



Key Features

- Support for APACS 30, APACS 40, ISO 8583, SIBS, HGEPOS and CTL (card Tech Ltd)
- General Purpose TCP to X.25 data translation including fixed routes, dynamic routing, RFC1006 and Cisco RBP compatibility
- High performance, non stop operation - up to 500 POS transactions per second
- Up to 8 X.25 lines on each POS Gateway
- Dual POS Gateways providing Resilience with Load Balancing
- Simple configuration with remotely accessible Configuration Application or by text files

Overview

Some modern Point-Of-Sale (POS) terminals, store controllers and other types of electronic money transfer processing equipment connect via TCP/IP whilst many existing POS transaction processing Hosts, such as VISA, have X.25 interfaces. Similarly in some cases the reverse situation exists. Standard TCP to X.25 Routers can break the POS protocols and don't provide the specialist translation required. The FarLinX TCP-X25 POS Gateway has been specifically designed to overcome this problem and provide a reliable means of inter-connecting POS equipment to electronic money transfer central processing systems where TCP/IP and X.25 networks are in use.

The Gateway supports SIBS, HGEPOS, ISO 8583, APACS 30, APACS 40 and CTL. There are 3 versions of the POS Gateway providing scalable solutions, starting with a small scale single store version supporting up to 10 simultaneous transactions to the MAX version allowing up to 4,000 simultaneous transactions, 4 X.25 lines expandable to 8.

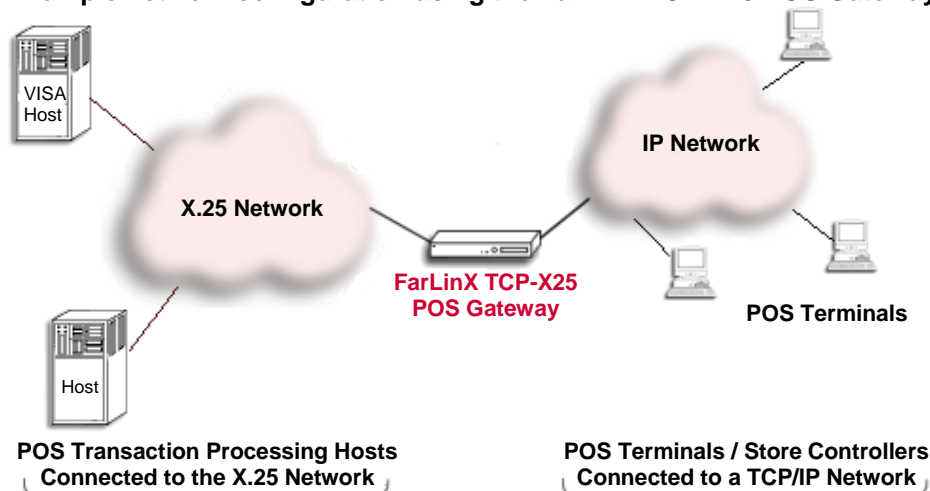
The Gateway is designed for non-stop operation. Almost all changes to the configuration are applied dynamically with no need for restarting.

Two Gateways can be used in a load balanced, resilient configuration that has no single point of failure.

Applications

- Interconnection of X.25 POS Terminals to TCP/IP connected host/s
- Interconnection of TCP/IP connected POS Terminals to X.25 connected host/s
- General purpose Gateway to interconnect TCP/IP and X.25 networks

Example network configuration using the FarLinX TCP-X25 POS Gateway



POS Gateway Operation

The Gateway provides connection establishment and data packetisation services for APACS, ISO 8583, SIBS, CTL and HGEPOS systems to allow POS terminals operating over TCP/IP to interface to X.25 connected hosts. An X.25 session is established for the POS transaction when the TCP session for a transaction is established. Very flexible and wide ranging general purpose options for mapping TCP to X.25 data are included in the product. The Gateway provides routing facilities to select the appropriate Host from those available and maintains X.25 sessions to the Host as required.

APACS Options

APACS connections over X.25 can operate in 2 different ways, TPAD-HOST Mode and T/T-TPAD Mode. The FarSync TCP-X25 POS Gateway supports both modes and also transparent conversion between the modes.

TPAD-HOST Mode

APACS messages are sent without a LRC in TPAD-HOST mode, no APACS control frames eg ACK, DLE EOT are required. The transaction consists of a pair of APACS messages. An X.25 virtual circuit is established by the Gateway at the start of each transaction and cleared by the Gateway at the end of the transaction.

T/T-TPAD Mode

APACS messages are sent complete with the LRC. APACS control frames are used to regulate the flow and termination of the APACS message, each message being acknowledged with an ACK frame. An X.25 virtual circuit is established by the Gateway at the start of each transaction and cleared by the Gateway at the end of the transaction.

HPAD Conversion

APACS messages on the Host side are handled complete with LRC and control frames to acknowledge and regulate the flow. The messages are extracted and handled on the POS Terminal side as simple messages without the LRC and transmitted without the use of control frames. This provides conversion from TPAD-Host mode on the terminal side to T/T-TPAD mode on the Host side.

TPAD Conversion

APACS messages on the Terminal side are handled complete with LRC and control frames to acknowledge and regulate the flow. The messages are extracted and handled on the Host side as simple messages without the LRC and transmitted without the use of control frames. This provides conversion from T/T-TPAD mode on the terminal side to TPAD-Host mode on the Host side.

General Purpose Options

The POS Gateway can support a wide range of TCP to X.25 data translation and connection functions, including fixed and dynamic routing, RFC1006 support and Cisco RBP compatibility. The different modes of operation can be configured on a per connection basis.

Connection Routing and Address Mapping

The FarLinX TCP-X25 POS Gateway is typically used to route connections to a single acquiring host. It can, however, support routes to 2,000 different X.25 hosts. Similarly, when using the called X.25 address as the routing key, incoming X.25 calls can be routed to thousands of different TCP/IP hosts.

When making connections to the X.25 network, the POS Gateway has the capability of mapping the source IP address to a calling X.25 address, thus allowing the destination X.25 host to identify the connection source uniquely.

The Dynamic routing option allows the X.25 address (NUA) and call parameters to be set by the remote application at the time each X.25 connection is established. X.25 packetisation information is passed to the application.

Performance and Expandability

The FarLinX TCP-X25 POS Gateway easily handles very high transaction loads. Support for large numbers of X.25 lines and multiple Gateways provides enormous scalable expansion capability and resiliency. The main performance and expansion features of the Gateway are:

- Up to 500 POS transactions per second on each Gateway (MAX version)
- Multiple load balancing Gateways, up to 32 sharing a single IP address
- X.25 line speeds up to 8 Mbits/s
- From 1 to 8 X.25 lines per Gateway
- X.25 Networks, Leased Lines and X.25 Dialup connections supported
- 3 versions - 10 session, 20 session and MAX (up to 4,000 sessions)

Overview of Resilient Operation Configurations

The FarLinX TCP-X25 POS Gateway can be deployed in a wide variety of ways to achieve the level of resilience required by the application. The level will depend on the value of the data traffic and the acceptable degree of user intervention required to rectify any problem. The aim with resilience is to **remove single points of failure**. Resilient configurations using more than one POS Gateway also allow **improved performance by sharing the traffic load between several machines**.

Network Line Redundancy

To achieve network line redundancy, a **single FarLinX TCP-X25 POS Gateway may operate with two or more X.25 lines**. It can route data over any active line connected to the Gateway so that if one line goes out of operation then the other lines continue to be used automatically.

Gateway Redundancy and Load Balancing

For fully resilient operation, two (or more) FarLinX TCP-X25 POS Gateways may be deployed. They can be **either configured for simple failover from a primary to a backup machine or for full load balanced operation**. In Network Load Balancing (NLB) mode both failover and load balancing of the ePOS transactions are provided thus ensuring there is no single point of failure and that there is no performance bottleneck.

The built in POS Gateway Supervisor checks the state of the X.25 network lines and as these change state between fully operational and faulty it automatically enables/disables the unit from the pool of FarLinX TCP-X25 POS Gateway's, thus managing the availability of that particular POS Gateway machine. Key events such as the loss of an X.25 line are recorded on a daily rotating event log.

Configuration Application

The remotely accessible Configuration Application for the POS Gateway allows the TCP interface, X.25 connection, and POS protocol types and the event log levels to be selected. Almost all changes to the configuration are made dynamically so continuous operation of the Gateway can be maintained.

The sample screen shot was taken from the Configuration Application, it shows the configuration parameters for an APACS 30 X.25 to TCP/IP connection.

Configuration by Text Files

As an alternative to using the Gateway Configuration program, the POS Gateway configuration can be defined in text files. This approach is very scalable, allowing hundreds of routing definitions to be easily configured. As with the Configuration Application changes to the text files can be applied dynamically allowing continuous operation to be maintained.

Section	Field	Value
Common Settings	Name	APACS-30 Host
	Local TCP Port Number	14000
	Message Type	APACS T/T-TPAD
	Local X.25 NUA	15000
Outgoing X.25 Call Settings	Destination X.25 NUA	14000
	X.25 Adapter Number	ANY
	X.25 Line Number	ANY
	X.25 Call User Data (hex)	
	X.25 Facilities (hex)	
X.25 Originated Call Settings	Target Host Name/IP Address	127.0.0.1
	Target TCP Port Number	15000

Maintenance Contract

FarSite recognises that this product is often used as a key component in POS transaction systems and as such a guaranteed response to unexpected problems is required. A maintenance contract is available for the FarLinX TCP-X25 POS Gateway for priority service and rapid problem resolution.

Product Name	FarLinX TCP-X25 POS Gateway-10	FarLinX TCP-X25 POS Gateway-20	FarLinX TCP-X25 POS Gateway-MAX
Product code	FL2110	FL2120	FL2140
Maximum simultaneous transactions	10	20	4,000 (2,000 on 1 X.25 line)
X.25 line count	1 line*	2 lines*	4 lines*
* Upgradeable with an additional 4 X.25 lines by ordering FL2004			

Product Features

POS transaction protocols	APACS 30, APACS 40, ISO 8583, SIBS, HGEPOS, CTL (Card Tech Ltd)
APACS protocol variants supported	TPAD-HOST - just APACS messages, no LRC T/T-TPAD - APACS messages with LRC plus control frames (ENQ, AK, DLE EOT, etc)
TCP to X.25 translation modes	Fixed and Dynamic Routing (compatible with the DRPD module on the FarSync TCP-X25 Gateway). Full list of modes: APACS TPAD-Host, APACS T/T-TPAD, APACS CTL-Online, APACS Conv-TPAD, APACS Conv-HPAD, Character Stream, ISO 8583 Hdr2, ISO 8583 Hdr4, ISO 8583 (CTL), SIBS, HGEPOS, Cisco RBP, ETX-Terminated, CR-Terminated, Conv Hdr 2-bin,
Transactions per second	Up to 500 per second on each POS Gateway
Resilient configuration	Yes, from 2 to 32 Gateways
Load balancing	Yes, from 2 to 32 Gateways
Logging key events	Events such as the connections being established and dropped, X.25 call fails, X.25 line down, and X.25 lineup are logged on a daily rotating log file

X.25 Details

Network connectors	Connection cables are available with RS232C (V.24), X.21, V.35 and RS530 connectors. The cables are ordered separately, see the Cable Table below.
Types of X.25 connections	X.25 networks, Leased Lines and X.25 Dialup
X.25 feature summary	Line speeds up to 8 Mbits/s, data packet size up to 4096 bytes SVC and PVC logical connections X.25 CCITT Compliance 1980, 84 and 88 Reverse charging, Closed User Groups (CUG), Network User Identification (NUI), Fast Select, Throughput Class Negotiation Built in remotely accessible Line Monitor Compatible with all known X.25 networks including for example: Datex-P, BT X.25 Direct, Eirpac, Austpac, Transpac, Iberpac and Itapac
LAN	3 LAN connections 10/100 BaseT, RJ45. Each port is for connection to a separate Network.
Approvals	CE, FCC part 15 class A, UL
Physical	Dimensions: metric - 429(W) x 282(D) x 44(H) mm, imperial - 16.89"(W) x 11.1"(D) x 1.73"(H) Weight: 3.9 kg (8.59lbs) Rack Height 1U (19" rack mount) Operating Temperature: 5 to 40°C (41 to 104°F), Humidity: 20% to 90% RH (non-condensing) Storage Temperatures: 0 to 70°C (32 to 158°F), Humidity: 5% to 95% RH (non-condensing)

Cables for the FarLinX TCP-X25 POS Gateway

Name	Description	Product Code
UCR1	Single RS232C (V.24, X.21bis) cable with male 25 pin D type (DB25) connector, 1.5 metres	FS6061
UCX1	Single X.21 (V.11, RS422) cable with male 15 pin D type (DB15) connector, 1.5 metres	FS6062
UCV1	Single V.35 cable with standard MRAC-34 (brick) male connector, 1.5 metres	FS6063
U530	Single RS530 cable with male 25 pin D type (DB25) connector, 1.5 metres	FS6064