SSAS-Master is perfectly suited to the Marine and Offshore requiring high reliability. Its compact hardware & outstanding software modules contribute intuitive operating and efficient problem solving.
SSAS-Master is specifically designed to meet the needs of the next generation of high-tech Marine and Offshore industries. It employs the world’s latest cutting-edge integrated automation systems, along with a 3-D based GUI, providing optimal monitoring and control of critical equipment.

Why SSAS-Master?

- High performance & Reliable Component
  - 32-bit microprocessors with real-time OS
  - Compact and uniformed hardware structure of modules installed on DIN rail
  - Optimal maintenance: adjustable parameters and scalability on the system configuration and history data

- Excellent Integration & Interface
  - Various protocols and simple user-defined interface generation tools
  - Support new technology in customer's needs

- Power Reliability
  - Fault-tolerant configuration of process control and database
  - Multiple redundant communication channels and communication networks

- What can we offer?

- Cargo & Ballast System
  - Cargo Alarm Monitoring System
  - Loading & Unloading Sequence Control System
  - Ballast & De-ballast Sequence Control System
  - Pump & Valve Remote Control System
  - Pressurization & Insulation Space Monitoring System

- Machinery Systems
  - Machinery Alarm Monitoring System
  - Power Management System
  - Oil Transfer System
  - Auxiliary Control System

- Gas Management System
  - Stripping/Spray Pump Control System
  - Compressor/Heater/Vaporizer Control
  - Re-liquefaction Plant Control & Monitoring

- Oil & Gas Processing System
  - Separation System (Oil, Gas and Water)
  - Pre-Treatment System
  - De-hydration System
  - Gas Compressor & Surge Tank System

- Interface
  - Control Transfer System
  - Load/Unload System
  - Flash Animation
  - Active-X control

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SSAS-Master is the system of choice for those Marine and Offshore requiring a higher standard of reliability and productivity. Its compact hardware & state of art software modules contribute to intuitive operating and efficient problem solving.

**Installation**

Modules of SSAS-Master are configured in a cabinet according to the number of necessary channels and system requirements of each linear design. The average number of cabinets installed in the engine rooms is twelve.

**User-friendly convenient design**

- **World’s best card replaceable architecture**
  - Scalable system and modular operation enabled by card replacement
  - Flexibility in the number of channels
- **Each card is installed in a single case for protection of cards and easiness of production**
  - Improved productivity and reduced costs through removal of cases for individual cards
- SSAS-Master H/W won several world’s design awards, e.g., IF Product design, Reddot, GD Korea, etc.

**Notices of installation**

- All Units can be mounted directly on DIN-rail or cabinet directly
- Operating Temperature: -15°C ~ +70°C
- Maximum Humidity: 95%

Stepping towards the leading standard of marine automation

Integrated Automation System

**Redundancy**

- Fault tolerant configuration of process control and data
- Critical control data control off and IT: Ethernet network
- Remote replacement of faulty hardware without shutting off the system for continuous operation and easy maintenance
HARDWARE DESCRIPTION

- Main Units
  - Simplified and well-organized network configuration
  - Compact and enforced hardware structure of units installed on DIN rail
  - Simplified replacement of faulty hardware without turning off the system for continuous operation and easy maintenance

  **Motorola 32bit Embedded Microprocessor**
  - Fault Tolerant Ethernet Controller
  - Optical Isolated Fault Tolerant Communication (Profibus-DP)
  - Max. 8 Optical Isolated Serial Communication Channel
  - Add-in 3 Interface Modules (Option)

  **Motorola 32bit Embedded Microprocessor**
  - Fault Tolerant Ethernet Controller
  - Optical Isolated Fault Tolerant Communication (Profibus-DP)
  - Max. 16 Optical Isolated Serial Communication Channel
  - HART I/O Interface (Option)
  - Add-in 5 Interface Modules (Option)

  **Supporting Wireless Online Monitoring and Calibration Tool**
  - Optical Isolated Fault Tolerant Communication with PCU/FIU
  - Optical Isolated Fault Tolerant Communication with I/O Modules
  - Add-in 4 I/O Modules

  **PCU (Process Control Unit)**
  - SSAS-Master
  - Integrated Automation System
  - Draft Specification

  **Power**
  - Real Time Clock
  - LAN 1, 2
  - Backup Network Slot

  **I/O Network**
  - Serial Communication
  - Optional Communication
  - Direct I/O
  - Size: 174.5x300.7x123.6 mm
  - Input Voltage: 24VDC
  - Power Consumption: 16.54W
  - Power Connection: 8 Pin Screw Terminal Block
  - Ground Connection: 8 Pin Screw Terminal Block
  - Communication to Redundancy Connection: Slot 1, Slot 2, Slot 3
  - Status Display: Profibus DP, CANopen, Ethernet, LAN 1, 2, Backup
  - Isolation Connection: Slot 1, Slot 2, Slot 3
  - Heart Beat Status Display: Profibus DP

  **I/O Modules**
  - Slot 1: Profibus DP
  - Slot 2: CANopen
  - Slot 3: Ethernet

  **Operation Condition**
  - Operating temperature: -15°C ~ +70°C
  - Maximum humidity: 95% (Non-condensed)
  - Storage temperature: -30°C ~ +80°C
  - Supply voltage: 24V DC

**Eco Friendly**
- Pollution-free eco-friendly production system
- Eco-friendly design, green purchase system
- Use of PC/ABS resin, recyclable materials
- Prevention of environment pollution through semi-permanent use

**Integrated Automation System**

- Stepping towards the leading standard of marine automation
**SMMB-8 (SSAS-Master Modbus card with 8 Channels)**

- Modbus Serial Communication
- Fault tolerant function
- RS232/422/485 8 channels
- Insert in PCU/FIU Slot

**SMCAN-2 (SSAS-Master CANOpen card with 2 Channels)**

- CANOpen communication
- Fault tolerant switching function
- CANOpen communication 2 Channels
- Insert in PCU/FIU Slot

### Specifications

<table>
<thead>
<tr>
<th><strong>Type</strong></th>
<th><strong>Input Voltage</strong></th>
<th><strong>Power Consumption</strong></th>
<th><strong>PCU/FIU Connection</strong></th>
<th><strong>Number Of Ports</strong></th>
<th><strong>Redundancy</strong></th>
<th><strong>Status Display</strong></th>
<th><strong>Display Color</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>SMMB-8</td>
<td>5VDC, 3.3VDC</td>
<td>6W</td>
<td>96Pin Connector</td>
<td>8 Ports</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMCAN-2</td>
<td></td>
<td></td>
<td></td>
<td>2 Ports</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### HARDWARE MODULES

**SMLAN-2** (SAS-Master Ethernet card with 2 Channels)

- Ethernet communication
  - Fault tolerant switching function
- Ethernet communication 3 Channels
- Insert in PCU/FIU Slot

### Specification

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>5VDC, 3.3VDC</td>
</tr>
<tr>
<td>Communication</td>
<td>3.75W</td>
</tr>
<tr>
<td>Hot Swap</td>
<td>96Pin Connector</td>
</tr>
<tr>
<td>Size</td>
<td>112x90.4x28.8</td>
</tr>
<tr>
<td>Isolation Operating</td>
<td>Temperature -15°C~+70°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>95%</td>
</tr>
</tbody>
</table>

**PCU SLOT**

**FIU SLOT**

- **COM0 TX+**
- **COM0 TX-**
- **COM0 RX+**
- **COM0 RX-**
- **FG**

- **COM1 TX+**
- **COM1 TX-**
- **COM1 RX+**
- **COM1 RX-**
- **FG**

- **COM2 TX-**
- **COM2 TX+**
- **COM2 RX-**
- **COM2 RX+**
- **FG**

- **COM3 TX-**
- **COM3 TX+**
- **COM3 RX-**
- **COM3 RX+**
- **FG**

- **COM4 TX-**
- **COM4 TX+**
- **COM4 RX-**
- **COM4 RX+**
- **FG**

- **COM5 TX-**
- **COM5 TX+**
- **COM5 RX-**
- **COM5 RX+**
- **FG**

### Terminal

**SSAS-MASTER**

### Draft

**Dimension**

- 174.5x325x127.1
- for IOGW
- for IO

**Power & Ground Connection**

- 24VDC
- 0.1W
- 8 Pin Screw Terminal Block
- 8 Pin Screw Terminal Block
- To PCU
- Support Network Redundancy
- 12Mbps
- Upper Dip Switch
- D-Sub 9 Pin Connection
- Screw Terminal Block
- Each IO Slot has 24pin Terminal Block
- M4 Screwx5

### IOU (Input Output cards Unit)

- **Input/Output Modules**
- **Profibus DP**
- **To PCU**
- **DeviceNet**
- **To IOU**

### Draft

**Dimension**

- 8 Channel IO
- Terminal Block
- 12 Channel IO
- Terminal Block

**Profibus DP**

- **Address**
- Dipswitch
- **IOGW Slot 1**
- **IOGW Slot 2**
- **IO Slot 1**
- **IO Slot 2**
- **IO Slot 3**
- **IO Slot 4**

**DeviceNet**

- **Address**
- Dipswitch

Stepping towards the leading standard of marine automation.
SMIOGW (SSAS-Master Input Output Gateway)

**Specifications**

- **Power**
  - Profibus DP
  - DeviceNet
- **IR**
  - Backup
- **Max IO**
  - Earth Detection
- **Status Display**
  - Each Network, Earth and Module
- **Size**
  - Green/Red: 11
  - Display Color: 1
- **Hot Swap**
  - Support

**Input Voltage**: 24VDC

**Power Consumption**: 3.12w

**IOU Connection**: 48Pin Connector

**Port Speed**: 12Mbps

**Address**: 2 IOGWs can have same or different addresses.

**DeviceNet Master**

**Port Speed**: 1Mbps

**Address**: 1 Port

**CAN_L(-) CAN_H(+)**

**Dimension**

- PROFIBUS DP PINMAP
- DEVICENET PINMAP

**Insert in IOU slot of IOU**

**Other PLC Controller**

SSAS-Master Integrated Automation System

Stepping towards the leading standard of marine automation

**SMID-8/12 (SSAS-Master Digital Input 8/12 Channels)**

- **Power**
  - DeviceNet Slave
  - DCDC Converter
  - Source/Sink

**Number of Channels**

- **Type**
  - 8 Channels
  - 12 Channels

**Earth Detection**

- Optical Isolated Fault Tolerant Communication

**Status Display**

- Digital Input 8/12 Channels

**Size**

- 11

**Operating Temperature**: -15°C to +70°C

**Maximum Humidity**: 95%

**Input Voltage**: 24VDC

**Power Consumption**: 3.6w/5.0w

**IOU Connection**: 96Pin Connector

**Port Speed**: 1Mbps

**Address**: 8/12 Channels

**Display Color**: Green/Red

**Support Hot Swap**

- DeviceNet, Earth, Module and Channel

**Source Type (SMID-8 Cabling)**

- Source Type (SMID-12 Cabling)

**Sink Type (SMID-8 Cabling)**

- Sink Type (SMID-12 Cabling)

**SMDI-8/12 in Slot 1 of IOU**
**SMDO-8/12 (SSAS-Master Digital Output 8/12 Channels)**

- **Specifications**
  - **Power**
    - Input Voltage: 24VDC
  - **DeviceNet**
  - **Number of Channels**
    - 8/12 Channels with Relay
  - **Type**
    - Earth Detection
  - **Status Display**
  - **Size**
    - Hot Swap
  - **Operating Temperature**
    - -15°C~+70°C
  - **Maximum Humidity**
    - 95%
  - **Input Voltage**
    - 24VDC
  - **Power Consumption**
    - 4.81W/5.0W
  - **IOU Connection**
    - 96Pin Connector
  - **Isolation**
    - DCDC Converter
  - **LED Display Color**
    - Green/Red
  - **Dimension**
    - 112.8x90.4x24.2

**SMDO-12 Cabling**

- **SMDO-8 Cabling**

**Draft**

- Digital output
  - Earth & short circuit detection function
- Digital Output 8, 12 Channels with Relay
- Optical Isolated
- Insert in IO slot of IOU

**Integrated Automation System**

Stepping towards the leading standard of marine automation.

**SMAIC-8/12 (SSAS-Master Analog Current Input 8/12 Channels)**

- **Specifications**
  - **Power**
    - Input Voltage: 24VDC
  - **DeviceNet**
  - **Number of Channels**
    - 8/12 Channels (4~20mA)
  - **Type**
    - Earth & short circuit detection function
    - Analog Current Input 8, 12 Channels (4~20mA)
  - **Status Display**
    - Insert in IO slot of IOU
  - **Size**
    - Hot Swap
  - **Operating Temperature**
    - -15°C~+70°C
  - **Maximum Humidity**
    - 95%
  - **Input Voltage**
    - 24VDC
  - **Power Consumption**
    - 8.03W/11.24W
  - **IOU Connection**
    - 96Pin Connector
  - **Isolation**
    - DCDC Converter
  - **LED Display Color**
    - Green/Red
  - **Dimension**
    - 112.8x90.4x24.2

**SMAIC-12 Cabling**

- **SMAIC-8 Cabling**

**Draft**

- Analog current input
  - Earth & short circuit detection function
- Analog Current Input 8, 12 Channels (4~20mA)
- Insert in D slot of IOU
- HART (Smart type)

**Integrated Automation System**

Stepping towards the leading standard of marine automation.
**SMOC-8/12 (SSAS-Master Analog Current Output 8/12 Channels)**

- Analog current output
- Earth & short circuit detection function
- Analog Current Output 8,12 Channels (4~20mA)
- Insert in IO slot of IOU

**Specification**

<table>
<thead>
<tr>
<th>Power</th>
<th>DeviceNet</th>
<th>Number of Channels</th>
<th>Resolution</th>
<th>Earth Detection</th>
<th>Status Display</th>
<th>Size</th>
<th>Hot Swap</th>
<th>Operating Temperature</th>
<th>Maximum Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Voltage</td>
<td>24VDC</td>
<td>96Pin Connector</td>
<td>DCDC Converter</td>
<td>DeviceNet Slave</td>
<td>2 Port</td>
<td>1Mbps</td>
<td>8/12 Channels</td>
<td>-15°C~+70°C</td>
<td>95%</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>7.03W/8.74W</td>
<td>Photocoupler</td>
<td>4~20mA</td>
<td>16bits</td>
<td>Support Earth Detection</td>
<td>DeviceNet, Earth, Module and Channel</td>
<td>Green/Red</td>
<td>112.8x90.4x24.2</td>
<td>Support Hot Swap</td>
</tr>
</tbody>
</table>

**SMRTD-8 (SSAS-Master RTD Input 8 Channels)**

- Resistance temperature detect input
- Earth & short circuit detection function
- Resistance Temperature Detect Input 8 Channels
- PT100, JPT100, NI100, NI120, CU10, PT50
- Insert in IO slot of IOU

**Specification**

<table>
<thead>
<tr>
<th>Power</th>
<th>DeviceNet</th>
<th>Number of Channels</th>
<th>Resolution</th>
<th>Type</th>
<th>Wire</th>
<th>Input Range</th>
<th>Earth Detection</th>
<th>Status Display</th>
<th>Size</th>
<th>Hot Swap</th>
<th>Operating Temperature</th>
<th>Maximum Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Voltage</td>
<td>24VDC</td>
<td>96Pin Connector</td>
<td>DCDC Converter</td>
<td>DeviceNet Slave</td>
<td>2 Port</td>
<td>1Mbps</td>
<td>8 Channels</td>
<td>-15°C~+70°C</td>
<td>95%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Consumption</td>
<td>3.84W</td>
<td>Photocoupler</td>
<td>24bits</td>
<td>PT100, JPT100, NI100, NI120, CU10, PT50</td>
<td>Support Earth Detection</td>
<td>DeviceNet, Earth, Module and Channel</td>
<td>Green/Red</td>
<td>112.8x90.4x24.2</td>
<td>Support Hot Swap</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SMTC-8 (SSAS-Master Thermo Coupler 8 Channels)

- **Thermocouple Input**
- Earth & short circuit detection function
- Thermo-Coupler Input 8 Channels
  - K, J, T, R, S, E, N, L, U, C Types
  - Insert in IO slot of IOU

#### Specification

<table>
<thead>
<tr>
<th>Power</th>
<th>DeviceNet</th>
<th>Number of Channels</th>
<th>Resolution</th>
<th>Type</th>
<th>Cold Junction input Range</th>
<th>Earth Detection</th>
<th>Status Display</th>
<th>Size</th>
<th>Hot Swap</th>
<th>Operating Temperature</th>
<th>Maximum Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DeviceNet, Earth, Module and Channel</td>
<td>Green/Red</td>
<td></td>
<td></td>
<td>-15°C ~ +70°C</td>
<td>95%</td>
</tr>
</tbody>
</table>

#### Cabling

- **SMTC-8 in Slot 2 of IOU**

### SMPI-8 (SSAS-Master Pulse Input 8 Channels)

- **Pulse Input**
- Earth & short circuit detection function
- Pulse Input 8 Channels (Sink/Source)
  - Up, Down Count (11 Count Mode)
  - Optical isolation
  - Insert in IO slot of IOU

#### Specification

<table>
<thead>
<tr>
<th>Power</th>
<th>DeviceNet</th>
<th>Count Mode &amp; Number of Channels</th>
<th>Max. Input Frequency</th>
<th>Input Type</th>
<th>Earth Detection</th>
<th>Status Display</th>
<th>Hot Swap</th>
<th>Operating Temperature</th>
<th>Maximum Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DeviceNet Slave</td>
<td>DeviceNet Slave</td>
<td>2 Port</td>
<td>500Kbps</td>
<td>8 Channels</td>
</tr>
</tbody>
</table>

#### Source Type (SMPI-8 Cabling)

- **Sink Type (SMPI-12 Cabling)**

#### Cabling

- **SMPI-8 in Slot 3 of IOU**
HMI (Human Machine Interface)

- **3rd Party Control**
  - It’s possible to install diverse 3rd Party objects, e.g., PDF, media player, etc. which are available on MS Windows onto HMI and use them. These objects are applicable in various applications, for instance, providing users with manuals in PDF or Windows media file format and supplying with moving pictures.

- **Realistic User Interface**
  - It’s easy for operators to recognize the conditions of the corresponded equipment by using 3D flash animations presenting pump, valve, etc. directly on the HMI.

User-friendly Graphic Image Library

- The various graphic images in the graphic library raises the quality of MMI much more perfect and reduces the additional designing work simultaneously.
- The graphic image library is easily extendable henceforth.

Diverse trend charts supporting

- Various trend charts supporting
  - Line chart
  - Stacked line chart
  - 2d bar chart
  - Area chart
  - Column chart
  - Spline chart
  - Bar chart
  - Area chart
  - Marker shapes and styles
  - 3D bar charts
  - Area charts
  - Ribbon charts

- Trend Tooltip
  - It is possible to check the current status and miscellaneous information through the Tooltip messages.

- Multi Pane
  - Classifying panes by chart and printing them out is practicable at printing several charts.

- Print preview & printing

Diverse Gauge Images Support

- It provides over 90 gauge images which are designed completely.
- Easy accessibility to each tag through the tag attribute viewer
  - It’s able to pop up the tag attributes on alarm summary, alarm history, etc.
  - Easy accessibility to tag, logic information, trend and alarm information
  - Easy accessibility to tag, logic information, trend and alarm information
  - Easy accessibility to tag, logic information, trend and alarm information
  - Easy accessibility to tag, logic information, trend and alarm information

Multi-screen arrangement

- Monitoring and controlling at the same time are available by arranging multi HMI screens as tiles layout.

Report Manager

- The report system is designed to easily meet various ship owners requirements by adopting the user-friendly XML and Excel COM technology.
- It creates reports from a list of templates.
- It can also design the report configuration for scheduled or interactive execution and various output forms.
- It’s easy to design the report configuration for scheduled or interactive execution and various output forms.
**Software**

**Engineering Tools**

**Main Manager**
- Easy and intuitive user interface
- User-customized GUI which is flexible on any setting
- Conveniently integrated engineering and monitoring environments
- Supporting various OS and hardware
- Maintains security mechanism with easy and flexible configuration

**Logic Designer**
- Easy and intuitive engineering environment
- Highly cooperative engineering environment with program configuration management
- Effective debugging environment via real-time monitoring and processing each simulation result

**Infrastructures**

**Database**

- [**Database Redundancy**](#)
  - Redundant HS is an optional configuration.
  - The redundancy is designed to fail over to a Backup station in the event of a single failure of the primary or active station by retaining identical data.

- [**Configuration Database**](#)
  - HS maintains the data integrity through the version system and Microsoft’s state-of-the-art database technologies on .NET framework 3.0.

- [**History Database**](#)
  - HS provides various types of historical data. The history system of SSAS MASTER is composed of editable logging interval... falls below user-defined threshold. Historical data are available for trend display, report, alarm history viewer, etc.

- [**Knowledge Database**](#)
  - SSAS-MASTER presents a case by case troubleshooting guide by partially sharing Samsung shipyard’s knowledge database.

- [**Asset Management System (AMS)**](#)
  - Device Condition Monitoring & Maintenance with Report
  - Configuration and Diagnostic intelligent Field Devices
  - HART, Profibus, Foundation Fieldbus Routing

**Fault Tolerance Network**

- Composition of various campuses is possible through system extension.
- Support for monitoring and control of various types of networks and systems.

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**Accessories**

**Remote Maintenance Function**

- Easy web-based monitoring and control user interface with security
- Remote and preventive maintenance in various off-site environments
- Remote management of ship’s navigational and operational data

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- Easy web-based monitoring and control user interface with security
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**Display Panel**

- 8.4” Touch Screen
- FANLESS Panel Workstation
- Network Interface (10/100Mbps, 2port)
- Embedded Keypad for Marine Application
- Removable USB HDD (Option)

**Extension Alarm Panel (Remote Alarm Unit : RAU )**

- LCD (40Ch. x 4Lines with LED back light)
- Dual Serial Interface (RS-485)
- Bright control of LCD, LED
- 16 alarm groups
- Relay contact for external buzzer
- Watch calling function

**CCTV System (Optional)**

- Pictures of engine rooms or other locations on board can be displayed on workstation with max. 10 screens simultaneously

**Internet Firewall**

- On-line access from an ashore office via internet
- Remote diagnostics via satellite
- Planned & optimized maintenance (Repair / Regular Inspection / Onboard Spare Parts)
- Fuel saving rout plan and Voyage (Online updates for ECDIS chart & Weather forecast)

**SSAS MASTER**

- [**Type Approved by**](#)
  - ABS, BV, DNV, GL, KR, LR and RINA

- [**ISO 9001**](#)
  - Manufactured by Quality management program

- [**EMC Properties**](#)
  - According to IACS E10, IEC 60945
**Engineering Tools**

- **Main Manager**
  - User-friendly GUI which is flexible on any setting
  - Consists of integrated engineering and operating environments
  - Supporting various OS and hardware
  - Maintains safety mechanism with easy and flexible configuration

- **Logic Designer**
  - Easy and intuitive engineering environment
  - Highly cooperative engineering environment via program configuration management
  - Effective troubleshooting environment by real-time monitoring and processing each simulation result

**Infrastructures**

- **Database**
  - Historical Station (HS)
    - Based on the optimized redundant DBMS provides robustness and scalability on the system configuration and history data
  - Configuration Database
    - Redundant HS is an optional configuration. It is designed to fail over to a backup station in the event of a single failure of the primary or active station by retaining identical data
  - Configuration Database
    - HS maintains the data integrity through the version system and Microsoft’s state-of-the-art database technologies on the .NET framework 3.0
  - History Database
    - SSAS-MASTER presents a case by case troubleshooting guide by partially sharing Samsung shipyard’s knowledge database

- **Asset Management System (AMS)**
  - Device Condition Monitoring & Maintenance with Report
  - Configuration and Diagnostic intelligent Field Devices
  - HART, Profibus, Foundation Fieldbus Routing

**Excellent SSAS-Master’s System Configurations**

**OTS (Operator Training Simulator)**

- **Mimics**
- **Outside Feature of OTS Configurations**
  - SSAS-Master Operator Station
  - Modeling of Energy & Power
  - LNGC Process Modeling
    - LNG Loading / Unloading Process: GMS (Gas Management System) Process
  - Topside Process Modeling
    - Gas Process (NGL, Dehydration, Amine Treatment, etc.): Regasification Process
  - Cooling Seawater System Modeling
    - Variable Speed Pumps, Heat Exchangers and Valves

**Getting towards the leading standard of marine automation**