Simplified Serial Port ADS-B Ground Receiver

ADSB-SS01 User Manual

AvionixTech

Contents

1. Introduction

ADSB-SS01 is a simple ADS-B ground receiver engineered for precision surveillance applications. Featuring an onboard ADS-B signal processing module, this compact device delivers real-time ADS-B messages with full compliance to DO-260B/DO-260C standards. ADSB-SS01 can output raw ADS-B messages, including DF17 and DF18, via USB or serial port with protocol support for RS232 and RS485. ADSB-SS01 provides ADS-B data reception, processing, and display services, and can be applied in fields such as civil aviation flight tracking, airport management, general aviation aircrafts surveillance, Detect-and-Avoid (DAA) subsystem, ADS-B IN capability for UAS situational awareness, radar calibration, academic research and education.

Packing List:

No.	Item	Quantity	Remarks
1	ADSB-SS01	1 unit	Included
2	Type-B USB Data Cable	1 piece	Included
3	ADS-B Antenna and Bracket	1 set	Included
4	ADS-B Antenna Cable	1 piece (10 meters)	Included

2. Specifications

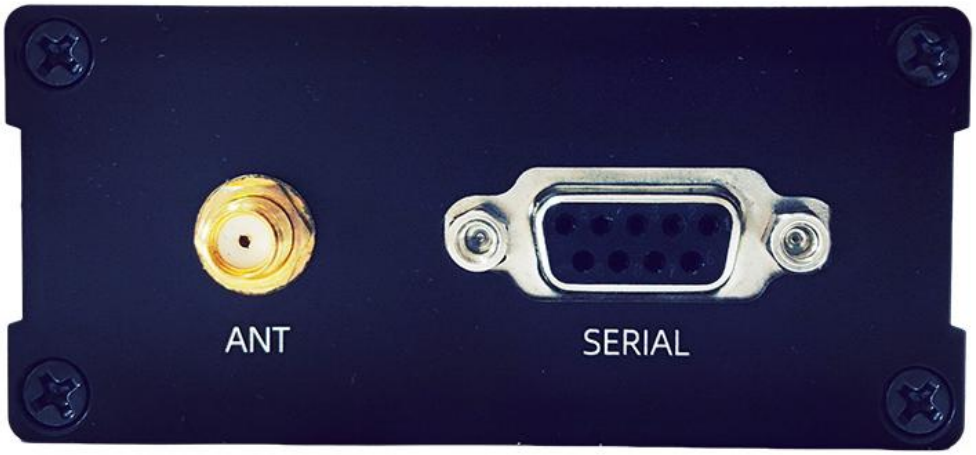
ADSB-SS01：

No.	Specifications	
1	Power Supply	5V 2A
2	Power Consumption	0.5W
3	Reception Frequency	1090MHz
4	Sensitivity	≤ -90dBm
5	Reception Range	> 250km (no interference, unobstructed)
6	Data Format	ADS-B raw messages
7	Data Interface	Type-B USB & DB9 female
8	Serial Protocol	RS232 / RS485
9	ADS-B Antenna Interface	SMA female
10	Dimensions	100*76*35mm
11	Weight	190g

ADS-B Antenna：

No.	Specifications	
1	Frequency Range	1089-1091MHz
2	Bandwidth	60MHz
3	Gain	6dBi
4	VSWR	≤1.5
5	Direction Type	Omnidirectional
6	Polarization	Vertical polarization
7	Length	60cm
8	Weight	0.6kg
9	Connector Type	N female
10	Mounting Type	Mast mount

3. Interface Description



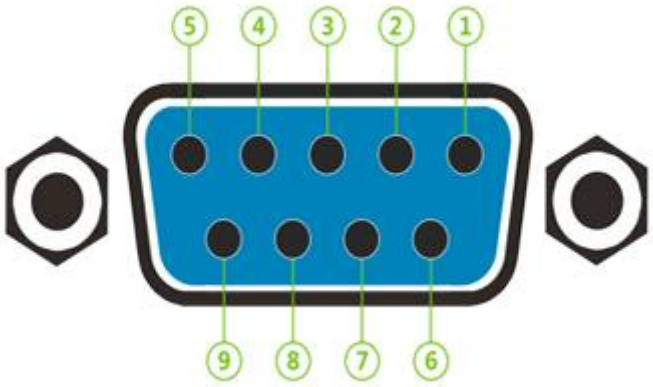
Interface:

No.	Interface Name	Interface Function
1	PWR	Power supply indicator
2	DATA	Data reception indicator
3	USB	Data interface 1, Type-B connector (default output interface)
4	ANT	ADS-B antenna interface, SMA female
5	SERIAL	Data interface 2, DB9 connector

Note: The default data output interface is USB. For serial port output, please contact us.

USB / SERIAL Configuration:

No.	Name	Configuration
1	Baud Rate	921600
2	Data Bits	8
3	Parity	none
4	Stop Bits	1



RS232 Interface Pinout Description:

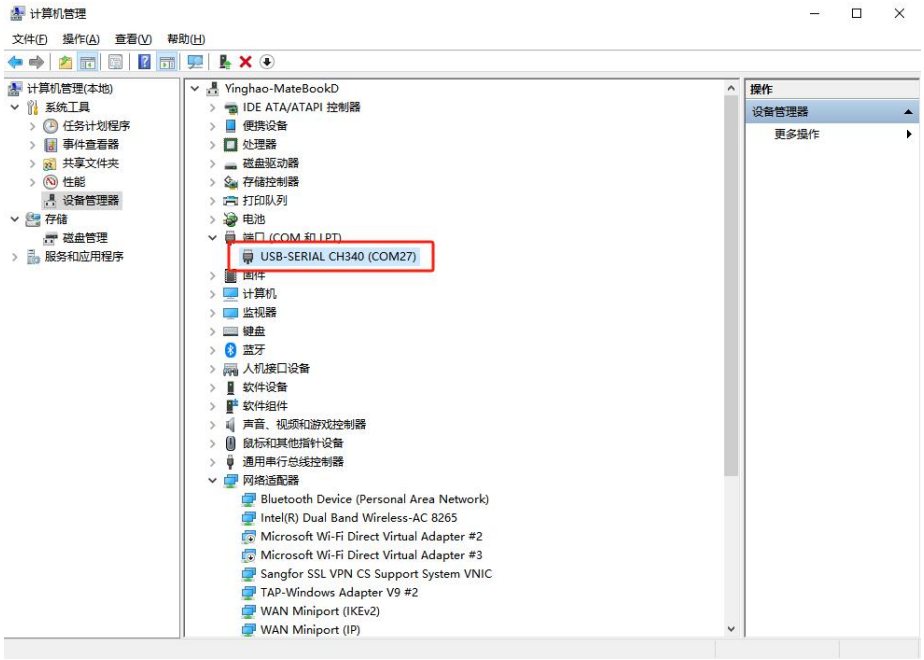
Pin Number	Description
2	RXD
3	TXD
5	GND

RS485 Interface Pinout Description:

Pin Number	Description
6	485-A
7	485-B

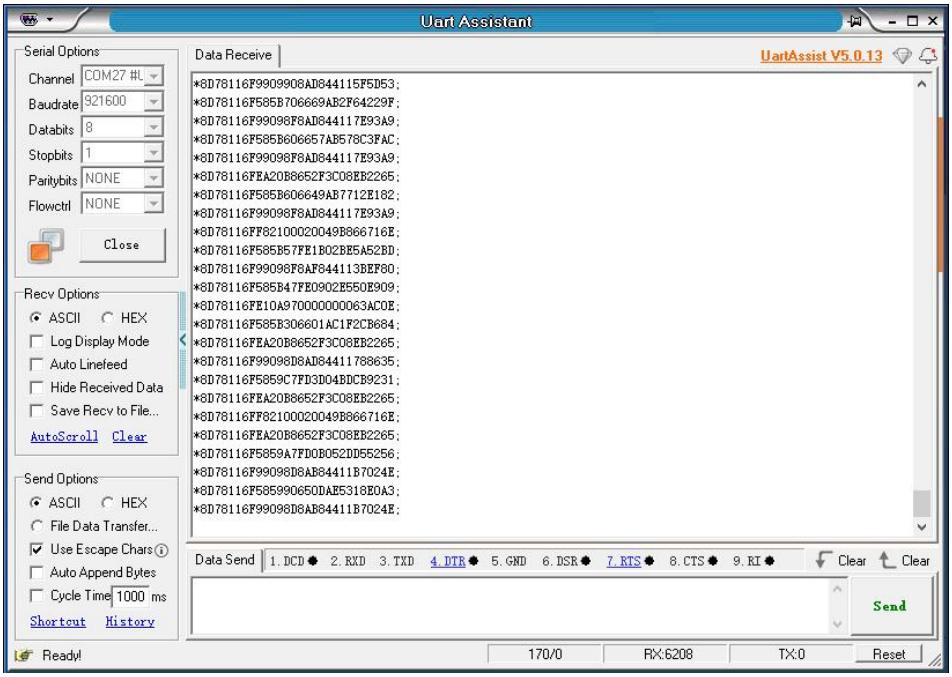
4. Connection

Connect the ADSB-SS01 to the computer using a USB data cable. The computer's Device Manager will recognize it as a USB-SERIAL CH340 COM port.



Enter the connection information for the COM port in the serial debugger. Once connected, data reception will begin.

ADS-B Raw Message Reception:



Example of Raw Message Data:

```
*8D78139058637427F31D387119E2;
*8D781390EA269867073C08E4CE17;
*8D78139058638090C3C6871FBAB6;
*8D781390F82100020049B84A282C;
*8D781390EA269867073C08E4CE17;
*8D7813905863C427F31CAFAC4477;
*8D781390990D5C0050800EC400D9;
*8D7813905863D090C3C605EABF0D;
```

5. LEDs

The front panel of the device has two LED lights: PWR and DATA.

The red PWR LED remains steadily ON when the device is powered on.

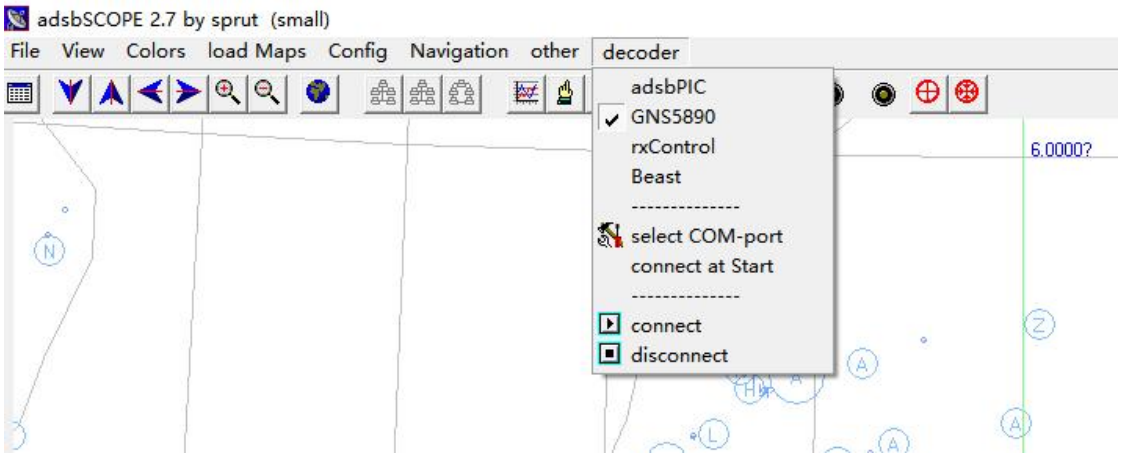
The green DATA LED flashes when ADS-B data is received.

6. Software Connection

ADSB-SS01 can be connected to the free display software adsbScope. The operation steps are as follows:

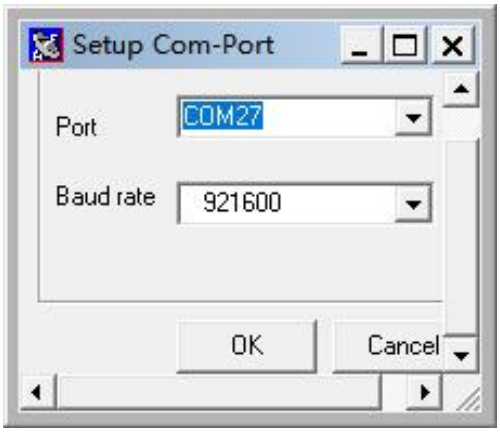
(1) Open the display software adsbScope, such as: adsbscope27_256.exe.

(2) Find the "decoder" menu at the top and select GNS5890 from the menu.



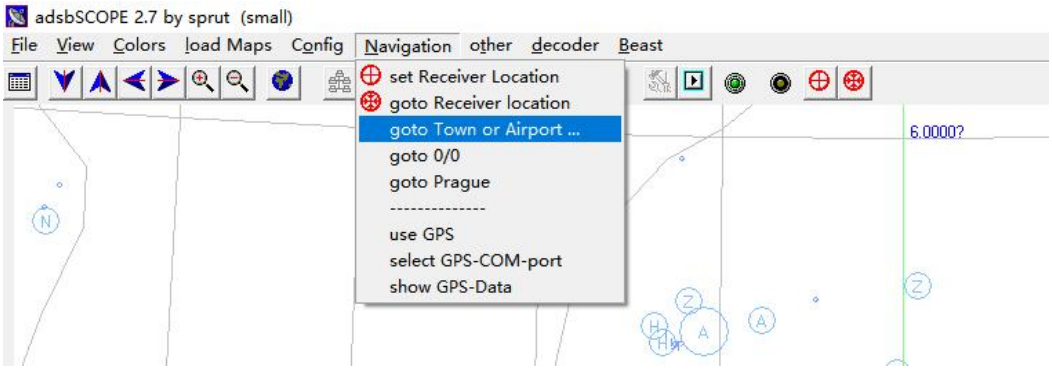
(3) Click the "select COM-port" option from the menu.

(4) In the pop-up window, select the COM port corresponding to the USB connection (for example, COM27), set the Baudrate to 921600, and click the OK button.

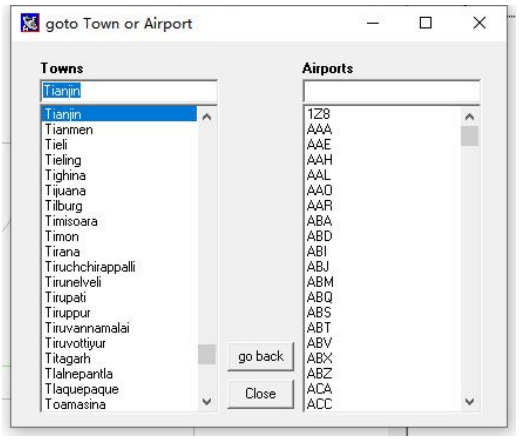


(5) Click the "connect" button in the "decoder" menu to connect the serial port.

(6) Select "goto Town or Airport..." from the "Navigation" menu.



(7) In the pop-up window, type the English name of the nearest airport in the input box under "Towns," then select the airport from the query list below, and click the close button at the top-right corner.



(8) The display software will now be able to show the aircraft's location correctly.

7. Customization

All our products can be supplied tailored to your specific needs and customized with your brand and logo. We tailor designs, enclosures, features, and data formats to meet your specifications. Our OEM services empower you to launch unique products swiftly and risk-free.

8. Why Choose Us

- Comprehensive product range to meet users' needs for various levels of ADS-B ground station systems.
- Easy installation and use, with no complex configuration or high technical requirements for engineers. Simple and user-friendly.
- Complete after-sales service, providing technical support and services to help users maximize product benefits.
- Support for remote upgrades, assisting users in accessing the latest product features.
- Independent product development with customization options based on user requirements, including form factors, logo, software, hardware, performance, and functionality.