



MT MODULAR MONITORING SYSTEM



- Our mission is to guarantee good oil quality as reliability in oil systems is the most important factor
- Marotechnic® supports you for best engine performance and conditions with regard to lower cost and maintenance
- Marotechnic®'s goal is to provide possibilities to extend the useful lifetime of oil
- Marotechnic® priority is tackling the problem at its roots: Oil Condition Monitoring is easy and cheap in comparison to high repair charges
- Our sensor technology enables continuous and efficient oil condition monitoring



> GENERATOR PROTECTION

Marine Distillates increase the risk for generator breakdowns.

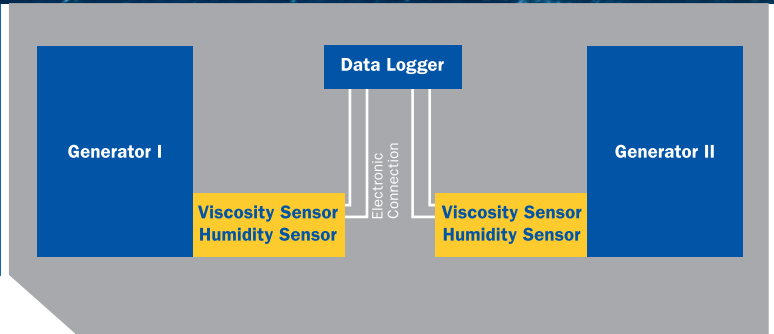
Monitoring Systems continuously protect generators from viscosity problems and high water content.



> ADVANTAGES

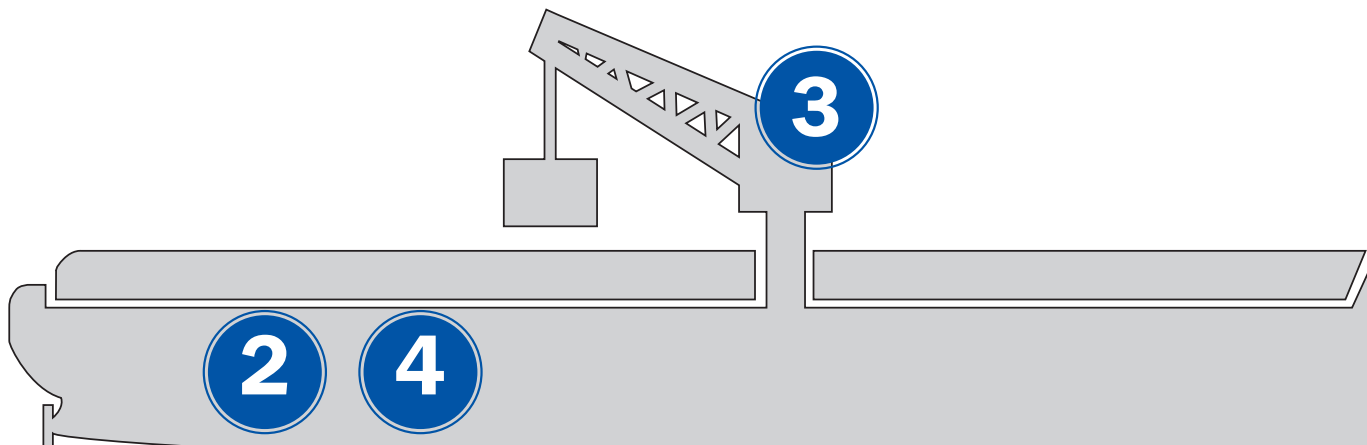
The Viscosity Sensor detects any changes in lubricants in real-time mode. Thereby defects can get recognized at any early stage to avoid damage and high maintenance cost.

The semi-intelligent Humidity Sensor enables measurement of the current saturation of oil with water irrespective of temperature and oil type, and helps to assess the remaining useful lifetime of oil.



A COUPLE EXAMPLES OF THE APPLICATION

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> Z-DRIVE CONTROL

Sensor Systems with IR technology on board continuously display information on oil condition and quality with the degree of accuracy comparable to external laboratory.

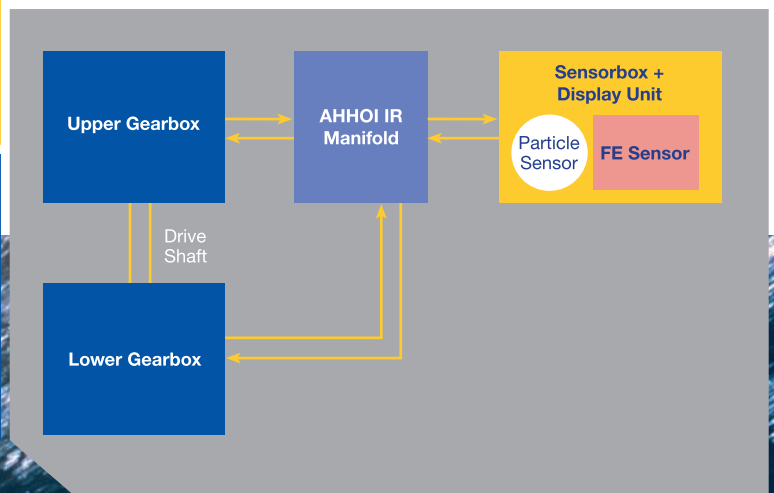
The sensor system enables avoidance of chemicals, reduces maintenance hours and eliminates human errors occurrence.



> ADVANTAGES

AHHO IR measures the water content in oil continuously and has a wide range of applications. When equipped with the manifold, the sensor is useable for up to 4 measuring points.

The Particle Sensor monitors precisely any changes in the oil contamination with insoluble or metal particles. Therefore, damage can be minimized and cost can be reduced.



> WINCHES – HYDRAULIC SYSTEM MAINTENANCE

Some hydraulic installations on board are difficult to maintain.

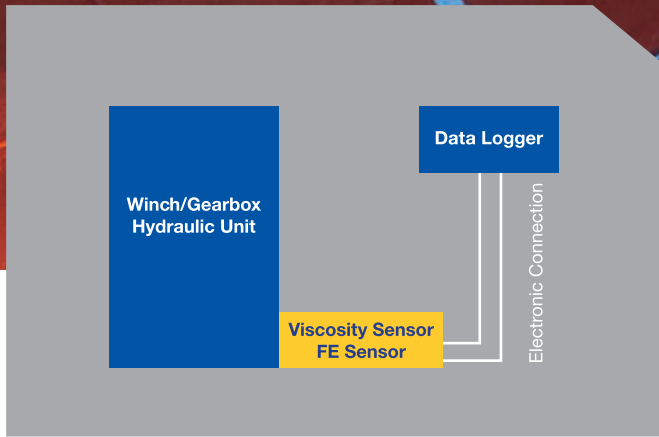
Sensor Systems enable real preventive maintenance. Filter monitoring is included.

> ADVANTAGES

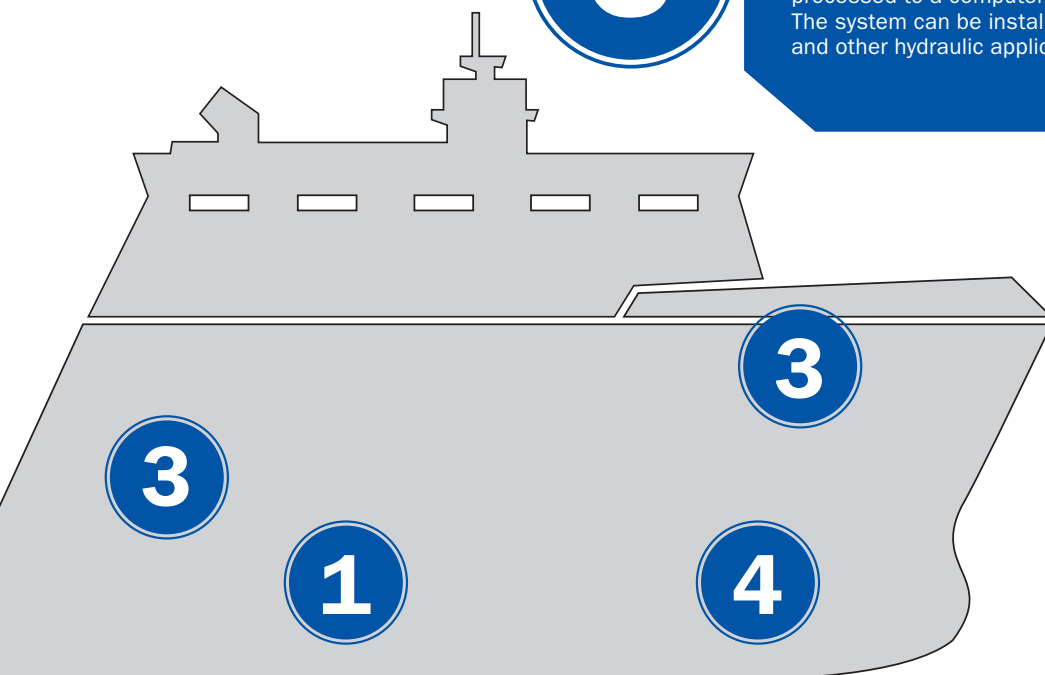
The Viscosity Sensor detects any changes in lubricants in real-time mode. Thereby defects can get recognized at any early stage to avoid damage and high maintenance cost.

The FE Sensor is immune to disturbances like vibrations, has a high sensitivity and evaluates automatically the oil condition.

The Datalogger has an extensive easy-to-navigate menu. The collected data is stored on an internal memory card or can be processed to a computer through the network on board. The system can be installed at cargo and deck cranes, thruster and other hydraulic applications.



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> BOW THRUSTER – WEAR AND WATER MONITORING

Wear debris decreases the remaining lifetime of lube oil. Performance Systems need best possible sensor support to avoid repair cost.

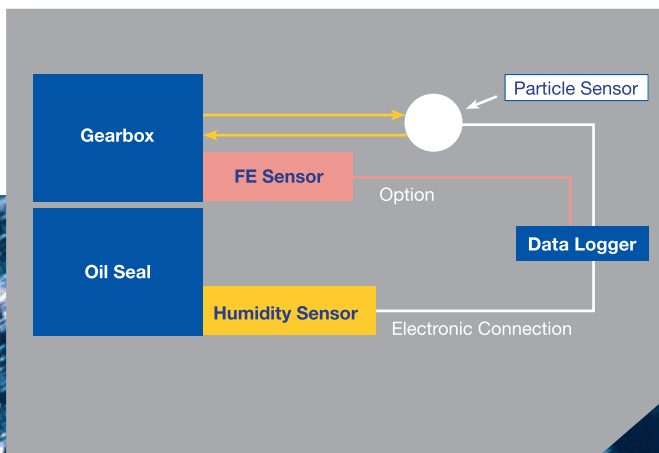
> ADVANTAGES

The semi-intelligent Humidity Sensor helps to determine the remaining useful lifetime of oil.

The Particle Sensor monitors precisely any changes in the oil contamination with insoluble or metal particles. Therefore, damage can be minimized and cost can be reduced.

Alternatively to the Particle Sensor, the FE Sensor is a highly sensitive measuring device. The FE Sensor is installed in accordance with the approved principle of magnetic screw. The Sensor focuses on continuous monitoring of the condition of lubricating and hydraulic oils with regard to iron abrasion and detects ferromagnetic particles.

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CRUCIAL OIL QUALITY CHECK

THE MOST COMMON CONTAMINANT OF LUBE OIL IS WATER; THE SECOND ONE IS WEAR DEBRIS. BOTH CAUSE PROBLEMS AND DAMAGE TO ENGINES.

Martechnic® has developed a monitoring system to immediately identify oil contamination with water. Continuous monitoring with useful sensors makes it possible to find the defects soonest possible and resolve the problems in time. The system is suitable for all aggregates because of its modular design. The sensors are fitted into the respective machinery and connected to a tailor-made data processing unit to store and analyze the measured parameters. Regardless of the kind and quantity of sensors a software system is available.

The AHHOI IR Water-in-Oil Sensor, type approved by GL, has a measuring range from 0 – 10000 ppm / 0 – 1.0 vol% water. The measuring results are processed and stored. The system could get fitted with a manifold to connect up to four sampling points, making the IR Sensor useable for up to four engines / applications. The software for trend analysis is available on Martechnic®'s website for download. The AHHOI unit has four channels to apply it for up to four different oil types and must be calibrated for the oil grades in use. If, for example, the main engine has lube oil which is different from the oil of the CPP unit, both can be measured in the manifold.

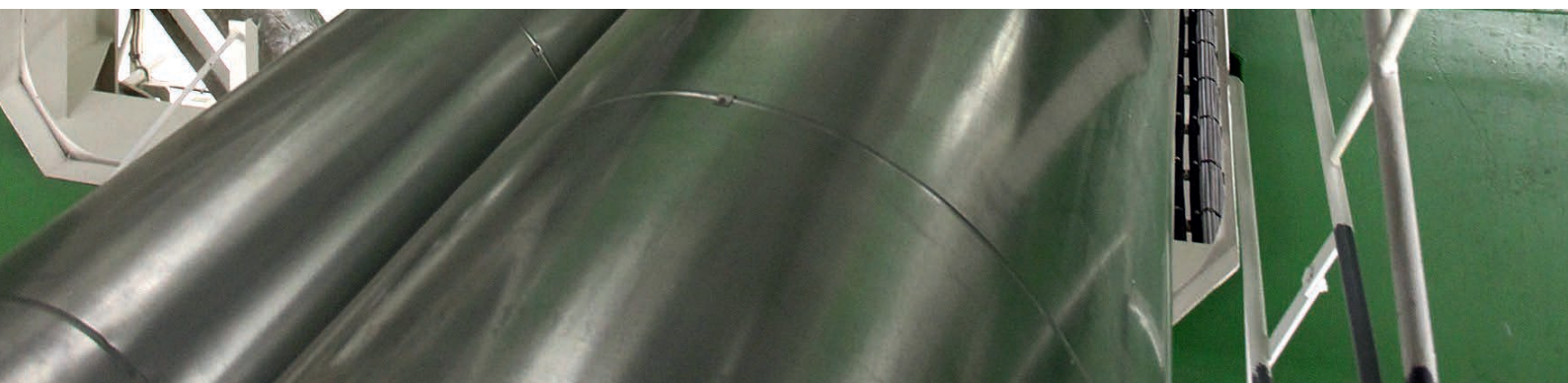
Instead of the AHHOI IR Sensor it is possible to install a semi-intelligent Humidity Sensor and connect it to the data logger to store the measured values. The Humidity Sensor can calculate the remaining useful lifetime of oil. The measuring range of relative humidity is from 0 – 100%, while the maximum fluid pressure is 10 bar and the working temperature is from -20 °C to +85 °C.

More sensors – to determine particles or viscosity – could be added to extend the life expectancy of the engine. Viscosity is an important parameter because a good lubrication results in low wear due to friction. The measuring range of the Viscosity Sensor is from 8 – 400 mm² / s.

Smallest particles affect slide faces, damage them and thereby produce further particles. This is a so-called “metal-to-metal contact” during the cold starting. Particularly, the FE Sensor has advantages and special features for monitoring the wear debris. Its measuring range is 0 – 100% and it focuses on ferromagnetic particles. The sensor is useable for a fluid pressure for up to 20 bar and temperatures from -40 °C up to +85 °C. In hydraulic systems the FE Sensor is essential because of its high sensitivity.

The Particle Sensor measures particles in 4 µm, 6 µm, 14 µm and 21 µm and has its own display. Alarm and memory could be used without data logger and the operating pressure is up to 420 bar. Application areas for the Modular Monitoring System (MMS) are generators, main engines – like Z drives, hydraulic systems – like winches and bow thruster as well as other units like steering gears, stern tubes and hydraulic mooring winches. The whole assembly could be used for machines in wind turbines or steel mills and for monitoring biodegradable oils (EALs).

More information on technical specifications of sensors can be found in Martechnic®'s catalogue on pages 20 – 28 or on our website www.martechnic.com.





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