# Long Reach PoE over Coaxial Extender

TAIWAN EXCELLENCE 2016

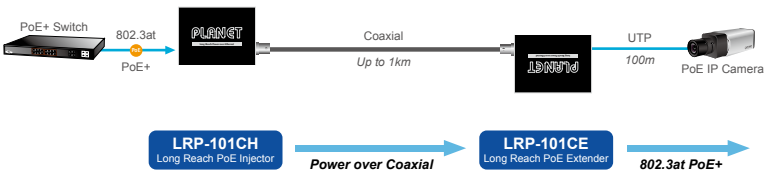


PLANET Technology Long Reach PoE Solution enables all enterprises and network service providers to set up an IP infrastructure in a remote location where 802.3af/at PoE compliant powered devices can receive both data and power via PLANET switches, and PLANET LRP extenders and injectors over a long distance but not limited to the normal 100 meters.

### *Data and Power Transmitted over Long Distance*

PLANET LRP-101CE, a PLANET Long Reach PoE solution, is a single-port 802.3at PoE+ Extender that is installed at a remote location connecting to an PoE IP camera or PoE wireless AP. The LRP-101CE has to work with PLANET single-port Long Reach PoE Injector or Multiple-channel Long Reach PoE Switch to be able to simultaneously transmit both data and power to a PD over a distance of up to 1,000m (3,280ft) over coaxial cable. The LRP-101CE provides a maximum of 25-watt power output over Ethernet cable to a remote PoE IP camera, PoE wireless AP or access control systems complied with 802.3af/at PoE.

- Point to Point Installation







## Physical Port

- 1 x 10/100BASE-TX RJ45 copper interface, supporting IEEE 802.3af/at PoE PSE
- 1 x BNC connector, supporting 44~56V DC power input and Ethernet data transmission

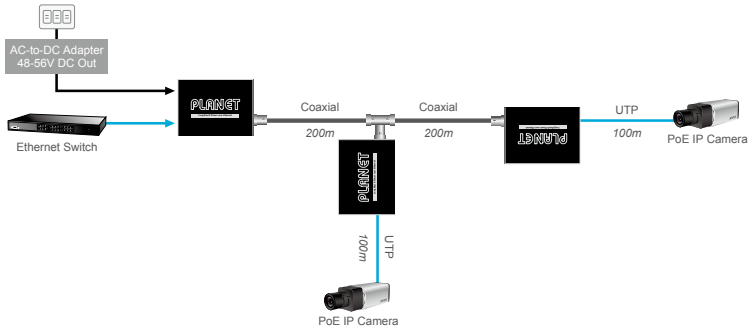
## Power over Ethernet

- Supports Power over Ethernet PSE, PoE Injector
- Eliminates power cabling with PoE over Coaxial
- Power and Ethernet data transmission over coaxial up to 1km
- Complies with IEEE 802.3af / IEEE 802.3at Power over Ethernet PSE on RJ45 port
- Supports PoE power up to 25 watts (depending on Power Source and Coaxial Distance)
- Auto detects remote powered device (PD)

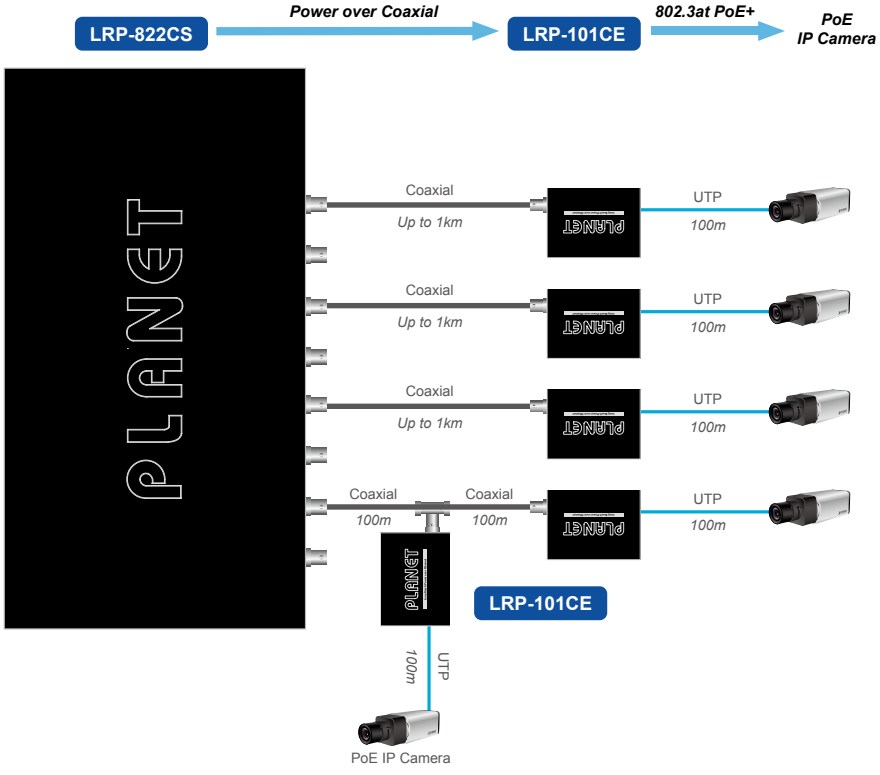
## Industrial Case / Installation

- Supports extensive LED indicators for network diagnostics
- Metal case protection
- Compact size, DIN-rail and wall-mount design
- Power Input: PoC (Power over Coaxial) power input
- Supports 4KV DC Ethernet ESD protection
- -20 to 70 degrees C operating temperature

- Single Chain, Multi-point Installation

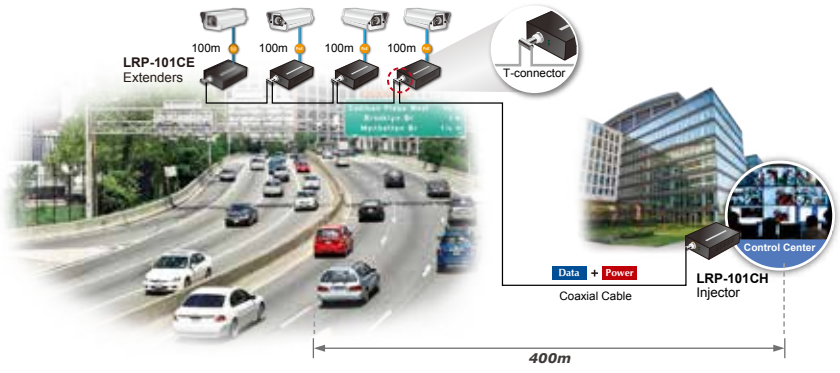



- Point to Multi-point Installation



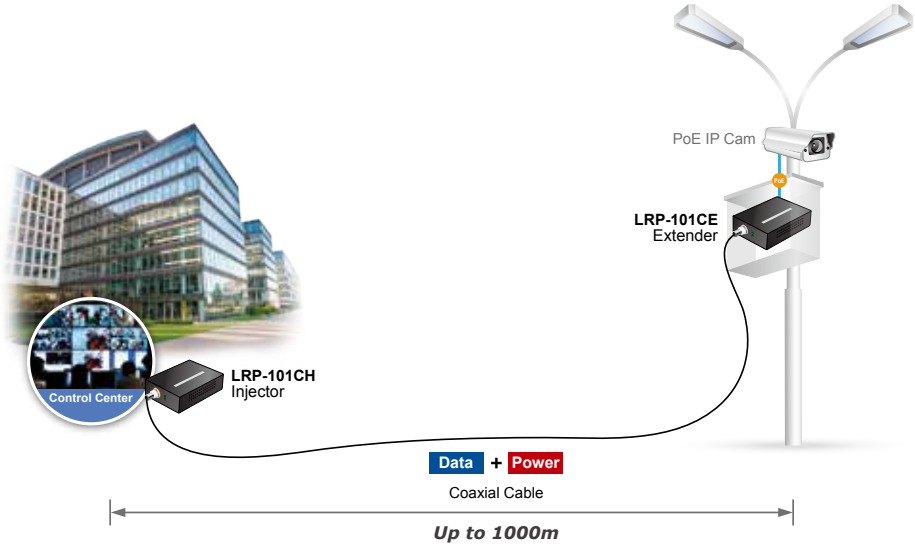

### *Daisy-chaining Multiple Nodes*

PLANET Long Reach PoE solution can easily build a power system for centrally-controlled IP cameras in a high availability network infrastructure. It gives users the flexibility to expand small area network with BNC T-connector for sharing four nodes per port when needed.



### *IP Ethernet and Power over Long Existing Coaxial Cable*

A normal UTP cable can only be extended up to 100 meters, but the LRP-101CE, when working with the LRP Injector or LRP Switch, can extend PoE networking up to 1,000 meters (3,280ft) over 75 ohm coaxial cable with stable, high-quality video transmission. It eliminates the need for an additional electrical outlet as its single power source can provide power to a PoE PD at long range via the LRP-101CE.




### *Stable Operating Performance under Difficult Environments*

PLANET Long Reach PoE Extender is the perfect solution for extended data and power transmission for warehouses, parking lots, campuses, casinos, and many more. It can operate stably under temperature range from -20 to 70 degrees C which enables the users to conveniently apply the device in any harsh environment. Without the problem of power source, it makes the installation of remote PoE powered devices easier and more efficiently.

### *Plug-n-play Installation*

With the plug and play feature, the LRP-101CE can be used immediately without the need of configuration and is also compliant with all kinds of IP network protocols. If there is a network disconnection, it can be re-connected in less than 5 seconds. Moreover, the rich diagnostic LEDs on the front panel show the operating status of the individual port and the whole system, enabling the administrator to efficiently manage the network.

## Applications

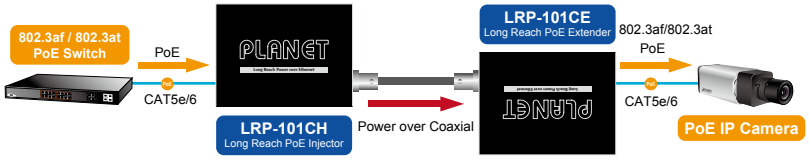
### *Working Hand in Hand as a Kit*

Working in pair with PLANET LRP-101CH Long Reach PoE Injector, powered by either the external DC power adapter or PoE+ Ethernet switch, the LRP-101CE's 802.3at standard PoE output goes to a PoE PD. The LRP-101-C-KIT, made up of the LRP-101CH and LRP-101CE, can be widely used in Intelligent Transportation Systems (ITS), traffic surveillance, security monitoring, automation control, intelligent residential districts and so on.

The LRP-101C-KIT can function in three different kinds of combinations:

### *Type 1 – LRP-101CH with PoE power input and LRP-101CE with PoE power output*

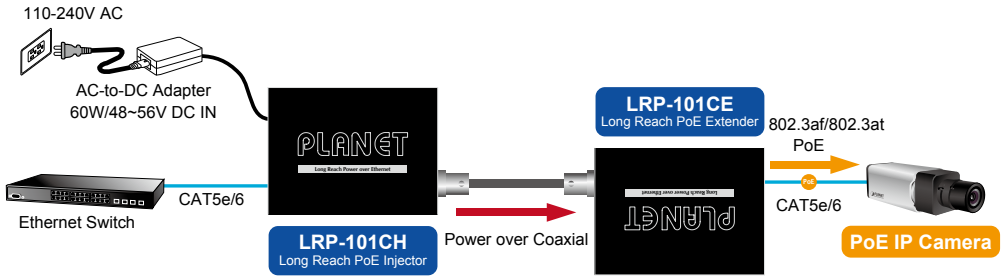
The LRP-101CH injector, powered by IEEE 802.3at/af PoE source, transmits data and power over coaxial cable to the LRP-101CE extender. An IEEE 802.3at/af compliant PoE PD will then automatically be powered by the LRP-101CE via UTP cabling.




| Functions | LRP Injector | LRP Extender |
|---|---|---|
| | LRP-101CH | LRP-101CE |
| Power Input | RJ45 with 802.3at/af PoE input | BNC with DC power over coaxial input |
| Power Output | BNC with DC power over coaxial output | RJ45 with 802.3at/af PoE output |

*Type 2 – LRP-101CH with 48~56V DC power input and LRP-101CE with PoE power output*

The LRP-101CH injector, powered via the DC power adapter, transmits data and power over coaxial cable to the LRP-101CE extender. An IEEE 802.3at/af compliant PoE PD will then automatically be powered by the LRP-101CE via UTP cabling.

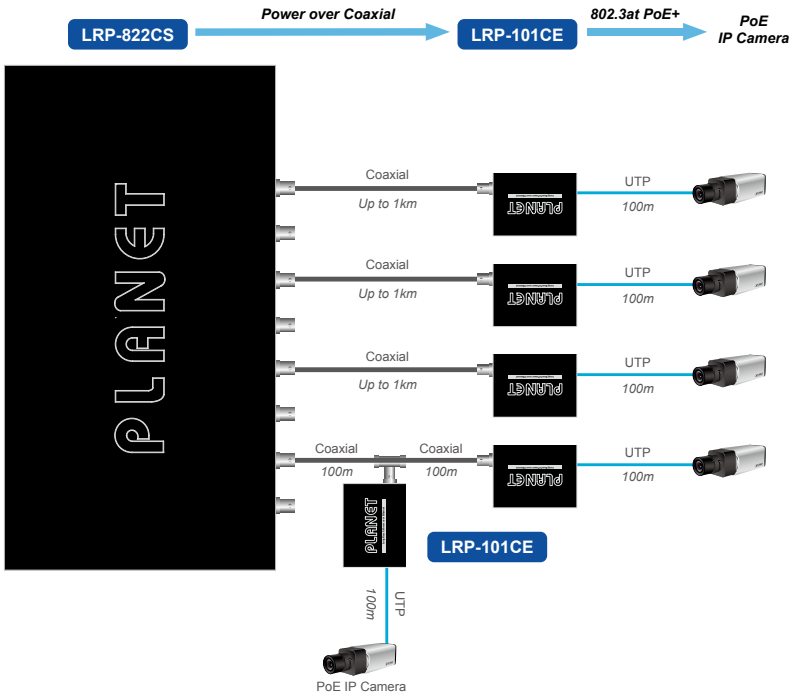



| Functions | LRP Injector | LRP Extender |
|---|---|---|
| | LRP-101CH | LRP-101CE |
| Power Input | Power adapter with 48~56V DC in | BNC with DC power over coaxial input |
| Power Output | BNC with DC power over coaxial output | RJ45 with 802.3at/af PoE output |

*Type 3 –Multi-channel Long Reach PoE Switch Topology*

LRP switch with 100~240V AC power input and multiple LRP-101CEs with PoE power output

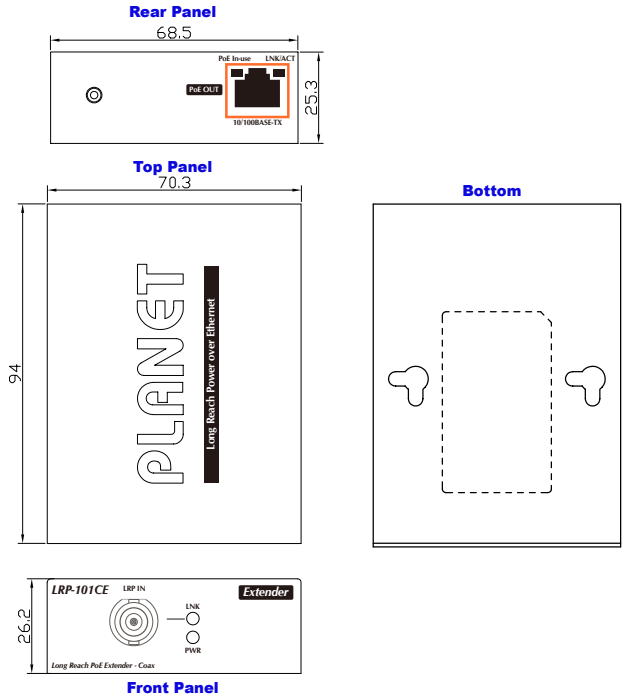
Powered by the Long Reach PoE Switch via coaxial cables, the LRP-101CE can automatically deliver power and data to the IEEE 802.3at/af compliant PoE PDs via UTP. It successfully eliminates the need for an additional power source for the LRP-101CE and the PoE PDs at long range.




| Functions | LRP Switch | LRP Extender |
|---|---|---|
| | LRP-822CS / LRP-1622CS | LRP-101CE |
| Power Input | 100~240V AC | BNC with DC power over coaxial input |
| Power Output | BNC with DC power over coaxial output | RJ45 with 802.3at/af PoE output |

# Specifications

| | | | | | |
|---|---|---|---|---|---|
| Model | | LRP-101CE | | | |
| Functions | | Long Reach PoE Extender | | | |
| Hardware Specifications | | | | | |
| Ethernet Interface | Copper | 10/100BASE-TX RJ45<br>auto-negotiation / auto-MDI/MDI-X | | | |
| | Power over Ethernet Standard | IEEE 802.3at/af PoE PSE (Power Source Equipment) | | | |
| | PoE Output | 56V DC, 600mA max. | | | |
| | PoE Budget | Up to 25 watts | | | |
| | PoE Mode | End-span, RJ45 Pin 1/2(+), 3/6(-) | | | |
| | Data Rate | 100/100Mbps | | | |
| | Cabling | Cat5e or above | | | |
| | Maximum Distance | 100 meters | | | |
| | Maximum Frame Size | 1522bytes | | | |
| Long Reach PoE Interface | Connectivity | 1 x BNC female<br>Long Reach PoE over coaxial PD (Powered Device) | | | |
| | Power Input | 37~56V DC* | | | |
| | Power Pin Assignment | – BNC center pole : DC+ / Hi<br>– BNC shield : DC - / Lo | | | |
| | Cabling | Coaxial cable: 75 ohm<br>RG-6/U cable, less than 12Ω/1,000 ft.<br>RG-59/U cable, less than 30Ω/1,000 ft. | | | |
| | Maximum Distance | Max. 200m with PoE+ output (656ft.)<br>Max. 600m with PoE output (1,968ft.)<br>Max. 1,200m without PoE output (3,937ft.) | | | |
| | Long Reach Ethernet Standard | IEEE 1901 | | | |
| | Modulation Type | Wavelet-OFDM | | | |
| | Security | 128-bit AES encryption | | | |
| | Frequency Band | 2 ~ 28 MHz | | | |
| | Encryption | AES 128-bit | | | |
| | Performance** | Distance | Data Rate*<br>(Upload / Download) | LRP-101CE 802.3af/at PoE Output Capability** | |
| | | | | LRP-101CH<br>with 56V DC in | LRP-101CH with 30-watt PoE+ in |
| | | 200m | 93 / 93Mbps | 29W | 16W |
| | | 400m | 93 / 93Mbps | 22W | 14W |
| | | 600m | 87 / 91Mbps | 13W | 10W |
| | | 800m | 75 / 83Mbps | 10W | 8W |
| | | 1,000m | 55 / 73Mbps | 8W | 7W |
| | Multiple Nodes | Supports up to 4 LRP extenders within 1km | | | |
| | LRP Compatibility | With power over coaxial input<br>– LRP-101CH – 1-Port LRP Injector<br>– LRP-822CS – 8-Port LRP over Coax Switch<br>– LRP-1622CS – 16-Port LRP over Coax Switch | | | |
| LED Indicators | | 4 x LEDs<br>– PWR<br>– LRP LNK<br>– PoE-in-use<br>– LNK/ACT | | | |
| ESD Protection | | 4KV DC | | | |
| Enclosure | | Metal case | | | |
| Installation | | Wall mount or DIN rail with optional kit | | | |
| Dimensions (W x D x H) | | 94 x 70 x 26 mm | | | |
| Weight | | 375g | | | |
| Power Requirements | | BNC Power over Coaxial Input: 44~56V DC | | | |
| Standards Conformance | | | | | |
| Standards Compliance | | IEEE 802.3 10BASE-T Ethernet<br>IEEE 802.3u 100BASE-TX Fast Ethernet<br>IEEE 802.3af Power over Ethernet (802.3at Type 1)<br>IEEE 802.3at Power over Ethernet Plus(802.3at Type 2) | | | |
| Regulation Compliance | | FCC Part 15 Class A, CE | | | |
| Environment | | | | | |
| Temperature | | Operating: -20~70 degrees C<br>Storage: -40~75 degrees C | | | |
| Humidity | | Operating: 5~95% (Non-condensing)<br>Storage: 5~95% (Non-condensing) | | | |
| Note | | *1. Upload: LRP-101CE to LRP-101CH, data stream.<br>Download: LRP-101CH to LRP-101CE, data stream.<br>2. As there are various resistance values in the category of RG-59/U or RG-6/U cable, the actual data rate will vary on the quality of the copper wire and environment factors.<br>** Depending on what the DC/PoE Power Input and the length of coaxial cable are. | | | |




## Ordering Information

| | |
|---|---|
| LRP-101CE | Long Reach PoE over Coaxial Extender (1km) |

## Related Products

| | |
|---|---|
| LRP-101UE | Long Reach PoE over UTP Extender (500m) |
| LRP-101C-KIT | Long Reach PoE over Coaxial Extender Kit (Coaxial, 1km) |
| LRP-101U-KIT | Long Reach PoE over UTP Extender Kit (UTP, 500m) |

## Related PoE Products

| | |
|---|---|
| ICA-2200 | Full HD PoE Box IP Camera |
| ICA-2250VT | Industrial PoE Plus Outdoor IR IP Camera |
| ICA-2500 | 5 Mega-pixel PoE Box IP Camera |
| ICA-3250V | Full HD Outdoor IR PoE IP Camera |
| ICA-4200V | Full HD 20M IR Vari-focal Dome IP Camera |
| ICA-4500V | 5 Mega-pixel 20M IR Vari-focal Dome IP Camera |
| ICA-5250 | Full HD Ultra-mini Vandal Dome |
| ICA-5350V | 3 Mega-pixel Vandalproof IR IP Camera |
| ICA-HM127 | 3 Mega-pixel H.264 Box IP Camera |
| ICA-HM136 | H.264 2 Mega-pixel 20M IR Vandalproof Dome IP Camera |
| ICA-HM351 | 2 Mega-pixel 35M IR Outdoor Box PoE IP Camera |
| ICA-HM620 | 2 Mega-pixel PoE Plus Speed Dome Internet Camera |
| POE-162S | IEEE 802.3at Gigabit High Power over Ethernet Splitter |
| POE-E201 | IEEE 802.3at Power over Ethernet Extender |
| WNAP-C3220 | 802.11n Wireless Ceiling-mount PoE Access Point |
| WNAP-W2200 | 802.11n 300Mbps In-Wall Access Point w/ USB Charger (EU Type) |
| WDAP-C7400 | 900Mbps Dual Band Ceiling-mount Wireless Access Point |
| WDAP-C7200AC | 1200Mbps 802.11ac Dual Band Ceiling-mount Wireless Access Point |
| VIP-256PT | 802.3af PoE SIP IP Phone |
| VIP-2020PT | Enterprise HD PoE IP Phone (2-Line) |
| VIP-5060PT | Professional HD PoE IP Phone (6-Line) |

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**LRP-101CE**

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