DOCKING STATION
SET UP MANUAL

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83529 Docking Station Set Up Manual

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

Technical Support

This manual is structured by customer feedback to provide the required information for setup, operation, testing, maintaining, and troubleshooting the 83529 Docking Station. Should you still require support after consulting your printed documentation, we encourage you to contact one of our expert Technical Service representatives during normal business hours of 7:00 a.m. to 4:00 p.m. Pacific Time, Monday through Friday. In addition, technical information and service bulletins are often posted on our website. Please contact us and obtain a Return Authorization (RA) number before sending any equipment back to the factory. This allows us to track and schedule service work and to expedite customer service. Please have the instrument serial number available when contacting the manufacturer.

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1. Introduction

The 83529 Docking Station is a power and communication accessory for select Met One Instruments, Inc. handheld devices. It is able to charge the equipment battery and also provides RS-485, Ethernet, and WiFi communication options.

Figure 1 - 83529 Docking Station with handheld device (left) and by itself (right)

2. Setup

The following sections cover unpacking, layout, and powering the equipment.

2.1. Unpacking

Unpack and inspect the contents of the shipping container. Contact the supplier if any items are missing. Any damages incurred during shipping are the responsibility of the carrier. If any damage to the shipment is noticed before unpacking, a claim must be filed with the commercial carrier immediately. You should follow any special unpacking instructions provided by the carrier as you then carefully remove all items from the containers and inspect each component. It is recommended to document and photograph all damaged packages and items before, during, and after unpacking them. Contact Met One Instruments, Inc. (see the Technical Support section at the beginning of this manual) to arrange for any replacement items needed. The Docking Station comes with a bootless adapter and RS-485 terminal block plug.

2.2. Layout

The following figure shows the layout of the Docking Station and provides a description of each of the components.

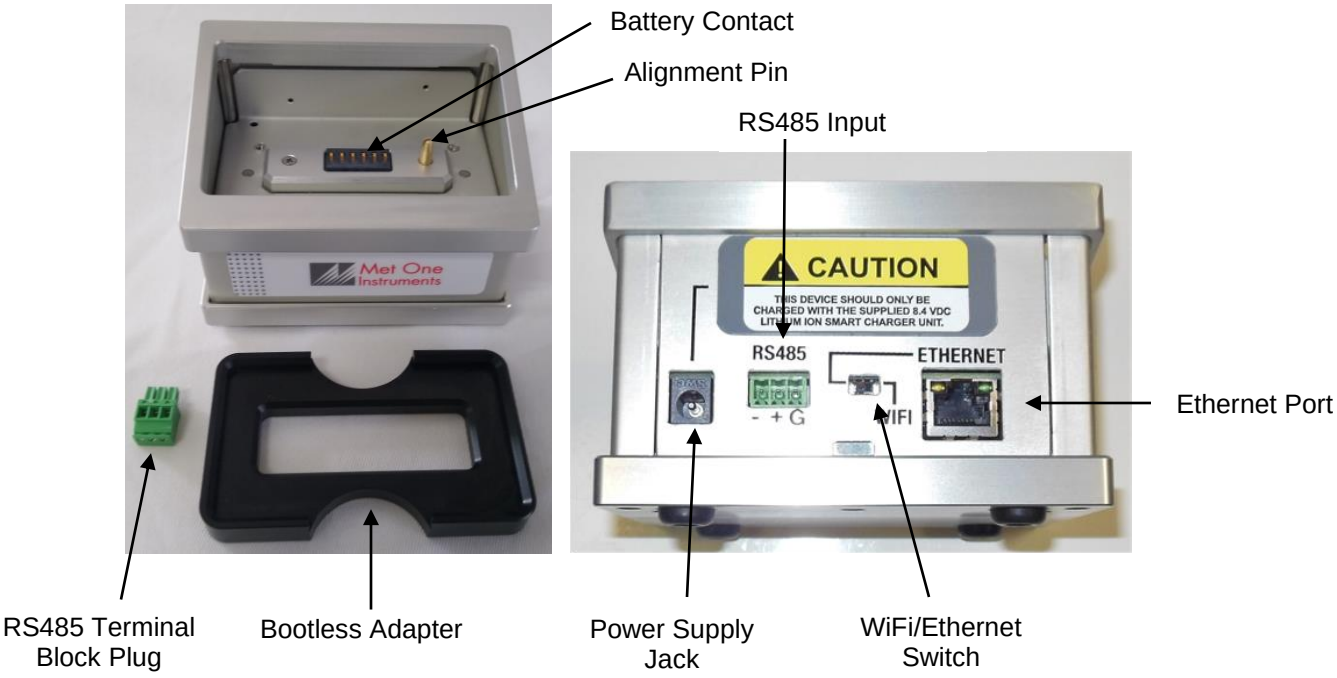

Figure 2 - Docking Station Layout

Component	Description
Battery Contact	Connects to a handheld device to charge the battery of the device. This also works as a communication link between the station and connected device.
Alignment Pin	Properly aligns a connected device in the proper orientation over the battery contact.
RS485 Terminal Block Plug	Connects external communication wires to the RS485 input.
Bootless Adapter	Positions a device without a rubber boot in the docking station.
Power Supply Jack	Input for the 8.4V 1.3A power supply.
WiFi/Ethernet Switch	Selects either Ethernet or WiFi to be used. Slide switch to the right for WiFi. Slide switch to the left for Ethernet.
Ethernet Port	Ethernet CAT5 cable connection.
RS485 Input	Connection for RS485 terminal block plug.

2.3. Power Up

The Docking Station must be plugged in to work. A power supply is not included with the docking station. The Docking Station is powered by the same 8.4V 1.3A power supply shipped with the Met One Instrument, Inc. handheld device it will be used with. This power supply must be used to provide the correct power to the unit. Do not attempt to connect any other charger or adapter to this device. Doing so may result in equipment damage.

3. Connecting a Device

The Docking Station is designed to charge the battery of select Met One Instruments, Inc. handheld devices. The front of the device must face forward. An alignment pin is positioned on the contact plate. This pin fits into a hole at the base of the handheld unit. This is used to prevent damage to the docking station or handheld unit by stopping a device from being placed on the docking station backwards.
Each device will fit securely onto the Docking Station when encased in its rubber boot. If the rubber boot is not used, an 83584 bootless adapter is placed in the base of the docking station to hold the device.

Figure 3 - Docking Station with device without rubber boot (left) and showing bootless adapter in Docking Station (right)

4. Communication Options and Setup

The 83529 Docking Station provides RS485, WiFi, and Ethernet communication options. The following sections describe each option in more detail.

4.1. RS485 Communication

The unit can operate in a Multi-Drop RS485 network using the RS485 connection on the back of the Docking Station. The network address is the same as the Network ID of the handheld device. It is important that no two units have the same Network ID set in the same network. Figure 4 shows the RS485 connector both with and without the terminal block plug installed. Note that the pin assignments are easier to read with the block removed. Figure 5 shows a RS485 network wiring diagram.

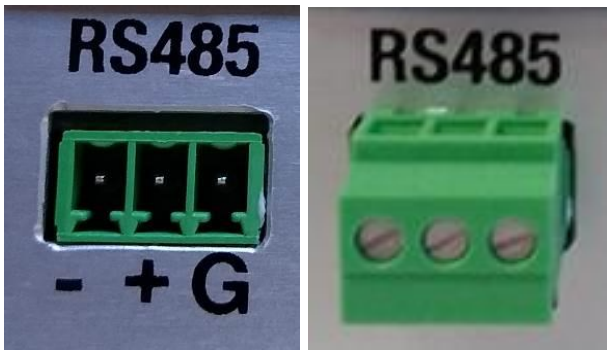

Figure 4 - RS-485 connector

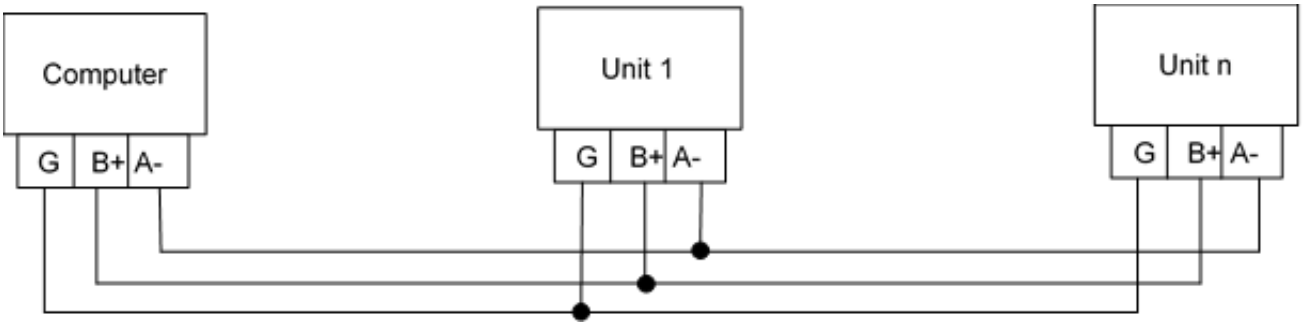

Figure 5 - RS485 Network

4.2. WiFi Setup and Configuration

The WiFi on the Docking Station will need to be connected to the local network where it is used. This section covers the initial setup and configuration of the WiFi. Valid credentials for a WiFi network in range and either a computer or smartphone that can connect to that network must be used to configure the Docking Station.

1. Move the WiFi/Ethernet switch on the rear of the Docking Station to WiFi.
2. After powering on the Docking Station, the WiFi interface will generate a local network that allows the user to connect to the Docking Station and configure the connection.
3. On a WiFi enabled computer or smartphone search for an open WiFi network that starts with “ESP_” and connect to the network.
4. On the connected device open a web browser and go to IP address 192.168.4.1

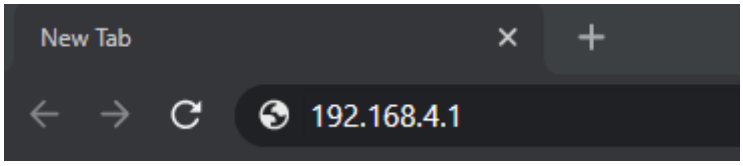

Figure 6 - Web browser with IP address

5. Navigate to the WiFi Station tab and click “Switch to STA+AP Mode” so that the Docking Station can scan for networks in the area.

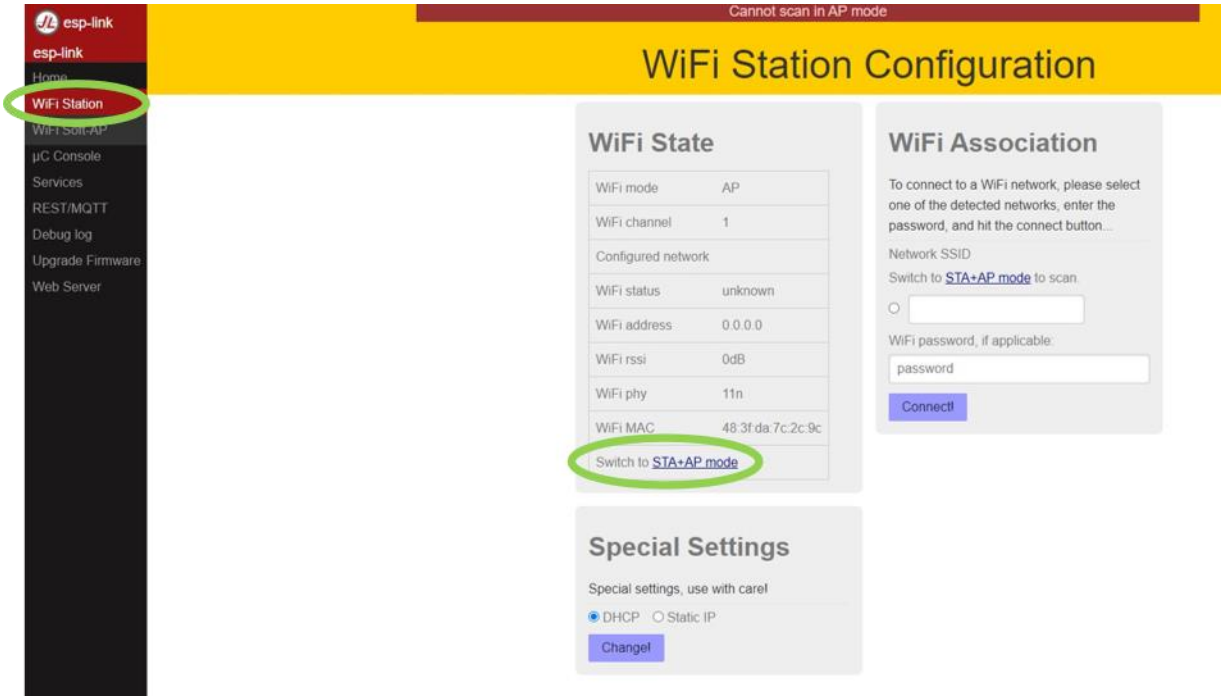

Figure 7 WiFi Station tab

6. Choose a WiFi network, enter the password, and click connect.

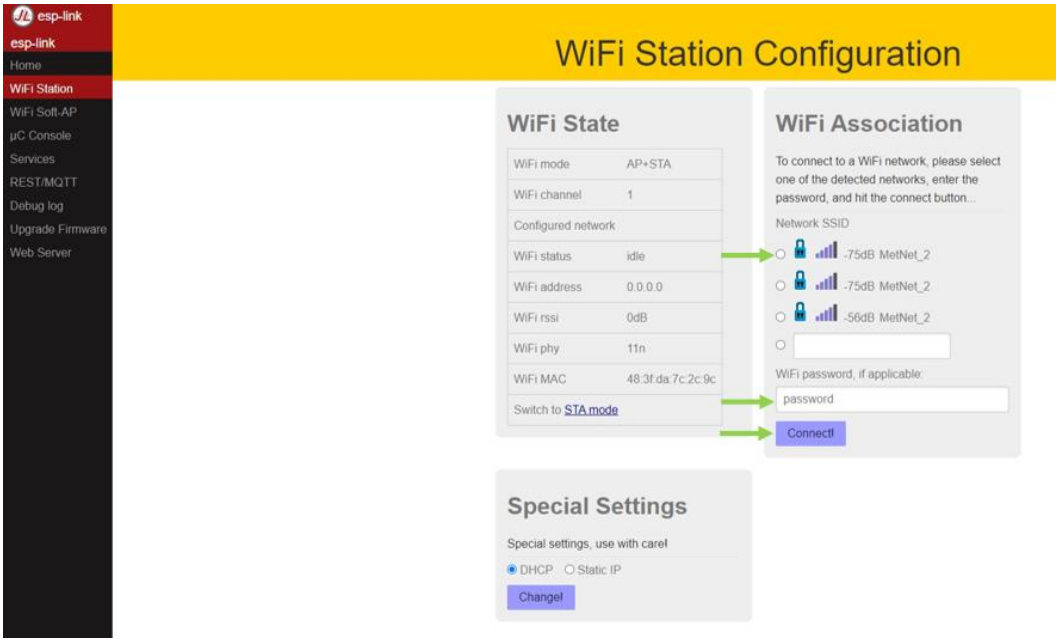

Figure 8 - WiFi Station Configuration

7. After the dock has connected to the network it will show the internal IP address it was assigned from the network. Click the IP address to automatically navigate to the new IP address. The dock will now automatically shut off its hosted network.

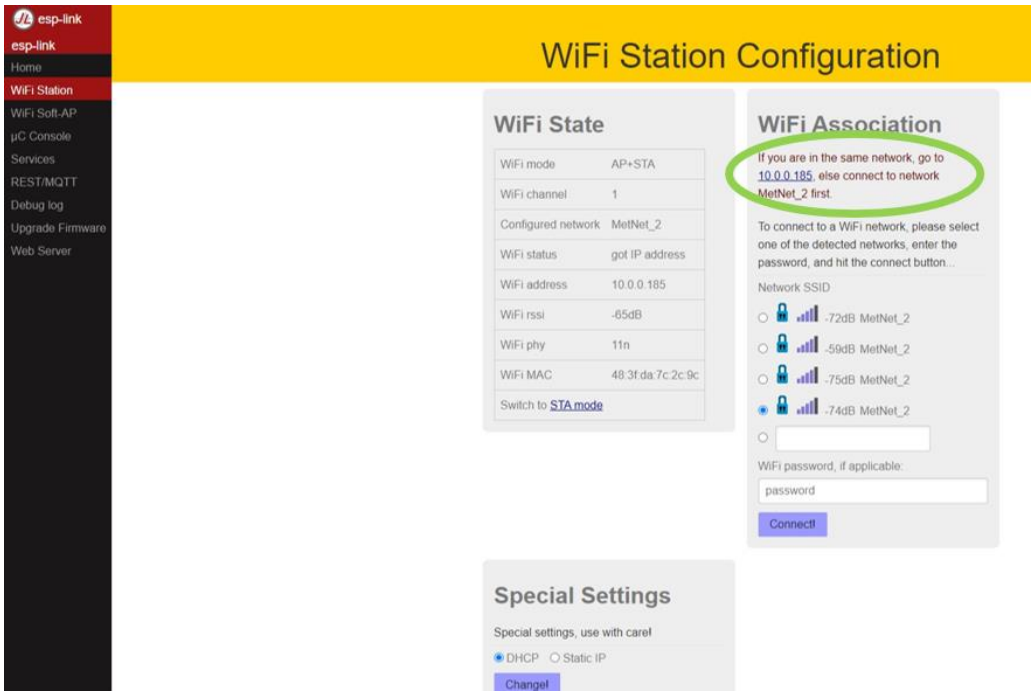

Figure 9 - WiFi Station Configuration

8. Connect the computer or smartphone to the same network that you selected for the Docking Station WiFi.
9. In the web browser you should now be on the new IP address that the network assigned to the dock.
10. Navigate to the uC Console tab and set the baud rate from the drop down tab. This must match the Dock Baud of the measurement device. Default Dock Baud for all devices is 38400.

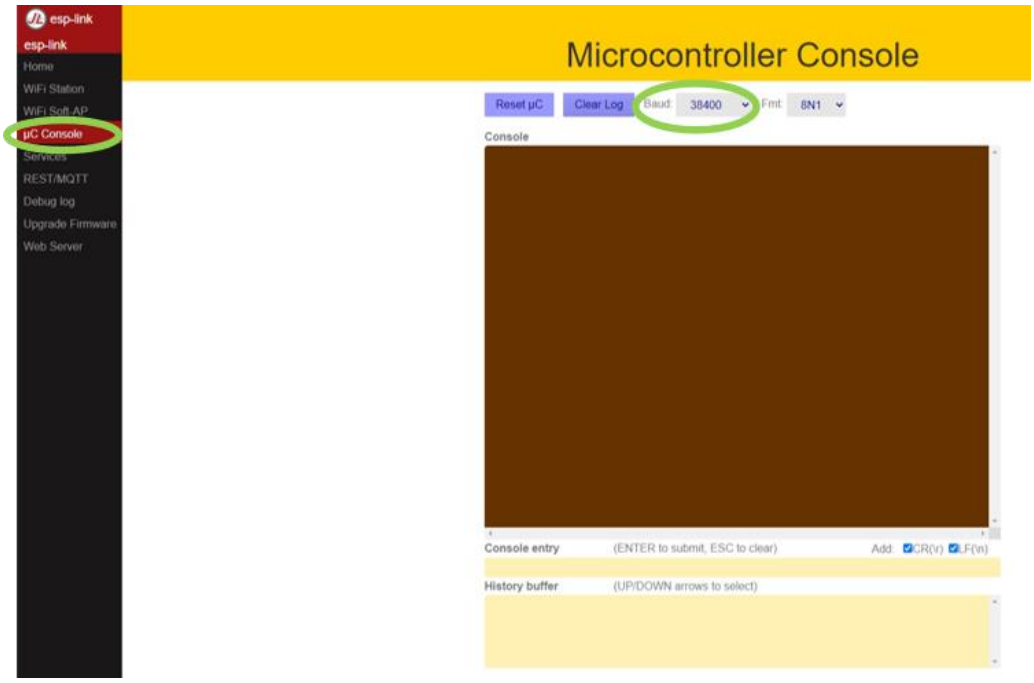

Figure 10 - Microcontroller Console

11. With a Met One Instruments, Inc. handheld device resting on the dock and the network selector switch set to **WiFi** you can now communicate with the device using serial commands. A TCP/IP connection is made using the assigned IP through Port 23.

4.3. Ethernet Port Setup and Configuration

The Docking Station Ethernet port must be configured with some drivers by the user:

4.3.1. Setting the Static IP Address of the Docking Station

1. You will need to obtain a Static IP Address and Network Mask from your network administrator.
2. Move the WiFi/Ethernet switch on the rear of the Docking Station to Ethernet.
3. Connect CAT5 Ethernet cable between local network and Ethernet connector on the back of the Docking Station.

4. Download the Ethernet Utilities from https://metone.com/software/ . Right click on the Ethernet Drivers and Utilities zip folder and select Extract All.
5. Click on the IPSetup Application. The following screen in Figure 11 will appear:

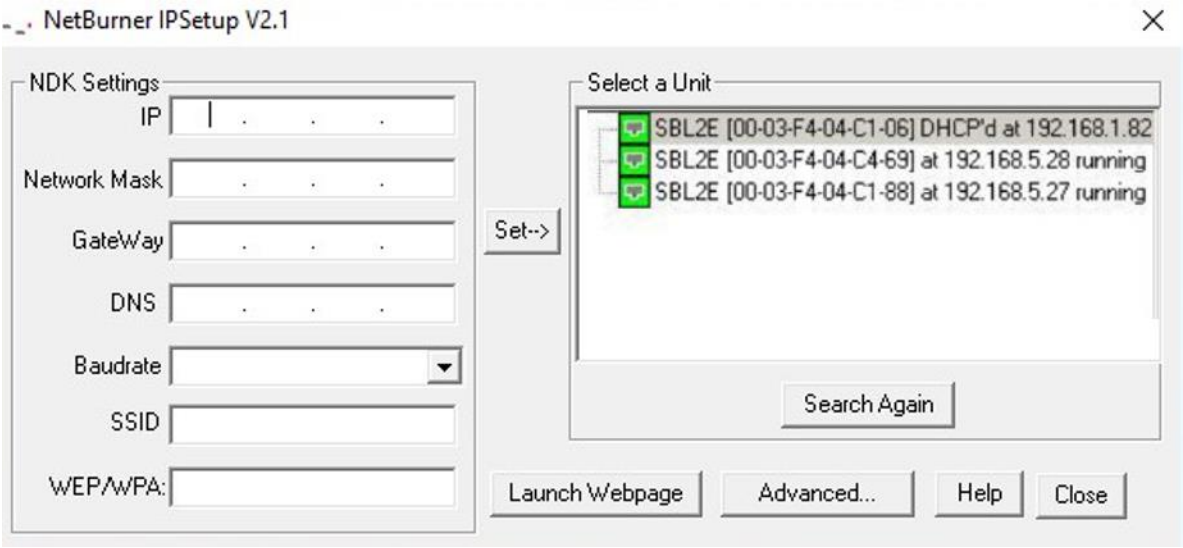

Figure 11 - IPSetup Application

6. Click on the “Select a Unit” line that shows a DHCP’d in the title.
7. Type in your static IP address in the IP window.
8. Type in a Network Mask in the Network Mask window.
9. Set the baud rate to the Dock Baud of the device to be used (default is 38400).
10. Press the Set button to change the IP address of the docking station.
11. Click the Launch Webpage button to open a browser for webpage configuration.
12. Click the X close button.

4.3.2. Web Page Configuration

1. Open a web browser and enter the numeric IP Address in the address field if Launch Webpage was not selected in IPSetup. The first section of the Network Configuration page is used to select DHCP or static IP addressing.

    a. If DHCP is selected, and there is a DHCP server on the network, the DHCP assigned values will be displayed. To select a static IP address change the Address Mode to Static, and enter the values in the Static Settings fields.

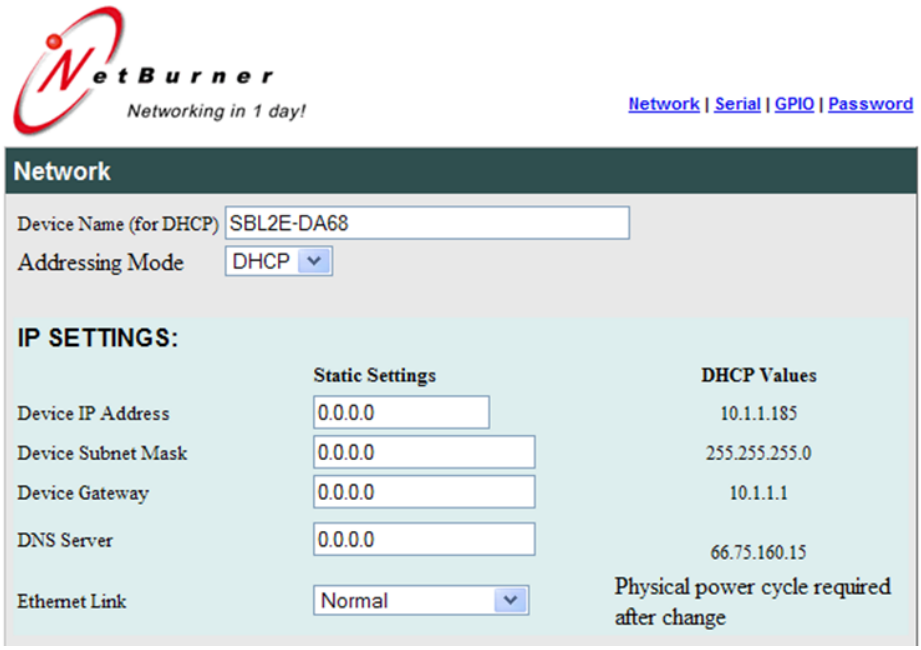

Figure 12 - Network Configuration: Addressing Mode

b. The incoming connection section configures a device server mode to listen for incoming TCP connections for each serial port.

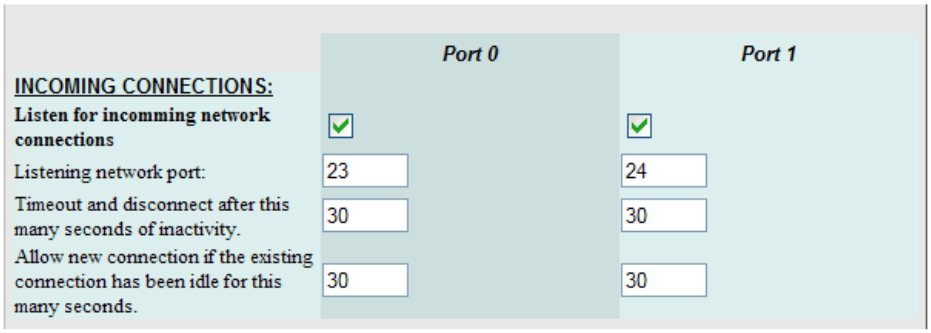

Figure 13 - Network Configuration: Incoming Connections

c. Outgoing connections (client mode)

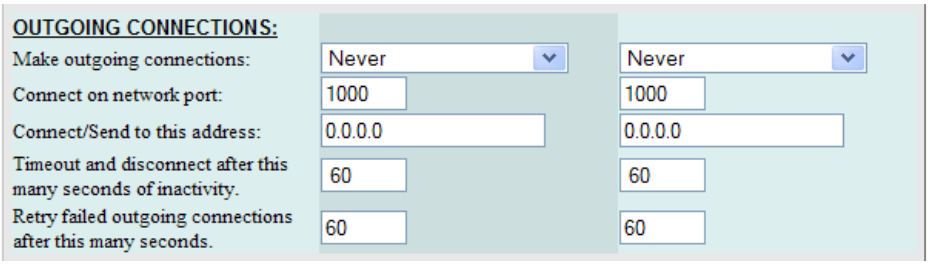

Figure 14 - Network Configuration: Outgoing Connections

d. Custom packetization can apply to TCP and UDP communication.

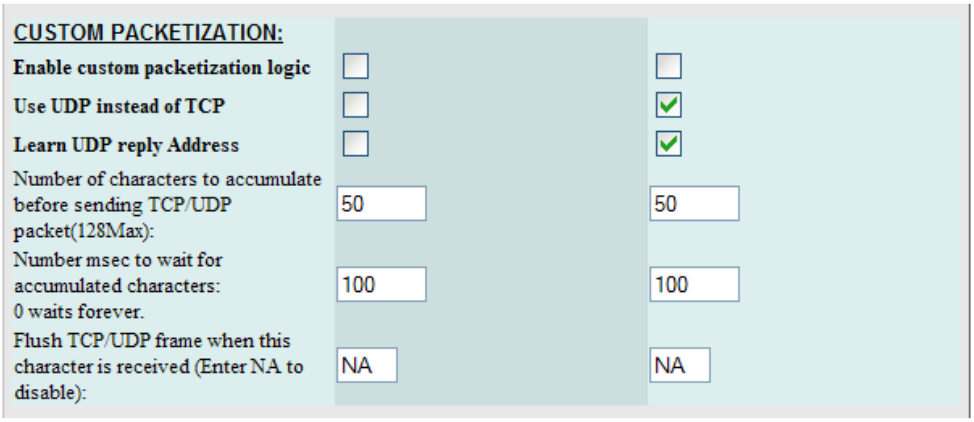

Figure 15 - Network Configuration: Custom Packetization

2. Click on the Serial link at the top of the page to configure the serial settings of the device. Change the Baud Rate and Flow Control settings to match the handheld to be used. All other settings should remain as shown. Press the Submit New Settings button to have these settings take effect. In some slower networks, characters may be dropped. If this happens, set the Flow Control to “XON/XOFF” both here and on the handheld Serial Screen.

Figure 16 - Serial Settings

3. Detailed explanations for web page configuration can be found in the SBL2eUsersManual downloaded with the Ethernet Drivers and Utilities.

4.3.3. Setting up a Virtual COM Port

A virtual COM Port allows users to designate a COM port for their existing Ethernet setup for a Met One Instruments, Inc. device. This is not necessary to be able to talk to your device, this just creates an alternative method for connecting to your device if TCP/IP is not an option for some software applications. This section covers the drivers needed and the steps necessary to set up a virtual COM port for your device.

4.3.3.1. Installing the Virtual Serial Port Drivers:

1. From the extracted folder (section 4.3.1, note 4), run the VirtualCommPort-2.1 application. The Choose Destination screen will appear as shown below. Click on the Next button. Select your operating system and click Next. The Start Installation screen will appear. Click Next. The Installing screen will display that the software is installing the drivers.

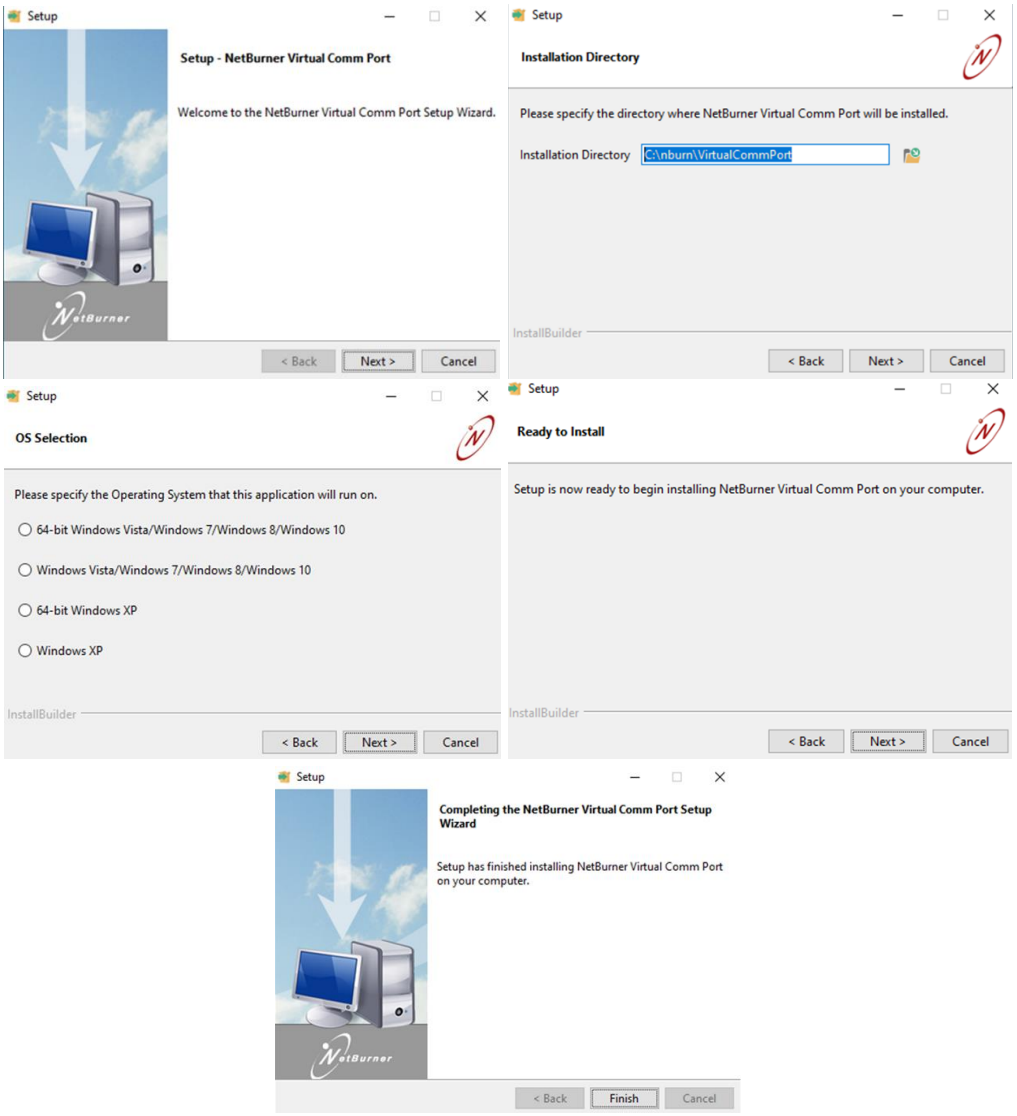

Figure 17 – VirtualCommPort application

2. When the Installation Complete screen is displayed, click the Finish button. A computer restart is needed before the drivers will be ready to use.

4.3.3.2. Configuring the Virtual Com Port for the Docking Station

1. Open the destination folder of the VirtualCommPort install (default is C:\nburn\VirtualCommPort). Double click to open the NBVirtualCommPort application file.

2. The configuration window will appear as shown below. Click the Add button.

Figure 18 - Virtual CommPort configuration window

3. Select Client connection for the connection type.

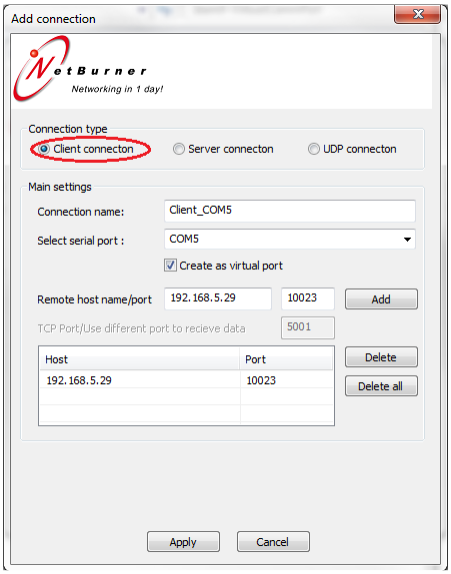

Figure 19 - Add Configuration Window-Client connection

4. Under Select serial port, choose the COM port you would like to assign to your device.

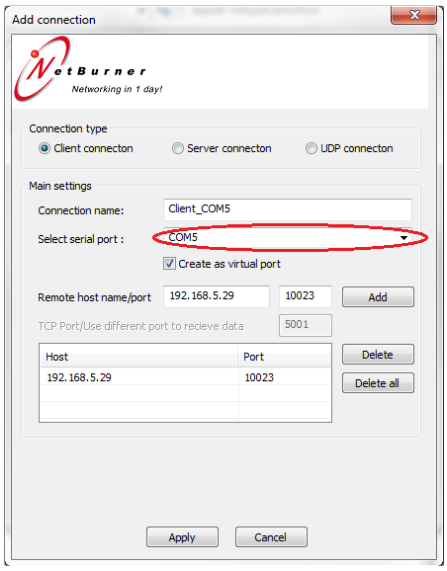

Figure 20 - Add Configuration Window-COM port assignment

5. Under Connection name, enter a descriptive name for this virtual com port.

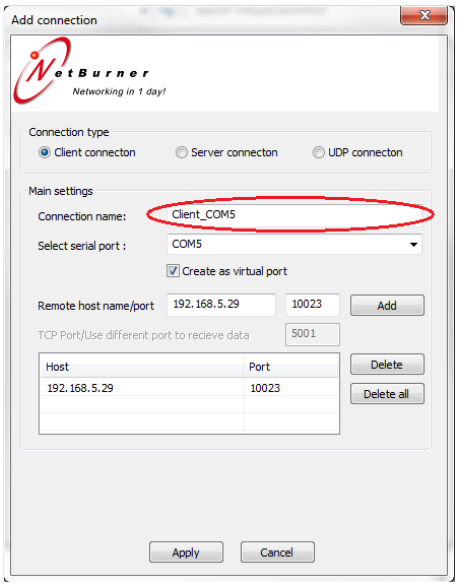

Figure 21 - Add Configuration Window-connection name

6. Make sure “Create as virtual port” is checked.

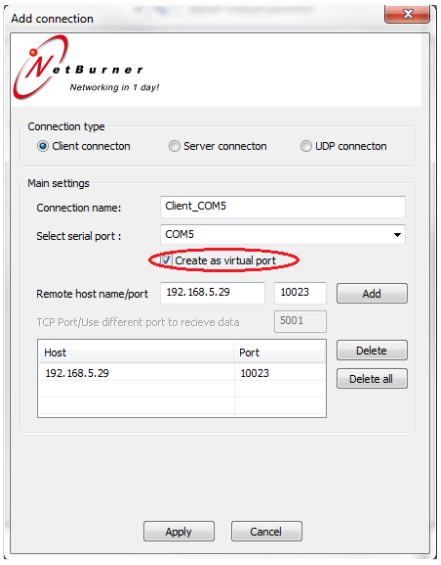

Figure 22 - Add Configuration Window-"Create as virtual port"

7. Enter the Static IP address and port number into the Remote host name/port section. Click the Add button to add this TCP/IP address, then the Apply button to add this virtual COM port.

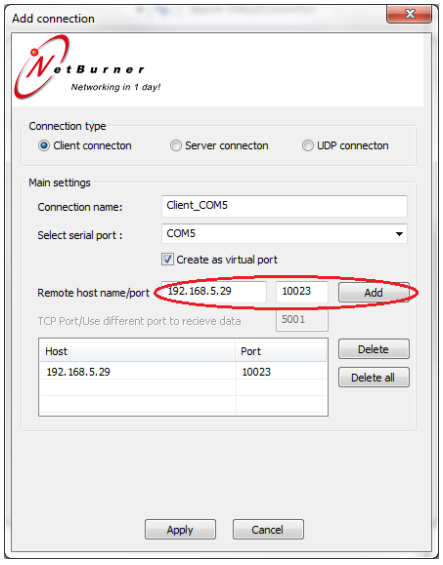

Figure 23 - Add Configuration Window-Static IP Address

8. Now the setting should be displayed on the main page of the program. Use the refresh button on the right-hand side to refresh the status of the virtual port. As seen in the image below, it found the settings to be 38400 baud, no parity, 8 databits, and 1 stopping bit. After talking to the device, it was able to refresh and see the amount of data sent/received.

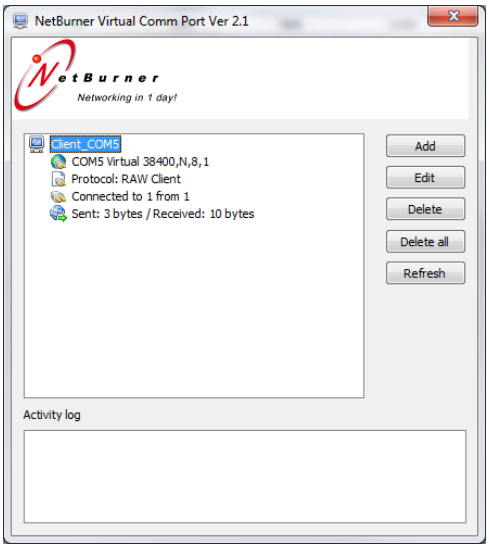

Figure 24 - VirtualCommPort main page

5. Troubleshooting

The following section covers some common failure symptoms, causes and solutions. It is important to note that there are no customer serviceable components in this product.

Problem	Cause/Solution
WiFi does not work	• Ensure the switch on the back of the unit is set to WiFi. • Verify WiFi connection. • If using DHCP instead of a static IP address, the IP address may have changed. Use the WiFi Discovery utility available on the handheld. • Ensure the docking station is connected to power. • Ensure the device is properly seated in the docking station. • Ensure the WiFi baud rate was configured the same as the device dock baud rate.
Ethernet does not work	• Ensure the switch on the back of the unit is set to Ethernet. • Ensure the docking station is connected to power. • Ensure the device is properly seated in the docking station. • Ensure the Ethernet baud rate was configured the same as the device dock baud rate.
Data does not transfer completely when using WiFi	• Lower the baud rate. High data transfer speeds can cause data to drop.

6. Specifications

Parameter	Specification
Unit Weight:	1 lb, 5.4 oz (0.6 kg)
Unit Dimensions:	Height: 3.125” (7.9 cm) Width: 4.525” (11.5 cm) Depth: 3.5” (8.9 cm).
Input Power:	8.4V, 1.3A