DECOMPOSITE OF STATES OF

NV-700L Managed Single Master LAN Extender USER'S MANUAL

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Maximum signal rate derived from IEEE Standard specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate. Netsys does not warrant that the hardware will work properly in all environments and applications, and makes no warranty and representation, either implied or expressed, with respect to the quality, performance, merchantability, or fitness for a particular purpose. Make sure users follow in line with the environmental conditions to use this product.

Safety Warnings

For user safety, be sure to read and follow all warning notices and instructions before using the device.

- **DO NOT** open the device or unit. Opening or removing the cover may expose user to dangerous high voltage points or other risks. ONLY qualified service personnel can service the device. Please contact the user's vendor for further information.
- Use ONLY the dedicated power supply for user's device. Connect the power to the right plug type (AC support full range between 100Vac and 240Vac input. 12 Vdc / 1A or above output).
- Place connecting cables carefully so that no one will step on them or stumble over them. DO NOT allow anything to rest on the power cord and do NOT locate the product where anyone can work on the power cord.
- DO NOT install nor use user's device during a thunderstorm. There may be a remote risk of electric shock from lightning.
- **DO NOT** expose user's device to dampness, dust or corrosive liquids.
- **DO NOT** use this product near water, for example, in a wet basement or near a swimming pool.
- Connect ONLY suitable accessories to the device.
- Make sure to connect the cables to the correct ports.
- **DO NOT** obstruct the device ventilation slots, as insufficient air flow may harm user's device.
- **DO NOT** place items on the device.
- DO NOT use the device for outdoor applications directly, and make sure all the connections are indoors or have waterproof protection place.
- **Be careful** when unplugging the power, because it may produce sparks.
- Keep the device and all its parts and accessories out of the reach of children.
- Clean the device using soft and dry cloth rather than liquid or atomizers. Power off the equipment before cleaning it.
- This product is **recyclable**. Dispose of it properly.



Attention:

Be sure to read this manual carefully before using this product. Especially Legal Disclaimer, Statement of Conditions and Safety Warnings.

NV-700L is a Managed Single Master LAN Extender that leverages the extraordinary bandwidth promise of VDSL2 technology (max. 100Mbps symmetric), the next step in the delivery of new high-speed Internet applications in commercial environments. Quick, easy, economical to install and maintain, the NV-700L works over existing copper wire infrastructure. NV-700L is a Master (CO side) device, which is designed to interconnect with NV-600A(CPE) for point-to-point application.

NV-700L will allow operators worldwide to compete with cable and satellite operators by offering services such as HDTV, VOD, videoconferencing, high speed Internet access and advanced voice services including VoIP, over a standard copper telephone cable. NV-700L is seen by many operators as an ideal accompaniment to a FTTP rollout, where for instance fiber optic is supplied direct to an apartment block and from there copper cable is used to supply residents with high-speed VDSL2.

Caution:

The NV-700L is for **indoor** applications only. This product does not have waterproof protection, please do not use it in outdoor applications.



NV-700L Managed Single Master / Slave LAN Extender USER'S MANUAL Ver. B.7

Table of Contents

COPYRIGHT	
1.1 CHECK LIST	7
CHAPTER 2. INSTALLING THE MODEM	
2.1 HARDWARE INSTALLATION	
2.2 PRE-INSTALLATION REQUIREMENTS	
2.3 GENERAL RULES	
2.4 Connecting the RJ-11 / RJ-45 Ports	
2.5 POINT TO POINT APPLICATION	
CHAPTER 3. HARDWARE DESCRIPTION	
3.1 FRONT PANEL	
3.2 FRONT INDICATORS	
3.3 REAR PANEL	
CHAPTER 4. CONFIGURE THE NV-700L VIA WEB MANAGEMENT MENU	
4.1 BASIC SETUP	
4.1.1 Login Webpage	
4.1.2 Display status	
4.2 Select the Menu Level	
4.3 System	
4.3.1 Configuration Backup	
4.3.2 Configuration Restore	

NV-700L Managed Single Master / Slave LAN Extender USER'S MANUAL Ver. B.7

 4.3.4 Account Management 4.3.5 Log Level 4.3.6 Service Control 4.3.7 CWNP (TR-069 Settings) 4.3.8 Internet Time 4.3.9 Restore Default 	
4.3.6 Service Control 4.3.7 CWNP (TR-069 Settings) 4.3.8 Internet Time	28 30 31 32 33
4.3.7 CWNP (TR-069 Settings) 4.3.8 Internet Time	
4.3.8 Internet Time	
4.3.9 Restore Default	
4.4 STATUS SETUP	34
4.4.1 LAN Network	
4.4.2 Ethernet	
4.4.3 WAN(Line) Statistics	
4.4.4 LAN Statistics	
4.4.5 ARP	
4.5 xDSL SETUP	
4.5.1 Mode & profile Config	40
4.5.1.1 VDSL Config Overview	
4.6 LAN SETUP	
4.6.1 IPv4 Configuration	
4.6.2 IPv6 Configuration:	
4.6.3 IPv6Static Route	
4.6.4 Ethernet Mode	
4.7 Qos Setup	
4.7.1 Qos Queue	
4.8 APPLICATIONS	



NV-700L Managed Single Master / Slave LAN Extender USER'S MANUAL Ver. B.7

4.8.1 Telnet Service Setup (for Security)	
4.8.2 SSH Service (Telnet Encryption)	
4.8.3 Printer Sharing	
4.8.4 Multimedia Sharing	
4.8.5 UPnP	
4.8.6 Multicast IGMP	
4.8.7 Multicast MLD (IPv6)	
4.8.8 SNMP	
4.9 USB SETUP	
4.9.1 Storage Device Info	
4.9.2 Samba Service	
4.9.3 FTP Server	
4.9.4 FTP Client	
4.9.5 TFTP Server	
APPENDIX A: CABLE REQUIREMENTS	
APPENDIX B: PRODUCT SPECIFICATION	
APPENDIX C: TROUBLESHOOTING	
APPENDIX E: COMPLIANCE INFORMATION	
WARRANTY	
CHINESE SJ/T 11364-2024	

Chapter 1. Unpacking Information

1.1 Check List

Thank users for choosing Netsys NV-700L. Before installing the router, please verify the contents inside the package. **Package Contents:**

Martin Salar		CONTRACTOR OF CALLS OUT ON THE CALLS OUT OUT ON THE CALLS OUT ON THE CALLS OUT OUT ON THE CALLS OUT ON THE CALLS OUT OUT OUT OUT OUT ON THE CALLS OUT
1 x VDSL2 CO Modem	Accessory Kit: 1 x Etherr Power Adapter	net Cable, 1 x Phone wire, 1 x DC12V

Notes:

- 1. Please inform users dealer at once about any missing or damaged parts. If possible, retain the carton including the original packing materials. Use them to repack the unit in case there is a need to return for repair.
- 2. Do not use sub-standard power supply. Before connecting the power supply to the device, be sure to check compliance with the specifications. The NV-700L uses a DC12V/1A or above Switching power supply.

Chapter 2. Installing the Modem

2.1 Hardware Installation

This chapter describes how to install the modem and set up the network connections. The NV-700L may be installed on any level surface (e.g. a table or shelf). However, please take note of the following minimum site requirements before user begin. **The NV-700L has 2 pre-installed rubber feet.**

2.2 Pre-installation Requirements

Before users start the actual hardware installation, make sure users can provide the right operating environment, including power requirements, sufficient physical space, and proximity to other network devices that are to be connected.

Verify the following installation requirements:

- Power requirements: DC 12 V / 1A
- The modem should be located in a cool dry place, with at least **10cm/4in** of space at the front and back for ventilation.
- Place the modem away from direct sunlight, heat sources, or areas with a high amount of electromagnetic interference.
- Check if the network cables and connectors needed for installation are available.
- Do not install phone lines strapped together with AC power lines, or telephone office line with voice signal.
- Avoid installing this device with radio amplifying stations nearby or transformer stations nearby.



2.3 General Rules

Before making any connections to the modem, please note the following rules:

• Ethernet Port interface: RJ-45

All network connections to the modern Ethernet port must be made using Category 5 UTP/STP or above for 100 Mbps, Category 3, 4 UTP for 10Mbps.

No more than 100 meters of cabling may be used between the MUX or HUB and an end node.

VDSL2 Port interface: RJ-11 & Terminal block combo

All network connections to the RJ-11/ terminal block (sharing port) must use **24~26** gauge with single **twisted pair** phone wire.

We **do not recommend** the use of the 28-gauge phone wire or above.

The RJ-11 is a 6P2C connector, two of which are wired. The modem uses two pins at the center. The pin out assignment for these connectors is presented below.

Please note that the line port is without polarity, therefore users can reverse the two wires of the phone cable when installed.

Pin#	MNEMONIC	FUNCTION
1	NC	Unused
2	NC	Unused
3	DSL	Used
4	DSL	Used
5	NC	Unused

RJ-11 Pin out Assignments

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6 NC Unused

2.4 Connecting the RJ-11 / RJ-45 Ports

The Line port has 1 connector: RJ-11. It is used to connect with NV-700L Master side over a single pair phone wire to NV-600A Slave side (point to point application). (Figure 2.1)

	Black Line: Valid Red Line:Valid	 When inserting a RJ-11 plug, make sure the tab on the plug clicks into position to ensure that it is properly seated. Do not plug an RJ-11 phone jack connector into the Ethernet port (RJ-45 port). This may damage the modem. Instead, use only twisted-pair cables with RJ-45 connectors that conform to Ethernet standard. Notes:
	Black Line: Valid Red Line:Valid Black+Red : Invalid	 Be sure each twisted-pair cable (RJ-45 Ethernet cable) does not exceed 100 meters (333 feet). We recommend using Category 5~7 UTP/STP cables for making Ethernet connections to avoid any confusion or inconvenience in the future when user attach high bandwidth devices. Use 24 ~ 26 gauge twisted pair phone wiring, we do not
Figure 2.1 NV-700L & NV-60 connecti		 recommend 28 gauge or above. 4. Be sure phone wire has been installed before the device boot. 5. Do not connect Line port with RJ-11 and Terminal block



NV-700L Managed Single Master / Slave LAN Extender USER'S MANUAL Ver. B.7

to two Master / Slave device

2.5 Point to Point Application

First a quick overview of a complete setup of interconnection of NV-700L and NV-600A.

NV-700L is a LAN extender that uses the extraordinary bandwidth promise of VDSL2 technology (max. 100Mbps Symmetric) (Figure 2.2)

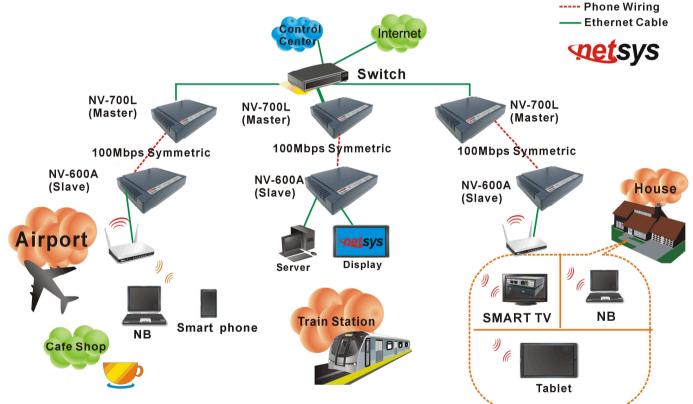




Figure 2.2 NV-700L & NV-600A Point to Point application

• 2.5.1 Connect the NV-700L(Master) and the NV-600A(Slave) to the Line

The goal for LAN extender is to pass high speed data over a twisted pair cable. In the setup, connect NV-700L(Master) to NV-600A (Slave) through phone wire (24~26 AWG) or line simulator or any other hardware representation of a cable network, with or without noise injection and crosstalk simulations.

2.5.2 Connect the NV-700L(Master) and the NV-600A(Slave) to LAN Devices

In the setup, usually an Ethernet tester serves as a representation of the LAN side as well as a representation of the WAN(Line) side.

• 2.5.3 Run Demos and Tests

The Ethernet tester may send data downstream as well as upstream. It also receives the data in order to check the integrity of the data transmission. Different data rates can be tested under different line conditions



Chapter 3. Hardware Description

This section describes the important parts of the NV-700L. It features the front panel and rear panel.





NV-700L Outward

3.1 Front Panel

The figure shows the front panel. (Figure 3.1)

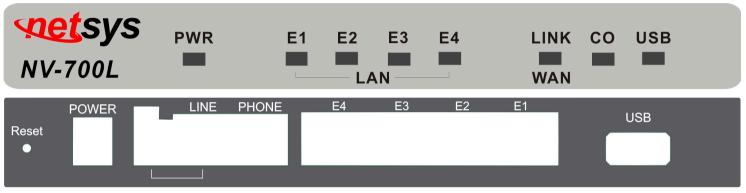


Figure 3.1 Front Panel (NV-700L)

3.2 Front Indicators

The Modem has **Seven** LED indicators. The following Table shows the description. (Table 3-1)

 Table 3-1 LED Indicators Description and Operation

LED	Color	Status	Descriptions
PWR		On (Steady)	Lights to indicate that modem had power good
(Power LED)	Green	Off	The device is not ready or has malfunctioned.



NV-700L Managed Single Master / Slave LAN Extender USER'S MANUAL Ver. B.7

LED	Color	Status	Descriptions
		On (Steady)	The device has a good Ethernet connection.
E1 ~ E4 (Ethernet LED)	Green	Blinking	The device is sending or receiving data.
		Off	The LAN is not connected or has malfunctioned.
		On (Steady)	The Internet or network connection is up.
LINK (Line LED)	Green	Fast Blinking	 The Master device has detected a Slave device and is ready to connect. The device is sending or receiving data.
		Off	The Internet or network connection is down.
USB	Croon	On (Steady)	The device has a good USB dongle connection.
036	Green	Off	The device is not ready or has malfunctioned.
со	Green	On (Steady)	NV-700L config on Master mode.
		Off	NV-700L config on Slave mode

Note:

It is normal for the connection between NV-700L and NV-600A to take up to 3 minutes, due to NV-700L(Master) connect NV-600A(Slave) to establish a link mechanism in auto-speed, with detects and calculates Master and Slave both PBO and PSD level, noise levels and other arguments for getting a better connection.



3.3 Rear Panel

The following figure shows the rear panel. (Figure 3.2)



Figure 3.3 Rear Panel

And the table shows the description. (Table 3-2)

Туре	Connector	Description
		The reset buttons allow users to reboot the LAN NV-700L or load the default
Reset	Tact Switch Button	settings.
Reset Tact Switch Button	Press and hold for 1-5 seconds: Reboot the NV-700L	
		Press over 5 seconds: Load the default settings
Power	DC Jack	External switching Power Adapter: Input: AC 85~240Volts/50~60Hz.
rowei	DC Jack	Output: DC 12V/1A.

Table 3-2 Description of the modem rear connectors

NV-700L Managed Single Master / Slave LAN Extender USER'S MANUAL Ver. B.7

Line	RJ-11	For connecting to a Master/Slave device.
Туре	Connector	Description
phone	RJ-11	For connecting to the POTS equipment or ISDN.
Ethernet (E1-E4)	RJ-45	For connecting to an Ethernet equipped device.
USB	USB2.0 Type A	For connecting to the USB dongle.

Before user installed power and device, please read and follow these essentials:

Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.

Note:

Do not run signal or communications wiring and power wiring through the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.

- Users can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring sharing similar electrical characteristics can be bundled together.
- Users should separate input wiring from output wiring.
- We recommend that the user mark all equipment in the wiring system.

Chapter 4. Configure the NV-700L via Web management menu

The NV-700L provides a built-in HTML based management interface that allows configuration of the NV-700L via Internet Browser. Best viewed using Chrome or Firefox browsers.

In order to use the web browser to configure the device, the user may need to allow:

- Web browsers pop-up windows from user's devices. Web pop-up blocking is enabled by default in windows 7 SP2 or above.
- Java Scripts. (Enabled by default)
- Java permissions. (Enabled by default)

Launch web browser and input the default IP address 192.168.16.249 (NV-700L) on the Web page. The following section user can find default username and password.



4.1 BASIC Setup

4.1.1 Login Webpage

The default username and password are "admin".

Please enter the u	isername and	password:	
Username:	admin		
Password:			
	Login	Cancel	

Figure 4.1.1 Login Webpage



4.1.2 Display status

When the device is running, the status page will display the device information (Hardware/Software Version, MAC Address, and System Up Time), as shown in Figure 4.1.2.

			Μ
	System Status	xDSL LAN QoS Application	
→ Configuration Backup			
→ Configuration Restore	Device Info		
→ Update Software			
→ Account Management	Hardware Version:	A.4	
→ Log level	Software Version:	B.4.3	
→ Logs	MAC Address:	00:05:6e:02:27:dc	
→ Service Control	System Up Time:	0 hours, 21 mins, 44 secs	
→ CWMP			
→ Internet Time			
→ Reboot			
→ Restore Default			
		Eigure 4.4.2 Device Inf	£~

Figure 4.1.2 Device Info

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4.2 Select the Menu Level

There is an easy Setup for end users at the setup of NV-700L with System, Status, xDSL, LAN, Qos, Applications,

USB, Home, Logout for more detail configurations.

	System Status	xDSL LAN QoS Applications USB Home	Logo
→ Configuration Backup			
→ Configuration Restore	Device Info		
→ Update Software			
→ Account Management	Hardware Version:	A.4	
→ Log level	Software Version:	B.4.3	
→ Logs	MAC Address:	00:05:6e:02:27:dc	
→ Service Control	System Up Time:	0 hours, 21 mins, 44 secs	
→ CWMP			
→ Internet Time			
→ Reboot			
→ Restore Default			

Figure 4.2 Select the Menu Level

4.3 System

Select "System". The menu below will be used frequently. It includes the sub-menus of Configuration Backup

Configuration Restore • Update Software • Account Managemant • Log level • Logs • Service Control • CWMP • Internet			
Time 、Reboot 、Restore De	fault <mark>. A screen is displ</mark>	ayed as shown in Figure 4.3	
	System Status	xDSL LAN QoS Applications U	SB Home Logout
 Configuration Backup 			
→ Configuration Restore	Device Info		
→ Update Software			
→ Account Management	Hardware Version:	A.4	
→ Log level	Software Version:	B.4.3	
→ Logs	MAC Address:	00:05:6e:02:27:dc	
→ Service Control	System Up Time:	0 hours, 21 mins, 44 secs	
→ CWMP			
→ Internet Time			
→ Reboot			
→ Restore Default			
Figure 4.3 System			



4.3.1 Configuration Backup

To backup the configuration setting value, click on the "Configuration Backup" link in the left navigation bar. A screen is displayed as shown in Figure 4.3.1.

	System Status xDSL LAN QoS Applications USB Home Logout
→ Configuration Backup	
→ Configuration Restore	Configuration Backup
→ Update Software	
→ Account Management	Backup Broadband Router configurations. You may save your router configurations to a file on your PC.
→ Log level	
→ Logs	Backup Settings
→ Service Control	
→ CWMP	
→ Internet Time	
→ Reboot	
→ Restore Default	

Figure 4.3.1 Configuration Backup



4.3.2 Configuration Restore

To restore user's configuration setting value, click on the "Configuration Restore" link in the left navigation bar. A screen is displayed as shown in Figure 4.3.2.

	System Status xDSL LAN QoS Applications USB Home Logout
 Configuration Backup 	
→ Configuration Restore	Configuration Restore
→ Update Software	C C C C C C C C C C C C C C C C C C C
→ Account Management	Update Broadband Router settings. You may update your router settings using your saved files.
→ Log level	
→ Logs	Settings File Name: Browse File not found
→ Service Control	
→ CWMP	Update Settings
→ Internet Time	
→ Reboot	
→ Restore Default	

Figure 4.3.2 Configuration Restore

The screen contains the following details:

- Click "Browse" to select a specific file name in preparation for router settings.
- Click "Update Settings" to start updating.

4.3.3 Update Software

To update software, click on the "Update Software" link in the left navigation bar and follow the steps for updating. A screen is displayed as shown in Figure 4.3.3.

	System Status xDSL LAN QoS Applications USB Home Logout
→ Configuration Backup	
→ Configuration Restore	Update Software
→ Update Software	•
→ Account Management	Step 1: Obtain an updated software image file from your ISP.
→ Log level	Step 2: Enter the path to the image file location in the box below or click the 'Browse' button to locate the image file.
→ Logs	Step 3: Click the 'Update Software' button once to upload the new image file.
→ Service Control	Note: The update process takes about 2 minutes to complete, and your Broadband Router will reboot.
→ CWMP	Software File Name: Browse File not found
→ Internet Time	Software Flie Name. Drowse Flie flot found
→ Reboot	
→ Restore Default	Update Software

Figure 4.3.3 Update Software

Note:

The update process takes about 12 minutes to complete, and users Broadband Router will reboot.



4.3.4 Account Management

To change or create passwords, click on the "Account Management" link in the left navigation bar. A screen is displayed as shown in Figure 4.3.4.

	System Statu	us xDSL LAN QoS Applications USB Home Logout
→ Configuration Backup		
→ Configuration Restore	Account Manage	ement - Passwords
→ Update Software	5	
→ Account Management	Use the fields below to	enter up to 15 characters and click "Apply" to change or create passwords.
→ Log level	Note: Password cann	not contain a space.
→ Logs		
→ Service Control	Username:	admin 🔻
→ CWMP	Old Password:	
→ Internet Time	New Password:	
→ Reboot	New Password.	
→ Restore Default	Confirm Password:	
	Apply Refresh	

Figure 4.3.4 Account Management-Password

4.3.5 Log Level

Click on the "Log level" link in the left navigation bar, on the right page user will see how to enable Log or Log Server. A screen is displayed as shown in Figure 4.3.5.

	System Status	XDSL LAN QoS A	pplications USB Home Logout
→ Configuration Backup			
→ Configuration Restore	Account Managem	ent - Log Level	
→ Update Software	-	-	
→ Account Management	Attention: Enabling log	ging may affect the gatew	ay performance.
→ Log level	Enable Log:		
→ Logs	Log Level:	Critical •	
→ Service Control → CWMP	TFTP Server:		Upload Log File
→ Internet Time	Enable Log Server:		
→ Reboot	Remote Log Server:		
→ Restore Default	Port:	514	
	Apply Refresh		

Figure 4.3.5 Account Management – Log Level



4.3.6 Service Control

Click on "Service Control" link in the left navigation bar, on the right page user will see how to enable ACL.

Click "add" to config Protocol / IP Protocol Type / Enable / Action and basic information. A screen is displayed as shown in Figure 4.3.6.

	Syster	n Status xDSL	LAN Q	oS Appli	cations	USB Ho	me Loç
→ Configuration Backup							
→ Configuration Restore	Access Control IP Address Configuration						
→ Update Software							
Account Management	ACL Enable		Apple				
→ Log level		•	Apply				
→ Logs	Add						
→ Service Control	Service Type:	Access Direction	Protocol	IP Range	Status	Action	Method
→ CWMP	нттр	LAN	IPv4	Any	Enable	ACCEPT	2 🗊
→ Internet Time	TELNET	LAN	IPv4	Any	Enable	ACCEPT	2 🗊
→ Reboot	SSH	LAN	IPv4	Any	Enable	ACCEPT	2
→ Restore Default	FTP	LAN	IPv4	Any	Enable	ACCEPT	2
	TFTP	LAN	IPv4	Any	Enable	ACCEPT	2 🗊
	ICMP	LAN	IPv4	Any	Enable	ACCEPT	2
	SAMBA	LAN	IPv4	Any	Enable	ACCEPT	2 🗑
	SNMP	LAN	IPv4	Any	Enable	ACCEPT	D 🗊

	Sys	stem Status xDSL LAN QoS Applications USB Home Logout
→ Configuration Backup		
 Configuration Restore 	Access Control	- IP Address Configuration
→ Update Software		n , ladrood d'onnigaration
Account Management	Protocol:	HTTP T
→ Log level	Det	
→ Logs	Port	80
→ Service Control	Access Control	LAN V
→ CWMP	IP Protocol Type:	IPv4 T
→ Internet Time		
→ Reboot	Enable:	
→ Restore Default	Source IP:	-
	Action	ACCEPT •
	Back Apply F	Refresh

Figure 4.3.6 Service Control – IP Address Configuration



4.3.7 CWNP (TR-069 Settings)

Click on "CWMP" link in the left navigation bar to create TR-069 connection, and setup ACS URL/ ACS Username/ACS Password and basic information. A screen is displayed as shown in Figure 4.3.7.

	System Status xDSL	LAN QoS Applications USB	Home Logout
→ Configuration Backup			
→ Configuration Restore	TR069 Settings		
→ Update Software	° °		
→ Account Management	Enable TR069:		
→ Log level	ACS URL:	http://acs.demo.co.th:7005/acsmgt	
→ Logs	ACS User Name:	net	
→ Service Control	ACS Password:	•••••	
→ CWMP → Internet Time	Period Inform:	 Image: A start of the start of	1
→ Reboot	Inform Interval:	86400	
→ Restore Default	Connection Request Authentication	:	
	User Name:	net	
	Password:	•••••	
	Connection Request Port:	7547	
	Connection Request URL:	/tr069	
	Apply Refresh		

Figure 4.3.7 TR069 Settings

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4.3.8 Internet Time

If SNTP server could not be connected to allow the device to synchronize the system clock to the global Internet. Please setup "Internet Time". A screen is displayed as shown in Figure 4.3.8.

	System Status	XDSL LAN QoS A	pplications USB Home Logout
→ Configuration Backup			
→ Configuration Restore	Time Settings		
→ Update Software	Ū		
→ Account Management	Current Time:	1970-01-01T00:31:05 GMT	+08:00
→ Log level	Time Service Enable:		
→ Logs	Synchronization Status:	Unsynchronized	
→ Service Control	Time Server 1:	time1.google.com	
→ CWMP			
→ Internet Time	Time Server 2:	216.239.35.12	
→ Reboot	Time Server 3:		
→ Restore Default	Time Server 4:		
	Time Server 5:		
	Update Interval:	86400	(Seconds)
	Retry Interval:	60	(Seconds)
	Time Zone:	(GMT+08:00) Beijing, Hor	ng Kong 🔹
	Daylight-Saving:		
	Start Time:	1970 04 01 02 0	00 00
	End Time:	1970 09 01 02 0	00 00
	Apply Refresh		

Figure 4.3.8 NTP Settings



4.3.9 Restore Default

Setting to the factory defaults, click on the "Restore Default" link in the left navigation bar, and press "Restore Default Settings", the device will reboot in 10 seconds. A screen is displayed as shown in Figure 4.3.9.

	System Status xDSL LAN QoS Applications USB Home Logout
 Configuration Backup 	
→ Configuration Restore	Restore Default Settings
→ Update Software	C
→ Account Management	Restore Broadband Router settings to the factory defaults.
→ Log level	
→ Logs	Restore Default Settings
→ Service Control	
→ CWMP	
→ Internet Time	
→ Reboot	
→ Restore Default	

Figure 4.3.9 Restore Default Settings

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4.4 Status Setup

Select "Status". It includes the sub-menus of Device Infomation
LAN Network
Ethernet
WAN Statistics
LAN Statistics

ARP. A screen is displayed as shown in Figure 4.4

	System Status	xDSL LAN QoS Application	s USB
 Device Information 			
→ LAN Network	Device Info		
→ Ethernet			
→ WAN Statistics	Hardware Version:	A.4	
→ LAN Statistics	Software Version:	B.4.3	
→ ARP	MAC Address:	00:05:6e:02:27:dc	
	System Up Time:	19 hours, 41 mins, 55 secs	

Figure 4.4 Device information

netsys

4.4.1 LAN Network

Click on the "LAN Network" link in the left navigation bar, user will see the status of IPv4/IPv6 Address for this device. A screen is displayed as shown in Figure 4.4.1.

	System Stat	us xDSL LAN QoS Applicatio	ns USB Home Logo
 Device Information 			
→ LAN Network	LAN Host		
→ Ethernet			
→ WAN Statistics	IP Address:	192.168.16.218	
 → LAN Statistics → ARP 	IPV6 LAN Host		
	IPv6 Address:	fe80::1	

Figure 4.4.1 LAN Network information

NV-700L Managed Single Master / Slave LAN Extender USER'S MANUAL Ver. B.7

4.4.2 Ethernet

Click on the "Ethernet" link in the left navigation bar, user will see the Ethernet Status, Speed, and Duplex of LAN1, LAN2, LAN3, LAN4 for this device. A screen is displayed as shown in Figure 4.4.2.

	System	Status xD	SL LAN Qo	S Applications U	
→ Device Information					
→ LAN Network	LAN - Ethernet				
→ Ethernet					
→ WAN Statistics	Interface	Status	Speed	Duplex	
→ LAN Statistics	LAN1	Up	100Mb/s	Full Duplex	
→ ARP	LAN2	Down	-	-	
	LAN3	Down	-	-	
	LAN4	Up	100Mb/s	Full Duplex	

Figure 4.4.2 LAN-Ethernet information

4.4.3 WAN(Line) Statistics

Click on the "WAN Statistics" link in the left navigation bar, user will see the Received and Transmitted status for this device. A screen is displayed as shown in Figure 4.4.3.

	Syste	em Statu	s xDSL	LAN Q	oS Appli	cations US	B Home	Logout	
→ Device Information									
→ LAN Network	Statistics WAN								
→ Ethernet									
→ WAN Statistics	Interface	Received			Transmitted				
→ LAN Statistics	Interface	Bytes	Packets	Error	Discard	Bytes	Packets	Error	Discard
→ ARP	E_Bridge	573696	8964	0	0	4330904	63867	0	0
	Refresh								

Figure 4.4.3 Statistics—WAN(Line)

4.4.4 LAN Statistics

Click on the "LAN Statistics" link in the left navigation bar, user will see the Received and Transmitted status for LAN1~4. A screen is displayed as shown in Figure 4.4.4.

→ Device Information	S	ystem Stat	us xDSL	LAN	QoS App	ications US	B Home	Logout	
→ LAN Network → Ethernet	Statistics LAN								
→ WAN Statistics	Transmitted Received								
→ LAN Statistics	Port	Bytes	Packets	Error	Discard	Bytes	Packets	Error	Discard
→ ARP	LAN1	94180112	93183	0	0	45677886	143788	0	0
	LAN2	0	0	0	0	0	0	0	0
	LAN3	0	0	0	0	0	0	0	0
	LAN4	49458137	148618	0	0	94391287	95097	0	0
		_							
:	Refres	h							

Figure 4.4.4 Statistics-LAN

4.4.5 ARP

Click on the "ARP" link in the left navigation bar, user will see the records of Flags, HW Address, and Device status for different IP addresses. A screen is displayed as shown in Figure 4.4.5.

	System Stat	us xDSL LAN Qo	S Applications USB Hor	ne Logout
→ Device Information				
→ LAN Network	ARP			
→ Ethernet				
→ WAN Statistics	IP Address	Flags	HW Address	Device
→ LAN Statistics	192.168.16.1	Complete	00:50:7f:ce:f8:30	br0
→ ARP	192.168.16.26	Complete	ac:22:0b:8c:13:73	br0
	192.168.16.3	Complete	10:c3:7b:46:06:8f	br0
	192.168.16.15	Complete	88:d7:f6:54:fc:f6	br0
	Clear Refresh			

Figure 4.4.5 ARP setting

4.5 xDSL Setup

Select "xDSL". It includes the sub-menus of Dsl Status
> Dsl Config.

Click on the "Dsl Status" link in the left navigation bar, user will see VDSL Information for this device. A screen is displayed as shown in Figure 4.5.

	System Status xDSL	LAN QoS	Applications USB Home	Logout
→ Dsl Status				
→ Dsl Config	VDSL Status			
	VDSL Mode	MASTER		
	Link Status			
	Profile			
	Data Rate Downstream (kb/s)			
	Data Rate Upstream (kb/s)			
	SNRM Downstream (0.1db)			
	SNRM SNRM Upstream (0.1db)			
	Link Time (second)			
	Refresh			

Figure 4.5. VDSL Information



4.5.1 Mode & profile Config

Click on the "Dsl Config" link in the left navigation bar, there are 9 VDSL modes selectable, the default setting is "3. Master Mode, Sy-Auto 1_8/2 (SNRM 6/6)". A screen is displayed as shown in Figure 4.5.1.

	Syster	m Status xDSL LAN QoS Applications USB WAM Home Logout						
→ Dsl Status								
→ Dsl Config	VDSL Setup							
	Current Mode	3. Master(CO) Mode, Sy-Auto I_8/2 (SNRM 6/6)						
	VDSL Mode Select	3. Master(CO) Mode, Sy-Auto I_8/2 (SNRM 6/6)						
		1. Master(CO) Mode, Sy-Auto I_8/2 (SNRM 8/8)						
		2. Master(CO) Mode, NSy-Auto I_8/2 (SNRM 8/8)						
	Apply Refrest	3. Master(CO) Mode, Sy-Auto I_8/2 (SNRM 6/6)						
		4. Master(CO) Mode, NSy-Auto I_8/2 (SNRM 6/6)						
		5. Master(CO) Mode, Sy-Auto G.inp_17/2/41 (SNRM 12/12)						
		6. Master(CO) Mode, NSy-Auto G.inp_17/2/41 (SNRM 12/12)						
		7. Master(CO) Mode, Sy-30a-D2.2M G.inp_17/2/41 (Rate 20/20) (SNRM 24/24)						
		8. Master(CO) Mode, Annex-A-17a-eu32_I-8/2 (SNRM 6/6)						
		9. Slave(CPE) Mode						

Figure 4.5.1 VDSL Setup



4.5.1.1 VDSL Config Overview

Below table clarify the settings of 9 different VDSL modes.

NO.	Config.	Note
1	Sy-Auto I_8/2 (SNRM 8/8)	Symmetric Auto, Max. Interleave=8, Min.Inp=2, SNRM=8
2	NSy-Auto I_8/2 (SNRM 8/8)	non symmetric Auto, Max. Interleave=8, Min.Inp=2, SNRM=8
3	Sy-Auto I_8/2 (SNRM 6/6)	Symmetric Auto, Max. Interleave=8, Min.Inp=2, SNRM=6 (Default)
4	NSy-Auto I_8/2 (SNRM 6/6)	Non symmetric Auto, Max. Interleave=8, Min.Inp=2, SNRM=6
5	Sy-Auto G.INP_17/2/41 (SNRM 12/12)	Symmetric Auto, enable G.INP, enable re-transition, SNRM=12
6	NSy-Auto G.INP_17/2/41 (SNRM 12/12)	non symmetric Auto, enable G.INP, enable re-transition, SNRM=12
7	Sy-30a-D2.2M G.INP_17/2/41 (Rate 20/20) (SNRM 24/24)	Symmetric 30a, disable 0~2.2MHz, enable G.INP, enable re-transition, Max.Line rate=20Mbps, SNRM=24
8	Annex-A-17a-eu32_I-8/2 (SNRM 6/6)	17A Annex a Eu32, Max. Interleave=8, Min. Inp=2, SNRM=6

9	Slave Mode	Web config for Slave mode is available.				
Note: This device is available to select Master (Config 1~8) / Slave (Config 9) mode through web config.						

4.6 LAN Setup

Select "LAN". It includes the sub-menus of IPv4 Configuration VIPv6 Configuration IPv6Static Route Ethernet Mode.

A screen is displayed as shown in Figure 4.6.

	System Status	xDSL LAN QoS Applications USB Hom	ie Logo
→ IPv4 Configuration			
→ IPv6 Configuration	Device Info		
→ IPv6Static Route			
→ Ethernet Mode	Hardware Version:	A.4	
	Software Version:	B.4.3	
	MAC Address:	00:05:6e:02:27:dc	
	System Up Time:	21 hours, 23 mins, 6 secs	

Figure 4.6 LAN



4.6.1 IPv4 Configuration

Click on the "IPv4 Configuration" link in the left navigation bar. Click "Apply" at any time during configuration to save the information that user has entered. A screen is displayed as shown in Figure 4.6.1

	System Statu	s xDSL LAN QoS Applications USB Home Logout						
IPv4 Configuration								
→ IPv6 Configuration	IPv4 Configuration	n						
→ IPv6Static Route		······································						
→ Ethernet Mode	IP Address:	192.168.16.218						
	Subnet Mask:	255.255.255.0						
	Gateway:	192.168.16.1						
	Primary DNS Server:	8.8.8.8						
	Secondary DNS Server:							
	Domain Name:	localhost						
	Apply Refresh							

Figure 4.6.1 IPv4 Configuration



4.6.2 IPv6 Configuration:

Click on the "IPv6 Configuration" link in the left navigation bar. Click "Apply" at any time during configuration to save the information that user has entered. A screen is displayed as shown in Figure 4.6.2

	System	Status xDSL LAN QoS Applications USB Home Logout
→ IPv4 Configuration		
→ IPv6 Configuration	IPv6 Configura	ation
→ IPv6Static Route		
→ Ethernet Mode	IP Address:	fe80::1
	Min RA Interval:	10
	Max RA Interval:	15
	Server Mode:	SLAAC Stateless DHCP Stateful DHCP
	Primary DNS:	
	Prefiex Mode:	Static Interview PD
	Prefix:	
	Apply Refresh	

Figure 4.6.2 IPv6 Configuration



4.6.3 IPv6Static Route

Click on the "IPv6Static Route" link in the left navigation bar. Click "add" to a new page and setup Static Route. A screen is displayed as shown in Figure 4.6.3

	Sys	tem St	atus xDSL LAN	QoS /	Application	ıs USB	Home	Logout	
→ IPv4 Configuration									
→ IPv6 Configuration	Static Re	oute							
→ IPv6Static Route									
→ Ethernet Mode	Number	Status	Destination Address	Mask	Gateway	Metrics	Туре	Error Message	Action
	_								
	Add								

NV-700L Managed Single Master / Slave LAN Extender USER'S MANUAL Ver. B.7

	System Status	xDSL LAN QoS Applications USB Home Logout
→ IPv4 Configuration		
→ IPv6 Configuration	Static Route Settir	ng
→ IPv6Static Route		•
→ Ethernet Mode	Connection Name:	LAN V
	Enable:	
	Destination Address:	
	Subnet Prefix Length:	
	Gateway:	
	Metrics:	
	Back Apply Refr	esh

Figure 4.6.3 IPv6Static Route



4.6.4 Ethernet Mode

Click on the "Ethernet Mode" link in the left navigation bar. Choose the speed (Auto, 10Mb/s, 100Mb/s) of LAN1~4, and click "Apply" to setup.

	Syste	m Status xDS	L LAN QoS A	pplications USB Home Logout
 → IPv4 Configuration → IPv6 Configuration → IPv6Static Route 	LAN - Eth	ernet Mode C	onfiguration	
→ Ethernet Mode	Port	Status	Speed	Duplex
	LAN1	Up	Auto 🔻	Auto 🔻
	LAN2	Down	Auto 🔻	Auto 🔻
	LAN3	Up	Auto 🔻	Auto 🔻
	LAN4	Down	Auto 🔻	Auto 💌
	Apply Re	efresh	Auto 10Mb/s 100Mb/s	

Figure 4.6.4 LAN-Ethernet Mode Configuration

4.7 Qos Setup

Select "Qos". It includes the sub-menus of Qos Queue
Qos Classification. A screen is displayed as shown in Figure 4.7.

	System Status	xDSL LAN QoS Applications	USB Home Logout
→ QoS Queue			
→ QoS Classification	Device Info		
	Hardware Version:	A.4	
	Software Version:	B.4.3	
	MAC Address:	00:05:6e:02:27:dc	
	System Up Time:	21 hours, 38 mins, 16 secs	

Figure 4.7 Qos

4.7.1 Qos Queue

Click on "Qos Queue" link in the left navigation bar, on the right page user will see how to enable Qos, and Upstream Queue Settings. There are four models of Qos profiles. A screen is displayed as shown in Figure 4.7.1.

		Sys	stem Stat	us XDSL LAN	V QoS Applications USB Home Logout
 → QoS Queue → QoS Classification 	QoS Glo	bal Setti	ings		
	Enable Qo Enable: Upstream Scheduling Enable For DSCP/TC I 802.1P Tag TCP Conne Upstream	Bandwidth Policy: rce Bandw Mark: g: ection Nur	ridth: nber Limit:	TR069,INTERN TR069,IPTV,IN IPTV,TR069,IN Custom Profile	TERNET TERNET DS (0 means no rate limit)
	Number	Enable	-	is the highest)	
	1		1	io uio nigricoty	
	2		2		
	3		3		
	4		4		
	5		5		
	6		6		
	7 8		7		
		Refresh	-		

Figure 4.7.1 Qos Global Settings

4.8 Applications

Select "Applications". It includes the sub-menus of Telnet Service
SSH Service
Printer Share
Multimedia Share
UPnP

Multicast IGMP

Multicast MLD
SNMP. A screen is displayed as shown in Figure 4.8.

	System Status	xDSL LAN QoS Applications	USB Home Logout
→ Telnet Service			
→ SSH Service	Device Info		
→ Printer Share			
→ Multimedia Share	Hardware Version:	A.4	
→ UPnP	Software Version:	B.4.3	
→ Multicast IGMP	MAC Address:	00:05:6e:02:27:dc	
→ Multicast MLD	System Up Time:	21 hours, 44 mins, 16 secs	
→ SNMP			

Figure 4.8 Applications

4.8.1 Telnet Service Setup (for Security)

Click on "Telnet Service" link in the left navigation bar, on the right page user will see how to enable Telnet Service. A screen is displayed as shown in Figure 4.8.1

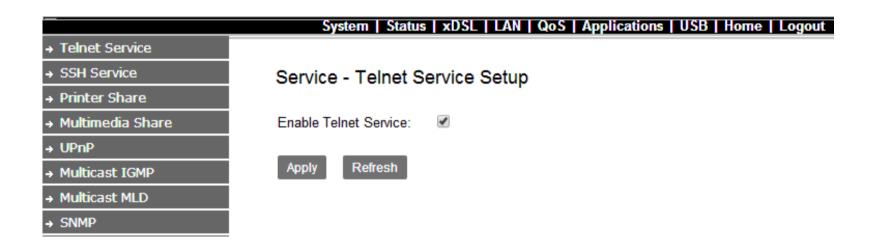


Figure 4.8.1 Service-Telnet Service Setup



4.8.2 SSH Service (Telnet Encryption)

Click on "SSH Service" link in the left navigation bar, on the right page user will see how to enable SSH Service. A screen is displayed as shown in Figure 4.8.2

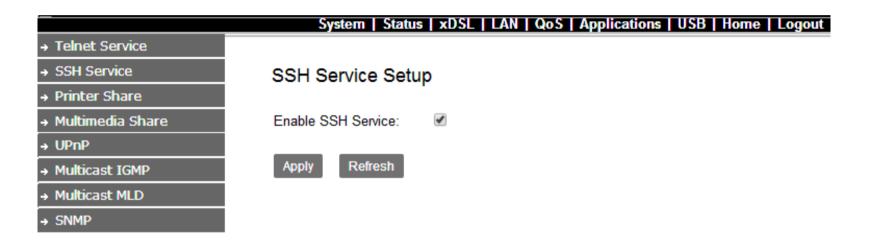


Figure 4.8.2 SSH Service Setup



4.8.3 Printer Sharing

Click on "Printer Share" link in the left navigation bar, on the right page user will see how to enable Printer Service, and type Queue Name. A screen is displayed as shown in Figure 4.8.3.

	System Status	; XDSL LAN QoS A	Applications USB Home Logou
→ Telnet Service			
→ SSH Service	Printer Service Se	tup	
→ Printer Share			
→ Multimedia Share	Enable Printer Service:		
→ UPnP	Queue Name:	myprinter]
→ Multicast IGMP			-
→ Multicast MLD	Apply Refresh		
→ SNMP			

Figure 4.8.3 Printer Service Setup



4.8.4 Multimedia Sharing

Click on "Multimedia Share" link in the left navigation bar, on the right page user will see how to enable DMS and select Share Folders. A screen is displayed as shown in Figure 4.8.4.

	System St	atus xDSL LAN QoS Applications USB Home Logout
→ Telnet Service		
→ SSH Service	Multimedia Sha	are Setup
→ Printer Share		•
→ Multimedia Share	Enable DMS:	
→ UPnP		
→ Multicast IGMP	Share Folders:	Share All Folders
→ Multicast MLD		Custom Shared Folder
→ SNMP	Apply Refresh	

Figure 4.8.4 Multimedia Share Setup

4.8.5 UPnP

Click on "UPnP" link in the left navigation bar, on the right page user will see how to enable UPnP and add Blacklist. A screen is displayed as shown in Figure 4.8.5.

	System Statu	ıs xDSL LAN QoS	Applications USB Home	Logout
→ Telnet Service				
→ SSH Service	UPnP			
→ Printer Share				
→ Multimedia Share	Enable UPnP IGD:			
→ UPnP	WAN Connection:	E_Bridge ▼		
→ Multicast IGMP				
→ Multicast MLD	Apply Refresh			
→ SNMP	Blacklist			
	Enable:	s de la constante de la consta		
	IP Address:			
	Add			
	Enable	Number	IP Address	Action
	No Rule Found!			

Figure 4.8.5 UPnP



4.8.6 Multicast IGMP

Click on "Multicast IGMP" link in the left navigation bar. According to the setting, if user wants to test the IGMP function, user only needs to enable IGMP function basic on the Application setup.

	System Status xDSL LA	AN QoS Applications USB Home Logout			
→ Telnet Service → SSH Service	IGMP Settings				
 → Printer Share → Multimedia Share → UPnP 	Enter IGMP protocol configuration fields if you want modify default vaules shown below. NOTE:Query Interval is advised to no longer than 125s.				
→ Multicast IGMP → Multicast MLD	Default Version:	IGMP v2 T			
→ Mulucast MLD → SNMP	Query Interval(s):	IGMP v3			
	Query Response Interval(1/10s):	100			
	Last Member Query Interval(1/10s):	10			
	Robustness Value:	2			
	Maxinum Multicast Data Source(for IGMPv3):	10			
	Fast Leave Enable:	×.			
	Membership Join Immediate(IPTV):				
	Apply Refresh				
	Enable IGMP Snooping:				
	Apply Refresh				

Figure 4.8.6 IGMP Settings



4.8.7 Multicast MLD (IPv6)

Click on "Multicast MLD" link in the left navigation bar. According to the setting, if users want to test MLD function, users only need to enable MLD function to be basic on the Application setup.

	System Status xDSL L	AN QoS Applications USB Home Logout
→ Telnet Service		
→ SSH Service → Printer Share	MLD Settings	
→ Multimedia Share → UPnP	Enter MLD protocol(IPv6 Multicast)configure	fields if you want modify default values shown below.
→ Multicast IGMP	Default Version:	MLD v2 •
→ Multicast MLD → SNMP	Query Interval(s):	MLD V2 A MLD V1 V
	Query Response Interval(1/10s):	100
	Last Member Query Interval(1/10s):	10
	Robustness Value:	2
	Maxinum Multicast Data Source(for mldv2):	10
	Fast Leave Enable:	Z
	Apply Refresh	
	Enable MLD Snooping:	
	Apply Refresh	

Figure 4.8.7 MLD Settings

4.8.8 SNMP

Click on "SNMP" link in the left navigation bar, on the right page user will see how to enable SNMP function. NV-700L supports SNMP V1/V2.

	System Status	xDSL LAN QoS Applications USB Home Logout
→ Telnet Service		
→ SSH Service	SNMP Settings	
→ Printer Share	•	
→ Multimedia Share	Enable SNMP	
→ UPnP	System Contact	net
→ Multicast IGMP	System Name	net
→ Multicast MLD	System Location	net
→ SNMP	Public community	public
	Private community	private
	Trap Enable	
	Trap Version	SNMP V1 V
	Trap Address	192.168.1.100
	Apply Refresh	

Figure 4.8.8 SNMP Settings



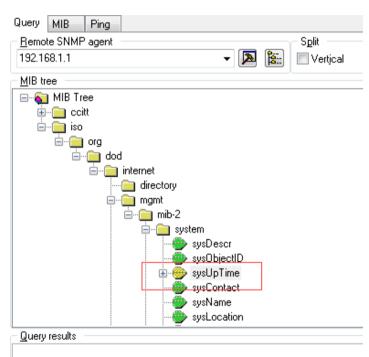
Download "MG-SOFT MIB Browser". Below picture indicate how to use the software and connect remote SNMP agent.

🕵 MG-SOFT MIB Browser Professional SNMPv3 Edition	
File Edit View SNMP Action Tools Window Help	
rei ?{] 🖉 🖏 🧶 i 💷 🚟 🗛 🐂 🖓 🎲 🗣	4
Query MIB Ping	
Bemote SNMP agent Split 192.168.1.1 ▼ 🔊 🎼 .	
MIB tree	SNMP Protocol Preferences
E⊸Si MIB Tree	SNMP protocol ver <u>sion</u>
ozi 🚰 🗄	SNMPv1 SNMPv2c SNMPv3
	General Get-Bulk settings
	Read community Use Get-Bulk public 0
	Cat community
	private SNMPv3 security
	Timeout [s] 5
	Retransmits 4
	Security level
C Query results	Port number 161 -
Response binding: 1: ifNumber.0 (integer) 26	Load user profile
Remote address: 192.168.1.1 port: 161 transport: IP/UDP Local address: 192.168.20.102 port: 52441 transport: IP/UDP Protocol version: SNMPv2c	Add to agent profiles



NV-700L Managed Single Master / Slave LAN Extender USER'S MANUAL Ver. B.7

Select OID:1.3.6.1.2.1.1.3 SysUp Time



***** SNMP QUERY STARTED *****

1: sysUpTimeInstance (timeticks) 0 days 16h:52m:37s.13th (6075713)

Remote address: 192.168.1.1 port: 161 transport: IP/UDP Local address: 192.168.20.102 port: 64685 transport: IP/UDP Protocol version: SNMPv2c 1: sysUpTimeInstance (timeticks) 0 days 16h:53m:09s.53th (6078953)

4.9 USB setup

Select "USB". It includes the sub-menus of Storage Device Info Samba Server STP Server STP Client TFTP Server.

A screen is displayed as shown in Figure 4.9.

	System	Status xDSL LAN QoS Appl	ications USB Home Logout
→ Storage Device Info			
→ Samba Server	Device Info		
→ FTP Server	201100 1110		
→ FTP Client → TFTP Server	Hardware Version:	A.4	
+ IFIP Server	Software Version:	B.4.3	
	MAC Address:	00:05:6e:02:27:dc	
	System Up Time:	22 hours, 0 mins, 6 secs	

Figure 4.9 USB



4.9.1 Storage Device Info

Insert a U disk into the USB interface, then login 192.168.16.249, click on "Storage Device Info" link in the left navigation bar. Confirm the system has mounted the U disk. A screen is displayed as shown in Figure 4.9.1

	Sys	stem Sta	tus xDSL LA	N QoS Ap	plications USB Home Logo
→ Storage Device Info					
→ Samba Server	Storage	Device	Info		
→ FTP Server					
→ FTP Client	Number	Provider	Product Type	Capacity(MB)	
→ TFTP Server	1	JetFlash	Transcend 8GB	7812	

Figure 4.9.1 Storge Device Info

4.9.2 Samba Service

Click on "Samba Service" link in the left navigation bar, on the right page user will see how to enable Samba Service. A screen is displayed as shown in Figure 4.9.2.

	System Status xDSL LAN QoS Applications USB Home Logout
→ Storage Device Info	
→ Samba Server	Storage Service - File Sharing Service Setup
→ FTP Server	5 5 1
→ FTP Client	Note: To enable Samba Server, Please insert at least one storage device.
→ TFTP Server	Enable Samba Service: 🗹
	Apply Refresh

Figure 4.9.2 File Sharing Service Setup

Note: To enable Samba Service, please insert at least one storage device.

4.9.3 FTP Server

Click on "FTP Server" link in the left navigation bar, on the right page user will see how to enable FTP Service function. A screen is displayed as shown in Figure 4.9.3.

	System Statu	s xDSL LAN QoS Applications USB Home Logout
→ Storage Device Info		
→ Samba Server	Storage Service -	FTP Service Setup
→ FTP Server		
→ FTP Client	Note: To enable FTP	Server, at least one storage device would be inserted.
→ TFTP Server	Enable FTP Service:	
	FTP Directory:	JETFLASH-TRANSCEND8GB-8.07-81
	Apply Refresh	
	Figure 4.9.3	3 FTP Service Setup

Note: To enable FTP Server, at least one storage device will be installed.

4.9.4 FTP Client

Click on "FTP Client" link in the left navigation bar, on the right page user can input FTP Client Settings, and click "Download". A screen is displayed as shown in Figure 4.9.4.

	System Status	xDSL LAN QoS A	pplications	USB He	ome Lo	gout
→ Storage Device Info						
→ Samba Server	Storage Service - FTP Client Settings					
→ FTP Server	Ŭ					
→ FTP Client	User Name:	Iser Name: FTP				
→ TFTP Server	Password:	Password:				
	Download URL: f	tp://				
	Port:	21				
	Device:	JETFLASH-TRANSCEND8GB-	8.07-81 🔻			
	Save Path:	Save Path: xdown				
	Download	Download The latest 10 download records				
	The latest To down	The latest to download records				
	Refresh					
	User Name Password	Port Download URL	Save Path	Progress	Status	Action
	blake	21 ftp://netsys.com.tw/helio.htm	xdown	100%	complete	Delete

NV-700L Managed Single Master / Slave LAN Extender USER'S MANUAL Ver. B.7

	System Sta	itus xDSL LAN QoS Applications USB Home Logout				
→ Storage Device Info						
→ Samba Server	Storage Service - FTP Client Settings					
→ FTP Server	C C	~				
→ FTP Client	User Name:	FTP				
→ TFTP Server	Password:	••••••				
	Download URL	ftp://				
	Port:	21				
	Device:	JETFLASH-TRANSCEND8GB-8.07-81 ▼ xdown				
	Save Path:					
	Download					
	The latest 10 download records					
	Refresh					
	User Name Passv	word Port Download URL Save Path Progress Status Action				
	blake	21 Itp://netsys.com.twihelio.htm xdown 100% complete Delete				

Figure 4.9.4 FTP Client Settings



Click "Refresh", and make sure the status is complete.

The latest 10 download records

Refresh							
User Name	Password	Port	Download URL	Save Path	Progress	Status	Action
blake		21	ftp://netsys.com.tw/hello.htm	xdown	100%	Complete	Delete

Figure 4.9.4 FTP Client Settings

metsys

4.9.5 TFTP Server

Click on "TFTP Server" link in the left navigation bar, on the right page user will see how to enable TFTP Server function. A screen is displayed as shown in Figure 4.9.5.

	System Status	xDSL LAN QoS Applications USB Home Logout
→ Storage Device Info		
→ Samba Server	Storage Service -	TFTP Service Setup
→ FTP Server	·	•
→ FTP Client	Note: To enable the TI	FTP Server, a storage device may be needed.
→ TFTP Server	Enable TFTP Service:	
	TFTP Directory:	JETFLASH-TRANSCEND8GB-8.07-81
	Apply Refresh	

Figure 4.9.5 TFTP Service Setup

Appendix A: Cable Requirements

A.1 Ethernet Cable

A CAT 3~7 UTP (unshielded twisted pair) cable is typically used to connect the Ethernet device to the Modem. A 10Base-T cable often consists of four pairs of wires, two of which are used for transmission. The connector at the end of the 10Base-T cable is referred to as an RJ-45 connector and it consists of eight pins. The Ethernet standard uses pins 1, 2, 3 and 6 for data transmission purposes. (Table A-1)

		MDI		MDI-X
PIN #	Signal	Media Dependant interface	Signal	Media Dependant interface-cross
1	TX+	Transmit Data +	RX+	Receive Data +
2	TX-	Transmit Data -	RX-	Receive Data -
3	RX+	Receive Data +	TX+	Transmit Data +
4		Unused		Unused
5		Unused		Unused
6	RX-	Receive Data -	TX-	Transmit Data -
7		Unused		Unused
8		Unused		Unused

Table A-1 RJ-45 Ethernet Connector Pin Assignments

Note:

Please make sure users connected cables have the same pin assignment as the table above before deploying the cables into the user's network.

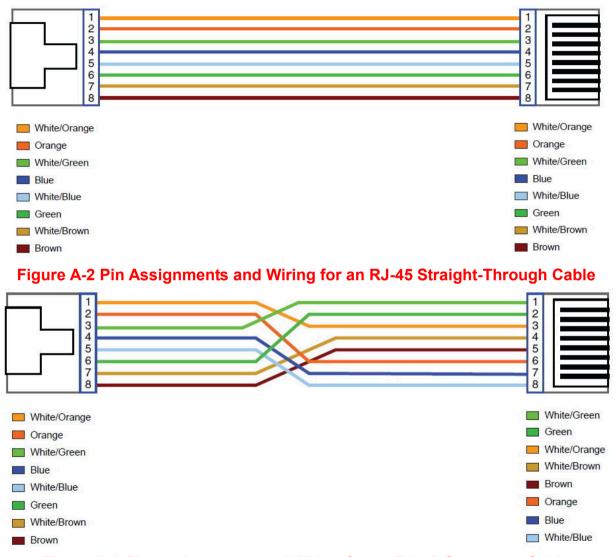


Figure A-3 Pin Assignments and Wiring for an RJ-45 Crossover Cable

NV-700L Managed Single Master / Slave LAN Extender USER'S MANUAL Ver. B.7

A.2 Telephone wire

Standard telephone wire of any gauge or type-flat, twisted or quad is used to connect the Modem to the telephone network. A telephone cable typically consists of three pairs of wires, one of which is used for transmission. The connector at the end of the telephone cable is called an RJ-11 connector and it consists of six pins. POTS (plain old telephone services) use pins 3 and 4 for voice transmission. A telephone cable is shown below. (Figure A-4)

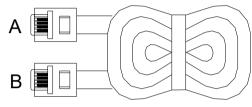


Figure A-4 Telephone cable

The A and B connectors on the rear of the Modem are RJ-11 connectors. These connectors are wired identically. The RJ-11 connectors have six positions, two of which are wired. The Modem uses the center two pins. The pin out assignment for these connectors is presented below. (Table A-2)

Pin#	MNEMONIC	FUNCTION
1	NC	Unused
2	NC	Unused
3	TIP	POTS
4	RING	POTS
5	NC	Unused
6	NC	Unused

Appendix B: Product Specification

Key Features & Benefits

- ◆ Adopts ARM Cortex A9 dual-core processor
- Supports Master/Slave Mode selectable by Web config menu
- Supports G.998.4 G.INP
- Supports up to 100 Mbps symmetric
- Support 8 bands selectable
- Support USB 2.0 for connecting USB Dongle
- Supports IPv4/IPv6 NTP Client
- Support static routing for IPv4 and IPv6 forwarding
- Mac Address based filtering
- Http/https Web-based management
- Support IGMP snooping v2/v3
- Compliant with IEEE 802.3 & 802.3u Ethernet Standard
- Support VLAN Tag pass through
- Compliant with ITU-T G993.2 VDSL2 standard
- Support 8 queue MFC/DSCP both type QoS
- Supports HTTP/HTTPS web management
- Support SSL / SSH security
- Support remote management and monitor
- Support configuration backup and restore
- On board surge protection for Line port

- Supports bridge mode only
- Supports Dual Firmware Image Backup
- Supports SNMP v1/v2
- On board POTS/ISDN splitter
- ♦ Supports TR-069
- Supports Jumbo frame (MTU) up to 2k bytes

Note:

1. Features and specifications in this manual are subject to change without prior notice.

2. (*) Firmware is upgradable for future enhancement.



NV-700L Managed Single Master / Slave LAN Extender USER'S MANUAL Ver. B.7

Product Specification

Standard:	IEEE802.3/802.3u standards ITU-T G993.2/G998.4 standards
Regulatory Compliance:	FCC CE RoHS Compliance
Physical Interface:	 4 x RJ-45 10/100 Mbps Ethernet port 1 x RJ-11 / Terminal combo for line port 1 x RJ-11 connector for POTS/ISDN phone device 1 x Reset Button for resetting to factory default 1 x USB2.0 for connecting USB dongle
LED Indicators:	1 x Power LED 4 x Link/Active Status for Ethernet port 1 x Link LED for VDSL2 port 1 x USB LED 1 x CO(Master) LED
Switch method:	Store and forward
Flow control:	Full duplex: IEEE 802.3x Half duplex: Back pressure
Typical Power Consumption: Power Supply:	4.4W (Full load, without USB port) Input Voltage: 12 VDC (Commercial-grade power adapter)



NV-700L Managed Single Master / Slave LAN Extender USER'S MANUAL Ver. B.7

Operating Temperature:	0°C ~ 50°C (32°F ~ 122°F)
Operating Temperature:	Fanless, free air cooling
Storage Temperature:	-20°C ~ 70°C (-4°F ~158°F)
Humidity:	10% to 90% (non-condensing)
Dimensions:	184 x 146 x 40 mm (7.2" x 5.74" x 1.57")
Weight:	approX.0.4 kg
EMC Contification	EMI Compliant: FCC
EMC Certification:	EMS Compliant: CE mark

Appendix C: Troubleshooting

Diagnosing the Modem's Indicators

The modem can be easily monitored through its comprehensive panel indicators. These indicators assist the network manager in identifying problems the hub may encounter. This section describes common problems users may encounter and possible solutions.

1. Symptom:	POWER indicator does not light up (green) after power on.					
Cause:	Defective External power supply					
Solution:	Check the power plug by plugging in another that is functioning properly. Check the power cord with another device. Check the terminal block and make sure to fasten the power cord. If these measures fail to resolve the problem, have the unit power supply replaced by a qualified distributor.					
Note:	Please refer to the power status table to check power input status. Section 3.3					

2.	Symptom:	Link indicator does not light up (green) after making a connection.						
	Cause:	Network interface (ex. a network adapter card on the attached device), network cable, or switch port						
		is defective.						
	Solution:	2.1 Verify that the switch and attached device are power on.						
		2.2 Be sure the cable is plugged into both the switch and corresponding device.						
		2.3 Verify that the proper cable type is used, and its length does not exceed specified limits.						
		2.4 Check the modem on the attached device and cable connections for possible defects.						
		2.5 Make sure that the phone wire must be connecting NV-700L first, when powered on.						
		2.6 Replace the defective modem or cable if necessary.						
		2.7 Or try to change band profile as 17a for getting long reach						

3. Symptom:	Line Link cannot be established.							
Cause:	NV-700L and NV-600A setting failure or phone cable length is over the specification limit.							
Solution:	 3.1 Please make sure that the phone wire must be connected between NV-700L (Master side) and NV-600A (Slave side) when both are power on. NV-700L Master side will do link speed function depending on phone wire length, therefore if NV-700L Master side can't detect NV-600A over phone wire while both power on, this will cause the Link to fail. 3.2 Please check phone wire, we recommend using 24-26 gauge with twisted pair and without rust. 3.3 Please reinsert power when changing cable length or link time over 3 minutes. 3.4 Or try to change band profile as 17a to get long reach. 							
Note:	Phone wire must meet CAT 3 standard or above and twisted pair, otherwise will cause more cross talk issues to reduce Line power driver.							

4.	Question:	What is VDSL2 technology? (Only reference)						
	Answer:	Very-high-speed digital subscriber line 2 (VDSL2) is an access technology that exploits the existing						
		infrastructure of copper wires that were originally deployed for traditional telephone service. It can						
		be deployed from central offices, from fiber-optic connected cabinets located near the customer						
		premises, or within buildings. It was defined in standard ITU-T G.993.2 finalized in 2005.						
		VDSL2 was the newest and most advanced standard of digital subscriber line (DSL) broadband						
		wireline communications. Designed to support the wide deployment of triple play services such as						
		voice, video, data, high-definition television (HDTV) and interactive gaming, VDSL2 was intended to						
		enable operators and carriers to gradually, flexibly, and cost-efficiently upgrade existing xDSL						
		infrastructure.						

The protocol was standardized in the International Telecommunication Union telecommunications sector (ITU-T) as Recommendation G.993.2. It was announced as finalized on 27 May 2005,[1] and first published on 17 February 2006. Several corrections and amendments were published in 2007 through 2011.

VDSL2 is an enhancement to very-high-bitrate digital subscriber line (VDSL), Recommendation G.993.1. It permits the transmission of asymmetric and symmetric aggregate data rates up to 200 Mbit/s downstream and upstream on twisted pairs using a bandwidth up to 30 MHz.

VDSL2 deteriorates quickly from a theoretical maximum of 250 Mbit/s at source to 100 Mbit/s at 0.5 km (1,600 ft) and 50 Mbit/s at 1 km (3,300 ft), but degrades at a much slower rate from there, and still outperforms VDSL. Starting from 1.6 km (1 mi) its performance is equal to ADSL2+.

ADSL-like long reach performance is one of the key advantages of VDSL2. LR-VDSL2 enabled systems are capable of supporting speeds of around 1–4 Mbit/s (downstream) over distances of 4–5 km (2.5–3 miles), gradually increasing the bit rate up to symmetric 100 Mbit/s as loop-length shortens. This means that VDSL2-based systems, unlike VDSL1 systems, are not limited to short local loops or MTU/MDUs only but can also be used for medium range applications.



		I just bought an NV-700L to replace my Quest DSL modem for my home. I was told any VDSL2
	5. Question:	modem would replace and give me higher communication speeds. It doesn't get users on the internet
		when hooked up. All lights come on but no Link light. Is this the completely wrong application for this unit?
	A	Re: Please note NV-700L is a Master (CO side), it must be connected to the NV-600A (CPE side) to
	Answer:	work. Band profile and band plan setting must be compatible with each other.

6. Questior	We need to set up a default gateway on NV-700L & NV-600A connection, which are in Bridge mode, as they want to manage the units from a different network.						
Answer:	 When the application is used within the LAN, the switch(bridged) mode is not necessary to set up a gateway .However, if the application crosses various network segments (LAN to WAN(Line) or WAN(Line) to LAN), user must set up a gateway to connect different network segment. Regarding how to configure a default gateway at switch(bridged) mode for crossing various network segments. Configuration gateway example from static routing: Destination LAN IP: 0-0-00 Subnet Mask: 0-0-0 Gateway: 255-255-255-0 Note: Static Routing functionality is used to define the connected Gateway between the LAN and WAN. 						

7. Question: What can I do if I forgot my password.



	If user forgot user password, user must reset user modem. Unfortunately, this process will change all
	user settings back to the factory defaults. To reset the modem, locate the reset on the rear panel of
Answer:	the unit. With the modem powered on, use a paperclip to hold the button down for over 5 seconds.
	Release the button and the modem will go through its reboot process. The default ip is
	192.168.16.249. When logging in, the default username and password both are "admin".

8. Question:	What is the maximum Ethernet frame MTU for NV-700L?
Answer:	NV-700L maximum Ethernet frame MTU is 1522 bytes.

System Diagnostics

Power and Cooling Problems

If the POWER indicator does not turn on when the power cord is plugged in, user may have a problem with the power outlet, power cord, or internal power supply as explained in the previous section. However, if the unit power is off after running for a while, check for loose power connections, power losses or surges at the power outlet. If users still cannot isolate the problem, then the internal power supply may be defective. In this case, please contact user local dealer.

Installation

Verify that all system components have been properly installed. If one or more components appear to be malfunctioning (e.g. the power cord or network cabling), test them in an alternate environment where users are sure that all the other components are functioning properly.

Transmission Mode

The default method of selecting the transmission mode for RJ-45 ports is 10/100 Mbps ETHERNET, for RJ-11-line port are auto-speed VDSL2 PTM transmission. Therefore, if the Link signal is disrupted (e.g. by unplugging the network cable and plugging it back in again, or by resetting the power), the port will try to reestablish communications with the attached device via auto-negotiation. If auto-negotiation fails, then communications are set to half duplex by default. Based on this type of commercial-standard connection policy, if users are using a full-duplex device that does not support auto-negotiation, communications can be easily lost (i.e. reset to the wrong mode) whenever the attached device is reset or experiences power fluctuation. The best way to resolve this problem is to upgrade these devices to a version that supports Ethernet and VDSL.



Physical Configuration

If problems occur after altering the network configuration, restore the original connections, and try to track the problem down by implementing the new changes, one step at a time. Ensure that cable distances and other physical aspects of the installation do not exceed recommendations.

System Integrity

As a last resort verify the switch integrity with a power-on reset. Turn the power to the switch off and then on several times. If the problem still persists and the user has completed all the preceding diagnoses, then contact the user's dealer.

Appendix E: Compliance Information

FCC Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a computing device, pursuant to Part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. 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 the 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 or more of the following measures:

- 1. Reorient or relocate the receiving antenna.
- 2. Increase the separation between the equipment and receiver.
- 3. The equipment and the receiver should be connected to outlets on separate circuits.
- 4. Consult the dealer or an experienced radio/television technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could prevent the user's authority to operate the equipment.

If this telephone equipment causes harm to the telephone network, the telephone company will let the user know in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, users will be advised of the right to file a complaint with the FCC if users believe it is necessary.



The telephone company may make changes to its facilities, equipment, operations or procedures that could affect the proper functioning of user equipment. If they do, the user will be notified in advance in order for user to make necessary modifications to maintain uninterrupted service.

This equipment may not be used on the coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

FCC Warning



This equipment has been tested to comply with the limits for a **Class A** digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment can generate, use, and radiate radio frequency energy and, if not installed and used in accordance with the

instruction manual, may cause harmful interference to radio communications. 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 owner's expense.

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.



RoHS Mark Warning



RoHS stands for Restriction of Hazardous Substances and impacts the entire electronics industry and many

electrical products as well. The original RoHS, also known as Directive 2002/95/EC, originated in the European Union in 2002 and restricts the use of six hazardous materials found in electrical and electronic products. All applicable products in the EU market from July 1, 2006, must pass RoHS compliance. Directive 2011/65/EU was published in 2011 by the EU, which is known as RoHS-Recast or RoHS 2. RoHS 2 includes a **CE-marking directive**, with RoHS compliance now being required for CE marking of products. RoHS 2 also added Categories 8 and 9 and has additional compliance recordkeeping requirements. Directive 2015/863 was published in 2015 by the EU, which is known as RoHS 3. RoHS 3 adds four additional restricted substances (phthalates) to the list of six.

WEEE Warning



To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the cross-out wheeled bin symbol. Do not dispose of WEEE is unsorted municipal waste and has to collect such WEEE separately.



NV-700L Managed Single Master / Slave LAN Extender USER'S MANUAL Ver. B.7

ErP Power Usage

This device is an Energy Related Product (ErP) with High Network Availability (HiNA). If it is not needed during certain periods of time, it can be unplugged to save energy.

Network Standby: 4 watts



Warranty

The original product that the owner delivered in this package will be free from defects in material and workmanship for one-year parts after purchase.

There will be a minimal charge to replace consumable components, such as fuses, power transformers, and mechanical cooling devices. The warranty will not apply to any products which have been subjected to any misuse, neglect or accidental damage, or which contain defects which are in any way attributable to improper installation or to alteration or repairs made or performed by any person not under the control of the original owner.

The above warranty is in lieu of any other warranty, whether express, implied, or statutory, including but not limited to any warranty of merchantability, fitness for a particular purpose or any warranty arising out of any proposal, specification or sample. We shall not be liable for incidental or consequential damages. We neither assume nor authorize any person to assume for it any other liability.

WARNING WARNING:

Warranty Void If Removed 1.DO NOT TEAR OFF OR REMOVE THE WARRANTY STICKER AS SHOWN, OR THE WARRANTY IS VOID. 2.WARRANTY VOID IF USE COMMERCIAL-GRADE POWER ADAPTER IS USED AT HARSH ENVIRONMENTS.



Chinese SJ/T 11364-2024

	有毒有害物质或元素									
部件名称	铅(Pb)	汞 (Hg)	镉(Cd)	六价铬 [Cr(VI)]	多溴联苯 (PBB)	多溴二苯 醚(PBDE)	邻苯二甲 酸二(2- 乙基己 基)酯 (DEHP)	邻苯二甲 酸丁酯苯 甲酯 (BBP)	邻苯二甲 酸二丁酯 (DBP)	邻苯二甲 酸二異丁 酯 (DIBP)
结构壳体	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
电路组	0	\bigcirc	0	\bigcirc	0	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc
电源供应器	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc
线材	0	\bigcirc	0	\bigcirc	0	0	\bigcirc	\bigcirc	\bigcirc	\bigcirc
包装及配件	0	\bigcirc	\bigcirc	\bigcirc	0	0	\bigcirc	\bigcirc	0	0
○:表示该有毒物质在该部件所有均质材料中的含量均在 GB/T 39560 标准规定的限量要求以下。 ×:表示该有毒物质至少在该部件的某依均质材料中的含量超出 GB/T 39560 标准规定的限量要求。										

上述规范仅适用於中国法律