

NETROPY® 10G2

HARDWARE GUIDE

HARDWARE REVISION 1



Netropy® 10G2 Hardware Guide

Hardware Revision: 1

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1 OVERVIEW

This *Netropy 10G2 Hardware Guide* describes the physical hardware of the Netropy 10G2 Network Emulator, hardware revision 1. 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.

Hardware revision 1 of the Netropy 10G2 can be identified by the model number NSA7110W listed on the regulatory label on the bottom of the chassis and has vent holes across most of the middle of the front of the chassis. All Netropy 10G2 units purchased through May 2017 are hardware revision 1.



The Netropy 10G2 contains no user serviceable parts. Opening the chassis voids the warranty. If you believe your unit is not functioning properly, see Section 9 for information on obtaining support.

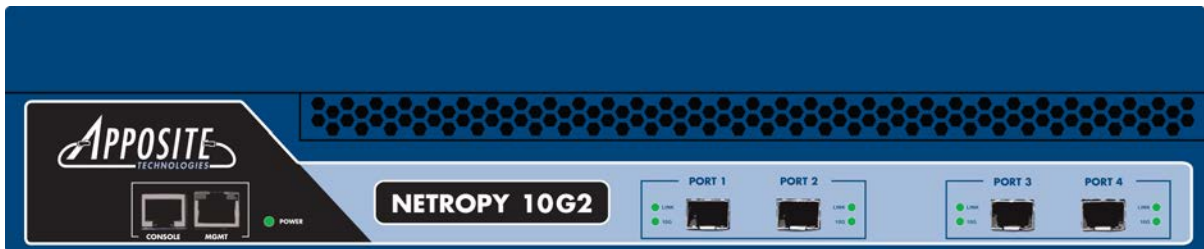
2 INCLUDED ITEMS

The Netropy 10G2 shipping carton contains the following items:

- ▶ Netropy 10G2 hardware unit
- ▶ Slide rail kit
- ▶ Netropy 10G2 Quick Start Guide
- ▶ AC power cord (U.S.)
- ▶ RJ45 to DB9 serial cable

3 FRONT AND REAR PANELS

3.1 Front Panel



The front panel of the Netropy 10G2 contains:

CONSOLE: Console interface using RS-232 with an RJ45 connector. See Section 8 for a pin-out of the console interface.

MGMT: Gigabit Ethernet interface with a standard RJ45 connector for management of the unit over the network.

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

PORTS 1 – 4: Four 1/10 Gbps SFP+ Ethernet interfaces. See Section 6 for details on supported SFP and SFP+ transceivers. Jumbo frames of up to 9 KB are supported. The Link LED indicates link has been established, and blinks to indicate activity. The 10G LED is lit if a 10 Gbps link has been established, and is unlit for a 1 Gbps link.


3.2 Rear Panel

The rear panel of the Netropy 10G2 contains:

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

Power input: Standard IEC C14 socket for power input. U.S. and Canadian customers should use the supplied power cord to connect the Netropy 10G2 to a power outlet. International customers may need to substitute a local power cord with a standard IEC C13 plug. The Netropy 10G2 handles AC power input from 100 to 240 V. A redundant power supply is optionally available – see Section 7 for additional details.

Power light: Power light glows green when unit is turned on.

Power switch: To turn on or off, rock the switch onto the power icon  and hold for 5 seconds until power light turns on or off.



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

4 CAPACITY LIMITATIONS

The Netropy 10G2 can forward up to 10 Gbps of packets on each emulation port, for an aggregate capacity of 40 Gbps.

Each emulation port is limited to a packet processing rate of 4.25 million packets per second and an aggregate limit of 17 million pps.

These limits apply regardless of whether emulation is on or off. These limits may be reduced depending on the classification methods used.

The maximum one-way latency that the Netropy 10G2 supports depends on data throughput and packet size. The chart below summarizes a few typical examples for traffic in one direction on one engine. To calculate the maximum latency in each direction for traffic in both directions at the listed rate, or to calculate the maximum latency in one direction on two separate engines at the same rate, divide these maximum one-way latencies values in half. The listed values are based on actual data throughput, not path bandwidth settings. Users who need to emulate latencies close to these limits are advised to contact Apposite to discuss their specific requirements. Maximum latencies of over 20 seconds are not specifically listed, but are not limited to 20 seconds and may be much larger than 20 seconds.

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.

	Frame Size			
Aggregate Throughput	64 bytes	500 bytes	1518 bytes	9220 bytes
100 Mbps	>20 sec	>20 sec	>20 sec	>20 sec
1 Gbps	8.9 sec	>20 sec	>20 sec	>20 sec
10 Gbps	890 ms	5.5 sec	8.1 sec	9.8 sec

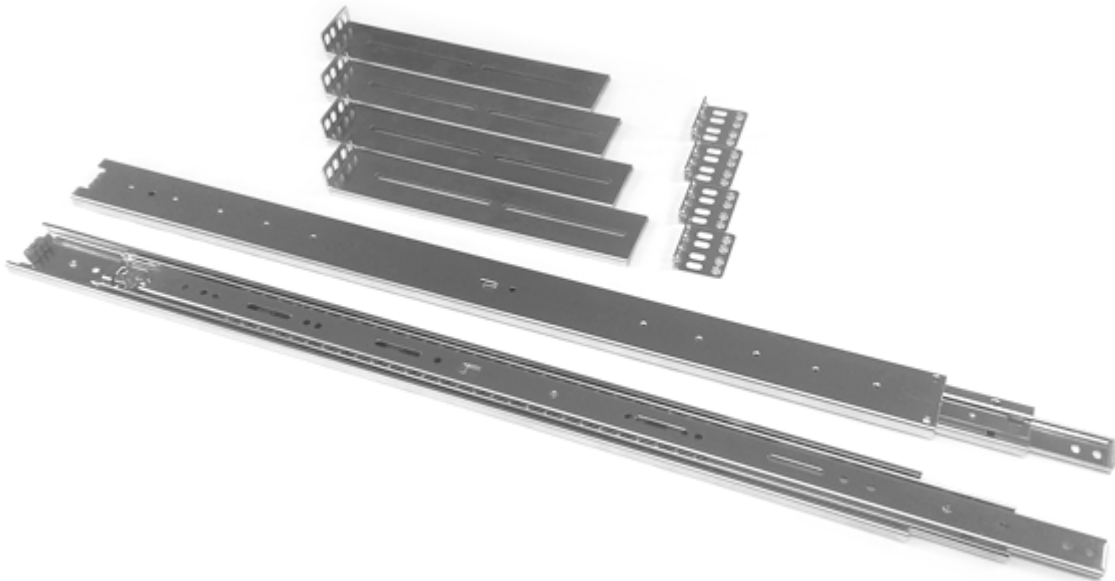
Table 1: Maximum Round-Trip Latency

5 SLIDE RAIL INSTALLATION GUIDE

1. PREPARATION

SLIDE RAIL INVENTORY:

- Slide Rail Assemblies (x2)
- Rail Extenders (x4)
- 10mm Screws (x8)
- 6mm Screws (x16)
- Optional Threaded Hole Brackets (x4)



TOOLS REQUIRED:

Phillips Screwdriver

2. REMOVE INNER SLIDERS FROM SLIDE RAIL ASSEMBLIES

- a) Take one of the slide rail assemblies and extend the inner slider from the slide rail assembly.



- b) Press hook to release the inner slider from the slide rail assembly.



- c) Repeat steps 2a and 2b on the other slide rail assembly.

3. ATTACH INNER SLIDERS TO CHASSIS

- a) Align the holes of one of the inner sliders to the holes on one side of the chassis.



- b) Secure the inner slider to the chassis using the 6mm screws (x4).
- c) Repeat the previous steps 3a and 3b on the other side of the chassis using the other inner slider.

4. ATTACH RAIL EXTENDERS TO THE SLIDE RAIL ASSEMBLIES

Note: The rail extenders will allow you to adjust the length of your slide rails to fit onto the rack properly.

- a) Determine the distance between the front and rear posts of the rack you will be installing the slide rails on.
- b) Take one of the rail extenders and mount onto one of the slide rail assemblies.



- c) Secure the rail extender onto the slide rail assembly using the 6mm screws (x2).
- d) Repeat steps 4b and 4c on the other end of the slide rail assembly using another rail extender.
- e) Take the remaining rail extenders and the other slide rail assembly and repeat steps 4b through 4d.

5. ATTACH SLIDE RAIL ASSEMBLIES TO THE RACK

- a) Use the 10mm screws (x8) to attach the slide rail assemblies to the rack.

Note: If needed use the optional threaded hole brackets (x4) to secure the screws in place.

6. MOUNT CHASSIS (WITH INNER SLIDERS) TO RACK

CAUTION: More than one person is recommended to mount the chassis onto the rack.

- a) Align the inner sliders on the chassis with the front of the slide rail assemblies on the rack.
- b) Carefully push the chassis into place onto the slide rail assemblies until it is locked securely in place.

6 SFP+ INTERFACES

The Netropy 10G2 has four SFP+ interfaces that can accept both 10 Gbps SFP+ transceivers and 1 Gbps SFP transceivers. Standard 1 and 10 Gbps transceivers are available from a variety of vendors. Select an appropriate transceiver type based on network and cabling requirements.

The following types of transceivers may be used:

- Any standard 10 Gbps SFP+ transceiver.
- Any standard 1 Gbps SFP transceiver. Only 1 Gbps full duplex transfer mode is supported.
- Finisar and Intel 1/10 Gbps Dual Rate SFP+ transceivers.
- 10 Gbps SFP+ and 1 Gbps SFP direct attach cables.
- 10 Gbps copper RJ45 SFP+ transceivers. Only 10GBASE-T SFP+ RJ45 transceivers offered by Apposite are confirmed to operate properly, and only 10 Gbps transfer speeds are supported.

7 REDUNDANT POWER SUPPLY

The Netropy 10G2 is optionally available with a redundant power supply.

When a redundant power supply is installed, both power supplies must be plugged in. If the primary power supply fails, the secondary power supply will maintain continuous operation of the system. In the event of a failure of either power supply module, an alarm will sound. The alarm can be turned off by pressing the red button next to the power supply.

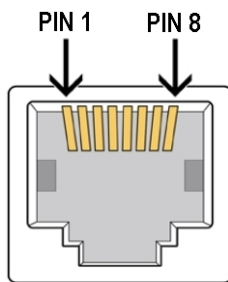
For units manufactured with a redundant power supply after April 2013 and running firmware v2.1 or later, a log message will also be displayed in the GUI and CLI to provide notification of failure. Notification via the GUI and CLI of a power supply failure for older units requires the unit to be returned to Apposite for hardware modification.

To add a redundant power supply, loosen the screw on the blank module below the primary power supply, push the slider to the left to unlock, and pull the handle to remove the blank module. Insert a power supply module and push until it clicks into place, then tighten the screw.

To replace a power supply module, loosen the screw on the module to be replaced, push the slider to the left to unlock, and pull the handle to remove the module. Insert a power supply module and push until it clicks into place, then tighten the screw.

8 CONSOLE INTERFACE

Console access to the Netropy 10G2 is through the RJ45 interface on the front panel labeled "CONSOLE." An RJ45 to DB9 cable is included with the unit to connect the device to a standard PC serial port. The pin-out for the RJ45 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

9 APPOSITE SUPPORT

One year of maintenance is included with purchase of the Netropy 10G2 Hardware Version 1, after which a yearly maintenance renewal is required for ongoing support. Maintenance renewals for ongoing support and maintenance are available from Apposite or your 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 10G2 contains no user serviceable parts. Opening the chassis voids the warranty.

APPENDIX A: SPECIFICATIONS

Capacity		
Max. Emulation Rate		10 Gbps
Max. Throughput		40 Gbps aggregate across all interfaces
Max. Packet Rate		17 million packets per second aggregate 4.25 million packets per second per port
Max. Frame Size		9 KB
Interfaces		
Network		4 x SFP+ (1/10 Gbps auto-negotiate)
Management		1 x Gigabit Ethernet (10/100/1000baseT)
Console		1 x RS-232
Environmental and Physical		
AC Input Voltage		Auto ranging 100 VAC to 240 VAC
AC Input Frequency		47 to 63 Hz
AC Input Current		2.0 A
Power Draw		240 Watts
Dimensions	Product	17.0" W x 22.75" D x 3.5" H (2 RU) 43 cm W x 58 cm D x 8.8 cm H (2 RU)
	Shipping	24.75" W x 30" D x 11" H 63 cm W x 77 cm D x 28 cm H
Weight	Product	39 lbs. (18 kg)
	Shipping	51 lbs. (23 kg)
Temperature	Operating	32° to 104°F (0° to 40°C)
	Storage	-4° to 167°F (-20° to 75°C)
Humidity		10% to 90% (non-condensing)
Certifications		FCC Class A, 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:

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