Drop and Insert Multiplexer
Multiple Interface E1 Access Unit

Version 2.1—October 02

MX2111/2211/2411

Highlights

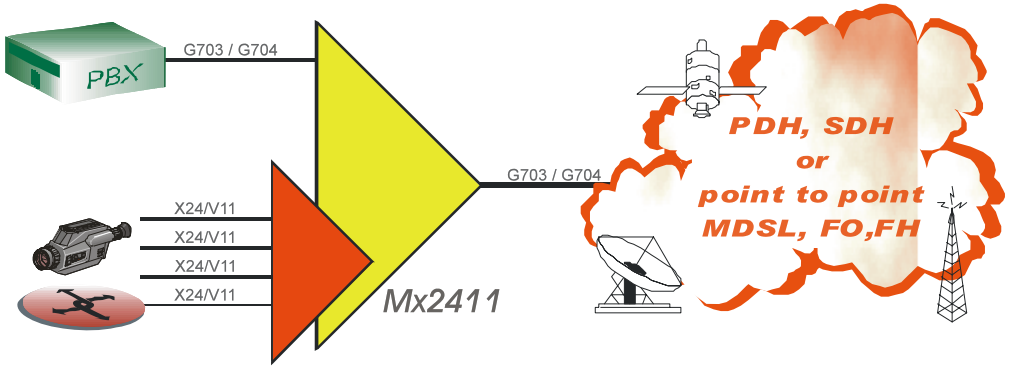
- **MX2111** : E1 – G703/G704 Drop and Insert multiplexer with one X21 / V11 data port
- **MX2211** : E1 – G703/G704 Drop and Insert multiplexer with two X21 / V11 data ports
- **MX2411** : E1 – G703/G704 Drop and Insert multiplexer with four X21 / V11 data ports
- E1 trunk : G703 clear channel to one port or G704 Nx64
- Drop and Insert private E1 interface to a G703/G704 equipment - PBX
- Flexible cross connect matrix of the network timeslots to any port
- Alarm relay

Benefits

- Administration of the local unit through a local RS232 port and of the remote unit through the Sa4 bits of TS0 or through a dedicated Timeslot.
- Easy configuration through simple VT100 menu or a GUI Windows program
- No loss of synchronization when changing the timeslot assignment of the private ports
- Four user definable configurations
- Rich diagnostics and statistics
- Security Password protection
- Chainable devices to increase the number of data ports
- Dual power supply : 48 VDC and 110 – 240 VAC
- Fully integrated with the TDM range of CXR products

E1 Drop and Insert Multiple Interface Multiplexer

CXR Anderson Jacobson enhances a new family of E1 and TDM access products aimed at the telecommunication infrastructure of the service providers, as well as the corporate, public, military and campus networks.



The TDM range is primarily composed of the CV2000 family of E1 or T1 CSU/DSUs. These units are available with user interfaces that include X.21/V.11, V.35, RS-232 or Ethernet 10BaseT. The CV-2000 Series is available in either a standalone or a rack-mount version; with an internal or external power supply for 110-240 VAC or 48 VDC. The rack-mount card can fit in a four slot, 1U high chassis, or a 16 slot, 4U high chassis, with redundant power supplies and system administration features including TCP-IP and SNMP.

The MX 2x11 series provides a drop and insert interface and multiple (1, 2 or 4) data ports with native X.21 connectors to an E1 network.

The three versions are built on the same platform with only one or two ports being activated on the MX 2111 and MX 2211 models, while all four data ports are available on the MX 2411. When your need for additional ports becomes a requirement on the MX 2111 and MX 2211 models a simple software key will activate the unused ports, further protecting your investment.

The MX 2411 is designed to satisfy the needs of the Telco operators, the corporate networks and the industrial environments. It fits in a 19'' bay, is only 1U high and can also fit in an 80 bay. It provides a dual power supply to connect to a 110-240 VaAC/ 50-60 Hz mains or to a 48 VDC battery.

The MX 2x11 is managed through easy to follow VT100 menus with a clear picture of the timeslot assignment and can be controlled by any kind of terminal. A graphical user interface running under Windows provides enhanced features : the MXCFG software provides intuitive windows and a fully documented help menu, and makes it possible to save and restore configuration files to / from the PC.

The full range of TDM products is based on the same principles of configuration and monitoring designed to satisfy all needs of the telecommunication operators and the corporate and industrial applications.

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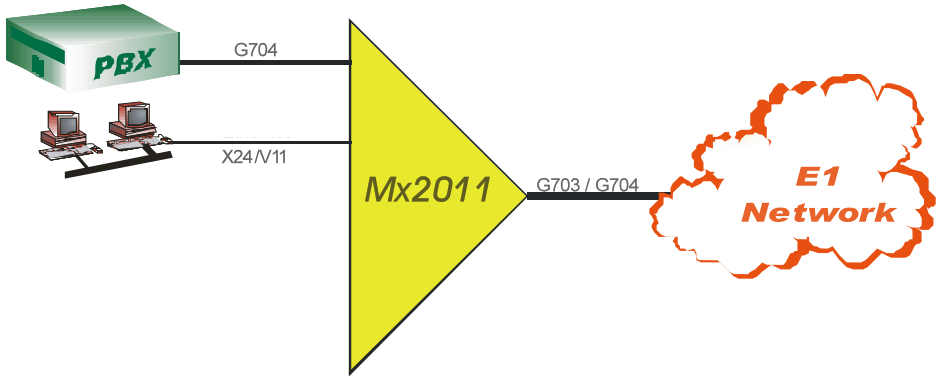
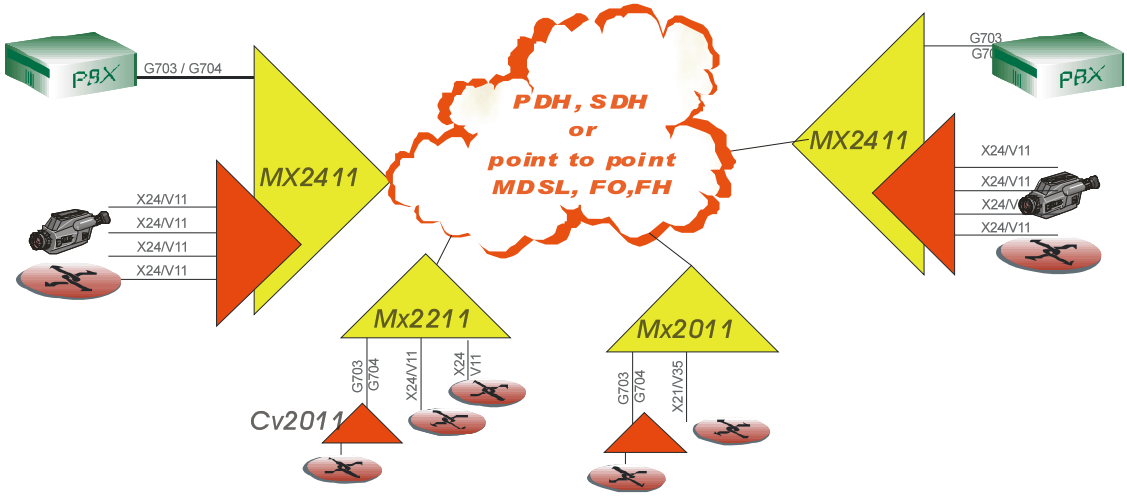
Typical applications of the MX 2x11

Voice and Data service Integration



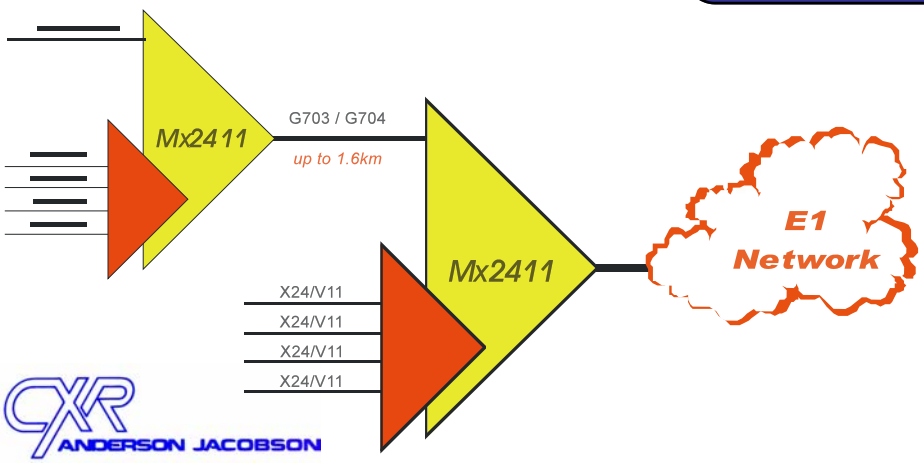
The MX 2x11 provides access to the E1 TDM network for both voice and data transmission. The operators supply the enterprises with both voice and leased line services over a single TDM link. The enterprise can rent a TDM leased line and manage the interconnection of their PBX's, local area network, and data services from a single WAN access line.

Interconnection of PBX's and LAN over a TDM/SDH network



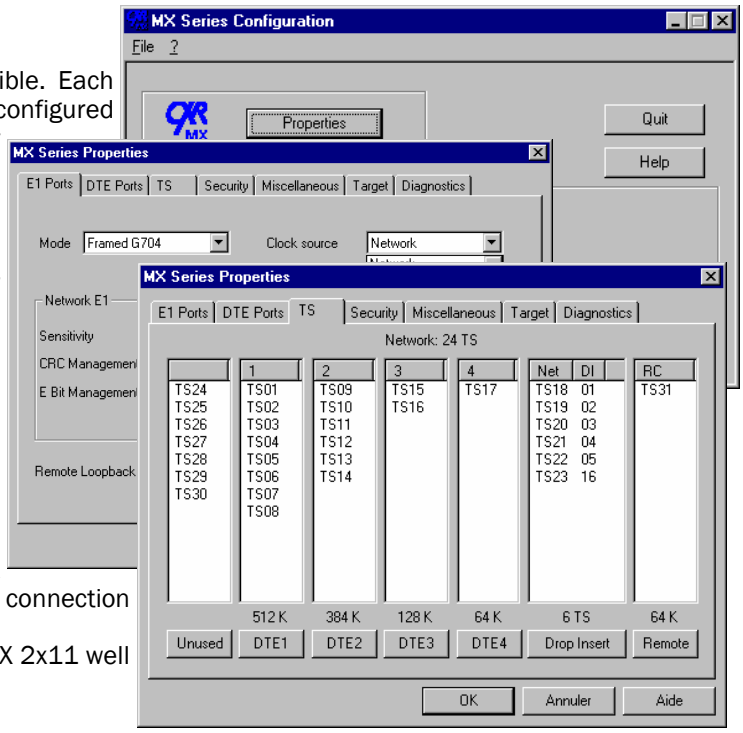
CXR provides a full range of access products such as the CV2000 E1 access unit, the MD2000 SDSL modem, the F08000 fiber optic modem, the IX 4100 and IX4200 Digital Access Cross Connect server, that connect point to point or multi-point networks. They are cost effective and highly featured parts of private or public network for voice, data, and/or video integration.

Leased Line Distribution



Chaining several MX 2411 makes a cost effective solution for providers to deliver multiple data leased lines to numerous enterprises over campus or building sites.

FLEXIBLE SOLUTIONS



The MX 2x11 is feature rich and management flexible. Each data, network and private E1 port parameters are configured separately while the timeslot assignment is clearly drawn on a single map. The reach of the E1 links can be set for short (300 m) or long (1,600 m) haul. The MX 2x11 provides parameters for the E1 synchronization timeslot to control the CRC4 and the E bits. The network link can be G.704 framed or G.703 clear channel to a single private port. The transmit clock can be sourced from the network, from an internal oscillator or from one of the private E1 or X.21 data port.

The graphical Windows software shows a clear picture of the timeslot assignment.

The network timeslots can be forwarded to any port in any order, and one timeslot can be assigned for the management of the remote unit. In addition, the timeslots can be cross-connected between the network and the private E1 accesses which adapts to any PBX connection for voice services over TDM / PRI.

The flexibility in the timeslot assignment makes the MX 2x11 well suited for any telecommunication application.

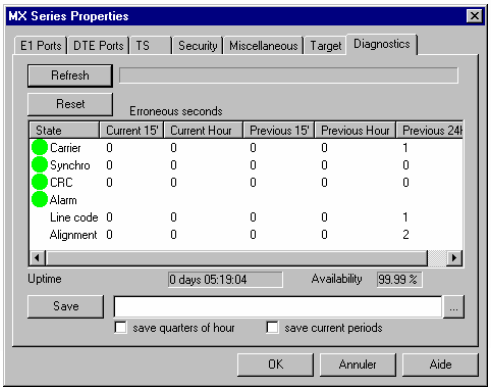
EASY INSTALLATION AND OPERATION

The MX 2x11 is so easy to install and configure thanks to its Windows user interface. The configuration is made through intuitive menus. The unit is ready within a few clicks, with the main configuration task being the timeslot assignments. Several configurations can be stored in the MX 2x11 non volatile memory to apply a change with a safe backup of the initial parameters. Multiple configuration files can also be saved on a PC and even prepared off line before the actual installation thanks to the MXCFG software which makes an efficient deployment of large networks.

For ease of management in a large networks the MX 2x11 provides a site / location name which consists of a 16 digit character string.

The MX 2x11 can be configured and controlled remotely over the E1 network through either the Sa4 bits or a dedicated timeslot. Additionally, the MXCFG software can access an MX 2x11 through the RS232 port of the PC or through the LAN access of the PC. The MX 2x11 can be controlled from the local area network with a terminal server such as the CXR TS324 or the CFIP management card of the AMS16 chassis.

SECURITY



An alarm relay is activated in the event of a loss of a power, a failed self test, or a loss of synchronization of the network trunk for a programmable delay. It can be manually controlled for remote action.

Two levels of security– supervisor and operator passwords, provide safe access to the MX 2x11 configuration and operation.

The MX 2x11 is equipped with several levels of protection against environmental disturbances such as line protection and watch dog.

The network and private E1 synchronization is not affected by a change in the timeslot assignment of the X.21 data ports. This would avoid any interruption of the services over the interfaces when changing the parameters of one port.

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Drop and Insert Multiplexer

TECHNICAL SPECIFICATIONS

General

- Access unit to the E1 network: G703 – G704 2.048 MBPS
- Interface converter G703/G704 to X21/V11, Nx64 KBPS rates
- Drop and Insert port for G703/G704 equipment / PBX connection
- Nx64 timeslot extraction and aggregation to the X21 data ports

Network Interface

- E1, G703, G704, 2.048 MBPS
- G704 framing: PCM31, PCM31C, PCM30, PCM30C
- Phase jitter: G.823
- G703 coding: HDB3
- Rate: 2.048 MBPS, +/- 50 ppm
- Access: 120 Ohms, RJ45 jack. BNC / 75 Ohms through external adapter
- Reach: short (300 m) or long (1.6 km) haul
- 1500 V insulation and line protection as per ITU-T K20 / K21 standards
- Transmission clock source: network, internal, D&I port or one data port

Drop & Insert E1 private port

- E1, G703, G704, 2.048 MBPS
- G704 framing: 0 to 32 timeslot extracted from the network
- G703 coding: HDB3, 2.048 MBPS +/- 50 ppm
- CRC4
- 120 Ohms, RJ45 socket
- Reach: short (300 m) or long (1.6 km) haul

X21 / V11 data ports

- number of data ports :
  - MX 2111: 1
  - MX 2211: 2
  - MX 2411: 4
- DB 15 socket as X24
- Data rates: Nx64, N = 1 to 31
- X21 DB15M – DB15F cable available on option

Management

- RS 232 port: 19.2 KBPS, 8 data bits, no parity
- VT100 menus and AT commands
- Windows software with storage of configuration and log files
- Control through the LAN with external TS324 or CFIP servers.
- Diagnostics: local and remote loop as per ITU-T V54

Remote unit control

- Through one dedicated timeslot or the Sa4 bits of TS.0

Front panel

- RS232 control port , DB25 connector
- Power and control LED
- Network link synchronization LED
- Drop and Insert link synchronization LED
- CRC and G703 code error LED
- 4 LEDs for the X21 data ports: C, or data signals
- Test LED

Power supply

- 48 VDC: terminal block
- 110-240 VAC: standard mains plug
- Consumption: 10 W max

Environmental

- Mechanics: 19'' / 1U, 160 mm depth
- Weight: 2.3 kg
- Operating temperature: 0 to 40°C
- Hygrometry: 0 to 90 %, non condensing

PRODUCT LIST

MX 2111: E1 drop & insert multiplexer to 1 X.21 port, 110-240 VAC and 48 VDC power supply
MX 2211: E1 drop & insert multiplexer to 2 X.21 ports, 110-240 VAC and 48 VDC power supply
MX 2411: E1 drop & insert multiplexer to 4 X.21 ports, 110-240 VAC and 48 VDC power supply
MX-UP-1-2V11: software upgrade from MX 2111 to MX 2211
MX-UP-1-4V11: software upgrade from MX 2111 to MX 2411
999-385-011: DB15M – DB15F X21 cable, length 1.5 m
C460x: 75 Ohms – BNC adaptation kit
C2016-MT-FC: X21 to V35 (M34F) adapter

Distributed by:

ANDERSON JACOBSON

Rue de l'Ornette
28410 Abondant
France

Tel. : 332.37.62.87.90
Fax : 332.37.62.88.01
Email: trans@cxr.fr