



# Table of Contents

<i>NetBurner</i> .....	1
<i>Table of Contents</i> .....	2
<i>Overview of the SB72EX Dual-port Serial to Ethernet Device</i> .....	3
<i>Overview of the SB72EX Dual-port Serial to Ethernet Device</i> .....	3
<i>Configuration of the SB72EX Dual-port Serial to Ethernet Device</i> .....	4
<b>Hardware Configuration</b> .....	4
<b>Operational Configuration</b> .....	6
Device Network Settings .....	6
Device Connection Settings .....	7
Serial Data Port Settings.....	8
<i>Connector Descriptions</i> .....	9
<i>Specifications</i> .....	10
<i>RS-232 NULL Modem Wiring</i> .....	10
<i>Network IP Address Configuration</i> .....	11
<i>Web Browsers and Proxy Servers</i> .....	11
<i>Testing with a Telnet Connection</i> .....	12

## Overview of the SB72EX Dual-port Serial to Ethernet Device

The NetBurner SB72EX comes preprogrammed and ready to run on your network. Before you can begin using your SB72EX, some basic configuration is required. You will need to tell the SB72EX what type of serial interface you want to use, the network address you want the SB72EX to respond to, the serial data baud rate, and the TCP/IP listening port number. There are three areas of configuration:

1. Hardware configuration
2. Network configuration
3. Operational configuration



Front view of the SB72EX, showing the power input jack, power-on LED and the Ethernet RJ-45 connector.



Rear view of the SB72EX, showing the two RS-232 serial ports. Port 0 is on the left; Port 1 is on the right.

# Configuration of the SB72EX Dual-port Serial to Ethernet Device

## Hardware Configuration

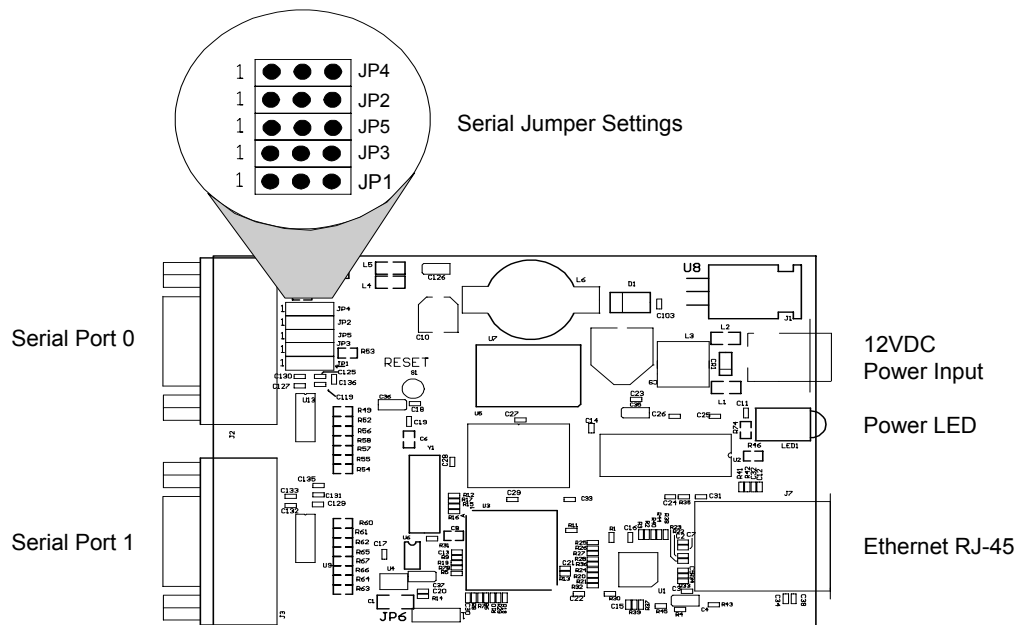
**Note:** The default settings are appropriate for most implementations.

The SB72EX has two asynchronous UART type serial ports, referred to as Port 0 and Port 1 that are accessed through two DB-9 connectors. Port 0 can be configured for either RS-232 or RS-485 operation (the factory default is RS-485), and Port 1 is **permanently** configured as a RS-232 port.

- If your application requires a single RS-232 connection, then you can use Port 1 and skip this section.
- If your application requires a single RS-422/485 connection, then you can use Port 0 and skip this section.
- If your applications requires two RS-232 connections, then you will need to modify the default jumper settings as described below.

To configure Port 0 as RS-232 on your SB72EX, you will need to open the case up and change the position of the five jumpers. (**Note:** Please take proper ESD precautions. Failure to do so will **void** your NetBurner Standard Hardware Warranty.) There are five 3-pin headers that can be jumpered in one of two positions: connecting pins 1 and 2, **or** connecting pins 2 and 3. The five jumpers are located on the SB72EX board as shown in the figure below.

- To configure Port 0 as RS-232: Position each of the five jumpers so they connect pins 1 and 2.
- To configure Port 0 as RS-485: Position each of the five jumpers so they connect pins 2 and 3.

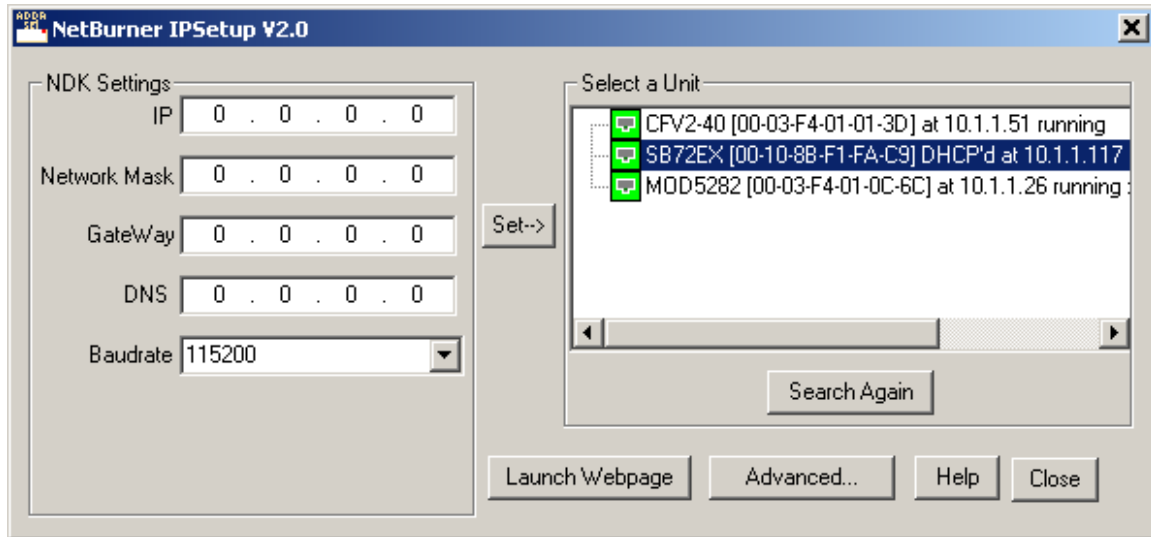


**After you have your SB72EX configured correctly, you must select the corresponding software options using the web interface.**

## Network Configuration

The Hardware Configuration steps above **must** be completed correctly **before** the software configuration can take place.

1. Run IPSetup.exe, which is located on the CD-ROM that came with your SB72EX. You will see a dialog box similar the one below:

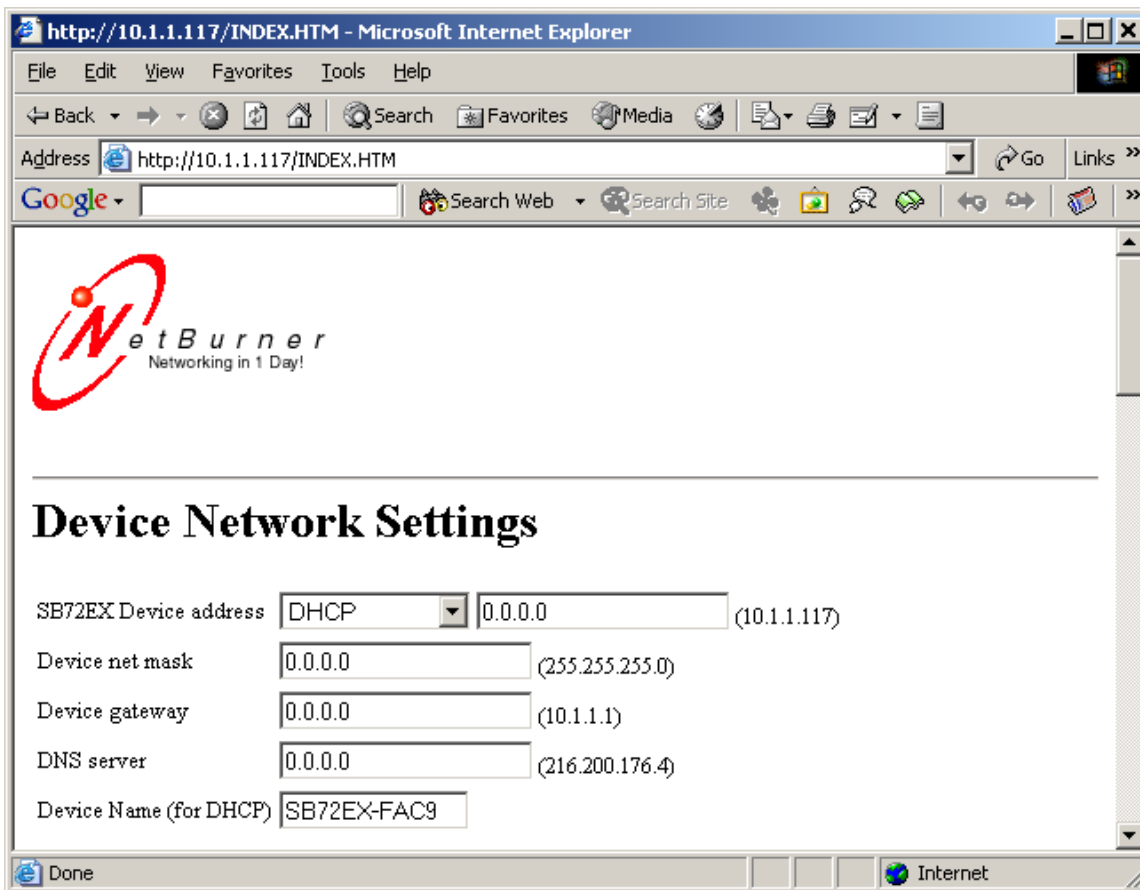


2. Locate your SB72EX in the "Select a Unit" pane by matching its MAC address. If your SB72EX does **not** appear in the list box, verify the power and link LEDs are illuminated, and click the **Search Again** button. If you are still unable to see your SB72EX, correct any cabling errors, and click the **Search Again** button. **Note:** IPSetup uses a UDP broadcast protocol similar to BOOTP and will **not** operate through a router.
3. 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 guide. After you have entered all of the values, click the **Set** button in the center to configure your SB72EX with its new parameters.

## Operational Configuration

Once the network parameters have been configured, you can use the web server interface to modify the settings of your SB72EX. To access the web page on the SB72EX, click on the **Launch Webpage** button in IP Setup or you can open your web browser and enter the numeric IP Address in the address field (e.g. http://10.1.1.117).

## Device Network Settings



Parameter	Description
SB72EX Device address	Selects the IP address of the SB72EX device. If DHCP is selected, the SB72EX will obtain IP address information automatically, including the net mask, gateway, and DNS server. If Static settings are selected, you will <b>need</b> to supply the static IP address in the edit box to the right, as well as the other device network settings.
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)	Your NetBurner SB72EX device.

## Device Connection Settings

**Device Connection Settings**

**Listening for connections**

Listen On Port:

Timeout and disconnect after:  Seconds of inactivity

Allow new connection if the existing connection has been idle for  Seconds

**Making outgoing connections:**

▾

Connect On Port:  To:

Timeout and disconnect after:  Seconds of inactivity

Retry failed outgoing connections after:  Seconds

Parameter	Description
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.
Outgoing Connections	If this option is enabled, the SB72EX will initiate a connection to an outside destination when the selected conditions are met. The options are: <ul style="list-style-type: none"> <li>• Don't Initiate Connections</li> <li>• Connect on Power-up</li> <li>• Connect when receiving serial data (<b>Note:</b> If this option is enabled, you <b>must</b> enter values for the outgoing destination port number and destination address.)</li> </ul>
Outgoing Port Number	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.
Outgoing Timeout	Inactivity timeout for the outgoing connection.

## Serial Data Port Settings

http://10.1.1.117/INDEX.HTM - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media

Address http://10.1.1.117/INDEX.HTM Go Links

Google Search Web Search Site

### Serial Data Notification Settings

Send serial message when TCP connection is established:  
 Message to  
 send:

Send serial message when TCP connection is lost:  
 Message to  
 send:

[Message formatting codes](#)

Send serial break when incoming TCP connection is established:  
 Break Interval:  In Tenths of a second.

Send serial break when incoming character  (2 digit hex ie 02) is received.

---

**Firmware Version: SB72EX V1.0 Jun 28 2004 OS:1.95**

**New settings will cause existing connections to be closed**

[Diagnostics](#)

Done Internet

Parameter	Description
Serial Data Port	Selects the data port to be RS-232 or RS-485. The options are: <ul style="list-style-type: none"> <li>• Port 0 RS-232 or TTL</li> <li>• Port 1 RS-232 or TTL</li> <li>• Port 0 RS-485 Half Duplex</li> <li>• Port 0 RS-485 Full Duplex</li> </ul>
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.
Data Stop Bits	Select 1 or 2 stop bits.
Flow Control	Selects serial port flow control: none, Xon/Xoff, or RTS/CTS.

## Connector Descriptions

### Serial Port 0 (J2) – RS-232 Configuration

Pin	Signal	Pin	Signal
1	CD	2	RX
3	TX	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

### Serial Port 0 (J2) – RS-485 Configuration

The RS-485 interface supports full duplex (FD) and half duplex (HD).

Pin	Signal	Pin	Signal
1	-	2	HD- or FD TX -
3	HD+ or FD TX+	4	GND
5	GND	6	FD RX -
7	FD RX +	8	-
9	-		

### Serial Port 1 (J3) – RS-232 Configuration

Pin	Signal	Pin	Signal
1	CD	2	RX
3	TX	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

### RJ-45 Ethernet Connector

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

### Power Connector

The power input is a standard 2.1mm P5 type input jack. The center is positive, and the outer shell is negative.

Pin	Signal
Center	7 – 30VDC
Shell	GND

## LEDs

- Power LED: Illuminated while power is applied.
- LED1 on RJ-45: Ethernet speed - 10 or 100
- LED2 on RJ-45: Link Light and data activity

## Specifications

### Input Power Requirements

Input Range: 7 – 30VDC

Suggested power source: 12VDC @ 500mA

Operating Range: Commercial 0 – 70C

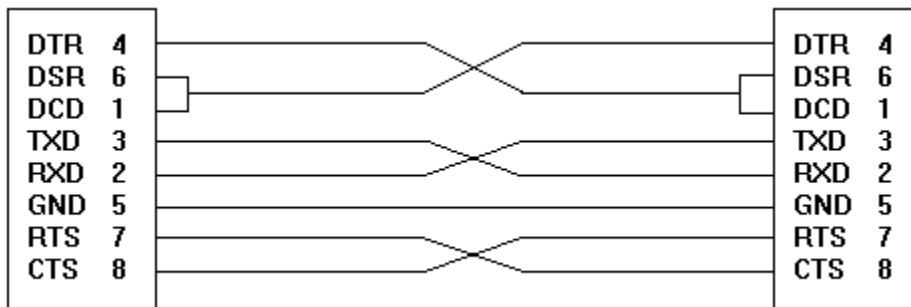
### Mechanical

4.1" x 3.125" x 1"

## RS-232 NULL Modem Wiring

The following table and diagram show how to create a null modem cable/adapter for RS-232 connections.

**Note:** A null modem cable is **required** if you are connecting the SB72EX to a single computer.



## 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:

**Class A: 10.0.0.0 to 10.255.255.255**

**Class B: 172.16.0.0 to 172.31.255.255**

**Class C: 192.168.0.0 to 192.168.255.255**

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

- Set your host computer's Network Adapter Card IP address to 10.1.1.10 (**Note:** Only change the Network Adapter Card, do **not** change your Dial-Up Adapter settings.)
- Set the IP address of your SB72EX to 10.1.1.11
- Set the network mask for both your host computer network adapter and your SB72EX to 255.255.255.0

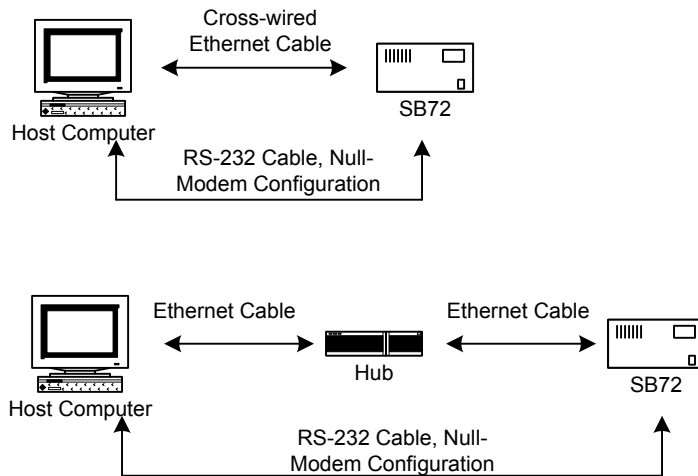
## Web Browsers and Proxy Servers

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 your SB72EX 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 your host computer network adapter and your SB72EX 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 this 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 MTTY (which is included in your NetBurner SB72EX CD-ROM).

In the following examples, an IP Address of 10.1.1.2 will be used for the SB72EX. **Note:** Replace this number with your specific IP Address you assigned during configuration.

1. Connect your hardware in one of the above configurations.
2. Open a command prompt window on your host computer.
3. Verify everything is connected correctly by executing the command **ping 10.1.1.2** and pressing the **Enter** key on your keyboard. You will see a valid ping response.
4. Run Telnet by typing: **telnet 10.1.1.2 9221** and pressing the **Enter** key. **Note:** This assumes a default port number of 9221. 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 to the SB72EX during configuration. **Note:** 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.