802.3bt PoE Loading Test Solution
NuPOE-1SL & NuPOE-4SLM

NuPOE-1SL is perfect PoE loading test solution with the capability up to 85W per channel, which ideally complies with IEEE 802.3bt and 802.3af/at{*Note 1} types as a whole. Advancing from NuPOE-1SL, NuPOE-4SLM is composed with four 85W{*Note 2} pair sets and each single pair set can perform individually, and support web and telnet management, user can set loading remotely.

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. NuPOE-1SL and NuPOE-4SLM are Single Signature PD.

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. The RJ-45 port supports 10G BASE-T and Multi-Gigabit NBASE-T, user can increases the transmission speed with the Cat 5e and Cat6a cable, according to the cable type and length, it can supports the different network speed{*Note 3}.

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.

Note 1: NuPOE-4SLM doesn’t support UPOE
Note 2: NuPOE-1SL/4SLM provides 85W built-in load modules for standard shipment, and for special specifications, 90W power built-in load modules NuPOE-4SLM-90W are also provided.
Note 3: 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.

NuPOE-1SL

NuPOE-4SLM

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
- Supports setting load through web pages and telnet(Supported by NuPOE-4SLM)

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

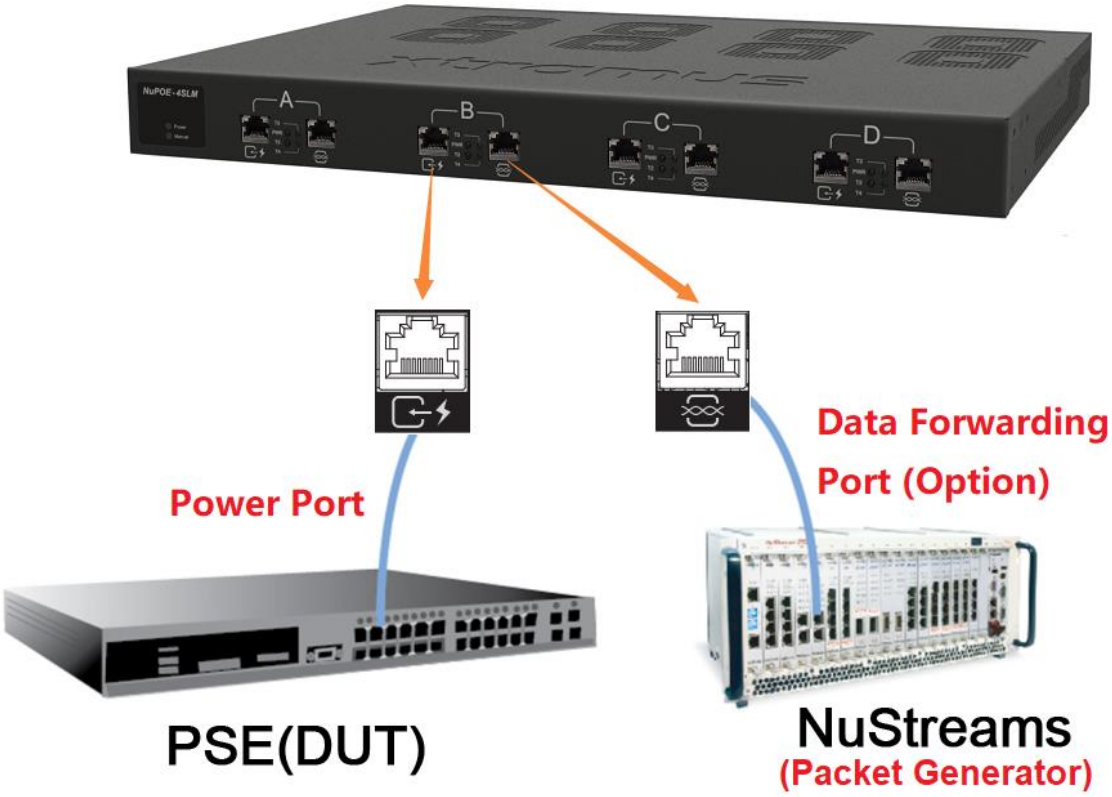
Specification

	NuPOE-1SL	NuPOE-4SLM	NuPOE-4SLM-90W
Capacity	1 Channel	4 Channels (Individual)	
Powered Source	From PSE	From PSE & DC 12V	
Number of Cooling Fan	2	12	
Web and Telnet Management	Not supported	Supported (the default IP address is 192.168.1.8)	
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(±2.5%) per channel		5~90W(±2.5%) per channel
Dimension	300 mm x 162.8 mm x 35.6 mm	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)	

Application Diagram

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.

The figure below shows an example of testing PoE function and data forwarding function of PSE device at the same time. PSE device connected to the power port, and NuStreams chassis connected to data forwarding port.



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

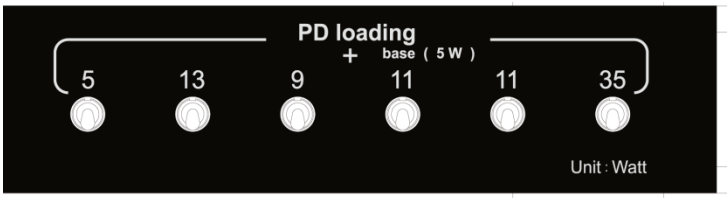
Operation of NuPOE-1SL and NuPOE-4SLM

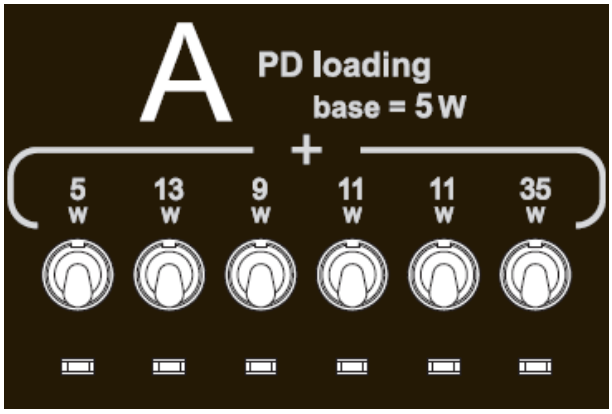
There are toggle switches around the front side of NuPOE-1SL and rear side of NuPOE-4SLM for the settings of power loading. This makes the test more efficient and even does not require any software utility.

NuPOE-1SL Front Side

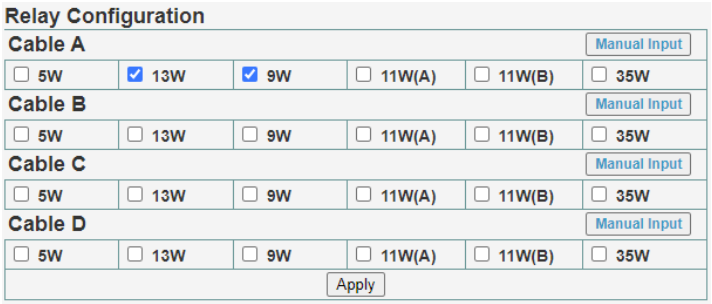
NuPOE-4SLM Rear Side

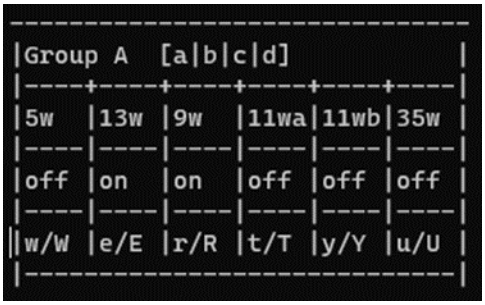
The base PD power loading begins from 5W and there are values 5W, 13W, 9W, 11W, 11W and 35W to the toggle switches to turn on or drop; the calculation of total power is base 5W + all the values of toggle switches turned on.





NuPOE-4SLM also supports web and telnet remote management, user can set loading for each channel through web pages or CLI, and upgrade firmware through web pages.





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