

Quark-elec QK-A032-AIS

QK-A032-AIS NMEA 2000/0183 Bi-Directional Gateway + USB + WiFi User Manual

Model: QK-A032-AIS

Brand: Quark-elec

1. INTRODUCTION

The Quark-elec QK-A032-AIS is a sophisticated bi-directional gateway designed to seamlessly integrate NMEA 2000 and NMEA 0183 marine data networks. This device facilitates the conversion of data between these two widely used protocols, enabling communication between a diverse range of marine electronic equipment. In addition to its primary conversion function, the A032-AIS offers versatile connectivity options including USB and WiFi, allowing users to access and manage their marine data on various platforms such as laptops, tablets, and smartphones running Android, iOS, Windows, or Linux operating systems.

Its robust design and comprehensive features make it an essential component for modern marine navigation and communication systems, providing flexibility and enhanced data accessibility.



Image 1.1: The QK-A032-AIS device, a bi-directional gateway for NMEA 2000 and NMEA 0183 data, featuring USB and WiFi connectivity.



Image 1.2: The QK-A032-AIS highlighting its key features: NMEA 2000, NMEA 0183, USB, WiFi, and AIS converting capabilities.

2. SETUP AND INSTALLATION

Proper installation of the QK-A032-AIS is crucial for optimal performance. Follow these steps to set up your device:

2.1 Physical Connections

- NMEA 2000 Connection:** Connect the NMEA 2000 cable from the A032-AIS to your existing NMEA 2000 backbone. Ensure a secure connection to allow for bi-directional data flow. The device draws power from the NMEA 2000 network.
- NMEA 0183 Connection:** Connect the NMEA 0183 input/output wires to your NMEA 0183 devices (e.g., GPS, depth sounder, AIS receiver). Pay attention to the correct wiring for data input and output.
- USB Connection:** For direct connection to a computer, plug the USB cable into the A032-AIS and your PC. Drivers may be required for certain operating systems (Windows, Linux).
- WiFi Antenna:** Screw the provided WiFi antenna onto the designated connector on the A032-AIS. Ensure it is finger-tight for reliable wireless communication.



Image 2.1: Basic connection diagram showing the QK-A032-AIS connected to NMEA 2000 devices, an NMEA 0183 device, a PC via USB, and wireless devices via WiFi.



Image 2.2: Advanced connection diagram illustrating the QK-A032-AIS integrated into a larger NMEA 2000 backbone and connected to an A033 NMEA 0183 multiplexer for multiple NMEA 0183 devices.

2.2 WiFi Configuration

The A032-AIS supports multiple WiFi modes for flexible data access:

- **Ad-hoc Mode (Default):** The A032-AIS creates its own WiFi network, allowing direct connection from your wireless devices (laptops, tablets, phones). This is ideal for direct peer-to-peer communication without an external router.
- **Station Mode:** The A032-AIS connects to an existing WiFi network (e.g., your boat's router). This allows multiple devices on that network to access the A032-AIS data. Configuration for Station Mode typically involves accessing the device's web interface via its default IP address in Ad-hoc mode first.
- **Standby Mode:** Disables the WiFi functionality.

Refer to the device's specific software utility or web interface for detailed instructions on switching between WiFi modes and configuring network settings.

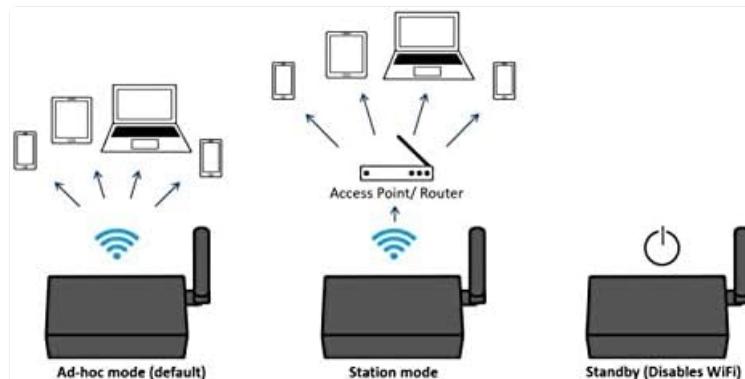


Image 2.3: Diagram illustrating the three WiFi operating modes: Ad-hoc (default), Station (connecting to a router), and Standby (WiFi disabled).

3. OPERATING INSTRUCTIONS

Once installed, the QK-A032-AIS operates by converting data between NMEA 2000 and NMEA 0183 protocols and making it available via USB and WiFi.

3.1 Data Conversion

The gateway automatically translates NMEA 2000 PGNs (Parameter Group Numbers) to NMEA 0183 sentences and vice versa. This allows older NMEA 0183 devices to receive data from a modern NMEA 2000 network, and NMEA 0183 data to be integrated into the NMEA 2000 backbone.

3.2 USB Data Access

When connected via USB, the A032-AIS appears as a virtual COM port on your computer. Marine navigation software

(e.g., OpenCPN, MaxSea) can then be configured to read data from this port. The device is compatible with Windows, Linux, and macOS (with appropriate drivers if needed).

3.3 WiFi Data Access

Data is streamed over WiFi using standard TCP/IP protocols. Most marine navigation apps on Android and iOS can connect to the A032-AIS's WiFi network (in Ad-hoc mode) or its IP address (in Station mode) to receive NMEA data. The default IP address and port can be found in the device's detailed manual or configuration utility.

4. MAINTENANCE

The QK-A032-AIS is designed for robust marine environments, but regular maintenance ensures longevity and reliable performance.

- **Cleaning:** Periodically wipe the device exterior with a soft, dry cloth. Avoid using harsh chemicals or abrasive materials.
- **Connections:** Ensure all cable connections (NMEA 2000, NMEA 0183, USB, WiFi antenna) remain secure and free from corrosion.
- **Firmware Updates:** Check the Quark-elec website periodically for firmware updates. Updating the firmware can provide new features, performance improvements, and bug fixes. Follow the manufacturer's instructions carefully when performing updates.
- **Environmental Protection:** While designed for marine use, protect the device from direct exposure to extreme temperatures, excessive moisture, and direct sunlight when possible.

5. TROUBLESHOOTING

If you encounter issues with your QK-A032-AIS, consider the following troubleshooting steps:

- **No Power/LED Off:**
 - Verify the NMEA 2000 backbone is powered and the A032-AIS is correctly connected. The device draws power from the NMEA 2000 network.
 - Check for any loose connections or damaged cables.
- **No Data Output (USB/WiFi):**
 - Ensure NMEA 0183 and NMEA 2000 devices are correctly connected and transmitting data.
 - For USB, confirm the correct virtual COM port is selected in your navigation software. Reinstall USB drivers if necessary.
 - For WiFi, ensure your device is connected to the A032-AIS's WiFi network (Ad-hoc mode) or that the A032-AIS is successfully connected to your router (Station mode). Check the IP address and port settings in your navigation app.
 - Verify the LED indicator on the A032-AIS is showing activity, indicating data processing.
- **WiFi Connection Issues:**
 - Ensure the WiFi antenna is securely attached.
 - If in Ad-hoc mode, check if the A032-AIS's network is visible in your device's WiFi settings.
 - If in Station mode, verify the A032-AIS is configured with the correct SSID and password for your router.
 - Try power cycling the A032-AIS.
- **Incorrect Data:**

- Confirm that the NMEA 0183 and NMEA 2000 devices are configured to output the expected data types (e.g., GPS, AIS, depth).
- Check for any configuration settings within the A032-AIS (via its utility software) that might filter or modify data.

6. SPECIFICATIONS

Detailed technical specifications for the QK-A032-AIS:

Feature	Detail
Brand	Quark-elec
Model	QK-A032-AIS
Manufacturer	Kuake-yun
Operating System Compatibility	Android, iOS, Linux, Windows
Hardware Interface	USB
Compatible Devices	Laptop, Desktop
Data Link Protocol	USB, NMEA 0183, NMEA 2000, WiFi (TCP/IP)
Parcel Dimensions	17.4 x 10.7 x 4.5 cm
Item Weight	317 g
ASIN	B08HM4W1P9
Date First Available	Sept. 11 2020



Image 6.1: The QK-A032-AIS device shown with its NMEA 2000 cable and WiFi antenna.



Image 6.2: Bottom view of the QK-A032-AIS, displaying regulatory markings and serial number information.

7. WARRANTY AND SUPPORT

For detailed warranty information regarding your QK-A032-AIS, please refer to the official Quark-elec website or the

documentation included with your purchase. Warranty terms typically cover manufacturing defects for a specified period from the date of purchase.

For technical support, product inquiries, or to download the latest drivers and firmware, please visit the official Quark-elec support page. Providing your product model (QK-A032-AIS) and serial number (found on the device, see Image 6.2) will assist in faster resolution of your queries.

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This manual is for informational purposes only. Specifications are subject to change without notice.