



USV PIONEER



THE UK'S FIRST REMOTELY OPERATED AND UNMANNED
VESSEL CERTIFIED UNDER THE MCA WORKBOAT CODE 3

ROBUST RELIABLE RECONFIGURABLE

ACUA Ocean's Pioneer-class USV is built to provide reliable and persistent offshore capability. This platform is designed to operate effectively in inclement sea conditions that challenge or prohibit operations for many uncrewed vessels of a similar size and price.

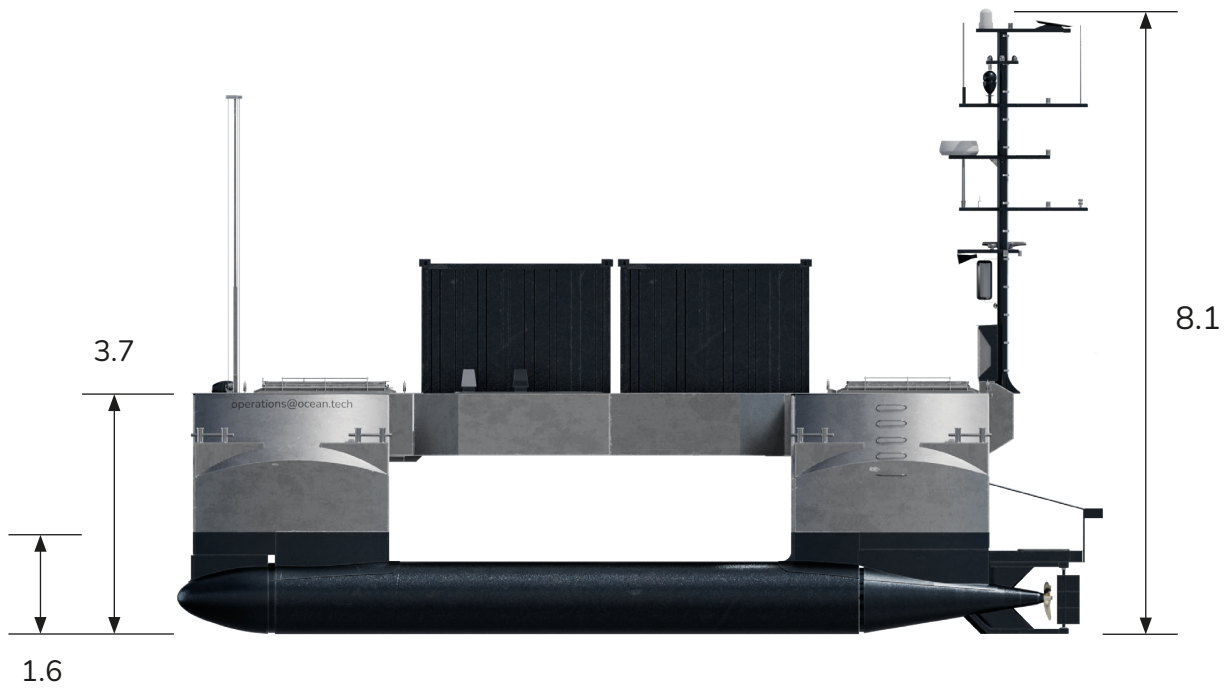
A diesel-electric hybrid powertrain gives the Pioneer-class multi-week endurance, while its unique SWATH hull form ensures exceptional stability. The integrated central moonpool simplifies the installation and safe deployment of payloads, from sensors to robotics, even in high sea states.

With a payload deck capacity of up to 6 tonnes, the Pioneer-class can support a wide variety of systems for commercial and defense missions. The moonpool is designed to accept standardised 10 and 20-foot ISO container footprints, significantly easing integration and logistical management. We collaborate with technical partners to provide pre-engineered integration solutions for several payloads, including towed arrays, underwater sensor bodies, ROVs, and weapons systems.

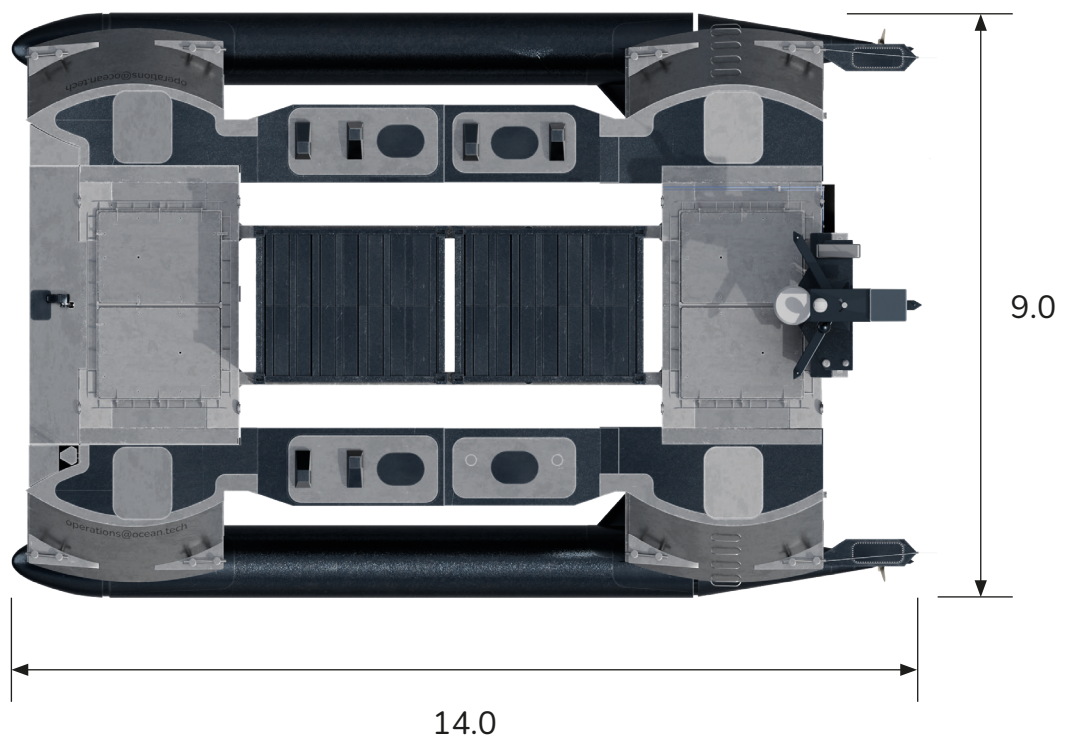




CONSTRUCTION	<ul style="list-style-type: none"> Constructed in 4 modular component parts of 5mm aluminium (other materials possible on negotiation)
DIMENSIONS	<ul style="list-style-type: none"> LOA 14m Beam 9m Draft 1.6m Masthead sensor height circa 7m dependant on configuration Lightship 19.5 tonnes Seagoing displacement 25.5 tonnes
PAYLOAD & LARS OR CARGO CAPACITY	<ul style="list-style-type: none"> Circa 6 tonnes dependant on payload and USV configuration
OPERATING SPEEDS & MODES	<ul style="list-style-type: none"> Optimum cruise/survey speed 4 knots Sprint speed 6-8 knots dependant on USV configuration Optional bow thrusters for station keeping/ dynamic positioning
OPERATIONAL LIMITS & RANGE	<ul style="list-style-type: none"> Safe and reliable deployment of large payloads (circa 1 tonne) in sea state 5-6 1300nm - 6000nm dependant on USV configuration
SENSORS & SITUATIONAL AWARENESS	<ul style="list-style-type: none"> 360 degree fixed camera view 2 x PTZ camera incl. infra-red night vision Radar Class A AIS transceiver Dual watch VHF & NAVTEX Ambient sound receiver Weather station Loud Hailer Searchlight/signal light 2 x GNSS Pitch/roll/yaw feedback 2 x depth sounders
C2 & COMMS	<ul style="list-style-type: none"> Over-the horizon WAN SATCOM Primary and Reversionary for offshore operation 4G for near-shore operation UHF RC for berthing and pilotage control
POWER FOR PAYLOAD OPERATION	<ul style="list-style-type: none"> Upwards of 50kW dependant on USV and payload configuration
REGULATORY COMPLIANCE	<ul style="list-style-type: none"> Commercially coded under UK Flag Maritime and Coastguard Agency USV build and operation rules.



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OPERATIONS

PIONEER's operational control is managed through a dual-system approach. For close-quarters manoeuvres like berthing and in-harbour pilotage, a handheld UHF radio controller is used. For all beyond-line-of-sight control, including mission management and real-time data transfer, the vessel is operated via satellite communication from a dedicated Remote Operations Centre (ROC).

The ROC is equipped with the necessary computing power and proprietary software to control the PIONEER and monitor its missions. The setup includes appropriate screens, keyboards, a mouse, and vessel control levers. To ensure mission continuity and regulatory compliance, the ROC is designed with redundancy in its power and internet connectivity.

This can all be configured from temporary or mobile ROCs, thereby enabling flexible operations and collocation with other partners, or for longer term operations the ROC can be integrated in traditional maritime operations centres providing proximity to decision makers, or other platform and payload operators to deliver the best insights from operational situations.

SOFTWARE AND CONTROL

ACUA Ocean has developed AcuaRemote™, a proprietary software solution for the remote monitoring and control of the vessel's internal systems from the Remote Operations Centre (ROC).

In collaboration with our technical partners, we have created an integrated software solution for safe pilotage and navigation, which provides:

- Excellent situational awareness
- Charting and passage planning
- Vessel control and pilotage
- External voice and text communications
- Adherence to UK regulatory requirements for the commercial operation of USVs

PIONEER's open-architecture, CAN-based control system is designed for easy integration of a wide range of third-party software products, giving operators the flexibility to choose their preferred solutions. This system can support:

- Autonomous or automated USV operation
- Goal-based mission planning and management
- Station keeping and dynamic positioning
- Autonomous or automated payload operation and control

ACUA Ocean is available to support the integration of additional software products and will work to ensure regulatory compliance, whether under UK or other national requirements, based on the customer's needs.





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