User's Guide

TRENDnet®

TFC-1600 SNMP Management Module

TFC-1600MM

Contents

Product Overview

TFC-1600MM

Package Contents

In addition to your switch, the package includes:

- TFC-1600MM
- CD-ROM (MIB & User's Guide)
- RJ-45 to RS-232 console cable

If any package contents are missing or damaged, please contact the retail store, online retailer, or reseller/distributor from which the product was purchased.

Features

The TFC1600MM module supports the management of media converters and power supplies installed in the TFC-1600 fiber chassis. This module provides instant access to cooling fan and power supply status, and allows the user to configure and monitor the state of the chassis by means of a workstation with support for SNMP, or from a PC via web browser.

Event Notifications

Be notified when an event notification is raised and correct error conditions in a timely manner to maintain network uptime. Supports cold/warm start, link up/down, authentication failure, power supply on/off, connected/disconnected, module connected/disconnected, and unknown failure

Configuration

Configure settings such as link loss carry forward / link loss return**,** module name, reset module**,** download software via HTTP, IP address / subnet mask / default gateway**,** and redundant backup

Real-time Monitoring

Real-time monitoring provides the latest statistics on link status, slot occupied, revision, converter type, and part number

SNMP

Supports SNMP v1, v2c, v3 agent management with MIB-2 and enterprise MIBs, SNMPv2-SMI MIB, INET-ADDRESS MIB, IF MIB, SNMP-FRAMEWORK MIB, SNMPv2-TC MIB
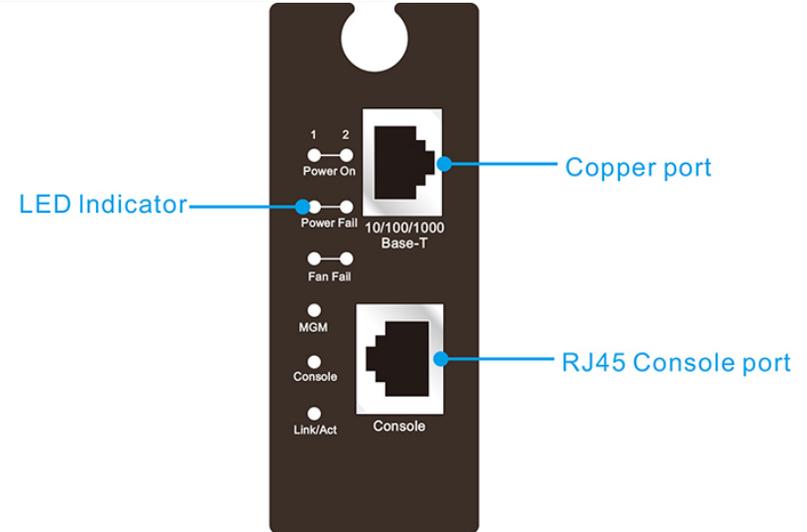
Real-Time Monitoring

Real-time monitoring of link, speed, and duplex status of media converters.

LED Indicators

LEDs convey power on/off, power fail, fan fail, MGM, console, and link/activity

Product Hardware Features

- **10/100/1000 Mbps Gigabit Ethernet Port -** To configure the device through Web Browser or TELNET program via LAN Ethernet.
- **RJ-45 UTP console port -** To configure the device through RJ-45 UTP console port.
- **LED Indicators**

  There are two powers at the rear and will indicate on the front panel the status of the power and fan:

Power On	Lights green when the power is inserted.
Power Fail	Lights Amber when the power is inserted and it is fail.
Fan Fail	Lights Amber when the fan is fail to work.
MGM	Blinks green when the device CPU is working and lights amber when the CPU works fail.
Console	Blinks green when the data is transmitting through console port and blinks amber when transmitting the wrong data.
Link/Act	Lights green when link to networking Ethernet and blinks green for activity.

Module Installation

Installing the Management Module

- Install the Management Module into the Media Converter Chassis.
- Connect the Management Module to the network.
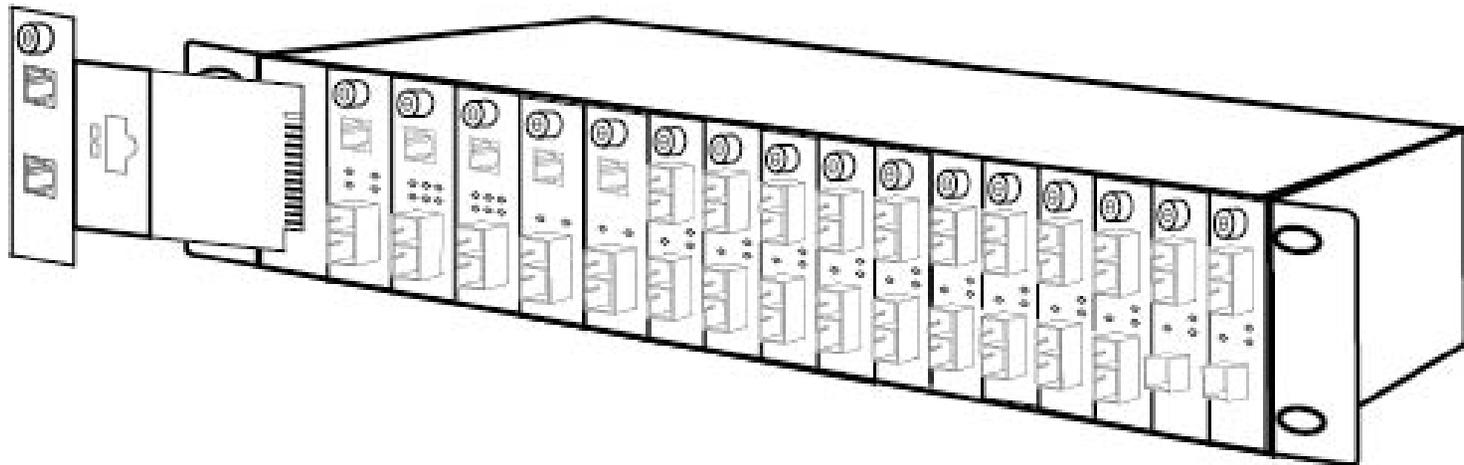
The chassis's first slot is for the Management Module as illustration.
Slide in the management module in the first slot of the chassis system.

Configure your module (Web Management)

This chapter provides network managers and system administrators with information about how to configure the Media Converter Chassis via the Management Module.

The reader of this document should be knowledgeable about network devices, device configuration, network management, and Internet browsers. The user is assumed to be a network administrator or manager with an understanding of network operations.

Access your SNMP module management page

Note: Your switch default management IP address http://192.168.1.1 is accessed through the use of your Internet web browser (e.g. Internet Explorer®, Firefox®, Chrome™, Safari®, and Opera™) and will be referenced frequently in this User's Guide.

1. Open your web browser and go to the IP address http://192.168.1.1 . Your switch will prompt you for a user name and password.

2. Enter the user name and password. By default:

   User Name: **root**
   Password: **root**
   Note: User Name and Password are case sensitive.

Main Menu

The Main Menu will show out the Hardware Revision, BIOS Revision and Firmware Revision, to set the management system, click on the left side menu, System Function and Configuration, in the center screen is the status screen that appears where you clicked on the left side menu.

Click on the Media Converter slot and it will appear a screen for you to monitor or control, depend on what media converter you are using.

Slot1		S1000T-1000LX	
		M1	M2
	Link	X	X
	Duplex	X	X
	Speed	X	X
	Fail	V	V
	LLCF/LLR Supported		
Device Link Setup :	● Enabled ○ Disabled		
M2 AN Setup :	○ Enabled ● Disabled		
M2 LLR Setup :	○ Enabled ● Disabled		
	Save		

System Function

There are five items in System Function menu, "Software Reboot, Factory Reset, Image Update, Save Configuration and Configuration Update.
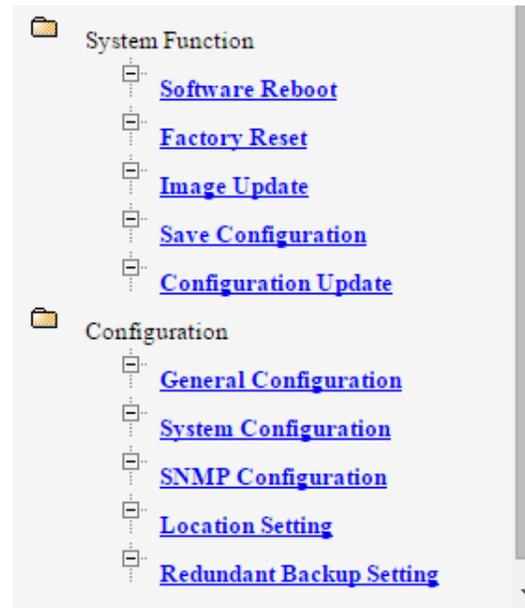
Software Reboot

Reboot the management module in order to run the new setting properly.
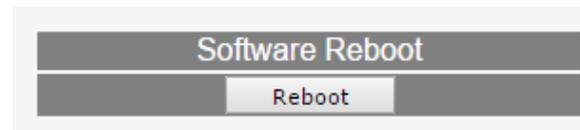
Factory Reset

This function is to set the device back to the default setting in case of the messy setting. There are two functions in Factory Reset page:

Chassis Factory Reset: for all modules factory reset.
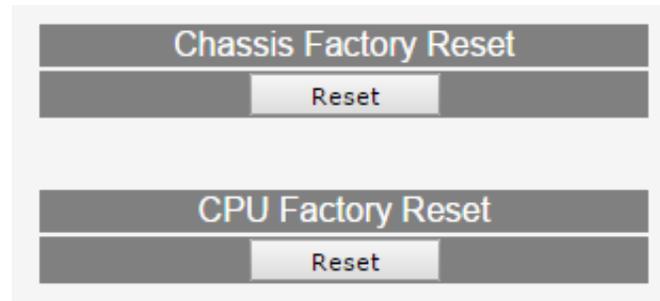
CPU Reset: only this control module factory reset.

Chassis Factory Reset

Reset

CPU Factory Reset

Reset

Image Update

The section is to set the TFTP Server IP Address first and the Image File name as you store in the TFTP Server. The Image File can be updated by uploading the image file from the TFTP server.
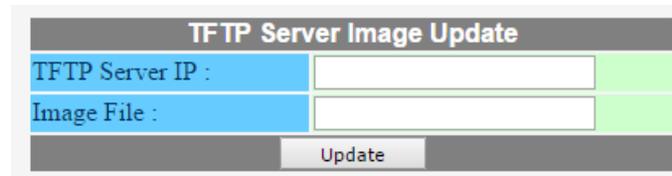
TFTP Server Image Update

TFTP Server IP :

Image File :

Update

Note: The content of the image file will write the whole firmware of the management module, please be sure that the image file is correct.

Save Configuration

The section is to save the change on the flash to make sure all configuration settings is permanent.

Save Configuration

Save

Configuration Update

The section is explaining how to upload and download the configure setting of the module.

The Configuration Upload is to restore a setting file to the management module.

The Configuration Download is to backup the setting from the management module.

Configuration Upload	
Target IP :	192.168.1.2
Configuration File :	Choose File No file chosen
	Upload
Configuration Download	
	Download

Configuration

There are five items in Configuration menu, General Configuration, System Configuration, SNMP Configuration, Location Setting and Redundant Backup Setting.

General Configuration

General Configuration	
Hardware revision :	B1
BIOS revision :	1.00.000
Firmware revision :	V1.00.002
Old Password :	
Change Password :	
Confirm Password :	
System Name :	
Location :	
Refresh time :	Never ▼
Save	

Hardware revision: noted the version of the Media Converter Chassis.

BIOS revision: noted the version of the BIOS.

Firmware revision: noted the version of the firmware.

Old Password: the Old of the admit password.

Change Password: the changing of the admit password.

Confirm Password: to confirm the setting of admit password.

System Name: to authorize the device system name.

Location: to show the Media Converter Chassis where it is located.

Refresh time: to set the refreshing time of the device through the web.

Note: After configuring the system device, need to press the save button to save the setting.

System Configuration

System Configuration	
MAC Address :	0C:14:72:EF:01:02
IP Address :	192.168.1.1
Subnet Mask :	255.255.255.0
Default GateWay :	0.0.0.0
	Save

MAC Address: will show out the MAC address of the Management Module.

IP Address: to allocate an IP address for the Management Module, the default IP is "192.168.1.1".

Subnet Mask: to set the Subnet Mask, the default is 255.255.255.0".

Default Gateway: to set the gateway address, the default is "0.0.0.0". (0.0.0.0 Means no default gateway address)

Note: After configuring the system device, need to press the save button to save the setting.

SNMP Configuration

SNMP Configuration			
Get Community Name :	public	Set Community Name :	private
Trap Community Name :	public	Trap Host IP Address :	192.168.1.2
Cold Start Trap :	○ Enabled ● Disabled	Warm Start Trap :	○ Enabled ● Disabled
Authentication Fail Trap :	○ Enabled ● Disabled	Power Fail Trap :	● Enabled ○ Disabled
Fan Fail Trap :	● Enabled ○ Disabled	MC Plugin Trap :	● Enabled ○ Disabled
MC Pullout Trap :	● Enabled ○ Disabled	MC Broken Trap :	● Enabled ○ Disabled
MC Link Up Trap :	● Enabled ○ Disabled	MC Link Down Trap :	● Enabled ○ Disabled
MC Active Slot Xchg Trap :	● Enabled ○ Disabled	MC Active Slot Lose Trap :	● Enabled ○ Disabled
	Save		

Get Community Name: to get the device community name (default = public).

Set Community Name: to set the device community name (default = private).

Trap Community Name: to authorize the device trap community name (default = public).

Trap Host IP Address: to set the trap host IP address (same as monitoring station IP address).

Cold Start trap: to set the trap for rebooting the device (default = disable).

Warm Start trap: to set the trap when the device had been reset (default = disable).

Authentication Fail Trap: to set the warning trap when the community name of the device and workstation are different (default = disable).

Power Fail Trap: to set the Power Fail Trap (default = enable).

Fan Fail Trap: to set the Fan fail trap (default = enable).

MC Plugin Trap: to set the trap when a Media Converter Module has been plugged in (default = enable).

MC Pullout Trap: to set the trap when the Media Converter Module has been pulled out (default = enable).

MC Broken trap: to set the trap when the Media Converter Module was broken (default = enable).

MC Link up trap: to set the trap when a linking is connected (default = enable).

MC Link down trap: to set the trap when a linking is disconnected (default = enable).

MC Active Slot Xchg trap: to set the trap when there is a redundant function activated (default = enable).

MC Active Slot Lose trap: to set the trap when the redundant function is fail (default = enable).

Converter Location Setting

Converter Location Setting				
Slot 1:	Slot1	Slot 2:	Slot2	
Slot 3:	Slot3	Slot 4:	Slot4	
Slot 5:	Slot5	Slot 6:	Slot6	
Slot 7:	Slot7	Slot 8:	Slot8	
Slot 9:	Slot9	Slot 10:	Slot10	
Slot 11:	Slot11	Slot 12:	Slot12	
Slot 13:	Slot13	Slot 14:	Slot14	
Slot 15:	Slot15	Slot 16:	Slot16	
		Save		

Allocating each slot's location in order to remember in where each slot was connected.

Redundant Backup Setting

Redundant Backup Setting						
Group:			Act:	Master:	Slave:	Restart:
1	○ Enabled	⦿ Disabled	*	1	2	☐
2	○ Enabled	⦿ Disabled	*	3	4	☐
3	○ Enabled	⦿ Disabled	*	5	6	☐
4	○ Enabled	⦿ Disabled	*	7	8	☐
5	○ Enabled	⦿ Disabled	*	9	10	☐
6	○ Enabled	⦿ Disabled	*	11	12	☐
7	○ Enabled	⦿ Disabled	*	13	14	☐
8	○ Enabled	⦿ Disabled	*	15	16	☐
		Save				

The redundant function is to change the master line to the slave line in case of the linking fails happen.

The Redundant functions were set fixed, the master slot is slot 1(odd number slot) and the slave slot is slot 2(even number slot), and there are eight redundant groups in all. The "Act" will indicate what slot is active.

When Master slot link fail, slave slot will be enabled. When the slave slot is activated, we need to transfer again to the master slot, and we need to check the "Restart" box on the group then click "Save" button.

The redundant function depends only on some Smart Media Converters.

Configure your Module (Command Line Interface)

Console and Terminal Emulator program settings

The Media Converter Chassis Management Module can be accessible using a terminal or terminal emulator attached to the RJ-45 UTP console port.

Serial port configuration cable:

One end of the cable is a DB9 serial port, which connects to serial port on computer. Other end is an RJ-45 UTP port, which connects to the SNMP Media Converter Chassis.

To configure the Hyper Terminal of the management PC via serial port configuration cable to manage the Media Converter Chassis.

By default, the Media Converter Management Module uses the following serial port parameter values:

- Bits per second   115200
- Stop bits   1
- Data bits   8
- Parity   NONE
- Flow Control   NONE

The default Login name and password is both "*root*".

TELNET program setting

The Media Converter Chassis Management Module can be accessible using TELNET through LAN. Run TELNET program. Enter the IP address "*192.168.1.1*" (the factory-default IP address setting). The default Login name and password is both "*root*".

The Command Line Interface (CLI) has following functions:

- Reboot
- Factory Reset
- Image Update
- General Configuration
- IP interface configuration
- SNMP Configuration
- CPU module information
- Media Converter Configuration
- Redundant Backup Setting
- Configuration
- System Function

Reboot

COMMANDS	reboot

Factory Reset

COMMANDS	reset
	cpureset

reset: for all modules factory reset.

cpureset: only this control module factory reset.

Image Update

COMMANDS	update <ipaddr> <path_filename (64)>

The <ipaddr> is to set the TFTP Server IP Address first and <path_filename (64)> is the Image File name as you store in the TFTP Server.

General Configuration

COMMANDS	config system passwd
	config system name <string 31>
	config system location <string 31>
	config system **refreshtime** {never | 10secs | 30secs | 1min | 5mins}
	show system

The "refreshtime" is to set the refreshing time of the device through the web.

IP interface configuration

COMMANDS	config ipif system ipaddress <ip_addr> <ip_mask> [<ip_addr>]
	show ipif

<ip_addr>: to allocate an IP address for the device, the default IP is "192.168.1.1".

<ip_mask> : to set the Subnet Mask, the default is "255.255.255.0".

[<ip_addr>]: to set the gateway address.

SNMP Configuration

COMMANDS	config snmp **get**_communityname [<community_string (31)>]
	config snmp **set**_communityname <community_string (31)>
	config snmp **trap**_communityname <community_string (31)>
	config snmp **trap_hostip** <ipaddr>
	config snmp **coldstart_trap** {enable | disable}
	config snmp warmstart_trap {enable | disable}
	config snmp authfail_trap {enable | disable}
	config snmp powerfail_trap {enable | disable}
	config snmp fanfail_trap {enable | disable}
	config snmp mcplugin_trap {enable | disable}
	config snmp mcpullout_trap {enable | disable}
	config snmp mclinkup_trap {enable | disable}
	config snmp mclinkdown_trap {enable | disable}
	config snmp mcbroken_trap {enable | disable}
	config snmp mcactiveslotXCHG_trap {enable | disable}
	config snmp mcactiveslotLOSE_trap {enable | disable}
	show snmp

SNMP Configuration commands:

config snmp get_communityname: to configure the "get" community name (default = public).

config snmp set_communityname: to configure the "set" community name (default = private).

config snmp trap_communityname: to configure the "trap" community name (default = public) for authorize the device trap.

config snmp trap_hostip: to set the trap host IP address (same as monitoring station IP address).

config snmp coldstart_trap: to set the trap for rebooting the device (default = disable).

config snmp warmstart_trap: to set the trap when the device had been reset (default = disable).

config snmp authfail_trap: to set the warning trap when the community name of the device and workstation are different (default = disable).

config snmp powerfail_trap: to set the Power Fail Trap (default = enable).

config snmp fanfail_trap {enable | disable}: to set the fan fail trap (default = enable).

config snmp mcplugin_trap {enable | disable}: to set the trap when a Media Converter module has been plugged in (default = enable).

config snmp mcpullout_trap {enable | disable}: to set the trap when the Media Converter module has been pulled out (default = enable).

config snmp mclinkup_trap {enable | disable}: to set the trap when a linking is connected (default = enable).

config snmp mclinkdown_trap {enable | disable}: to set the trap when a linking is disconnected (default = enable).

config snmp mcbroken_trap {enable | disable}: to set the trap when the Media Converter module was broken (default = enable).

config snmp mcactiveslotXCHG_trap {enable | disable}: to set the trap when there is a redundant function activated (default = enable).

config snmp mcactiveslotLOSE_trap {enable | disable}: to set the trap when the redundant function is fail (default = enable).

CPU module information

COMMANDS	**show** mediaconverter chassis

Media Converter Configuration

COMMANDS	**show** mediaconverter status
	config mediaconverter **slot** <integer (1-16)> ([name <string (7)>] [Device_LLCF {v|x}] [Device_Enable {v|x}] [M1_LLR {v|x}] [M1_Auto {A|F}] [M1_Speed {10M|100M|1G}] [M1_Dup {F|H}] [M1_FC {v|x}] [M1_Enable {v|x}] [M2_LLR {v|x}] [M2_Auto {A|F}] [M2_Dup {F|H}] [M2_Enable {v|x}])

Media Converter Configuration command (***Some of the function can be control only depends on the Smart Media Converter Modules)***:

```
config mediaconverter slot <integer (1-16)> ( [name <string (7)>]
                                             [Device_LLCF {v|x}]
                                             [Device_Enable {v|x}]
                                             [M1_LLR {v|x}]
                                             [M1_Auto {A|F}]
                                             [M1_Speed {10M|100M|1G}]
                                             [M1_Dup {F|H}]
                                             [M1_FC {v|x}]
                                             [M1_Enable {v|x}]
                                             [M2_LLR {v|x}]
                                             [M2_Auto {A|F}]
                                             [M2_Dup {F|H}]
                                             [M2_Enable {v|x}])
```

{v|x}, **V** stands for "yes" and **X** stands for "No".

{A|F}, "A" for Auto-Negotiation or "F" for "forced Mode".

{10M|100M|1G}, to select the speed of the copper port, "10M", "100M" or "1G"

{F|H}, "F" for Full Duplex or "H" for Half Duplex

Redundant Backup Setting

COMMANDS	**show** mediaconverter redundant
	config mediaconverter **redundantgrp** <integer (1-8)> ([{enable|disable}] [restart])

The redundant function is to change the master line to the slave line in case of the linking fails happen.

The Redundant functions were set fixed, the master slot is slot 1(odd number slot) and the slave slot is slot 2(even number slot), and there are eight redundant groups in all. The "Act" will indicate what slot is active.

The redundant function depends only on some Smart Media Converters.

Redundant Backup Setting commands:

show mediaconverter redundant: show master slot or slave slot is active.

config mediaconverter **redundantgrp** <integer (1-8)> [restart]: When Master slot linking fails happen, slave slot will be enabling; user can process this command change the active slot (slave slot) back to the master slot.

config mediaconverter **redundantgrp** <integer (1-8)> [enable\|diable]: There are eight redundant groups can be enable or disable when those Smart Media Converters support the redundant function.

Configuration

COMMANDS	save config

System Function

COMMANDS	clear
	show command_history
	logout

Technical Specifications

Standards

- IEEE 802.3
- IEEE 802.3u
- IEEE 802.3x
- IEEE 802.3ab

Device Interface

- Line card interface for TRENDnet TFC-1600 slot only
- 1 x Gigabit port
- 1 x RJ-45 console port (Command Line Interface)
- LED indicators

Data Transfer Rate

- Ethernet: 10 Mbps (half duplex), 20 Mbps (full duplex)
- Fast Ethernet: 100 Mbps (half duplex), 200 Mbps (full duplex)
- Gigabit Ethernet: 2000 Mbps (full duplex)

Performance

- RAM buffer: 512 KB
- HOL Blocking Prevention

Management

- HTTP Web based GUI
- CLI (Console/Telnet)
- SNMP v1, v2c, v3
- Supports IP, TFTP, ICMP, TCP/UDP, ARP, and HTTP protocols

Chassis Monitoring

- Part Number
- Description
- Power Status
- Revision

- Chassis Reset

Converter Module Monitoring

- Link Status
- Slot Occupied
- Revision
- Converter Type
- Part Number

SNMP Controls

- Link Loss Carry Forward / Link Loss Return
- Module Name
- Reset Module
- Download software via HTTP
- IP Address / Subnet Mask / Default Gateway
- Redundant Backup
- Telnet to console commands

Event Notification

- Cold/Warm Start
- Link Up/down
- Authentication Failure
- Power Supply On/Off, Connected/Disconnected
- Module Connected/Disconnected, Unknown, Failure

MIB

- MIB II
- SNMPv2-SMI MIB
- ENTERPRISE MIBs
- INET-ADDRESS MIB RFC
- IF MIB
- SNMP-FRAMEWORK MIB
- SNMPv2-TC MIB

MTBF

- 2,709,617 hours

Operating Temperature

- 0 – 40°C (32 - 104°F)

Operating Humidity

- Max. 90% non-condensing

Dimensions

- 128 x 35 x 88 mm (5.04 x 1.38 x 3.46 in.)
- 2U height (for TRENDnet TFC-1600 chassis slot only)

Weight

- 108 g (3.8 oz)

Certifications

- CE
- FCC

Appendix

How to find your IP address?

Note: *Please note that although the following procedures provided to follow for your operating system on configuring your network settings can be used as general guidelines, however, it is strongly recommended that you consult your computer or operating system manufacturer directly for assistance on the proper procedure for configuring network settings.*

Command Prompt Method

Windows 2000/XP/Vista/7/8.1/10

1. On your keyboard, press **Windows Logo+R** keys simultaneously to bring up the Run dialog box.
2. In the dialog box, type *cmd* to bring up the command prompt.
3. In the command prompt, type *ipconfig /all* to display your IP address settings.

MAC OS X

1. Navigate to your **Applications** folder and open **Utilities**.

2. Double-click on **Terminal** to launch the command prompt.

3. In the command prompt, type *ipconfig getifaddr <en0 or en1>* to display the wired or wireless IP address settings*.*

Note: *en0* is typically the wired Ethernet and *en1* is typically the wireless Airport interface.

Graphical Method

MAC OS 10.6/10.5
1. From the Apple menu, select **System Preferences**.
2. In System Preferences, from the **View** menu, select **Network**.
3. In the Network preference window, click a network port (e.g., Ethernet, AirPort, modem). If you are connected, you'll see your IP address settings under "Status:"

MAC OS 10.4
1. From the Apple menu, select **Location**, and then **Network Preferences**.
2. In the Network Preference window, next to "Show:", select **Network Status**. You'll see your network status and your IP address settings displayed.

Note: *If you are experiencing difficulties, please contact your computer or operating system manufacturer for assistance.*

How to configure your network settings to use a static IP address?

Note: *Please note that although the following procedures provided to follow for your operating system on configuring your network settings can be used as general guidelines, however, it is strongly recommended that you consult your computer or operating system manufacturer directly for assistance on the proper procedure for configuring network settings.*

Windows 7/8.1/10
     a. Go into the **Control Panel**, click **Network and Sharing Center**.
     b. Click **Change Adapter Settings**, right-click the **Local Area Connection** icon.
     c. Then click **Properties** and click **Internet Protocol Version 4 (TCP/IPv4)**.
     d. Then click **Use the following IP address,** and assign your network adapter a static IP address. Click **OK**

Windows Vista
     a. Go into the **Control Panel**, click **Network and Internet**.
     b. Click **Manage Network Connections,** right-click the **Local Area Connection** icon and click **Properties**.
     c. Click **Internet Protocol Version (TCP/IPv4)** and then click **Properties**.
     d. Then click **Use the following IP address,** and assign your network adapter a static IP address. Click **OK**

Windows XP/2000
     a. Go into the **Control Panel**, double-click the **Network Connections** icon
     b. Right-click the **Local Area Connection** icon and the click **Properties**.
     c. Click **Internet Protocol (TCP/IP)** and click **Properties**.
     d. Then click **Use the following IP address,** and assign your network adapter a static IP address. Click **OK**

MAC OS 10.4/10.5/10.6
     a. From the **Apple**, drop-down list, select **System Preferences**.
     b. Click the **Network** icon.
     c. From the **Location** drop-down list, select **Automatic**.
     d. Select and view your Ethernet connection.

In MAC OS 10.4, from the **Show** drop-down list, select **Built-in Ethernet** and select the **TCP/IP** tab.
In MAC OS 10.5/10.6, in the left column, select **Ethernet**.
e. Configure TCP/IP to use a static IP.
In MAC 10.4, from the **Configure IPv4**, drop-down list, select **Manually** and assign your network adapter a static IP address. Then click the **Apply Now** button.
In MAC 10.5/10.6, from the **Configure** drop-down list, select **Manually** and assign your network adapter a static IP address . Then click the **Apply** button.
f. Restart your computer.

Note: If you are experiencing difficulties, please contact your computer or operating system manufacturer for assistance.

How to find your MAC address?

In Windows 2000/XP/Vista/7/8.1/10,

Your computer MAC addresses are also displayed in this window, however, you can type *getmac –v* to display the MAC addresses only.

In MAC OS 10.4,

1. **Apple Menu > System Preferences > Network**

2. From the **Show** menu, select **Built-in Ethernet**.

3. On the **Ethernet** tab, the **Ethernet ID** is your MAC Address.

In MAC OS 10.5/10.6,

1. **Apple Menu > System Preferences > Network**

2. Select **Ethernet** from the list on the left.

3. Click the **Advanced** button.

3. On the **Ethernet** tab, the **Ethernet ID** is your MAC Address.

How do I use the ping tool to check for network device connectivity?
Windows 2000/XP/Vista/7/8.1/10

1. On your keyboard, press **Windows Logo+R** keys simultaneously to bring up the Run dialog box.

2. In the dialog box, type *cmd* to bring up the command prompt.

3. In the command prompt, type *ping <ip_address>* with the *<ip_address>* being the IP address you want ping and check for connectivity.

Example: Usage of ping command and successful replies from device.

C:\Users>ping 192.168.10.100

Pinging 192.168.10.100 with 32 bytes of data:

Reply from 192.168.10.100: bytes=32 time<1ms TTL=64
Reply from 192.168.10.100: bytes=32 time<1ms TTL=64
Reply from 192.168.10.100: bytes=32 time<1ms TTL=64
Reply from 192.168.10.100: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.10.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

MAC OS X

1. Navigate to your **Applications** folder and open **Utilities**.

2. Double-click on **Terminal** to launch the command prompt.

3. In the command prompt, type *ping –c <#> <ip_address>* with the *<#> ping being the number of time you want to ping and* the *<ip_address>* being the IP address you want ping and check for connectivity.

Example: *ping –c 4 192.168.10.100*

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential 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 communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Country Code selection feature to be disabled for products marketed to the US/CANADA

RoHS

This product is RoHS compliant.

Europe – EU Declaration of Conformity

- **EN60950-1 : 2006 + A11 : 2009 + A1: 2010 + A12: 201**
- **EN 55032: 2015 (CISPR32: 2015) (Class A)**
- **EN 6100-3-2:2014**
- **EN 61000-3-3:2013**
- **EN 55024:2010 + A1: 2015**

Directives:

Low Voltage Directive 2014/35/EU

EMC Directive EN 2014/30/EU

RoHS Directive 2011/65/EU

REACH Regulation (EC) No. 1907/2006

CE Mark Warning

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.

cs Česky [Czech]	TRENDnet tímto prohlašuje, že tento TFC-1600MM je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/ES a 2006/95/ES.
da Dansk [Danish]	Undertegnede TRENDnet erklærer herved, at følgende udstyr TFC-1600MM overholder de væsentlige krav og øvrige relevante krav i direktiv 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/EF og 2006/95/EF.
de Deutsch [German]	Hiermit erklärt TRENDnet, dass sich das Gerät TFC-1600MM in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/EG, und 2006/95/EG befindet.
et Eesti [Estonian]	Käesolevaga kinnitab TRENDnet seadme TFC-1600MM vastavust direktiivi 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/EÜ ja 2006/95/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
en English	Hereby, TRENDnet, declares that this TFC-1600MM is in compliance with the essential requirements and other relevant provisions of Directive 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/EC and 2006/95/EC.
es Español [Spanish]	Por medio de la presente TRENDnet declara que el TFC-1600MM cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/CE, 2006/95/CE y.
el Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑTRENDnet ΔΗΛΩΝΕΙ ΟΤΙTFC-1600MMΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/ΕΚ, 2006/95/ΕΚ και.
fr Français [French]	Par la présente TRENDnet déclare que l'appareil TFC-1600MM est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2011/65/UE, 2014/35/UE, 2014/30/UE, 2004/108/CE, 2006/95/CE et.
it Italiano[Italian]	Con la presente TRENDnet dichiara che questo TFC-1600MM è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/CE e 2006/95/CE.
Latviski [Latvian]	AršoTRENDnetdeklarē, ka TFC-1600MM atbilstDirektīvas 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/EK un 2006/95/EK būtiskajāmprasībām un citiemar to saistītajiemnoteikumiem.

Lietuvių [Lithuanian]	Šiuo TRENDnet deklaruoja, kad šis TFC-1600MM atitinka esminius reikalavimus ir kitas 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/EB ir 2006/95/EB Direktyvos nuostatas.
nl Nederlands [Dutch]	Hierbij verklaart TRENDnet dat het toestel TFC-1600MM in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/EG en 2006/95/EG.
mt Malti [Maltese]	Hawnhekk, TRENDnet, jiddikjara li dan TFC-1600MM jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/KE u 2006/95/KE.
hu Magyar [Hungarian]	Alulírott, TRENDnet nyilatkozom, hogy a TFC-1600MMmegfelel a vonatkozó alapvetõ követelményeknek és az 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/EK irányelv és a 2006/95/EK irányelv egyéb elõírásainak.
pl Polski [Polish]	Niniejszym TRENDnet oświadcza, że TFC-1600MM jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/WE i 2006/95/WE.
pt Português [Portuguese]	TRENDnet declara que este TFC-1600MM está conforme com os requisitos essenciais e outras disposições da Directiva 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/CE e 2006/95/CE.
sl Slovensko [Slovenian]	TRENDnet izjavlja, da je ta TFC-1600MM v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/ES, in 2006/95/ES.
Slovensky [Slovak]	TRENDnettýmtovyhlasuje, že TFC-1600MMspíňazákladnépožiadavky a všetkypríslušnéustanoveniaSmernice 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/ES a 2006/95/ES.
fi Suomi [Finnish]	TRENDnet vakuuttaa täten että TFC-1600MM tyyppinen laite on direktiivin 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/EY ja 2006/95/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
sv Svenska [Swedish]	Härmed intygar TRENDnet att denna TFC-1600MM står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2011/65/EU, 2014/35/EU, 2014/30/EU, 2004/108/EG och 2006/95/EG.

Limited Warranty

TRENDnet warrants only to the original purchaser of this product from a TRENDnet authorized reseller or distributor that this product will be free from defects in material and workmanship under normal use and service. This limited warranty is non-transferable and does not apply to any purchaser who bought the product from a reseller or distributor not authorized by TRENDnet, including but not limited to purchases from Internet auction sites.

Limited Warranty

TRENDnet warrants its products against defects in material and workmanship, under normal use and service. Specific warranty periods are listed on each of the respective product pages on the TRENDnet website.

- AC/DC Power Adapter, Cooling Fan, and Power Supply carry a one-year warranty.

Limited Lifetime Warranty

TRENDnet offers a limited lifetime warranty for all of its metal-enclosed network switches that have been purchased in the United States/Canada on or after 1/1/2015.

- Cooling fan and internal power supply carry a one-year warranty

To obtain an RMA, the ORIGINAL PURCHASER must show Proof of Purchase and return the unit to the address provided. The customer is responsible for any shipping-related costs that may occur. Replacement goods will be shipped back to the customer at TRENDnet's expense.

Upon receiving the RMA unit, TRENDnet may repair the unit using refurbished parts. In the event that the RMA unit needs to be replaced, TRENDnet may replace it with a refurbished product of the same or comparable model.

In the event that, after evaluation, TRENDnet cannot replace the defective product or there is no comparable model available, we will refund the depreciated value of the product.

If a product does not operate as warranted during the applicable warranty period, TRENDnet shall reserve the right, at its expense, to repair or replace the defective product or part and deliver an equivalent product or part to the customer. The repair/replacement unit's warranty continues from the original date of purchase. All products that are replaced become the property of TRENDnet. Replacement products may be new or reconditioned. TRENDnet does not issue refunds or credit. Please contact the point-of-purchase for their return policies.

TRENDnet shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to TRENDnet pursuant to any warranty.

There are no user serviceable parts inside the product. Do not remove or attempt to service the product by any unauthorized service center. This warranty is voided if (i) the product has been modified or repaired by any unauthorized service center, (ii) the product was subject to accident, abuse, or improper use, or (iii) the product was subject to conditions more severe than those specified in the manual.

Warranty service may be obtained by contacting TRENDnet within the applicable warranty period and providing a copy of the dated proof of the purchase. Upon proper submission of required documentation, a Return Material Authorization (RMA) number will be issued. An RMA number is required in order to initiate warranty service support for all TRENDnet products. Products that are sent to TRENDnet for RMA service must have the RMA number marked on the outside of return packages and sent to TRENDnet prepaid, insured and packaged appropriately for safe shipment. International customers

shipping from outside of the USA and Canada are responsible for any return shipping and/or customs charges, including but not limited to, duty, tax, and other fees.

Refurbished product: Refurbished products carry a 90-day warranty after date of purchase. Please retain the dated sales receipt with purchase price clearly visible as evidence of the original purchaser's date of purchase. Replacement products may be refurbished or contain refurbished materials. If TRENDnet, by its sole determination, is unable to replace the defective product, we will offer a refund for the depreciated value of the product.

WARRANTIES EXCLUSIVE: IF THE TRENDNET PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, THE CUSTOMER'S SOLE REMEDY SHALL BE, AT TRENDNET'S OPTION, REPAIR OR REPLACE. THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. TRENDNET NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, OR USE OF TRENDNET'S PRODUCTS.

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Product Warranty Registration

Please take a moment to register your product online.
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