



ABOUT AUTOMATION SOLUTION

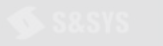
S&SYS PRODUCT BROCHURE

SSAS-Master
SSAS-Master X

Business History

1993

Start for Ship's Automation Business



2012

First Start in FGSS Control System
– Eco-Nuri (Now: Over 50 vessels)

2013

First Start in LNGC IAS
– Retrofit MISC 18.8K LNGC

2014

First Start LNGC at SHI
– BGT 175K LNGC

2017

LNGC at SHI
– KOGAS 7.5K LNGC

2018

First Start in FSRU (Re-GAS)
– JAWA 174K FSRU

2019

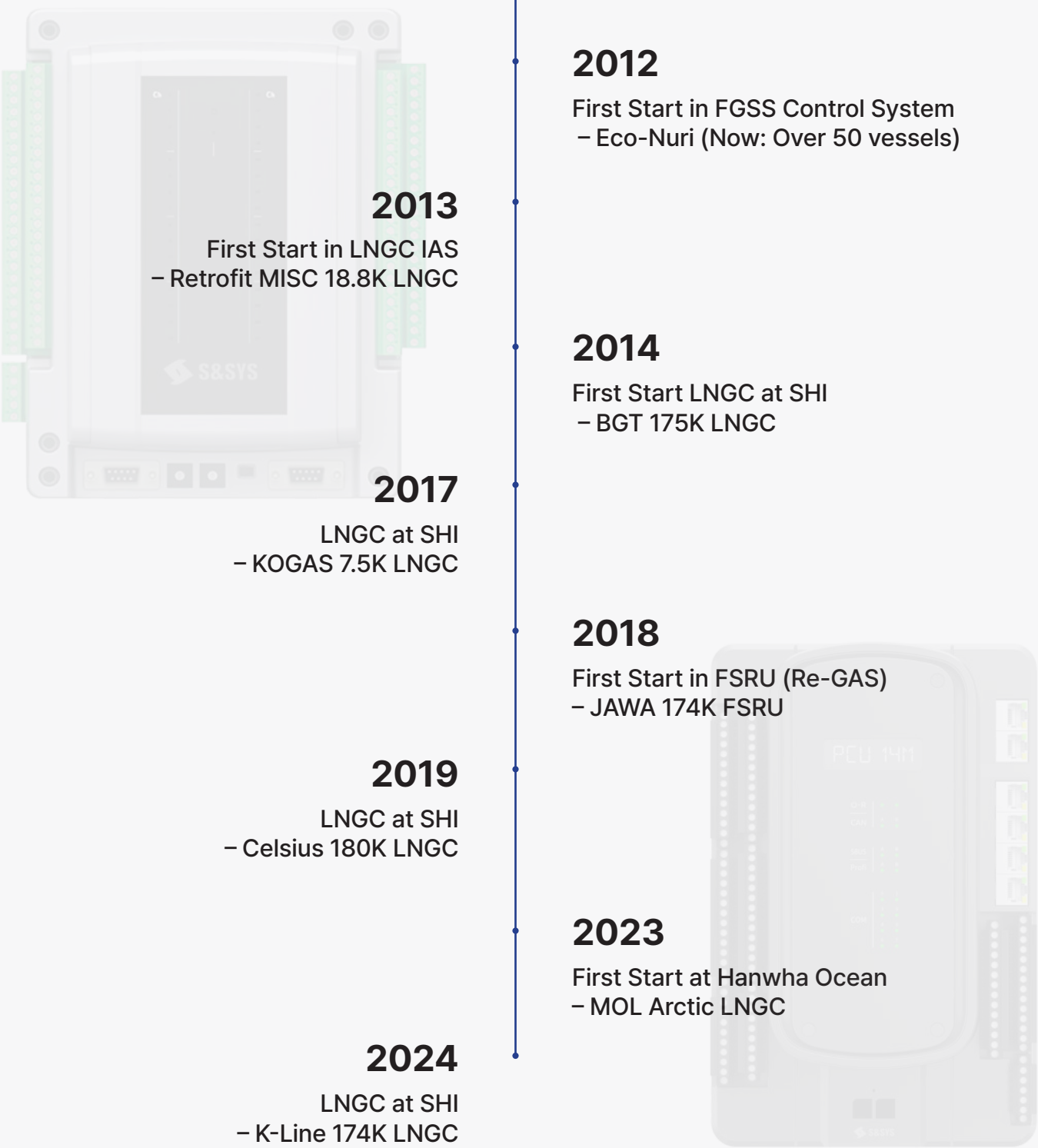
LNGC at SHI
– Celsius 180K LNGC

2023

First Start at Hanwha Ocean
– MOL Arctic LNGC

2024

LNGC at SHI
– K-Line 174K LNGC



Rule & Regulation

CLASS

- Designed by Class requirement.
- ABS/DNV/LR/BV/KR/RMRS, etc.

International Rule & Regulation

- IACS UR E10 Safer and Cleaner Shipping
- IACS UR E27 Cyber Resilience of Onboard System and Equipment
- IEC 60068 Environmental testing
- IEC 60092 Electrical installation in ships
- IEC 61000 Electromagnetic compatibility (EMC)
- IEC 60945 Maritime navigation and radiocommunication equipment and systems
- CISPR 16-2-1/3 Specification for radio disturbance and immunity measuring apparatus and methods
- IEC 60695 Fire hazard testing



ABS (American Bureau of Shipping)



BR (Bureau Veritas)



DNV (Det Norske Veritas)



KR (Korean Register)



LR (Lloyd's Register)



RMRS
(Russian Maritime Register of Shipping)

Beginning of The Great Voyage

01 ~ 02

Automation Overview

SSAS-Master

(IAS/ICMS/AMS)

SSAS-Master delivers reliable, robust, and proven performance, meeting the highest customer expectations for efficiency, stability and ease of maintenance.

Built on an innovative redundant architecture that extends from the top-level workstation to the lowest-level I/O card, it ensures continuous monitoring and control even in the event of minor system faults.

This advanced system is fully compatible with all types of commercial vessels — including LNG, LPG, and Methanol-powered vessels — as well as LNG carriers.

SSAS-Master X

(IAS/ICMS/AMS)

SSAS-Master X is a next-generation integrated control solution built upon over 30 years of expertise in marine automation.

With its high-performance processing and scalable I/O architecture, it delivers reliable, precise control of essential onboard systems including generators, pumps, cargo handling, and navigation equipment.

Designed for modern vessels, SSAS-Master X enhances operational efficiency through an intuitive HMI, multi-monitoring interface and customized reporting tools.

Reinforced with advanced cybersecurity and remote maintenance (RMS) capabilities, it ensures the safety, reliability and long-term performance that today’s smart ships demand.



SSAS-Master X Key Features

- Automatic or manual theme switching anytime
- Customizable layouts across multiple screens
- Tab management and up to four split views for multitasking
- Visual flow-based interface for better clarity and usability

Application Areas

Machinery System

Cargo & Ballast System

Gas Management System

Oil & Gas Processing System

Fuel Gas Supply System

Interface

Product Overview

SSAS-Master X Main Hardware

SSAS-Master X PCU (Process Control Unit)

- High Speed Processing Unit
- Increased capacity (over 5,000 tag) and speed

Universal Input / Output Card Unit

- Universal type (DI/DO/AI/AO/RTD cards)
- Loop monitoring (per channel)
- Short-circuit protected I/O loop power output

LCD touch Extension Alarm Panel (SRAU-7)

- Touch sensitive
- 7 inch display
- Up to 12 alarm group(Machinery, Cargo, Navigation)

Enhanced Hardware Specification		
Specification	SSAS-Master (SMPCU)	SSAS-Master X (SMXPCU)
		
Memory (RAM)	64MB	4GB
Memory (Flash)	8MB (Boot), 16MB (Data)	128MB (Boot), 32GB (Boot, Data)
Ethernet – Control Network	2 Ports (100Mbps)	2 Ports (1Gbps)
Ethernet – Field Network	-	2 Ports (1Gbps)
Redundancy	1 Port (1Gbps)	2 Ports (10Gbps)

Safe & Reliable Power

PMS

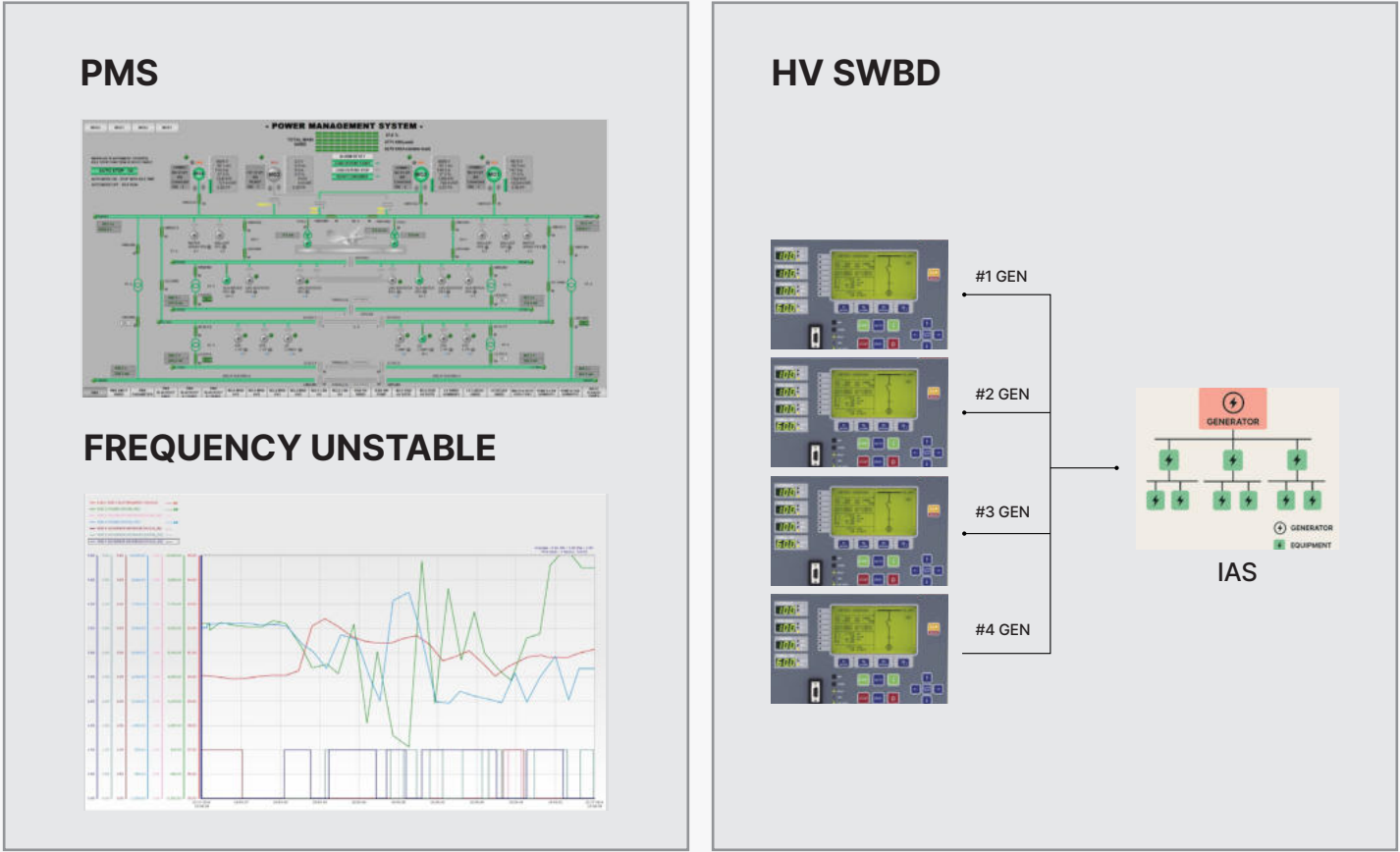
Prevent total blackout by frequency unstable condition at closed bus-bar

- Full redundant dual power management system
- Bus-tie Open & Recovery function
- Gas mode releasing for stable operation
- Operator can change the breakers without partial black-out

HV SWBD

HV SWBD Distributed Controller & Equipment Energy Monitoring

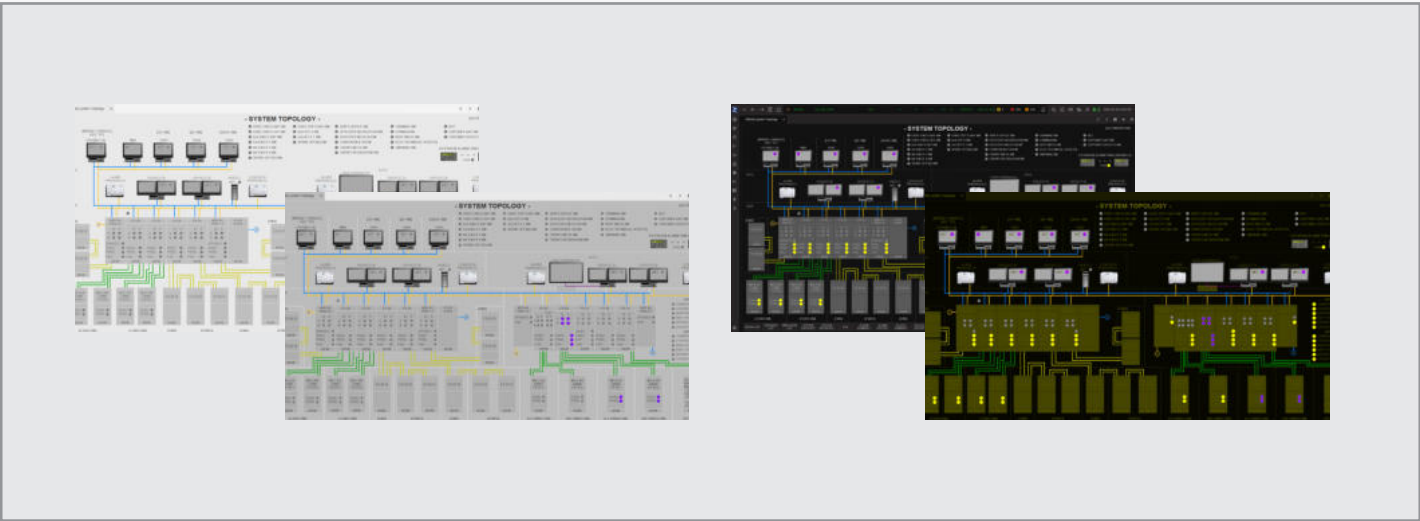
- Generator : Active (KW), Reactive (KVAR), Apparent Power (KVA)
- High Voltage Switchgear: Current (A), Active (KW), Reactive (KVAR), Apparent Power (KVA), Power Factor Load Factor
- Heavy Consumer Power Consumption



Smart Interface

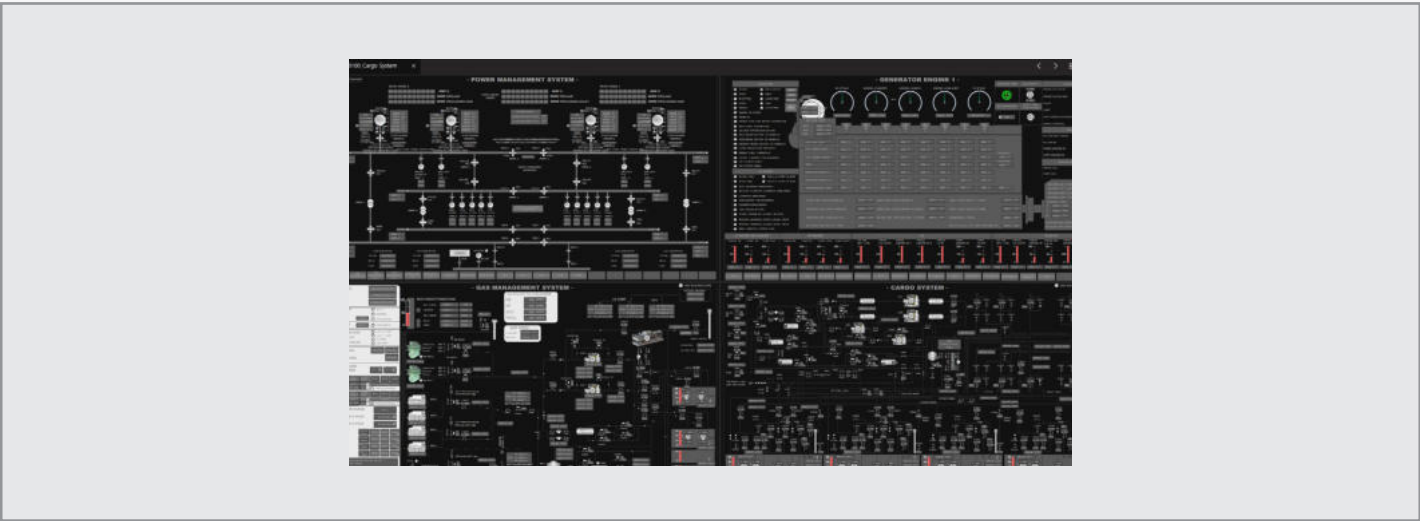
Automatic Theme Change

Supports automatic theme changes based on time.
And User can manually select a preferred theme outside scheduled times.



Simultaneous Data View

Users can view multiple data sources simultaneously, improving efficiency and focus. It enables comparison and monitoring without interrupting workflow.



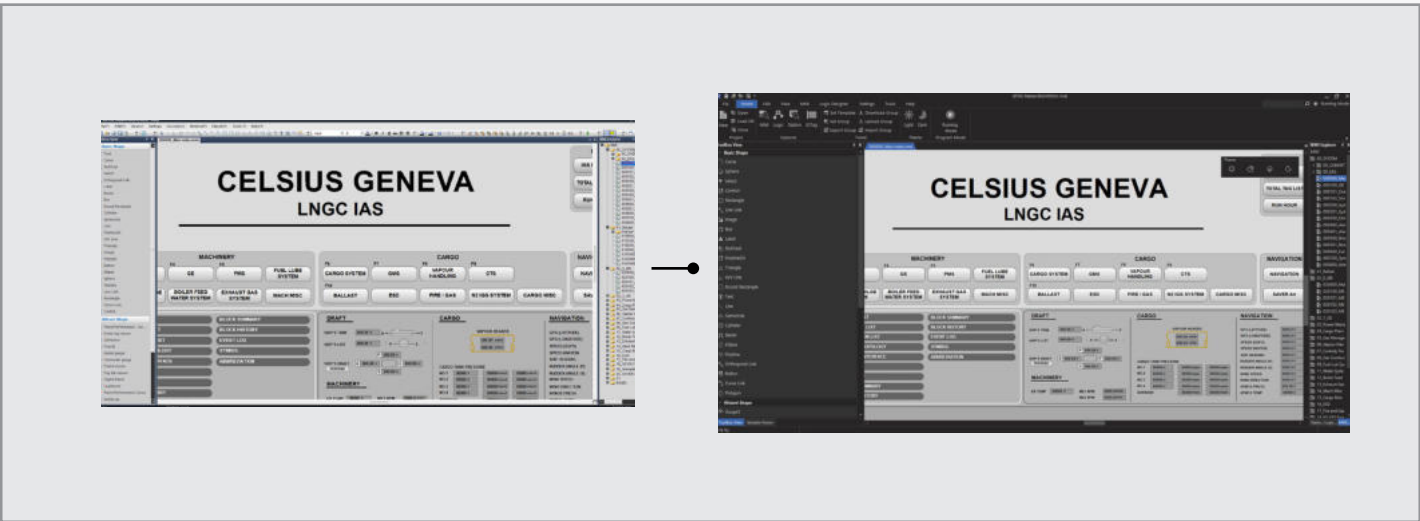
Multi-Monitor & Split Screen

Supports multiple monitors with customizable monitor layouts
Supports tab management and up to four split screens



User-Centric Design

User-centric design based on visual flow for better user understanding and usability.



TRAINING

IAS

This section presents the MIMIC display functions of the IAS, providing fully engineered graphical interfaces based on P&ID for real-time monitoring and control of onboard systems.

Step-by-Step Support

4-Step Training Program for SSAS-Master IAS Proficiency

S&SYS enhances operator and crew proficiency through a structured four-step training program. It provides both online and offline courses, GMS simulation, and onboard training before vessel delivery, enabling hands-on learning in real operating conditions for faster and more reliable system operation.

	1. Training Center Off-line training or On-line training for system operation and maintenance
	2. Onboard Training During commissioning period before vessel's delivery
	3. GMS Simulation Program for SSAS-Master Familiarization - GMS simulation program will be supplied for familiarization of SSAS-Mater - The program shall be prepared based on FAT inspection
	4. Onboard Service(Guarantee onboard) for 1st and 2nd vessels - For operating familiarization with SSAS-Master and skillfulness in operation 30days, 1 time or 15days, 2 times considering shift work team

SSAS-RMS

RMS

Remote Maintenance System

SSAS-RMS is an advanced remote monitoring and maintenance platform that enables real-time transmission and management of vessel data from shore.

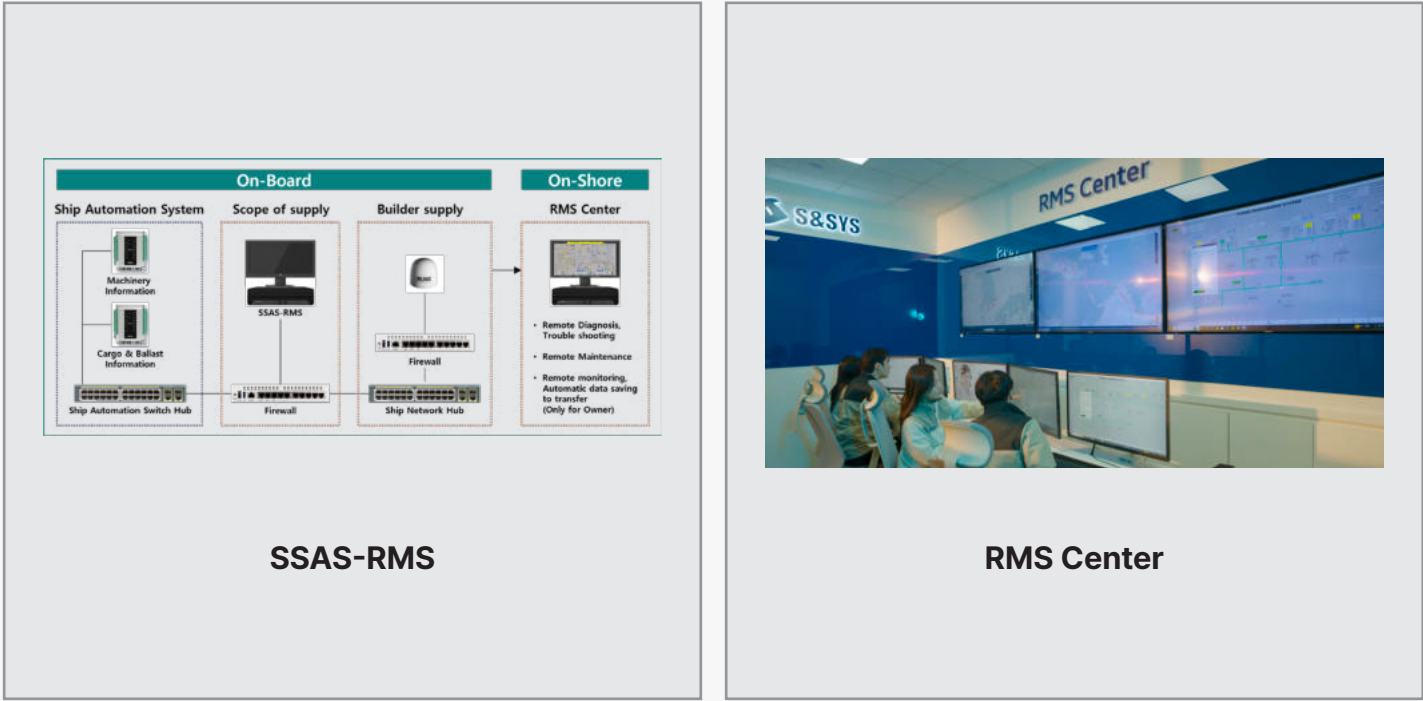
With integrated big data analytics, it empowers shipowners and operators to optimize vessel performance, efficiency and safety through data-driven insights.

Its Remote Maintenance (RMS) capability allows service engineers to deliver instant and effective technical support without boarding, ensuring continuous operation with zero downtime.

24/7 Support

Remote service via RMS

- Healthy check of system
- Troubleshooting
- Software modification
- Software update/uploading
- Crew training
- 24hr/7days service



TELECOMMUNICATION

Trusted for 30 Years

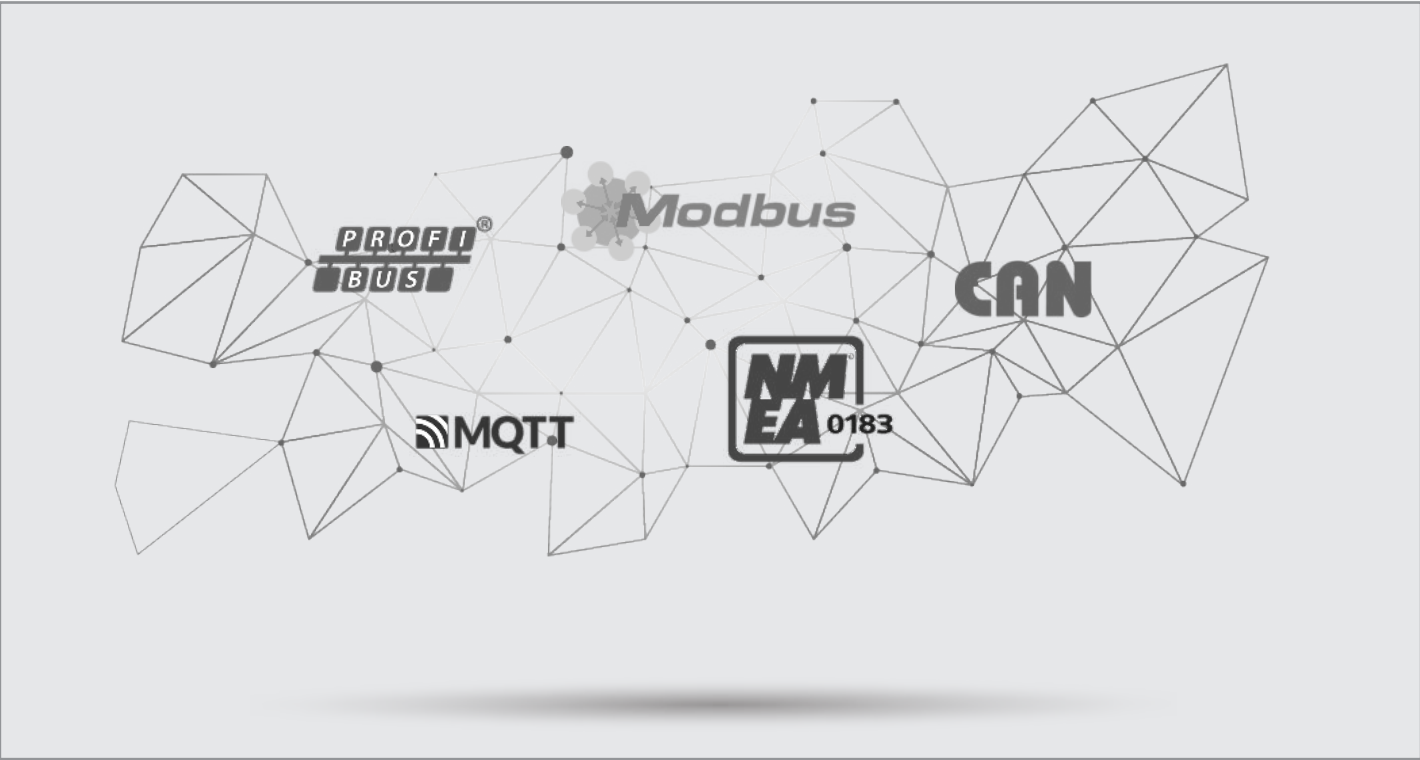
30 years of accumulated experience in various communications and interfaces

S&SYS has accumulated extensive experience in various communication methods and interfaces in the field of ship automation over the past 30 years. We support customer-specific data extraction — including Serial, Excel, and customized formats — and enhance operational efficiency through real-time monitoring and up to one year of data storage.

Based on this expertise, we provide optimized data reports and trend analysis tailored to the owner's requirements, enabling safer and more efficient vessel operation.

Export System

- Automation Data to Owners**
- Ship data is becoming increasingly vital.
 - It will play a key role in the future
- Flexible Data Extraction**
- Our solution supports various extraction methods. (Serial, Excel, Tailored formats, etc...)
 - Fully customizable to fit customer requirements.



Report & Trend

Report

Providing various formats for owner work logs

IAS reports automatically collect and organize data, providing a concise view of efficiency, fuel usage, and equipment status, while supporting Excel export for in-depth analysis.

1. Customized Reports for owner

Design reports tailored to user operational needs.

2. Automatic Data Collection

Extract real-time information directly from ship systems. Reduce manual input and ensure data accuracy.

3. Report Generation

Generates reports and supports Daily Report functionality.

Trend

Variable Communication & Interface Experience during 25 years

Real-Time & Historical Data Monitoring

Continuously collects and displays real-time ship system data while storing up to one year of operational records for historical reference.

User-Friendly Interface

Easily add or modify trend tags on the HMI using a simple drag-and-drop process, making configuration quick and intuitive.

Customizable Trend Groups

Create or modify trend groups in Excel, allowing user to select only the necessary data and quickly update monitoring parameters.

Quality Control

Proven Quality

A manufacturing factory has been certificated by class

- This certification for manufacturing of our Automation
- Proven manufacturing facility and management system by class
- The production methods, quality control system, products in factory have been verified by class.

Cyber-security

SSAS-Master X Cyber Security

S&SYS has obtained certifications from ABS, KR, and RMRS, and is currently in the process of securing additional approvals from various classification societies including LR, BV, NK, and DNV.

IACS UR E27 Cyber-security Compliance

Security features for 41 cyber-security requirements

System Access Control Features

Manage accounts and privileges with access to systems, preventing unintended use of systems

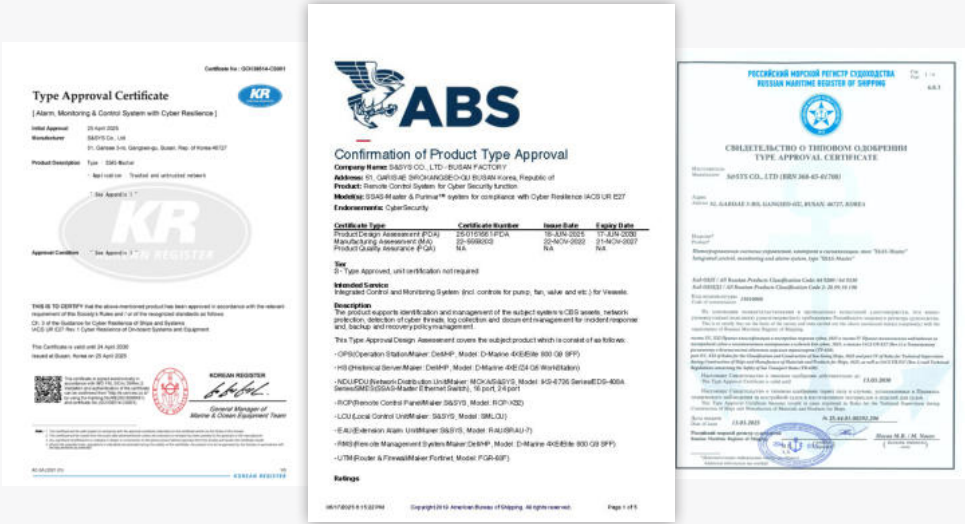
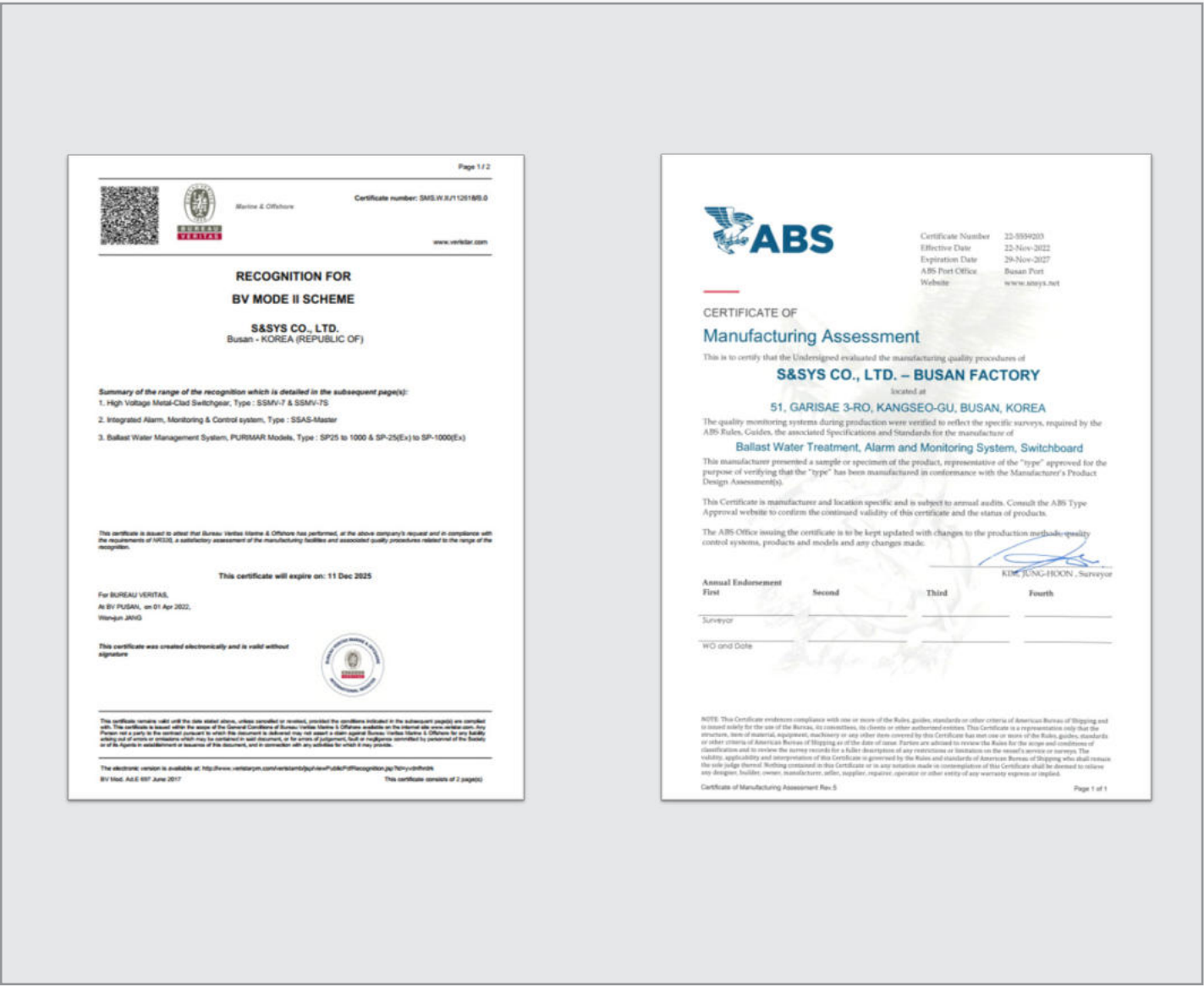
Compliance with three (3) elements of important security requirements

Ensure confidentiality, integrity, availability, and support reliable system use

DOS (Denial-Of-Service) Event detection, protection and recovery

DOS detection and Alarm summary notification in the event of a DOS situation in the SSAS-Master, SSAS-Master X system network

Automatically switch to redundant configuration network and recover system after DOS defense





Beyond Technology, Toward a Sustainable Tomorrow.

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