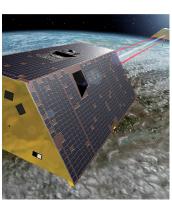


INTEGRATED SENSOR SOLUTIONS FOR YOUR UNIQUE APPLICATIONS









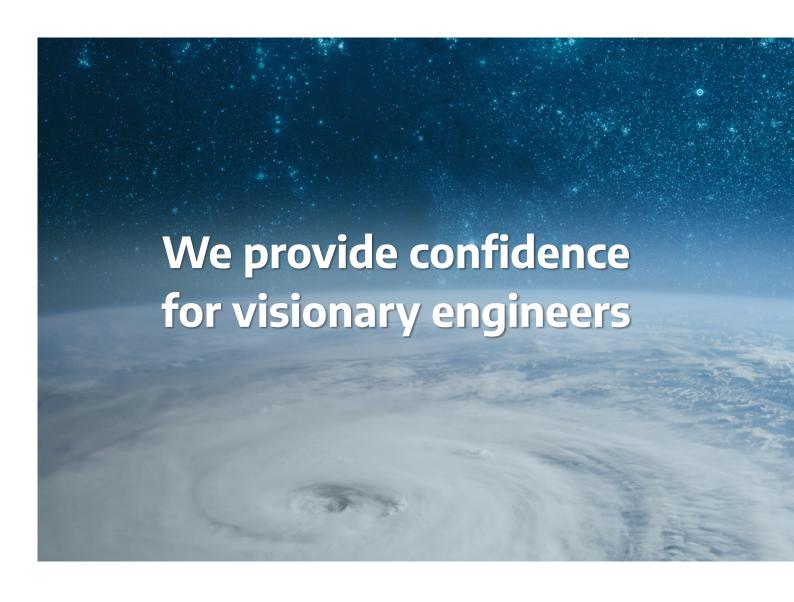
MEET ALTHEN
OUR SOLUTIONS
PRODUCT OVERVIEW
SENSOR TECHNOLOGY
SERVICES & APPLICATIONS





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We believe in your dreams.

Together we build the future.



Why

Certainty is at the heart of everything we do. We provide confidence for visionary engineers, so they dare to dream bigger. We make sure things are exactly right. We love technical challenges, we love the puzzles, together we build the future.

How

We see the bigger picture, understand the toughest problems and co-create, working alongside anyone with a technical challenge. We love solving problems and to contribute to your vision. Developing a new sensor solution with existing building blocks or from scratch.

What

Integrated sensor solutions for OEM, Test & Measurement, Industrial IoT, and Joystick control solutions. Althen provides you with a team of expert engineers. We help to solve your challenges in co-creation, with sensors and controls solutions off the shelf or 'made to measure'. We are recognized for our ability to deliver customized turn-key solutions in combination with a distinctive service level.



MISSION STATEMENT

Sensors enable the world of tomorrow

OUR STORY IS ABOUT MUCH MORE THAN SENSORS AND CONTROLS

It is about ambition. It is about evolution. It is about shaping the future. The development of our sensors and our expert technical knowledge is not only part of our profession, they actively shape the future. Because sensors can do more.

Tools are what lifted people above the animals. And our sensors & controls are the ultimate tools. They give us the power to measure things that are incredibly heavy. Or immense. Or tiny. They give us the power to see in the dark. Into space. To venture into the deep sea. They open worlds normally not accessible for us, human beings.

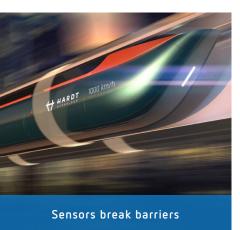
Sensors give us the ability to realize even the biggest dreams. To capture things that go beyond our senses. They give us the knowledge and confidence we need to create, develop, and explore new places.

AT ALTHEN WE BELIEVE IN THE REALIZATION OF BIG DREAMS

If you can dream it, you can build it. If you can build it, you can live it. That is why our small sensors are often part of a much bigger plan, like The Ocean Cleanup. Or The Hyperloop. But it is not size that matters to us. It's the challenge. We love solving problems. Nothing is too small to deserve the highest accuracy. No dream is too big. No decimal too small.

Whatever the measuring job, there is always an engineer behind it. With an idea, a plan, a vision. Someone who sees the bigger picture.

Every day we team up with these engineers. We share expertise and we ensure that they have the right tools for the job. We give them the confidence to dream bigger, so that even the biggest dreams become reality.







We are Althen. We integrate sensor solutions. We enable the future.



ABOUT ALTHEN SENSORS & CONTROLS

The integrated sensor and measurement solution for your application



FOR MANY DECADES ALTHEN SENSORS & CONTROLS HAS BEEN STANDING FOR PIONEERING MEASUREMENT AND SENSOR SOLUTIONS.

In our product portfolio all physical parameters are represented. As we are always looking for the newest innovations, we will not be satisfied until we have found the perfect solution for your measurement task.

Our in-house production and design department continuously creates numerous customer-specific sensor and measurement solutions for almost all applications in many different industries. We supply standard and custom sensor solutions for Original Equipment Manufacturers (OEM), Test and Measurement (T&M), and Industrial Internet of Things (IIoT).

In order to get the best and most efficient solution for your measurement requirements, we use different technologies and choose the right products from our impressive portfolio which fits your application. Our distinctive engineers advise you effectively and extensive.

Althen is a partner of many recognized universities and leading corporations. Together we develop the technologies of the future. We were also one of the first companies in the sensor and measurement industry to be certified by the certification body of TÜV Hessen in accordance with DIN EN ISO 9001: 2015.

YOUR BENEFITS

- Many decades of experience in sensors and measurement systems
- Industry specific knowledge about requirements and certifications for OEM, T&M, and IIoT
- In-house electronics design and production
- Development of customized sensors (also for low volumes)
- Development of customized measurement systems (no MOQ)
- Technical consulting for selecting the right product
- High service level with in-house calibration and repair department
- One-stop-shop experience for your sensors and measurement challenges

ADDITIONAL INFORMATION

althensensors.com/about-althen



OUR GROUP COMPANIES

ABOUT METESCO

Sharing measuring solutions and services

Metesco is your partner for rental and sale of measuring equipment and measuring instruments. Expertise, sound technical advice, and outstanding service are crucial to us. We make sure that you will have the most accurate and most recently certified measuring instruments. Quickly and reasonably priced.

Metesco also offers a wide range of services such as: on-site measurements, flow measurements, calibrations and much more. We constantly strive for the highest quality standards. Which is also reflected in our services regarding the performance of calibrations, measurements and inspections on site.

We want to unburden you. Not only do we supply the finest measuring instruments, we also want to distinguish ourselves with the best possible advise you and practical solutions. With our years of experience, flexibility, dedication and excellent service, we are convinced that together we can find the ideal solution for your measurement problem.



YOUR BENEFITS

- +250 rental measurement devices in stock
- range of +200 measuring instruments for sale
- In-house and on site calibration services
- Advanced measurement services on site
- NEN 3140 tool inspections
- Flow and flow rate measurements
- Cutting edge measurement of force and load
- Dynamic monitoring station

ADDITIONAL INFORMATION

metesco.nl/over-metesco



ABOUT RELLITECHNOLOGY

Your best source for certified military and civil parts



Based on your specific requirements, we can offer all levels of certification, from a standard manufacturer's COC or FAA 8130-3 to full chemical and physical test reports and First Article Inspection Reports.

A strong commitment to pro-active customer engagement, quick turn-around time and dependable quality, backed up by a state-of-the-art ERP system to maintain full traceability of all our goods and activities, allows us to offer a consistent service package to all our customers.

Relli Technology is structured around providing best-in-class service, at every step and all operational levels. Our databases contain a vast amount of data on millions of parts, enabling



us to quickly identify suitable sources of supply. All parts are genuine, sourced from approved OEM's, manufacturers and distributors, all of which we actively monitor with regards to quality and performance.

YOUR BENEFITS

- Service-driven mentality
- Fast response times
- Accurate deliveries
- Records of 100.000+ parts
- On demand sourcing
- AS9120B Certified

ADDITIONAL INFORMATION

relli.nl/company





OUR SOLUTIONS

The integrated sensor and measurement solution for your application



EXPERT DESIGN FOR YOUR PERFECT OEM SENSOR, SUPPLEMENTED BY DISTINCTIVE LOGISTIC SOLUTIONS

Althen supplies standard and custom sensor solutions specifically for the Original Equipment Manufacturer (OEM). Manufacturers and engineers come to us, because they simply can't find the sensor solution that fit's their system. Every application is different and often there is a need for a custom design to fit the specific requirements. That is where our engineers will co-design a new sensor which meets the unique specifications. Whether it is a force sensor, a torque sensor, a pressure sensor, a displacement sensor or a rotary sensor.

Bottom line: we are not limited to our standard catalog products. We are a known for our flexibility to design and manufacturer customized sensors. We are able to co-develop your best OEM-sensor which will enable you to built your best possible product. Althen invests in a longterm successful partnership with it's OEM customers:

- Short iteration cycles
- Fast proto-typing service
- Quality in product and proces
- Stock and logistic redelivery services
- High-quality consult for product updates or other product lines



CUSTOM SENSOR SOLUTIONS FOR TEST & MEASUREMENT APPLICATIONS

From custom force sensors and load cells, high performance pressure sensors, dynamic torque sensors, custom straingauges, to custom laser scanning systems, position measurement, inclination/levelling systems, and fiber optic measurement systems.

The strength of Althen is it's flexibility to design, built and deliver a fully customized quality measurement system, that customers can literally plug and play. From dedicated measurement systems to detect earthquakes to extremely accurate inclination measurement systems with displays and set points, there is hardly a measurement challenge that can't be solved with a custom Test & Measurement solution. With our in house design and manufacturing we have the flexibility to produce fast prototypes for the customer to test and iterate on in a short time-span.

We are your application specialist applying our strong knowledge in different sensor technologies to create the best possible sensor or to develop the best fit measurement chain of existing of sensors, amplifiers, electronics, and data-acquisition modules.

As your Test & Measurement sensor partner our goal is always to bring the best quality solution for your specific application.



END-TO-END IIOT SENSOR SOLUTIONS FOR THE FUTURE

Whether you are looking for a lloT solution in which ground water monitoring has to be accessed from a web-browser or that you are looking to sense lots of high-density data from high frequency measurements, we are your partner to develop an Industrial Internet of Things (IoT) Solutions. We are happy to help you with most suitable IIoT solution for your application.

IIoT is the complete complex measurement solution combining precision sensor hardware and electronics with:

- Wireless data transmitting
- Data storage
- Data analysis
- Smart dashboards with relevant info (webbased)
- Potentially integrated with customers processes

We deliver turn-key measurement solutions which not only contain the hardware but more important also the gathered data and information by the measurement system. With insightfull dashboards we offer all the necessary information to make operational decisions and take appropriate actions.



INDUSTRIAL JOYSTICKS AND POSITION FEEDBACK SENSORS

Human machine interface is our craftsmanship. Our philosophy goes further than producing joystick controllers and position feedback sensors. we believe in quality and attention for each individual application over quantity and mass production. Each of our customers is unique, therefore we have developed more than thousand unique joystick controllers and position feedback sensors, each tailored to the application.

By co-designing the best possible product for our customer, we believe to offer the ultimate OEM experience modern machine builders are looking for. Our team of experienced engineers are not only involved in the design and production phase of the joystick, but we will be alnogn your side from the very first concept until teh installation and during the years of operation.





WE KNOW WHAT IS IMPORTANT FOR YOUR INDUSTRY

We provide confidence for visionary engineers

OUR CORE INDUSTRIES

Every industry has it's own challenges and niche characteristics. Our engineers understand that new developments come together with new challenges, and that is where we can team-up. By understanding the bigger picture, the vision, it becomes possible to really understand the requirements in your measurement challenge.

With our specialists who have grown specific knowledge about specific industries, we are able to speak the same language. Whether it's about special medical certifications, or safety integrity levels which need to be realized, we make sure to bring the right expert engineer to the job.



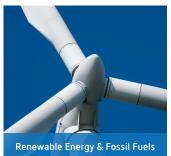


















PRODUCT OVERVIEW

Our building blocks to create integrated sensor solutions for your unique applications

bar

PRESSURE

Pressure transducers and pressure sensors with measuring ranges from 35 mbar to 12.000 bar. A wide offering of standard, Miniature, High accuracy, Differential, Wireless sensors for gas and liquid media.



kg

WEIGHT

Loadcells and weighing sensors for measuring weights from 10 gram up to 1500 tonnes. Low-cost items for applications in the automation industry.



N

FORCE

Force transducers and load-cells with measuring ranges from 0.5 N to 1500 kN.
Also 2-,3-, and 6 component sensors for measuring forces in multiple dimensions.



Nm

TOROUE

Torque sensors and measuring systems for measuring static reation torque and dynamic rotating applications with ranges from 10mNm to 13kNm.



3

STRAIN

Electrical straingauges and Fiber-optical (WLPI) strainsensors, measuring ranges from \pm 500 μ e to \pm 5,000 μ e. Special variants for extreme environments.



α

ROTATION

Rotary sensors based on hall effect, potentiometric, inductive, encoder technology to measure from 10° to 360°.



mm

DISPLACEMENT

Linear position sensors based on hall effect, potentiometric, inductive, laser, eddy-current, and capacitive technology for ranges from 0.125 mm to 30 meter.





INCLINATION

Tilt sensors and inclination measurement systems with measurement ranges from 1° to 360° for industrial and high accurate applications, with analog and digital interfaces.



g

ACCELERATION

Servo and MEMS based accelerometers with ranges from 0.5g to 5000g. For acceleration measurement in 1-, 2-, or 3- directions.



m/s²

VIBRATION

Piezoceramic vibration sensors and vibration sensors with IEPE interface and frequency range from 0.05 Hz for vibration measurement and analysis.



%

ANGULAR RATE

High precision gyroscopes and inertial systems for measurement of angular rate with measurement ranges from 50°/s to 10,000°/s.





TEMPERATURE

Electrical and fiber optical (WLPI, GaAs) temperature sensors, with measuring ranges from -40°C to + 250°C. Also temperature scanners for multichannel temperature measurement.





SIGNAL CONDITIONING

Analog and digital measuring amplifiers for amplifying a broad range of sensors. Single and multichannel amplifier systems, with precise, and low noise output signals.





DATALOGGING

Systems for PC-based data-acquisition, data-loggers and wireless handheld modules with USB and/or Ethernet interface.





AUTOMATION

Digital amplifiers and indicators with interfaces such as Ethernet IP, Profinet IO, RS485, CAN-Open, CC-link, Profibus, Modbus TCP, Ethercat.





TURN-KEY SYSTEMS

Individual turn-key measurement systems for customer specific applications e.g. transport monitoring, trainweighing, helicopter weighing, and several hundreds more.





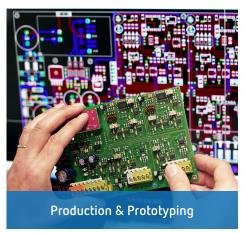
OUR SERVICES

Our solutions are turn-key. Hardware solutions are always complemented by good services to deliver an end-to-end solution.













Repairs

FULL SERVICE PARTNER

At Althen it is all about turn-key solutions, we believe in delivering the full package. Next to the physical hardware solution, we offer several services such as: training/consulting, calibration & repair, engineering & development, and production & prototyping. Complementary services that will provide you with full confidence.

CALIBRATION IS AN ART

Our reliable calibration service: maximum accuracy and performance for your sensors & measurement systems

Benefit from our calibration services for new purchases as well as existing measuring instruments. The regular calibration by Althen ensures that your sensors and measuring systems work exactly according to their specificiations. This is the only way to achieve correct and meaningfull measurement results over the long run. Our experienced experts adjust deviations and document the results with a calibration certificate. We support you not only with the calibration of standard sensors and testers, but also with individual special solutions.

Compared to other sales companies in the field of measurement technology and sensor technology, you can benefit from our in-house calibration laboratory at our headquarters in Kelkheim. Here we are able to calibrate pressure, force, position, and inclination sensors, as well as dataloggers and complete measurement systems.



ISO 9001 CALIBRATION (FACTORY CALIBRATION)

For the physical parameters of pressure, force and inclination, we also offer certified factory calibrations. The measured data is generated exclusively with traceable measuring equipment.

CUSTOM CALIBRATION

Custom Solutions Require Custom Testing: in addition to new acquisitions and existing equipment, we also offer special custom calibrations that meet your individual needs. Our experienced experts correct deviations and document the results in a calibration certificate.

CALIBRATE SENSORS AND MEASURING SYSTEMS ONCE A YEAR

On request, we regularly check your measuring instruments and repair or adjust them if necessary - even if they are not from our house! Your instruments will stay functional for a long time and work reliably. Send us your calibration request: we will gladly advise you and send you a tailor-made offer. Also we offer service level agreements (SLA's) for annual recurring calibration needs.









YOUR BENEFITS

- More than 40 years of experience in calibration
- Pressure, force, inclination, position and systems
- Customized calibrations for special system
- Fast track calibration service

ADDITIONAL INFORMATION

althensensors.com/services/calibration





PRODUCTION

Customized solutions for your requirements: From the prototype to the serial product

Through proven manufacturing processes, we offer you single components or complete systems from a single source. In our in-house production we provide you with accessories for dataloggers as well as complete solutions for the measurements of pressure, force, inclination, acceleration or displacement.

We select the right components for your measuring task from a large number of standard products. According to demand, we produce single pieces or in series. With the help of prototypes, you can test whether the products integrate perfectly into your existing systems and fulfill their task. Of course, we always keep the costs in sight.

PRECISE PRODUCTION TECHNOLOGY FOR YOUR PRODUCTS

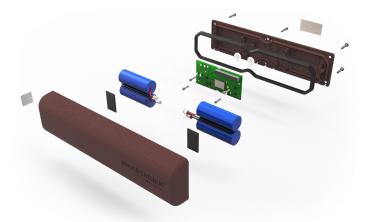
Our production technology meets the latest standards. The result is a sophisticated technology of the highest quality. In our in-house calibration laboratory, we test your products carefully including endurance test. This guarantees that your products will work smoothly in the field. Every product that leaves our production department performs its measuring and sensor tasks efficiently and reliably. Upon completion, we will support you during commissioning.

COMPLETE SOLUTIONS FOR YOUR MEASURING TECHNOLOGY

Experience makes the difference: complete measuring systems for industrial metrology applications.

A measuring system consists of one or more sensors and the appropriate measuring amplifier and measuring data acquisition system. As an experienced partner, you will receive everything from one source at Althen. Regardless of whether you are looking for a measuring amplifier for a strain gauge or multi-channel measuring system for force / distance measurement with measurement data recording on a PC - we have the right solution for you.

Measuring systems from Althen not only include the sensors, signal conditioning and display or recording, but can also be supplied with all necessary cables, power supplies and other accessories if required. It is also possible to integrate the measuring system in customer-specific housings. You can rely on the advice and assistance of our specialists at any time, at the beginning of the project, during order and order processing and after delivery. We also help with commissioning and recalibration after delivery.



YOUR BENEFITS

- Design and manufacture customized products for your complex measurement task
- Competent, vendor-neutral advice
- In-house electronics design & production
- Development of customized sensors
- Development of complete measurement systems
- Support from brainstorming for applications to technology planning to product selection
- High service level with in-house calibration and repair department

ADDITIONAL INFORMATION

althensensors.com/services/production



SOLUTIONS FOR OEM, TEST & MEASUREMENT AND IIOT

Integrated measurement technology that meets the highest quality standards

ROTATION AND TILT SENSOR FOR POSITION FEEDBACK IN NEW MULTIFUNCTIONAL MACHINE

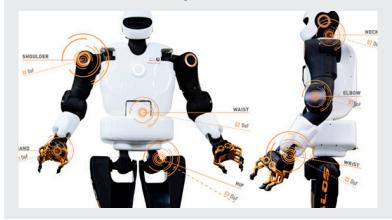




FCP22A Potentiometer & DOG2 Mems inclinometer

Servo mounted potentiometer with 22 mm outside diameter & J1939 Canbus interface inclinometer for automotive.

CUSTOM STATIC REACTION TORQUE SENSORS FOR FORCE FEEDBACK IN ROBOTICS APPLICATION





Nm

ATF311 Torque sensor

Static torque sensor with a fully custom aluminum design with special dimensions to fit the application.

OVERLOAD PROTECTION IN MEDICAL MRI MACHINE





FC23 miniature force sensor

Custom force sensor with integrated amplifier which is certified for usage in the medical industry.



SOLUTIONS FOR OEM, TEST & MEASUREMENT AND IIOT

Integrated measurement technology that meets the highest quality standards







18LP Linear & FCP50A Single-turn potentiometer

Accurate position feedback for positioning of the angle of the blades and the operational angle of the total thruster.

ROTARY POSITION FEEDBACK FOR MARITIME CONTROL HANDLES IN BRIDGE APPLICATIONS





FCP40A Single-turn potentiometer

Rotary position feedback in control handles for ships.

ROBUST AND ACCURATE INCLINATION MEASUREMENT FOR OFFSHORE HYDROHAMMERS







PNS-IP-24E Inclination system

For very accurate inclination measurement, and resistant against great vibrations and shocks.

SMART STRUCTUAL HEALTH MONITORING SOLUTION FOR CIVIL INFRASTRUCTURES







SmartBrick

Wireless, battery-powered, IoT and high acurate inclination sensor.

LOAD SHACKLE FOR FORCE MEASUREMENT WHEN TOWING AN OCEAN CLEANUP SYSTEM OFFSHORE







ALS-B-1000 Load shackle

Load shackle for lifting and weighing in harsh environments, including submersible applications.

WIRELESS TORQUE MEASUREMENT IN AIRCRAFT TEST BENCHES



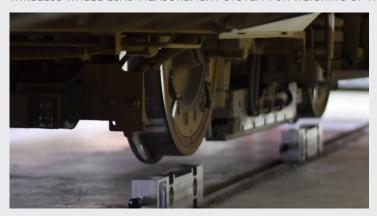
Nm



RWT410 / RWT420 Torque

Digital torque transducer with integrated electronics

WIRELESS WHEEL LOAD MEASUREMENT SYSTEM FOR WEIGHING OF TRAMS AND SUBWAYS







Wireless wheel load measuring system

Designed for precise weighing and determining the balance of each individual axle.



SOLUTIONS FOR OEM, TEST & MEASUREMENT AND IIOT

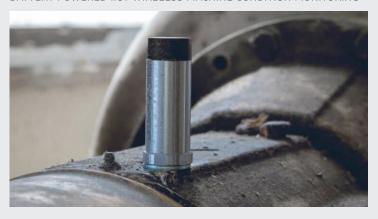
Integrated measurement technology that meets the highest quality standards







BATTERY POWERED IIOT WIRELESS MACHINE CONDITION MONITORING



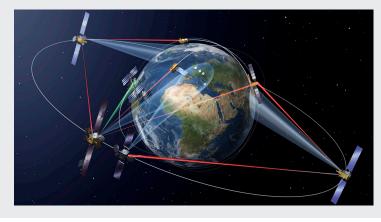




Wireless Industrial IoT Vibration Sensor Node

Wireless, battery-powered, IoT and high acurate inclination sensor.

EDDY CURRENT POSITION MEASUREMENT FOR ACCURATE POSITIONING OF MIRROR ON LCT SATELITE







KD-5100 Eddy current sensor

Difference measuring system with a differential resolution up to a nanometer

MULTI-CHANNEL PRESSURE SCANNER FOR APPLICATIONS IN WINDTUNNEL TESTS







MPS4264xx Miniature pressure scanner and accessories (serie)

State of the art miniature 64 channel pressure scanner with digital interface for extreme accurate pressure scanning.

WIRELESS WEIGHING SYSTEM HELINAV FOR HELICOPTER APPLICATIONS



N



AWLH-10 HeliNav Wireless weighing system

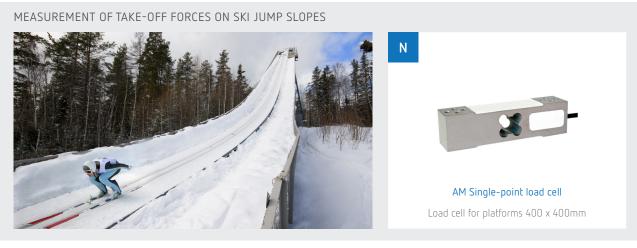
An accurate and easy to install weighing system for helicopters with wireless communication between loadcell and receiver.



SOLUTIONS FOR OEM, TEST & MEASUREMENT AND IIOT

Integrated measurement technology that meets the highest quality standards







HIGH-TECH, SCALABLE SENSOR SOLUTION FOR HELATH CARE INPROVEMENT AND WORKLOAD REDUCTION





SmartBed

IIoT sensor solutions in healthcare beds to monitor the position, absence or presence of the client.

PRESSURE MEASUREMENT IN AUTOMOTIVE ENGINE TEST BENCH







P900 High precision pressure transducer

For accurate (0.1% FS) measurement of pressure variations during engine tests

PRECISE ALIGNMENT OF ANTENNA MASTS







Tilt measurement system

For aligning antenna masts or Leveling platforms

INCLINATION MONITORING OF HEAVY OR SENSITIVE GOODS







NM1-IP-2L Tilt measurement system

1-axis system for inclination measurement in aluminum housing (IP68)



WHAT IS YOUR CHALLENGE?

We believe in your dreams

Hardly any product is as versatile as a sensor. Whether it is in the automotive, aerospace, maritime, offshore, civil, or medical industry the possible needs and fields of applications are still growing with new and more challenging demands.

On our website you can find some exciting examples and insights into complex technical measurement solutions we have developed together with our customers. We hope to be able to add your success story soon!

ADDITIONAL INFORMATION

althensensors.com/case-studies



SOME OF OUR CLIENTS









































THE RIGHT SOLUTION FOR YOUR CHALLENGE

Everything from one source

Thanks to our decades of experience, we at Althen can provide both standard and highly specialized custom sensors as well as complete measurement systems for our customers.

Our product portfolio covers all physical measurements, and we use a wide range of technologies to ensure you always get the best solution for your measurement requirements. Thanks to our vast knowledge, technical expertise, our strong team of engineers from various professional backgrounds, and our broad range of products, we can offer you the most efficient solution for almost any application in every industry.

Our team will be happy to give you advice! You can call us at +31 (0)70 3 92 44 21 and get in contact with one of our expert engineers, or send an email to sales@althen.nl.

Welcome at the world of Althen,
We provide confidence for visionary engineers.

OUR PRODUCT SCOPE

bar	PRESSURE	mm	DISPLACEMENT	m/s^2	VIBRATION	ϕ°	AUTOMATION
N	FORCE	α	ROTATION	%	ANGULAR RATE	A	TURN-KEY SYSTEMS
Nm	TORQUE	$\overset{\uparrow}{\longleftrightarrow}$	JOYSTICK	°C	TEMPERATURE		
3	STRAIN	*	INCLINATION	>	SIGNAL CONDITIONING		
kg	WEIGHT	g	ACCELERATION	W 1010	DATALOGGERS		



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Further information can be found at althensensors.com



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