AIS receiver
(FTI06013)

Hardware Installation Manual

Publication type:	Hardware Installation Manual
Publication number:	FTI06013
Title:	AIS receiver
Subject:	
Issue:	1.0
Publication date:	24 August 2010
Total number of pages:	13

Author: E.J. Varkevisser

Table of contents

Figures

NOTICE

This document contains proprietary information.
No part of this document may be photocopied, reproduced or translated into another language without the prior written consent of Free Technics B.V.

References

Nasa Marine Instruments:
http://www.nasamarine.com/

Introduction

The Installation manual provides instructions for installing and monitoring the AIS receiver as used within FT NavVision®. The chapters and sections are organized in chronological order in which the specific components must be installed and monitored (where applicable).

About the installation manual

The installation manual contains the following chapters:

- Chapter “Safety instructions” presents warning, caution and note information, which the user should pay attention to.
- Chapter “System configuration” gives an overview of the receiver.
- Chapter “Receiving, unpacking and checking” contains instructions on how to receive, unpack or check the receiver.
- Chapter “Installation and mounting” contains instructions on how to install and/or mount the receiver.
- Chapter “Technical specifications” contains an overview of the main features and technical data.

Abbreviations list

AIS	Automatic Identification System
GPS	Global Positioning System
ITU	International Telecommunication Union
MMSI	Maritime Mobile Service Identity
NMEA	National Marine Electronics Association
RMC	Recommended minimum specific GPS/Transit data
VDM	Vienna Development Method
VHF	Very High frequency

Safety instructions

This section provides only a summary of the most important safety requirements and notes, which will be mentioned in the individual sections. To protect your health and prevent damage to the devices, it is essential to read and carefully follow the safety instructions.

The indications NOTE, CAUTION and WARNING have the following significance:

NOTE:
An operating procedure, practice or condition etc., which it is essential to emphasize.

CAUTION

An operating procedure, practise or condition etc., which, if not strictly observed, may damage or destroy equipment.

WARNING

An operating procedure, practise or condition etc., which, if not carefully observed may result in personal injury or loss of life.

1. Receiving, unpacking and checking

1.1 Procedure

1. Remove the transport casing

2. Visually inspect the respective parts

3. Check that all items are included in accordance with the delivery documents

4. Check for transport damages.
   In case of transport damage appropriate action must be taken against the latest carrier and the nearest certified dealer or representative should be informed

5. Store the part in the original transport package in a dry and dust free place, if the unit is not to be installed immediately. Observe the environmental requirements stated in the specifications.

NOTE:
Notify your sales representative if any of the above items is missing or damaged.

2. Installation and mounting

2.1 Overview

The AIS (Automatic Identification System) engine and a conventional marine antenna are all you need to start plotting vessels on your PC. The software runs in Windows 95, 98, ME, XP, 2000 and NT, it includes a world map on which vessels are plotted. Any vessel on the screen can be selected and its AIS data displayed. This includes the vessels name, MMSI[1] number, position, call sign and destination etc. Also included on the AIS Engine is an optional input for a GPS (RMC sentence). With this connected the users own vessel is shown on the chart with its latitude and longitude displayed in a window.

The unit can receive ships on either the A or B AIS channels. In default setting it alternates between the two channels.
The AIS engine can also be used with plotters or other PC software that has an AIS input facility. Check compatibility with your software supplier.

An NMEA 2000 (National Marine Electronics Association) input at 38,400 baud is required to accept the VDM AIS (UAIS VHF Data-Link Message) strings corresponding to ITU-1371 (International Telecommunication Union).

Figure 2-1: AIS engine 2 receiver

[1] MMSI = Maritime Mobile Service Identity (a number to identify a ship)

2.2 Installation

The AIS engine requires its own marine VHF (Very High Frequency) antenna and cannot be shared with a transceiver antenna.
It should be mounted as high as possible to maximise range but should be spaced not less than 1 metre from a transmitting antenna.
The antenna cable should be at least 3 metres long and the antenna should be sited at least 2 metres from the AIS receiver.
The antenna should be a 50 Ω general purpose marine VHF antenna.

NOTE:
The AIS engine is not watertight so it must be mounted in a position, which is dry at all times.

Few display units will have a socket for both a GPS receiver and an AIS engine so provisions has been made in the engine to relay the GPS position.
Connect the power cable to the 12-volt supply as follows:

- The red wire to positive (+)
- The red wire with a black stripe to negative (-).

Figure 2-2: Power cable

If a GPS must be fitted then connect the GPS NMEA output (or NMEA +VE) to the blue fly lead of the data cable.
If the GPS has a NMEA –VE (or NMEA REF) connect this to the supply negative.
Ensure the GPS is connected to the same negative supply as the AIS engine. The NMEA 0183 signal from the GPS must swing above and below 2 V (ref. to the supply negative) and contain the RMC[2] sentence.

CAUTION

- **Some vessels do not carry AIS. It is important at all times to keep a proper lookout.**
- **The AIS engine is not a substitute for good seamanship.**

[2] RMC = Recommended minimum specific GPS/Transit data

3. Technical specifications

Detail	Description
Operating frequencies	162.025 and 161.975 mHz
Supply voltage	10 to 16 VDC
Supply current	43 mA
Messages relayed	1, 2, 3, 4, 5, 11 and 21
Antenna input	50 Ω BNC
Data connector	9 pin 'D' type
Mounting	Thru two moulded flanges
Dimensions	115 x 100 x 30 mm
Output format	NMEA 2000 (38400 Baud)
VDM encapsulation string	conforming to ITU-1371
NMEA RMC from GPS	

Free Technics

Technical & customer support
The Netherlands

Free Technics B.V.
Eikenlaan 259J
2404 BP, Alphen aan den Rijn
The Netherlands

Telephone: +31 172418 890
Fax: +31 172418 899
www.freetechnics.eu