



Extollo Communications

LANPlug 2000 Product Guide

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Introduction

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Introduction

The LANPlug 2000 Powerline adapters are sold as a kit (2 x LANPlug 2000's) and as a single unit (1 x LANPlug 2000).

The Local Area Network (LAN) LANPlug 2000 G.hn Powerline adapters create a self-contained, secure home network using the existing electrical wiring within the home and to remote buildings/workshops, turning every electrical outlet into an Internet connection.

This high performance, low latency Powerline adapter, is well suited for bandwidth intensive and real-time applications such as Ultra-HD/4K Smart TV's, Streaming Video Boxes, Online Gaming Consoles, Voice over Internet Protocol (VoIP) and Video Surveillance systems.

Quickly and intuitively create a multimedia home network to share residential Internet access among all Internet capable devices within the home.

Product Overview 2

Product Overview

The LANPlug 2000 has been designed and built around the G.hn Powerline standard (referenced as ITU-T G.9963). It's embedded with a Maxlinear processor, integrated DDR memory and an advanced high-speed Multiple Input / Multiple Output (MIMO) system optimized for 2 x 2 transmission across all three (3) electrical lines – Phase, Neutral and Ground.

The 2000 series of Powerline adapters have a 1Gbps Ethernet interface, a 1.5Gbps Powerline PHY and act as a bridge using the power lines as the transmission medium.

Packets arriving at the Ethernet interface are stored in internal memory. Those packets are classified according to QoS criteria. The packets are fragmented, then encrypted with AES 128-bit algorithm and after that encoded with advanced quasi-cyclic low-density parity check (QC-LDPC) Forward Error Correction (FEC) algorithms. The resulting blocks are mapped onto an Orthogonal Frequency-Division Multiplexing (OFDM) transceiver with 4096 carriers in the 0-80 MHz band and transmitted in Powerline frames over the power lines using Multiple-Input / Multiple-Output (MIMO) with beamforming according to the MAC protocols specified in the G.hn Powerline standard.

In the reception direction, the transceiver synchronizes with the Powerline frames to receive them, demodulate and decoding them, and after that, the resulting segments are reassembled to form the corresponding Ethernet packets. The Ethernet packets are delivered to the bridge QoS, which prioritize the packets to the Ethernet interface.

Multiple-Input Multiple-Output with Beamforming

Extollo's 2000 series of Powerline adapters support 2x2 MIMO with beamforming.

MIMO increases the number of transmission paths across the powerlines. Two, line drivers and receivers enable the LANPlug 2000 adapters to simultaneously transmit on two of the three electrical power line wires; Phase, Neutral and Ground. The LANPlug 2000 MIMO paths consist of: Line-Neutral or Line-Ground.

Beamforming works by improving what is called the *rate over range*, at a given distance from the transmitting adapter; a receiving adapter will have improved performance. This is accomplished by creating two independent signal paths to optimally focus transmission energy to and from client adapters on a per-packet basis.

Beamforming enables Extollo adapters at either side of a link to get maximum performance by taking advantage of channels that have strong performance while avoiding paths and carriers that have weak performance. A reasonable expectation is that beamforming can result in a gain of anywhere between 2 to 5 dB in performance. Beamforming is adaptive, which means it can constantly adjust Powerline performance based on real-time events.



The combination of 2x2 MIMO with beamforming improves bandwidth utilization and increase the LANPlug 2000 network's range. This, in turn, improves video streaming, voice quality, and other bandwidth and latency sensitive transmission protocols.

G.hn Powerline Overview

A G.hn Powerline network can consists of one or more domains. Typically, a residential G.hn Powerline network will consist of a single domain. In G.hn, a domain is constituted by all Powerline adapters that can communicate with each other.

One of the Powerline adapters in a G.hn Powerline network becomes the Domain Master (DM). The function of the DM is to control and coordinate the operation of all Powerline adapters in the domain, including admission to the domain, bandwidth reservation, resignation, priorities and other management operations.

At any given time, only one Powerline adapter is allowed to act as a DM for a domain. In case a DM fails, the DM function is passed to another Powerline adapter in the domain.

Since all the Powerline adapters in the domain can communicate or directly interfere with each other, the DM avoids interference between Powerline adapters by coordinating their transmission time using Time Division Multiple Access (TDMA).

TDMA is a channel access multiplexing scheme that assigns a transmission time slot to each Powerline adapter in the domain. It allows several Powerline adapters to share the same frequencies between 2 to 80MHz by dividing the signal into different time slots. The Powerline adapters transmit in rapid succession, one after the other, each using its own time slot. This allows multiple Powerline adapters to share the same electrical power lines.

The DM receives signals from all the Powerline adapters within the domain. Thus, any Powerline adapter within the domain can communicate with another Powerline adapter only through the DM. The DM further forwards the signals to the corresponding Powerline addressee within the domain.

Unpack

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LANPlug 2000 Package Contents

The LANPlug 2000 comes as a starter kit (2 x LANPlug 2000's) and as a single unit (1 x LANPlug 2000), Ethernet cable(s) and a quick install guide.

LANPlug 2000 Kit



LANPlug 2000 Single

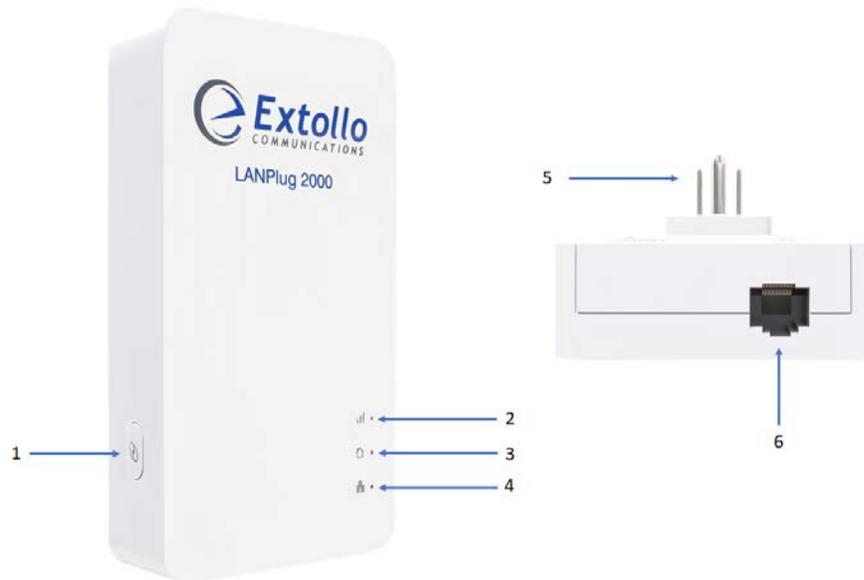


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Interfaces

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LANPlug 2000 Interfaces



1. Paring Button

The paring button can perform several functions. It is used to:

- a. Create the Powerline network during initial configuration.
- b. Add another LANPlug 2000 to the Powerline network.
- c. Reset the LANPlug 2000 to factory defaults.

2. Powerline Performance LED Indicator

The Powerline performance indicator LED provides a visual indication of the Powerline throughput for the electrical outlet that the LANPlug 2000 is plugged in to.

3. Powerline LED

The Powerline LED indicates whether the LANPlug 2000 is paired and part of the Powerline network.

4. Ethernet LED

The Ethernet LED shows the status of the Ethernet connection between the LANPlug 2000 and the attached device.

5. NEMA 5 120VAC and Powerline Interface

Provides power to the LANPlug 2000 and used to transmit the Powerline frames across the electrical power lines.

6. Ethernet RJ45 Interface

The LANPlug 2000 supports an auto sensing 10/100/1000Mbps Ethernet wired connection.

LED Overview

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LANPlug 2000 LED Status Overview

LED	Description
<p>Powerline Performance</p> 	<ul style="list-style-type: none"> • Blinking Red: Powerline throughput is less than 100Mbps. • Blinking Amber: Powerline throughput is greater than 100Mbps, but less than 200Mbps. • Blinking Green: Powerline throughput is greater than 200Mbps.
<p>Powerline</p> 	<ul style="list-style-type: none"> • Solid Amber: Adapter is ON but not paired with any other adapters. • Blinking Amber: Adapter is in Powerline pairing mode. • Solid Green: Adapter is paired with another Powerline adapter and is active.
<p>Ethernet</p> 	<ul style="list-style-type: none"> • Solid Green: Ethernet link is up. • OFF: No Ethernet connectivity.
<p>Pairing Button</p> 	<ul style="list-style-type: none"> • Powerline Pairing: Pressing the pairing button between 3 to 5 seconds (amber Powerline LED starts blinking), the pairing process starts. • Factory Reset: Press the pairing button and hold approximately 20 seconds until the Powerline and Ethernet LEDs turn on. The powerline LED turns amber once the process is completed.
<p>Boot - Up</p>	<ul style="list-style-type: none"> • During the boot up process, the Powerline LED will be green and then turn amber once the process is completed, approximately 20 seconds.

Creating a Network 6

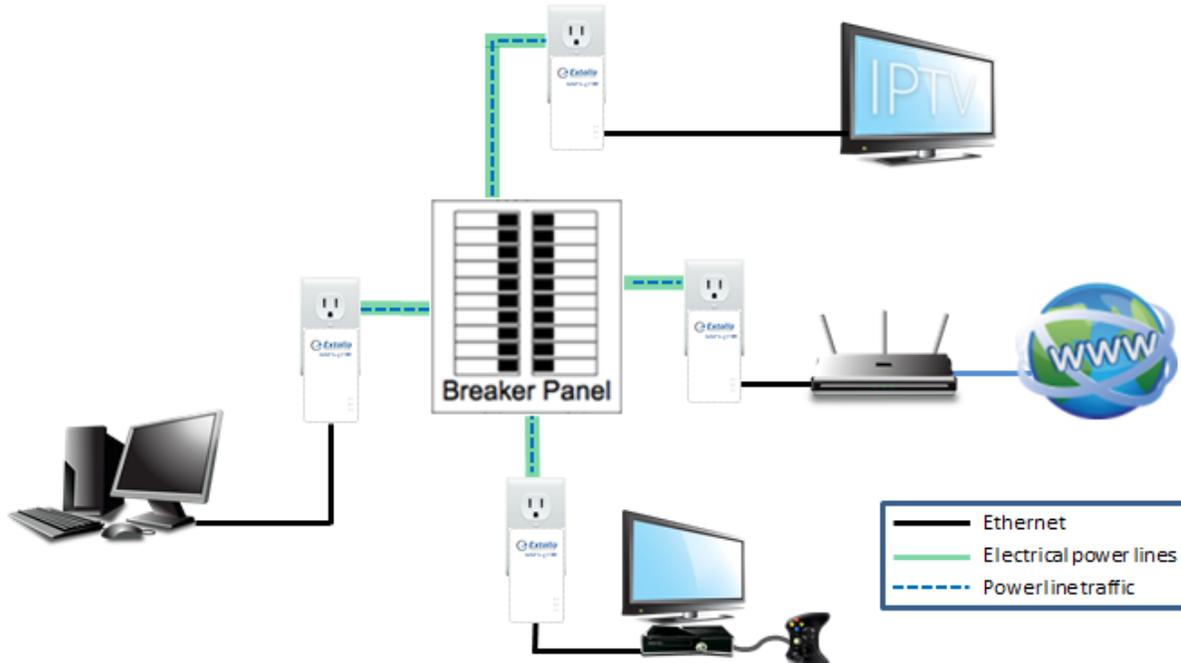
Creating a Powerline Network with the LANPlug 2000

The LANPlug 2000 Powerline adapters extends the Ethernet connection from your Internet router across the home's electrical power lines to remote locations within your home or to remote buildings.

Similar to coax cable and telephone lines, the electrical power lines are also capable of transmitting digital signals such as Voice, Video and Data.

A Powerline network setup consists of two or more LANPlug 2000 Powerline adapters. Connect one LANPlug 2000 to your Internet router with the provided Ethernet cable and plug it into an electrical outlet. Plug the second LANPlug 2000 into an electrical outlet close to the device that requires an Internet connection and connect the device with the Ethernet cable.

Pair the LANPlug 2000's to establish the Powerline network. Internet traffic now flows across the electrical power lines to the remote LANPlug 2000. Every other electrical outlet in the home is now capable of becoming an Internet connection by plugging in and pairing additional LANPlug 2000 Powerline adapters.



Installation Setup 7

Hardware Installation and Setup

Internet Router Connection

Step 1

1. Connect one end of the Ethernet cable to the home's Internet router.
2. Connected the other end of the Ethernet cable to the LANPlug 2000 Powerline adapter.
3. Plug the LANPlug 2000 Powerline adapter directly into the electrical outlet.
4. The Powerline LED on the LANPlug 2000 will be green and then turn amber once it has finished its boot-up process.



Remote Device Connection

Step 2

1. In the area where an Internet connection is required, connect one end of the Ethernet cable to the device that requires an Internet connection.
2. Connect the other end of the Ethernet cable to the LANPlug 2000 Powerline adapter.
3. Plug the LANPlug 2000 Powerline adapter directly into the electrical outlet.
4. The Powerline LED on the LANPlug 2000 will be green and then turn amber once it has finished its boot-up process.



After both LANPlug 2000's have booted up (Powerline LED will be amber), pair the LANPlug 2000's to create a Powerline network using the pairing button. Pairing is to be performed one LANPlug 2000 at a time. Pair one LANPlug 2000 and then pair the second, third etc. It is recommended to start the pairing process with the LANPlug 2000 that is connected to the Internet router. By initiating the pairing process from the LANPlug 2000 that is connected to the Internet router, it then becomes the domain master.

Pairing the LANPlug 2000's

Step 3

1. Press and hold the pairing button for 3 to 5 seconds on the LANPlug 2000 connected to the Internet router first until the Powerline LED starts to blink – release the pairing button.
2. Press and hold the pairing button for 3 to 5 seconds on the second LANPlug 2000 until the Powerline LED starts to blink – release the pairing button.
3. The blinking Powerline LED indicates that the pairing process has started. The pairing process takes approximately 40 to 60 seconds to complete.
4. The pairing process is complete when the Powerline LED on the LANPlug 2000 connected to the Internet router stops blinking and is solid green and the second LANPlug 2000 Powerline LED is solid green.

NOTE: If the Powerline LED is off or amber, perform a reset to factory default on the LANPlug 2000 that is exhibiting the issue and repeat the pairing process.

Adding Additional LANPlug 2000's

A total of sixteen LANPlug 2000's can coexist in a single G.hn Powerline domain.

1. Press and hold the pairing button for 3 to 5 seconds on the LANPlug 2000 connected to the Internet router first until the Powerline LED starts to blink – release the pairing button.
2. Press and hold the pairing button for 3 to 5 seconds on the new LANPlug 2000 that is being added to the network until the Powerline LED starts to blink – release the pairing button.
3. The blinking Powerline LED indicates that the pairing process has started. The pairing process takes approximately 40 to 60 seconds to complete.
4. The pairing process is complete when the Powerline LED on the LANPlug 2000 connected to the Internet router stops blinking and is solid green and the new LANPlug 2000 Powerline LED is solid green.

Pairing Tip

The easiest way to pair the LANPlug 2000's without having to run all-over the house is to plug them into a power bar that has multiple electrical outlets.

1. Plug the LANPlug 2000's into the power bar.
2. Connect one of the LANPlug 2000's to the Internet router with the provided Ethernet cable.
3. Follow the pairing procedure.
4. Once the pairing process is complete, remove them from the power bar and plug them directly into the electrical outlets close to the device that requires Internet access.

NOTE: The pairing configuration is stored in flash memory. Therefore, it is not lost when the unit is unplugged.

Logging In

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Logging into the LANPlug 2000

Determining the IP Address

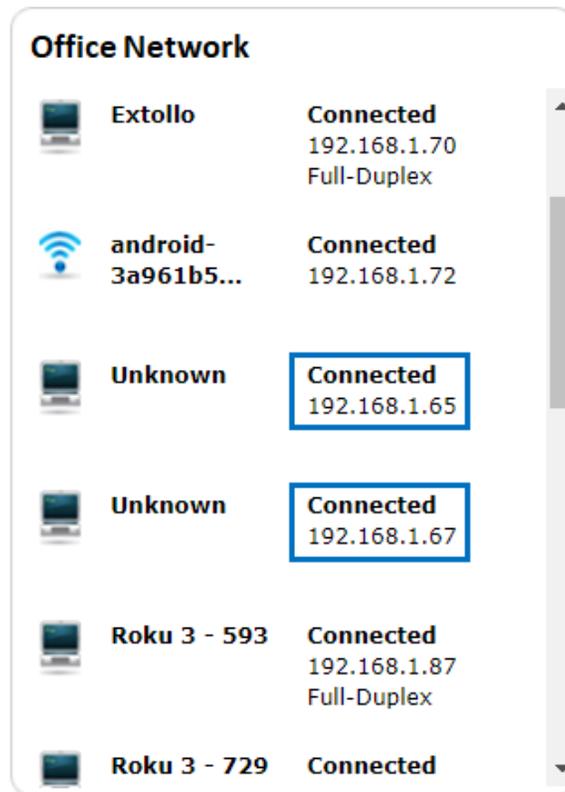
Step 1

The LANPlug 2000 has an integrated web Graphical User Interface (GUI) for management purposes. It also has Dynamic Host Configuration Protocol (DHCP) enabled, which means that the LANPlug 2000 will automatically obtain an IP address from the Internet router.

To access the web GUI on the LANPlug 2000, the IP address that was assigned to the LANPlug 2000 is required. To determine what IP address was assigned to a LANPlug 2000, log into the Internet router and see what devices are connected and their associated IP address.

For example: Below is a captured window from an Internet router that shows the connected devices and their assigned IP addresses. The “**unknown**” devices are the LANPlug 2000’s which were assigned the IP address of **192.168.1.65** and **192.168.1.67**.

NOTE: The IP addresses assigned to your LANPlug 2000 may differ from this example.



Office Network		
	Extollo	Connected 192.168.1.70 Full-Duplex
	android-3a961b5...	Connected 192.168.1.72
	Unknown	Connected 192.168.1.65
	Unknown	Connected 192.168.1.67
	Roku 3 - 593	Connected 192.168.1.87 Full-Duplex
	Roku 3 - 729	Connected

Log In Window

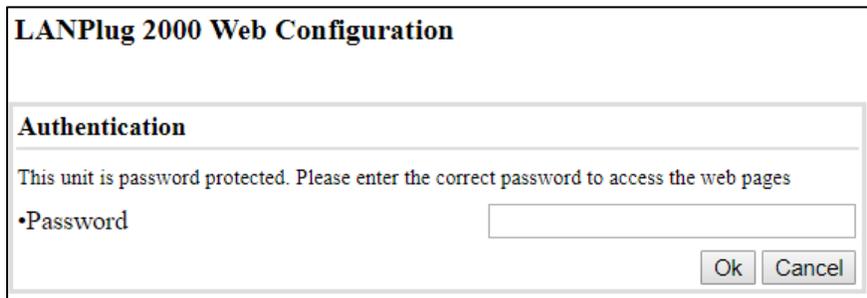
Step 2

Use the IP address that was assigned to the LANPlug 2000 to access the GUI.

1. Launch an Internet web browser from a computer.
2. In the web browser bar, type the IP address that was assigned to the LANPlug 2000.



3. The following login window is displayed.



4. Enter the login password. The default password is: **ECLP2000** and is case sensitive.

Manage Settings 9

Manage the Settings on the LANPlug 2000

The LANPlug 2000's software settings are optimized for its hardware. Several of the configurable options are dynamically created and assigned during the pairing process. It's not recommended to change the dynamically assigned settings.

G.hn Menu

LANPlug 2000 Web Configuration

[G.hn](#)
[IP](#)
[Ethernet](#)
[Device](#)

Basic settings

- MAC address 9c:50:ee:c4:b2:cf
- Device ID 1
- Domain Name s32q0GAm5skf4gEPWccchCKrP57G **1**
- Force node Type DOMAIN_MASTER **2**
- Node type* DOMAIN_MASTER

* Node type change can take some time, please refresh page to update state

- G.hn profile PLC 100 MHz with MIMO **3**

Encryption Configuration

- Encryption is ENABLED
- Pairing password ztyUBsxzNX4s **4**

- Automatic configuration*:

* Pairing can take some time, please refresh page to update state

Available Connections

Device ID	MAC Address	Phy Tx (Mbps) 5	Phy Rx (Mbps)
2	5c:1a:6f:bb:0c:cf	1332	1341

1. Domain Name

The Domain Name is dynamically created during the initial pairing process. All LANPlug 2000's being paired will be assigned the same Domain Name. The factory default domain name is "HomeGrid".

2. Force Node Type

The Force Node Type is used to change the operational mode of the LANPlug 2000 in the G.hn domain. The options are "Domain Master" or "End Point". The LANPlug 2000 that initiates the pairing process is made the Domain Master. It's recommended that the LANPlug 2000 attached to the Internet router initiates the pairing process. The factory default domain name is "Automatic".

3. G.hn Profile

The G.hn Profile defines the physical medium’s maximum throughput and associated frequencies for transmission across the electrical lines. The profiles are defined in accordance with the FCC rules and regulations. The factory default G.hn Profile is “PLC 100 MHz with MIMO” which provides the maximum throughput performance for the LANPlug 2000.

4. Pairing Password

The Pairing Password is dynamically created during the initial pairing process. It is assigned to new LANPlug 2000’s when added to the G.hn domain during the pairing process. It is also used as the seed parameter to generate a random encryption key.

5. PHY TX and PHY RX

The TX and RX PHY rate is the maximum speed that data can be transferred across the electrical power lines. TX is the abbreviation for Transmit, RX is the abbreviation for Receive and PHY is the abbreviation for Physical Layer.

IP Menu

The Internet Protocol (IP) menu displays the IP address, subnet mask and default gateway that were assigned to the LANPlug 2000. IP addresses can be assigned dynamically by a Dynamic Host Configuration Protocol (DHCP) server or manually.

LANPlug 2000 Web Configuration



The screenshot shows the 'IPv4 configuration*' menu in the LANPlug 2000 web interface. On the left, there is a navigation menu with links for 'G.hn', 'IP', 'Ethernet', and 'Device'. The main configuration area includes the following fields:

- DHCP enabled:** A dropdown menu set to 'YES' (labeled 1).
- IPv4 address / netmask:** Two input fields containing '192.168.1.74' and '/255.255.255.0' (labeled 2).
- Default Gateway:** An input field containing '192.168.1.254' (labeled 3).
- DNS:** An input field containing '192.168.1.254'.

At the bottom of the configuration area, there is a note: '*All changes except the DNS server will have effect after system boot'. 'Ok' and 'Cancel' buttons are located at the bottom right.

1. DHCP enabled

DHCP is a protocol that runs on both the Internet router and the LANPlug 2000. It automatically provides an IP address to the LANPlug 2000 and other configuration information such as the subnet mask and default gateway. The factory default setting is “YES” which means that the

LANPlug 2000 will be assigned an IP, default gateway and DNS addresses from the Internet router.

If the DHCP setting is set to “NO”, a static IP address must be assigned to the LANPlug 2000 manually for the given network. After assigning the IP address, default gateway and DNS, select “OK” to save the change.

2. IPv4 address / netmask

The IPv4 address setting displays the IP address that was assigned to the LANPlug 2000 dynamically or statically and its associated subnet mask.

To change the IP address from DHCP to static, perform the following:

1. Log into the LANPlug 2000.
2. Select **IP** and then set the **DHCP** to **NO**.
3. Change the **IPv4**, address.
4. Select **OK**.

3. Default Gateway and DNS

The default gateway setting, displays the IP address that is used to forward information from the home network to the Internet. Typically, the default gateway’s IP address is the IP address of the Internet router.

The Domain Name Servers (DNS) setting displays the IP address for the DNS. The DNS is the Internet's equivalent of a phone book. It maintains a directory of domain names and translate them to Internet Protocol (IP) addresses. This is necessary because, although domain names are easy for people to remember, computers or machines, access websites based on IP addresses. Typically, the default gateway’s IP address is the IP address of the Internet router.

Ethernet Menu

The LANPlug 2000 is equipped with a 10/100/1000 IEEE 802.3-2008 standards compliant auto sensing MDI-X Gigabit Ethernet interface.

LANPlug 2000 Web Configuration

[G.hn](#)
[IP](#)
[Ethernet](#)
[Device](#)

Ethernet						
External Interfaces:						
Interface	Speed	Duplex	Interface Type	Mode	Internal PHY	Link
ETHB	1000	FULL_DUPLEX	SGMII	MAC	NO	YES
	1					2

1. Speed

The Speed setting displays the Ethernet connection speed between the LANPlug 2000 and the connected device.

2. Link

The Link setting displays the status of the connection between the LANPlug 2000 and the connected device.

Device Menu

LANPlug 2000 Web Configuration

[G.hn](#)
[IP](#)
[Ethernet](#)
[Device](#)

Hardware information		
•Device name	LANPlug 2000	1
•Device description	G.hn bridge	
•Device manufacturer		
•Serial number	00	
•MAC address	9c:50:ee:c4:b2:cf	
•HW version	2_0	
Software information		
•FW version	GX.02.31.G001 SPIRIT.v7_6_r548-8_cvs	2
•System uptime	0 days, 16h 28m 6s	
HTTP SW update		
•Upgrade file:	<input type="button" value="Choose File"/> No file chosen	3
	<input type="button" value="Ok"/> <input type="button" value="Cancel"/>	
Security		
•New Configuration password	<input type="text"/>	4
	<input type="button" value="Ok"/> <input type="button" value="Cancel"/>	

1. Hardware Information

The hardware information section provides an overview of the LANPlug 2000's hardware.

2. Software Information

The software information section provides an overview of the software release that is running on the LANPlug 2000.

3. Software Update

Extollo will periodically provide new software for the LANPlug 2000. The software will be made available for down load from Extollo's website.

1. Download the latest software for the LANPlug 2000 from Extollo's website.
2. Save the software on your computer's local hard drive in a location/directory that you can remember. Do not change the file name or extension.
3. Select the **Choose File** button and navigate to the location/directory where the software was stored and select the file.
4. Select the **OK** button to initiate the software upgrade.
5. The LANPlug 2000 will load the new software and then reboot its self.

NOTE: Do not unplug the LANPlug 2000 while it's installing the new software. The LANPlug 2000 will become inoperable.

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4. Security

Change the administrative access password on the LANPlug 2000. It is recommended that you change the password. The default password is **ECLP2000**. We recommend that you set a more secure password.

1. Log into the LANPlug 2000.
2. Select **Device** and then **Set Password**.
3. Enter the new administrative access password in the provided field.
4. Select OK.

Note: If you forget the new admin password, use the **Factory Reset** button to reset the LANSocket 2000 to factory defaults.

Factory Default 10

Restoring the LANPlug 2000 to Factory Default

This section describes the process to restore the LANPlug 2000 to its factory default settings. Performing this process erases all settings that have been configured on the LANPlug 2000.

1. Hold the Pairing button down for more than 20 seconds until the Powerline and Ethernet LEDs turn on.
2. Release the pairing button.
3. The LANPlug 2000 reboots and restores all settings to factory defaults.
4. The Powerline LED turns amber once the process is completed.
5. Perform the pairing procedure to add the LANPlug 2000 to the Powerline network.



Troubleshooting 11

Troubleshooting the LANPlug 2000

The following information will help in isolating problems with the LANPlug 2000.

Symptoms

None of the LED's Light Up After Installation

- Unplug the LANPlug 2000 from the electrical outlet and remove the Ethernet cable.
- Make sure there is power to the electrical outlet and it's working properly.
- Ensure the LANPlug 2000 is not plugged into an extension cord, power strip, or surge protector.

Power LED is Off:

- Make sure there is power supplied to the electrical outlet.
- Ensure the LANPlug 2000 is securely plugged directly to the electrical outlet.
- Try another electrical outlet.

Powerline Performance LED is Amber or Red:

- Try a different electrical outlet.
- Reset the LANPlug 2000 to factory defaults and perform the pairing process.

The Ethernet LED Does Not Light Up:

- The Ethernet LED indicator on the Powerline adapter will light up once it detects a network device plugged into the Ethernet port.
- Check if the Ethernet cable is securely connected.
- Make sure that the device you are connecting to the LANPlug 2000 is powered ON.
- Check the Ethernet adapter on your computer to see if it is working/enabled.
- Try a different Ethernet cable.

The LANPlug 2000 Suddenly Stops Working

- Perform a power cycle of the adapter.
- Perform a reset to factory default and perform the pairing procedure.

Contact Technical Support

support@extollocom.com

Powerline

Optimization

12

Powerline Network Optimization

Powerline adapters work best when plugged into a wall outlet without power strips, extension cords, surge protectors, or uninterruptable power supplies.

If your Extollo adapters are having difficulty communicating with each other, please read the following section for corrective actions.

Quick Tips

- Plug powerline adapters directly into electrical outlets.
- Try plugging the powerline adapter into an adjacent electrical outlet.
- Try power cycling the adapter - unplugging it from the electrical outlet for 10 seconds and then plugging it back in.
- Make sure that the electrical outlet is working properly.
- Do not use the powerline adapters in areas with excessive heat.
- Perform a reset to factory defaults.

Optimizing Network Performance

The distance between sockets shouldn't be a problem in most homes, but the age of the electrical wiring may affect performance in some older buildings.

There are a few things to bear in mind if you want to get the best performance from your powerline network.

- Avoid UPS devices, GFI protected electrical outlets, power strips, multi-way extension bars or extension cords as these will cause the powerline signal to attenuate (weaken).
- Surge protectors in particular interfere with the operation of powerline adapters.
- Some electrical devices, such as mobile phone chargers, certain florescent or incandescent lights can cause interference or completely block the powerline signals if they're plugged in too close to the Powerline adapter.
- Avoid using HomePlug Powerline adapters with G.hn Powerline adapters as they are not compatible.

Specifications 13

Technical Specifications

Main Chipset	Maxlinear wave two G.hn Powerline SOC
Computer Interface	IEEE802.3 /u/ab 10/100/1000 BASE-T
Operating mode	ITU-T G.hn G.9963
PHY Data rate	1.5 Gbps from 2 to 80MHz
Network Interface	1 x RJ-45 (10/100/1000Base-T Ethernet) 1 x NEMA 5 120VAC 1.5 Gbps Powerline interface
Quality of Service	8 levels of Powerline packet-prioritized QoS
Security	128-bit AES Link Encryption with Key Management
Modulation Schemes	OFDM Symbol Modulation on Line synchronization 1024/256/64/16/8—QAM, QPSK, BPSK, ROBO Carrier Modulation
Protocols	TDMA channel access scheme
Operational Range	Estimated range of 1,000 feet across power lines
Cabling	1000Base-T; UTP Cable
Operating Temperature	-5° C to +45° C ambient temperature
Storage Temperature	-20° C to +85° C ambient temperature
Humidity	5% to 95% maximum (non-condensing)
Power Input	100 ~ 240V @ 50/60Hz Internal
Power consumption	Normal: 5.81W @ 80dB_Bidirectional
Dimensions	H 4.73" x W 2.56" x D 1.15"
Regulatory Compliance	cUL 60950 & UL 2043 FCC Part 15 Class B CE IEC 60950-1