Rovins Nano: A Cost-efficient and Compact INS for Flexible Subsea Operations

iXblue, a global leader in the design and manufacturing of state of the art navigation and subsea positioning solutions, is constantly striving to think of new innovative systems and develop cutting-edge technologies to meet its customers' ever-evolving demanding requirements in terms of operations efficiency. The company has developed a complete range of field-proven subsea inertial navigation products that are recognised for their reliability and unrivaled performance.

(This article is brought to you by iXblue)

The iXblue range of inertial products offer a flexible solution, suited for a wide range of subsea operations. The entry-level product in the range is Rovins Nano. Dedicated to ROV navigation, it offers attitude stability, provides accurate positioning of the ROV (with a drift of 0.2% of the travelled distance), and can go to depths reaching 4,000 metres. With a heading accuracy of 0.15 degrees secant latitude, iXblue's Rovins Nano offers a competitive advantage to its users with an entry class focus.

Compact and lightweight, Rovins Nano allows more of the precious ROV Payload (weight and space) to be dedicated to tooling, allowing for more responsive and flexible subsea operations that lead to important productivity and cost reductions, even saving vessel time and costs.

ROVs Automation for Efficient and Safer Operations in High Seas and Currents

iXblue Rovins Nano has been chosen by the University of Limerick's Centre for Robotics & Intelligent Systems (CRIS) for the development of an INS-based navigation & control suite - OceanRINGS. Part of a larger institution known as MaREI, CRIS aims to research the use of smart automated ROVs for challenging marine applications.

iXblueâ€™s Rovins Nano provides attitude stability and accurate positioning with a drift of 0.2% of the travelled distance.

"We've had experience using iXblue's Phins for many years on our larger observation class vehicle ROV Latis and this INS, coupled with the development of our OceanRINGS control suite, gives us our full 6 degrees of freedom precision navigation and DP subsea with thruster fault tolerance and accommodation. For our newest smaller ROV Áed, we have chosen Rovins Nano as a smaller, more compact precision navigation system ideal for our precision flight control needs," explains Prof Daniel Toal, director of CRIS.

Rovins Nano is used by CRIS as part of the vehicle control system to provide some of the most advanced dynamic positioning capabilities available. By current practice, ROVs are flown using camera (and sonar) feedback from scene to pilots for remote manual control with simple track-line displays. There is little automatic control and ROV operations are dependent on highly skilled pilots in areas affected by significant disturbances from currents or waves.

Moving to higher levels of ROVs autonomy will enable faster response time to disturbances, as well as higher accuracy in navigation and control over that of a manual pilot. This will, in turn, allow for safer operations in higher sea and tidal states while also extending operational weather windows.

OceanRINGS Control & Navigation Suite.

This is why the CRIS teams, who have been focused on ROVs automation, have recently developed a 300msw survey class ROV known as Áed - the operational capacity of which has already been proven thanks to successful trials in wave & tidal test tanks in MaREI, as well as low sea states. CRIS also trialled a Thruster Fault-tolerant system which, using the onboard INS system, monitors errors in course and heading to detect thruster faults.

"The Áed ROV was designed with a focus on thrust-to-drag ratios, using CFD analysis of frame and thruster control optimisation to allow for high fidelity and stability," explains Dr Gerard Dooly, Research Fellow at CRIS. "The navigation suite was one of the most critical factors and the use of iXblue Rovins Nano, coupled to a Nortek DVL, allowed us to achieve high-precision subsea navigation without having to compromise on the weight and size of the vehicle due to navigation payload."

iXblue's Rovins Nano, compatible with both iXblue and third-party acoustic positioning products, offers customers operating on the challenging offshore market a versatile and cost-efficient inertial navigation solution that can be suited for any subsea operation. Being user-friendly, it offers valuable time savings in terms of configuration, installation and operational use and provides flexibility and efficiency for successful subsea operations.

ROV Ãed.