# QK-AT011 AIS Transmit Simulation Terminal

# Manual

Designed in UK

# Features

- USB 2.0 powered (5.0V)
- Working on two AIS frequencies (161.975MHz &162.025MHz)
- BNC output
- Configurable location information
- Configurable transmit message amount and period.
- Windows 10 Configuration application

# 1. Contents

## 2. Introduction

The AT011 is designed to test the Quark-elec AIS receiver and other AIS products.   It will send out a theoretical vessels position together with other AIS related information using an AIS transmission simulator. The unit needs a 5V power supply and can be controlled using a PC USB interface. Once the unit has been programmed it can be disconnected from the PC to be used in situ.

**The AT011 must not be used at Sea. This terminal is for testing purposes only.**

## 3. Connecting

The AT011 has two connections:

**USB:** 5.0 volt USB cable for powering and configuring AT011

**AIS output:** BNC connector for the output of the AIS in NMEA 0183 format.

# 4. Connecting via USB port

AT011 is supplied with a USB connector. This connector provides power supply and data input for configuration. This USB connector can be linked directly to a USB port on the PC.

**Windows:** To enable the USB data connection of AT011 to other devices, related hardware drivers may be needed dependent on your system requirements.

**Windows 7,8,10** the driver can be found on the CD in the packing box or be downloaded from https://www.quark-elec.com

The AT011 registers itself to the computer as a virtual serial com port.

The drivers usually install automatically to your device if it is running an original Windows 10 version. A new COM port will automatically show up in the device manager after plug in.

**Mac:** For Mac OS X, the AT011 will be recognized and shown as a USB modem. The ID can be checked with the following steps:

1. Plug the AT011 into a USB port and launch Terminal.app.
2. Type: less /dev/*sub*
3. The Mac system will return a list of USB devices. AT011 will display as - "/dev/tty.usbmodemXYZ" where XYZ is a number. Nothing further needs to be done if it is listed.

**Linux:** No driver is required for Linux. When plugged into the computer, AT011 will show up as a USB CDC device on /dev/ttyACM0.

## 4.1.    Checking the USB connection (Windows)

After the driver is installed, run the Device Manager and check the **COM number** (this is the number associated with the USB port you are using. The port number is the number that Windows assigns as an input device. These can be generated randomly by your computer). Your chart software may require your COM number in order to access the data.

The port number for the AT011 can be found in Windows 'Control Panel->System->Device Manager' under 'Ports (COM & LPT)'. Find the AT011 in the list for the USB variant. To change this number, double click the AT011 and select the 'Port Settings' tab. Click the 'Advanced' button and change the port number to the one required.
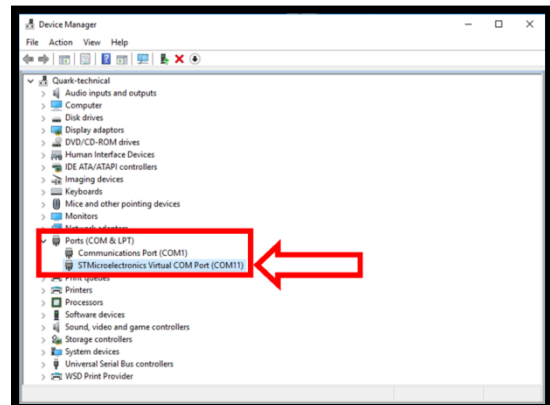


**Checking the USB data flow:** If desired, the USB data can always be checked with a terminal monitor application, like Putty or HyperTerminal. To do this, enter the following into the COM port settings: **Bits per second: 38400bps**, **Data bits: 8**, **Parity: None**, and **Stop bits: 1** as shown below using HyperTerminal on Windows as an example

# 5. Configuration

Operator can configure the position information (Latitude, and longitude), and the repeat message times through the application.

A proper driver is needed before the configuration, for Windows 7, 8, Vista system, the driver is needed and can be downloaded from the Quark-elec website at (same as A021/023):
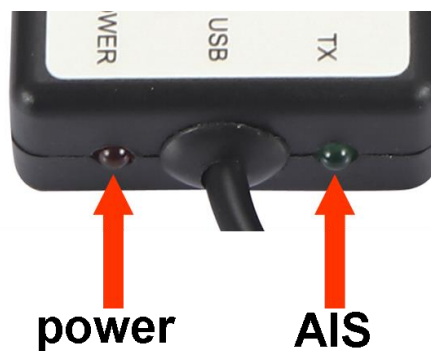
https://www.quark-elec.com/product/a023-ais-wireless-receiver/

For Windows 10, the system will recognize and install the driver automatically after AT011 connected with the computer.
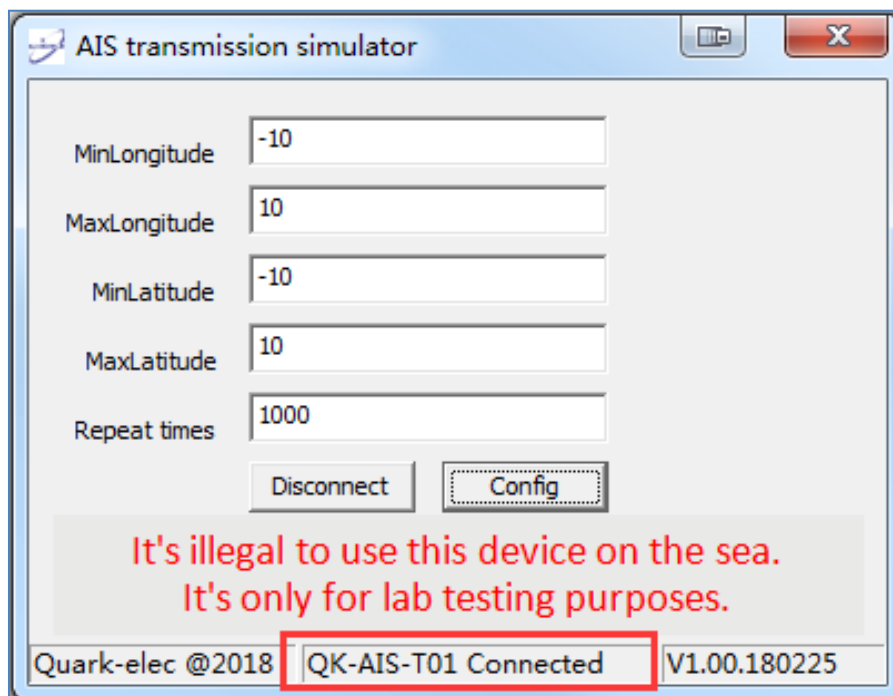


# 6. Status LED'S

The AT011 simulation terminal has two LED's. One for power and one to show AIS signals being emitted from the terminal.



- **Power:** solid red to indicate the correct power levels

- **AIS:** flash green for every valid signal sent from terminal

# 7. Operating

Once AT011 has been configured, it can be used without computer, but 5V power should be supplied through USB port. It will stop transmit once the amount of the repeat message has been send out. By un-plugging from the USB and plugging it back in again. The terminal will reset and continue the repeat message again.

The red LED will turn on after power up. The green LED will flash if there is AIS send out.
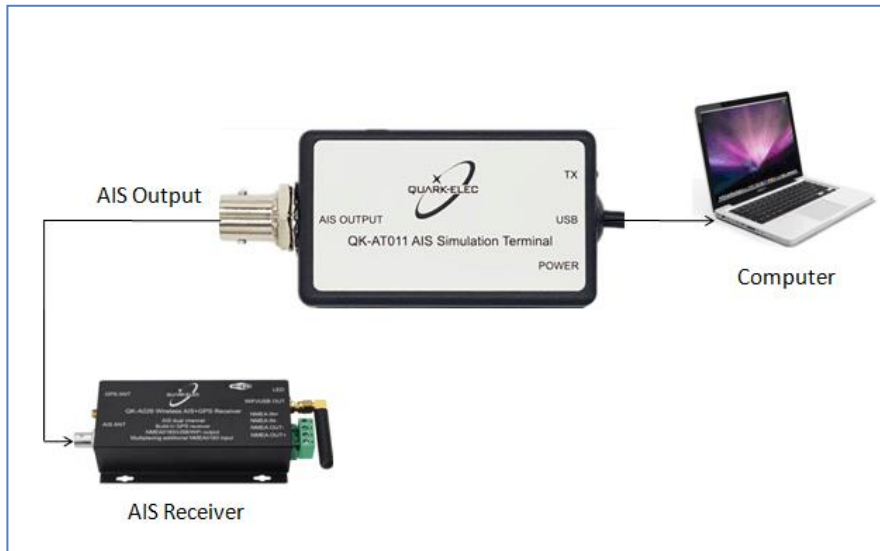


**Figure 1: AT011 Connection Diagram**

Ten random named vessels will be moving with random speed within the setting area until lthe repeat times reached. .
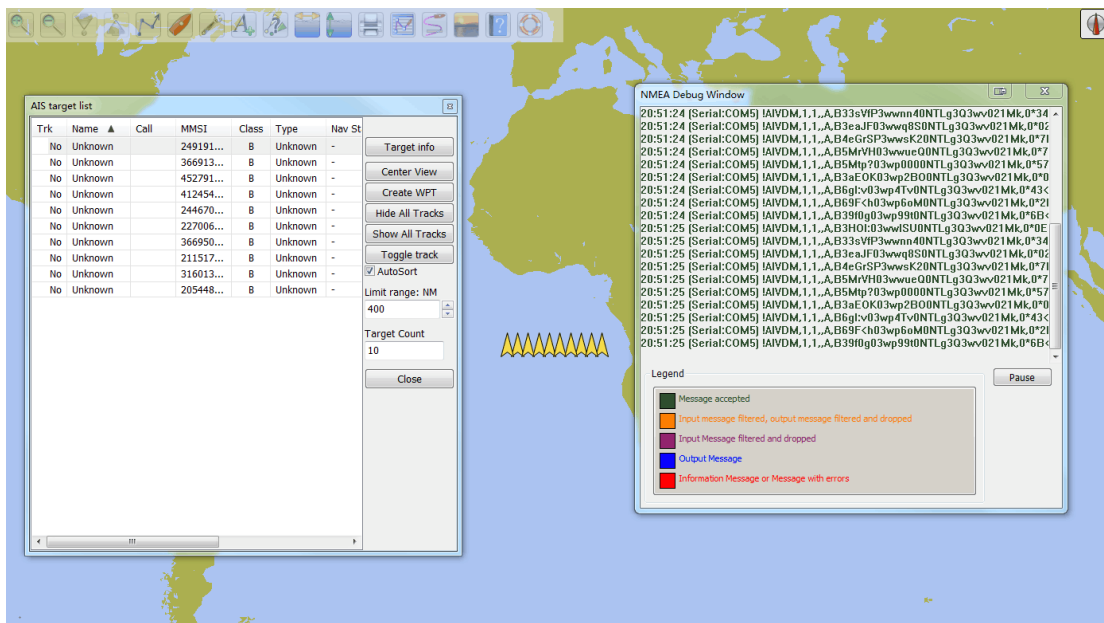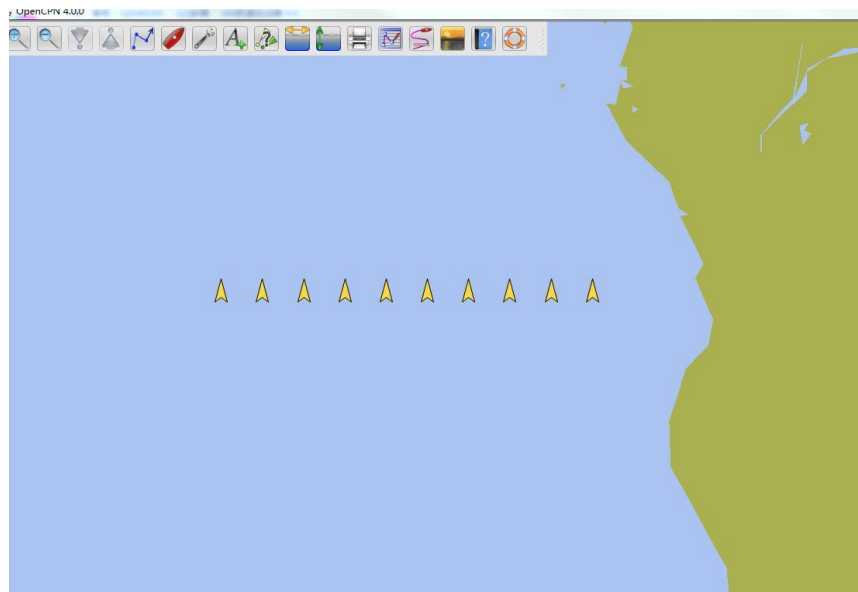


**Figure 2: Messages shown on OpenCPN**

**Figure 3: An example on OpenCPN**

For more technical information and other enquiries, please go to the Quark-elec forum at:

https://quark-elec.com/forum/

For sales and purchasing information, please email us:info@quark-elec.com

# 8. Limited Warranty and Notices

Quark-elec warrants this product to be free from defects in materials and manufacture for one year from the date of purchase. Quark-elec will, at its sole option, repair or replace any components that fail in normal use. Such repairs or replacement will be made at no charge to the customer for parts and labour. The customer is, however, responsible for any transportation costs incurred in returning the unit to Quark-Elec. This warranty does not cover failures due to abuse, misuse, accident or unauthorized alteration or repairs. A returns number must be given before any unit is sent back for repair.

The above does not affect the statutory rights of the consumer.

## Disclaimer

This product is designed to aid navigation and should be used to augment normal navigational procedures and practices. It is the user's responsibility to use this product prudently. Neither Quark-, nor their distributors or dealers accept responsibility or liability either to the products user or their estate for any accident, loss, injury or damage whatsoever arising out of the use or of liability to use this product.

Quark- products may be upgraded from time to time and future versions may therefore not correspond exactly with this manual. The manufacturer of this product disclaims any liability for consequences arising from omissions or inaccuracies in this manual and any other documentation provided with this product.

## Document history

| Issue | Date | Changes / Comments |
|-------|------|--------------------|
| 1.0 | 10-07-2018 | Initial release |
| 2.0 | 24-10-2018 | New 2018 format |

# 9. Glossary

- **Ad-hoc WiFi:** devices communicate directly with each other without a router.
- **Station mode WiFi:** devices communicate by going through an Access Point (AP) or router.
- **IP:** internet protocol (ipv4, ipv6)
- **IP Address:** is a numerical label assigned to each device connected to a computer network.
- **Router:** A router is a networking device that forwards data packets between computer networks. Routers perform the traffic directing functions on the Internet.
- **USB:** cable for communication and power supply between devices.
- **NMEA 0183:** is a combined electrical and data specification for communication between marine electronics

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