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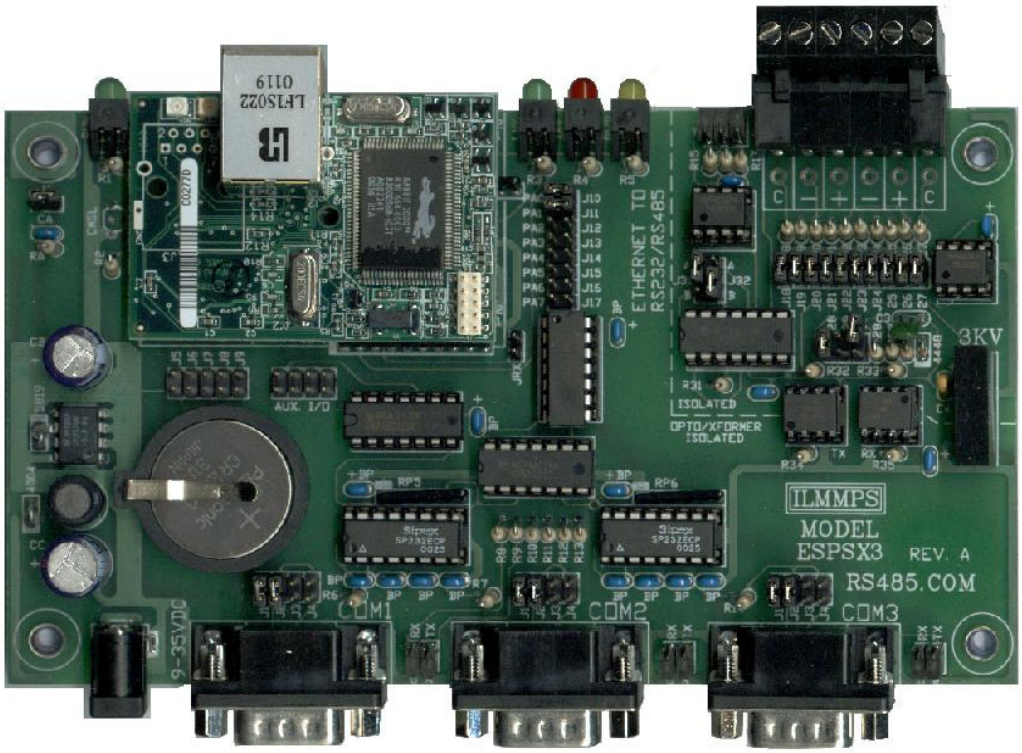
PRELIMINARY INFORMATION, 03-30-2002

ESPSX3 Ethernet Serial Port Server X 3

The ESPSX3 is an Ethernet Serial Port Sever with two RS232 and one RS232/RS485/RS422 ports. The R485/RS422 port has galvanic isolation for industrial/robust applications. These ports can be accessed via the local network or over the World Wide Web. ESPSX3 configuration can be accomplished via the web browser, windows configuration software, or with DHCP/BOOTP protocol. The ESPSX3 can also be configured to act in a stand-alone mode automatically connecting a serial port on one board to a serial port on another board via the LAN/WAN connection.



ESPSX3 - Ethernet Serial Port Server X 3

Jumper Configuration Tables
(Software version 2.0D and newer)

Table 2: RS-232 Device Type

RS-232 MODE	J1	J2	J3	J4
* COMPUTER	INSTALLED	INSTALLED	REMOVED	REMOVED
MODEM	REMOVED	REMOVED	INSTALLED	INSTALLED

Table 3: Reset Defaults Optional Configuration Settings

J10	FUNCTION		
I	Normal operation		
R	On power on 1 of 3-factory default settings are restored, must be installed for normal operation.		
	J16	J17	IP Address Default Configuration on Reset
	R	R	DHCP/BOOTP Enabled
	I	R	Static IP Address 128.0.0.75 (mfg. Test)
	R	I	Static IP Address 192.168.1.1

Table 4: Monitor Mode Enable

J11	FUNCTION
I	Normal operation of COM3
R	Enable Monitor Configuration Via COM3 at 9600,N,8,1

Note: Jumpers reserved for future operation include J5-J9, and J12-J15 these should not be installed.

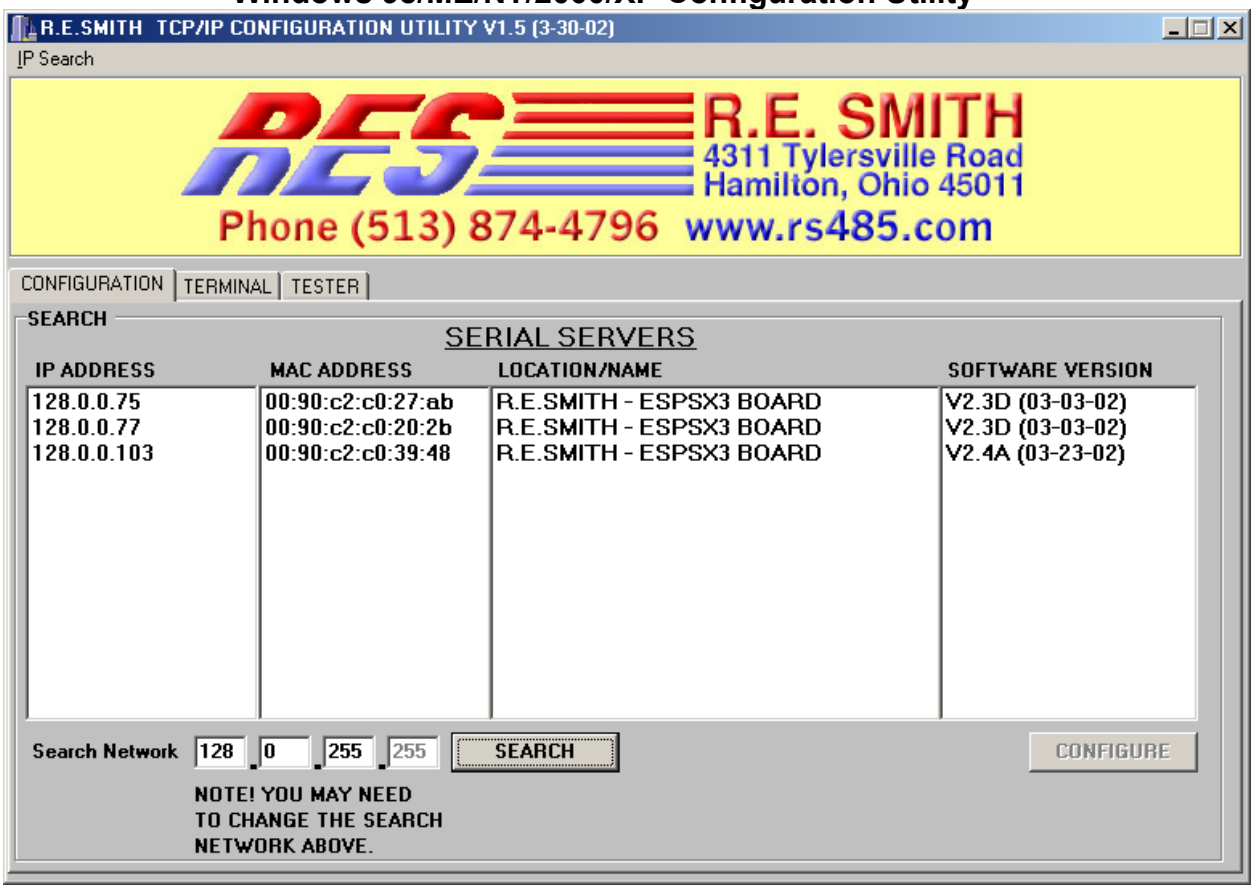
Factory Default Software Settings

Table 1: Factory Default Settings

PORT	BAUD	TCP/IP	PORT
COM1	9600,N,8,1*	BOOTP/DHCP ENABLED	9101
COM2	9600,N,8,1	DEFAULT IP: 192.168.1.1	9102
COM3	9600,N,8,1	NETMASK: 255.255.255.0	9103

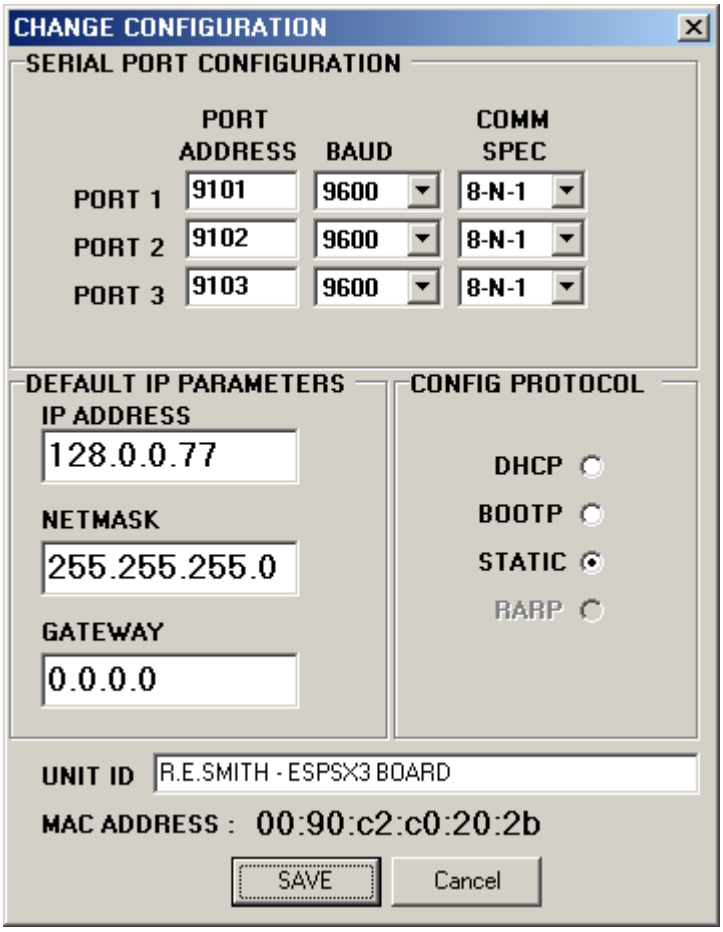
* Communications N,8,1 = no parity, eight bits, one stop bit

Windows 98/ME/NT/2000/XP Configuration Utility



WINDOWS 98/ME/NT/2000/XP CONFIGURATION UTILITY

Double click on device in list to open the configuration dialog seen below.



CONFIGURATION DIALOG

The TCP/IP Configuration Utility can be used to search a given network for serial server devices. In the above screen capture the network 128.0.0.xxx is searched this includes TCP/IP addresses 128.0.0.1 – 128.0.0.254. In this case the DHCP (Dynamic Host Configuration Protocol) server assigned addresses of 128.0.0.75 and 128.0.0.76 to the serial port servers. The user can configure a device with this software after selecting from the list of serial port servers found, then changing the appropriate parameters and then pressing the “SAVE SETTINGS” button. Note! The user must fill in the appropriate search Network for the search to work.

A second method for configuration can be done via COM3 with Jumper J11 (software version 2.0D and newer, J10 prior to 2.0D) removed; the following menus will be displayed after a carriage return is sent to COM3.

```
MAIN MENU
1. DISPLAY CURRENT SETTINGS
2. SETUP IP PARAMETERS
3. SETUP GATEWAY ADDRESS
4. ENABLE/DISABLE DCHP CONFIGURATION
5. SETUP PORT NUMBERS
6. RESET FACTORY DEFAULTS
7. REBOOT TO USE MODIFIED SETTINGS
8. SETUP STAND-ALONE MODE
```

Sub Display (1) Display of Current Settings

```
CURRENT SETTINGS
DEFAULT TCP SETTINGS :
TCP/IP Address : 128.0.0.10
NETMASK : 255.255.255.0

DEFAULT GATEWAY : ...

***** CONFIGURED FOR STATIC ADDRESS
```

Sub Display (2) Enter TCP/IP parameters

```
Enter TCP/IP Address : 128.0.0.12
128.0.0.12
Enter Netmask : 255.255.255.0
255.255.255.0
NOTE! TO ENABLE STATIC YOU MUST DISABLE DHCP (option 4)
AND THEN REBOOT(option 7)!
PRESS ENTER TO CONTINUE
```

Sub Display (3) Enter Gateway parameters

```
Enter Gateway Address : 192.168.1.100
192.168.1.100
```

Sub Display (4) Enable/Disable DHCP

```
USE DHCP Y/N (Enter 'N' for Static Address): y
 USING DHCP ASSIGNED ADDRESS WHEN REBOOTED
 PRESS ENTER TO CONTINUE
```

Sub Display (5) Setup Port Numbers

```
PORT NUMBERS ARE CONFIGURED ON WEB PAGE
```

Sub Display (6) Reset Factory Defaults

```
FACTORY DEFAULTS HAVE BEEN RESTORED
REBOOTING PLEASE WAIT
```

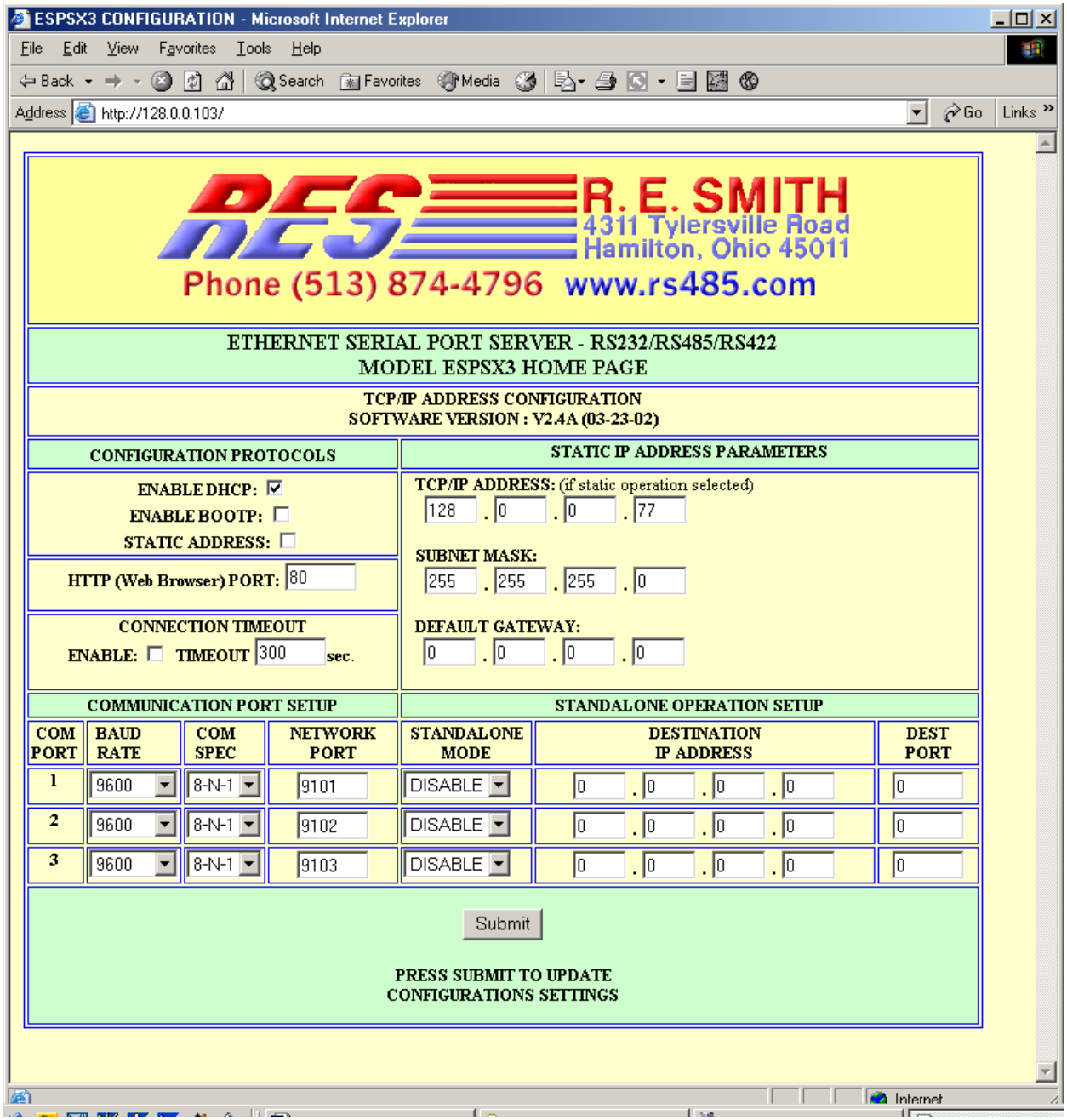
Sub Display (7) Reboot

```
Rebooting Please Wait:
```

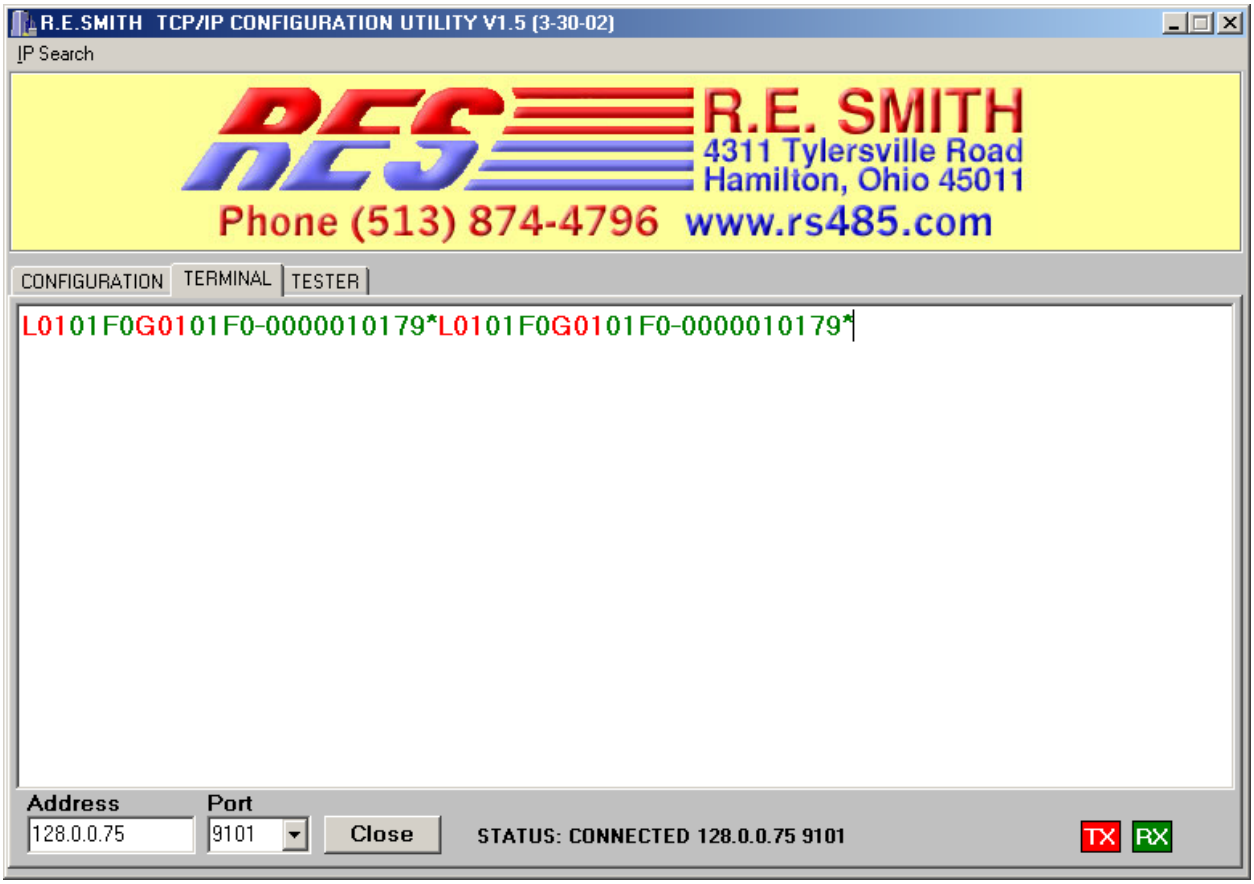
Sub Display (8) SETUP STAND-ALONE MODE

```
Stand-alone Menu
1. Setup Destination TCP/IP Address and Port
2. Enable/Disable Stand-alone Operation on Port
3. Exit Stand-alone Menu
```

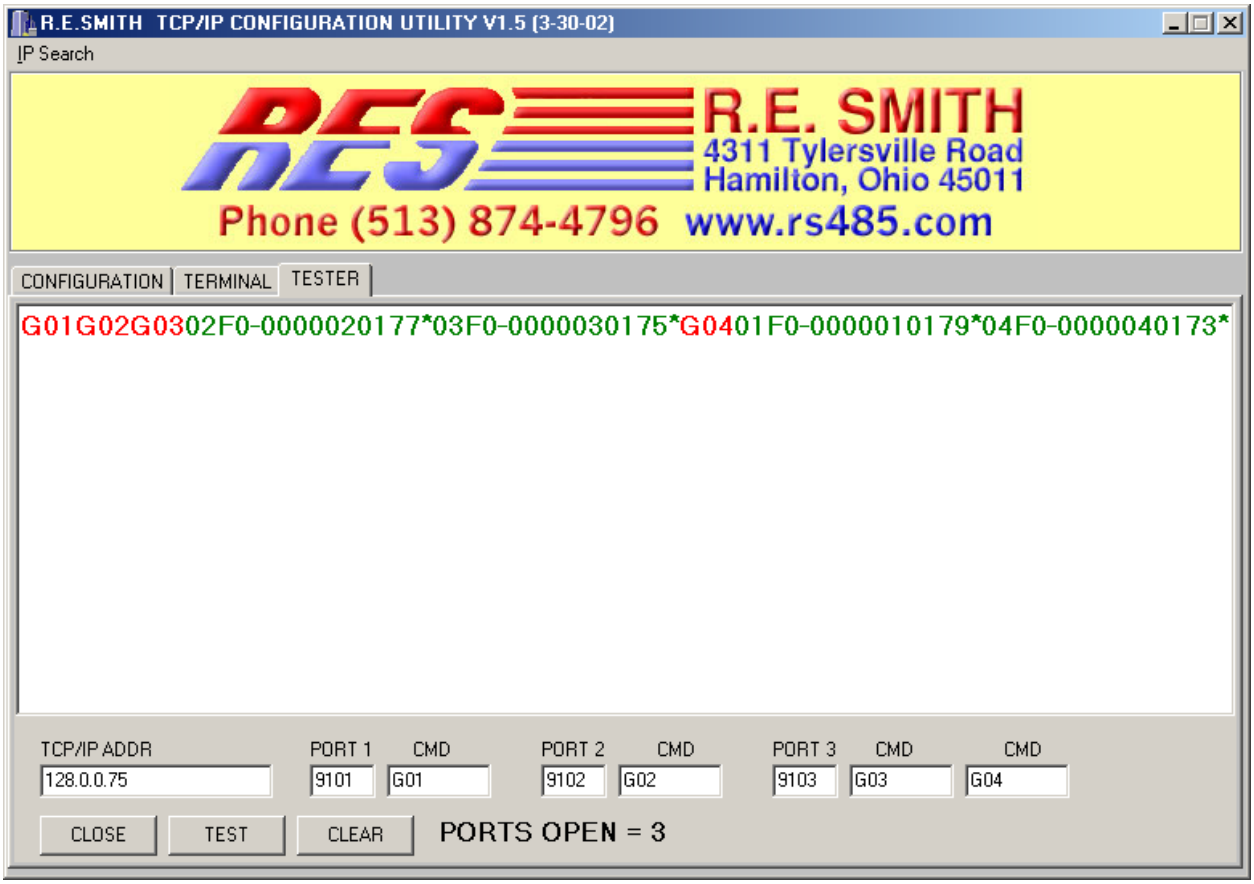
Once the TCP/IP address is known the user can adjust settings via their web browser interface show below.



EXAMPLE WEB PAGE CONFIGURATION SCREEN



TCP/IP TERMINAL

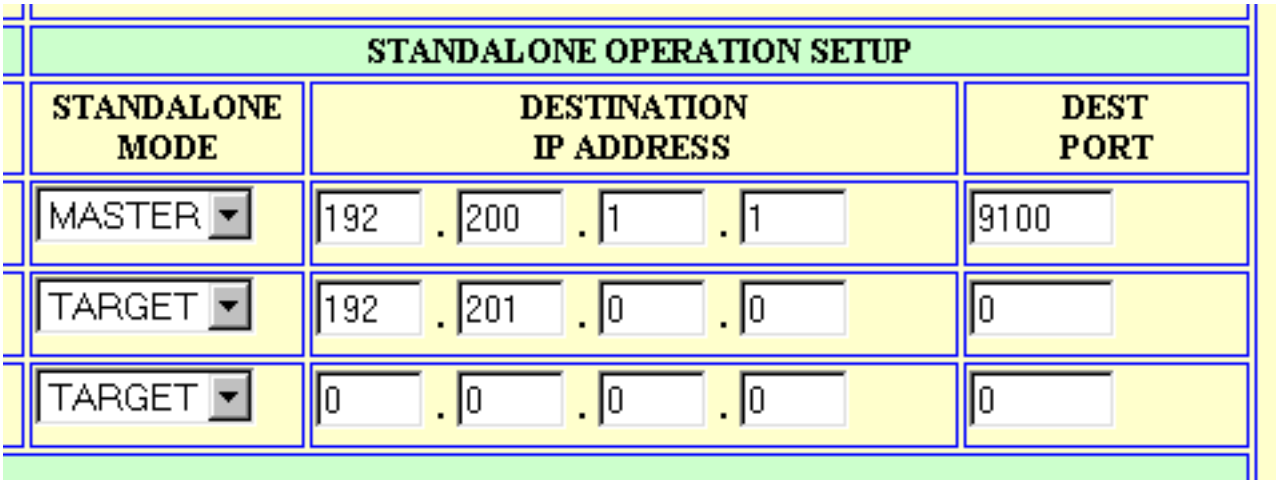


MANUFACTURING TEST

This tab illustrates our manufacturing test to verify all ports are functioning, when connect to test equipment (4 Pingnatron boards), commands in red are sent responses in green are shown.

STAND-ALONE OPERATION

Stand-alone operation can be enabled via the web browser interface. In this mode one board can be configured to be the initiator of a connection between two ESPSX3 units. In the example below the unit with TCP/IP address 192.168.1.1 is configured with the following settings in the STANDALONE OPERATION PARAMETERS section. In this configuration the board with TCP/IP address 192.168.1.2 port 9101 (Serial 1) will be automatically connected to the master unit (192.168.1.1, Serial 1). Baud rate, data bits and stop bits can be different depending on the requirements of the connected devices. Long distance connections can be made in this fashion between RS-232, RS-422, or RS-485 devices/networks.



SAMPLE PARAMETERS FOR MASTER UNIT

TCP/IP USING VISUAL BASIC

Accessing the Ethernet serial port server via the internet or local area network using Visual Basic 6.0 or higher. Note!

1. First open ESPSX3 serial port 1 with the Winsock component.

```
Winsock1.RemoteHost = “128.0.0.206”
Winsock1.RemotePort = “9101”
Winsock1.Connect
```

2. Second, Send to Serial Port 1 on the ESPSX3

```
Winsock1.SendData (“HELLO WORLD”)
```

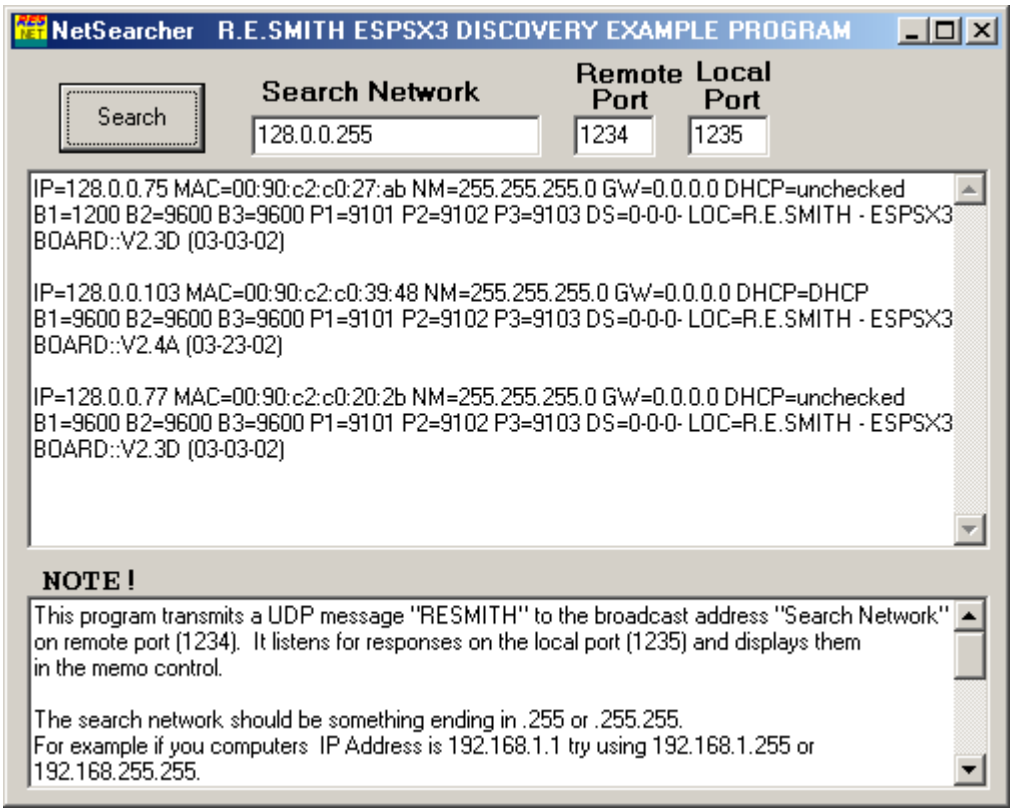
3. Finally, Data can be received with the DataArrival event.

```
Private Sub Winsock1_DataArrival(ByVal bytesTotal As Long)
  Dim strData As String
  Winsock1.GetData strData, vbString
End Sub
```

There are several other event functions available for the Winsock component including (Connect, Close, ConnectionRequest, DataArrival, Error, SendComplete, and SendProgress).

Additional Notes:

Network broadcast to port 1234 message equal to “RESMITH” will trigger response from ESPSX3 to port 1235. This is used to scan the available ESPSX3 units on a given network. The NetSearcher application is available for download which illustrates searching the network for ESPSX3 units.



This program transmits a UDP message "RESMITH" to the broadcast address "Search Network"
on remote port (1234). It listens for responses on the local port (1235) and displays them
in the memo control.

The search network should be something ending in .255 or .255.255.
For example if you computers IP Address is 192.168.1.1 try using 192.168.1.255 or 192.168.255.255.

Typical Responses would be as follows:
IP=128.0.0.103 MAC=00:90:c2:c0:39:48 NM=255.255.255.0 GW=0.0.0.0 DHCP=DHCP
B1=9600 B2=9600 B3=9600 P1=9101 P2=9102 P3=9103 DS=0-0-0- LOC=R.E.SMITH - ESPSX3
BOARD::V2.4A (03-23-02)