

**4-Port 10/100TX + 1-Port UTP/BNC  
Long Reach Ethernet Extender**

**LRE-104**

**User's Manual**

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## **FCC Statement**

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the 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 instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## **ISED Statement**

CAN ICES-003(A) / NMB-003(A)

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This device complies with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### **CE Mark Warning**

This device is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

### **Energy Saving Note of the Device**

This power required device does not support Standby mode operation. For energy saving, please remove the power cable to disconnect the device from the power circuit. Without removing power cable, the device will still consume power from the power source. In view of Saving the Energy and reducing the unnecessary power consumption, it is strongly suggested to remove the power connection for the device if this device is not intended to be active.

### **WEEE Warning**



To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

### **Revision**

PLANET 4-Port 10/100TX + 1-Port UTP/BNC Long Reach Ethernet Extender  
User's Manual

Model: LRE-104

Revision: 1.0 (Feb.2023)

Part No.: 2350-AA3A60-000


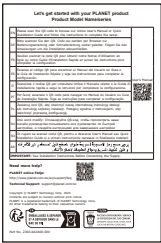

# Table of Contents

1. Package Contents.....	5
2. Hardware Introduction .....	6
2.1 Physical Dimensions.....	6
2.2 Front View .....	6
2.3 Rear View .....	7
2.4 Power Information .....	8
3. Product Specifications.....	9
4. Installations.....	11
4.1 Wall-mount Installation .....	11
5. Applications .....	12
5.1 Point-to-Point Application -- LAN to LAN Connection.....	12
5.2 LRE-104 for IP Surveillance Application.....	14
6. Performance Table.....	15
7. Troubleshooting.....	17
8. FAQs .....	18
9. Customer Support .....	19

## 1. Package Contents

Thank you for purchasing PLANET LRE-104 4-Port 10/100TX + 1-Port UTP/BNC Long Reach Ethernet Extender. In the following sections, the term "Ethernet Extender" means the LRE-104.

Open the box of the Ethernet Extender and carefully unpack it. The box should contain the following items:

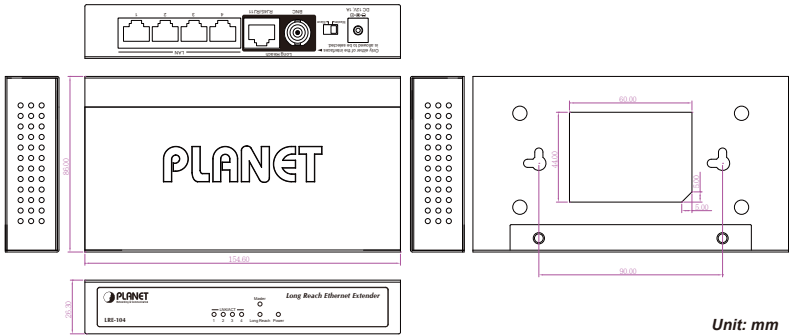
LRE-104 x 1	Quick Start QR Code Sheet x 1	Power Adapter x 1
		

If any of these are missing or damaged, please contact your dealer immediately; if possible, retain the carton including the original packing material, and use them again to repack the product in case there is a need to return it to us for repair.

## 2. Hardware Introduction

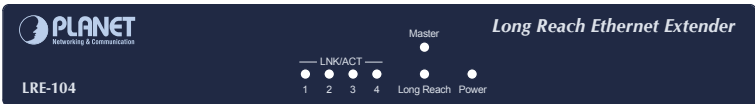
### 2.1 Physical Dimensions

Dimensions (W x D x H): 154.6 x 86 x 26.3mm



### 2.2 Front View

#### ■ LRE-104 Front Panel



➤ LEDs for power, Ethernet, Master and Long Reach

#### ■ LRE-104 LED Indicators

The rich diagnostic LEDs on the front panel can provide the operating status of individual port and whole system.

➤ System

LED	Color	Function	
<b>PWR</b>	Green	<b>Lit:</b>	Power ON
		<b>Off:</b>	Power OFF
<b>Master</b>	Green	<b>Lit:</b>	Indicates that the LRE-104 is functioned as a <b>Master</b> .
		<b>Off:</b>	Indicates that the LRE-104 is functioned as a <b>Slave</b> .

## ■ Long Reach BNC/Ethernet interface

LED	Color	Function	
<b>LNK</b>	Green	<b>Lit:</b>	Indicates that the <b>Long Reach BNC/Ethernet</b> link is established.
		<b>Off:</b>	Indicates that the port is link-down.

## ■ 10/100BASE-TX Port

LED	Color	Function	
<b>LNK/ ACT</b>	Green	<b>Lit:</b>	Indicates the link through TP port is successfully established.
		<b>Blink:</b>	Indicates the TP port is actively sending or receiving data.
		<b>Off:</b>	Indicates that the TP port is link-down.

## 2.3 Rear View

### ■ LRE-104 Rear Panel



- 4 x 10/100TX RJ45 connector
- 1 x Long Reach RJ45/BNC female connector (Select RJ45 or BNC interface one at a time.)
- DIP switch: **Master/Slave** mode selectable
- DC jack (DC input) for power adapter

### ■ DIP Switch

The Ethernet Extender provides a selectable 2-position DIP switch. When switching to "Master", it supports PtP and PtMP, meaning it can be one master and one slave with RJ45/RJ11 connector, or one master and more than one slave with BNC T connector.

DIP	Function
<b>Master</b>	The LRE-104 is functioned as a Master.
<b>Slave</b>	The LRE-104 is functioned as a Slave.



#### Note

By default, the 2-position DIP switch is set in the **“Master”** position. To operate, slide the DIP switch to the **“Slave”** position, and unplug the adaptor to power off the device, and plug it back.

## 2.4 Power Information

The LRE-104 requires 12V DC, 1A power input, which conforms to the bundled AC adapter. Should you have the issue of power connection, contact your local sales representative.



2.1mm  
DC Receptacle 2.1mm  
+12V for each slot



DC receptacle is 2.1mm wide that conforms to the Ethernet Extender 2.1mm DC jack's central post. Do not install any improper unit.



#### Note

In some areas, installing a surge suppression device may also help to protect your Ethernet Extender from being damaged by unregulated surge or current to the Ethernet Extender or the power adapter.



### 3. Product Specifications

Product		LRE-104	
Hardware Specifications			
LAN Ethernet Interface	Connector	4 x 10/100BASE-TX RJ45 copper port, auto-negotiation/auto-MDI/MDI-X	
	Cabling	Cat5e UTP or above	
	Maximum distance	100 meters	
	Maximum frame size	1522 bytes	
Long Reach Interface	Connector	1 x RJ45 copper port	1 x BNC female port
	Cabling	<ul style="list-style-type: none"> <li>■ Cat5 UTP cable</li> <li>■ phone wire</li> </ul>	<ul style="list-style-type: none"> <li>■ Coaxial cable: 75 ohm</li> <li>■ RG-6/U cable, less than 12Ω/1000 ft</li> <li>■ RG-59/U cable, less than 30Ω/1000 ft</li> </ul>
	Maximum Distance	Max. Data transmission of 800m (Cat5 UTP)	Max. Data transmission of 2000m (6,561ft.)
		Maximum Distance Max. Data transmission of 1200m (phone wire)	
	Long Reach Ethernet Standard	IEEE 1901	
	Modulation Type	Wavelet-OFDM	
	Security	128-bit AES encryption	
	Frequency Band	2~28MHz	
DIP Switch	Select Master or Slave mode		
Dimensions (W x D x H)	154.6 x 86.0 x 26.3 mm		
Weight	347g		
Housing	Metal		

Power Requirement	12V DC, 1A external power
LED Indicators	Power: Green LAN: Green, 10/100Mbps LNK/ACT Long Reach: Green, LNK Master: Green
Compatible Long Reach Extender	LRE-101 LRE-101C
Standards Conformance	
Standards Compliance	IEEE 802.3/802.3u Ethernet standard compliant IEEE 802.3x Full-duplex flow control IEEE 802.1q Tag VLAN Transparent, Multicast pass-through
Regulatory Compliance	FCC Part 15 Class A, CE
Environment	
Temperature	Operating: 0~50 degrees C Storage: -10~70 degrees C
Humidity	Operating: 5~95% (non-condensing) Storage: 5~95% (non-condensing)

\*\* The actual data rate will vary in the quality of the coaxial cable, UTP cables or phone wire and environmental factors.

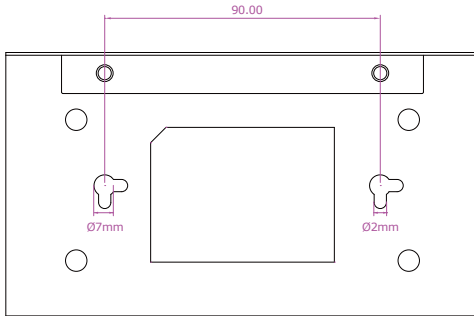
\*\* UTP and BNC cannot be used for long reach port at the same time.

## 4. Installations

### 4.1 Wall-mount Installation

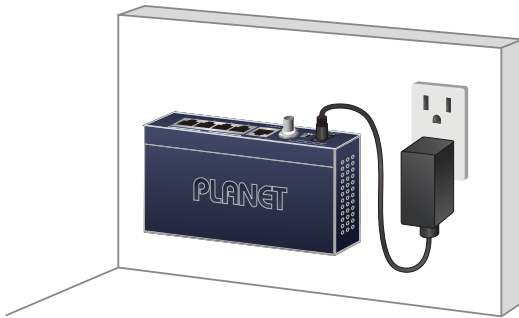
**Step 1:** Find a suitable wall to mount the LRE-104.

**Step 2:** Screw two screws on the wall.



**Step 3:** Hang the LRE-104 on the screws from the wall.

**Step 4:** Repeat Chapter 2.4 Power Information on power supply to the LRE-104.



Note

Before mounting the device to the wall, please check the location of the electrical outlet and the length of the Ethernet cable.

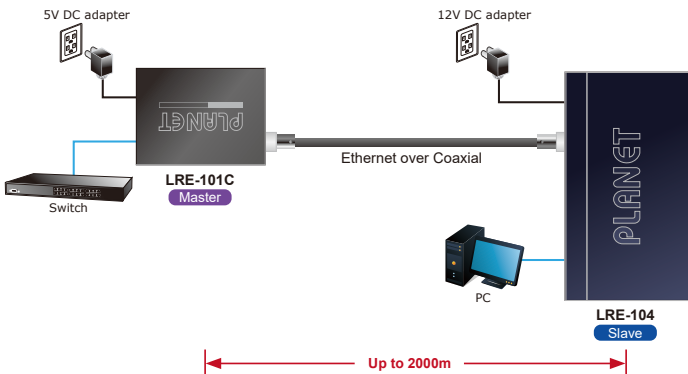
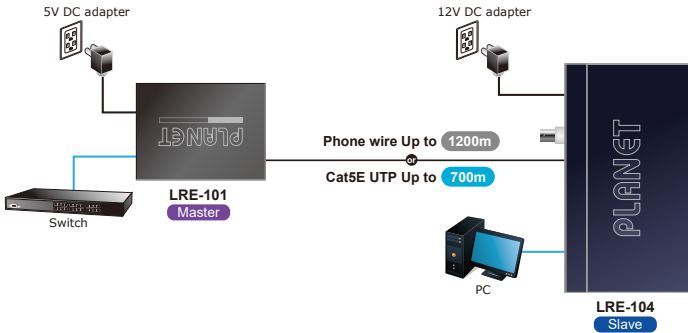
## 5. Applications

The Ethernet Extender does not require any software configuration. Users can immediately use any feature of this product simply by attaching the cables and turning the power on. There are some key limitations on the Ethernet Extender. Please check the following items.

### 5.1 Point-to-Point Application -- LAN to LAN Connection

One set of the Ethernet Extender could be used to link two local area networks that are located in different places. Through the UTP cable or Phone wire, it could set up a 100Mbps backbone, but one Ethernet Extender must be Master and the other one is Slave.

#### Point to Point Application



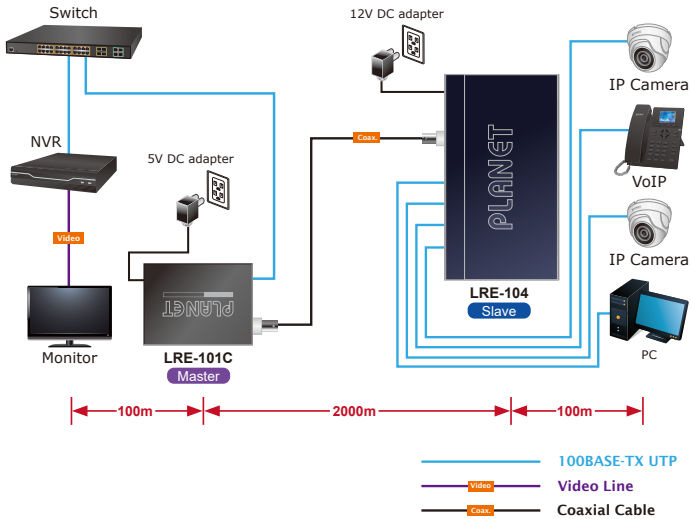
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## Connecting Standalone PC

Refer to the following procedures to set up the LRE-104 LAN to LAN connection.

1. [LAN1] Set the **LRE-101/LRE-101C** in LAN 1 to be in the **Master** mode from the DIP switch
2. [LAN2] Set the **LRE-104** in LAN 2 to be in the **Slave** mode from the DIP switch
3. Power on the Master and Slave at both sides by connecting its power source.
4. Master LED will illuminate correspondingly.
5. Connect UTP cable, Phone wire or coaxial cable from LAN1 LRE-101/LRE-101C to UTP or BNC port of the LAN2 LRE-104.
6. LNK LED will blink to illuminate at both units.
7. Connect the LRE-104 Ethernet LAN port to other network device via regular Cat5 UTP cable.

## 5.2 LRE-104 for IP Surveillance Application



### Building an IP surveillance system

Refer to the following procedure to set up an IP surveillance system with many pairs of the LRE-104:

1. Set the LRE-101C to be the Master and LRE-104 to be the Slave mode from the DIP switch on the rear panel.
2. Power on by connecting its power source.
3. Power LED will illuminate.
4. Connect coaxial cable to the Long Reach ports of LRE-101C and LRE-104 units.
5. LNK LED will illuminate and blink.
6. Connect Ethernet port to IP cameras via regular Cat5, 5e or 6 cable.
7. Install the NVR and monitor and connect to one Ethernet switch.
8. You can get data transmissions from all IP cameras.

## 6. Performance Table

### ■ Phone wire (RJ11)

Distance (meter) \ Phone wire	Upstream / Downstream Unit: Mbps	
200	84	79
400	82	76
600	62	45
800	35	23
1000	28	22
1200	8	3

### ■ UTP Cable (RJ45)

Distance (meter) \ RJ45 Cable	Upstream / Downstream Unit: Mbps	
100	78	78
200	78	70
400	73	63
600	65	38
800 (Max.)	8	3

### ■ Coaxial Cable (BNC)

Distance (meter) \ BNC Cable	Upstream / Downstream Unit: Mbps	
200	85	80
400	83	80
600	81	80
800	83	82
900	84	83
1000	79	77
1200	68	65
1400	56	47
1600	38	30
1800	23	23
2000 (MAX.)	4	6



### Note

The actual data rate will vary in the quality of the UTP cables or phone wire and environmental factors.



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## 7. Troubleshooting

### **SYMPTOM:**

LNK LED does not light up after wire is connected to the Long Reach port.

### **CHECKPOINT:**

Please note you must use one LRE-104 in Master mode and the other LRE-104 in Slave mode to make connection.

### **SYMPTOM:**

TP LED does not light after cable is connected to the port.

### **CHECKPOINT:**

1. Verify you are using the Cat5e or better cable with RJ45 connector to connect to the port.
2. If your device (like LAN card) supports auto-negotiation, please try to manually set at a fixed speed of your device to solve this issue.
3. The LRE-104 and the connected device's power are on or not.
4. The port's cable is firmly seated in its connectors in the switch and in the associated device.
5. The connecting cable is good and the correct type.
6. The connecting device, including any network adapter, is functional.

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## 8. FAQs

**Q1:** What is the best distance for LRE-104?

**A1:** In order to guarantee the stability and better quality of network, we suggest the distance should not exceed 700m (Cat.5 UTP) and 1200m (Phone wire).

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## **9. Customer Support**

Thank you for purchasing PLANET products. You can browse our online FAQ resource and User's Manual on PLANET Web site first to check if it could solve your issue. If you need more support information, please contact PLANET switch support team.

PLANET online FAQs:

<https://www.planet.com.tw/en/support/faq>

Switch support team mail address:

[support@planet.com.tw](mailto:support@planet.com.tw)

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