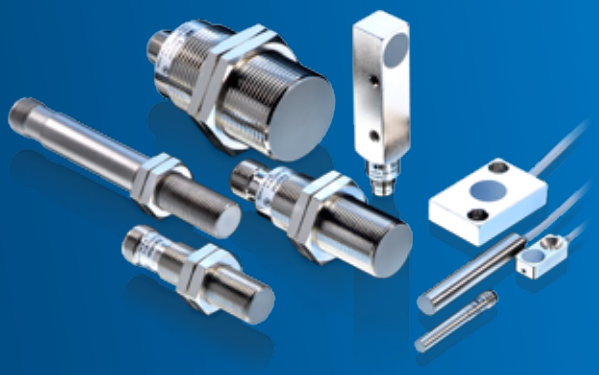
Baumer
Passion for Sensors

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 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
- 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
- Very good price-performance ratio
- Individually adjustable sensors with consistent and user-friendly operating concept
- Detailed documentation for easy installation and commissioning
- Large portfolio of cylindrical and cubic designs with different measuring ranges (including washdown, ATEX, and outdoor types)
- Sensors with factor 1 technology provide large sensing distances on non-ferrous metals

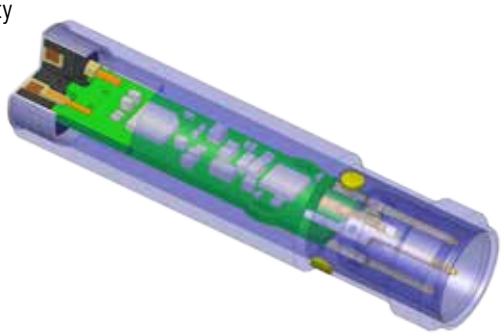
A compact masterpiece of measurement technology

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 the teach function.



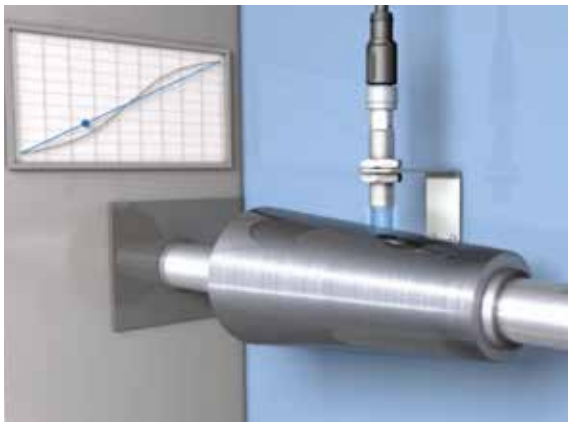
Minimum deviation from sensor to sensor thanks to factory calibration

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.

Innovative teach-in possibilities

- Different teach-in functions for fine-tuning the sensors
- Elimination of installation tolerances (offset compensation)
- Individual adjustment of the measuring range
- Additional configurable digital output for setting limit values

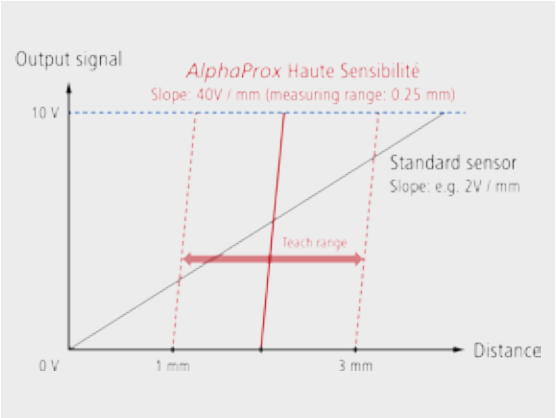


Linear and non-linearized sensors

- 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

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

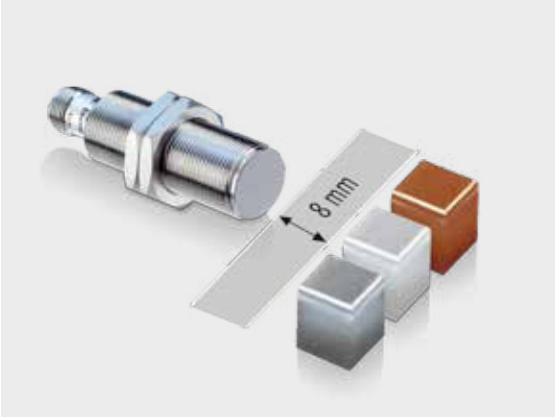


High sensitivity sensors for measuring the smallest changes in position

- 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

Miniaturization and short sensor designs

- 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 Ø 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



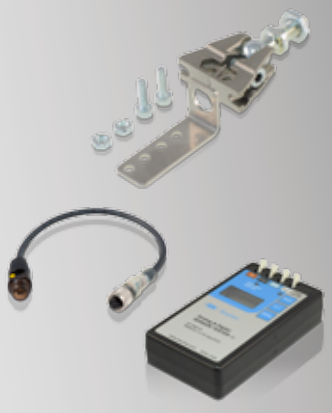
Distance-measuring factor 1 sensor

- 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

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.

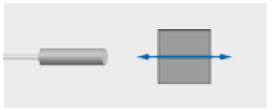
Easy set-up
The Baumer Teach-In adapter allows fast and easy manual teaching of individual sensors. The compact "Test unit for Sensors" acts as an external power supply, allows fast manual teaching of individual sensors, and displays the analog output value. This is especially useful during the testing phase.



Wide variety of possible applications for *AlphaProx* sensors.

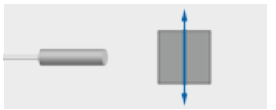
Direct paths/position feedback

Distance measurements/
Displacements (axial position)



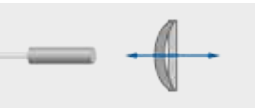
Lateral position measurements
using wedge/cone shapes
(lateral position)

Lateral position measurement
at a constant distance



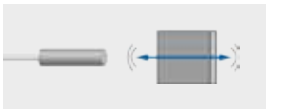
Indirect, specific measurements

Indirect force measurement/
deflections



Angular measurement
(using a eccentric)

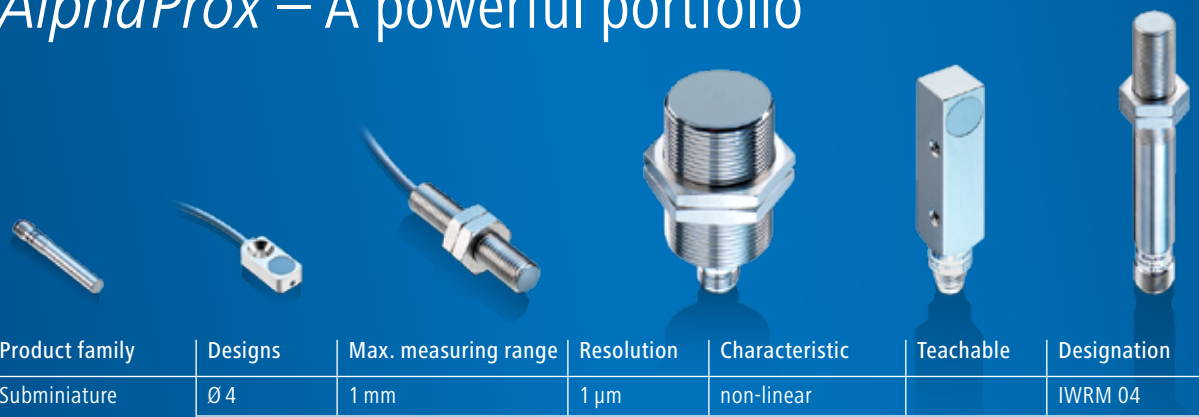
Measurements of vibrations
and radial run-out of joints



Significantly better – inductive distance measurement with *AlphaProx*

Sensor principle		Advantages of *AlphaProx* (on metal objects up to 40 mm)
AlphaProx versus	Eddy-current sensors	■ *AlphaProx* 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	■ The contactless measuring principle of *AlphaProx* sensors allows for flexible and easy installations ■ Easier sensor replacement, since no complex glueing 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 *AlphaProx* sensors
	Capacitive distance sensors	■ *AlphaProx* 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	■ *AlphaProx* 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	■ *AlphaProx* 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 *AlphaProx* 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	Designs	Max. measuring range	Resolution	Characteristic	Teachable	Designation
Subminiature	Ø 4	1 mm	1 µm	non-linear		IWRM 04
	5x5	1 mm	1 µm	non-linear		IWFM 05
	8x4.7	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
	8x8	3 mm	1 µm	non-linear		IL08.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
	12x12	4 mm	1 µm	non-linear		IWFM 12
	18x10	4 mm	1 µm	non-linear		IWFM 18
	20x8	2 mm	1 µm	non-linear		IWFM 20
	20x12	5 mm	5 µm	non-linear		IWFM 20
Linearized	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
	18x10	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
High pressure	M16	4 mm	3 µm	linear	▪	IR16P.DxxL
Washdown	M18	7 mm	5 µm	non-linear		IWRR 18
ATEX	M12	4 mm	1 µm	non-linear		IWRM 12

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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