



NuPOE-1SL & NuPOE-4SLM User's Manual



Foreword

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Revision History

Date	Version	History
2021/10/28	1.0	First version.
2023/8/1	1.1	Add telnet and web upgrade function.



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1. NuPOE-1SL & NuPOE-4SLM Overview

1.1. General Descriptions



NuPOE-1SL



NuPOE-4SLM

NuPOE-1SL is a perfect PoE loading test solution with the capability up to 85W per channel, which ideally complies with IEEE 802.3bt and 802.3af/at types as a whole. Advancing from NuPOE-1SL, NuPOE-4SLM is composed with four 85W pair sets and each single pair set can perform individually. For special specifications, 90W power built-in load modules NuPOE-4SLM-90W are also provided.

The standard of 802.3bt introduces two innovative PD topologies - Single Signature and Dual Signature. A “Single Signature PD” shares the same detection signature, classification signature, and maintain power signature between both pair sets, while a “Dual Signature PD” has independent signatures on each pair set.

PD classes 5~8 are also added in 802.3bt in the range of 40W~71W, making total 9 PoE classes in total. It is also selectable for Layer 1 or Layer 2 in PSE to classify the PD which meets this feature as well (by Link Layer Discovery Protocol). In addition, under Single Signature the selection of “Autoclass” intelligently detects connected PD’s maximum power consumption and defines the class relevantly.

Single Signature PD	
Class	Maximum Power from PSE
0	13W
1	3.84W
2	6.49W
3	13W
4	25.5W
5	40W
6	51W
7	62W
8	71W

Sourcing from PSE, Xtramus’ NuPOE-1SE or NuPOE-4SLM provides two RJ-45 ports for each pair set to separate data and power, thus the data can be forwarded to NuStreams platform or others’ to run data test simultaneously.

Deriving from PSE, NuPOE-1SL and its built-in cooling fans are not required to equip with external power to work. As to the model with four channels, NuPOE-4SLM, 12V DC external power is required to drive more high-speed cooling fans.



1.2. Key Features and Main Applications

Key Features

- Compliant with 802.3bt and 802.3af/at standards
- Full 0~8 PD classes
- Max. 85W per channel, configurable during loading test
- Complete test for PoE Ethernet traffic
- Standard 19" rack mountable for efficient space management
- Quick and efficient configuration by toggle switches

Main Applications

- Capability and endurance verification of continuous power feeding from PSE
- Compatibility test to PSE
- Power supply confirmation in cabling system
- For efficient production test plans



1.3. NuPOE-1SL Overview



NuPOE-1SL Front Side

1.3.1. NuPOE-1SL Specification

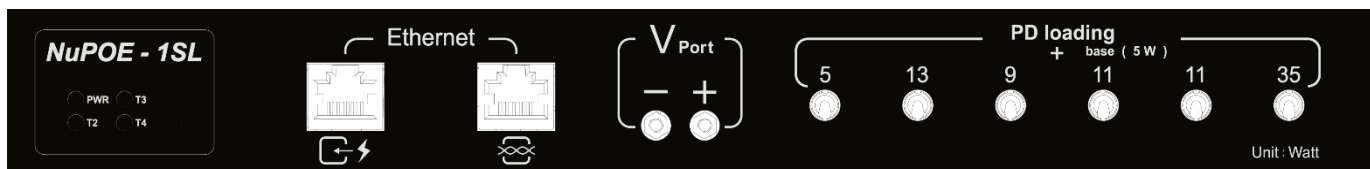
NuPOE-1SL Specification	
Capacity	1 Channel
Powered Source	From PSE
Management Port	Reserved
Number of Cooling Fan	2
Ethernet Speeds	10M/100M/1000M/2.5G/5G/10Gbps
Standards Followed	IEEE 802.3-2005 Clause 33 (IEEE802.3af), IEEE802.3at, IEEE 802.3bt
PoE Power Budget	5~85W($\pm 2.5\%$) per channel
Dimension	300 mm x 162.8 mm x 35.6 mm
Temperature	Operation : 0°C~ 40°C (32°F~ 104°F) Storage : 0°C~ 50°C (32°F~ 122°F)
Humidity	Operation : 0% ~ 85% RH (Non-condensing) Storage : 0% ~ 85% RH (Non-condensing)



Note: If user need to use 10Gbps link, in order to avoid the packet loss and error packet, please use Cat 6a cable, ensure the length less than 70m, and the test duration is less than 5 minutes.



1.3.2. NuPOE-1SL Front Panel

NuPOE-1SL's front panel includes LEDs, Power Port, Data Port, Vport, and PD Loading switches.



NuPOE-1SL Front Panel	
LEDs	PWR: Power Status T2, T3, T4: PoE Type
Power Port & Data Port	 : Power Port: Connect to PSE.  Data Port: Forward data to Ethernet test platform like as Xtramus' NuStreams.
Vport	Used for measure the volt of power from PSE.
PD Loading Switch	6 toggle switches correspond to 5W, 13W, 9W, 11W, 11W and 35W loading.



1.4. NuPOE-4SLM Overview



NuPOE-4SLM Front Side



NuPOE-4SLM Back Side

1.4.1. NuPOE-4SLM Specification

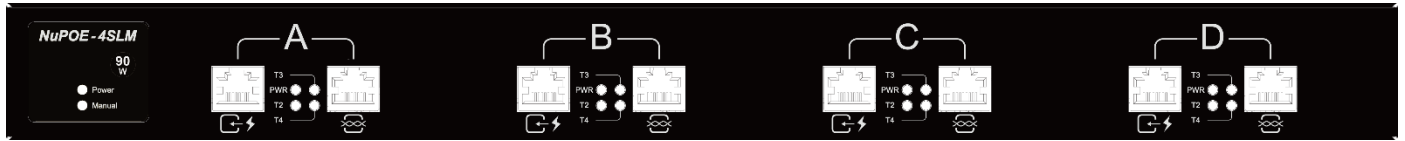
NuPOE-4SLM Specification		
Model	NuPOE-4SLM	NuPOE-4SLM-90W
Capacity	4 Channels (Individual)	
Powered Source	From PSE & DC 12V	
Management Port	Web Management	
Number of Cooling Fan	12	
Ethernet Speeds	10M/100M/1000M/2.5G/5G/10Gbps	
Standards Followed	IEEE 802.3-2005 Clause 33 (IEEE802.3af), IEEE802.3at, IEEE 802.3bt	
PoE Power Budget	5~85W($\pm 2.5\%$) per channel	5~90W($\pm 2.5\%$) per channel
Dimension	443.6 mm x 322.5 mm x 44 mm	
Temperature	Operation : 0°C~ 40°C (32°F~ 104°F) Storage : 0°C~ 50°C (32°F~ 122°F)	
Humidity	Operation : 0% ~ 85% RH (Non-condensing)	Storage : 0% ~ 85% RH (Non-condensing)



Note: If user need to use 10Gbps link, in order to avoid the packet loss and error packet, please use Cat 6a cable, ensure the length less than 70m, and the test duration is less than 5 minutes.



1.4.2. NuPOE-4SLM Front Panel

NuPOE-4SLM's front panel includes System LEDs and 4 test channels (A ~D), each channel has 1 Power Port, 1 Data Port, and 4 Port Status LEDs.

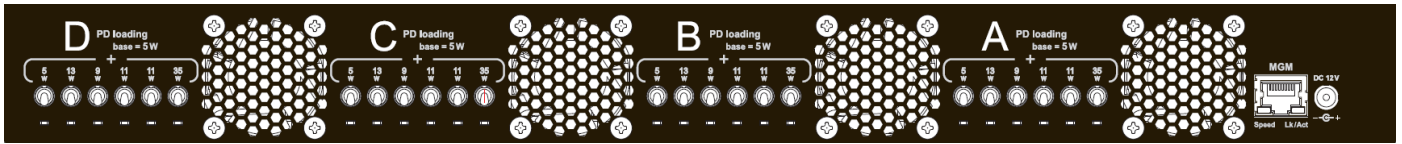


NuPOE-4SLM Front Part	
System LEDs	Power: Power Status Manual: Reserved.
Power Port & Data Port (Channel A~D)	 Power Port: Connect to PSE.  Data Port: Forward data to Ethernet test platform like as Xtramus' NuStreams.
Port Status LEDs	Powered: The Power Port has been powered by PSE. T2, T3, T4: PoE Type (for NuPOE-4SLM-90W, these LEDs will not light up)



1.4.3. NuPOE-4SLM Back Panel

NuPOE-4SLM's back panel includes 4 sets of PD Loading switches for channel A~D, management port, and DC power jack.



NuPOE-4SLM Back Panel Description	
PD Loading Switch (Channel A~D)	6 toggle switches correspond to 5W, 13W, 9W, 11W, 11W and 35W loading
Management Port	For web management
Power Source	External Power Adapter DC 12V

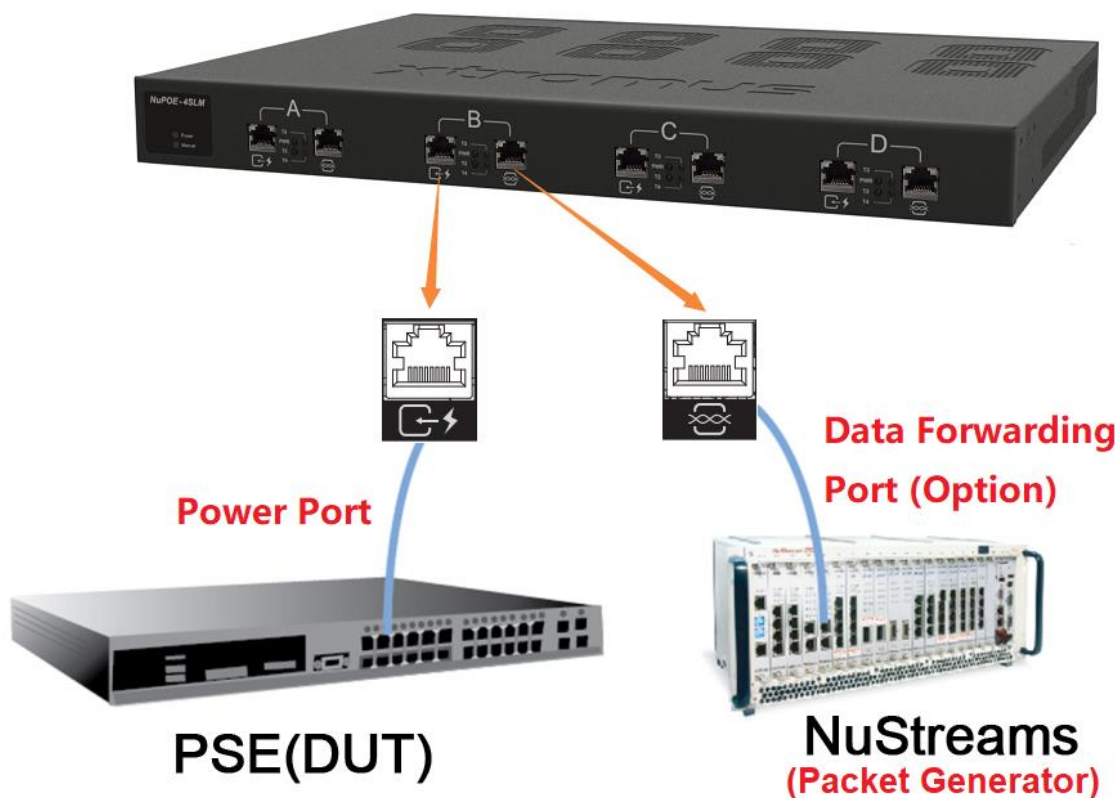


2. NuPOE-1SL & NuPOE-4SLM Operation

Every channel of NuPOE-1SL and NuPOE-4SLM includes two ports, one as PD loader and the other to forward data to Ethernet test platform like as Xtramus' NuStreams.

2.1. Hardware Installation

Below is the illustration to the traffic and PoE performance of the DUT simultaneously. In this case, the PSE is connected to the "Power" port and the NuStreams is connected to the "Data" port. For PoE test, NuPOE-1SL and NuPOE-4SLM act as PDs loading power from the PSE. For traffic tests, NuPOE-1SL and NuPOE-4SLM bypass the data flow to NuStreams.



With rack mount design, multiple NuPOE-1SL or NuPOE-4SLM are able to work at the same time even to test massive PSE equipment.

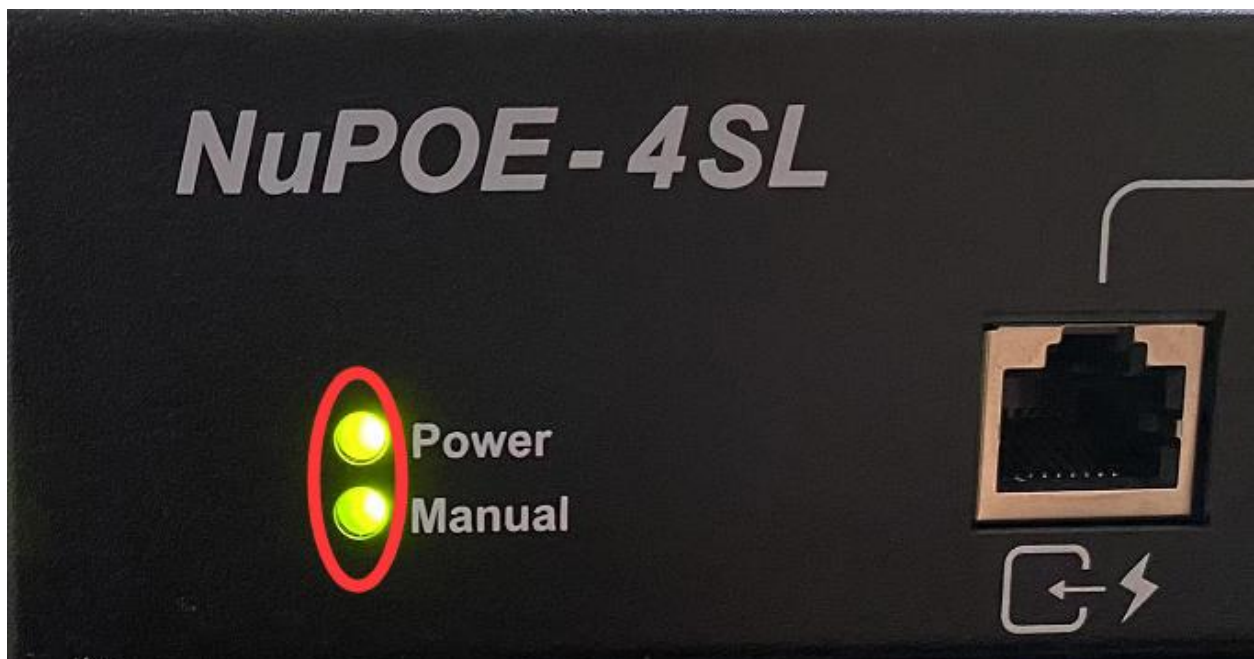


2.2. Hardware Operation for POE Test

- When NuPOE-1SL' power port connect to PSE switch, it will get the power from PSE automatically, the PWR LED and POE Type LED will turn on, and the fans start working.



- When NuPOE-4SLM power on, the Power LED and Manual LED will turn on, and some of the fans start working.



When NuPOE-4SLM's power port connect to PSE switch, it will get the power from PSE



automatically, the Powered LED and Status LED of this channel will turn on, and the fans of this channel start working.



The base PD power loading is about 5W with no toggle switches turned on, and below is the PSE management web display:

Local Port	PD class	Power Requested	Power Allocated	Power Used	Current Used	Priority	Port Status
1	4	30 [W]	30 [W]	5.3 [W]	100 [mA]	High	PoE turned ON

There are toggle switches around the front side of NuPOE-1SL and rear side of NuPOE-4SLM for the settings of power loading, there are values 5W, 13W, 9W, 11W, 11W and 35W to the toggle switches to turn on or drop. The calculation of total power is base 5W + all the values of toggle switches turned on. For example, if the 13W switch has been turned on, the PD loading is about 18W(5+13),



PSE management web display:



Local Port	PD class	Power Requested	Power Allocated	Power Used	Current Used	Priority	Port Status
1	4	30 [W]	30 [W]	20.2 [W]	378 [mA]	High	PoE turned ON

If the 5W and 11W switches had been turn on, the PD loading is about 21W(5+5+11).



PSE management web display:

Local Port	PD class	Power Requested	Power Allocated	Power Used	Current Used	Priority	Port Status
1	4	30 [W]	30 [W]	23 [W]	430 [mA]	High	PoE turned ON



2.3. PoE Voltage Measurement on NuPOE-1SL

As mentioned above, the voltage of PSE power can be measured at the NuPOE-1SL's Vport. The figure down below shows the operation.



The voltage measured:





3. NuPOE-4SLM Web Management

NuPOE-4SLM is embedded with a configuration webpage, and can be accessed by connecting the MGM port to the network which your PC is connected to.

Before accessing to NuPOE-4SLM's configuration webpage with PC's web browser, please check PC's IP, subnet mask, and gateway addresses according to NuPOE-4SLM's IP address. The default IP address of NuPOE-4SLM is **192.168.1.8**.

3.1. Accessing NuPOE-4SLM Webpage

To access NuPOE-4SLM's configuration webpage, please open your web browser, and type in NuPOE-4SLM's IP address in web browser's URL field. Please note that the IP address inputted here is only an example, and may not apply to your network environment.

A window will pop up after you entering NuPOE-4SLM's IP address. Please enter the Username and Password.

- **Default username: admin**
- **Default password: admin***


***Please note that the username and password are case-sensitive.**

For safety issues, it is highly recommended that you should change the username and password when logging to the webpage for the first time.



3.2. NuPOE-4SLM Webpage - System

3.2.1. System Information



NuPOE-4SLM

- ▶ **System**
 - System Information
 - ▶ System Configuration
 - IP Setting
 - Relay Setting
- ▶ **Maintenance**
 - Upgrade
 - Save Changes
 - System Reboot
 - Factory Defaults
- ▶ **Language**
 - English
 - 简体中文

System Information

Serial Number	123456789
MAC Address	00:22:A2:66:66:66
Firmware Version	v0.9b107

Management Port

IP Mode	Static
IP Address	192.168.1.8
Subnet Mask	255.255.255.0
Gateway	192.168.1.1

System Information displays NuPOE-4SLM's system information including:

System Information	
Serial Number	NuPOE-4SLM's serial number.
MAC Address	NuPOE-4SLM's MAC address.
Firmware Version	NuPOE-4SLM's current firmware version.
Management Port	
IP Mode	This field displays how NuPOE-4SLM acquires its IP address. <ul style="list-style-type: none">• Static: NuPOE-4SLM's IP, subnet mask, and gateway addresses are assigned manually.• DHCP: NuPOE-4SLM's IP, subnet mask, and gateway addresses are assigned automatically by a DHCP server.
IP Address	NuPOE-4SLM's IP address.
Subnet Mask	NuPOE-4SLM's subnet mask.
Gateway	NuPOE-4SLM's gateway address.



3.2.2. System Configuration

There are 2 options available for **System Configuration**, which includes:

- **IP Setting:** Allows you to set how NuPOE-4SLM will acquire its IP, subnet mask, and gateway addresses. Also, you could input these addresses manually here.
- **Relay Setting:** Allows you to change loading power of each channel.

A. IP Setting

xtramus **NuPOE-4SLM**

► **System**

- System Information
- ▼ **System Configuration**
 - IP Setting
 - Relay Setting

► **Maintenance**

- Upgrade
- Save Changes
- System Reboot
- Factory Defaults

► **Language**

- English
- 简体中文

IP Configuration

IP Mode	<input checked="" type="radio"/> Static <input type="radio"/> DHCP
IP Address	<input type="text" value="192.168.1.8"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>
Gateway IP	<input type="text" value="192.168.1.1"/>
<input type="button" value="Apply"/>	

IP Configuration	
IP Mode	<p>You can choose how NuPOE-4SLM acquires its IP, subnet mask, and gateway addresses. There are two modes available:</p> <ul style="list-style-type: none">• Static: You have to input NuPOE-4SLM's IP, subnet mask, and gateway addresses manually in the fields down below.• DHCP: NuPOE-4SLM acquires its IP, subnet mask, and gateway addresses automatically from network's DHCP server.
IP Address	You can input NuPOE-4SLM's IP address here in this field.
Subnet Mask	You can input NuPOE-4SLM's subnet mask here in this field.
Gateway	You can input NuPOE-4SLM's gateway address here in this field.
Apply	Apply the changes you've made here.

* Note: The settings in the figure above are only examples, and might not work with your network environment.



B. Relay Setting

xtramus

- ▶ **System**
 - System Information
 - ▼ **System Configuration**
 - IP Setting
 - **Relay Setting**
- ▶ **Maintenance**
 - Upgrade
 - Save Changes
 - System Reboot
 - Factory Defaults
- ▶ **Language**
 - English
 - 简体中文

NuPOE-4SLM

Relay Configuration

Cable A						Manual Input
<input type="checkbox"/> 5W	<input type="checkbox"/> 13W	<input type="checkbox"/> 9W	<input type="checkbox"/> 11W(A)	<input type="checkbox"/> 11W(B)	<input type="checkbox"/> 35W	
Cable B						Manual Input
<input type="checkbox"/> 5W	<input type="checkbox"/> 13W	<input type="checkbox"/> 9W	<input type="checkbox"/> 11W(A)	<input type="checkbox"/> 11W(B)	<input type="checkbox"/> 35W	
Cable C						Manual Input
<input type="checkbox"/> 5W	<input type="checkbox"/> 13W	<input type="checkbox"/> 9W	<input type="checkbox"/> 11W(A)	<input type="checkbox"/> 11W(B)	<input type="checkbox"/> 35W	
Cable D						Manual Input
<input type="checkbox"/> 5W	<input type="checkbox"/> 13W	<input type="checkbox"/> 9W	<input type="checkbox"/> 11W(A)	<input type="checkbox"/> 11W(B)	<input type="checkbox"/> 35W	
						Apply

Relay Configuration	
Cable A/B/C/D	Set the loading of the channel.
Apply	Apply the changes you've made here.



3.3. NuPOE-4SLM Webpage - Maintenance

4 options are available in the **Maintenance** configuration webpage: **Upgrade**, **Save Changes**, **System Reboot**, and **Factory Defaults**.

3.3.1. Upgrade

xtramus **NuPOE-4SLM**

- System
 - System Information
 - System Configuration
 - IP Setting
 - Relay Setting
- Maintenance
 - Upgrade
 - Save Changes
 - System Reboot
 - Factory Defaults
- Language
 - English
 - 简体中文

Upgrade Firmware

Choose Update file

No file chosen

Upgrade Firmware	
Choose File	Click the button to choose the firmware file you would like to upgrade. NuPOE-4SLM's firmware files are in the format of "*.bin" .
Send	Click this button to start upgrading NuPOE-4SLM's firmware.

*Note: After upgrade the firmware, the settings will be set to factory default value.

3.3.2. Save Changes

xtramus **NuPOE-4SLM**

- System
 - System Information
 - System Configuration
 - IP Setting
 - Relay Setting
- Maintenance
 - Upgrade
 - Save Changes
 - System Reboot
 - Factory Defaults
- Language
 - English
 - 简体中文

Save Changes

The device configuration will be saved to Non-volatile RAM !

Save Changes	
Save	If you don't save the setting you've made via NuPOE-4SLM's configuration webpage, all settings will be erased after rebooting NuPOE-4SLM. Please click the "Save" button to save the settings to NuPOE-4SLM's NV-RAM.

3.3.3. System Reboot



- ▶ **System**
 - System Information
 - ▼ System Configuration
 - IP Setting
 - Relay Setting
- ▶ **Maintenance**
 - Upgrade
 - Save Changes
 - System Reboot
 - Factory Defaults
- ▶ **Language**
 - English
 - 简体中文

System Reboot

System Reboot
Warning! System will reboot now! All unsaved data/settings will be lost after system reboot.
<input type="button" value="Reboot"/>

System Reboot

Reboot

You can reboot NuPOE-4SLM by clicking the “**Reboot**” button. Please note that all unsaved settings will be lost after system reboot.

3.3.4. Factory Defaults

- ▶ **System**
 - System Information
 - ▼ System Configuration
 - IP Setting
 - Relay Setting
- ▶ **Maintenance**
 - Upgrade
 - Save Changes
 - System Reboot
 - Factory Defaults
- ▶ **Language**
 - English
 - 简体中文

Restore Default Settings

Restore to Default Settings
Warning! System will restore all settings to default settings! All data and previous settings will be lost after restore to default settings.
<input type="button" value="Restore"/>

Factory Defaults

Restore

You can set all NuPOE-4SLM's settings to the default value by clicking the “**Restore**” button. Please note that all unsaved data/settings will be lost after restoring NuPOE-4SLM's settings to default value.

3.4. NuPOE-4SLM Webpage – Language

- ▶ **Language**
 - English
 - 简体中文

NuPOE-4SLM's web UI provides 2 languages: **English** and **Simplified Chinese**.



4. NuPOE-4SLM Telnet Management

4.1. Telnet Settings for NuPOE-4SLM

Before setting Telnet for NuPOE-4SLM, please activate this service on your PC.

Establishing Connection with NuPOE-4SLM

```
Telnet 192.168.1.8
Xtramus Telnet Server
NuPOE-4SLM
Login: admin
Password:
Logged in successfully
Press 'q' to quit
```

1. Please click **Start** button on your desktop, than choose: **Run...**→type **CMD**→click **OK**→type **telnet 192.168.1.8**→click **Enter**.
2. Type **"admin"** on the **user name** and **user password** field to access the NuPOE-4SLM system.

4.2. NuPOE-4SLM Telnet Commands

After logging in NuPOE-4SLM via telnet, a **NuPOE-4SLM Command Line Interface** will be displayed, showing NuPOE-4SLM's telnet commands.

```
NuPOE-4SLM Command Line Interface
Copyright(C) 2023 Xtramus Technologies.All rights reserved.
|
|-----|
|Group A  [a|b|c|d]|
|-----+-----+-----+-----+-----+-----|
|5w  |13w |9w  |11wa|11wb|35w |
|----|----|----|----|----|----|
|off |off |off |off |off |off |
|----|----|----|----|----|----|
|w/W |e/E |r/R |t/T |y/Y |u/U |
|----|----|----|----|----|----|
```

Command	Command Description
a, b, c, d (case-insensitive)	Choose the channel.
w/W, e/E, r/R, t/T, y/Y, u/U	Each letter corresponds to a specific loading, the lowercase represents off , and uppercase represents on .