

BALLUFF

PRODUCTS FOR EFFICIENT AUTOMATION

Products and
Services



B *innovating automation*

Safety, Industrial Networking,
Software and System Solutions, Power Supplies

4

Innovative solutions

TO MEET YOUR AUTOMATION NEEDS

Steel and
Metallurgical
Industry

Life Science

Semiconductor
Industry

Metal Working



Plastics, Rubber
and Tires

Mobility

Packaging,
Foods and Beverages

Energy Generation



INNOVATIVE SOLUTIONS FOR ANY REQUIREMENT

To give you an overview of our range of offerings we have condensed our product portfolio into five volumes. This overview provides a list of topics contained in each volume.

1



Sensors 1

- Inductive Sensors
- Capacitive Sensors
- Photoelectric Sensors
- Magnetic Sensors
- Mechanical Cam Switches

2



Sensors 2

- Ultrasonic Sensors
- Magnetically Coded Sensors
- Magnetostrictive Sensors
- Inclination Sensors
- Pressure Sensors
- Temperature Sensors
- Flow Sensors
- Condition Monitoring Sensors

3

4

5



- RFID
- Machine Vision and Optical Identification
- Human Machine Interfaces

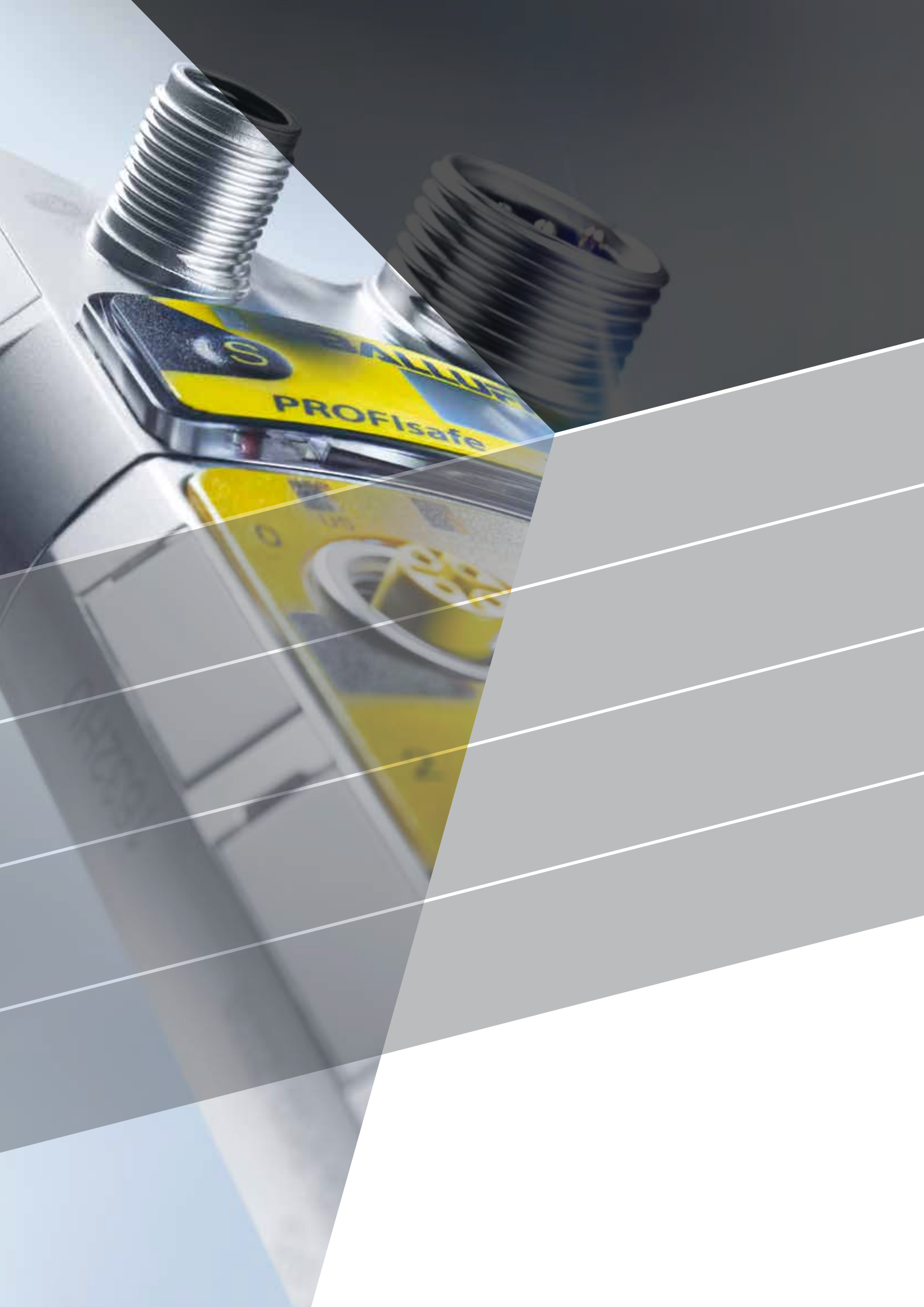


- Safety
- Industrial Networking
- Software and System Solutions
- Power Supplies



- Connectivity
- Accessories

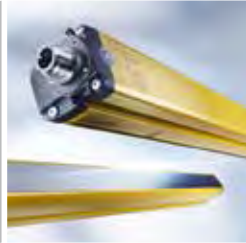
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



CONTENTS

8

SAFETY



94

**INDUSTRIAL
NETWORKING**



214

**SOFTWARE UND
SYSTEMLÖSUNGEN**



222

POWER SUPPLIES



- 12 Safe I/O Modules
- 22 Safety Switches and Safety Sensors
- 40 Opto-Electronic Protective Devices
- 66 Safety Guard Locking Devices
- 76 Safety Command Devices

- 98 Network Blocks
- 148 Switches
- 144 I/O Modules
- 186 Inductive Couplers

- 216 Configuring Balluff IO-Link devices with the Balluff Engineering Tool
- 218 Injection molding tool management with Mold-ID
- 220 Tool parameter transfer with Easy Tool-ID

- 226 Heartbeat® Power Supply Units
- 230 Heartbeat® Power Supplies with IO-Link Interface
- 236 Power Supplies for the Control Cabinet

ALPHANUMERIC INDEX 246

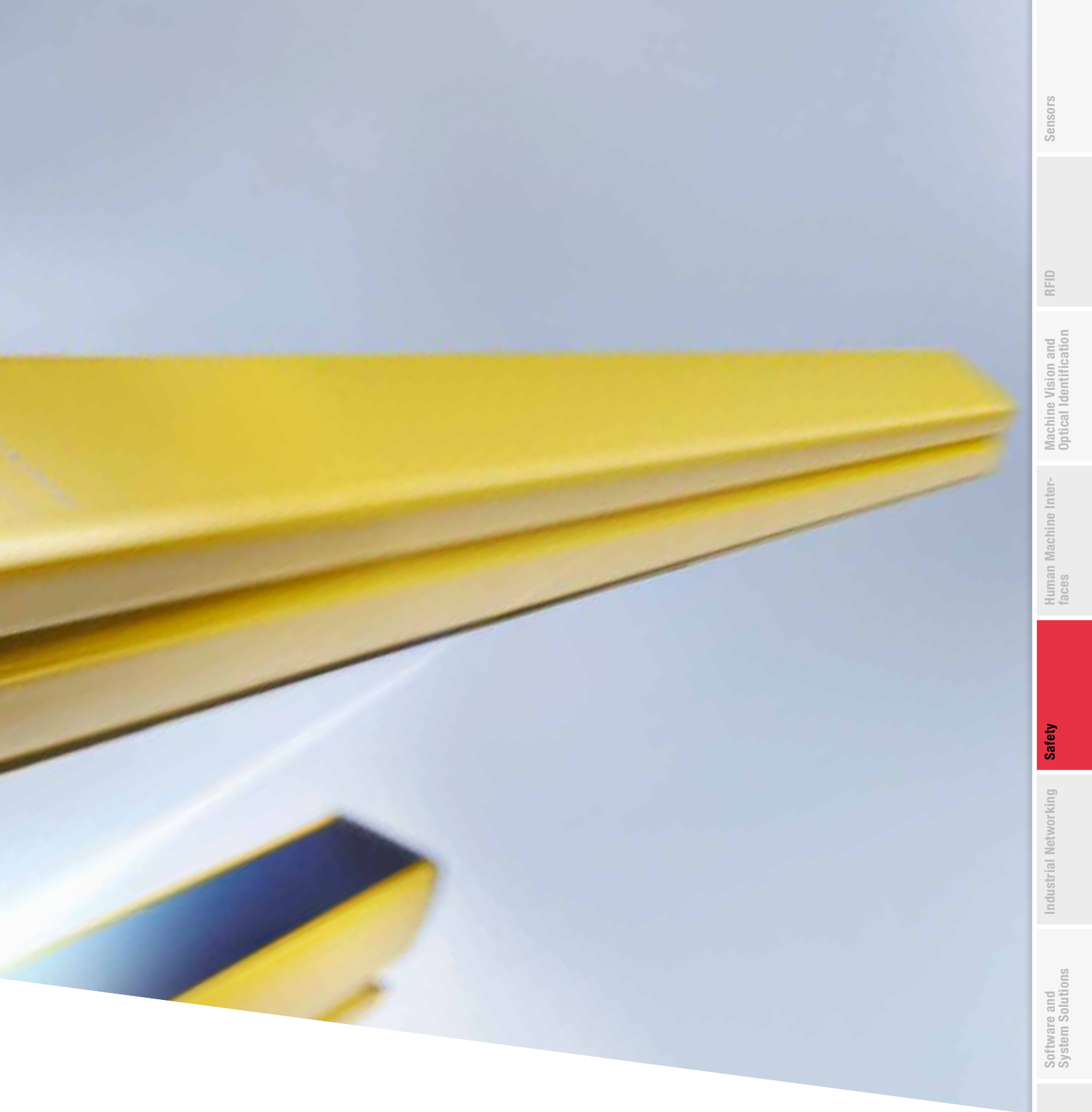
GLOBAL PROJECT MANAGEMENT 250

ABOUT BALLUFF 252

Machine safety with Balluff quality

SAFETY

 *innovating automation*



Automation requires safety. And safety is based on reliability. Balluff quality guarantees great reliability with a variety of solutions that make machines and equipment dependable and safe. Our safety sensors together with safe controller technology enable innovative concepts for your machine safety – all while maintaining consistent quality that lasts for years. The Balluff safety concept for automation includes a continually increasing number of products and components that contribute to minimizing the risk to man and machine while safely processing the information. These components can easily be integrated into the machine controllers.

Your Balluff solutions

- Safe I/O modules
- Safety switches and safety sensors
- Opto-electronic protective devices
- Safety interlocks
- Safety command devices

SAFETY



12 SAFE I/O MODULES

- 14 IO-Link blocks for safety applications
- 18 Profisafe over IO-Link



22 SAFETY SWITCHES AND SAFETY SENSORS

- 24 Electromechanical safety switches
- 26 Inductive safety sensors
- 30 Magnetically coded safety switches
- 34 Transponder coded safety sensors



40 OPTO-ELECTRONIC PROTECTIVE DEVICES

- 42 Basic finger protection
- 52 Basic hand protection
- 62 Basic body protection



66 SAFETY GUARD LOCKING DEVICES

- 68 Electromechanical guard locking devices
- 72 Transponder-coded guard locking devices



76 SAFETY COMMAND DEVICES

- 78 Emergency stop device



80

**BASICS AND
GLOSSARY**



Safely transport signals

SAFE I/O MODULES



The safe I/O modules from Balluff combine safety and automation technology using IO-Link. They provide both sensor and actuator signals as well as safety-relevant information. The best part: all you need for the safety concept in your plant is an infrastructure for implementing industrial safety in your automation processes. The universal IO-Link interface makes integrating industrial safety technology easier than ever.

At Balluff the core of Safety over IO-Link is the Safety Hub with Profisafe for Profinet. Safety switches and sensors, opto-electronic protective devices or safety command devices are quick and easy to incorporate. All you need is standard M12 cables for connecting virtually any safe field device.

Safe communication with the controller level is via Profisafe for Profinet. Together with our safety components the result is an all-round safe system on which you can rely.

The most important benefits

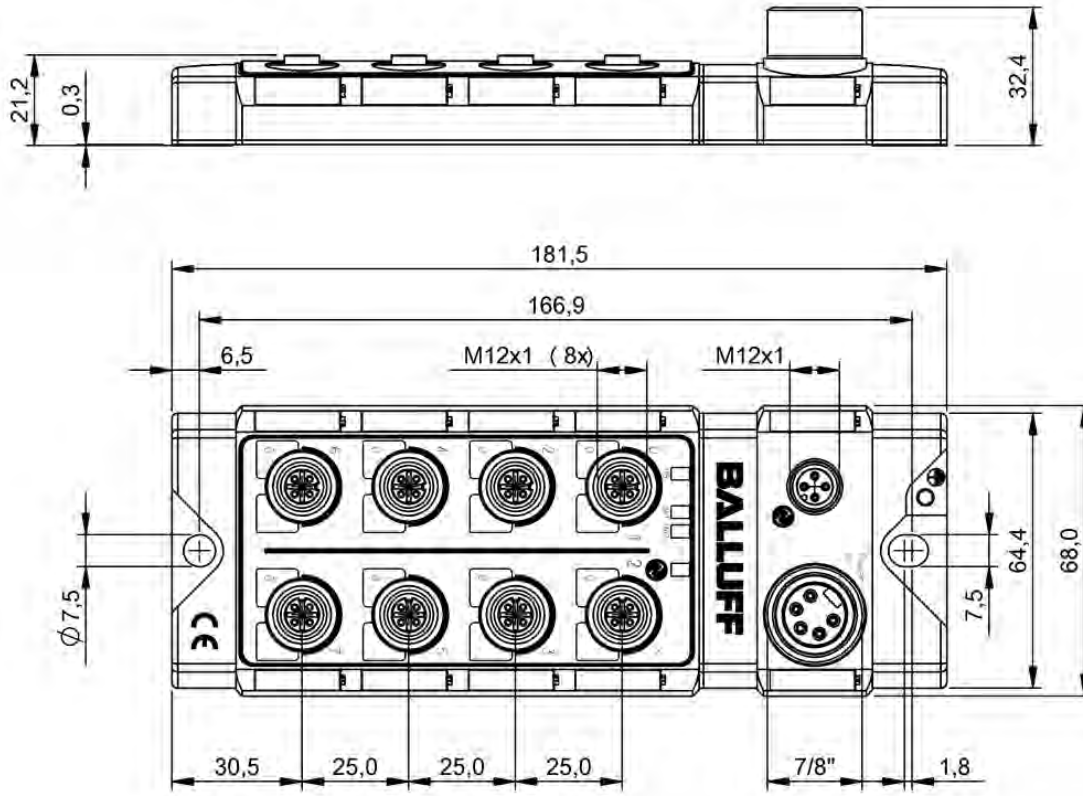
- For safety applications up to PLe/SIL3
- Reduce IP addresses
- Standardized wiring concept with M12 cables, safe interlocking devices can be directly connected
- Simple device replacement
- Nearly any safety device can be connected



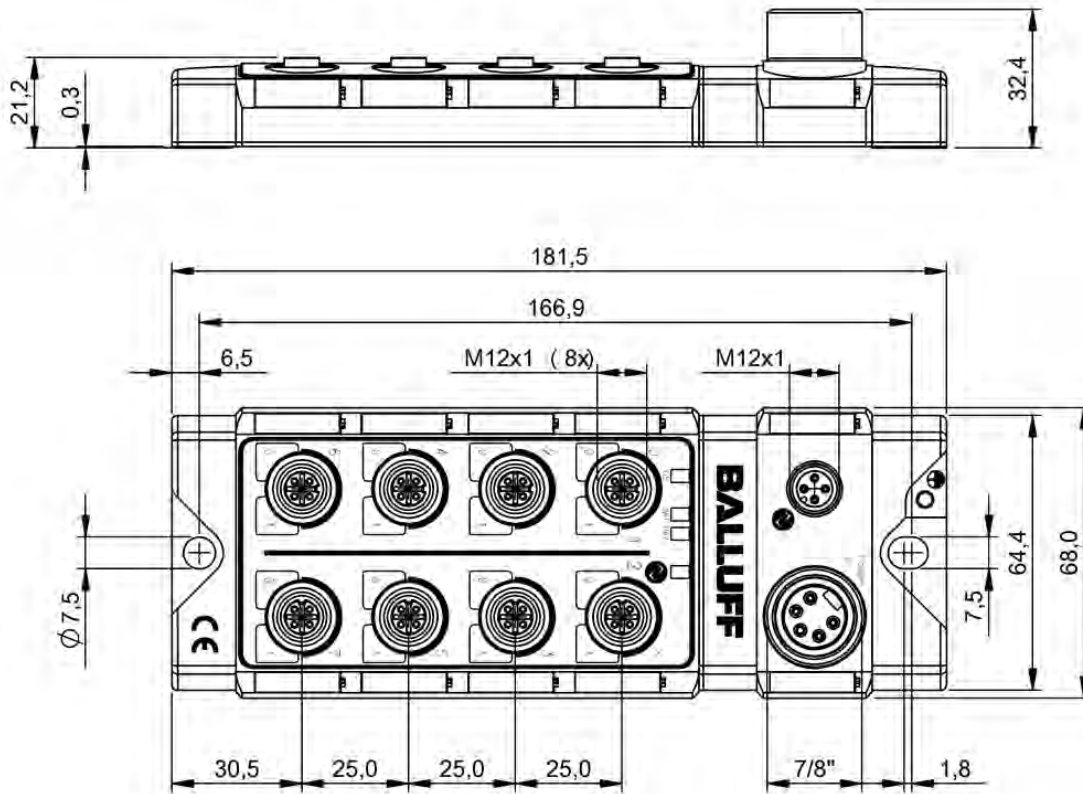
	BNI0033 BNI IOL-252-000-Z013	BNI003W BNI IOL-252-S01-Z013	
Performance Level	—	—	
Safety category (EN ISO 13849-1)	—	—	
SIL (IEC 61508)	—	—	
SIL CL (EN 62061)	—	—	
Response time max.	—	—	
Approval/Conformity	CE	CE	
Current sum US, sensor	—	—	
Current sum UA, actuator	9.0 A	9.0 A	
Digital inputs	—	—	
Digital outputs	8x PNP	8x PNP	
Interface	IO-Link 1.0	IO-Link 1.0	
Connection slots	—	—	
Dimension	68 x 32.4 x 181.5 mm	68 x 32.4 x 181.5 mm	
Ambient temperature	-5...70 °C	-5...70 °C	
Protection degree	IP67	IP67	
Housing material	Zinc, die-cast	Zinc, die-cast	
Productview	Page 16	Page 16	



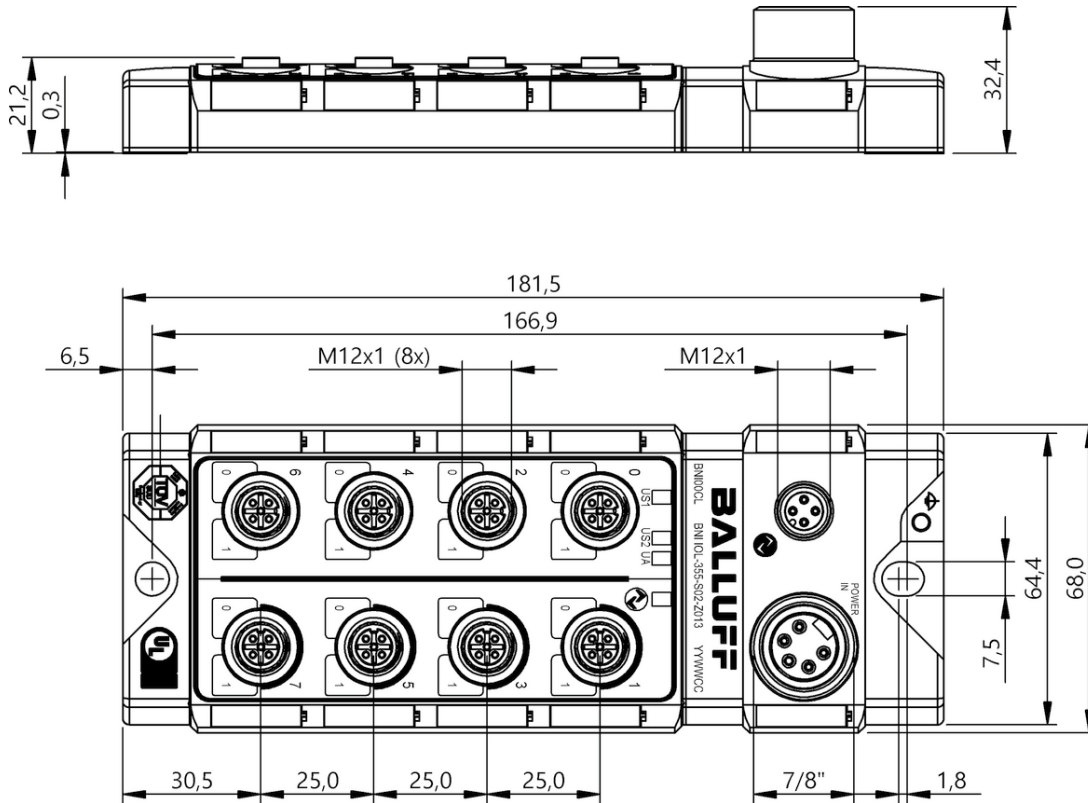
BNI0034 BNI IOL-256-000-Z013	BNI003Y BNI IOL-256-S01-Z013	BNI00CL BNI IOL-355-S02-Z013	
—	—	d	
—	—	3	
—	—	2	
—	—	2	
—	—	1 ms	
CE	CE	CE, TÜV, IO-Link, cULus, UL-File E319845, VOL.1 SEC.1	
—	—	9 A	
9.0 A	9.0 A	9 A	
—	—	8x PNP, Type3	
16x PNP	16x PNP	8x yes	
IO-Link 1.0	IO-Link 1.0	IO-Link 1.1	
—	—	8x M12x1-Female, 5-pole, A-coded	
68 x 32.4 x 181.5 mm	68 x 32.4 x 181.5 mm	68 x 32.4 x 181.5 mm	
-5...70 °C	-5...70 °C	-5...55 °C	
IP67	IP67	IP67	
Zinc, die-cast	Zinc, die-cast	Die-cast zinc	
Page 16	Page 16	Page 17	



BNI0033, BNI003W



BNI0034, BNI003Y



BNI00CL

Performance Level	
Safety category (EN ISO 13849-1)	
SIL (IEC 61508)	
SIL CL (EN 62061)	
Response time max.	
Approval/Conformity	
Number of safe inputs	
Number of safe inputs	
Current sum US, sensor	
Current sum UA, actuator	
Digital inputs	
Interface	
Connection slots	
Dimension	
Ambient temperature	
Protection degree	
Housing material	
Productview	



BNI0098 BNI IOF-329-P02-Z038
e
4
3
3
20 ms
CE, TÜV, cULus, UL-File E319845, VOL.1 SEC.1
12
2
4.8 A
8 A
12x PNP, Type 3
PROFIsafe over IO-Link
2x M12x1-Female, 8-pole, A-coded 6x M12x1-Female, 5-pole, A-coded
68 x 32.4 x 181.5 mm
-5...55 °C
IP67
Die-cast zinc
Page 20

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Safety

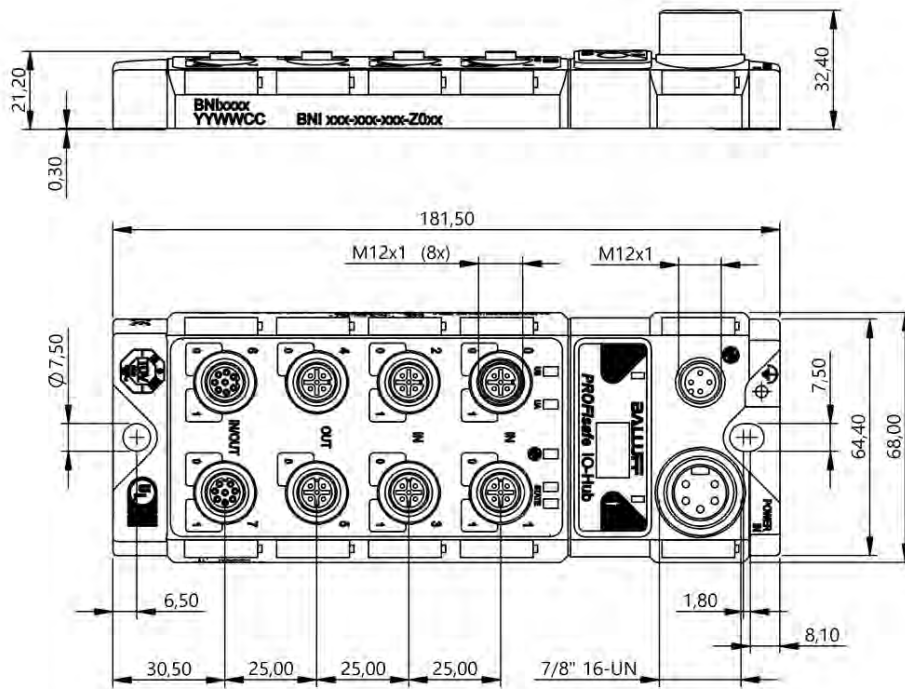
Industrial Networking

Software and
System Solutions

Power Supply

Connectivity

Accessories



BNI0098

For high plant safety

SAFETY SWITCHES AND SAFETY SENSORS

Balluff safety switches and safety sensors are designed for many different application situations. Our safe switches and sensors protect both man and machine alike. The safety switches and sensors offer you a variety of operating principles: Inductive for non-contact safe detection of position and end-of-travel of metallic objects, electromechanical such as REED or RFID-based for access or position security for both personal and machine protection.

You save time and money thanks to universal M12 standard cables. You also avoid wiring errors, gain a clear overview and ensure reliable monitoring.

The most important benefits

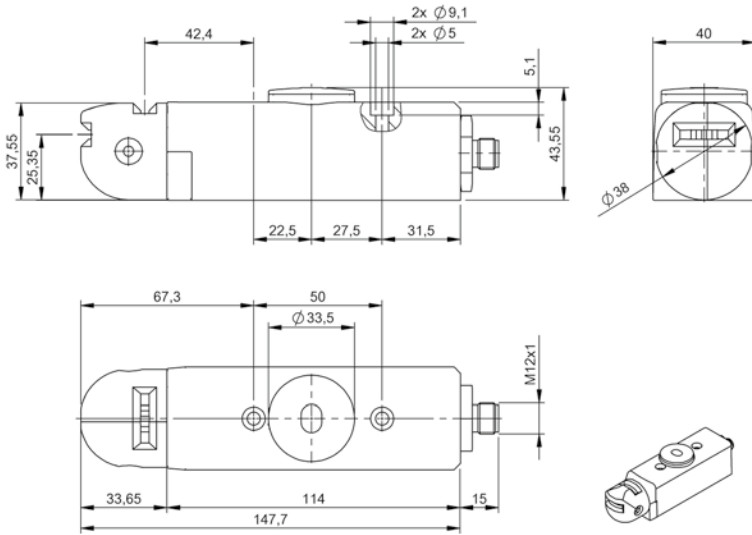
- Safety switches and sensors for a variety of applications
- Rugged housing versions with LED function indicator
- Suitable for safety applications up to PLe/SIL3
- Savings of time and money plus prevention of errors thanks to standardized M12 connection technology
- Reduced installation expense and space requirements
- Also suitable for heavy protective equipment
- Manipulation-resistant
- Insensitive to vibration and imprecise door guides







	BID0005 BID F101-2M100-M20ZZ0-S92
B10d (EN ISO 13849-1)	5 million Switching operations
Coding level (EN ISO 14119)	low
Approval/Conformity	TÜV NRTL, CE, RoHS, TÜV
Operating principle	mechanical - force, contact
No of contacts	2x positive opening
Utilization category	AC-15, DC -13
Approach direction	laterally + above
Life expectancy mechanical	1 million Switching operations
Connection	M12x1-Male, 5-pole, A-coded
Dimension	40 x 147.7 x 43.5 mm
Ambient temperature	0...40 °C
Protection degree	IP65
Housing material	Aluminum
Productview	Page 25



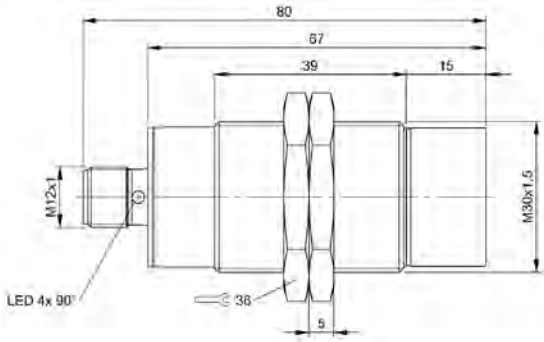
BID0005



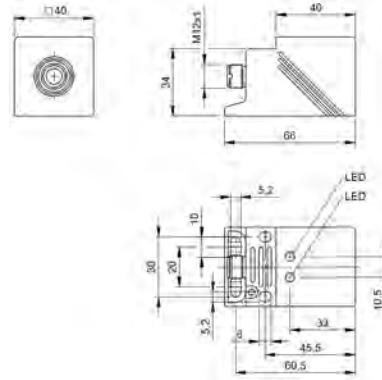
	BES0577 BES M30EP-PFC12F-S04G-D12	BES057A BES Q40ZU-PFC15B-S04G-D12	BES057C BES Q40ZU-PFC20F-S04G-D12	
Performance Level	e	e	e	
Safety category (EN ISO 13849-1)	3	3	3	
SIL (IEC 61508)	3	3	3	
SIL CL (EN 62061)	3	3	3	
Response time max.	200 ms	200 ms	200 ms	
Approval/Conformity	CE, TÜV, cULus	CE, TÜV, cULus	CE, TÜV, cULus	
Operating principle	non-contact (inductive)	non-contact (inductive)	non-contact (inductive)	
Approach direction	any to sensing surface	any to sensing surface	any to sensing surface	
Assured switch on distance Sao	12 mm	15 mm	20 mm	
Assured switch off distance Sar	30 mm	30 mm	45 mm	
Connection	M12x1-Male, 4-pole, A-coded	M12x1-Male, 4-pole, A-coded	M12x1-Male, 4-pole, A-coded	
Switching output	2x PNP OSSD	2x PNP OSSD	2x PNP OSSD	
Installation	non-flush	Shielded on one side	non-flush	
Dimension	Ø 30 x 80 mm	40 x 66 mm	40 x 66 mm	
Ambient temperature	-25...70 °C, for service life ≤ 10 years 10...40 °C, for service life ≤ 20 years	-25...70 °C, for service life ≤ 10 years 10...40 °C, for service life ≤ 20 years	-25...60 °C, for service life ≤ 10 years 10...40 °C, for service life ≤ 20 years	
Protection degree	IP68, IP69K	IP67	IP67	
Housing material	Stainless steel (1.4404)	Die-cast zinc	Die-cast zinc	
Productview	Page 28	Page 28	Page 28	



	BES0574 BES M12EN-PFC40F-S04G-D11	BES0575 BES M18EN-PFC80F-S04G-D11	BES0576 BES M18MN-PFC50B-S04G-D11	BES0578 BES M30EN-PFC15F-S04G-D11	BES0579 BES M30MN-PFC10B-S04G-D11
d	d	d	d	d	d
2	2	2	2	2	2
2	2	2	2	2	2
2	2	2	2	2	2
1 ms	1 ms	1 ms	1 ms	1 ms	1 ms
CE, TÜV, cULus	CE, TÜV, cULus	CE, TÜV, cULus	CE, TÜV, cULus	CE, TÜV, cULus	CE, TÜV, cULus
non-contact (inductive)	non-contact (inductive)	non-contact (inductive)	non-contact (inductive)	non-contact (inductive)	non-contact (inductive)
any to sensing surface	any to sensing surface	any to sensing surface	any to sensing surface	any to sensing surface	any to sensing surface
4 mm	8 mm	5 mm	15 mm	10 mm	
6 mm	12 mm	7 mm	22 mm	15 mm	
M12x1-Male, 4-pole, A-coded	M12x1-Male, 4-pole, A-coded	M12x1-Male, 4-pole, A-coded	M12x1-Male, 4-pole, A-coded	M12x1-Male, 4-pole, A-coded	
PNP OSSD, PNP normally closed (NC)	PNP OSSD, PNP normally closed (NC)	PNP OSSD, PNP normally closed (NC)	PNP OSSD, PNP normally closed (NC)	PNP OSSD, PNP normally closed (NC)	
non-flush	non-flush	for flush mounting	non-flush	for flush mounting	
Ø 12 x 70 mm	Ø 18 x 70.5 mm	Ø 18 x 70.5 mm	Ø 30 x 70 mm	Ø 30 x 70 mm	
-25...70 °C, for service life ≤ 10 years 10...40 °C, for service life ≤ 20 years	-25...70 °C, for service life ≤ 10 years 10...40 °C, for service life ≤ 20 years	-25...70 °C, for service life ≤ 10 years 10...40 °C, for service life ≤ 20 years	-25...70 °C, for service life ≤ 10 years 10...40 °C, for service life ≤ 20 years	-25...70 °C, for service life ≤ 10 years 10...40 °C, for service life ≤ 20 years	
IP67	IP67	IP67	IP67	IP67	
Stainless steel (1.4404)	Stainless steel (1.4571)	Brass	Stainless steel (1.4571)	Brass	
Page 28	Page 28	Page 28	Page 28	Page 28	

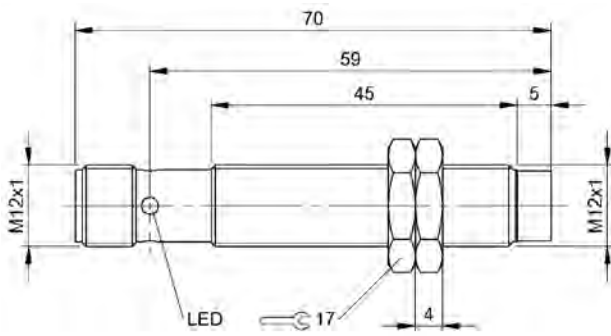


BES0577

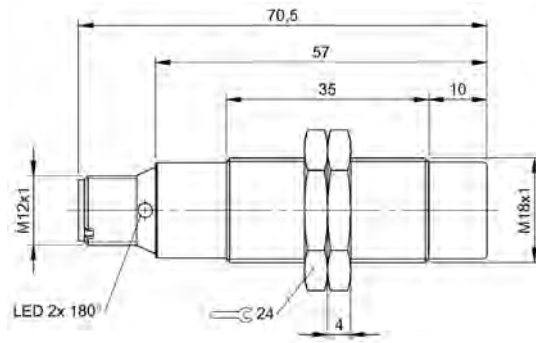


1) Sensing surface

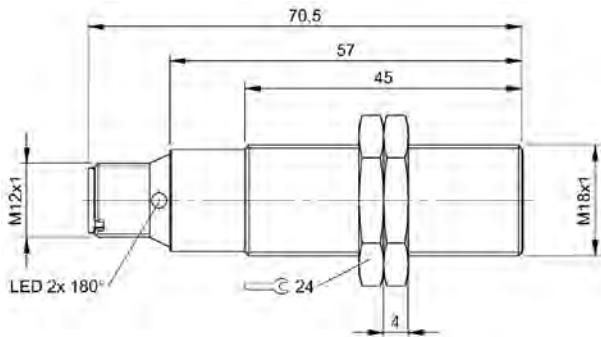
BES057A, BES057C



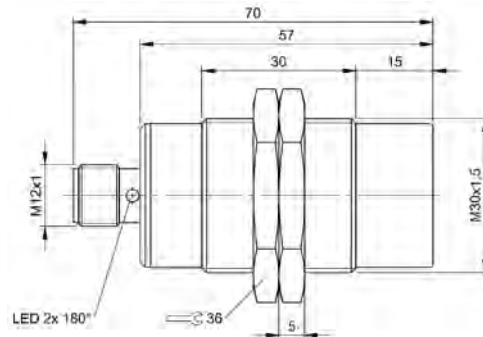
BES0574



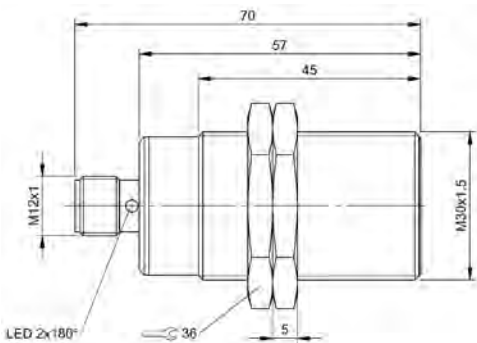
BES0575



BES0576



BES0578



BES0579



	BID000T BID R01K-4M100	
B10d (EN ISO 13849-1)	—	
Coding level (EN ISO 14119)	low	
Approval/Conformity	CE, cULus	
Operating principle	non-contact (magnetic)	
No of contacts	—	
Approach direction	—	
Life expectancy mechanical	—	
Assured switch on distance Sao	5 mm	
Assured switch off distance Sar	—	
Connection	—	
Dimension	26 x 36 x 13 mm	
Ambient temperature	-25...70 °C	
Protection degree	—	
Housing material	Thermoplastic, glass-fibre reinforced	
Productview	Seite 32	



BID0007 BID R01K-4M100-M20ZZ0-EP00,2-S92	
NC at 20% contact load 25 mil. Switching operations	
—	
CE, cULus	
non-contact (magnetic)	
2x NC	
vertical to the active surface	
100 million Switching operations	
5 mm	
15 mm	
Cable with connector, M12x1, 5-pin, 20 cm, PUR	
26 x 36 x 13 mm	
-25...70 °C	
IP67	
Thermoplastic, glass-fibre reinforced	
Seite 32	

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Safety

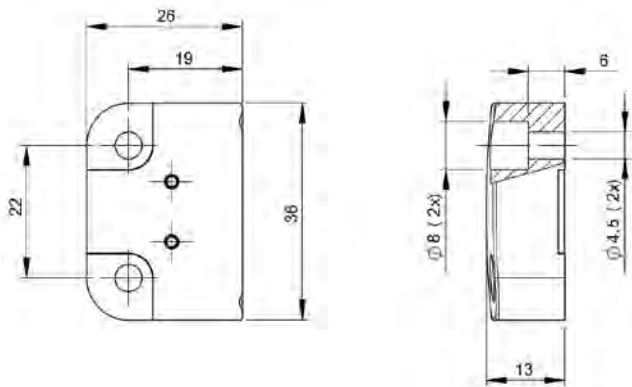
Industrial Networking

Software and
System Solutions

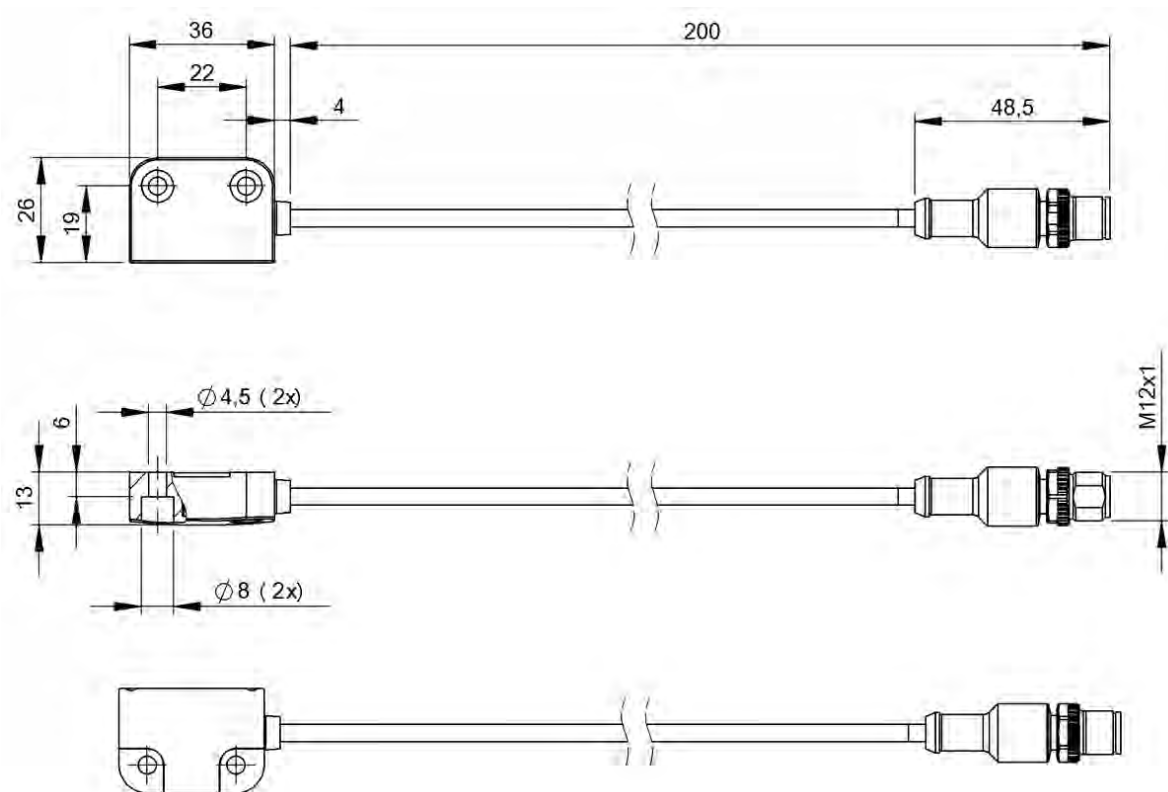
Power Supply

Connectivity

Accessories



BID000T



BID0007



	BID000W BID Q02K-4R300	BID000U BID R02K-4R300	
Performance Level	—	—	
Safety category (EN ISO 13849-1)	—	—	
SIL (IEC 61508)	—	—	
SIL CL (EN 62061)	—	—	
Coding level (EN ISO 14119)	—	—	
Response time max.	—	—	
Approval/Conformity	TÜV, cULus, CE	TÜV, cULus, CE	
Operating principle	—	—	
Approach direction	—	—	
Actuator retention force	—	—	
Assured switch on distance S_{ao}	—	—	
Assured switch off distance S_{ar}	—	—	
Connection	—	—	
Switching output	—	—	
Installation	any	any	
Dimension	22 x 7 x 9 mm	39.2 x 18 x 29.5 mm	
Ambient temperature	-25...65 °C	-25...65 °C	
IP rating	—	—	
Housing material	Thermoplast	Thermoplast	
Productview	Page 38	Page 38	



	BID0008 BID R02K-4R100-020ZZ0-EP00,2-S92	BID0009 BID R02K-4R300-020ZZ0-EP00,2-S92	BID000Y BID R03K-4R300	BID000C BID R03K-4R100-020ZZ0-S92
	e	e	—	e
	4	4	—	4
	3	3	—	3
	3	3	—	3
	low	high	—	low
	100 ms	100 ms	—	100 ms
	TÜV, cULus, CE	TÜV, cULus, CE	CE, cULus, TÜV, Ecolab	CE, cULus, TÜV, Ecolab
	non-contact (RFID)	non-contact (RFID)	non-contact (RFID)	non-contact (RFID)
	any to the active surface or laterally	any to the active surface or laterally	—	any to sensing surface
	—	—	0 N	0 N
	4 mm 8 mm	4 mm 8 mm	—	10 mm
	18 mm	18 mm	—	20 mm
	Cable with connector, M12x1, 5-pin, 25 cm, PUR	Cable with connector, M12x1, 5-pin, 25 cm, PUR	—	Connector, M12x1, 5-pin
	2x PNP OSSD	2x PNP OSSD	—	2x PNP OSSD
	for flush mounting	for flush mounting	any	for flush mounting
	39.2 x 18 x 29.5 mm	39.2 x 18 x 29.5 mm	91 x 25 x 22 mm	106 x 25 x 22 mm
	-25...65 °C	-25...65 °C	-25...70 °C	-25...70 °C
	IP65, IP67	IP65, IP67	—	IP65, IP67, IP69
	Thermoplast	Thermoplast	Thermoplastic, glass-fibre reinforced	Thermoplastic, glass-fibre reinforced
	Page 38	Page 38	Page 39	Page 39



	BID000F BID R03K-4R300-020ZZ0-S92	BID000Z BID R03K-4R3S0	
Performance Level	e	—	
Safety category (EN ISO 13849-1)	4	—	
SIL (IEC 61508)	3	—	
SIL CL (EN 62061)	3	—	
Coding level (EN ISO 14119)	high	—	
Response time max.	100 ms	—	
Approval/Conformity	CE, cULus, TÜV, Ecolab	CE, cULus, TÜV, Ecolab	
Operating principle	non-contact (RFID)	non-contact (RFID)	
Approach direction	any to sensing surface	—	
Actuator retention force	0 N	18 N	
Assured switch on distance Sao	10 mm	—	
Assured switch off distance Sar	20 mm	—	
Connection	Connector, M12x1, 5-pin	—	
Switching output	2x PNP OSSD	—	
Installation	for flush mounting	any	
Dimension	106 x 25 x 22 mm	91 x 25 x 22 mm	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP65, IP67, IP69	—	
Housing material	Thermoplastic, glass-fibre reinforced	Thermoplastic, glass-fibre reinforced	
Productview	Page 39	Page 39	



	BID000E BID R03K-4R1S0-020ZZ0-S92	BID000H BID R03K-4R3S0-020ZZ0-S92		
	e	e		
	4	4		
	3	3		
	3	3		
	low	high		
	100 ms	100 ms		
	CE, cULus, TÜV, Ecolab	CE, cULus, TÜV, Ecolab		
	non-contact (RFID)	non-contact (RFID)		
	any to sensing surface	any to sensing surface		
	18 N	18 N		
	10 mm	10 mm		
	20 mm	20 mm		
	Connector, M12x1, 5-pin	Connector, M12x1, 5-pin		
	2x PNP OSSD	2x PNP OSSD		
	for flush mounting	for flush mounting		
	106 x 25 x 22 mm	106 x 25 x 22 mm		
	-25...70 °C	-25...70 °C		
	IP65, IP67, IP69	IP65, IP67, IP69		
	Thermoplastic, glass-fibre reinforced	Thermoplastic, glass-fibre reinforced		
	Page 39	Page 39		

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Safety

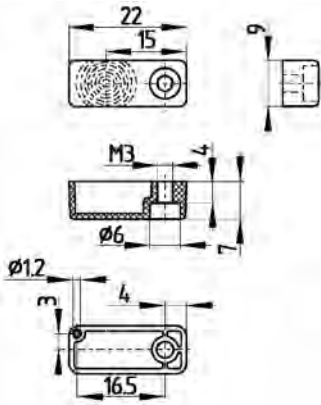
Industrial Networking

Software and
System Solutions

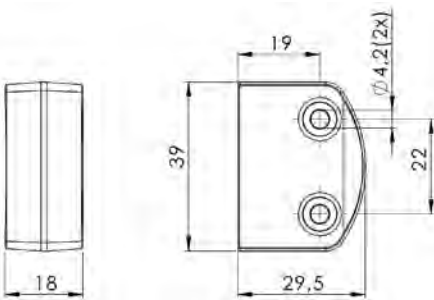
Power Supply

Connectivity

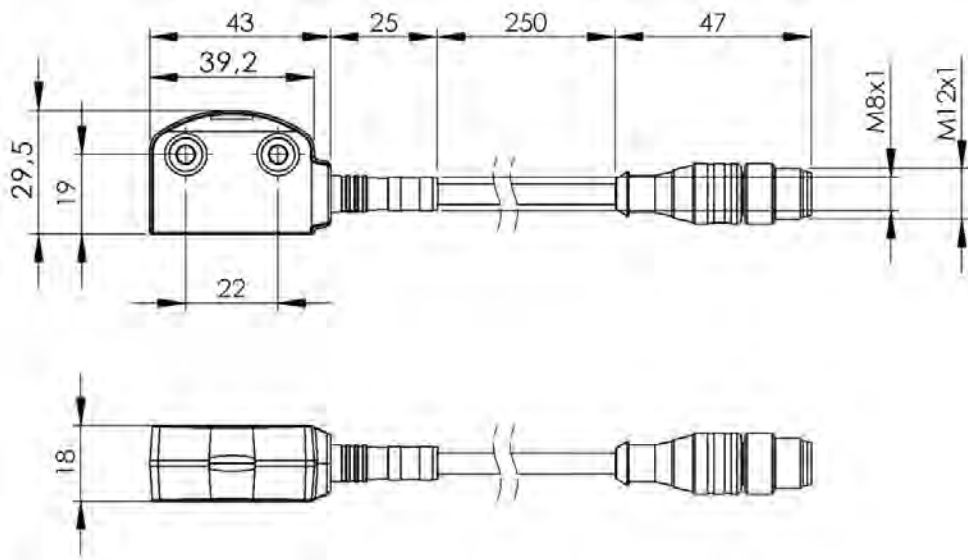
Accessories



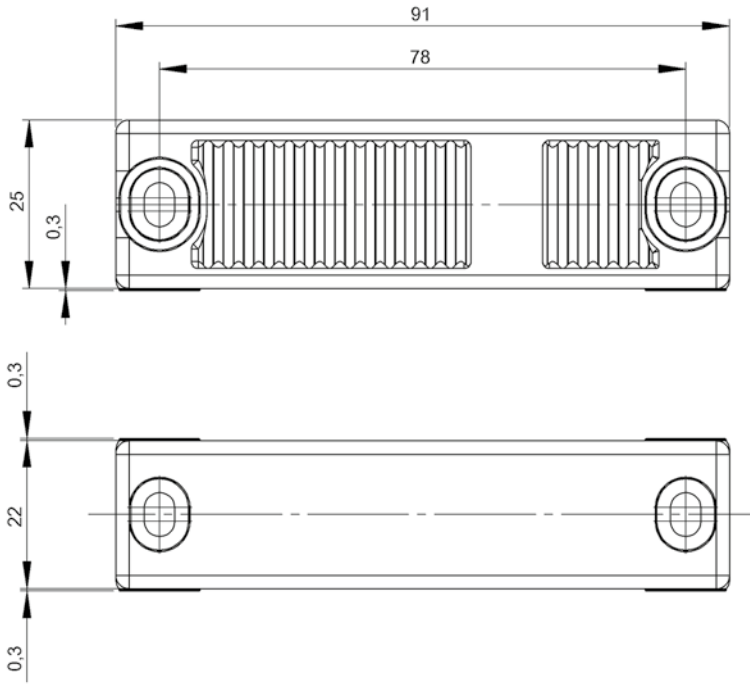
BID000W



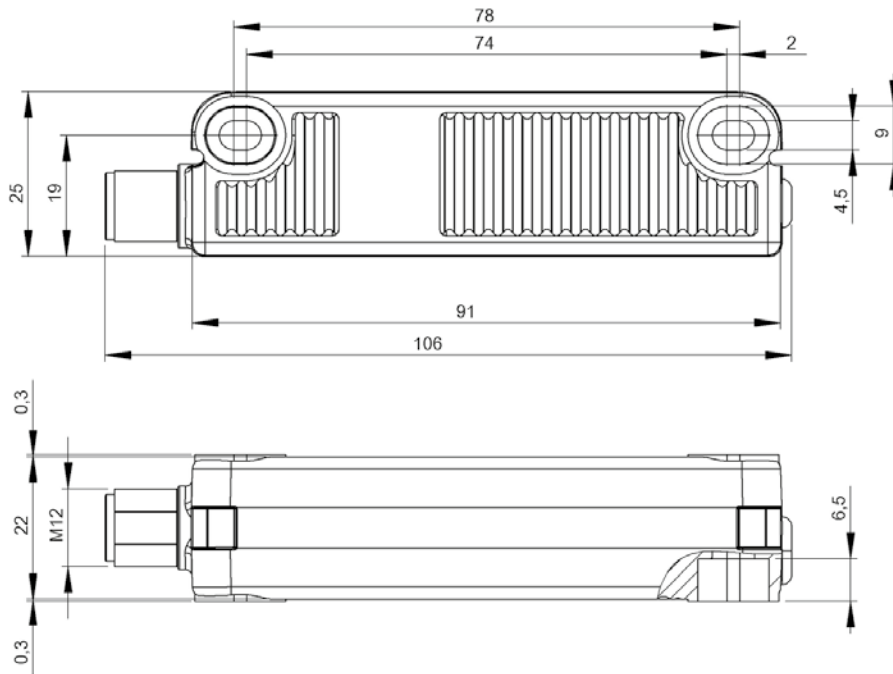
BID000U



BID0008, BID0009



BID000Y, BID000Z



BID000C, BID000F, BID000E, BID000H



Safe personal protection for interaction between man and machine

OPTO-ELECTRONIC PROTECTIVE DEVICES



Flexible production places high demands on safety when man and machine work so closely together.

This interplay must not ever compromise the safety of employees. Opto-electronic protective devices such as light curtains from Balluff provide safe solutions that also enable great flexibility. Another benefit to you: by using light curtains that consist of multiple parallel light beams, you save space since they can replace cumbersome guard fence constructions or assemblies of multiple through-beam sensors.

The most important benefits

- Finger, hand and body detection for convenient and fast interaction between man and machine
- Defined protected area with infrared protection field – suitable for safety applications up to PLe SIL3
- Safe machine stoppage in safety-critical applications
- Better space utilization by eliminating the need for protective fence structures
- High level of manipulation protection



	BLG000A BLG 4A-015-600-014-001-SX	BLG000C BLG 4A-030-600-014-001-SX	BLG000E BLG 4A-045-600-014-001-SX	
Performance Level	e	e	e	
Safety category (EN ISO 13849-1)	4	4	4	
SIL (IEC 61508)	3	3	3	
SIL CL (EN 62061)	3	3	3	
Response time max.	11 ms	15 ms	18 ms	
Approval/Conformity	TÜV, cULus, CE	TÜV, cULus, CE	TÜV, cULus, CE	
Operating principle	non-contact (photoelectric)	non-contact (photoelectric)	non-contact (photoelectric)	
Detection capability	14 mm	14 mm	14 mm	
Protective field height (Hp)	150 mm	300 mm	450 mm	
Range	6 m	6 m	6 m	
Connection 1	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded	
Connection 2	Receiver: M12x1-Male, A-coded	Receiver: M12x1-Male, A-coded	Receiver: M12x1-Male, A-coded	
Switching output	2x PNP OSSD	2x PNP OSSD	2x PNP OSSD	
Dimension	32.3 x 233.3 x 37 mm	32.3 x 383.2 x 37 mm	32.3 x 533.2 x 37 mm	
Ambient temperature	0...55 °C	0...55 °C	0...55 °C	
Protection degree	IP65	IP65	IP65	
Housing material	Aluminum	Aluminum	Aluminum	
Productview	Seite 46	Seite 46	Seite 47	



	BLG000F BLG 4A-060-600-014-001-SX	BLG000H BLG 4A-075-600-014-001-SX	BLG000J BLG 4A-090-600-014-001-SX	BLG000K BLG 4A-105-600-014-001-SX	BLG000L BLG 4A-120-600-014-001-SX
	e	e	e	e	e
	4	4	4	4	4
	3	3	3	3	3
	3	3	3	3	3
	22 ms	25 ms	29 ms	33 ms	36 ms
	TÜV, cULus, CE	TÜV, cULus, CE	TÜV, cULus, CE	TÜV, cULus, CE	TÜV, cULus, CE
	non-contact (photoelectric)	non-contact (photoelectric)	non-contact (photoelectric)	non-contact (photoelectric)	non-contact (photoelectric)
	14 mm	14 mm	14 mm	14 mm	14 mm
	600 mm	750 mm	900 mm	1050 mm	1200 mm
	6 m	6 m	6 m	6 m	6 m
	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded
	Receiver: M12x1-Male, A-coded	Receiver: M12x1-Male, A-coded	Receiver: M12x1-Male, A-coded	Receiver: M12x1-Male	Receiver: M12x1-Male
	2x PNP OSSD	2x PNP OSSD	2x PNP OSSD	2x PNP OSSD	2x PNP OSSD
	32.3 x 683.2 x 37 mm	32.3 x 833.2 x 37 mm	32.3 x 983.2 x 37 mm	32.3 x 1133.2 x 37 mm	32.3 x 1283.3 x 37 mm
	0...55 °C	0...55 °C	0...55 °C	0...55 °C	0...55 °C
	IP65	IP65	IP65	IP65	IP65
	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
	Seite 47	Seite 48	Seite 48	Seite 49	Seite 49



	BLG000R BLG 4A-135-600-014-001-SX	BLG000M BLG 4A-150-600-014-001-SX	BLG000N BLG 4A-165-600-014-001-SX	
Performance Level	e	e	e	
Safety category (EN ISO 13849-1)	4	4	4	
SIL (IEC 61508)	3	3	3	
SIL CL (EN 62061)	3	3	3	
Response time max.	40 ms	43 ms	47 ms	
Approval/Conformity	TÜV, cULus, CE	TÜV, cULus, CE	TÜV, cULus, CE	
Operating principle	non-contact (photoelectric)	non-contact (photoelectric)	non-contact (photoelectric)	
Detection capability	14 mm	14 mm	14 mm	
Protective field height (Hp)	1350 mm	1500 mm	1650 mm	
Range	6 m	6 m	6 m	
Connection 1	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded	
Connection 2	Receiver: M12x1-Male	Receiver: M12x1-Male	Receiver: M12x1-Male	
Switching output	2x PNP OSSD	2x PNP OSSD	2x PNP OSSD	
Dimension	32.3 x 1433.2 x 37 mm	32.3 x 1583.3 x 37 mm	32.3 x 1733.3 x 37 mm	
Ambient temperature	0...55 °C	0...55 °C	0...55 °C	
Protection degree	IP65	IP65	IP65	
Housing material	Aluminum	Aluminum	Aluminum	
Productview	Seite 50	Seite 50	Seite 51	



BLG000P BLG 4A-180-600-014-001-SX				
e				
4				
3				
3				
50 ms				
TÜV, cULus, CE				
non-contact (photoelectric)				
14 mm				
1800 mm				
6 m				
Emitter: M12x1-Male, A-coded				
Receiver: M12x1-Male				
2x PNP OSSD				
32.3 x 1883.3 x 37 mm				
0...55 °C				
IP65				
Aluminum				
Seite 51				

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Safety

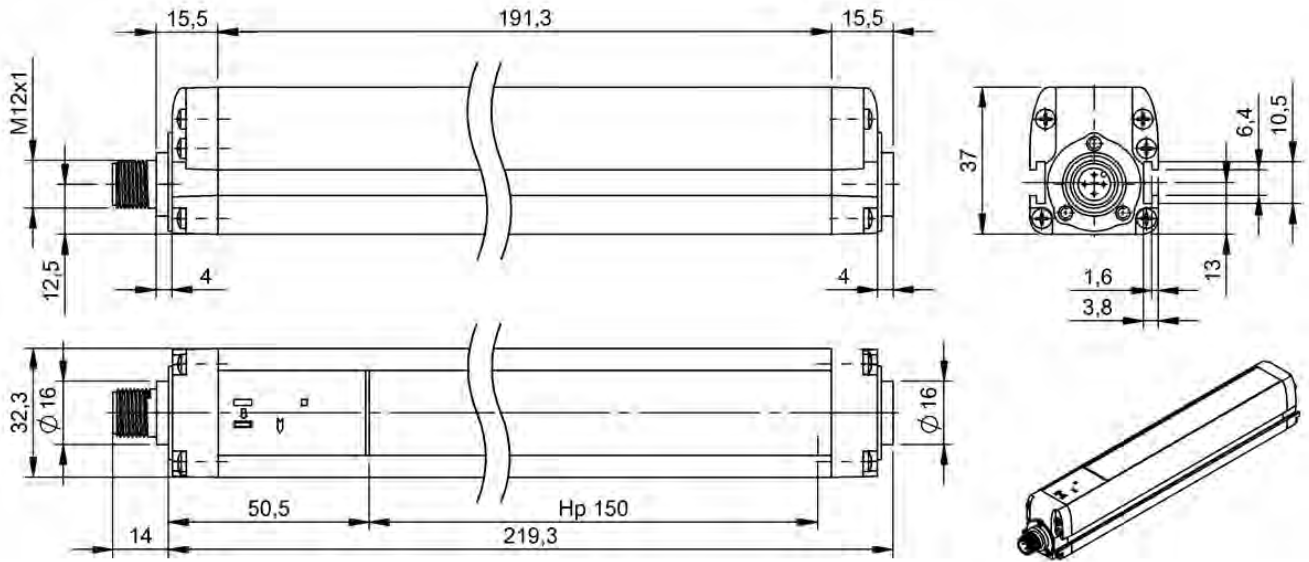
Industrial Networking

Software and
System Solutions

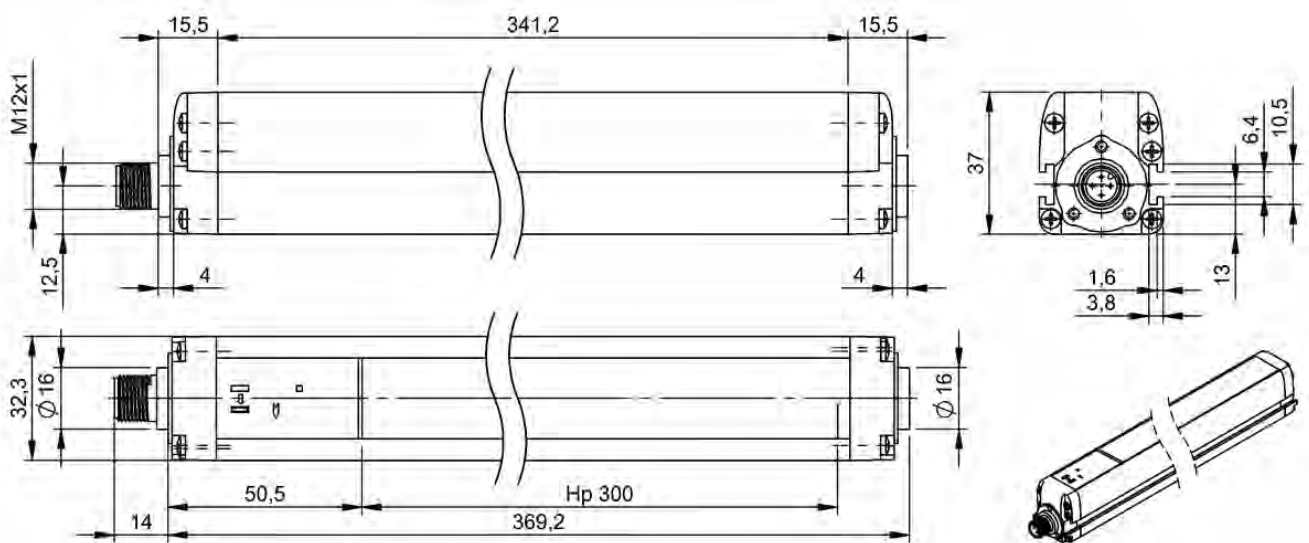
Power Supply

Connectivity

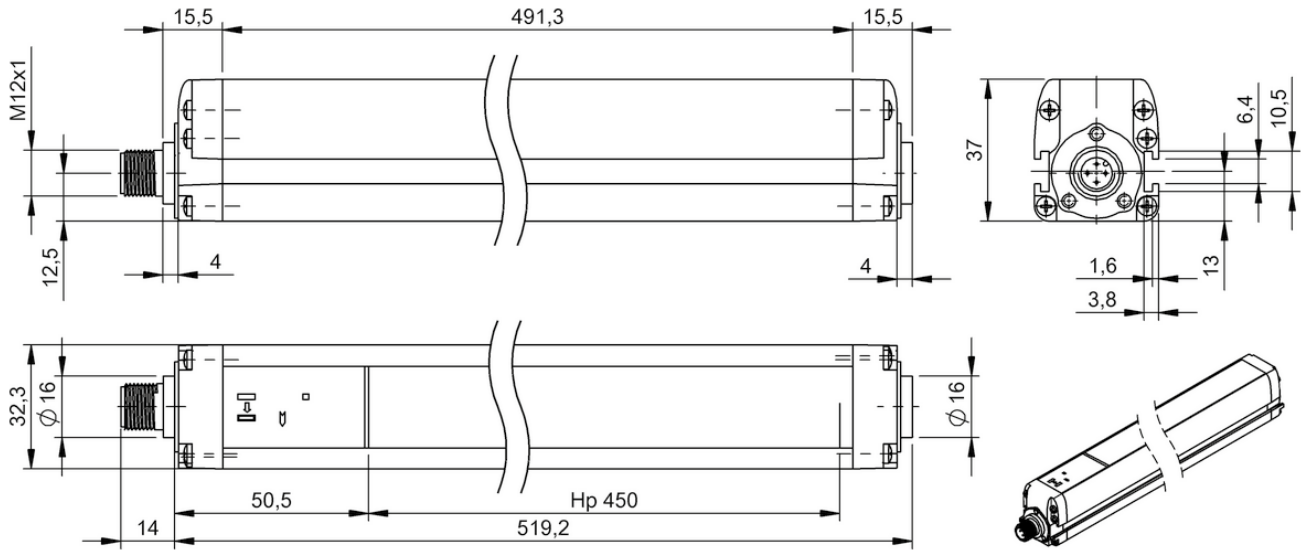
Accessories



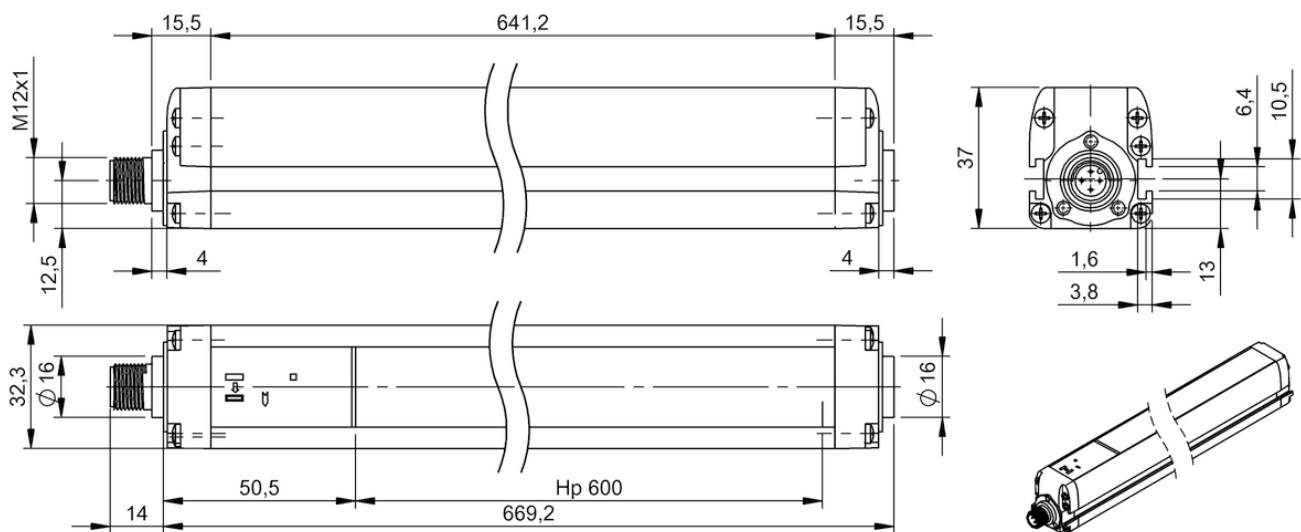
BLG000A



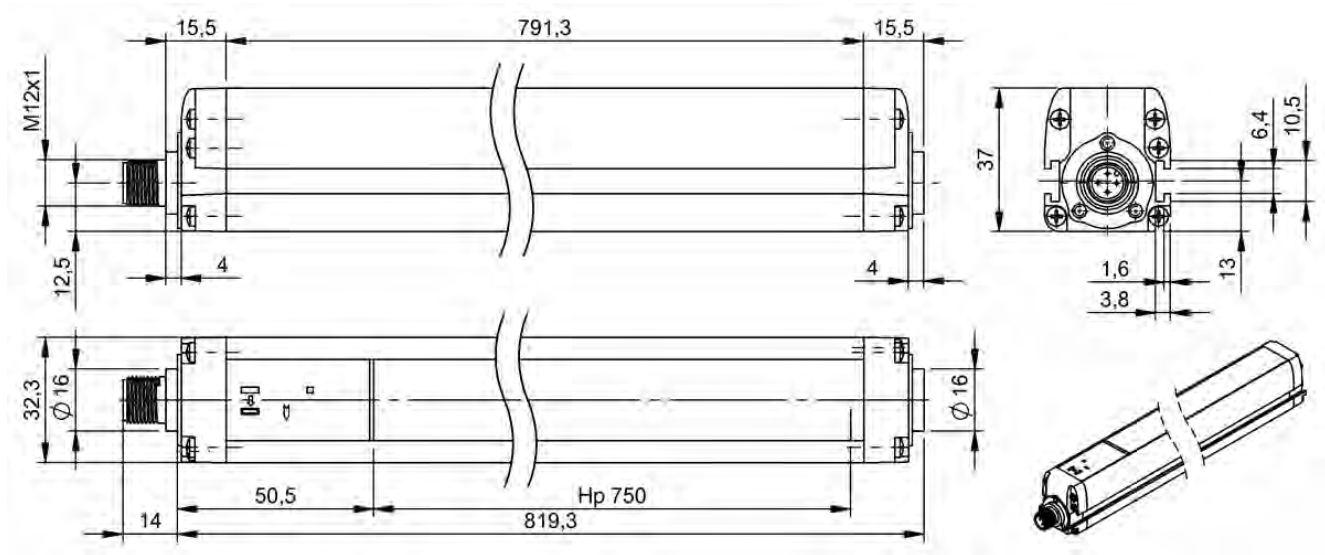
BLG000C



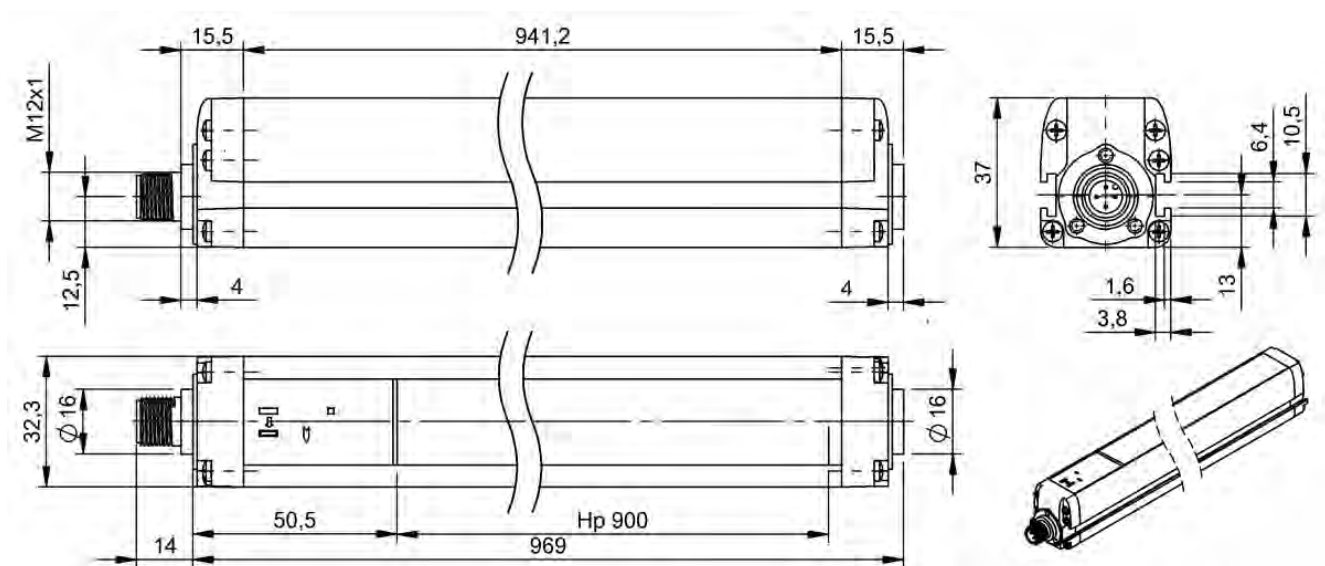
BLG000E



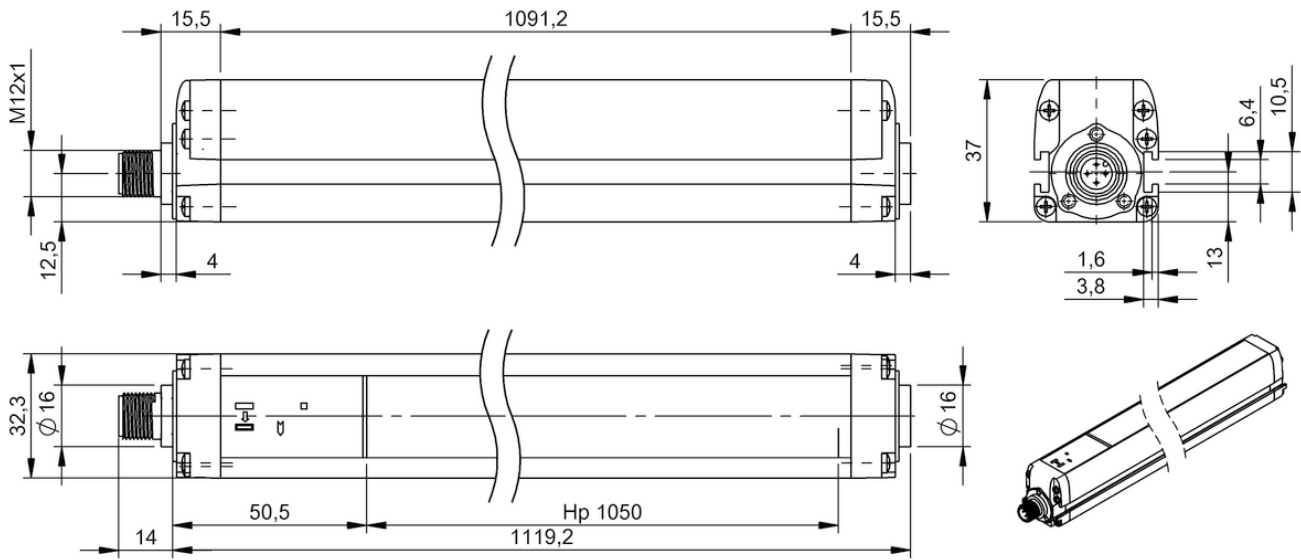
BLG000F



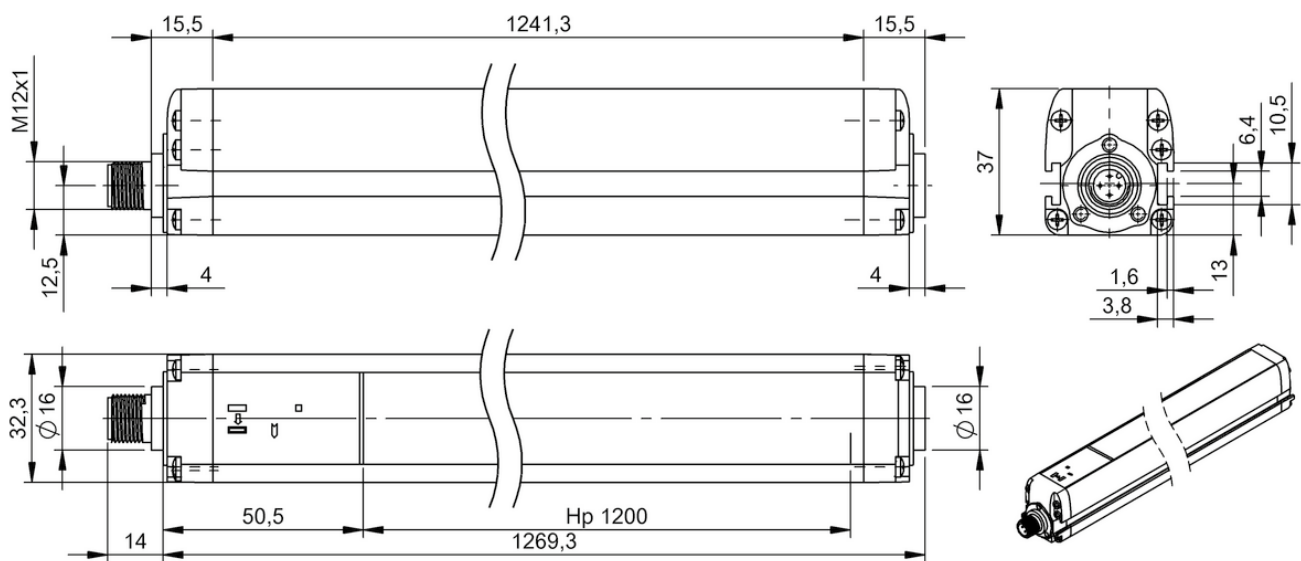
BLG000H



BLG000J

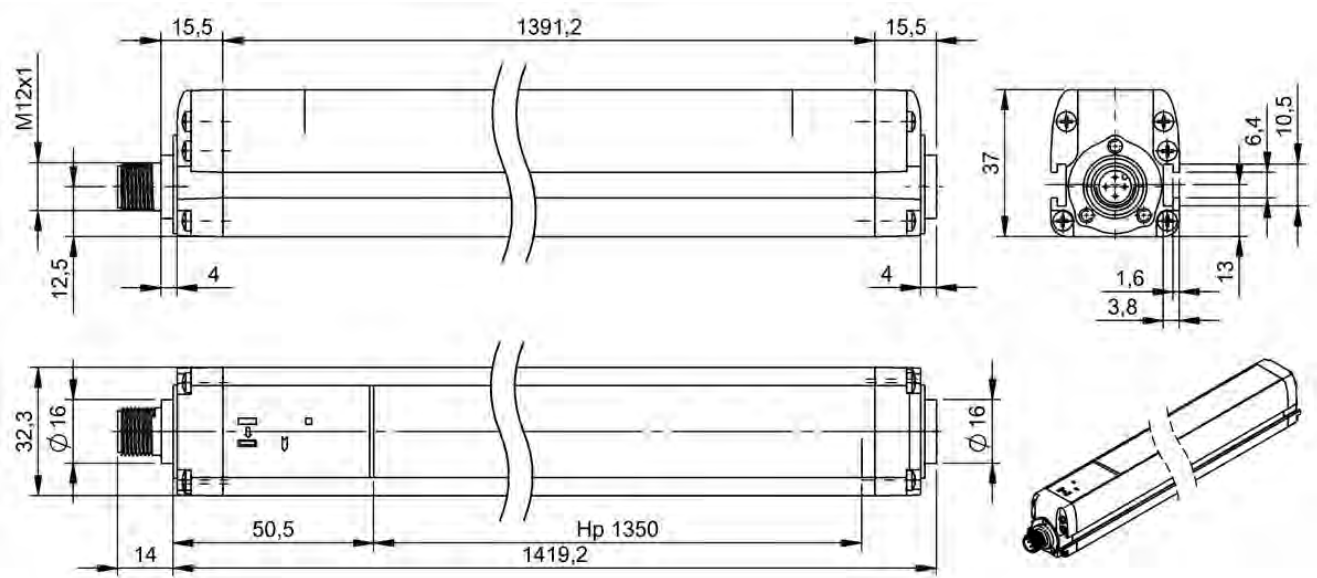


BLG000K

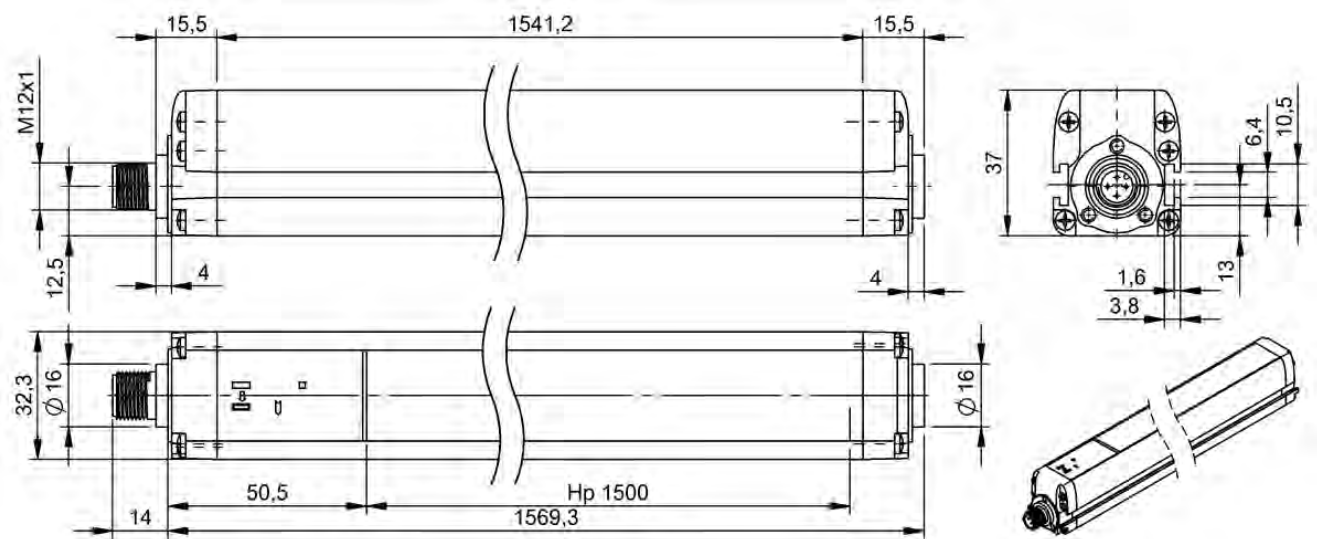


BLG000L

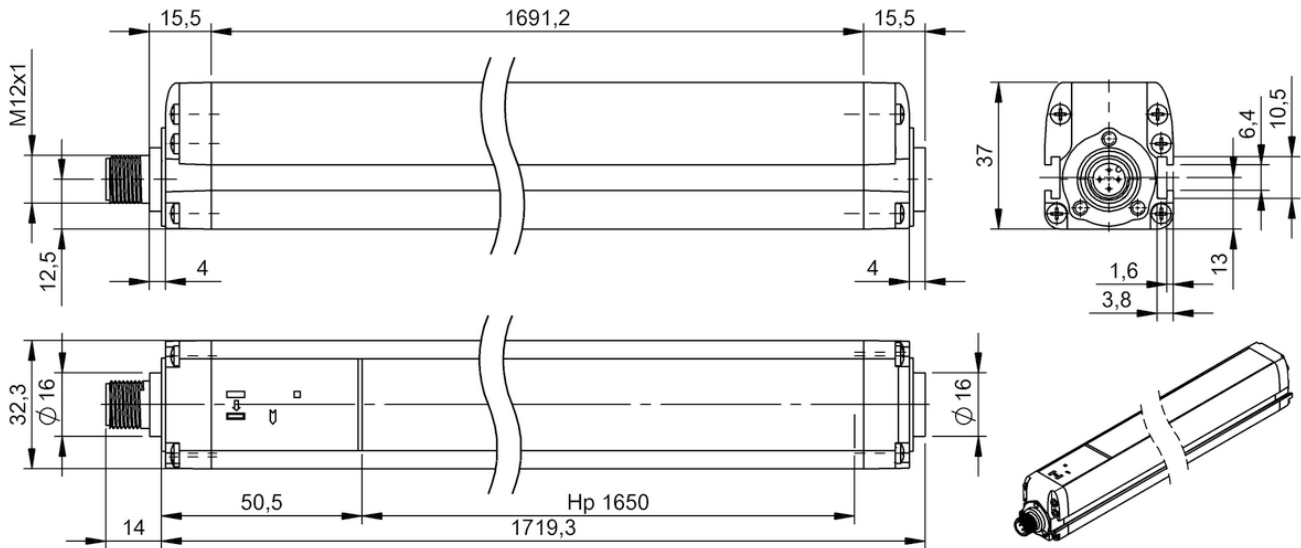
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



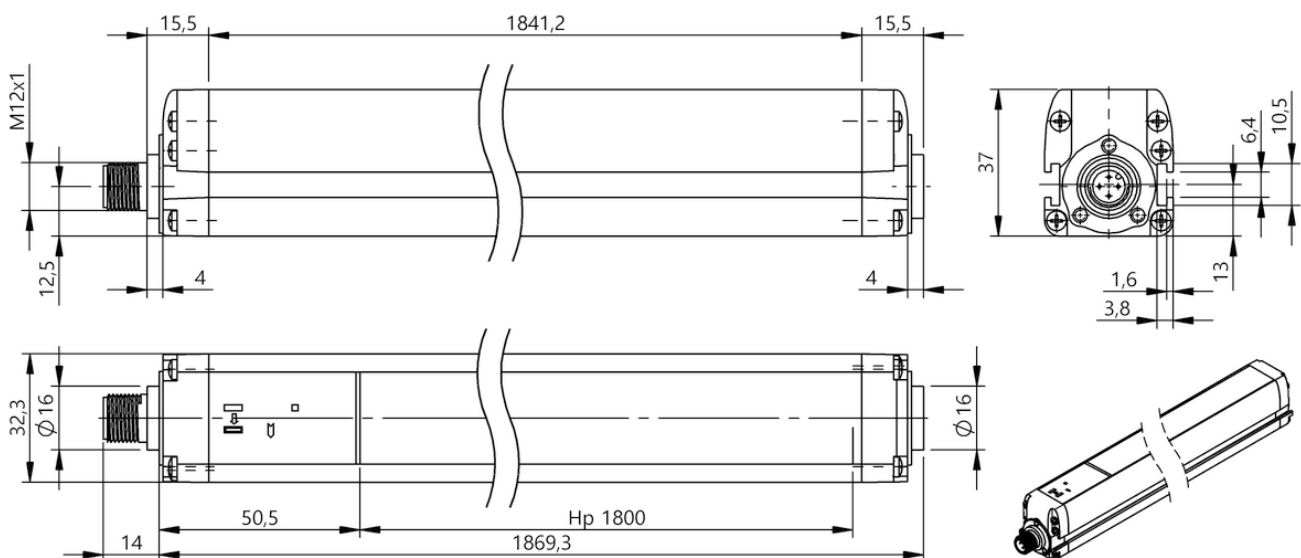
BLG000R



BLG000M



BLG000N



BLG000P

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.



	BLG000T BLG 4A-015-19X-030-001-SX	BLG000U BLG 4A-030-19X-030-001-SX	BLG000W BLG 4A-045-19X-030-001-SX	
Performance Level	e	e	e	
Safety category (EN ISO 13849-1)	4	4	4	
SIL (IEC 61508)	3	3	3	
SIL CL (EN 62061)	3	3	3	
Response time max.	9 ms	11 ms	13 ms	
Approval/Conformity	TÜV, cULus, CE	TÜV, cULus, CE	TÜV, cULus, CE	
Operating principle	non-contact (photoelectric)	non-contact (photoelectric)	non-contact (photoelectric)	
Detection capability	30 mm	30 mm	30 mm	
Protective field height (Hp)	150 mm	300 mm	450 mm	
Range	19 m	19 m	19 m	
Connection 1	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded	
Connection 2	Receiver: M12x1-Male, A-coded	Receiver: M12x1-Male, A-coded	Receiver: M12x1-Male, A-coded	
Switching output	2x PNP OSSD	2x PNP OSSD	2x PNP OSSD	
Dimension	32.3 x 233.3 x 37 mm	32.3 x 383.2 x 37 mm	32.3 x 533.2 x 37 mm	
Ambient temperature	0...55 °C	0...55 °C	0...55 °C	
Protection degree	IP65	IP65	IP65	
Housing material	Aluminum	Aluminum	Aluminum	
Productview	Seite 56	Seite 56	Seite 57	



	BLG000Y BLG 4A-060-19X-030-001-SX	BLG000Z BLG 4A-075-19X-030-001-SX	BLG0010 BLG 4A-090-19X-030-001-SX	BLG0011 BLG 4A-105-19X-030-001-SX	BLG0012 BLG 4A-120-19X-030-001-SX
	e	e	e	e	e
	4	4	4	4	4
	3	3	3	3	3
	3	3	3	3	3
	14 ms	16 ms	18 ms	19 ms	21 ms
	TÜV, cULus, CE	TÜV, cULus, CE	TÜV, cULus, CE	TÜV, cULus, CE	TÜV, cULus, CE
	non-contact (photoelectric)	non-contact (photoelectric)	non-contact (photoelectric)	non-contact (photoelectric)	non-contact (photoelectric)
	30 mm	30 mm	30 mm	30 mm	30 mm
	600 mm	750 mm	900 mm	1050 mm	1200 mm
	19 m	19 m	19 m	19 m	19 m
	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded
	Receiver: M12x1-Male, A-coded	Receiver: M12x1-Male, A-coded	Receiver: M12x1-Male, A-coded	Receiver: M12x1-Male, A-coded	Receiver: M12x1-Male
	2x PNP OSSD	2x PNP OSSD	2x PNP OSSD	2x PNP OSSD	2x PNP OSSD
	32.3 x 683.2 x 37 mm	32.3 x 833.2 x 37 mm	32.3 x 983.2 x 37 mm	32.3 x 1133.2 x 37 mm	32.3 x 1283.3 x 37 mm
	0...55 °C	0...55 °C	0...55 °C	0...55 °C	0...55 °C
	IP65	IP65	IP65	IP65	IP65
	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
	Seite 57	Seite 58	Seite 58	Seite 59	Seite 59



	BLG0013 BLG 4A-135-19X-030-001-SX	BLG0014 BLG 4A-150-19X-030-001-SX	BLG0015 BLG 4A-165-19X-030-001-SX	
Performance Level	e	e	e	
Safety category (EN ISO 13849-1)	4	4	4	
SIL (IEC 61508)	3	3	3	
SIL CL (EN 62061)	3	3	3	
Response time max.	23 ms	25 ms	26 ms	
Approval/Conformity	TÜV, cULus, CE	TÜV, cULus, CE	TÜV, cULus, CE	
Operating principle	non-contact (photoelectric)	non-contact (photoelectric)	non-contact (photoelectric)	
Detection capability	30 mm	30 mm	30 mm	
Protective field height (Hp)	1350 mm	1500 mm	1650 mm	
Range	19 m	19 m	19 m	
Connection 1	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded	
Connection 2	Receiver: M12x1-Male	Receiver: M12x1-Male	Receiver: M12x1-Male	
Switching output	2x PNP OSSD	2x PNP OSSD	2x PNP OSSD	
Dimension	32.3 x 1433.2 x 37 mm	32.3 x 1583.3 x 37 mm	32.3 x 1733.3 x 37 mm	
Ambient temperature	0...55 °C	0...55 °C	0...55 °C	
Protection degree	IP65	IP65	IP65	
Housing material	Aluminum	Aluminum	Aluminum	
Productview	Seite 60	Seite 60	Seite 61	



BLG0016 BLG 4A-180-19X-030-001-SX				
e				
4				
3				
3				
28 ms				
TÜV, CE, cULus				
non-contact (photoelectric)				
30 mm				
1800 mm				
19 m				
Emitter: M12x1-Male, A-coded				
Receiver: M12x1-Male				
2x PNP OSSD				
32.3 x 1883.3 x 37 mm				
0...55 °C				
IP65				
Aluminum				
Seite 61				

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Safety

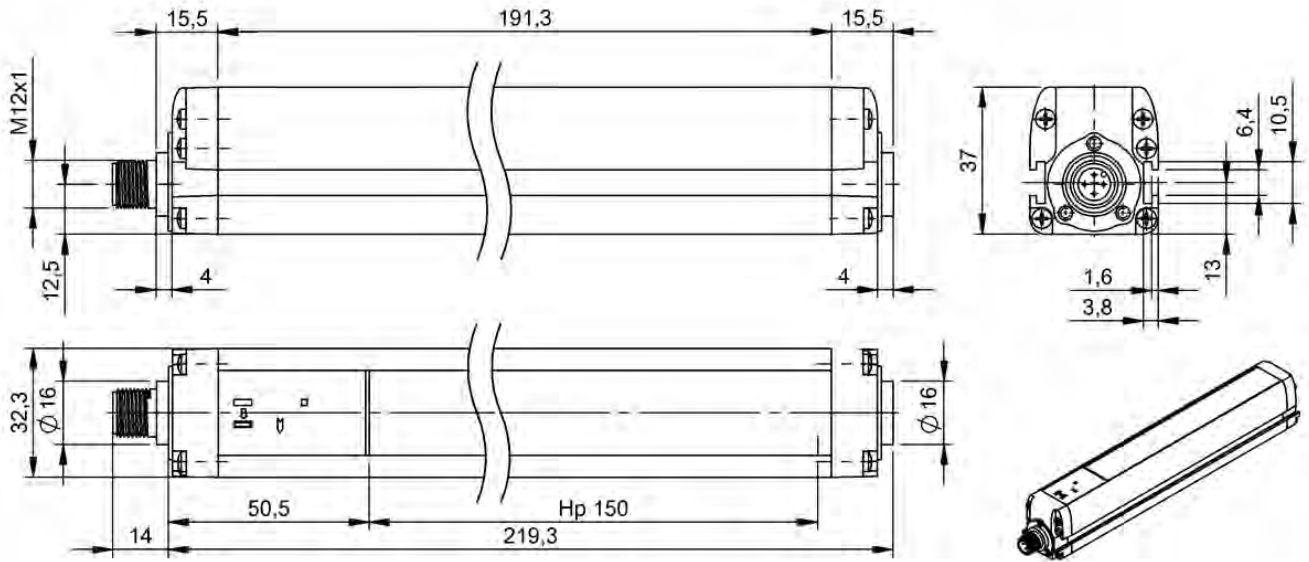
Industrial Networking

Software and
System Solutions

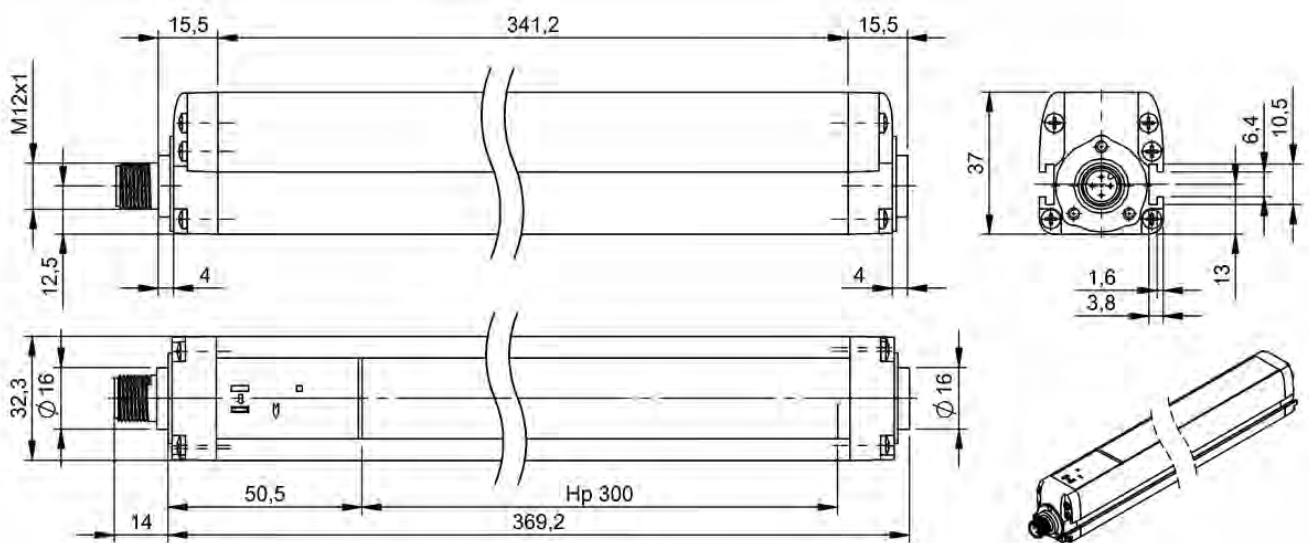
Power Supply

Connectivity

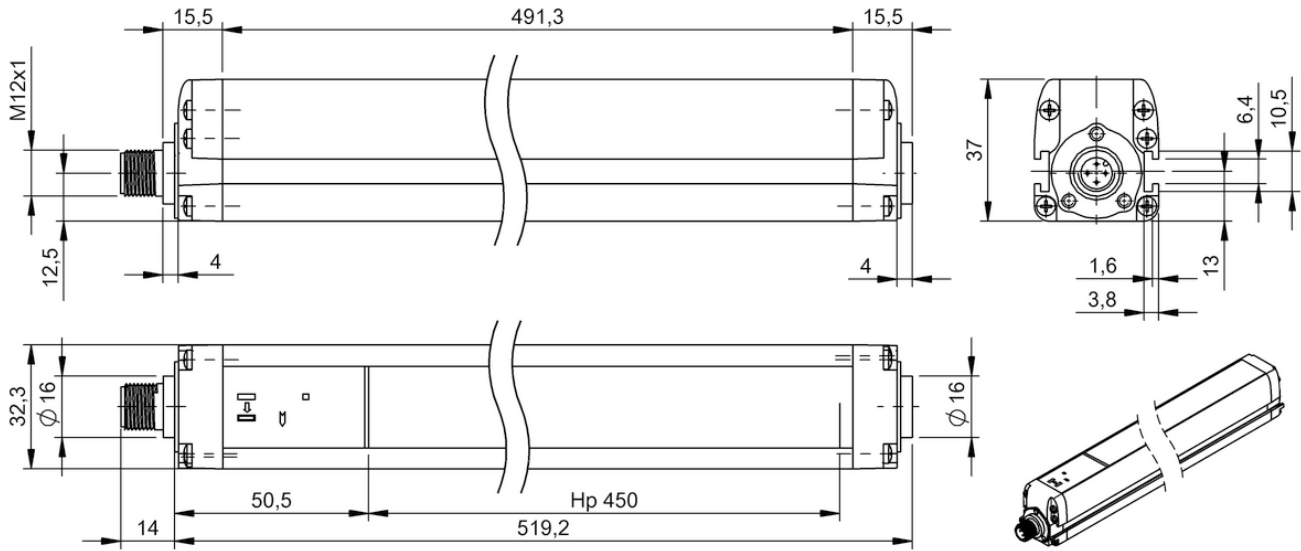
Accessories



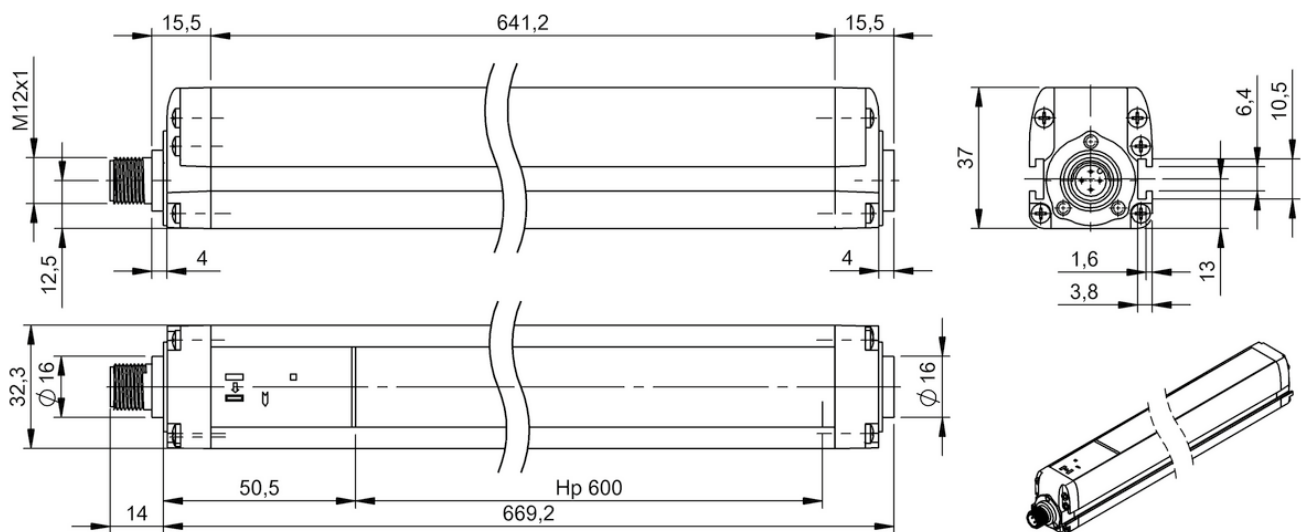
BLG000T



BLG000U

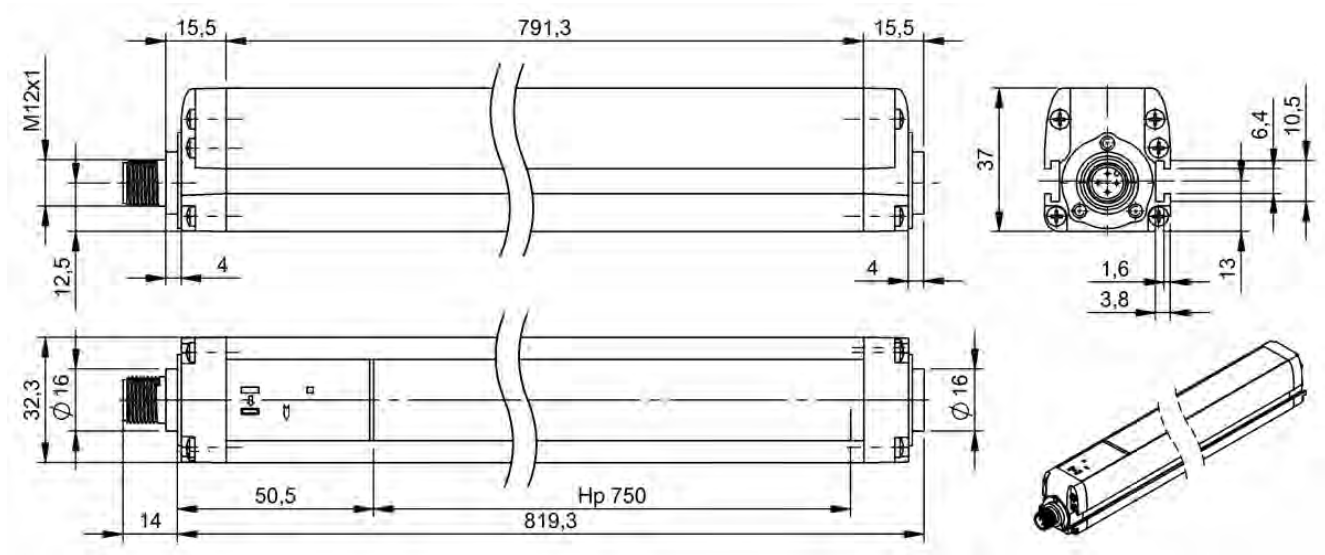


BLG000W

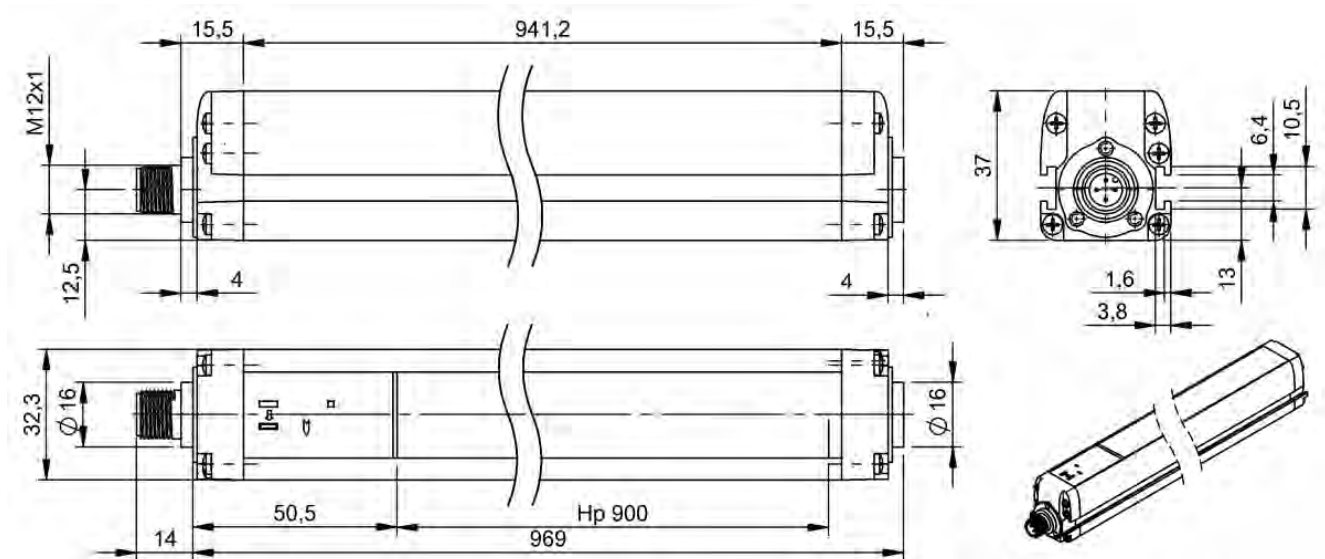


BLG000Y

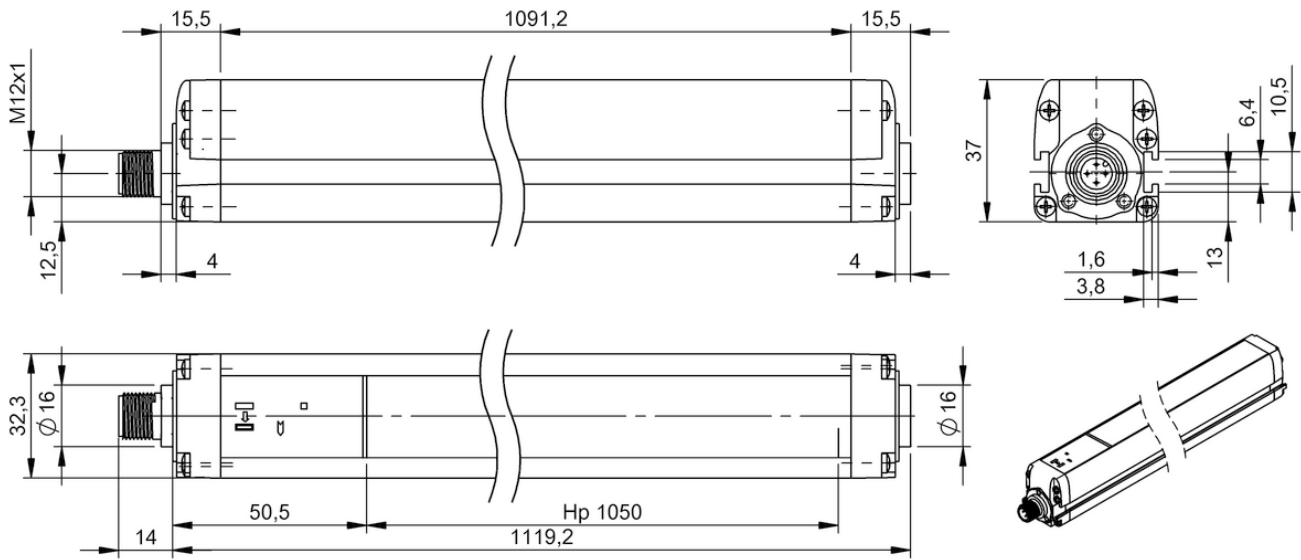
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



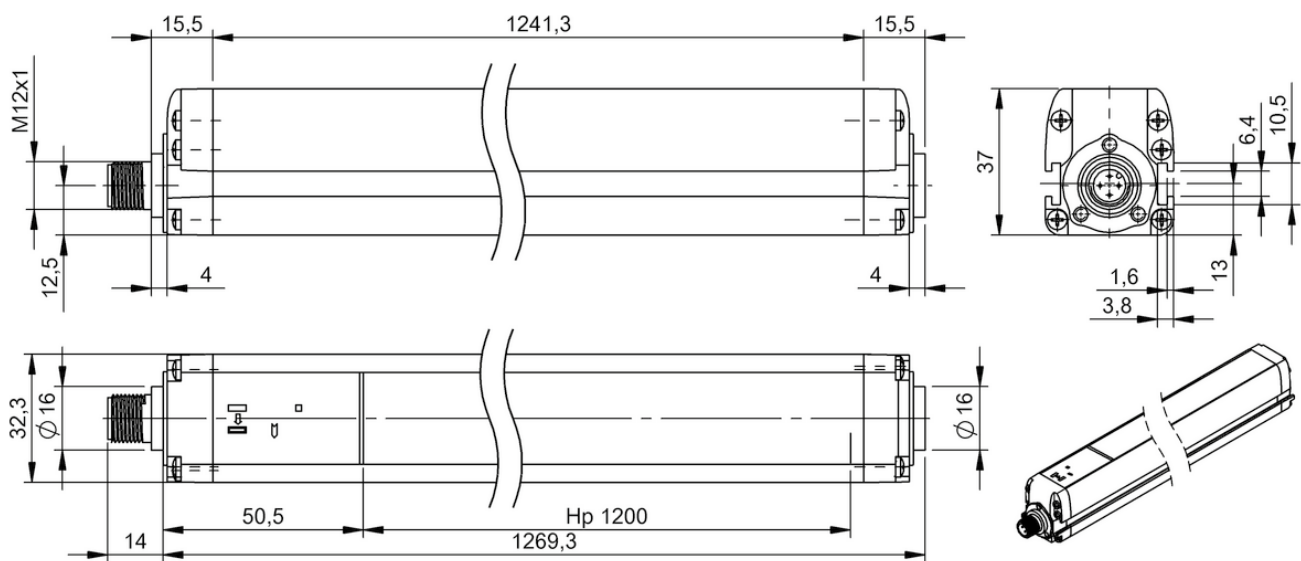
BLG000Z



BLG0010

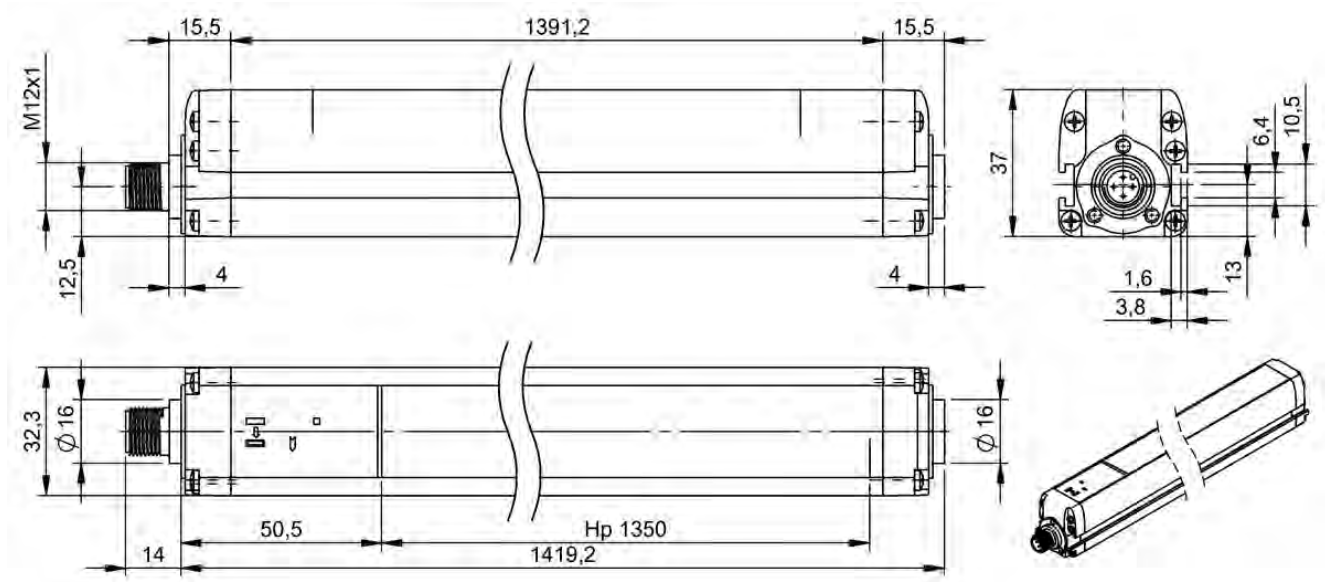


BLG0011

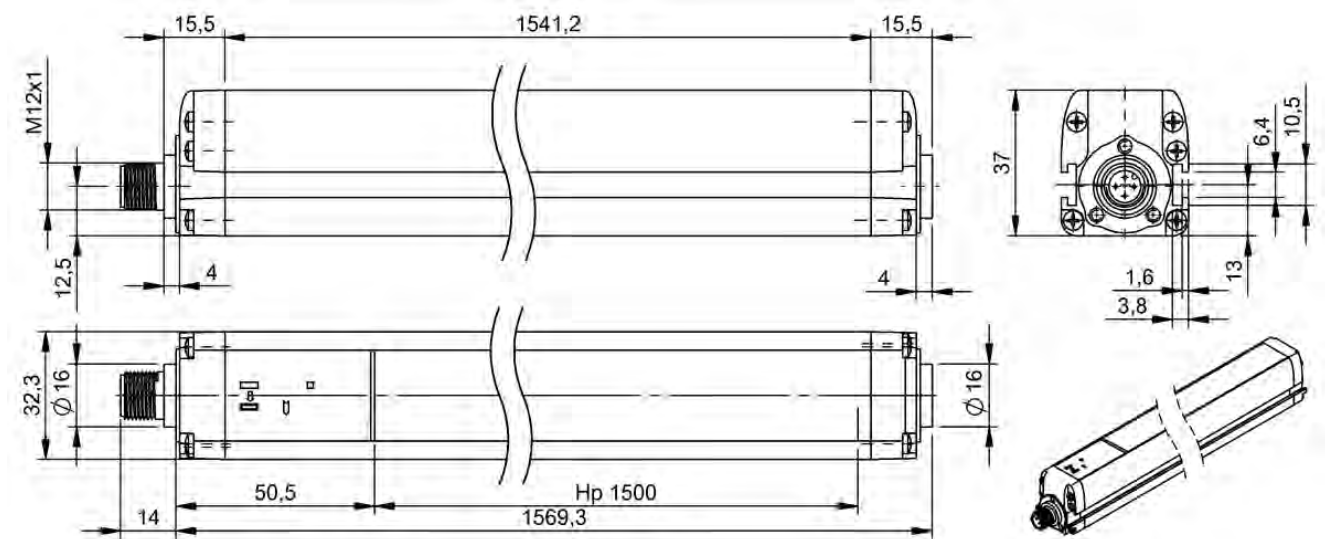


BLG0012

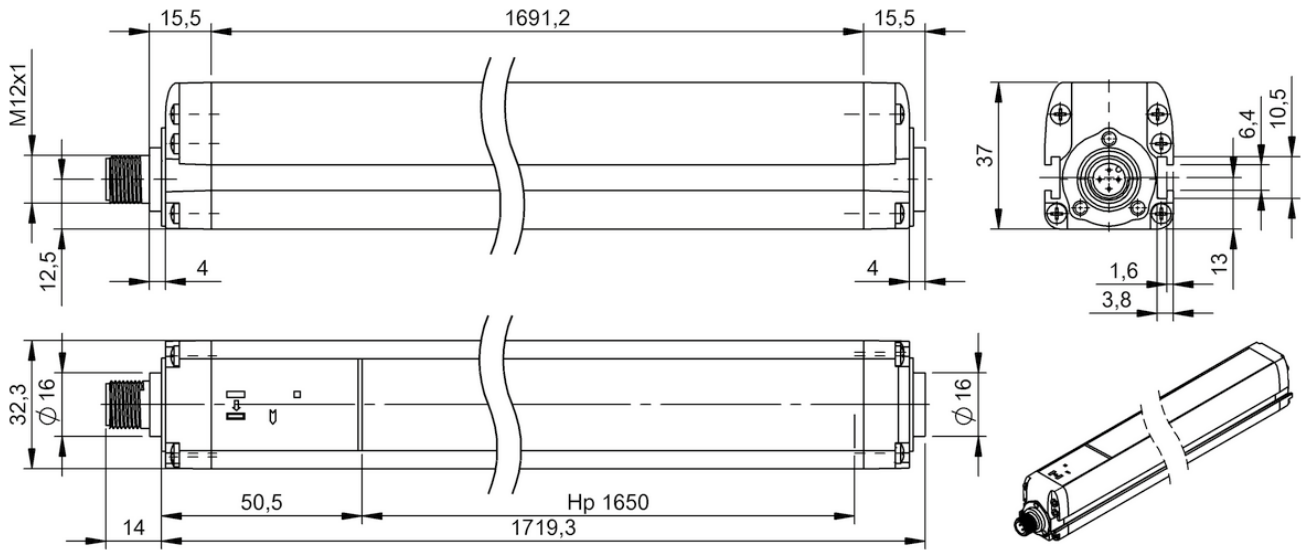
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



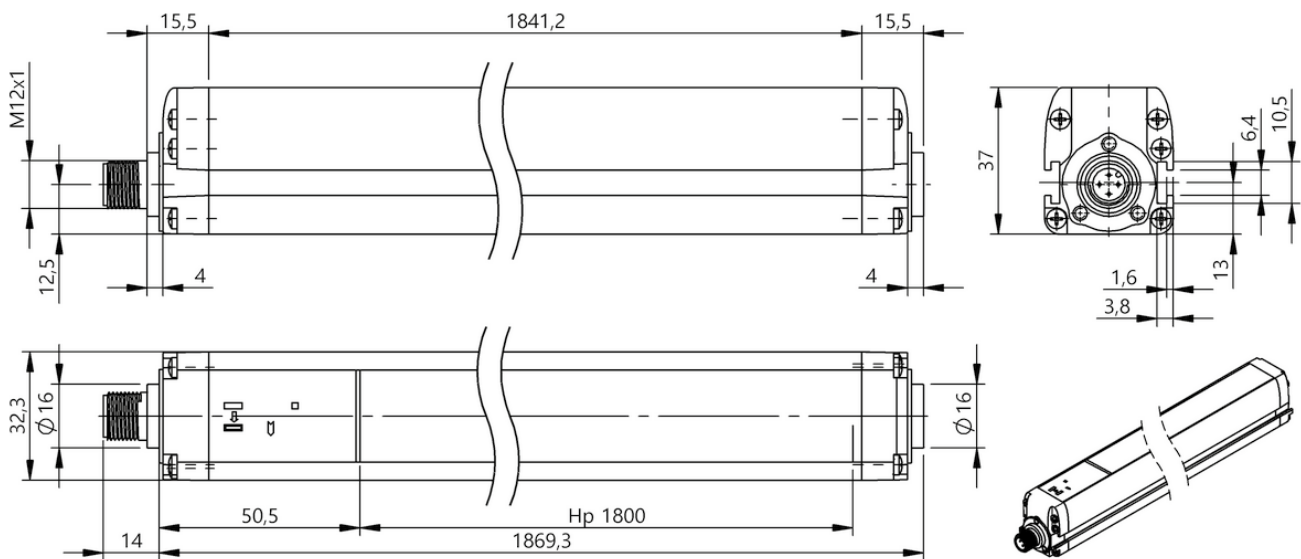
BLG0013



BLG0014



BLG0015



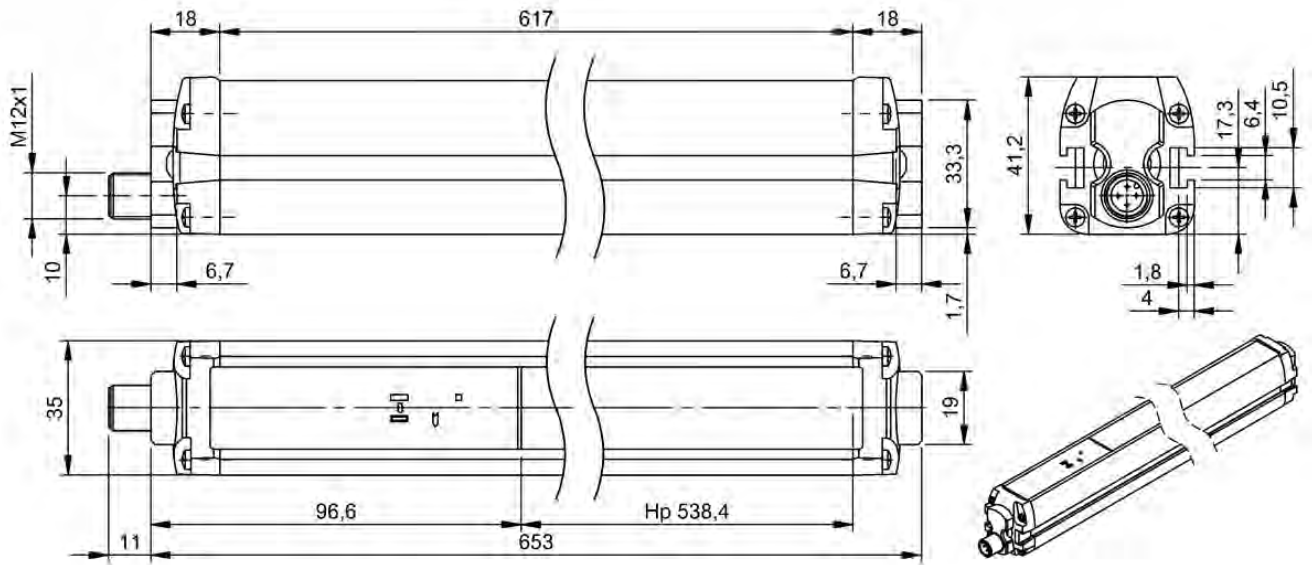
BLG0016



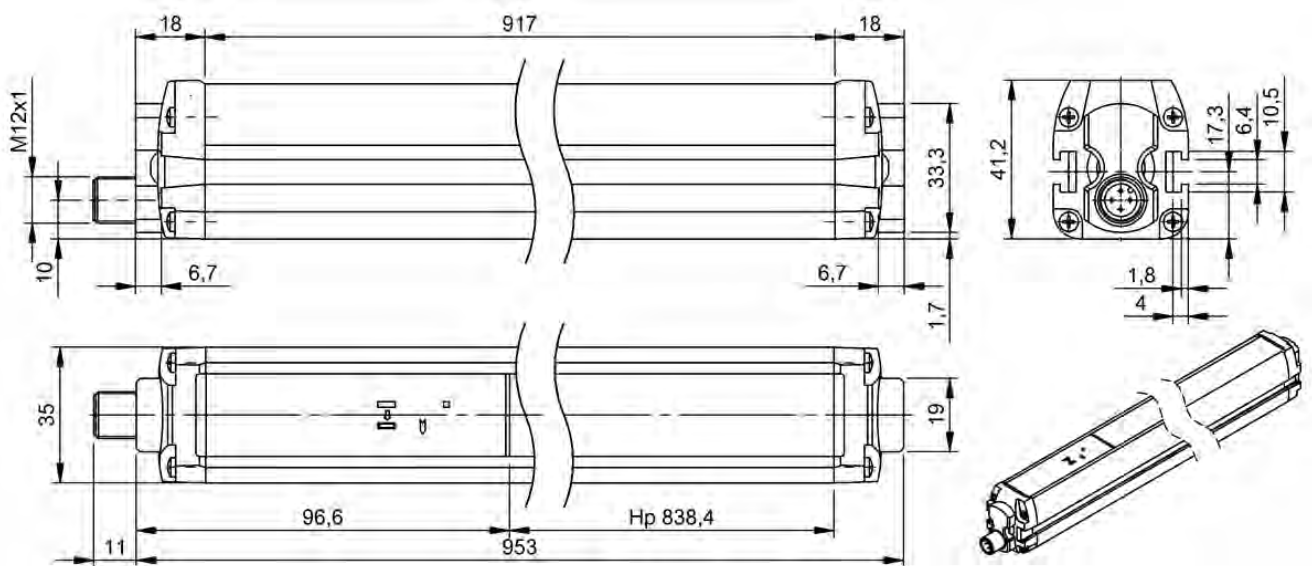
	BLG0006 BLG 4A-050-50X-B02-001-SX	
Performance Level	e	
Safety category (EN ISO 13849-1)	4	
SIL (IEC 61508)	3	
SIL CL (EN 62061)	3	
Response time max.	14 ms	
Approval/Conformity	TÜV, cULus, CE	
Operating principle	non-contact (photoelectric)	
Light beams, number	2	
Protective field height (Hp)	515 mm	
Range	50 m	
Connection 1	Emitter: M12x1-Male, A-coded	
Connection 2	Receiver: M12x1-Male, A-coded	
Switching output	2x PNP OSSD	
Dimension	35 x 664 x 41.2 mm	
Ambient temperature	-10...55 °C	
Protection degree	IP65	
Housing material	Aluminum	
Productview	Seite 64	



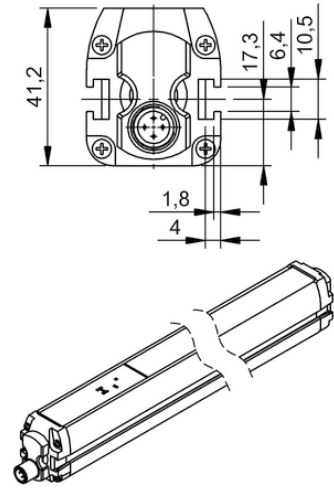
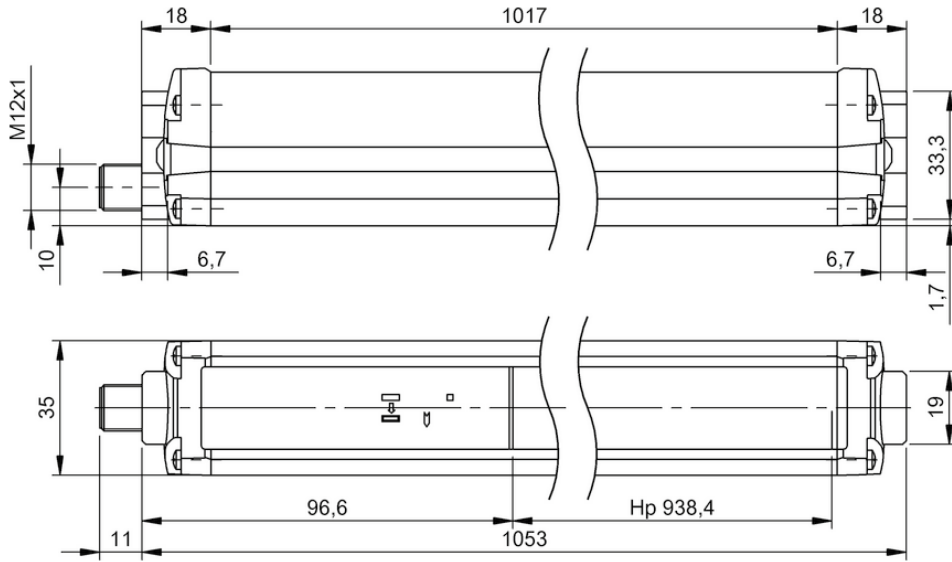
	BLG0007 BLG 4A-080-50X-B03-001-SX	BLG0008 BLG 4A-090-50X-B04-001-SX	BLG0009 BLG 4A-120-50X-B04-001-SX
	e	e	e
	4	4	4
	3	3	3
	3	3	3
	14 ms	16 ms	16 ms
	TÜV, cULus, CE	TÜV, cULus, CE	TÜV, cULus, CE
	non-contact (photoelectric)	non-contact (photoelectric)	non-contact (photoelectric)
	3	4	4
	815 mm	915 mm	1215 mm
	50 m	50 m	50 m
	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded	Emitter: M12x1-Male, A-coded
	Receiver: M12x1-Male, A-coded	Receiver: M12x1-Male, A-coded	Receiver: M12x1-Male
	2x PNP OSSD	2x PNP OSSD	2x PNP OSSD
	35 x 964 x 41.2 mm	35 x 1064 x 41.2 mm	35 x 1364 x 41.2 mm
	-10...55 °C	-10...55 °C	-10...55 °C
	IP65	IP65	IP65
	Aluminum	Aluminum	Aluminum
	Seite 64	Seite 65	Seite 65



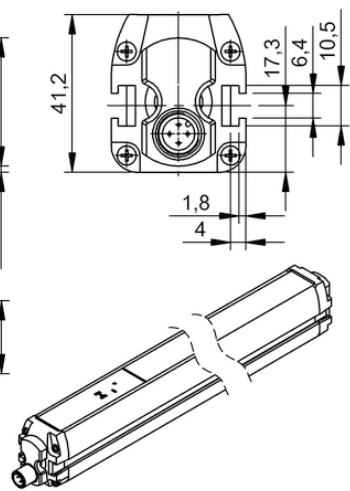
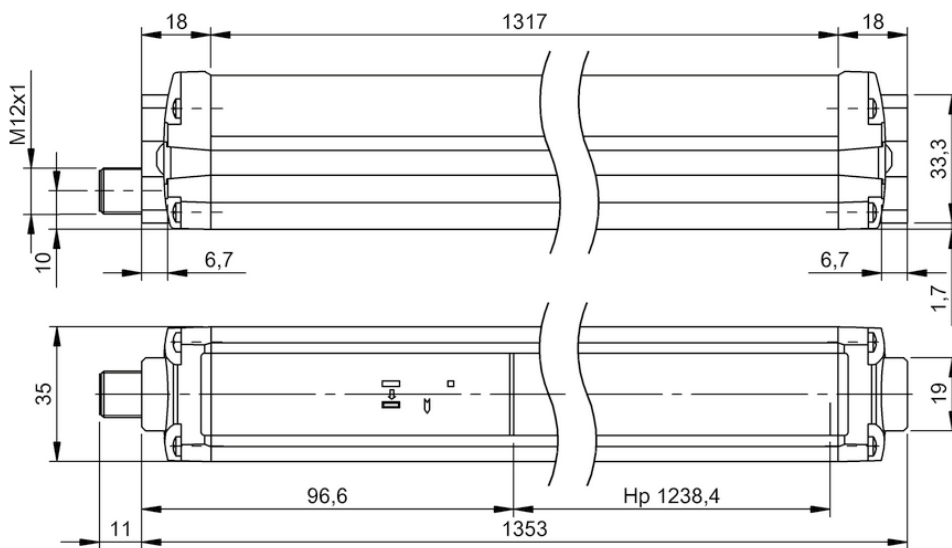
BLG0006



BLG0007



BLG0008



BLG0009

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.

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Safety

Industrial Networking

Software and System Solutions

Power Supply

Connectivity

Accessories



Safety guard locking devices for machines and equipment

SAFETY GUARD LOCKING DEVICES



Interlocking and guard devices from Balluff offer high holding forces of 1000 to 2500 newtons and ensure personal and machine protection. They are suitable for safety applications up to PLe/SIL3 and are an intelligent solution for preventing uncontrolled access to hazardous areas. Our safe interlocking devices feature a high coding level with great anti-tamper protection.

With the different operating principles available from Balluff you can enjoy a wide range of application possibilities. Choose from electromechanical or transponder-coded interlocking devices. It's also good to know that the rugged housings with LED indicator will stand up to harsh environments. This makes selecting the right solution easy.

The most important benefits

- Suitable for safety applications up to PLe/SIL3
- Insensitive to vibration and mechanical play
- Save installation and assembly time and money
- Also suitable for heavy protective equipment
- Manipulation-resistant
- Simple connections using standardized M12 connectivity



	BID0004 BID F101-2M1M3-M02AZ0-S115	
B10d (EN ISO 13849-1)	5 million Switching operations	
Coding level (EN ISO 14119)	low	
Approval/Conformity	CE, TÜV NRTL, TÜV, RoHS	
Operating principle	mechanical - force, contact	
No of contacts	2x positive opening	
Utilization category	AC-15, DC -13	
Approach direction	laterally + above	
Guard locking, principle	yes, spring force (power to unlock)	
Holding force FZH	2500 N	
Auxillary release	key	
Escape release	no	
Life expectancy mechanical	1 mil. switching operations	
Connection	Connector, M12x1 connector, 8-pin	
Dimension	40 x 197.7 x 47.5 mm	
Ambient temperature	0...40 °C	
Protection degree	IP65	
Housing material	Aluminum	
Productview	Seite 70	



	BID0002 BID F101-2M1M3R-M02AZ0-S115	BID0003 BID F101-2M1E3-M02AZ0-S115	BID0001 BID F101-2M1E3R-M02AZ0-S115
	5 million Switching operations	5 million Switching operations	5 million Switching operations
	low	low	low
	CE, TÜV NRTL, TÜV, RoHS	CE, TÜV NRTL, TÜV, RoHS	TÜV NRTL, TÜV, CE, RoHS
	mechanical - force, contact	mechanical - force, contact	mechanical - force, contact
	2x positive opening	2x positive opening	2x positive opening
	AC-15, DC -13	AC-15, DC -13	AC-15, DC -13
	laterally + above	laterally + above	laterally + above
	yes, spring force (power to unlock)	yes, magnetic force (power to lock)	yes, magnetic force (power to lock)
	2500 N	2500 N	2500 N
	key	no	no
	yes	no	yes
	1 mil. switching operations	1 mil. switching operations	1 mil. switching operations
	Connector, M12x1 connector, 8-pin	Connector, M12x1 connector, 8-pin	Connector, M12x1 connector, 8-pin
	40 x 247.7 x 61.3 mm	40 x 197.7 x 44 mm	40 x 247.7 x 61.3 mm
	0...40 °C	0...40 °C	0...40 °C
	IP65	IP65	IP65
	Aluminum	Aluminum	Aluminum
	Seite 70	Seite 71	Seite 71

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Safety

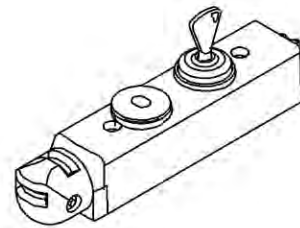
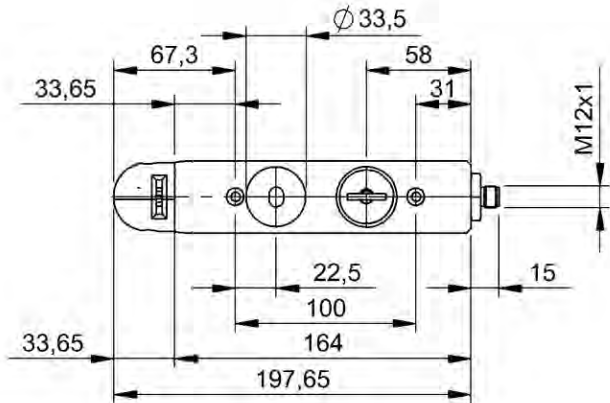
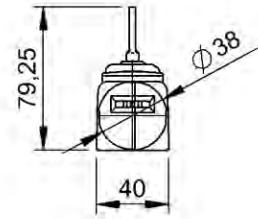
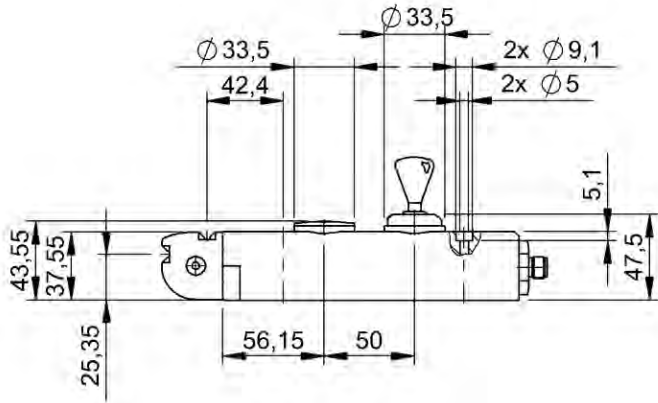
Industrial Networking

Software and
System Solutions

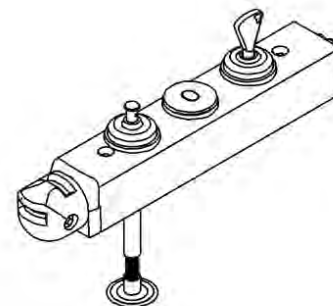
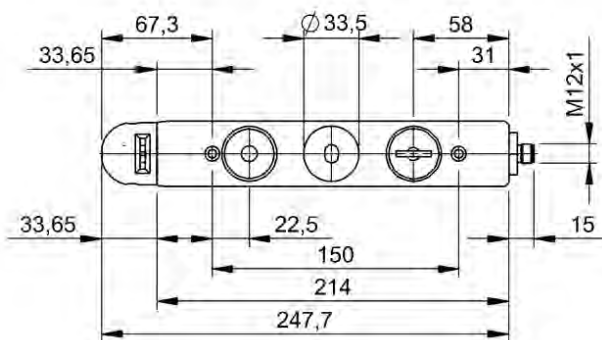
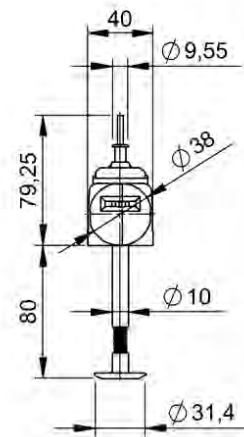
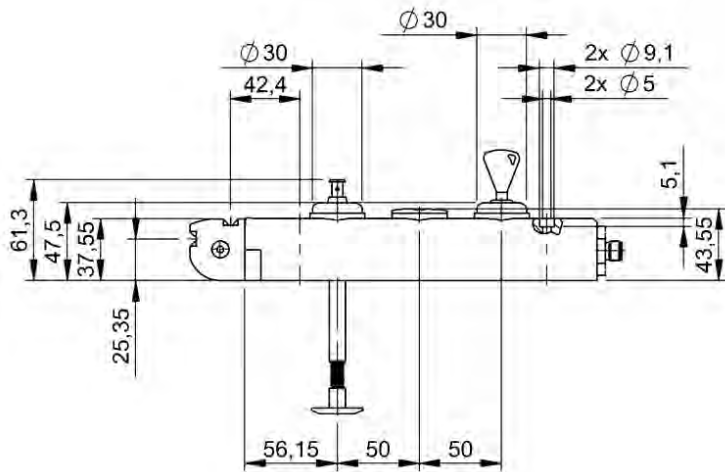
Power Supply

Connectivity

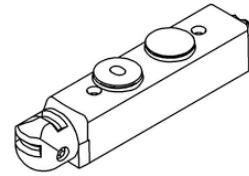
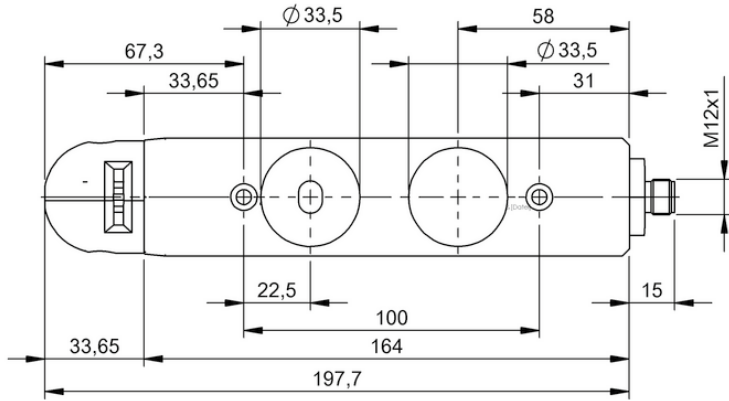
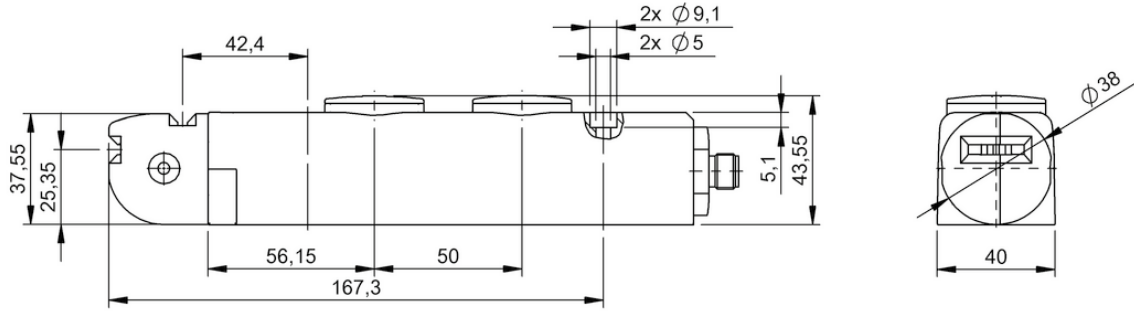
Accessories



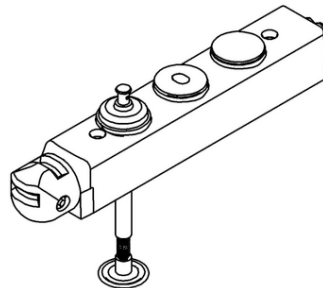
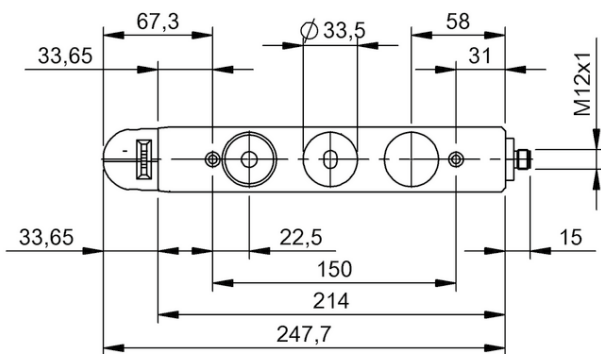
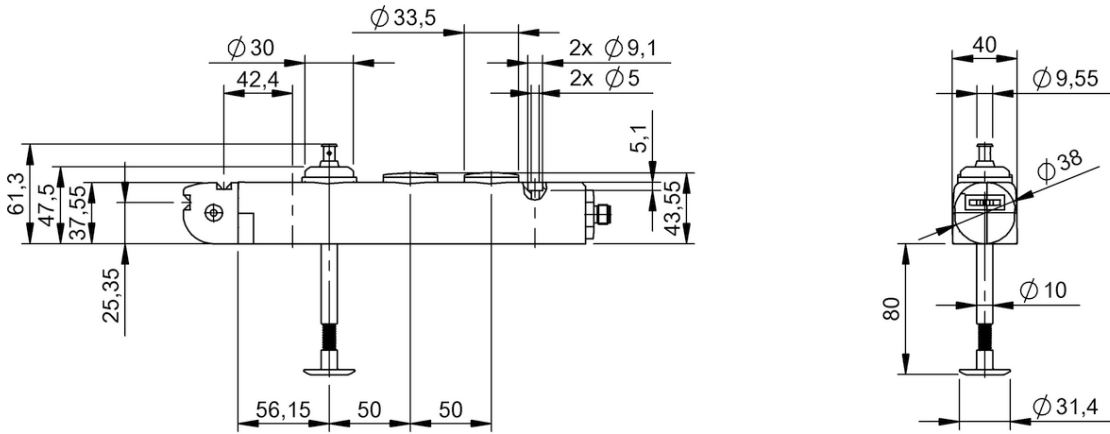
BID0004



BID0002



BID0003



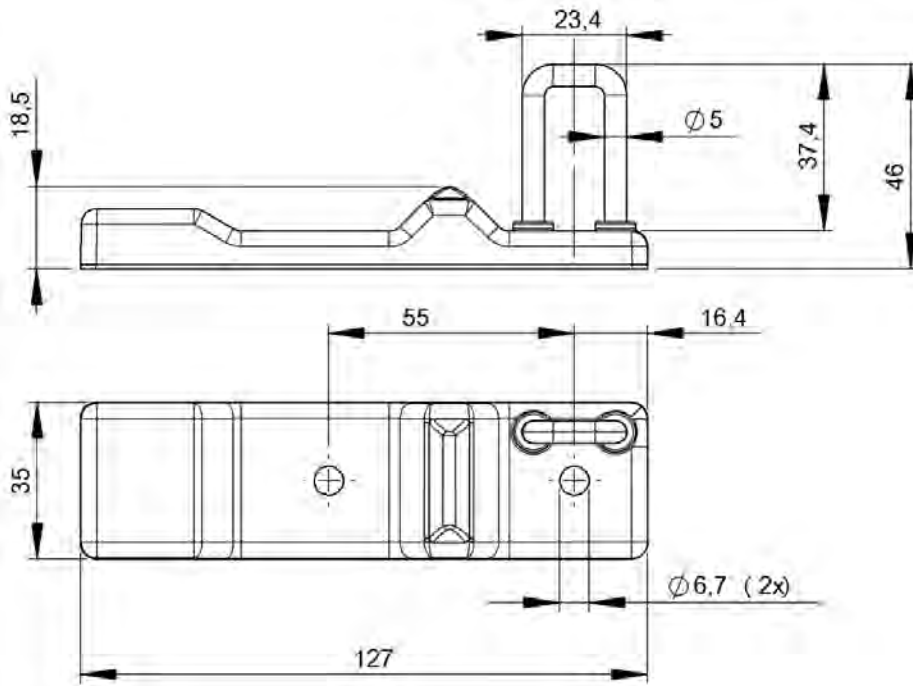
BID0001



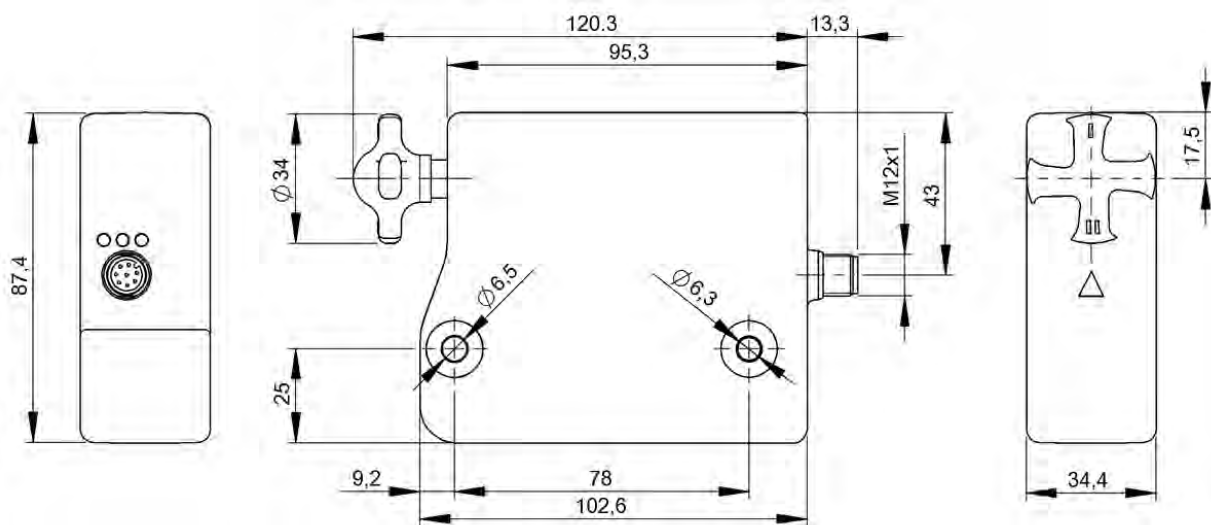
	BID0010 BID Z01K-4R3M0	
Performance Level	—	
Safety category (EN ISO 13849-1)	—	
SIL (IEC 61508)	—	
SIL CL (EN 62061)	—	
Coding level (EN ISO 14119)	—	
Response time max.	—	
Approval/Conformity	Ecolab	
Operating principle	non-contact (RFID)	
Utilization category	—	
Approach direction	—	
Guard locking, principle	—	
Holding force FZH	—	
Auxillary release	—	
Escape release	—	
Life expectancy mechanical	—	
Connection	—	
Switching output	—	
Dimension	46 x 127 x 35 mm	
Ambient temperature	0...60 °C	
Protection degree	—	
Housing material	Thermoplastic, glass-fibre reinforced	
Productview	Page 74	



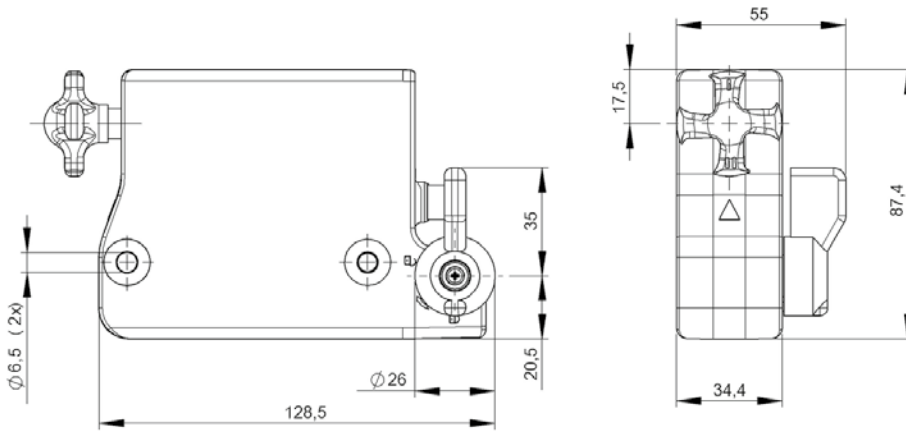
	BID0011 BID Z01K-4R3M3-002KZ0-S115	BID0013 BID Z01K-4R3M3R-002KZ0-S115	BID0012 BID Z01K-4R3E3-002KZ0-S115
	e (for locking function), d (for retention function)	e (for locking function), d (for retention function)	d (for retention function), e (for locking function)
	4 (for locking function), 2 (for retention function)	4 (for locking function), 2 (for retention function)	4 (for locking function), 2 (for retention function)
	3 (for locking function), 2 (for retention function)	3 (for locking function), 2 (for retention function)	3 (for locking function), 2 (for retention function)
	3 (for locking function), 2 (for retention function)	3 (for locking function), 2 (for retention function)	3 (for locking function), 2 (for retention function)
	high	high	high
	100 ms	100 ms	100 ms
	CE, cULus, TÜV, Ecolab	CE, cULus, TÜV, Ecolab	CE, cULus, TÜV, Ecolab
	non-contact (RFID)	non-contact (RFID)	non-contact (RFID)
	DC-12: 24 V/0.25 A, DC-13: 24 V/0.25 A	DC-12: 24 V/0.25 A, DC-13: 24 V/0.25 A	DC-12: 24 V/0.25 A, DC-13: 24 V/0.25 A
	lateral	lateral	lateral
	yes, spring force (power to unlock)	yes, spring force (power to unlock)	yes, magnetic force (power to lock)
	1000 N	1000 N	1000 N
	Screwdriver	Triangular Key	Screwdriver
	no	yes	no
	1 mil. switching operations	1 mil. switching operations	1 mil. switching operations
	Connector, M12x1, 8-pin	Connector, M12x1, 8-pin	Connector, M12x1, 8-pin
	2x PNP OSSD, PNP NC	2x PNP OSSD, PNP NC	2x PNP OSSD, PNP NC
	87.5 x 120 x 35 mm	87.5 x 129 x 35 mm	87.5 x 120 x 35 mm
	0...60 °C	0...60 °C	0...60 °C
	IP69, IP67, IP66	IP69, IP67, IP66	IP69, IP67, IP66
	Thermoplastic, glass-fibre reinforced	Thermoplastic, glass-fibre reinforced	Thermoplastic, glass-fibre reinforced
	Page 74	Page 75	Page 74



BID0010



BID0011, BID0012



BID0013



Quickly stop machines at critical times

SAFETY COMMAND DEVICES



Safe operation of automatic machines and equipment falls under a company's due diligence responsibility. To be sure that in emergency situations machine hazards can be prevented or reduced, safety command devices such as E-Stop or E-Off units must be used. As a supplementary protective measure equipment must always include an E-Stop device – whether during installation, operation or maintenance. And regardless of whether this function is implemented as an E-Off (shuts off power) or an E-Stop (hazardous process or movement is stopped).

The safety command devices must be easy to reach, always available and functional, and should bring the machine to a safe condition immediately. Our highly visible command devices carry out an immediate E-Stop function when there is a malfunction. This makes them ideal for protecting both persons and machines.

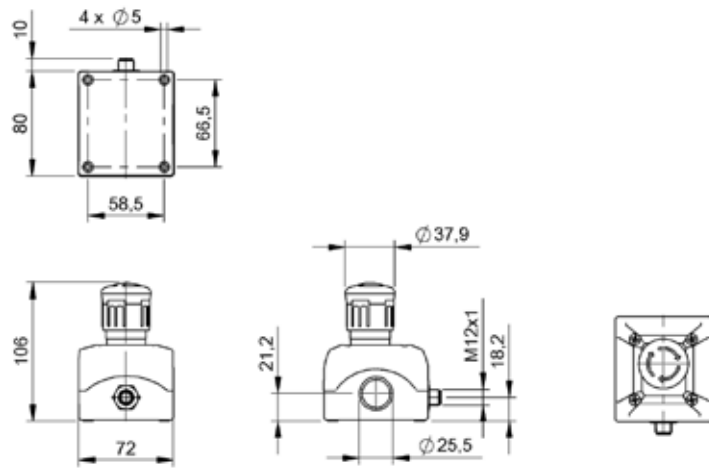
The safety command devices from Balluff feature a compact housing, so that you can install them on various machines, even where space is at a premium. They are also quite easy to install.

The most important benefits

- Reliable disconnection of the power supply
- Positive opening operation compliant with IEC 60947-5-1, Addendum K
- Pluggable connection with M12 (5-pin)
- Turn-to-release mushroom pushbutton
- High degree of protection against dust and water
- Compact housing, easy installation



	BAM02HA BAM ES-XA-01D-01-R01-201-S92
B10d (EN ISO 13849-1)	0.1 million Switching operations
Approval/Conformity	UL CERTIFIED, CE, TÜV
Operating principle	PIM-Export ERROR: Attribute failed
No of contacts	2x positive opening
Utilization category	AC-15, DC -13
Type of release	Turning
Life expectancy mechanical	0.06 million Switching operations
Connection	M12x1-Male, 5-pole, A-coded
Dimension	80 x 106 x 72 mm
Ambient temperature	-25...70 °C
Protection degree	IP65
Housing material	Plastic
Productview	Page 79



BAM02HA

Safety

BASICS AND GLOSSARY





Accessories

Connectivity

Power Supply

Software and
System Solutions

Industrial Networking

Safety

Human Machine
Interfaces

Machine Vision and
Optical Identification

RFID

Sensors

82 | Safety

AOPD	Active opto-electronic protective devices (e.g. light curtains)	DIN EN ISO 13849-1, EN ISO 12 100
AOPDDR	Active opto-electronic protective device responsive to diffuse reflection (e.g. laser scanners)	DIN EN ISO 13849-1, EN ISO 12 100
Open-circuit principle	<p>Using the example of an interlock: when the actuator is plugged in, the current circuit of the safety contacts is closed when the solenoid is energized, causing the device to lock. If the voltage is eliminated from the solenoid, the safety contacts are opened and the locking mechanism is released.</p> <p>See also "Closed-circuit principle"</p>	
Failure	The inability of a unit to fulfill a required function	DIN EN ISO 13849-1, EN ISO 12 100
β	Is the common cause failure factor for undetectable dangerous faults λ_{DU}	IEC 62061
B_{10d}	Number of cycles until 10 % of the components fail dangerously	DIN EN ISO 13849-1
Construction types (of interlocks)	<p>Type 1: Interlock with mechanically actuated position switch with non-coded actuator (e.g. interlock with hinge)</p> <p>Type 2: Interlock with mechanically actuated position switch with coded actuator (e.g. tongue actuated position switches)</p> <p>Type 3: Interlock with non-contract actuated position switch with non-coded actuator (e.g. proximity switches)</p> <p>Type 4: Interlock with non-contract actuated position switch with coded actuator (e.g. RFID transponder actuated position switches)</p>	DIN EN ISO 14119
User information (illustrative safety)	All of the information required for safe and proper use of the machine. It informs the user of the residual risk and warn him of it.	EN 12100

ESPE	Electro-sensitive protective equipment	EN 61496
CCF	Common cause failure, a specific type of dependent failure where several failures result from a single shared cause.	DIN EN ISO 13849-1
CE marking	Indication from the manufacturer, distributor or EU-Representative that declares a product in compliance with EU regulation 765/2008, meaning the product meets the prevailing requirements as specified in the harmonization legislation of the Union regarding its affixing.	EU regulation 765/2008, EU regulation 765/2008
Coding	Connectors are designed to be reverse polarity protected.	DIN EN ISO 13849-1, IEC 62061, IEC 61508-2:2000
Coding levels (of interlocks)	The coding of actuators/tags is intended to prevent the interlocking device to be defeated using easily available means. Low coding = 1 to 9 different codes Medium coding = 10 to 1000 different codes High coding = > 1000 different codes	EN ISO 14119
CRC	Cyclic redundancy check, procedure for determining a check value for data in order to detect errors in transmission or saving.	
DC	Diagnostic coverage indicator of the probability that the errors will be revealed by means of a test. Safety systems must be tested so that one knows whether they still function. The diagnostic coverage depends on the quality of the test. Poor tests cover only a few, whereas good tests cover many or even all errors. $DC = \frac{\sum \lambda_{dd}}{\lambda_{dtotal}}$	DIN EN ISO 13855
DCavg	Average diagnostic coverage DC: Measure of the effectiveness of the diagnostics, which can be determined as the ratio of the failure rate of the detected hazardous fault and the fault rate of the total dangerous failures.	DIN EN ISO 13849-1
Diversity	Having multiple means for performing a required function. Diversity-redundant systems can increase reliability.	DIN EN 61508-4, VDE 0803-4

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Safety

Industrial Networking

Software and
System Solutions

Power Supply

Connectivity

Accessories

84 | Safety

E/E/PES	Functional safety of electrical/electronic/programmable electronic safety-related systems	DIN EN 61508
EDM	Monitoring of controlled actuators, feedback circuit	
Supplementary protective measures (indirect safety) (indirect safety measures)	Standards that must be taken to protect persons from hazards which cannot be sufficiently prevented or where the risks cannot be sufficiently limited.	EN 12100
Broken spring	A failure in a mechanical switching element that can result in a malfunction.	
Error	Condition of a unit characterized by its inability to perform a required function. Not to be confused with "tampering"	DIN EN ISO 13849-1, EN ISO 12100
FIT	Failure in time: A singular failure per 10 ⁹ hours, or one failure per 114,000 years.	DIN EN ISO 13849-1
Escape release	Ability for manual unlocking of the interlocking device without aid from inside the protected area in order to exit this area.	DIN EN ISO 14119
FMEA	Failure mode effects analysis	DIN EN ISO 13849-1, EN ISO 12100
Functional safety	The part of overall safety which depends on the correct function of the E/E/PE safety related system for risk reduction	DIN EN 61508-4 VDE 0803-4
Hazard/risk	Potential source of damage	DIN EN ISO 13849-1
Hazardous area (risk area)	Any area in a machine and/or around a machine in which a person can be subjected to a hazard.	EN ISO 12100
Strict liability	The liability for damages resulting from a permissible risk (e.g. operation of a hazardous device, keeping of a house pet). Strict liability does not depend on the illegality of the action or on the fault of the injuring party.	§§ 1, 10 ProdHaftG – Manufacturer of a (defective) product

Device types	<p>Devices which are evaluated as a system first by the design process of the user are Device Type 2 or 3. Type 1 or Type 4 have been developed directly for use in a safety function.</p> <p>Device Type 1: Devices are ready to use safety devices with integrated diagnostics. These are already classified as SIL or PL. Examples: Safety light curtain, safety light grid, components for safety controllers, safe drives/drive functions, safety switching devices</p> <p>Device Type 2: Devices where the user must himself evaluate the device in terms of its safety. This requires additional application data (circuit structure, DC, CCF). Examples: Non-safe electronics, e.g. operational amplifier, proximity switch, pressure sensor, hydraulic valve</p> <p>Device Type 3: Devices are subject to wear. The user must provide additional application data for evaluating the safety function (switching frequency, actuation frequency, circuit structure, DC, CCF). Examples: Wear-prone electro-mechanical components, including power contactors, switches, pneumatic valves, interlocking devices, command devices</p> <p>Device Type 4: A special case of Device Type 1. For Device Type 4 the probability of a dangerous failure per hour PFHD = 0. The fault is either precluded or the fault always results in a safe state.</p>	<p>EN 62061, VDMA 66413 standard sheet</p>
GSD file	<p>General station description, a file which describes the features of a device type uniquely and fully in an exactly specified format. The GSD is generated individually for each device type by the manufacturer and provided to the user as a file for designing Profinet systems.</p>	
GSDML	<p>GSD Markup Language is a language for describing Profinet IO field devices.</p> <p>See also "GSD file"</p>	
HFT	<p>Hardware fault tolerance: Ability to still perform a required function in the presence of errors or failures</p>	<p>DIN EN 62061, VDE0113-50</p>
Auxiliary Release	<p>The manual unlocking of the interlocking device using a tool or key from outside the protected area in case of a malfunction. An interlocking device with auxiliary release is not suitable for emergency release or escape release of the interlocking device.</p>	<p>DIN EN ISO 14119</p>

Inherent safety	Direct intrinsic safety: A design that prevents hazards or reduces risks through suitable selection of design features of the machine itself.	EN 12100
Placing on the market	Includes the responsibility if a distributed product does not comply with the relevant regulations.	MaschRL 2006/42/EG Article 5
IODD Checker	A tool that tool checks not only the schema conformity, but also all the rules of the IODD specification which cannot be checked using an XML schema.	EN 12100
IODD	IO device description concerning sensors and actuators in an IO-Link network. It contains information for identification, device parameters, process and diagnostics data, communication properties and the structure of the user interface in engineering tools.	ISO 15745
IO-Link	IO-Link is the standardized IO technology for communicating with sensors and actuators. IO-Link is not a fieldbus, but rather a point-to-point communication based on the long-familiar 3-conductor sensor and actuator connection.	IEC 61131-9
Iterative process	A process of repetition of the same or similar actions for approaching a solution or particular goal.	DIN EN ISO 13849-1
Category [Cat.]	Categorization of the safety-related parts of a controller with respect to their resistance to errors and their behavior following an error. Categories are based on the structure of the arrangement of the parts, the error detection and/or their reliability.	IEC 61131-9
Conformity	Declaration by the manufacturer that the distributed machine complies with all the relevant safety and health requirements.	MaschRL 2006/42/EG Article 7/12

λ (lambda)	Failure rate in [FIT] = 10^{-9} 1/h	IEC 62061
λ_d	Failure rate in the unsafe (hazardous) direction	IEC 62061
λ_{dd}	Failure rate in the unsafe (hazardous) direction; the failure is however detected through diagnostic means before it can have a hazardous effect.	IEC 62061
λ_{du}	Failure rate in the unsafe (hazardous) direction; the failure is not detected	IEC 62061
λ_s (also: λ_{safe})	Failure rate in the safe direction	IEC 62061
Tampering	Intentional defeating or by-passing of protective devices and their components	Addendum 1 No. 2.8 BetrSichV
MTTFd	Mean time to failure: Expected value of the average time until a dangerous failure	DIN EN ISO 13849-1
MTTR	Mean time to repair	
Muting	Temporary automatic suppression of one or more safety functions by the SRP/CS	DIN EN ISO 13849-1
NC	Normally closed contact	
NO	Normally open contact	
Emergency unlocking	Ability for manual unlocking of the interlocking device in emergency cases without aids from outside the protected area. An interlocking device with emergency unlocking can for example be required for freeing enclosed persons or for fire fighting.	

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Safety

Industrial Networking

Software and System Solutions

Power Supply

Connectivity

Accessories

88 | Safety

OSSD	Output Signal switching device	EN 61496-1
PDDB (formerly PDF)	Proximity switch with defined behavior under fault conditions	DIN EN 60947-5-3:2014-12, VDE 0660-214:2014-12
PL	Performance level: Discrete level which specifies the capability of safety-relevant parts of a controller for performing a safety function under predictable conditions	DIN EN ISO 13849-1
Personal protection	Use of an interlocking device for protecting a person from a hazard. (See also "Process protection")	
PFD	Probability of failure on demand	EN IEC 61 508-1/-7:2001
PFD(T)	Probability of a hazardous failure on demand at time T. (T generally refers to the proof test interval)	
PFDav	Average probability of failure on demand	
PFH	Probability of (dangerous) failure per hour	
PFHd	Probability of a dangerous failure per hour of a safety system or sub-system	DIN EN 62061, VDE 0113-50
PIPD	Passive infrared protective device	
Product liability	Liability for damages compensation on the part of the manufacturer for damages to the end user resulting from a defective product	§4 Par. 1 Sentence 1 ProduktHaftG
Profisafe	How safety devices (E-Stop buttons, light grids, overfill prevention systems etc.) safely communicate with safety controllers over Profibus.	

Process protection	Use of an interlocking device for protection against interruption of the work process. See also "Personal protection"	DIN EN 62061, VDE 0113-50
PTE	Probability of transmission error: Probability of a hazardous transmission error	EN 61508, EN 62061
RDF	Ratio of dangerous failures (= $\lambda D/\lambda$)	VDMA 66413 standard sheet
Response time (for devices)	Time between action and reaction Example for safe I/O module: – Time between detection of a (state) change on the input port and the availability of this information on the communication interface (IO-Link) – Time between detection of new information on the communication interface (IO-Link) and its implementation on the output port	EN 61508, EN 62061
Redundancy	Reproducing critical components or functions of a system in order to increase reliability	IEC 61784-3
Residual risk	Risk remaining after protective measures have been taken	DIN EN ISO 13849-1, ISO 12100
Risk analysis	Combination of determining the limits of the machine, identifying the risk, and risk assessment	DIN EN ISO 13849-1, EN ISO 12100
Risk assessment	Totality of the process which includes a risk analysis and risk assessment	DIN EN ISO 13849-1, EN ISO 12100
	Assessment based on the risk analysis as to whether the goals for risk reduction were achieved	DIN EN ISO 13849-1, EN ISO 12100
Risk estimation	Determination of the probable extent of damage and probability of its occurrence	EN ISO 12100-1, DIN EN 1050

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Safety

Industrial Networking

Software and System Solutions

Power Supply

Connectivity

Accessories

90 | Safety

Risk graph	Means for classifying risk. Determines which PL or SIL results from a given case. Factors include severity of the injury, frequency and/or duration of exposure to the hazard, and possibilities for preventing the hazard	DIN EN ISO 13849-1, DIN EN 62061
Closed-circuit principle	Using the example of an interlock: when the actuator is plugged in the current circuit of the safety contacts is closed when the solenoid is energized, so that the device locks. The principle of circuit design where a normally energized electric circuit which, on being interrupted or deenergized, will cause the controlled function to assume its most restrictive condition. See also "Open-circuit principle"	
Safe stop 1 SS1	Corresponds to Stop Category 1 pursuant to IEC 60204. See also "Stop category"	IEC 60204-1
Safe stop 2 SS2	Corresponds to Stop Category 2 pursuant to IEC 60204. See also "Stop category"	IEC 60204-1
Safe torque OFF STO	Corresponds to Stop Category 0 pursuant to IEC 60204. See also "Stop category"	IEC 60204-1
Damage	Physical injury and/or damage too health or objects	DIN EN ISO 13849-1, DIN EN 61508-4, VDE 0803-4
Protection devices	Protective device or guard for protecting persons from possible dangers of a machine.	EN ISO 12100
Protection field	Area in which a specified test body is detected by the protective device	DIN EN ISO 13855
Protective measure	Measure which provides for risk reduction	DIN EN 62061, VDE 0113-50
SFF	Safe failure fraction: Fraction of the total failure rate of a sub-system which results in a non-dangerous failure	DIN EN 61508-4, VDE 0803-4, DIN EN 62061, VDE 0113-50

Safety function	Function of a machine whereby a failure of the function can result in an increased risk (or risks)	DIN EN ISO 13849-1, EN ISO 12100
SIL	Safety integrity level discrete level for specifying the safety integrity of the safety functions, whereby SIL 4 represents the highest level and SIL 1 the lowest level.	EN 61508
SIL CL	SIL claim limit (of a sub-system)	EN 62061
Simatic	Product family name of the Siemens company. It is used for products in automation technology, control technology and the manufacturing execution level.	
SRCF	Safety-relevant control function	EN 62061
SRECS	Safety-relevant electrical control system	EN 62061
SRP/CS	Safety-relevant part of a controller which responds to safety-relevant input signals and generates safety-relevant output signals	DIN EN ISO 13849-1
SRS	Safety requirements specification	
Stop category	<p>Stop category 0: Bringing to a stop by immediately interrupting power to the machine drive elements (i.e. an uncontrolled stop)</p> <p>Stop category 1: Controlled stopping, where the power to the machine drive elements is retained in order to cause stopping. The power is only interrupted when stop is achieved.</p> <p>Stop category 1b: Controlled stopping, where the power to the machine drive elements is maintained in order to cause stopping. Continuity of the stop condition is monitored, and when a failure is detected power is interrupted without generating a hazardous situation.</p> <p>Stop category 2: Controlled stopping, where power to the machine drive elements is maintained</p>	IEC 60204-1

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Safety

Industrial Networking

Software and System Solutions

Power Supply

Connectivity

Accessories

TCI	Tool calling interface: Software for enabling communication over Profibus DP or Profinet IO	
TD	Diagnostic test interval: Time between online tests for uncovering errors in a safety-relevant system with a specified diagnostic coverage degree.	DIN EN 61508-4
TIA	Totally integrated automation: Software framework for the entire automation software. The TIA portal is the successor to the traditional STEP 7	
TM	Mission time: Time which covers the specified use of the SRP/CS	DIN EN ISO 13849-1
TS	Sub-system	DIN EN 62061
TSE	Sub-system element	DIN EN 62062
By-passing	An action by means of which the interlocking device can be disabled or by passed such that a machine can no longer be used as intended by the designer or only without the required safety measured.	DGUV
Validation	German Social Accident Insurance, ensures that a product provides the required results. See also "Verification"	DIN EN 61508-4, VDE 0803-4 PMBOK
Verification	Confirmation that a product meets the requirements. See also "Validation"	DIN EN 61508-4, VDE 0803-4 PMBOK
Interlock(ing device)	Mechanical, electrical, or other type of device meant to prevent dangerous machine functions under defined conditions (in general as long as the isolating protection device is not closed). See also "Construction types [of interlocking devices]"	DIN EN ISO 14119

Fault-based liability	The obligation for damages replacement based on legal liability provisions under private law which presume a culpable, i.e. not only objective illegal, but rather personally attributable behavior which is intentional or negligent.	§§ 823 ff BGB
Guard locking device	Device whose purpose is to keep a separating protective device in the closed position and which is connected to the controller.	DIN EN ISO 14119
Reliability	The ability of an object to perform a particular function under particular conditions over a specified time interval	IEC 60050
Positive opening contacts	Contacts in a relay/contactor which are mechanically connected to each other such that normally open and normally closed can never be in the same position at the same time.	IEC EN 60947-5-1, Addendum L
Positive opening	Assurance of contact separation as a direct result of a specified movement of the operating component of the switch over non-sprung parts.	DIN EN 60947-5-1, Addendum K

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Safety

Industrial Networking

Software and System Solutions

Power Supply

Connectivity

Accessories

Reliable information exchange across all levels

INDUSTRIAL NETWORKING



innovating automation



The demands on industrial networking continually increase. The rising quantities of data and ever more complex communication require high-performance components that can reliably transport the information across all levels. This is especially true if high protection types, robustness, use at high temperatures or special interfaces and connections for maximum security are needed.

With the intelligent combination of high-performance industrial networking technology and the IO-Link communication standard, Balluff makes flexible and smooth communication in the most varied application scenarios possible.

Your Balluff solutions

- Network modules
- I/O modules
- Switches
- Memory modules
- Inductive couplers

INDUSTRIAL NETWORKING



98

NETWORK BLOCKS

- 100 Profinet
- 106 Profibus
- 110 CC-Link IE/Field
- 114 CC-Link IE-Field Basic
- 116 CC-Link
- 120 Ethernet/IP
- 130 Devicenet



138

SWITCHES

- 140 Unmanaged switches



144

I/O MODULES

- 146 IO-Link sensor/actuator hubs
- 176 IO-Link valve interface
- 182 Universal IO-Link interfaces



186

INDUCTIVE COUPLERS

- 188 IO-Link signal transmission
- 194 Signal transmission
- 204 Power supply



208

**BASICS AND
GLOSSARY**

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine Inter-
faces

Safety

Industrial Networking

Software and
System Solutions

Power Supply

Connectivity

Accessories



Extraordinary parameter settings and
diagnostics capabilities

NETWORK BLOCKS



Balluff has developed a new generation of network modules for perfect linking of sensors and actuators. The system features highly versatile parameter settings and diagnostics possibilities that can be carried out via display, LEDs and an integrated Web server.

The status LEDs on the modules are large, bright and easy to read and interpret. This saves you time in setup, maintenance or troubleshooting. With an output current of up to 2 A, the Balluff network modules are capable of driving almost any load. Each output also offers overload protection with LED indicator and a memory feature for easy troubleshooting. The rugged, full-jacket enclosure also withstands high mechanical loads.

Features

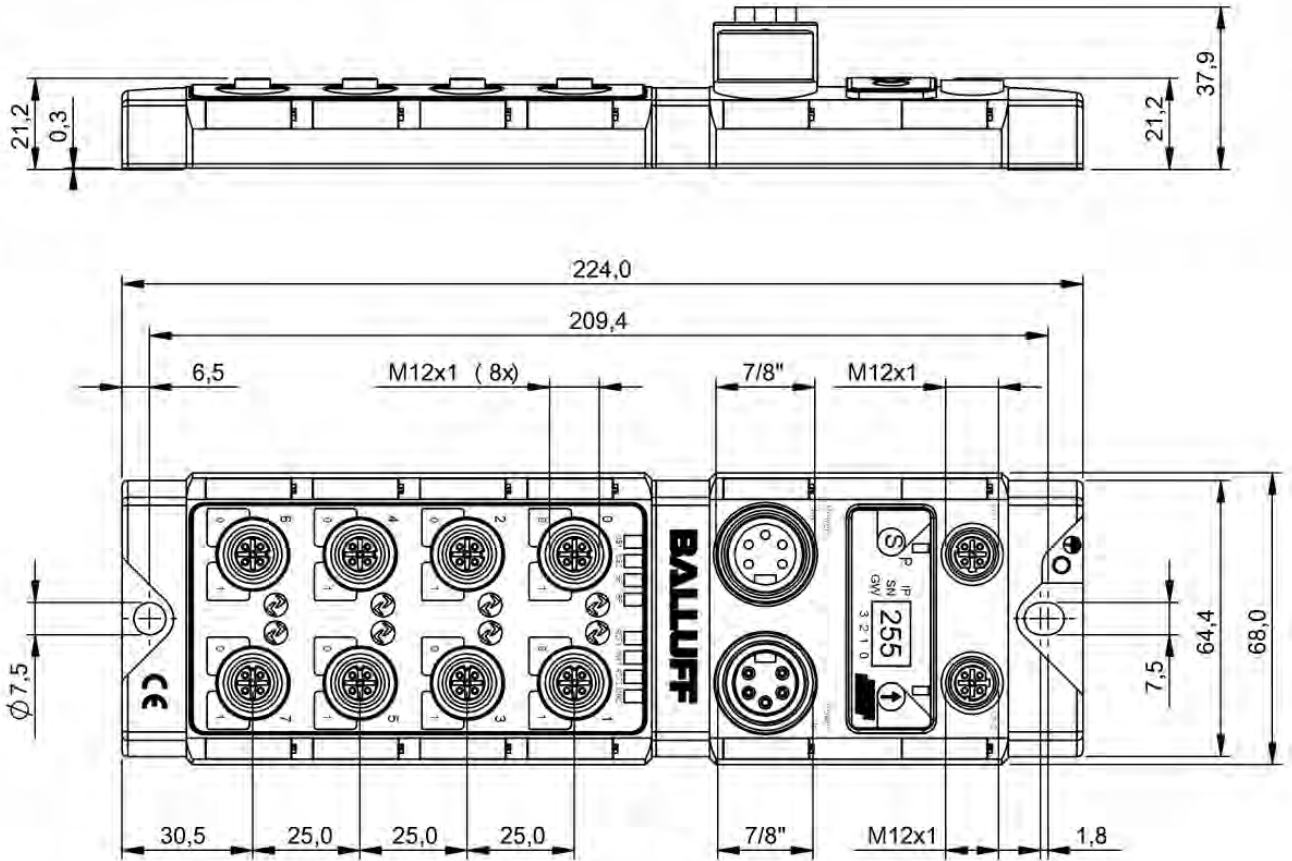
- High performance in all networks
- Faster, simpler connection
- Reliable even in harsh environments, shock and vibration resistant
- IP67 design and rugged full-jacket enclosure
- Integrated Web server
- Line topology construction



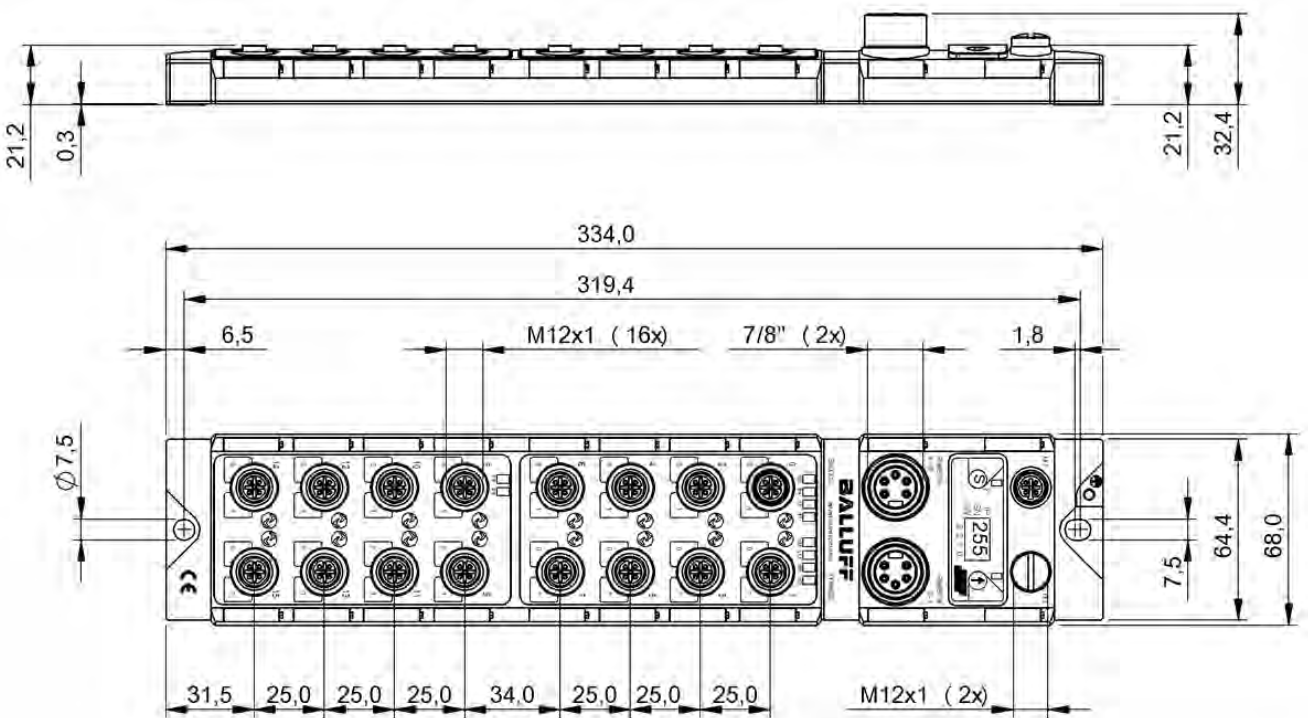
	BNI005H BNI PNT-508-105-Z015	BNI007M BNI PNT-509-105-Z033	BNI004U BNI PNT-502-105-Z015	
Interface	Profinet I/O	Profinet I/O	Profinet I/O	
Fast Start-Up (FSU)	yes	yes	yes	
Operating voltage U _b	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	
Connection (COM 1)	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	
Connection (COM 2)	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	
Connection (supply voltage IN)	7/8"-Male, 5-pin	7/8"-Male, 5-pin	7/8"-Male, 5-pin	
Connection (supply voltage OUT)	7/8"-Female, 5-pin	—	7/8"-Female, 5-pin	
Connection slots	8x M12x1-Female, 5-pin, A-coded	16x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	
Digital inputs	16x PNP, Type 3	32x PNP, Type 3	16x PNP, Type 3	
Digital outputs	16x PNP	32x PNP	16x PNP	
Configurable inputs/outputs	yes	yes	yes	
Output current max.	2 A	2 A	2 A	
Current sum US, sensor	9.0 A	9.0 A	9.0 A	
Current sum UA, actuator	9.0 A	9.0 A	9.0 A	
Housing material	Zinc, Die casting	Zinc, Die casting	Zinc, Die casting	
Dimension	68 x 37.9 x 224 mm	68 x 37.9 x 334 mm	68 x 37.9 x 224 mm	
Ambient temperature	-5...70 °C	-5...70 °C	-5...70 °C	
IP rating	IP67	IP67	IP67	
Auxiliary interfaces	8x IO-Link	8x IO-Link 8x IO-Link	4x IO-Link	
IO-Link version	1.1	1.1	1.1	
Port-class	Type A	Type A	Type A	
Productview	Seite 102	Seite 102	Seite 103	



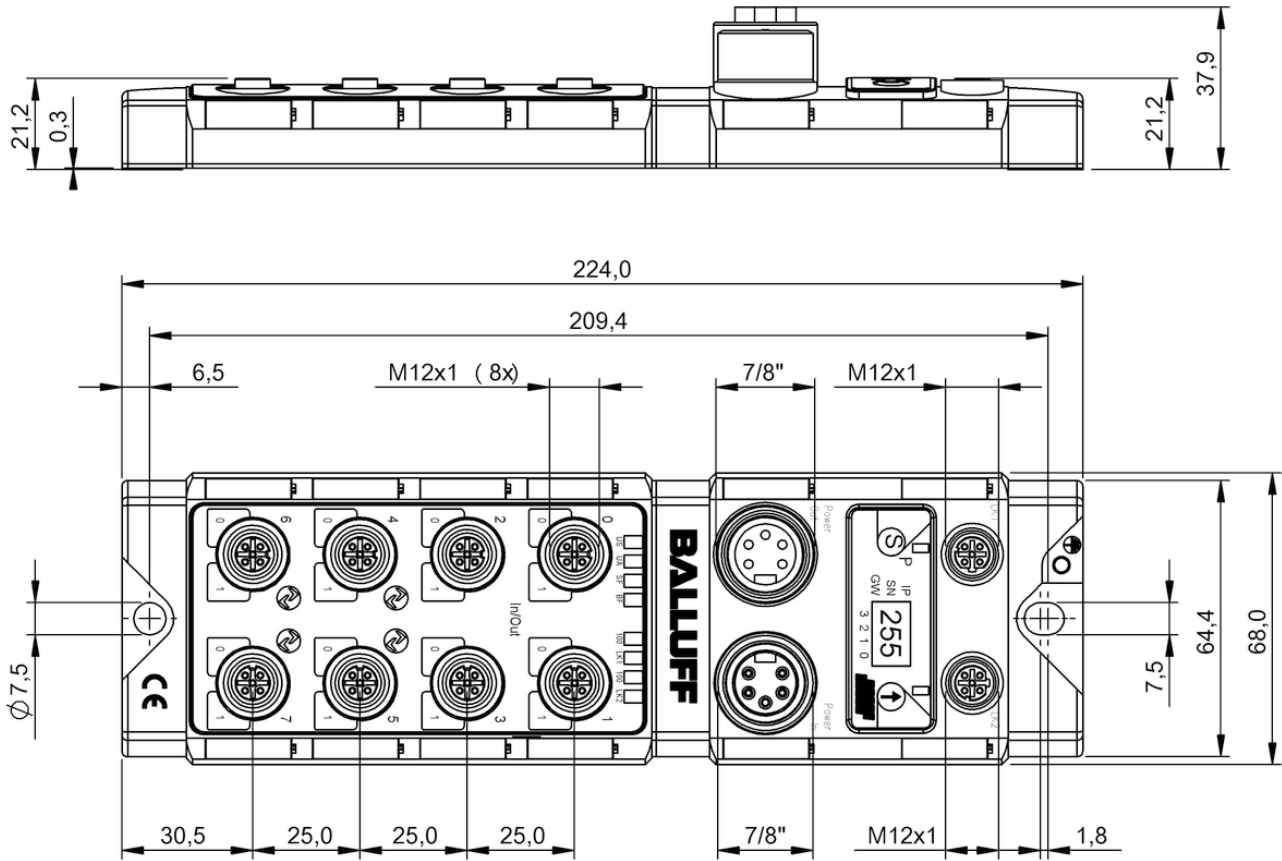
	BNI006C BNI PNT-502-102-Z015	BNI0092 BNI PNT-507-005-Z040	BNI00A9 BNI PNT-527-005-Z040	BNI0052 BNI PNT-302-105-Z015	BNI0053 BNI PNT-104-105-Z015
	Profinet I/O	Profinet I/O	Profinet I/O	Profinet I/O	Profinet I/O
	yes	yes	yes	yes	yes
	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC
	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded
	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded
	7/8"-Male, 5-pin	7/8"-Male, 5-pin	7/8"-Male, 5-pin	7/8"-Male, 5-pin	7/8"-Male, 5-pin
	7/8"-Female, 5-pin	—	—	7/8"-Female, 5-pin	7/8"-Female, 5-pin
	8x M12x1-Female, 5-pin, A-coded	4x M12x1-Female, 5-pin, A-coded	4x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded
	16x PNP, Type 3	8x PNP, Type 3	4x PNP, Type 3	16x PNP, Type 2	16x PNP, Type 2
	16x PNP	8x PNP	—	16x PNP	—
	yes	yes	no	yes	no
	2 A	2 A	—	2 A	—
	9.0 A	9.0 A	9.0 A	9.0 A	9.0 A
	9.0 A	9.0 A	9.0 A	9.0 A	—
	Zinc, Die casting	Zinc, Die casting	Zinc, Die casting	Zinc, Die casting	Zinc, Die casting
	68 x 37.9 x 224 mm	37 x 32.6 x 224 mm	37 x 32.6 x 224 mm	68 x 37.9 x 224 mm	68 x 37.9 x 224 mm
	-5...70 °C	-40...70 °C	-40...70 °C	-5...70 °C	-5...70 °C
	IP67	IP67	IP67	IP67	IP67
	4x IO-Link	4x IO-Link	4x IO-Link	—	—
	1.1	1.1	1.1	—	—
	Type A	Type A	Type B	—	—
	Seite 103	Seite 104	Seite 104	Seite 105	Seite 105



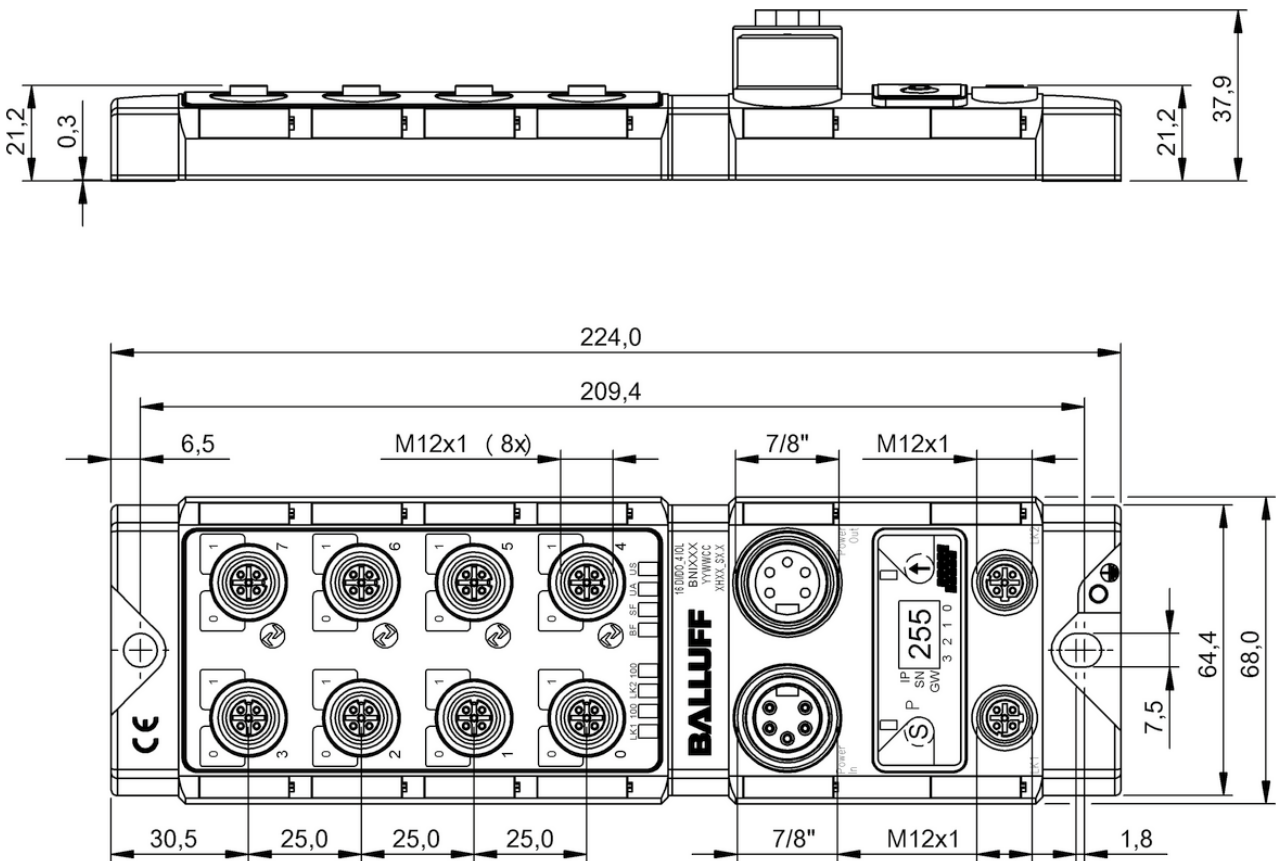
BNI005H



BNI007M

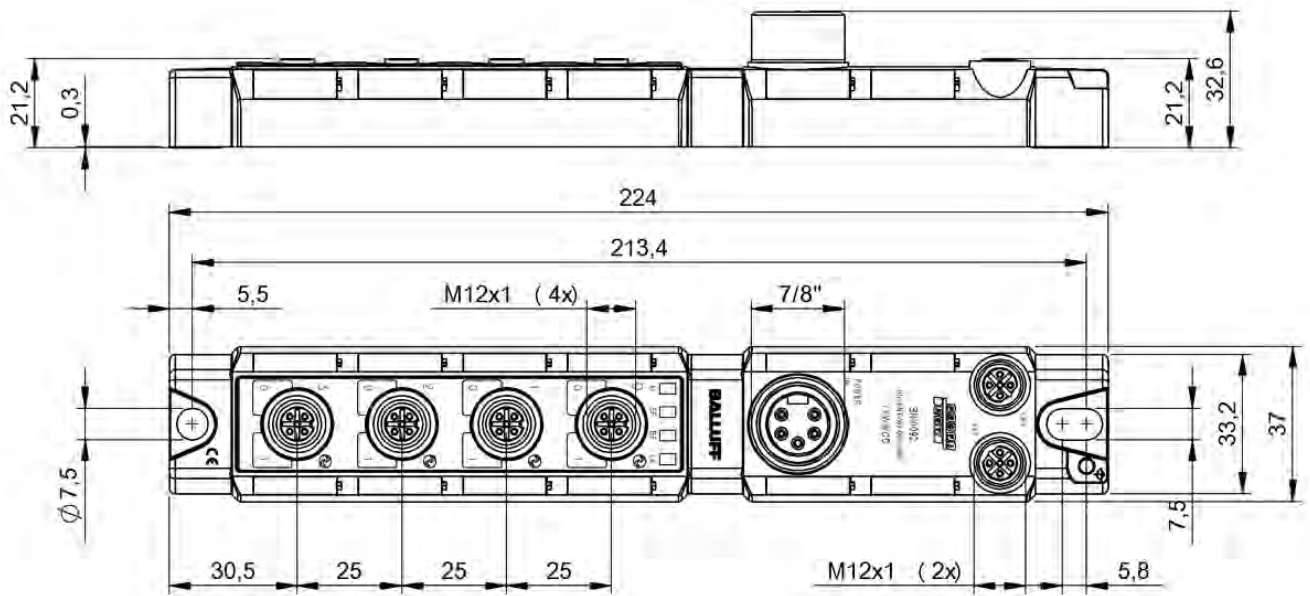


BNI004U

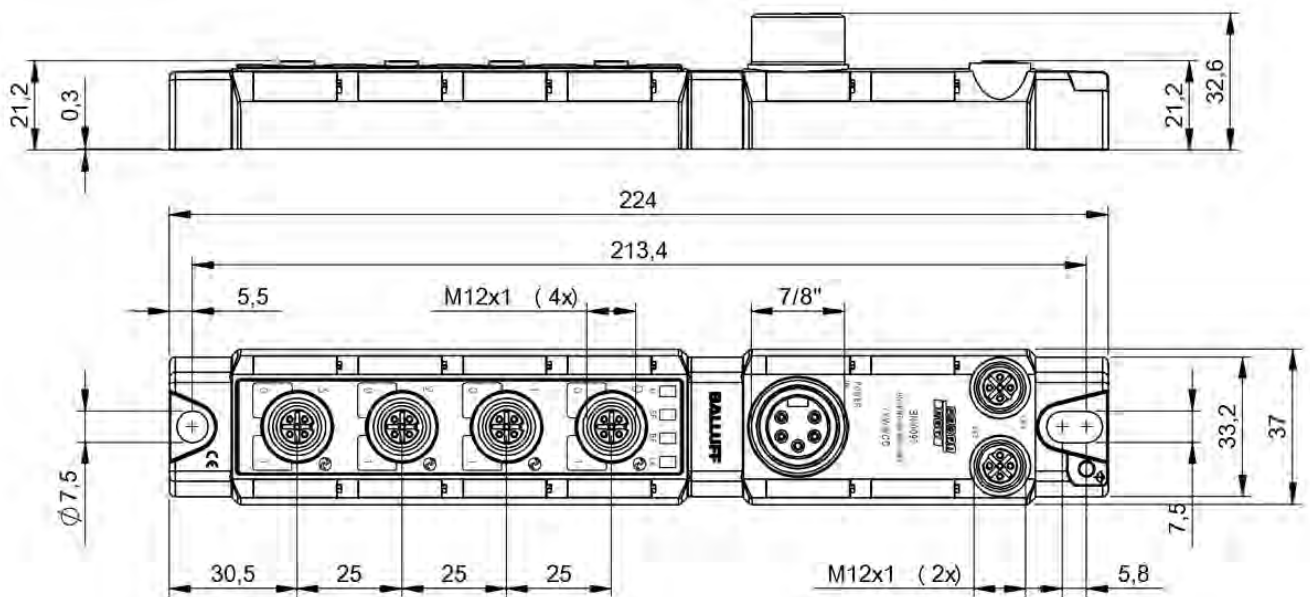


BNI006C

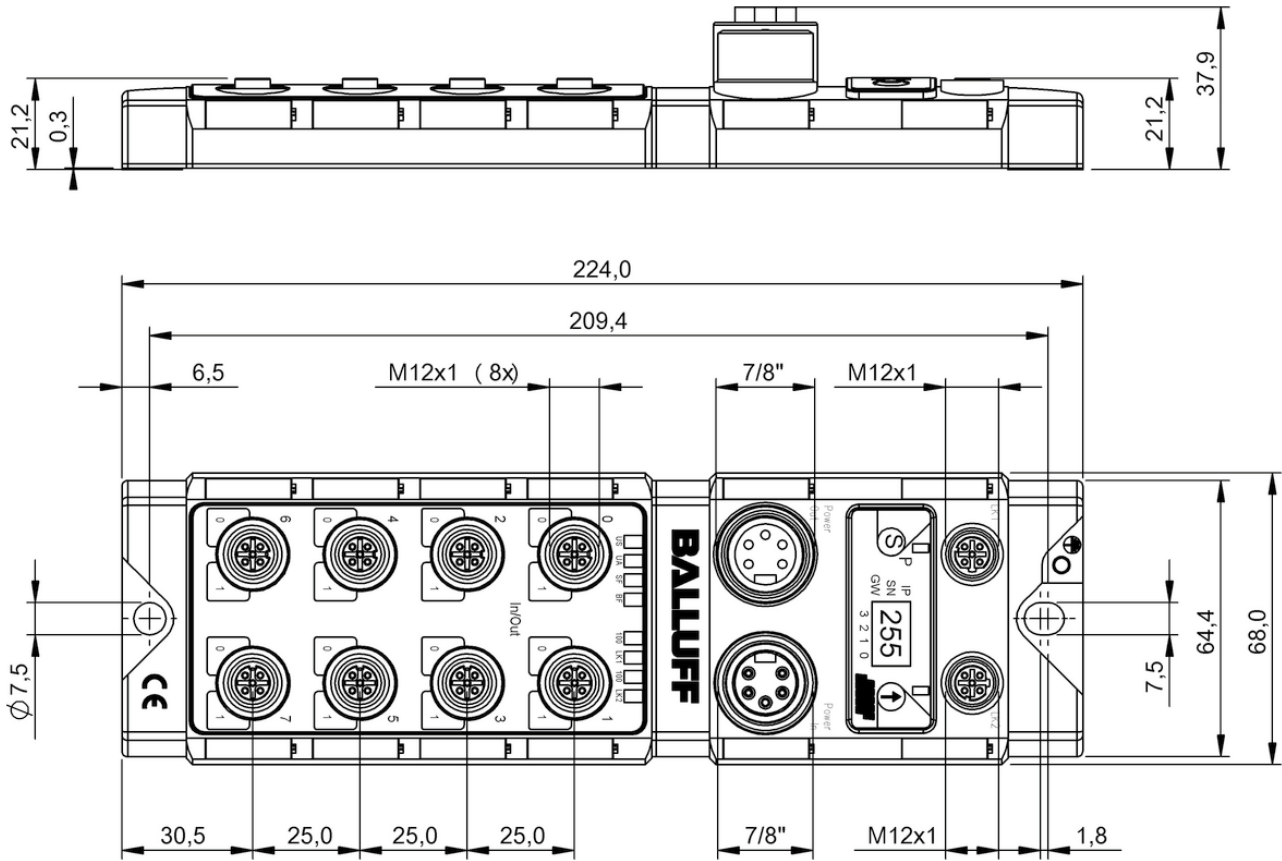
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



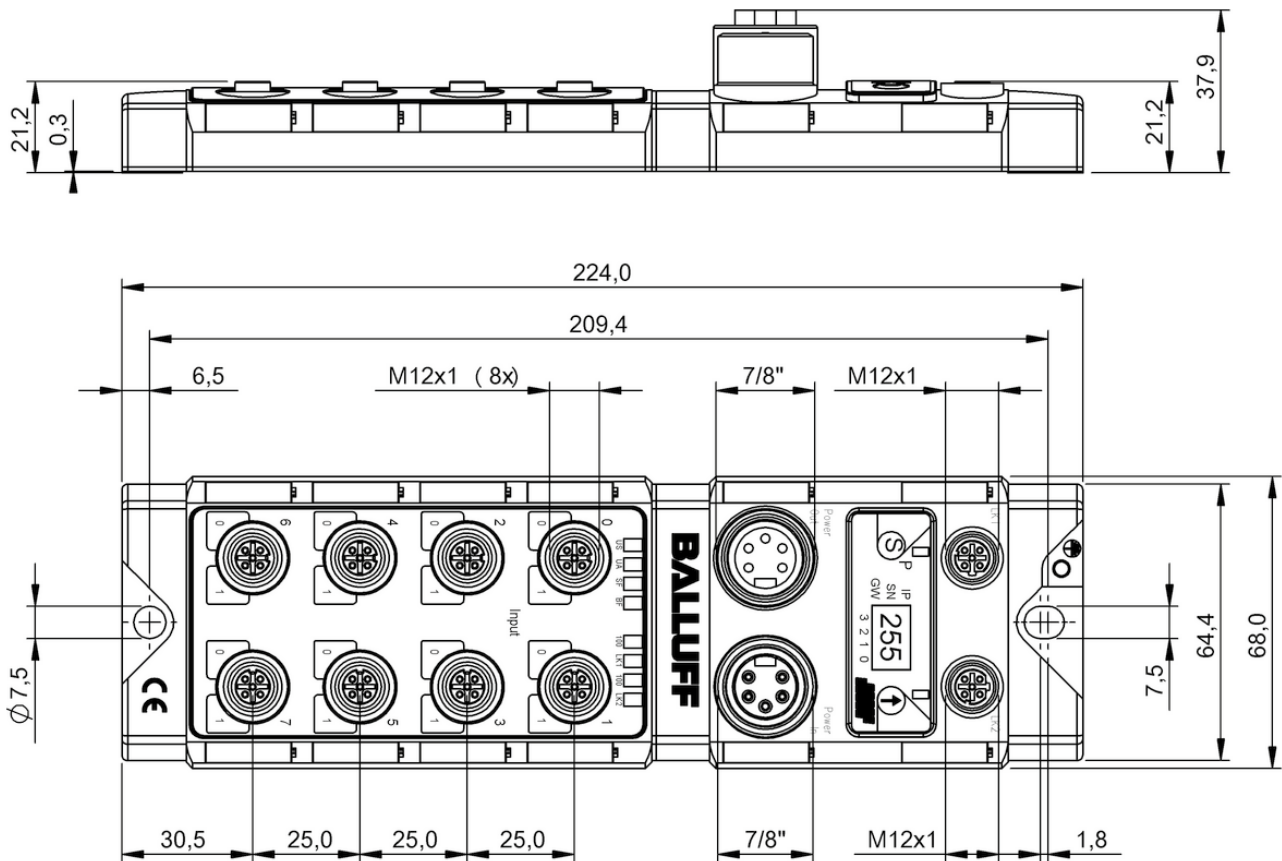
BNI0092



BNI00A9



BNI0052



BNI0053

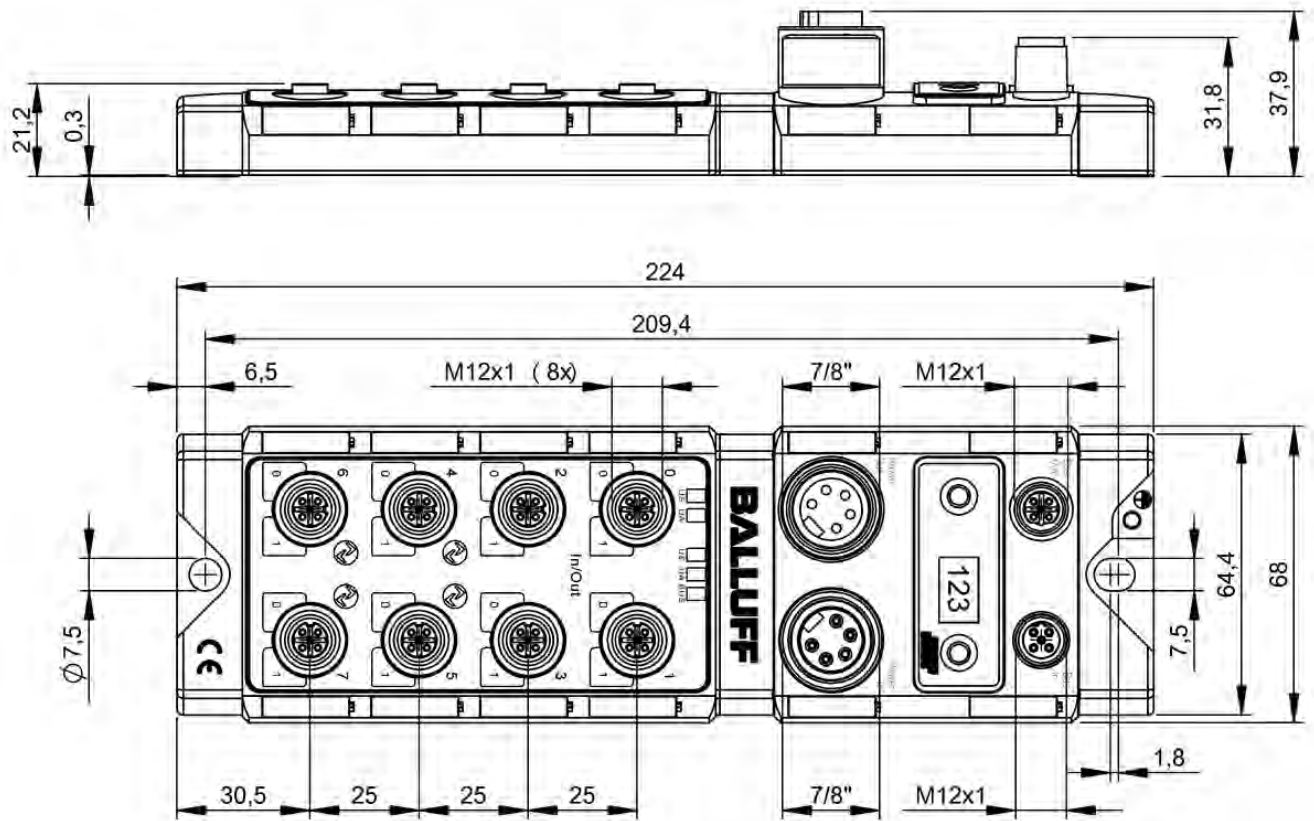
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



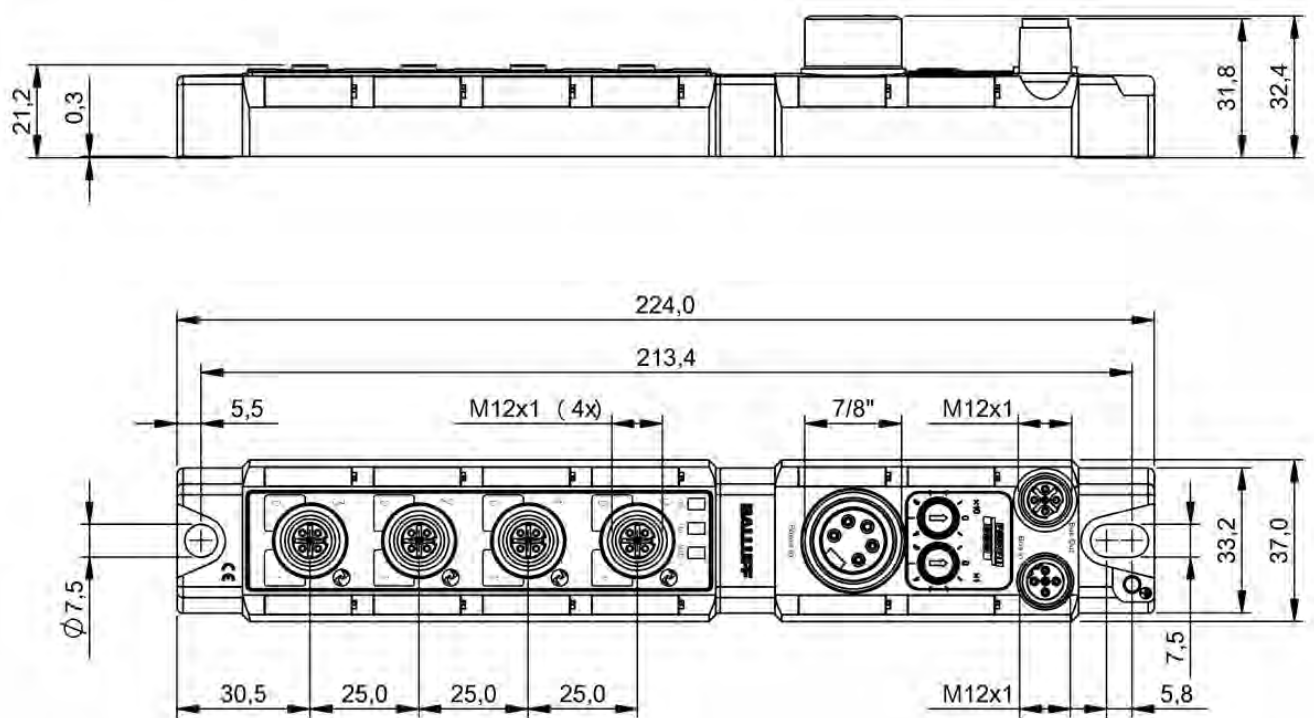
	BNI005R BNI PBS-502-101-Z001	
Interface	Profibus DP EN 50170	
Operating voltage Ub	18...30.2 VDC	
Connection (COM 1)	M12x1-Male, 5-pin, B-coded	
Connection (COM 2)	M12x1-Female, 5-pin, B-coded	
Connection (supply voltage IN)	7/8"-Male, 5-pin	
Connection (supply voltage OUT)	7/8"-Female, 5-pin	
Connection slots	8x M12x1-Female, 5-pin, A-coded	
Digital inputs	16x PNP, Type 2	
Digital outputs	16x PNP	
Configurable inputs/outputs	yes	
cal_current_load_capacity_max	2 A	
Current sum US, sensor	9.0 A	
Current sum UA, actuator	9.0 A	
Housing material	Zinc, Die casting	
Dimension	68 x 37.9 x 224 mm	
Ambient temperature	-5...70 °C	
IP rating	IP67	
Auxiliary interfaces	4x IO-Link	
IO-Link version	1.1	
Port-class	Type A	
Productview	Seite 108	



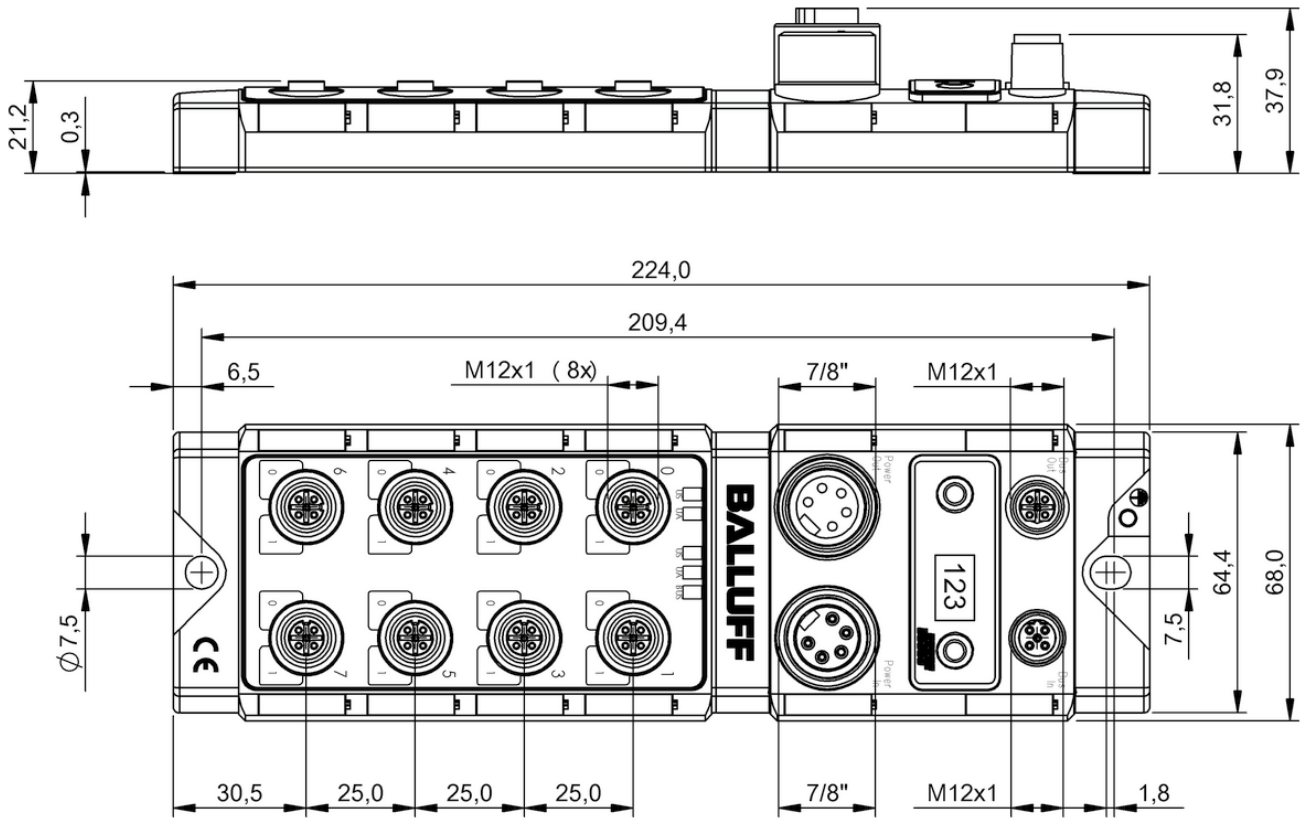
	BNI004N BNI PBS-507-002-Z011	BNI0047 BNI PBS-302-101-Z001	BNI005C BNI PBS-104-101-Z001
	Profibus DP EN 50170	Profibus DP EN 50170	Profibus DP EN 50170
	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC
	M12x1-Male, 5-pin, B-coded	M12x1-Male, 5-pin, B-coded	M12x1-Male, 5-pin, B-coded
	M12x1-Female, 5-pin, B-coded	M12x1-Female, 5-pin, B-coded	M12x1-Female, 5-pin, B-coded
	7/8"-Male, 5-pin	7/8"-Male, 5-pin	7/8"-Male, 5-pin
	—	7/8"-Female, 5-pin	7/8"-Female, 5-pin
	4x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded
	8x PNP, Type 2	16x PNP, Type 2	16x PNP, Type 2
	8x PNP	16x PNP	—
	yes	yes	no
	2 A	2 A	—
	9.0 A	9.0 A	9.0 A
	9.0 A	9.0 A	—
	Zinc, Die casting	Zinc, Die casting	Zinc, Die casting
	37 x 32.4 x 224 mm	68 x 37.9 x 224 mm	68 x 37.9 x 224 mm
	-5...70 °C	-5...70 °C	-5...70 °C
	IP67	IP67	IP67
	4x IO-Link	—	—
	1.1	—	—
	Type A	—	—
	Seite 108	Seite 109	Seite 109



BNI005R



BNI004N



BNI0047, BNI005C

Interface	
Fast Start-Up (FSU)	
Operating voltage U_b	
Connection (COM 1)	
Connection (COM 2)	
Connection (supply voltage IN)	
Connection (supply voltage OUT)	
Connection slots	
Digital inputs	
Digital outputs	
Configurable inputs/outputs	
Output current max.	
Current sum US, sensor	
Current sum UA, actuator	
Housing material	
Dimension	
Ambient temperature	
IP rating	
Auxiliary interfaces	
IO-Link version	
Port-class	
Productview	



	BNI008C BNI CIE-508-105-Z015	BNI0095 BNI CIE-302-105-Z015
	CC-Link IE Field V0	CC-Link IE Field V0
	—	—
	18...30.2 VDC	18...30.2 VDC
	M12x1-Female, 8-pin, X-coded	M12x1-Female, 8-pin, X-coded
	M12x1-Female, 8-pin, X-coded	M12x1-Female, 8-pin, X-coded
	7/8"-Male, 5-pin	7/8"-Male, 5-pin
	7/8"-Female, 5-pin	7/8"-Female, 5-pin
	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded
	16x PNP, Type 3	16x PNP, Type 3
	16x PNP	16x PNP
	yes	yes
	2 A	2 A
	9.0 A	9.0 A
	9.0 A	9.0 A
	Zinc, Die casting	Zinc, Die casting
	68 x 37.9 x 224 mm	68 x 37.9 x 224 mm
	-5...70 °C	-5...70 °C
	IP67	IP67
	8x IO-Link	—
	1.1	—
	Type A	—
	Seite 112	Seite 112

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Safety

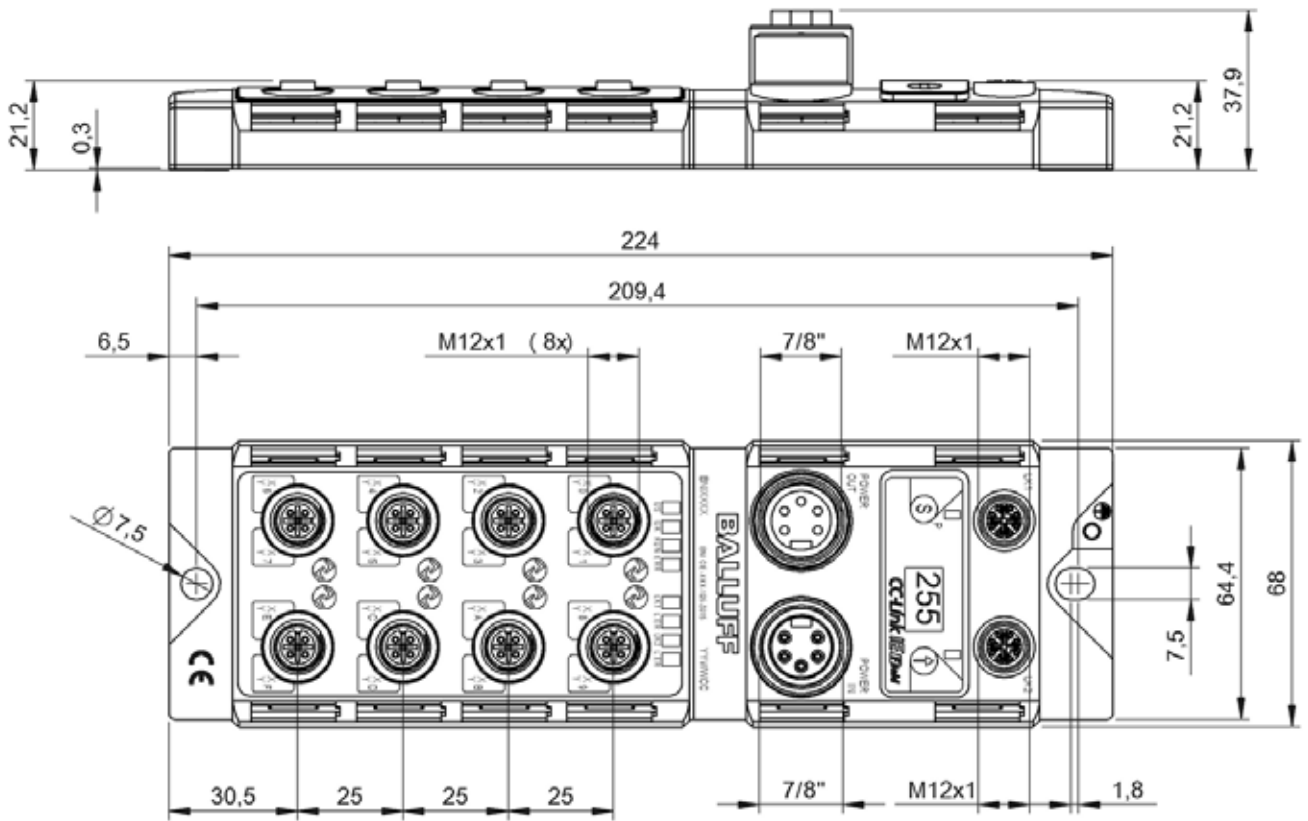
Industrial Networking

Software and
System Solutions

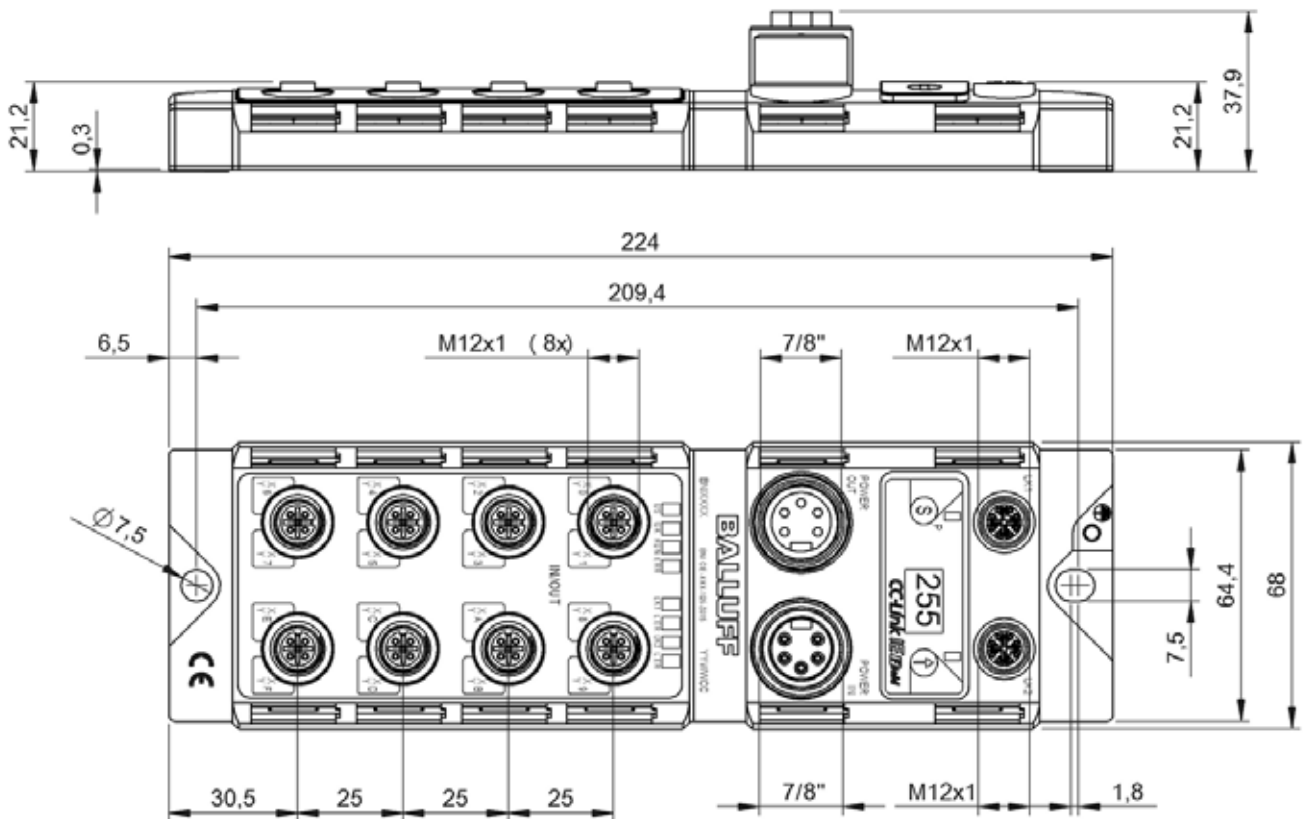
Power Supply

Connectivity

Accessories



BN1008C



BN10095

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Safety

Industrial Networking

Software and
System Solutions

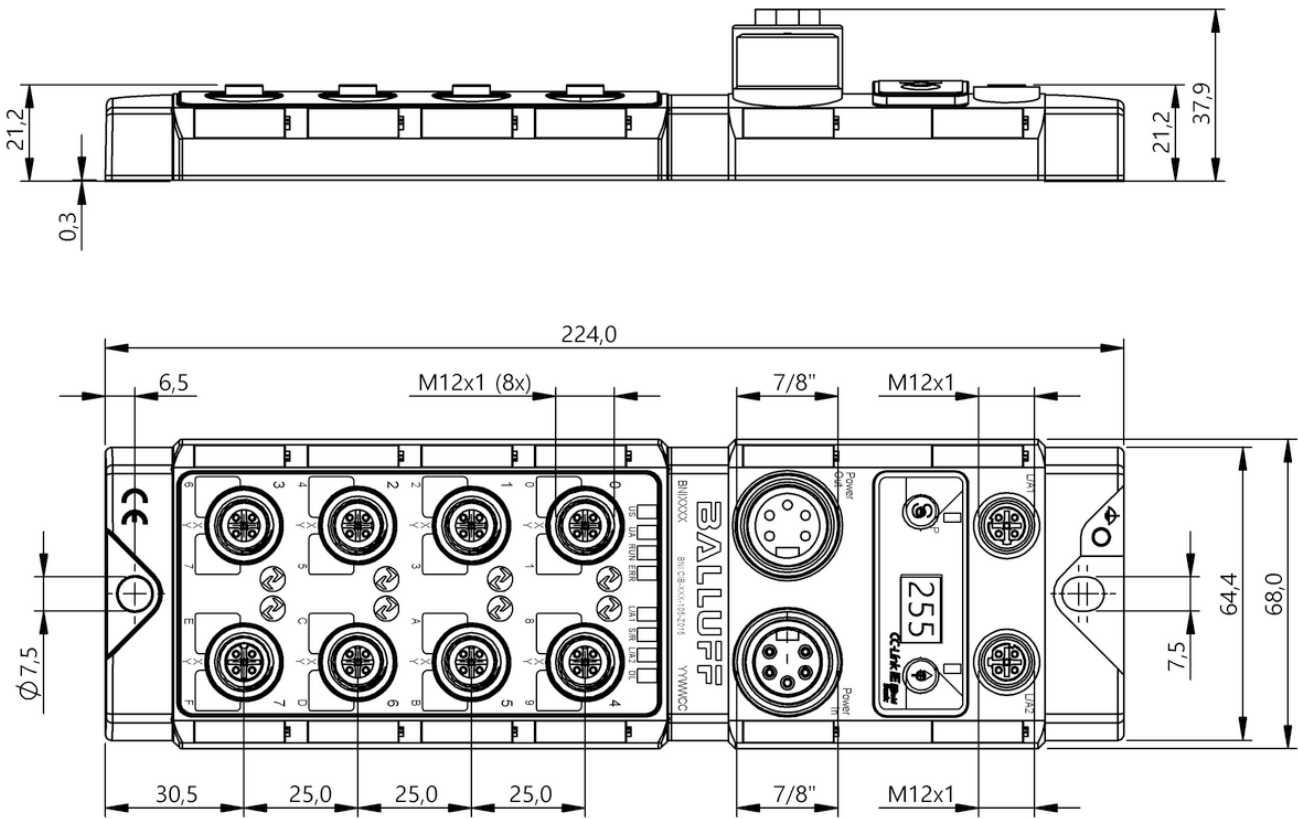
Power Supply

Connectivity

Accessories



	BNI00E7 BNI CIB-508-105-Z015
Interface	CC-Link IE Field Basic
Fast Start-Up (FSU)	—
Operating voltage U_b	18...30.2 VDC
Connection (COM 1)	M12x1-Female, 4-pin, D-coded
Connection (COM 2)	M12x1-Female, 4-pin, D-coded
Connection (supply voltage IN)	7/8"-Male, 5-pin
Connection (supply voltage OUT)	7/8"-Female, 5-pin
Connection slots	8x M12x1-Female, 5-pin, A-coded
Digital inputs	16x PNP, Type 3
Digital outputs	16x PNP
Configurable inputs/outputs	yes
cal_current_load_capacity_max	2 A
Current sum US, sensor	9.0 A
Current sum UA, actuator	9.0 A
Housing material	Zinc, Die casting
Dimension	68 x 37.9 x 224 mm
Ambient temperature	-5...70 °C
IP rating	IP67
Auxiliary interfaces	8x IO-Link
IO-Link version	1.1
Port-class	Type A
Productview	Seite 115

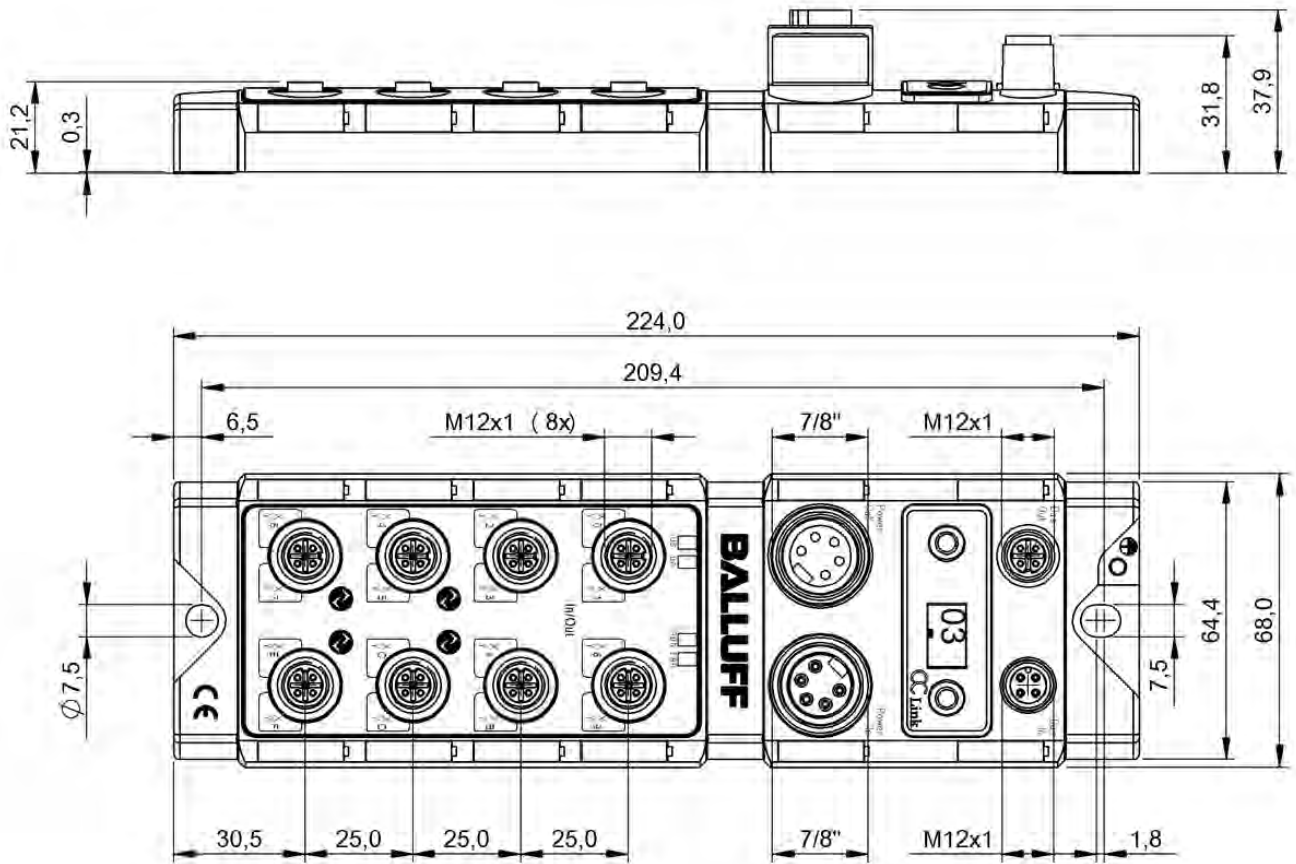


BNI00E7

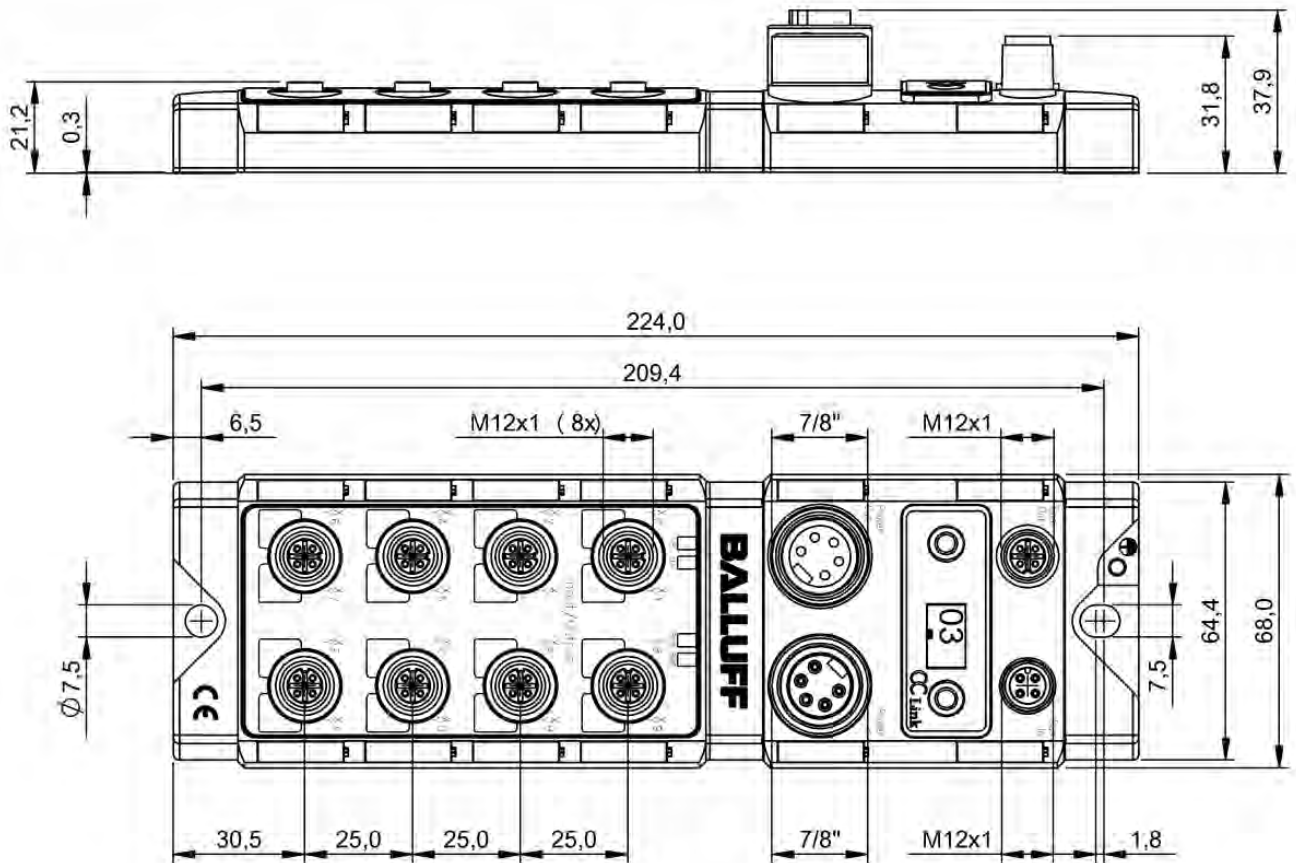
Interface	
Fast Start-Up (FSU)	
Operating voltage U_b	
Connection (COM 1)	
Connection (COM 2)	
Connection (supply voltage IN)	
Connection (supply voltage OUT)	
Connection slots	
Digital inputs	
Digital outputs	
Configurable inputs/outputs	
Output current max.	
Current sum US, sensor	
Current sum UA, actuator	
Housing material	
Dimension	
Ambient temperature	
IP rating	
Auxiliary interfaces	
IO-Link version	
Port-class	
Productview	



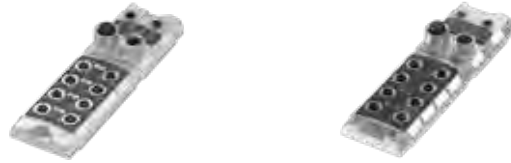
BNI0040 BNI CCL-502-100-Z001	BNI002A BNI CCL-302-100-Z001
CC-Link V1.1	CC-Link V1.1
—	—
18...30.2 VDC	18...30.2 VDC
M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded
M12x1-Female, 4-pin, A-coded	M12x1-Female, 4-pin, A-coded
7/8"-Male, 5-pin	7/8"-Male, 5-pin
7/8"-Female, 5-pin	7/8"-Female, 5-pin
8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded
16x PNP, Type 2	16x PNP, Type 2
16x PNP	16x PNP
yes	yes
2 A	2 A
9.0 A	9.0 A
9.0 A	9.0 A
Zinc, Die casting	Zinc, Die casting
68 x 37.9 x 224 mm	68 x 37.9 x 224 mm
-5...70 °C	-5...55 °C
IP67	IP67
4x IO-Link	—
1.1	—
Type A	—
Seite 118	Seite 118



BNI0040



BNI002A



	BNI006A BNI EIP-508-105-Z015	BNI004A BNI EIP-502-105-Z015	
Interface	Ethernet/IP	Ethernet/IP	
Fast Start-Up (FSU)	—	—	
Operating voltage U _b	18...30.2 VDC	18...30.2 VDC	
Connection (COM 1)	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	
Connection (COM 2)	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	
Connection (supply voltage IN)	7/8"-Male, 4-pin	7/8"-Male, 4-pin	
Connection (supply voltage OUT)	7/8"-Female, 4-pin	7/8"-Female, 4-pin	
Connection slots	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	
Digital inputs	16x PNP, Type 3	16x PNP, Type 2	
Digital outputs	16x PNP	16x PNP	
Configurable inputs/outputs	yes	yes	
Output current max.	2 A	2 A	
Current sum US, sensor	9.0 A	9.0 A	
Current sum UA, actuator	9.0 A	9.0 A	
Housing material	Zinc, Die casting	Zinc, Die casting	
Dimension	68 x 37.9 x 224 mm	68 x 37.9 x 224 mm	
Ambient temperature	-5...70 °C	-5...70 °C	
IP rating	IP67	IP67	
Auxiliary interfaces	8x IO-Link	4x IO-Link	
IO-Link version	1.1	1.1	
Port-class	Type A	Type A	
Productview	Seite 124	Seite 125	



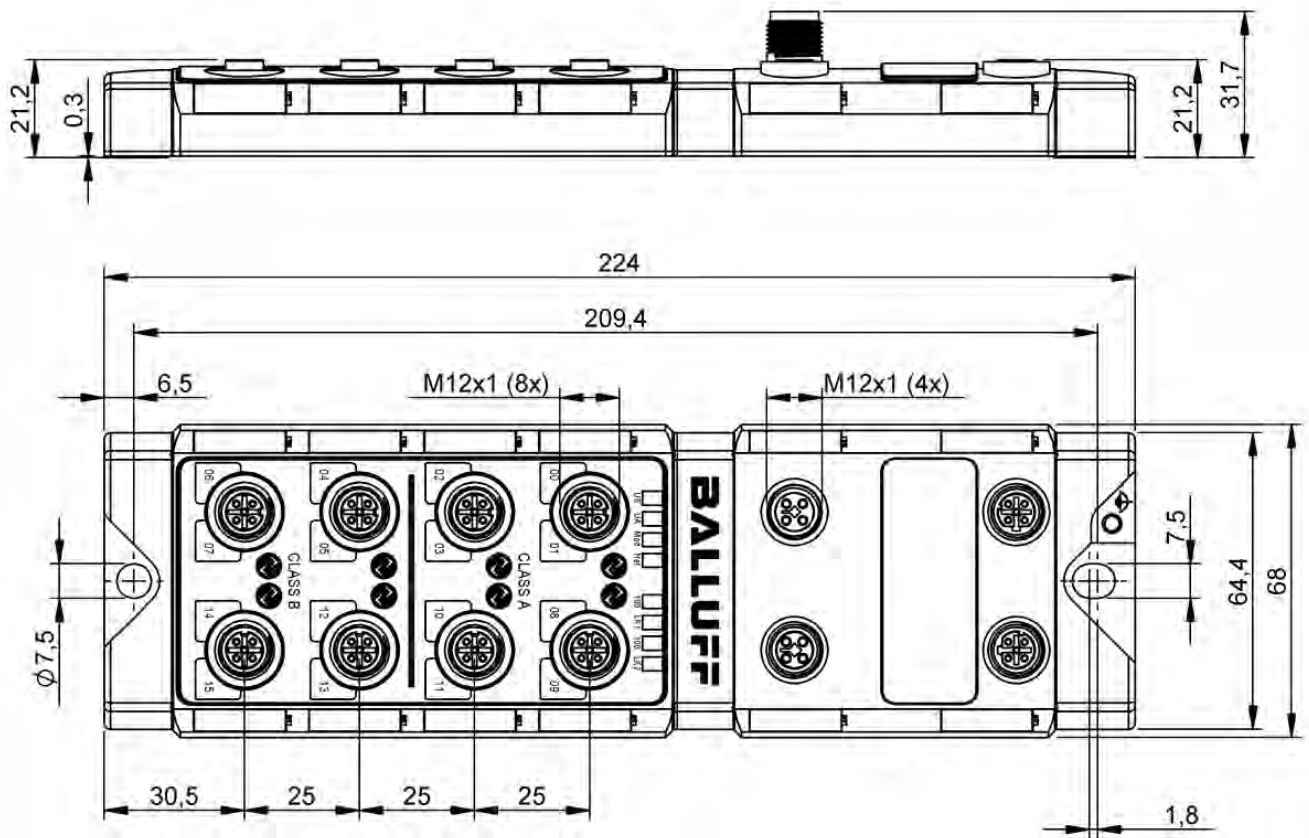
BNI009T BNI EIP-507-005-Z040	BNI00AA BNI EIP-527-005-Z040	BNI004F BNI EIP-302-105-Z015	
Ethernet/IP	Ethernet/IP	Ethernet/IP	
—	—	—	
18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	
M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	
M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	
7/8"-Male, 4-pin	7/8"-Male, 4-pin	7/8"-Male, 4-pin	
—	—	7/8"-Female, 4-pin	
4x M12x1-Female, 5-pin, A-coded	4x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	
8x PNP, Type 3	4x PNP, Type 3	16x PNP, Type 2	
8x PNP	—	16x PNP	
yes	no	yes	
2 A	—	2 A	
9.0 A	9.0 A	9.0 A	
9.0 A	9.0 A	9.0 A	
Zinc, Die casting	Zinc, Die casting	Zinc, Die casting	
37 x 32.6 x 224 mm	37 x 32.6 x 224 mm	68 x 37.9 x 224 mm	
-40...70 °C	-40...70 °C	-5...70 °C	
IP67	IP67	IP67	
4x IO-Link	4x IO-Link	—	
1.1	1.1	—	
Type A	Type B	—	
Seite 125	Seite 125	Seite 126	



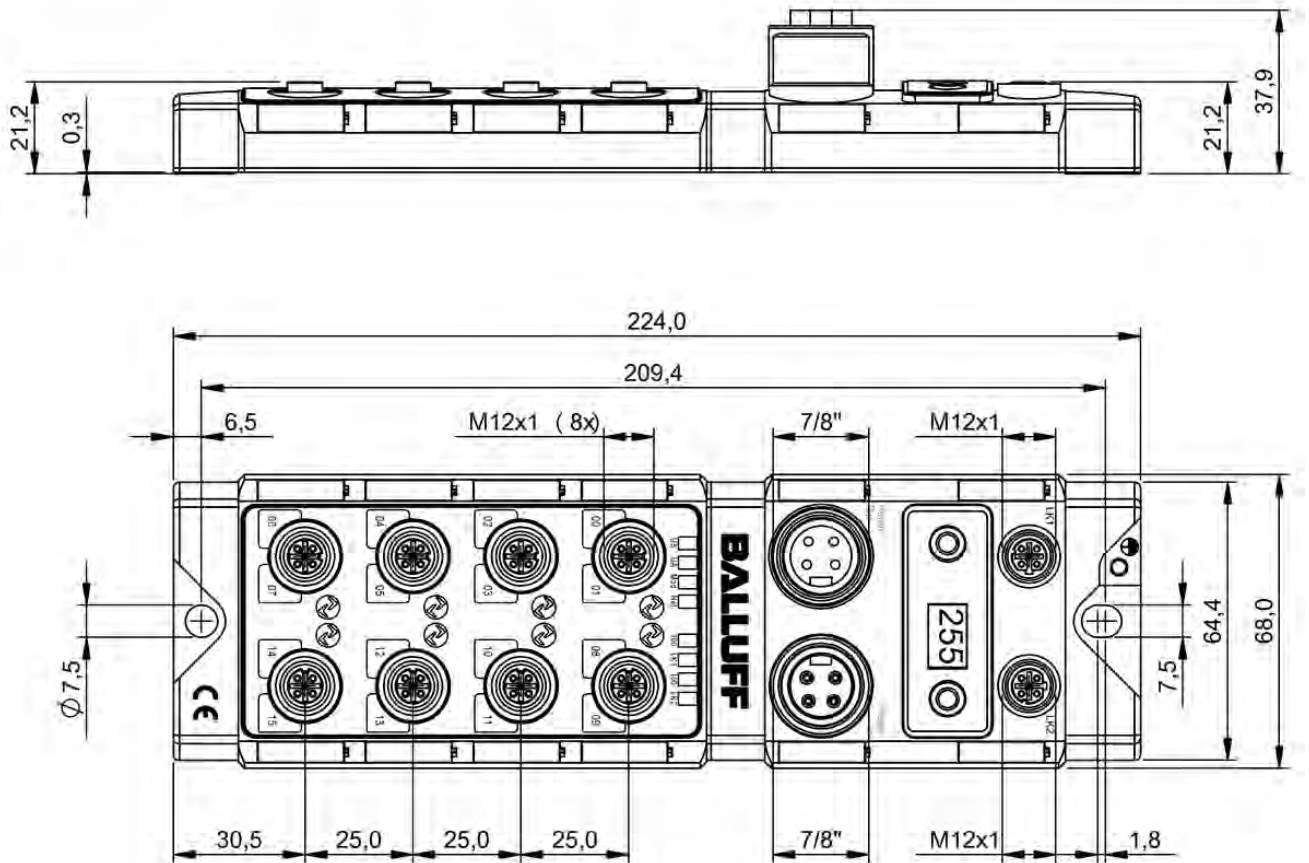
	BNI004M BNI EIP-104-105-Z015	BNI008M BNI EIP-508-105-R015	
Interface	Ethernet/IP	Ethernet/IP	
Fast Start-Up (FSU)	—	—	
Operating voltage U _b	18...30.2 VDC	18...30.2 VDC	
Connection (COM 1)	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	
Connection (COM 2)	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	
Connection (supply voltage IN)	7/8"-Male, 4-pin	7/8"-Male, 4-pin	
Connection (supply voltage OUT)	7/8"-Female, 4-pin	7/8"-Female, 4-pin	
Connection slots	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	
Digital inputs	16x PNP, Type 2	16x PNP, Type 3	
Digital outputs	—	16x PNP	
Configurable inputs/outputs	no	yes	
Output current max.	—	2 A	
Current sum US, sensor	9.0 A	9.0 A	
Current sum UA, actuator	—	9.0 A	
Housing material	Zinc, Die casting	PPS	
Dimension	68 x 37.9 x 224 mm	68 x 42.9 x 226 mm	
Ambient temperature	-5...70 °C	-5...70 °C	
IP rating	IP67	IP67	
Auxiliary interfaces	—	8x IO-Link	
IO-Link version	—	1.1	
Port-class	—	Type A	
Productview	Seite 126	Seite 127	



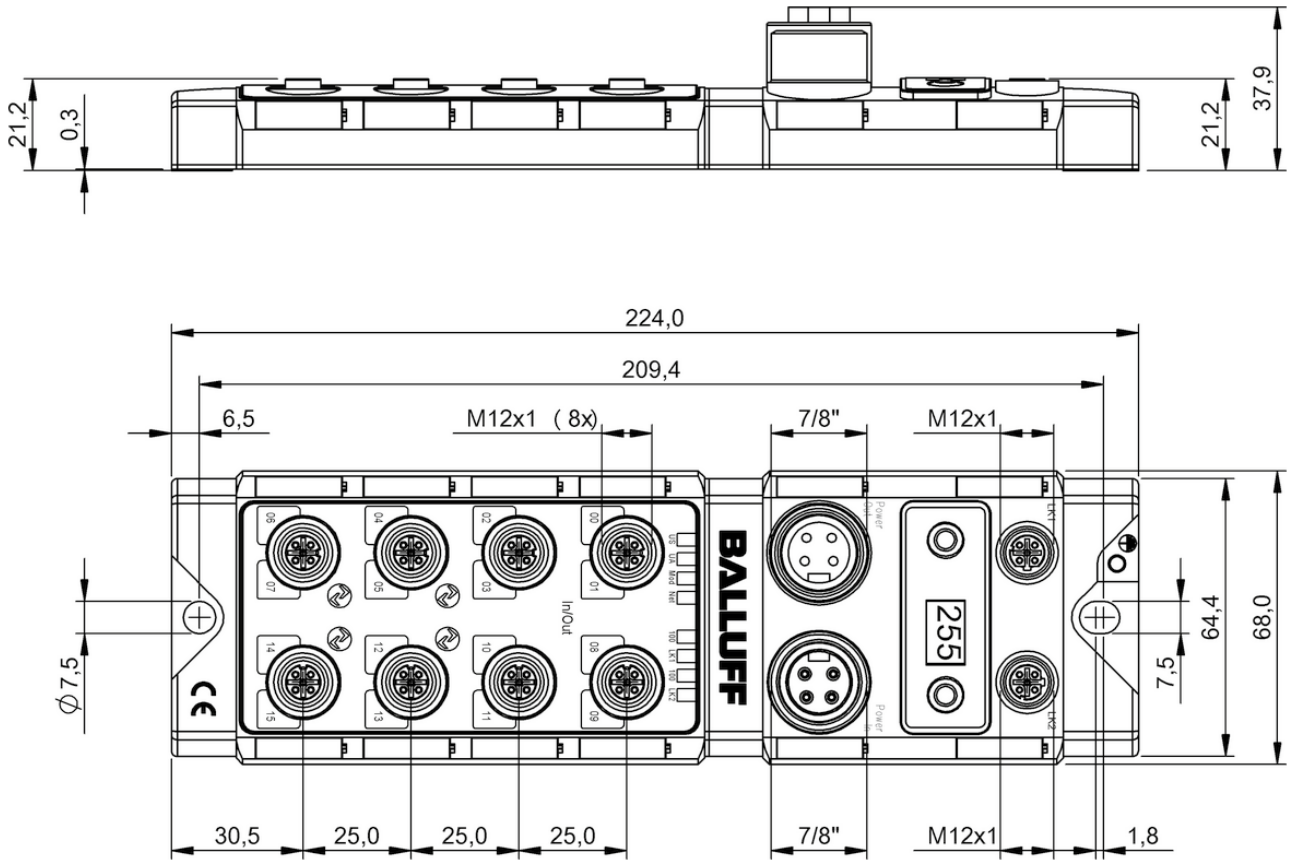
	BNI00CY BNI EIP-538-105-R015	BNI008Z BNI EIP-502-105-R015	BNI008P BNI EIP-302-105-R015	BNI008Y BNI EIP-104-105-R015
	Ethernet/IP	Ethernet/IP	Ethernet/IP	Ethernet/IP
	—	—	—	—
	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC
	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded
	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded	M12x1-Female, 4-pin, D-coded
	7/8"-Male, 4-pin	7/8"-Male, 4-pin	7/8"-Male, 4-pin	7/8"-Male, 4-pin
	7/8"-Female, 4-pin	7/8"-Female, 4-pin	7/8"-Female, 4-pin	7/8"-Female, 4-pin
	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded
	12x PNP, Type 3	16x PNP, Type 3	16x PNP, Type 3	16x PNP, Type 3
	8x PNP	16x PNP	16x PNP	—
	yes	yes	yes	no
	2 A	2 A	2 A	—
	9.0 A	9.0 A	9.0 A	9.0 A
	9.0 A	9.0 A	9.0 A	—
	PPS	PPS	PPS	PPS
	68 x 42.9 x 226 mm	68 x 42.9 x 226 mm	68 x 42.9 x 226 mm	68 x 42.9 x 226 mm
	-5...70 °C	-5...70 °C	-5...70 °C	-5...70 °C
	IP67	IP67	IP67	IP67
	8x IO-Link	4x IO-Link	—	—
	1.1	1.1	—	—
	Type A (4x) + Type B (4x)	Type A	—	—
	Seite 127	Seite 128	Seite 128	Seite 129



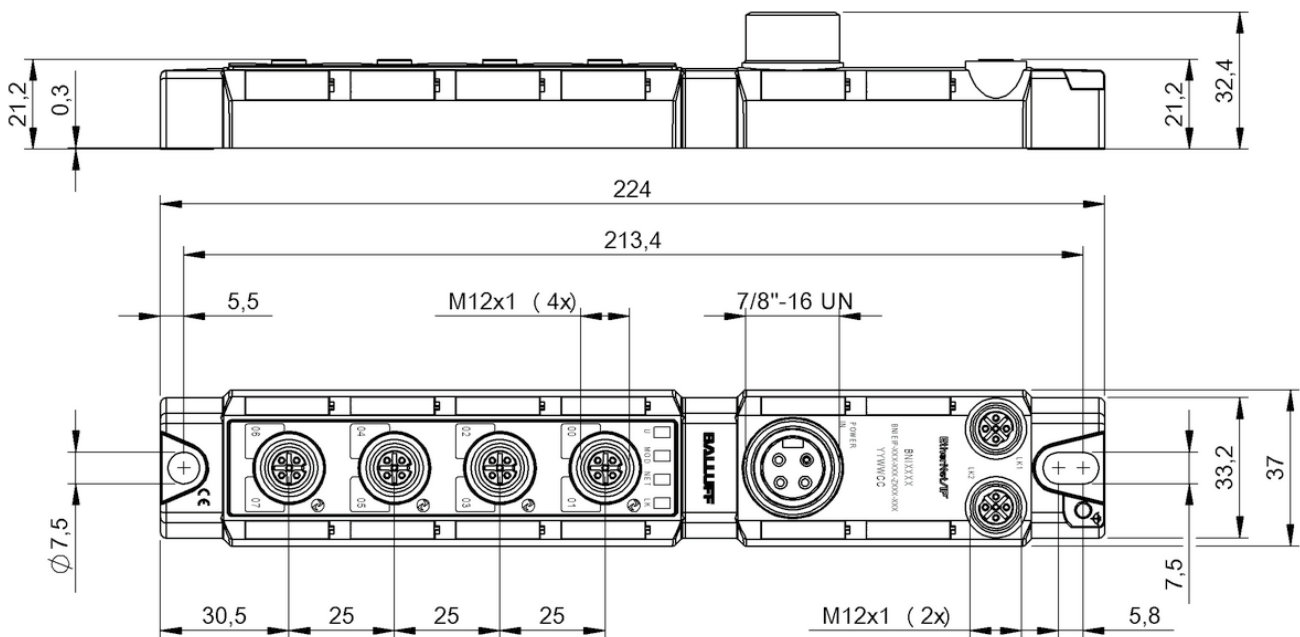
BN100E1



BN1006A

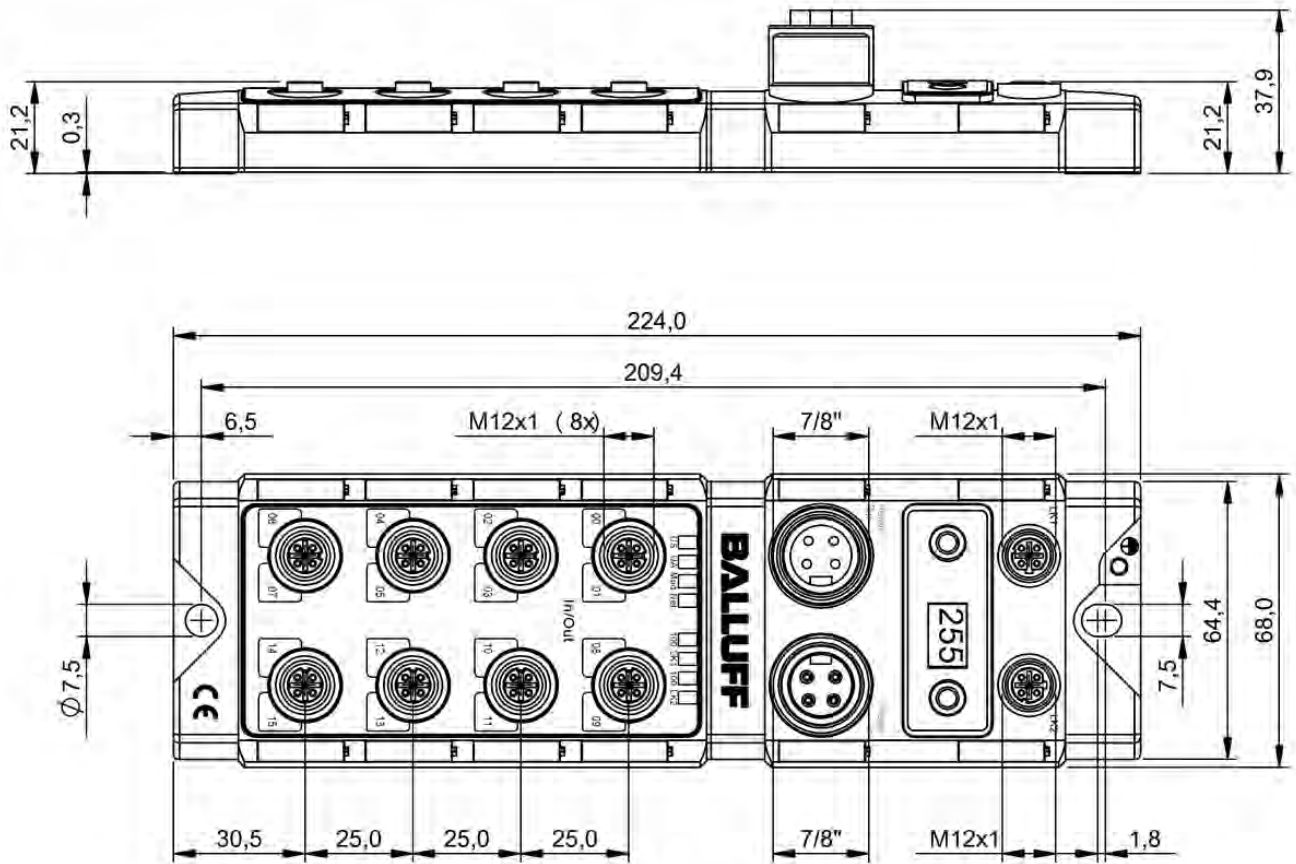


BNI004A

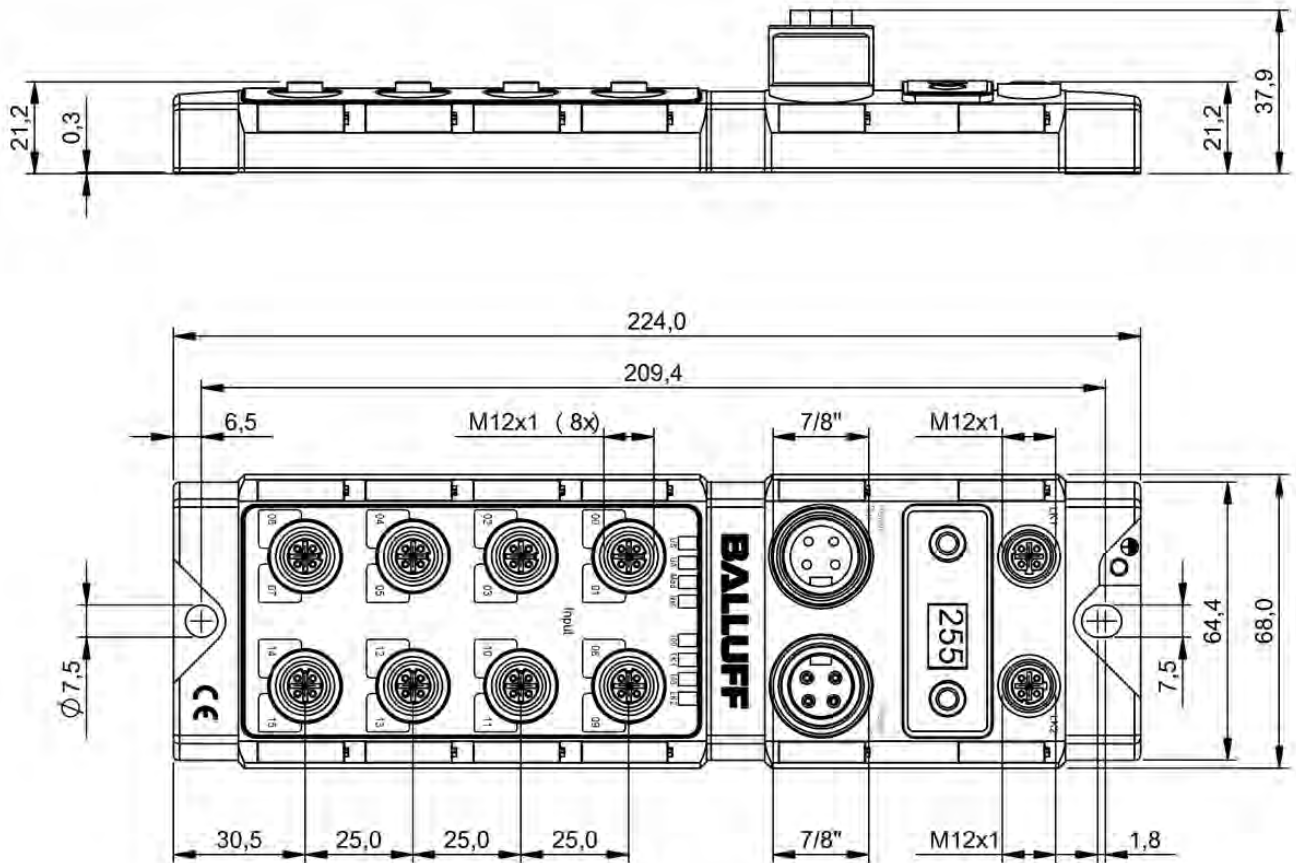


BNI009T, BNI00AA

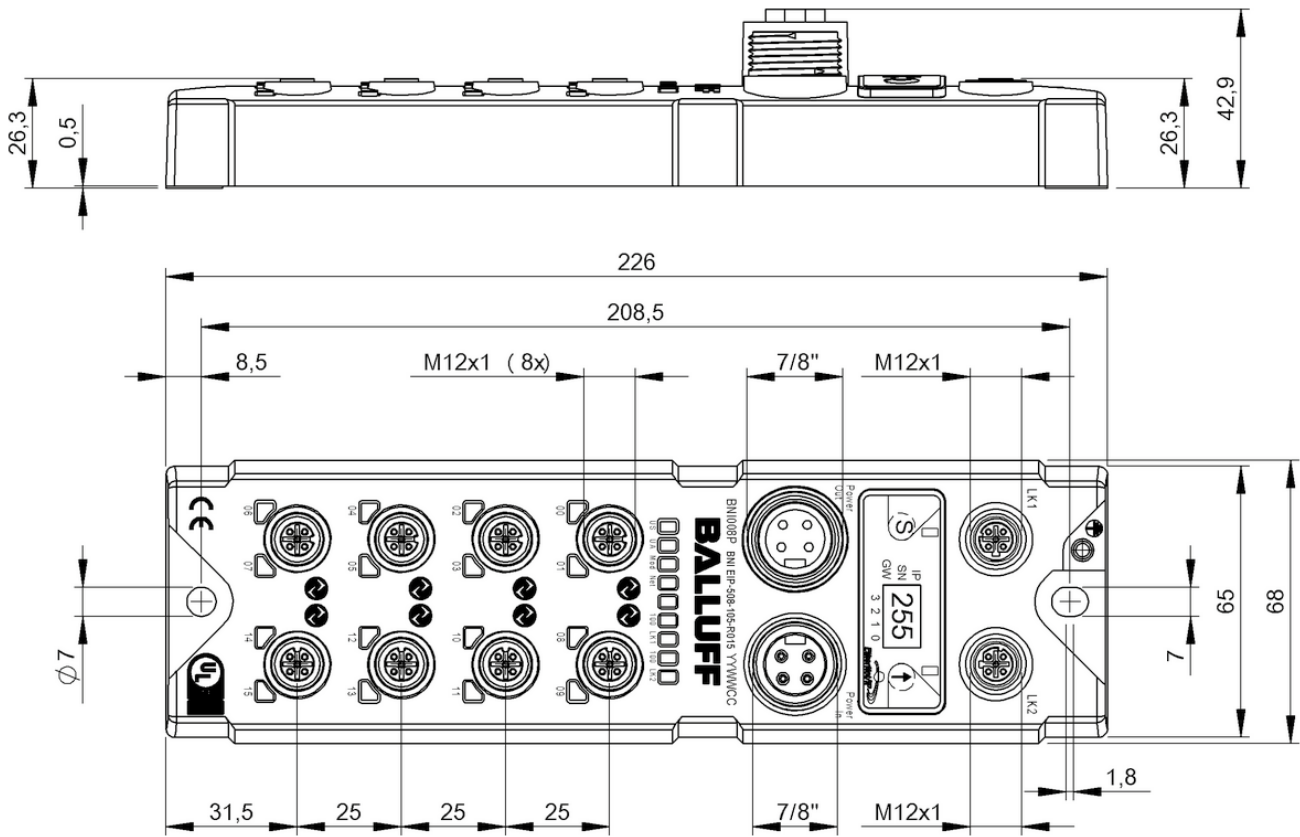
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



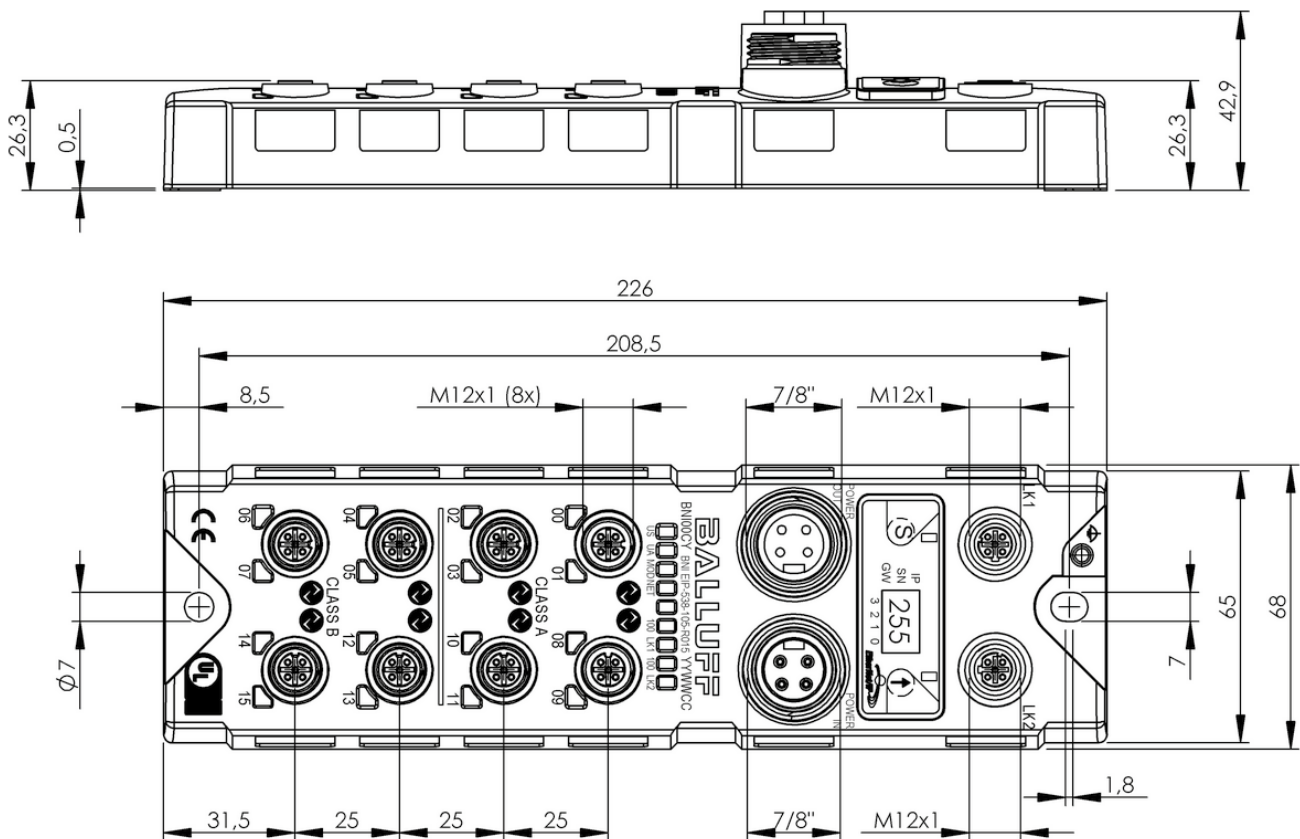
BNI004F



BNI004M

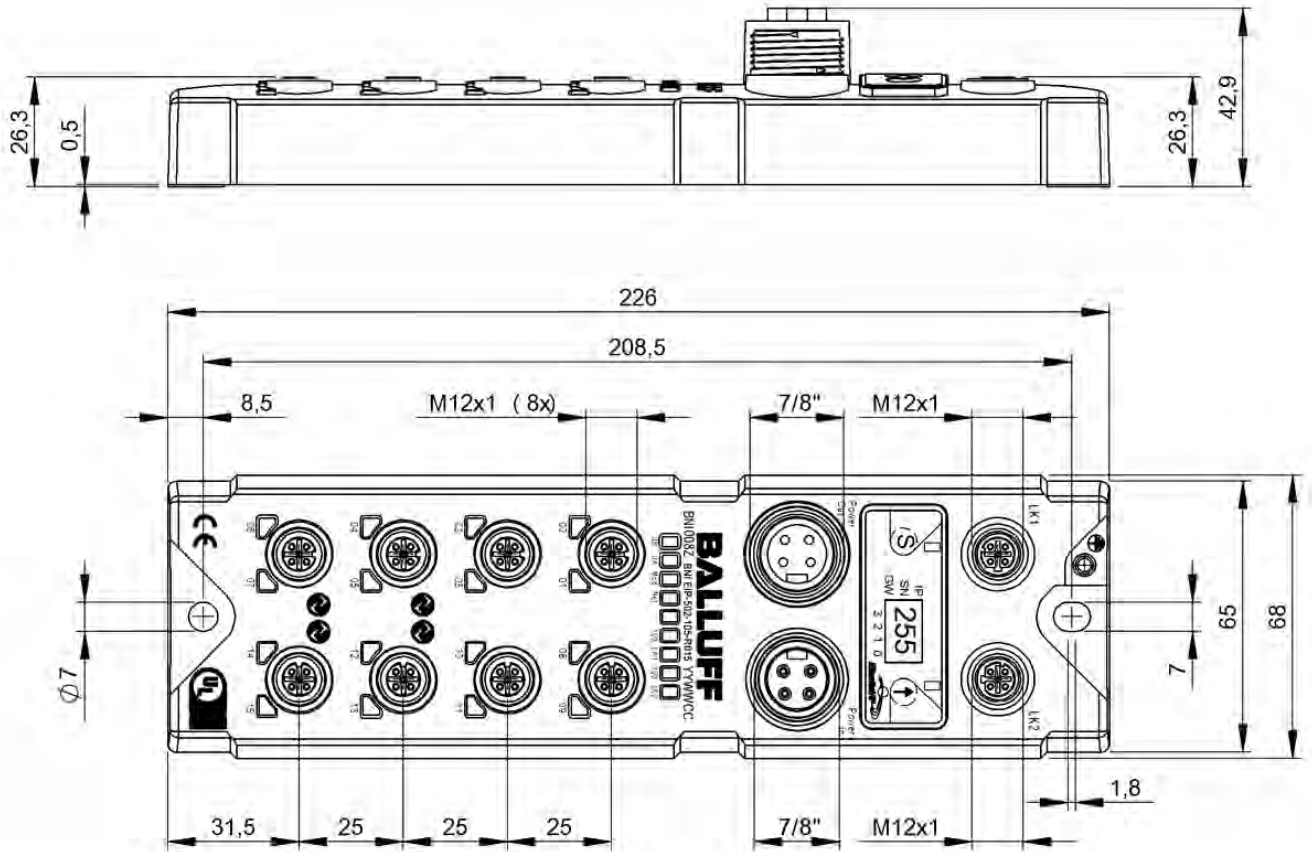


BNI008M

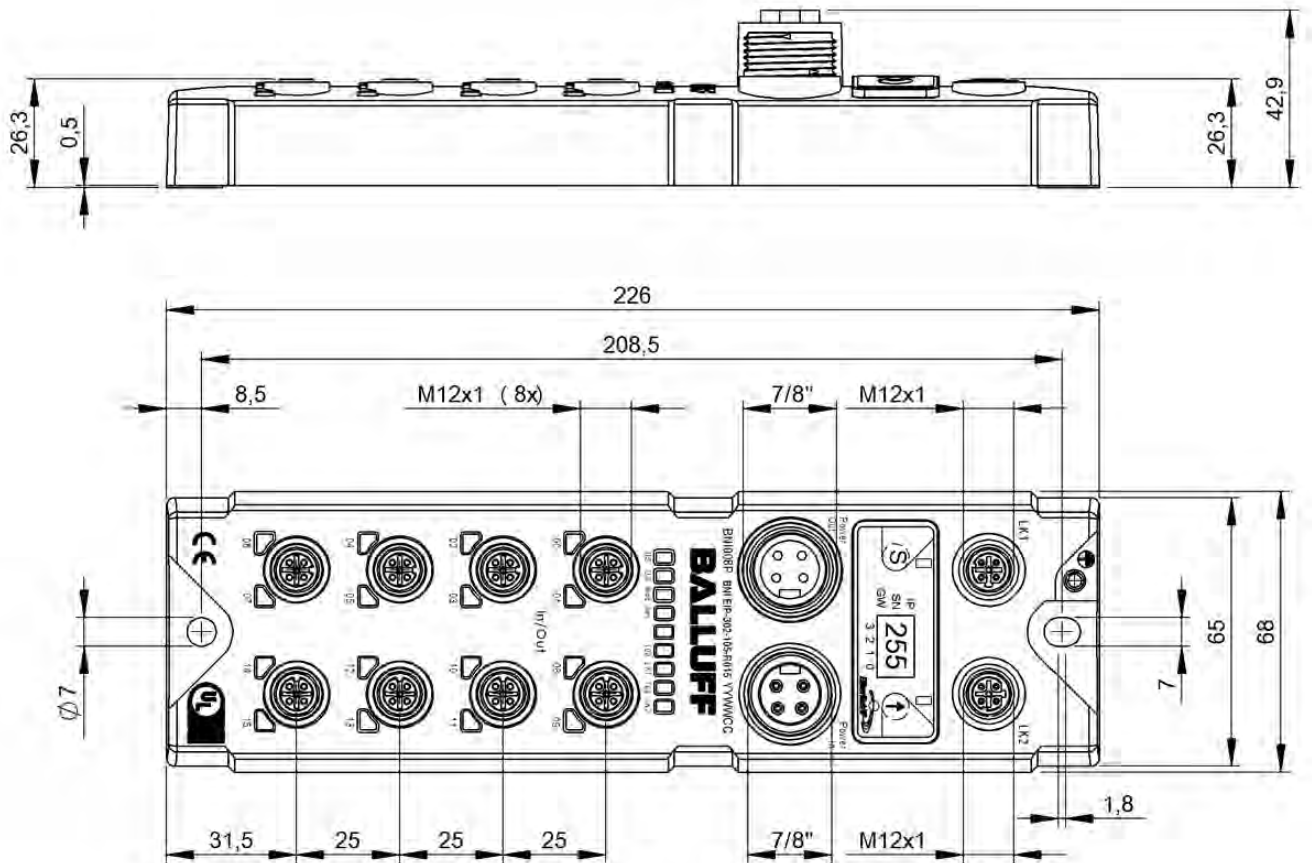


BNI00CY

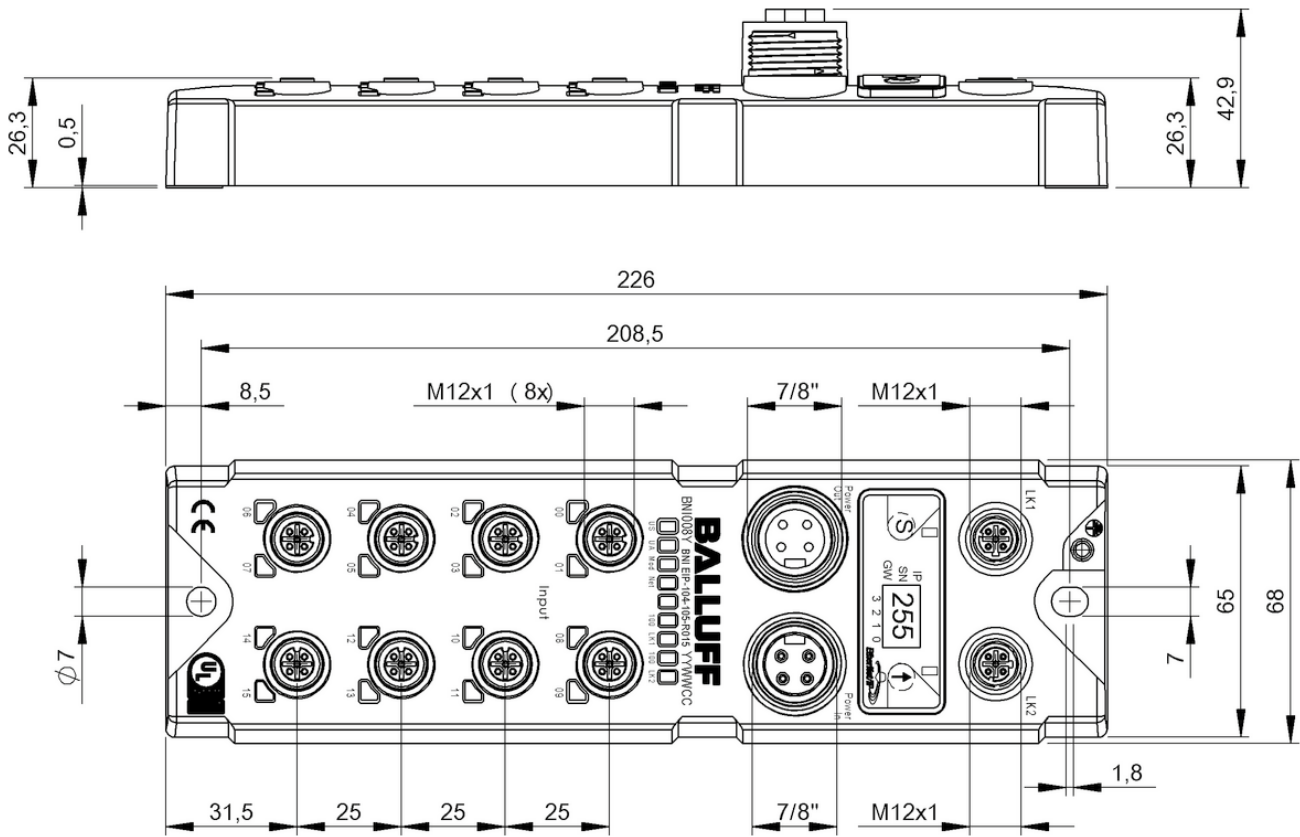
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



BNI008Z



BNI008P



BNI008Y



	BNI005A BNI DNT-502-100-Z001	
Interface	DeviceNet	
Fast Start-Up (FSU)	—	
Operating voltage U_b	18...30.2 VDC	
Connection (COM 1)	M12x1-Male, 5-pin, A-coded	
Connection (COM 2)	M12x1-Female, 5-pin, A-coded	
Connection (supply voltage IN)	7/8"-Male, 4-pin	
Connection (supply voltage OUT)	7/8"-Female, 4-pin	
Connection slots	8x M12x1-Female, 5-pin, A-coded	
Digital inputs	16x PNP, Type 2	
Digital outputs	16x PNP	
Configurable inputs/outputs	yes	
Output current max.	2 A	
Current sum US, sensor	9.0 A	
Current sum UA, actuator	9.0 A	
Housing material	Zinc, Die casting	
Dimension	68 x 37.9 x 224 mm	
Ambient temperature	-5...70 °C	
IP rating	IP67	
Auxiliary interfaces	4x IO-Link	
IO-Link version	1.1	
Port-class	Type A	
Productview	Seite 132	



	BNI0003 BNI DNT-302-000-Z005	BNI0001 BNI DNT-104-000-Z004
	DeviceNet	DeviceNet
	—	—
	18...30.2 VDC	18...30.2 VDC
	7/8"-Male, 5-pin	7/8"-Male, 5-pin
	7/8"-Female, 5-pin	7/8"-Female, 5-pin
	7/8"-Male, 4-pin	7/8"-Male, 4-pin
	—	—
	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded
	16x PNP, Type 2	16x PNP, Type 2
	16x PNP	—
	yes	no
	2 A	—
	9.0 A	9.0 A
	9.0 A	—
	Zinc, Die casting	Zinc, Die casting
	68 x 37.9 x 224 mm	68 x 37.9 x 224 mm
	-5...70 °C	-5...70 °C
	IP67	IP67
	—	—
	—	—
	—	—
	Seite 132	Seite 133

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Safety

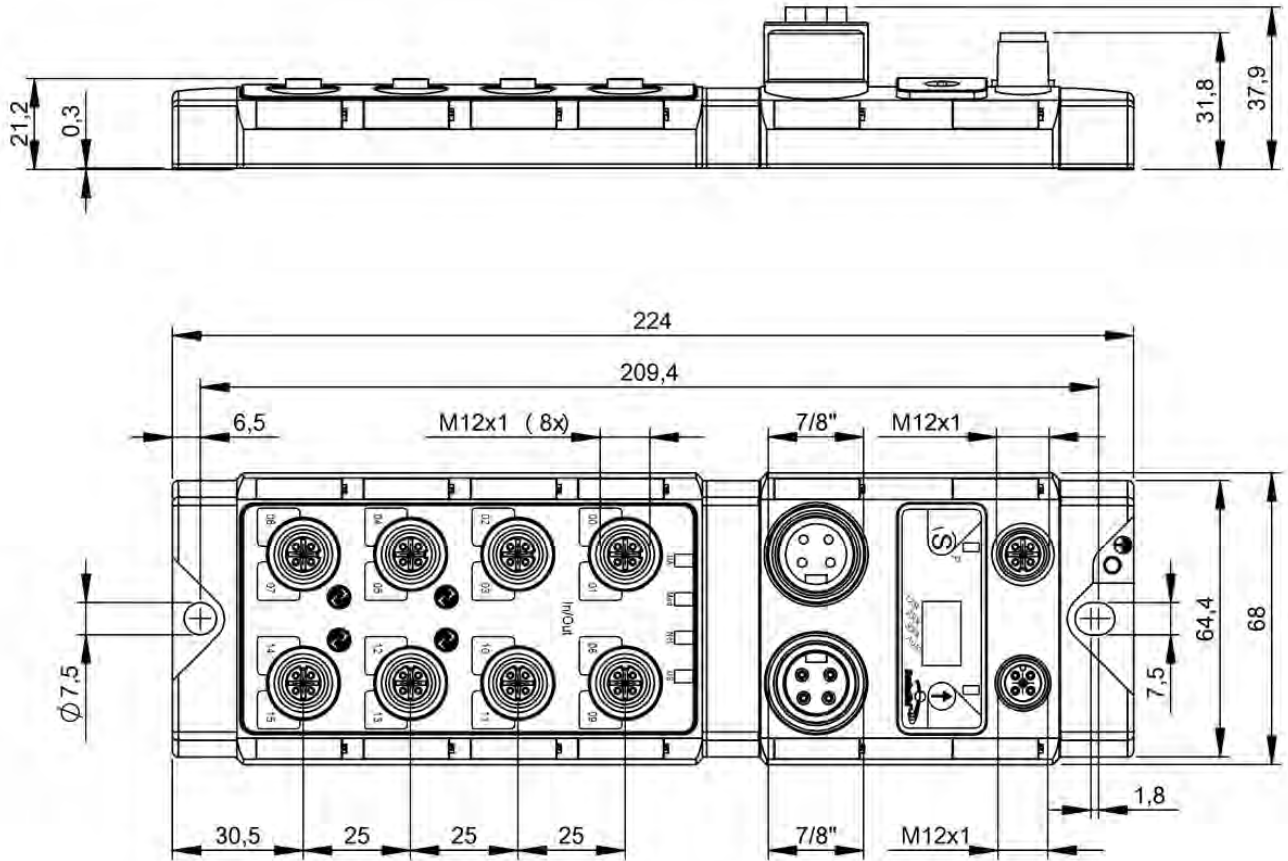
Industrial Networking

Software and
System Solutions

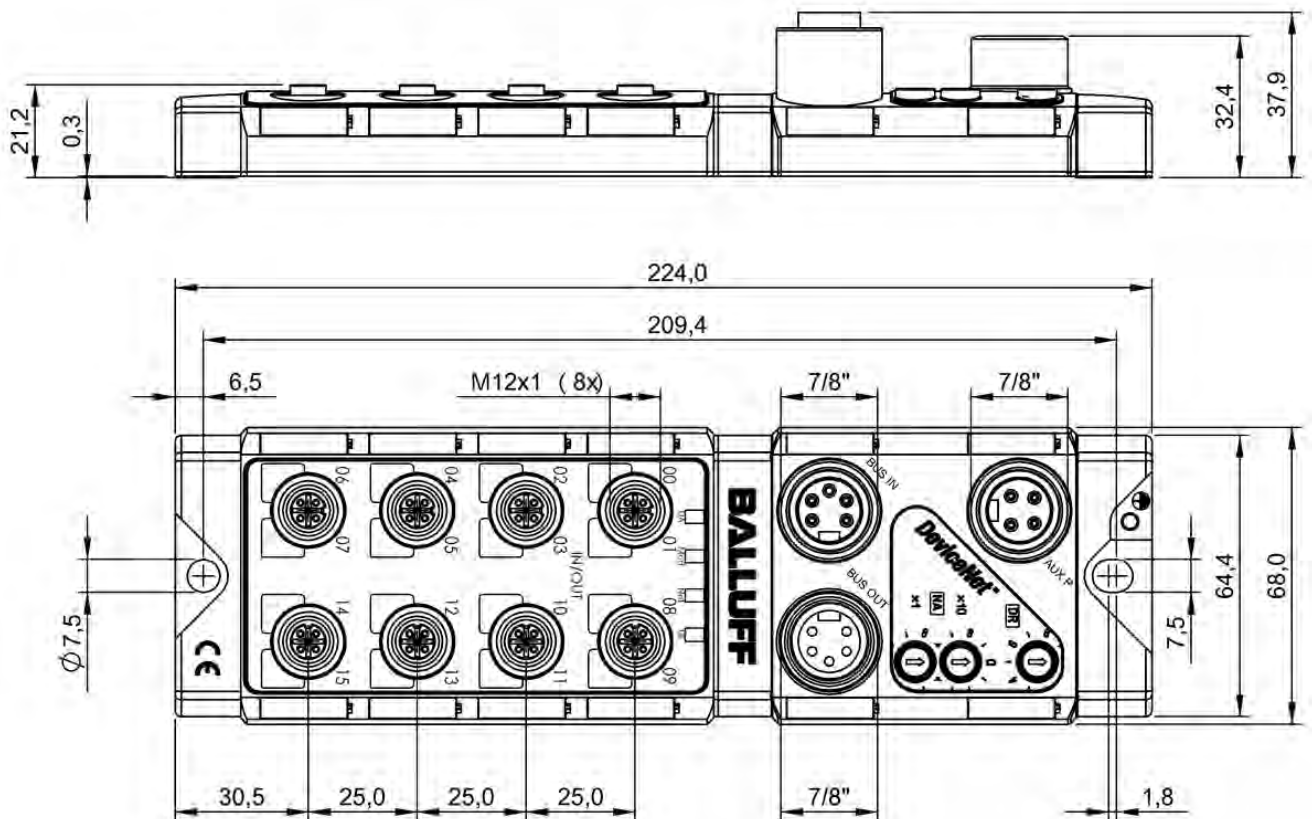
Power Supply

Connectivity

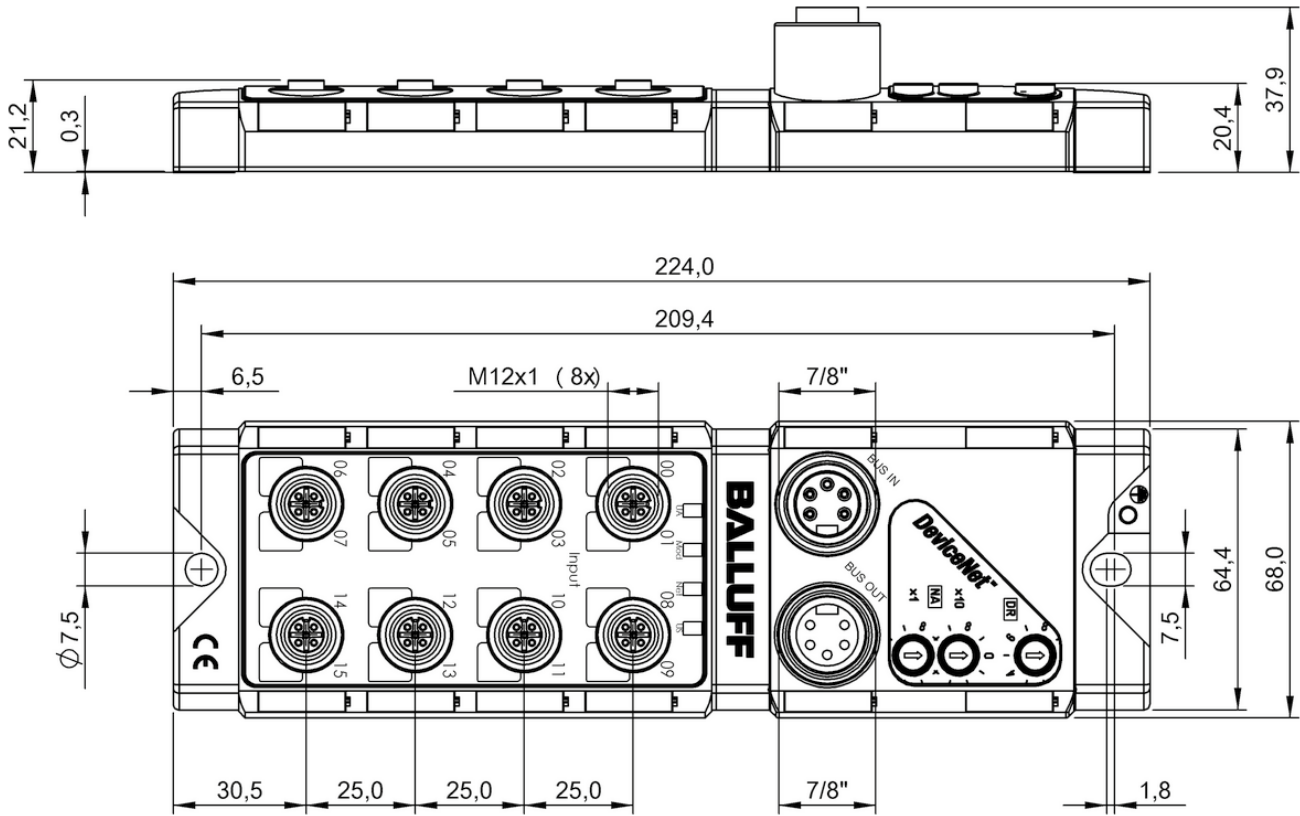
Accessories



BNI005A



BNI0003

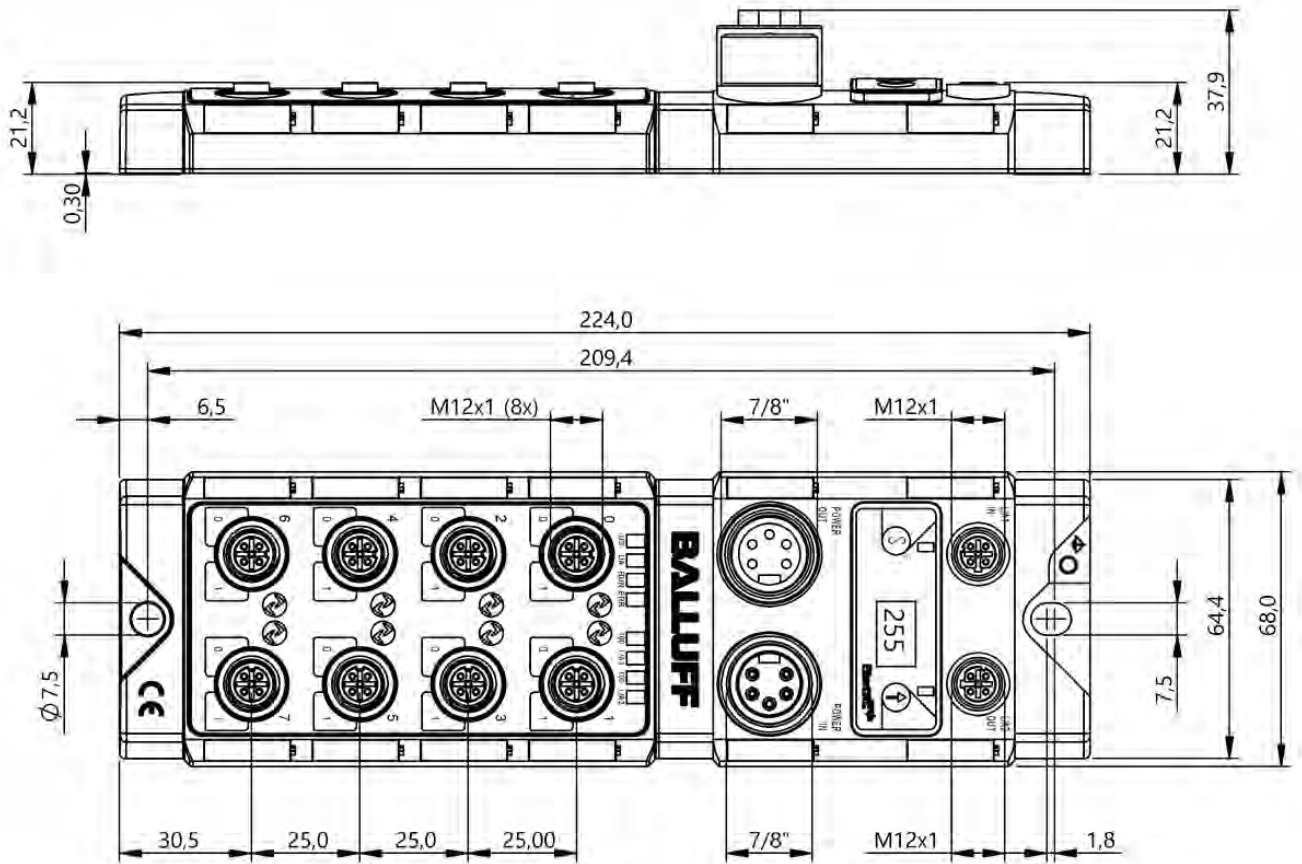


BNI0001

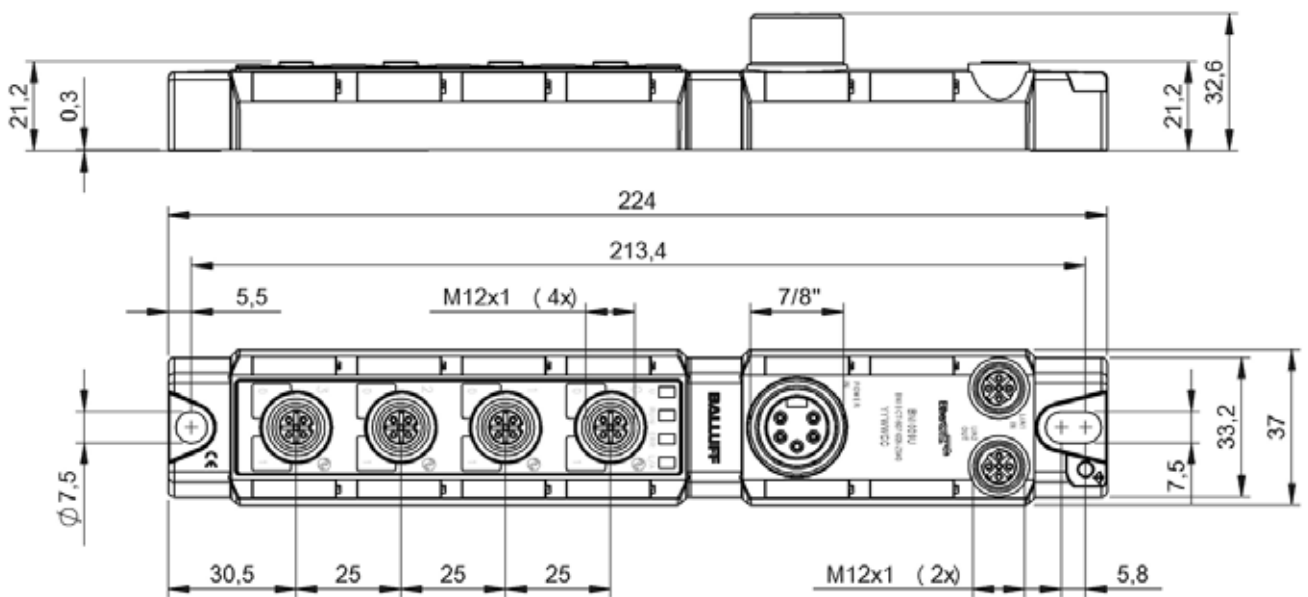
Interface	
Fast Start-Up (FSU)	
Operating voltage U_b	
Connection (COM 1)	
Connection (COM 2)	
Connection (supply voltage IN)	
Connection (supply voltage OUT)	
Connection slots	
Digital inputs	
Digital outputs	
Configurable inputs/outputs	
Output current max.	
Current sum US, sensor	
Current sum UA, actuator	
Housing material	
Dimension	
Ambient temperature	
IP rating	
Auxiliary interfaces	
IO-Link version	
Port-class	
Productview	



BNI0077	BNI009U
BNI ECT-508-105-Z015	BNI ECT-507-005-Z040
EtherCAT	EtherCAT
—	—
18...30.2 VDC	18...30.2 VDC
M12x1-Female, 5-pin, D-coded	M12x1-Female, 5-pin, D-coded
M12x1-Female, 5-pin, D-coded	M12x1-Female, 5-pin, D-coded
7/8"-Male, 5-pin	7/8"-Male, 5-pin
7/8"-Female, 5-pin	—
8x M12x1-Female, 5-pin, A-coded	4x M12x1-Female, 5-pin, A-coded
16x PNP, Type 2	8x PNP, Type 3
16x PNP	8x PNP
yes	yes
2 A	2 A
9.0 A	9.0 A
9.0 A	9.0 A
Zinc, Die casting	Zinc, Die casting
68 x 37.9 x 224 mm	37 x 32.6 x 224 mm
-5...70 °C	-40...70 °C
IP67	IP67
8x IO-Link	4x IO-Link
1.1	1.1
Type A	Type A
Seite 136	Seite 136



BNI0077



BNI009U



System solutions for
efficient network design

SWITCHES



Ethernet-based network systems are increasingly gaining significance in industrial automation. To enable you to easily link all Ethernet system components with Ethernet, Balluff provides you with a complete system. We offer you a multiplicity of Ethernet-based systems and network components for machine and system outfitting, including Profinet and Ethernet/IP. This means optimum infrastructure for complex networks.

Features

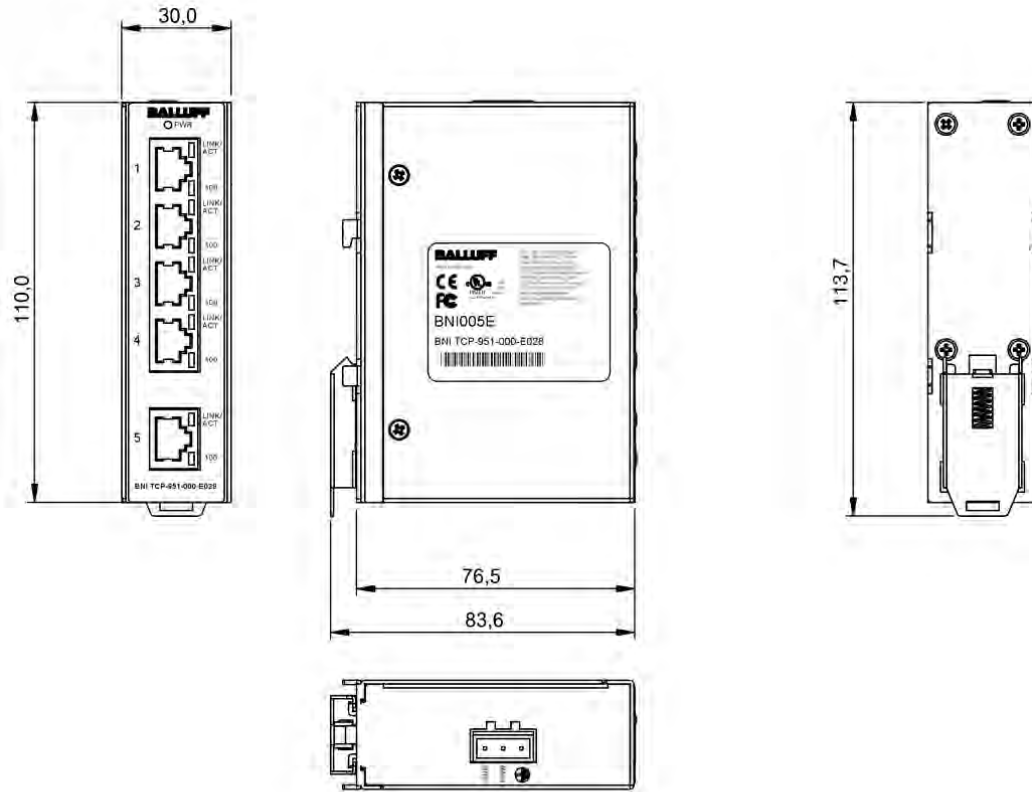
- Variety of Ethernet-based systems and network components
- Complete system for linking Ethernet system components with Ethernet



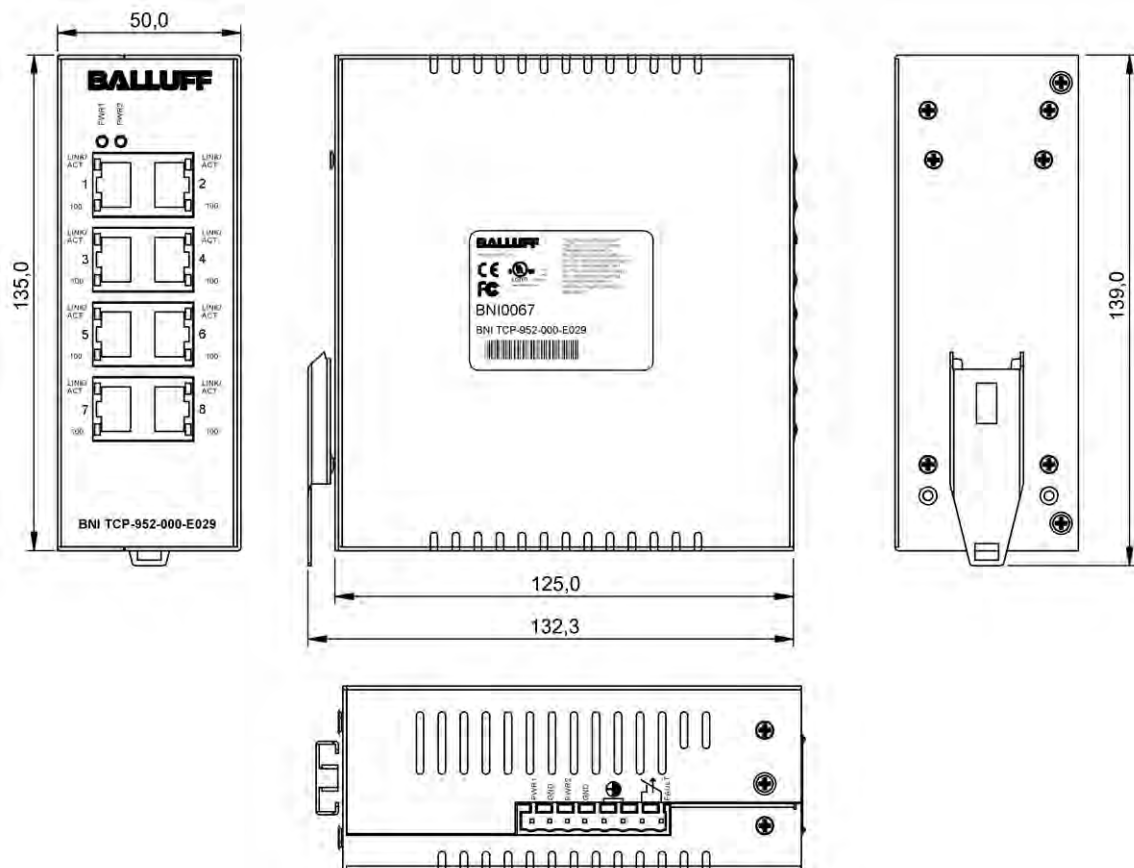
	BNI005E BNI TCP-951-000-E028	
Principle of operation	Active splitter	
Dimension	30 x 76.5 x 110 mm	
Mounting	DIN rail mount	
Housing material	Steel, coated	
Interface	Ethernet TCP/IP 10Base-T/100Base-TX	
Operating voltage U _b	12...48 VDC	
Connection slots	5x RJ45-Female, 8-pole	
Ambient temperature	-10...60 °C	
Protection degree	IP30	
Productview	Seite 142	



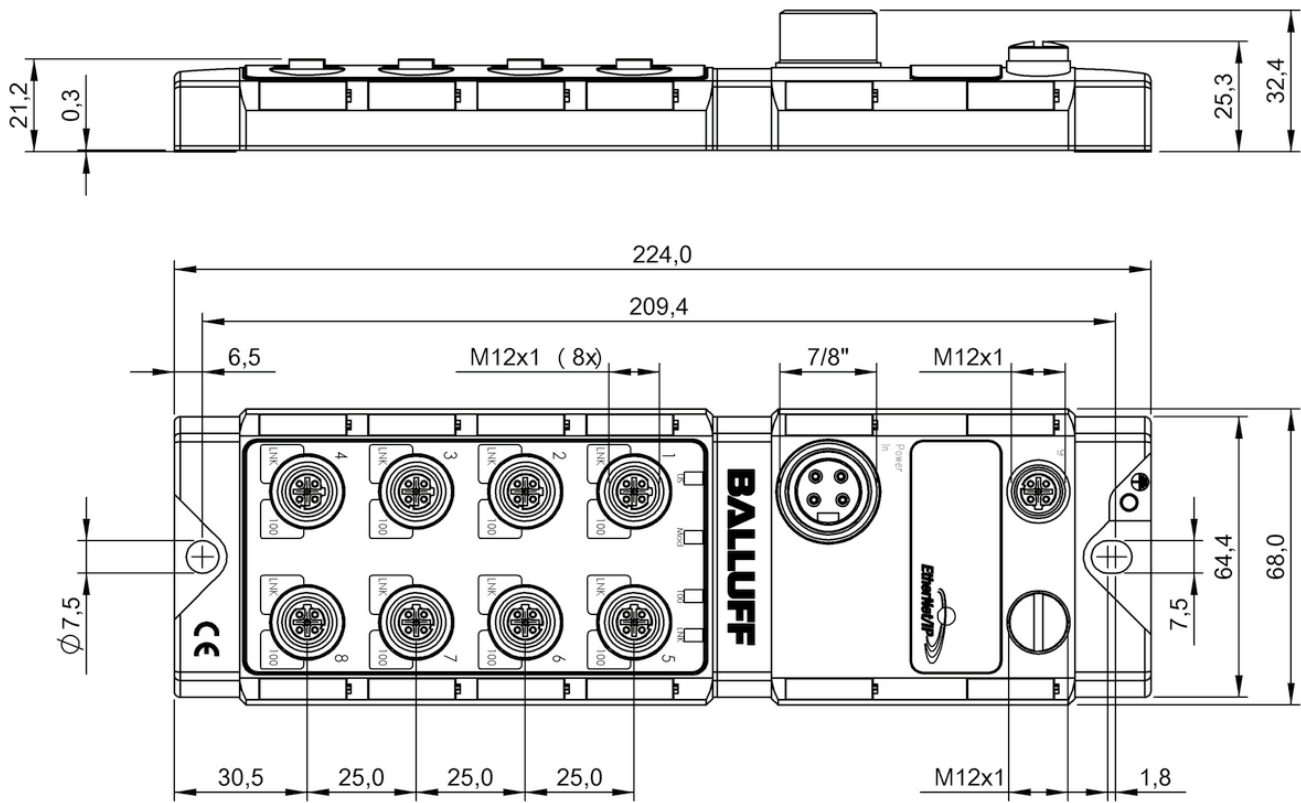
BNI0067 BNI TCP-952-000-E029	BNI000F BNI EIP-950-000-Z009
Active splitter	Active splitter
50 x 76.5 x 135 mm	68 x 32.4 x 224 mm
DIN rail mount	2-hole screw mount
Steel, coated	Zinc, die-cast
Ethernet TCP/IP 10Base-T/100Base-TX	Ethernet TCP/IP 10Base-T/100Base-TX
12...48 VDC	18...30.2 VDC
8x RJ45-Female, 8-pole	8x M12x1-Female, 4-pole, D-coded
-20...60 °C	-5...55 °C
IP30	IP67
Seite 142	Seite 143



BNI005E



BNI0067



BNI000F



Reliable signal transmission,
even under extreme conditions

I/O MODULES



I/O modules from Balluff connect binary and analog sensors and actuators to the control level via a bus. By using our modules you can significantly reduce the number of cables required. The Balluff I/O modules also offer additional functions for signal preprocessing and expanded diagnostic options. Various form factors and connection technologies provide solutions for a wide range of requirements – even under extreme ambient conditions.

Features

- Simple to install
- Efficient configuration
- Continuous diagnostics
- Individual solutions through a variety of designs and connection techniques
- Suitable for use under extreme conditions



	BNI0093 BNI IOL-309-002-Z019	BNI0099 BNI IOL-102-002-Z019	BNI00AU BNI IOL-302-002-Z046	
Interface	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	
Operating voltage U_b	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	
Connection (COM 1)	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	
Connection (supply voltage IN)	—	—	—	
Connection slots	8x M8x1-Female, 3-pin	8x M8x1-Female, 3-pin	16x M8x1-Female, 3-pin	
Digital inputs	8x PNP, Type 3	8x PNP, Type 3	16x PNP, Type 3	
Digital outputs	8x PNP	—	16x PNP	
Analog inputs	—	—	—	
Configurable inputs/outputs	yes	no	yes	
Extension port	yes	yes	yes	
Single-channel monitoring	—	—	—	
Additional function	—	—	—	
Current sum US, sensor	4 A	4 A	4 A	
Current sum UA, actuator	4 A	—	4 A	
Switching current	8x 300 mA	—	16x 300 mA	
Housing material	Zinc, Die casting, nickel plated	Zinc, Die casting	Zinc, Die casting, nickel plated	
Dimension	30 x 32.8 x 132 mm	30 x 32.8 x 132 mm	30 x 32.8 x 220 mm	
Ambient temperature	-5...70 °C	-5...70 °C	-5...70 °C	
IP rating	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	
Transfer rate	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	
Process data cycle min.	3.5 ms	3.2 ms	4.0 ms	
Process data IN	1 bytes	1 bytes	2 bytes	
Process data OUT	1 bytes	—	2 bytes	
Productview	Seite 158	Seite 158	Seite 158	



	BNIO0AY BNI IOL-104-002-Z046	BNIO0OR BNI IOL-102-000-K019	BNIO01Y BNI IOL-102-S01-K019	BNIO021 BNI IOL-104-000-K021	BNIO022 BNI IOL-104-S01-K021
	IO-Link 1.1	IO-Link 1.0	IO-Link 1.0	IO-Link 1.0	IO-Link 1.0
	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC
	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded
	—	—	—	—	—
	16x M8x1-Female, 3-pin	8x M8x1-Female, 3-pin	8x M8x1-Female, 3-pin	8x M8x1-Female, 4-pin	8x M8x1-Female, 4-pin
	16x PNP, Type 3	8x PNP, Type 2	8x PNP, Type 2	16x PNP, Type 2	16x PNP, Type 2
	—	—	—	—	—
	—	—	—	—	—
	no	no	no	no	no
	yes	—	—	—	—
	—	—	yes	—	yes
	—	—	—	—	—
	4 A	4 A	4 A	4 A	4 A
	—	—	—	—	—
	—	—	—	—	—
	Zinc, Die casting, nickel plated	PBT, GF	PBT, GF	PBT, GF	PBT, GF
	30 x 32.8 x 220 mm	30 x 24 x 129.5 mm	30 x 24 x 129.5 mm	30 x 24 x 129.5 mm	30 x 24 x 129.5 mm
	-5...70 °C	-5...55 °C	-5...55 °C	-5...55 °C	-5...55 °C
	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in
	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)
	3.5 ms	2.5 ms	2.5 ms	2.5 ms	10 ms
	2 bytes	1 bytes	2 bytes	2 bytes	4 bytes
	—	—	—	—	—
	Seite 159	Seite 159	Seite 159	Seite 160	Seite 160



	BNI000P BNI IOL-101-000-K018	BNI001W BNI IOL-101-S01-K018	BNI00CN BNI IOL-302-S02-Z012	
Interface	IO-Link 1.0	IO-Link 1.0	IO-Link 1.1	
Operating voltage U_b	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	
Connection (COM 1)	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	
Connection (supply voltage IN)	—	—	—	
Connection slots	4x M8x1-Female, 3-pin	4x M8x1-Female, 3-pin	8x M12x1-Female, 5-pin, A-coded	
Digital inputs	4x PNP, Type 2	4x PNP, Type 2	16x PNP, Type 3	
Digital outputs	—	—	16x PNP	
Analog inputs	—	—	—	
Configurable inputs/outputs	no	no	yes	
Extension port	—	—	yes	
Single-channel monitoring	—	yes	yes	
Additional function	—	—	—	
Current sum US, sensor	4 A	4 A	4 A	
Current sum UA, actuator	—	—	4 A	
Switching current	—	—	16x 200 mA	
Housing material	PBT, GF	PBT, GF	Zinc, Die casting	
Dimension	30 x 24 x 85.5 mm	30 x 24 x 85.5 mm	68 x 31.8 x 181.5 mm	
Ambient temperature	-5...55 °C	-5...55 °C	-5...55 °C	
IP rating	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	
Transfer rate	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	
Process data cycle min.	2.5 ms	2.5 ms	6.2 ms	
Process data IN	1 bytes	2 bytes	8 bytes	
Process data OUT	—	—	2 bytes	
Productview	Seite 160	Seite 160	Seite 161	



	BNI00CR BNI IOL-104-S02-Z012	BNI0063 BNI IOL-106-000-Z012	BNI0062 BNI IOL-106-S01-Z012	BNI0061 BNI IOL-106-S01-Z012-C01	BNI00AJ BNI IOL-719-002-Z012
	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1
	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC
	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded
	—	—	—	—	—
	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded
	16x PNP, Type 3	16x NPN, Type 2	16x NPN, Type 2	16x NPN, Type 2	—
	—	—	—	—	—
	—	—	—	—	8x Analog, voltage/analog, current/analog, temperature (0...10 V/-10...10 V/0...5 V/-5...5 V/5...10 V/4...20 mA/0...20 mA/Pt100/Pt1000/Thermocouple Type J/Thermocouple Type K)
	no	no	no	no	no
	yes	—	—	—	—
	yes	—	yes	yes	—
	—	—	—	Identification 2 bytes	—
	4 A	4 A	4 A	4 A	4 A
	4 A	—	—	—	4 A
	—	—	—	—	—
	Zinc, Die casting	Zinc, Die casting	Zinc, Die casting	Zinc, Die casting	Zinc, Die casting
	68 x 31.8 x 181.5 mm	68 x 31.8 x 181.5 mm	68 x 31.8 x 181.5 mm	68 x 31.8 x 181.5 mm	68 x 31.8 x 181.5 mm
	-5...55 °C	-5...70 °C	-5...70 °C	-5...70 °C	-5...70 °C
	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in
	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)
	4.4 ms	3.0 ms	3.5 ms	4.0 ms	55 ms
	4 bytes	2 bytes	4 bytes	6 bytes	22 bytes
	—	—	—	—	1 bytes
	Seite 161	Seite 161	Seite 161	Seite 161	Seite 162



	BNI003U BNI IOL-302-000-Z012	BNI0032 BNI IOL-104-000-Z012	BNI003T BNI IOL-104-S01-Z012-C01	
Interface	IO-Link 1.0	IO-Link 1.0	IO-Link 1.0	
Operating voltage U_b	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	
Connection (COM 1)	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	
Connection (supply voltage IN)	—	—	—	
Connection slots	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	
Digital inputs	16x PNP, Type 2	16x PNP, Type 2	16x PNP, Type 2	
Digital outputs	16x PNP	—	—	
Analog inputs	—	—	—	
Configurable inputs/outputs	yes	no	no	
Extension port	—	—	—	
Single-channel monitoring	—	—	yes	
Additional function	—	—	Identification 2 bytes	
Current sum U_S , sensor	4 A	4 A	4 A	
Current sum U_A , actuator	4 A	—	—	
Switching current	16x 500 mA	—	—	
Housing material	Zinc, Die casting	Zinc, Die casting	Zinc, Die casting	
Dimension	68 x 31.8 x 181.5 mm	68 x 31.8 x 181.5 mm	68 x 31.8 x 181.5 mm	
Ambient temperature	-5...70 °C	-5...70 °C	-5...70 °C	
IP rating	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	
Transfer rate	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	
Process data cycle min.	12 ms	3.0 ms	18 ms	
Process data IN	2 bytes	2 bytes	6 bytes	
Process data OUT	2 bytes	—	—	
Productview	Seite 162	Seite 161	Seite 161	



	BNI005P BNI IOL-104-S01-Z012-C02	BNI0031 BNI IOL-102-000-Z012	BNI00CM BNI IOL-302-002-Z042	BNI0046 BNI IOL-302-S02-Z013	BNI0035 BNI IOL-302-000-Z013
	IO-Link 1.0	IO-Link 1.0	IO-Link 1.1	IO-Link 1.1	IO-Link 1.0
	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC
	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded
	—	—	—	7/8"-Male, 5-pin	7/8"-Male, 5-pin
	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded
	16x PNP, Type 2	8x PNP, Type 2	16x PNP, Type 3	16x PNP, Type 3	16x PNP, Type 2
	—	—	16x PNP	16x PNP	16x PNP
	—	—	—	—	—
	no	no	yes	yes	yes
	—	—	yes	yes	—
	yes	—	—	yes	—
	Identification 4 bytes	—	—	—	—
	4 A	4 A	4 A	9.0 A	9.0 A
	—	—	4 A	9.0 A	9.0 A
	—	—	16x 2 A	16x 2 A	16x 2 A
	Zinc, Die casting	Zinc, Die casting	Zinc, Die casting	Zinc, Die casting	Zinc, Die casting
	68 x 31.8 x 181.5 mm	68 x 31.8 x 181.5 mm	68 x 31.8 x 181.5 mm	68 x 32.4 x 181.5 mm	68 x 32.4 x 181.5 mm
	-5...70 °C	-5...70 °C	-5...55 °C	-5...55 °C	-5...70 °C
	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in
	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)
	24 ms	3.0 ms	4.4 ms	6.2 ms	12 ms
	8 bytes	1 bytes	2 bytes	8 bytes	2 bytes
	—	—	2 bytes	2 bytes	2 bytes
	Seite 161	Seite 163	Seite 161	Seite 163	Seite 164



	BNI0048 BNI IOL-302-S01-Z013-C01	BNI00CP BNI IOL-302-S02-Z026	BNI0050 BNI IOL-302-000-Z026	
Interface	IO-Link 1.0	IO-Link 1.1	IO-Link 1.0	
Operating voltage U_b	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	
Connection (COM 1)	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	
Connection (supply voltage IN)	7/8"-Male, 5-pin	7/8"-Male, 4-pin	7/8"-Male, 4-pin	
Connection slots	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	
Digital inputs	16x PNP, Type 2	16x PNP, Type 3	16x PNP, Type 2	
Digital outputs	16x PNP	16x PNP	16x PNP	
Analog inputs	—	—	—	
Configurable inputs/outputs	yes	yes	yes	
Extension port	—	yes	—	
Single-channel monitoring	yes	yes	—	
Additional function	Identification 2 bytes	—	—	
Current sum U_S , sensor	9.0 A	9.0 A	9.0 A	
Current sum U_A , actuator	9.0 A	9.0 A	9.0 A	
Switching current	—	16x 2 A	16x 2 A	
Housing material	Zinc, Die casting	Zinc, Die casting	Zinc, Die casting	
Dimension	68 x 32.4 x 181.5 mm	68 x 32.4 x 181.5 mm	68 x 32.4 x 181.5 mm	
Ambient temperature	-5...70 °C	-5...55 °C	-5...70 °C	
IP rating	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	
Transfer rate	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	
Process data cycle min.	30 ms	5.6 ms	12 ms	
Process data IN	10 bytes	6 bytes	2 bytes	
Process data OUT	2 bytes	2 bytes	2 bytes	
Productview	Seite 164	Seite 164	Seite 165	



	BNI0090 BNI IOL-104-S02-R012	BNI0091 BNI IOL-302-S02-R026	BNI005L BNI IOL-302-000-K006	BNI005U BNI IOL-302-000-K006-C01	BNI007Z BNI IOL-302-002-K006
	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1
	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC
	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded
	—	7/8"-Male, 4-pin	—	—	—
	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded
	16x PNP, Type 3	16x PNP, Type 3	16x PNP, Type 3	16x PNP, Type 3	16x PNP, Type 3
	—	16x PNP	16x PNP	16x PNP	16x PNP
	—	—	—	—	—
	no	yes	yes	yes	yes
	yes	yes	—	—	yes
	yes	yes	—	—	—
	—	—	—	Identification 2 bytes	—
	3.5 A	9 A	4 A	4 A	4 A
	—	9 A	4 A	4 A	4 A
	—	16x 2 A	16x 350 mA	16x 350 mA	16x 350 mA
	PPS	PPS	PA, Transparent	PA, Transparent	PA, Transparent
	68 x 36.8 x 183.5 mm	68 x 37.6 x 183.5 mm	50 x 30.8 x 115 mm	50 x 30.8 x 115 mm	50 x 30.8 x 115 mm
	-5...70 °C	-5...55 °C	-5...55 °C	-5...55 °C	-20...55 °C
	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in
	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)
	4.5 ms	6.0 ms	3.5 ms	4.0 ms	3.5 ms
	4 bytes	6 bytes	2 bytes	4 bytes	2 bytes
	—	2 bytes	2 bytes	2 bytes	2 bytes
	Seite 165	Seite 166	Seite 166	Seite 167	Seite 167



	BNI005T BNI IOL-302-S01-K006	BNI005W BNI IOL-302-S01-K006-C01	BNI00AF BNI IOL-311-002-K006	
Interface	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	
Operating voltage U_b	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	
Connection (COM 1)	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	
Connection (supply voltage IN)	—	—	—	
Connection slots	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	
Digital inputs	16x PNP, Type 3	16x PNP, Type 3	16x NPN, Type 3	
Digital outputs	16x PNP	16x PNP	16x NPN	
Analog inputs	—	—	—	
Configurable inputs/outputs	yes	yes	yes	
Extension port	—	—	yes	
Single-channel monitoring	yes	yes	—	
Additional function	—	Identification 2 bytes	—	
Current sum U_S , sensor	4 A	4 A	4 A	
Current sum U_A , actuator	4 A	4 A	4 A	
Switching current	16x 350 mA	16x 350 mA	16x 200 mA	
Housing material	PA, Transparent	PA, Transparent	PA, Transparent	
Dimension	50 x 30.8 x 115 mm	50 x 30.8 x 115 mm	50 x 30.8 x 115 mm	
Ambient temperature	-5...55 °C	-5...55 °C	-5...55 °C	
IP rating	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	
Transfer rate	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	
Process data cycle min.	5.0 ms	5.5 ms	3.5 ms	
Process data IN	8 bytes	10 bytes	2 bytes	
Process data OUT	2 bytes	2 bytes	2 bytes	
Productview	Seite 168	Seite 168	Seite 169	



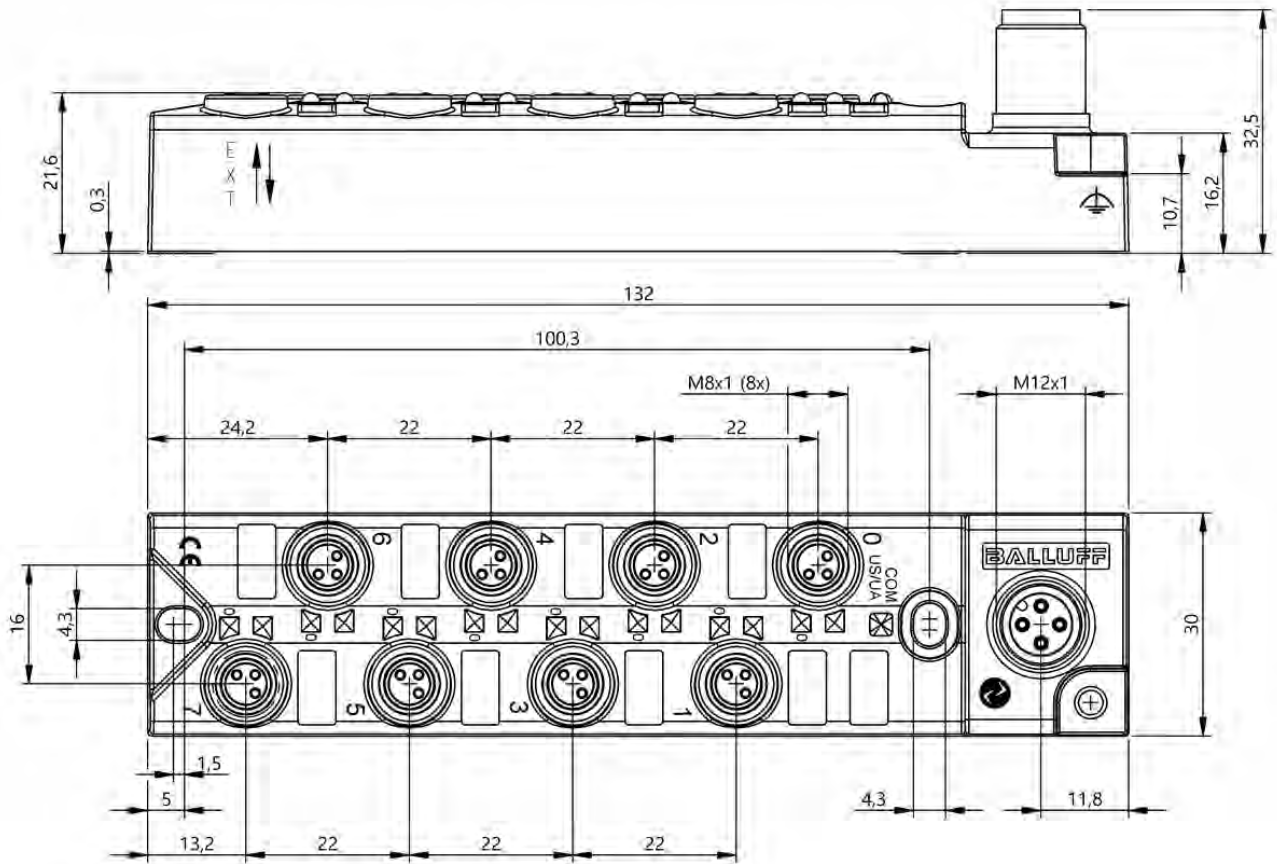
	BNI00AW BNI IOL-311-S02-K006-C01	BNI0074 BNI IOL-106-000-K006	BNI0075 BNI IOL-106-S01-K006	BNI0076 BNI IOL-106-S01-K006-C01	BNI0006 BNI IOL-104-000-K006
	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	IO-Link 1.0
	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC
	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded
	—	—	—	—	—
	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded
	16x NPN, Type 3	16x NPN, Type 2	16x NPN, Type 2	16x NPN, Type 2	16x PNP, Type 2
	16x NPN	—	—	—	—
	—	—	—	—	—
	yes	no	no	no	no
	yes	—	—	—	—
	yes	—	yes	yes	—
	Identification 2 bytes	—	—	Identification 2 bytes	—
	4 A	4 A	4 A	4 A	4 A
	4 A	—	—	—	—
	16x 200 mA	—	—	—	—
	PA, Transparent	PA, Transparent	PA, Transparent	PA, Transparent	PA, Transparent
	50 x 30.8 x 115 mm	50 x 30.8 x 115 mm	50 x 30.8 x 115 mm	50 x 30.8 x 115 mm	50 x 30.8 x 115 mm
	-5...55 °C	-5...55 °C	-5...55 °C	-5...55 °C	-5...55 °C
	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in
	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)
	6.0 ms	3.0 ms	3.5 ms	4.0 ms	3.0 ms
	10 bytes	2 bytes	4 bytes	6 bytes	2 bytes
	2 bytes	—	—	—	—
	Seite 169	Seite 170	Seite 170	Seite 171	Seite 171



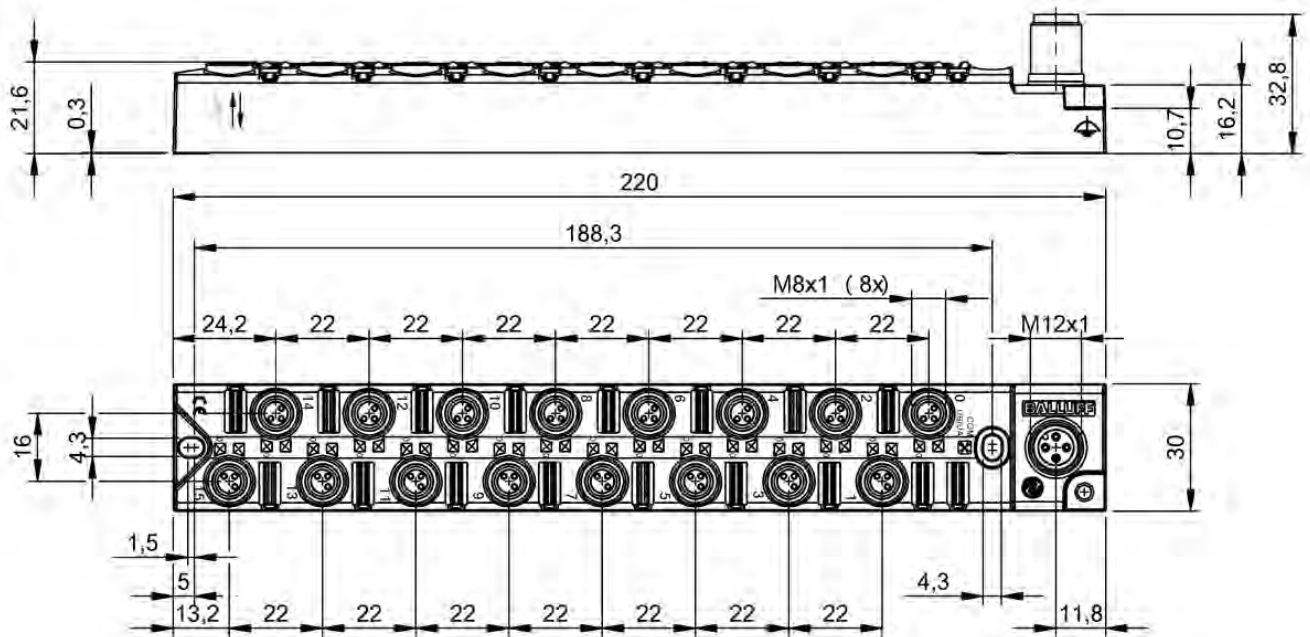
	BNI0005 BNI IOL-102-000-K006	BNI0007 BNI IOL-709-000-K006	BNI0008 BNI IOL-710-000-K006	
Interface	IO-Link 1.0	IO-Link 1.0	IO-Link 1.0	
Operating voltage U_b	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	
Connection (COM 1)	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	M12x1-Male, 4-pin, A-coded	
Connection (supply voltage IN)	—	—	—	
Connection slots	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	8x M12x1-Female, 5-pin, A-coded	
Digital inputs	8x PNP, Type 2	8x PNP, Type 2	8x PNP, Type 2	
Digital outputs	—	—	—	
Analog inputs	—	4x Analog, current (4...20 mA)	4x Analog, voltage (0...10 V)	
Configurable inputs/outputs	no	no	no	
Extension port	—	—	—	
Single-channel monitoring	—	—	—	
Additional function	—	—	—	
Current sum I_S , sensor	4 A	4 A	4 A	
Current sum I_A , actuator	—	—	—	
Switching current	—	—	—	
Housing material	PA, Transparent	PA, Transparent	PA, Transparent	
Dimension	50 x 30.8 x 115 mm	50 x 30.8 x 115 mm	50 x 30.8 x 115 mm	
Ambient temperature	-5...55 °C	-5...55 °C	-5...55 °C	
IP rating	IP67, when threaded in	IP67, when threaded in	IP67, when threaded in	
Transfer rate	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	
Process data cycle min.	3.0 ms	30 ms	30 ms	
Process data IN	1 bytes	10 bytes	10 bytes	
Process data OUT	—	—	—	
Productview	Seite 172	Seite 172	Seite 173	



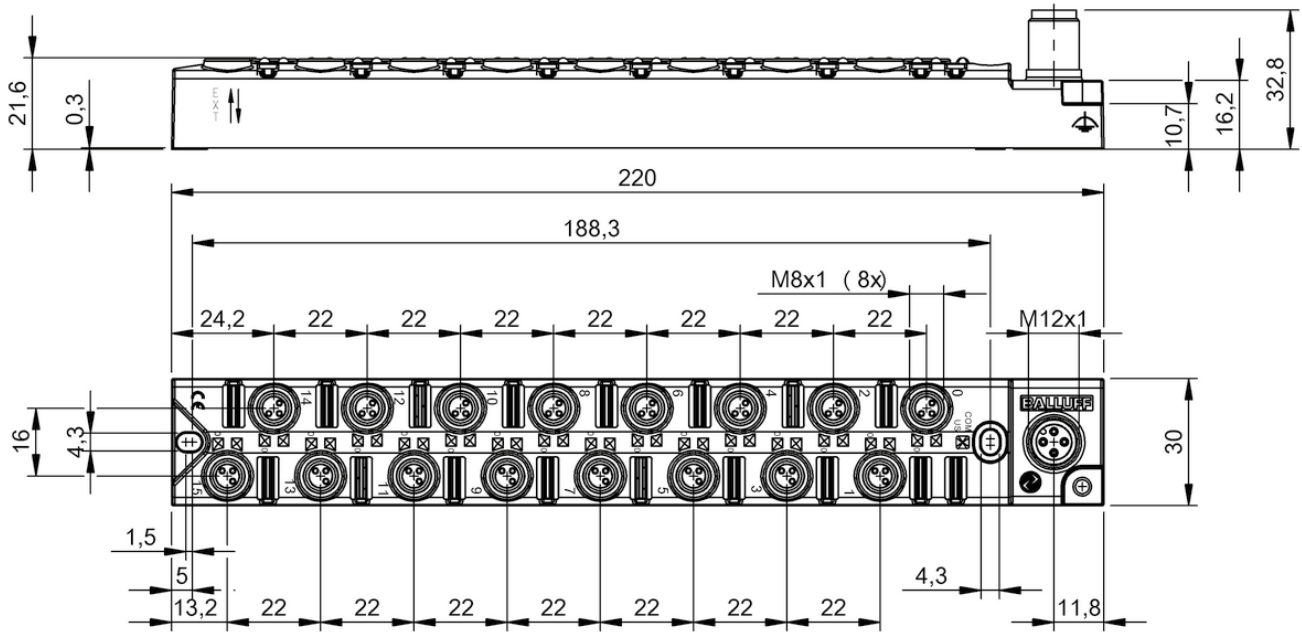
	BNI007P BNI IOL-309-000-K024-001	BNI004K BNI IOL-309-000-K024	BNI004L BNI IOL-310-000-K025	BNI007R BNI IOL-310-000-K025-001	
	IO-Link 1.0	IO-Link 1.0	IO-Link 1.0	IO-Link 1.0	
	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	
	Pluggable without terminals, 4-pin	Screw/plug-in terminals, 4-pin	Screw/plug-in terminals, 4-pin	Pluggable without terminals, 4-pin	
	Pluggable without terminals	Screw/plug-in terminals	Screw/plug-in terminals	Pluggable without terminals	
	Pluggable without terminals	Screw/plug-in terminals	Screw/plug-in terminals	Pluggable without terminals	
	8x PNP, Type 2	8x PNP, Type 2	16x PNP, Type 2	16x PNP, Type 2	
	8x PNP	8x PNP	16x PNP	16x PNP	
	—	—	—	—	
	yes	yes	yes	yes	
	—	—	—	—	
	—	—	—	—	
	—	—	—	—	
	1.0 A	1.0 A	1.0 A	1.0 A	
	1.6 A	1.0 A	1.6 A	1.6 A	
	8x 350 mA	—	16x 350 mA	16x 350 mA	
	PA 6.6, UL94V-0	PA 6.6, UL94V-0	PA 6.6, UL94V-0	PA 6.6, UL94V-0	
	48.6 x 33.6 x 84 mm	48.6 x 42.6 x 84 mm	79 x 33.6 x 84 mm	79 x 33.6 x 84 mm	
	-20...50 °C	-20...50 °C	-20...50 °C	-20...50 °C	
	IP20	IP20	IP20	IP20	
	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	
	3.0 ms	3.0 ms	12 ms	12 ms	
	1 bytes	1 bytes	2 bytes	2 bytes	
	1 bytes	1 bytes	2 bytes	2 bytes	
	Seite 173	Seite 174	Seite 174	Seite 175	



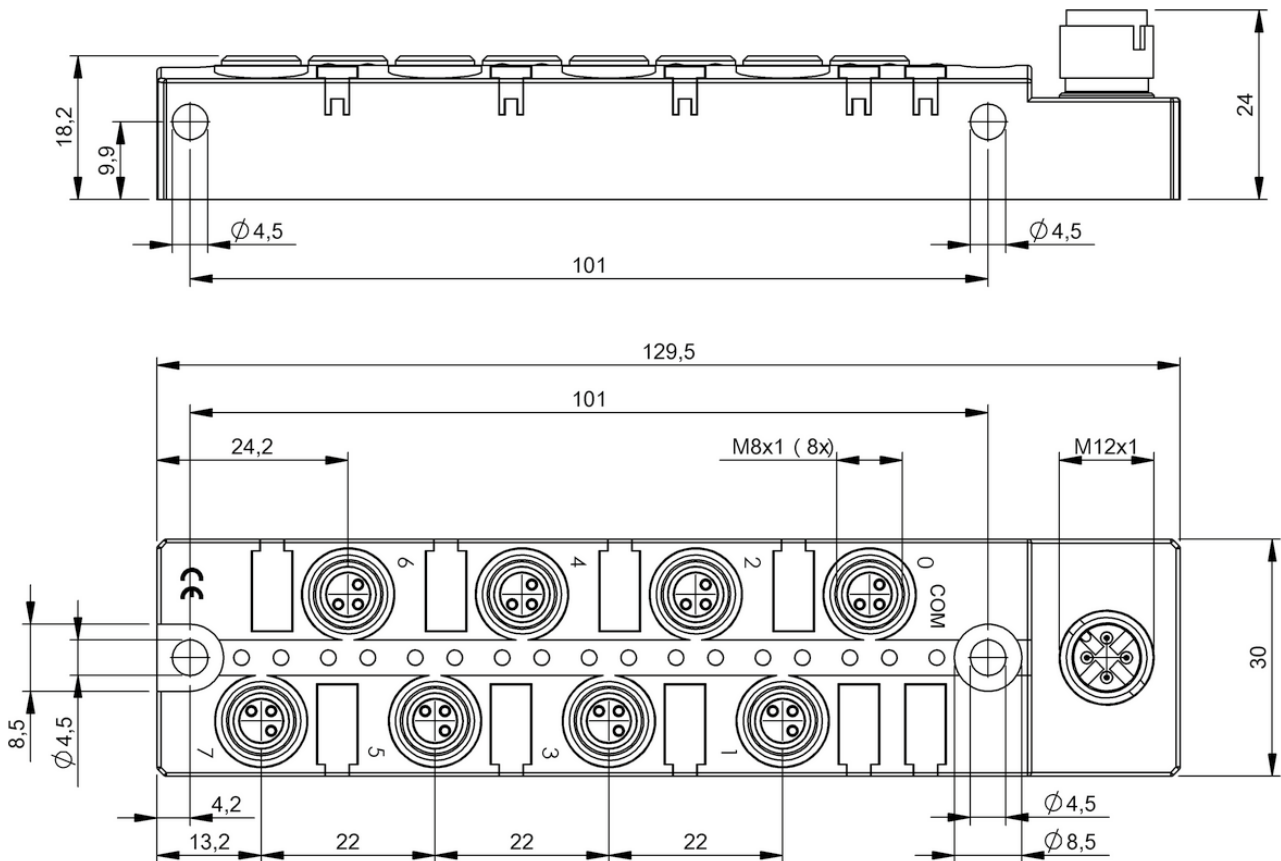
BNIO093, BNIO099



BNIO0AU

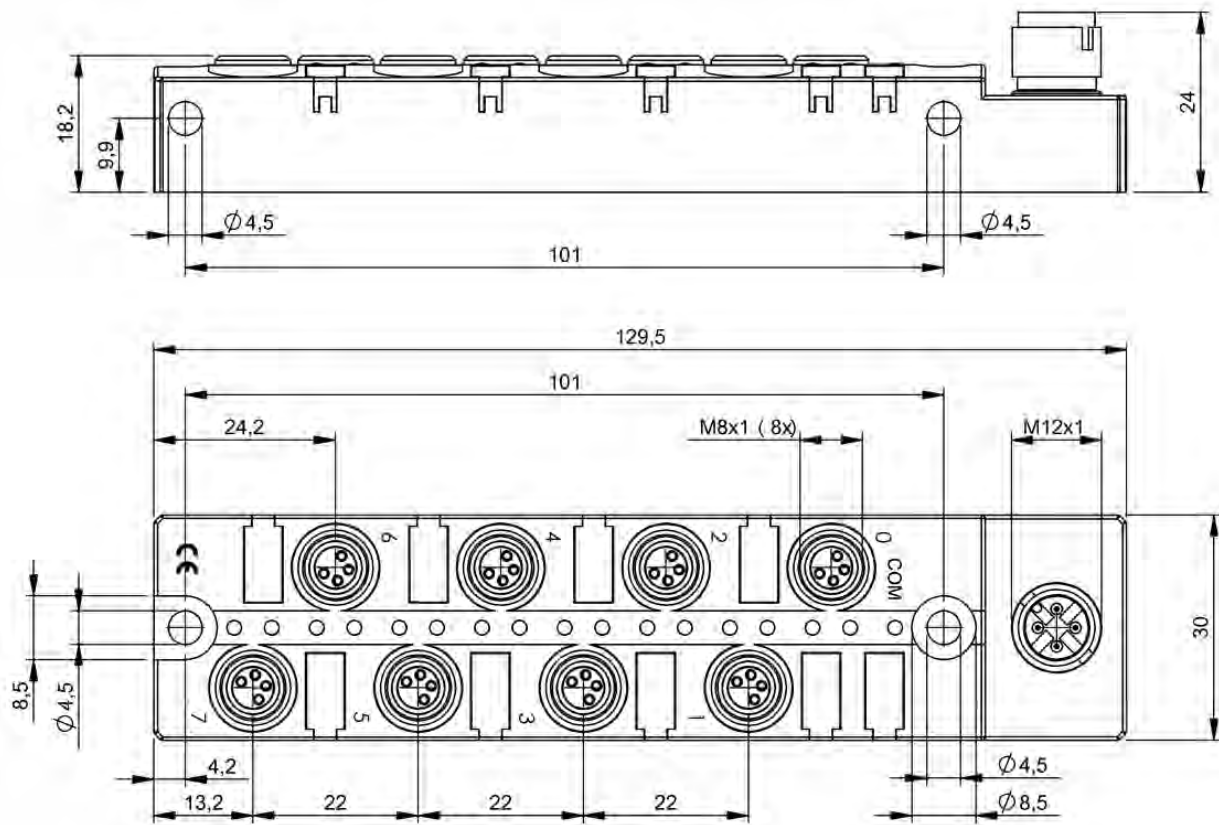


BNI00AY

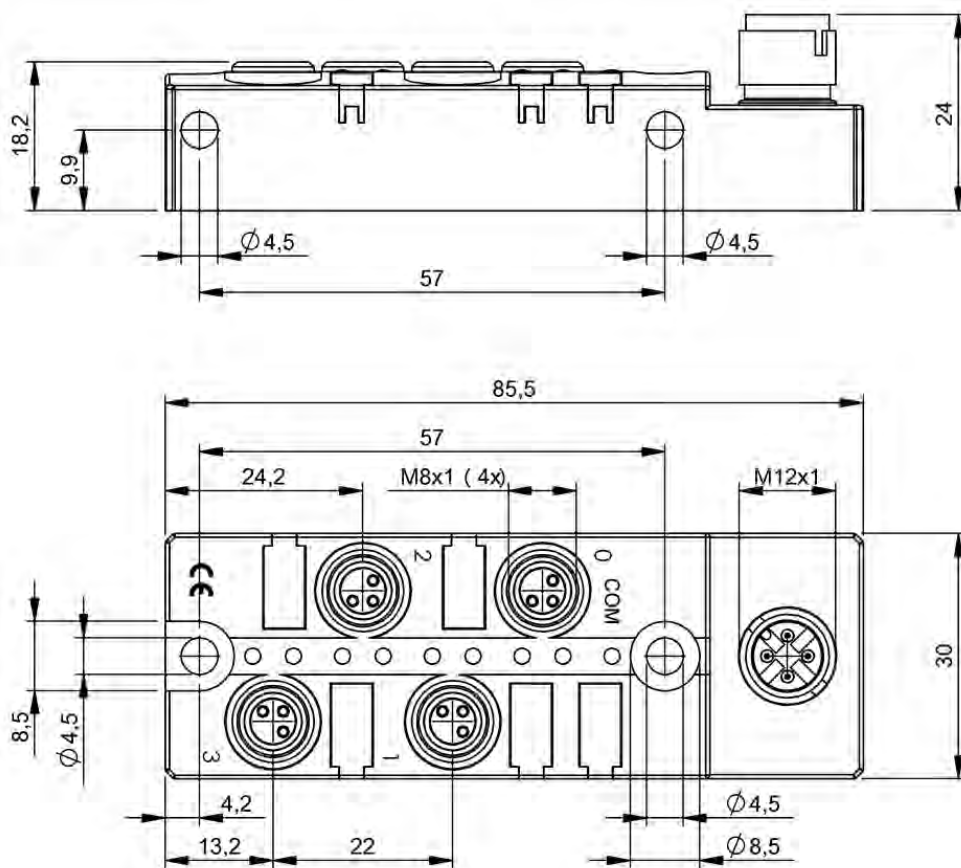


BNI000R, BNI001Y

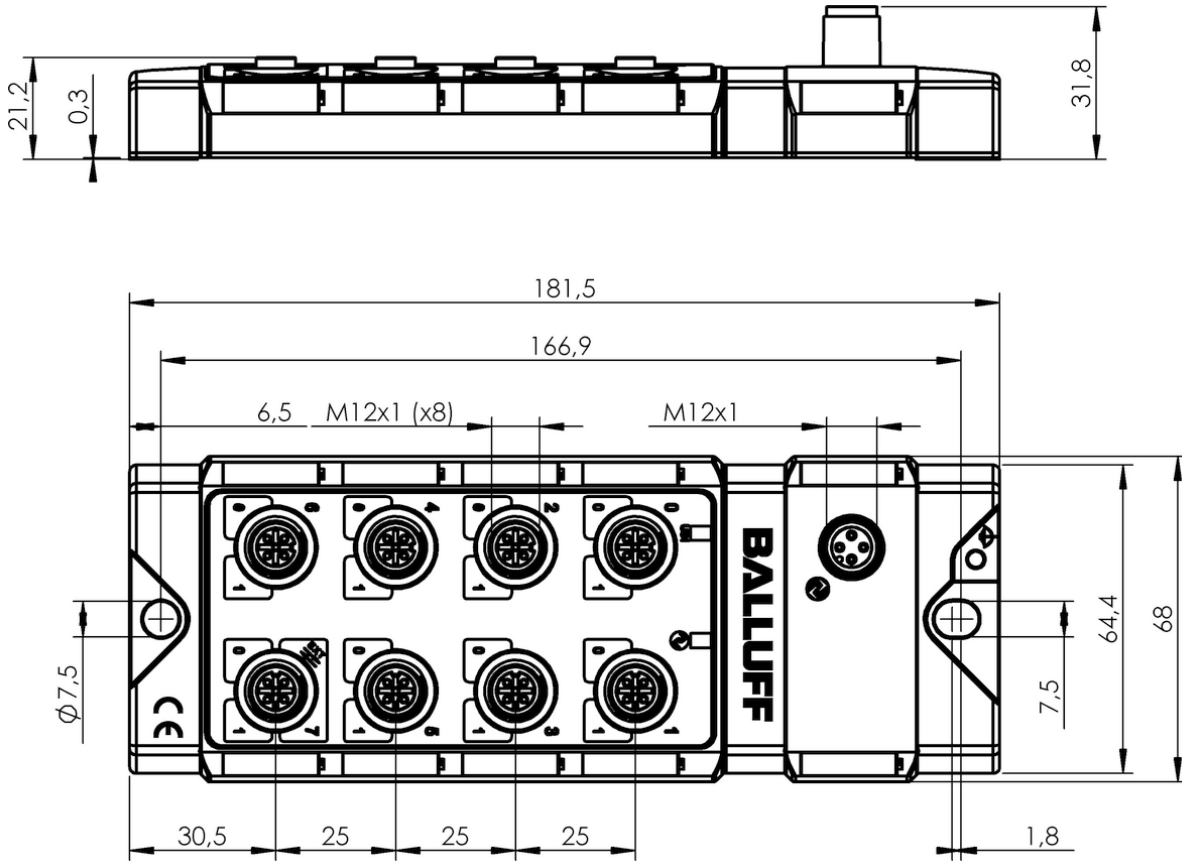
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



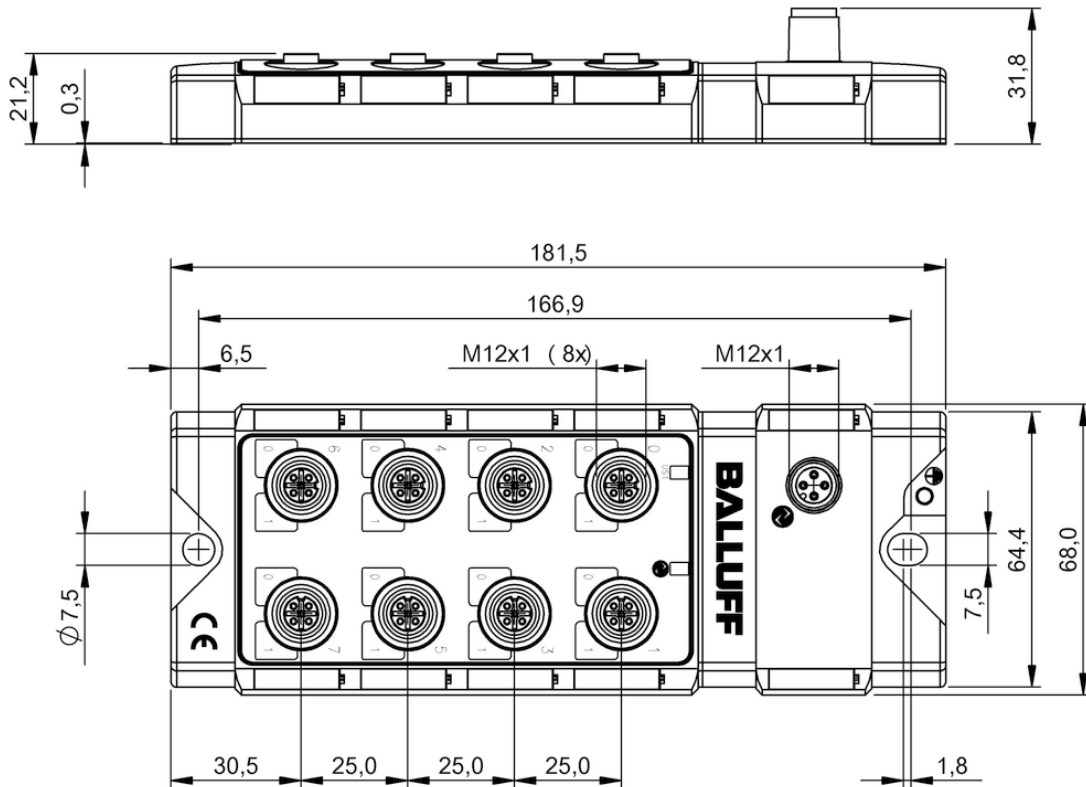
BNI0021, BNI0022



BNI000P, BNI001W

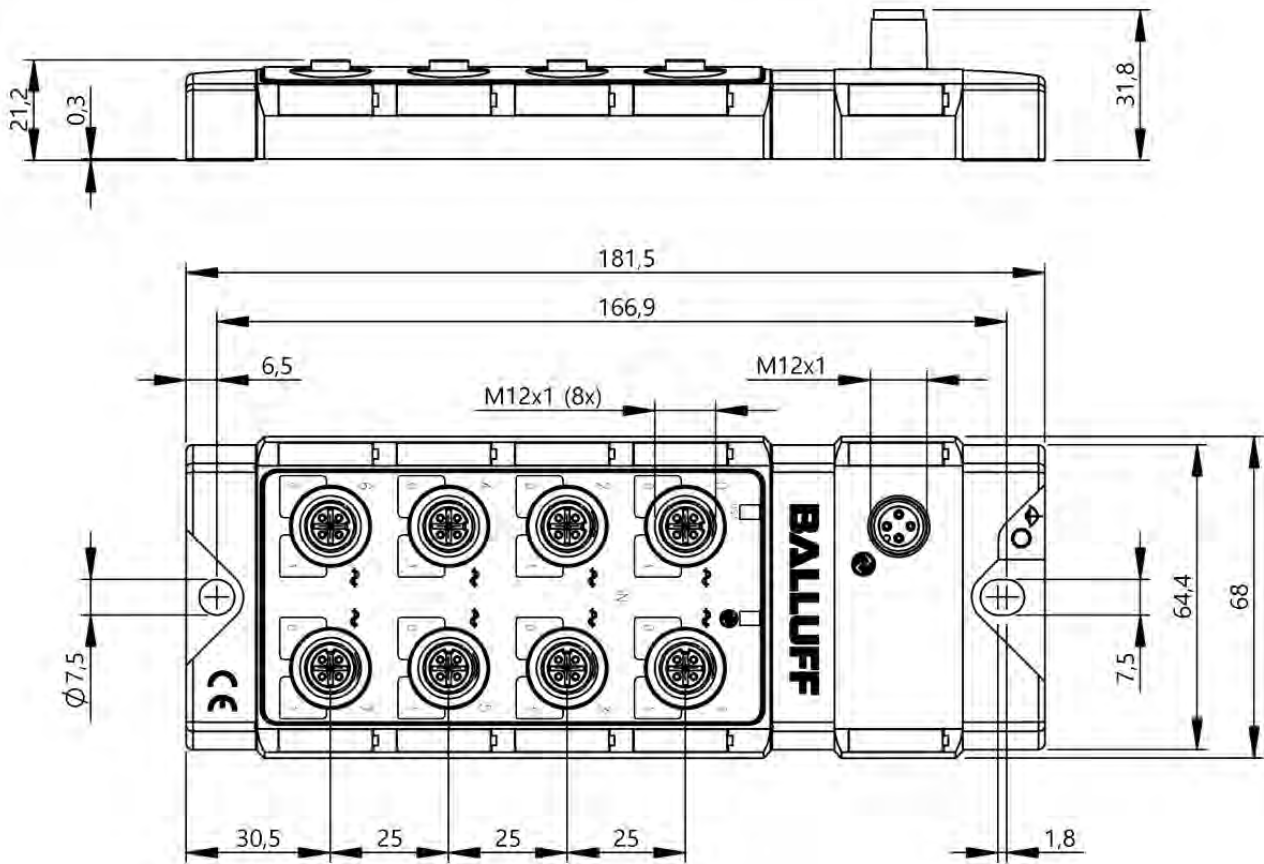


BNI00CN, BNI00CR, BNI00CM

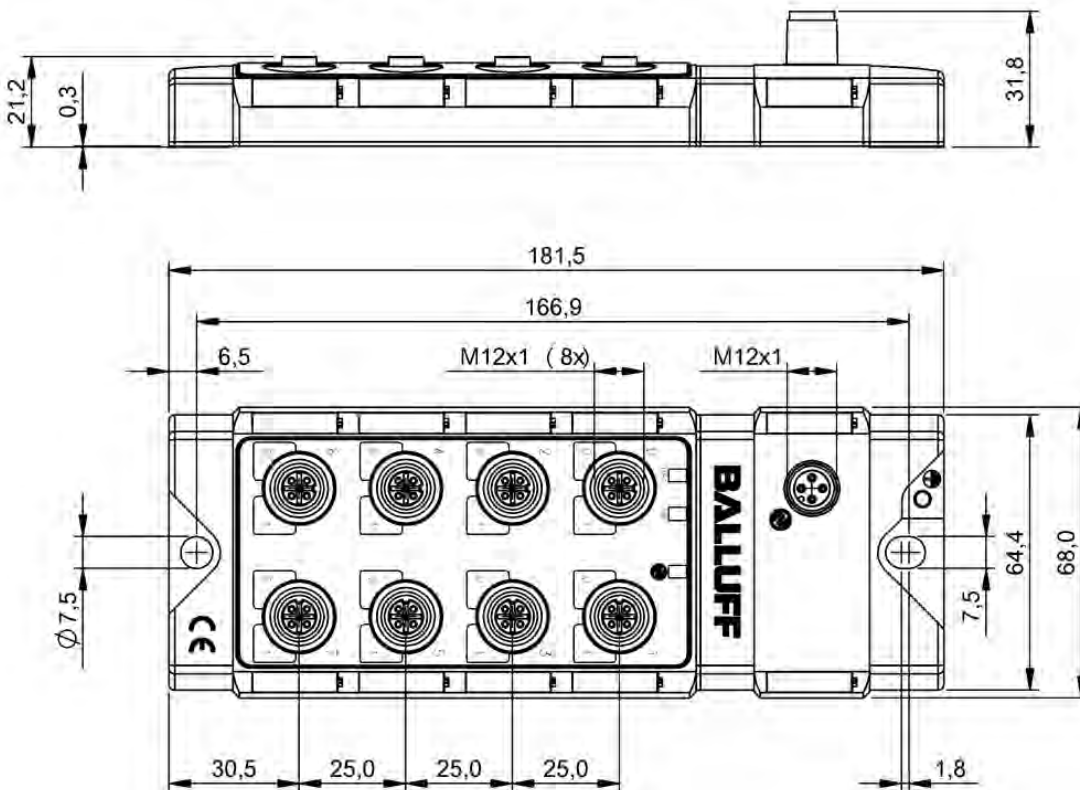


BNI0063, BNI0062, BNI0061, BNI0032, BNI003T, BNI005P

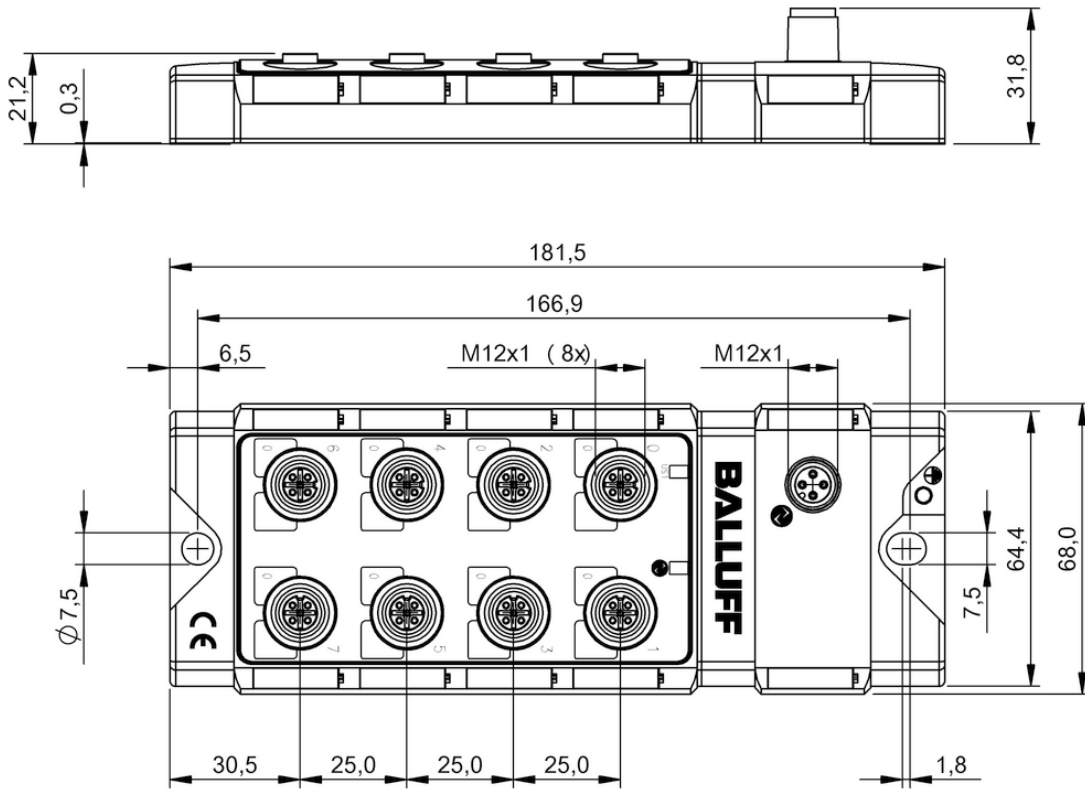
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



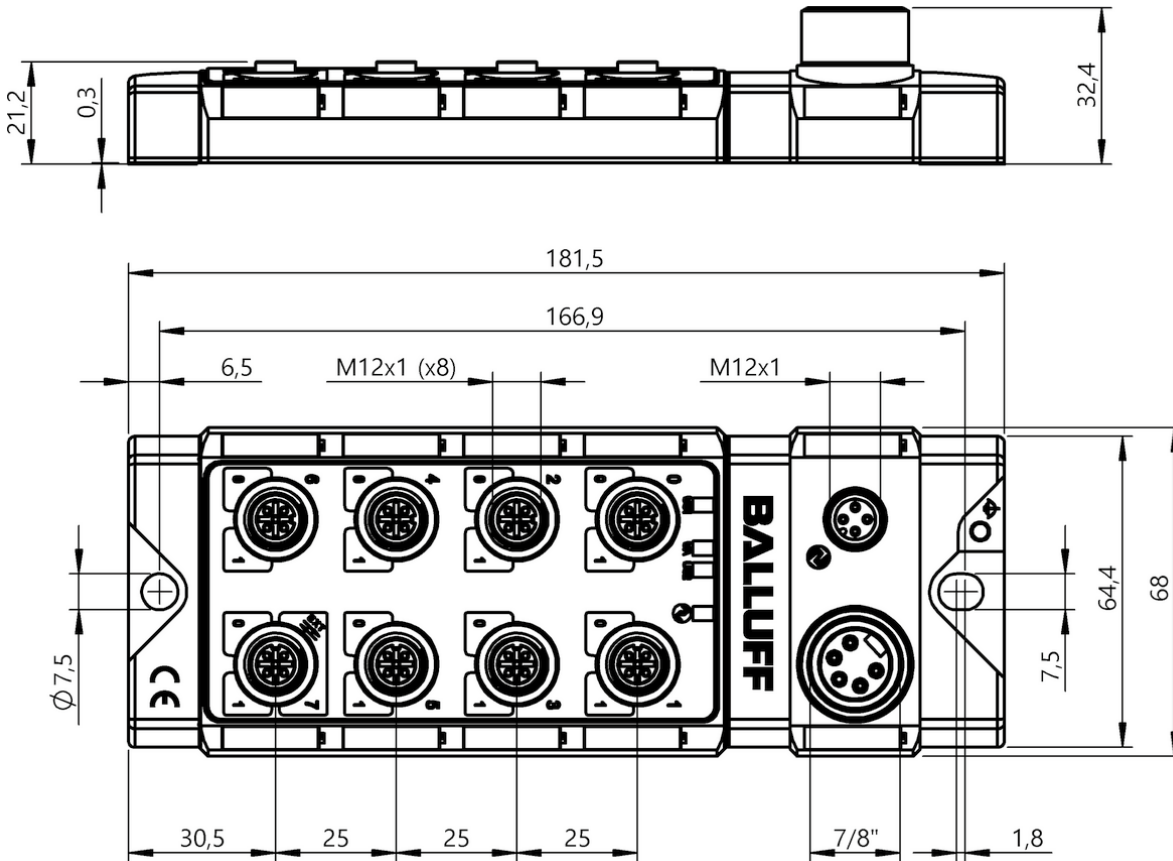
BN100AJ



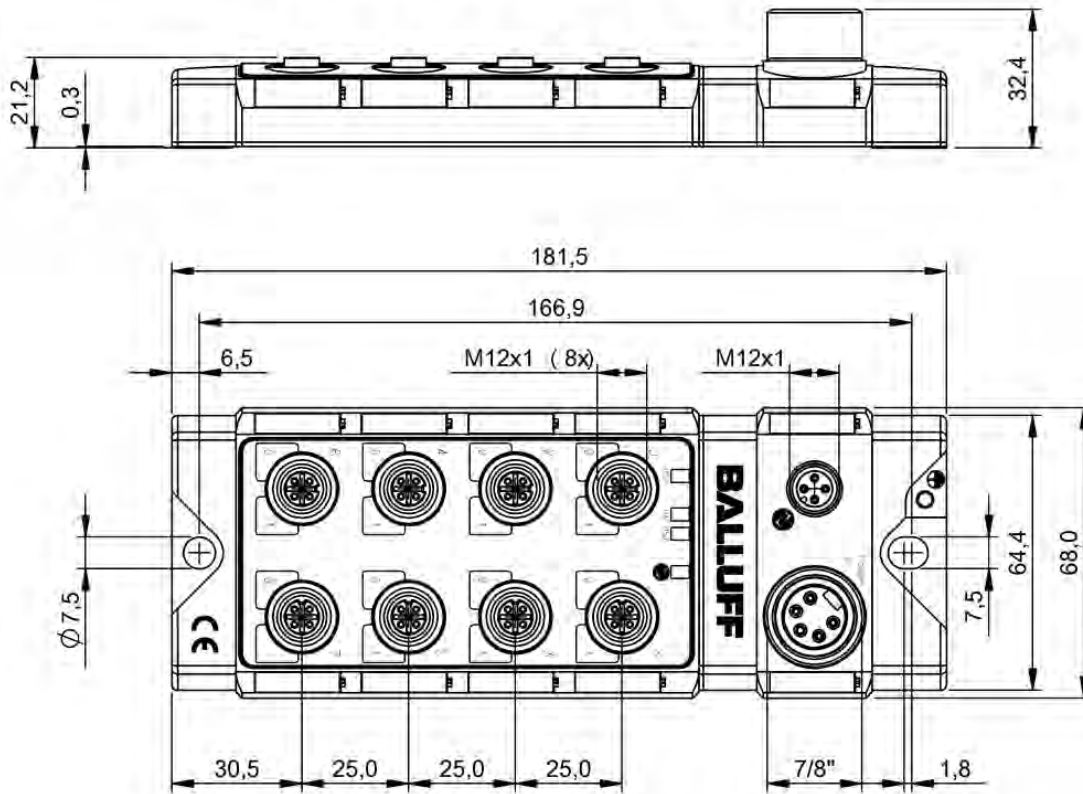
BN1003U



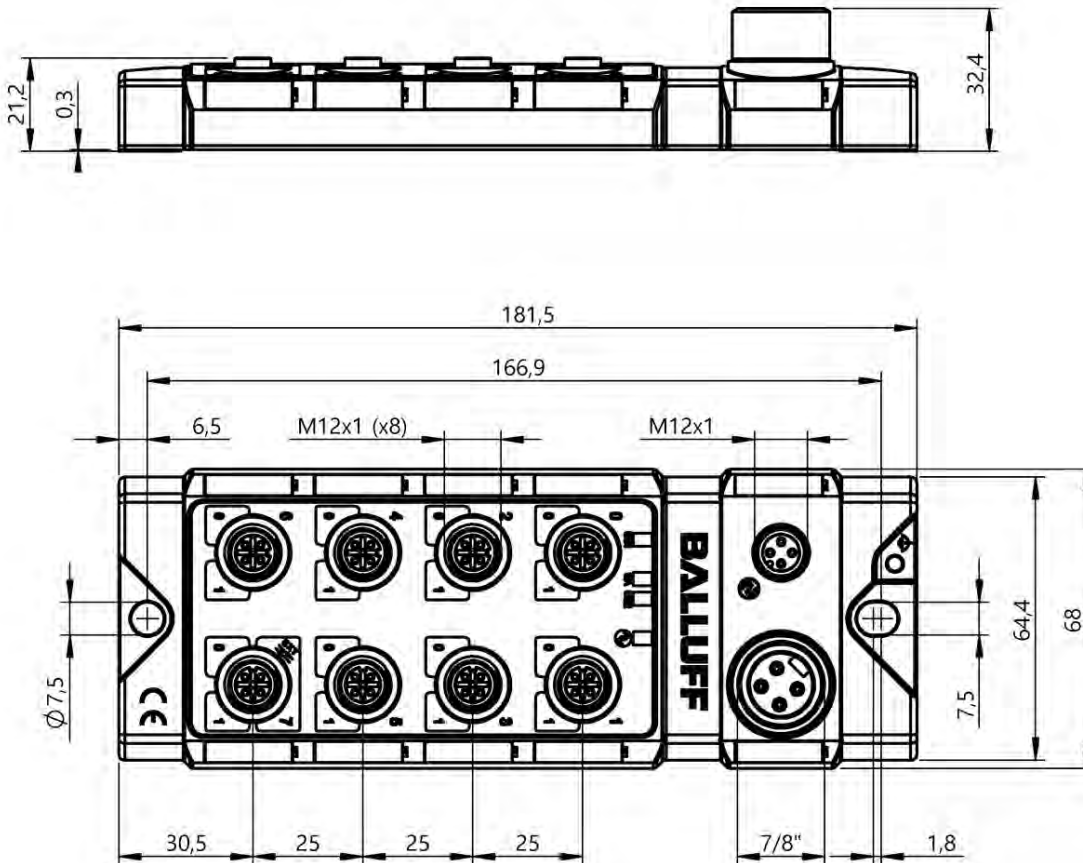
BNI0031



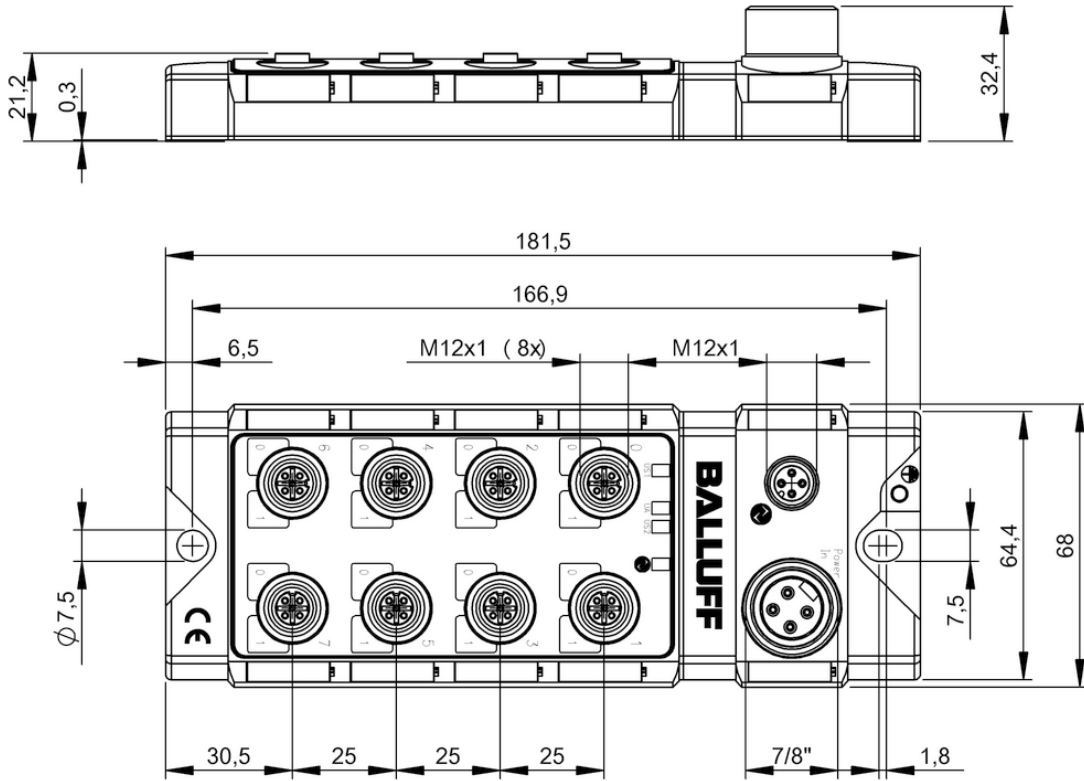
BNI0046



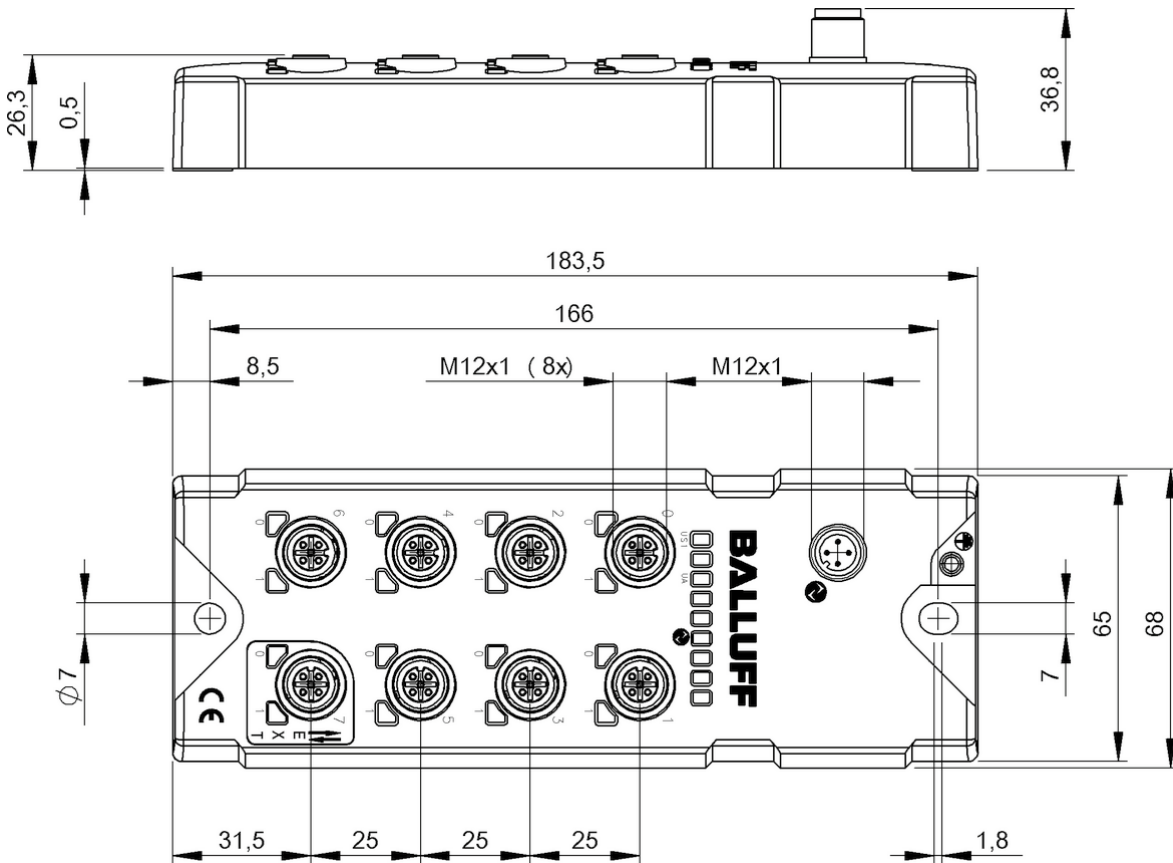
BNI0035, BNI0048



BNI00CP

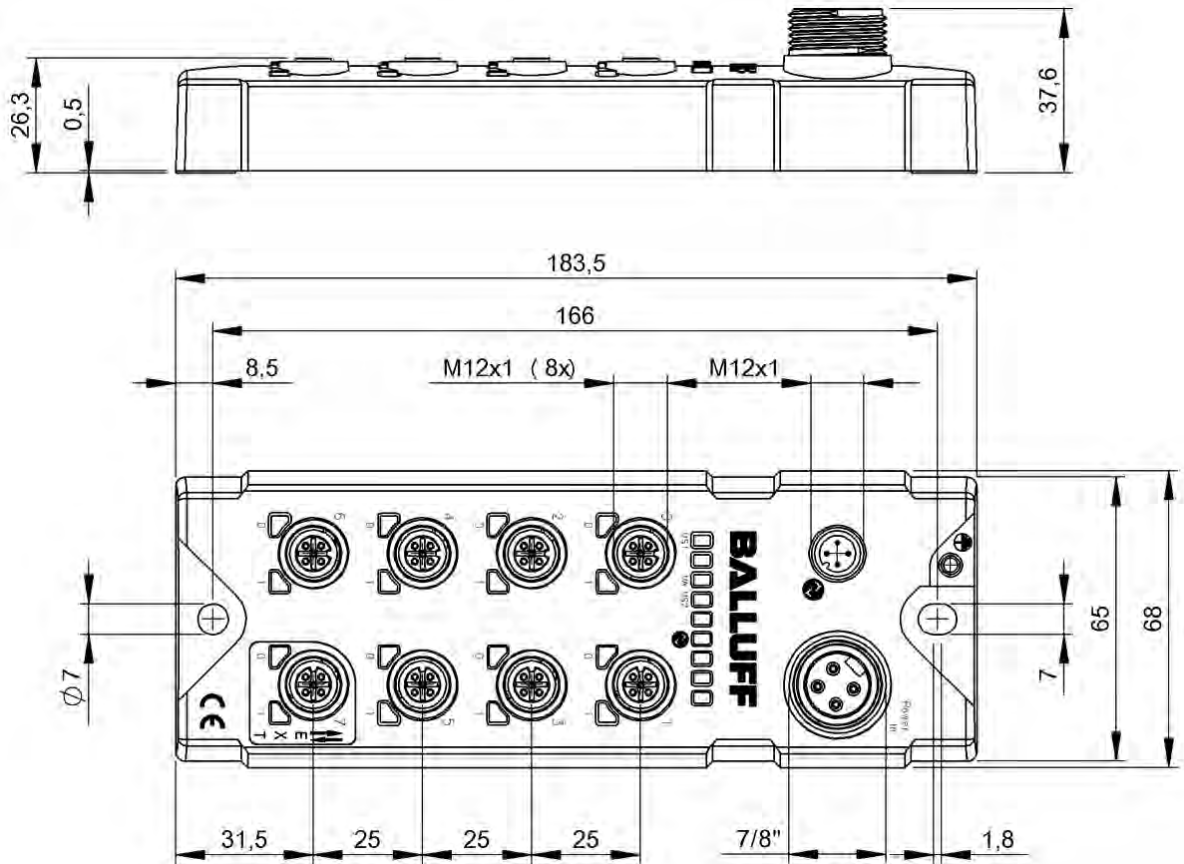


BNI0050

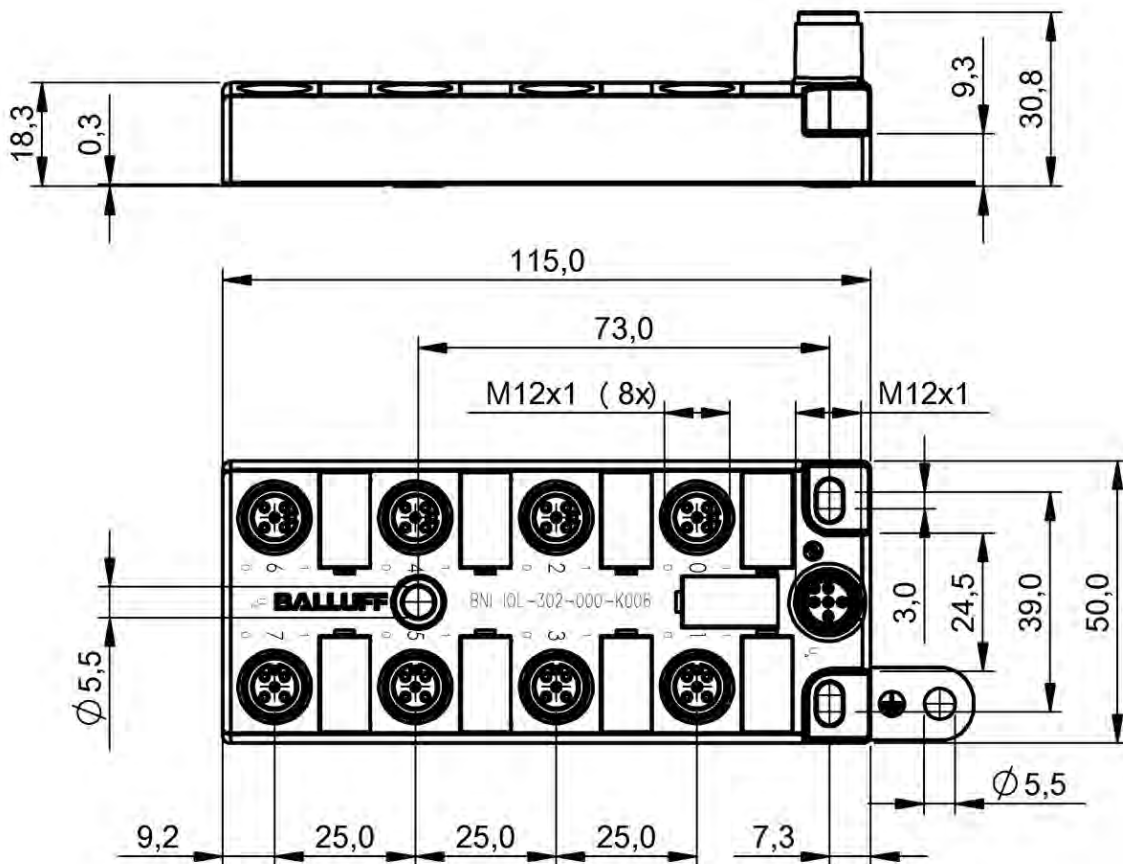


BNI0090

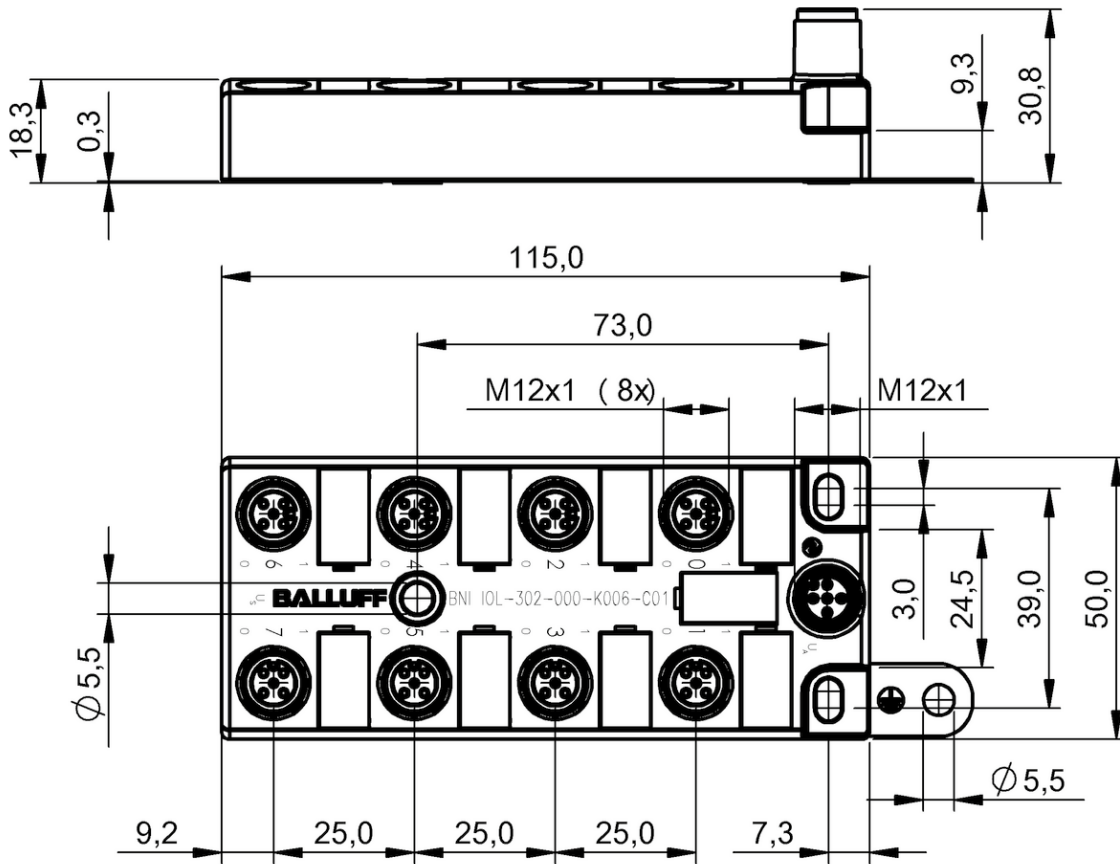
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



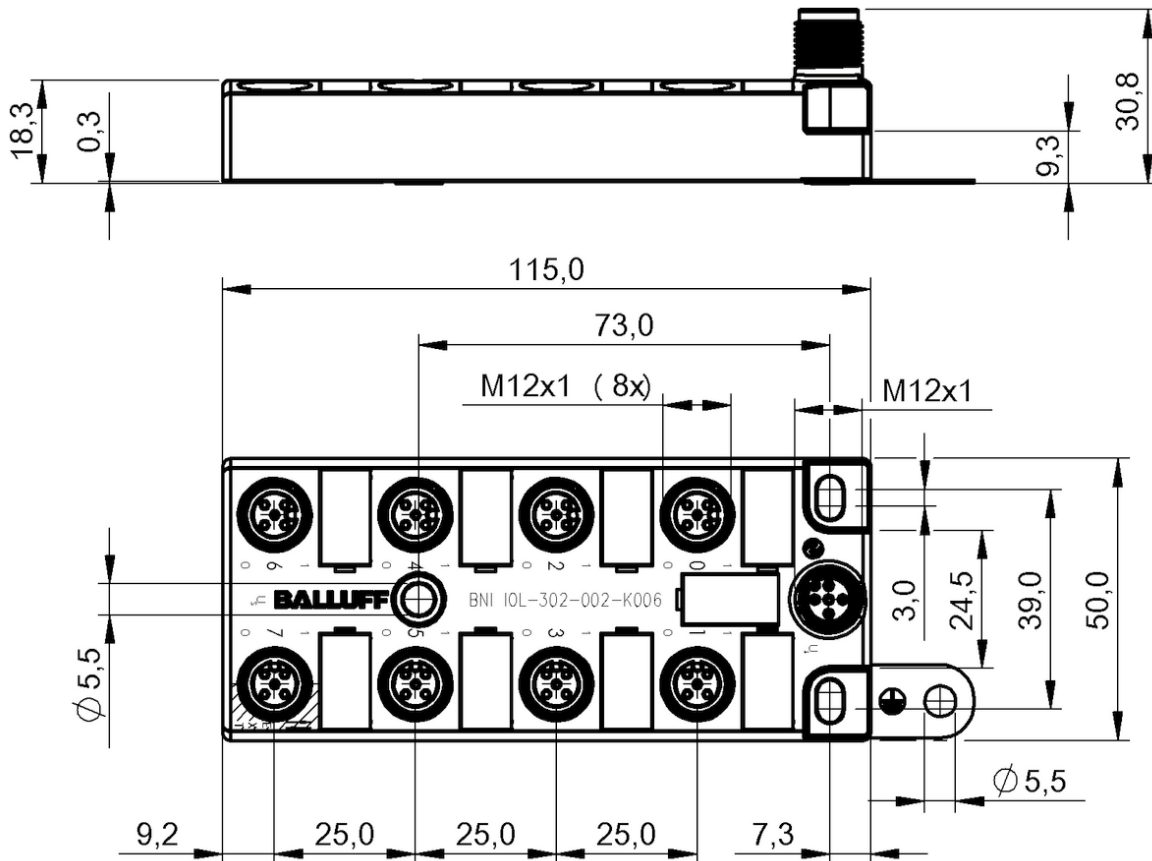
BNI0091



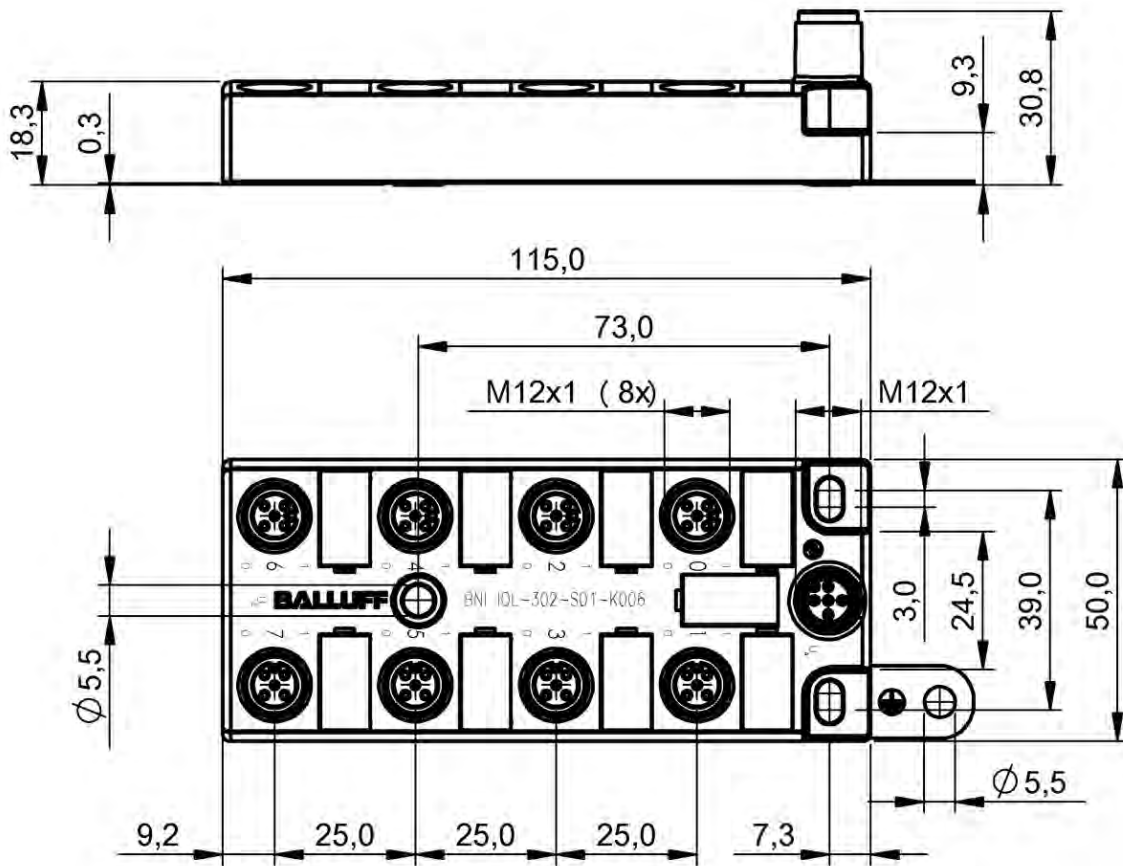
BNI005L



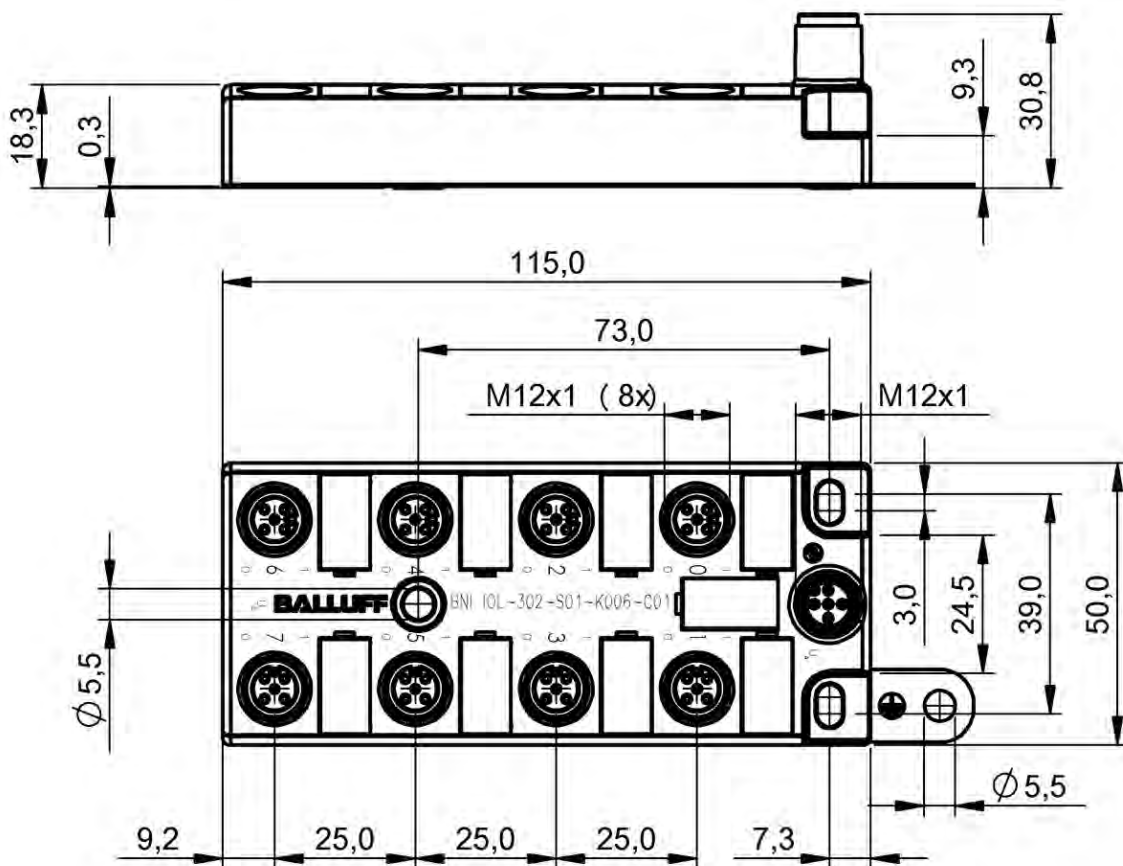
BNI005U



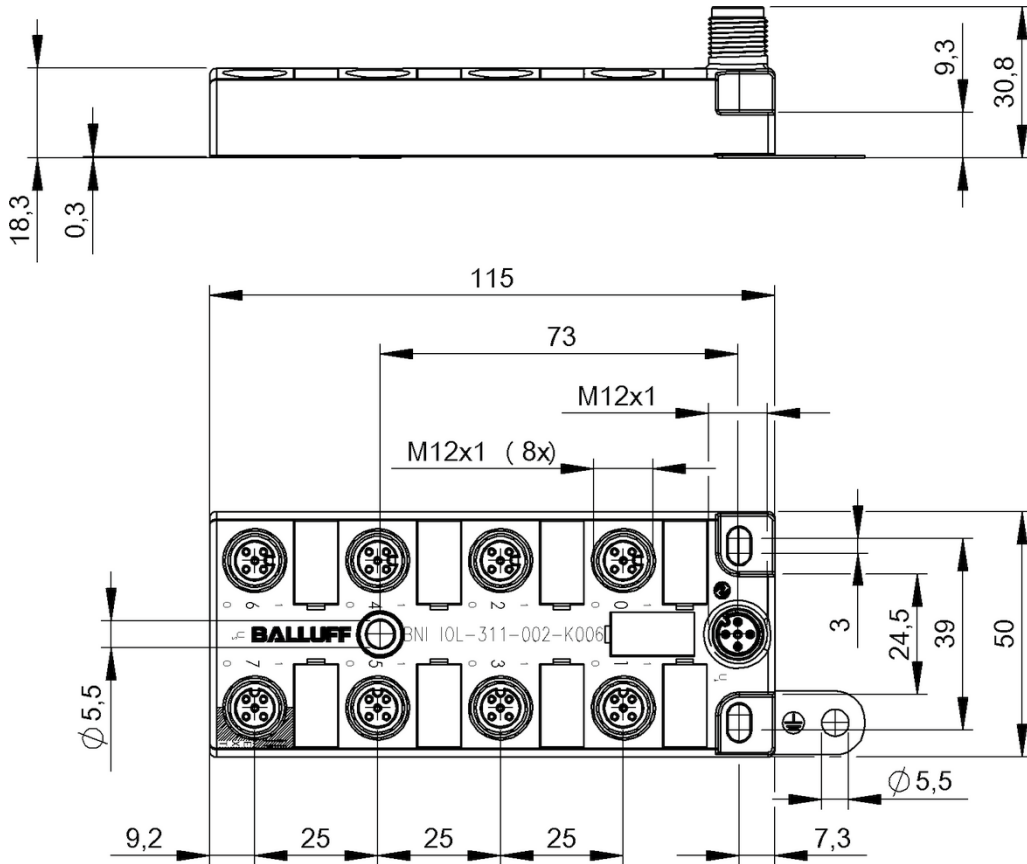
BNI007Z



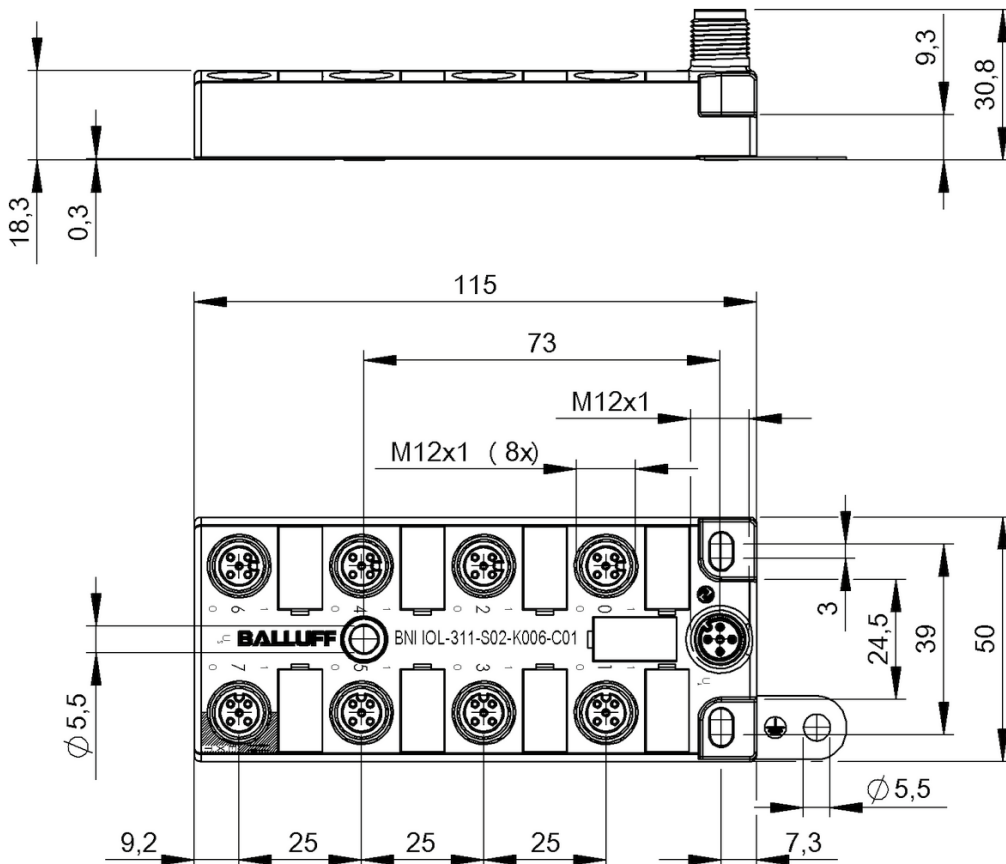
BNI005T



BNI005W

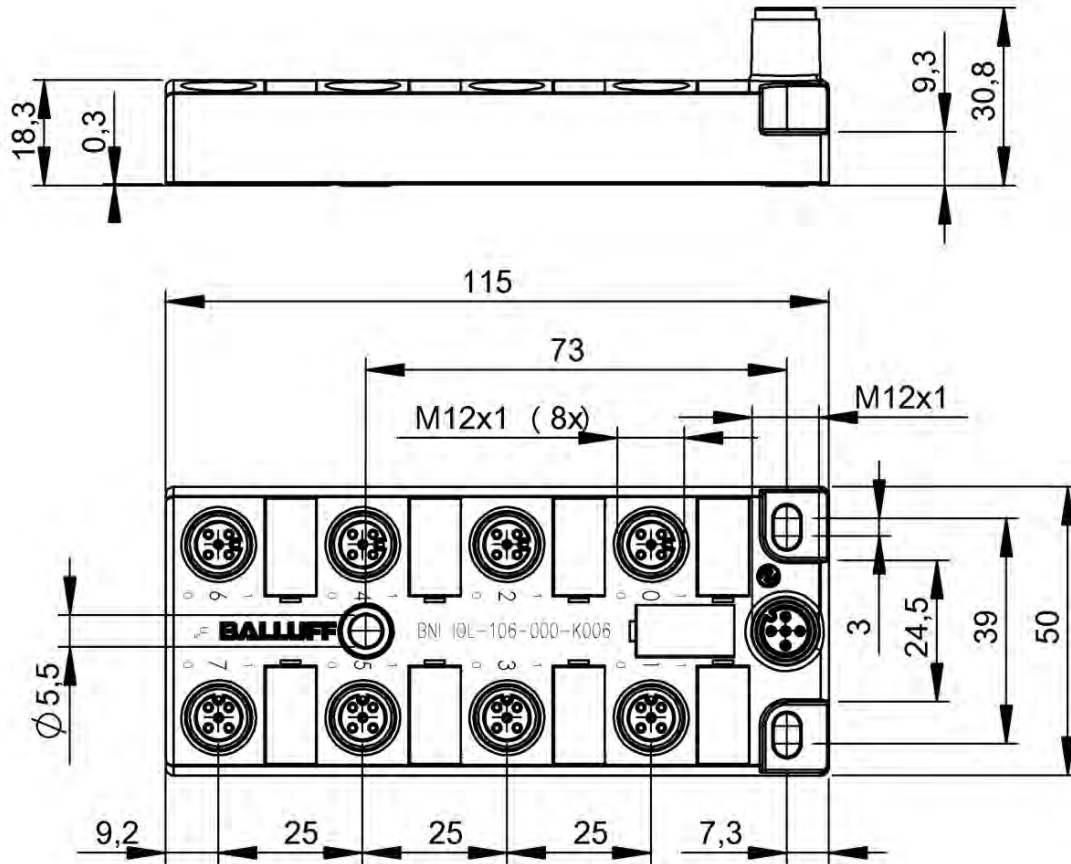


BNI00AF

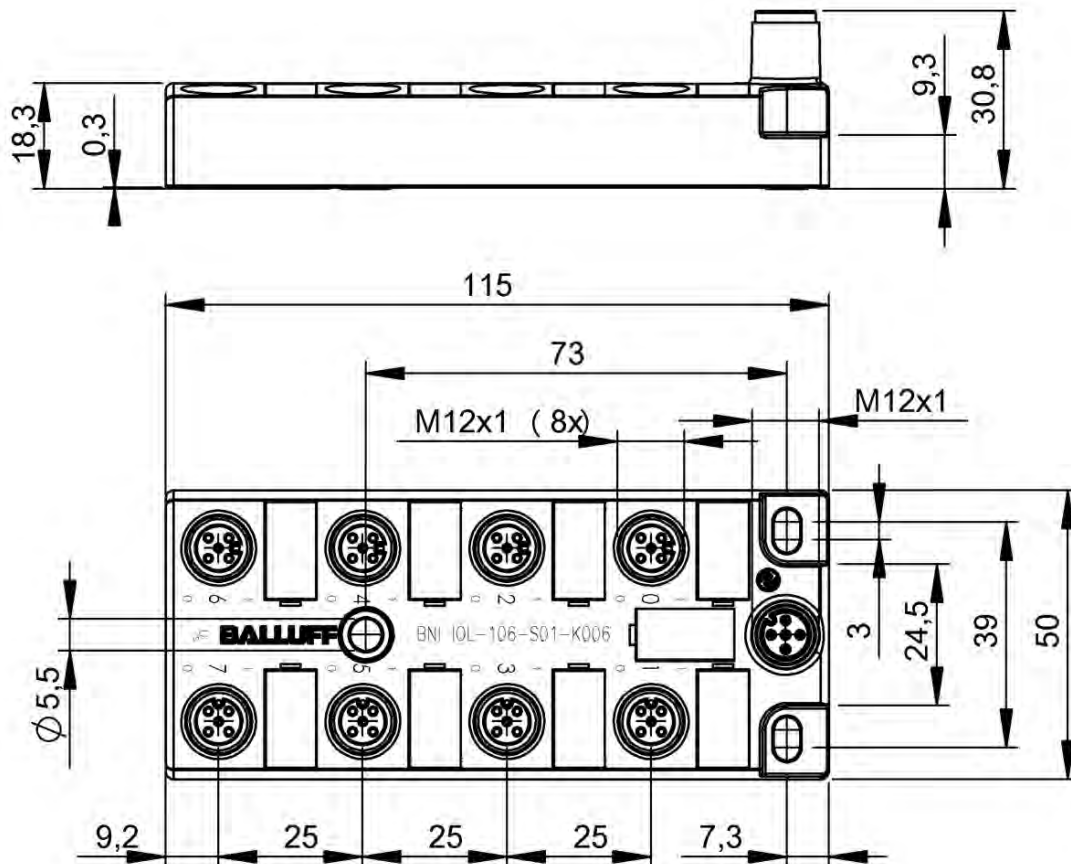


BNI00AW

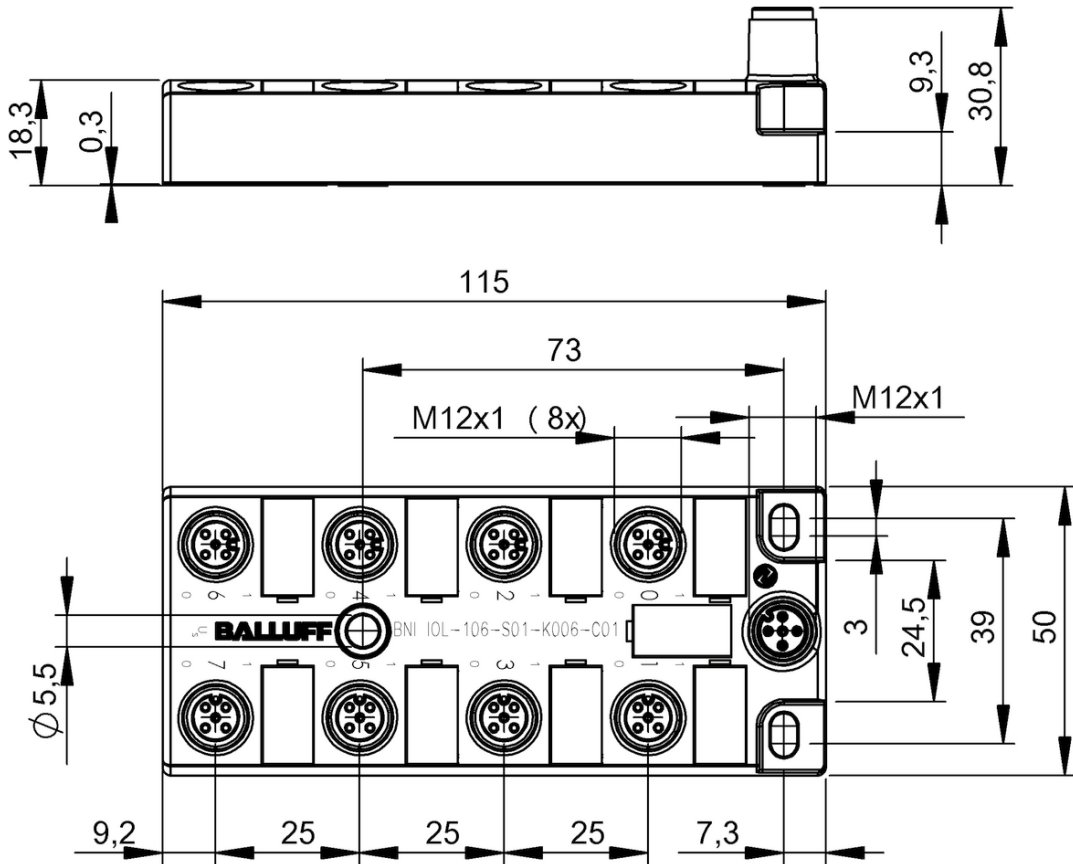
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



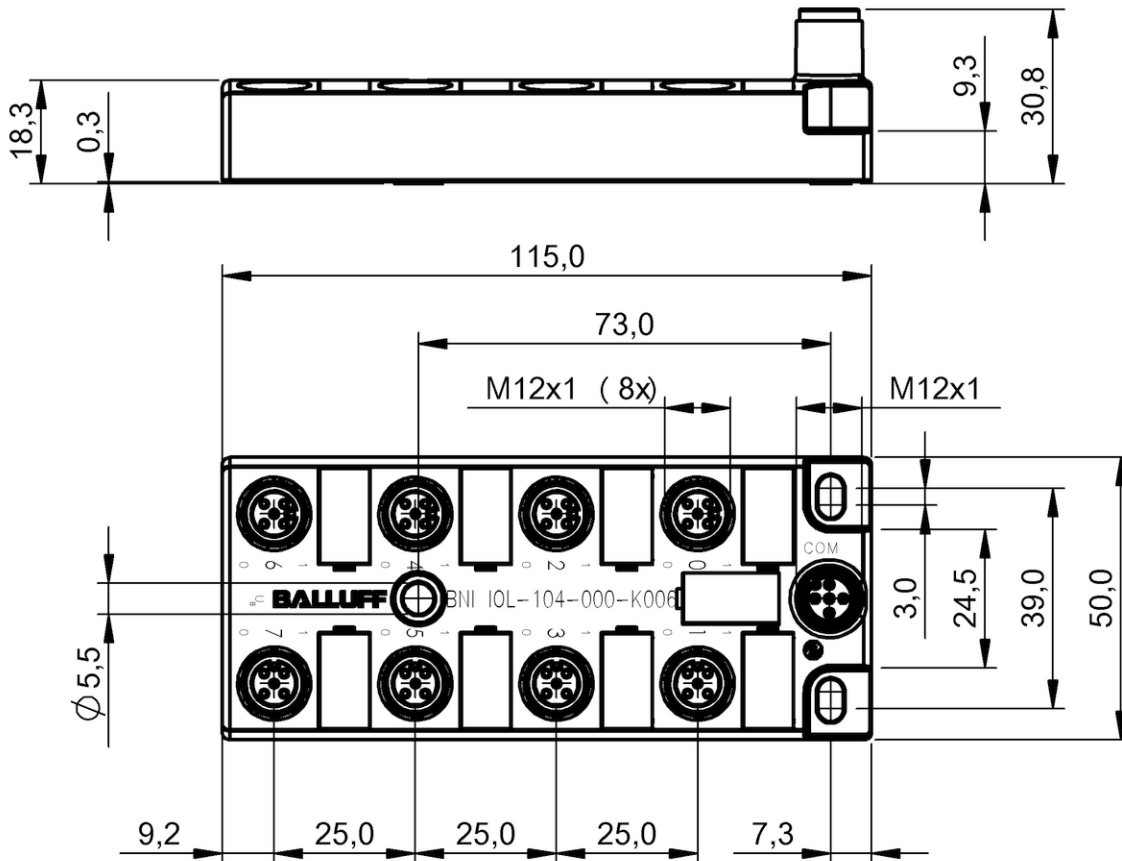
BNI0074



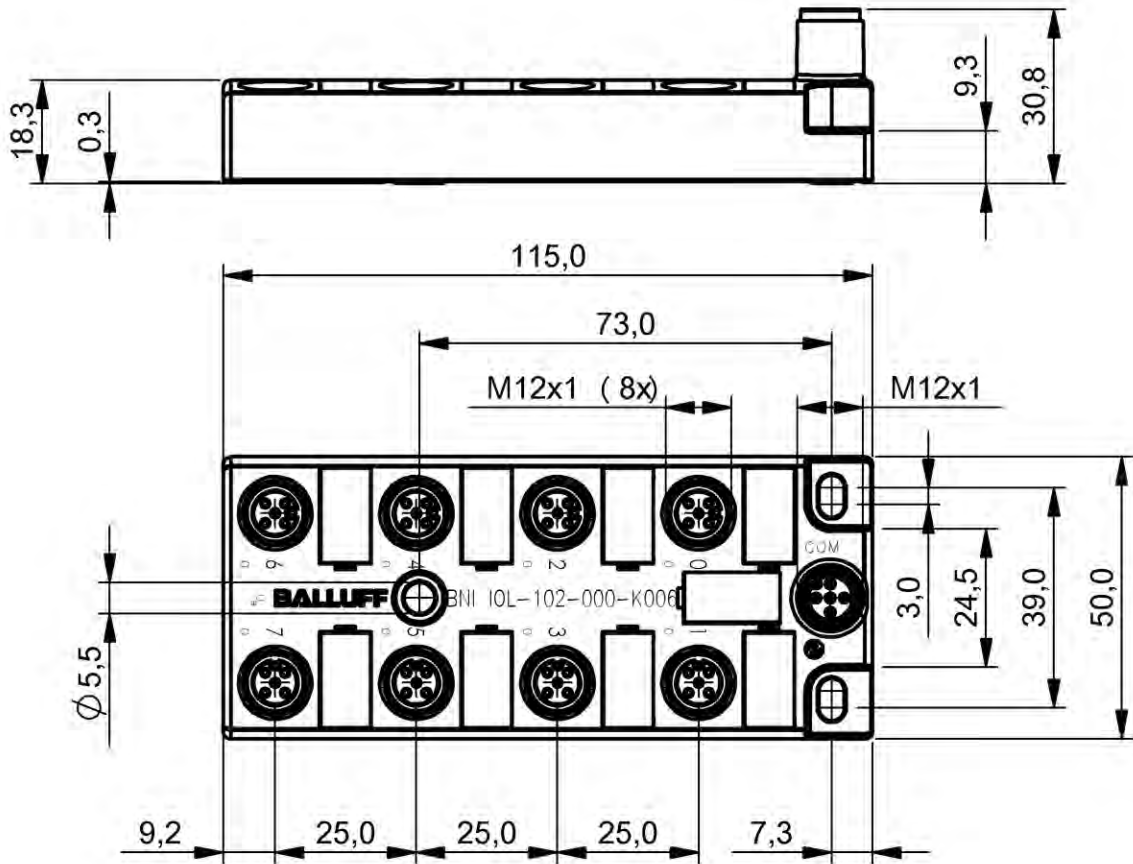
BNI0075



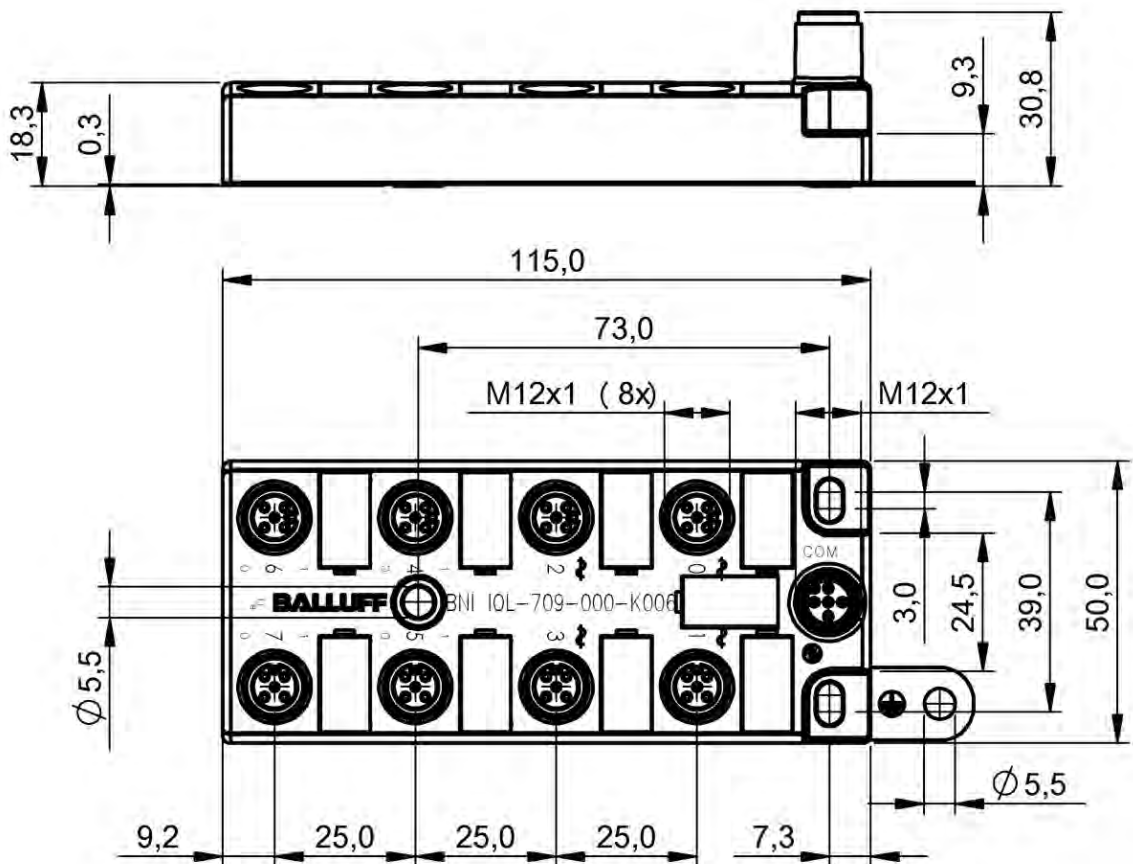
BNI0076



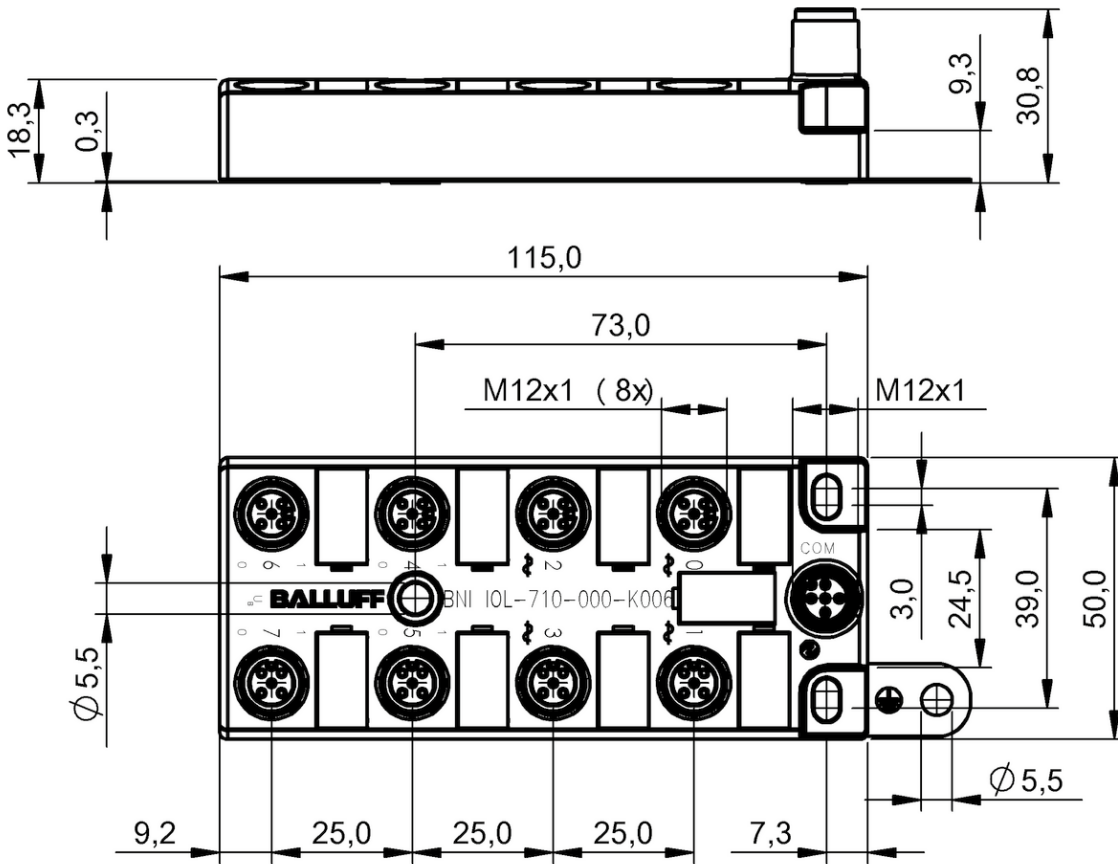
BNI0006



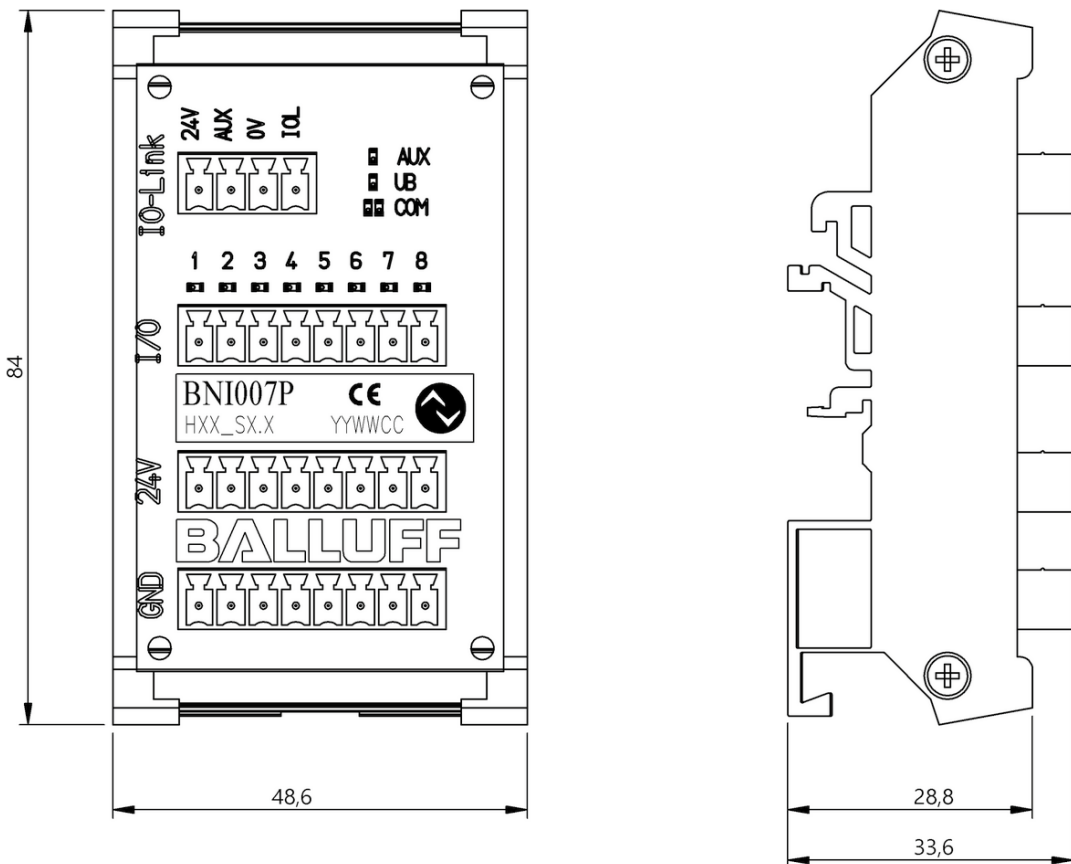
BNI0005



BNI0007

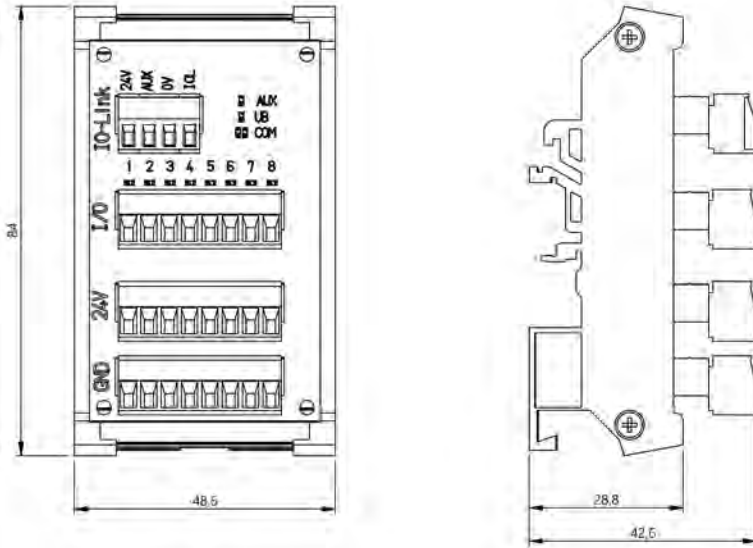


BNI0008

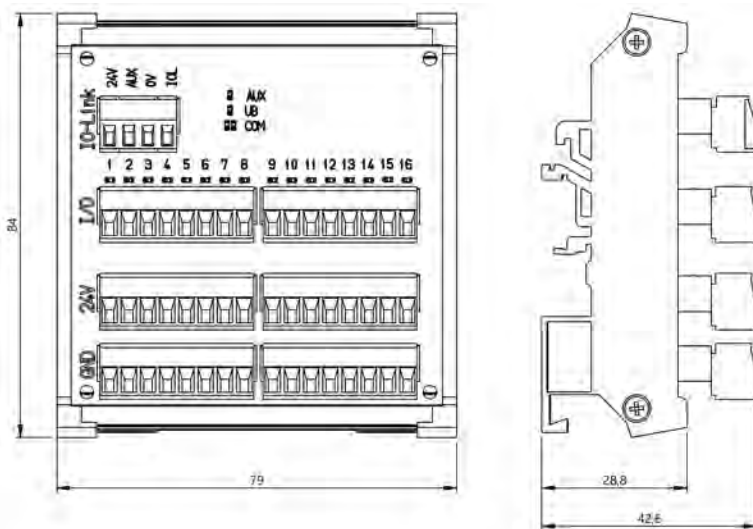


BNI007P

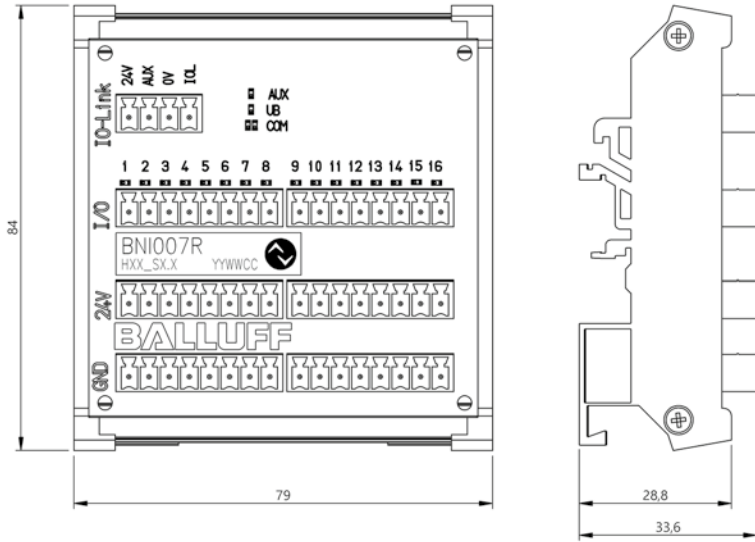
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



BNI004K



BNI004L



BNI007R



	BNI006J BNI IOL-750-V08-K007	BNI006E BNI IOL-750-V09-K007	BNI006K BNI IOL-750-V10-K007	
Version	Valve interface	Valve interface	Valve interface	
Application	Festo with D-Sub female, 25-pin, GND on Pin 25, Bosch Rexroth LS04, Bürkert Typ 8640	Festo with D-Sub female, 25-pin, GND on Pin 25, Bosch Rexroth LS04	SMC VQC 1000/2000/4000	
Interface	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	
Operating voltage U_b	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	
Connection (COM 1)	M12x1-Male, 5-pin, A-coded	M12x1-Male, 5-pin, A-coded	M12x1-Male, 5-pin, A-coded	
Valve terminal connection	—	—	—	
Cable length L	0.6 m	0.6 m	0.6 m	
Outputs, number	24	16	24	
Output current max. I_A , actuator	—	—	—	
Current sum I_A , actuator	4 A	4 A	4 A	
Function	3-pin connection, Actuator supply on Pin 1	3-pin connection, Actuator supply on Pin 1	3-pin connection, Actuator supply on Pin 1	
Housing material	PA	PA	PA	
Dimension	53 x 61 x 12.5 mm	53 x 61 x 12.5 mm	53 x 61 x 12.5 mm	
Ambient temperature	-5...55 °C	-5...55 °C	-5...55 °C	
IP rating	IP40, plugged in	IP40, plugged in	IP40, plugged in	
Transfer rate	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	
Process data cycle min.	3.5 ms	3.0 ms	3.5 ms	
Process data IN	—	—	—	
Process data OUT	4 bytes	2 bytes	4 bytes	
Productview	Seite 180	Seite 180	Seite 180	



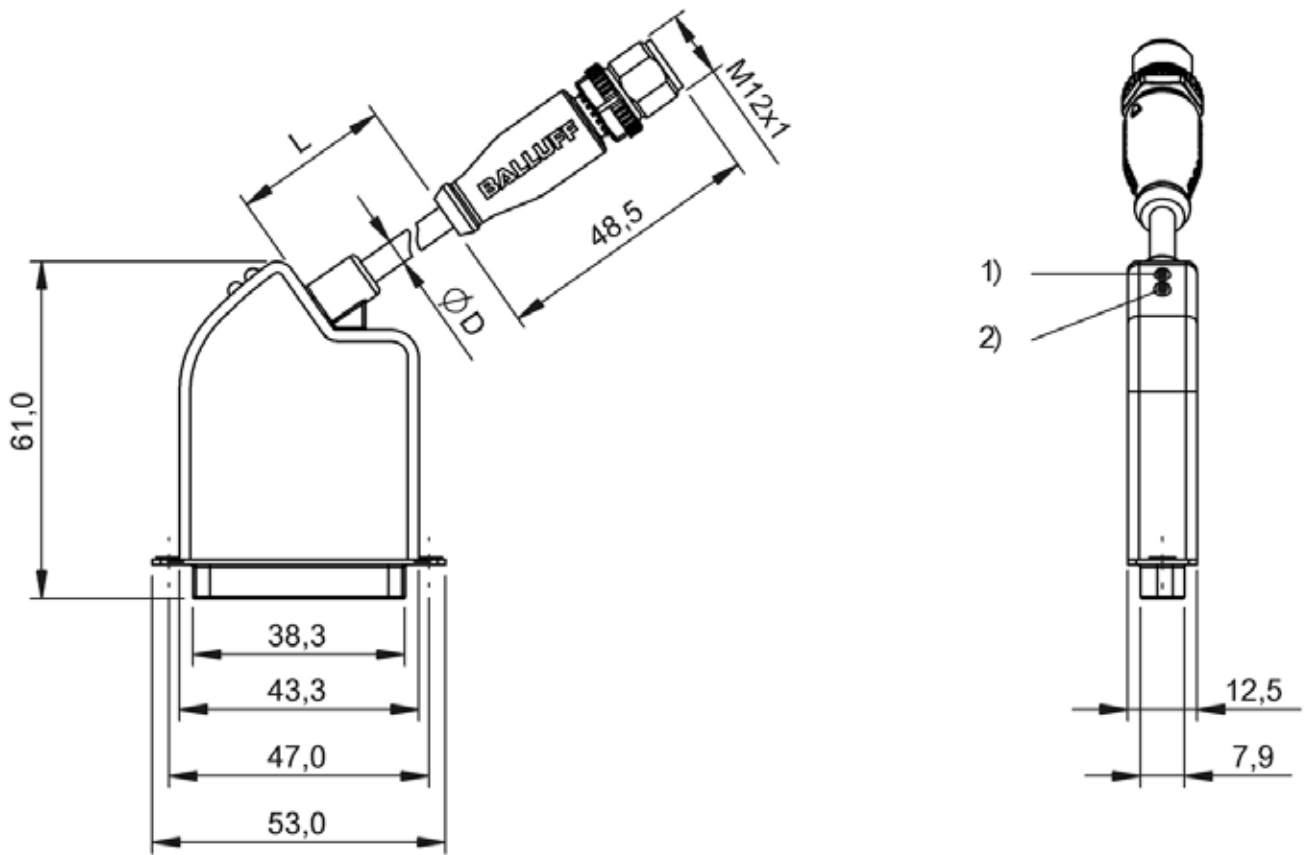
	BNI006H BNI IOL-750-V11-K007	BNI006L BNI IOL-750-V13-K007	BNI006N BNI IOL-751-V08-K007	BNI006M BNI IOL-751-V09-K007	BNI006P BNI IOL-751-V10-K007
	Valve interface	Valve interface	Power Aux valve terminal connector	Power Aux valve terminal connector	Power Aux valve terminal connector
	SMC VQC 1000/2000/4000	Numatics	Festo with D-Sub female, 25-pin, GND on Pin 25, Bosch Rexroth LS04, Bürkert Typ 8640	Festo with D-Sub female, 25-pin, GND on Pin 25, Bosch Rexroth LS04	SMC VQC 1000/2000/4000
	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1
	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC
	M12x1-Male, 5-pin, A-coded	M12x1-Male, 5-pin, A-coded	M12x1-Male, 5-pin, A-coded	M12x1-Male, 5-pin, A-coded	M12x1-Male, 5-pin, A-coded
	—	—	—	—	—
	0.6 m	0.6 m	0.6 m	0.6 m	0.6 m
	16	22	24	16	24
	—	—	—	—	—
	4 A	4 A	4 A	4 A	4 A
	3-pin connection, Actuator supply on Pin 1	3-pin connection, Actuator supply on Pin 1	4-pin connection, Power Aux on Pin 2	4-pin connection, Power Aux on Pin 2	4-pin connection, Power Aux on Pin 2
	PA	PA	PA	PA	PA
	53 x 61 x 12.5 mm	53 x 61 x 12.5 mm	53 x 61 x 12.5 mm	53 x 61 x 12.5 mm	53 x 61 x 12.5 mm
	-5...55 °C	-5...55 °C	-5...55 °C	-5...55 °C	-5...55 °C
	IP40, plugged in	IP40, plugged in	IP40, plugged in	IP40, plugged in	IP40, plugged in
	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)
	3.0 ms	3.5 ms	3.5 ms	3.0 ms	3.5 ms
	—	—	—	—	—
	2 bytes	4 bytes	4 bytes	2 bytes	4 bytes
	Seite 180	Seite 180	Seite 180	Seite 180	Seite 180



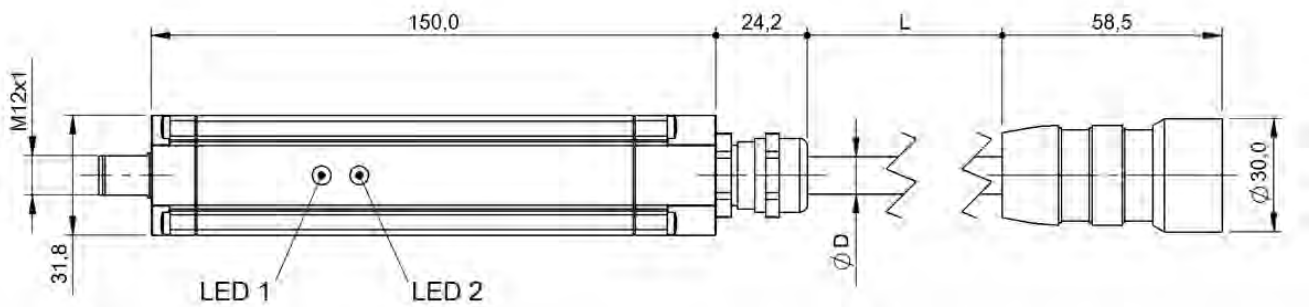
	BNI006T BNI IOL-751-V11-K007	BNI006R BNI IOL-751-V13-K007	BNI006Y BNI IOL-752-V08-K007	
Version	Power Aux valve terminal connector	Power Aux valve terminal connector	Power Aux valve terminal connector	
Application	SMC VQC 1000/2000/4000	Numatics	Festo with D-Sub female, 25-pin, GND on Pin 25, Bosch Rexroth LS04, Bürkert Typ 8640	
Interface	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	
Operating voltage U_b	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	
Connection (COM 1)	M12x1-Male, 5-pin, A-coded	M12x1-Male, 5-pin, A-coded	M12x1-Male, 5-pin, A-coded	
Valve terminal connection	—	—	—	
Cable length L	0.6 m	0.6 m	0.6 m	
Outputs, number	16	22	24	
Output current max. I_A , actuator	—	—	—	
Current sum I_A , actuator	4 A	4 A	4 A	
Function	4-pin connection, Power Aux on Pin 2	4-pin connection, Power Aux on Pin 2	5-pin connection, Power Aux on Pin 2, also 0V on Pin 5	
Housing material	PA	PA	PA	
Dimension	53 x 61 x 12.5 mm	53 x 61 x 12.5 mm	53 x 61 x 12.5 mm	
Ambient temperature	-5...55 °C	-5...55 °C	-5...55 °C	
IP rating	IP40, plugged in	IP40, plugged in	IP40, plugged in	
Transfer rate	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	
Process data cycle min.	3.0 ms	3.5 ms	3.5 ms	
Process data IN	—	—	—	
Process data OUT	2 bytes	4 bytes	4 bytes	
Productview	Seite 180	Seite 180	Seite 180	



	BNI006U BNI IOL-752-V09-K007	BNI006Z BNI IOL-752-V10-K007	BNI006W BNI IOL-752-V11-K007	BNI006F BNI IOL-752-V13-K007	BNI004W BNI IOL-770-V06-A027
	Power Aux valve terminal connector	Power Aux valve terminal connector	Power Aux valve terminal connector	Power Aux valve terminal connector	Power Aux valve terminal connector
	Festo with D-Sub female, 25-pin, GND on Pin 25, Bosch Rexroth LS04	SMC VQC 1000/2000/4000	SMC VQC 1000/2000/4000	Numatics	SMC VQC 1000/2000/4000
	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1
	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC
	M12x1-Male, 5-pin, A-coded	M12x1-Male, 5-pin, A-coded	M12x1-Male, 5-pin, A-coded	M12x1-Male, 5-pin, A-coded	M12x1-Male, 5-pin, A-coded
	—	—	—	—	—
	0.6 m	0.6 m	0.6 m	0.6 m	0.5 m
	16	24	16	22	24
	—	—	—	—	—
	4 A	4 A	4 A	4 A	4.0 A
	5-pin connection, Power Aux on Pin 2, also 0V on Pin 5	5-pin connection, Power Aux on Pin 2, also 0V on Pin 5	5-pin connection, Power Aux on Pin 2, also 0V on Pin 5	5-pin connection, Power Aux on Pin 2, also 0V on Pin 5	4-pin connection, Power Aux on Pin 2, Diagnostics
	PA	PA	PA	PA	Aluminum
	53 x 61 x 12.5 mm	53 x 61 x 12.5 mm	53 x 61 x 12.5 mm	53 x 61 x 12.5 mm	31.8 x 31.8 x 185 mm
	-5...55 °C	-5...55 °C	-5...55 °C	-5...55 °C	-5...70 °C
	IP40, plugged in	IP40, plugged in	IP40, plugged in	IP40, plugged in	IP67, plugged in
	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)
	3.0 ms	3.5 ms	3.0 ms	3.5 ms	5.5 ms
	—	—	—	—	9 bytes
	2 bytes	4 bytes	2 bytes	4 bytes	4 bytes
	Seite 180	Seite 180	Seite 180	Seite 180	Seite 180



BNI006J, BNI006E, BNI006K, BNI006H, BNI006L, BNI006N, BNI006M, BNI006P, BNI006T, BNI006R, BNI006Y, BNI006U, BNI006Z, BNI006W, BNI006F



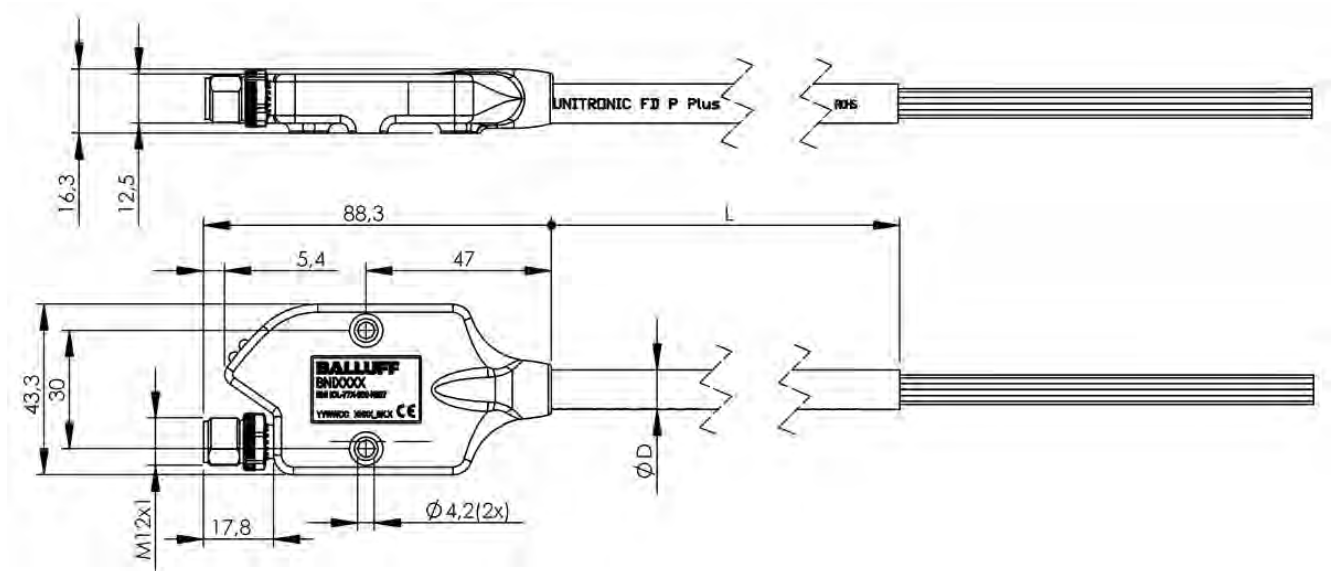
BNI004W



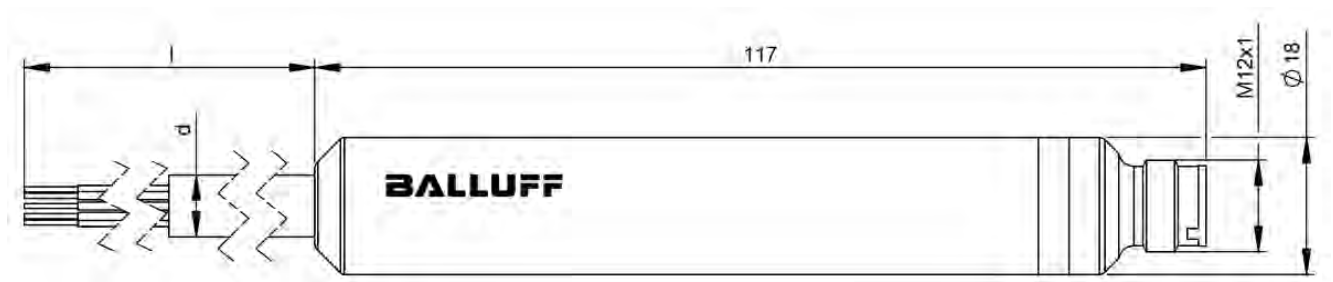
	BNIO05M BNI IOL-771-000-K027	BNIO0CA BNI IOL-771-002-K027-003	
Version	Universal cable I/O interface	Universal cable I/O interface	
Interface	IO-Link 1.1	IO-Link 1.1	
Operating voltage U_b	18...30.2 VDC	18...30.2 VDC	
Connection (COM 1)	M12x1-Male, 5-pin, A-coded	M12x1-Male, 5-pin, A-coded	
Connection for sensor	open cable end-Leads	open cable end-Leads	
Cable length L	0.5 m	3 m	
Digital inputs	16x PNP, Type 3	16x PNP, Type 3	
Digital outputs	16x PNP	16x PNP	
Configurable inputs/outputs	yes	yes	
Output current max.	—	—	
Additional function	—	—	
Housing material	PA	PA	
Dimension	43.3 x 16.3 x 88.3 mm	43.3 x 16.3 x 88.3 mm	
Ambient temperature	-5...55 °C	-5...55 °C	
IP rating	IP54, to open cable end	IP54, to open cable end	
Transfer rate	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	
Process data cycle min.	4 ms	4 ms	
Process data IN	2 bytes	2 bytes	
Process data OUT	2 bytes	2 bytes	
Productview	Seite 184	Seite 184	



	BNI005N BNI IOL-772-000-K027	BNI00CC BNI IOL-772-002-K027-003	BNI00AE BNI IOL-772-002-E032	
	Universal cable I/O interface	Universal cable I/O interface	Universal cable I/O interface	
	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	
	18...30.2 VDC	18...30.2 VDC	18...30.2 VDC	
	M12x1-Male, 5-pin, A-coded	M12x1-Male, 5-pin, A-coded	M12x1-Male, 4-pin, A-coded	
	open cable end-Leads	open cable end-Leads	open cable end-Leads	
	0.5 m	3 m	1.3 m	
	8x PNP, Type 3	8x PNP, Type 3	8x PNP, Type 3	
	8x PNP	8x PNP	8x PNP	
	yes	yes	yes	
	—	—	—	
	—	—	—	
	PA	PA	Stainless steel (1.4404) PTFE	
	43.3 x 16.3 x 88.3 mm	43.3 x 16.3 x 88.3 mm	Ø 18 x 117 mm	
	-5...55 °C	-5...55 °C	-5...60 °C	
	IP54, to open cable end	IP54, to open cable end	IP69K, IP68, when threaded in	
	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)	
	3.2 ms	3.2 ms	8.4 ms	
	1 bytes	1 bytes	1 bytes	
	1 bytes	1 bytes	1 bytes	
	Seite 184	Seite 184	Seite 184	



BNI005M, BNI00CA, BNI005N, BNI00CC



BNI00AE



Efficient communication without wear

INDUCTIVE COUPLERS



Fixed wiring of sensors and actuators comes with drawbacks: cable and contacts are often severely loaded in automation, and cables can fatigue and break. In the worst case scenario this can result in a machine failure. Our BIC inductive couplers transmit data and power contactlessly across an air gap. Thus, no mechanical wear is produced. The system availability is higher, the cycle times are shorter and the sequences are more flexible. The units can quickly be disconnected, are easy to handle and are maintenance-free. This enables you to meet new demands quickly.

Features

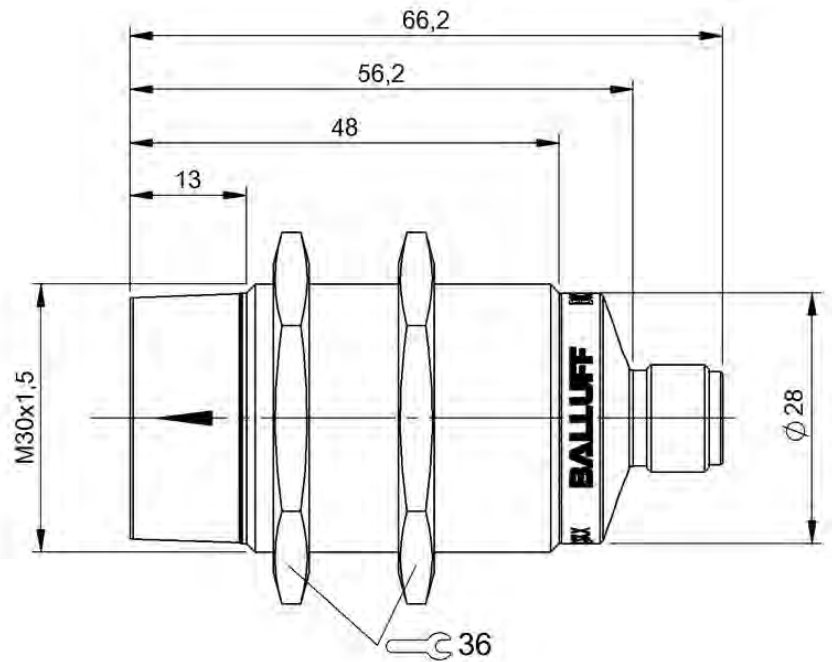
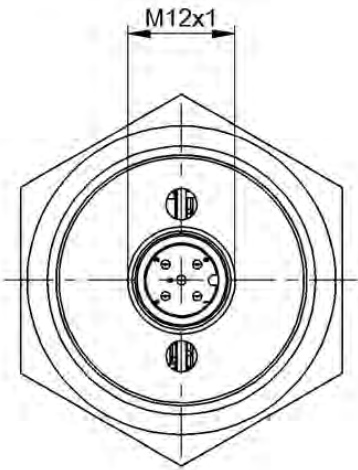
- No mechanical wear
- Higher system availability, shorter cycle times, more flexible sequences
- Quickly disconnectable, easy to handle, maintenance free



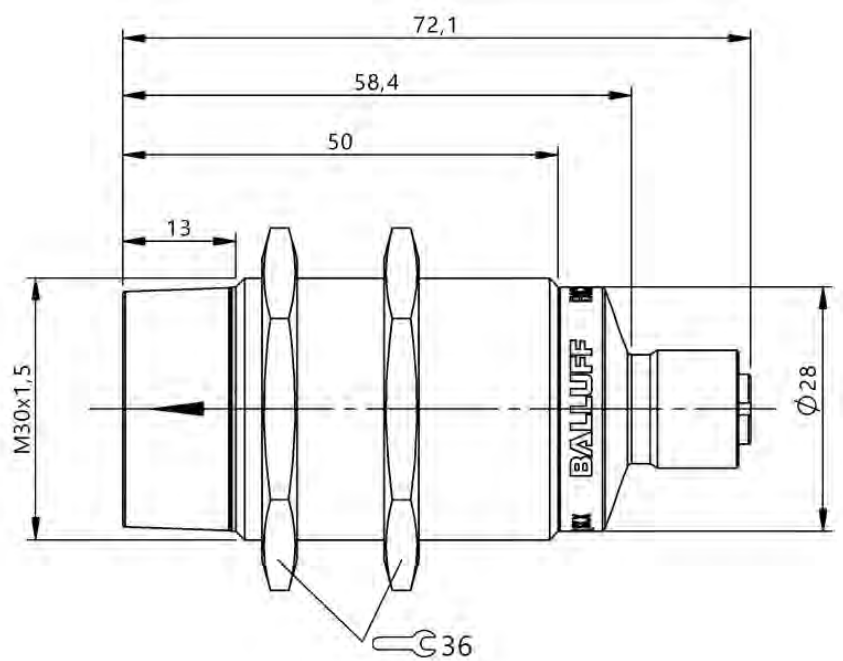
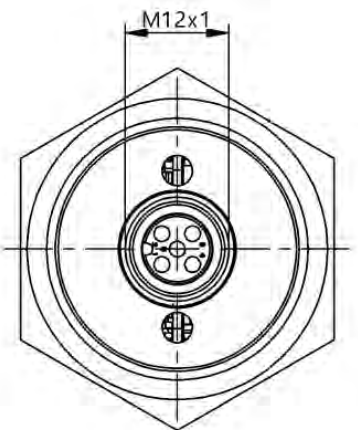
	BIC0086 BIC 1B1-IT1A0-M30EI21-SM4A5A	BIC0087 BIC 2B1-IT1A0-M30EI21-SM4A5A	BIC007L BIC 1B0-ITA50-M30MF1-SM4A5A	
Function	IO-Link	IO-Link	IO-Link signal transmission	
Signal type	bi-directional	bi-directional	bi-directional	
Transmission distance	0...5 mm	0...5 mm	0...10 mm	
Component	Base	Remote	Base	
Interface	—	—	IO-Link 1.1	
Connection	Connector, M12x1-Male	Connector, M12x1-Female	Connector, M12x1-Male, 5-pin	
Rated operating voltage Ue	24 VDC	—	24 VDC	
Output voltage	—	24 VDC	—	
Rated output current	—	1.5 A	—	
Output current max.	—	2.2 A	—	
Housing material	Stainless steel	Stainless steel	Brass, coated	
Dimension	—	—	Ø 30 x 66.2 mm	
Ambient temperature	-5...70 °C	-5...70 °C	-5...55 °C	
IP rating	IP67	IP67	IP67	
Transfer rate	COM2 (38.4 kBaud), COM3 (230.4 kBaud), Diagnostic channel: COM2 (38.4 kBaud)	COM2 (38.4 kBaud), COM3 (230.4 kBaud)	COM2 (38.4 kBaud)	
Additive cycle time	0 ms	0 ms	Device + 2.0 ms	
Process data IN	0...32 bytes, Diagnostic channel: 2 bytes	0...32 bytes	0...32 bytes	
Process data OUT	0...32 bytes, Diagnostic channel: 1 byte	0...32 bytes	0...32 bytes	
SIO mode	no	no	yes	
Productview	Seite 190	Seite 190	Seite 190	



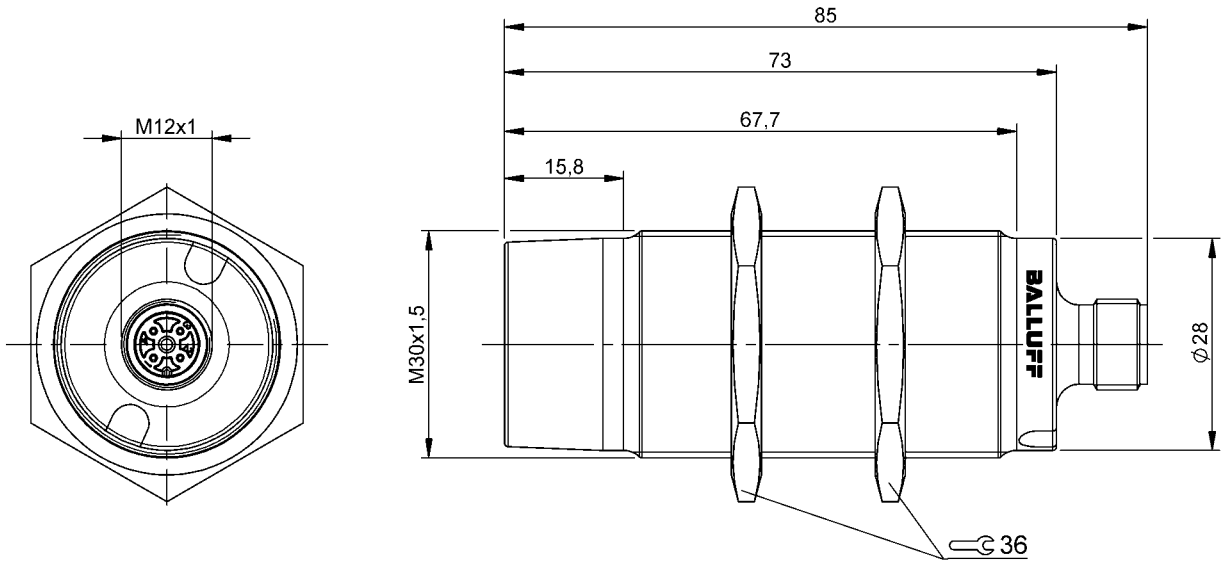
	BIC007E BIC 2B0-ITA50-M30MF1-SM4A5A	BIC007F BIC 1B0-IT1A7-Q40KFU-SM4A4A	BIC007H BIC 2B0-IT1A7-Q40KFU-SM4A5A	BIC007O BIC 1B0-ITA50-Q40KFU-SM4A4A	BIC0071 BIC 2B0-ITA50-Q40KFU-SM4A5A
	IO-Link signal transmission	IO-Link signal transmission	IO-Link signal transmission	IO-Link signal transmission	IO-Link signal transmission
	bi-directional	bi-directional	bi-directional	bi-directional	bi-directional
	0...10 mm	0...5 mm	0...5 mm	0...5 mm	0...5 mm
	Remote	Base	Remote	Base	Remote
	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1	IO-Link 1.1
	Connector, M12x1-Male, 5-pin	Connector, M12x1-Male, 4-pin	Connector, M12x1-Female, 5-pin	Connector, M12x1-Male, 4-pin	Connector, M12x1-Female, 5-pin
	—	24 VDC	—	24 VDC	—
	24 VDC	—	24 VDC	—	24 VDC
	650 mA	—	1.7 A	—	500 mA
	5 A / 0.12 ms	—	5 A / 1 ms	—	5 A / 0.05 ms
	Brass, coated	PBTP	PBTP	PBTP	PBTP
	Ø 30 x 72.1 mm	40 x 40 x 62 mm	40 x 40 x 62 mm	40 x 40 x 62 mm	40 x 40 x 62 mm
	-5...55 °C	-5...55 °C	-5...55 °C	-5...65 °C	-5...65 °C
	IP67	IP67	IP67	IP67	IP67
	COM2 (38.4 kBaud)	COM2 (38.4 kBaud), COM3 (230.4 kBaud)	COM2 (38.4 kBaud), COM3 (230.4 kBaud)	COM2 (38.4 kBaud)	COM2 (38.4 kBaud)
	Device + 2.0 ms	Device + 2.8 ms	Device + 2.8 ms	Device + 2.0 ms	Device + 2.0 ms
	0...32 bytes	0...32 bytes	0...32 bytes	0...32 bytes	0...32 bytes
	0...32 bytes	0...32 bytes	0...32 bytes	0...32 bytes	0...32 bytes
	yes	no	no	yes	yes
	Seite 190	Seite 191	Seite 192	Seite 192	Seite 193



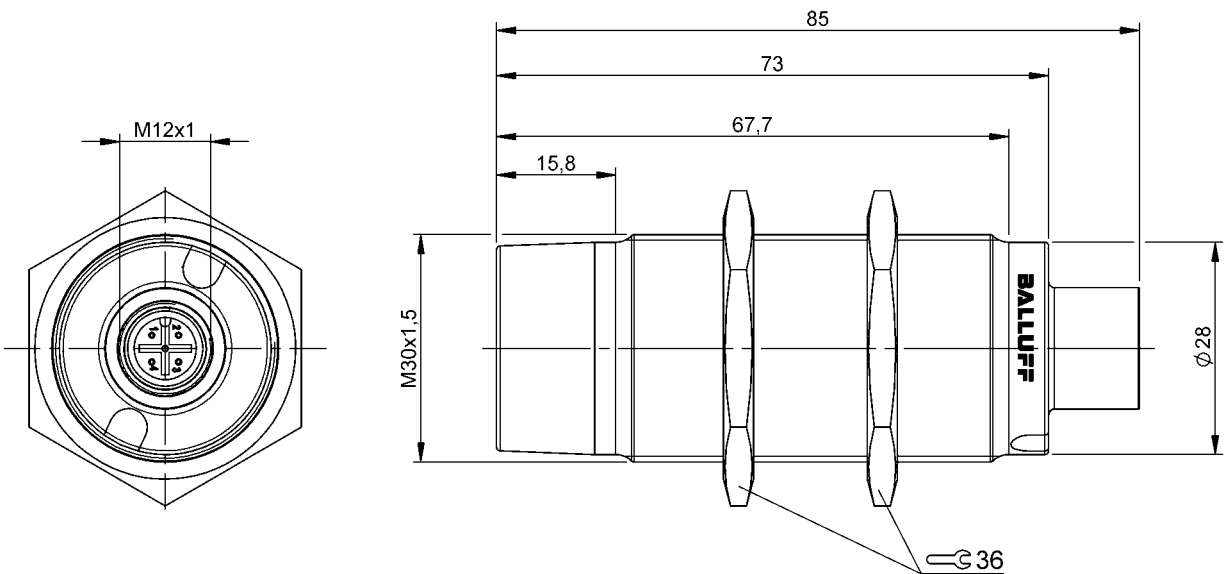
BIC007L



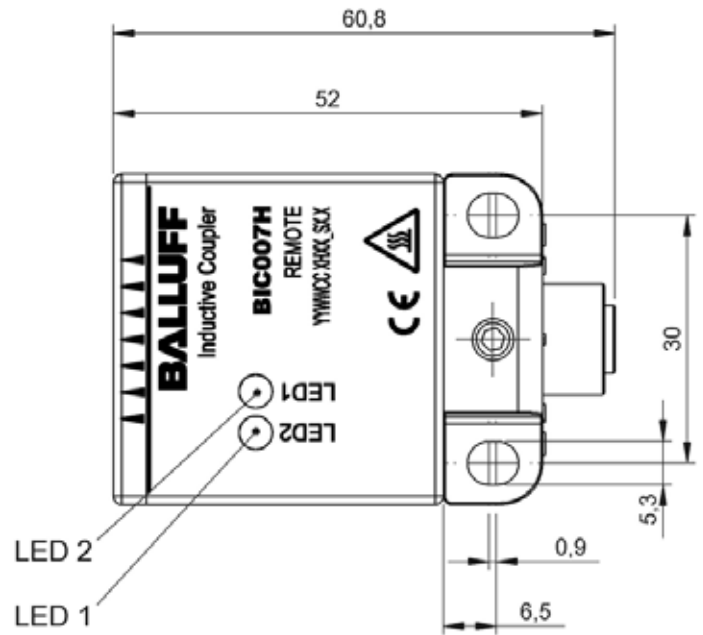
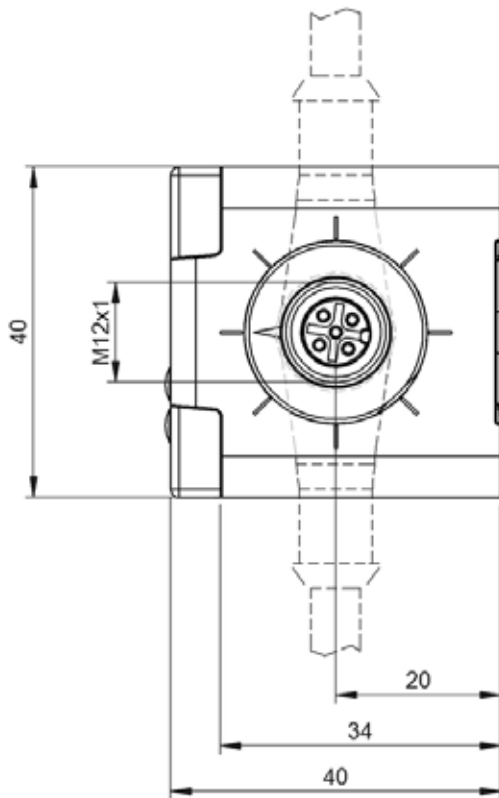
BIC007E



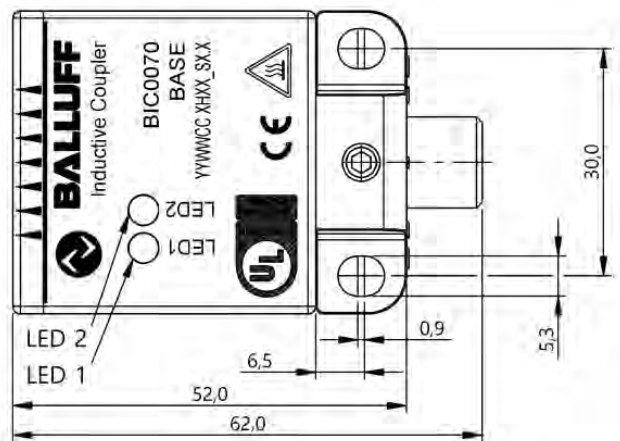
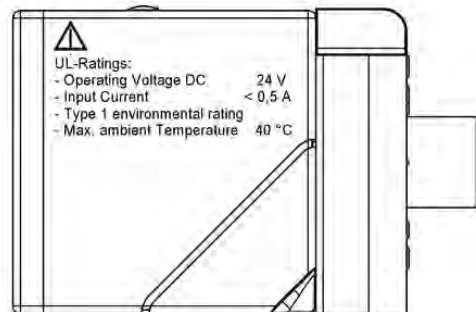
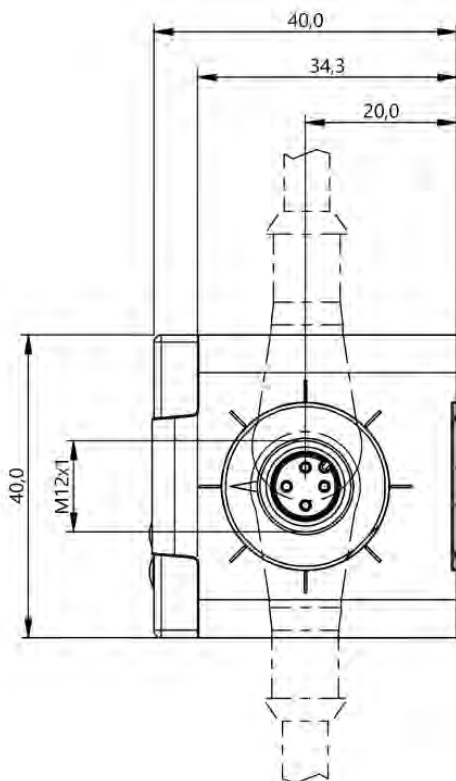
BIC0086



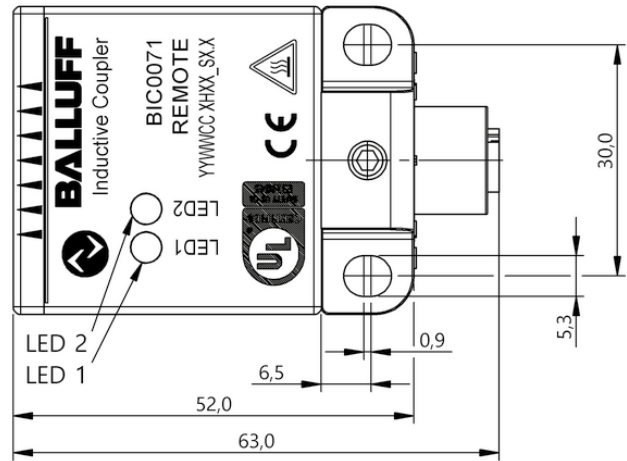
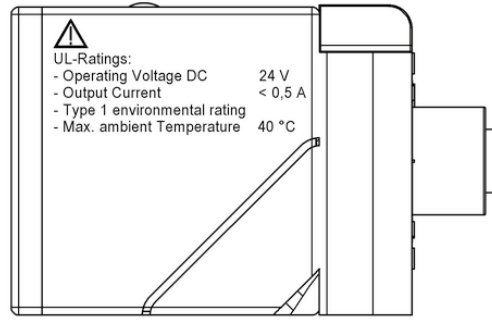
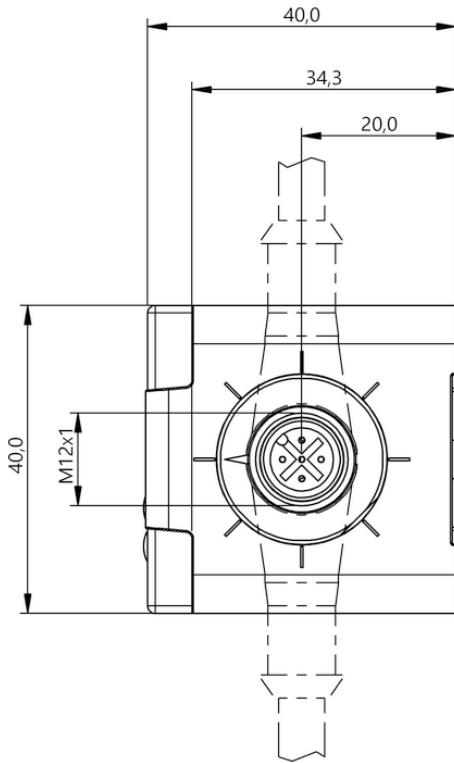
BIC0087



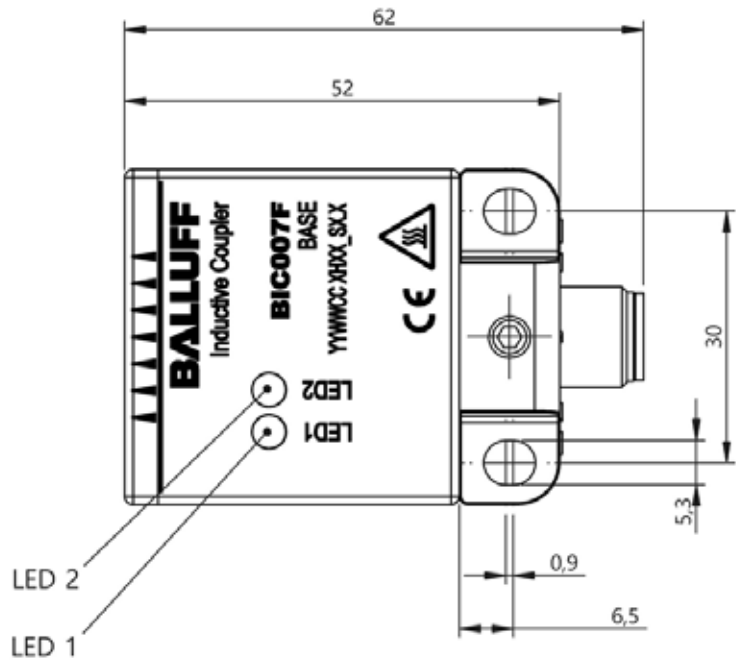
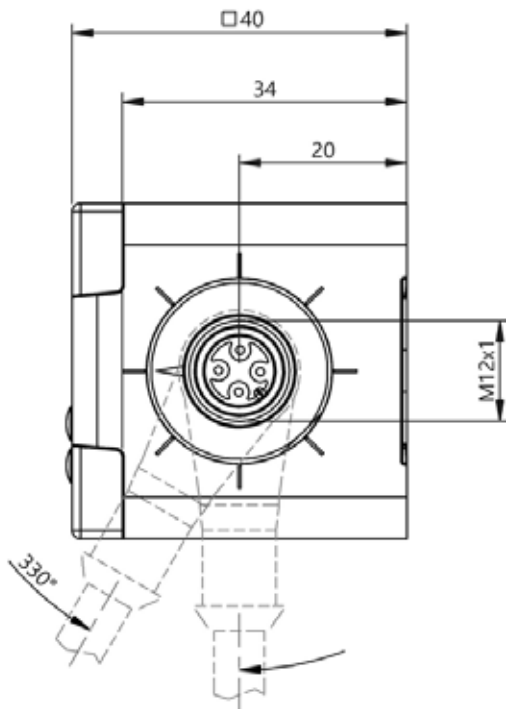
BIC007H



BIC0070



BIC0071



BIC007F



	BIC007J BIC 1I3-P2A50-Q40KFU-EPX0-002-M4CA	BIC007K BIC 2I3-P2A50-Q40KFU-EPX0-002-M4CA	
Function	Signal transmission	Signal transmission	
Signal type	unidirectional	unidirectional	
Digital inputs	—	8x PNP	
Digital outputs	8x PNP	—	
Transmission distance	0...5 mm	0...5 mm	
Component	Base	Remote	
Connection	Connector, M12x1, 12-pin, 0.20 m, PUR	Connector, M12x1, 12-pin, 0.20 m, PUR	
Rated operating voltage Ue	24 VDC	—	
Output voltage	—	24 VDC	
Rated output current	—	500 mA	
Housing material	PBTP	PBTP	
Dimension	40 x 40 x 52 mm	40 x 40 x 52 mm	
Ambient temperature	-5...65 °C	-5...65 °C	
Protection degree	IP67	IP67	
Productview	Seite 198	Seite 198	



	BIC0077 BIC 111-P2A05-M12MM-BPX0-003-M45A	BIC0078 BIC 211-P2A05-M12MF-BPX0-003-M44A	BIC007T BIC 1122-P2A02-M18MN2-EPX07-050	BIC007U BIC 2122-P2A02-M18MF2-EPX07-050
	Signal transmission	Signal transmission	Signal transmission	Signal transmission
	unidirectional	unidirectional	unidirectional	unidirectional
	—	2x PNP	—	4x PNP
	2x PNP	—	4x PNP	—
	0...2.5 mm	0...2.5 mm	1...3 mm	1...3 mm
	Base	Remote	Base	Remote
	Connector, M12x1, 5-pin, 0.30 m, PUR	Connector, M12x1, 5-pin, 0.30 m, PUR	Cable, 5.00 m, PUR	Cable, 5.00 m, PUR
	24 VDC	—	24 VDC	12 VDC
	—	24 VDC	—	24 VDC
	—	50 mA	—	100 mA
	Brass, coated	Brass, coated	Brass, coated	Brass, coated
	Ø 12 x 65 mm	Ø 12 x 41 mm	Ø 18 x 94 mm	Ø 18 x 61 mm
	-10...50 °C	-10...50 °C	0...50 °C	0...50 °C
	IP67	IP67	IP67	IP67
	Seite 199	Seite 199	Seite 200	Seite 200



	BIC0009 BIC 1I3-P2A50-M30MI3-SM4ACA	BIC005J BIC 2I3-P2A50-M30MI3-BPX0C-002-M4CA	
Function	Signal transmission	Signal transmission	
Signal type	unidirectional	unidirectional	
Digital inputs	—	8x PNP	
Digital outputs	8x PNP	—	
Transmission distance	0...5 mm	0...5 mm	
Component	Base	Remote	
Connection	Connector, M12x1, 12-pole	Connector, M12x1, 12-pin, 0.20 m, PUR	
Rated operating voltage Ue	24 VDC	—	
Output voltage	—	24 VDC	
Rated output current	—	500 mA	
Housing material	Brass, coated	Brass, coated	
Dimension	Ø 30 x 107 mm	Ø 30 x 85.5 mm	
Ambient temperature	0...55 °C	0...55 °C	
Protection degree	IP67	IP67	
Productview	Seite 201	Seite 201	



BIC000A BIC 2I3-P2A50-M30MI3-SM4ACA			
Signal transmission			
unidirectional			
8x PNP			
—			
0...5 mm			
Remote			
Connector, M12x1, 12-pole			
—			
24 VDC			
500 mA			
Brass, coated			
Ø 30 x 106 mm			
0...55 °C			
IP67			
Seite 202			

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Safety

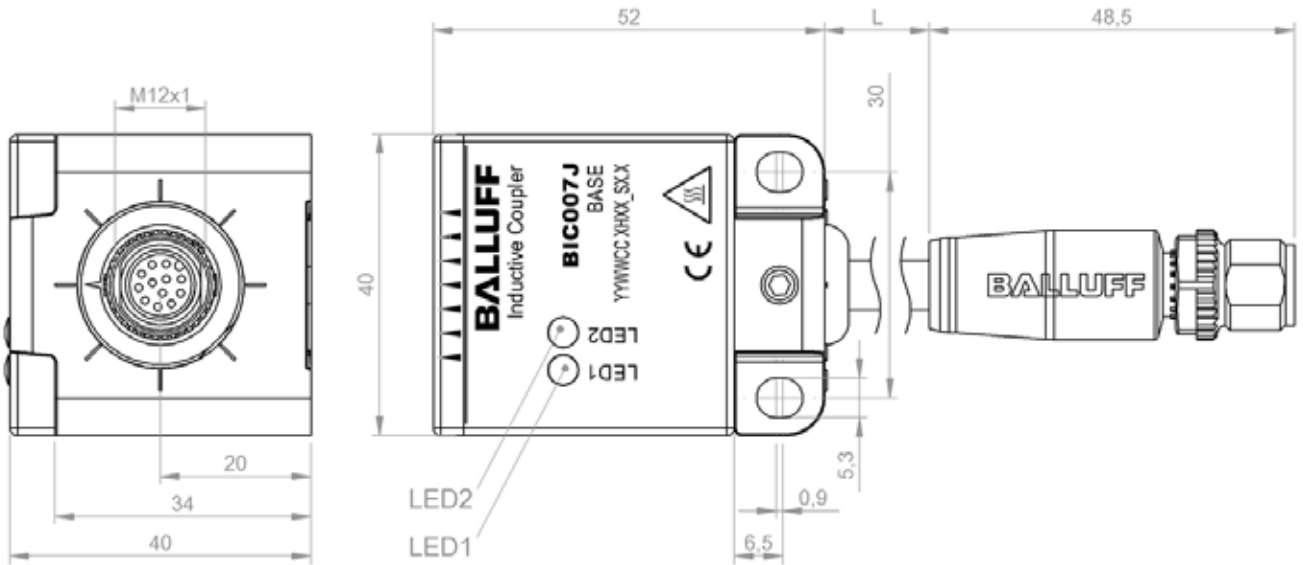
Industrial Networking

Software and
System Solutions

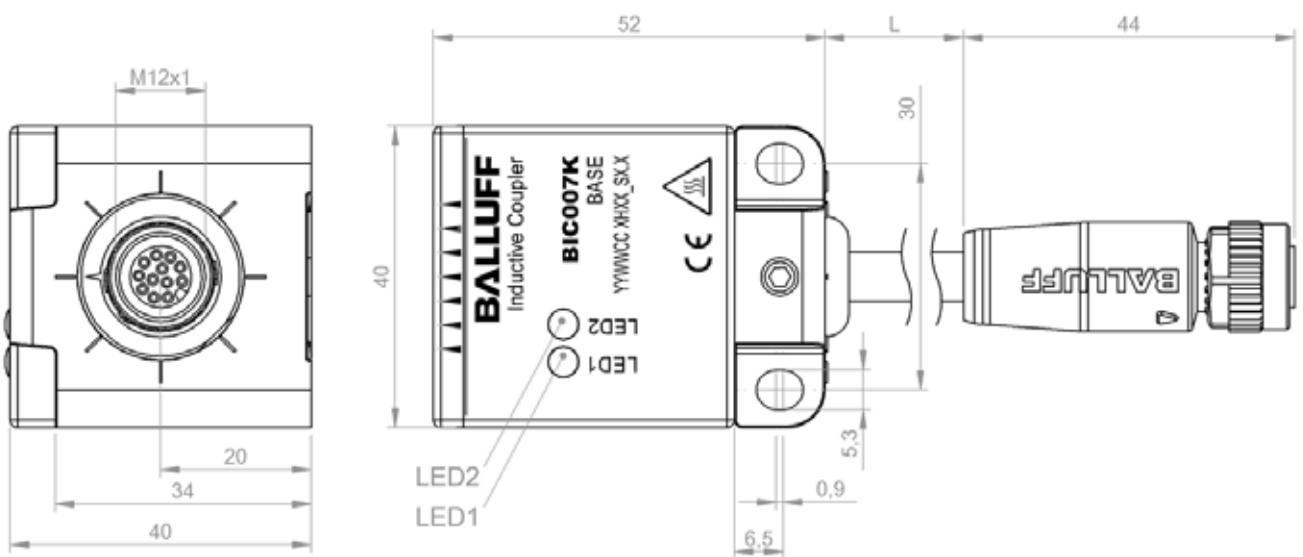
Power Supply

Connectivity

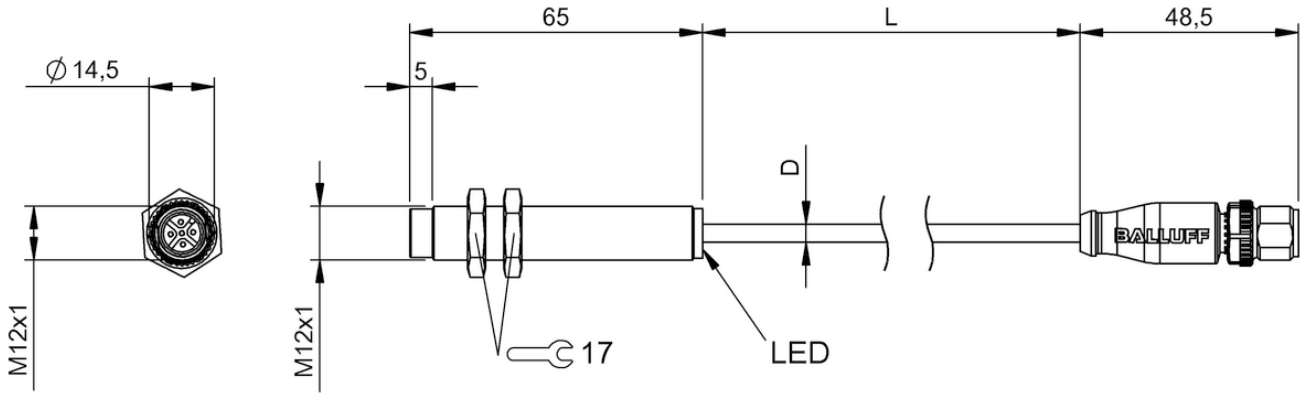
Accessories



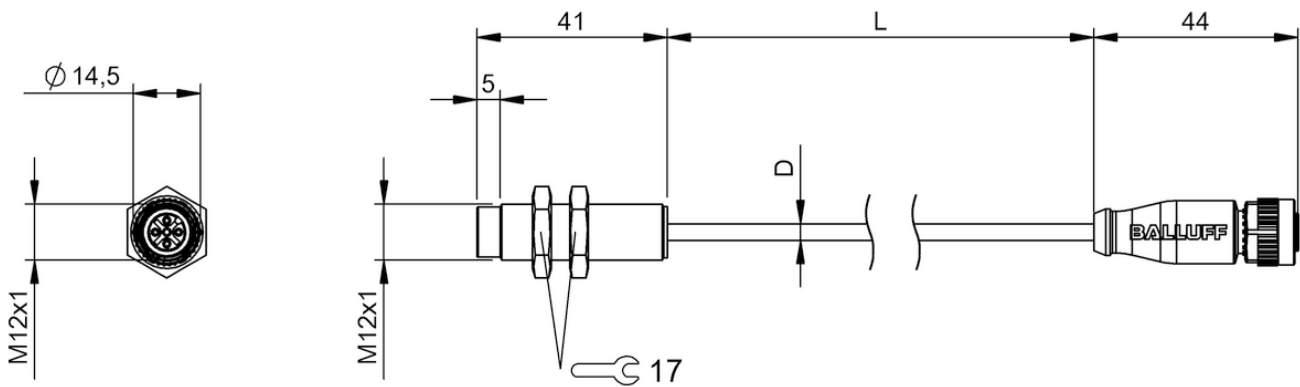
BIC007J



BIC007K

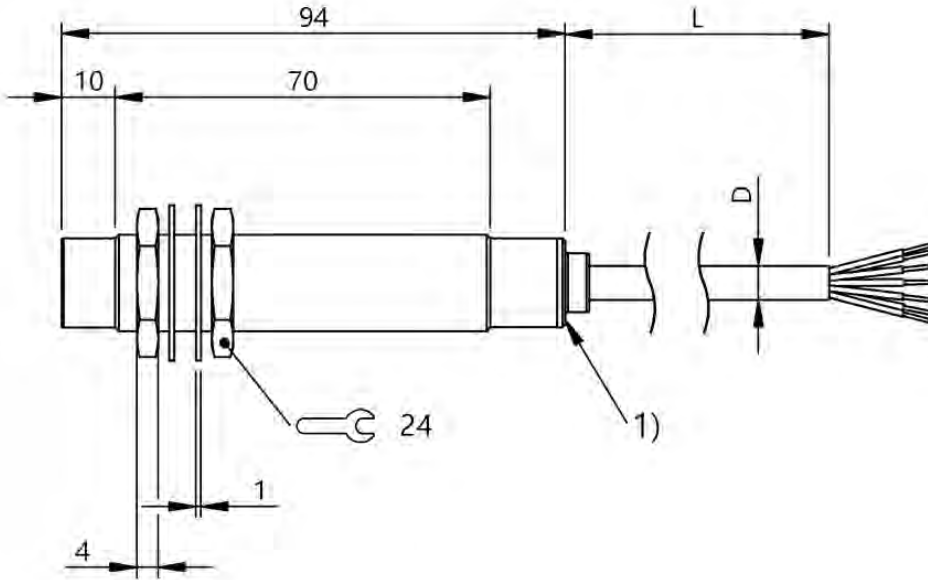


BIC0077



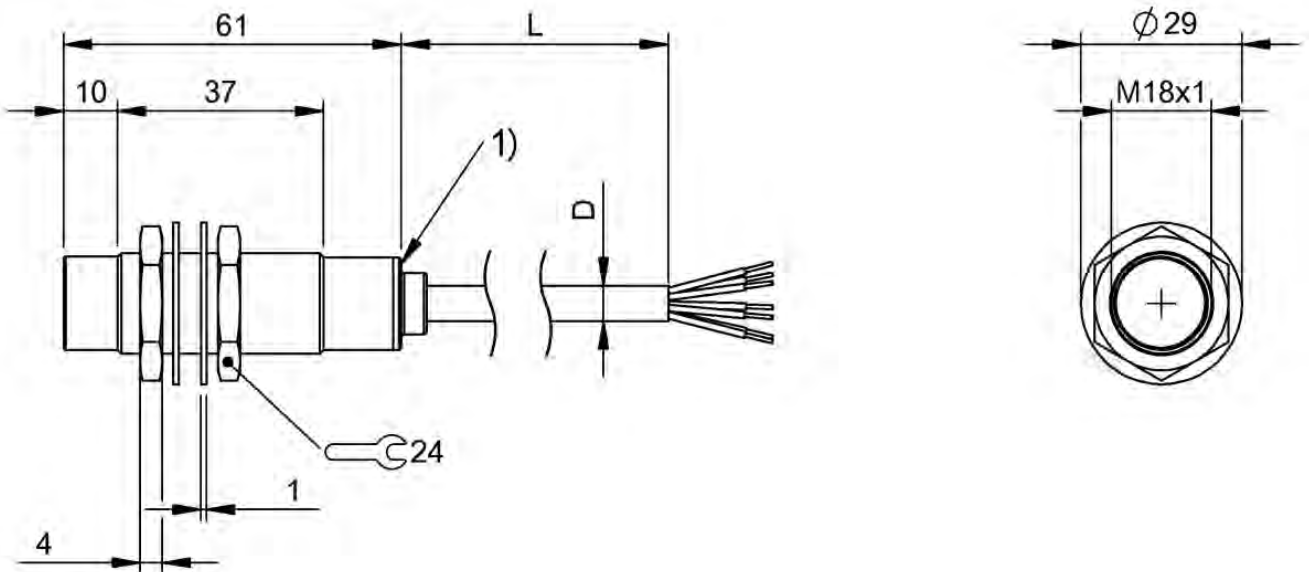
BIC0078

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.



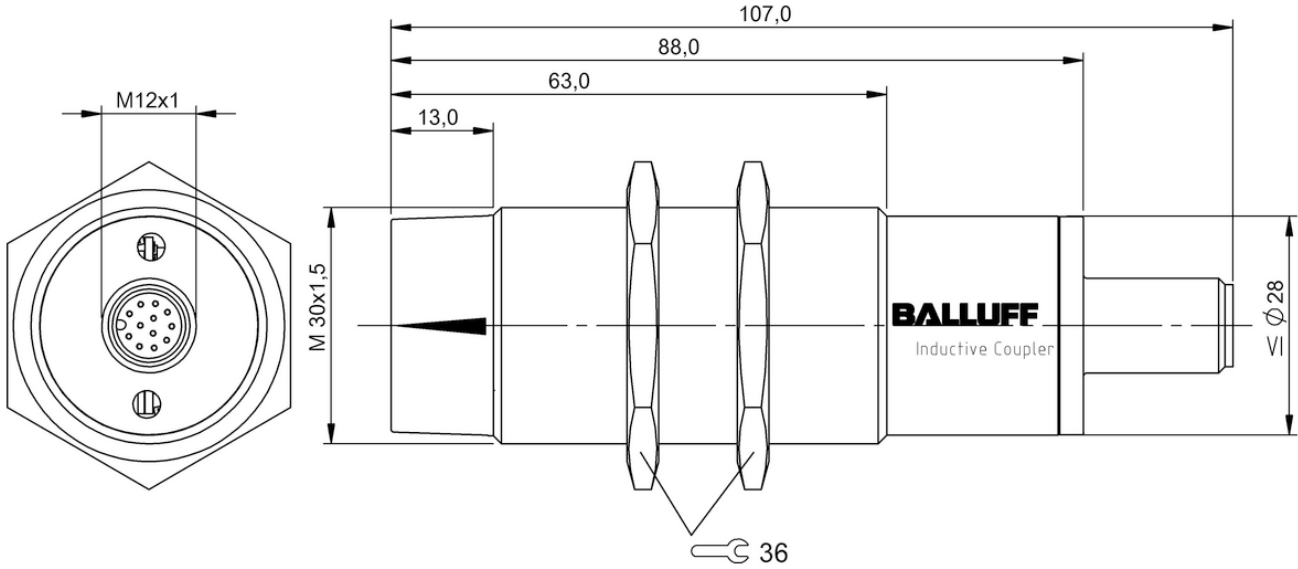
1) LED function indicator

BIC007T

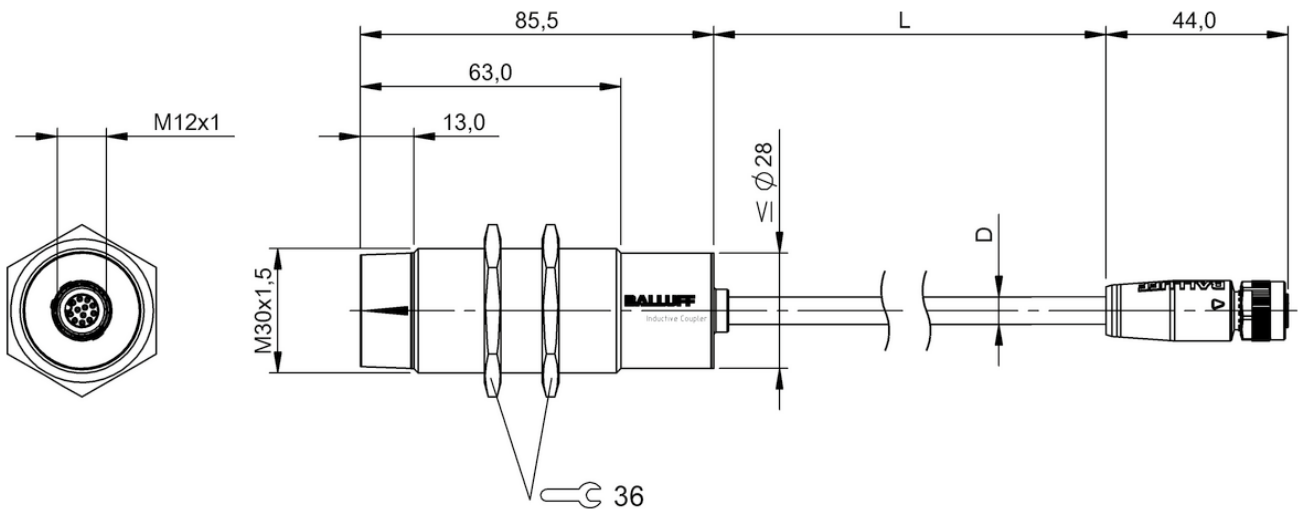


1) LED function indicator

BIC007U

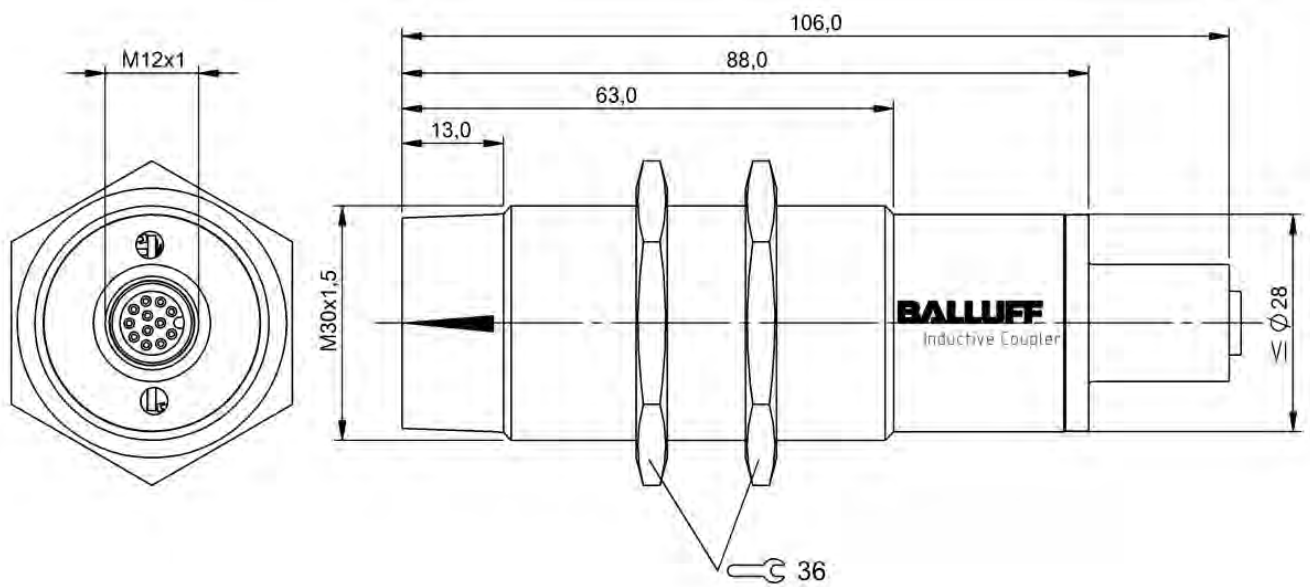


BIC0009



BIC005J

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.



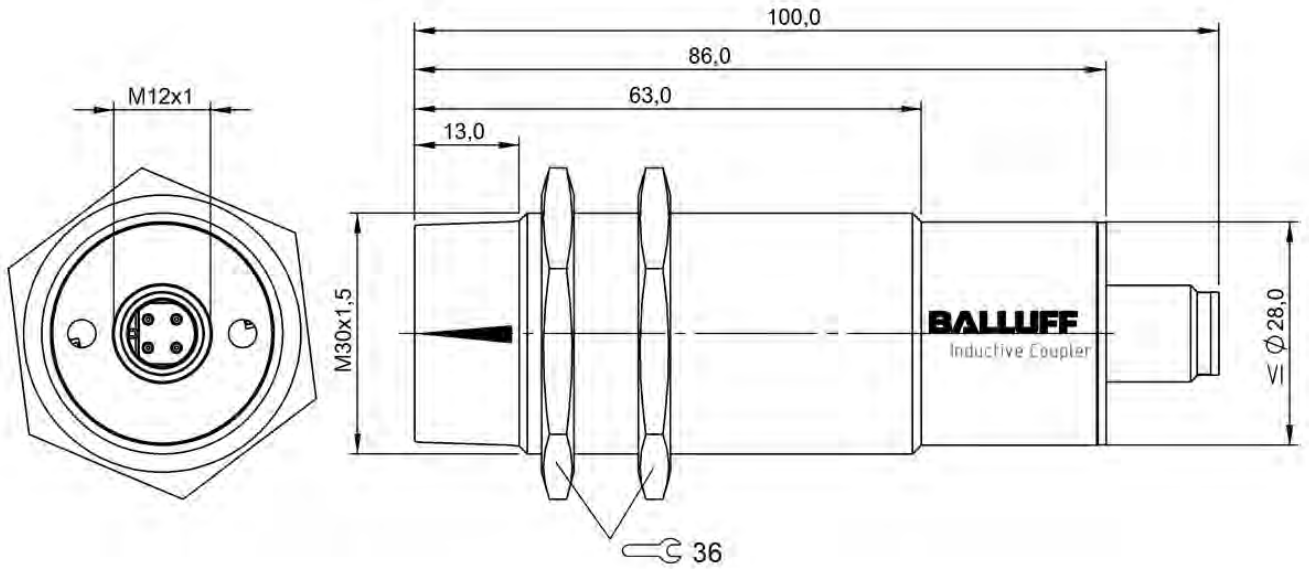
BIC000A



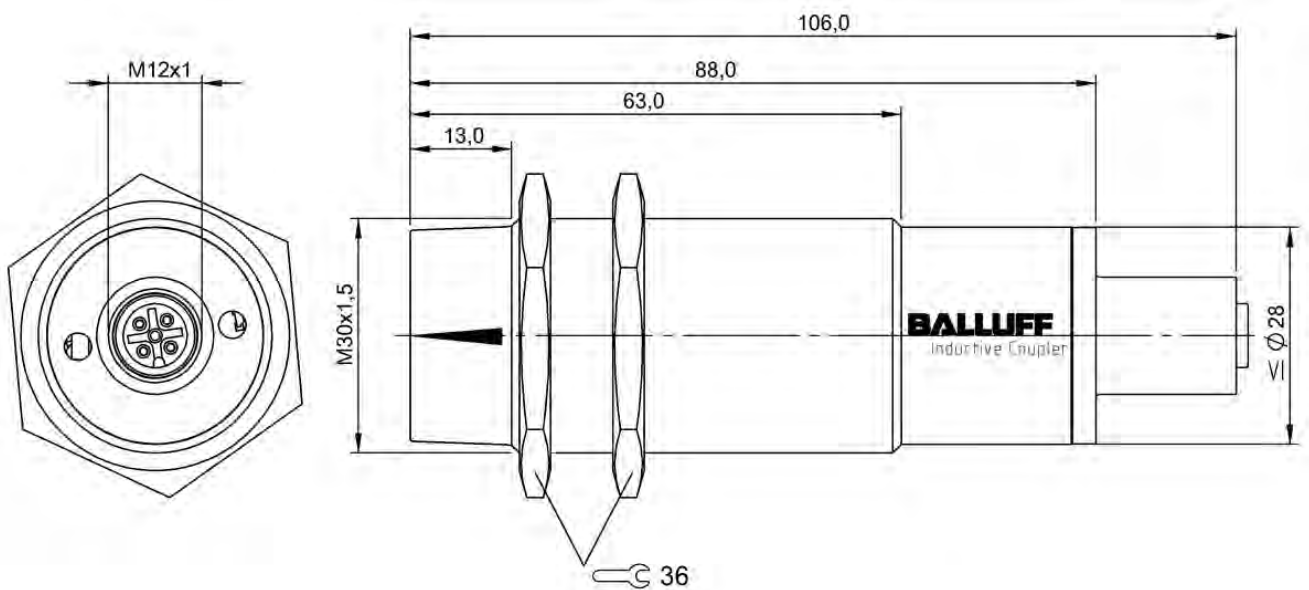
	BIC0007 BIC 1P0-P2A50-M30MI3-SM4A4A	BIC0008 BIC 2P0-P2A50-M30MI3-SM4A5A	
Function	Power only	Power only	
Transmission distance	0...5 mm	0...5 mm	
Component	Base	Remote	
Connection	Connector, M12x1, 4-pin	Connector, M12x1, 5-pin	
Rated operating voltage U _e	24 VDC	—	
Output voltage	—	24 VDC	
Rated output current	—	500 mA	
Housing material	Brass, coated	Brass, coated	
Dimension	Ø 30 x 100 mm	Ø 30 x 107.5 mm	
Ambient temperature	-5...55 °C	-5...55 °C	
Protection degree	IP67	IP67	
Productview	Seite 206	Seite 206	



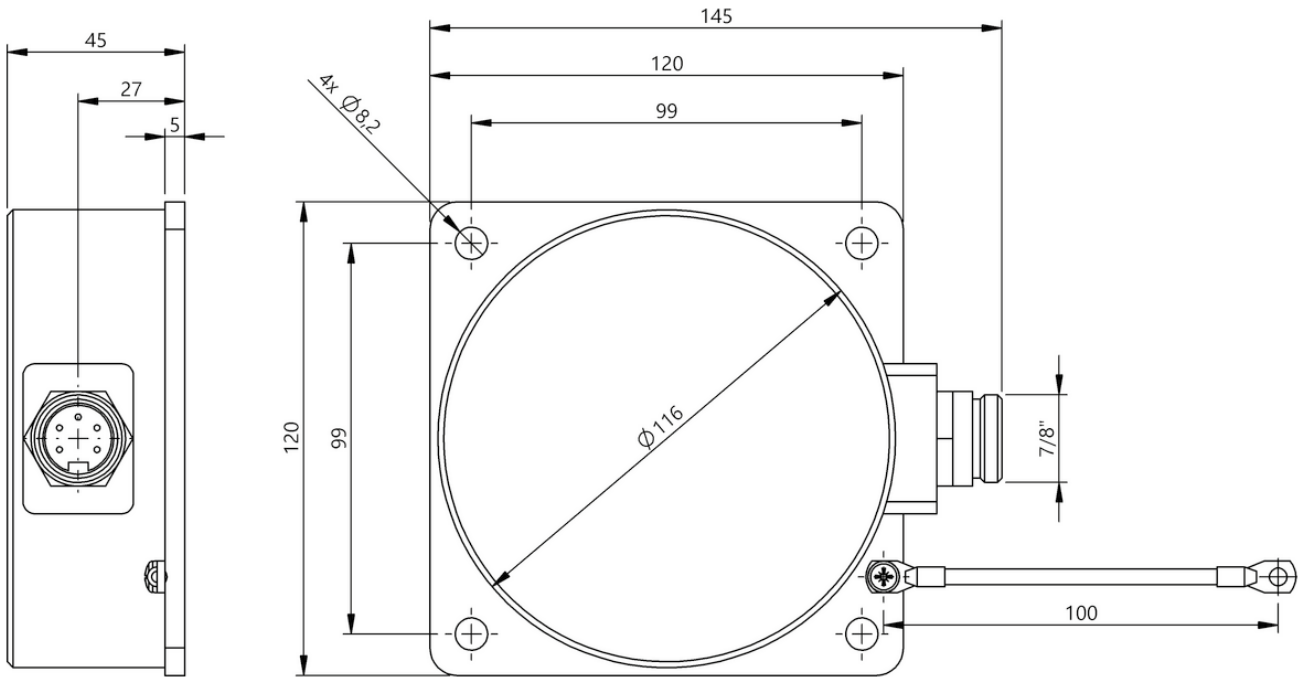
	BIC0075 BIC 1P0-P25A0-Q120AE-SA3A40	BIC0076 BIC 2P0-P25A0-Q120AE-SA3A40	BIC0073 BIC 1P0-P25A0-Q120AE-SA3A50	BIC0074 BIC 2P0-P25A0-Q120AE-SA3A50
	Power only	Power only	Power only	Power only
	0...4 mm	0...4 mm	0...4 mm	0...4 mm
	Base	Remote	Base	Remote
	Connector, 7/8", 4-pole	Connector, 7/8", 4-pole	Connector, 7/8", 5-pole	Connector, 7/8", 5-pole
	24 VDC	—	24 VDC	—
	—	24 VDC	—	24 VDC
	—	5 A	—	5 A
	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized	Aluminum, black anodized
	120 x 45 x 120 mm	120 x 45 x 120 mm	120 x 45 x 120 mm	120 x 45 x 120 mm
	-10...50 °C	-10...50 °C	-10...50 °C	-10...50 °C
	IP67	IP67	IP67	IP67
	Seite 207	Seite 207	Seite 207	Seite 207



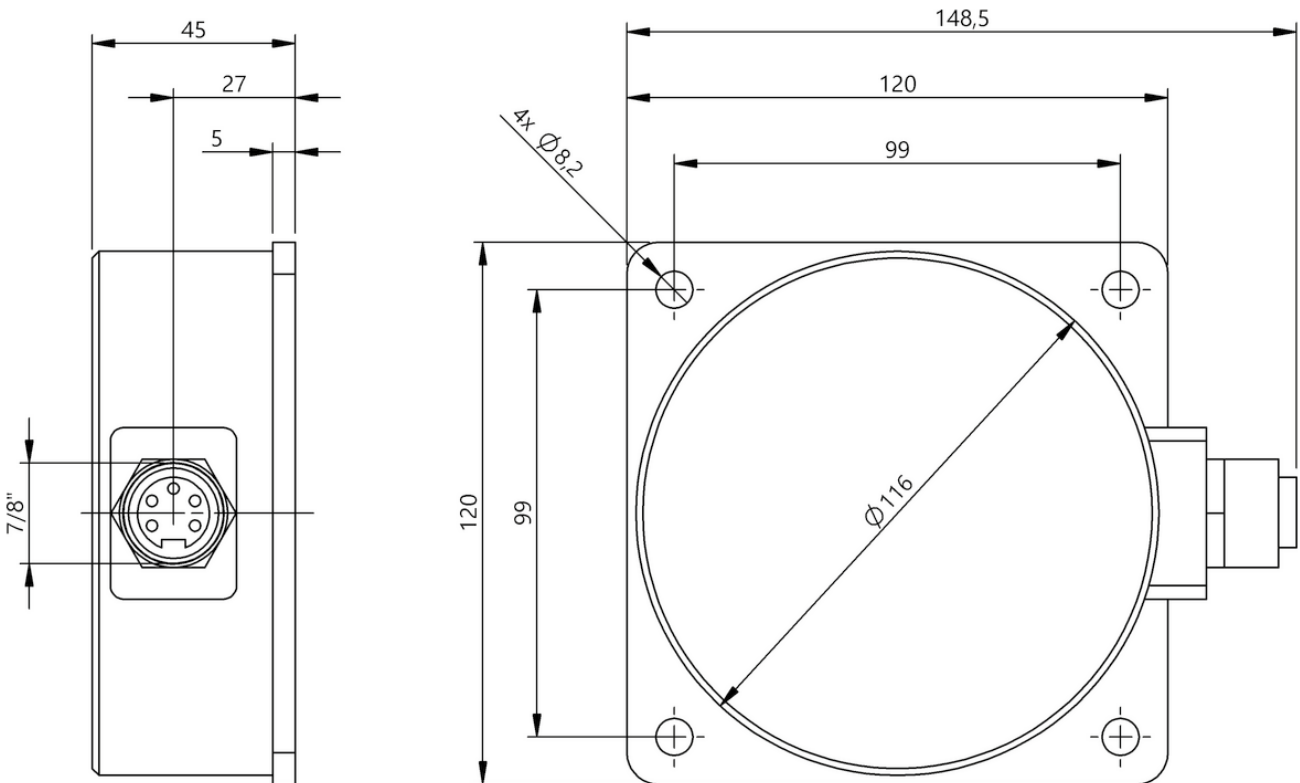
BIC0007



BIC0008



BIC0075, BIC0073



BIC0076, BIC0074

Industrial Networking

BASICS AND GLOSSARY





Accessories

Connectivity

Power Supply

Software and
System Solutions

Industrial Networking

Safety

Human Machine
Interfaces

Machine Vision and
Optical Identification

RFID

Sensors

CC-Link	A standardized fieldbus designed to integrate the most diverse automation components of a wide range of providers. The fieldbus offers high transmission speed and deterministic communication. The open network is used mainly in Asia. CC-Link is supported by the worldwide represented CC-Link Partner Association CLPA. More than 1000 companies belong to this association .
CC-Link IE/Field	Gigabit per second transmission and real time protocol which enables controlling of decentralized I/O field devices with virtually no transmission delay. Its transmission rate is at least 10 x faster than the current available industrial Ethernet-based networks. CC-Link IE/Field is the first industrial Gigabit Ethernet network which can be brought down to the field level. A key difference between CC-Link IE/Field and other industrial Ethernet solutions is that the former implements deterministic communication without additional Ethernet switches. This reduces the hardware costs and implementation effort for such components.
Devicenet	An open fieldbus standard developed by Rockwell Automation and the ODVA (Open Devicenet Vendor Association), which is based on the CAN protocol. Devicenet is standardized in EN 50325. Specification and maintaining of the standard is the responsibility of the ODVA.
I/O module	Modules with IO-Link interface which connect the binary and analog sensors and actuators to the control level through a bus. Use of these modules substantially reduces the number of lines needed. They also offer additional functions for signal pre-processing and expanded diagnostics capabilities. Different designs and connection techniques enable solutions for a wide variety of applications, even under the most extreme environmental conditions.
EtherCAT	Open fieldbus system based on Ethernet and which due to its speed enables data transmission in real time. The technology for industrial networks in automation technology was standardized in the international standards IEC 61158 and IEC 61784 as well as in ISO 15745-4.
Ethernet/IP	Industrial Ethernet standard for industrial networks in automation technology, which is used especially in the North American market and in combination with Rockwell controllers. Standardization is through the international series IEC 61158. Based on CIP protocol (Common Industrial Protocol) and is used for transmitting cyclical I/O data as well as acyclic parameter data.

Inductive couplers	<p>Non-contact transmission of data and energy over an air gap which eliminates mechanical wear.</p> <p>The units are easy to use and require no maintenance. They can be easily disconnected, so that new situations can be quickly responded to. The disadvantages of fixed wiring such as cable wear and break are eliminated while positive outcomes are gained: Elimination of unplanned machine stoppages, high system availability, shorter cycle times and more flexible sequences.</p>
IO-Link	<p>Worldwide standardized IO technology (IEC 61131-9) for communicating from the controller to the lowest level of automation. The interface can be used universally and is a fieldbus-neutral, point-to-point connection that operates using an unshielded industrial cable. Advantages of this digital communication standard include simple installation, need-based maintenance, efficient operation and the highest machine availability.</p>
IO-Link device manager	<p>Software for configuring IO-Link devices. Direct access to all IO-Link devices in the network via UDP (User Datagram Protocol) enables parallel configuration of different devices in the same network. The multi-window function of the software allows different devices to be configured and diagnosed at the same time. The ability to perform an IO test using software and make parameter settings without the PLC means significantly faster system startup. Along with PLC communication, process-, parameter- and diagnostics data can be transported without affecting the process cycle. This communication takes place continuously with all IO-Link devices in the network. The IO-Link device manager can be used with all Profinet and Ethernet/IP master modules from Balluff.</p>
Memory module	<p>A network technology with built-in data storage. In machines and equipment it can, for example, assume the function of an interchangeable data carrier. It logs and stores many parameters: including the operating data of the tool, the histogram of the temperature level in operation, the required power level up to the number of tool cycles, and the error messages in the tool.</p> <p>This means operating data as well as supplemental information is always available during maintenance or repair in the factory.</p>
Network module	<p>Interface between fieldbus/industrial Ethernet and the IO-Link communication standard. Ever faster, more efficient and variable production demands seamless communication from the sensor to the Internet. The result is a growing amount of data within the production processes. This demands components which can make this information available. At the same time an infrastructure is required which transports the data across all levels. Network modules are required for these purposes. They usually serve as an interface between fieldbus/industrial Ethernet and the IO-Link communication standard.</p>

Profibus	<p>Universal standard for fieldbus communication in automation technology. This fieldbus is standardized in IEC 61158. The basis of the protocol architecture is the OSI layer model. Profibus (Process Field Bus) is especially suited for complex applications and is today one of the most used fieldbuses in automation technology.</p>
Profinet	<p>Official industrial Ethernet standard of the Profibus User Organization. Based on TCP/IP, the protocol connects drives and safety technology directly to the network world. Profinet (Process Field Network) is real time Ethernet capable and ensures significantly faster communication than Profibus. Both standards can be easily combined with each other. Profinet can be integrated consistently from the control level to the drive. Profinet is a communication solution which has been used in many applications for many years worldwide.</p>
Signal converter	<p>A module which stores an incoming signal in a particular format and outputs it in a different format. Frequently, such modules are used in the conversion of analog signals into digital signals or vice versa. Likewise, you can convert different communication protocols using signal converters.</p>
Switch, managed	<p>Device which receives, processes and passes data packets to other devices in the network. It thereby connects individual network segments to each other. Can be configured so that it is matched to the network requirements (in contrast to an unmanaged switch) and has for example functions which ensure high system availability and high safety requirements.</p>
Switch, unmanaged	<p>Device which receives, processes and passes data packets to other devices in the network. It thereby connects individual network segments to each other. Cannot be configured and is integrated into a network using plug-and-play with no pre-settings.</p>
UL	<p>Independent, globally recognized organization with headquarters in the USA. Tests and certifies products, product groups and materials for safety. UL (Underwriters Laboratories) is not a product approval body, rather it tests whether products meet the specific safety requirements for certain applications. The UL logo, which can be attached on a product which has been certified, is recognized as a quality indicator especially in North America.</p>

Generate, transport, visualize data –
Create added value

SOFTWARE AND SYSTEMS SOLUTIONS.

 *innovating automation*





The future of automation is increasingly connected and digital. The growing diversity of technology – including in the private sector – expectations of many users while the demands on industry rise.

Meeting these increasing demands necessitates the merging of traditional automation technology (OT) and information technology (IT). And the increased use of software is the next logical step.

Balluff offers IIoT capable hardware and middleware in combination with powerful software. This means you benefit from system solutions for the widest variety of requirements in your production environment.

Your Balluff solutions

- Configuring Balluff IO-Link devices with the **Balluff Engineering Tool** 216
- Injection molding tool management with **Mold-ID** 218
- Tool parameter transfer with **Easy Tool-ID** 220

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Safety

Industrial Network
Technology

Software and
System Solutions

Power Supply

Connectivity

Accessories

Parameterizing, configuring and starting up IO-Link devices –
now even easier

BALLUFF ENGINEERING TOOL

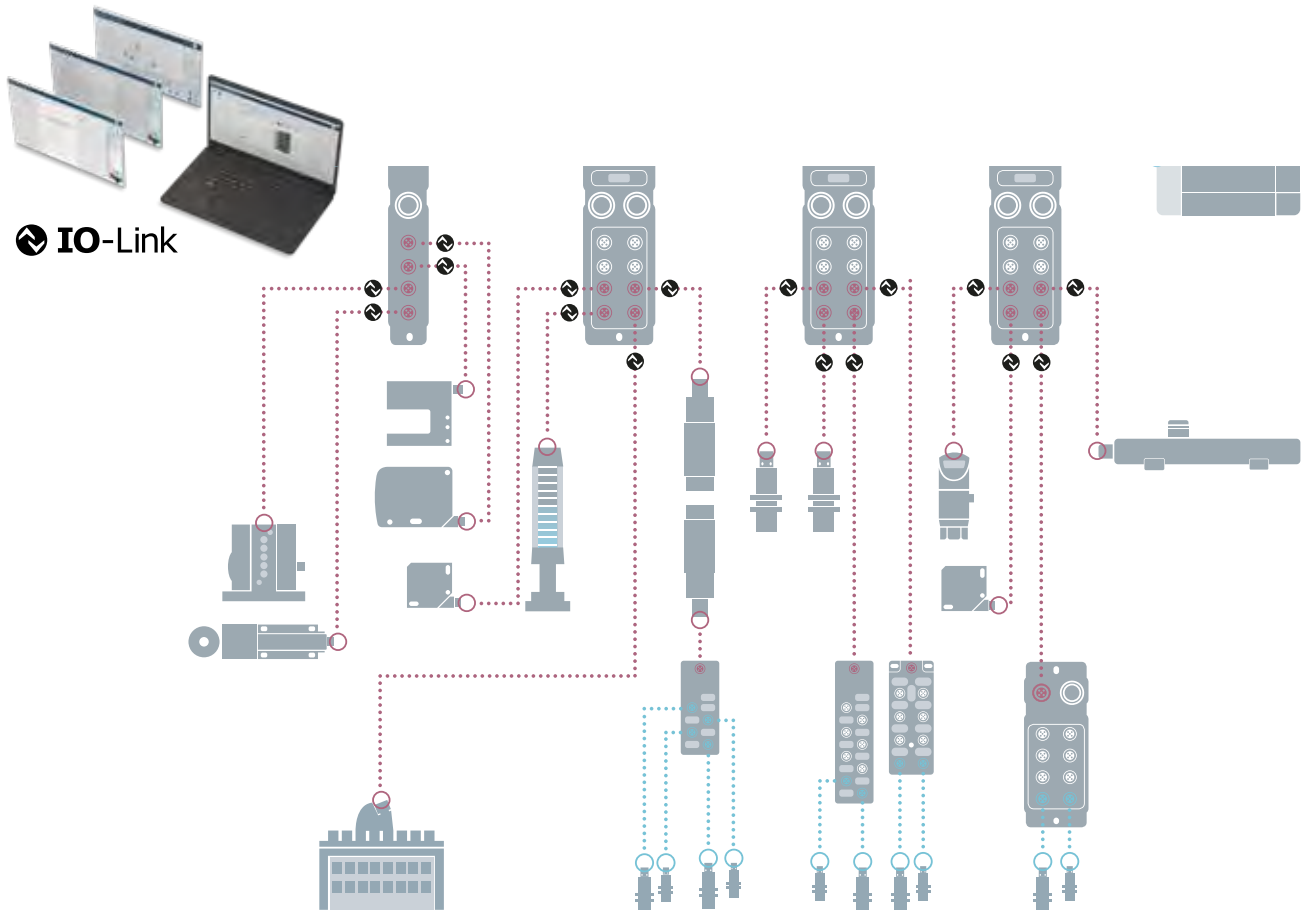
When you need a manufacturer-neutral startup and configuration of IO-Link devices, the Balluff Engineering Tool (BET) is the answer.

This software quickly and easily provides you with an overview of your topologies and allows you to track the status of all the connected IO-Link devices. You can also parameterize and place the devices in service while also managing the parameters for individual devices or entire topologies. Functions for documenting the topologies and for testing inputs and outputs are also available within the software along with simple assignment of IP addresses.

The BET is part of the Smart Automation and Monitoring System (SAMS) from Balluff, which includes a variety of devices with a standard operating, configuration and diagnostics concept.

Features

- Simple, faster setup of IO-Link devices – even without a PLC
- Reduced startup time and fewer errors since IO-Link device settings can be saved and reused
- Prevents wiring mistakes and reduces time-consuming troubleshooting by testing the IO-Link wiring before startup
- Overview of the entire IO-Link topology and its status
- Part of the Smart Automation and Monitoring System (SAMS) from Balluff





BALLUFF ENGINEERING TOOL (BET)

Standard version	BAI BET-S12N-UDN-0001- _DW-ST_ _
Description	You get the full functional capability of our Balluff Engineering Tool (BET) in the form of a 12-month license. You can configure the scope of the license yourself. One license is needed for each terminal device fully covered by the BET. The software can be used with some function limitations without purchasing a license.

Ordering example: **BAI BET-S12N-UDN-0001- DW-ST**

- Payment type**
- 2 Software subscription, monthly payments
 - 3 Software subscription, annual payment

- Number of network blocks**
- OB 2 active distributors
 - OB 5 active distributors
 - OB 10 active distributors
 - OB 20 active distributors
- No license is required for using just one network module.

The BET is suitable for all Profinet and Ethernet/IP IO-Link network blocks firmware version 3.2.2 and higher.

ACCESSORIES



	BNI0067	BNI000F	BNI0089	BNI005E
Description	Unmanaged Switches Ethernet TCP/IP 10Base-T/100Base-TX, 8x RJ45 female, 8-pin	Unmanaged Switches Ethernet TCP/IP 10Base-T/100Base-TX, 8x M12x1 female, 4-pin, D-coded	Unmanaged Switches Ethernet TCP/IP 10Base-T/100Base-TX, 8x M12x1 female, 4-pin, D-coded	Unmanaged Switches Ethernet TCP/IP 10Base-T/100Base-TX, 5x RJ45 female, 8-pin

CONNECTORS



	BCC0JF0	BCC06FN	BCC0E90	BCC06J3
2 M CABLE	BCC0JF0		BCC0E90	BCC06J3
10 M CABLE	BCC0JF3		BCC0E8P	
Connection 1	M12 male, straight, 4-pin, D-coded	7/8" female, straight, 5-pin	M12 male, straight, 4-pin, D-coded	7/8" female, straight, 4-pin
Connection 2	RJ45 male, straight, 4-pin	7/8" male, straight, 5-pin	RJ45 male, straight, 4-pin	7/8" male, straight, 4-pin
Interface	Profinet	Current	Ethernet/IP	Current
Cable	PUR shielded, green, drag-chain compatible	PUR black, drag-chain compatible	TPE shielded, turquoise, drag-chain compatible	PUR black, drag-chain compatible

Other cable versions and lengths on request or at www.balluff.com

Do you need more details? Our Product Finder at www.balluff.com provides all the product-specific details – including technical drawings, data sheets, user's guides etc. for each individual product – also for downloading.

Transparency in injection molding tool handling

MOLD-ID

Why Mold-ID?

The autonomous Balluff Mold-ID system guarantees condition-based maintenance of the molds without time-consuming and error-prone mold logs.

All the relevant data, such as shot count, last maintenance and detailed information, is automatically stored on the tool using RFID data carriers and can be recalled at any time using the RFID handheld reader.

This minimizes downtime and supports condition-based maintenance. The optimum capacity utilization of the injection molds is guaranteed.

Mold-ID significantly increases the productivity of the injection molding system.

Good to know: Mold-ID is an autonomous system. This means that you can retrofit all the machines individually regardless of location, manufacturer or age of the machines.

The most important benefits

- Autonomous system, can be retrofitted regardless of manufacturer or machine age
- All data is available directly on the mold via RFID data carriers
- Can be read at any time, even portably using an RFID handheld
- Automatic documentation of the production cycles
- Optimal tool changes, since you are now using condition-based maintenance
- Information about the molds currently used on the machine by accessing the systems via web interface and API

HARDWARE AND COMPONENTS OF THE MOLD-ID SYSTEM



	BN100CE	BES00EF	BIS018E	BIS0180	BNI0085
Description	Compact field controller with web server as gateway for the company network	Inductive sensor as shot counter	HF read/write head (13.56 MHz) with integrated processor unit	HF data carrier (13.56 MHz) on each mold	Smartlight tower light for visualizing the operating status directly on the machine
Ingress protection	IP67	IP68	IP67	IP67	IP30
Approval, conformity	CE, UL	CE, cULus, EAC, WEEE	CE, FCC Part 15, IC RSS-210, EAC, WEEE	CE, WEEE, EAC	
Dimensions	68 x 42.9 x 226 mm	Ø 12 x 45 mm	28 x 60 x 33.4 mm	40 x 23 x 28 mm	60 x 60 x 330.5 mm
Ambient temperature	-5...+50 °C	-25...70 °C	0...70 °C	-25...70 °C	-5...50 °C
Housing material	PPS	Brass, nickel-free coated	Die-cast Brass nickel plated, nuts nickel plated brass	PA 12 Aluminum * die-cast	PC, transparent, Cu 15 µm, Ni 15 µm Die-cast zinc

Additional information about the products can be found in the Product Finder on our website: www.balluff.com/local/de/productfinder/#/

Do you have more than one injection molding machine running?

The Connected Mold-ID software extension offers the ability to create transparency across all the machines in the system.

Connected Mold-ID software overview:

Connected Mold-ID is a software package for networking all the Mold-ID systems. This allows all the data recorded by Mold-ID to be also recorded in a central database.

- Networks multiple units
- Records the injection molding tool data in a central database
- Displays the tool inventory, tool details and histories as well as the status of the production cell (machine and tool) in a browser application
- Access to the Connected Mold ID system using a standard web browser
- Optimal tool changes by visualizing inspection intervals on the equipment and in the software
- Overview of the entire tool inventory, tool details and machine inventory
- Recording of tool history

CONNECTED
MOLD-ID
SOFTWARE



BAI CMI-S12C-UDN-9999- _DZ-ZZ_ _	
Description	The Connected Mold-ID software can be obtained in the form of a time-limited license for 12 months. The conditions are determined by the following configuration options themselves: <ul style="list-style-type: none"> ■ Number of molds to be monitored (number of devices/molds/objects) ■ Payment type: monthly or annual

Ordering example: **BAI CMI-S12C-UDN-9999- [] DZ-ZZ []**

- Payment type**
- 2 Software subscription, monthly payments
 - 3 Software subscription, annual payment

- Number of molds**
- OD up to 10 molds
 - OG up to 100 molds
 - OH up to 250 molds
 - OI up to 500 molds
 - OJ up to 1000 molds
 - OK more than 1000 molds

The user license is provided via email in the form of a license key.

This allows you to activate and use Connected Mold-ID.

The product itself is provided in an installation file in the download area of the product detail page on our website.

Connected Mold-ID must be installed on a central server which has a connection to the individual Mold-ID units. Our customer project unit will be happy to assist you in layout and startup.

Testing Connected Mold-ID

You can test Connected Mold-ID yourself. Use the Demo Tool on the product page:

www.balluff.com/local/de/productfinder/#/ca/A0018/cg/G1801/product/F180102/variant/MP10062274

Reliably record and share tool characteristics in machining processes using RFID

EASY TOOL-ID

Easy Tool-ID supports machine operators in getting their tool data to the machine tool fast and reliably. Our system drastically reduces setup times and incorrect entries. The 7" display shows all the relevant tool data, so that all the information you need is visible whenever needed. In addition, you can manually update your tool data from the touch display. This allows tool wear to be consistently documented. Optimal tool utilization is then a given. No cumbersome, expensive integration into the PLC is required. You can simply connect Easy Tool-ID to the machine tool via USB.

The most important benefits

- Reduced setup times and erroneous entries: send tool data fast and reliably via USB
- All the data is shown in plain text on the touch display
- Optimal tool utilization: manual updating of tool data via the touch display
- Effortless retrofitting: simple configuration via web browser, no intervention in the machine tool itself and only very short downtimes



CONTROLLER
EASY TOOL-ID

	BSG001W
Module	phyCore i.MX6 Dual Lite
Memory	4 GB eMMC
Working memory	1 GB RAM
Clock frequency	2 × 1.2 GHz
M12 connections	1 × Power (24 V DC), 2 × Ethernet, 1 × USB Host, 1 × USB Client, 1 × RS232, 1 × USB Host
Display	7" TFT, WVGA 800 × 480, LED Back-Light, Analog RGB (TTL), Projective Capacitive Touch (Multi-Touch)
Power Supply	24 V DC ±10% LPS Class 2
Current	≤ 2 A
Operating temperature	0...+60 °C
Storage temperature	-40...+80 °C
Enclosure rating per IEC 60529	IP54
Max. USB cable length	2.8 m

TOOL STAND FOR TOOL IDENTIFICATION WITH RFID TECHNOLOGY



	BSG001T
Dimension	250 x 1046.5 x 150 mm
Terminals	PWR: 7/8" male, 5-pin
Terminals	PWR: 7/8" male, 5-pin X1 (Ethernet TCP/IP): M12x1 female, 4-pin, D-coded
Operating voltage Ub	24 V DC LPS Class 2
Current draw max.	8 A
Ingress protection	IP65
Ambient temperature	0...60 °C
Approval/Conformity	CE, WEEE
Max. USB cable length	2,8 m

ACCESSORIES



	BSG001E	BSG0018	BSG001J	BAE00ER
Description	Tool holder for HSK63	Tool holder for SK50	Tool holder for Capto CC6	Power supply

Other tool holders available on request.

CONNECTORS



	BCC0AA7	BCC0AJ0	BCC0CNY	BCC0CP0	BCC0FMK	BCC0JF0
Description	Tee, 7/8" - female, 5-pin, IP67	Connection cable, 7/8" female, straight, 3-pin, 5 m PUR cable, 3 x 1.5 mm ² , IP68	Connection cable, 7/8" female and straight male, 5-pin, , 3 m PUR cable, IP68	Connection cable, 7/8" female and male right angle, 5-pin, 3 m PUR cable, IP68	Connection cable Device Net, M12 female, 7/8" male, straight, 5-pin, 3 m, PVC cable, IP68	Connection cable Profinet, M12 male, RJ45 male, 4-pin, 2 m, PUR cable, IP67

Wide range of voltages and power levels

POWER SUPPLIES

 *innovating automation*



With our power supplies you can power any of your applications. Whether single-phase, three-phase, for parallel or series wiring, whether for the control cabinet, in compact form for automated machines or for harsh conditions directly in the field. At Balluff you will find a wide selection of voltages and power levels for reliable and efficient power supply. Our devices are approved according to CE/TÜV, UL or CCC.

Your Balluff solutions

- Switching Power Supplies



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

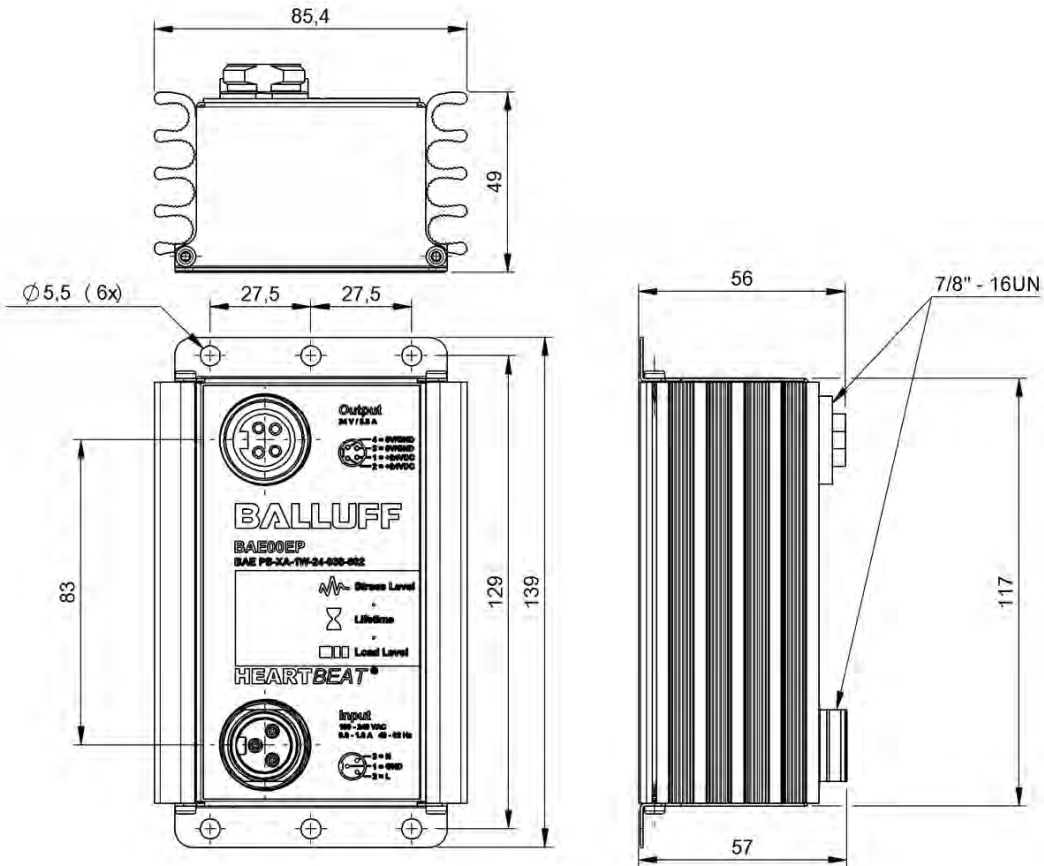
Heartbeat® Power Supply Units	226
Heartbeat® Power Supplies with IO-Link Interface	230
Power Supplies for the Control Cabinet	236
Basics and Glossary	242



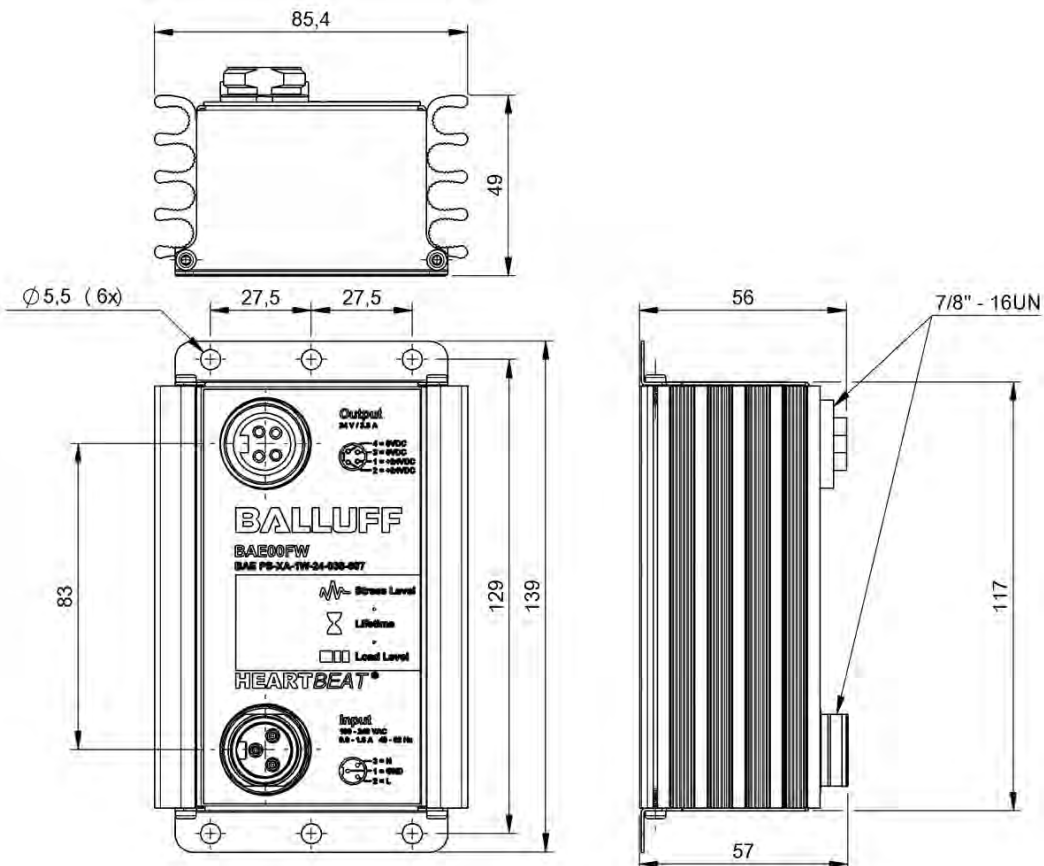
	BAE00EP BAE PS-XA-1W-24-038-602	
Dimension	85.4 x 57 x 139 mm	
Version	IP67	
Mounting	Flange mounting	
Housing material	Aluminum	
Connection (supply voltage IN)	7/8"-Male	
Connection (supply voltage OUT)	7/8"-Female	
Input voltage	100...240 V AC, Single phase	
Rated output voltage DC	24 V	
Rated output current	3.8 A	
Output capacity max.	91.2 W	
Output current max.	6 A for max. 4s	
Protection degree	IP67 with connector	
Approval/Conformity	CE, cURus	
Ambient temperature	-25...70 °C	
Productview	Seite 228	



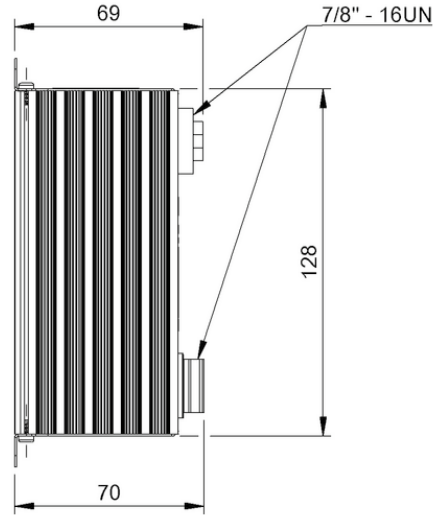
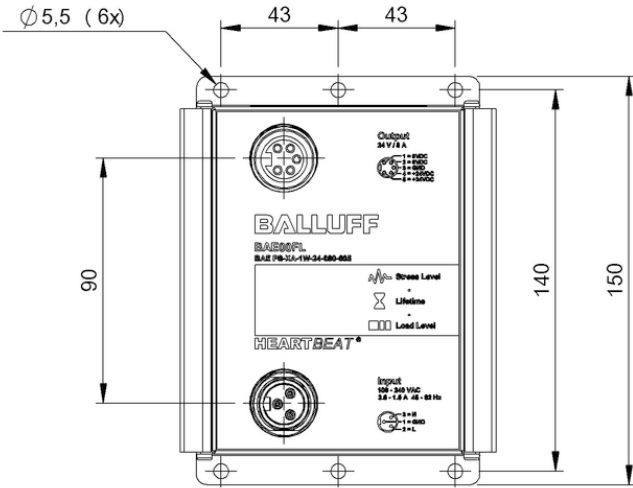
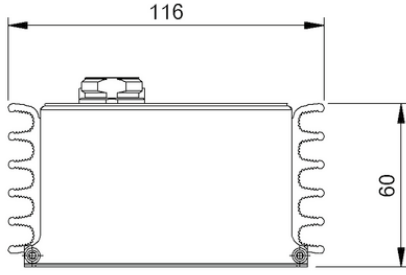
BAE00FW BAE PS-XA-1W-24-038-607	BAE00FL BAE PS-XA-1W-24-080-605	BAE00FY BAE PS-XA-1W-24-080-606
85.4 x 57 x 139 mm	116 x 70 x 150 mm	116 x 70 x 150 mm
IP67	IP67	IP67
Flange mounting	Flange mounting	Flange mounting
Aluminum	Aluminum	Aluminum
7/8"-Male	7/8"-Male	7/8"-Male
7/8"-Female	7/8"-Female	7/8"-Female
100...240 V AC, Single phase	100...240 V AC, Single phase	100...240 V AC, Single phase
24 V	24 V	24 V
3.8 A	8 A	8 A
91.2 W	192 W	192 W
6 A for max. 4s	12 A for max. 4s	12 A for max. 4s
IP67 with connector	IP67 with connector	IP67 with connector
CE, cURus	CE, cURus	CE, cURus
-25...70 °C	-25...70 °C	-25...70 °C
Seite 228	Seite 229	Seite 229



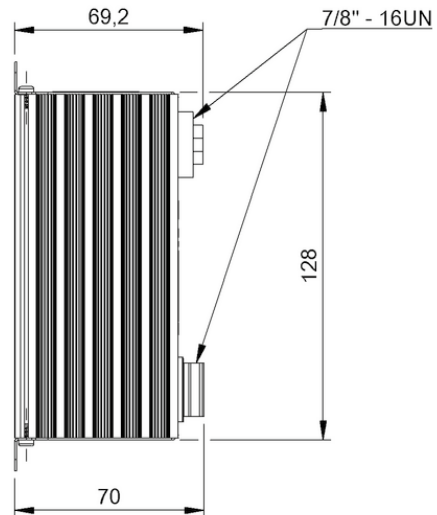
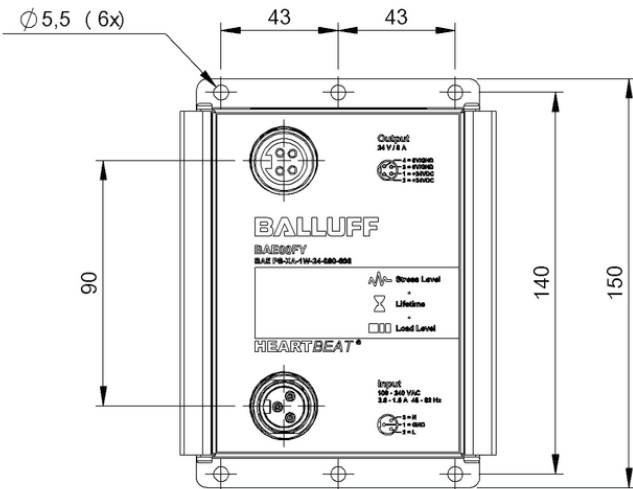
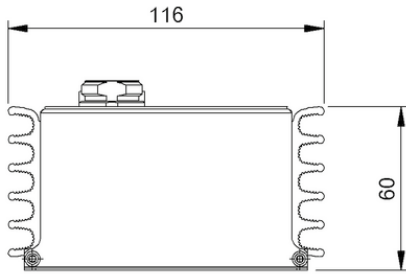
BAE00EP



BAE00FW



BAE00FL



BAE00FY

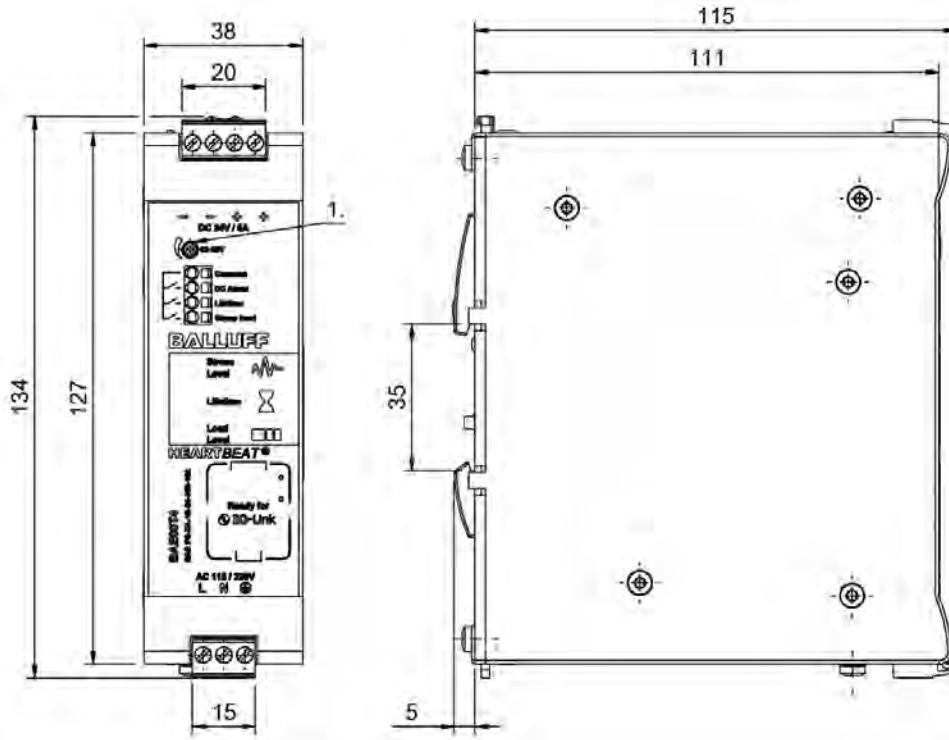
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



	BAE00T4 BAE PS-XA-1S-24-050-102	BAE00LJ BAE PS-XA-1S-24-100-103	BAE00M3 BAE PS-XA-1S-24-200-104	
Dimension	38 x 127 x 120 mm	60 x 127 x 127 mm	79 x 127 x 139 mm	
Version	DIN rail	DIN rail	DIN rail	
Mounting	DIN rail mount	DIN rail mount	DIN rail mount	
Housing material	Aluminum	Aluminum	Aluminum	
Connection (supply voltage IN)	Terminal strip	Terminal strip	Terminal strip	
Connection (supply voltage OUT)	Terminal strip	Terminal strip	Terminal strip	
Input voltage	115/230 V AC automatic selection, 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	5 A	10 A	20 A	
Output capacity max.	180 W	360 W	720 W	
Output current max.	7.5 A for max. 4s 1x/min.	15 A for max. 4s 1x/min.	30 A for max. 4s 1x/min.	
Protection degree	IP20	IP20	IP20	
Approval/Conformity	CE, CB, cURus, cULus	CE, CB, cURus, cULus	CE	
Ambient temperature	-25...70 °C	-25...70 °C	-25...60 °C	
Productview	Seite 232	Seite 232	Seite 233	

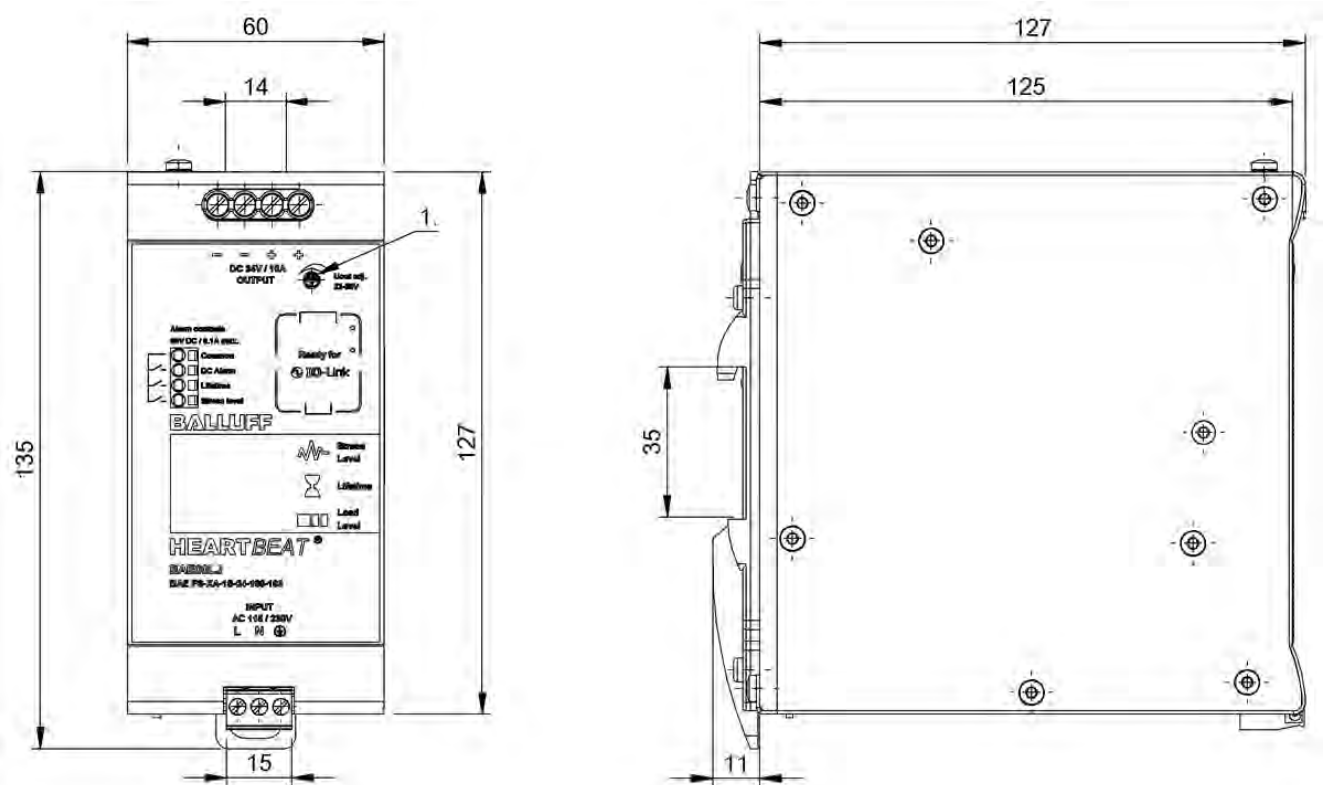


	BAE00TR BAE PS-XA-1W-24-025-101	BAE00TJ BAE PS-XA-1W-24-038-602-I	BAE00TK BAE PS-XA-1W-24-038-603-I	BAE00TL BAE PS-XA-1W-24-080-604-I	BAE00TM BAE PS-XA-1W-24-080-605-I
	24 x 127 x 92 mm	85.4 x 72.6 x 139 mm	85.4 x 72.6 x 139 mm	116 x 85 x 150 mm	116 x 85 x 150 mm
	DIN rail	IP67	IP67	IP67	IP67
	DIN rail mount	Flange mounting	Flange mounting	Flange mounting	Flange mounting
	Aluminum	Aluminum PC	Aluminum PC	Aluminum PC	Aluminum PC
	Terminal strip	7/8"-Male	7/8"-Male	7/8"-Male	7/8"-Male
	Terminal strip	7/8"-Female	7/8"-Female	7/8"-Female	7/8"-Female
	100...240 V AC, Single phase	100...240 V AC, Single phase	100...240 V AC, Single phase	100...240 V AC, Single phase	100...240 V AC, Single phase
	24 V	24 V	24 V	24 V	24 V
	2.5 A	3.8 A	3.8 A	8 A	8 A
	90 W	91.2 W	91.2 W	192 W	192 W
	3.75 A for max. 4s 1x/min.	6 A for max. 4s	6 A for max. 4s	12 A for max. 4s	12 A for max. 4s
	IP20	IP67 with connector	IP67 with connector	IP67 with connector	IP67 with connector
	CE, CB, cURus, cULus	CE, cURus, IO-Link	CE, cURus, IO-Link	CE, cURus, IO-Link	CE, cURus, IO-Link
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	Seite 233	Seite 234	Seite 234	Seite 235	Seite 235



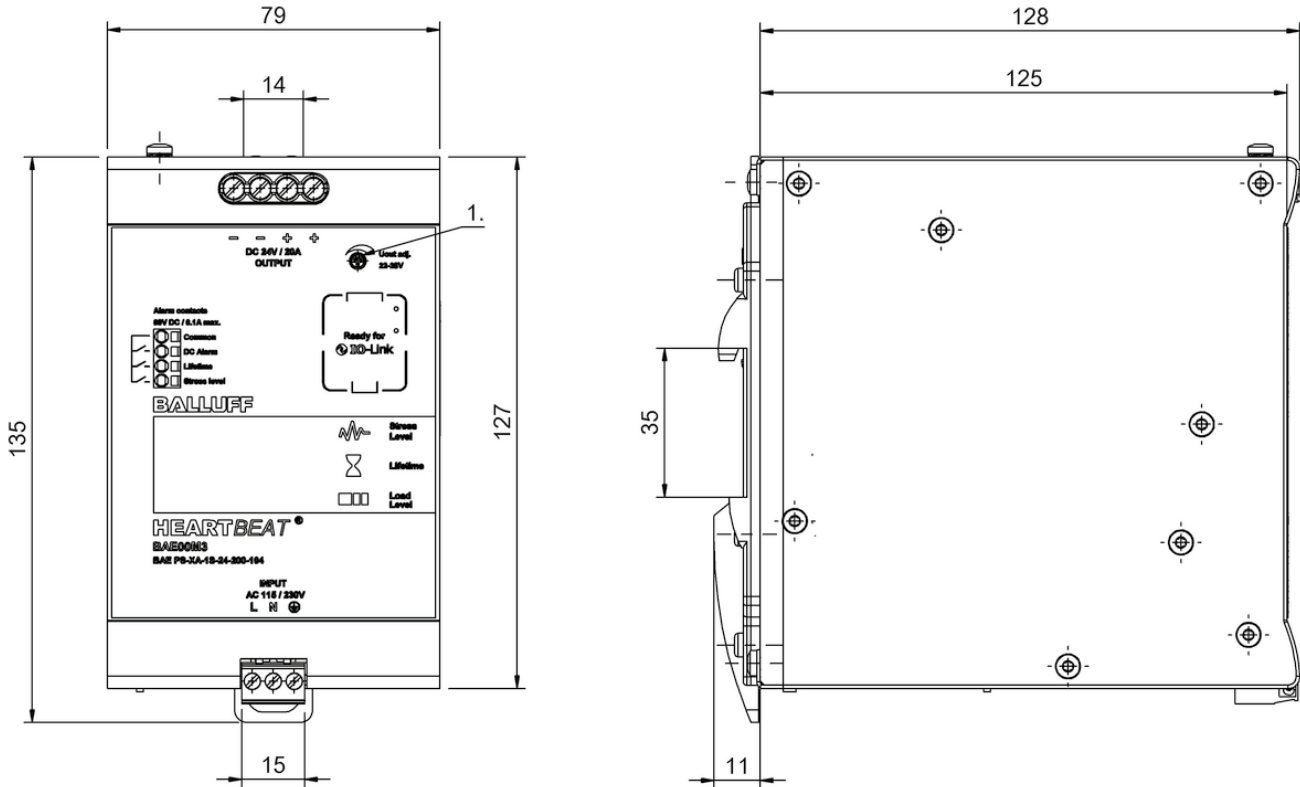
1) Potentiometer

BAE00T4



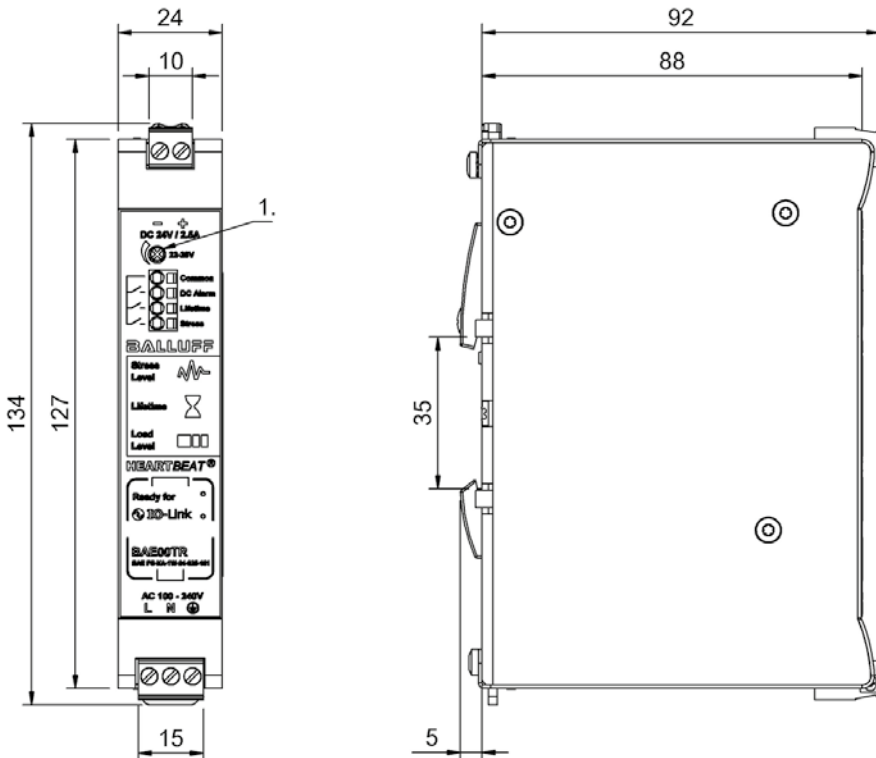
1) Potentiometer

BAE00LJ



1) Potentiometer

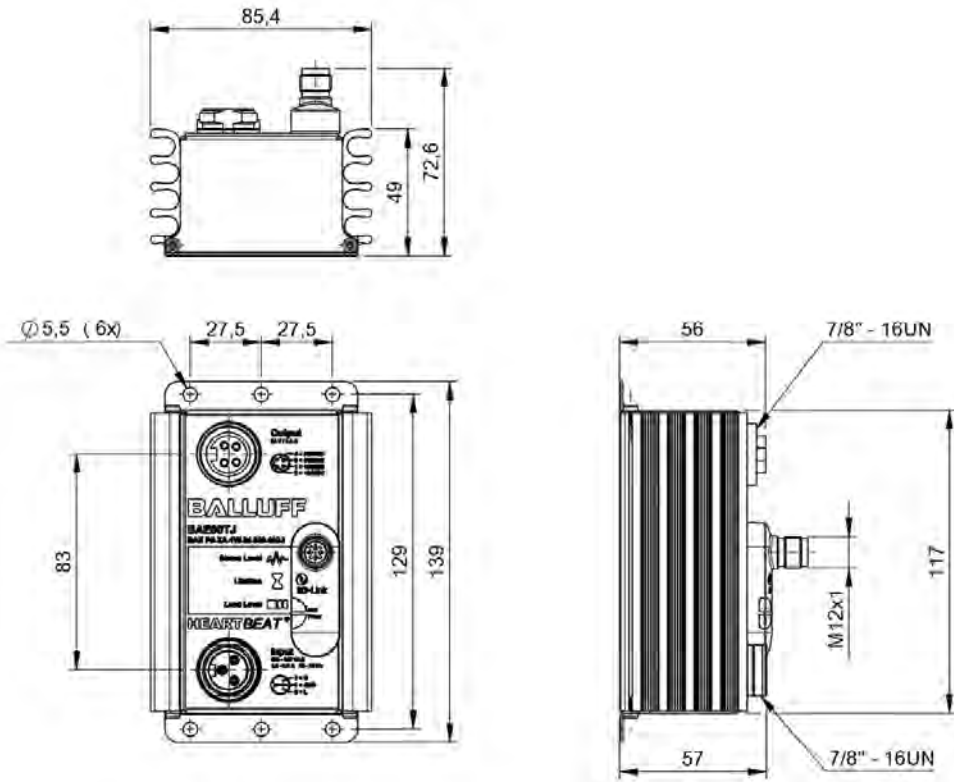
BAE00M3



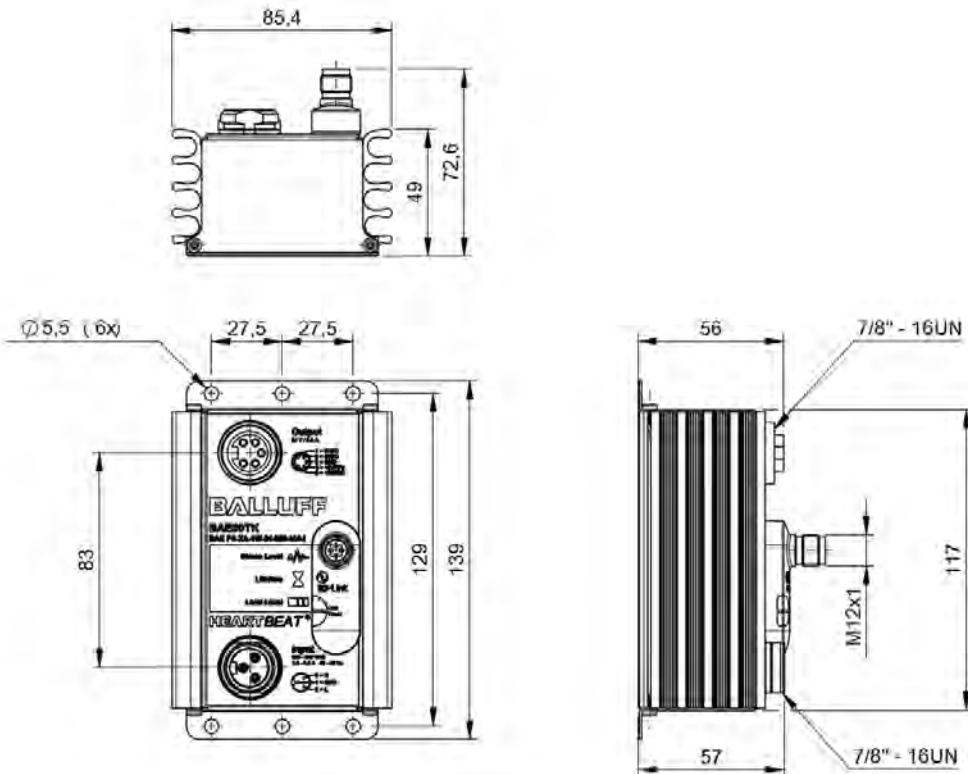
1) Potentiometer

BAE00TR

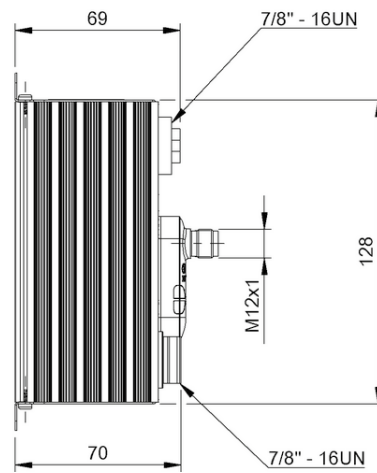
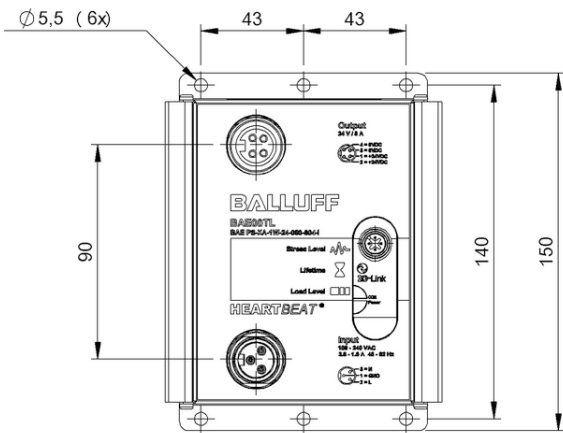
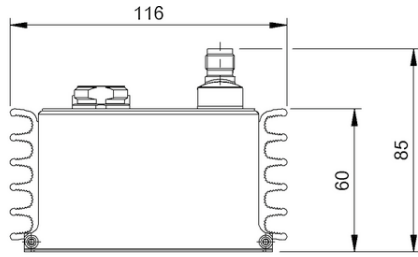
Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



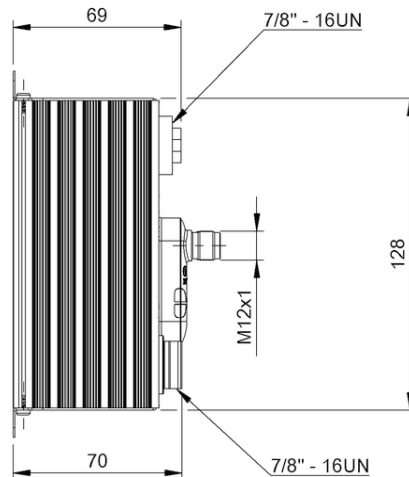
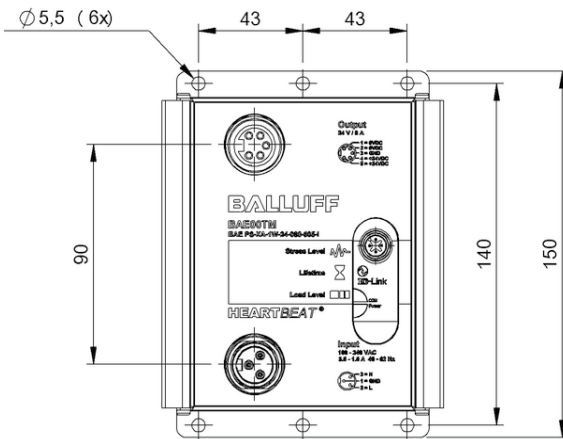
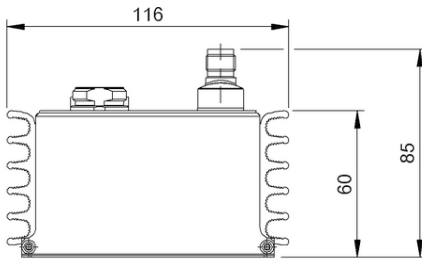
BAE00TJ



BAE00TK



BAE00TL



BAE00TM

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.



	BAE0111 BAE PS-XA-1W-24-025-016	BAE0112 BAE PS-XA-1W-24-050-017	BAE0113 BAE PS-XA-1W-24-100-018	
Dimension	27 x 123.6 x 102 mm	40 x 123.6 x 117.6 mm	60 x 123.6 x 117.6 mm	
Version	DIN rail	DIN rail	DIN rail	
Mounting	DIN rail mount	DIN rail mount	DIN rail mount	
Housing material	Plastic	Metal	Metal	
Connection	Terminal, 0.25...2.5 mm ²	Terminal, 0.25...4 mm ²	Terminal, 0.25...4 mm ²	
Input voltage	100...240 V AC, 1-phase	100...240 V AC, 1-phase	100...240 V AC, 1-phase	
Rated output voltage DC	24 V	24 V	24 V	
Rated output current	3.12 A	5 A	10 A	
IP rating	IP20	IP20	IP20	
Approval/Conformity	CE, EAC, cURus, cULus, WEEE	CE, EAC, cURus, cULus, WEEE	CE, EAC, cURus, cULus, WEEE	
Ambient temperature	-20...70 °C	-20...70 °C	-20...70 °C	
Productview	Seite 238	Seite 238	Seite 239	



	BAE0114 BAE PS-XA-1W-24-200-019	BAE0115 BAE PS-XA-3Y-24-050-020	BAE0116 BAE PS-XA-3Y-24-100-021	BAE0117 BAE PS-XA-3Y-24-200-022	BAE0118 BAE PS-XA-3Y-24-400-023
	85.5 x 123.6 x 128.5 mm	50 x 121 x 117.3 mm	70 x 121 x 117.3 mm	140 x 121 x 117.3 mm	255 x 121 x 117.3 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
	Terminal, 0.25...4 mm ²	Terminal, 0.25 mm ² ...4 mm ² , 0.5 mm ² ...10 mm ²	Terminal, 0.25...4 mm ²	Terminal, 0.25...4 mm ²	Terminal, 0.25 mm ² ...4 mm ² , 0.5 mm ² ...10 mm ²
	100...240 V AC, 1-phase	400...500 V AC 3-phase	400...500 V AC 3-phase	400...500 V AC 3-phase	400...500 V AC 3-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, EAC, cURus, cULus, WEEE	CE, EAC, cURus, cULus, WEEE	CE, EAC, cURus, cULus, WEEE	CE, EAC, cURus, cULus, WEEE	CE, EAC, cURus, cULus, WEEE
	-20...70 °C	-25...80 °C	-25...80 °C	-25...80 °C	-25...80 °C
	Seite 239	Seite 240	Seite 240	Seite 241	Seite 241

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Safety

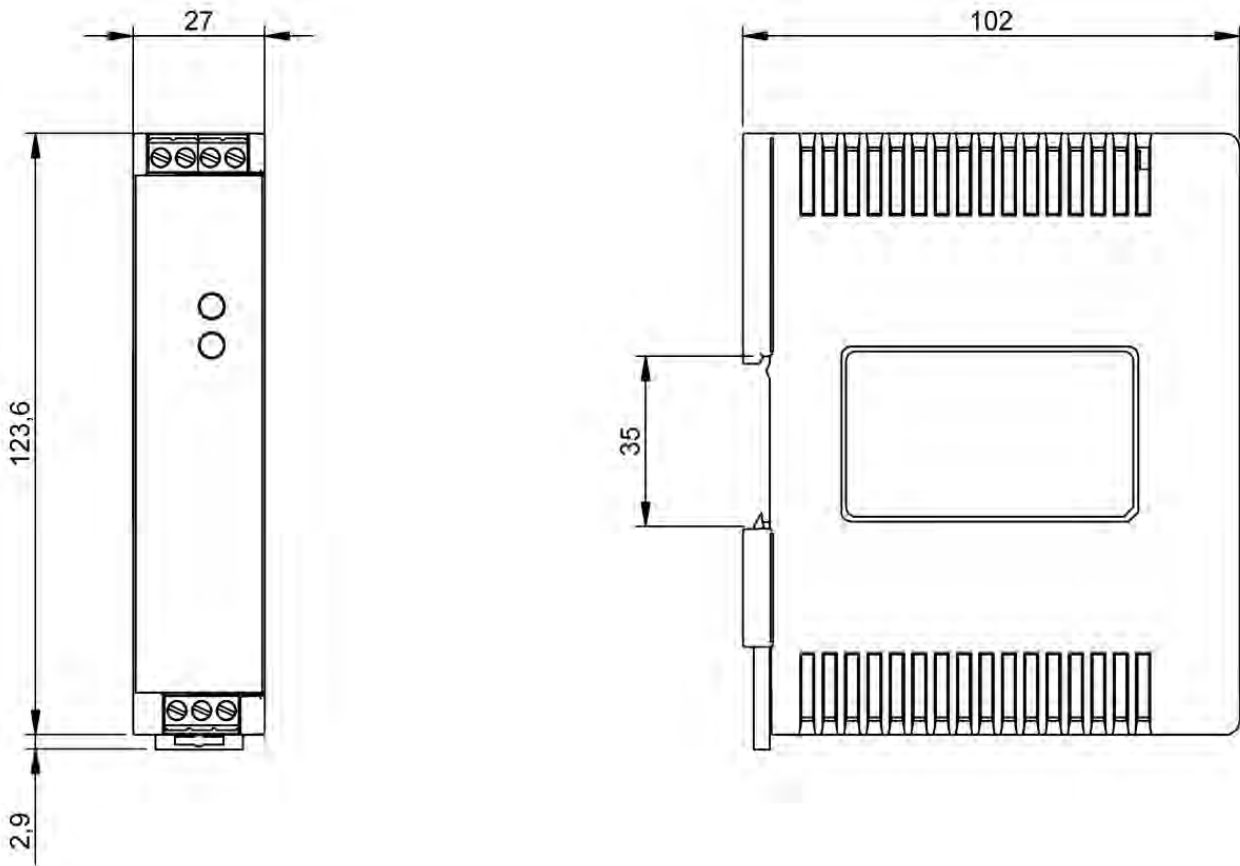
Industrial Networking

Software and
System Solutions

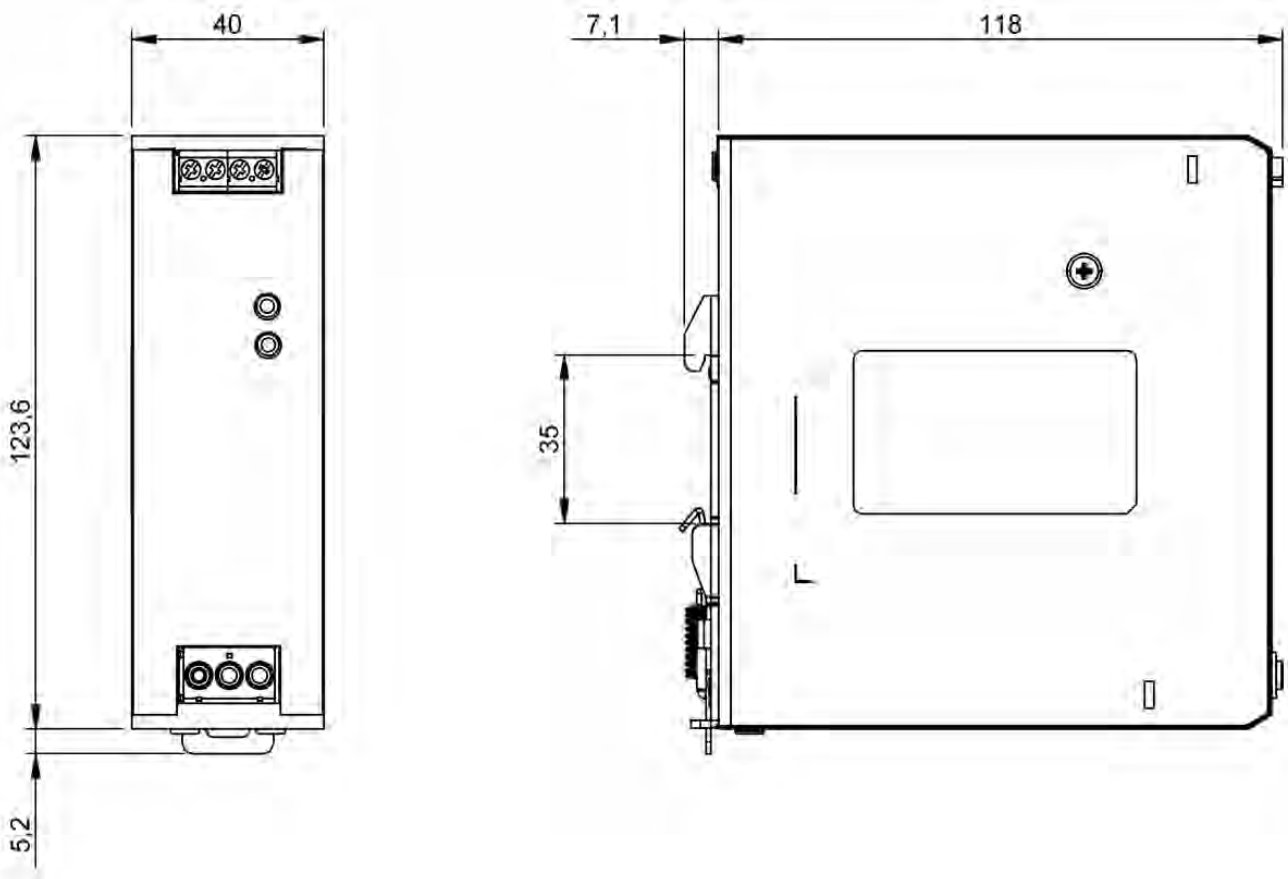
Power Supply

Connectivity

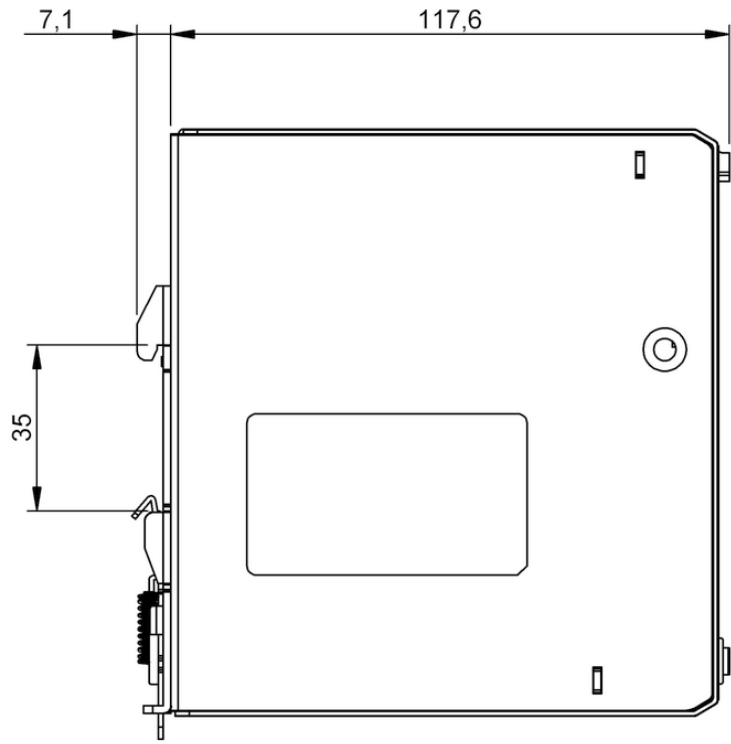
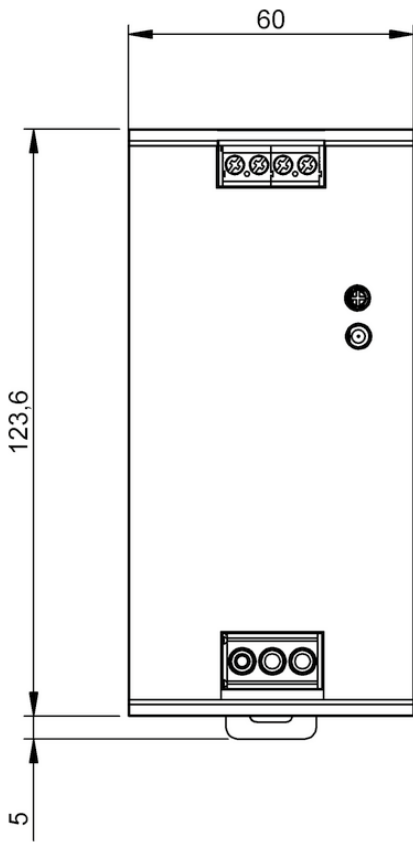
Accessories



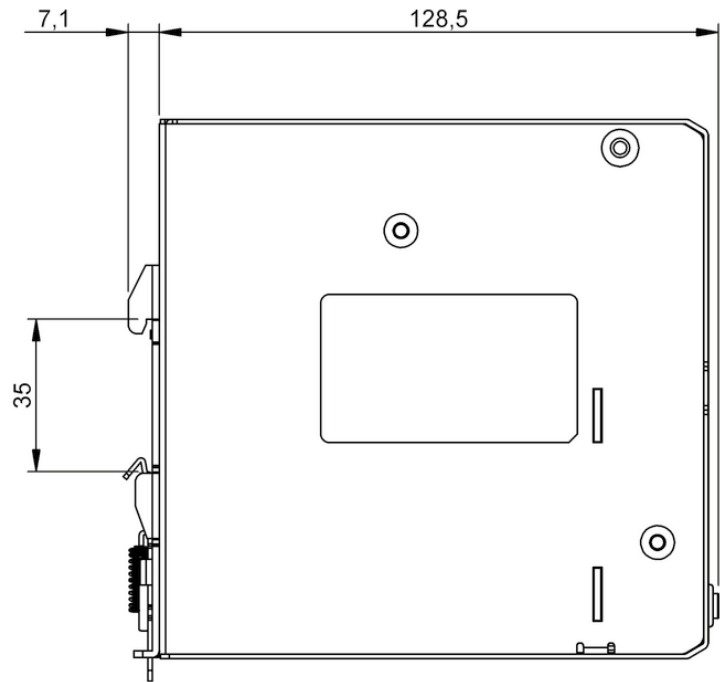
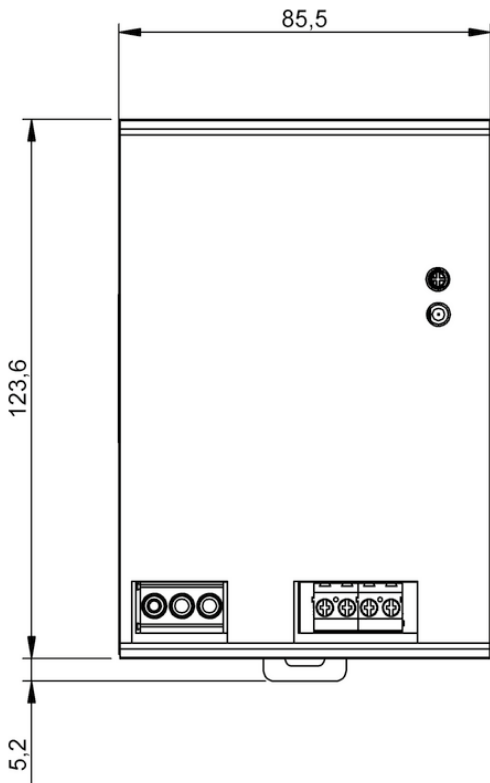
BAE0111



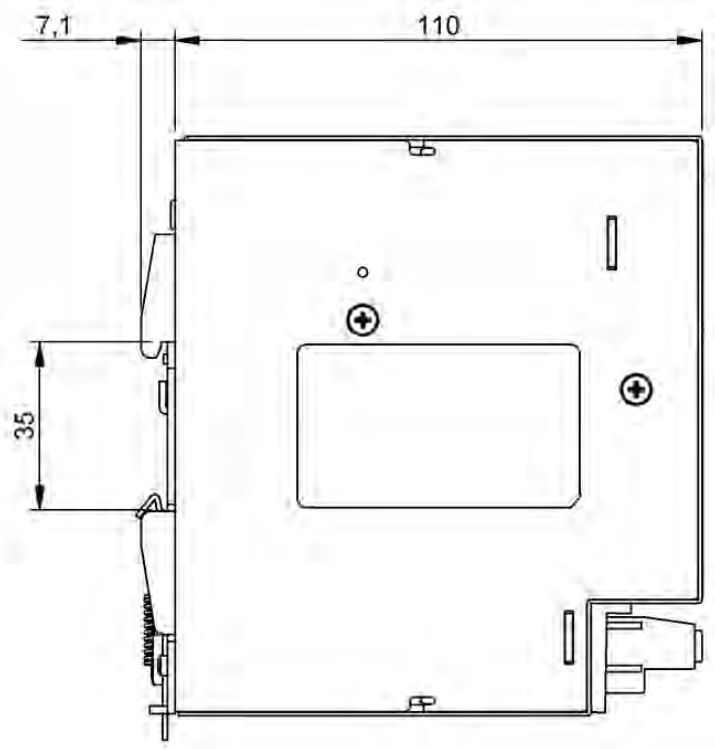
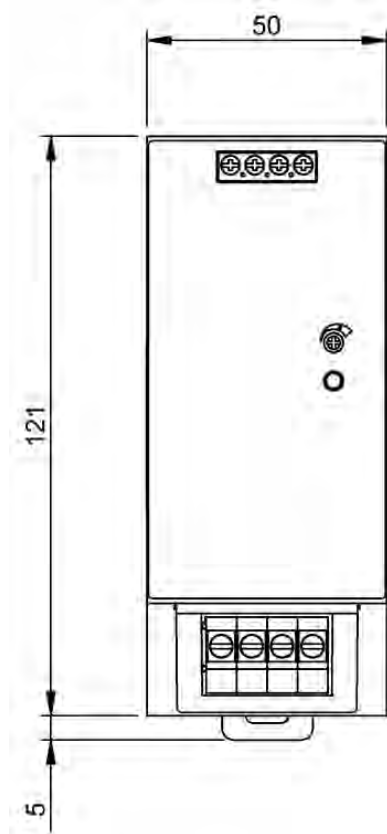
BAE0112



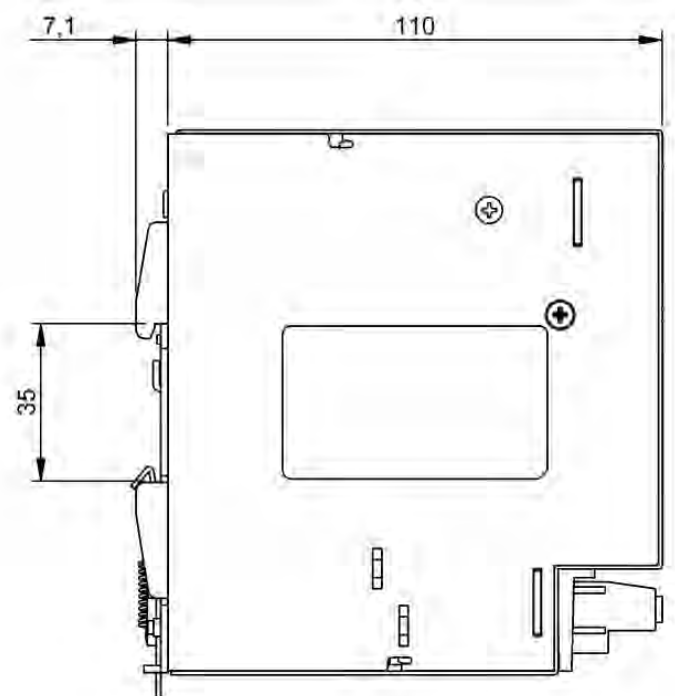
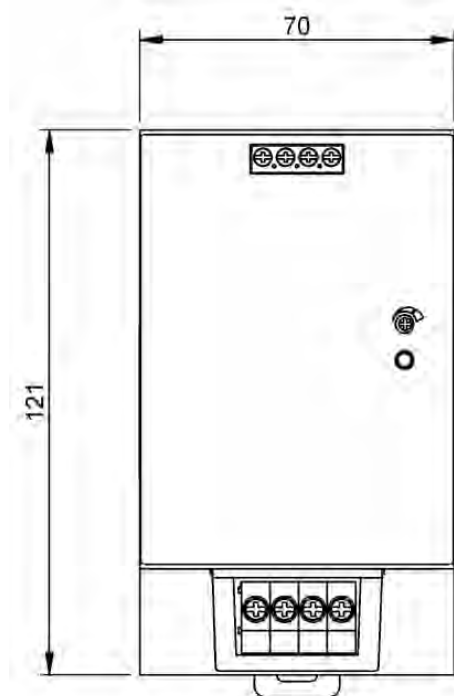
BAE0113



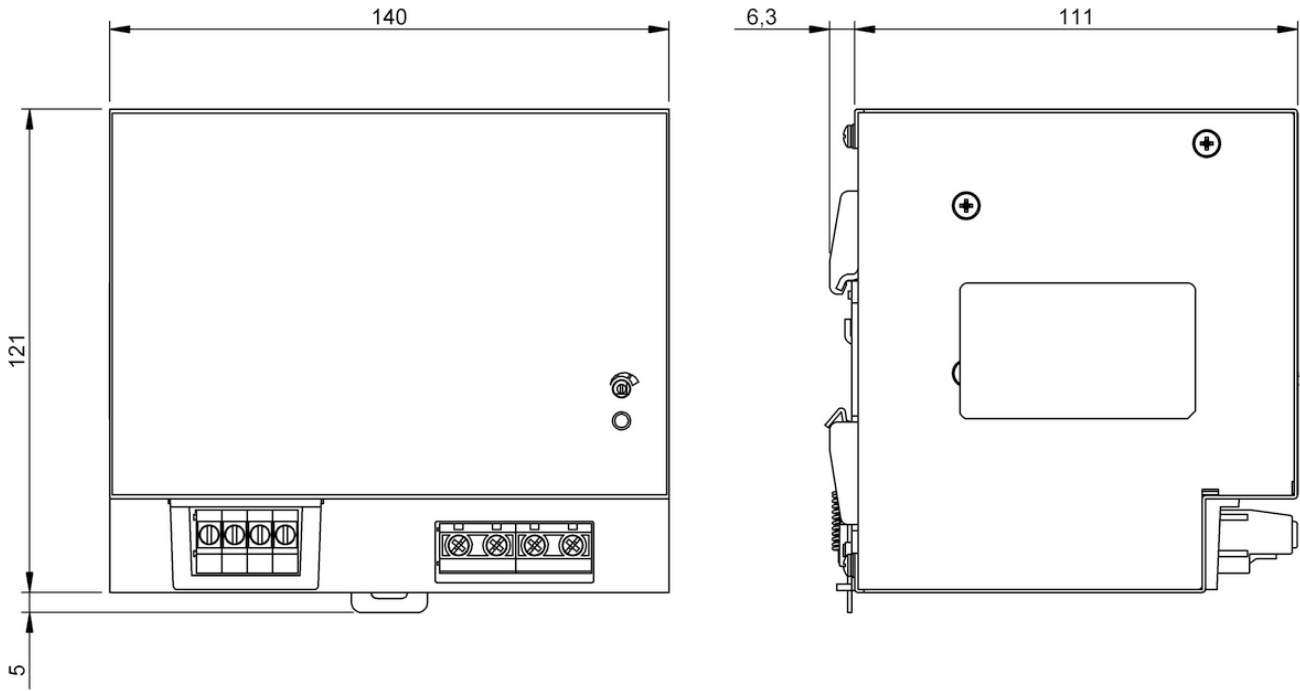
BAE0114



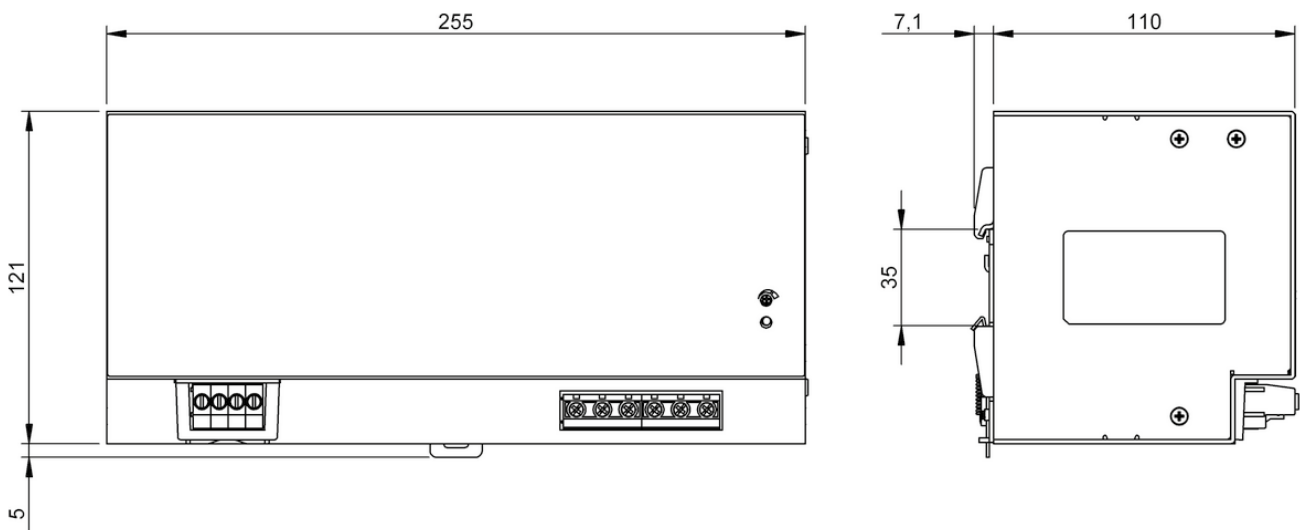
BAE0115



BAE0116



BAE0117



BAE0118

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.

Power Supplies

BASICS AND GLOSSARY



Technisches Glossar

Geben Sie ein Keyword ein.

A B C D E F G H

Blatt

Anzahl

Anzahlwerte mit Anzeigebereich

Rohdruck

ACA

Nennfläche

Hauptausgang

Definition

Das ist ein, eines tragfähigen Messplatz, der sich bei Messen bei diesem Punkt befindet man zum Erreichen verfügt zu einer Position, z. B. einer Niederspannung, in ein bestimmtes Ausgangs-Signal über ein Analog-Digital-Converter. Eine Filterungseinheit ist nicht notwendig.

Einzel, der ein Instrument wiederum Ausgangs-Signal erzeugt, das vom Analog-Digital-Converter über eine Filterungseinheit in ein bestimmtes Ausgangs-Signal über ein Analog-Digital-Converter über ein Filterungseinheit ist nicht notwendig.

Druck-ige über Druck mit Maximum-Druck. Die Verhältnisse zur Abweichung ist minus positiv. Automatische relative Druck-Abweichung.

Alle messende Bauelemente sind nicht nur auf den entsprechenden Bereich für die Elektrolyse. Sie ist in der Regel etwas kleiner als die Fläche der Abweichung.

→ weitere Informationen

"Nennfläche" Funktion am Empfänger, die bei Funktionsstörungen ein Warnsignal durch Verformung oder mechanische Dehnung ausstrahlt. Die Alarmung ist aktiviert, wenn die Empfängergröße zu weit abfällt ist."



...sicht. Des
... in Fachbereich

Accessories

Connectivity

Software and
System Solutions

Industrial Networking

Safety

Human Machine
Interfaces

Machine Vision and
Optical Identification

RFID

Sensors

Power Supply

Wear indicator



Lifetime: Irreversible over a long period of time

Lifetime shows the remaining service life of the device, based on the total of all loads.

Load level



Load level: Short term reversible

Load level indicates the current load on the device. The display indicates the load without any delay.

Heartbeat

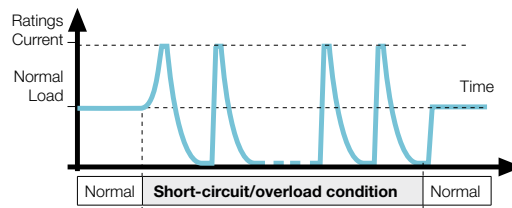


Stress level: Medium term reversible

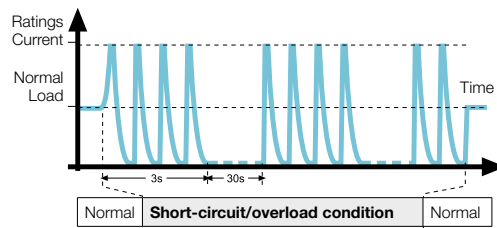
Stress level indicates the physical and thermal loads. Changing the load has an effect on device wear.

Short circuit protection (output)

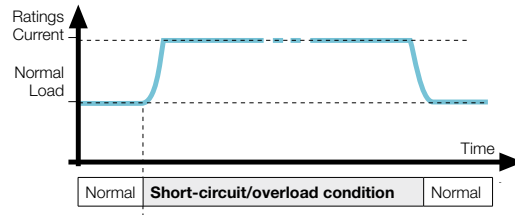
Hiccup mode overload protection*



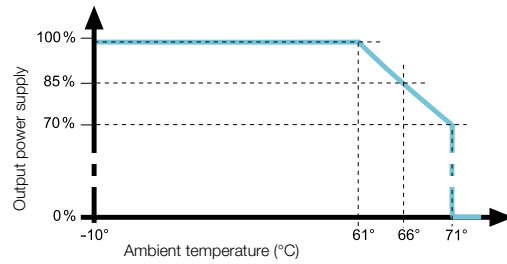
Hiccup mode with turn-off overload protection*



Current limiter and forward characteristic*



Temperature under-load



LED definition

DC ON	DC LO	Possible situation
<input type="radio"/> off	<input type="radio"/> off	AC power supply off, internal fuse burned out, short circuit
<input checked="" type="radio"/> on	<input type="radio"/> off	Normal operation
<input type="radio"/> off	<input checked="" type="radio"/> on	Output voltage < 19.2 V
<input checked="" type="radio"/> on	<input checked="" type="radio"/> on	Power supply failure

*Note: Diagrams are for illustration only. They do not reflect the actual waveforms.

Power supply

Provision of a defined voltage to the electrical consumer.

Overload protection

Protection for a sensor against overloading which occurs when turning on alternating-current devices (contactors/relays).

Alphanumeric Index

SORTED BY
ORDERING CODE

BAE00EP	BAE PS-XA-1W-24-038-602	227	BIC007U	BIC 2I22-P2A02-M18MF2-EPX07-050	195
BAE00ER		217	BIC0008	BIC 2P0-P2A50-M30MI3-SM4A5A	205
BAE00FL	BAE PS-XA-1W-24-080-605	227	BIC0009	BIC 1I3-P2A50-M30MI3-SM4ACA	197
BAE00FW	BAE PS-XA-1W-24-038-607	227	BIC0070	BIC 1B0-ITA50-Q40KFU-SM4A4A	189
BAE00FY	BAE PS-XA-1W-24-080-606	227	BIC0071	BIC 2B0-ITA50-Q40KFU-SM4A5A	189
BAE00LJ	BAE PS-XA-1S-24-100-103	231	BIC0073	BIC 1P0-P25A0-Q120AE-SA3A50	205
BAE00M3	BAE PS-XA-1S-24-200-104	231	BIC0074	BIC 2P0-P25A0-Q120AE-SA3A50	205
BAE00T4	BAE PS-XA-1S-24-050-102	231	BIC0075	BIC 1P0-P25A0-Q120AE-SA3A40	205
BAE00TJ	BAE PS-XA-1W-24-038-602-I	231	BIC0076	BIC 2P0-P25A0-Q120AE-SA3A40	205
BAE00TK	BAE PS-XA-1W-24-038-603-I	231	BIC0077	BIC 1I1-P2A05-M12MM-BPX0-003-M45A	195
BAE00TL	BAE PS-XA-1W-24-080-604-I	231	BIC0078	BIC 2I1-P2A05-M12MF-BPX0-003-M44A	195
BAE00TM	BAE PS-XA-1W-24-080-605-I	231	BIC0086	BIC 1B1-IT1A0-M30EI21-SM4A5A	189
BAE00TR	BAE PS-XA-1W-24-025-101	231	BIC0087	BIC 2B1-IT1A0-M30EI21-SM4A5A	189
BAE0111	BAE PS-XA-1W-24-025-016	237	BID000C	BID R03K-4R100-O20ZZO-S92	35
BAE0112	BAE PS-XA-1W-24-050-017	237	BID000E	BID R03K-4R1S0-O20ZZO-S92	37
BAE0113	BAE PS-XA-1W-24-100-018	237	BID000F	BID R03K-4R300-O20ZZO-S92	37
BAE0114	BAE PS-XA-1W-24-200-019	237	BID000H	BID R03K-4R3S0-O20ZZO-S92	37
BAE0115	BAE PS-XA-3Y-24-050-020	237	BID000T	BID R01K-4M100	31
BAE0116	BAE PS-XA-3Y-24-100-021	237	BID000U	BID R02K-4R300	35
BAE0117	BAE PS-XA-3Y-24-200-022	237	BID000W	BID Q02K-4R300	35
BAE0118	BAE PS-XA-3Y-24-400-023	237	BID000Y	BID R03K-4R300	35
BAI BET-S12N-UDN-0001- _DW-ST- _		217	BID000Z	BID R03K-4R3S0	37
BAI CMI-S12C-UDN-9999- _DZ-ZZ- _		219	BID0001	BID F101-2M1E3R-M02AZO-S115	69
BAM02HA	BAM ES-XA-01D-01-R01-201-S92	79	BID0002	BID F101-2M1M3R-M02AZO-S115	69
BCC0AA7		221	BID0003	BID F101-2M1E3-M02AZO-S115	69
BCC0AJ0		221	BID0004	BID F101-2M1M3-M02AZO-S115	69
BCC0CNY		221	BID0005	BID F101-2M100-M20ZZO-S92	25
BCC0CPO		221	BID0007	BID R01K-4M100-M20ZZO-EP00,2-S92	31
BCC0E8P		221	BID0008	BID R02K-4R100-O20ZZO-EP00,2-S92	35
BCC0E90		221	BID0009	BID R02K-4R300-O20ZZO-EP00,2-S92	35
BCC0FMK		221	BID0010	BID Z01K-4R3M0	73
BCC0JF0		221	BID0011	BID Z01K-4R3M3-002KZO-S115	73
BCC0JF0		217	BID0012	BID Z01K-4R3E3-002KZO-S115	73
BCC0JF3		217	BID0013	BID Z01K-4R3M3R-002KZO-S115	73
BCC06FN		217	BIS018E		218
BCC06J3		217	BIS0180		218
BES00EF		218	BLG000A	BLG 4A-015-600-014-001-SX	43
BES057A	BES Q40ZU-PFC15B-S04G-D12	27	BLG000C	BLG 4A-030-600-014-001-SX	43
BES057C	BES Q40ZU-PFC20F-S04G-D12	27	BLG000E	BLG 4A-045-600-014-001-SX	43
BES0574	BES M12EN-PFC40F-S04G-D11	27	BLG000F	BLG 4A-060-600-014-001-SX	43
BES0575	BES M18EN-PFC80F-S04G-D11	27	BLG000H	BLG 4A-075-600-014-001-SX	43
BES0576	BES M18MN-PFC50B-S04G-D11	27	BLG000J	BLG 4A-090-600-014-001-SX	43
BES0577	BES M30EP-PFC12F-S04G-D12	27	BLG000K	BLG 4A-105-600-014-001-SX	43
BES0578	BES M30EN-PFC15F-S04G-D11	27	BLG000L	BLG 4A-120-600-014-001-SX	43
BES0579	BES M30MN-PFC10B-S04G-D11	27	BLG000M	BLG 4A-150-600-014-001-SX	45
BIC000A	BIC 2I3-P2A50-M30MI3-SM4ACA	197	BLG000N	BLG 4A-165-600-014-001-SX	45
BIC0005J	BIC 2I3-P2A50-M30MI3-BPX0C-002-M4CA	197	BLG000P	BLG 4A-180-600-014-001-SX	45
BIC0007	BIC 1P0-P2A50-M30MI3-SM4A4A	205	BLG000R	BLG 4A-135-600-014-001-SX	45
BIC007E	BIC 2B0-ITA50-M30MF1-SM4A5A	189	BLG000T	BLG 4A-015-19X-030-001-SX	53
BIC007F	BIC 1B0-IT1A7-Q40KFU-SM4A4A	189	BLG000U	BLG 4A-030-19X-030-001-SX	53
BIC007H	BIC 2B0-IT1A7-Q40KFU-SM4A5A	189	BLG000W	BLG 4A-045-19X-030-001-SX	53
BIC007J	BIC 1I3-P2A50-Q40KFU-EPX0-002-M4CA	195	BLG000Y	BLG 4A-060-19X-030-001-SX	53
BIC007K	BIC 2I3-P2A50-Q40KFU-EPX0-002-M4CA	195	BLG000Z	BLG 4A-075-19X-030-001-SX	53
BIC007L	BIC 1B0-ITA50-M30MF1-SM4A5A	189	BLG0006	BLG 4A-050-50X-B02-001-SX	63
BIC007T	BIC 1I22-P2A02-M18MN2-EPX07-050	195	BLG0007	BLG 4A-080-50X-B03-001-SX	63

BLG0008	BLG 4A-090-50X-B04-001-SX	63	BNI006M	BNI IOL-751-V09-K007	177
BLG0009	BLG 4A-120-50X-B04-001-SX	63	BNI006N	BNI IOL-751-V08-K007	177
BLG0010	BLG 4A-090-19X-030-001-SX	53	BNI006P	BNI IOL-751-V10-K007	177
BLG0011	BLG 4A-105-19X-030-001-SX	53	BNI006R	BNI IOL-751-V13-K007	179
BLG0012	BLG 4A-120-19X-030-001-SX	53	BNI006T	BNI IOL-751-V11-K007	179
BLG0013	BLG 4A-135-19X-030-001-SX	55	BNI006U	BNI IOL-752-V09-K007	179
BLG0014	BLG 4A-150-19X-030-001-SX	55	BNI006W	BNI IOL-752-V11-K007	179
BLG0015	BLG 4A-165-19X-030-001-SX	55	BNI006Y	BNI IOL-752-V08-K007	179
BLG0016	BLG 4A-180-19X-030-001-SX	55	BNI006Z	BNI IOL-752-V10-K007	179
BNI00A9	BNI PNT-527-005-Z040	101	BNI0007	BNI IOL-709-000-K006	157
BNI00AA	BNI EIP-527-005-Z040	121	BNI007M	BNI PNT-509-105-Z033	101
BNI00AE	BNI IOL-772-002-E032	183	BNI007P	BNI IOL-309-000-K024-001	157
BNI00AF	BNI IOL-311-002-K006	155	BNI007R	BNI IOL-310-000-K025-001	157
BNI00AJ	BNI IOL-719-002-Z012	149	BNI007Z	BNI IOL-302-002-K006	153
BNI00AU	BNI IOL-302-002-Z046	147	BNI0008	BNI IOL-710-000-K006	157
BNI00AW	BNI IOL-311-S02-K006-C01	155	BNI008C	BNI CIE-508-105-Z015	111
BNI00AY	BNI IOL-104-002-Z046	147	BNI008M	BNI EIP-508-105-R015	123
BNI00CA	BNI IOL-771-002-K027-003	183	BNI008P	BNI EIP-302-105-R015	123
BNI00CC	BNI IOL-772-002-K027-003	183	BNI008Y	BNI EIP-104-105-R015	123
BNI00CE		218	BNI008Z	BNI EIP-502-105-R015	123
BNI00CL	BNI IOL-355-S02-Z013	15	BNI009T	BNI EIP-507-005-Z040	121
BNI00CM	BNI IOL-302-002-Z042	151	BNI009U	BNI ECT-507-005-Z040	135
BNI00CN	BNI IOL-302-S02-Z012	149	BNI0021	BNI IOL-104-000-K021	147
BNI00CP	BNI IOL-302-S02-Z026	153	BNI0022	BNI IOL-104-S01-K021	147
BNI00CR	BNI IOL-104-S02-Z012	149	BNI0031	BNI IOL-102-000-Z012	151
BNI00CY	BNI EIP-538-105-R015	123	BNI0032	BNI IOL-104-000-Z012	151
BNI00E7	BNI CIB-508-105-Z015	115	BNI0033	BNI IOL-252-000-Z013	15
BNI000F	BNI EIP-950-000-Z009	141	BNI0034	BNI IOL-256-000-Z013	15
BNI000P	BNI IOL-101-000-K018	149	BNI0035	BNI IOL-302-000-Z013	151
BNI000R	BNI IOL-102-000-K019	147	BNI0040	BNI CCL-502-100-Z001	117
BNI0001	BNI DNT-104-000-Z004	131	BNI0046	BNI IOL-302-S02-Z013	151
BNI001W	BNI IOL-101-S01-K018	149	BNI0047	BNI PBS-302-101-Z001	107
BNI001Y	BNI IOL-102-S01-K019	147	BNI0048	BNI IOL-302-S01-Z013-C01	153
BNI002A	BNI CCL-302-100-Z001	117	BNI0050	BNI IOL-302-000-Z026	153
BNI0003	BNI DNT-302-000-Z005	131	BNI0052	BNI PNT-302-105-Z015	101
BNI003T	BNI IOL-104-S01-Z012-C01	151	BNI0053	BNI PNT-104-105-Z015	101
BNI003U	BNI IOL-302-000-Z012	151	BNI0061	BNI IOL-106-S01-Z012-C01	149
BNI003Y	BNI IOL-256-S01-Z013	15	BNI0062	BNI IOL-106-S01-Z012	149
BNI003W	BNI IOL-252-S01-Z013	15	BNI0063	BNI IOL-106-000-Z012	149
BNI004A	BNI EIP-502-105-Z015	121	BNI0067	BNI TCP-952-000-E029	141
BNI004F	BNI EIP-302-105-Z015	121	BNI0067		217
BNI004K	BNI IOL-309-000-K024	157	BNI0074	BNI IOL-106-000-K006	155
BNI004L	BNI IOL-310-000-K025	157	BNI0075	BNI IOL-106-S01-K006	155
BNI004M	BNI EIP-104-105-Z015	123	BNI0076	BNI IOL-106-S01-K006-C01	155
BNI004N	BNI PBS-507-002-Z011	107	BNI0077	BNI ECT-508-105-Z015	135
BNI004U	BNI PNT-502-105-Z015	101	BNI0085	BNI ECT-508-105-Z015	135
BNI004W	BNI IOL-770-V06-A027	179	BNI0089		217
BNI0005	BNI IOL-102-000-K006	157	BNI0090	BNI IOL-104-S02-R012	153
BNI005A	BNI DNT-502-100-Z001	131	BNI0091	BNI IOL-302-S02-R026	153
BNI005C	BNI PBS-104-101-Z001	107	BNI0092	BNI PNT-507-005-Z040	101
BNI005E	BNI TCP-951-000-E028	141	BNI0093	BNI IOL-309-002-Z019	147
BNI005H	BNI PNT-508-105-Z015	101	BNI0095	BNI CIE-302-105-Z015	111
BNI005L	BNI IOL-302-000-K006	153	BNI0098	BNI IOF-329-P02-Z038	19
BNI005M	BNI IOL-771-000-K027	183	BNI0099	BNI IOL-102-002-Z019	147
BNI005N	BNI IOL-772-000-K027	183	BSG001E		221
BNI005P	BNI IOL-104-S01-Z012-C02	151	BSG001J		221
BNI005R	BNI PBS-502-101-Z001	107	BSG001T		221
BNI005T	BNI IOL-302-S01-K006	155	BSG001W		221
BNI005U	BNI IOL-302-000-K006-C01	153	BSG0018		221
BNI005W	BNI IOL-302-S01-K006-C01	155			
BNI0006	BNI IOL-104-000-K006	155			
BNI006A	BNI EIP-508-105-Z015	121			
BNI006C	BNI PNT-502-102-Z015	101			
BNI006E	BNI IOL-750-V09-K007	177			
BNI006F	BNI IOL-752-V13-K007	179			
BNI006H	BNI IOL-750-V11-K007	177			
BNI006J	BNI IOL-750-V08-K007	177			
BNI006K	BNI IOL-750-V10-K007	177			
BNI006L	BNI IOL-750-V13-K007	177			

Alphanumeric Index

SORTED BY
PART NUMBER

BNI0033	BNI IOL-252-000-Z013	15	BID0002	BID F101-2M1M3R-M02AZ0-S115	69
BNI003W	BNI IOL-252-S01-Z013	15	BID0003	BID F101-2M1E3-M02AZ0-S115	69
BNI0034	BNI IOL-256-000-Z013	15	BID0001	BID F101-2M1E3R-M02AZ0-S115	69
BNI003Y	BNI IOL-256-S01-Z013	15	BID0010	BID Z01K-4R3M0	73
BNI00CL	BNI IOL-355-S02-Z013	15	BID0011	BID Z01K-4R3M3-002KZ0-S115	73
BNI0098	BNI IOF-329-P02-Z038	19	BID0013	BID Z01K-4R3M3R-002KZ0-S115	73
BID0005	BID F101-2M100-M20ZZ0-S92	25	BID0012	BID Z01K-4R3E3-002KZ0-S115	73
BES0577	BES M30EP-PFC12F-S04G-D12	27	BAM02HA	BAM ES-XA-01D-01-R01-Z01-S92	79
BES057A	BES Q40ZU-PFC15B-S04G-D12	27	BNI005H	BNI PNT-508-105-Z015	101
BES057C	BES Q40ZU-PFC20F-S04G-D12	27	BNI007M	BNI PNT-509-105-Z033	101
BES0574	BES M12EN-PFC40F-S04G-D11	27	BNI004U	BNI PNT-502-105-Z015	101
BES0575	BES M18EN-PFC80F-S04G-D11	27	BNI006C	BNI PNT-502-102-Z015	101
BES0576	BES M18MN-PFC50B-S04G-D11	27	BNI0092	BNI PNT-507-005-Z040	101
BES0578	BES M30EN-PFC15F-S04G-D11	27	BNI00A9	BNI PNT-527-005-Z040	101
BES0579	BES M30MN-PFC10B-S04G-D11	27	BNI0052	BNI PNT-302-105-Z015	101
BID000T	BID R01K-4M100	31	BNI0053	BNI PNT-104-105-Z015	101
BID0007	BID R01K-4M100-M20ZZ0-EP00,2-S92	31	BNI005R	BNI PBS-502-101-Z001	107
BID000W	BID Q02K-4R300	35	BNI004N	BNI PBS-507-002-Z011	107
BID000U	BID R02K-4R300	35	BNI0047	BNI PBS-302-101-Z001	107
BID0008	BID R02K-4R100-020ZZ0-EP00,2-S92	35	BNI005C	BNI PBS-104-101-Z001	107
BID0009	BID R02K-4R300-020ZZ0-EP00,2-S92	35	BNI008C	BNI CIE-508-105-Z015	111
BID000Y	BID R03K-4R300	35	BNI0095	BNI CIE-302-105-Z015	111
BID000C	BID R03K-4R100-020ZZ0-S92	35	BNI00E7	BNI CIB-508-105-Z015	115
BID000F	BID R03K-4R300-020ZZ0-S92	37	BNI0040	BNI CCL-502-100-Z001	117
BID000Z	BID R03K-4R3S0	37	BNI002A	BNI CCL-302-100-Z001	117
BID000E	BID R03K-4R1S0-020ZZ0-S92	37	BNI006A	BNI EIP-508-105-Z015	121
BID000H	BID R03K-4R3S0-020ZZ0-S92	37	BNI004A	BNI EIP-502-105-Z015	121
BLG000A	BLG 4A-015-600-014-001-SX	43	BNI009T	BNI EIP-507-005-Z040	121
BLG000C	BLG 4A-030-600-014-001-SX	43	BNI00AA	BNI EIP-527-005-Z040	121
BLG000E	BLG 4A-045-600-014-001-SX	43	BNI004F	BNI EIP-302-105-Z015	121
BLG000F	BLG 4A-060-600-014-001-SX	43	BNI004M	BNI EIP-104-105-Z015	123
BLG000H	BLG 4A-075-600-014-001-SX	43	BNI008M	BNI EIP-508-105-R015	123
BLG000J	BLG 4A-090-600-014-001-SX	43	BNI00CY	BNI EIP-538-105-R015	123
BLG000K	BLG 4A-105-600-014-001-SX	43	BNI008Z	BNI EIP-502-105-R015	123
BLG000L	BLG 4A-120-600-014-001-SX	43	BNI008P	BNI EIP-302-105-R015	123
BLG000R	BLG 4A-135-600-014-001-SX	45	BNI008Y	BNI EIP-104-105-R015	123
BLG000M	BLG 4A-150-600-014-001-SX	45	BNI005A	BNI DNT-502-100-Z001	131
BLG000N	BLG 4A-165-600-014-001-SX	45	BNI0003	BNI DNT-302-000-Z005	131
BLG000P	BLG 4A-180-600-014-001-SX	45	BNI0001	BNI DNT-104-000-Z004	131
BLG000T	BLG 4A-015-19X-030-001-SX	53	BNI0077	BNI ECT-508-105-Z015	135
BLG000U	BLG 4A-030-19X-030-001-SX	53	BNI009U	BNI ECT-507-005-Z040	135
BLG000W	BLG 4A-045-19X-030-001-SX	53	BNI005E	BNI TCP-951-000-E028	141
BLG000Y	BLG 4A-060-19X-030-001-SX	53	BNI0067	BNI TCP-952-000-E029	141
BLG000Z	BLG 4A-075-19X-030-001-SX	53	BNI000F	BNI EIP-950-000-Z009	141
BLG0010	BLG 4A-090-19X-030-001-SX	53	BNI0093	BNI IOL-309-002-Z019	147
BLG0011	BLG 4A-105-19X-030-001-SX	53	BNI0099	BNI IOL-102-002-Z019	147
BLG0012	BLG 4A-120-19X-030-001-SX	53	BNI00AU	BNI IOL-302-002-Z046	147
BLG0013	BLG 4A-135-19X-030-001-SX	55	BNI00AY	BNI IOL-104-002-Z046	147
BLG0014	BLG 4A-150-19X-030-001-SX	55	BNI000R	BNI IOL-102-000-K019	147
BLG0015	BLG 4A-165-19X-030-001-SX	55	BNI001Y	BNI IOL-102-S01-K019	147
BLG0016	BLG 4A-180-19X-030-001-SX	55	BNI0021	BNI IOL-104-000-K021	147
BLG0006	BLG 4A-050-50X-B02-001-SX	63	BNI0022	BNI IOL-104-S01-K021	147
BLG0007	BLG 4A-080-50X-B03-001-SX	63	BNI000P	BNI IOL-101-000-K018	149
BLG0008	BLG 4A-090-50X-B04-001-SX	63	BNI001W	BNI IOL-101-S01-K018	149
BLG0009	BLG 4A-120-50X-B04-001-SX	63	BNI00CN	BNI IOL-302-S02-Z012	149
BID0004	BID F101-2M1M3-M02AZ0-S115	69	BNI00CR	BNI IOL-104-S02-Z012	149

BNI0063	BNI IOL-106-000-Z012	149	BIC007U	BIC 2I22-P2A02-M18MF2-EPX07-050	195
BNI0062	BNI IOL-106-S01-Z012	149	BIC0009	BIC 1I3-P2A50-M30MI3-SM4ACA	197
BNI0061	BNI IOL-106-S01-Z012-C01	149	BIC005J	BIC 2I3-P2A50-M30MI3-BPX0C-002-M4CA	197
BNI00AJ	BNI IOL-719-002-Z012	149	BIC000A	BIC 2I3-P2A50-M30MI3-SM4ACA	197
BNI003U	BNI IOL-302-000-Z012	151	BIC0007	BIC 1P0-P2A50-M30MI3-SM4A4A	205
BNI0032	BNI IOL-104-000-Z012	151	BIC0008	BIC 2P0-P2A50-M30MI3-SM4A5A	205
BNI003T	BNI IOL-104-S01-Z012-C01	151	BIC0075	BIC 1P0-P25A0-Q120AE-SA3A40	205
BNI005P	BNI IOL-104-S01-Z012-C02	151	BIC0076	BIC 2P0-P25A0-Q120AE-SA3A40	205
BNI0031	BNI IOL-102-000-Z012	151	BIC0073	BIC 1P0-P25A0-Q120AE-SA3A50	205
BNI00CM	BNI IOL-302-002-Z042	151	BIC0074	BIC 2P0-P25A0-Q120AE-SA3A50	205
BNI0046	BNI IOL-302-S02-Z013	151	BAE00EP	BAE PS-XA-1W-24-038-602	227
BNI0035	BNI IOL-302-000-Z013	151	BAE00ER		221
BNI0048	BNI IOL-302-S01-Z013-C01	153	BAI BET-S12N-UDN-0001-_DW-ST__		217
BNI00CP	BNI IOL-302-S02-Z026	153	BAI CMI-S12C-UDN-9999-_DZ-ZZ__		219
BNI0050	BNI IOL-302-000-Z026	153	BCC0AA7		221
BNI0090	BNI IOL-104-S02-R012	153	BCC0AJ0		221
BNI0091	BNI IOL-302-S02-R026	153	BCC0CNY		221
BNI005L	BNI IOL-302-000-K006	153	BCC0CP0		221
BNI005U	BNI IOL-302-000-K006-C01	153	BCC0E8P		217
BNI007Z	BNI IOL-302-002-K006	153	BCC0E90		217
BNI005T	BNI IOL-302-S01-K006	155	BCC0FMK		217
BNI005W	BNI IOL-302-S01-K006-C01	155	BCC0JF0		217
BNI00AF	BNI IOL-311-002-K006	155	BCC0JF0		221
BNI00AW	BNI IOL-311-S02-K006-C01	155	BCC0JF3		217
BNI0074	BNI IOL-106-000-K006	155	BCC06FN		217
BNI0075	BNI IOL-106-S01-K006	155	BCC06J3		217
BNI0076	BNI IOL-106-S01-K006-C01	155	BES00EF		217
BNI0006	BNI IOL-104-000-K006	155	BIS018E		217
BNI0005	BNI IOL-102-000-K006	157	BIS0180		217
BNI0007	BNI IOL-709-000-K006	157	BNI00CE		217
BNI0008	BNI IOL-710-000-K006	157	BNI000F		217
BNI007P	BNI IOL-309-000-K024-001	157	BNI005E		217
BNI004K	BNI IOL-309-000-K024	157	BNI0067		217
BNI004L	BNI IOL-310-000-K025	157	BNI0085		217
BNI007R	BNI IOL-310-000-K025-001	157	BNI0089		217
BNI006J	BNI IOL-750-V08-K007	177	BSG001E		221
BNI006E	BNI IOL-750-V09-K007	177	BSG001J		221
BNI006K	BNI IOL-750-V10-K007	177	BSG001T		221
BNI006H	BNI IOL-750-V11-K007	177	BSG001W		220
BNI006L	BNI IOL-750-V13-K007	177	BSG0018	BAE PS-XA-1W-24-038-602	227
BNI006N	BNI IOL-751-V08-K007	177	BAE00FW	BAE PS-XA-1W-24-038-607	227
BNI006M	BNI IOL-751-V09-K007	177	BAE00FL	BAE PS-XA-1W-24-080-605	227
BNI006P	BNI IOL-751-V10-K007	177	BAE00FY	BAE PS-XA-1W-24-080-606	227
BNI006T	BNI IOL-751-V11-K007	179	BAE00T4	BAE PS-XA-1S-24-050-102	231
BNI006R	BNI IOL-751-V13-K007	179	BAE00LJ	BAE PS-XA-1S-24-100-103	231
BNI006Y	BNI IOL-752-V08-K007	179	BAE00M3	BAE PS-XA-1S-24-200-104	231
BNI006U	BNI IOL-752-V09-K007	179	BAE00TR	BAE PS-XA-1W-24-025-101	231
BNI006Z	BNI IOL-752-V10-K007	179	BAE00TJ	BAE PS-XA-1W-24-038-602-I	231
BNI006W	BNI IOL-752-V11-K007	179	BAE00TK	BAE PS-XA-1W-24-038-603-I	231
BNI006F	BNI IOL-752-V13-K007	179	BAE00TL	BAE PS-XA-1W-24-080-604-I	231
BNI004W	BNI IOL-770-V06-A027	179	BAE00TM	BAE PS-XA-1W-24-080-605-I	231
BNI005M	BNI IOL-771-000-K027	183	BAE0111	BAE PS-XA-1W-24-025-016	237
BNI00CA	BNI IOL-771-002-K027-003	183	BAE0112	BAE PS-XA-1W-24-050-017	237
BNI005N	BNI IOL-772-000-K027	183	BAE0113	BAE PS-XA-1W-24-100-018	237
BNI00CC	BNI IOL-772-002-K027-003	183	BAE0114	BAE PS-XA-1W-24-200-019	237
BNI00AE	BNI IOL-772-002-E032	183	BAE0115	BAE PS-XA-3Y-24-050-020	237
BIC0086	BIC 1B1-IT1A0-M30EI21-SM4A5A	189	BAE0116	BAE PS-XA-3Y-24-100-021	237
BIC0087	BIC 2B1-IT1A0-M30EI21-SM4A5A	189	BAE0117	BAE PS-XA-3Y-24-200-022	237
BIC007L	BIC 1B0-ITA50-M30MF1-SM4A5A	189	BAE0118	BAE PS-XA-3Y-24-400-023	237
BIC007E	BIC 2B0-ITA50-M30MF1-SM4A5A	189			
BIC007F	BIC 1B0-IT1A7-Q40KFU-SM4A4A	189			
BIC007H	BIC 2B0-IT1A7-Q40KFU-SM4A5A	189			
BIC0070	BIC 1B0-ITA50-Q40KFU-SM4A4A	189			
BIC0071	BIC 2B0-ITA50-Q40KFU-SM4A5A	189			
BIC007J	BIC 1I3-P2A50-Q40KFU-EPX0-002-M4CA	195			
BIC007K	BIC 2I3-P2A50-Q40KFU-EPX0-002-M4CA	195			
BIC0077	BIC 1I1-P2A05-M12MM-BPX0-003-M45A	195			
BIC0078	BIC 2I1-P2A05-M12MF-BPX0-003-M44A	195			
BIC007T	BIC 1I22-P2A02-M18MN2-EPX07-050	195			

Global Project Management

WE ARE EVERYWHERE FOR YOU

Always where you need us

Wherever you are doing business, we will support you locally. We work closely with machine and systems builders, systems integrators, planning offices and maintenance engineers. Balluff has constructed a global network for you consisting of technical consulting, sales and after-sales services.

Project manuals and approval lists


We provide you with custom tailored product data for smooth running of your projects. You receive project-specific manuals and approval lists. And personal contacts from Balluff are at your side throughout the entire project.

Individual services


If our services need to be even more personalized, we make this possible as well: with individual e-catalogs, application-specific product modifications, integrated software and system solutions and comprehensive logistics concepts.

Questions? Contact us. We are happy to help.



 *innovating automation*



 *innovating automation*

Balluff

WE OPEN UP NEW PERSPECTIVES

Balluff is a leading provider of high-value sensor, identification and image processing solutions including networking technology and software for any automation requirement. Family owned for more than 100 years, Balluff currently employs around 3600 persons in 38 subsidiaries with sales, production and development facilities around the world to ensure your success. Together with our representatives we guarantee the highest quality standards in 68 countries so that you always get the best.

We perform top services for innovative solutions that increase your competitive ability. We deliver a consistent digital focus, manufacturing expertise, and high personal dedication.

We adhere to our motto "Innovating Automation" as pacesetters of automation, refiners and new developers, and technological trailblazers. In open exchange with associations, universities and research institutes as well as in close contact with our customers, we create new industrial sector solutions for automation. As a future-looking company we keep our eye not only on the traditional areas of automation, but also devote ourselves to the development of holistic applications for an increasingly digital and networked world.

We have the future firmly in view in everything we do. With a sophisticated environmental management system, we protect the environment and handle our resources with care. This also creates for you the best prerequisites for sustained action.

You can always rely on us, our products and our adherence to delivery dates and schedule — All in the name of mutually beneficial partnership.

Headquarters
Balluff GmbH
Schurwaldstrasse 9
73765 Neuhausen a. d. F.
Germany
Phone +49 7158 173-0
Fax +49 7158 5010
balluff@balluff.de



CONTACT OUR
WORLDWIDE
SUBSIDIARIES