

**Translation, only the Danish version is authentic.**

## **Automatic Identification System (AIS)**

Danish Maritime Authority Guidance no. 1 of 28 February 2005 on Automatic Identification System (AIS)

### **General information**

A shipborne Automatic Identification System (AIS) is intended as an aid for the officer on the watch (OOW) to identify other vessels, assist in target tracking and to simplify information exchange (e.g. reduce mandatory ship reporting by voice). The main purpose of AIS is to enhance the efficiency and thereby improve the safety of navigation. The data provided by the AIS can profitably be interfaced with other navigation systems on the ship, such as radar and ECDIS, and in this way be made accessible to the OOW. AIS also supports traffic monitoring by coastal states as well as during rescue operations. The countries around the Baltic Sea have decided to develop an infrastructure, which makes it possible to exchange AIS data among them. Maritime Authorities in the countries around the Baltic Sea will be linked in a joint regional AIS network, which enables them to monitor AIS fitted vessels sailing in the Baltic Sea. Mandatory carriage requirements of AIS can be found under SOLAS 1974 as amended, chapter V<sup>1</sup>. AIS operates on VHF channels and the system continuously exchanges data. The range at open sea is approximately 30 miles. AIS equipped vessels automatically exchange data with other AIS equipped vessels on:

- identity and particulars of the vessel;
- position, course and speed over ground; and
- heading and rate of turn;

### **Operation**

Before using AIS, the user should become familiar with the operation of the equipment and fully understand the principle and limitations of the system. When AIS is used for anti-collision purposes the following should be taken into consideration:

- AIS is an additional source of navigational information. It does not replace, but supports, navigational systems such as radar tracking;
- use of AIS does not negate the responsibility of the OOW to comply at all times with the Collision Regulations;
- not all ships carry AIS. The OOW should always be aware that other ships, in particular leisure crafts, fishing boats and warships, and some coastal shore stations including VTS centres, might not be fitted with AIS;
- the OOW should always be aware that AIS fitted on other ships as a mandatory carriage requirement might, under certain circumstances, be switched off based on the master's professional judgement; and
- AIS information from other ships can contain wrong or invalid data due to manual or technical input errors.

Under normal circumstances, AIS shall always be in operation when the ship is underway or at anchor. While the vessel is in port, the AIS should be operated in accordance with port requirements. Under extraordinary circumstances, the master may decide to cease the continual operation of AIS. Such circumstances occur when operation of AIS might compromise the safety or security of the vessel or where security incidents<sup>2</sup> are imminent. Unless it would further

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compromise the safety or security, if the ship is operating in a mandatory ship reporting system, the master should report this action and the reason for doing so to the competent authority. As soon as the source of danger has disappeared, the master should make sure that the AIS is switched back on. Whenever the AIS has been switched off, en route or at anchor, it should always be recorded in the ships logbook along with the reason for doing so.

**Entering of data**

The following dynamic and voyage related data should manually be entered by the OOW at the start of the voyage and whenever changes occur.

Data item	Comments
Navigational status	<p>The information in this field relate to the Collision Regulations, and any change, that is needed, could be undertaken at the same time that the lights and day signals are changed, for example.</p> <ul style="list-style-type: none"><li>- underway by engines;</li><li>- at anchor;</li><li>- not under command;</li><li>- restricted in ability to manoeuvre;</li><li>- moored;</li><li>- constrained by draught;</li><li>- aground;</li><li>- engaged in fishing;</li><li>- underway by sail; and</li><li>- length of tow ___ metres</li></ul> <p>Note that when a tug is pushing a barge as a composite unit, the data of length and beam given by the AIS, are referring to the tugboat alone. In such cases the following information should be written:</p> <ul style="list-style-type: none"><li>- Composite unit length ___ m and beam ___ m.</li></ul>
Maximum draught of the vessel	<p>When changes occur for instance when de-ballasting prior to port entry, these should be entered.</p>
Hazardous cargo	<p>This confirms whether or not hazardous cargo is being carried. The following should be entered:</p> <ul style="list-style-type: none"><li>- DG (for dangerous goods);</li><li>- HS (for harmful substances); and/or</li><li>- MP (marine pollutants).</li></ul> <p>Indications on quantities are not required.</p>
Destination and ETA	<p>When entering the destination, the UNLOCODE should be used<sup>3</sup>. UNLOCODE contains codes for ports and by using these different spelling of names due to different languages are avoided. For example:</p> <p><i>DK SSV</i></p> <p>It is a six-digit code, where the first two letters represent the country (in the example above Denmark) and the latter three the port (here Studstrupværkets Havn).</p> <p>It is recommended to use UNLOCODE as follows:</p> <ul style="list-style-type: none"><li>- Port of departure should be followed by the next port of call. In order to identify that it is a LOCODE and to separate the location from the code, the symbol '&gt;' should be used. A ship leaving for Dubai bound for Rotterdam is</li></ul>

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entered as follows:

*AE DXB>NL RTM*

- If the next port of call is unknown "?? ???" should be entered instead of the LOCODE in the corresponding place in the data field, for example:

*AE DXB>?? ???*

- If the port of departure does not have a designated UNLOCODE, the "XX XXX" should be entered in the corresponding place in the data field, for example:

*XX XXX>DK SSV*

If the next port of call does not have a designated UNLOCODE, the commonly accepted English name of the destination port should be entered preceded by "=== " (3 equals signs). In this case, there might not be enough space available to indicate the port of departure. See the following example:

*===Orrviken*

- If only the general area of destination is known, the area or an accepted abbreviation of it should be used preceded by "=== " (3 equals signs). The destination in the following example is United States West Coast:

*DK SSV>===US WC*

Short safety related messages	Short safety related messages are free format messages (maximum 158 characters) addressed either to a specific destination (MMSI) or all ships in the area. The content should be relevant to the safety of navigation (e.g. iceberg sighted or a buoy not on station).
Route plan	The waypoints of the route should be entered at the discretion of the master.

**Check of information**

AIS has a built-in integrity test (BIIT), which is performed when activated. In case of any AIS malfunction an alarm is provided and the transmission is stopped. The quality and accuracy of the ship sensor data input would however not be checked by the BIIT before being broadcast to other vessels. Ships have been known to broadcast incorrect static data. Static data is:

- Maritime Mobile Service Identity (MMSI);
- call sign and name;
- IMO number;
- length and beam;
- type of ship; and
- location of position-fixing antenna.

Misleading information can lead to dangerous situations, and the OOW should therefore check and correct the data regularly. As a minimum, this should be done once per voyage or once per month, whichever is the shorter. The static data, which is preset or set by installation, may be changed only on the authority of the master. The OOW should also periodically check the following dynamic data:

- positions given according to WGS 84;
- speed over ground; and
- information from the sensors, for example: Heading and speed device, electronic position-fixing system (GNSS) receivers and rate of turn indicators.

On vessels where AIS has been installed after the ships were built, significant differences between courses over ground and headings have occasionally been observed.

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Notes

<sup>1</sup>The Danish carriage requirements on AIS can be found in "Technical regulation on the construction and equipment, etc. of ships".

<sup>2</sup>'Security incident' means any suspicious act or circumstance threatening the security of a ship.

<sup>3</sup>Full information on UNLOCODES can be found at:  
[www.unece.org/cefact/locode/service/main.htm](http://www.unece.org/cefact/locode/service/main.htm)