

Product Specifications

Long Reach PoE over Coaxial Extender Kit

LRP-101C-KIT

Version 1.0

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Change History:

Revision:	Date:	Author:	Change List
Version 1.0	5/6/2015	Marc Liao	Initial Release

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Reviewed by:	Kent Kang	Approved by:	Tom Shih

1. PRODUCT DESCRIPTION



Convenient PoE over Coaxial Extender in Harsh Environment

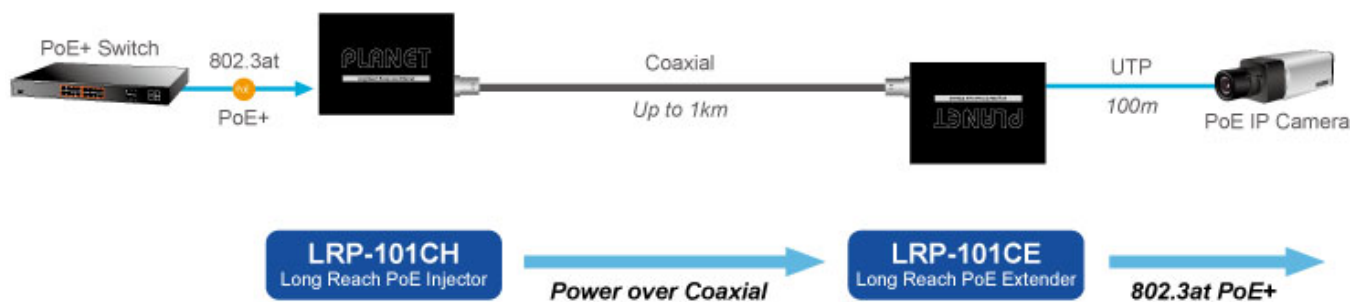
The LRP-101C-KIT, a PLANET Long Reach PoE solution, is a **Single-port PoE over Coaxial Extender Kit** featuring long range data and power transmission for distance up to **1,000m (3,280ft)** over **coaxial** cable, and another 100m over Ethernet cable to remote PoE IP camera, PoE wireless AP or access control systems complied with **802.3af/at PoE**. The LRP-101C-KIT provides point to point application for easy plug-n-play operation and deployment in climatically demanding environments with wide temperature range from **-20 to 70 degrees C**. Without the problem of power source, it makes the installation of remote PoE powered devices easier and more efficiently.

Composition of Long Reach PoE over Coaxial Extender Kit

The LRP-101C-KIT consists of a **Long Reach PoE injector** and a **Long Reach PoE extender** set which can work in pair anywhere on your network infrastructure. It contains two brand-new products:

- **LRP-101CH**: 1-Port 10/100TX PoE PD + 1-Port Coax Long Reach PoE Injector
- **LRP-101CE**: 1-Port 10/100TX PoE PSE + 1-Port Coax Long Reach PoE Extender

The LRP-101CH transmits data and power over coaxial cable to the LRP-101CE, which can be located as far as 1,000m away. It will then deliver the data and power output with a maximum of up to 25 watts to a PoE PD over Ethernet cable, thus expediting the IP surveillance network or wireless LAN infrastructure in long distance. Both of the two products come in a compact but rugged metal housing. Their wall-mounted design fits easily in any space-limited location.



Functions	LRP Injector	LRP Extender
	LRP-101CH	LRP-101CE
Power Input	RJ45 with 802.3at/af PoE input or 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
LAN Connection	NVR or PoE+ Ethernet switch at head-end	PoE IP camera, PoE wireless AP, PoE access control at remote site

IP Ethernet and Power over Long Existing Coaxial Cable

A normal UTP cable can only be extended up to 100 meters, but the LRP-101C-KIT 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 additional remote site power while allowing a single power source to provide power to both LRP extenders and the PoE IP camera at long range.

Stable Operating Performance under Difficult Environments

PLANET Long Reach PoE Extender Kit is the perfect solution for distance extension for PoE or non-PoE networking for warehouses, parking lots, campuses, casinos, and many more. They can operate stably under temperature ranging from **-20 to 70 degrees C** to enable the users to conveniently operate the kit in almost any location.

Plug-n-play Installation

With the plug and play feature, PLANET Long Reach PoE Extender Kit can be used immediately without the need of configuration and is also compliant with all kinds of IP network protocols. 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.

2. PRODUCT FEATURES

▶ Power over Ethernet

- Eliminates power cabling with PoE over coaxial
- Supports Power over Ethernet PSE (PoE Injector)
- Power and Ethernet data transmission of 1,000m over coaxial cabling
- Complies with IEEE 802.3af / IEEE 802.3at Power over Ethernet PD on RJ45 port
- Supports Long Reach PoE power up to 30.8 watts (depending on power source and cable distance)
- Supports PoE Power up to 25 watts (depending on power source and cable distance)
- Auto detects remote powered device (PD)
- Plug and Play; no PC required

▶ Industrial Case and Installation

- Supports extensive LED indicators for network diagnostics
- Metal case protection

- Compact size, DIN-rail and wall-mount design
- Supports EFT surge protection of 2kV DC for power line
- Supports Ethernet ESD protection of 2kV DC
- -20 to 70 degrees C operating temperature

3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

LRP-101CH:

IEEE 802.3at PD IC: LinerTech LTC4278

Long Reach Ethernet IC: Xingtera XT810

LRP-101CE:

IEEE 802.3at PSE IC: Microsemi PD69101

Long Reach Ethernet IC: Xingtera XT810

3.2 FUNCTION SPECIFICATIONS

Model	LRP-101CH		LRP-101CE	
Functions	Long Reach PoE Injector		Long Reach PoE Extender	
Hardware Specifications				
Ethernet Interface	Copper	10/100BASE-TX RJ45 Auto-negotiation/ auto-MDI/MDI-X		
	Power over Ethernet Standard	IEEE 802.3at/af PoE PD (Powered Device)	IEEE 802.3at/af PoE PSE (Power Source Equipment)	
	PoE Input	Supports both Mid-Span and End-Span PSE Input Range: 48~56V DC	-	
	PoE Output	-	56V DC, 600mA max.	
	PoE Budget	-	Up to 25 watts	
	PoE Mode	-	End-span, RJ45 Pin 1/2(+), 3/6(-)	
	Data Rate	10/100Mbps		
	Cabling	Cat5e or above		
	Maximum Distance	100 meters		
	Maximum Frame sizes	1522bytes		
Long Reach PoE Interface	Connectivity***	1 x BNC female connector Long Reach PoE over coaxial PSE (Power Source Equipment)	1 x BNC female Long Reach PoE over coaxial PD (Powered Device)	
	Power Input	-	37~ 56V DC	
	Power Output	41~ 56V DC	-	
	Power Pin Assignment	<ul style="list-style-type: none"> ■ BNC center pole : DC+ ■ BNC shield : DC - 	<ul style="list-style-type: none"> ■ BNC center pole : DC+ ■ BNC shield : DC - 	

	Cabling	Coaxial cable: 75 ohm RG-6/U cable, less than 12Ω/1000 ft RG-59/U cable, less than 30Ω/1000 ft.		
	Maximum Distance	Max. 200m with PoE+ output (656ft.) Max. 600m with PoE output (1968ft.) Max. 1200m 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* (Upload / Download)	LRP-101CE 802.3af/at PoE Output Capability**
			LRP-101CH W/56V DC IN	LRP-101CH W/30W PoE+ IN
	200m	93 / 93 Mbps	29W	16W
	400m	93 / 93 Mbps	22W	14W
	600m	87 / 91 Mbps	13W	10W
	800m	75 / 83 Mbps	10W	8W
	1000m	55 / 73 Mbps	8W	7W
LED Indicators	4 x LEDs ■ PWR ■ LRP LNK ■ PoE IN ■ LNK/ACT		4 x LEDs ■ PWR ■ LRP LNK ■ PoE-in-use ■ LNK/ACT	
ESD Protection	2KV DC			
EFT Protection	2KV		-	
Enclosure	Metal case			
Installation	Wall mount or DIN rail with optional kit			
Power Requirements	■ RJ45 PoE Input: 802.3at/af 48~56V DC ■ DC Input: 48~56V DC		BNC Power over Coaxial Input: 44~56V DC	
Standards Conformance				
Standards Compliance	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3af Power over Ethernet (802.3at Type 1) IEEE 802.3at Power over Ethernet (802.3at Type 2)			

* 1. Upload: LRP-101CE to LRP-101CH data stream. Download: LRP-101CH to LRP-101CE data stream.

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.

** Depending on what the DC/PoE power input and the length of coaxial cable are.

*** The LRP coaxial interface is allowed for LRP-xxx-Cx connection wrong connection could damage the connection partner.

3.3 PHYSICAL SPECIFICATIONS:

- **Dimensions:**
94 x 70 x 26 mm (W x D x H)
- **Weight:**
LRP-101CH: 200g
LRP-101CE: 375g
- **LRP-101CH Drawing**

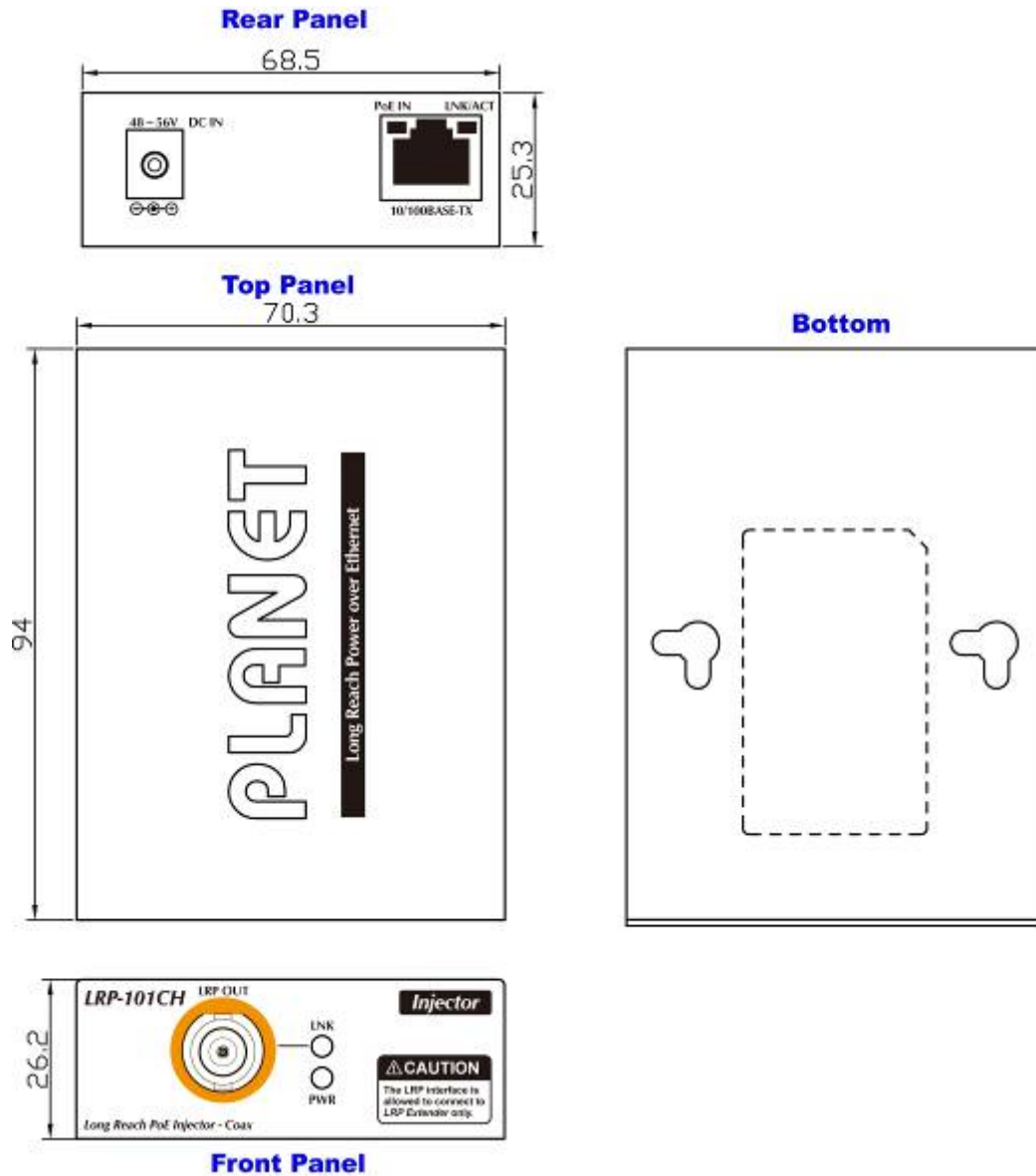


Figure 3-1: LRP-101CH Diagram

■ Front Panel

Figure 3-2 and Figure 3-3 shows the front panel and rear panel of the LRP-101CH.

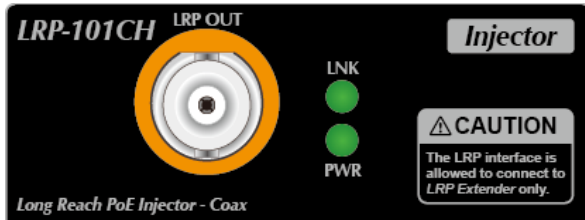


Figure 3-2: LRP-101CH front panel



Figure 3-3: LRP-101CH rear panel

■ LRP-101CH LED Indicators

> System

LED	Color	Function	
PWR	Green	Lit	Power ON: PoE+ / PoE power input from RJ45 PoE PD port. Power ON: 48~56V DC power input from DC jack.
		Off	Power Off.

> LRP Coaxial Interface

LED	Color	Function
LNK	Green	Lit: indicates that the LRP coaxial link is established.
		Off: indicates that the LRP coaxial link is down.

> RJ45 10/100BASE-TX Interface

LED	Color	Function
PoE IN	Amber	Lit: indicates the RJ45 port is receiving the PoE Power.
LNK/ACT	Green	Blink: indicates the extender is actively sending or receiving data over that port.

■ LRP-101CE Drawing

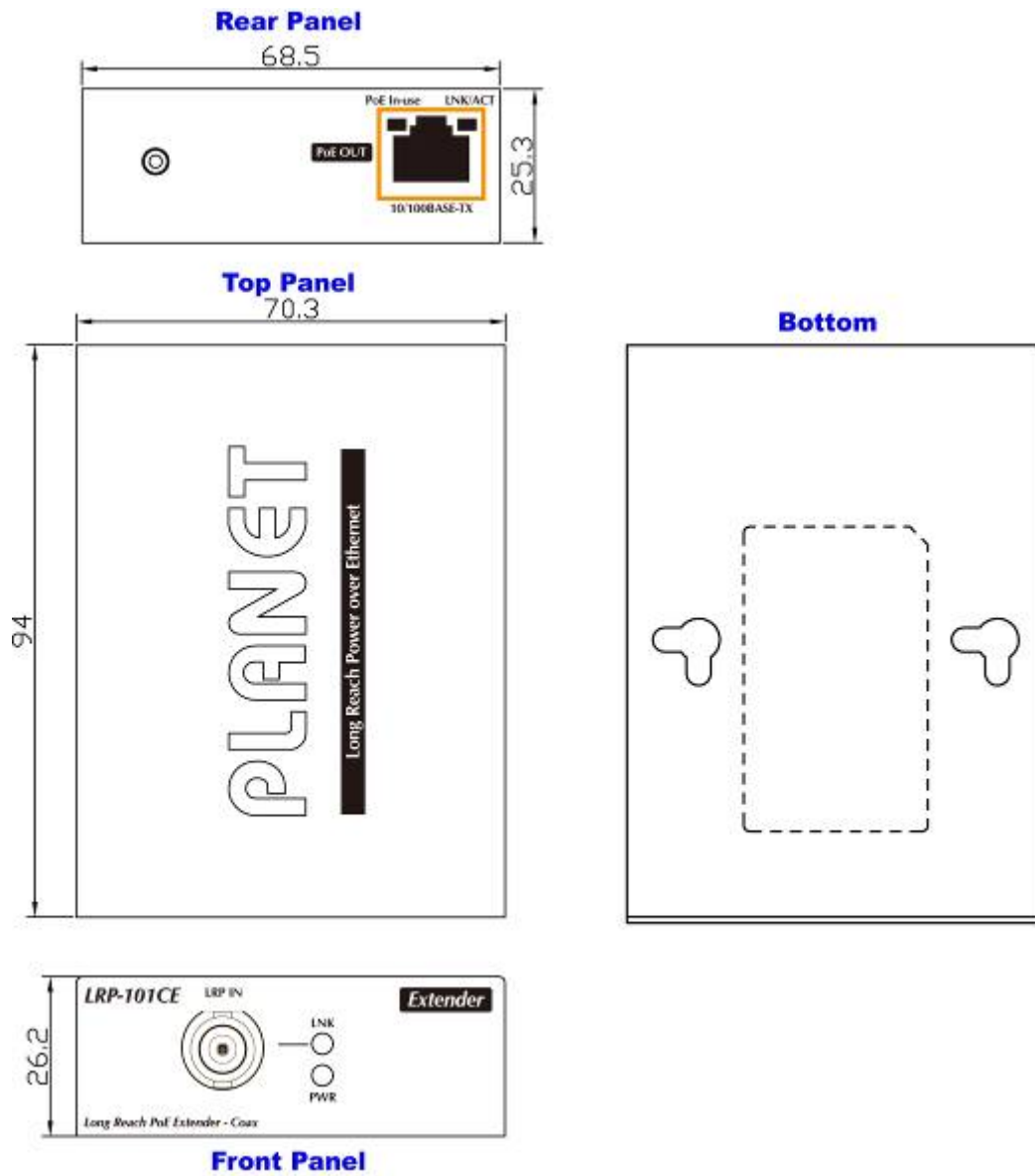


Figure 3-4: LRP-101CE Diagram

■ Front Panel

Figure 3-5 and Figure 3-6 shows the front panel and rear panel of the LRP-101CE.

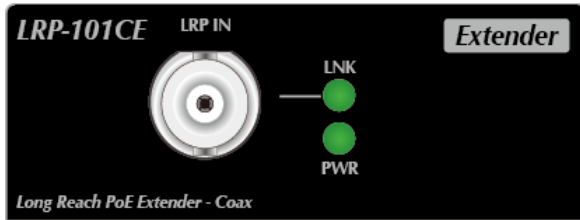


Figure 3-5: LRP-101CE front panel



Figure 3-6: LRP-101CE rear panel

■ LRP-101CE LED Indicators

➤ System

LED	Color	Function
PWR	Green	Lit: indicates the power is on.

➤ LRP Coaxial Interface

LED	Color	Function
LNK	Green	Lit: indicates that the LRP coaxial link is established.
		Off: indicates that the LRP coaxial link is down.

➤ RJ45 10/100BASE-TX Interface

LED	Color	Function
PoE-in-Use	Amber	Lit: indicates the RJ45 Port is providing PoE power.
LNK/ACT	Green	Blink: indicates the extender is actively sending or receiving data over that port.

3.4 ENVIRONMENTAL SPECIFICATIONS

Operating:

Temperature:	-20°C ~ 70 degrees C
Relative Humidity:	5% ~ 95% (non-condensing)

Storage:

Temperature:	-40°C ~ 75 degrees C
Relative Humidity:	5% ~ 95% (non-condensing)

3.5 ELECTRICAL SPECIFICATIONS

Input Voltage:		DC Input: 48V DC	DC Input: 56V DC	RJ45 802.3at PoE Input:
Power Consumption	Stand by@1km	4.3 watts / 14BTU	5 watts / 17BTU	5.2 watts / 17BTU
	Ethernet Link@1km	4.8 watts / 16BTU	5 watts / 17BTU	5.3 watts / 18BTU

3.6 REGULATORY COMPLIANCE

FCC Part 15 Class A, CE

3.7 RELIABILITY

MTBF > 100,000 hrs @ 25 degrees C

3.8 BASIC PACKAGING

- LRP-101CH X1
- LRP-101CE X1
- User's Manual X1
- Warning Sticker X1

3.9 PACKING DIMENSIONS

Dimensions: Box	229 x 197 x 70mm (W x D x H)
Weight:	618g (gross weight)
Dimensions: Carton	480 x 430 x 390mm (W x D x H)
	20pcs in one carton