

# Long Reach PoE over Coaxial 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 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.

## 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 4kV DC
- -20 to 70 degrees C operating temperature



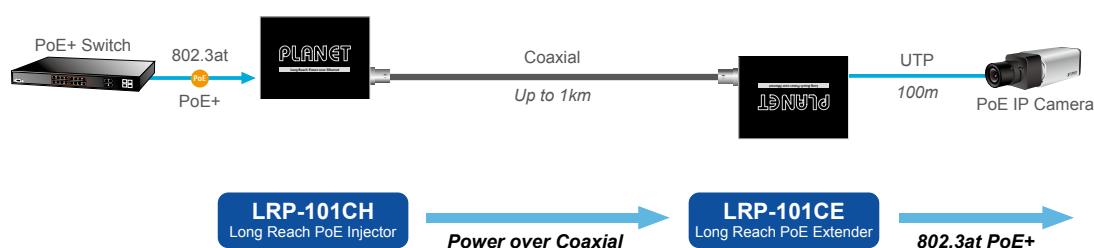
## Composition of Long Reach PoE over Coaxial Extender Kit

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.

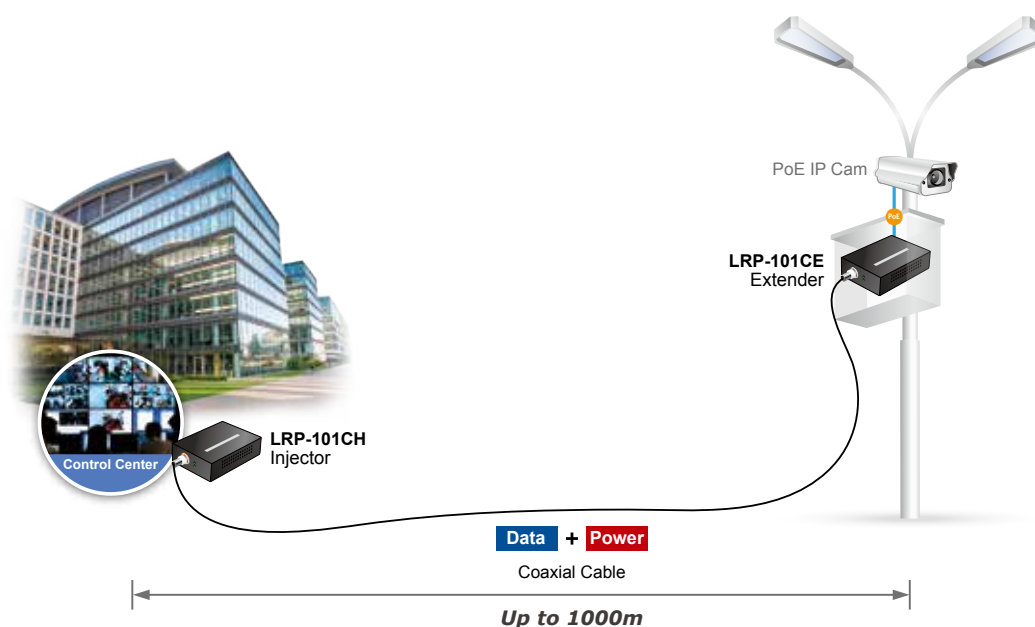
Both of the two products come in a compact but rugged metal housing. Their wall-mounted design fits easily in any space-limited location.



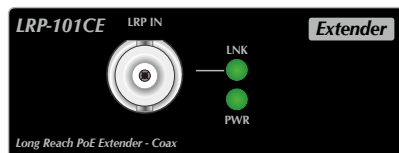
| Functions      | LRP Injector                                                      | LRP Extender                                                      |
|----------------|-------------------------------------------------------------------|-------------------------------------------------------------------|
|                | 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 existing 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.



### BNC Connector Long Reach PoE IN



### RJ45 Connector 802.3af/at PoE Output

#### 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.

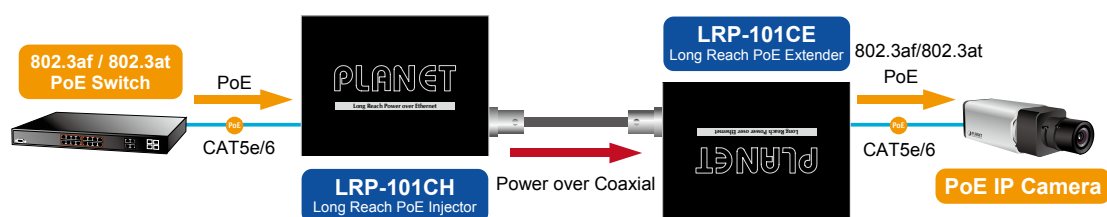
## Applications

The LRP-101C-KIT includes two products: The LRP-101CH, a Coax Long Reach PoE Injector (LRP injector), and the LRP-101UE, a Coax Long Reach PoE Extender (LRP extender). Working in pair, the LRP-101CH can be powered by either external DC power adapter or PoE+ Ethernet switch, and from there, the LRP-101CE's 802.3at standard PoE output goes to PoE Powered Device (PD). The LRP-101C-KIT 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 two different kinds of combinations:

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

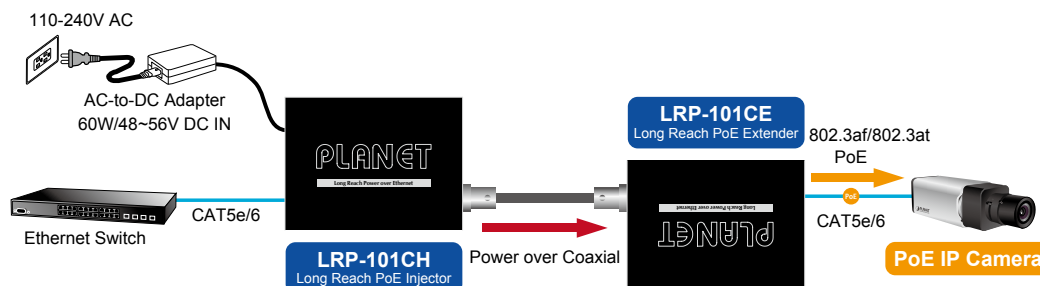
The LRP-101CH injector is powered by IEEE 802.3at/af PoE source and it transmits data and power over coaxial cable to the LRP-101CE extender. An IEEE 802.3at/af compliant PoE PD will then automatically be powered by the LRP-101CE via UTP cabling.



| 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 is powered via the DC power adapter and it 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.



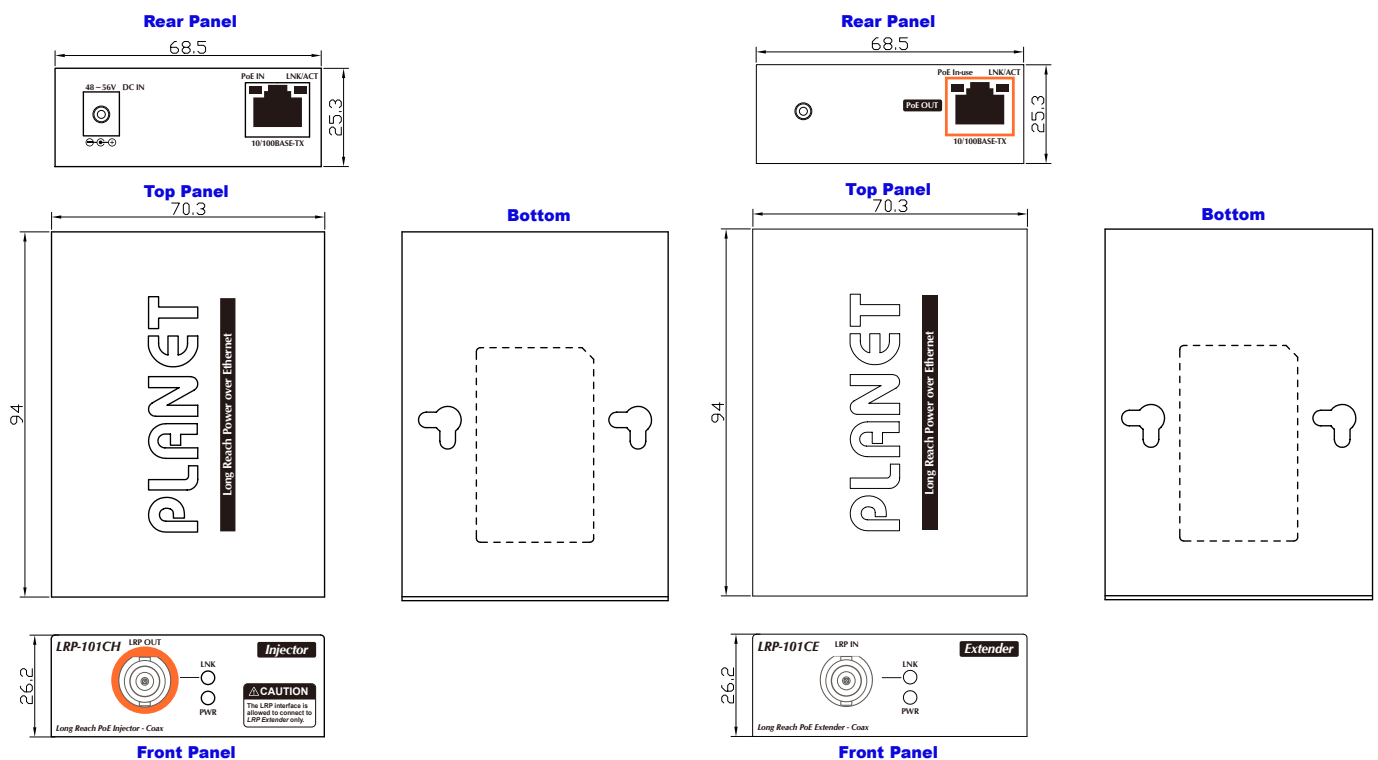
| Functions    | LRP Injector                          | LRP Extender                         |
|--------------|---------------------------------------|--------------------------------------|
|              | LRP-101CH                             | LRP-101CE                            |
| Power Input  | 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      |

## Specifications

| Model                    |                              | LRP-101CH                                                                                                               |             | LRP-101CE                                        |                                              |                               |
|--------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------|----------------------------------------------|-------------------------------|
| Functions                |                              | Long Reach PoE Injector                                                                                                 |             | 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 PD (Powered Device)                                                                                 |             | IEEE 802.3at/af PoE PSE (Power Source Equipment) |                                              |                               |
|                          | PoE Input                    | Supports both Mid-span and End-span PSE<br>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             | 100 meters                                                                                                              |             |                                                  |                                              |                               |
|                          | Maximum Frame Size           | 1522 bytes                                                                                                              |             |                                                  |                                              |                               |
| Long Reach PoE Interface | Connectivity                 | 1 x BNC female connector<br>Long Reach PoE over coaxial PSE                                                             |             | 1 x BNC female<br>Long Reach PoE over coaxial PD |                                              |                               |
|                          | Power Input                  | -                                                                                                                       |             | 37~56V DC                                        |                                              |                               |
|                          | Power Output                 | 41~56V DC                                                                                                               |             | -                                                |                                              |                               |
|                          | Power Pin Assignment         | – BNC center pole: DC+<br>– BNC shield: DC -                                                                            |             | – BNC center pole: DC+<br>– BNC shield: DC -     |                                              |                               |
|                          | Cabling                      | Coaxial cable: 75 ohm<br>RG-6/U cable, less than 12Ω/1,000ft.<br>RG-59/U cable, less than 30Ω/1,000ft.                  |             |                                                  |                                              |                               |
|                          | Maximum Distance             | Max. 200m with PoE+ output (656ft.)<br>Max. 600m with PoE output (1,968ft.)<br>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*<br>(Upload / Download)                | LRP-101CE 802.3af/at PoE Output Capability** |                               |
|                          |                              |                                                                                                                         |             |                                                  | LRP-101CH<br>with 56V DC in                  | LRP-101CH with 30W<br>PoE+ in |
|                          |                              |                                                                                                                         | 200m        | 93 / 93Mbps                                      | 29W                                          | 16W                           |
|                          |                              |                                                                                                                         | 400m        | 93 / 93Mbps                                      | 22W                                          | 14W                           |
| 600m                     |                              |                                                                                                                         | 87 / 91Mbps | 13W                                              | 10W                                          |                               |
| 800m                     |                              |                                                                                                                         | 75 / 83Mbps | 10W                                              | 8W                                           |                               |
| 1000m                    |                              |                                                                                                                         | 55 / 73Mbps | 8W                                               | 7W                                           |                               |

|                        |                   |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                             |
|------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | LRP Compatibility | LRP-101CE - 1-Port LRP Extender                                                                                                                                                                                                                                                                                                                                          | 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<br>– LNK/ACT                                                                                                                                                                                                                                                                                                                  | 4 x LEDs<br>– PWR<br>– LRP LNK<br>– PoE-in-use<br>– 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                 |                   | 200g                                                                                                                                                                                                                                                                                                                                                                     | 375g                                                                                                                                                        |
| Power Requirements     |                   | – RJ45 PoE Input: 802.3at/af 48~56V DC<br>– DC Input: 48~56V DC                                                                                                                                                                                                                                                                                                          | 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 (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. |                                                                                                                                                             |

## Drawing



## Ordering Information

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

## Related Products

|              |                                                                                                            |
|--------------|------------------------------------------------------------------------------------------------------------|
| LRP-101CE    | 1-port 10/100TX PoE PSE + 1-port Coax Long Reach PoE Extender                                              |
| LRP-101U-KIT | Long Reach PoE over UTP Extender Kit (UTP, 500m)                                                           |
| LRP-822CS    | 8-port Coax + 2-port 10/100/1000T + 2-port 100/1000X SFP Long Reach PoE over Coaxial Managed Switch (240W) |

## 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 |