FURUNO DEEPSEA WORLD

FURUNO®

GMDSS GUIDE

Courtesy Mitsui O.S.K. Lines

The future today with FURUNO's electronics technology

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MARCA REGISTRADA

GENERAL CONCEPT

The **Global Maritime Distress and Safety System (GMDSS)** has been developed by the maritime nations in the International Maritime Organization (IMO) and is the result of their adoption of amendments made in 1988 to the 1974 International Convention on the Safety of Life at Sea (SOLAS).

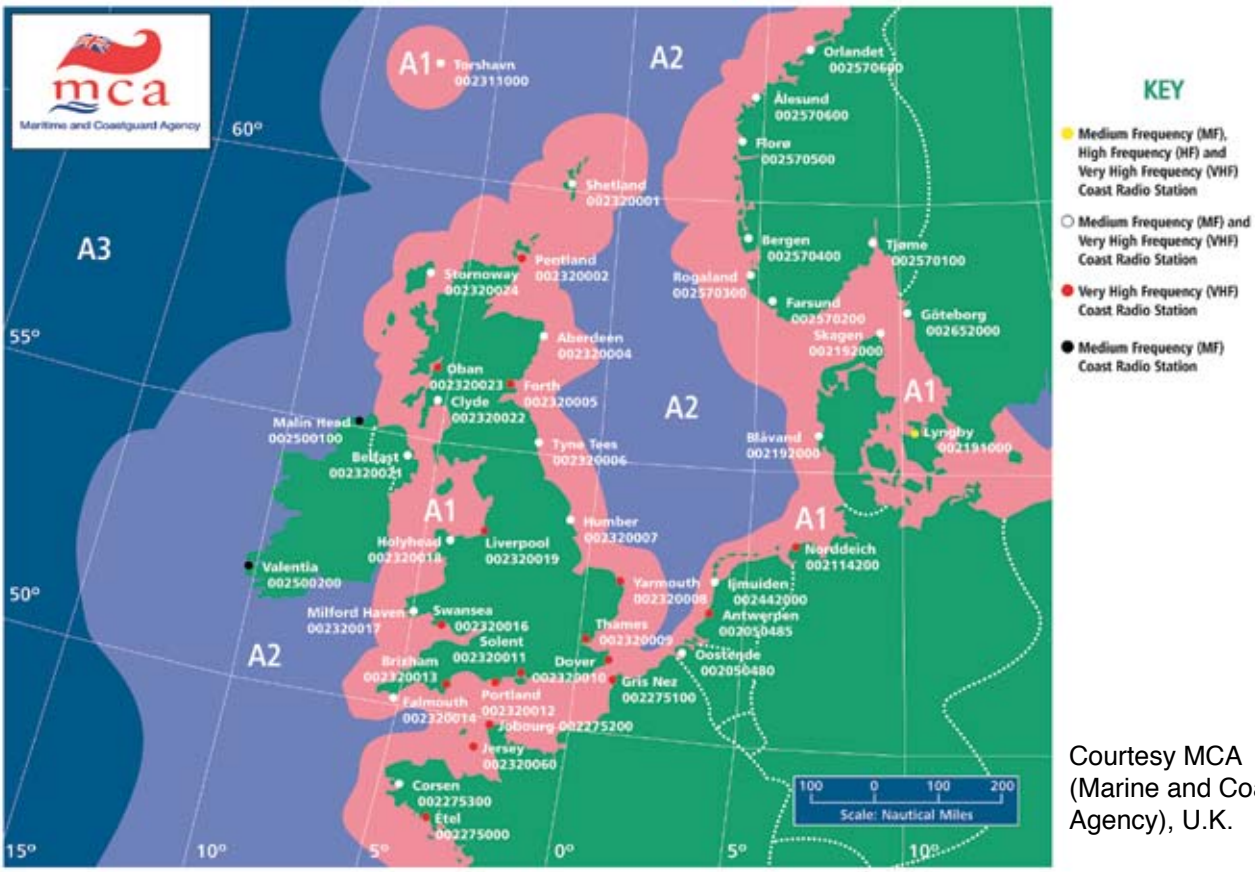
Based on recent developments in the marine communications such as satellites and digital technologies, GMDSS is designed to ensure maximum availability of safety communications for all passenger vessels and also on cargo vessels of 300 GT and upwards engaged in international voyages.

A principal aim of GMDSS is to virtually guarantee that complying vessels will be able to communicate with a shore station at any time, from any location, in case of distress or to exchange safety information.

SEA AREAS

The GMDSS defines four sea areas based on the location and capability of shore-based communications facilities. The definition of the Sea area for GMDSS is as stated below. For your intuitive image, please refer to the rough layout of European area indicating the sea area and coastal stations.

European GMDSS SEA AREAS



Courtesy MCA (Marine and Coastguard Agency), U.K.

Sea Area A1:

An area within the radiotelephone coverage of at least one VHF coast station in which continuous DSC (Digital Selective Calling) alerting is available, as may be defined by a Contracting Government.

Sea Area A2:

An area, excluding Sea Area A1, within the radiotelephone coverage of at least one MF coast station in which continuous DSC alerting is available, as may be defined by a Contracting Government.

Sea Area A3:

An area, excluding Sea Areas A1 and A2, within the coverage of an Inmarsat geostationary satellite in which continuous alerting is available.

Sea Area A4:

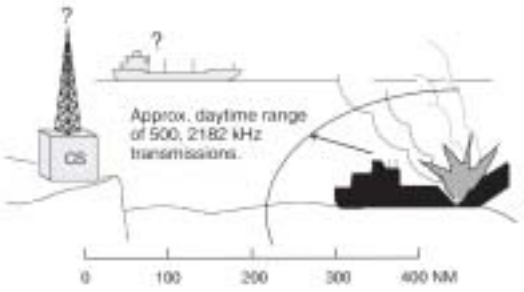
An area outside sea areas A1, A2 and A3.

Note

For other countries, only Sea Area A3 is defined until coast stations are implemented.

Comparison of old distress system and GMDSS

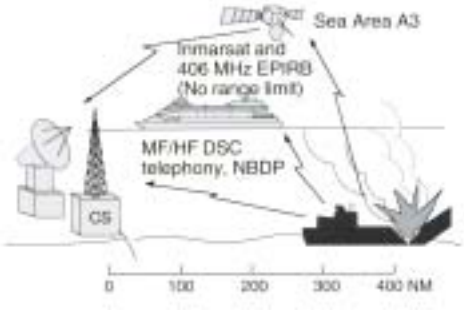
Reliance on ship in vicinity



Because of the inherently limited range of transmissions on the previous commonly used distress and calling frequencies of 500 and 2182 kHz, there was no guarantee that a call for assistance would be received if the vessel was more than a few hundred miles from a coast station. Assistance would only be available if another vessel was within range.

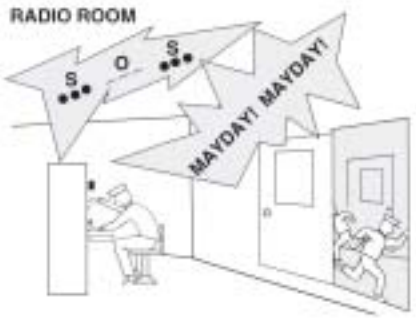
With GMDSS

Worldwide coverage



The GMDSS vessels carry the communications equipment appropriate to the Sea Area in which they are operating. Having the capability to choose a long range method when necessary, a call for assistance can reach a coast station and will have a greater chance of being heard by other ships.

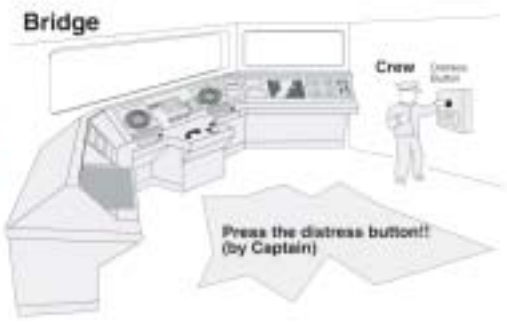
Special skill to operate



Radio officers send a distress call in Morse Code on 500 kHz through complicated operations such as the switching and adjustment of transmitters. A successful distress attempt relies heavily on his skill. On the contrary, the

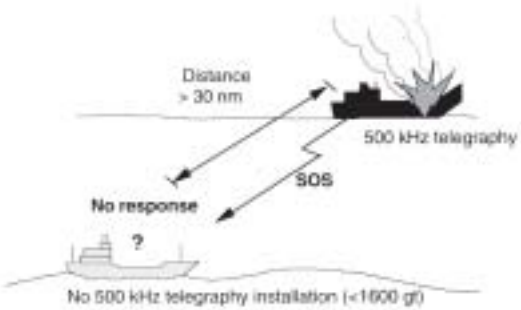
With GMDSS

Simple and automatic operation



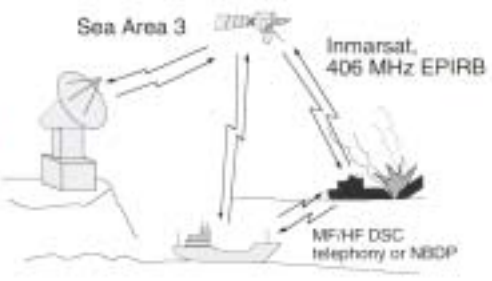
GMDSS equipment provides easy operation in an emergency situation just by pressing the distress button on Inmarsat Maritime MES or DSC. In addition, a float-free EPIRB automatically transmits a distress alert and location.

Equipment compatibility



With the previous system, it was only possible for a vessel in distress to ask for assistance of other vessels in the vicinity as the communication equipment has limited ranges. Another problem was incompatibility of communicating between a telephony vessel and a

With GMDSS

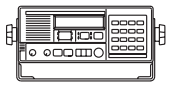


telegraphy vessel. All GMDSS vessels carry standard equipment for the Sea Area they are in, operating on the same frequencies and modes; thus, the compatibility between them is completely assured.

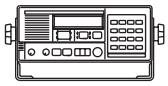
FURUNO recommendations for

Sea Area A1 Sea Areas A1-A2

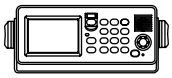
VHF Radiotelephone with built-in DSC FM-8500*



VHF Radiotelephone with built-in DSC FM-8500*

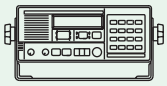


MF/HF Radiotelephone DSC/Watch Receiver FS-1570 or FS-2570



DUPLICATION

VHF Radiotelephone with built-in DSC FM-8500*



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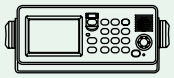
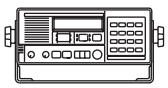
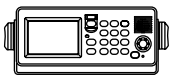


Sea Areas A1-A2-A3

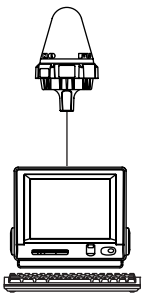
VHF Radiotelephone with built-in DSC FM-8500*



MF/HF Radiotelephone DSC/Watch Receiver FS-1570 or FS-2570

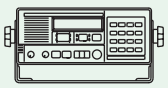


INMARSAT-C MES FELCOM 15

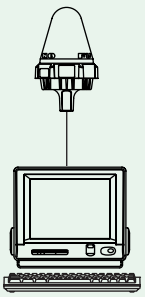


DUPLICATION

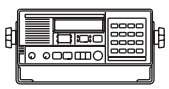
VHF Radiotelephone with built-in DSC FM-8500*



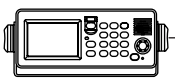
INMARSAT-C MES FELCOM 15



VHF Radiotelephone with built-in DSC FM-8500*



MF/HF Radiotelephone DSC/Watch Receiver FS-1570 or FS-2570

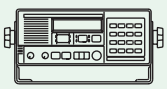


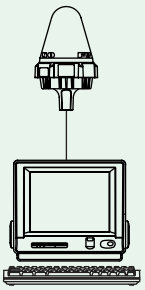
NBDP□ Terminal Unit IB-583

DUPLICATION

INMARSAT-C MES FELCOM 15

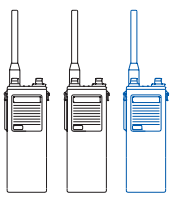
VHF Radiotelephone with built-in DSC FM-8500*





* FM-8700 for full-duplex

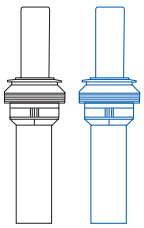
All ships irrespective of Sea Area



Survival craft 2-way VHF Radiotelephone

2 sets required for cargo ships 300-500 gt

3 sets required for all passenger ships and cargo ships over 500 gt

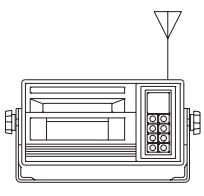


SART (Search and Rescue Transponder)

1 set required for cargo ships 300-500 gt

2 sets required for all passenger ships and cargo ships over 500 gt

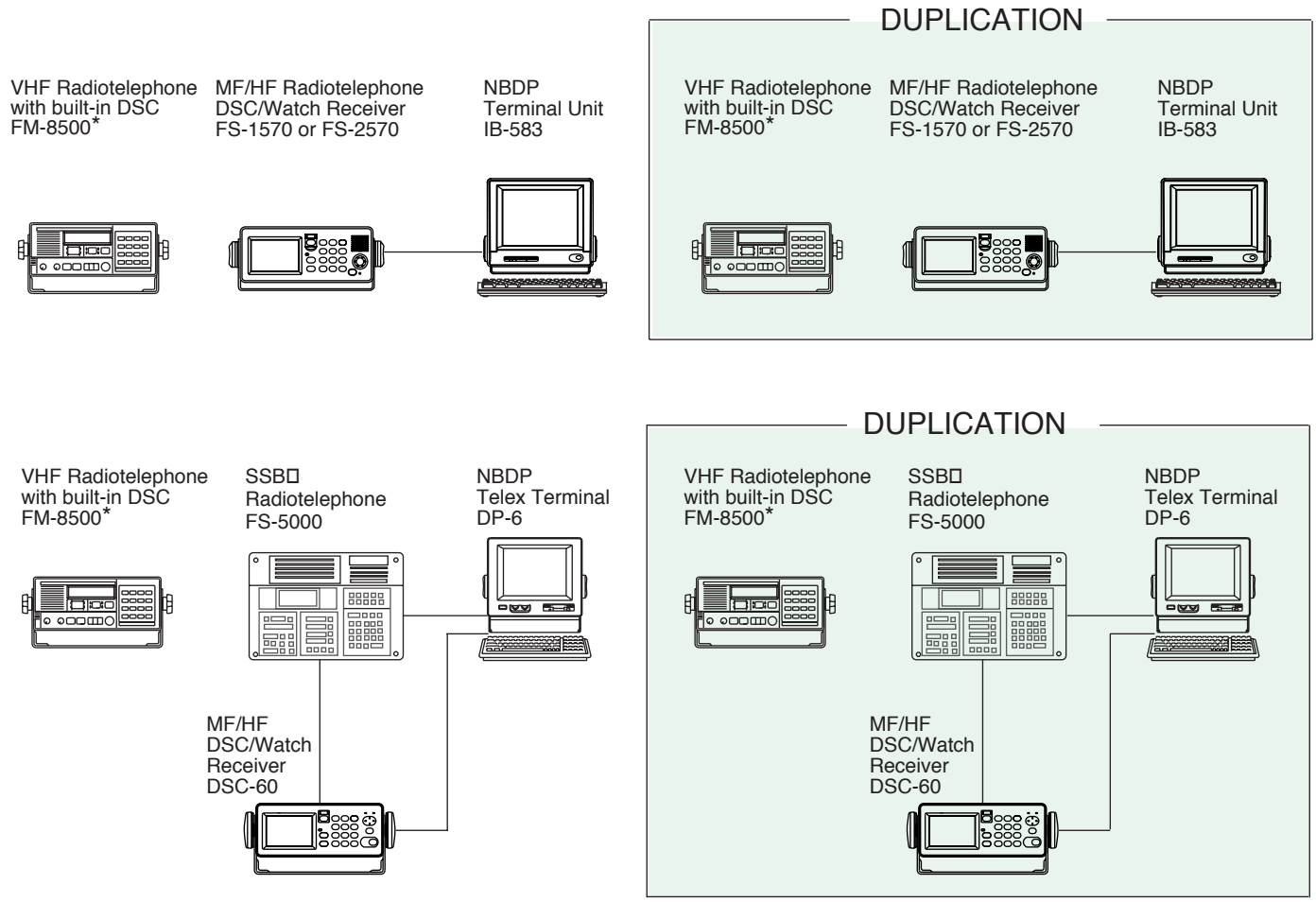
406 MHz EPIRB (Emergency Position Indicating Radio Beacon)



NAVTEX receiver NX-500

compliance with GMDSS

Sea Areas A1-A2-A3
Sea Areas A1-A2-A3-A4



* FM-8700 for full-duplex

AVAILABILITY OF RADIOCOMMUNICATIONS BY DUPLICATION OF EQUIPMENT

Sea Areas A1 and A2:

Either of the following as approved by the Administration;

1. Duplication of equipment (VHF, MF radio, DSC)
2. Shore-based maintenance
3. At-sea electronic maintenance capability

Sea Areas A3 and A4:

Combination of at least two of the following as may be approved by the Administration;

1. Duplication of equipment (VHF, MF/HF radio, DSC)
2. Shore-based maintenance
3. At-sea electronic maintenance capability

If availability is ensured by using a combination of methods including duplication of equipment, the following equipment should be available in addition to the Shore-based maintenance requirements:

Sea Area A3: a VHF radio (VHF+DSC) and either MF/HF radio (MF/HF+DSC+NBDP plus DSC watch) or an Inmarsat Maritime MES

Sea Area A4: a VHF radio (VHF+DSC) and an MF/HF radio (MF/HF+DSC+NBDP+DSC watch). For ships in A4 only occasionally but mostly in A3, the additional MF/HF radio may be substituted by an Inmarsat Maritime MES

FURUNO GMDSS EQUIPMENT off

VHF Radiotelephone with built-in DSC
FM-8500

The FURUNO FM-8500 is a cost-effective **all-in-one** marine VHF radio system consisting of a simplex/semi-duplex 25 W VHF radiotelephone, a DSC modem and a CH 70 Watch Receiver.

If a full-duplex communication is required, FM-8700 is recommended.

Navtex Receiver NX-500

The NX-500 is a compact Navtex receiver. It stores 64 message identifications for 66 hours, verifying the ID of every newly received message and printing only the new ones.

In the European area and the East/West coast of the USA, the NX-500 automatically selects an optimum Navtex station with regard to ship's position when connected with a radionav receiver.

A 2.6 m whip antenna and an Active Antenna (pre-amp) are optionally available.

Inmarsat-C Mobile Earth Station FELCOM 15

The FELCOM 15 is FURUNO's Inmarsat-C Mobile Earth Station which provides a high quality two-way telex and data link between ships and other parties at sea or on land.

All functions and services of the Inmarsat-C system are provided: EGC (Safety NETTM/FleetNETTM), distress message handling, two-way digital store-and-forward messaging including polling, data reporting, E-mail, etc.

Distress alert is initiated by the remote distress alert unit. The distress message including own ship's position is easily edited. A PC can be used for editing the message via Ethernet when it is supplied with dedicated software.

GMDSS compliance can be achieved by adding a printer and a AC/DC power supply unit.

Selection of MF/HF radiotelephone

150 W MF/HF Radiotelephone FS-1570
250 W MF/HF Radiotelephone FS-2570

(with DSC/DSC Watch capability)

The FS-1570/2570 are MF/HF radiotelephones for general communications. Provided in addition to radiotelephony operation are DSC (Digital Selective Call) on general communications and DSC Watch Receiver on all distress and safety frequencies in MF and HF bands.

The FS-1570/2570 can be connected with Narrow-Band Direct-Printing Terminal IB-583 for maritime safety and efficient public correspondence.

The FS-1570/2570 work on all authorized transmit frequencies between 1.6 and 27.5 MHz. Receiver frequencies are selectable between 100 kHz and 30 MHz in 10 Hz steps. The transmit and receive frequencies can be selected separately or in pair.

NBDP Terminal Unit IB-583

(for FS-1570/2570)

400 W SSB Radiotelephone FS-5000

The FS-5000 is SSB radiotelephone for general communications. It offers easy and instant selection of 2182 kHz, 2187.5 kHz, ITU HF channels (current and new), or 400 transmit and receive factory-programmed frequencies.

The FS-5000 is provided with full-duplex operation with two-antenna configuration. Dual station operation is available by adding a second control unit.

The FS-5000 can be connected with Digital Selective Calling Terminal DSC-60 and Narrow-Band Direct-Printing Terminal DP-6 for maritime safety and efficient public correspondence.

NBDP Telex Terminal DP-6

(for FS-5000)

New display unit coming soon

MF/HF DSC/Watch Receiver DSC-60

The DSC-60 is required when the FS-5000 is selected as a radiotelephone.

GMDSS Radio Console for Sea Areas A1-A2-A3

FURUNO's systematic design concept provides flexible installation on the radio table, in a rack or console. Shown below is a typical equipment package fitted in the radio console RC-1800T.

Console includes:

MF/HF radiotelephone

FS-1570 (150 w) or
FS-2570 (250 w)
If higher power model is required, FS-5000 (400 W) is available.

MF/HF DSC/Watch Receiver

DSC-60

NBDP telex terminal

DP-6

Inmarsat-C Maritime MES

FELCOM 15

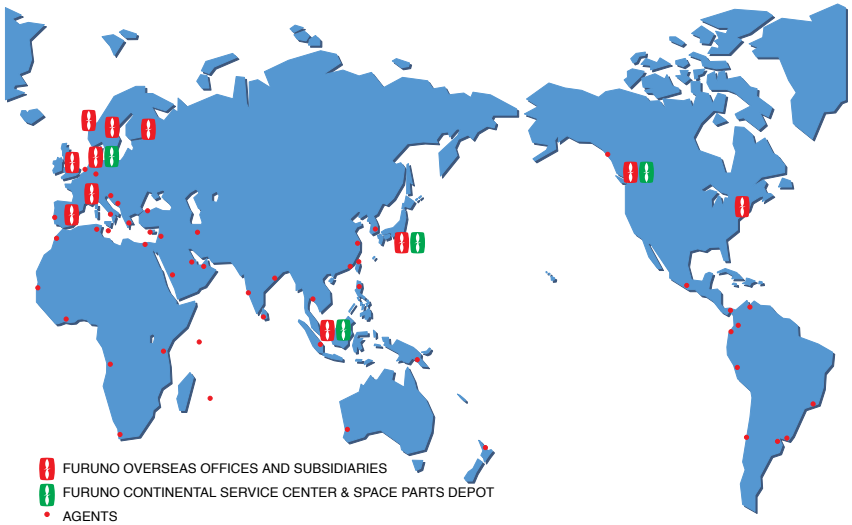
The 1974 SOLAS as amended by 1988 GMDSS conference requires the VHF radio installation to be fitted at the conning position in the navigation bridge.

VHF Radiotelephone with built-in DSC

FM-8500 (simplex)
FM-8700 (full-duplex)

FURUNO DEEP SEA WORLDWIDE SERVICE NETWORK

FURUNO Worldwide Service Organization provides spares and qualified technical services wherever you are, whenever in need. The service organization is composed of three continental Service Centers in **Denmark**, **U.S.A.** and **Japan**, and over 40 national Agents.



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