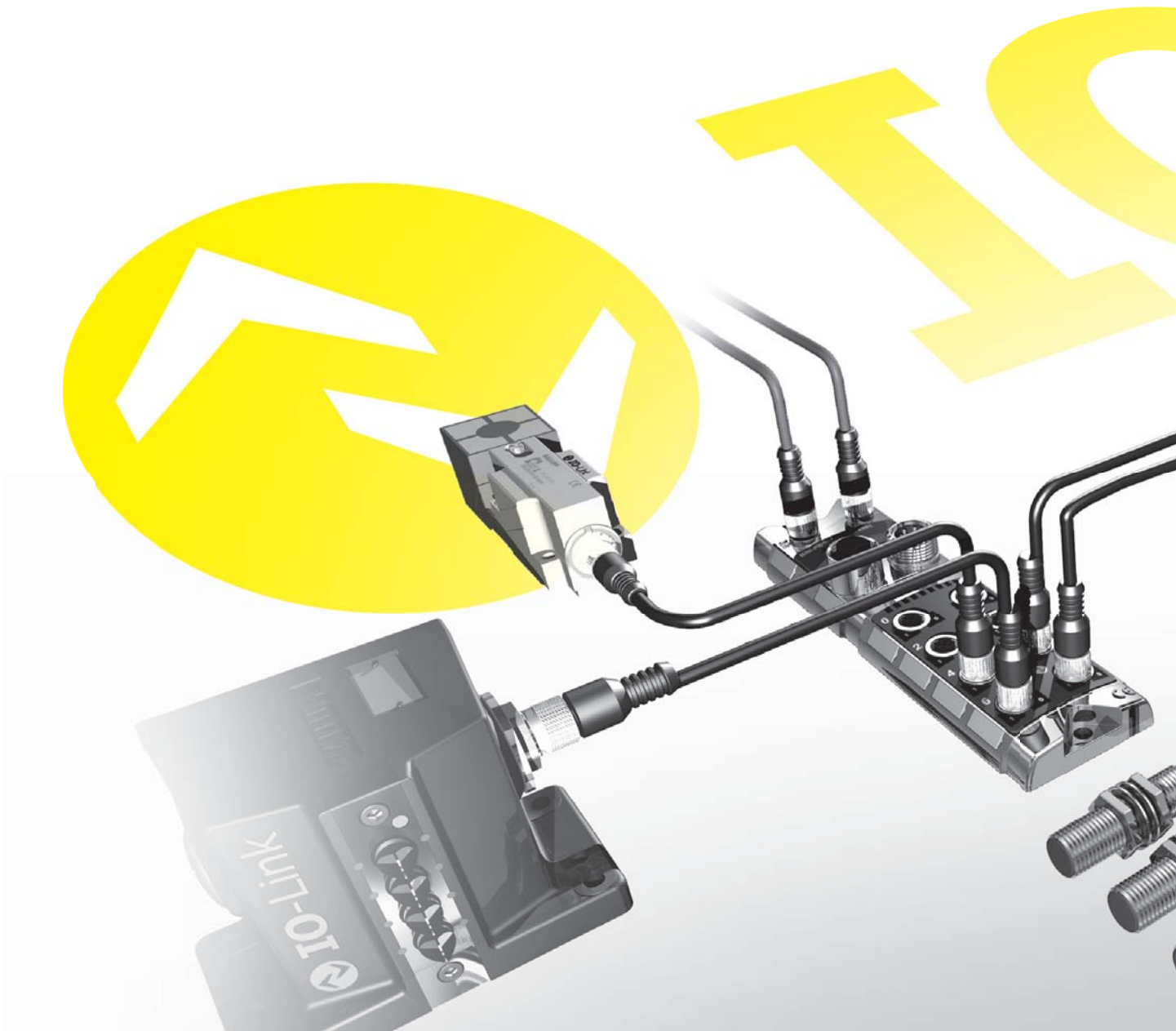
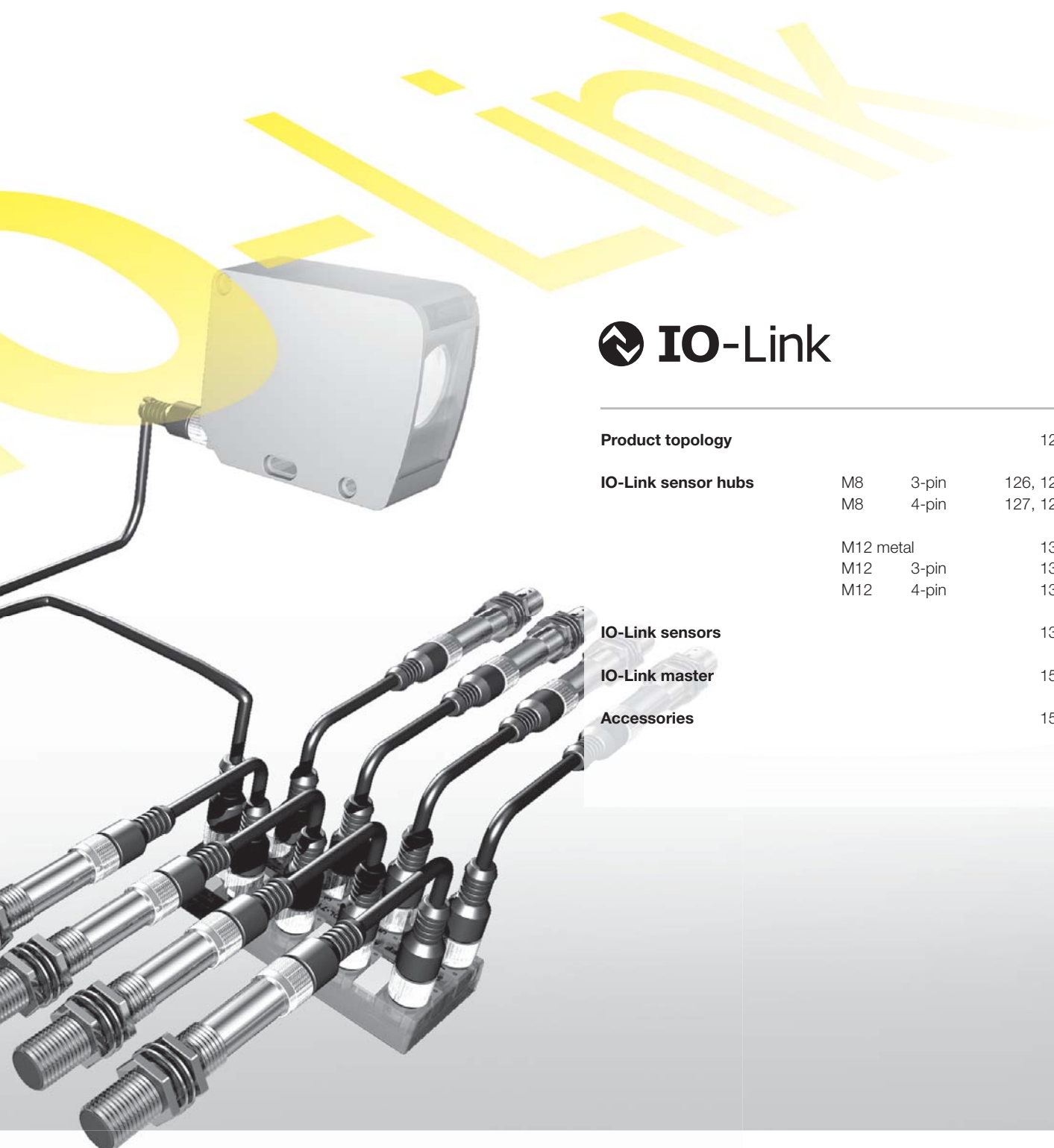


As the first standardized, uniform, universally applicable interface in control technology, IO-Link transmits all sensor and actuator signals to the controller. Likewise, IO-Link passes control data down to the lowest sensor level. All of this makes automation even more powerful than ever before. And it does it by simple means.

IO-Link advantages at a glance

- **Easy to get started, time-saving installation**
- **Automatic adjustment during operation**
- **Continuous monitoring**





IO-Link

Product topology			124
IO-Link sensor hubs	M8	3-pin	126, 128
	M8	4-pin	127, 129
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 **IO-Link**



Profibus IO-Link modules starting on **page 16**

Profinet IO-Link modules starting on **page 34**

BCC connection cables starting on **page 216**



IO-Link

Network technology for reliable data transfer and greater efficiency

IO-Link offers potential for optimization and cost savings for the following areas:



Lower costs

Logistics and planning

- Simplified stocking thanks to uniform, universal interface for all variants
- Reduced planning and administration costs through reduced variety of versions and interfaces
- Lower costs, since simple, unshielded industrial cables can be used
- Increased investment security due to an open standard valid for all manufacturers
- Well equipped for future requirements due to the greatest possible flexibility in project planning



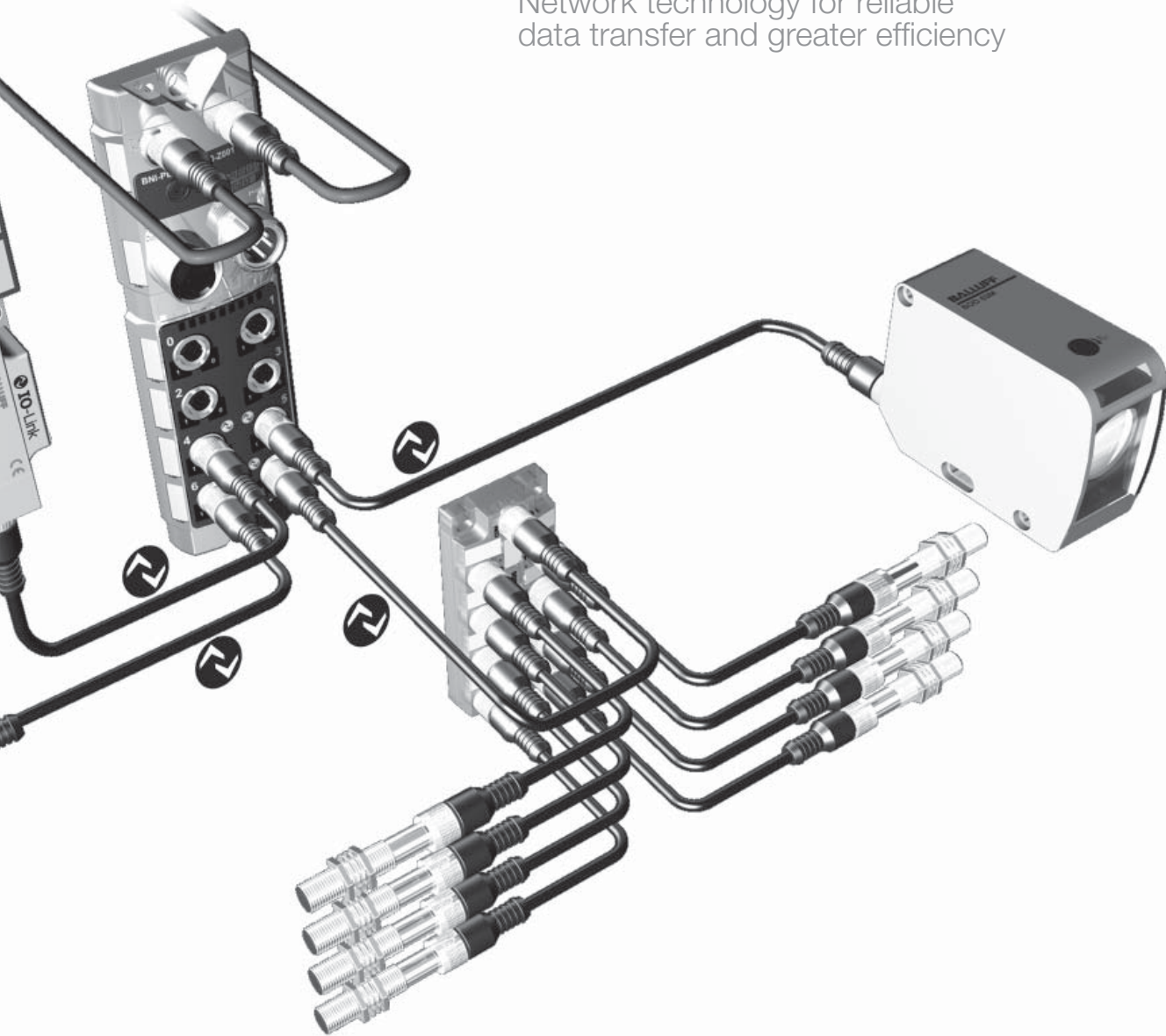
Less maintenance

Service and maintenance

- Automatic readjustment requires less supervision
- Reduced machine downtimes through reliable error detection and localization, fast sensor replacement and centralized data configuration
- Anticipatory error detection reduces maintenance

IO-Link

Network technology for reliable data transfer and greater efficiency



Reduced time outlay

Installation and commissioning

- Uniform interface and the use of traditional, unshielded industrial cables for simple integration into the fieldbus environment
- Reduced commissioning times, since configuration is performed by the controller
- Incremental expansion through simultaneous use of digital and analog sensors/actuators



Shorter downtime

Runtime

- Direct data transmission for a high degree of automation precision
- Configuration is performed centrally by the controller – even over long distances
- Reliable readjustment, since data monitoring runs continuously (e.g. maintaining a specified level or a switching hysteresis)
- Fast sensor replacement, quick format changes thanks to centralized setting of parameters
- Standard and IO-Link sensors/actuators can be used simultaneously

IO-Link

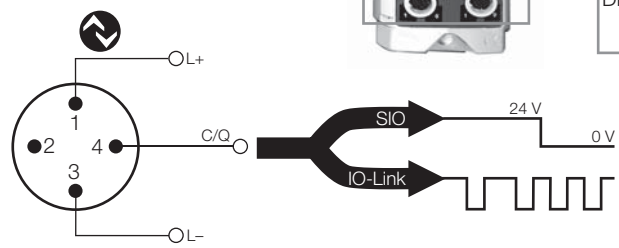
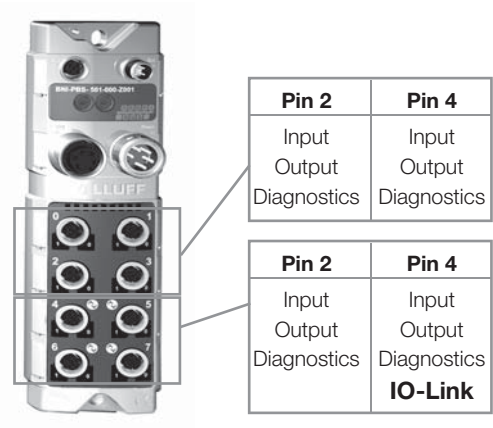
Network technology for flexible installation and reliable data transfer

Flexible installation of Profibus and Profinet with IO-Link

- Quick
- Low cost through the use of economical components and standard cables
- Shorter downtimes during installation, maintenance and operation

Depending on model type, the ports of the Balluff IO-Link distributor modules can be configured as a (diagnostic) input, output or IO-Link port. For each port, pin 2 or pin 4 can be used as input and output for diagnostics.

IO-Link ports are labeled with the IO-Link symbol.

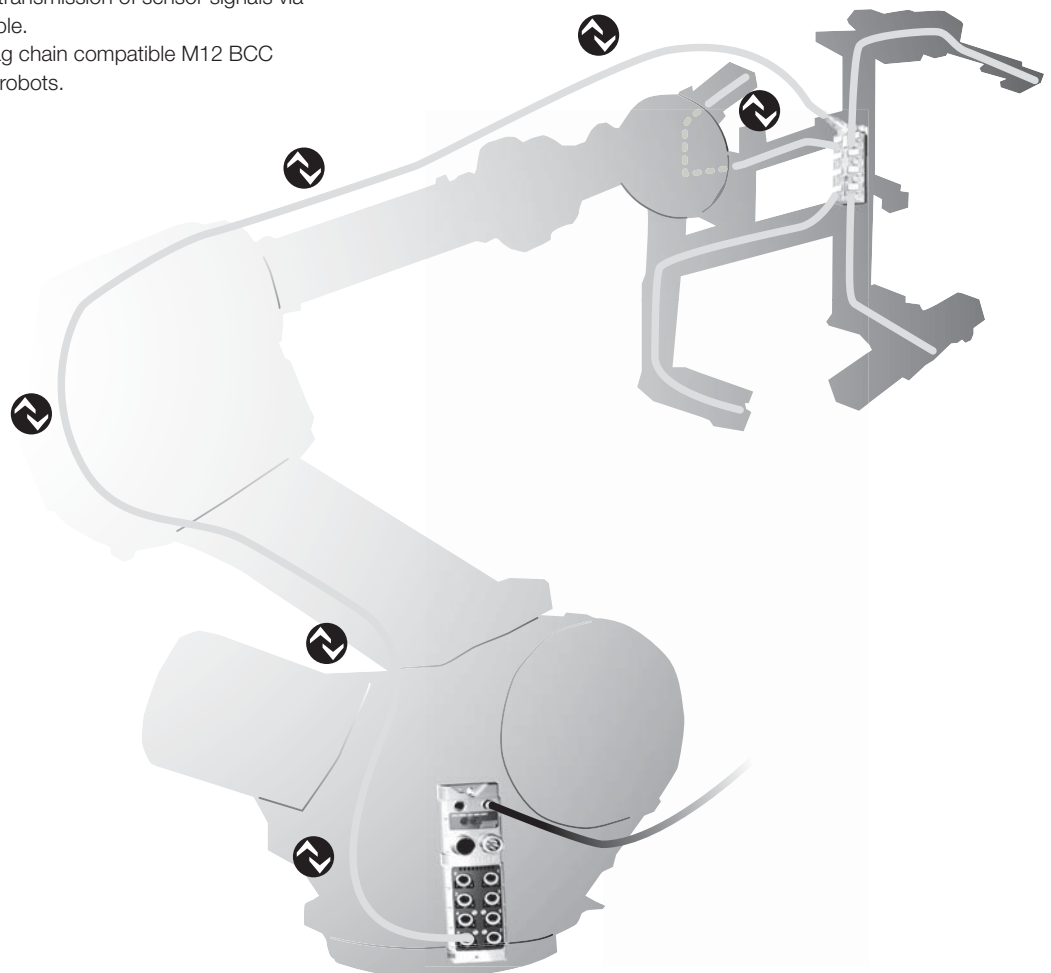


End-of-arm tooling

See the actual advantages of IO-Link in use

Modern robot systems require numerous sensors – particularly robot arms, which only tolerate low-weight sensors. High-performance Balluff sensor hubs are characterized not only by their low weight, but also the simple bundling and transmission of sensor signals via IO-Link and a standard 3-wire cable.

Balluff also offers economical, drag chain compatible M12 BCC standard cables that are ideal for robots.



IO-Link

Network technology for reduced costs and greater efficiency

Balluff IO-Link sensor hubs save money

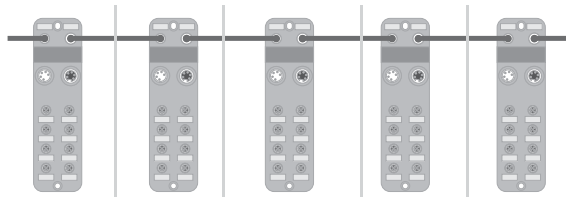
You save a great deal of money during the installation of IO-Link sensor hubs: 15 to 20% per input compared to Profibus and Profinet.

If you add the savings of Profibus and power cables, costs are reduced by as much as 30 to 40%. One inexpensive M12 BCC standard cable suffices. Furthermore, sensor hubs need just one bus address, can variably group sensor signals together within an area of 20 m and ensure exceptional efficiency.

Cost-effective installation with high functionality

The high costs of field installations can be attributed to shielded cables and analog input cards. IO-Link sensor hubs not only solve the problem of fault-prone analog inputs, but also reduce wiring, testing and hardware costs. Through simple Plug-and-Play of unshielded, economical M12 cables, you can

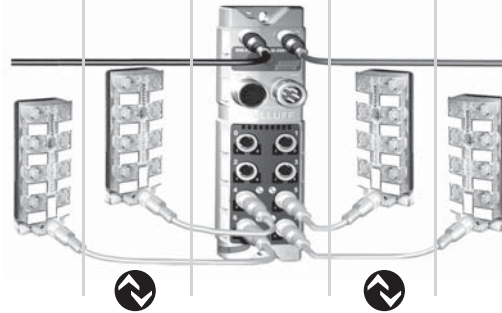
Standard Profibus/Profinet



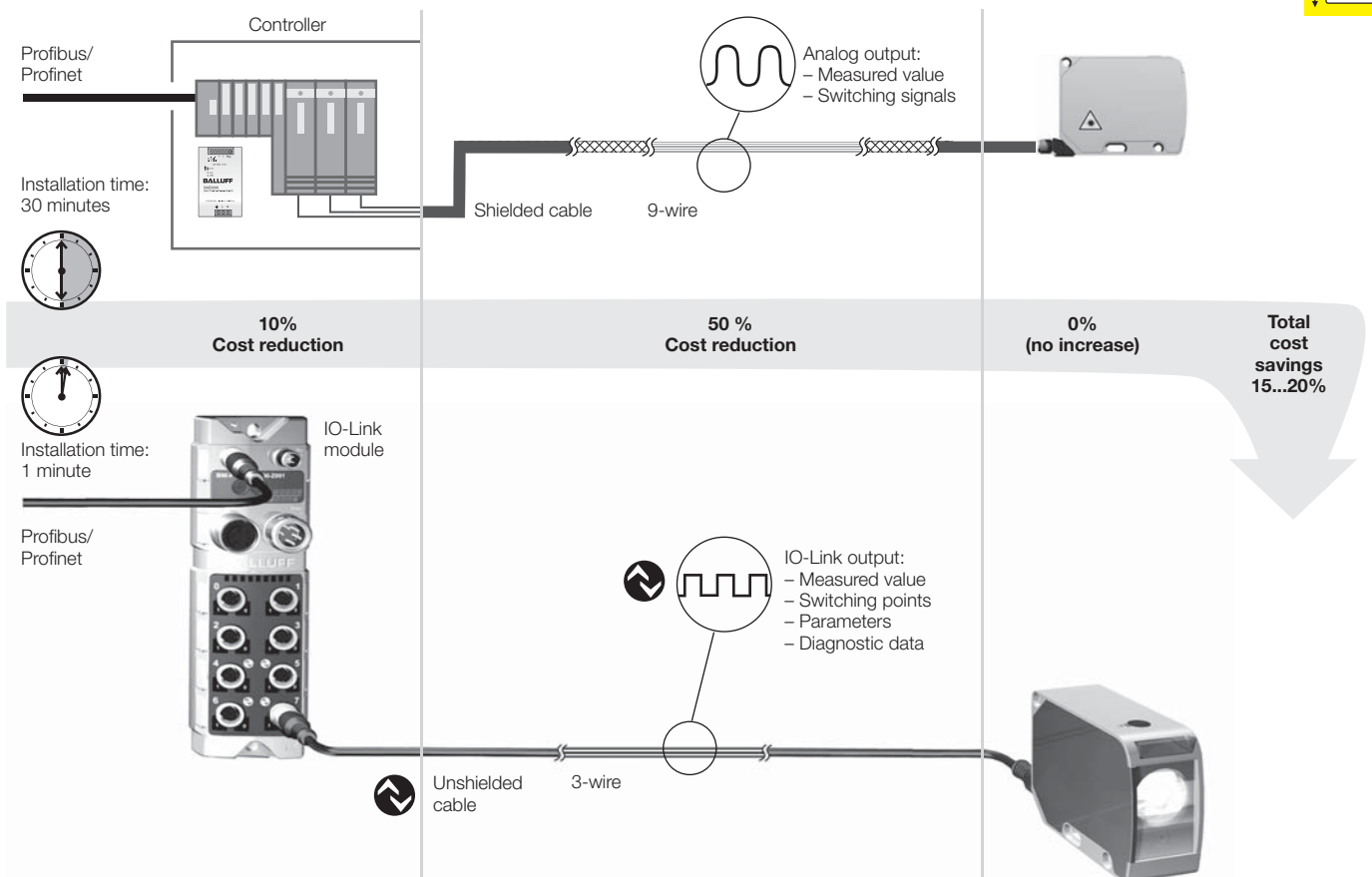
50...60% reduction 50...60% reduction 40...60% increase 50...60% reduction 50...60% reduction

Total cost savings 30...40%

IO-Link solution

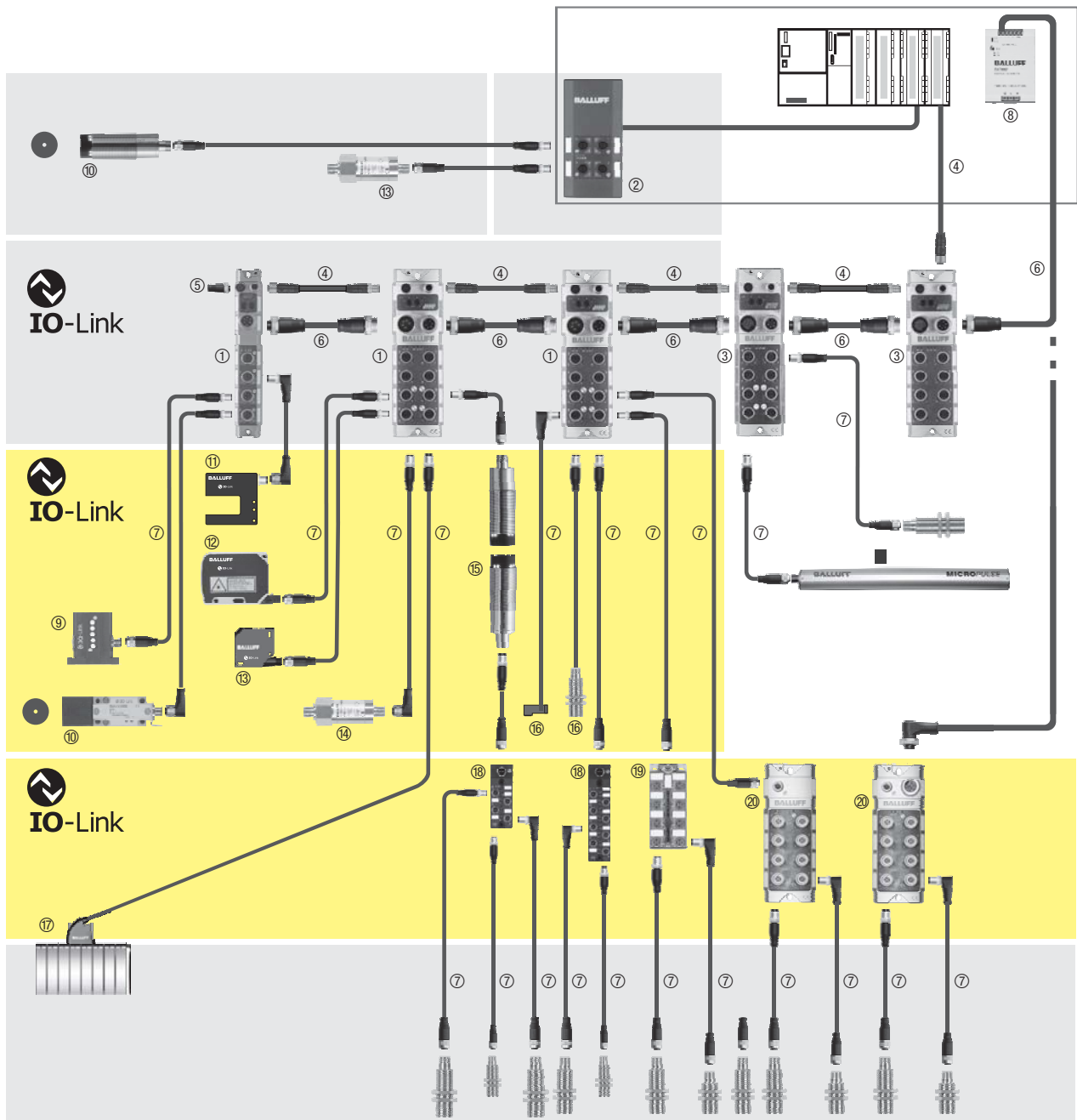


conveniently set up the system in just one minute without so much as screwdriver. For a standard connection, you would need at least 30 minutes. Clear IO-Link advantages that speak for themselves.



IO-Link

Profibus and Profinet product topology



IO-Link

⑤ BNS IO-Link multiple position switches	Page 146	① BNI Profibus/Profinet IO-Link modules	Page 16, 34
⑩ BIS IO-Link RFID system	Page 140	② BNI Profibus IO-Link panel module	Page 21
⑪ BGL IO-Link through-beam fork sensors	Page 135	② BNI Profibus/Profinet modules	Page 17, 35
⑥ BOD IO-Link laser distance sensors	Page 137	④ BCC bus cables	Page 26
⑬ BFS IO-Link color sensors	Page 136	⑤ Terminating resistor	Page 27
⑨ BSP IO-Link pressure sensors	Page 152	④ BCC power cables	Page 22
⑮ BIC IO-Link inductive couplers	Page 187	⑩ BCC connection cables	Page 246
⑪ BAW IO-Link inductive distance sensors	Page 138	⑪ BAE power supplies	Page 274
③ BNI IO-Link valve terminal connectors	Page 150		
③ BNI M8 IO-Link sensor hubs	Page 126		
④ BNI M12 IO-Link sensor hubs	Page 132		
④ Metal IO-Link sensor hubs	Page 130		

With IO-Link modules, you can quickly and reliably simplify your Profibus/Profinet network and save costs through reduced hardware, easy handling, high flexibility and greater efficiency.

Profibus/Profinet modules

■ Reduce wiring costs

Simply expand Profibus/Profinet with up to four sensor hubs according to your requirements. You can connect of up to 76 inputs per Profibus/Profinet node and save costs

■ Simple integration

Only the bus module needs an address

■ Flexibility

Whether input/output or IO-Link port – you configure the device yourself and design your system with complete flexibility

■ Compact and efficient

Compact design with high function density: up to two sensors/actuators can be connected to each M12 connector

Sensor hubs

■ Simple integration

Sensor hubs are easy to configure with a GSD file via Profibus/Profinet

■ Low space requirements

Smaller in size than a bus splitter

■ Flexible adaptation

Each of the 16 inputs can be configured as NC or NO

■ Ready for use immediately

One sensor hub provides 16 additional inputs

■ Low costs

Simple Plug-and-Play of inexpensive, industrial-quality, unshielded 3-pin M12 cables

The advantages for your network

- Quick and easy network construction and modification
- Simple expansion of your network with the same number of Profibus/Profinet nodes
- Reduction of Profibus/Profinet nodes

more added value
76 inputs per Profibus/Profinet node



Product topology

- M8 IO-Link sensor hubs
- M12 metal IO-Link sensor hubs
- M12 IO-Link sensor hubs
- IO-Link sensors
- IO-Link master
- Accessories

Profibus IO-Link modules starting on **page 16!**
Profinet IO-Link modules starting on **page 34!**



IO-Link

M8 sensor hubs, 3-pin

M8

more added value

Small and compact

Simple handling, fast data, four variants

Offering up to 16 inputs, the space-saving M8 sensor hubs with IO-Link port are the first choice wherever space is limited and their low weight makes them ideal for weight-critical applications.

M8 sensor hubs are easy to install and save time because a single 3-pin standard cable suffices for the connection. The M8 sensor hubs also save time and costs during maintenance and system operation because like all IO-Link products, they provide integrated diagnostics and can be configured centrally. M8 sensor hubs are also particularly fast. The transmission of 16 sensor signals, for example, takes just 2.5 ms and makes sure that the controller always receives current information. Each individual channel can be programmed to function as normally closed (NC) or normally open (NO), which allows the connection of antivalent sensors (DESINA).

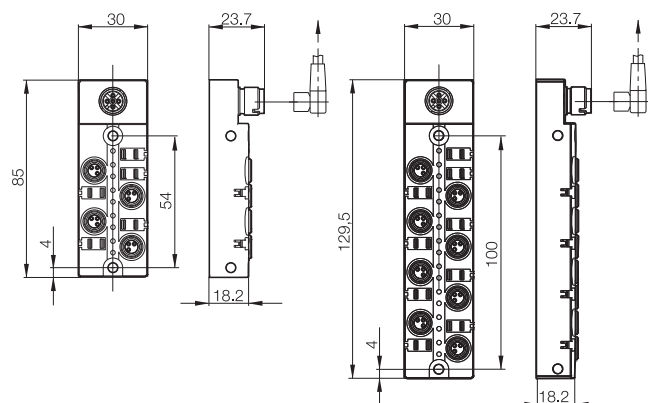
M8 sensor hubs with IO-Link port are available in four variants.



IO-Link	Device	Device
Version	4x I	8x I
Ordering code	BNI000P	BNI000R
Part number	BNI IOL-101-000-K018	BNI IOL-102-000-K019
Power supply U_s	18...30 V DC	18...30 V DC
Power indicator	Green LED	Green LED
Connection: I/O ports	M8, 3-pin, female	M8, 3-pin, female
Connection: IO-Link port	M12, A-coded, male	M12, A-coded, male
No. of I/O ports	4	8
No. of inputs	4	8
Configurable	N.C./N.O.	N.C./N.O.
Input status indicator	Yellow LED	Yellow LED
Total current U_s	Max. 800 mA	Max. 800 mA
Degree of protection as per IEC 60529	IP 67 (when connected)	IP 67 (when connected)
Operating temperature T_a	-5...+55 °C	-5...+55 °C
Storage temperature range	-25...+70 °C	-25...+70 °C
Weight	Approx. 86 g	Approx. 103 g
Mounting	2 mounting holes	2 mounting holes
Dimensions (LxWxH)	85x30x23.7 mm	129.5x30x23.7 mm
Housing material	Plastic	Plastic

IO-Link

IO-Link	1x device	1x device
No. of IO-Link ports	1x device	1x device
Operating mode	COM 2	COM 2
Communication indicator	Green LED, pulsing	Green LED, pulsing
Error indicator	Red LED	Red LED
Parameter	N.C./N.O. per input	N.C./N.O. per input



All hubs include
4 screw plugs
and 1 label set.

IO-Link

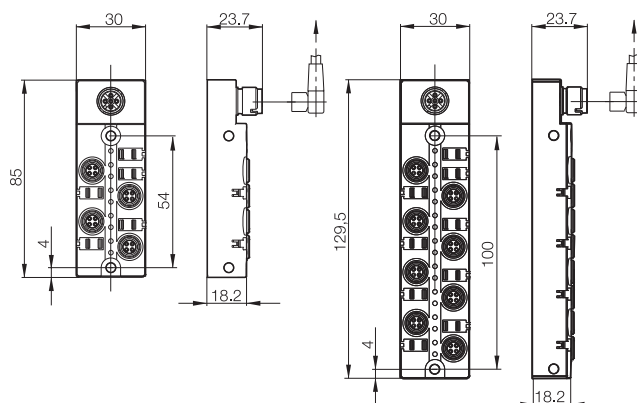
M8 sensor hubs, 4-pin



IO-Link	Device	Device
Version	8x I	16x I
Ordering code	BNI000T	BNI0021
Part number	BNI IOL-102-000-K020	BNI IOL-104-000-K021
Power supply U_s	18...30 V DC	18...30 V DC
Power indicator	Green LED	Green LED
Connection: I/O ports	M8, 4-pin, female	M8, 4-pin, female
Connection: IO-Link port	M12, A-coded, male	M12, A-coded, male
No. of I/O ports	4	8
No. of inputs	8	16
Configurable	N.C./N.O.	N.C./N.O.
Input status indicator	Yellow LED	Yellow LED
Total current U_s	Max. 800 mA	Max. 800 mA
Degree of protection as per IEC 60529	IP 67 (when connected)	IP 67 (when connected)
Operating temperature T_a	-5...+55 °C	-5...+55 °C
Storage temperature range	-25...+70 °C	-25...+70 °C
Weight	Approx. 86 g	Approx. 103 g
Mounting	2 mounting holes	2 mounting holes
Dimensions (LxWxH)	85x30x23.7 mm	129.5x30x23.7 mm
Housing material	Plastic	Plastic

IO-Link

No. of IO-Link ports	1x device	1x device
Operating mode	COM 2	COM 2
Communication indicator	Green LED, pulsing	Green LED, pulsing
Error indicator	Red LED	Red LED
Parameter	N.C./N.O. per input	N.C./N.O. per input



Product topology

M8 IO-Link sensor hubs

- M12 metal IO-Link sensor hubs
- M12 IO-Link sensor hubs
- IO-Link sensors
- IO-Link master
- Accessories

Fast, detailed diagnostics on individual channels

The lightweight, space-saving M8 sensor hubs with IO-Link port are also available with single-channel monitoring, which means that you continue to profit from all the time and cost-saving benefits of IO-Link, including simple installation, central configuration and integrated diagnostics. The single-channel monitoring function provides detailed diagnostic results extremely fast.

Single-channel monitoring enables the port-specific diagnostics of short circuits, overloading and cable breaks separately for each single channel. The diagnostic data is transferred with the process data, rendering acyclic services superfluous as a result. The extra benefit:

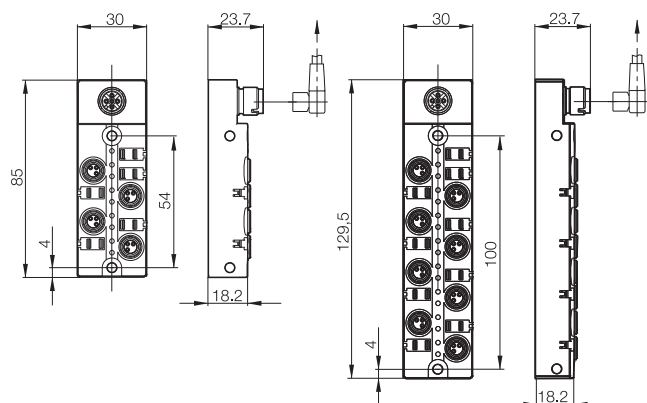
Maximum diagnostic capability is achieved with minimal integration effort and diagnostics are performed in no time at all because the diagnostic data is included with the process data.



IO-Link	Device	Device
Version	4x I	8x I
Ordering code	BNI001W	BNI001Y
Part number	BNI IOL-101-S01-K018	BNI IOL-102-S01-K019
Power supply U_s	18...30 V DC	18...30 V DC
Power indicator	Green LED	Green LED
Connection: I/O ports	M8, 3-pin, female	M8, 3-pin, female
Connection: IO-Link port	M12, A-coded, male	M12, A-coded, male
No. of I/O ports	4	8
No. of inputs	4	8
Configurable	N.C./N.O.	N.C./N.O.
Input status indicator	Yellow LED	Yellow LED
Total current U_s	Max. 800 mA	Max. 800 mA
Degree of protection as per IEC 60529	IP 67 (when connected)	IP 67 (when connected)
Operating temperature T_a	-5...+55 °C	-5...+55 °C
Storage temperature range	-25...+70 °C	-25...+70 °C
Weight	Approx. 86 g	Approx. 103 g
Mounting	2 mounting holes	2 mounting holes
Dimensions (L×W×H)	85×30×23.7 mm	129.5×30×23.7 mm
Housing material	Plastic	Plastic

IO-Link

IO-Link	1x device	1x device
No. of IO-Link ports	1x device	1x device
Operating mode	COM 2	COM 2
Communication indicator	Green LED, pulsing	Green LED, pulsing
Error indicator	Red LED	Red LED
Parameter	N.C./N.O. per input	N.C./N.O. per input



**All hubs include
4 screw plugs
and 1 label set.**

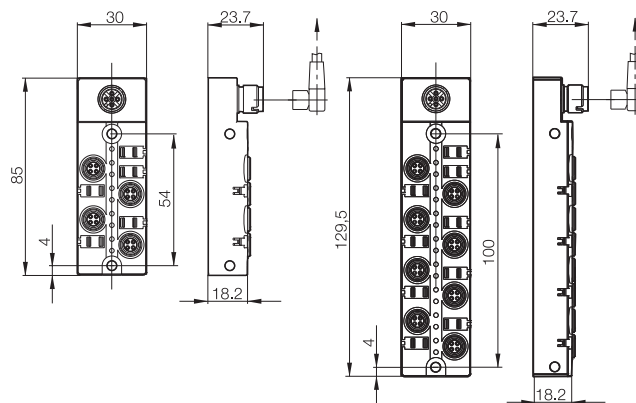
IO-Link

M8 sensor hubs, 4-pin, single-channel monitoring



IO-Link	Device	Device
Version	8x I	16x I
Ordering code	BNI001Z	BNI002Z
Part number	BNI IOL-102-S01-K020	BNI IOL-104-S01-K021
Power supply U_s	18...30 V DC	18...30 V DC
Power indicator	Green LED	Green LED
Connection: I/O ports	M8, 4-pin, female	M8, 4-pin, female
Connection: IO-Link port	M12, A-coded, male	M12, A-coded, male
No. of I/O ports	4	8
No. of inputs	8	16
Configurable	N.C./N.O.	N.C./N.O.
Input status indicator	Yellow LED	Yellow LED
Total current U_s	Max. 800 mA	Max. 800 mA
Degree of protection as per IEC 60529	IP 67 (when connected)	IP 67 (when connected)
Operating temperature T_a	-5...+55 °C	-5...+55 °C
Storage temperature range	-25...+70 °C	-25...+70 °C
Weight	Approx. 86 g	Approx. 103 g
Mounting	2 mounting holes	2 mounting holes
Dimensions (LxWxH)	85x30x23.7 mm	129.5x30x23.7 mm
Housing material	Plastic	Plastic

IO-Link		
No. of IO-Link ports	1x device	1x device
Operating mode	COM 2	COM 2
Communication indicator	Green LED, pulsing	Green LED, pulsing
Error indicator	Red LED	Red LED
Parameter	N.C./N.O. per input	N.C./N.O. per input



Product topology

M8 IO-Link sensor hubs

- M12 metal IO-Link sensor hubs
- M12 IO-Link sensor hubs
- IO-Link sensors
- IO-Link master
- Accessories

The metal sensor hubs in a robust housing are suitable for installation in extremely harsh industrial environments such as machine tool plants, steel works and so on. Based on M12 connectors, metal sensor hubs are simple to install and fulfill demanding requirements for cost-effective installation and maintenance.

Port-specific single-channel monitoring detects short circuits, overloading and cable breaks at the port and offers a completely unique degree of selective diagnostics for devices with this functionality. Each input can be programmed as normally closed or normally open using a parameter set, increasing the flexibility of your installation. Antivalent DESINA sensors can also be connected to the DI16 sensor hub with ease.

The BNI IOL-302... version combines two modules in one while achieving maximum functionality and flexibility.

The maximum sensor load current of 500 mA is suitable for the operation of sensors with a high utilization rate. A maximum of 2 A is available for ports configured as an output, which is ideal for hydraulic valves with a high utilization rate.

Clearly visible status LEDs

Low-quality LEDs that are often difficult to identify under demanding production conditions perform poorly when used in high-speed applications. Unlike Balluff status LEDs, which are large, bright, highly visible and provide maximum assistance. Balluff quality will help you complete setup and maintenance tasks and reduce machine downtimes with ease.

Powerful and safe outputs

With an output current of up to **2 amps**, Balluff output modules are capable of driving almost any load. Each output also offers an overload protection with LED indicator and a memory feature for easy troubleshooting.

Robust, solid metal housing
The fully encapsulated housing can withstand impacts, shaking, corrosive fluids, incorrect assembly as well as people treading on it and costs the same as a plastic housing.



Inputs with high density

All Balluff input blocks offer two input points for each connector, accessed via a V splitter. A Desina output is also optionally available via pin 2.

Innovative housing design

The extra-flat profile reduces potential dangers posed by cables. Rounded corners offer highly visible locations for channel markers and two mounting points are sufficient to secure the robust metal housing.

IO-Link

M12 sensor hubs, 16 digital inputs/outputs



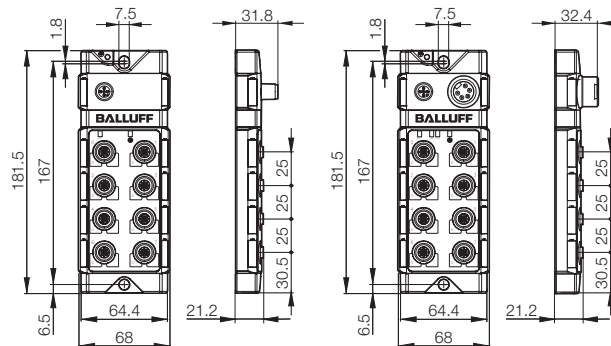
more added value
Maximum power in a robust housing

IO-Link	Device	Device
Version	16x I	16x I/O
Ordering code	BNI0032	BNI0035
Part number	BNI IOL-104-000-Z012	BNI IOL-302-000-Z013
Power supply U_s	18...30 V DC	18...30 V DC
Function indicator IO-Link RUN	Green LED	Green LED
Power indicator	Green LED	Green LED
Connection: IO-Link	M12, A-coded, male	M12, A-coded, male
Connection: I/O ports	M12, A-coded, female	M12, A-coded, female
No. of I/O ports	8	8
No. of inputs	16	max. 16
No. of outputs	16	max. 16
Configurable	No	Yes
Max. load current sensors/channel	200 mA	500 mA
Port status indicator	Yellow LED	Yellow LED
Total current U_s	3 A	9 A
Degree of protection as per IEC 60529	IP 67 (when connected)	IP 67 (when connected)
Operating temperature T_a	-5...+70 °C	-5...+70 °C
Storage temperature range	-25...+70 °C	-25...+70 °C
Weight	Approx. 390 g	Approx. 390 g
Mounting	2 mounting holes	2 mounting holes
Dimensions (LxWxH)	181x68x36.9 mm	181x68x36.9 mm
Housing material	Nickel-plated Gd-Zn	Nickel-plated Gd-Zn

IO-Link		
No. of IO-Link ports	1x device	1x device
Operating mode	COM 2	COM 2
Indicators	Communication	Green LED, pulsing
	Error	Red LED
Max. load current	< 1.2 A	< 9 A
Parameter	N.C./N.O. per input	N.C./N.O. per input



- Product topology
- M8 IO-Link sensor hubs
- M12 metal IO-Link sensor hubs**
- M12 IO-Link sensor hubs
- IO-Link sensors
- IO-Link master
- Accessories



All hubs include
4 screw plugs
and 1 label set.

IO-Link

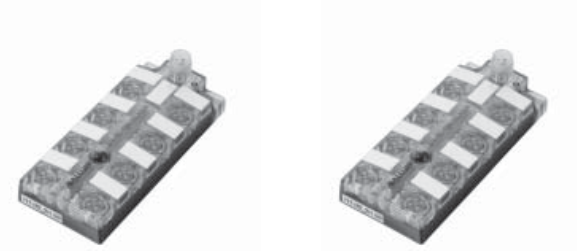
M12 sensor hubs, 3-pin,
8 or 16 standard inputs

M12 Plastic

The sensor hub is a particularly efficient complement to your machine installation. You can conveniently connect standard sensors using 8 or 16 standard inputs.

Each input can be programmed as normally closed or normally open using a parameter set to increase the flexibility of your installation. Antivalent DESINA sensors can be easily connected to the DI16 sensor hub.

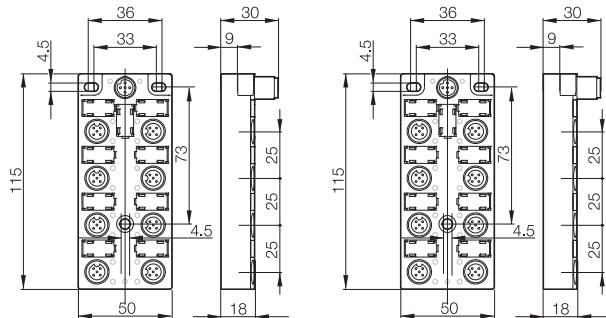
Communication with the IO-Link master takes place in COM2 mode (38.4 kbaud) on the standard 3-conductor cable and gives you a complete process representation in as little as 2 ms.



IO-Link Version	Device 8x I	Device 16x I
Ordering code	BNI0005	BNI0006
Part number	BNI IOL-102-000-K006	BNI IOL-104-000-K006
Power supply U _s	18...30 V DC	18...30 V DC
Function indicator IO-Link RUN	Green LED	Green LED
Power indicator	Green LED	Green LED
Connection: IO-Link	M12, A-coded, male	M12, A-coded, male
Connection: I/O ports	M12, A-coded, female	M12, A-coded, female
No. of I/O ports	8	8
No. of inputs	8	16
Configurable	N.C./N.O.	N.C./N.O.
Max. load current sensors/channel	200 mA	200 mA
Port status indicator	Yellow LED	Yellow LED
Total current U _s	< 1.2 A	< 1.2 A
Degree of protection as per IEC 60529	IP 67 (when connected)	IP 67 (when connected)
Operating temperature T _a	-5...+55 °C	-5...+55 °C
Storage temperature range	-25...+85 °C	-25...+85 °C
Weight	Approx. 86 g	Approx. 86 g
Mounting	3 mounting holes	3 mounting holes
Dimensions (LxWxH)	115x50x31 mm	115x50x31 mm
Housing material	PC	PC

IO-Link

No. of IO-Link ports	1x device	1x device
Operating mode	COM 2	COM 2
Indicators	Communication	Green LED
	Error	Red LED
Max. load current	< 1.2 A	< 1.2 A
Parameter	N.C./N.O. per input	N.C./N.O. per input



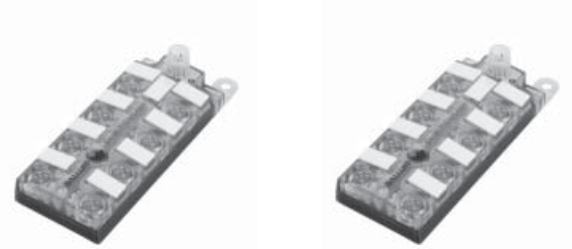
All hubs include
4 screw plugs
and 1 label set.

IO-Link

M12 sensor hubs, 4-pin, Analog

With the analog sensor hub, you can select from two additional variants with current and voltage interface, allowing you to connect non-IO-Link capable sensors with maximum reliability.

Four existing analog channels can be supplemented with four additional dual-use standard input ports per IEC 61131. The analog channels have a resolution of 10 bits.



IO-Link Version	Device	Device
Version	4 AI-I, 8x I	4 AI-U, 8x I
Ordering code	BNI0007	BNI0008
Part number	BNI IOL-709-000-K006	BNI IOL-710-000-K006
Power supply U_s	18...30 V DC	18...30 V DC
Function indicator IO-Link RUN	Green LED	Green LED
Power indicator	Green LED	Green LED
Connection: IO-Link	M12, A-coded, male	M12, A-coded, male
Connection: I/O ports	M12, A-coded, female	M12, A-coded, female
No. of I/O ports	8	8
No. of inputs	8	8
Configurable	N.C./N.O.	N.C./N.O.
Max. load current sensors/channel	200 mA	200 mA
Port status indicator	Yellow LED	Yellow LED
Total current U_s	< 1.2 A	< 1.2 A
Degree of protection as per IEC 60529	IP 67 (when connected)	IP 67 (when connected)
Operating temperature T_a	-5...+55 °C	-5...+55 °C
Storage temperature range	-25...+85 °C	-25...+85 °C
Weight	Approx. 86 g	Approx. 86 g
Mounting	3 mounting holes	3 mounting holes
Dimensions (LxWxH)	115x50x31 mm	115x50x31 mm
Housing material	PC	PC

Analog ports

Number of analog ports	4	4
Interface	4...20 mA	0...10 V DC
Resolution	10 bits	10 bits
Analog signal indicator	Green LED	Green LED

IO-Link

No. of IO-Link ports	1x device	1x device
Operating mode	COM 3 (3-wire)	COM 3 (3-wire)
Indicators	Communication	Green LED
	Error	Red LED
Max. load current	< 1.2 A	< 1.2 A
Parameter	N.C./N.O. per input, 1 switching point per analog channel	N.C./N.O. per input, 1 switching point per analog channel



Product topology

M8 IO-Link sensor hubs

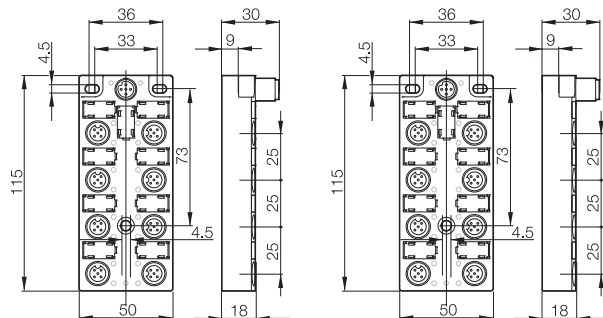
M12 metal IO-Link sensor hubs

M12 IO-Link sensor hubs

IO-Link sensors

IO-Link master

Accessories



more added value

Lightweight and economical

IO-Link

Through-beam fork sensors BGL

In-process correction

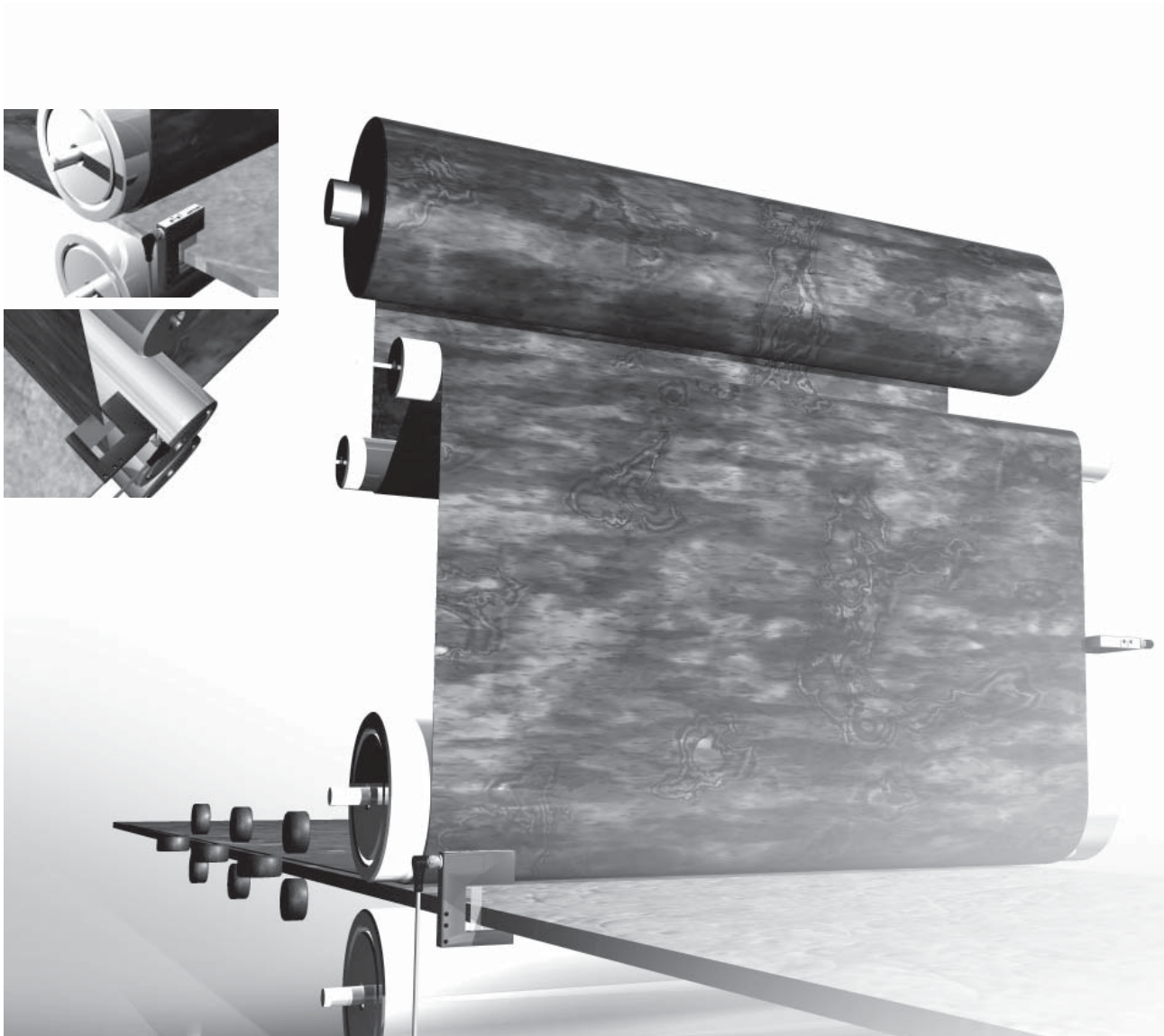
The light band from BGL fork sensors not only ensures completely reliable detection, but also determine the position of objects with extreme accuracy: In-process correction could not be easier. Process reliability and product quality are significantly improved. Use the BGL light band fork sensor - with enhanced efficiency as a welcome extra.

Technical highlights

- Analog signal proportional to the skin depth of the object
- Constant value, even in the event of height variations
- Fieldbus connection with IO-Link

more added value

- High process reliability
- Better quality
- Greater efficiency



IO-Link

Through-beam fork sensors BGL



Series	BGL Series C Premium		BGL Series C Premium
Output signal	IO-Link		IO-Link
Fork opening	30 mm		50 mm
Measurement field length	25 mm		25 mm
Fork sensor	Ordering code	BGL0035	BGL003F
PNP	Part number	BGL 30C-007-S4	BGL 50C-007-S4
Power supply U_s	18...30 V DC		18...30 V DC
No-load supply current I_0 max.	≤ 20 mA		≤ 20 mA
Output current	Max. 100 mA per output		Max. 100 mA per output
LED indicators	2 × yellow LED		2 × yellow LED
Response time	≤ 1 ms		≤ 1 ms
Settings	2× teach button		2× teach button
Switching frequency f	500 Hz		500 Hz
Light type	Red light 633 nm		Red light 633 nm
Resolution	0.1 mm		0.1 mm
Repeatability	0.25 mm		0.25 mm
Hysteresis	± 0.8 %		± 0.8 %
Connection	M12, 4-pin, A-coded		M12, 4-pin, A-coded
Housing material	Al anodized		Al anodized
Weight	155 g		175 g
Degree of protection as per IEC 60529	IP 67		IP 67
Polarity reversal protected	Yes		Yes
Short-circuit protected	Yes		Yes
Ambient temperature range T_a	-5...+55 °C		-5...+55 °C
Permissible ambient light	≤ 1 kLux		≤ 1 kLux

IO-Link

Mode	COM 2	COM 2
Transfer rate	38.4 kbaud	38.4 kbaud
Value range	000 H...03FF H	000 H...03FF H
Diagnostics	Contamination	Contamination
Parameter	Switching points/switching range, button disable, N.O./N.C. switch, analog value characteristics	Switching points/switching range, button disable, N.O./N.C. switch, analog value characteristics



Product topology

M8 IO-Link sensor hubs

M12 metal IO-Link sensor hubs

M12 IO-Link sensor hubs

M12 IO-Link sensor hubs

M12 IO-Link sensor hubs

M12 IO-Link sensor hubs

M12 IO-Link sensor hubs

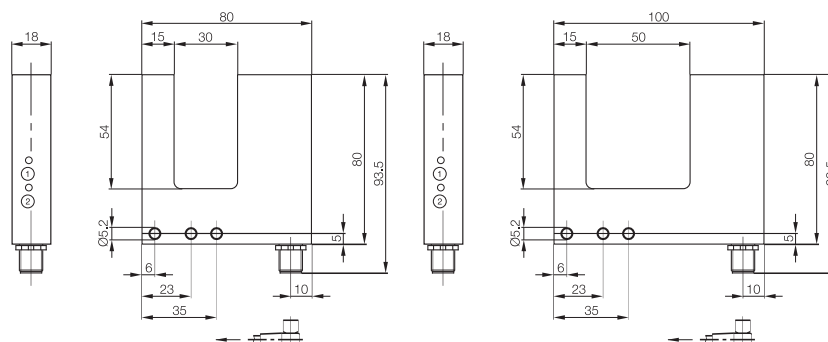
IO-Link sensors

IO-Link master

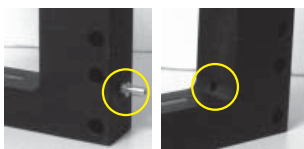
IO-Link master

IO-Link master

Accessories



Integral air rinsing nozzle to prevent dust from accumulating on the optical transmitter and receiver. Simple connection via standard pneumatic system.



IO-Link

Color sensor BFS 26K

Robotics, automation, quality assurance and production processes are among the applications for color sensors.

The **BFS 26 K** color sensor is suitable for

- Quality assurance
- Selection of components
- Detection of cable wires

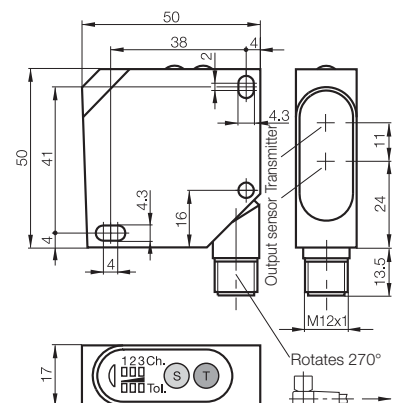
The BFS 26K uses white light and is especially insensitive to ambient light. This provides you with reliable data in challenging applications. Adjustments are so easy because the controller configures the data via IO-Link.



Series	BFS 26K	
Output signal	IO-Link	
Working range	Key operation	12...32 mm
Measuring range	Reflector mode	50...200 mm
Color sensor	Ordering code	BFS000F
PNP	Part number	BFS 26K-GI-L04-S92
Power supply U_s	12...28 V DC	
Residual ripple	10%	
No-load supply current I_0 max.	≤ 40 mA	
Switching output	3× PNP transistors	
Output current	100 mA	
Switching type	Light-on	
Voltage drop U_d at I_o	≤ 2.4 V	
Settings	Teach-in	
Emitter, light type	Pulsed white light	
Light spot geometry	Round	
Light spot diameter	∅ 4 mm at sensing distance 22 mm	
Sensing distance tolerance	±6 mm with tol. 3	
Color resolution tolerance	5 adjustable settings	
Power indicator	Green LED	
Output function indicator Ch. 1...Ch. 3	3× yellow LEDs	
Output function indicator Tol. 1...Tol. 5	3× red LEDs	
Ready delay	300 ms	
Response time	1 ms	
Switching frequency f	500 Hz	
Time functions	50 ms turn-off delay, optional	
Dimensions	50×50×17 mm	
Connection	M12 connector, 4-pin	
Housing material	Impact-resistant ABS	
Optical surface	PMMA	
Weight	40 g	
Degree of protection as per IEC 60529	IP 67	
Polarity reversal protected	Yes	
Short-circuit protected	Yes	
Ambient temperature range T_a	-10...+55 °C	
Ambient light limit according to	EN 60947-5-2	

IO-Link

Mode	COM 2
Transfer rate	38.4 kbaud
Parameter	Max. 5 colors, 5 tolerance ranges, N.C./N.O., button disable



IO-Link

Laser distance sensor BOD 63 M

When traditional sensing methods reach their technological and economic limits, the **BOD 63M** steps in:

- For detecting small objects over long distances
- In difficult environments, such as high temperatures
- In robot cells

The BOD 63M with rugged metal housing has a working range of 200...6000 mm. The sensor transmits data in IO-Link mode, which makes setup and operation extremely easy: two teach-in buttons are provided for initiating startup. You can set both switching points directly from the controller, deactivate the laser and disable the buttons.



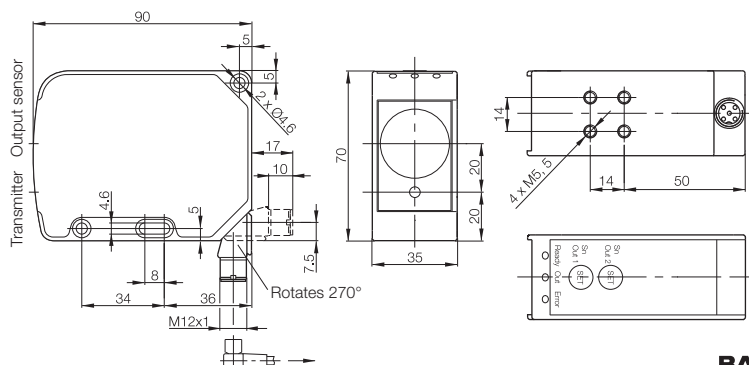
Series	BOD 63M	
Output signal	IO-Link	
Working range	200...6000 mm	
Measuring range	5800 mm	
Distance sensor	Ordering code	BOD0012
PNP	Part number	BOD 63M-LI06-S4
Power supply U_s	18...30 V DC	
No-load supply current I_0 max.	≤ 90 mA	
Settings	Teach-in	
Switching points	2	
Emitter, light type	Laser, red light	
Wavelength	660 nm	
Laser class	2	
Light spot diameter	5 mm at 3 m 10 mm at 6 m	
Resolution	≤ 2 mm	
Gray value shift	≤ 1.5%	
Repeatability	≤ ±4 mm	
Temperature drift	≤ 2 mm/°C	
Linearity	±1%	
Switching hysteresis	≤ 15 mm	
On/off delay	≤ 3.4 ms	
Ready delay	≤ 20 ms	
Switching frequency f	≥ 150 Hz	
Power indicator	Green LED	
Function ready/error indicator	Yellow LED	
Stability indicator	Red LED	
Dimensions	90×70×35 mm	
Connection	M12 connector, 4-pin	
Housing material	Al anodized	
Optical surface	Glass	
Weight	270 g	
Degree of protection as per IEC 60529	IP 65	
Polarity reversal protected	Yes	
Short-circuit protected	Yes	
Ambient temperature range T_a	-10...+60 °C	
Permissible ambient light	≤ 10 kLux	

IO-Link

Product topology
M8 IO-Link sensor hubs
M12 metal IO-Link sensor hubs
M12 IO-Link sensor hubs
IO-Link sensors
IO-Link master
Accessories

IO-Link

Mode	COM 2
Transfer rate	38.4 kbaud
Value range	00C8 H...1770 H
Diagnostics	Stability indicator
Parameter	Switching points, laser on/off, button disable



IO-Link

Inductive distance sensor BAW M18

Balluff inductive distance sensors can detect positions, distances and material variations with consummate ease.

Applications

Examples of the various industrial applications include:

- Distance sensing (even at high speeds)
- Measurement of film and sheet thicknesses
- Belt center measurement
- Measurement of metal strip widths
- Detection of surface waves
- Counting tasks
- Positioning
- Position monitoring
- Clamping status detection
- Selection of different sizes and materials

Features

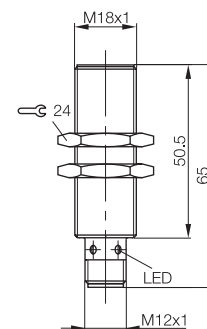
- Non-contact, absolute measuring principle
- Distance-proportional IO-Link output signal
- High repeat accuracy
- Optimal linearity
- Low temperature drift
- Measuring speed up to 40 m/s
- LED for indicating the working range
- Insensitive to contamination



Size	M18x1
Output signal	IO-Link
Mounting	Flush
Linear range s_l	1...5 mm
Ordering code	BAW002F
Part number	BAW M18MI-BLC50B-S04G
Power supply U_s	18...30 V DC
Residual ripple	$\leq 15\%$ of U_s
Rated insulation voltage U_i	250 V AC
Effective distance s_e	3 mm
Load resistance R_L	$\leq 2 \text{ k}\Omega$
Load resistance R_T	
No-load supply current I_0 at U_s	$\leq 10 \text{ mA}$
Polarity reversal protected	Yes
Short-circuit protected	Yes
Ambient temperature range T_a	$-10...+70 \text{ }^\circ\text{C}$
Repeat accuracy R_{BWN}	$\pm 8 \text{ }\mu\text{m}$
Non-linearity	$\leq \pm 120 \text{ }\mu\text{m}$
Measuring speed	$\leq 40 \text{ m/s}$
Response time	2 ms
Temperature coefficient TC	Typical
In the optimum range	Min.
From $+10...+50 \text{ }^\circ\text{C}$	Max.
Degree of protection as per IEC 60529	IP 67
Housing material	Nickel-plated brass
Material of sensing face	PBT
Connection	Connector
Recommended connectors	BCCM415/BCCM425
Indicator	Out of range

IO-Link

Mode	COM 2
Transfer rate	38.4 kbaud
Value range	0000 H...03FF H



IO-Link

Inductive distance sensor BAW Z01... with IO-Link

The inductive distance sensor BAW Z01... is an accurate distance measurement system for detecting the positions of metallic objects.

- Absolute measuring principle and large measuring range
- Distance-proportional IO-Link output signal
- High level of repeat accuracy and precision
- Optimal linearity and low temperature drift
- Optimized housing design for clamping distance monitoring

Application

In addition to distance detection, thickness and width measurement, part inspection, parts identification and metering tasks, the main application area of the BAW Z01... is the linear position monitoring of drive screws for

- tools
- workpieces



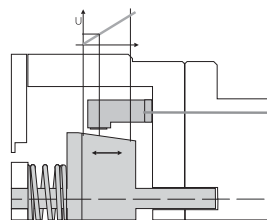
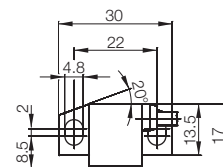
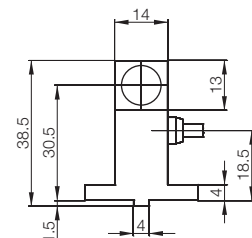
Size	14×38.5×17 mm
Output signal	IO-Link
Mounting	Flush
Linear range s_i	1...5 mm
Ordering code	BAW003A
Part number	BAW Z01AC-BLD50B-DP03
Power supply U_s	18...30 V DC
Residual ripple	≤ 15% of U_s
Rated insulation voltage U_i	75 V AC
No-load supply current I_0 at U_s	≤ 12 mA
Polarity reversal protected	Yes
Short-circuit protected	Yes
Ambient temperature range T_a	-10...+60 °C
Repeat accuracy R_{BWN}	±10 μm
Non-linearity	≤ ±150 μm
Response time	5 ms
Degree of protection as per IEC 60529	IP 67
Housing material	Anodized aluminum
Material of sensing face	LCP
Connection	Cable

IO-Link

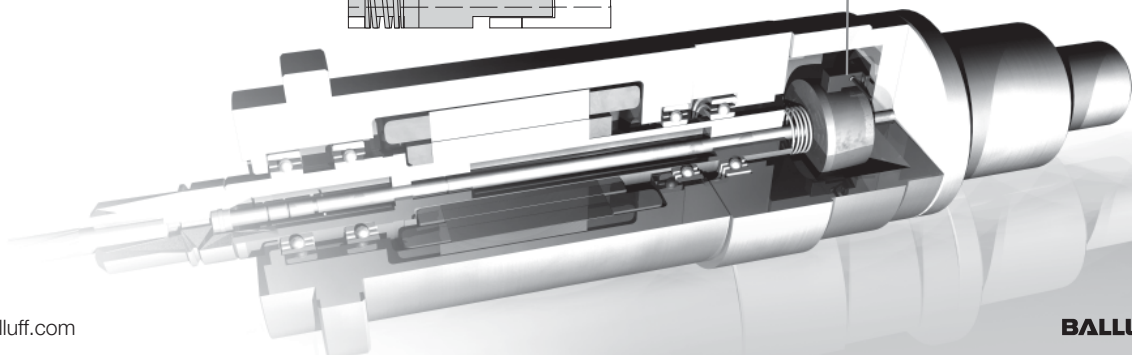
Mode	COM 2
Transfer rate	38.4 kbaud
Value range	0000 H...03FF H



Product topology
M8 IO-Link sensor hubs
M12 metal IO-Link sensor hubs
M12 IO-Link sensor hubs
IO-Link sensors
IO-Link master
Accessories



BAW Z01 distance sensor... in use on a drive screw for tools



IO-Link

Industrial RFID systems BIS L Read-only unit

The key areas of application for the non-contact

BIS L-409-045-001-07-S4

identification system are in equipment organization and production, e.g.:

- For controlling material flow
- In workpiece transport on conveyors
- For the detection of safety-relevant data

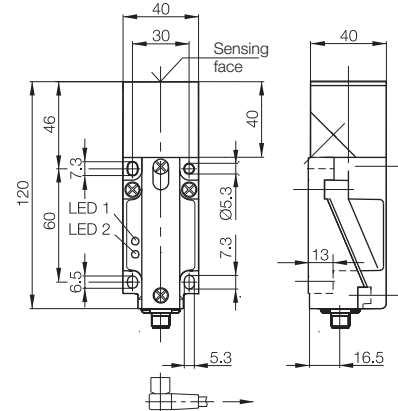
Information preprogrammed into data carriers can be read and transmitted using non-contact data recognition. This data is transmitted to the IO-Link master via the serial IO-Link port. BIS L-409-045-001-07-S4 is an autonomous unit. No cable-carried power source is required because the energy required is supplied by the integrated read head.



Description/dimensions	40x40x120 mm
Output signal	IO-Link
Housing material	PBT
Antenna type	Round
Ordering code	BIS00CZ
Part number	BIS L-409-045-001-07-S4
Power supply	24 V DC +10 %/-20 %
Residual ripple	≤ 10 %
Power supply	≤ 150 mA
Ambient temperature range T _a	0...+70 °C
Degree of protection as per IEC 60529	IP 67
Mounting in steel	Not flush
LED function indicator	Yes
Connection	M12 male, 4-pin
Weight	220 g

IO-Link

Mode	COM 3 (3-wire)
Transfer rate	230.4 kbaud



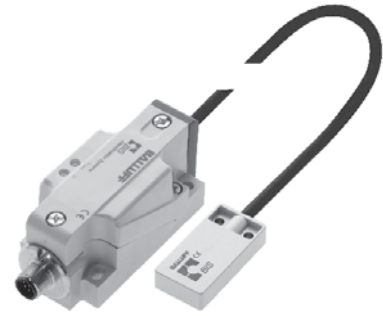
Refer to the Industrial Identification catalogue or visit our website for information on data carriers and other identification systems.



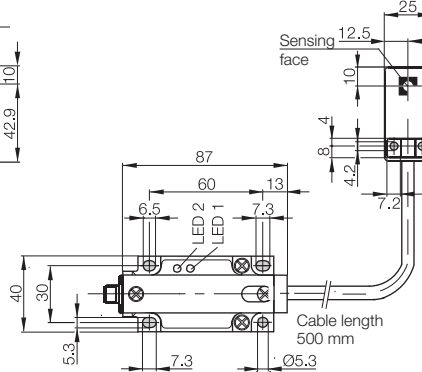
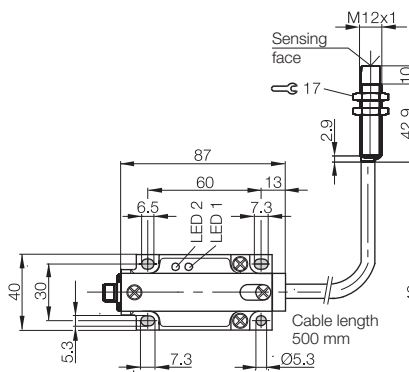
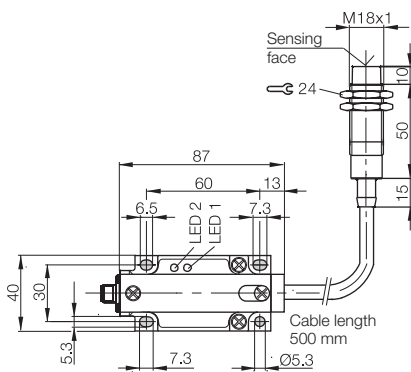
www.balluff.de/RFID

IO-Link

Industrial RFID systems BIS L
Read-only unit



M18	M12	25x50x10
IO-Link	IO-Link	IO-Link
PBT/nickel-plated brass	PBT/nickel-plated brass	PBT/ABS
Round	Round	Round
BIS00E0	BIS00E1	BIS00E2
BIS L-409-045-002-07-S4	BIS L-409-045-003-07-S4	BIS L-409-045-004-07-S4
24 V DC +10 %/-20 %	24 V DC +10 %/-20 %	24 V DC +10 %/-20 %
≤ 10 %	≤ 10 %	≤ 10 %
≤ 150 mA	≤ 150 mA	≤ 150 mA
0...+70 °C	0...+70 °C	0...+70 °C
IP 67	IP 67	IP 67
Not flush	Not flush	Not flush
Yes	Yes	Yes
8-pin M12 male	8-pin M12 male	M12 male, 4-pin
200 g	170 g	200 g
COM 3 (3-wire)	COM 3 (3-wire)	COM 3 (3-wire)
230.4 kbaud	230.4 kbaud	230.4 kbaud



Product topology
M8 IO-Link sensor hubs
M12 metal IO-Link sensor hubs
M12 IO-Link sensor hubs
IO-Link sensors
IO-Link master
Accessories

IO-Link

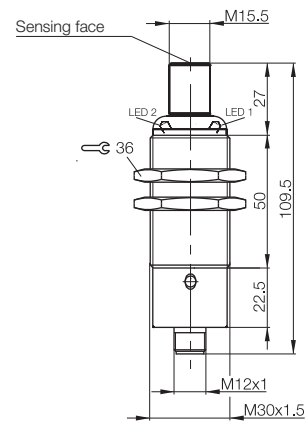
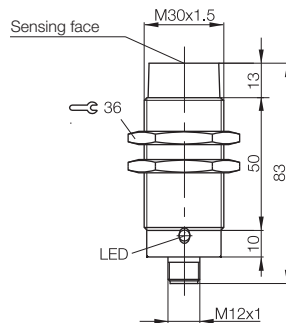
Industrial RFID systems BIS M
Read/write unit



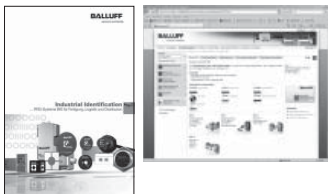
Description/dimensions	M30x1.5	M30x1.5	
Output signal	IO-Link	IO-Link	
Housing material	Nickel-plated brass	Nickel-plated brass	
Antenna type	Round	Round	
Ordering code	BIS00LH	BIS00LJ	
Part number	BIS M-400-045-001-07-S4	BIS M-400-045-002-07-S4	
Power supply	18...30 V DC	18...30 V DC	
Residual ripple	≤ 1.3 Vpp	≤ 1.3 Vpp	
Power supply	≤ 150 mA	≤ 150 mA	
Ambient temperature range T _a	0...+70 °C	0...+70 °C	
Degree of protection as per IEC 60529	IP 67	IP 67	
Mounting in steel	Not flush	Not flush	
LED function indicator	Yes	Yes	
Connection	M12 male, 4-pin	M12 male, 4-pin	
Weight	100 g	100 g	

IO-Link

Mode	COM 1	COM 2	COM 3	COM 1	COM 2	COM 3	
Transfer rate	4.8 kbaud	38.4 kbaud	230.4 kbaud	4.8 kbaud	38.4 kbaud	230.4 kbaud	



Refer to the Industrial Identification catalogue or visit our website for information on data carriers and other identification systems.



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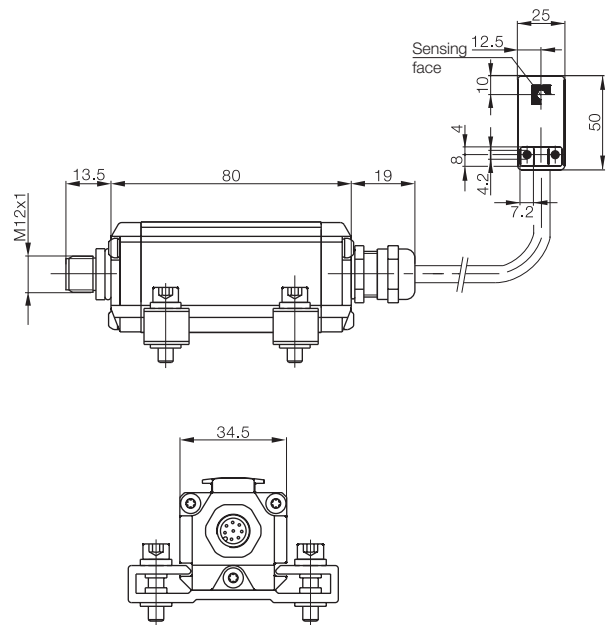
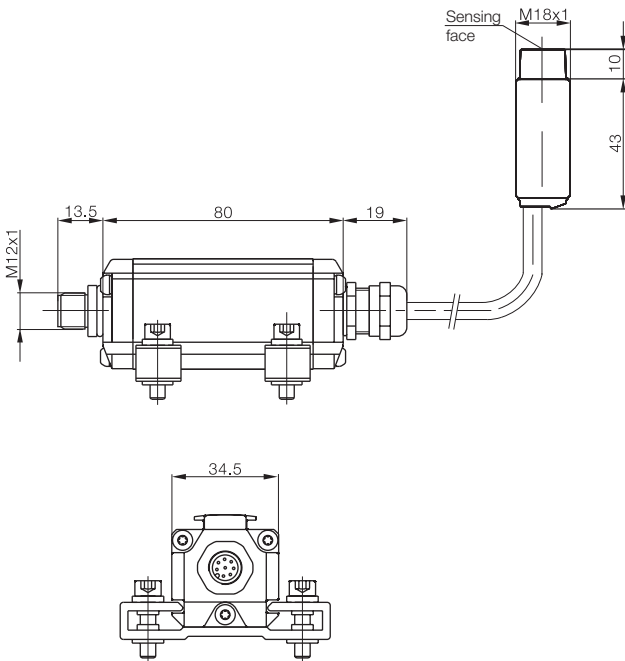
IO-Link

Industrial RFID systems BIS M
Read/write unit



M18x1	25x50x10
IO-Link	IO-Link
AlMgSi _{0.5} /nickel-plated brass	AlMgSi 0.5/ABS-GF16
Round	Round
BIS00LW	BIS00M1
BIS M-402-045-001-07-S4	BIS M-402-045-004-07-S4
18...30 V DC	18...30 V DC
≤ 1.3 Vpp	≤ 1.3 Vpp
≤ 150 mA	≤ 150 mA
0...+70 °C	0...+70 °C
IP 67	IP 67
Not flush	Not flush
Yes	Yes
M12 male, 4-pin	M12 male, 4-pin
220 g	220 g

COM 1	COM 2	COM 3	COM 1	COM 2	COM 3
4.8 kbaud	38.4 kbaud	230.4 kbaud	4.8 kbaud	38.4 kbaud	230.4 kbaud



IO-Link

Product topology

- M8 IO-Link sensor hubs
- M12 metal IO-Link sensor hubs
- M12 IO-Link sensor hubs
- IO-Link sensors**
- IO-Link master
- Accessories

IO-Link

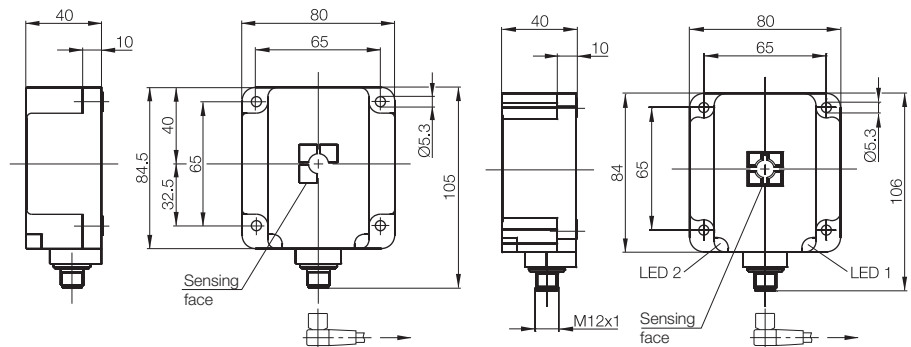
Industrial RFID systems BIS M
Read/write unit



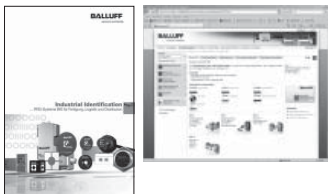
Description/dimensions	80x80x40	80x80x40
Output signal	IO-Link	IO-Link
Housing material	PBT	PBT
Antenna type	Round	Rod
Ordering code	BIS00LK	BIS00LM
Part number	BIS M-401-045-001-07-S4	BIS M-451-045-001-07-S4
Power supply	18...30 V DC	18...30 V DC
Residual ripple	≤ 1.3 Vpp	≤ 1.3 Vpp
Power supply	≤ 150 mA	≤ 150 mA
Ambient temperature range T _a	0...+70 °C	0...+70 °C
Degree of protection as per IEC 60529	IP 67	IP 67
Mounting in steel	Not flush	Not flush
LED function indicator	Yes	Yes
Connection	M12 male, 4-pin	M12 male, 4-pin
Weight	190 g	360 g

IO-Link

Mode	COM 1	COM 2	COM 3	COM 1	COM 2	COM 3
Transfer rate	4.8 kbaud	38.4 kbaud	230.4 kbaud	4.8 kbaud	38.4 kbaud	230.4 kbaud

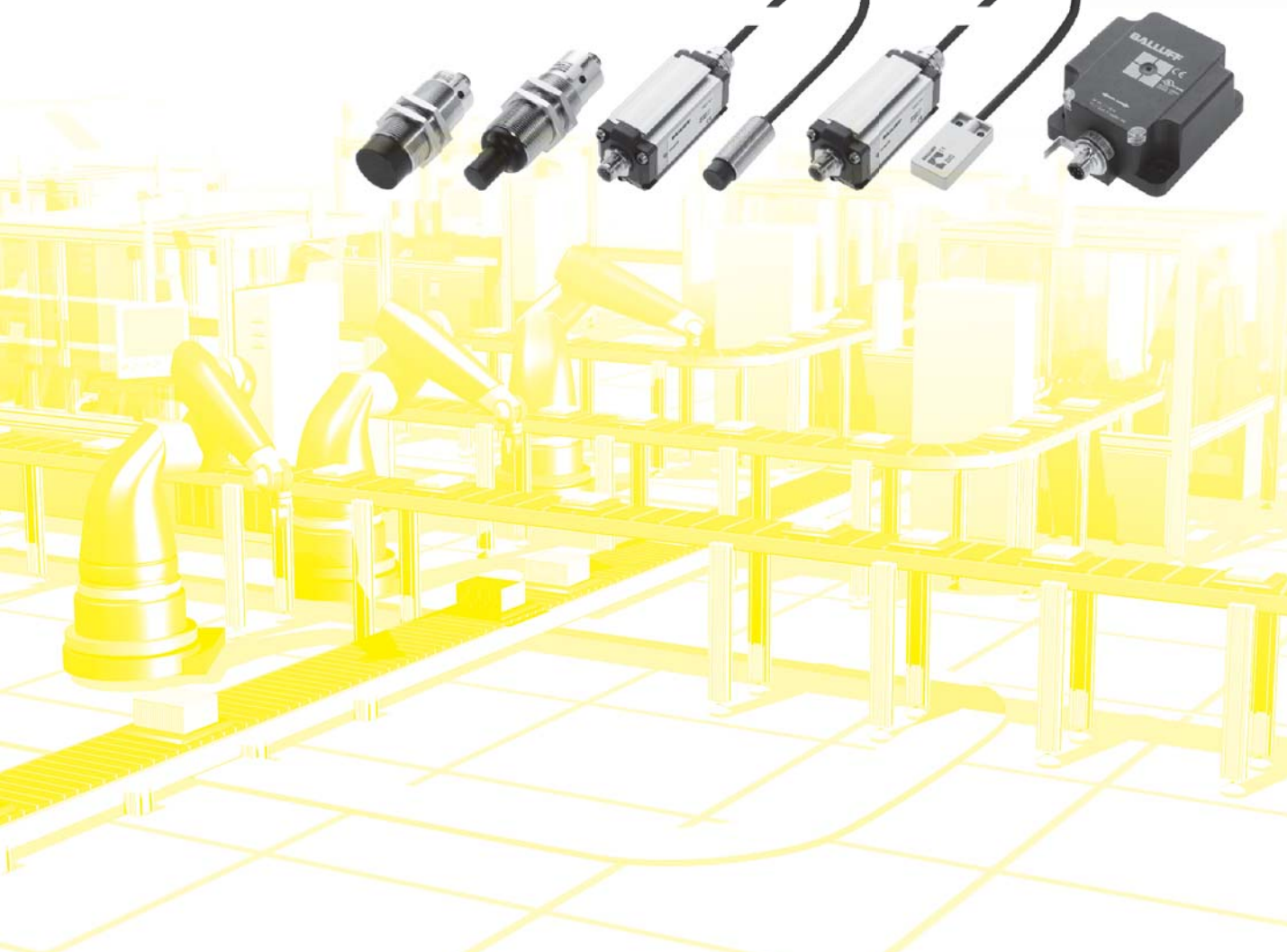
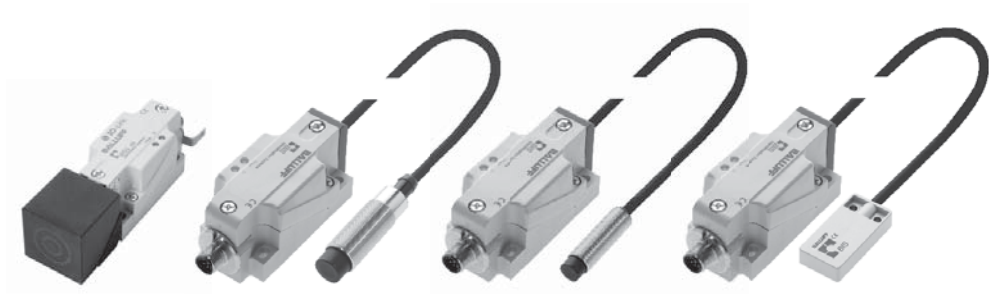


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IO-Link
Industrial RFID systems



Product topology

M8 IO-Link sensor hubs

M12 metal IO-Link sensor hubs

M12 IO-Link sensor hubs

M12 IO-Link sensor hubs

IO-Link sensors

IO-Link master

Accessories

IO-Link

Mechanical multiple position switches BNS Series 100



Multiple position switches in accordance with DIN 43697 with safety switch positions as per DIN EN 60204-1/VDE 0113

- Positive-opening contacts and rigid plungers for additional security as per DIN EN 60204-1/ VDE 0113

- Dual-chamber system with degree of protection IP 67: wear-free membrane with hermetic sealing of plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing

Multiple position switches with function indicator

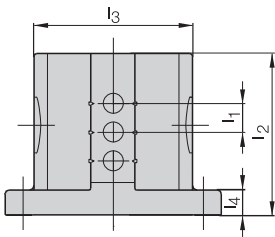
- Function indicators for choice of three voltage ranges

Multiple position switches with wiper plate

- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

IO-Link

- Simple installation: with M12 connector
- No cable gland needed, factory sealed to IP 67
- Connect in just seconds
- High diagnostic capability through parallel processing of normally open/normally closed signals



Available sizes

Number of plungers		2	3	4	5	6	8	10	12
Dimension l ₂ with	Dimension l ₁ = 12 mm	70	80	90	105	120	140	170	200
	Dimension l ₃	88	88	88	88	88	80	80	80
	Dimension l ₄	14	14	14	14	14	20	20	20
	Dimension l ₁ = 16 mm	70	90	105	120	140	170	200	240
	Dimension l ₃	88	88	88	88	80	80	80	80
	Dimension l ₄	14	14	14	14	20	20	20	20

Dimensions in mm

Ordering example:

BNS 819-D02-D16-100-10-FD-S4R-I

BNS 819-D - - - -100-10-FD- - - -I

	Number of plungers	Plunger style	Plunger spacing	Connector
02	2x	D Chisel	12 12 mm	S4R 4-pin, right side
03	3x	K Ball	16 16 mm	S4L 4-pin, left side
04	4x	R Roller		
...		L Roller bearing		
		E Chisel plunger with wiper plate		

more added value

- Optimized for your application
 - Customer-specific solutions are available
- Contact us!

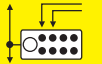
IO-Link

Mechanical multiple position switches BNS Series 100



Type	Series 100 multiple position switch
Output signal	IO-Link
Plunger spacing	12 mm or 16 mm
Mounting and function dimensions	as per DIN 43697
Plunger style	Chisel (D), ball (K), roller (R), roller bearing (L) or chisel plunger with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection	Connectors M12
Ambient temperature range	-5...+85 °C
Degree of protection as per IEC 60529	IP 67
With switch element	BSE 30.0
Ordering code	
Part number	BNS 819-...-...-100-10-FD-S4...
Wiring diagram, style	
Switch element	
Contact material	Silver, gold plated
Switching principle	Snap switch
Contact system	Dual changeover, one normally open and one normally closed, galvanically isolated.
Electrical data	See catalog "The Mechanical Line"
Mechanical data	
Plunger point to reference surface	8 mm
Switching point to reference surface	6 mm
Maximum plunger travel D, K, R, L	5.5 mm
Maximum plunger travel E	4 mm
Switching actuating force on plunger	Min. 20 N
Switching frequency	Max. 300/min
Startup speed	Plunger D 40 m/min Plunger E 30 m/min Plunger K 8 m/min Plunger R 20 m/min Plunger L 120 m/min
Repeatability	Plungers D, E, K ±0.002 mm Plungers R, L ±0.01 mm

IO-Link



Product topology

M8 IO-Link sensor hubs

M12 metal IO-Link sensor hubs

M12 IO-Link sensor hubs

M12 IO-Link sensor hubs

M12 IO-Link sensor hubs

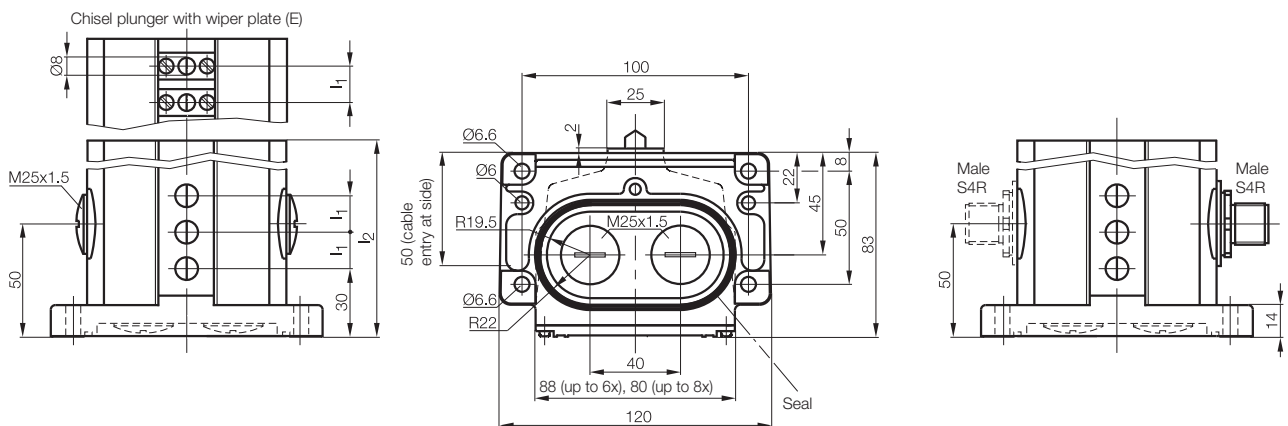
M12 IO-Link sensor hubs

IO-Link sensors

IO-Link master

Accessories

IO-Link	
Mode	COM 2
Transfer rate	38.4 kbaud
Parameter	N.C./N.O.



IO-Link

Mechanical multiple position switches BNS Series 46



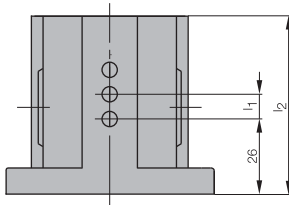
Multiple position switches for standard applications

- Smallest plunger spacing for mechanical multiple position switches (8 mm or 10 mm)
- Dual-chamber system with degree of protection IP 67: wear-free membrane with hermetic sealing of plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing

Multiple position switches with wiper plate

- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

- Simple installation: with M12 connector
- No cable gland needed, factory sealed to IP 67
- Connect in just seconds
- High diagnostic capability through parallel processing of normally open/normally closed signals



Available sizes

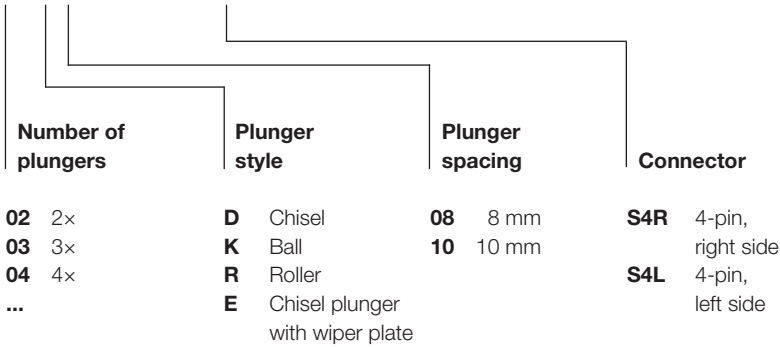
Number of plungers		2	3	4	5	6	8	10
Dimension I ₂ with	Dimension I ₁ = 8 mm	49	59	64	72	80	96	112
	Dimension I ₃	54	54	54	54	54	50	50
	Dimension I ₁ = 10 mm	49	59	72	80	89	112	129
	Dimension I ₃	54	54	54	54	50	50	50

Dimensions in mm

Ordering example:

BNS 819-B04-D08-46-12-FD-S4R-I

BNS 819-B - - - -46-12-FD- - - -I



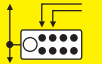
IO-Link

Mechanical multiple position switches BNS Series 46



Type	Series 46 multiple position switch
Output signal	IO-Link
Plunger spacing	8 mm or 10 mm
Plunger style	Chisel (D), ball (K), roller (R), roller bearing (L) or chisel plunger with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection	Connectors M12
Ambient temperature range	-5...+85 °C
Degree of protection as per IEC 60529	IP 67
With switch element	BSE 73
Ordering code	
Part number	BNS 819-B.-...-46-12-FD-S4...
Wiring diagram, style	
Switch element	
Contact material	Gold
Switching principle	Snap switch
Contact system	Single-pin changeover
Connection	Solder
Electrical data	See catalog "The Mechanical Line"
Mechanical data	
Plunger point to reference surface	4 mm
Switching point to reference surface	3.5 mm
Maximum plunger travel	3.5 mm
Switching actuating force on plunger	Min. 8 N
Switching frequency	Max. 200/min
Startup speed	Plungers D, E: 20 m/min (D), 10 m/min (E) Plunger K: 9 m/min Plunger R: 60 m/min
Repeatability	Plungers D, E: ±0.02 mm Plunger K: ±0.03 mm Plunger R: ±0.05 mm

IO-Link



Product topology

M8 IO-Link sensor hubs

M12 metal IO-Link sensor hubs

M12 IO-Link sensor hubs

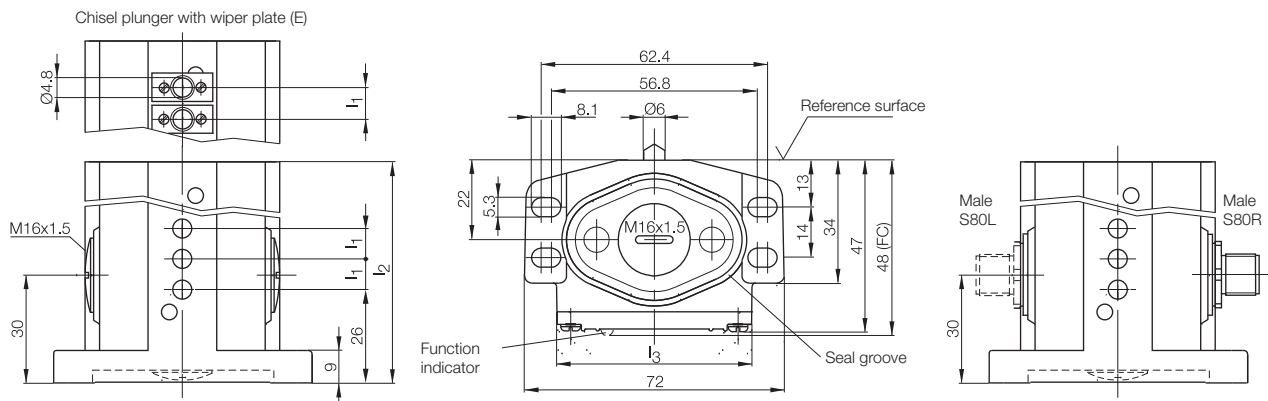
M12 IO-Link master sensor hubs

IO-Link sensors

IO-Link master

Accessories

IO-Link	
Mode	COM 2
Transfer rate	38.4 kbaud
Parameter	N.C./N.O.



IO-Link

Valve terminal connector

The advantages of IO-Link apply here as well. Valve terminal connectors **BNI IOL-750** and **-751** allow you to connect decentrally installed valve terminals and the control level with consummate ease.

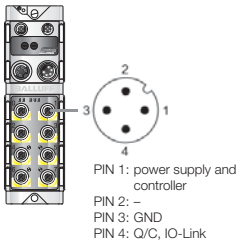
Additional benefits to you:

- **Compact adapter housing**
Direct connection to the valve terminal using minimal space
- **Flexibility**
Compatible with pin configurations from a wide range of valve terminals
- **Optimized cabling**
Connects to the control level using standard 3/4-wire sensor cable
- **Modular**
Control of up to 24 solenoids

Valve terminal connector

Version

Connection to valve terminal for power supply



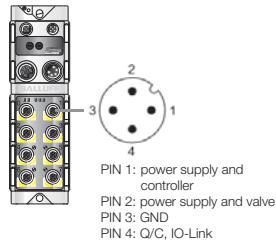
Advantages

For all applications without separate deactivation of the valve power supply.

Power aux valve terminal connector

Version

Separate deactivation of actuators, valve terminals and pneumatic system



Advantages

Pin 1: separate electrical operating voltage for controller
Pin 2: configured as an output and connected to actuator power supply U_a .

Actuator operating voltage can be switched on and off via the controller/PLC.

Preferred for 90% of all applications!

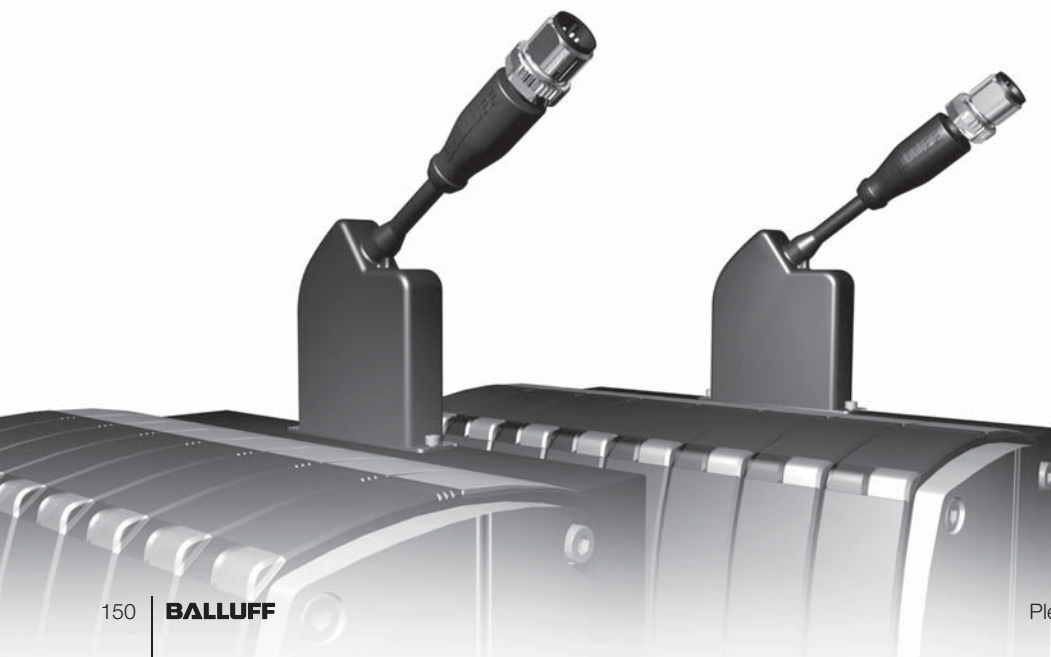


Series	
Output signal	
Interface	
Ordering code	
Part number	
Outputs	
IO-Link process data length	
Cycle time in min.	
Ordering code	
Part number	
Outputs	
IO-Link process data length	
Cycle time in min.	

No. of outputs	
IO-Link	
Cycle time in min.	
Operating temperature	
Storage temperature range	
Housing material	
Dimensions	
Cable length with M12	
Degree of protection	
Error indicator	
Communication indicator	
Power supply U_s	
Total current I_s	
IO-Link port pin assignments (M12, A-coded, male)	

IO-Link

Mode	
Transfer rate	



IO-Link

Valve terminal connector

Festo CPV, Festo MPA,
Bosch Rexroth LS04, HF04



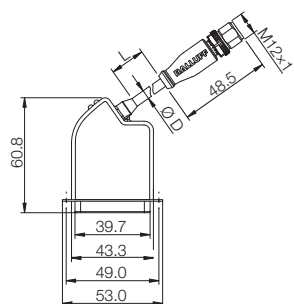
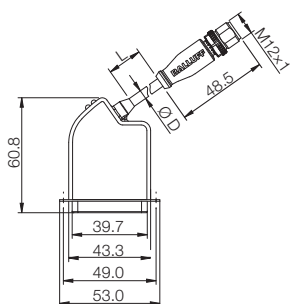
SMC VQC



Valve terminal connector IO-Link	Power aux valve terminal connector IO-Link	Valve terminal connector IO-Link	Power aux valve terminal connector IO-Link
SUB-D 25-pin	SUB-D 25-pin	SUB-D 25-pin	SUB-D 25-pin
BNI001E	BNI001L	BNI001H	BNI001M
BNI IOL-750-V01-K007	BNI IOL-751-V01-K007	BNI IOL-750-V03-K007	BNI IOL-751-V03-K007
24	24	24	24
3 bytes	3 bytes	3 bytes	3 bytes
12 ms	12 ms	12 ms	12 ms
BNI001J	BNI001N	BNI001F	BNI001K
BNI IOL-750-V02-K007	BNI IOL-751-V02-K007	BNI IOL-750-V04-K007	BNI IOL-751-V04-K007
16	16	16	16
2 bytes	2 bytes	2 bytes	2 bytes
3 ms	3 ms	3 ms	3 ms
16	16	24	24
2 bytes	2 bytes	3 bytes	3 bytes
2.5 ms	2.5 ms	10 ms	10 ms
-5...+55 °C	-5...+55 °C	-5...+55 °C	-5...+55 °C
-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Plastic	Plastic	Plastic	Plastic
53×60.8×12.5 mm	53×60.8×12.5 mm	53×60.8×12.5 mm	53×60.8×12.5 mm
60 cm	60 cm	60 cm	60 cm
IP 40	IP 40	IP 40	IP 40
Red LED	Red LED	Red LED	Red LED
Green LED	Green LED	Green LED	Green LED
18...30.2 V DC	18...30.2 V DC	18...30.2 V DC	18...30.2 V DC
1.6 A	1.6 A	1.6 A	1.6 A
Pin 1: Operating voltage +24 V	Pin 1: Operating voltage +24 V controller	Pin 1: Operating voltage +24 V	Pin 1: Operating voltage +24 V controller
Pin 2: -	Pin 2: Operating voltage +24 V power aux	Pin 2: -	Pin 2: Operating voltage +24 V power aux
Pin 3: GND, reference potential	Pin 3: GND, reference potential	Pin 3: GND, reference potential	Pin 3: GND, reference potential
Pin 4: Q/C, IO-Link	Pin 4: Q/C, IO-Link	Pin 4: Q/C, IO-Link	Pin 4: Q/C, IO-Link
Pin 5: Function ground	Pin 5: Function ground	Pin 5: Function ground	Pin 5: Function ground
COM 2	COM 2	COM 2	COM 2
38.4 kbaud	38.4 kbaud	38.4 kbaud	38.4 kbaud



Product topology
M8 IO-Link sensor hubs
M12 metal IO-Link sensor hubs
M12 IO-Link sensor hubs
IO-Link sensors
IO-Link master
Accessories



IO-Link

Pressure sensors

Balluff pressure sensors with IO-Link interface reduce your costs and increase your added value in the production process

■ **exactly measured value acquisition**

with a long-term stable ceramic cell

■ **easy parameter configuration**

via the system's central operating device

■ **free selection of the installation location**

in the system saves costs

■ **advanced diagnostic options**

compared to standard pressure sensors

■ **high reliability**

of data transmission

IO-Link pressure sensor

with reliable 10-bit digital data transmission. The sensor also provides two freely programmable switching points in the IO-Link process data.

Configurable settings

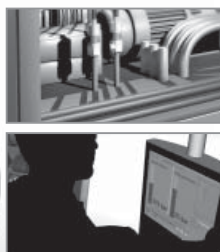
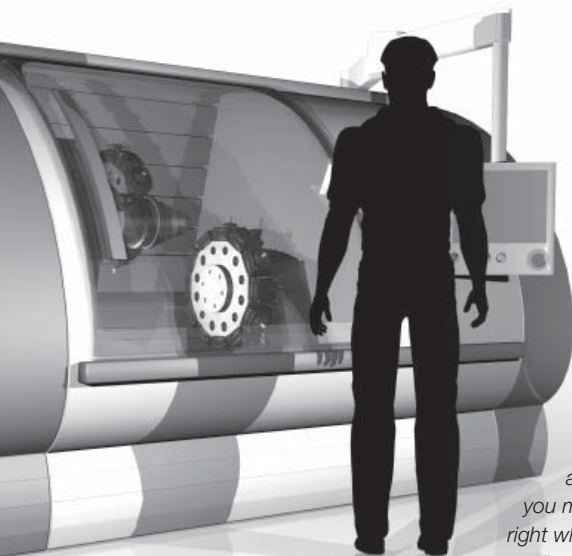
- Switching point 1
- Switching point 2
- Switching point delay 1
- Switching point delay 2
- Pressure unit (bar/psi)



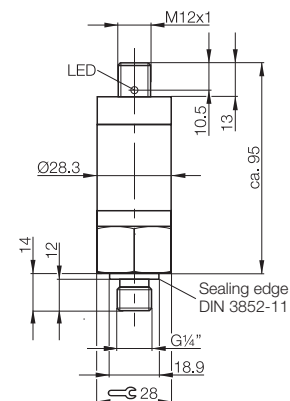
Series	BSP pressure sensors	
Output signal	IO-Link	
Pressure ranges	10...600 bar	
0...10 bar	Ordering code	BSP0001
	Part number	BSP B010-DV001-IO1A0A-S4
0...50 bar	Ordering code	BSP0003
	Part number	BSP B050-DV001-IO1A0A-S4
0...100 bar	Ordering code	BSP0005
	Part number	BSP B100-DV001-IO1A0A-S4
0...200 bar	Ordering code	BSP0007
	Part number	BSP B200-DV001-IO1A0A-S4
0...400 bar	Ordering code	BSP0009
	Part number	BSP B400-DV001-IO1A0A-S4
0...600 bar	Ordering code	BSP000C
	Part number	BSP B600-DV001-IO1A0A-S4
Degree of protection as per IEC 60529	IP 67	
Process connection	G1/4 AG	
Weight	Approx. 200 g	
Measuring range	0...10 bar	
	0...50 bar	
	0...100 bar	
	0...200 bar	
	0...400 bar	
	0...600 bar	
Resolution	10 bits	
Sampling rate	2 ms	
Connection	M12x1 connector, 4-pin	
Media-contacting materials	Stainless steel 1.4301, AL302, fluoroelastomer	
Electronics housing materials	Stainless steel 1.4301	
Seal materials	Fluoroelastomer	
Medium temperature range	-25...+100 °C	
Electronics temperature range	-25...+70 °C	
Operating voltage	15...32 V DC	

IO-Link

Mode	COM 2
Transfer rate	38.4 kbaud



Pressure sensors are found in many mechanical engineering applications. IO-Link sensors save you money through simple installation right where the action is happening, fast configuration and reliable monitoring of the equipment while you benefit from advanced diagnostics capabilities.



IO-Link

USB IO-Link master

more added value
Customized components for
quick and easy IO-Link installation!

Test and configure IO-Link devices using the **IO-Link Master Tool**.

Released from the controller, you can now operate an IO-Link, access process parameters and import all service parameters. The USB port allow for simple connection to a laptop and software makes operation easy.

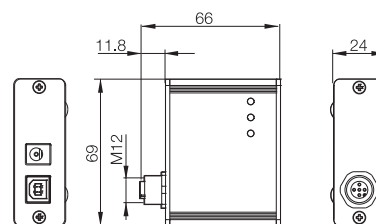
Operating voltage for the IO-Link devices is provided directly via the USB port. An external power supply can be connected if required.



Network	USB
IO-Link	1 × master
Ordering code	BNI
Part number	BNI USB-901-000-A501
Power indicator	Green LED
Connection: network	USB B female
Connection: operating voltage	DC-9, 2.1 mm
Connection: IO-Link port	M12, A-coded
No. of IO-Link ports	1
Max. load current for IO-Link port	50 mA via USB/1.6 A via external power supply
USB status indicator	Green LED
Error diagnostic indicator	Red LED
Degree of protection as per IEC 60529	IP 40 (when attached)
Operating temperature T _a	-5...+55 °C
Storage temperature range	-25...+70 °C
Weight	Approx. 96 g
Mounting	None
Dimensions (L×W×H)	70×55×25 mm
Housing material	Al






IO-Link

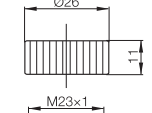
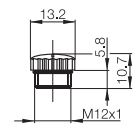
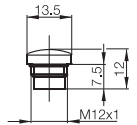
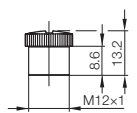
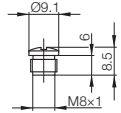
IO-Link	Master
Operating mode	SIO, COM 1, COM 2, COM 3
Communication indicator	Green LED

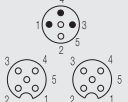
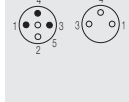
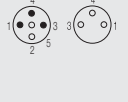


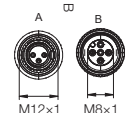
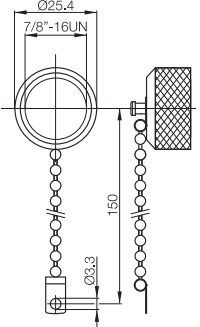
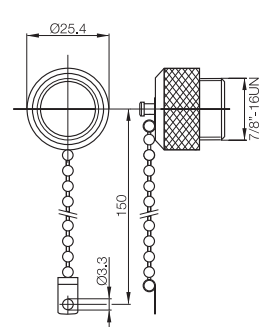
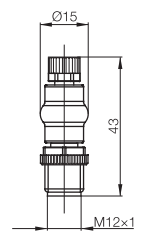
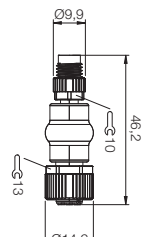
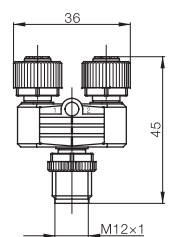
Product topology
M8 IO-Link sensor hubs
M12 metal IO-Link sensor hubs
M12 IO-Link sensor hubs
IO-Link sensors
IO-Link master
Accessories

more added value
Customized components for
quick and easy IO-Link installation!

					
Description	M8 screw plug	M12 screw plug	M12 screw plug	M12 screw plug	M23 screw plug
Version	IP 65 screw plug for unused ports	IP 65 screw plug for unused ports	IP 65 screw plug for unused ports	IP 65 screw plug for unused ports	IP 65 screw plug for unused ports
Ordering code	BAM01C1	BAM01C2	BAM0114	BAM0115	BAM012P
Part number	BAM CS-XA-001-M8-C	BAM CS-XA-002-M12-A	BKS 12-CS-01	BKS 12-CS-02	BKS 23-CS-00
Ambient temperature T_a	-20...+80 °C	-20...+80 °C	-20...+80 °C	-20...+80 °C	-20...+80 °C
Housing material	Plastic	Plastic	Nickel-plated brass	PA 6	Nickel-plated brass

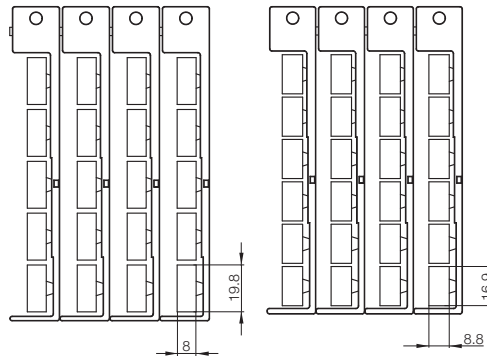


View of female/male side					
Description	Tee	Adapter	Adapter	Screw plug 7/8"	Screw plug 7/8"
Version	M12 male to M12 female 2x2 signals to one port	M8 male 3-pin to M12 female 3-pin	M12 male 3-pin to M8 female 3-pin	Cover for the power ports	Cover for the power ports
Ordering code	BCC02CL	BCC007W	BCC02CK		
Part number	BKS-S4-TM1-01	BKS-S49-GM1/S4	BKS-S4-GM1-01/S49	BKS-7/8-CS-00-A	BKS-7/8-CS-00-I
Power supply U_B	Max. 24 V DC	Max. 24 V DC	Max. 24 V DC		
Rated operating current I_B	Max. 4 A per contact	Max. 4 A per contact	Max. 4 A per contact		
Degree of protection as per IEC 60529	IP 67	IP 67	IP 67		
Ambient temperature range T_a	-25...+90 °C	-25...+85 °C	-25...+85 °C	-20...+80 °C	-20...+80 °C
Housing material	Nickel-plated Gd-Zn	Nickel-plated Gd-Zn	Nickel-plated Gd-Zn	Nickel-plated brass	Nickel-plated brass





Description	Marking sleeve	Label set	Label set	
Version	For labeling connectors	Port labels for sensor hub BNI IOL...Z012, BNI IOL...Z013	Port labels for sensor hub BNI IOL...K006, BNI IOL...K018, BNI IOL...K021	
Ordering code		BAM01AT	BAM	
Part number	BAM IA-CC-002-01	BNI ACC-L01-000	BSB ZM01-L01-000	
Housing material		Plastic	Plastic	



Product topology
M8 IO-Link sensor hubs
M12 metal IO-Link sensor hubs
M12 IO-Link sensor hubs
IO-Link sensors
IO-Link master

Accessories



3-wire BCC connector, see chapter Connectors and Connection Cables beginning on **page 246!**

