

Advantech AE Technical Share Document

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Abstract	The PoE output power limitation of Advantech PoE switch.		
Keyword	Managed PoE Switch, PSE, PoE Output Power, Power Budget, IEEE 802.3af, IEEE 802.3at		
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. How much is the output power limitation of PoE managed switch on each port (EKI-7659CPI and EKI-7710-2CPI) ?
2. What is the meaning of power budget ?

■ **Answer:**

Advantech PoE managed switch is a power source equipment (**PSE**) that supplies power of network device (PD). Based on IEEE 802.3af and IEEE 802.3at which output power are different. IEEE 802.3af is less than 15.4W called PoE. And IEEE 802.3at is called PoE+ which output power is less than 30W. Limitation of output power is related with chip, **Table.1.** shows all PoE managed switches and corresponded value.

Table.1. PoE Managed Switch Model and Power Limitation

Model	Chip	Power Input	Output Power Limit	Power Budget
EKI-7710E-2CP EKI-7710E-2CPI EKI-7710G-2CP EKI-7710G-2CPI	Realtek	24~48VDC	30W/Port Configured	120W
EKI-7712E-4FP EKI-7712E-4FPI EKI-7712G-4FP EKI-7712G-4FPI	Realtek	48VDC	30W/Port Configured	240W

EKI-7428G-4CPI	Realtek	48VDC	30W/Port Configured	685W
EKI-7659CPI (EOL)	Marvell	48VDC	15.4W/Port Configured	NO
EKI-9312P	Broadcom	48VDC	30W/Port Configured	181.6W
EKI-9316P	Broadcom	48VDC	30W/Port Configured	272.4W

In Table.1. it is the maximum default value in output power limit. Users can configure it on the Web GUI “ Power over/of Ethernet “. Fig.1. shows the configuration on EKI-7428G-4CPI.

The screenshot shows the web GUI for EKI-7428G-4CPI-IE Intelligent Industrial Switch. The left sidebar has a 'Power of Ethernet' option highlighted with a red box and labeled '1.'. Below it, 'PoE Port Settings' is also highlighted with a red box and labeled '2.'. The main configuration area for 'PoE Port Settings' shows 'Port' set to 'GE2'. 'Power Switch' is 'Enabled' (radio button selected), and 'Power Limit From Classification' is also 'Enabled' (radio button selected), both highlighted with red boxes and labeled '3.'. 'Legacy Mode' is 'Enabled' and 'Priority' is 'Low'. The 'Power Limit' is set to '15400' mW, highlighted with a red box and labeled '4.'. An 'Apply' button is visible. Below the settings is a table titled 'PoE Port Config Information' with the following data:

Port	Switch State	Power Limit From Classification	Priority	Legacy Mode	Power Limit(W)
GE1	Enabled	Disabled	Low	Disabled	30.000
GE2	Enabled	Disabled	Low	Enabled	15.000
GE3	Enabled	Disabled	Low	Disabled	30.000

Fig.1. EKI-7428G-4CPI Power Limit Setting

■ **Power Budget:**

“ Power Budgets “ means pure for PoE power usage. Take EKI-7710G-2CPI as an example. Its power budget is 120W and the maximum PoE output power of each port is 30W. As users connect a Powered device which power consumption is 30W to EKI-7710G-2CPI, it can only connect 4 same PoE devices. Because total PoE output consumption has reached 120W, the fifth PoE device can not work if it connected to switch.