

# USER MANUAL

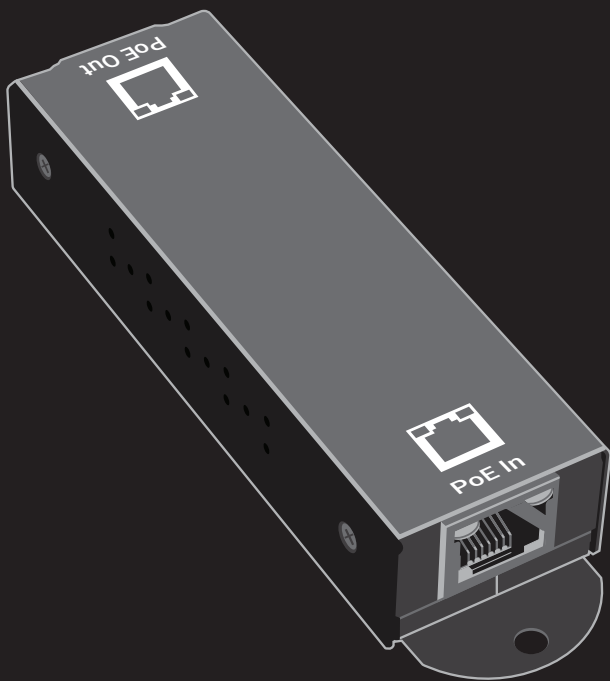
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LPR1111

# GIGABIT POE+ EXTENDER, 2-PORT

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24/7 TECHNICAL SUPPORT AT 1.877.877.2269 OR VISIT [BLACKBOX.COM](http://BLACKBOX.COM)



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# CHAPTER 1: SPECIFICATIONS

**TABLE 1-1. SPECIFICATIONS**

<b>SPECIFICATION</b>	<b>DESCRIPTION</b>
Standards	IEEE 802.3at, IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX, IEEE 802.3ab 1000BASE-T, IEEE 802.3x Flow control
Filtering/Forwarding Rates	1000 Mbps: 1,488,000 pps, 100 Mbps: 148,800 pps, 10 Mbps: 14,880 pps
Mounting	Wallmount
Transmission Method	Store-and-Forward
Transmission Media	CAT5e/6 UTP/STP
Connectors	(1) RJ-45 PoE In (Data + Power in), (1) RJ-45 PoE Out (Data + Power out)
Indicators	Per Port: (1) Data LED, (1) PoE LED
Environmental	Operating Temperature: 23 to 113° F (-5 to 45° C); Storage Temperature: -4 to +185° F (-20 to +85° C); Relative Humidity: 10 to 90%, noncondensing;
Power Input	Powered by PSE with IEEE 802.3af/at PoE/PoE+
Supporting PSE Mode	Mode A and Mode B
Max. System Power Consumption	2 W
Dimensions	0.8" H x 1.3" W x 4.8" D (2.0 x 3.2 x 12.3 cm)
Weight	0.2 lb. (0.1 kg)
Certifications	CE, FCC Class B, VCCI

## CHAPTER 2: OVERVIEW

### 2.1 INTRODUCTION

The Gigabit PoE+ Extender (1) PD In, (1) PoE Out extends the distance of your PoE+ link another 328 feet (100 meters) per extender. You can cover longer distances by cascading multiple PoE+ Extenders together on a network. The extender does not need any additional power supply and the PoE device (such as an IP camera) is powered by a PoE switch or PoE injector.

No special networking cable is required. By adding PoE devices, you can use an existing standard CAT5e or CAT6 Ethernet cable without a new electrical outlet for both power and data. It helps you reduce installation time and cost.

This PoE+ extender has one 10/100/1000M PD input port and one 10/100/1000M PSE output port with electric power that complies with the IEEE 802.3at standard. It can extend the distance via CAT5e/6 cable without any special equipment.

The PD port can be connected via CAT5e/6 cable to another PSE/PoE and get power from the other PSE port through CAT5e/6 cable.

The PSE/PoE port can be connected to another PD via CAT5e/6 cable and extend the distance another 328 feet (100 meters) through this device.

It is designed for easy installation and high performance in an environment where the traffic is on the network and the number of users is increased continuously.

### 2.2 FEATURES

- ◆ Has one 10/100/1000M PoE In (Data + Power in) port and one 10/100/1000M PoE Out (Data + Power out) port
- ◆ Complies with IEEE 802.10BASE-T, IEEE 802.3u 100BASE-TX, IEEE 802.3ab 1000BASE-T, and IEEE 802.3at PoE
- ◆ The Powered Device (PD) connected to the Data + Power in port gets power from a Power Sourcing Equipment (PSE)
- ◆ The Power Sourcing Equipment (PSE) provides power to a PD
- ◆ Supports dedicated full-duplex 2000 Mbps bandwidth
- ◆ Smart plug-and-play

### 2.3 WHAT'S INCLUDED

Before you install this extender, verify that your package contains the following items:

- ◆ (1) Gigabit PoE+ Extender (1) PoE In, (1) PoE Out
- ◆ (2) screw sets for wallmounting

NOTE: If any of these items are missing or damaged, contact Black Box Technical Support at 877-877-2269 or [info@blackbox.com](mailto:info@blackbox.com)



## 2.4 HARDWARE DESCRIPTION

Figure 2-1 shows the LPR1111. Table 2-1 describes its components.

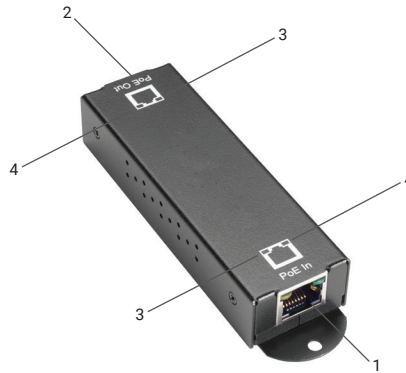


FIGURE 2-1. LPR1111

TABLE 2-1. LPR1111 COMPONENTS

NUMBER IN FIGURE 2-1	COMPONENT	DESCRIPTION
1	(1) RJ-45 port	PoE In
2	(1) RJ-45 port	PoE Out
3	(1) PoE LED	PoE function On or Off (see Table 4-1)
4	(1) Data LED	Port connected, No connection, or Data is transmitting or receiving (see Table 4-1)

# CHAPTER 3: CONNECTIONS

## 3.1 PSE/PD TO 2-PORT POE EXTENDER

This PoE extender provides automatic crossover detection functionality. Via a twisted pair cable pinned straight-through, this PoE extender can be connected to another PSE/PD.

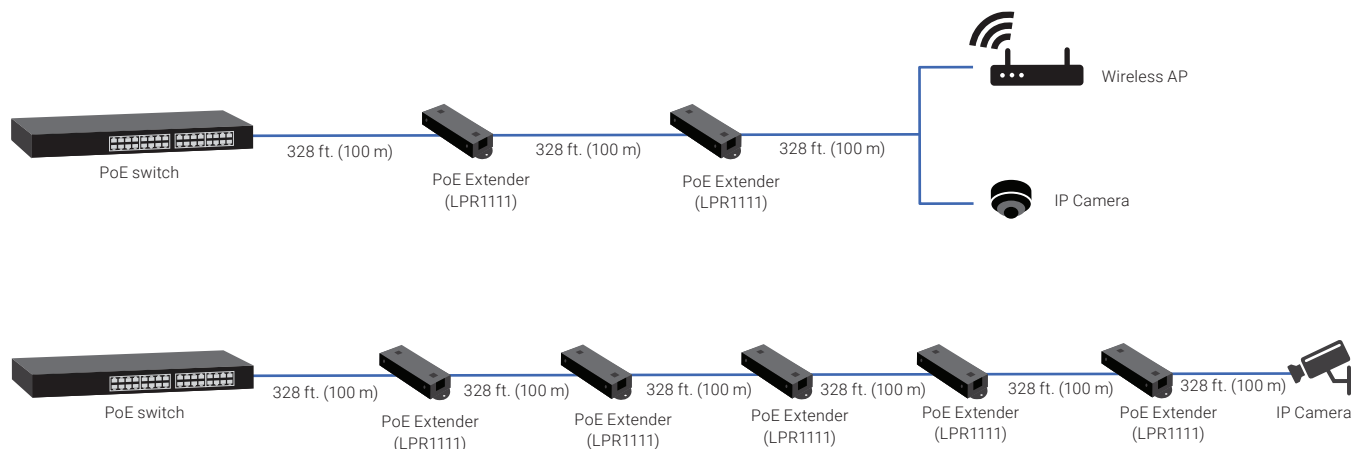


FIGURE 3-1. POE EXTENSION

## 3.2 POWER AND EXTEND DISTANCE

Power is supplied through CAT5e/6 cable from another PSE and extends the distance to another 328 feet (100 meters) through this device. See the table below for your reference.

TABLE 1-2. POE POWER AVAILABLE WITH MULTIPLE LPR1111 UNITS

POE SOURCE	NUMBER OF LPR1111 UNITS	DISTANCE (FT./M)	PD CURRENT (A)	PD VOLTAGE (V)	PD MAX. POWER (W)
802.3at POE Switch	1	328 (200)	0.58	42.4	24.592
	2	658 (300)	0.53	38	17.9
	3	1,312 (400)	0.48	33.7	16.176
	4	1,640 (500)	0.4	31.4	12.56
	5	1,968 (600)	0.28	30.8	8.624

NOTE: All the values listed here are the maximum values from tests based on a PoE switch with 56 V output performed in an ideal lab environment. The actual value may be different due to network environments and the quality of your cable.

## FRONT-PANEL LED INDICATORS

Table 4-1 describes the LEDs on the LPR1111.

**TABLE 4-1. LPR1111 LED INDICATORS**

LED	STATUS	DESCRIPTION
PoE	ON	PoE function ON
	OFF	PoE function OFF or no connection
Data	ON	Port is connected
	OFF	No connection
	Flashing	Data is transmitting or receiving

## APPENDIX A: REGULATORY INFORMATION

### A.1 FCC CLASS B STATEMENT

Class B Digital Device. This equipment has been tested and found to comply with the limits for a Class B computing device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. 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. If this equipment does cause harmful interference to radio or telephone reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- ♦ Reorient or relocate the receiving antenna.
- ♦ Increase the separation between the equipment and receiver.
- ♦ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ♦ Consult an experienced radio/TV technician for help.

**CAUTION:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To meet FCC requirements, shielded cables and power cords are required to connect this device to a personal computer or other Class B certified device.

This digital apparatus does not exceed the Class B limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.





## APPENDIX A: REGULATORY INFORMATION

### A.2 NOM STATEMENT

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
  - A: El cable de poder o el contacto ha sido dañado; u
  - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
  - C: El aparato ha sido expuesto a la lluvia; o
  - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
  - E: El aparato ha sido tirado o su cubierta ha sido dañada.

## APPENDIX B: DISCLAIMER/TRADEMARKS

### B.1 DISCLAIMER

Black Box Corporation shall not be liable for damages of any kind, including, but not limited to, punitive, consequential or cost of cover damages, resulting from any errors in the product information or specifications set forth in this document and Black Box Corporation may revise this document at any time without notice.

### B.2 TRADEMARKS USED IN THIS MANUAL

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Any other trademarks mentioned in this manual are acknowledged to be the property of the trademark owners.



**NOTES**

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