Hybrid AUV/ROV for Survey and Inspection

The Modus hybrid is one of the first autonomous underwater vehicles (AUVs) to feature the capabilities and characteristics of a remotely operated vehicle (ROV). Modus Seabed Intervention has completed system integration and trialling of one of the subsea industries first commercially available hybrid unmanned underwater vehicles, thus driving performance, quality and cost-effective delivery of survey and inspection projects in the offshore, defence and oceanographic sectors.

Working in partnership with Saab Dynamics for over three years, global subsea service provider Modus has developed the Saab Sabretooth specification for greater endurance and speed and is also developing advanced sensor payload packages and operating methodologies.

Having completed a programme of integration tests and trialling both in Sweden and in the UK, the company is preparing the advanced spread for its commercial deployment. The system will be used in survey and inspection projects in the oil & gas, interconnector and offshore renewables sectors to support pre-engineering, construction support and life-of-field condition monitoring requirements. The company is also working on a number of applications in the oceanographic and defence sectors.

Use as AUV or ROV

The vehicle can be operated fully autonomously or as a tethered ROV, offering unrivalled flexibility and cost benefits from one platform. Whilst conventional AUVs are designed to remain in motion, the hybrid AUV features a thruster pattern that enables it to hover and operate with 6 degrees of freedom, providing a highly differentiated capability for inspection and light intervention applications.

Modus has armed the vehicle with increased thrust to support high speed survey, as well as additional batteries for extended autonomous endurance. The first vehicle is depth rated to 1,200 metres, which can be upgraded to 3,000 metres to meet project-specific applications. Modus have also developed two deployment and recovery systems; a floating dock for surface deployment and recovery, and a subsea garage allowing for a full de-coupling from the support vessel and for the vehicle to navigate autonomously in and out of the garage on the seabed.

As part of its advanced survey technology payload, the spread features as standard, a suite of sensors including the latest Edgetech 2205 combined triple frequency sidescan sonar, co-located bathymetry and sub-bottom profiler; HD video and stills cameras, iXBlue Phins3 INS, RDI workhorse DVL and 3D imaging sonars. Additional equipment available for integration includes R2 Sonic 2024 MBES, Cathodic Protection (CP) probes, magnetometer, cable tracking and laser scanning systems.

Holistic Data Harvesting

This new vehicle is part of a significant development programme by Modus, to introduce advanced and disruptive technologies across its range of services. In addition to new technology platforms, Modus is also developing a fully-managed service to provide a cost-effective and efficient service for holistic data harvesting and data and asset management, in combination with advanced mission planning and execution methodologies.

Modus and Saab have entered into a collaboration agreement, focussed on research and development to generate a road map to define the future capabilities of hybrid AUV technology. The company is heavily focussed on full subsea residency for life of field support, with the autonomous vehicles remaining permanently in situ rather than being deployed from a vessel.