MCF20xx SERIES

Multi-channel Modular Media Chassis

AT-MCF2000
Multi-channel modular chassis
AT-MCF2000M
Management module
AT-MCF2000AC,
Auto-sensing AC power supply module
AT-MCF2012LC
12 channel 10/100TX Fast Ethernet to 100FX (LC) 2km multi-mode fiber module
AT-MCF2012LC/1
12 channel 10/100TX Fast Ethernet to 100FX (LC) 15km single-mode fiber module

Overview

The AT-MCF2000 multi-channel modular media chassis is a high performance, highly available, high channel density media device. Designed for maximum reliability, the fan modules, power supplies and the management module can all be hot removed and inserted without any interruption to traffic flow on any of the blades. Up to two media blades can be inserted into the AT-MCF2000 chassis, providing a scalable 'pay-as-you-grow' architecture. This is further extended by stacking multiple chassis, with one management module controlling a complete stack, or with two management modules, with the second providing redundant management*.

Extend the Distance of Ethernet

The primary function of the AT-MCF2000 multi-channel modular media chassis is to extend the distance of Fast Ethernet and Gigabit Ethernet* networks. Standard Twisted Pair Cat 5/6 copper cabled Ethernet networks have a maximum operating distance of 100 meters (328 feet). Depending on the media blade model, the blades operate over both multi-mode or single-mode fiber at distances up to 15km in either half or full-duplex operation.

The AT-MCF2012LC is a 12 channel multi-mode fiber blade with small form factor LC style connectors, with a maximum fiber operating distance of 2km (1.24 miles).

The AT-MCF2012LC/1 is a 12 channel single-mode fiber blade with small form factor LC style connectors, with a maximum fiber operating distance of 15km (9.32 miles).

Flexible Management

Cost conscious and security conscious network administrators may choose to implement an unmanaged network using the AT-MCF2000. With no management module installed in the chassis, each port on a blade can be locally configured using a 'jog' button located on the front panel of the blade. This allows each port to be independently configured to operate in Link, MissingLink™, or Smart MissingLink™ modes.

Installing a management module into the chassis allows the chassis to be configured and monitored via a local RS232 port, or through the 10/100/1000T interface for Telnet or SNMP. For security reasons, each management mode can be individually disabled. In Telnet mode, up to 10 user password protected accounts can be configured, each with multiple management privileges ranging from read only to supervisor access.

The installation of a management module allows the network administrator to configure all the ports on each media blade, without having to use the 'jog' button.

Key Features

- 2 slot modular media converter chassis
- High density media blades
- Supports up to 24 channels in 1RU rack space
- Managed and unmanaged operation
- SNMP, Telnet and RS232 management
- Hot-swappable blades, power supplies and management modules
- Stackable architecture allows one management module to control multiple chassis*
- Stackable architecture providing redundant management*
- Multiple user level management privileges
- Management module replacement without channel traffic interruption
- Simple field maintenance
- Blades support MissingLink™ and Smart MissingLink™
- Blades support auto MDI/MDI-X
- Support for both single and multi-mode fiber
- Designed to support Fast Ethernet and Gigabit Ethernet blades
- Designed for IEEE 802.3ah (EFM) support on selected media blades

* Planned for future release

Network Resilience

Each chassis can be configured with either one, or two power supply modules (AC or DC) to provide resilience against a power supply failure. The management module monitors the state of each power supply, and that of the cooling fans, and will generate an alarm should any parameter fall outside of normal operating conditions. With redundant power supplies installed, a power supply can be remove or re-inserted into the chassis without interruption to the media blade traffic.

The management module can also be hot removed and inserted without disruption to the media blade traffic.

A media blade can be removed or inserted into the chassis without disruption to other media blade traffic.

The design of the AT-MCF2000 chassis allows for multiple chassis' to be stacked, allowing two management modules to control multiple media chassis'. In this mode, one management module operates as a redundant Master, only taking over control of the stack should the Master module fail.

Field Maintenance

The need to simplify field maintenance was a key criteria in the design of the AT-MCF2000. Each management module is fitted with a memory card slot, allowing network administrators to keep an exact copy of the configuration information of a chassis. The configuration information of the chassis is stored not only in the management module, but also on each blade. If a management module fails, a replacement blade can be hot installed into the chassis, and it can assume all the configuration parameters of the failed unit. Similarly, if a media blade fails, this can be hot swapped with a replacement, and the replacement will adopt the parameters of the failed unit. These features ensure that an engineer sent to site can quickly and easily get a faulty chassis back to an operational mode.

MissingLink™ and Smart MissingLink™ (SML)

The MissingLink™ (ML) feature allows the ports on the media converter blade to pass the 'Link' status of their connections to each other. When the media converter detects a problem with one of the ports, such as the loss of connection to a node, it shuts down the connection to the other port, thus notifying the node that the connection has been lost. The Smart MissingLink™ (SML) feature provides the same function as MissingLink™ with one additional feature that when a link is lost on a port, the Link LED of the port which still has a valid connection to its end-node starts to blink. These features allow network administrators to quickly troubleshoot network problems.

Future Proof Design

The AT-MCF2000 chassis has been designed to support a wide range of media blades, allowing an installed chassis to be field upgraded as the network grows. Planned blades include support for IEEE 802.3ah 'Ethernet in the First Mile' as well as high performance Gigabit blades.

Hassle Free Support

All Allied Telesis Ethernet media converter line cards offer free technical support, ensuring trouble-free installation.

Software Management Features

Active Controls

- Enable/disable RS232
- Enable/disable Telnet
- Enable/disable SNMP
- Configure/delete user accounts (up to 10)
- Configure/delete user passwords
- Reset management card
- Reset chassis
- Download/upload firmware via TFTP
- Download/upload config via TFTP
- Download/upload firmware via Xmodem
- Download/upload config via Xmodem
- Download/upload firmware via memory card
- Download/upload firmware via memory card
- Download config to media blades
- Upload config from media blades
- IP address
- Subnet mask
- Gateway
- Set SNMP management addresses
- Chassis name
- Chassis location
- Set temperature threshold
- Set media blade name
- Set media blade port name
- Enable/disable port link
- Enable/disable port MissingLink
- Enable/disable port Smart MissingLink
- Enable/disable port auto-negotiation
- Enable/disable port full-duplex
- Enable/disable port auto MDI/MDI-X
- Enable primary management master

Chassis Information

- Part number
- Serial number
- Revision
- User-defined identifier
- User-defined location

Blade/Port Module Information

- Media blade type
- Slot occupied
- Part number
- Serial number
- Configuration
- Revision
- Ports on module
- User-defined identifier
- User-defined port identifier

Blade/Port Module Status

- Diagnostic status
- Port link status
- Port link / MissingLink / Smart MissingLink Status
- Port activity
- Port auto-negotiation status
- Port duplex status
- Port auto MDI/MDI-X status

Events / Alarms / Traps

- Cold start
- Warm start
- Link up/down
- Blade insertion/removal
- Fan module insertion/removal
- Power supply module insertion/removal
- Stacking link Up/down
- Authenication failure
- Chassis reset
- Module reset
- Temperature threshold crossed
- Power supply failure
- Fan speed failure
- TFTP session open/close
- Xmodem session open/close
- Telnet session open/close
- Redundant management secondary up/down*
- Redundant management primary up/down*

* Future release

Technical Specifications
AT-MCF2000 Chassis

Physical Characteristics

Dimensions (W x D x H)	44cm x 46cm x 4.4cm (17.3" x 18" x 1.7")
Weight	(No modules installed) 7Kg (15.4lb)
Mounting	19" rack-mountable or desktop hardware included

AT-MCF2000M Management Module

Status Indicators

System Fault LEDs

Green	Normal operation
Red	Fault condition
Off	No power

Power/Fan LED
(2 Off, slots A and B)

Green	Normal
Amber	Power supply fault
Amber Flashing	Fan fault/stopped
Off	No module present

Console Port LED

Green	Connected
Flashing	Activity
Off	Not connected

Management Port LINK LED

Green	Link
Flashing	Activity
Off	Not connected

Management Port DUPLEX LED

Green	Full-duplex
Flashing	Half-duplex with collisions
Off	Half-duplex, no collisions

Management Port SPEED LED

Green	1000Mbps
Amber	100Mbps
Off	10Mbps

Stacking Port LINK LED

Green	Link
Flashing	Activity
Off	Not connected

Compact Flash BUSY LED

Amber	Busy
Off	Idle

Interfaces

1 x 10/100/1000T RJ-45 (auto MDI/MDI-X) management connection
1 x 10/100TX RJ-45 (auto MDI/MDI-X) stacking connection
1 x RJ-45 RS232 connection
1 x compact flash memory slot
1 x Reset button

Management Interfaces

RS232
Telnet
SNMP v1, v2, v3

Features, Standards and Conformance

RFC 1305 SNTPv3
Real time clock (battery backed-up)
Event log (2000 entries, last 1000 held in non-volatile memory)
RFC 1395 Syslog
RFC 783/1350 TFTP (Firmware and image upload/download)
RFC 916 Xmodem (Firmware and image upload/download))
RFC 1157 SNMP
RFC 2571-5 SNMPv3
RFC 1213 MIB II
RFC 1493 Bridge MIB
RFC 1215 TRAP MIB
RFC 1573 Interface Group MIB
RFC 1643 Ethernet MIB
RFC 1573 Extended Interface MIB
RFC 854 Telnet
SSH V1 (Secure Telnet)
SSH V2 (Secure Telnet)
Watchdog timer

IEEE 802.3	10T Ethernet
IEEE 802.3ab	1000T
IEEE 802.3u	100TX Ethernet
IEEE 802.3x	10/100Mbps flow control
IEEE 802.3z	1000Mbps flow control

AT-MCF2000AC AC Power Module

Interfaces

1 x On/Off switch
1 x IEC power inlet

Features/Functionality

2 x exhaust fans

Electrical Characteristics

Input power	100~250V AC 50/60Hz

AT-MCF2012LC and AT-MCF2012LC/I 12 Channel Fast Ethernet Media Blade

Status Indicators

Per Fiber Port

Link	Green	Link signal established
	Off	No link
Activity	Green	Data activity
	Off	No activity

Per Copper Port

Link	Green	Link signal established at 100Mbps
	Amber	Link signal established at 10Mbps
	Off	No link
Activity	Green	Data activity
	Off	No activity

Mode LEDs

Channel Select	Green	Channel selected
	Off	Channel not selected
Link	Green	Selected channel in link mode
	Off	
Missing Link	Green	Selected channel in MissingLink mode
	Off	
Smart Missing Link	Green	Selected channel in Smart MissingLink mode
	Off	
CDC	Green	Copper port detect collision (half-duplex mode)
	Off	
FDC	Green	Fiber port detect collision (half-duplex mode)

Interfaces

12 x 10/100TX ports
12 x 100FX (LC) ports
1 x jog button to select operational mode

Fiber Optic Parameters

AT-MCF2012LC Blade (15km maximum over single-mode fiber)	**Transmit Power (dBm)**		
	Min.	**Typical**	**Max.**
Transmit power (dBm)	-20	-	-14
Receive sensitivity	-31dBm		
Optical frequency	1310nm		

AT-MCF2012LC Blade (2km maximum over multi-mode fiber)	**Transmit Power (dBm)**		
	Min.	**Typical**	**Max.**
Transmit power (dBm)	-15	-	-8
Receive sensitivity	-31dBm		
Optical frequency	1310nm		

System Operating Parameters

Temperature range: Operating:
0°C to 40°C
Non-operating:
-25°C to 70°C

Humidity range: Operating:
5% to 95% non-condensing
Non-operating:
5% to 95% non-condensing

Altitude: Operating:
4,000 meters (13,000 feet)
Non-operating:
4,000 meters (13,000 feet)

Standards and Conformance

EN55024
UL60950-1
CSA22.2 No.950
TUV (EN60950)
CE
FCC Class A
EN55022 Class A
EN55024 Class A
VCCI. Class A
C-TICK

Ordering Information

AT-MCF2000-00
Multi-channel media chassis, comprising of
1 x AT-MCF2000 chassis
1 x AT-MCF2000FAN Fan module for second power supply slot
1 x AT-MCF2KPNL2 PSU slot blanking panel
2 x AT-MCF2KPNL1 media slot blanking panels
1 x AT-MCF2KPNL3 management sot blanking panel
1 x Rack-mount kit

AT-MCF2000AC
AC power module including
4 x power cords (US, EU, UK, AU)

AT-MCF2000M
Management module

AT-MCF2012LC
12 channel Fast Ethernet media blade
12 x 100TX to 100FX (LC) 2km Multi-mode fiber

AT-MCF2012LC/1
12 channel Fast Ethernet media blade
12 x 100TX to 100FX (LC) 15km single-mode fiber

Associated Products

AT-MCF2000FAN
Spare fan module, for use in single PSU powered chassis

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