

ACARS Receiver ATA131

AvionixTech

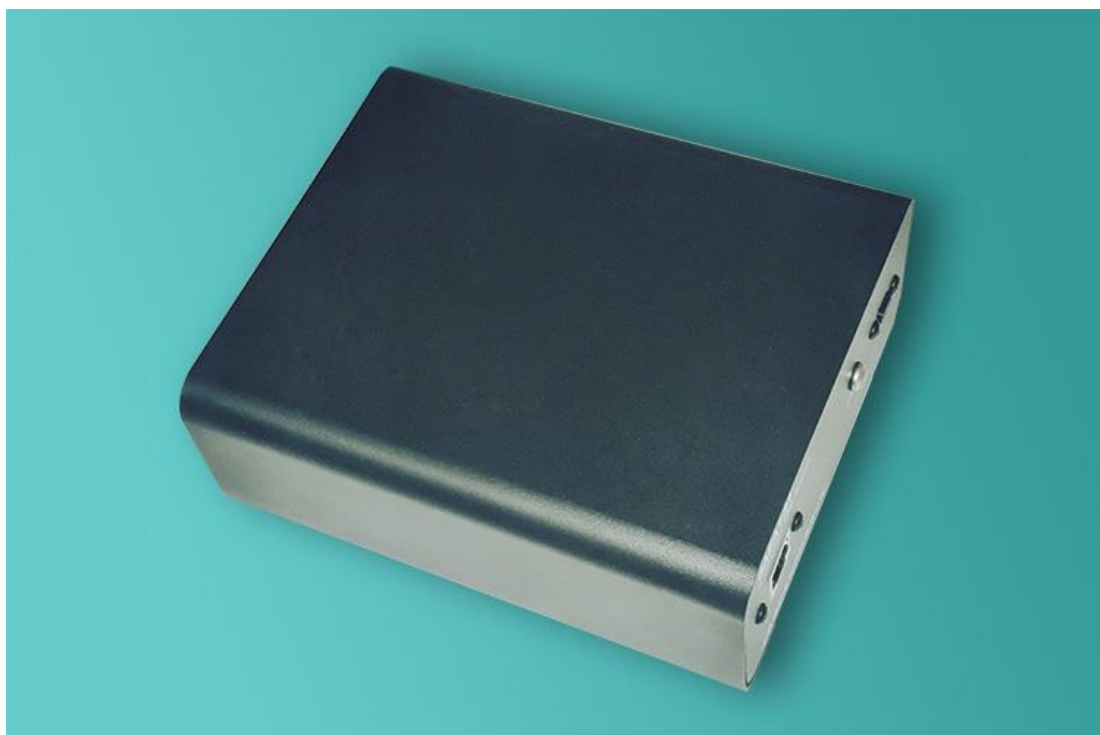
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1. Introduction

ACARS (Aircraft Addressing and Reporting System) is a digital data link system that facilitates communication between aircraft and ground stations. Operating through VHF radio transmission, ACARS acts as a vital tool for airline flight operations control operators to interact with their aircraft effectively.

Similar to "email for airplanes," each aircraft is assigned a unique address within the network, allowing seamless communication. ACARS enables the transmission of various essential information, including departure reports, arrival reports, passenger loads, fuel data, and engine performance data. Ground control can request this information from the aircraft at predetermined intervals, ensuring efficient management of flight operations. Moreover, instructions can be automatically relayed to the crew and printed out on a cockpit printer, enhancing communication efficiency and safety.

ATA131 is a high performance and portable ACARS receiver with integrated ACARS decoder. A standard ATA131 package includes: ATA131 Receiver, ACARS antenna and power supply unit.



2. Functions

- ATA131 can output ACARS messages through UDP.

- ATA131 is compact and lightweight, making it highly portable. It can easily fit into a backpack for convenient transport. Additionally, the low power consumption feature of ATA131 makes it capable of being powered by fixed power or rechargeable battery, enhancing its versatility and allowing for use in various locations.
- ATA131 IP address can be configured to allow direct connection with a computer without the need for routers. However, it can also be configured to connect with a computer through routers, providing flexibility based on user preference and specific networking requirements.
- ATA131 supports both static IP address and DHCP. This allows users to configure the device with a fixed IP address or to automatically obtain an IP address from a DHCP server, providing flexibility based on networking preferences and requirements.
- ATA131 can be connected via network cables or WiFi.
- We have the capability to output and store ACARS IQ data for further analysis. (Optional).
- All our products can be fully customized with your brand and logo. We offer customization options for form factors, enclosures, functions, and data formats according to your requirements. Our OEM/Customization service ensures that you can have your own unique product tailored to your specifications in minimal time and with no risk. (Optional).
- Combining ADS-B, ACARS, and AIS reception capabilities into a single device, known as a 3A Receiver, offers comprehensive surveillance for both aviation and maritime applications. With our expertise and technology, we can seamlessly integrate these functionalities into a unified system, enhancing situational awareness and data collection capabilities. (Optional).

3. Specifications

- Frequency: can monitor up to four frequency channels simultaneously
- Sensitivity: -96dbm
- Dynamic Range: -96dBm to -15dBm
- Power Supply: 5V, 3A, Micro USB connector
- Working temperature: 0°C to 70°C
- Physical Size: 16*13.1*6.2 cm
- Weight: 1 kg
- Antenna Connector: SMA/F, 50 ohm

4. Antenna

Frequency	145-165MHz
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Bandwidth	20MHz
Gain	3dbi
VSWR	≤2.0
Impedance	50Ω
Polarization	Vertical
Maximum power	100w
Connector	N Female
Lightning protection	DC grounding
Length	1500mm
Weight	1.5KG
Operating humidity	10-95%
Rated Wind Velocity	60m/s
Operating Temperature	-40°C-70°C
Rod diameter	30-50mm

5. Configuration

The default wired IP address of ATA131 defaults to 192.168.10.33, while WiFi defaults to obtaining an IP address via DHCP. When ATA131 is powered on and connected to a computer via an Ethernet cable, set the computer's IP address to be in the same network segment as ATA131. Alternatively, connect ATA131 to the router via WiFi and obtain ATA131's IP address via DHCP.

In the browser, enter the IP address.

Login

Username

Password

[Sign In](#)

Enter the username and password on the login interface:

Username: admin

Password: aaareceiver

Access the control interface of ATA131

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ACARS Receiver
ATA131

Dashboard

Network Setting

Dataport Settings

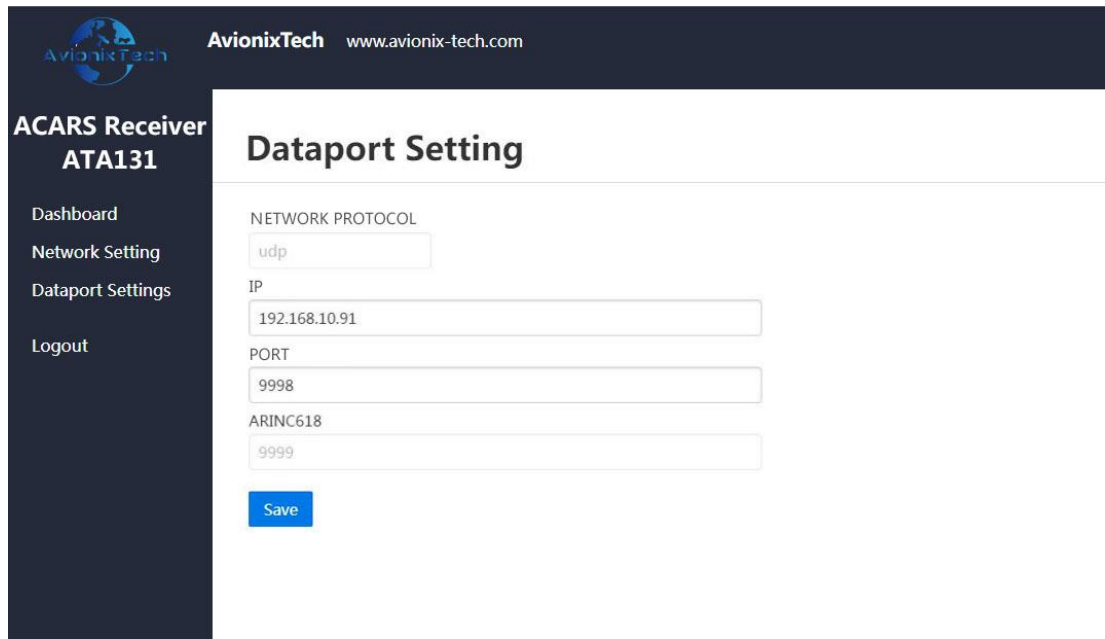
Logout

Service	Process running
Cable	Manual(Static IP)
IP	192.168.10.33
Netmask	255.255.255.0
Default Gateway	192.168.10.1
WIFI	Manual(Static IP)
IP	192.168.10.55
Netmask	255.255.255.0
Default Gateway	192.168.10.1
Reboot System	Reboot Shutdown

The status of the service should be 'Process running'. If not, please click on 'Process start'.

5. 1 Data Interface Configuration

Click on Dataport Setting:



The screenshot shows the AvionixTech ACARS Receiver ATA131 web interface. The header includes the AvionixTech logo and website URL. A left sidebar contains navigation links: Dashboard, Network Setting, Dataport Settings (selected), and Logout. The main content area is titled 'Dataport Setting' and contains a form with the following fields: NETWORK PROTOCOL (set to 'udp'), IP (set to '192.168.10.91'), PORT (set to '9998'), and ARINC618 (set to '9999'). A blue 'Save' button is located below the form.

Enter the destination IP address and the plaintext ACARS message output port. ARINC618 formatted ACARS messages will automatically be output from the configured port +1.

Click on 'Save'.

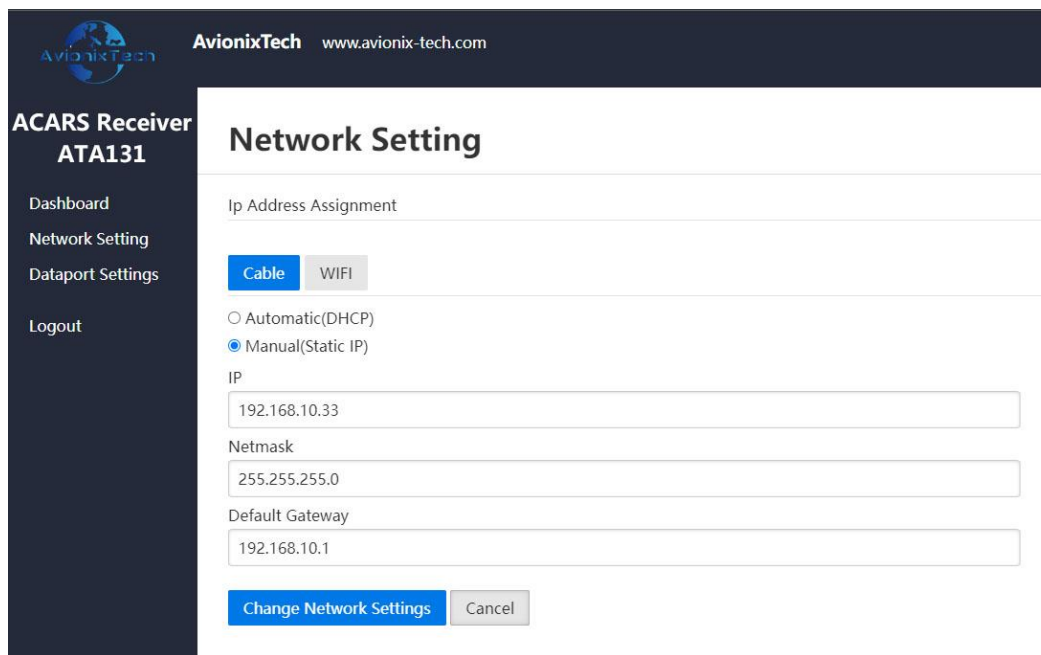
The plaintext ACARS messages are sent via UDP to the machine (computer) with the IP address 192.168.10.91 and port 9998. The ARINC618 formatted ACARS messages are sent via UDP to the machine (computer) with the IP address 192.168.10.91 and port 9999. At this moment, ATA131 acts as the UDP client, while the computer acts as the UDP server.

5. 2 Network Configuration

Please ensure to pay close attention:

- 1) First, set up the WiFi to connect to the user's own network, in case you forget the wired IP address you've changed to.
- 2) Considering the complexity and instability of WiFi, WiFi is only intended as a backup and is not guaranteed to be always available. It is not covered under the warranty. The device primarily relies on wired connections.
- 3) If you decide to change the wired IP address to a static IP address, ensure that during the modification process, the IP address, subnet mask, and default gateway are entered correctly. Remember the assigned IP address. Failure to do so may result in the device being inaccessible! If this problem occurs, the device will need to be returned to the factory for repair, and it will not be covered under warranty.

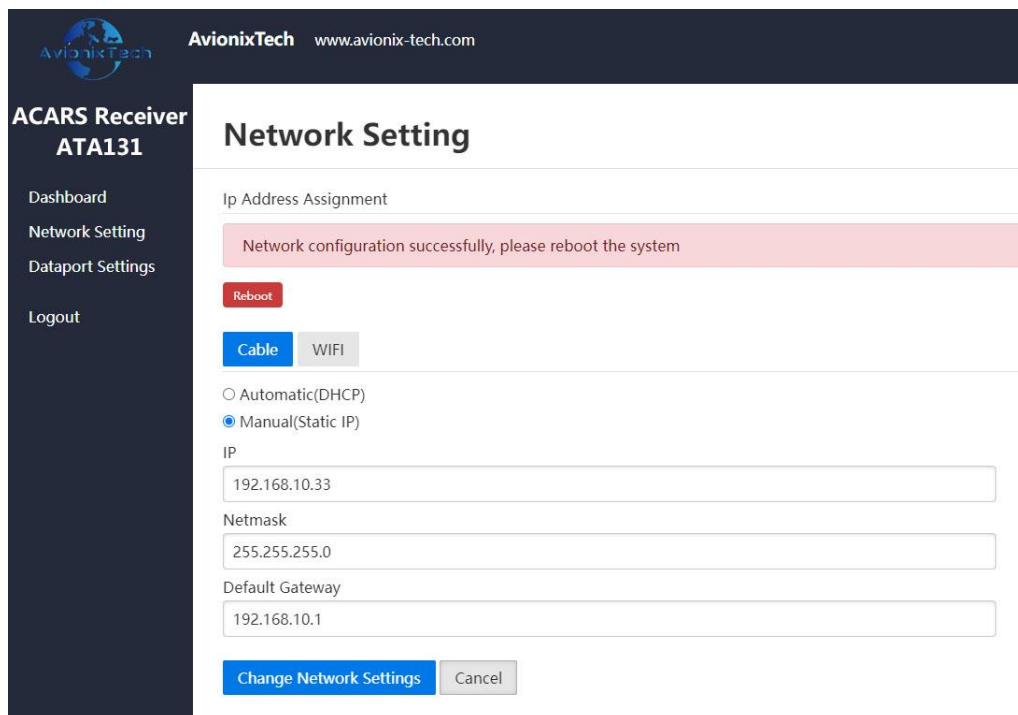
Click on 'Network Configuration' -> Cable.



The screenshot shows the AvionixTech web interface for the ACARS Receiver ATA131. The left sidebar contains navigation links: Dashboard, Network Setting (highlighted), Dataport Settings, and Logout. The main content area is titled 'Network Setting' and features a sub-section 'Ip Address Assignment'. There are two tabs: 'Cable' (selected) and 'WIFI'. Under the 'Cable' tab, there are two radio button options: 'Automatic(DHCP)' and 'Manual(Static IP)', with the latter being selected. Below these are three input fields: 'IP' (containing 192.168.10.33), 'Netmask' (containing 255.255.255.0), and 'Default Gateway' (containing 192.168.10.1). At the bottom of the form are two buttons: 'Change Network Settings' and 'Cancel'.

Enter the required IP, Netmask, and Default Gateway.

Click on 'Change Network Settings'.



This screenshot shows the same AvionixTech Network Setting page after the 'Change Network Settings' button was clicked. A pink success message banner is displayed at the top of the form area, stating 'Network configuration successfully, please reboot the system'. Below the banner is a red 'Reboot' button. The rest of the page, including the 'Cable' tab, the 'Manual(Static IP)' radio button, and the IP, Netmask, and Default Gateway input fields, remains the same as in the previous screenshot.

Click Reboot:

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ATA131

Dashboard
Network Setting
Dataport Settings
Logout

Network Setting

Ip Address Assignment

Network configuration successfully, please reboot the system

Rebooting

Cable WIFI

Automatic(DHCP)
 Manual(Static IP)

IP
192.168.10.33

Netmask
255.255.255.0

Default Gateway
192.168.10.1

Note: When modifying network configurations, restarting is done by clicking the 'Restart' button on the page. Under no circumstances should the power be disconnected during this process, as it may result in the ACARS receiver losing information and becoming inaccessible.

ATA131's wired and WiFi connections both supports obtaining IP addresses via DHCP. By opening the router's configuration interface and checking the DHCP client list, you can see ATA131 (hostname: receiver) and its IP address. As long as the computer is on the same network as ATA131, it can access ATA131 using the IP address obtained through DHCP, following the same procedure mentioned earlier.

6. Data Format

Name	MODE	ARN	TAK	Label	DBI	MSN	Flight ID	Text
Size (bytes)	1	6	4	2	1	4	6	0-210
Examples	2	B-9972	Nak	11	2	M14A	MU5544	

MODE: Transmission mode, being a part of the header, has little relevance to decoding and can be ignored;

ARN (Address): Aircraft Registration Number, typically transmits the aircraft's tail number;

Tak: Technical Acknowledgement, has little relation to decoding and can be ignored;

Label: A tag that contains different types of message information. Refer to the ARINC 620 protocol for details on the specific types of messages. This is a crucial aspect to focus on during decoding;

DBI (Downlink Block Identifier): Identifies the block in the downlink, serving as a message identifier;

MSN: Sequence number of the message;

Flight ID: Flight number;

Text: Free text, varies based on different labels.

7. Output of ARINC 618 formatted messages

ATA131 can also output standard ARINC618 formatted ACARS message data.

8. Note

Note 1: If you encounter issues such as the network port unable to connect or a shortage of aircraft detected, consider trying a different power supply method. Sometimes, low-power devices like power banks or USB power from computers may result in insufficient power supply, leading to inadequate reception performance or even failure to connect. While this situation is uncommon, it can occur. Consider switching to a dedicated charger or sticking to the charger provided by us for power supply.

Note 2: To avoid damaging internal systems, please refrain from powering off or rebooting the device by directly disconnecting the power supply. Instead, use the shutdown or restart buttons on the control interface.