

# Long Reach PoE over UTP Extender Kit



PLANET Long Reach PoE solution is designed to extend IP Ethernet transmission and inject power simultaneously into a remote 802.3af/at PoE compliant powered device (PD) beyond the 100 meters distance limit of Ethernet.

## Convenient PoE over UTP Extender in Harsh Environment

The LRP-101U-KIT, a PLANET Long Reach PoE solution, is a Single-port PoE over UTP Extender Kit featuring long range data and power transmission for distance up to 500m (1,640ft.) over UTP 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-101U-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.

## PoE over Long UTP

- Eliminates power cabling with PoE over UTP
- Supports Power over Ethernet PSE (PoE Injector)
- Power and Ethernet data transmission of 500m over UTP 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 4kV DC
- -20 to 70 degrees C operating temperature

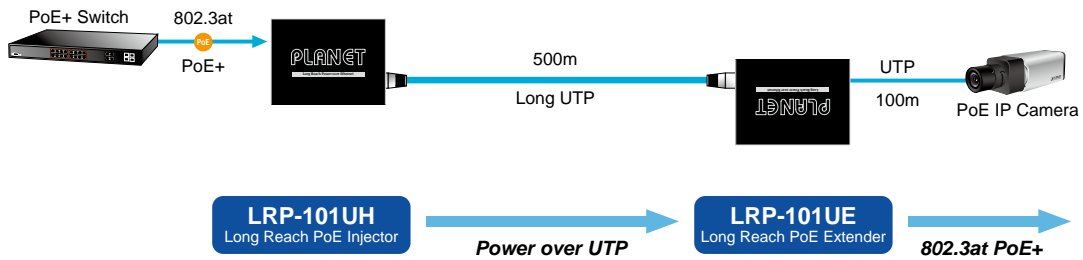


**Composition of Long Reach PoE over UTP Extender Kit**

The LRP-101U-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-101UH: 1-Port 10/100TX PoE PD + 1-Port UTP Long Reach PoE Injector
- LRP-101UE: 1-Port 10/100TX PoE PSE + 1-Port UTP Long Reach PoE Extender

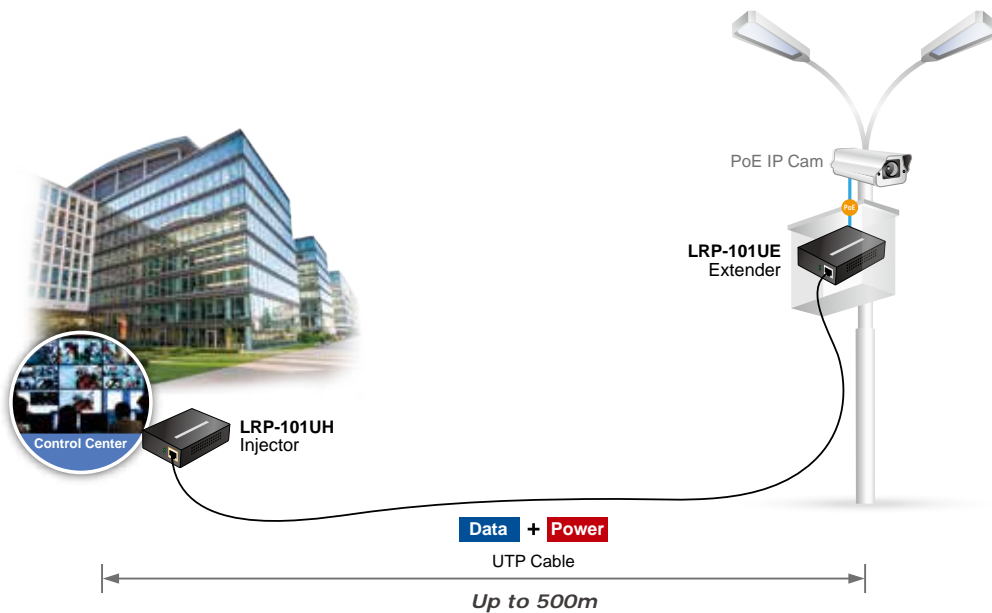
The LRP-101UH transmits data and power over UTP cable to the LRP-101UE, which can be located as far as 500m away. It will then deliver the data and power output with a maximum of up to 25 watts to a PoE PD over Ethernet cable, thus expediting the IP surveillance network or wireless LAN infrastructure 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.

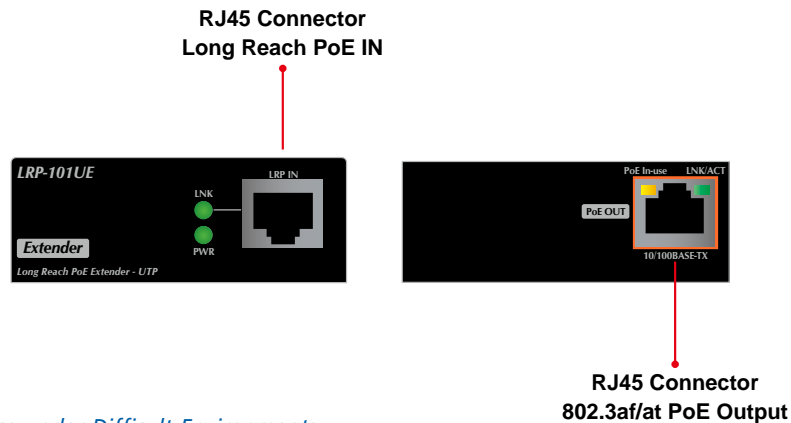


Functions	LRP Injector	LRP Extender
	LRP-101UH	LRP-101UE
Power Input	RJ45 with 802.3at/af PoE input or power adapter with 48~56V DC in	UTP with DC power over UTP input
Power Output	UTP with DC power over UTP output	RJ45 with 802.3at/af PoE output
LAN Connection	NVR or PoE+ Ethernet switch at head-end	PoE IP camera, PoE wireless AP, PoE access control at remote site

**IP Ethernet and Power over Long UTP or Twisted-pair Cable**

A normal UTP cable can only be extended up to 100 meters, but the LRP-101U-KIT can extend PoE networking up to 500 meters (1,640ft.) over long 4-pair UTP cable or up to 300 meters (1,000ft.) **over an existing 1-pair twisted-pair cable**, such as telephone wire, 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.

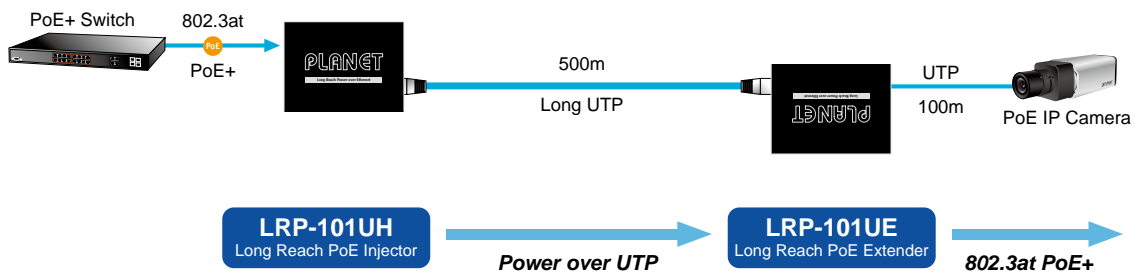
## Applications

The LRP-101U-KIT includes two products: The LRP-101UH, an UTP Long Reach PoE Injector (LRP injector), and the LRP-101UE, an UTP Long Reach PoE Extender (LRP extender). Working in pair, the LRP-101UH can be powered by either external DC power adapter or PoE+ Ethernet switch, and from there, the LRP-101UE's 802.3at standard PoE output goes to PoE Powered Device (PDs). The LRP-101U-KIT can be widely used in Intelligent Transportation Systems (ITS), traffic surveillance, security monitoring, automation control, intelligent residential districts and so on.

The LRP-101U-KIT can function in two different kinds of combinations:

**Type 1: LRP-101UH with PoE power input and LRP-101UE with PoE power output**

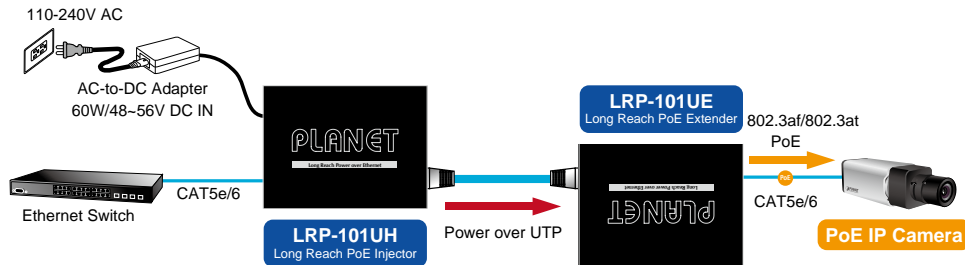
The LRP-101UH injector is powered by IEEE 802.3at/af PoE source and it transmits data and power over UTP cable to the LRP-101UE extender. An IEEE 802.3at/af compliant PoE PD will then automatically be powered by the LRP-101UE via UTP cabling.



Functions	LRP Injector	LRP Extender
	LRP-101UH	LRP-101UE
Power Input	RJ45 with 802.3at/af PoE input	UTP with DC power over UTP input
Power Output	UTP with DC power over UTP output	RJ45 with 802.3at/af PoE output

**Type 2: LRP-101UH with 48~56V DC power input and LRP-101UE with PoE power output**

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



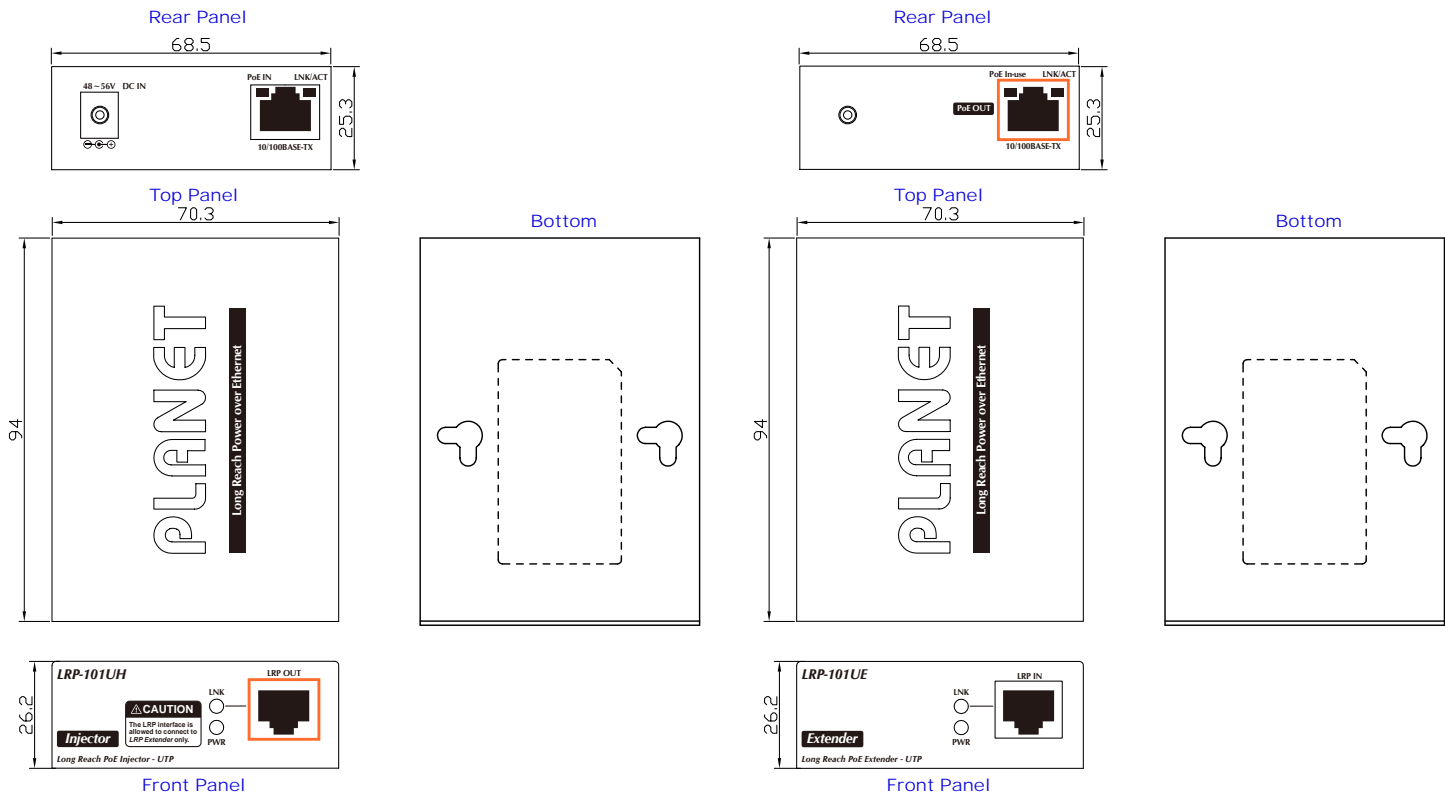
Functions	LRP Injector	LRP Extender
	LRP-101UH	LRP-101UE
Power Input	Power adapter with 48~56V DC in	UTP with DC power over UTP input
Power Output	UTP with DC power over UTP output	RJ45 with 802.3at/af PoE output

## Specifications

Model	LRP-101UH	LRP-101UE			
Functions	Long Reach PoE Injector	Long Reach PoE Extender			
<b>Hardware Specifications</b>					
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	100/100Mbps			
	Cabling	Cat5e or above			
	Maximum Distance	100m			
	Maximum Frame Size	1522 bytes			
Long Reach PoE Interface	Connectivity	1 x RJ45 connector Long Reach PoE over UTP PSE	1 x RJ45 connector Long Reach PoE over UTP PD		
	Power Input	-	37~56V DC*		
	Power Output	41~56V DC			
	Power Pin Assignment	RJ45 Pin 1, 3, 5, 7: VCC+ RJ45 Pin 2, 4, 6, 8: VCC-	RJ45 Pin 1, 3, 5, 7: VCC+ RJ45 Pin 2, 4, 6, 8: VCC-		
	Cabling	Cat. 3, 4, 5, 5e UTP cable (100 meters, max.) EIA/TIA-568 100-ohm STP (100 meters, max.)			
	Maximum Distance	Max. 100m with PoE+ output (328ft.) Max. 500m with PoE output (1,640ft.) Max. 1000m without PoE output (3,280ft.)			
	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-101UE 802.3at/af PoE Output Capability**		
			LRP-101UH with 56V DC in	LRP-101UH with 30W PoE+ in	
		100m	94 / 94Mbps	30W	19W
		200m	82 / 82Mbps	30W	18W
		300m	63 / 67Mbps	30W	17W
		400m	44 / 48Mbps	22W	14W
500m	30 / 30Mbps	18W	12W		

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	4KV DC	
EFT Protection	2KV	-
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	193g	190g
Power Requirements	- RJ45 PoE Input: 802.3at/af 48-56V DC - DC Input: 48-56V DC	Power over RJ45 Input: 44-56V DC
<b>Standards Conformance</b>		
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)	
Regulation Compliance	FCC Part 15 Class A, CE	
<b>Environment</b>		
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-101UE to LRP-101UH,data stream. Download: LRP-101UH to LRP-101UE,data stream. 2.As there are various resistance values in the category of 5/5e 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 UTP cable are.	

## Drawing



## Ordering Information

LRP-101U-KIT Long Reach PoE over UTP Extender Kit (UTP, 500m)

## Related Products

LRP-101C-KIT Long Reach PoE over Coaxial Extender Kit (Coaxial, 1km)

## Related PoE Products

GS-4210-24P2S	24-Port 10/100/1000T 802.3at PoE + 2-Port 100/1000X SFP Managed Switch
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
WGSW-24040HP4	24-Port 10/100/1000Mbps 802.3at PoE+ with 4-Port Shared SFP Managed Switch(440W)
WGSW-24040HP	24-Port 10/100/1000Mbps 802.3at PoE+ with 4-Port Shared SFP Managed Switch(220W)
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)
XGSW-28040HP	L2+ 24-Port 10/100/1000Mbps 802.3at PoE + 4-Port 10G SFP+ Managed Switch with Hardware Layer3 IPv4/IPv6 Static Routing