

BALLUFF

sensors worldwide

BSP Pressure Sensors

Reliable solutions for the automation industry



395.9 PSI
27.3

bar





As the leading sensor specialist and system provider with more than 90 years of company tradition, Balluff GmbH has been a recognized partner in factory automation for decades. With 56 locations, Balluff has a strong presence on every continent. The corporate headquarters in Neuhausen a.d.F. is located near Stuttgart.

Balluff masters the entire technological variety with various operating principles, including high-quality sensors and systems for position measurement and identification, as well as sensors for detecting objects and measuring fluids. The full-range assortment includes optimal network and connection technology and a comprehensive line of accessory products.

We offer innovative, first-class products tested in our own accredited laboratory, and maintain certified quality management in accordance with DIN EN 9001:2008. Our technology speaks for itself in international applications since it also meets regional standards.

Balluff stands for application-specific customer solutions, comprehensive services, individual consultation and prompt service. Our staff of more than 2450 employees is committed to providing outstanding service worldwide.

**Advanced technology,
individual solutions: high
quality for greater efficiency.**



IO-Link

BSP pressure sensors from Balluff were designed for measuring the pressure of gases and liquids. By means of a rotatable housing and two buttons for programming, the sensors are flexible to install and easy to operate. The bright LED display makes it possible to read the current system pressure quickly at all times.

BSP Pressure Sensors

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Industrial Networking and Connectivity – A Selection

For additional products, refer to our catalog
Industrial Networking and Connectivity – System Technology

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Accessories – A Selection

For additional products, refer to our catalog:
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Reliability for Process Technology

BSP Pressure Sensors guarantee a consistently high product quality

Process technology is becoming increasingly more important in factory automation. Monitoring of process media such as cooling lubricants, hydraulic oils, and pneumatic systems has an important influence on the manufacturing quality.

- Save space when positioning the versatile sensor – the exceptionally compact sensor has independently rotating display and connection housings.
- View the system pressure at a glance – Balluff pressure sensors have a large, bright illuminated LED display.
- Clear menu navigation for the quick and easy adjustment of pressure parameters – configure the sensor using two buttons in line with VDMA standards.
- Also suitable for harsh industrial applications – Balluff offers high-end versions in a high-quality, rugged stainless steel housing with IP 67 degree of protection.
- Reliable operation of your plants even under demanding conditions (pressure peaks) – reliable ceramic measuring cells with long-term stability guarantee a long service life.
- Simple installation with globally standardized screw fittings – process connection via a G¼" internal thread and adapter available in different sizes and versions.
- Find the right sensor for your application – Balluff offers versions with two switching points or with one switching point and one analog output.
- Secure interference-free operation for your plant – Balluff pressure sensors can be protected from unauthorized access by a password.

Version	Standard version	High-end version	Flush-mounted variants	Compact transmitter
From page	12	16	20	22
Housing material				
Plastic	■			
Stainless steel		■	■	■
Special properties				
Connection via IO-Link is possible 	■	■		
Compact versions without a display				■
Standard temperature range –25...+85 °C	■			
Extended temperature range –40...+85 °C		■	■	■
Display housing rotates by 320°	■	■	■	
M12 connector rotates by 320°	■	■	■	
Detects pasty and sticky media			■	
Applications				
Hydraulics	■	■		■
Pneumatics	■	■		■
Machine tools	■	■	■	■
Plastics technology	■	■	■	■
Packaging machines	■	■	■	■
Wind power plants		■		■
Off-shore		■		■
Chemical industry	■		■	

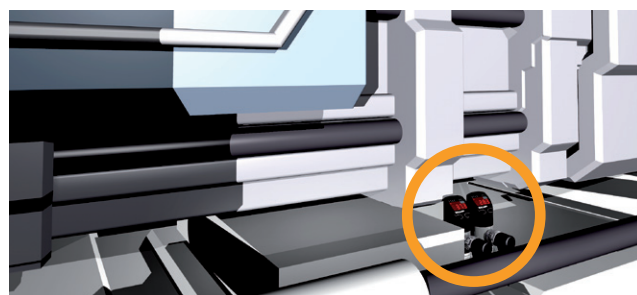
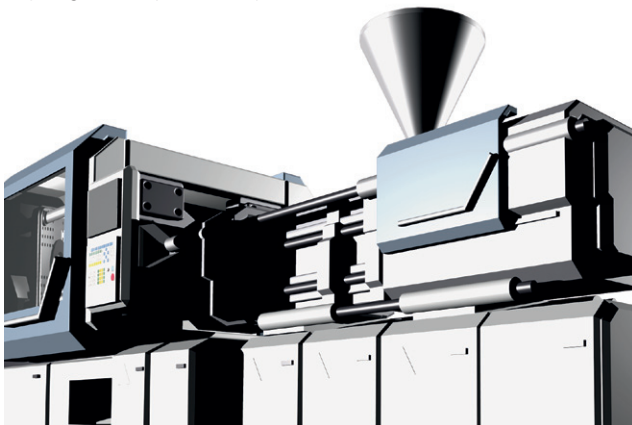


For a Wide Variety of Applications

BSP pressure sensors combine the advantages of displays, measuring transducers and pressure switches

Holding pressure switchover on injection molding machines

Balluff BSP pressure sensors measure the hydraulic pressure of the screw drive in order to regulate the switchover point between the injection and holding pressure systems. Controlling this parameter with a high degree of precision is crucial to achieving the dimensional accuracy and quality of the products manufactured. A pressure sensor BSP with analog output monitors the available hydraulic pressure in order to control the process accurately while achieving a satisfactory degree of reproducibility.



Benefits

- Switching point and analog output (0...10 V or 4...20 mA)
- IP 67 degree of protection
- Consistent quality of workpieces

Monitoring of cooling lubricant in machine tools

The pressure in the coolant supply system must be monitored continually to guarantee the consistently high surface quality of machined workpieces. BSP pressure sensors can monitor the pressure level and shut down the machine within a few milliseconds if the system pressure exceeds the defined limits.



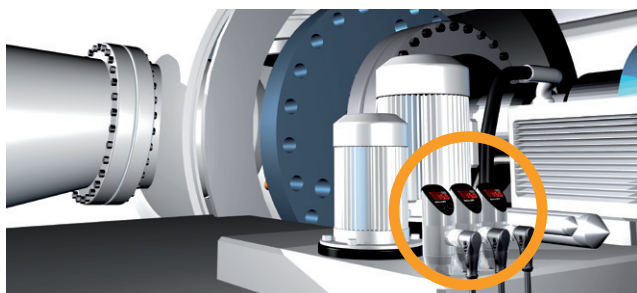
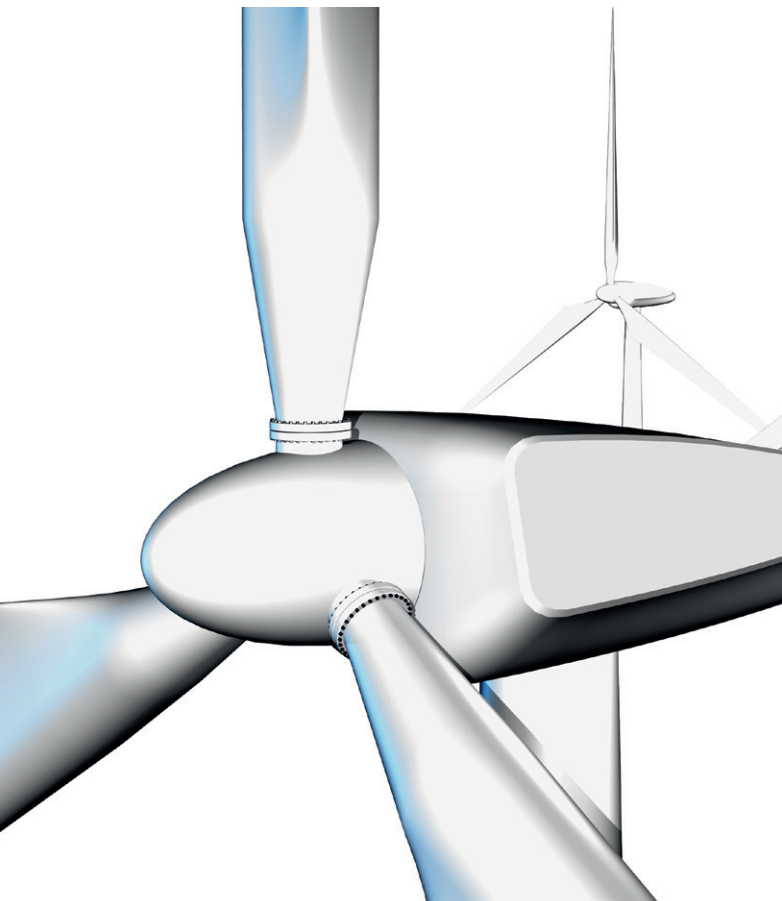
Benefits

- Ceramic measuring cells offer long term stability
- Display is easy to read
- Reliable machine operation



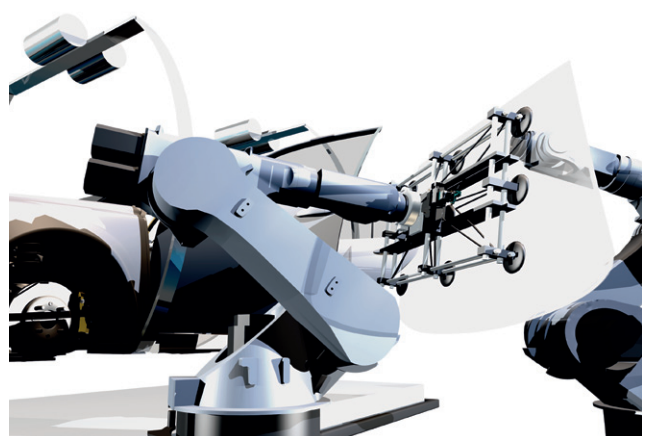
Central hydraulic unit in wind power plants

Many central systems in a wind power plant, such as the pitch control and braking system, are operated hydraulically. The high-end version of the BSP measures the actual system pressure reliably, even under harsh ambient conditions. The pump motor can be controlled directly via two programmable switching points to prevent the oil pressure from exceeding or falling below the optimum level.



Vacuum grippers in handling and conveyor systems

Vacuum grippers are used for a wide variety of material handling tasks. The grippers must be able to adapt to different materials and workpieces and operate continuously without error. BSP pressure sensors perform convincingly in the vacuum pressure range. They monitor the pressure of the vacuum suction cups and thereby ensure reliable gripping.



Benefits

- Compact design
- Simple startup
- Vacuum sensors up to -1 bar relative pressure

Benefits

- Extended temperature range down to -40 °C
- Two programmable switching points
- Increased system availability

Pressure Sensors with IO-Link – Right Where the Action Is

Pressure monitoring in production

Achieving the best results on a lathe requires a reliable grip on the workpiece and the tool. Pressure sensors for monitoring clamping pressure are used to ensure this function. They are also ideally suited for monitoring process media such as coolants, lubricants, hydraulic fluids and pneumatic components.

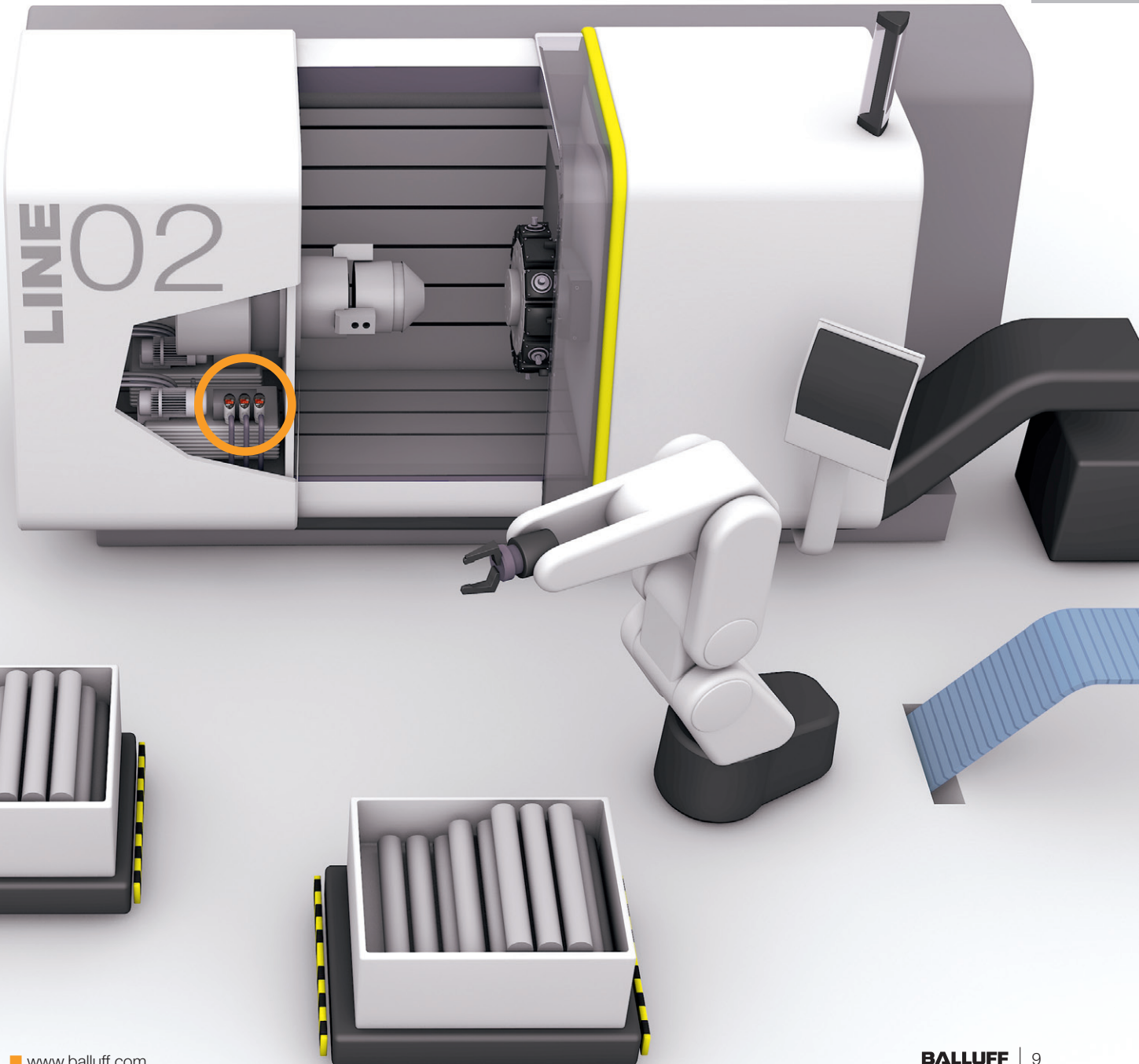
IO-Link pressure sensors continuously relay their measured values and data to the controller and let it provide precise readjustment when necessary. IO-Link pressure sensors ensure the highest machine availability. Replacing sensors is possible with simple plug-and-play, since the configuration of the replaced sensor is automatically taken from the IO-Link master.

A further benefit

The parameters for IO-Link pressure sensors can be configured using the controller, meaning that they can be installed right where the action is, even at hard-to-reach locations. In the best position for measurements and perfectly matched to the machine design. This ensures quick and precise results. And it saves on costs, since complex mechanical installations of hydraulic lines can be reduced to a minimum.



IO-Link pressure
sensor





BSP Pressure Sensors

BSP Pressure Sensors

Balluff pressure sensors monitor pressures of gaseous and fluid media; they can also be used in a variety of ways in factory automation. For this reason, standard and complex applications can be easily solved with them. Moreover, they feature an especially high degree of user-friendliness and an impressive price/performance ratio.



BSP Pressure Sensors

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Basic information and definitions can be found on **page 38**.



BSP Pressure Sensors

Standard sensors

Pressure sensors for standard applications offer an impressive price/performance ratio and are suitable for a wide variety of applications in factory automation. A large display and a simple operating concept in line with VDMA saves you time when configuring the sensors. Save space when installing the versatile pressure sensors. The display and electrical output can be rotated independently of the flange.

Additional advantages

- A compact housing design
- Local pressure display
- Binary switching outputs
- Analog output signals



Pressure sensors are found in many mechanical engineering applications. Different versions with switching points, an analog output and various pressure ranges mean you are guaranteed to find the right sensor for your application.



PNP pressure sensors

-1...2 bar (-14.5...29 psi)	Ordering code	
	Part number	
-1...10 bar (-14.5...145 psi)	Ordering code	
	Part number	
0...2 bar (0...29 psi)	Ordering code	
	Part number	
0...5 bar (0...73 psi)	Ordering code	
	Part number	
0...10 bar (0...145 psi)	Ordering code	
	Part number	
0...20 bar (0...290 psi)	Ordering code	
	Part number	
0...50 bar (0...725 psi)	Ordering code	
	Part number	
0...100 bar (0...1450 psi)	Ordering code	
	Part number	
0...250 bar (0...3626 psi)	Ordering code	
	Part number	
0...400 bar (0...5802 psi)	Ordering code	
	Part number	
0...600 bar (0...8702 psi)	Ordering code	
	Part number	
Supply voltage U_B		
Output current max.		
No-load supply current I_0 max.		
Switching frequency f max.		
Accuracy		
Temperature error		
Polarity reversal protected/short-circuit protected		
Ambient/media temperature		
Display/function indicators		
Degree of protection per IEC 60529		
Material	Housing	
	Measuring cell	
	Seal	
Connection	Plug connector	
	Process connection	

Wiring diagrams see page 44.

NPN variants

All sensors are also available as NPN variants. Please contact our technical service department by **phone +49 7158 173-777** or e-mail: **tsm@balluff.de**

Design	Relative nominal pressure	Overload pressure	Burst pressure \geq	Permitted vacuum
-1...2 bar	2 bar	4 bar	10 bar	Vacuum-proof
-1...10 bar	10 bar	20 bar	35 bar	
0...2 bar	2 bar	4 bar	10 bar	
0...5 bar	5 bar	10 bar	15 bar	
0...10 bar	10 bar	20 bar	35 bar	
0...20 bar	20 bar	40 bar	75 bar	
0...50 bar	50 bar	100 bar	150 bar	
0...100 bar	100 bar	200 bar	250 bar	
0...250 bar	250 bar	400 bar	450 bar	
0...400 bar	400 bar	650 bar	700 bar	
0...600 bar	600 bar	750 bar	800 bar	

BSP Pressure Sensors

Standard sensors



Two programmable switching points (NO or NC)



One programmable switching point and analog output 0...10 V DC

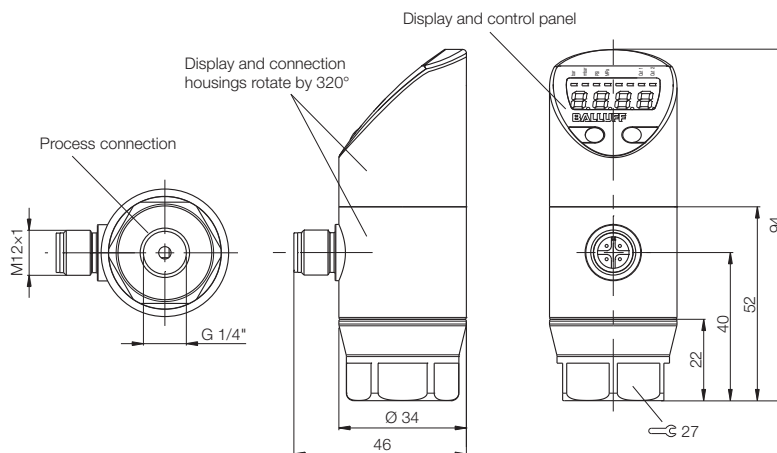


One programmable switching point and analog output 4...20 mA



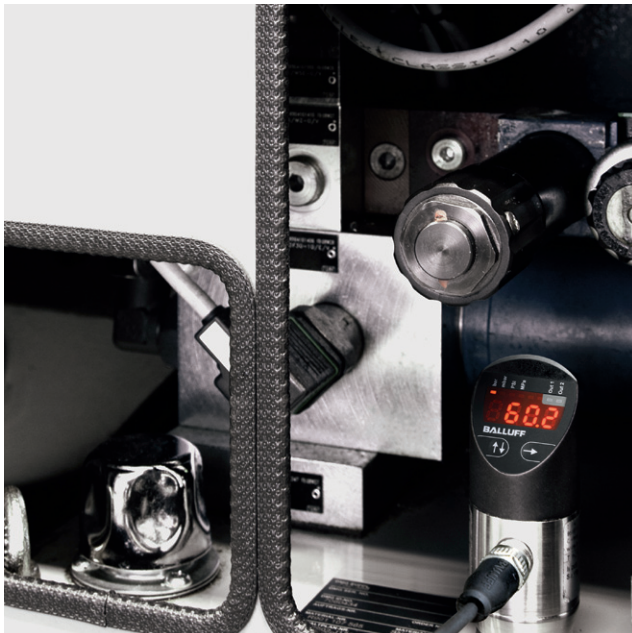
BSP Pressure Sensors
Standard sensors
Standard sensors with IO-Link
High-end sensors
High-end sensors with IO-Link
Flush-mounted high-end sensors
Pressure transmitters
Special pressure Sensors
Calibration

	BSP004F	BSP004J	BSP004L
	BSP V002-EV002-D00A0B-S4	BSP V002-EV002-D00A0B-S4	BSP V002-EV002-D00A0B-S4
	BSP004H	BSP004K	BSP004M
	BSP V010-EV002-D00A0B-S4	BSP V010-EV002-A00A0B-S4	BSP V010-EV002-A02A0B-S4
	BSP000F	BSP000T	BSP0014
	BSP B002-EV002-D00A0B-S4	BSP B002-EV002-A00A0B-S4	BSP B002-EV002-D00A0B-S4
	BSP000H	BSP000U	BSP0015
	BSP B005-EV002-D00A0B-S4	BSP B005-EV002-D00A0B-S4	BSP B005-EV002-A02A0B-S4
	BSP000J	BSP000W	BSP0016
	BSP B010-EV002-D00A0B-S4	BSP B010-EV002-A00A0B-S4	BSP B010-EV002-A02A0B-S4
	BSP000K	BSP000Y	BSP0017
	BSP B020-EV002-D00A0B-S4	BSP B020-EV002-A00A0B-S4	BSP B020-EV002-D00A0B-S4
	BSP000L	BSP000Z	BSP0018
	BSP B050-EV002-D00A0B-S4	BSP B050-EV002-A00A0B-S4	BSP B050-EV002-A02A0B-S4
	BSP000M	BSP0010	BSP0019
	BSP B100-EV002-D00A0B-S4	BSP B100-EV002-A00A0B-S4	BSP B100-EV002-D00A0B-S4
	BSP000N	BSP0011	BSP001A
	BSP B250-EV002-D00A0B-S4	BSP B250-EV002-A00A0B-S4	BSP B250-EV002-A02A0B-S4
	BSP000P	BSP0012	BSP001C
	BSP B400-EV002-D00A0B-S4	BSP B400-EV002-A00A0B-S4	BSP B400-EV002-A02A0B-S4
	BSP000R	BSP0013	BSP001E
	BSP B600-EV002-D00A0B-S4	BSP B600-EV002-D00A0B-S4	BSP B600-EV002-A02A0B-S4
	18...36 V DC	18...36 V DC	18...36 V DC
	500 mA	500 mA	500 mA
	≤ 50 mA	≤ 50 mA	≤ 50 mA
	200 Hz	200 Hz	200 Hz
	≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL
	≤ ±0.3 % FSO/10 K	≤ ±0.3 % FSO/10 K	≤ ±0.3 % FSO/10 K
	Yes/Yes	Yes/Yes	Yes/Yes
	-25...+85 °C/-25...+125 °C	-25...+85 °C/-25...+125 °C	-25...+85 °C/-25...+125 °C
	7-segment display/LED	7-segment display/LED	7-segment display/LED
	IP 67 (when screwed into place)	IP 67 (when screwed into place)	IP 67 (when screwed into place)
	PA 6.6 and stainless steel	PA 6.6 and stainless steel	PA 6.6 and stainless steel
	Ceramic	Ceramic	Ceramic
	Fluoroelastomer	Fluoroelastomer	Fluoroelastomer
	M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin
	Internal thread G $\frac{1}{4}$ " per DIN EN 3852	Internal thread G $\frac{1}{4}$ " per DIN EN 3852	Internal thread G $\frac{1}{4}$ " per DIN EN 3852



Standard pressure sensors with IO-Link can be positioned in the machine right where the action is from a process technology standpoint. That is because the accessibility of the sensors loses its significance through IO-Link. Process monitoring, configuration and error analysis of the IO-Link devices now take place in the controller and this way processes are optimized chronologically. Signal delays and distortions are eliminated reliably. Digital transmission of data also ensures high signal quality.

- **Reduced downtimes:**
Simple sensor replacement with plug-and-play
- **Maximum flexibility:**
System conversion during ongoing operation
- **Simple commissioning:**
Complete parameter sets can be duplicated using IO-Link
- **In-process diagnostics:**
Process data and errors are reported directly to the controller via IO-Link



PNP pressure sensors

-1...2 bar (-14.5...29 psi)	Ordering code	
	Part number	
-1...10 bar (-14.5...145 psi)	Ordering code	
	Part number	
0...2 bar (0...29 psi)	Ordering code	
	Part number	
0...5 bar (0...73 psi)	Ordering code	
	Part number	
0...10 bar (0...145 psi)	Ordering code	
	Part number	
0...20 bar (0...290 psi)	Ordering code	
	Part number	
0...50 bar (0...725 psi)	Ordering code	
	Part number	
0...100 bar (0...1450 psi)	Ordering code	
	Part number	
0...250 bar (0...3626 psi)	Ordering code	
	Part number	
0...400 bar (0...5802 psi)	Ordering code	
	Part number	
0...600 bar (0...8702 psi)	Ordering code	
	Part number	
Supply voltage U_B		
Output current max.		
No-load supply current I_0 max.		
Switching frequency f max.		
Accuracy		
Temperature error		
Polarity reversal protected/short-circuit protected		
Ambient/media temperature		
Display/function indicators		
Degree of protection per IEC 60529		
Material	Housing	
	Measuring cell	
	Seal	
Connection	Plug connector	
	Process connection	

Wiring diagrams see page 44.

NPN variants

All sensors are also available as NPN variants. Please contact our technical service department by **phone +49 7158 173-777** or e-mail: **tsm@balluff.de**

Design	Relative nominal pressure	Overload pressure	Burst pressure \geq	Permitted vacuum
-1...2 bar	2 bar	4 bar	10 bar	Vacuum-proof
-1...10 bar	10 bar	20 bar	35 bar	
0...2 bar	2 bar	4 bar	10 bar	
0...5 bar	5 bar	10 bar	15 bar	
0...10 bar	10 bar	20 bar	35 bar	
0...20 bar	20 bar	40 bar	75 bar	
0...50 bar	50 bar	100 bar	150 bar	
0...100 bar	100 bar	200 bar	250 bar	
0...250 bar	250 bar	400 bar	450 bar	
0...400 bar	400 bar	650 bar	700 bar	
0...600 bar	600 bar	750 bar	800 bar	

BSP Pressure Sensors

Standard sensors with IO-Link



IO-Link
Two programmable switching points (NO or NC)



IO-Link
One programmable switching point and analog output 0...10 V DC

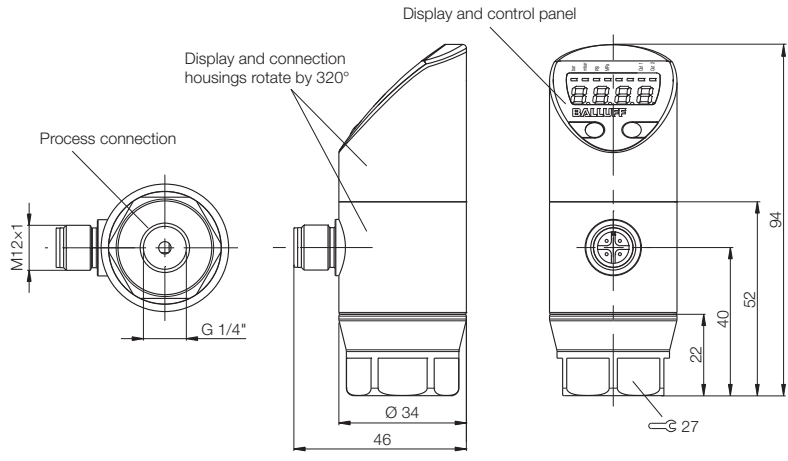


IO-Link
One programmable switching point and analog output 4...20 mA



BSP Pressure Sensors
Standard sensors
Standard sensors with IO-Link
High-end sensors
High-end sensors with IO-Link
Flush-mounted high-end sensors
Pressure transmitters
Special pressure Sensors
Calibration

	BSP0086	BSP008L	BSP0091
	BSP V002-EV002-D00S1B-S4	BSP V002-EV002-A00S1B-S4	BSP V002-EV002-A02S1B-S4
	BSP0087	BSP008M	BSP0092
	BSP V010-EV002-D00S1B-S4	BSP V010-EV002-A00S1B-S4	BSP V010-EV002-A02S1B-S4
	BSP0088	BSP008N	BSP0093
	BSP B002-EV002-D00S1B-S4	BSP B002-EV002-A00S1B-S4	BSP B002-EV002-A02S1B-S4
	BSP0089	BSP008P	BSP0094
	BSP B005-EV002-D00S1B-S4	BSP B005-EV002-A00S1B-S4	BSP B005-EV002-A02S1B-S4
	BSP008A	BSP008R	BSP0095
	BSP B010-EV002-D00S1B-S4	BSP B010-EV002-A00S1B-S4	BSP B010-EV002-A02S1B-S4
	BSP008C	BSP008T	BSP0096
	BSP B020-EV002-D00S1B-S4	BSP B020-EV002-A00S1B-S4	BSP B020-EV002-A02S1B-S4
	BSP008E	BSP008U	BSP0097
	BSP B050-EV002-D00S1B-S4	BSP B050-EV002-A00S1B-S4	BSP B050-EV002-A02S1B-S4
	BSP008F	BSP008W	BSP0098
	BSP B100-EV002-D00S1B-S4	BSP B100-EV002-A00S1B-S4	BSP B100-EV002-A02S1B-S4
	BSP008H	BSP008Y	BSP0099
	BSP B250-EV002-D00S1B-S4	BSP B250-EV002-A00S1B-S4	BSP B250-EV002-A02S1B-S4
	BSP008J	BSP008Z	BSP009A
	BSP B400-EV002-D00S1B-S4	BSP B400-EV002-A00S1B-S4	BSP B400-EV002-A02S1B-S4
	BSP008K	BSP0090	BSP009C
	BSP B600-EV002-D00S1B-S4	BSP B600-EV002-A00S1B-S4	BSP B600-EV002-A02S1B-S4
	18...36 V DC	18...36 V DC	18...36 V DC
	500 mA	500 mA	500 mA
	≤ 50 mA	≤ 50 mA	≤ 50 mA
	200 Hz	200 Hz	200 Hz
	≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL
	≤ ±0.3 % FSO/10 K	≤ ±0.3 % FSO/10 K	≤ ±0.3 % FSO/10 K
	Yes/Yes	Yes/Yes	Yes/Yes
	-25...+85 °C/-25...+125 °C	-25...+85 °C/-25...+125 °C	-25...+85 °C/-25...+125 °C
	7-segment display/LED	7-segment display/LED	7-segment display/LED
	IP 67 (when screwed into place)	IP 67 (when screwed into place)	IP 67 (when screwed into place)
	PA 6.6 and stainless steel	PA 6.6 and stainless steel	PA 6.6 and stainless steel
	Ceramic	Ceramic	Ceramic
	Fluoroelastomer	Fluoroelastomer	Fluoroelastomer
	M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin
	Internal thread G $\frac{1}{4}$ " per DIN EN 3852	Internal thread G $\frac{1}{4}$ " per DIN EN 3852	Internal thread G $\frac{1}{4}$ " per DIN EN 3852



BSP Pressure Sensors

High-end sensors

Pressure sensors for harsh applications are designed for demanding requirements and extended temperature ranges. Therefore high-end pressure sensors are excellent for harsh environments. The compact housing is manufactured entirely from rugged stainless steel. Parameters are configured quickly and easily in line with VDMA standards.

Typical areas of application

- Wind power plants
- Off-shore
- Refrigeration and air-conditioning systems



The high-end version of the BSP pressure sensors is enclosed in a two-way rotary housing for easier installation. Position the cable outlet as shown in the machine layout and turn the display in your viewing direction.



PNP pressure sensors

-1...2 bar (-14.5...29 psi)	Ordering code	
	Part number	
-1...10 bar (-14.5...145 psi)	Ordering code	
	Part number	
0...2 bar (0...29 psi)	Ordering code	
	Part number	
0...5 bar (0...73 psi)	Ordering code	
	Part number	
0...10 bar (0...145 psi)	Ordering code	
	Part number	
0...20 bar (0...290 psi)	Ordering code	
	Part number	
0...50 bar (0...725 psi)	Ordering code	
	Part number	
0...100 bar (0...1450 psi)	Ordering code	
	Part number	
0...250 bar (0...3626 psi)	Ordering code	
	Part number	
0...400 bar (0...5802 psi)	Ordering code	
	Part number	
0...600 bar (0...8702 psi)	Ordering code	
	Part number	
Supply voltage U_S		
Output current max.		
No-load supply current I_0 max.		
Switching frequency f max.		
Accuracy		
Temperature error		
Polarity reversal protected/short-circuit protected		
Ambient/media temperature		
Display/function indicators		
Degree of protection per IEC 60529		
Material	Housing	
	Measuring cell	
	Seal	
Connection	Plug connector	
	Process connection	

Wiring diagrams see page 44.

NPN variants

All sensors are also available as NPN variants. Please contact our technical service department by **phone +49 7158 173-777** or e-mail: **tsm@balluff.de**

Design	Relative nominal pressure	Overload pressure	Burst pressure \geq	Permitted vacuum
-1...2 bar	2 bar	4 bar	10 bar	Vacuum-proof
-1...10 bar	10 bar	20 bar	35 bar	
0...2 bar	2 bar	4 bar	10 bar	
0...5 bar	5 bar	10 bar	15 bar	
0...10 bar	10 bar	20 bar	35 bar	
0...20 bar	20 bar	40 bar	75 bar	
0...50 bar	50 bar	100 bar	150 bar	
0...100 bar	100 bar	200 bar	250 bar	
0...250 bar	250 bar	400 bar	450 bar	
0...400 bar	400 bar	650 bar	700 bar	
0...600 bar	600 bar	750 bar	800 bar	

BSP Pressure Sensors

High-end sensors



Two programmable switching points (NO or NC)



One programmable switching point and analog output 0...10 V DC

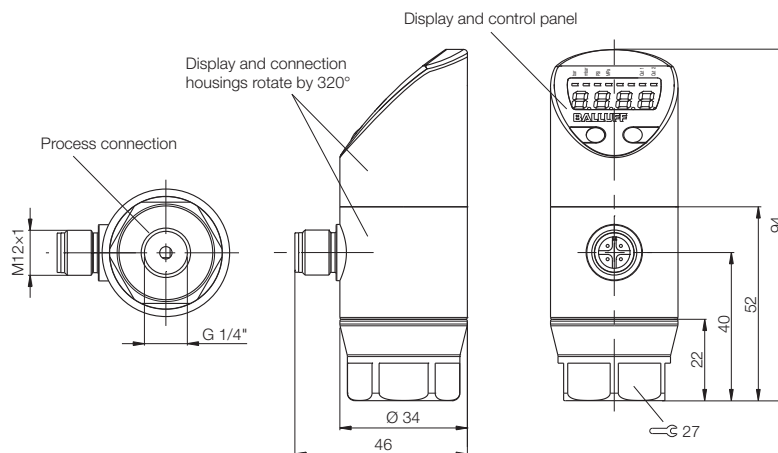


One programmable switching point and analog output 4...20 mA



BSP Pressure Sensors
Standard sensors
Standard sensors with IO-Link
High-end sensors
High-end sensors with IO-Link
Flush-mounted high-end sensors
Pressure transmitters
Special pressure Sensors
Calibration

	BSP004Y	BSP0050	BSP0052
	BSP V002-EV003-D00A0B-S4	BSP V002-EV003-A00A0B-S4	BSP V002-EV003-A02A0B-S4
	BSP004Z	BSP0051	BSP0053
	BSP V010-EV003-D00A0B-S4	BSP V010-EV003-A00A0B-S4	BSP V010-EV003-A02A0B-S4
	BSP0021	BSP002A	BSP002N
	BSP B002-EV003-D00A0B-S4	BSP B002-EV003-A00A0B-S4	BSP B002-EV003-A02A0B-S4
	BSP0022	BSP002C	BSP002P
	BSP B005-EV003-D00A0B-S4	BSP B005-EV003-A00A0B-S4	BSP B005-EV003-A02A0B-S4
	BSP0023	BSP002E	BSP002R
	BSP B010-EV003-D00A0B-S4	BSP B010-EV003-A00A0B-S4	BSP B010-EV003-A02A0B-S4
	BSP0024	BSP002F	BSP002T
	BSP B020-EV003-D00A0B-S4	BSP B020-EV003-A00A0B-S4	BSP B020-EV003-A02A0B-S4
	BSP0025	BSP002H	BSP002U
	BSP B050-EV003-D00A0B-S4	BSP B050-EV003-A00A0B-S4	BSP B050-EV003-A02A0B-S4
	BSP0026	BSP002J	BSP002W
	BSP B100-EV003-D00A0B-S4	BSP B100-EV003-A00A0B-S4	BSP B100-EV003-A02A0B-S4
	BSP0027	BSP002K	BSP002Y
	BSP B250-EV003-D00A0B-S4	BSP B250-EV003-A00A0B-S4	BSP B250-EV003-A02A0B-S4
	BSP0028	BSP002L	BSP002Z
	BSP B400-EV003-D00A0B-S4	BSP B400-EV003-A00A0B-S4	BSP B400-EV003-A02A0B-S4
	BSP0029	BSP002M	BSP0030
	BSP B600-EV003-D00A0B-S4	BSP B600-EV003-A00A0B-S4	BSP B600-EV003-A02A0B-S4
	18...36 V DC	18...36 V DC	18...36 V DC
	500 mA	500 mA	500 mA
	≤ 50 mA	≤ 50 mA	≤ 50 mA
	200 Hz	200 Hz	200 Hz
	≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL
	≤ ±0.3 % FSO/10 K	≤ ±0.3 % FSO/10 K	≤ ±0.3 % FSO/10 K
	Yes/Yes	Yes/Yes	Yes/Yes
	-40...+85 °C/-40...+125 °C	-40...+85 °C/-40...+125 °C	-40...+85 °C/-40...+125 °C
	7-segment display/LED	7-segment display/LED	7-segment display/LED
	IP 67 (when screwed into place)	IP 67 (when screwed into place)	IP 67 (when screwed into place)
	Stainless steel	Stainless steel	Stainless steel
	Ceramic	Ceramic	Ceramic
	Fluoroelastomer	Fluoroelastomer	Fluoroelastomer
	M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin
	Internal thread G $\frac{1}{4}$ " per DIN EN 3852	Internal thread G $\frac{1}{4}$ " per DIN EN 3852	Internal thread G $\frac{1}{4}$ " per DIN EN 3852



High-end pressure sensors with IO-Link monitor cooling lubricant, hydraulic fluids and pneumatic systems. Using IO-Link, you continuously relay your measured values and data to the controller. You initiate the exact readjustment and thereby provide for the highest machine availability. IO-Link pressure sensors enable quick, error-free sensor replacement and prompt commissioning. Downtimes are significantly reduced since the parameters of a replaced IO-Link sensor are automatically transmitted from the IO-Link master to the new sensor. Commissioning processes, format changes or recipe changes are processed centrally via the controller's functional components. This saves time and reduces the potential for errors to a minimum.



PNP pressure sensors

-1...2 bar (-14.5...29 psi)	Ordering code	
	Part number	
-1...10 bar (-14.5...145 psi)	Ordering code	
	Part number	
0...2 bar (0...29 psi)	Ordering code	
	Part number	
0...5 bar (0...73 psi)	Ordering code	
	Part number	
0...10 bar (0...145 psi)	Ordering code	
	Part number	
0...20 bar (0...290 psi)	Ordering code	
	Part number	
0...50 bar (0...725 psi)	Ordering code	
	Part number	
0...100 bar (0...1450 psi)	Ordering code	
	Part number	
0...250 bar (0...3626 psi)	Ordering code	
	Part number	
0...400 bar (0...5802 psi)	Ordering code	
	Part number	
0...600 bar (0...8702 psi)	Ordering code	
	Part number	
Supply voltage U_B		
Output current max.		
No-load supply current I_0 max.		
Switching frequency f max.		
Accuracy		
Temperature error		
Polarity reversal protected/short-circuit protected		
Ambient/media temperature		
Display/function indicators		
Degree of protection per IEC 60529		
Material	Housing	
	Measuring cell	
	Seal	
Connection	Plug connector	
	Process connection	

Wiring diagrams see page 44.

NPN variants

All sensors are also available as NPN variants. Please contact our technical service department by **phone +49 7158 173-777** or e-mail: **tsm@balluff.de**

Design	Relative nominal pressure	Overload pressure	Burst pressure \geq	Permitted vacuum
-1...2 bar	2 bar	4 bar	10 bar	Vacuum-proof
-1...10 bar	10 bar	20 bar	35 bar	
0...2 bar	2 bar	4 bar	10 bar	
0...5 bar	5 bar	10 bar	15 bar	
0...10 bar	10 bar	20 bar	35 bar	
0...20 bar	20 bar	40 bar	75 bar	
0...50 bar	50 bar	100 bar	150 bar	
0...100 bar	100 bar	200 bar	250 bar	
0...250 bar	250 bar	400 bar	450 bar	
0...400 bar	400 bar	650 bar	700 bar	
0...600 bar	600 bar	750 bar	800 bar	

BSP Pressure Sensors

High-end sensors with IO-Link



IO-Link
Two programmable switching points (NO or NC)



IO-Link
One programmable switching point and analog output 0...10 V DC

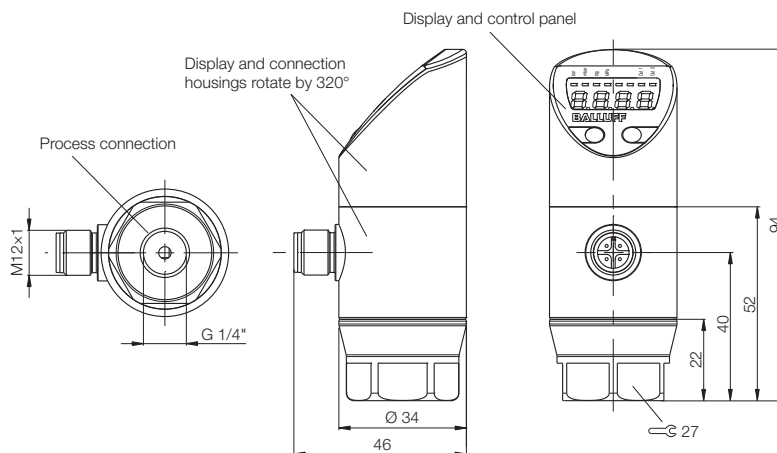


IO-Link
One programmable switching point and analog output 4...20 mA



BSP Pressure Sensors
Standard sensors
Standard sensors with IO-Link
High-end sensors
High-end sensors with IO-Link
Flush-mounted high-end sensors
Pressure transmitters
Special pressure Sensors
Calibration

	BSP00CF	BSP00AM	BSP00A7
	BSP V002-EV003-D00S1B-S4	BSP V002-EV003-A00S1B-S4	BSP V002-EV003-A02S1B-S4
	BSP00CH	BSP00AN	BSP00A8
	BSP V010-EV003-D00S1B-S4	BSP V010-EV003-A00S1B-S4	BSP V010-EV003-A02S1B-S4
	BSP00CJ	BSP00AP	BSP00A9
	BSP B002-EV003-D00S1B-S4	BSP B002-EV003-A00S1B-S4	BSP B002-EV003-A02S1B-S4
	BSP00CK	BSP00AR	BSP00AA
	BSP B005-EV003-D00S1B-S4	BSP B005-EV003-A00S1B-S4	BSP B005-EV003-A02S1B-S4
	BSP00CL	BSP00AT	BSP00AC
	BSP B010-EV003-D00S1B-S4	BSP B010-EV003-A00S1B-S4	BSP B010-EV003-A02S1B-S4
	BSP00CM	BSP00AU	BSP00AE
	BSP B020-EV003-D00S1B-S4	BSP B020-EV003-A00S1B-S4	BSP B020-EV003-A02S1B-S4
	BSP00CN	BSP00AW	BSP00AF
	BSP B050-EV003-D00S1B-S4	BSP B050-EV003-A00S1B-S4	BSP B050-EV003-A02S1B-S4
	BSP00CP	BSP00AY	BSP00AH
	BSP B100-EV003-D00S1B-S4	BSP B100-EV003-A00S1B-S4	BSP B100-EV003-A02S1B-S4
	BSP00CR	BSP00AZ	BSP00AJ
	BSP B250-EV003-D00S1B-S4	BSP B250-EV003-A00S1B-S4	BSP B250-EV003-A02S1B-S4
	BSP00CT	BSP00C0	BSP00AK
	BSP B400-EV003-D00S1B-S4	BSP B400-EV003-A00S1B-S4	BSP B400-EV003-A02S1B-S4
	BSP00CU	BSP00C1	BSP00AL
	BSP B600-EV003-D00S1B-S4	BSP B600-EV003-A00S1B-S4	BSP B600-EV003-A02S1B-S4
	18...36 V DC	18...36 V DC	18...36 V DC
	500 mA	500 mA	500 mA
	≤ 50 mA	≤ 50 mA	≤ 50 mA
	200 Hz	200 Hz	200 Hz
	≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL
	≤ ±0.3 % FSO/10 K	≤ ±0.3 % FSO/10 K	≤ ±0.3 % FSO/10 K
	Yes/Yes	Yes/Yes	Yes/Yes
	-40...+85 °C/-40...+125 °C	-40...+85 °C/-40...+125 °C	-40...+85 °C/-40...+125 °C
	7-segment display/LED	7-segment display/LED	7-segment display/LED
	IP 67 (when screwed into place)	IP 67 (when screwed into place)	IP 67 (when screwed into place)
	Stainless steel	Stainless steel	Stainless steel
	Ceramic	Ceramic	Ceramic
	Fluoroelastomer	Fluoroelastomer	Fluoroelastomer
	M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin
	Internal thread G $\frac{1}{4}$ " per DIN EN 3852	Internal thread G $\frac{1}{4}$ " per DIN EN 3852	Internal thread G $\frac{1}{4}$ " per DIN EN 3852



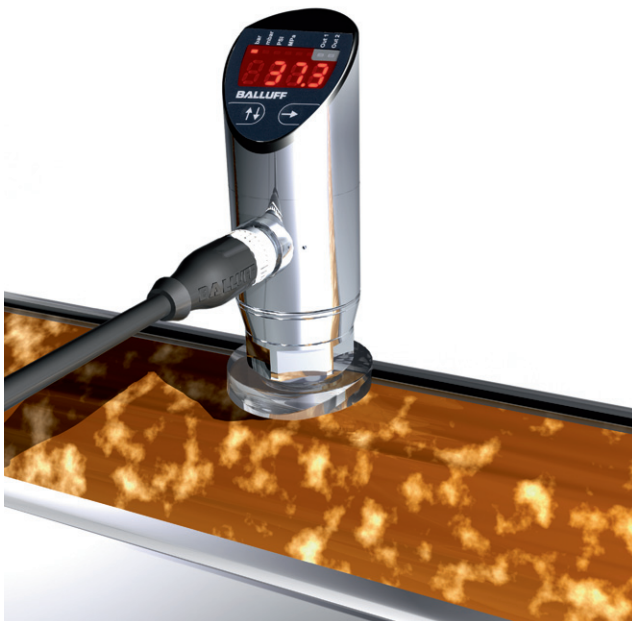
BSP Pressure Sensors

Flush-mounted high-end sensors

Flush-mounted BSP pressure sensors are ideally suited for pressure measurement in viscous, paste-like, crystallizing or solids-containing media. This makes them suitable for pressure measurement of adhesives, greases, sealants or often changing media. With their flush-mounted, welded stainless steel membrane, they have no dead spaces and can be easily cleaned.

Benefits

- Completely free of dead space
- No gaskets or offsets in the process
- Flush-mounted, welded stainless steel membrane
- No deposits on the sensor
- Easy to clean



The connection to your process is made via a G $\frac{1}{2}$ " external thread in accordance with DIN EN 3852. Other process connections, such as TriClamp, Varivent, etc., are available on request.



PNP pressure sensors

-1...2 bar (-14.5...29 psi)	Ordering code	
	Part number	
-1...10 bar (-14.5...145 psi)	Ordering code	
	Part number	
0...2 bar (0...29 psi)	Ordering code	
	Part number	
0...5 bar (0...73 psi)	Ordering code	
	Part number	
0...10 bar (0...145 psi)	Ordering code	
	Part number	
0...20 bar (0...290 psi)	Ordering code	
	Part number	
0...50 bar (0...725 psi)	Ordering code	
	Part number	
0...100 bar (0...1450 psi)	Ordering code	
	Part number	
0...250 bar (0...3626 psi)	Ordering code	
	Part number	
0...400 bar (0...5802 psi)	Ordering code	
	Part number	
Supply voltage U_B		
Output current max.		
No-load supply current I_0 max.		
Switching frequency f max.		
Accuracy		
Temperature error		
Polarity reversal protected/short-circuit protected		
Ambient/media temperature		
Display/function indicators		
Degree of protection per IEC 60529		
Material	Housing	
	Measuring cell	
	Seal	
Connection	Plug connector	
	Process connection	

Wiring diagrams see page 44.

NPN variants

All sensors are also available as NPN variants. Please contact our technical service department by **phone +49 7158 173-777** or e-mail: **tsm@balluff.de**

Design	Relative nominal pressure	Overload pressure	Burst pressure \geq	Permitted vacuum
-1...2 bar	2 bar	10 bar	15 bar	Vacuum-proof
-1...10 bar	10 bar	40 bar	50 bar	
0...2 bar	2 bar	10 bar	15 bar	
0...5 bar	5 bar	40 bar	50 bar	
0...10 bar	10 bar	40 bar	50 bar	
0...20 bar	20 bar	80 bar	120 bar	
0...50 bar	50 bar	100 bar	150 bar	
0...100 bar	100 bar	200 bar	300 bar	
0...250 bar	250 bar	400 bar	750 bar	
0...400 bar	400 bar	600 bar	1000 bar	

BSP Pressure Sensors

Flush-mounted high-end sensors



Two programmable switching points (NO or NC)



One programmable switching point and analog output 0...10 V DC

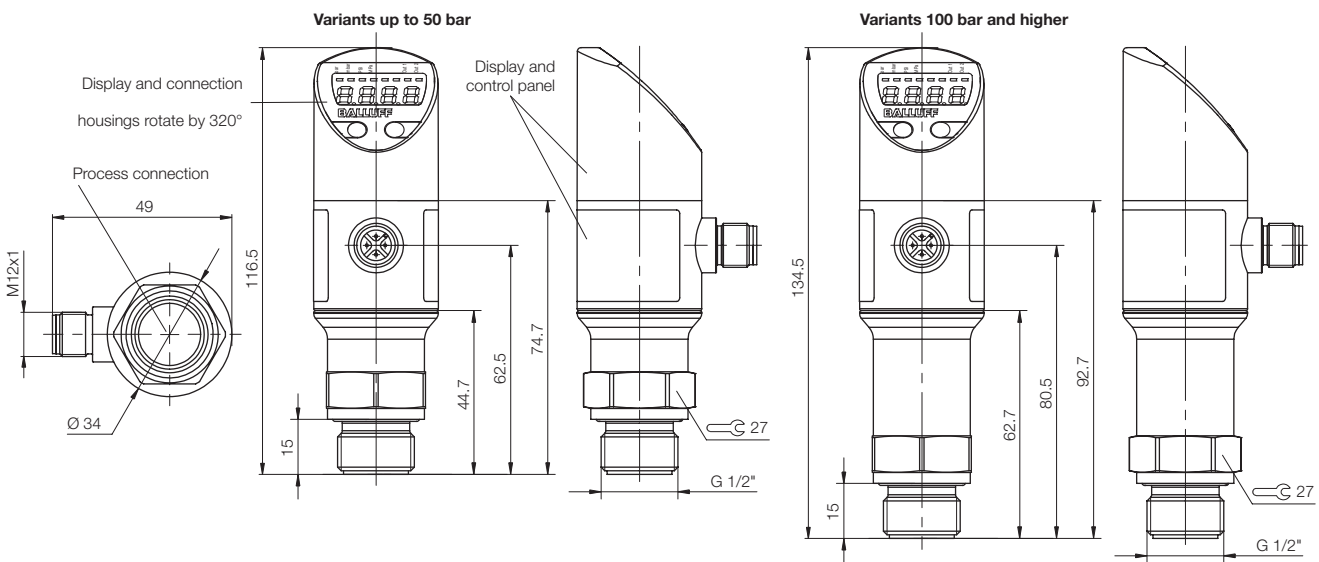


One programmable switching point and analog output 4...20 mA



BSP Pressure Sensors
Standard sensors
Standard sensors with IO-Link
High-end sensors
High-end sensors with IO-Link
Flush-mounted high-end sensors
Pressure transmitters
Special pressure Sensors
Calibration

BSP005M	BSP006F	BSP0062
BSP V002-IV003-D00A0B-S4	BSP V002-IV003-A00A0B-S4	BSP V002-IV003-A02A0B-S4
BSP005N	BSP006H	BSP0063
BSP V010-IV003-D00A0B-S4	BSP V010-IV003-A00A0B-S4	BSP V010-IV003-A02A0B-S4
BSP005P	BSP006J	BSP0064
BSP B002-IV003-D00A0B-S4	BSP B002-IV003-A00A0B-S4	BSP B002-IV003-A02A0B-S4
BSP005R	BSP006K	BSP0065
BSP B005-IV003-D00A0B-S4	BSP B005-IV003-A00A0B-S4	BSP B005-IV003-A02A0B-S4
BSP005T	BSP006L	BSP0066
BSP B010-IV003-D00A0B-S4	BSP B010-IV003-A00A0B-S4	BSP B010-IV003-A02A0B-S4
BSP005U	BSP006M	BSP0067
BSP B020-IV003-D00A0B-S4	BSP B020-IV003-A00A0B-S4	BSP B020-IV003-A02A0B-S4
BSP005W	BSP006N	BSP0068
BSP B050-IV003-D00A0B-S4	BSP B050-IV003-A00A0B-S4	BSP B050-IV003-A02A0B-S4
BSP005Y	BSP006P	BSP0069
BSP B100-IV003-D00A0B-S4	BSP B100-IV003-A00A0B-S4	BSP B100-IV003-A02A0B-S4
BSP005Z	BSP006R	BSP006A
BSP B250-IV003-D00A0B-S4	BSP B250-IV003-A00A0B-S4	BSP B250-IV003-A02A0B-S4
BSP0060	BSP006T	BSP006C
BSP B400-IV003-D00A0B-S4	BSP B400-IV003-A00A0B-S4	BSP B400-IV003-A02A0B-S4
18...36 V DC	18...36 V DC	18...36 V DC
500 mA	500 mA	500 mA
≤ 50 mA	≤ 50 mA	≤ 50 mA
200 Hz	200 Hz	200 Hz
≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL
≤ ±0.3 % FSO/10 K	≤ ±0.3 % FSO/10 K	≤ ±0.3 % FSO/10 K
Yes/Yes	Yes/Yes	Yes/Yes
-40...+85 °C/-40...+125 °C	-40...+85 °C/-40...+125 °C	-40...+85 °C/-40...+125 °C
7-segment display/LED	7-segment display/LED	7-segment display/LED
IP 67 (when screwed into place)	IP 67 (when screwed into place)	IP 67 (when screwed into place)
Stainless steel	Stainless steel	Stainless steel
Ceramic	Ceramic	Ceramic
Fluoroelastomer	Fluoroelastomer	Fluoroelastomer
M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin
G½" per DIN EN 3852	G½" per DIN EN 3852	G½" per DIN EN 3852



BSP Pressure Sensors

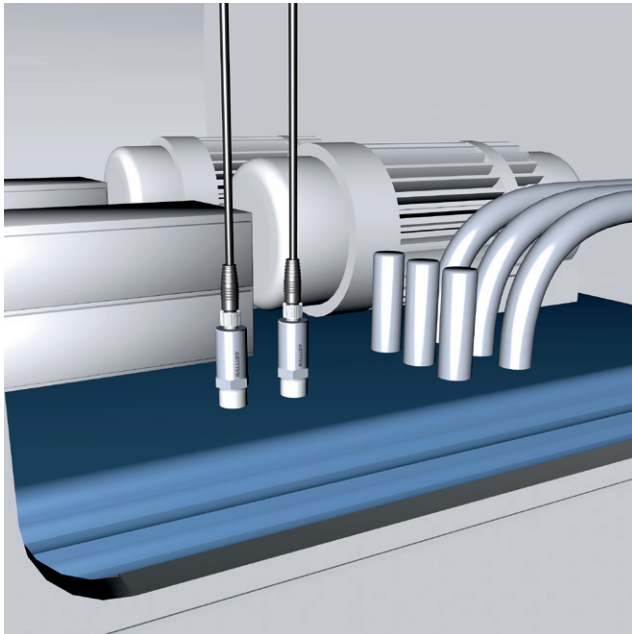
Pressure transmitters

Voltage variants 0...10 V DC

Compact pressure transmitters stand for continuously reliable pressure measurement. They are compact and installed right where the action is. Balluff pressure transmitters feature an impressive price/performance ratio and solve a wide variety of tasks in factory automation.

Applications

- Machine tools
- Hydraulics and pneumatics
- Pumps and compressors



Voltage variants 0...10 V DC

-1...2 bar (-14.5...29 psi)	Ordering code	
	Part number	
-1...10 bar (-14.5...145 psi)	Ordering code	
	Part number	
0...2 bar (0...29 psi)	Ordering code	
	Part number	
0...5 bar (0...73 psi)	Ordering code	
	Part number	
0...10 bar (0...145 psi)	Ordering code	
	Part number	
0...20 bar (0...290 psi)	Ordering code	
	Part number	
0...50 bar (0...725 psi)	Ordering code	
	Part number	
0...100 bar (0...1450 psi)	Ordering code	
	Part number	
0...250 bar (0...3626 psi)	Ordering code	
	Part number	
0...400 bar (0...5802 psi)	Ordering code	
	Part number	
0...600 bar (0...8702 psi)	Ordering code	
	Part number	
Supply voltage U_B		
No-load supply current I_0 max.		
Accuracy		
Temperature error		
Polarity reversal protected/short-circuit protected		
Ambient/media temperature		
Degree of protection per IEC 60529		
Load cycles		
Material	Housing	
	Measuring cell	
	Seal	
Connection	Plug connector	
	Process connection	

Wiring diagrams see page 44.

Design	Relative nominal pressure	Overload pressure	Burst pressure \geq	Permitted vacuum
-1...2 bar	2 bar	4 bar	10 bar	Vacuum-proof
-1...10 bar	10 bar	20 bar	35 bar	
0...2 bar	2 bar	4 bar	10 bar	
0...5 bar	5 bar	10 bar	15 bar	
0...10 bar	10 bar	20 bar	35 bar	
0...20 bar	20 bar	40 bar	70 bar	
0...50 bar	50 bar	100 bar	150 bar	
0...100 bar	100 bar	200 bar	300 bar	
0...250 bar	250 bar	400 bar	750 bar	
0...400 bar	400 bar	1200 bar	1500 bar	
0...600 bar	600 bar	1200 bar	1500 bar	

BSP Pressure Sensors

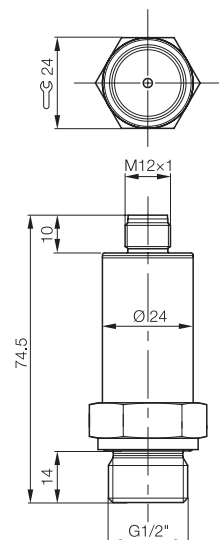
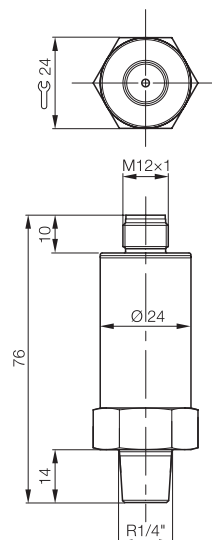
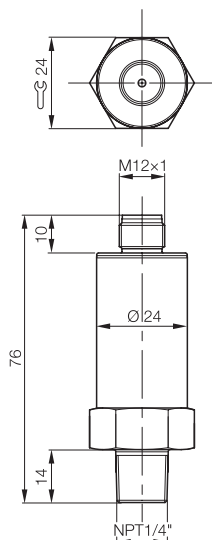
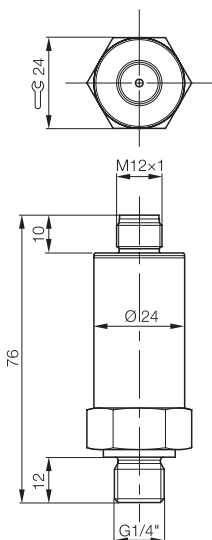
Pressure transmitters

Voltage variants 0...10 V DC



BSP Pressure Sensors
Standard sensors
Standard sensors with IO-Link
High-end sensors
High-end sensors with IO-Link
Flush-mounted high-end sensors
Pressure transmitters
Special pressure Sensors
Calibration

BSP00JE BSP V002-DV004-A04A1A-S4	BSP00JU BSP V002-FV004-A04A1A-S4	BSP00K7 BSP V002-KV004-A04A1A-S4	BSP00KM BSP V002-HV004-A04A1A-S4
BSP00JF BSP V010-DV004-A04A1A-S4	BSP00JW BSP V010-FV004-A04A1A-S4	BSP00K8 BSP V010-KV004-A04A1A-S4	BSP00KN BSP V010-HV004-A04A1A-S4
BSP00JH BSP B002-DV004-A04A1A-S4	BSP00JY BSP B002-FV004-A04A1A-S4	BSP00K9 BSP B002-KV004-A04A1A-S4	BSP00KP BSP B002-HV004-A04A1A-S4
BSP00JJ BSP B005-DV004-A04A1A-S4	BSP00JZ BSP B005-FV004-A04A1A-S4	BSP00KA BSP B005-KV004-A04A1A-S4	BSP00KR BSP B005-HV004-A04A1A-S4
BSP00JK BSP B010-DV004-A04A1A-S4	BSP00K0 BSP B010-FV004-A04A1A-S4	BSP00KC BSP B010-KV004-A04A1A-S4	BSP00KT BSP B010-HV004-A04A1A-S4
BSP00JL BSP B020-DV004-A04A1A-S4	BSP00K1 BSP B020-FV004-A04A1A-S4	BSP00KE BSP B020-KV004-A04A1A-S4	BSP00KU BSP B020-HV004-A04A1A-S4
BSP00JM BSP B050-DV004-A04A1A-S4	BSP00K2 BSP B050-FV004-A04A1A-S4	BSP00KF BSP B050-KV004-A04A1A-S4	BSP00KW BSP B050-HV004-A04A1A-S4
BSP00JN BSP B100-DV004-A04A1A-S4	BSP00K3 BSP B100-FV004-A04A1A-S4	BSP00KH BSP B100-KV004-A04A1A-S4	BSP00KY BSP B100-HV004-A04A1A-S4
BSP00JP BSP B250-DV004-A04A1A-S4	BSP00K4 BSP B250-FV004-A04A1A-S4	BSP00KJ BSP B250-KV004-A04A1A-S4	BSP00KZ BSP B250-HV004-A04A1A-S4
BSP00JR BSP B400-DV004-A04A1A-S4	BSP00K5 BSP B400-FV004-A04A1A-S4	BSP00KK BSP B400-KV004-A04A1A-S4	BSP00L0 BSP B400-HV004-A04A1A-S4
BSP00JT BSP B600-DV004-A04A1A-S4	BSP00K6 BSP B600-FV004-A04A1A-S4	BSP00KL BSP B600-KV004-A04A1A-S4	BSP00L1 BSP B600-HV004-A04A1A-S4
10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
≤ 20 mA	≤ 20 mA	≤ 20 mA	≤ 20 mA
≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL
≤ ±0.5% FSO/10 K	≤ ±0.3 % FSO/10 K	≤ ±0.3 % FSO/10 K	≤ ±0.3 % FSO/10 K
Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
-40...+85 °C/-40...+125 °C	-40...+85 °C/-40...+125 °C	-40...+85 °C/-40...+125 °C	-40...+85 °C/-40...+125 °C
IP 67 (when screwed into place)	IP 67 (when screwed into place)	IP 67 (when screwed into place)	IP 67 (when screwed into place)
> 100 mil.	> 100 mil.	> 100 mil.	> 100 mil.
Stainless steel	Stainless steel	Stainless steel	Stainless steel
Ceramic	Ceramic	Ceramic	Ceramic
Fluoroelastomer	Fluoroelastomer	Fluoroelastomer	Fluoroelastomer
M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin
G1/4" per DIN EN 3852	NPT1/4"	R1/4"	G1/2" per DIN EN 3852



BSP Pressure Sensors

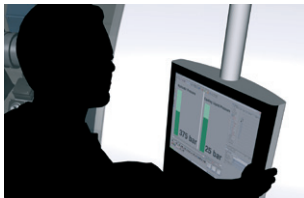
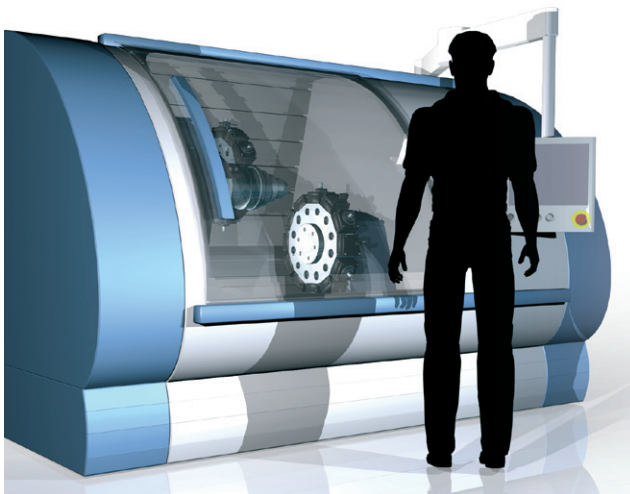
Pressure transmitters

Current variants 4...20 mA

BSP pressure transmitters provide a rugged stainless steel housing, reliable measurement technology and a large temperature range from -40 to 125 °C. This enables reliable operation and a long service life. Choose between eleven different pressure ranges, voltage or current output and various process connections for the appropriate sensor.

Benefits

- Extended temperature range
- Rugged metal housing
- Large product selection



Current variants 4...20 mA

-1...2 bar (-14.5...29 psi)	Ordering code	
	Part number	
-1...10 bar (-14.5...145 psi)	Ordering code	
	Part number	
0...2 bar (0...29 psi)	Ordering code	
	Part number	
0...5 bar (0...73 psi)	Ordering code	
	Part number	
0...10 bar (0...145 psi)	Ordering code	
	Part number	
0...20 bar (0...290 psi)	Ordering code	
	Part number	
0...50 bar (0...725 psi)	Ordering code	
	Part number	
0...100 bar (0...1450 psi)	Ordering code	
	Part number	
0...250 bar (0...3626 psi)	Ordering code	
	Part number	
0...400 bar (0...5802 psi)	Ordering code	
	Part number	
0...600 bar (0...8702 psi)	Ordering code	
	Part number	
Supply voltage U_B		
No-load supply current I_0 max.		
Accuracy		
Temperature error		
Polarity reversal protected/short-circuit protected		
Ambient/media temperature		
Degree of protection per IEC 60529		
Load cycles		
Material	Housing	
	Measuring cell	
	Seal	
Connection	Plug connector	
	Process connection	

Wiring diagrams see page 44.

Design	Relative nominal pressure	Overload pressure	Burst pressure \geq	Permitted vacuum
-1...2 bar	2 bar	4 bar	10 bar	Vacuum-proof
-1...10 bar	10 bar	20 bar	35 bar	
0...2 bar	2 bar	4 bar	10 bar	
0...5 bar	5 bar	10 bar	15 bar	
0...10 bar	10 bar	20 bar	35 bar	
0...20 bar	20 bar	40 bar	70 bar	
0...50 bar	50 bar	100 bar	150 bar	
0...100 bar	100 bar	200 bar	300 bar	
0...250 bar	250 bar	400 bar	750 bar	
0...400 bar	400 bar	1200 bar	1500 bar	
0...600 bar	600 bar	1200 bar	1500 bar	

BSP Pressure Sensors

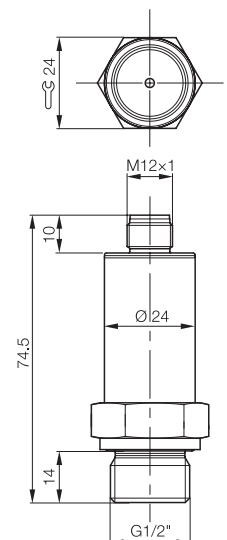
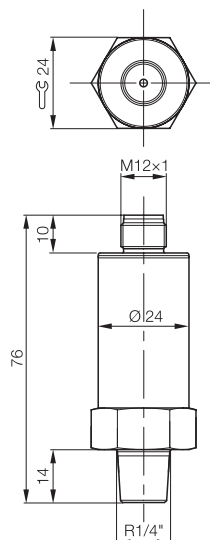
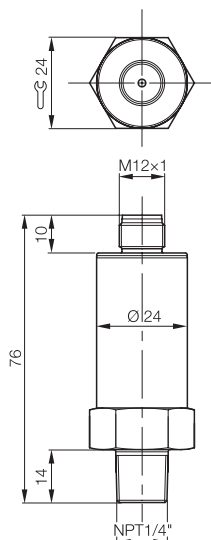
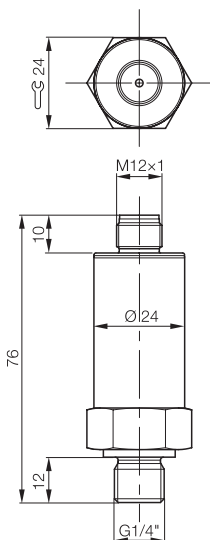
Pressure transmitters

Current variants 4...20 mA



BSP Pressure Sensors
Standard sensors
Standard sensors with IO-Link
High-end sensors
High-end sensors with IO-Link
Flush-mounted high-end sensors
Pressure transmitters
Special pressure Sensors
Calibration

BSP00FW BSP V002-DV004-A06A1A-S4	BSP00H7 BSP V002-FV004-A06A1A-S4	BSP00HM BSP V002-KV004-A06A1A-S4	BSP00J2 BSP V002-HV004-A06A1A-S4
BSP00FY BSP V010-DV004-A06A1A-S4	BSP00H8 BSP V010-FV004-A06A1A-S4	BSP00HN BSP V010-KV004-A06A1A-S4	BSP00J3 BSP V010-HV004-A06A1A-S4
BSP00FZ BSP B002-DV004-A06A1A-S4	BSP00H9 BSP B002-FV004-A06A1A-S4	BSP00HP BSP B002-KV004-A06A1A-S4	BSP00J4 BSP B002-HV004-A06A1A-S4
BSP00H0 BSP B005-DV004-A06A1A-S4	BSP00HA BSP B005-FV004-A06A1A-S4	BSP00HR BSP B005-KV004-A06A1A-S4	BSP00J5 BSP B005-HV004-A06A1A-S4
BSP00H1 BSP B010-DV004-A06A1A-S4	BSP00HC BSP B010-FV004-A06A1A-S4	BSP00HT BSP B010-KV004-A06A1A-S4	BSP00J6 BSP B010-HV004-A06A1A-S4
BSP00H2 BSP B020-DV004-A06A1A-S4	BSP00HE BSP B020-FV004-A06A1A-S4	BSP00HU BSP B020-KV004-A06A1A-S4	BSP00J7 BSP B020-HV004-A06A1A-S4
BSP00H3 BSP B050-DV004-A06A1A-S4	BSP00HF BSP B050-FV004-A06A1A-S4	BSP00HW BSP B050-KV004-A06A1A-S4	BSP00J8 BSP B050-HV004-A06A1A-S4
BSP00H4 BSP B100-DV004-A06A1A-S4	BSP00HH BSP B100-FV004-A06A1A-S4	BSP00HY BSP B100-KV004-A06A1A-S4	BSP00FT BSP B100-HV004-A06A1A-S4
BSP00H5 BSP B250-DV004-A06A1A-S4	BSP00HJ BSP B250-FV004-A06A1A-S4	BSP00HZ BSP B250-KV004-A06A1A-S4	BSP00J9 BSP B250-HV004-A06A1A-S4
BSP00F3 BSP B400-DV004-A06A1A-S4	BSP00HK BSP B400-FV004-A06A1A-S4	BSP00JO BSP B400-KV004-A06A1A-S4	BSP00JA BSP B400-HV004-A06A1A-S4
BSP00H6 BSP B600-DV004-A06A1A-S4	BSP00HL BSP B600-FV004-A06A1A-S4	BSP00J1 BSP B600-KV004-A06A1A-S4	BSP00JC BSP B600-HV004-A06A1A-S4
8...32 V DC	8...32 V DC	8...32 V DC	8...32 V DC
≤ 25 mA	≤ 25 mA	≤ 25 mA	≤ 25 mA
≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL	≤ ±0.5 % FSO BFSL
≤ ±0.5% FSO/10 K	≤ ±0.3 % FSO/10 K	≤ ±0.3 % FSO/10 K	≤ ±0.3 % FSO/10 K
Yes/Yes	Yes/Yes	Yes/Yes	Yes/Yes
-40...+85 °C/-40...+125 °C	-40...+85 °C/-40...+125 °C	-40...+85 °C/-40...+125 °C	-40...+85 °C/-40...+125 °C
IP 67 (when screwed into place)	IP 67 (when screwed into place)	IP 67 (when screwed into place)	IP 67 (when screwed into place)
> 100 mil.	> 100 mil.	> 100 mil.	> 100 mil.
Stainless steel	Stainless steel	Stainless steel	Stainless steel
Ceramic	Ceramic	Ceramic	Ceramic
Fluoroelastomer	Fluoroelastomer	Fluoroelastomer	Fluoroelastomer
M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin
G1/4" per DIN EN 3852	NPT1/4"	R1/4"	G1/2" per DIN EN 3852



Special Pressure Sensors

Individual, fully customized products

If desired, we will adapt catalog products individually to your requirements. Our spectrum ranges from preassembly to engineering services to simple housing modifications. We do this completely according to your specifications. This enables the best solutions for your application.

Benefits

- Quick and transparent feasibility check
- Solution for your application
- Customized products secure your competitive advantage
- Highest feasibility without compromises

Contact

To learn more about special designs, please contact our technical service department. You can use the TSM hotline: **+49 7158 173-777** or send an e-mail to **tsm@balluff.de**

Resistant to hydrochloric acid – an example from the real world

The standard version of BSP pressure sensors is ideally suited for use in a steel plant. For example, for monitoring the coolant in a rolling stand or the pressure in hydraulic drives. From -25 to 125 °C. With the wide variety of pressure ranges and output signals you can handle almost any task.

Ideal for the steel industry, the pressure sensors have an acid-resistant process connection made from PVDF and can reliably monitor cleaning processes during surface finishing.



Pressure ranges	-1...50 bar	
Supply voltage U_B	18...36 V DC	
Switching frequency f max.	200 Hz	
Accuracy	$\leq \pm 0.5$ % FSO BFSL	
Temperature error	$\leq \pm 0.3$ % FSO/10 K	
Ambient/media temperature	-25...+85 °C / -25...+125 °C	
Degree of protection per IEC 60529	IP 67 (when screwed into place)	
Material	Housing	PA 6.6 and stainless steel
	Measuring cell	Ceramic
	Seal	Fluoroelastomer
	Process connection	PVDF
Connection	Plug connector	M12 connector, 4-pin
	Process connection	G $\frac{1}{2}$ " per DIN EN 3852



With an acid-resistant process connection made from PVDF, the sensor can even be used in adverse conditions such as those experienced during surface finishing for steel production.

Calibration of pressure sensors

**Send us your pressure sensors for inspection.
And build upon our manufacturing expertise.**

Regular calibration of pressure sensors is becoming increasingly important for legal, technical and quality assurance-related reasons.

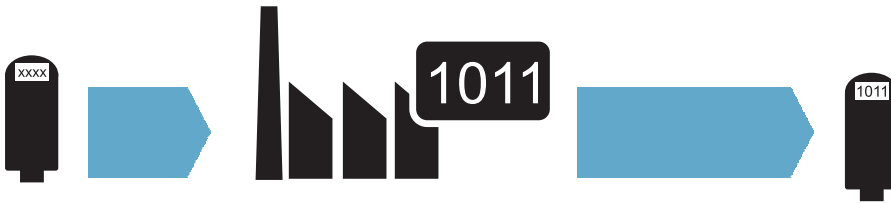
As a manufacturer, we offer professional support. For instance, we inspect and calibrate your pressure sensors directly at our plant. Once per year – to maintain quality standards.

You receive a bilingual certificate of the factory calibration for measuring ranges from –1 to 600 bar for your records. Take advantage of our manufacturing expertise and stay on the safe side.

Benefits

- Calibration directly at the manufacturer
- 6-point factory calibration
- Uniform, high process quality

Order with **BSS CAL**



BSP
Pressure
Sensors
Standard
sensors
Standard
sensors
with IO-Link
High-end
sensors
High-end
sensors
with IO-Link
Flush-
mounted
high-end
sensors
Pressure
transmitters
**Special
pressure
Sensors
Calibration**

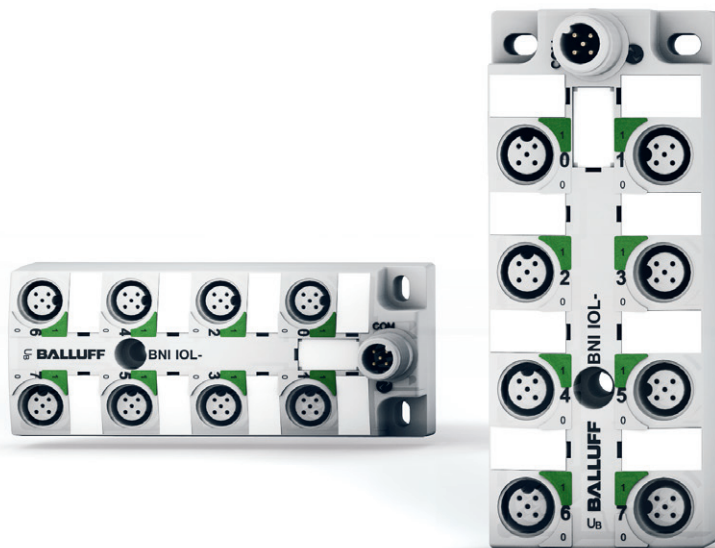




Industrial Networking and Connectivity

Industrial Networking and Connectivity – A Selection

From our extensive product line we have put together a selection for you that covers the most important applications for pressure sensors.



Industrial Networking and Connectivity – A Selection Contents

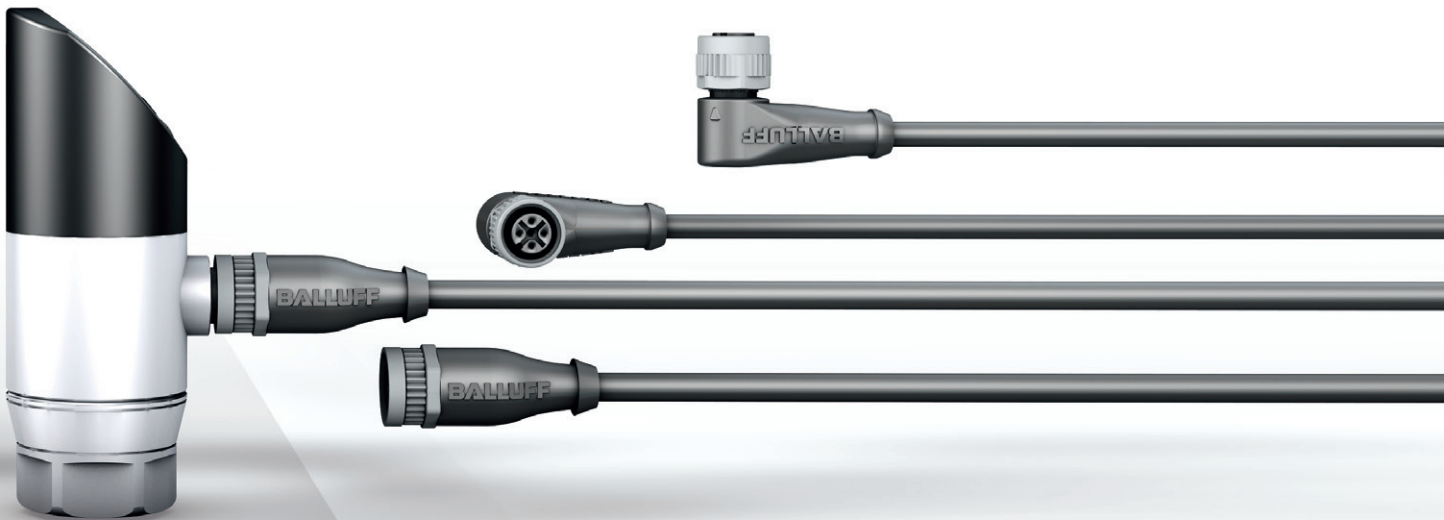
Connectors	30
IO-Link sensor hubs	31



Basic information
and definitions
can be found
on **page 38**.



You will find many additional products in our total product line: "Industrial Networking and Connectivity – System Technology", or online at: www.balluff.com



Industrial Networking and Connectivity

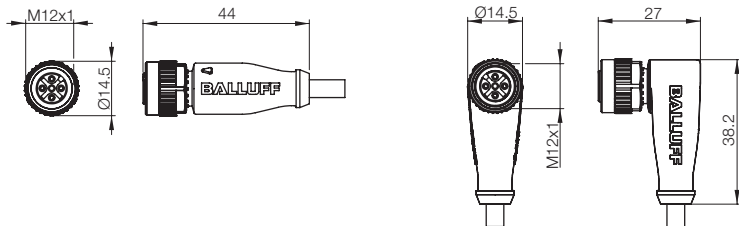
M12 female straight and right-angle, 4-pin



Connector diagram and wiring		
Max. supply voltage AC U_B	250 V AC	250 V AC
Max. supply voltage DC U_B	250 V DC	250 V DC
Cable	Molded	Molded
Number of wires × cross-section	4×0.34 mm ²	4×0.34 mm ²
Degree of protection per IEC 60529	IP 68	IP 68
Ambient temperature T_a	PUR -40...+90 °C/-25...+90 °C (UL 80° C)	PUR -40...+90 °C/-25...+90 °C (UL 80° C)
static/moving	PUR shielded -40...+80 °C/-25...+80 °C	PUR shielded -40...+80 °C/-25...+80 °C
Use	Complementary (NO/NC)	Complementary (NO/NC)

Cable material	Color	Length	Ordering code	Ordering code	
			Part number	Part number	
PUR		Black	2 m	BCC032F BCC M415-0000-1A-003-PX0434-020	BCC032Y BCC M425-0000-1A-003-PX0434-020
PUR		Black	5 m	BCC032H BCC M415-0000-1A-003-PX0434-050	BCC032Z BCC M425-0000-1A-003-PX0434-050
PUR		Black	10 m	BCC032J BCC M415-0000-1A-003-PX0434-100	BCC0330 BCC M425-0000-1A-003-PX0434-100
PUR shielded		Black	2 m	BCC032K BCC M415-0000-1A-014-PS0434-020	BCC0331 BCC M425-0000-1A-014-PS0434-020
PUR shielded		Black	5 m	BCC032L BCC M415-0000-1A-014-PS0434-050	BCC0332 BCC M425-0000-1A-014-PS0434-050
PUR shielded		Black	10 m	BCC032M BCC M415-0000-1A-014-PS0434-100	BCC0333 BCC M425-0000-1A-014-PS0434-100

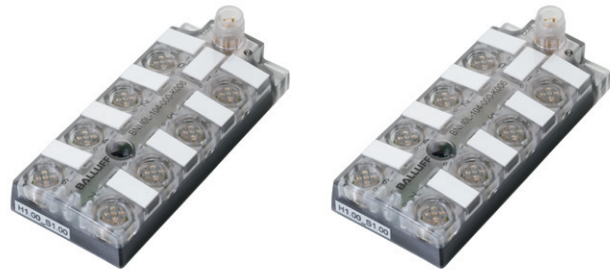
Other cable materials, colors and lengths on request. Connectors without LED are suitable for PNP and NPN switching functions. NPN versions on request.



Industrial Networking and Connectivity

IO-Link sensor hubs M12, IP 67, 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 used, which are supplemented by four additional dual-use standard input ports as per IEC 61131. The analog channels have a resolution of 10 bits.



Industrial Networking and Connectivity – A Selection
Plug connector
IO-Link
Sensor Hubs

IO-Link Version	Device	Device
Ordering code	BNI0008	BNI0007
Part number	BNI IOL-710-000-K006	BNI IOL-709-000-K006
Supply voltage U_B	18...30 V DC	18...30 V DC
Function indicator IO-Link RUN	Green LED	Green LED
Power-on 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
Number of digital inputs	8 PNP	8 PNP
Configurable	NC/NO	NC/NO
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 per IEC 60529	IP 67 (when screwed into place)	IP 67 (when screwed into place)
Operating temperature T_a	-5...+55 °C	-5...+55 °C
Storage temperature	-25...+85 °C	-25...+85 °C
Weight	Approx. 86 g	Approx. 86 g
Fastener	3 mounting holes	3 mounting holes
Dimensions (LxWxH)	115x50x31 mm	115x50x31 mm
Housing material	TROGAMID®	TROGAMID®

Analog ports

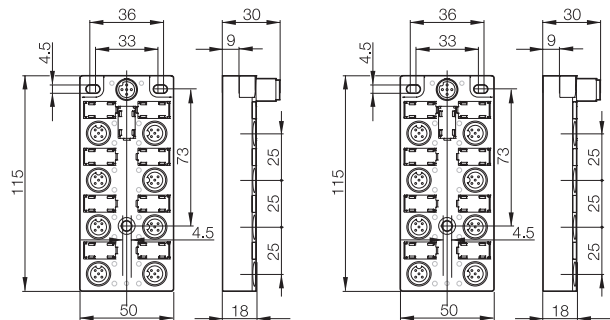
Number of analog ports	4	4
Interface	0...10 V DC	4...20 mA
Resolution	10 bit	10 bit
Analog signal indicator	Green LED	Green LED

IO-Link

No. of IO-Link ports	1x device	1x device
Operating mode	COM 2 (3-wire)	COM 2 (3-wire)
IO-Link process data length	10 input bytes	10 input bytes
Indicators	Communication	Green LED
	Error	Red LED
Max. load current	< 1.2 A	< 1.2 A
Parameters	NC/NO per input, 1 switching point per analog channel	NC/NO per input, 1 switching point per analog channel



All hubs include four screw plugs and a label set.



You will find many additional products in our total product line: "Industrial Networking and Connectivity – System Technology", or online at: www.balluff.com



Accessories

Accessories – A Selection

Fitting accessories are the optimal peripherals for sensors:
We provide reliable products for time and cost-saving integration
into your automation system and for reliable operation. We have put
together a selection for you from our comprehensive product line.



Accessories – A Selection

Contents

Adapters and fasteners
Standard power supplies

34
36



Many additional products can be found in our complete catalog:
"Accessories Product Line – The Optimum Peripherals for Sensors",
or on the Internet at: www.balluff.com



Basic information
and definitions
can be found
on **page 38**.



Accessories – A Selection

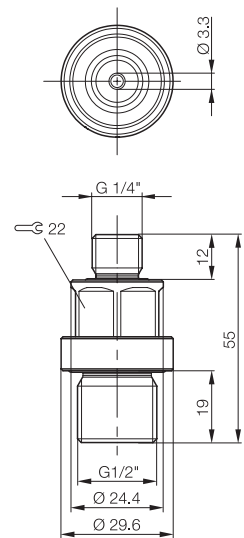
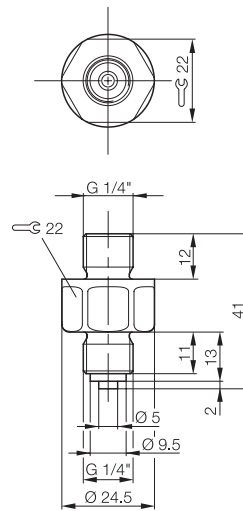
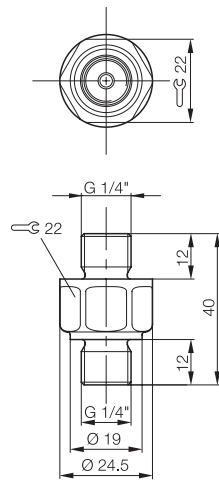
Adapters and fasteners



Manometer screw connection per DIN EN 837



Description	Adapter G 1/4"	Adapter G 1/4"	Adapter G 1/2"
Ordering code	BAM01KP	BAM01KR	BAM01UJ
Part number	BAM AD-SP-008-1G4/1G4-4	BAM AD-SP-008-1G4/1G4-4-EN837	BAM AD-SP-008-1G4/1G2-4
Housing material	Stainless steel	Stainless steel	Stainless steel
Connection	Sensor-side	G 1/4" per DIN EN 3852	G 1/4" per DIN EN 3852
	Process-side	G 1/4" per DIN EN 3852	G 1/2" per DIN EN 3852



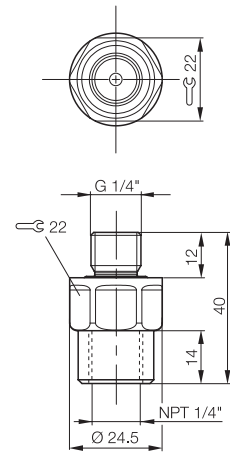
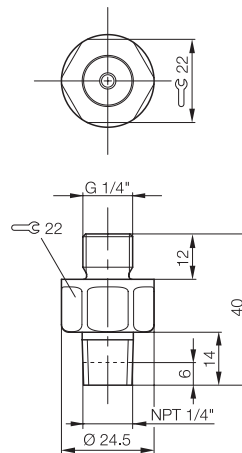
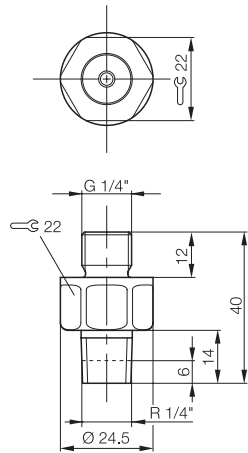
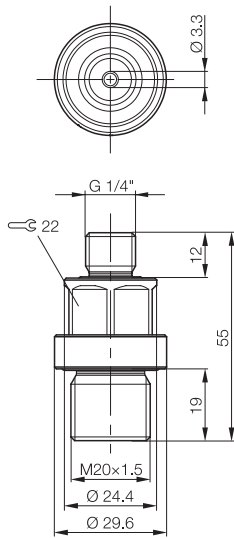
BSP pressure sensors can be adapted to different process connections using adapters. **Other adapters on request.**

Accessories – A Selection Adapters and fasteners



Internal thread

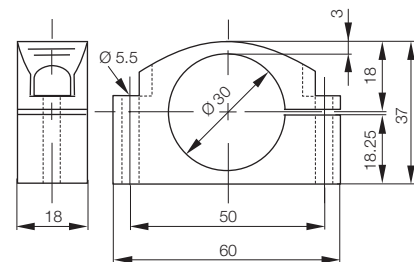
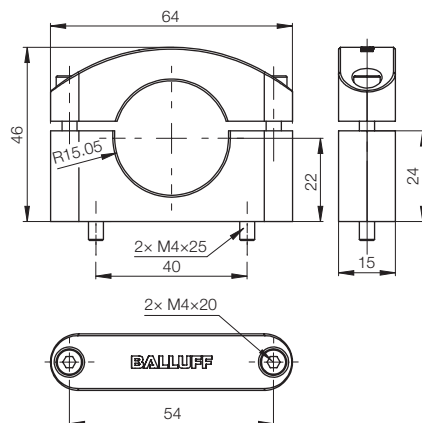
Adapter M20x1.5	Adapter R $\frac{1}{4}$ "	Adapter NPT $\frac{1}{4}$ "	Adapter NPT $\frac{1}{4}$ "
BAM0209	BAM01RP	BAM01KT	BAM01TR
BAM AD-SP-008-1G4/M20X1.5-4	BAM AD-SP-008-1G4/1R4-4	BAM AD-SP-008-1G4/1N4-4	BAM AD-SP-011-1G4/1N4-4
Stainless steel	Stainless steel	Stainless steel	Stainless steel
G $\frac{1}{4}$ " per DIN EN 3852	G $\frac{1}{4}$ " per DIN EN 3852	G $\frac{1}{4}$ " per DIN EN 3852	G $\frac{1}{4}$ " per DIN EN 3852
M20x1.5	R $\frac{1}{4}$ "	NPT $\frac{1}{4}$ "	Internal thread NPT $\frac{1}{4}$ "



Accessories –
A Selection
**Adapters and
Fasteners**
Standard Power
Supplies



Description	Wall mount for BSP pressure sensors	Wall mount for BSP pressure sensors
Version	Two-piece retaining clip, metal	One-piece retaining clip, plastic
Ordering code	BAM01U0	BAM0110
Part number	BAM MC-XA-017-D30.0-1	BTL6-A-MF03-K-50
Housing material	Anodized aluminum	PA 6.6 (fiberglass reinforced)



Accessories – A Selection

Standard power supplies

Every industrial automation system needs a reliable, clean and controlled source of power without spikes. Only then can these systems deliver the expected performance. With the Balluff power supplies you get what you expect and more. They ensure reliable power even under demanding conditions. Thus they stand in the long Balluff tradition of reliable and high-quality performance products for industrial automation.

■ Ultra-reliable power supplies

for protecting sensitive control electronics

■ Protection against unforeseen events

Integrated overload and overvoltage protection

■ Wide selection of models

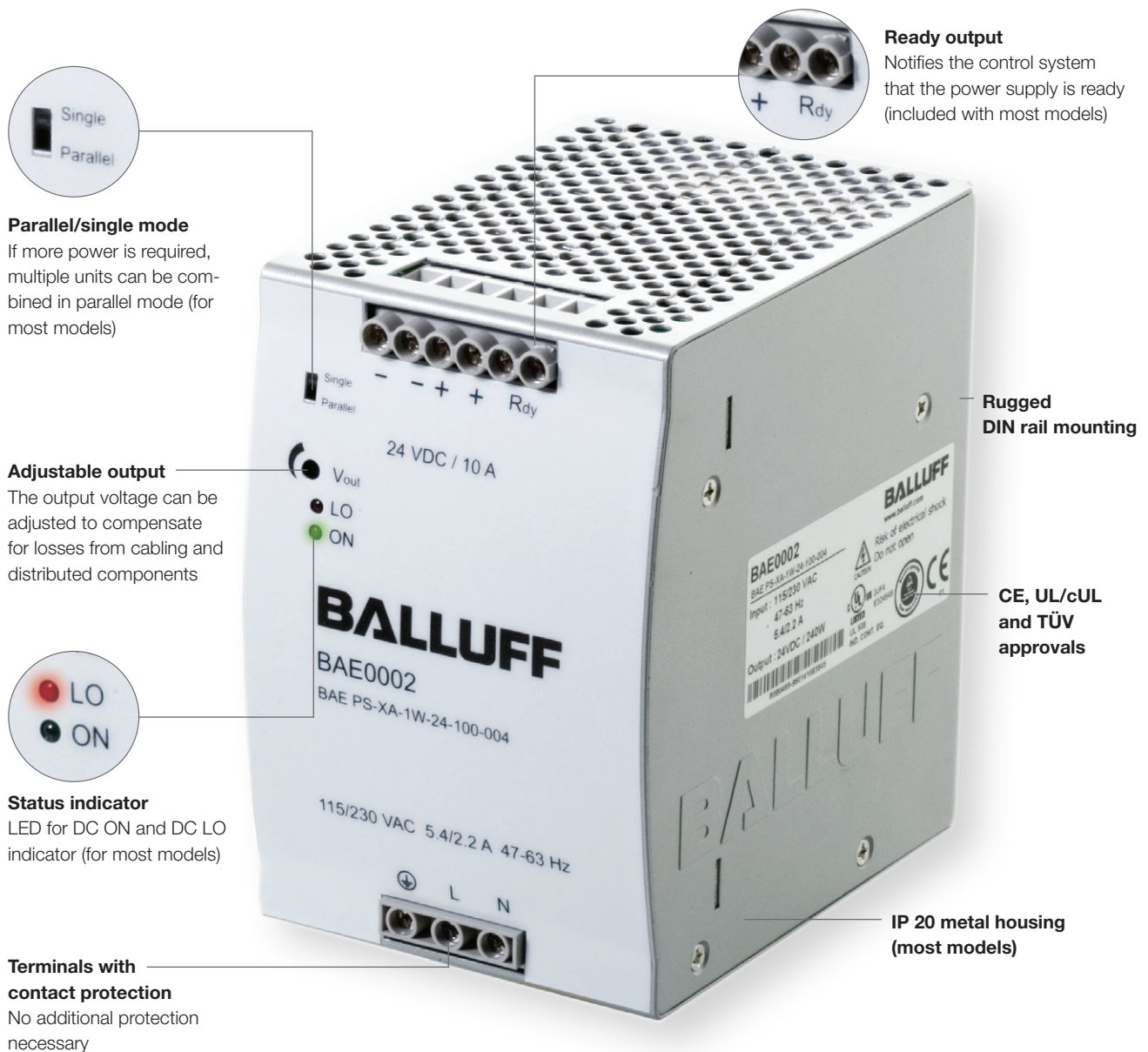
Whether stand-alone or an individual combination of various models, these solutions are perfect for your requirements

■ Clean, precise power supply for particularly complex systems

Load regulation at $\pm 1\%$ for all models, ripple and noise for most models less than 50 mV

■ Long service life for less system downtime

MTBF (Mean Time Between Failure) up to 800,000 hours/
91 years



Accessories – A Selection

Standard power supplies

Version	Output power										Features			Product information							
	0.75 A/18 W	1.25 A/30 W	1.5 A/18 W	2.5 A/30 W	2.5 A/60 W	2.5 A/120 W	3.8 A/91.20 W	5 A/60 W	5 A/120 W	5 A/240 W	10 A/120 W	10 A/240 W	10 A/480 W	20 A/480 W	40 A/960 W	Input voltage	Housing material	Parallel mode	Ready output	Ordering code	Part number
Standard IP 20	12 V			■											Single-phase ¹	Plastic			BAE0036	BAE-PS-XA-1W-12-015-001	
					■										Single-phase ¹	Plastic		■	BAE0039	BAE-PS-XA-1W-12-025-002	
									■							Single-phase ¹	Metal		■	BAE003E	BAE-PS-XA-1W-12-050-002
												■				Single-phase ²	Metal	■	■	BAE003H	BAE-PS-XA-1W-12-100-003
			■													Single-phase ¹	Plastic			BAE0001	BAE-PS-XA-1W-24-007-001
	24 V		■													Single-phase ¹	Plastic		■	BAE0004	BAE-PS-XA-1W-24-012-002
						■										Single-phase ¹	Plastic		■	BAE0005	BAE-PS-XA-1W-24-025-002
								■								Single-phase ²	Metal	■	■	BAE003J	BAE-PS-XA-1W-24-038-003
										■						Single-phase ²	Metal	■	■	BAE0006	BAE-PS-XA-1W-24-050-003
												■				Single-phase ²	Metal	■	■	BAE0002	BAE-PS-XA-1W-24-100-004
48 V													■		Single-phase ²	Metal	■	■	BAE0003	BAE-PS-XA-1W-24-200-005	
															3-phase ³	Metal		■	BAE0007	BAE-PS-XA-3Y-24-050-009	
															3-phase ³	Metal	■	■	BAE0008	BAE-PS-XA-3Y-24-100-006	
															3-phase ³	Metal	■	■	BAE0009	BAE-PS-XA-3Y-24-200-007	
														■	3-phase ³	Metal	■	■	BAE003R	BAE-PS-XA-3Y-24-400-010	
															Single-phase ²	Plastic	■	■	BAE003K	BAE-PS-XA-1W-48-025-003	
															Single-phase ²	Metal	■	■	BAE003L	BAE-PS-XA-1W-48-050-004	
															Single-phase ²	Metal	■	■	BAE003M	BAE-PS-XA-1W-48-100-005	

¹ = 100...240 V AC

² = 115/230 V AC (Auto-Select)

³ = 340...575 V AC

Power for controllers and networks

Specially developed for controller units, Balluff power supplies can be perfectly integrated into your control package.

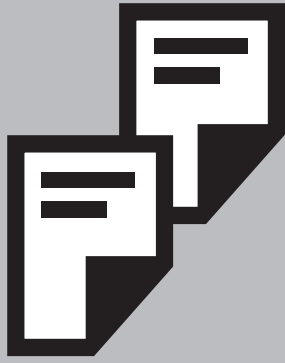
The PS series of ultra-reliable power supply units is available in a wide range of 12, 24, and 48 V DC models with single or 3-phase input. With a bandwidth of 18 W to 960 W, they truly leave nothing to be desired. For even greater power, multiple power supplies are interconnected (parallel switching mode). Do you need a different voltage? Please contact us.



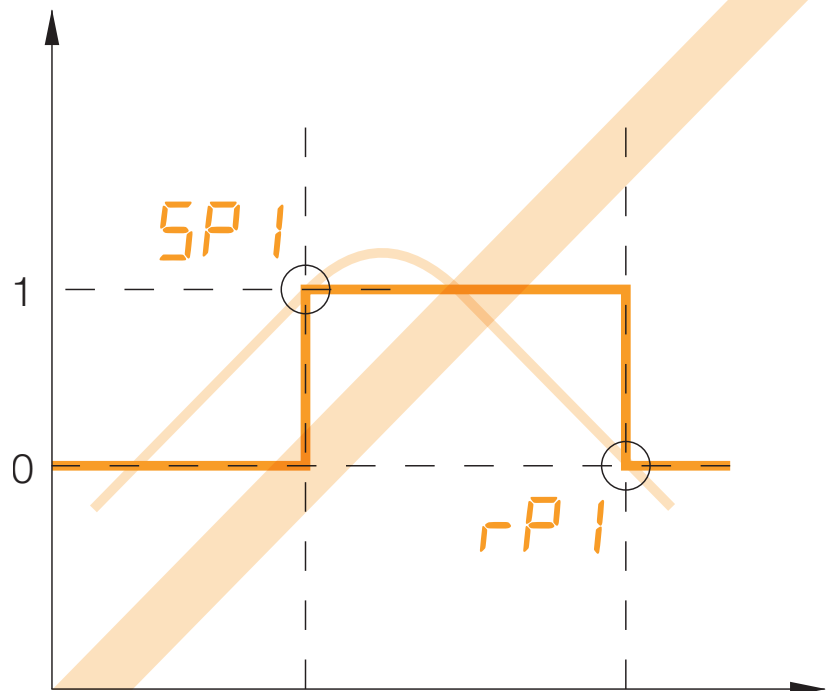
Trouble-free installation

Reliable power has never been so simple to install. Starting with the convenient mounting of DIN rails using the integrated Balluff high-performance mounting system. The screw terminals are aligned to enable the integration of an AC input from below and a DC output from above. Connections with contact protection render additional safety equipment superfluous.





Basic Information and Definitions





Basic Information and Definitions

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Basic Information and Definitions

Quality and environmental management

Quality management system per DIN EN ISO 9001:2008

Balluff companies	
Balluff GmbH	Germany
Balluff SIE Sensorik GmbH	Germany
Balluff Controles Eléctricos Ltda.	Brazil
Balluff Sensors (Chengdu) Co., Ltd.	China
Balluff Ltd.	Great Britain
Balluff Automation S.R.L.	Italy
Balluff Canada Inc.	Canada
Balluff de México S.A. de C.V.	Mexico
Balluff GmbH	Austria
Balluff Sp. z o.o.	Poland
Balluff Hy-Tech AG	Switzerland
Balluff Sensortechnik AG	Switzerland
Balluff S.L.	Spain
Balluff CZ, s.r.o	Czech Republic
Balluff Elektronika Kft.	Hungary
Balluff Inc.	USA



Environmental management system per DIN EN ISO 14001:2009

Balluff companies	
Balluff GmbH	Germany
Balluff Sensors (Chengdu) Co., Ltd.	China
Balluff Elektronika KFT	Hungary

Testing laboratory

The Balluff testing laboratory operates in accordance with ISO/IEC 17025 and is accredited by the German Accreditation Body (DAkks) for testing electromagnetic compatibility (EMC).



Balluff products comply with EU directives

Products that require labeling are subject to a conformity evaluation process according to the EU directive and the product is labeled with the CE marking. Balluff products fall under the following EU directive:

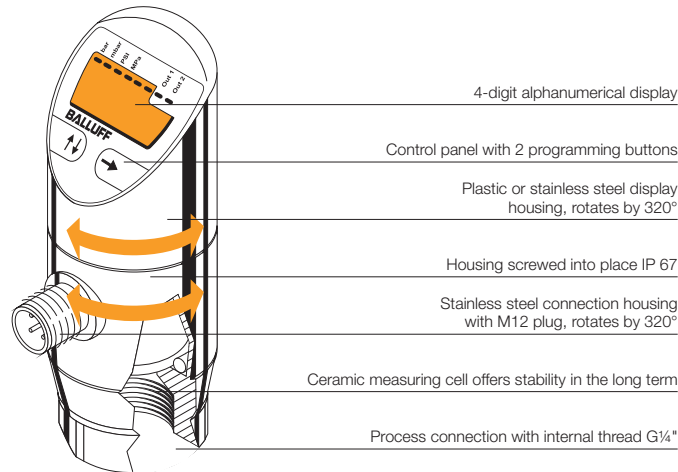


2004/108/EC	EMC directive
2006/95/EC	Low Voltage Directive valid for products with supply voltage ≥ 75 V DC/ ≥ 50 V AC

Basic Information and Definitions

Specific basic information for pressure sensors

Sensor design



Function principle

Balluff pressure sensors convert the physical pressure variable (force per surface) into an electrical output variable that serves as a pressure indicator. This conversion is made with a ceramic membrane. The electrical signal is amplified and linearized and interfering factors such as temperature are compensated.

Pressure characteristics

Absolute pressure: The absolute pressure is the pressure in relation to zero pressure (vacuum). The value range of absolute pressure is always positive.

Relative pressure: Pressure is usually measured in relation to the actual atmospheric pressure. For pressures greater than the air pressure, positive values are obtained for the measurements. For pressures less than the air pressure, negative values.

Nominal pressure: This corresponds to the maximum design pressure.

Burst pressure: Minimum pressure that the pressure sensor must withstand without being destroyed. If this pressure is exceeded, expect pressurized components to crack, the device to leak, or internal mechanisms to be destroyed.

Pressure peaks: Pressure load pulses that can be several times the measured pressure.

Material characteristics

Incompressible material: Changes in the pressure of fluids such as water and hydraulic fluid do not initially have an effect on volume. These materials are classed as incompressible.

Compressible material: Typical compressible materials include gases, which decrease in volume when their pressure increases.

Material temperature: This indicates the permitted temperature range of the pressurized material.



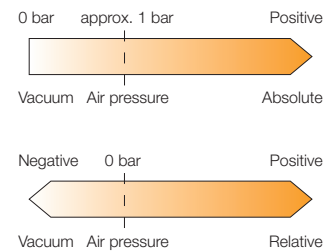
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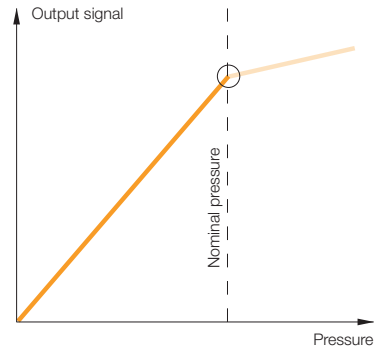


Basic Information and Definitions

Specific basic information for pressure sensors

Characteristic

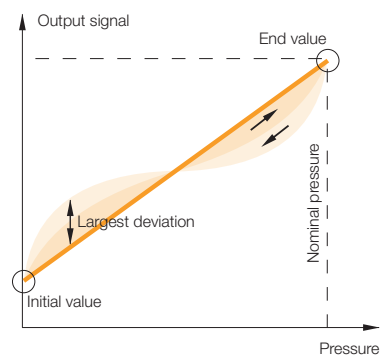
This describes the relationship between the measured and output variable. With pressure sensors, this indicates how dependent the output signal is on the pressure. In an ideal scenario, the characteristic should be a straight line.



Accuracy

The accuracy indicates how much the actual characteristic can deviate from the ideal characteristic (according to IEC 60770 nonlinearity, hysteresis and reproducibility). Accuracy specifications represent a percentage value of the measurement range (FSO) and never include dimensions.

Nominal pressure 50 bar
Accuracy 0.5 %
Max. deviation 0.25 bar



Measuring range

Working range with specific tolerances within which the measured deviation lies.

Full scale end value (FS)

Maximum measuring variable to which a device is adjusted, e.g. 20 mA.

Full scale output (FSO)

The range represents the difference between the upper and lower limit values of the display range. Example: A pressure sensor with a measuring range of 0...6 bar and a corresponding output signal of 4...20 mA has an FSO of 16 mA

Response time

The time between the change in pressure and the change in the switching output status.

Reproducibility

Repeat accuracy of two measurements under standardized conditions.

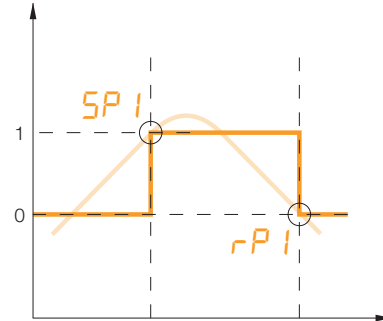
Basic Information and Definitions

Specific basic information for pressure sensors

Hysteresis, adjustable

The difference between the switching point (SP) and return point (rP) is known as hysteresis. On electronic pressure switches, any hysteresis can be selected within the measuring range.

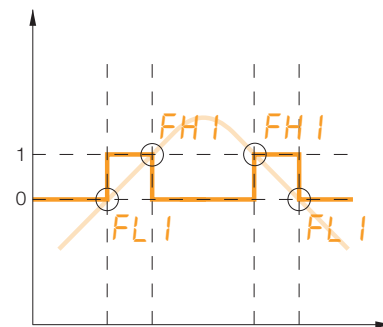
Hysteresis function: The hysteresis keeps the switching status of the outputs stable, even if the system pressure fluctuates around the setpoint value. The output is activated when the system pressure rises and the relevant switching point (SP) is reached. The output is deactivated when the pressure decreases again and the return point (rP) is reached.



Window, adjustable

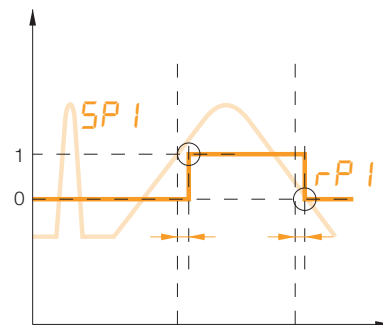
The output function is activated when the measured value falls between the preset switching and return point.

Window function: The range between a defined lower pressure limit and a defined upper limit is known as a window. A switching operation is initiated as soon as the upper or lower limit of the programmed pressure range is exceeded.



Delay times

Delay times can reliably filter out undesired pressure peaks that occur momentarily. The status of the switching output does not change immediately after the switching event occurs, but only once a preselected delay time of 0...50 s has elapsed. If the switching event no longer exists by the time the delay has elapsed, the switching output does not change.



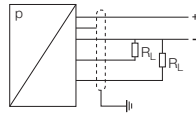
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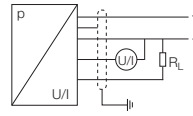
Electrical properties

Switching function

4-wire pressure sensors with switching output



4-wire pressure sensors with analog output



Pin assignments

Electrical connections	Pressure sensors with switching output	Pressure sensors with analog output
Supply +	1	1
Supply -	3	3
Signal +		2
Switching output 1	4	4
Switching output 2	2	
Shield	Connector housing	Connector housing

Supply voltage U_B

This is the voltage range in which flawless functioning of the sensor is assured. It includes all voltage tolerances and residual ripples.

Output current max.

This is the maximum current with which the output of the sensor may be loaded in continuous operation.

No-load supply current I_0 max.

This is the intrinsic current consumption of the sensor at maximum supply voltage U_S with no switched load.

Short-circuit protection and overload protection

All DC sensors feature this protection device. In the event of overload or short-circuit at the output, the output transistor is automatically switched off. As soon as the malfunction has been corrected, the output stage is reset to normal functioning.

Polarity reversal protection

The sensor electronics are protected against possible polarity reversal or interchanging of the connection wires.

Ambient temperature T_a

The device operates reliably within this temperature range. The ambient temperature of the device must remain within the range specified on the relevant data sheet and must not exceed the upper or lower range limits.

Temperature drift

Shift of the switching point caused by a change in the ambient temperature.

Switching frequency f max.

This is a succession of periodically repeating sensor switching cycles that occur during a specified time interval (1 second).

Basic Information and Definitions

Mechanical properties

Materials

Material	Use and characteristics
Plastics	
PA 6.6 Polyamide	Good mechanical strength. Temperature resistance.
FKM Fluoroelastomer	Resistant to pressure deformation. Temperature resistance. Good chemical resistance.
PUR Polyurethane	Elastic, abrasion-resistant, impact-resistant. Good resistance to oils, greases, solvents (used for gaskets and cable jackets).
TROGAMID®	Very good strength and chemical resistance. UV-resistant and continuously transparent. High dynamic resistance.
Metal	
Stainless steel	Excellent corrosion resistance and strength. Quality 1.4301: Standard material for the foods industry.
Al Wrought aluminum alloy	Standard aluminum for cut shaping. Can be anodized. Used for housings and mounting components.
Other	
Ceramic	Very good strength and chemical resistance. Electrically insulating. Excellent temperature resistance.



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Degree of protection

The degrees of protection are given according to IEC 60529. Code letters IP (International Protection) designate protection for electrical equipment against shock hazard, ingress of solid foreign bodies and water

First digit:

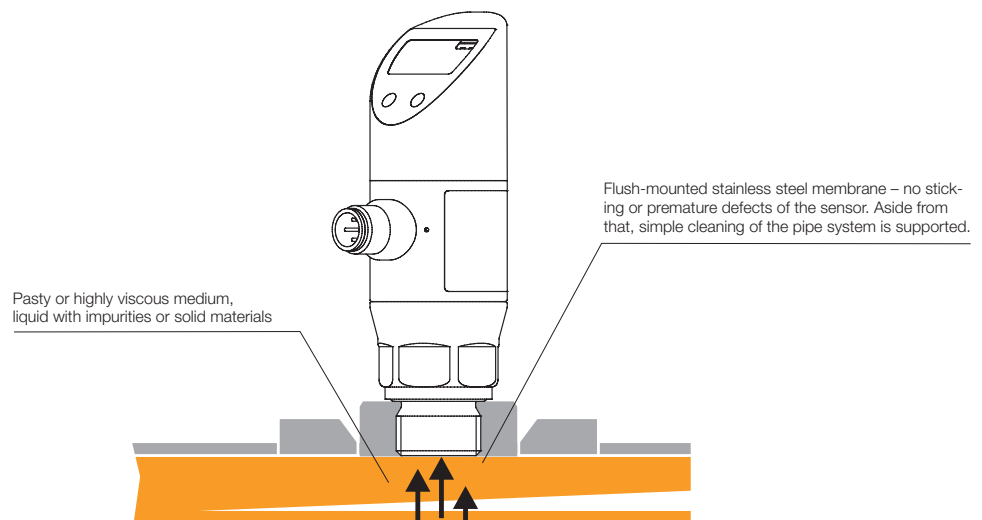
- 2 Protection against penetration of solid bodies larger than 12 mm, shielding from fingers and objects
- 4 Protection against penetration of solid bodies larger than 1 mm, shielding from tools and wires
- 5 Protection against harmful dust deposits, complete shock-hazard protection
- 6 Protection against penetration of dust, complete shock-hazard protection

Second digit:

- 0 No special protection
- 4 Protection against water spraying from all directions against the equipment
- 5 Protection against a water jet from a nozzle striking the device from any direction
- 7 Protection against water when the device (housing) is temporarily immersed
- 8 Protection against water during prolonged immersion

Flush-mounted pressure sensors

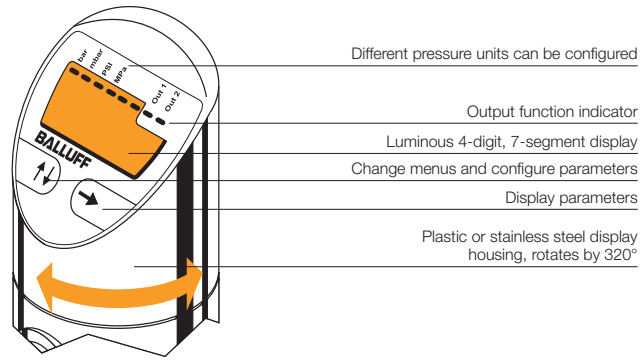
With the flush-mounted, welded stainless steel membrane, the sensors have no dead spaces and are particularly easy to clean. They are ideally suited for pressure measurement in viscous, paste-like, crystallizing or solids-containing media. A G $\frac{1}{2}$ " external thread according to DIN EN 3852 serves as process connection.



Basic Information and Definitions

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Display



	Description	ASCII		Description	ASCII
<i>SP 1</i>	Switching point (1)	SP1	<i>Hnc</i>	NC with hysteresis function	HNC
<i>rP 1</i>	Return point (1)	RP1	<i>Fnc</i>	NC with window function	HNC
<i>SP 2</i>	Switching point (2)	SP2	<i>Un</i>	Unit selection	Uni
<i>rP 2</i>	Return point (2)	RP2	<i>bAr</i>	Unit bar	bar
<i>FH 1</i>	Pressure window, upper value (1)	FH1	<i>iMPa</i>	Unit MPa	MPa
<i>FL 1</i>	Pressure window, lower value (1)	FL1	<i>PA</i>	Unit Pa	Pa
<i>FH 2</i>	Pressure window, upper value (2)	FH2	<i>PS</i>	Unit psi	psi
<i>FL 2</i>	Pressure window, lower value (2)	FL2	<i>FLiP</i>	Turn display	Flip
<i>EF</i>	Extended function	EF	<i>Lo</i>	Min. value	LO
<i>rES</i>	Reset	RES	<i>Hi</i>	Max. value	HI
<i>dS 1</i>	Switching delay time (1)	dS1	<i>SEt0</i>	Zero point adjustment	SETO
<i>dS 2</i>	Switching delay time (2)	dS2	<i>dAP</i>	Measured value damping	dAP
<i>dr 1</i>	Return delay time (1)	dR1	<i>codE</i>	Access protection	Code
<i>dr 2</i>	Return delay time (2)	dR2	<i>d iA</i>	Diagnostic function	DIA
<i>ou 1</i>	Output (1)	Ou1	<i>Err</i>	Error indicator	ERR
<i>ou 2</i>	Output (2)	Ou2	<i>d iS</i>	Display	DIS
<i>Hno</i>	NO with hysteresis function	HNO	<i>YES</i>	Yes	Yes
<i>Fno</i>	NO with window function	FNO	<i>no</i>	No	No

IO-Link

IO-Link is a worldwide standardized IO technology in accordance with IEC 61131-9 for communicating from the controller to the lowest level of the automation system. The interface can be used universally and is a fieldbus-independent point-to-point connection that operates using an unshielded industrial cable.



Benefits of the digital communications standard

- Easy to install
- Need-based maintenance
- Efficient operation
- Highest machine availability

SIO mode

Balluff pressure sensors with IO-Link support both SIO mode and IO-Link mode.

SIO mode (Standard IO mode):

In SIO mode, the sensor operates with the standard output signals. This way one digital output and one more digital output or an analog output are always available.

IO-Link mode (communication mode):

If the sensor operates subordinate to an IO-Link master, then the pressure sensor switches to IO-Link communication mode. The process data length of the pressure sensor is 16 bits. The switching statuses of the two switching outputs (BCD1 and BCD2) are transmitted in the process data, as well as the current measured value.

15 Bit	14...2	1	0
Signed bit	Measured value	BCD2/ Output 2	BCD1/ Output 1

Basic Information and Definitions

Configuring and adjusting sensors

Configuring and adjusting sensors

Balluff pressure sensors BSP are easy to configure in line with VDMA standards: **Change menus** – Press the button to switch to programming mode and modify the pressure sensor settings.

Display parameter – Press the button to show the relevant parameter on the display. **Set parameter** – Press the button in any menu to select the relevant value.

Display mode

The current process pressure is displayed here. You can check this parameter directly on location at any time.



Switching point 1

Here you can select the switching point (pressure value) of output 1, which determines when the output status of the sensor changes. The switching point can be set to any value within the measuring range.



Return point 1

Return point 1 is used to select the pressure value that defines when output 1 switches back. The difference between SP 1 (9.05 bar here) and rP 1 (7.05 bar here) produces the hysteresis (2 bar here) of switching output 1.



Switching point 2

For setting output 2. Proceed as described for switching point 1.



Return point 2

For setting output 2. Proceed as described for return point 1.



Extended functions

Additional settings such as switching functions for outputs 1 and 2 can be configured in the "Extended functions" menu.



- Switch-on delay for SP 1 and SP 2
- Return point delay for rP 1 and rP 2
- Switching function for Out 1 and Out 2
- NO
- NC
- Window function
- Hysteresis function
- Unit selection
- Min./max. value
- Access protection
- Turn display
- Zero point adjustment
- Measured value damping

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Alphanumeric Directory

Sorted by part number



Sorted by
part number

Part number	Ordering code	Page
BAE		
BAE-PS-XA-1W-12-015-001	BAE0036	37
BAE-PS-XA-1W-12-025-002	BAE0039	37
BAE-PS-XA-1W-12-050-002	BAE003E	37
BAE-PS-XA-1W-12-100-003	BAE003H	37
BAE-PS-XA-1W-24-007-001	BAE0001	37
BAE-PS-XA-1W-24-012-002	BAE0004	37
BAE-PS-XA-1W-24-025-002	BAE0005	37
BAE-PS-XA-1W-24-038-003	BAE003J	37
BAE-PS-XA-1W-24-050-003	BAE0006	37
BAE-PS-XA-1W-24-100-004	BAE0002	37
BAE-PS-XA-1W-24-200-005	BAE0003	37
BAE-PS-XA-1W-48-025-003	BAE003K	37
BAE-PS-XA-1W-48-050-004	BAE003L	37
BAE-PS-XA-1W-48-100-005	BAE003M	37
BAE-PS-XA-3Y-24-050-009	BAE0007	37
BAE-PS-XA-3Y-24-100-006	BAE0008	37
BAE-PS-XA-3Y-24-200-007	BAE0009	37
BAE-PS-XA-3Y-24-400-010	BAE003R	37

BAM		
BAM AD-SP-008-1G4/1G2-4	BAM01UJ	34
BAM AD-SP-008-1G4/1G4-4	BAM01KP	34
BAM AD-SP-008-1G4/1G4-4-EN837	BAM01KR	34
BAM AD-SP-008-1G4/1N4-4	BAM01KT	35
BAM AD-SP-008-1G4/1R4-4	BAM01RP	35
BAM AD-SP-008-1G4/M20X1.5-4	BAM0209	35
BAM AD-SP-011-1G4/1N4-4	BAM01TR	35
BAM MC-XA-017-D30.0-1	BAM01U0	35

BCC		
BCC M415-0000-1A-003-PX0434-020	BCC032F	30
BCC M415-0000-1A-003-PX0434-050	BCC032H	30
BCC M415-0000-1A-003-PX0434-100	BCC032J	30
BCC M415-0000-1A-014-PS0434-020	BCC032K	30
BCC M415-0000-1A-014-PS0434-050	BCC032L	30
BCC M415-0000-1A-014-PS0434-100	BCC032M	30
BCC M425-0000-1A-003-PX0434-020	BCC032Y	30
BCC M425-0000-1A-003-PX0434-050	BCC032Z	30
BCC M425-0000-1A-003-PX0434-100	BCC0330	30
BCC M425-0000-1A-014-PS0434-020	BCC0331	30
BCC M425-0000-1A-014-PS0434-050	BCC0332	30
BCC M425-0000-1A-014-PS0434-100	BCC0333	30

BNI		
BNI IOL-709-000-K006	BNI0007	31
BNI IOL-710-000-K006	BNI0008	31

BSP		
BSP B002-DV004-A04A1A-S4	BSP00JH	23
BSP B002-DV004-A06A1A-S4	BSP00FZ	25
BSP B002-EV002-A00A0B-S4	BSP000T	13
BSP B002-EV002-A00S1B-S4	BSP008N	15
BSP B002-EV002-D00A0B-S4	BSP0014	13
BSP B002-EV002-A02S1B-S4	BSP0093	15
BSP B002-EV002-D00A0B-S4	BSP000F	13
BSP B002-EV002-D00S1B-S4	BSP0088	15
BSP B002-EV003-A00A0B-S4	BSP002A	17
BSP B002-EV003-A00S1B-S4	BSP00AP	19
BSP B002-EV003-A02A0B-S4	BSP002N	17
BSP B002-EV003-A02S1B-S4	BSP00A9	19
BSP B002-EV003-D00A0B-S4	BSP0021	17
BSP B002-EV003-D00S1B-S4	BSP00CJ	19
BSP B002-FV004-A04A1A-S4	BSP00JY	23
BSP B002-FV004-A06A1A-S4	BSP00H9	25
BSP B002-HV004-A04A1A-S4	BSP00KP	23
BSP B002-HV004-A06A1A-S4	BSP00J4	25
BSP B002-IV003-A00A0B-S4	BSP006J	21
BSP B002-IV003-A02A0B-S4	BSP0064	21
BSP B002-IV003-D00A0B-S4	BSP005P	21
BSP B002-KV004-A04A1A-S4	BSP00K9	23
BSP B002-KV004-A06A1A-S4	BSP00HP	25

Part number	Ordering code	Page
BSP B005-DV004-A04A1A-S4	BSP00JJ	23
BSP B005-DV004-A06A1A-S4	BSP00H0	25
BSP B005-EV002-D00A0B-S4	BSP000U	13
BSP B005-EV002-A00S1B-S4	BSP008P	15
BSP B005-EV002-A02A0B-S4	BSP0015	13
BSP B005-EV002-A02S1B-S4	BSP0094	15
BSP B005-EV002-D00A0B-S4	BSP000H	13
BSP B005-EV002-D00S1B-S4	BSP0089	15
BSP B005-EV003-A00A0B-S4	BSP002C	17
BSP B005-EV003-A00S1B-S4	BSP00AR	19
BSP B005-EV003-A02A0B-S4	BSP002P	17
BSP B005-EV003-A02S1B-S4	BSP00AA	19
BSP B005-EV003-D00A0B-S4	BSP0022	17
BSP B005-EV003-D00S1B-S4	BSP00CK	19
BSP B005-FV004-A04A1A-S4	BSP00JZ	23
BSP B005-FV004-A06A1A-S4	BSP00HA	25
BSP B005-HV004-A04A1A-S4	BSP00KR	23
BSP B005-HV004-A06A1A-S4	BSP00J5	25
BSP B005-IV003-A00A0B-S4	BSP006K	21
BSP B005-IV003-A02A0B-S4	BSP0065	21
BSP B005-IV003-D00A0B-S4	BSP005R	21
BSP B005-KV004-A04A1A-S4	BSP00KA	23
BSP B005-KV004-A06A1A-S4	BSP00HR	23
BSP B010-DV004-A04A1A-S4	BSP00JK	25
BSP B010-DV004-A06A1A-S4	BSP00H1	25
BSP B010-EV002-A00A0B-S4	BSP000W	13
BSP B010-EV002-A00S1B-S4	BSP008R	15
BSP B010-EV002-A02A0B-S4	BSP0016	13
BSP B010-EV002-A02S1B-S4	BSP0095	15
BSP B010-EV002-D00A0B-S4	BSP000J	13
BSP B010-EV002-D00S1B-S4	BSP008A	15
BSP B010-EV003-A00A0B-S4	BSP002E	17
BSP B010-EV003-A00S1B-S4	BSP00AT	19
BSP B010-EV003-A02A0B-S4	BSP002R	17
BSP B010-EV003-A02S1B-S4	BSP00AC	17
BSP B010-EV003-D00A0B-S4	BSP0023	19
BSP B010-EV003-D00S1B-S4	BSP00CL	19
BSP B010-FV004-A04A1A-S4	BSP00K0	23
BSP B010-FV004-A06A1A-S4	BSP00HC	25
BSP B010-HV004-A04A1A-S4	BSP00KT	23
BSP B010-HV004-A06A1A-S4	BSP00J6	25
BSP B010-IV003-A00A0B-S4	BSP006L	21
BSP B010-IV003-A02A0B-S4	BSP0066	21
BSP B010-IV003-D00A0B-S4	BSP005T	21
BSP B010-KV004-A04A1A-S4	BSP00KC	23
BSP B010-KV004-A06A1A-S4	BSP00HT	25
BSP B020-DV004-A04A1A-S4	BSP00JL	23
BSP B020-DV004-A06A1A-S4	BSP00H2	25
BSP B020-EV002-A00A0B-S4	BSP000Y	13
BSP B020-EV002-A00S1B-S4	BSP008T	15
BSP B020-EV002-D00A0B-S4	BSP0017	13
BSP B020-EV002-A02S1B-S4	BSP0096	15
BSP B020-EV002-D00A0B-S4	BSP000K	13
BSP B020-EV002-D00S1B-S4	BSP008C	15
BSP B020-EV003-A00A0B-S4	BSP002F	17
BSP B020-EV003-A00S1B-S4	BSP00AU	19
BSP B020-EV003-A02A0B-S4	BSP002T	17
BSP B020-EV003-A02S1B-S4	BSP00AE	19
BSP B020-EV003-D00A0B-S4	BSP0024	17
BSP B020-EV003-D00S1B-S4	BSP00CM	19
BSP B020-FV004-A04A1A-S4	BSP00K1	23
BSP B020-FV004-A06A1A-S4	BSP00HE	25
BSP B020-HV004-A04A1A-S4	BSP00KU	23
BSP B020-HV004-A06A1A-S4	BSP00J7	25
BSP B020-IV003-A00A0B-S4	BSP006M	21
BSP B020-IV003-A02A0B-S4	BSP0067	21
BSP B020-IV003-D00A0B-S4	BSP005U	21
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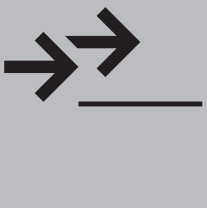
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BSP008N	BSP B002-EV002-A00S1B-S4	15	BSP00HP	BSP B002-KV004-A06A1A-S4	25
BSP008P	BSP B005-EV002-A00S1B-S4	15	BSP00HR	BSP B005-KV004-A06A1A-S4	25
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BSP008T	BSP B020-EV002-A00S1B-S4	15	BSP00HU	BSP B020-KV004-A06A1A-S4	25
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BSP008Y	BSP B250-EV002-A00S1B-S4	15	BSP00HZ	BSP B250-KV004-A06A1A-S4	25
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BSP0091	BSP V002-EV002-A02S1B-S4	15	BSP00J2	BSP V002-HV004-A06A1A-S4	25
BSP0092	BSP V010-EV002-A02S1B-S4	15	BSP00J3	BSP V010-HV004-A06A1A-S4	25
BSP0093	BSP B002-EV002-A02S1B-S4	15	BSP00J4	BSP B002-HV004-A06A1A-S4	25
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BSP0097	BSP B050-EV002-A02S1B-S4	15	BSP00J8	BSP B050-HV004-A06A1A-S4	25
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BSP00A8	BSP V010-EV003-A02S1B-S4	19	BSP00JH	BSP B002-DV004-A04A1A-S4	23
BSP00A9	BSP B002-EV003-A02S1B-S4	19	BSP00JJ	BSP B005-DV004-A04A1A-S4	23
BSP00AA	BSP B005-EV003-A02S1B-S4	19	BSP00JK	BSP B010-DV004-A04A1A-S4	23
BSP00AC	BSP B010-EV003-A02S1B-S4	19	BSP00JL	BSP B020-DV004-A04A1A-S4	23
BSP00AE	BSP B020-EV003-A02S1B-S4	19	BSP00JM	BSP B050-DV004-A04A1A-S4	23
BSP00AF	BSP B050-EV003-A02S1B-S4	19	BSP00JN	BSP B100-DV004-A04A1A-S4	23
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BSP00AT	BSP B010-EV003-A00S1B-S4	19	BSP00K1	BSP B020-FV004-A04A1A-S4	23
BSP00AU	BSP B020-EV003-A00S1B-S4	19	BSP00K2	BSP B050-FV004-A04A1A-S4	23
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BSP00AZ	BSP B250-EV003-A00S1B-S4	19	BSP00K5	BSP B400-FV004-A04A1A-S4	23
BSP00C0	BSP B400-EV003-A00S1B-S4	19	BSP00K6	BSP B600-FV004-A04A1A-S4	23
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BSP00CF	BSP V002-EV003-D00S1B-S4	19	BSP00K8	BSP V010-KV004-A04A1A-S4	23
BSP00CH	BSP V010-EV003-D00S1B-S4	19	BSP00K9	BSP B002-KV004-A04A1A-S4	23
BSP00CJ	BSP B002-EV003-D00S1B-S4	19	BSP00KA	BSP B005-KV004-A04A1A-S4	23
BSP00CK	BSP B005-EV003-D00S1B-S4	19	BSP00KC	BSP B010-KV004-A04A1A-S4	23
BSP00CL	BSP B010-EV003-D00S1B-S4	19	BSP00KE	BSP B020-KV004-A04A1A-S4	23
BSP00CM	BSP B020-EV003-D00S1B-S4	19	BSP00KF	BSP B050-KV004-A04A1A-S4	23
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BSP00CP	BSP B100-EV003-D00S1B-S4	19	BSP00KJ	BSP B250-KV004-A04A1A-S4	23
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BSP00F3	BSP B400-DV004-A06A1A-S4	25	BSP00KN	BSP V010-HV004-A04A1A-S4	23
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BSP00H0	BSP B005-DV004-A06A1A-S4	25	BSP00KW	BSP B050-HV004-A04A1A-S4	23
BSP00H1	BSP B010-DV004-A06A1A-S4	25	BSP00KY	BSP B100-HV004-A04A1A-S4	23
BSP00H2	BSP B020-DV004-A06A1A-S4	25	BSP00KZ	BSP B250-HV004-A04A1A-S4	23
BSP00H3	BSP B050-DV004-A06A1A-S4	25	BSP00L0	BSP B400-HV004-A04A1A-S4	23
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BSP00H8	BSP V010-FV004-A06A1A-S4	25			
BSP00H9	BSP B002-FV004-A06A1A-S4	25			
BSP00HA	BSP B005-FV004-A06A1A-S4	25			
BSP00HC	BSP B010-FV004-A06A1A-S4	25			



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- IO-Link – network technology for reliable data transfer and greater efficiency
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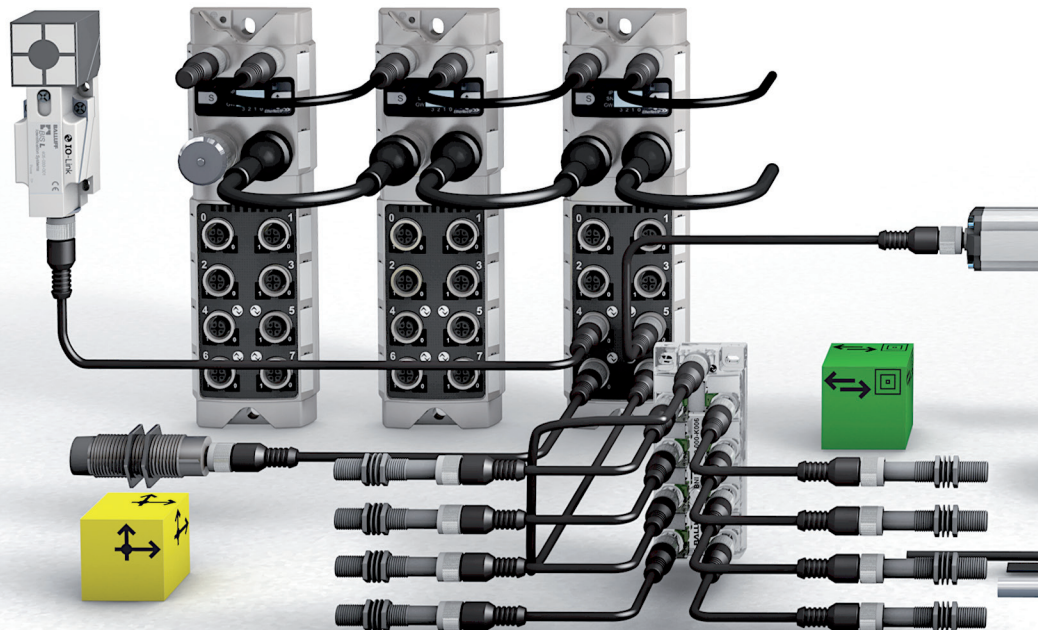
- Decision guidance for selecting the correct product
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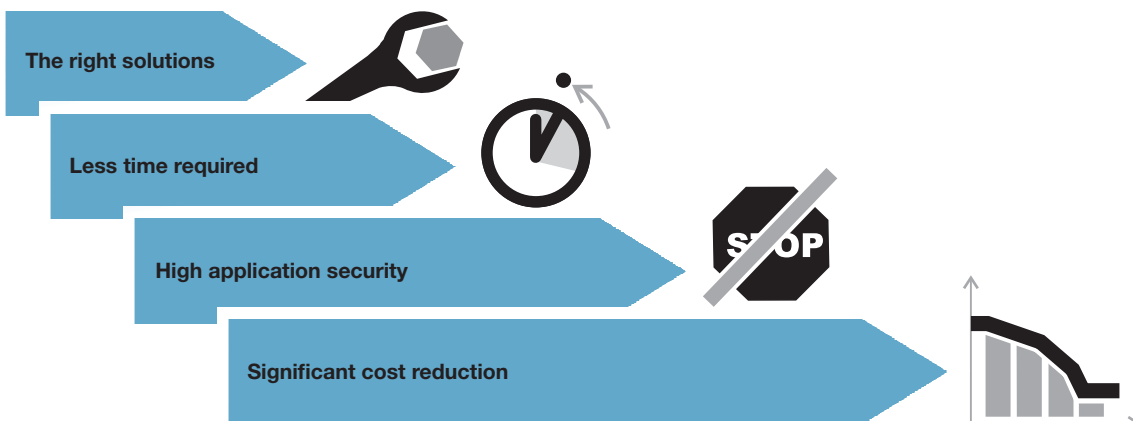
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<p>Application advice through our TecSupport Discuss your technical requirements. And take advantage of our expertise.</p>	<p>Real-world examples:</p> <ul style="list-style-type: none"> ■ Selection of the correct identification procedure for an assembly line ■ IO-Link concept as a cost-effective alternative to conventional wiring ■ System consulting for radio frequency identification (RFID): identification of large steel pipes in adverse environments ■ Recognizing multiple containers on a pallet in goods receiving
<p>Commissioning Faster start of production thanks to expert knowledge</p>	<p>Real-world examples:</p> <ul style="list-style-type: none"> ■ Setting up an optical checkpoint with the vision sensor BVS ■ Consulting and support during the programming of RFID systems BIS ■ Installation and commissioning of a color detection application with the color sensor BFS
<p>Fully customized products Specific versions according to your requirements: from pre-assembly to engineering services</p>	<p>Real-world examples:</p> <ul style="list-style-type: none"> ■ Extending the housing of a high-pressure resistant inductive sensor BHS ■ Extra threads for the housing cover of a micropulse transducer BTL ■ Customer-specific holder for an RFID data carrier ■ Adaptation of the characteristics for analog sensors BAW
<p>Training Make use of well-founded manufacturer knowledge. And benefit from application security.</p>	<ul style="list-style-type: none"> ■ Professional sensor use: Select operating principles, install sensors professionally and ensure the reliable operation of your application. ■ Position and distance measurement: This is how you make precise and wear-free measurements. ■ RFID: The right data at the right time at the right place. ■ Vision sensor: Using an image processing sensor, ensure manufacturing quality in three steps. ■ Vision sensor identification: Reliably identify data matrix codes with an image-processing sensor. ■ Industrial networking with IO-Link: Manage signals intelligently and cost-effectively.



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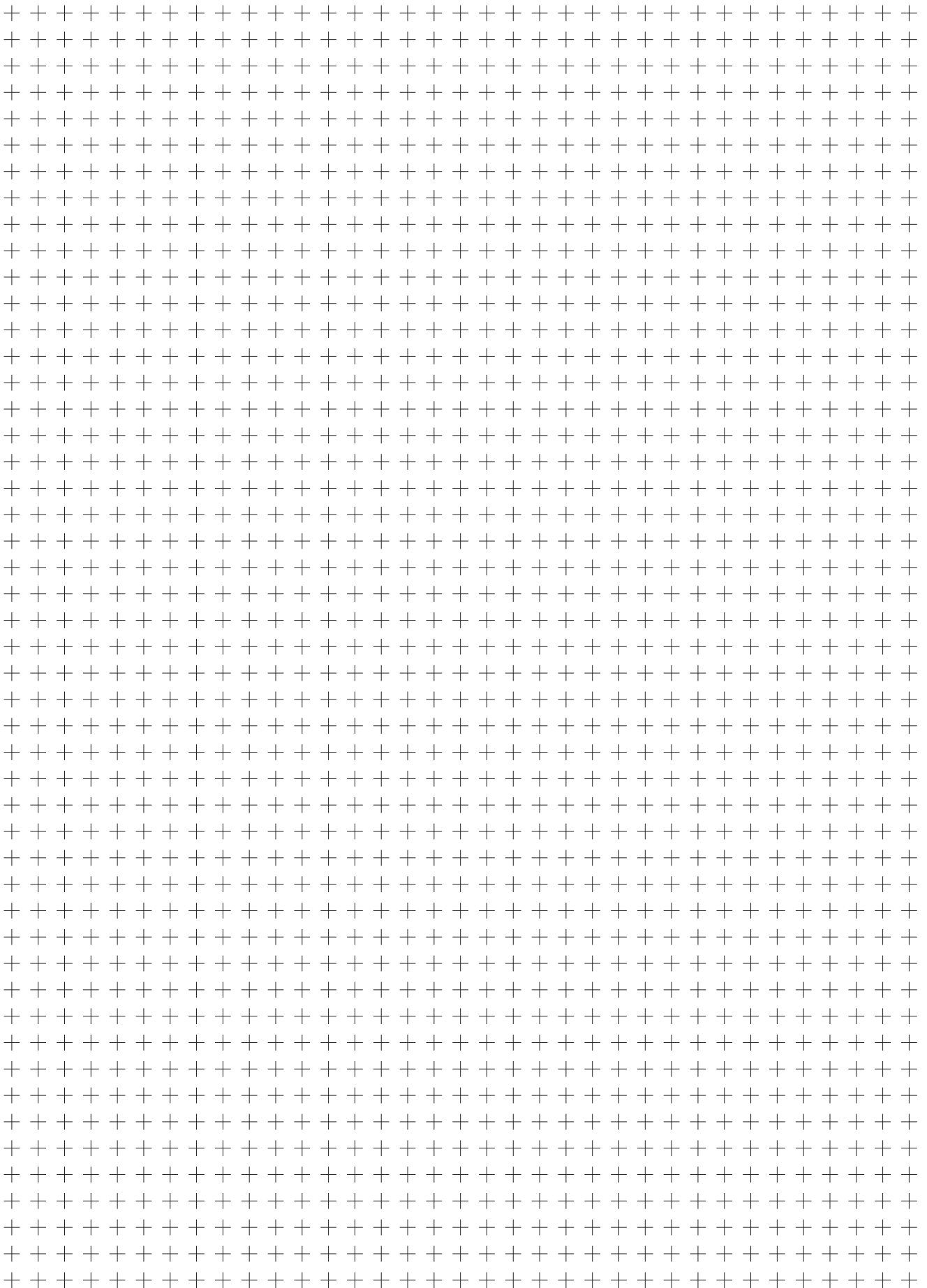
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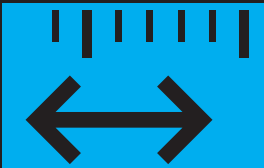
Industrial Networking and Connectivity




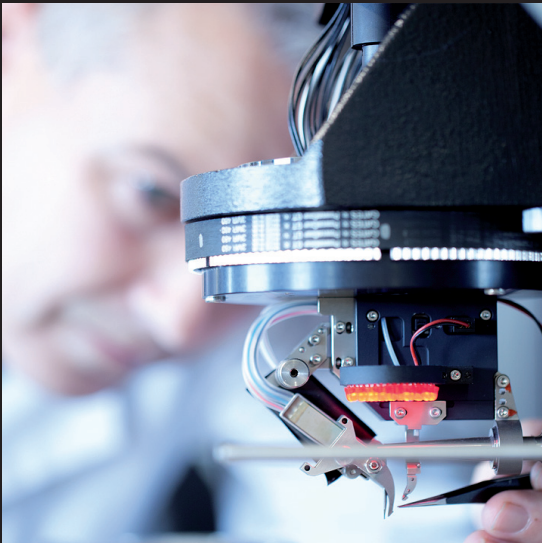
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Industrial Identification



Object Detection



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