



POC252 Series User's Manual

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1. INTRODUCTION



Thank you for purchasing IFS PoE over Coaxial the POC252-1CXP and POC252-1CX, consisting of the POC252-1CXP and POC252-1CX. The descriptions of the two models are as follows:

POC252 Power over Coax	
POC252-1CXP-1T	1-Port 10/100TX PoE PD + 1-Port Coax Long Reach PoE Injector
POC252-1CX-1P	1-Port 10/100TX PoE PSE + 1-Port Coax Long Reach PoE Extender (Camera End)

“POC252-1CXP/POC252-1CX” mentioned in this Manual represents the above two models.

1.1. Package Contents

Open the box of the POC252-1CXP/POC252-1CX and carefully unpack it. The box should contain the following items:

For POC252-1CXP-1T/POC252-1CX-1P	
 <ul style="list-style-type: none"> 1-Port 10/100TX PoE PD + 1-Port Coax Long Reach PoE Injector – POC252-1CXP x1 	 <ul style="list-style-type: none"> 1-Port 10/100TX PoE PSE + 1-Port Coax Long Reach PoE Extender – POC252-1CX x1
<ul style="list-style-type: none"> User's Manual x 1 	<ul style="list-style-type: none"> Warning Sticker x 1



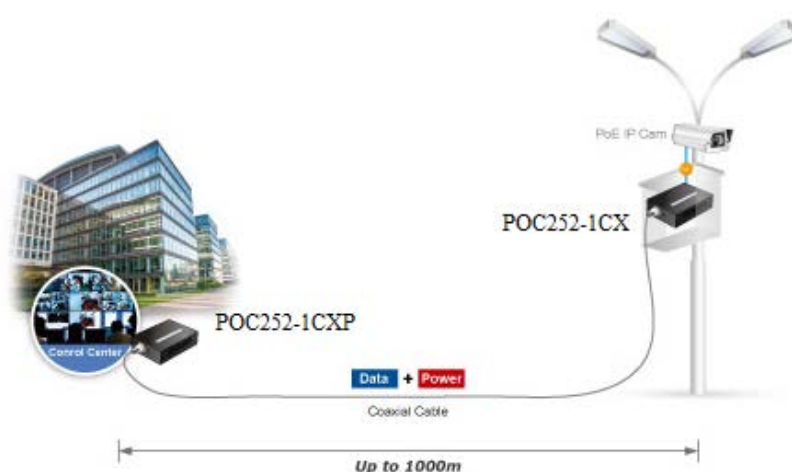
If any of these are missing or damaged, please contact your dealer immediately; if possible, retain the carton including the original packing material, and use them again to repack the product in case there is a need to return it to us for repair.

1.2. Introducing Long Reach Power over Ethernet

IFS POC252 series PoE over Coaxial Extender is designed to extend IP Ethernet transmission and inject power over an existing coaxial cable or for distance up to 1000m (3280ft) to PoE IP camera, PoE Wireless AP and any 802.3at device that complies with powered device (PD). It is perfect solution for sending IP Video links and power to remote PoE IP camera installation that are beyond the 100 meters distance limit of Ethernet.

Power over Coaxial Cable Application

The Long Reach PoE solution allows Ethernet Data and PoE or PoE+ to be transmitted using coaxial, UTP or twisted-pair cable. Based on IEEE 802.3at Power over Ethernet Plus and up to 25 watts of power output, IFS PoE extender solution eliminates the need for additional remote site power while allowing a single PoE source, such as a PoE network switch, to provide power to both POC Extenders and the camera at long range. This feature eliminates the need for local and remote site power supplies.



Stable Operating Performance under Difficult Environments

The POC252-1CXP and POC252-1CX extender is the perfect solution for extended distance data and power transmission for warehouses, parking lots, campuses, casinos, and many more. They can operate stably under temperature range from -10 to 60 degrees C which enables the users to conveniently apply the device in almost any location of the network.

1.3. Product Features

Physical Port

- 1 coaxial interface for output power and 1 10/100BASE-TX port supports IEEE 802.3at PoE PD (POC252-1CXP)
- 1 power jack supports 56V DC Power input (POC252-1CXP)
- 1 coaxial interface for input and 110/100BASE-TX port supports IEEE 802.3at PoE PSE (POC252-1CX)

Power over Ethernet

- Eliminates Power cabling with PoE over Coaxial
- Supports Power over Ethernet PSE, PoE Injector
- Power and Ethernet data transmission over coaxial up to 1km
- Complies with IEEE 802.3at Power over Ethernet PD on RJ45 port
- Supports Long Reach PoE power up to 30.8 watts (Vary on Power Source and Coaxial Distance)
- Supports PoE Power up to 25 watts (Vary on Power Source and Coaxial Distance)
- Auto detect remote powered device (PD)
- Plug and Play, no PC required

Industrial Case / Installation

- Supports extensive LED indicators for network diagnostics
- Metal case protection
- Compact size, DIN-rail and wall mount designed
- Power Input: External 56VDC input or 802.3at PoE power input from RJ45 port (POC252-1CXP)
- Power Input: PoC (Power over Coaxial) power input (POC252-1CX)
- Supports EFT protection 2000 VDC for power line
- Supports 2000 VDC Ethernet ESD protection
- -10 to 60 degrees C operating temperature

1.4. Product Specifications

1.4.1. POC252-1CXP-1T Specifications

Model		POC252-1CXP-1T / Long Reach PoE Injector					
Hardware Specifications							
Ethernet Interface	Copper	1 x 10/100BASE-TX RJ45 Auto-negotiation/ Auto-MDI/MDI-X					
	Power over Ethernet	IEEE 802.3at PoE PD (Powered Device) Input Range: 56V DC Supports both Mid-Span and End-Span PSE					
	Data Rate	100/100Mbps					
	Cabling	Cat5e or above					
	Maximum Distance	100m					
	Maximum Frame sizes	1522bytes					
Long Reach PoE Interface	Connectivity	1 x BNC female connector Long Reach PoE over coaxial PSE (Power Source Equipment) <ul style="list-style-type: none"> ■ BNC center pole : DC+ / Hi ■ BNC shield : DC - / Lo 					
	Power Output	41~56V DC (Depend on what is the DC/PoE Power Input and the length of coaxial cable)					
	Cabling	Coaxial cable: 75 ohm RG-6/U cable, less than 12Ω/1000 ft RG-59/U cable, less than 30Ω/1000 ft.					
	Maximum distance	Max. 1000M with PoE output (3,280ft.) Max. 1200M without PoE output (3,937ft.)					
	Long Reach Ethernet Standard	IEEE 1901					
	Modulation Type	Wavelet-OFDM					
	Security	128-bit AES encryption					
	Frequency Band	2 ~ 28 MHz					
	Performance	RG6 Cable Distance	Data Rate (Upload / Download)	POC252-1CX 802.3at PoE Output Capability			
				POC252-1CXP W/56V DC IN	POC252-1CX P W/30W PoE+ IN		
				200m	93 / 93 Mbps	29.9W	16.9W
				400m	92 / 93 Mbps	22.6W	14.3W
600m				88 / 92 Mbps	13.6W	10.2W	
800m				75 / 83 Mbps	10.6W	8.3W	
1000m	55 / 74 Mbps	8.6W	7.1W				
Multiple nodes	Supports up to 3 POC extenders within 1km (Depend on what is the DC/PoE Power Input and the length of coaxial cable)						
POC Compatibility	POC252-1CXP-1T with POC Extender						

LED Indicators	4 x LEDs <ul style="list-style-type: none"> ■ PWR ■ POC LNK ■ PoE In-use ■ LNK/ACT
ESD Protection	2KV DC
EFT Protection	2KV
Enclosure	Metal case
Installation	Wall mount or DIN rail with optional kit
Dimensions (W x D x H)	94 x 70 x 26 mm
Weight	200g
Power Requirements	<ul style="list-style-type: none"> ■ RJ45 PoE Input: 802.3at 56V DC ■ DC Input: 56V DC
Standards Conformance	
Standards Compliance	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3af Power over Ethernet (802.3at Type 1) IEEE 802.3at Power over Ethernet (802.3at Type 2)
Regulation Compliance	FCC Part 15 Class A, CE
Environment	
Temperature	Operating: -10~60 degrees C Storage: -40~75 degrees C
Humidity	Operating: 5~95% (Non-condensing) Storage: 5~95% (Non-condensing)

1.4.2. POC252-1CX-1P Specifications

Model		POC252-1CX-1P / Long Reach PoE Extender				
Hardware Specifications						
Ethernet Interface	Copper	10/100BASE-TX RJ45 Auto-negotiation/ Auto-MDI/MDI-X				
	PoE Standard	IEEE 802.3at PoE PSE (Power Source Equipment)				
	PoE Output	48~56V DC, 600mA max.				
	PoE Budget	Up to 25 watts				
	PoE Mode	End-span, RJ45 Pin 1/2(+), 3/6(-)				
	Data Rate	100/100Mbps				
	Cabling	Cat5e or above				
	Maximum Distance	100M				
	Maximum Frame sizes	1522bytes				
Long Reach PoE Interface	Connectivity	1 x BNC female Long Reach PoE over coaxial PD (Powered Device) <ul style="list-style-type: none"> ■ BNC center pole : DC+ / Hi ■ BNC shield : DC - / Lo 				
	Power Input	48~56V DC				
	Cabling	Coaxial cable: 75 ohm RG-6/U cable, less than 12Ω/1000 ft RG-59/U cable, less than 30Ω/1000 ft.				
	Maximum distance	Max. 1000M with PoE output (3,280ft.) Max. 1200M without PoE output (3,937ft.)				
	Long Reach Ethernet Standard	IEEE 1901				
	Modulation Type	Wavelet-OFDM				
	Security	128-bit AES encryption				
	Frequency Band	2 ~ 28 MHz				
	Encryption	AES 128-bit				
	Performance	RG6 Cable Distance*	Data Rate** (Upload / Download)	POC252-1CX 802.3at/at PoE Output Capability		
				POC252-1C XP w/56V DC IN	POC252-1C XP w/30W PoE+ IN	POC2502 w/56V DC
	200m	93 / 93 Mbps	29.9W	16.9W	22W	
	400m	93 / 92 Mbps	22.6W	14.3W	18W	
	600m	92 / 88 Mbps	13.6W	10.2W	15W	
	800m	83 / 75 Mbps	10.6W	8.3W	10W	
	1000m	74 / 55 Mbps	8.6W	7.1W	8W	
POC Compatibility	With power over coaxial input <ul style="list-style-type: none"> ■ POC252-1CXP-1T / 1-Port POC Injector ■ POC2502-8CX-2T-2S – 8-Port POC over Coax Switch ■ POC252-16CX-2T-2S –16-Port POC over Coax Switch 					

LED Indicators	4 x LEDs <ul style="list-style-type: none"> ■ PWR ■ LRP LNK ■ PoE In-use ■ LNK/ACT
ESD Protection	2KV DC
Enclosure	Metal case
Installation	Wall mount or DIN rail with optional kit
Dimensions (W x D x H)	94 x 70 x 26 mm
Weight	375g
Power Requirements	■ BNC Power over Coaxial Input: 48~56V DC
Standards Conformance	
Standards Compliance	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3af Power over Ethernet (802.3at Type 1) IEEE 802.3at Power over Ethernet (802.3at Type 2)
Regulation Compliance	FCC Part 15 Class A, CE
Environment	
Temperature	Operating: -10~60 degrees C Storage: -40~75 degrees C
Humidity	Operating: 5~95% (Non-condensing) Storage: 5~95% (Non-condensing)

* The actual data rate will vary on the quality of the coaxial cable and environment factors.

**Downstream means POC252-Injector to POC252-Extender data rate and Upstream is POC252-Extender to POC252-Injector data rate.

The actual data rate will vary on the quality of the coax cable as well as environmental factors. It is recommended that only the coax cable with the following properties is used.

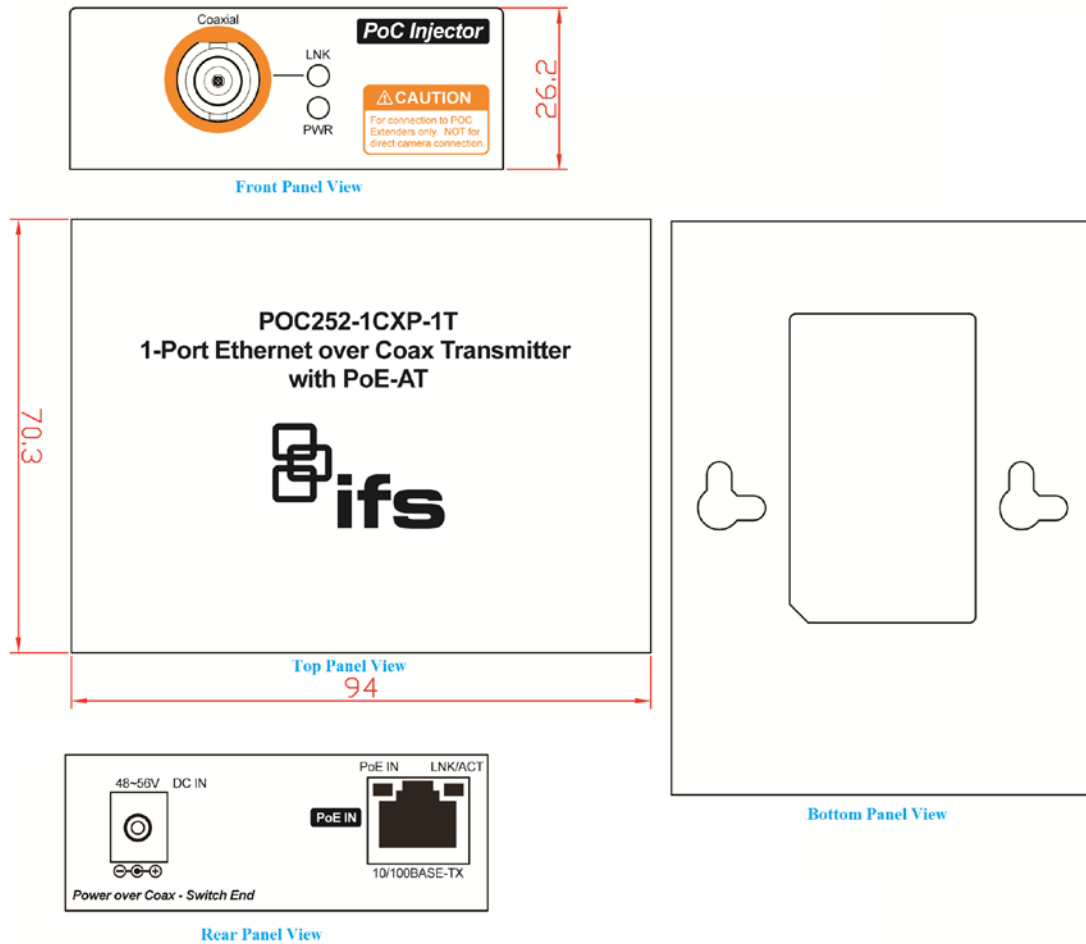
Coaxial Cable Type	
RG-59/U	Less than 30Ω/1000 ft.
RG-6/U	Less than 12Ω/1000 ft

2. HARDWARE DESCRIPTION

2.1. POC252-1CXP (Injector)

2.1.1. POC252-1CXP Physical Dimensions

- **POC252-1CXP-1T** dimensions (W x D x H): 94 x 70.3 x 39.2 mm



2.1.2. POC252-1CXP-1T Front Panel / Rear Panel

Figure 2-1 and Figure 2-2 show the front / rear panels of the POC252-1CXP Long Reach PoE over Coaxial Injector.



Figure 2-1: POC252-1CXP Front Panel



Figure 2-2: POC252-1CXP Rear Panel

2.1.3. POC252-1CXP LED Indicators

➤ **System**

LED	Color	Function	
PWR	Green	Lit	Power ON: PoE+ / PoE power input from RJ45 PoE PD port Power ON: 48~56V DC power input from DC jack
		Off	Power Off

➤ **LRP Coaxial Interface**

LED	Color	Function
LNK	Green	Lit: indicates that the coaxial link is established.
		Off: indicates that the coaxial link is down.

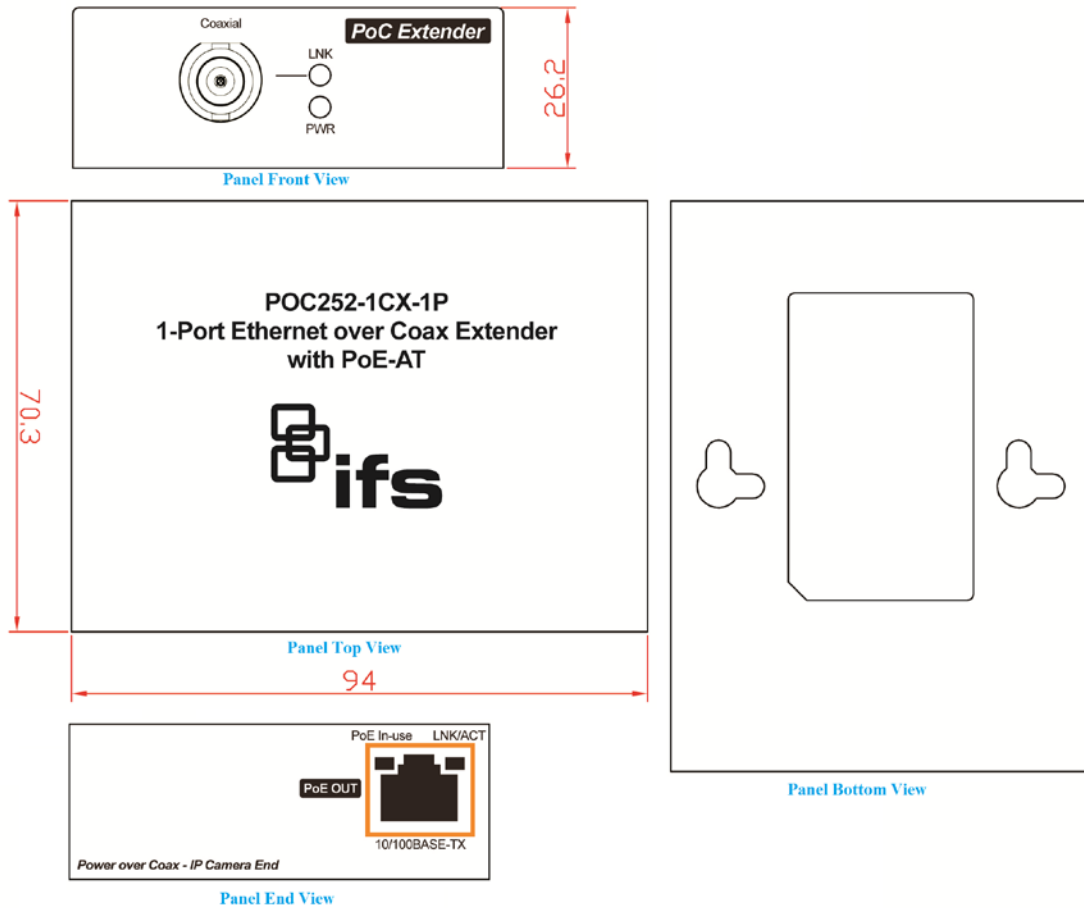
➤ **RJ45 10/100BASE-TX Interface**

LED	Color	Function
PoE IN	Amber	Lit: indicates the RJ45 port is receiving the PoE Power.
LNK/ACT	Green	Blink: indicates the extender is actively sending or receiving data over that port.

2.2. POC252-1CX (Extender)

2.2.1. POC252-1CX-1P Physical Dimensions

- **POC252-1CX-1P** dimensions (W x D x H): 94 x 70.3 x 39.2 mm



2.2.2. POC252-1CX Front Panel / Rear Panel

Figure 2-3 and Figure 2-4 show the front / rear panels of the POC252-1CX Long Reach PoE over Coaxial Extender.

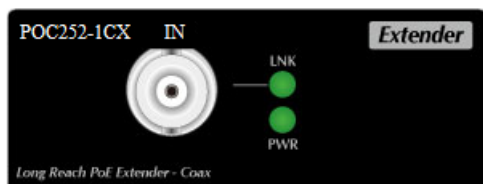


Figure 2-3: POC252-1CX Front Panel



Figure 2-4: POC252-1CX Rear Panel

2.2.3. POC252-1CX LED Indicators

➤ System

LED	Color	Function
PWR	Green	Lit: indicates the power is on.

➤ LRP Coaxial Interface

LED	Color	Function
LNK	Green	Lit: indicates that the coaxial link is established.
		Off: indicates that the coaxial link is down.

➤ RJ45 10/100BASE-TX Interface

LED	Color	Function
PoE In-Use	Amber	Lit: indicates the RJ45 Port is providing PoE power
LNK/ACT	Green	Blink: indicates the extender is actively sending or receiving data over that port.

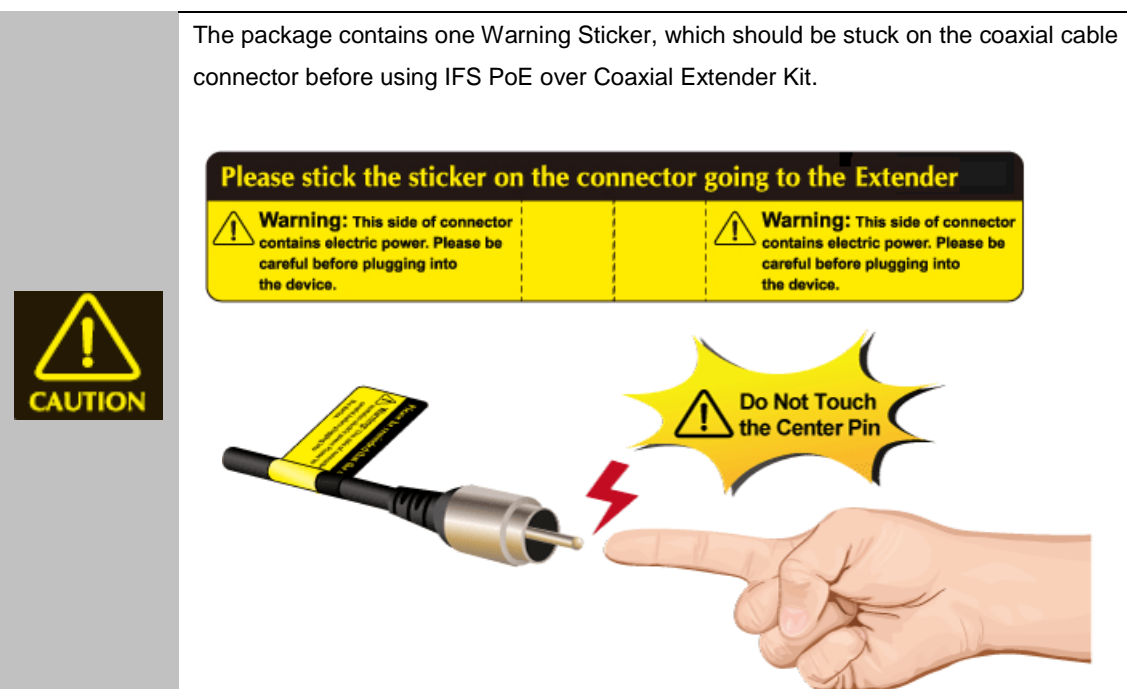
3. INSTALLATION

This section describes the functionalities of the POC252-1CXP/POC252-1CX components and guides you to how to install it on the desktop. Basic knowledge of networking is expected. Please read this chapter completely before continuing.

3.1. Installation Precautions

As the POC252-1CXP is power over coaxial injector, it only can work with IFS power over coaxial extender, the POC252-1CX. Please confirm that other Non-PoE equipment is not connected with the coaxial cable. When you connect the coaxial cable with coax-LAN converter, CCTV camera, etc, it might cause other equipment to damage. **DO NOT CONNECT DIRECTLY TO AN ANALOG CAMERA AS IT WILL DAMAGE THE CAMERA BY APPLYING VOLTAGE TO THE ANALOG OUTPUT.**

The package contains one Warning Sticker, which should be stuck on the coaxial cable connector before using IFS PoE over Coaxial Extender Kit.



3.2. Power options:

■ POC252-1CXP Injector

There are two ways to power the POC252-Injector

- Powered via PoE
- Powered via DC adapter

■ POC252-1CX

The POC252-Extender must be powered by the POC252-Injector or POE Switch

- POC252-1CX must be powered by the POC252-1CXP or POC2502 POC switch over the coaxial cable.

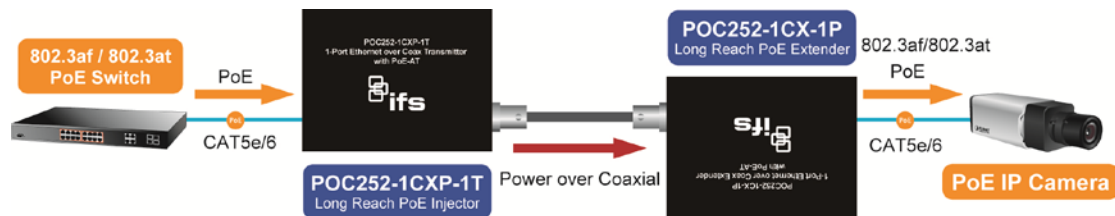


Please don't connect the POC252-Extender to a PoE PSE.

3.3. Applications of POC252-KIT with coaxial cable

Type 1 – One POC252-1CXP with PoE power input and one POC252-1CX with PoE power output

The POC252-Injector is powered via IEEE 802.3at PoE. An IEEE 802.3at compliant PoE PD will automatically be powered by the POC252-Extender via UTP.



Functions	POC252 Injector	POC252 Extender
	POC252-1CXP	POC252-1CX
Power Input	RJ45 with 802.3at PoE input	BNC with DC power over coaxial input
Power Output	BNC with DC power over coaxial output	RJ45 with 802.3at PoE output

Installation Instructions

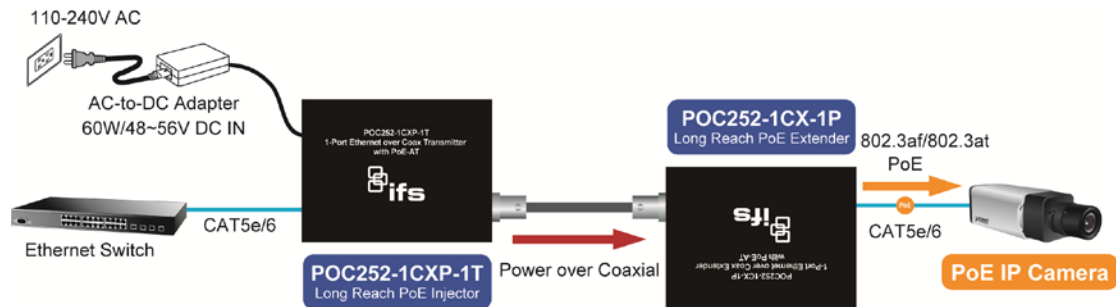
Step 1	Connect the POC252-Injector (POC252-1CXP) and POC252-Extender (POC252-1CX) to ends of BNC terminated coaxial cable. Stuck the "Warning Stacker" on the coaxial cable.
Step 2	Connect CAT5/6 UTP cable to POC252-1CXP and IEEE 802.3at compliant PoE Switch or PoE Injector. If the PoE switch or PoE injector is powered on already, then the PWR LED of POC252-1CXP and POC252-1CX should lit up immediately.
Step 3	Connect CAT5/6 UTP cable to POC252-1CX and IEEE 802.3at complied PoE IP camera or PoE Wireless AP.



The POC252-1CXP accepts IEEE 802.3at equipment for optimal power injection.
The other Non-standard PoE Power devices may cause the POC252-1CXP to be damaged.

Type 2 – One POC252-1CXP with 56V power adapter and one POC252-1CX with PoE power output

The POC252-Injector is powered via the external power adapter. The IEEE 802.3at compliant PoE PD will automatically be powered by the POC252-Extender via UTP.



	LRP Injector POC252-1CXP	LRP Extender POC252-1CX
Power Input	Power adapter with 48~56V DC in	BNC with DC power over coaxial input
Power Output	BNC with DC power over coaxial output	RJ45 with 802.3at PoE output

Installation Instructions

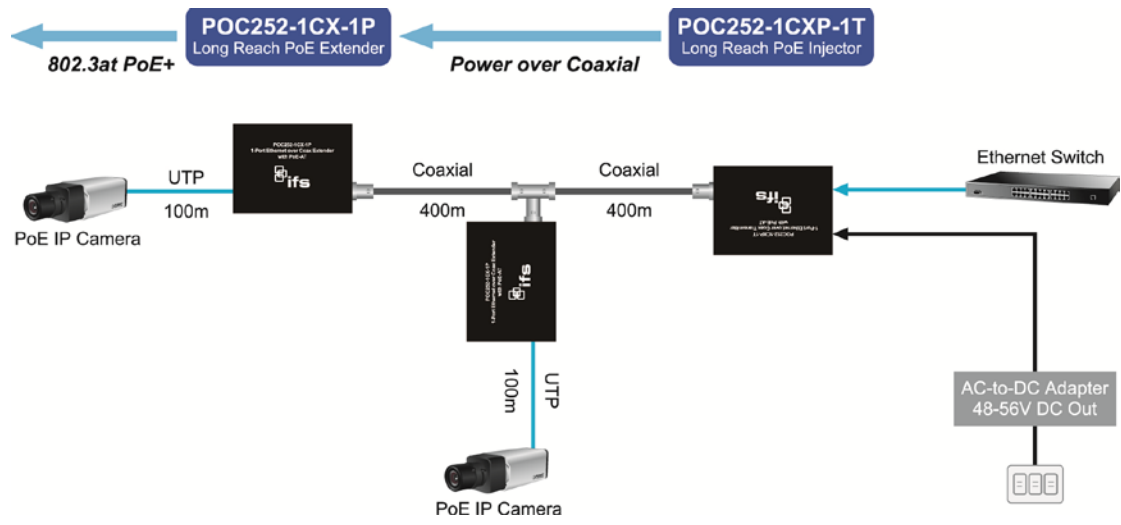
Step 1	Connect the POC252-Injector (POC252-1CXP) and POC252-Extender (POC252-1CX) to ends of BNC terminated coaxial cable. Stick the "Warning Sticker" on the coaxial cable.
Step 2	Connect CAT5/6 UTP cable to POC252-1CXP and non-PoE switch or workstation.
Step 3	Connect 48~56V DC power adapter to POC252-1CXP power socket, then the PWR LED of POC252-1CXP and POC252-1CX should lit up immediately.
Step 4	Connect CAT5/6 UTP cable to POC252-1CX and IEEE 802.3at complied PoE IP camera or PoE Wireless AP.



Note

- PoE output capacity is based on different DC Power Input / PoE Input.
- POC252-1CXP has two power input options; only one mode is available at one time. It cannot use PoE power input if power input of DC 52V or 56V is selected.

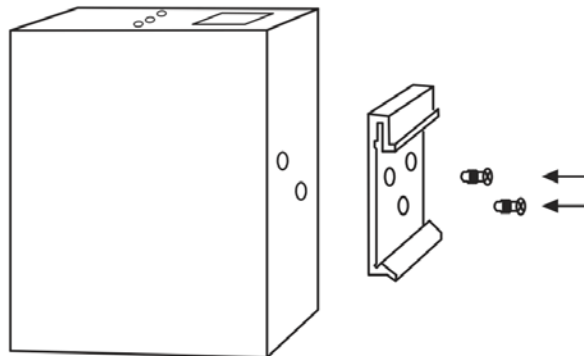
Type 2 – One POC252-1CXP with 56V power adapter and two POC252-1CX with PoE power output for two cameras.



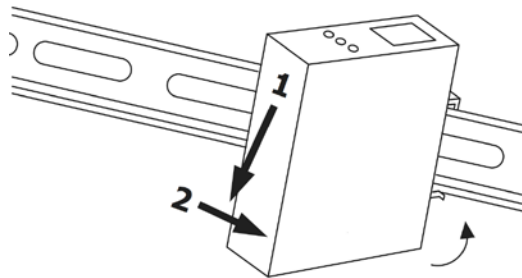
3.4. Optional - DIN-Rail Mounting

There are two DIN-Rail holes on the left side of the POC252-1CXP/POC252-1CX that allow the device can be easily installed with DIN-Rail mounting. The PLANET optional DIN-Rail mounting Kit – RKE-DIN can be order separately. When need to replace the wall mount application with DIN-Rail application on the POC252-1CXP/POC252-1CX, please refer to following figures to screw the DIN-Rail on the converter. To hang the POC252-1CXP/POC252-1CX, follow the below steps:

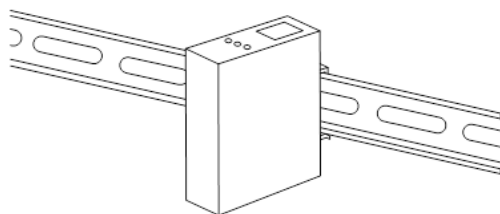
Step 1: screw the DIN-Rail on the POC252-1CXP/POC252-1CX.



Step 2: Lightly press the button of DIN-Rail into the track.



Step 3: Check the DIN-Rail is tightly on the track.



You must use the screws supplied with the mounting brackets. Damage caused to the parts by using incorrect screws would invalidate your warranty.

4. TROUBLESHOOTING

This chapter contains information to help you solve issues. If the POC252-1CXP/POC252-1CX is not functioning properly, make sure the POC252-1CXP/POC252-1CX is set up according to instructions in this manual.

The maximum distance support by POC252-1CXP/POC252-1CX

Solution:

1. The POC252-1CXP/POC252-1CX supports maximum distance of 1km (Data plus Power transmission).

What power source can used by POC252-1CXP?

Solution:

1. DC 56V power adapter.
2. DC 48V power adapter.
3. IEEE 802.3at High Power over Ethernet Switch.
4. IEEE 802.3af Power over Ethernet Switch.

The POC252-1CXP/POC252-1CX Performance is bad

Solution:

The actual data rate will vary on the quality of the coaxial / UTP cable and environment factors.

Make sure the BNC connector is in good condition.

If the BNC connector is loose it may affect performance with poor ground.

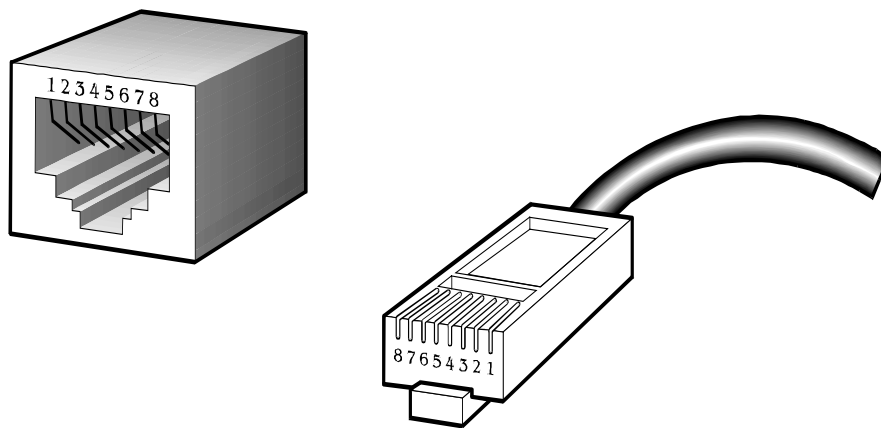
APPENDIX A: NETWORKING CONNECTION

A.1 Switch's RJ45 Pin Assignments

10/100Mbps, 10/100BASE-TX

RJ45 Connector pin assignment			
Contact	MDI Media Dependant Interface	MDI-X Media Dependant Interface-Cross	PoE
1	Tx + (transmit)	Rx + (receive)	Positive (VCC+)
2	Tx - (transmit)	Rx - (receive)	Positive (VCC+)
3	Rx + (receive)	Tx + (transmit)	Negative (VCC-)
4, 5	Not used		Not used
6	Rx - (receive)	Tx - (transmit)	Negative (VCC-)
7, 8	Not used		Not used

A.2 RJ45 Cable Pin Assignments



The standard RJ45 receptacle/connector

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

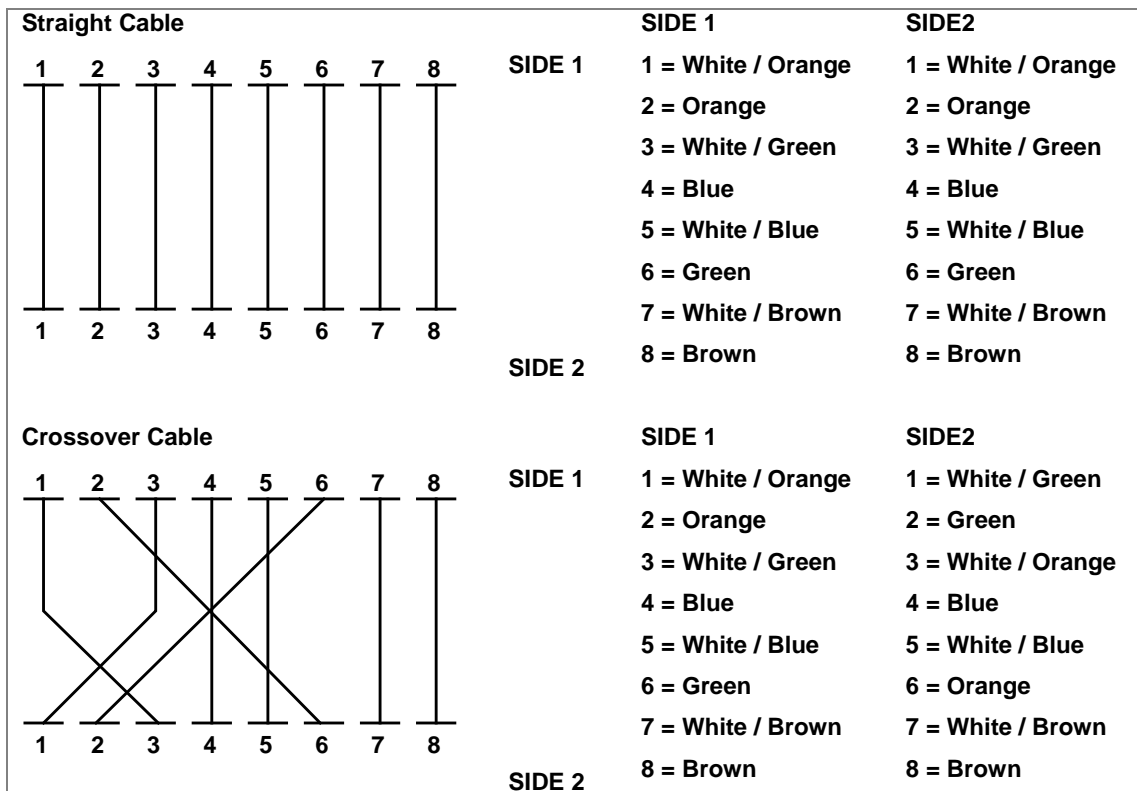


Figure A-1: Straight-through and Crossover Cable

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

Information on FAQ:

WWW.Interlogix.com

Customer Support:

WWW.Interlogix.com/support