

## MX2011 / 2035 / 2036 / 2028

### Highlights

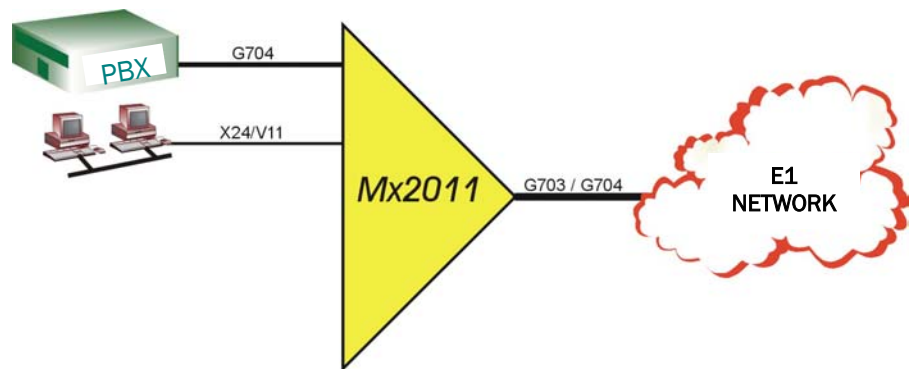
- **MX2000** : E1 – G703/G704 Drop and Insert multiplexer with one data port (X21, V35, V36 or V28)
- E1 trunk : G703 clear channel to one port or G704 Nx64
- Drop and Insert private E1 interface to a G703/G704 equipment - PBX
- Flexible cross connect matrix of the network timeslots to any port

### 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
- Power supply : 48 VDC and 110 – 240 VAC
- Fully integrated with the TDM range of CXR products
- Desktop or rackmount card for AMS4 or SNMP manageable AMS16 chassis

## E1 DROP AND INSERT 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.*



**CXR range of E1/T1 access units is made of the following products:**

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.

The MX 2000 unit as described in this brochure, provides a drop and insert interface and one serial data port to an E1 network. MX2000 is a compact and cost effective multiplexer that is especially well suited for PBX interconnection with voice and data routing as well as for data distribution along industrial campuses, pipelines, for examples.

The data port is supplied on a DB25 connector and it may be configured for X21/V11, V35, V36 and RS232-V28 thanks to internal jumpers and an adaptation cable that may be provided as an option. X21/V35/V36 interfaces are set for Nx64 KBPS rates while the RS232-V28 interface supports 64 or 128 KBPS synchronous rates or 300 to 38,400 BPS asynchronous rates.

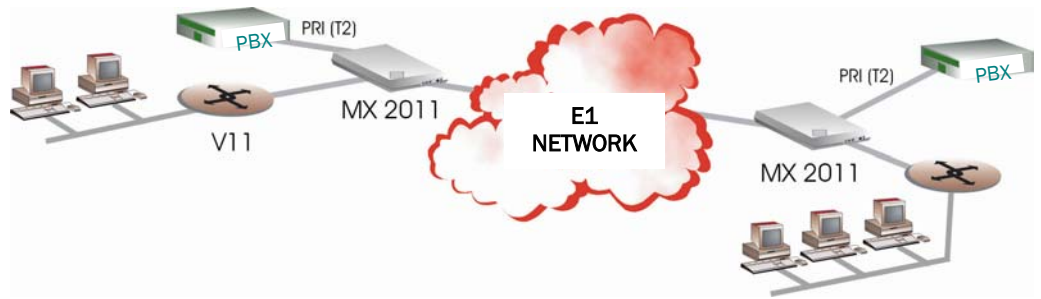
MX2000 range of product is available as a stand alone enclosure with a choice of internal mains or 48Vdc continuous supply. MX2000 PR is a two slot card that can fit in the 1U/19" AMS4 chassis or in the manageable and redundant AMS16 one.

The MX 2000 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.

## VOICE AND DATA SERVICE INTEGRATION

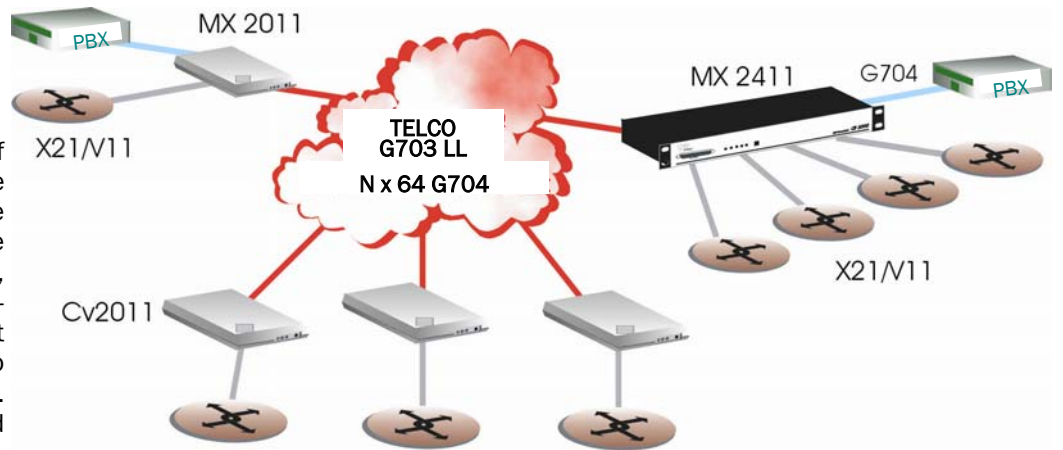
*Typical applications of the MX 2000*



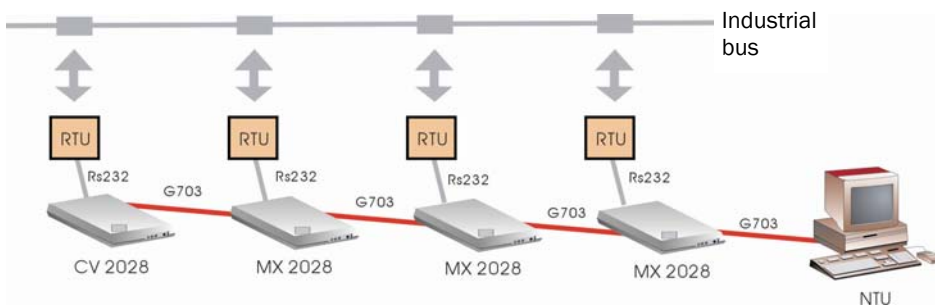
The MX 2x11 provides access to the E1 TDM network for both voice and data transmission. The operators supply the enterprises with both voice and leased line services over a single TDM link. The enterprise can rent a TDM leased line and manage the interconnection of their PBX's, local area network, and 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 FO8000 fiber optic modem, the IX 4100 and IX4200 Digital Access Cross Connect server, that connect point to point or multipoint networks. They are cost effective and highly featured parts of private or public network for voice, data, and/or video integration.



## CHAIN OF DROP & INSERT MULTIPLEXERS

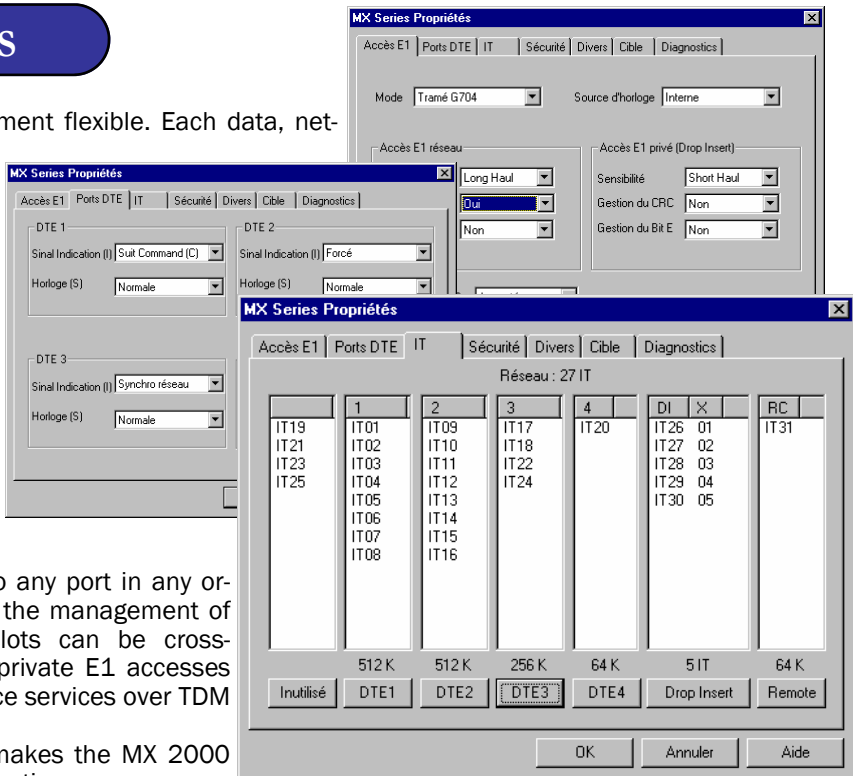


MX2000 is especially well suited for managing a chain of equipments controlled through an RS232 console port. This example describes the access to several asynchronous RTU's in a point to multipoint scheme. RTU's may be linked either through a four wire line that can be up to 1.6 km long, or though a microwave channel.

## FLEXIBLE SOLUTIONS

The MX 2000 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 2000 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 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 2000 well suited for any telecommunication application.



## EASY INSTALLATION AND OPERATION

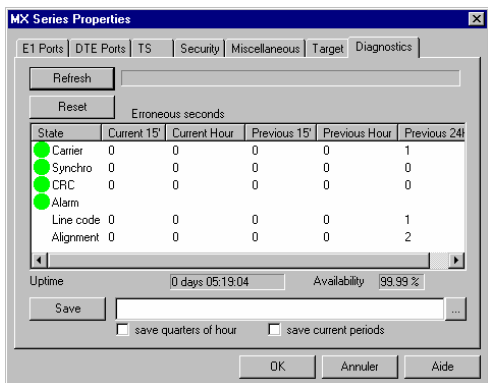
The MX 2x11 is so easy to install and configure thanks to its Windows user interface. The configuration is made through intuitive menus. The unit is ready within a few clicks, with the main configuration task being the timeslot assignments. Several configurations can be stored in the MX 2000 non volatile 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 2000 provides a site / location name which consists of a 16 digit character string.

The MX 2000 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 2000 through the RS232 port of the PC or through the LAN access of the PC.



## SECURITY



MX 2000 is equipped with a by-pass relay between the network access and the drop and insert port. This safety connects the E1 terminal (PBX) to the network when MX 2000 is powered off.

Two levels of security- supervisor and operator passwords, provide safe access to the MX 2000 configuration and operation.

The MX 2000 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.

Rich statistics are provided to follow the performance of each interface over 15 minutes, 1 and 24 hours.

## Drop and Insert Multiplexer



Rue de l'Ornette  
28410 Abondant  
France

Tel. : 33-2.37.62.87.90  
Fax : 33-2.37.62.88.01  
Email: trans@cxr.fr

CXR-SA is an ISO 9001 certified company.

*CXR reserves its rights to modify the specifications without notice. This document is not a contractual document.*

## TECHNICAL SPECIFICATIONS

### General

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

### Data ports

- X21/V11, V35, V36, V28
- DB 25 socket as RS 530
- Data rates: Nx64, N = 1 to 31
- X21, V35, V36 cable 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

- Power and control LED
- Network link synchronization LED
- Drop and Insert link synchronization LED
- CRC and G703 code error LED
- Data activity LED
- Test LED

### Power supply

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

### Environmental

- Mechanics: 260x170x35mm (desk top)
- Weight: 1kg
- Operating temperature: 0 to 45 °C
- Hygrometry: 0 to 90 %, non condensing

Distributed by:

## PRODUCT LIST

MX 2011 XYZ : E1 add and drop multiplexer with one X21/V11 data port  
 MX 2035 XYZ : E1 add and drop multiplexer with one V35 data port  
 MX 2036 XYZ : E1 add and drop multiplexer with one V36 data port  
 MX 2028 XYZ : E1 add and drop multiplexer with one RS232-V28 data port  
 XYZ : product option

- PIE : stand alone enclosure with internal 240 Vac mains supply
- PCE : stand alone enclosure with internal 48 Vdc converter
- PRE : rack mount card for the AMS4/AMS16 chassis

On option :

- X21, V35, V36 adaptation cable
- BNC – 75 Ohms interface for the Network access
- T1 – 1544 KBPS version