



iMIS

Intelligent Marine Intercom System

The state-of-the-art Multi-Interface iMIS system is an intelligent IP based Intercom Group Communication System. It is built on a non-switched group broadcast distribution of IP voice streams between various intercom units in each intercom group. The iMIS system has multiple interface options which can be used to interface with the MB-SRE system, HF/VHF/UHF Radios using the Radio Interface Unit and shore communication. All units in a group work independent of each other without the requirement of any central server, hence no single point of failure. With built-in ED-137B compliance, iMIS is future ready for new age SDR Based IP Radio interface directly over IP.

SYSTEM ARCHITECTURE

With IP based open distributed architecture, iMIS provides an easy migration from legacy systems to new-age IP based infrastructure. All LRU's of the iMIS system are connected via 10/100 Mbps Ethernet Backbone. The intelligent unique fail safe Backbone Network is formed of Ring of Core Network switches and last mile PoE switches. With PoE enabled units, iMIS helps reduce ship's internal wiring. With connectivity to in service radio, iMIS provides wireless connectivity with reconnaissance boats or survey vessels/boats. With MGW connectivity, the iMIS system provides wired off-shore connectivity with the office exchange for broadcasting the communication from the office when the ship is docked. Being an IP based distributed group intercom system, the system co-exists with the Ship Data Network seamlessly and can share common IP backbone infrastructure.



Intercom System – Features

- Radio connectivity to designated Intercom group
- Wired as well as wireless shore connectivity
- IP Based communication between various LRUs
- Open Distributed Modular Architecture
- Seamlessly integrates with Ship Data Network
- Designed for instantaneous broadcast emergency communication
- Intra-Group communication
- Inter-group communication
- Priority override in Intra-Group Communication
- Priority override in Inter-Group Communication
- Point-To-Point selective communication
- Damage Control Group feature
- Individual LRU's volume monitor and override from MMT
- Each intercom LRU works independently without the requirement of central server
- Network topology – Each LRU can plug into STAR/Ring topology
- On the go manageable re-configuration
- BYTE and network health monitoring and control from MMT
- All the LRUs can be powered with PoE OR DC powered source. (PoE + DC optional)
- Unique deployment architecture for fail-safe network connectivity at each node
- Intercom system Alarm generation and reporting on MMT screens and Key Position Unit
- Easy Remote diagnostics
- Easy future expansion – Dynamic expansion reduction of intercom group size
- Built-in amplifier speaker - No additional Amplifier required
- All Intercom LRUs are interchangeable – Making maintenance very easy
- Easy and centralized intercom group configuration control for each intercom LRU

Intercom Station – Features

- Connectivity with wired PTT MIC
- Built-in amplifier speaker
- Individual Digital volume control
- Auto-mute of self speaker while talking
- Auto-mute of all other mic's when any unit is transmitting with PTT pressed.
- PTT malfunction protection. PTT stuck detection, automatic isolation and fault recovery detection
- Software controlled AGC, echo canceller
- Software based Noise cancellation for use in high noisy environment like machinery room
- Specialized units with dynamic intercom group selection using group selection knob
- Various Audible event tones for call operation like Group Ownership, Max call time, Warning tone, lower priority owner waiting tone, call override tone.

MMT-Features

- System configuration and management
- Health monitoring of all Intercoms
- Alarm generation and historical storage
- Dynamic BITE of each Intercom unit
- Auto-mute of all other mic's when any unit is transmitting with PTT pressed.
- Volume Control and override for each Unit

Protocol Support

- Voice Codecs : 16 bit Uncompressed, G.711 A/U, G7 23, G729
- Networking Support : IPv4, TCP, UDP, ICMP, ARP
- VoIP Protocol Stacks : RTP, ED137, B/C
- Radio Signalling : Press To Talk (PTT), COS-COR signalling, VAD/VoX, Silence Suppression
- Security (Optional) : TLSv1.2, SRTP



iMIS LRU's

- Intercom Station – Key Position Unit
- Intercom Station – Crew Unit
- Switch – Core Network switch
- Switch – Last mile PoE switch
- MMT – Management and Maintenance terminal
- RIU – Radio interface Unit
- FPIU – Field Phone Interface Unit
- AFT1001 – Field Phone

System and Maintenance

- Power on self test
- Built-in test equipment
- Flexible intercom group reconfiguration
- Acoustic and display reporting of alarms on MMT and Key Position Unit
- Independent, server-less functioning of each unit
- Speaker Volume override for emergency listening

iMIS Capacity

- Max. Intercom Groups : 16
- Max. Units per group : 48
- Total number of Intercom LRUs : 1024
- Total number of Radio Interface LRUs : 16
- MMT – Management and Maintenance terminal : 1

Power Supply

- PoE Operation : Available
- DC Operation : 24V (Nominal)
- Power consumption : 15W Avg/LRU

iMIS Functional Detail

- LRU's connectivity : Ethernet based Star/Ring topology
- Speech recognition : PTT operation
- Auto PTT : Based on Software VOX
- Voice encoding : 16 Bit Linear
- SRE Interface : Recorded Files, IP streams
- Survey vessels connectivity : Wireless, RIU and in service Radio
- Shore connectivity-wired : Wired and wireless using in service Radio
- Shore connectivity-wireless : Through MGW/ PRI
- Ship Data Network connectivity : Through Core switches

Dimension (H/W/D) in mm / Weight

- Intercom Unit : 147×156×84/1.2Kg
- Speaker Unit : 147×156×84/1.5Kg
- Radio Interface Unit : 147×156×84/1.2Kg
- End Terminal Switch : 310×196×86/2.2Kg
- Field Phone Interface Unit : 147×156×84/1.2Kg
- AFT1001 – Field Phone : 215×122×109/1.8Kg

Environmental Data

- Temp. and Mechanical Stress : JSS55555
- EMI/EMC : MIL-STD-461F
- IP Rating : IP66
- ESD : EN-61000-4-2
- Lightning : EN-61000-4-5

This publication is not to be regarded as a complete system specification, or to be used as a contract document.

We reserve the right to change the design or specifications without prior notice.

