



# **DigiStar Ethernet over Coax End-Point E320.1**

## User Guide

## Notice

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## Notice for CATV Installers

If you are a CATV installer, read the information in the box below.

<p><b>Note to CATV System Installer (U.S.A. and Canada Only)</b></p> <p>This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC (Section 54, Part I of the Canadian Electrical Code), that provides guidelines for proper grounding and, in particular, specifies that the CATV cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.</p>	
 <p>This symbol is intended to alert you that uninsulated voltage within this product may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this product.</p>	<p><b>CAUTION:</b> To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.</p> <p><b>WARNING</b> <b>TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.</b></p>  <p>This symbol is intended to alert you of the presence of important operating and maintenance (servicing) instructions in the literature accompanying this product.</p>

# Important Safety Instructions

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## Protecting Against Power Surges

To protect the EP from power surge damage, ground (earth) your cable product to provide some protection against voltage surges and built-up static charges.

To avoid these voltage surges caused by lightning storms and power outages, plug the EP into a surge protector to reduce the risk of damage.

## Heed Warnings

Adhere to all warnings on the product and in the operating instructions.

## Read, Retain, and Follow These Instructions

Read instructions before you operate this unit. Follow all operating instructions that accompany this product. Retain the instructions for future use. Give particular attention to all safety precautions.

## Comply With Warnings

Avoid electric shock. Comply with all warnings and cautions in the operating instructions, as well as those that are affixed to this product.

## Power Warnings

### Providing a Power Source

A label on this product indicates the correct power source for this product. Operate this product only from an electrical outlet with the voltage and frequency indicated on the product label.

If you are uncertain of the type of power supply to your home or business, consult your service provider or your local power company.

If this product is equipped with a two-prong (polarized) safety plug, follow these safety guidelines to properly ground this product:

### Grounding This Product (U.S.A. and Canada Only)

Avoid electric shock. Comply with all warnings and cautions in the operating instructions, as well as those that are affixed to this product.

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## Important Safety Instructions, Continued

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**WARNING:** To avoid electric shock and fire hazard, match the plug and outlet connections carefully, then fully insert. If the plug and outlet do not match, or you can not fully insert the plug, contact an electrician to update your power outlet.

For a 2-prong plug (a polarized plug with one wide blade and one narrow blade), insert the plug into a polarized mains, 2-prong outlet in which one socket is wider than the other.

**Note:** If you are unable to insert this plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact your electrician to replace your outlet.

### Overloading



**WARNING:** Avoid electric shock and fire hazard! Do not overload main AC outlets and extension cords. For products that require battery power or other power sources to operate them, refer to the operating instructions for those products.

Do not overload electrical outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock. For products that require battery power or other power sources to operate, refer to the operating instructions for those products.

### Preventing Power Cord Damage

Arrange all power cords so that people or pets can not walk on the cords. Do not place objects on the cords. Do not lean objects against the cords. Placing objects on or leaning objects against cords can damage the cords. Give particular attention to cords at the point at which the cord connects to plugs, at the electrical outlets, and where the cords exit the product.

### Usage Warnings

#### Providing Ventilation

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## Important Safety Instructions, Continued

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This product has openings for ventilation that protect it from overheating. To ensure the reliability of this product, do the following:

- Do not block or cover these openings
- Do not place entertainment devices (such as VCRs or DVDs), lamps, book, vases with liquids, or other objects on top of this product.
- Do not place this product in any of the following locations:
  - On a bed, sofa, rug, or similar surface.
  - Near heat sources such as radiators, heat registers, stoves, or other products that produce heat.
  - In an enclosure, such as a bookcase or rack, unless the installation provides proper ventilation.

### Selecting a Proper Location



**WARNING: Avoid personal injury and damage to this product! An unstable surface may cause this product to fall.**

Place this product in a location that is close enough to an electrical outlet and where the power cord is easily accessible to be disconnected from the wall outlet or from the rear panel of the product.

**Important:** The power cord is the mains power supply disconnect device. Place this product on a stable surface. The surface must support the size and weight of this product.

### Cleaning This Product



**WARNING: Avoid electric shock! Unplug this product before cleaning.**

Before cleaning this product, unplug it from the electrical outlet. Use a damp cloth to clean this product. Do not use a liquid cleaner or an aerosol cleaner. Do not use a magnetic/static cleaning device (dust remover) to clean this product.

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## Important Safety Instructions, Continued

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### Protecting This Product from Foreign Objects and Water or Moisture Damage



**WARNING:** Avoid electric shock and fire hazard! Never push objects through the openings in this product. Foreign objects can cause electrical shorts that can result in electric shock or fire. Do not expose this product to rain or moisture. Do not place objects filled with liquid, such as vases, on this product.

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock.

Do not expose this product to liquids or moisture. Do not place this product on a wet surface. Do not spill liquids on or near this product. Do not use this product near water, such as a bath tub, wash bowl, sink, or laundry tub, in a wet basement, or near a swimming pool.

### Accessories Warnings



**WARNING:** Avoid any potential for electric shock or fire. Do not use accessories with this product unless recommended by your cable service provider.

Avoid any potential for electric shock or fire. Do not use accessories with this product unless recommended by your cable service provider.

### Service Warnings

#### Servicing This Product



**WARNING:** Avoid electric shock! Opening or removing the cover may expose you to dangerous voltages. This product contains no user-serviceable parts. Refer all servicing to qualified service personnel.

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## Important Safety Instructions, Continued

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Do not open the cover of this product. If you open the cover, your warranty will be void. Refer all servicing to qualified personnel only. Contact your service provider for instructions.

### Obtaining Service for Product Damage

For damage that requires service, unplug this product from the AC outlet. Then contact your cable service provider or qualified service personnel to obtain service for the following conditions:

- If there is damage to the power supply cord or plug
- If liquid enters this product
- If you expose this product to rain or water
- If you drop this product, a heavy object falls on this product, or damage occurs to the cover of this product
- If this product does not operate normally by following the operating instructions.

### Checking Product Safety

Upon completion of any service or repairs to this product, the service technician performs safety checks to determine that this product is in proper operating condition.

### Lightning

For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges. Plugging this product into a surge protector may reduce the risk of damage.

**Note:** Unplugging this product for an extended period of time can result in loss of authorization. For reauthorization, contact your cable service provider.

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## Important Safety Instructions, Continued

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### Power Lines



**WARNING:** To avoid electric shock, do not locate an outside antenna system in the vicinity of overhead power lines or power circuits.

Do not locate an outside antenna system in the vicinity of overhead power lines or power circuits. When installing an outside antenna system, take extreme care to keep from touching power lines or circuits, as contact might be fatal.

### Electromagnetic Compatibility Regulatory Requirements

This equipment meets applicable electromagnetic compatibility (EMC) regulatory requirements. Refer to this equipment's data sheet for details about regulatory compliance approvals. EMC performance is dependent upon the use of correctly shielded cables of good quality for all external connections, except the power source, when installing this equipment.

Ensure compliance with cable/connector specifications and associated installation instructions where given elsewhere in this manual. Otherwise, comply with the following good practices:

1. Multi-conductor cables should be of single-braided, shielded type and have conductive connector bodies and backshells with cable clamps that are conductively bonded to the backshell and capable of making 360° connection to the cable shielding. Exceptions from this general rule will be clearly stated in the connector description for the excepted connector in question.
2. Ethernet cables should be of single-shielded or double-shielded type.
3. Coaxial cables should be of the double-braided shielded type.



## Introduction

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The DigiStar Ethernet over Coax (EoC) system is designed to combine a CATV signal with Ethernet data for transmission to a subscriber's home through the existing coax access network.

With Ethernet data delivered to the building, the DigiStar EoC system meets the IP interactive service requirement of cable operators for Multiple Dwelling Unit (MDU) application. The DigiStar EoC system also supports Video-On-Demand (VOD) upstream service requests in the IP data return path, and subscriber service differentiation through rate limiting.

The EP is the end-point device of the DigiStar EoC system. It is located in a subscriber's home to provide CATV signal pass-through and Ethernet data to a PC or IP set-top box. It complies with HPNA 3.1 (ITU-TG.9954) standards, and provides high-speed and reliable data transmission.

### Benefits and Features

- Complies with HPNA 3.1 (ITU-T G.9954) standards
- Complies with IEEE 802.1p CoS and 802.1q VLAN protocols
- Auto synchronization and point-to-point communication with master device
- Bidirectional data transmission band: 12-28 and 28-44 MHz
- Adaptive FDQAM
- CATV service band: 87-1000MHz
- Supports MDI/MDIX on two 10/100Base-T ports
- 100 Mbps sustained rate
- Supports SNMP based Element Management System (EMS)

## What's In the Carton?

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### Part Number List

Part Number	Description
EEP3412210000000	DigiStar EOC EP E320.1, 44/54 MHz, 220 VAC, Ch-C, Metric F-Type Connector, HPNA module
EEP3432210000000	DigiStar EOC EP E320.1, 44/54 MHz, 220 VAC, Ch-C, Standard Connector, without COAX Cable, HPNA module
EEP3432220000000	DigiStar EOC EP E320.1, 44/54 MHz, 220 VAC, US-C, Standard Connector, without COAX Cable, HPNA module

### What's In the Carton?

After receiving the EP, check the equipment and accessories to verify that each item is in the carton and that each item is undamaged. The carton contains the following items:

- One EP unit
- 220 VAC (50 Hz) power adapter with power cord
- One CAT-5 Ethernet cable
- One COAX cable (See the above part number list.)
- One user guide

If you find any items missing or damaged, contact the customer services department for assistance.

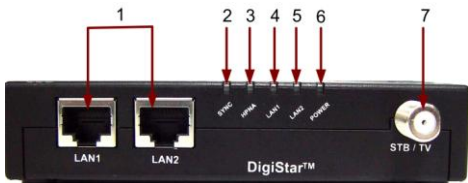
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# Panel Description

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## EP Front Panel Description

The following illustration shows the connectors and LED status indicators on the front panel of the EP.



1. LAN1/LAN2 – RJ-45 Ethernet ports.
2. SYNC – On to indicate that a HPNA master is detected.
3. HPNA – On to indicate that a HPNA master is established.
4. LAN1 – On to indicate that Ethernet link is established.
5. LAN2 – On to indicate that Ethernet link is established.
6. POWER – On to indicate that power is being applied.
7. STB/TV – F-type connector connects to a set-top box or TV.

## EP Back Panel Description

The following illustration shows the back panel of the EP.



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## Panel Description, Continued

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1. **COAX NETWORK**—F-type connector connects to an active cable signal from your service provider.
2. **12 V DC**—Connects EP to the DC output of the power adapter.

### Connecting The Network

Follow these steps to connect your devices to a network:

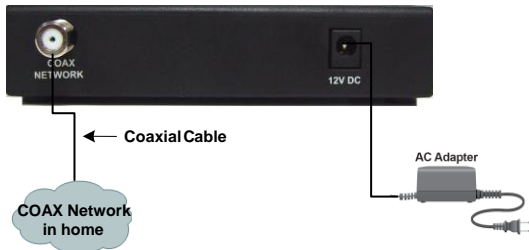
1. Connect the **LAN1** or **LAN2** port to an Ethernet port of a PC or IP set-top box to provide Ethernet data service.
  2. Connect the **STB/TV** port to a television or a set-top box to provide CATV service.
  3. Connect the **COAX NETWORK** port to a coaxial network.
  4. Connect the supplied power adapter to the 12 VDC port on the EP, and then plug the power adapter into a wall outlet.
  5. If all connections are correct and power is being properly applied to the EP, the LEDs should be as follows:
    - **POWER** — On.
    - **LAN1** — On if LAN1 Ethernet link is established.
    - **LAN2** — On if LAN2 Ethernet link is established.
    - **SYNC** — On if HPNA master is detected.
    - **HPNA** — On if HPNA master is established.
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## Network Connection Examples

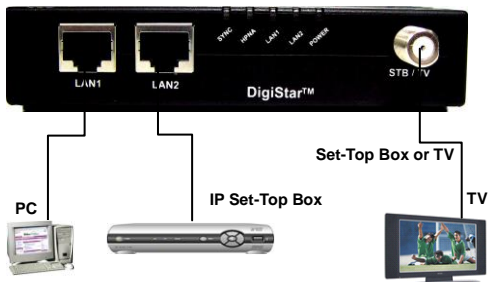
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The following diagrams illustrate an example of a coax network connection and an example of a user device connection.

### Coax Network Connection



### User Device Connection

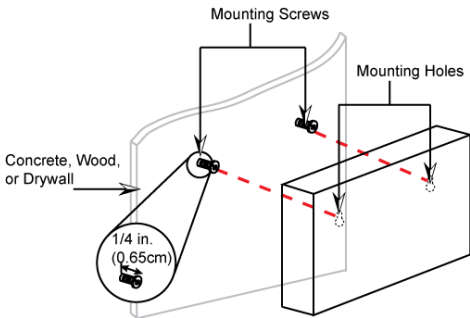


## Mounting The EP On a Wall

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The mounting for the EP can be made of cement, wood, or drywall. The mounting location should be free of obstruction on all sides, and the cables should easily reach the equipment without strain. Leave sufficient clearance between the bottom of the equipment and any flooring or shelving underneath, to allow access to cabling.

In addition, leave enough slack in all cables so that the EP can be removed for any required maintenance without disconnecting the cables.



## Technical Support Information

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Refer to the following table for phone numbers on technical support and customer service at your area.

Region	Centers	Telephone and Fax Numbers
North America	Cisco Services Atlanta, Georgia United States	For <i>Technical Support</i> , call: <ul style="list-style-type: none"><li>■ Toll-free: 1-800-722-2009</li><li>■ Local: 678-277-1120 (Press <b>2</b> at the prompt)</li></ul> For <i>Customer Service</i> , call: <ul style="list-style-type: none"><li>■ Toll-free: 1-800-722-2009</li><li>■ Local: 678-277-1120 (Press <b>3</b> at the prompt)</li><li>■ Fax: 770-236-5477</li><li>■ E-mail: customer-service@cisco.com</li></ul>
Europe, Middle East, Africa	Belgium	For <i>Technical Support</i> , call: <ul style="list-style-type: none"><li>■ Telephone: 32-56-445-197 or 32-56-445-155</li><li>■ Fax: 32-56-445-061</li></ul> For <i>Customer Service</i> , call: <ul style="list-style-type: none"><li>■ Telephone: 32-56-445-444</li><li>■ Fax: 32-56-445-051</li><li>■ E-mail: service-elc@cisco.com</li></ul>
Japan	Japan	<ul style="list-style-type: none"><li>■ Telephone: 81-3-5908-2153 or +81-3-5908-2154</li><li>■ Fax: 81-3-5908-2155</li></ul>
Korea	Korea	<ul style="list-style-type: none"><li>■ Telephone: 82-2-3429-8800</li><li>■ Fax: 82-2-3452-9748</li><li>■ E-mail: songk@cisco.com</li></ul>
China (mainland)	China	<ul style="list-style-type: none"><li>■ Telephone: 86-21-2401-4433</li><li>■ Fax: 86-21-2401-4455</li><li>■ E-mail: eoc-support@cisco.com</li></ul>

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## Technical Support Information, Continued

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All other Asia-Pacific countries & Australia	Hong Kong	<ul style="list-style-type: none"><li>■ Telephone: 852-2588-4746</li><li>■ Fax: 852-2588-3139</li><li>■ E-mail: support.apr@sciatl.com</li></ul>
Brazil	Brazil	<ul style="list-style-type: none"><li>■ Telephone: 11-55-08-9999</li><li>■ Fax: 11-55-08-9998</li><li>■ E-mail: fattin@cisco.com or ecavalhe@cisco.com</li></ul>
Mexico, Central America, Caribbean	Mexico	For <i>Technical Support</i> , call: <ul style="list-style-type: none"><li>■ Telephone: 52-3515152599</li><li>■ Fax: 52-3515152599</li></ul> For <i>Customer Service</i> , call: <ul style="list-style-type: none"><li>■ Telephone: 52-55-50-81-8425</li><li>■ Fax: 52-55-52-61-0893</li></ul>
All other Latin America countries	Argentina	For <i>Technical Support</i> , call: <ul style="list-style-type: none"><li>■ Telephone: 54-23-20-403340 ext 109</li><li>■ Fax: 54-23-20-403340 ext 103</li></ul> For <i>Customer Service</i> , call: <ul style="list-style-type: none"><li>■ Telephone: 770-236-5662</li><li>■ Fax: 770-236-5888</li><li>■ E-mail: keillov@cisco.com</li></ul>

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April 2011

Part Number 4041106 Rev A