

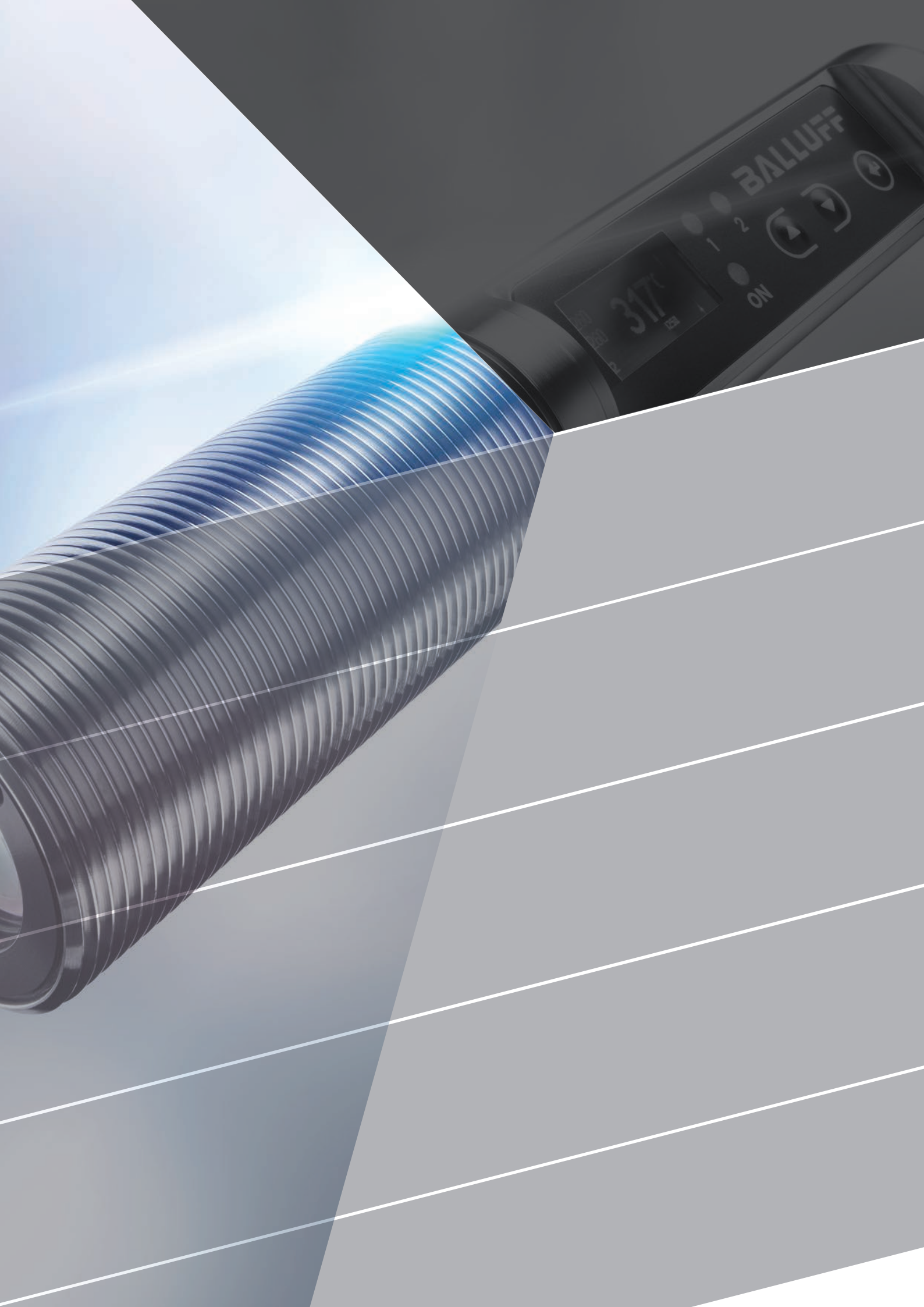
BALLUFF

Efficient
Automation

PRODUCTS + NEWS



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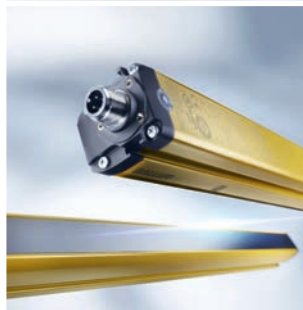
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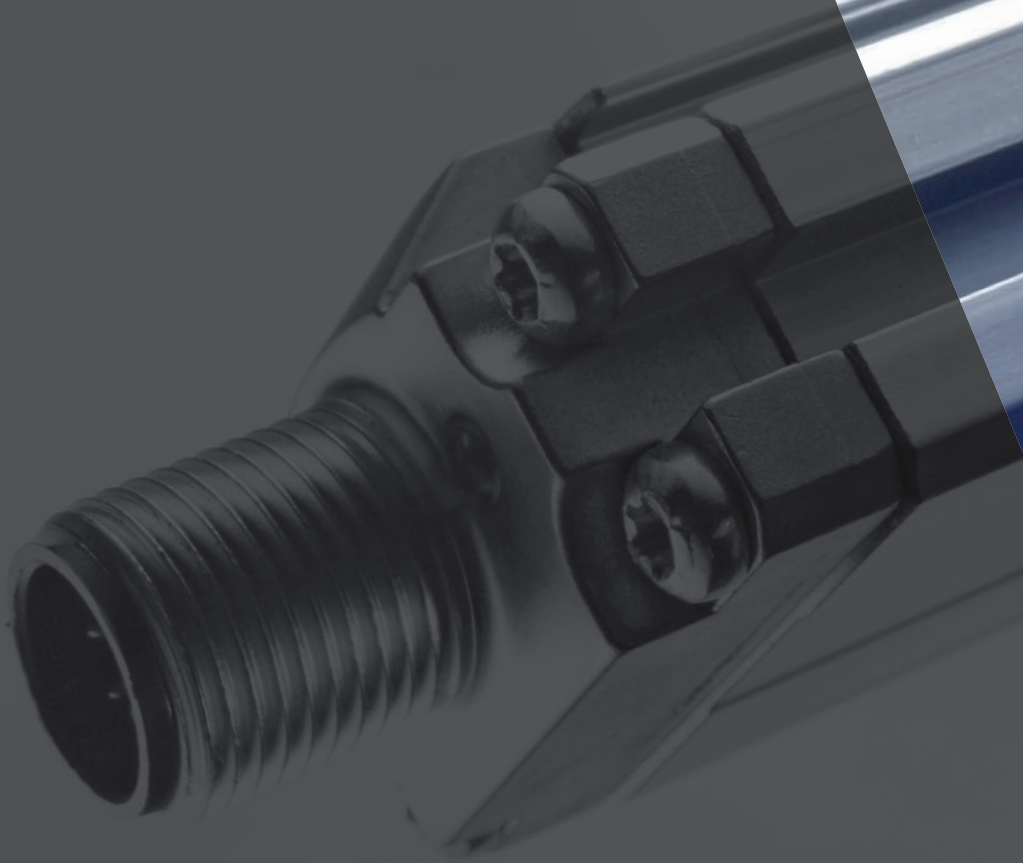


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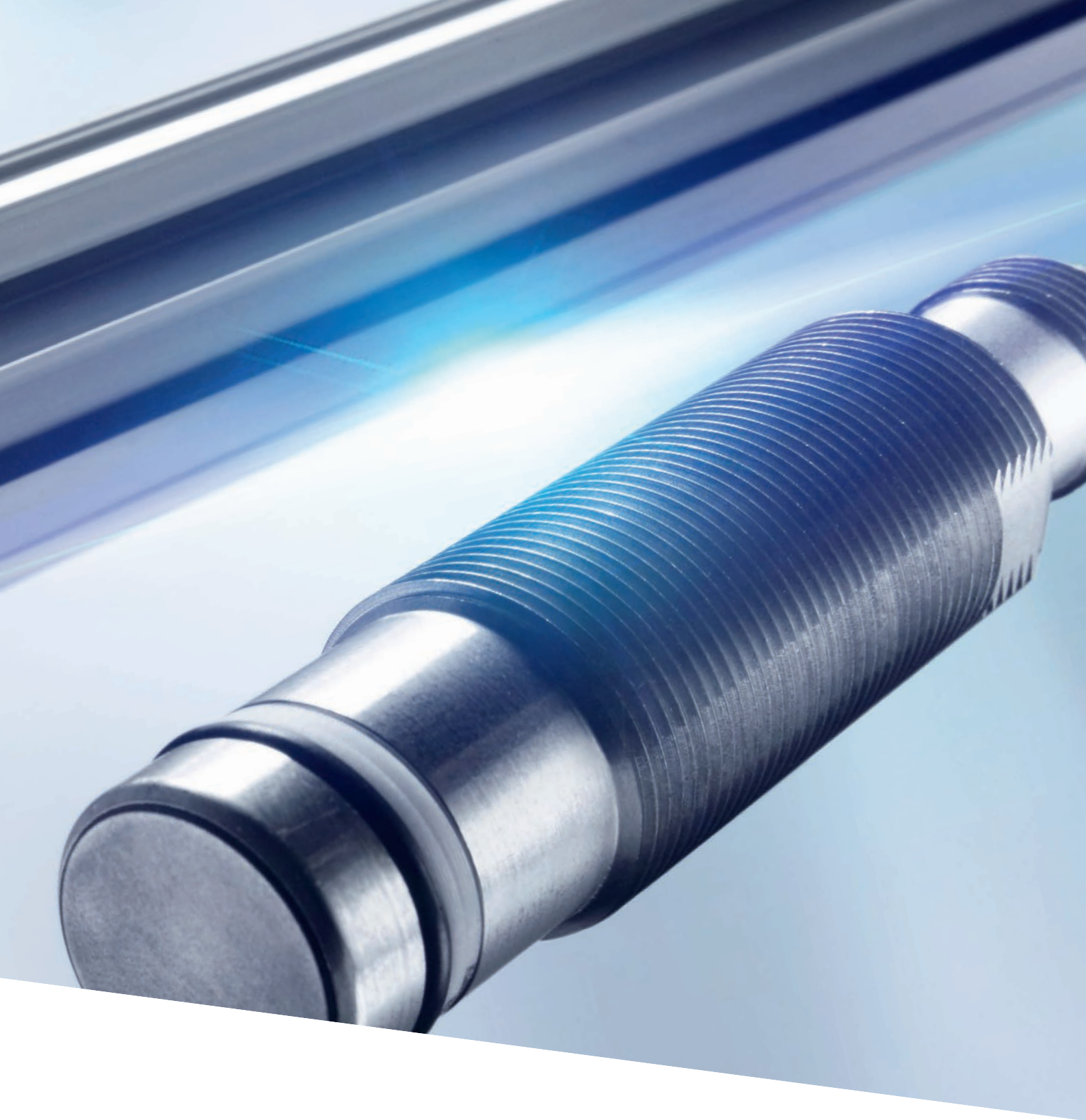
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Comprehensive solutions for industrial automation

SENSORS.

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In the field of sensor technology, Balluff handles the entire range of technological diversity with its various operating principles. We provide you with high-quality sensors for any application or requirement: from distance measurement to object detection and level, temperature and pressure monitoring. For everyday industrial uses as well for tough applications in critical environments.

Our quality management regime is DIN EN ISO 9001:2008 certified. All Balluff sensors are tested in our in-house, accredited laboratory. Balluff sensors meet regional as well as international standards and are used throughout the world.

Your Balluff solutions

- Inductive sensors
- Photoelectric sensors
- Capacitive sensors
- Magnetic field sensors
- Ultrasonic sensors
- Cam switches
- Magnetostrictive sensors
- Magnetic encoders
- Inclination sensors
- Pressure sensors
- Temperature sensors

Magnetostrictive system for non-contact applications

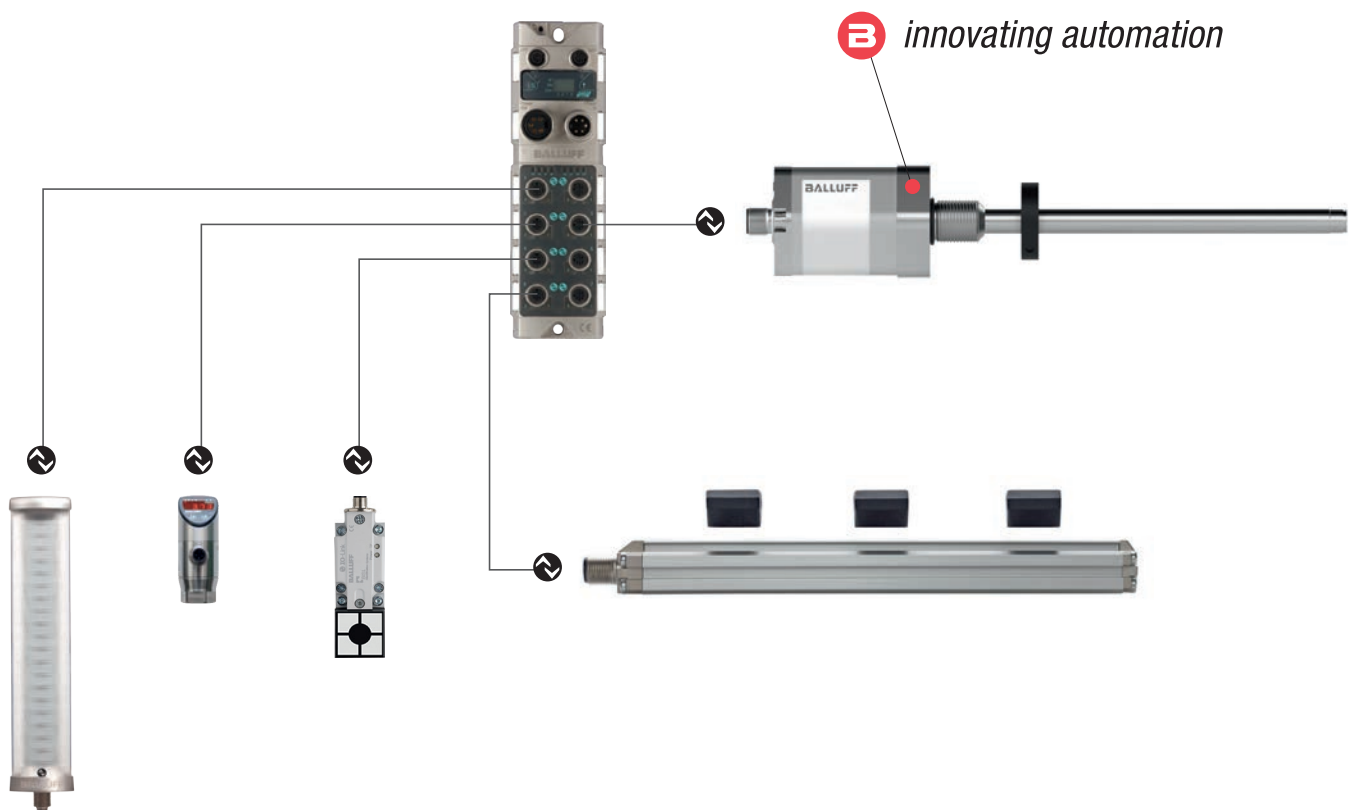
POSITION MEASUREMENT WITH IO-LINK

You too can profit from greater flexibility and comprehensive functionality in hydraulic cylinder control and level measurement. Uniform, simple wiring, continuous diagnostics and centralized parameter setting through the controller characterize IO-Link as an interface technology.

Thanks to IO-Link, the magnetostrictive system can operate in Flexible Magnet Mode (FMM) with one or two magnets and automatically responds to them. It can transmit both position values or determine their difference while providing velocity information or the current internal device temperature.

Features

- Precise machine positioning with 5 μm resolution
- Simultaneous position and velocity measurement in one system
- Equally fast measurement value acquisition and data transmission
- Time-saving startup and flexible adjustment
- Non-contact and wear-free, insensitive to contamination



MAGNETOSTRICTIVE
LINEAR POSITION SENSOR
WITH IO-LINK



	BTL6-U101
Interface	IO-Link 1.1
Max. stroke length	4572 mm
Resolution	5 μm
Linearity deviation	$\pm 50 \mu\text{m}$
Max. sampling frequency	1000 Hz
Max. number of magnets	2
Supply voltage	18...30 V DC
Ambient temperature	-40...+85 °C
Shock	100 g
Vibration	12 g
Degree of protection	IP67
Approval, conformity	CE, UL
Housing material	Aluminum
Connection	M12 connector, 4-pin

Ordering example: **BTL6-U101-M0500-B-S4**

Nominal stroke [4 digits]

M0500 = metric in mm,
Nominal stroke 500 mm (M0025...M4572)

Rod version, fastener

B = Metric mounting thread M18 \times 1.5, O-ring,
rod diameter 10.2 mm

Z = 3/4"-16 UNF thread, O-ring, rod diameter 10.2 mm



Design highly responsive, synchronous and precise control processes

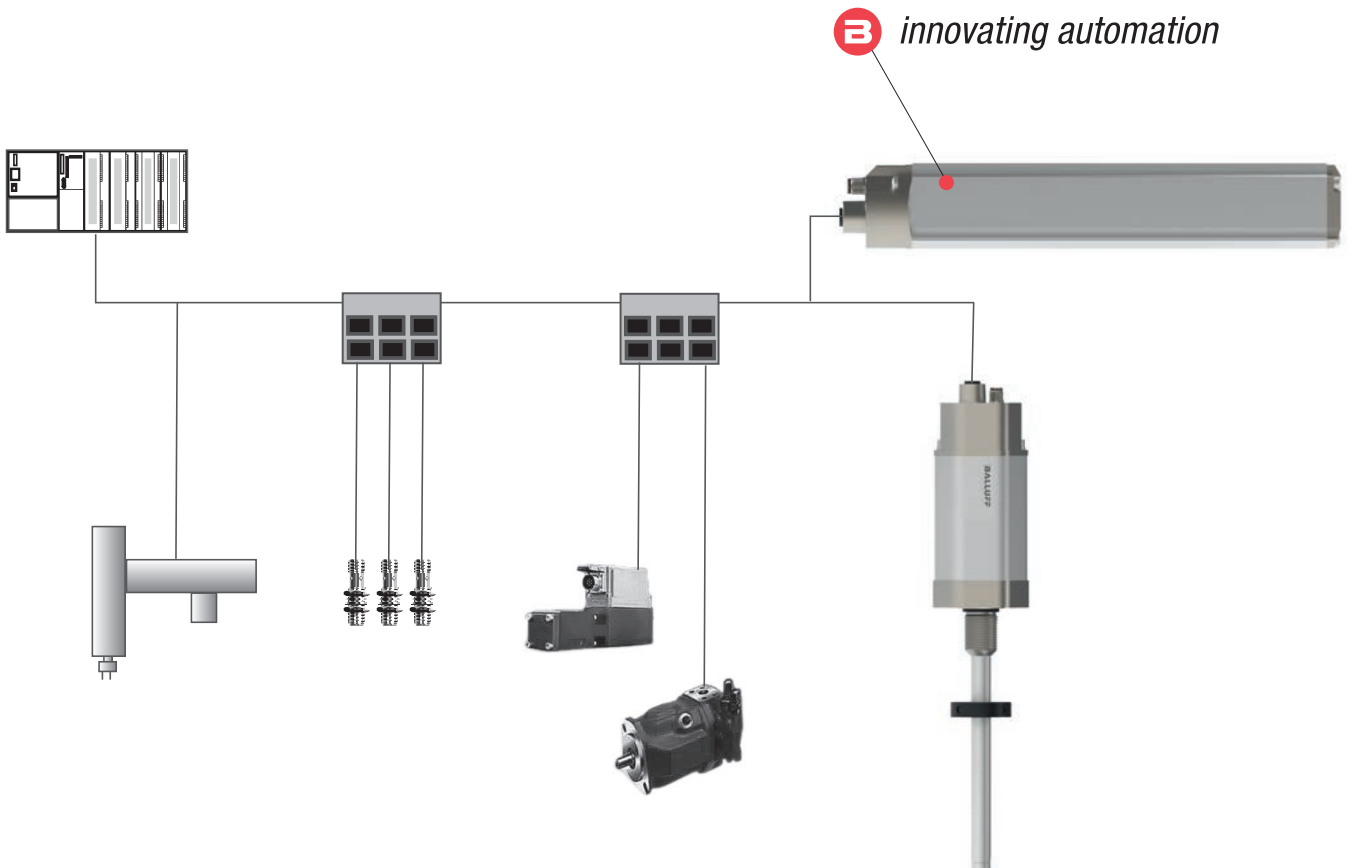
POSITION MEASUREMENT WITH ETHERNET/IP

Whether on machine tools, in hydraulic cylinder control or level measurement, your need for flexibility in linear position measurement grows with the production challenges. Our position measurement system with Ethernet/IP interface meets these expectations in full, with uniform, simple wiring and continuous diagnostics. It can also be configured centrally from the controller.

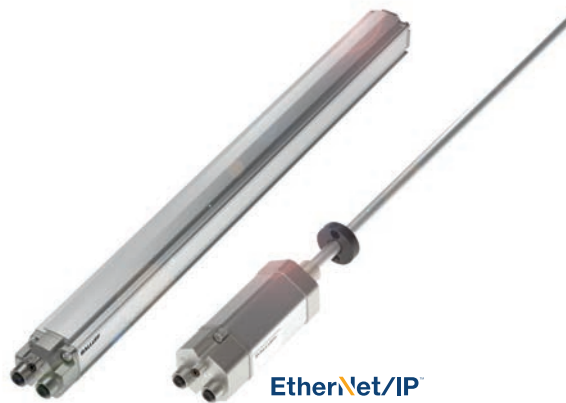
The magnetostrictive system in Flexible Magnet Mode (FMM) allows you to work with up to 16 magnets while at the same time receiving both position and velocity values. Our solution even automatically adapts itself to the number of magnets. A huge simplification for anyone who needs to implement applications with a changing number of magnets.

Features

- Synchronous measurement value acquisition and data transmission with Ethernet/IP CIP Sync
- Fast, precise absolute position and velocity measurement with 1 μm resolution
- Simple, time-saving startup with defined parameter exchange and flexible application matching
- Non-contact and wear-free, insensitive to contamination
- Available in rod-style or extruded profile



LINEAR POSITION SENSOR
WITH ETHERNET/IP



	BTL7-V50D
Interface	Ethernet/IP
Max. stroke length	7620 mm
Resolution	1 µm
Linearity deviation	±30 µm
Max. sampling frequency	1160 Hz
Max. number of magnets	16
Supply voltage	18...30 V DC
Ambient temperature	-40...+85 °C
Shock	150 g
Vibration	20 g
Degree of protection	IP67
Approval, conformity	CE, UL
Housing material	Aluminum
Connection	M12 connector, 4-pin M8 connector, 4-pin

Ordering example: **BTL7-V50D-M0500-B-C003**

Nominal stroke [4 digits]

M0500 Metric values in mm,
Nominal stroke 500 mm (M0025...M7620)

Design

- P Profile housing
- B Metric mounting thread
M18 × 1.5, O-ring, rod diameter 10.2 mm
- Z 3/4"-16 UNF, O-ring,
rod diameter 10.2 mm



For long measuring lengths and high accuracy

MAGNETIC ENCODER BML-S1G

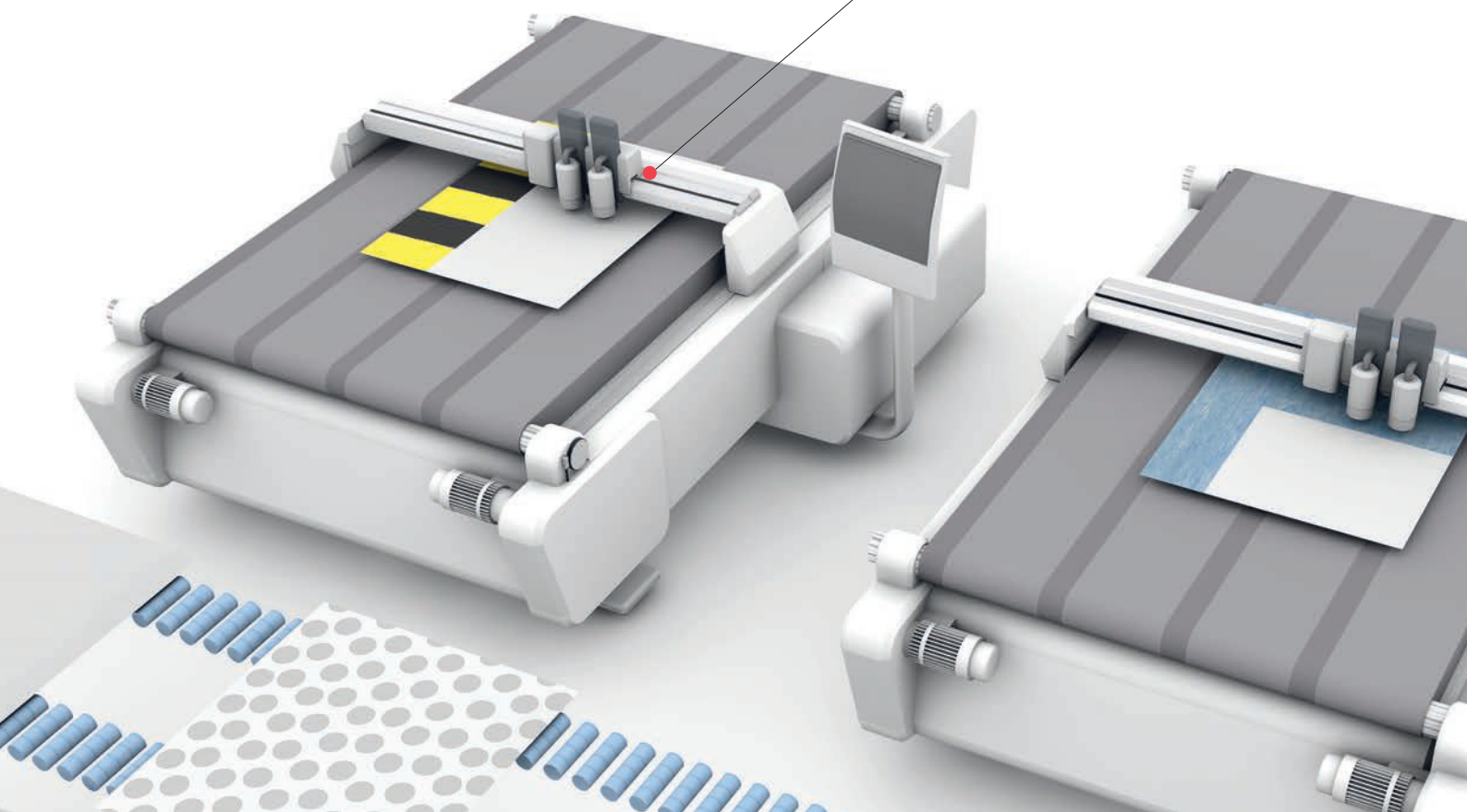
Would you like to combine the advantages of absolute positioning with the simplicity of an incremental interface? Then our BML-S1G magnetic encoder is the ideal solution. Compatible with incremental A/B input cards, it can be very simply integrated into the existing controller without the need for expensive interface cards or controller hardware. It features an innovative interface (absolute quadrature).

Developed for measuring and positioning tasks in all industries, this intelligent system is suitable for both long travel lengths as well as applications where high accuracy is required. Its absolute position signal makes homing moves unnecessary. Used together with the BML Configuration Tool, many additional parameter and diagnostics functions such as condition monitoring are available.

Features

- Flexible: manual or automatic transfer of the absolute position value
- Saves time: easy to set up with no configuration necessary
- Economical: no absolute controller needed since it is compatible with A/B incremental interfaces
- Reliable: Status LED and diagnostic functions for reliable operation
- Universal: measuring lengths up to 48 m, selectable resolution, high system resolution to 20 μm

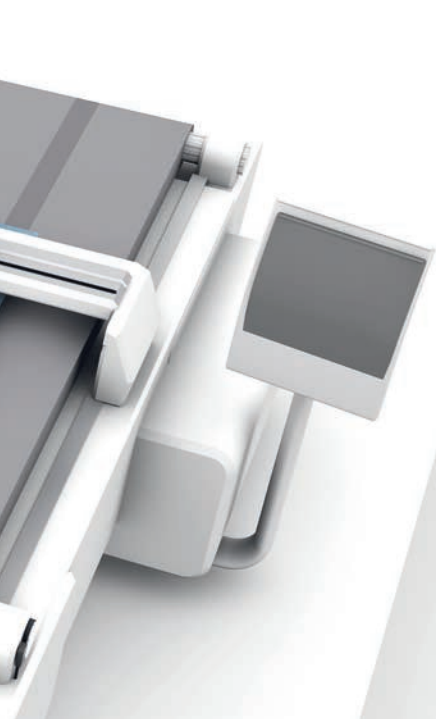
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MAGNETIC ENCODER

	BML06HN
Output signal	Absolute quadrature (compatible with digital square wave signals A/B/Z)
Resolution	1 μm
Max. measuring length	48 m
Overall system accuracy	$\pm 20 \mu\text{m}$
Supply voltage	5 V $\pm 5\%$ and 10...28 V DC
Operating temperature	-20...+70 °C
Degree of protection	IP67
Approval, conformity	CE, cURus
Housing material	Die-case zinc, stainless steel



Stays cool when things get hot

INFRARED TEMPERATURE SENSOR WITH IO-LINK

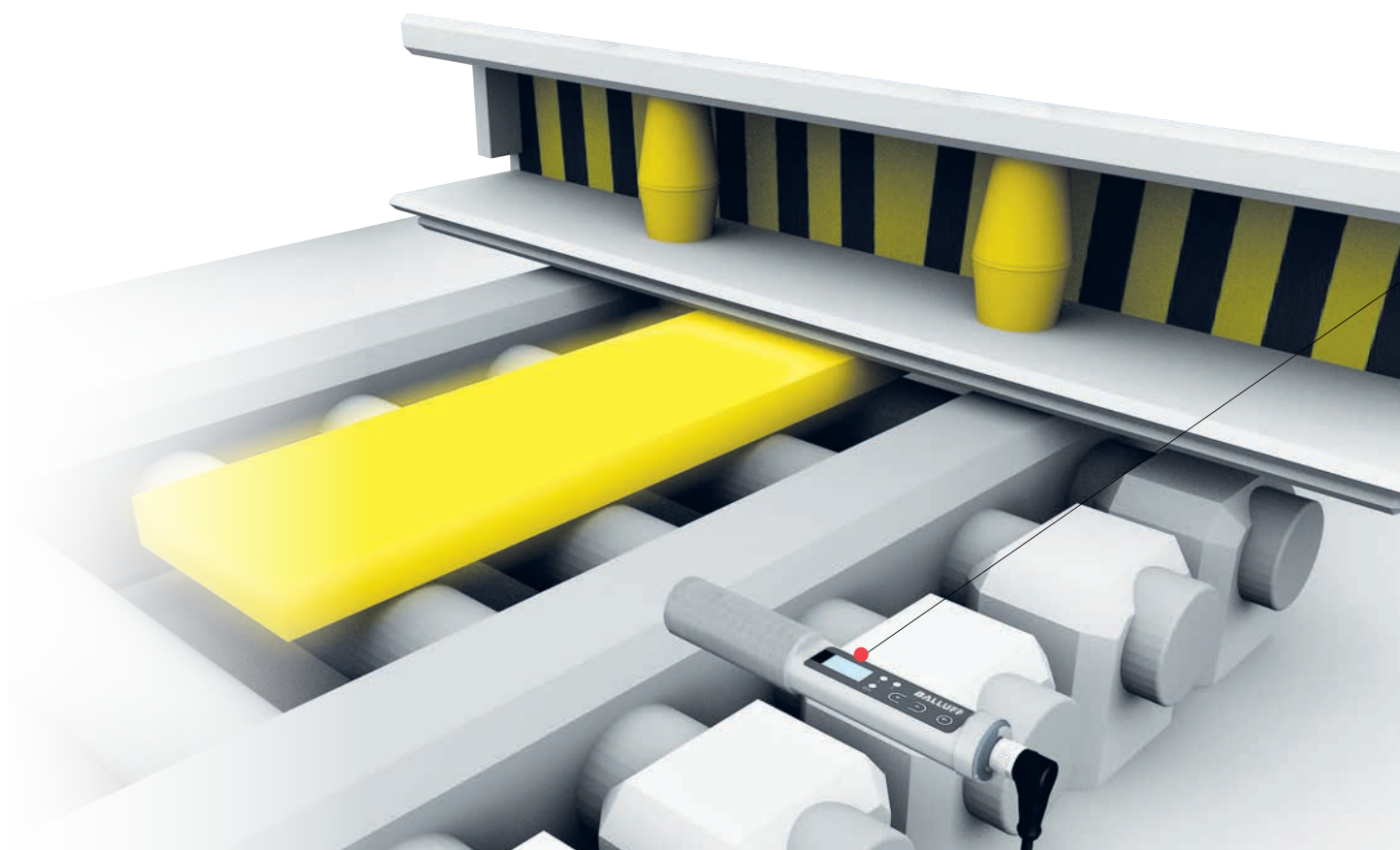
The BTS non-contact infrared temperature sensor allows you to monitor high temperatures even in inaccessible or hazardous areas. It detects hot and even moving objects and acquires temperature values reliably.

With a rugged M30 stainless steel housing and IP67 protection, the sensor is equipped with a multi-function display and automatic display orientation. And with the IO-Link interface it can be parameterized, for example, by the host controller or from a control panel in remote mode.

With a variety of setting possibilities and functions, IO-Link opens up a wide range of applications. Ideal areas include steelworks, foundries, forging, the ceramics industry and glassworks.

Features

- Temperature range +250...+1250 °C
- No contact with the object
- Numerous functions and settings thanks to the IO-Link interface
- Available with 4...20mA interface
- Reliably detects moving objects



INFRARED TEMPERATURE SENSORS



	BTS0002	BTS0003
Measuring range	+250...+1250 °C	+250...+1250 °C
Distance ratio	1:50	1:50
Measuring spot size at 1 m distance	Ø 25 mm	Ø 25 mm
Switching output	Normally open, normally closed, IO-Link	Analog, current, 4...20 mA
Supply voltage U_s	10...30 V DC	10...30 V DC
Dimension	M30 × 190 mm	M30 × 190 mm
Ambient temperature	-5...+65 °C	-5...+65 °C
Type of protection IEC 60529	IP65, IP67	IP65, IP67
Approval, conformity	CE	CE
Sensing surface, material	Borosilicate crown glass (N-BK7), coated	Borosilicate crown glass (N-BK7), coated
Housing material	1.4404 stainless steel	1.4404 stainless steel
Connection	M12 male, 4-pin	M12 male, 4-pin



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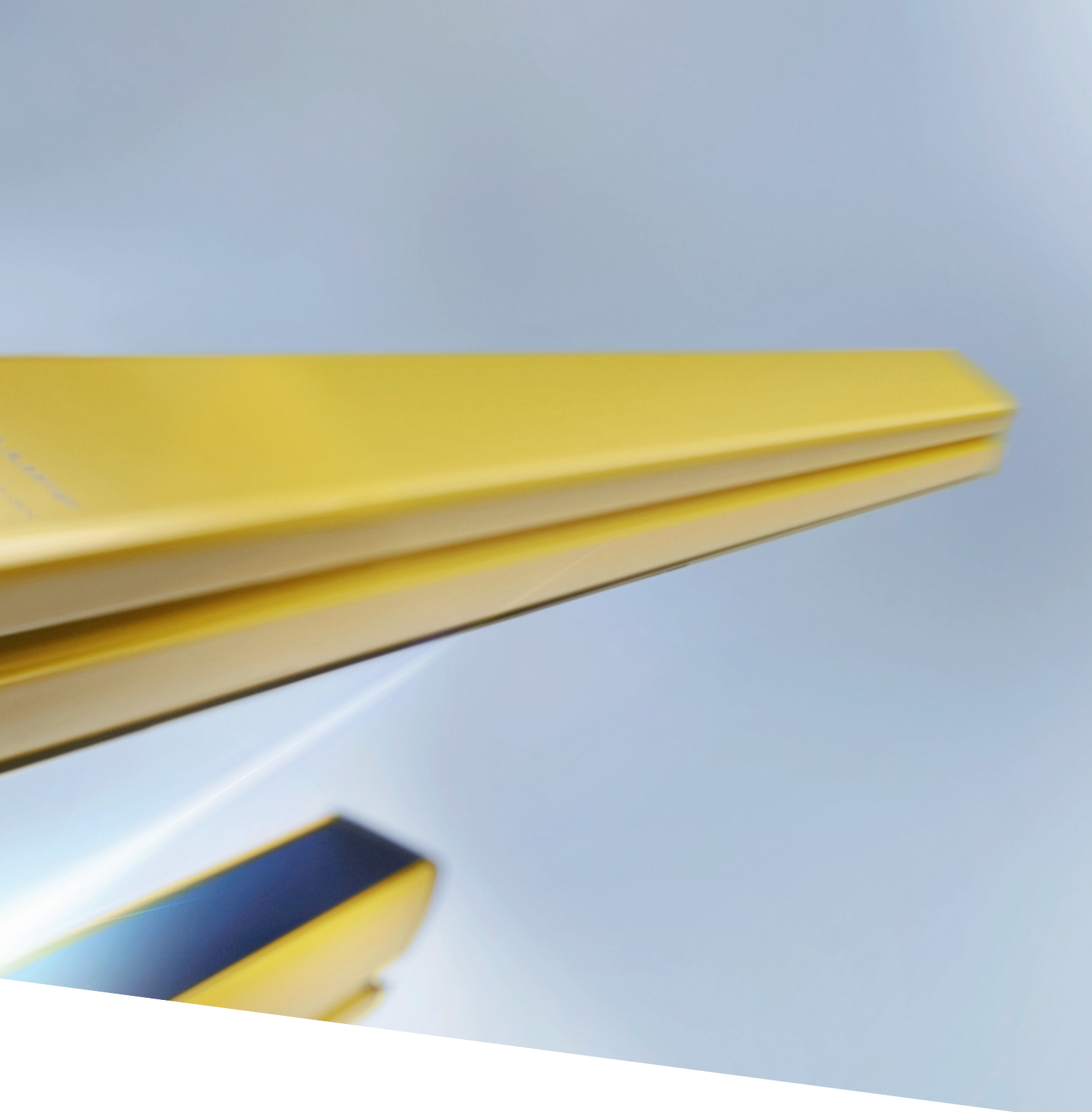
Product finder and more technical details:
www.balluff.com/go/temperature-sensors



Safety with Balluff quality

SAFETY

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Automation requires safety. And safety is based on reliability. The Balluff safety concept consists of products and solutions that fulfill their tasks over the course of years, with the same reliability and precision. With Safety over IO-Link from Balluff you enjoy the proven benefits of IO-Link now for the safety of people and equipment as well. By linking automation technology and safety technology, you get full machine safety in one system because IO-Link communicates down to the last meter and provides both sensor/actuator details as well as safety information.

Your Balluff solutions

- Safety I/O module
- Protection devices
- Inductive safety sensors

Reliably detect metal – rugged and wear-free

INDUCTIVE SAFETY SENSORS

BES inductive safety sensors protect people and equipment by detecting the approach of metallic objects without contact, thereby providing the necessary safety signals for position and end-of-travel.

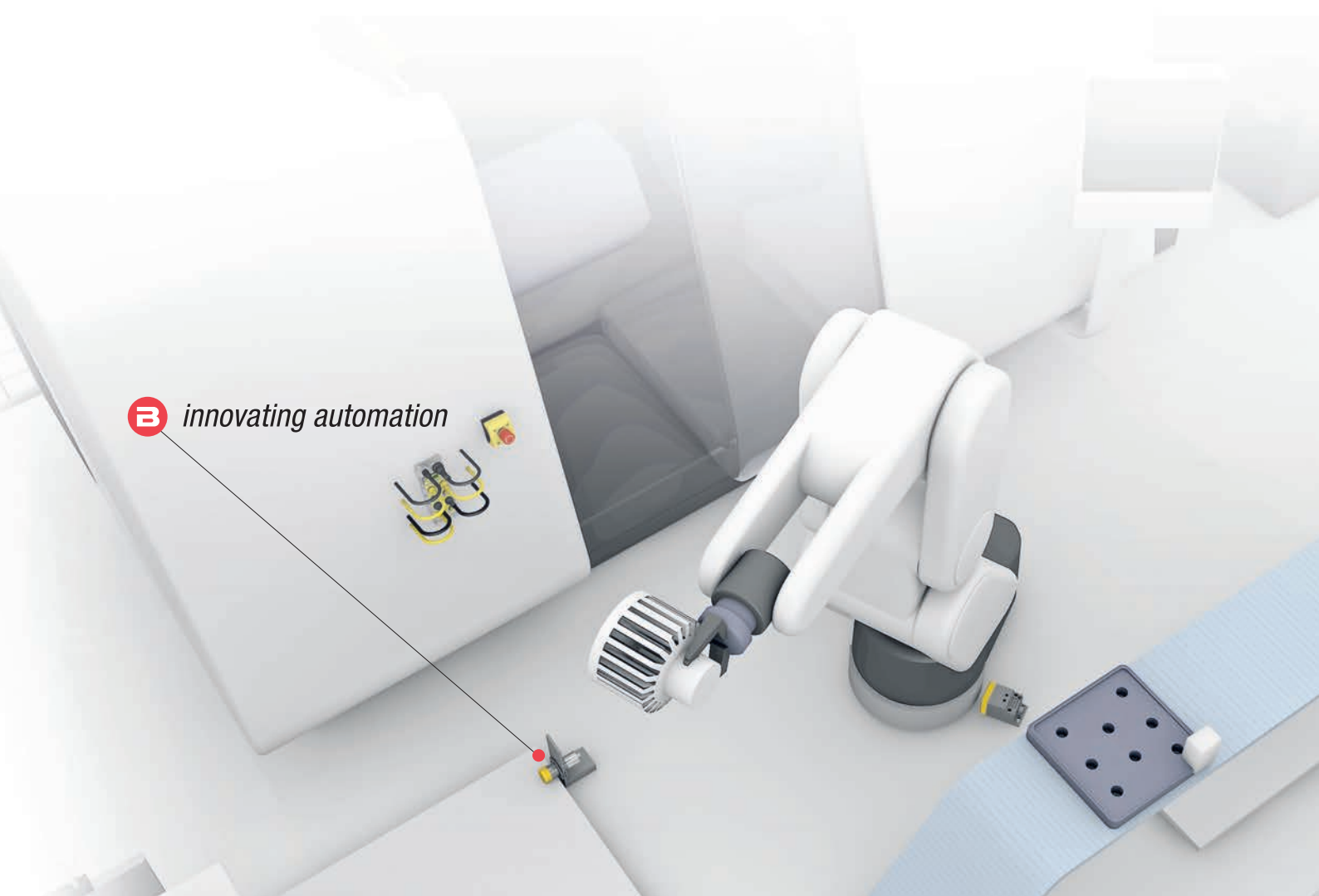
Direct detection of metallic tool holders is simple and reliable with these sensors. Unlike traditional safety switches, these require no special target. Instead these safety switches can be connected to any desired safety processor: safety relays, programmable logic modules, or safety controllers. A standard M12 plug connection is all you need for wiring.

Another feature: our sensors are so flexible that they can be used as pulse transmitters for counting tasks or for stop monitoring.

Features

- Reliably detect end-of-travel, speed and stop condition without contact and wear-free
- Compact and common form factors from M12 to Q40
- Simple connection using M12 plugs
- Easy to link to any processor using OSSD outputs

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INDUCTIVE
SAFETY
SENSORS



	BES0574	BES0575	BES0576	BES0577
Supply voltage	24 V DC	24 V DC	24 V DC	24 V DC
Output	2 × OSSD	2 × OSSD	2 × OSSD	2 × OSSD
PL/SIL/Category	d/2/2	d/2/2	d/2/2	e/3/4
Degree of protection	IP67	IP67	IP67	IP68, IP69K
Approval, conformity	CE, cULus	CE, cULus	CE, cULus	CE, cULus
Ambient temperature	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Dimension	M12 × 70 mm	M18 × 70,5 mm	M18 × 70 mm	M30 × 80 mm
Housing material	1.4404 stainless steel	1.4404 stainless steel	Brass	1.4404 stainless steel
Sensing surface material	PBT	PBT	PBT	PBT



	BES0578	BES0579	BES057A	BES057C
Supply voltage	24 V DC	24 V DC	24 V DC	24 V DC
Output	2 × OSSD	2 × OSSD	2 × OSSD	2 × OSSD
PL/SIL/Category	d/2/2	d/2/2	e/3/4	e/3/4
Degree of protection	IP67	IP67	IP67	IP67
Approval, conformity	CE, cULus	CE, cULus	CE, cULus	CE, cULus
Dimension	M30 × 70 mm	M30 × 70 mm	40 × 40 × 66 mm	40 × 40 × 66 mm
Ambient temperature	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+60 °C
Housing material	1.4571 stainless steel	Brass	Die-cast zinc	Die-cast zinc
Sensing surface material	PBT	PBT	PPE	PPE



Reliable information exchange across all levels

INDUSTRIAL NETWORKING



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

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

Your Balluff solutions

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

Greater efficiency handling decentralized devices

IO-LINK DEVICE MANAGER

Keep everything under control at all times – from a central location. The IO-Link Device Manager lets you directly control all your IO-Link devices in the same network via UDP (User Datagram Protocol). The multi-window function of the software allows different devices to be configured and diagnosed at the same time. And since IO tests of the equipment as well as parameter settings can be performed without a PLC, it takes much less time to place your system in operation.

The IO-Link Device Manager is compatible with all Profinet and Ethernet/IP master modules from Balluff and communicates continuously with all IO-Link devices. And there's more: synchronous with PLC communication it transports process, parameter and diagnostic data – without any effect on the process cycle of the PLC.

Features

- Plug-and-Run the machine in significantly less time
- Prevents wiring mistakes using an early I/O test without needing the PLC
- Service-relevant parameters can be stored after the machine starts up
- Simple adaptation to the process and flexible production with on-the-fly parameter changing
- Expanded diagnostics assists with maintenance

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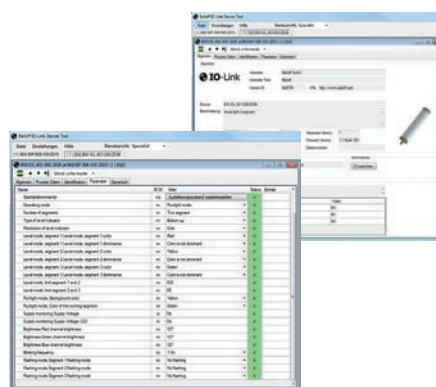
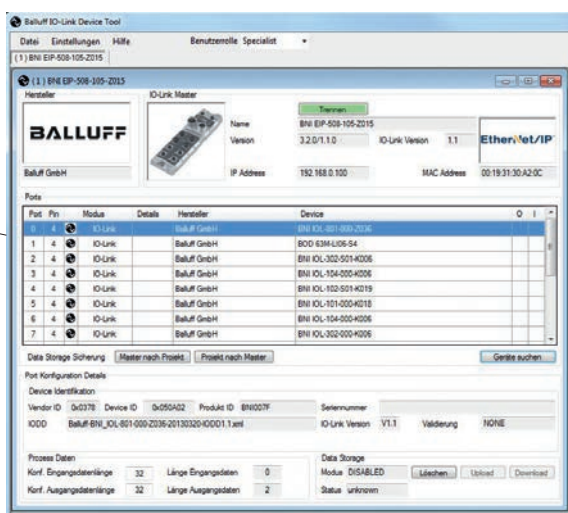


IO-LINK DEVICE MANAGER

	BAI000K
Communication	Ethernet, IO-Link
Overview of IO-Link Device Manager	<ul style="list-style-type: none"> ■ Network access to Balluff IO-Link master ■ Access to all connected IO-Link devices ■ Simple reading and writing using clearly represented parameters ■ Monitoring of the process data

Hardware requirements

Processor	Dual Core 2.5 GHz
Working memory	2 GB
Hard drive	500 MB free memory
Monitor	1024 x 768
Operating system	Windows XP 32 Service Pack 3 Windows 7 32/64 Service Pack 1 Windows 8.1 Microsoft.Net Framework 2.0



Product finder and more technical details:
www.balluff.com/go/device-manager





More than the sum of the components

SYSTEMS.



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We offer an unmatched variety of data carriers, read/write heads and processor units, which can be combined in a closed system according to your specific requirements. Each of these autonomous systems can be individually retrofitted and used regardless of location or manufacturer – and above all economically!

Your Balluff solutions

- Mold ID
- Tool ID
- Choc ID

Transparency in tool handling

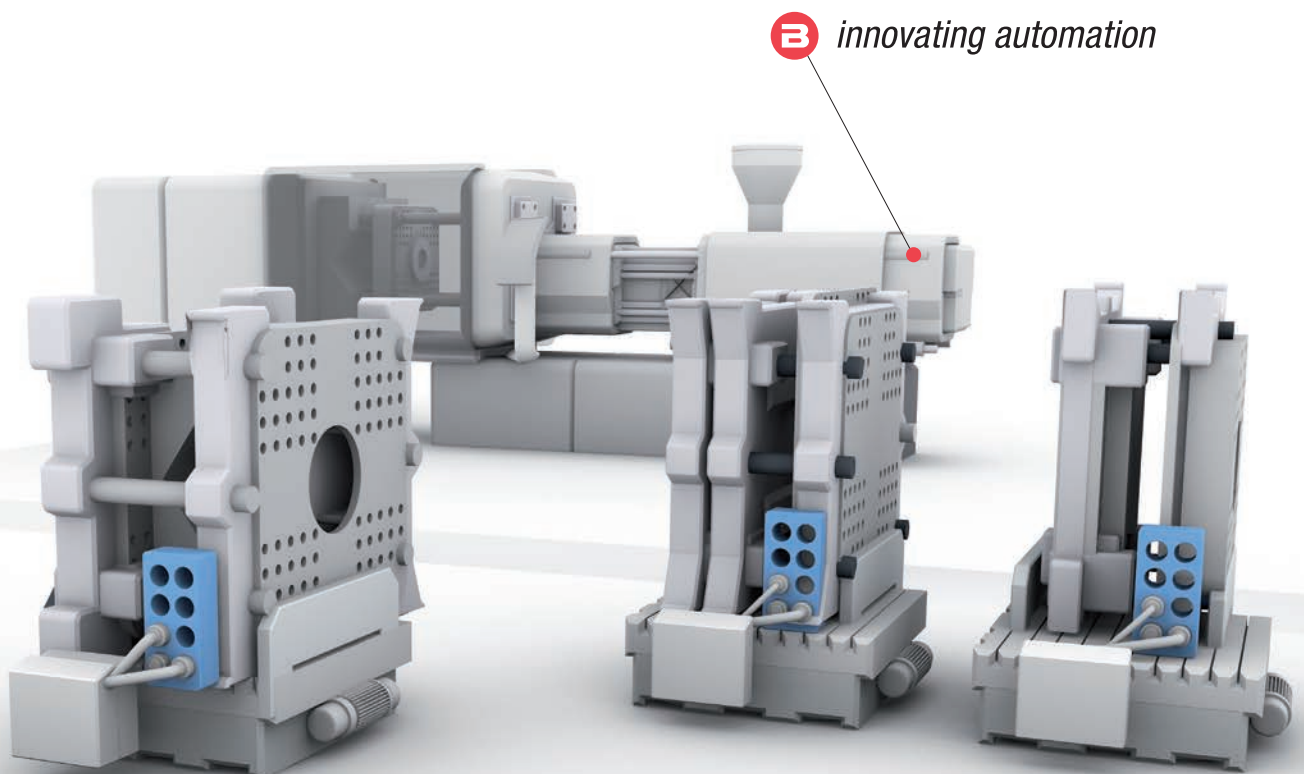
MOLD ID FOR CONDITION BASED MAINTENANCE

Optimize the use of your injection molds. It pays for itself because with traceability and better utilization you increase equipment productivity and economy. With Mold ID each tool is uniquely and unambiguously identified because all relevant data – such as drawing number, last maintenance or service life – is saved to the mold and can be retrieved at any time. Incorrect associations or missing tools become a thing of the past. And since the production cycles are also counted, tools can be maintained based on condition instead of arbitrary intervals – good for extending their useful life and promoting more reliable operation.

Mold ID is backed by an autonomous system. All machines can be upgraded individually, without requiring support from the manufacturer and regardless of the location. Another plus: You can access the Mold ID system from anywhere in the world using a standard web browser, smartphone or tablet PC. An app with functions protected by configurable passwords enables access to the data directly on the mold by using Near Field Communication (NFC).

Features

- Availability of all data directly on the tool via RFID
- Worldwide access to the Mold ID system using a standard web browser
- Balluff apps for secure access to the mold
- Automatic documentation
- Can be extended for localization



MOLD ID



	BNI00CE	BAI000H	
Description	Mold ID unit	Android app	
Degree of protection	IP67		
Approval, conformity	CE, UL		
Dimension	68 × 42.9 × 226 mm		
Ambient temperature	-5...+50 °C		
Housing material	PPS		



	BES00A4	BIS0176	BIS0189
Description	Shot counter	Data carrier	RFID unit
Degree of protection	IP68	IP68	IP67
Approval, conformity	CE, cULus, EAC	CE	CE
Dimension	M30 × 1.5	93 × 57.2 × 28.9 mm	103 × 57.2 × 72.6 mm
Ambient temperature	-25...+70 °C	-25...+70 °C	0...+70 °C
Housing material	Brass	Aluminum diecast	Aluminum diecast



Reliably acquire and transmit tool data

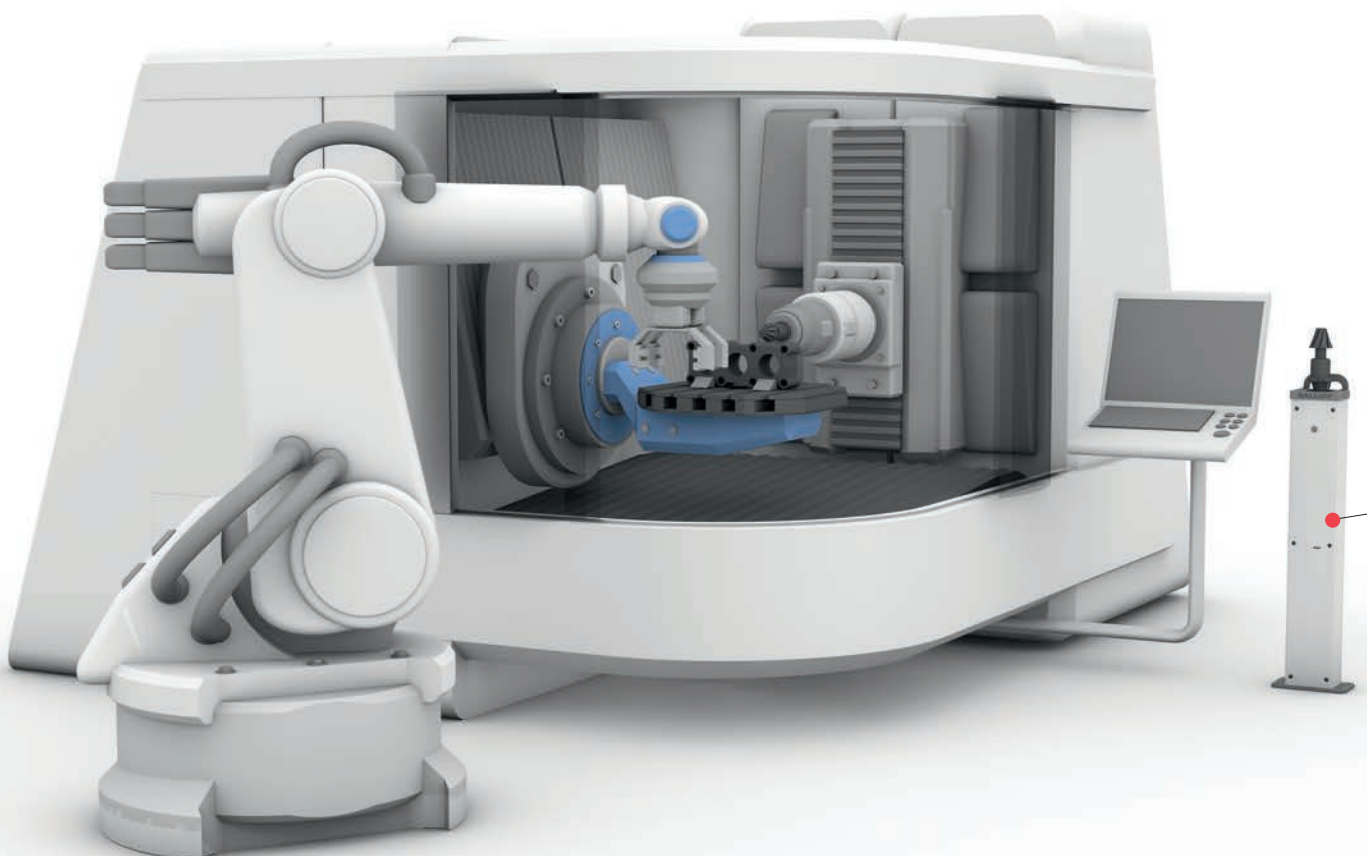
EASY TOOL ID WITH RFID TECHNOLOGY

If you're looking for an economical entry into the world of tool management, Easy Tool-ID is the right choice. With our system you can easily retrofit virtually any machine tool with a USB port. The system consists of a tool stand with integrated read/write head, a processor unit, a microcontroller and the power supply.

Installation and configuration are utterly uncomplicated. Simply write data from the presetter to the tool using RFID technology and then use the Easy Tool-ID system to send it to the machine tool, and you're done. Advantage: you eliminate error-prone manual entry and reduce your setup times.

Features

- Significantly reduces setup times right at the outset
- Elimination of manual tool data entry reduces the error rate
- Plug-and-work, simply requires a USB port
- Configuration can be adapted to the input screens of the machine tool
- Both an economical and reliable tool management system for the entry level





EASY TOOL ID

	BSG0015
System	Tool identification
RFID technology	BIS C (70 kHz/455 kHz)
Input voltage	100...240 V AC
Connection to HMI	USB A
Dimension	1046.5 × 170 × 130 mm
Approval, conformity	CE
Material	Aluminum
Interfaces	Button for initiating the read procedure

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Product finder and more technical details:
www.balluff.com



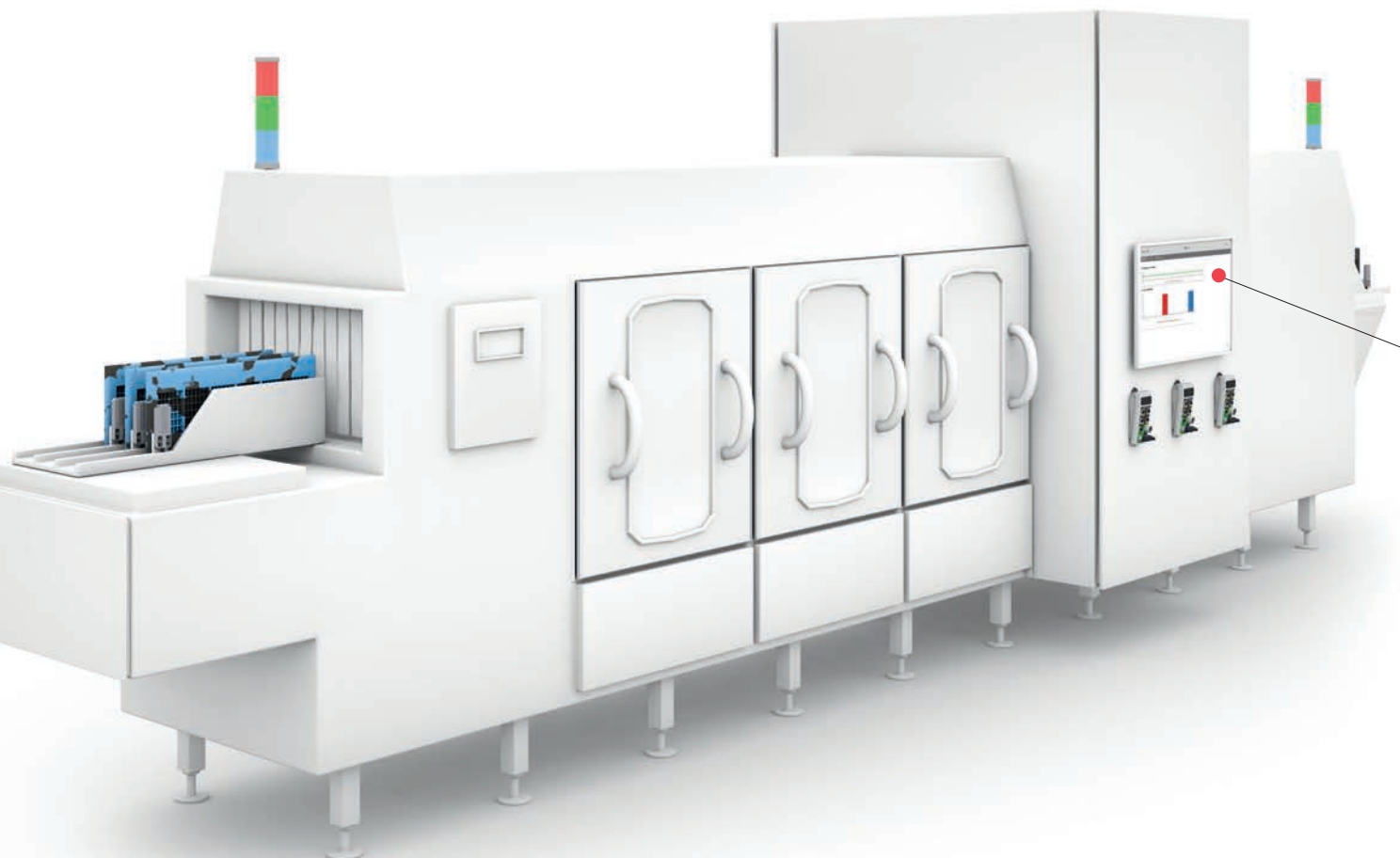
RFID-assisted chocolate production

MOLD MANAGEMENT WITH CHOC ID

With Choc ID we have developed a mold management system using RFID which reliably identifies the chocolate molds while at the same time evaluating their condition. Based on this information you can employ efficient asset management for replacing molds at the right time and optimizing production. Our solution makes washing processes transparent, since the software records all the procedures by throughput time and frequency and matches them to empirically determined limit values for mold wear. Another welcome benefit: the quality of each asset is indicated by the Smart-Light stack light and by a modern dashboard directly on your computer.

Features

- RFID-assisted asset management
- Modern software solution without the need for an additional controller
- Precise knowledge about each individual asset for greater transparency
- Quality assurance by setting and monitoring limit values
- Less waste through timely mold replacement

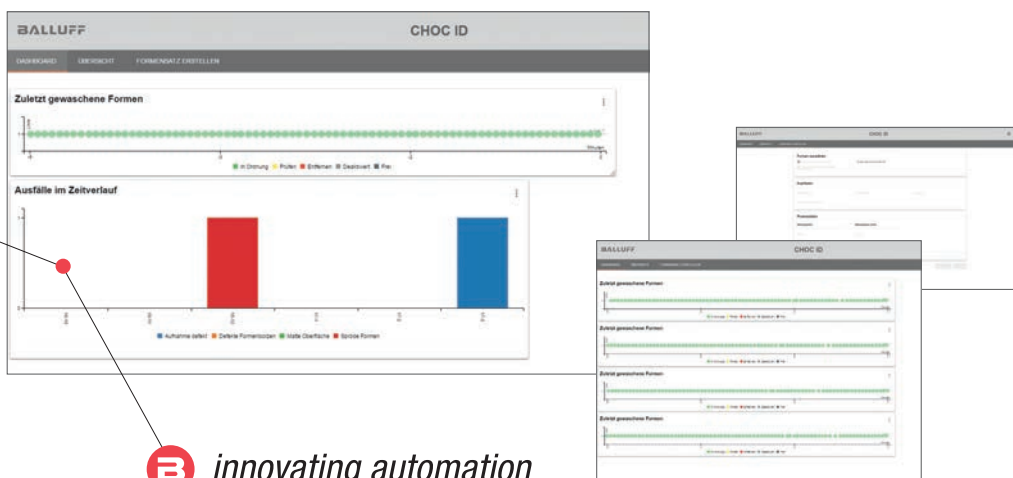


CHOC ID
SOFTWARE

	BAI000L	BAI000M	BAI000N
Module name	Basic	Mold interval	Mold settings
Communication	REST/JSON	REST/JSON	REST/JSON
Task	Database, back-end, front-end	Recording of throughput time, frequency	Mold decommissioning
Requirements	PC/Server, Windows 7, Core i5, 8 GB RAM, 10 GB HDD	1 x BISV 2 x BISVM	1 x BISV 1 x BISVM

	BAI000P	BAI000R	
Module name	Mold Status	Mold Gate	
Communication	REST/JSON	REST/JSON	
Task	Status visualization	Process transparency	
Requirements	1 x BISV 1 x BISVM 1 x SmartLight	1 x BISV 1 x BISVM	

Also available as accessory
21.5" Panel PC



Product finder and more technical details:
www.balluff.com





Balluff

WE OPEN NEW PERSPECTIVES

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Balluff is one of the leading suppliers of high-quality sensor, identification and network solutions for your automation requirements. Family-owned and led for more than 90 years, around 3300 employees in 62 subsidiaries and representatives as well as nine production facilities around the world represent the highest quality standards so that you always get the best.

Balluff offers innovative solutions that increase your competitive ability using our top products and services with many years of experience, the expertise of a manufacturer and high personal dedication.

In line with our motto "Innovating Automation" we are pacemakers of automation, refiners and new developers, and technological trailblazers. In open exchange with trade associations, universities and research facilities as well as in close contact with our customers we create new industry solutions or a new communication standard such as IO-Link. Innovative Balluff solutions equip you for a successful future.

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

We keep our promises. You can always rely on us, our products and our adherence to delivery dates and schedules – all in the name of mutually beneficial partnership.

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HOW TO
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