Flexibility and Survivability for SDH-Based Access Network Services

FSX2000 is an optical subscriber multiplexer that supports both analog and digital services on a single system and brings the advantages of SDH transmission into the access network. Operators can deploy the FSX2000 now, enabling the existing copper infrastructure to be reused.

The TMN-conformant network management system (FLEXR® Plus) enables the FSX2000 to be remotely managed from a central location.

The FSX2000 is a digital loop carrier (DLC) system that contains the central office terminal (COT) and remote terminal (RT). This system offers flexible network configurations and provides a satellite terminal (ST) hubbing option.

The FSX2000’s unique bus architecture is based on a universal shelf arrangement for increased flexibility and a reduced plug-in unit inventory. The Common Management (CME) and Expansion (EXP) shelves use the same mechanical assembly, allowing cards to be placed in any physical slot. The FSX2000’s 64k cross-connect capability and 2,000-line V5.2 capacity allow for effective use of the feeder line, and the open interfaces of the FSX2000 enable it to be integrated into any vendor’s exchange that supports the V5.2 interface.

Flexible Networking

• Point-to-point/point-to-multipoint modes
  In point-to-point and point-to-multipoint applications, the FSX2000 supports both integrated digital loop carrier (IDLC) and universal digital loop carrier (UDLC) modes of operation.

  • Hubbing mode:
    The FSX2000’s active double-star capacity enables the connection of multiple satellites to a single hubbing node.

  • SDH integration:
    The FSX2000 offers SDH networking in two ways. The first option is for fully integrated SDH access networks, where the FSX2000 acts as a standalone SDH access node. The second option integrates the FSX2000 with Fujitsu’s FLX series of SDH transport equipment, or with existing SDH transport equipment from another vendor.

Main Features

• V5.2 open interface
• Full range of analog and digital services
• Wide capacity range (30 to 2,000 channels)
• Supports IDLC and hubbing modes
• Integrated SDH networking
• E0 grooming and concentration
• End-to-end network management

FLEXR® is a registered trademark of Fujitsu Network Communications, Inc.
Features and Specifications

System Parameters
Total capacity: 1,920 lines with V5.2 concentration
64k cross-connect capacity: 1,024 x 3,072
Maximum hubbing connections: 30
Hardware redundancy for critical components

Operating Modes
Integrated digital loop carrier (IDLC)
Universal digital loop carrier (UDLC)

Subscriber Interfaces
POTS • Direct Dial In (DDI) PBX • Payphone (coin: 12 kHz metering) •
Earth (ground)/loop signaling PBX • 2W E&M interface • 4W E&M interface • 64 kbps G.703 • N x 64 kbps (V.21, V.35, V.11/V.36, G.703)* •
Leased line data by rate adaptation* • ISDN basic rate access (ISDN-N-BRA)* •
ISDN primary rate access (ISDN-N-PRA) • E1 (2.048 M bps) G.703 electrical* • HDSL interface*
* A DIU plus (Data Interface Port plus) interfaces this service.

PCM Coding
ITU-T G.711 A-law

VF Characteristics
ITU-T G.712, G.713, G.714

PCM Multiplexing
ITU-T G.732, G.735

Trunk/Network Interfaces
Optical interfaces: E3 (16 x E1), STM-1/STM-4
Electrical interface: 21 x E1, 4 x E1

Tributary Interfaces:
Electrical interfaces: 64k, E1

Network Management Interfaces
Local terminal interface: V.24
NMS interface for remote gateway access: X.25/LCN

Testing
Subscriber line test (metallic line test, loop resistance test)
PCM E1/E0 test (trunk and tributary access)

Orderwire
Selective call with DTMF, daisy-chaining transmission link

Supervision
Alarm monitoring, status monitoring, remote provisioning, physical inventory, remote control, housekeeping

Power Requirements
Input voltage range: -48 V DC (-42 to -60 V DC)
8 hour battery backup (outdoor/indoor cabinet)

Mechanical Construction
Shelf dimensions: 400 (H) x 600 (W) x 300 (D) mm

Operating Environment
Temperature range: -20°C to +65°C (standard), -40°C to +65°C (extended), -40°C to +40°C (cabinet operation)
Relative humidity: 0 to 95% at 35°C

Cabinet Dimensions - Indoor
480 channels: 1,800 (H) x 1,200 (W) x 500 (D) mm
1,400 channels: 1,800 (H) x 2,400 (W) x 500 (D) mm
1,920 channels: 1,800 (H) x 3,600 (W) x 500 (D) mm

Cabinet Dimensions - Outdoor (front access type)
480 channels: 1,800 (H) x 1,500 (W) x 600 (D) mm

Specifications subject to change without notice.