

FarLinX TCP –X25 SMS Router

Routes and converts SMS messages between TCP networks and SMSCs on X.25 linked mobile networks

Key Features

- Up to 1,500 SMS messages per second
- 3 LAN ports on each SMS Router
- Up to 8 X.25 lines on each SMS Router
- Resilience and Load Balancing support
- Up to 100 SMEs split over 100 SMSCs
- Support for Sema OIS, Nokia CIMD, Logica SMPP, CMG EMI/UCP



Overview

The FarLinX TCP to X.25 SMS Router extends the functionality of TCP based SMEs (Short Message Entities) such as SMS Gateways so that they can connect to SMSCs (Short Message Service Centres) that require X.25 as the network connection protocol. Examples of SMSCs requiring X.25 connectivity are the UK **Vodafone network** and the French **Orange network**. SMS messages normally sent and received over TCP are packetized and routed over X.25 connections.

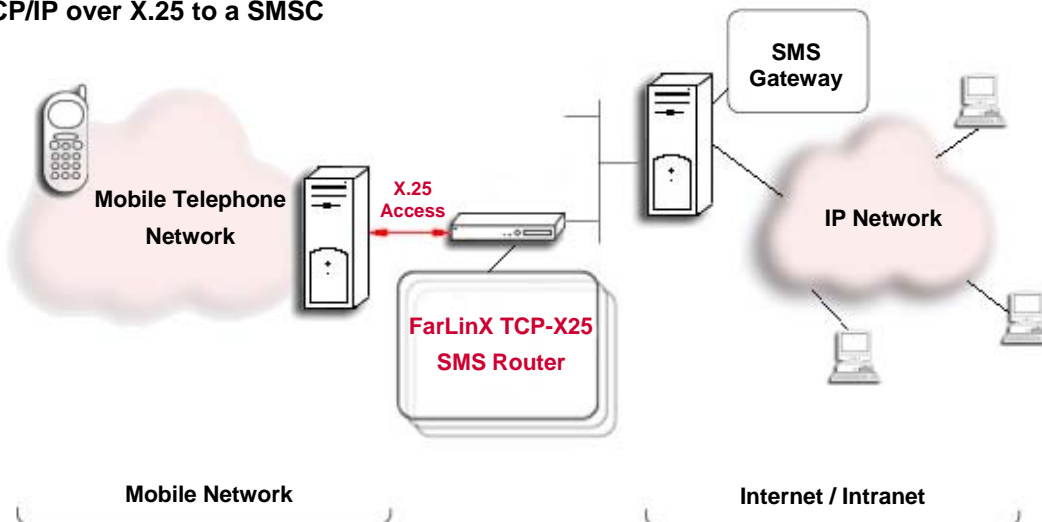
The **SMS Router is symmetric in operation** - the SMS Router can interface between an SMSC on the TCP/IP network and SMEs on the X.25 network as well as vice versa.

The FarLinX X.25 SMS Router can be installed on the same site as an SMS Gateway to provide X.25 connectivity or alternatively at a remote location, for example in a Data Centre, to reduce the length of an X.25 leased line to an SMSC and hence ongoing line rental costs.

The **FarLinX X.25 SMS Router is designed for non-stop operation**: in the field it will run continuously without any manual intervention whatsoever. Changes to the configuration are applied dynamically, removing the need for reloading. The configuration application allows the router to support a large variety of TCP/IP and X.25 network configurations. Two or more **SMS Routers can be used in a load balanced, resilient configuration that has no single point of failure**. The SMS Router can be remotely managed. Tunnelling protocols such as PPTP and L2TP can be used to provide a secure TCP/IP connection between the SME and the SMS router.

A wide variety of SMS message protocols are supported including Sema OIS GPI XIT and XHT, Sema OIS Direct Access, Nokia CIMD, Logica (SMS Forum) SMPP and CMG EMI/UCP. The very flexible generic design of the Router allows it to operate with all Gateways that send and receive SMS messages over TCP.

Example network configuration using the FarLinX TCP-X25 SMS Router to route SMS messages sent over TCP/IP over X.25 to a SMSC



Applications

The FarLinX SMS X.25 Router can be used in a variety of ways, examples include:

To enhance TCP/IP only SMS Gateways to support connections to SMSCs that require X.25 without the need to make any changes to the Gateway.

Reduce X.25 leased line rental costs by installing the SMS Router close to the SMSC and using TCP/IP to connect to the SMS Gateway. Connections between the Gateway and the SMS Router can be made secure by using a tunnelling protocol, ie PPTP or L2TP with Terminal Services providing the remote management.

The SMS Router can be used 'reversed', allowing SMEs using X.25 to connect to an SMSC requiring TCP/IP.

FarLinX TCP-X25 SMS Router Protocol Compatibility Matrix

Protocol	Description
Sema OIS GPI XIT General X.25 Access	Sema OIS (Open Interface Specification) Appendix B. Encoding schemes for GPI XIT: IA5 and GPI XIT: Hex are supported. The GPI XIT: Binary encoding scheme is not supported as it's not suitable for TCP. Sema OIS GPI XIT is used by Vodafone. Specification version: 5.8 (SMSC version G8.1) - January 2001.
Sema OIS Direct Access over X.25	Sema OIS (Open Interface Specification) Appendix D. Specification version: 5.8 (SMSC version G8.1) - January 2001.
Nokia CIMD	Nokia CIMD (Computer Interface to Message Distribution) Specification version: Issue 1-2 en - March 2000
Logica SMPP	Logica SMPP (Short Message Peer to Peer) , now owned by the SMS Forum, previously known as the SMPP Forum. The specification has diverged, both versions are supported Logica specification: version 3.3 - August 2000 SMS Forum specification: version 3.4 Issue 1.2 - October 1999
EMI/UCP	CMG EMI/UCP (External Machine Interface/Universal Computer Protocol) EMI/UCP is used by Orange Specification version 4.2 - May 2001
Uninterpreted character stream	General character stream routing between TCP and X.25.

Multiple Tariff SME Connections

As well as supporting multiple SMSCs, the SMS Router can support connections between a single SMSC and multiple SMEs. Multiple SMEs per SMSC are typically used for variable tariffing arrangements - up to 100 different SMEs (and thus tariffs) can be supported. Connections can be initiated either by the SME or the SMSC, and the SMS Router can handle these concurrently (i.e. two connections can co-exist at the same time between an SME and an SMSC).

Performance and Expandability

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

- Up to 1,500 SMS messages per second on each SMS Router
- X.25 line speeds from 2,400 baud to over 8 Mbits/s
- From 1 to 8 X.25 lines per SMS Router
- 3 10/100 BaseT LAN ports, RJ45. Each port is for connection to a separate Network
- Up to 100 SMEs split over 100 SMSCs per SMS Router
- Multiple resilient load balanced SMS Routers, up to 32 sharing a single IP address

Overview of Resilient Operation Configurations

The FarLinX TCP-X25 SMS Router 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 SMS Router 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 SMS Router 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 SMS Routers 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 SMS messages are provided thus ensuring there is no single point of failure and that there is no performance bottleneck.

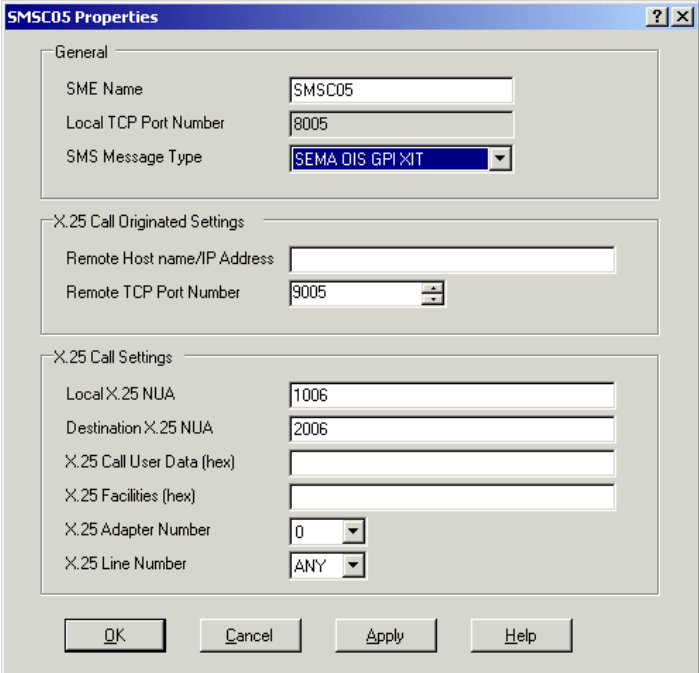
The built in SMS Router Supervisor checks the state of the X.25 network lines and as these change state between fully operational and faulty it automatically enables/disables the unit from the NLB pool of FarLinX TCP-X25 SMS Routers, thus managing the availability of that particular SMS Router machine.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

Configuration

The FarLinX TCP-X25 SMS Router configuration application allows the TCP interface, X.25 connection, and SMS protocol types and the event log levels to be selected.

Almost all changes to the configuration are made dynamically so continuous operation of the SMS Router can be maintained. See sample screen on the right.

The very flexible configuration support allows the router to support a large variety of TCP/IP and X.25 network configurations.



The screenshot shows the 'SMSC05 Properties' dialog box with the following configuration details:

Section	Field	Value
General	SME Name	SMSC05
	Local TCP Port Number	8005
	SMS Message Type	SEMA DIS GPI XIT
X.25 Call Originated Settings	Remote Host name/IP Address	
	Remote TCP Port Number	9005
X.25 Call Settings	Local X.25 NUA	1006
	Destination X.25 NUA	2006
	X.25 Call User Data (hex)	
	X.25 Facilities (hex)	
	X.25 Adapter Number	0
	X.25 Line Number	ANY

Maintenance Contract

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

Product Name	FarLinX TCP-X25 SMS Router
Product code	FL2200
X.25 line count	1 Line; upgradeable to 4 or 8 X.25 lines by ordering FL2004, a 4 port X.25 line card. Maximum line speed 8 Mbits/s

Features

Protocols supported	<p>Sema OIS GPI XIT General X.25 Access, Sema OIS Direct Access over X.25, Nokia CIMD, Logica SMPP, EMI/UCP</p> <p>Uninterpreted character stream For further details see the SMS protocol compatibility table</p> <p>Note: EMI/UCP, Sema OIS GPI XIT General X.25 Access and Sema OIS Direct Access over X.25 message protocols are auto detected and can be configured dynamically on a per connection basis.</p>
SMS Gateways supported	All SMS gateways that send SMS messages over TCP
Performance	Up to 1,500 SMS messages per second per SMS Router
Maximum SMEs and SMSCs	Up to 100 SMEs (Short Message Entities) spread across up to 100 SMSCs (Short Message Service Centres)
Resilient configuration and load balancing	Yes, spread across 2 to a maximum of 32 SMS Routers
Logging key events	A remotely accessible event log is used to log key operational events, eg X.25 call fails, X.25 line down, X.25 line up
X.25 Connection Features	
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 Network Connections	X.25 networks, Leased Lines and X.25 Dialup
X.25 Feature Summary	<p>SVC and PVC logical connections, X.25 CCITT Compliance 1980, 84 and 88</p> <p>Data packet size range 16 to 4096 bytes</p> <p>Reverse charging, Closed User Groups (CUG), Network User Identification (NUI), Fast Select, Throughput Class Negotiation</p> <p>Built in remotely accessible Line Monitor</p> <p>Compatible with all known X.25 networks including for example: Datex-P, BT X.25 Direct, Eirpac, Austpac, Transpac, Iberpac and Itapac</p>
LAN / TCP/IP Network	3 10/100 BaseT LAN ports, RJ45. Each port is for connection to a separate Network. E1, X.21 or V.35 TCP/IP connection/s available as an option
Approvals	CE, FCC part 15 class A, UL
Physical	<p>Dimensions: metric - 429(W) x 282(D) x 44(H) mm, imperial - 16.89"(W) x 11.1"(D) x 1.73"(H)</p> <p>Weight: 3.9 kg (8.59lbs), Rack Height 1U (19" rack mount)</p> <p>Operating Temperature: 5 to 40°C (41 to 104°F), Humidity: 20% to 90% RH (non-condensing)</p> <p>Storage Temperatures: 0 to 70°C (32 to 158°F), Humidity: 5% to 95% RH (non-condensing)</p>

Cables for the FarLinX TCP-X25 SMS Router

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