



> Futureproofing Through Maritime Cyber-resilience

Securing your vessel beyond mandatory standards for lasting endurance

> Maritime Innovation Unleashed

Data, Safety, and Cyber-resilience

Embark on a transformative journey through the realm of maritime innovation, where cutting-edge advancements reshape cargo tracking and operational efficiency. Amidst the pursuit of safety at sea, the maritime industry faces evolving challenges, from enhancing fuel efficiency to addressing port overcapacity and the impacts of delays. However, as digital transformation accelerates, cybersecurity emerges as a critical concern.

In this era of maritime innovation, data reigns supreme. Data is the key to driving initiatives that enhance safety, streamline operations, and boost productivity. And with the increasing interconnectedness of smart ships, cybersecurity has become imperative to safeguard vessels against evolving threats. As regulatory bodies enforce standards like IMO Resolution MSC.428(98) and IACS Unified Requirements (URs) E26 and E27, the industry is shifting its focus towards maritime cyber-risk management and secure integration of technology.

Furthermore, in line with the maritime trends, the industry is embracing decarbonization efforts by integrating data-driven solutions. The adoption of carbon capture systems and onboard energy storage solutions marks a significant step towards sustainability, reducing emissions and environmental impact while optimizing operational efficiency.

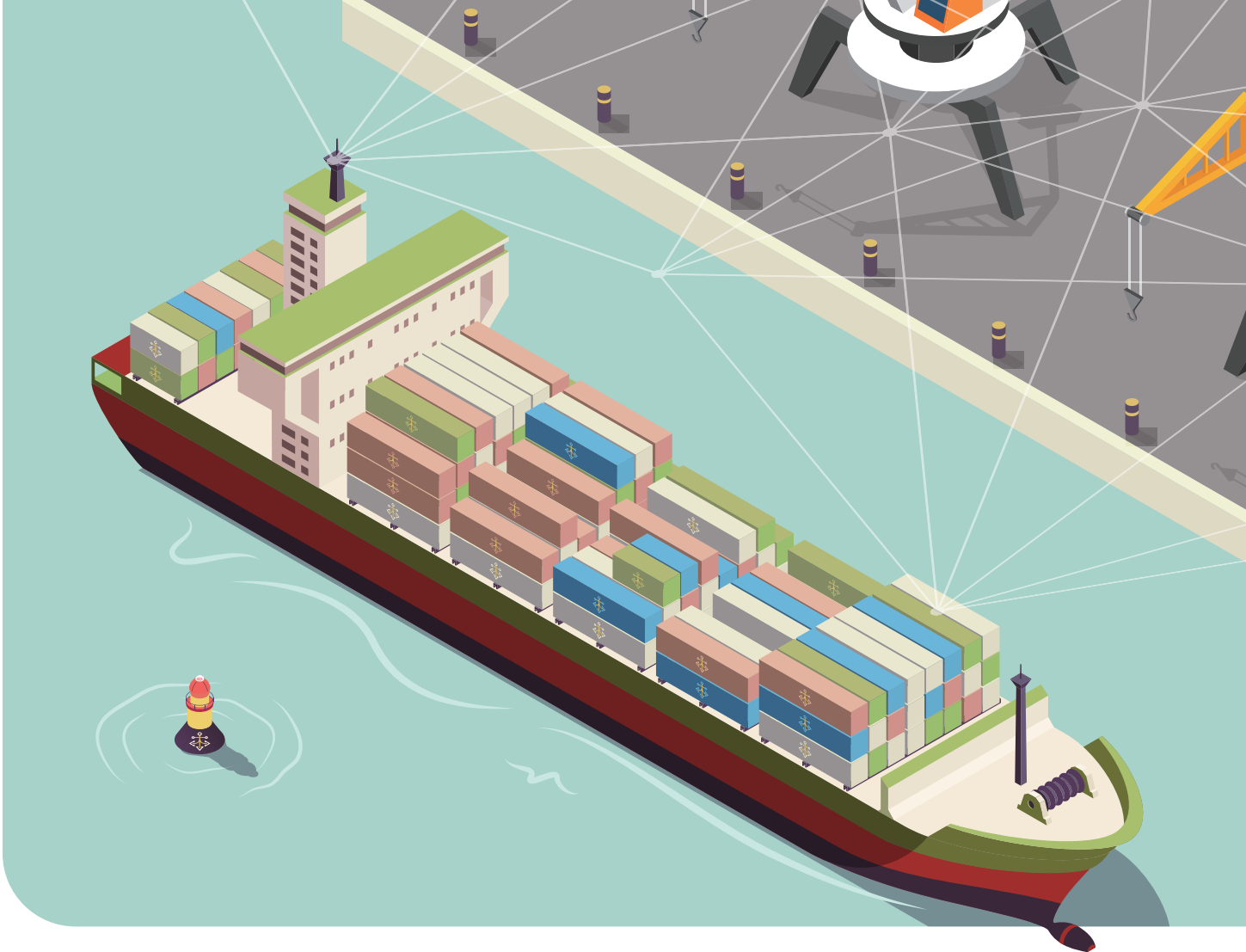


Seamless Navigation

Harnessing Data for Maritime Efficiency

Achieving seamless navigation requires more than just collecting data; it demands a resilient digital backbone that bridges the gap between ship and shore. Moxa empowers this transition with rugged, DNV-certified networking and computing solutions engineered to thrive in the harshest marine environments. By integrating complex OT and IT layers with hardware-level cybersecurity, we ensure an uninterrupted, secure flow of information that satisfies the stringent requirements of IACS UR E26 and E27. With Moxa as your foundation, you gain the real-time visibility needed to harmonize automated systems, optimize fuel consumption, and safeguard your assets against a shifting digital horizon.





Building Secure and Cyber-resilient Smart Ships

The transition to smart ships offers shipowners unprecedented operational visibility. By streaming data from onboard systems to shore-side control centers, operators can optimize fuel consumption, enable predictive maintenance, and boost overall efficiency. However, this connectivity introduces significant cybersecurity risks—a reality underscored by incidents like the ransomware attack on DNV's ShipManager servers. In response, the International Association of Classification Societies (IACS) has established Unified Requirements (UR) E26 and E27; these mandates create a new standard for cyber-resilience, ensuring security is integral to a vessel's entire life cycle.

Achieving UR E26 Compliance: A Life-cycle Approach

UR E26 requires cybersecurity to be embedded all the way from design and commissioning to operation and decommissioning. Achieving this demands a trusted partner with a portfolio of secure, reliable, and standards-compliant solutions. Moxa supports this journey with IEC62443-4-2 certified products, secure network architecture design, and comprehensive life-cycle services to ensure effective E26 compliance.

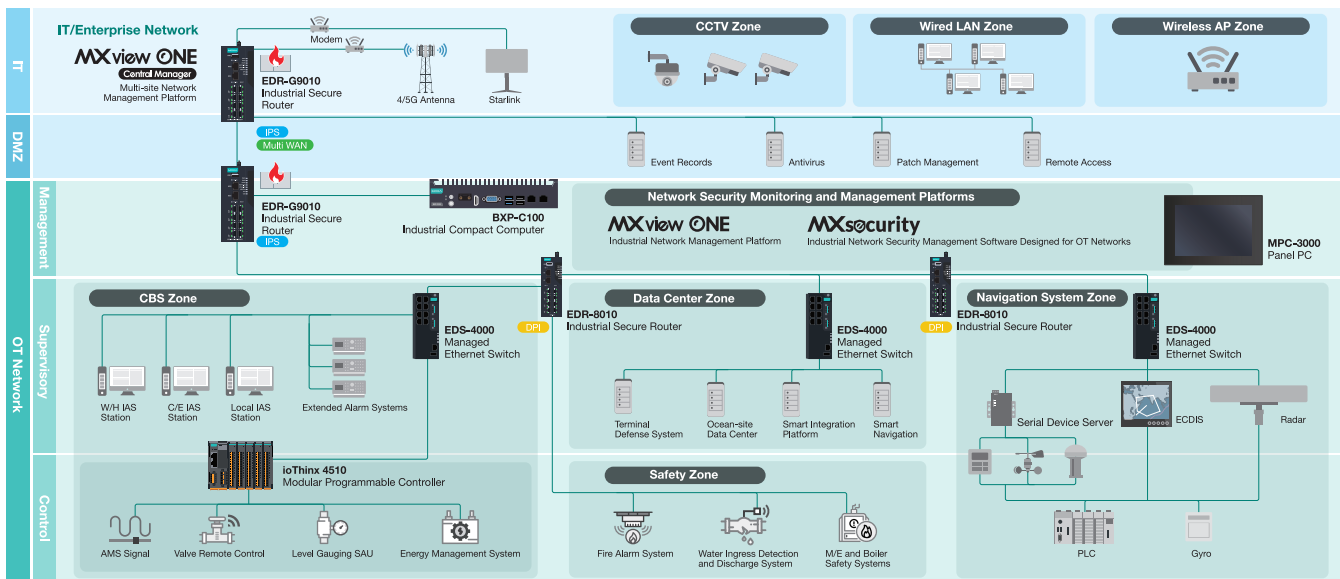
Meeting UR E27 With Frontline Defense

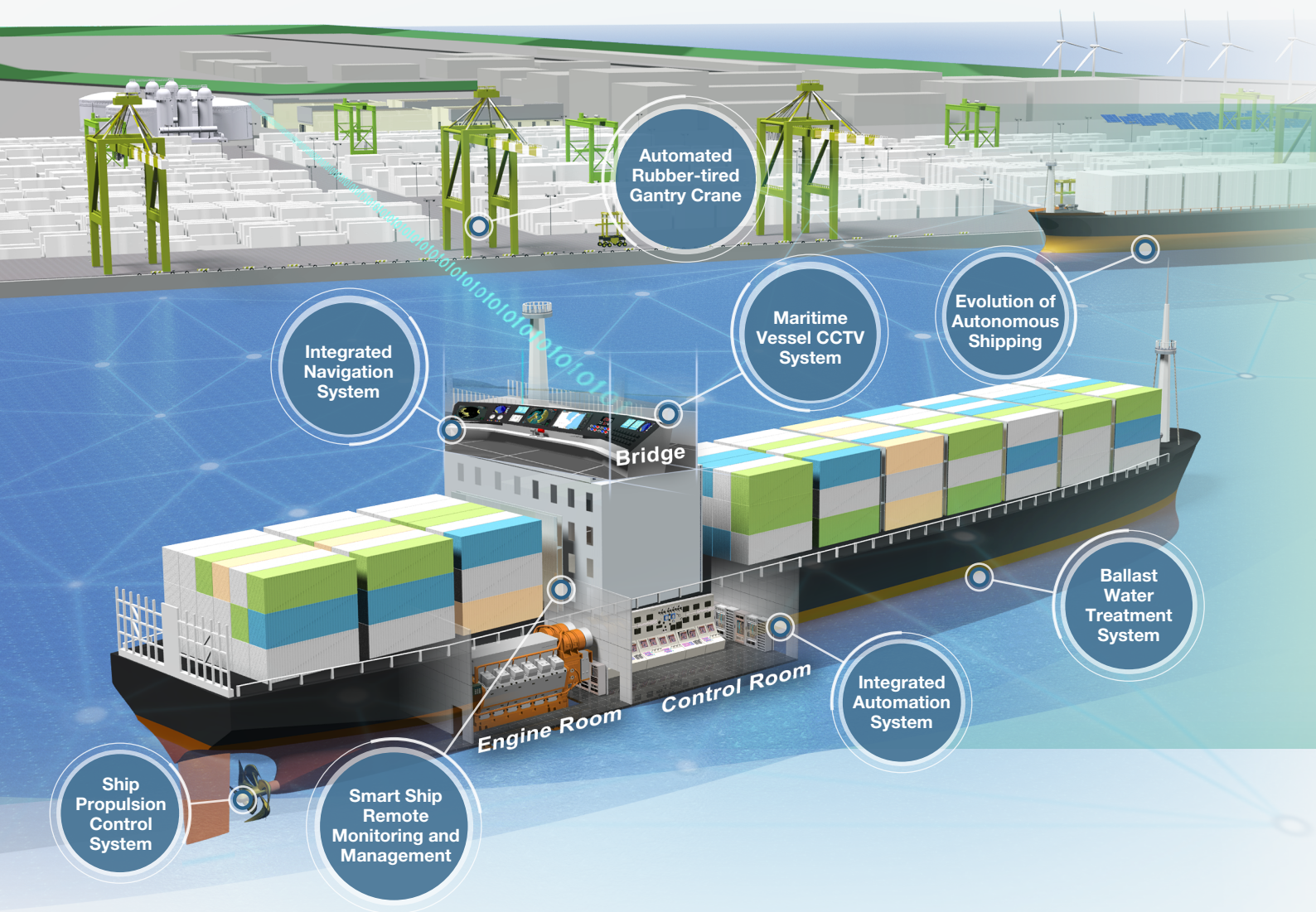
To address the specific requirements of UR E27, Moxa's EDR-G9010 secure routers act as a crucial first line of defense. They inspect traffic entering critical networks, actively mitigating threats like UDP floods and exploit-based intrusions before they can impact essential systems like propulsion or navigation. This ensures the resilience of critical onboard systems against both volumetric and targeted cyberattacks.



> Your Partner in Maritime Cyber-resilience

Moxa's portfolio of secure networking solutions provides the foundation for building the next generation of cyber-resilient smart ships. By combining industry-certified hardware, expert network design, and comprehensive life-cycle support, we help you navigate regulatory compliance and futureproof your onboard systems against evolving cyberthreats.





> Maritime Compliance and Cybersecurity Navigation

As the maritime industry embraces smart ships, data is emerging as the cornerstone of compliance and cybersecurity. Moxa is leading the charge with state-of-the-art, regulation-compliant solutions. Our portfolio includes models compliant with IEC 62443 and E27, and are designed to meet the needs of applications for seamless collection and processing of data. This holistic approach ensures real-time data integrity, cybersecurity, and adherence to regulations. In the digital age of maritime evolution—where IT and OT converge—compliance and cybersecurity are non-negotiable. Moxa remains at the helm, steering the industry towards a secure, compliant, and efficient future.



Seamless Maritime Data Management

- End-to-end solutions for onboard and onshore processes
- Secure data transfer to the cloud for analysis
- Robust data infrastructure ensures secure collection and storage



Comprehensive Cyber-resilience

- Real-time network connection for vessels ensures compliance
- Moxa's IEC 62443 solutions fortify cyber-resilience



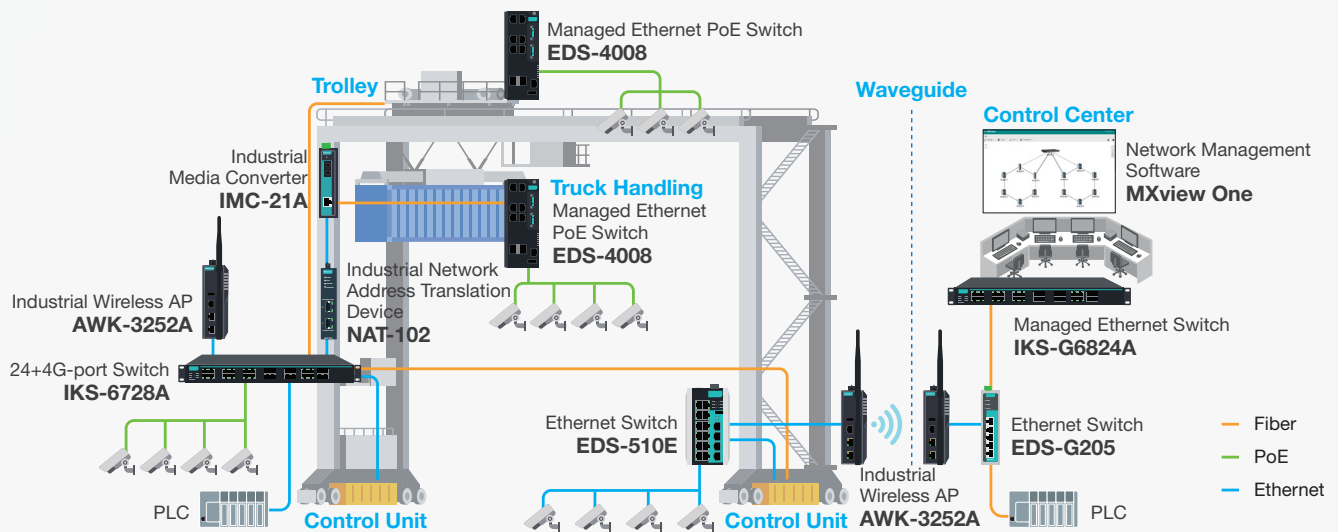
Integrated OT Network Solutions

- Moxa's integrated OT network meets E27 requirements
- Process visualization enables cloud-based data analysis
- Secure infrastructure ensures safe data collection, storage, and processing

Automated Rubber-tired Gantry Crane (ARTG)

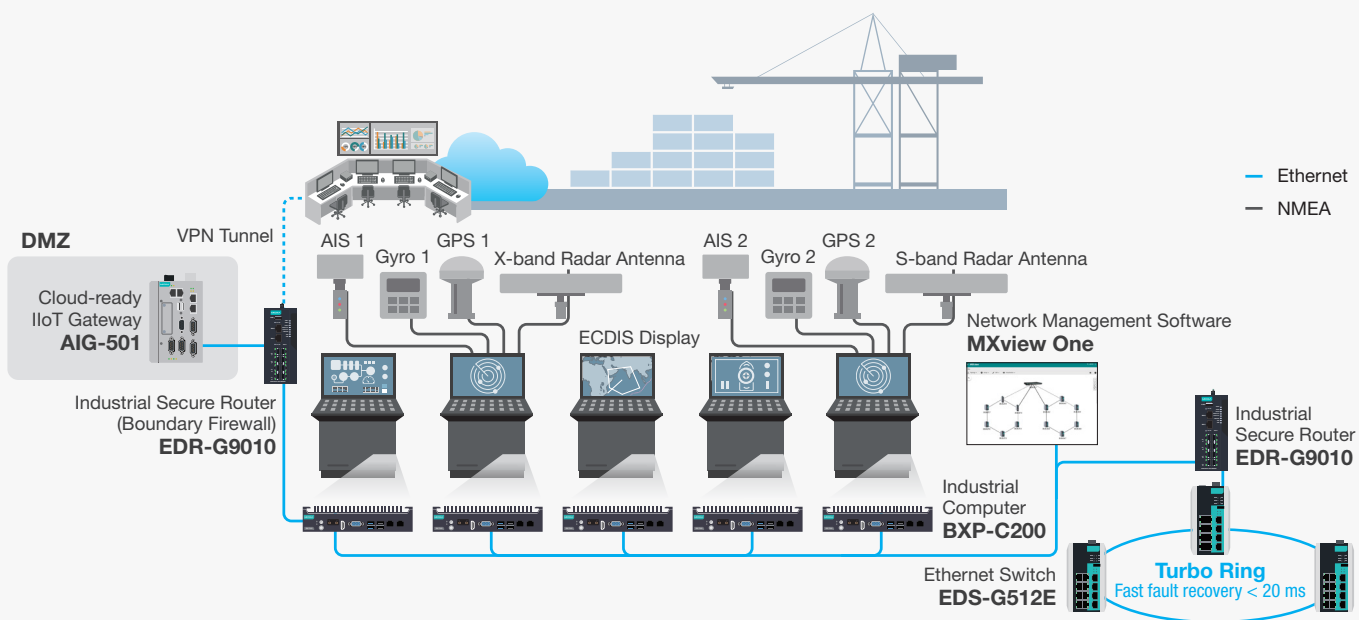


The innovative ARTG system revolutionized port container handling through automation. Enhanced efficiency, safety, and environmental sustainability are its hallmarks. Moxa's switch solutions ensure seamless networking for easy upgrades and centralized management tools, optimizing efficiency and reducing downtime.



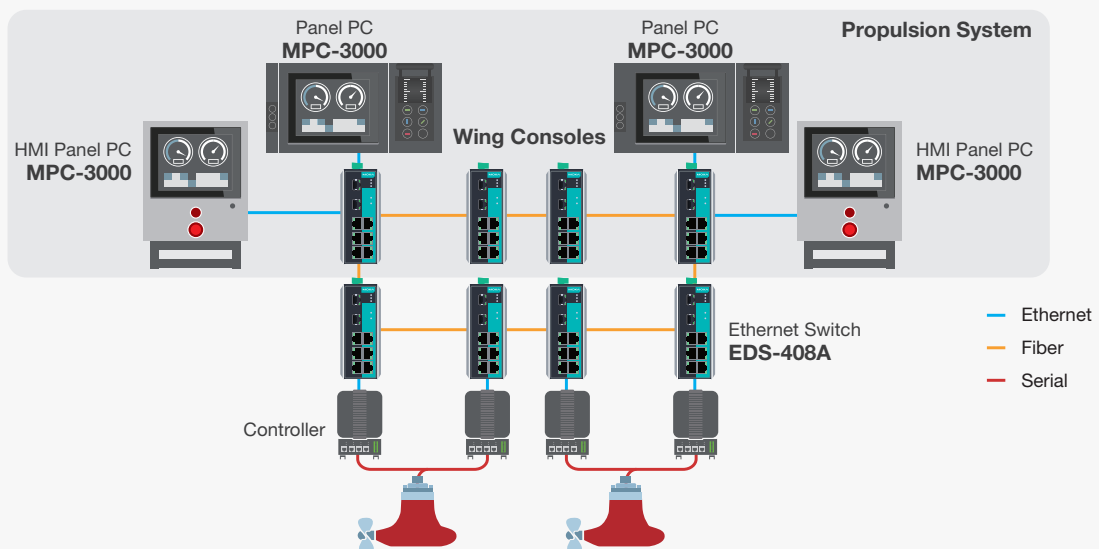
Integrated Navigation System (INS)

Moxa's marine solutions ensure reliability so you can achieve MSC.252(83) compliance with INS redundancy. Our serial device servers help reduce setup costs, and our compact BXP-C200 computers are ideal for limited-space environments. Our EDS-G512E switches use Turbo Ring and Turbo Chain to achieve high availability so your vessel stays on course.



Ship Propulsion Control System

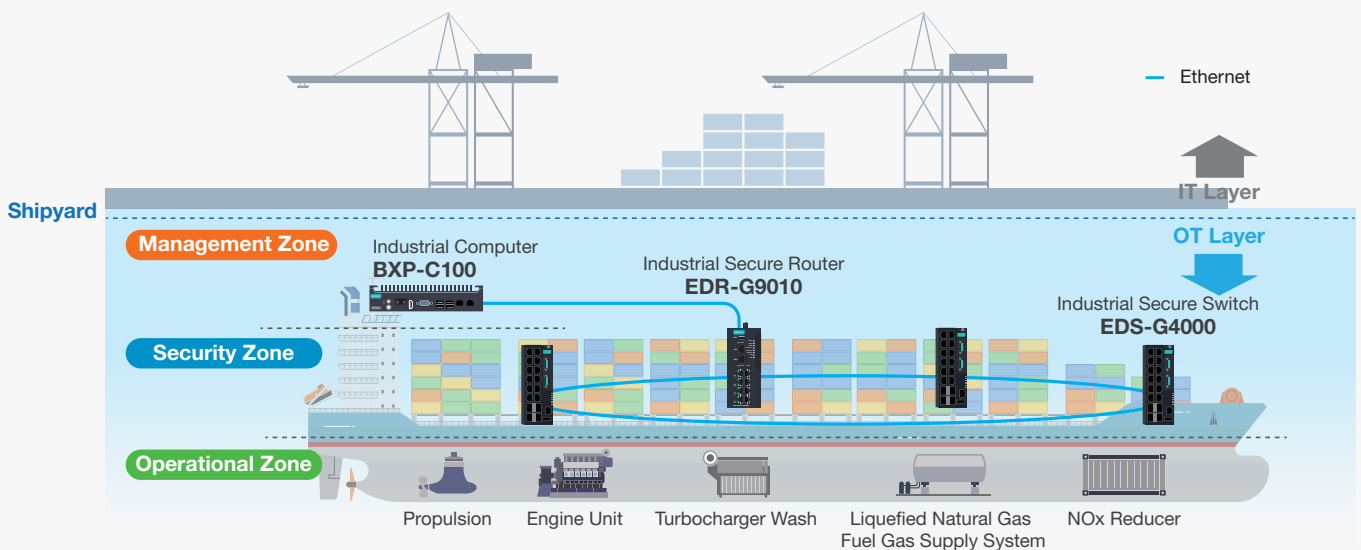
The ship's propulsion control system manages unmanned propulsion machinery from multiple onboard locations, which is vital for efficient operation and safe navigation. Rugged, marine-certified Ethernet switches enable seamless communication, which is essential for reliability in harsh marine environments. Moxa switches—certified by DNV, ABS, LR, and NK—ensure compliance and reliability. The MPC-3000 Series offers intuitive HMI displays for system monitoring, while Turbo Ring technology guarantees fast recovery times, ensuring uninterrupted propulsion system operation and improved vessel safety.



Smart Ship Remote Monitoring and Management



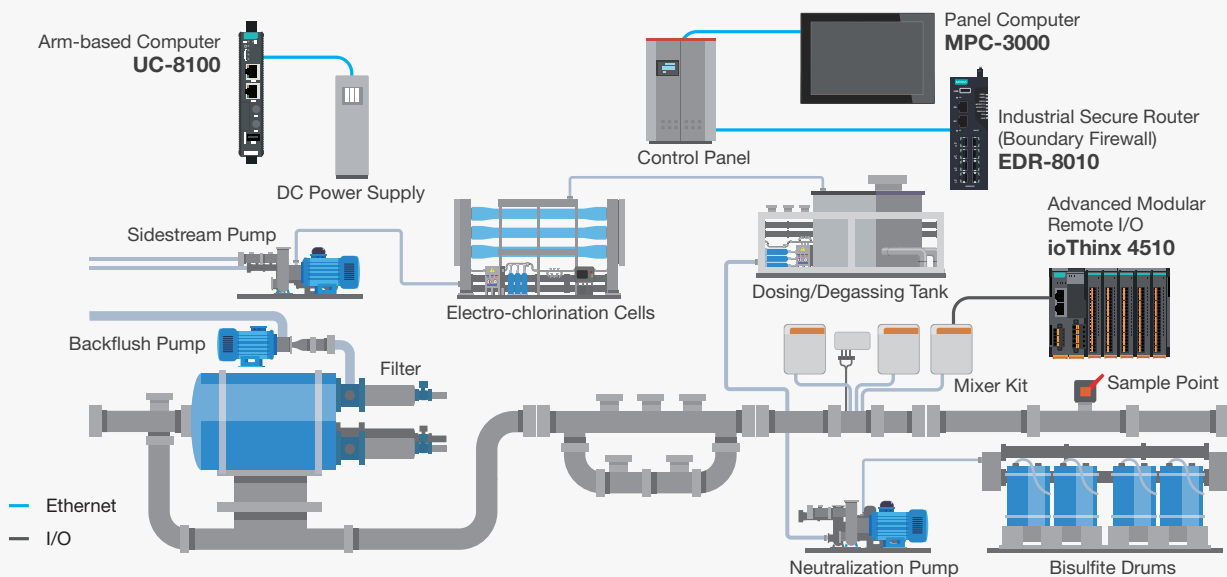
Efficient asset management on vessels relies on practical solutions like cloud-based services and remote monitoring for real-time insights and predictive maintenance. Robust cybersecurity measures are crucial to face ever-increasing cyberthreats. Moxa's BXP-C100 fanless industrial computers offer reliable performance in harsh maritime environments, while the EDR-G9010 secure router encrypts communications to protect against cyberattacks. Our marine-grade products guarantee durability, reliability, and compliance, giving you a convenient one-stop solution for your maritime needs.



Ballast Water Treatment System (BWTS)

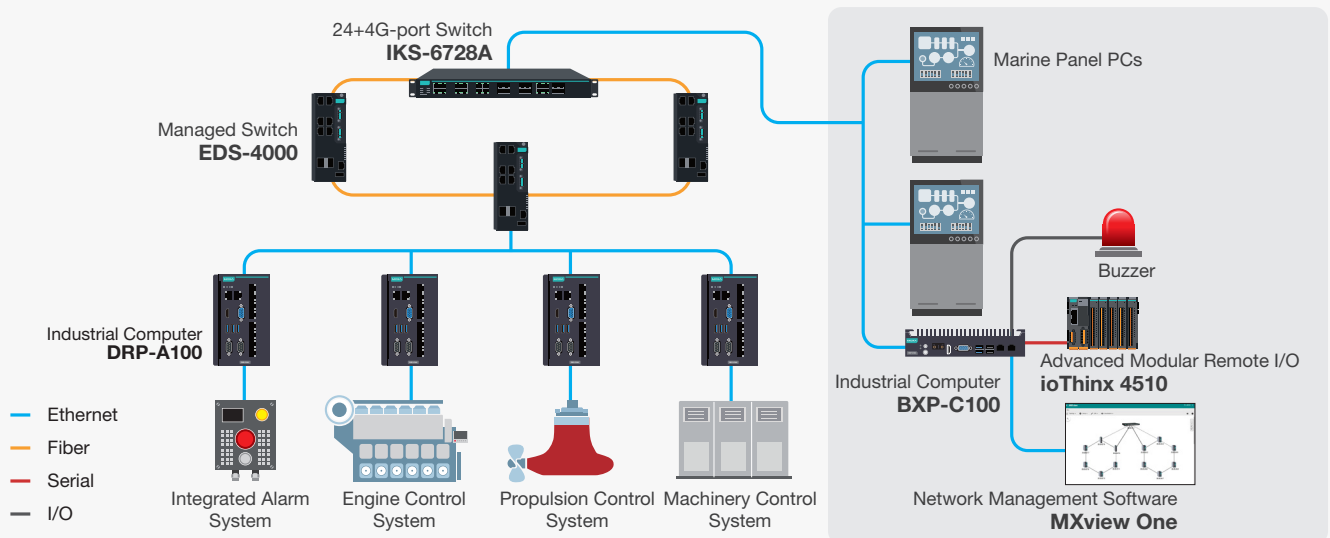


On September 8, 2017, the IMO's Ballast Water Management Convention came into force, mandating the use of shipboard systems that prevent the spread of aquatic organisms. To comply with D2 standards, compact yet robust treatment solutions are required. Moxa's computer portfolio and ioThinX Series offer versatile, space-saving options with simplified installation and enhanced efficiency to ensure reliable data acquisition and compliance with regulatory standards.



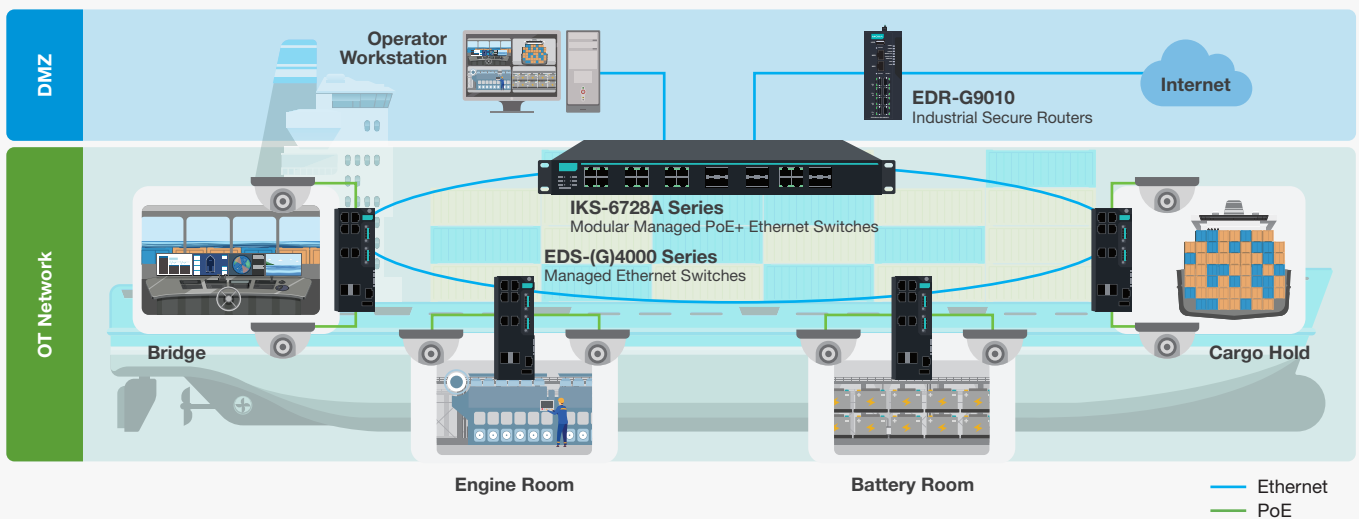
Integrated Automation System (IAS)

The IAS represents a cornerstone of modern ship operations, orchestrating a symphony of interconnected processes to ensure seamless functionality and enhance productivity at sea. Moxa's compact computers gather and process data from diverse systems throughout the vessel to enable real-time monitoring and alerts to ensure safety of the vessel and its crew. Power-efficient and robust, our solutions offer versatile connectivity for seamless data handling. Turbo Ring's rapid recovery maximizes system availability, while MXview One offers intelligent topology visibility and event traceability from a centralized or remote location, empowering operators to respond quickly and troubleshoot issues efficiently.

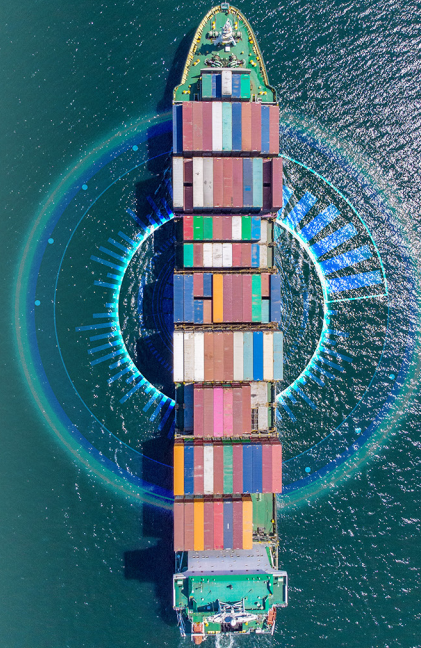


Maritime Vessel CCTV System

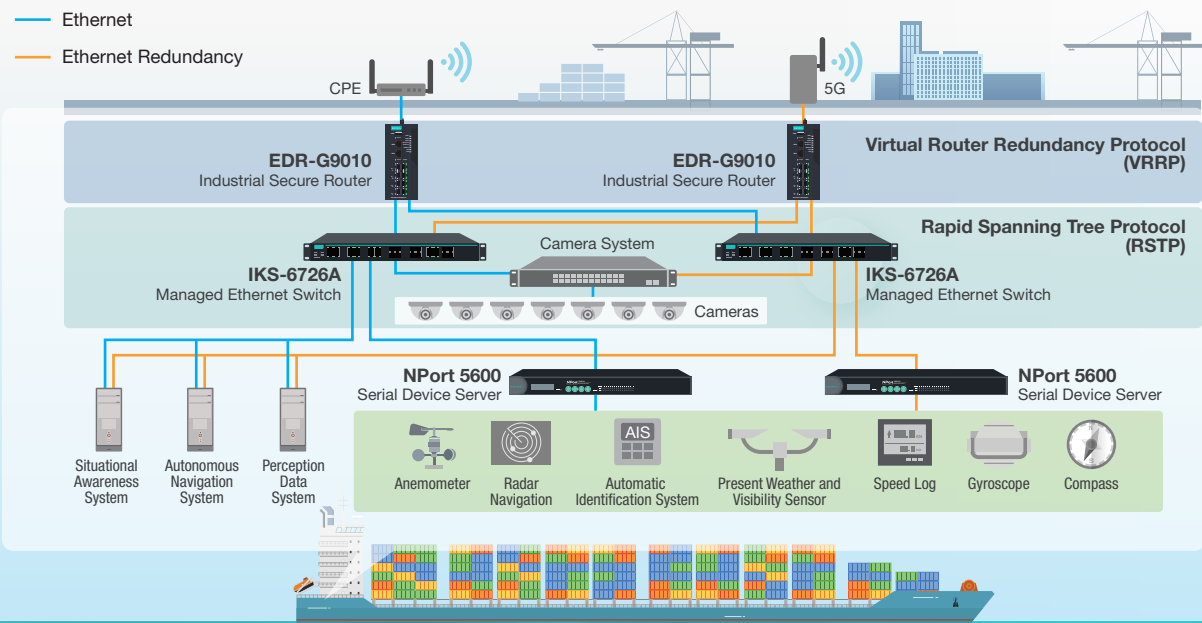
As maritime operations become more digitalized, reliable CCTV systems become even more essential for safety and operational efficiency. Though cameras and software are important, secure, high-bandwidth networking is the foundation of effective video surveillance. Vessel networks must support multiple HD streams with low latency, PoE for simplified installation, ruggedized hardware for harsh environments, strong cybersecurity, and built-in redundancy for continuous operation. Moxa enables maritime CCTV systems with marine-certified Ethernet switches and secure routers that provide high performance, environmental resilience, fast network recovery, and protected connectivity between onboard and shore-based systems, ensuring continuous visibility and operational reliability at sea.



Evolution of Autonomous Shipping



Autonomous shipping is advancing under technologies and regulations such as the IMO's MASS framework, but faces challenges in cybersecurity, reliability, and human oversight. Successful deployment depends on secure, high-reliability networks with built-in redundancy to support remote monitoring and uninterrupted operations. Autonomous vessels integrate sensors, automated navigation, and onshore control centers, and require strict cybersecurity protections and resilient infrastructure. Moxa enables this transition with secure firewalls, redundant switches, and serial device servers that support both legacy and modern systems. With strong E27 expertise and remote technical support, Moxa helps customers accelerate compliance and deploy autonomous shipping systems with confidence.



Moxa Marine Portfolio

Moxa empowers shipbuilders and system integrators to bridge the gap between mandatory compliance and long-term resilience. By offering DNV-certified secure routers and industrial switches that meet IACS UR E27 Rev.1 and IEC 61162-460 Edition 3.0 standards, we provide a streamlined path to certification. These high-performance solutions act as secure gateways and forwarders, ensuring trusted data flows from collection to processing. From single vessels to entire fleets, Moxa's comprehensive portfolio—spanning maritime-certified IPCs, networking, and remote management—secures the digital lifecycle of your assets in an increasingly interconnected world.

Industrial Network Infrastructure

Secure Routers



EDR-G9010 Series



EDR-8010 Series



EDR-G9004 Series



EDR-G1002 Series

Ethernet Switches



EDS-(G)4000 Series



IKS-6728A Series

Industrial Computing

Industrial Computers



BXP/DRP Series

Panel PCs



MPC-3000 Series

Industrial Edge Connectivity

Serial-to-Ethernet Device Servers



NPort 6000-G2 Series

Modbus TCP Gateways



MGate MB3170 Series

Ethernet-to-Fiber Media Converters



IMC-101 Series

* Please refer to our Maritime Microsite for the complete certified product list.





Your Trusted Partner in Automation

Moxa is a leading provider of edge connectivity, industrial computing, and network infrastructure solutions for enabling connectivity for the Industrial Internet of Things (IIoT). With over 35 years of industry experience, Moxa has connected more than 118 million devices worldwide and has a distribution and service network that reaches customers in more than 87 countries. Moxa delivers lasting business value by empowering industries with reliable networks and sincere service. Information about Moxa's solutions is available at www.moxa.com.

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