

LINKTROPY[®] 10G HARDWARE GUIDE



Linktropy® 10G Hardware Guide

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1 | OVERVIEW

This *Linktropy 10G Hardware Guide* describes the physical hardware of the Linktropy 10G WAN Emulator. The companion *User's Guide* describes the installation, configuration, and operation of the Linktropy WAN emulation functionality. A separate *Quick Start Guide* provides a walk-through for first time configuration.



The Linktropy 10G contains no user serviceable parts. Opening the chassis voids the warranty. If you believe your unit is not functioning properly, see Section 7 for information on obtaining support.

This guide is for the Linktropy 10G hardware revision –G1.

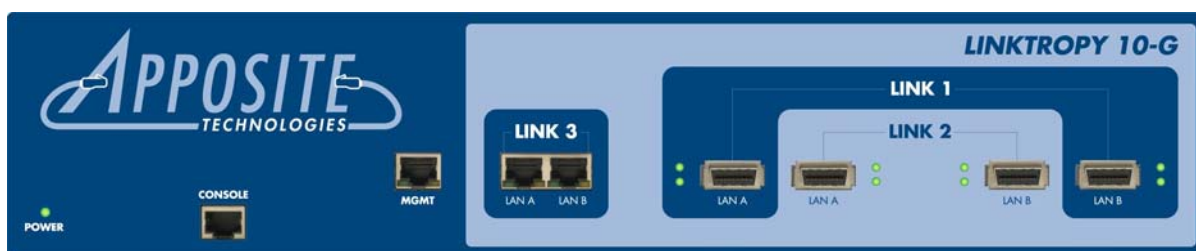
2 | INCLUDED ITEMS

The Linktropy 10G shipping carton contains the following items:

- ▶ Linktropy 10G hardware unit
- ▶ Rack mount brackets (2) and screws (6)
- ▶ Documentation CD
- ▶ Linktropy 10G Quick Start Guide
- ▶ AC power cord (U.S.)
- ▶ RJ-45 to DB-9 serial cable

3 | FRONT AND REAR PANELS

Front Panel



The front panel of the Linktropy 10G contains, from right to left:

LINK 1 and LINK 2: Two pairs of CX4 or XFP 10 Gbps Ethernet interfaces. Provides emulation of two separate WAN links between the network segments plugged into the LAN A and LAN B interfaces of each link. Interfaces support jumbo frames up to 9 KB.

LINK 3: A pair of 10/100/1000baseT Gigabit Ethernet interfaces with standard RJ-45 connectors. Provides emulation of a WAN link between the network segments plugged into the LAN A and LAN B interfaces of Link 3. Interfaces support jumbo frames up to 9 KB.

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

CONSOLE: Console interface using RS-232 with an RJ-45 connector. See Section 6 for a pin-out of the console interface.

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


Rear Panel

The rear panel of the Linktropy 10G 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 Linktropy 10G to a power outlet. International customers may need to substitute a local power cord with a standard IEC C13 plug. The Linktropy 10G handles AC power input from 100 to 240 V.

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 Linktropy 10G can forward up to 10 Gbps of packets in each direction on Links 1 and 2, and 1 Gbps of packets in each direction on Link 3. However, the total aggregate throughput across all 3 links in both directions is limited to 22 Gbps.

In addition, when using both 10 Gbps links (Links1 and 2) simultaneously, the maximum aggregate throughput from the two A-side interfaces (i.e. Link 1 LAN A and Link 2 LAN A) to the two B-side interfaces (i.e. 1B and 2B) is 10 Gbps. The maximum aggregate throughput in the other direction from the B-side interfaces to the A-side interfaces is also 10 Gbps.

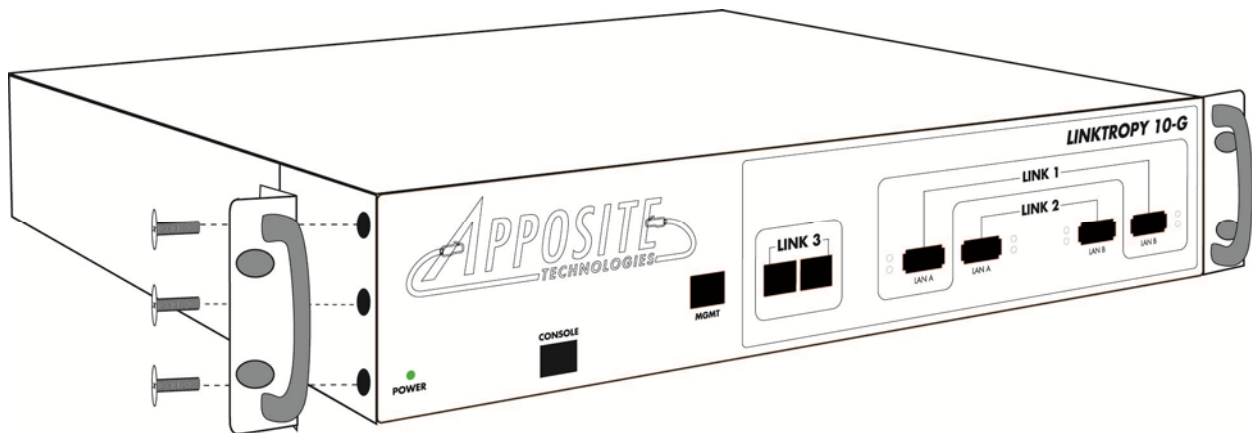
There are also separate limitations on the packet processing rate. The 10 Gbps links can forward up to 2.5 million packets per second on each link in each direction. The 1 Gbps link can forward at full line rate in both directions. The aggregate packet processing rate across all links in all direction is limited to between 10 – 12 million pps.

These limits are reduced if any links are configured in routing mode, or if learning bridge functionality is enabled. 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 emulation bandwidth may be limited below the hardware capacity of 10 Gbps in each direction by the device's license key. See the *Linktropy User's Guide* for more details on the license key.

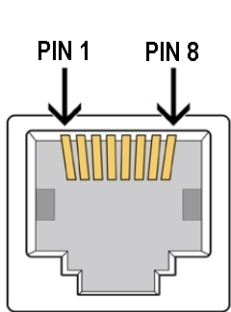
5 | RACK MOUNTING

The Linktropy 10G includes a pair of brackets for mounting the device into a standard 19" rack. Attach the brackets to both sides of the unit using three of the supplied screws with each bracket as shown in the diagram below.



6 | CONSOLE INTERFACE

Console access to the Linktropy 10G 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:



The diagram shows a top-down view of an RJ-45 connector. Two arrows point to the first and eighth pins, labeled 'PIN 1' and 'PIN 8' respectively. The pins are arranged in a standard 8-pin configuration.

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

7 | APPOSITE SUPPORT

The Linktropy 10G includes a one year hardware warranty and one year of support and maintenance. Extended maintenance contracts are available from Apposite or your local Linktropy 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:

- ▶ Linktropy 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 Linktropy 10G contains no user serviceable parts. Opening the chassis voids the warranty.

APPENDIX A

Specifications

Capacity		
Max. Emulation Rate		Up to 10 Gbps full duplex per link
Emulated Links		3 links: 2x 10 Gbps, 1x 1 Gbps
Max. Throughput		20 Gbps aggregate across all 3 links (See Section 4 for details.)
Max. Packet Rate (packets per second)		aggregate: over 10 million pps 10 Gbps interfaces: 2.5 million pps per link per direction GigE interfaces: full line rate
Max. Frame Size		9 KB
Interfaces		
Network		4 x CX4 or XFP 10 Gigabit Ethernet 2 x copper Gigabit Ethernet (10/100/1000baseT)
Management		1 x copper 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		8.0 A Max. 2.0 A Typical
Power Draw		250 Watts
Dimensions		16.8" W x 23.6" D x 3.5" H (2 RU) 42.4 cm W x 60.0 cm D x 8.8 cm H (2 RU)
Weight	Product	29 lbs. (13 kg)
	Shipping	37 lbs. (17 kg)
Temperature	Operating	32° to 95°F (0° to 35°C)
	Storage	32° to 167°F (0° to 75°C)
Humidity	Operating	10% to 85% (non-condensing)
	Storage	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 Directive 2002/95/EC Restriction of Hazardous Substances (RoHS).

APPENDIX C

Linktropy End User License Agreement

The Apposite Technologies, Inc. (“Apposite”) Linktropy product includes the Linktropy hardware (“Hardware”), software embedded in the Hardware (“Software”), including any upgrades, modified versions, updates, additions and copies of the Software, and related explanatory materials (“Documentation”). Collectively, the Hardware, Software, and Documentation are the “Product.”

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the Product. This limited warranty is void if failure of the Hardware or Software to conform to the warranty has resulted from improper installation, testing, misuse, neglect, accident, fire or other hazard, or any breach of this Agreement.

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