

SOLUTION BROCHURE

Internal Communication Systems for Industrial and Maritime Operations

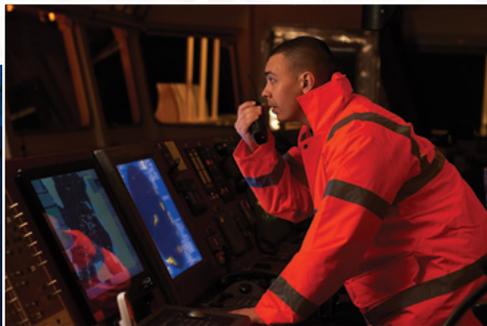
Ensuring safety and efficiency with clear and reliable communications

Challenges of Industrial and Maritime Operations

Crew personnel on vessels or offshore environments require effective internal communication systems to ensure both staff safety and operational success.

Reliable communication is essential for offshore activities such as coordinating bell dives, the lifting or lowering of ROVs, or alerting and engaging ship-wide personnel during critical procedures. These kinds of demanding responsibilities involving different functional teams require rapid communication and a high level of cooperation. Inflexible systems and push-to-talk handsets are often not capable of meeting these requirements.

A rather challenging issue for most electronics used in Industrial and Maritime Operations is often the harsh environments in which they need to operate. Clear-Com has an enhanced specialized group of intercom systems that have been certified with DNV-GL Marine Compliance and Green Passport documentation. These certifications allow a user to legally install and use these intercom products on a marine vessel, as well as ensure that the equipment being used does not contain asbestos and is free of hazardous material.



Communication to crew members on board the vessel, critical alerts and procedures, or relaying information back to the mainland.



Bell dive control room speaking to divers in the saturation chamber.



Clear-Com Intercom Systems: The Marine Communication Workhorse

In an environment when every second counts, your operation requires proven communications systems. Clear-Com intercom systems provide reliable crew intercommunications whether you need private communications or team collaboration, emergency interruptions, hands-free mobility, or interoperability between systems or locations.

Promoting Safety

Highly audible messages are delivered at an ultra-fast, sub-millisecond latency. Full-duplex intercom systems allow emergency or urgent interruptions to get appropriate attention. Noise from the surrounding environment can be blocked out with noise-cancellation capabilities to ensure every instruction or announcement is clearly heard.

Yielding Efficiency

Crew members need to be well coordinated in order to perform complex jobs with a high degree of intricacy. These types of tasks require a wired and/or wireless communication system that can be quickly switched on so that they can instantly respond to given instructions at any moment. With hands-free operation, crew members have the mobility they need and seamless integration with other communication systems both offshore and onshore.

Maintaining Privacy

Clear-Com intercoms are closed-circuit systems that safeguard sensitive and confidential conversations. Multiple line systems provide users with the option of setting up private conversations with individual users on assigned channels and/or calls with different groups of users that have common job functions on alternative lines.

Self-Sufficient Operations

Offshore operations are often secluded from the mainland and need to have self-sufficient reliable communication on the marine vessel. However, the need to relay information or urgent messages back to the mainland is equally important. Interoperability between onshore and offshore locations or one communication system to another gives peace of mind to crew members when they are miles from shore.



Essential Operations Rely on Clear-Com

Clear-Com intercom systems are widely used in many critical applications because of their clarity, reliability and performance. Clear-Com's wired and wireless systems provide the most options for operations of any size.

Unlike push-to-talk handsets or other limited two-way communication systems, Clear-Com intercoms facilitate one-to-many or full-duplex conferences together to maintain continuous conversations on one or more lines. This guarantees anyone on the line can talk and listen without delay or fear of losing communications.

Flexible interoperation allows for integration of external systems, like two-way radios, phones, and even visual control cues. Expandability via well-known standards, like 4-wire or SIP, allow for ease of customization in unique applications.



Simple Group Communications

Ideal for small to mid-size operations that require a few intercom positions and a minimal number of group conversations.

Solution:

- Encore® for Industrial & Marine 800 Series Partyline System



Encore 800 Series



Complex Group Communication

Suited for large-scale operations that need to assign users into independent groups with high user capacities, numerous talk positions, and allow one or many private intercom lines.

Solutions:

- HelixNet® Digital Network Partyline Systems
- Eclipse HX® Digital Matrix Systems plus integrated FreeSpeak II wireless communications
- Trilogy Mercury System
- LQ® Series IP Network Interfaces



LQ-Series IP Interface

HelixNet Main Station

Mercury MIU

V-Series Iris



Wireless Hands-free Communication

Wireless systems and user devices provide the convenience of hands-free, interference-free mobile communication for intricate tasks, such as post-dive hyperbaric chamber operations.

Solutions:

- FreeSpeak II® Digital Wireless System (1.9GHz & 2.4GHz)
- DX™ Series Digital Wireless System (2.4GHz)



FreeSpeak II Beltpacks

DX Series Beltpack

Case Study

Multi-Role Vessel Empowers Safety for Critical Operations

A versatile, global offshore vessel, equipped with air and saturation diving capabilities and ROV, performs drilling support and subsea construction of oil production platforms. In addition to connecting tie-back cables and installing risers, divers cut pipelines and inspect sea beds. These divers are transferred to their work site by the diving bell chamber, which is supplied with breathing gas, electricity, hot water, and means of communication through an umbilical. Post-dive operations often include decompression or recovery time spent inside hyperbaric chambers, where there is the need for wireless systems that can withstand the pressure. For treacherous deepwater inspections, the crew will often use a launch and recovery system (LARS) to deploy and retrieve the ROVs, which are equipped with cameras, lighting systems and manipulators. High performance intercom systems are essential to significantly reduce dangers arising from these difficult responsibilities.



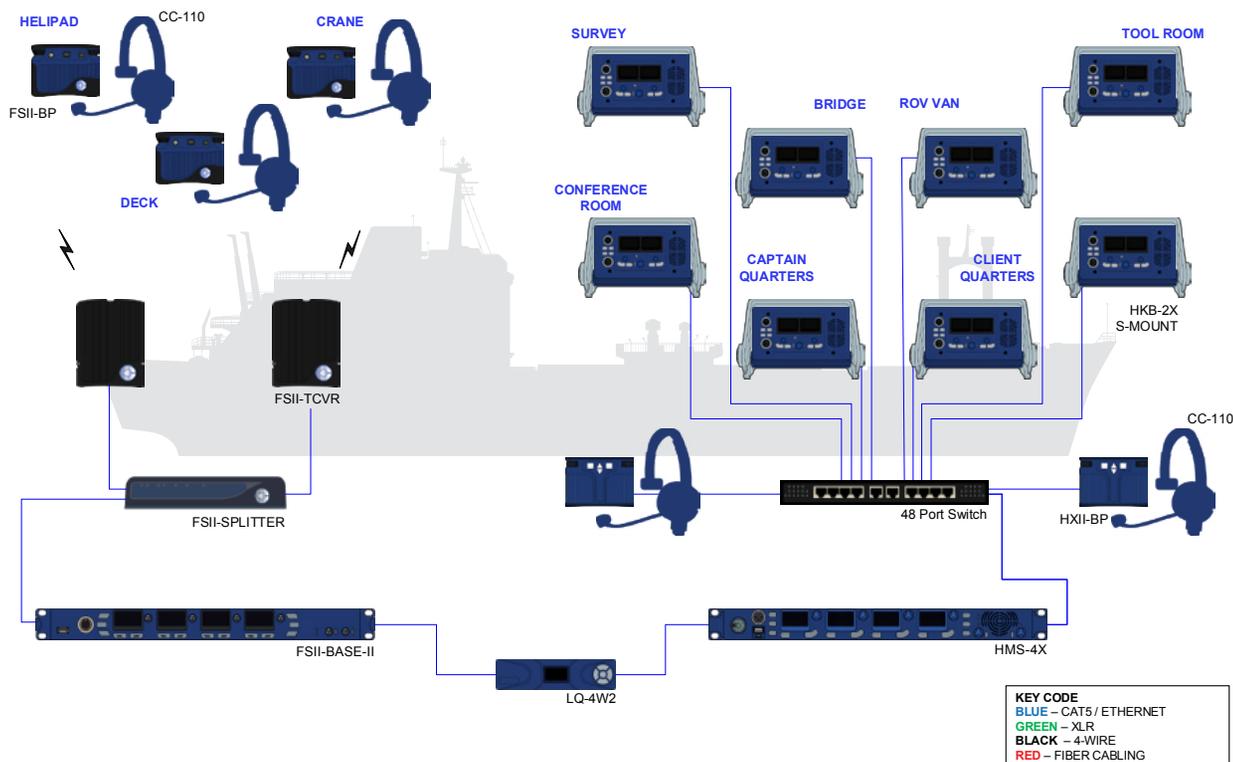
FreeSpeak II Wireless



HelixNet Digital Network Partyline



LQ Series IP Interface



Challenges and Solutions

- Vessel crew must collaborate across multiple decks and work spaces. Since all intercoms are interconnected, they can converse anywhere, enabling wider collaboration. With the ability to integrate different communications systems such as cell phones, two-way radios and SIP phones, Clear-Com makes it possible to connect entire companies together.
- Highly mobile operators must transfer crew members on the ship via the work basket, which is hoisted by the winch, as well as discharge and recover ROVs. Extreme flexibility of wireless beltpack users enables smooth and careful coordination.
- The wet environment and vessel itself can result in frequency interference for traditional UHF systems, hampering communications. Wireless beltpacks with modern RF digital design deliver clear audio for faster response during critical operations.



Case Study

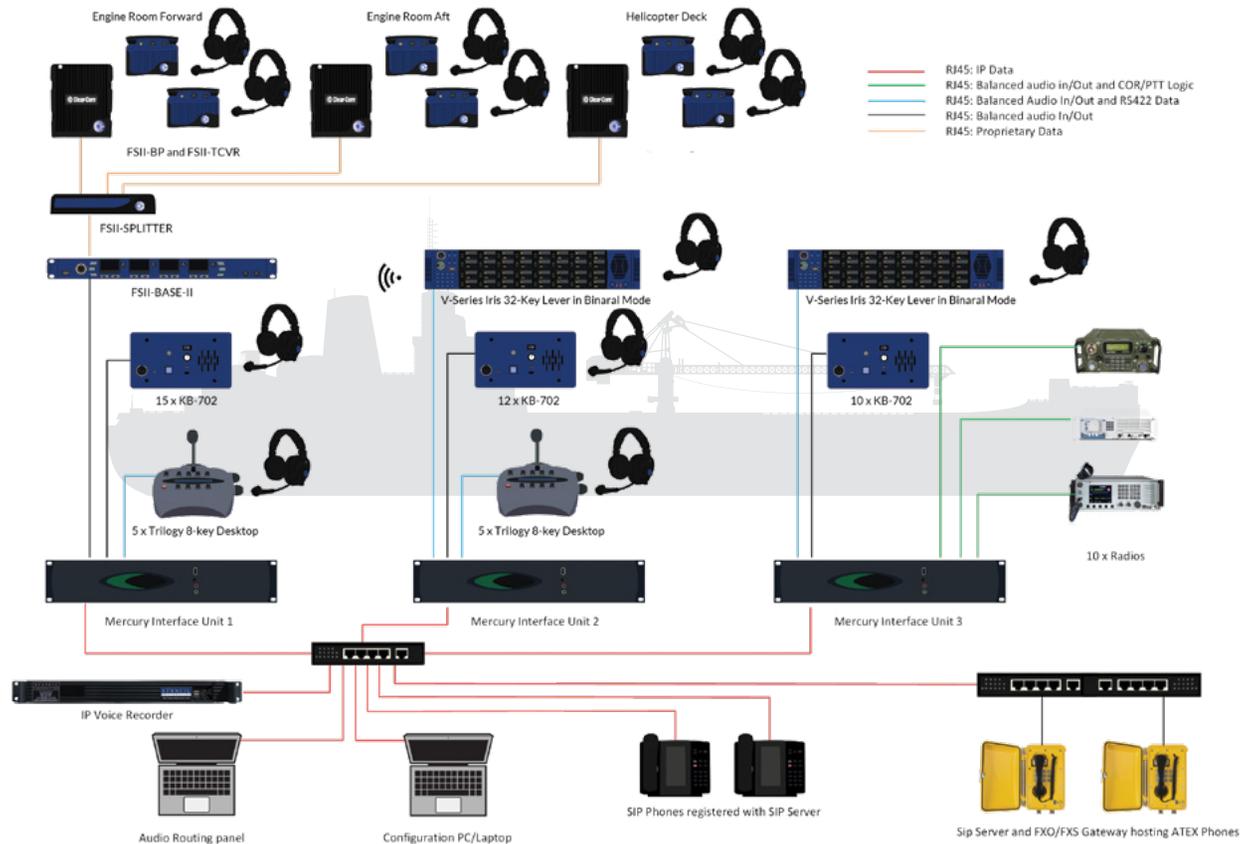
Integrated Communication System (ICS) for Large Vessels

It is essential for large ocean-going vessels to have a highly integrated system that provides seamless communications from fixed voice terminals and mobile devices throughout a vessel, along with integration between onboard broadcast, alarms and other associated systems. A flexible VoIP-based solution brings together all on-board communications equipment with intuitive user terminals enabling access to internal and external voice communications. The system is modular and scalable allowing it to be configured to meet the communications requirements for vessels of all types and sizes. Mobile communications on board give operators wireless access to the same internal and external voice channels as those available at fixed terminals. Live monitoring and multi-track playback capabilities can be color-coded to easily show channel and conduct analysis of communication flows.



Challenges and Solutions

- Hardware and software components need to be designed to work with standards-based IT and network technologies to keep costs low. The system is highly cost-effective and requires minimal training, maintenance and spare parts requirements.
- There are all kinds of types and sizes of ocean-going vessels with varying communication requirements. This system is modular and scalable for any size vessel and upgradable to accommodate future changes.
- Certain job functions require crew members to have internal or external voice channels that have the same capabilities as those that are located at fixed terminals. Having a flexible and cost-effective VoIP-based solution allows complete interoperability with VoIP, ISDN, POTS phones, SIP devices, PBAX telephony, wireless devices, user terminals, and voice recordings.



Case Study

World-Class Vessel Maximizes Well Intervention Collaboration

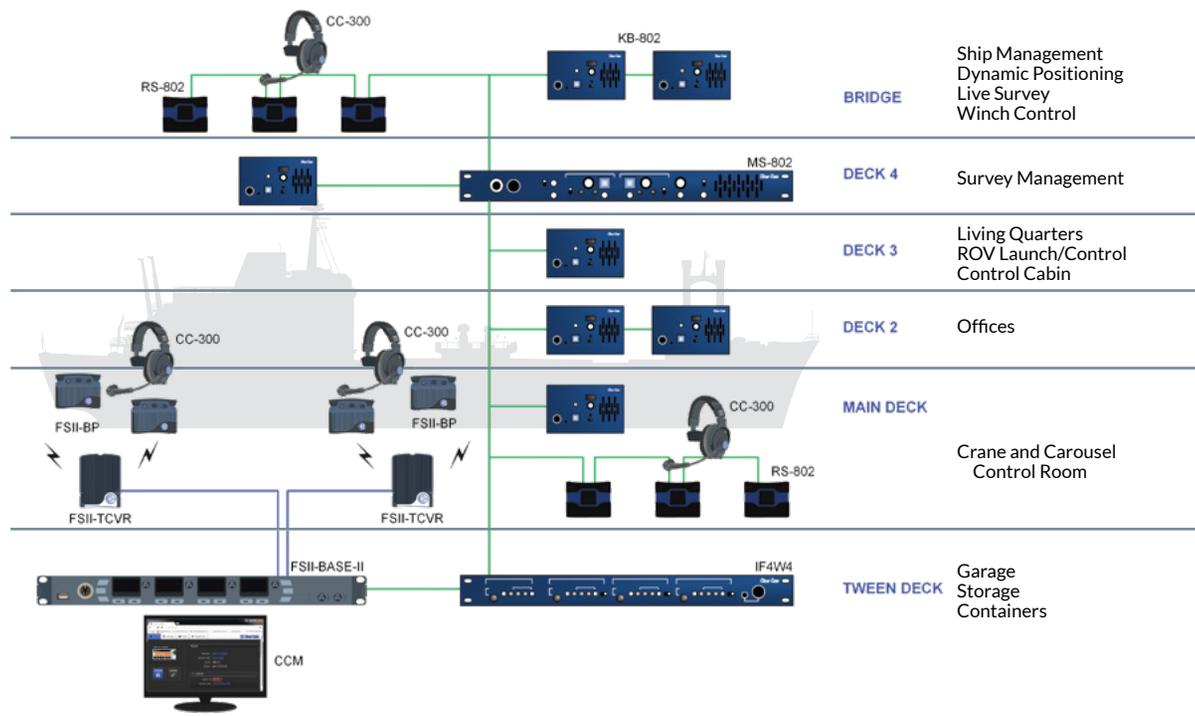
In well intervention, a vessel's deck mounted Multi-purpose Tower lowers the Subsea Intervention Lubricator to the subsea well while concurrently deploying both ROVs and a diving bell for operations such as the replacement of flow control devices, building pipelines, and laying heavy concrete mats on the seabed. These undertakings require a constant exchange of information and rapid responses from crew members to smoothly coordinate the precise movement of heavy equipment and the vessel. To facilitate this knowledge-sharing, partyline and wireless intercom systems are installed on both the Tween Deck and Deck 4. Analog partyline carries communications to wired speaker stations and belt-packs which are distributed throughout the vessel's decks. Wireless transceivers are strategically placed on the main deck where deckhands can move freely while remaining in communication.



Encore 800 Series



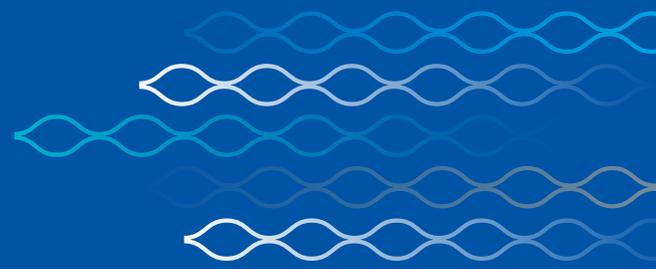
FreeSpeak II Wireless



Challenges and Solutions

- Locating a necessary crew member is difficult when the only form of vessel-wide communication is through a public address system at the ship's bridge. By installing speaker stations on all decks, communications capability is extended throughout the vessel, accelerating decision making.
- Nearby operations and turbulent waters are safety hazards when launching and recovering the diving bell. Clear audio enables the careful deployment of the diving bell.
- Complex procedures, such as moving the vessel or transporting equipment into and out of the sea, call for unified collaboration. Full-duplex conversation between all crew members enhances cooperation.





About Clear-Com[®]

Clear-Com, an HME company, is a trusted global provider of professional real-time communications solutions and services since 1968. We innovate market proven technologies that link people together through wired and wireless intercom systems and connectivity options, including both analog and IP-based solutions.

For more information about Clear-Com and Trilogy Communications, please visit www.clearcom.com and www.trilogycomms.com, respectively.

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