



**SHINE MICRO®**

**RADARPLUS® SA161-UA**

**COMPACT**

**HIGH SENSITIVITY**

**DUAL AIS RECEIVERS**

**The RADARPLUS® SA161-UA is a globally-deployed, industry-proven AIS surveillance solution for integration at the circuit board level.**

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.

The SA161-UA features low power consumption of less than 2 watts, and exclusive Shine Micro Enhanced Signal Processing (ESP) software. A GPS input provides slot numbering, VDL loading, and packet time of arrival information when using the ESP software. Future software upgrades are easily installed via the serial port.

The ST162-T1 portable AIS Test Set is a recommended companion product to the SA161-UA, enabling operational optimization of AIS equipment and installations prior to deployment.

**HIGHLIGHTS**

- **High Sensitivity**
- **Low Power Consumption**
- **Superior RF Input Protection**
- **Exclusive Shine Micro Enhanced Signal Processing Software (ESP)**

The SA161-UA is designed for board-level integration with self-contained surveillance systems such as Unmanned Aerial Vehicles (UAVs), Unmanned Underwater Vehicles (UUVs), satellites, and more. Weighing just 2.50 oz. (70 g), the SA161-UA is ideal for land, sea, or airborne applications with limited payloads.

**Shine Micro SA161-UA AIS Receiver for Board-Level Integration**




**ScanEagle® UAS**

ScanEagle® is a product of Insitu, Inc.

**Shine Micro ST162 AIS Test Set**



Download



## COMPACT

## HIGH SENSITIVITY

## DUAL AIS RECEIVERS

### System Specifications

- **Designation:** Dual AIS Receivers
- **Serial interface:** RS232 (In) / TTL (Out)
- **Power Supply:** 9 - 16 VDC
- **Power Consumption:** < 2 watts
- **Temperature Range:** -15 to +70° C
- **Compass Safe Distance:** 1 meter

### Approximate Dimensions and Weights

- **Width:** 2.44 in. (62.0 mm)
- **Length:** 2.75 in. (69.9 mm)
- **Height:** 0.50 in. (12.7 mm)
- **Weight:** 2.50 oz. (70 g)

### 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 less
- **Image Rejection:** 70 dB
- **Spurious Rejection:** 70 dB

### Enhanced Signal Processing

Enhanced processing features including:

- Received Signal Strength Indication
- Slot Numbering\*
- VDL Loading\*
- Ambient Noise Measurement
- Packet Time of Arrival\*

\*GPS Input Required

### Service Life

- > 44,950 hours MTBF

### Serial Interface Details

The serial interface of the SA161-UA conforms to ITU-R M. 1371-3 and NMEA 0183 data protocol with additional proprietary sentences. The received AIS messages are output as NMEA 0183 high-speed standard VDM sentences at 38400 baud. GPS position data is input using NMEA 0183 standard RS232 at 4800 baud.

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

### Connectors

- **I/O Interface:** 10 pin header, 0.1" spacing, 0.025" square posts
- **Antenna Interface:** MCX Jack

### Module I/O Connector Pin-Out

PIN	SIGNAL	TYPE	DIRECTION	NOTES
1	BAT+ IN	+DC POWER	INPUT	+12 VDC NOM
2	NC	OPEN	N/A	NOT CONNECTED
3	1PPS_H	RS-232	INPUT	AVIONICS / GPS
4	GND	DC RTN (Power)	INPUT	DC RETURN
5	AIS_RXD_H	RS-232	INPUT	AVIONICS / AIS
6	GND	DC RTN (data)	INPUT	DC RETURN
7	GPS_RXD_H	RS-232	INPUT	AVIONICS / GPS
8	AIS_TXD	TTL	OUTPUT	AVIONICS / AIS
9	RESERVED	N/A	N/A	DO NOT CONNECT
10	RESERVED	N/A	N/A	DO NOT CONNECT

### 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.

