XC ICCT Network System, to realize the optimum integrated communication soultions.

We provide more safe voyage, better ship's management, better crew welfare via maritime satellite communication & shipboard wire and wireless network

- Global MVSAT Airtime service plan
- VSAT&TVRO Antenna
- Seamless Marine Router
- Marine Cloud Server
- Wire & Wireless Network System

- IP CCTV System
- VXT(Video Crossing Transcoder)
- VoIP Auto Telephone System
- IP Clock System
- IP PA & GA System
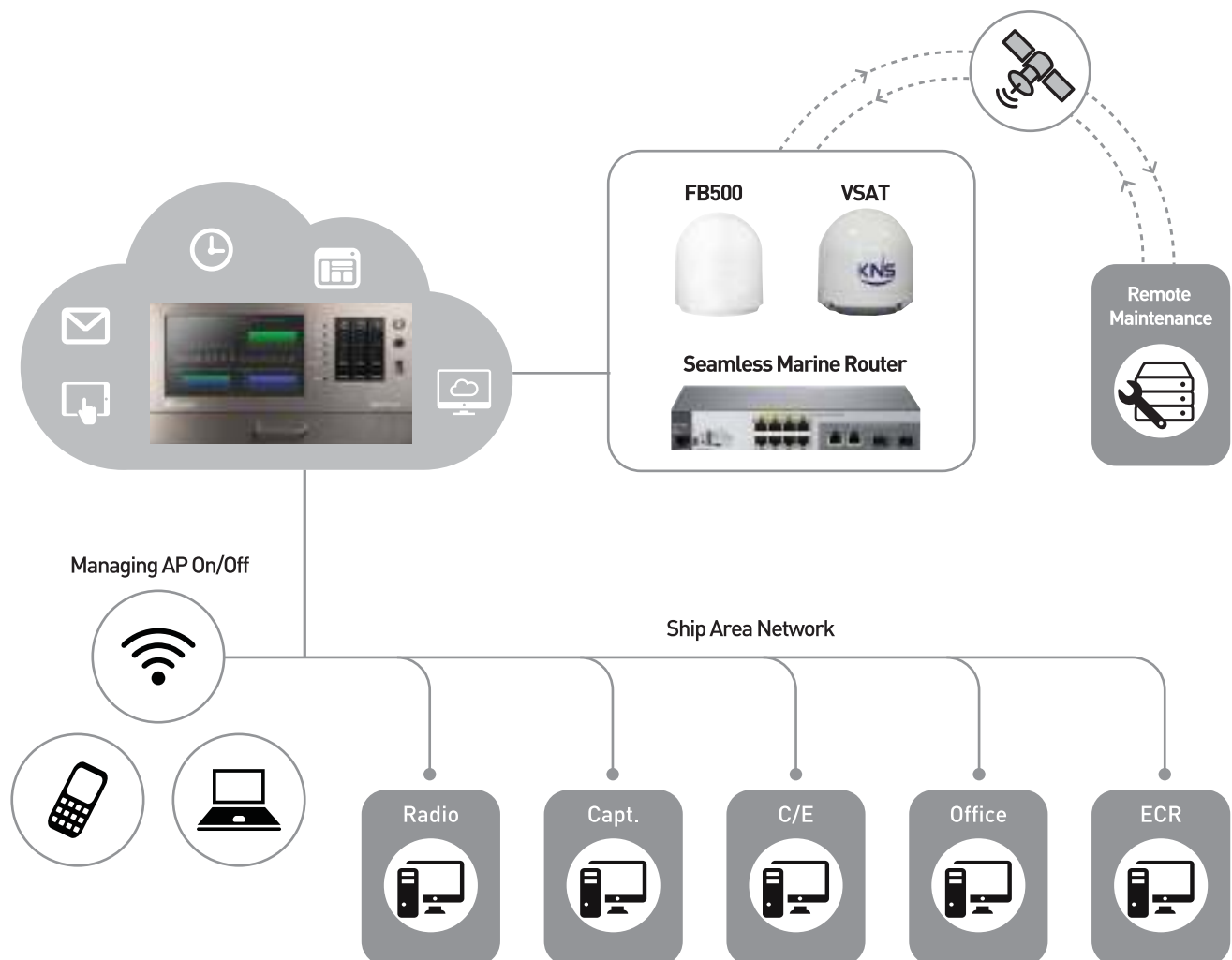- Multi Line Communication System

Composition of XC Network System

Satellite Antenna

Server Rack

- Seamless Marine Router
- Fire Wall
- Backbone
- Marine Cloud Server
- IP PBX
- NVR / DVR
- VXT (Video Crossing Transcoder)
- NTP Server
- IP PA & GA Main Unit
- Streaming Server
- PoE Switch Hub
- Patch Panel
- UPS

VSAT	TVRO
Seamless Router	**Marine Cloud Server**
VoIP Auto Telephone	**Wireless Network System**
VXT (Video Crossing Transcoder)	**IP CCTV System**
IP PA & GA System	**IP Clock System**
Video Conference System	**IP TV System**

Marine Cloud Server

Marine Cloud Server is the centralized clouding computing system and optimized for marine environment

FB500   VSAT

Seamless Marine Router

Remote Maintenance

Managing AP On/Off

Ship Area Network

Radio   Capt.   C/E   Office   ECR

Key Features

- Economic Feasibility
- Application of Anti Virus
- Prevention of Heat
- Security Tightness
- Application of Large Touch Screen Monitor

- Application of Recovery Program
- Application of Anti Vibration Kit
- Inbuilt Active UPS
- Automatic Back-Up of Important Data
- Application of Management

Features

Economic Feasibility

As for liners, initial introduction cost can be reduced as cloud-based environment can be constructed by supplying server to the computer in use. Considering that replacement cycle is 5 to 10 years, the maintenance cost is reduced by 40% compared to the server and client pc (5sets) of existing systems. Thin client installed in client section can embody Green IT because it consumes much less power than general desk top's. Also, you can reduce maintenance cost significantly which accounts for 70~80% to supply price of PC.

Application of Anti Virus

Data can be protected from malicious code or virus by updates via satellite twice-daily. When updated, you can also reduce satellite communication costs since the data is transmitted through a very high compression ratio.

Prevention of Heat

Self-manufactured outer shell and marine cloud internal hardware are designed to withstand high temperature and high humidity environments as efficiency deployment of cooler considering heating and ventilation.

Security Tightness

Every importantdata is installed on a marinecloud server. By centralized control of data, you can strengthen security. In case of consignment management or redelivery of vessel, you can also prevent important data leakage because it doesn't leave any important data anywhere on the ship if HDD of server is removed.

Application of Large Touch Screen Monitor

It has applied to the front with 10.4 LCD touch panel. You can understand the server's operating status at a glance, without additional monitor. Based on this, you can easily deal with the problems with just a few touches when occur.

Application of Recovery Program

It can minimize the data loss and save schedule back-up due to the self-developed recovery software. Also, it prevents data loss when blackout since it has the battery inside of marine cloud.

Application of Anti Vibration Kit

Self-developed vibration prevention device corresponds to 30 ~ 40Hz vibration frequency of vessel applied to inside and outside of case and minimized damages to the hardware for the vibration.

Inbuilt Active UPS

When there is no power in the ship, electrical shock can be prevented since it will be operated by auxiliary power built inside the UPS for a period of time. After a period of time, OS will be shutdown automatically and safely and it will prevent damages.

Automatic Back-Up of Important Data

Important data of server can be double backed up in the way of mirroring the same as hardware back-up. The schedule will be backed up with a self-developed recovery solution. And you can easily recover it at a point you want during the failure with software.

Application of Management

Marine cloud server basically includes email, e-manual, e-drawing.

Product Specification

Marine Cloud Standard Server

- CPU : E5-2620V3 (Haswell-EP) - Main Board : ETC - RAM : DDR4 16G PC4-17000 ECC (64G) - Boot : SSD 1TB
- Storage : SSD 1TB * 1TB - LANcard : PCI-E 10G GIGABIT CARD - Power Supply : 500/450W-S20(With Auto shutdown system)
- UPS Battery : DC 24V / 10A - Anti Vibration Kit : Silicon Mounting - Keyboard : 80key Keyboard (with Touch Mouse)
- LCD : 10.2inch CT Touch LCD - Window Server 2012 R2 - Sophos Anti-Virus(1year) - Auto Recovery System - RMS System
- Shipoffice(Ship E-mail System) - e-MMS(e-Manual Management System) - e-DMS(E-Drawing Management System)

Client PC

- HP 24" Monitor - Thin Client Device - Anti-Vibration SUS Bracket for vessel

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Multi Line Communication Modem

Multi Line Communication Network Technology

Multi Line Communication Network Technology is transmitting network signal, TCP/IP based through power cable (AC100~230V), interior communication cable (telephone wire & speaker) and Coaxial cable (CCTV & TV) which are already installed in the ship. If the network should be additionally installed into the specific section of new or current ship building project, its technology makes the communication network available without extra cable routing.

By using a variety of installed cables in the ship, it is effective for cost reduction of additional cable construction and it can dramatically reduce construction time as well.

Economic Feasibility

By using installed cable, network communication is properly operated without extra cable construction so you can dramatically reduce construction expense and time for cable installation. On the basic of UTP Cable 1point, it can reduce 80~90 percent of expense at maximum, subject to 500M installation.

Expandability

It is enable for additional expansion just with installation of simple modem and simultaneous access to 1:32~1:238 node is also available according to the product.

Durability

Since it is produced 365 Day full operation standard, it boasts brilliant durability even in a hard condition.

Compatibility

In case of PLC, DLC and G.hm modem, compatibility is highly excellent as it can be compounded with basic backbone network in the ship.

Security

In case of PLC, DLC and G.hm modem, it can be composed of individual network without additional installation for security device as it is composed apart from backbone network.

Main Features

PLC
Power Line Communication

PLC Modem can communicate at a speed of 10~30 Mbps depending on its distance–Maximum 500m-and condition. Also it is possible to scale up to 128 users.

PLC Modem, industrial communication modem, enables data communication by using vessel's power line. And it is suitable for old or existing vessel's data acquisition which uses small packet usage.

DLC
Data Line Communication

DLC Modem can communicate at a speed of 50~100 Mbps depending on its distance-maximum 1.2 Km- and condition. Also it is possible to scale up to 128 users.

DLC Modem, industrial communication modem, enables data communication by using vessel's speaker or telephone line. And it is suitable forold or existing vessel's PC communication and CCTV Monitoring in HD.
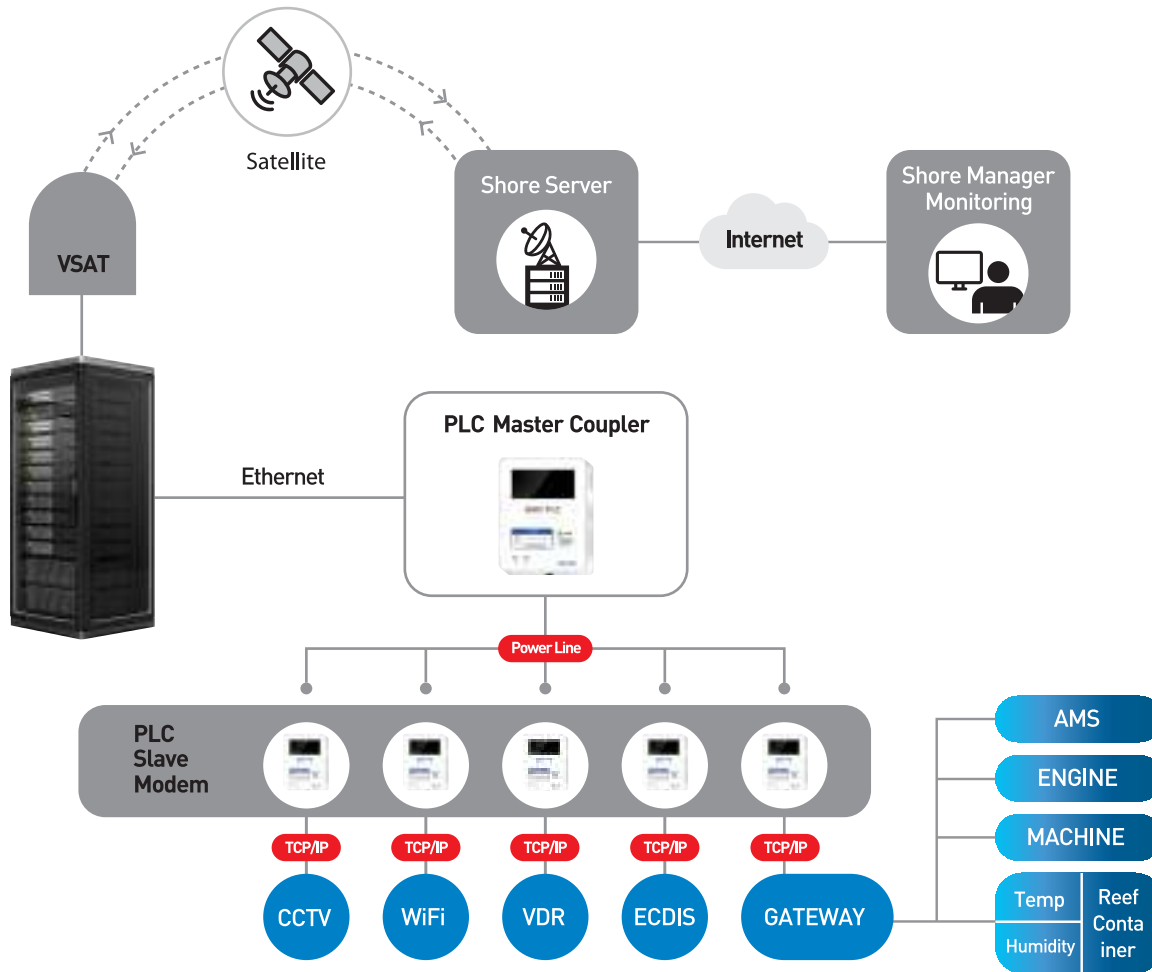
G.hn Modem
Coaxial Line Communication

It is the most newly developed modem, available to expend up to 32 user at maximum and communicate at gigabyte of 500~730 Mbps speed, depending on communication distance and condition.
And it is an industrial communication modem, using coaxial cable in the ship to make data communication operate possible, and it is appropriate to PC and CCTV monitoring (Full HD level), with big amount of packet in the old or new ship.

Multi Line Communication Network Layout

Satellite

VSAT

Shore Server

Internet

Shore Manager Monitoring

Ethernet

PLC Master Coupler

Power Line

PLC Slave Modem

TCP/IP — CCTV
TCP/IP — WiFi
TCP/IP — VDR
TCP/IP — ECDIS
TCP/IP — GATEWAY

AMS

ENGINE

MACHINE

| Temp | Reef |
| Humidity | Container |

Comparison Table of Modems

	PLC Power Line Communication	DLC Data Line Communication	G.hn Coaxial Line Communication
Speed (bps)	10~30m	50~100m	500~730m
Max. Cable Length	Up to 0.5km	Up to 1.2km	Up to 2km
Max. Node	128 port	128 port	32 port
Application	Server & PC Network Ship Data & Sensor Data Network	Include PLC Range + HD Class CCTV	Include DLC Range + HD Class CCTV
Suitable Network	Small Packet	Middle Packet	Large Packet
Advantage	Reduction in Network Installation Cost	Reduction in Network Installation Cost	Reduction in Network Installation Cost

IP CCTV System

IP CCTV System comes with a wide range of features and technologies, allowing you to record real-time / emergency situation onboard in Full-HD, adjust to changing light levels throughout the day, and even focus cctv camera remotely.

Outdoor PTZ Type

Outdoor Fixed Type

Fixed Dome Type

Bullet Type

Speed Dome Type
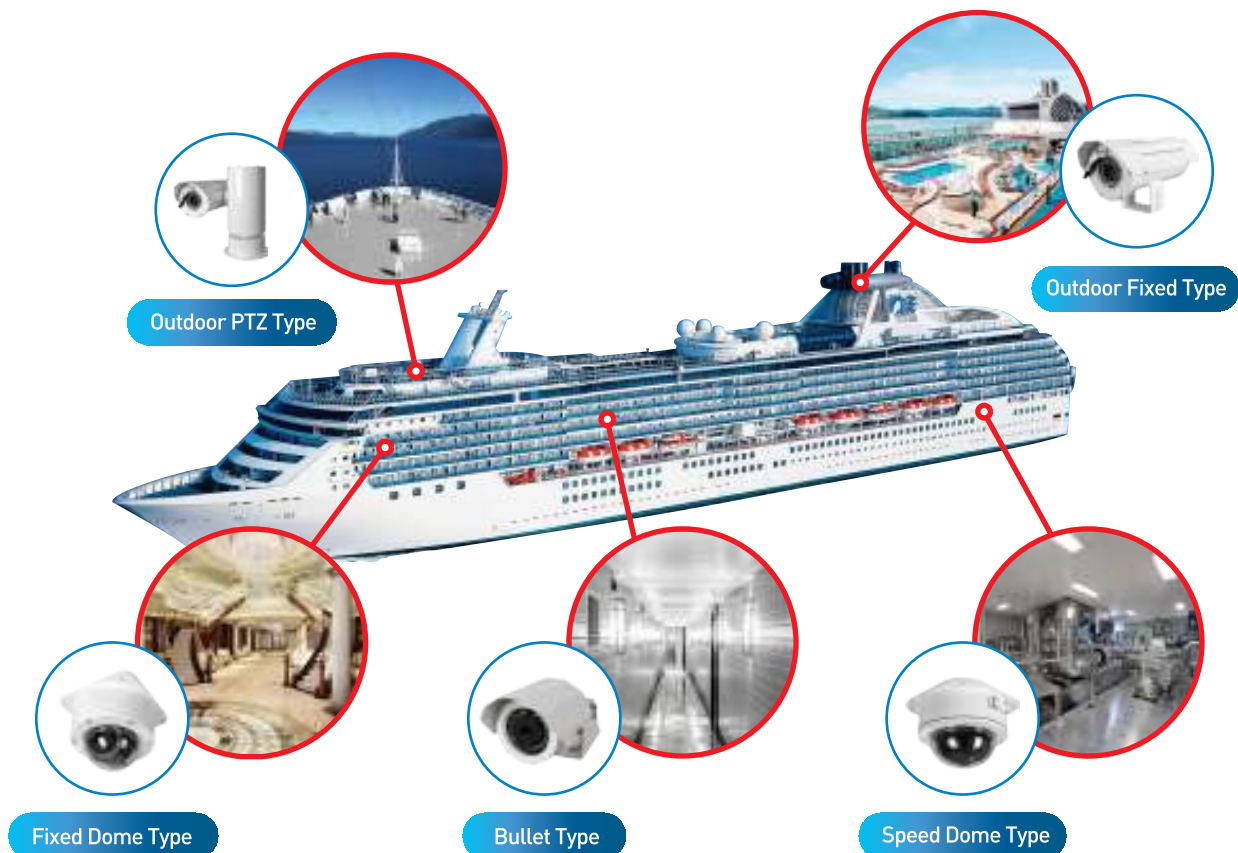
Key Features

Stainless Steel 316L (Produced in Korea)
- Extremely low corrosion rates
- Corrosion resistance to a wide range of water
- Good strength
- Durability
- Impact and temp. resistance

BLDC Motor
- Longer life : 2 to 3 times longer than brushed motors
- No maintenance : No carbon brushes to be changed
- Quieter : No electronic and frictional noise
- No Arcing(Spark-free) : Safe and less radio interference
- Produce less heat

Compact and Light
- Lightest stainless steel camera housing
- Heaviest housing is still less than 15kg
- PTZ dome is less than 5kg
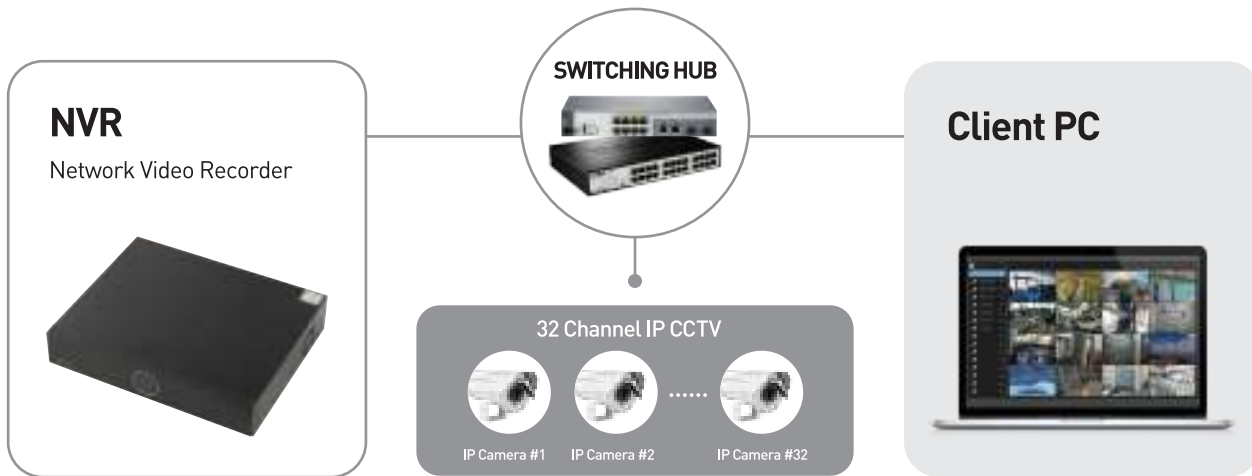- Bullet camera is about 700g

White Powder Coating
- 60% Greater resistance to solvents
- 74% Greater resistance to salt spray
- 94% Greater impact resistance
- Less heat absorption than general stainless housings

High Quality Camera Modules
- High quality IP/HD cameras
- Module based
- Flexible modifications

NETWORK SYSTEM

NVR
Network Video Recorder

SWITCHING HUB

Client PC

32 Channel IP CCTV
IP Camera #1   IP Camera #2   ......   IP Camera #32

Product Specification

Outdoor PTZ Type

- SUS 316L Electro-polished Stainless Steel for Optimum Corrosion Proof
- Integrated Wiper
- BLDC Motor
- Compact and Light (15kg)
- IP, TVI and AHD
- Full HD(1920x1080) Resolution
- Optical Zoom 30X, Digital Zoom 16X
- 43 IR LEDs for 40m Coverage
- True WDR(120dB), True Day & Night
- 24VDC
- IP67

Outdoor Fixed Type

- SUS 316L Electro-polished Stainless Steel for Optimum Corrosion Proof
- Integrated Wiper
- Compact and Light (14kg)
- IP, TVI and AHD
- Full HD(1920x1080) Resolution
- Optical Zoom 30X, Digital Zoom 16X
- 43 IR LEDs for 40m Coverage
- True WDR(120dB), True Day & Night
- 24VDC
- IP67

Speed Dome Type

- SUS 316L Electro-polished Stainless Steel for Optimum Corrosion Proof
- Max. 380°/sec Speed(Preset)
- Compact and Light (3kg)
- IP, AHD, TVI and CVBS
- Full HD(1920x1080) Resolution
- Optical Zoom 20X, Digital Zoom 16X
- True WDR(120dB), True Day & Night
- POE, 24VDC
- IP67

Bullet Type

- SUS 316L Electro-polished Stainless Steel for Optimum Corrosion Proof
- Compact and Light (700g /1.3kg)
- 3M Resolution 25/30fps (IP)
- Full HD (AHD)
- D-WDR(ATR-EX)
- 24 IR LEDs for 25m Coverage
- True Day & Night
- POE, 12VDC
- IP68

Fixed Dome Type

- SUS 316L Electro-polished Stainless Steel for Optimum Corrosion Proof
- Compact and Light (2kg)
- 3M Resolution 25/30fps (IP)
- Full HD (AHD)
- D-WDR(ATR-EX)
- 24 IR LEDs for 25m Coverage
- True Day & Night
- POE, 12VDC
- IP67

Accessory

Water Tank
- SUS316L
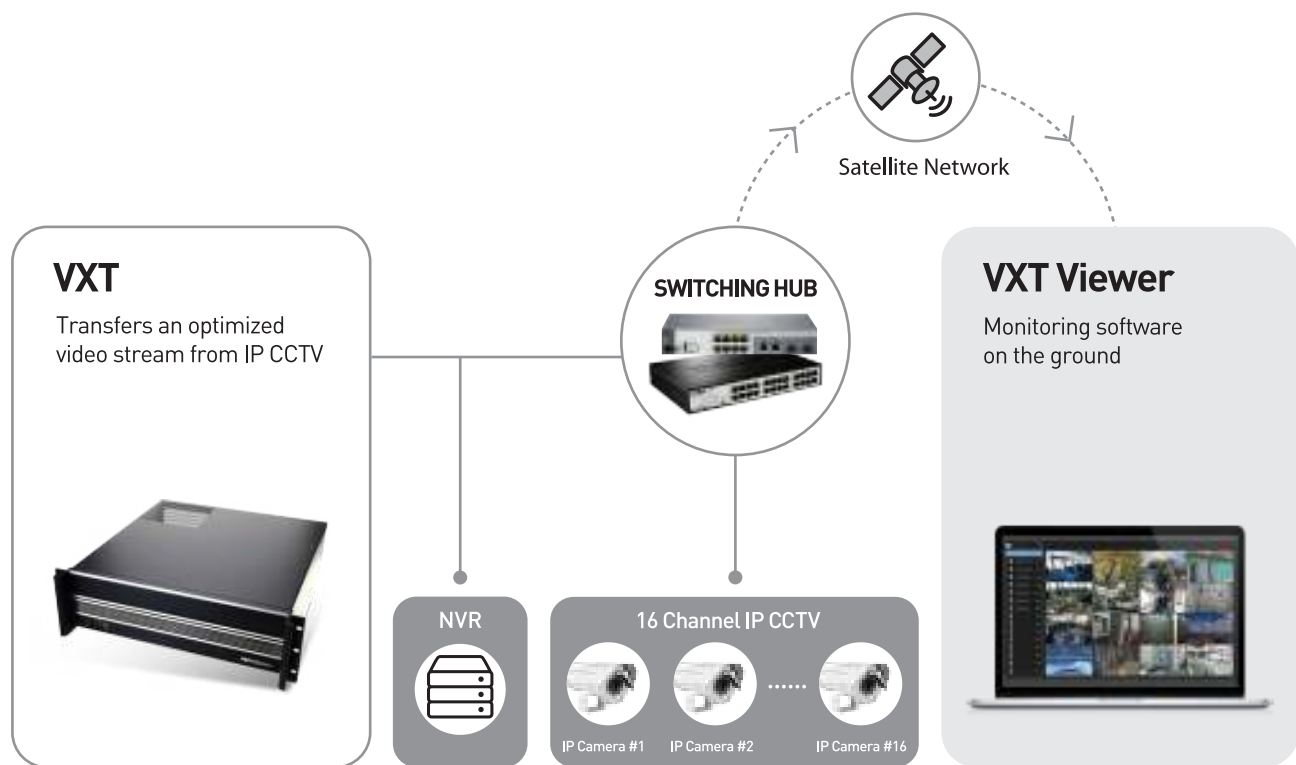- Electro-polished
- 10L, 20ml/sec
- AC24V
- About 5kg

Junction Box
- SUS316L
- Electro-polished
- AC220V
- About 5kg

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VXT™ (Video Crossing Transcoder)

Video streaming compression solution in the low bandwidth networks

VXT system consists of VXT and VXT viewer. It is a monitoring system which transfers an optimized video stream from IP CCTV on the restricted bandwidth networks, such as satellite.

Satellite Network

VXT
Transfers an optimized video stream from IP CCTV

SWITCHING HUB

VXT Viewer
Monitoring software on the ground

NVR

16 Channel IP CCTV

IP Camera #1   IP Camera #2   IP Camera #16

Key Features

Optimized Video Quality	ROI Region Of Interest	Auto Resolution	Auto FPS Control	Real-time 16ch Monitor	ONVIF-s Protocol

- Transfers enhanced video stream by optimizing video quality in the low bandwidth networks
- Transfers clear video stream of user setting area by ROI (Region Of Interest) function
- Automatically controls the resolution from 320x240 to 1280x720, depending on network situation
- Automatically controls the frame rate from 1fps to 30fps, depending on network situation
- Provides up to 16 channels of real-time monitoring in the low bandwidth networks
- Supports the recoding, playback, PTZ(Pan-Tilt-Zoom) of IP camera
- Supports the ONVIF-s protocol for the better controlling of IP camera

VXT Viewer

The VXT Viewer is installed on the PC of ship owner's office to display real-time optimized video stream.

Monitoring screen

Camera setting mode screen

Set up screen maximum bitrate, FPS(Frame Per Second) and quality options of 16 channels

01

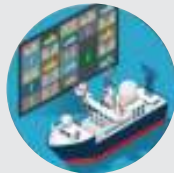Change the partition screen by clicking on the partition icon

02

Zoom in to the user-selectedscreen by clicking on the ROI icon

03

Zoom in to the full screen by clicking on the partition screen. Return to the partition screen by clicking on the full screen

Applicable Fields

Monitoring situations within the ship

Video conferences

Remote medical care

Product Specification

Windows
Linux

Supports H.264 codec
Supports ROI(Region Of Interest)
Dynamic resolution and frame rate
RTSP(Real-Time Streaming Protocol)
ONVIF ONVIF profile S
Supports IP CCTV monitoring, recording and playback
Supports Player 1:1, 1:4, 1:9, 1:12, 1:16-channel view

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VoIP Automatic Telephone System

VoIP Automatic Telephone system can handle all internal communication on board , between Bridge, ECR, workstations, cabins etc. The system can also be connected to external communication equipment such as VSAT and FB for efficient communication with the land.

IP PBX

SWITCHING HUB **SWITCHING HUB**

VoIP Auto Telephones

VoIP Auto Telephones #1 VoIP Auto Telephones #2 VoIP Auto Telephones #3 ...... VoIP Auto Telephones #200

VoIP Auto Telephones

VoIP Auto Telephones #1 VoIP Auto Telephones #2 VoIP Auto Telephones #3 ...... VoIP Auto Telephones #200
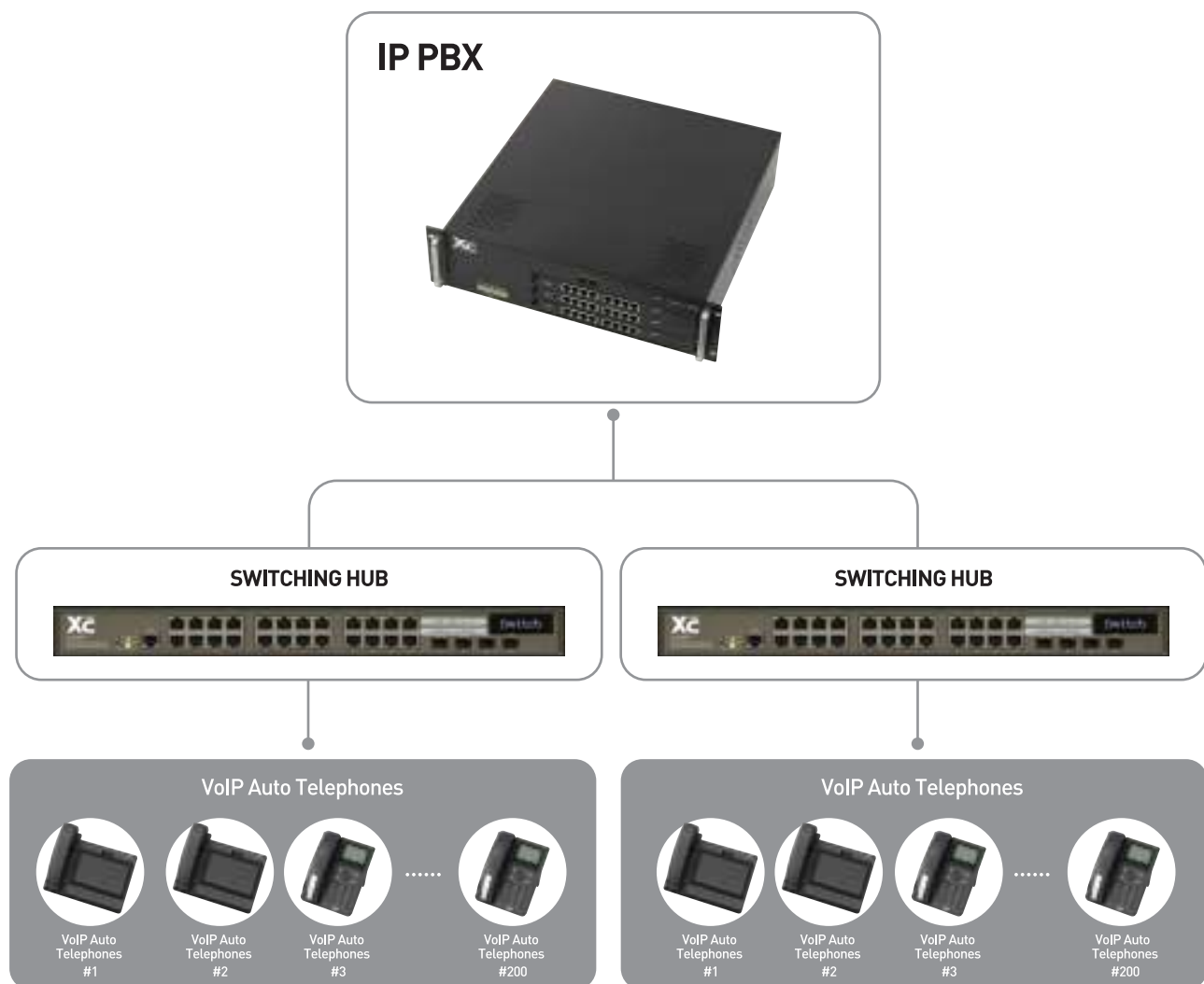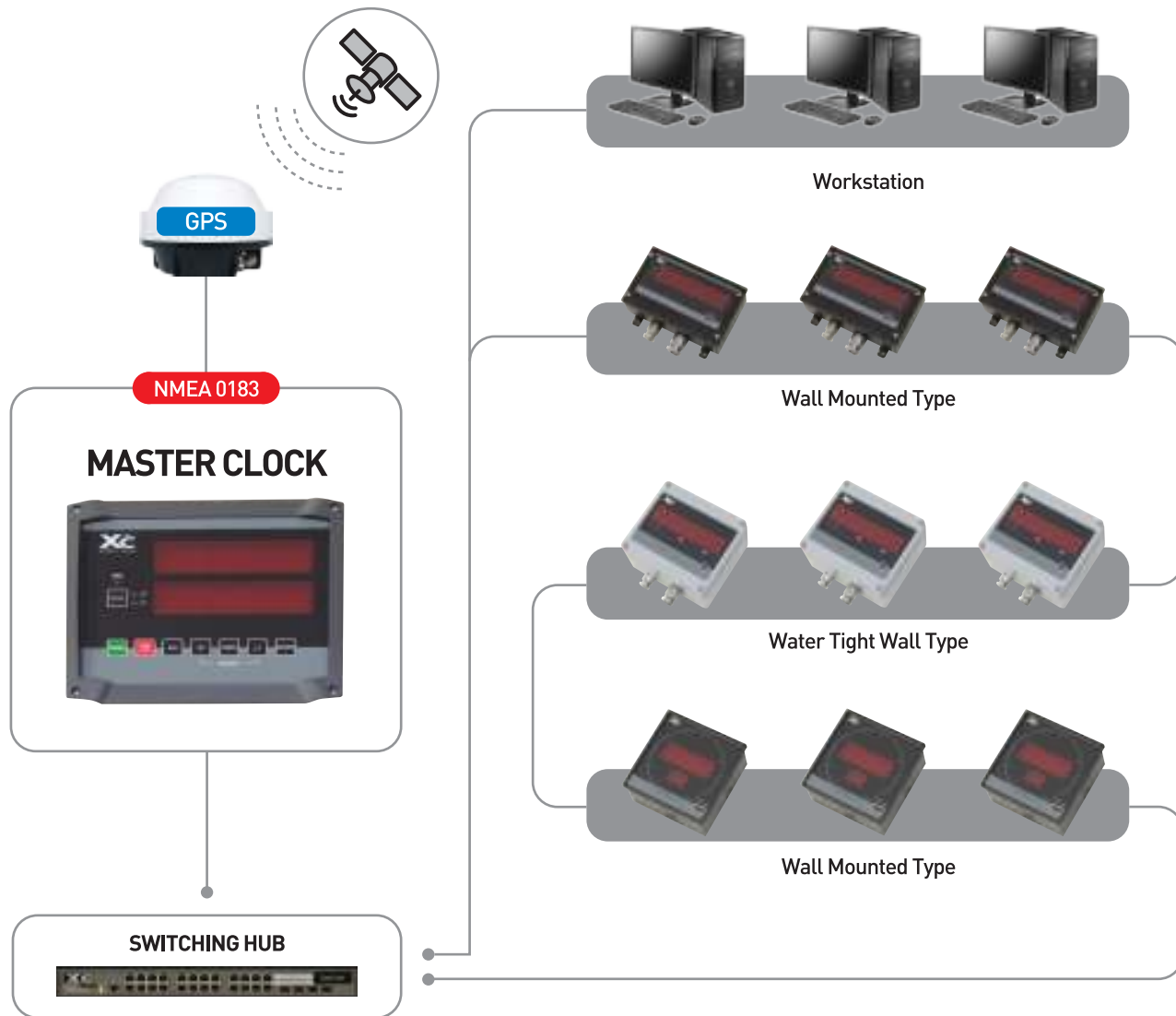
Key Features

- Simultaneous Call
- Paging Call
- Priority Call
- Group Call
- Wake-up Call
- Voice-mail

- IP extension 200 lines, Analog extenstion 48 lines
- Interface with VSAT and FB
- System fail alarm
- Call forwarding
- Call transfer
- SIP Trunks 24 lines, PSTN CO Trunks 16 lines

IP Clock System

IP Clock System is the ideal solution for distribution of both Local and UTC time on board.
It is equipped with several outputs and inputs for control of Slave Clocks as well as distribution of time to computers and other equipment needing the correct time.

GPS

Workstation

NMEA 0183

MASTER CLOCK

Wall Mounted Type

Water Tight Wall Type

Wall Mounted Type

SWITCHING HUB

Key Features

- Automatic Clock Synchronization
- GPS input signal supported
- Local / Universal Time display
- NMEA Input, Power Fail Fault Alarm

- Power Source : 110 / 220VAC, 50/60Hz
- 19" Rack Type or Wall/Flush Type
- Emergency Power : 24VDC
- Daisy Chain Connection

Satellite Antenna (VSAT / TVRO)

KNS SuperTrack Series is the perfect solution for ships looking for broadband speeds at sea. Stay in touch with your networks via high speed access to the internet, email, multiple VoIP phones and more.

Z MK2

KU/C-BAND

Key Features

- Automatic Satellite Search & Skew Control
- Unlimited Azimuth
  Uninterrupted searching keep you in business
  however you ship turns Cable wrap free
- Brake System
- Accurate Signal Acquisition by KNS's Distinctive Algorithm
- Pre-programmed Satellite Database
  Editable 80 satellite data
- Antenna Control Unit
  3 Types of Gyro Input (NMEA, Synchro, Step by Step)
- CE R&TTE Certified
- Intelsat Qualified

Z MK3

KU/KA/C-BAND

Key Features

- Built in Wire Rope Isolator & Shock Absorber
- Automatic Satellite Search & Skew Control
- Unlimited Azimuth
  Uninterrupted searching keep you in business
  however you ship turns Cable wrap free
- Brake System
- Accurate Signal Acquisition by KNS's Distinctive Algorithm
- Pre-programmed Satellite Database
  Editable 80 satellite data
- Antenna Control Unit
  3 Types of Gyro Input (NMEA, Synchro, Step by Step)
- CE R&TTE Certified
- Intelsat Qualified

Z MK2 | Specifications

Z6MK2-Ku	Z7MK2-Ku	Z8MK2-Ku	Z10MK2-Ku	Z12MK2-Ku	Z24MK2-Ku	Z24MK2-C
61cm(24″) 85cm(D) x 84cm(H) 43Kg	75cm(30″) 102cm(D) x 104cm(H) 69Kg	83cm(33″) 113cm(D) x 117cm(H) 87Kg	100cm(40″) 144cm(D) x 152cm(H) 114Kg	120cm(49″) 161cm(D) x 163cm(H) 142Kg	240cm(94.5″) 315cm(D) x 308cm(H) 530Kg	
FREQUENCY						
TX : 13.75 ~ 14.5GHz RX : 10.7 ~ 12.75GHz						TX : 5.85 ~ 6.725GHz RX : 3.4 ~ 4.2GHz
ANTENNA GAIN						
TX : 37.2dBi @ 14.25GHz RX : 35.7dBi @ 11.75GHz	TX : 39.1dBi @ 14.25GHz RX : 37.5dBi @ 11.75GHz	TX : 39.9dBi @ 14.5GHz RX : 38dBi @ 11.75GHz	TX : 41.0dBi @ 14.25GHz RX : 40dBi @ 11.75GHz	TX : 42.87dBi @ 14.25GHz RX : 40.95dBi @ 11.75GHz	TX : 49.1dBi @ Mid. Freq RX : 47.8dBi @ Mid. Freq	TX : 41.6dBi @ Mid. Freq RX : 38dBi @ Mid. Freq
SHIP MOTION						
Roll : ±24° at 8-12 sec periods / Pitch : ±14° at 6-12 sec periods / Yaw : ±8° at 15-20 sec periods						
ELEVATION ANGLE						
-10° to +95°	-10° to +100°	-20° to +105°	-20° to +105°	-20° to +110°	-10° to +120°	-10° to +120°
CROSS ANGLE						
±35°					±30°	

* Specifications subject to change without notice

Z MK3 | Specifications

Z7MK3-Ku	Z7MK3-Ku (with Shock)	Z8MK3-Ku	Z10MK3-Ku	Z12MK3-Ku	Z15MK3-Ku	Z18MK3-Ku
75cm(30″) 102cm(D) x 104cm(H) 66.5Kg	75cm(30″) 113cm(D) x 117cm(H) 86Kg	83cm(33″) 113cm(D) x 117cm(H) 103Kg	100cm(40″) 144cm(D) x 152cm(H) 119.5Kg	120cm(49″) 161cm(D) x 163cm(H) 138Kg	150cm(60″) 212cm(D) x 206cm(H) 260Kg	180cm(71″) 230cm(D) x 235cm(H) 361.5Kg
FREQUENCY						
TX : 13.75 ~ 14.5GHz / RX : 10.7 ~ 12.75GHz						
ELEVATION ANGLE						
-10° to +100°	-10° to +110°	-12° to +110°	-18° to +110°	-10° to +110°	-15° to +110°	-15° to +110°

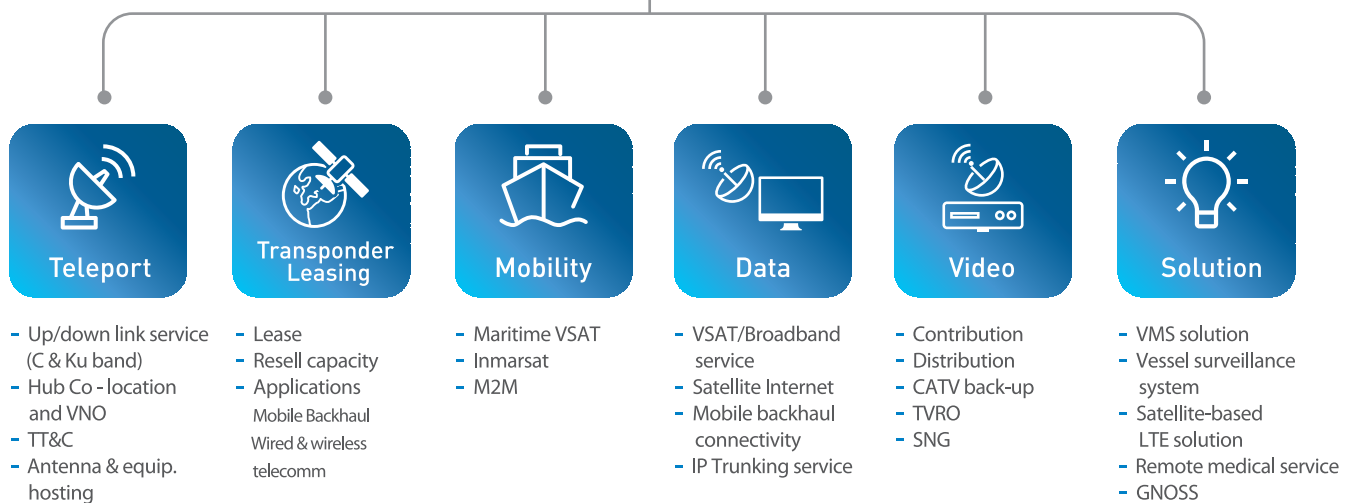| Z6MK3-Ka	Z7MK3-Ka	Z10MK3-Ka	Z12MK3-Ka	Z15MK3-C	Z18MK3-C	Z22MK3-C
60cm(24″) 102cm(D) x 104cm(H) 62Kg	75cm(30″) 102cm(D) x 104cm(H) 63Kg	100cm(40″) 144cm(D) x 152cm(H) 119.5Kg	120cm(49″) 161cm(D) x 163cm(H) 138Kg	150cm(60″) 212cm(D) x 206cm(H) 260Kg	180cm(71″) 230cm(D) x 235cm(H) 361.5Kg	220cm(87″) 276cm(D) x 282cm(H) 530Kg
FREQUENCY						
TX : 29.0 ~ 31.0GHz RX : 19.2 ~ 21.2GHz	TX : 29.0 ~ 31.0GHz RX : 19.2 ~ 21.2GHz	TX : 29.0 ~ 30.0GHz RX : 19.2 ~ 20.2GHz	TX : 27.5 ~ 29.2GHz RX : 17.7 ~ 19.4GHz	TX : 5.85 ~ 6.725GHz RX : 3.4 ~ 4.2GHz	TX : 5.85 ~ 6.725GHz RX : 3.4 ~ 4.2GHz	TX : 5.85 ~ 6.425GHz RX : 3.625 ~ 4.2GHz

* Specifications subject to change without notice

KTsat Global MVSAT Airtime Service

KT SAT has been leading the nation's satellite communication and broadcasting industry.
Leveraging the abundant experience and expertise as a global operator, KT SAT leads the ongoing effort
to strengthen Korea's competitive edge in the global satellite communications industry.

In Operation
Planned

113°E 116°E

KOREASAT-8
KOREASAT-5 KOREASAT-6
KOREASAT-5A KOREASAT-7

Satellite	KOREASAT-5	KOREASAT-6	KOREASAT-8	KOREASAT-7	KOREASAT-5A
Orbit.Location	113°E	116°E	75°E	116°E	113°E
Launch Date	Aug. 2006	Dec. 2010	Feb. 2014	May. 2017	2H. 2017
Manufacturer	Alcatel	Alcatel/OSC	SSL	Thales Alenia Space	Thales Alenia Space
Launcher	Sea Launch	Arianespace	Arianespace	Arianespace	SpaceX
Frequency	Ku-Band	Ku-Band	C & Ku-Band	Ku & Ka-Band	Ku & Ext Ku-Band
Coverage	Korea, Taiwan, East China, Japan Philippines	Korea	East Asia, South East Asia, South Africa	Korea, Philippines, Indochian, India, Indonesia	Korea, Japan Philippines, Indochina, Maritime

Teleport

- Up/down link service (C & Ku band)
- Hub Co - location and VNO
- TT&C
- Antenna & equip. hosting

Transponder Leasing

- Lease
- Resell capacity
- Applications
  Mobile Backhaul
  Wired & wireless
  telecomm

Mobility

- Maritime VSAT
- Inmarsat
- M2M

Data

- VSAT/Broadband service
- Satellite Internet
- Mobile backhaul connectivity
- IP Trunking service

Video

- Contribution
- Distribution
- CATV back-up
- TVRO
- SNG

Solution

- VMS solution
- Vessel surveillance system
- Satellite-based LTE solution
- Remote medical service
- GNOSS

KTsat Global Coverage

KT SAT will have a specialized maritime beam on KOREASAT-5A covering major shipping routes from
North Africa to East Asia. And KT SAT provides 24/7 technical support to ensure seemless and robust services.
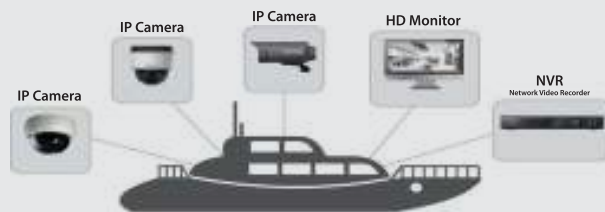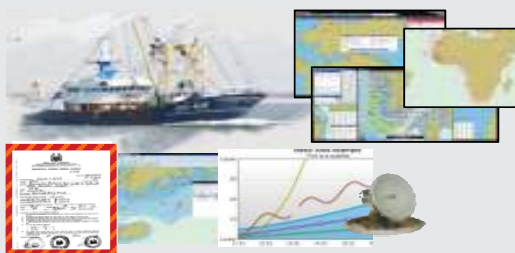
Speedcast Global coverage

KOREASAT-5
Regional Beam

KOREASAT-5A
Maritime Beam

Maritime Solution

1 Maritime Prepaid card for Voice

Voice Service provided for vessels on the sea

2 Vessel Surveillance System

IP Camera IP Camera HD Monitor
IP Camera
NVR
Network Video Recorder

3 Fishery Management Solution

4 Satellite-based LTE Solution

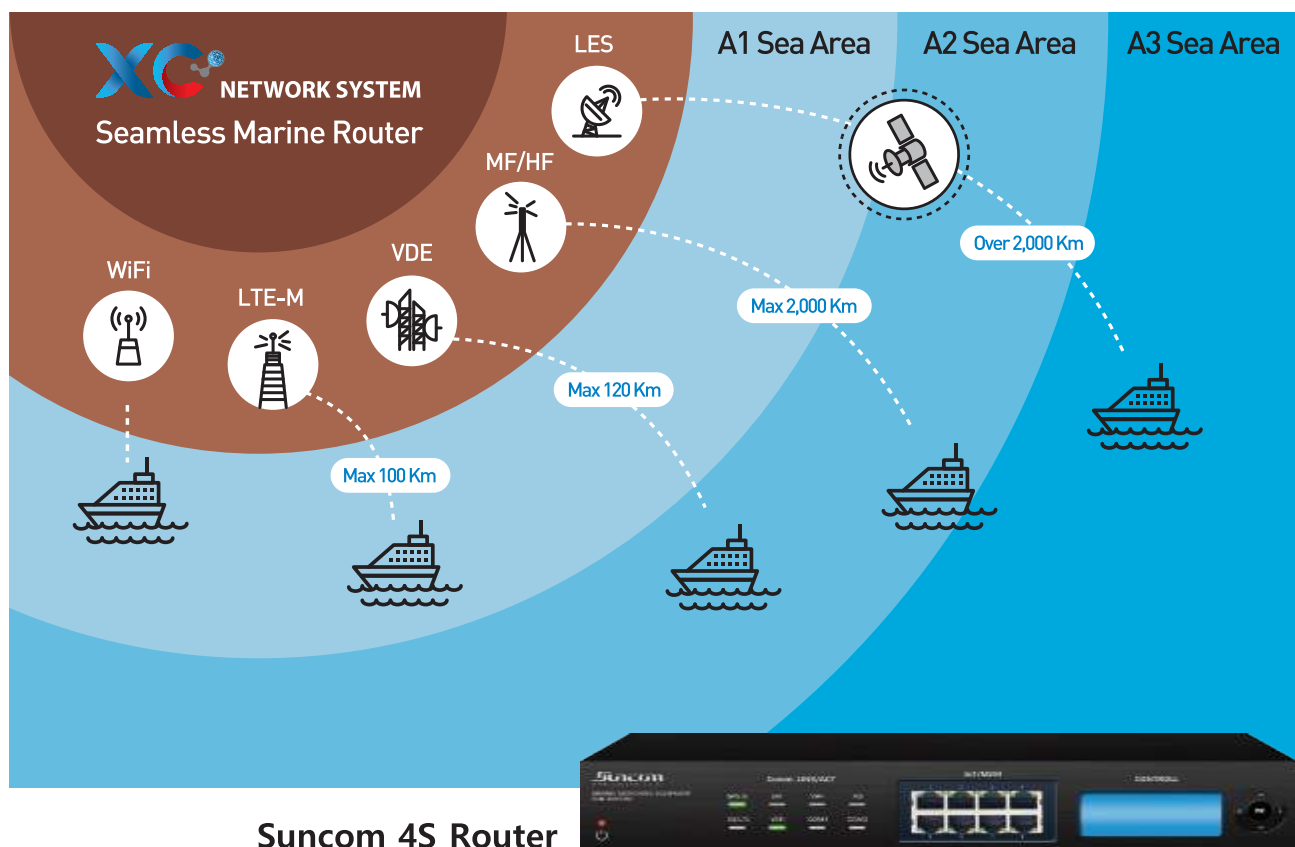Satellite LTE Coverage (Voice/Image/Data)
kt sat Satellite
olleh Mobile
Kumsan Satellite Center
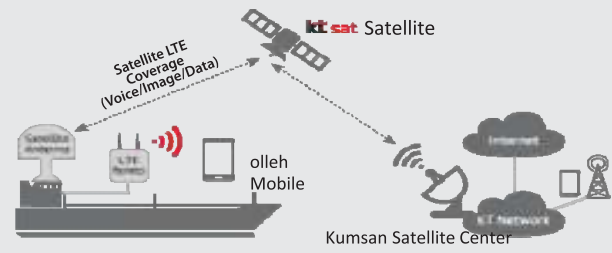
Seamless Marine Router

Seamless Marine Router can be used extensively from small ships to large ships. It is also compatible with various communication devices installed on the ship. It provides efficient and safe communication by managing integrated ship communication equipment.

XC NETWORK SYSTEM
Seamless Marine Router

LES
MF/HF
VDE
WiFi
LTE-M

A1 Sea Area   A2 Sea Area   A3 Sea Area

Over 2,000 Km
Max 2,000 Km
Max 120 Km
Max 100 Km

Suncom 4S Router

Key Features & Specifications

- Mobile (3G / 4G) communication processing support
- Multiple Wi-Fi communication processing support
- Hotspot module configuration for wireless connection
- Multiple(VHF, DIGITAL VHF, MF/HF) network connection setting function
  (only data communication / Model Required)
- Automatic switching to the cheapest means of communication

Product Specification

Processor
- Intel Embedded SoC Processor
  (E3825 2Core 1M Cache, 1.33 GHz / E3845 4Core
  2M Cache, 1.91 GHz)

Memory
- DDR3L-1333 Dual Channel 4 GB (1.35V required)

Environmental
- Operating temperature: -40°C to +85°C Dust
  and water ingress: IP45

I/O Connectors
- mSATA : 2 Slot
- Half size mini PCI-E : 2
- Slot GPIO : 16bit 1Slot
- LVDS : 1Slot
- Serial : 1 x RS-232;
- USIM : Dual SIM Card
- Support

WAN, LAN, Backbone networks
- Ethernet WAN ports: 2
- Ethernet LAN ports: 3

External interfaces
- Serial: 1 Port(RS-232)
- LAN Port : 5
- USB 2.0 : 2Port
- HDMI : 1Port
- Antenna connector type (on device) :
  5Port (N-type female)

Extenders, Expanders, Controller support
- WiFi Extender support: yes
- Max. number of supported WIFI Extenders: unlimited
- LAN Expander support: yes
- Monitor Controller support: yes (Touch Screen Support)
- PoE injector power outputs: 3

Wi-Fi
- 2.4GHz 802.11bgn
- Internal Wi-Fi antennas

Mobile network
- Choice modems: 1 [Europe/Africa/Asia/Oceania modem]
- 850/900/1800/1900(2G)
- 850/900/1900/2100(3G)
- B1/B2/B3/B5/B7/B8/B20(4G LTE)

Power, environment and dimensions
- DC power supply input range (V): 12-24
- AC power supply input range (V): 90-240
- Automatic switching AC-DC power controller: yes
- Regulated DC power outputs: 1
- Max. power consumption at 12 V (W, without WIFI Extenders):
- 34 Operating temperature range for internal unit (°C): -40 to +85
- Operating humidity range (%, non-condensing): 5-95
- Enclosure material: steel
- Enclosure mount type: 19" 2U rack
- Dimension (mm, WxDxH, without antennas): 450 x 350 x 95

Software features
- LCD Status Support
- Web Configuration Support
- WAN Auto/Manual-switching: yes
- Network Remote Support: yes
- Detailed usage statistics: yes
- Flexible assigning of WAN/LAN ports : yes
- OS : Linux Kernel 2.4.X