QK-A021 AIS Receiver Dongle (Auto-hopping V1.0)

Features

- Receiving on dual channels (161.975 MHz and 162.025 MHz) alternately
- Auto-hop channel algorithm improves 4% of captured message rate
- Sensitivity down to -106 dBm@30% PER
- Up to 45 nautical miles receiving range
- USB 2.0 powered (<26mA@5.0V)
- 38400 bps baud serial over USB
- Message output in industry NMEA-0183 format
- Supports interworking with NMEA-0183 GPS receiver
- SMA connector for 50 Ohm VHF antenna
- SMA to BNC coaxial adaptor included
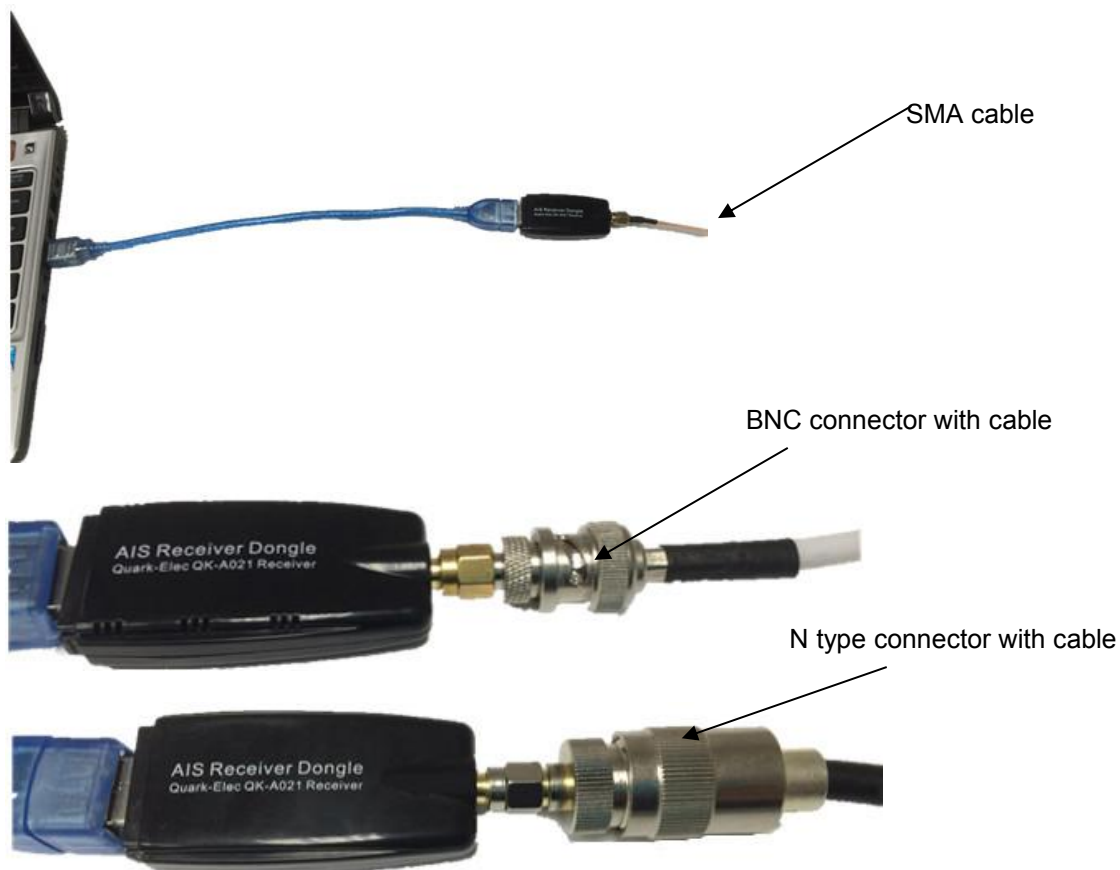- Compatible with Windows XP,7,8,10,Mac OS X, Linux systems

1   QUICK START

1.1. To start setting up QK-A021, please ensure there are valid AIS signals present. Without receiving valid AIS signals, the USB connector will not output any messages. The AIS system works on the marine VHF band, which is considered to be 'line of sight' radio. What this means is that if the QK-A021 antenna cannot see the antenna of the vessels, the AIS signals from vessels will not reach the QK-A021. Practically, this is not strictly a requirement, few buildings and trees between them will still be fine. Larger obstacles such as hills and mountains, on the other hand, will significantly degrade the AIS signals.

   NB: The yellow LED on QK-A021 will flash if a valid AIS package received. In another words, don't expect QK-A021 to have any AIS messages coming out if the yellow LED light is not flashing.

1.2. Connect the module to a suitable VHF antenna. BNC or N type adaptors can be used to connect QK-A021 with different types of external VHF antennae:

SMA cable

BNC connector with cable

N type connector with cable

1.3. To enable the USB data connection of QK-A021 to other devices, related hardware drivers may be needed dependent on system requirements.

   For Windows 8, 7, Vista and XP, the driver can be found on the CD in the packing box or can be downloaded from the Quark-elec website at:
   http://www.quark-elec.com/drivers

No drivers are required on Windows 10, QK-A021 registers itself to the computer as a virtual serial port on Windows. A new COM port will automatically show up in the device manager after plug in.

For Mac OS X, QK-A021 will be recognized and shown as a USB modem. The ID can be checked with the following steps:
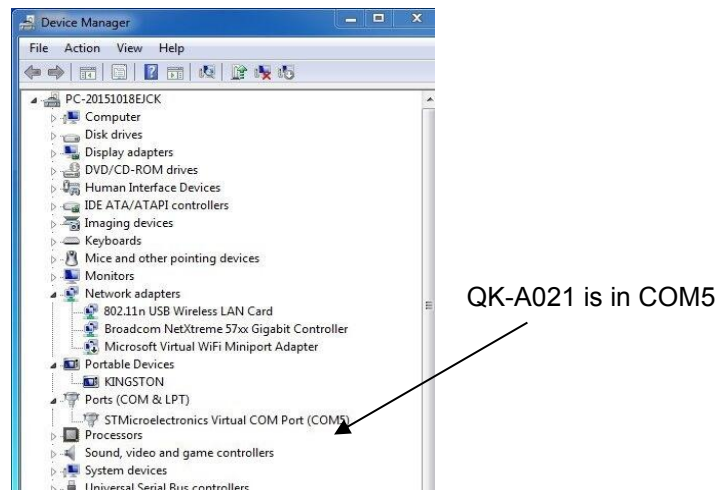
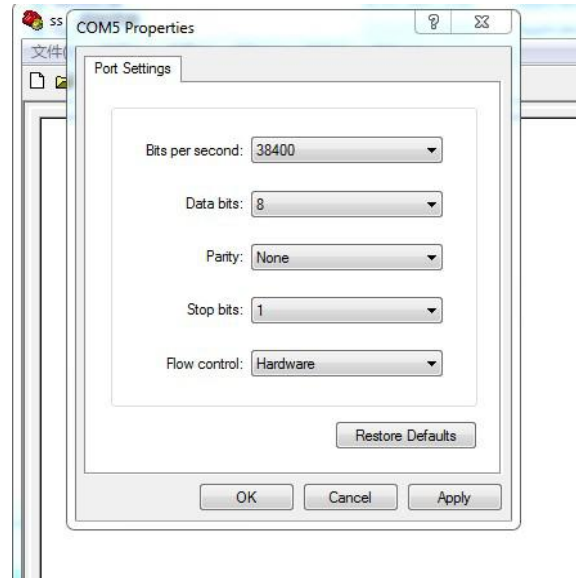--- After plugging QK-A021 into a USB port, launch Terminal.app.

--- Type ls /dev/*usb*

--- Mac systems will return a list of USB devices.QK-A021 will display as - "/dev/tty.usbmodemXYZ" where XYZis a number. Nothing further needs to be done if it is listed.

No driver is required for Linux. When plugged into the computer, QK-A021 will show up as a USB CDCdevice on /dev/ttyACM0.
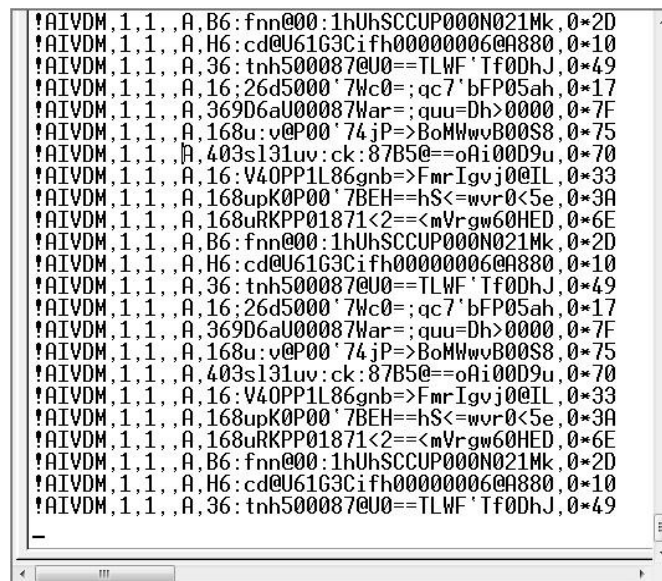
1.4. The USB connection status can always be checked after the driver been successfully installed. Take Windows system as an example, the COM interface number and status can be checked on Device Manager.

QK-A021 is in COM5

1.5. Run a terminal monitor application like Putty, HyperTerminal or any other similar tool to check the connection status. Ensure that the COM port is set at 38400bps, 8, N and 1).

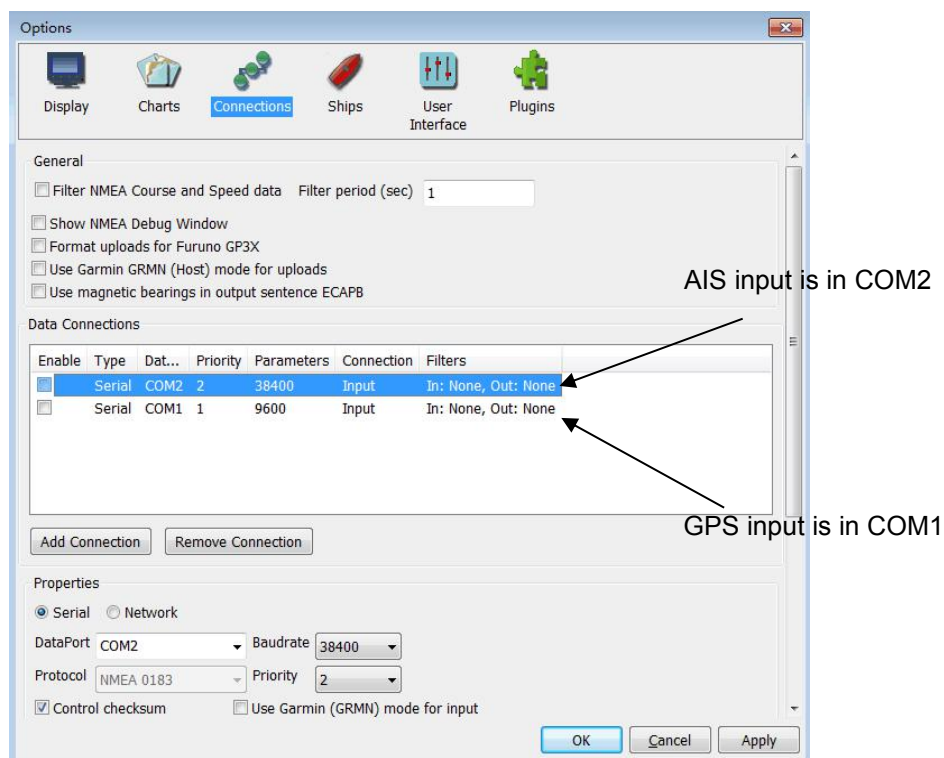If all the above is set up correctly, users will see the following information:

The red LED light turns on once QK-A021 powered up, and the yellow/green LED flashes to indicate valid AIS messages received.

1.6. Run any AIS NMEA-183 compatible chart software (such as OpenCPN or SeaClear) and then start to view the displayed AIS information.

2   USING QK-A021 WITH OPENCPN

OpenCPN is free software that can be used to view concise chart plotter and navigation information. It is available for use on both PCs and the MAC OSX system. The following is a sample setting for the OpenCPN plotter. COM2 was set as the QK-A021 input and COM1 is used for a standard serial port GPS input.

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

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

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

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