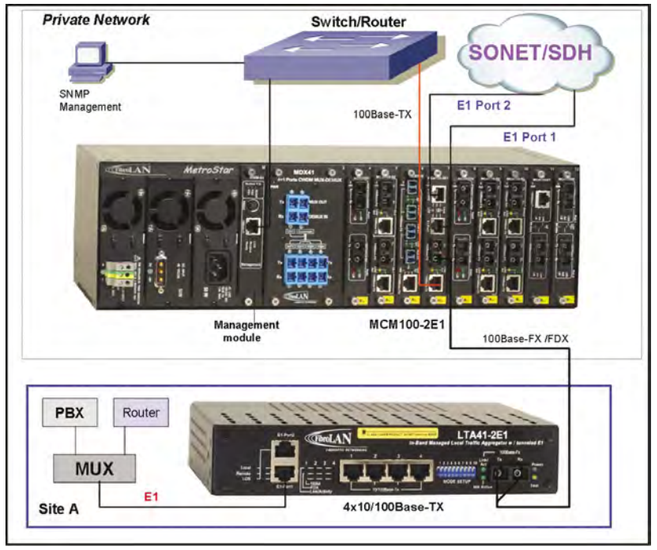
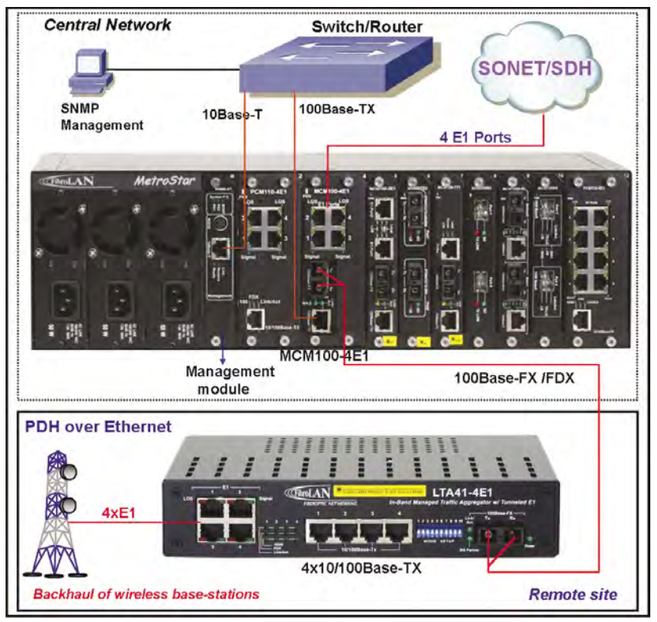
FibroLAN MetroStar™ modules MCM100-xE1/T1

Typical Applications and Topologies





The MMM-01 Management module installed in the ***MetroStar***™ System will monitor, control and manage the modules installed in the ***MetroStar***™ chassis and the remote LTA41-xE1/T1 devices. It will report alerts and traps to the SNMP Manager located in the Central Node.

MetroStar™ ***equipped with a management module can be monitored and managed from any SNMP management station running popular management platforms (e.g. FibroLAN's MetroView, HP OpenView, SNMPc, etc)***

Specifications subject to change w/without prior notice

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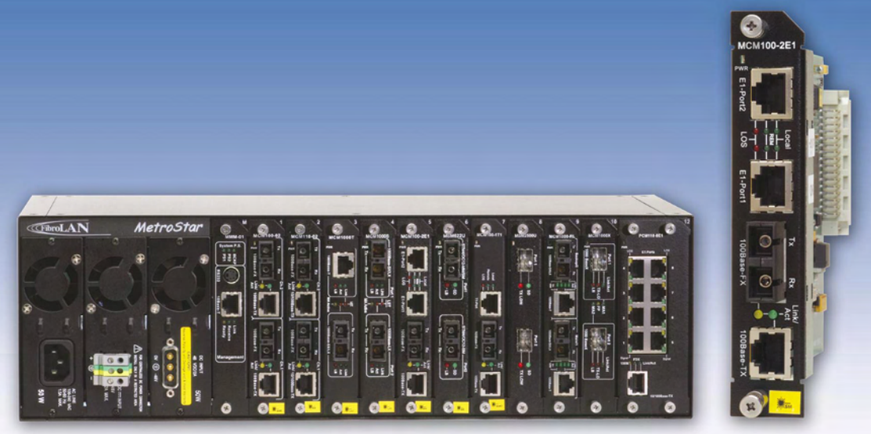
FibroLAN MetroStar™ modules MCM100-xE1/T1

Fast Ethernet/TDM



100Base-TX to 100Base-FX Converter with tunneled E1/T1

This module provides a Layer 1 100Base-TX to 100Base-FX conversion channel plus one, or two or four E1 or T1 channels tunneled over the 100BaseFX. The module integrates traffic coming from a legacy TDM with 100Mbps from the IP network onto a single bit stream, connected via 100BaseFX to a remote LTA41-xE1or LTA41-xT1 device where it interfaces customer's LAN and PABX – and vice versa. When both E1/T1 links are operational, they consume no more than 5% of the Fast-Ethernet bandwidth. Consequently, it allows the migration of existing infrastructure from TDM to Metro Ethernet. The module is offered in a large variety of optical interfaces, both dual and single fiber strand, allowing the extension of the network up to 150km. Fault Propagation is bi-directional (FO>TP and TP>FO) allowing link status forwarding. The TEST switch disables FP function and it is used for diagnostics purposes. The RJ-45 port is Autocross compliant, allowing easy connection. The Subscriber Link Emulation (SLE) - when link partner is an MA enabled device – allows real time notification of the remote user failure while maintaining the fiber link active. The rate limiting mechanism provides the carrier with a platform to ensure SLAs along with high over-subscription rates. Like other MetroStar modules, the MCM100-xE1/T1 is fully SNMP managed. The embedded MA™ chip controller allows full management of a remote LTA41-xE1or LTA41-xT1 device eliminating the need of costly SNMP processors and IP addresses in such devices. All MetroStar modules are hot swappable and equipped with two self-clinching screws for easy and safe module insertion and removal. A special LED indicates that the module is well inserted in its slot and "alive" even before links are connected.

Management Functions

The following management functions are available for the MCM100 module (Ethernet channel) through the ***MetroStar*** System Management (CLI serial connection or Telnet:)

Module Status: Link TP and F/O port status, Channel bandwidth, FP modes (F>>T and T>>F), SLE modes (Up and Downstream), Channel Pause mode (Flow Control), Remote MA device Status (type and Power)

Module Control: Channel x Control, Restore module default values, Reset module

Channel Control: Set port description,FP/SLE control, Enable/disable TP port,Set Duplex mode,Set Pause mode

Link Management: Link status, Set link bandwidth, Perform Loop-back test, Remote Device Control and Status, and Restore link default parameters

E1/T1 Management Menu:

- Ports status and configuration
- Port Management
- Reset E1 or T1 ports
- Restore E1T1 default configuration

DS2700R1208

FibroLAN **MetroStar™ modules**

MCM100-xE1/T1

General Specifications

Standard Compliance:
IEEE802.3u, 100Base-TX, 100Base-FX

RJ-45 Port:
Shielded, Auto-Cross, 100m over STP Cat 5 cabling
The TP port is preset to 100Mb and FDX with Auto-Negotiation advertising

LEDs:
Per module – Power ON
F/O: Link/Activity
TP: (100Base-TX) Link/Activity
The TP is preset to 100Mb and FDX
MA LED – MCM100-4E1/4T1 module indicates the attached remote CPE unit is managed by the MCM100-4E1 or 4T1 module

E1/T1 ports
RJ-48 copper port , 120/100ohm
LEDs:
1 or 2E1/2T1 ports
Local signal, Remote signal, LOS
4E1/4T1 ports:
Signal (a signal is present at the related E1/T1 port)
LOS (loss of signal at the local related E1/T1 port)

Management:
SNMP via *MetroStar* Management module
FibroLAN *MetroView* Element Management System (MCM100-1E1 and MCM100-2E1)
Management of Remote Devices: through MA™

Conversion Method:
Direct Conversion

F/O Ports:
Duplex SC connectors, MM 2Km, SM (7/15/25/40/70/100Km)
Simplex SC, Single Fiber Strand, 20,40Km

E1 Section – standard compliance
Supports AMI/HDB3 Coding Types.
Waveforms meet G703.
Jitter as per ETSI CTR12/13, ITU G.736, G.742 (1/2E1) and G.823. LOS per ITU G.775.
Delay: total link latency : (End to end 2E1 devices, excluding signal over fiber propagation) = < 800usec
2 x 4E1 devices : < 960usec

T1 Section – standard compliance
Supports AMI/B8ZS Coding Types.
Waveforms meet ANSI T1.102
Jitter attenuation as per AT&T Pub 62411.
LOS per ANSI T1.231
Delay: total link latency : (End to end 2T1 devices, excluding signal over fiber propagation) = < 1050usec
2 x 4T1 devices : < 1200usec.

End to end implies MCM100-xE1/T1 module connected to related LTA41-xE1/T1 device

DIP switches (on board):
Enable/Disable Loop-Back on E1 or T1 port(s)
Fault Propagation (FO>>TP, TP>>FO) ON/OFF
MCM100-4E1/4T1: S1= Loop-back on all E1/T1 ports
S2,S3= Fault Propagation

FO Specifications

Option	F/O port Connector & mode	Transmit WL nm	Minimal Output Power	Receive WL nm	Minimal Receive Sensitivity	Suggested Distance Km
Multi-Mode	Duplex SC, MM	1310	- 18dBm	1310	- 32dBm	0-2
SMR7	Duplex SC, SM	1310	- 20dBm	1310	- 30dBm	0-7
SMR	Duplex SC, SM	1310	- 16dBm	1310	- 30dBm	0-15
SM	Duplex SC, SM	1310	- 15dBm	1310	- 33dBm	0-25
SML	Duplex SC, SM	1310	- 11dBm	1310	- 33dBm	15-40
SML2	Duplex SC, SM	1310	- 3dBm	1310	- 35dBm	25-70
SML3	Duplex SC, SM	1550DFB	- 4dBm	1550	- 36dBm	40-100
SMRF15	Simplex SC, SM,SFS	1550	- 15dBm	1310	- 32dBm	0-20

Ordering information

MCM100-1E1SC	2701	Single Channel 100Base-TX to FX converter and one tunneled E1, RJ48, Multi-mode 2km, Dual SC connectors, MA
MCM100-1E1SMR7	2702	Single Channel 100Base-TX to FX converter and one tunneled E1, RJ48, Single-mode 7km,1310nm, Dual SC connectors, MA
MCM100-1E1SMR	2703	Single Channel 100Base-TX to FX converter and one tunneled E1, RJ48, Single-mode 15km,1310nm, Dual SC connectors, MA
MCM100-1E1SM	2704	Single Channel 100Base-TX to FX converter and one tunneled E1, RJ48, Single-mode 25km,1310nm, Dual SC connectors, MA
MCM100-1E1SML	2705	Single Channel 100Base-TX to FX converter and one tunneled E1, RJ48, Single-mode 40km,1310nm, Dual SC connectors, MA
MCM100-1E1SML2	2706	Single Channel 100Base-TX to FX converter and one tunneled E1, RJ48, Single-mode 70km,1310nm, Dual SC connectors, MA
MCM100-1E1SMRF15	2707	Single Channel 100Base-TX to FX converter and one tunneled E1, RJ48, SM ,SFS, 1550nm Tx, 20km,simplex SC , MA
MCM100-2E1SC	2711	Single Channel 100Base-TX to FX converter and two tunneled E1, RJ48, Multi-mode 2km, Dual SC connectors, MA
MCM100-2E1SMR7	2712	Single Channel 100Base-TX to FX converter and two tunneled E1, RJ48, Single-mode 7km,1310nm, Dual SC connectors, MA
MCM100-2E1SMR	2713	Single Channel 100Base-TX to FX converter and two tunneled E1, RJ48, Single-mode 15km,1310nm, Dual SC connectors, MA
MCM100-2E1SM	2714	Single Channel 100Base-TX to FX converter and two tunneled E1, RJ48, Single-mode 25km,1310nm, Dual SC connectors, MA
MCM100-2E1SML	2715	Single Channel 100Base-TX to FX converter and two tunneled E1, RJ48, Single-mode 40km,1310nm, Dual SC connectors, MA
MCM100-2E1SML2	2716	Single Channel 100Base-TX to FX converter and two tunneled E1, RJ48, Single-mode 70km,1310nm, Dual SC connectors, MA
MCM100-2E1SML3	2718	Single Channel 100Base-TX to FX converter and two tunneled E1, RJ48, Single-mode 100km,1550nm DFB, Dual SC connectors, MA
MCM100-2E1SMRF15	2717	Single Channel 100Base-TX to FX converter and two tunneled E1, RJ48, SM ,SFS , 1550nm Tx, 20km, simplex SC , MA
MCM100-1T1SC	2751	Single Channel 100Base-TX to FX converter and one tunneled T1, RJ48, Multi-mode 2km, Dual SC connectors, MA
MCM100-1T1SMR7	2752	Single Channel 100Base-TX to FX converter and one tunneled T1, RJ48, Single-mode 7km,1310nm, Dual SC connectors, MA
MCM100-2T1SMR7	2762	Single Channel 100Base-TX to FX converter and two tunneled T1, RJ48, Single-mode 7km,1310nm, Dual SC connectors, MA
MCM100-2T1SMR	2763	Single Channel 100Base-TX to FX converter and two tunneled T1, RJ48, Single-mode 15km,1310nm, Dual SC connectors, MA
MCM100-1T1SMR	2764	Single Channel 100Base-TX to FX converter and one tunneled T1, RJ48, Single-mode 15km,1310nm, Dual SC connectors, MA
MCM100-1T1SM	2765	Single Channel 100Base-TX to FX converter and one tunneled T1, RJ48, Single-mode 25km,1310nm, Dual SC connectors, MA
MCM100-2T1SMRF15	2766	Single Channel 100Base-TX to FX converter and two tunneled T1, RJ48, SM ,SFS , 1550nm Tx, 20km, simplex SC , MA
MCM100-1T1SMRF15	2767	Single Channel 100Base-TX to FX converter and one tunneled T1, RJ48, SM ,SFS , 1550nm Tx, 20km, simplex SC , MA
MCM100-4E1SC	2719	Single Channel 100Base-TX to FX converter and four tunneled E1, RJ48, Multi mode 2km, 1310nm, Dual SC connectors, MA
MCM100-4E1SMR7	2720	Single Channel 100Base-TX to FX converter and four tunneled E1, RJ48, Single-mode 7km,1310nm, Dual SC connectors, MA
MCM100-4E1SMR	2721	Single Channel 100Base-TX to FX converter and four tunneled E1, RJ48, Single-mode 15km,1310nm, Dual SC connectors, MA
MCM100-4E1SM	2722	Single Channel 100Base-TX to FX converter and four tunneled E1, RJ48, Single-mode 25km,1310nm, Dual SC connectors, MA
MCM100-4E1SML	2723	Single Channel 100Base-TX to FX converter and four tunneled E1, RJ48, Single-mode 40km,1310nm, Dual SC connectors, MA
MCM100-4E1SML2	2724	Single Channel 100Base-TX to FX converter and four tunneled E1, RJ48, Single-mode 70km,1310nm, Dual SC connectors, MA
MCM100-4E1SML3	2725	Single Channel 100Base-TX to FX converter and four tunneled E1, RJ48, Single-mode 100km,1550nm DFB, Dual SC connectors, MA
MCM100-4E1SMRF15	2726	Single Channel 100Base-TX to FX converter and four tunneled E1, RJ48, SM ,SFS , 1550nm Tx, 20km, simplex SC , MA
MCM100-4E1SMC8XX	2777-XX	Single Channel 100Base-TX to FX converter and four tunneled E1, RJ48, SM CWDM, Wavelength=1xx0nm, 80km SC , MA
MCM100-4E1SMC4XX	2778-XX	Single Channel 100Base-TX to FX converter and four tunneled E1, RJ48, SM CWDM, Wavelength=1xx0nm, 40km SC , MA
MCM100-4T1SC	2727	Single Channel 100Base-TX to FX converter and four tunneled T1, RJ48, Multi mode 2km, 1310nm, Dual SC connectors, MA
MCM100-4T1SMR7	2770	Single Channel 100Base-TX to FX converter and four tunneled T1, RJ48, Single-mode 7km,1310nm, Dual SC connectors, MA
MCM100-4T1SMR	2771	Single Channel 100Base-TX to FX converter and four tunneled T1, RJ48, Single-mode 15km,1310nm, Dual SC connectors, MA
MCM100-4T1SM	2772	Single Channel 100Base-TX to FX converter and four tunneled T1, RJ48, Single-mode 25km,1310nm, Dual SC connectors, MA
MCM100-4T1SML	2773	Single Channel 100Base-TX to FX converter and four tunneled T1, RJ48, Single-mode 40km,1310nm, Dual SC connectors, MA
MCM100-4T1SML2	2774	Single Channel 100Base-TX to FX converter and four tunneled T1, RJ48, Single-mode 70km,1310nm, Dual SC connectors, MA
MCM100-4T1SML3	2775	Single Channel 100Base-TX to FX converter and four tunneled T1, RJ48, Single-mode 100km,1550nm DFB, Dual SC connectors, MA
MCM100-4T1SMRF15	2776	Single Channel 100Base-TX to FX converter and four tunneled T1, RJ48, SM ,SFS , 1550nm Tx, 20km, simplex SC , MA
MCM100-4T1SMLF15	2781	Single Channel 100Base-TX to FX converter and four tunneled T1, RJ48, SM ,SFS , 1550nm Tx/1310nmRx, 40km, simplex SC , MA
MCM100-4T1SMC8XX	2779-XX	Single Channel 100Base-TX to FX converter and four tunneled T1, RJ48, SM CWDM, Wavelength=1xx0nm, 80km SC , MA
MCM100-4T1SMC4XX	2780-XX	Single Channel 100Base-TX to FX converter and four tunneledT1, RJ48, SM CWDM, Wavelength=1xx0nm, 40km SC , MA