



AQUASYNC INNOVATION(SINGAPORE) PTE. LTD.

**Address:** 8 Temasek Boulevard #11-01.Suntec city Tower 3, Singapore 038988

**E-mail:** sales@aquasync.sg

**Website:** www.aquasync-marine.com



## SHIP CYBERSECURITY SOLUTION

Made available for

UR E27 (Rev.1) Cyber resilience of on-board systems and equipment

UR E26 (Rev.1) Cyber resilience of ships



# Content.

## SHIP CYBERSECURITY SOLUTION

### 01 Company Profile

P01

### 02 Interpretation of Ship Cybersecurity Standards

P03

### 03 Ship Cybersecurity (IT+OT) Solution

3.1 Cyber Resilience Ships (IACS UR E26)

P07

3.2 Cyber Resilience of On-Board Systems and Equipment (IACS UR E27)

P37

3.3 Navigation and Radiocommunication Physical Component (IEC 61162-460)

P49

3.4 Network Information Integration System (IT)

P59

### 04 ASI's Ship Cybersecurity Service Qualifications

P67

### 05 Performance Report

P79

# 1.1 Company Profile

AquaSync Innovation ( hereinafter referred to as ASI) provides a full package of solutions for comprehensive automation, intelligence, integrated ship-shore information and ship cyber security etc. in marine and offshore industries through cutting-edge technology, empowers the global maritime industry. Our advanced solutions ensure safe, reliable, efficient performance and promote the rapid sustainable development of the maritime industry's digitalization process.

ASI has obtained the **DNV-issued ISO 9001** Quality Management System, **ISO/IEC 27001** Information Security Management System, **ISO/IEC 20000-1** Information Technology Service Management System certificates, and the **ISO/IEC 17025** Marine Cybersecurity Laboratory Test Capability Recognition.



Integrated Gauging  
Monitoring-Alarm and  
Controlling System



Informatization Integrated  
Solution



Intelligent ship system



Ship-Shore Fleet  
Management System

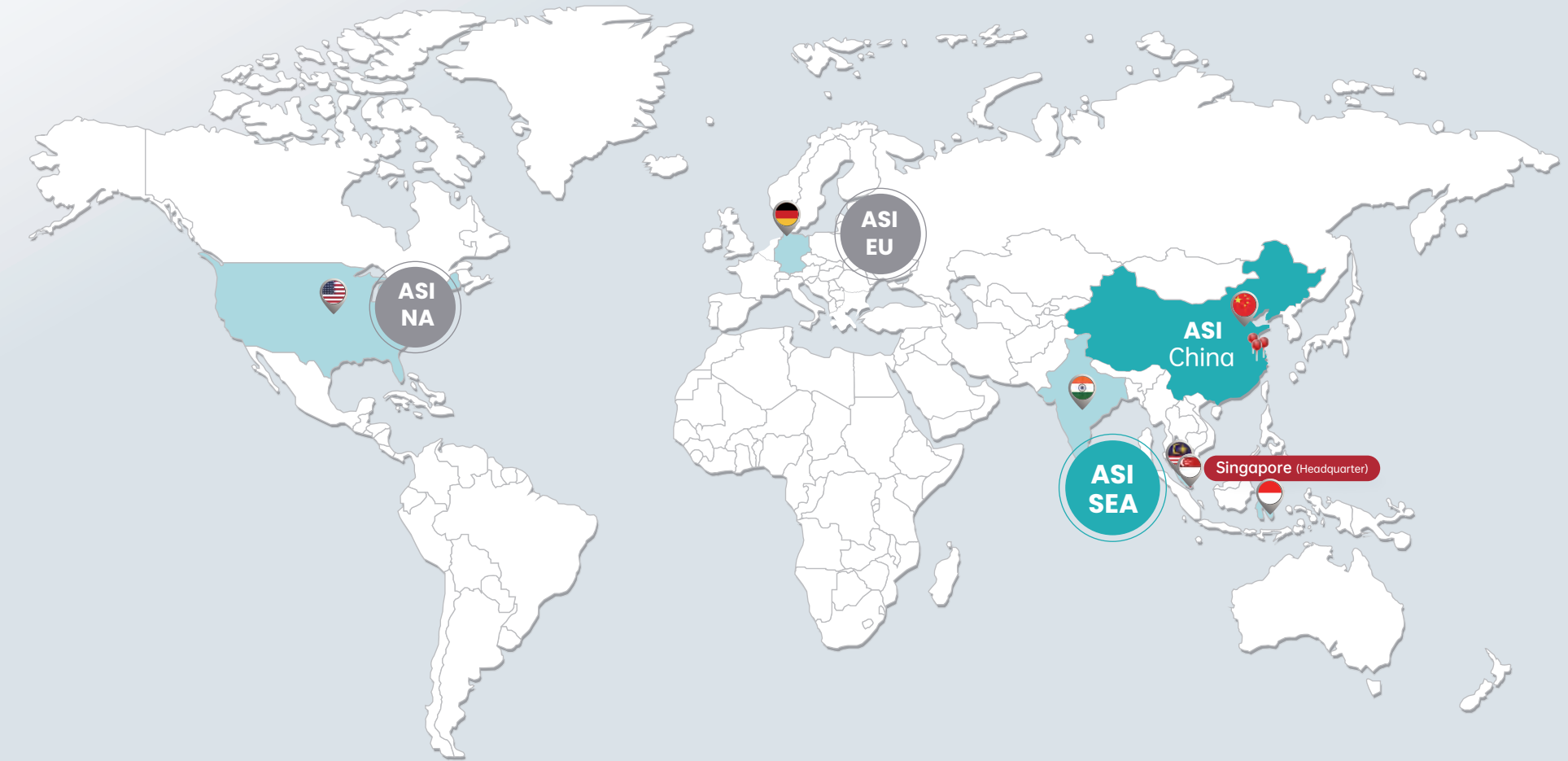


Ship Cybersecurity Solutions



Sensor Transmitters,  
Valves, Flow Meters and  
Other Underlying Hardware

## Global Presence & Headquarters Map



ASI China

- Hangzhou, Zhejiang
- Wuxi, Jiangsu Province
- Shanghai

ASI SEA

- Singapore
- India

- Indonesia
- Malaysia

ASI EU

- Germany, Hamburg

ASI NA

- America



YOUR SHIP'S GUARDIAN IN THE DIGITAL AGE

# Interpretation of Ship Cybersecurity Standards



PART TWO

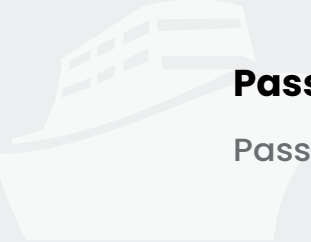
## IACS UR E26&E27

| IACS UR E26 (Ship Cyber Resilience) |                                                                                                                                                                                                                                                                                                                               | IACS UR E27 (On-Board Systems Cyber Resilience)                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Scope                               | Whole-Ship Cyber Resilience (Ship Level)                                                                                                                                                                                                                                                                                      | Individual CBS Certification (System & Equipment Level)                                                                                                                                                                                                                                                                                                                     |
| Core Objective                      | Secure and Dependable Maritime Transport                                                                                                                                                                                                                                                                                      | CBS & Equipments                                                                                                                                                                                                                                                                                                                                                            |
| Key Requirements                    | ① Identify ② Protect ③ Detect ④ Respond ⑤ Recover                                                                                                                                                                                                                                                                             | ① Identification and Authentication ② Access Control<br>③ System Integrity ④ Data Confidentiality ⑤ Restricted Data Flow<br>⑥ Timely Response to Events ⑦ Resource Availability                                                                                                                                                                                             |
| Certifications                      | - ISO/IEC 17025 (DNV&CNAS)<br>- Personnel: CISSP<br>- ISO/IEC 27001 :2022<br>- ISO/IEC 20000-1:2018                                                                                                                                                                                                                           | - IEC 62443-4-1 & 4-2 & 2-4<br>- IACS UR E10<br>- ISO/IEC 27001 :2022<br>- ISO/IEC 20000-1:2018                                                                                                                                                                                                                                                                             |
| Testing Requirements                | Whole-Ship Cyber Resilience Testing                                                                                                                                                                                                                                                                                           | Individual Equipment Functionality & Security Testing                                                                                                                                                                                                                                                                                                                       |
| Deliverables                        | - Approved supplier documentation<br>- Zones and conduit diagram<br>- Cyber security design description<br>- Vessel asset inventory<br>- Risk assessment for the exclusion of CBSs<br>- Description of compensating countermeasures<br>- Ship cyber resilience test procedure<br>- Ship cyber security and resilience program | - CBS Asset Inventory<br>- Topology Diagrams<br>- Description of Security Capabilities<br>- Test Procedure for Security Capabilities<br>- Security Configuration Guidelines<br>- Secure Development Lifecycle<br>- Plans for Maintenance and Verification<br>- Information Supporting Incident Response and Recovery Plans<br>- Management of Change Plan<br>- Test Reports |

” Effective Period: Ships Contracted for Construction on or After 1 July 2024.”



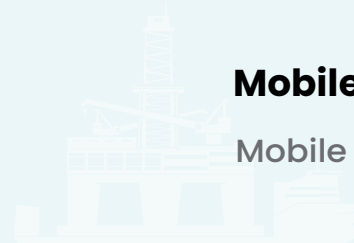
# Applicable Ship Types



**Passenger Ships**

Passenger ships engaged in international voyages (Including high-speed passenger ships).

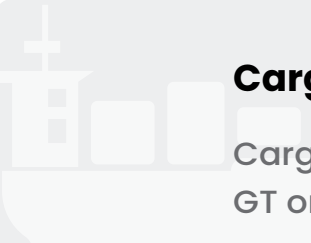
All Tonnages



**Mobile Offshore Drilling Units**

Mobile offshore drilling units with a gross tonnage of 500 GT or more.

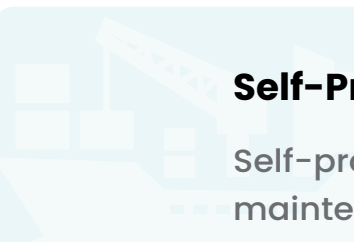
500 GT+



**Cargo & High-Speed Vessels**

Cargo ships of 500 GT or more engaged in international voyages & High-speed vessels of 500 GT or more engaged in international voyages.

500 GT+



**Self-Propelled Construction Units**

Self-propelled offshore construction units (such as those for wind turbine installation and maintenance, crane units, drilling tenders, accommodation units, etc.)

Specialized Units

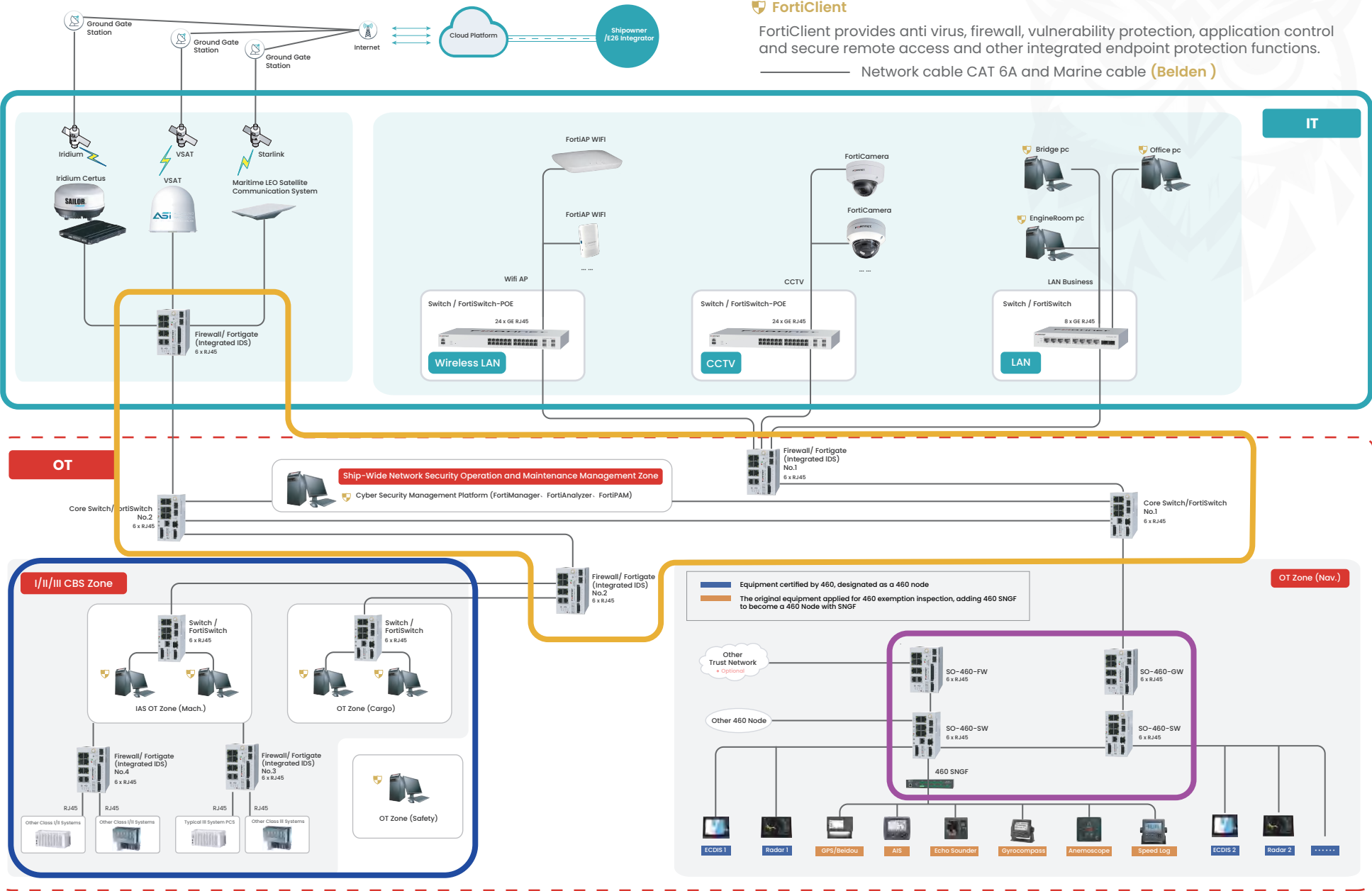
# Main Classification Society Registration Symbols

| China Classification Society (CCS) <div></div> |                                       |                                     | Det Norske Veritas (DNV) <div></div> |                  |                                     |
|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------|
| The Additional Notation for Ship Cybersecurity.                                                                                   | The Ship Cyber Resilience Level.      |                                     | Class Notation (Default Suc)                                                                                            | Security Profile | Class Notation (Additional Systems) |
|                                                                                                                                   | Ship-Level                            | CBS-Level                           |                                                                                                                         |                  |                                     |
| M                                                                                                                                 | Compliant With Cyber Risk Management. | -                                   | Cyber Secure                                                                                                            | SP0              | ( + )                               |
| P                                                                                                                                 | SL0 (Corresponding to IACS UR E26).   | SL0 (Corresponding to IACS UR E27). | Cyber Secure (Essential) (Corresponding to IACS UR E26 & E27).                                                          | SP1              |                                     |
| S                                                                                                                                 | SL1                                   | SL1                                 |                                                                                                                         | SP2              |                                     |
|                                                                                                                                   | SL2                                   | SL2                                 | Cyber Secure (Advanced)                                                                                                 | SP3              |                                     |
|                                                                                                                                   | SL3                                   | SL3                                 |                                                                                                                         | SP4              |                                     |
|                                                                                                                                   | SL4                                   | SL4                                 |                                                                                                                         |                  |                                     |

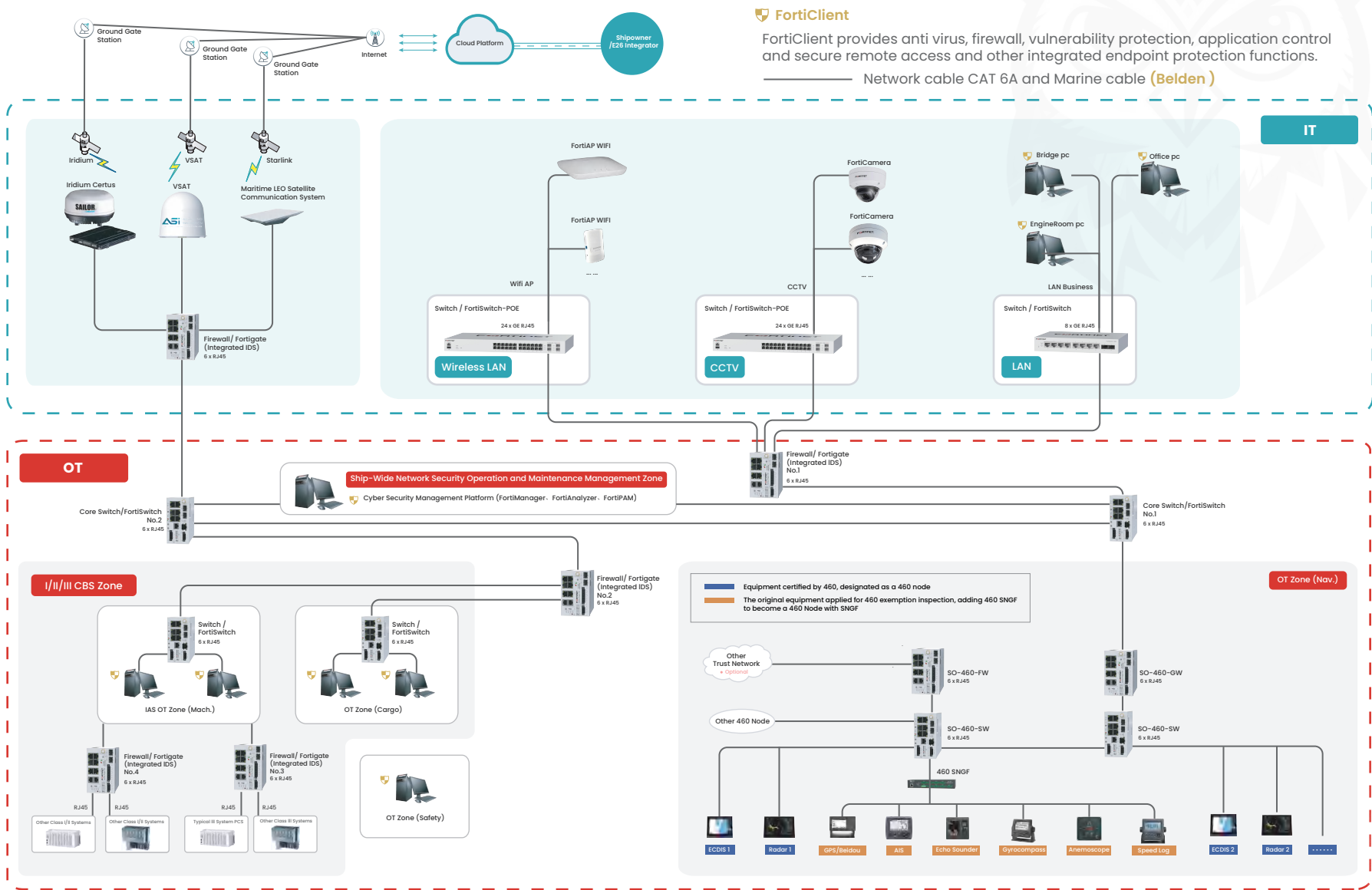
YOUR SHIP'S GUARDIAN IN THE DIGITAL AGE

# Ship Cybersecurity (IT+OT) Solution

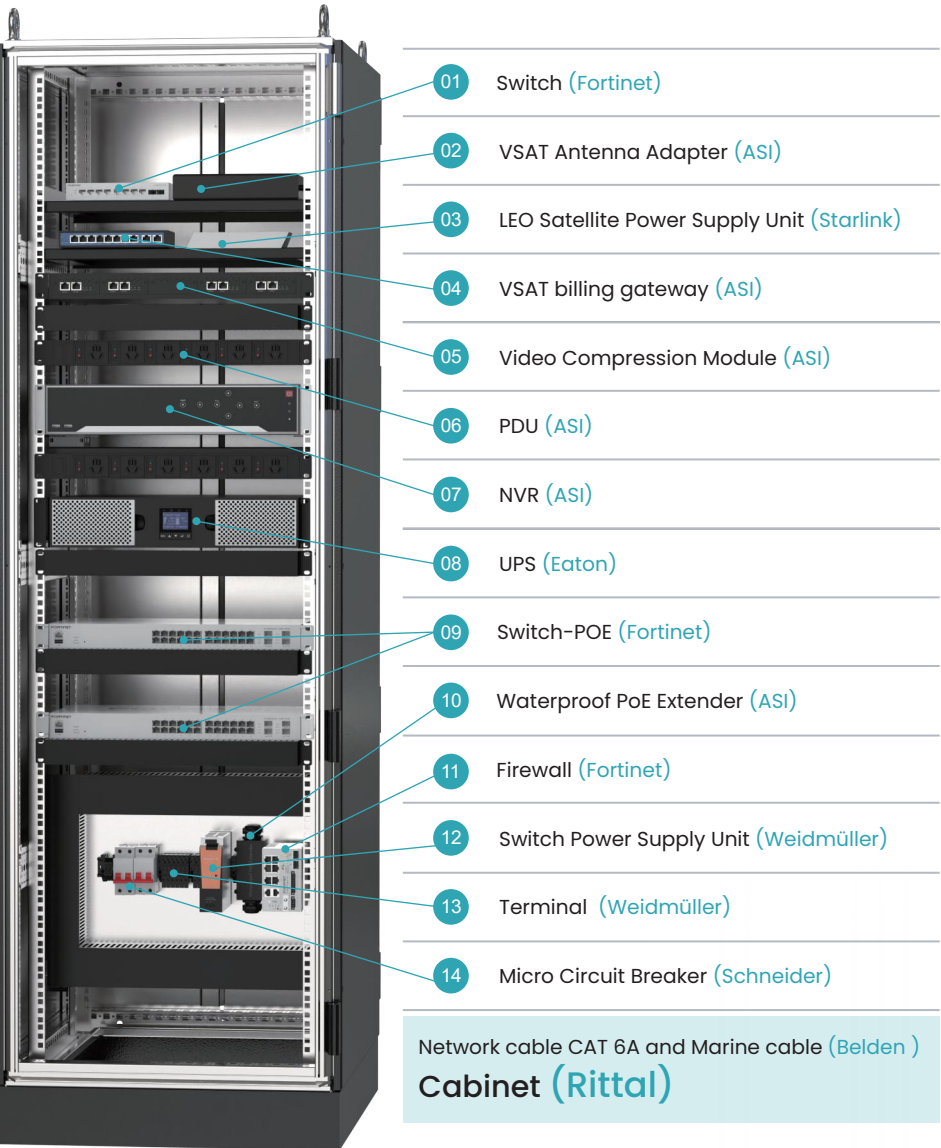
- 3.1 Cyber Resilience Ships ( IACS UR E26)
- 3.2 Cyber Resilience of On-Board Systems and Equipment (IACS UR E27)
- 3.3 Navigation and Radiocommunication Physical Component (IEC 61162-460)
- 3.4 Network Information Integration System (IT)



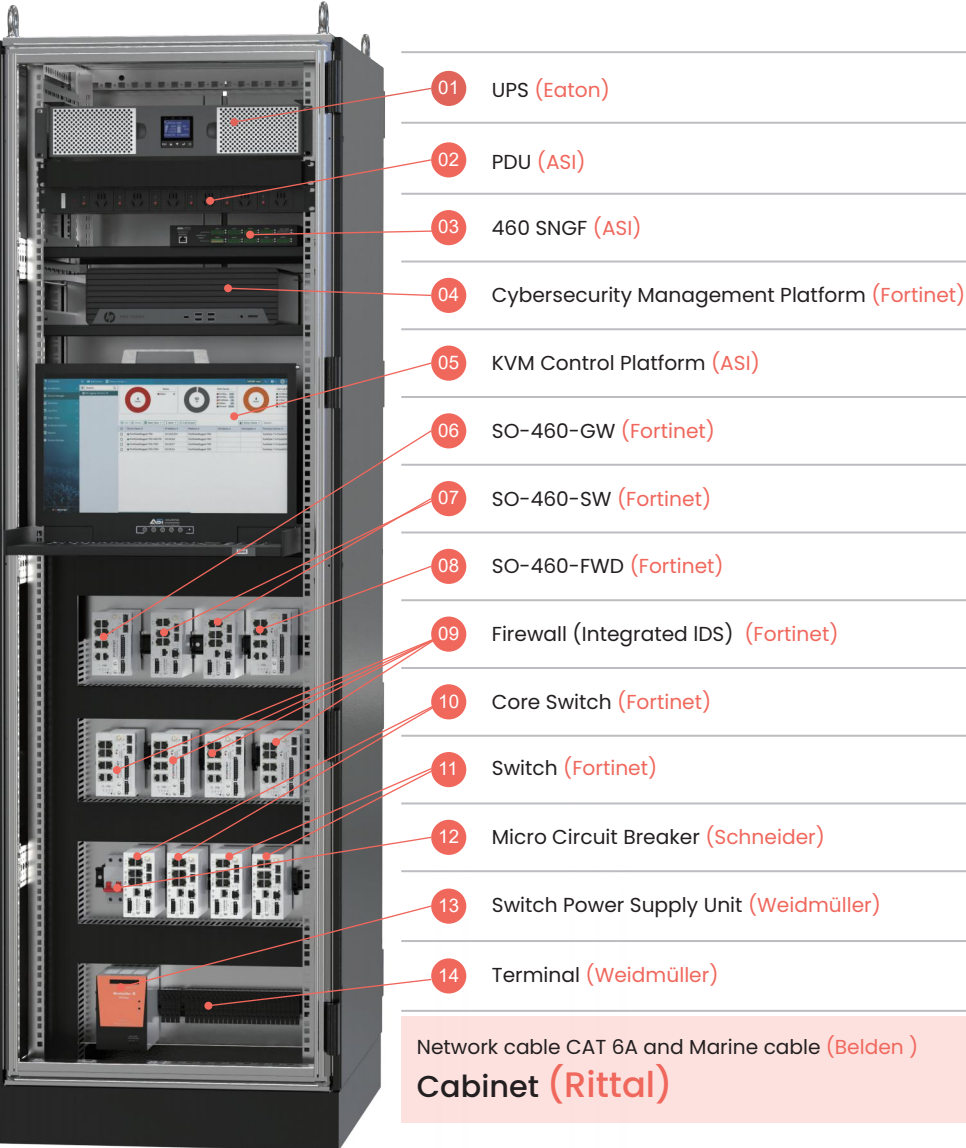
# Ship Cybersecurity (IT+OT) Solution



## IT Cabinet



## Cybersecurity Cabinet





YOUR SHIP'S GUARDIAN IN THE DIGITAL AGE

3.1 Cyber Resilience Ships (IACS UR E26)

3.2 Cyber Resilience of On-Board Systems and Equipment (IACS UR E27)

3.3 Navigation and Radiocommunication Physical Component (IEC 61162-460)

3.4 Network Information Integration System (IT)

# Core Objectives

## Enhancing Ship Cyber Resilience

E26 Systems integrator treating ships as integrated cyber entities to ensure the secure integration of IT (Information Technology) and OT (Operational Technology) equipment and system throughout their lifecycle. This comprehensive approach safeguards against cyber threats while minimizing risks to personnel, the environment, and vessel safety.

 **Design**  
Security-first architecture planning

 **Construction**  
Secure implementation practices

 **Commissioning**  
Validation and testing protocols

 **Operation**  
Continuous monitoring and updates

## Establishing a Unified Regulatory Framework

E26 Systems integrator providing mandatory cybersecurity baseline requirements for the global maritime industry, promoting accountability among stakeholders in both technical and managerial aspects.

 **Shipowners**  
Ensuring vessels comply with **E26 certification standards** and maintaining cybersecurity throughout vessel operations.

 **Shipyards**  
Incorporating comprehensive cybersecurity solutions into vessel designs from the ground up.

 **CBS maker**  
Delivering equipment and systems that meet **IEC 62443 standards** or **E27 specifications**.

According to the requirements of the "Guidelines for Ship Cybersecurity," the cybersecurity design for ship products must cover the five key elements of ship network risk management: **Identification, Protection, Detection, Response,** and **Recovery**. Additionally, the design should be systematically structured based on the product's cybersecurity classification.

Device Overview

Statistical time:June 1, 2025

| Device Name                                | Function Product Introduction                                                                                                                                                                                                                   | Corresponding Specification Requirements |                                                    |                                                          |                                                          |                                           |                |                            |                                                                             |                             |                                                     |                                          |                                                      |                                              |
|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|----------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|-------------------------------------------|----------------|----------------------------|-----------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------|------------------------------------------|------------------------------------------------------|----------------------------------------------|
|                                            |                                                                                                                                                                                                                                                 | E26                                      | E27                                                | CCS                                                      |                                                          | DNV                                       |                | ABS                        | BV                                                                          | RINA                        | KR                                                  | RS                                       | LR                                                   | NK                                           |
| Class Notation (E26)                       |                                                                                                                                                                                                                                                 | Rev.1                                    | Rev.1                                              | 2025<br>CyberSecurity<br>(P[SLO])                        |                                                          | 2025<br>Cyber Secure<br>(Essential)       |                | 2025<br>CR                 | 2025<br>Cyber<br>Resilient                                                  | 2025<br>Cyber<br>Resilience | 2025<br>Cyber<br>Resilience                         | 2025<br>Cyber<br>Resilience              | 2025<br>Cyber<br>Resilience                          | 2025<br>Cyber<br>Resilience                  |
| FortiClient                                | A ship terminal protection software integrating white list protection, virus detection, patch management, security baseline inspection, access control and peripheral control.                                                                  | 4.2.3<br>4.2.7                           | SR1.2<br>SR2.3<br>SR2.4<br>SR3.2<br>SR3.3<br>SR7.7 | 4.3.14.1<br>4.3.14.2<br>4.3.18.1<br>4.3.18.2<br>4.3.18.3 |                                                          | 5.3.3<br>5.3.5                            |                | 13.3.3<br>13.3.7           | 3.2.6.2.2<br>3.2.6.3.1<br>3.2.6.4<br>3.2.6.5<br>3.2.6.5.3.-d<br>3.2.6.8.1   | 4.3.4<br>4.3.8              | 2.402.3<br>2.402.7                                  | 2.2.2.3<br>2.2.2.7                       | 2.16.5.c<br>2.16.5.h                                 | 5.4.3(3)<br>5.4.3(7)                         |
| Marine Network Firewall                    | It integrates traditional packet filtering, VPN, application and identity recognition, anti-virus, intrusion prevention, behavior management, application layer content security protection and other comprehensive security defense functions. | 4.2.1<br>4.2.2<br>4.2.4<br>4.4.3         | SR1.2<br>SR2.3<br>SR2.4<br>SR3.2<br>SR3.3<br>SR7.7 | 4.3.6.1<br>4.3.6.2<br>4.3.7.2<br>4.3.8.1<br>4.3.8.2      | 4.3.10.1<br>4.3.13.2<br>4.3.14.3<br>4.3.15.2<br>4.3.15.3 | 3.2.1<br>3.2.2<br>4.6.3<br>4.6.4<br>5.3.4 | 5.4.8<br>5.4.9 | 13.3.1<br>13.3.2           | 3.2.6.2.1<br>3.2.6.3.3<br>3.2.6.5.1<br>3.2.8.4                              | 4 3 2<br>4 3 3<br>4.3.7     | 2.402.1<br>2.402.2<br>2.404.3<br>2.402.4<br>2.402.6 | 2.2.2.1<br>2.2.2.2<br>2.2.2.5<br>2.2.4.3 | 2.1.6.5.b                                            | 5.4.3(1)<br>5.4.3(4)<br>5.4.3(6)<br>5.4.5(3) |
| Marine Network Core Switch                 | Core switch designed for marine vessels, enabling high-speed, stable data transmission and ensuring secure, reliable communication in harsh maritime environments.                                                                              | 4.2.1<br>4.2.5<br>4.4.2                  | SR 2.11                                            | 4.3.5.4<br>4.3.5.5<br>4.3.7.1<br>4.3.7.3                 | 4.3.17.1<br>4.3.17.3<br>4.3.18.4<br>4.3.21.7             |                                           |                |                            |                                                                             |                             |                                                     |                                          |                                                      |                                              |
| CSMS<br>(Cyber Security Management System) | Used for unified management of ship network security Device, including auditing logs, analyzing event behavior, and configuring device parameters uniformly.                                                                                    | 4.1.1<br>4.2.6<br>4.3.1                  | SR1.1                                              | 4.3.2.1<br>4.3.2.2<br>4.3.5.1<br>4.3.13.1<br>4.3.13.3    | 4.3.15.4<br>4.3.15.5<br>4.3.16.1<br>4.3.23.1             | 5.4.9<br>5.4.12                           |                | 13.1.1<br>13.7.3<br>13.3.6 | 3.2.5.2<br>3.2.6.5.3.f<br>3.2.6.7.3<br>5.2.4.1.3.23<br>5.4.7.1.1<br>6.2.7.3 | 422<br>4.3.7                | 2.401.1<br>2.402.6<br>2.403.1                       | 2.2.1.1<br>2.2.2.6<br>2.2.3.1            | 2.16.4<br>2.16.5.f<br>2.16.5.g<br>2.16.5.h<br>2.16.6 | 5.4.4(2)                                     |

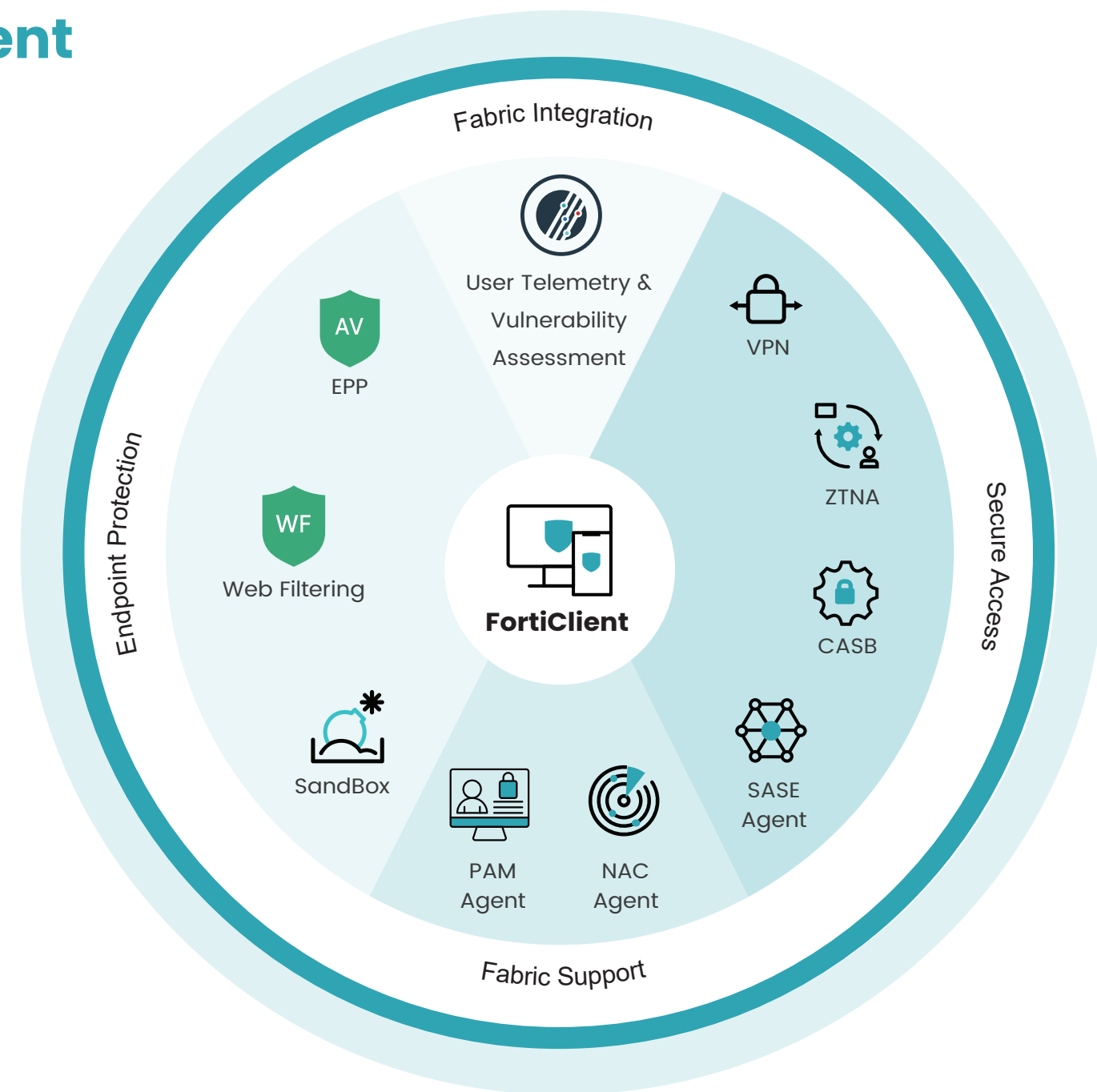
| Document (E26)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Systems integrator |              |               | Shipowner |        |             |             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------|---------------|-----------|--------|-------------|-------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Design             | Construction | Commissioning | Operation | 1st AS | AS          | SS          |
| Approved Supplier Documentation [5]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Submit             | Maintain     | Maintain      | Maintain  |        |             |             |
| Zones and Conduit Diagram [5.1.1]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Submit             | Maintain     | Maintain      | Maintain  |        |             |             |
| Cybersecurity Design Description [5.1.2]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Submit             | Maintain     | Maintain      | Maintain  |        |             |             |
| Vessel Asset Inventory [5.1.3]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Submit             | Maintain     | Maintain      | Maintain  |        |             |             |
| Risk Assessment for the Exclusion of CBS [5.1.4] <sup>NOTE 1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Submit             | Maintain     | Maintain      | Maintain  |        |             |             |
| Description of Compensating Countermeasures [5.1.5] <sup>NOTE 1</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Submit             | Maintain     | Maintain      | Maintain  | Submit | Submit      | Demonstrate |
| Ship Cyber Resilience Test Procedure [5.2.1]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    | Submit       | Demonstrate   | Maintain  |        |             |             |
| Ship Cybersecurity and Resilience Program [5.3.1]<br>– Management of Change (Moc) [4.1.1.4.4]<br>– Management of Software Updates [4.1.1.4.4]<br>– Management of Firewalls [4.2.1.4.4]<br>– Management of Malware Protection [4.2.3.4.4]<br>– Management of Access Control [4.2.4.4.4]<br>– Management of Confidential Information [4.2.4.4.4i]<br>– Management of Remote Access [4.2.6.4.4]<br>– Management of Mobile and Portable Devices [4.2.7.4.4]<br>– Detection of Security Anomalies [4.3.1.4.4]<br>– Verification of Security Functions [4.3.2.4.4]<br>– Incident Response Plans [4.4.1.4.4]<br>– Recovery Plans [4.5.1.4.4] |                    |              |               | Maintain  | Submit | Demonstrate |             |

| Ship cybersecurity and resilience program [5.3.1]     | FortiAnalyzer | FortiPAM | FortiManager | EMS | CyberR Platform |
|-------------------------------------------------------|---------------|----------|--------------|-----|-----------------|
| Management of change (MoC) [4.1.1.4.4]                |               |          | ✓            |     | ✓               |
| Management of software updates [4.1.1.4.4]            |               |          | ✓            |     |                 |
| Management of firewalls [4.2.1.4.4]                   | ✓             |          | ✓            |     |                 |
| Management of malware protection [4.2.3.4.4]          |               |          |              | ✓   |                 |
| Management of access control [4.2.4.4.4]              |               | ✓        | ✓            |     |                 |
| Management of confidential information [4.2.4.4.4]    |               | ✓        |              |     |                 |
| Management of remote access [4.2.6.4.4]               | ✓             | ✓        |              | ✓   |                 |
| Management of mobile and portable devices [4.2.7.4.4] |               |          |              | ✓   |                 |
| Detection of security anomalies [4.3.1.4.4]           | ✓             |          |              |     |                 |
| Verification of security functions [4.3.2.4.4]        |               |          |              |     | ✓               |
| Incident response plans [4.4.1.4.4]                   |               |          |              |     | ✓               |
| Recovery plans [4.5.1.4.4]                            |               |          |              |     | ✓               |

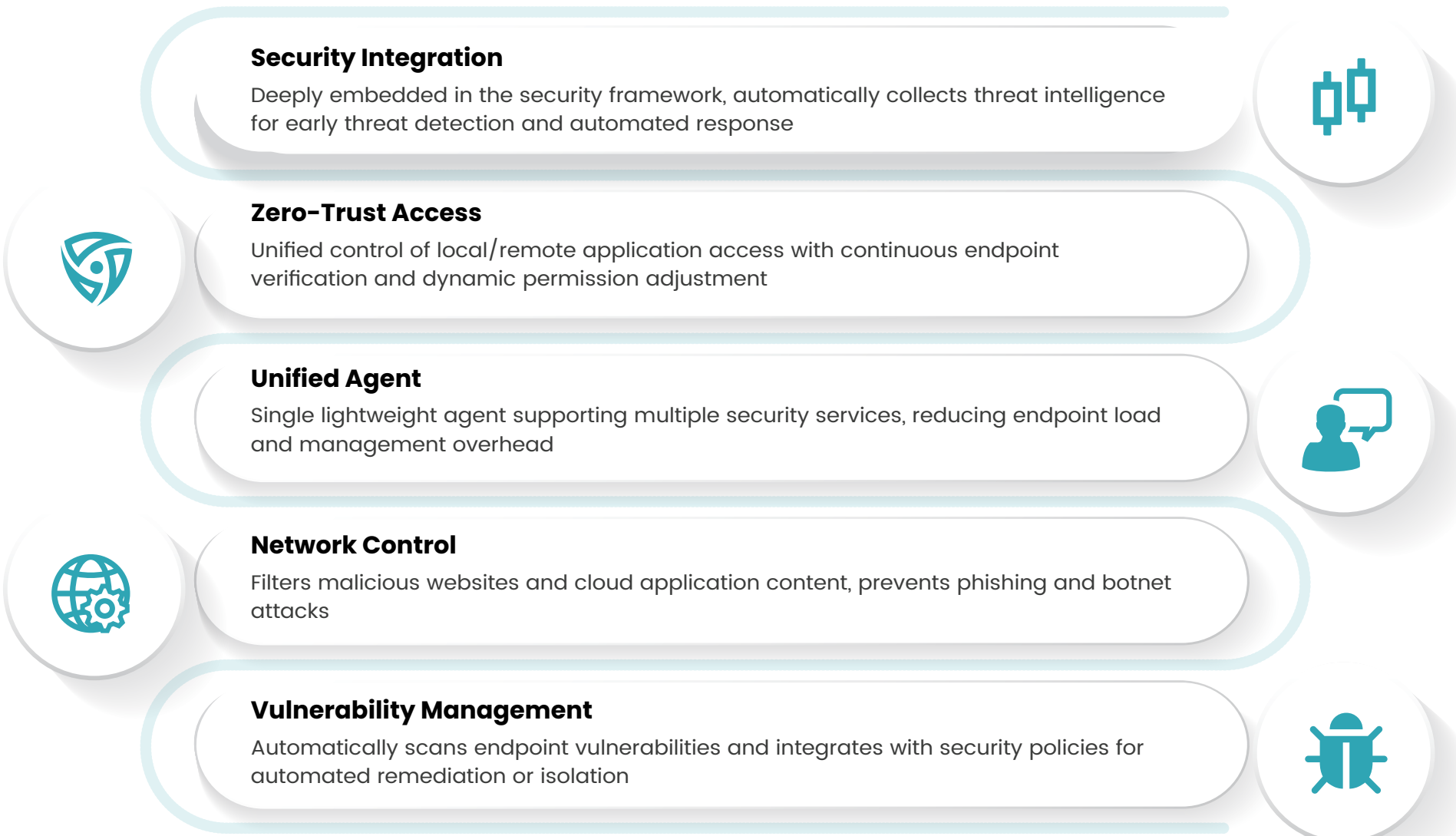
Cybersecurity Management System Composed of FortiAnalyzer, FortiPAM, FortiManager, EMS, CyberR Platform.



# FortiClient



# Product Benefits



# Extended Advantages



### Automated Patch Management

Centrally manages endpoint patches, supports offline devices, and ensures systems remain up-to-date with the latest security fixes.



### Advanced Threat Protection

Integrates cloud sandboxing and global threat intelligence to analyze files in real time, blocking unknown malware and exploit attempts.



### Ransomware Protection

Uses behavior-based detection to identify ransomware activity and allows one-click restoration of tampered files.



### Flexible Licensing Models

Offers both device-based and user-based licensing to suit different enterprise procurement preferences.



### Smart VPN Experience

Supports split tunneling to reduce latency, and includes auto-connect, multi-factor authentication, and other features that balance user experience and security.



### Seamless Zero-Trust Transition

Combines VPN and zero-trust capabilities within the same agent, reducing the risk and complexity of migrating to a zero-trust architecture.

# Extended Advantages

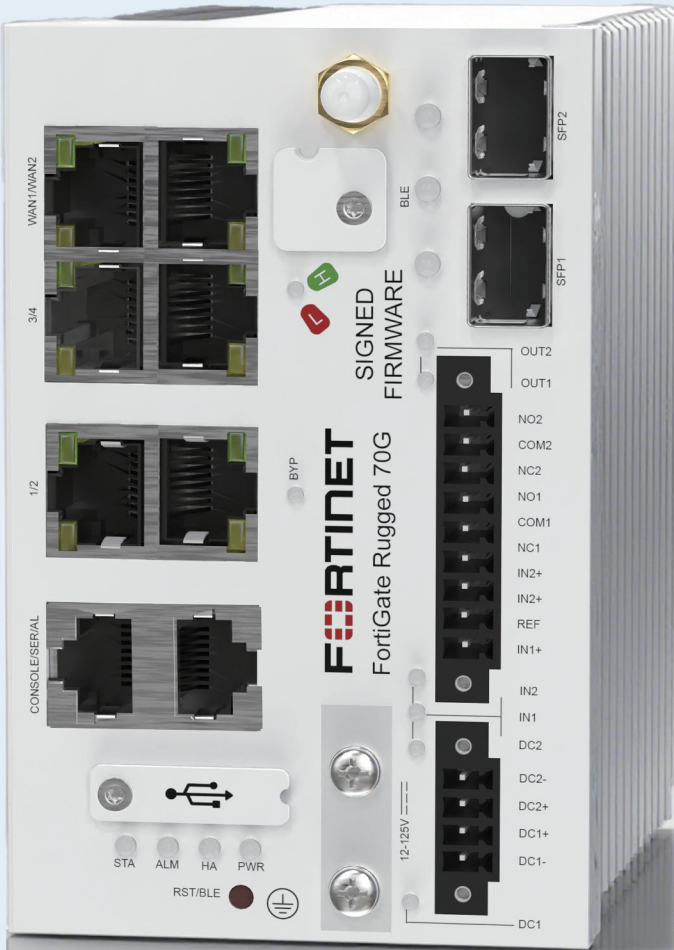
## FortiGate Integration

- Unified endpoint visibility**  
Real-time endpoint and user identity monitoring directly on the firewall console.
- Dynamic access control**  
Automatically adjusts firewall policies based on endpoint security posture groups.
- Automated threat response**  
Detects and isolates suspicious or compromised endpoints to stop lateral movement.
- Application-based split tunneling**  
Routes VPN traffic by application type to optimize bandwidth and user experience.
- Granular content filtering**  
Blocks web pages by keywords and controls access to specific YouTube channels.

## FortiSASE Integration

- Endpoint-to-cloud integration**  
FortiClient license included with SASE subscription for seamless coverage.
- Centralized endpoint management**  
Unified enrollment, policy deployment, and status monitoring via the SASE platform.
- Global encrypted tunnels**  
Automatically establishes encrypted connections to the nearest SASE PoP worldwide.
- Risk-based access control**  
Endpoint vulnerability assessments feed real-time ZTNA application access policies.
- Enhanced endpoint protection**  
Integrates local anti-malware and behavioral detection within the SASE architecture.

# Marine Network Firewall



## FGR-70G

**Industrial Network Security:** Protecting SCADA, DCS, and other OT environments.

**Critical Infrastructure:** Power, Oil & Gas, Transportation, Water Utilities.

**Harsh Environment Deployment:** Factory floors, substations, rail lines, outdoor cabinets.

**Network Segmentation:** Implementing security isolation between IT/OT networks or within OT networks.

**Secure SD-WAN:** Providing secure, optimized WAN connectivity for remote and branch offices.

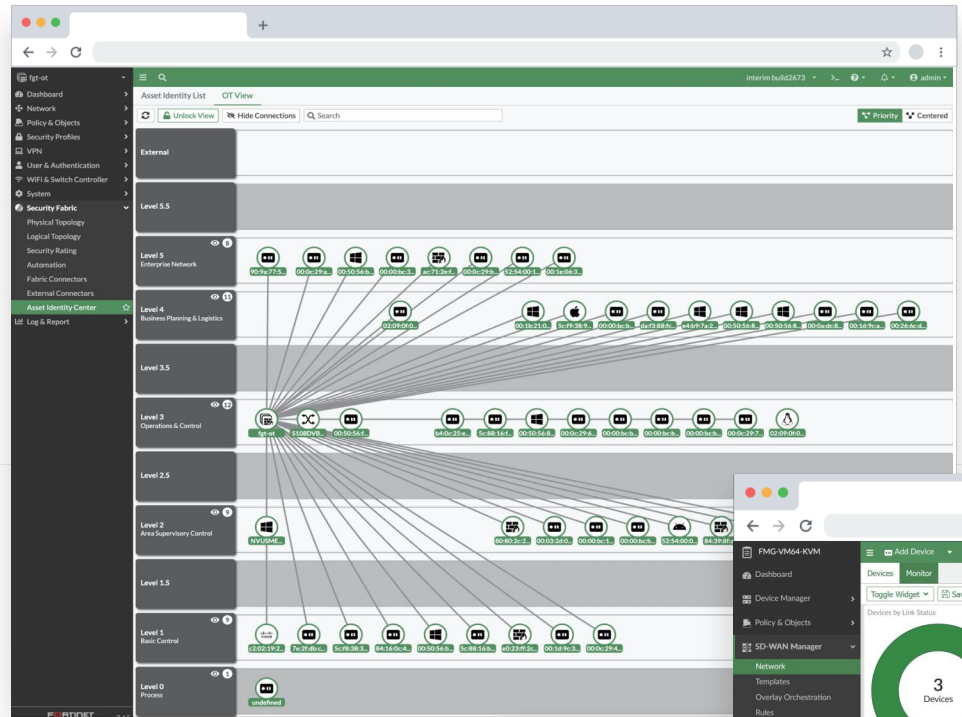
The **SO-460-FWD** is a network forwarding device specifically designed for maritime network environments. It securely transmits data between the 460-Network and other trusted networks (such as other 460-Networks or onboard control networks).

Compliant with the IEC 61162-460 standard, it ensures secure cross-network communication by providing data flow isolation and filtering capabilities.

The **SO-460-GW** is a high-performance maritime cybersecurity ateway specifically engineered for shipboard network environments, fully compliant with the IEC 61162-460 standard.

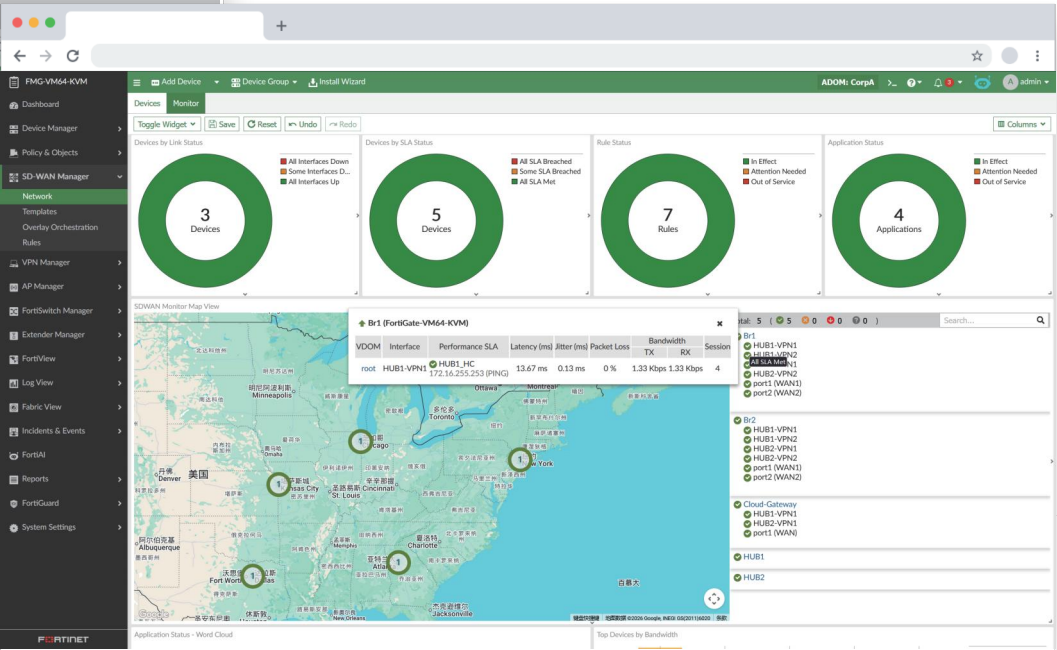
Functioning as a secure bridge between 460-Network and untrusted networks (such as the Internet), it delivers robust security protection and access control capabilities to safeguard vessel networks against external threats.

# Software



OT focused dashboard for assets and analytics

Visibility and control for OT applications and protocols



# Core Functional Features

## 01 Rugged Industrial Design

Fanless, IP40 rating, DIN-rail mountable, operational in extreme temperatures from -40°C to 75°C.

## 02 High-Performance NGFW

Integrates Next-Generation Firewall (NGFW), Intrusion Prevention System (IPS), and Advanced Threat Protection (ATP) capabilities.

## 03 Purpose-Built Security Processor

Equipped with Fortinet's proprietary FortiSP5 Security Processing Unit (SPU) for hardware-accelerated security performance.

## 04 Comprehensive Security Services

Supports AI-powered FortiGuard security subscriptions, including IPS, Anti-Malware, Web Filtering, Sandboxing, and more.

## 05 Integrated Secure SD-WAN

Supports application-based intelligent link steering, load balancing, and WAN optimization.

## 06 OT/Industrial Security

Provides Deep Packet Inspection (DPI), visibility, and control for 80+ OT industrial protocols, featuring an OT asset dashboard.

## 07 Universal ZTNA

Supports both agent-based (via FortiClient) and agentless (via proxy portal) Zero Trust Network Access for granular application access control.

## 08 Centralized Management

Enables unified policy management and automated operations via FortiManager, with log analysis and reporting via FortiAnalyzer.

## 09 Network Segmentation

Supports security zone and policy-based network segmentation and microsegmentation to prevent lateral threat movement.

## 10 High Availability

Supports Active-Active, Active-Passive, and clustering modes for business continuity.

## 11 Hardware Security Module

Features a Trusted Platform Module (TPM) for secure key storage and management.



# Product Specifications

| Model                 | FGR-70G                                                                                                                                                                                                                                                                                          |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IPS                   | 2.5 Gbps                                                                                                                                                                                                                                                                                         |
| NGFW                  | 1.5 Gbps                                                                                                                                                                                                                                                                                         |
| ATP                   | 1.3 Gbps                                                                                                                                                                                                                                                                                         |
| Interfaces            | <ul style="list-style-type: none"><li>• 6 GE RJ45 ports</li><li>• 2 SFP slots</li><li>• 1 bypass pair</li><li>• MicroSD card slot</li><li>• Digital I/O module</li><li>• Variant with dual 5G modems and GPS</li><li>• Dual SIM (active/active)</li><li>• Redundant 12V-125V DC inputs</li></ul> |
| IP Rating             | IP40                                                                                                                                                                                                                                                                                             |
| Power Supply          | 12V to 125V DC redundant dual inputs, 2 pins per terminal block, negative or positive ground, DC cables not included                                                                                                                                                                             |
| Operating Temperature | (-40°C to 75°C)                                                                                                                                                                                                                                                                                  |
| Humidity              | 5% to 95% non-condensing                                                                                                                                                                                                                                                                         |

| Model                   | FGR-70G                                                                                                                                                                                   |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electric Power Industry | IEC 61850-3 and IEEE 1613 Certified                                                                                                                                                       |
| EMC                     | EN 55032:2015 + A1:2020, Class A, EN 55035:2017 + A11:2020<br>ETSI EN 301 489-1 V2.2.3 (2019-11), ETSI EN 301 489-17 V3.2.4 (2020-09)                                                     |
| Health and Safety       | IEC 62368-1:2014, 2nd Ed. EN 62368-1:2014<br>IEC 62368-1:2018, 3rd Ed. EN IEC 62368-1:2020                                                                                                |
| Regulatory Compliance   | FCC Part 15 Class A, RCM, VCCI Class A, CE, UL/cUL, CB<br>USGv6/IPv6                                                                                                                      |
| RF                      | EN 300 328 V2.2.2 (2019-07)<br>EN 18031-1:2024<br>EN IEC 62311:2020<br>EN 50665:2017<br>FCC Part 15 Subpart C 15.247<br>FCC 47 CFR Part 2.1091<br>ISED RSS-247 Issue 3<br>RSS-102 Issue 6 |
| RoHS                    | EN IEC 63000:2018<br>EN 50581:2012                                                                                                                                                        |
| Rolling Stock Industry  | EN 50155:2021<br>EN 50121-1:2017<br>EN 50121-3-2:2016 + A1:2019<br>EN 50121-4:2016 + A1:2019<br>EMC, Environmental, Shock and Vibration Certified                                         |

# Marine Network Core Switch



## FSR-108F

Built for harsh environments, FortiSwitch Rugged delivers enterprise performance with enhanced durability and OT compliance. It seamlessly integrates with FortiGate via FortiLink for centralized security management.

### Key Features:

- Rugged Design: IP30/IP40 rated, fanless, operates in extreme temperatures
- OT Ready: Supports IEEE 1588v2, HSR/PRP, and meets IEC 61850-3 standards
- High Performance: Gigabit+ speeds on all ports with auto-negotiation
- Power Delivery: PoE/PoE++ for cameras, sensors, and wireless APs
- Easy Management: Zero-touch deployment and unified security policy with FortiGate

Ideal for industrial networks requiring reliable, secure connectivity in challenging conditions.

The **SO-460-SW** is a network switch specifically designed for maritime network environments, compliant with the IEC 61162-460 standard, to deliver high-security and high-reliability network connectivity. As a core infrastructure component of the 460-Network, it connects multiple 460-Nodes and other network devices, ensuring efficient and secure data transmission across the network.

# Product characteristics

|                                                                                                         |                                                                                                      |
|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>Durable</b><br>MTBF > 25 years, IP30/IP40 protection for harsh environments                          | <b>Zero-Touch Deployment</b><br>Auto-discovery and simplified setup for rapid network                |
| <b>Industrial-Ready</b><br>IEEE 1588v2 timing, HSR/PRP zero-loss redundancy, compliant with IEC 61850-3 | <b>Layer 2/3 Options</b><br>Models available for different networking needs                          |
| <b>Fanless Design</b><br>Fully passive cooling with no moving parts                                     | <b>Advanced PoE Support</b><br>PoE across all models, PoE++ on select models for cameras/sensors/APs |
| <b>High Performanc</b><br>Gigabit+ speeds on all ports with auto-negotiation for backward compatibility | <b>Basic NAC Included*</b><br>Secure IoT device onboarding via FortiGuard IoT service (OT            |
| <b>Flexible Mounting</b><br>DIN-rail and rack-mount options                                             | <b>Redundant Power Inputs</b><br>Eliminates downtime from single power source failure                |

# Product Specifications

| Model                       | FSR-108F                                                                                                                                                                                                           |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Total Network Interfaces    | 6x 1G/100M/10M RJ45<br>2x 1G/100M SFP                                                                                                                                                                              |
| Packet Buffers              | 1.5 MB                                                                                                                                                                                                             |
| DRAM                        | 1 GB DDR4                                                                                                                                                                                                          |
| FLASH                       | 32 MB SPI + 1 GB NAND                                                                                                                                                                                              |
| Ingress Protection          | IP40                                                                                                                                                                                                               |
| ACL                         | 32 MB SPI + 1 GB NAND                                                                                                                                                                                              |
| Power Input                 | Redundant input terminals                                                                                                                                                                                          |
| Input Voltage Range         | +/-12V to +/-57V DC                                                                                                                                                                                                |
| Operating Temperature Range | Operating temperature: -40°C to 75°C<br>-40°C to 65°C (sealed enclosure - 0m/s air flow)<br>-40°C to 70°C (vented enclosure - 0.2m/s air flow)<br>-40°C to 75°C (fan or blower equipped enclosure - 1m/s air flow) |
| Humidity                    | 5% to 90% RH non-condensing                                                                                                                                                                                        |

| Model         | FSR-108F                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EMI           | FCC, CE, RCM, VCCI, BSMI (Class A), ICES, UKCA                                                                                                                                                                                                                                                                                                                                                                 |
| EMS           | CE, UKCA                                                                                                                                                                                                                                                                                                                                                                                                       |
| RoHS and WEEE | Compliant                                                                                                                                                                                                                                                                                                                                                                                                      |
| FCC           | FCC Part 15, Subpart B, Class A                                                                                                                                                                                                                                                                                                                                                                                |
| CE            | Electro Magnetic Compatibility (EMC) Directive: 2014/30/EU<br>EN 55032:2015:2020, Class A, CISPR 32<br>EN 55035:2017/A11:2020<br>ESD: IEC61000-4-2<br>Radiated RF (RS): IEC61000-4-3<br>EFT: IEC61000-4-4<br>Surge: IEC61000-4-5<br>Conducted RF (CS): IEC61000-4-6<br>Power Frequency Magnetic Field: IEC61000-4-8<br>Emission standard for industrial environments: EN 61000-6-4<br>IEC 61850-3 Ed 2.0: 2013 |
| ISED          | ICES-003:2020 Issue 7, Class A                                                                                                                                                                                                                                                                                                                                                                                 |
| RCM           | AS/NZS CISPR 32, Class A                                                                                                                                                                                                                                                                                                                                                                                       |

# Cyber Security Management System

**FortiManager**

FortiManager centrally manages and automates security policies across Fortinet devices.

01

**FortiAnalyzer**

FortiAnalyzer centralizes logs and provides unified threat analytics with AI.

02

**FortiPAM**

FortiPAM secures privileged access with zero-trust, automation, and full session control.

03

**FortiClient EMS**

Unified endpoint management with automated security and access controls.

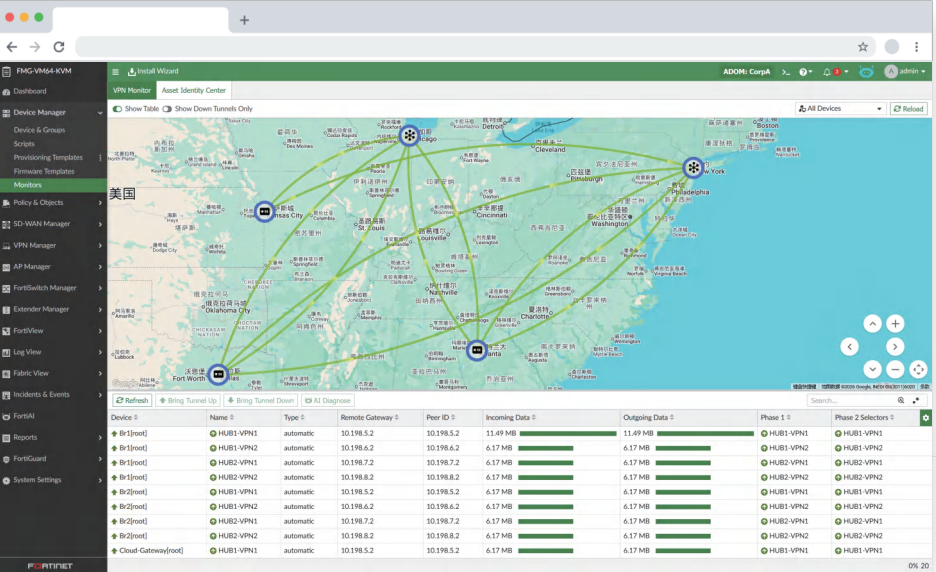
04

**CyberR Platform**

Unified visibility, asset control, secure logs, and remote cybersecurity maintenance.

05

# FortiManager



## Key Features

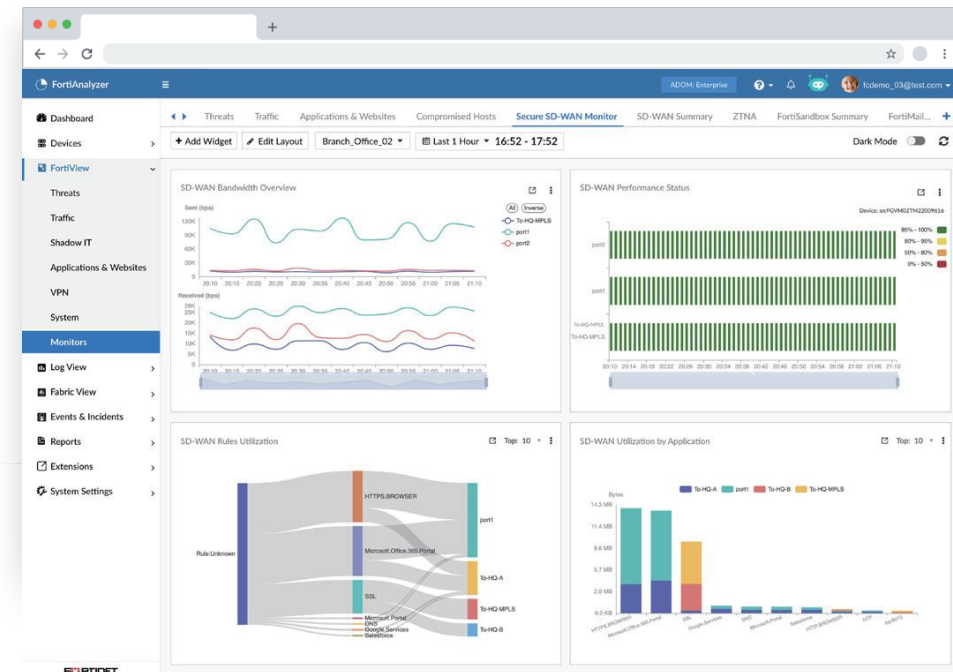
- Unified Management** – Control all Fortinet devices & updates from one console.
- Offline Updates** – Distribute security content to isolated networks.
- Simple SD-WAN** – Easily deploy and manage large SD-WAN networks.
- Automation Tools** – Reduce work with APIs, scripts, and templates.
- Auto-Configuration** – Automate setup for firewalls, switches, and Wi-Fi.
- Multi-tenant Control** – Separate customer data and manage multiple domains securely.
- Flexible Scaling** – Grow capacity with cluster support for large deployments.

## Highlights

- Transform network operation and speed up troubleshooting with add-on FortiAI subscription
- Centrally manage network and security policies
- Centralize distribution of security content, signatures, and firmware images
- Simplify configuration, deployment, and maintenance
- Reduce complexity and costs
- Automate workflows and configurations
- Separate customer data and manage domains
- Automate backups with streamlined software and security updates



# FortiAnalyzer



## Highlights

- Centralized log collection. Unified visibility across network and security assets
- Real-time system and network monitoring
- Prebuilt reports and dashboards
- Built-in SIEM and SOAR
- Advanced threat detection
- Regularly updated SOC Automation Content packs
- Generative AI assistant
- Built-in threat intelligence. Enriches events with real-time context from FortiGuard
- Scalable data lake and XDR-ready. Unified data lake connects events across endpoints, network and cloud
- Designed to complement and work alongside any SIEM or logging solution customers use

## Key Features

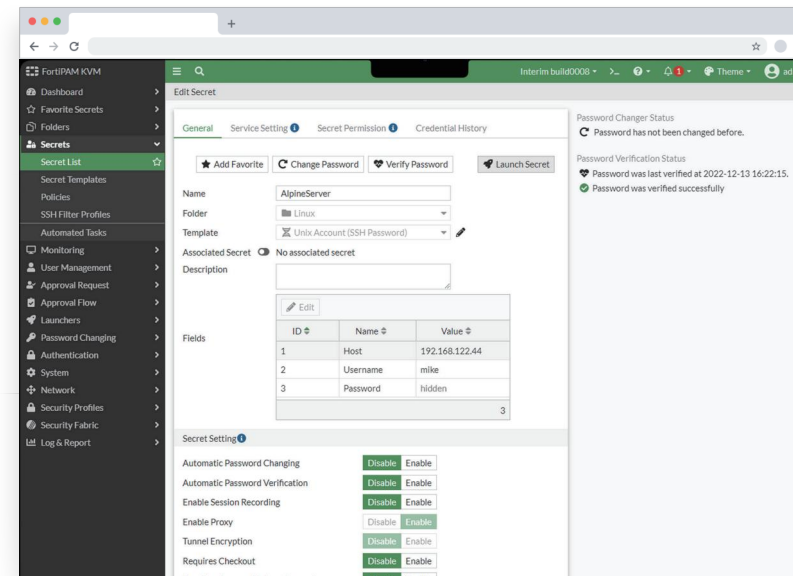
**Unified Data Lake** – Collects logs from all sources for full visibility and faster threat detection.

**Smart Analytics** – Connects events to find hidden attacks with automated response.

**Live Threat Intel** – Uses FortiGuard feeds for proactive defense.

**Automation & Reporting** – Handles alerts automatically and provides compliance dashboards.

# FortiPAM



## Key Features

**Enterprise PAM Platform** – High-availability credential & session management with API integrations.

**Secure Sessions & Credentials** – AES256 encryption, credential obfuscation, SSH/Windows filtering.

**Zero-Trust Access** – Real-time endpoint validation via FortiClient EMS.

**Session Monitoring & DLP** – Full recording, antivirus/DLP to block data leaks.

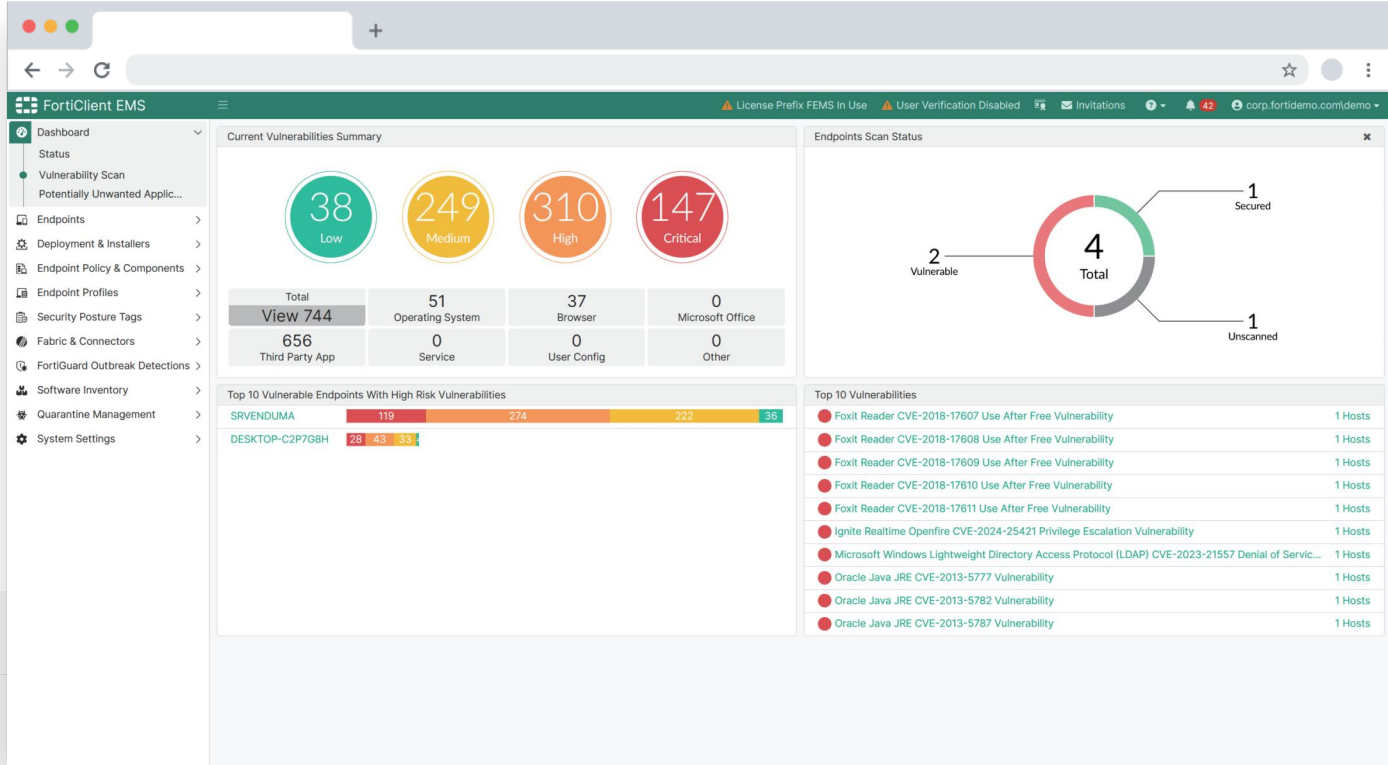
**Automated Credential Management** – Auto-discovery, rotation & secure certificate storage.

**Integrated Authentication** – SAML/RADIUS/LDAP/AD + Fortinet ecosystem (EMS/Token/Authenticator/Sandbox).

## Highlights

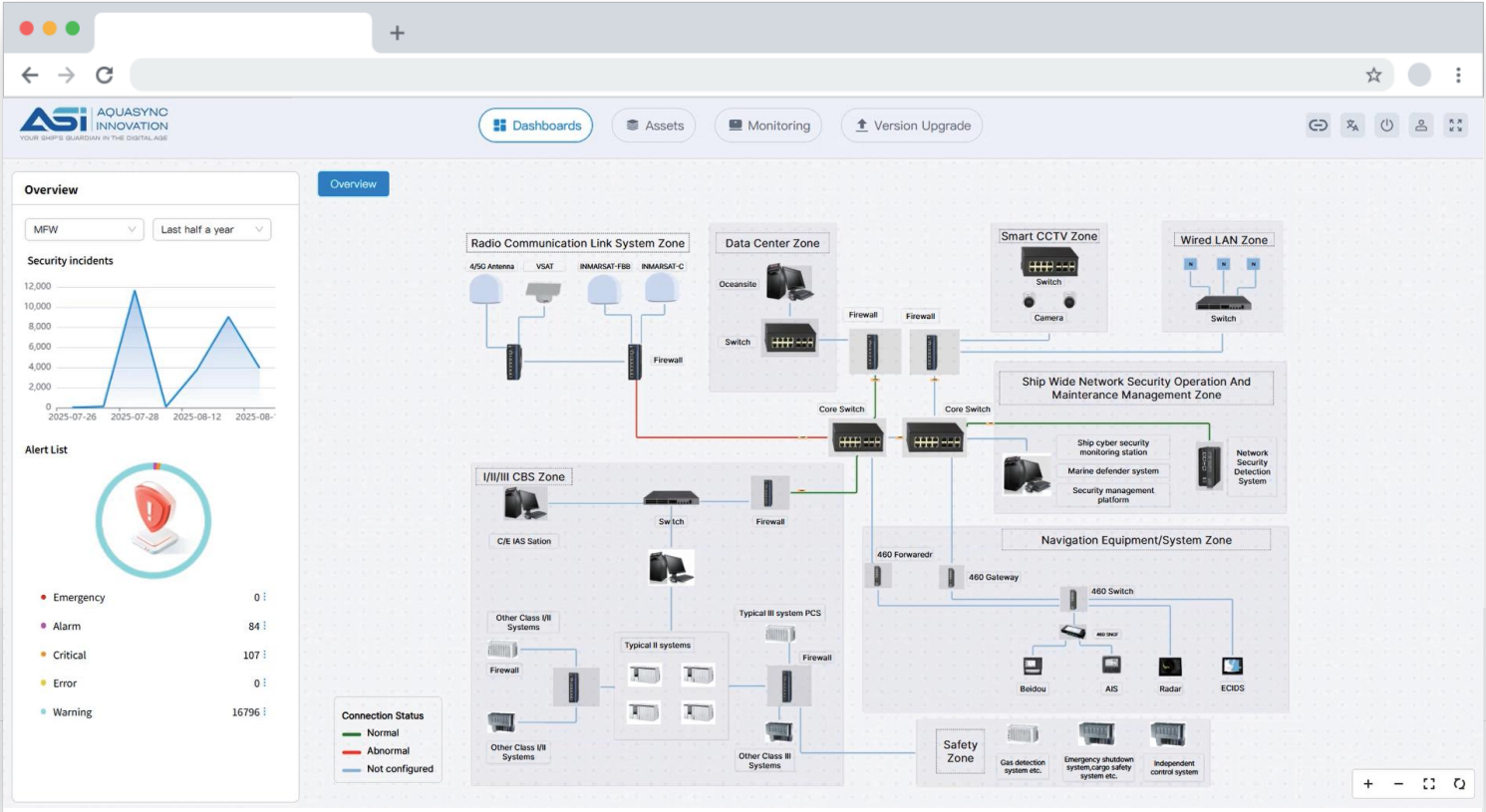
- Encrypted Credentials: AES256 encryption & obfuscation protect stored and in-use secrets.
- Certificate Vault: Secure storage for certificates/keys with full audit logging.
- ZTNA Access Control: Continuous endpoint validation ensures only trusted users/devices connect.
- Session Monitoring: Records and can terminate privileged sessions with video playback.
- Automated Service Accounts: Auto-discovers, imports, and rotates service credentials.
- MFA & SSO: Supports SAML, RADIUS, LDAP, and AD for secure login.
- Audit Trail: Centralized, tamper-proof logs for compliance.
- Fortinet Integration: Works with FortiClient EMS, FortiToken, FortiAuthenticator, and FortiSandbox.

# FortiClient EMS



- Simple and user-friendly UI
- Remote FortiClient deployment
- ZTNA orchestration
- Real-time dashboard
- Software inventory management
- Active Directory (AD) and Microsoft Entra ID integration
- Central quarantine management
- Automatic group assignment
- Dynamic access control
- Automatic email alerts
- Supports custom groups
- Remote actions
- On-premise and cloud-based options
- Zero trust tagging rules

# CyberR Platform



- Visualizes the connectivity and real-time status of all onboard cybersecurity devices, providing clear insights into security alerts, perimeter protection, and network monitoring.
- Supports seamless import/export of vessel asset inventories with customizable editing options to meet diverse operational needs.
- Enables detailed log auditing and traceability, with strict control and recording of secure access activities.
- Empowers users to perform remote operations on cybersecurity devices, with full session recording and playback for accountability and review.

YOUR SHIP'S GUARDIAN IN THE DIGITAL AGE

3.1 Cyber Resilience Ships (IACS UR E26)

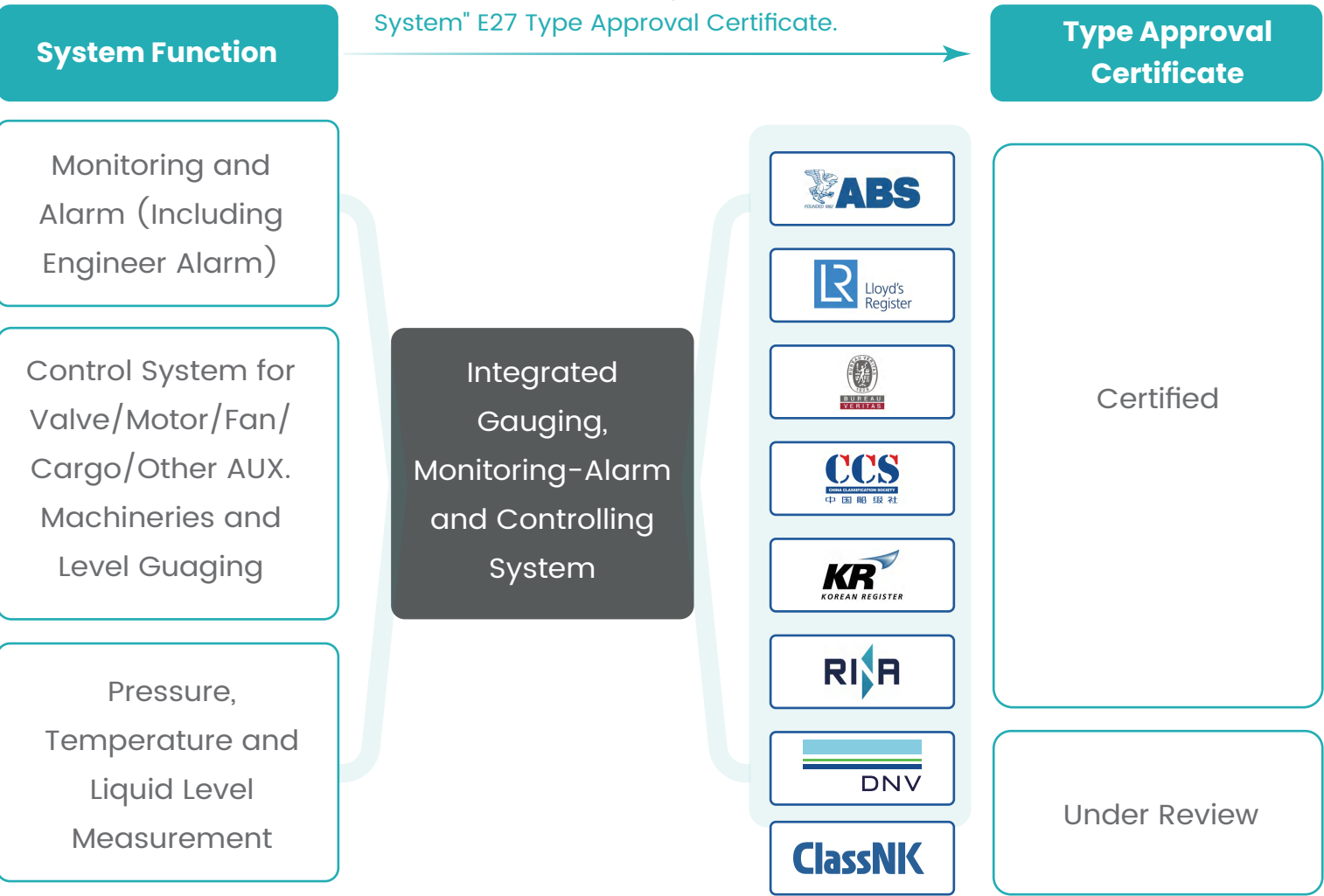
3.2 Cyber Resilience of On-Board Systems and Equipment (IACS UR E27)

3.3 Navigation and Radiocommunication Physical Component (IEC 61162-460)

3.4 Network Information Integration System (IT)

IACS UR E27

The Progress of the ASI's "Integrated Measurement, Monitoring, Alarm, and Control System" E27 Type Approval Certificate.





# Integrated Gauging, Monitoring-Alarm and Controlling System

ABS Certificate of Product Design Assessment GCS800 (Endorsements: CyberSecurity)



# Integrated Gauging, Monitoring-Alarm and Controlling System

LR Type Approval Certificate GCS800

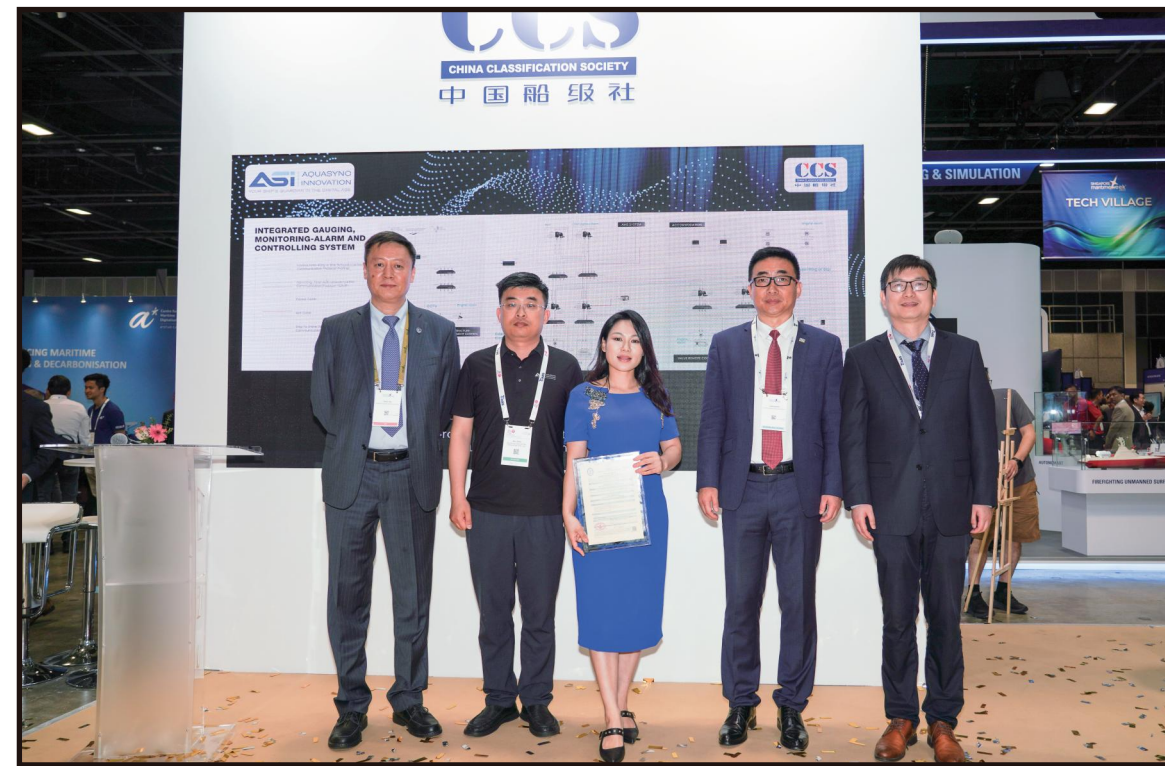




# Integrated Gauging, Monitoring-Alarm and Controlling System

## CCS Certificate of Type Approval (Meet Cybersecurity Level SL2)

Integrated Gauging, Monitoring-Alarm and Controlling System includes AMS, VRCS & LGS and CMS, which has obtained the world's first type approval certificate with cybersecurity (cybersecurity SL2 level) issued by CCS and supports real-time communication between ship and shore.



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                            |                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>中国船级社</b>                                                               | 证书编号 Certificate No.<br><b>ZG23P1B00350</b> |
| <b>CHINA CLASSIFICATION SOCIETY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                            |                                             |
| <b>型式认可证书</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                            |                                             |
| <b>CERTIFICATE OF TYPE APPROVAL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                            |                                             |
| <p>兹证明本证书所述工厂具备按照标准的要求生产并保证所产品的能力和条件。<br/>This is to certify that the manufacturer stated in the certificate meets the requirements of the standards listed below and is available with the ability and conditions to produce the products described in the certificate.</p>                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                            |                                             |
| 制造厂 Manufacturer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                            |                                             |
| 中控海洋装备(浙江)有限公司<br>AQUASYNC INNOVATION (ZHEJIANG) CO., LTD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                            |                                             |
| 地址 Address                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                            |                                             |
| 中国浙江省杭州市富阳区东洲街道高夫路 209 号 4 幢 308 室, 邮编: 311601<br>Room 308, Building 4, No.209 Gaofu Road, Dongzhou Subdistrict, Fuyang District, Hangzhou City, Zhejiang Province, postal code 311601                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                            |                                             |
| 产品名称 Product                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                            |                                             |
| 综合报警、监测报警和控制系统<br>Integrated Ganging, Monitoring-Alarm and Controlling System                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                            |                                             |
| 附加标志 Notations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                            |                                             |
| 无 Nil.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                            |                                             |
| 认可标准 Approval Standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                            |                                             |
| 1. IACS UR E27 (Rev. 1) 船载系统和设备网络特性<br>1. IACS UR E27 Part 1 & 2 for residence of on-board systems and equipment<br>2. 中国船级社《船舶网络安全指南》(2021) 第 2、3 版<br>Chapter 1, 2, 3 of China Classification Society Guidelines for Ship Cyber Security (2024)<br>3. 其他标准详见备注<br>Other standards are detailed on the additional pages                                                                                                                                                                                                                                                                                                                                                                        |                                                                            |                                             |
| 用于 Intended for                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                            |                                             |
| 船舶 Ships                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                            |                                             |
| 产品说明 Product Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                            |                                             |
| 综合报警、监测报警和控制系统 Integrated Ganging, Monitoring-Alarm and Controlling System (00001)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                            |                                             |
| 名称 Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 属性 (值) Value                                                               | 单位 Unit                                     |
| 产品名称名                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 综合报警、监测报警和控制系统 Integrated Ganging, Monitoring-Alarm and Controlling System |                                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 见附录 See additional page(s)                                                 |                                             |
| 有效期限 Validity Certificate is valid until                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2025年12月30日 Dec. 29, 2025                                                  |                                             |
| 发证机构 Issuing Authority 本社                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 签发日期 Date                                                                  | 2024年08月30日 Aug. 30, 2024                   |
| 注: 本证书的有效性依赖于获证方持续符合认证标准的要求。获证方有责任保持其质量管理体系符合认证标准的要求, 并接受本机构的监督审核。如有不符合项, 请及时采取纠正措施, 并向本机构报告。如获证方未能在规定时间内完成整改, 本机构将暂停或撤销该证书。The certificate remains valid as long as the holder continues to comply with the requirements of the certification standard. The holder has the responsibility to maintain its quality management system conforming to the certification standard and accept the supervision audit by the institution. In case of non-conformities, timely corrective measures shall be taken and reported to the institution. If the certified party fails to complete the rectification within the stipulated time limit, the institution will suspend or revoke the certificate. |                                                                            |                                             |
| 备注 Remarks 如有变更, 请向本社技术部联系。如有其他疑问, 请联系本社市场部。Remarks If there are changes, please contact the technical department of the society. If there are other questions, please contact the marketing department of the society.                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                            |                                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                            |                                             |
| UIN:P024-4267038                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                            |                                             |

第1页共3页 Page 1 of 3

| 证书编号/Certificate No.:ZC23P1900350      附件/Additional Page |                                                                                                                                                                                                                                                                                                                                                                                      |                              |                              |
|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|------------------------------|
| 产品型号/Product Description                                  |                                                                                                                                                                                                                                                                                                                                                                                      |                              |                              |
| 系统名称<br>System Name                                       | 压力、温度、液位测量报警系统<br>Pressure, temperature and liquid level measurement alarm system                                                                                                                                                                                                                                                                                                    |                              |                              |
| 产品型号<br>Type                                              | GC5800-CM-C                                                                                                                                                                                                                                                                                                                                                                          | GC5800-CM-G                  | GC5800-CM-G                  |
| 组成构成<br>System Composition                                | 监控仪（计算机、显示器、UPS）、以太网交换机、电磁阀、控制箱、I/O模块、扩展接线模块、安全栅、报警显示灯、HMI人机界面触摸屏、声光报警器、UPS、报警软件<br>Workstation (computer, monitor), control cabinet (Ethernet switch, power module, controller, I/O module, expansion connection module, barrier, alarm display board, HMI man-machine interface touch screen, audible and visual alarm, fireproofing, UPS, monitoring software).                   |                              |                              |
| PLC 型号/Model                                              | 中间继电器<br>G3 安装                                                                                                                                                                                                                                                                                                                                                                       | 中间继电器<br>G5                  | 西门子 S7300<br>S7-320          |
| 电源<br>Power                                               | 220V AC, 24V DC                                                                                                                                                                                                                                                                                                                                                                      |                              |                              |
| 网络安全等级<br>Cyber Security Class                            | SL2                                                                                                                                                                                                                                                                                                                                                                                  |                              |                              |
| 软件版本<br>Software Version                                  | GC5800-V1.90.00.00<br>VNCADA V2.20.00.00                                                                                                                                                                                                                                                                                                                                             | WinCC V7.8<br>TIA Portal V19 | WinCC V7.8<br>TIA Portal V19 |
| 图纸编号<br>Drawings Approval                                 | NPZ019P00108                                                                                                                                                                                                                                                                                                                                                                         |                              | GC240PP22078                 |
| 认定依据<br>Approval Standard                                 | (1) 中国标准《危险场所电气设计规范》（2024） 其安全通用规范 4 章第 2、3 章<br>Chapter 2 and 3, Part Four of China Classification Society Rules for Classification of Sea-Going Ship Ships 2024 and its Change Notices.<br>(2) 中国标准《危险场所电气设计规范》（2024） 其安全通用规范 4 章第 2 章<br>Chapter 2 and 3, Part Four of China Classification Society Rules for Classification of Sea-Going Ship Ships 2024 and its Change Notices. |                              |                              |

证书编号/Certificate No.:ZC23P1900350      1/5

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |                                  |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------|
|                                | alarm system, HMI main-machine interface touch screen, UPS, monitoring software                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |                                  |
| PLC 型号/Model                   | 中创智盾 GS smart                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 西门子/ Siemens    | 西门子/ Siemens                     |
| 电源                             | GS smart                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5V-120V         | S5-1500                          |
| Power                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 220V AC, 24V DC |                                  |
| 网络安全等级<br>Cyber Security Class |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 | SL2                              |
| 软件版本                           | GCSCenter V1.90.00.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                 | WinCC 8.0                        |
| Software Version               | WinCCADA V21.00.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 | PLA Prol V1.00                   |
|                                | Marine Defender System V21.00.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 | Marine Defender System V21.00.00 |
| 组织机构代码                         | NFT19P003081                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |                                  |
| Drawings Approval No.          | ZUC409P002080                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 | ZUC409P002076                    |
| 可追溯性                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |                                  |
| Approved/Standard              | <p>1) 中国船级社《钢质船舶入级规范》（2024）其变更通知第 2 章第 2.3 章</p> <p>Chapter 2 and 3, Part Four of China Classification Society Rules for Classification of Sea-Going Steel Ships 2024 and its Change Notices</p> <p>2) 中国船级社《钢质船舶入级规范》（2024）其变更通知第 2 章第 2.3 章</p> <p>Chapter 2 and 3, Part Four of China Classification Society Rules for Classification of Sea-Going Steel Ships 2024 and its Change Notices</p> <p>3) 中国船级社《钢质船舶入级规范》（2024）第 1.2、2.3 章</p> <p>Chapter 1, 2, 3 of China Classification Society Guidelines for Ship Cyber Security (2024)</p> <p>4) IACS 127 (Rev.1) 船舶网络安全指南</p> <p>IACS 127 (Rev.1) Cyber resilience of on-board systems and equipment</p> |                 |                                  |
| 备注                             | <p>1) 系统冗余设备, 监测、报警、控制、记录报警、通信选择、轮机报警、故障报警机务安全报警、打印记录功能。System have the function of alarm, monitoring, control, expanded alarm, data selection, engine call, ship emergency safety alarms and printing function.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 |                                  |
| Remarks                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |                                  |

|                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                |             |             |             |
|-----------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------|
| 证书编号/Certificate No.:ZC2028PBK0350      备注/Additional Page                  |  |                                                                                                                                                                                                                                                                                                                                                                                                |             |             |             |
|                                                                             |  | Chapter 2, Part Seven of China Classification Society Rules for Classification of Sea-Going Steel Ships 2024 and its Change Notices<br>(3) 中国船级社《钢质海客船建造规范》(2024) 第 7 章, 第 7 部分<br>Chapter 2, 3rd of China Classification Society Guidelines for Ship Category Society (2024)<br>(4) IACS UR E27 (Rev 1) 船壳系统和设备控制指南<br>IACS UR E27 (Rev 1) Cyber resilience of on-board systems and equipment |             |             |             |
| <b>备注</b><br><b>Remarks</b>                                                 |  | (1) 适用于液货船/Suitable for cargo tank.                                                                                                                                                                                                                                                                                                                                                            |             |             |             |
| <b>网关连接及定位监测系统</b><br><b>Yacht Remote Control and Local Locating System</b> |  |                                                                                                                                                                                                                                                                                                                                                                                                |             |             |             |
| <b>系统名称</b><br><b>System Name</b>                                           |  | <b>GSMB0-VRCU-G</b> <b>GSMB0-VRCU-D</b> <b>GSMB0-VRCU-E</b> <b>GSMB0-VRCU-F</b>                                                                                                                                                                                                                                                                                                                |             |             |             |
| <b>产品型号</b><br><b>Type</b>                                                  |  | <b>GSMB0-VRCU-G</b> <b>GSMB0-VRCU-D</b> <b>GSMB0-VRCU-E</b> <b>GSMB0-VRCU-F</b>                                                                                                                                                                                                                                                                                                                |             |             |             |
| <b>系统描述</b><br><b>System Description</b>                                    |  | 防浪涌（浪涌抑制，浪涌吸收），以太网供电，电路保护、防雷浪、IO 模块、扩展连接器板、IMDI 人机界面数据接口、安全设备、报警系统。                                                                                                                                                                                                                                                                                                                            |             |             |             |
| <b>系统组成</b><br><b>System Composition</b>                                    |  | Workstation (computer, monitor), control cabinet (Ethernet switch, power module, controller, IO module, expansion connector module, battery). IMDI man-machine interface touch screen, alarm display board, audible and visual alarm, UPS, monitoring software.                                                                                                                                |             |             |             |
| <b>P/E 型号 Model</b>                                                         |  | 中拓 Spacon                                                                                                                                                                                                                                                                                                                                                                                      | 西门子 Siemens | 西门子 Siemens | 西门子 Siemens |
| <b>电源</b><br><b>Power</b>                                                   |  | GF                                                                                                                                                                                                                                                                                                                                                                                             | 80-120V     | 80-190V     | E7200       |
| <b>网络安全等级</b><br><b>Cyber Security Class</b>                                |  | SL2                                                                                                                                                                                                                                                                                                                                                                                            |             |             |             |
| <b>软件版本</b>                                                                 |  | GSCSeries V1.90.00.00                                                                                                                                                                                                                                                                                                                                                                          |             | WinCC V8.0  |             |

证书编号/Certificate No.:ZC2028PBK0350    2/6

|                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |                                                      |                     |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------------------------------------|---------------------|
| <p>证 号 编 号 Certificate No. ZC22PRT003030      新 版 Additional Page</p>                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |                                                      |                     |
| <p>系统名称<br/>System Name</p> <p style="text-align: center;">天然气燃料控制、监测和安全系统<br/>Natural gas fuel control, monitoring and safety system</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              |                                                      |                     |
| 产品型号<br>Type                                                                                                                              | GC800-FGCS-A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | GC800-FGCS-C | GC800-FGCS-D                                         | GC800-FGCS-E        |
| 系统组成<br>System Composition                                                                                                                | <p>监控系统（计算机、显示器）、检测控制（控制柜、电源模块、IO模块、通信模块、扩展模块）、安全控制（控制柜、电源模块、IO模块、通信模块、安全栅）、以太网交换机、CPU、IHM（人机界面触摸屏）、声光报警器</p> <p>Workstation (computer, monitor), monitoring control cabinet (control cabinet, power module, IO module, communication module, expansion connection module), security control cabinet (control cabinet, power module, IO module, communication module, expansion connection module, buzzer), Ethernet switch, CPU, IHM (man-machine interface touch screenable and visual alarm)</p> |              |                                                      |                     |
| PLC 型号 Model                                                                                                                              | 中恒 Supcon G3 主控                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 中恒 Supcon G5 | 西门子 Siemens S7-1200                                  | 西门子 Siemens S7-1500 |
| 电源<br>Power                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              | 220V AC, 24V DC                                      |                     |
| 网络安全模块<br>Cyber Security Class                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |              | SL2                                                  |                     |
| 软件版本<br>Software Version                                                                                                                  | GC800-A V1.80.00.00<br>V5-CASDA V2.00.00.00                                                                                                                                                                                                                                                                                                                                                                                                                                                         |              | WinCC V6<br>TIA Portal V10                           |                     |
| 图纸版本号<br>Drawing Approval No.                                                                                                             | Marine Defender System V2.20.00.00<br>ZC22-PPV20058<br>ZC22-APPV20070                                                                                                                                                                                                                                                                                                                                                                                                                               |              | Marine Defender System V2.20.00.00<br>ZC22-APPV20075 |                     |

|                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                     |              |
|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------|
| 证书编号 Certificate No.: ZCZP318P03030                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 签发日期 Date of Issue                  |              |
| Software Version                                                           | VISCADA V2.20.00.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | TIA Portal V19                      |              |
| Marine Defective System Y2.20.00.00                                        | Marine Defective System Y2.20.00.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Marine Defective System Y2.20.00.00 |              |
| 制造商名称<br>Drawing Approval No.                                              | NP17PP0022081<br>ZCZ049720081                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | NP17PP0022081<br>ZCZ049720081       |              |
| 认可标准<br>Approval Standard                                                  | (1) 中国船级社《钢质海船入级规范》(2014)《起重设备规范 4 章第 2、3 章<br>Chapter 2 and 3 of Part Four of China Classification Society Rules for Classification of Sea-Going Steel Ships 2014 and its Change Notices<br>(2) 中国船级社《钢质海船入级规范》(2014)《起重设备规范 4 章第 2、3 章<br>Chapter 2 and Part Seven of China Classification Society Rules for Classification of Sea-Going Steel Ships 2014 and its Change Notices<br>(3) 中国船级社《船舶轴系安全规范》(2016) 1.1.2、1.2、3 章<br>Chapter 1.2, 1.3 of China Classification Society Guidelines for Ship Cyber Security (2016)<br>(4) IACS I827 (Rev.1) 船机系统设计和建造指南<br>IACS I827 (Rev.1) Cyber security of on-board systems and equipment |                                     |              |
| 备注<br>Remarks                                                              | (1) 液位监控系统仅适用于液位报警和液位保护。<br>The level gauging system is only suitable for the level monitoring and the cargo hold.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                     |              |
| 机舱智能报警系统及轮机引擎器系统<br>Engine room intelligent alarm system and engine system |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                     |              |
| 系统名称<br>System Name                                                        | Engine room intelligent alarm system and engine system                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     |              |
| 产品型号<br>Type                                                               | GC5800-AMS-B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | GC5800-AMS-B                        | GC5800-AMS-F |
| 系统组成<br>Composition                                                        | 此部分：计算机、显示器、以太网交换机、电话机、打印机、信号报警单元、电源、电话机、UPS、扩展报警模块、交换机、打印机、报警报警单元、MOP-ASP 报警单元、MIM、人机界面报警单元、UPS、通信机、Workstation (computer, monitor, control cabinet (Ethernet switch, power module, controller), signal acquisition unit (controller, power module, I/O module, expansion connector module, battery, printer, extended alarm board, handset, engine                                                                                                                                                                                                                                                                                   |                                     |              |
| 证书编号 Certificate No.: ZCZP318P03030 3/6                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                     |              |

| 证书编号 Certificate No.: ZCZSP1900330 备注 Additional Page |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 认可标准<br>Approval Standard                             | <p>(1) 中国船级社:《钢质海船入级规范》(2024) 及其变更附录第 4 篇第 2、3 章<br/>Chapter 2 and 3 of China Classification Society Rules for Classification of Sea-Going Steel Ships 2024 and its Change Notes</p> <p>(2) 中国船级社:《钢质内河入级规范》(2024) 及其变更附录第 2 篇第 2 章<br/>Chapter 2, Part Seven of China Classification Society Rules for Classification of Sea-Going Steel Ships 2024 and its Change Notes</p> <p>(3) 中国船级社:《钢质内河入级规范》(2024) 及其变更附录第 11、12 章<br/>Chapter 11 and 12 of China Classification Society Rules for Ships Using Natural Gas Fuel 2024 and its Change Notes</p> <p>(4) 中国船级社:《钢质内河船舶安全指南》(2024) 第 1、2、3 章<br/>Chapter 1, 2, 3 of China Classification Society Guidelines for Ship Cyber Security (2024)</p> <p>(5) IACS UR127 (Rev 1) 船载系统和设备网络安全指南<br/>IACS UR127 (Rev 1) Cyber security and equipment</p> |
| The End                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 中国船级社浙江分社/CCS Zhejiang Branch                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |



## KR Certificate of Type Approval (Meet UR E27 Cybersecurity)



## RINA Certificate of Type Approval (Meet UR Rules for the Classification of Ship)

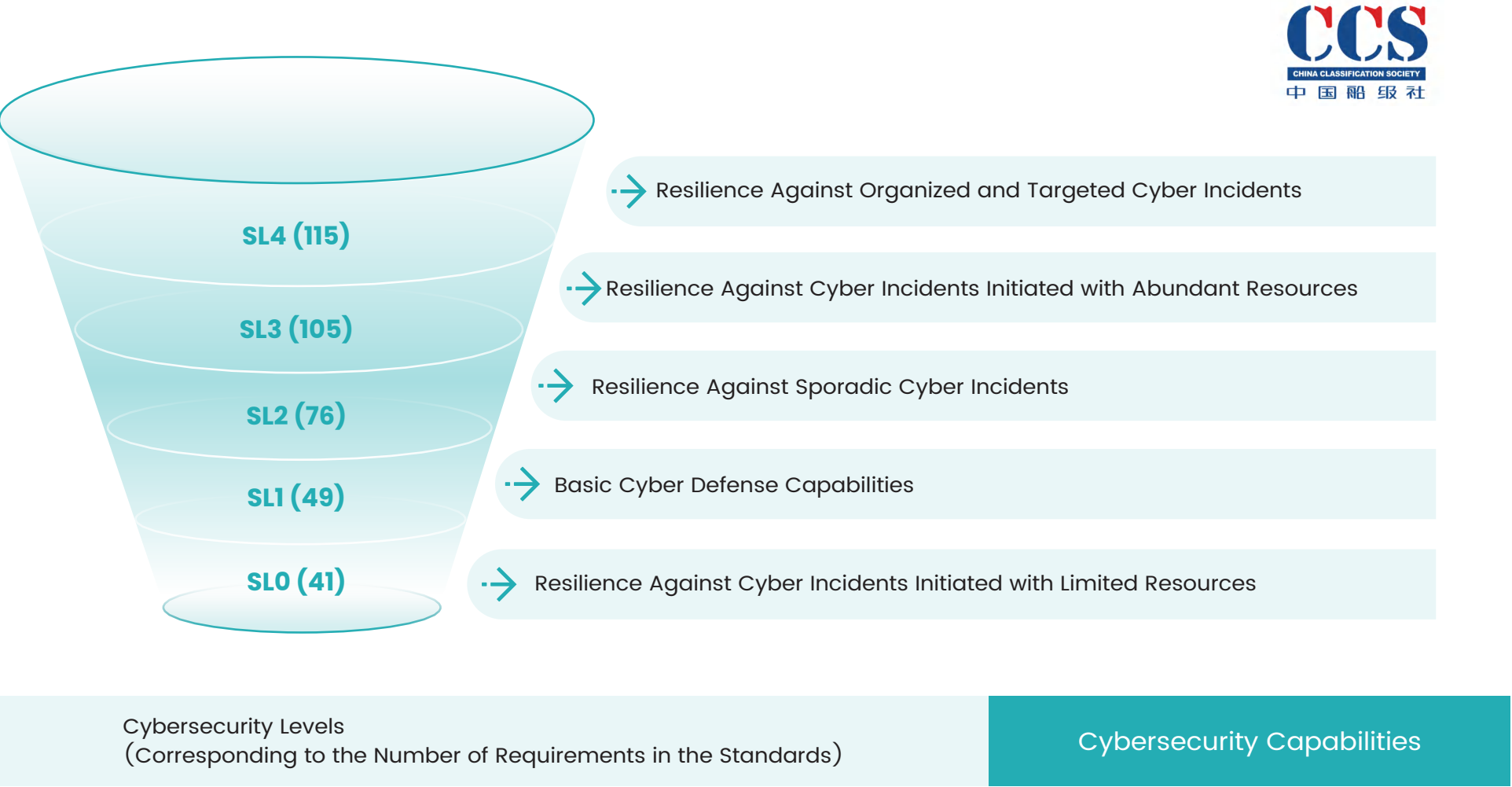
# RINA Certificate of Type Approval (Meet UR IACS UR E27 Rev.1 Cyber Resilience of On-board systems and equipment)

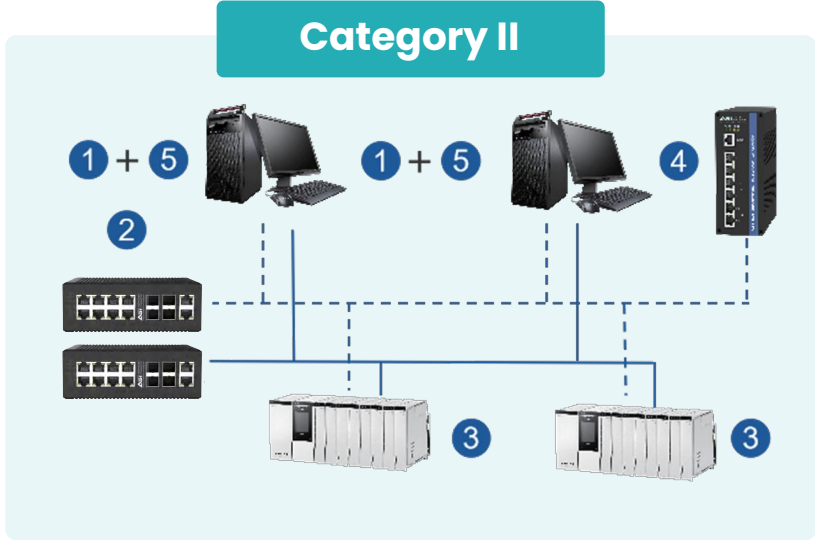
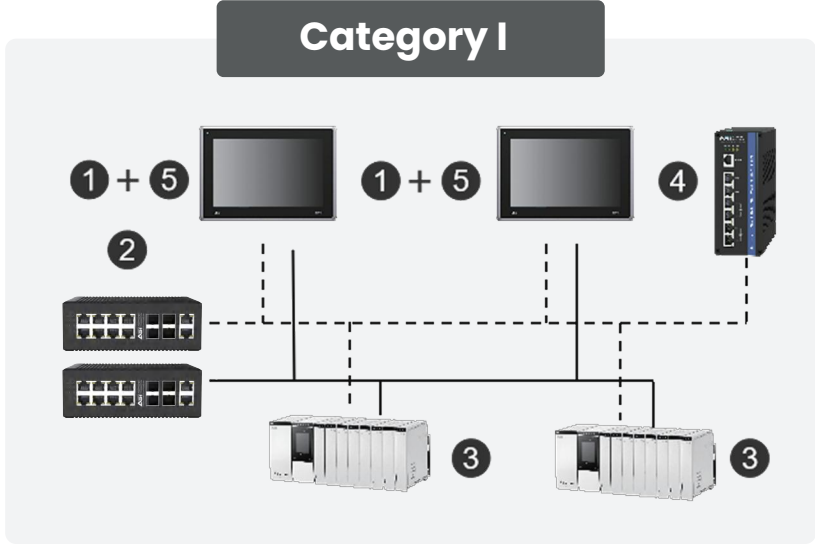


# Interpretation of CBS Cybersecurity Requirements

|                                                                                                                                                                                                                                                                                        |                                                                                                                                                                               |                                                                                                                                                                                                                                       |                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The "Guidelines on Ship Cybersecurity" 2024, Chapter 2 and Chapter 3, respectively, elaborate on CBS Cybersecurity requirements, levels, and the requirements for CBS inspection/evaluation. The Cybersecurity requirements for CBS are developed from the following 7 aspects:</p> | <p><b>Identification and Authentication</b></p> <p>Identify and authenticate all users (personnel, software processes, and devices) before granting access to the system.</p> | <p><b>Usage Control</b></p> <p>Assign permissions to identified and authenticated users (personnel, software processes, or devices) to perform authorized operations requested by the system, and monitor the use of permissions.</p> | <p><b>System Integrity</b></p> <p>Ensure the integrity of the system to prevent unauthorized operations.</p>                                 |
| <p><b>Data Confidentiality</b></p> <p>Ensure the confidentiality of data in communication channels and storage areas to prevent unauthorized disclosure.</p>                                                                                                                           | <p><b>Restricted Data Flow</b></p> <p>Segment the system into zones and conduits to limit unnecessary data flow.</p>                                                          | <p><b>Incident Response</b></p> <p>Respond to actions that violate Cybersecurity requirements, notify relevant personnel, report necessary evidence, and take measures upon discovering incidents.</p>                                | <p><b>Resource Availability</b></p> <p>Ensure the availability of the system to prevent critical services from being impacted or denied.</p> |

# CBS Cybersecurity Classification Levels





| System Categories                  | Domestic Series Models of CBS                                                       | International Series Models of CBS                                                  |
|------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| CBS Core Functional Components     | ① Monitoring Station (Touchscreen + SCADA + Configuration Software)                 | ① Monitoring Station (WINDOWS+SCADA + Configuration Software)                       |
|                                    |  |  |
| Additional Cybersecurity Equipment | ② Switch<br>③ PLC & I/O Modules                                                     | ④ Marine Network Firewall<br>⑤ Marine Defender System (software)                    |

# CBS Components – Specification Comparison Table (SL0)

In the CBS system, the components work together complementarily to meet the requirements of Security Level 0 (SL0). Each component provides protection against various threats to the CBS system, with the detailed network security clauses that each component meets as follows:

| Core Functional Modules of CBS |           |                   | Additional Network Security Equipment |                        |
|--------------------------------|-----------|-------------------|---------------------------------------|------------------------|
| ①                              | ②         | ③                 | ④                                     | ⑤                      |
| Monitoring Station             | Switch    | PLC & I/O Modules | Marine Network Firewall               | Marine Defender System |
| 35 Clauses                     | 2 Clauses | 11 Clauses        | 9 Clauses                             | 7 Clauses              |

“As indicated in the table above, to achieve Network Security Level SL0, the system must include both a ship network firewall and ship endpoint security software.”



YOUR SHIP'S GUARDIAN IN THE DIGITAL AGE

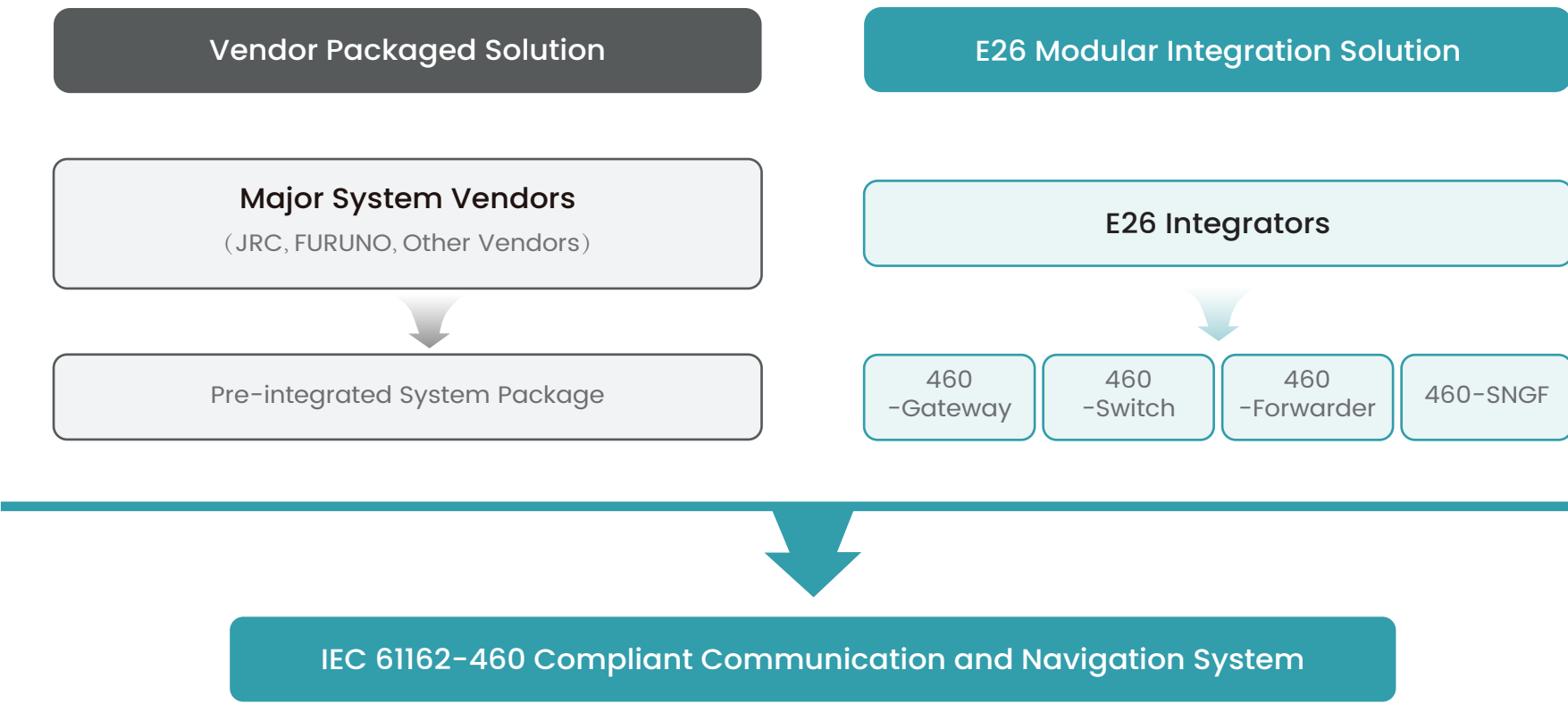
3.1 Cyber Resilience Ships (IACS UR E26)

3.2 Cyber Resilience of On-Board Systems and Equipment (IACS UR E27)

3.3 Navigation and Radiocommunication Physical Component (IEC 61162-460)

3.4 Network Information Integration System (IT)

# 460 Practical Implementation – Communication and Navigation System: IEC 61162–460



# Device Overview

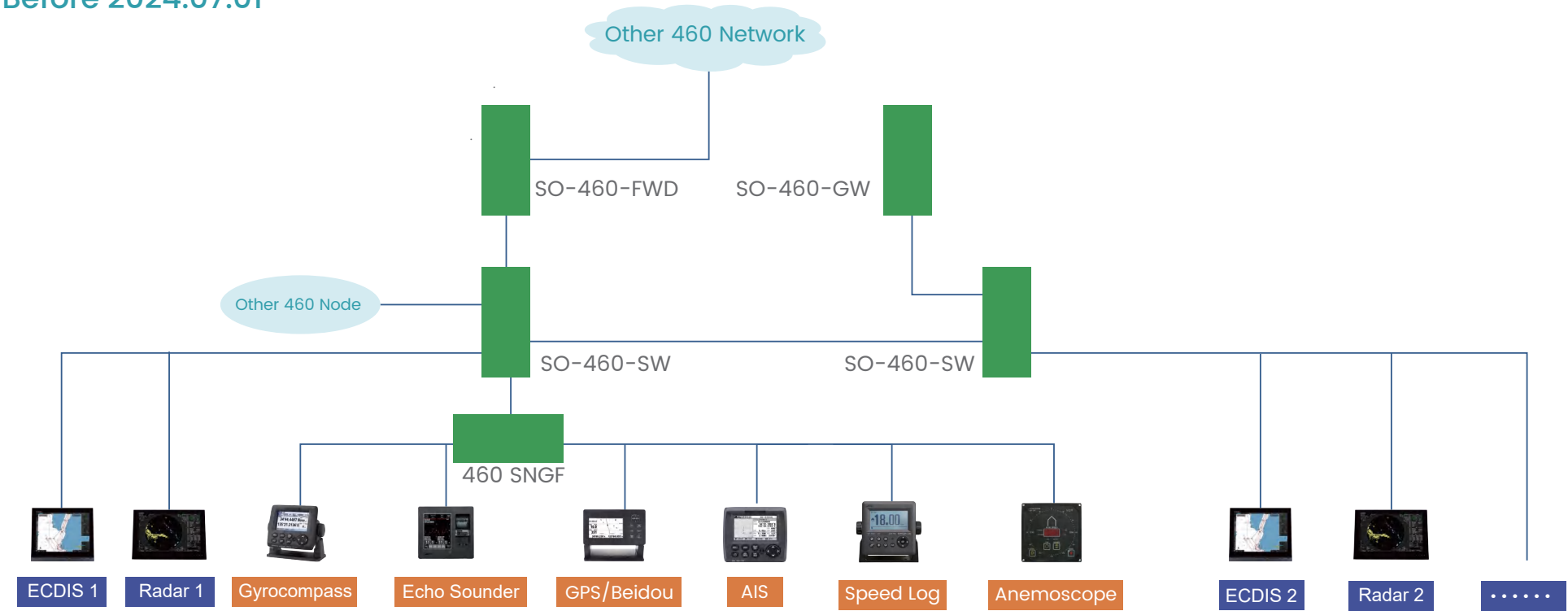
Statistical time:June 1, 2025

| Device Name          | Function Product Introduction                                                                       | Corresponding Specification Requirements |       |                             |                                          |                  |                                               |                        |                             |                       |                       |                       |
|----------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------|-------|-----------------------------|------------------------------------------|------------------|-----------------------------------------------|------------------------|-----------------------------|-----------------------|-----------------------|-----------------------|
|                      |                                                                                                     | E26                                      | E27   | CCS                         | DNV                                      | ABS              | BV                                            | RINA                   | KR                          | RS                    | LR                    | NK                    |
| Class Notation (E26) |                                                                                                     | Rev.1                                    | Rev.1 | 2025 CyberSecurity (P[SLO]) | 2025 Cyber Secure (Essential)            | 2025 CR          | 2025 Cyber Resilient                          | 2025 Cyber Resilience  | 2025 Cyber Resilience       | 2025 Cyber Resilience | 2025 Cyber Resilience | 2025 Cyber Resilience |
| 460-Gateway          | Connected to 460-networks and to Uncontrolled                                                       | 1.3.2                                    | 1.3   | 1.1.1.5                     | Pt4.CH9. Sec.13:5. 1.1 Pt4.CH9. Sec 14:5 | Pt4,ch9, Sec14 5 | NR659, Ch3, Sec2:1.3 1 NR659, Ch5, Sec2:1 3 1 | PtC, Ch 3, Sec 4:1.4.2 | CH1. Sec1:106 CH3. Sec1:102 | Part XXI 1.1.5        | Pt6. CH1. Sec.2:2.16  | Chapter 1 4           |
| 460-Switch           | Interconnect Nodes on A 460-network                                                                 |                                          |       |                             |                                          |                  |                                               |                        |                             |                       |                       |                       |
| 460-Forwarder        | Exchange Data Streams Between A 460-network and other Controlled Networks                           |                                          |       |                             |                                          |                  |                                               |                        |                             |                       |                       |                       |
| 460-SNGF             | Convert GPS, AIS and other devices that transmit via serial port into network port for transmission |                                          |       |                             |                                          |                  |                                               |                        |                             |                       |                       |                       |

# 460 Practical Implementation – Communication and Navigation System: IEC 61162–460

- Equipment certified by 460, designated as a 460 node
- The original equipment applied for 460 exemption inspection, adding 450 SNGF to become a 450 Node with SNGF
- Other 460 Network, Untrusted Network

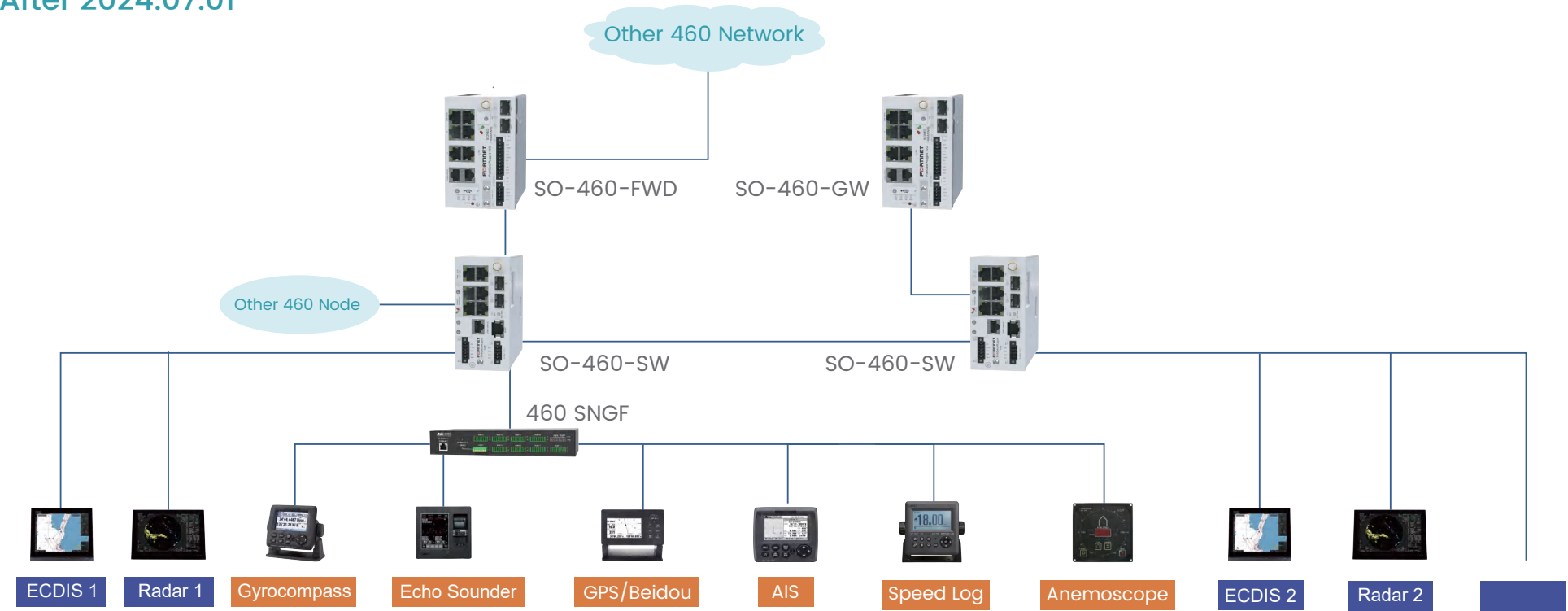
Before 2024.07.01



45

- Equipment certified by 460, designated as a 460 node
- The original equipment applied for 460 exemption inspection, adding 450 SNGF to become a 450 Node with SNGF

After 2024.07.01





# Distribution of functions around 460–Network

IEC61162–460◀◀◀

| Function                                                | SO-460-SW                                  | SO-460-FWD     | SO-460-GW               |
|---------------------------------------------------------|--------------------------------------------|----------------|-------------------------|
| Network Access Control (6.2.4.2)                        | ✓                                          | ✓              | ✓                       |
| Syslog Implemented (Source) (8.1)                       | ✓                                          | ✓              | ✓                       |
| Data Output Bandwidth Defined (5.16.2.2.1)              | ✓                                          | ✓              | ✓                       |
| Network Traffic Management (5)                          | ✓                                          | ✓              | ✓                       |
| Security -No Wireless (6.2.1)                           | ✓                                          | ✓              | ✓                       |
| Security -Excessive Traffic Protection (6.2.2.1, 5.3.3) |                                            | ✓              |                         |
| Security -Dos Attack Icmp Igmp Protection (6.2.2.2)     | ✓                                          | ✓              | ✓                       |
| Security -Access Control (Password) (6.2.4.1)           | ✓                                          | ✓              | ✓                       |
| Redundancy (7.1, 7.2)                                   | As Installed ✓                             | As Installed ✓ | ✓                       |
| Network Monitoring                                      | ✓ (For at Least One Node or Switch, 8.2.1) |                | ✓ (List Of Connections) |

| Function                                                         | SO-460-SW | SO-460-FWD                                 | SO-460-GW |
|------------------------------------------------------------------|-----------|--------------------------------------------|-----------|
| If Applicable -Reds Security (6.2.3)                             | ✓         | ✓                                          | ✓         |
| Configuration of Network Flows (5.2.1, 5.3.2)                    | ✓         | ✓                                          |           |
| Allocation of Bandwidth (5.2.1, 5.3.2)                           | ✓         | ✓                                          |           |
| In/out Traffic in Register Allowed, Deny Other Traffic (6.2.4.2) | ✓         |                                            |           |
| If Applicable -Vlan Config Per Interface (5.2.1)                 | ✓         |                                            |           |
| Igmp Multicast Snooping (5.2.1)                                  | ✓         |                                            |           |
| Syslog(Sink)                                                     |           | ✓ (For at Least One Node Or Switch, 8.2.1) |           |
| Caution/Warning Source(6.3.4, 6.3.5, 8.2.7.1)                    | ✓         |                                            | ✓         |
| Firewall (6.3.2)                                                 |           | ✓                                          | ✓         |

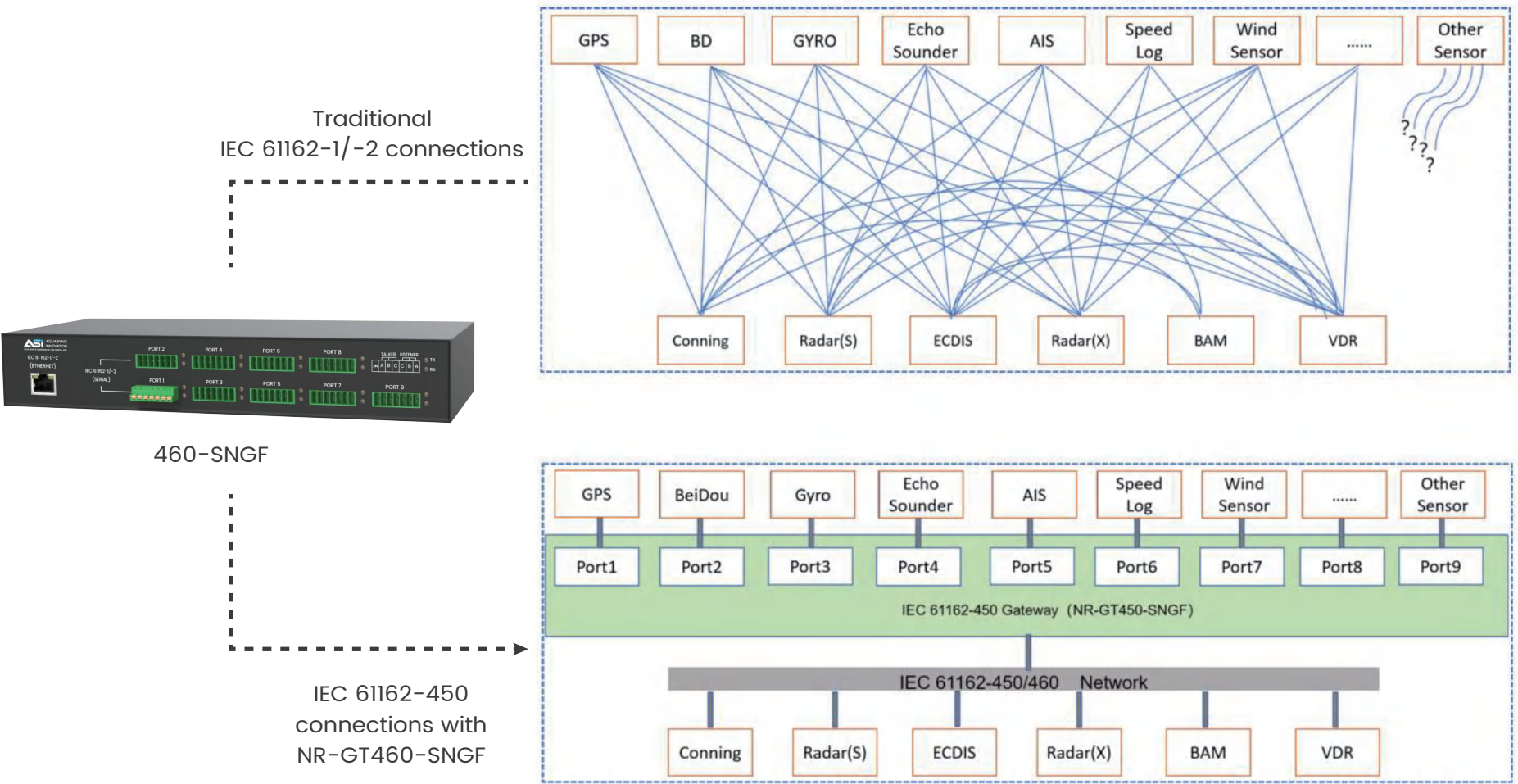
# 460 SNGF

## Technical Data

- ◆ 9x isolated full-duplex RS-422/485 serial ports (9 talkers + 9 listeners) , compliant with IEC 61162-1/-2 standards
- ◆ 1x 10/100M Ethernet port
- ◆ LED indicators for data transmission and reception on each serial port
- ◆ Compliant with IEC 61162-450 standard
- ◆ Configurable SFIDs for each serial port
- ◆ Configurable transmission groups and sentence filtering on each serial listener
- ◆ Configurable sentence forwarding rules on each serial transmitter
- ◆ Ethernet-based configuration. All settings can be configured over Ethernet, including the IP address
- ◆ (Optional) additional SFIDs to calculate and output fused data based on multiple sensors
- ◆ (Optional) industrial fieldbus (e.g. Modbus) support
- ◆ 24V DC and 110/220V AC dual power supply
- ◆ Operating temperature range: -15~+55°C



## Easier Connections with 460-SNGF



YOUR SHIP'S GUARDIAN IN THE DIGITAL AGE

3.1 Cyber Resilience Ships (IACS UR E26)

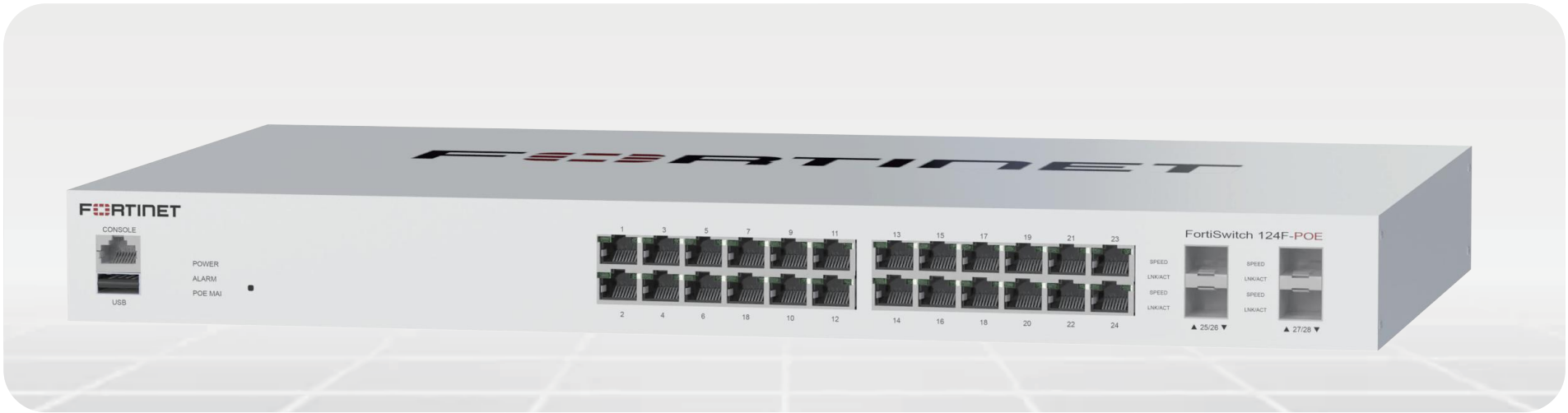
3.2 Cyber Resilience of On-Board Systems and Equipment (IACS UR E27)

3.3 Navigation and Radiocommunication Physical Component (IEC 61162-460)

3.4 Network Information Integration System (IT)

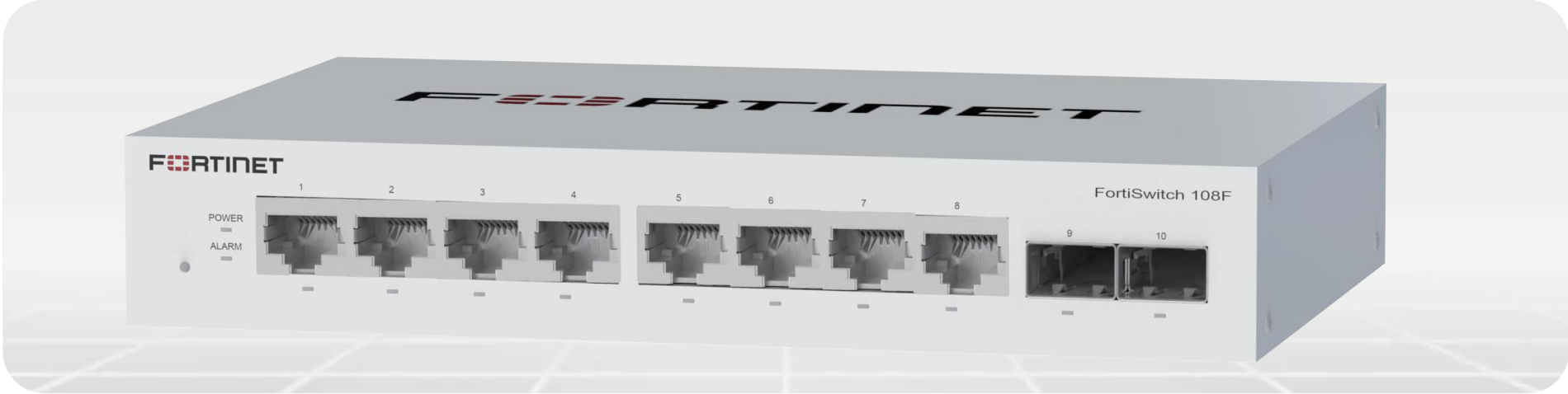


FortiSwitch-124F-POE



- CONSOLE (RJ45): Management console port, default IP: 192.168.1.99, USB (2.0): Reserved for future use
- POWER: Power input port
- ALARM: Alarm interface port
- PoE Ports 1 to 12 (RJ45) GE network connections
- Ports 1 to 24 (RJ45) GE network connections
- Ports 25 to 28 (SFP+) 10Gbps SFP connections
- FortiLink Ports 21 to 28 (RJ45 & SFP+) FortiLink interface connections

# FortiSwitch-108F



- Industrial-grade rugged design with IP40 rating, operating from -40°C to 75°C, fanless cooling.
- Dual power options: 12V DC adapter or PoE (802.3af/at) via Port 8 for flexible deployment.
- 8 Gigabit Ethernet ports + 2 SFP ports with dual-speed indicators.
- Integrates with FortiGate via FortiLink for centralized policy management.
- Port and system LEDs enable quick status diagnostics.
- Supports industrial protocols like IEEE 1588v2 and complies with IEC 61850-3 certification.
- Zero-touch deployment and centralized management through FortiGate.

# FortiCamera



## FortiCamera FD50

Fixed dome camera providing a clear image with a 4x optical zoom for indoor or outdoor environments. With a built-in microphone and strong low-light sensitivity through true shutter WDR make this camera work in almost any light situation.



## FortiCamera FD51

Fixed dome camera with a fixed wide-angle lens designed for indoor or outdoor environments. The built in Digital IO integrates with motion sensors, alarms, and strong low-light sensitivity through true shutter WDR.

## Technical parameters

|                   | FortiCamera FD50                    | FortiCamera FD51         |
|-------------------|-------------------------------------|--------------------------|
| Type              | Fixed dome                          | Fixed dome               |
| Installation      | Indoor / outdoor                    | Indoor / outdoor         |
| Sensor Resolution | 5 MP                                | 5 MP                     |
| Zoom              | 4x Optical                          | -                        |
| View Angle        | H: 30°~90°, V: 23°~65°, D: 38°~115° | H: 111°, V: 59°, D: 133° |
| Audio             | Built-in mic, line out              | Line in/out              |
| IR Illumination   | 30m                                 | 30m                      |
| Rating            | IP66 / IK10                         | IP66 / IK10              |



# FortiAP



## FAP-231K

These enterprise class Wi-Fi 7 indoor APs provide three radios and two spatial streams. These access points support the 6 GHz band and have one 5 Gigabit Ethernet port. The APs can provide 24/7 background scanning across all bands while still providing access on 2.4 GHz, 5 GHz, and 6 GHz bands. The integrated BLE/ ZigBee radio can be used for beacons and location applications.

## Technical parameters

|                                  |                                                                                                                                                                                            |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                             | Indoor AP                                                                                                                                                                                  |
| Number of Antennas               | 6. x2 Dual band Wi-Fi + x2 6GHz band Wi-Fi + x1 BLE/ZigBee antenna + x1 GPS antenna                                                                                                        |
| Interfaces                       | x1 100M/1000M/2.5G/5.0G Multigigabit Ethernet (RJ45)<br>x1 RS-232 RJ45 Serial Port                                                                                                         |
| Power over Ethernet (PoE)        | x1 802.3at PoE default                                                                                                                                                                     |
| Maximum Tx Power (Conducted)     | 2.4GHz band: 26 dBm/400 mW (2 chains combined)*<br>5.0GHz band: 23 dBm/200 mW (2 chains combined)*<br>6.0GHz band: 22 dBm/158 mW (2 chains combined@320MHz BW)*                            |
| IEEE Standards                   | 802.11a, 802.11b, 802.11be, 802.11e, 802.11g, 802.11h,<br>802.11i, 802.11j, 802.11k, 802.11n, 802.11r, 802.11v,<br>802.11ac, 802.11ax, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3bt, 802.3az |
| Wireless Monitoring Capabilities | Rogue Scan radio modes,WIPS / WIDS radio modes, Packet Sniffer Mode, Spectrum Analyzer                                                                                                     |
| Power Supply                     | 802.3bt PoE: GPI-145 or 802.3at PoE: GPI-130 or 12V, 2.5A, 30 Watt DC power supply SP-FAP200-PA-XX                                                                                         |



## FortiAP 23JF

This enterprise class Wi-Fi 6 wall plate AP provides three radios with internal antennas and two spacial streams, as well as features such as OFDMA and is PSE-capable. The AP can provide 24/7 scanning across both bands while still providing access on both the 2.4 GHz and 5 GHz bands. The integrated BLE radio can be used for beacons and locationing applications. Additional features include PoE out for downstream devices and RJ45 passthrough. This access point can be installed in minutes, right over the existing wall plate , or with the optional desk mount, makes a perfect remote / work from home AP.

## Technical parameters

|                                  |                                                                                                                                                                                                                  |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                             | Indoor walljack/desktop AP                                                                                                                                                                                       |
| Number of Antennas               | 3 dual band internal Wi-Fi + 1 single band 2.4 GHz BLE/ZigBee                                                                                                                                                    |
| Interfaces                       | 4x 10/100/1000 Base-T RJ45 Ports (1x 802.3at PoE(PD), 1x 802.3af PoE (PSE), 2x Non-PoE Ports)<br>3 RJ-45 Ports (1xPass-through in, 1x Pass-through out, 1x RS-232 Serial Port)                                   |
| Maximum Tx Power (Conducted)     | Radio 1: 2.4 GHz: 25 dBm / 158 mW (2 chains combined)*<br>Radio 2: 5 GHz: 21 dBm / 158 mW (2 chains combined)*<br>Radio 3: N/A                                                                                   |
| IEEE Standards                   | 802.11a, 802.11b, 802.11d, 802.11e, 802.11g, 802.11h, 802.11i,802.11j, 802.11k, 802.11n, 802.11r, 802.11u,<br>802.11v, 802.11w, 802.11ac, 802.11ax (Wi-Fi 6), 802.1Q, 802.1X, 802.3ad, 802.3af, 802.3at, 802.3az |
| Wireless Monitoring Capabilities | Rogue Scan radio modes,WIPS / WIDS radio modes, Packet Sniffer Mode, Spectrum Analyzer                                                                                                                           |
| Power Supply                     | 802.3at PoE: GPI-130, Optional DC power adaptor SP-FAP23J-PA-10                                                                                                                                                  |

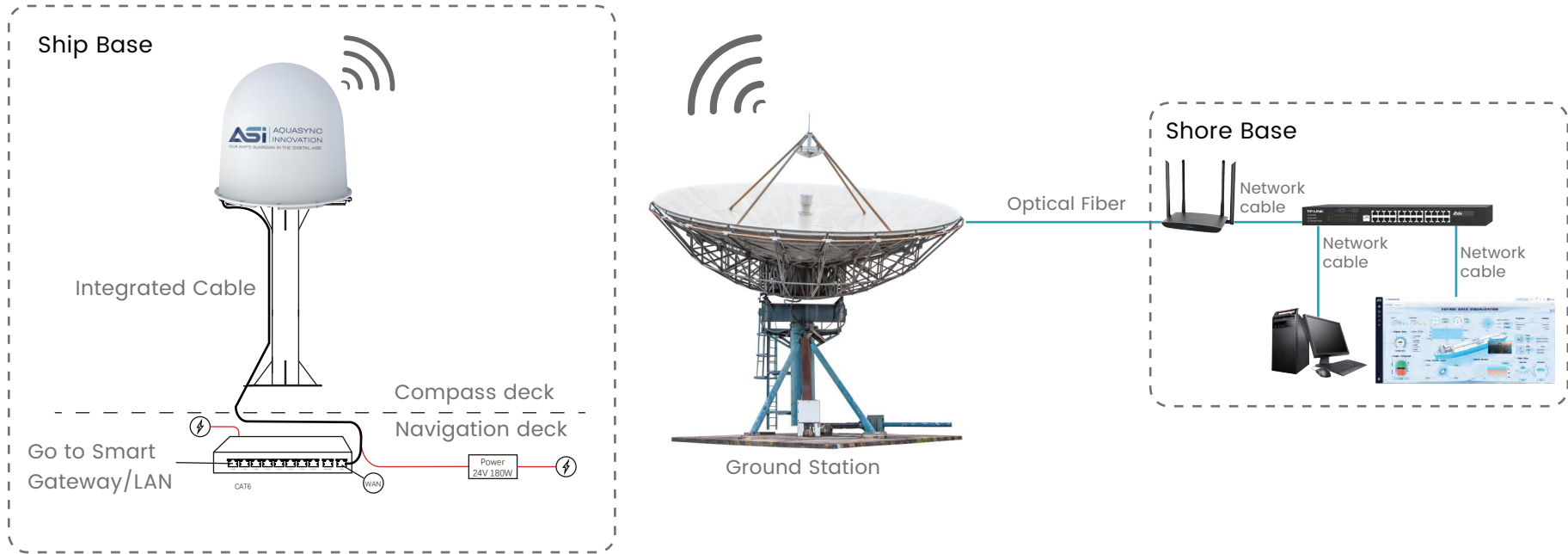
# VSAT Satellite Communication System

## System Introduction

The VSAT system is composed of a hub station and many remote VSATs scattered in each user's location. It can access the Internet without any ground lines, and is not limited by terrain, distance and ground communication conditions.

## Technical parameters

|                    |                                                           |
|--------------------|-----------------------------------------------------------|
| Antenna Type       | Three-Axis (Polarized) Ship Mounted Dynamic Communication |
| Antenna Diameter   | 100cm                                                     |
| BUC                | 8W                                                        |
| Environment Rating | IP56                                                      |



# Maritime LEO Satellite Communication System

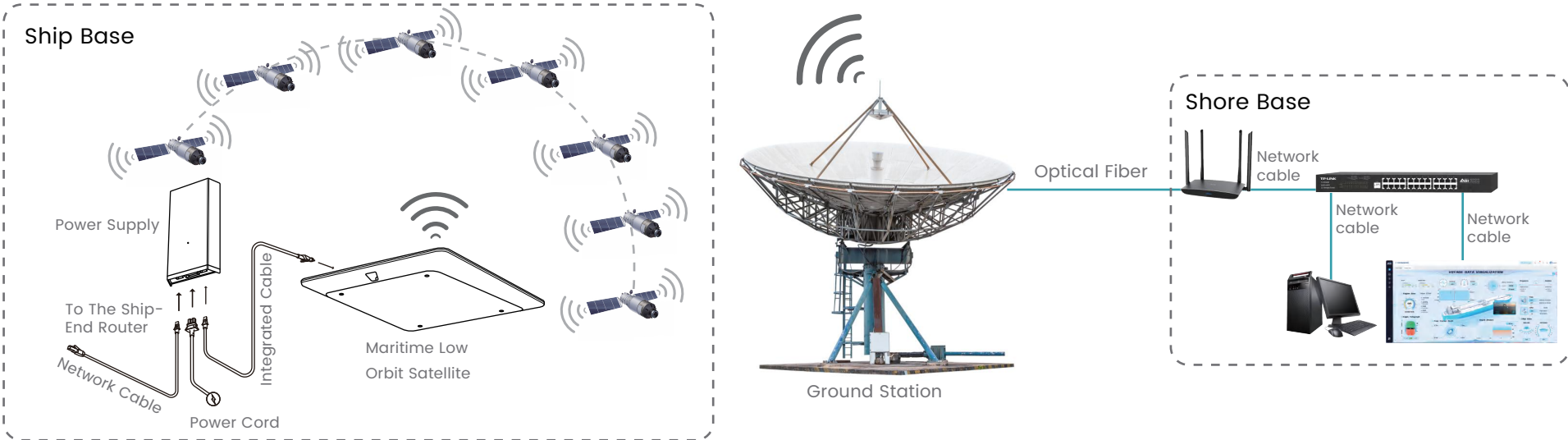
## System Introduction

The maritime LEO satellite system can provide high bandwidth, low latency broadband and communication services for global consumers and commercial users.

## Technical parameters

|                            |                                 |
|----------------------------|---------------------------------|
| Field of View              | 140°                            |
| Dimensions                 | 57.5x51.1cm                     |
| Support Up and Down Speeds | 8-25Mbps Up and 40-220Mbps Down |
| Environment Rating         | IP56                            |

Please note that due to the relatively new technology of maritime LEO satellite services, there is no network service within 15 nautical miles offshore in countries where their use is not allowed. Generally, there is network service beyond 15 nautical miles offshore, and the distance may vary among different countries. The actual effect shall prevail.

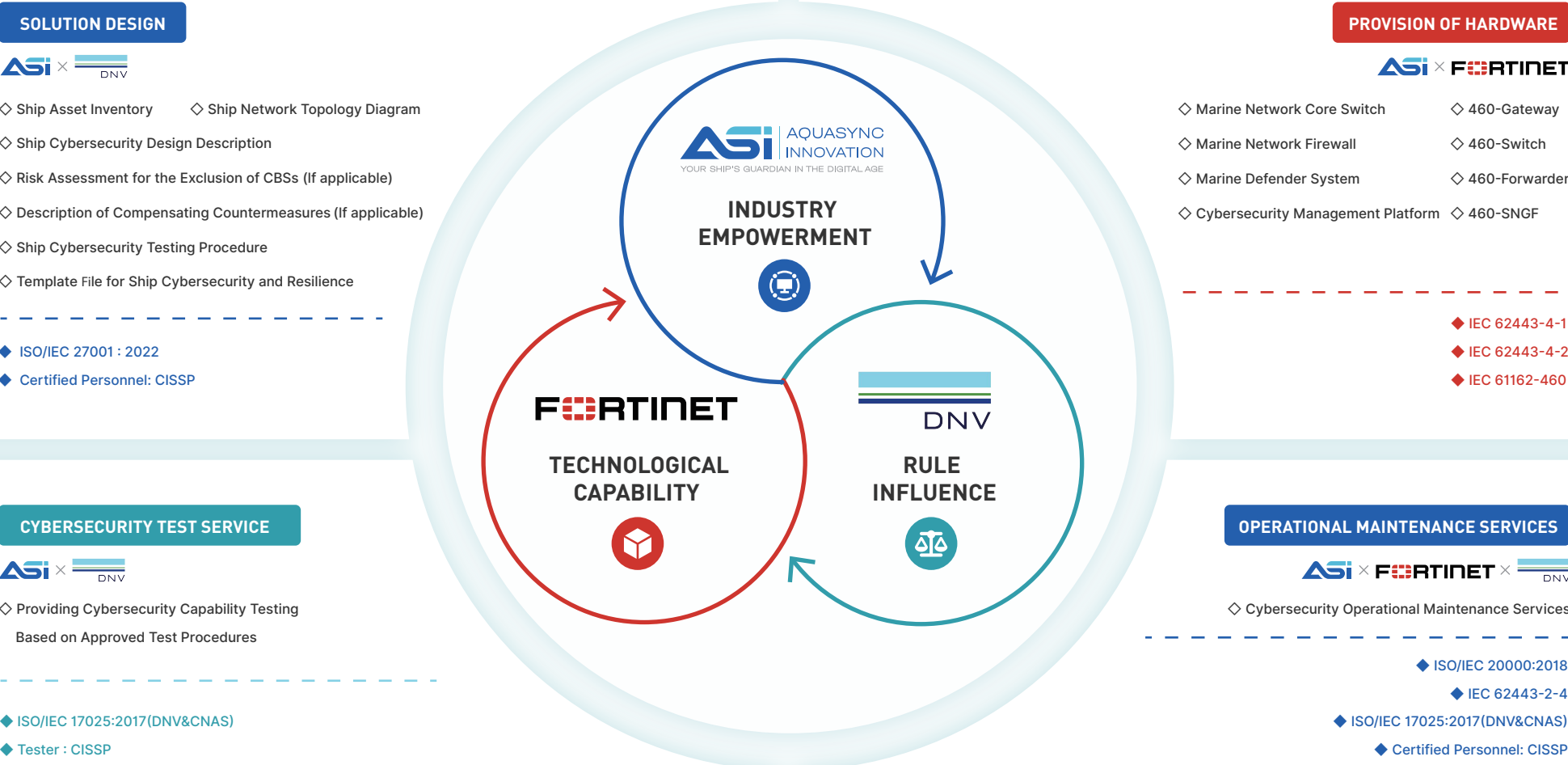


YOUR SHIP'S GUARDIAN IN THE DIGITAL AGE

# ASI's Ship Cybersecurity Service Qualifications

PART FOUR

## Golden Triangle Alliance for a Comprehensive E26/27 Solution





# JOINT TENDER AGREEMENT



## Solution Design

Providing Comprehensive Cybersecurity Solution Design for Vessels in Compliance with E26 Requirements

## Hardware Provision

Providing Cybersecurity Devices Compliant with IEC 62443-4-1 and IEC 62443-4-2 Requirements

## Cybersecurity Test Service

Providing Cybersecurity Capability Testing Based on Test Procedure

## Operational Maintenance Services

Cybersecurity Operations and Annual Assessment

## 联合体协议书 Consortium Agreement

船舶网络安全E26&E27咨询测试项目投标

Bidding for the E26&E27 Consulting and Testing Project on Ship Cybersecurity

联合体单位一与联合体单位二自愿组成联合体，共同参与船舶网络安全 IACS UR E26&E27 咨询、测试（以下简称“本项目”）的投标工作。

Consortium Member One and Consortium Member Two voluntarily form a consortium to jointly participate in the bidding work of IACS UR E26&E27 consultation and testing for Ship Cybersecurity (hereinafter referred to as "this project").

联合体名称：ASI - 挪华威(DNV) 船舶网络安全E26&E27咨询及测试联合体。

Consortium Name: ASI - DNV Ship Cybersecurity E26&E27 Consulting and Testing Consortium.

联合体牵头方为：

The leading party of the consortium is:

中控海洋装备（新加坡）有限公司

AquaSync Innovation (Singapore) Pte. Ltd

本协议适用于接受联合体投标的船舶及海工项目，此协议对工作期限及工作范围做出如下规定：

This agreement is applicable to ship and offshore engineering projects that accept joint bids. This agreement stipulates the working period and scope as follows:

1、合作期限及退出

Term of cooperation and withdrawal

(1) 本协议自签定之日起一年内有效；

This agreement shall be valid for one year from the date of signing.

(2) 到期后由双方共同决定是否续签联合体协议；

After expiration, both parties shall jointly decide whether to renew the consortium agreement.

(3) 在协议期内，单一方可提出退出该协议，经双方共同确定后本协议可解除；

During the term of the agreement, either party may propose to withdraw from the agreement. This agreement may be terminated upon mutual confirmation by both parties.

(4) 在协议期内，任何一方如违反本协议及附件中所规定内容，经另一方书面要求限期整改后仍不符合约定的，本协议可立即解除。

During the term of this agreement, if either party violates the contents stipulated in this agreement and its annexes and still fails to comply with the agreement after being requested in writing by the other party to rectify within a specified period, this agreement may be immediately terminated.

2、联合体单位一（ASI）负责的主要工作内容：

The main tasks of Consortium Member One (ASI) are as follows:

(1) 客户市场推广；

Customer marketing promotion

第 1 页 共 5 页

(2) 提供测试工程师及测试设备并执行测试工作。  
Provide test engineers and test equipment and carry out test work.

3、联合体单位二（挪华威 DNV）负责的主要工作内容：  
The main tasks of the member two of the consortium (DNV) are as follows:

(1) 提供技术咨询，提供技术方案和测试大纲；

Provide technical consultation, technical solutions and test Outlines;

(2) 对测试工程师进行培训；

Train test engineers;

(3) 对现场测试进行见证，并核准测试报告。

Witness the on-site tests and approve the test reports.

4、双方在公正和独立的情况下共同承担工作内容：

Both parties shall jointly undertake the work content in a fair and independent manner:

(1) 以联合体形式对外市场推广和承接订单；

Promote the external market and undertake orders in the form of a consortium;

(2) 对技术方案、测试大纲、测试报告共同确认。

Jointly confirm the technical solution, test outline and test report.

5、项目投标确认

Project bid confirmation

(1) 项目投标时需确认联合体投标意愿，共同确认后本协议生效。

When bidding for the project, the willingness of the consortium to bid must be confirmed. This agreement shall come into effect after joint confirmation.

(2) 双方就具体项目需签署附页B中的《投标项目确认书》。

Both parties are required to sign the "Confirmation of Bidding Project" on Appendix B for the specific project.

此协议附加条款见附页A

The additional terms of this agreement can be found on Appendix A

联合体单位一：

Consortium Member One

中控海洋装备（新加坡）有限公司

AquaSync Innovation (Singapore) Pte. Ltd

PAYA LEBAR ROAD #07-54 PAYA LEBAR SQUARE SINGAPORE

(409051)

沈丽珊 Shen Li Li

管理代表 On Behalf

本协议自双方签字盖章之日起生效

This agreement shall come into effect as of the date when both parties sign and affix their seals

终止条件：双方应协商一致终止

Termination condition: Both parties mutually agree in writing to terminate

联合体单位二：

Consortium Member Two

上海挪华威认证有限公司

DNV Business Assurance China Co. Ltd.

中国上海市市长宁区虹桥路1591号9号楼4楼

Site A, House 9, 1591 Huqiao Road, Changning, Shanghai, China

康文强 Kang Wen Yu

管理代表 On Behalf

签约地点及日期：

Place and Date

上海，2025年8月5日

5 August 2025, Shanghai

第 2 页 共 5 页



# Corresponding Qualifications for Ship Cybersecurity E26



On April 02, 2024, DNV, a professional risk management service agency, has issued certificates of **ISO 9001:2015** quality management system, **ISO/IEC 27001:2022** Information security management system and **ISO/IEC 20000:2018** Information technology service management system to AguaSync Innovation.

DNV

GB/T 19001-2016/ISO 9001:2015

Quality Management System

DNV

ISO/IEC 27001:2022

Information Security, Cybersecurity and Privacy Protection Information Security Management Systems Requirements

DNV

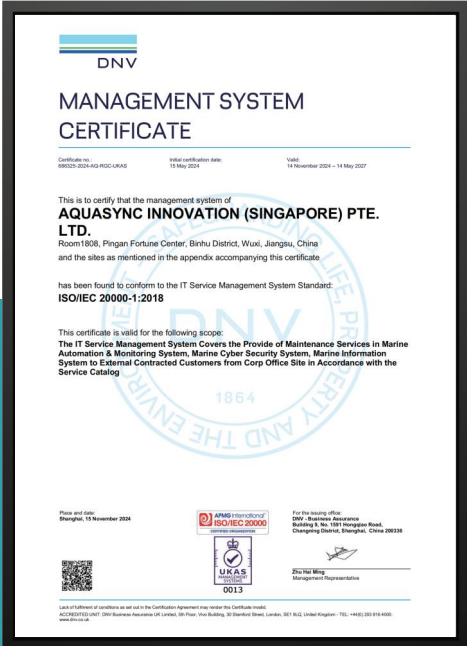
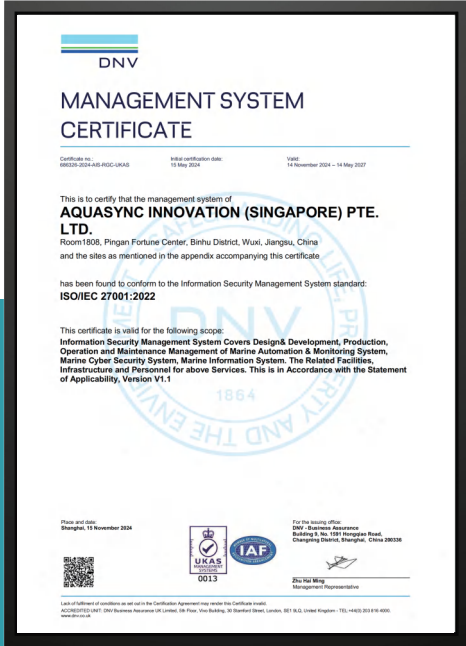
ISO/IEC 20000-1:2018

Information Technology-service Management Management Part 1: Service Management System Requirements

DNV

IEC 62443 4-1 & 2-4

Security for Industrial Automation and Control Systems





# Laboratory Certificate



## ISO/IEC 17025:2017

Marine Cybersecurity Product Testing, Marine Computer Based System(CBS)  
Cybersecurity Testing, Ship Cybersecurity Testing



## STATEMENT OF CONFORMITY

Statement No.: SCPA-GC-LAB-794970 Rev.00      Initial date: March 01, 2025      Validity: Feb. 29, 2028

This statement consists of <12 > pages

We hereby declare that the quality management system of:  
**AQUASYNC INNOVATION (SINGAPORE) PTE. LTD.**  
**Marine Cyber Security Laboratory**

Service Address: Room 1808, Ping An Wealth Center, Binhu District Wuxi, Jiangsu, China 201201

Registered Address: 60, PAYA LEBAR ROAD, #07-54(409051), PAYA LEBAR, Singapore  
Has found to comply with the requirements of DNV Laboratory Quality Management System towards subcontractor of

**Marine cyber security product testing, Marine Computer Based System (CBS) cyber security testing, Ship cyber security testing**

The acceptance is based on requirements of the  
**DNV Laboratory Quality Management System with reference to ISO/IEC 17025:2017**

Further details are given overleaf

Place and date:  
Shanghai, Feb. 28, 2025

For the issuing office:  
DNV SCPA China

Li Xiang  
Director of IPA  
DNV SCPA China



Lack of fulfillment of conditions as set out in the assessment agreement may render this statement invalid.  
Issuing office: DNV SCPA China, House No.9, 1591 Hong Qiao Road, Shanghai 200336, P. R. China. Tel: 86(0)21 3279 9000 Fax: 86(0) 21 6278 8090  
[www.dnv.com](http://www.dnv.com)



IEC 62443 4-2

Marine Defender System

CERTIFICATE

Certificate No.: IPA-CS-10488181-2025JA01

Initial certification date: 2025-01-10

Valid Until: 2030-01-09

Certificate Holder:

AQUASYNC INNOVATION (SINGAPORE) PTE.LTD.

Location:

(1): 60, PAYA LEBAR ROAD, #07-54 (409051), PAYA LEBAR SINGAPORE  
(2): Room1808, Pingan Fortune Center, Binhu District, Wuxi, Jiangsu, CHINA

Codes and Standards:

IEC 62443-4-2:2019

Certificate Coverage (including Version):

Product: Marine Defender System  
Model: SO-MDS01  
Version: V2.20.00.00

Security Level Achieved:

Security Level 2

Requirements Assessed Total Requirements:

FR 1 - Identification and Authentication Control (AC): 13/14  
FR 2 - Use Control (UC): 11/13  
FR 3 - System Integrity (SI): 12/14  
FR 4 - Data Confidentiality (DC): 3/5  
FR 5 - Restricted Data Flow (RDF): 3/5  
FR 6 - Timely Response to Events (TRE): 2/2  
FR 7 - Resource Availability (RA): 8/8

Validity:

This certificate is valid until 2030-01-09.

This certificate of conformity is based on an assessment conducted by DNV, the results of which are documented in Report No. *Rep-IPA-CS-10488181-2025JA01*, dated 2025-01-06. The process capability for this product has been previously assessed for compliance with the IEC 62443-4-1 standard, as detailed in Report Reference No. *Rep-IPA-CS-10488181-2024DE01*.

This certification applies only to the products specified within the coverage statement, including names, models, and version.

Place and date: Shanghai, China 2025-01-10

Vincent Zhao Ph.D.  
Head of Transportation & Cybersecurity Assurance

Li Xiang  
Product Assurance & Inspection Service Director of Greater China

DNV BUSINESS ASSURANCE CHINA Co. LTD, House No.9, 1591 Hong Qiao Road, Shanghai 200336, P. R. China. Tel: 86 (0) 21 3279 9000 Fax: 86 (0) 21 6278 8090

Marine Network Firewall

CERTIFICATE

Certificate No.: IPA-CS-10488181-2024DC02

Initial certification date: 2024-12-12

Valid Until: 2029-12-11

Certificate Holder:

AQUASYNC INNOVATION (SINGAPORE) PTE.LTD.

Location:

(1): 60, PAYA LEBAR ROAD, #07-54 (409051), PAYA LEBAR SINGAPORE  
(2): Room1808, Pingan Fortune Center, Binhu District, Wuxi, Jiangsu, CHINA

Codes and Standards:

IEC 62443-4-2:2019

Certificate Coverage (including Version):

Product: Marine Network Firewall  
Model: SO-MFW-100M  
Version: SO-MFW V4.0

Security Level Achieved:

Security Level 2

Requirements Assessed Total Requirements:

FR 1 - Identification and Authentication Control (AC): 12/14  
FR 2 - Use Control (UC): 9/13  
FR 3 - System Integrity (SI): 12/14  
FR 4 - Data Confidentiality (DC): 3/5  
FR 5 - Restricted Data Flow (RDF): 3/5  
FR 6 - Timely Response to Events (TRE): 2/2  
FR 7 - Resource Availability (RA): 8/8

Validity:

This certificate is valid until 2029-12-11.

This certificate of Conformity is based on an assessment conducted by DNV, the results of which are documented in Report No. *Rep-IPA-CS-10488181-2024DC02*, dated 2024-12-08. The process capability for this product has been previously assessed for compliance with the IEC 62443-4-1 standard, as detailed in Report Reference No. *Rep-IPA-CS-10488181-2024DC01*.

This certification applies only to the products specified within the coverage statement, including names, models, and version.

Place and date: Shanghai, China 2024-12-12

Vincent Zhao Ph.D.  
Head of Transportation & Cybersecurity Assurance

Li Xiang  
Product Assurance & Inspection Service Director of Greater China

DNV BUSINESS ASSURANCE CHINA Co. LTD, House No.9, 1591 Hong Qiao Road, Shanghai 200336, P. R. China. Tel: 86 (0) 21 3279 9000 Fax: 86 (0) 21 6278 8090

Network Security Detection System

CERTIFICATE

Certificate No.: IPA-CS-10488181-2025MR01

Initial certification date: 2025-02-28

Valid Until: 2030-02-27

Certificate Holder:

AQUASYNC INNOVATION (SINGAPORE) PTE.LTD.

Location:

(1): 60, PAYA LEBAR ROAD, #07-54 (409051), PAYA LEBAR SINGAPORE  
(2): Room1808, Pingan Fortune Center, Binhu District, Wuxi, Jiangsu, CHINA

Codes and Standards:

IEC 62443-4-2:2019

Certificate Coverage (including Version):

Product: Network Security Detection System  
Model: SO-NSDS01  
Version: V4.0

Security Level Achieved:

Security Level 2

Requirements Assessed Total Requirements:

FR 1 - Identification and Authentication Control (AC): 13/16  
FR 2 - Use Control (UC): 9/23  
FR 3 - System Integrity (SI): 17/35  
FR 4 - Data Confidentiality (DC): 3/3  
FR 5 - Restricted Data Flow (RDF): 4/4  
FR 6 - Timely Response to Events (TRE): 2/2  
FR 7 - Resource Availability (RA): 8/9

Validity:

This certificate is valid until 2030-02-27.

This certificate of conformity is based on an assessment conducted by DNV, the results of which are documented in Report No. *Rep-IPA-CS-10488181-2025MR01*, dated 2025-02-26. The process capability for this product has been previously assessed for compliance with the IEC 62443-4-1 standard, as detailed in Report Reference No. *Rep-IPA-CS-10488181-2024DE01*.

This certification applies only to the products specified within the coverage statement, including names, models, and version.

Place and date: Shanghai, China 2025-02-28

Vincent Zhao Ph.D.  
Technical Director of Transportation & Cybersecurity Assurance

Li Xiang  
Product Assurance & Inspection Service Director of Greater China

DNV BUSINESS ASSURANCE CHINA Co. LTD, House No.9, 1591 Hong Qiao Road, Shanghai 200336, P. R. China. Tel: 86 (0) 21 3279 9000 Fax: 86 (0) 21 6278 8090

Cybersecurity Management Platform

CERTIFICATE

Certificate No.: IPA-CS-10488181-2025MA02

Initial certification date: 2025-03-03

Valid Until: 2030-03-02

Certificate Holder:

AQUASYNC INNOVATION (SINGAPORE) PTE.LTD.

Location:

(1): 60, PAYA LEBAR ROAD, #07-54 (409051), PAYA LEBAR SINGAPORE  
(2): Room1808, Pingan Fortune Center, Binhu District, Wuxi, Jiangsu, CHINA

Codes and Standards:

IEC 62443-4-2:2019

Certificate Coverage (including Version):

Product: Network Security Management Platform  
Model: SO-NSMP01  
Version: V3.0

Security Level Achieved:

Security Level 2

Requirements Assessed Total Requirements:

FR 1 - Identification and Authentication Control (AC): 13/16  
FR 2 - Use Control (UC): 9/23  
FR 3 - System Integrity (SI): 17/35  
FR 4 - Data Confidentiality (DC): 3/3  
FR 5 - Restricted Data Flow (RDF): 4/4  
FR 6 - Timely Response to Events (TRE): 2/2  
FR 7 - Resource Availability (RA): 8/9

Validity:

This certificate is valid until 2030-03-02.

This certificate of conformity is based on an assessment conducted by DNV, the results of which are documented in Report No. *Rep-IPA-CS-10488181-2025MA02*, dated 2025-02-28. The process capability for this product has been previously assessed for compliance with the IEC 62443-4-1 standard, as detailed in Report Reference No. *Rep-IPA-CS-10488181-2024DE01*.

This certification applies only to the products specified within the coverage statement, including names, models, and version.

Place and date: Shanghai, China 2025-03-03

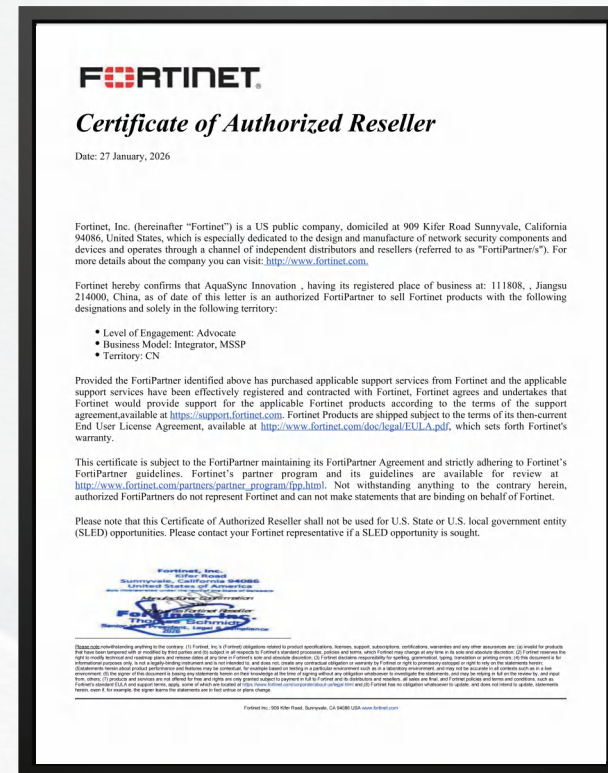
Vincent Zhao Ph.D.  
Technical Director of Transportation & Cybersecurity Assurance

Li Xiang  
Product Assurance & Inspection Service Director of Greater China

DNV BUSINESS ASSURANCE CHINA Co. LTD, House No.9, 1591 Hong Qiao Road, Shanghai 200336, P. R. China. Tel: 86 (0) 21 3279 9000 Fax: 86 (0) 21 6278 8090



# ASI Forms Strategic Alliance with Fortinet



The maritime cybersecurity company ASI has signed a strategic cooperation agreement with Fortinet. Together, they will target global shipowners and shipyards, promoting cybersecurity cooperation and market promotion.



# CCS Certification



The Marine Network Firewall we provide has obtained the first CCS Domestic Type Approval Certificate for Cybersecurity equipment.





# China National Accreditation Service for Conformity Assessment Inspection body accreditation certificate — DNV, SUPCON (ASI)



## Our Service Capabilities – Personnel Qualifications





YOUR SHIP'S GUARDIAN IN THE DIGITAL AGE

# Performance Report



## PART FIVE

### Statistics on Ships Supported for Cybersecurity Certification – E26

| 2024  | NO. | Ship Type          | LR | ABS | BV | NK | CCS | RINA | DNV | TOTAL |
|-------|-----|--------------------|----|-----|----|----|-----|------|-----|-------|
|       | 1   | Container          | 10 |     |    |    | 10  |      |     | 20    |
|       | 2   | Oil ChemicalTanker | 24 |     |    |    |     |      |     | 24    |
| TOTAL |     |                    | 34 | 0   | 0  | 0  | 10  | 0    | 0   | 44    |

| 2025  | NO. | Ship Type                   | LR | ABS | BV | NK | CCS | RINA | DNV | TOTAL |
|-------|-----|-----------------------------|----|-----|----|----|-----|------|-----|-------|
|       | 1   | Container                   | 6  | 3   | 10 |    | 13  |      | 16  | 48    |
|       | 2   | Oil ChemicalTanker          | 10 | 36  | 6  |    | 13  | 4    | 8   | 77    |
|       | 3   | Platform supply Vessel      |    | 3   |    |    | 4   |      |     | 7     |
|       | 4   | CableLaying Vessel          | 1  |     |    |    |     |      |     | 1     |
|       | 5   | AHT                         |    | 6   | 2  |    |     |      |     | 8     |
|       | 6   | Deck Carrier                |    |     |    |    | 1   |      |     | 1     |
|       | 7   | Bulk carrier                |    |     |    |    | 7   |      |     | 7     |
|       | 8   | refrigeratedtransportvessel |    |     |    |    | 6   |      |     | 6     |
|       | 9   | Offshore Operation Vessel   |    | 4   |    |    | 1   |      |     | 5     |
| TOTAL |     |                             | 17 | 52  | 18 | 0  | 45  | 4    | 24  | 160   |

| 2026/08/01 | NO. | Ship Type                   | LR | ABS | BV | NK | CCS | RINA | DNV | TOTAL |
|------------|-----|-----------------------------|----|-----|----|----|-----|------|-----|-------|
|            | 1   | Container                   | 4  | 12  | 8  |    | 13  | 1    | 34  | 72    |
|            | 2   | Oil ChemicalTanker          |    | 2   |    |    | 4   |      | 4   | 10    |
|            | 3   | Platform supply Vessel      |    |     | 2  |    |     |      |     | 2     |
|            | 4   | CableLaying Vessel          |    |     |    |    |     |      |     | 0     |
|            | 5   | AHT                         |    |     |    |    |     |      |     | 0     |
|            | 6   | Deck Carrier                |    |     |    |    |     |      |     | 0     |
|            | 7   | Bulk carrier                |    |     | 1  | 3  | 10  |      | 2   | 16    |
|            | 8   | refrigeratedtransportvessel |    |     |    |    |     |      |     | 0     |
| TOTAL      |     |                             | 4  | 21  | 13 | 3  | 27  | 1    | 42  | 111   |

As of August 1, 2026: 315



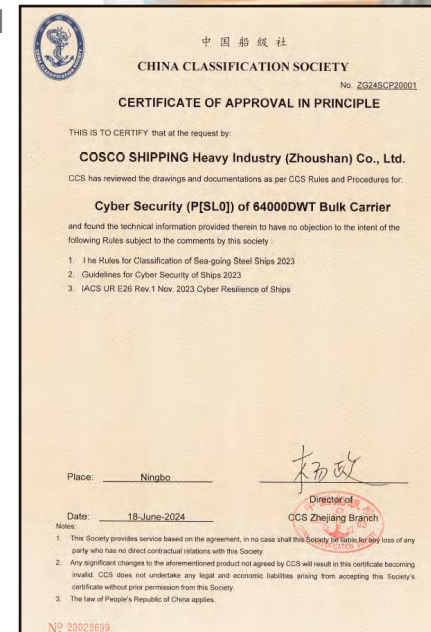
“Assisting SWS with Obtaining China's First CCS Ship Cybersecurity Principle Recognition (SL2 AIP) Certificate for 300,000-ton Ammonia Dual-Fuel VLCC”

On June 26, 2024, the 300,000-ton ammonia dual-fuel VLCC independently developed by SHANGHAI WAIGAOQIAO SHIPBUILDING CO.,LTD (SWS) received the Approval in Principle (AIP) certificate for ship cybersecurity from the CCS. This certification satisfies the IACS unified requirements for ship cyber resilience (UR E26) and meets the classification symbol requirements of CCS cybersecurity (P[SL2]). According to the CCS "Guidelines for Ship Cybersecurity," cybersecurity ratings range from SL0 to SL4, with five levels in total. Compared to the entry-level SL0, this project achieved SL2, which was determined by comprehensively balancing the ship's cybersecurity and implementation feasibility. This certification significantly enhances the ship's ability to defend against cyber-attacks and meets the high-security network demands driven by the digital, intelligent, and green transformation trends in the shipping industry.



“Assisting COSCO with Achieving CCS Cybersecurity Level SL0 AIP Recognition”

On June 18, 2024, CHINA CLASSIFICATION SOCIETY (CCS) AWARDED COSCO SHIPPING HEAVY INDUSTRY CO., LTD. (referred to as COSCO) the first-ever cybersecurity principle recognition certificate for their 64,000 DWT bulk carrier. This certification marks the first time CCS has issued a principle recognition certificate for ship cybersecurity on an actual vessel. The recognition meets the requirements of both IACS UR E26 and CCS "Guidelines for Ship Cybersecurity," providing a reasonable and feasible solution for this type of bulk carrier to comply with IACS UR E26 standards.





# Testing Services for A Total of 20 Vessels Were Actually Delivered



16 Vessels

HULL NOS.: NTS **0311544/0311545** 115K DWT DOUBLE HULL OIL TANKER

HULL NOS.: NTS **0311548/0311549/0311556** 115K DWT DOUBLE HULL OIL TANKER

HULL NOS.: **0315879/0315880/0315881** 156K DWT CRUDE OIL TANKER

HULL Nos.: NTS **0315869/0315870/0315871/0315872/0315873/0315874** OIL TANKER





8 Vessels



1 Vessels

HullNo.:**H1594/H1595** 114K DWT POT-ABS Cybersecurity Technology Supply and Services

HullNo.:**0330001/0330002** 299500DWT CRUDE OIL TANKER

Hull No.:**0315843/0315844/0315847/0315848** Cyber Security Capability

Hul No.:**0307373** PETROKARAVO





Design Appraisal Document



Design Appraisal Document



Design Appraisal Document



Design Appraisal Document



Design Appraisal Document



Design Appraisal Document



Design Appraisal Document



Design Status Report



Design Status Report



Design Status Report



Design Status Report



Design Status Report



Design Status Report



Design Status Report



Work Order - W00312423



Work Order - W00375298



Work Order - W00510956



Work Order - W00510956



Attention: NEW TIMES SHIPBUILDING CO., LTD. (WCN: 190736)



Attention: SHANGHAI WAIGAOQIAO SHIPBUILDING CO., LTD. (WCN: 834396)



Attention: NEW TIMES SHIPBUILDING CO., LTD. (WCN: 190736)



Attention: NEW TIMES SHIPBUILDING CO., LTD. (WCN: 190736)



Very truly yours,  
Bin-Hong Wang  
Director of Engineering  
Electronically Signed by: Hua-Lin Li



Very truly yours,  
Bin-Hong Wang  
Director of Engineering  
Electronically Signed by: Hua-Lin Li



Very truly yours,  
Bin-Hong Wang  
Director of Engineering  
Electronically Signed by: Yu Geng



Very truly yours,  
Bin-Hong Wang  
Director of Engineering  
Electronically Signed by: Yu Geng



Documents List



Documents List



Documents List



Documents List



Findings List



Findings List



Findings List



Findings List