



# GMDSS

## The Benefits of Digital Selective Calling

### NP289 – Third Edition United Kingdom & the Mediterranean

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A typical VHF with DSC. Picture courtesy of SIMRAD





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The Global Maritime Distress and Safety System (GMDSS) is a maritime communications system for all vessels. However, it is not just for emergencies and can be used for vessel-to-vessel, vessel-to-shore and shore-to-vessel routine communications. Commercial vessels over 300 gross tonnage and certain smaller vessels, including some fishing boats, must fit GMDSS equipment. Most of the well known offshore yacht races now insist yachts are GMDSS equipped.

There are several elements that make up the total GMDSS communications package, including Digital Selective Calling (DSC) via radio. The other elements include satellite communications, Navtex for weather and navigation information, Search and Rescue Radar Transponders (SARTs) and Emergency Position Indicating Radio Beacons (EPIRBs). A private leisure craft may not need all of these, or may not need them all now, but it is recommended that at the very least, leisure craft fit VHF DSC and this leaflet addresses VHF DSC and private leisure craft.

All UK Coastguard rescue co-ordination centres are GMDSS VHF DSC equipped.

### What is Digital Selective Calling?

DSC is simply a tone signalling system, which operates on VHF Channel 70 and is similar to the tone dialling on your phone, but with the ability to include data such as the vessel's identification number, the purpose of the call, the vessel's position, and the channel for further voice communications. In other words, vessels can call each other direct by use of their MMSIs (rather like a telephone number) without bothering other vessels or shore stations unless of course it is a Distress/Urgency call. The present VHF radiotelephony system requires users to listen until someone speaks and to determine whether the call is for them - more often than not, it won't be.

Shipping increasingly listens on VHF Channel 13 which is the designated "bridge-to-bridge" channel and although required, when practicable, to monitor VHF Channel 16, there is evidence that this practice is reducing as GMDSS allows distress, urgency, safety and routine messages to be received without the need for a dedicated listening watch. Also, the UK Coastguard relaxed its dedicated VHF Channel 16 Distress Watch to a listening watch via loudspeaker in September 2003. There are a lot of myths about GMDSS for small-boat users, in particular that it is just a more expensive VHF radio, and that it causes lots of false alarms to the Coastguard. In fact, the UK Coastguard actively encourages the fitting of VHF DSC and they visit yacht and other boating clubs to, offer safety advice and encourage the fitting of VHF DSC.

All small-craft VHF radios now on the market must be "GMDSS compatible" – some are simply that and require the DSC element to be purchased separately. If you don't get both parts, the many benefits of GMDSS DSC will not be available. Combined VHF/DSC radios are readily available for under £200.

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### Benefits of DSC

#### Distress alerting

By pressing the Distress Alert button, you can send your boat's identity, your position<sup>1</sup> and the nature of distress. The position given will be precise and the alert will be heard immediately by all DSC equipped vessels and shore stations within range. The distress message will be automatically repeated every 4 minutes until it is acknowledged either by a Coastguard rescue co-ordination centre or ship within radio range. If circumstances allow, the distressed vessel is required to follow-up the alert with a Mayday voice message on Channel 16 to give further details and alert any non-DSC equipped vessels in the vicinity.

#### Safety broadcasts

Non-scheduled Maritime Safety Information (MSI) broadcasts from coast stations and Sécurité messages from ships automatically generate an alert (ring tone) to ensure this vital information is not missed.

#### Routine calls

To call another vessel, simply input their dedicated number (mobile maritime service identity - MMSI), select your chosen VHF working channel and send the call - it's like using a telephone. Both your radio and the one you are calling automatically switch to the chosen channel for subsequent conversation. In the case of calls to coast stations e.g. rescue co-ordination centres the procedure is similar, but the coast station determines the working radio-telephone channel.

#### Group calls

When groups of vessels need the same information (yacht races, club rallies etc.) a special group-call identity can be used to facilitate restricted broadcast messages.

#### Equipment specifications

The minimum standard for small craft DSC equipped radios for fixed use in Europe is EN 301 025. Make sure that any equipment you purchase complies with this standard which approximates to the international 'Class D' DSC specification. Check that the equipment is marked in accordance with the European Union Radio and Telecommunications Terminal Equipment (R&TTE) directive similar to that on the right:



If operating outside VHF range (typically 30-50 nautical miles from a coast station antenna and dependant on own vessel aerial height), MF/HF DSC allows you to contact vessels and Coastguards around you directly and at considerable distances - HF in suitable conditions has global reach.

#### Frequently asked questions

**Q: My VHF is working perfectly – why should I upgrade it to DSC?**

A: GMDSS DSC could save your life. It means that distress alerts with the precise position<sup>1</sup> of your boat can be sent in seconds.

**Q: I have held a VHF (restricted) operator's licence for years – why do I have to sit an update course for GMDSS?**

A: Whilst it is true that the voice operating procedures have not changed, DSC alerting requires additional knowledge and it is important that operators know which alert is relevant to a situation.

**Q: Can my crew use the radio if they have not been GMDSS trained?**

A: Yes – under the supervision of a qualified GMDSS operator. It is very easy to train your crew to 'push the red button if anything happens to me'.

**Q: If I have DSC, do I need to monitor Channel 16?**

A: Yes, when practicable. However, as routine (vessel to vessel) calling is automated, you no longer need to listen for your vessel's name on VHF Channel 16 – calls for you "ring" only on your radio.

**Q: Why do I need a VHF at all if I sail in range of mobile 'phone coverage?**

A: There are several practical reasons:

- It may not be possible for the Coastguard to re-establish contact if, for any reason, the connection is lost. Rescue resources are equipped to communicate with vessels by VHF.
- Coverage is not reliable off-shore.
- As a "closed channel", other vessels in the vicinity will not be aware of the incident.
- Cell-phones are not designed for the marine environment.
- Limited battery life.

All big ships and almost all European Coastguards are fully equipped for DSC and should respond if called. GMDSS is a worldwide system, which can be used anywhere. Being fully automatic, it avoids possible language barriers. Using DSC will help you, others in distress, and the Coastguard.

<sup>1</sup> To transmit precise positions, the DSC must be interfaced to GPS. Otherwise, regular manual position updating is required.

# Recommended **GMDSS** Equipment

Reproduced below for advice, are recommendations for communications equipment:

<b>Area of Operation from Coast (Nautical Miles)</b>	<b>Up to 3m</b>	<b>Up to 20m</b>	<b>Up to 60m</b>	<b>Up to 150m</b>	<b>Unrestricted</b>
VHF fixed radio installation – fitted with DSC	<b>O</b>	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>
Hand held waterproofed VHF radio – also for use in liferaft	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>
406 MHz float-free EPIRB (with 121.5 MHz Homer)*	<b>O</b>	<b>O</b>	<b>O</b>	<b>R</b>	<b>R</b>
MF SSB radio installation – fitted with DSC**	<b>None</b>	<b>None</b>	<b>O</b>	<b>R</b>	<b>R</b>
INMARSAT	<b>None</b>	<b>None</b>	<b>O</b>	<b>O</b>	<b>R</b>
NAVTEX Receiver – will receive up to 400 miles from NAVTEX transmitter	<b>None</b>	<b>O</b>	<b>R</b>	<b>R</b>	<b>R</b>
Search And Rescue radar Transponder (SART)	<b>None</b>	<b>O</b>	<b>O</b>	<b>R</b>	<b>R</b>

R=Recommended O=Optional

\* Float free or readily accessible. \*\* Not required if Inmarsat is fitted.