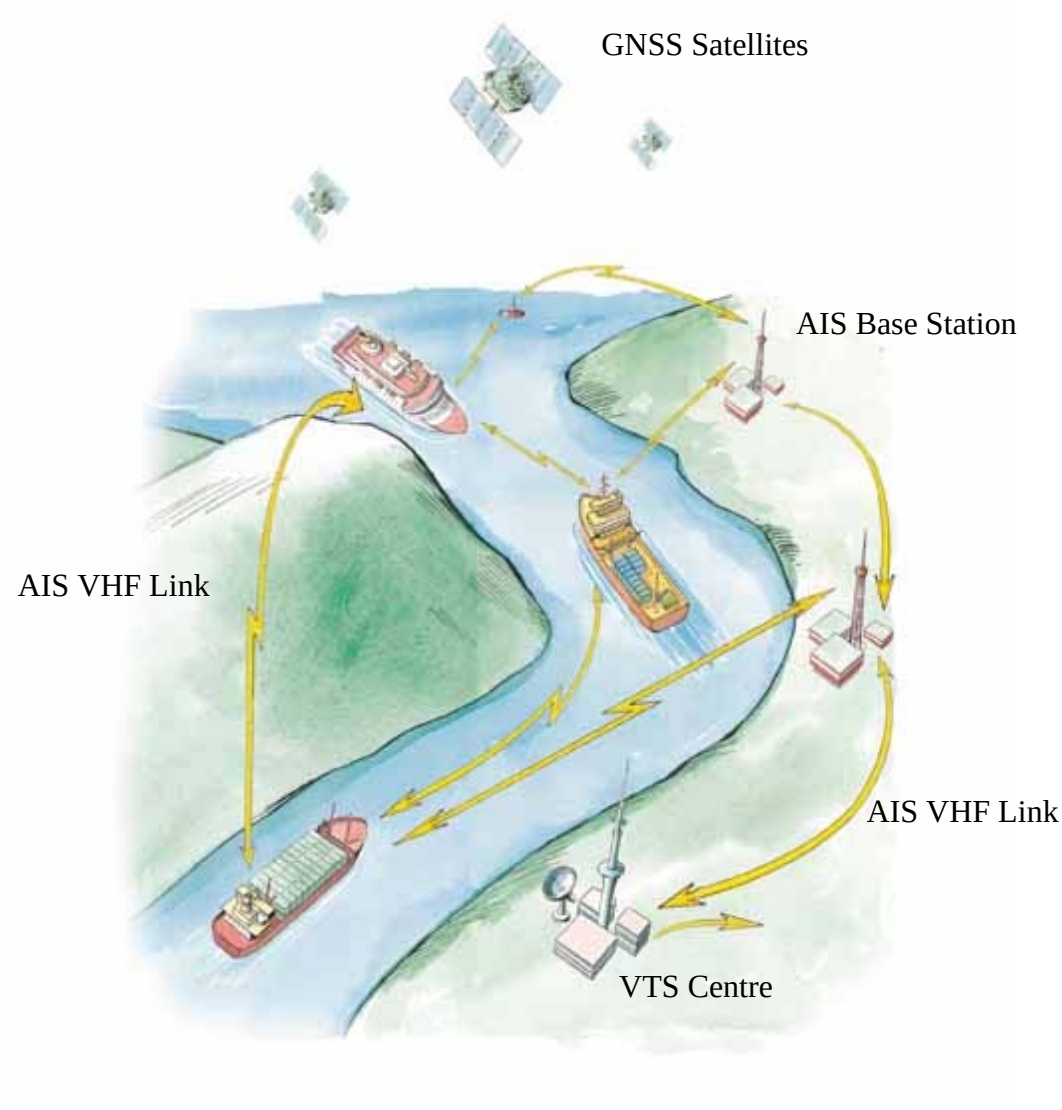
Seatex AIS 100

Operational Description



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1 Introduction

This document gives a brief overview of the structure and spesifications of the Seatex AIS 100 system.

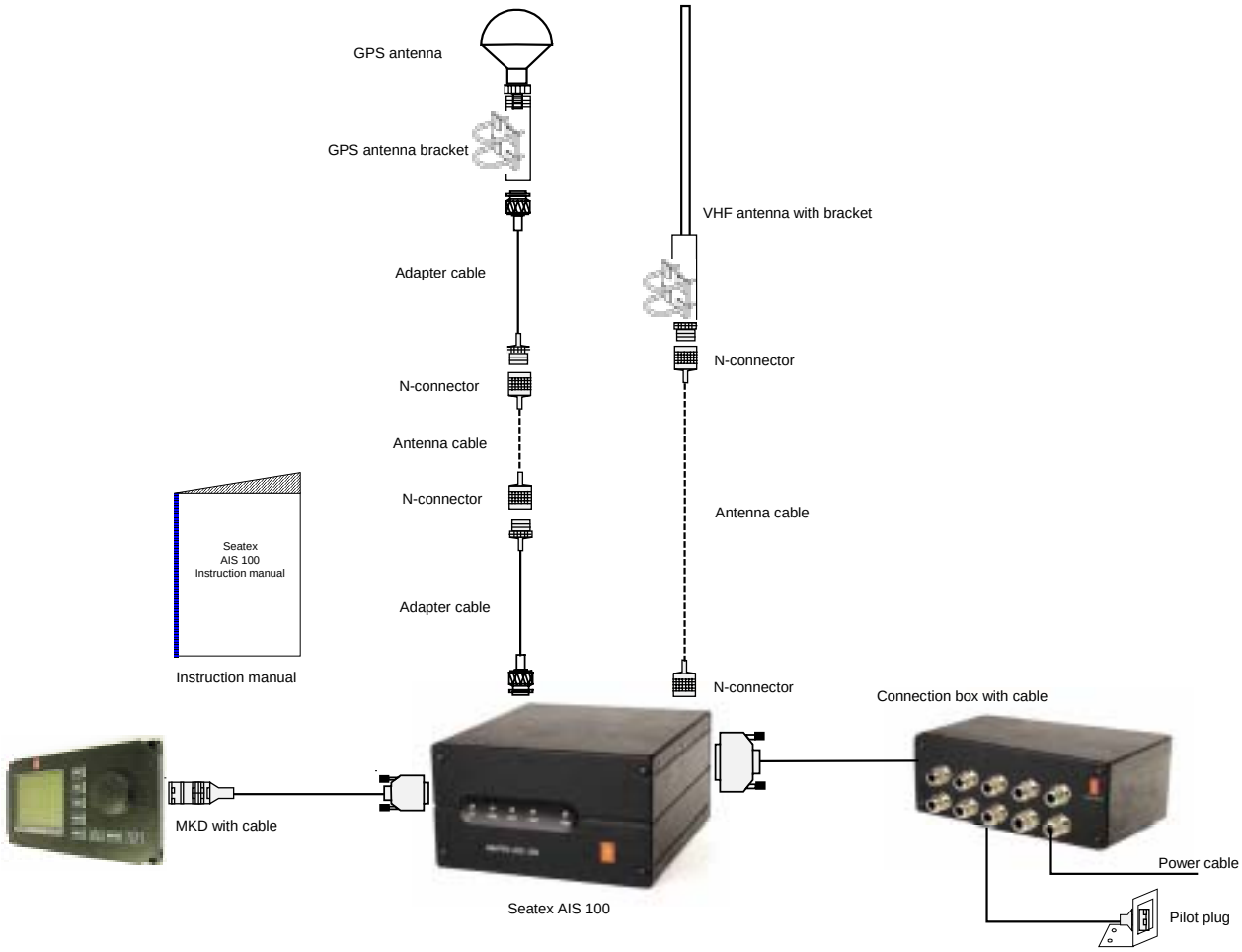
1.1 Document revisions

Document ID	Rev.	Date	Reason for revision
Man_oper_descr_ais100_r0	0	2003-06-19	First version.

2 System components

A Seatex AIS 100 consists of the following parts:

- 1 AIS 100 main unit
- 1 GPS antenna
- 1 GPS antenna bracket
- 1 VHF antenna with bracket
- 2 adapter cables (RG-58 pigtail cables with TNC-N connectors)
- 1 connector kit for GPS antenna cable (2 N-connectors)
- 1 connector kit for VHF antenna cable (2 N-connectors)
- 1 Connection box with interface cable
- 1 AIS 100 MKD with cable
- 1 Power cable
- 1 Pilot plug
- 1 AIS 100 Instruction manual



AIS 100 Minimum Keyboard and Display (MKD)

The MKD unit provides a simple user interface to the mobile station. The keypads on the MKD can be used to navigate between dedicated menus used for configuration and display of vessel navigation data. Text messages can also be entered into the MKD and transmitted to other vessels or shore based AIS stations providing warnings or other relevant navigation information. Thus the MKD provides basic presentation of configuration data, position data and text messages. If the AIS has been interfaced to the on-board ECDIS system or radar the information displayed on the MKD can also be displayed on an AIS compatible ECDIS or ECS systems.

AIS 100 mobile station

The mobile station incorporates two VHF receivers, configured to operate on the predefined AIS frequencies for the region, one VHF transmitter transmitting on all required frequencies and one DSC receiver. The mobile station also incorporates a GPS receiver and a processor. The internal GPS receiver, which is capable of receiving differential corrections for increased position accuracy, is used for time synchronisation and as a backup position sensor. For AIS data transmission, the Self Organised Time Division Multiple Access (SOTDMA) data protocol is used. SOTDMA enables a large number of vessels to receive and transmit AIS data at the same time.

Front LED indicators

The LED indicators on the front of the mobile station can be used to monitor status as well as data reception and transmission.

Led	Colour	Description
TX	Off	Transmitter idle
	Amber	Transmitting on AIS channel B
	Green	Transmitting on AIS channel A
	Red	Transmitter turned off
MSG	Off	No message/report being received
	Amber	Message/report received on channel B
	Green	Message/report being received on channel A
GPS	Amber	Indirect synchronisation free run
	Green	Internal GPS OK. GPS synch selected
ALM	Off	No alarm
	Red	Alarm. Alarm relay activated
PWR	Green	Indicates powered unit

AIS 100 connection box

The connection box is used to connect to external sensors main position sensor, heading sensor and rate of turn sensor (when available). These sensors are mandatory while interfaces to electronic hart systems and long range communication systems, are optional. AIS compatible ECDIS/ECS systems are interfaced to the AIS through serial line communication. Power is supplied to the AIS mobile station through the connection box.

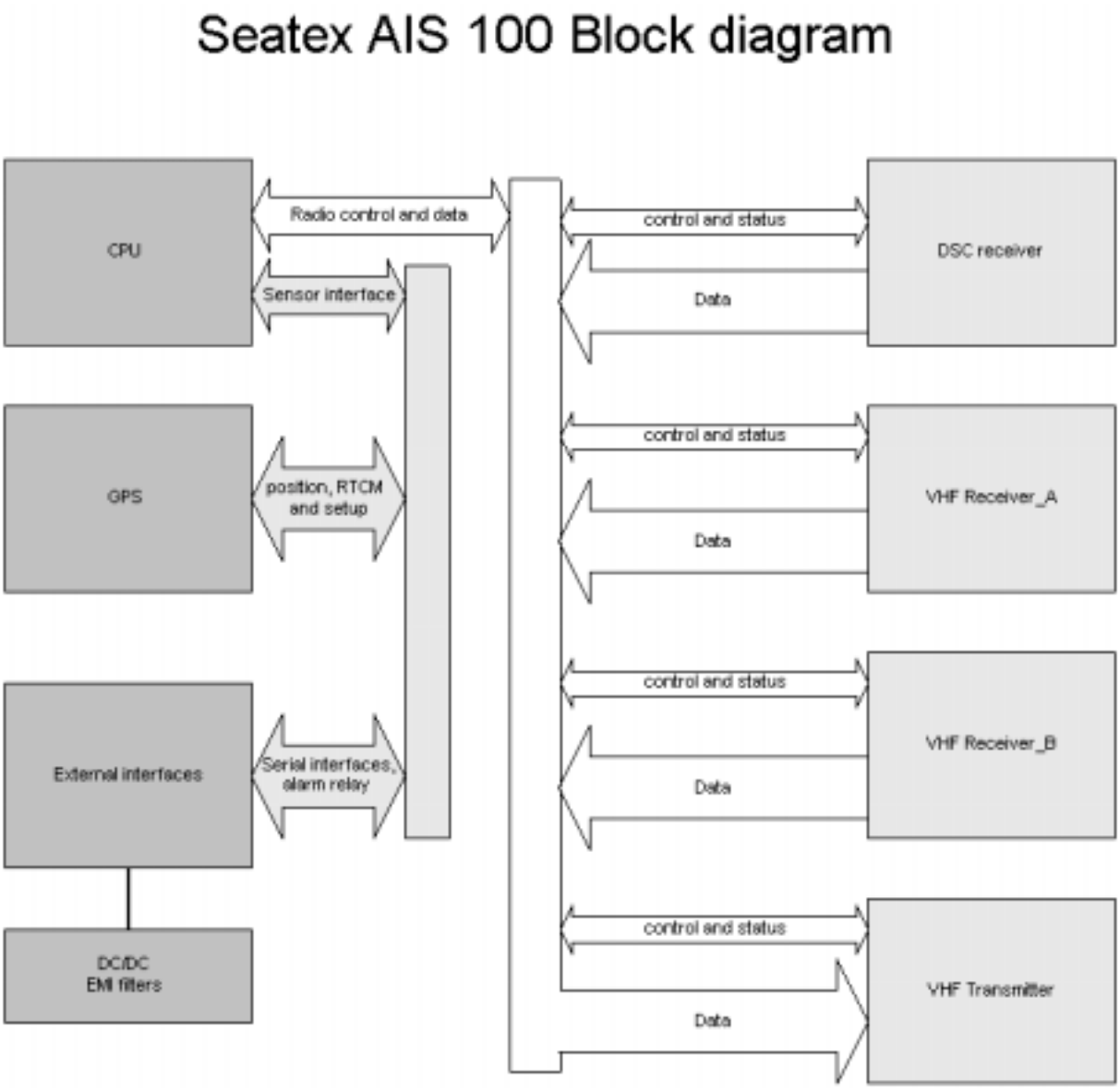
AIS 100 VHF antenna

The VHF antenna is used for VHF communication. The antenna is connected to the mobile station using cables with attenuation less than 3 dB.

AIS 100 GPS antenna

The GPS antenna is an L1 antenna receiving signals from all visible satellites. The antenna is hermetically sealed and the cable used to connect the GPS antenna to the mobile station should be of a quality that ensures minimum loss of signal, i.e. less than 20 dB.

3 Hardware system structure



4 Electrical specifications

Input supply

Supply voltage	18 - 35 V DC
Supply current	1.0 A (no VHF Tx)
@ 24 V DC	1.2 A (2 W) VHF
	1.6 A (12 W) VHF

Serial port capability

Mode	RS-422
Isolation	1 kV
Line tolerant	min +/- 15 V DC
Line speed	1200 - 57600 bits/s
Talker capability	max 8 listeners @120 Ohm
Listener load requirements	120 Ohm (recommended)

Network

Network speed	10 Mbit/s

5 Specification of radio equipment AIS

Type code	Automatic Identification System	Local oscillation frequency	TX: TCXO: 13 MHz, VXCO 320 MHz; RX: TCXO: 12.8 MHz, VCO 250 MHz, VCXO 90.45 MHz		
Equipment name	AIS mobile transponder	Intermediate frequency	90 MHz/ 450 KHz		
Model name	Seatex AIS 100/Simrad AI70	Communication method	As specified in IEC 61993-2		
Function (RX/TX)	RX and TX (two separate boards)	No. of channels	156-162.025 MHz/ Channel BW 12.5 kHz or 25 kHz		
Transmitting frequency	156.025-162.025 MHz				
Receiving frequency	156.025-162.025 MHz				
Type of radio waves	VHF				
Oscillating method	TX VCO Colpits oscillator /resonator				
Modulation method 1	GMSK (AIS 1 and AIS 2)	Type of antenna	Marine VHF, Comrod AV6K	Length	1,4 m
Modulation method 2	FSK (DSC)	Type of termination amplifier	PA: Class C power module, M57710-A		
		VHF Power	2 W/12 W		
		Power source	24 V DC		