

QUADROIN

EvoLogics, the Berlin-based provider of high-tech underwater robotics, data networks, positioning and sensor technologies, has announced the launch of the next iteration of the Quadroin AUV.

Originally introduced in May 2021, the Quadroin vehicle garnered attention for its distinctive, penguin-like design. Engineered for monitoring and surveying, the fast and manoeuvrable Quadroin leverages EvoLogics' expertise in low-drag bionic design.

Dr. Rudolf Bannasch, EvoLogics founder, delved into years of research on penguin locomotion, resulting in the AUV's remarkable hydrodynamic properties. With its low-drag

shape, the Quadroin achieves speeds of up to 10kts, minimising energy consumption and enabling versatile deployments.

The initial series of Quadroin prototypes, developed in collaboration with Hereon for the Helmholtz Association's MOSES initiative, focuses on monitoring ocean eddies.

These vehicles are equipped with sensors for collecting geo-referenced data on various physical water parameters, including temperature, pressure, oxygen, conductivity, and fluorescence, at different depth levels.

Building upon this foundation, EvoLogics has undertaken significant enhancements to the Quadroin platform, with a primary

focus on expanding its instrument payload capacity and underwater A.I. computations.

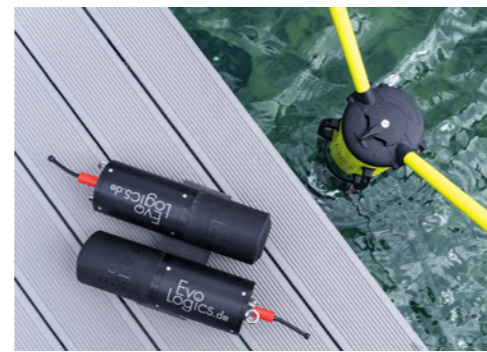
This evolution led to a comprehensive redesign of the vehicle's internal layout, integration of updated components, and optimization of sensor systems to accommodate a broader range of instruments while maintaining operational efficiency.

The new generation Quadroin now carries an expanded instrument payload. The side-scan sonar enables acoustic seafloor imaging.

Additionally, two full-HD underwater cameras—one forward-facing

QUADROIN

EvoLogics Modems



at a 45-degree angle and one downward-facing—equipped with dimmable LED lights, provide a visual identification of the vehicle's surroundings.

The newly integrated EvoLogics AI-powered object recognition module allows detecting objects in the side-scan sonar and video feeds live during the mission with processing carried out onboard the vehicle. It is also to enable automatic collision avoidance through a front-looking sonar system.

The hardware and propulsion systems were redesigned with next-generation components for optimal performance.

EOLOGICS MODEMS SUPPORTING JANUS AND SWIG

Standardising subsea communication is essential for future-proofing underwater technologies, and EvoLogics invests significant development efforts into the interoperability of the company's underwater acoustic modems lineup.

By providing a common framework, standards encourage innovation among manufacturers and foster a collaborative approach to addressing the unique challenges of underwater communication.

NATO's ANEP-87 standard (commonly known as JANUS) was first recognised in 2017, with the most recent version released in 2024. The standard defines an underwater

communications protocol to support the interoperation of acoustic modems from various manufacturers. Being an active member of the JANUS community, EvoLogics fully implements the JANUS Band A in its S2C 7/17 modems line, and development work is ongoing for bands C, D and E.

The Subsea Wireless Group (SWiG) is an international consortium promoting interoperability for subsea wireless communications. Released in 2022, the group's SWiGacoustic standard aims to improve communication between offshore vessels and the uncrewed vehicles used in underwater inspection, maintenance, and repair.

The Quadroin now features a Nortek Nucleus1000 integrated subsea navigation package that couples Nortek's DVL technology with additional position-aiding sensors for reliable vehicle control.

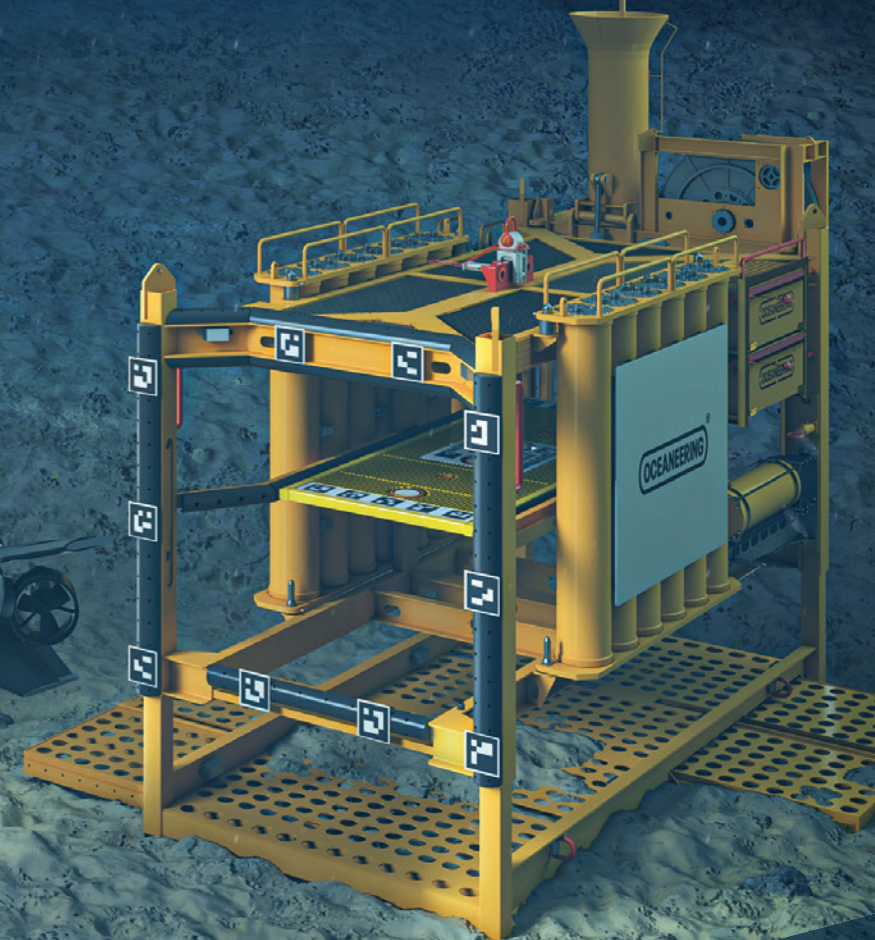


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