



Supplying the Marine Industry with durable and corrosive resistant process instrumentation.



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Introduction

The Marine Market is exceptionally diverse ranging from the military to holiday cruises, container shipping and smaller pleasure craft. The common denominator between them is the commercial need to keep the internal engineering and processes working to their optimal; so that their primary function, be that delivery, leisure or security can be maintained without interference.

The marine market is anticipated to rise to a value of \$188.57 billion by 2028.* It is an industry that reflects the strength of the global economy, the more industrialised or consumer based a country is, the greater the need for delivered goods; the growth of the marine industry ebbs and flows with the economic changes within the world. The growth for 2028 is based on the greater industrialisation of countries, particularly those of China and India.

Process instrumentation is just one of the ways of supporting this dynamic industry by keeping vessels running to their optimum, or alerting engineers that action needs to be taken before a problem occurs. A range of level switches, ultrasonic submersible transmitters, sensors and programable displays can easily be configured to ensure the integrity of the engine, internal systems and boiler room.



*Industry Report

Why Delta Mobrey – more than just a name, it's a heritage

As experts within the field of process instrumentation we have a range of products and services designed and approved for the marine industry, all of which can be specifically tailored to meet the exacting requirements of your vessel. Our staff are experts in their field and are available to provide consultancy and assistance where needed.

Our expertise is garnered from over 100 years of experience within process instrumentation. Whilst our name, Delta Mobrey may be new to the marine market, our heritage certainly isn't. Reflecting back, we have been known as Bestobell Mobrey or Rosemount Measurement, part of the Emerson Group, before merging product ranges. The Mobrey range of products was assigned to Delta Controls in 2019. As part of the merger and to reflect the product brands we became Delta Mobrey in 2019. So whilst the company name is new, the industry expertise and understanding isn't. Our product range is enhanced as is our level of expertise and customer experience.



Process Instrumentation – making it simple

Process instrumentation products are designed to be low maintenance and to just get on with the function of monitoring and where needed alerting. Where possible we have engineered as much complexity out of the product to make it more robust and practical. It takes a high level of knowledge to reduce the complexity of a product or system, but this is where we excel. We make it simple with durability, reliability and quality all built in.

Product Overview

Here are some sample products dedicated to the marine market, their uses aboard vessels can be tailored to meet the layout of the ship and work with the other systems onboard.

Magnetic Float Switches

Magnetic float switches are used for level detection of liquids in all types of tanks. They are ideal for high or low liquid alarm and pump control duties and interface detection, making them perfect for the marine industry. Delta Mobrey Magnetic float switches are simple in design making them a rugged and reliable level switch even within hazardous environments and are unaffected by changes in process temperature, dielectric, or vapors. The Delta Mobrey Magnetic float switch features a magnetically coupled float and switch without glands or linkages which makes this float switch watertight.

Benefits

- Unaffected by changes in process temperature, dielectric, or vapors
- Wide range of mounting options to meet site standards — including chamber mounting option for isolation while plant is live
- Widely used in all industries and certified for marine applications
- Operates in almost any liquid, and at high pressures and temperatures



ABS



Lloyd's
Register



DNV



BUREAU
VERITAS

Submersible Hydrostatic Level Transmitters

The Mobrey 9700 Series range of tank mounted transmitters provide you with precise and reliable level measurement solutions when in-tank foaming, vapor layers, and temperature gradients prevent use of other instrumentation. These transmitters are designed to perform in the extreme conditions of industrial and marine applications. Available in submersible and externally mounted (floodable) versions, each transmitter gives you high performance and good long term stability, and is virtually maintenance free.

Benefits

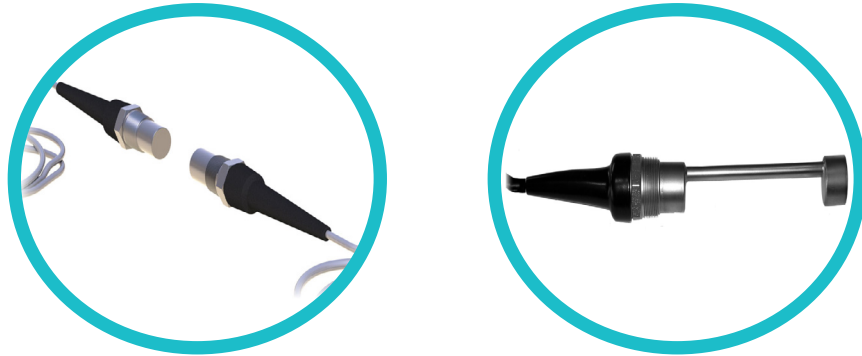
- Hydrostatic electronic level transmitters
- Factory sealed and tested for submersed duty
- 4–20 mA output signal proportional to level
- Flush mounted ceramic sensor
- Good long term stability
- Wide range of mounting options
- Low cost installation
- Readouts for control room or plant mounting



MCU200 Controller and Mobrey 442SD

Introducing Delta Mobrey's MCU200 controller series. When used together with the 402SD or 442SD ultrasonic gap sensors, the system will detect oil in water or water in oil. This is the ideal solution for contamination detection in boiler feed-water, engine coolant or bilge water.

The MCU controller and gap sensor when used together provide an ultrasonic point level liquid switch.



Typical applications include interface detection for immiscible liquids and contamination detection, such as oil in water or water in oil for industries like marine.

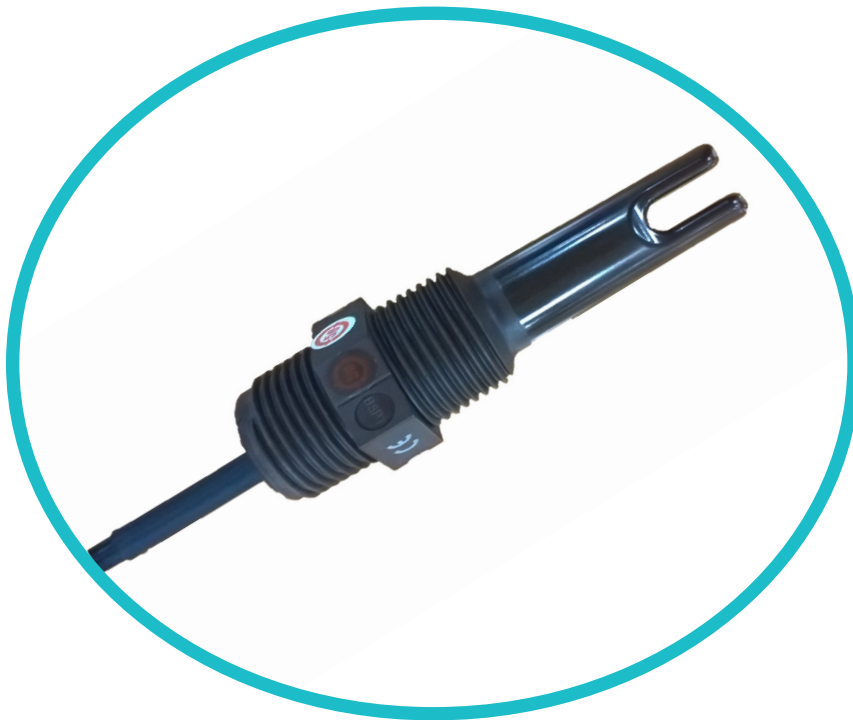


Mobrey Ultrasonic liquid level switch 003S Integral sensor series

As part of our marine sensor series the Mobrey Ultrasonic liquid level integral sensor is manufactured in Polyphenylene Sulphide (PPS) for corrosion resistance in most liquids. The 003 range of sensors can be mounted in any position in a tank using either a 1" or 3/4" thread available in BSPP, BSPT and NPT thread forms. A thread is provided on each side of a hexagonal boss to allow either external or internal / pole mounting of the sensor. Comprising of a one piece moulded body with an integral pcb, the 003 switch is factory sealed and supplied with a 3m flying lead for customer connection. The Mobrey 003 switch is designed for high or low level alarm duties to give a voltage free changeover contact or dual solid state transistor output for alarm signalling or as part of a pump control system.

How it works

The moulded body contains two piezo-electric crystals, one each side of a gap at the tip of the sensor. An ultrasonic signal is transmitted from one crystal into the gap, but if there is air or gas in the sensor gap then the signal is not received by the other crystal. However, if there is a liquid present, the signal will be transmitted and the integral electronics will switch the output circuitry to signal the presence of a liquid.



Application Examples for Process Instrumentation

Process instrumentation equipment can be utilised in multiple ways onboard a vessel. Below are just a couple of examples where our product ranges have worked well for the marine industry.

Oil-in-water detection

Our ultrasonic sensors are an electronic system for protecting marine boilers, by ensuring the boiler feed-water is not contaminated with oil. This type of contamination frequently occurs as condensing steam runs through the ship's systems before being returned to the boiler. Any leaks may cause oil to enter the circulating condensate, and can result in serious boiler damage by the overheating that can occur due to reduced water flow and heat transfer. Mobrey 442SD sensors are installed across the feed-water pipelines, while Mobrey 402SD sensors are designed for installation within vessels (tanks) connected to the feed-water tanks. The sensors detect the presence of the oil and signal an alarm via the Mobrey MCU200 Controller. A ship's crew is then aware of the problem, can investigate.

Grey and Black Water

All vessels need to control, manage, and dispose of their grey and black water. There are differing marine regulations about where this can happen and to what density of fluid can be disposed off at sea and which need to be handled by specialised services in port. The MCU200 and gap sensors can measure the amount of solids within the grey and blackwater to see if it is suitable for disposal at sea. Gravity allows a number of the solids to sink towards the bottom of the on-board tanks, process instrumentation measures the solids content of the water to ensure nothing can be released from the grey and black water holding tanks that could cause harm to marine life.



Dirty Ballast Water

The marine industry is focused on becoming more green and more aware of the impact on climate change, this entails working with the guidelines from the National Marine Manufacturers Association and the International Maritime Organisation. As such Oil tankers require effective oil/water interface detectors for accurate determination of the oil/water ratio in tanks where separation of oil and water is carried out prior to discharging directly into the sea. When at sea, the ship's dirty ballast water or oil contaminated water may be discharged by gravity below the water line, on the provision that enough time has elapsed to allow proper oil/water separation. Interface detectors are used to examine the ballast water before the discharge, to ensure the height of the interface is safe enough to avoid oil being discharged during this process. The Mobrey 402SD sensors are used in these applications with a Mobrey MCU200 Controller to detect this interface.

For more information on how Delta Mobrey is working with the marine industry in the USA, please contact our Houston based facility for more information.

Ballast Exchange

Ballast tanks need to be emptied and filled depending upon their location, the amount of cargo and the amount of fuel on board.

Ballast has been used in shipping for centuries, but now by the control and level of water we can increase or decrease the amount of ballast as needed.

Ballast water reduces stresses on the vessel's hull, it compensates for the weight loss due to consumption of water and fuel, improves the manoeuvrability with sufficient vessel draft and ship propeller immersion, and also helps in improving living conditions of the crew aboard by reducing vibrations and uncontrolled vessel's movements.

The level of ballast water needs to be measured and monitored to ensure it is at the levels needed to assist the vessel's required function. The range of Delta Mobrey 9700 tank mounted or submersible transmitters, are designed to provide precise and reliable level measurement of in-tank liquids. They continue to perform in extreme conditions, offer high performance with long term stability and are virtually maintenance free. These transmitters will provide the Ballast Water Management Officer with the data needed to ensure the correct levels are maintained for good ballast exchange.



Approvals

These are the current approvals for our Marine products, understanding what your needs are is very important to us. As a global company we need to attain global recognition and approvals of our products, so that you are certain they are right for your business.

We continue to monitor and work with industry bodies to understand what we need to attain to work on differing areas of the world.



CSA Certification - A hazardous area product approval for US and Canadian locations.



Bureau Veritas - enables companies to demonstrate continuous improvement and maintain the relevant standards.



Lloyd's Register

Lloyd's Register - Global professional services company specialising in engineering and technology for the maritime industry.



RINA - Cover risks related to loss and/or damage of the hull and rigging of sailing ships, to meet the needs of Italian maritime operators.



Korean Register - South Korean offering verification and certification services for ships and marine structures



DNV - Ensures that ships or their components comply with a number of standards, also known as class rules.



ABS - Certifies individual materials, components, products and systems used on the vessels through a technical evaluation and survey of manufacturing compliance.

Delta Mobrey offers a range of process instrumentation equipment to the marine industry. Our standard products can be purchased directly or if you need something more specific to work within your onboard systems, please contact our sales team on sales@delta-mobrey.com and we will work with you to develop the exact tool you need.

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Delta Mobrey has a worldwide network of trained and fully supported representatives in over 50 countries.

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