NATIONAL CONTROL DEVICES

802.15.4 Wireless Communications Module Quick Start Guide

Wireless Communications Module

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⚠️ *NOTICE*:

All customers are STRONGLY ADVISED to purchase at least ONE USB Communication Module. This communication module may be used to recover a controller or to reconfigure a controller should there be an accidental loss of communications. NCD Tech support may be unable to assist customers who do not have a USB Communications Module available for troubleshooting purposes.

Purchase USB Communications Module from our website at this link:

http://www.controlanything.com/Relay/Device/ZUSB

Technical Support Limitations:

National Control Devices is unable to provide complete technical support for this device. This device incorporates substantial technology and firmware manufactured by a 3rd party company, and has been tested for compatibility with the NCD product line. NCD Technical Support will share any knowledge we have obtained with regard to the integration of this 3rd party technology into our product line in an effort to assist customers whenever possible. However, advanced communication problems may require customers to directly contact the technical support department of the 3rd party company. NCD Technical Support will not contact the 3rd party company on behalf of our customers unless NCD Technical Support is able to recreate the problem experienced by our customers.

National Control Devices has integrated the following 3rd party technologies into our product line:

WiFi Communications	Roving Networks	http://www.rovingnetworks.com/
Bluetooth Communications	SENA	http://www.sena.com/
802.15.4 Wireless Communications	DIGI	http://www.digi.com/
ZigBee Wireless Communications	DIGI	http://www.digi.com/
XSC Wireless Communications	DIGI	http://www.digi.com/
Ethernet Connect ME	DIGI	http://www.digi.com/
USB Virtual COM Port	FTDI	http://www.ftdichip.com/

All other communication technologies are manufactured by National Control Devices and are fully supported by NCD Technical Support staff. Please contact NCD Technical Support Staff and review our forum posts at NCD Support (http://forum.controlanything.com).

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Getting Started

Things you will need:

➢ Zigmo Modem with 802.15.4 module installed

➢ A device with a 802.15.4 module installed

➢ Power Supply (Computer Grade 12v DC Regulated Power Supply is strongly recommended

➢ USB Cable

802.15.4 Setup

1) Connect power supply to your device with a ZigBee module installed. Connect USB cable to the 802.15.4 modem and to your computer.

   ➢ Make sure the jumper is in run mode. If you have an external antennae, allow some distance between the 802.15.4 enabled device and the modem. If they are too close, the signal can be too strong causing communication issues.

2) Virtual COM Port drivers are required before the 802.15.4 module can be used. Windows 7 typically recognizes the device without drivers; however, the latest drivers may be downloaded and installed from the following location for all operating systems: http://www.ftdichip.com/Drivers/VCP.htm. The link also contains installation instructions appropriate to your operating system.

3) You will need to discover the COM port your computer has assigned to your 802.15.4 module. Navigate to your "Device Manager".

   ➢ You will see "USB Serial Port" listed under "Other Devices", right click "USB Serial Port"

   ➢ Select "Properties"

   ➢ Select "Reinstall Driver"

   ➢ Select "Browse My Computer for Driver Software"

   ➢ Select "Browse" and choose the files that you extracted earlier

   ➢ Close windows when installation is complete

4) Find the COM port for your 802.15.4 module by opening your "Device Manager" again.

   ➢ Under "Ports (COM & LPT)" you will see "USB Serial Port" has been assigned a COM port. The screen shot shows the device listed as COM 13.

   ➢ Your computer will likely have a different COM port shown. Take note of the COM port because it will be used to access the device using our software.
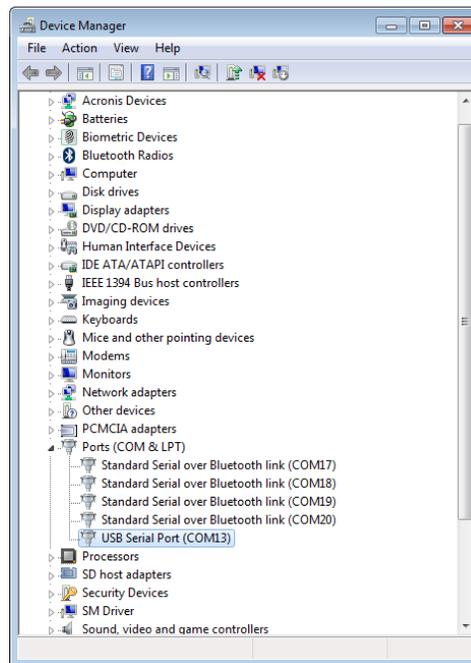
5) You will now need to download and install the [NCD Base Station software](#) you will use to communicate with your device. Open and run Base Station application. A window will open labeled "Select Connection". Expand window by clicking "MORE" option in the top right corner. Select "Zigbee Setup". Another window will open labeled ""Select Zigbee". Click "Refresh" button. When fished refreshing, your device should be listed. Click on your device and click "Select Device" button. The window will close bringing you back to the "Select Connection" window. Choose your COM Port and select baud rate. Click "OK".

Base Station

When Base Station Software runs on your Windows computer, the software will identify the type of controller and will build a list of command sets that are compatible with your controller. These are the basic parts to the main Base software application:

Device Identification and Documentation:

This button displays Read-Only information stored in the controller. It can help you identify the type of device that is connected and what its capabilities are. This portion of the software also builds a library of documents that will be helpful in using the controller it has identified. This library of documents will change depending on the type of device which has been identified.

Comm Operator:

Comm Operator is a tool for testing and learning how to communicate with all Network and COM based devices. This manual may include command codes you can send to the device using Comm Operator. Comm Operator should be thought of as a terminal to send and receive bytes of data. Comm Operator was used extensively in the development of this device and should be referenced throughout the learning process. Comm Operator is a commercial product and is NOT Free. The 30-Day Evaluation version is provided and users may purchase a license for this software if they would like to continue use beyond 30 days.

Command Sets:

Each Device contains a set of commands that are identified by the Base Station software. Choose the command set you would like to explore in this box. Click one time on the command set you would like to explore.

Note: There may be more features depending on your device. Other features you may notice.

➢ **Device Configuration**: This button allows you to modify important device settings to help improve communication speed, functionality, and timing parameters of the device. Device Configuration is rarely used by the user

➢ **Display Command Set**: When working with Base software, many windows will display the actual command codes used to trigger a particular function. This option allows you to choose Decimal and Hex formats. This manual is shown in both Hex and Decimal format. Decimal is typically used in COMM Operator and is our preferred format, but Hex works great too.

➢ **Run Mode:** Run mode is used for daily operations and is the default mode of operation. To prevent accidental writes to non-volatile memory, the device must be placed in Configuration Mode to change EEPROM memory. Click this button anytime you need to change modes. Note that a jumper on the controller will force this device into Configuration mode. If a device is powered up in Configuration Mode and you are using a Web-i interface, the
Web-i will boot in DHCP mode as a safeguard in case the device becomes inaccessible with a static IP address.
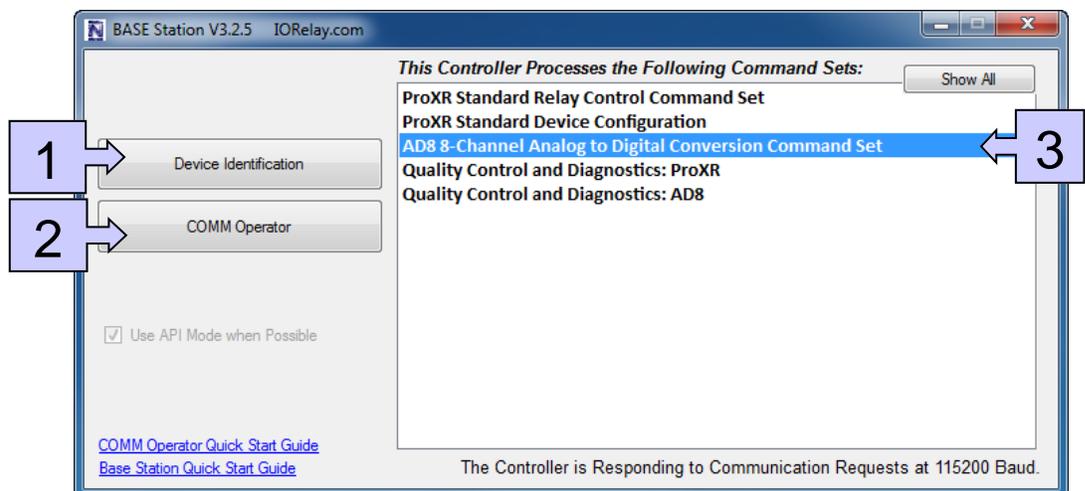
804.15.4 Troubleshooting

If you lose communication with your device follow these steps:

1) If you lose communication with your device follow these steps:

2) Download and install the X-CTU software here: http://ftp1.digi.com/support/utilities/40003002_B.exe

3) Launch the X-CTU software.

4) On the opening window select the com port for the Zigmo and module and select 115200 for the baud rate.

5) Click the Test/Query button, this should pop up a window saying it is able to communicate with the module.

6) Click the Module Configuration Tab above to open that window.

7) Now click the read button. This will load settings out of the module.

8) Now I recommend pressing the button that says show factory default settings.

9) Now scroll down to the UART Baud rate and change it to 115200.

10) Click the write button.

11) Once the write has completed keep the window open just as it is.

12) Now unplug the module from the modem board and plug the module from your relay into the modem.

13) Click the write button again to program the same settings into this module.

14) Replace the module into your relay board and the other module back into the modem.

15) Try testing the controller as you did before by running the ZigBee setup button, click the select device button, close that window, select the com port and baud rate on the main window and click ok.

Technical Support

Technical support is available through our website, <u>controlanything.com</u>. **Support** is the way we connect NCD engineers to our customers.
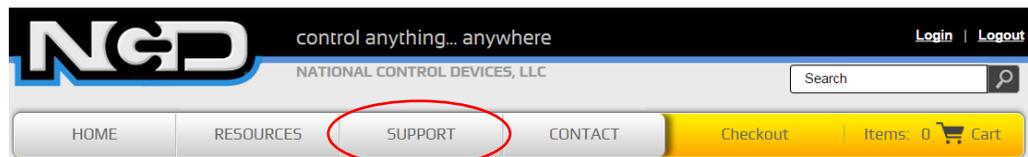
*Click on the **Support** tab at the top of any page on our website to be taken to the **Forum** page. Here you can publicly post or review problems that customers have had, and learn about our recommended solutions.*

Our engineers monitor questions and respond continually throughout the day. Before requesting telephone technical support, we ask that customers please try to resolve their problems through **Support** first. However, for persistent problems, NCD technical support engineers will schedule a phone consultation.

Contact Information

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417-646-5644 phone
866-562-0406 fax
Open 9 a.m. - 4 p.m. CST

Like "National Control Devices" on Facebook, and follow us on Twitter @ControlAnything.

All orders *must* be placed online at our website, www.controlanything.com

Notice:

The only authorized resellers of NCD products are

- www.controlanything.com
- www.relaycontrollers.com
- www.relaypros.com

All other websites are not authorized dealers; we have noticed some retailers offering our products fraudulently.