



UnityOne
Modular Fiber/Copper ZPHA
Installation Guide

Version 2.1

Part Number: TECHD-0000000050
Publication Control Number: 021505

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About This Guide

Explains who this book is intended for, how the information is organized, where information updates can be found, and how to obtain customer support if you cannot resolve a problem.

Overview

Welcome to TippingPoint *UnityOne™ Modular Fiber/Copper ZPHA Installation Guide*. The UnityOne Modular Zero Power High Availability device provides continued network traffic support in case an IPS device loses power. The modular solution enables you to add a number of components for fiber and/or copper as needed for your network environment.

This chapter includes the following sections:

- [“Target Audience” on page iii](#)
- [“Organization” on page iv](#)
- [“Conventions” on page iv](#)
- [“Related Documentation” on page vii](#)
- [“Customer Support” on page viii](#)

Target Audience

This guide is intended for use by technicians and maintenance personnel responsible for installing, configuring, and maintaining the UnityOne. Users should be familiar with telecommunications products and networking concepts.

Organization

The *UnityOne Modular Fiber/Copper ZPHA Installation Guide* is organized as follows:

About the Guide

Explains who this book is intended for, how the information is organized, where information updates can be found, and how to obtain customer support if you cannot resolve a problem.

Prepare the Site

Provides instructions for unpacking the Zero Power High Availability device and preparing your network environment.

ZPHA Installation

Provides instructions for installing the Zero Power High Availability device for use with a UnityOne IPS system.

Conventions

This book, and the other books in this series, follow some conventions for structuring information.

Headings

Every chapter starts with a brief description of the information you can find in that chapter, which correlates with the major headings in that chapter. Each major heading corresponds to a task or concept that is important for you to understand. Headings are of a different size and type to make them easy to skim, whether you are viewing an online or print copy of this document.

Typeface

This book uses the following typeface conventions:

Bold	Used for the names of screen elements like buttons, drop-down lists, or fields. For example, when you are done with a dialog, you would click the OK button.
Code	Used for text a user must type to use the product.
<i>Italic</i>	Used for book titles, variables, and important term.
Hyperlink	Used for web site and cross reference links.

Cross References

When a topic is covered in depth elsewhere in this guide, or in another book in this series, a cross reference to the other information will be provided. Cross references within this book will take the form: “for more information about conventions, see page 6, Conventions.” Cross references to other publications will take the form: “for more information about <topic>, see *Publication Name*.”

Messages

Messages are special text that are emphasized by font, format, and icons. There are four types of messages in this book:

- Warning
- Caution
- Note
- Tip

A description of each message type with an example message follows.

Warning

Warnings tell you how to avoid physical injury to people or equipment. For people, injury includes anything from temporary conditions, such as pain, to irreversible conditions such as death. For equipment, injury means anything requiring repair. Warnings tell you what you should or should not do, and the consequences of not heeding the warning.



WARNING: Only trained and qualified personnel should install, replace, or service this equipment. Disconnect the system before servicing.

Caution

Cautions tell you how to avoid a serious loss that stops short of physical damage such as the loss of data, time, or security. Cautions tell you what you should or should not do to avoid such losses, and the consequences of not heeding the caution.



CAUTION: Do not type `del *.*` from the root (C:\) directory. Typing `del *.*` from the root directory will destroy all the program and configuration data that your computer needs to run, and will render your system inoperable.

Note

Notes tell you about information that might not be obvious, or that does not relate directly to the current topic, but that may affect relevant behavior.



Note: Most car rental companies no longer allow cash deposits in lieu of a credit card when renting a car. Non-credit card deposits can only be arranged by a lengthy application and approval process.

Tip

Tips are suggestions about how you can perform a task more easily or more efficiently.



Tip: Setting the **logging** parameter to “off” or “minimal” will improve your system’s processing performance, but it will make debugging very difficult in the event of a system crash. During system integration, you can set logging to “full” to ease debugging. After you have finished testing, set logging to “minimal” to improve performance.

Related Documentation

The UnityOne systems have a full set of documentation. These publications are available in electronic format on your installation CDs. For the most recent updates, check the Threat Management Center (TMC) web site at <https://tmc.tippingpoint.com>.

Table 2 - 1: UnityOne Documents

Audience	Publication	Location
Hardware Technicians	<ul style="list-style-type: none"> • <i>Quick Start UnityOne-50</i> • <i>Quick Start UnityOne-50 Thumbdrive</i> • <i>Quick Start UnityOne-100E</i> • <i>Quick Start UnityOne-100E Thumbdrive</i> • <i>Quick Start UnityOne-5000E</i> • <i>Quick Start UnityOne 200/400/1200/2400</i> 	printed version in the UnityOne box, UnityOne Documentation CD, https://tmc.tippingpoint.com
	<ul style="list-style-type: none"> • <i>UnityOne-50 Installation and Configuration Guide</i> • <i>UnityOne-50 Thumbdrive Installation and Configuration Guide</i> • <i>UnityOne-100E Installation and Configuration Guide</i> • <i>UnityOne-100E Thumbdrive Installation and Configuration Guide</i> • <i>UnityOne-5000E Installation and Configuration Guide</i> • <i>UnityOne 200/400/1200/2400 Installation and Configuration Guide</i> • <i>UnityOne Zero Power High Availability Installation Guide</i> • <i>UnityOne Modular Fiber/Copper ZPHA Installation Guide</i> 	UnityOne Documentation CD, https://tmc.tippingpoint.com
	<i>UnityOne Security Manager System Quick Start Guide</i>	printed version in the UnityOne box, UnityOne Documentation CD, https://tmc.tippingpoint.com , SMS server

Table 2 - 1: UnityOne Documents

System Administrators	<i>UnityOne Local Security Manager User's Guide</i>	UnityOne Documentation CD, https://tmc.tippingpoint.com
	<i>UnityOne Local Security Manager Online Help</i>	available in the LSM application
	<i>Unity One Command Line Interface Reference</i>	UnityOne Documentation CD, https://tmc.tippingpoint.com
	<i>UnityOne Security Manager System Quick Start Guide</i>	hard copy in the shipping materials, UnityOne Documentation CD, https://tmc.tippingpoint.com
	<i>UnityOne Security Management System User's Guide</i>	UnityOne Documentation CD, https://tmc.tippingpoint.com and on the SMS server
	<i>UnityOne Security Management System Online Online Help</i>	available in the SMS application
	<i>UnityOne SMS Web Services API</i>	UnityOne Documentation CD, https://tmc.tippingpoint.com and on the SMS server
	<i>Third Party Management for UnityOne IPS</i>	UnityOne Documentation CD, https://tmc.tippingpoint.com

Customer Support

The TippingPoint technical support phone number is 1-866-681-8324 (866-681-TECH).

TippingPoint is committed to providing quality customer support to all of its customers. Each customer is provided with a customized support agreement that provides detailed customer and support contact information. For the most efficient resolution of your problem, please take a moment to gather some basic information from your records and from your system before contacting TP customer support.

Table 3: Customer Support Information

Information	Location
Your customer number	You can find this number on your Customer Support Agreement and on the shipping invoice that came with your UnityOne system.
Your IPS serial number	You can find this number on the shipping invoice that came with your UnityOne system.
Your IPS software version number	You can find this information in the LSM in the System Stats frame, in the Update tab, or by using the CLI <code>show version</code> command.
Your IPS system boot time	You can find this information in the LSM in the System Stats frame.

Table 3: Customer Support Information

Information	Location
Your ZPHA serial number	You can find this number on the shipping invoice that came with your UnityOne system.

1 Prepare the Site

This chapter discusses the requirements necessary to prepare your site for the installation of the UnityOne ZPHA for IPS devices.

Overview

Before installing the new UnityOne, you need to gather materials and prepare the network and hardware site. To carefully and correctly install the ZPHA component into your UnityOne system, you must read through all preparation instructions and requirements.

The chapter consists of the following sections:

- [“Safety Requirements” on page 1](#)
- [“Rack and Clearance Requirements” on page 2](#)
- [“Location” on page 2](#)
- [“Environmental Requirements” on page 2](#)
- [“Power Requirements” on page 2](#)
- [“System Grounding Requirements” on page 3](#)
- [“Cabling Requirements” on page 3](#)
- [“Unpack the UnityOne ZPHA” on page 3](#)

Safety Requirements

If not properly installed and maintained, electrical circuitry equipment like the UnityOne IPS can pose dangers to both personnel and equipment. To prevent accidents, adhere to the following guidelines to ensure general safety:

- Wear safety glasses if you are working under conditions that might be hazardous to your eyes.
- There are no serviceable parts inside.

Rack and Clearance Requirements

Tipping Point recommends that you mount the UnityOne system in a standard 19-or 23-inch rack. The vertical hole spacing on the rack rails must meet standard EIA-310-C requirements, which call for a one inch (2.54 cm) spacing.

Location

The ZPHA should be located near the IPS device in the rack. The device connects to the IPS through the following:

- USB cable for power
- Network cables (fiber or copper) to receive and transmit network traffic.

When planning the location of the ZPHA, consider the amount of IPS devices you may connect. You can connect up to 5 segments to the ZPHA, depending on the segment components you purchase.

The ZPHA requires only one USB connection for power. The modular ZPHA provides 2 ports (1 type A and 1 type B) on the back panel.

Environmental Requirements

In order for the UnityOne to run properly, your environment must meet the proper criteria.

The following table details the recommendations for temperature, humidity, and altitude settings for the Service Provider (SP) environment.

Table 1 - 1: Environmental Requirements for the UnityOne

Environmental Specifications	Description
Temperature	0 to 40 ° C (32 to 104 ° F) — Operating -20 to 80° C (-4 to 176 ° F) — Storage
Humidity	5 to 95% (non-condensing)
Altitude	No degradation up to 13K feet above sea level

Power Requirements

The UnityOne ZPHA receives power through a USB cable connected to the IPS device. The modular ZPHA comes with 1 USB cable. The back panel of the device provides two USB connections (1 type A and 1 type B), but only one connection is required for proper functioning. You should only attach IPS devices to these USB ports. The ZPHA does not require any other type of power connection to function.

System Grounding Requirements

Damage from Electromagnetic Static Discharge (ESD) can occur when electronic components are improperly handled. Its results can be complete or intermittent system failures. Therefore, proper ESD protection is required whenever you handle IPS devices and equipment. It is not necessary to open the UnityOne ZPHA chassis to add or remove any components.



Note: When you install the ZPHA, you do not need to modify or open the IPS chassis. You will only need to connect cables during installation procedures.

Cabling Requirements

The UnityOne ZPHA requires the following cables:

- USB cable — 1 cable for connecting to the IPS to receive power (included with device)
- RJ-45 copper network cables — 4 cables are required per segment: 2 for IPS connections and 2 for network connections. (cables not included)
- LC-LC Simplex Multi-mode Fiber cables — 4 per segment (included with device). Additionally, you should have 4 cables currently with your IPS device to connect to the ZPHA and/or Ethernet switch.



Note: For Simplex Single-mode Fiber cables, contact a TippingPoint Sales Representative.

Unpack the UnityOne ZPHA

Each system chassis is securely packaged in a shipping box.



CAUTION: ESD can damage the UnityOne if you do not take necessary precautions. Installation and maintenance personnel should be properly grounded using ground straps to eliminate the risk of ESD damage to the equipment.

Use caution when opening the UnityOne boxes.

To unpack the ZPHA system, complete the following steps:

- STEP 1** Inspect the packing container. If you see any damage or other signs of mishandling, inform both the local freight provider and TippingPoint before unpacking. Your freight provider can provide you with the procedures necessary to file a claim for damages.
- STEP 2** Carefully open the box.
- STEP 3** Remove all packing material.
- STEP 4** Verify the contents in the shipping package. Compare the packing list to your shipment and to your order. Are all items included? If items are missing, contact your TippingPoint sales or field representative.

- STEP 5** Remove the chassis from the box.
- STEP 6** Remove the segment modules from the box. You should receive a number of fiber or copper modules as ordered including a number of blank faceplates for any remaining segment ports.
- STEP 7** Open the accessory kit. It contains the cables, documentation, and management software.
- STEP 8** Inspect all the equipment inside for damage. If you think any equipment might be damaged, contact your freight provider for how to lodge a damage claim. Also, contact your TippingPoint sales or field representative for instructions.

2 ZPHA Installation

Provides information for installing the modular Zero Power High Availability device for your UnityOne IPS system.

Overview

The Zero Power High Availability (ZPHA) device enables the network traffic to continue to flow if the IPS system has a loss in power. The modular components of the ZPHA enable you to provide support and protection for both fiber and copper connections. By using the ZPHA device in your network security system, you can continue network traffic and services in the following situations:

- If power is lost to the IPS device(s)
- If the IPS needs to reboot. Rebooting your IPS can take some time, during which the network traffic will be halted.



WARNING: When the ZPHA bypasses the IPS device(s), network traffic is not scanned or blocked. You should fix any IPS errors and return power to ensure all traffic runs through the UnityOne system.

You can use the ZPHA to continue network traffic and services by bypassing the IPS entirely when the power no longer feeds into the system, when you need to unplug the system, and to continue service while the IPS reboots.

This chapter includes the following sections:

- [“ZPHA Hardware Overview” on page 6](#)
- [“ZPHA Installation” on page 9](#)
- [“Cross-over Cable Installation” on page 14](#)

ZPHA Hardware Overview

The ZPHA is a chassis with five available segment ports for module fiber and copper components. These segment modules include a set of relays for receiving and sending network traffic from a network system, into the IPS device, and back out to a network system. The network system could be an Ethernet switch, a single workstation, a server, or other network service. The following table lists the chassis components.

Table 2 - 1: ZPHA Components

Component	Description
USB ports (2)	USB ports for connecting to the IPS. 2 USB ports (1 type A and 1 type B) are located on the back panel.
Segments (5)	Each modular segment includes network ports and segment ports. The segment ports connect to the segment ports of the IPS. The network ports connect to the networked systems sending and receiving traffic via the device. The modular ZPHA supports fiber and copper segment modules.
LED Status light	Indicates if the ZPHA is receiving power from the IPS device. Glows green when it receives constant power. It remains unlit if it does not receive power.

The ZPHA receives power through the USB connection to the IPS. If the power through the USB cable interrupts due to power supply failure, power loss, or unplugging, the ZPHA instantly switches to route network traffic, bypassing the IPS connections. It provides two USB ports for connecting two IPS devices.



Note: If you connect two IPS USB cables to the ZPHA device, the ZPHA will continue to function if one of the devices loses power. The ZPHA bypasses the IPS only if all power from the IPS devices interrupts. If two IPS devices are connected, both would have to lose power to cause the ZPHA to bypass.

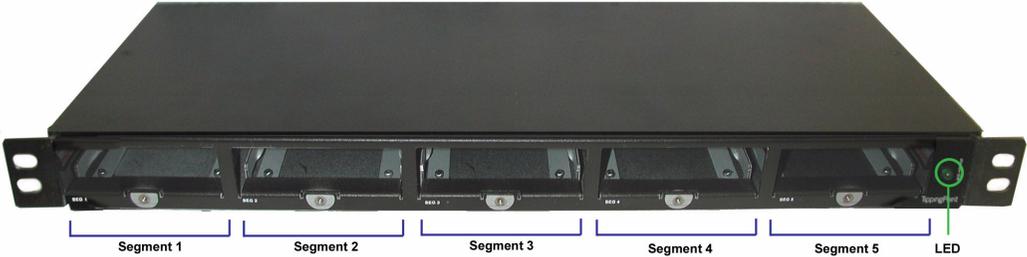
The ZPHA can accept network connections for up to five (5) network segments. Each connection area is called a segment. You can insert any combination (up to five) of fiber and copper segment components. Any remaining segment ports can be covered with blank faceplates. At any time, you can order additional modular segment components to add to your modular ZPHA.



Tip: The activation of the ZPHA may result in a link transition in the same way that a link goes down and then up. Even though switching of the ZPHA is extremely fast, certain network equipment can take longer to establish link. You should take note of required link times of the network equipment connected to the ZPHA.

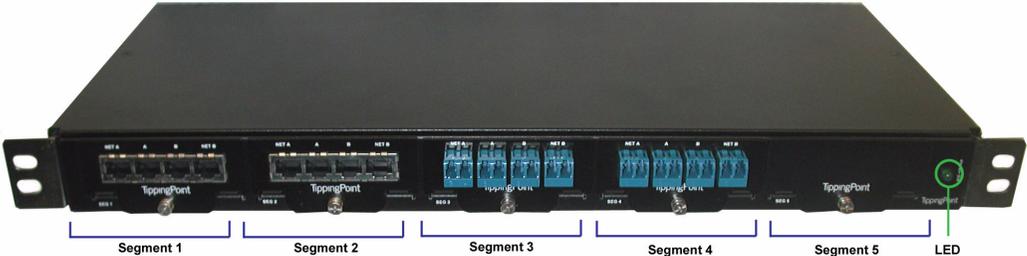
The following image displays the front panel of the ZPHA without segment modules. The LED light is located at the right-side of the front panel.

Figure 2 - 1: Modular ZPHA Front Panel (without segments)



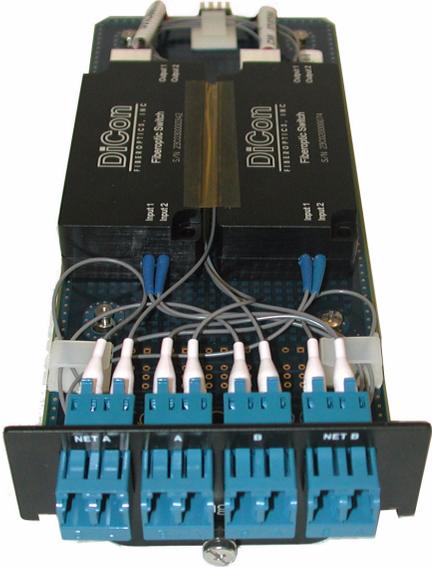
The following image displays the front panel of the ZPHA filled with segment modules. This example displays 2 copper segments, 2 fiber segments, and one blank faceplate segment. You can purchase and install any variety of combinations of copper and fiber segment modules. Any empty modules will come with blank faceplates. You can purchase and install new modules to replace existing or empty segment modules.

Figure 2 - 2: Modular ZPHA Front Panel (with segments)



The following image displays the Fiber Segment Module.

Figure 2 - 3: Fiber Segment Module



The following image displays the Copper Segment Module.

Figure 2 - 4: Copper Segment Module



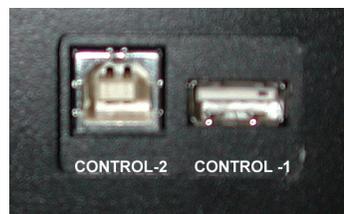
The following image displays the Blank Faceplate Segment Module.

Figure 2 - 5: Blank Faceplate Segment Module



The following image displays USB ports located on the ZPHA back panel.

Figure 2 - 6: USB Ports Back Panel



ZPHA Installation

When you install the ZPHA, you need the following components:

- USB cable — 1 cable for connecting to the IPS to receive power (included with device). The modular ZPHA provides 2 USB ports (1 type A and 1 type B) on the back panel.
- RJ-45 copper network cables — 4 per segment (cables not included)
- LC-LC Simplex Multi-mode Fiber cable — 4 per segment (included with device). You should have 4 cables currently with your IPS device to connect to the ZPHA.



Note: For Simplex Single-mode Fiber cables, contact a TippingPoint Sales Representative.



Note: Fiber segment modules have a maximum link loss of 1.5db.

The IPS connection requires two copper or four fiber network cables for the Seg A and B ports. You also need two copper or four fiber cables for the Net A and B ports for receiving and transferring network traffic in your company's network system.



Note: You will need a full set of cables for every IPS device you connect to a segment of the ZPHA. The ZPHA device can connect five (5) IPS device segments.

Install the ZPHA Case and Modules

STEP 1 After unpacking the ZPHA, install the device into the rack. The ZPHA must be located close to the IPS devices to be networked to it.



Note: Tipping Point recommends that you mount the UnityOne system in a standard 19-or 23-inch rack. The vertical hole spacing on the rack rails must meet standard EIA-310-C requirements, which call for a one inch (2.54 cm) spacing.

STEP 2 After installing the system case, place a segment module into a segment port. Make sure the segment module is secure.

You can place one segment module (fiber or copper) into each segment port. You can install the segment modules in any order.

STEP 3 Turn the screw located at the bottom of the segment with your thumb or a Phillips screw driver to lock the segment module in the port.

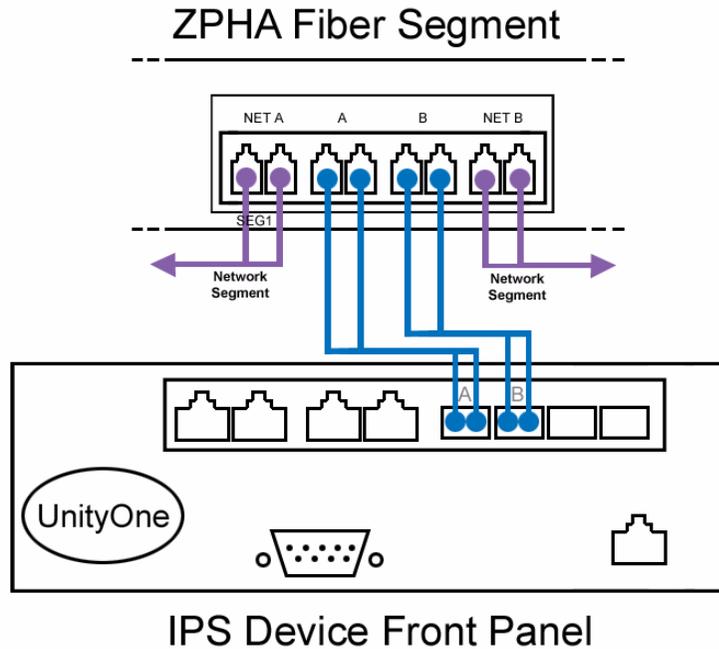


Note: Repeat Steps 2 and 3 as necessary for each segment module. For empty segment modules, install the blank faceplate component.

Connect Fiber Cables

STEP 1 For each IPS segment, connect the fiber network cables from a port in the IPS device to the appropriate ZPHA port. See the following diagram.

Figure 2 - 7: ZPHA to IPS Connection Diagram (Fiber)



Note: You must connect all cables according to segment. All segment connects for one IPS should be connected to the same segment on the ZPHA.

STEP 2 Connect the IPS cables for routing network traffic through the IPS device.

- Connect a pair of Simplex network cables from port A of the IPS device to a segment A port of the ZPHA.
- Connect a pair of Simplex network cables from port B of the IPS device to a segment B port of the ZPHA.

STEP 3 Connect a pair of Simplex cables through the ZPHA device ports NET A and NET B.

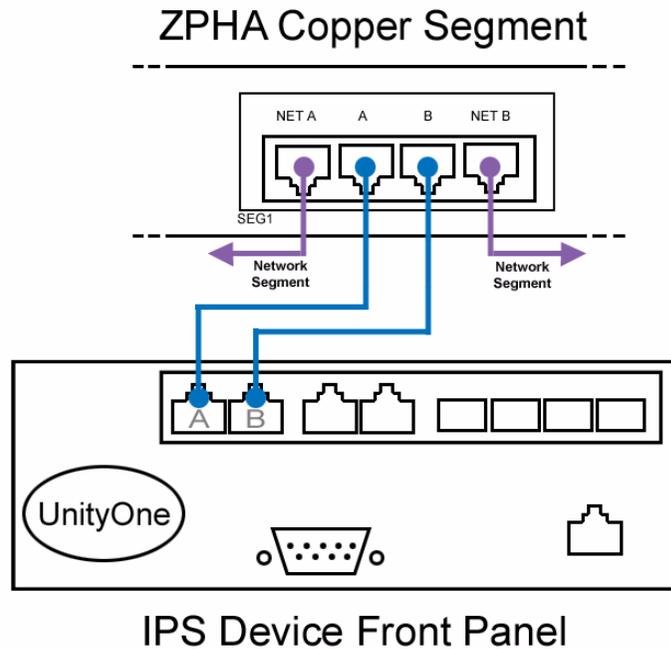


Tip: The activation of the ZPHA may result in a link transition in the same way that a link goes down and then up. Even though switching of the ZPHA is extremely fast, certain network equipment can take longer to establish link. You should take note of required link times of the network equipment connected to the ZPHA.

Connect Copper Cables

STEP 1 For each IPS segment, connect a copper network cable from a port in the IPS device to the appropriate ZPHA port. See the following diagram.

Figure 2 - 8: ZPHA to IPS Connection Diagram (Copper)



Note: You must connect all cables according to segment. All segment connects for one IPS should be connected to the same segment on the ZPHA.

STEP 2 Connect the IPS cables for routing network traffic through the IPS device.

- Connect a cable from port A of the IPS device to a segment A port of the ZPHA.
- Connect a cable from port B of the IPS device to a segment B port of the ZPHA.

STEP 3 Connect the network cables through the ZPHA device ports NET A and NET B.

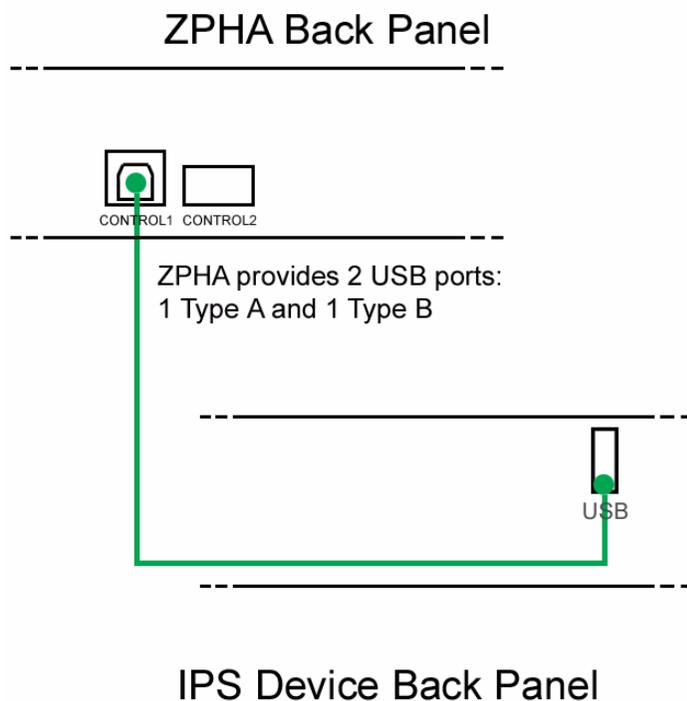


Tip: The activation of the ZPHA may result in a link transition in the same way that a link goes down and then up. Even though switching of the ZPHA is extremely fast, certain network equipment can take longer to establish link. You should take note of required link times of the network equipment connected to the ZPHA.

Connect USB Power

- STEP 1** Turn on the IPS device.
- STEP 2** Connect the USB cable from the IPS to the ZPHA, located on the back panels. You can connect to the Type A or B USB port as needed.

Figure 2 - 9: USB Connection



Note: If you connect two IPS USB cables to the ZPHA device, the ZPHA will continue to function if one of the devices loses power. The ZPHA bypasses the IPS only if all power from the IPS devices interrupts. If two IPS devices are connected, both would have to lose power to cause the ZPHA to bypass.

- STEP 3** The ZPHA receives power, lighting the Status LED green (located on the front panel).

Cross-over Cable Installation

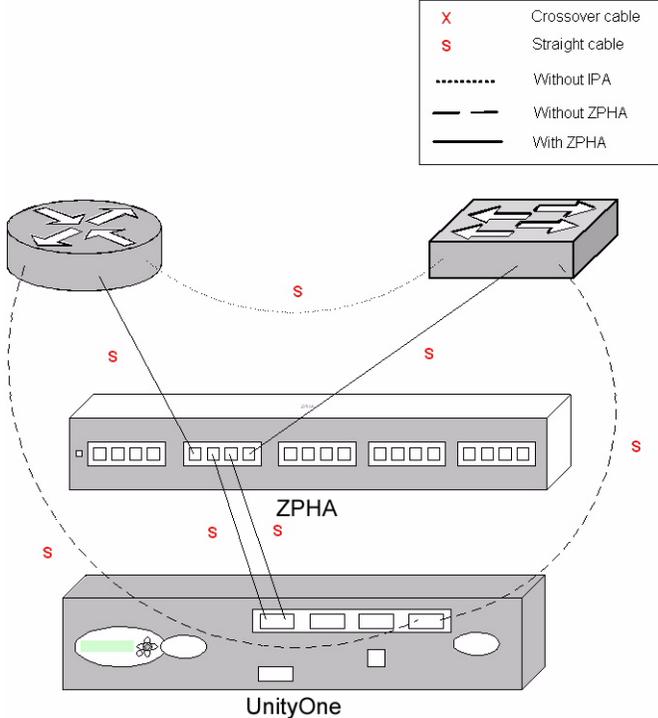
You may need to use cross-over and straight cables depending on what two devices are being connected to on a segment. You would use cross-over options typically is you are not connecting to an Ethernet switch.

Internally, the ZPHA is a straight cable, whether in High Availability (HA) or normal mode. If you need a cross-over to connect to the IPS, then you need a cross-over between the ZPHA and the IPS. In other words, the cross-over must stay connected on the IPS side with an additional straight cable when the ZPHA is added.

The following figures display alternate installations of the ZPHA when a cross-over is needed.

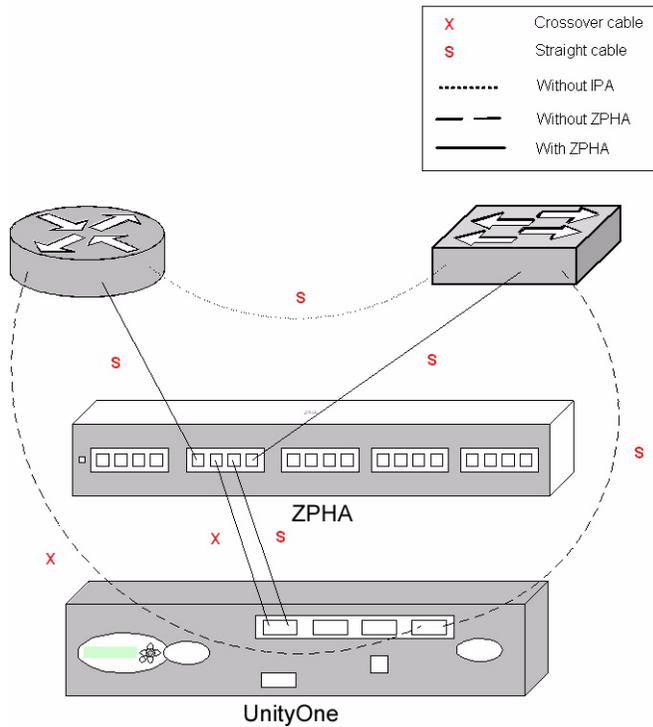
Whenever you have a cross-over connection coming in you must use a cross-over cable between the ZPHA and the IPS and a straight cable from the ZPHA to the other device. See [Figure 2 - 10, "ZPHA Cross-over Configuration 1:](#)

Figure 2 - 10: ZPHA Cross-over Configuration 1



When you have a straight cable coming in, you can use two straight cables. If both connected devices are end devices, you should use two cross-over cables. This is because when the ZPHA closes there must be a crossover between the two connected devices. Without having the two crossover cables on one side both cables between the two connected devices upon failure would be straight through and the connection would not complete. See [Figure 2 - 11, “ZPHA Cross-over Configuration 2”](#):

Figure 2 - 11: ZPHA Cross-over Configuration 2



If you have two end devices connected with two cross-over connections, you should configure the cables as follows:

- One side must have a crossover cable between the IPS and ZPHA devices with a straight through cable between the ZPHA and the connected device
- The other side should have a reversed setting with the cross-over cable connecting the ZPHA and the other device

This configuration places a cross-over connection between the two connected devices upon failure, ensuring the connection remains continuous. Without the cross-over connection between the two devices, it disrupts because the ZPHA is completely passive, only passing signal from pin to pin. See [Figure 2 - 12, “ZPHA Cross-over Configuration 3](#) and [Figure 2 - 13, “ZPHA Cross-over Configuration 4](#).

Figure 2 - 12: ZPHA Cross-over Configuration 3

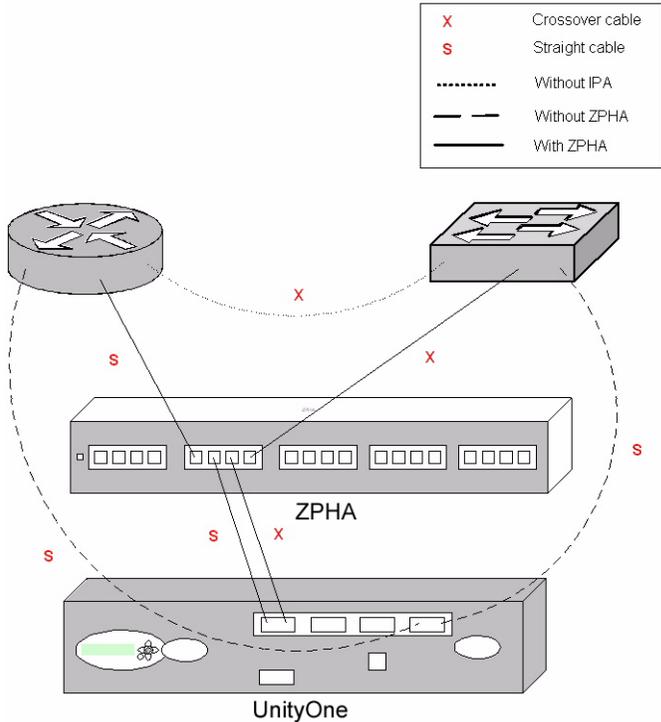
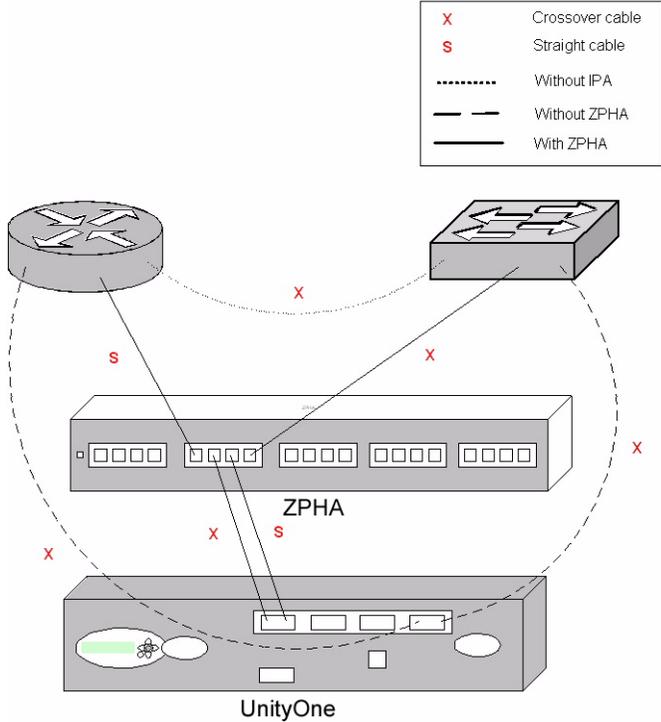


Figure 2 - 13: ZPHA Cross-over Configuration 4



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