

## **PRELIMINARY INFORMATION, 12-29-2001**

# **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)

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

### Table 2: RS-232 Device Type

### Table 3: Reset Defaults Optional Configuration Settings

J10	FUNCTION				
I	Norm	al op	peration		
R	On p rest	ower ored,	on 1 of 3-factory default settings are 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  $\,$ 

### Factory Default Software 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		

### Table 1: Factory Default Settings

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

Windows 98/ME/NT/2000/XP Configuration Utility					
🚹 R.E.SMITH TCP/IP CO	NFIGURATION UTILITY	v1.0a (11-18-01)			
IP Search					
Phone (513) 874-4796 www.rs485.com					
CONFIGURATION TERMINA	AL ]				
SEARCH	<u>SE</u>	RIAL SERVERS			
MAC ADDRESS	IP ADDRESS	LOCATION/NAME	SOFTWARE VERSION		
00:90:c2:c0:28:20 00:90:c2:c0:27:ab	128.0.0.206 128.0.0.209	R.E.SMITH - ESPSX3 BOARD R.E.SMITH - ESPSX3 BOARD	2.0a (11-20-01) 2.0a (11-20-01)		
Search Network 128 NOTE! TO CH NETW	0 0 255 YOU MAY NEED ANGE THE SEARCH ORK ABOVE.	SEARCH	CONFIGURE		

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

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

CHANGE CONFIGURATI	DN		X
SERIAL PORT CONFIG	URATIO	1	
PORT ADDRESS PORT 1 9101 PORT 2 9102 PORT 3 9103	BAUD 9600 38400 11520	COMM SPEC SPEC S-N-1 S-N-1 S-N-2 7-N-1 7-N-2 7-E-1 7-0-1	
DEFAULT IP PARAMET	ERS —	CONFIG PROTOCOL -	
128 0 0 75			
120.0.0.10		DHCP/BOOTP C	
NETMASK		RARP O	
255.255.255.0		BOOTP O	
GATEWAY	1	STATIC 📀	
<b>.</b>			
UNIT ID R.E.SMITH - E	SPSX3 B	OARD	
MAC ADDRESS : 00	:90:c2	:c0:26:46	
S/	AVE	Cancel	
CONFIG	URATIC	N 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 128.0.0.10 and 128.0.0.11 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.

ESPSX3 CONFIGURATION - Microsoft Interne	et Explorer				- 🗆 ×
Eile Edit View Favorites Iools Help					
🛛 🕁 Back 🔹 🤿 🗸 🙆 🚰 🥘 Search 🕋 Favorites 🧭 History 🛛 🛃 🗐 📃 🤮					
Address a http://128.0.0.103/				💌 🤗 Go	Links »
					-
R.E.SMITH 4311 Tylersville Road Hamilton, Ohio 45011 Phone (513) 874-4796 www.rs485.com					
ETHERNET	SERIAL PO MODEL I	ORT SERVER - RS232/RS485/RS422 ESPSX3 HOME PAGE			
	TCP/IP AD SOFTWARE	DRESS CONFIGURATION VERSION : V2.0f(12-29-01)			
CONFIGURATION PROTOCOLS	5	STATIC IP ADDRESS PA	RAMETERS		
ENABLE DHCP:     TCP/IP ADDRESS: (if static operation selected)       STATIC ADDRESS:     192					
HTTP (Web Browser) PORT: 80 SUBNET MASK: 255 . 255 . 0					
CONNECTION TIMEOUT     DEFAULT GATEWAY:       ENABLE:     TIMEOUT 300 sec.       1     2       3     4					
COMMUNICATION PORT SETUR	<b>)</b>	STANDALONE OPERAT	ION SETUP		
COMM BAUD COMM P PORT RATE SPEC	VETWORK PORT	DESTINATION IP ADDRESS	DEST PORT	MASTER	
1 9600 V 8-N-1 V 91	01	192 . 168 . 1 . 2	9101		
2 9600 <b>•</b> 8-N-1 <b>•</b> 91	02		0		
3 9600 ▼ 8-N-1 ▼ 91	03		0	ENA	
Submit PRESS SUBMIT TO UPDATE CONFIGURATIONS SETTINGS					
🐔 Done				🥶 Internet	11.

EXAMPLE WEB PAGE CONFIGURATION SCREEN

R.E.SMITH TCP/IP CONFIGURATION UTILITY	_ 🗆 🗵
IP Search	
Phone (513) 874-4796 www.rs485.com	
CONFIGURATION TERMINAL TESTER	
L0101F0L0101F0G0101F0-0000010179*G0101F0-0000010179*	
Address Port	
128.0.0.75         3101         Close         STATUS: CONNECTED 128.0.0.75 9101         TX	RX

TCP/IP TERMINAL

R.E.SMITH TCP/IP CONFIGURATION UTILITY
IP Search
Phone (513) 874-4796 www.rs485.com
CONFIGURATION TERMINAL TESTER
G01G02G0301F0-0000010179*02F0-0000020177*03F0-0000030175*G0404F0-0000040173*
TCP/IP ADDR PORT 1 CMD PORT 2 CMD PORT 3 CMD CMD 128.0.0.75 9101 G01 9102 G02 9103 G03 G04 CLOSE TEST

### 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.

STANDALONE OPERATION SETUP					
DESTINATION IP ADDRESS	DEST PORT	MASTER			
192 .168 .1 .2	9101	🗹 ENA			
		🗆 ENA			
		🗆 ENA			

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).