

NETROPY™ N80 HARDWARE GUIDE



Netropy N80 Hardware Guide

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Apposite® Technologies, Inc.

11500 W. Olympic Blvd., Suite 510
Los Angeles, CA 90064 USA
www.apposite-tech.com

tel: 1.310.477.9955
fax: 1.310.477.9956
email: info@apposite-tech.com

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1 | OVERVIEW

This *Netropy N80 Hardware Guide* describes the physical hardware of the Netropy N80 Network Emulator. The companion *User's Guide* describes the installation, configuration, and operation of the Netropy network emulation functionality. A separate *Quick Start Guide* provides a walk-through for first time configuration.



The Netropy N80 contains no user serviceable parts. Opening the chassis voids the warranty. If you believe your unit is not functioning properly, see Section 8 for information on obtaining support.

This guide is for the Netropy N80 hardware revision –P1.

2 | INCLUDED ITEMS

The Netropy N80 shipping carton contains the following items:

- ▶ Netropy N80 hardware unit
- ▶ Rack mount brackets (2) and screws (16)
- ▶ Documentation CD
- ▶ Netropy N80 Quick Start Guide
- ▶ RJ-45 1000baseT SFP transceivers (4)
- ▶ AC power cord (U.S.)
- ▶ RJ-45 to DB-9 serial cable

3 | FRONT AND REAR PANELS

Front Panel



The front panel of the Netropy N80 contains:

CONSOLE: Console interface using RS-232 with an RJ-45 connector. See Section 7 for a pin-out of the console interface.

PORTS 1 - 4: Four 10/100/1000baseT Gigabit Ethernet interfaces with standard RJ-45 connectors used for network emulation.

PORTS 5 - 8: Four Gigabit Ethernet interfaces with modular SFP connectors used for network emulation. The SFP interfaces may be used with any standard Gigabit Ethernet SFP transceiver See Section 6 for more details on the SFP interfaces.

Power LED: Lit green when the unit is powered on. Unlit when power is off.

Emulation interfaces support jumbo frames up to 9 KB.

Rear Panel



The rear panel of the Netropy N80 contains:

Fan outlets: Hot air is vented through the fan outlets.

MGMT: 10/100/1000baseT Gigabit Ethernet interface with a standard RJ-45 connector for management of the unit over the network.

Power input: Standard IEC C14 socket for power input. U.S. and Canadian customers should use the supplied power cord to connect the Netropy N80 to a power outlet. International customers may need to substitute a local power cord with a standard IEC C13 plug. The Netropy N80 supports AC power input from 90 to 264V.

Power switch: The power switch is marked with **O** for OFF and **I** for the ON position.



Please ensure the space around the fan outlet on the back panel and the air intakes on the front panel remains unblocked to provide adequate airflow and prevent overheating..

4 | CAPACITY LIMITATIONS

The Netropy N80 can forward up to 1 Gbps of packets in each direction across all 8 emulation interfaces up to an aggregate maximum of 4 Gbps and a maximum aggregate rate of 4 million packets per second. These limits apply regardless of whether emulation is on or off. These limits may be reduced depending on the classification method used.

To avoid reaching these hardware limitations, high traffic links that are not being used for emulation, and are therefore not being limited by the bandwidth, latency, and other emulation constraints, should be disconnected from the device.

The maximum round trip latency that the Netropy N80 supports depends on the aggregate throughput across all 4 Emulation Engines in each direction along with the packet sizes. The chart below summarizes a few typical examples. Users who need to emulate latencies close to these limits are advised to contact Aposite to discuss their requirements.

Aggregate Throughput	Packet Size			
	64 bytes	500 bytes	1500 bytes	9000 bytes
10 Mbps	>20 sec	>20 sec	>20 sec	>20 sec
100 Mbps	12 sec	>20 sec	>20 sec	>20 sec
1 Gbps	1200 ms	9 sec	9 sec	9 sec
4 Gbps	**	2 sec	2 sec	2 sec

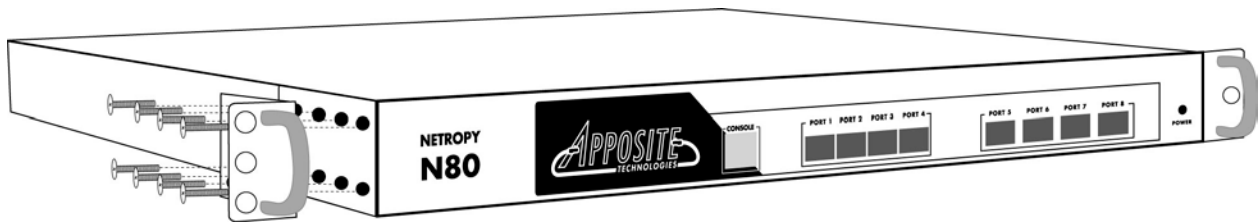
** Not supported by maximum packet rate

Table 1: Maximum Round-Trip Latency

The maximum emulation bandwidth may be limited below the hardware capacity by the device's license key. See the *Netropy User's Guide* for more details on the license key.

5 | RACK MOUNTING

The Netropy N80 includes a pair of brackets for mounting the device into a standard 19" rack. Attach the brackets to both sides of the unit using eight of the supplied screws with each bracket as shown in the diagram below.



6 | SFP INTERFACES

The Netropy N80 has four Gigabit Ethernet small form-factor pluggable (SFP) interfaces, also known as mini-GBIC, for interfaces labeled Ports 5 - 8. SFP interfaces are modular and support both fiber-optic and copper-based cabling depending on the installed transceiver. Standard copper and fiber transceivers are available from a variety of vendors.

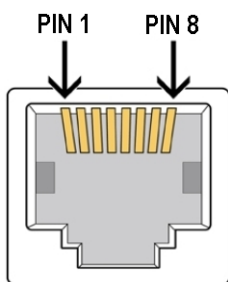
Select an appropriate transceiver type based on network and cabling requirements. Slide the transceiver into the SFP port until it clicks into place.

A set of 4 copper 1000baseT SFP transceivers is included with the Netropy N80 to allow all 8 emulation ports to be connected using basic copper cabling with RJ45 interfaces.

The SFP interfaces only support 1 Gbps full duplex transfer mode regardless of whether a copper or fiber-optic transceiver is used.

7 | CONSOLE INTERFACE

Console access to the Netropy N80 is through the RJ-45 interface on the front panel labeled “CONSOLE.” An RJ-45 to DB-9 cable is included with the unit to connect the device to a standard PC serial port. The pin-out for the RJ-45 interface is shown below:



Pin	Definition	Pin	Definition
1	CTS/RTS	2	DTR
3	TxD	4	GND
5	GND	6	RxD
7	DSR	8	CTS/RTS

To connect to the console, use a terminal or a computer running terminal emulator software such as HyperTerminal or PuTTY, and set the following parameters:

- 9600 baud
- 8 data bits
- No parity
- 1 stop bit
- Disable flow control

8 | APPOSITE SUPPORT

Purchase of the Netropy N80 includes one year hardware warranty and one year of support and maintenance. Extended maintenance packages are available from Apposite or your local Netropy reseller.

If you believe your unit is not functioning properly and is under warranty, please upgrade to the latest firmware release. If the problem persists, please contact Apposite Support at:

support@apposite-tech.com
1.310.477.9955 ext. 2

When contacting Apposite Support, please include the following information:

- ▶ Netropy model
- ▶ Serial number
- ▶ Your e-mail address and phone number
- ▶ Installed firmware version
- ▶ A detailed description of the problem



Do not attempt to fix any hardware problem yourself. The Netropy N80 contains no user serviceable parts. Opening the chassis voids the warranty.

APPENDIX A

Specifications

Capacity		
Max. Emulation Rate		Up to 1 Gbps in each direction on each interface
Max. Aggregate Rate		4 Gbps
Max. Packet Rate		3 million packets per second
Interfaces		
Network		4 x 10/100/1000baseT Copper Gigabit Ethernet 4 x SFP Gigabit Ethernet
Management		1 x 10/100/1000baseT Copper Gigabit Ethernet
Console		1 x RS-232
Environmental and Physical		
AC Input Voltage		Auto ranging 90 VAC to 264 VAC
AC Input Frequency		47 to 63 Hz
AC Input Current		8.0 A Max. 1.4 A Typical
Power Draw		155 Watts
Dimensions		16.8" W x 18.0" D x 1.75" H (1 RU) 42.6 cm W x 45.7 cm D x 4.35 cm H (1 RU)
Weight	Product	18 lbs. (8 kg)
	Shipping	23 lbs. (10 kg)
Temperature	Operating	32° to 104°F (0° to 40°C)
	Storage	-4° to 185°F (20° to 85°C)
Humidity	Operating	10% to 95% (non-condensing)
	Storage	10% to 95% (non-condensing)
Certifications		FCC, CE, RoHS
Warranty and Support		
Hardware warranty		1 year
Support and Maintenance		1 year, including all firmware upgrades

APPENDIX B

Regulatory

Federal Communications Commission Notice

This equipment has been tested and verified to comply with the limits for a Class A digital 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. Operation of this equipment in a residential area may cause harmful interference, in which case the user will be required to take whatever measures may be required to correct the interference at their own expense.

Canadian Notice / Avis Canadien

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

CE Certification

The product described in this manual complies with all applicable European Union (CE) directives, including EU Directives 1999/5/EC Radio Equipment and Telecommunications Terminal Equipment and 2002/95/EC Restriction of Hazardous Substances (RoHS).

APPENDIX C

Netropy End User License Agreement

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Apposite® Technologies, Inc.

11500 W. Olympic Blvd., Suite 510

Los Angeles, CA 90064 USA

www.apposite-tech.com

tel: 1.310.477.9955

fax: 1.310.477.9956

email: info@apposite-tech.com