



NetBurner

SB70 User's Manual

Revision 1.1
July 10, 2006
Document Status: Released

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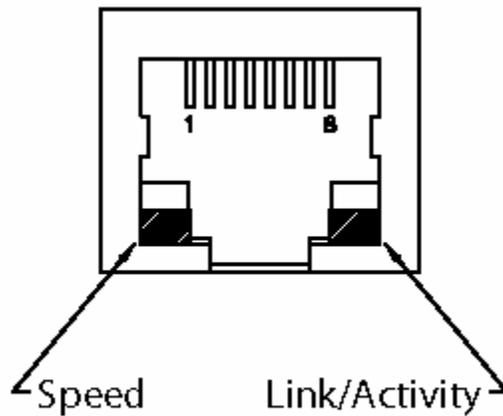
Overview

The SB70 comes preprogrammed and ready to run on your network. Before you can begin using the device, some basic configuration is required to tell the SB70 what type of serial interface you want to use, the network address you want the SB70 to respond to, the serial data baud rate, and the TCP/IP listening port number. There are three areas of configuration: Hardware configuration, Network configuration, and Operational configuration.

LEDs

LED 1: Ethernet speed: 10 MB (off) or 100 MB (on)

LED 2: Link/Activity



Connector Information

J5 – Serial TTL, Dual Row 10-Pin Header:

This connector allows access to TTL level serial ports 0 and 1. **Note:** Pin 9 is a 5VDC input, which allows for a **single** connector interface with TTL serial **and** power to the SB70.

Pin	Signal	Pin	Signal
1	GND	2	CTS1
3	TX1	4	RX1
5	RTS1	6	RTS0
7	CTS0	8	TX0
9	5V	10	RX0

J7 – RJ-45 Ethernet Connector:

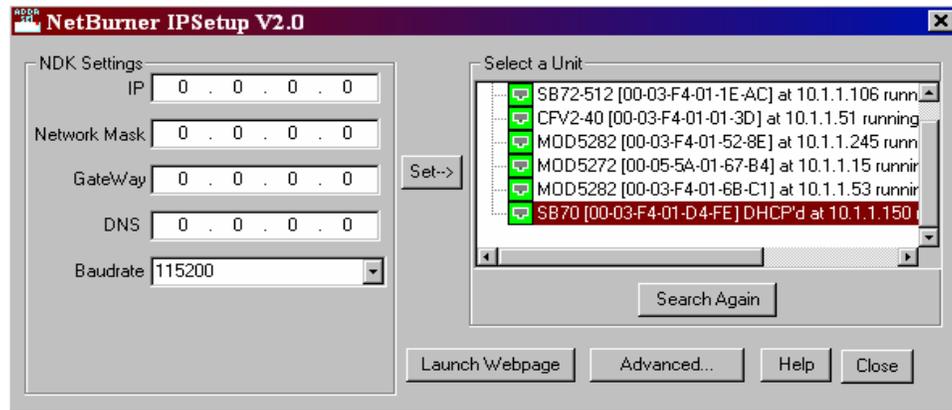
Pin	Signal	Pin	Signal
1	TX+	5	-
2	TX-	6	RX-
3	RX+	7	-
4	-	8	-

J8 – Power Connector, Single Row Straight 3-Pin Header:

Pin	Signal
1	+5V
2	GND
3	+5V

Network Configuration

1. Download the IPSetup utility from: <http://www.netburner.com/support/downloads.htm>
2. Run IPSetup.exe. You **will** see a dialog box like the one below:



3. If your SB70 does **not** appear, verify the power and link LED's are illuminated; if not, correct any cabling errors. Click the "Search Again" button when you are finished. **Note:** IPSetup uses a UDP broadcast protocol similar to BOOTP and will **not** operate through a router.

4. DHCP or Static IP Address:

- If your network supports DHCP:
 - The assigned IP address will appear in the "Select a Unit" pane. Write down this address.
- If your network does not support DHCP:
 - Configure the IP Address and Mask fields. If you need help selecting values, see the Selecting an IP Address section of this manual. After you have entered the values, click the "Set" button to configure your SB70 with the new parameters.

5. Verify the network connection is working properly by executing the following command from a DOS command prompt: "ping <IP address of your SB70>" and press the Enter key. You should see:

```
C:\>ping 10.1.1.150

Pinging 10.1.1.150 with 32 bytes of data:

Reply from 10.1.1.150: bytes=32 time<1ms TTL=60

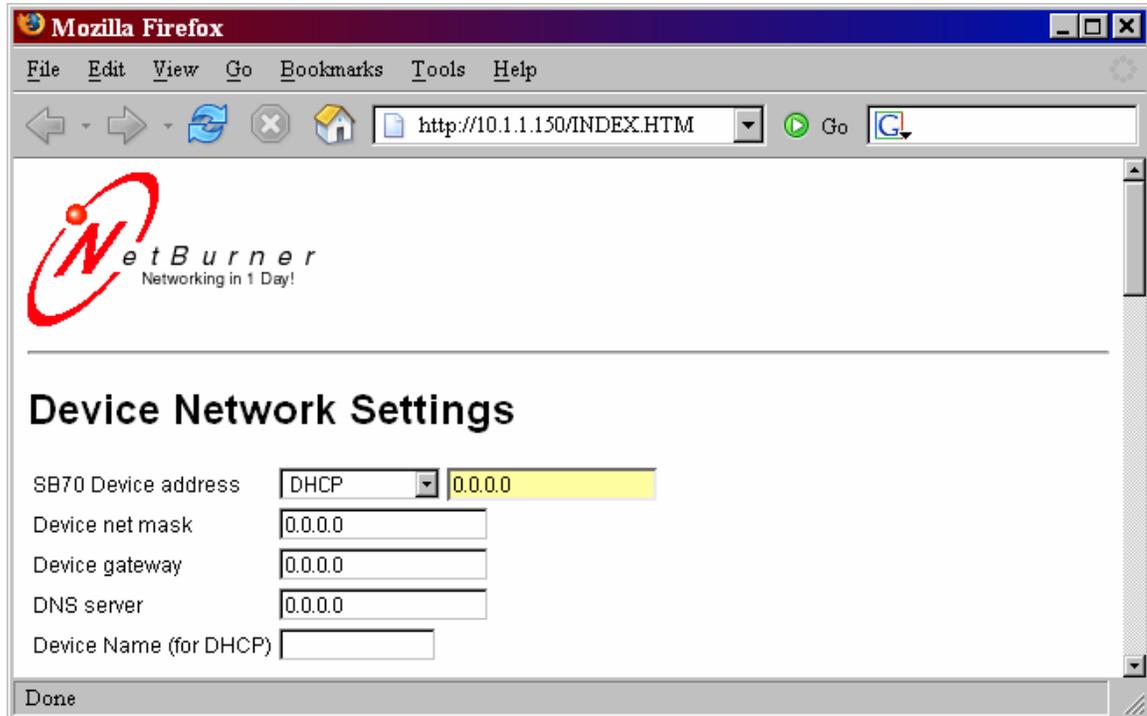
Ping statistics for 10.1.1.150:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Operational Configuration

Once the network parameters have been configured, you can use the web server interface to modify your settings. To access the web page on in your SB70, open a web browser, and enter its numeric IP Address in the address field (e.g. 10.1.1.150). You can also click the “Launch Webpage” button in IP Setup

1. Device Network Settings



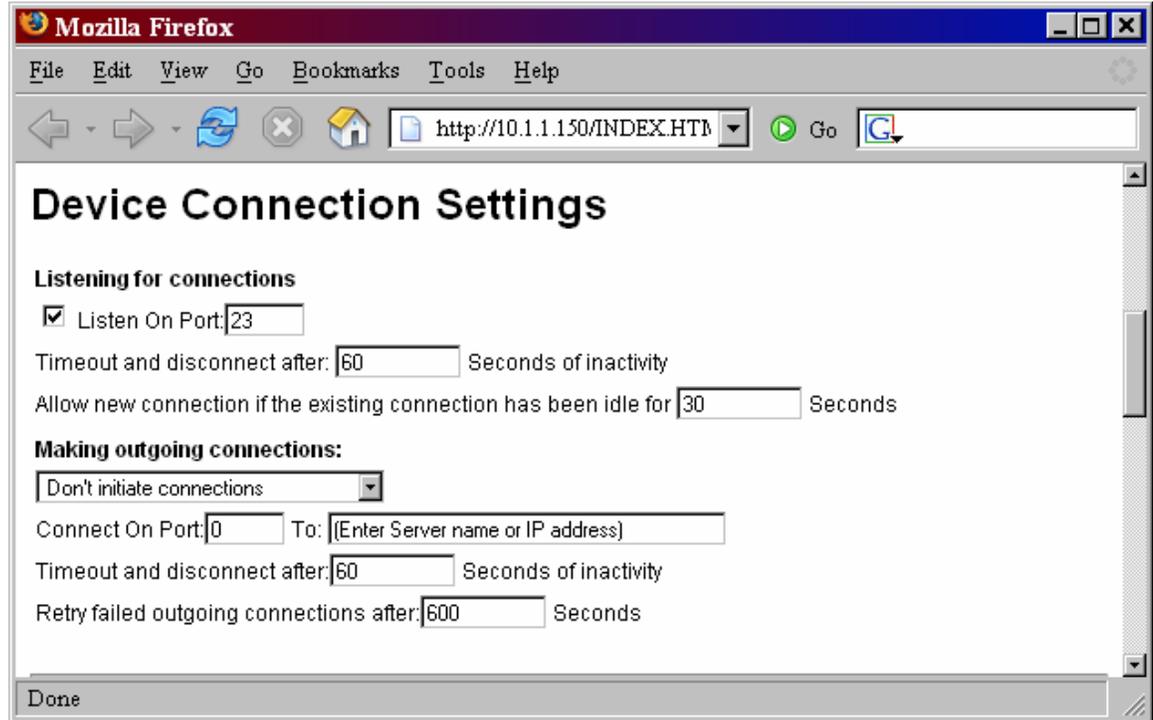
The screenshot shows a Mozilla Firefox browser window displaying the NetBurner web interface. The address bar shows the URL `http://10.1.1.150/INDEX.HTM`. The page content includes the NetBurner logo and the title "Device Network Settings". Below the title, there are several configuration fields:

SB70 Device address	DHCP	0.0.0.0
Device net mask		0.0.0.0
Device gateway		0.0.0.0
DNS server		0.0.0.0
Device Name (for DHCP)		

The status bar at the bottom of the browser window displays "Done".

- **SB70 Device Address:** Selects the IP address of the SB70 device. If DHCP is selected, the SB70 will obtain its IP address information automatically, including the net mask, gateway, and DNS server. If Static is selected, you **will** need to supply the static IP address in the text box, as well as the other device network settings. See the above screen shoot
- **Device net mask:** When using a static IP address, enter the net mask in this field.
- **Device gateway:** When using a static IP address, enter the IP address of the Gateway in this field.
- **DNS server:** When using a static IP address, enter the IP address of the DNS Server in this field.
- **Device Name (for DHCP):** User defined name.

2. Device Connection Settings



Listening for connections:

- **Server Listen Port:** Select the checkbox and enter the listening port number you want the TCP serial server to listen on for incoming connections.
- **Client Activity Timeout and Disconnect:** If **no** activity is detected on a TCP/IP connection within this timeout period, the TCP server will **drop** the connection.
- **Client Override Timeout:** If **no** activity is detected on a TCP/IP connection within this timeout period, the TCP server will **disconnect** the current TCP/IP connection **and** allow the new incoming connection request to connect.

Making outgoing connections:

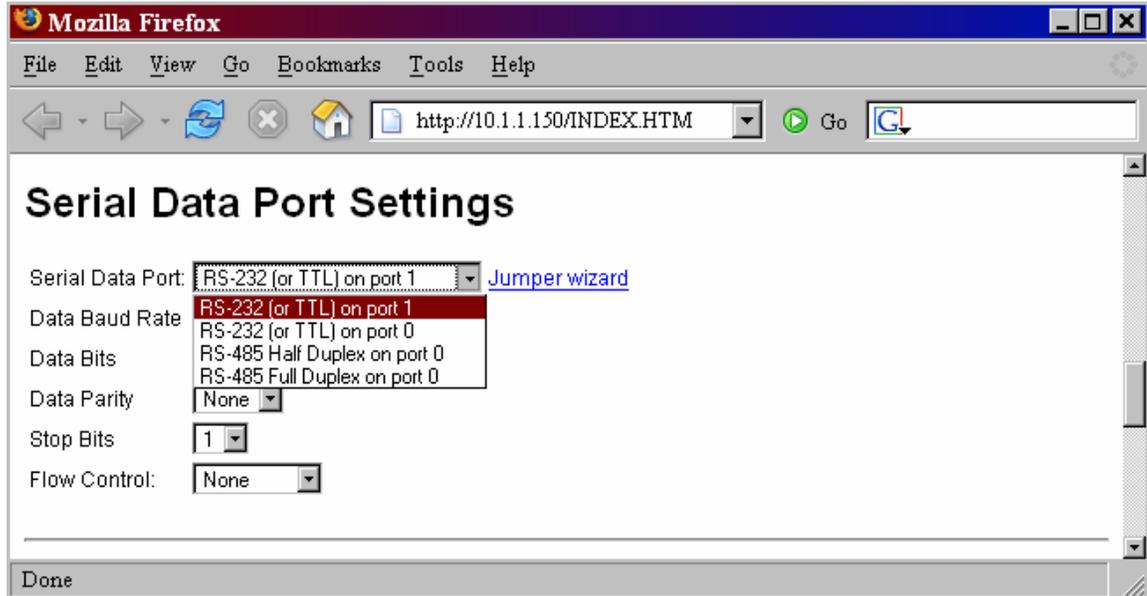
If this option is enabled, the SB70 **will** initiate a connection to an outside destination when the selected conditions are met. The three options are:

1. Don't Initiate Connections
2. Connect on Power-up
3. Connect when receiving serial data

If this option is enabled, you **must** enter values for the outgoing destination port number and destination address.

- **Outgoing Port Number:** The destination port number.
- **Outgoing Address:** Either the name (e.g. www.netburner.com) or numeric IP address (e.g. 10.1.1.2) of the destination. **Note:** If you use a name, you **must** have a valid DNS Server IP Address.
- **Outgoing Timeout:** Inactivity timeout for the outgoing connection

3. Serial Data Port Settings



- **Serial Data Port:** Selects the data port to be RS-232 or RS-485. The options are:
 1. Port 0 RS-232 or TTL
 2. Port 1 RS-232 or TTL
 3. Port 0 RS-485 Half Duplex
 4. Port 0 RS-485 Full Duplex
- **Data Baud Rate:** Selects the baud rate of the serial data channel.
- **Data Bits:** Select number of data bits.
- **Data Parity:** Select none, odd, or even parity.
- **Stop Bits:** Select 1 or 2 stop bits.
- **Flow Control:** Selects serial port flow control: none, Xon/Xoff, or RTS/CTS.

Specifications

Input Power Requirements:

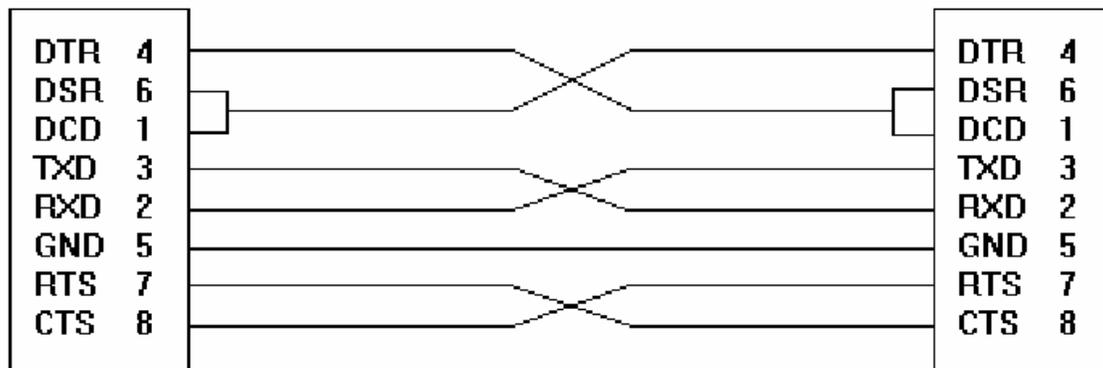
- 480mA @ 5VDC
- Operating Range: Commercial 0 – 70C

Mechanical:

- PCB Dimensions: 3.50" x 2"
- 4 Mounting holes

RS-232 NULL Modem Wiring

The following table and diagram show how to create a null modem cable/adaptor for RS-232 connections. A null modem cable **will** be required **if** you are connecting the SB70 to a PC using the standard NetBurner 10-pin header to DB9 ribbon cable connector.



Network IP Address Configuration

If you are part of an existing network and are not using DHCP, stop reading now and go get an IP address and network mask from your network administrator. If you follow the advice in this paragraph on an existing network without an assigned IP address, your Network Administrator will hunt you down.....

IP addresses are used to route packets from place to place on an Intranet/Internet. If you are not part of an established network, and your Ethernet segment is isolated, you can choose just about any IP address you desire. The powers that be have actually set aside some addresses for isolated networks. They are documented in RFC1918. The reserved ranges are:

10.0.0.0 to 10.255.255.255 Class A
172.16.0.0 to 172.31.255.255 Class B
192.168.0.0 to 192.168.255.255 Class C

If you are doing development on an isolated network, you can use the following addresses:

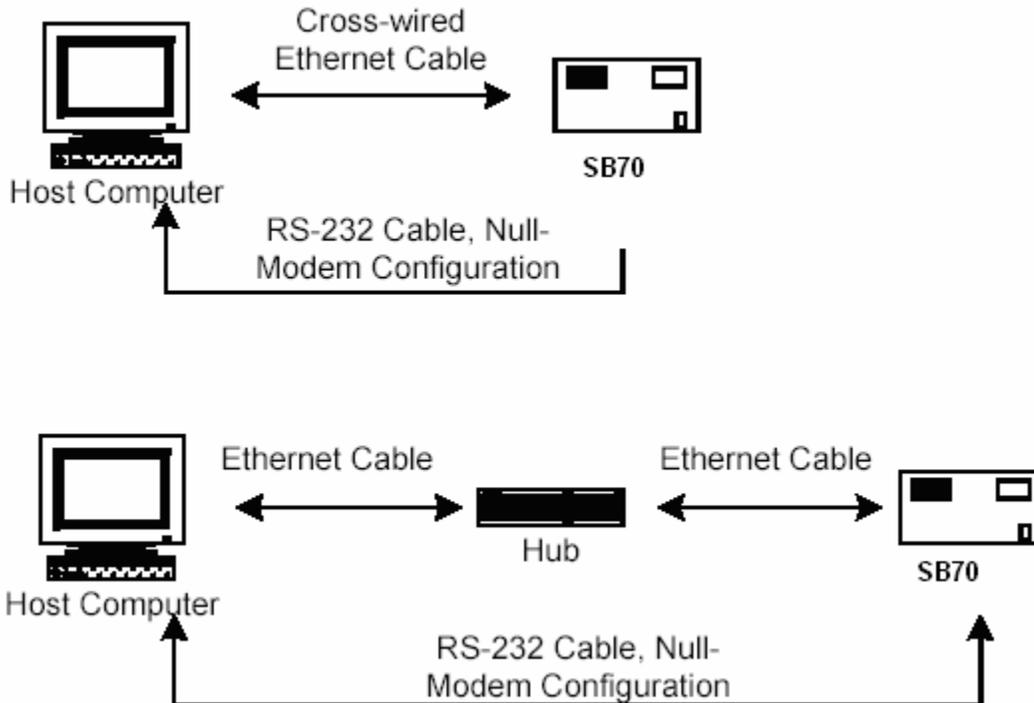
- Set your PC's Network Adapter Card IP Address to 10.1.1.10 (**only** change the Network Adapter Card, do **not** change your Dial-Up Adapter settings)
- Set the IP address of your SB70 board to 10.1.1.11
- Set the network mask for both your PC network adapter card and your SB70 board to 255.255.255.0

Web Browsers and Proxy Servers

If you are working on a corporate LAN that uses a proxy server for Internet web browsing, you will need to exclude the IP address of the NetBurner hardware in your web browser's proxy server settings/preferences. Otherwise, an attempt to connect to a web page on the LAN will fail because the proxy server will attempt to route the request outside the LAN. For most web browsers, this can be accomplished in the advanced settings for the proxy server configuration. Set the network mask for both to 255.255.255.0

Testing with a Telnet Connection

One way to quickly test the functionality of your serial-to-Ethernet connection is with the Telnet program and an RS-232 serial terminal program. To run the test, configure your system as one of the two examples shown below:



The objective of this example is to use a single host computer running telnet and a serial terminal program to send data in either direction. If you type text in the telnet window, it should appear in the serial terminal window. For a serial terminal you can use Hyper Terminal, or download MTTY from the NetBurner web site.

In the following examples, an IP Address of 10.1.1.2 will be used for the SB70. Replace this number with your specific IP Address you assigned during configuration.

1. Connect the hardware in one of the above configurations
2. Open a command prompt window (DOS) on the Host Computer.
3. Verify everything is connected correctly by typing the command "ping 10.1.1.2" and pressing the "Enter" key. You should see a valid ping response.
4. Run Telnet by typing: "telnet 10.1.1.2 9221" and pressing then "Enter" key. This assumes a default port number of 9221. **Note:** You can replace this default port number with the port number you assigned during configuration.
5. Run Hyper Terminal or MTTY. Set the baud rate to the value you assigned the SB70 during configuration. The default baud rate is 115,200.
6. At this point anything you type in Telnet should appear in the serial terminal window and vice versa.