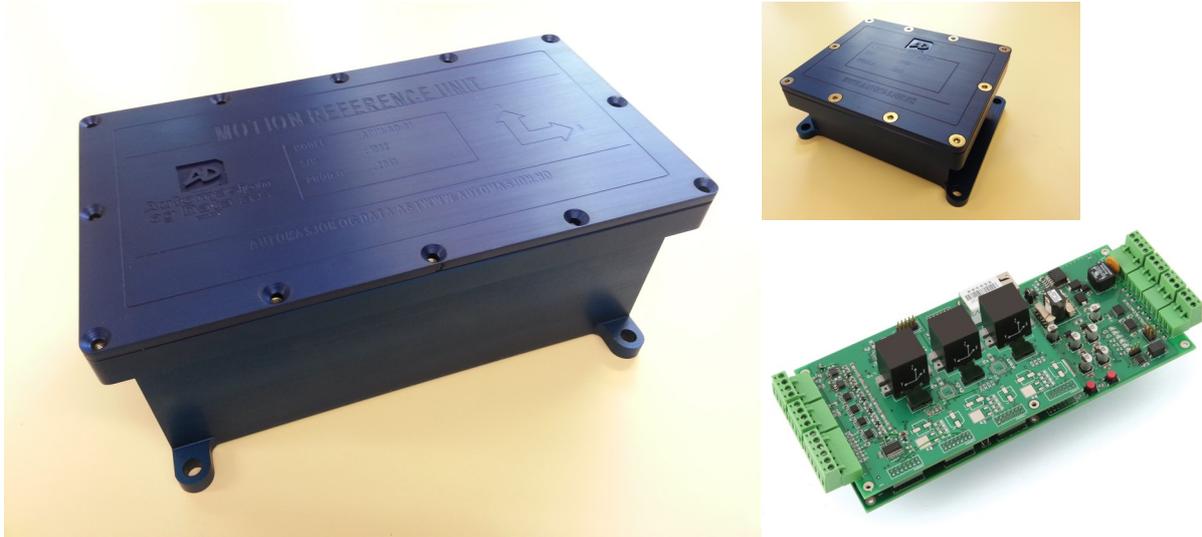




AIM - Adaptive Inertial Matrix For Offshore and Marine Applications



Adaptive Inertial Matrix (AIM) is a unique hardware and software development based around MEMS technology (Micro Electrical Mechanical Systems) digital Inertial Measurement Units (IMU). IMU units typically incorporate accelerometers, rate gyro sensors, and magnetometers. They have developed over a number of years and in so doing established a reliable and accurate measurement capability at an affordable cost. The AIM system also has available additional analogue signal interfacing plus RS232/RS485. RJ45 Ethernet is also available for data export and presentation.

Distinct from other motion measurement systems, AIM takes advantage of MEMS technology price/performance capability by incorporating multiple IMU in order to establish an overall measurement performance consistent with a target application. For example, the long period motion of a large rig or FPSO requires a very different sensor configuration from that experienced by smaller work vessels.

Key advantages can be summarized:

1. Multiple IMU establish greater accuracy than can be achieved with a single sensor.
2. Multiple IMU establish continuous measurement through a wider dynamic range than is possible with a single sensor.
3. Multiple IMU with spatial separation between sensors establish additional capability for motion identification and resolution.

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Workboat Application

Operational range IMU providing high accuracy during personnel transfer plus Extreme range IMU providing data on motion extremes.

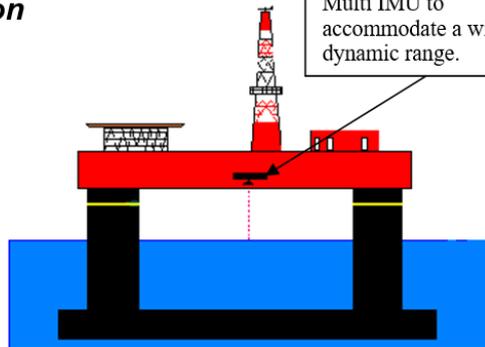
Transit range IMU monitoring overall vessel motions.



Workboats are smaller vessels used for personnel transfer for example within wind farms. These vessels require the measurement of acceleration and displacement at a number of points. For example, within the passenger cabin for motions during transit in order to minimize incidents of seasickness, and at the bow for monitoring of motions at the transfer point for reasons of safety. Such a configuration would include three IMU; the first mounted with the main AIM system; a second mounted at the vessel bow; and a third mounted at the personnel transfer point. One of the units could also include magnetometer measurements in order to improve overall accuracy. All units are linked and merged within the AIM system in order to establish best possible results. The configuration illustrates three important AIM advantages – multiple sensors, wide dynamic range and spatial separation.

Motion Compensation Application

Motion Compensation Multi IMU to accommodate a wide dynamic range.



Many instruments mounted on a floating vessel can require compensation for the movement of the vessel onto which they are installed. Examples are wave surface measurements which requires a simple correction for the vertical motion of the vessel, or a more complex device such as a wind speed measurement laser device that requires correction from all axes of motion. These types of applications require good accuracy over a wide dynamic range; the measurements in extreme conditions are often more important than those in more typical conditions.



Helideck Monitoring Application

High accuracy configuration for measurement within the required operational limits. Vessel and Helicopter type dependent with differing measurement requirements.

Will comply with all known Helideck Rules and Regulations worldwide, such as:

- * CAP 437
- * NORMAM 27
- * Standard for HMS

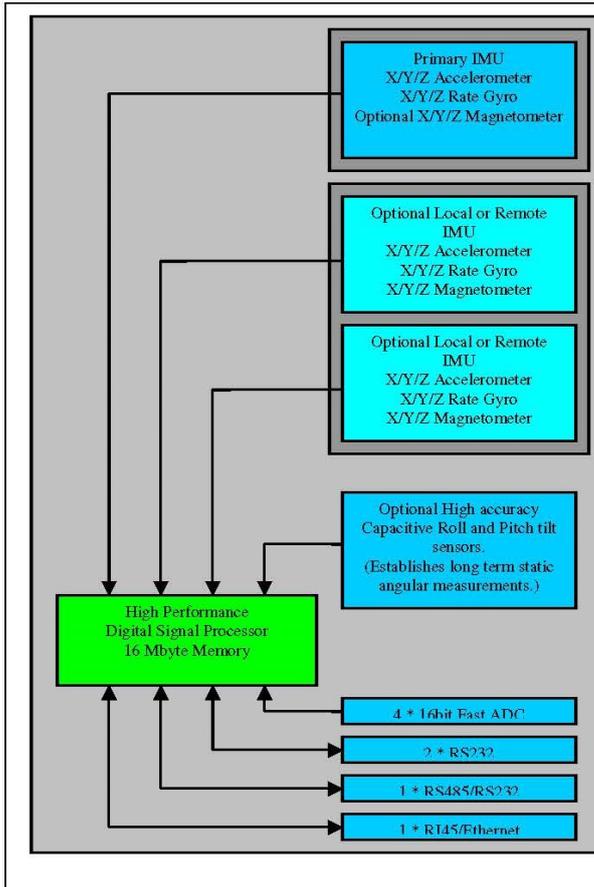


The requirement to monitor and report the motion of helidecks in order to improve the safety of helicopter operations is established in a number of areas of the world, such as in the North Sea (Norway and UK) and Brazil. This is a useful operational tool and is actively used by helicopter operators and authorities in order to assure that the landing operations on moving helidecks are based upon exact knowledge of real-time motions.

Helidecks are categorized according to the type of vessel to which they are attached and in turn have different instrumentation requirements.



Key Components



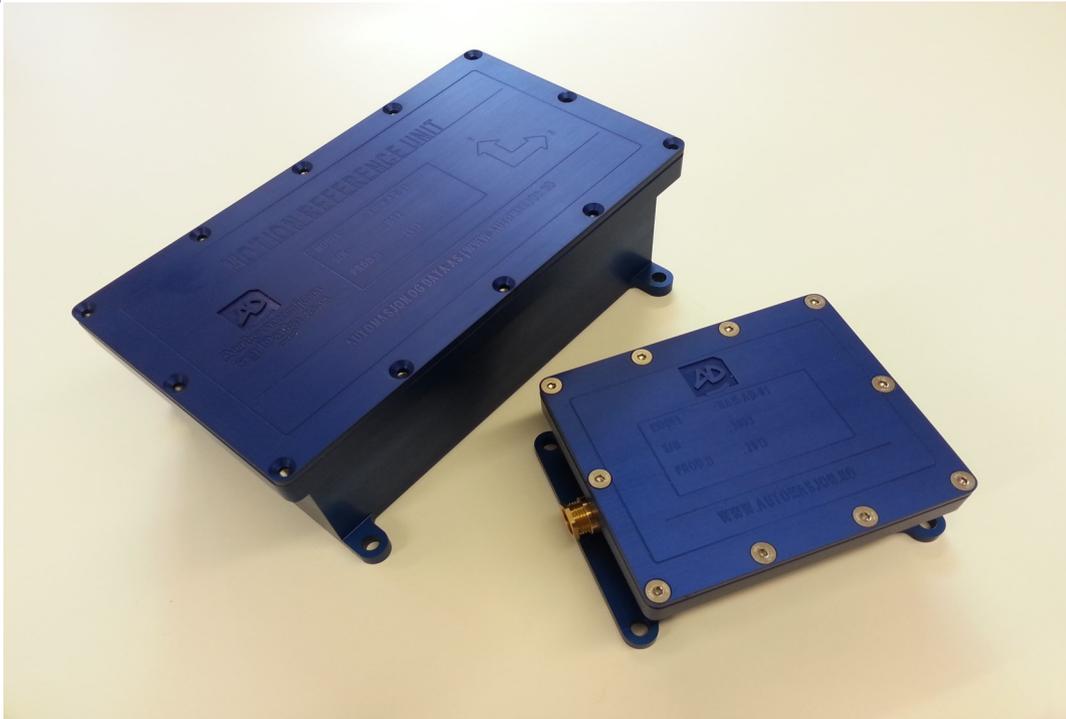
Adaptive Inertial Matrix (AIM) is a family of unique hardware and software product modules that can be adapted to special customer needs where required.

It can be delivered as a standard motion sensor package or it can be tailor-made to fit with customer specifications both for hardware and for software.

Up to 3 remote sensors can be connected to one main sensor unit in order to obtain remote measurements or to get spatial resolution for higher accuracies.

Wireless remote sensor will also be available shortly.

Encapsulations are available in hard-anodized aluminum. Other materials or configurations are available on request.



One main AIM unit with one remote motion sensor. Also available with two remote sensors.