

EOCPxx4020-110

Ethernet over Coax Extenders with PoE+



User Guide

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Introduction

Transition Networks' EOCPxx4020-110 Ethernet over Coax Extenders with PoE+ use coax cable to extend Ethernet signals and provide PoE power to devices in locations that are difficult or costly to run power lines to the device. The extenders allow near Gigabit Ethernet communication over 75 ohm coax cable, allowing customers to leverage their existing infrastructure when upgrading their surveillance systems to IP cameras or connecting wireless access points or other Ethernet equipment to their networks. The ability to utilize and provide power over the existing coax cabling saves valuable time and installation cost.

Ordering Information

The EOCPxx4020-110 Ethernet Extenders are used in pairs, with a local device required at one end and a remote device required at the other end of a coax cable, to support delivery of power and data over Coax cables.

EOCPSE4020-110

- Local PSE Ethernet over Coax Extender with PoE+ with one 10/100/1000Base-T or 100/1000Base-X combo port and one 1000Base BNC port with PoE+.

EOCPD4020-110

- Remote PD Ethernet over Coax Extender with PoE+ with one 10/100/1000Base-T with PoE+ or 100/1000Base-X combo port and one 1000Base BNC port.

25148

- 90W Industrial Power Supply provides power for the Local Unit and can be used optionally at the Remote Unit for redundant power

WMBL

- Optional 4" Wall Mount Kit (long)

WMBD

- Optional 5" [127 mm] DIN Rail Mount Bracket

WMBD-F

- Optional 3.3" [84 mm] DIN Rail Mount Bracket (flat)

WMBV

- Optional 5" [127 mm] Vertical Mount

RMS19-SA4-02

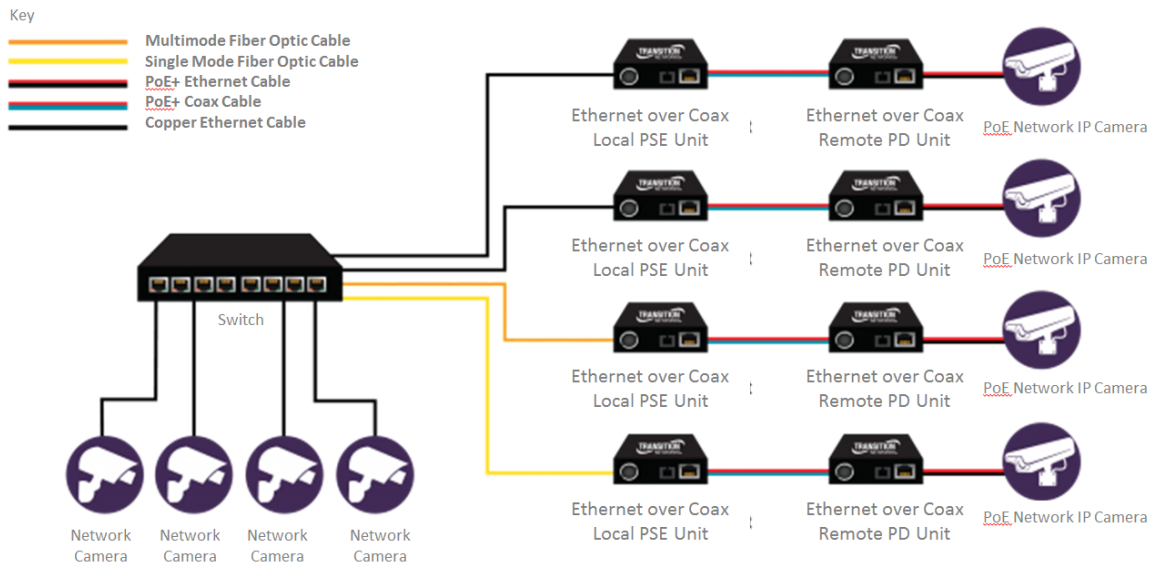
- Optional 4-Slot Media Converter Shelf

Applications

EOCPxx4020-110 extenders can be used in various applications where 75 ohm coax cable is already in place.

- Security and Surveillance:** Utilize existing coax infrastructure to upgrade older analog systems, providing power to difficult locations such as cameras mounted on light posts or traffic poles.
- Within Buildings:** Use existing in-building coax cable for connecting wireless access points or other network devices above ceilings or within walls, where additional power is not accessible without running new cable or hiring electricians.
- Across Campuses:** The extenders can be used with existing coax cable to connect Ethernet devices between buildings, provide additional bandwidth for enhanced services, and eliminate the need to run new fiber in risers or disrupt existing cable.

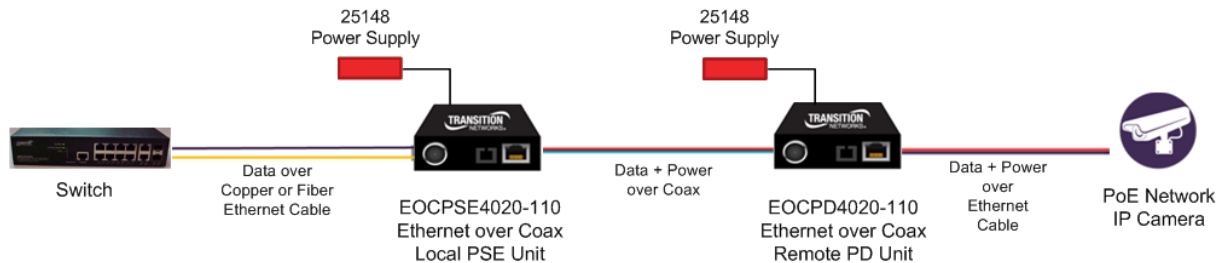
Application Example



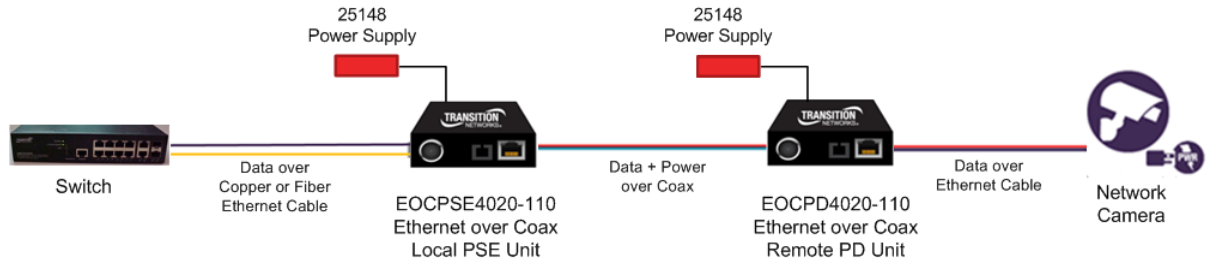
Configuration Examples

Data and Power Delivery over Coax

The Ethernet over Coax Extenders with PoE+ can be used in several configurations, delivering PoE power along with Ethernet data to an end device in a location where power is not easily accessible.



Data and Power Delivery over Coax with Backup PoE Power for Remote & PoE Power from Remote to End Device. In addition, the PoE+ Ethernet Extender can provide back-up power for the remote device in the event of main power failure.



Features

- Auto media detect between copper and fiber based on link status
- Accepts 100/1000Base-X fiber SFPs (fiber mode must be selected and cannot be auto detected) or 10/100/1000Base-T copper interface
- Frame size 64-1518 bytes (smaller packets give slower throughput)
- Web-based management of Local PD unit and Remote PSE unit
- IPv4 and IPv6 support
- DHCP, DNS, NTP support
- FTP or TFTP for firmware updates
- Proprietary coax end device classification prevents power delivery if not connected to a matching Transition Networks device
- Auto MDI/MDIX
- Plug-and-play Installation
- PoE Powered Remote Device
- Coax distances in excess of 1000 Feet at near Gigabit speeds, or 2000 feet at Fast Ethernet speeds (depending on remote power requirements)
- Full PoE+ at 400 ft. or less depending on the cable type. Typical RG59U cable DC resistance of 50 ohms per 1000 ft. Distance may increase on cable with less resistance.
- Optional power connection on Remote PD unit

- Only requires a single IP Address (see note in IP Addressing config section)
- Auto Power Reset
- 128-Bit AES encryption over coax
- Reverse polarity protected, but does not support telco -48V (positive connection to earth ground).

Product Definition

Power:

Local (EOCPSE4020-110) Power Input Options

The power input options for the EOCPSE4020-110 (Local PSE unit) devices are:

1. The 4-Pin mini DIN with the designated AC to DC adapter OR
2. The 2-Pin Terminal Block connectors for +48 VDC power source that must meet IEEE 802.3 af/at isolation requirements of 1500VAC or 2250 VDC.

Remote (EOCPD4020-110) Power Input Options

The power input option for the EOCPD4020-110 (Remote PD unit) devices are:

1. The 4-Pin mini DIN with the designated AC to DC adapter OR
2. The 2-Pin Terminal Block connectors for +48 VDC power source that must meet IEEE 802.3 af/at isolation requirements of 1500VAC or 2250 VDC. OR
3. PoE input power to the Remote from the Local via the Coax cable.

Remote PD Unit – Input: Data plus power over coax

Remote PD Unit – Output: RJ45, POE+

Interface:

Local PSE Unit – Data In: (1) – 10/100/1000BASE-T, RJ45 / 100/1000BASE-X, SFP Combo Port

Local PSE Unit – Data Out: (1) – Gigabit Coax BNC Port

Remote PD Unit – Data Out: (1) – 100/1000BASE-T, RJ45 PoE+ Port

Cabling: RG-59U 75 ohm coax cable/BNC connection typical (results may vary with other cable types)

Environmental: Local PSE and Remote PD Units

Operating Temperature = 0°C - 65°C

Storage Temperature = -40 to +85

Front Panel LED Indicators:

- Power On
- Coax
- Data
- Security



LED Status Indicators: (Active whether SFP or RJ45 is used)

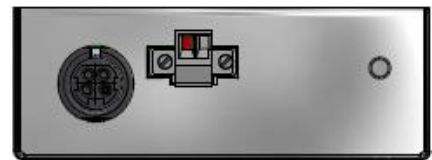
Via LEDs on RJ45 Port:

- Link Active
- Link POE Present

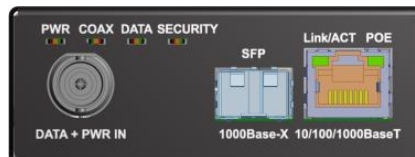
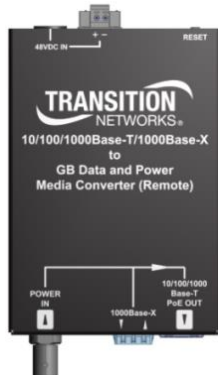
Back Panel RESET button:

The **RESET** button performs multiple functions (Reset / reboot the device, Start Pairing, Unpair security, and Factory Reset (reset to factory defaults)). For details see [Back Panel RESET Button Functions](#) on page 45.

Device Views



EOCPSE4020-110 (Local PSE Unit)



EOCPD4020-110 (Remote PD Unit)

Package Contents

Carefully unpack the contents of your order and verify that you have ordered and received all required items:

- One EOCPD4020-110 Remote PD Unit (ordered separately but used as a pair)
 - includes four rubber feet
 - includes printed Quick Start Guide
- One EOCPSE4020-110 Local PSE Unit (ordered separately but used as a pair)
 - includes four rubber feet
 - includes printed Quick Start Guide
- One 25148 90W Power Adapter
 - includes country-specific power cord

Save the packaging for possible future use.

Related Information

A printed Quick Start Guide is shipped with each EoC unit. For Transition Networks Drivers, Firmware, Manual, etc. go to the [Product Support](#) webpage (login required).

For Transition Networks Application Notes, Brochures, Data Sheets, Specifications, etc. go to the [Support Library](#) (no registration required).

For SFP manuals see Transition Networks [SFP page](#).

Installation

Install Cautions and Warnings



Elevated Operating Ambient: If installed in a closed cabinet, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified by the manufacturer.

Reduced Air Flow: Installation of the equipment should be such that the amount of air flow required for safe operation of the equipment is not compromised.

Mechanical Loading: Mounting of the equipment should be such that a hazardous condition is not achieved due to uneven mechanical loading. Do not place any equipment on top of a rack-mounted unit.

Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Mounting Options

- Install the EOCPxx4020-110 units indoors (or in an appropriately rated enclosure).
- Securely mount the EOCPxx4020-110 units.
- Do not support the EOCPxx4020-110 units by the attached cables.
- Use an optional wall mounting bracket (ordered separately)
- Mount an EOCPxx4020-110 unit onto a DIN rail using an optional DIN Rail Mount Kit (ordered separately).
- Alternatively, up to 4 units can be mounted in the designated rack-mount shelf (ordered separately).

Desktop

Install the four rubber feet on the bottom of the EOCPxx4020-110 units.



DIN Rail

For DIN Rail mounting, the following brackets can be used. See the related manual for instructions.

- WMBD - 5" DIN Rail Mount Bracket
- WMBD-F 3.3" DIN Rail Mount Bracket (Flat)

Wall Mount

For wall mounting, the following brackets can be used. See the related manual for instructions.

- WMBL - 4" Wall Mount Bracket
- WMBV - 5" Vertical Mount Wall Mount Bracket

Port Descriptions

These extenders are used as a pair of devices, with a Local PSE Unit required at one end of the coax cable and a Remote PD Unit required at the other end. The local device can accept a 10/100/1000Base-T RJ-45 or 100/1000Base-X SFP connection. The local device also provides a Gigabit BNC connection with power over coax. The remote device can be powered by the BNC PoE+ connection and provides a PoE+ 10/100/1000Base-T RJ-45 connection, or a 100/1000Base-X SFP connection.

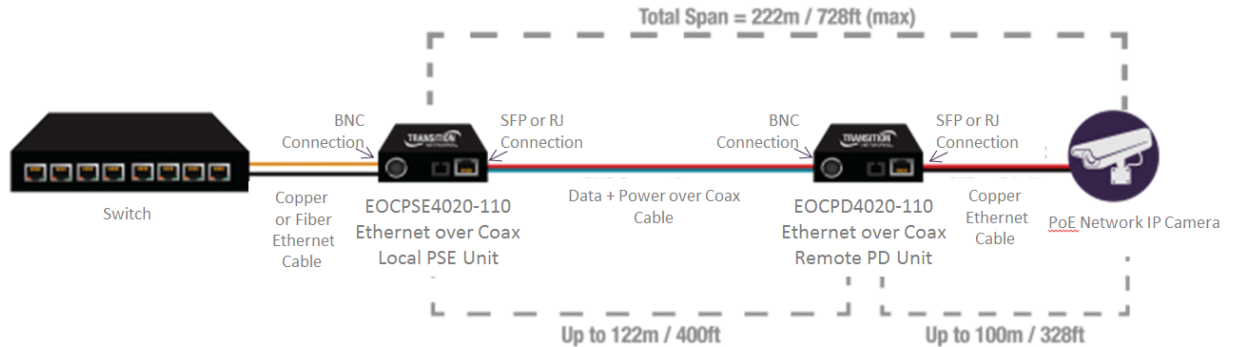
Product #	Port One	Port Two
EOCPD4020-110 Remote PD Unit	One 10/100/1000Base-T PoE+ Port <u>or</u> One 100/1000Base-X SFP Combo Port	One 1000Base BNC Port
EOCPSE4020-110 Local PSE Unit	One 10/100/1000Base-T Port <u>or</u> One 100/1000Base-X SFP Combo Port	One 1000Base BNC Port with PoE+

Grounding

An earth ground chassis stud is provided on the back panel. Note that bonding the earth ground to the chassis stud is required for circuit protection.

Connections

This section illustrates and describes connecting the EOCPE4020-110 (Local PSE Unit with GB combo RJ45/SFP and BNC PoE+) to the EOCPD4020-110 (Remote PD Unit with BNC and GB combo RJ45 PoE+/SFP).



Coax Cable Connection

Connect the EOCPE4020-110 unit's BNC connector to the coaxial cable. If an EOCPD4020-110 unit is connected at the far end and powered up, then the green DATA LED will light steadily to indicate a good connection.

Connect a Local PSE Unit at one end of the cable to a Remote PD Unit at the other end of the cable. The EOCPxx4020-110 is not compatible with other equipment such as analog video amplifiers.



EOCPSE4020-110



Local PSE Unit



EOCPD4020-110



Remote PD Unit

Combo (Shared) Port

In terms of copper versus fiber port selection / priority, only one port can be active at any given time; by default the SFP port takes precedence over the copper port (configurable on Ethernet Web GUI page).

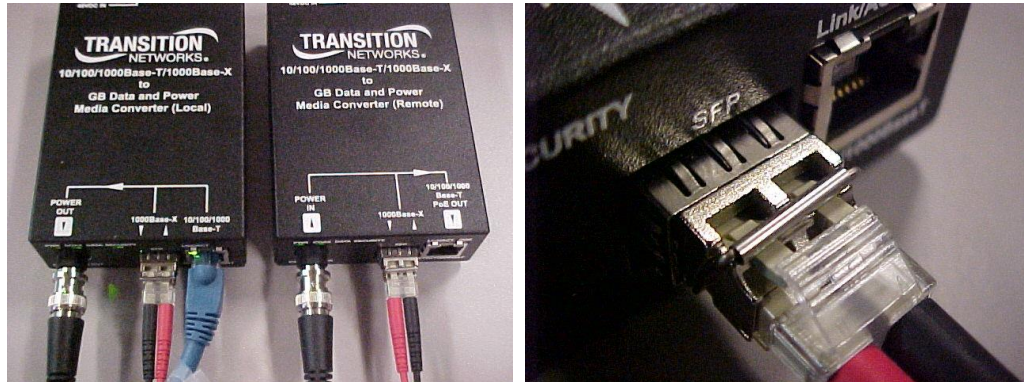
SFP / Fiber Connection

The SFP port supports any MSA compliant 100/1000Base-X SFP module. For temperatures above +50° C, industrial (+85° C) SFP modules must be used.

Note: In terms of copper versus fiber port selection / priority, only one port can be active at any given time; by default the SFP port takes precedence over the copper port (configurable on the Ethernet page).

Installing SFP Devices

The EOC lets you install an SFP device of your choice in order to make a fiber connection. The EOC has a single SFP port.



SFP Installation

Transition Networks SFPs are small form factor, hot-pluggable transceivers which allow for a single piece of network equipment to be connected to a multitude of interfaces, protocols, and transmission media via the SFP port. All Transition Networks SFPs are compliant with the Multi-Sourcing Agreement (MSA) ensuring interoperability with all other MSA compliant networking devices. See [SFF-8472](#) Specification for details.

To install an SFP device in the EOC:

1. Position the SFP device at the open SFP slot, with the label facing up.
2. Carefully slide the SFP device into the slot, aligning it with the internal installation guides.
3. Ensure that the SFP device is firmly seated against the internal mating connector.
4. Connect the fiber cable to the fiber port connector of the SFP device (see below).

See the [TN SFP/XFP Optical Transceivers](#) web page for the latest information.

Connecting Two-strand Fiber Cable

1. Locate a 100/1000Base-X compliant fiber cable with male, two-stranded TX to RX connectors installed at both ends.
2. Connect the fiber cables to the Ethernet Extender's 100/1000Base-X fiber port as described below:
 - Connect the male TX cable connector to the female TX connector.
 - Connect the male RX cable connector to the female RX connector.
3. Connect the fiber cables to the 100/1000Base-X fiber port on the other Ethernet Extender as described below:
 - Connect the male TX cable connector to the female RX connector.
 - Connect the male RX cable connector to the female TX connector.

For information on available SFP modules, see the Transition Networks [Small Form factor Pluggables](#) webpage. For information on specific SFP characteristics, unpacking, installation, connecting, and removing see the specific SFP User Guide.

Connecting Single-strand Fiber Cable

Single fiber technology helps maximize the usage of a limited number of fiber runs. In a traditional optical link, a fiber pair consists of two uni-directional strands. Single fiber technology multiplexes two optical wavelengths of 1310nm and 1550nm into a single strand fiber. In a single fiber Ethernet Extender each wavelength is responsible for either the transmit or the receive function. Consequently, the bi-directional transmission is achieved by using a single strand. The Ethernet Extenders in a single fiber scenario "match" each other's wavelengths. For example, Ethernet Extender A transmits at the wavelength of 1310nm and receives at 1550nm while the other Ethernet Extender transmits at 1550nm and receives at 1310nm. The Ethernet Extenders are used in pairs.

1. Locate or build IEEE 803.2™ compliant 100/1000Base-X fiber cable with a male, single-strand LC connector installed at each end.
2. Connect the fiber cable to the Ethernet Extenders.
3. Connect the fiber cable to the other device (another Ethernet Extender, hub, etc.).

Ethernet Cable Connection

Connect the EOCPD4020-110 RJ45 Ethernet jack to the camera or other network equipment using a standard Ethernet cable. Both patch and crossover type Cat5 or Cat6 cables are supported.

The Combo Port **Link/Act** LED will light to indicate a network connection, and will blink off during network activity.

Power over Ethernet

Using the PoE option, the EOCPxx4020-110 can automatically enable delivery of up to 30 watts of POE (IEEE 802.3at - Class 4) to compatible network devices, via its Ethernet port.

Remote IEEE 802.3at (Power Over Ethernet) PSE at 30W

Remote POE power delivery versus local power source:

Local Power Source	Remote POE-PSE	Power Out	Power at PD
DIN or TB (48V@45W)	802.3at - Class 4	30 W	25.5W

Installing the RJ-45 Copper Cable - 10/100/1000Base-T Copper Port

1. Locate a 10/100/1000Base-TX compliant copper cable with male RJ-45 connectors installed at both ends.
2. Connect the RJ-45 connector at one end of the cable to the EOCPxx4020-110 10/100/1000Base-T RJ-45 port.
3. Connect the RJ-45 connector at the other end of the cable to the 10/100/1000Base-T RJ-45 port on the other device (camera, wireless access point, etc.).

Note: The AutoCross feature allows the use of either straight-through or crossover configuration cables.

IMPORTANT: Copper based media ports such as Twisted Pair (TP) Ethernet, USB, RS232, RS422, RS485, DS1, DS3, Video Coax, etc., are intended to be connected to link segments that are not subject to lightening transients or power faults.

48 VDC IN Options

The EOC back panel provides a +48 VDC IN option and a 4-Pin Mini DIN Power option. You can connect one or the other or both. Having both power options connected provides redundancy/failover.

Local (EOCPSE4020-110) Power Input Options

The power input options for the EOCPSE4020-110 (Local PSE unit) devices are:

1. 4-Pin mini DIN with the designated AC to DC adapter OR
2. 2-Pin Terminal Block connectors for +48 VDC power source that must meet IEEE 802.3 af/at isolation requirements of 1500 VAC or 2250 VDC. **Note:** this must be +48 VDC IN.

Remote (EOCPD4020-110) Power Input Options

The power input option for the EOCPD4020-110 (Remote PD unit) devices are:

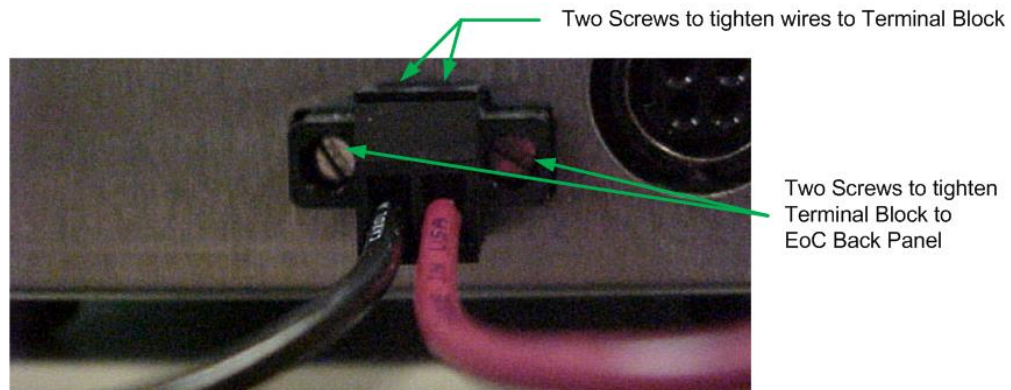
1. 4-Pin mini DIN with the designated AC to DC adapter OR
2. 2-Pin Terminal Block connectors for +48 VDC power source that must meet IEEE 802.3 af/at isolation requirements of 1500 VAC or 2250 VDC. OR
3. PoE input power to the Remote from the Local via the Coax cable.

The two options for +48 VDC input to the EOC units are shown and described below:



2-Pin Terminal Block Option

The +48VDC IN 4-Pin Mini DIN power input option is shown and described below. The 2-Pin Terminal Block option uses two screws to tighten the wires to the Terminal Block, and two screws to tighten the Terminal Block to the EoC Back Panel. Note the polarity (shown right).



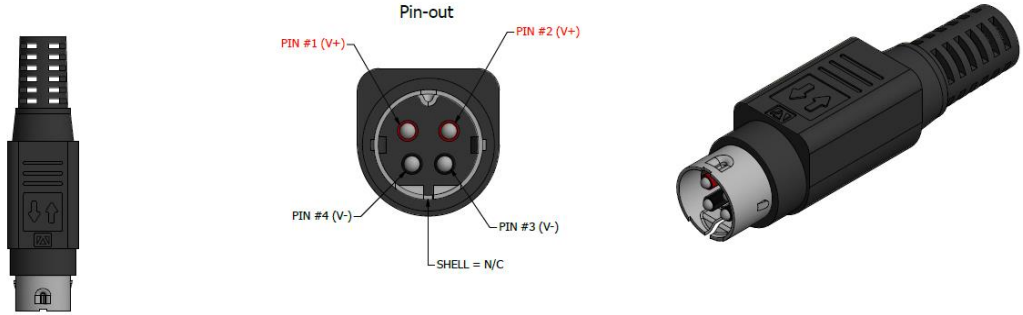
4-Pin Mini DIN Option

The +48VDC IN 4-Pin Mini DIN power input option is shown and described below.

Note: grip the power supply cable from the 48VDC IN 4-Pin Mini DIN connection with the flat-topped grip facing up; you will notice a slight slide before disconnection.

Do not try to pull the connector from the 4-Pin Mini DIN by the cord itself as damage may occur.





Local PSE Unit Delivery of PoE to Remote (End) Device

The Remote Unit can automatically detect whether the connected end device (e.g. camera) is PoE capable. If the remote end device (e.g., camera) does not need PoE, the Remote Unit does not provide PoE. If you want to manually disable PoE power from the Remote Unit to the remote (end) device, enable Auto Power Reset, select PoE Power Down mode, and ping an unused IP address on the subnet. Once it times out, PoE power will be disabled until you use the pull down on the Auto Power Reset page.

Operation

Web GUI Configuration

Web Browsers Supported

Current versions of most web browsers are supported. The default IP address is **192.168.0.1**. The default password is **admin**. The factory reset login is **betera** (not currently configurable).

Web Configuration Pages

The web UI lets you access the **Login** page and subsequently the various Configuration pages (Coax, IP, Ethernet, Device, Auto Power Reset, Advanced) and Status pages (Power, with and without Auto Update), SFP (with and without Auto Update), and Remote Upgrade Status pages as described below.

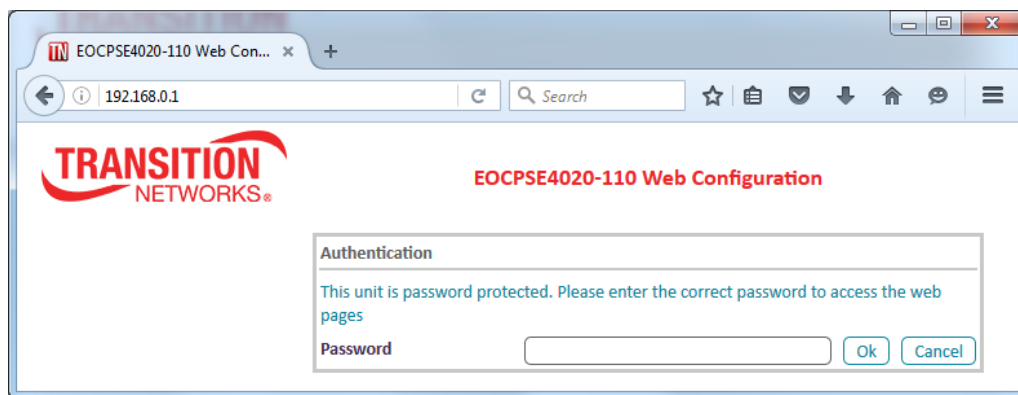
Configuration
 Coax
 IP
 Ethernet
 Device
 Ping Reset
 Advanced

Status
 Power
 Power (No Auto Update)
 SFP
 SFP (No Auto Update)
 Remote Upgrade Status

Information
 Help

Login page

The **Login** page requires password access to the web pages.



Authentication Password: This unit is password protected. The default password is **admin**. Please enter the correct password to access the web pages. Click the **Ok** button when done. The Coax page then displays, as described in the next section.

Buttons

Ok: Click the **Ok** button to access the web pages if the password is accepted.

Cancel: Click the **Cancel** button to negate the Password entry.

Web browser Timeout: 1 hour inactivity timer, after which you must log back in to the EoC Web GUI.

Messages:

Forbidden You don't have permission to access <http://192.168.0.1/coax.html> on this server.

403 Error Please, wait until redirected or click on <http://192.168.0.1/>.

Forbidden

You don't have permission to access <http://192.168.0.1/coax.html> on this server

403 Error

Please, wait until redirected or click on <http://192.168.0.1>

Meaning: 1. Wait a few moments for the message to clear. 2. Click the on-screen link.
3. Log back in to the EoC web GUI.

Problem: An inactive web session never times out. If a browser is closed with an active web session, a log-in from a different host results in a "Other active session error" message (see below).

Message: *Other active session error. There is another active web session running. Please log out or wait till timeout, and try again. Please click on <http://192.168.0.1/>.*

Meaning: The message indicates that after a timeout the session will be available but it never appears to timeout. A power reset is required before a log-in is possible.

Other active session error

There is another active web session running. Please logout or wait till timeout, and try again

Please, click on <http://192.168.0.1/>

Recovery: 1. Perform a power reset. 2. Log back in to the EoC web GUI.

Menu Navigation

The Coax page displays after a successful login; it lets you select Configuration sub-menu pages, Status sub-menu pages, and the Information (Help) page. The PD and PSE menus are nearly identical; both are described below, and differences are noted where they exist.

Configuration	Status	Information
Coax	Power	Help
IP	Power (No Auto Update)	
Ethernet	SFP	
Device	SFP (No Auto Update)	
Auto Power Reset	Remote Upgrade Status	
Advanced		

Configuration

Coax: page displays Peer Unit parameters (read only) via the **Configuration > Coax** menu path.

IP: lets you configure IPv4, IPv6, and NTPv4/v6 client configuration parameters.

Ethernet: displays the current Combo Port parameters (read only). Lets you configure Autonegotiation, Link speed and Duplex parameters, SFP Detection and Primary Link modes, and Powersaving mode.

Device: displays current HW and SW information and lets you configure Configuration Password, SW Update, and HTTP SW Update parameters.

Auto Power Reset: lets you configure Auto Power Reset parameters and view current status.

Advanced: lets you configure Hardware Reset and Factory Reset.

Status

Power: displays current Power Information and Power over Coax Status, with automatic parameter updates (page refresh) every 2 seconds.

Power (No Auto Update): displays current Power Information and Power over Coax Status, with no automatic parameter updates (no page refresh).

SFP: displays current SFP Information and DMI Information with automatic parameter updates (page refresh) every 2 seconds.

SFP (No Auto Update): displays current SFP Information and DMI Information with no automatic parameter updates (page refresh).

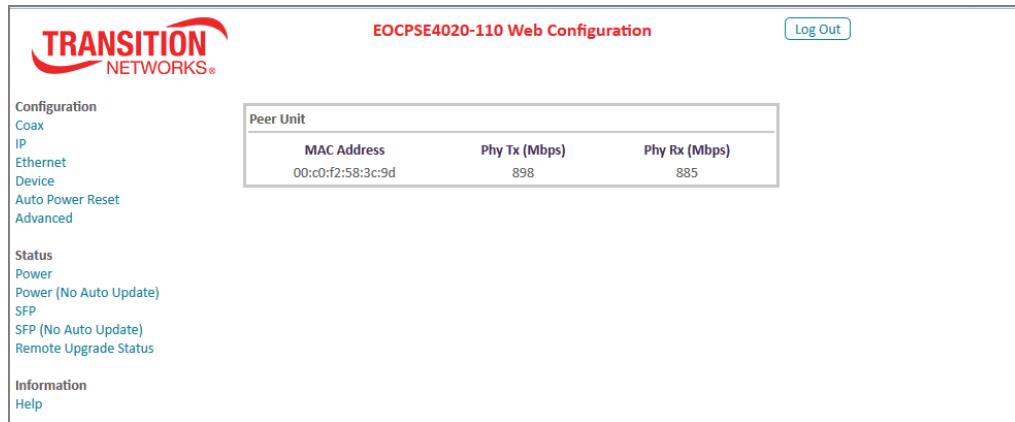
Remote Upgrade Status: displays the Remote Unit Automatic Upgrade Status.

Information > Help: prelim versions display preliminary help information. Updated Help pages will display in release versions. Please visit [Transition Networks EOCP Product Page](#), click on the Resources tab and download the latest manual.

These sub-menu pages are described in the following sections.

Coax page

Navigate to the Configuration > Coax page to view basic Peer Unit parameters.



The screenshot shows the web configuration interface for an EOCSE4020-110 device. The page title is "EOCPSE4020-110 Web Configuration" and includes a "Log Out" button. The left sidebar contains a navigation menu with categories: Configuration (Coax, IP, Ethernet, Device, Auto Power Reset, Advanced), Status (Power, Power (No Auto Update), SFP, SFP (No Auto Update), Remote Upgrade Status), and Information (Help). The main content area displays the "Coax" configuration section, which includes a "Peer Unit" table.

MAC Address	Phy Tx (Mbps)	Phy Rx (Mbps)
00:c0:f2:58:3c:9d	898	885

Peer Unit

MAC Address: the EOC unit's MAC address (e.g., 00:c0:f2:58:3c:9d).

Phy Tx (Mbps): the EOC unit's Transmit speed (e.g., 919 Mbps).

Phy Rx (Mbps): the EOC unit's Receive speed (e.g., 898 Mbps).

Buttons

Log Out: Click the **Log Out** button to exit the EOC web GUI.

IP page

The **IP** page lets you configure and view IPv4, IPv6, and NTPv4/v6 Client parameters.

IPv4 Configuration*	
DHCP enabled	NO <input type="button" value="v"/>
IPv4 address / netmask	192.168.0.1 / 255.255.255.0
Default Gateway	192.168.0.254
DNS	192.168.0.254
Additional address #1	192.168.1.1 / 255.255.255.0
Additional address #2	0.0.0.0 / 0.0.0.0
*All changes except the DNS server will have effect after Advanced->Hardware Reset or a power cycle.	
<input type="button" value="Ok"/> <input type="button" value="Cancel"/>	

IPv6 configuration*	
DHCP enabled	NO <input type="button" value="v"/>
IPv6 address / prefix	0000:0000:0000:0000:0000:0000:0000:0000 / 0
Default Gateway	0000:0000:0000:0000:0000:0000:0000:0000
DNS	0000:0000:0000:0000:0000:0000:0000:0000
Additional address #1	0000:0000:0000:0000:0000:0000:0000:0000 / 0
Additional address #2	0000:0000:0000:0000:0000:0000:0000:0000 / 0
Additional address #3	0000:0000:0000:0000:0000:0000:0000:0000 / 0
Additional address #4	0000:0000:0000:0000:0000:0000:0000:0000 / 0
IPv6 link-local address	fe80:0000:0000:0000:02c0:f2ff:fe58:3c8d / 128
IPv6 SLAAC address	0000:0000:0000:0000:0000:0000:0000:0000 / 0
*All changes except the DNS server will have effect after Advanced->Hardware Reset or a power cycle.	
<input type="button" value="Ok"/> <input type="button" value="Cancel"/>	

NTPv4/v6 client configuration	
NTPv4/v6 client enabled	NO <input type="button" value="v"/>
Resynchronization time	30
NTP IPv4/v6 address	pool.ntp.org
<input type="button" value="Ok"/> <input type="button" value="Cancel"/>	

IPv4 Configuration*

*All changes except the DNS server will have effect after system boot.

DHCP enabled: at the dropdown, select **YES** (enabled) or **NO**. The default is **YES** (enabled).

IPv4 address / netmask: displays the configured IPv4 address and Netmask (e.g., 192.168.61.36 / 255.255.255.0). The default IP address is 192.168.0.1 for the Local PSE unit and 192.168.0.2 for the Remote PD unit.

Default Gateway: displays the configured IPv4 Default Gateway (e.g., 192.16.6.5).

DNS: displays the configured IPv4 DNS Server (e.g., 192.16.44.3).

Additional address #1 - 2: two entry fields for optional additional IPv4 address / netmask.

IPv6 configuration*

*All changes except the DNS server will have effect after system boot.

DHCP enabled: at the dropdown, select **YES** (enabled) or **NO**. The default is **No** (disabled).

IPv6 address / prefix: lets you enter an IPv6 IP address / prefix. The default is all 0s.

Default Gateway: lets you enter an IPv6 default Gateway IP address.

DNS: lets you enter an IPv6 DNS Server IP address. The default is all zeros.

Additional address #1: entry field for optional additional IPv6 address / prefix.

Additional address #2: entry field for a second optional IPv6 address / prefix.

Additional address #3: entry field for third additional IPv6 address / prefix.

Additional address #4: entry field for a fourth optional IPv6 address / prefix.

IPv6 link-local address: entry field for an IPv6 link-local address. The default is fe80:0000:0000:0000:02c0:f2ff:fe58:3c5a / 128.

IPv6 SLAAC address: entry field for an IPv6 SLAAC address. With SLAAC (State Less Address Auto Configuration), IPv6 hosts can configure themselves automatically when connected to an IPv6 network using the Neighbor Discovery Protocol via Internet ICMPv6 router discovery messages. When first connected to a network, a host sends a link-local router solicitation multicast request for its configuration parameters; routers respond to the request with a router advertisement packet that contains Internet Layer configuration parameters.

NTPv4/v6 client configuration

NTPv4/v6 client enabled: at the dropdown select **YES** (enabled) or **NO** (disabled). The default is **YES** (enabled).

Resynchronization time: entry field for resync time (e.g., 30 seconds).

NTP IPv4/v6 address: entry field for an NTP server IPv4/v6 address (e.g., 204.152.184.72 or pool.ntp.org).

Note that the manual clock setting is not persistent through a reboot/HW reset or a power reset. There is no battery on the device to maintain a persistent clock. Correctly configuring NTP is the best solution for keeping time. Timezone and DST settings persist across reboots. NTP persists across Resets as well. Timezone (persistent) and manual time (not persistent) entry can be done via the Ethernet Extender Tool under the Time Config tab.

IP page Buttons

Ok: Click the **Ok** button to accept the current page parameter changes.

Cancel: Click the **Cancel** button to negate the current page parameter changes and revert to the default parameter settings.

Log Out: Click the **Log Out** button to exit EOC Web configuration.

IP Addressing Note: EOCP units are intended to be fully managed through a single IP address. Note that two IP addresses will always be present but the IP address in the Remote Unit can remain the default 192.168.0.2 and typically not impact network addressing while the IP address in the Local unit can be user defined.

These operations and settings cannot be performed on the Remote Unit using the Web interface on the Local unit: 1) hardware reset. 2) factory default reset. 3) Security pairing and unpairing. 4) The Ethernet Link Settings, SFP Detection Setting, and Primary Link can only be managed directly from the Local unit.

Ethernet page

The **Ethernet** page lets you view the Combo Port parameters and configure Link Settings, SFP Detection Settings, Primary Link Mode, Powersaving parameters.

Ethernet		
Combo Port		
Speed	Duplex	Link
1000	FULL_DUPLEX	YES

Link Settings	
Autonegotiation Enable	YES ▾
Autonegotiation Advertise 1000Mbit Full Duplex	YES ▾
Autonegotiation Advertise 100Mbit Full Duplex	YES ▾
Autonegotiation Advertise 100Mbit Half Duplex	YES ▾
Autonegotiation Advertise 10Mbit Full Duplex	YES ▾
Autonegotiation Advertise 10Mbit Half Duplex	YES ▾
Link Speed	1000 ▾
Link Duplex	FULL_DUPLEX ▾
*Set Autonegotiation Enable to what you want, Link Settings->Save, and then change Autonegotiation Advertise or Link settings and Link Settings->Save.	
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

SFP Detection Settings	
SFP Detection Mode	Auto ▾
*Auto is for Gigabit SFP's. When selected, SFP will attempt auto-negotiation and if that fails will force the link.	
*To use 100FX SFP's or to manually force Gigabit SFP's, select speed in SFP Detection Mode, SFP Detection Settings->Save, and then in Link Settings above, disable Autonegotiation, Link Settings->Save, and finally set Link Speed/Duplex and Link Settings->Save.	
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

Primary Link	
Primary Link Mode	SFP Port ▾
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

Powersaving	
Inactivity Detection Mode	Disabled ▾
Inactivity Time (seconds)	300
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

Combo Port

Speed: e.g., 100 or 1000 Mbps speed currently configured.

Duplex: e.g., FULL_DUPLEX or HALF_DUPLEX mode.

Link: e.g., YES if a link currently exists between Local and Remote units; otherwise NO.

Link Settings

*Set Autonegotiation Enable to what you want, save, and then change Autonegotiation Advertise or Link settings and save again.

Autonegotiation Enable: at the dropdown select NO or YES. The default is YES (enabled). This setting affects the other settings in this section (Link Settings).

Autonegotiation Advertise 1000Mbit Full Duplex: at the dropdown select NO or YES. The default is YES. Only applies if Autonegotiation Enable (above) is set to YES.

Autonegotiation Advertise 100Mbit Full Duplex: at the dropdown select NO or YES. The default is YES. Only applies if Autonegotiation Enable (above) is set to YES.

Autonegotiation Advertise 100Mbit Half Duplex: at the dropdown select NO or YES. The default is YES. Only applies if Autonegotiation Enable (above) is set to YES.

Autonegotiation Advertise 10Mbit Full Duplex: at the dropdown select NO or YES. The default is YES. Only applies if Autonegotiation Enable (above) is set to YES.

Autonegotiation Advertise 10Mbit Half Duplex: at the dropdown select NO or YES. The default is YES. Only applies if Autonegotiation Enable (above) is set to YES.

Link Speed: at the dropdown select 10, 100, or 1000 bps link speed. Only applies if Autonegotiation Enable (above) is set to NO.

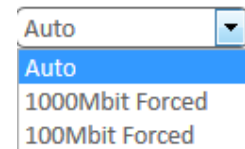
Link Duplex: at the dropdown select HALF_DUPLEX or FULL_DUPLEX for the link. Only applies if Autonegotiation Enable (above) is set to NO.

SFP Detection Settings

SFP Detection Mode: at the dropdown select Auto, 1000Mbit Forced, or 100Mbit Forced SFP detection. The default is Auto.

Auto is for Gigabit SFP's. When selected, the SFP will attempt auto-negotiation and if that fails will force the link.

To use 100FX SFP's or to manually force Gigabit SFP's, select speed in SFP Detection Mode, Save, and then in Link Settings above, disable Autonegotiation, Save, and finally set Link Speed/Duplex and Save.



Primary Link

Primary Link Mode: at the dropdown select SFP Port, RJ45 Port, or First Link available as the primary link port. The default is SFP Port.



Powersaving

Inactivity detection mode: at the dropdown, select Disabled or ETH link (enabled by Ethernet link) or ETH activity (enabled by Ethernet activity) as the power save trigger. The default is Disabled.

Inactivity time(s): e.g., 300 seconds of inactivity will cause the EoC to enter the Powersaving mode (only if Inactivity detection mode is set to Enabled). This “idle timer” default is 300 seconds. The valid range is 10 - 999 seconds.



The screenshot shows a configuration window titled "Powersaving". It contains two fields: "Inactivity detection mode" and "Inactivity time(s)". The "Inactivity detection mode" dropdown menu is open, showing three options: "Disabled" (selected), "ETH link", and "ETH activity". The "Inactivity time(s)" field is a text input containing the value "300".

Ethernet page Buttons

Ok: Click the **Ok** button to accept the current page parameter changes.

Cancel: Click the **Cancel** button to negate the current page parameter changes and revert to the default parameter settings.

Log Out: Click the **Log Out** button to exit EOCP Web Configuration.

Ethernet page Messages

Message: *Error Error detected when calling param value check function in set POWERSAVING.GENERAL.IDLE_TIME=3*

Meaning: At the **Ethernet** page, you misconfigured the Inactivity time parameter.

Recovery: **1.** At Ethernet > Powersaving > Inactivity time (s), set the Inactivity Time (Idle Timer) to a valid setting in the range of 10-999 seconds. **2.** Click the **Ok** button to accept the current page parameter changes.

Issue: Ethernet Powersaving Mode drops coax communication.

Meaning: With the Powersaving feature enabled on the Remote Unit (either ETH Link or ETH ACTivity) when the inactivity time expires, communication over the coax drops. This prevents managing the Remote Unit from the Local Unit until the link or activity is restored. The expectation is that only the remote Ethernet port should be affected by this feature.

Device page

The **Device** page lets you configure and view hardware and software information, security password, and FTP and HTTP software updates.

Hardware Information	
Device Name	EOCPSE4020-110
Device Description	Ethernet over Coax
Device Manufacturer	Transition
Serial Number	1013
MAC Address	00:c0:f2:58:3c:8d

Software information	
Local EoC FW Version	0.4.0.1
Remote EoC FW Version	0.4.0.1
Local PoC FW Version	19
Remote PoC FW Version	19
System Uptime	0 days, 23h 37m 43s

Security	
New Configuration Password	<input type="password"/>
<input type="button" value="Ok"/> <input type="button" value="Cancel"/>	

SW Update	
Status	Ready: finished correctly
Protocol	FTP <input type="button" value="v"/>
Server IPv4/v6	<input type="text"/>
FTP User	<input type="text"/>
FTP Password	<input type="password"/>
OSUP Filename	<input type="text"/>
<input type="button" value="Ok"/> <input type="button" value="Cancel"/>	

HTTP SW Update	
Upgrade File	<input type="button" value="Browse..."/> No file selected.
<input type="button" value="Ok"/> <input type="button" value="Cancel"/>	

Hardware information

Device Name: the device model (e.g., EOCPD4020-110 or EOCPD4020-110).

Device Description: e.g., Ethernet over Coax

Device Manufacturer: e.g., Transition

Serial Number: e.g., 1013

MAC Address: e.g., 00:c0:f2:58:3c:5a

Software information

Local EoC FW Version: the Local PSE Unit's current firmware version (e.g., 0.4.0.2).

Remote EoC FW Version: the Remote PD Unit's current firmware version (e.g., 0.4.0.2).

On the Remote PD Unit, displays the message "Use Device page to directly manage Remote Unit".

Local PoC FW Version: the Local PSE Unit's current Power over Coax firmware version (e.g., 19).

Remote PoC FW Version: the Remote PD Unit's current Power over Coax firmware version (e.g., 19).

System Uptime: the length of time the EoC has been running (e.g., 3 days, 0h 3m 45s) (days, hours, minutes, seconds).

Security

New Configuration Password: enter the updated security password and click **Ok**.

SW Update

Status: e.g., *Ready: initial status*, or *Running: downloading image*, or *Failed. Modem was reset during the last upgrade. (-45)* or *Ready: finished correctly*.

Protocol: at the dropdown select **FTP** or **TFTP** as the file transfer protocol.



Server IPv4/v6: the IP address of the Upgrade (e.g., FTP) server.

FTP User: the file transfer utility user name.

FTP Password: the file transfer utility password.

OSUP Filename: browse to and select the name of the OSUP (One Step Update) file to be transferred. The EOC has several modules that make up the full firmware image. The 'OSup' file combines all of these into one downloadable image and is referred to as 'One-Step-Update'.



The screenshot shows a dialog box titled "SW Update" with the following fields and values:

- Status:** Ready: initial status
- Protocol:** FTP (selected in a dropdown menu)
- Server IPv4/v6:** 192.168.1.30
- FTP User:** admin
- FTP Password:** masked with six dots
- OSUP Filename:** EOCPxx4020_0.4.0.1.bin

Buttons for "Ok" and "Cancel" are located at the bottom right of the dialog.

Device page Buttons

Ok: Click the **Ok** button to accept the current page parameter changes.

Cancel: Click the **Cancel** button to negate the current page parameter changes and revert to the default parameter settings.

Log Out: Click the **Log Out** button to exit EOCPD4020-110 Web Configuration.

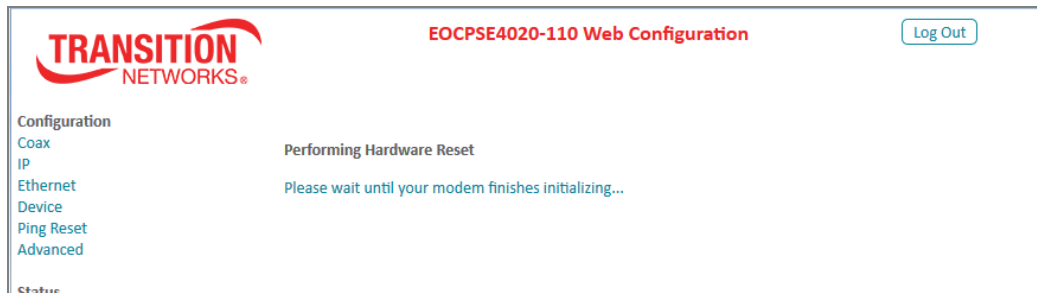
Device page Messages

Message: *Performing Hardware Reset*

Please wait until your modem finishes initializing...

Meaning: You clicked the **Hardware Reset** button with a SW Update in process.

Recovery: 1. Wait until initializing is finished. 2. Refresh the browser. 3. Continue operation.



The screenshot displays the web configuration interface for a Transition Networks device. At the top left is the Transition Networks logo. The page title is "EOCPSE4020-110 Web Configuration" and there is a "Log Out" button in the top right corner. On the left side, there is a navigation menu with the following items: Configuration, Coax, IP, Ethernet, Device, Ping Reset, and Advanced. The main content area shows a message: "Performing Hardware Reset" followed by "Please wait until your modem finishes initializing...". At the bottom left of the page, the word "Status" is partially visible.

EoC Upgrade Procedures

All upgrades require accessing the Device page in the web interface which requires that you are logged in. You may need to login as the sessions timeout and reboots clear the sessions. Login with the password 'admin' when asked. For all examples 192.168.0.1 is the Local Unit (EOCPSE4020-110) and 192.168.0.2 is the Remote Unit (EOCPD4020-110).

Note: all HTTP SW Update upgrades are handled directly by the web server on the EOCP device. The web server expects these files to show up quickly so it is best to copy the update files locally to the PC running the update. In other words, trying to give the "HTTP SW Update" a file from a network mounted file system will likely fail the first attempt. The EOCP device will reboot, you will have to login again, and usually the network mounted file will work the second time around as the file should be in the PC's cache. You would typically have them in your Downloads directory.

PoC FW Upgrades

1. Check if PoC FW update is necessary by browsing to the Device page on 192.168.0.1 and comparing Local PoC FW Version and Remote PoC FW Version with the expected shipping versions.

If update is necessary:

2. On the Device page on 192.168.0.1, scroll to the HTTP SW Update and hit the browse button. The files will be named like this and per the note above should be found on your computer's hard drive:
 - Local: EOCPSE4020-110_v18.hex
 - Remote: EOCPD4020-110_v18.hex
3. Select the Remote Unit (EOCPD) file.
4. Press the **Ok** button in the HTTP SW Update section.
5. Watch the upgrade go.
6. When complete, go back to the Device page on 192.168.0.1 and repeat steps 2-5, choosing the EOCPSE file in step 3 this time.
7. Verify that the PoC FW versions on the Device page on 192.168.0.1 now match the expected shipping versions.

Notes on PoC FW Upgrade

- Local Unit can handle either a Local or a Remote upgrade file, assuming the Remote Unit is attached and up and running.
- Remote Unit can only handle a Remote PoC FW update file.
- It is up to the user to put matching versions on both units.
- If upgrading PoC FW on a Local Unit with a PoC powered Remote Unit, the Remote Unit will reboot after the Local Unit upgrades its PoC FW. When a PoC FW update completes, the PoC board automatically reboots itself (whether Local or Remote). If the Local Unit is powering a Remote Unit, a PoC board reboot will cause a power classification event rebooting the entire Remote Unit. The only way to avoid this is to externally power the Remote Unit.
- PoC Upgrade Status displays during the upgrade process (e.g., *Upgrading PIC...*, *Copy complete.* and then *PIC will automatically reboot*).

EoC FW TFTP Upgrades

The quickest EoC upgrade mechanism is to upgrade both units at the same time via TFTP. There is just a single update file for both the Local and Remote Units. Currently they are named like this: EOCpxx4020_0.4.0.2.bin.

- a. Place the OSUP file on the TFTP server. This is a one-time operation per software update version.
 - b. Open two browser windows (or tabs) and login to 192.168.0.1 and 192.168.0.2.
 - Do steps 1-5 on both 192.168.0.1 and 192.168.0.2 web interfaces and then do steps 6-9 in order:
 - (Note that you can start either upgrade first; they can run at the same time and after your first time through, the web browser should remember the TFTP Server IP address and the update filename so you can just click on the fields and select them.)
1. Access the Device page. Scroll down to the SW Update section.
 2. At the Protocol pulldown select TFTP.
 3. On the Server IPv4/v6 page enter the TFTP server's IP Address.
 4. In the OSUP Filename field enter the Name of the update file (e.g., EOCpxx4020_0.4.0.2.bin).
 5. Click the **OK** button in the SW Update section.
 6. Wait for both upgrades to complete.
 7. Go to the 192.168.0.2 web interface and click the **Hardware Reset** button.
 8. Wait for 5 seconds.
 9. Go to the 192.168.0.1 web interface and click the **Hardware Reset** button.

After the units reboot, you can log back in to 192.168.0.1, go to the Device page and you should see the versions you just updated to (both EoC and PoC versions for both Remote and Local Units are on the Local Unit's Device page).

Notes for SW Update

Currently, TFTP/FTP updates do not do the necessary steps to have the Remote Unit upgrade automatically to match the local version. This feature only works using the HTTP SW Update method. TFTP upgrades are overall faster because they can be done in parallel and they do not store the upgrade file in flash.

EoC HTTP Upgrades (most common procedure)

1. Download / copy the OSUP file to your PC.
2. On 192.168.0.1, access the Device page.
3. Scroll to the HTTP SW Update on 192.168.0.1 and hit the browse button. Select the osup file from step 1.
4. Click the **Ok** button in the HTTP SW Update section.
5. Watch the update go.
6. When complete, click the **Hardware Reset** button. Note that the upgrade doesn't occur until the device is rebooted / power cycled and this does not have to happen immediately.
7. After Local Unit reboots, log in and go to the Remote Upgrade Status page under Status.
8. Within a minute or so, the Remote Unit should start updating. It automatically reboots when the update is complete.
9. Verify the versions on the Local Unit's Device page after the Remote Unit reboots.

Note that the PoC versions on the Device page on the web interface report the Local Unit's version for both versions.

Flash Upgrade status: This page is updated automatically every 10 seconds. The modem must be reset once the upgrade has finished. Status displayed includes *Failed: bad source specified, Ready: finished correctly,*

Flash Section: the OSUP (One-Step-Update) filename.

Upgrade Protocol: the file transfer protocol (FTP or TFTP).


Server IPv4/v6: the IP address of the Upgrade (e.g., FTP) server.

Filename: the name of the file to be transferred.

Download Progress: e.g., *x of y bytes (z %).*

Hardware Reset: click the button to reset the EoC to factory default settings.

Successful SW Update: *Ready: finished correctly* indicates a successful SW update.

Flash Upgrade	
Status	Ready: finished correctly
Flash Section	osup
Upgrade Protocol	EXTERN
Server IP Address	192.168.1.30
Filename	EOCPxx4020_0.4.0.1.bin
Download Progress	1591113 of 0 bytes (0%)
	
This page is updated automatically every 10 seconds. The modem must be reset once the upgrade has finished.	
<input type="button" value="Hardware Reset"/>	

Failed Flash Upgrade Statuses

Failed: bad source specified indicates the file format selected you tried to upload was invalid. Select a valid filename and format and retry the SW update.

Running: starting

Running: downloading image

HTTP SW Update

Upgrade File: Browse to and select the file to be upgraded with. A local source is the most effective.

HTTP SW Update	
Upgrade File	<input type="button" value="Browse..."/> EOCPxx4020_0.4.0.1.bin
<input type="button" value="Ok"/> <input type="button" value="Cancel"/>	


Click the **Ok** button to start the upgrade process.

The message “Sending request to xxx.xxx.xx displays temporarily.

HTTP SW Update	
Upgrade File	<input type="button" value="Browse..."/> EOCPxx4020_0.4.0.1.bin
<input type="button" value="Ok"/> <input type="button" value="Cancel"/>	

Sending request to 192.168.0.1...

The Download Progress bar displays the percentage of completion (e.g., *x of y bytes (34%)*).

Flash Upgrade	
Status	Running: downloading image
Flash Section	osup
Upgrade Protocol	EXTERN
Server IP Address	192.168.1.30
Filename	EOCPxx4020_0.4.0.1.bin
Download Progress	552960 of 1592925 bytes (34 %)
	
This page is updated automatically every 10 seconds. The modem must be reset once the upgrade has finished.	
<input type="button" value="Hardware Reset"/>	

Successful SW Update: *Ready: finished correctly*

Failed HTTP SW Update Statuses

Failed: bad source specified

Auto Power Reset page

The **Auto Power Reset** (ping reset) page lets you enable and configure APR mode parameters and view current status. Auto Power Reset (APR) monitors the connected PoE+ device and can restart it if it is unresponsive. **Note:** If the remote device does not need PoE, the Remote Unit does not provide PoE. If you do not want PoE power from the Remote Unit to the remote (end) device, enable Auto Power Reset, select PoE Power Down mode and ping an unused IP address on the subnet. Once it times out, PoE power will be disabled until you use the pulldown on this page.

Auto Power Reset Configuration

Reset Mode	Power Down PoE ▾
Device IPv4 Address	Disabled
Ping Interval (3 - 120 seconds)	Power Down PoE
Ping Failures Before Action (1 - 10)	Auto Mode
Device Reboot Time (3 - 300 seconds)	Timeout Mode
Auto Mode Timeout (60 - 1200 seconds)	30
	60
<input type="button" value="Ok"/> <input type="button" value="Cancel"/>	

Auto Power Reset Status

Current Status	Mode Power Down PoE - PoE Device powered off
<p><small>*Please click Auto Power Reset in the menu on the left to refresh Auto Power Reset Status.</small></p>	

Auto Power Reset Configuration

Auto Power Reset Mode: At the dropdown select Power Down PoE, Auto Mode, or Timeout Mode. The default is Disabled. The other parameters on this page can only be configured when this is changed from Disabled to Power Down PoE, Auto Mode, or Timeout Mode. The other APR Mode parameters are:

Power Down PoE: Pings start after the configurable Device Reboot Time. When the configurable number of pings fail the PoE will power down. In this mode you must configure Ping Interval, Ping Failures Before Action, and Device Reboot Time parameters (described below). To recover, go to the Local PSE unit and change the Reset Mode dropdown selection to anything, and then click the **Save** button.

The PD device then powers back up. No pinging occurs during the specified Device Reboot Time.

Auto Mode: automatically self-determines if the device is connected; it pings until the end device (ping target or PD) is found. No pinging occurs during the configurable Device Reboot Time. During the configurable Auto Mode Timeout period, pinging occurs until discovery or until the Auto Mode Timeout period is reached. No power action is taken until one of these two conditions is met; then the count begins.

Use this mode if you are unsure how long the end device takes to respond. In this mode you must configure all page parameters (described below).

Timeout Mode: basic mode where all attached devices are pinged until ping fails.

No ping occurs during the configurable Device Reboot Time. In this mode you must configure Ping Interval, Ping Failures Before Action, and Device Reboot Time parameters (described below).

Use this mode if you know how much time your PD needs to come up; it will power cycle the PD device continuously if too short of a Device Reboot Time is set.

Device IPv4 Address: With an APR mode selected, enter the IP address to be pinged. The default is 192.168.16.90.

Ping Interval (3-120 seconds): With an APR mode selected, enter the interval time in seconds between ping attempts. The default is 5 second intervals.

Ping Failures Before Action (1-10): With an APR mode selected, enter the number of ping attempts that fail before resetting. The default is 3 attempts (3 consecutive ping failures before the selected action is taken).

Device Reboot Time (3-300 seconds): With an APR mode selected, enter the amount of time before the device automatically reboots. The default is 120 seconds.

Auto Mode Timeout (60-1200 seconds): With APR Mode set to Auto Mode, enter the amount of time before APR mode times out. The default is 600 seconds (10 minutes). This parameter is not configurable in Power Down PoE mode or in Timeout Mode.

Auto Power Reset Status

Click the Auto Power Reset menu item to update the Auto Power Reset Status during an APR (ping mode) operation.

Current Status: Displays the APR Mode (*Enabled, Disabled, or Remote Unit not available*) as selected above (read only field). The Remote PD unit displays the message "*Use Local Unit for Ping Reset*" in the Current Status field. Please click **Auto Power Reset** in the menu on the left to refresh Auto Power Reset Status.

Reboot Cooldown - seconds remaining: xxx: displays during ping process; click the **Ok** button to update the count displayed.

Monitor Mode: Successful Ping Count: x displays if the ping was successful (x is the number of pings).

Mode Power Down PoE - PoE Device powered off

Auto Power Reset page Messages

Error Error detected when calling param set function in set TN.PING_RESET.PING_MODE=0

Error Error detected when calling param set function in set TN.PING_RESET.PING_MODE=1

Error Error detected when calling param set function in set TN.PING_RESET.PING_INTERVAL=125

Monitor Mode: Failed Ping Count: x displays if the ping was successful (x is the number of pings).

Auto Power Reset page Buttons

Ok: Click the **Ok** button to accept the current page parameter changes.

Cancel: Click the **Cancel** button to negate the current page parameter changes and revert to the default parameter settings.

Log Out: Click the **Log Out** button to exit EOC Web Configuration.

Advanced page

The **Advanced** page lets you configure and view EoC broadcast suppression and perform a hardware reset and factory reset.

The screenshot shows two main sections. The top section is titled "Hardware Reset" and contains a single button labeled "Hardware Reset". The bottom section is titled "Factory Reset*" and contains a "Password" label followed by an empty text input field. Below the input field is a warning message: "*Warning! Current configuration will be lost". At the bottom right of this section are two buttons: "Ok" and "Cancel".

Hardware Reset: click the **Hardware Reset** button to perform a reset to factory default settings on the EoC. Momentarily displays the message *"Performing Hardware Reset Please wait until your modem finishes initializing..."* and then displays the login page. Click the **Advanced** page link to update the status and then log in again.

Factory Reset*

Password: you must enter the Password (betera) and then click the **Ok** button for a Factory Reset to default parameter settings. **Warning!** Current configuration will be lost.

Buttons

Ok: Click the **Ok** button to accept the current page parameter changes.

Cancel: Click the **Cancel** button to negate the current page parameter changes and revert to the default parameter settings.

Hardware Reset: click the **Hardware Reset** button to perform a reset to factory default settings on the EoC.

Log Out: Click the **Log Out** button to exit EOC Web Configuration.

Advanced page Messages

Message: *The password you entered is incorrect*

Meaning: Error in Factory Reset

Recovery: Wait until you are redirected or click return to main page...

The screenshot shows the web configuration interface for EOCPE4020-110. The page title is "EOCPE4020-110 Web Configuration" and there is a "Log Out" button in the top right. On the left, there is a navigation menu with items: Configuration, Coax, IP, Ethernet, Device, Ping Reset, and Advanced. The main content area displays a red error message: "Error in Factory Reset". Below the message, it says "Please, wait until you are redirected or return to main page..."

Message: *Performing Factory Reset*

Meaning: *Please, wait until your modem finishes the initialization...*

Recovery: A factory reset from the Configuration > Advanced menu path is in process.

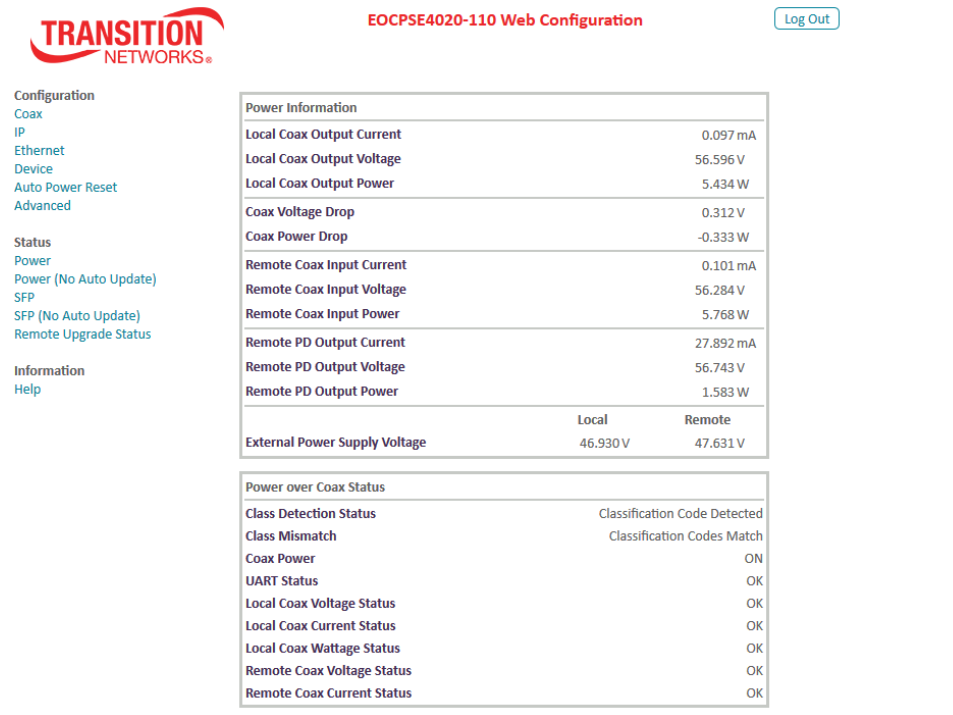
Recovery: Wait a few moments for the Advanced page factory reset to complete.

If necessary, refresh the browser to clear the message and return to the login page.

The screenshot shows the web configuration interface for EOCPE4020-110. The page title is "EOCPE4020-110 Web Configuration" and there is a "Log Out" button in the top right. On the left, there is a navigation menu with items: Configuration, Coax, IP, Ethernet, Device, Ping Reset, and Advanced. The main content area displays a red message: "Performing Factory Reset". Below the message, it says "Please, wait until your modem finishes the initialization..."

Power and Power (No Auto Update) pages

The **Power** and **Power (No Auto Update)** pages let you view the current EoC current, voltage, power, power supply, and power over coax status information.



TRANSITION NETWORKS® EOCPE4020-110 Web Configuration [Log Out](#)

Configuration
 Coax
 IP
 Ethernet
 Device
 Auto Power Reset
 Advanced

Status
 Power
 Power (No Auto Update)
 SFP
 SFP (No Auto Update)
 Remote Upgrade Status

Information
 Help

Power Information		
Local Coax Output Current		0.097 mA
Local Coax Output Voltage		56.596 V
Local Coax Output Power		5.434 W
Coax Voltage Drop		0.312 V
Coax Power Drop		-0.333 W
Remote Coax Input Current		0.101 mA
Remote Coax Input Voltage		56.284 V
Remote Coax Input Power		5.768 W
Remote PD Output Current		27.892 mA
Remote PD Output Voltage		56.743 V
Remote PD Output Power		1.583 W
External Power Supply Voltage	Local	46.930 V
	Remote	47.631 V

Power over Coax Status	
Class Detection Status	Classification Code Detected
Class Mismatch	Classification Codes Match
Coax Power	ON
UART Status	OK
Local Coax Voltage Status	OK
Local Coax Current Status	OK
Local Coax Wattage Status	OK
Remote Coax Voltage Status	OK
Remote Coax Current Status	OK

Power Information

Local Coax Output Current: displays the local EoC coax output current in mA.

Local Coax Output Voltage: displays the local EoC coax output voltage in Volts.

Local Coax Output Power: displays the local EoC coax output power in Watts.

Coax Voltage Drop: displays the voltage drop between the local and remote EoCs (e.g., -1.03 Volts).

Coax Power Drop: displays the power drop between the local and remote EoCs (e.g., -0.527 Watts).

Remote Coax Input Current: displays the remote EoC coax input current in mA.

Remote Coax Input Voltage: displays the remote EoC coax input voltage in Volts.

Remote Coax Input Power: displays the remote EoC coax input power in Watts.

Remote PD Output Current: displays the remote powered device's output current measurement in mA.

Remote PD Output Voltage: displays the remote powered device's output voltage in Volts.

Remote PD Output Power: displays the remote powered device's output power in Watts.

External Power Supply Voltage: displays the local and remote EoC input voltage measurements in Volts.

Power over Coax Status

Class Detection Status: e.g., Hunting for Classification Code, or Classification Code Detected,

Class Mismatch: e.g., Classification Codes Match, or Classification Codes Mismatch.

Coax Power: e.g., OFF or ON.

UART Status: e.g., OK or Error.

Local Coax Voltage Status: e.g., Coax Power OFF or OK.

Local Coax Current Status: e.g., Coax Power OFF or OK.

Local Coax Wattage Status: e.g., Coax Power OFF or OK.

Remote Coax Voltage Status: e.g., Coax Power OFF or OK.

Remote Coax Current Status: e.g., Coax Power OFF or OK.

Power over Coax Status	
Class Detection Status	Classification Code Detected
Class Mismatch	Classification Codes Match
Coax Power	ON
UART Status	OK
Local Coax Voltage Status	OK
Local Coax Current Status	OK
Local Coax Wattage Status	OK
Remote Coax Voltage Status	OK
Remote Coax Current Status	OK

Power and Power (No Auto Update) page Buttons

Log Out: Click the **Log Out** button to exit EOC Web Configuration.

SFP and SFP (No Auto Update) pages

The **SFP** and **SFP (No Auto Update)** pages let you view SFP and DMI information for both the Local and Remote EoC devices. The fields are blank if no SFPs are connected.

SFP Information		
	Local	Remote
Vendor	Transition	Transition
Part Number	TN-SFP-SXD	TN-SFP-SXD
Serial Number	8672257	8672322
Revision	0000	0000
Date Code	100623	110908
Transceiver	1000BASE-SX	1000BASE-SX

DMI Information		
	Local	Remote
Temperature	43.031 °C	30.312 °C
Voltage	3.253 V	3.237 V
TX Bias	4.016 mA	4.160 mA
TX Power	211.2 μW	223.2 μW
RX Power	0.0 μW	0.0 μW

SFP Information

Vendor: the SFP maker (e.g., Transition) for the Local and Remote EoC devices.

Part Number: the SFP part number (model #) e.g., TN-SFP-SXD, where the **D** indicates DMI capability.

Serial Number: the SFP serial number (e.g., 8672207).

Revision: the SFP revision (e.g., 1234).

Date Code: e.g., 141015 in the format ddmmyy (day/month/year).

Transceiver: e.g., 1000BASE-SX

DMI Information

Temperature: the SFP temperature in degrees Celsius.

Voltage: the SFP voltage measurement in Volts.

TX Bias: the SFP transmit bias current in mA (Milliamps).

TX Power: the SFP transmit power measurement in mW (milliWatts).

RX Power: the SFP receive power measurement in mW (milliWatts).

Buttons

Log Out: Click the **Log Out** button to exit EOCPD4020-110 Web Configuration.

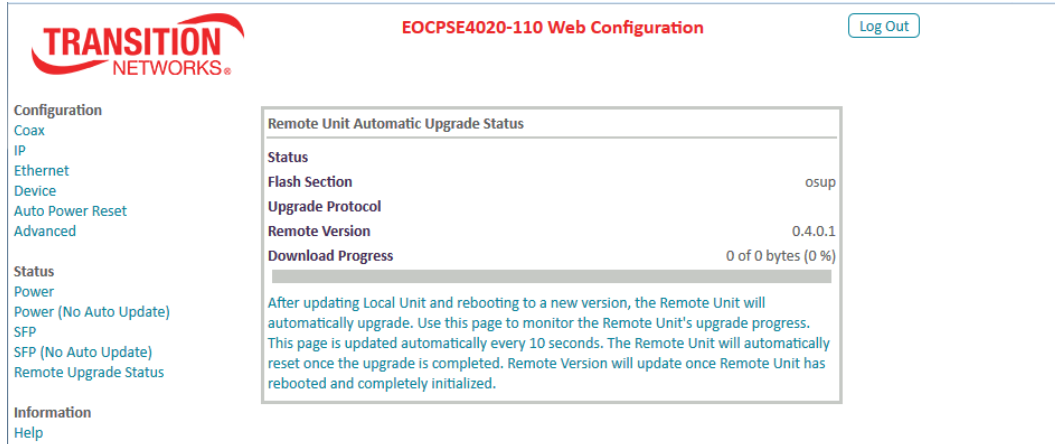
Note: With an SFP installed, if the SFP information displays but no DMI information displays, it may be because the installed SFP does not support DMI. Only TN SFPs with the suffix **D** support the DMI capability (the TN-SFP-SX does not support DMI, but the TN-SFP-SXD does support DMI).

Remote Upgrade Status

Navigate to the Status > Remote Upgrade Status menu path to display the Remote Unit Automatic Upgrade Status.

After updating the Local Unit and rebooting to a new version, the Remote Unit will automatically upgrade. Use this page to monitor the Remote Unit's upgrade progress.

This page is updated automatically every 10 seconds. The Remote Unit will automatically reset once the upgrade is completed. The Remote Version will update once the Remote Unit has rebooted and completely initialized.



The screenshot shows the 'EOCPSE4020-110 Web Configuration' interface. On the left is a navigation menu with categories: Configuration (Coax, IP, Ethernet, Device, Auto Power Reset, Advanced), Status (Power, Power (No Auto Update), SFP, SFP (No Auto Update), Remote Upgrade Status), and Information (Help). The main content area is titled 'Remote Unit Automatic Upgrade Status' and contains the following information:

Remote Unit Automatic Upgrade Status	
Status	
Flash Section	osup
Upgrade Protocol	
Remote Version	0.4.0.1
Download Progress	0 of 0 bytes (0%)

Below the table, there is a paragraph: "After updating Local Unit and rebooting to a new version, the Remote Unit will automatically upgrade. Use this page to monitor the Remote Unit's upgrade progress. This page is updated automatically every 10 seconds. The Remote Unit will automatically reset once the upgrade is completed. Remote Version will update once Remote Unit has rebooted and completely initialized."

Status: the current upgrade status (e.g., blank or various status displays).

Flash Section: the OSUP (One-Step-Update) filename.

Upgrade Protocol: the file transfer protocol selected for the upgrade (e.g., *FTP* or *TFTP*).

Remote Version: the current firmware version of the remote PD unit (e.g., *0.3.5.2*).

Download Progress: the percentage of completion (e.g., *0 of 0 bytes (0%)*).

Buttons

Log Out: Click the **Log Out** button to exit EOCPD4020-110 Web Configuration.

Back Panel RESET Button Functions

The EoC back panel **RESET** button is used for other functions besides Pairing / Unpairing the units for secure (encrypted) coax network operation. You press and hold the **RESET** button for different periods of time to perform different functions; the LEDs blink at different rates to indicate the function selected.

Press and hold the **RESET** button on the back panel for:

- **1-10** seconds to reset / reboot the device. Blink rate is medium (on = off).
- **10-20** seconds to start Pairing. Blink rate is Fast (long on then short off). See next section.
- **20-30** seconds to unpair security. Blink rate is Slow (long on then short off).
- **30-40** seconds to do a Factory Reset (reset to factory default settings). Blink rate is long on and then long off.
- **> 40** second: if you press and hold the back panel **RESET** button for over 40 seconds, nothing happens when you release the **RESET** button.

Note:

1. Re-boot at the end of security Pairing, even if cancelled or stopped part way.
2. Re-boot both units if security pairing was started and completed.
3. If you started just one unit, just re-boot that one unit.
4. The **SECURITY** LED lights on both units when Paired successfully.

Summary of RESET Button Functions

Function to perform	Press and hold RESET for:	LED blink rate
Reset / reboot the device	1-10 seconds	Medium (on = off)
Start security Pairing	10-20 seconds	Fast (long on then short off)
Unpair security	20-30 second	Slow (short on then long off)
Factory Reset (reset to factory defaults)	30-40 second	Long on and then long off

Security Pairing and Unpairing via the **RESET** button is described in the following section.

Security Pairing & Unpairing Devices via the RESET button

Coax data transmission can be encrypted using AES 128-bit encryption as described below. Note that you can also PAIR and UNPAIR the devices using Transition Networks' TN Ethernet Extender Tool. See the related online manual for details.

Note: If perform pairing / security encryption, you may want perform these steps before final deployment of Local PSE and Remote PD Units in the field.

Caution: Security pairing the units requires pushing the **RESET** button on both units within 60 seconds. If the operation fails or if only one button is pushed, the unit becomes inoperable.

Security Pairing Procedure

1. On device # 1, press and hold the **RESET** button for 10-20 seconds (until the **SECURITY** LED starts slow blinking) to open a configuration period for 60 seconds.
2. On device # 2, press and hold the **RESET** button for 10-20 seconds (until the **SECURITY** LED starts slow blinking). This takes 2-3 minutes.
3. Wait until the **SECURITY** LED is lit solid in device # 1.
4. Press and hold the SECURITY LED on both units for 10-20 seconds within 60 seconds of each other. (See the Note and Caution above.)
5. The secure device will send the keys to the new device (configuration process is successful when its **SECURITY** LED flashes three times for 0.5 seconds) and both will belong to the same secure, unique domain.
6. When the **SECURITY** LED is lit solid on both devices, re-boot both devices. You can do this by unplugging and re-plugging the power cord at the Local device if the Remote device is powered by the Local device, or by cycling power at both devices, or via the Web GUI at the **Advance** page by clicking the **Hardware Reset** button.

At this point both devices can communicate data, the **SECURITY** LED remains lit on both devices, and their "Link Quality" indicators will show the quality of the link between them.

Security Unpairing Procedure

Security unpairing returns the adapter to its default security settings. A return to default Pairings settings is done to force an adapter to return to its default security settings.

This procedure will only reset the Domain Name and AES Encryption Password, and will not affect other parameters such as the IP configuration.

1. On device # 1, press and hold the **RESET** button for more than 20-30 seconds; the SECURITY LED starts slow blinking, and after 20-30 seconds starts quick blinking.
2. On device # 1, release the **RESET** button. The adapter resets its running security configuration to the default settings (Unpaired).
3. On device # 2, press and hold the **RESET** button for more than 20-30 seconds; the SECURITY LED starts slow blinking, and after 20-30 seconds starts quick blinking.
4. On device # 2, release the **RESET** button. The adapter resets its running security configuration to the default settings (Unpaired).

The coax link between devices is down until both devices are done security unpairing.

Status LEDs

The EOCPxx4020-110 provides multiple LEDs for status and diagnostics of the Ethernet, Coax and POE functions. Use the status LEDs to monitor EOCPxx4020-110 operation in the network.



PWR: Power and bootloader status:

- Power applied: **Green** - ON
- Firmware update in progress: **Orange** – ON and/or BLINK

COAX: Power delivery (local) or sourcing (remote) status and/or fault:

EOCPSE4020-110 (Local PSE unit)

- Classification:* Hunting for remote **Green – BLINK**
- Classification fault:* Classification error, restarting detection **Red – ON/BLINK**
- Power applied:* 57VDC Power over coax enabled **Green – ON**

EOCPDE4020-110 (Remote PD unit)

Power from coax status

Sourcing power from coax **Green – ON**

Sourcing power from external PS **Green – BLINK**

- If the external power supply (4-pin DIN or 2-Pin Terminal block) is present this will be used in favor of the coax power.
- If the external power is lost the unit will briefly power down and then start sourcing from the coax.
- If the external power is then re-established the device will switch back without interruption to the external power.

IEEE 802.3af/at port POE delivery **Red – BLINK**

- *Cannot maintain RJ-45 POE power delivery*
- *Indicates that the coax power loss is too great to maintain the requested power from the IEEE 802.3af/at RJ-45 POE-PSE port*

DATA – Coax data link

Linked: **Green – BLINK**

SECURITY (Coax): Secure mode, pairing mode, and key/config state:

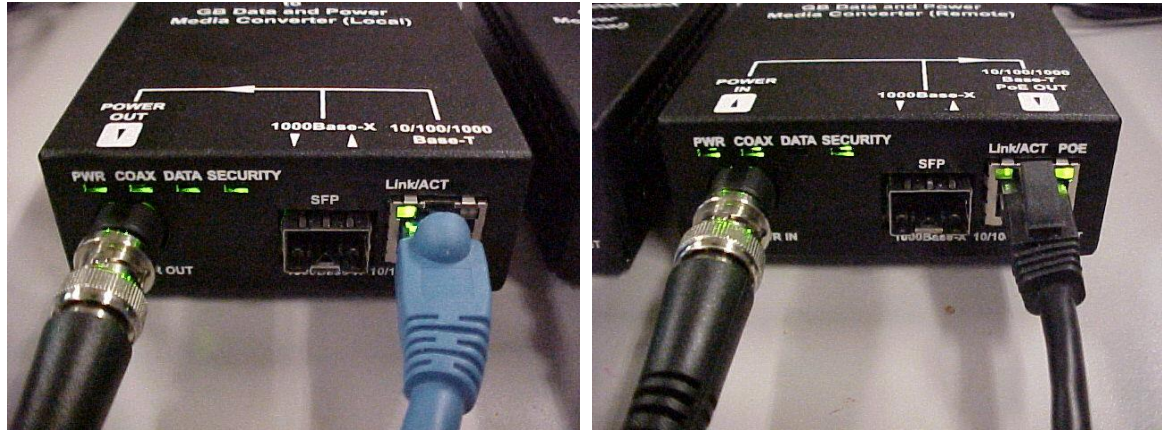
- Not secure: OFF
- Secure: **Green** – ON
- In Config mode: **Green** – Slow BLINK
- In Pairing mode: **Green** – Fast BLINK
- Received key & finished config: **Green** – 3 BLINKS

Link/ACT - 1GE TP or Fiber port:

- 1000Mbps: **Green** - ON link, BLINK activity
- 100Mbps: **Green** and **Yellow** - ON link, BLINK activity
- 10Mbps: **Yellow** - ON link, BLINK activity

POE – Power Over Ethernet status (Remote PD Unit only):

- No PD detected: OFF
- Power applied: **Green** – ON
- Detect fault: **Yellow** – ON: Fault or connected remote device is not a PoE device
- Classification fault: **Yellow** - BLINK



Technical Specifications

Transition Networks' EOCPxx4020-110 was designed to meet these specifications:

Standards	IEEE 802.1p, IEEE 802.1Q, IEEE 802.3, IEEE 802.3ab, IEEE 802.3af/at, IEEE 802.3az, IEEE 802.3u, IEEE 802.3x, IEEE 802.3z
Ethernet RJ-45 POE-PD	IEEE 802.3af/at
Ingress Protection	IP30
Data Speeds	TP – 10/100/1000Mbps, SFP –100/1000Mbps
Coax Connector	75 ohm coax BNC
Connector (10/100/1000BaseT Twisted Pair Port)	<ul style="list-style-type: none"> • Connector: RJ45 female • MDI/MDI-X selection: Automatic • Cable specification: CAT5 or Cat6 UTP
Connector (Fiber Port)	<ul style="list-style-type: none"> • Connector: SFP • Modes: 1000Base-X, 100Base-FX
Status LEDs	Power/Bootloader, COAX Power, COAX ACT, COAX Security, Combo Port Link/ACT, PoE+
RESET Switch	<p>Configuration/RESET pushbutton switch; press and hold the RESET button on the back panel for:</p> <ul style="list-style-type: none"> • 1-10 seconds to reset / reboot the device. Blink rate is medium (on = off). • 10-20 seconds to start Pairing. Blink rate is Fast (long on then short off). • 20-30 seconds to unpair security. Blink rate is Slow (long on then short off). • 30-40 seconds to do a Factory Reset (reset to default settings). Blink rate is long on and then long off.
Emissions Compliance	FCC Part 15, CISPR22/EN55022 Class A
Immunity Compliance	EN55024
Safety Compliance	EOCPxx4020-110: NA Power Adapter: CE mark, UL Listed
Power Source	DIN or Terminal Block: 48VDC +/- 10%
Power Consumption	EOCPSE4020-110 = 4.0W. EOCPD4020-110 = 4.4W. Total system: 45W (max). See Throughput and Power Worksheets on page 52.
Dimensions	EOCPxx4020-110: Width: 3.25" [82.5 mm] x Depth: 1.25" [31.75 mm] x Height: 5.38" [136.7 mm] Power Adapter: 2.25 x 6 x 1.31 inches (5.72 x 15.25 x 3.32 cm)
Weight	EOCPSE4020-110: 0.85 lb. (0.38 Kg.) EOCPD4020-110: 0.80 lb. (0.36 Kg.) Power Adapter: 0.85 lb. (0.40 Kg.) (not incl. power cord)
Operating Temp	0°C to +65°C
Storage Temp	-40°C to + 85°C
Altitude	0-10,000 feet
Operating Humidity	5% to 95% (non-condensing)
MTBF	Greater than 200,000 MIL-HDBK-217F Hours
Warranty	5 year

Power Supply 25148 Specifications

Power Supply 25148 is a highly reliable, 90W desktop style single-output green adaptor. It is a class I power unit (with FG), equipped with a standard IEC320-C14 AC Inlet. It is compliant with USA EISA 2007/DoE, Canada NRCAN, Australia and New Zealand MEPS, EU ErP, and Code of Conduct (CoC) Version 5. The adaptor saves energy when it is in operating mode or in standby mode. It utilizes 94V-0 flame retardant plastic case, and is certified for international safety regulations.

The 90W Power supply, 25148 is an option for powering the Local PSE Unit, and is optional for use with the Remote PD Unit. (For indoor use only.) The Local and Remote Unit Power Supplies do **not** provide isolation or load sharing capabilities.

The Power Supply has a blue LED to indicate the presence of power to the Power Supply. The EOCP **PWR** LED will blink to indicate the presence of power to the EOCPxx4020-110.

Universal AC input / Full range

3 pole AC inlet IEC320-C14

Built-in active PFC function

No load power consumption < 0.15W

Energy Efficiency Level VI

Comply with EISA 2007/DoE, NRCAN, AU/NZ MEPS, EU ErP and CoC Version 5

Class 1 power (with earth pin)

Protections: Short circuit / Overload / Over voltage / Over temperature

Fanless design with -30° ~ +70° C working temperature

LED indicator for PS power on

Output DC Voltage: 48V

Output Rated Current: 1.87A

Output Current Range: 0 ~ 1.87A

Output Rated Power (max.): 90W

Input Voltage Range: 90~246 VAC, 127~370 VAC

Input Frequency Range: 47-63 Hz

Input Efficiency (typ.): 91%

Input AC Current (typ.): 1.3A / 115VAC / 0.6A / 230 VAC

Overload: 110 - 150% rated output power

Overload Protection Type : Hiccup mode, recovers automatically after fault condition is removed

Over voltage: 105-135% rated output voltage

Overvoltage Protection type : Shut down o/p voltage, re-power on to recover

Over temperature: Shut down o/p voltage, re-power on to recover



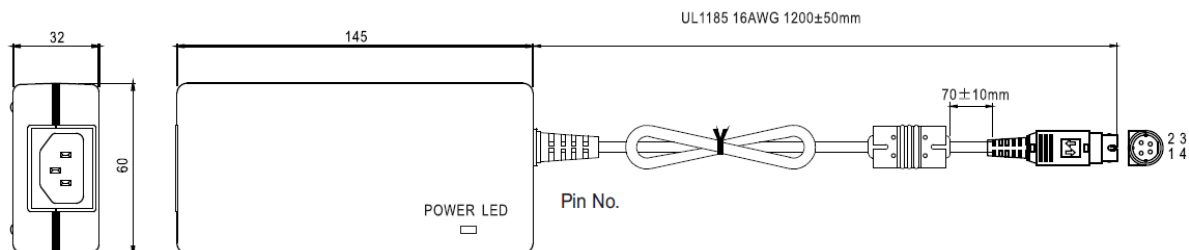
Safety Standards: UL60950-1, CSA C22.2, TUV EN60950-1, BSMI CNS14336, CCC GB4943, PSE J60950-1, AS/NZ 60950.1 approved

EMC Emission: Compliance to EN55022 class B, EN61000-3-2,3, FCC PART 15 / CISPR22 class B, CNS13438 class B, GB9254, GB17625.1

EMC Immunity: Compliance to EN61000-4-2,3,4,5,6,8,11, light industry level, criteria A

MTBF: 348.7K hrs min. MIL-HDBK-217F(25°C)

Dimensions: 145*60*32mm (L*W*H)



DC plug: power DIN 4 pin with lock type

KYCON KPPX-4P		Pin No.	OUTPUT
	1, 2	+V	
	3, 4	-V	
	Shell	NC	



Throughput and Power Worksheets

This section provides static examples of the calculation worksheets available. For the latest active EOCPxx4020-110 worksheets, view the [online calculator](#).

Distance Calculator

Transition Networks' EOCPxx4020-110 Distance calculator is shown below.

	A	B	K	L	M
1					
2					
3					
4					
5					
6					
7	Ethernet Over Coax Extender With PoE+ Distance Calculator				
8					
9	Select cable type from drop-down list	Belden 1523A RG-11/U BCCS .064 dia/14 AWG 11 ohm resistance/1000'	Cable Type Descriptions Key		
10	Enter power wattage desired for powered device (0 to 25.5)	22	CD	Center conductor	
11	Enter the ambient temperature in degrees Celsius	40	BC	Bare copper	
12			CCS	Copper-clad-steel	
13	Maximum Cable distance (feet) for full PoE+ power	2233	BCCS	Bare-copper-clad-steel	

Power Distance Calculation Worksheet

Transition Networks' EOCPxx4020-110 Cable vs Power Worksheet is shown below.

	Fill in these values	Cable DCR	PW remote	V cable loss	V at remote	I cable	PW cable	PW local	PW power supply
Maximum Cable distance (feet)	299	14.97	36.50	15.29	41.71	0.875	13.38	57.77	90
Cable type from list below	1	Max. 100 ohm			Min. 36V	Max. 875mA			
PW-PD	30								
Ambient temperature deg. C	25								
Static variables set by design or measured in LAB									
Volts into coax cable	57								
Converter PW	4.4								
Boost eff. % - remote (x to 57V)	93								
Boost eff. % - local (48 to 57V)	93								
Power filter + coax shield ohm	2.5								
Minimum Voltage at remote	36								
Maximum Current in cable	0.875								
PW of Local converter	7.89125								
PW cable	13.375								
PW of Remote converter	6.815								
Total PW (Local+Coax+Remote)	28.08								
Total PW (Local+Coax+Remote+PD)	58.08								
Coax common types									
	Type	Belden #	Diameter (in./AWG)	DCR/1000 Ft.	DCR/1 Ft.				
1	RG-59/U BCCS	9244	0.025(22)	50	0.05				
2	RG-59/U BC	8241B	0.0228(23)	20	0.02				
3	RG-59/U BC	1426A	0.032(20)	10	0.01				
4	RG-11/U BCCS	1523A	0.064(14)	11	0.011				
CD=Center conductor									
BC=Bare copper									
CCS=Copper-clad-steel									
BCCS=Bare-copper-clad-steel									

Coax Distance Calculation Worksheet

Power over Distance

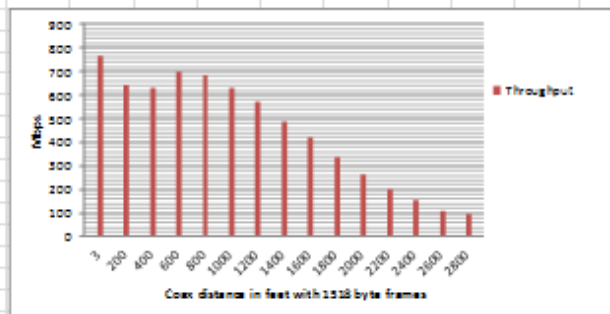
Transition Networks' EOCpx4020-110 POC power over distance measurement is shown below.

POC Power Over Distance Measurement				Calculated vs. measured maximum PD power (watts)		
Coax in feet	Coax ohms	Local coax watts	Remote coax voltage	Worksheet	Sifos	Difference
200	11.4	43.6	45.6	NA	30	NA
400	20.6	46.3	37.1	25.9	25.9	0
600	30.7	32.2	37	16.7	16.5	-0.2
800	41.4	24.2	37.1	11.6	11.7	0.1
1000	50.3	20	37.4	8.9	9.1	0.2
1200	61.1	16.6	37.4	6.7	7.1	0.4
1400	70.1	14.8	37.1	5.4	5.8	0.4
1600	80.4	12.9	37.1	4.2	4.6	0.4
1800	91.1	11.4	37.1	3.3	3.7	0.4
2000	100.2	10	37.7	2.6	3	0.4
2200						

Throughput Graphs

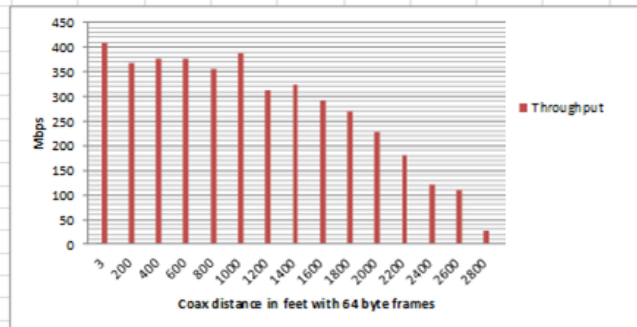
Throughput versus Packet Size Results (3' coax cable)

	3	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800
Throughput	766.39	641.47	627.64	696.99	683.13	627.61	572	488.62	419.44	386.18	266.77	202.94	157.14	111.34	96.04



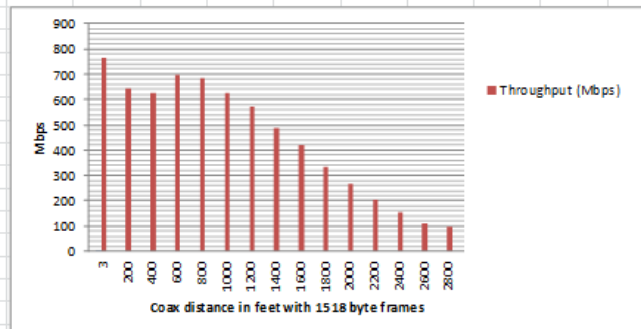
Throughput versus Cable Length with 64 byte packets

Cable Length (feet)	3	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800
Throughput	409.52	366.66	377.38	377.38	355.95	388.07	313.09	323.81	291.66	270.23	227.37	180.23	121.31	109.52	27.02



Throughput versus cable length with 1518 byte packets

Cable Length (feet)	3	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800
Throughput (Mbps)	766.39	641.47	627.64	696.99	683.13	627.61	572	488.62	419.44	336.18	266.77	202.94	157.14	111.34	96.04



Frequently Asked Questions

Q1. Regarding the POE+ on the remote device, if we use a local power supply on the remote device will it allow us to provide the full POE+ (30 Watts) to the end device no matter what the coax distance/limitations are?

A1. That is correct.

Q2. Do Transition Networks' TN Ethernet over Coax Extenders support + 48VDC and - 48VDC?

A2. Just + 48VDC; the EoCP does not support -48VDC input.

Q3. What is the EoCP maximum frame size?

A3. The Max frame size is 1518 bytes (1522 with VLAN tag).

Q4. Does the EoCP provide encryption? What type?

A4. The EoCP provides 128-Bit AES encryption over the coax.

Q5. Does the "Copper or fiber combo Ethernet" port provide redundancy or failover?

A5. The Combo port provides "failover".

Q6. Does a ping fail send an alarm or notification?

A6. The APR does not send any notifications or alarms when the ping fails. It just performs the action (reset or shutdown the PD) and waits for user action.

Q7. What is the pinout for the PoE? Do we know which pins the power is on?

A7. The EOCPD uses Alternative A (power on pins 1-2 and 3-6). Note that the EOCPD is actually the PSE when viewed from the PD end device (e.g., an IP camera).

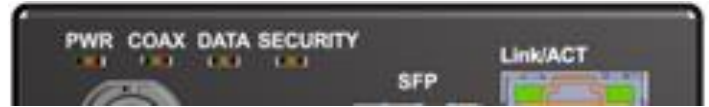
Q8. What SFPs does the EoCP support?

A8. Any MSA compliant SFP. Industrial +85°C SFP modules must be used above 50°C ambient temperature. Transition Networks SFPs support all of our media converters and switches, as well as other media converters that leverage the industry standard MSA design. See Transition Networks' full line of SFP Transceivers at <https://www.transition.com/lines/optical-devices/>.

Troubleshooting

Troubleshooting Procedures

If the EOC fails, isolate and correct the fault by determining the answers to the following questions and then taking the indicated action. First isolate the problem to the EOCP; troubleshoot any other network gear (Ethernet switch, remote cameras, etc.) to isolate the problem to the EOCP.



1. Check the LEDs:

- a. If the **PWR** LED is not lit:
 - Verify the power adapter type, connection, and the AC outlet.
 - Verify the coax connections (DATA - POWER OUT on the Local device and DATA - POWER IN on the Remote device)
- b. If the **COAX** LED is not lit, check the Coax cable and BNC connections.
- c. If the **DATA** LED is not lit:
 - Check the fiber cables for proper connection.
 - Verify that the TX and RX cables on the Local are connected to the RX and TX ports, respectively, on the Remote device.
 - If the EOCPxx4020-110 units are connected using fiber, verify the fiber run and connection.
 - Use the **RESET** button to start OBUS pairing and security key exchange. See page 45.
- d. If the **SECURITY** LED is not flashing:
 - If there is activity on the 10/100/1000Base-T port, disconnect and reconnect the twisted-pair copper cable to restart the initialization process.
 - Restart the Ethernet switch.
 - Use the **RESET** button to reset the security configuration to defaults. See page 45.
 - Use the **RESET** button to reset the device to factory defaults. See page 45.


2. Click the browser back button.

3. Refresh the web browser page.

4. Click the EOC Web Config page's Cancel button.

5. Log out of the EOC Web Config and log back in again.

6. Check the Ethernet connection between the PC and the EOC Local adapter.

7. Click the Web Config page's "Refresh network" button () when an EOC node is correctly connected to the PC (to refresh network discovery and update all configuration tabs and fields).

8. Check for more recent firmwares / upgrade firmwares. Local and Remote EOCs must have the same FW image. Each EOC (L + R) has two firmware instances. The EOC Forced Update / Auto Update functions if Local and Remote FW don't match (makes Remote FW match the Local FW).

9. If an IP Router is between EOC devices, verify that two IP addresses are configured.

10. If the Web Config connection is lost, use the Ethernet Extender Tool to re-connect.

11. Unplug the Coax connector and then re-connect it.

12. Record Model and System Information (next page) and contact Tech Support; see below.

Record Model and System Information

After performing the troubleshooting procedures above, and before calling or emailing Tech Support, record as much information as possible to help the Tech Support Specialist.

1. Record Device page Hardware and Software Information:

	EOCPSE4020-110 (Local)	EOCPD4020-110 (Remote)
Serial Number		
HW Version		
EoC FW Version		
PoC FW Version		

2. Record EOCPSE4020-110 LED Status: _____

3. Record EOCPD4020-110 LED Status: _____

4. Your Transition Networks service contract number: _____

5. Describe the problem: _____

6. Describe action(s) already taken to resolve the problem (e.g., change mode, reset, etc.):

7. The model # and serial # of other Transition Networks products in the network: _____

8. Describe your network environment (layout, cable type, cable distance, etc.): _____

9. This device history (i.e., have you returned the device before, is this a recurring problem, previous Return Material Authorization (RMA) numbers, etc.): _____

10. List 3rd party equipment in the network (e.g., Ethernet switch, Remote camera, etc.): _____

Warranty

Transition Networks warrants to the original consumer or purchaser that these products and all components thereof, will be free from defects in material and/or workmanship for a period of five years from the original factory shipment date. Any warranty hereunder is extended to the original consumer or purchaser and is not assignable. Transition Networks makes no express or implied warranties including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose, except as expressly set forth in this warranty. In no event shall Transition Networks be liable for incidental or consequential damages, costs, or expenses arising out of or in connection with the performance of the product delivered hereunder. Transition Networks will in no case cover damages arising out of the product being used in a negligent fashion or manner.

This warranty does not cover damage from accident, acts of God, neglect, contamination, misuse or abnormal conditions of operation or handling, including over-voltage failures caused by use outside of the product's specified rating, or normal wear and tear of mechanical components.

Transition Networks will, at its option:

- Repair the defective product to functional specification at no charge
- Replace the product with an equivalent functional product
- Refund a portion of purchase price based on a depreciated value

To return a defective product for warranty coverage, contact Transition Networks' Customer Support for a return authorization number.

Send the defective product postage and insurance prepaid to the following address:

Transition Networks, Inc.
10900 Red Circle Drive
Minnetonka, MN 55343
USA

Attn: RETURNS DEPT: CRA/RMA # _____

Failure to properly protect the product during shipping may void this warranty. The return authorization number must be written on the outside of the carton to ensure its acceptance. We cannot accept delivery of any equipment that is sent to us without a CRA or RMA number.

CRA's are valid for 60 days from the date of issuance. An invoice will be generated for payment on any unit(s) not returned within 60 days.

Upon completion of a demo/ evaluation test period, units must be returned or purchased within 30 days. An invoice will be generated for payment on any unit(s) not returned within 30 days after the demo/ evaluation period has expired.

The customer must pay for the non-compliant product(s) return transportation costs to Transition Networks for evaluation of said product(s) for repair or replacement. Transition Networks will pay for the shipping of the repaired or replaced in-warranty product(s) back to the customer (any and all customs charges, tariffs, or/and taxes are the customer's responsibility).

Before making any non-warranty repair, Transition Networks requires a \$200.00 charge plus actual shipping costs to and from the customer. If the repair is greater than \$200.00, an estimate is issued to the customer for authorization of repair. If no authorization is obtained, or the product is deemed not repairable, Transition Networks will retain the \$200.00 service charge and return the product to the customer not repaired. Non-warranted products that are repaired by Transition

Networks for a fee will carry a 180-day limited warranty. All warranty claims are subject to the restrictions and conventions set forth by this document.

Transition Networks reserves the right to charge a \$50 fee for all testing and shipping incurred, if after testing, a return is classified as “No Problem Found.”

THIS WARRANTY IS YOUR ONLY REMEDY. NO OTHER WARRANTIES, SUCH AS FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSED OR IMPLIED. TRANSITION NETWORKS IS NOT LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING LOSS OF DATA, ARISING FROM ANY CAUSE OR THEORY. AUTHORIZED RESELLERS ARE NOT AUTHORIZED TO EXTEND ANY DIFFERENT WARRANTY ON TRANSITION NETWORKS’S BEHALF.

Contact Us

tel: +1.952.941.7600 | toll free: 1.800.526.9267 | fax: 952.941.2322

sales@transition.com | techsupport@transition.com | customerservice@transition.com

Compliance Information

ERN

ERN # (Encryption Registration Number) R111839 (self-declaring).

Declaration of Conformity

EU Declaration of Conformity

EOCPSE4020-110 and EOCPD4020-110

Model/Part Number

Transition Networks, Inc.

10900 Red Circle Drive, Minnetonka, Minnesota 55343 U.S.A.

Manufacturer's Name and Address

This declaration of conformity is issued under the sole responsibility of the manufacturer.



EOCPSE4020-110 Local PoE+ Coax Ethernet Extender and

EOCPD4020-110 Remote PoE+ Coax Ethernet Extender

are in conformity with the relevant Union harmonisation legislation:

Electromagnetic Compatibility (EMC) Directive 2014/30/EU: EN 55032:2012, EN 55024:2010

Low-Voltage Directive (LVD) 2014/35/EU: EN 60950-1:2006

And hereby is declared compliant and carries the CE marking

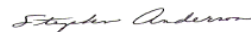
I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Minnetonka, Minnesota

Place

7-26-16

Date



Signature

Stephen Anderson
Full Name

Vice President of Engineering
Position

FCC Regulations

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the user's own expense.

Canadian Regulations

This digital apparatus does not exceed the Class A limits for radio noise for digital apparatus set out on the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

European Regulations

Warning

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Achtung !

Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten. In diesem Fall ist der Benutzer für Gegenmaßnahmen verantwortlich.

Attention !

Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.



In accordance with European Union Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003, Transition Networks will accept post usage returns of this product for proper disposal. The contact information for this activity can be found in the 'Contact Us' portion of this document.



CAUTION: RJ connectors are NOT INTENDED FOR CONNECTION TO THE PUBLIC TELEPHONE NETWORK. Failure to observe this caution could result in damage to the public telephone network.

Der Anschluss dieses Gerätes an ein öffentliches Telekommunikationsnetz in den EGMitgliedstaaten verstösst gegen die jeweiligen einzelstaatlichen Gesetze zur Anwendung der Richtlinie 91/263/EWG zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Telekommunikationsendeinrichtungen einschliesslich der gegenseitigen Anerkennung ihrer Konformität.

Record of Revisions

Rev	Date	Notes
A	7/27/16	Release for Local & Remote EoC FW Version 0.4.0.1 and Local & Remote PoC FW Version 19.
B	11/11/16	Add FAQs and update art and format at FW 0.4.0.2.
C	1/24/18	Add MTBF information; clarify "Local PSE Unit Delivery of PoE to Remote (End) Device".
D	6/8/20	Add DoC and grounding information.
E	8/24/20	Update power consumption information.

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