

## AIS Frequently asked Questions & Answers

### 1 Will AIS replace radar?

No. There always will be ships without AIS onboard. Radar detects targets independent of the target's onboard equipment.

### 2 How does the AIS supplement the Radar information?

In addition to radar, AIS has the following benefits:

- Automatic vessel identification
- Automatic provision of heading, course over ground (COG) and speed over ground (SOG)
- Improved vessel tracking (no target swap)
- Wider geographical coverage, although in some circumstances e.g. mountainous areas, this may only be achieved with the provision of shore-based repeater stations
- Greater positional accuracy, dependent on the position input sensor (see Question 12)
- Provides information in radar shadow area ('sees' around bends and behind islands)
- Near real time manoeuvring data
- No loss of targets in sea, rain and snow clutter

### 3 What are the main limitations of AIS?

AIS is like all other broadcast devices and is sensitive to radio frequency interference. It is also subject to the limitations of VHF propagation. AIS relies on Global Navigation Satellite Systems (GNSS) data for position and timing inputs, which are central to its functioning; as such, it is subject to the vulnerabilities inherent in satellite navigation systems. Mariners are cautioned that some vessels in their vicinity may not be fitted with AIS.

### 4 How does the master know that his AIS unit is working properly?

AIS provides:

- a built-in integrity test (BIIT) running continuously or at appropriate intervals;;
- monitoring of the availability of the data
- an error detection mechanism of the transmitted data; and
- error checking of the received data.

If no sensor is installed or if the sensor (e.g. the gyro) fails to provide data, the AIS automatically transmits the "not available" data value. However, the integrity check cannot validate the accuracy of the data received by the AIS. The AIS requires that an alarm output (relay) be connected to an audible alarm device or the ship's alarm system, if available. Alternatively, the BIIT alarm system may use the alarm messages' output on the Presentation Interface (PI), provided its alarm system is AIS compatible.

## **5 How does the master know that the information received from another AIS unit is accurate?**

The master can authenticate the information from his AIS unit by cross-checking with the vessels radar and by visual observations.

## **6 Can I send a letter to my agent via AIS?**

No. AIS is not intended for routine messaging on the two designated AIS frequencies. AIS is mainly used for identifying and tracking other ships. However, it allows the transmission of safety related messages on the AIS designated frequencies.

## **7 When is a vessel permitted to sail without operational AIS equipment?**

If the vessel comes under the SOLAS Regulations, the vessel may be allowed to proceed to a port where repairs can be carried out.

However, if the vessel does not fall under SOLAS Regulations, it depends on the regulations of the national maritime administrations.

## **8 Why do AIS messages not include the rudder angle?**

Rudder angle information is not always representative of the actual manoeuvre of the vessel. Transmitting rudder angle information may mislead the recipient and can be dangerous.

## **9 How do I display AIS information?**

The stand-alone minimum keyboard display (MKD) is one of the approved methods of displaying AIS information. The approval of AIS-capable radars & ECDIS is underway. Manufacturers are the best source of information on this issue.

## **10 Can I connect my GPS to the AIS?**

The GPS connected to the AIS must fulfil the relevant IMO Performance Standard and IEC Test Standard. This means that the positional output from the GPS must be in WGS 84 format and among others, there is no dead reckoning permitted.

## **11 Can I connect my gyro compass to the AIS?**

The gyro compass must be connected to the AIS unit on board SOLAS vessels. Without heading information, the presentation of the ship shape must not be generated. However, in this case, the isosceles triangle representing the ships position will be aligned with the COG (without the heading marker) on the display of receiving stations.

## **12 What is the accuracy of navigational information provided?**

The accuracy of navigational information such as position, course, speed etc. depends on the accuracy of the sensors used. There is an indication of the positional accuracy transmitted by AIS, depending on whether GNSS or DGNS is used. Further, the accuracy of data, such as voyage related data, depends on the accuracy with which this is

entered and the frequency of its update. Masters must bear in mind that a third party enters the information they receive and should therefore take this into account.

### **13 How will AIS contribute to the prevention of collisions?**

AIS should not be used as an anti- collision device in isolation. It should be used in conjunction with all means available to assist the mariner in assessing the risk of collision. It is important to note that there will always be other vessels that do not have AIS.

### **14 Under what circumstances can the AIS unit be switched off?**

Ships fitted with AIS shall maintain AIS in operation at all times except where international agreements, rules or standards provide for the protection of navigational information.

### **15 Is AIS information stored somewhere?**

Ashore - this is a matter for national administrations.  
Onboard - this depends on the other equipment installed.

### **16 For what purposes could the stored or recorded data be used?**

The data could be used for a variety of purposes, such as:

- accident investigation
- planning
- risk analysis, and
- generating statistics

### **17 Are naval ships required to fit AIS?**

No. The SOLAS Convention does not apply to them. However, Administrations may dictate the use of AIS on board naval vessels.

### **18 What are the differences between AIS Class A and AIS Class B stations?**

Class A meets SOLAS carriage requirements and is now in the process of implementation. Class A units are in full production. They can be required by administrations for other vessels as domestic or regional carriage requirements dictate.

Class B is proposed for vessels not covered by SOLAS carriage requirements. It is still under investigation for feasibility of technical, practical and cost concepts. The Class B standard is under development.

MSC Resolution .140(76) Dec. 5, 2002 refers.

## **19 What methods are available to prevent inappropriate use of AIS?**

This is a matter for national Administrations to control. However, the protection of AIS frequencies and information etc, should be embodied in the national legislation of seafaring nations.

## **20 Are AIS messages limited to safety information?**

Yes. ITU-R Recommendation M.1371-1 limits AIS transmission on AIS designated channels to maritime safety related messages. In addition, IMO has permitted the exchange of seven other ancillary messages, for a test period of four years. Examples of such messages are number of persons on board, meteorological and hydrological information, indication of dangerous cargo, status of fairway etc.

## **21 Is there a limit on the length of AIS messages?**

Yes. All messages have a maximum allowable limit. For example, no more than 64 characters can be transmitted in one text message.

## **22 Will AIS messaging grow to include commercial usage?**

No - commercial messages cannot be transmitted on designated, safety-related frequencies, i.e. AIS1 and AIS2. Further, AIS is not the ideal tool for routine commercial correspondence. It is best to use other available means for this purpose.

## **23 Is it possible to transmit fraudulent messages?**

Although it is possible to generate and transmit false messages, mariners are cautioned that there may be severe penalties imposed by national administrations for these actions, in accordance with national legislation.

## **24 Should AIS data be integrated on the same display as information from other sensors in a VTS?**

Ideally, yes. All sensor information should be integrated on a single display.

## **25 Can I get DGNSS corrections over the AIS link?**

Yes, if the Administration decides to do so. The message structure and technical approach have been defined in the IALA AIS Guidelines.

## **26 How is meteorological/hydrological information displayed?**

A message structure has been adopted by IMO. Work is progressing on the various methods to display this information.

**27 Is there any calibration of the AIS equipment needed?**

No. A correctly installed AIS unit should not need any further calibration to continue operating. National Administrations may, however, have their own requirements.

**28 Is there any set up (regular/frequent/initial) of the AIS equipment needed?**

Yes. Static data (callsign, MMSI, IMO number etc) should be entered upon installation and should be in accordance with the ships registration documents. Voyage-related data must be entered at the commencement of each voyage or if there are any changes. It is recommended that both static and voyage-related data be checked and updated at appropriate intervals, as required.

**29 Is AIS mandatory for inland waterways?**

No. This is a matter for Administrations.

**30 Is there any training on the use of AIS available?**

The manufacturers may well give initial training on their equipment. However, it is recommended that ship owners and managers incorporate such training in their ISM procedures.