



PLANET Technology LRE-101 Long Reach Ethernet Extender User Manual

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PLANET Technology LRE-101 Long Reach Ethernet Extender



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Disclaimer

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If you find information in this manual that is incorrect, misleading, or incomplete, we would appreciate your comments and suggestions.

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)
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.

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 1-Port 10/100TX over UTP Long Reach Ethernet Extender User’s Manual

Model: LRE-101

Revision: 1.0 (Oct. 2022) Part No.: 2350-AA3A20-000

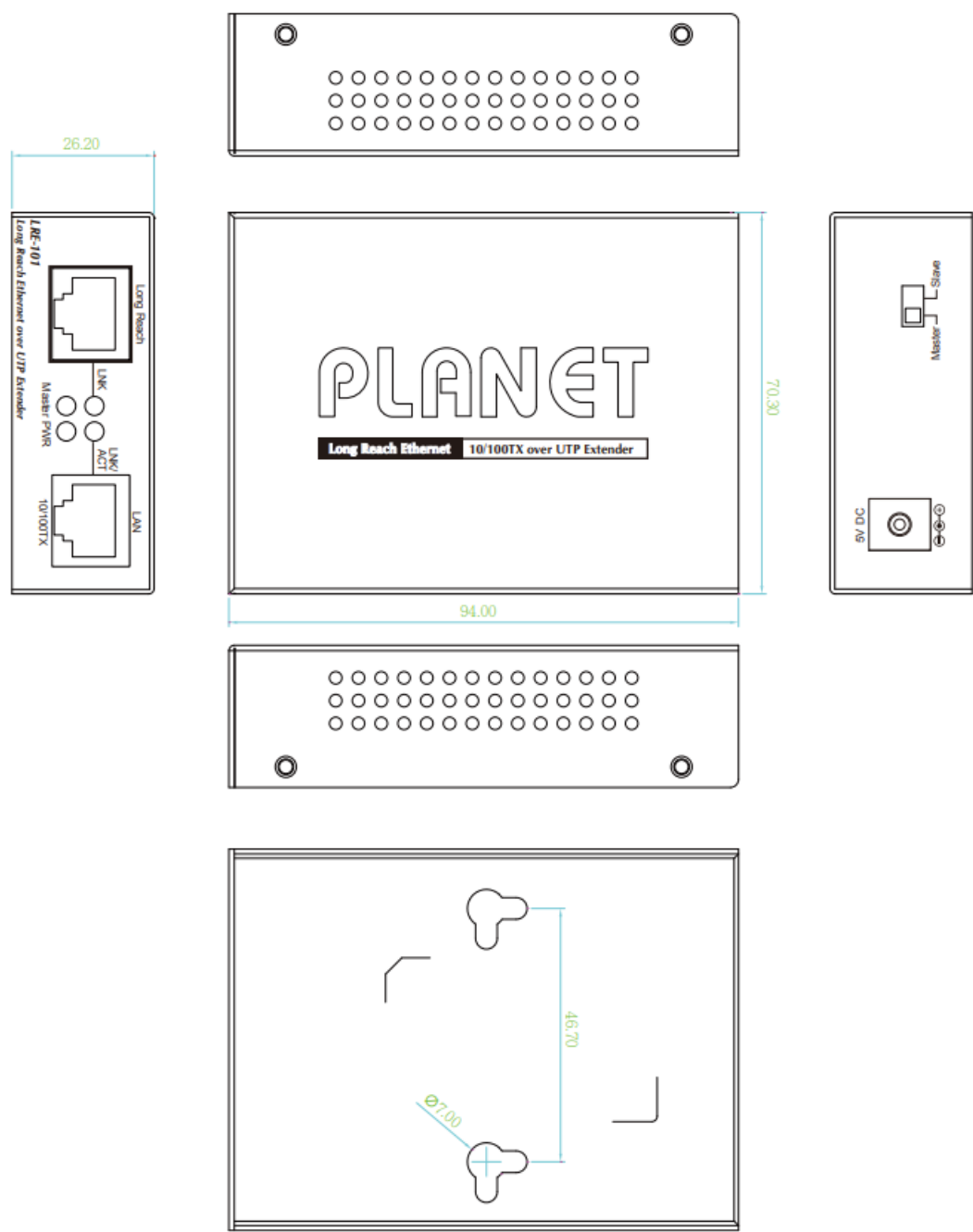
| | |
|---|---|
| LRE-101 | DC 5V/2A Power Adapter |
|  |  |

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.

Hardware Introduction

Physical Dimensions

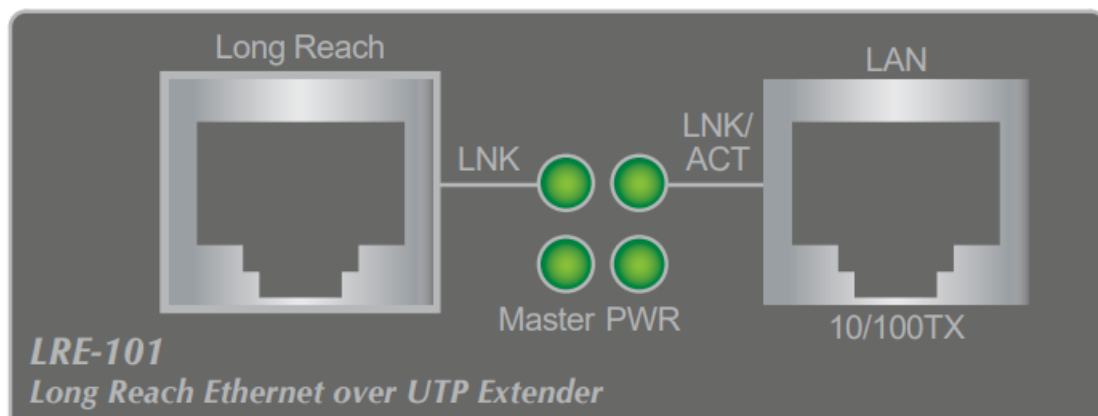
Dimensions (W x D x H): 94 x 70.3 x 26.2mm



Unit: mm

Front View

LRE-101 Front Panel



- 10/100TX RJ45 connector
- Long Reach RJ45 connector
- LEDs for power, Ethernet, Master and Long Reach

LRE-101 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 |
|-----|-------|---|
| PWR | Green | Lit: Indicates that the Ethernet Extender has power. |
| | | Off: Indicates that the Ethernet Extender has no power. |

Long Reach Ethernet interface

| LED | Color | Function |
|-----|-------|---|
| LNK | Green | Lit: Indicates that the Long Reach Ethernet link is established. |
| | | Off: Indicates that the port is link-down. |

10/100BASE-TX Port

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

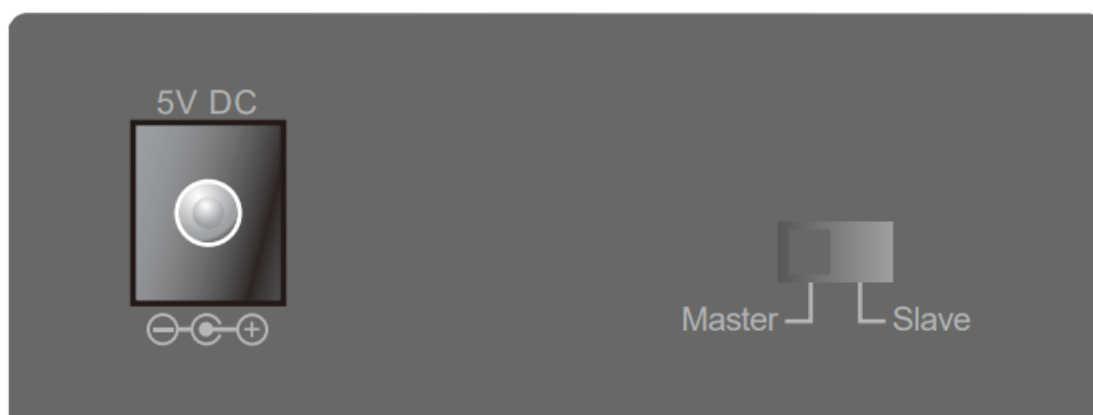
DIP Switch Setting

In the PtP setting, it can be one master and one slave.

| LED | Color | Function |
|--------|-------|--|
| Master | Green | Lit: Indicates that the LRE-101 is functioned as a Master . |
| | | Off: Indicates that the LRE-101 is functioned as a Slave . |

Rear View

LRE-101 Rear Panel




- DIP switch: **Master/Slave** mode selectable
- DC jack (DC input) for power adapter

DIP Switch

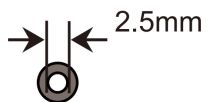
The Ethernet Extender provides a selectable 2-position DIP switch. When switching to “Master”, it supports PtP, meaning it can be one master and one slave.

| DIP | Function |
|--------|--|
| Master | The LRE-101 is functioned as a Master. |
| Slave | The LRE-101 is functioned as a Slave. |

| | |
|--|--|
|  NOTE | <p>By default, the 2-position DIP switch is set in the “Master” position and is operated as “CO”. To operate, slide the DIP 1 switch to the “Slave” position. Just slide it to whatever position you prefer to fulfill your application requirement.</p> |
|--|--|

Power Information

The LRE-101 requires 5V DC, 2A power input, which conforms to the bundled AC adapter. Should you have the issue of power connection, contact your local sales representative.



DC Receptacle 2.5mm
+5V for each slot



DC receptacle is 2.5mm wide that conforms to the Ethernet Extender 2.5mm 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.

Product Specifications

| | | |
|-------------------------|---|---|
| Product | LRE-101 | |
| Hardware Specifications | | |
| LAN Ethernet interface | 1 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 |
| | 1 RJ45 copper port | |
| | Cabling | Cat5 UTP cable Phone wire |
| | Maximum Distance | Max. 800m with data transmission (Cat5 UTP) 1200m with data transmission (Phone wire) |
| | Long Reach Ethernet Standard | IEEE 1901 |
| | Modulation Type | Wavelet-OFDM |
| | Security | 128-bit AES encryption |

| | | | | |
|------------------------|--|-----------------------------|------------------------------------|------------|
| Long Reach Interface | Frequency | 2~28MHz | | |
| | Band | | | |
| | Performance* | Distance | Data Rate (Upstream/Downstream) | |
| | | | UTP cable | Phone wire |
| | | 200 | 89/88Mbps | 81/80Mbps |
| | | 400 | 60/58Mbps | 59/52Mbps |
| | | 600 | 29/29Mbps | 52/44Mbps |
| | | 800 | 14/33Mbps | 28/22Mbps |
| | | 1000 | | 48/36Mbps |
| 1200 | | | 11/6Mbps | |
| Functionality | DIP Switch | Select Master or Slave mode | | |
| Dimensions (W x D x H) | 97 x 70.3 x 26 mm | | | |
| Weight | 194g | | | |
| Housing | Metal | | | |
| Power Requirement | 5V DC, 2A external power | | | |
| LED Indicators | Power: Green LAN: Green, 10/100Mbps LNK/ACT Long Reach: Green, LNK Master: Green | | | |
| 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 RJ45 port only supports 10/100TX Ethernet.

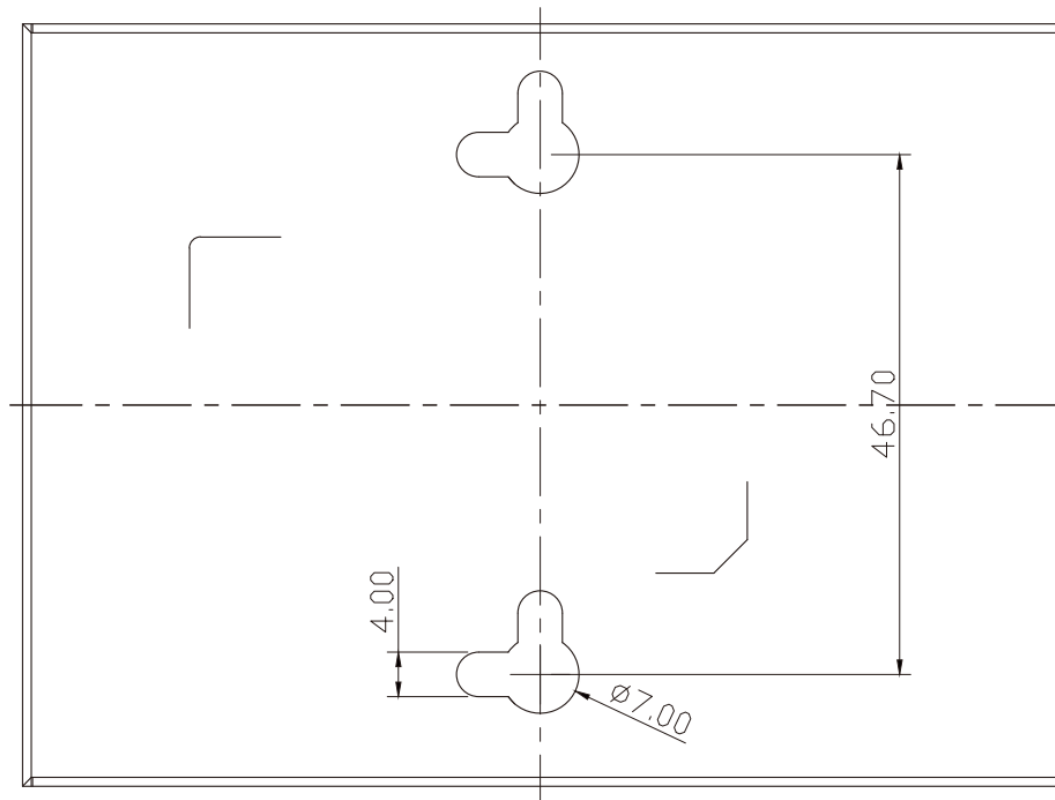
*** The actual data rate will vary in the quality of the UTP cables or Phone wire and environmental factors.

Installations

Wall-mount Installation

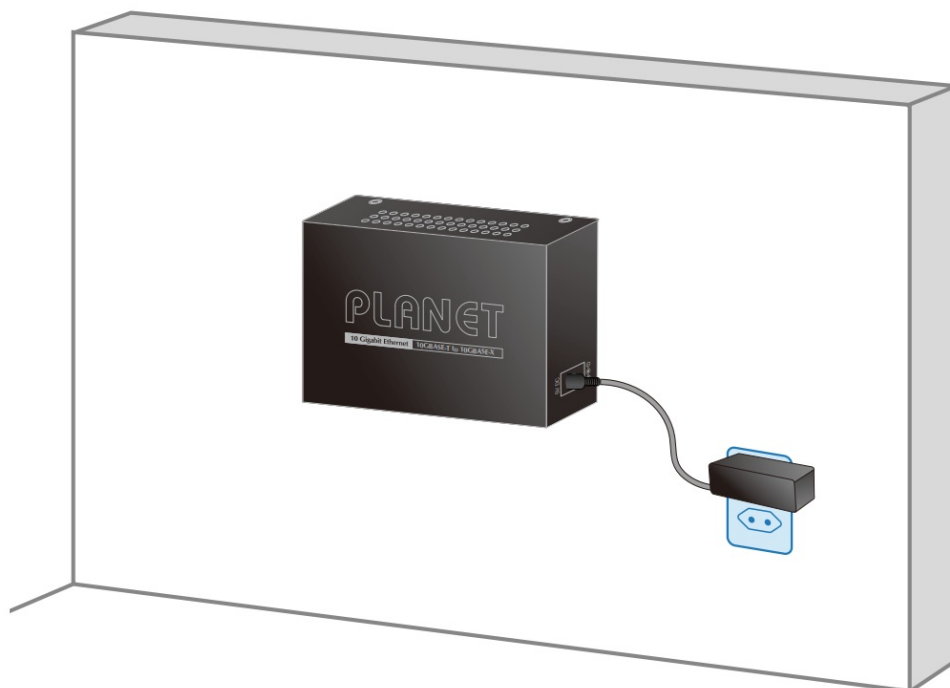
Step 1: Find a suitable wall to mount the LRE-101.

Step 2: Screw two screws on the wall.



Step 3: Hang the LRE-101 on the screws from the wall.

Step 4: Repeat Step 5 of Desktop Installation for power supply to the LRE-101.



Chassis Installation and Rack Mounting

To install the Ethernet Extender in a 10-inch or 19-inch Converter Chassis with standard rack, follow the instructions described below.

Step 1: Place your LRE-101 on a hard flat surface, with the front panel positioned towards your front side.


Step 2: Carefully slide in the module until it is fully and firmly fitted into the slot of the converter chassis.



Step 3: Attach a rack-mount bracket to each side of the Converter Chassis with supplied screws attached to the package.

Step 4: After the brackets are attached to the Converter Chassis, use suitable screws to securely attach the brackets to the rack.

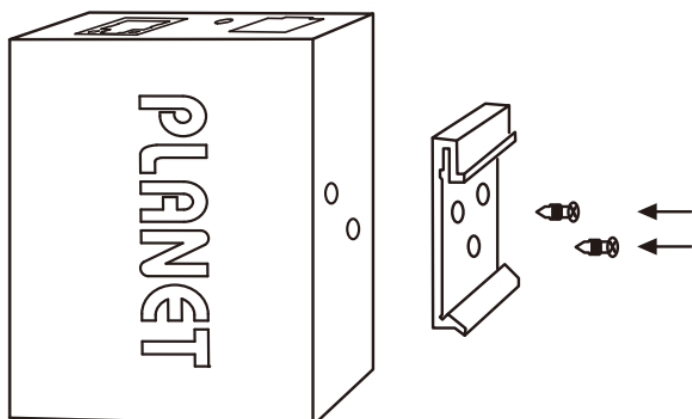
Step 5: Proceed with Step 4 and Step 5 of the 4.1 Installation section to connect the network cabling and supply power to your Converter Chassis.

| | |
|--|---|
|  Caution | You must use the screws supplied with the mounting brackets. Damage caused to the parts by using incorrect screws would invalidate your warranty |
|--|---|

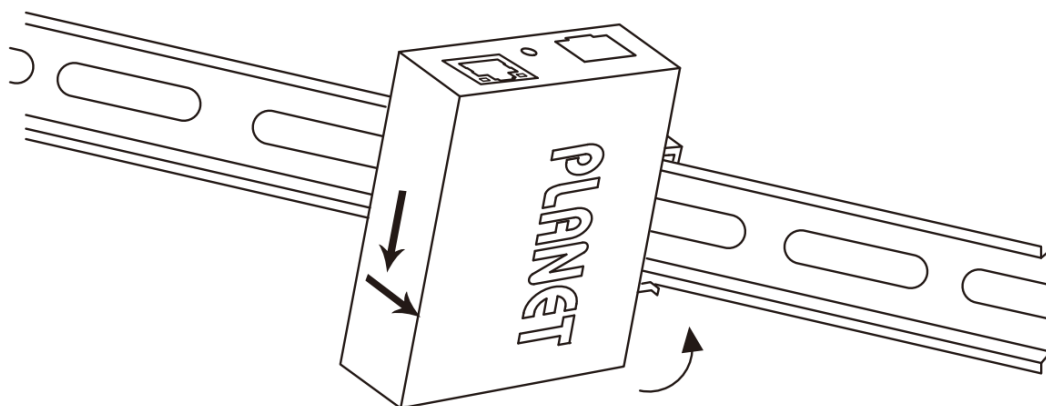
Optional DIN-rail Installation

There are two DIN-rail holes on the left side of the LRE-101 that allows to be easily installed by DIN-rail mounting. PLANET optional DIN-rail mounting kit – RKE-DIN — can be ordered separately. Refer to the following steps for the DIN-rail mounting of the LRE-101:

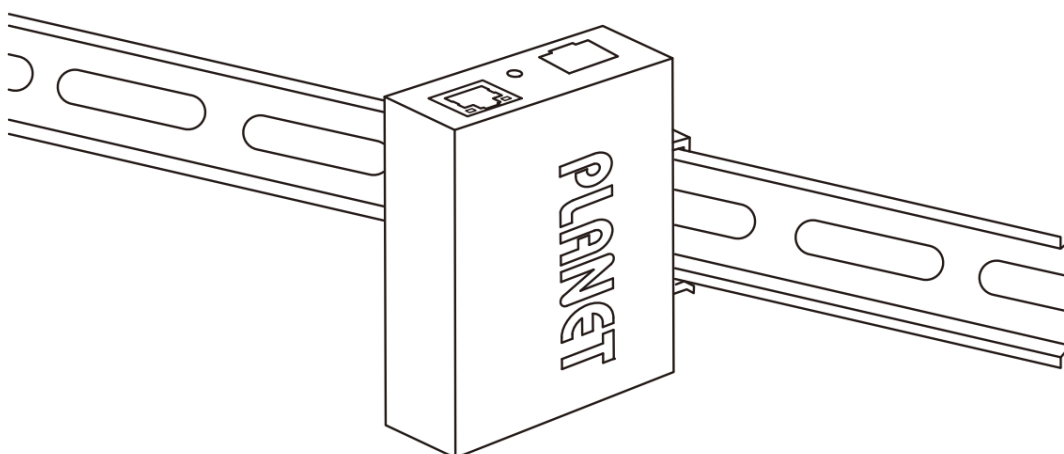
Step 1: Screw the DIN rail on the LRE-101.



Step 2: Now slide the DIN rail into the track.



Step 3: Check whether the DIN rail is tightly on the track.



Caution

You must use the screws supplied with the mounting brackets.
Damage caused to the parts by using incorrect screws would invalidate your warranty

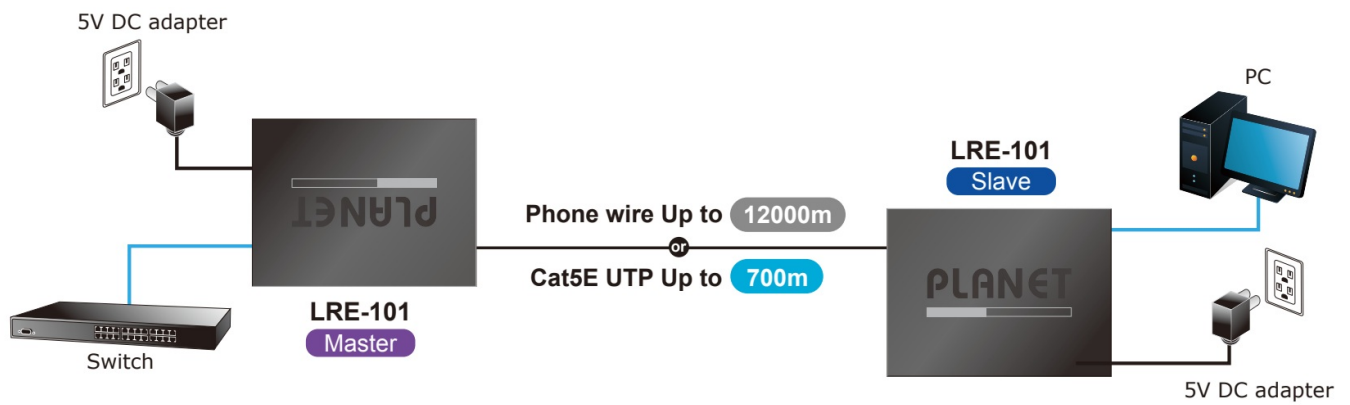
Applications

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.

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 (CO mode) and the other one is Slave (CPE mode).

Point to Point Application

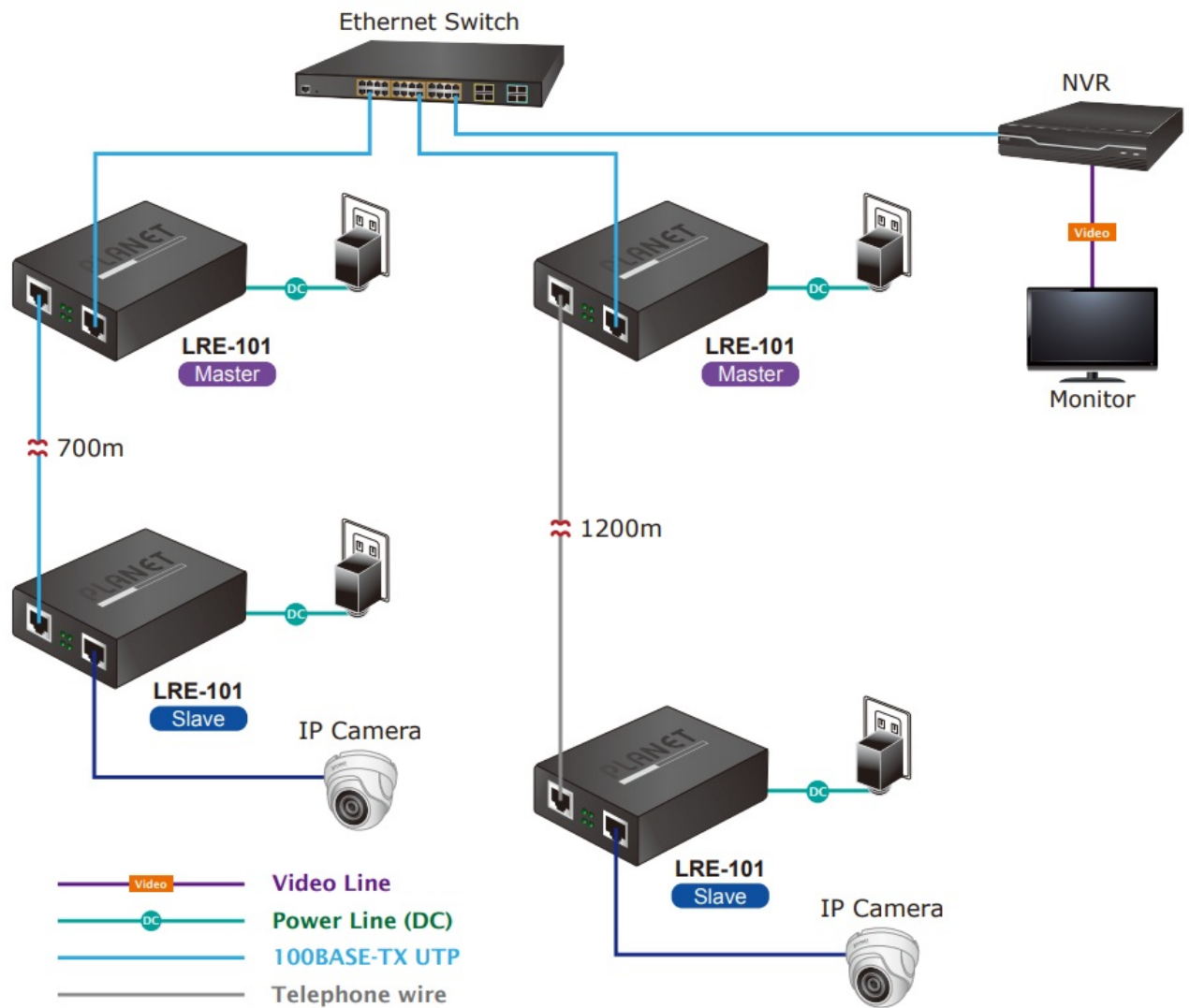


Connecting Standalone PC

Refer to the following procedures to set up the LRE-101 LAN to LAN connection.

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

LRE-101 Multi-Point to Multi-Point Application (IP surveillance)



Building an IP surveillance system

Refer to the following procedure to set up an IP surveillance system with many pairs of the LRE-101:

1. Set the LRE-101 to be in the Master or Slave mode from the DIP switch on the rear panel.
2. Power on the LRE-101 by connecting its power source.
3. Power LED will illuminate.
4. Connect UTP cable or Phone wire to the Long Reach ports of two LRE-101 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.

Performance Table

LRE-101 Upstream/Downstream Performance

| Phone wire | (Upstream/Downstream) Unit: Mbps | |
|------------------|----------------------------------|----|
| Distance (meter) | | |
| 200 | 81 | 80 |
| 400 | 59 | 52 |
| 600 | 52 | 44 |
| 800 | 28 | 22 |
| 1000 | 48 | 36 |
| 1200 | 11 | 6 |

| Cat5 | (Upstream/Downstream) Unit: Mbps | |
|------------------|-------------------------------------|----|
| Distance (meter) | | |
| 200 | 89 | 88 |
| 400 | 60 | 58 |
| 600 | 29 | 29 |
| 800 | 14 | 33 |

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

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-101 in Master mode and the other LRE-101 in Slave mode to make connection to each other work.

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-101 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 with the correct type.
6. The connecting device, including any network adapter, is functional.

FAQs

Q1: What is the best distance for LRE-101?

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).

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


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Documents / Resources

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|  | <p>PLANET Technology LRE-101 Long Reach Ethernet Extender [pdf] User Manual LRE-101, LRE-101 Long Reach Ethernet Extender, Long Reach Ethernet Extender, Ethernet Extender, Extender</p> |
|---|--|