**User Manual** 

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# **Chapter 1 Overview**

NMC (Network Management Card) can receive the status information of UPS, and also can send commands to control UPS. User can manage UPS with NMC via web browser or via network management software which supports SNMP protocol.

Once UPS output is abnormal or other events are touched off, NMC will protect server or client operating system being shut down safely by working with system protect software (SPS) that can be installed on various operating system. The conditions include: UPS output abnormal, UPS battery low, UPS overload, over temperature, schedule shutdown, etc. User can set the condition, once the event is touched off, NMC will inform SPS of the event and SPS will shut down operating system safely according to the setting of SPS.

Note: NMC is short for Network Management Card in the following description.

# 1.1 NMC package contents

- 1. NMC with mounting bracket, packaged with ESD bag.
- 2. RJ45 to DB9 converter cable.
- 3. Quick Installation Guide.
- 4. NMC CD-ROM.

# **1.2 NMC CD Resources**

NMC CD-ROM contains NMC Utility, Quick Installation Guide, User Manual, MIB files, System Protect Software for various OS, and NMC firmware upgrade SOP.

- 1. NMC Utility --- for searching NMC in LAN and linking to web of the card
- 2. Quick Installation Guide --- for describing how to configure NMC
- 3. User Manual --- for NMC function introduction and settings
- 4. MIB files --- for SNMP monitoring use
- 5. System Protect Software --- for protecting server or client operating system shutdown safely
- 6. NMC firmware upgrade SOP --- for describing how to upgrade NMC firmware

# 1.3 Features

#### • UPS management by network connection through RJ45 connector

User can monitor UPS status and control UPS via web browser on the internet.

• UPS and NMC configuring via SNMP protocol

User can configure parameters of NMC and control UPS via SNMP protocol on a network management station.

- RTC function supporting
- Standard MIB (RFC1628.mib) and user-defined MIB (EPPC.mib)
- EMP (Environment Monitoring Probe) supporting
- SSL supporting
- Operating system shutdown safely

System Protect Software can protect server or client operating system shutdown safely.

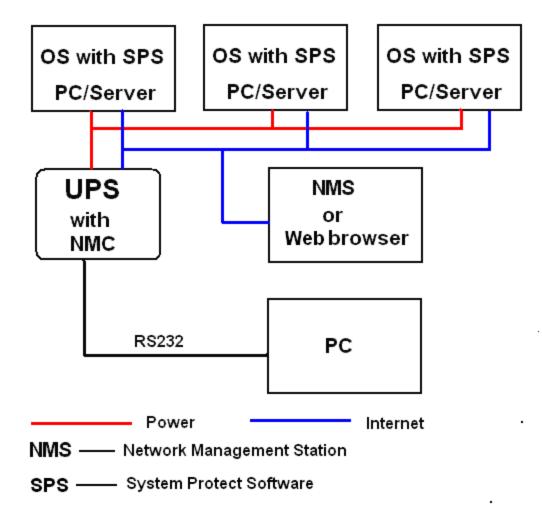
Redundant UPS input shutdown

If there is more than one UPS supply power to server, user can configure the redundant UPS input shutdown function of SPS (System Protect System), SPS will shut down server safely when the last one UPS can't supply power.

# **1.4 NMC Applications**

NMC is kind of SNMP (Simple Network Management Protocol) manager to communicate UPS via Ethernet, it provides access information and send commands for the UPS. NMC supports two communicating protocols which are SNMP and HTTP for application. Through NMS (Network Management Station) or web browser user can access UPS information via Ethernet directly, meanwhile user can manage both UPS and NMC parameters as well.

NMC provides an application program which named SPS (System Protect Software) for multi-servers shutdown purpose. The program provides shutdown function for different operating systems when shutdown events are appearing on UPS. Shutdown events are configurable by user. The shutdown software will proceed the automatic shutdown orderly to prevent the abnormal shut-off of the clients or servers.

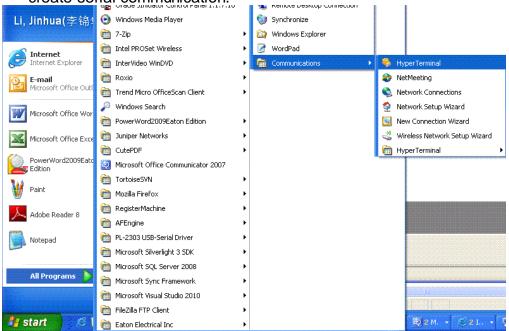


# Chapter 2 NMC parameters setting via serial COM port

There are more methods for NMC parameters setting: setting via serial COM port, setting via telnet program, setting via SSH, and setting via web browser. It offers basic parameters setting through a serial COM port for NMC configuration such as IP Configuration, Pass Through, and Reset Configuration to default, Restart and Password. In this section, it particularly introduces the parameters setting via serial COM port. It is worth mentioning that the telnet/SSH program settings menu is same with the serial port settings.

# 2.1 Configure NMC via serial COM port

- 1. Prepare a computer (with Microsoft Windows XP or later version)
- 2. Insert NMC into UPS's intelligent slot exactly.
- 3. Tighten NMC with screw.
- 4. Connect the serial port of computer with NMC via RJ45 to DB9 converter cable, the cable is supplied in NMC package.
- 5. On the computer with Microsoft Windows, for XP operation system, select **Hyper Terminal** from **start→all programs** to communicate with serial port; For XP above version, communicate with serial port via serial port debug tool (Putty is used as example in this manual).
- For Windows XP or other Windows operation system that support Hyper Terminal, select Accessories 
   Communication 
   Hyper Terminal to create serial communication.



Input a name and select the connection icon.

Connection Description
New Connection
Enter a name and choose an icon for the connection:
Name:
NMC
lcon:
🔊 🗟 🗞 🗠 🗞 🔊
OK Cancel

Select the correct connection port.

Connect To	? 🛛
🦓 ммс	
Enter details for	the phone number that you want to dial:
<u>C</u> ountry/region:	United States (1)
Ar <u>e</u> a code:	1
<u>P</u> hone number:	
Co <u>n</u> nect using:	СОМЗ
	OK Cancel

Configure the parameters of the serial port: **9600** bps, **8** bits, **None** parity, **1** stop bit and **None** flow control.

COM3 Properties	? 🛛
Port Settings	
<u>B</u> its per second:	9600
<u>D</u> ata bits:	8
<u>P</u> arity:	None
<u>S</u> top bits:	1
Elow control:	None
	<u>R</u> estore Defaults
	K Cancel Apply

For XP above Windows version, communicate with serial port via serial port via serial port debug tool. Double click Putty icon
 putty.exe
 , open Putty and select serial session, configure the correct serial port and baud rate 9600 bps.

Category:	
Session     Logging     Connection     Connection     Connection     Proxy     Telnet     Rlogin      SSH	Basic options for your PuTTY session         Specify the destination you want to connect to         Serial line       Speed         COM1       9600         Connection type:       Image: Comparison of the second
	Sav <u>e</u> d Sessions          Default Settings       Load         Save       Delete
Serial	Close window on e <u>xi</u> t: Always Never Only on clean exit

Select "Serial" node on the left tree, and configure the parameters of the serial port on the right window: **9600** bps, **8** bits, **None** parity, **1** stop bit and **None** flow control. And then open the putty serial communication window by click "open" button.

R PuTTY Configuration		<b>X</b>				
Category:						
	Options controlling local serial lines					
united Logging ⊡n Terminal	Select a serial line					
Keyboard	Serial line to connect to	COM1				
Bell Features	Configure the serial line					
. Window	Speed (baud)	9600				
Appearance Behaviour	Data <u>b</u> its	8				
···· Translation	Stop bits	1				
Selection Colours	<u>P</u> arity	None 👻				
	Flow control	None 👻				
Orata     Proxy     Telnet     Rlogin     SSH     Senal						
About	<u>O</u> per	<u>C</u> ancel				

6. Please turn on UPS and waiting NMC start successfully, there will be some information shown on the hyper terminal interface. Refer to the following diagram, input NMC password, the default password of NMC is password

NMC Version X.X.X.X

+========	=========		=====:		======	=======	========	==============+
1	Network	Management	Card	Configure	Menu			
+========	========	============	=====		=====		========	==============+

Password:\_

ł

After inputting the NMC password, all main menus will be shown on the 7. hyper terminal interface, refer to the following diagram.

\_\_\_\_\_ \_\_\_\_\_ Network Management Card Configure Menu 

- 1. IP Configurations 2. Pass Through
- Reset Configuration to default
- 4. Restart
- 5. Change Password
- 0. Exit

Please Enter Your Choice :

8. Basing on the main menus, please select "1" to configure IP address, gateway, subnet mask and DHCP, refer to the following diagram.

+======================================
IP Configure Menu
++
MAC Address : 00:20:85:F7:10:1F
1. DHCP : Enable
IP address : 172.18.127.42
Subnet mask : 255.255.255.0
Gateway : 172.18.127.1
Primary DNS address : 172.18.121.17
Secondary DNS address : 151.110.232.21
7. IPv6 Configure
0. Return to previous menu

Please Enter Your Choice :

- 9. Basing on the main menus, please select "2" to send command to UPS, the function is just for double checking UPS reply data correctly or not.
- 10. Basing on the main menu, please select "3" to configure NMC parameters to default value.
- 11. Basing on the main menus, please select "4" to restart NMC.
- 12. Basing on the main menus, please select "5" to modify NMC password.
- 13. Basing on the main menus, please select "0" to exit main menus. It is suggested exit the main menu page when the configurations is completed, and then close the serial debugging tool.

Note: User can configure NMC through Telnet program; the menu options of Telnet program are as same as the serial port setting menu.

# Chapter 3 NMC&UPS management via web browser

In this section, it particularly introduces how to configure NMC, manage UPS and monitor UPS parameters via web browser.

# 3.1 NMC Parameters setting via web browser

Please Note: Before implementing the NMC setting for all configuring parameters, user has to become NMC administrator first. While configure parameters for NMC via web browser, there will be a pop-up dialog to ask the name and password of NMC administrator. Only NMC password can be changed, regarding to change password by serial COM port, please refer to the item 15 of the section 2.1.

#### 3.1.1 NMC System menu

NMC system menu can be accessed by **Settings→NMC System**. In this menu it offers configuring for DHCP function, default is enabled; NMC IP address; SNMP version; SMTP function; UPS description; UPS location; NMC web language change function and data log interval. Please refer to the following diagram 3.1.1.

Please Note: NMC must restart via Reboot System menu after changed IP address via web browser to make IP setting active immediately.

	NETWORK MAN	AGEMENT CARD FOR UPS	ON-LINE Location: Office 21/01/2014 16:06:28	
PS Monitoring	Settings » NMC System			help
PS Status	System Configuration			
IPS Alarm	BootP/DHCP	Enable 🗸		
PS Parameters	IP Address	172.18.139.60		
IPS Powered Devices	Subnet Mask	255,255,255,0		
PS Identification	Gateway Address	172.18.139.1		
PS Management	Primary DNS	172.18.121.17		
JPS Battery Test JPS Battery Test Schedule		151.110.232.21		
SNMP TRAP Receivers	Secondary DNS			
IPS Configuration	IPv6	Enable		
IPS Control	IPv6 Auto Configuration	Enable 🔽		
JPS Shutdown	IPv6 Address 1			
Shutdown Schedule	Prefix length	0		
ettings	IPv6 Gateway Tunnel	0.0.0.0		
NMC System	IPv6 Local Address	FE80::220:85FF:FEF7:1112		
Reboot System	IPv6 Address 2			
Access Control		Save		
Date and Time				
SNMPv3 USM Table	SNMP Support	SNMP v3		
Wake On LAN	Telnet Connection	Enable 🗸		
Email Notification	SSH Connection	Disable 🗸		
Firmware Upload	SMTP	Enable 🔽		
File Management	Login required for web access	Disable 🗸		
ogs	UPS Description			
JPS Log	UPS Location	Office		
JPS Statistics Log	Default Language	English 🗸		
Event Log System Log	History Log Interval(Sec)	60		
system Log	Statistics Log Interval(Bick)	60		

Diagram 3.1.1

### 3.1.2 Date and Time menu

Date and Time menu can be accessed by **Settings**  $\rightarrow$  **Date and Time**. There are three methods for configuring NMC date and time: configure the date and time of NMC same as user's computer; manually setting the date and time through input the date and time by user self; enter the NTP server address and select a time zone, make the NMC clock synchronized with the NTP server time. Please refer to the following diagram 3.1.2.

-				
← → Ø http://172.18.139.6	0/		○ - C 🤗 Network Management C ×	<b>↑</b> ★ ‡
		NETWORK MAN	GEMENT CARD FOR UPS ON-LINE Location: Offic 22/01/2014 1	
UPS Monitoring	Settir	igs » Date and Time		help
UPS Status				
UPS Alarm	۲	Synchronize with comp	ar time	
UPS Parameters	<b>U</b>	Computer Date(dd/mm/yyyy)	2/01/2014	
UPS Powered Devices		Computer Time(hh:mm:ss)	4:26:18	
UPS Identification		Computer Inne(Int.Int.iss)	4.20.10	
UPS Management	0	Setting manually		
UPS Battery Test UPS Battery Test Schedule		Date (dd/mm/yyyy)		
SNMP TRAP Receivers		Time (hh:mm:ss)		
UPS Configuration		Time (ini.iniii.ss)		
UPS Control	0	Synchronize with NTP s	vortimo	
UPS Shutdown		Server Address	ver time	
Shutdown Schedule			CMT (09:00) Reijing, Hang Kang, Kush Lummur, Singarang, Rath	n. Taipei 🗸
Settings		Time Zone	GMT+08:00) Beijing, Hong Kong, Kuala Lumpur, Singapore, Perth	n, raipei 🔽
NMC System			nable Daylight Saving Time	
Reboot System	Save			
Access Control	Save	3		
Date and Time				
SNMPv3 USM Table				
Wake On LAN				
Email Notification				
Firmware Upload File Management				
Logs				
UPS Log				
UPS Statistics Log				
Event Log				
System Log				
<hr/>				
				🔍 100% 🔻

Diagram 3.1.2

# 3.1.3 Email Notification menu

Email Notification menu can be accessed by **Settings→ Email Notification**. NMC will send an Email to user when UPS event happens. Email Message Setting, there are columns which Mail Server, User Account, User Password, Sender's Email address, Mail Subject Prefix, Mail Server Port, Mail Daily Report At and Attached File must be input according to what user wants to define.

Recipient List Settings, four Email receiver address can be configured at most; user can input description for each Email address. The functions of Mail Type and Event Level are as following.

Email Type:

- None: It means that NMC won't send any Email to the mail account when event happens on UPS.
- Events: It means that NMC will send an Email when to the mail account when event happens on UPS.
- Daily status: It means that NMC will send UPS daily logs reports to the mail account and the delivery time is configured by "Mail Daily Report At" column. Note: user is able to select History Log, Event Log and System Log report by tick Attached File column.

- Events/Status: It means that NMC will send an event report to the mail account when event happens on UPS and meanwhile NMC will send the daily logs reports as well.

Event Level:

- Information: It means that NMC will send an Email to the mail account once event happens on UPS.
- Warning: It means that NMC will send an Email to the mail account once warning event happens on UPS.
- Severe: It means that NMC will send an Email to the mail account once severe event happens on UPS.

Refer to the following diagram 3.1.3.

← → Ø http://172.18.139.6	50/	X I - I - 7 - 9	Q-0	🗿 Network Manag	gement C ×	Auto Autor	- □ × ☆☆袋
		NETWORK MAN	AGEMENT	CARD FOR UPS		ON-LINE Location: Office 22/01/2014 13:37:53	
UPS Monitoring	Settings »	Email Notification					help
UPS Status	Email M	essage Settings					
UPS Alarm	Mail Server		151,110,1	26 205			
UPS Parameters	User Acco		E2015827				
UPS Powered Devices			L2013021				
UPS Identification	User Pass						
UPS Management		mail Address	susanxia(	geaton.com			
UPS Battery Test	Mail Subje	ct Prefix					
UPS Battery Test Schedule	Mail Server	r Port	25				
SNMP TRAP Receivers	Mail Daily S	Status Report At	00:00	]			
UPS Configuration	Attached Fi	iles	History	Log	Event Log	System I	Log
UPS Control	Recipie	nt List Settings					
UPS Shutdown	Index	Mail Account		Description		Mail Type	Event Level
Shutdown Schedule	1	Yigiongzhai@eaton.com		Description		Events/Status V	Information V
Settings		rigiongznai@eaton.com					
NMC System	2					Events/Status 🗸	Information 🔽
Reboot System	3					Events/Status 🗸	Information 🔽
Access Control	4					Events/Status 🗸	Information 🔽
Date and Time							Set Value
SNMPv3 USM Table Wake On LAN				Send	l Test		
Email Notification							
Firmware Upload							
File Management							
UPS Log							
UPS Statistics Log							
EventLog							
System Log							
< >>							
							🔍 100% 🔻

Diagram 3.1.3

## 3.1.4 SNMP TRAP Receivers menu

SNMP trap receivers menu can be assessed by **UPS Management->SNMP TRAP Receivers**. In this menu, the columns NMS IP address, Trap Type, Severity and Description are configured by user's demand. The default of Community Strings column is "public", and it can't change by anyone. Trap type support two trap types which are RFC1628 Trap and EPPC Trap.

Severity:

- Information: It means that NMC will send a trap message to the NMS IP address once event happens on UPS.
- Warning: It means that NMC will send a trap message to the NMS IP address once warning event happens on UPS.

- Severe: It means that NMC will send a trap message to the NMS IP address once severe event happens on UPS.

User can input description for each NMS IP address in description column. Refer to the following diagram 3.1.4.

Der um rigad Beschlich for and Mill. P address in Beschlicher officer-						
	thority_ok.ht	ml 🔎 🗘 - C 🦉 N	letwork Management C ×		ि ☆ 疑	
				ON-LINE		
		NETWORK MANAGEMENT CAR	D FOR UPS	Location: Office		
				22/01/2014 13:40:52		
UPS Monitoring	'S Manager	ment » SNMP TRAP Receivers			help	
	ndex NM	S IP Address	Community String	Тгар Туре	Severity	
UPS Alarm 1	172.	18.139.127	•••••	RFC1628 Trap V	Warning 🗸	
UPS Parameters	172	18.139.27		EPPC Trap	Information V	
UPS Powered Devices		10.100.21	•••••	None V	Information V	
0P3 Identification						
UPS Management 4			•••••	None 🗸	Information 🗸	
UPS Battery Test 5			•••••	None 🗸	Information 🔽	
UPS Battery Test Schedule 6			•••••	None 🗸	Information 🗸	
SNMP TRAP Receivers 7			•••••	None 🗸	Information 🗸	
UPS Configuration 8			•••••	None 🗸	Information V	
UPS Control					Save	
UPS Shutdown						
Shutdown Schedule						
Settings						
NMC System						
Reboot System						
Access Control						
Date and Time						
SNMPv1/2 Configuration						
Wake On LAN Email Notification						
Firmware Upload						
File Management						
UPS Log						
UPS Statistics Log						
EventLog						
System Log						
					>	
					€ 100% ▼ //	

Diagram 3.1.4

## 3.1.5 SNMPv1/2 Configuration

NMC Support SNMPv1 and SNMPv2 monitor, refer to Diagram 3.1.5. User can set SNMPv1 and SNMPv2 community strings.

The default public community string is public. And the private community string is private.

	60/authority_ok.html 🛛 🖓 🗸 🖒 🧟 Netwo	ork Management C ×		☆ 🔅
	NETWORK MANAGEMENT CARD F	OR UPS	ON-LINE Location: Office 22/01/2014 13:41:20	
UPS Monitoring	Settings » SNMPv1/2 Configuration			help
UPS Status	SNMPv1/2 Community Strings			
UPS Alarm	Public Community String	•••••		
UPS Parameters	Private Community String	•••••		
UPS Powered Devices	Thivate continuing carries	••••••		Submit
UPS Identification				Submit
UPS Management				
UPS Battery Test				
UPS Battery Test Schedule				
SNMP TRAP Receivers				
UPS Configuration				
UPS Control				
UPS Shutdown				
Shutdown Schedule				
Settings				
NMC System				
Reboot System				
Access Control				
Date and Time				
SNMPv1/2 Configuration				
Wake On LAN				
Email Notification				
Firmware Upload				
File Management				
Logs				
UPS Log				
UPS Statistics Log				
Event Log 🗸 🗸				
System Log				
< >				
				🔍 100% 🔻 🔡

Diagram 3.1.5

## 3.1.6 SNMPv3 User Management

To enhance security users can enable SNMPv3 management mechanism, NMC can add SNMPv3 user through setting user name and validate password.

EnterSettings  $\rightarrow$  NMC System, select SNMP Support to SNMPv3, the SNMPv3 menu option will appear to the left window, and then select settings  $\rightarrow$  SNMPv3 USM Table to add SNMPv3 user, refer to Diagram 3.1.6.

User need set SNMPv3 user name, Authentication password, Private password, Security level, Authentication, User status.

Security level can choose no Authentication no Private password, Authentication but no Private, or both Authentication and Private password;

Authentication is MD5 encryption mode;

User status can choose enable or disable.

		0.4				
C () ( http://172.18.139.60	0/authority_ok.html	5 <del>-</del> Q	Network Management (	c ×		A ★ A
				ON-LIN		
	N	ETWORK MANAGEMENT	CARD FOR UPS	Location		
				22/01/2	1014 13:42:36	
UPS Monitoring	Settings » SNMPv3	3 USM Table				help
UPS Status		Authentication				
UPS Alarm	User Name	Password	Private Password	Security Level	Authentication	User Status
UPS Parameters				noAuthNoPriv 🗸	HMAC-MD5 🗸	Disable 🗸
UPS Powered Devices				noAuthNoPriv 🗸	HMAC-MD5 V	Disable 🗸
UPS Identification				noAuthNoPriv 🗸	HMAC-MD5 V	Disable 🗸
UPS Management				noAuthNoPriv 🗸	HMAC-MD5 V	Disable V
UPS Battery Test UPS Battery Test Schedule				noAuthNoPriv V	HMAC-MD5 V	Disable V
SNMP TRAP Receivers				noAuthNoPriv V	HMAC-MD5 V	Disable V
UPS Configuration						
UPS Control				noAuthNoPriv 🔽	HMAC-MD5 🗸	Disable 🗸
UPS Shutdown				noAuthNoPriv 🔽	HMAC-MD5 🔽	Disable 🗸
Shutdown Schedule			Save			
Settings						
NMC System						
Reboot System						
Access Control						
Date and Time						
SNMPv3 USM Table						
Wake On LAN						
Email Notification						
Firmware Upload						
File Management						
Logs						
UPS Log						
UPS Statistics Log						
Event Log System Log						
System Log	<					>
	•					100% -

Diagram 3.1.6

# 3.1.7 Wake On LAN

Wake On LAN menu can be accessed by **Settings**  $\rightarrow$  **Wake On LAN.** This menu is used to start up client computer from network by MAC address. When the client PC shutdown cause of UPS shutdown events, "Wake On LAN" packet will send to client to start up PC after shutdown events returned the normal. User can set almost 16 MAC address of client from this page. Refer to Diagram 3.1.7.

JPS Status     I       JPS Alarm     I       JPS Parameters     I       JPS Powered Devices     I       JPS Identification     I       PS Management     I		MAC Address					
IPS Alarm IPS Alarm IPS Parameters IPS Parameters IPS Powered Devices IPS Identification IPS Identification IPS Management IPS	1	MAC Address				h	nelp
IPS Parameters IPS Powered Devices IPS Identification IPS Identificati				Description	Action	s	
PS Powered Devices PS Identification S Management 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		00:20:85:f7:10:0b	1	test 1	Disab	e 🗸	
PS Powered Devices PS Identification S Management	2	00:20:85:f7:10:0c	1	test 2	Disabl	e 🗸	
S Management 4		00.20.00.11.10.00	]		Disab		
omanagement			1		Disabl		
			1				
PS Battery Test	-				Disabl		
PS Battery Test Schedule	6				Disabl	.e 🔽	
NMP TRAP Receivers	7				Disabl	e 🗸	
PS Configuration	3				Disabl	e 🗸	
PS Control	9		1		Disabl	e 🗸	
PS Shutdown	10		1		Disab		
nutuown schedule	11		]		Disab		
			1				
about Curstans	12				Disab		
ccess Control	13				Disabl		
ate and Time	14				Disabl	.e 🗸	
NMPv3 USM Table	15				Disabl	ie 🗸	
	16				Disabl	ie 🗸	
mail Notification			-		,	Test	Save
rmware Upload							
le Management							
IS							
PS Log							
PS Statistics Log							

Diagram 3.1.7

# 3.1.8 Firmware Upload menu

Firmware upload menu can be accessed by **Settings**→**Firmware Upload**. This menu offers upload NMC firmware via web browser. When user is going to upload NMC firmware, user has to become administrator of NMC first. The default name is "*root*", and the default password is "*password*" for login as administrator. Regarding upload NMC firmware procedure, please refer to the file *NMC Firmware Upgrade SOP.pdf* for detail information.

#### 3.1.9 File Management menu

NMC file management menu can be accessed by **Settings**→**File Management**. The function of this menu is uploading files for the same configuration for different NMC. Only **confsnmp.cfg** (about NMC parameters) and **confups.cfg** (about UPS parameters set by NMC) these two files are available for application. After uploaded files NMC has to reboot immediately to make new configuration active. Regarding to reboot NMC system via web browser, please refer to section 3.1.9 and for reboot NMC system via serial COM port, please refer to item 14 in section 2.1. Furthermore it also can reboot NMC system manually by pull-out and push-in NMC from the intelligent slot of UPS.

Note: Once .cfg file is deleted, and then reboots NMC system. The configuration of NMC system and UPS will be back to the default setting.

If user would like to save .cfg and .csv file on local computer, it can be achieved by click the file name directly.

# 3.1.10 System Log menu

NMC system log menu can be accessed by  $Logs \rightarrow System Log$ . The menu allows user to view NMC system logs. Please refer to diagram 3.1.10.

		NET	VORK MANAGEMENT CARD FOR UPS	ON-LINE Location: Office 22/01/2014 13:44:06		
S Monitoring	Logs » Syst	em Log			help	
IPS Status	Date	Time	Descriptio	n		
IPS Alarm	25/12/2013	08:40:39	System manual restarted by user.			Ĩ
IPS Parameters	25/12/2013	08:41:32	System started.			
IPS Powered Devices	25/12/2013	08:51:03	EMP connected			
PS Management	25/12/2013	08:52:38	EMP removed			
IPS Battery Test	25/12/2013	08:54:15	EMP connected			
IPS Battery Test Schedule	25/12/2013	08:55:13	EMP removed			
NMP TRAP Receivers	31/12/2013	13:12:41	System started.			
PS Configuration	02/01/2014	09:04:45	Firmware upgrade begin.			
PS Control	02/01/2014	09:04:45	Firmware upgraded.			
IPS Shutdown	02/01/2014	09:05:38	System started.			
hutdown Schedule	02/01/2014	09:09:22	Firmware upgrade begin.			
ttings	02/01/2014	09:09:22	Firmware upgraded.			
IMC System	01/01/1970	00:00:00	System manual restarted by user.			
eboot System	02/01/2014	09:12:10	System started.			
ccess Control	03/01/2014	07:55:01	System started.			
ate and Time NMPv3 USM Table	05/01/2014	22:19:50	System started.			
Vake On LAN	05/01/2014	00:00:00	· · · · · · · · · · · · · · · · · · ·			
mail Notification		12:27:06	System manual restarted by user.			
irmware Upload	08/01/2014		System started.			
ile Management	09/01/2014	13:09:24	System started.			
gs	09/01/2014	13:23:38	Firmware upgrade begin.			
PS Log	09/01/2014	13:23:38	Firmware upgraded.			
PS Statistics Log	09/01/2014	13:24:34	System started.			
vent Log	09/01/2014	13:27:50	Firmware upgrade begin.			
System Log	09/01/2014	13:27:50	Firmware upgraded.			

Diagram 3.1.10

# 3.1.11 Reboot system menu

NMC reboot system menu can be accessed by **Setting**→**Reboot System**. The menu offers a function for user to reboot NMC system if it is necessary. When user is going to reboot NMC system, user has to become administrator of NMC first. The default name is "*root*" and the default password is "*password*" for login as administrator.

# 3.1.12 Access Control

NMC Access Control menu can be accessed by **Setting**→ **Access Control**. This menu displays a list of the workstations enabled access to NMC. User can enter workstation's IP address in IP Address column. 0.0.0.0 means entry not configured. User can choose access type in Access Type column, the available options are: Enable/Disable. "Enable" means the entry IPs have access to visit NMC via web or SNMP, "Disable" means the entry IPs have no access to visit NMC. For example, an entry 192.168.1.255 means the client with the IP address within the range from 192.168.1.0 to 192.168.1.255 become the management station with the access type set by Administrator. Please note 255.255.255.255 grant the access right to all IP. Please refer to diagram 3.1.12.

		14 18 A	108 181		
	i0/authority_ol	c.html	♀ ー ♂ 🥔 Network Management C		🔓 🕁 🚯
		NETWORK MA	NAGEMENT CARD FOR UPS	ON-LINE Location: Office 21/01/2014 13:34:04	
UPS Monitoring	Settings »	Access Control			help
UPS Status	SNMP/HT	TP Access Table			
UPS Alarm	Index	IP Address		Access Type	
UPS Parameters	1	172.18.255.255		Enable 🗸	
UPS Powered Devices	2	172.18.122.255		Disable V	
UPS Identification	3	255.255.255.255		Enable V	
UPS Management	-				
UPS Battery Test	4	0.0.0.0		Enable 🗸	
UPS Battery Test Schedule	5	0.0.0		Enable 🔽	
SNMP TRAP Receivers	6	0.0.0		Enable 🗸	
UPS Configuration	7	0.0.0		Enable 🗸	
UPS Control	8	0.0.0		Enable 🗸	
UPS Shutdown				,	Submit
Shutdown Schedule					
Settings					
NMC System					
Reboot System					
Access Control Date and Time					
SNMPv1/2 Configuration Wake On LAN					
Email Notification					
Firmware Upload					
File Management					
Logs					
UPS Log					
					<sup>®</sup> 100% ▼

Diagram 3.1.12

# 3.2 UPS monitoring via web browser

## 3.2.1 UPS Status menu

UPS status menu can be accessed by **UPS Monitoring**  $\rightarrow$  **UPS Status**. User can view real-time operating status of the UPS from the web page directly. Please refer to diagram 3.2.1.

Load Segment 1

This shows the current status of load segment 1.

Load Segment 2

This shows the current status of load segment 2

			×
← → @ http://172.1	3.139.91/authority_ok.html 🛛 🔎 🗕 🏈 Net	work Management Card 🗙 🏠 🏠	ç
<u>File Edit View Favorite</u>	s <u>T</u> ools <u>H</u> elp		
	NETWORK MANAGEMENT CARD	P FOR UPS ON-LINE Location: lab123rtet 28/10/2015 10:43:01	
UPS Monitoring	UPS Monitoring » UPS Status	help	_
UPS Status	· · · · · · · · · · · · · · · · · · ·		
UPS Alarm	UPS Status	Line	
UPS Parameters	UPS Temperature	26.9 °C	
UPS Powered Devices	Input	20.3 C	
UPS Identification	Voltage	228.9 V	
UPS Management	Frequency	50.0 Hz	
UPS Battery Test	Output	50.0112	
UPS Battery Test Schedule SNMP TRAP Receivers	Load(%)	0	
UPS Configuration	Voltage	219.8 V	
UPS Control			
UPS Shutdown	Frequency	50.0 Hz	
Shutdown Schedule	Battery		
Settings	Status	Battery Normal	
NMC System	Capacity(%)	83	
Reboot System	Voltage	55.6 V	
Access Control	Time On Battery	00:00:00	
Date and Time	Backup Time	04:52:30	
SNMPv1/2 Configuration	Load Segment		
Wake On LAN	Load Segment 1	On	
Email Notification	Load Segment 2	On	
Firmware Upload	8		
File Management			
< >			

Diagram 3.2.1

# 3.2.2 UPS Alarm menu

UPS Alarm menu can be accessed by **UPS Monitoring** $\rightarrow$ **UPS Alarm**. User can view the current warning of UPS on the interface. Please refer to diagram 3.2.2.

	and the second s		_	
C () (2 http://172.18.139.6	0/authority_ok.html	・ クー C 🦉 Network Management C ×		☆ 🕸
	NETV	VORK MANAGEMENT CARD FOR UPS	ON-LINE Location: Office 22/01/2014 13:44:39	
UPS Monitoring	UPS Monitoring » UPS	Alarm		help
UPS Status	Date and Time	Description		Severity
UPS Alarm	21/01/2014 13:56:32	The UPS temperature is over the setting limit.		WARNING
UPS Parameters	211011201413.30.32	The Or Stemperature is over the Setting limit.		WARNING
UPS Powered Devices				
UPS Identification				
UPS Management				
UPS Battery Test				
UPS Battery Test Schedule				
SNMP TRAP Receivers				
UPS Configuration				
UPS Control				
UPS Shutdown				
Shutdown Schedule				
Settings				
NMC System				
Reboot System				
Access Control				
Date and Time				
SNMPv3 USM Table				
Wake On LAN				
Email Notification				
Firmware Upload File Management				
Logs				
UPS Log				
UPS Statistics Log				
Event Log				
System Log				
<				
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Diagram 3.2.2

#### 3.2.3 UPS Parameters menu

UPS Parameters menu can be accessed by **UPS Monitoring** $\rightarrow$ **UPS Parameters**. User can view the rating parameters of UPS on the interface. Such as rating output voltage, rating output frequency, rating output power, different parameters shown on the interface is depended on different UPS type. Please refer to diagram 3.2.3.

	i0/authority_ok.html	-	- □ ×
	NETWORK MANAGEMENT CARD FOR UPS	ON-LINE Location: Office 22/01/2014 13:45:42	
UPS Monitoring	UPS Monitoring » UPS Parameters		help
UPS Status	Output Rating Voltage	220.0 V	
UPS Alarm	Output Rating Votage	50.0 Hz	
UPS Parameters			
UPS Powered Devices	Output Rating VA	1500 VA	
UPS Identification			
UPS Management			
UPS Battery Test			
UPS Battery Test Schedule			
SNMP TRAP Receivers			
UPS Configuration			
UPS Control			
UPS Shutdown			
Shutdown Schedule			
Settings			
NMC System			
Reboot System			
Access Control			
Date and Time			
SNMPv3 USM Table			
Wake On LAN			
Email Notification			
Firmware Upload			
File Management			
Logs			
UPS Log			
UPS Statistics Log			
Event Log			
System Log			
< >>			
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Diagram 3.2.3

#### 3.2.4 UPS Powered Devices Menu

UPS Powered Devices menu can be accessed by **UPS Monitoring**→**UPS Powered Devices**. The table shows the amount of computers with SPS (System Protect Software) connected with NMC. Once UPS output is abnormal, NMC will send shutdown command to the computer with SPS, and computer will be shut down safely by SPS.

User can test remote computer with SPS shutdown function by configure test event.

Please refer to diagram 3.2.4.

(-) @ http://172.18.139.6	50/authority_ok.html	S Network Management C ×	- □ ×
	NETWORK MANAGEME	NT CARD FOR UPS Location: Office 22/01/2014 13:46:41	
UPS Monitoring	UPS Monitoring » UPS Powered Devices	;	help
UPS Status			
UPS Alarm	The second of second shed she include		
UPS Parameters	The amount of connected devices is:	1	
UPS Powered Devices	Index IP Address	Host Name Date Til	me
UPS Identification	1 172.18.139.21	BAOCNWHP3004159.napa.ad.etn.com 22/01/2014 13:46:31	
UPS Management			
UPS Battery Test	Remote PC Shutdown Test	AC Failed 🗸 S	ubmit
UPS Battery Test Schedule SNMP TRAP Receivers			
UPS Configuration			
UPS Control			
UPS Shutdown			
Shutdown Schedule			
Settings			
NMC System			
Reboot System			
Access Control			
Date and Time			
SNMPv3 USM Table			
Wake On LAN			
Email Notification			
Firmware Upload			
File Management			
Logs			
UPS Log			
UPS Statistics Log			
Event Log			
System Log			
< >	1		<u> </u>
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Diagram 3.2.4

## 3.2.5 UPS Identification menu

UPS Identification menu can be accessed by **UPS Monitoring** $\rightarrow$ **UPS Identification**. There will be UPS type, UPS description (refer to section 3.1.1), UPS firmware version, NMC firmware version and MAC address. Please refer to diagram 3.2.5.

				₩ 🕁 🕅
	NETWOR	MANAGEMENT CARD FOR UPS	ON-LINE Location: Office 22/01/2014 13:47:02	
PS Monitoring	UPS Monitoring » UPS Ider	ification		help
UPS Status	UPS			
UPS Alarm	UPS Model	ON-LINE		
UPS Parameters	UPS Description	ON LINE		
UPS Powered Devices	Firmware Version	05517-0200		
UPS Identification				
PS Management	Network Management C	rd		
UPS Battery Test	Firmware Version	1.4.0.2		
JPS Battery Test Schedule	MAC Address	00:20:85:F7:11:12		
SNMP TRAP Receivers				
JPS Configuration				
JPS Control				
UPS Shutdown				
Shutdown Schedule				
ettings				
NMC System				
Reboot System				
Date and Time				
SNMPv3 USM Table				
Vake On LAN				
Email Notification				
irmware Upload				
ile Management				
ogs				
JPS Log				
JPS Statistics Log				
Event Log				
System Log				
ojotom Log				

Diagram 3.2.5

## 3.2.6 UPS Log menu

UPS Log menu can be accessed by Logs  $\rightarrow$  UPS Log. There are two hundred latest data logs shown on the interface at most. Please refer to diagram 3.2.6. User can export *upsdata.csv* file to view more data logs from file management interface, please refer to section 3.1.7.

		NE	TWORK M/	ANAGEMENT	CARD FOR L	JPS		ON-LINE Location: Office 22/01/2014 13:		
PS Monitoring	Logs » UP	S Log							help	1
UPS Status										
UPS Alarm	Date	Time				Quite ut				
UPS Parameters	Date	Time		nput		Output	Load		attery Time On Battery	
UPS Powered Devices			Voltage	Frequency	Voltage	Frequency	(%)	Capacity(%)	(min)	
JPS Identification	22/01/2014	10:28:10	222.4	49.9	220.0	50.0	0	100	0.0	
PS Management	22/01/2014	10:29:10	222.0	50.0	220.0	49.9	0	100	0.0	
JPS Battery Test	22/01/2014	10:30:10	221.8	49.9	219.6	50.0	0	100	0.0	
JPS Battery Test Schedule SNMP TRAP Receivers	22/01/2014	10:31:10	221.6	49.9	220.3	50.0	0	100	0.0	
JPS Configuration	22/01/2014	10:32:10	220.0	50.0	219.6	50.0	0	100	0.0	
JPS Control	22/01/2014	10:33:10	220.3	50.0	220.0	50.1	0	100	0.0	
UPS Shutdown	22/01/2014	10:34:10	220.3	50.0	220.3	50.0	0	100	0.0	
Shutdown Schedule	22/01/2014	10:35:10	220.0	50.0	220.0	50.0	0	100	0.0	
ettings	22/01/2014	10:36:10	220.5	49.9	220.0	49.9	0	100	0.0	-
NMC System	22/01/2014	10:37:10	220.7	50.0	220.0	50.0	0	100	0.0	
Reboot System	22/01/2014	10:38:10	222.8	50.0	220.0	49.9	0	100	0.0	
Access Control		10:38:10	222.8	50.0	220.0	49.9	0	100	0.0	
Date and Time	22/01/2014									
SNMPv3 USM Table	22/01/2014	10:40:10	222.4	50.0	220.0	50.0	0	100	0.0	
Vake On LAN	22/01/2014	10:41:10	223.1	49.9	219.6	49.9	0	100	0.0	
mail Notification	22/01/2014	10:42:10	222.6	50.0	220.0	50.0	0	100	0.0	
irmware Upload	22/01/2014	10:43:10	222.0	49.9	220.0	49.9	0	100	0.0	
ile Management	22/01/2014	10:44:10	222.0	49.9	219.8	49.9	0	100	0.0	
gs	22/01/2014	10:45:10	222.0	50.0	220.3	49.9	0	100	0.0	
JPS Log	22/01/2014	10:46:10	222.0	49.9	219.8	49.9	0	100	0.0	
JPS Statistics Log	22/01/2014	10:47:10	221.6	49.9	220.5	50.0	0	100	0.0	
vent Log	22/01/2014	10:48:10	221.8	49.9	220.5	50.0	0	100	0.0	
System Log	22/01/2014	10:49:10	220.7	50.0	220.3	50.0	0	100	0.0	

Diagram 3.2.6

# 3.2.7 UPS Statistics Log menu

UPS Statistics Log menu can be accessed by Logs→UPS Statistics Log. This page shows a statistics log of the UPS parameters taken over a period of time. For each of the UPS parameters, minimum, maximum and the average values is shown in each of the records. Please refer to diagram 3.2.7. Statistics log interval can be changed by modifying the variable "Statistics Log Interval" in "NMC System" page.

UPS Battery Test         Start         Start         End         Input Voltage         Input Voltage         Output Voltage           UPS Battery Test Schedule         Time         Min         Avg         Max         Max         Max         Max         Min         Avg         Max         M				NETWO	RK MANAG	GEMENT (	CARD F	OR UP	S		Loca	LINE ation: Of 01/2014	ffice 4 13:35:4	47	
UPS Powered Devices           UPS Identification           PS Management         Date         Input Voltage         Input         Output Voltage           UPS Battery Test         Start         Start         End         Input Voltage         Input         Output Voltage           Min Avg Max		-	Logs » LIP	s Statisti	cs Log										
Start UPS Battery Test UPS Battery Test Schedule SNMP TRAP Receivers         Start Time         Start Date         End Date         Input Voltage         Input Voltage         Output Voltage           06/01/2014         06:20:28         06/01/2014         07:20:28         218.2         221.3         223.7         49.9         49.9         50.0         221.	PS Powered Devices	- ^	Logs / or v	o otatioti	US LOG										
UPS Battery Test         Start         Start         End         Input Voltage         Input Voltage         Input Voltage         Output Voltage           UPS Battery Test Schedule         Nin         Avg         Max         Min         Avg         Max         Max         Max         Max         Min         Avg         Max	S Identification	_													
UPS Battery Test         Date         Time         Date         Time         Min         Avg         Max         Min							Inc	ut Volt	age				Out	nut Vo	Itage
SNMP TRAP Receivers         06/01/2014         06/20:28         06/01/2014         07:20:28         218.2         221.3         223.7         49.9         49.9         50.0         221.0		_	Date	Time	Date	Time			-			-			-
UPS Configuration       06/01/2014       07:20:28       06/01/2014       08:20:28       218.2       221.6       225.1       49.9       50.0       50.0       221.0       221.0       22         UPS Control       06/01/2014       07:20:28       06/01/2014       09:20:28       214.0       218.7       221.0       22.0       50.0       50.0       221.0       221.0       22         UPS Sontrol       06/01/2014       09:20:28       06/01/2014       09:20:28       214.0       218.7       221.0       49.9       50.0       50.0       221.0       22       22         06/01/2014       09:20:28       06/01/2014       11:20:28       211.2       219.5       223.7       49.9       50.0       50.0       210.6       221.0       22         06/01/2014       11:20:28       06/01/2014       11:20:28       215.4       220.7       223.7       49.9       50.0       210.6       22.0       22         06/01/2014       11:20:28       06/01/2014       13:20:28       215.4       220.7       223.7       49.9       50.0       210.6       220.0       22         06/01/2014       13:20:28       06/01/2014       13:20:28       215.4       220.2       224.4       <		- 1						_			_			2	Max
UPS Control         Object 1211         Object 2212         Object 2132         Object 2132 <thoject 2132<="" th=""> <thoject 2132<="" th="">         &lt;</thoject></thoject>		- 1													222.4
Outbody         Object	-	- 1	06/01/2014	07:20:28	06/01/2014	08:20:28	218.2	221.6	225.1	49.9	50.0	50.0	221.0	221.0	222.4
Shutdown Schedule         06/01/2014         09:20:28         06/01/2014         10:20:28         212.6         217.6         219.6         49.9         49.9         50.0         221.0         221.0         222.0         221.0         <		- 1	06/01/2014	08:20:28	06/01/2014	09:20:28	214.0	218.7	221.0	49.9	50.0	50.0	221.0	221.0	222.4
Object         Object<		- 1	06/01/2014	09:20:28	06/01/2014	10:20:28	212.6	217.6	219.6	49.9	49.9	50.0	221.0	221.0	222.4
NMC System         06/01/2014         11:20:28         06/01/2014         12:20:28         215.4         222.3         23.7         49.9         49.9         50.0         216.6         221.0         22           Reboot System         06/01/2014         12:20:28         06/01/2014         13:20:28         215.4         220.7         23.7         49.9         49.9         50.0         216.6         220.9         22           Access Control         06/01/2014         13:20:28         06/01/2014         14:20:28         215.4         220.2         22.4         49.9         50.0         216.6         220.9         22           Date and Time         06/01/2014         14:20:28         06/01/2014         15:20:28         216.8         220.3         22.4         49.9         50.0         216.6         221.0         22           Wake On LAN         06/01/2014         15:20:28         06/01/2014         16:20:28         215.4         210.0         222.4         49.9         49.9         50.0         210.6         221.0         22           Wake On LAN         06/01/2014         15:20:28         06/01/2014         17:20:28         215.4         210.7         222.4         49.9         50.0         210.0         221.0 </td <td></td> <td></td> <td>06/01/2014</td> <td>10:20:28</td> <td>06/01/2014</td> <td>11:20:28</td> <td>211.2</td> <td>219.5</td> <td>223.7</td> <td>49.9</td> <td>50.0</td> <td>50.0</td> <td>219.6</td> <td>221.0</td> <td>221.0</td>			06/01/2014	10:20:28	06/01/2014	11:20:28	211.2	219.5	223.7	49.9	50.0	50.0	219.6	221.0	221.0
Reboot System         06/01/2014         12:20:28         06/01/2014         13:20:28         215.4         220.7         223.7         49.9         49.9         50.0         219.6         220.9         223           Access Control         06/01/2014         13:20:28         06/01/2014         14:20:28         215.4         220.7         223.7         49.9         49.9         50.0         219.6         220.9         223           Date and Time         06/01/2014         14:20:28         06/01/2014         14:20:28         216.8         220.3         222.4         49.9         50.0         219.6         220.9         223           SNMPV/2 Configuration         06/01/2014         14:20:28         06/01/2014         15:20:28         06/01/2014         15:20:28         214.0         219.5         222.4         49.9         49.9         50.0         219.6         221.0         223           Wake On LAN         06/01/2014         16:20:28         06/01/2014         17:20:28         215.4         219.7         222.4         49.9         49.9         50.0         219.6         221.0         223           Make On LAN         06/01/2014         16:20:28         06/01/2014         17:20:28         215.4         219.7         2	_		06/01/2014	11:20:28	06/01/2014	12:20:28	215.4	222.3	223.7	49.9	49.9	50.0	219.6	221.0	221.0
Access Control         06/01/2014         13:20:28         06/01/2014         14:20:28         215.4         220.2         222.4         49.9         50.0         50.0         219.6         220.9         222           Date and Time         06/01/2014         14:20:28         06/01/2014         15:20:28         216.8         220.3         222.4         49.9         50.0         50.0         219.6         221.1         222           SNMPv1/2 Configuration         06/01/2014         14:20:28         06/01/2014         16:20:28         214.0         219.5         222.4         49.9         49.9         50.0         219.6         221.0         222           Wake On LAN         06/01/2014         16:20:28         06/01/2014         17:20:28         215.4         219.5         222.4         49.9         49.9         50.0         219.6         221.0         222           Brimware Upload         06/01/2014         16:20:28         06/01/2014         17:20:28         215.4         219.7         222.4         49.9         50.0         20.0         21.0         22.10         22.10         22.10         22.10         22.10         22.10         22.10         22.10         22.10         22.10         22.10         22.10         2		- 1	06/01/2014	12:20:28	06/01/2014	13:20:28	215.4	220.7	223.7	49.9	49.9	50.0	219.6	220.9	221.0
Date and Time         06/01/2014         14:20:28         06/01/2014         15:20:28         216.8         220.3         222.4         49.9         49.9         50.0         219.6         221.1         222           SNMPv1/2 Configuration         06/01/2014         15:20:28         06/01/2014         16:20:28         214.0         219.5         222.4         49.9         49.9         50.0         219.6         221.0         22           Wake On LAN         06/01/2014         16:20:28         06/01/2014         17:20:28         215.4         219.5         222.4         49.9         49.9         50.0         219.6         221.0         22           Benail Notification         06/01/2014         17:20:28         06/01/2014         17:20:28         215.4         219.7         222.4         49.9         50.0         20.0         221.0         22           Biologication         06/01/2014         17:20:28         06/01/2014         18:20:28         215.4         219.7         222.4         49.9         50.0         50.0         221.0         22           Biologication         06/01/2014         18:20:28         05/01/2014         215.9         215.4         219.7         222.4         49.9         50.0         50.0		-	06/01/2014	13:20:28	06/01/2014	14:20:28	215.4	220.2	222.4	49.9	50.0	50.0	219.6	220.9	222.4
SNMPv1/2 Configuration         06/01/2014         15:20:28         06/01/2014         16:20:28         214.0         219.5         222.4         49.9         49.9         50.0         219.6         221.0         222           Wake On LAN         06/01/2014         16:20:28         06/01/2014         17:20:28         214.0         219.5         222.4         49.9         49.9         50.0         21.0         221.0         222           Email Notification         06/01/2014         17:20:28         06/01/2014         18:20:28         215.4         219.7         222.4         49.9         50.0         221.0         221.0         222           Firmware Upload         06/01/2014         18:20:28         06/01/2014         19:20:28         215.4         219.7         222.4         49.9         50.0         50.0         221.0         221.0         222           Firmware Upload         06/01/2014         18:20:28         215.4         219.7         223.7         49.9         50.0         50.0         221.0         221.0         221.0		-	06/01/2014	14:20:28	06/01/2014	15:20:28	216.8	220.3	222.4	49.9	49.9	50.0	219.6	221.1	222.4
Wake On LAN         06/01/2014         16:20:28         06/01/2014         17:20:28         215.4         221.0         222.4         49.9         49.9         50.0         221		-	06/01/2014	15:20:28	06/01/2014	16:20:28	214.0	219.5	222.4	49.9	49.9	50.0	219.6	221.0	221.0
Email Notification         06/01/2014         17:20:28         06/01/2014         18:20:28         215.4         219.7         222.4         49.9         50.0         50.0         221.0         221.0         222.4           Firmware Upload         06/01/2014         18:20:28         06/01/2014         18:20:28         215.4         219.7         222.4         49.9         50.0         50.0         221.0	-	-	06/01/2014	16:20:28	06/01/2014	17:20:28	215.4	221.0	222.4	49.9	49.9	50.0	221.0	221.0	221.0
Firmware Upload 06/01/2014 18:20:28 06/01/2014 19:20:28 215.4 220.8 223.7 49.9 50.0 50.0 221.0 2	nail Notification	-													221.0
File Management	rmware Upload	-													221.0
	e Management	-													
pgs v 06/01/2014 20:20:28 06/01/2014 21:20:28 216.8 222.3 225.1 49.9 50.0 50.0 221.	-														221.0 221.0

Diagram 3.2.7

# 3.2.8 Event Log menu

Event Log menu can be accessed by  $Logs \rightarrow Event Log$ . There are two hundred latest event logs shown on the interface at most. Please refer to diagram 3.2.8. User can export *upsevent.csv* file to view more event logs from file management interface, please refer to section 3.1.7.

		NET	ON-LINE VORK MANAGEMENT CARD FOR UPS 22/01/2014 13:48:08		
JPS Monitoring	Logs » Eve	nt Log		help	
UPS Status	Date	Time	Description		
UPS Alarm	25/12/2013	08:45:39	WARNING: Utility power not available.		
UPS Parameters	25/12/2013	08:47:39	INFORMATION: Utility power has restored.		
UPS Powered Devices	25/12/2013	08:48:25	WARNING: Utility power not available.		
UPS Identification	25/12/2013	08:51:29	INFORMATION: Utility power has restored.		
JPS Management UPS Battery Test	25/12/2013	08:52:08	WARNING: Utility power not available.		
UPS Battery Test Schedule	25/12/2013	08:53:09	INFORMATION: Utility power has restored.		
SNMP TRAP Receivers	25/12/2013	08:53:41	WARNING: Utility power not available.		
UPS Configuration	25/12/2013	08:55:45	INFORMATION: Utility power has restored.		
UPS Control	31/12/2013	13:12:51	WARNING: UPS Output Off.		
UPS Shutdown	31/12/2013	13:22:26			
Shutdown Schedule	31/12/2013		INFORMATION: UPS Output On.		
Settings		13:22:26	INFORMATION: The UPS has enabled bypass.		
NMC System	31/12/2013	13:22:30	INFORMATION: The UPS is not on Bypass and return to normal status.		
Reboot System	02/01/2014	20:30:57	WARNING: Utility power not available.		
Access Control	02/01/2014	20:37:09	SEVERE: The UPS batteries are low and will soon be exhausted.		
Date and Time	02/01/2014	20:43:35	WARNING: The UPS batteries capacity is lower than setting limit.[29% < 30%]		
SNMPv3 USM Table	02/01/2014	20:46:30	WARNING: UPS Output Off.		
Wake On LAN	05/01/2014	19:52:53	WARNING: Utility power not available.		
Email Notification	05/01/2014	20:02:16	SEVERE: The UPS batteries are low and will soon be exhausted.		
Firmware Upload	05/01/2014	20:04:38	WARNING: The UPS batteries capacity is lower than setting limit.[29% < 30%]		
File Management	05/01/2014	20:07:32	WARNING: UPS Output Off.		
.ogs UPS Log	08/01/2014	17:22:02	WARNING: Utility power not available.		
UPS Log UPS Statistics Log	08/01/2014	17:22:04	INFORMATION: Utility power has restored.		
Event Log	09/01/2014	16:57:56	WARNING: Utility power not available.		
System Log	09/01/2014	17:07:27	SEVERE: The UPS batteries are low and will soon be exhausted.		
< >	09/01/2014	17:09:59	WARNING: The UPS batteries capacity is lower than setting limit.[29% < 30%]		

Diagram 3.2.8

# 3.3 UPS control via web browser

Please Note: Before implementing the NMC setting for all configuring parameters, user has to become NMC administrator first. While configure parameters for NMC via web browser, there will be a pop-up dialog to ask the name and password of NMC administrator. Only NMC password can be changed, regarding to change password by serial COM port, please refer to the item 15 of the section 2.1.

#### 3.3.1 UPS Battery Test menu

UPS Battery Test menu can be accessed by **UPS Management→UPS Battery Test**. UPS battery latest test result and test time is shown on the interface. User can configure "Quick Battery Test", "Test Until Battery Low", "Timed Test", "Cancel Test" and "Clear Test Information". For some offline UPS, UPS can't support "Test Until Battery Low" and "Timed Test" function, the function is depended on UPS firmware. Please refer to diagram 3.3.1.

E http://172.18.139.6	i0/authority_ok.html	♀ ♂ Ø Network Management C ×		- □ × ☆ ☆
	NETWORK MAN/	AGEMENT CARD FOR UPS	ON-LINE Location: Office 22/01/2014 13:48:32	
UPS Monitoring	UPS Management » UPS Battery	Test		help
UPS Status	Last Test Record			
UPS Alarm	Last Test Start Time	21/01/2014 15:47:23		
UPS Parameters	Last Test Elapsed Time	00:00:13		
UPS Powered Devices	Last Test Result	No Failure		
UPS Identification		INO Fallule		
UPS Management	Battery Test Parameters			
UPS Battery Test	Battery Test Setting Time(Min)	1		
UPS Battery Test Schedule	Battery Test Command	Quick Battery Test		
SNMP TRAP Receivers	Battery rest command	Save		
UPS Configuration UPS Control				
UPS Shutdown				
Shutdown Schedule				
Settings				
NMC System				
Reboot System				
Access Control				
Date and Time				
SNMPv3 USM Table				
Wake On LAN				
Email Notification				
Firmware Upload				
File Management				
Logs				
UPS Log				
UPS Statistics Log				
Event Log				
System Log				
< >				
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Diagram 3.3.1

#### 3.3.2 UPS Battery Test Schedule menu

#### UPS Battery Test Schedule menu can be accessed by UPS

Management→UPS Battery Test Schedule. User can configure schedule test on specific day or weekly day. User can configure "Quick Battery Test", "Test Until Battery Low" and "Timed Test". "Battery Test setting Time" is for "Timed Test" function. For some offline UPS, UPS can't support "Test Until Battery Low" and "Timed Test" function, the function is depended on UPS firmware. Please refer to diagram 3.3.2.

		NE	TWO	RK MANAGEMENT		ON-LIN	IE n: Office
		NE	TWO	RK MANAGEMENT	CARD FOR UPS		2014 13:48:55
JPS Monitoring	UPS Mai	nagement »	UPS	Battery Test Sched	lule		help
UPS Status				Specific Day	Test Time		Battery Test Setting
UPS Alarm	Index	Test Day		(dd/mm/yyyy)	(hh:mm)	Test Actions	Time(Min)
UPS Parameters	1	Monday	$\mathbf{\vee}$	00/00/0000	10:00	Quick Battery Test 🗸	1
UPS Powered Devices	2	Tuesday		00/00/0000	10:00	Quick Battery Test	1
UPS Identification	3	Specific Day		12/01/2014	10:00	Test Until Battery Low	1
JPS Management							
UPS Battery Test	4	Disabled	$\mathbf{\sim}$	00/00/0000	00:00	None 🗸	1
UPS Battery Test Schedule	5	Disabled	~	00/00/0000	00:00	None 🗸 🗸 🗸	1
SNMP TRAP Receivers	6	Disabled	$\sim$	00/00/0000	00:00	None 🗸 🗸 🗸	1
UPS Configuration	7	Disabled	$\checkmark$	00/00/0000	00:00	None 🗸 🗸	1
UPS Control						Save	
UPS Shutdown	L						
Shutdown Schedule Settings							
NMC System							
Reboot System							
Access Control							
Date and Time							
SNMPv3 USM Table							
Wake On LAN							
Email Notification							
Firmware Upload							
File Management							
3							
ogs							
-							
UPS Log							
UPS Log UPS Statistics Log Event Log							

Diagram 3.3.2

## 3.3.3 UPS Control menu

UPS Control menu can be accessed by **UPS Management**-> **UPS Control**. User can control UPS output on or off on the interface, please refer to diagram 3.3.3.

When selecting "UPS turn off" item, NMC will send shutdown command to UPS, UPS will shut down output once the delay time has run out. When selecting "UPS Sleep" item, NMC will send shutdown command to UPS, UPS will shut down output once the delay time has run out, and UPS will turn on output once the UPS sleep time has run out. When selecting "UPS Turn on / Cancel shutdown" item, NMC will send cancel shutdown command to UPS, and UPS will turn on output. Users can manual Turn On or Turn off UPS Load Segment in this page.

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			The second se	
	NETWORK MANAGEMENT CAR	D FOR UPS	ON-LINE Location: Office 21/01/2014 13:37:11	
UPS Status	UPS Management » UPS Control			help
UPS Alarm	UPS Shutdown Delay (Sec)	120		
UPS Parameters				
UPS Powered Devices	UPS Sleep Time (Min)	1		
UPS Identification	Operation	None	$\checkmark$	
UPS Management	Load Segment 1	Turn On 🔽		
UPS Battery Test	Load Segment 2	Turn On 🔽		
UPS Battery Test Schedule		Save		
SNMP TRAP Receivers				
UPS Configuration				
UPS Control				
UPS Shutdown				
Shutdown Schedule				
Settings				
NMC System				
Reboot System				
Access Control				
Date and Time				
SNMPv1/2 Configuration				
Wake On LAN				
Email Notification				
Firmware Upload				
< >				
			<b>e</b> ( :	100% 🔻 🔐

Diagram 3.3.3

# 3.3.4 UPS Shutdown Schedule menu

UPS Shutdown Schedule menu can be accessed by **UPS Management→UPS Shutdown Schedule**. User can control UPS output on or off on specific day or on weekly day, please refer to diagram 3.3.4.

	NET	TWORK MANAGEMENT CARD FO	RUPS	ON-LINE Location: Offic 22/01/2014 1	
JPS Monitoring	UPS Management »	UPS Shutdown Schedule			help
UPS Status	Weekly				
UPS Alarm	Shutdown Day	Shutdown Time(hh:mm)	Restart Day	Postart	Time(hh:mm)
UPS Parameters	· · · ·	18:00		09:00	(international)
UPS Powered Devices	Monday 🗸				
UPS Identification	Tuesday 🔽	18:00	Friday 🔽	09:00	
UPS Management	Disable 🗸	00:00	Disable 🔽	00:00	
UPS Battery Test	Disable 🗸	00:00	Disable 🔽	00:00	
UPS Battery Test Schedule	Disable 🗸	00:00	Disable 🗸	00:00	
SNMP TRAP Receivers	Disable V	00:00	Disable 🗸	00:00	
UPS Configuration	Disable V	00:00	Disable V	00:00	
UPS Control		00.00		00.00	
UPS Shutdown	Specific Day				
Shutdown Schedule	Shutdown Day	Shutdown Time	Restart Day	R	estart Time(hh:mm)
Settings	(dd/mm/yyyy)	(hh:mm)	(dd/mm/yyyy)		
NMC System	28/01/2014	18:00	29/01/2014		:00
Reboot System	00/00/0000	00:00	00/00/0000		:00
Access Control	00/00/0000	00:00	00/00/0000	00	:00
Date and Time	00/00/0000	00:00	00/00/0000	00	:00
SNMPv3 USM Table	00/00/0000	00:00	00/00/0000	00	:00
Wake On LAN	00/00/0000	00:00	00/00/0000	00	:00
Email Notification	00/00/0000	00:00	00/00/0000		:00
Firmware Upload					
File Management	00/00/0000	00:00	00/00/0000	00	:00
Logs					Save
UPS Log					
UPS Statistics Log					
Event Log					

Diagram 3.3.4

# 3.3.5 UPS Shutdown menu

UPS Shutdown menu can be accessed by **UPS Management** $\rightarrow$ **UPS Shutdown**. Please refer to diagram 3.3.5. When the selected event happens, NMC will inform the computer installed with SPS (System Protect System) of the event and send the shutdown command to the computer. Here, the computer installed with SPS is the computer shown on UPS powered devices interface (refer to section 3.2.4).

Action type:

- Disable: It means that NMC will do nothing even the event happens on UPS.
- Warning: It means that NMC will inform the computer installed with SPS of the event once the shutdown condition happens.
- Client Shutdown: It means that NMC will inform the computer installed with SPS of the event and send shutdown command to the computer once the shutdown condition happens.
- "UPS Turn Off" means that NMC will inform the computer installed with SPS of the event, send shutdown command to the computer, and also send shutdown command to UPS once the shutdown condition happens, when the delay time has run out, UPS will shut down output. The default value of delay time is 120 seconds.

Warning period means the overall time the warning will be repeatedly once event happens. Warning interval means that NMC will inform the event to the computer installed with SPS every short period once event happens. N= (Warning period / Warning interval) +1, N means the warning times.

Please Note: for client shutdown setting information, please refer to System Protect Software User Manual.pdf

- < 🥖 🥖 http://172.18.139.6		♀ ♥ 🦉 Network Man	<u> </u>	☆ ☆
	NETWORK MAI	NAGEMENT CARD FOR UPS		E n: Office 2014 13:49:43
S Monitoring	UPS Management » UPS Shutdo	own		help
JPS Status			Warning Period	Warning Interval
JPS Alarm	Event	Actions	(Sec)	(Sec)
JPS Parameters	AC Failed	Client Shutdown	900	30
JPS Powered Devices	Battery Low	Client Shutdown	400	10
JPS Identification	UPS Overload	Client Shutdown	900	30
PS Management JPS Battery Test	UPS Over Temperature	Client Shutdown	900	30
JP's Battery Test Schedule	Weekly Schedule	Client Shutdown	<ul> <li>✓ 900</li> </ul>	30
SNMP TRAP Receivers				
JPS Configuration	Specific Day	Client Shutdown		30
JPS Control	EMP Temperature Threshold	Client Shutdown	900	30
JPS Shutdown	EMP Humidity Threshold	Client Shutdown	900	30
Shutdown Schedule	EMP Alarm-1	Client Shutdown	900	30
ettings	EMP Alarm-2	Client Shutdown	900	30
NMC System	Below Battery Capacity Setting	Client Shutdown	•	30
Reboot System				
Access Control	Cancel UPS Shutdown i	f events Restored in Shutdown D	elay 🔲	
Date and Time		UPS Shutdown Delay(	Sec) 120	
SNMPv3 USM Table				Save
Nake On LAN				
Email Notification				
irmware Upload				
ile Management				
ogs JPS Log				
IPS Statistics Log				
vent Log				
system Log				

Diagram 3.3.5

# 3.3.6 UPS Configuration menu

UPS Configuration menu can be accessed by **UPS Management→UPS Configuration**. User can configure the limited point of UPS overload and over-temperature. For Innova UPS, User can configure UPS buzzer bee. User can configure the limited point of EMP temperature value and humidity value. User can configure the warning setting of EMP: "Normally open", "Normally closed" or "Not used". User also can configure UPS last replaced date. User can set the lower limit of battery capacity. When the battery capacity is below the set point, NMC will take action that is specified in the UPS Shutdown menu. The default value is 30%. User can set the lower limit of battery backup time. When the battery backup time is below the set point, NMC will take action that is specified in the UPS Shutdown menu.

#### Load Segment

The Load Segment Control feature contains parameters to control each UPS load segment.

#### Shutdown Timer

Shut down the appointed load segment when the utility power fails for the amount of time equal to the setting time. The value range is -1 to 32,767 seconds.

#### Startup Timer

Start up the appointed load segment when the set timer expires after utility power is restored. The value range is -1 to 32,767 seconds.

Refer to the following diagram 3.3.6.

(-) A http://172.18.	.139.91/authority_ok.htm	n Q-C	A Netwo	ork Managemen	t Card X		
<u>File Edit View Favorites</u>	<u>1</u> 00is <u>H</u> eip						
NETWORK MANAGEMENT CARD FOR UPS ON-LINE Location: lab123rtet 28/10/2015 10:46:30							
UPS Monitoring	UPS Management »	UPS Configurat	ion			help	
UPS Status	UPS						
UPS Alarm	Over Load Set Point(%			21			
UPS Parameters							
UPS Powered Devices	Over Temperature Set	Point(°C)		50			
UPS Identification	Buzzer			Off 🗸			
UPS Management	Save						
UPS Battery Test							
UPS Battery Test Schedule	EMP	Auto 🗸					
SNMP TRAP Receivers	Sensor	Description			Low Point	High Point	
UPS Configuration	Temperature(°C)	uu			✓ 10	44	
UPS Control	Humidity(%)	rwr			46	99	
UPS Shutdown	Alarm-1						
Shutdown Schedule		hty			Normally Open		
Settings	Alarm-2	asewe			Normally Open	'	
NMC System	Save						
Reboot System							
Access Control	UPS Battery						
Date and Time	Last Replace Date(dd/r	nm/yyyy)		03/07/2015			
SNMPv1/2 Configuration Wake On LAN	Shutdown when battery	capacity is below(%	6)	30			
Email Notification	Shutdown when battery	backup time is belo	w(Min)	0			
Firmware Upload	Save		< <i>/</i>				
File Management	curo						
	Load Segment						
UPS Log			Shutdown ti	mer	Startup timer		
UPS Statistics Log	Load Segment 1(Sec)		130				
Event Log					0		
System Log	Load Segment 2(Sec)		130		U		
	Save						
< >							

Diagram 3.3.6

# Chapter 4 NMC & UPS management via SNMP

Please note: if user wants to use NMC via SNMP protocol, please make sure IP address and Gateway of NMC correct. Please refer to section 2.1 or section 3.1.1 for IP address and Gateway settings.

NMC support SNMP protocol, user can manage NMC and UPS via SNMP NMS (Network Management Station). Load the NMC MIB to the database of SNMP NMS, and user can read or configure the parameters of NMC and UPS. The read community strings is "*public*", and the write community strings is "*private*." NMC support two type MIB: one is *RFC1628.mib*, the other is *EPPC.mib*. MIB files can be found in NMC CD-ROM packaged with NMC.

Furthermore, NMC can be monitored by Winpower software via SNMP protocol. For more detail information, please refer to the user manual of Winpower.

# **Chapter 5 NMC Utility - Find NMC in the LAN**

Via NMC Utility, user can find NMC automatically and quickly in the LAN. User can link to the web of NMC. Please refer to the following diagram.

NMC Utility				
Tasks:	Devices:			
Device Info	IP Address	MAC Address	Product	
	172.18.127.114	00:20:85:f7:10:14	Network Management 🜔	
<u>R</u> efresh List	172.18.127.99	00:20:85:f7:10:18	Network Management 🦉	
Close	J			

NMC Utility can be found in NMC CD-ROM packaged with NMC, NMC Utility supports Windows XP / Windows 7.