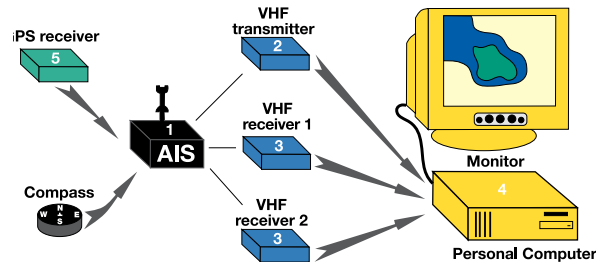




### Class B AIS Configuration



1. Each AIS system requires a VHF antenna to receive and transmit the radio signals.
2. Each AIS Class B requires one VHF transmitter to transmit the vessel information onto the appropriate timeslot.
3. Each AIS Class B requires two VHF TDMA receivers to enable the vessel to receive the information of other Class A and Class B vessels in range. If supported, the AIS Class B may include a dedicated VHF Digital Selective Calling (DSC) systems receiver for channel management.
4. The AIS unit sends and receives vessel identification information which can be displayed on a computer or chart plotter.
5. Position and timing information is normally derived from an integral or external global navigation satellite system, for example Global Positioning System (GPS) receiver. Other information broadcast by the AIS, if available, is electronically obtained from shipboard equipment through standard marine data collections.

### More about AIS Class B

A search of the Internet will identify many opportunities to purchase Class B units. Class B units should meet International Electrotechnical Commission (IEC 62287) requirements but are not as complex as the Class A and are less expensive. An AIS Class B can be linked to an already existing

chart display unit or radar or you can buy the unit with a dedicated display. Manufacturers may provide 'value added' features such as units integrated with DSC – just make sure the base AIS Class B unit is tested and meets your needs!

There are some benefits, and issues, with AIS Class B. One objective of AIS is to improve safety through a 'see and be seen' approach. Some units are being sold as 'receive only' AIS Class B but – while these units will pick up transmissions on the VDL - they won't transmit any information about your vessel. So, you will 'see' but you won't 'be seen'

### AIS in Australia

In Australia, AMSA is involved in a coordinated approach to AIS issues. At the federal level a multi-agency integrated project team (AIS IPT) is working towards a holistic approach to AIS. AMSA is also facilitating a state/port authority level AIS working group (AIS WG) to ensure issues and developments respond to specific requirements throughout Australia.

### Want more information?

There is plenty of information on AIS on the internet. The AMSA website ([www.amsa.gov.au](http://www.amsa.gov.au)) has a link to Vessel Tracking, where you will find an interactive tutorial on AIS, as well as a fact sheet.



# AUTOMATIC IDENTIFICATION SYSTEM (AIS)



## The Automatic Identification System (AIS)

AIS is included in the Safety of Life at Sea (SOLAS) Convention, and large ships began fitting AIS in July 2002. But AIS is more than a navigational aid for large ships – it provides a means for ship to ship and ship to shore communications, can be used in search and rescue and can provide a means to promulgate different types of information of interest. AIS is a tool that has many applications. Is it the right tool for you?

### What is AIS?

Put simply, AIS is a Very High Frequency (VHF) radio broadcasting system that transfers packets of data over the VHF data link (VDL) and enables AIS equipped vessels and shore-based stations to send and receive identification information that can be displayed on an electronic chart, computer display or compatible radar.

This information can help in situational awareness and provide a means to assist in collision avoidance. In addition, AIS can be used as an aid to navigation, by providing location and additional information on buoys and lights.

### What are the types and classes of AIS?

There are two classes of AIS, Class A and Class B, as well as different types of AIS used for shore stations (AIS Base Stations), aids to navigation (AIS AtoN), AIS on search and rescue aircraft and AIS search and rescue transmitters (AIS SART).

AIS Class A	Class A has been mandated by the International Maritime Organisation (IMO) for vessels of 300 gross tonnage and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged on international voyages, as well as passenger ships (more than 12 passengers), irrespective of size.
AIS Class B	Class B provides limited functionality and is intended for non-SOLAS vessels. It is not mandated by the International Maritime Organisation (IMO) and has been developed for vessels such as work craft and pleasure craft.
AIS Base Station	Base Stations are provided by an aids to navigation authority to enable the ship to shore / shore to ship transmission of information. Networked AIS Base Stations can assist in providing overall maritime domain awareness.
AIS aids to navigation (AtoN)	AIS AtoN provide an opportunity to transmit position and status of buoys and lights through the same VDL, which can then show up on an electronic chart, computer display or compatible radar.
AIS SART	Search and Rescue Transmitters using AIS can be used to assist in determining the location of a vessel in distress.
AIS on Search and Rescue (SAR) Aircraft	Search and Rescue Aircraft may use AIS to assist in their operations.

### How does AIS work?

How do so many vessels and other AIS units communicate over the same VHF band?

AIS uses a time-division multiple access (TDMA) scheme to share the VHF frequency, also known as the VHF Data Link (VDL). There are two dedicated frequencies used for AIS – AIS 1 (161.975 MHz) and AIS 2 (162.025 MHz)

The VDL is divided into time slots that are repeated every 60 seconds. Each AIS unit sends a report to one of the time slots, at the same time AIS units in range listen to all the timeslots and read the reported information.

Although Class A and Class B both use TDMA, they are different. Essentially, Class A units use transmissions that are self-organized into existing free slots (SOTDMA) whereas CSTDMA Class B units listen to the traffic to determine free slots and decide when to transmit a report. Class B is designed with a 'politeness' factor, meaning that it will not interfere or cause degradation of Class A units. Future Class B AIS may use the same self organising (or SOTDMA) approach as AIS Class A.

All types and classes of AIS use a Maritime Mobile Service Identity (MMSI) to transmit on the VDL. Vessels that use Digital Selective Calling (DSC) already have an MMSI number assigned, and this is the same number that they would use for AIS. In this way, you can think of the 9 digit MMSI as a telephone number for the vessel that can be used in different equipment.

If you want to install and transmit on AIS and you do not have DSC, then you will need to apply for an MMSI. In Australia, the Australian Maritime Safety Authority (AMSA) issues MMSI numbers.