BLACK BOX®
NETWORK SERVICES

Dynamic Fiber Conversion System
Network Management Module User Manual

DFCS SNMP and Telnet Management Module	
Model	**Description**
LMC3000A	SNMP and Telnet Management Module
Optional Accessories	
LMC3001A	MGT Cascade Cable (3 ft.)
LMC3003A	Network Management Software for Windows 9X/ME/XP/NT/2K

CUSTOMER SUPPORT INFORMATION

Order **toll-free** in the U.S.: Call **877-877-BBOX** (outside U.S. call **724-746-5500**)

FREE technical support 24 hours a day, 7 days a week; Call **724-746-5500** or fax **724-746-0746**

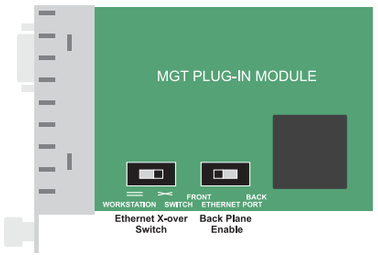
Mailing address: **Black Box Corporation**, 1000 Park Drive, Lawrence, PA 15055-1018

Web site: **www.blackbox.com**

E-mail: **info@blackbox.com**

Description:

The *DFCS* SNMP and Telnet Management Module (MGT) provides SNMP-based monitoring and control for the *DFCS* product family. The MGT features a serial port for configuration, a front-plane or a backplane 10Mbps Ethernet management interface port and a pair of multi-chassis management ports enabling it to manage up to 16 chassis using a single IP address.



Board Mounted Switch Settings:

RJ45 Cross-Over Switch:

When connecting the Ethernet front-plane to a hub or switch, set the switch to "SWITCH". When connecting to a workstation, set to "WORKSTATION" (factory setting).

Ethernet Port Back-Plane Management Switch:

When the "ETHERNET PORT" switch is in the "FRONT" position (factory setting), the front-plane RJ45 Ethernet port is enabled and the backplane Ethernet

port is disabled. When the "ETHERNET PORT" switch is in the "BACK" position the front-panel port becomes disabled and the backplane port is enabled. In the backplane mode, the MGT module can communicate to an adjacent 10/100 module.

Mounting and Cable Attachment:

DFCS modules are hot-swappable and can be installed into any of the *DFCS* family of Chassis.

1. Carefully slide the *DFCS* Slide-in-Module into installation slot, aligning the *DFCS* Slide-in-Module with installation guides.
2. Secure Slide-in-Module by securing panel fastener screw (attached to Slide-in-Module) to chassis front.
3. If multi-chassis grouping is desired, connect the MGTs together using the *DFCS* MGT Cascade Cable (Model LMC3001A).
4. When front-plane (Out-of-Band Management) is desired, attach the RJ45 Ethernet port via a Category 5 UTP cable to a 10Base-T capable Ethernet device.

LED Indicators:

LED	Color	Description
Pwr:	Yellow	On -- Power
PS1:	Yellow	On -- Power Supply #1 OK
PS2:	Yellow	On -- Power Supply #2 OK
PS3:	Yellow	On -- Power Supply #3 OK
Msr/Slv:	Green	On -- Master; Off -- Slave
Mgt:	Green	On -- Management Polling
Lk/Rx:	Green	On -- 10BT Link; Blink -- Activity

When using the *DFCS* for the first time, initial configuration is required. To configure, attach the MGT to a serial RS-232 equipped PC with terminal emulation software such as HyperTerminal. To attach, use a straight through serial cable with a DB-9 male connector to connect to the MGT (Model LMC3000A). Attach other end of the cable to the serial RS-232 port of the PC.

Set the PC's serial port to the following:

bits per second	57,600
stop bits	1
data bits	8
parity	NONE

Power the chassis containing the *DFCS* MGT and press <*ENTER*> to bring up a command line prompt at the attached PC. If a password has been set, the following information will be displayed:

```
OS Initialized and Running
Task Creation Complete
Beginning Discovery:
IP Addr. = 192.168.1.220
Black Box Network Services
DFCS, Serial Agent
Copyright 2003 Black Box Password
Entry
```

```
Black Box Network Services
Technical Support: (724) 746-5500
1000 Park Drive
Sales/Products:   (724) 746-5500
```



```
Lawrence, PA 15055-1018
On the web at:
www.blackbox.com
```

```
IP Address   192.168.1.220
MAC          00:06:87:00:0A:2C

Please enter the password >
```

Enter the password and hit <*ENTER*>. The MGT should respond with the Management Options menu. If there is no password, the MGT will skip the above message and go straight to the Management Options menu.

```
Management Options
DFCS, Serial Agent
Network Management
1:  Chassis and Module Management
2:  Set Module Name
MGT Preferences
3:  IP and Control Preferences
4:  SNMP Preferences
5:  Abandon MGT Preference
    Changes
6:  Save MGT Preference Changes
7:  Restore Factory Defaults
8:  Restart MGT
9:   Other Networking Features
MGT Maintenance
10: Firmware Update
IP Address     = 192.168.1.220
Chassis Number = 1
Enter Choice, Help (h), Exit (x) >
```


IP and Control Preferences

An IP address is required for the SNMP manager to address the MGT. Its initial factory setting is 192.168.1.220. To configure the IP address and control paramenters, press *3* from the Management Options menu. The following menu should appear:

```
IP and Control Preferences Screen
DFCS, Serial Agent

1:  Set MGT IP
2:  Set MGT Subnet Mask
3:  Set Gateway
4:  Chassis Number
5:  Chassis Name (also
    sysName)
6:  Enable/Disable Telnet
7:  Enable/Disable FTP
8:  Enable/Disable Soft-switch
    Reload
9:  Telnet Password
10: FTP Password
11: Serial Password
12: Restore MGT Configuration
    Defaults

Enter Choice, Management Options
Screen(0), Help(h), Exit(x) >
```


Setting IP Parameters

To configure the IP address of the MGT, press *1* at the IP Address and Control Preferences screen:

```
Enter Choice, Management Options
Screen(0), Help(h), Exit(x) > 1
Change IP: 192.168.1.220
```

Backspace over the existing value, type the new value (in x.x.x.x format), and press <ENTER>.

To configure the subnet mask of the MGT, press *2* at the IP Address and Control Preferences screen:

```
Enter Choice, Management Options
Screen(0), Help(h), Exit(x) > 2
Change Subnet: 255.255.255.0
```

Backspace over the existing value, type the new value (in x.x.x.x format), and press <ENTER>.

To configure the gateway of the MGT, press *3* at the IP Address and Control Preferences screen:

```
Enter Choice, Management Options
Screen(0), Help(h), Exit(x) > 3
Change Gateway: 192.168.1.1
```

Backspace over the existing value, type the new value (in x.x.x.x format), and press <ENTER>.

To save the new values, press *0* to return to the Management Options menu, then press *6* to Save MGT Preference Changes.

Setting the Chassis Number and Name

In a multi-chassis configuration, each chassis must be assigned a unique number. In this configuration, multiple chassis are cascaded together and are monitored and controlled from a single MGT IP address. The numbers must be in the range 1 to 16, where 1 is the "master" MGT. In a single-chassis configuration, set this entry to 1.

The Chassis Name, or sysName, allows the network manager to identify the MGT by a common name. The name can be any 1-31 character alphanumeric string.

To set the Chassis Number, press *4* at the IP Address and Control Preferences screen:

```
Enter Choice, Management Options
Screen(0), Help(h), Exit(x) > 4
Change Chassis Number: <1-16>
```

To set the Chassis Name, or sysName, press *5* at the IP Address and Control Preferences screen:

```
Enter Choice, Management Options
Screen(0), Help(h), Exit(x) > 5
Change Chassis Name: <1-31
character alphanumeric>
```

To save the new values, press *0* to return to the Management Options menu, then press *6* to Save MGT Preference Changes.

Setting MGT Passwords

The MGT is shipped from the factory with no password protection. It is highly recommended that the network administrator set a new password in order to prevent unauthorized access to the unit.

To set the password for Telnet access, type *9* at the IP Address and Control Preferences screen:

```
Enter Choice, Management Options
Screen(0), Help(h), Exit(x) > 9
Enter New Telnet Password >
<password>
Please enter again to verify >
<password>
```

To set the password for FTP access, type *10* at the IP Address and Control Preferences screen:

```
Enter Choice, Management Options
Screen(0), Help(h), Exit(x) > 10
Enter New FTP Password >
<password>
Please enter again to verify >
<password>
```

To set the password for serial access, type *11* at the IP Address and Control Preferences screen:

```
Enter Choice, Management Options
Screen(0), Help(h), Exit(x) > 11
Enter New Serial Password >
<password>
Please enter again to verify >
<password>
```


To save the new values, press *0* to return to the Management Options menu, then press *6* to Save MGT Preference Changes.

SNMP Preferences

Because the MGT uses SNMP-based management, the SNMP Preferences must be properly set for full functionality.

To set the MGT's SNMP preferences, press *4* from the Management Options menu. The following menu should appear:

```
SNMP Preferences Screen
DFCS, Serial Agent

Chassis Number    = 1

1:  sysName (also Chassis Name)
2:  sysContact
3:  sysLocation
4:  Read Community Name
5:  Write Community Name
6:  Traphost Address 1
7:  Traphost Address 2
8:  Traphost Address 3
9:  Traphost Address 4
10: Traphost Address 5
11: Traphost Address 6
12: Traphost Address 7
13: Traphost Address 8
14: Restore SNMP Configuration
```

```
Enter Choice, Management Options
Screen(0), Help(h), Exit(x) >
```

Setting the SNMP Read and Write Community Names

The SNMP Read Community Name is necessary for reading data from the MGT. The name can be any 1-31 character alphanumeric string.

To set the SNMP Read Community Name, type *4* at the SNMP Preferences Screen.

```
Enter Choice, Management Options Screen(0),
Help(h), Exit(x) > 4
Change Read Community Name: public
```

Backspace over the existing value, type the new value, and press <*ENTER*>.

The SNMP Write Community Name is necessary for writing data to the MGT. The name can be any 1-31 character alphanumeric string.

To set the SNMP Write Community Name, type *5* at the SNMP Preferences Screen.

```
Enter Choice, Management Options Screen(0),
Help(h), Exit(x) > 5
Change Write Community Name: public
```

Backspace over the existing value, type the new value, and press <*ENTER*>.

To save the new values, press *0* to return to the Management Options menu, then press *6* to Save MGT Preference Changes.

Setting the SNMP Trap IP Addresses

SNMP traps are used to report events that occur during the operation of a network that require the attention of the network administrator. The MGT is capable of sending SNMP traps to up to eight different SNMP management stations.

To enter the IP address of the first trap monitoring station, type *6* at the SNMP Preferences Screen.

```
Enter Choice, Management Options Screen(0),
Help(h), Exit(x) > 6
Change Traphost Address 1: 255.255.255.255
```

Backspace over the existing value, type the new value (in x.x.x.x format), and press <ENTER>.

To enter the IP addresses of additional trap-receiving management stations, repeat this process for Traphost Addresses 2-8.

To save the new values, press *0* to return to the Management Options menu, then press *6* to Save MGT Preference Changes.

MGT Firmware Update

Updating the MGT firmware allows administrators to upgrade the firmware within the management module and take advantage of new features.

To update the MGT firmware, type *10* at the Management Options menu. The MGT will display the following:

```
Enter Choice, Help(h), Exit(x) > 10
UPDATE: Are you sure? [Y/N] > Y
```



```
Please Xmodem file now:
```

From your terminal program, use the Xmodem protocol to send the new DFCS.xxx agent file to the MGT (where xxx represents the release level of the software). Once the file transfer begins, the data will upload to the MGT. The process will take about four minutes over a serial connection.

When the upload is complete, the MGT will display:

```
File received correctly
Flash Server: Decoding Program File.
Flash Server: Program Decoded.
Flash Server: Checking Program Address Range.
Flash Server: Program Range ok.
Flash Server: Erasing Flash.
Flash Server: Flash Erased.
Flash Server: Programming Flash.
Flash Server: Flash Programmed.
Flash Server: Verifying Flash Program.
Flash Server: Flash Program Verified
Flash Server: REBOOTING MGT TO LOAD NEW
              PROGRAM!!
```

The MGT will then restart using the new agent software.

Accessing the MGT via Telnet

The MGT may be accessed and configured via Telnet using any standard Telnet client. All of the functions available with serial cable access are available with telnet access, with the exception of agent software updating (see *Accessing the MGT via FTP* below).

Telnet access can be enabled or disabled, via serial

cable only, at the *IP and Control Preferences* screen. This screen also contains an option to set the telnet password. Telnet will not work without a password.

Mounting and Cable Attachment:

The agent software on the MGT can be updated via FTP using any standard FTP client.

FTP access can be enabled or disabled, via serial cable only, at the *IP and Control Preferences* screen. This screen also contains an option to set the FTP password. FTP will not work without a password.

To update the agent software, log in as user "DFCS" and use the password set during the MGT's configuration. Upload the new agent software into the root directory. When the file transfer is complete, the MGT will verify the file and then restart using the new file.

TRADEMARKS

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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 be 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 the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numéirques de las classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par le ministère des Communications du Canada.

NORMAS OFICIALES MEXICANAS (NOM)

ELECTRICAL SAFETY STATEMENT

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 pedelstales 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 or 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 ostros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precación debe ser tomada de tal manera que la tierra fisica 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 lineas de energia.
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 objectos liquidos 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: Objectos 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 aparto ha sido tirado o su cubierta ha sido dañada.

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