SHINE MICRO®

RADARPLUS® SA161-MH

MIL-SPEC   HIGH SENSITIVITY   AVIONICS AIS RECEIVER

The RadarPlus® SA161-MH is a globally-deployed, industry-proven AIS surveillance solution.

Over 250,000 ships worldwide transmit position and identity information via the Automatic Identification System (AIS). Increased AIS tracking range and concentration is achieved by Shine Micro AIS receivers for aircraft. Industry-leading sensitivity is attained through Shine Micro exclusive I/Q Synchronous demodulator technology, facilitating superior reception of noisy, weak signals.

Enclosed in a fully-shielded and NVIS-compatible aluminum case, the SA161-MH is rugged, light weight, corrosion resistant, and capable of high altitude operation over a wide temperature range. Mounting options include a Type 1 Aircraft Dzus Rail or a bottom flange mount.

The SA161-MH features dual outputs via Ethernet and RS-232. Both may be utilized to receive data from the device simultaneously. The Ethernet module is configurable as TCP server, TCP client, UDP point-to-point, or UDP broadcast.

HIGHLIGHTS

- **High Sensitivity**
- **MIL-Spec Construction**
- **Low Power Consumption**
- **Integrated 12-Channel GPS**
- **Superior RF Input Protection**
- **High Altitude Operation**
- **Wide Operating Temperature Range**
- *Exclusive* **Shine Micro Enhanced Signal Processing Software (ESP)**

The Shine Micro companion product ST162-T1 AIS Test Set is recommended for optimization of AIS equipment and installations prior to deployment.

The SA161-MH and ST162-T1 are COTS equipment and standard options on Lockheed Martin/Sikorsky MH-60 Helicopters, Lockheed Martin P3 and Boeing P8 aircraft, Insitu Integrator™ UAS, and many others.

Shine Micro SA161-MH AIS Receiver for Avionics

Integrator™ UAS
Integrator™ is a product of Insitu, Inc.

U.S. Navy MH-60 Helicopter

Shine Micro ST162 AIS Test Set

Download

MIL-SPEC   HIGH SENSITIVITY   AVIONICS AIS RECEIVER

System Specifications

- **Designation:** Dual AIS Receiver
- **Serial Interfaces:** Ethernet and RS232
- **Power Supply:** 15-28 VDC
- **Power Consumption:** Typical: 5 watts, Max: 16 watts
- **Temperature Range:** -15 to +70°C Standard
  -40 to +70°C Extended Temperature Option
- **Altitude:** 0 to 70,000 ft.
- **Compass Safe Distance:** 1 meter

Approximate Dimensions and Weights

	Type 1 Dzus Rail Mount*	**Flange Mount**
Max. Width	5.750 in.	4.750 in.
Max. Length	7.301 in.	7.217 in.
Max. Height	1.125 in.	1.125 in.
Weight	≤ 1.25 lbs.	≤ 1.20 lbs.

*Face plate: Type I Aircraft (SS7000-1) Dzus Rail

Frequencies and Channel Bandwidth

- **RX AIS1:** 161.975 MHz at 25 KHz
- **RX AIS2:** 162.025 MHz at 25 KHz

AIS Receivers

- **AIS Data Rate:** 9600 bits/s (RF Input)
- **Sensitivity:** PER ≤ 20% @ –115 dBm
- **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

Enhanced Signal Processing

Enhanced signal processing features including:

- Received Signal Strength Indication
- Ambient Noise Measurement

Serial Interface Details

The serial interface of the SA161-MH conforms to ITU-R M. 1371-5 and NMEA 0183 data protocol with additional proprietary sentences. Received AIS messages are reported using the NMEA 0183 VDM sentence. GPS position data is reported using the GGA, ZDA and VTG NMEA 0183 sentences. Data is simultaneously output via RS232 and Ethernet. The Ethernet module is configurable as TCP server, TCP client, UDP point to point, or UDP broadcast at 10/100 Mbps.

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

Connectors

- **Power:** D38999 / 20WB98SA
- **Data:** D38999 / 20WB35SN
- **GPS Antenna:** female TNC
- **AIS Antenna:** female Type N

Indicators

- NVIS-compatible Power/Status LED

MIL Standards

- MIL-HDBK-217F: MTBF Environment: ARW (airborne rotary winged)
  MTBF @ -40C = 50,298 hrs, +25C = 49,797 hrs, +85C = 15,622 hrs

MIL-STD-704F – 28VDC	MIL-STD-461E – RS103
MIL-STD-704A – 28VDC	MIL-STD-810E – 501.3
MIL-STD-461E – CE101	MIL-STD-810E – 502.3
MIL-STD-461E – CE102	MIL-STD-810E – 507.3
MIL-STD-461E – RE101	MIL-STD-810E – 513.4
MIL-STD-461E – RE102	MIL-STD-810E – 514.4
MIL-STD-461E – CS101	MIL-STD-810E – 514.5
MIL-STD-461E – CS114	MIL-STD-810E – 516.4
MIL-STD-461E – CS115	MIL-STD-810E – 520.3
MIL-STD-461E – CS116	MIL-STD-810F – 507.4
MIL-STD-461E – RS101	MIL-STD-810F – 509.4

WARRANTY INFORMATION