Long Reach PoE over Coaxial Extender

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.
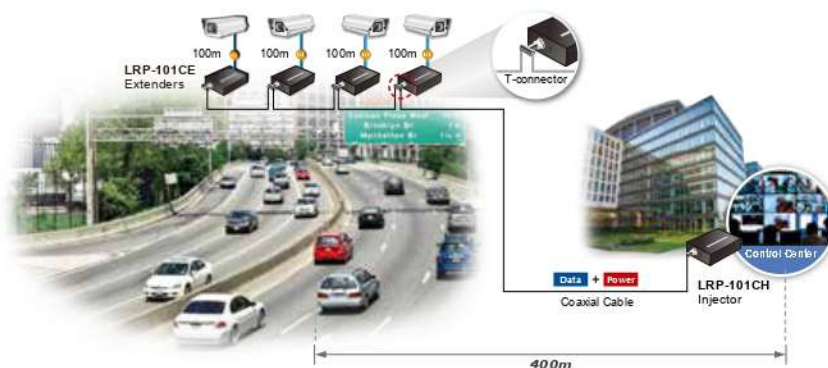
IP Ethernet and Power over Long Existing Coaxial Cable

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.
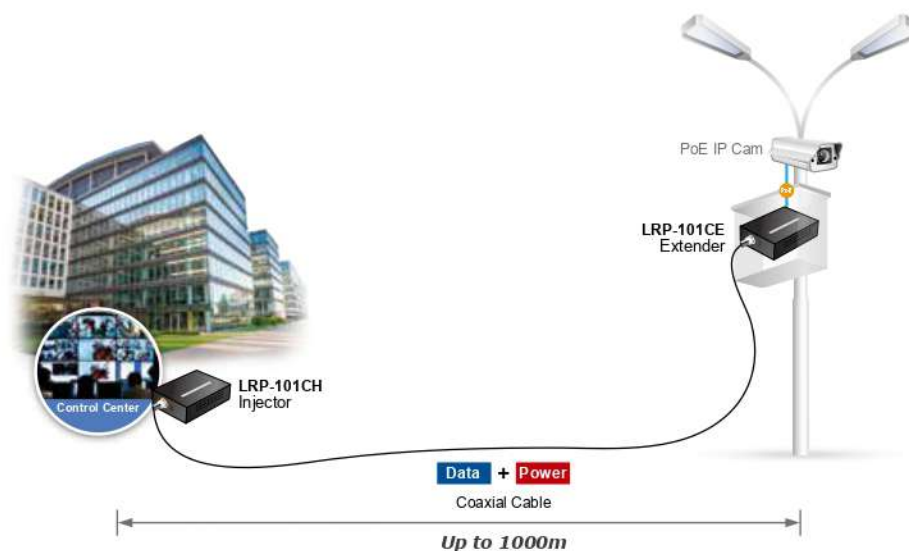
Stable Operating Performance under Difficult Environments

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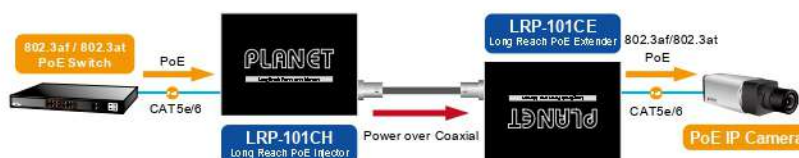
Functions	LRP Injector	LRP Extender
	LRP-101CH	LRP-101CE
Power Input	RJ45 with 802.3at/af PoE input	BNC with DC power over coaxial input
Power Output	BNC with DC power over coaxial output	RJ45 with 802.3at/af PoE output

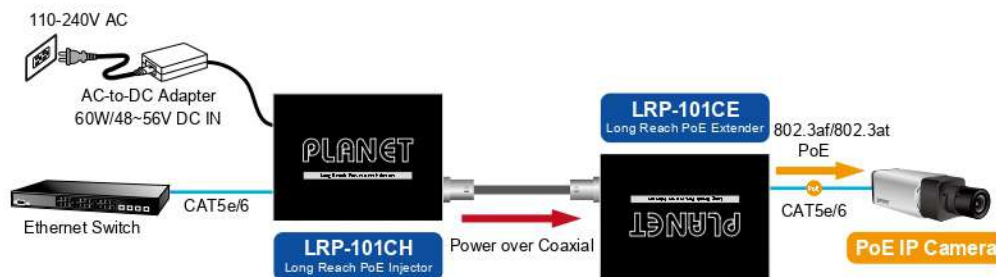## Type 2 – LRP-101CH with 48~56V DC power input and LRP-101CE with PoE power output

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.
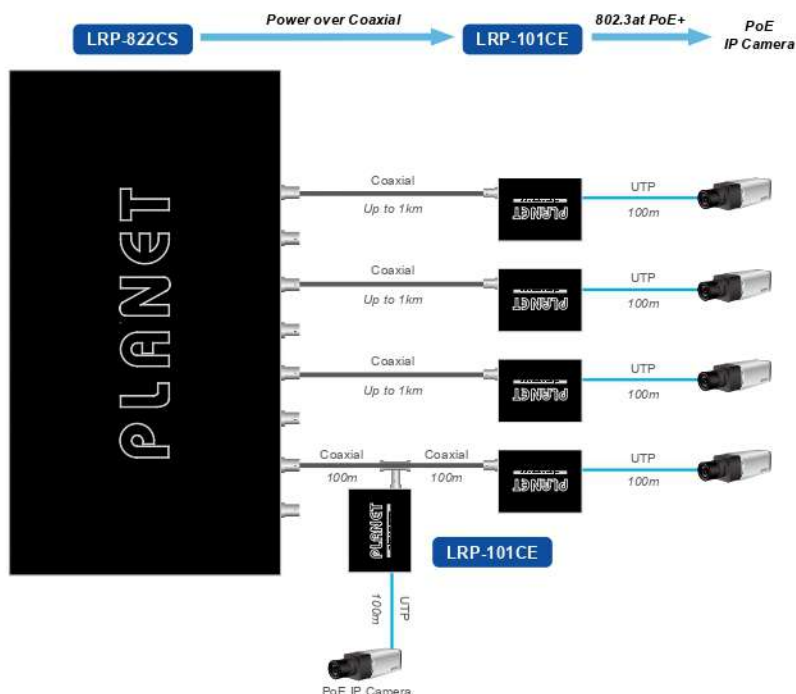

Functions	LRP Injector	LRP Extender
	LRP-101CH	LRP-101CE
Power Input	Power adapter with 48~56V DC in	BNC with DC power over coaxial input
Power Output	BNC with DC power over coaxial output	RJ45 with 802.3at/af PoE output

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 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 Long Reach PoE over coaxial PD (Powered Device)
	Power Input	37~56V DC*
	Power Pin Assignment	– BNC center pole : DC+ / Hi – BNC shield : DC - / Lo
	Cabling	Coaxial cable: 75 ohm RG-6/U cable, less than 12Ω/1,000 ft. RG-59/U cable, less than 30Ω/1,000 ft.
	Maximum Distance	Max. 200m with PoE+ output (656ft.) Max. 600m with PoE output (1,968ft.) 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

				LRP-101CE 802.3af/at PoE Output Capability**	
Performance**		Distance	Data Rate* (Upload / Download)	LRP-101CH 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

Long Reach PoE Interface	Multiple Nodes	Supports up to 4 LRP extenders within 1km
	LRP Compatibility	With power over coaxial input – LRP-101CH – 1-Port LRP Injector – LRP-822CS – 8-Port LRP over Coax Switch – LRP-1622CS – 16-Port LRP over Coax Switch

LED Indicators	4 x LEDs – PWR – LRP LNK – PoE-in-use – 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 IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3af Power over Ethernet (802.3at Type 1) 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 Storage: -40~75 degrees C
Humidity	Operating: 5~95% (Non-condensing) Storage: 5~95% (Non-condensing)
Note	*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.

Rear Panel
68.5
25.3

Top Panel
70.3

Bottom

94

PLANET

Long Reach Power over Ethernet

26.2

LRP-101CE   LNK   Extender

LNK
PWR

Long Reach PoE Extender – Coax

Front Panel
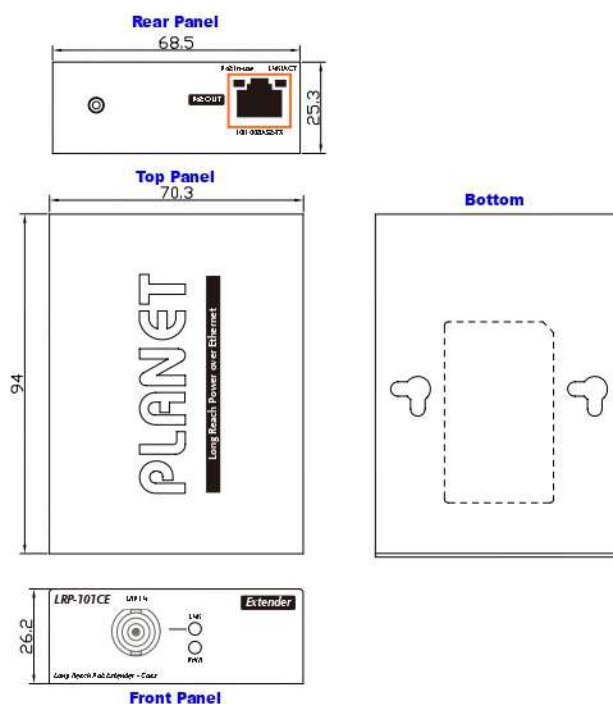
Ordering Information

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)

LRP-101CE