



# SENSORS & CONTROLS FOR MARITIME INDUSTRY

Increase safety, maximize performance, reduce costs  
and minimize vessel downtime



## Your expert partner in sensors & controls

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**ALTHEN**  
SENSORS & CONTROLS

# SENSORS, MEASUREMENT SYSTEMS, AND CONTROLS FOR MARITIME INDUSTRY

Sensors are contributing to our society

The maritime industry is an important aspect of our society. As the world population and global prosperity continues to grow, the demand for food, energy, water and goods increases rapidly. Maritime transport still is the most cost effective way of transportation and therefore most of the global trade is transported over water. At the same time offshore vessels, dredgers and fishing vessels are doing important jobs to support our society with its basic needs. To secure its competitiveness in today's dynamic environment and cope with society's expectations in terms of health, safety and sustainability, the maritime industry is challenged to apply transformative technologies that bring improvements in ship design, shipbuilding and propulsion.

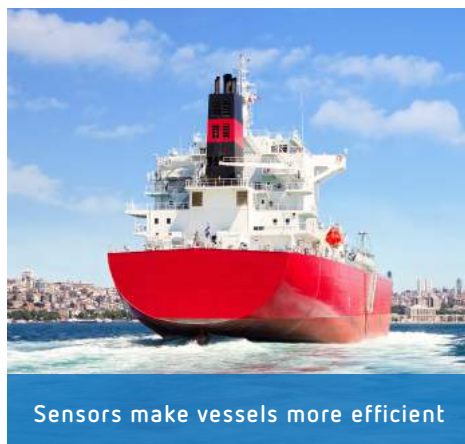
Sensor technology is becoming increasingly important to achieve a safer, smarter, more efficient and sustainable maritime sector. Sensors create new opportunities to increase

on-board safety, reduce operating and maintenance costs, maximize performance and reduce downtime. Digitalization and automation will enhance the communication between smart vessels and onshore control centres.

Althen Sensors & Controls offers a broad range of high-quality solutions from specialized manufacturers for various maritime applications, such as joysticks, pressure sensors, load cells, position sensors and inclinometers. These industrial products are superior in terms of robustness, reliability and accuracy to perform in even the harshest environments. With over 40 years of experience in sensor technology and in-house engineering capabilities, Althen has the flexibility to offer customized solutions and co-create with its customers.



Sensors make vessels safer



Sensors make vessels more efficient




Sensors make vessels smarter

**We provide confidence for visionary engineers.**

# OUR SOLUTIONS FOR MARITIME APPLICATIONS ...



kg



**Load Shackles & Load Pins**  
Customized to your application.

## LOAD SHACKLE FOR DECK LIFTING EQUIPMENT

On many special vessels deck lifting equipment is used to carry heavy loads on board. For safety reasons the lifted load may not exceed the Safe Working Load (SWL) of the equipment. Our load pins and load shackles are designed to measure loads up to 1.500 ton and perform in harsh environments and are available with ATEX certification.



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**Rotary & Linear Potentiometers**  
High precision over full life cycle.

## POSITION MEASUREMENT IN THRUSTERS

Large vessels are equipped with thrusters to make the vessel more manoeuvrable in critical situations. Our rotary potentiometers provide angle position feedback of steerable thrusters, while our linear potentiometers provide position feedback of the thruster blades. They offer high precision and long life expectancy.



bar



**Pressure Sensors**  
Long-term stability under all kinds of pressure.

## PRESSURE MEASUREMENT IN TANKS

Fuel tanks, storage tanks and ballast tanks can be found on many vessels. Our absolute pressure sensors are used to monitor hydraulic pressure in those tanks continuously. They are well-known for their great accuracy, durability, long-term stability, and intrinsically safe options.



# ... OFFER GREAT ACCURACY, HIGH RELIABILITY, AND RUGGED DESIGNS ...



Marine (DP) Joysticks

Specially designed for dynamic positioning.

## JOYSTICK FOR DP SYSTEM

The dynamic positioning (DP) system controls the position and heading of the vessel during operations at sea. Our DP joysticks are used in DP systems to manually adjust the position and heading. The joysticks have a robust mechanism that offers great feelability and the redundant electrical output signals provide confidence in critical applications.



Vibration Sensors

High reliability in a rugged design.

## CONDITION MONITORING OF VESSEL MACHINERY

Condition monitoring of vessel machinery is an important aspect for maintenance planning, downtime reduction, and cost savings. Our vibration monitoring sensors are used to detect machinery failures such as bearing wears, imbalance, misalignment, and insufficient lubrication. These sensors have various electrical outputs, wide frequency ranges and high IP rates, and can be installed in harsh environments.



Propeller Shaft Earthing Systems

Essential for seagoing ships.

## PROPELLER SHAFT EARTHING SYSTEMS

The propeller and propeller shaft bearings of sea-going vessels are vulnerable to pitting and spark erosion as result of a voltage potential difference between the shaft and the hull of the vessel. Our propeller shaft earthing systems protect the propeller and bearings as they earth the propeller shaft to the hull. This prevents early maintenance costs of the propeller and shaft bearings.

... AND CAN BE CUSTOMIZED TO YOUR NEEDS.



### POSITION MEASUREMENT OF HYDRAULIC CILINDERS

Hydraulic cylinders are important components in jack-up vessels, pipelay vessels, and dredgers. Our robust linear position sensors are used to provide position feedback of the hydraulic cylinder. They offer outstanding performance, high-reliability, and an extremely low failure rate, even under harsh environmental conditions. These sensors are also available in intrinsically safe versions and submersible versions up to 350 bar.

mm



### Linear Position Sensors

Great durability in the harshest environments.



### ELECTRONIC COMPASS FOR SUBSEA VEHICLE NAVIGATION

GPS signals cannot travel through water, so subsea vehicles must use different instruments to navigate. Our electronic compass has multiple sensors to measure tilt, pitch & roll, and acceleration that are used to compute the heading and speed of the vehicle.

A



### Electronic Compasses

Accurate orientation below sealevel.



### CUSTOM REMOTE CONTROLLER FOR VESSEL MANEUVERING

Maneuvering a vessel in critical situations like docking requires great steering skills and the right tool. Our custom remote controller offers precise control of vessel thrusters and deck equipment in a compact, robust, and light weighted housing. The aluminium sealed housing (IP67) and redundant output options offer high reliability for maritime applications.

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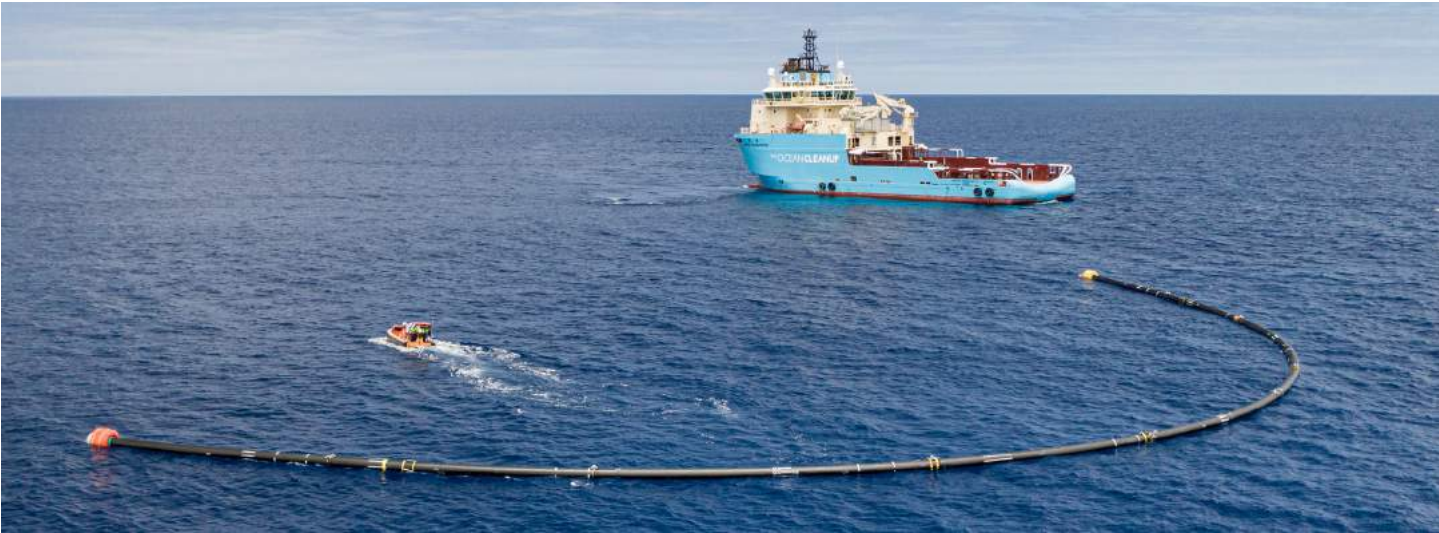


### Custom Remote Controller

Multi-functional in a compact design.

# ABOUT ALTHEN SENSORS & CONTROLS

The right sensor and measurement solution for your challenge



## OUR STORY IS ABOUT 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 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 built it. That is why our little 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.

FOR MORE THAN 40 YEARS ALTHEN SENSORS & CONTROLS STANDING IS 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, customer-specific sensors and measurement systems are created for almost all applications in many different industries.

In order to always get the best and most efficient solution for your measurement requirements, we use different technologies and choose the right products for you from our large portfolio which fits your application best. Our experienced specialists advise you professionally and with all necessary details needed.

Althen is a partner of many recognized universities and leading corporations. We stand for an intensive transfer of knowledge and together develop the technologies of the future.

Althen was one of the first companies in the industry to be certified by the certification body of TÜV Hessen in accordance with DIN EN ISO 9001: 2015.

#### YOUR BENEFITS







- Competent, vendor-neutral advice
- More than 40 years of experience in various fields of industry
- In-house engineering
- Design of customized special solutions
- Development of complete measuring systems
- Regular training of our specialists by specialized manufacturers
- Support from brainstorming for applications to technology planning to product selection

#### ADDITIONAL INFORMATION

- [althensensors.com/services](http://althensensors.com/services)
- [althencontrols.com](http://althencontrols.com)



## OUR PRODUCT SCOPE

<b>bar</b> PRESSURE	<b>mm</b> DISPLACEMENT	<b>g</b> ACCELERATION	 AMPLIFIERS
<b>N</b> FORCE	<b>α</b> ROTATION	<b>m/s<sup>2</sup></b> VIBRATION	 DATA LOGGERS
<b>Nm</b> TORQUE	 JOYSTICK	<b>%s</b> ANGULAR RATE	 AUTOMATION
<b>ε</b> STRAIN	 INCLINATION	<b>°C</b> TEMPERATURE	 TURN-KEY SYSTEMS





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Further information can be found at [althencontrols.com](http://althencontrols.com)