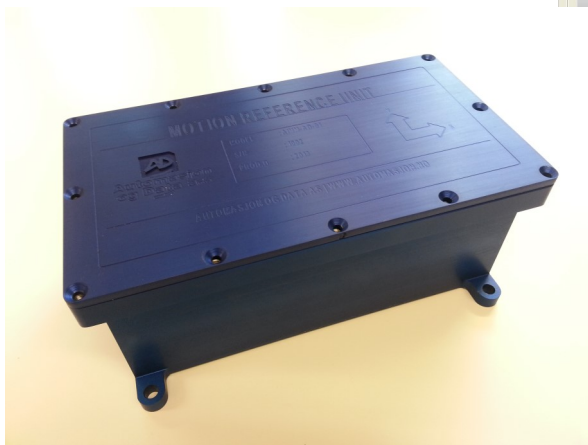
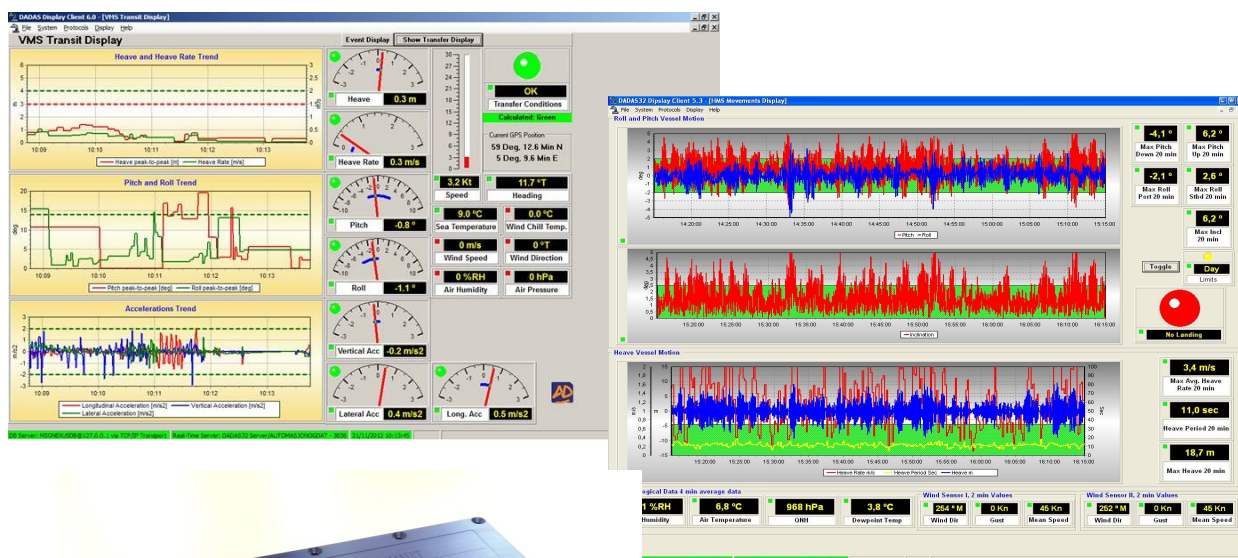


VESSEL BLACK BOX PERFORMANCE MONITORING FOR SHIPS AND VESSELS



A+D VBB-systems is designed to be used as a reliable tool for measuring and storing data on Vessel operation and behaviour. The VBB-system can be used to collect data for later analysis for statistics purposes, warranty investigations as well as storing critical data for incident and accident investigations.

The basic system has accurate motion monitoring as the core of the system. Such measurements can during long term operations be of great value to vessel designers as well as vessel owners. It can reveal design problem or operational problem areas at a very early stage and be the main factor leading to a successful operation.

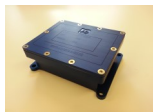
Motor data, navigation data, structural data, meteorological and oceanographic parameters and other relevant information can be added as an extra feature when required.

GENERAL VBB SYSTEM CONFIGURATION

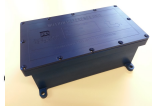
REMOTE DISPLAY (ONSHORE)
(Owner interface / Yard interface)



SYSTEM COMPUTER & DISPLAY
(On-board operator interface)



MOTION SENSOR—IMPACT



MOTION SENSOR—6 DOF
(Pitch, Roll, Heave, Surge, Sway, Yaw)
MOTION SENSOR—Passenger cabin
(Accelerations)

NAV DATA INTERFACE (NMEA)



METEOROLOGICAL SENSOR
(option)

STRUCTURAL DATA / STRAIN GAUGES
(Located at critical areas)

MOTOR DATA INTERFACE
(Engine interface)

A basic Vessel Black Box-system includes one or several motion sensors and a computer that measures, calculates (and displays) the critical motion parameters. All 6 degrees of freedom are measured as well as related accelerations and velocities. Structural loads as well as other forces can also be measured.

The system can also include other onboard measurements such as motor data, engine performance, navigation data, meteorological sensors, oceanographic sensors, onboard sensors for wave measurements, etc. but can also be expanded to include other environmental sensors.

Smaller self-contained systems, including wired or wireless data transfer, can be designed to meet specific needs. Onboard displays may be added or omitted as required by the application. Data can be stored in the system computer for later analysis for statistics purposes as well as for incident and accident investigations.

Data can be sent to shore or other sites online for tracking and coordination purposes providing data lines or other communication lines are available.

Other data storage devices such as free float data buoys can be added in order to implement safe “Black Box” functionality into the system.

The systems can be tailor-made to suit the clients specifications and can easily be expanded in the future to comply with new demands, rules and regulations.

Please contact A+D to discuss specific requirements.

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