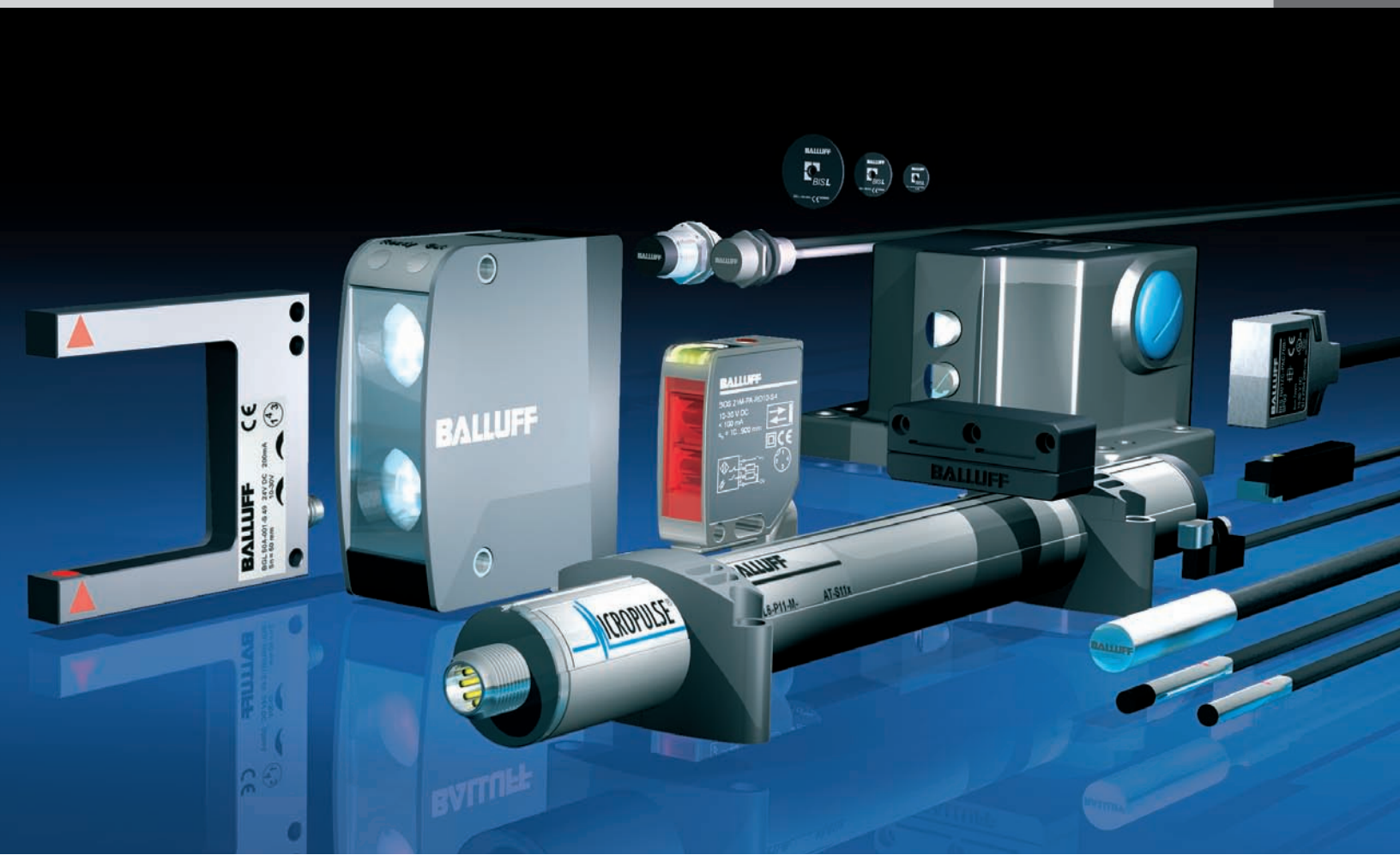


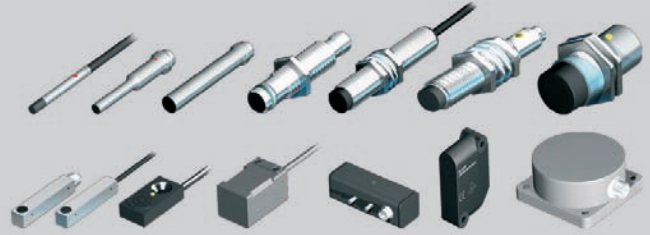
## Sensor Selection Guide

Product overview brochure



## Inductive Sensors

Balluff offers a variety of inductive sensor solutions: standard designs, block styles, extended range, weld field-immune, specialized sensing – whatever the need, there's a Balluff inductive sensor that will provide optimum service. Balluff sensors are found in machine tool equipment, the plastics industry, textile production machines, woodworking, automotive manufacturing – wherever there is a need to automate. From Mini to Maxi block style sensors from 5 x 5 mm to 80 x 80 mm, and tubular housings from 3 mm to 30 mm sizes, Balluff inductive sensors monitor, control, measure, and automate production sequences with high reliability and freedom from wear.



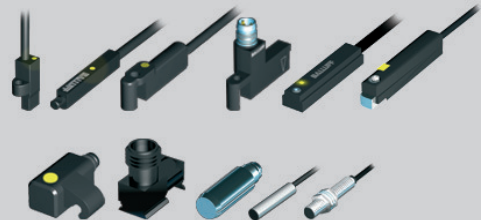
## Photoelectric Sensors

Balluff photoelectric sensors are designed to provide specific process tracking, position information, and part quality solutions in all areas of the automation process. They are especially suited for applications in robotics, assembly, and material handling. Along with tubular housings both in plastic and metal sized from 5 mm to 30 mm, Balluff also offers a range of sensors in rigid, block-shaped plastic housings. From classic diffuse, retroreflective, and thru-beam types to more specialized versions, the Balluff photoelectric line will handle the toughest applications.



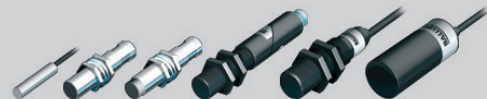
## Cylinder & Valve Sensors

Magnetic field sensors are primarily used for monitoring the piston position on pneumatic cylinders. The magnetic field of a magnet embedded in the piston is detected by the sensor through the cylinder housing wall. Thanks to their non-contact position sensing capability, these electronic magnetic field sensors are reliable, wear-free, and are finding ever-wider use. Balluff offers perfect solutions for a variety of typical pneumatic cylinders. Balluff's universally compatible range of cylinder sensors with their engineered mounting bracket kit concept will fit virtually any cylinder shape or size.



## Capacitive Sensors

Capacitive sensors detect the change in capacitance caused by the approach of an object in their electrical field. These sensors find broad use in sensing metals, plastics, or liquids and are used extensively in applications involving packaging, plastics handling, and liquid level sensing.



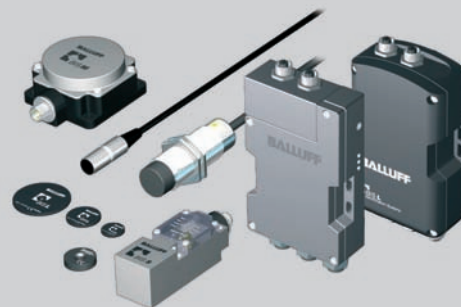
## Remote Systems

Sensors are often required to rotate or follow the movement of a machine component or part being manufactured. This often results in repeated twisting and tangling of wiring, resulting in cable wear and ultimately failure. Balluff power remote systems consist of a transmitter and receiver unit that transmits power and sensor information through an air gap. They eliminate wiring failure while providing noise and contactless wear-free operation even in extreme conditions.



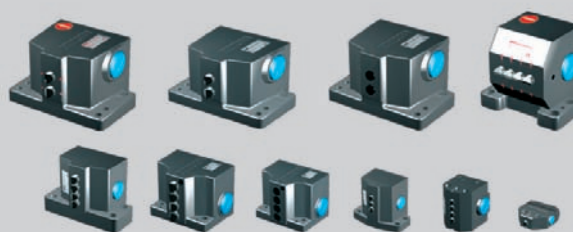
## ID Systems

Balluff provides a range of RFID systems to track work in progress and provide feedback on in-process testing. Computer-assisted manufacturing, modern warehouse systems, flexible assembly lines, plus logistics and distribution systems benefit from Balluff BIS RFID systems. BIS components are available in plastic or metal housings and plug-in versions to meet any application requirement. Balluff has developed a complete line of easy to use read-only systems that interface directly into a PLC through discrete inputs or an RS-232 interface. These systems offer data reliability and environmental ruggedness not found in bar code systems. Read-only systems are ideal when product data are stored centrally in a control system and referenced by a code contained on RFID tags located on products, parts, or pallets.



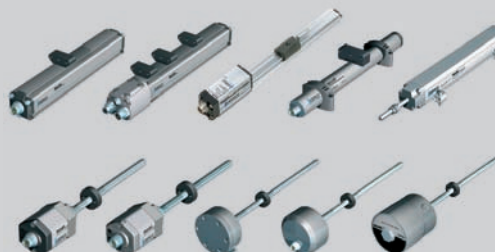
## Mechanical Switches

Engineered for the most demanding switching requirements and harsh environmental conditions, Balluff cam switch systems are still the preferred solution of automatic machinery builders around the world. Key applications include control of automatic machine tools, overtravel limiting, and robot dynamic zone control.



## Transducers

Balluff Micropulse linear position transducers provide highly accurate and reliable position control signals. Balluff's non-contact magnetostrictive technology means performance does not degrade over time, as with linear potentiometers. Micropulse transducers are available with a variety of housing styles and electrical outputs to fit a wide range of applications and are very popular in the lumber industry, plastic injection and blow molding, tire and rubber manufacturing, stamping presses, die casting, and all types of automated machinery where a continuous, absolute position signal is required.



## Accessories

A complete range of accessories helps save costs and provides optimum sensor integration in any environment. In addition to protecting Balluff sensors, our accessory line is designed to permit precise, lasting sensor location positioning while permitting quick sensor change out at any time.



## Connectivity Products

A comprehensive line of cables, cordsets, and connection blocks complement our product line, facilitating sensor use in every area of automation. Balluff offers custom application expertise on request.



# Balluff Means Industry Expertise



## Automotive

From stamping, to powertrain, to final assembly, Balluff's rugged products have proven themselves up to the task.



Rugged, long-range inductive proximity sensors



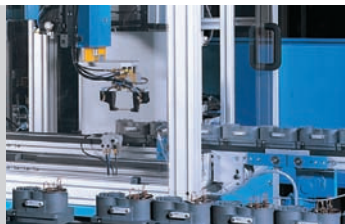
The industry standard multiple mechanical switches



Accurate and reliable photoelectric sensors



Ultra-reliable RFID systems



## Automated Assembly

Machines are getting smaller, faster, and smarter. Fortunately, so are Balluff's sensing and ID products.



Miniature, long-range inductive proximity sensors



A new level of reliability and performance from pneumatic cylinder position sensors



Specialized photoelectric sensors



Ultra-reliable RFID systems with the latest in connection options



## Manual Assembly

Here, error proofing is the name of the game. It takes a sensor company with the products and the know-how to solve real-world issues.



Rugged, long-range inductive proximity sensors



Ultra-reliable RFID systems with the latest in connection options



All types of lasers, true color, and UV sensors



## Welding

Monitoring the position of parts and clamps in welding environments requires specialized products for sensor longevity. Our products and accessories enable maximum uptime.



Special coatings provide weld-field immunity with Balluff's weld-specific proximity sensors



Dynamic zone restriction using Balluff multiple mechanical switches



A new level of reliability and weld-field immunity with pneumatic clamp sensors



Eliminate troublesome connection problems with Balluff's power remotes





## Metal Forming

Balluff has the in-die sensing critical to protect dies from damage, allow more strokes, and provide error proofing during the forming process.



Miniature tubular and block style sensors are easily bunkered within the die



Long range lasers and self-contained thru-beams for slug-out and part-out detection



## Machine Tool

Balluff has the rugged, reliable sensors and ID solutions to meet the requirements of this industry. Tool ID has proven itself as an effective method for error proofing setup.



Steel face and long-range inductive proximity sensors



Ultra reliable RFID systems track tool data such as tool type, presetter offsets and usage history



## Tire and Rubber

Given the amount of motion involved, Balluff position feedback products are preferred worldwide.



Rugged, long-range inductive proximity sensors for machine feedback



Reliable position feedback on hydraulic sensors with Micropulse® magnetoresistive linear transducers



Long-range lasers for error proofing and position feedback



Rugged, long-range inductive proximity sensors for machine feedback



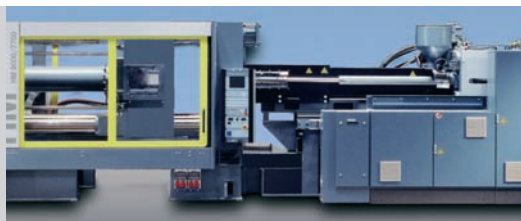
Long-range lasers for positioning and UV sensors for wood grading

## Wood

You need heavy duty sensors to meet the position and handling requirements of this rugged industry.



Reliable position feedback of saw blades with Micropulse® magnetoresistive linear transducers



## Plastics

Balluff's line of feedback devices effectively handle the position feedback requirements of injection and blow molding equipment.



Reliable detection of plastic parts and pellets with Balluff's capacitive sensors



Reliable position feedback with Micropulse® magnetoresistive linear transducers



Rugged, long-range inductive proximity sensors for machine feedback

# Tubular Inductive Sensors

## Tubular Inductive Sensors



Housing Size	3 mm Smooth	4 mm Smooth	5 mm Threaded	6.5 mm Smooth
<b>Sensing distance</b>	<b>2X</b>	<b>STD, 2X</b>	<b>STD, 2X</b>	<b>STD, 2X, 3X, 4X</b>
<b>Flush</b>	1.0 mm	0.8 mm, 1.5 mm	0.8 mm, 1.5 mm	1.5 mm, 2 mm
<b>Non-flush</b>	3.0 mm	5.0 mm	5.0 mm	2.5 mm, 3 mm, 4 mm
<b>DC 3/4 Wire Metal</b>	✓	✓	✓	✓
<b>AC 2-Wire Metal</b>				
<b>AC/DC 2-Wire Metal</b>				
<b>DC 2-Wire Metal</b>				
<b>Connection Options</b>	Cable	Cable Connector Cable w/connector	Cable Connector Cable w/connector	Cable Connector Cable w/connector
<b>Web Address:</b>	<a href="http://www.balluff.com/inductives">www.balluff.com/inductives</a>			

## Pigtail-style tubular inductive sensors

Balluff now offers a variety of standard inductive sensors with pigtail connectors. These sensors are available with PUR cable in 0.2 meter or 0.5 meter lengths.



## M5 Small Sensors-




With the smallest connectors on the market!

- Currently available on Ø4 mm and M5 models
- 4-pin version, pin configuration per IEC 60947-5-2
- IP 67 rated
- Molded-on PUR cable with 3 × 26 AWG
- Supply voltage 10...30 V

Ideal for applications requiring small sensors with small connectors:

- Automation/handling
- In-die sensing

# Tubular Inductive Sensors

			
8 mm Smooth & Threaded	12 mm Threaded	18 mm Threaded	30 mm Threaded
<b>STD, 2X, 3X, 4X</b>	<b>STD, 2X, 3X, 4X</b>	<b>STD, 2X, 3X</b>	<b>STD, 2X, 3X</b>
1.5, 2 mm	2, 3, 4 mm	5, 8 mm	10, 15 mm
2.5, 3, 4, 6 mm	4, 6, 7, 8, 10 mm	8, 12, 16, 20 mm	15, 22, 30, 40 mm
✓	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
✓	✓	✓	✓
Cable Connector Cable w/connector	Cable Connector Cable w/connector	Cable Connector Cable w/connector	Cable Connector Cable w/connector
<a href="http://www.balluff.com/inductives">www.balluff.com/inductives</a>			



Inductive

**Tubular  
Style**

Block  
Style

Special  
Duty



## General Purpose Proximity Sensors

Balluff manufactures over 2,000 inductive proximity sensor designs, many with specific applications in mind. With so many choices, it can be difficult to select the appropriate sensor solution.

Balluff's **GlobalProx** sensors were designed to meet the needs of general-purpose applications found in North America as well as the rest of the world. This makes it possible for Balluff to ensure global availability and increased global standardization.

The GlobalProx family consists of a full series of 2-wire DC and 3-wire DC sensors.



# Block Style Inductive Sensors

## Block Style Inductive Sensors



Housing Size	5 x 5 mm	8x8,8x16 mm	8x16,10x30, 20x30 mm	16.5 x 30 mm Minisensor
<b>Sensing distance</b>	<b>STD</b>	<b>STD, 2X, 3X</b>	<b>STD</b>	<b>STD</b>
<b>Flush</b>	0.8 mm	1.5, 2, 3 mm	1.5, 2, 3 mm	2 mm
<b>Non-flush</b>			2.5, 3 mm	
<b>DC 3/4 Wire</b>	✓	✓	✓	✓
<b>AC/DC 2-Wire</b>				
<b>Connection Options</b>	Cable Connector	Cable Connector	Cable	Cable Connector Cable w/connector
<b>Web Address:</b>	<a href="http://www.balluff.com/inductives">www.balluff.com/inductives</a>			

## R03 & R04

### New mini plastic block Sensors

- 8x16x4, 1.5 mm Sn
- 10x30x6, 3 mm Sn
- Commonly used in automation/handling
- Fits in tight areas
- Easy top mounting
- PNP and NPN available on most units



## R03

### 10x30x6

- Shielded version with 3 mm sensing distance
- Unshielded version with 3 mm sensing distance
- PNP and PNP units available








## R04

### 8x16x4

- Long range in extremely small package
- Shielded version with 1.5 mm sensing distance
- Unshielded version with 2.5 mm sensing distance
- PNP and NPN units available
- Highly visible LED



# Block Style Inductive Sensors

				
<b>26 x 40 mm Midisensors</b>	<b>18x30,17.5x28 mm</b>	<b>25 x 50 mm</b>	<b>20 x 32 mm</b>	<b>42 x 48 mm</b>
<b>STD</b>	<b>STD</b>	<b>STD</b>	<b>STD</b>	<b>STD</b>
2, 4 mm	5 mm	5 mm	5, 7 mm	5 mm
✓	✓	✓	✓	✓
✓				
Cable Connector	Cable	Cable Connector Cable w/connector	Cable Cable w/connector	Screw terminals Connector
<a href="http://www.balluff.com/inductives">www.balluff.com/inductives</a>				

## R05

### New midi-sensor with corner cut-off



- 26 x 40 x 12 mm
- PNP NO and NC with S49 connector and cable
- NPN NO and NC with S49 connector and cable
- AC/DC 20...250 V, 130 mA short circuit protected, cable versions NO/NC
- All Types available with 2 mm or 4 mm sensing distance (2X Extended sensing range)

## R01

### Miniblock Sensors

#### Mini size – Maximum performance

- Compact size with superior sensing range
- Rugged metal housing
- Narrow package can be used in applications where standard tubular sensors are too large
- Fully embeddable in steel
- SlagMaster version available



Inductive

Tubular Style

**Block  
Style**

Special  
Duty

<http://www.balluff.com/inductives>