Advantech AE Technical Share Document

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Category	■FAQ □ SOP	Related OS	N/A
Abstract	What is the difference between PoE Mode A and Mode B ?		
Keyword	Managed PoE Switch, PSE, PD, Active PoE, Passive PoE, Mid-Span, End-Span, Mode-A, Mode-B		
Related Product	EKI-7710E-2CP, EKI-7710E-2CPI, EKI-7710G-2CP, EKI-7710G-2CPI, EKI-7712E-4FP, EKI-7712E-4FPI, EKI-7712G-4FP, EKI-7712G-4FPI, EKI-7428G-4CPI, EKI-7659CPI, EKI-9312P, EKI-9316P		

■ **Problem Description:**

1. What kind of PoE mode of Advantech PoE managed switch ?

2. What is the difference between PoE Mode A and Mode B?

■ **Answer:**

The major difference of PoE Mode-A and Mode-B is power supply method on the twisted pair cable. **Mode-A (Active PoE, End-Span)** is a standard solution which power supply on twisted pair is DC+ Pin 1, Pin 2 and DC- Pin 3, Pin 6. **Mode-B (Passive PoE, Mid-Span)** is non-standard solution, the voltage transmission is on DC+ Pin 4, Pin 5 and DC- Pin 7, Pin 8 (Refer to **Fig.1**). Advantech PoE managed switch is a PSE and support Mode-A.

Therefore, passive PoE devices (like wireless AP) can't be powered through our PoE industrial switch, it should be powered with the proper Passive PoE Adapter or Injector (Refer to **Fig. 2 and Fig. 3**). The adaptor can convert Pin 1,2,3,6 to Pin 4,5,7,8, or Pin 4,5,7,8 to Pin 1,2,3,6.

Fig.1. Mode-A and Mode-B Comparison Table

Pins at switch	T568A color	T568B color	10/100 mode B, DC on spares		10/100 mode A, mixed DC & data	
Pin 1	White/green stripe	White/orange stripe	Rx +		Rx +	DC +
Pin 2	Green solid	Orange solid	Rx −		Rx −	DC +
Pin 3	White/orange stripe	White/green stripe	Tx +		Tx +	DC −
Pin 4	Blue solid	Blue solid		DC +	Unused	
Pin 5	White/blue stripe	White/blue stripe		DC +	Unused	
Pin 6	Orange solid	Green solid	Tx −		Tx −	DC −
Pin 7	White/brown stripe	White/brown stripe		DC −	Unused	
Pin 8	Brown solid	Brown solid		DC −	Unused	

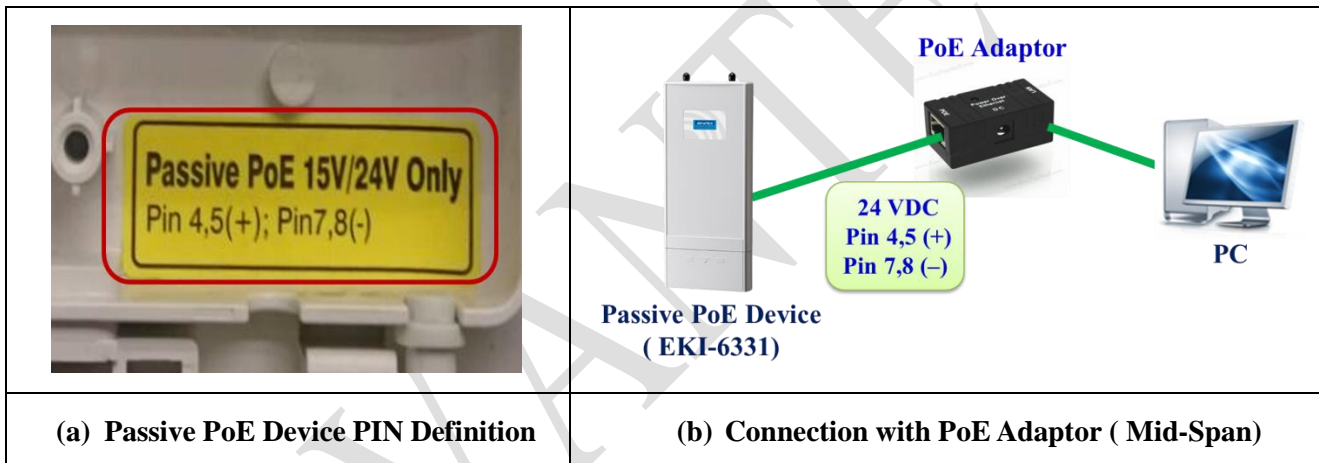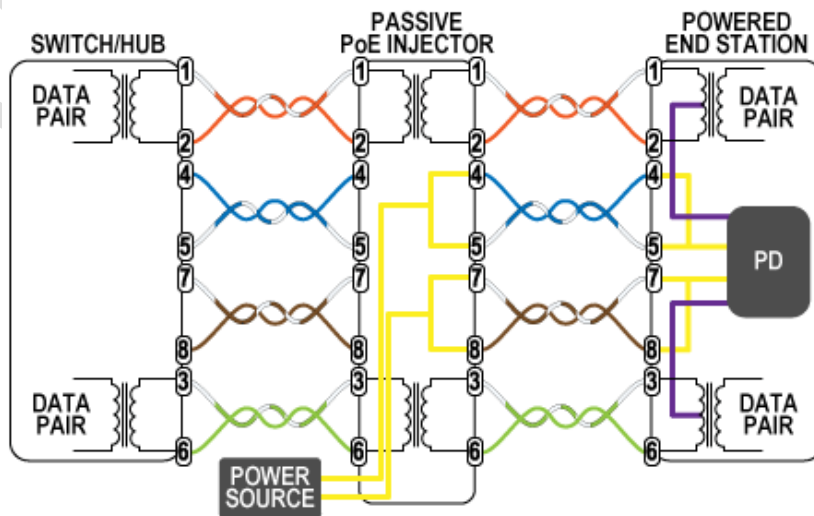| (a) Passive PoE Device PIN Definition	(b) Connection with PoE Adaptor (Mid-Span)

Fig.2. Connection of Passive PoE Device

Fig.3. Passive PoE Injector Circuit