EQUINOX®

SuperSerial™ Technology

Product Installation Guide

SST Ethernet Serial Provider (ESP)

Section 1 - *ESP Hardware Installation*

The Equinox SuperSerial Technology (SST) Ethernet Serial Provider (ESP) can be installed on a local or remote LAN to provide access for widely distributed serial devices. The ESP is supported under Windows 2000, NT 4.0, NT 3.51, SCO OpenServer 5.0.4 or higher, SCO UnixWare 7.0.1a or higher, and Linux. The ESP can be managed using EquiView Plus, Equinox' premier serial port management software, running on any Microsoft Windows host.

The Ethernet Serial Provider kit consists of:

- Ethernet Serial Provider Unit, 8-port (PN 990380) or 16-port (PN 990381)

- Installation Guide - this document (PN 560158)

- Loopback Connector (PN 750121)

- Equinox SuperSerial Software CD (PN 650185)

- Two Wall-mount Brackets (PN 770379)

The following special-order accessories are available for the ESP (See Section 1.3 for detailed part descriptions and device cabling information).

- Modular Adapters

    RJ-45 to DB-25 DTE Male Adapter (PN 210090)

    RJ-45 to DB-25 DTE Female Adapter (PN 210091)

    RJ-45 to DB-25 DCE Male Adapter (PN 210092)

    RJ-45 to DB-25 DCE Female Adapter (PN 210093)

    RJ-45 to DB-9 Male Adapter (PN 210094)

    RJ-45 to DB-9 Female Adapter (PN 210095)

- Modular Cables

    10 feet 8-wire Reversing Modular Cable (PN 690226)

    25 feet 8-wire Reversing Modular Cable (PN 690227)

    75 feet 8-wire Reversing Modular Cable (PN 690228)

- Rack-mount Shelf (PN 790180)

- Wiring Starter Kit (PN 750122). This kit includes four adapters (PNs 210090, 210092, 210093 and 210095) and a 10' 8-wire modular cable (PN 690226).
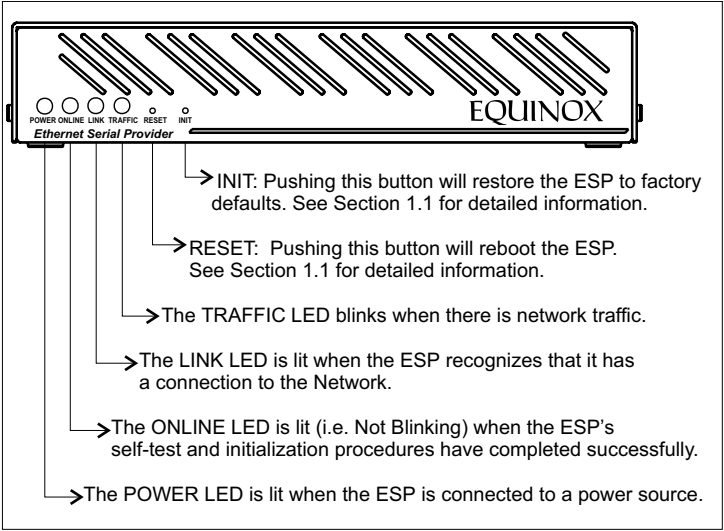
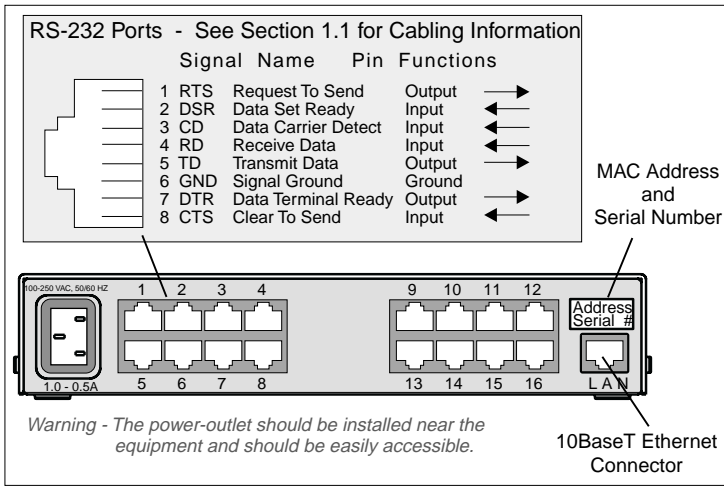**Figure 1.1** *ESP Front View With LED Indicator Information*

Figure 1.2 *ESP Rear View And COM Port Pinouts*

Install the ESP using the following instructions:

1. Record the MAC Address located on the label affixed to the back of the unit above the LAN connector socket (see Figure 1.2). This address will be used as a Unit ID to distinguish different ESP devices on the network.

    00 - 80 - 7D - _____ - _____ - _____

2. Attach a 10BaseT LAN interface cable to the LAN connector on the back of the ESP. Note that this unit operates only on a 10BaseT LAN.

3. Power on the ESP by connecting the Power Cable to a power source.

    Warning: The socket-outlet shall be installed near the equipment and shall be easily accessible.

4. Install the ESP driver using the instructions in Section 2 for your target operating system.

5. Install or upgrade to EquiView Plus version 4.5 or higher from the Equinox SuperSerial Software CD. EquiView Plus will help to manage ESPs on various networks.

If the ESP Fails to Boot...

The ESP is very robust and there are few errors that would prevent the ESP from correctly initializing and going ONLINE. However, if one of these errors should occur, the ONLINE light will blink a repeating pattern with discernible pauses. Count the number of blinks between pauses to determine the cause of the initialization failure and be prepared to provide this information to Technical Support.

Section 1.1 - *INIT and Reset Buttons*

The INIT button (see Figure 1.3) can be used to remove configured information from an ESP unit. The ESP stores nonvolatile data, such as SNMP community name, system contact, and IP address in FLASH. This information can be erased by pressing the INIT button. Note that pressing the INIT button will interrupt operation of the ESP and cause reinitialization to occur.

The FLASH erase is performed in two phases. The first phase erases the configuration database, which contains all nonvolatile data EXCEPT the IP address. The second phase erases the IP address and effectively restores the ESP to factory default. This feature can be used to erase an ESP's FLASH for reinstallation elsewhere on your network.

When the INIT button is first pressed, the ONLINE LED will begin to blink to confirm that you have pressed the INIT button. Pressing the button and holding it for 5 seconds erases the configuration database in the ESP FLASH. When the database has been erased, the ONLINE LED begins to flash rapidly. If you release the INIT button before the 5 second mark, no action is taken and the ESP does not reinitialize.

If the button is pressed and held for an additional 5 seconds, the IP address is also erased.

If any portion of FLASH is erased, the ESP will reboot itself when the INIT button is released.

The RESET button (see Figure 1.3) can be used to reset the ESP. Pushing this button will cause an immediate Reboot.
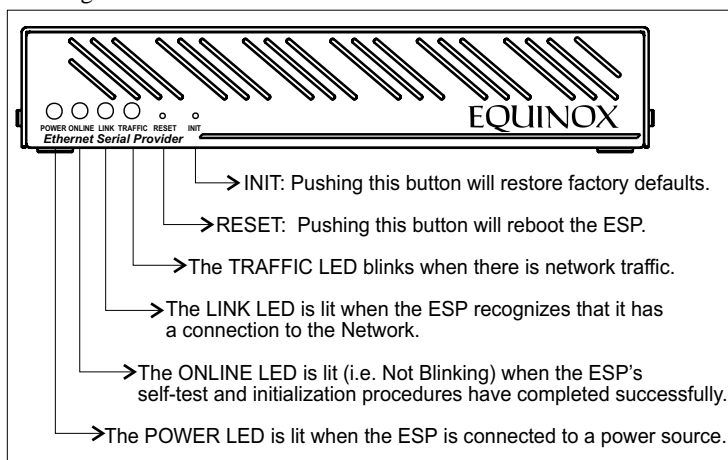

INIT: Pushing this button will restore factory defaults.

RESET: Pushing this button will reboot the ESP.

The TRAFFIC LED blinks when there is network traffic.

The LINK LED is lit when the ESP recognizes that it has a connection to the Network.

The ONLINE LED is lit (i.e. Not Blinking) when the ESP's self-test and initialization procedures have completed successfully.

The POWER LED is lit when the ESP is connected to a power source.

Figure 1.3 *ESP Push Buttons And LED Information*

Section 1.2 - *Device Cabling*

Figures 1.4 through 1.6 show the pinouts required to make a cable to connect between ESP RJ-45 ports and your devices.
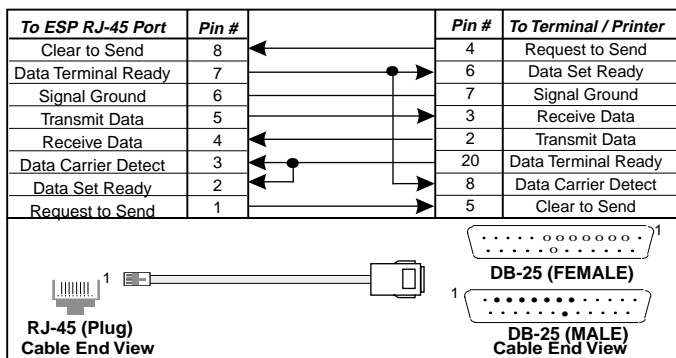
To ESP RJ-45 Port	Pin #			Pin #	To Terminal / Printer
Clear to Send	8			4	Request to Send
Data Terminal Ready	7			6	Data Set Ready
Signal Ground	6			7	Signal Ground
Transmit Data	5			3	Receive Data
Receive Data	4			2	Transmit Data
Data Carrier Detect	3			20	Data Terminal Ready
Data Set Ready	2			8	Data Carrier Detect
Request to Send	1			5	Clear to Send

DB-25 (FEMALE)

RJ-45 (Plug) Cable End View

DB-25 (MALE) Cable End View

Figure 1.4 Cable Pinouts For ESP RJ-45 To Terminal/Printer

To ESP RJ-45 Port	Pin #			Pin #	To PC (DB-9)
Clear to Send	8			7	Request to Send
Data Terminal Ready	7			6	Data Set Ready
Signal Ground	6			5	Signal Ground
Transmit Data	5			2	Receive Data
Receive Data	4			3	Transmit Data
Data Carrier Detect	3			4	Data Terminal Ready
Data Set Ready	2			1	Data Carrier Detect
Request to Send	1			8	Clear to Send

RJ-45 (Plug) Cable End View

DB-9 (FEMALE) Cable End View
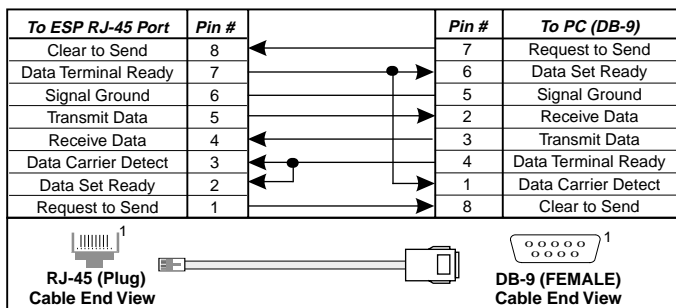
Figure 1.5 Cable Pinouts For ESP RJ-45 To PC DB-9

To ESP RJ-45 Port	Pin #			Pin #	To Modem
Clear to Send	8			5	Clear to Send
Data Terminal Ready	7			20	Data Terminal Ready
Signal Ground	6			7	Signal Ground
Transmit Data	5			2	Transmit Data
Receive Data	4			3	Receive Data
Data Carrier Detect	3			8	Data Carrier Detect
Data Set Ready	2			6	Data Set Ready
Request to Send	1			4	Request to Send

RJ-45 (Plug) Cable End View

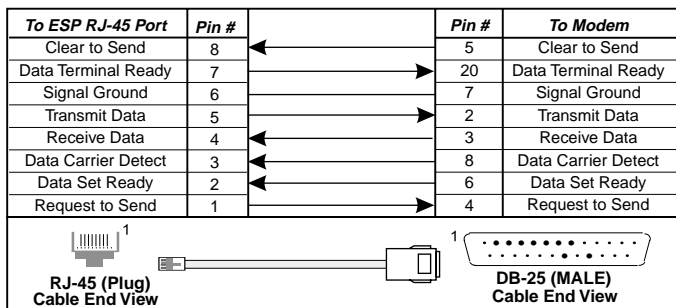**DB-25 (MALE) Cable End View**

Figure 1.6 Cable Pinouts For ESP RJ-45 To Modem DB-25

Section 1.3 - *RJ-45 Modular Adapters*

Modular Adapters are available from Equinox to convert RJ-45 modular jacks to DB-25 or DB-9 connectors. These modular adapters, in conjunction with 8-wire modular cables, perform the same functions as shown in Figures 1.4 through 1.6. Figure 1.7 below describes the modular Adapters available from Equinox.
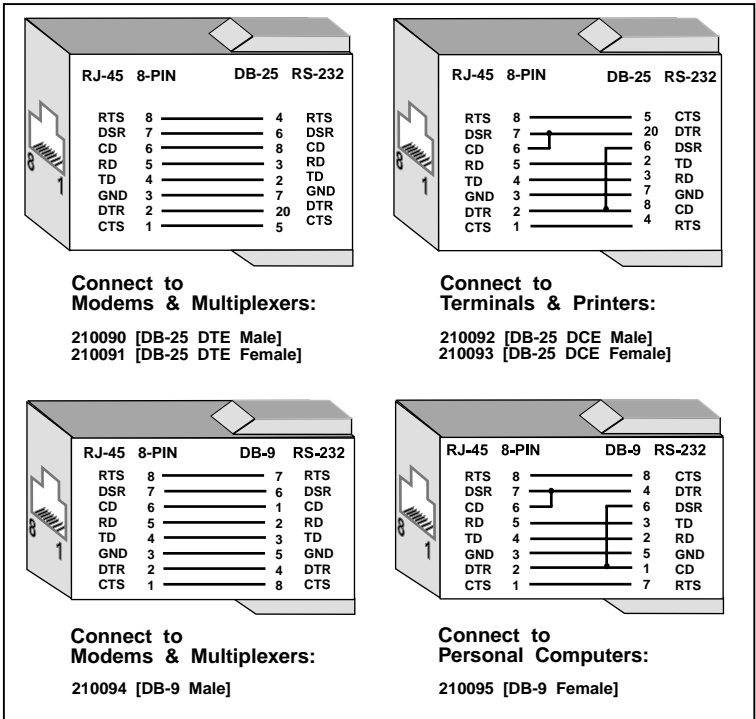

Figure 1.7 Modular Adapters Available From Equinox

The following modular cables are available from Equinox (use with modular adapters from Figure 1.7).

P/N	Description
690226	10 Feet 8-wire Reversing Modular Cable
690227	25 Feet 8-wire Reversing Modular Cable
690228	75 Feet 8-wire Reversing Modular Cable

The adapters listed on previous page (with 8-wire modular cables as shown below), may be used to attach devices to ESP RJ-45 ports.

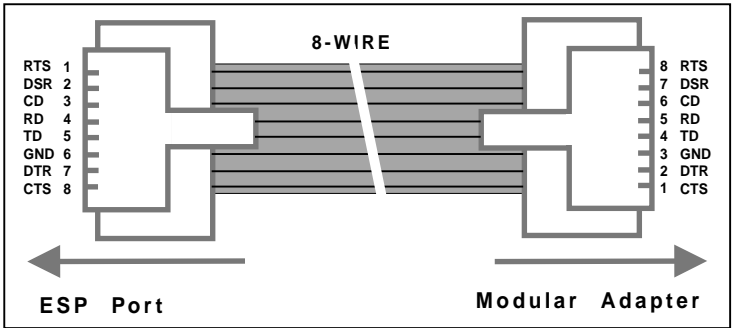If a customer-supplied modular cable is used, *make sure the cable is reversing* (see Figure 1.8 below).

8-WIRE

ESP Port		Modular Adapter
RTS 1		8 RTS
DSR 2		7 DSR
CD 3		6 CD
RD 4		5 RD
TD 5		4 TD
GND 6		3 GND
DTR 7		2 DTR
CTS 8		1 CTS

Figure 1.8 8-wire RJ-45 Reversing Cable

Section 2 – *Installing the ESP Driver*

This section contains instructions for installing the ESP driver from the Equinox SuperSerial CD-ROM. The ESP is supported under Windows 2000, NT 4.0, NT 3.51, SCO OpenServer 5.0.4 or higher, SCO UnixWare 7.0.1a or higher, and Linux.

Section 2.1 - *Windows 2000*

To install the Windows 2000 ESP driver, you must first run SETUP.EXE from the Windows 2000 ESP driver diskette made using the Equinox SuperSerial CD-ROM. This SETUP.EXE will install the necessary Device Manager files for the Equinox ESP. Insert the diskette into your A: drive, set your default drive to A: and run SETUP.

The Windows 2000 ESP driver is installed when you install the first ESP. Navigate to **Settings / Control Panel / Add/Remove New Hardware.**

From the Add/Remove Hardware Wizard, select:
   Add/troubleshoot a device

Windows 2000 will search for new Plug and Play hardware on your computer. ESP devices are network-attached and are not located by the Add New Hardware Wizard. Next, a list of devices which can be installed is displayed. Select:
   Add a new device

From the Find New Hardware page, select:
   No, I want to select the hardware from a list

A list of hardware types will be displayed. Select:
   Multi-port serial adapters

Windows 2000 will ask you to select a device driver. From this page, highlight Equinox Systems Inc. and Select:
   Equinox Ethernet Serial Provider / Have Disk
And point the wizard to your A: drive.

From the Select a Device Driver page, again select:
   Equinox Ethernet Serial Provider

The hardware wizard will now locate an ESP that is located on your server's local subnet and display information about that ESP. If your ESP does not yet have an IP address, you must now enter the IP address for the ESP and click:
   Next>

The wizard will display the ESP's configuration for final verification. If the IP address you assigned is correct, click:
   Next>

The hardware wizard will now copy files from the Windows 2000 ESP driver diskette. During this process, the Equinox ESP driver file will be examined for a Microsoft digital signature. If the ESP driver is not signed, a warning message will be displayed to inform you of this fact. To continue the installation, read the warning and then click:

Yes

If you click No, the installation will terminate and the ESP will not be installed on your server.

Once all files are copied, click:

Finish

Your ESP is now installed. Windows 2000 will now install the ESP serial ports.

Section 2.2 – *Windows NT 4.0*

Navigate to *Settings / Control Panel / Network* to display the Network Control Panel. Select the *Services* tab. Click *Add* to install the ESP Driver for Windows NT 4.0.

The Control Panel will generate a list of standard Network Services. The Equinox ESP Service is a new network service so you must click the *Have Disk* button.

1. The Control Panel will ask you to enter the path name for the disk that contains the ESP Service installation files.

    •   If you are installing from diskette, enter the drive letter of the diskette drive.

    •   If you are installing from the Equinox SuperSerial CD-ROM, enter the pathname *D:\DRIVERS\ESP\NT*, where D: is your CD-ROM drive letter.

    •   If you have stored the driver on the NT system, or on a network drive, enter the full path for the location of the Equinox ESP Service.

2. The Control Panel will copy files from the path you specified to the required NT system directories. Once the copy is complete and the driver is installed, the Control Panel will automatically start the Equinox ESP Service. It will also start the ESP Installation Wizard and attempt to locate ESP units on all local subnets. Using the Installation Wizard you can:

    •   Discover and install ESPs on local or remote subnets.
    •   Configure ESP units and assign COM port numbers.
    •   Replace an ESP unit on a local or remote subnet.

    Refer to the on-line help in the ESP Installation Wizard for additional information on *ESP Discovery and Installation*.

Section 2.3 – *Windows NT 3.51*

From the *Main Program Group*, double click *Control Panel / Network*. A list of currently installed services is shown. At the end of this list, there is an entry called *<Other>*. Select this option and click *Continue*.

Follow steps 1 and 2 from Section 2.2 above.

Section 2.4 - *SCO OpenServer*

The following steps detail installation procedures for installing the ESP driver on a SCO OpenServer (Release 5.0.4 or higher) system.

2.4.1 - Installation directly from the CD-ROM

Mount the CD-ROM volume using the following command:
```
mount -f ISO9660,filemode=444 <device> <mount point>
```

For example, to mount a CD-ROM on drive 1 to /mnt, use the command:
```
mount -f ISO9660,filemode=444 /dev/cd1 /mnt
```

Install the driver using the "custom" utility with media image "VOL.000.000".

When custom prompts for "Media Device:", select:
```
Media Images
```

When custom prompts for "Image Directory" specify:
```
/mnt/DRIVERS/ESP/SCO
```

Follow the installation instructions for "custom" contained in the file:
```
/mnt/DRIVERS/ESP/SCO/README
```

2.4.2 - Creating SCO OpenServer ESP Installation Diskettes on OpenServer Systems

Be sure that the following command has been run:
```
mkdev cdrom
```

Mount the CD-ROM volume:
```
mount -f ISO9660,lower <device> <mount point>
```

For example, to mount a SCSI CDROM on drive 0 to /mnt, use the command:
```
mount -f ISO9660,lower /dev/cd0 /mnt
```

Run the commands:
```
cd /mnt [or other mount point used in the above mount command]
./makeunix.sh
```

Now follow the on-screen instructions.

2.4.3 - Creating SCO OpenServer Installation Diskettes on DOS

To create a SCO OpenServer installation diskette from DOS:

- Load the Equinox SuperSerial Software CD into your DOS CD-ROM drive.

- Set you default drive to the DOS CD-ROM drive letter.

- Run the command MAKEUNIX and select the appropriate Equinox product and operating system for which diskettes are desired.

2.4.4 - Creating SCO OpenServer ESP Installation Diskettes on Microsoft Windows

To create a SCO OpenServer installation diskette from Microsoft Windows:

- Load the Equinox SuperSerial Software CD. The Equinox SuperSerial Software CD-ROM will autoplay. If you have autoplay enabled, the Equinox SuperSerial Software Installation screen will appear.

  If you do not have autoplay enabled, set your default drive to D: and run the command D:\SETUP where D: is your CD-ROM drive letter.

- Click UNIX on the Main Window. This will allow you to select options for specific UNIX implementations.

- Select the UNIX operating system for which you need drivers. This will take you to the detailed instructions and permit you to create a UNIX install diskette for your UNIX operating system. Follow the on-screen instructions.

2.4.5 - Using the SCO OpenServer ESP Installation Diskette

Once the SCO OpenServer installation diskette is created, refer to the SCO OpenServer readme.txt file listed below for detailed installation instructions.

```
/drivers/esp/sco/readme.txt
```

Section 2.5 - *SCO UnixWare*

The following steps detail installation procedures for installing the ESP driver on a SCO UnixWare (Release 7.0.1a or higher) system.

2.5.1 - Creating UnixWare ESP Installation Diskettes on UnixWare

Mount the CD-ROM volume:
```
mount -f cdfs -0 fperm=0555,nmconv=c -r/dev/cdrom/
c0b0t110/mnt
```

For example, to mount the first IDE CD-ROM om/mnt:
```
mount -F cdfs -0 fperm=0555,nmconv=c -r/dev/cdrom//
c0b0t110/mnt
```

Run the commands:
```
cd /mnt [ or other mount points used in the above
mount command]
./makeunix.sh
```

Follow the on-screen instructions to build an installation diskette for UnixWare ESP.

2.5.2 - Creating UnixWare ESP Installation Diskettes on DOS

To create UnixWare installation diskettes from DOS:
- Load the Equinox SuperSerial Software CD into your DOS CD-ROM drive.

- Set your default drive to the DOS CD-ROM driver letter.

- Run the command MAKEUNIX and select the appropriate Equinox product and operating system for which diskettes are desired.

2.5.3 - Creating UnixWare ESP Installation Diskettes on Microsoft Windows

To create UnixWare installation diskettes from Microsoft Windows:

   • Load the Equinox SuperSerial Software CD. The Equinox SuperSerial Software CD-ROM will autoplay. If you have autoplay enabled, the Equinox SuperSerial Software Installation screen will appear.

   If you do not have autoplay enabled, set your default drive to D: and run the command D:/SETUP where D: is your CD-ROM drive letter.

   • Click UNIX on the Main Window.
   • Select the operating system for which you need drivers. This will take you to the detailed instructions and permit you to create an installation diskette for your system. Follow the on-screen instructions.

2.5.4 - Using the UnixWare ESP Installation Diskette

Once the UnixWare installation diskette is created, refer to the UnixWare readme.txt file listed below for detailed installation instructions.
/drivers/esp/unixware/readme.txt

Section 2.6 - *Linux Systems*

2.6.1 - Installation directly from the CD-ROM

Mount the CD-ROM volume:
    mount -t iso9660<device> <mount point>

Typically, to mount the first CD-ROM:
    mount -t iso9660 /dev/cdrom /mnt/cdrom

Change to the RPMS directory:
    cd /mnt/cdrom/RPMS

    (this assumes that the CD-ROM was mounted on /mnt/cdrom)

Install the RPM:
    rpm -ivh espx.rpm

Run espcfg to discover/initialize ESPs:
    /etc/eqnx/espcfg

2.6.2 - Creating Linux ESP Installation Diskettes on Linux

Mount the CD-ROM volume:
```
mount -t iso9660<device> <mount point>
```

For example, typically, to mount the first CD-ROM:
```
mount -t iso9660/dev/cdrom /mnt/cdrom
```

Run the commnads:
```
cd /mnt/cdrom [or other mount points used in the
above mount command] ./makeunix.sh
```

Follow the on-screen instructions to build an installation diskette for Linux ESP.

2.6.3 - Creating Linux ESP Installation Diskettes on DOS:

To create Linux installation diskettes from DOS
- Load the Equinox SuperSerial Software CD into your CD-ROM drive.

- Set your default drive to the DOS CD-ROM driver letter.

- Run the command MAKEUNIX and select the appropriate Equinox product and operating system for which diskettes are desired.

2.6.4 - Creating Linux ESP Installation Diskettes on Microsoft Windows:

- Load the Equinox SuperSerial Software CD. The Equinox SuperSerial Software CD-ROM will autoplay. If you have autoplay enabled, the Equinox SuperSerial Software Installation screen will appear.

   If you do not have autoplay enabled, set your default drive to D: and run the command D:/SETUP where D: is your CD-ROM drive letter.

- Click UNIX on the Main Window.
- Select the operating system for which you need drivers. This will take you to the detailed instructions and permit you to create an installation diskette for your system. Follow the on-screen instructions.

2.6.5 - Using the Linux ESP Installation Diskette:

Once the Linux installation diskette is created, refer to the Linux readme.txt file listed below for detailed instructions.

```
/drivers/esp/linux/readme.txt
```

DECLARATION OF CONFORMITY

according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name: Equinox Systems Inc.
Manufacturer's Address: One Equinox Way
Sunrise, Florida 33351-6709 USA

declares, that the products

Product Names: SuperSerial Technology (SST)
Serial I/O products

Model Numbers: Ethernet Serial Provider
Product Options: ESP-8, ESP-16

conform to the following Product Specifications:

Safety:	EN 60950:1992, CSA C22.2 No: 950, UL 1950
EMC:	EN 55022 Class A, FCC Part 15 Class A
	EN 50082-1: 1997 - Generic Immunity

Supplementary Information:

The products herewith comply with the requirements of the Low Voltage Directive, 73/23/EEC and the EMC Directive 89/336/EEC, including amendments by the CE-marking Directive 93/68/EEC.

September 2000   Equinox Systems, Inc.

Importer's Name: _____

Importer's Address: _____

> **Realtime ETS™ Kernel**
> Contains portions Copyright © 1996
> Phar Lap Software, Inc.

Electronic Emission Notices

Federal Communication Commission (FCC) Statement

WARNING: This is not a user serviceable device and must only be opened by a qualified service personnel.

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void user's authority to operate the equipment.

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. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in the residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

NOTE: This product was tested with unshielded cables and was found to conform to the Class A FCC limits.

Canada

"This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications."

"Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la class A prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada".

European Union

WARNING: This is a Class A product. In domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.