

Alternative to Heavy, Costly Fibre-Optic Gyroscopes – New, Ground-Breaking Subsea Motion Sensor



Norwegian Subsea AS, a subsea technology company based in Oslo, has developed a high-performance and compact subsea motion sensor with low power consumption.

The motion sensor is ideal for subsea surveys, ROVs, installation work, AHC cranes and similar applications where high accuracy, low power consumption and ease of handling are important.

Time Saver

The new subsea sensor comes at a fraction of the size, weight and power consumption of conventional Fibre-Optic Gyroscopes (FOG) and MRUs.

“We are able to provide real-time roll, pitch and heading at frequencies up to 2,000 Hz, by combining state-of-the-art MEMS technology with ground-breaking, new sensor fusion algorithms,” says Dr Fredrik Dukan, the company’s CTO.

This means that survey companies can spend less time on onshore mobilisation and subsea recovery. Recovery can be done via ROV basket, rather than crane, due to the compact size.

Downhole Applications

Norwegian Subsea’s new ground-breaking algorithms are also ideal for downhole applications, inertial navigation and Motion Reference Units (MRU).

“Typical application areas could be active heave compensation of offshore cranes, helideck monitoring, sidescan sonars and ship positioning systems,” says Dukan.

Data from state-of-the-art MEMS sensors are fused to produce accurate attitude measurements at very high frequencies. The lean algorithms can be run on microcontrollers or even FPGAs. This reduces power consumption and overall sensor size, which is important in subsea and downhole environments.

Positive Response

Norwegian Subsea AS was founded as a spin-off from Norwegian University of Science and



The motion sensors provide real-time output of roll, pitch, heave and heading at very high frequencies, made possible by state-of-the-art sensors and new, ground-breaking algorithms

Technology’s Centre for Autonomous Marine Operations and Systems (NTNU AMOS) in 2014.

“The response from the industry has so far been very good. MEMS technology is changing the rules of the game by making compact sensors available at a low cost. When combined with our unique algorithms, we are able to reduce drastically the size, weight and power consumption of motion sensors. This opens up for a range of new applications and has a number of benefits compared to conventional technologies,” says Lars Gaarder Torgersen, the company’s CEO.

“We are eager to show case the technology to potential customers in Norway and abroad during the autumn of 2015,” adds Torgersen. ■