AIS BS610

Automatic Identification System - Base Station

The AIS BS610 is a 4th generation AIS base station from Kongsberg Discovery. It has a sensitivity better than -115 dBm and a smooth 1U 19" rack mountable enclosure. The AIS BS610 is designed and tested in accordance with all relevant international standards including IEC 62320-1/2 and ITU-R M. 1371-5.

The AIS Base Station is the primary component in an AIS Physical Shore Station (PSS), and therefore the most vital component in a coastal AIS network. The AIS BS610 receives and communicates AIS data from all AIS sources: AIS mobile stations, other AIS base stations, AIS Aids-to-Navigation units, Search and Rescue units, within the VHF coverage area.

The AIS system provides a valuable tool to increase the situation awareness, the efficiency of operations and the safety. Experience shows that the workload for operators involved in vessel tracking and monitoring, is considerably reduced after the introduction of AIS.

Remote configuration and operation
The AIS BS610 has an Ethernet/LAN interface, making it easy to interface the base station to other equipment or data networks. From the AIS Central Monitor Application Suite a single AIS BS610, or a network of base stations, can be remotely operated and maintained. The AIS BS610 also supports configuration and firmware upgrade via a web interface. All base station functions can be configured and effectuated remotely via this interface.

Hot standby
In order to obtain a very high level of service and availability, a redundant base station configuration can be established. Two AIS BS610 units will operate autonomously in such a configuration when connecting them with a 0-modem cable and enabling the redundancy functionality. The redundancy communication can also take place over LAN. In that case, the serial cable is not needed. In case of an automatic change in redundancy status, the control centre will be notified.

Sensitivity
Kongsberg Discovery has been developing satellite based AIS receivers since 2010 and this space-based AIS technology has strong focus on receiver sensitivity. The high sensitivity performance has been incorporated in the AIS BS610. The increased sensitivity exceeds the requirements in international standards and regulations, and is an incredible enhancement in terms of signal reception, greatly increasing the offered base station range.

DGNSS correction distribution
The AIS BS610 is capable of broadcasting DGNSS corrections through the standardized AIS message type 17. Hence, differential corrections can be transmitted to all vessels which carry an AIS mobile station if the vessel is located within the coverage area of the base station.

FEATURES

- Sensitivity better than -115 dBm
- SNMP v.2
- Optional redundant AC/DC power supply:
  * Combined 100 - 240 VAC and 24 VDC (10 - 36 VDC) version
  * Combined 100 - 240 VAC and 48 VDC (36 - 75 VDC) version
- Web interface for remote configuration and software upgrade
- RTCM v. 2.3 support for reception of DGNSS corrections on LAN
- Three remotely configurable receivers (TDMA/DSC)
- USB interface for firmware upgrade
- Transmission of up to 20 virtual Aids-to-Navigation (AtoN), implementation of a subset of IEC 62320-2 functionality
- AIS repeater functionality in accordance with IEC 62320-3
- Redundancy support
- Supporting NTP as client and server
- Separate Rx and Tx connector (optional)
- Supporting 10 parallel consecutive TCP connections
- Available auxiliary equipment enabling functionality such as:
  * Remotely controlled hard power reset of PSS equipment
  * DGNSS reference and monitoring stations

VHF antenna

GNSS antenna
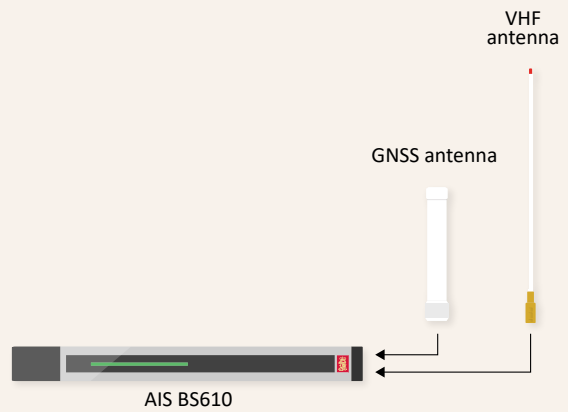
AIS BS610

Technical specifications

AIS BS610

Interfaces

Communication ports	Service and redundancy, RS-232. Local software upgrade, USB 2.0
Message formats	NMEA
LAN	100 Mbps BaseT Ethernet

Radio module

VHF antenna	N-connector, 50 ohm
GNSS antenna	TNC-connector, 50 ohm
VHF transmitter	12.5 W or 1 W (remotely selectable)
Sensitivity	Better than -115 dBm
Bandwidth	25 kHz
Frequencies	156.025 - 162.025 MHz
	Default Ch. 87B (161.975 MHz)
	Default Ch. 88B (162.025 MHz)
Protocol	FATDMA, RATDMA

GNSS module

GNSS receiver	72 channels, GPS, GLONASS, Galileo, BeiDou

Weights and dimensions

Dimensions	44 × 485 × 345 mm
Weight	3.0 kg, 24/48 VDC option 3.3 kg
GNSS antenna	0.15 kg, 230 × 33 mm
VHF antenna	1.0 kg, 1250 mm

Power specifications

|	
Input voltage	100 - 240 VAC (50 - 60 Hz)
	Optional combined 100 - 240 VAC and 24/48 VDC
Power consumption	9 W average
GPS antenna	5 VDC from AIS Unit

Environmental specifications
Operating temperature range

AIS Unit	-15 - 55 °C
GNSS antenna	-50 - 70 °C
VHF antenna	-55 - 70 °C

Humidity

AIS Unit	< 95 % relative, non-condensing
GNSS antenna	100 %, hermetically sealed
VHF antenna	100 %, hermetically sealed

Standards and regulations

Environmental	IEC/EN 60945-1:2002 (HW platform)
Electrical safety	IEC/EN 61010-1:2010
Electromagnetic compatibility	IEC/EN 60945:2002
	ETSI/EN 301 489-1 (V1.8.1)
	ETSI/EN 301 489-5 (V1.3.1)
Electrical interface	IEC 61162-1:2010/IEC 61162-2:1998
IALA recommendation	A-124
Base station operation	IEC 62320-1:2015, IEC 62320-2:2016 (ex. clause 4.6)
	IMO MSC.74 (69) Annex 3
Radio	IEC 62320-1:2009
	ITU-R M. 1371-5
Certificates Agency	Anatel, National Radio Research
MTBF (hours)	>100.000 (designed to meet)
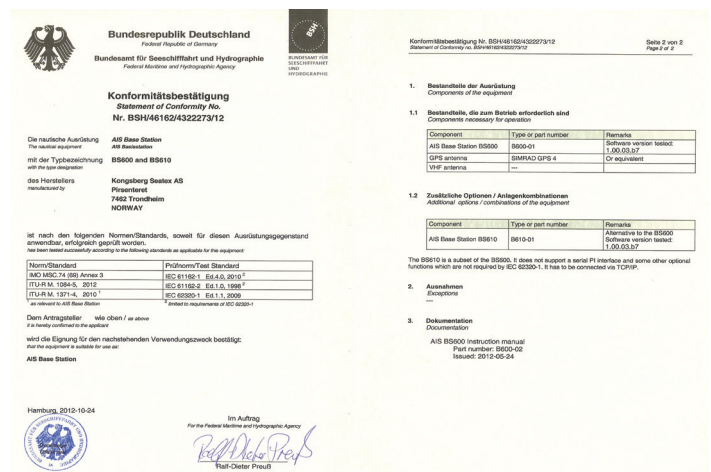
Specifications subject to change without any further notice.