

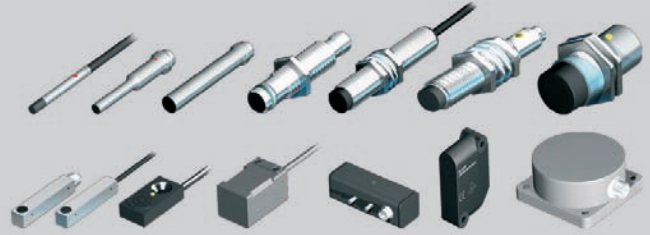
Sensor Selection Guide

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.



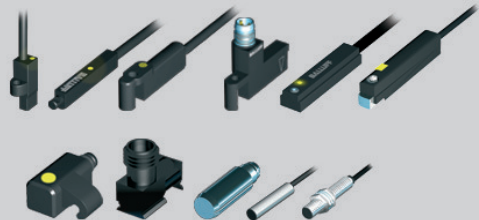
Photoelectric Sensors

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.



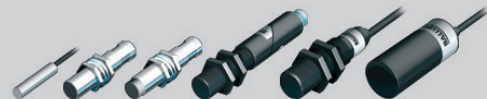
Cylinder & Valve Sensors

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.



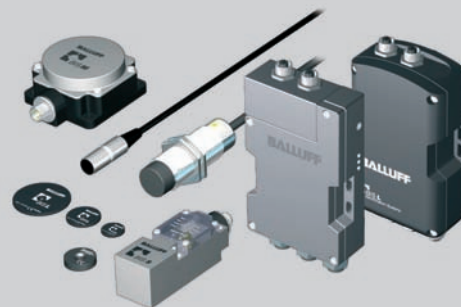
Remote Systems

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.



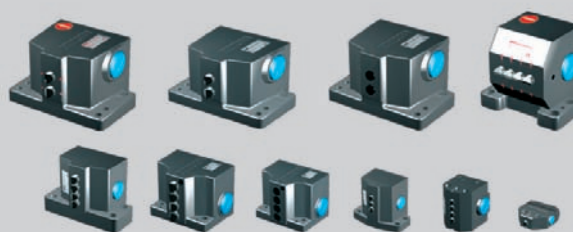
ID Systems

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.



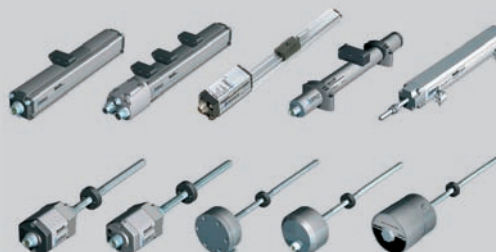
Mechanical Switches

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



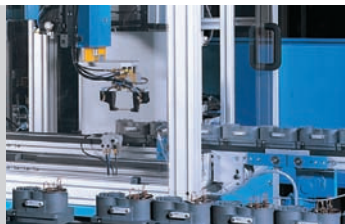
The industry standard multiple mechanical switches



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



Wood

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



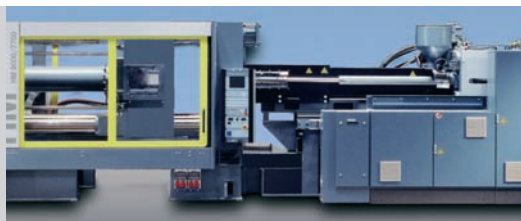
Rugged, long-range inductive proximity sensors for machine feedback



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



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

Linear Transducers



	Rod Style	Rugged Styles	Explosion-Proof Rod Style
Analog			
0...10 V and 10...0 V	✓	✓	✓
-5...+5 V and +5...-5 V	✓	✓	✓
-10...+10 V and +10...-10 V	✓	✓	✓
4...20 mA or 20...4 mA	✓	✓	✓
0...20 mA or 20...0 mA	✓	✓	✓
Digital			
Start/Stop, RS422	✓	✓	✓
Start/Stop, RS422, DPI/IP			
Pulse-Width Modulated, RS422	✓	✓	✓
PWM (w/recirculations), RS422	✓	✓	✓
Specialized			
Synchronous Serial Interface (SSI)	✓	✓	✓
CANopen	✓		✓
Profibus DP	✓		✓
Quadrature	✓		✓
Dual-Magnet Analog w/Programmable Stroke			
Resolution			
0.1 mV (analog)		✓	
0.2 μ A (analog)		✓	
16 bit (analog)	✓		✓
Controller-dependent (Start/Stop & PWM)	✓	✓	✓
1,2,3,5,10 μ m selectable (Quadrature output)	✓		✓
1,5,10, 20,40 μ m selectable (SSI output)	✓	✓	✓
5 μ m increments selectable (CANopen & Profibus)	✓		✓
10 μ m (analog)			
5 μ m (analog)			
Stroke Length			
Active measurement area*	2"-200"	2"-200"	2"-200"
Wiring Options			
Quick disconnect	✓	✓	
Cable-out	✓	✓	1/2" NPT
Operating Voltage			
24 Vdc (\pm 20%)	✓	✓	✓
\pm 15 Vdc (\pm 2%)	✓	✓	✓
10...30 Vdc	✓	✓	✓
Features	<ul style="list-style-type: none"> 3/4"x16-UNF threads or M18 threads Pressure-rated to 8700 psi for use in hydraulic cylinders Optional Rapid Replacement Module Analog signal adjustable in field Industry standard configuration 	<ul style="list-style-type: none"> Rugged, all-stainless steel housing Eliminates the need for protective covers 3/4"-16-UNF threads (W) Bolt-in design (K) Pressure-rated to 8700 psi 	<ul style="list-style-type: none"> Factory Mutual, CENELEC, and CSA approved Explosion proof Flame proof Bolt-in design Standard Rapid Replacement Module
* Depending on output type			
Web Address:	www.balluff.com/transducers		

 P	 R	 AT	 BIW
Profile Housing	Low-Profile Housing	Tube Profile Housing	Plunger Style
✓	✓	✓	✓
✓	✓		
✓	✓		✓
✓	✓		
✓	✓		
✓	✓	✓	
		✓	
✓	✓		
✓			
✓			
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✓			
		✓	
✓	✓		
✓	✓		
✓	✓	✓	
✓			
✓			
✓			
		✓	
			✓
2"-200"	2"-142"	2"-100"	75 mm-750 mm
✓	✓	✓	✓
✓	✓		
✓	✓	✓	18...30 Vdc
✓			
✓ (Quad output only)			
<ul style="list-style-type: none"> Designed for external mounting Rugged aluminum extruded housing Free-floating magnet or captive-sliding magnet 	<ul style="list-style-type: none"> Lowest-profile for space critical applications Compatible with "rod-in-cylinder" type linear potentiometers 	<ul style="list-style-type: none"> Cost-effective Free-floating magnet 0 - 10 V analog & start/stop interface IP 67 Dual magnet, dual analog programmable stroke version 	<ul style="list-style-type: none"> Linear pot form factor Analog (0...10 V or -10...+10 V) output All-new pulsed-inductive technology Highly immune to EMI Fast >30 kHz update rate

www.balluff.com/transducers