Marine Satellite Control System

Pan MSCS™

Service Introduce

PANASIA

Value Added Service

Marine Satellite Control System
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❖ Summary

This ICT-based control system is designed to gather and monitor satellite data on the operations of PANASIA's products (BWTS and SOx scrubber) on board without any time or space constraints so that the status of the product can be checked. If a problem occurs, the system diagnoses the problem and sends a notification of the solution so that crew can solve it easily. Since the system also informs you when to change consumables on the product, it is very helpful for maintenance and repairs.

Services

- PSC Response
- Product Diagnostics
- Spare part
- UV Lamp Diagnostics
- Vessel Monitoring

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❖ Benefits

PSC Response	PSC reports can be viewed from any location where the service is connected.
Product Diagnostics	Monitoring the status and operation of a product and sending diagnostics and instructions.
Spare Part	Sending notification of spare part change based on big data analysis
Vessel Monitoring	Status and Real Time data on your connected products.

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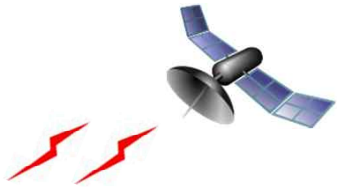
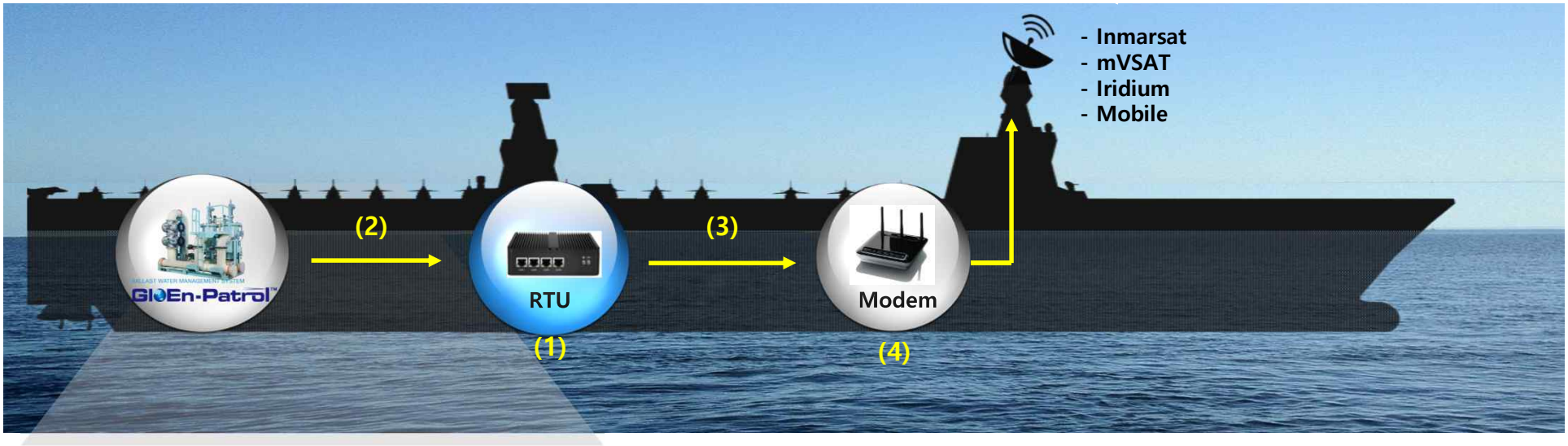
❖ Schematic Diagram





1. Install RTU(Remote Terminal Unit)
2. Connect with BWMS or EGCS to RTU via Ethernet(LAN)
3. Connect with RTU to Satellite Modem via Ethernet(LAN)
4. Modification of satellite configuration

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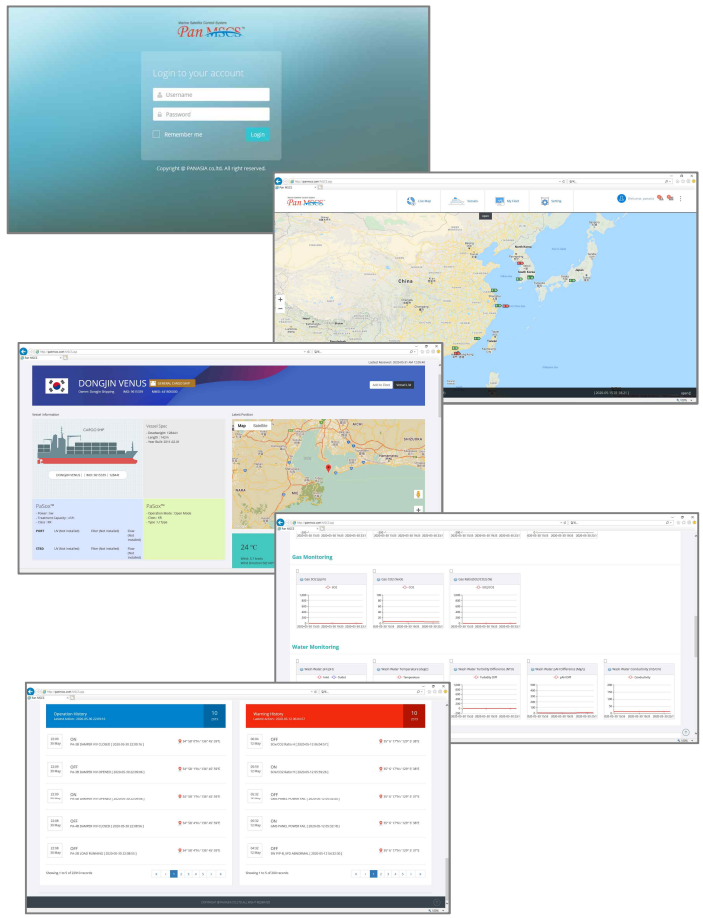
❖ Currently available services (Beta service)

- User ID issuance and website access

1. Monitoring position of the vessel
2. Providing vessel information
3. Product Analog data display
4. Product status and alarm indication



Status and operation of the product can be monitored on land.

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❖ Scheduled service

- Add Items for Monitoring (Same function as HMI)
- Main sensor management
- Monthly analysis report
- Report for PSC
- Provide troubleshooting guide

➡ ✓ **By strengthening the monitoring function, a reliable product diagnosis is possible**

✓ **Can use the service for product management**

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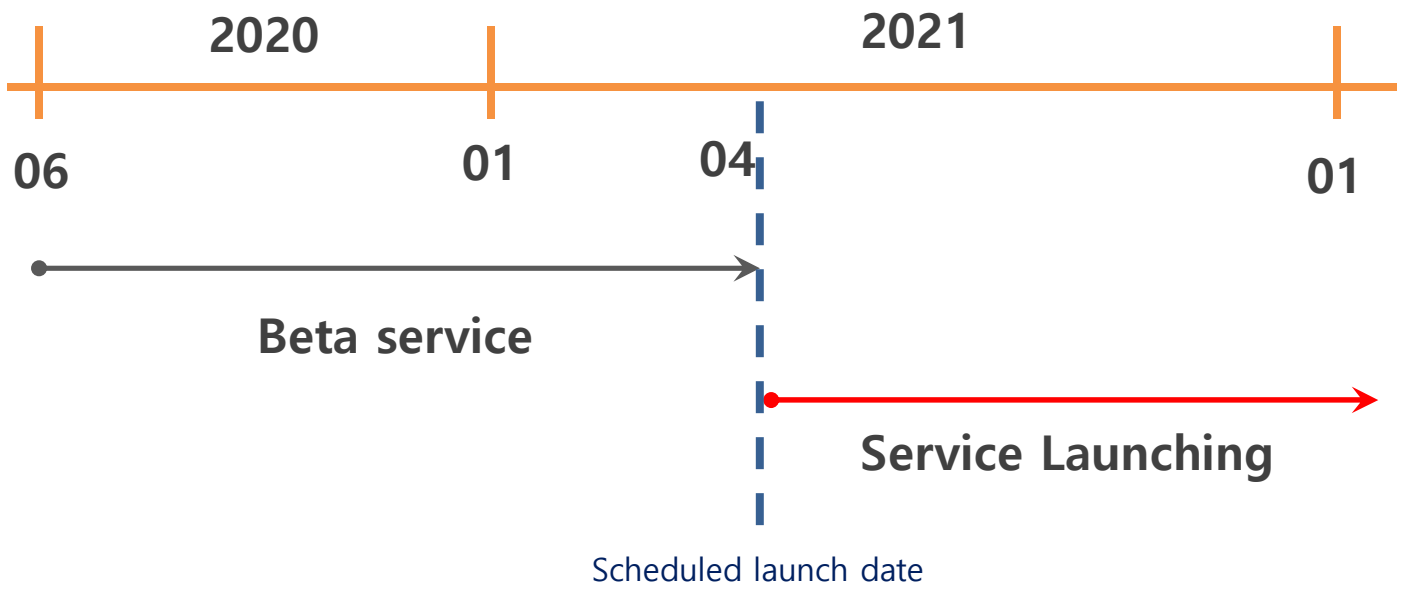
❖ Service planning



- When installation is complete, the user ID of the beta service is issued.

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❖ Service price

- The beta service can be used free of charge.
- Free use for a certain period after Service Launching.
- The subscription fee is approximately $7,200 per year. (Not fixed)
- Annual subscription fees vary by product.
- The detailed subscription fee will be announced after the service is launched.

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❖ Installation Guide

Item	BWMS	EGCS
RTU	• Installed at BWMS or EGCS main control panel	
Satellite Requirement	• Inmarsat FB-250, Inmarsat FB-500, Iridium Pilot, Iridium Certus, mVSAT • If vessel is supported internet access, It is ready to service. • mVSAT or higher satellite system is required for better quality service. • Real-time service is limited when using the lower than mVSAT	
Monthly Data Usage	Max. 10MBytes	Max. 20MBytes
Monthly Airtime Cost	• NO extra cost : We use only as much as the margin of the monthly data supply. • The cost may difference regarding satellite service provider and billing plan.	

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❖ Specification of RTU

Dimension	133mm(W) x 125mm(D) x 40mm(H)
Weight	1.3kg
Processor	Intel® Celeron™ J1900(Quad-Core 2MB L2, 2.0GHz)
Interface	RJ-45x4, USBx2, HDMIx1, VGAx1
Power Input	DC-24V
Power Consumption	<10Watts
Operating Temperature	-20°C~80°C

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❖ Installation Requirement

	Requirement	Remark
Step1	• Cable installation from BWTS/EGCS main control panel to ship's satellite system • Specification of cable : STP Cat.5e or higher with RJ45 connector	Ship owner
Step2	• Modify satellite configuration by satellite service provider (See page 11~12)	Ship owner
Step3	• Install RTU in BWTS/EGCS main control panel • RTU is installed by our(PANASIA) service engineer.	PANASIA
Step4	• Registered Vessel with Pan-MSCS service • The RTU's IP address and port used must be assigned by a satellite service provider. (Port used : 33883 and 33884) • Let me know kind of satellite platform.(e.g. Inmarsat FB-500, mVSAT, and etc.)	PANASIA

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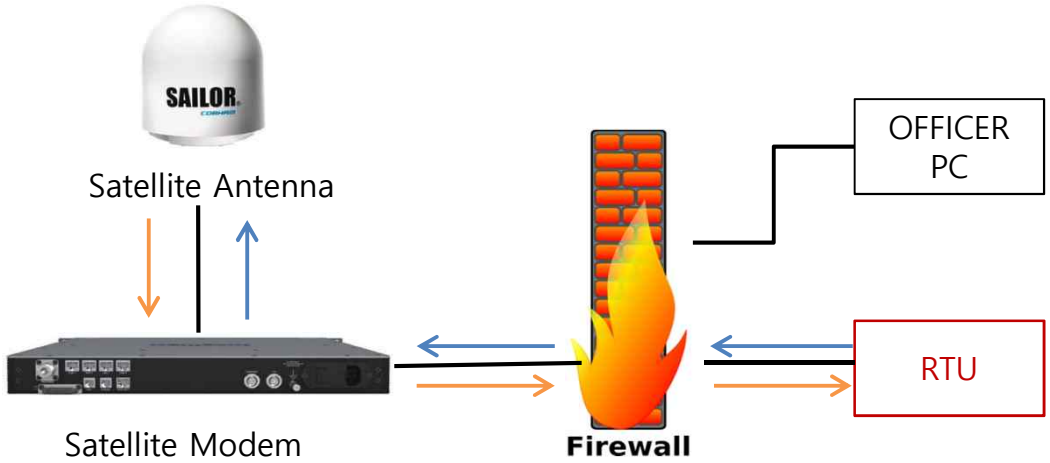
❖ Modify satellite configuration by satellite service provider

You need an IP address to connect to the Internet and set up a satellite network.

To install, ask your satellite administrator to set up your satellite configuration as follows:



Firewall Rule	Type/Protocol	Source IP	Source Port	Destination IP	Destination Port
Outbound	TCP	RTU-Assigned by satellite provider	33883 and 33884	106.255.250.154 (PANASIA's server)	33883 and 33884
Inbound	TCP	106.255.250.154 (PANASIA's server)	33883 and 33884	RTU-Assigned by satellite provider	33883 and 33884

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❖ Modify satellite configuration by satellite service provider

RTU's IP address is must assigned by satellite service provider.

To use Pan-MSCS service, please provide the following information to our(PANASIA) service engineer:

Question		Answer
RTU	IP Address	
	Default Gateway	
	Subnet Mask	
How much data can we use per month? We use only as much as the margin of the monthly data supply. If you use mVSAT, Ignore it.		

Thank you