



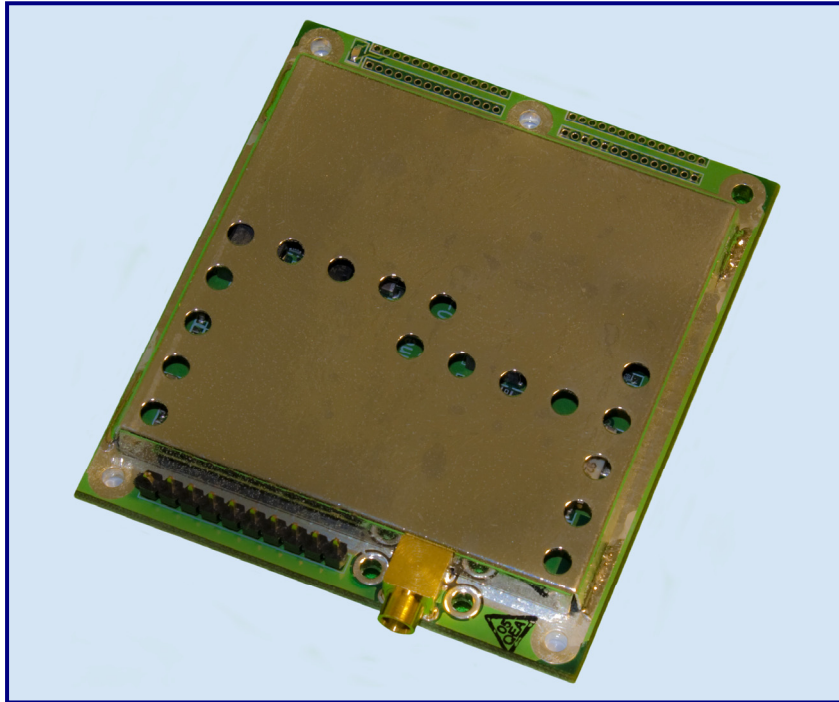
SHINE MICRO®

RADARPLUS® SA161-UA

COMPACT

HIGH SENSITIVITY

DUAL AIS RECEIVERS



INTRODUCING THE
RADARPLUS® SA161-UA:
enhanced dual AIS receivers .

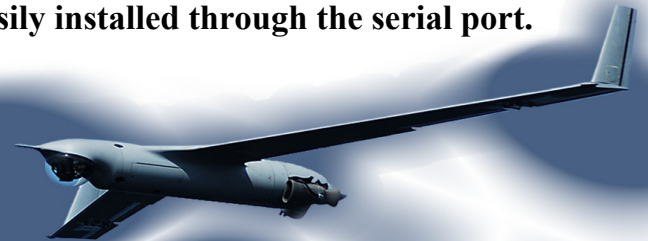
- **High Sensitivity** for Maximum-Range AIS Reception
- **Compact Form Factor**
- **Power Consumption** of < 2 Watts
- **Exclusive Shine Micro** Enhanced Signal Processing Software

The RadarPlus® SA161-UA is highly suitable for vessel tracking and maritime surveillance applications. At 2.44" wide, 2.75" long, and 0.50" tall, the SA161-UA is designed for board-level integration. The compact AIS receiver also weighs 2.50 oz. (70 g), making it ideal for **land, sea, or airborne applications** with limited payloads. The unit's **industry-leading sensitivity and tracking range** are achieved through **I/Q Synchronous** demodulator technology, which demodulates AIS packets for **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.

Additional Features Include:

- **Upgradeable:** future software upgrades are easily installed through the serial port.



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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 +55 degrees 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 V4.0 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@shinemicromicro.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.



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