



Naval HMI Terminal Secure Onboard Messaging



Captec engineered a rugged, high-performance Secure Naval Messaging Terminal to modernize the customer's surface and subsurface communications capability. Designed for reliability, usability, and long-term maintainability, it meets stringent defense compliance standards. The system delivers secure, dependable messaging performance and forms a key component within the customer's next-generation naval communication infrastructure.

A leading UK aerospace and defense technology provider, the organization delivers mission-critical systems in aviation, cyber, and security. With thousands of staff and deep public sector engagement, it serves governments and agencies with high-reliability engineering and integrated capabilities.



**TRIED
TESTED &
TRUSTED**

The Challenge

The project required a technology refresh of the Naval Messaging Terminal to align the platform with modern operational, performance, and compliance expectations. The next generation of communication systems demanded greater data throughput, improved usability for crew members, and a more resilient computing architecture optimized for continuous operation within controlled submarine environments.

To meet these needs, the new design had to deliver a more intuitive user interface, enhanced data-handling performance, and full compliance with stringent defense standards. Operating within confined spaces and under a strict 25kg weight limit, the solution also needed to provide long-term reliability, accommodate evolving capability requirements, and incorporate a sealed, durable enclosure suited to the demands of sustained submarine deployment.



The Solution

Captec engineered a fully customized system designed specifically to meet the technical and environmental demands of submarine deployment. Building on years of trusted collaboration with the customer, the design team developed a new Naval Messaging Terminal to replace the legacy system, addressing every issue identified in the original specification. Drawing on Captec's expertise in naval applications, the unit was engineered to withstand shock loads up to 15G, with integrated EMC filtering to meet DEF-STAN 59-411, DEF-STAN 00-35, and other UK defense standards.

All aspects of design, precision metalwork, finishing, and integration were managed in-house, giving Captec full control over quality, compliance, and configuration integrity. The enclosure design eliminated exposed components and improved ease of use for crew members, while maintaining a compact footprint and meeting the strict weight requirements. A modular architecture was implemented to simplify maintenance, extend service life, and support future upgrades with minimal disruption.

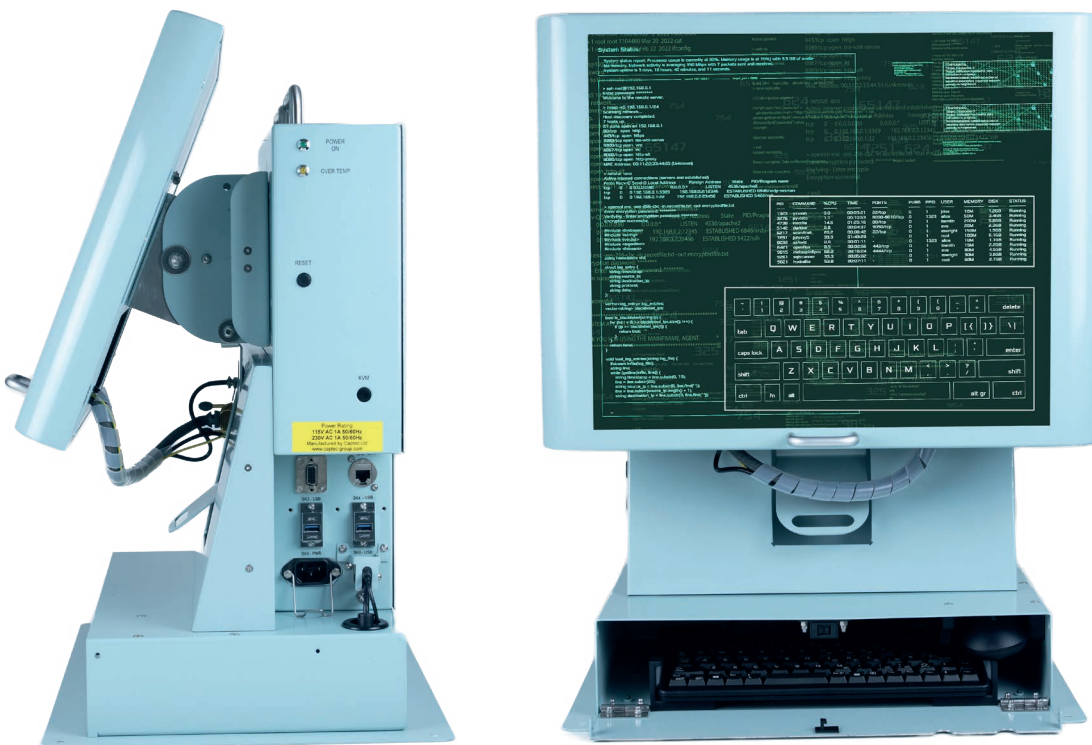
Through a collaborative design and review process, every requirement was refined and validated prior to testing, resulting in a durable, compliant, and mission-ready system optimized for next-generation submarine communications.

The Outcome

The new Naval Messaging Terminal has been fully integrated into the customer's next-generation submarine communications suite, forming an essential part of their wider naval messaging capability. The system meets all specified technical and environmental compliance requirements, with shock and EMC performance verified through independent testing. Its sealed and compact design eliminates exposed components, while the improved interface provides a more reliable and ergonomic platform for onboard operation.

The modular architecture simplifies maintenance and supports future upgrades without the need for redesign, addressing long-term change management and lifecycle objectives. Designed to operate within the physical and environmental constraints of submarine deployment, the system achieves the required balance between usability, robustness, and compliance.

With end-to-end support from Captec (including design, metalwork engineering, finishing, and electro-mechanical integration), the customer benefited from a single point of accountability, which also enabled a smoother transition from design to testing and then deployment. This ensured consistent quality, alignment with defense standards, and controlled configuration management, resulting in a compliant and maintainable system aligned with next-generation submarine communication requirements.



CAPTEC

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