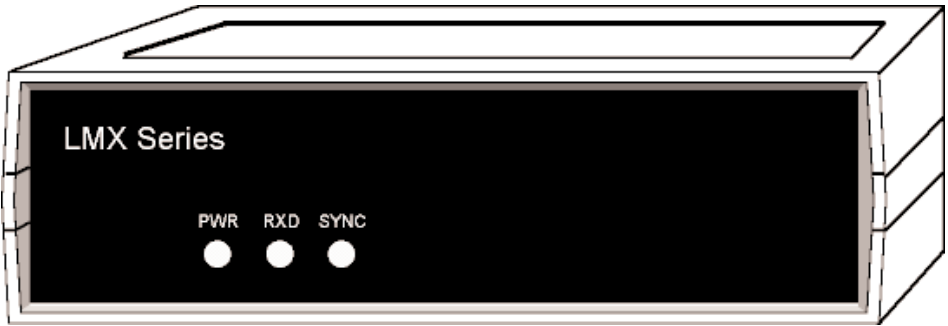




LMX Series (Asynchronous 16-Port Multiplexor)



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**FEDERAL COMMUNICATIONS COMMISSION
AND
CANADIAN DEPARTMENT OF COMMUNICATIONS
RADIO FREQUENCY INTERFERENCE STATEMENTS**

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

NORMAS OFICIALES MEXICANAS (NOM) ELECTRICAL SAFETY STATEMENT

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.

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1. Specifications

Multiplexing Technique — Bit interleaved, time division, asynchronous, full duplex

Sub-Channel Characteristics

Number of Sub-Channels — Up to sixteen

Data Rate — Up to 19.2 kbps

Codes — Unrestricted and protocol transparent

Transmission Delay — Less than 0.02 msec.

Interface — EIA/TIA-561, Modular, RJ-45 (Std.);
EIA/TIA RS-232-C/CCITT V.24 Adapter (Optional)

Composite Link Characteristics (LMX Electrical Interface)

Line Interface — Four-terminal connector block

Line Type — Four-wire cable (two unloaded twisted pairs) DC continuity required

Transmission Range — 3300 feet (1006 m) on a 24 AWG

Composite Data Rate — 1.25 Mbps, maximum aggregate throughput

Output Format — Balanced bipolar

Output Level — 6V p-p (100-ohm load)

Input Resistance — 110 ohms

General Specifications

Compliance —	FCC Part 15, Class A; Wallmount power supply: UL®, CSA
LED Indicators —	Power, Sync, Composite Data
Power Requirements —	115 VAC±10%, 60 Hz @ 0.2 Amp maximum (Std.); 230 VAC ±10%, 50 Hz @ 0.2 Amp maximum (Optional)
Operating Temperature —	50 to 120°F (10 to 49°C)
Storage Temperature —	-40 to +149°F (-40 to +65°C)
Max. Altitude Tolerance —	Operating: 20,000 ft. (6096 m); Storage: 40,000 ft. (12,192 m)
Size —	1.7"H x 7"W x 3.3"D (4.3 x 17.8 x 8.4 cm)
Weight —	2.5 lb. (1.1 kg)

2. Introduction

2.1 Overview

This LMX Series Multiplexor is an efficient, low-cost, bit-interleaved, sixteen-port, asynchronous Time Division Multiplexor (TDM), complete with an integral four-wire limited-distance line driver. The LMX allows for interconnection of up to sixteen local clustered terminals operating at asynchronous data rates up to 19.2 kbps.

The internal line driver allows for limited-distance communications over private, in-house, four-wire, point-to-point cable systems, at a range of up to 3300 feet.

The LMX Series Multiplexor is an ideal low-cost alternative to more expensive statistical multiplexors and leased-line modems. Ideal applications are in a building, in a campus setting, or in a factory environment using twisted copper pairs.

2.2 Features

- Up to 16 async sub-channels.
- Sub-channel data rates up to 19.2 kbps.
- Speed and protocol transparent.
- Range up to 1 km on copper.
- Plug-in installation, no option switches to set.

2.3 What's Included

Here's what you should have received:

- (1) LMX Series Asynchronous 16-Port Multiplexor with 4-wire interface
- (1) External transformer
- (1) User's manual

2.4 Performance

Synchronization between units is maintained continuously with no operator control required. A “SYNC ERROR” indicator, located on the front of the unit, will turn on, alerting you if loss of sync occurs.

In operation, the LMX automatically adapts port speeds to the rates of the individual terminals. No clock source is required.

The multiplexor’s unique method of maintaining synchronization minimizes the number of overhead bits from the data stream. All ports operate at maximum throughput levels with virtually no multiplexing delay. As DTE speeds vary, high-speed data sampling on each port allows the unit to follow any changes, so the unit is transparent to error control, EIA propagation, and flow control.

The effective range is 3300 feet using 24 gauge wire. Using a larger gauge wire will increase the distance depending upon the size.

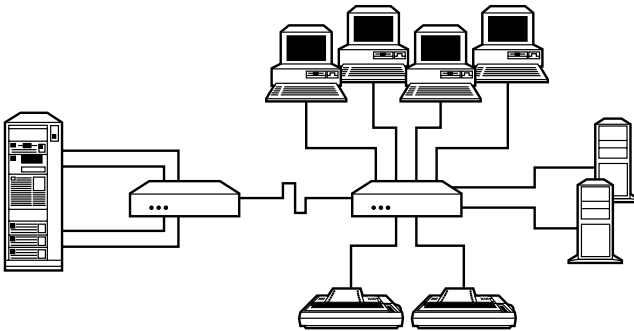


Figure 2-1. Typical Application.

3. Installation

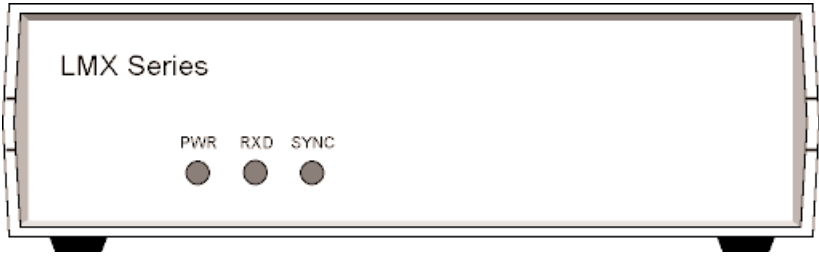


Figure 3-1. Front View.

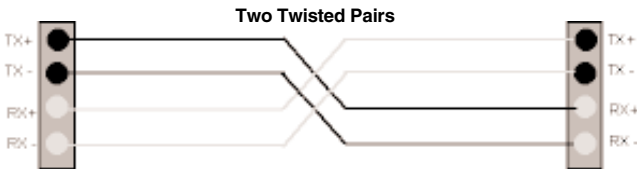
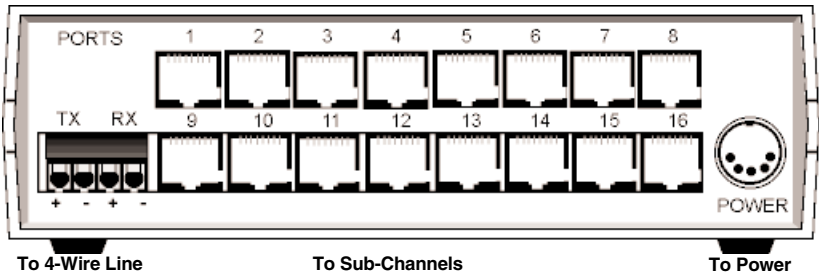


Figure 3-2. Rear View and Composite Connections.

4. Port Interface

Use the tables below for proper connection from sub-channels to the DTE equipment.



Figure 4-1. LMX Sub-Channel Connector.

Table 4-1. Port Interface Pinout

Name	CKT	Direction	
		DCE	RJ-45
Data Set Ready	125	output	1
Data Carrier Detect	109	output	2
Signal Ground	102	—	4
Receive Data	104	output	5
Transmit Data	103	input	6
Clear To Send	106	output	7

Table 4-2. RS-232 Reference Interface

Name	CKT	Direction		DB25	DB9
		DTE	DCE		
Transmit Data	BA	output	input	2	3
Receive Data	BB	input	output	3	2
Request To Send	CA	output	input	4	7
Clear To Send	CB	input	output	5	8
Data Set Ready	CC	input	output	6	6
Signal Ground	AB	—	—	7	5
Data Carrier Detect	CF	input	output	8	1
Data Terminal Ready	CD	output	input	20	4
Ring Indicator	CE	input	output	22	9



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