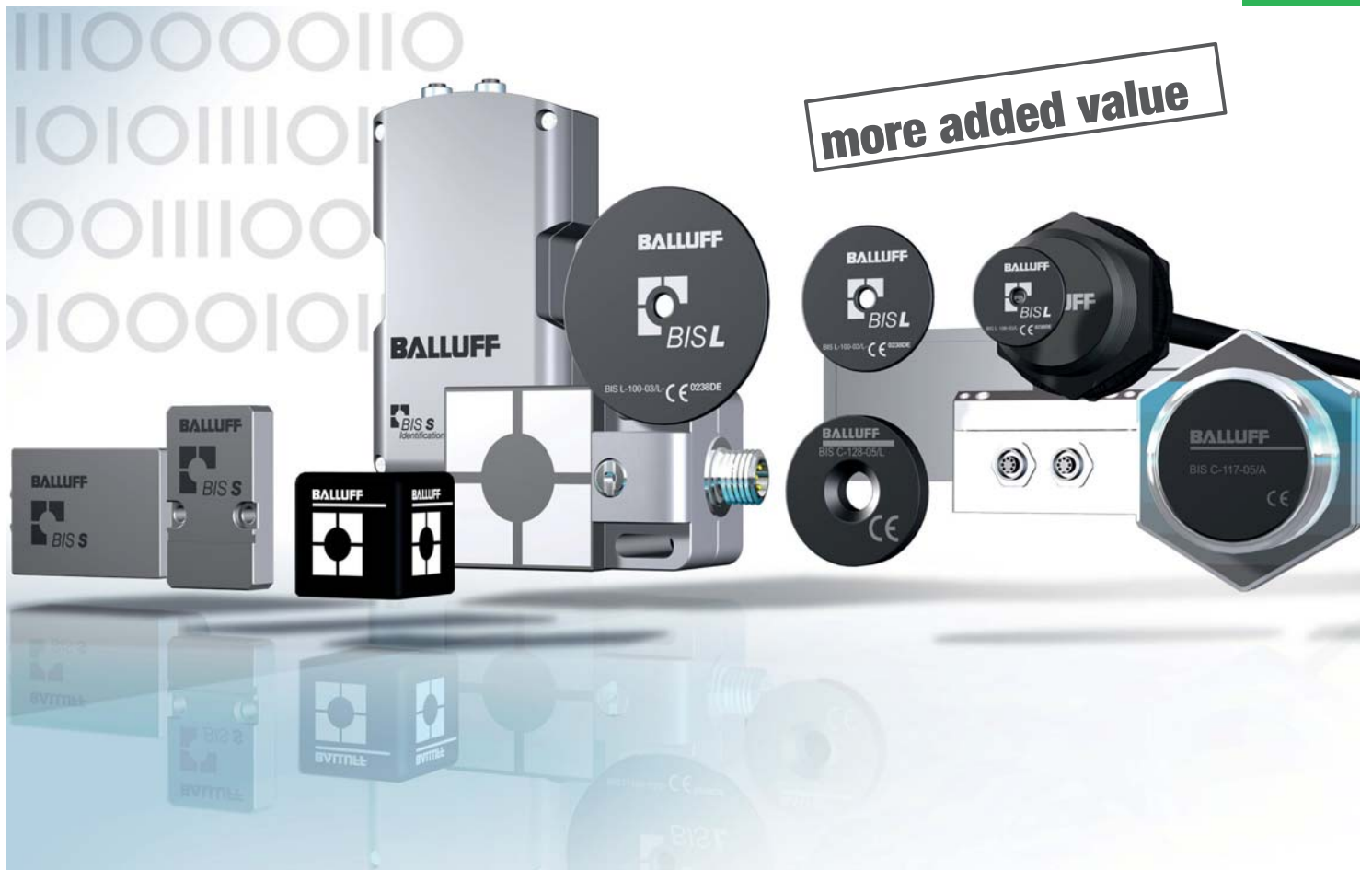


BALLUFF

sensors worldwide

Industrial Identification

RFID Systems BIS for Manufacturing, Logistics and Distribution



Industrial RFID Systems BIS

Comprehensive system expertise – many years of experience



With over 50 years of sensors experience, Balluff is a worldwide leading sensor specialist and connectivity provider for every area of factory automation. And Balluff has offered industrial RFID expertise for more than 20 years.

You too can profit from long years of Balluff Industrial RFID expertise.

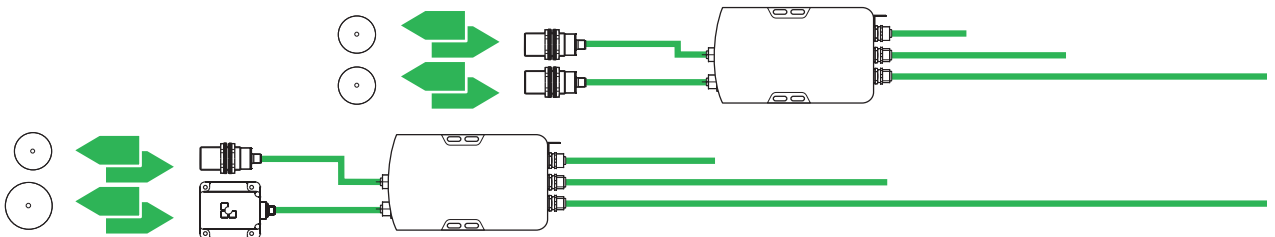
Balluff stands for comprehensive systems from a single source, continuous innovation, the most modern technology, highest quality and greatest reliability. And even more: for distinctive customer orientation, custom tailored solutions, fast worldwide service and outstanding applications assistance. In short: for reliable, expert partnership.

Whether electronic and mechanical sensors, rotary and linear transducers, identification systems or optimized connectivity solutions for high-performance automation, Balluff masters not only the entire technological variety with all the operating principles, but also offers innovative technology and the most modern electronics – tested down to the last detail in the company's own accredited testing laboratory and manufactured according to DIN ISO 9001 (EN 29001). Balluff technology can be used everywhere in the world, since it meets local requirements such as UL approval.

Balluff products increase throughput, quality and productivity day in and day out. They create the prerequisites for meeting the demands of the global market when it comes to greater performance and cost reduction. Including in the most demanding areas. No matter how stringent your requirements may be, Balluff provides solutions at the highest technical level.

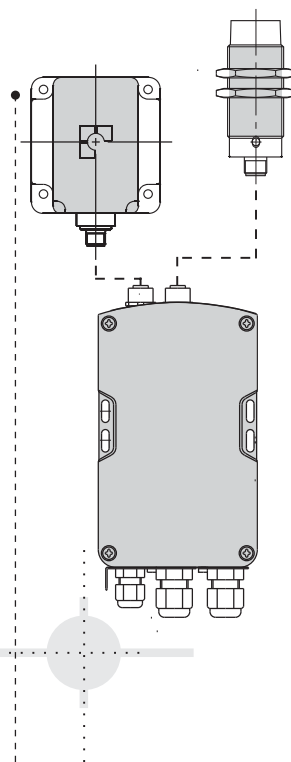
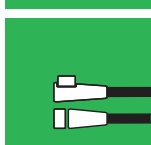


For measurements without tolerance specifications, the general tolerances in accordance with DIN ISO 2768-1 tolerance class M and DIN ISO 2768-2 tolerance class H apply.

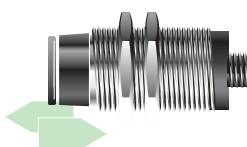
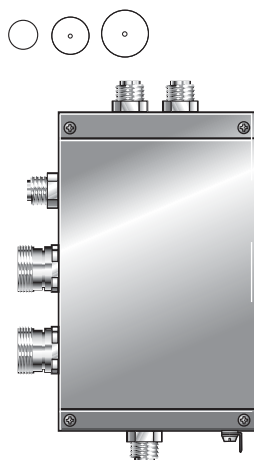




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Industrial RFID Systems BIS

For reliable and high-performance data communication

Why RFID?

Modern production technologies with greater batch sizes and ever shorter production cycle times require unambiguous recognition and matching of the produced parts. In response, various systems for industrial identification such as bar codes have been developed. These are cost-effective, but wear quickly. In addition, they are inherently read-only and hold a limited amount of data.

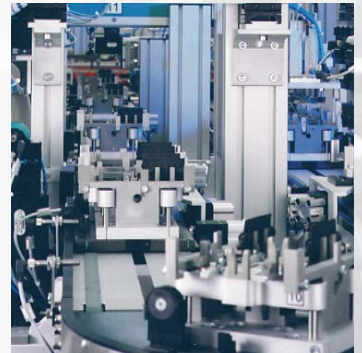
Far greater flexibility is provided by industrial RFID, inductive identification systems with read and write capability for ensuring the most current data in every single process segment. Balluff Industrial RFID BIS reliably process large quantities of data without making visual contact.

Unlimited read/write cycles ensure flexible, rapid, contact-free communication even for the transfer of large data quantities in highly dynamic applications. Our wear-free BIS are easy to integrate in all types of controller.

Economical Balluff identification systems are able to manage the large volumes of information required in modern-day production plants and make sure your data is transferred to the right place at the right time. All relevant production and quality data is stored and made available for retrieval at any time: for optimized production processes and maximum production reliability. Profit from the advantages of Balluff Industrial RFID and benefit from more than 20 years of Balluff RFID expertise. Simply select from the product range according to your application requirements.

Advantages

- for quick, flexible non-contact data communication without visual contact
- suitable for any industrial environment
- powerful and economical



Industrial RFID Systems BIS

Principle of operation

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BIS C

BIS L

BIS M

BIS S



What is RFID?

RFID means Radio Frequency Identification and stands for automatic identification of any kind of object. A data carrier is affixed to the identification object and acts as a portable, moving memory. The data are sent back and forth between the data carrier and read or read/write head using inductive coupling. The read head then sends the data to the host controller. Industrial RFID is fast and reliable, even with changing objects and large amounts of data. This means that objects can be simply identified and tracked.

The inductive principle guarantees ruggedness and insensitivity to the surroundings, making these systems highly reliable. Balluff Industrial RFIDs are therefore suitable for use in harsh environments.

Industrial RFID Systems BIS

For 100% quality

Maximum reliability and transparency

Balluff Industrial RFID leads the way in applications that require high quality, a high degree of production reliability and optimized processes. Our BIS achieve an extremely high degree of quality regarding handling and assembly, commodity production and storage, internal company logistics and access control. Even tool management and driverless transport systems operate faultlessly with BIS.

BIS record the complete production process of all batches and store all data for possible retracing at a later stage. Quality and production data is stored directly on the product to avoid confusion. Workpieces do not even need to be aligned with the read/write head because the head can scan without requiring visual contact. Errors are consistently prevented as a result. Defects are detected immediately and the offending part is returned and corrected or rejected autonomously. The identification process is fully automatic, reliable and fast. Balluff Industrial RFIDs can manage a large number of variants and control processes automatically.

Balluff Industrial RFIDs guarantee a high degree of reliability and quality, even in harsh environments. Balluff data carriers are resistant to shocks, vibrations, high electrical, inductive and electromagnetic interference and insensitive to aggressive materials. Goods manufactured using Balluff Industrial RFID are renowned for their high quality.

Balluff Industrial RFID BIS M for

- 100 % data security
- consistent error prevention
- secure process control
- reliable traceability
- optimized production

Increased productivity

Reliable traceability of the production and quality data brings maximum transparency to your supply and production chain. And you know exactly which materials are being used when and where, which serial numbers are being used and which machines were employed in the process. Data and goods flows can be linked with each other, so that delivery chains and inner-facility material flow are both optimized. BIS thereby prevents quality fluctuations. Rework and no-charge replacements are reduced to a minimum. Take full advantage of the absolute reliability of BIS for your supply chain management.

For fewer failures, increased productivity, secure market share, higher sales and greatest possible customer satisfaction through top quality passed along to your customers. Use all this to improve your position against the competition.

Balluff Industrial RFID BIS for

- Optimized material flow
- Increased productivity
- Best customer satisfaction
- Advantage over the competition



Industrial RFID Systems BIS

Saving costs

Greater flexibility

Increase the cycle frequency with BIS. Data is transferred reliably when the data carrier passes by, even in high-speed applications. With greater flexibility because Balluff Industrial RFID systems are available with unlimited read/write cycles and different memory sizes. Expertise in designing solutions and secure integration – even when space is limited – result in a wide variety of components cast in different shapes such as disc, cylinder, cube or handy credit card format. International approvals allow global distribution. Simply choose from a comprehensive selection of system products according to your application requirements. Because at the end of the day, your requirements determine the function and size of the products.

Balluff Industrial RFID BIS is

- Available in various form factors, in plastic or metal
- Compatible with any controller
- Suitable for any commonly used bus system
- Usable anywhere in the world

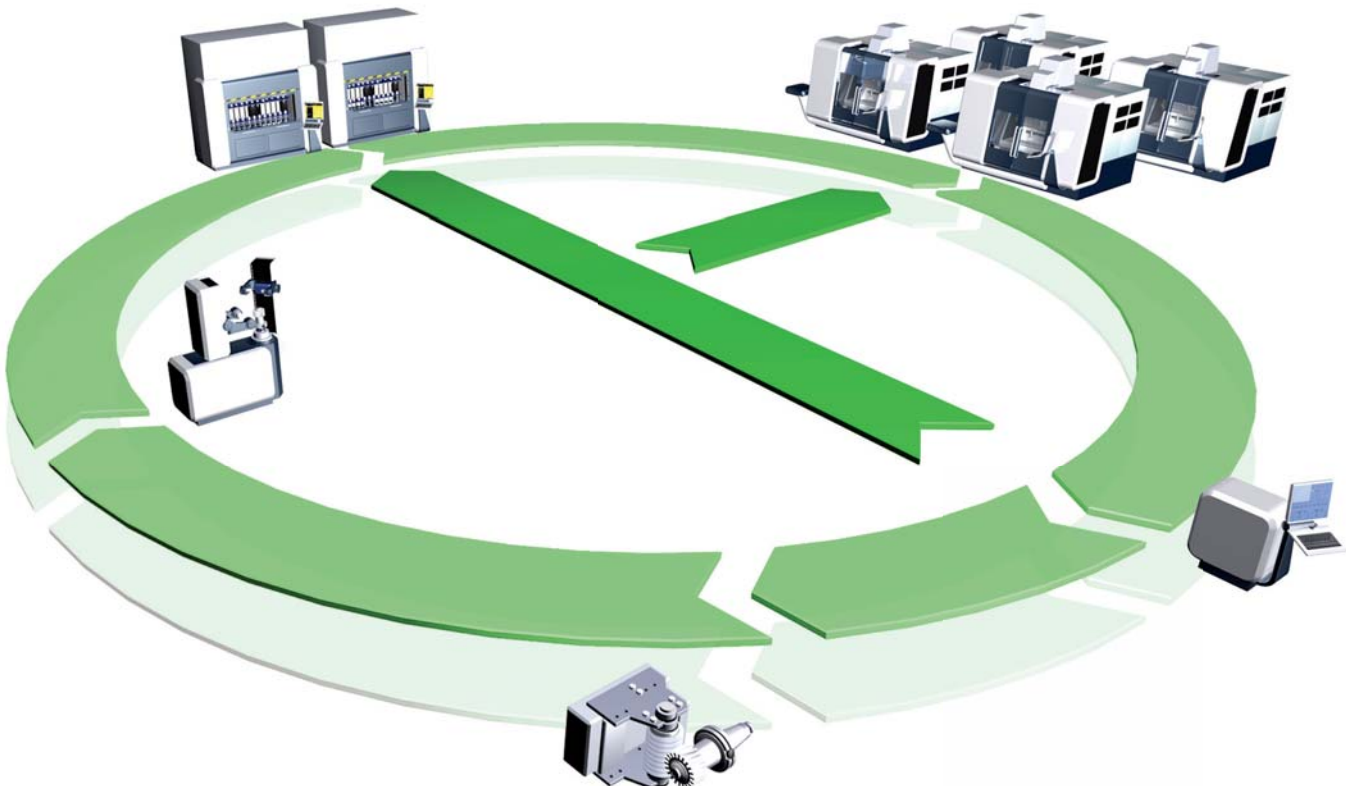
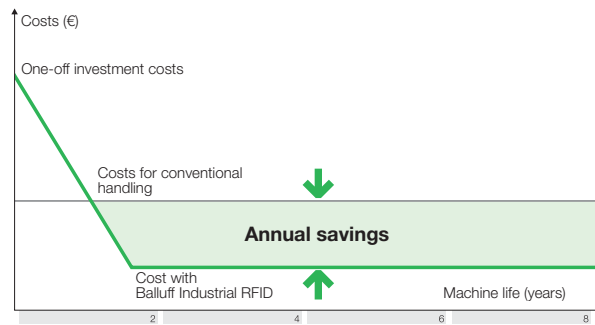
Quicker return on investment

Industrial RFID systems amortize within a very short period. The return on investment (ROI) is so quick that the purchase of the BIS alone contributes to the success of your company. Data carriers are also reusable. New product lines that incorporate BIS have extremely short lead times, irrespective of whether alternating variants, minimum batch sizes or series products are manufactured. Use BIS to stay one step ahead of the competition.

Whenever you require a system for reliable production, our skilled consultants are ready to provide you with appropriate advice. All over the world and according to your specific requirements. We will be glad to answer any questions you may have.

Balluff Industrial RFID BIS

- are inexpensive
- can be reused
- amortize quickly



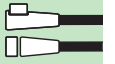
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BIS C

BIS L

BIS M

BIS S



Industrial RFID Systems BIS

Four systems – maximum versatility

Systems

Balluff Industrial RFID offer four different systems with varied components for a wide range of applications. One system is simply not sufficient for different applications such as

- **Forgery/Copy protection**
- **Maintenance/Serviceing**
- **Tool management**
- **Production control**
- **Access control**
- **Container management**
- **Consignment**
- **Stock management**
- **Tracking of goods**
- **Incoming/Outgoing goods**

In addition, requirements for Industrial RFID have increased drastically over the last few years. Production control has benefited from data carriers with a large memory capacity, for example, while greater data security is available for copy protection. The read/write distance for tracking goods is usually large, but for access control is relatively small. Tool management usually requires small, extremely robust data carriers which would be too large for consignment. So select the best solution for you from four different systems with various transfer frequencies. Optimized specifically for your application.

Take advantage of the different system versions:

- versatile BIS C ideal for a wide range of applications: extremely powerful and versatile for reliable tool identification in machining centers that process coolants and lubricants or sterilization under high temperatures in a vacuum of an autoclave
- economical BIS L for logistics and assembly lines
- BIS M with lightning-fast data transfer and large read/write distance for internal company logistics, access control or copy protection and
- BIS S for transferring large quantities of data to control assembly and production facilities



Memory device	
Data carrier/Memory size	
Read/Write cycle	
Max. read/write distance	
Read time (64 bytes)	
Write time (64 bytes)	
Operating frequency	
Dynamic reading	
Dynamic writing	
Operating temperature (data carrier)	
Storage temperature (data carrier)	
Data storage time	
Degree of protection	
Norms/Standards	

Industrial RFID Systems BIS

High-performance components – simply mix and match

System components

Balluff Industrial RFID systems consist of a data carrier, the so-called tag, a read or read/write head, and the processor.

The tag is used to read and store data. Data quantities and read/write cycles depend on the memory device. Balluff data carriers draw their power from the read/write unit. No batteries are required.

The electronics and antenna are integrated into the tag. The range is defined by the capacity and frequency of the tag.

i

BIS C

BIS L

BIS M

BIS S



BIS C		BIS L	BIS M		BIS S
EEPROM	FRAM	EEPROM	EEPROM	FRAM	FRAM
511–1023 bytes	8 kbytes	192 bytes	752 bytes	2000 bytes	32 kbytes
1.000.000	unlimited	100.000	100.000	unlimited	unlimited
90 mm	100 mm	100 mm	150 mm	150 mm	50 mm
220 ms	220 ms	1530 ms	60 ms	60 ms	29 ms
860 ms	860 ms	3530 ms	130 ms	130 ms	120 ms
70 kHz	455 kHz	125 kHz	13,56 MHz	13,56 MHz	560 kHz/3,65 MHz
yes	yes	yes	yes	yes	no
yes	yes	no	yes	yes	no
–30 °C...+70 °C*	–30 °C...+70 °C*	–25 °C...+85 °C	–25 °C...+70 °C	–25 °C...+70 °C	0 °C...+70 °C
–30 °C...+120 °C*	–30 °C...+85 °C*	–40 °C...+130 °C*	–25 °C...+130 °C	–25 °C...+160 °C	–20 °C...+70 °C
10 years	10 years	10 years	10 years	10 years	10 years
IP 67	IP 67	IP 67	IP 67	IP 67	IP 67
DIN 69873	DIN 69873		ISO 14443	ISO 15693	

*extended temperature ranges on request. All time specifications include data checks

The specifications in the table are system-specific and not valid for each individual product. Refer to the relevant catalog for more detailed specifications.