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www.level1.com

Power over Ethernet
Offering Total
POE
Solutions



About LevelOne

LevelOne was established in 1991 in Dortmund, Germany by Digital Data Communications GmbH. By providing quality networking products and solutions, we've grown steadily throughout the years with Branch Offices in 20 countries around the world.

The Internet has become a deeply integral part of both business and home life. Our years of experience have taught us that the only way to stay on top of the latest technology and trends is by listening carefully to what the customer says.

DDC is headquartered in Germany, and also maintains branches in Taiwan, Australia, Belgium, Brasil, Colombia, Denmark, East Africa, Greece, India, Italy, Israel, Latin America, Middle East, North Africa, the Netherlands, Portugal, Slovenia, Spain and Sweden. We are currently achieving year-on-year increase in turn-over. Our Production, Development, Distribution and Logistic Centers are growing in number and setting new quality standards throughout the world with powerful and recognizable brand names.

Contents

About LevelOne	1
PoE Overview	2
What is Power over Ethernet?	2
Growth in PoE Markets	2
PoE Standard: IEEE 802.3af	2
PoE Plus Standard: IEEE 802.3at	3
How does it work?	3
Why PoE?	3
Power Sourcing Equipment-PSE	4
Mid Span Hubs	5
PoE Switches	6
PoE Injectors	8
PoE Powerline Communication	9
Powered Devices-PD	10
PoE Splitters	11
PoE Network Cameras	12
PD Switches and PoE VoIP Phone	15
Wireless PoE Access Points	16
PoE Wireless Hotspot Gateway	17
Media Converters with PoE / PoE Repeater	18
Fiber/VDSL2 Ethernet Converters with PoE	19
PoE Repeaters	20
Application	24
Adding PoE Function to an existing network	25
Outdoor Camera Housing	26
Advanced High Power Deployment	28

PoE Overview



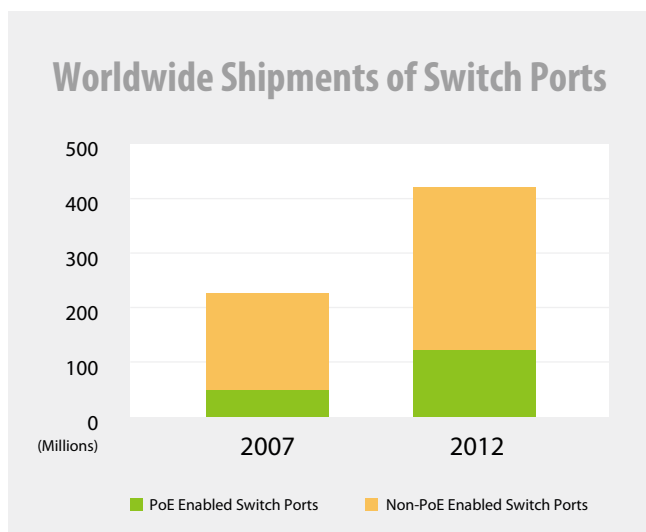
What is Power over Ethernet?

PoE is a technology that integrates data and power on standard Ethernet infrastructure, providing new options for power distribution. This allows IP telephones, wireless LAN access points, IP surveillance cameras and other embedded appliances to receive power as well as data over existing Cat.5 (or above) Ethernet cabling. Formally approved as an international standard, PoE is established as an economical, safe power distribution method and is already deployed in corporations throughout the world.

In simple terms, it uses the wires in standard Ethernet cabling to send power to the operating device. The device can then take its power from the Ethernet cable which means that a separate, local, power supply close to the device is not needed.

Growth in PoE Markets

According to VDC research, shipments of PoE-Enabled switch ports totaled approximately 47 million units in 2007. The research predicts that the growth rate for PoE switch ports will be almost double the rate of overall Ethernet port shipments to reach more than 130 million by 2012, which represents one quarter of all switch ports.



PoE Standard: IEEE 802.3af

The IEEE standard 802.3af describes the mechanism for Power over Ethernet. The standard provides the capability to deliver both power and data over standard Cat.5 (or above) Ethernet cabling.

The 802.3af specification provides 48 volts DC over two out of the four available pairs on a Cat.5 Ethernet cable with a maximum current of 350mA. After taking into account some power loss over the cable run, about 12.95W is available to the Powered Device.

The standard also permits usage not only with 10BASE-T and 100BASE-TX, which only uses two of the four pairs in the cable, but also with 1000BASE-T (Gigabit Ethernet) which uses all four pairs for data transmission. This is possible by utilizing the Phantom Powering method.

PoE Plus Standard: IEEE 802.3at

In September 2005, the IEEE 802.3at task force began working on a new standard known as PoE Plus, which would allow standard Ethernet cables to supply up to 24W of power by using both twisted pairs. With more power available, Power over Ethernet applications will be able to accommodate self-powered devices including thin clients, P/T/Z cameras, WiMAX transmitters, and video phones. The objectives for the 802.3at standard include the following:

- Adherence to relevant 802.3af power safety rules and limitations
- 802.3at PSE must be backwards compatible with 802.3af PD
- Maximum power within practical limits provided to PDs (at least 24W)
- Indication that an 802.3at PSE is required when connecting an 802.3at PD to an 802.3af PSE

How does it work?

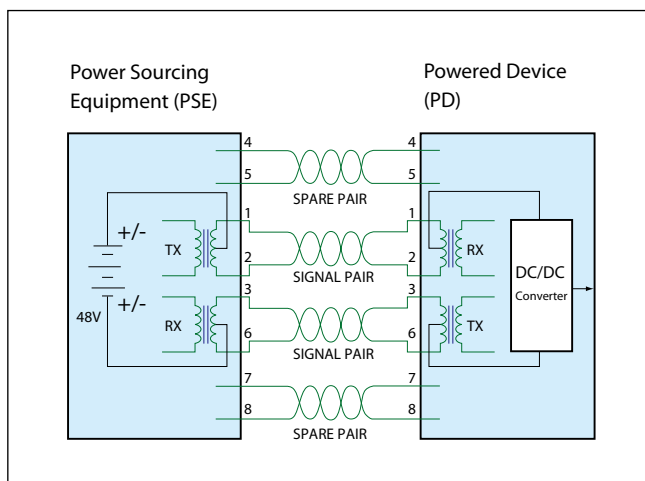
A standard Cat.5 Ethernet cable has four twisted pairs, but only two of these are used for 10BASE-T and 100BASE-TX. The specification allows two options for using these cables for power.

Power through the “spare pair”

The twisted pair on pins 4/5 is connected to form the positive electric power supply, while the pair on pins 7/8 is connected to form the negative supply. Each pair can accommodate either polarity.

Power through the “data pair”

Also known as phantom powering, the power is delivered along the data pairs on pins 1/2 and 3/6 to the device without disturbing data transfer. This method is applied in 1000BASE-T (Gigabit Ethernet) as all four pairs are used for data transmission.



The specification does not allow both sets of wires to be used to send power, a choice must be made. The Power Sourcing Equipment (PSE) applies power to either set of wires. The Powered Device (PD) must be able to accept power from both options.

An obvious requirement of the specification is to prevent damage to existing Ethernet equipment. A “discovery process” runs from the PSE which examines the Ethernet cables looking for devices that comply with the specification. It does this by applying a small current-limited voltage to the cable and checks for the presence of a 25k ohm resistor in the remote device. Only if the resistor is present the full 48V applied, but this is still current-limited to prevent damage to cables and equipment in fault conditions.

The PD must continue to draw a minimum current. If it does not (for example, when the device is unplugged) then the PSE removes the power and the discovery process begins again.

As an optional extension to the discovery process, a PD may indicate to the PSE its maximum power requirements. The following table shows the different PD classes and the PSE power output for each corresponding PD power range.

Class	Usage	Min. PSE Output	Power Available for PD
1	Default	15.4W	0.44W – 12.95W
2	Optional	4.0W	0.44W – 3.84W
3	Optional	7.0W	3.84W – 6.49W
4	Reserved for Future Use	Treat as Class 0	Reserved for Future Use

The PSE may optionally provide a level of system management, using for example, the Simple Network Management Protocol (SNMP). This allows to manage of actions such as devices to be powered off at night, or remotely reset.

Why PoE?

As Ethernet becomes more common in server rooms and network backbones of most organizations, PoE becomes a much more attractive solution to deploy network devices without changing your existing infrastructure.

Cost Effective

Using one cable for both data and power to devices significantly reduce the power line installation cost for electrical wiring, conduits, and outlets throughout the buildings. It also reduces future maintenance costs, bringing cost elimination when using PoE technology for large installations.

Flexibility

PoE is standards based, so interoperability across vendors is guaranteed. This means that PoE can be used to provide maximum flexibility for device installation when it is difficult to provide a power source at hard to reach locations.

Also, even greater flexibility can be provided with the use of PoE Splitters, PoE technology can also be applied to devices weren't designed for PoE.

Reliability

Using just one cable instead of separate cables for data and power improves overall network reliability and deployment flexibility.

Safety

PoE is a safe power solution. To avoid damaging devices or accidental contact, there are numerous safety procedures in the PoE specification which includes Over-current, Under-current and fault protection.

Advanced Management

Managed PoE switches provide network administrators with additional monitoring and control capabilities. Users can remotely enable and disable the power output from the switch to powered devices. This can be used to troubleshoot and reset devices by powering them on and off, or to schedule the times that power is provided to the devices to control when they will be turned on.

Power Sourcing Equipment -PSE



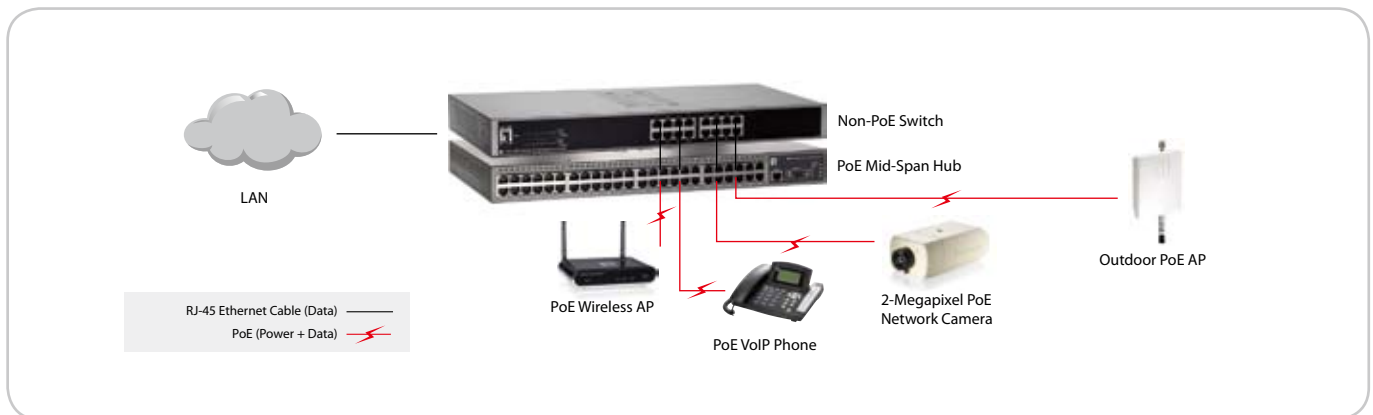
PoE networking requires Power Sourcing Equipment (PSE) such as a PoE switches or hubs to provide the power to the various PoE devices. A PoE capable switch is the most common example of a PSE. Acting as a power transmitter, the PSE has three main jobs:

- Detect a Power Device and determine its power level
- Supply adequate power according to the power level
- Monitor and stop power supply

Two types of PSE are defined in the standard, the end span and the mid-span. An end span PSE is a PoE capable port that carries both data and power on the link, while a mid-span PSE stands between a common Ethernet port and a PoE device to help inject power. The mid-span offers a solution when adding PoE to an existing network infrastructure without changing its original configuration.

Mid Span Hubs

PoE Mid Span Hubs are installed between standard Ethernet Switches and the PoE devices. They add IEEE 802.3af compliant power on each output Ethernet port, without modifying the existing active network equipment and wiring.



POH-2450

24 FE PoE Mid Span Hub

- 24 ports Power over Ethernet Mid Span hub
- Remote power feeding up to 100m
- Centralized power distribution for PoE Powered Device (PD)
- Provides protection against power overloading and possible short circuit
- Provides support for SNMP, Web, Console and Telnet network management features
- Supports redundant power supply with an RS-232 agent for UPS monitoring and control
- Total PoE output power: 400W (15.4W per port)



POH-1250

12 FE PoE Injector Hub

- 12 ports 10/100Mbps PoE Hub
- Remote power feeding up to 100m
- Centralized power distribution for PoE Powered Device (PD)
- High safety short circuit protection
- Power protection: Over voltage, over current and over temp protection
- Power auto recovery
- 19" Rack mountable size
- Total PoE power budget: 200W (15.4W per port)



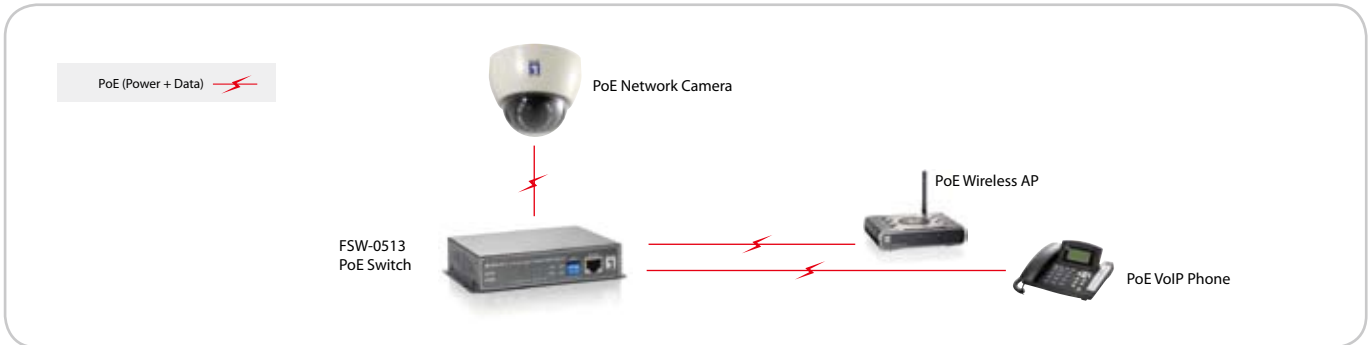
POH-1260

12 FE High Power PoE Injector Hub

- 12 ports 10/100Mbps PoE Hub
- Remote power feeding up to 100m
- Centralized power distribution for PoE Powered Device (PD)
- High safety short circuit protection
- Power protection: Over voltage, over current and over temp protection
- Power auto recovery
- 19" Rack mountable size
- Total PoE power budget: 375W (up to 30W per port)

PoE Switches

PoE switch can be seen as a regular non-PoE switch and a mid-span hub combined into one device. PoE switch can provide power directly to PoE Devices. For enterprise usage, Web Smart and SNMP L2 switches offer a Web-based User Interfaces to configure advanced settings such as VLAN, Port Trunking, Port Mirror, Quality of Service and more. Managed PoE switches, includes the capability to alert and help administrators by featuring auto-warning messages, to easily locate any problematic devices.



FSW-0809/FSW-0822
4 FE PoE + 4 FE Switch

- Provides 8-Port 10/100Mbps Ethernet Switch with 4-Port PoE capability
- Fully compliant with the IEEE802.3af PoE standard
- Supports over current and circuit shorting protection
- Store-and-forward and non blocking switching architecture
- Provide a maximum power of 15.4W per PoE port
- Internal power supply (FSW-0822)
- Total PoE power budget: 30W (FSW-0809) / 61.6W (FSW-0822)



FSW-0503
4 FE PoE + 1 FE Switch

- 10/100Mbps Ethernet ports with 4 PoE ports and 1 uplink port
- Compliant with IEEE 802.3af standard
- Power protection: Over voltage, over current and over temp protection
- 19" chassis, works well with POC-6000 to accommodate up to 8 units
- Plug-and-play installation
- Total PoE power budget: 61.6W (15.4W per port)



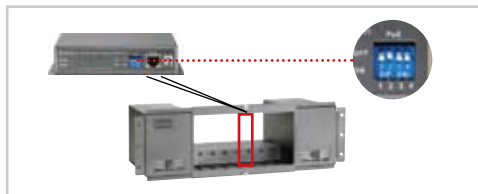
FSW-0513
4 FE High Power PoE + 1 FE Switch

- 10/100Mbps Ethernet ports with 4 high power PoE ports and 1 uplink port
- Power protection: Over voltage, over current and over temp protection
- 19" chassis, works well with POC-6000 to accommodate up to 8 units
- PoE port on-off by dip switch
- Plug-and-play installation
- Total PoE power budget: 120W (up to 48W per port)



GEP-0520
4 GE PoE + 1 GE Switch

- 5 x 10/100/1000Mbps Ethernet with 4-Port PoE Switch
- Compliant with IEEE 802.3af standard
- Provides half-duplex and full-duplex auto-detection
- Store-and-forward switching architecture
- Supports over current and circuit shorting protection
- 19" chassis, works well with POC-6000 to accommodate up to 8 units
- Plug-and-play installation
- Total PoE power budget: 61.6W (15.4W per port)



POC-6000
8-Bay PoE Switch Chassis

- Supports 8 slots for FSW-503 / FSW-0513 / GEP-0520
- Total of 32 PoE enabled ports
- Supports power up to 1000W



FSW-1671

8 FE PoE + 8 FE Web Smart Switch

- 16x10/100Mbps Auto-negotiation Fast Ethernet RJ-45 ports including 8 PoE ports (port-9 ~ port-16)
- Complies with IEEE802.3af standard
- Supports IEEE 802.3x flow control for full-duplex mode ports
- Supports back-pressure flow control for half-duplex mode ports
- Supports 802.1Q VLAN
- Supports Port based/802.1P based QoS (Quality of Service)
- Supports static port trunk, port mirroring and broadcast storm control
- Supports IGMP snooping v1/v2
- Total PoE power budget:130.7W (15.4W per port)



FGP-2472

24 FE PoE + 2 GE with 2 Combo SFP L2 Managed Switch

- 24-Port 10/100Mbps PoE ports and 2-Port Gigabit/SFP embedded
- Compliant with IEEE 802.3af standard
- Supports Virtual Stacking up to 16 switches through single IP address
- Port Mirroring helps supervisors to monitor the network
- Q-in-Q with 4094 VLAN entries
- IEEE802.1x Access Control improves network security
- IEEE802.1d/1w Rapid Spanning Tree
- Unknown Unicast/Broadcast/Multicast storm control
- Isolated Group provide security for certain ports
- Dual Media ports for flexible fiber connection
- Total PoE power budget:380W (15.4W per port)



GSW-2693

24 FE PoE + 2 GE with 2 Combo SFP L2 Managed Switch

- 24-Port 10/100Mbps PoE ports and 2-Port Gigabit/SFP embedded
- Gigabit (copper/SFP) ports are compliant with 802.3z and 802.3ab
- Supports Virtual Stacking up to 16 switches through single IP address
- Centralized power distribution for PoE powered Device (PD)
- 802.3ad MAC-based trunking with automatic link fail-over
- Supports 802.3x flow control/back pressure
- Non-Blocking full wire speed architecture
- Supports Port/Tag based VLAN
- Supports 802.1p Class of Service with 4-level priority queuing
- 19", 1U rack-mountable size
- Total PoE power budget:185W (up to 15.4W per port)



IFE-0500

4 FE PoE + 1 FE Industrial Switch

- Industrial PoE Switch for harsh network applications
- 4-Port 10/100 TX with embedded 802.3af PoE injector
- 1-Port 10/100 TP for connecting to LAN
- Provides surge (EFT) and Ethernet (ESD) protection
- Provides broadcast storm protection
- Over-current protection
- Features Auto-sensing for detecting PoE or non-PoE devices
- Rigid metal casing for covered outdoor application
- DIN-Rail, wall-mounting and stand-alone installation
- Total PoE power budget:57W (15.4W per port)



IFE-0501

4 FE PoE + 1 FE Multi-Mode SC Industrial Switch

- Industrial PoE Switch for harsh network applications
- 4-Port 10/100TX with embedded 802.3af PoE injector
- 1-Port Multi-Mode (2km) SC Fiber Connector for connecting to LAN via Fiber Optic cable
- Provides surge (EFT) and Ethernet (ESD) protection
- Provides broadcast storm protection
- Over-current protection
- Features Auto-sensing for detecting PoE or non-PoE devices
- Rigid metal casing for covered outdoor application
- DIN-Rail, wall-mounting and stand-alone installation
- Total PoE power budget:57W (15.4W per port)



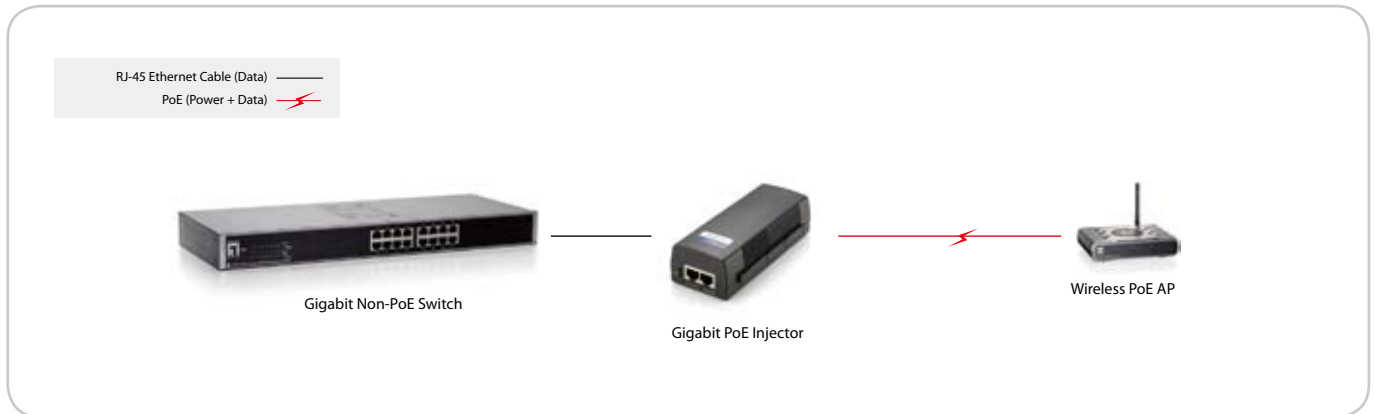
IFE-0502

4 FE PoE + 1 FE Single-Mode SC Industrial Switch

- Industrial PoE Switch for harsh network applications
- 4-Port 10/100TX with embedded 802.3af PoE injector
- 1-Port Single-Mode (30km) SC Fiber Connector for connecting to LAN via Fiber Optic cable
- Provides surge (EFT) and Ethernet (ESD) protection
- Provides broadcast storm protection
- Over-current protection
- Features Auto-sensing for detecting PoE or non-PoE devices
- Rigid metal casing for covered outdoor application
- DIN-Rail, wall-mounting and stand-alone installation
- Total PoE power budget:57W (15.4W per port)

PoE Injectors

PoE Injectors sit between standard Ethernet Switches and the PoE devices. Each output port of PoE injector combines both data and power through a single Cat.5 cable to the PD.



- POI-4000**
High Power PoE Injector
- Sends Power over Ethernet to remote devices
 - DC INPUT: 12~20V DC
 - High performance PoE Injector provides power and data over single Ethernet cable
 - Built-in surge and over current protection
 - LED status indicates
 - Plug-and-play, no software or configuration needed
 - Power Protection: OCP, OVP
 - Total PoE power budget: 56W
 - Works well with POC-4000, accommodates up to 8 units



- POI-2002**
PoE Injector
- Supports 10/100Base-TX LAN environment
 - Automatic detection and protection of non-standard Ethernet terminals
 - Remote power feeding up to 100m
 - Over-voltage for high safety with surge protection
 - Safe on low power devices - receive only the power they need
 - Unique interlocking feature for easy installation
 - Total PoE power budget: 15.4W



- POI-2001**
Gigabit PoE Injector
- IEEE 802.3af compliant
 - Supports 10/100/1000Base-T LAN environments
 - Automatic detection and protection of non-standard Ethernet terminals
 - Remote power feeding up to 100m
 - Over-voltage for high safety with surge protection
 - Safe on low power devices - receive only the power they need
 - Unique interlocking feature for easy installation
 - Total PoE power budget: 15.4W



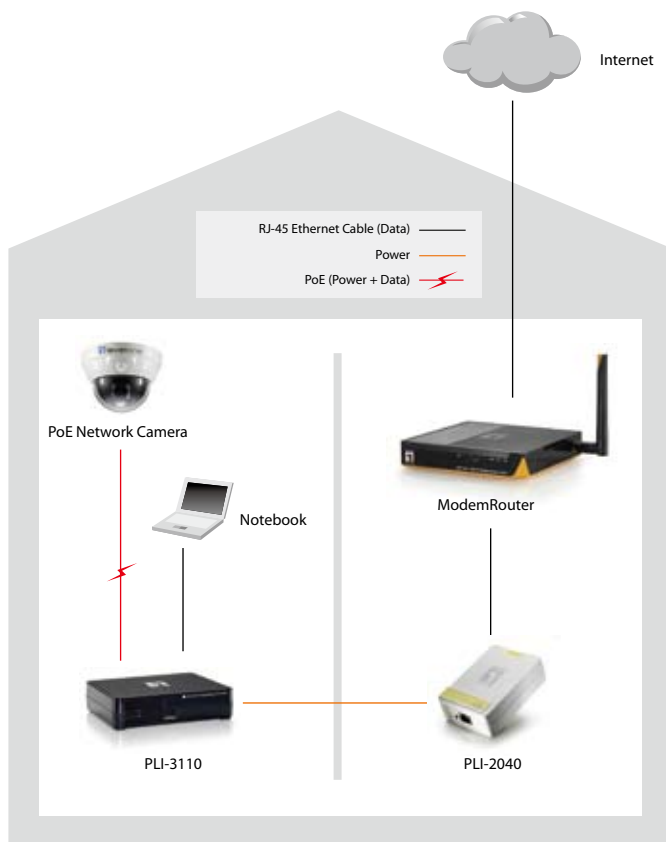
- POI-3000**
Gigabit PoE Plus Injector
- IEEE 802.3af/at compliant
 - Supports 10/100/1000Base-T LAN environments
 - Automatic detection and protection of non-standard Ethernet terminals
 - Remote power feeding up to 100m
 - Over-voltage for high safety with surge protection
 - Safe on low power devices - receive only the power they need
 - Unique interlocking feature for easy installation
 - Total PoE power budget: 30W



PoE Powerline Communication (HomePlug)

HomePlug products establish instant data connections over the existing electrical wiring in your building. This is suitable to share your Internet service with multiple devices and bring digital content quickly and easily between your computers and entertainment devices (Gaming Consoles, IPTV, Set-Top-Boxes) anywhere in your home or office, without installing additional LAN cables.

LevelOne's PLI-3110 is a Powerline adapter, with a PoE Injector. It has one standard LAN port, and one PoE compliant port to power a PoE device.



PLI-2040 200Mbps Powerline Adapter

- Sending data over your home's existing electrical wiring
- Designed for HD (High Definition) audio and video network streaming
- Built-in QoS engine for prioritized audio and video streaming
- Provides up to 200Mbps data transfer rates
- 128-bit AES secure encryption for enhanced network protection
- Simple plug-and-play installation
- Cost-effective network solution
- Security push button for software free configuration



PLI-3110 200Mbps PoE Powerline Adapter

- Includes 1 PoE port for easy deployment of PoE devices
- Auto-discovery function to connect easily to other devices on the network
- Sends 48V DC power to a PoE powered device
- Follows the 200Mbps HomePlug Audio/Video standard for fast audio/video streaming
- 128-bit AES link encryption with key management
- Security push button for software free configuration
- Total PoE power budget: 15.4W

Powered Devices - PD

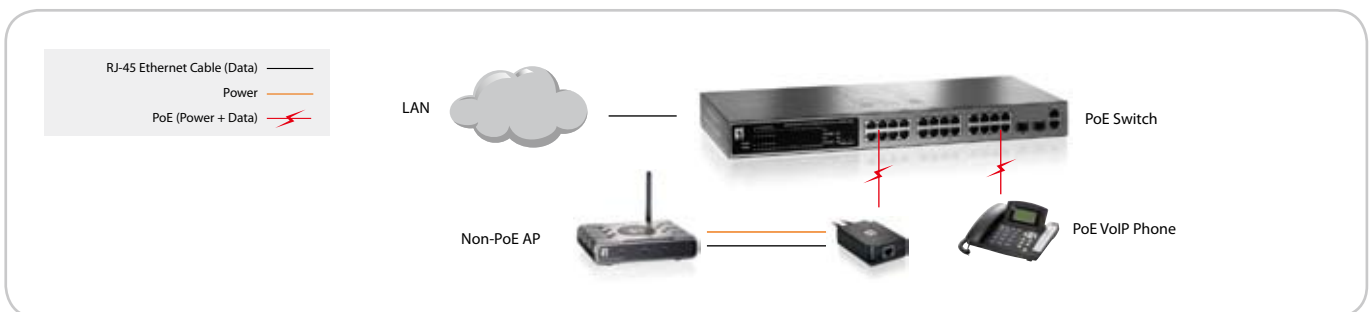


Powered Device (PD) is a device that receives power and data from PSE. Such as IP phones, wireless LAN access points and network cameras are designed as PoE PD's.

PoE Splitters

Not all IP devices are equipped with PoE function, however you can still use a single Cat.5 cable to deliver power and data to the IP device, once you choose PoE Splitter, it separates the data and power from a networked PoE signal so that can be used for non-PoE devices installed in places where power is difficult to obtain.

LevelOne offers a range of PoE Splitters which are suitable for different applications, whether indoor, outdoor or module to be placed in outdoor enclosures.



POS-1002

5-12V DC PoE Splitter

- IEEE 802.3af compliant
- Ethernet 10/100Mbps wire speeds
- Enable non-PoE network devices with PoE capability
- Automatically detects PoE terminals and supplies in-line power
- Safeguards network device with short circuit protection
- Delivering power and data to equipment by a single Ethernet cable
- Plug-and-play, no software or configuration needed
- Adjustable output DIP switch for 5V/9V/12V
- Provides interchangeable tips



POS-1001/POS-3000

5-12V DC Gigabit PoE/PoE Plus Splitter

- Ethernet 10/100/1000 Gigabit speeds
- Enables non-PoE network device with PoE functionality
- Automatically detects PoE terminals and supplies in-line power
- Safeguards network device with short circuit protection
- Delivering power and data to equipment by a single Ethernet cable
- Plug-and-play, no software or configuration needed
- Adjustable output DIP switch for 5V/9V/12V
- Provides interchangeable tips
- IEEE 802.3af compliant, supplies power up to 12.9W (POS-1001)
- High power IEEE 802.3af/at compliance, supplies power up to 25W (POS-3000)



POS-4000/POS-4002

3-12V DC/24V AC High Power PoE Splitter

- Ethernet 10/100Mbps wire speeds
- Enables non-PoE network device with PoE functionality
- Built-in current limitation, short circuit and overload protection
- Delivering power and data to equipment by a single Ethernet cable
- Plug-and-play, no software or configuration needed
- DC Output: 12V (default); 3.3V/5V/6V/9V (optional) (POS-4000)
- AC Output: 24V/1.6A (POS-4002)



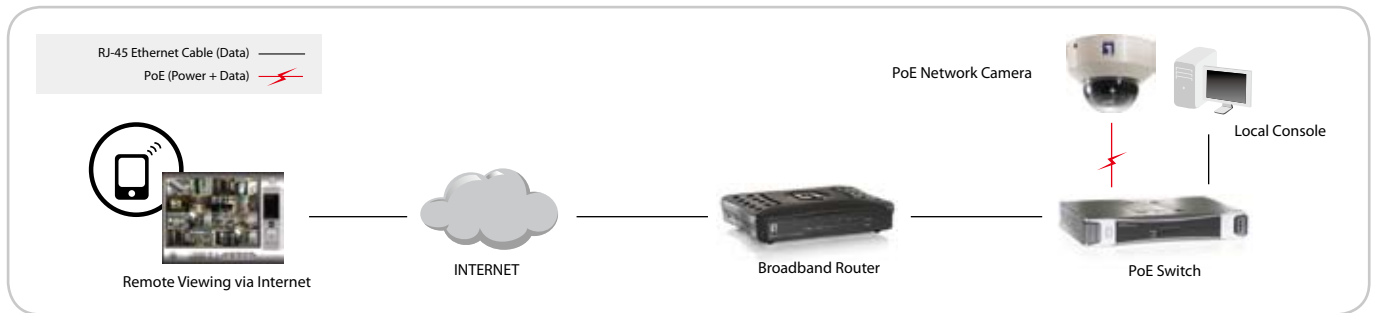
POS-4001

3-12V DC High Power Outdoor PoE Splitter

- Ethernet 10/100Mbps wire speeds
- Enables non-PoE network device with PoE functionality
- Built-in current limitation, short circuit and overload protection
- Delivering power and data to equipment by a single Ethernet cable
- Plug-and-play, no software or configuration needed
- DC Output: 12V (default); 3.3V/5V/6V/9V (optional)
- IP66 weatherproof outdoor housing

PoE Network Cameras

Network cameras are a fast growing market with large scale deployments all over the world. PoE is an ideal technology supporting this demand as it simplifies the installation, and provides advanced management and control features to network cameras. Using PoE can eliminate the need to place network cameras near a power outlet or to install new power outlets whereas the PoE also delivers power through the Ethernet cables. In addition, power to the cameras can be centrally backed up by using an Uninterruptible Power Supply (UPS) device for continued operation of the surveillance system during power outages.



- FCS-3081**
Day/Night 2-Megapixel PoE Dome Network Camera
- 1/2.5" Progressive CMOS 2-Megapixel, 1920x1080
 - H.264 and MJPEG compression
 - Supports dual streams simultaneously
 - Removable IR-cut filter for day/night viewing
 - 3-axis mechanical design for ceiling/wall mount installation
 - Built-in 23 pieces Infrared LEDs for night viewing up to 20m
 - BNC connector for analog video output
 - Vandal-proof and weatherproof (IP66) housing
 - Supports up to 20 viewers simultaneously
 - Triple power support: 12V DC/24V AC/PoE (802.3af)
 - Max. Power Consumption: 5.5W



- FCS-3071**
2-Megapixel PoE Dome Network Camera
- 1/2.7" Progressive CMOS 2-Megapixel, 1920 x 1080
 - H.264 and MJPEG compression
 - Dual streams simultaneously
 - Security Torx against tampering
 - Shockproof for Rolling Stock Applications
 - Provides 16x digital zoom
 - IP66 weatherproof housing and RJ-45 dongle cable
 - Supports up to 20 viewers simultaneously
 - Micro SD/SDHC card slot for local storage
 - 802.3af PoE compliant for easy network deployment
 - Single power support: PoE (802.3af)
 - Max. power consumption: 3W



- FCS-3061**
Day/Night Megapixel PoE Dome Network Camera
- 1/4" Progressive CMOS Megapixel, 1280 x 800
 - H.264, MPEG4 and MJPEG compression
 - Dual streams simultaneously
 - Remote access with Level1DNS™ service
 - 3-axis mechanical design for ceiling/wall-mount
 - 3.3~12mm vari-focal lens, F1.6
 - Built-in Infrared LEDs for night viewing up to 15m
 - Removable IR-cut filter for day and night viewing
 - Digital Input/Output (1 DI/1 DO) for sensor/alarm
 - 802.3af PoE compliant for easy network deployment
 - Max. power consumption: 8W



- FCS-3021**
PoE Dome Network Camera
- 1/4" Progressive CMOS, 640 x 480
 - MPEG4 and MJPEG compression
 - Dual streams simultaneously
 - 3-axis mechanical design for ceiling/wall-mount
 - Digital Input/Output (1 DI/1 DO) for sensor/alarm
 - Supports simultaneous dual-streaming
 - 3~6mm vari-focal lens F1.2~1.5
 - 802.3af PoE compliant for easy network deployment
 - Max. power consumption: 3.6W
- *Power adapter not included



FCS-3031 / FCS-3051

PoE PIR Dome Network Camera

- 1/4" Progressive CMOS, 640 x 480
- MPEG4 and MJPEG compression
- Dual streams simultaneously
- Built-in PIR sensor for motion detection, sensitivity range up to 5m
- 3.3~12mm vari-focal lens, F1.4~2.9 (FCS-3051)
- Fixed focal lens, F2.0 (FCS-3031)
- Supports analog output (NTSC/PAL) for installation purpose
- Removable IR-cut filter for day and night viewing (FCS-3051)
- Built-in Infrared LEDs for night viewing up to 5m (FCS-3051)
- 802.3af PoE compliant for easy network deployment
- Max. power consumption: 10W



FCS-1121

Megapixel PoE Network Camera

- 1/4" Progressive CMOS Megapixel, 1280 x 800
- H.264, MPEG4 and MJPEG compression
- Dual streams simultaneously
- Remote access with Level1DNS™ service
- Digital Input/Output (1 DI/1 DO) for sensor/ alarm
- Removable IR-cut filter for day and night viewing
- Built-in micro SD/SDHC memory card slot for local storage
- RS-485 interface for scanner or pan/tilt control
- Triple power support: 12V DC/24V AC/ PoE (802.3af)
- Max. power consumption: 8W
- Optional outdoor housing: BOH-1100/BOH-1200/BOH-1300 (refer to page 26)



FCS-1131

2-Megapixel PoE Network Camera

- 1/2.7" Progressive CMOS 2-Megapixel, 1920 x 1080
- H.264 and MJPEG compression
- Dual streams simultaneously
- Removable IR-cut filter for day and night viewing
- Local storage with Micro SD/SDHC slot
- BNC connector for analog video output
- 802.3af PoE compliant for easy network deployment
- Max. power consumption: 4W
- Optional outdoor housing: BOH-1100/BOH-1200 (refer to page 26)



FCS-1141

1.3-Megapixel PoE Network Camera

- 1/3" Sony Progressive CCD 1.3-Megapixel, 1280 x 960
- H.264, MPEG4, and MJPEG compression
- HD 720p real-time at dual streaming
- Integrated Wide Dynamic Range (WDR) function
- 2D/3D noise reduction
- Motion detection and privacy mask
- Removable IR-cut filter for day and night viewing
- BNC connector for analog video output
- Local storage with Micro SD/SDHC slot
- Triple power support: 12V DC/24V AC/ PoE (802.3af)
- Max. power consumption: 6W
- Optional outdoor housing: BOH-1100/BOH-1200 (refer to page 26)



FCS-1151

2-Megapixel PoE Network Camera

- 1/3.2" Progressive CMOS 2-Megapixel, 1600 x 1200
- H.264, MPEG4 and MJPEG compression
- Multiple streams simultaneously
- Removable IR-cut filter for day and night viewing
- Video cropping for bandwidth saving
- ePTZ for data efficiency
- Tamper detection for unauthorized changes
- Built-in SD/SDHC card slot for local storage
- Supports analog output (NTSC/PAL) for installation
- Triple power support: 12V DC/24V AC/ PoE (802.3af)
- Max. power consumption: 8W
- Optional outdoor housing: BOH-1100/BOH-1200 (refer to page 26)



FCS-1091

PoE Network Camera

- 1/4" Sony Progressive CCD, 640 x 480
- MPEG4 and MJPEG compression
- Supports triple streams simultaneously
- IR-cut filter for day and night viewing
- 2-way audio with built-in microphone
- Digital Input/Output (2 DI/2 DO) for sensor/ alarm
- Motion detection and event notification via E-mail
- 802.3af PoE compliant for easy network deployment
- Max. power consumption: 8W
- Optional outdoor housing: BOH-1100/BOH-1200 (refer to page 26)

*Power adapter not included



FCS-1101 PoE Network Camera

- 1/3" CCD, 704 x 480
- MPEG4 and MJPEG compression
- Dual streams simultaneously
- Features 10x digital zoom
- Up to 30 fps in full D1 resolution
- Features motion detection and event notification via E-mail
- UPnP for fast and easy installation
- 802.3af PoE compliant for easy network deployment
- Max. power consumption: 6W
- Optional outdoor housing: BOH-1100/BOH-1300

*Power adapter not included



FCS-5041 Day/Night Megapixel PoE Outdoor Network Camera

- 1/4" Progressive CMOS Megapixel, 1280x800
- H.264, MPEG4 and MJPEG compression
- Dual streams simultaneously
- Remote access with Level1DNS™ service
- Removable IR-cut filter for Day/Night viewing
- Provides an external USB interface for an optional outdoor wireless solution or USB flash drive
- Built-in Infrared LEDs for night viewing up to 15m
- Smart Focus to get excellent image quality
- IP67 waterproof outdoor housing with built-in fan and heater
- Triple power support: 12V DC/24V AC/PoE (802.3af)
- Max. Power Consumption: 12W



FCS-5051 Day/Night 2-Megapixel PoE Outdoor Network Camera

- 1/2.7" Progressive CMOS 2-Megapixel, 1920x1080
- H.264 and MJPEG compression
- Dual streams simultaneously
- Removable IR-cut filter for Day/Night viewing
- Built-in Infrared LEDs for night viewing up to 20m
- IP66 weatherproof outdoor housing
- Supports 2 privacy masks for private area protection
- Supports up to 20 viewers simultaneously
- Sun shield and cable management bracket for protected installation
- Built-in micro SD/SDHC memory card slot for local storage
- Triple power support: 12V DC/24V AC/PoE (802.3af)
- Max. Power Consumption: 12W



FCS-5011 Day/Night Outdoor PoE Network Camera

- 1/3.3" Progressive CMOS, 720 x 480
- MPEG4 and MJPEG compression
- Dual streams simultaneously
- Removable IR-cut filter for day and night viewing
- WDR (Wide Dynamic Range) helps handling a wide range of lighting conditions in a scene, such as backlight situation
- 3.3~12mm vari-focal board lens with auto-iris for a variety of monitoring fields
- IP66 weatherproof outdoor housing
- RS-485 interface for scanner or pan/tilt control
- Digital Input/Output (1 DI/1 DO) for sensor/alarm
- Built-in infrared LEDs for night viewing up to 15m
- 802.3af PoE compliant for easy network deployment
- Max. power consumption: 6.5W

How does an indoor camera become an outdoor camera?

LevelOne provides strong and durable outdoor housings (BOH-1100/BOH-1200/BOH-1300) for the camera models FCS-1091/FCS-1101/FCS-1121/FCS-1131/FCS-1141/FCS-1151 – Flexible and easy to turn an indoor camera into an outdoor camera (refer to page 26).



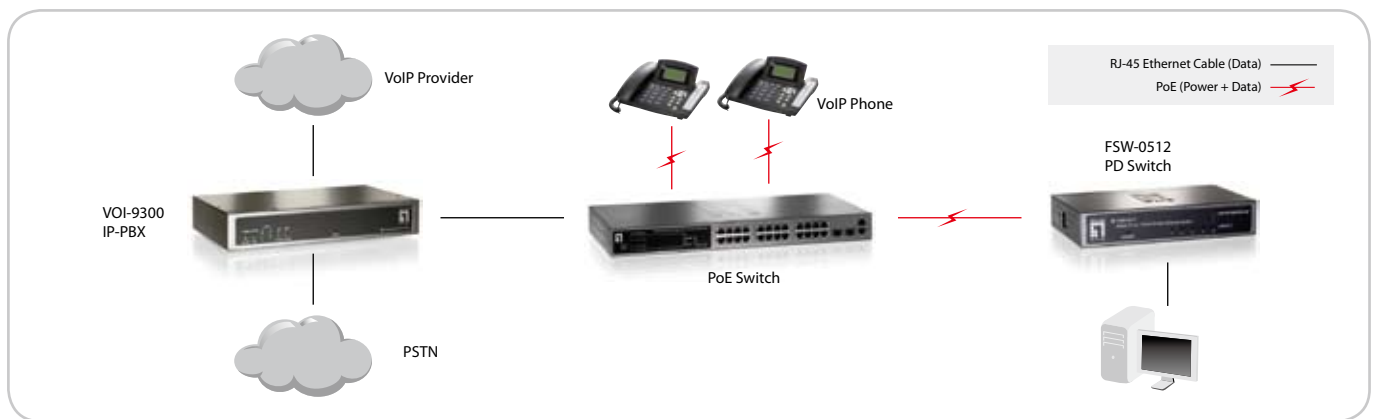
POM-1100 PoE Module

- Works well with LevelOne BOH-1100/1200/1300
- 12V DC/2.5A High-Power PoE Splitter Module
- Power for IP Cam, IR LEDs, housing heater and fan all from a single PoE cable
- Supports High-Power up to 30W
- For PoE and non-PoE Cameras
- All necessary accessories included
- Easy installation

PD Switches and PoE VoIP Phone

We are aware of that there are PSE switches for supplying power to PoE devices, there are also switches being powered to play as PDs. These switches will not require any additional power adapters, but still can be deployed in hard to reach areas.

VoIP Phones use the Internet to make phone calls which is very cost-effective. Furthermore For large scale of deployment, VoIP PoE Phones are in fact great solutions as the need to find additional power at each location is removed, since both data and power is provided by the PSE.



FSW-0512

5-Port Fast Ethernet PD Switch

- Complies with IEEE 802.3af PoE Standard
- Provides 5-Port 10/100Mbps Ethernet connection
- Powered Device (PD) Switch can be powered by PoE Switch or Mid Span Hub
- Saving cost by eliminating the need to install electricity wiring and power outlet
- Supports MAC address auto-learning and auto-aging
- Compact design for desktop or wall-mounting
- Plug-and-play for easy installation
- Max. Power Consumption: 2.5W

FSW-0812

8-Port Fast Ethernet PD Switch

- Complies with IEEE 802.3af PoE Standard
- Provides 8-Port 10/100Mbps Ethernet connection
- Powered Device (PD) Switch can be powered by PoE Switch or Mid Span Hub
- Saving cost by eliminating the need to install electricity wiring and power outlet
- Supports MAC address auto-learning and auto-aging
- Compact design for desktop or wall-mounting
- Plug-and-play for easy installation
- Max. Power Consumption: 3W

VOI-9300

SIP VoIP PBX with 4 FXO Ports

- Advanced telephony management
- Supports extensions and voice mail accounts up to 100 and 30 concurrent calls
- Features a web-calling feature for online interaction and provides Call Detail Record (CDR)
- Provides a VPN server for secured connectivity
- Features powerful interactive voice response system and voice message recording function
- Features FXO ports for additional incoming/outgoing calls via BT lines
- Saving call charge by connecting VoIP service provider for inbound/outbound calls

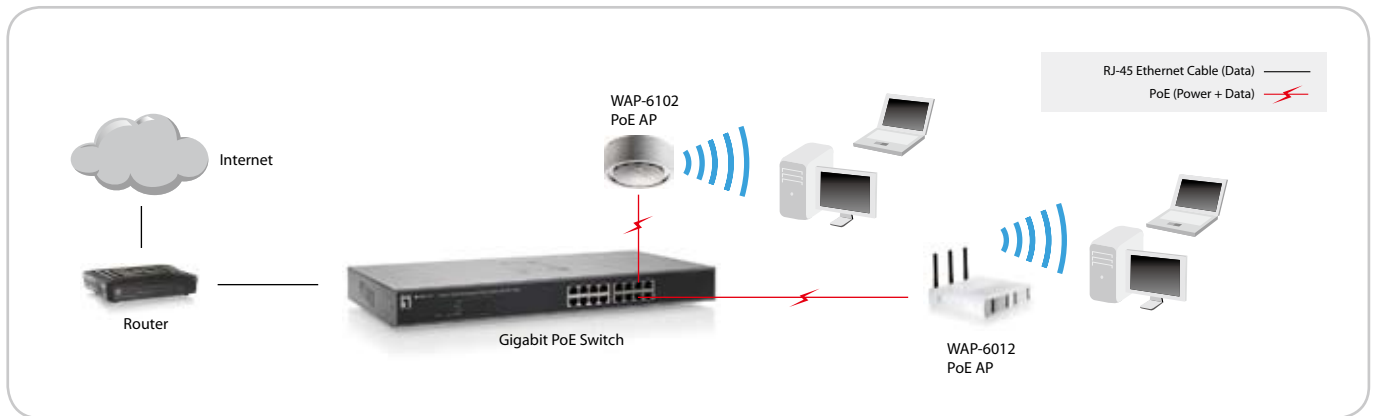
VOI-7100

SIP VoIP Phone with PoE Capability

- Traditional phone for digital use
- User friendly and packed with VoIP, SIP and PoE features
- Provides 2 MB flash memory and 8 MB for SDRAM
- Registers up to 3 different telephone numbers
- Enhanced security features of HTTP1.1 authentication for web setup and MD5 for SIP authentication
- Plug-and-play enabled user easy to set-up with keypad

Wireless PoE Access Points

Wireless Access Points are attractive for cost effective deployments or expansions of wireless network. With PoE function, the installation and maintenance of wireless access points are easy and with no consideration for its power sources in their intended locations.



- WAP-3100
54Mbps Wireless PoE
Access Point**
- IEEE 802.3af compatible
 - Fully 802.11g infrastructure operating mode
 - Provides 10/100BASE-TX Fast Ethernet interface
 - Allows auto fallback data rate for optimized reliability, throughput and transmission range
 - Provides 64/128-bit WEP, WPA, and WPA2 network security encryption
 - WDS bridging function and provides AP Client mode
 - Max. Power Consumption: 4W



- WAP-6012
300Mbps Wireless Gigabit PoE
Access Point**
- 3 antennas with 2T/3R MIMO technology for wireless data rate up to 300Mbps
 - Compatible with 802.11b/g/n wireless standards
 - Provides 1 Gigabit Ethernet port (1000Mbps)
 - 802.3af Power over Ethernet (PoE) for simple deployment
 - Supports AP, AP Client, Bridge, WDS and Repeater modes
 - Supports WEP, WPA, WPA2 and 802.1x for high level security
 - Supports Wi-Fi Protected Setup (WPS) technology
 - Supports Multi-SSID (Up to 8 SSIDs)
 - Max. Power Consumption: 3.5W



- WAP-3101
108Mbps Wireless Ceiling PoE
Access Point**
- Complies wireless network speed up to 108Mbps with Super G and backward compliant with 802.11b/g standards
 - Embedded two 4dBi directional antennas in MIMO configuration
 - 802.3af PoE compliant for easy network deployment
 - Supports WEP, WPA, WPA2 and IEEE 802.1x for high level security
 - Browser-based interface configuration and management
 - Support QoS (WMM) to enhance user performance and density
 - Supports Multi-SSID function (4 SSID) in AP mode



- WAP-6102
300Mbps Wireless Ceiling PoE
Access Point**
- 2 built-in antennas (4dBi) with 2T/2R MIMO technology for wireless data rates of up to 300Mbps
 - Complies with IEEE 802.11n and backwards compliant with 11b/g standards on the 2.4GHz frequency
 - Supports AP, WDS and Repeater modes
 - WEP, WPA, WPA2 and IEEE 802.1x for high level security
 - Supports Quality of Service (WMM) to enhance user performance and density
 - Multi-SSID with 802.1Q VLAN Tagging in AP mode (up to 4 SSIDs)
 - Max. Power Consumption: 4W



WAB-3001/WAB-3002
54Mbps Wireless Outdoor PoE Access Point

- Integrated a 9dBi directional antenna(WAB-3001)
- IEEE 802.11b/g standards compliant operates on the 2.4 GHz unlicensed ISM spectrum
- Data rate of up to 54 Mbps
- Point-to-point and point-to-multi-point topology
- Optional Hi-Power RF transmission
- ACK timeout adjustment for long distance applications
- 802.11i and 802.1x security support
- PoE power supply and data transmission
- IP66 weatherproof design



WAB-7000
54Mbps Dual-Band Wireless Outdoor PoE Access Point

- IEEE 802.11a/b/g standards compliant, operates on the 2.4 and 5 GHz unlicensed ISM spectrum
- Data rate of up to 54Mbps
- Point-to-point and point-to-multi-point topology
- Optional Hi-Power RF transmission
- ACK timeout adjustment for 802.11i and 802.1x security support
- PoE power supply and data transmission
- IP66 weatherproof design



WAB-7400
54Mbps Dual-Radio Wireless Outdoor PoE Mesh Access Point

- IEEE 802.11a/b/g standards compliant operates on the 2.4 GHz/5 GHz unlicensed ISM spectrum
- Self-configuration and healing Mesh network
- Advanced OLSR (Optimal Link State Routing) protocols find the optimal routing path once the link status is changed or broken
- Support 802.1x (EAP-TLS/TTLS/SIM/PEAP) and 802.11i (WPA/WPA2, AES) high security level
- Support 802.1Q VLAN
- Support WMM extension and bandwidth control
- 802.3af PoE power supply and data transmission
- Support SNMP v1/v2c/v3
- IP65 weatherproof design

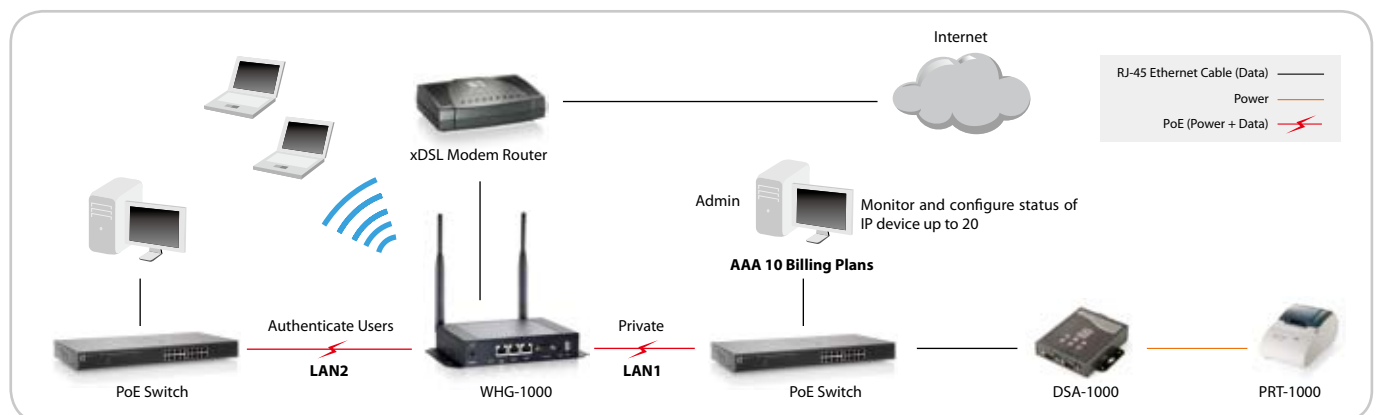


WAB-3003
108Mbps Wireless Outdoor PoE Access Point

- Provides wireless network speed up to 108Mbps with Super G
- IEEE 802.11b/g standards compliant operates on the 2.4GHz unlicensed ISM spectrum
- High-speed with QoS for voice, video and data applications
- Power over Ethernet (PoE) for easy network deployment
- Multiple operation modes: AP, WDS, Bridge, Repeater and Client modes
- Supports Wireless ISP
- Provides business-class security, Multi-SSIDs and VLAN tagging
- Supports SNMP MIBIII (v1/v2c)
- Auto-detectable and managed by LevelOne AMG Series
- IP-68 weatherproof design
- Max. Power Consumption: 9W

PoE Wireless Hotspot Gateway

The LevelOne WHG-1000 is a multi-function all-in-one Wireless Hotspot Gateway for wireless hotspot applications. Particularly designed for hotspot service providers an integrated solution of rapid deployment, with built-in billing function and receipt printing capabilities, for easy start up and performance enhanced.



WHG-1000
Wireless Hotspot Gateway

- 2T/2R MIMO Technology for wireless data rates of up to 300Mbps
- Programmable billing profiles: customize the billing plans for on-demand users
- Supports QoS and bandwidth management for critical traffic and applications
- Flexible accounting and billing management
- Max. Power Consumption: 10.2W

Optional Accessories:
 PRT-1000 Thermal Printer
 DSA-1000 Devie Server



Media Converters with PoE

LevelOne has unique solutions for converting your transmitted Ethernet data over extended distances. Our Fiber and VDSL2 converters also have PoE options for improved flexibility and advanced deployment.

PoE Repeaters

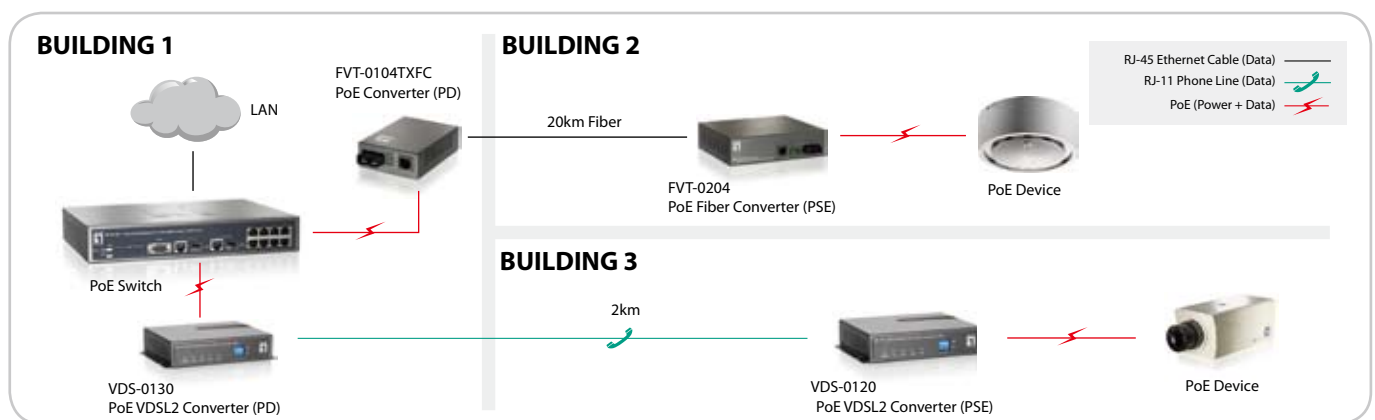
Typically, a PoE connection is limited to a distance of 100m. This is not a limitation of the power, but rather the Ethernet data link. If the installer wants to deploy PoE devices which are located more than 100m from the main PoE Power Sourcing Equipment (PSE), then a PoE Repeater is required. LevelOne offers two types of solutions for reaching greater distances in a PoE network. One solution utilizes standard Cat.5 (or above) cables, and the other is a unique solution that uses standard telephone wires.

Fiber/VDSL2 Ethernet Converters with PoE

Fiber Ethernet Converters - LevelOne has either PSE or PD Fiber Ethernet Converter that allows you to deploy 100TX to 100FX-SC converters with ease. Fiber converters can extend the existing network to a location up to 20 kilometers away.

The FVT-0103TXFC and FVT-0104TXFC are Powered Devices (PDs), that they can operate without a separate power adapter. Hence it is usually installed after a PSE device such as an injector or PoE Switch. For PSE, FVT-0203TXFC and FVT-0204TXFC are 2-in-1 devices that combined a 100TX to 100FX-SC Converter with a PoE injector.

VDSL2 Ethernet Converters - Sends network data at extended distance over standard telephone wires (RJ-11) to achieve connections with maximum transfer speeds of up to 100/60Mbps Downstream/Upstream can achieve at a distance of 300m. Connections can still be maintained at distance of up to 2,000m. Available in both PD or PSE configurations.



**FVT-0103TXFC (2km) /
FVT-0104TXFC (20km)
10/100BASE-TX to 100BASEFX
Multi/Single-Mode SC Fiber
Converter with PoE (PD)**

- PoE enabled 100TX to 100FXSC media converters
- SC fiber connector for long range fiber optic connectivity
- 802.3af PoE PD compatible
- Provides DIP switch to set configurations
- Provides over-current protection and under-current detection
- Simplified troubleshooting with "Link-Loss-Forwarding"
- Max. Power Consumption: 3W

*Power adapter not included



**FVT-0203TXFC (2km) /
FVT-0204TXFC (20km)
10/100BASE-TX to 100BASEFX
Multi/Single-Mode SC Fiber
Converter with PoE Injector (PSE)**

- PoE enabled 100TX to 100FXSC media converter
- SC fiber connector for long range fiber optic connectivity
- 802.3af PoE PSE compatible
- Provides DIP switch to set configurations
- Provides over-current protection, under-current detection and fault protection
- Features PSE MDI power enabling/disabling and internal AC power supply
- Simplified troubleshooting with "Link-Loss-Forwarding"
- Provides Link Fault Pass (LFP) and Far End Fault (FEF)
- Total PoE output power: 15.4W

*Power adapter not included



**VDS-0130
Ethernet over VDSL2 Converter
(PD)**

- Provides 100/60 Mbps DownStream/UpStream for distance up to 300m
- Supports VDSL2 connection up to 2,000m
- IEEE802.3af compliant PoE standard
- Trellis Coding support up to 1024 discrete multi-tone bins and 4 Dip Switches for configuration settings
- Auto MDIX for 10/100BaseT Ethernet LAN Ports
- Low-latency for video/voice/data applications
- Selectable fast and interleaved modes
- Selectable fixed data rate and fixed SNR margin
- Max. Power Consumption: 5W

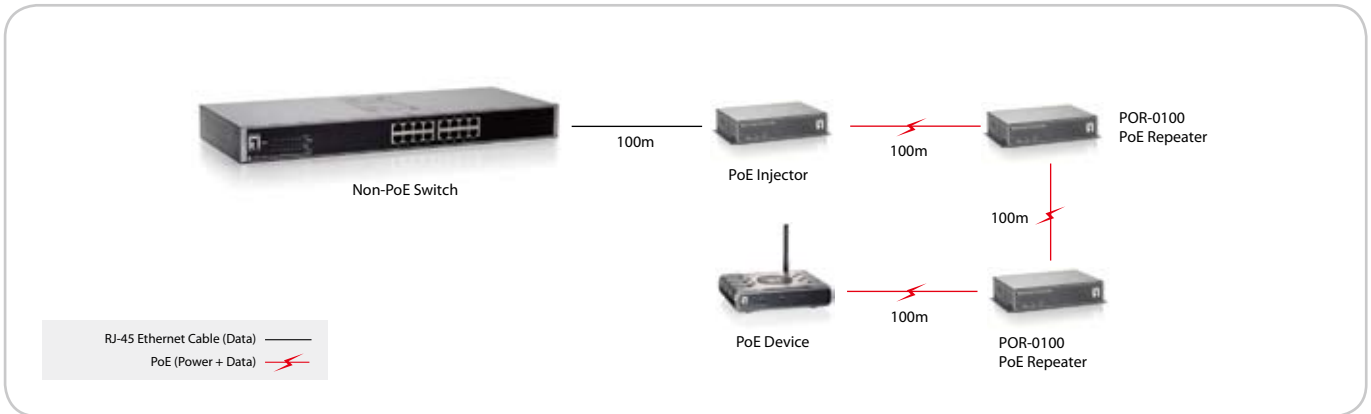


**VDS-0120
Ethernet over VDSL2 Converter
(PSE)**

- Provides 100/60 Mbps DownStream/UpStream for distance up to 300m
- Supports VDSL2 connection up to 2,000m
- IEEE802.3af compliant - 48V Power-Sourcing-Ethernet (PSE) standard and line surge protection
- Trellis coding support up to 1024 discrete multi-tone bins and 4 Dip Switches for configuration settings
- Auto MDIX for 10/100BaseT Ethernet LAN Ports
- Low-Latency for video/voice/data applications
- Selectable fast/Interleaved modes and fixed data rate/ SNR margin
- Total PoE output power: 15.4W

PoE Repeaters

PoE Repeaters transmits both power and data from a PoE source, and repeats them for an additional 100m, as the specification of the data connection is limited to 100m. This can be done multiple times as long as there is enough power left for the PoE device.



- POR-0100**
1-Port Indoor PoE Repeater
- Extends Cat.5 cable installations to beyond 100m
 - Forwards Power over Ethernet (PoE) to remote device
 - No Power required
 - Fully transparent - no restrictions to network traffic
 - Simple to install - works instantly
 - Supports all network devices
 - Max. Power Consumption: 2W



- POR-0102**
2-Port Indoor PoE Repeater
- Extends Cat.5 cable installations to beyond 100m
 - Forwards Power over Ethernet (PoE) to remote device
 - Provides 2-Port Ethernet Power Sourcing Equipment (PSE)
 - No Power required
 - Fully transparent - no restrictions to network traffic
 - Simple to install - works instantly
 - Supports all network devices
 - Max. Power Consumption: 2.5W

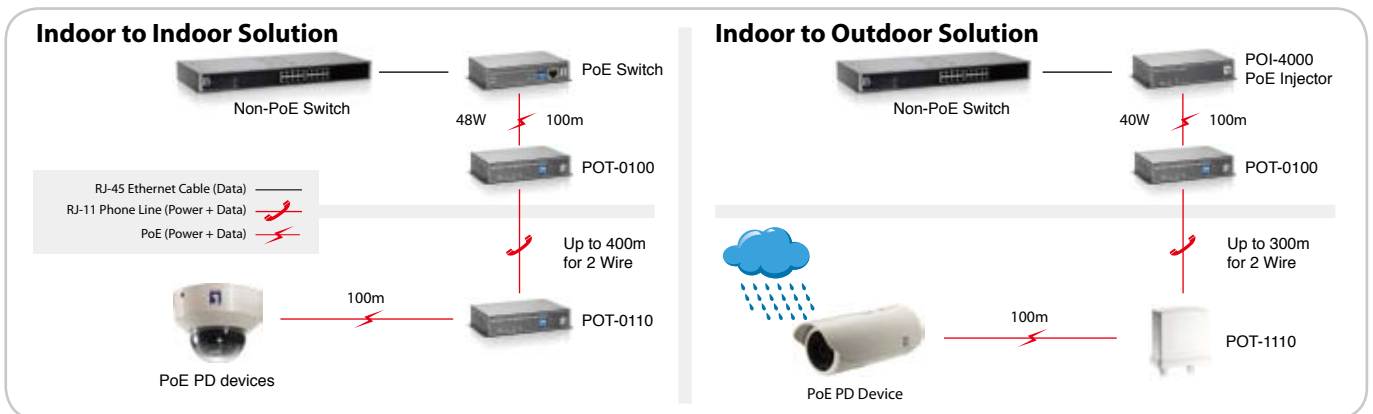


- POR-1100**
1-Port Outdoor PoE Repeater
- Extends Cat.5 cable installations to beyond 100m
 - Forwards Power over Ethernet (PoE) to remote device
 - No Power required
 - Fully transparent-no restrictions to network traffic
 - Supports all network devices
 - Max. Power Consumption: 2W
 - IP66 weatherproof design



- POR-1102**
2-Port Outdoor PoE Repeater
- Extends Cat.5 cable installations to beyond 100m
 - Provides 2-Port Ethernet Power Sourcing Equipment (PSE)
 - Forwards Power over Ethernet (PoE) to remote device
 - No Power required
 - Fully transparent-no restrictions to network traffic
 - Supports all network devices
 - Max. Power Consumption: 2.5W
 - IP66 weatherproof design

Each telephone wire is a single twisted pair, with actually two wires that is capable of transmitting both data and power without the limitation of 100m. Using the 2-wire solution, one single segment could be up to hundreds of meters.



POT-0100

PoE Repeater over 2-wire (Master)

- Two-wire cables are used to connect 100Mbps Fast Ethernet PoE devices
- Maximum distance up to 400 meters for 24 AWG cable
- Maximum data rate up to 60Mbps full duplex
- Up to 15W for remote PoE (depending on PSE power)
- Dip switches for 2-wire line rate settings
- Auto MDIX for 10/100Base-TX Ethernet LAN port
- Low-Latency for Video/Voice/Data applications
- Max. Power Consumption: 8W

POT-0110

PoE Repeater Slave over 2-wire (Slave)

- Two-wire cables are used to connect 100Mbps Fast Ethernet PoE devices
- Maximum distance up to 400 meters for 24 AWG cable
- Maximum data rate up to 60Mbps full duplex
- Up to 15W for remote PoE (depending on PSE power)
- Dip switches for 2-wire line rate settings
- Auto MDIX for 10/100Base-TX Ethernet LAN port
- Low-Latency for Video/Voice/Data applications
- Max. Power Consumption: 5W

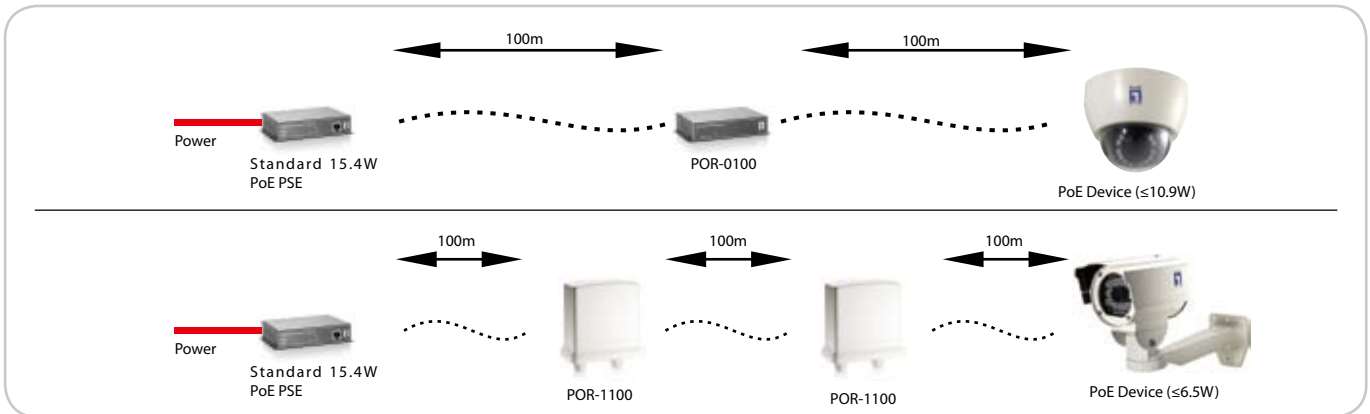
POT-1110

Outdoor PoE Repeater over 2-wire (Slave)

- Two-wire cables are used to connect 100Mbps Fast Ethernet PoE devices
- Maximum distance up to 400 meters for 24 AWG cable
- Maximum data rate up to 60Mbps full duplex
- Up to 15W for remote PoE (depending on PSE power)
- Dip switches for 2-wire line rate settings
- Auto MDIX for 10/100Base-TX Ethernet LAN port
- Low-Latency for Video/Voice/Data applications
- IP66 weatherproof design
- Max. Power Consumption: 5W

Despite of the power required by the PoE Repeater and the power loss from the cable, the further the distance from the PSE, then the greater the power drops off.

The diagram shows a standard PoE Power Sourcing Equipment which supplies 15.4W of power. It can be seen that when repeated twice, there is more drop off in the end power available for the PoE device.



This table shows the estimated power available at different distances when the PSE is a Standard 15.4W source.

Connect with Standard 15.4W PSE

End to End Distance	100m	200m	300m	400m	500m
Daisy-Chaining (1-Port PoE Repeater)	0	1	2	3	N/A
Power Available	12.9W	10.9W	6.5W	3.84W	Data only No power



**PPM-1000
PoE Power Measurer**

- Ensure your PoE device works correctly
- Measure available power (watts) and voltage in a PoE line
- Portable and compact size
- LED display and indicators to reveal the power status
- Built-in temperature sensor
- Replaceable external battery pack for real portability
- Detachable neck strap
- Built-in temperature sensor and LED indicator to inform user overheat condition if high power load test is applied

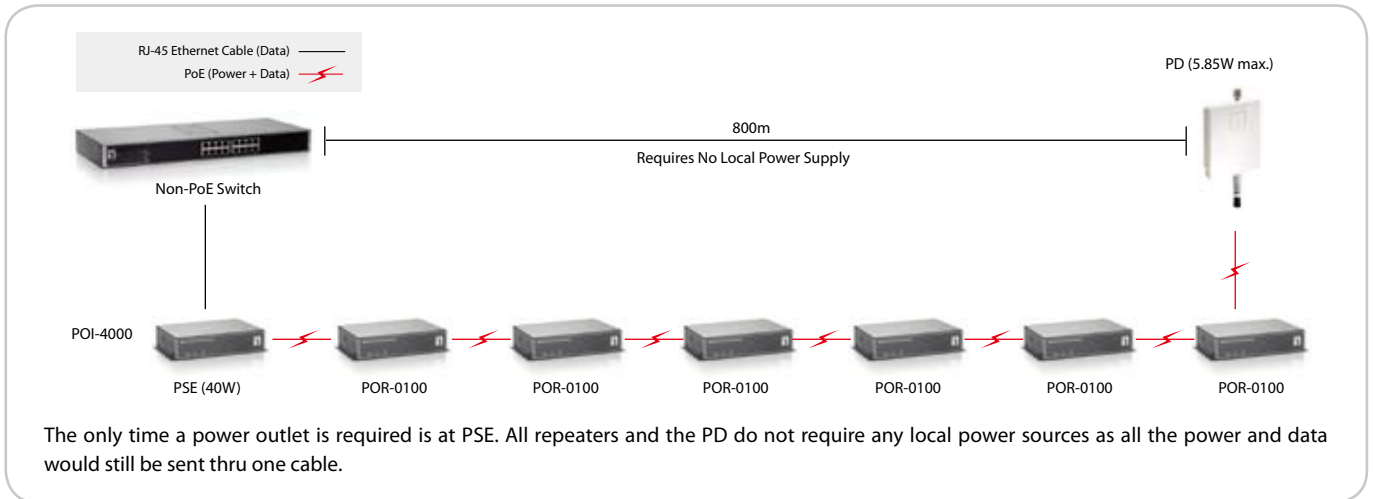
To overcome the power loss, we can extend the distance possibly by increasing the power input at the PSE. LevelOne has a range of High Power PSE for this application, such as FSW-0513 PoE switch (48W), POI-4000 PoE injector (40W), or POI-3000 Gigabit PoE Plus Injector (30W).

Connect with High-Power 30W PSE, POI-3000 / 40W PSE, POI-4000 (refer to page 8)

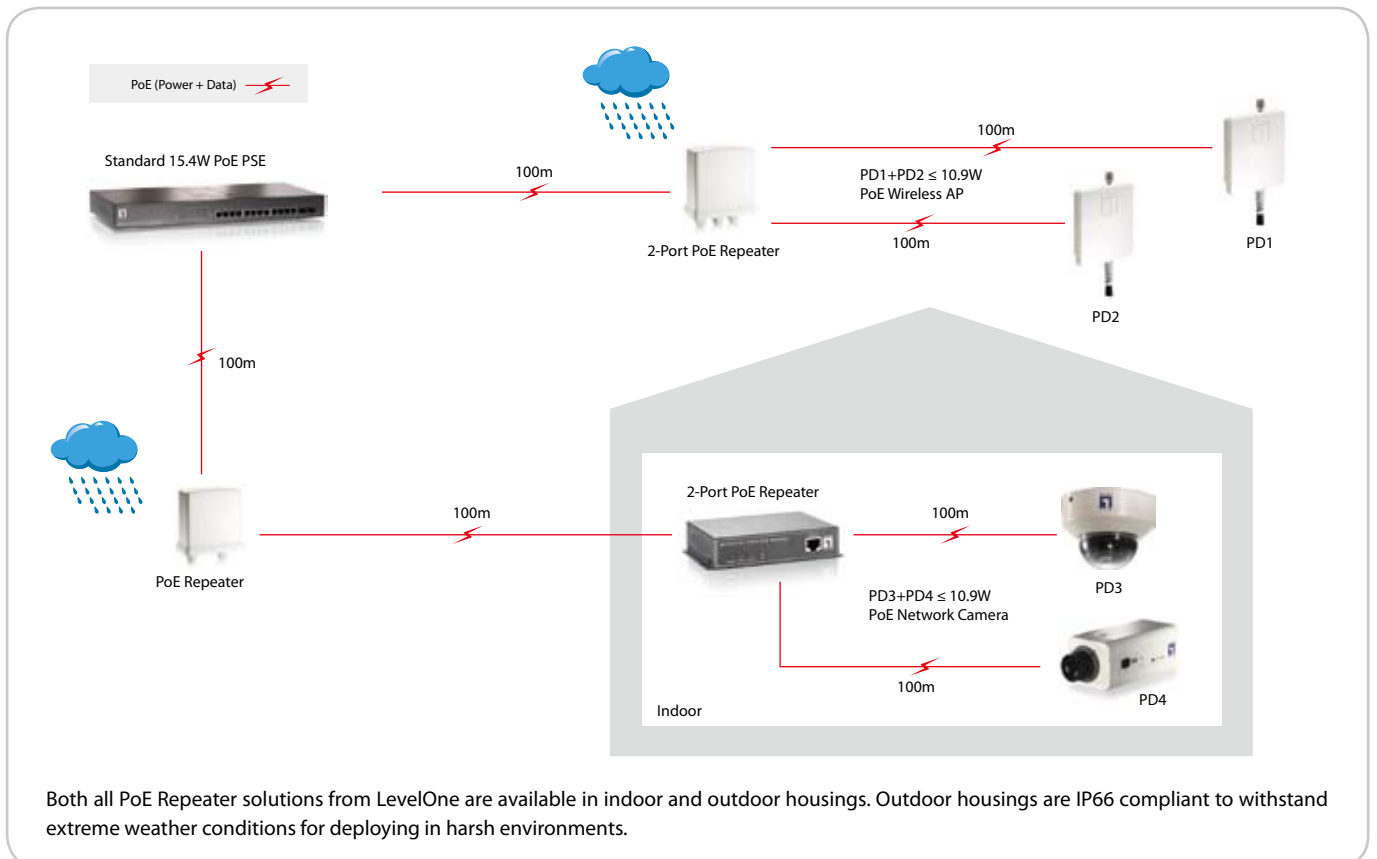
End to End Distance	Daisy-Chaining (1-Port PoE Repeater)	Power Available	
		30W PSE (POI-3000)	40W PSE (POI-4000)
100m	0	-	-
200m	1	25.5W	28W
300m	2	21W	25.5W
400m	3	16.5W	21W
500m	4	12W	16.5W
600m	5	7.5W	12W
700m	6	3.84W	7.5W
800m	7	Data only No Power	3.84W
900m	8	-	Data only No Power

Due to the length and quality of cable, it is difficult to be certain that there is enough power available to power the PoE device. So for the convenience of installers, LevelOne has a compact and portable PoE Power Measurement device to examine and test the power status in real time. In essence, it guarantees that sufficient power will be successfully delivered to the PoE device.

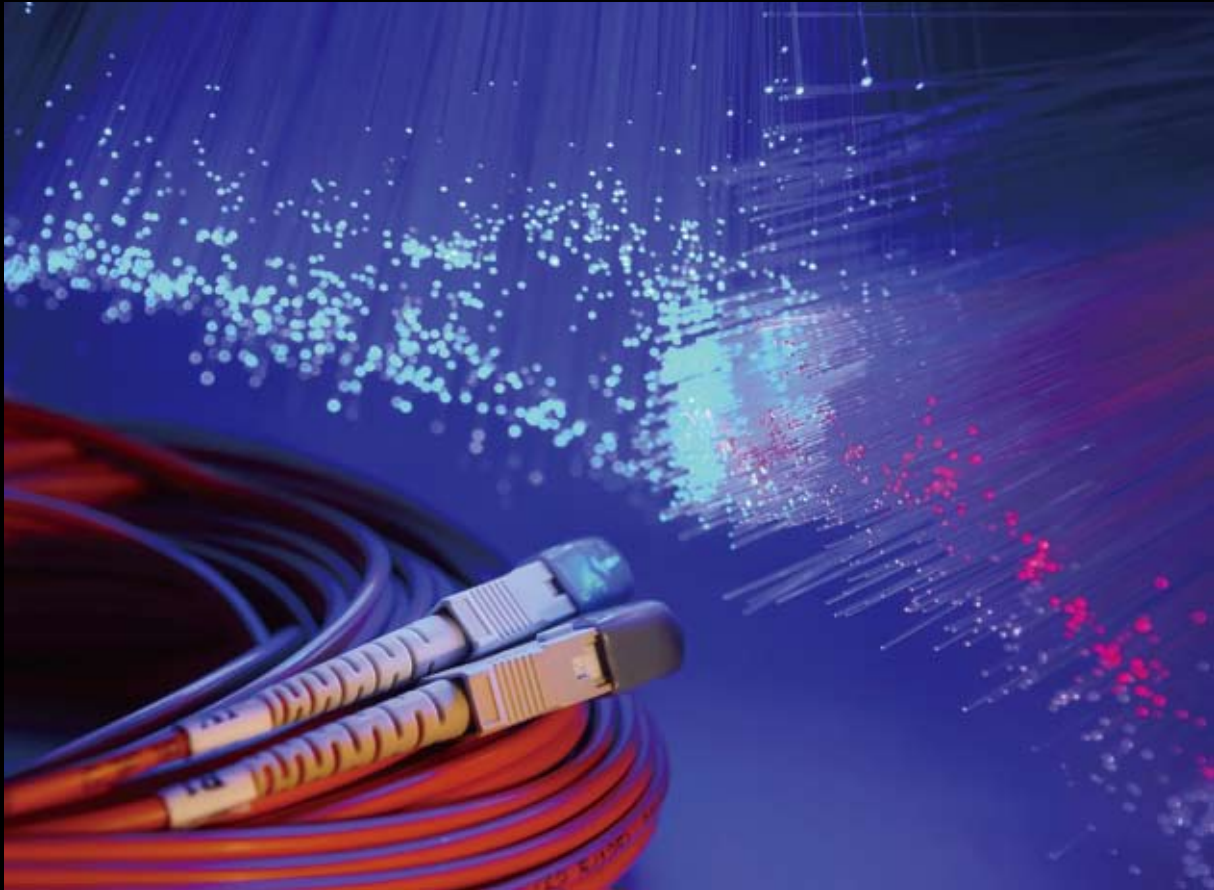
The diagram highlights the advantages of using a 40W High-Power PSE as it shows a total distance between the PSE and PD up to 800m, leaving around 7.5W which is enough to power the Outdoor Wireless Access Point as it only uses 5.85W.



LevelOne also offers 2-Port PoE Repeaters (POR-1102, POR-0102) which is ideal when you have two PoE devices at the same location. This will eliminate the need to run two separate PoE lines.



Applications



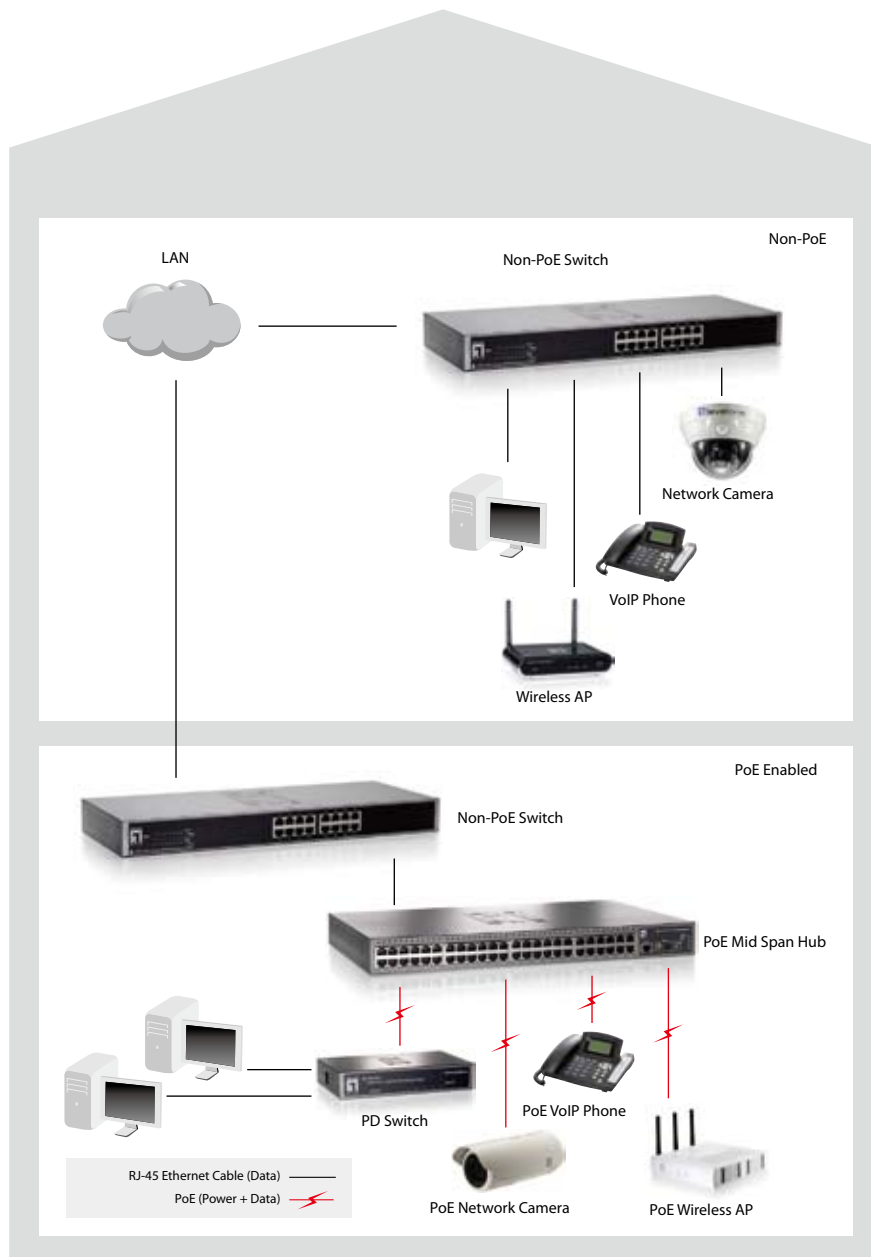
LevelOne offers a comprehensive range of PoE products which can be used from home applications, or large scale system deployments for system integrators. These are provided with emphasis on value for money, with no detriment to quality.

Our line-up of PoE products covers a wide variety of applications, even some which are unique.

You will surely find the PoE products from LevelOne that suit your needs.

Adding PoE Function to an existing network

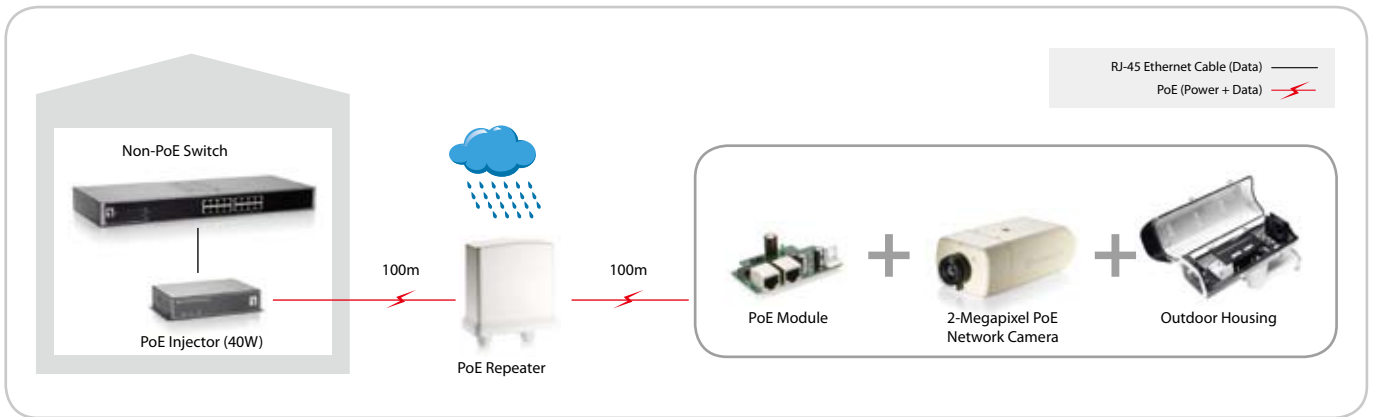
If there is already a non-PoE network deployed on the premises, it is not required that all the non-PoE switches can be replaced with PoE switches. A more cost effective approach is to use PoE Mid-Span hubs. PoE Mid-Span hubs go between the non-PoE switch and the PoE device to add standard PoE power of 15.4W into the link. Then the installer is able to deploy a wide range of PoE devices such as VoIP phones, Wireless access points or network cameras throughout the premises, without touching any of the existing network devices.



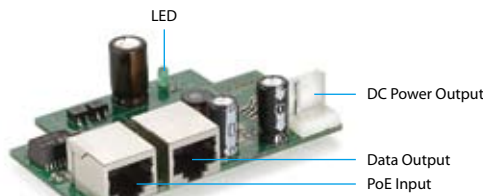
Outdoor Camera Housing

LevelOne offers durable outdoor housings so that cameras can monitor the entrance of building or exterior environments. These housings protect cameras from weather, dust and dirt, as well as offer extra add-on features like fans, heaters and Infrared LEDs. However these extra add-ons also consume a significant amount of power, and regularly exceeds the specifications of the PoE standard, therefore a power outlet to be located close to the camera, limiting the flexibility of placements is required.

With LevelOne's POI-4000 High-Power PoE Injector and the POM-1100 PoE Module, installers can now apply PoE to this devices and place the cameras in any location they choose.



The POM-1100 PoE Module takes power and data sent over the network cable from the PSE and distributes it to the other devices in the camera housing. It provides up to 12V DC/2.5A for the IP camera, housing fan and heater and fits with LevelOne's BOH-1100/BOH-1200/BOH-1300 outdoor housings.



**POM-1100
PoE Module**

Box type outdoor housing -



BOH-1100
PoE Upgradable Outdoor Housing
(12V DC/24V AC)

Works with:
FCS-1101/FCS-1091/FCS-1121/
FCS-1131/FCS-1141/FCS-1151
(refer to page 13)



BOH-1200
Day/Night PoE Upgradable Outdoor Housing
(12V DC/24V AC)

Works with:
FCS-1091/FCS-1121/FCS-1131/
FCS-1141/FCS-1151
(refer to page 13)



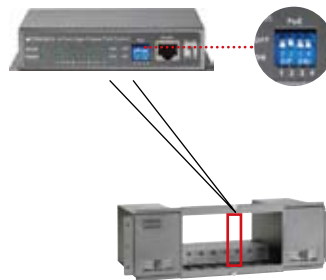
BOH-1300
PoE Upgradable Outdoor Housing with
(12V DC/24V AC)

Works with:
FCS-1101/FCS-1121
(refer to page 13)

An alternative to POI-4000 is the FSW-0513 4-Port High Power PoE Switch. The dip switches allows the installer to choose the number of PoE enabled ports, with a budget of 120W to be shared between the four ports. When the configuration of 3 ports PoE enabled, each port can send up to 40W of power, thus enabling the installer to connect three Outdoor housing solutions to the FSW-0513.

FSW-0513 output power table list

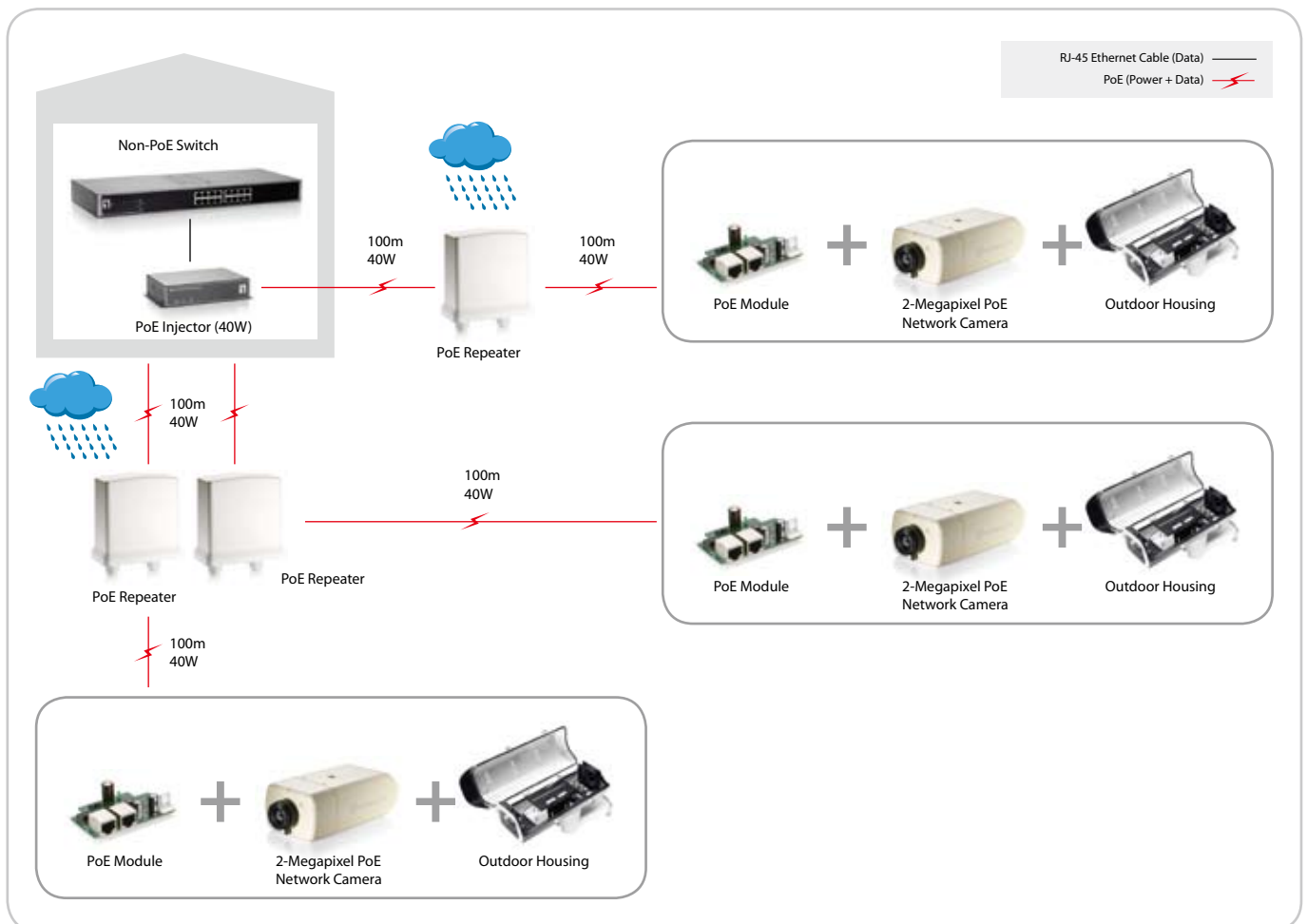
Enable PoE on	Port 1	Port 1	Port 1	Port 1	Enable Port
PoE output power	48W	OFF	OFF	OFF	1 Port
PoE output power	48W	48W	OFF	OFF	2 Ports
PoE output power	40W	40W	40W	OFF	3 Ports
PoE output power	30W	30W	30W	30W	4 Ports



POC-6000

8-Bay PoE Switch Chassis

- Supports 8 slots for FSW-0513/ FSW-0503
- Total of 32 PoE enabled ports
- Supports up to 1000W power
- Standard 4U 19" chassis central power management unit
- Optimal solution to outdoor P/T/ Z and Dome network cameras



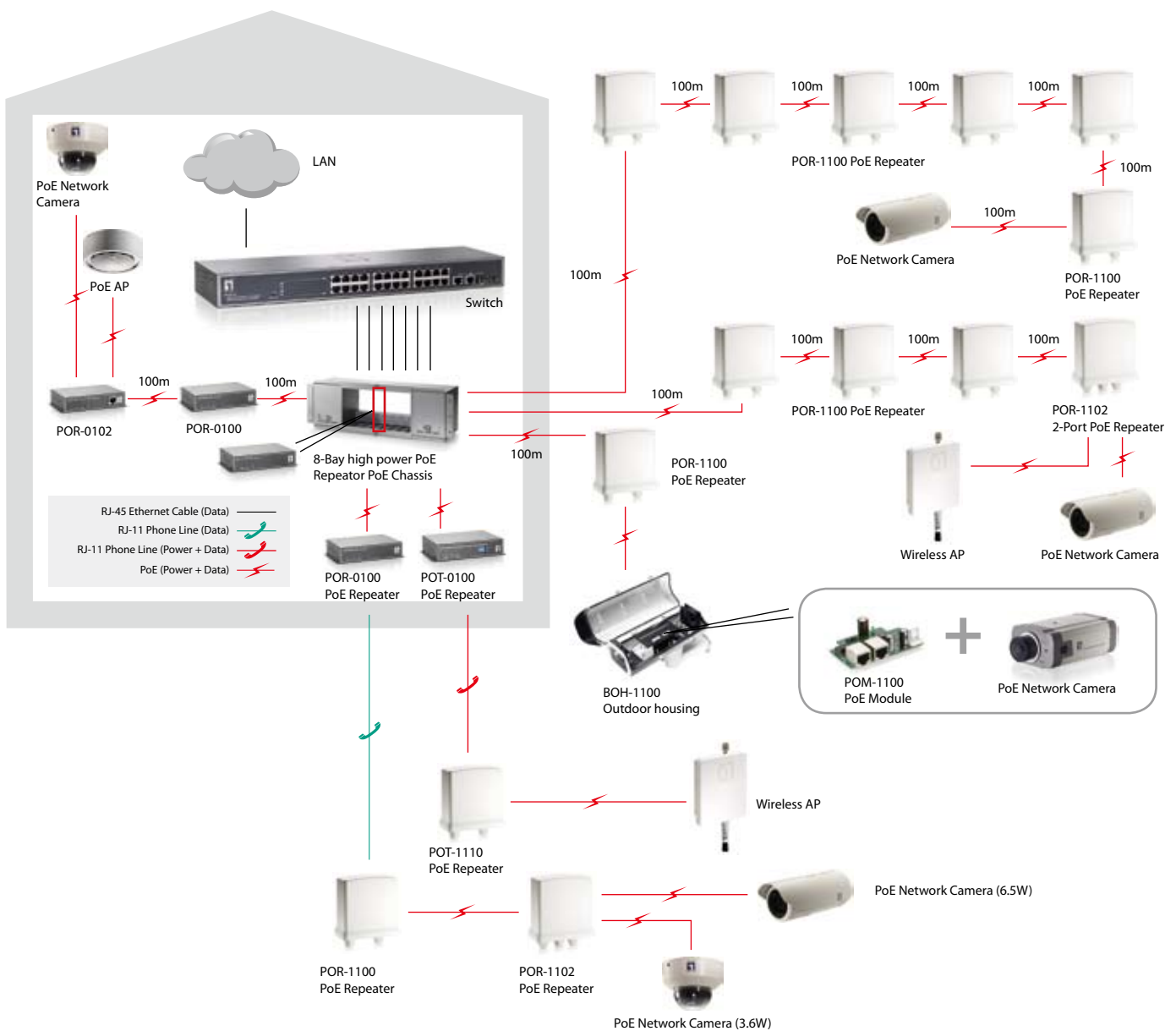
Advanced High Power Deployment

For indoor applications where there is an easy access to power sockets and server rooms, it is relatively easy to install a PoE network as the confined spaces mean that the limitation of 100m is rarely an issue.

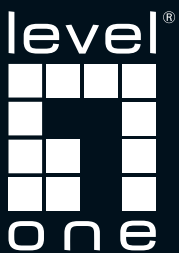
However with more advanced deployments in larger environments such as factories, airports, car parks, warehouses, it is more difficult to find convenient power sockets, also the distances could be further than 100m. Use LevelOne PoE Indoor/Outdoor repeaters to extend your PoE network devices an additional 100m.

Note that the use of PoE Repeaters means that the installer will need to consider the power loss in relation to the distance and number of repeaters used to ensure that there is enough power left for the PoE device to function correctly.

This application will demonstrate a deployment using the following LevelOne products:



The combination of POI-4000 and POC-4000 allows for only 8 x 40W PoE ports. For more larger scale installations, the option of FSW-0513 configured with only 3 PoE enabled ports, enclosed in the POC-6000 8-Bay High-Power PoE Chassis allows for a total of 24 x 40W PoE ports.



Digital Data Communications Group

www.level1.com

Global Headquarters:

Digital Data Communications GmbH, Germany

Global Offices:

Germany, Taiwan, Australia, Belgium, Brasil, Colombia, Denmark, Greece, India, Italy, Israel, Kenya, the Netherlands, Portugal, Slovenia, Spain, Sweden, U.A.E



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