

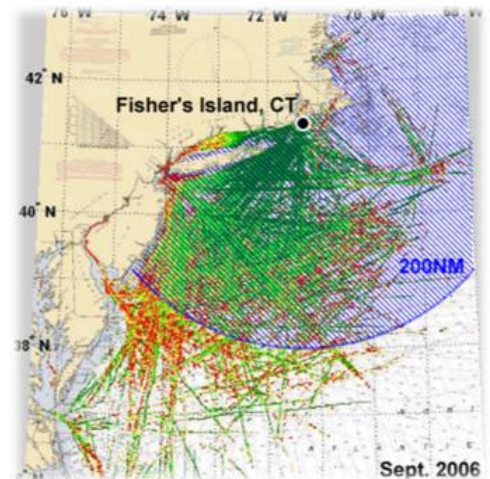
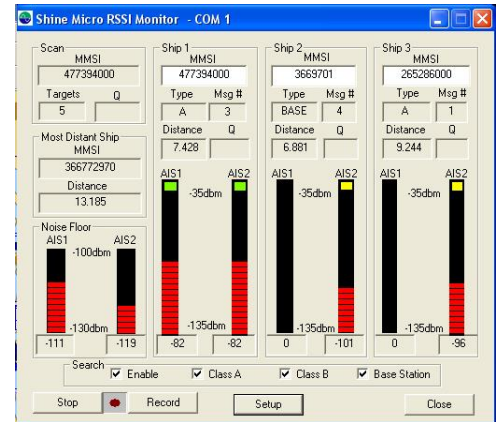
RUGGED HIGH SENSITIVITY LONG RANGE DUAL AIS RECEIVERS

Introducing the RadarPlus® SM1610-4:
an advanced AIS receiver with industry-leading sensitivity in a rugged weather-resistant chassis.

The **SM1610-4** is standard equipment for both the US Navy and US Coast Guard, providing industry-leading AIS reception sensitivity and monitoring range. The **SM1610-4** also includes VDL analysis capabilities; making it a valuable tool for port administrations.

The wide adoption of AIS has caused frequency congestion in many ports. The **SM1610-4** provides analysis tools to measure the health of the VDL and aid in determining the total number of slots used, garbled packets and packet collisions. Defective or malfunctioning AIS devices degrade the success of an entire AIS environment; identifying non-compliant transponders is key to a healthy system.

The **SM1610-4** also enables administrations to monitor AIS transponders for IMO1252 compliance. The **SM1610-4** measures frequency, deviation and slot timing (jitter) of every packet received; quickly pinpointing suspect transponders for inspection. On-site inspections are time consuming and expensive for everyone; remote inspections using the **SM1610-4** can save time and money.



Features of the SM1610-4

- VDL Analysis Reports
 - Number of active slots per frame
 - garbled packets per frame
 - Packet collisions per frame
 - % VDL utilization
 - Frequency deviation and slot timing (jitter) monitor
- High bandwidth 230.4 kbps serial connection
- Wide selection of serial port speeds
- PC configuration manager
- SM1610-2 backwards compatibility



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System Specifications

- **Designation:** AIS RX base station per ITU R M.1371-4
- **Serial interface:** RS232 (standard);
- **Baud Rates:** 38.4, 115.2, 230.4 kbps
Ethernet and IEC 61162 are optional
- **Power Requirements:** 12-30 VDC or 120-240 VAC
- **Power Consumption:** < 3 watts
- **Temperature Range:** -15 to +55 degrees C.
- **Compass Safe Distance:** 1 meter
- **Environmental:** IP64 Compliance

LNA Specification

- **Environmental:** IP67 & MIL-STD-810F 509.4
Salt fog compliant.
- **Connectors:** female Type N
- **Frequency:** 162 MHz
- **Noise Figure:** < 2 dB
- **Gain:** >20 dB
- **Power Supply:** Coax Bias, 5.5 VDC from Receiver
- **Multi-Stage** input protection

Navigation Specifications

- **12 channel internal Global Positioning System (GPS)**
- **GPS antenna interface:** female SMA connector
- **Serial interface timing:** UTC or Unix Time

Dimensions and Weights

- **Width:** 3.15 in.
- **Length:** 6.89 in.
- **Height:** 2.25 in.
- **Weight:** ≤2 lb.

Frequencies and Channel Bandwidth

- **RX AIS1:** 161.975 MHz @ 25 KHz Bandwidth
- **RX AIS2:** 162.025 MHz @ 25 KHz Bandwidth


AIS Receivers

- **AIS RF Data Rate:** 9,600 bps
- **Sensitivity:** ≤20% PER @ -119 dBm
w/ SM1610-4 LNA
- **Co-channel Rejection:** -10 dB
- **Adjacent Channel Selectivity:** 70 dB
- **Blocking:** 84 dB
- **Intermodulation:** 74 dB
- **Large Signal PER:** 1% or better
- **Image Rejection:** 70 dB
- **Spurious Rejection:** 70 dB
- **Antenna Interface:** female Type N connector
w/ LNA power

Additional Advanced AIS Features

- Received Signal Strength Indication (RSSI)
- Ambient Noise Measurement
- Packet Time of Arrival
- VDL Analysis Reports
- IMO1252 Inspection Tools
- NMEA 0183 V4.1 tag blocks including:
 - Grouping
 - Source
 - Destination
 - Line numbering
 - Unix time

Serial Interface Details:

The serial interface of the SM1610-4 conforms to ITU R M.1371-4 and NMEA 0183 V4.1 with additional proprietary sentences.

To request full serial interface specifications, please e-mail info@shinemicro.com or call Shine Micro at (360) 437-2503.

WARRANTY INFORMATION

Shine Micro warrants its products to be free from defects for one full year from the date of purchase. Shine Micro will, at its sole discretion, repair or replace any components that fail in normal use. Labor and material costs for such repairs or replacement will be free of charge. This warranty does not cover failures due to abuse, misuse, accidents, or unauthorized alterations or repair.

