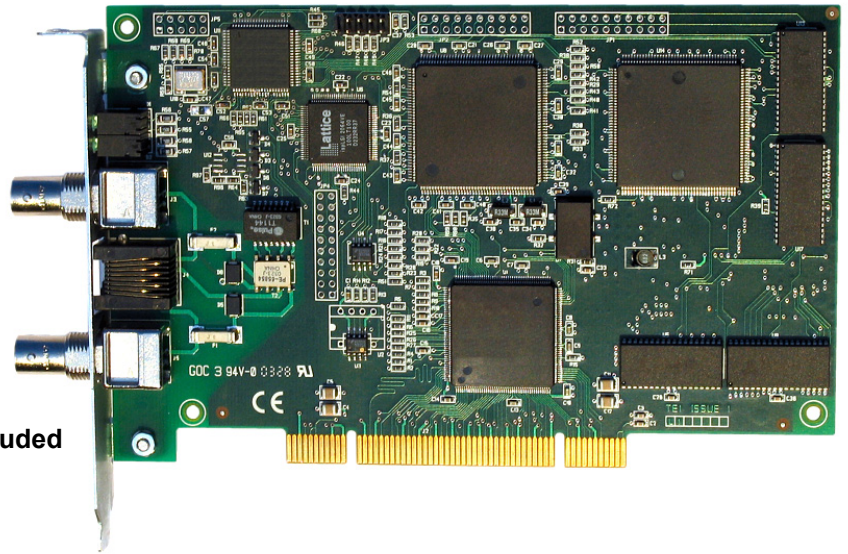


## Key Features

- E1 X.25 Universal PCI adapter
- Network interfaces for Unstructured E1 (G.703) and Fractional E1 (G.704)
- RJ48 (RS45) or BNC connectors
- APIs to X.25 and ISO Transport
- 32 and 64 bit drivers for Linux and Windows
- Up to 4095 simultaneous sessions
- Includes IP over X.25
- Support for *openFT/FTAM*
- Developers Toolkit and Line Monitor included



## Overview

The FarSync X.25 TE1 product is a high quality X.25 solution for business, government and military applications, it has been developed to provide high performance, versatile X.25 connectivity for Linux and Windows systems.

The Universal PCI adapter will support an X.25 line at speeds to over 2.048 Mbits/s. The highly flexible universal network connector supports Unstructured E1 (G.703) or fractional E1 (G.704), using either RJ48 (RJ45) or BNC connectors.

A Developers Toolkit is provided with the product including a Line Monitor application.

### Features under Linux:

The adapter supports Linux kernel 2.6 in 32 and 64 bit formats, including the leading distributions supplied by Redhat, SuSE, Mandriva, Debian, Ubuntu, Fedora, Slackware, CentOS and more. SMP (multi-processor) and multi-core systems are supported. Configuration is by a Java based GUI or via text files for embedded use.

There are APIs to the X.25 layer, a Sockets based interface and a Java API. There is also an API to the ISO Transport layers (ISO 8073 - connection oriented).

IP over X.25 support is included permitting TCP/IP operation over an X.25 network.

XOT (X.25 over TCP/IP) support is available as an option, using the same APIs as X.25. XOT can operate at the same time as X.25.

Up to 254 connections are supported as standard or up to 4095 connections using the FarSync X25 High Capacity Pack.

FarSite is committed to supporting the FarSync X25 TE1 on new versions of Linux and Linux kernels as they are released. The source code for the driver and the libraries for the API are supplied with the product, allowing rebuilding by the end user for use with almost any of the current or future Linux variants.

### Features under Windows:

The TE1 adapter installs seamlessly as a plug and play device under Windows 7, Vista, XP, Server 2003 and Server 2008. 32 and 64 bit Windows operating systems are supported.

The X.25 software has a host of features including ISO Transport (classes 0 to 3), support for OpenFT FTAM, a WinSock2 compliant Sockets API, a Java API, and a COM Port API. The Sockets API is also accessible from .NET applications.

Up to 4095 connections can be supported using the FarSync X25 High Capacity Pack or 254 as standard.

IP over X.25 support is included permitting TCP/IP operation over an X.25 network.

## Typical Applications

The FarSync X25 TE1 adapter is suitable for connection to all types of **X.25 networks, X.25 over the ISDN D channel, and leased lines**. FarSync X.25 adapters are in use today in a variety of applications, including:

- X.25 networks such as Lottery, Police, Customs, Military, Fishery, Financial, Government and Airline
- E-Commerce gateways for credit adapter verification
- Mixed X.25 and IP networks
- Billing and Mediation
- ATM connections
- Lottery Terminals
- FTAM access
- X.400

The adapter is compatible with all public X.25 networks.

## FarSync X25 TE1 - Hardware Details

The FarSync X25 TE1 runs an AMD processor with SRAM and an embedded HDLC controller connected to the Server/PC through an Universal PCI bus with the E1 connection provided by a FALC56.

### Network Interfaces

E1 unstructured (G.703) and Transparent operation at 2.048 Mbits/s, E1 fractional (G.704) at speeds from 64 Kbits/s to 1.984 Mbits/s.

### PCI Bus Specification

The FarSync X25 TE1 adapter is suitable for systems with a PCI or PCI-X bus, covering single processor and multi-processor systems. The adapter is PCI revision 2.2 compliant with support for both 3.3 and 5 volt signaling, the power for the adapter is taken from the 3.3 volt supply rail.

The adapter may be fitted in either 32-bit PCI bus slots or 64-bit PCI-X bus slots as this Universal PCI adapter will work perfectly well in both.

## Line Monitor and Network Statistics Utilities

The line monitor included for **Windows and Linux** is an invaluable tool. Line traces can be displayed in real time, recorded and reviewed with full protocol decoding.

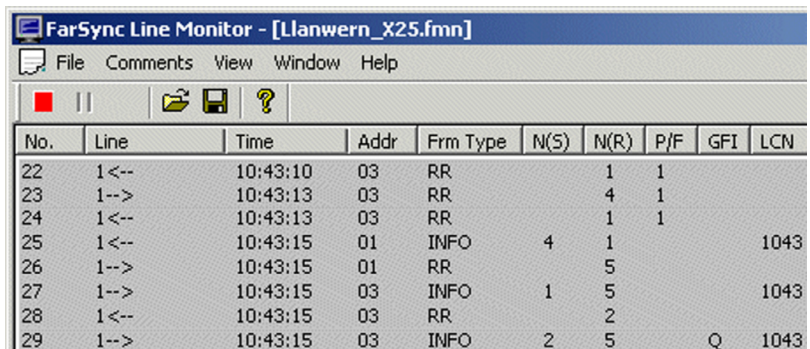
### Windows version only features:

Recording in pcap format

Wireshark can be used to trace X.25 line activity in real time.

### A connection status and statistics utility

is also provided. It's functions include the display of the channel connection status and statistics of user data, packet and frame types passed over the X.25 lines.



The screenshot shows the 'FarSync Line Monitor - [Llanwern\_X25.fmn]' application window. It has a menu bar with 'File', 'Comments', 'View', 'Window', and 'Help'. Below the menu bar is a toolbar with icons for a red square, a vertical bar, a folder, a floppy disk, and a question mark. The main area contains a table with the following columns: No., Line, Time, Addr, Frm Type, N(S), N(R), P/F, GFI, and LCN. The table contains 8 rows of data.

No.	Line	Time	Addr	Frm Type	N(S)	N(R)	P/F	GFI	LCN
22	1<--	10:43:10	03	RR		1	1		
23	1-->	10:43:13	03	RR		4	1		
24	1<--	10:43:13	03	RR		1	1		
25	1<--	10:43:15	01	INFO	4	1			1043
26	1-->	10:43:15	01	RR		5			
27	1-->	10:43:15	03	INFO	1	5			1043
28	1<--	10:43:15	03	RR		2			
29	1-->	10:43:15	03	INFO	2	5		Q	1043

Screen shot extract from the Windows Line Monitor application

## TCP/IP over X.25

The IP over X.25 support is included as part of the FarSync X25 TE1 product and is integrated into Linux and Windows.

**Linux Features:** IP over X.25 support complies with RFC 1356 (IP over X.25). Higher level protocols that run over IP including TCP, UDP, HTTP and FTP are supported.

**Windows Features:** The IP over X.25 support complies with RFC 1356 (IP over X.25), for single and multiple X.25 destinations. Higher level protocols that run over IP including TCP, UDP, HTTP and FTP are supported.

## API and Developers Toolkit

Application developers have a choice of APIs for X.25 and ISO Transport. An API selector guide is provided to assist the developer in choosing the most appropriate interface. The comprehensive Developers Toolkit is included with the product. See the [FarSync X.25 Developers Toolkit and API Datasheet](#) for full details.

## FarSync XOT Extension option

The XOT extension allows applications using the same API to transmit data over XOT (X.25 over TCP/IP). TCP/IP is normally routed over Ethernet on PCs and Servers. The XOT support is compatible with FarSite's [FarLinX X25 Gateway](#) and also other manufacturers' XOT products. The XOT and X.25 interfaces can be used simultaneously.

**For Linux** use the **FarSync XOT Extension for Linux**, it should be ordered at the same time that the FarSync X25 adapter is purchased, although a retrofit is possible.

**For Windows** use the **FarSync XOT Runtime - Windows** product.

## FarSync X.25 High Capacity Pack option

An optional high capacity pack is available for the FarSync X25 TE1. The **FarSync X.25 High Capacity Pack** allows up to 4,095 simultaneous connections to be made; a huge increase from the standard 254 on each line. The expanded capacity applies to SVC, PVC and ISO Transport connections.

Customer applications developed to use the standard X.25 Sockets API are compatible with the FarSync X25 High Capacity Pack.

Order the **FarSync X.25 High Capacity Pack - Windows** or **FarSync X.25 High Capacity Pack - Linux**. These products should be ordered at the same time that the FarSync X.25 TE1 is purchased although a retrofit upgrade is possible. One FarSync X.25 High Capacity Pack is required per adapter.

## Configuration

For both Windows and Linux, configuration is by a GUI configuration application, rapid installation and easy configuration are key features of the product.

X.25 lines can be reconfigured and restarted without reloading the software.

Many of the parameters such as DTE / DCE selection are determined automatically. Selecting the line speed by default automatically sets suitable timer and retry values. An advanced tab permits users to exactly specify the configuration of the line if necessary.

## Cables

The cable and connector configurations available for the FarSync X25 TE1 are described in the **Order Information Table** on the last page of the datasheet.

## Packaging

The X.25 software, firmware, drivers, utilities and the X.25 Developers Toolkit are all included on the CD-ROM supplied with the FarSync TE1 adapter. RJ48 cable included.


The CD-ROM supplied with the FarSync X25 TE1 includes:

- Drivers for Linux, Windows 7, XP, Vista, Server 2003 and Server 2008
- Numerous example applications with source code
- Documentation for all the APIs in Adobe PDF format
- Source code for Linux drivers and API Libraries
- Network monitor and various useful utility programs

New releases of the software are made available for free download from [www.farsite.com](http://www.farsite.com).

<b>Software Technical Specifications</b>	
<b>Operating System support</b>	Windows 7, Vista, XP, Windows Server 2003, Windows Server 2008. Linux distributions supplied by Redhat, SuSE, Mandriva, Debian, Ubuntu, Fedora, Slackware, CentOS and others with kernel version 2.6.
<b>Linux kernel support</b>	All sub versions of kernel releases from 2.6.1 onward.
<b>32 and 64 bit systems</b>	The FarSync X25 TE1 can be used on 32 and 64 bit Linux and Windows systems.
<b>X.25 Features</b>	
<b>Data Packets per Second</b>	> 2000 pps
<b>X.25 CCITT Compliance</b>	1980, 84 & 88
<b>DTE/DCE Operation</b>	Both & Automatic detection and selection
<b>Maximum SVCs (all types)</b>	254, any mix of bothway, incoming & outgoing. 4,095 with the High Capacity Pack (any mix of bothway, incoming & outgoing)
<b>Maximum PVCs</b>	254 or 4,095 with the High Capacity Pack
<b>Logical Channel Numbers (LCN)</b>	1 to all 4095 LCNs can be specified, incoming calls to be accepted on any channel
<b>Data Packet size range</b>	0 to 4096 bytes
<b>X25 facilities support</b>	Closed User Group (CUG), Network User Identifier (NUI), Fast Select, Packet and Windows size negotiation, Throughput Class Negotiation.
<b>Extended sequence numbers (128)</b>	Yes
<b>IP over X.25</b>	Supported, complies with RFC 1356
<b>Accessible via API</b>	Four APIs, a Sockets based interface, a Java API, a COM Port API and a legacy NCB based API
<b>XOT Option Features</b>	
<b>XOT Specification</b>	Complies with RFC 1613 - X.25 over TCP (XOT)
<b>Maximum XOT connections</b>	1,000 on Linux, 4095 on Windows
<b>Maximum SVCs and PVCs</b>	1,000 on Linux, 4095 on Windows (any mix of SVCs and PVCs)
<b>Data packets size range</b>	0 to 4,096 bytes
<b>OOB (Out of Band) data</b>	Supported for Interrupts, Resets and the D bit
<b>X.25 facilities support</b>	Closed User Group (CUG), Network User Identifier (NUI), Fast Select, Packet and Windows size negotiation, Throughput Class Negotiation.
<b>Accessible via API</b>	Two APIs, a Sockets based interface and a Java API
<b>ISO Transport Features</b>	
<b>Standard supported</b>	ISO 8073 (connection oriented)
<b>Classes supported</b>	Classes 0, 1, 2 and 3
<b>Negotiation between classes</b>	Yes
<b>Transport connections</b>	254 or 4,095 with the High Capacity Pack
<b>Accessible via API</b>	Yes
<b>Developers Toolkit API Summary</b>	
<b>X.25 API - Linux and Windows</b>	The <b>Sockets API</b> is easy to use and provides access to the majority of X.25 features. Recommended for most developments. Accessible from .NET applications. The <b>Java API</b> , specially developed for Java applications (J2SE, J2EE), is quick and easy to use. Legacy <b>NCB based API</b> providing low level access to all the features of X.25. Quick to use <b>COM Port API (Windows only)</b> for applications based on Visual Basic particularly.
<b>ISO Transport API - Linux and Windows</b>	Using a <b>Sockets API on Windows, NCB API on Linux</b> . Provides access to ISO Transport.
<b>API Manuals</b>	<b>Manuals included, one for each API</b> plus an API selector guide.
<b>Sample programs</b>	Large number of example applications for driving all the various APIs.

## Technical Specifications - Hardware Features

<b>Adapter type and PCI Specification</b>	Universal PCI (PCI-X compatible, PCI v2.2 compliant) - Suitable for 32 and 64 bit PCI bus slots, AMD processor with SRAM and E1/T1 comms controller, Intelligent Universal bus-mastering PCI adapter, Supports 3.3 & 5 volt signaling.
<b>Adapter size</b>	Short adapter (height 107mm, length 167mm)
<b>Connectors</b>	E1: 120-ohm RJ48C (often referred to as RJ45) or Twin 75 ohm BNC
<b>Network connections</b>	E1 unstructured (G.703) : 2.048 Mbits/s E1 fractional (G.704): 64 Kbits/s to 1.984 Mbits/s
<b>E1 frame structure / modes</b>	E1 - HDLC-framed data over G.703 unframed/unstructured or G.703/G.704 framed/structured Doubleframe and CRC4 multiframe modes
<b>ESD Line Protection</b>	Sidactor and telelink fuse, designed for zero maintenance. The FarSync X25 TE1 uses solid state fuses unlike many E1 interface cards, no parts need to be replaced after a survivable lightning strike
<b>Cables</b>	 2 metre RJ-48C cable included
<b>Indicators</b>	LEDs for Port open, Loss of Signal (LOS), Receive Remote Alarm (RRA), Alarm Indication Signal (AIS)
<b>Approvals</b>	EN55022 class B, CE, FCC class B, TBR12 and TBR13
<b>Power requirements</b>	< 1.4 A @ +3.3v < 5 watts
<b>MTBF</b>	273,220 hours — calculation based on Bellcore Method 1 Case 3, 40 deg.C ambient, 15 deg.C case temperature rise above ambient
<b>Warranty</b>	Free 5 year warranty
<b>RoHS compliant</b>	Yes

## Ordering Information

Product Name	Description	Product Code
<b>FarSync X25 TE1</b>	Intelligent 1 port E1 X.25 line Universal PCI adapter with X.25 Software and the X.25 Developers Toolkit for Windows and Linux included	FS6170

## Software Options

<b>FarSync X.25 High Capacity Pack -Windows</b>	Upgrade to the standard Windows FarSync X.25 software that allows up to 4,095 simultaneous sessions	FS9504
<b>FarSync X.25 High Capacity Pack - Linux</b>	Upgrade to the standard Linux FarSync X.25 software that allows up to 4,095 simultaneous sessions	FS9505
<b>FarSync XOT Extension for Linux</b>	Upgrade to add XOT (X.25 over TCP/IP) to FarSync X.25 adapters on Linux. A FarSync X25 adapter must be purchased.	FS9508
<b>FarSync XOT Runtime - Windows</b>	XOT (X.25 over TCP/IP) Runtime support on Windows	FS9511

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