

MITEL SX 2000 LIGHT

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Technical Description

A Mitel SX2000 LIGHT will consist of a Control Cabinet (single or duplicated processors) which may have associated Peripheral Cabinets, Digital Service Unit (DSU) Cabinets and ISDN Server Cabinets.

Fibre optic cables connect each Peripheral Cabinet and DSU Cabinet to the Control cabinet.



The system is over wise known as the SX2000FD, FD for fibre distributed. Peripheral Cabinets and DSU Cabinets can be located up to 1 Km from the Control Cabinet allowing peripheral resources such as lines (extensions), trunks and digital service applications (DPNSS/DASS2), to be physically distributed.

For example, several Peripheral Cabinets might provide telephone services to office areas, where the SX-2000 fibre cables can share the same routing as that of Fibre LAN(s).

Each Peripheral Cabinet will connect to the Control cabinet via a fibre optic (twin) cable. Copper cables from extension telephones will terminate at a Peripheral Cabinet avoiding the need for copper wiring between floors or lengthy cable runs to the PABX room.

Control Cabinet

Each Control Cabinet can support up to 11 Fibre Interface Modules (FIMs). Peripheral Cabinets require one fibre cable pair, allowing a maximum of 11

Peripheral Cabinets that will provide a total of 2112 ports. Each DSU Cabinet requires two fibre connections. This will allow a maximum of 6 DSU Cabinets that will provide 1320 digital trunks. Any mix of Peripheral and DSU Cabinets is permitted, allowing a range of configurations from a 1320 trunk Tandem switch to a 2112 extension port PAX. The SX2000 LIGHT is a flexible, powerful system that can meet almost any customer configuration requirement.

OPTION 1 The dual processor SX2000 LIGHT Control Cabinet has back-up main control redundancy, with independent power supplies. If a component fails, system operation will not be affected.

OPTION 2 A single processor option provides full system functionality without the redundancy facilities.

A single processor SX2000 LIGHT Control Cabinet can be upgraded to dual processors at any time during the life of the system.

Main Control Components

- Duplicated 200 Watt Power Supplies
- Duplicated Power Modules
- Duplicated Main Control Card
- Duplicated RAM Card
- Duplicated Circuit Switch Matrix
- Control Resource Card Duplicated Hard Disk Drive
- Cartridge Tape Unit Control Panel
- Fibre Interface Modules (maximum 11)
- Control Backplane

SX2000 LIGHT Maximum Hardware Capacities

Cabinets	12
Hard Disk Unit	2
Peripheral Interface Cards	132
DSU Cards	22

OPTION 3

The SX2000 MICROLIGHT Main Cabinet comprises of control elements, 8 Peripheral Card Slots and 4 DSU / FIM Card Slots. The 4 DSU Card Slots can alternatively accommodate Fibre Interface Modules allowing a maximum of 4 Peripheral or 2 DSU Cabinets to be added. The SX2000 MICROLIGHT will support up to a maximum of 768 ports. Any mixture of Peripheral and DSU

Cabinets is permitted allowing a range of configurations from 240 trunk tandem switch to a 768 extension port PAX.

The SX2000 MICROLIGHT" Main Cabinet consists of the following components: Main Controller Card; 8 Peripheral Card Slots; 4 DSU/Fibre Interface Card Slots; Hard Disk Drive; Cartridge Tape Unit; Control Panel; Power Supply and Power Converter; Peripheral Switch Controller.

SX2000 MICROLIGHT Maximum Hardware Capacities

- Cabinets : 5
- Hard Disk Unit: 1
- Peripheral Interface Cards: 48
- DSU cards: 8

PERIPHERAL CABINET

Each Peripheral Cabinet will connect to an SX2000 Light Control Cabinet or SX2000 MICROLIGHT Main Cabinet via fibre optic cable and has 192 interface ports. Each of the 12 interface card slots has 16 ports. Any peripheral card type can be installed at any time in any of the 12 universal card slots. All ports are universally wired to the associated wiring frame as standard.

A Peripheral Cabinet consists of the following components:

- 12 x Peripheral Interface Card slots;
- AC Power Converter;
- Peripheral Switch Controller;
- Fibre Interface Module (FIM)

Digital Services Cabinet

Digital Services Unit (DSU) Cabinets are connected to an SX2000 LIGHT Control Cabinet or SX2000 MICROLIGHT Main Cabinet via fibre optic cables (2) and can accommodate up to 4 x DSU cards. A single fibre cable connection will support 2 x DSU cards.

A Digital Services Unit (DSU) Cabinet consists of the following:

- One 200 Watt Power Supply;
- Peripheral Resource Cards (2);
- Two Fibre Interface Modules;
- DSU card(s)

DSU cards:

CEPT Formatter

Interface for 2 x 2 Mbit/s links each of which can be individually software configured for DPNSS/APNSS, or DASS 2 (ISDN30). Each link comprises 30 traffic channels, 1 signalling channel and 1 synchronisation channel to CCITT G703 and G734 standards.

Communications Processor card

This is a general purpose processor used for communication between the SX2000 and an external host computer. It will support Host Computer Interface (HCI) applications.

Conference Card

This card will increase conferencing capability to 64 simultaneous users. (24 channels are provided as standard).

DS1 Formatter

This is a digital network interface card provided for specialist or overseas applications only.

Data Transceiver

The data transceiver interprets commands and returns call progress messages to the user of a data terminal or PC.

SX2000 ISDN Server

The ISDN Server is a unit which connects the SX2000 to the existing ISDN network. The ISDN Server behaves like a CEPT Formatter Card, providing digital network control of serial links. All necessary conversion is performed within the ISDN Server, and necessary interfaces are contained within the ISDN Server.

The ISDN Server offers the SX2000 end-to-end connectivity, this means that analogue conversion is not necessary and that digital transmission is extended to the subscriber's premises, enhancing SX2000 services.

The ISDN Server uses Primary Rate Interface (PRI) cables to connect with the ISDN Public Network. The PRI is a combination of channels creating a specific interface between the SX2000 and the Public Network. The PRI consists of 30 x B-Channels, 1 x D-Channel and 1 x Synchronisation/Frame

channel. The B-Channels are 64 Kbit/s bearer or traffic channels used to carry voice or data, The D-Channel is a 64 Kbit/s channel used for signalling and user data. The Synchronisation/Frame channel is used to establish and maintain the circuit.

The SX2000 ISDN Server operates as a CEPT Formatter connecting calls in a DPNSS format. ISDN calls are presented to the SX2000 as DPNSS/DASS2 calls. The ISDN Server behaves like a Digital Service Unit (DSU) running Euro-ISDN/DPNSS software and protocols.

The ISDN Server is connected to the SX2000 by coaxial cables and provides digital network control of serial links.

SX2000 Dimensions

SX2000 cabinets are similar in construction to PC towers.

ISDN Server and DSU cabinets are approximately (H x W x D mm) 490 x 230 x 460

LIGHT Main Control, MICROLIGHT Main and Peripheral cabinets are approximately (H x W x D mm) 490 x 460 x 460

APPROVALS

Connection to UK PSTN

The SX2000 is fully approved for connection to the PSTN and meets BTR 1050 issue 5. In addition the installation commissioning procedures of the SX2000 and all associated equipment conform to the Health and Safety at Work Act and all relevant British and I.E.E standards as specified by the British Approvals Board for Telecommunications (BABT).

The Approval Number is: NS/1412/123/F/451637

SX2000 analogue and digital (DASSII and Q.931) interfaces for exchange lines and Direct Dialling In (DDI) exchange lines are approved for connection to the PSTN.

The approval includes AC15a and E & M (SCDC5) analogue private wire interfaces and the digital 2 Megabit DPNSS service (including the low speed

option known as APNSS).

The SX2000 hardware is certified as conforming with the required safety standards as defined in BS6301.

Telephone Approval Numbers

Mitel Superset telephones are approved with system.

Any telephone categorised by the Department of Trade and Industry in Lists 1 to 12 incl. may be connected to the SX2000.

Branch Systems General Licence/Network Code Of Practice

Each of the proposed SX2000 system are fully approved under Section 22 of the British Telecommunications Act by the Department of Trade and Industry for connection to the PSTN. However, it is the configuration and operation of the network which must comply with the technical requirements specified by the Network Code of Practice (NCOP), under condition 4 of Branch System General Licence (BSGL).

Key Systems

The SX2000 is an approved host and therefore any approved subsidiary key systems which conforms to BSI 84/63648 can be used on the Mitel PBX.

BS6572

The SX2000 LIGHT meets the requirements of BS6527 Class B pertaining to Spurious Signals Generated by Data Processing and Electronic Office Equipment.

BS6572 is being renumbered to a European Number - EN55022.

International Standards

The SX2000 conforms to the following international standards.

EIA Interim CIS 4 Jan 82

BTR 1050 Issue 5

BTR 1080

AT & T Pub 48002

EIA Standard RS464

EIA Standard RS470

CCITT G Series Standard

The SX2000 is a digital switch and fully meets the CCITT (Blue Book) G732 2.048 Mbit/sec Digital Transmission System employing A law encoding. The SX-2000 also conforms to the CCITT recommendations G703, G704 and G711 as appertaining to 2Mbit digital transmission.

The SX2000 system proposed conforms to the following CCITT international standards:

G703 - Encoding

G711 - A law Modulation

G712 - Audio Performance

G732 - Frame Structure

G811 – Synchronisation

G734

The system proposed does conform to the CCITT G734 recommendation, which defines the characteristics of synchronous digital Multiplex equipment, operating at 1544 Kbits/second.

This is relevant to markets outside the UK.

Electro Magnetic Compatibility (EMC)

The SX-2000 LIGHT is in compliance with the following standards:

EN55022 CLASS B

EN50082-1 LEVEL 2

All Mitel SX2000 products comply with the EC Directive - official number 89/336/EEC which relates to Electro Magnetic compatibility. Each item is clearly marked with 'CE' to reveal the product's conformity.

For more up to date information go to the Mitel web site

WWW.Mitel.com