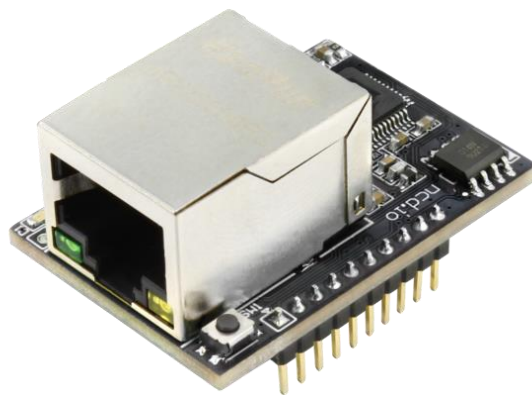


GEN3 ETHERNET W/N-BUTTON

Push Notification Quick Start Guide



National Control Devices

Introduction

Real-Time Status Control

Ethernet Push Notification Board that allows you to connect a dry contact (no voltage) to the board and send an email or text message when the circuit is closed. The board will communicate the contact closure information to your computer through a Ethernet connection. N-Button Software will then send a text or email from the computer to your selected recipients.

All the Features You Need...

- Send SMS or Email Message
- Compatible with ANY Contact Closure Sensor
 - Dry Contact (no voltage) input
- Onboard Ethernet Interface Module
 - Communicate over your network
- N-Button Software
 - Point & Click Interface
 - Use to Configure Messages

Step-By-Step Instructions

This Manual will give you step-by-step instructions for connecting your Ethernet Push Notification Board and setting up N-Button Software to send text and/or emails.

Important Details

DHCP

By default, NCD Gen 3 modules ship in DHCP mode so it is expected that they be connected to a DHCP enabled networks. Most routers support DHCP, however if your network does not support DHCP then you will want to store a static IP address into the controller.

Force Static IP for Configuration

If your network does not support DHCP then power down the main control board. Install a jumper on the two pins directly to the left of the Ethernet Jack then power the board up again. Installing a jumper on these two pins will force the module to use a Static IP address of 192.168.1.88. This will allow you to connect to the Gen 3 Module for configuration on a Non DHCP enabled network or by connecting the Ethernet module directly to the Ethernet port of your PC. When configuring settings in this way you will need to leave the static IP address jumper in place, alter the settings, select “Apply Settings”, power down the control board, wait 2 seconds, remove the static IP jumper, and power the board back up for the settings to be stored in the module.

Factory Reset

There is a hardware method of restoring the Gen 3 module to factory default settings. To do this press and hold the button to the right of the Ethernet Jack for 5 seconds, then release the button. This will factory reset all setting inside the Gen 3 module.

Note

Always connect the Ethernet cable to the Gen 3 module and the network prior to powering the board up.

Applying Settings

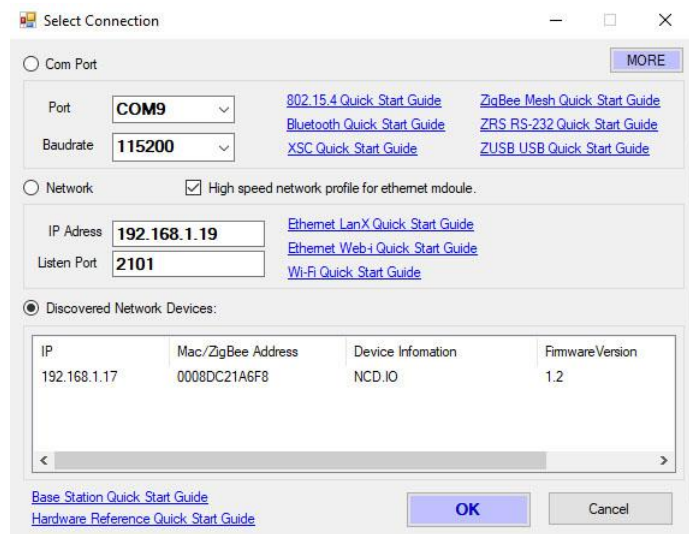
Any time settings are altered on the Gen 3 module it is necessary to power cycle the module. This can be done by manually removing power from the host board or by clicking the Reset button in the software/web interface.

Base Station Software

Base Station Software is our reference tool for designing and testing all currently manufactured NCD Devices. Base Station will assist you in learning how any NCD device functions and will provide valuable diagnostic tools to help determine if your controller is functioning as designed. Base Station software exercises every supported feature of every supported device. It is the ultimate reference tool for learning, diagnosing, and testing NCD devices.

Discovered Network Devices

Base Station will discover the Ethernet board on the network and show you the IP address assigned to the board. Select Discovered Network Devices button then click on the IP Address, this will open your browser and show you the Web Interface Connection and all its features. By selecting the Discovered



Network Devices button then clicking OK, Base Station Software will open showing you the command sets that are available for your board.

Device Command Sets

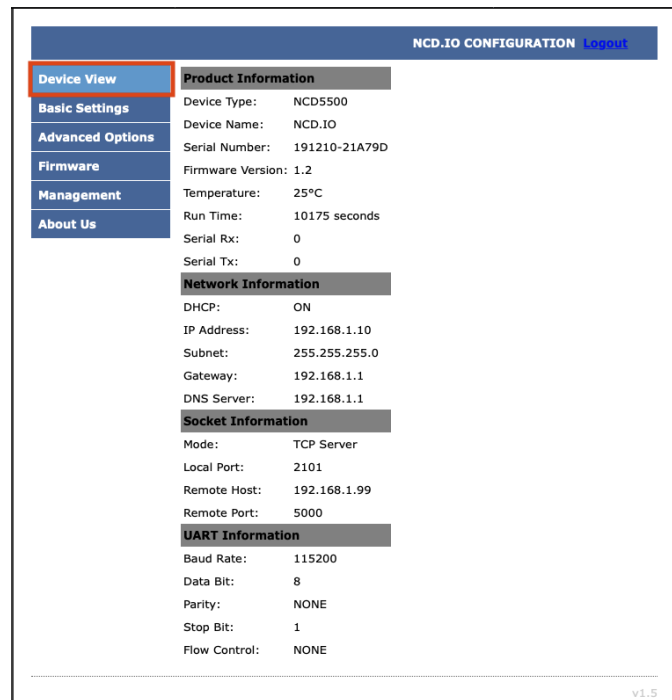
Base Station software asks the controller which command sets are supported. The supported command sets are listed when you run the Base Station software application. Some controllers may show more command sets while other controllers may show fewer command sets. The Base Station program will decide which command sets apply to your board.

Make sure you shut down Base Station before running N-Button Software. N-Button may not connect to the board if Base Station is already connected.

Web Interface Connection

Gen 3 modules have a built-in web interface which may be utilized to configure settings in the module

To access the web interface simply open your web browser and enter the IP address of the Gen 3 module. If you do not know the module's IP address you may be able to discover it by opening the Base Station or Alpha Station software. It is also possible to obtain the module's IP address by checking the DHCP Table of your Router. If your router does not support DHCP simply power the board down and install a jumper on the pins directly to the left of the Ethernet Jack, then power the board back up. This will force the module to use a static IP address of 192.168.1.88. Note however that the module will not utilize user configured settings while this jumper is installed so be sure to power down the board and then remove the jumper once settings are entered as desired.



Default Password

The Web interface is password protected. The default password for the web interface is **admin**.

Device View

The Device View page displays current information about the Gen 3 Module such as its network connection information, its socket mode information, UART Settings, etc.

Basic Settings

Most settings you will be interested in configuring can be found under Basic Settings. Here you can configure A static IP address and the type of socket connection the module should utilize. Here we will review each of these settings.

Use DHCP

If this box is checked the module will obtain an IP Address from your DHCP server on the network router. If this box is checked the IP Address, Subnet Mask, Gateway, and DNS Server fields will be ignored. If you intend to enter Static IP address settings make sure this box is NOT checked.

IP Address

This setting is only applicable if Use DHCP is unchecked. This field configures the Static IP address the module should utilize on the network.

Subnet Mask

This setting is only applicable if Use DHCP is unchecked. This field configures the Subnet Mask the module should use on the Network it is connected to.

Gateway

This setting is only applicable if Use DHCP is unchecked. This field should match the IP address of your network router.

DNS Server

This setting is only applicable if Use DHCP is unchecked. This field will configure the DNS Server the Module uses for DNS requests.

The screenshot shows the 'NCD.IO CONFIGURATION' web interface. On the left, a navigation menu includes 'Device View', 'Basic Settings' (highlighted with a red box), 'Advanced Options', 'Firmware', 'Management', and 'About Us'. The main content area is titled 'Network Setting' and contains several sections:

- MAC Address:** 00:08:DC:21:A7:9D
- Use DHCP:**
- IP Address:** 192.168.1.10
- Subnet Mask:** 255.255.255.0
- Gateway:** 192.168.1.1
- DNS Server:** 192.168.1.1
- Socket Setting:**
 - Start Mode: Data Mode
 - Socket Type: TCP Server
 - Remote Host: 192.168.1.99
 - Remote Port: 5000
 - Local Port: 2101
 - Bind Local Port:
- Modbus option:**
 - Enable Modbus Mode:
 - Select Modbus Mode: Modbus RTU
- UART Setting:**
 - Baud Rate: 115200
 - Data Bit: 8
 - Parity: NONE
 - Stop Bit: 1
 - Flow Control: NONE

At the bottom right, there are 'Save Settings' and 'Reset' buttons, and a version number 'v1.5'.

Start Mode

This field configures the mode the module should utilize on boot. For NCD Devices only Data Mode is recommended.

Socket Type

TCP Server MUST BE SELECTED.

If you change this setting from UDP or TCP Client setting, power cycle the board before trying to connect to N-Button Software. This field configures how the module handle's socket connections. The options are TCP Server, TCP Client, or UDP. In TCP Server mode the module will boot up and begin listening for socket connections from software applications

Remote Host

This field is only applicable when Socket Type is set to TCP Client or UDP. This field configures the IP address the module should attempt to establish a connection to on start up.

Remote Port

This field is only applicable when Socket Type is set to TCP Client or UDP. This field configures the Port the module should attempt to establish a connection to on start up.

Local Port

This field is only applicable when Socket Type is set to TCP Server. This field configures the Port the module will accept TCP client connections on.

UART Setting

These fields configure how the module handles serial communication with the main control board it is plugged into. NCD Staff test and configure every module prior to shipment so all of these settings should be correct when you receive your product. If any changes are made to these settings it will be necessary to make configuration settings to the main host control board the module is installed in as well.

Save Settings/Reset

Once settings are entered and configured as desired click the Save Settings Button. This will store settings into the Gen 3 module, however these new settings will not be utilized until the next power up of the module so if you would like to implement the new settings now click the Reset button after clicking the Save Settings Button.

Advanced Options

When setting up the push notification board there isn't any settings in the Advanced Tab that need to be changed. For an overview on the Advanced Options tab, download the full Gen3 Ethernet Quick Start Guide at: relaypros.com/start.htm.

Management

Password Setting

The Web interface is password protected. The default password for the web interface is **admin**. If desired, you may change this password using the Password Setting Fields. After the new password is set it will take effect after the next power cycle.

Factory Default

It is possible reset the Gen 3 module to factory default settings by pressing this Default Button

Reset Device

It is possible to power cycle the Gen 3 Module by pressing this Reset Button.

Logout

This button will log the user out of the web interface. Keep in mind password changes will not take effect until a power cycle to the module.



v1.5

N-Button Communication and Scan Channel Setup

N-Button

Communicating to the Board

Download and install the version of N-Button Pro or N-Button Lite that you purchased with the board.

Open N-Button Then Click Device Manager -> You must add the board to the device list. You will use this device for each input on the board.

Device Setting
✕

Name:

Manufacturer:

NCD Device Setting

Device Type:

Serial Port/USB

Port Name:

Baud Rate:

Stop Bits:

Timeout: ms

Network

IP Address:

TCP Port:

Mac Address:

UDP Port:

Wi-Fi

TCP Connection

IP	Mac Address	Device Information	FirmwareVers
192.168.1.28	0008DC222BE7	NCD.IO	2.1

ZigBee Address: 0013A200- Modem:

E3C E3C Number: Modem:

Comment

Name -> You can assign a name to the board. This will be important if you have more than one board on the network.

Manufacturer -> National Control Devices

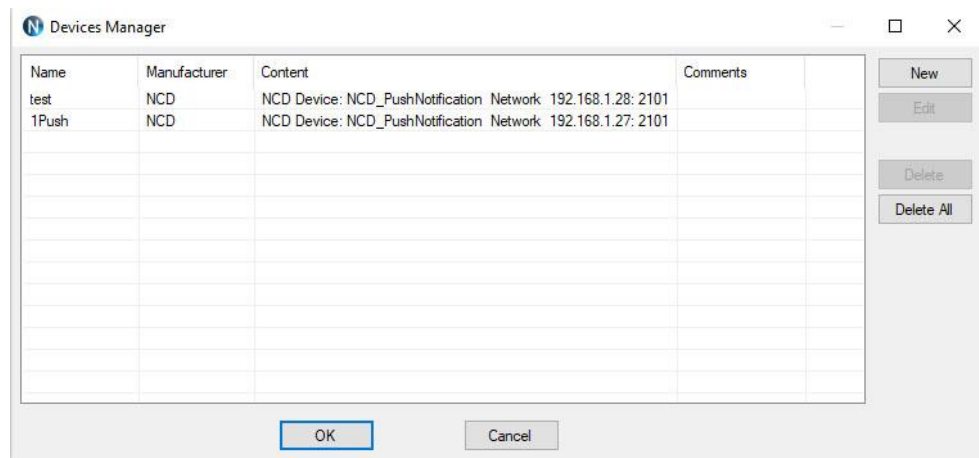
Board Type -> Push Notification

IP Address/Mac Address -> The device should be listed in the Discovered Devices area. Once it is, double click the IP Address and the IP Address, and Mac Address will populate the Network area above.

TCP/UDP Port -> Keep default setting for TCP Port (2101) and UDP Port (3333).

TCP Connection -> Check the TCP Connection check box.

Click OK to save the device -> The device will now be in the device manager. Double clicking this device in Device Manager will allow you to edit and make changes to the device. The screen shot below has two devices installed, you can have more than one device on the network with N-Button.



Scan Channel Setup

Scan Channel is what will read the input of the board and determine if the dry contact circuit is open or closed. You will create a scan channel widget for each input on the board.

1. Click the Scan Channel Button to open Properties.
 - Name** -> Create a name
 - Device** -> The one you created
 - Bank ID**, -> It will be 1
 - Channel ID** -> The input you are reading with this widget
 - Style** -> Select a style from the drop-down menu
 - Size** -> Select a size for your desktop widget
 - Click OK** -> To save the Scan Channel

You will now see the Scan Channel widget you created out on your desktop in **Red**. Look on your desktop, usually on the upper left-hand corner for the new widget!

Scan Channel is Gray

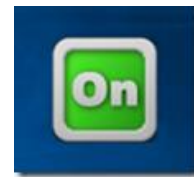
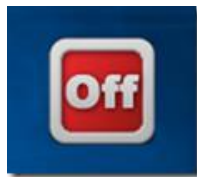
If the Scan Channel is not red there is a setup issue, most likely with the Ethernet module setup. If the Scan Channel is gray, it's not communicating with the board, and you will need to check your settings in the Module Setup at the beginning of this manual. Check the Socket Type is set to TCP Server.

Scan Channel Is Green

The scan channel that displays in the N-Button Manager is always green. Look for the widget you just created out on your desktop, usually on the upper left-hand corner for the new widget!

Scan Channel Is Red

If the Scan Channel is red it is communicating to the board, and you can test the inputs. The inputs will make the widget change from red to green when the dry contact circuit is closed.



Using a dry contact (no voltage) input close the contacts of the input you have set, you will see the Scan Channel widget on your desktop turn to Green. Release the closure, the widget turns to red again.

The Ethernet push notification board is now working with N-Button software. The widget you created is now showing the status of the input. You can setup as many scan channels as you have inputs on the board you purchased. Each one will have its own notification.

Text/Email Setup

N-Button Manager

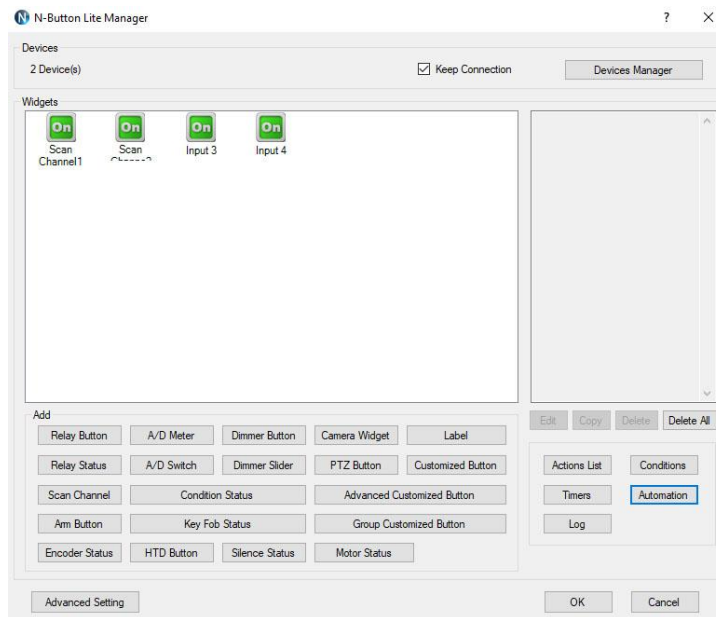
Setting up Your First Text/Email

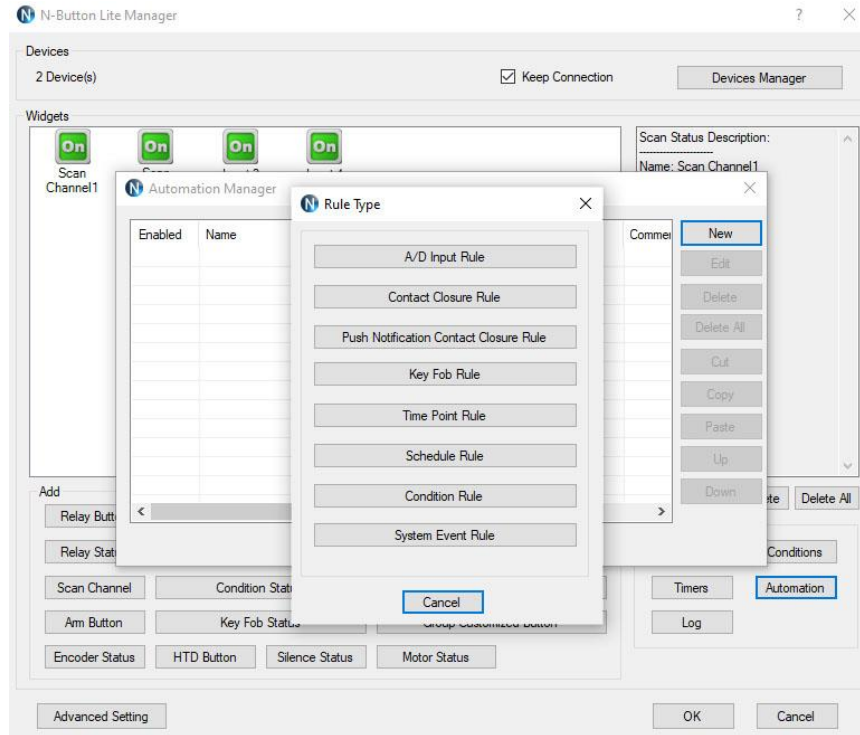
Right click on the widget you just created and select N-Button Manager to open N-Button Manager.

-> Click Automation in the lower right-hand corner of the window to open the Automation Manager Window.

-> Click New in the Automation Manager Window to open the Rule Type Window.

-> Click Push Notification Contact Closure Rule



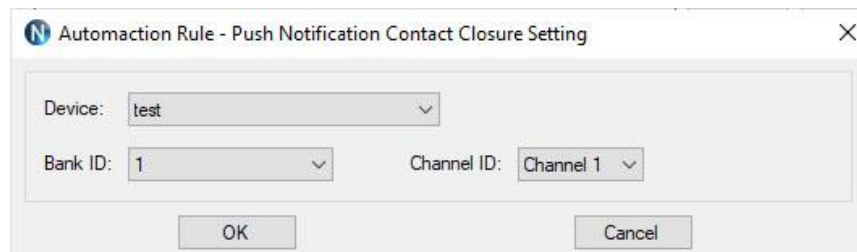


1. Select Your Device

Select Settings under Push Notification Contact Closure to select the device you created and the channel you want to use.

Bank ID -> It will be 1

Channel ID -> The input you are reading with this widget. If you have more than one scan channel you will setup each one separately so they each have their own message.



2. Determine When the Message is Sent

Action When Status Changes from Open to Close. Under Action Type select Send Email.

You can also set a message for other actions such as when the contact closure opens to send a message when the circuit opens. This will notify you wen the closure has opened

You can set the interval of messages under Action When Status is Closed or When Status in Open. If the message is being sent more than once this is where you look to change that setting.

3. Setup Your Email

-> SMTP Server: Enter the SMTP account information you will be using to send the email. *Due to Google security upgrades Gmail cannot be used. Hotmail or any SMTP mail can be used.*

-> Enter the address where you want the email sent, for more than one recipient separate the addresses with a comma.

-> Add your Subject and message.

-> Click OK in all open windows and return to the desktop.

After finishing all previous page settings, all recipients will receive an email once the contact closure input on the board changes state. To test, close the contact input on the push notification board and check your email and/or text for your message.

The computer must remain powered up and connected to the network to read the input on the board. To send the message the computer will always need access to the internet.

Direct Query Command Set

If writing your own program, the only command required for this board is to query the status of the inputs. This may also need to be done after a server reboot to get the current status of inputs on the controller. This will be done via a TCP socket connection to the controller's IP address on the port number. While these are technically A/D inputs we are simply using them as contact closure inputs. All inputs are pulled low on the controller so if the input is not tripped its value will be 0. When the input is tripped it will be pulled high and its status will be 255. It is recommended that you assume any input above 200 is tripped with a contact.

Reads the 8-Bit Analog Input of Channels

Send Bytes:	Byte 1:	Byte 2:
Function:	Command	Parameter (Channel 1-8)
Decimal Values:	254	150-157
Hex Values:	0xFE	0x96 - 0x9D
Receive Byte:	Decimal:	0-255
	Hex:	0x00-0xFF

Multi-Channel 8-Bit

Send Bytes:	Byte 1:	Byte 2:
Function:	Command	Returns AD1 - AD8
Decimal Values:	254	166
Hex Values:	0xFE	0xA6
Receive Byte:	Decimal:	0-255 (AD1-AD8)
	Hex:	0x00-0xFF

Default Password

The Web interface is password protected. The default password for the web interface is **admin**. If desired, you may change this password using the Password Setting Fields. After the new password is set it will take effect after the next power cycle.

Factory Reset

Check that the Ethernet Module is seated correctly on the connection socket of the board it is mounted on

1. Power up the module by applying power to the board the module is mounted on
2. Press and hold the factory reset button on the side of the Ethernet module for 5 seconds to reset the module back to factory settings
3. Use the [NCD5500 Configuration Software for Windows](#) to discover the device
 - Make sure that the IP address dropdown box in the top left of the NCD5500 Configuration software is set to your computer's external IP address. If you select the dropdown and only one IP address is listed, then you do not need to change this
 - If the correct network is selected in the top left dropdown and the device is still not being discovered, try the steps in the "Static IP Configuration" section below
4. Use the NCD5500 Software to configure your device to the desired settings
5. Select Apply Settings at the top
6. Select Reset at the top

Static IP Configuration

If the Factory Reset above does not discover the device

1. Check that the Ethernet Module is seated correctly on the connection socket of the board it is mounted on
2. Use a jumper to connect the two pins on the Ethernet Module to force the static IP address of 192.168.1.88 onto the module
3. Power up the module by applying power to the board the module is mounted on
4. Connect the Ethernet Module directly to the Ethernet Port of your computer
5. Use the [NCD5500 Configuration Software for Windows](#) to discover the device
 - Make sure that the IP address dropdown box in the top left of the NCD5500 Configuration software is set to your computer's external IP address. If you select the dropdown and only one IP address is listed then you do not need to change this
 - If the device is not discoverable at this point contact NCD's support team for additional steps
6. Use the NCD5500 Software to configure your device
7. Select Apply Settings at the top
8. Power down the ethernet module by removing power from the board that the Ethernet Module is mounted on
9. Wait 2 seconds
10. Remove the Static IP jumper from the Ethernet Module
11. Power up the board

Technical Support

NCD Community

National Control Devices has a forum where you can search and post questions on the operation of the boards. The NCD Community is where you will get the fastest support for all NCD products right from the developers! Discussions are welcome on applications, and you are encouraged to share your experiences with other users. Visit the community here: community.ncd.io/

Serial Port Tool

Questions for configuring N-Button Software can be made online at: support@serialporttool.com

Relay Pros Support

Contact Relay Pros at support@relaypros.com

Contact Relay Pros support@relaypros.com www.relaypros.com	Contact Serial Port Tool support@serialporttool.com www.serialporttool.com
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