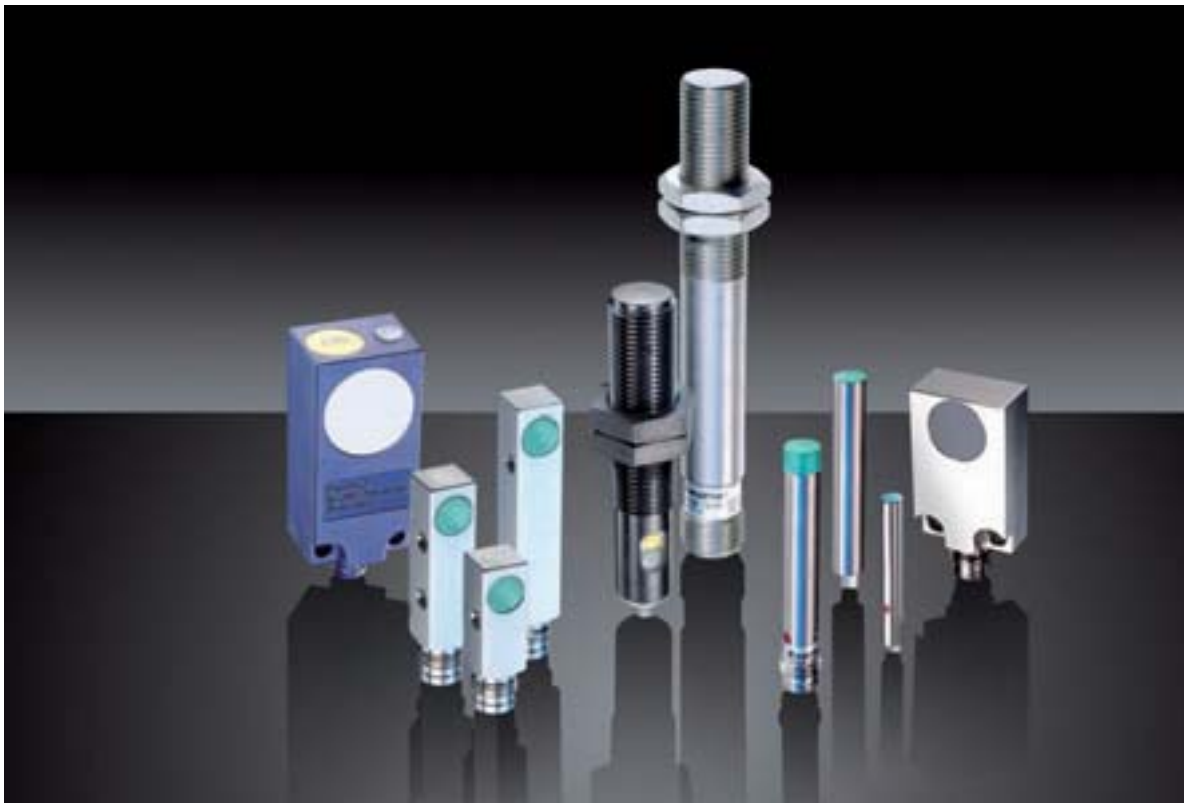
Baumer

Compact, fast, reliable. Inductive, capacitive and magnetic sensors.

Sensor Solutions
Motion Control
Vision Technologies
Process Instrumentation



Around the globe, automation would not be the same without non-contact inductive proximity sensors. For decades, millions of such metal-detecting devices have been monitoring presence, measuring movement and position of machine parts, valves and gears. Reliably. Day in and day out. Even in high-speed applications, exposed to the toughest industrial conditions, inductive proximity sensors safely detect steel targets as well as non-ferrous metal targets. The sensors provide feedback with precise switching points and extremely high repeat accuracy.

The range of inductive 3-wire sensors consists of two basic designs:
- Sensors with digital output providing accurate on/off information
- Distance measuring sensors providing absolute distance information

Both technologies are available in a wide range of housing styles ranging from subminiature to standard size enclosures. Special custom solutions are available for OEM requirements.

Inductive sensors are undoubtedly the best tested and best proven sensor technology on the market. Because of this, they are still going strong and continue to provide good and reliable solutions for many challenging tasks in the world of automation.

Powerful and flexible standard sensors

You as the client set the standard!

You can choose from Baumer's wide range of inductive and capacitive sensors. Baumer's new miniature range fully meets the current demand for highly compact models with great sensing distances. Sensor sizes with diameters of 6,5 mm and more offer a four times greater sensing distance and models with M12 or larger housings can sense at distances up to five times greater. You can choose from three different housing materials: nickel-plated brass, chrome-nickel steel 1.4305 or plastic to suit your application needs.

Three different housing lengths!

Short and sweet is how we make them, which gives you all the benefits of longer sensors in a much smaller housing. Nothing on earth can beat our star product with the world's shortest installation length of barely 28 mm, naturally equipped with M8 x 1 plug connector.

You want it longer? No problem – simply pick the medium-sized or long version, also available in a cable version!

Plug connector

Compact sensors require space-saving plug connectors too. Our range now includes the new M5 x 0,5 plug connector for our miniature series. We rely on the well-tested M8 x 1 and M12 x 1 connectors for our medium-sized and larger models. They naturally come in both straight and angular configurations.

Special versions according to customer specifications

Special versions according to customer specifications
Baumer's comprehensive range of standard inductive sensors satisfies most engineering and design requirements. Nevertheless, should you encounter an application that cannot be solved with an „off the shelf product":

Baumer has years of experience in tailor made sensor solutions, a small selection of which is displayed on this page for your reference.

Our R & D team is up to the challenge of tackling your every sensing need with products customized to your application.

Try us. Present your specification sheet today!

AlphaProx **Inductive distance measuring sensors with high resolution 0,1 µm**

Whether in industry, the construction field or process chemistry, it always requires a team of competent specialists to create strong solutions.
Baumer too puts its faith in a "team" when it comes to finding solutions for industrial applications. This team is known as ***AlphaProx*** and comprises a family of high-quality, inductive analog sensors. Each sensor displays an individual specification which is ideally matched to its specific application areas.

Miniature housing

The trend towards miniaturization is unstoppable, even when it comes to distance measuring sensors. With a diameter of 4 mm, the IWRM 04 likely holds the title as the smallest inductive distance measuring sensor with an integrated amplifier.

Temperature stability at the greatest measurement distances

High temperature stability at the greatest possible measuring distance represents a further strength. Over 80 % of all distance measuring applications operate at ambient temperatures between +20 … +50 °C. Our sensors exhibit a negligibly small temperature drift in the range between 0 … +60 °C.

Flexibility through Teach-In

Sensors with Teach-in inputs can be optimally adapted to their individual applications. The extremely simple Teach-in routine allows not only the analog output to be influenced, but also an additionally integrated switching output.

Very high EMI resistance

Resistance to electromagnetic interference is one of the most significant factors for the practical employment of sensors. Our sensor's EMI resistance limit values lie significantly above the specifications defined by the sensor standard, thus ensuring extremely high operational security.

Absolute linear and angular measurement

- Absolute linear measurement
- High reliability through contactless measurement
- Dirt-resistant measuring system
- Linear ways greater than the sensor measuring range can be measured
- Linear and rotary movements can be measured
- Compact sensor designs permit installation in even the most limited spaces

Belt tension regulation and monitoring

- High regulation quality at large frequencies is possible
- The sensor performs two functions: linear measurement (analog) and end position shutoff (digital)
- Using Teach-in, the sensor's measuring range can be optimally adjusted to the roll diameter

Vibration measurements on shafts and bearings

- Bearing play or true running measurements
- Measurements of distances down 1 µm
- Installation in even the most limited spaces (the amplifier is integrated in the sensor)
- Very rapid movements can be measured
- Miniature sensors also available in connector versions

Miniature versions of inductive sensors

The trend towards ultra compact machines and devices is here to stay. Baumer recognized this trend early on, resulting in the development of the world's smallest inductive sensors. A complete range of different sizes and enclosure shapes is perfectly matched to applications where space is scarce.

Miniature versions

- Smallest ø 3 mm sensor
- Unthreaded housing designs for ø 3 mm, ø 4 mm, ø 6,5 mm
- Steel housings with threads for M4, M5 and M8 dimensions
- Rectangular sensors for 4 mm, 6 mm, 8 mm dimensions

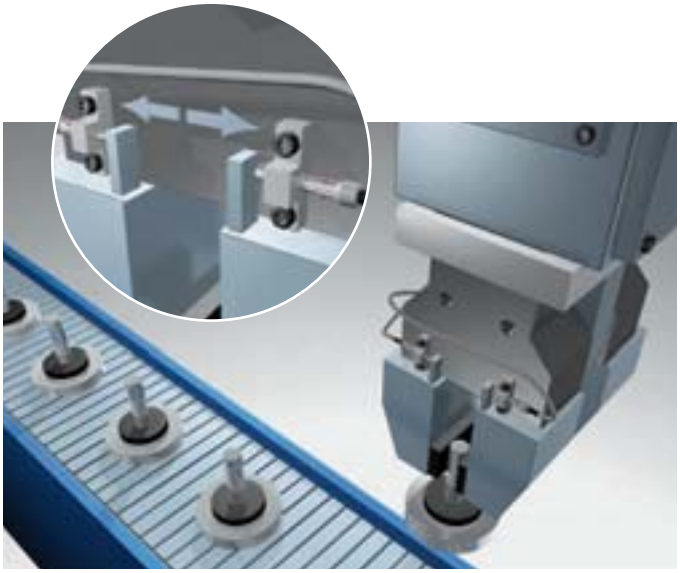
Special versions in miniaturized design

- 2-wire NAMUR versions in dimensions from 4 to 8 mm
- 2-wire NAMUR button sensors for mounting directly on PCBs in 10 mm dimension
- Measuring sensors with analog output (current/voltage) in dimensions from 4 to 8 mm

Electrical connection

- PUR and PVC leads
- M5 x 0,5 miniature connectors
- M8 x 1 connectors

Application examples for miniature sensors

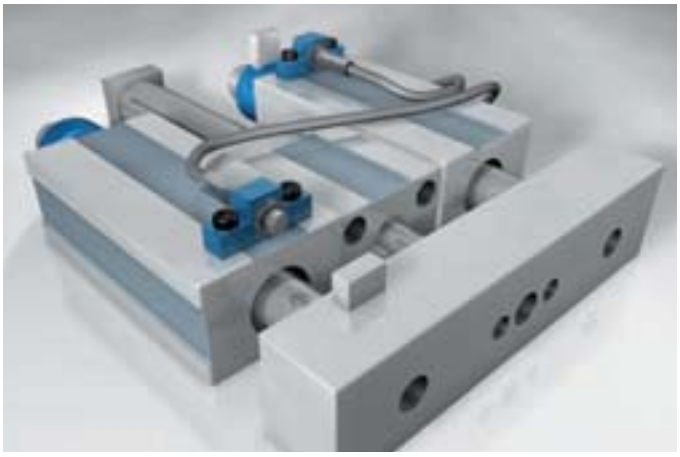


Robot grippers

- Gripper jaw end position detection
- Workpiece presence/absence check
- Miniature sensors designed for limited space conditions

Automatic SMD population equipment

- Synchronization of processes
- Precise position determination
- Absolute spacing measurement at high resolution



Linear unit

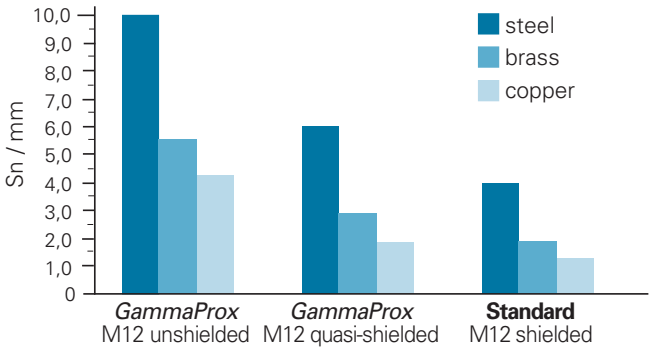
- Return report of the end positions
- Referencing / initialization

GammaProx **Sensors with increased sensing distances**

5xSn

Five times greater sensing distance than the CENELEC standard

The sensing distances of the *GammaProx* line of sensors is up to five times that required by the CENELEC standard. This allows both steel and nonferrous metals to be effectively and reliably detected. The increased sensing distance generally permits greater distances to the moving objects to be selected which, in turn, allows greater mounting tolerances and helps to prevent mechanical damage and increase the overall reliability of the equipment.



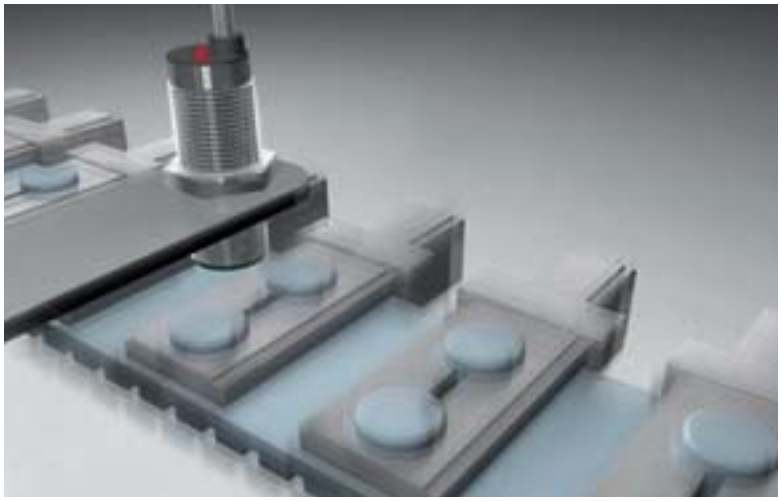
Quasi-shielded installation method

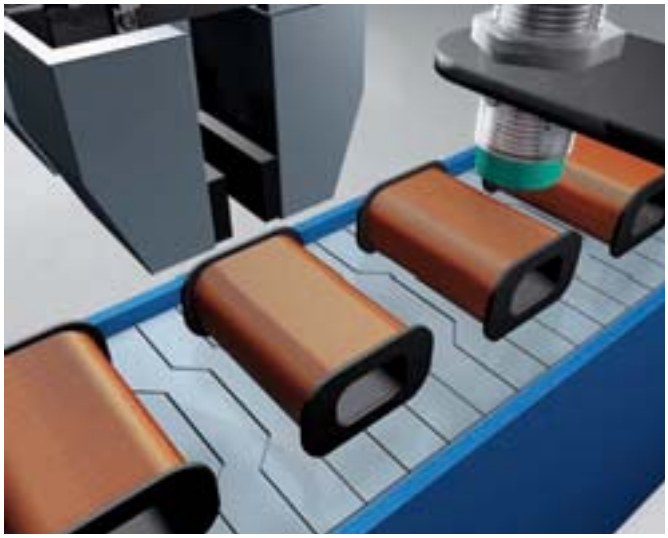
When installing quasi-shielded sensors in ferromagnetic metals, special installation instructions must be observed. In non-ferromagnetic materials such as copper, brass and aluminum, the sensors can be installed shielded.

Application examples for *GammaProx* sensors

Detection and counting of metal objects

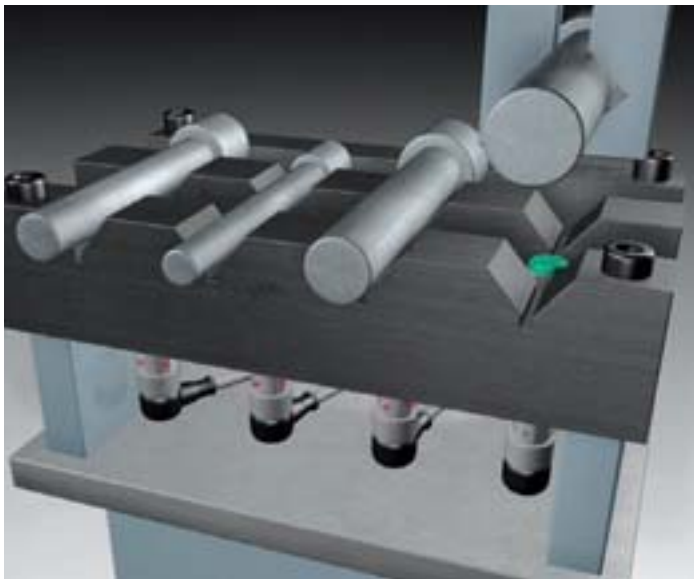
- Where object distances vary greatly (mechanical tolerance compensation)
- Reliable detection of varying object sizes
- Detects a variety of metals (lowering the influence of the reduction factor)
- Also detects plastic-coated metals reliably





Coil and transformer production

- Detection of copper windings
- Quality control during spool manufacturing
- Can be employed on automatic winders



Handling and robotics

- Presence detection for tool pickups
- Permits greater mounting tolerances
- Reliable detection even where object distances vary greatly

DuroProx **Inductive sensors with rugged full metal housings**

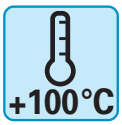
***DuroProx* Designed for daily use under harsh industrial conditions**
DuroProx sensors are built to take it in every sense. The inductive sensors with their full metal housing (Ø 6,5 to M18) providing IP 69K class protection were designed from the outset for harsh and demanding industrial applications. Thanks to an operating temperature range from -25 … +100 °C and a housing made of V4A stainless steel, these sensors are equally at home in food handling applications, cutting oil environments and any other applications where heavy contamination is a factor. They also function flawlessly under conditions of severe EMI pollution thanks to both their full metal housing with an active surface made of stainless steel and increased noise immunity in accordance with EN 61000-6-2.

Quasi-shielded installation method

When installing quasi-shielded sensors in ferromagnetic metals, special installation instructions must be observed. In non-ferromagnetic materials such as copper, brass and aluminum, the sensors can be installed shielded.

Highest protection class

The family of *DuroProx* sensors meets the requirements of protection class IP 69K and is practically predestined for use in the food handling industry.



Large operating temperature range

The temperature span across which *DuroProx* sensors can be reliably employed ranges from -25 … +100 °C.

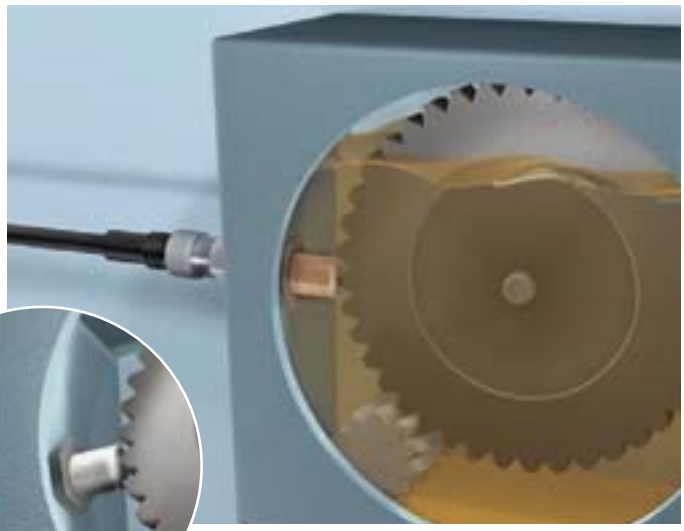
Full metal housing

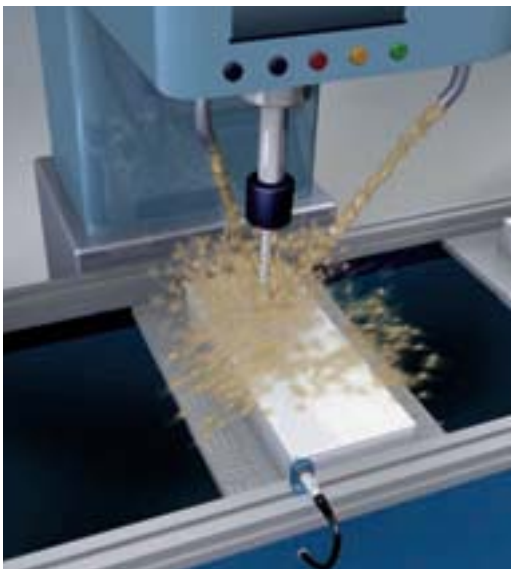
The entire housing, including the active surface is made of V4A (1.4404) stainless steel. This makes *DuroProx* highly resistant to abrasive and chemically aggressive media such as acids, bases and salt water and is according the food and beverage standards.

Application examples for *DuroProx* sensors

Long-term employment – Directly exposed to transmission fluid or motor oil

- Motor rpm counters
- Position reporting in transmissions
- Resistant to aggressive media such as oil additives





Continuous employment in wet cells

- During production processes involving cutting (CNC)
- Subjected to the influence of cutting, grinding and cooling/lubricating agents

Food processing industry

- Direct contact with foods (V4A steel)
- Cleaning using high-pressure water and steam
- Resistant to industrial detergents