



MSI NAVTEX SOLUTIONS

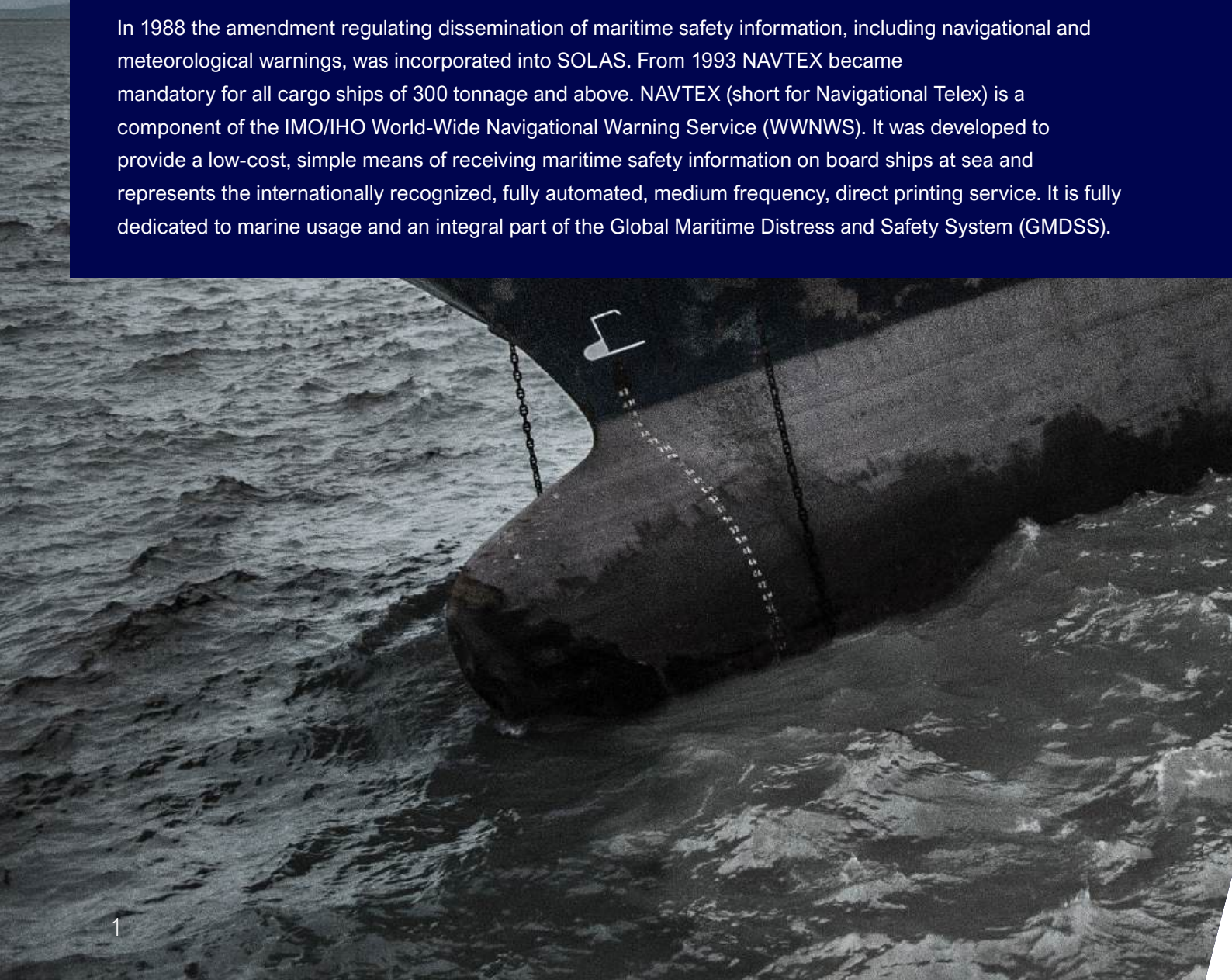


WE ENSURE SAFE MARITIME COMMUNICATION WORLDWIDE

THE HISTORY OF NAVTEX

Long ago, voyagers depended on trade winds to carry the boats from one place to another and skilled sailors made weather forecasts by reading the atmosphere. Storms were a serious weather condition the sailors trained themselves to predict. Before the international maritime organisation (IMO) published the international convention for Safety of Life at Sea (SOLAS) in 1914, vessels traveling in open waters were difficult to predict or prepare for storms. Storms of any magnitude can be vital to vessels in open water when waves can rise well above normal sea level and come crushing down, causing shipwreck and possible loss of lives. To prevent vessels from sailing in exposed areas during life threatening storms the United Kingdom meteorological office introduced in 1860 a gale warning service for ships, after more than 800 people lost their lives at sea in the storm off Anglesey in 1859. It was not until Titanic sank in 1912 that weather forecasts were standardised internationally in the SOLAS convention which is, as of this day, signed by more than 160 nations.

In 1988 the amendment regulating dissemination of maritime safety information, including navigational and meteorological warnings, was incorporated into SOLAS. From 1993 NAVTEX became mandatory for all cargo ships of 300 tonnage and above. NAVTEX (short for Navigational Telex) is a component of the IMO/IHO World-Wide Navigational Warning Service (WWNWS). It was developed to provide a low-cost, simple means of receiving maritime safety information on board ships at sea and represents the internationally recognized, fully automated, medium frequency, direct printing service. It is fully dedicated to marine usage and an integral part of the Global Maritime Distress and Safety System (GMDSS).



NAVTEX IN BRIEF

NAVTEX is the international automated safety service for broadcasting meteorological warnings, navigational status' and urgent Maritime Safety Information (MSI). NAVTEX receiving capability is required to be carried by vessels under the provisions of the International Convention for the Safety of Life at Sea (SOLAS), 1974.

The MSI is broadcast by NAVTEX transmitter stations. The required range of the NAVTEX transmitter is 250-400 nautical miles. It is affected by various surrounding factors. Even though the ships are required to carry the NAVTEX receiver, not all nations have a NAVTEX station. In which case the ships rely on the nearest station or other sources of MSI broadcasts, for example satellite.

NAVTEX messages are transmitted in internationally controlled time slots every four hours to increase the chance of reception.

AREA OF NAVTEX EXPERTISE

The essential part of GMDSS is the coast station located on shore. The main purpose of the coast station is to monitor and coordinate the maritime traffic and radio communication. In some cases, the coast stations are also required to send out maritime safety information (MSI) to ships, for example meteorological forecasts, navigation information and piracy warnings via NAVTEX. The tasks of the individual coast stations are regulated by the authorities in each country, but they are always based on GMDSS.

To meet these different requirements Danphone offers a complete customised solution with modular design, built around leading commercial off-the-shelf products, allowing great flexibility to make tailored designs. With our in-house software and hardware specialists, we can modify the standard-based solution to interface with existing systems for easy upgrade and transision.

THE COMPLETE MSI/NAVTEX SOLUTION

Danphone has developed, manufactured and installed advanced radio communication systems and complete solutions since 1990.

We are experts within the maritime communication technology, specializing in VHF, MF/HF, DSC, AIS and NAVTEX. Danphone's MSI NAVTEX Transmitter System provides the complete solution incorporating both hardware and software.



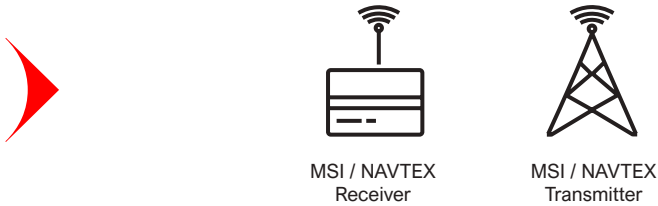
User and Management Layer



Network & Interface Layer

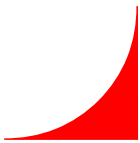


Radio Equipment Layer



THE DANPHONE MSI/NAVTEX SOLUTION

Are you facing challenges in your current MSI NAVTEX setup? Wondering how to enhance safety, streamline operations, and improve overall efficiency? The Danphone MSI NAVTEX Transmitter Solution – the perfect complete solution that adapts to your unique requirements, addressing users, workflow, key processes, equipment, infrastructure, and technology.



SCALABILITY AND MODULARITY FOR ANY COASTLINE

Our MSI NAVTEX Solution is adaptable, whether it's a single-transmitter setup or a complex multi-site system with multiple operators and transmitter sites installed at various remote locations, spanning vast coast lines. The NAVTEX System has a modular design for easy customisation to match your coastlines unique requirements, and integration with Danphone's GMDSS solution and 3rd party equipment, so it can be tailored to deliver the services you need. No matter the complexity, we're here to support you.

SIMPLIFIED OPERATIONS FOR ENHANCED PRODUCTIVITY

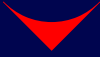
The NAVTEX Solution prioritises simplicity and efficiency and it is designed to encompass a very easy and intuitive operation. Your daily operation is supported by an user-friendly interface with full process flexibility from fast message setup, integration to transmission planning and logging. Danphone NMS - Network management, configuration and administration gives a graphical overview and real-time status of the complete system, and enables fast configuration or change.

QUALITY AND RELIABILITY IN CHALLENGING ENVIROMENT

Safety critical communication equipment is required to cover all sea areas. The Danphone NAVTEX Solution meets all industry standards for high quality and reliability. Our systems perform reliably in challenging maritime conditions, from icy conditions in Greenland to the hot humid in India, ensuring authorities have resilient connections for reliable 24/7 operation.




KEY FEATURES



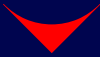
Easy and intuitive touch screen operation




No single point of failure



Flexible and scalable secure communication system



Multiple transmitter sites and operator positions




Adjustable output power 50W-1kW or 100W-3kW




Modular design for future expansion



IP network infrastructure



Independent power settings for each time slot



Storage of all transmitted and received messages



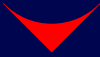
Fully GMDSS, IMO and IALA Compliant



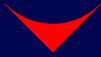
Prepared for mGMDSS



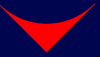
Allows remote service and support by Danphone specialists



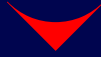
Remote controlled network management & configuration




Simple Network Management Protocol (SNMP) Interface




Allows for redundancy of all system elements



Prepared for integration with Danphone's GMDSS system



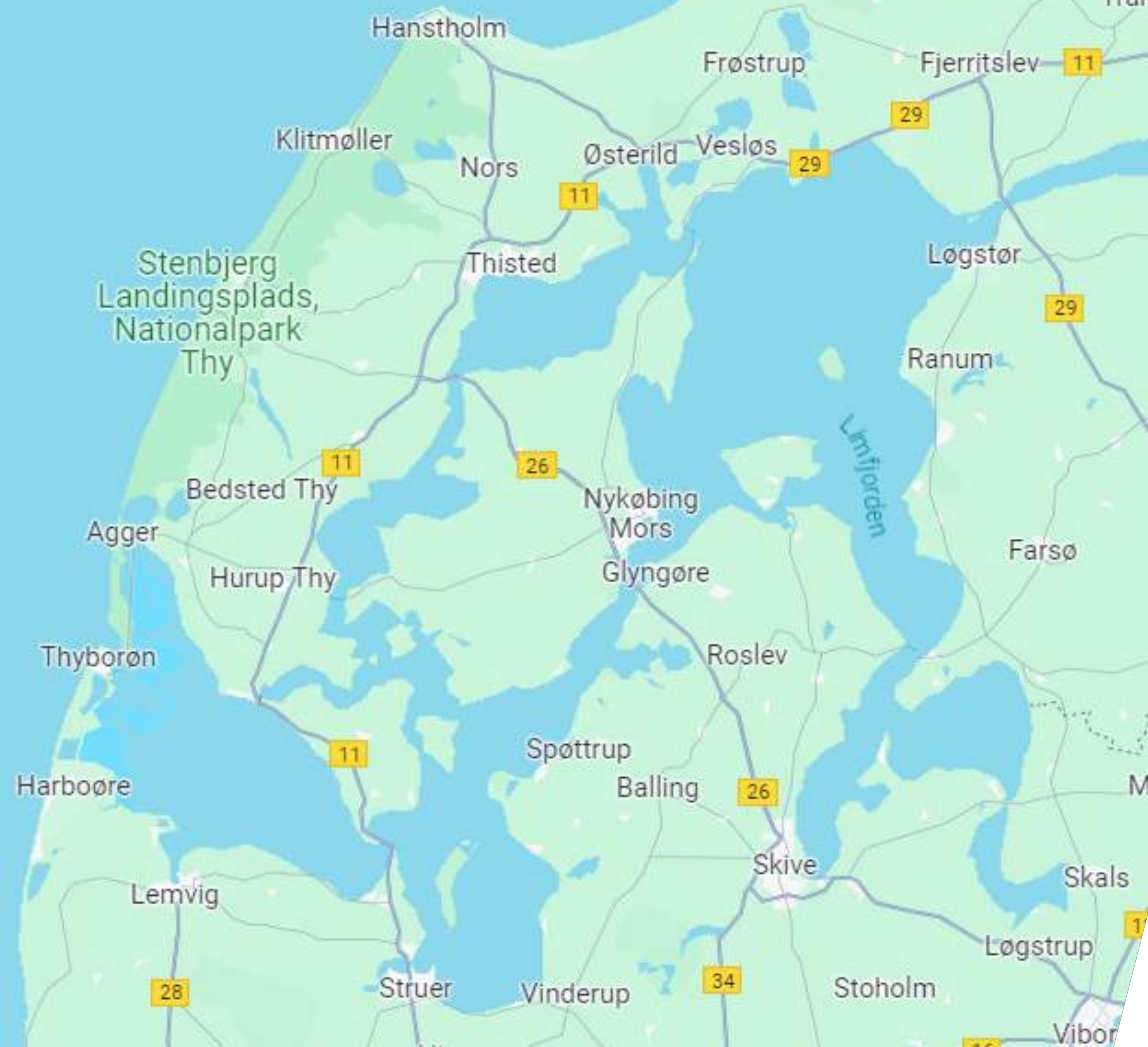
Transmission of compiled messages even if the network is down



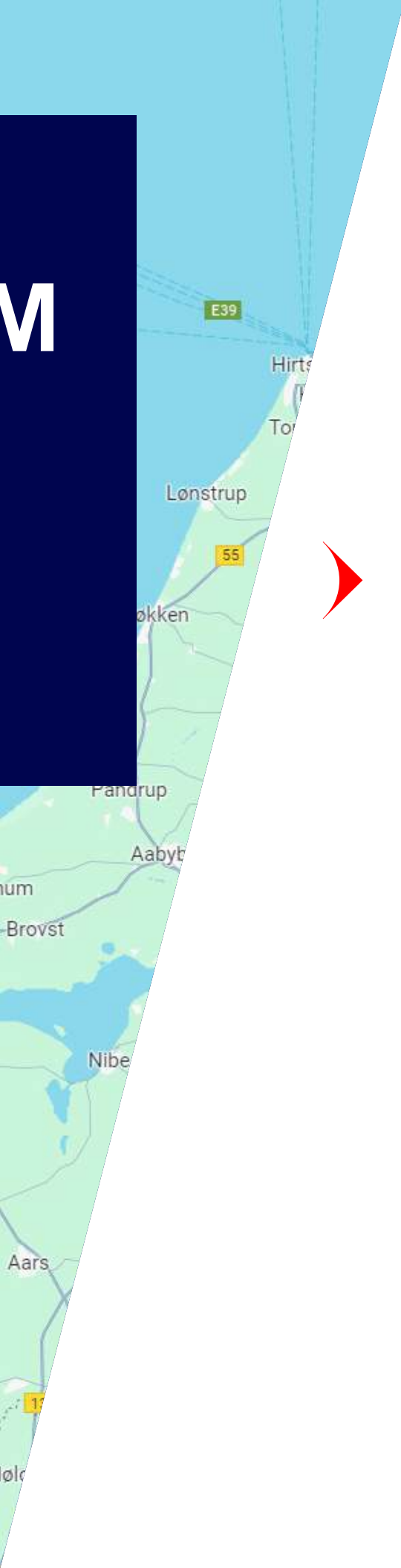
Supports all MSI/NAVTEX transmissions with any local character set in any language

USERFRIENDLY INTERFACE AND SYSTEM MANAGEMENT

Customised and optimised for every day operation from national systems to simple MSI/NATEX setups. The Danphone “User and Management Layer” focuses on easy operations where visual and audible alarms are automated and the system will automatically prioritize distress messages for fast response. In the heart of every efficient MSI/NAVTEX Solution lies the seamless integration of advanced technologies. Danphone’s commitment to excellence extends beyond individual components; it extends to the orchestration and management of your entire MSI/NAVTEX Solution.



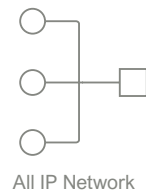
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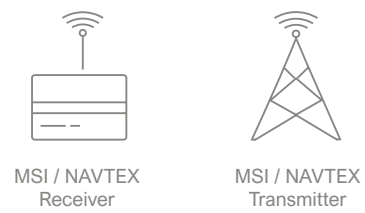
User and Management Layer



Network & Interface Layer



Radio Equipment Layer



EASY AND INTUITIVE OPERATION

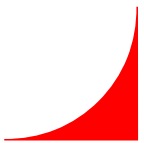
The Danphone operator software has an intuitive graphical interface designed for touch screen operation with full logging of all messages, regardless of time and place. Extreme weather conditions require extremely reliable transmissions of meteorological forecasts. Navigation officers rely on the information transmitted from the base station for the safety of crew and vessel.



INTUITIVE INTEGRATION

The Danphone MSI/NAVTEX Solution is designed with user-friendliness in mind. The intuitive interface and controls make it easy for personnel to operate and manage the system effectively. Our solution simplifies complex tasks, reducing the learning curve for users.

Optimise your operational efficiency with the perfect screen setup that caters to your specific needs. We prioritise simplicity, providing operators with easy access and a comprehensive overview of the entire system. The specialised software is designed to elevate the user interface, we excel in simplifying your experience, facilitating a smooth transition.



FAIL-SAFE TRANSMISSION

Danphone's NAVTEX transmitter works independently of network functionality. It ensures messages can be sent even if the network between the Control Centre and transmitter goes down. The fail-safe transmission is ensured by the completed compiled messages being stored on the actual transmitter.

Another major advantage is that the NAVTEX transmitter ensures messages can be sent even if a reverse power fault is observed. The fail-safe transmission is ensured by the transmitter, if it detects a reverse power fault, automatically reducing its output power until a safe reverse power level is reached, which does not damage the transmitter. The messages will then be transmitted.



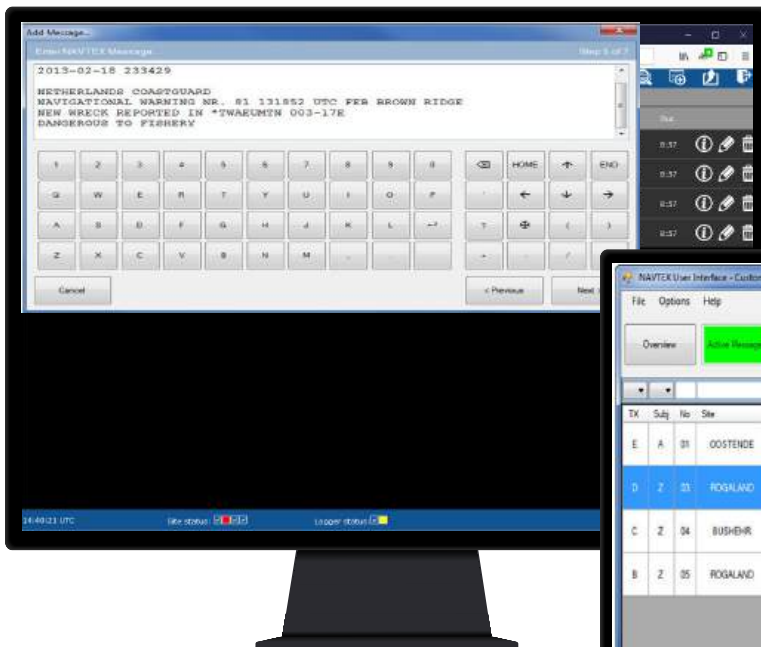
AUTOMATIC TRANSMISSION

The operator can choose to schedule messages within selected time-slots or transmit urgent information immediately. All messages are automatically transmitted and logged. The interface is operated by either touch screen or keyboard.

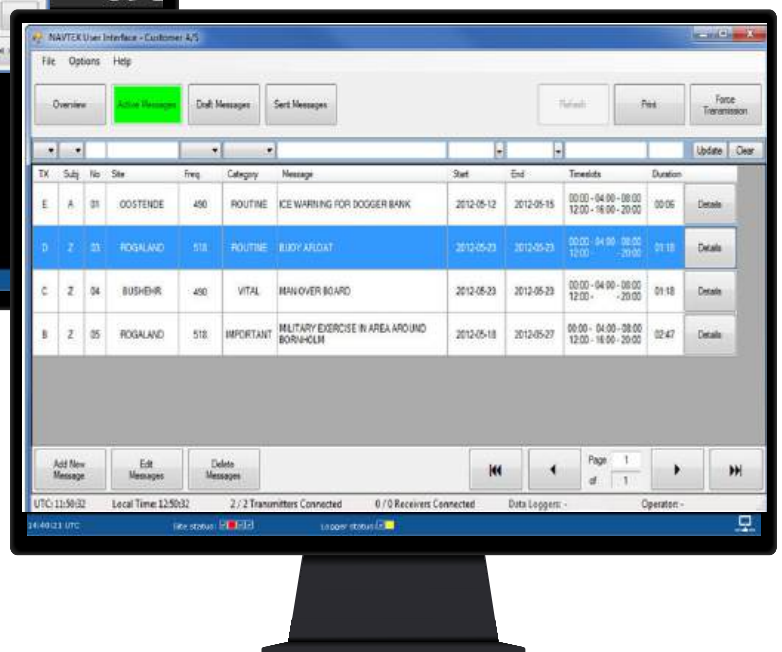


COMPLETE OVERVIEW

Our interface supports easy editing and quick action in urgent circumstances by listing messages according to time and date. Messages are separated by: overview of all transmissions, active messages, sent messages and draft messages.



Compose NAVTEX message



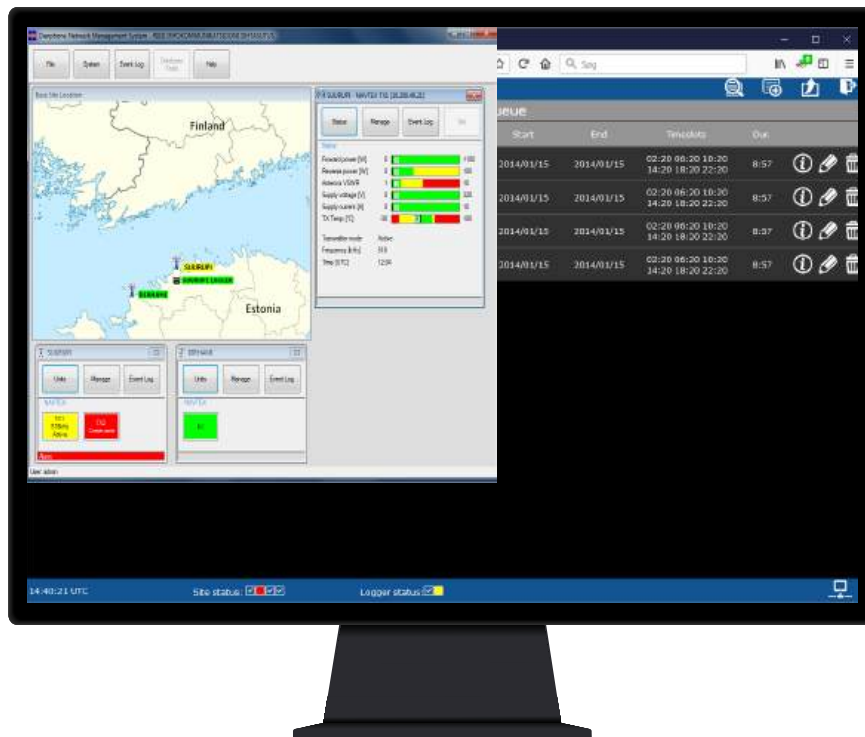
NAVTEX User Interface

SIMPLE MANAGEMENT

Large national systems include multiple sites for complete coverage from the coastline out into open waters. Danphone's NMS provides the ultimate overview of site locations and simple network management of the entire system.



Redundant nationwide systems require simple management and site overview for surveillance of the transmitters' status. Danphone's Network Management System enables monitoring and configuration of each individual transmitter to avoid failed transmissions. The map illustrates the location of the sites and all transmitters for quick identification. For a complete overview the system provides all relevant data including transmissions, temperature and forward and reflected power readings. In case of failure, the system offers visual and audible alarms.



Danphone's NMS Administrator.

KEY FEATURES



Monitoring and configuration of transmitters



Automatic or manual active/standby transmitter switch-over



Complete logging of all events



Simple network management protocol (SNMP) interface



Visual indications of warnings and failures



Audible alarm upon request



Multiple-level password protection



NEXT-GEN NETWORK SOLUTION

In this chapter, we'll take a look at the technological backbone of The Danphone MSI / NAVTEX Solution, showcasing our cutting-edge IP network infrastructure and powerful MSI Controller. Discover how our network solutions provide seamless connectivity and enable efficient management of your coastal operations. With Danphone, simplicity meets sophistication in the world of maritime communication.

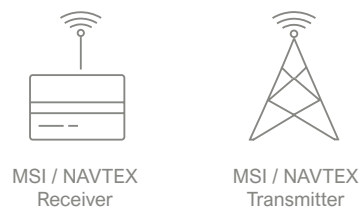
User and Management Layer



Network & Interface Layer

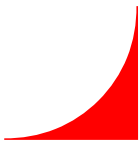


Radio Equipment Layer



FULLY SECURED AND CONNECTED NETWORK

With network and MSI control integration from Danphone your efficiency, security, and connectivity will reach unprecedented heights. Stay secure with a connected network.



IP NETWORK OVERLOOK

At the core of our MSI/NAVTEX Solution lies a robust IP Network, serving as the foundation for your maritime connectivity. This Network branches out to various key aspects of communication both Maritime and Extern/Land. Connected to this network is a dedicated data logger to track all data in and out of the network. The Danphone System Control Management harmonises every facet of the maritime communication infrastructure.

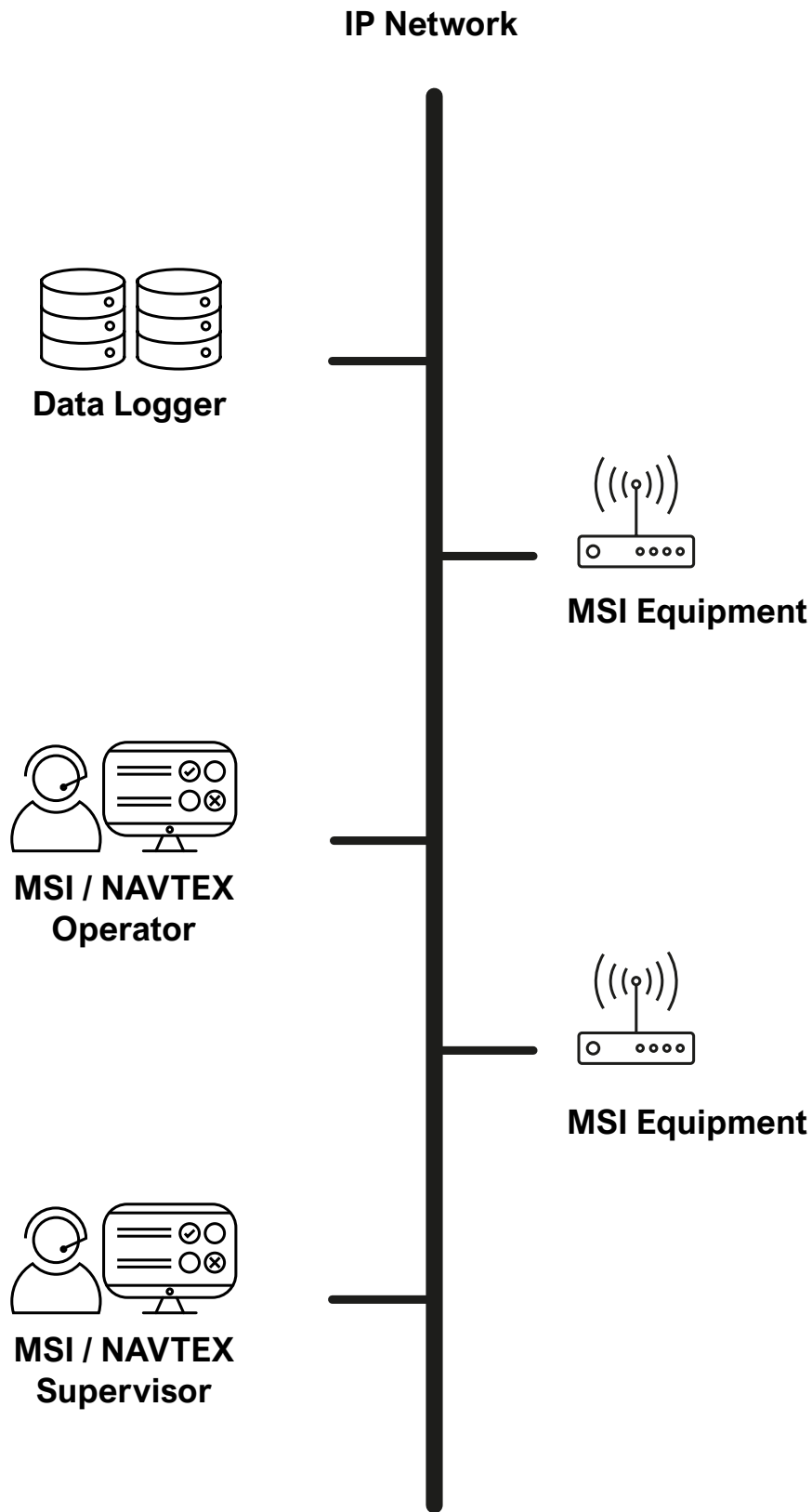


ALL IP NETWORK INTEGRATION

In the heart of bustling maritime operations lies a complex ecosystem of communication networks, where every connection matters. Danphone's commitment extends beyond the realm of conventional IP networks; it extends to a unified control system that harmonizes every facet of maritime and external communication. Welcome to the realm of the All IP Network—a multifaceted infrastructure that bridges communication between coastal facilities and the world beyond. The 3rd Party Equipment Interface plays a vital role in coordinating radios and interfaces. Over the years, we have encountered numerous distinctive challenges where the incorporation of 3rd party products was essential. This approach empowers our customers with unprecedented control ensuring Danphone, in collaboration with the customers, can design every aspect of the system to meet their specific requirements.



The Danphone MSI Controller integrates leading external radio equipment.



Example of a one layer MSI / NAVTEX Solution.

A person is sitting at a desk in a server room, working on a laptop. The desk is white and has a silver mug on it. The server racks are black and have various components visible. The background is a server room with rows of racks.

INNOVATIVE SOLUTIONS DEPENDABLE EQUIPMENT

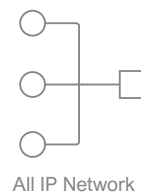
Maritime safety has been an international focal point since 1912. Since then, the marine industry has focused on developing a uniform standard of safety equipment to avoid delay in distress situations.

As a worldwide supplier, Danphone is a developer of innovative maritime safety systems compliant with UN/IMO and IALA standards.

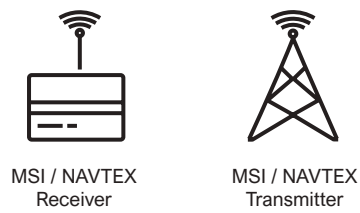
User and Management Layer



Network & Interface Layer

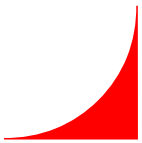


Radio Equipment Layer



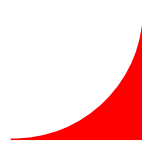
WELL-PROVEN RELIABLE COMMUNICATION

Danphone has installed more than 40 NAVTEX systems worldwide. From a single-transmitter setup to a complex national system with multiple operators, Danphone's NAVTEX system can be configured and customised to suit all requirements.



COMPLETE CUSTOMISED SOLUTION

Danphone designs the complete solution meeting your needs and requirements. The solution is based upon customised and commercial off-the-shelf products. Our approach involves a combination of customised Danphone products and carefully integrated 3rd party products from other industry-leading suppliers. This strategic blend of technology allows us to address the full spectrum of challenges that coastal areas may face.



BUILDING UPON LEGACY SYSTEMS

At Danphone, we take immense pride in our ability to enable customers to utilize their pre-existing equipment seamlessly with our advanced MSI/NAVTEX Solution. Regardless of brand or model, our team of experienced software and hardware engineers has encountered and successfully integrated a wide array of legacy systems. Incorporating your old or existing maritime infrastructure into the new Danphone MSI/NAVTEX Solution is a seamless and hassle-free process.



Danphone's MSI NAVTEX transmitter.



Danphone's Automatic Tuning Unit.

HIGH PERFORMANCE MSI/NAVTEX TRANSMITTERS

The transmitters are designed for standard 19" rack mount and can be installed in separate cabinets or stacked together in one cabinet.

A standard setup comprises two redundant NAVTEX transmitters with single-phase power supply units. For example, a 1,800 mm / 40 HU cabinet can contain all the equipment needed for a main/standby system with duplicate transmitters and power supplies. The MSI/NAVTEX equipment will be pre-installed and configured in 19" rack enclosures. Requiring only minimum on-site installation tasks. (Mains supply, LAN cable and coaxial cables).

The Danphone NAVTEX transmitter is developed and produced at Danphone's factory. It transmits NAVTEX messages in any local language on 490 kHz and 518 kHz. In case of reverse power fault, the transmitter continues to send messages by automatically reducing forward power to a safe level.

The output from the transmitter may be connected to Danphone's automatic tuning unit in order to match the transmitters 50 Ω output impedance to the antenna's.



Example of MSI NAVTEX rack with two redundant transmitters.

FULL LIFETIME SUPPORT

Our solutions are customised and so is the support we provide. The same team of Danphone engineers who developed, and in some cases also installed, your system, will provide online support and training for your staff and equipment - for the life of your communication infrastructure. Full functionality is our mission and we strive to provide and maintain the most reliable systems on the market.

DANPHONE LEGACY

Danphone is a global company within the maritime sector, specializing in Maritime Communication, MSI/NAVTEX, AIS systems, and test equipment for radio inspections. We are a part of the ecosystem for critical infrastructure for communication and safety in the maritime sector and have been for more than 25 years.

Since 1990, the engineers at Danphone have been developing, manufacturing and installing complete solutions in challenging environments including system integration and network management worldwide.

Today, Danphone is a world leader, supplying Maritime communication and safety equipment in more than 40 countries – and Futronic GMDSS testers in 85+ countries. Located in Aalborg, Denmark, where we ensure high quality and professional and reliable service.



ENSURING GLOBAL MARITIME RADIO COMMUNICATION AND SAFETY

Our mission is to develop, manufacture and deliver on time, customised radio communications equipment, systems and related services, which ensure the fulfilment of product specifications and approval requirements.

In all of our activities, customer satisfaction is of the utmost concern. Danphone operates and focuses on continuous improvements based upon our Quality Management System conforming to the international standard DS/EN ISO 9001.



CORPORATE SOCIAL RESPONSIBILITY

Danphone supports the UN's Global Compact, which is the world's largest initiative on corporate social responsibility.

With the accession to the UN Global Compact, Danphone is committed to adapting our work and strategies to the ten principles in the areas of human rights, labour rights, the environment and anti-corruption.



United Nations
Global Compact



IT'S ALL ABOUT MARITIME COMMUNICATION AND SAFETY

Beside MSI NAVTEX Solutions our expertise is found in the three pillars of maritime communication you see below.



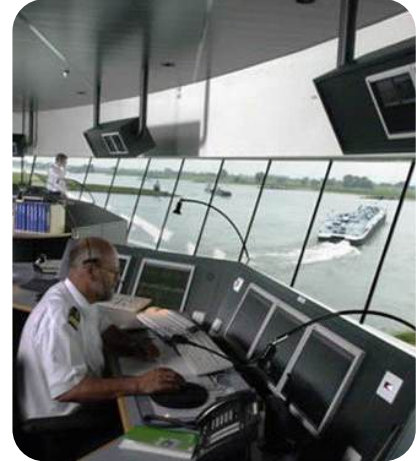
PORT COMMUNICATION

A comprehensive and integrated communication solution designed for efficient and secure operations within ports. It encompasses a range of technologies and protocols to facilitate seamless communication among various stakeholders, including port authorities, vessel crews, and related personnel.



GMDSS COASTAL RADIO

Our GMDSS Coastal Radio Solution, tailored for coast stations, ports, and offshore installations, is a scalable IP-based communication system. The system provides IP network infrastructure, Voice over IP, multilogging, DSC, and remote touch monitor control.



SHORE BASED AIS

Advanced AIS solutions with custom rack-mounted AIS Physical Shore Stations (PSS). These stations feature dual-channel AIS base station receivers with data storage and TCP/IP interfaces. They ensure 24/7 operation, automatically timestamped AIS data, and provide NTP synchronization for accurate time data.

COMPLIES WITH GLOBAL MARITIME STANDARD

The systems we deliver fully complies with ITU, IMO, IALA and global maritime standards. Danphone actively support organisations and companies like UN Global Compact, DNV, Aalborg Maritime & Logistics, InterForce, DigitalLead etc.



OUR MSI/NAVTEX REFERENCES

Danphone has collaborated with operators in all Oceans across the world - from the hot humid conditions of India to the icy environment of Greenland. Selected references listed below.

-  **2024:** Canada: MSI NAVTEX installation.
-  **2023:** Sudan - Port of Sudan: MSI NAVTEX installation.
-  **2023, 2020, 2018, 2017, 2008:** Estonia MSI NAVTEX system.
-  **2023, 2014:** India: 1 kW National NAVTEX and expansion. Service and maintenance agreement.
-  **2022:** Southeast Asian Country: Complete GMDSS coastal radio system, incl. DCS & NAVTEX RX.
-  **2021, 2016:** Egypt: 1 kW Regional MSI NAVTEX System.
-  **2020, 2019:** Saudi Arabia: 1 kW & 2 kW National and Regional MSI NAVTEX System.
-  **2014:** Cyprus: 1 kW National MSI NAVTEX System and expansion.
-  **2014:** Seycelles: 1 kW National MSI NAVTEX System.
-  **2013: Portugal:** 1 kW Regional MSI NAVTEX System.
-  **2012: Iran:** 1 kW MSI NAVTEX System. (multiple sites)
-  **2011:** Turkey: 1 kW Regional MSI NAVTEX System.
-  **2010:** Greenland: 1 kW National MSI NAVTEX System. (multiple sites)
-  **2008:** Bermuda: 1 kW National MSI NAVTEX System.
-  **2008:** Azerbaijan: 1 kW MSI NAVTEX system.
-  **2007:** Iceland: 1 kW National MSI NAVTEX system.