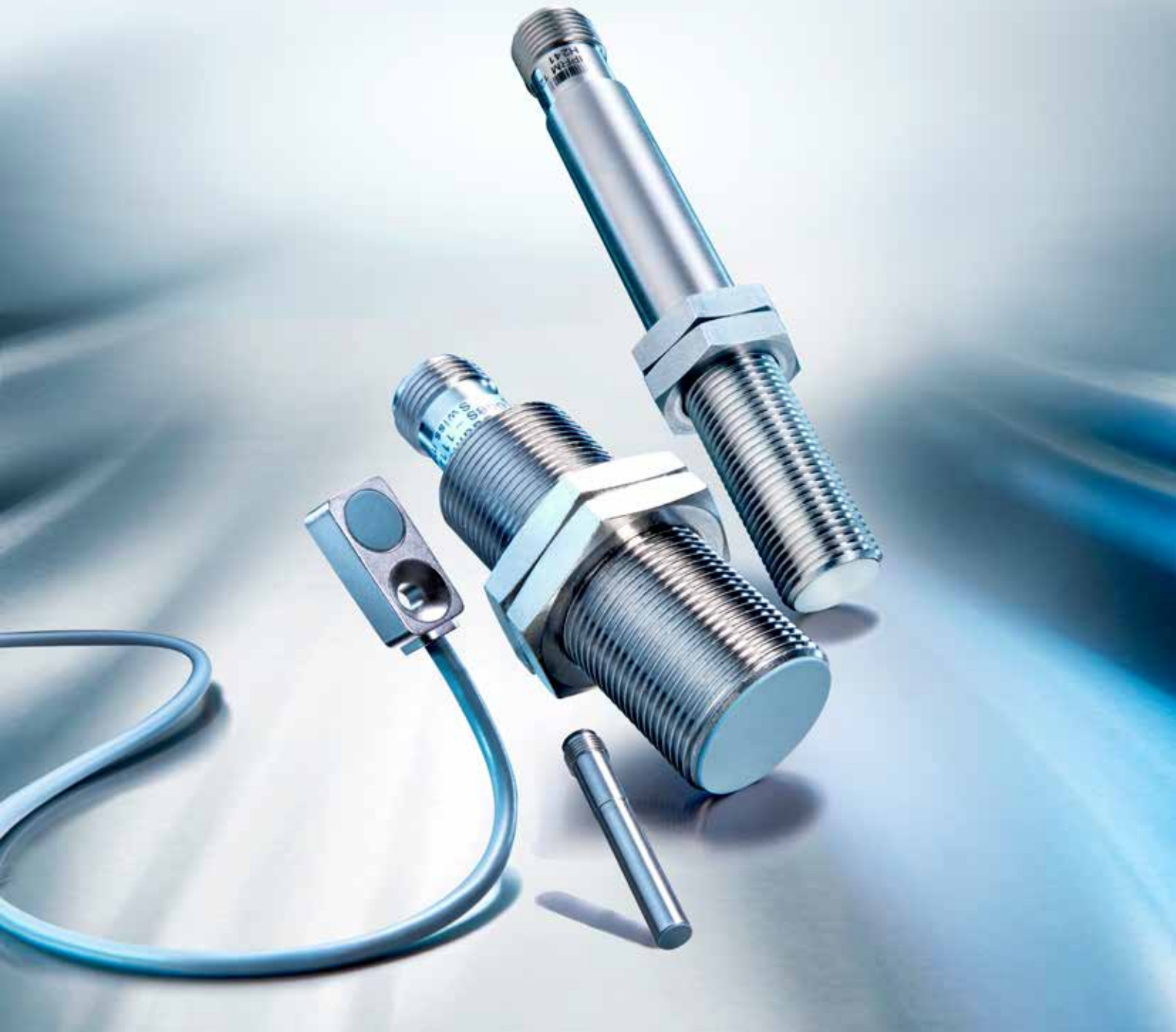


AlphaProx inductive sensors

Measure distances accurate to a micrometer.



AlphaProx sensors simply offer more

AlphaProx by Baumer is a flexible platform for inductive distance-measuring sensors, with fully integrated signal processing and IO-Link interface for a very good price-performance ratio.



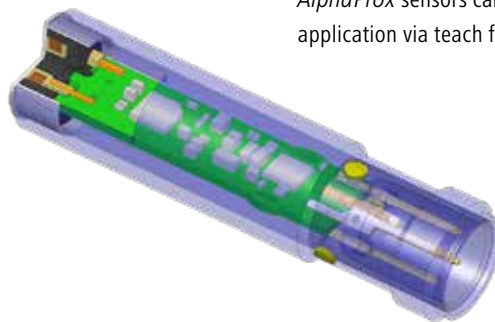
10 good reasons for choosing AlphaProx sensors.

- Compact, extremely robust sensors with fully integrated signal processing
- Maximum precision down to the nanometer scale
- IO-Link sensors with extended process data, such as digital distance, frequency measurement and counter function, as well as evaluation of additional diagnostic data
- Individually adjustable sensors by user-friendly, local teach function or IO-Link
- Large measuring ranges even in small housings (miniature sensors)
- Low deviation from sensor to sensor and excellent repeat accuracy
- High process reliability thanks to high temperature stability and excellent EMC performance
- Detailed documentation for easy installation and commissioning
- Large portfolio of cylindrical and cubic designs with different measuring ranges (including washdown and outdoor types)
- Sensors with factor 1 technology provide large sensing distances on non-ferrous metals

A compact masterpiece of measurement technology

Outstanding measurement accuracy

The combination of a patented coil element with Baumer ASIC guarantees an outstanding accuracy down to the nanometer scale.



Simple adjustment to the application

Thanks to its integrated powerful microcontroller, the AlphaProx sensors can be easily adjusted to a specific application via teach functions or the IO-Link interface.

Minimum deviation from sensor to sensor thanks to factory calibration

The complete end-of-line factory calibration of each sensor guarantees a linear output curve with a deviation below 1% over the whole series.

The *AlphaProx* portfolio – the right solution for every application.

Easy measurement with micrometer accuracy

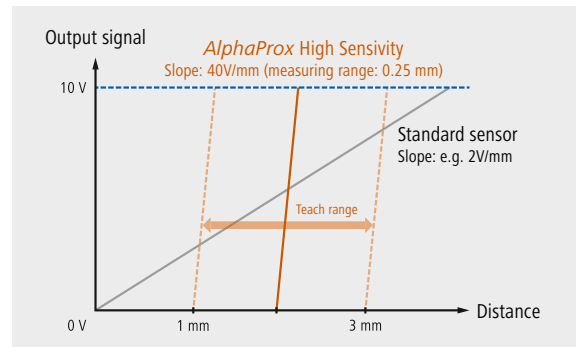
Highly accurate measuring systems with resolution in the nanometer range

- Solutions for the high-end sector with resolutions as small as 4 nm
- High measuring speed of 1 m/s
- Comfortable and cost-effective alternative to expensive measuring systems like eddy-current sensors without need for an external amplifier or expensive coaxial cables
- The signal processing unit is fully integrated in the compact housing, which allows for easy installation of the sensors



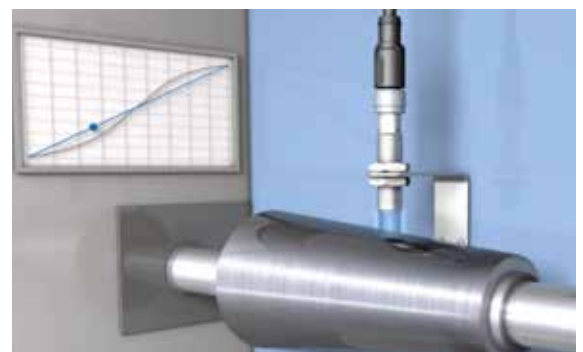
High sensitivity sensors for measuring the smallest changes in position

- Measurement of deformations in the micrometer range – small deviations in position create large output changes
- Perfectly suited for indirect, contactless force measurement
- Compatible with standard 8-bit PLC input modules
- Cost-effective alternative to strain gauges and eddy current sensors



Linear and non-linearized sensors

- Constant sensitivity over the entire measuring range
- Easy and cost-efficient integration in the PLC without additional costs or extensive programming effort
- Negligible deviation from sensor to sensor thanks to the end-of-line factory calibration allows for the installation of multiple sensors without individual adjustment
- Non-linearized sensors excel in high speed and maximum resolution



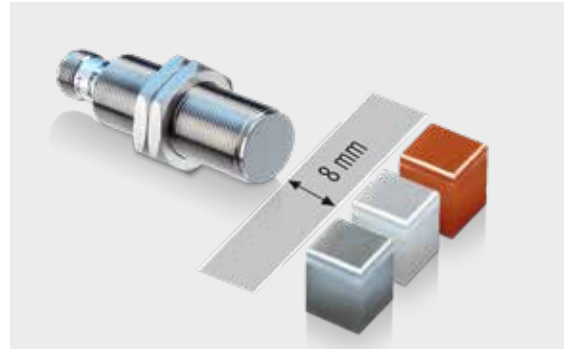
Maximum performance in miniature design

- Large selection of miniature sensors for maximum performance in limited space conditions
- Signal processing electronics fully integrated in the sensor
- Cylindrical and rectangular sensors in the sizes 4, 5, 6, 8 mm available
- With a length of only 22 mm, the \varnothing 6.5 mm and M8 sensors are the smallest in their class
- Thanks to their low weight, they are particularly suited for installation in robots for fast pick-and-place applications



Distance-measuring factor 1 sensor

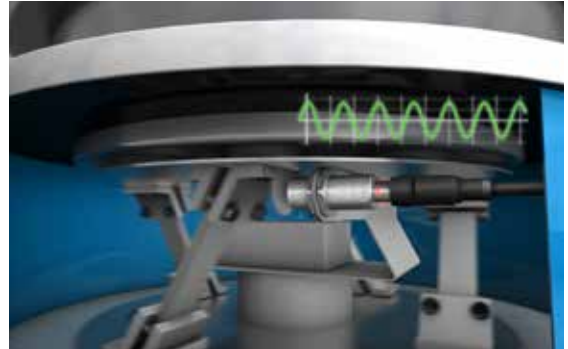
- The first linearized, factor 1 sensor in an M18 housing with a measuring range of 8 mm on all metals
- Thanks to the innovative teach-in concept, mechanical adjustment is no longer needed
- Reduces downtimes for changeover and installation
- More flexibility in machine design
- In conjunction with its very small temperature drift, the factor 1 sensor is ideally suited for measuring distances in the fields of handling, mechanical engineering or lightweight construction



Intelligent evaluation and individual parameterization

Extended process and diagnostic data with IO-Link

- Distance and frequency measurement, counting function and two independent switching points in one sensor
- Additional diagnostic data, e.g. temperature values, using histograms and evaluate statistics for predictive maintenance
- Adjustable measurement filtering for fast or accurate applications



Individual and application-specific parameterization

- Different teach-in functions for fine-tuning the sensors using local teaching or via IO-Link
- Parameterization of two different switching points
- Elimination of installation tolerances (offset compensation)
- Individual adjustment of the measuring range
- Additional configurable digital output for setting limit values



Easy and comfortable even when it comes to accessories

Fast and flexible installation

In addition to individual components such as mounting brackets and mounting nuts Baumer also offers matching Sensofix mounting kits for fast, flexible and secure installation of the sensors.

Easy set-up

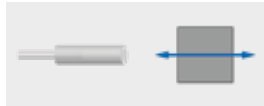
The Baumer Teach-In adapter allows fast and easy manual teaching of individual sensors. The compact "Test unit for Sensors" acts as an external power supply, allows fast manual teaching of individual sensors, and displays the analog output value. This is especially useful during the testing phase. IO-Link sensors can also be parameterized automatically via an IO-Link master. IO-Link masters are available in the controller, as field master or as USB or wireless master.



Wide variety of possible applications for *AlphaProx* sensors.

Direct paths / position feedback

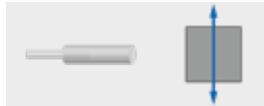
Distance measurements /
Displacements (axial position)



Lateral position measurements
using wedge / cone shapes
(lateral position)

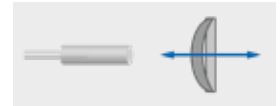


Lateral position measurement
at a constant distance



Indirect, specific measurements

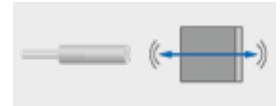
Indirect force measurement /
deflections



Angular measurement
(using an eccentric)



Measurements of vibrations
and radial run-out of joints



Significantly better – inductive distance measurement with *AlphaProx*

Sensor principle	Advantages of <i>AlphaProx</i> (on metal objects up to 40 mm)	
AlphaProx versus	Eddy-current sensors	<ul style="list-style-type: none"> ■ <i>AlphaProx</i> sensors offer high-precision in the micrometer range at a very low price ■ No external signal processing unit required ■ Standard solutions available even for specific applications (ATEX, washdown and high pressure types)
	Strain gauges	<ul style="list-style-type: none"> ■ The contactless measuring principle of <i>AlphaProx</i> sensors allows for flexible and easy installations ■ Easier sensor replacement, since no complex gluing process needed ■ Greater freedom in machine design thanks to more flexible sensor positioning ■ No external electronics required, since the signal processing is fully integrated in the <i>AlphaProx</i> sensors
	Capacitive distance sensors	<ul style="list-style-type: none"> ■ <i>AlphaProx</i> sensors are insensitive to humidity and changing environmental influences – this allows for simpler machine designs ■ Selective sensitivity to metal increases process reliability ■ More cost-effective and easier handling
	Magnetic distance sensors	<ul style="list-style-type: none"> ■ <i>AlphaProx</i> sensors offer increased process reliability and reduced maintenance – no risk of accumulation of metal filings or particles on the sensing face due to magnetic attraction ■ Direct measurements on all electrically conductive machine components possible without the need for installing a magnet
	Optical distance sensors	<ul style="list-style-type: none"> ■ <i>AlphaProx</i> sensors offer maximum reliability, since the measuring accuracy is not influenced by light, dust, or dirt – this also allows for reliable outdoors usage ■ The MTTF value of <i>AlphaProx</i> sensors is up to 50 times higher than that of optical sensors – this means significantly fewer sensor failures, less downtime and reduced maintenance costs ■ They offer easy handling thanks to a robust, insensitive sensing face ■ Offer much higher accuracy at near range for lower costs

AlphaProx – A powerful portfolio

Product family	Bauformen	Max. measuring range	Resolution	Characteristic	Switching output	Teachable	Designation
Subminiature	ø 4	1 mm	1 µm	non-linear			IWRM 04
	5×5	1 mm	1 µm	non-linear			IWFM 05
	8×4.7	2 mm	1 µm	non-linear			IF08.DxxS
Miniature	ø 6.5	3 mm	1 µm	non-linear			IR06.DxxS
	M8	3 mm	1 µm	non-linear			IR08.DxxS
Compact	M12	6 mm	1 µm	non-linear			IR12.DxxS
	M18	8 mm	5 µm	non-linear			IR18.DxxS
	M30	24 mm	5 µm	non-linear			IR30.DxxS
	12×12	4 mm	1 µm	non-linear			IWFM 12
	18×10	4 mm	1 µm	non-linear			IWFM 18
	20×8	2 mm	1 µm	non-linear			IWFM 20
	20×12	5 mm	5 µm	non-linear			IWFM 20
Linearized	ø 6.5	3 mm	3 µm	linear		■	IR06.DxxL
	M8	3 mm	3 µm	linear		■	IR08.DxxL
	M12	6 mm	3 µm	linear	■	■	IR12.DxxL
	M18	8 mm	8 µm	linear	■	■	IR18.DxxL
	M30	24 mm	10 µm	linear		■	IR30.DxxL
	18×10	4 mm	5 µm	linear			IWFM 18
High sensitivity	M12	3 mm	1 µm	linear		■	IR12.DxxK
	M18	3 mm	1 µm	linear		■	IR18.DxxK
High resolution	M12	3 mm	0.004 µm	non-linear			IPRM 12
Factor 1	M18	8 mm	20 µm	linear		■	IR18.DxxF
Washdown	M18	7 mm	5 µm	non-linear			IWRR 18
IO Link	ø 6.5	3 mm	5 µm	linear	■	■	IR06.DxxL
	M8	3 mm	5 µm	linear	■	■	IR08.DxxL
	M12	6 mm	3 µm	linear	■	■	IR12.DxxL
	M18	10 mm	5 µm	linear	■	■	IR18.DxxL
	M30	18 mm	10 µm	linear	■	■	IR30.DxxL

You can find the complete portfolio with all variants and accessories at www.baumer.com/alphaprox

Find your local partner: www.baumer.com/worldwide



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