Managed 19” 4-slot Card-based Media Converter Chassis

NMF-758

User’s Guide

(V 1.0)

VOLKTEK

Optical Ethernet Experts

FCC WARNING

This equipment has been tested and found to comply with the limits for a class A device, pursuant to part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the user's own expense.

CE

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Take special note to read and understand all content given in the warning boxes:

Warning

Table of Contents

1 About This Guide

Welcome

Thank you for purchasing the NMF-758 Managed 19" 4-slot Card-based Media Converter Chassis and its accompanying NMF-759 Converter Modules.

This is a Fast Ethernet standard-compliant media converter chassis. The media converters it is designed to house allow users to convert the Fast Ethernet transmission media from UTP to fiber and fiber to UTP.

This SNMP-ready media converter chassis comes with up to 4 NMF-759 media converter line cards. Each card has one 10/100Base-TX port and one 100Base-FX fiber port. The fiber port supports many types of fiber cable (multi-mode, single-mode, single-mode long-haul and WDM). Besides the four line card slots on the front panel, there are also two management ports on the rear panel for the NMF-759A Management Interface Module – one Fast Ethernet port for Web and SNMP management and one RJ-45 RS-232 port for management by Console. The rear panel also has two sets of power receptacles and power switches for AC outlets: one set for the master power source, and one for the redundant

power source. Both internal power supplies share the load under normal conditions. If one power supply fails, the redundant supply will instantaneously take 100% of the load.

Purpose

This guide explains the installation and configuration of your NMF-758 Managed 19" 4-slot Card-based Media Converter Chassis and the NMF-759 Managed Media Converter Module (1-port 10/100TX to 1-port 100FX) that was designed to fit into the Chassis. It also gives some information about the NMF-759A Management Interface Module (that can be used with the 758).

Terms/Usage

In this guide, the term "Chassis" (first letter uppercase) refers to your NMF-758 Managed 19" 4-slot modular Media Converter Chassis; the term "Converter" (first letter upper case) refers to your NMF-759 Managed 10/100BASE-TX to 100BASE-FX Converter module, and "converter" (first letter lower case) refers to other, 3rd party converters.

Features

- Complies with the IEEE 802.3u 100Base-TX/FX standard
- Auto-negotiation NWay on RJ-45 ports.

- 10/100BASE-TX Twisted-Pair Port on rear panel – this RJ-45 Ethernet port supports automatic MDI/MDI-X crossover detection, eliminating the confusion over crossover cables and crossover ports, and providing true 'plug-'n-play' capability. The Converter modules feature the same RJ-45 ports (1 per module).
- Fiber Ports (1 per Converter module) **–** connects various fiber-optic cables (multi-mode, single mode, long-haul single mode, WDM) to the Converter.
- Fiber Connectors: Single/Multi-mode, ST, SC, MT-RJ, VF-45, LC, WDM.
- Extends fiber distances to 2km (6,600 feet) over multi-mode and up to 60km (198,000 feet) over long-haul single-mode fiber.
- Link Fault Signaling (LFS) for easier problem detection.
- Loop-back testing (LBK) capability for instant connectivity confirmation.
- Status LED's for quick and easy system and network activity monitoring.
- Remote management.
- HTTP/Web browser user interface, CLI and Menu-driven user interfaces via both console and telnet.

- SNMP agent application software (HP Open View and IBM/Tivoli NetView capable).
- Console Port (RJ-45) – Use this port for out-of-band device management. Configure the device through a Terminal Emulator /TELNET Program.
- Slim “standalone” rack-mountable 1U form factor.
- Modular chassis houses up to 4 cards.
- Redundant, load-sharing dual internal power supplies.
- Each slot has power isolation – this ensures that each slot is electrically isolated from the next.
- Two high volume cooling fans ensure an optimal operating environment.
- FCC Class A & CE approved.
- Designed for non-stop operation and to minimize downtime.

Specifications

- Standards:
  - IEEE 802.3 (10BASE-T Ethernet);
  - IEEE 802.3u (100BASE-TX/FX Fast Ethernet)

- Capacity:
  - Four slots for housing up to 4 card-based Converters

- Connectors contained per Converter:
  - 1 x ST or SC (Multi-mode or Single-mode)
  - 1 x shielded RJ-45

- Management Port Connectors:
  - 1 x RS-232 (RJ-45)
  - 1 x UTP (Eagle-eye RJ-45)

- Connection:
  - Auto MDI/MDIX for Ethernet port

- Max. Distances:
  - RJ-45 on Converter – Cat 5e Twisted Pair: 100m (330 feet)
  - Management Ethernet – UTP (Cat.5, 5e, or Cat. 6): 100m
  - Fiber – (multi-mode): 2,000m

- Fiber – (long-haul single-mode): 60km
- RS-232: 15m

- DIP Switch of Converters:
  1. NWay – Auto-Negotiation (default: enabled)
  2. TX Duplex – (default: FD) off: Full Duplex; on: Half Duplex
  3. TX Speed – (default: 100) off: 100Mbps; on: 10Mbps
  4. LFS – Link Fault Signaling. (default: disabled)

- Power
  - Master and Redundant Power Supply: load-sharing and fail-over
  - Power: AC input: 100 ~ 240 V AC
  - Frequency: 50Hz to 60Hz

- Environment – Operating:
  - Temperature: 0˚C to 50˚C
  - Relative Humidity: 10% to 80%, non-condensing

- Environment – Non-Operating/Storage:
  - Temperature: -20˚C to 80˚C
  - Relative Humidity: 5% to 90%, non-condensing

- Emissions:
  - FCC Part 15 of Class A & CE approved

- Dimensions:
  - 283.5 x 439 x 43mm (LxWxH)

Package Contents

All packages have been carefully checked for completeness and functionality before shipping. However, please take a moment to verify that the package does contain all the products. If any items are missing or appear damaged, contact your sales representative for replacement.

The package should include the following:

- One (1) Managed Media Converter Chassis
- One console port cable (RJ45 to DB9)
- Four (4) self-adhesive pads
- Two (2) AC power cords
- Rack-mounting brackets
- Spare screws
- User Manual

2 Hardware Description

The NMF-758 Managed 4-slot modular Media Converter Chassis is primarily designed for larger workgroups that need an increase in speed / bandwidth and thereby require expansion of their Fast Ethernet networks.

Because the Converters feature Auto MDI/MDI-X detection for direct connection to a workstation, switch or hub, network managers no longer need to worry about the cable configuration (crossover or straight through) when establishing a connection between RJ-45 ports.

Some of the enhanced capabilities of the Converters include Link Fault Signaling (LFS), Loop-back Testing (LBK) and auto-negotiation. The LFS feature allows constant connectivity by diverting data transmission to a redundant link when a breakdown or error occurs anywhere along the path. LBK allows an administrator to diagnose the network from a remote site.

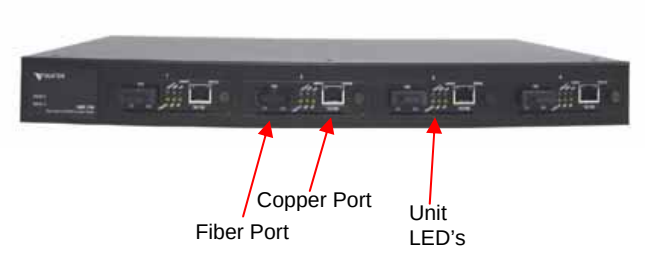
The Converters each feature one RJ-45 jack and one ST/SC/WDM fiber-optic connector, which allow them

to connect a 10/100Base-TX network to a 100Base-FX (fiber-based) network.

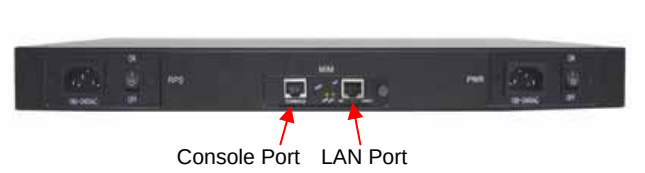
The Converters have Auto-Negotiation capabilities that allow them to support connections to leading NWay switches. In full duplex mode, these units can sustain distances of up to 2km for multi-mode fiber and 60km for long-haul single-mode fiber between a LAN switch and another switch or file server.

Product Illustrations

Front View of Chassis



Back View of Chassis



Connectors

This Converter Chassis utilizes ports with both fiber and copper port connectors functioning under Ethernet and/or Fast Ethernet protocols.

10/100BASE-TX Port

Every 10/100BASE-TX port supports network speeds of either 10Mbps or 100Mbps, and can operate in half- and full-duplex transfer modes. This port also offers automatic MDI/MDI-X crossover detection that gives true “plug-‘n-play” capability – just plug the network cable into the port and the port will adjust itself according to the connected device. The RJ-45 connector is suitable for UTP cable Category 3, 4, 5 or better.

100BASE-FX Port

Every 100BASE-FX port adds a fiber-optic Fast Ethernet link to your network device. Compliant with IEEE 802.3u, this port can transmit data at 100Mbps in full duplex mode across distances of up to 2000 meters over multi-mode fiber-optic cable. Depending on your unit, the fiber port connection type may be ST, SC or WDM.

3 Installation

The location selected for installing the Chassis may greatly affect its performance. When selecting a site, we recommend considering the following items:

- Install the Chassis in a fairly cool and dry place. See *Technical Specifications* for the acceptable temperature and humidity operating ranges.

- Install the Chassis in a location that is not close to strong electromagnetic field generators (such as motors) and not affected by vibration, dust and direct sunlight.

- Leave at least 10cm of space at the front and rear of the unit for ventilation.

- Fix the provided rubber pads to the bottom of the unit to protect the case against scratching.

Desktop Installation

Follow the instructions listed below to install the Chassis in a desktop location.

1. Locate the Chassis in a clean, flat and safe position that has easy access to AC power.

2. Fix the four (4) self-adhesive rubber pads to the underside of the unit.

3. Apply AC power to the master power supply of the Chassis. (The green PWR LED on the front panel should light up).

4. (Optional) apply AC power to the redundant power of the Chassis. (The green RPS LED on the front panel should light up).

5. Connect cables from the network partner devices to the Converter ports on the front panel. (The green LNK LED associated with the relevant port should light up).

Warning Invisible laser radiation may be emitted from the aperture ports of fiber-optic modules when no cable is connected. *Avoid exposure and do not stare into open apertures*.

Getting Connected

This Chassis is capable of connecting up to 8 network devices employing pairs of twisted-pair and fiber cabling paths at Ethernet or Fast Ethernet speeds.

Note: The devices attached to each port can be connected and operated in any sequence, but the general factory-recommended procedure is to set the interface modes before plugging the cable connectors into the unit. For example, when using the DIP switches to set the mode:

1. Chassis power OFF
2. Plug out the line card Converter
3. Set the NWay switch (ON or OFF) at the rear side of the Converter module (DIP Switch #1 = NWay Auto-Negotiation, default: enabled. #2 = TX Duplex, default FD, off: Full Duplex, on: Half Duplex. #3 = TX Speed, default: 100, off: 100Mbps, on: 10Mbps. #4 = LFS Link Fault Signaling, default: disabled.)
4. Plug in the line card
5. Repeat steps 2 ~ 4 for other line cards
6. Power on the chassis
7. Connect Fiber links
8. Connect Copper links

Powering the Unit On

The Chassis uses an AC power supply 90~240V auto-ranging AC, 50~60Hz. The two power on / off switches are located at the rear side of the unit, adjacent to the two AC power receptacles. The Chassis’ power supply automatically self-adjusts to the local power sources and may be powered on without having any or all LAN segment cables connected.

1. Insert the power cords directly into the AC inlets located at the back of the device.
2. Plug power cords into available outlets.
3. Check the front-panel LED’s as the device is powered on to verify that the Power LEDs are lit. If not, check that the power cords are correctly and firmly plugged in.

Connecting Fiber Cable

When connecting fiber cable to a 100BASE-FX port on the Converter modules, be sure the correct type – ST/SC/WDM – connector is used. Follow the steps below to properly connect fiber cable:

1. Remove but do not discard the ST/SC/ WDM port’s rubber cover. When not connected to a fiber cable, the rubber cover should be replaced to protect the optics.

2. Check that the fiber terminators are clean. You can clean the cable plugs by wiping them gently with a clean tissue or cotton ball moistened with a little ethanol. Dirty fiber terminators on fiber-optic cables will impair the quality of the light transmitted through the cable and lead to degraded performance on the port.
3. Connect one end of the cable to the ST/SC/WDM port on the Converter and the other end to the ST/SC/WDM port on the other device.

Note: When inserting the plug, be sure its tab clicks into position to ensure that it is properly locked in.

4. Check the corresponding port LED on the Converter card panel to ensure that the connection is valid. (Refer to the LED chart in next section).

Connecting Copper Cable

The 10/100BASE-TX RJ-45 Ethernet port fully supports auto-sensing and auto-negotiation.

1. Insert the relevant end of a Category 3/4/5/5e type twisted pair cable into an available RJ-45 port of a Converter card.

2. Check the corresponding port LED on the Converter card to be sure that the connection is valid. (Refer to LED chart in next section).

4 LEDs and DIP Switches

This Chassis is equipped with Unit LEDs that show the status of the Chassis, as well as Port LEDs that show the traffic statuses of your network:

Unit LEDs		
LED	**Condition**	**Status**
PWR	On (Green)	Master power of the Chassis is receiving power
	Off	Master power off or failure
RPS	On (Green)	Redundant power of the Chassis is receiving power
	Off	Redundant power off or failure
FAN1	On (Green)	FAN1 is operating normally
	Off	FAN1 failure
FAN2	On (Green)	FAN2 is operating normally
	Off	FAN2 failure

Management Module LEDs		
LED	**Condition**	**Status**
ALM	On (Red)	Alarm on for power or link failure
	Off	No alarm raised
POST	On (Green)	Illuminated during Power On Self Test
	Off	Power On Self Test not active
PWR	On (Green)	At least one power supply is normal and management module is receiving power
	Off	Both supplies failed
100	On (Green)	Management Ethernet port working at 100Mbps
	Off	Management Ethernet port operating at 10Mbps
LNK/ACT	On (Green)	Link of management Ethernet port is active
	Flashing (Green)	Packets are passing through the interface
	Off	Link of management Ethernet port is down

Port LEDs		
LED	**Condition**	**Status**
LFS	On (Red)	Link Fault Signaling occurring
	Off	Link normal and no Link Fault Signaling
PWR	On (Green)	At least one power supply is normal and the line card is getting power
	Off	Both power supplies failed
LNK/ACT	On (Green)	Illuminated when connectors are attached
	Flash (Green)	Data traffic is passing through port
	Off	No valid link established on port
100	On (Green)	Operating at 100Mbps
	Off	Operating at 10Mbps
TP FDX/COL	On (Green)	RJ-45 twisted-pair Port is operating at full-duplex
	Flash (Green)	Indicates collision
	Off	Port is operating at half-duplex*

***The fiber port does not support "half-duplex" mode.**

There are DIP Switches at the rear of the NMF-759 line cards. Users can take the cards out to adjust these:

Linecard DIP Switches		
No.	**Name**	**Meaning**
1	NWay	On: Auto Negotiation disabled
		Off: Auto Negotiation enabled (Default)
2	TX Duplex	On: Half Duplex
		Off: Full Duplex (Default)
3	TX Speed	On: 10Mbps
		Off: 100Mbps (Default)
4	LFS	On: Enabled
		Off: Disabled (Default)

5 Enhanced Features

Link Fault Signaling (LFS)

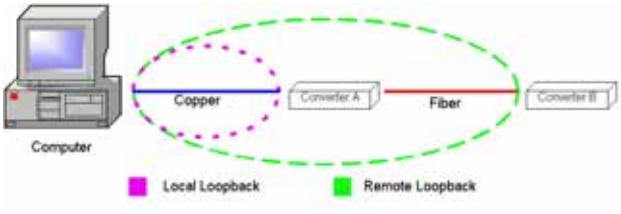
LFS is an extremely useful function that is very beneficial in terms of network status monitoring. The LFS LED will immediately light up when a cable has been severed or when some other service disruption has occurred. The LFS function monitors both copper and fiber segments – thus giving a total connection status report.

To fully take advantage of the benefits of LFS, a minimum of four converters can be used to build a primary and a secondary link. They must be connected to a switch that supports Spanning Tree or Fast Spanning Tree protocols. By default, transmission of data will travel via the primary link. Once a Converter detects a fault, transmission will automatically be switched to the secondary link, resulting in 'non-stop' network connectivity.

Note: *The LFS feature covers both fiber and copper segments. Therefore, when disruption occurs on either segment, the LFS feature will be activated and the LED will light up to indicate that the entire link is down.*

Loop-back Test

This Converter features a loop-back test function. Use the loop-back test to check if all segments on a loop are connected properly. The signals are bounced back to the sender from the furthest LBT-enabling media converter. Please see Diagram below:



How to conduct an LBT:
Please make sure that the cables are connected properly before getting started, and follow the rules given below:

1 Disable NWay Auto-negotiation
2 Set speed to 100Mbps
3 Set duplex mode to Full
4 Enable Loop-back Test

Launch the loop-back or diagnostics testing program and follow the instructions given. Typically, the instructions will be similar to the following:

a. Enter the number of test messages (frame packets) to be sent (Between 1 and 1000)
b. Click the START button
c. The program will loop a testing message in the designated segment, and display a pass / fail result

See also instructions in section 5 of this manual

Warning! Deactivate loop-back test function when returning to normal converter operations

NWay Setting

Note: The factory default setting for NWay Auto-negotiation on the DIP Switch is ON.

ON: Activates NWay auto-negotiation operation mode. Set NWay to ON when connecting to an auto-negotiation device. The function will automatically determine the highest possible speed and duplex mode in the copper and the fiber segments.

OFF: Deactivates NWay auto-negotiation operation mode. Set NWay to OFF when connecting to an auto-sensing device that only supports 10/100 detection. Some early devices only

support auto-sensing of speed and NOT auto detection of speed and duplex mode (auto-negotiation).

Important: In order to manually configure speed and duplex modes, disable auto-negotiation.

Setting the duplex mode should be performed while the media converter is “on line”.

6 Configuration

There are three methods for configuring the Converter Management module. The first is by Command line Interface (CLI) via the Console Port explained in part (A). The second is via an Internet Browser Interface explained in part (B), and the third is CLI via Telnet explained in part (C). Please complete part (A) and then proceed to either part (B) or (C).

A - Console Port

The Converter is accessible via a terminal emulator attached to the RS-232 console port. The console port is set at the factory with the following default settings:

- Baud rate: 38,400
- Data size: 8 bits
- Parity: None
- Stop bits: 1
- Flow Control: None

NOTE: *Ensure that the terminal or PC you are using to make this connection is configured to match these settings.*

Connecting a HyperTerminal

NOTE: *Prior to following the instructions listed below for HyperTerminal, verify that a serial cable connection between the Switch and remote workstation exists.*

1. Launch the terminal emulation program on the remote workstation and power on the Switch.
2. The prompt "**Press <ENTER> to start**" will appear on-screen.

3. The default log-in name is "admin" with no preset password.

After successful login, type the following command line to change the device IP address:

set eth0 ip **xxx.xxx.xxx.xxx**

The **xxx**'s represent values between **1** and **254** and the user should enter their own IP address in this form. Remember to separate each part of the address with a period (dot). After entering the new IP address, the system will confirm whether the operation was successful. When the address has been changed, please make a note of the new address, and then log out by typing "exit" and pressing the <**ENTER>** key.

Note: *IP addresses are unique. If an address isn't available, please contact the appropriate authorities to apply for one.*

B - Management Module Configuration

Using Internet Browser Interface

This section gives a step-by-step guide to configuring the converter management module. A series of screen shots (SS#) and instructions illustrates the main menu structure and how it works.

Firstly, open a web browser and key in the Converter's IP address; then click OK. The following Web Manager page will pop up on your screen:

SS1 – Log-in

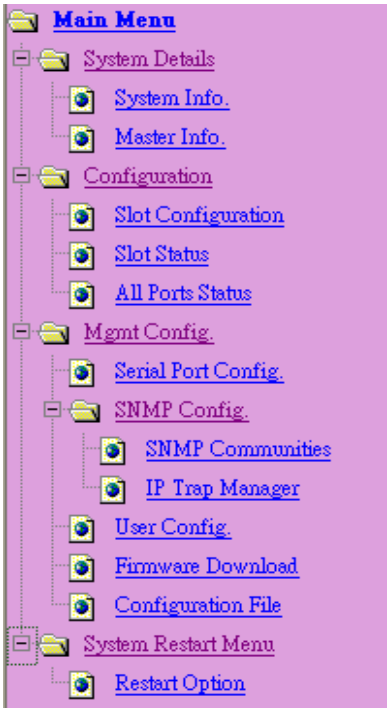
The default username is: **admin**
There is no preset password for this module, so click on **OK** to proceed.

SS2 – Homepage

The homepage displays the information and statuses of the line cards and management module. Beneath it is the display for system information. Default information can be edited on this page: e.g. to give the device a new name, record updated contact details, insert new IP, Network Mask, and Gateway addresses. Click on the fields to get a text prompt and edit the details.

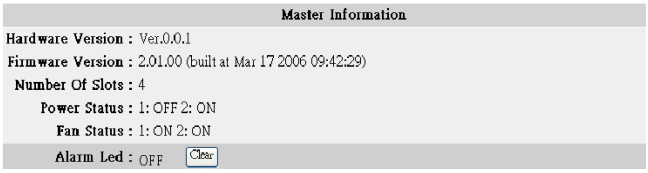
Default address: IP: 192.168.0.254
Network Mask: 255.255.255.0
Gateway: 192.168.0.1

Note: *The above are factory defaults used as an example only. A new address is important information. Choose numbers between 1 and 254 in each sub-address field. Make a note of them and keep the details in a safe place.*



SS3 – Main Menu / Sub-Menu

The main menu system introduces all the necessary tools and information for managing the chassis and its members. The user can control all the features from here. Click on the plus signs to open sub-menus.

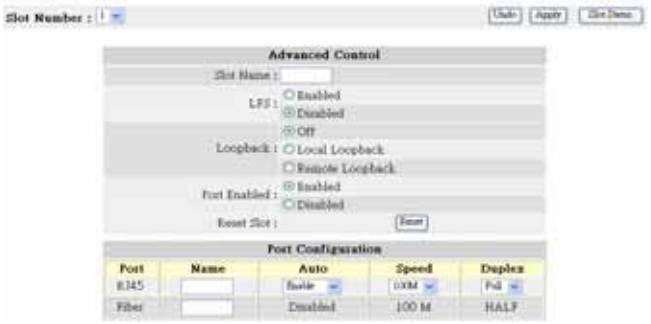


SS4 – Master Information

The following information and statuses are displayed on this page:

- Hardware version
- Firmware version
- Number of slots: 4 for NMF-758
- Statuses of two power modules
- Statuses of two fan modules

If the “Alarm” LED on the management module panel (at the rear of the box) is on, meaning some alarm is being raised, users can click on the “Clear” GUI button to switch off the alarm. The LED will then go off until the next time an alarm is raised.

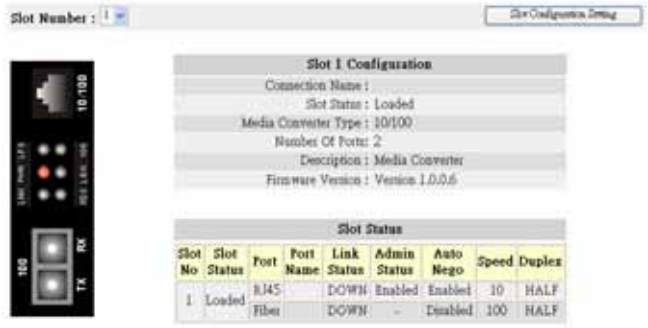


SS5 – Slot Configuration

Use this menu to control the features of the converter cards and the management module. All fiber and RJ-45 Ports on all slots can be adjusted from this page. Either enter the Slot Name at the top of the page, or select from the **Slot Number** combo box (top left) to view detailed information.
To operate the features, click on their associated buttons, and then click on **Apply** to activate them.

- **Reset:** Reboots the selected converter
- **Undo:** Resumes settings to when the Apply function was last used.
- **Slot Status:** View current status of slots

NOTE: *Disable the Auto (Auto-negotiation) function to configure Speed and Duplex.*



SS6 – Slot Status

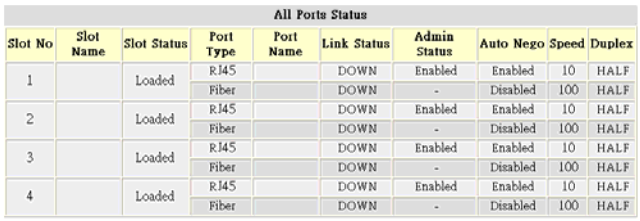
Use this page to monitor the selected card's status. Click on the Slot Configuration Setting button to return to re-configuring the slots.

Description of setting fields:

- **Slot No:** Slot number
- **Slot Status:** Empty / Loaded
- **Port:** Type of ports available on the converter
- **Port Name:** Name of the port configured
- **Link Status:** Displays whether link is Up / Down
- **Admin Status:** Enabled / Disabled
- **Auto Nego:** Auto Negotiation Enabled / Disabled for RJ-45 ports
- **Speed:** Data transfer rate at Mbps
- **Duplex:** Half / Full

Converters' LED descriptions:

- LNK/ACT: Link Up (On) or Down (Off)
- PWR: Card powered (On) or Off
- LFS: Link Fault Signaling alarm raised and issued at the reverse side (On) or normal (Off)
- FDX/COL: Full Duplex (On) or Half Duplex (Off)
- LBK: Loop-back mode enabled (On) or disabled (Off)
- 100: Port operating at 100Mbps (On) or 10Mbps (Off)



All Ports Status

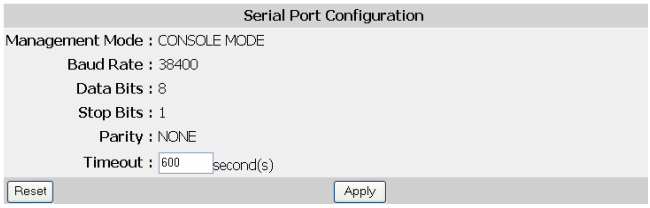
Slot No	Slot Name	Slot Status	Port Type	Port Name	Link Status	Admin Status	Auto Nego	Speed	Duplex
1		Loaded	RJ45		DOWN	Enabled	Enabled	10	HALF
			Fiber		DOWN	-	Disabled	100	HALF
2		Loaded	RJ45		DOWN	Enabled	Enabled	10	HALF
			Fiber		DOWN	-	Disabled	100	HALF
3		Loaded	RJ45		DOWN	Enabled	Enabled	10	HALF
			Fiber		DOWN	-	Disabled	100	HALF
4		Loaded	RJ45		DOWN	Enabled	Enabled	10	HALF
			Fiber		DOWN	-	Disabled	100	HALF

SS7 – All Ports Status

Use this page for 'at-a-glance' viewing of the status of your network connection.

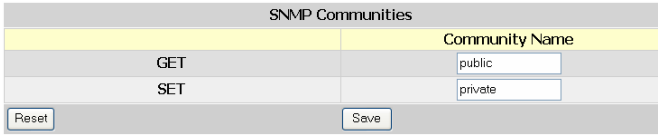
- **Slot No:** Slot number
- **Slot Name:** Name of the slot configured
- **Slot Status:** Empty / Loaded
- **Port Type:** Types of ports available on converter
- **Port Name:** Name of the port configured
- **Link Status:** Displays whether link is Up / Down

- **Admin Status:** Enabled / Disabled
- **Auto Nego:** Auto Negotiation Enabled / Disabled for RJ-45 ports
- **Speed:** Data transfer rate in Mbps
- **Duplex:** Half / Full



SS8 – Serial Port Configuration

The above Management Mode, Baud rate, Data Bits, Stop Bits and Parity are set to default. The only field to be edited here is auto logout (Timeout) – the time limit for non-activity on the console via Command Line Interface (CLI). Choose a time limit between 30 and 3600 seconds according to when you want auto logout to kick in. Click **Apply** to activate the setting. Click on **Reset** to view the setting that was last applied.



SS9 – SNMP Communities

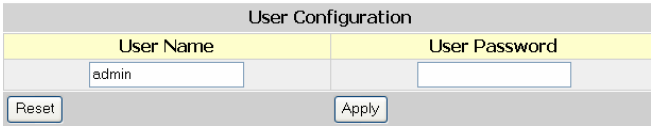
There are two communities listed on this page.
The **GET Community Name** (public) – for reference only. The **SET Community Name** (private) – a group that can be renamed, such as a group of individuals that uses or have access to this management program.

NOTE: *Get and Set Communities are user account names. There are no preset user passwords for them. If the community names are changed, the new names must also be activated with the SNMP Tool.*

SS10 – IP Trap Manager

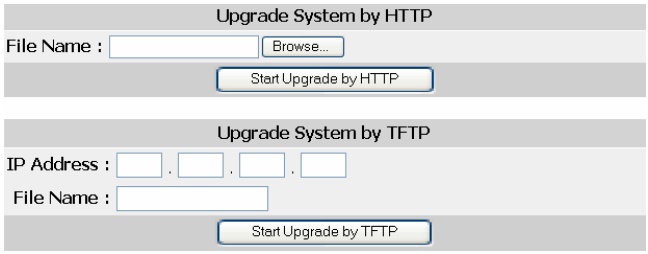
All data on this page is set to factory defaults. To change them, click on each field to get a text prompt and insert the new information. Enter the IP address of computers to which an SNMP Trap message alarm must be sent when abnormalities on a connection occur. Enter the community names and disable or enable the alarm function accordingly. Click on **Reset**

to restore previously saved configurations or click on **Save** to retain newly entered information.



SS11 – User Configuration

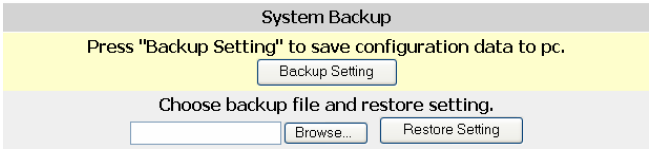
Use this menu to change the **log-in** user name and password. Click on the fields to get a text prompt and enter a new user name and password, then click on **Apply** to activate them.



SS12 – Firmware Download

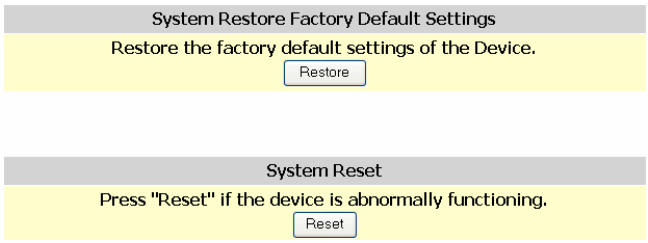
VOLKTEK SNMP support software is upgradeable. Check our website for announcements and downloads. To upgrade via HTTP, first download the software to a designated computer and use the Browse function to select the program. Then click on **Start Upgrade by HTTP**. If you have an IP address and file name for the

new software, enter them in the fields and click on **Start Upgrade by TFTP.**



SS13 – System Backup

Use this menu to back up configurations. To begin, click on the Backup Setting button. Then follow the prompts to save new configurations to a designated computer.
This menu can be used to retrieve saved files. Either type in the file name or use the browse function to select the file. Then, click on **Restore Setting.**



SS14 – System Reset

Restore: Retrieves factory settings
Reset: Reboots the management module

Operational Indicators

Management Module

Grey: Slot empty
Green: Normal
Amber: Loop-back test
Red: Warning

Converter Module

Red: Link fault signaling
Yellow: Loop-back test
Green: Slot loaded
Grey: Slot empty

C – Management Module Configuration Using Command Line Interface

(CLI) Via Telnet

To gain access from a remote computer, use Telnet and log in to the converter command console. Go to the Start menu and open a Command Prompt widow.

Type *telnet xxx.xxx.xxx.xxx* where the xxx’s represent the IP address.

The following screen will appear. Press **<ENTER>** again and type the default username ***admin***. There is no default password so press **<ENTER>** to proceed.

```
VOLKTEK CORP.
Firmware version: 2.01.00 (built at Mar 17 2006 09:42:29)
Press <ENTER> key to start.

Username:admin
Password:_
```

At this point, type in '?' or 'help' to display a full list of help commands with explanations for their functions.

```
Converter>?
[Command List]
?.............. Help commands
backup......... backup run-time firmware or configuration file
exit........... Logout
help........... Help commands
logout......... Logout
ping........... Ping a specified host with IP address
reset.......... Reset system or reset factory default setting
set............ Set commands
show........... Show commands
upgrade........ Upgrade run-time firmware or configuration file
Converter>
```

Help commands

Type 'show' to display a full list of view commands

```
Converter>show
[Command List]
?.............. Help commands
help........... Help commands
version........ Show firmware version
cfg............ Show system information
net............ Show network configuration
slave.......... Show slave's configuration
port........... Show slave's port configuration
power.......... Show power status
fan............ Show fan status
snmp........... Show snmp configuration
...............
Converter>
```

Show commands

The rest of this section will guide the user through the commands. It will also show how to configure the converter management module. Where appropriate, a status report can be viewed by using the 'show' command.

backup: Use this command to save your configurations to a file

exit: Type exit or logout and press <**ENTER>** to quit the program

ping: Type **ping** followed by a **space**, and then the **IP address** of the device to which you want to send a test signal. If a response is received, then the tested device is connected. To view a full list of **ping** options, type *ping* and press <**ENTER>**

reset: Type **reset config** and press **enter** to load factory default settings, or type **reset** and press <**ENTER>** to restart the system

set: To configure the **management console**, type the commands below, followed by the enter key. Be sure to separate each port of the command line with a space:

- **set admin** - follow the prompts to change username and password

- **set eth0 ip** (new IP address) **network mask** (new network mask) **gateway** (new gateway) Use this command to set new addresses

- **set idle** (time in seconds) **–** set the time limit before automatic logout kicks in when the program becomes idle

- **set port** - use this command to configure port speed, auto-negotiation, admin status, and duplex mode.
  E.g.: to change the speed of port 1 from 10 to 100Mbps and full-duplex to half-duplex mode. First disable the Auto-negotiation function. Type:

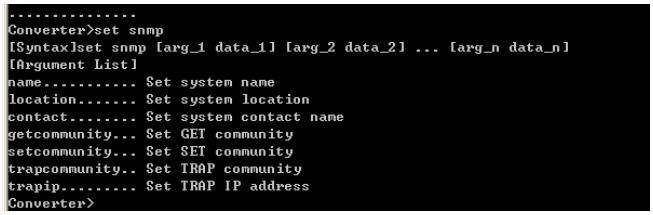
set port 2 1 auto disable speed 10 duplex half

NOTE: port 2 1 = copper port on converter in slot 2
port 2 2 = fiber port on converter in slot 2 – there are 18 converter slots in total

A message will follow to confirm the new settings for slot 2
Type: **show port 2** - to see new settings
show port - to view status on the slots

set (continue)

set snmp



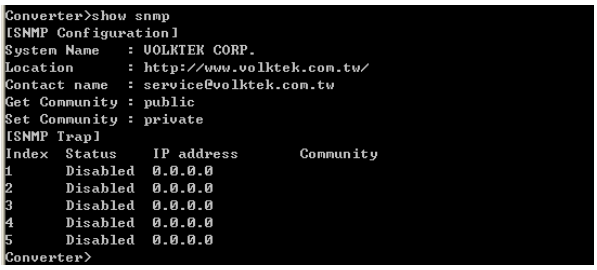
Use the above snmp argument list to configure snmp functions.

- Example: to set contact name, type:
  set snmp contact service@xxxxx.xxx

  then press **<ENTER>.** 'contact' is arg_1, 'service@xxxxx.xxx' is data_1. A message will follow to confirm new settings.

There are two communities listed. The **GET Community Name** (public) is for reference only. The **SET Community Name** (private) is a group that can be renamed – for instance: the group of individuals within your company that uses or have access to this management console. Use a similar command line as the above example to change their names

NOTE: *Get and Set Communities are user account names. There are no preset user passwords for them. If the community names are changed, the new names must also be activated with the SNMP tool.*

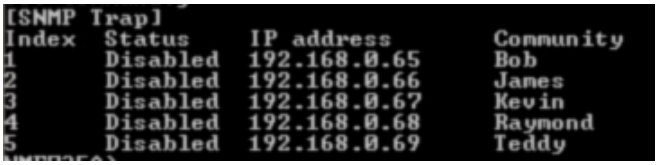


Set Trap

There are five addresses that an alarm can be sent to when abnormalities occur on a connection. To set up this list, use the following example to configure your own list. Type the following command line and press **<ENTER>**:

set snmp trapip 1 xxx.xxx.xxx.xxx
set snmp trapcommunity 1 Bob

Type **show snmp** to view the list –



NOTE: *Use Web Browser Interface to enable each trap community.*

upgrade config
Use this command to reload previously saved configurations. To ensure success, type in the IP address and file name accurately.

upgrade firmware
Use this command to load new versions of software for this console. E.g.:

upgrade firmware xxx.xxx.xxx.xxx SNMPV2

Chassis
Power: There are two power units. Type **show power** to see their statuses

Fan: There are two fans on this unit. Type **show fan** to see their statuses

7 Troubleshooting

The network administrator can observe and monitor the statuses of most of a Converter's functions by using the LED indicators on the front panel to quickly identify problems. This section contains a few of the more common problems that may arise – and possible solutions.

Symptom: Power indicator does not light up after power is switched on.
Cause: Defective power outlet, power cord or internal power supply.
Solution: Verify if the power outlet is functioning normally by plugging in another properly operating device. Connect the power cord to another device to test. If these two tests fail to resolve the problem, replace the power supply unit.

Symptom: Link indicator does not light up after making a connection.
Cause: Network cable or fiber/copper port is defective.

Solution: Ensure that the connected device and the Converter are powered on. Verify that the fiber and/or copper cable has been properly connected to both devices. Make sure the cabling distance does not exceed specified limits. Inspect cable for defects and replace if necessary.

Symptom: Unit powers off during operation after a period of time.

Cause: Loose power connections, power surges/loss or inadequate ventilation.

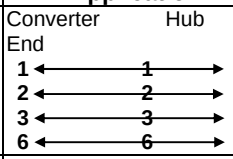
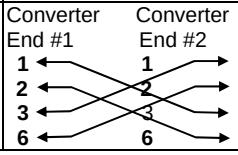
Solution: Ensure that all power connections are secure and that the unit fans have proper ventilation. If unable to correct the problem by above measures, it may be necessary to replace the internal power supply unit.

Appendix A

RJ-45 Cables

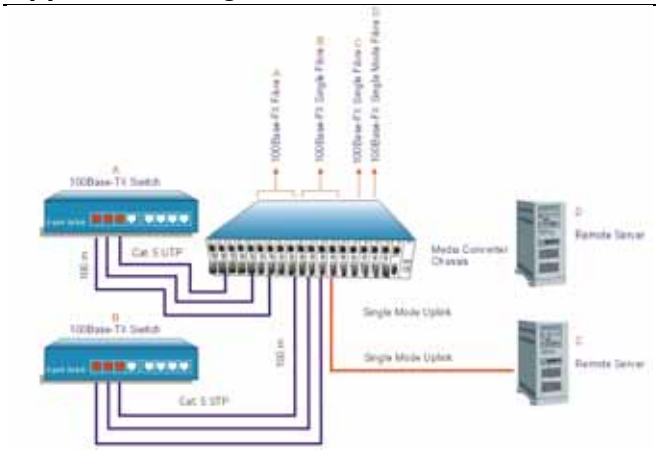
When connecting your network devices, use a standard Category 3 eight-way cable for a 10Base-T configuration and a Category 5 cable for 100Base-TX. The pin assignments are as follows:

Pin 1	**TD+**	**Pair 2**	**White/Orange**
Pin 2	**TD-**	**Pair 2**	**Orange/White**
Pin 3	**RX+**	**Pair 3**	**White/Green**
Pin 4	**N/A**	**Pair 1**	**Blue/White**
Pin 5	**N/A**	**Pair 1**	**White/Blue**
Pin 6	**RX-**	**Pair 3**	**Green/White**
Pin 7	**N/A**	**Pair 4**	**Brown/White**
Pin 8	**N/A**	**Pair 4**	**Brown/White**

Application	Cable Type	Application
Converter to Converter or Network Adapter	Straight-through Cable	
Converter to Switch	Crossover Cable	

Appendix B

Application Diagram



A - A Provides 100Base-TX to 100Base-FX multi-mode Conversion via the Converter Module

B - B Provides 100Base-TX to 100Base-FX conversion via the Single Fiber Transmitter

C - C Provides 100Base-TX to 100Base-FX conversion via the Single Fiber Receiver

D - D Provides 100Base-FX to 100Base-FX single mode conversion via the Converter Module

Appendix C

SNMP Trap List

1. Converter Trap Group (private)
   - Cold start
   - Warm start
   - Link up
   - Link down
   - System configuration change

2. MIB-II Traps
   - Cold start
   - Warm start
   - Link up
   - Link down
   - Authentication failure

Appendix D

System Restore Factory Default Settings	
Description	Media Converter
Serial number	OOOOOOOOO1
Model Name	Managed Media Converter
System Name	VOLKTEK CORP.
Location	http://www.volktek.com.tw/
Contact Name	service@volktek.com.tw
Username	Admin
Password	
ip address	192.168.0.254
netmask	255.255.255.0
gateway	192.168.0.1

Port Setting							
	Type	Admin	Speed	Duplex	Link	Auto	Lpbk
Port 1	fiber	enable	100m	full	up	n/a	n/a
Port 2	RJ-45	enable	100m	full	up	on	disable

Backup Config Variable	
SNMP	System name
	Location
	Contact name
username	
password	
IP address	
Netmask	
Gateway	
Port setting content	Name, speed, duplex, auto
LFS	

8 Contact Information

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