# 1. Introduction

## 1.1 Checklist

Thank you for purchasing POEHUB4P1GAT 4-port Gigabit IEEE 802.3at Power over Ethernet Plus Injector Hub.

**Check your package for the following items:**

- IEEE 802.3at PoE+ Injector Hub x 1
- User's Manual x 1
- Power Adapter x 1
- Power Cord x 1

If any of these pieces are missing or damaged, please contact your dealer immediately; if possible, retain the carton including the original packing material, and use them again to repack the product in case there is a need to return it to us for repair.



## 1.2 About the Power over Ethernet Injector Hub

The POEHUB4P1GAT is a 4-port Gigabit IEEE 802.3at PoE+ Injector Hub, featuring both IEEE 802.3af and IEEE 802.3at Power over Ethernet Plus (PoE+) that deliver up to 30-watt power output and data per port over one Cat 5e/6 Ethernet cable. It is designed specifically to satisfy the growing demand of higher power consuming network PDs (powered devices) such as PTZ (pan, tilt, zoom)/speed dome network cameras, multi-channel (802.11ac/b/g/n/a) wireless LAN access points and other network devices by providing the double amount of PoE power, more than the conventional 802.3af PoE PSE.

The POEHUB4P1GAT is installed between a regular Ethernet switch and the powered devices; it injects power to the PDs without affecting data transmission performance. It offers a cost-effective and quick solution to upgrading network system to IEEE 802.3af/IEEE 802.3at Power over Ethernet system without replacing the existing Ethernet switch. There are 8 RJ45 STP ports on the front panel of the POEHUB4P1GAT, of which half of the ports on the right panel function as "Data input" and the other half on the left panel function as "PoE (Data and Power) output". The 4 "PoE (Data and Power) output" ports are also the power injectors that transmit DC voltage to the Cat 5/5e/6 cable and transfer data and power simultaneously between the injectors and splitters.



## 1.3 Features

- 8-port RJ45
  - 4-port 10/100/1000Mbps "Data Input"
  - 4-port 10/100/1000Mbps "Data + Power Output"
- Power over Ethernet
  - IEEE 802.3at and IEEE 802.3af Power over Ethernet mid-span PSE
  - Up to 4 IEEE 802.3at/802.3af devices powered
  - DC 52V~56V power over RJ45 Ethernet cable to devices with Ethernet port
  - PoE power up to 30.8 watts (802.3at PoE+) /15.4 watts (802.3af PoE) for each PoE port
  - Remote power feeding up to 100m
  - Full power support for each PoE port
  - Automatically detects powered device (PD)
  - Circuit protection prevents power interference between ports
- Hardware
  - Desktop palm size, wall mountable
  - Power input LED
  - FCC Part 15 Class B, CE
  - 100~240V AC, 50/60Hz, 2A universal power supply adapter with DC 52V~56V power output
  - Plug and Play
- Standard Compliance
  - IEEE 802.3 10BASE-T
  - IEEE 802.3u 100 BASE-TX
  - IEEE 802.3ab 1000 BASE-T
  - IEEE 802.3af Power over Ethernet
  - IEEE 802.3at Power over Ethernet Plus



## 1.4 Specifications

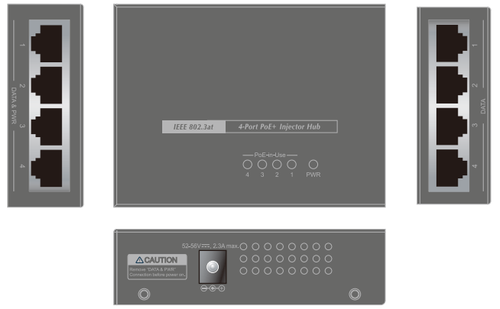
| Product | | POEHUB4P1GAT |
|---|---|---|
| Hardware | | |
| Interface | "Data" Input Ports | 4 x RJ45 |
| | "Data + Power" Output Ports | 4 x RJ45 |
| Data Rate | | 10/100/1000Mbps |
| LED | | System: Power x 1 (Green)<br>Per PoE Port: PoE ready/in-use x 4 (Amber) |
| Network Cable | | 10BASE-T: 4-pair UTP Cat. 5, up to 100m (328ft)<br>100 BASE-TX: 4-pair UTP Cat. 5, up to 100m (328ft)<br>1000 BASE-T: 4-pair UTP Cat. 5e/6, up to 100m (328ft)<br>EIA/TIA- 568 100-ohm STP (100m or 328ft) |
| Dimensions (W x H x D) | | 26 x 70 x 97mm |
| Weight | | 208g |
| Power Requirements | | DC 52V~56V |



| Power over Ethernet | |
|---|---|
| PoE Power Supply Type | Mid-span |
| PoE Power Output | IEEE 802.3af per port DC 52V~56V 15.4 watts<br>IEEE 802.3at per port DC 52V~56V 30.8 watts |
| Power Pin Assignment | 4/5(+), 7/8(-) |
| PoE Power Budget | 120 watts |
| Standards Conformance | |
| Standards Compliance | IEEE 802.3 10BASE-T Ethernet<br>IEEE 802.3u 100 BASE-TX Fast Ethernet<br>IEEE 802.3ab 1000 BASE-T Gigabit Ethernet<br>IEEE 802.3af Power over Ethernet<br>IEEE 802.3at Power over Ethernet Plus |
| Regulatory Compliance | FCC Part 15 Class B, CE |
| Environment | |
| Operating Temperature | 0 ~ 50 degrees C |
| Storage Temperature | -10 ~ 70 degrees C |
| Humidity | 5 ~ 95% (non-condensing) |



## 1.5 Product Outlook




### LED Definition:

| LED | Color | Function |
|---|---|---|
| Power | Green | Lights to indicate that the POEHUB4P1GAT has power. |
| PoE Ready/ In-Use | Amber | Lights to indicate the port is providing DC 52V~56V in-line power. |



# 2. Hardware Installation

This product provides three different running speeds – 10Mbps, 100Mbps and 1000Mbps - in the same device and automatically distinguishes the speed of the incoming connection.

This section describes the hardware features of the POEHUB4P1GAT. Before connecting any network device to the POEHUB4P1GAT, read this chapter carefully.

## 2.1 Before Installation

Before your installation, it is recommended to check your network environment. If there is any IEEE 802.3af/802.3at device which needs power, the POEHUB4P1GAT can supply power to this Ethernet device conveniently and easily. The POEHUB4P1GAT is equipped with an AC-DC adapter with DC 52V~56V input and injects this DC power into the pin of the twisted-pair cable (pair 4, 5 and pair 7, 8).

If there is no power socket for the AC-DC adapter of your non-IEEE 802.3af/802.3at networked device, the POEHUB4P1GAT can provide you with DC power for this Ethernet device conveniently and easily.

The 10Mbps, 100Mbps or 1000Mbps speed in duplex mode from data port of the POEHUB4P1GAT depends on which Ethernet device is attached to.



## 2.2 Installation of POEHUB4P1GAT

For the places hard to find the power inlet, the POEHUB4P1GAT provides the easiest way to power your Ethernet devices such as IP cameras on the ceiling and wireless access point installed on the top of the building. With 4 10/100/1000BASE-T Gigabit Ethernet ports, the POEHUB4P1GAT supports full DC 52V~56V power for any remote IEEE 802.3af/802.3at powered device (PD).

To control the power system of your networking devices, the POEHUB4P1GAT can directly co-work with PoE IP phone to build VoIP telephony network in the office. Furthermore, the POEHUB4P1GAT can be directly connected to any third-party IEEE 802.3af/802.3at compliant devices installed 100 meters away.

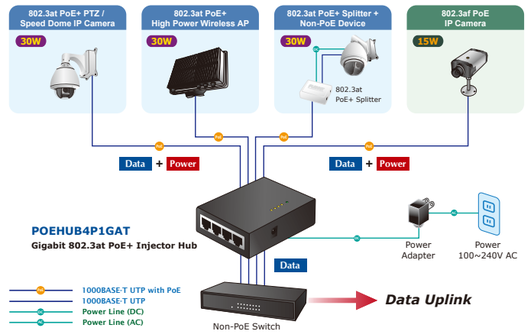



**Figure 2-1:** POEHUB4P1GAT Application Topology

Note

1. According to IEEE 802.3af and IEEE 802.3at standard, the POEHUB4P1GAT will not inject power to the cable if not connected to IEEE 802.3af and IEEE 802.3at standard devices.
2. With IEEE 802.3af and IEEE 802.3at standard, the POEHUB4P1GAT can directly connect with any IEEE 802.3af or IEEE 802.3at standard compliant end nodes.



# Appendix A Networking Connection

## RJ45 Pin Assignments

### 1000Mbps, 1000BASE-T

| RJ45 Connector Pin Assignment | | |
|---|---|---|
| Contact | MDI | MDI-X |
| 1 | BI_DA+ | BI_DB+ |
| 2 | BI_DA- | BI_DB- |
| 3 | BI_DB+ | BI_DA+ |
| 4 | BI_DC+ | BI_DD+ |
| 5 | BI_DC- | BI_DD- |
| 6 | BI_DB- | BI_DA- |
| 7 | BI_DD+ | BI_DC+ |
| 8 | BI_DD- | BI_DC- |

Implicit implementation of the crossover function within a twisted-pair cable, or at a wiring panel, while not expressly forbidden, is beyond the scope of this standard.



### 10/100Mbps, 10/100BASE-TX

| RJ45 Connector Pin Assignment | | |
|---|---|---|
| Contact | MDI<br>Media Dependent Interface | MDI-X<br>Media Dependent Interface -- Cross |
| 1 | Tx + (transmit) | Rx + (receive) |
| 2 | Tx - (transmit) | Rx - (receive) |
| 3 | Rx + (receive) | Tx + (transmit) |
| 4, 5 | IEEE 802.3af/802.3at DC 48V/52V | |
| 6 | Rx - (receive) | Tx - (transmit) |
| 7, 8 | IEEE 802.3af/802.3at DC 0V | |



### The Standard RJ45 Receptacle/Connector

There are 8 wires on a standard UTP/STP cable and each wire is color-coded. The following shows the pin allocation and color of the straight cable and crossover cable connection:

| Straight Cable | | SIDE 1 | SIDE 2 |
|---|---|---|---|
| 1 2 3 4 5 6 7 8 | SIDE 1 | 1 = White/Orange<br>2 = Orange<br>3 = White/Green<br>4 = Blue<br>5 = White/Blue<br>6 = Green<br>7 = White/Brown<br>8 = Brown | 1 = White/Orange<br>2 = Orange<br>3 = White/Green<br>4 = Blue<br>5 = White/Blue<br>6 = Green<br>7 = White/Brown<br>8 = Brown |
| 1 2 3 4 5 6 7 8 | SIDE 2 | | |
| **Crossover Cable** | | **SIDE 1** | **SIDE 2** |
| 1 2 3 4 5 6 7 8 | SIDE 1 | 1 = White/Orange<br>2 = Orange<br>3 = White/Green<br>4 = Blue<br>5 = White/Blue<br>6 = Green<br>7 = White/Brown<br>8 = Brown | 1 = White/Green<br>2 = Green<br>3 = White/Orange<br>4 = Blue<br>5 = White/Blue<br>6 = Orange<br>7 = White/Brown<br>8 = Brown |
| 1 2 3 4 5 6 7 8 | SIDE 2 | | |

**Figure A-1:** Straight-through and Crossover Cables

Please make sure your connected cables are with the same pin assignment and color as the above picture before deploying the cables into your network.



## Customer Support

Thank you for purchasing L-com products. You can browse our online resources and User's Manuals on www.L-com.com. If you require sales or support information, please contact the L-com support team using the information found below.

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## Energy Saving Note of the Device

This power required device does not support Standby mode operation. For energy savings, please remove the power cable to disconnect the device from the power circuit.

Without removing power cable, the device can still consume power from the power source. In view of Saving the Energy and reducing the unnecessary power consumption, it is strongly suggested to remove the power connection from the device if this device is not intended to be active.



# 4-Port IEEE 802.3at PoE+ Injector Hub

**Model: POEHUB4P1GAT**

User's Manual