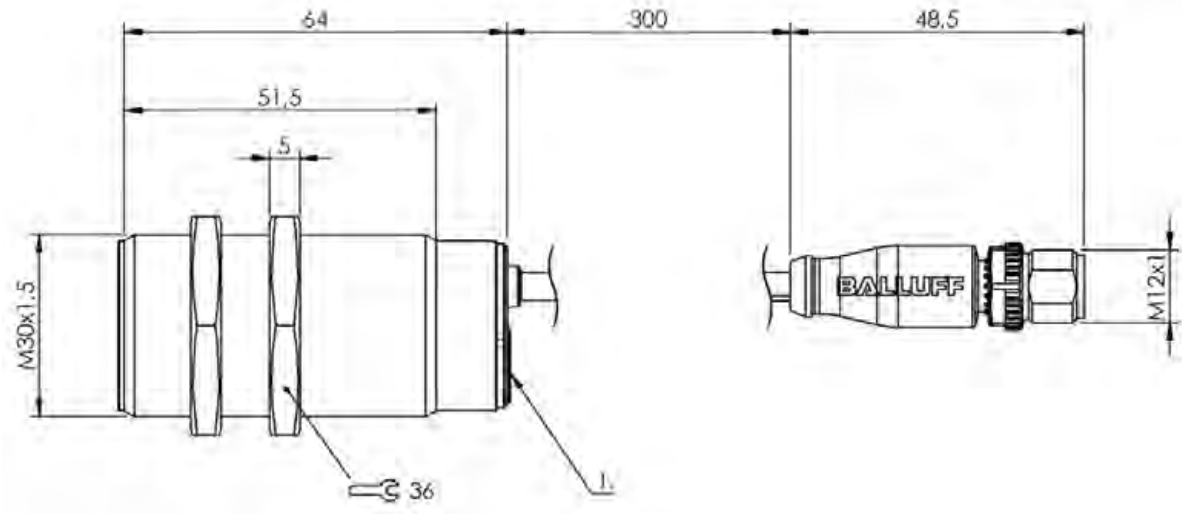
	BAE00H1 BAE LX-VS-SI018	BAE00H2 BAE LX-VS-SI030	
Connection	Cable with connector, M12x1 male, 4-pin, 0.30 m	Cable with connector, M12x1 male, 4-pin, 0.30 m	
Version	Spotlight	Spotlight	
Dimension	Ø 18 x 75 mm	Ø 30 x 64 mm	
Rated operating voltage Ue DC	24 V	24 V	
Current draw max.	83 mA	170 mA	
Operating mode	Normal	Normal	
Digital inputs	Trigger	Trigger	
Material	Stainless steel (1.4301) Brass Glass	Stainless steel (1.4301) Brass Glass	
Illumination area	Ø 15.4 mm	Ø 27 mm	
Light type	LED infrared	LED infrared	
Wave length	875 nm	875 nm	
Illuminence (0.1 m)	—	—	
Beam angle	—	17 °	
Ambient temperature	-25...75 °C	-10...50 °C	
Approval/Conformity	CE, EAC	CE, EAC	
Protection degree	IP67	IP67	

	BAE00KF BAE LX-VS-SR012	BAE00H0 BAE LX-VS-SR018	BAE00FT BAE LX-VS-SR030	
	Cable with connector, M12x1 male, 4-pin, 0.30 m	Cable with connector, M12x1 male, 4-pin, 0.30 m	Cable with connector, M12x1 male, 4-pin, 0.30 m	
	Spotlight	Spotlight	Spotlight	
	Ø 12 x 41.5 mm	Ø 18 x 75 mm	Ø 30 x 64 mm	
	24 V	24 V	24 V	
	83 mA	83 mA	170 mA	
	Normal	Normal	Normal	
	Trigger	Trigger	Trigger	
	Stainless steel (1.4301) PC	Stainless steel (1.4301) Brass Glass	Stainless steel (1.4301) Brass Glass	
	Ø 9 mm	Ø 15.4 mm	Ø 27 mm	
	LED, red light	LED, red light	LED, red light	
	617 nm	617 nm	617 nm	
	600 Lux	10500 Lux	13800 Lux	
	20 °	15 °	17 °	
	-10...50 °C	-10...50 °C	-10...55 °C	
	CE, EAC	CE, EAC	CE, EAC	
	IP67	IP67	IP67	



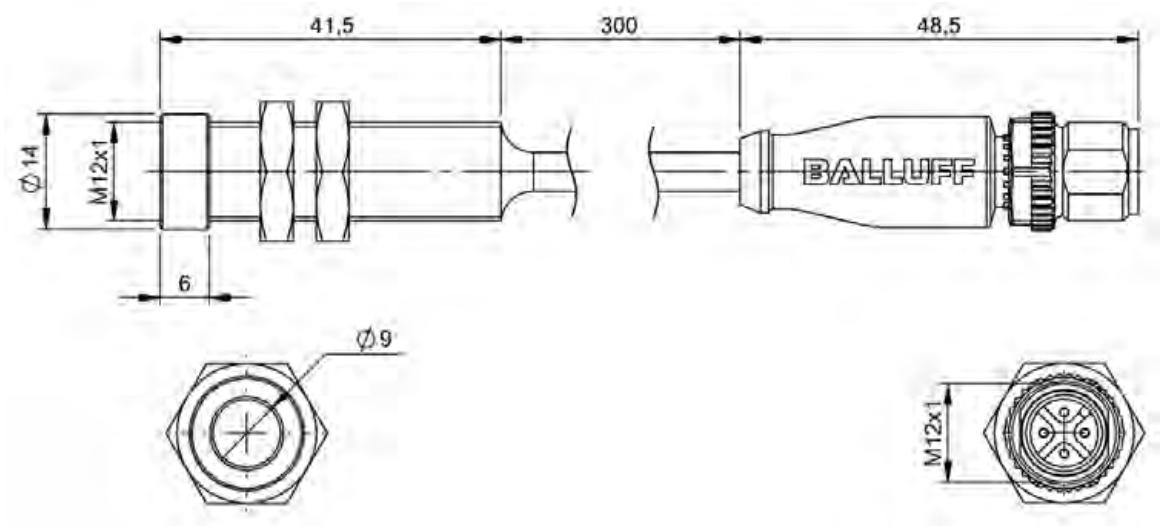
1) Power green

BAE00H1, BAE00H0



1) Power green

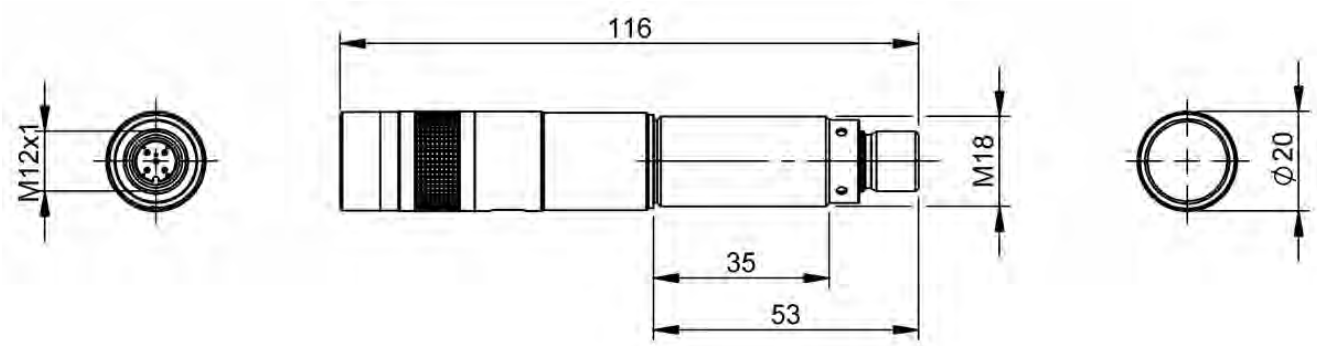
BAE00H2, BAE00FT



BAE00KF

	BAE010A BAE LX-X0-PL018-E-C1-S103	BAE0104 BAE LX-X0-PL018-E-L1-S103	
Connection	Connector, M12x1 male, 5-pin	Connector, M12x1 male, 5-pin	
Version	Laser modules	Laser modules	
Dimension	Ø 20 x 116 mm	Ø 20 x 116 mm	
Operating voltage Ub	5...30 VDC	5...30 VDC	
Digital inputs	Trigger	Trigger	
Material	Stainless steel Glass Nickel-plated brass nuts	Stainless steel Glass Nickel-plated brass nuts	
Projection type	Cross	Line, homogeneous	
Opening angle min.	30° x 30°	45°	
Light type	Laser red light	Laser red light	
Wave length	635 nm	640 nm	
Laser class per IEC 60825-1	1M	2M	
Ambient temperature	-10...50 °C	-10...50 °C	
Approval/Conformity	CE, EAC	CE, EAC	
Protection degree	IP67	IP67	

	BAE0106 BAE LX-X0-PL018-E-L3-S103	**BAE0107** BAE LX-X0-PL018-E-L7-S103	**BAE0108** BAE LX-X0-PL018-E-L8-S103	**BAE0109** BAE LX-X0-PL018-E-P1-S103
	Connector, M12x1 male, 5-pin	Connector, M12x1 male, 5-pin	Connector, M12x1 male, 5-pin	Connector, M12x1 male, 5-pin
	Laser modules	Laser modules	Laser modules	Laser modules
	Ø 20 x 116 mm	Ø 20 x 116 mm	Ø 20 x 116 mm	Ø 20 x 116 mm
	5...30 VDC	9...30 VDC	9...30 VDC	5...30 VDC
	Trigger	Trigger	Trigger	Trigger
	Stainless steel Glass Nickel-plated brass nuts	Stainless steel Glass Nickel-plated brass nuts	Stainless steel Glass Nickel-plated brass nuts	Stainless steel Glass Nickel-plated brass nuts
	Line, homogeneous	Line, homogeneous	Line, homogeneous	Point, elliptical
	20°	45°	45°	—
	Laser red light	Laser, blue light	Laser green light	Laser red light
	640 nm	450 nm	520 nm	635 nm
	2M	2M	2M	2
	-10...50 °C	-10...50 °C	-10...50 °C	-10...50 °C
	CE, EAC	CE, EAC	CE, EAC	CE, EAC
	IP67	IP67	IP67	IP67



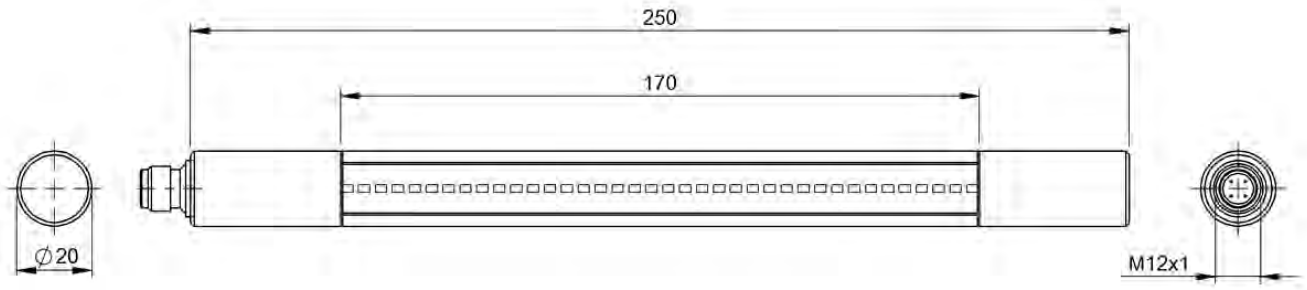
BAE010A, BAE0104, BAE0106, BAE0107, BAE0108, BAE0109

	BAE00W8 BAE LX-XA-BW0170-S4	BAE00W9 BAE LX-XA-BW0278-S4	
Connection	Connector, M12x1, Male, 4-pin, A-coded	Connector, M12x1, Male, 4-pin, A-coded	
Version	Machine light	Machine light	
Dimension	Ø 20 x 250 mm	Ø 20 x 358 mm	
Rated operating voltage Ue DC	24 V	24 V	
Material	Aluminum anodized PMMA	Aluminum anodized PMMA	
Illumination area	170 x 14 mm	278 x 14 mm	
Beam angle	120 °	120 °	
Light type	LED white light	LED white light	
Light intensity	410 lm	654 lm	
Color temperature	4000 K	4000 K	
Ambient temperature	-25...60 °C	-25...60 °C	
Approval/Conformity	CE, EAC, UL Listed	CE, EAC, UL Listed	
Protection degree	IP69K	IP69K	

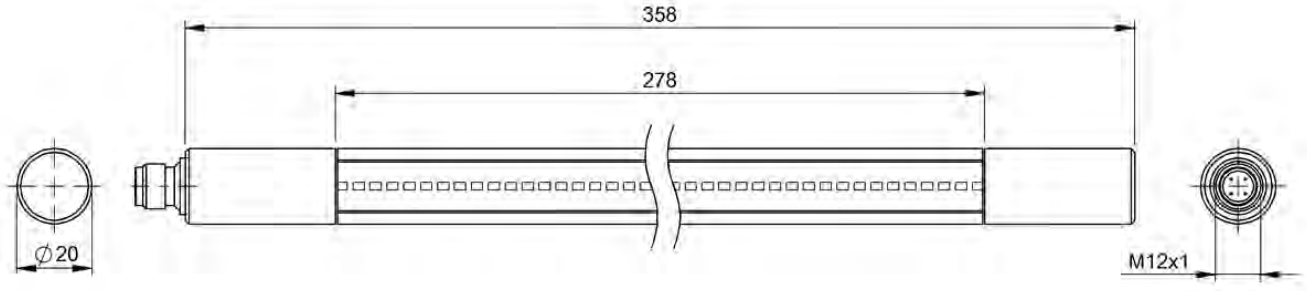
	BAE00WA BAE LX-XA-BW0332-S4	**BAE00ZM** BAE LX-XA-BW0380A-S4	**BAE00Y4** BAE LX-XA-BW0530-S4	**BAE00ZN** BAE LX-XA-BW0560A-S4
	Connector, M12x1, Male, 4-pin, A-coded	Connector, M12x1, Male, 4-pin, A-coded	Connector, M12x1, Male, 4-pin, A-coded	Connector, M12x1, Male, 4-pin, A-coded
	Machine light	Machine light	Machine light	Machine light
	Ø 20 x 432 mm	Ø 45 x 420 mm	Ø 20 x 610 mm	Ø 45 x 600 mm
	24 V	24 V	24 V	24 V
	Aluminum anodized PMMA	Aluminum anodized Borosilicate crown glass	Aluminum anodized PMMA	Aluminum anodized Borosilicate crown glass
	332 x 14 mm	380 x 42 mm	530 x 14 mm	560 x 42 mm
	120 °	120 °	120 °	120 °
	LED white light	LED white light diffuse	LED white light	LED white light diffuse
	746 lm	1800 lm	1256 lm	2700 lm
	4000 K	5000 K	4000 K	5000 K
	-25...60 °C	-20...40 °C	-25...60 °C	-20...40 °C
	CE, EAC, UL Listed	CE, EAC	CE, EAC, UL Listed	CE, EAC
	IP69K	IP67	IP69K	IP67

	BAE00Y5 BAE LX-XA-BW0710-S4	BAE00ZP BAE LX-XA-BW0760A-S4	
Connection	Connector, M12x1, Male, 4-pin, A-coded	Connector, M12x1, Male, 4-pin, A-coded	
Version	Machine light	Machine light	
Dimension	Ø 20 x 790 mm	Ø 45 x 800 mm	
Rated operating voltage Ue DC	24 V	24 V	
Material	Aluminum anodized PMMA	Aluminum anodized Borosilicate crown glass	
Illumination area	710 x 14 mm	760 x 42 mm	
Beam angle	120 °	120 °	
Light type	LED white light	LED white light diffuse	
Light intensity	1661 lm	3600 lm	
Color temperature	4000 K	5000 K	
Ambient temperature	-25...60 °C	-20...40 °C	
Approval/Conformity	CE, EAC, UL Listed	CE, EAC	
Protection degree	IP69K	IP67	

	BAE00ZR BAE LX-XA-BW0960A-S4	BAE00Y6 BAE LX-XA-BW1016-S4	BAE00ZT BAE LX-XA-BW1160A-S4	
	Connector, M12x1, Male, 4-pin, A-coded	Connector, M12x1, Male, 4-pin, A-coded	Connector, M12x1, Male, 4-pin, A-coded	
	Machine light	Machine light	Machine light	
	Ø 45 x 1000 mm	Ø 20 x 1096 mm	Ø 45 x 1200 mm	
	24 V	24 V	24 V	
	Aluminum anodized Borosilicate crown glass	Aluminum anodized PMMA	Aluminum anodized Borosilicate crown glass	
	960 x 42 mm	1016 x 14 mm	1160 x 42 mm	
	120 °	120 °	120 °	
	LED white light diffuse	LED white light	LED white light diffuse	
	4500 lm	2268 lm	5400 lm	
	5000 K	4000 K	5000 K	
	-20...40 °C	-25...60 °C	-20...40 °C	
	CE, EAC	CE, EAC, UL Listed	CE, EAC	
	IP67	IP69K	IP67	



BAE00W8



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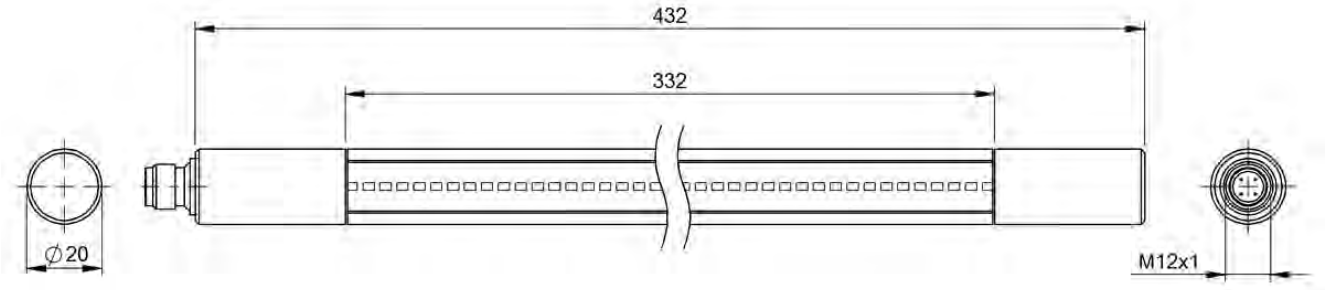

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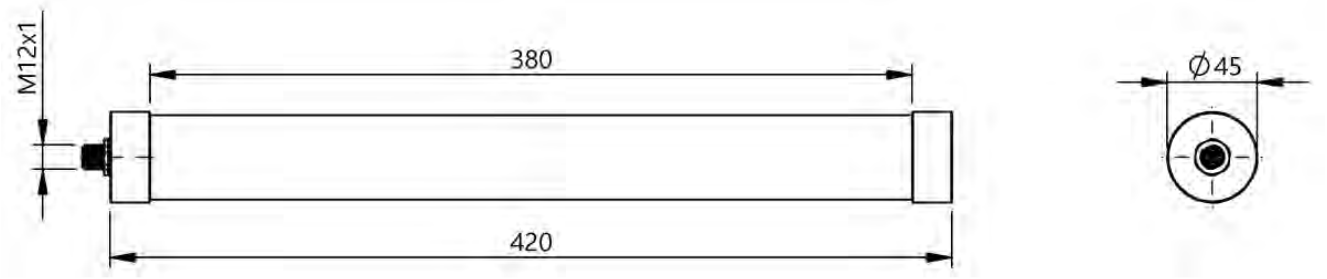

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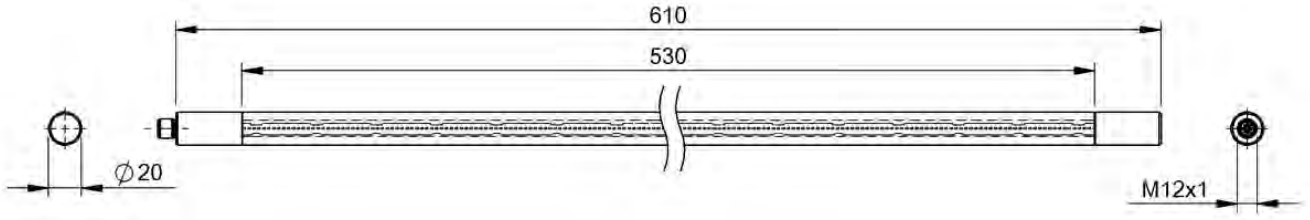
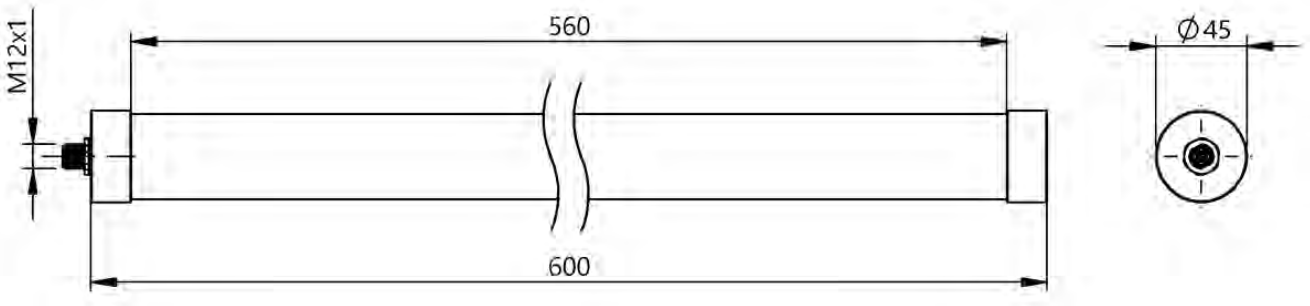
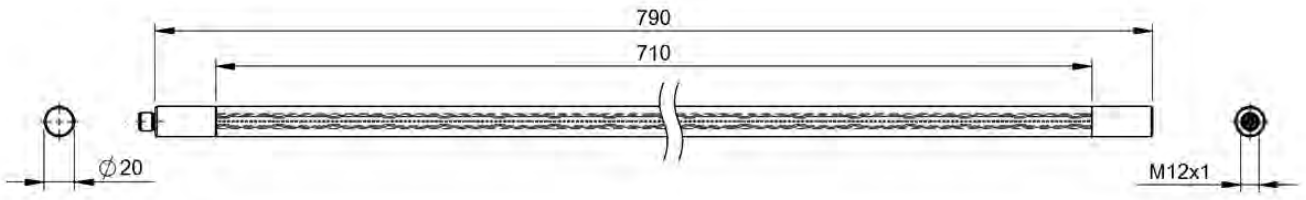


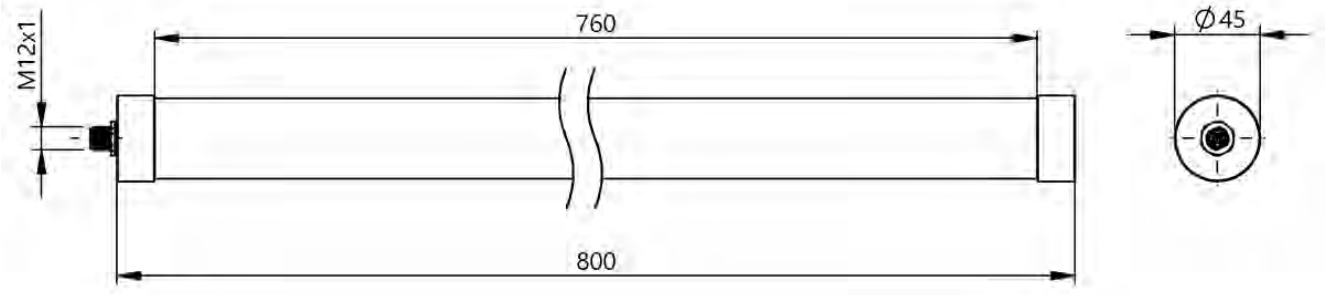
BAE00Y4



BAE00ZN



BAE00Y5



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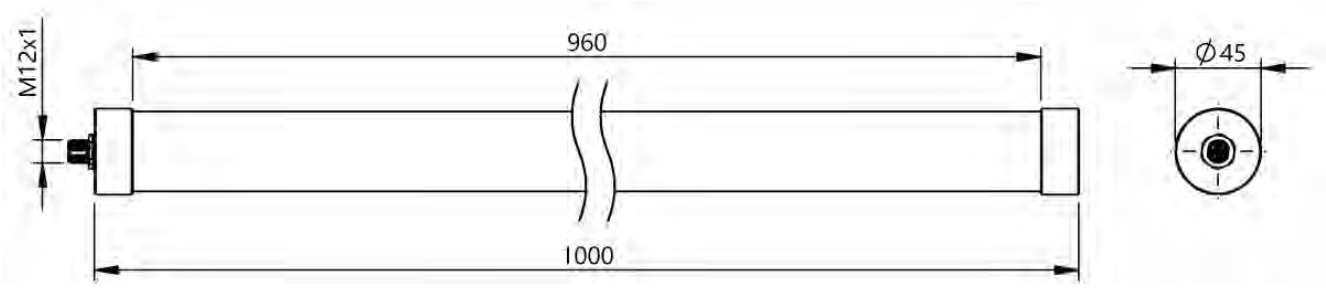
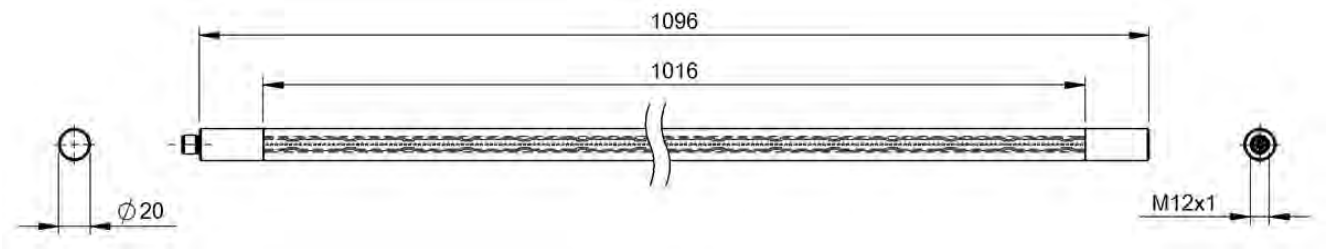
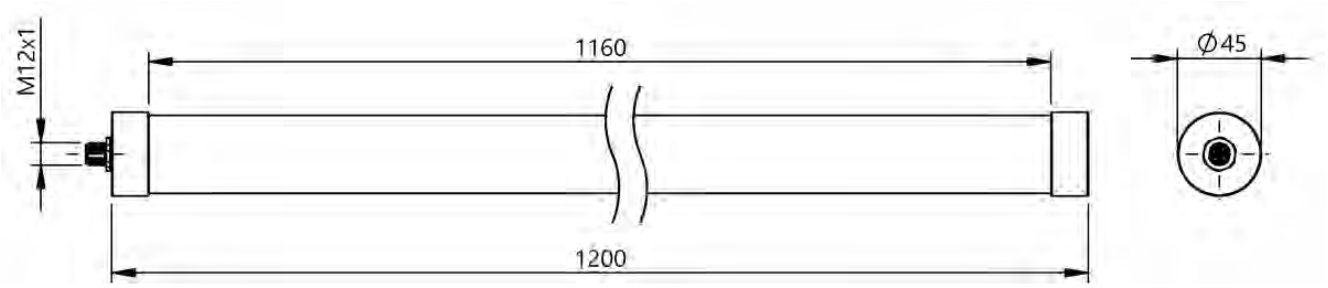


BAE00ZR



BAE00Y6



BAE00ZT

High-quality gear for virtually any application

ACCESSORIES

innovating automation

Our great selection of high-quality accessories supports you in the optimum embedding of the sensor in machines and systems. Through easy assembly and installation, exact positioning and high machine availability. The wide Balluff product range offers the optimum gear for nearly every application.

	BAM029R BAM LS-VS-004-C2/3-0614-2	BAM02FA BAM LS-VS-004-C2/3-0814-2	
Principle of operation	Camera lens	Camera lens	
Version	C-Mount	C-Mount	
Use	for BVS SC-..	for BVS SC-..	
Dimension	Ø 32 x 37.5 mm	Ø 42 x 36.7 mm	
Material	Aluminum, black anodized	Aluminum, black anodized	
Material sensing surface	Glass, polished	Glass, polished	
Mounting Thread	30 mm	40 mm	
Focal length	6 mm	8 mm	

	BAM02FC BAM LS-VS-004-C2/3-1214-2	BAM02FE BAM LS-VS-004-C2/3-1614-2	BAM02FF BAM LS-VS-004-C2/3-2514-2	BAM02MT BAM SP-XO-002-0,5-40-31-A
	Camera lens	Camera lens	Camera lens	Spacer ring, piece
	C-Mount	C-Mount	C-Mount	C-Mount
	for BVS SC-..	for BVS SC-..	for BVS SC-..	for C-mount lens
	Ø 29.5 x 45.7 mm	Ø 29.5 x 32.2 mm	Ø 32 x 38 mm	Ø 31 x 40 mm
	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized
	Glass, polished	Glass, polished	Glass, polished	–
	27 mm	27 mm	30 mm	–
	12 mm	16 mm	25 mm	–

	BAM02FH BAM LS-VS-004-C2/3-3514-2	BAM02FJ BAM LS-VS-004-C2/3-5014-2	BAM02Y3 BAM LS-VS-004-C2/3-7532-2	
Principle of operation	Camera lens	Camera lens	Camera lens	
Version	C-Mount	C-Mount	C-Mount	
Use	for BVS SC-..	for BVS SC-..	for BVS SC-..	
Dimension	Ø 29.5 x 35.4 mm	Ø 32 x 46.5 mm	Ø 32 x 70.1 mm	
Material	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized	
Material sensing surface	Glass, polished	Glass, polished	Glass, polished	
Mounting Thread	30 mm	30 mm	30 mm	
Focal length	35 mm	50 mm	75 mm	

	BAM0364 BAM LS-VS-006-C2/3-0814-5	**BAM0365** BAM LS-VS-006-C2/3-1214-5	**BAM0366** BAM LS-VS-006-C2/3-1614-5	**BAM0367** BAM LS-VS-006-C2/3-2514-5	**BAM0368** BAM LS-VS-006-C2/3-3514-5
	Camera lens	Camera lens	Camera lens	Camera lens	Camera lens
	C-Mount	C-Mount	C-Mount	C-Mount	C-Mount
	for industrial cameras BVS CA-.. <12 MP	for industrial cameras BVS CA-.. <12 MP	for industrial cameras BVS CA-.. <12 MP	for industrial cameras BVS CA-.. <12 MP	for industrial cameras BVS CA-.. <12 MP
	Ø 30 x 42.2 mm	Ø 30 x 42.2 mm	Ø 30 x 38.6 mm	Ø 30 x 44 mm	Ø 30 x 44.3 mm
	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized
	Glass, polished	Glass, polished	Glass, polished	Glass, polished	Glass, polished
	27 mm	—	—	—	—
	8 mm	12 mm	16 mm	25 mm	35 mm

	BAM0369 BAM LS-VS-006-C2/3-5014-5	BAM035R BAM LS-VS-007-C1/1-0818-C	BAM035T BAM LS-VS-007-C1/1-1618-C	
Principle of operation	Camera lens	Camera lens	Camera lens	
Version	C-Mount	C-Mount	C-Mount	
Filter	—	—	—	
Use	for industrial cameras BVS CA-.. <12 MP	for industrial cameras BVS CA-.. 12 MP	for industrial cameras BVS CA-.. 12 MP	
Dimension	Ø 30 x 72 mm	Ø 80 x 96.8 mm	Ø 57 x 94.9 mm	
Material	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized	
Material sensing surface	Glass, polished	Glass, polished	Glass, polished	
Sensing surface	—	—	—	
Mounting Thread	27 mm	77 mm	55 mm	
Focal length	50 mm	8 mm	16 mm	

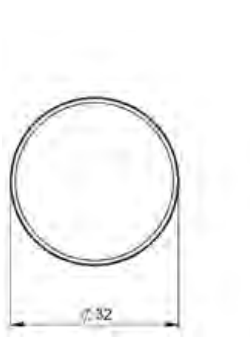
	BAM035U BAM LS-VS-007-C1/1-2518-C	BAM035W BAM LS-VS-007-C1/1-5018-C	BAM0396 BAM OF-VS-001-P-RX100	BAM01A7 BAM OF-VS-001-D-RX100	BAM02FR BAM OF-VS-002-BU-27
	Camera lens	Camera lens	Optical filter BVS	Optical filter BVS	Optical filter BVS
	C-Mount	C-Mount	Polarizing filter	Diffusing plate, 1 aperture	Spectral filter
	—	—	—	—	Blue
	for industrial cameras BVS CA-.. 12 MP	for industrial cameras BVS CA-.. 12 MP	for vision lighting ring light	for vision lighting ring light	for BVS LS-VS-006 C-mount camera lenses
	Ø 57 x 97.3 mm	Ø 51 x 94.7 mm	Ø 116 x 8 mm	Ø 116 x 8 mm	Ø 29 x 6.5 mm
	Aluminum, black anodized	Aluminum, black anodized	Aluminum black anodized Glass	Aluminum anodized	Aluminum, black anodized
	Glass, polished	Glass, polished	Glass	Glass	Glass, polished
	—	—	Ring Ø 104/Ø 64 mm	Ring Ø 104/Ø 64 mm	—
	55 mm	49 mm	Screw M1.6	Screw M1.6	Diameter 27.0 mm
	25 mm	50 mm	—	—	—

	BAM02FZ BAM OF-VS-002-BU-30	BAM02FP BAM OF-VS-002-GN-27	BAM02FY BAM OF-VS-002-GN-30	
Principle of operation	Optical filter BVS	Optical filter BVS	Optical filter BVS	
Version	Spectral filter	Spectral filter	Spectral filter	
Filter	Blue	Green	Green	
Use	for BVS LS-VS-006 C-mount camera lenses	for BVS LS-VS-006 C-mount camera lenses	for BVS LS-VS-006 C-mount camera lenses	
Dimension	Ø 32 x 7 mm	Ø 29 x 6.5 mm	Ø 32 x 7 mm	
Material	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized	
Material sensing surface	Glass, polished	Glass, polished	Glass, polished	
Mounting Thread	Diameter 30.0 mm	Diameter 27.0 mm	Diameter 30.0 mm	

	BAM02MN BAM OF-VS-002-IR-27	**BAM02MP** BAM OF-VS-002-IR-30	**BAM02MR** BAM OF-VS-002-IR-40	**BAM02FK** BAM OF-VS-002-PL-27	**BAM02FT** BAM OF-VS-002-PL-30
	Optical filter BVS	Optical filter BVS	Optical filter BVS	Optical filter BVS	Optical filter BVS
	Spectral filter	Spectral filter	Spectral filter	Spectral filter	Spectral filter
	Infrared	Infrared	Infrared	polarized	polarized
	for BVS LS-VS-006 C-mount camera lenses	for BVS LS-VS-006 C-mount camera lenses	for BVS LS-VS-006 C-mount camera lenses	for BVS LS-VS-006 C-mount camera lenses	for BVS LS-VS-006 C-mount camera lenses
	Ø 29 x 6.5 mm	Ø 32 x 7 mm	Ø 42 x 7 mm	Ø 29 x 9.5 mm	Ø 32 x 10 mm
	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized
	Glass, polished	Glass, polished	Glass, polished	Glass, polished	Glass, polished
	Diameter 27.0 mm	Diameter 30.0 mm	Diameter 40.0 mm	Diameter 27.0 mm	Diameter 30.0 mm

	BAM02H0 BAM OF-VS-002-PL-40	BAM02FM BAM OF-VS-002-RD-27	BAM02FW BAM OF-VS-002-RD-30	
Principle of operation	Optical filter BVS	Optical filter BVS	Optical filter BVS	
Version	Spectral filter	Spectral filter	Spectral filter	
Filter	polarized	Red	Red	
Use	for BVS LS-VS-006 C-mount camera lenses	for BVS LS-VS-006 C-mount camera lenses	for BVS LS-VS-006 C-mount camera lenses	
Dimension	Ø 42 x 10 mm	Ø 29 x 6.5 mm	Ø 32 x 7 mm	
Material	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized	
Material sensing surface	Glass, polished	Glass, polished	Glass, polished	
Mounting Thread	Diameter 40.0 mm	Diameter 27.0 mm	Diameter 30.0 mm	

	BAM02FL BAM OF-VS-002-UV-27	**BAM02FU** BAM OF-VS-002-UV-30	**BAM02H1** BAM OF-VS-002-UV-40	**BAM02FN** BAM OF-VS-002-YE-27
	Optical filter BVS	Optical filter BVS	Optical filter BVS	Optical filter BVS
	Spectral filter	Spectral filter	Spectral filter	Spectral filter
	ultraviolet	ultraviolet	ultraviolet	Yellow
	for BVS LS-VS-006 C-mount camera lenses	for BVS LS-VS-006 C-mount camera lenses	for BVS LS-VS-006 C-mount camera lenses	for BVS LS-VS-006 C-mount camera lenses
	Ø 29 x 6.5 mm	Ø 32 x 7 mm	Ø 42 x 7 mm	Ø 29 x 6.5 mm
	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized
	Glass, polished	Glass, polished	Glass, polished	Glass, polished
	Diameter 27.0 mm	Diameter 30.0 mm	Diameter 40.0 mm	Diameter 27.0 mm



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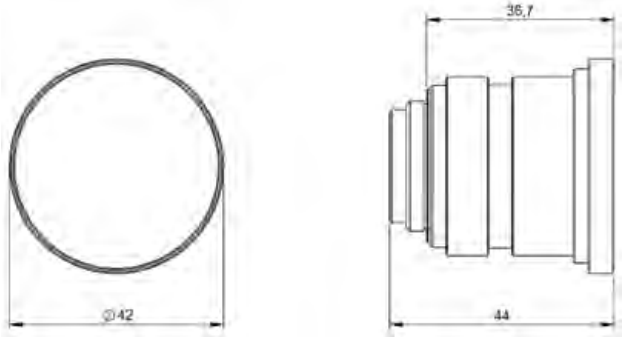

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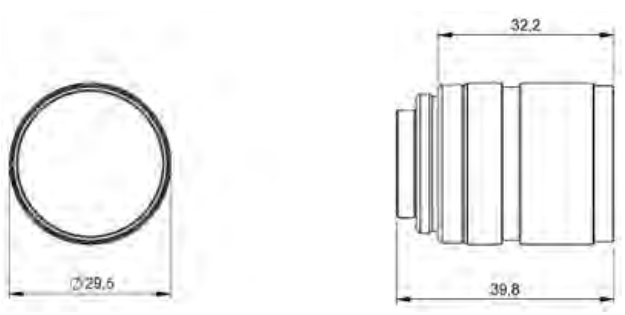

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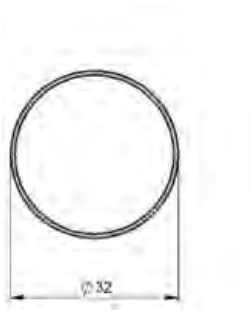

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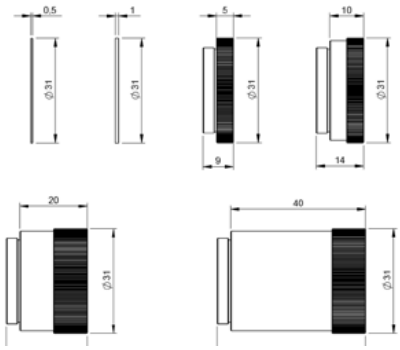

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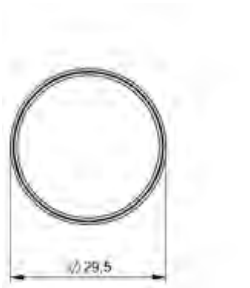

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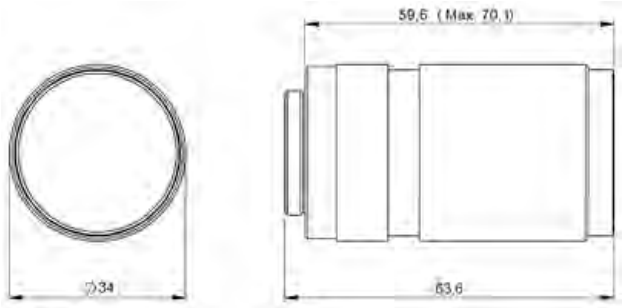

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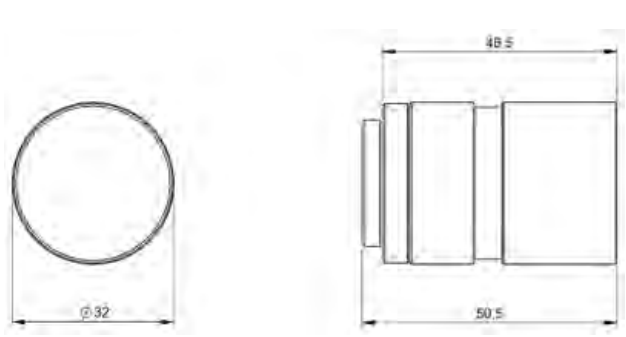

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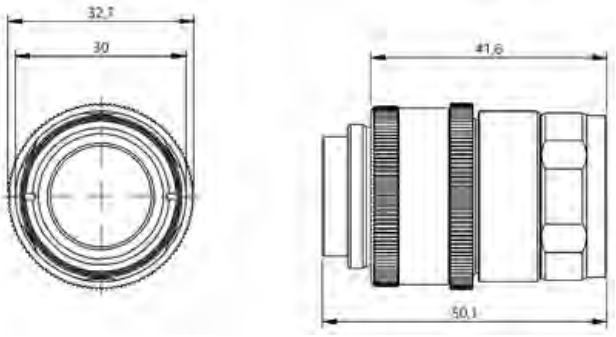

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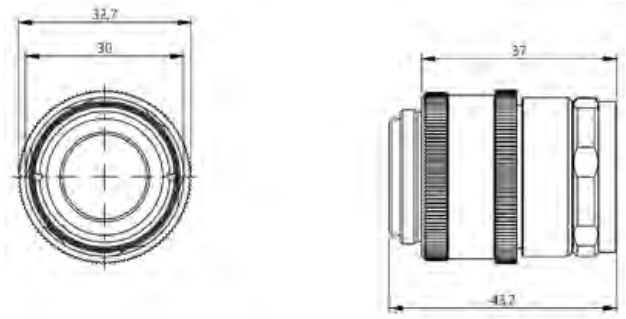

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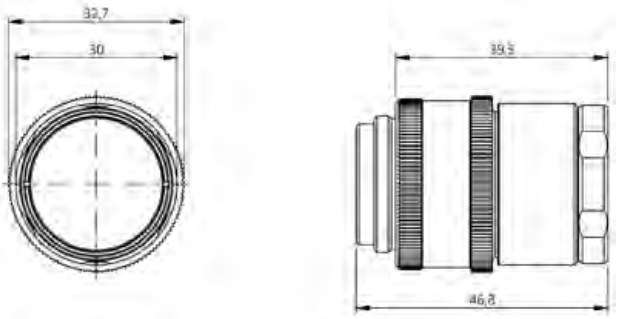

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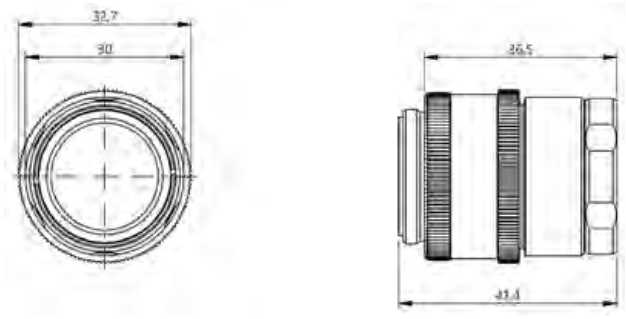

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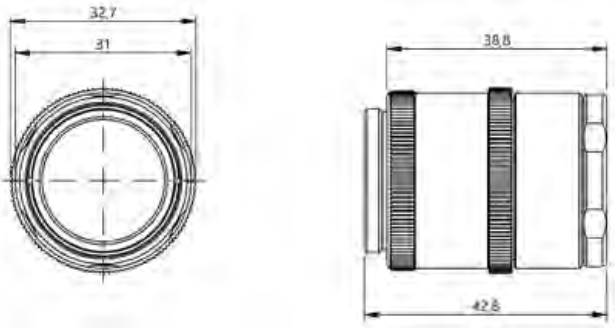

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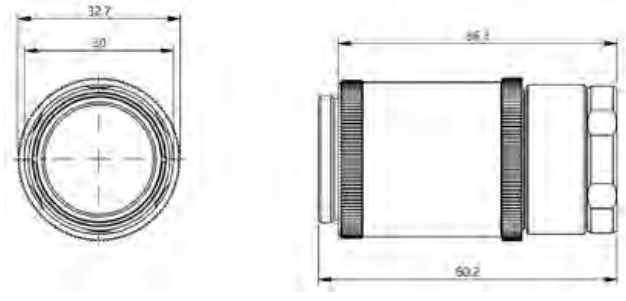

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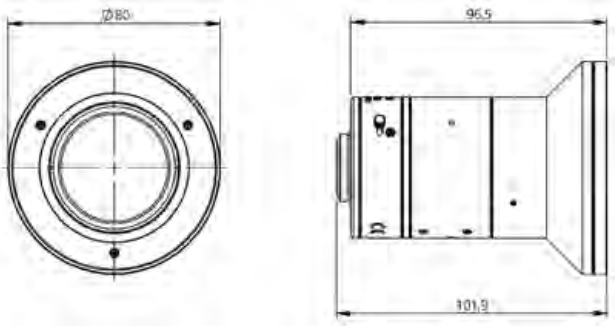

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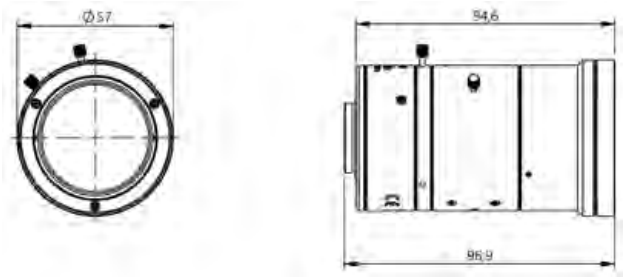

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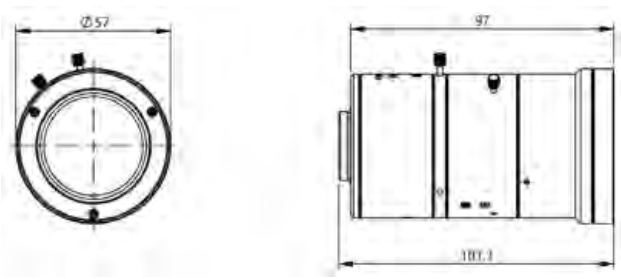

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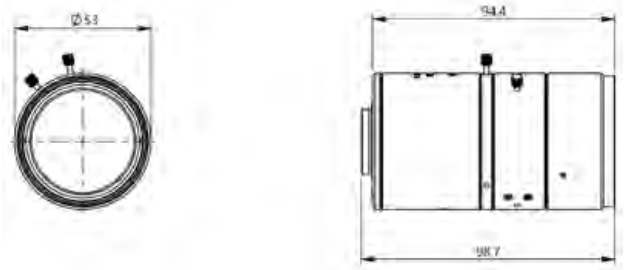

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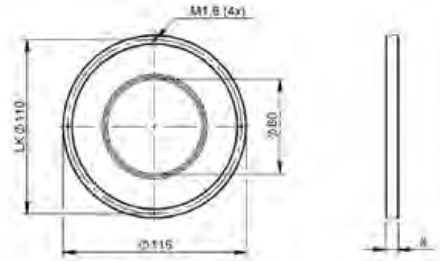

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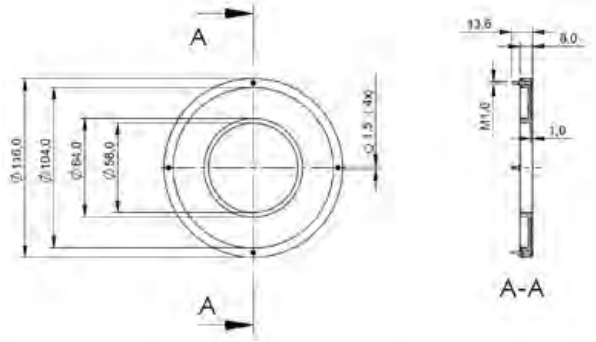

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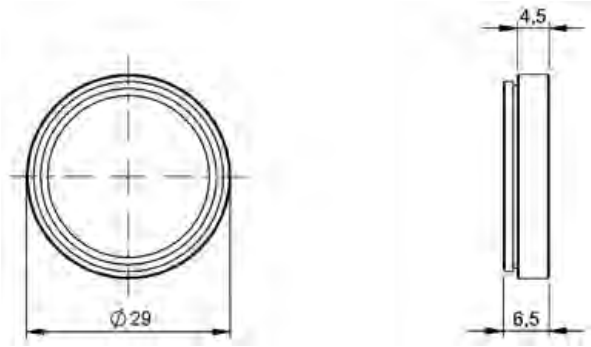
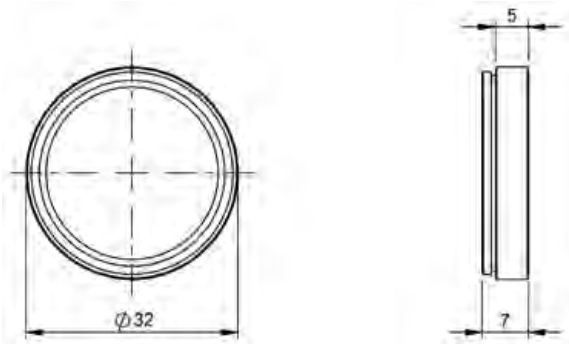
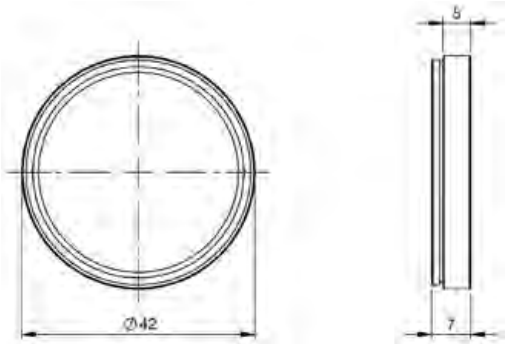


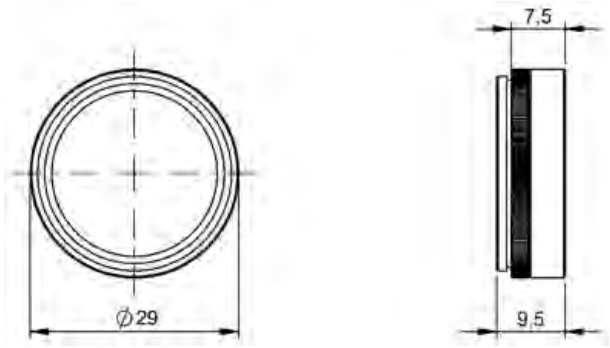
BAM02FR, BAM02FP, BAM02MN, BAM02FM, BAM02FL, BAM02FN



BAM02FZ, BAM02FY, BAM02MP, BAM02FW, BAM02FU



BAM02MR, BAM02H1



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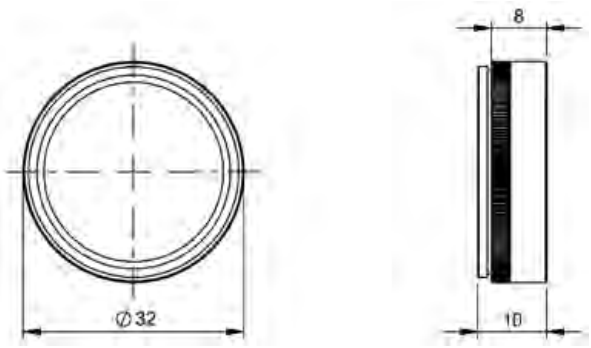

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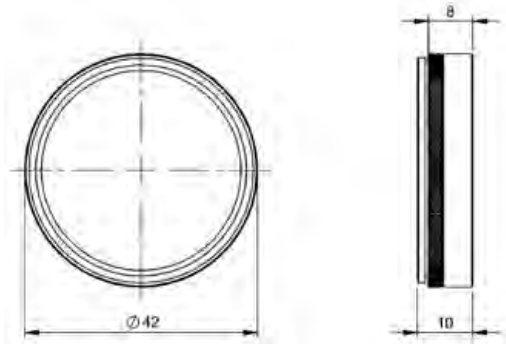
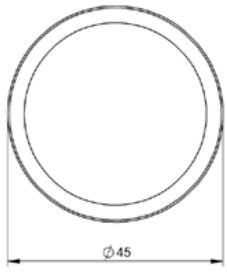


BAM02H0

	BAM02NA BAM PC-VS-023-1	BAM02W0 BAM PC-VS-023-1-01
Short description	Protective cover for optics	Protective cover for optics
Use	for BVS SC-..	for BVS SC-..
Material	Aluminum anodized, black	Aluminum anodized, black
Protection sheet material	Luxacryl/2h	Luxacryl/2h
Dimension	Ø 45 x 54 mm	Ø 45 x 83 mm
Mounting	Screws	Screws



BAM02NA

BAM02W0

Versatile and flexible mounting solutions

FASTENING TECHNOLOGY

With our assembly systems and brackets, you can adapt the sensors and equipment to your particular task.

Simple to install and adjust, these provide – in addition to attachment – exact positioning, even under difficult conditions. Balluff mounting solutions are distinguished by high-quality materials and exact processing.

The most important benefits

- Flexible and versatile
- Compatible and universal
- Excellent price/performance ratio

	BAM033K BMS AD-M-004-X19/MIS-D	BAM024R BMS CCJ-M-D12-B-01	
Principle of operation	Mounting system	Mounting system	
Use	For monitor holder BMS, for quick-change plate BVS	For mounting system BMS, for holding rods with Ø12 mm	
Material	Naturally anodized aluminum	Chrome plated zinc, matte	
Dimension	6 x 116 x 116 mm	45.5 x 36 x 30 mm	
Mounting	Screws	Screws, terminals	

	BAM002J BMS CU-P-D12-A040-00	BAM034K BMS CUJ-M-D30-E057-00	BAM034L BMS CUJ-M-D30-E060-01	
Principle of operation	Mounting system	Mounting system	Mounting system	
Use	For holding rods with Ø12 mm, for holding rods with 10x10 mm	For mounting system BMS, for monitor holder BMS	For mounting system BMS, for monitor holder BMS	
Material	POM	Aluminum	Aluminum	
Dimension	56 x 30 x 40 mm	75 x 75 x 108 mm	40 x 74 x 108 mm	
Mounting	Screws, terminals	Screws, Clamps	Screws, Clamps	

BAM024P BMS CU-M-D12-B028-00
Mounting system
For mounting system BMS, for holding rods with Ø12 mm
Chrome plated zinc, matte
64 x 30 x 36 mm
Screws, terminals

BAM0275 BMS CU-M-D12-B040-00
Mounting system
For mounting system BMS, for holding rods with Ø12 mm
Chrome plated zinc, matte
60 x 30 x 36 mm
Screws, terminals

BAM02JT BMS CU-M-D12-B040-02
Mounting system
For mounting system BMS, for holding rods with Ø12 mm
Chrome plated zinc, matte
60 x 30 x 42.8 mm
Screws, terminals

BAM033U BMS CU-M-D30-E040-00
Mounting system
For holding rods with Ø30 mm, for mounting system BMS
Cast aluminum
60 x 50 x 60 mm
Screws, terminals

BAM002Y BMS CUJ-P-D12-R040-00
Mounting system
For mounting system BMS, for holding rods with Ø12 mm
PA
50 x 65 x 35 mm
Screws, terminals

BAM0044 BMS CU-M-D12-I060-01
Mounting system
For mounting system BMS
Stainless steel (1.4301)
76.4 x 10 x 30 mm
Screws, terminals

BAM01CH BMS CU-M-D12-I060-02
Mounting system
For mounting system BMS
Stainless steel (1.4301)
76.4 x 10 x 30 mm
Screws, terminals

BAM032T BAM IA-XA-031-200-R
Cable ties
For cable fastener
PP
21 x 1.5 x 200 mm
—

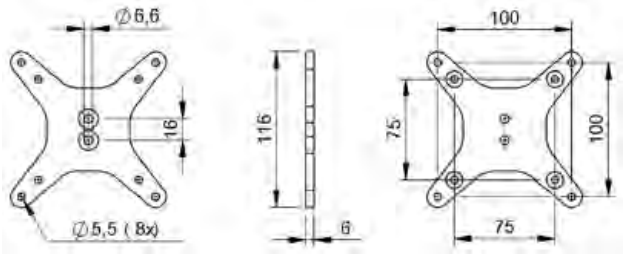
BAM0031 BMS CS-M-D12-IZ
Mounting system
For mounting system BMS, for holding rods with Ø12 mm
Zinc
Ø 27 x 37 mm
Screws, terminals

	BAM003Y BMS CS-M-D12-IZ-01	BAM035N BMS CS-M-D12-IZ-02	
Principle of operation	Mounting system	Mounting system	
Use	For mounting system BMS, for holding rods with Ø12 mm	For mounting system BMS, for holding rods with Ø12 mm	
Material	Stainless steel (1.4301)	Die-cast zinc chrome plated, matte	
Dimension	Ø 27 x 37 mm	Ø 27 x 39.1 mm	
Mounting	Screws, terminals	Clamps	

	BAM033Y BMS CC-M-D30-E-01	BAM0343 BMS CSJ-M-D30-EX19-02	
Principle of operation	Mounting system	Mounting system	
Use	For holding rods with Ø30 mm, for holding rods with Ø12 mm, for mounting system BMS	For mounting system BMS, for connection plate VESA 75/100	
Material	Cast aluminum	PA 6.6 GF30	
Dimension	40 × 84 mm	Ø 60 x 190.5 mm	
Mounting	Screws, terminals	Screws, terminals	
Additional features	—	max. load capacity 10 Kg (static), Latches in 15° increments, 60° free swivel range	

	BAM002Z BMS CC-M-D12-B-00	**BAM035P** BMS CC-M-D12-B-03	**BAM033W** BMS CC-M-D30-E-00	**BAM035A** BMS CS-M-D30-BZ-03
	Mounting system	Mounting system	Mounting system	Mounting system
	For mounting system BMS, for holding rods with Ø12 mm	For mounting system BMS, for holding rods with Ø12 mm	For holding rods with Ø30 mm, for mounting system BMS	For mounting system BMS, for holding rods with Ø30 mm
	Aluminum anodized	Die-cast zinc chrome plated, matte	Cast aluminum	Cast aluminum
	55 x 20 x 20 mm	55 x 20 x 20 mm	40 × 98 mm	Ø 30 x 59 mm
	Screws, terminals	Clamps	Screws, terminals	Screws, terminals

	BAM003W BMS KIT-V1	**BAM01JK** BMS KIT-V1		
	Mounting kit equipped	Holding RFID system		
	For mounting system BMS	Holder for installing antennas BIS U-3xx		
	Aluminum Die-cast zinc Stainless steel Plastic	Stainless steel (1.4571)		
	390 x 135 x 510 mm	121 x 115 x 57 mm		
	—	—		
	—	—		



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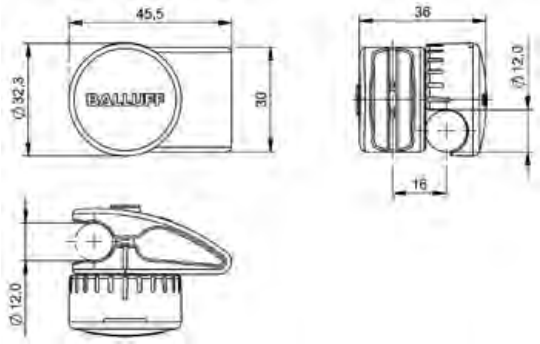

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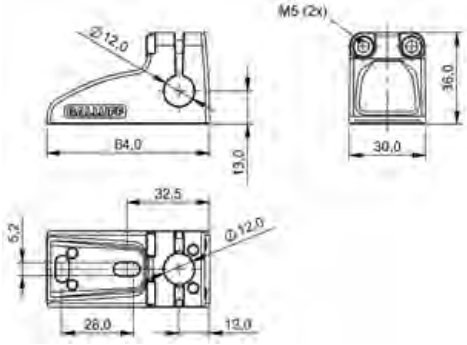

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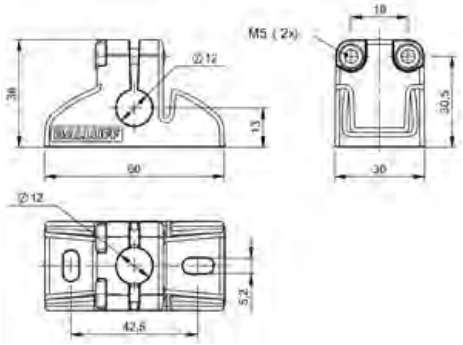

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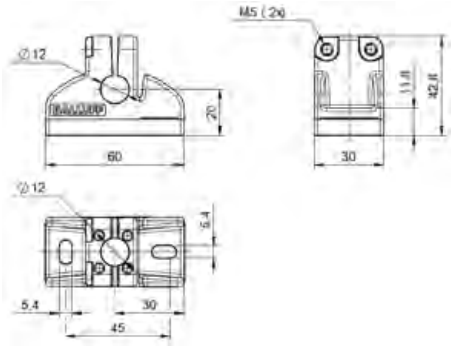

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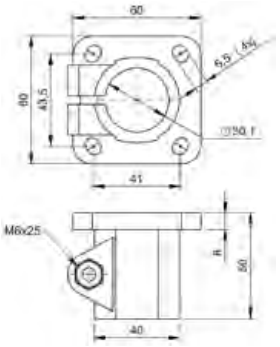

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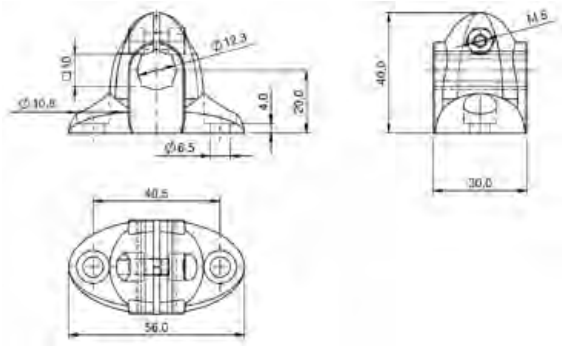

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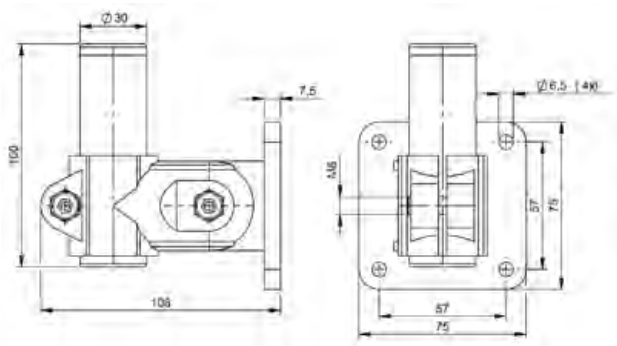

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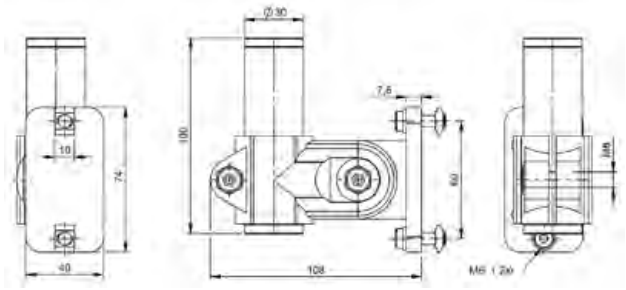

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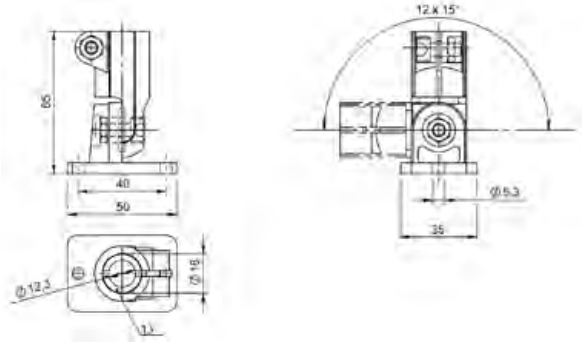
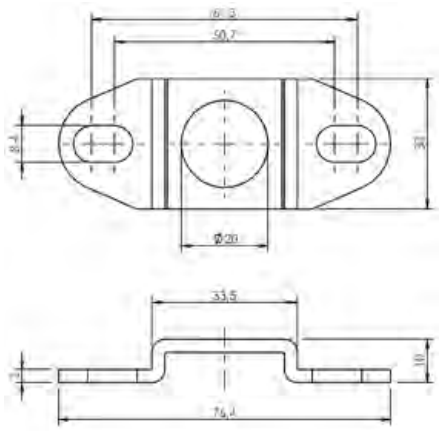


1) Reduzierhülse

BAM002Y



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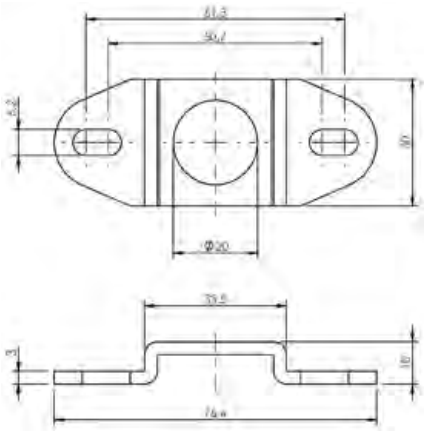

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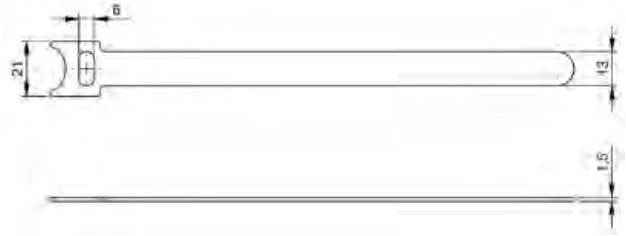

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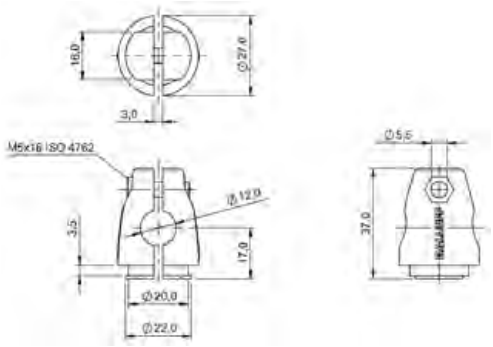

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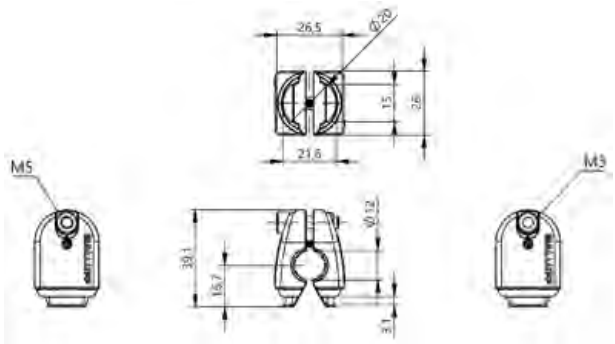

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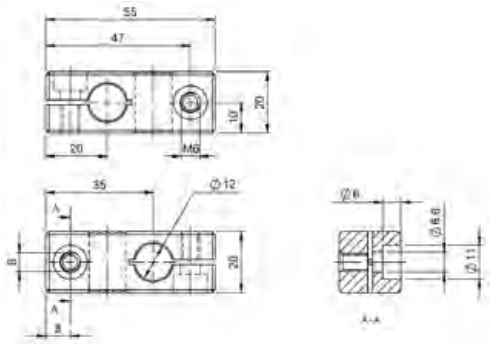

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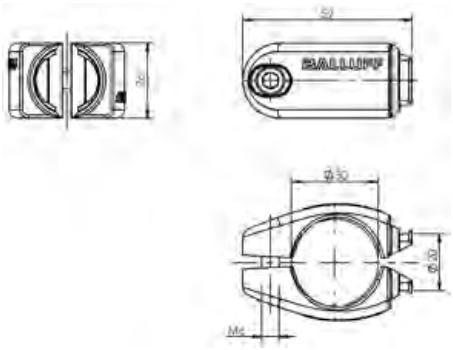

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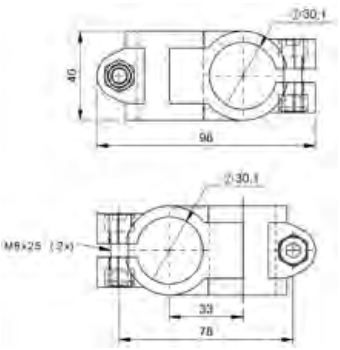

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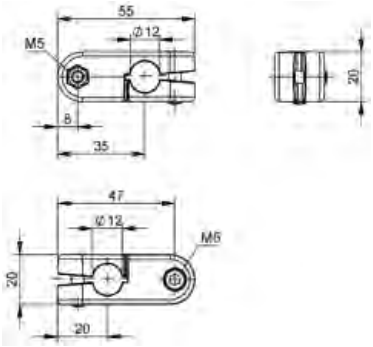

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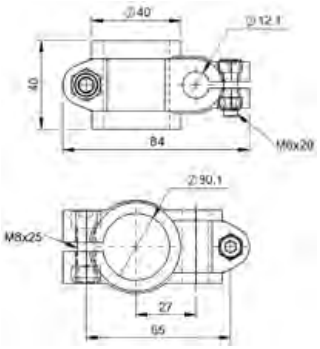

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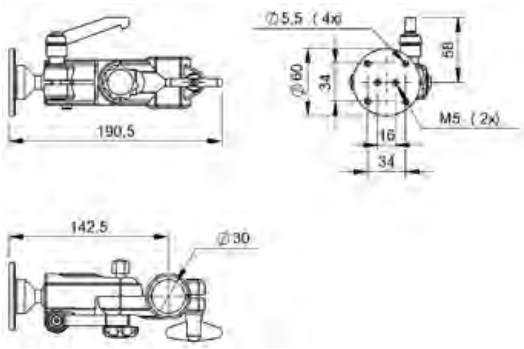

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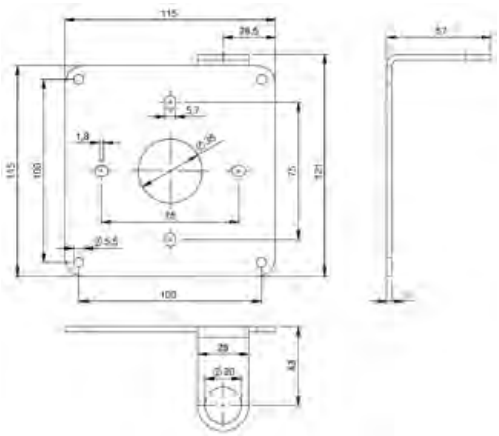


BAM01JK

	BAM021Y BMS RS-M-D12-0100-00	BAM002R BMS RS-M-D12-0150-00	BAM021T BMS RS-M-D12-0200-00	
Principle of operation	Mounting system	Mounting system	Mounting system	
Use	For mounting system BMS	For mounting system BMS	For mounting system BMS	
Material	Aluminum anodized	Aluminum anodized	Aluminum anodized	
Dimension	Ø 12 x 100 mm	Ø 12 x 150 mm	Ø 12 x 200 mm	
Mounting	Clamps	Clamps	Clamps	

	BAM033Z BMS RS-M-D30-0300-01	BAM0340 BMS RS-M-D30-0500-01	
Principle of operation	Mounting system	Mounting system	
Use	For mounting system BMS	For mounting system BMS	
Material	Aluminum anodized	Aluminum anodized	
Dimension	Ø 30 x 300 mm	Ø 30 x 500 mm	
Mounting	Clamps	Clamps	

BAM002T BMS RS-M-D12-0250-00
Mounting system
For mounting system BMS
Aluminum anodized
Ø 12 x 250 mm
Clamps

BAM021W BMS RS-M-D12-0300-00
Mounting system
For mounting system BMS
Aluminum anodized
Ø 12 x 300 mm
Clamps

BAM021U BMS RS-M-D12-0750-00
Mounting system
For mounting system BMS
Aluminum anodized
Ø 12 x 750 mm
Clamps

BAM002U BMS RS-M-D12-1000-00
Mounting system
For mounting system BMS
Aluminum anodized
Ø 12 x 1000 mm
Clamps

BAM0341 BMS RS-M-D30-1000-01
Mounting system
For mounting system BMS
Aluminum anodized
Ø 30 x 1000 mm
Clamps

BAM0045 BMS RS-S-D12-0150-00
Mounting system
For mounting system BMS
Stainless steel (1.4571)
Ø 12 x 150 mm
Clamps

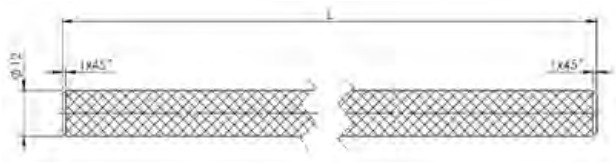
BAM0046 BMS RS-S-D12-0300-00
Mounting system
For mounting system BMS
Stainless steel (1.4571)
Ø 12 x 300 mm
Clamps

	BAM0278 BAM MB-XA-019-B11-4	BAM01F2 BMS CS-M-D12-BX11-09	
Principle of operation	Mounting system	Mounting system	
Use	For line light BAE	For line light BVS, for background lights BVS, for angle sensors BWL D	
Material	Stainless steel	Stainless steel	
Dimension	176 x 3 x 15 mm	185 x 21 x 34 mm	
Mounting	Screws	Screws, terminals	
Additional features	—	—	

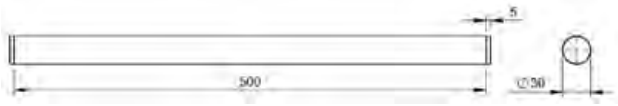
	BAM0277 BMS CS-M-D12-BX17-11	**BAM024T** BMS CS-M-D12-BZ	**BAM02ZW** BAM MB-MS-038-B19-1	**BAM01AC** BAM MB-XA-003-B03-1
	Mounting system	Mounting system	Mounting brackets	Holder
	For line light BVS	For mounting system BMS, for holding rods with Ø12 mm	—	—
	Stainless steel	Chrome plated zinc, matte	for BVS …-E, for SmartCamera BVS SC	for BVS …-E
	75 x 3 x 44 mm	45.5 x 24 x 30 mm	Naturally anodized aluminum	Naturally anodized aluminum
	Screws	Screws, terminals	3 x 60 x 80 mm	106 x 50 x 75 mm
	—	—	Screws, terminals	Screws, Clamps

	BAM01YP BMS CS-M-S25-DX15-00	**BAM02ZU** BMS CU-M-S25-D030-01	**BAM01YT** BMS CUJ-M-S25-D045-00	
Version	Quick-change plate	Holder, quick-change plate	3D holder system	
Application	Adapter	for mounting profiles, for quick-change plate	for mounting profiles, with orientation in rotational position and angle orientation, for quick-change plate	
Use	for BVS …-E, for Smart-Camera BVS SC, for connection plate VESA 75/100, for 3D holding system, for holding of the quick-change plate	for BVS …-E, for Smart-Camera BVS SC	for BVS …-E, for Smart-Camera BVS SC	
Material	Naturally anodized aluminum	Naturally anodized aluminum	Naturally anodized aluminum	
Dimension	55 x 7.5 x 60 mm	15.1 x 60 x 60 mm	60 x 84 x 60 mm	
Mounting	Screws, terminals	Screws	Screws, terminals	

	BAM00WN BVS Z-MB-01	BAM02P7 BAM MB-VS-026-B14-1	BAM01AE BAM MB-XA-002-B02-1	BAM027R BAM MB-XA-018-B11-4	BAM02ML BAM MC-XA-042-D20,0-1
	Mounting brackets	Mounting brackets	Mounting brackets	Connection pieces	Holder
	for wall mount, for mounting system BMS	for ring light BAE	for mounting system BMS	for wall mount, for mounting profiles	for wall mount, for mounting profiles
	for BVS …-E	for BVS SC-..	for line light BAE	for line light BAE	for machine light Ø20 mm
	Stainless steel	Naturally anodized aluminum	Naturally anodized aluminum	Stainless steel	Naturally anodized aluminum
	74 x 47 x 51 mm	110 x 3 x 64 mm	61 x 40 x 43 mm	23.5 x 19.5 x 23.5 mm	15 x 29 x 35 mm
	Screws, Clamps	Screws	Screws, terminals	Screws	Screws, terminals



BAM021Y, BAM002R, BAM021T, BAM002T, BAM021W, BAM021U, BAM002U



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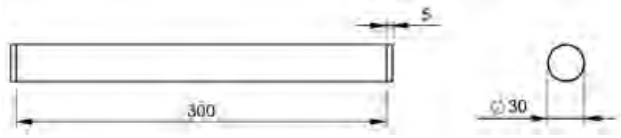

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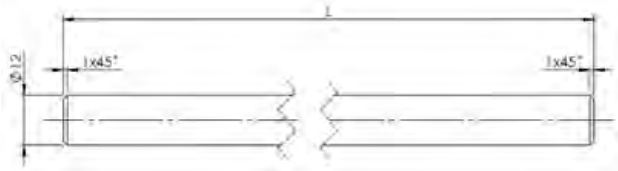

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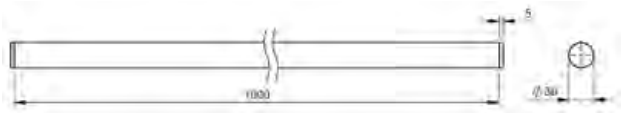

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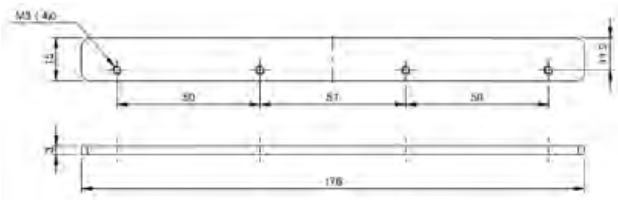

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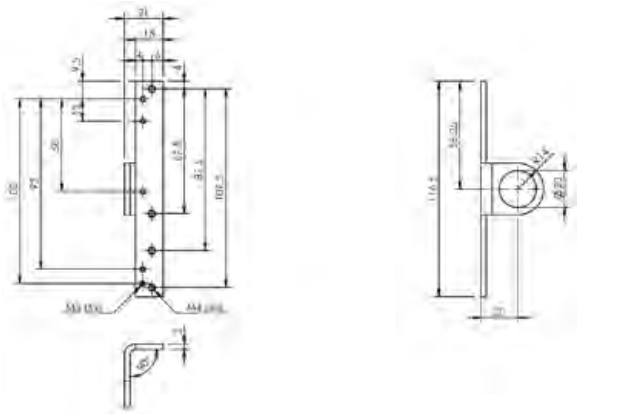

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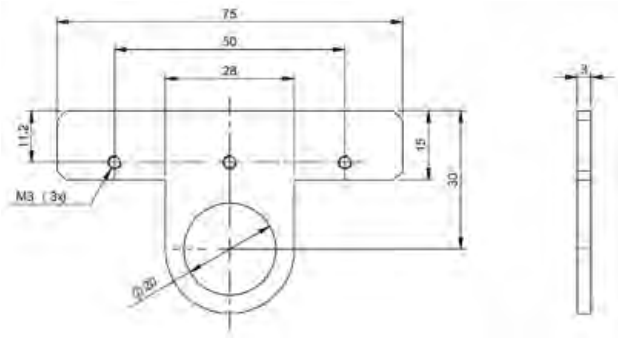

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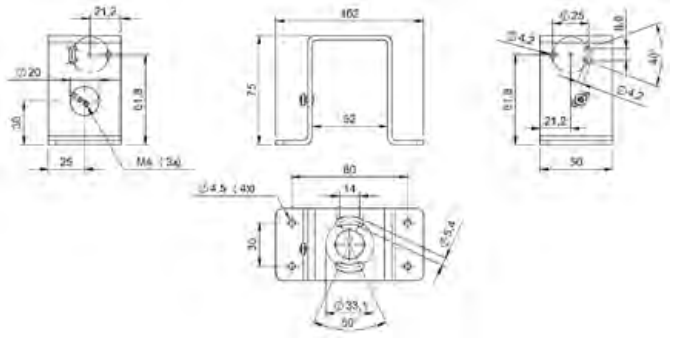

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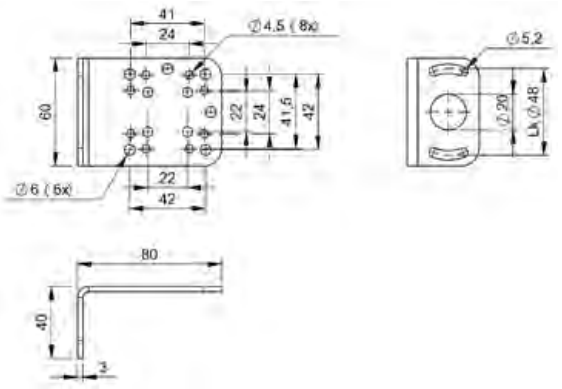

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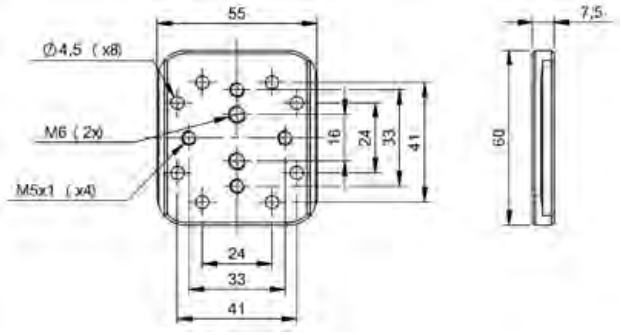

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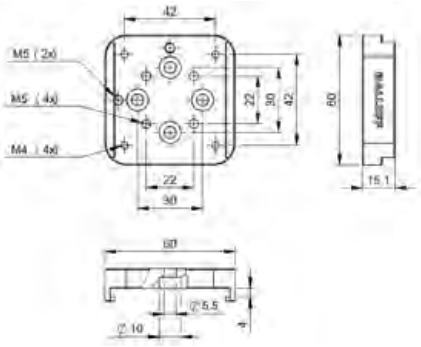

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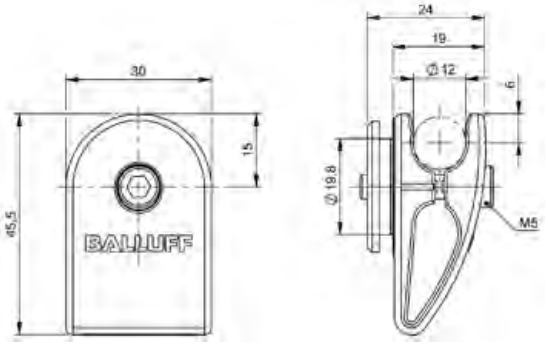

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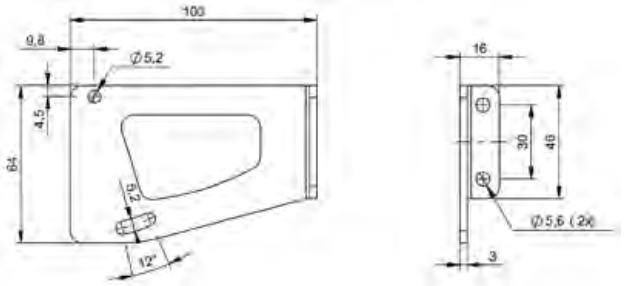

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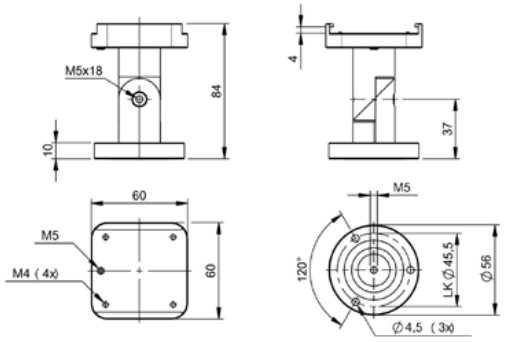

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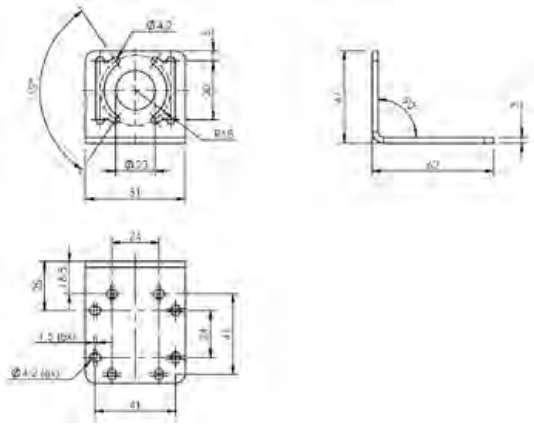
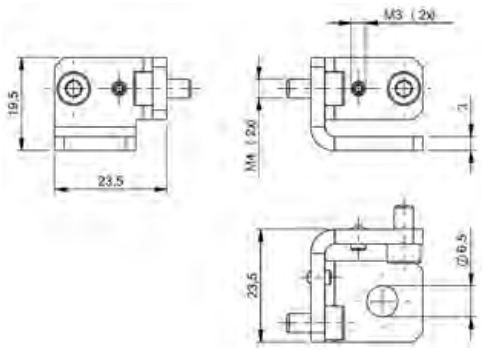


BAM00WN



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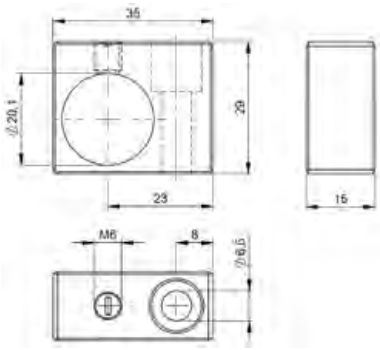
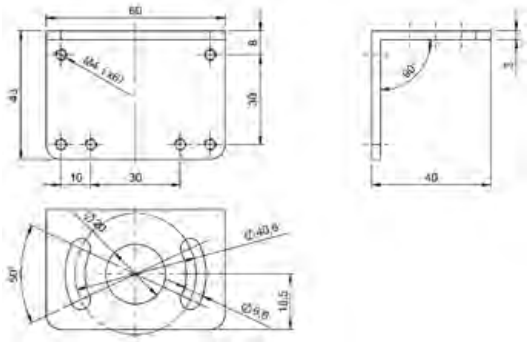
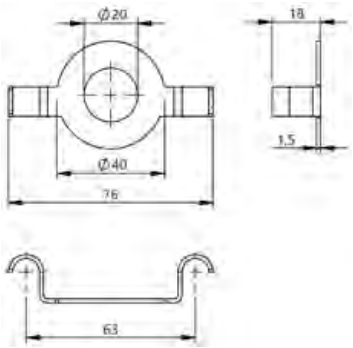


BAM02ML

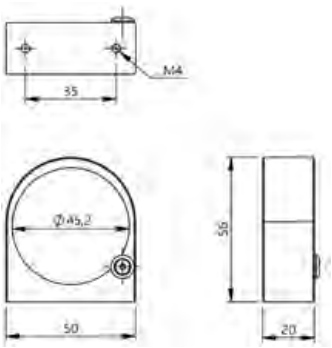


BAM01AE

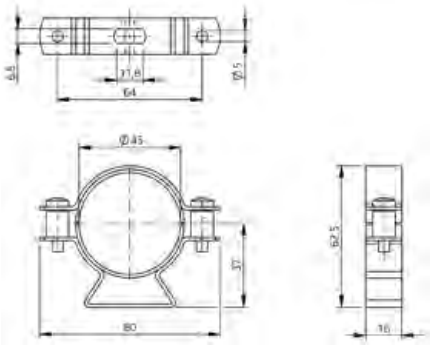
	BAM035Y BAM FS-AM-011-D45,0-4	BAM035Z BAM MC-XE-052-D45,0-1	BAM0360 BAM MC-XE-051-D45,0-3
Version	Holder	Installation set	Mounting cuff
Use	for machine light Ø45 mm, for mounting cuff Ø45mm	for machine light Ø45 mm	for machine light Ø45 mm
Material	Stainless steel	Aluminum anodized, natural	Steel Zinc plated EPDM
Dimension	1.5 x 40 x 76 mm	20 x 56 x 50 mm	16 x 62.5 x 80 mm
Mounting	Clamps	Clamps	Clamps



BAM035Y



BAM035Z



BAM0360

Standardized and tailor-made connection components

CONNECTIVITY.

innovating automation

At Balluff, you get everything from a single source, including a comprehensive range of connectivity components for every area of automation from a variety of materials, for various requirements and applications.

Connectors and double-ended cordsets from Balluff are available for high temperatures up to 180 °C and for low temperatures down to –40 °C.

Designs with Ecolab approval or in IP69K are especially suitable for sensitive fields such as the food industry. All products are suited for rugged use in the industrial environment. Common to all are simple installation and rapid integration for fast startup.

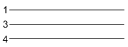
Your Balluff solutions

- Sensor Cables
- Single-ended cordsets,
- Double-ended cordsets
- Bulk cables
- Y-Splitters
- Tees
- Field Attachables
- Bulkhead Connectors
- Receptacles
- Adapters
- Terminating Resistors
- Passive Interfaces

	BCC M214-0000 ...	BCC M224-0000
Connection	M5x0.5 female	M5x0.5 female
Version	straight	right-angle
Rated voltage	60 V AC/DC	60 V AC/DC
Rated current	1 A	1 A
Degree of protection	IP67	IP67
unshielded, no LED	BCC M214-0000-10-001-_____-___	BCC M224-0000-10-001-_____-___
Approval/Conformity	CE, EAC	CE, EAC

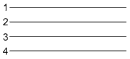
M5 - 3 conductor

PIN 1: brown
PIN 3: blue
PIN 4: black



M5 - 4 conductor

PIN 1: brown
PIN 2: white
PIN 3: blue
PIN 4: black



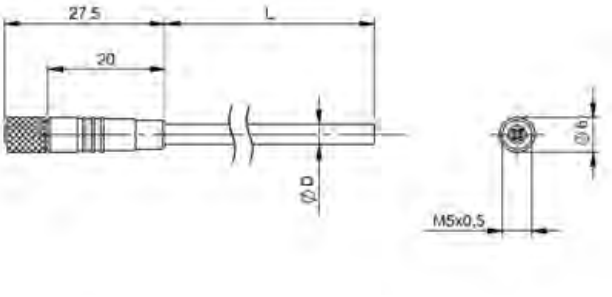
①	Material	Color	Number of conductors × conductor cross-section	Cable temperature fixed in place	Cable temperature flexed
UNSHIELDED					
PX0314	PUR	Black	3 × 0.14 mm²	-25...80 °C	-5...80 °C
PX0414	PUR	Black	4 × 0.14 mm²	-25...80 °C	-5...80 °C

②	Cable length
CABLE	
003	0.3 m
050	5 m
100	10 m

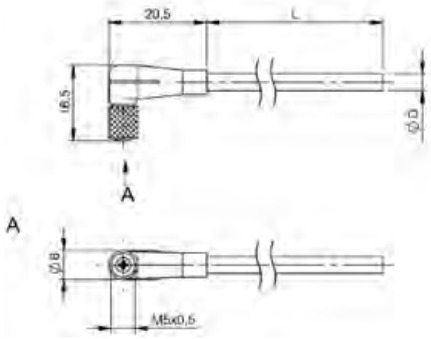
Other cable lengths on request!

AVAILABLE AS BULK CABLE

	Order code	Part number	Cable length
PX0314	BCC0KNU	BCC 0000-0000-00-001-PX0314-10X	100 m



BCC M214-0000 ...



BCC M224-0000

		BCC M313 ...	
Connection		M8 female, A-coded	
Version		straight	
Rated voltage	No LED	60 V AC/DC	
	with LED	30 V DC	
Rated current		4 A	
Degree of protection	unshielded	IP67, IP69K	
	shielded	IP67	
unshielded, no LED		BCC M313-0000-10-001-_ _ _ _ _ _①-_ _ _②	
unshielded, 2 × PNP-LED		BCC M313-0000-10-004-_ _ _ _ _ _①-_ _ _②	
unshielded, 2 × NPN-LED		–	
shielded, no LED		BCC M313-0000-10-036-_ _ _ _ _ _①-_ _ _②	
Approval/Conformity		CE, UL, EAC	

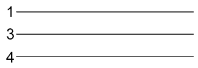
M8 female

PIN 1: brown
PIN 3: blue
PIN 4: black

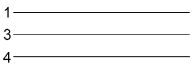
M8 male

PIN 1: brown
PIN 3: blue
PIN 4: black

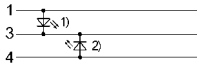
unshielded, no LED



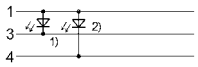
unshielded, no LED



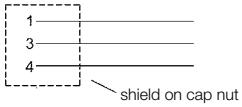
unshielded, 2 × PNP-LED*



unshielded, 2 × NPN-LED*



shielded, no LED



* [1] LED green = Power
[2] LED yellow = Function

	BCC M313 ...	BCC M323 ...	BCC M323 ...
	M8 male, A-coded	M8 female, A-coded	M8 male, A-coded
	straight	angled	angled
	60 V AC/DC	60 V AC/DC	60 V AC/DC
	–	30 V DC	–
	4 A	4 A	4 A
	IP67, IP69K	IP67, IP69K	IP67, IP69K
		IP67	
	BCC M313-0000-20-001-_ _ _ _ _ _①-_ _ _②	BCC M323-0000-10-001-_ _ _ _ _ _①-_ _ _②	BCC M323-0000-20-001-_ _ _ _ _ _①-_ _ _②
	–	BCC M323-0000-10-004-_ _ _ _ _ _①-_ _ _②	–
	–	BCC M323-0000-10-006-_ _ _ _ _ _①-_ _ _②	–
	–	BCC M323-0000-10-036-_ _ _ _ _ _①-_ _ _②	–
	CE, UL, EAC	CE, UL, EAC	CE, UL, EAC

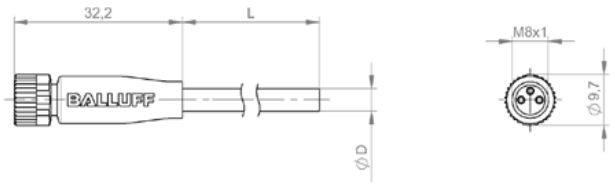
①	Material	Color	Number of conductors × conductor cross-section	Cable temperature fixed in place	Cable temperature flexed
UNSHIELDED					
PX0334	PUR	Black	3 × 0.34 mm²	–50...+90 °C	–25...+90 °C
VX8334	PVC	Gray	3 × 0.34 mm²	–40...+105 °C	–5...+105 °C
EX43T2	TPE	Yellow	3 × AWG22	–50...+105 °C	–25...+105 °C
VX43T2	PVC	Yellow	3 × AWG22	–40...+105 °C	–5...+105 °C
SHIELDED					
PS0334	PUR	Black	3 × 0.34 mm²	–50...+90 °C	–25...+90 °C
VS8334	PVC	Gray	3 × 0.34 mm²	–40...+105 °C	–5...+105 °C

②	Cable length
CONNECTION CABLE	
020	2 m
050	5 m
100	10 m

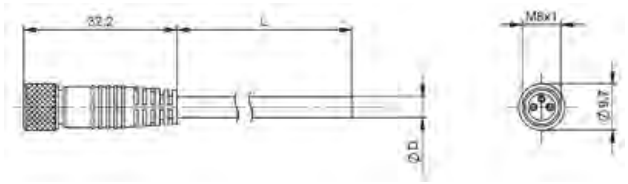
Other cable lengths on request!

AVAILABLE AS BULK CABLE

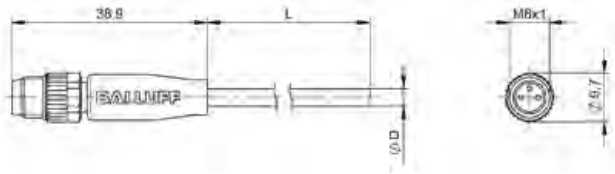
	Order code	Part number	Cable length
PX0334	BCC0AC7	BCC 0000-0000-00-000-PX0334-10X	100 m
VX8334	BCC0C15	BCC 0000-0000-00-000-VX8334-10X	100 m
EX43T2	BCC0AEC	BCC 0000-0000-00-001-EX43T2-10X	100 m
VX43T2	BCC0AE7	BCC 0000-0000-00-001-VX43T2-10X	100 m



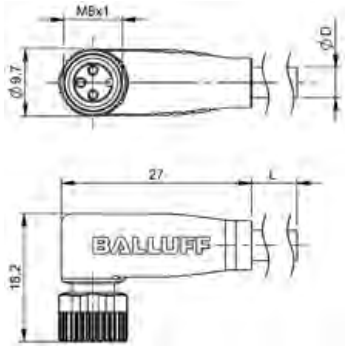
BCC M313-0000-10-001-...
BCC M313-0000-10-004-...



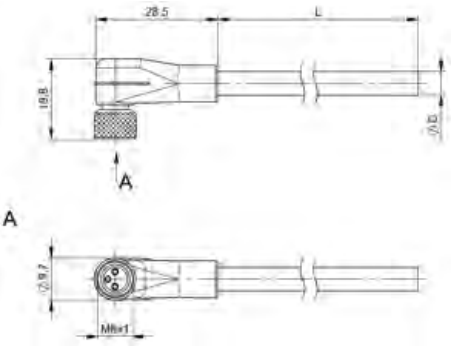
BCC M313-0000-10-036-...



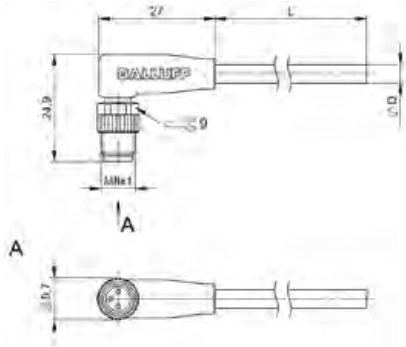
BCC M313-0000-20-001-...



BCC M323-0000-10-001-...
BCC M323-0000-10-004-...
BCC M323-0000-10-006-...



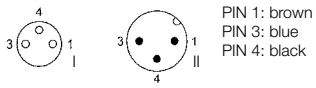
BCC M323-0000-10-036-...



BCC M323-0000-20-001-...

	BCC M313-M413 ...	
Connection	M8 female, A-coded/ M12 male, A-coded	
Version	straight/straight	
Rated voltage	60 V AC/DC	
Rated current	4 A	
Degree of protection	IP67, IP69K/IP67, IP68, IP69K	
unshielded, no LED, N.O. signal	BCC M313-M413-3E-300-_ _ _ _ _ _①-_ _ _②	
Approval/Conformity	CE, UL, EAC	

M8 female/M12 male, N.O. signal



PIN 1: brown
PIN 3: blue
PIN 4: black

unshielded, no LED

Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.

BCC M313-M423 ...
M8 female, A-coded/ M12 male, A-coded
straight/angled
60 V AC/DC
4 A
IP67, IP69K/IP67, IP68, IP69K
BCC M313-M423-3E-300-_ _ _ _ _①-_ _ _②
CE, UL, EAC

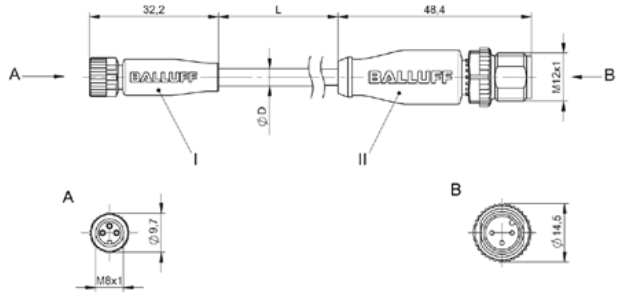
①	Material	Color	Number of conductors × conductor cross-section	Cable temperature fixed in place	Cable temperature flexed
UNSHIELDED					
PX0334	PUR	Black	3 × 0.34 mm²	–50...+90 °C	–25...+90 °C
VX8334	PVC	Gray	3 × 0.34 mm²	–40...+105 °C	–5...+105 °C
EX43T2	TPE	Yellow	3 × AWG22	–50...+105 °C	–25...+105 °C
VX43T2	PVC	Yellow	3 × AWG22	–40...+105 °C	–5...+105 °C

②	Cable length
CABLE	
003	0.3 m
006	0.6 m
010	1 m
015	1.5 m
020	2 m
050	5 m

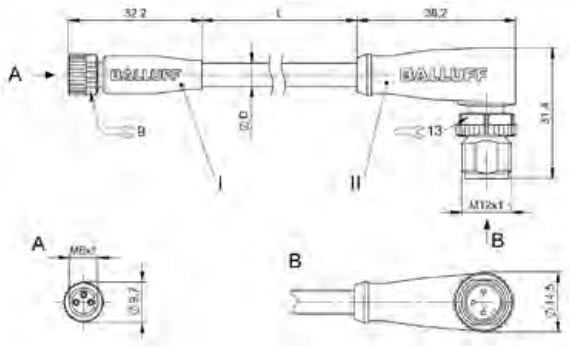
Other cable lengths on request!

AVAILABLE AS BULK CABLE

	Order code	Part number	Cable length
PX0334	BCC0AC7	BCC 0000-0000-00-000-PX0334-10X	100 m
VX8334	BCC0C15	BCC 0000-0000-00-000-VX8334-10X	100 m
EX43T2	BCC0AEC	BCC 0000-0000-00-001-EX43T2-10X	100 m
VX43T2	BCC0AE7	BCC 0000-0000-00-001-VX43T2-10X	100 m



BCC M313-M413-3E-300-...



BCC M313-M423-3E-300-...

		BCC M415 ...	
Connection		M12 female, A-coded	
Version		straight	
Rated voltage	No LED	250 V AC/DC	
	with LED	30 V DC	
Rated current		4 A	
Degree of protection	unshielded	IP67, IP68, IP69K	
	shielded	IP67	
unshielded, no LED		BCC M415-0000-1A-003-_ _ _ _ _ _①-_ _ _②	
unshielded, 2 × PNP-LED		BCC M415-0000-1A-008-_ _ _ _ _ _①-_ _ _②	
unshielded, 3 × PNP-LED		BCC M415-0000-1A-010-_ _ _ _ _ _①-_ _ _②	
shielded, no LED		BCC M415-0000-1A-014-_ _ _ _ _ _①-_ _ _②	
Approval/Conformity		CE, UL, EAC	

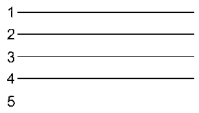
M12 female

PIN 1: brown
PIN 2: white
PIN 3: blue
PIN 4: black

M12 male

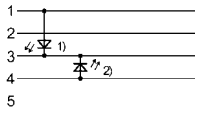
PIN 1: brown
PIN 2: white
PIN 3: blue
PIN 4: black

unshielded, no LED

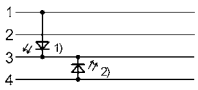


unshielded, no LED

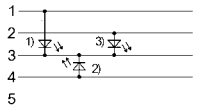
unshielded, 2 × PNP-LED*



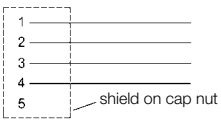
unshielded, 2 × PNP-LED*



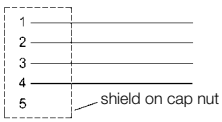
unshielded, 3 × PNP-LED*



shielded, no LED



shielded, no LED



* [1] LED green = Power
[2] LED yellow = Function
[3] LED white = Function

Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.

	BCC M414 ...	BCC M425 ...	BCC M424 ...
	M12 male, A-coded	M12 female, A-coded	M12 female, A-coded
	straight	angled	angled
	250 V AC/DC	250 V AC/DC	250 V AC/DC
	–	30 V DC	30 V DC
	4 A	4 A	4 A
	IP67, IP68, IP69K	IP67, IP68, IP69K	IP67, IP68, IP69K
	IP67	IP67	IP67
	BCC M414-0000-2A-003-_ _ _ _ _ _①-_ _ _②	BCC M425-0000-1A-003-_ _ _ _ _ _①-_ _ _②	BCC M424-0000-2A-003-_ _ _ _ _ _①-_ _ _②
	–	BCC M425-0000-1A-008-_ _ _ _ _ _①-_ _ _②	BCC M424-0000-2A-008-_ _ _ _ _ _①-_ _ _②
	–	BCC M425-0000-1A-010-_ _ _ _ _ _①-_ _ _②	–
	BCC M414-0000-2A-014-_ _ _ _ _ _①-_ _ _②	BCC M425-0000-1A-014-_ _ _ _ _ _①-_ _ _②	BCC M424-0000-2A-014-_ _ _ _ _ _①-_ _ _②
	CE, UL, EAC	CE, UL, EAC	CE, UL, EAC

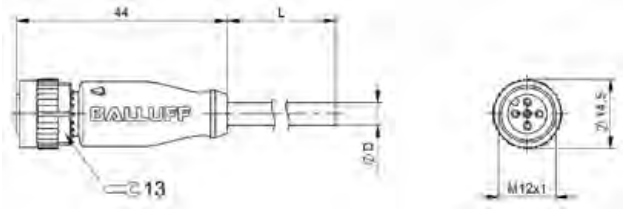
①	Material	Color	Number of conductors × conductor cross-section	Cable temperature fixed in place	Cable temperature flexed
UNSHIELDED					
PX0434	PUR	Black	4 × 0.34 mm²	–50...+90 °C	–25...+90 °C
VX8434	PVC	Gray	4 × 0.34 mm²	–40...+105 °C	–5...+105 °C
EX44T2	TPE	Yellow	4 × AWG22	–50...+105 °C	–25...+105 °C
VX44T2	PVC	Yellow	4 × AWG22	–40...+105 °C	–5...+105 °C
SHIELDED					
PS0434	PUR	Black	4 × 0.34 mm²	–50...+90 °C	–25...+90 °C
VS8434	PVC	Gray	4 × 0.34 mm²	–40...+105 °C	–5...+105 °C

②	Cable length
CONNECTION CABLE	
020	2 m
050	5 m
100	10 m

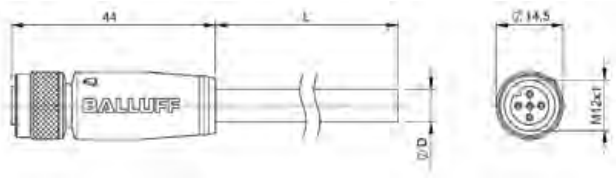
Other cable lengths on request!

AVAILABLE AS BULK CABLE

	Order code	Part number	Cable length
PX0434	BCC0AC8	BCC 0000-0000-00-000-PX0434-10X	100 m
VX8434	BCC0C14	BCC 0000-0000-00-000-VX8434-10X	100 m
EX44T2	BCC0AEE	BCC 0000-0000-00-003-EX44T2-10X	100 m
VX44T2	BCC0AE8	BCC 0000-0000-00-003-VX44T2-10X	100 m



BCC M415-0000-1A-003-...
BCC M415-0000-1A-008-...
BCC M415-0000-1A-010-...



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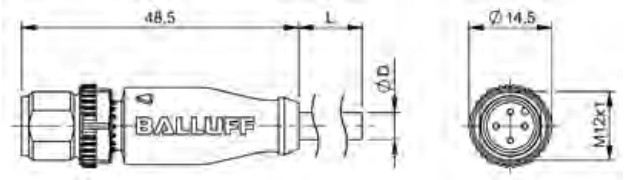

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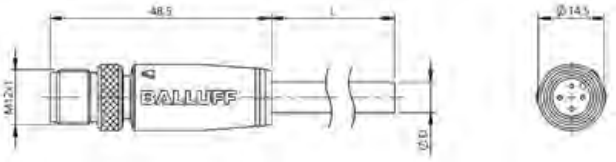

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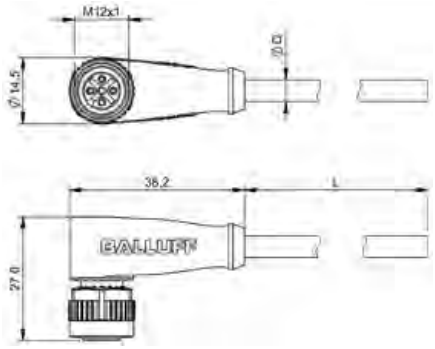

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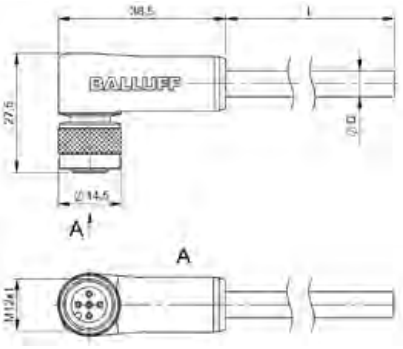
BCC M425-0000-1A-010-...



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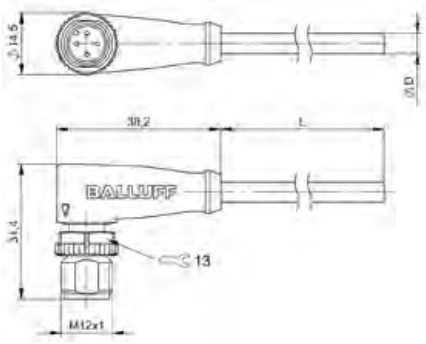

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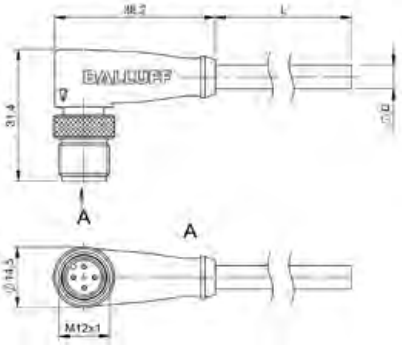
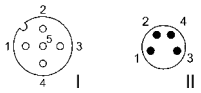
BCC M424-0000-2A-008-...



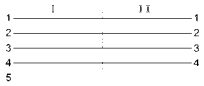
BCC M424-0000-2A-014-...

		BCC M415-M314 ...	
Connection		M12 female, A-coded/ M8 male, A-coded	
Version		straight/straight	
Rated voltage	No LED	60 V AC/DC	
	with LED	–	
Rated current		4 A	
Degree of protection	unshielded	IP67, IP68, IP69K/IP67, IP69K	
	shielded	–	
unshielded, no LED		BCC M415-M314-3F-304-_ _ _ _ _ _①-_ _ _②	
unshielded, 2 × PNP-LED		–	
shielded, no LED		–	
Approval/Conformity		CE, UL, EAC	

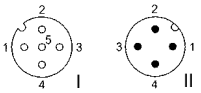
M12 female/M8 male



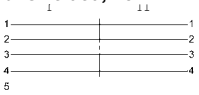
unshielded, no LED



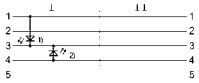
M12 female/M12 male



unshielded, no LED

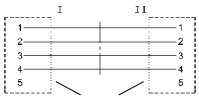


unshielded, 2 × PNP-LED*



* 1) LED green = Power
2) LED yellow = Function

shielded, no LED



shield on cap nut

Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.

	BCC M415-M324 ...	BCC M415-M414 ...	BCC M415-M424 ...
	M12 female, A-coded/ M8 male, A-coded	M12 female, A-coded/ M12 male, A-coded	M12 female, A-coded/ M12 male, A-coded
	straight/angled	straight/straight	straight/angled
	60 V AC/DC	250 V AC/DC	250 V AC/DC
	–	30 V DC	–
	4 A	4 A	4 A
	IP67, IP68, IP69K/IP67, IP69K	IP67, IP68, IP69K/IP67, IP68, IP69K	IP67, IP68, IP69K/IP67, IP68, IP69K
	–	IP67/IP67	–
	BCC M415-M324-3F-304-_ _ _ _ _ _①-_ _ _②	BCC M415-M414-3A-304-_ _ _ _ _ _①-_ _ _②	BCC M415-M424-3A-304-_ _ _ _ _ _①-_ _ _②
	–	BCC M415-M414-3A-606-_ _ _ _ _ _①-_ _ _②	–
	–	BCC M415-M414-3A-305-PS0434①-_ _ _②	–
	CE, UL, EAC	CE, UL, EAC	CE, UL, EAC

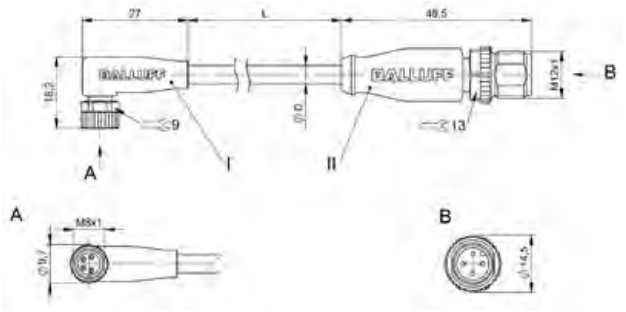
①	Material	Color	Number of conductors × conductor cross-section	Cable temperature fixed in place	Cable temperature flexed
UNSHIELDED					
PX0434	PUR	Black	4 × 0.34 mm²	–50...+90 °C	–25...+90 °C
VX8434	PVC	Gray	4 × 0.34 mm²	–40...+105 °C	–5...+105 °C
EX44T2	TPE	Yellow	4 × AWG22	–50...+105 °C	–25...+105 °C
VX44T2	PVC	Yellow	4 × AWG22	–40...+105 °C	–5...+105 °C
SHIELDED					
PS0434	PUR	Black	4 × 0.34 mm²	–50...+90 °C	–25...+90 °C

②	Cable length
CABLE	
003	0.3 m
006	0.6 m
010	1 m
015	1.5 m
020	2 m
050	5 m

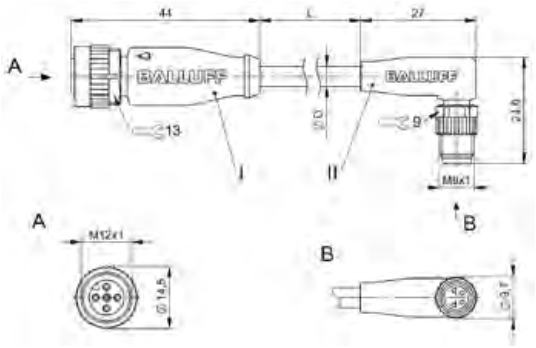
Other cable lengths on request!

AVAILABLE AS BULK CABLE

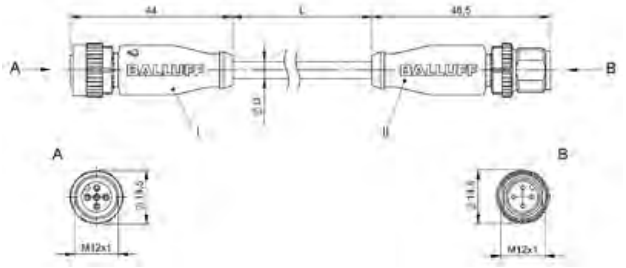
	Order code	Part number	Cable length
PX0434	BCC0AC8	BCC 0000-0000-00-000-PX0434-10X	100 m
VX8434	BCC0C14	BCC 0000-0000-00-000-VX8434-10X	100 m
EX44T2	BCC0AEE	BCC 0000-0000-00-003-EX44T2-10X	100 m
VX44T2	BCC0AE8	BCC 0000-0000-00-003-VX44T2-10X	100 m



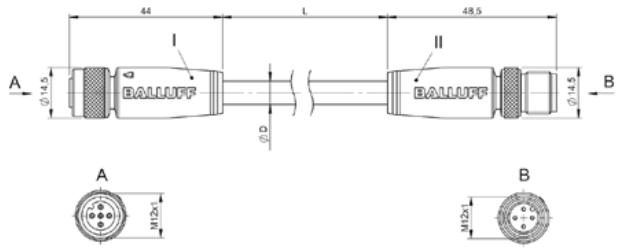
BCC M324-M414-3E-304-...



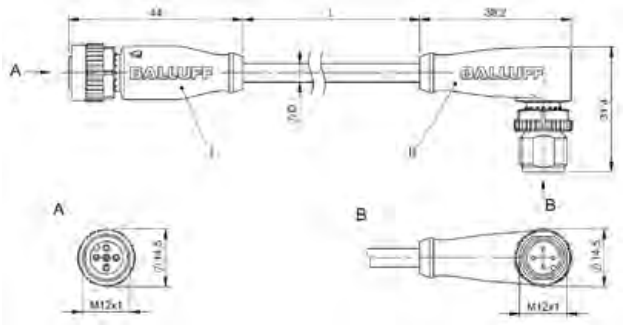
BCC M415-M324-3F-304-...



BCC M415-M414-3A-304-...
BCC M415-M414-3A-606-...



BCC M415-M414-3A-305-PS0434-...



BCC M415-M424-3A-304-...

		BCC M418 ...	BCC M418 ...	
Connection		M12 female, A-coded	M12 male, A-coded	
Version		straight	straight	
Rated voltage		30 V AC/DC	30 V AC/DC	
Rated current		2 A	2 A	
Degree of protection	unshielded	IP67, IP68, IP69K	IP67, IP68, IP69K	
	shielded	IP67	–	
unshielded, no LED, junction block wiring		BCC M418-0000-1A-044-PX0825①-_ _ _②	BCC M418-0000-2A-044-PX0825①-_ _ _②	
unshielded, no LED, sensor wiring		BCC M418-0000-1A-069-PX0825①-_ _ _②	–	
shielded, no LED, sensor wiring		BCC M418-0000-1A-046-PS0825①-_ _ _②	–	
Approval/Conformity		CE, UL, EAC	CE, UL, EAC	

M12 female, junction block wiring

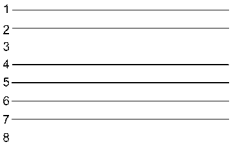
PIN 1: white
PIN 2: green
PIN 3: yellow
PIN 4: gray
PIN 5: brown
PIN 6: pink
PIN 7: blue
PIN 8: red

unshielded, no LED

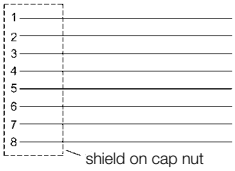
M12 female, sensor wiring

PIN 1: white
PIN 2: brown
PIN 3: green
PIN 4: yellow
PIN 5: gray
PIN 6: pink
PIN 7: blue
PIN 8: red

unshielded, no LED



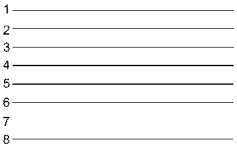
shielded, no LED



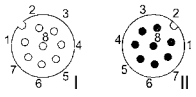
M12 male, junction block wiring

PIN 1: white
PIN 2: green
PIN 3: yellow
PIN 4: gray
PIN 5: brown
PIN 6: pink
PIN 7: blue
PIN 8: red

unshielded, no LED

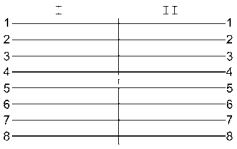


M12 female/M12 male, junction block wiring



PIN 1: white
PIN 2: green
PIN 3: yellow
PIN 4: gray
PIN 5: brown
PIN 6: pink
PIN 7: blue
PIN 8: red

unshielded, no LED



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	BCC M428 ...	BCC M428 ...	BCC M418-M418 ...
	M12 female, A-coded	M12 male, A-coded	M12 female, A-coded/ M12 male, A-coded
	angled	angled	straight/straight
	30 V AC/DC	30 V AC/DC	30 V AC/DC
	2 A	2 A	2 A
	IP67, IP68, IP69K	IP67, IP68, IP69K	IP67, IP68, IP69K/IP67, IP68, IP69K
	IP67		
	BCC M428-0000-1A-044-PX0825①-_ _ _②	BCC M428-0000-2A-044-PX0825①-_ _ _②	BCC M418-M418-3A-342-PX0825①-_ _ _②
	BCC M428-0000-1A-069-PX0825①-_ _ _②	–	–
	BCC M428-0000-1A-046-PS0825①-_ _ _②	–	–
	CE, UL, EAC	CE, UL, EAC	CE, UL, EAC

①	Material	Color	Number of conductors × conductor cross-section	Cable temperature fixed in place	Cable temperature flexed
UNSHIELDED					
PX0825	PUR	Black	8 × 0.25 mm^2	–50...+80 °C	–25...+80 °C
SHIELDED					
PS0825	PUR	Black	8 × 0.25 mm^2	–50...+90 °C	–25...+90 °C

②	Cable length
CONNECTION CABLE	
020	2 m
050	5 m
100	10 m
CABLE	
003	0.3 m
006	0.6 m
010	1 m
015	1.5 m
020	2 m
050	5 m

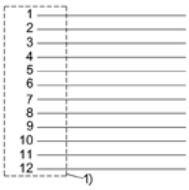
Other cable lengths on request!

	BCC0KE5 BCC M41C-0000-1A-169-PS0C25-010-C009	BCC0KE6 BCC M41C-0000-1A-169-PS0C25-020-C009	
Connection	M12x1-Female, 12-pole, A-coded	M12x1-Female, 12-pole, A-coded	
Cable	PUR Shielded black, 1.00 m, Drag chain compatible	PUR Shielded black, 2.00 m, Drag chain compatible	
Operating voltage Ub	30 VDC / 30 VAC	30 VDC / 30 VAC	
Rated current	1.5 A	1.5 A	
Cable temperature, fixed routing	-40...105 °C	-40...105 °C	
Cable temperature, flexible routing	-25...105 °C	-25...105 °C	
Number of conductors	12	12	
Protection degree	IP67	IP67	
Approval/Conformity	CE, EAC, WEEE	CE, EAC, WEEE	

M12 female

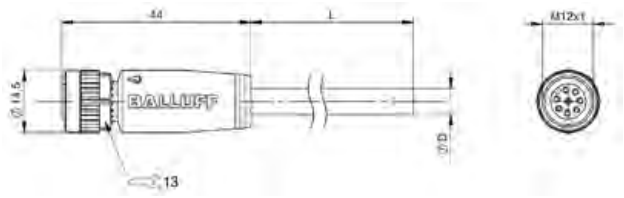
PIN 1: white, Pair 3
PIN 2: brown, Pair 3
PIN 3: green, Pair 4
PIN 4: yellow, Pair 4
PIN 5: gray, Pair 2
PIN 6: pink, Pair 2
PIN 7: blue, Pair 1
PIN 8: red, Pair 1
PIN 9: black, Pair 5
PIN 10: violet, Pair 5
PIN 11: gray/pink, Pair 6
PIN 12: red/blue, Pair 6

shielded, no LED



[1] Shield on cover nut

	BCC0JCN BCC M41C-0000-1A-169-PS0C25-050-C009	BCC0JCP BCC M41C-0000-1A-169-PS0C25-100-C009	BCC0JCR BCC M41C-0000-1A-169-PS0C25-200-C009	
	M12x1-Female, 12-pole, A-coded	M12x1-Female, 12-pole, A-coded	M12x1-Female, 12-pole, A-coded	
	PUR Shielded black, 5.00 m, Drag chain compatible	PUR Shielded black, 10.00 m, Drag chain compatible	PUR Shielded black, 20.00 m, Drag chain compatible	
	30 VDC / 30 VAC	30 VDC / 30 VAC	30 VDC / 30 VAC	
	1.5 A	1.5 A	1.5 A	
	-40...105 °C	-40...105 °C	-40...105 °C	
	-25...105 °C	-25...105 °C	-25...105 °C	
	12	12	12	
	IP67	IP67	IP67	
	CE, EAC, WEEE	CE, EAC, WEEE	CE, EAC, WEEE	



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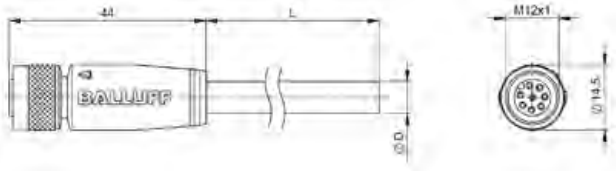
BCC M418-0000-1A-069-PX0825-...



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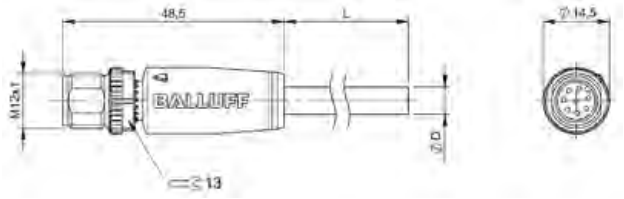
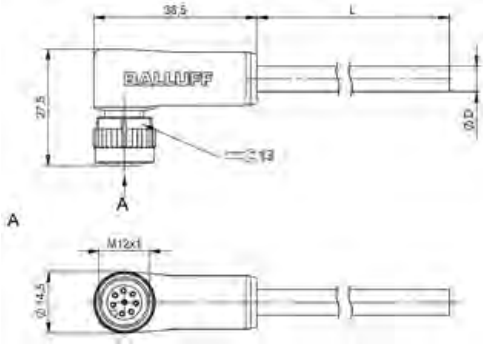
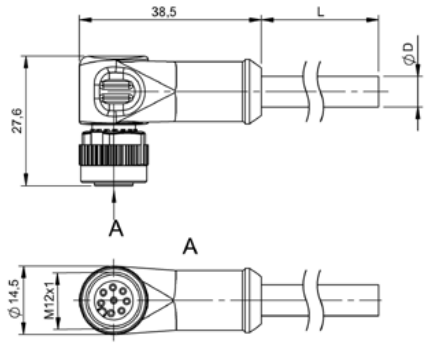


BCC M418-0000-2A-044-PX0825-...



BCC M428-0000-1A-044-PX0825-...
BCC M428-0000-1A-069-PX0825-...



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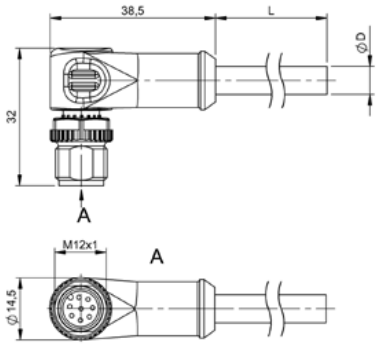

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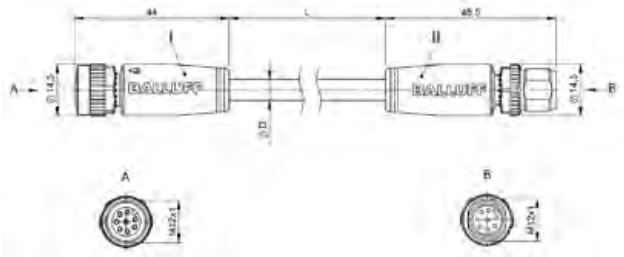
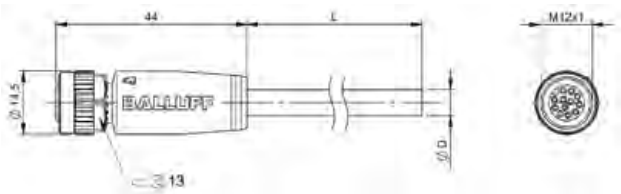
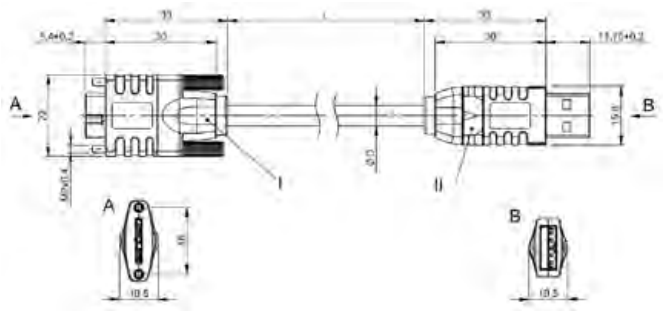


BCC M418-M418-3A-342-PX0825-...



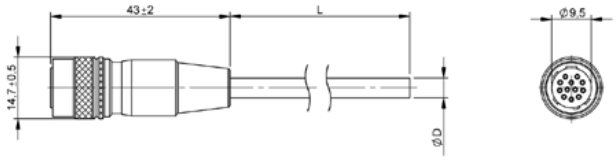
BCC M41C-0000-1A-049-PX0C25-...

	BCC0KL9 BCC U0AA-U019-90-736-Z19004-010	**BCC0KLA** BCC U0AA-U019-90-736-Z19004-030	**BCC0KLC** BCC U0AA-U019-90-736-Z19004-050
Connection 1	USB 3.0 Micro-B-Male, straight, 10-pole	USB 3.0 Micro-B-Male, straight, 10-pole	USB 3.0 Micro-B-Male, straight, 10-pole
Connection 2	USB 3.0 Standard-A-Male, straight, 9-pole	USB 3.0 Standard-A-Male, straight, 9-pole	USB 3.0 Standard-A-Male, straight, 9-pole
Cable	PVC Shielded black, 1.00 m	PVC Shielded black, 3.00 m	PVC Shielded black, 5.00 m
Number of conductors	8	8	8
Cable temperature, fixed routing	-10...80 °C	-10...80 °C	-10...80 °C
Operating voltage Ub	5 VDC	5 VDC	5 VDC
Rated current (40 °C)	0.1 A	0.1 A	0.1 A
Protection degree	IP20/IP20	IP20/IP20	IP20/IP20
Approval/Conformity	EAC	EAC	EAC



BCC0KL9, BCC0KLA, BCC0KLC

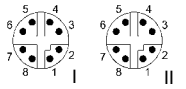
	BCC0KL6 BCC Z032-0000-10-148-VS0CT4-050	BCC0KL7 BCC Z032-0000-10-148-VS0CT4-100	BCC0KL8 BCC Z032-0000-10-148-VS0CT4-200
Connection	Circular Push Pull, female, straight, 12-pole, size 10	Circular Push Pull, female, straight, 12-pole, size 10	Circular Push Pull, female, straight, 12-pole, size 10
Cable	PVC Shielded black, 5.00 m	PVC Shielded black, 10.00 m	PVC Shielded black, 20.00 m
Number of conductors	12	12	12
Cable temperature, fixed routing	-30...80 °C	-30...80 °C	-30...80 °C
Cable temperature, flexible routing	-15...80 °C	-15...80 °C	-15...80 °C
Operating voltage Ub	140 VDC / 100 VAC	140 VDC / 100 VAC	140 VDC / 100 VAC
Rated current (40 °C)	2.0 A	2.0 A	2.0 A
Protection degree	IP50	IP50	IP50
Approval/Conformity	EAC, CE	EAC, CE	EAC, CE



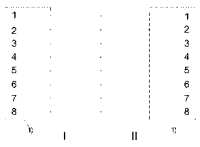
BCC0KL6, BCC0KL7, BCC0KL8

	BCC M418-M418...	
Connection	M12 male, X-coded/ M12 male, X-coded	
Version	straight/straight	
Rated voltage	50 V AC/60 V DC	
Rated current	0.5 A	
Degree of protection	IP67/IP67	
shielded	BCC M418-M418-6X-378-PS58N9①-_ _ _②	
Approval/Conformity	CE, UL, EAC	

M12 male/M12 male



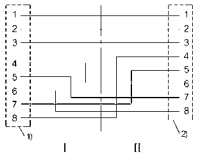
PIN 1: white/orange
PIN 2: orange
PIN 3: white/green
PIN 4: green
PIN 5: white/brown
PIN 6: brown
PIN 7: white/blue
PIN 8: blue



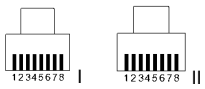
M12 male/ RJ45 male

PIN 1: white/orange
PIN 2: orange
PIN 3: white/green
PIN 4: green
PIN 5: white/brown
PIN 6: brown
PIN 7: white/blue
PIN 8: blue

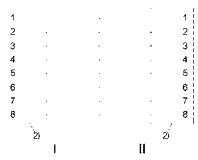
PIN 1: white/orange
PIN 2: orange
PIN 3: white/green
PIN 4: blue
PIN 5: white/blue
PIN 6: green
PIN 7: white/brown
PIN 8: brown



RJ45 male/ RJ45 male



PIN 1: white/orange
PIN 2: orange
PIN 3: white/green
PIN 4: blue
PIN 5: white/blue
PIN 6: green
PIN 7: white/brown
PIN 8: brown



1) Shield on cover nut
2) Shield on housing

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	BCC M418-E818...	BCC E818-E818 ...
	M12 male, X-coded/ RJ45, male	RJ45, male/ RJ45, male
	straight/straight	straight/straight
	50 V AC/60 V DC	50 V AC/60 V DC
	0.5 A	0.5 A
	IP67/IP20	IP20/IP20
	BCC M418-E818-8X0-723-PS58N9①-_ _ _②	BCC E818-E818-90-377-PS58N9①-_ _ _②
	CE, UL, EAC	CE, UL, EAC

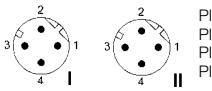
①	Material	Color	Number of conductors × conductor cross-section	Cable temperature fixed in place	Cable temperature flexed
SHIELDED					
PS58N9	PUR	Green	4 × 2 AWG26	–40...+85 °C	–10...+60 °C

②	Cable length
CABLE	
010	1 m
020	2 m
050	5 m
100	10 m

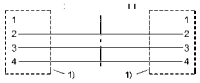
Other cable lengths on request!

	BCC M414-M414...	
Connection	M12 male, D-coded/ M12 male, D-coded	
Version	straight/straight	
Rated voltage	250 V AC/DC	
Rated current	4 A	
Degree of protection	IP67, IP68, IP69K/IP67, IP68, IP69K	
shielded	BCC M414-M414-6D-331-PS54N2①-_ _ _②	
Approval/Conformity	UL, EAC	

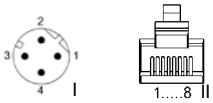
M12 male/M12 male



PIN 1: yellow
PIN 2: white
PIN 3: orange
PIN 4: blue

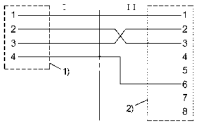


M12 male/ RJ45 male

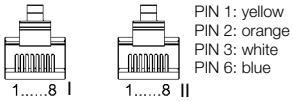


PIN 1: yellow
PIN 2: white
PIN 3: orange
PIN 4: blue

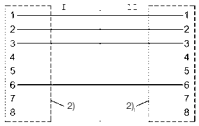
PIN 1: yellow
PIN 2: orange
PIN 3: white
PIN 6: blue



RJ45 male/ RJ45 male



PIN 1: yellow
PIN 2: orange
PIN 3: white
PIN 6: blue



[1] Shield on cover nut
[2] Shield on housing

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	BCC M414-E834...	BCC E834-E834 ...
	M12 male, D-coded/ RJ45, male	RJ45, male/ RJ45, male
	straight	straight/straight
	125 V AC/DC	125 V AC/DC
	1 A	1 A
	IP67, IP68, IP69K/IP20	IP20, IP20
	BCC M414-E834-8G-668-PS54N2①-_ _ _②	BCC E834-E834-90-334-PS54N2①-_ _ _②
	CE, EAC	CE, EAC

①	Material	Color	Number of conductors × conductor cross-section	Cable temperature fixed in place	Cable temperature flexed
SHIELDED					
PS54N2	PUR	Green	4 × AWG22	–40...+80 °C	-20...+60 °C

②	Cable length
CABLE	
006	0.6 m
020	2 m
050	5 m
100	10 m
150	15 m
200	20 m

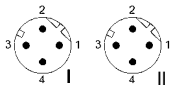
Other cable lengths on request!

AVAILABLE AS BULK CABLE

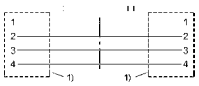
	Order code	Part number	Cable length
PS54N2	BCC0AC6	BCC 0000-0000-00-000-PS54N2-10X	100 m

	BCC M414-M414...	
Connection	M12 male, D-coded/ M12 male, D-coded	
Version	straight/straight	
Rated voltage	250 V AC/DC	
Rated current	4 A	
Degree of protection	IP67, IP68, IP69K/IP67, IP68, IP69K	
shielded	BCC M414-M414-6D-338-ES64N9①-_ _ _②	
Approval/Conformity	UL, EAC	

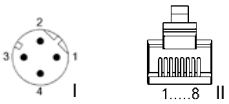
M12 male/M12 male



PIN 1: white/orange
PIN 2: white/green
PIN 3: orange
PIN 4: green

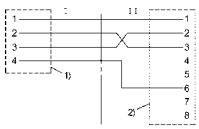


M12 male/ RJ45 male

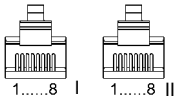


PIN 1: white/orange
PIN 2: white/green
PIN 3: orange
PIN 4: green

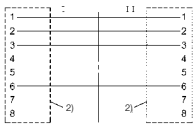
PIN 1: white/orange
PIN 2: orange
PIN 3: white/green
PIN 6: green



RJ45 male/ RJ45 male



PIN 1: white/orange
PIN 2: orange
PIN 3: white/green
PIN 6: green



[1] Shield on cover nut
[2] Shield on housing

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	BCC M414-E834...	BCC E834-E834 ...
	M12 male, D-coded/ RJ45, male	RJ45, male/ RJ45, male
	straight/straight	straight/straight
	30 V AC/42 V DC	30 V AC/42 V DC
	1 A	1 A
	IP67, IP68, IP69K/IP20	IP20/IP20
	BCC M414-E894-8G-672-ES64N9①-_ _ _②	BCC E894-E894-90-339-ES64N9①-_ _ _②
	CE, EAC	CE, EAC

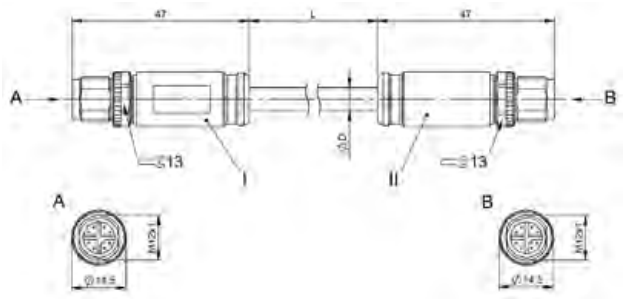
①	Material	Color	Number of conductors × conductor cross-section	Cable temperature fixed in place	Cable temperature flexed
SHIELDED					
ES64N9	TPE	turquoise blue	2 × 2 AWG24	–40...+80 °C	–40...+80 °C

②	Cable length
CABLE	
006	0.6 m
010	1 m
020	2 m
050	5 m
100	10 m
150	15 m
200	20 m

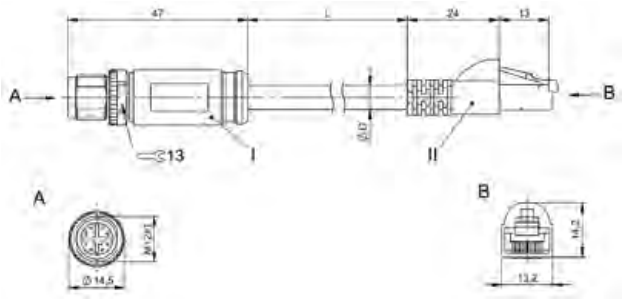
Other cable lengths on request!

AVAILABLE AS BULK CABLE

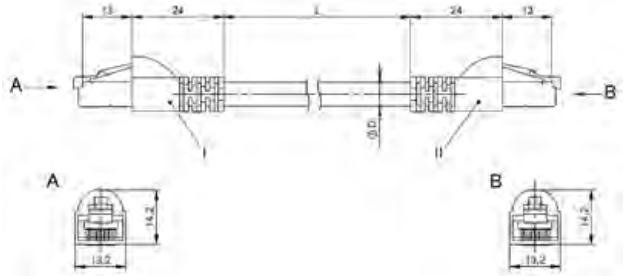
	Order code	Part number	Cable length
ES64N9	BCC0AUJ	BCC 0000-0000-00-168-ES64N9-10X	100 m



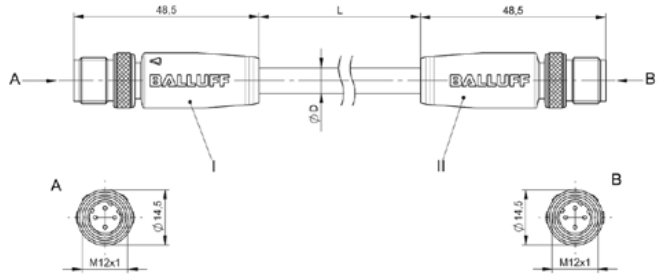
BCC M418-M418-6X-378-PS58N9-...



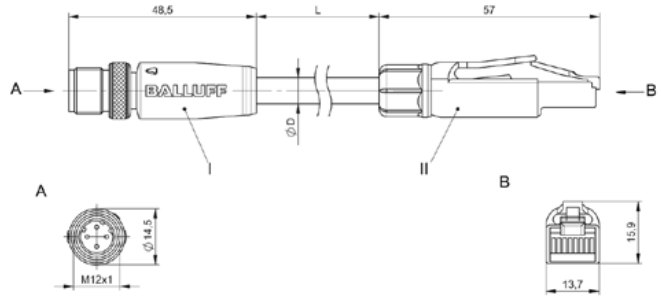
BCC M418-E818-8X0-723-PS58N9-...



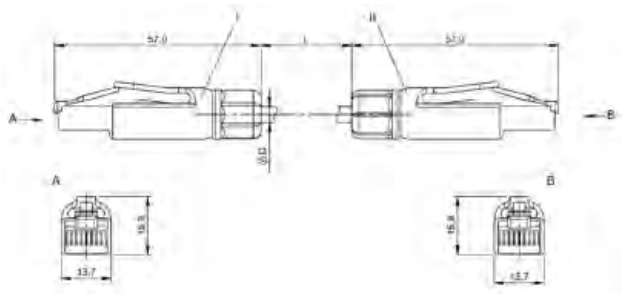
BCC E818-E818-90-377-PS58N9-...



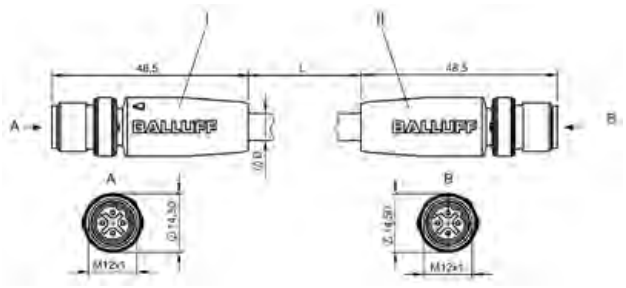
BCC M414-M414-6D-331-PS54N2-...



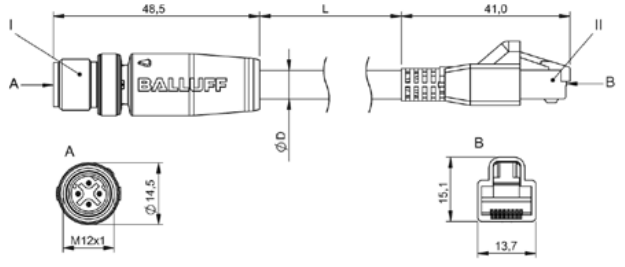
BCC M414-E834-8G-668-PS54N2-...



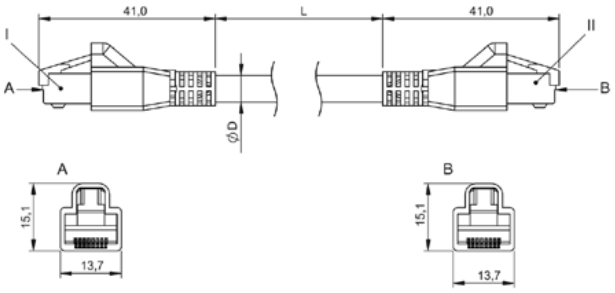
BCC E834-E834-90-334-PS54N2-...



BCC M414-M414-6D-338-ES64N9-...



BCC M414-E894-8G-672-ES64N9-...



BCC E894-E894-90-339-ES64N9-...

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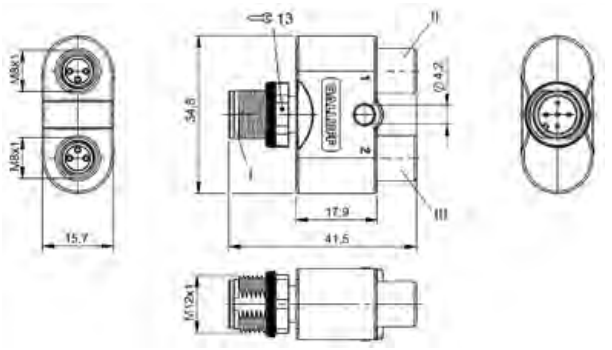
including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.

	BCC09JC BCC M415-M313-M313-U0014-000	
Connection 1	M12x1-Male, 4-pole, A-coded	
Connection 2	M8x1-Female, 3-pole, A-coded	
Connection 3	M8x1-Female, 3-pole, A-coded	
Operating voltage Ub	60 VDC / 60 VAC	
Rated current (40 °C)	4.0 A	
Protection degree	IP67	
Ambient temperature	-25...80 °C	
Approval/Conformity	EAC	

	BCC089P BCC M415-M415-M415-U0003-000	BCC08CA BCC M415-M415-M415-U0007-000	BCC09MU BCC M415-M415-M415-U0016-000
	M12x1-Male, 5-pole, A-coded	M12x1-Female, 5-pole, A-coded	M12x1-Male, 5-pole, A-coded
	M12x1-Female, 4-pole, A-coded	M12x1-Male, 5-pole, A-coded	M12x1-Female, 5-pole, A-coded
	M12x1-Female, 4-pole, A-coded	M12x1-Female, 5-pole, A-coded	M12x1-Female, 5-pole, A-coded
	125 VDC / 125 VAC	60 VDC / 60 VAC	125 VDC / 125 VAC
	4.0 A	4.0 A	4.0 A
	IP67	IP67	IP67
	-25...80 °C	-25...90 °C	-20...80 °C
	cURus, EAC	EAC	cURus, EAC



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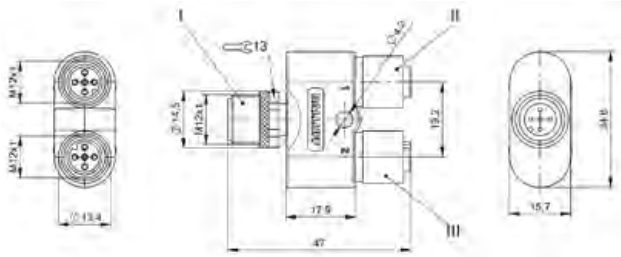
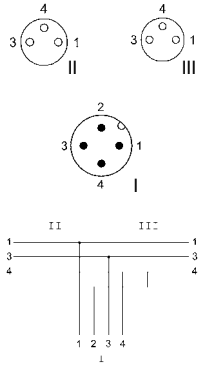


BCC089P, BCC09MU

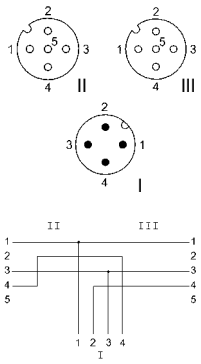
BCC08CA

	BCC M414-M313-M313 ...	
Connection	M12 male, A-coded/ M8 female, A-coded/ M8 female, A-coded	
Version	straight/straight/straight	
Rated voltage	60 V AC/DC	
Rated current	4 A	
Degree of protection	IP67/IP67, IP69K/IP67, IP69K	
PUR, black	BCC M414-M313-M313-U2026-_ _ _②	
PVC, yellow	BCC M414-M313-M313-U2012-_ _ _②	
TPE, yellow	–	
Approval/Conformity	CE, EAC	

M12 male/
M8 female/
M8 female



M12 male/
M12 female/
M12 female



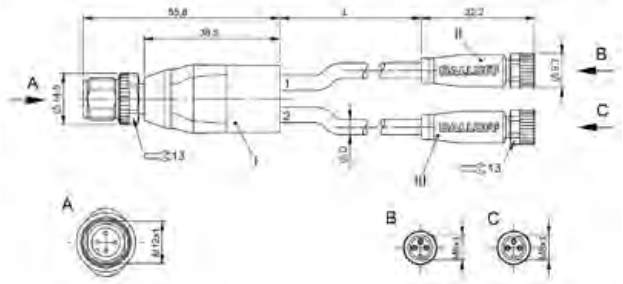
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download..

	BCC M414-M323-M323 ...	BCC M414-M415-M415 ...	BCC M414-M425-M425 ...
	M12 male, A-coded/ M8 female, A-coded/ M8 female, A-coded	M12 male, A-coded/ M12 female, A-coded/ M12 female, A-coded	M12 male, A-coded/ M12 female, A-coded/ M12 female, A-coded
	straight/angled/angled	straight/straight/straight	straight/angled/angled
	60 V AC/DC	250 V AC/DC	250 V AC/DC
	4 A	4 A	4 A
	IP67/IP67, IP69K/IP67, IP69K	IP67/IP67, IP68, IP69K/IP67, IP68, IP69K	IP67/IP67, IP68, IP69K/IP67, IP68, IP69K
	–	BCC M414-M415-M415-U2028-_ _ _②	BCC M414-M425-M425-U2028-_ _ _②
	BCC M414-M323-M323-U2012-_ _ _②	BCC M414-M415-M415-U2010-_ _ _②	BCC M414-M425-M425-U2010-_ _ _②
	–	BCC M414-M415-M415-U2002-_ _ _②	BCC M414-M425-M425-U2002-_ _ _②
	CE, EAC	EAC	EAC

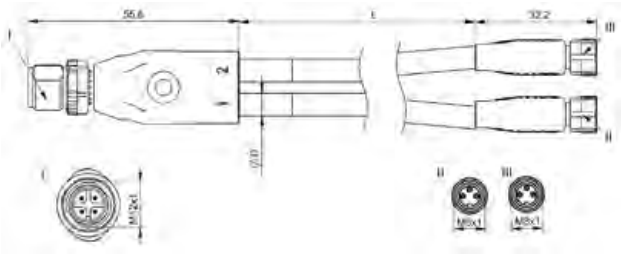
Material	Color	Number of conductors × conductor cross-section	Cable temperature fixed in place	Cable temperature flexed
UNSHIELDED				
PUR	Black	3 × 0.34 mm^2	–50...+90 °C	–25...+90 °C
PVC	Yellow	3 × AWG22	–40...+105 °C	–5...+105 °C
TPE	Yellow	3 × AWG22	–50...+90 °C	–25...+105 °C

②	Cable length
003	0.3 m
006	0.6 m
010	1 m
020	2 m
050	5 m

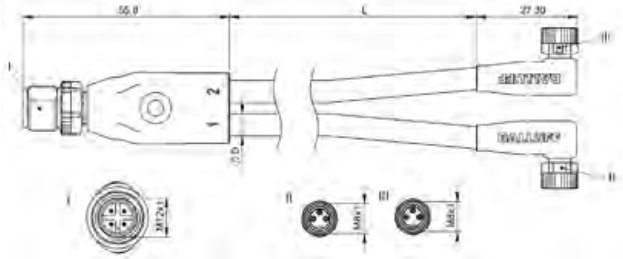
Other cable lengths on request!



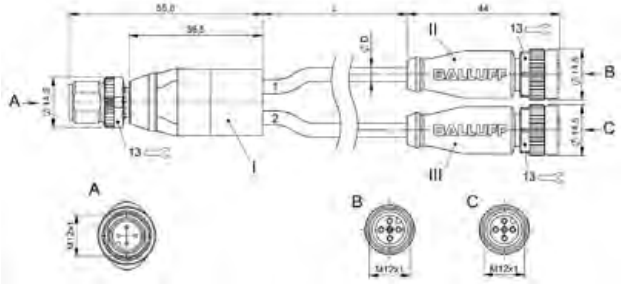
BCC M414-M313-M313-U2026-...



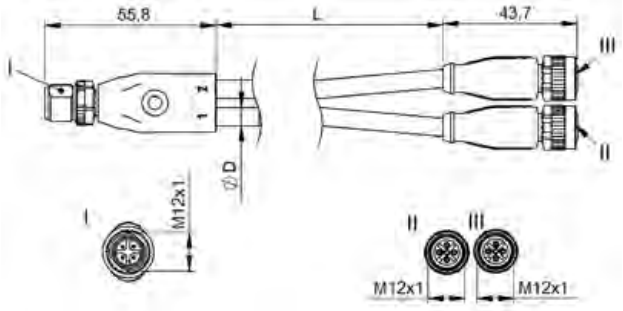
BCC M414-M313-M313-U2012-...



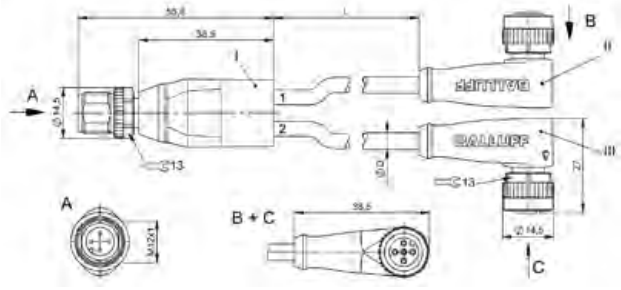
BCC M414-M323-M323-U2012-...



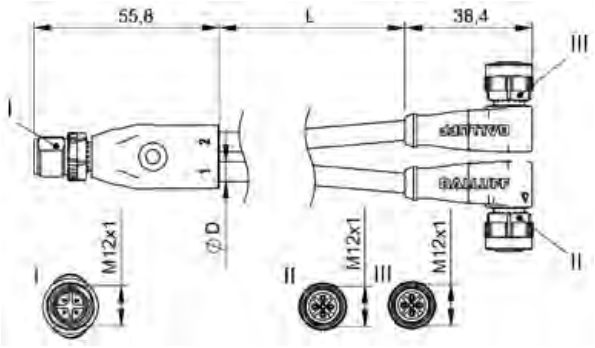
BCC M414-M415-M415-U2028-...



BCC M414-M415-M415-U2010-...
BCC M414-M415-M415-U2002-...



BCC M414-M425-M425-U2028-...



BCC M414-M425-M425-U2010-...
BCC M414-M425-M425-U2002-...

Reliable and efficient power supply

SWITCHING POWER SUPPLIES

Balluff offers high-performance power supplies to ensure that your systems run efficiently and without interference. Our power supplies for the control cabinet withstand overload and have especially long service life: up to 800,000 hours (91 years) to ensure the availability of your machines and equipment.

Our power supplies with the Heartbeat® function provide continuous function information about the internal device condition and indicate the current load situation and demand on the internal components. And the Lifetime display gives you warning for preventive maintenance. The diagnostics function can be applied anywhere in the system via IO-Link.

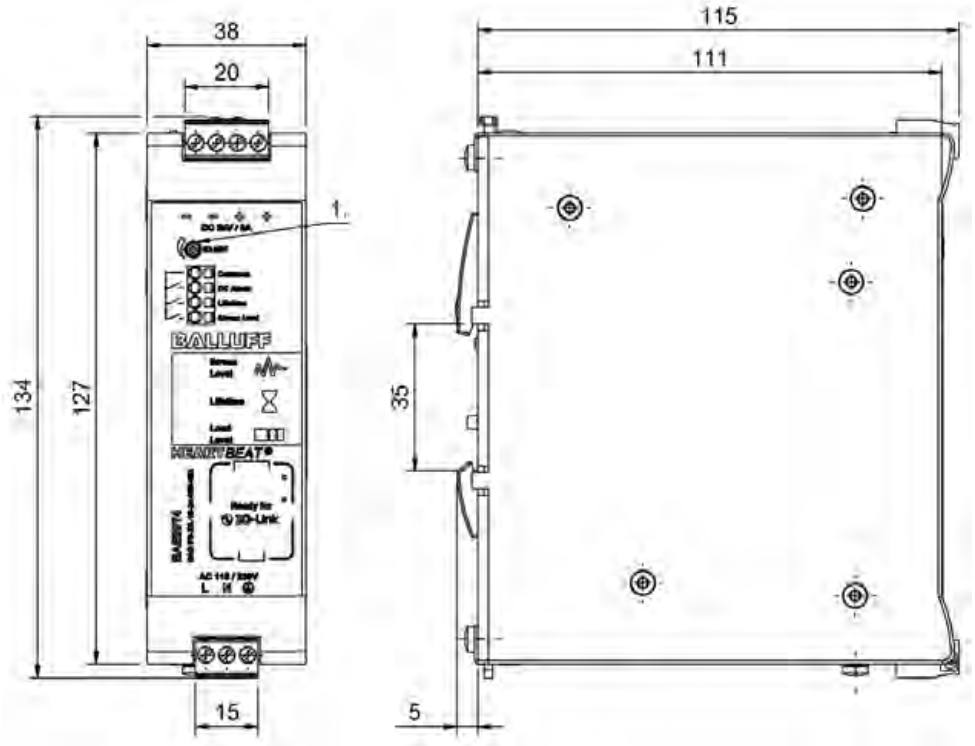
All the devices are available in several versions and output voltages. Heartbeat® versions for use directly in harsh environments are also available in IP67.

The most important benefits

- Complete line – everything from a single source
- Safety in case of short circuits and overloads in industrial environments
- Long service life for reliable operation
- High system availability of all equipment
- Comprehensive approval packages for global use

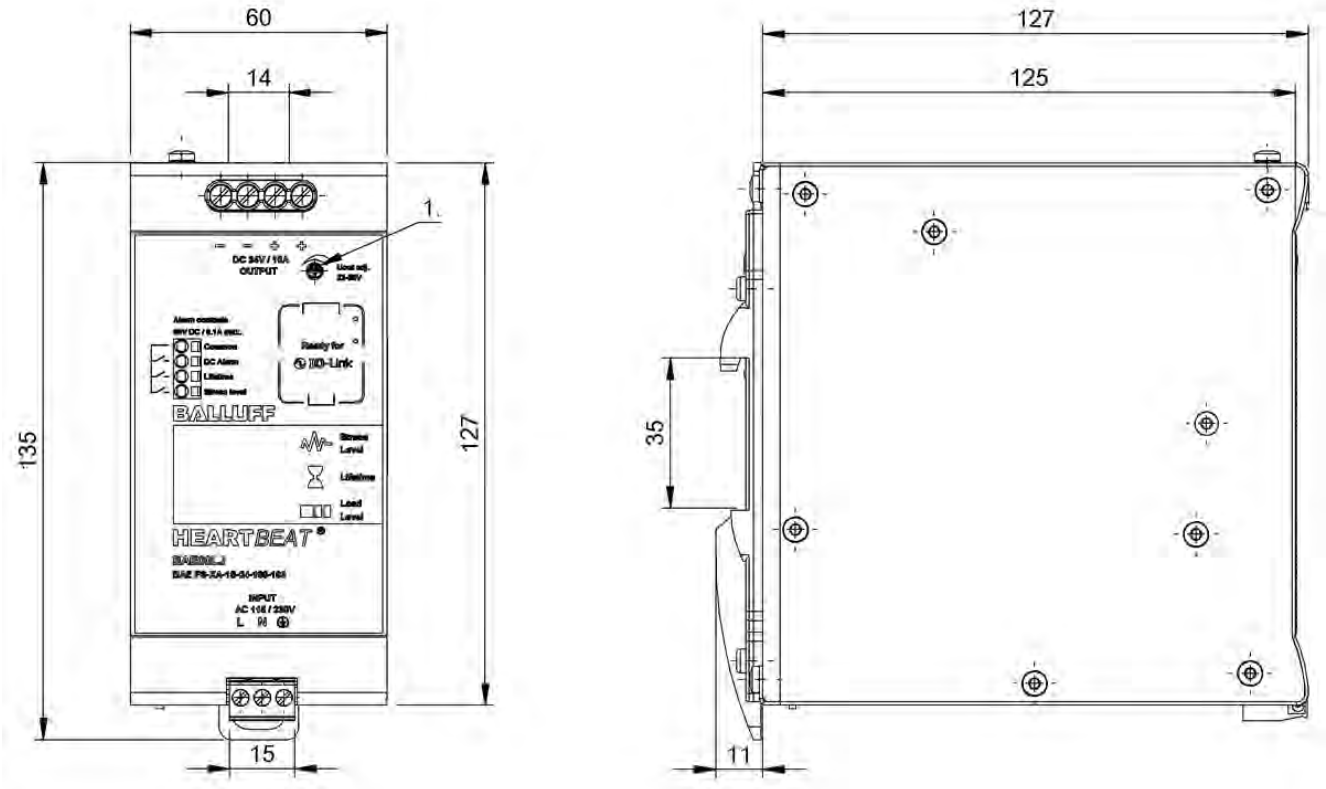
	BAE00T4 BAE PS-XA-1S-24-050-102	
Dimension	38 x 127 x 120 mm	
Version	DIN rail	
Mounting	DIN rail mount	
Housing material	Aluminum	
Connection (supply voltage IN)	Terminal strip	
Connection (supply voltage OUT)	Terminal strip	
Input voltage	115/230 V AC automatic selection, Single phase	
Rated output voltage DC	24 V	
Rated output current	5 A	
Output capacity max.	180 W	
Output current max.	7.5 A for max. 4s 1x/min.	
Protection degree	IP20	
Approval/Conformity	CE, CB, cURus, cULus	
Ambient temperature	-25...70 °C	

	BAE00LJ BAE PS-XA-1S-24-100-103	**BAE00M3** BAE PS-XA-1S-24-200-104	**BAE00TR** BAE PS-XA-1W-24-025-101
	60 x 127 x 127 mm	79 x 127 x 139 mm	24 x 127 x 92 mm
	DIN rail	DIN rail	DIN rail
	DIN rail mount	DIN rail mount	DIN rail mount
	Aluminum	Aluminum	Aluminum
	Terminal strip	Terminal strip	Terminal strip
	Terminal strip	Terminal strip	Terminal strip
	115/230 V AC automatic selection, Single phase	115/230 V AC automatic selection, Single phase	100…240 V AC, Single phase
	24 V	24 V	24 V
	10 A	20 A	2.5 A
	360 W	720 W	90 W
	15 A for max. 4s 1x/min.	30 A for max. 4s 1x/min.	3.75 A for max. 4s 1x/min.
	IP20	IP20	IP20
	CE, CB, cURus, cULus	CE	CE, CB, cURus, cULus
	-25...70 °C	-25...60 °C	-25...70 °C



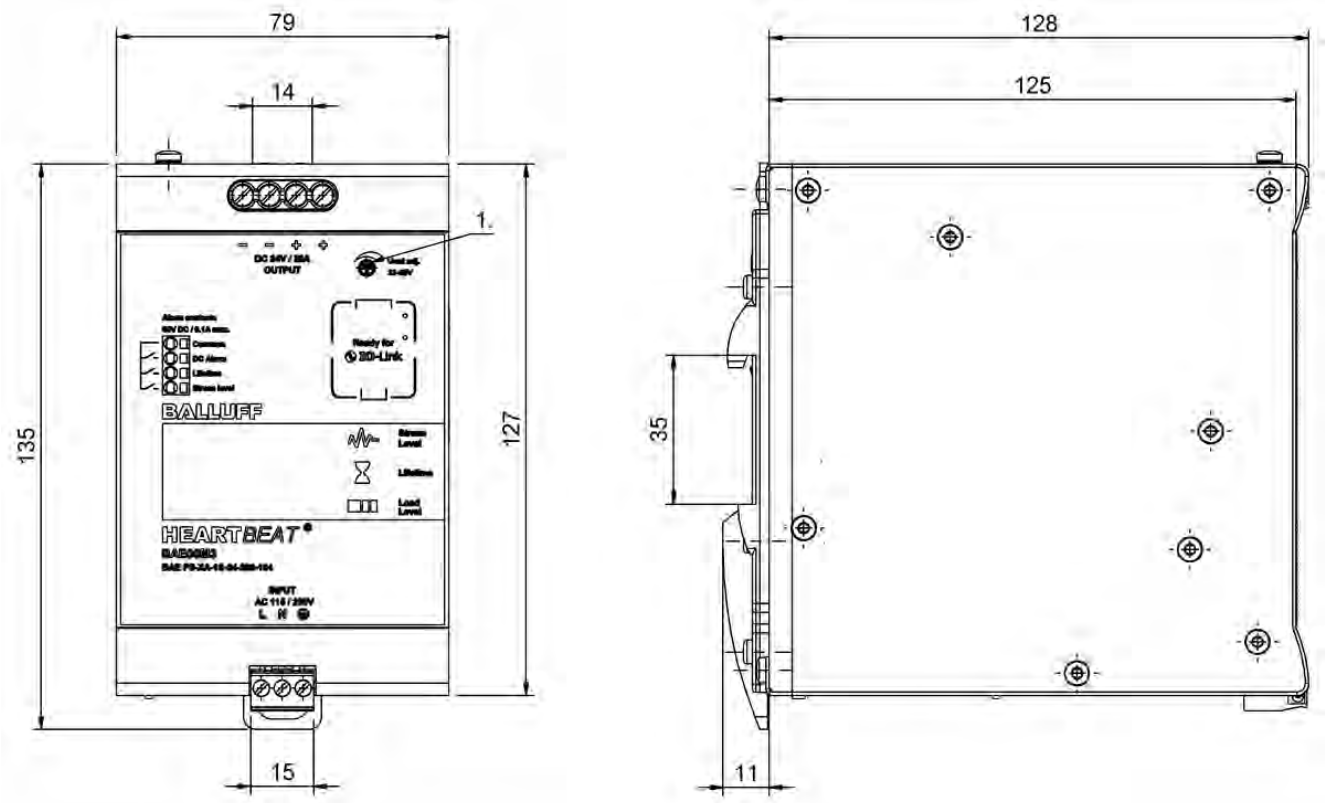
1) Potentiometer

BAE00T4



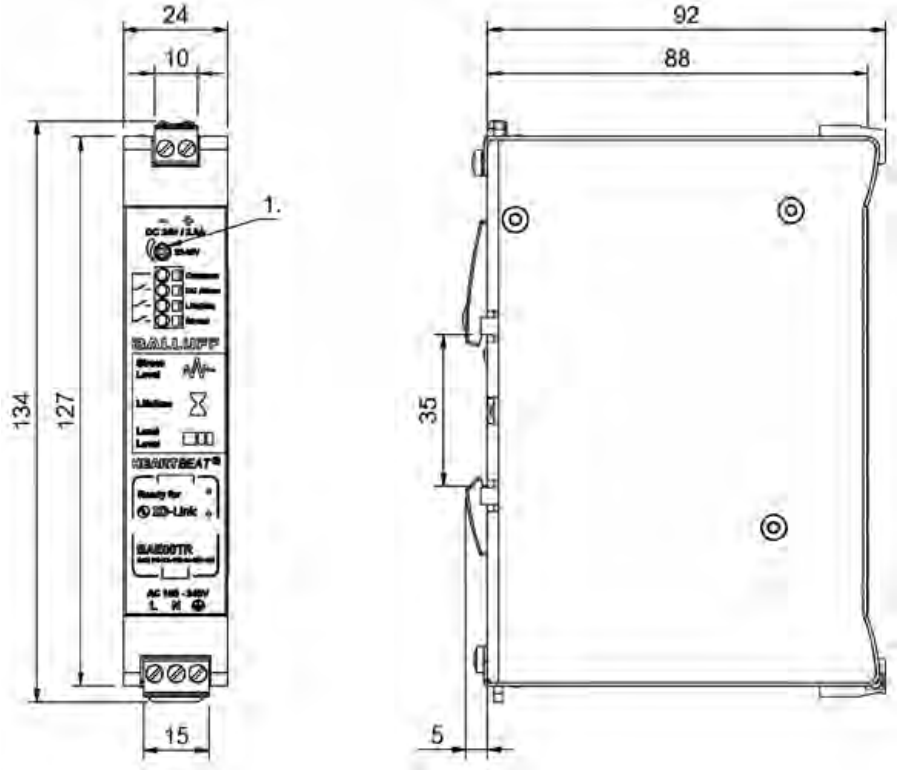
1) Potentiometer

BAE00LJ



1) Potentiometer

BAE00M3

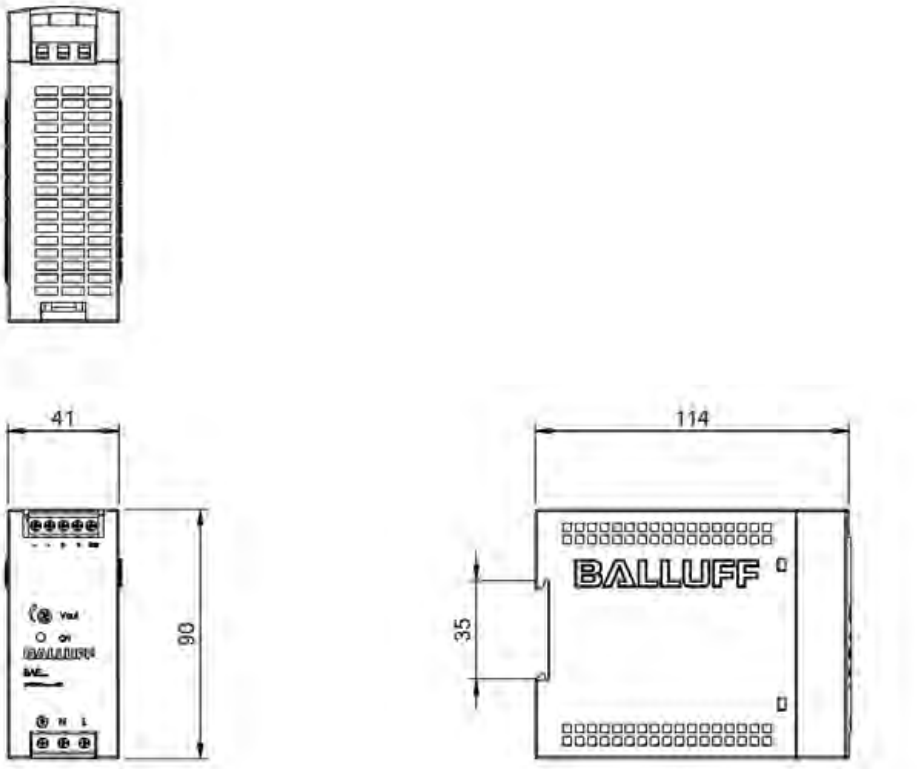


1) Potentiometer

BAE00TR

	BAE0005 BAE PS-XA-1W-24-025-002	BAE0006 BAE PS-XA-1W-24-050-003	BAE0002 BAE PS-XA-1W-24-100-004	
Dimension	40.5 x 90 x 114 mm	64 x 124.5 x 116.6 mm	83.5 x 124.5 x 116.6 mm	
Version	DIN rail	DIN rail	DIN rail	
Mounting	DIN rail mount	DIN rail mount	DIN rail mount	
Housing material	Plastic	Metal	Metal	
Connection	Clamp, 0.25 mm²...2.5 mm²	Clamp, 0.25 mm²...4 mm²	Clamp, 0.25 mm²...4 mm²	
Input voltage	100…240 V AC, Single phase	115/230 V AC automatic selection, Single phase	115/230 V AC automatic selection, Single phase	
Rated output voltage DC	24 V	24 V	24 V	
Rated output current	2.5 A	5 A	10 A	
Protection degree	IP20	IP20	IP20	
Approval/Conformity	CE, CCC, cULus	CE, CCC, cULus	CE, CCC, cULus	
Ambient temperature	-40...70 °C	-35...70 °C	-40...70 °C	

	BAE0003 BAE PS-XA-1W-24-200-005	BAE0007 BAE PS-XA-3Y-24-050-009	BAE0008 BAE PS-XA-3Y-24-100-006	BAE0009 BAE PS-XA-3Y-24-200-007	BAE003R BAE PS-XA-3Y-24-400-010
	175.5 x 124.5 x 116.6 mm	74.3 x 124 x 111.9 mm	89 x 124 x 111.9 mm	150 x 124 x 111.9 mm	275.8 x 126.2 x 111.9 mm
	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail
	DIN rail mount	DIN rail mount	DIN rail mount	DIN rail mount	DIN rail mount
	Metal	Metal	Metal	Metal	Metal
	Clamp, 0.25 mm²...4 mm²	Clamp, 0.25 mm²...4 mm²	Clamp, 0.25 mm²...4 mm²	Clamp, 0.25 mm²...4 mm²	Clamp, 0.25 mm²...4 mm², 0.5 mm²...10 mm²
	100…240 V AC, Single phase	400…500 V AC, Three-phase	400…500 V AC, Three-phase	400…500 V AC, Three-phase	400…500 V AC, Three-phase
	24 V	24 V	24 V	24 V	24 V
	20 A	5 A	10 A	20 A	40 A
	IP20	IP20	IP20	IP20	IP20
	CE, CCC, cULus	CE, CCC, cULus	CE, CCC, cULus	CE, CCC, cULus	CE, CCC, cULus
	-40...70 °C	-40...70 °C	-40...70 °C	-30...70 °C	-40...70 °C



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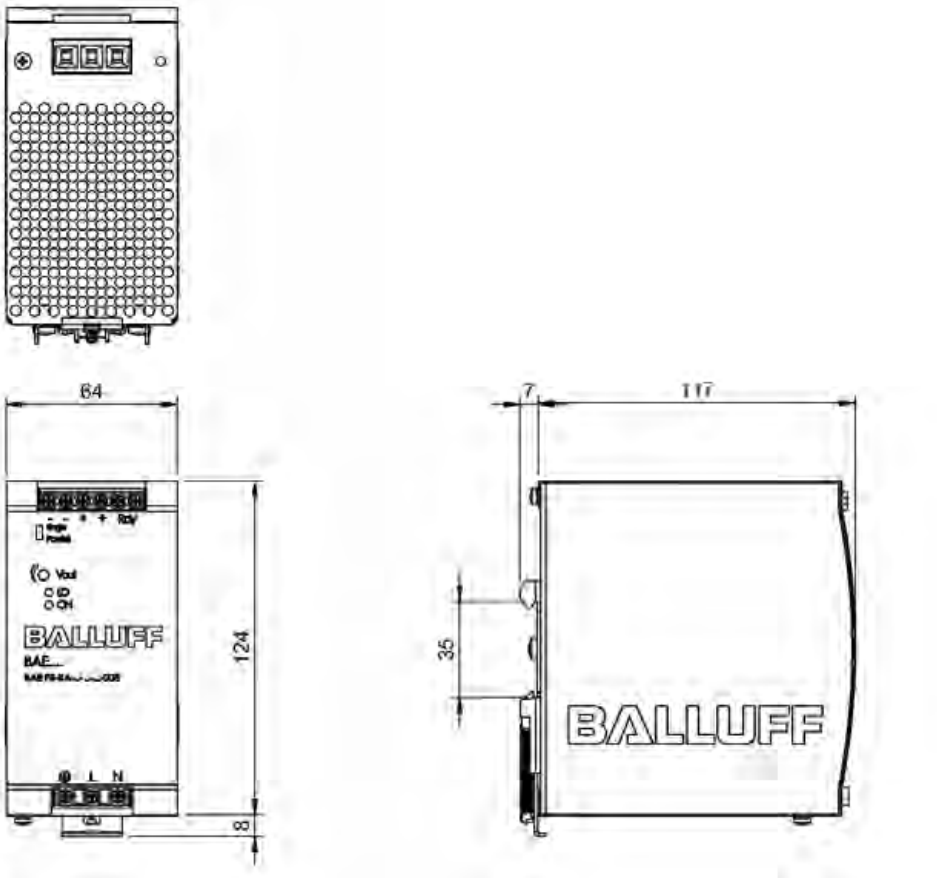

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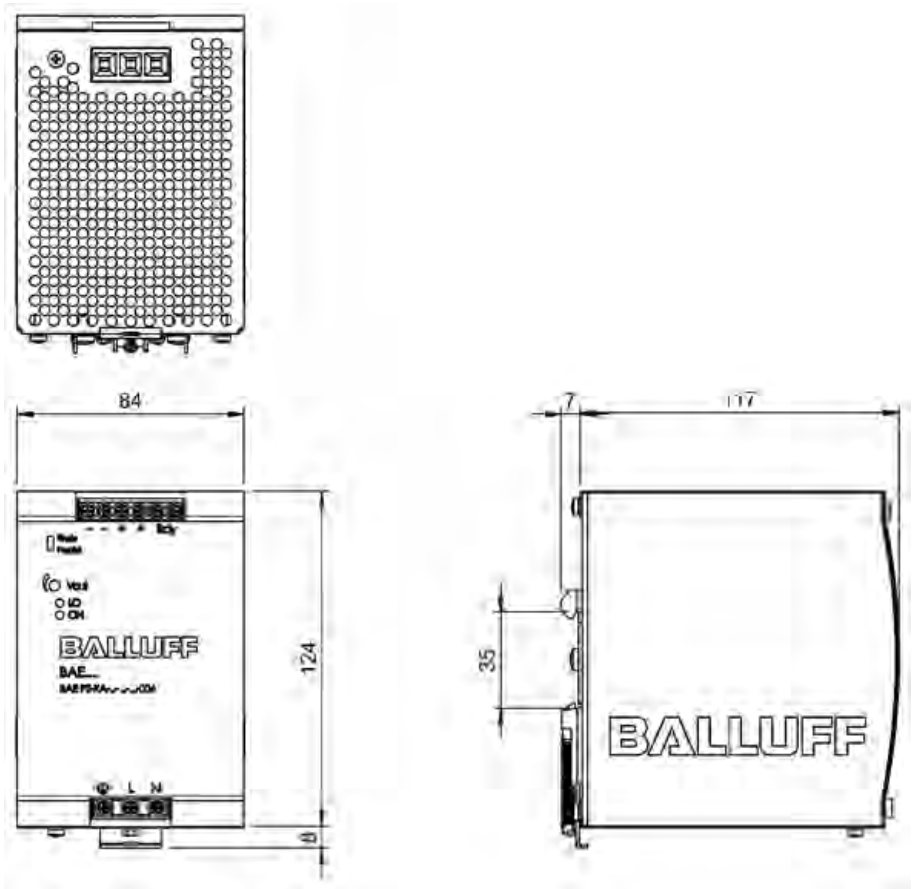

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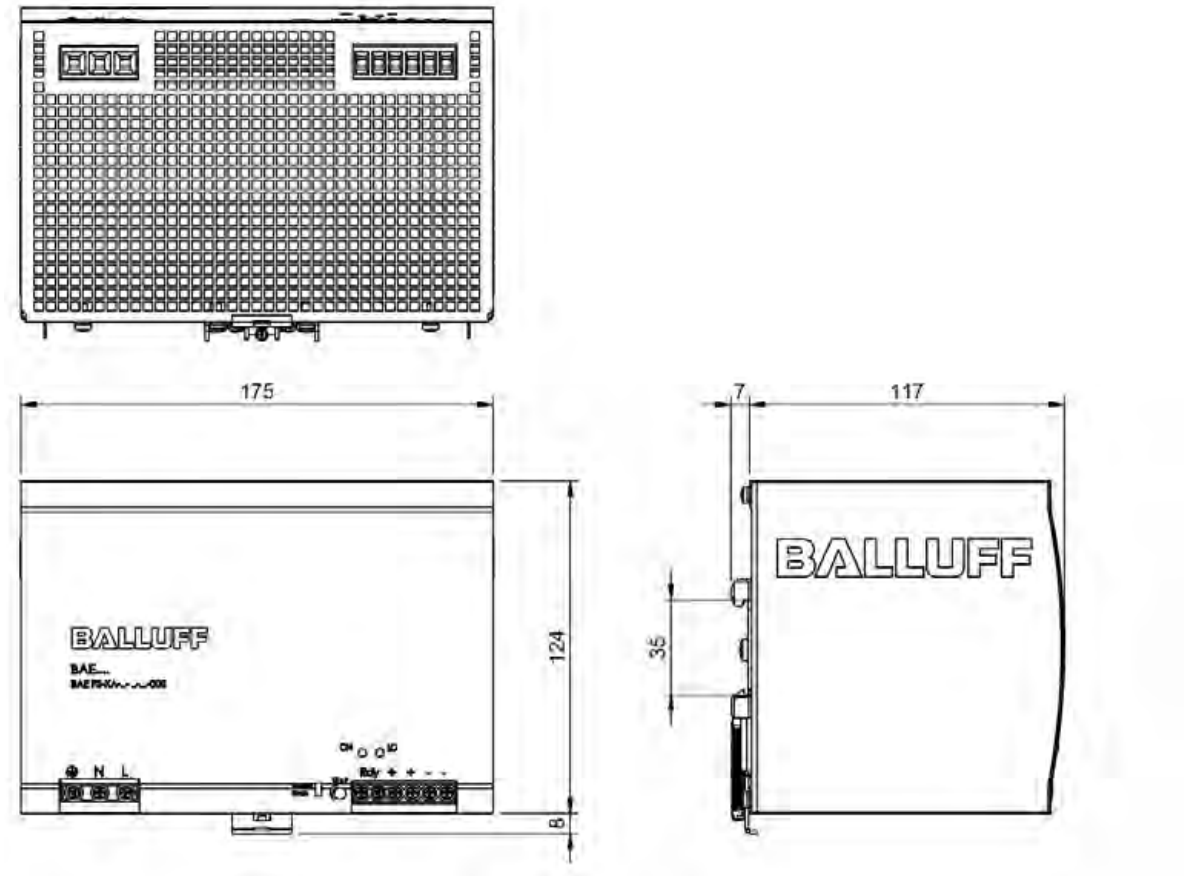

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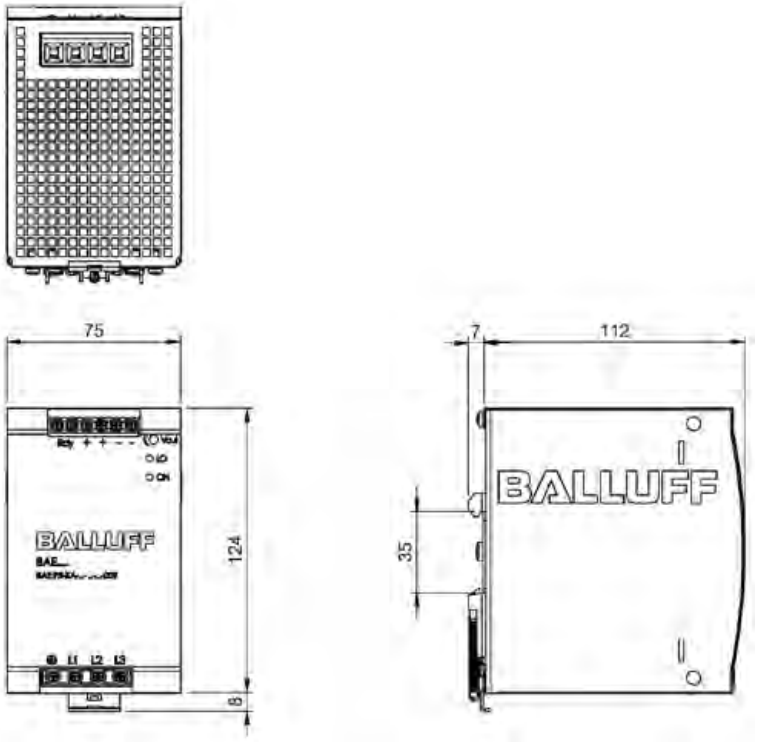

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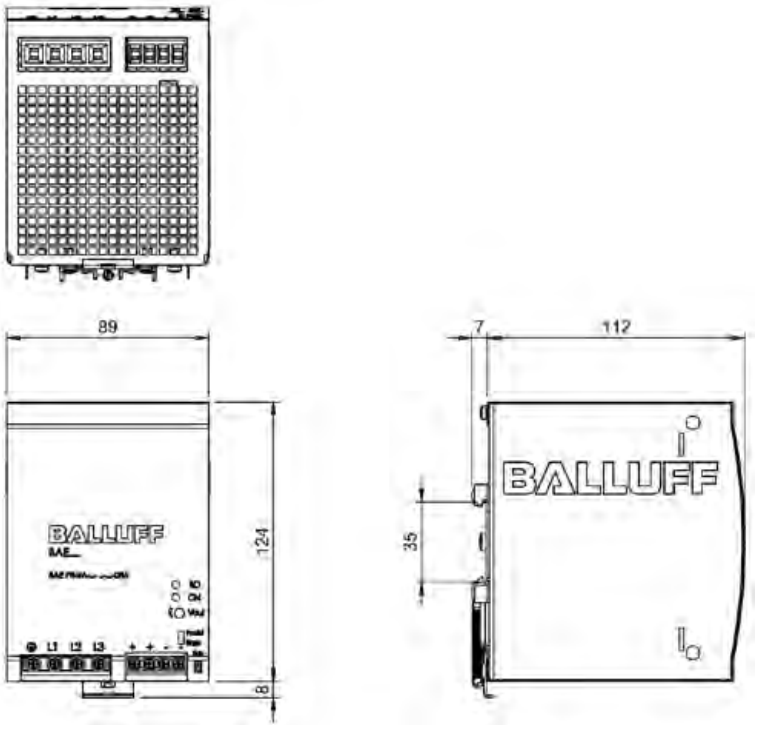

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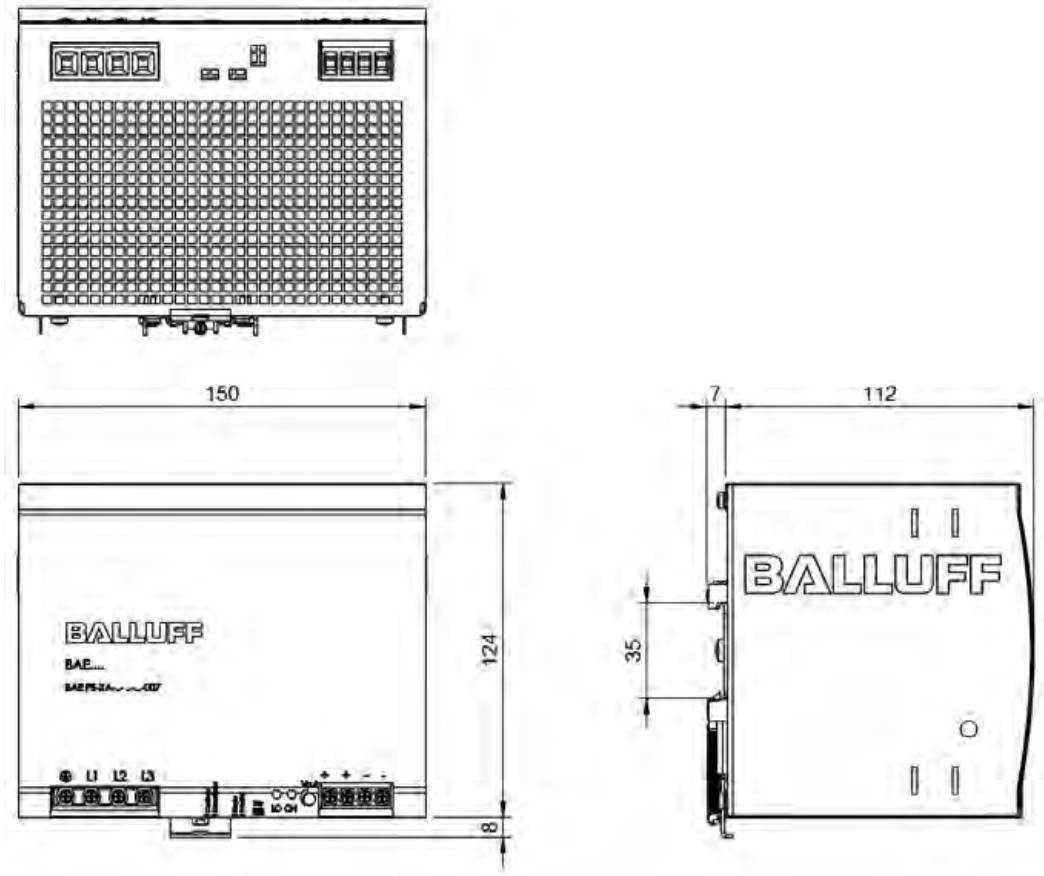

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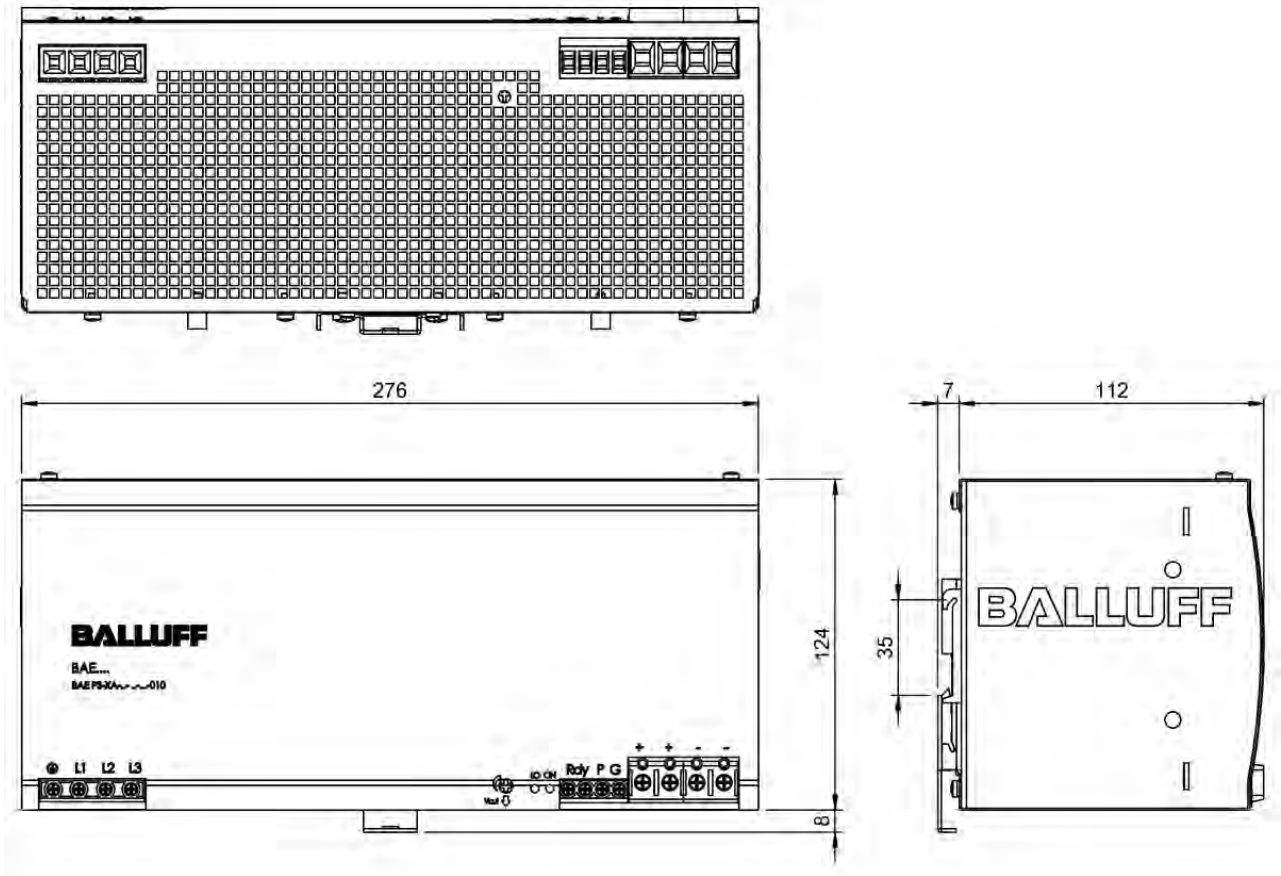
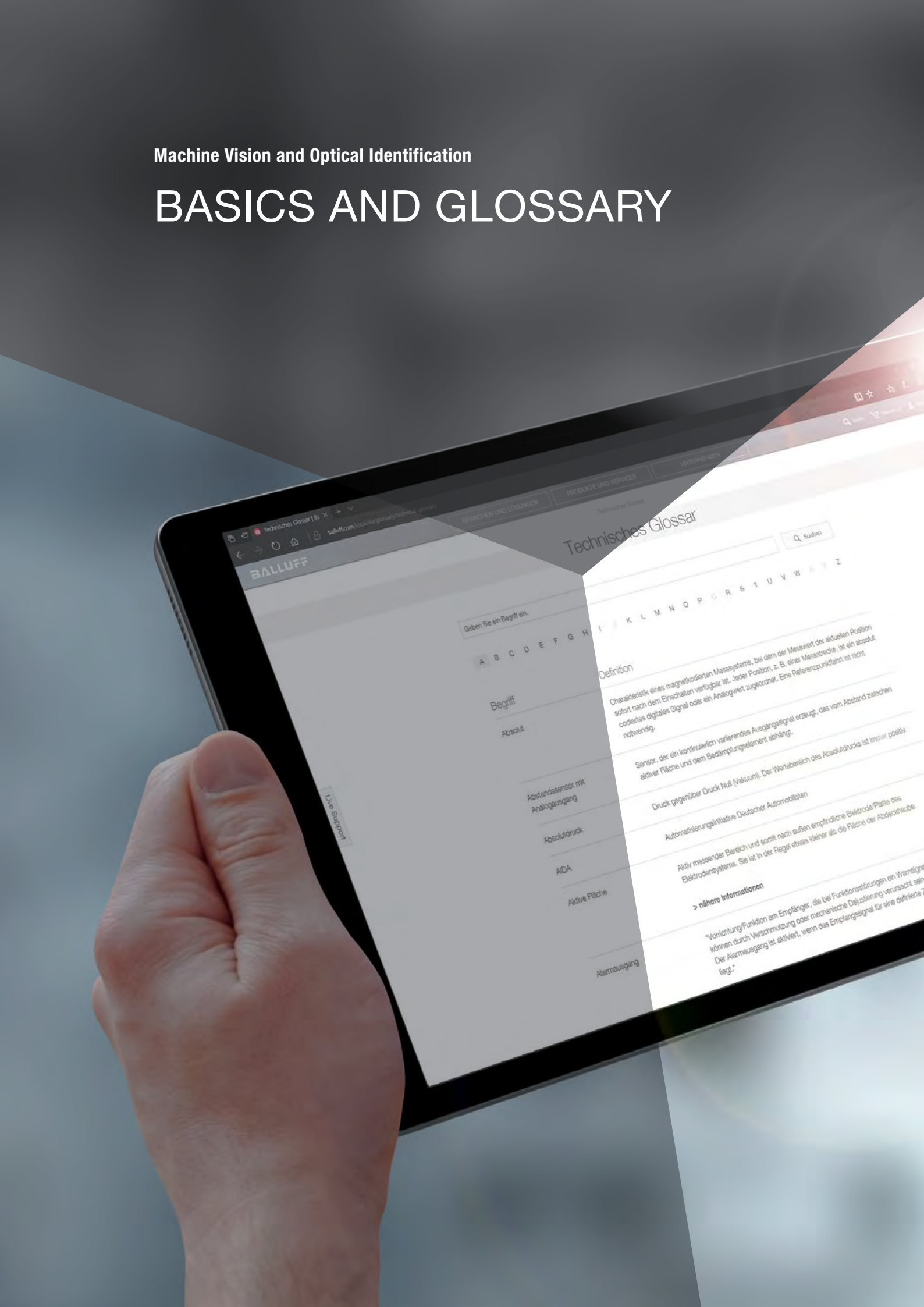


BAE003R

Machine Vision and Optical Identification

BASICS AND GLOSSARY

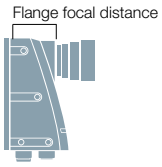


Working distance

Working distance describes the distance between camera and sharply focused object in the image. Any given lens has a minimum and maximum working distance. Objects placed closer to the camera than the minimum working distance or farther than the maximum working distance can no longer be brought to focus in the image.

Flange focal distance

Distance between the lens and the image sensor in a camera.



Resolution (image processing)

Number of image points (pixels) on an image sensor.

Evaluation region

Image area which is evaluated by a camera or vision sensor.

Image processing

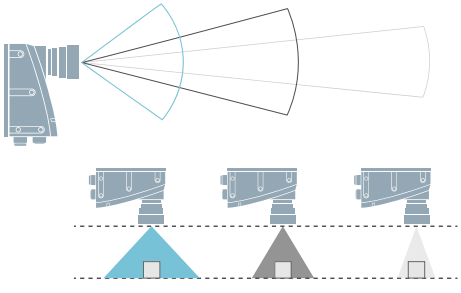
Technology which deals with image capture and evaluation.

Aperture

Opening in a camera through which the light enters. Closing the aperture causes a darker image. The wider the aperture opening, the lighter the image.

Focal length

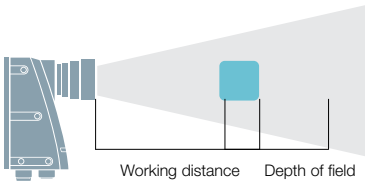
Distance between an optical lens and the focal point in millimeters. This distance together with the reading distance/working distance defines the reading field/field of view of a camera or visual sensor.



Focus	The clear and sharply defined condition of an image.
Maximum frame rate	Expressed in frames per second, the maximum possible number of images which a camera can capture
Inspection	Sequence of a test protocol in the environment of use.
Inspection program	Test protocol which is stored in image processing systems. The inspection program includes, for example, a learned reference image, the tools which test one or more evaluation areas in the digital image of an object, and the functions associated with the digital outputs.
Readable code	Type of barcode which a camera/vision sensor can read and evaluate.
Reading distance (optical identification)	Maximum distance at which the camera/vision sensor/code reader can reliably read a code of a certain size.
Lens	Optical system that forms an image on an image sensor from the rays of light passing through it. We distinguish lenses by their construction (C-mount, S-mount, liquid lens) and focal length (6 mm, 8 mm etc.).
Pixel	Smallest element of a digital image generated by an image sensor. The larger the number of pixels, the finer and sharper the image resolution.
Pixel size	The physical size of a pixel on an image sensor expressed in micrometers.
PEO (power over Ethernet)	Standardized procedure by which cameras are powered over a network cable.

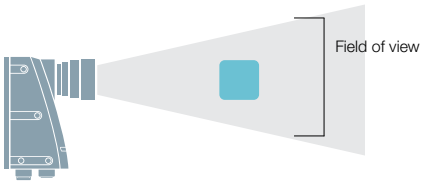
Depth of field

Area in front of and behind the working distance in which an object is still sharply represented. It is dependent on the focal length of the lens, the current working distance, and the set f-stop.



Field of view

Size of the image surface within which an image-processing device can undertake and process an image or event. The size is dependent upon the focal length of the lens and the working/reading distance.



Trigger

Initiator of an event such as an inspection in a camera/vision sensor.

Distortion

Optical effects of lenses which can have different reactions on the processing.
Two common types of distortion are pincushion and barrel distortion.

Order code	Part number	Page
BAE		
BAE0002	BAE PS-XA-1W-24-100-004	174
BAE0003	BAE PS-XA-1W-24-200-005	175
BAE0005	BAE PS-XA-1W-24-025-002	174
BAE0006	BAE PS-XA-1W-24-050-003	174
BAE0007	BAE PS-XA-3Y-24-050-009	175
BAE0008	BAE PS-XA-3Y-24-100-006	175
BAE0009	BAE PS-XA-3Y-24-200-007	175
BAE000E	BAE LX-VS-HR025	45
BAE000F	BAE LX-VS-HR050	46
BAE000H	BAE LX-VS-HR100	46
BAE000J	BAE LX-VS-RR100	52
BAE000K	BAE LX-VS-RI100	52
BAE003R	BAE PS-XA-3Y-24-400-010	175
BAE00AM	BAE LX-VS-DR090	42
BAE00AN	BAE LX-VS-RW100	52
BAE00C5	BAE LX-VS-HR150	47
BAE00FR	BAE LX-VS-HI100	44
BAE00FT	BAE LX-VS-SR030	63
BAE00H0	BAE LX-VS-SR018	63
BAE00H1	BAE LX-VS-SI018	62
BAE00H2	BAE LX-VS-SI030	62
BAE00J9	BAE LX-VS-OR50	60
BAE00JA	BAE LX-VS-OR100	60
BAE00JC	BAE LX-VS-HR200	47
BAE00JE	BAE LX-VS-HI200	45
BAE00JF	BAE LX-VS-HR100-E	47
BAE00KF	BAE LX-VS-SR012	63
BAE00KP	BAE LX-VS-HI150	45
BAE00KR	BAE LX-VS-HI050	44
BAE00LJ	BAE PS-XA-1S-24-100-103	171
BAE00M3	BAE PS-XA-1S-24-200-104	171
BAE00MU	BAE LX-VS-HR300	47
BAE00NT	BAE LX-VS-LR100-S26	57
BAE00NU	BAE LX-VS-LI100-S26	56
BAE00NW	BAE LX-VS-LW100-S26	57
BAE00NY	BAE LX-VS-LR200-S26	57
BAE00NZ	BAE LX-VS-LI200-S26	56
BAE00P0	BAE LX-VS-LW200-S26	57
BAE00T4	BAE PS-XA-1S-24-050-102	37
BAE00TR	BAE PS-XA-1W-24-025-101	171
BAE00W8	BAE LX-XA-BW0170-S4	70
BAE00W9	BAE LX-XA-BW0278-S4	70
BAE00WA	BAE LX-XA-BW0332-S4	71
BAE00WC	BAE PD-VS-011-01	36
BAE00WM	BAE LX-VS-HI300	45
BAE00Y4	BAE LX-XA-BW0530-S4	71
BAE00Y5	BAE LX-XA-BW0710-S4	72
BAE00Y6	BAE LX-XA-BW1016-S4	73
BAE00ZM	BAE LX-XA-BW0380A-S4	71
BAE00ZN	BAE LX-XA-BW0560A-S4	71
BAE00ZP	BAE LX-XA-BW0760A-S4	72
BAE00ZR	BAE LX-XA-BW0960A-S4	73
BAE00ZT	BAE LX-XA-BW1160A-S4	73
BAE0103	BAE PD-VS-014-05	37
BAE0104	BAE LX-XO-PL018-E-L1-S103	66
BAE0106	BAE LX-XO-PL018-E-L3-S103	67
BAE0107	BAE LX-XO-PL018-E-L7-S103	67
BAE0108	BAE LX-XO-PL018-E-L8-S103	67
BAE0109	BAE LX-XO-PL018-E-P1-S103	67
BAE010A	BAE LX-XO-PL018-E-C1-S103	66
BAI		
BAI000Z	BAI BVS-CA-EPC-001	37
BAM		
BAM002J	BMS CU-P-D12-A040-00	100
BAM002R	BMS RS-M-D12-0150-00	108
BAM002T	BMS RS-M-D12-0250-00	109
BAM002U	BMS RS-M-D12-1000-00	109
BAM002Y	BMS CUJ-P-D12-R040-00	101
BAM002Z	BMS CC-M-D12-B-00	103
BAM0031	BMS CS-M-D12-IZ	101
BAM003W	BMS KIT-V1	103
BAM003Y	BMS CS-M-D12-IZ-01	102
BAM0044	BMS CU-M-D12-I060-01	101
BAM0045	BMS RS-S-D12-0150-00	109
BAM0046	BMS RS-S-D12-0300-00	109
BAM00WN	BVS Z-MB-01	113
BAM01A7	BAM OF-VS-001-D-RX100	87
BAM01AC	BAM MB-XA-003-B03-1	111
BAM01AE	BAM MB-XA-002-B02-1	113
BAM01CH	BMS CU-M-D12-I060-02	101
BAM01F2	BMS CS-M-D12-BX11-09	110
BAM01JK	BIS Z-HW-003	103
BAM01YP	BMS CS-M-S25-DX15-00	112
BAM01YT	BMS CUJ-M-S25-D045-00	112
BAM021T	BMS RS-M-D12-0200-00	108
BAM021U	BMS RS-M-D12-0750-00	109
BAM021W	BMS RS-M-D12-0300-00	109
BAM021Y	BMS RS-M-D12-0100-00	108
BAM024P	BMS CU-M-D12-B028-00	101
BAM024R	BMS CCJ-M-D12-B-01	100
BAM024T	BMS CS-M-D12-BZ	111
BAM0275	BMS CU-M-D12-B040-00	101
BAM0277	BMS CS-M-D12-BX17-11	111
BAM0278	BAM MB-XA-019-B11-4	112
BAM027R	BAM MB-XA-018-B11-4	113
BAM029R	BAM LS-VS-004-C2/3-0614-2	82
BAM02FA	BAM LS-VS-004-C2/3-0814-2	82
BAM02FC	BAM LS-VS-004-C2/3-1214-2	83
BAM02FE	BAM LS-VS-004-C2/3-1614-2	83
BAM02FF	BAM LS-VS-004-C2/3-2514-2	83
BAM02FH	BAM LS-VS-004-C2/3-3514-2	84
BAM02FJ	BAM LS-VS-004-C2/3-5014-2	84
BAM02FK	BAM OF-VS-002-PL-27	89
BAM02FL	BAM OF-VS-002-UV-27	91
BAM02FM	BAM OF-VS-002-RD-27	90
BAM02FN	BAM OF-VS-002-YE-27	91
BAM02FP	BAM OF-VS-002-GN-27	88
BAM02FR	BAM OF-VS-002-BU-27	87
BAM02FT	BAM OF-VS-002-PL-30	89
BAM02FU	BAM OF-VS-002-UV-30	91
BAM02FW	BAM OF-VS-002-RD-30	90
BAM02FY	BAM OF-VS-002-GN-30	88
BAM02FZ	BAM OF-VS-002-BU-30	88
BAM02H0	BAM OF-VS-002-PL-40	90
BAM02H1	BAM OF-VS-002-UV-40	91
BAM02JT	BMS CU-M-D12-B040-02	101
BAM02ML	BAM MC-XA-042-D20,0-1	113
BAM02MN	BAM OF-VS-002-IR-27	89
BAM02MP	BAM OF-VS-002-IR-30	89
BAM02MR	BAM OF-VS-002-IR-40	89
BAM02MT	BAM SP-XO-002-0,5-40-31-A	83
BAM02NA	BAM PC-VS-023-1	96
BAM035T	BAM LS-VS-007-C1/1-1618-C	86
BAM035U	BAM LS-VS-007-C1/1-2518-C	87
BAM035W	BAM LS-VS-007-C1/1-5018-C	87
BAM035Y	BAM FS-AM-011-D45,0-4	118
BAM035Z	BAM MC-XE-052-D45,0-1	118
BAM0360	BAM MC-XE-051-D45,0-3	118
BAM0364	BAM LS-VS-006-C2/3-0814-5	85
BAM0365	BAM LS-VS-006-C2/3-1214-5	85
BAM0366	BAM LS-VS-006-C2/3-1614-5	85
BAM0367	BAM LS-VS-006-C2/3-2514-5	85
BAM0368	BAM LS-VS-006-C2/3-3514-5	85
BAM0369	BAM LS-VS-006-C2/3-5014-5	86
BAM0396	BAM OF-VS-001-P-RX100	87
BCC		
BCC089P	BCC M415-M415-M415-U0003-000	161
BCC08CA	BCC M415-M415-M415-U0007-000	161
BCC09JC	BCC M415-M313-M313-U0014-000	160
BCC09MU	BCC M415-M415-M415-U0016-000	161
BCC0AC6	BCC 0000-0000-00-000-PS54N2-10X	155
BCC0AC7	BCC 0000-0000-00-000-PX0334-10X	127
BCC0AC8	BCC 0000-0000-00-000-PX0434-10X	139
BCC0AE7	BCC 0000-0000-00-001-VX43T2-10X	127
BCC0AE8	BCC 0000-0000-00-003-VX44T2-10X	139
BCC0AEC	BCC 0000-0000-00-001-EX43T2-10X	127
BCC0AEE	BCC 0000-0000-00-003-EX44T2-10X	139
BCC0AUJ	BCC 0000-0000-00-168-ES64N9-10X	157
BCC0C14	BCC 0000-0000-00-000-VX8434-10X	139
BCC0C15	BCC 0000-0000-00-000-VX8334-10X	127
BCC0KNU	BCC 0000-0000-00-001-PX0314-10X	123
BVS		
BVS0001	BVS ID-3-001-E	20
BVS0003	BVS OI-3-001-E	21
BVS0005	BVS OI-3-003-E	21
BVS000E	BVS OI-3-005-E	21
BVS000J	BVS OI-3-051-E	21
BVS000K	BVS OI-3-053-E	21
BVS000L	BVS OI-3-055-E	21
BVS000W	BVS OI-3-057-E	21
BVS0012	BVS OI-3-103-E	21
BVS0013	BVS OI-3-105-E	21
BVS0014	BVS OI-3-101-E	21
BVS0015	BVS OI-3-151-E	21
BVS0016	BVS OI-3-155-E	21
BVS0017	BVS OI-3-153-E	21
BVS0018	BVS OI-3-157-E	21
BVS0019	BVS ID-3-101-E	20
BVS001F	BVS UR-3-105-E	21
BVS001H	BVS UR-3-101-E	21
BVS001J	BVS UR-3-103-E	21
BVS001K	BVS UR-3-107-E	21
BVS001L	BVS UR-3-005-E	21
BVS001M	BVS UR-3-001-E	21
BVS001N	BVS UR-3-003-E	21
BVS001P	BVS UR-3-007-E	21
BVS001T	BVS HS-PC-DPW-MA-01	20
BVS001W	BVS HS-QC-SDR-MA-01-01	20
BVS001Z	BVS HS-PB-DPW-MZ-01	20
BVS0020	BVS HS-QB-SDR-MA-01-02	20
BVS0021	BVS HS-QB-SDR-MA-01-03	20
BVS0029	BVS SC-M1280Z00-30-010	34
BVS002A	BVS SC-M1280Z00-30-000	24
BVS002C	BVS SC-M1280Z00-07-000	24
BVS002F	BVS SC-C1280Z00-30-000	24
BVS002H	BVS CA-M1456Z00-31-000	16
BVS002J	BVS CA-C1456Z00-31-000	16
BVS002K	BVS CA-M2064Z00-31-000	16
BVS002L	BVS CA-C2064Z00-31-000	16
BVS002M	BVS CA-M2464Z00-31-000	16
BVS002N	BVS CA-C2464Z00-31-000	16
BVS002P	BVS CA-M4112Z00-31-000	16
BVS002R	BVS CA-C4112Z00-31-000	16
BVS002T	BVS CA-M1456Z00-35-000	16
BVS002U	BVS CA-C1456Z00-35-000	16
BVS002W	BVS CA-M2064Z00-35-000	16
BVS002Y	BVS CA-C2064Z00-35-000	16
BVS002Z	BVS CA-M2464Z00-35-000	16
BVS0030	BVS CA-C2464Z00-35-000	16
BVS0031	BVS CA-M4112Z00-35-000	16
BVS0032	BVS CA-C4112Z00-35-000	16
BVS0033	BVS SC-M1280Z00-30-020	24

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