



# Standard Network ADS-B Ground Receiver ADSBR302

## Product Introduction

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## 1. Introduction

The ADSBR302 is a standard ADS-B ground receiver compliant with the RTCA DO-260B/DO-260C standards. Integrated with ADS-B signal processing module, ADSBR302 is capable of simultaneously outputting ADS-B raw messages, CSV plaintext data and JSON plaintext track data via RJ45 network. This ADS-B receiver supports both BeiDou and GPS, providing users with ADS-B data reception, processing, and display services. It can be applied in 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   | ADSBR302                  | 1 unit              | Included |
| 2   | Power Cable               | 1 piece             | Included |
| 3   | ADS-B Antenna and Bracket | 1 set               | Included |
| 4   | ADS-B Antenna Cable       | 1 piece (10 meters) | Included |

|   |                 |                                |          |
|---|-----------------|--------------------------------|----------|
| 5 | Network Cable   | 1 piece                        | Included |
| 6 | GPS/BDS Antenna | 1 set (includes 3-meter cable) | Included |

## 2. Specifications

ADSBR302:

| No. | Specifications            |                                                                   |
|-----|---------------------------|-------------------------------------------------------------------|
| 1   | Power Supply              | DC12V 2A                                                          |
| 2   | Power Consumption         | 3.6W                                                              |
| 3   | Receiving Frequency       | 1090MHz                                                           |
| 4   | Sensitivity               | $\leq -95\text{dBm}$                                              |
| 5   | Receiving Range           | > 350km(no interference, unobstructed)                            |
| 6   | Data Format               | ADS-B raw messages / CSV plaintext<br>/ JSON plaintext track data |
| 7   | Data Interface            | RJ45 network port                                                 |
| 8   | Network Connection        | Static IP or DHCP                                                 |
| 9   | Network Protocol          | TCP/UDP                                                           |
| 10  | ADS-B Antenna Interface   | N female                                                          |
| 11  | GPS/BDS Antenna Interface | SMA female                                                        |
| 12  | Dimensions                | 220*160*72mm (main body)                                          |
| 13  | Weight                    | 1250g                                                             |

ADS-B Antenna:

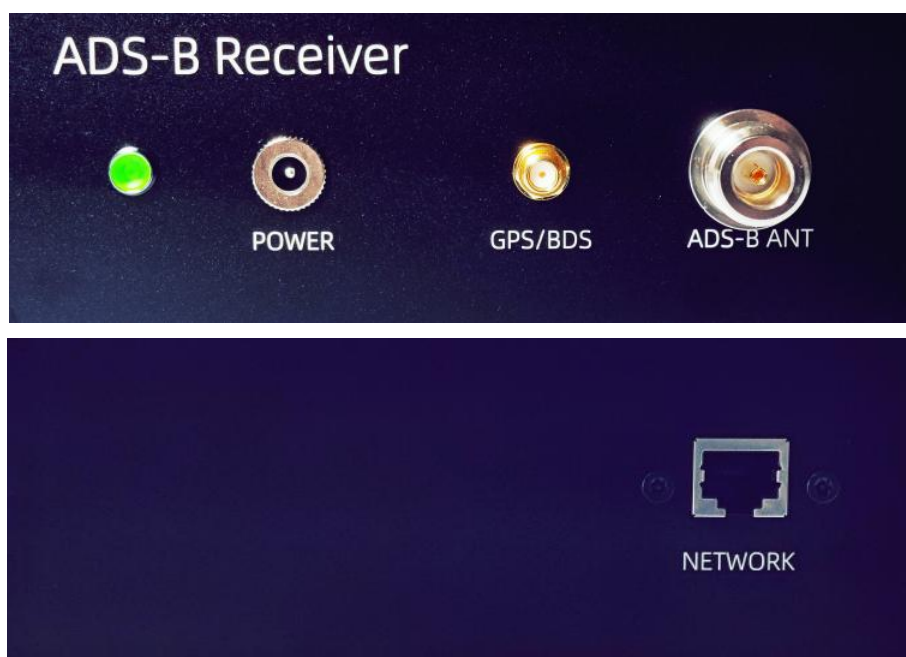
| No. | Specifications  |                       |
|-----|-----------------|-----------------------|
| 1   | Frequency Range | 1089-1091MHz          |
| 2   | Bandwidth       | 60MHz                 |
| 3   | Gain            | 6dBi                  |
| 4   | VSWR            | $\leq 1.5$            |
| 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 |

GPS/BDS Antenna:

| No. | Specifications  |                |
|-----|-----------------|----------------|
| 1   | Gain            | 5dBi           |
| 2   | VSWR            | $\leq 1.5$     |
| 3   | LNA Gain        | 28dBi          |
| 4   | Noise Figure    | $< 1.0$        |
| 5   | Connector Type  | SMA male       |
| 6   | Cable Length    | 3m             |
| 7   | Mounting Method | Magnetic mount |

### 3. Interface Description



Interfaces:

| No. | Interface Name | Function |
|-----|----------------|----------|
|-----|----------------|----------|

|   |           |                                                 |
|---|-----------|-------------------------------------------------|
| 1 | POWER     | Power supply interface for main unit, DC 12V 2A |
| 2 | GPS/BDS   | GPS/BDS antenna interface, SMA female           |
| 3 | ADS-B ANT | ADS-B antenna interface, N female               |
| 4 | NETWORK   | Data Interface, RJ45                            |

## 4. Data Format

### 1. Raw Message

You can receive ADS-B raw message information via TCP.

Raw Message Data Example:

```
*5D780CD7AB6A2D;
*5D7BB0F9D35532;
*8D78151CEA38E866033C08E21D45;
*8D7815CB587B8406F1171F42B050;
```

### 2. CSV Plaintext Data

To receive the decoded plaintext via UDP.

Decoded CSV Plaintext Data Example:

```
2025-01-23T06:23:04.006Z,780BA5,CSN5849,5673,36.009475708007812,117.01738357543
9453,25600,391.175,351.621,64.000,false#
2025-01-23T06:23:04.144Z,780EF1,CHB6279,6276,36.855422973632812,118.87224562624
6681,24600,444.933,96.582,0.000,false#
```

Data Description:

| Data                         | Description         | Remarks                                                                                             |
|------------------------------|---------------------|-----------------------------------------------------------------------------------------------------|
| 2025-01-23T<br>06:23:04.006Z | Time                | The time is the system device's time (reference format: ISO 8601), format: yyyy-MM-ddTHH:mm:ss.zzzZ |
| 780BA5                       | ICAO 24-bit Address | 6-digit hexadecimal format data                                                                     |
| CSN5849                      | Call Sign           | 8 characters output                                                                                 |
| 5673                         | Secondary Code      | 4-digit octal format number                                                                         |
| 36.009475708007812           | Latitude            | Latitude in decimal degrees, North is positive, South is negative                                   |
| 117.01738357543945<br>3      | Longitude           | Longitude in decimal degrees, East is positive, West is negative                                    |

|         |                        |                                                              |
|---------|------------------------|--------------------------------------------------------------|
| 25600   | Pressure Altitude      | Feet                                                         |
| 391.175 | Ground Speed           | Knots per hour                                               |
| 351.621 | Heading Angle          | Decimal, in degrees                                          |
| 64.000  | Pressure Vertical Rate | Meters per minute, negative for descent, positive for ascent |
| false   | Air/Ground Indicator   | true indicates ground, false indicates air                   |

Note: If data is missing, the value will be left empty and will not be output.

### 3. JSON Plaintext Track Data

To receive JSON plaintext track data, use the HTTP service. The data is output in standard JSON format.

Decoded JSON Track Data Example:

```
{
  "altitude_baro": 22600,
  "altitude_baro_last_update": "2025-01-23T06:37:14.213Z",
  "ground": false,
  "ground_last_update": "2025-01-23T06:37:14.485Z",
  "ground_speed": 396.50472884948044,
  "ground_speed_last_update": "2025-01-23T06:37:14.485Z",
  "heading": 182.89126959679598,
  "heading_last_update": "2025-01-23T06:37:14.485Z",
  "icao_addr": "7820E2",
  "last_update": "2025-01-23T06:37:14.485Z",
  "latitude": 36.20709228515625,
  "longitude": 117.28546142578125,
  "position_last_update": "2025-01-23T06:37:14.213Z",
  "squawk": "4136",
  "squawk_last_update": "2025-01-23T06:37:02.356Z",
  "vertical_rate_baro": 0,
  "vertical_rate_baro_last_update": "2025-01-23T06:37:14.485Z"
},
{
  "acid": "CDG2230 ",
  "acid_last_update": "2025-01-23T06:36:46.170Z",
  "altitude_baro": 20700,
  "altitude_baro_last_update": "2025-01-23T06:37:15.406Z",
  "ground": false,
  "ground_last_update": "2025-01-23T06:37:15.406Z",
```

```

    "ground_speed": 438.308110807911,
    "ground_speed_last_update": "2025-01-23T06:37:14.160Z",
    "heading": 130.55875881014302,
    "heading_last_update": "2025-01-23T06:37:14.160Z",
    "icao_addr": "7809A2",
    "last_update": "2025-01-23T06:37:15.406Z",
    "latitude": 36.25309753417969,
    "longitude": 117.35332489013672,
    "position_last_update": "2025-01-23T06:37:15.406Z",
    "squawk": "0052",
    "squawk_last_update": "2025-01-23T06:37:01.379Z",
    "vertical_rate_baro": 0,
    "vertical_rate_baro_last_update": "2025-01-23T06:37:14.160Z"
  },

```

## Data Description:

| Data Items                | Example Data             | Descriptions                                                               |
|---------------------------|--------------------------|----------------------------------------------------------------------------|
| acid                      | CDG2230                  | Callsign                                                                   |
| acid_last_update          | 2025-01-23T06:36:46.170Z | Last Updated Time of Callsign                                              |
| altitude_baro             | 20700                    | Pressure Altitude (feet)                                                   |
| altitude_baro_last_update | 2025-01-23T06:37:15.406Z | Last Updated Time of Pressure Altitude                                     |
| ground                    | false                    | Ground Indicator, true indicates on the ground, false indicates in the air |
| ground_last_update        | 2025-01-23T06:37:15.406Z | Last Updated Time of Ground Indicator                                      |
| ground_speed              | 438.308110807911         | Ground Speed (knots)                                                       |
| ground_speed_last_update  | 2025-01-23T06:37:14.160Z | Last Updated Time of Ground Speed                                          |
| heading                   | 130.55875881014302       | Heading Angle (degrees)                                                    |
| heading_last_update       | 2025-01-23T06:37:14.160Z | Last Updated Time of Heading Angle                                         |
| icao_addr                 | 7809A2                   | ICAO 24-bit Address                                                        |
| last_update               | 2025-01-23T06:37:15.406Z | Last Updated Time of Track                                                 |
| latitude                  | 36.25309753417969        | Latitude (degrees)                                                         |
| longitude                 | 117.35332489013672       | Longitude (degrees)                                                        |



|                               |                          |                                     |
|-------------------------------|--------------------------|-------------------------------------|
| position_last_update          | 2025-01-23T06:37:15.406Z | Last Updated Time of Position       |
| squawk                        | 0052                     | Secondary Code                      |
| squawk_last_update            | 2025-01-23T06:37:01.379Z | Last Updated Time of Secondary Code |
| vertial_rate_baro             | 0                        | Vertical Rate (feet/minute)         |
| vertial_rate_baro_last_update | 2025-01-23T06:37:14.160Z | Last Updated Time of Vertical Rate  |

## 5. Software Connection

(1) The ADSBR302 can be connected to the display software adsbScope.

## 6. 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.

## 7. Contact Us

We welcome users, integrators, and distributors to contact us.

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