PoE extender over Cat

Power Cat-130

Power Cat-130TX **Power Cat-130RX**

Description:

This is a preliminary specification for "PoE extender over Cat" solution. This product can extract power from PoE switch or power injector and extend PoE transmission distance through Cat 5e or 6 Ethernet cable. For 10 and 100Mpbs, the PoE transmission distance can reach 300m and 200m individually.

Specification:

Model Number		POE Extender -Tx	POE Extender - Rx	
Interface				
Connector	Data Port	---	---	
	Power Port	---	---	
	Data+ Power Port	RJ-45 female connector (IN)1 RJ-45 female connector (OUT)	1 RJ-45 female connector (IN) 1 RJ-45 female connector (OUT)	
Cable		CAT 5e,CAT 6 Ethernet Cable		
Electrical				
Standard		IEEE 802.3af/at or Pre-at		
Speed/ Throughput		10/100Mbps for full duplexer		
Cable length connection		<100m to from PoE switch to Tx <100m from Rx to PD device		
Min transmission distance @ TX and RX		> 100m Cat 5e OR Cat 6 (Note 1)		
Transmission distance @ 10Mpbs		300m from Tx to Rx / 400m from Tx to device PS. 400m TX input operating voltage >= 48V		
Transmission distance @ 100Mpbs		200m from Tx to Rx / 300m from Tx to device		
Typical power available for 15.4W / 48V injection		>=7.5W @300m Tx-Rx		
Typical power available for 40W / 56V injection		>=22W @300m Tx-Rx		
BER for 100Mpbs		BER <= 2.5*10^-10 for 200m Cat5e BER <= 9.0*10^-12 for 200m Cat6		
Power operation range for PD device		55mA ~ (Power Injector Maximum current – 100mA)		
Power				
Powered by PoE		YES	YES	
Input Operating Voltage		44~57 VDC @ RJ-45 female connector	37~57 VDC @ RJ-45 female connector	

Ver. 0.1

Output Voltage	43~56 VDC @ RJ-45 female connector	36~56 VDC @ RJ-45 female connector	
Maximal operating current	<0.8A	<0.8A	Cable & power supply dependant
Power consumption	<=2.5 W	<=2.5W	

Mechanical			
Enclosure material	Aluminum alloy		
Dimension	84mm x 65 mm x 25 mm	84mm x 65 mm x 25 mm	Not include connector

Environment		
Operating temperature	-10 to +60degree C	
Operating Humidity	10~ 80%, Non-condensing	

Note : 1. Don't use crossover cables @ TX and RX

2. Reference Cat5e cable character:

Insertion loss: 22dB/100meter at 100MHz,

Crosstalk: 35.3dB/100Meter at 100MHz,
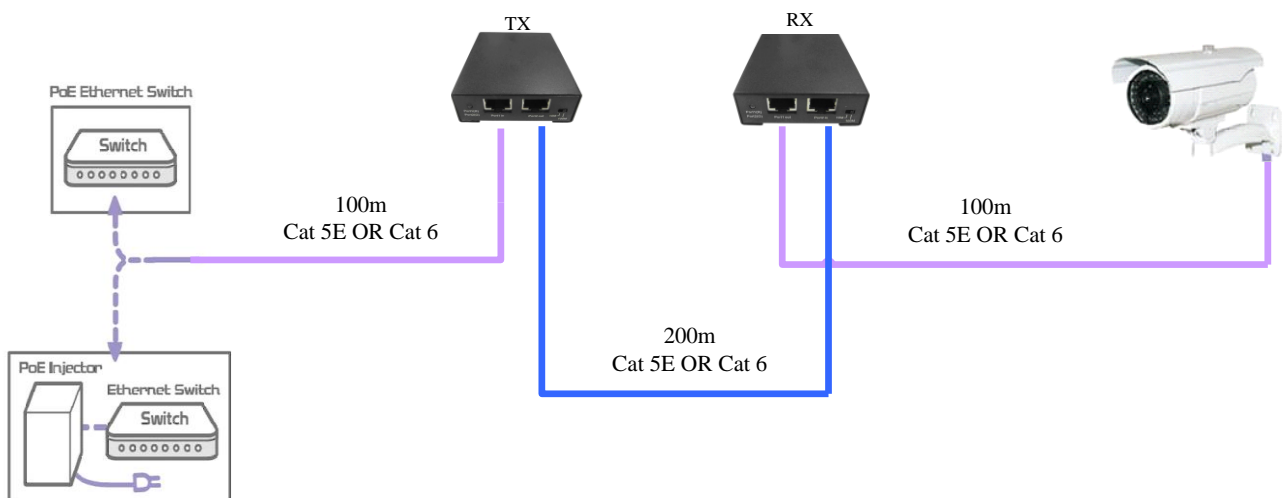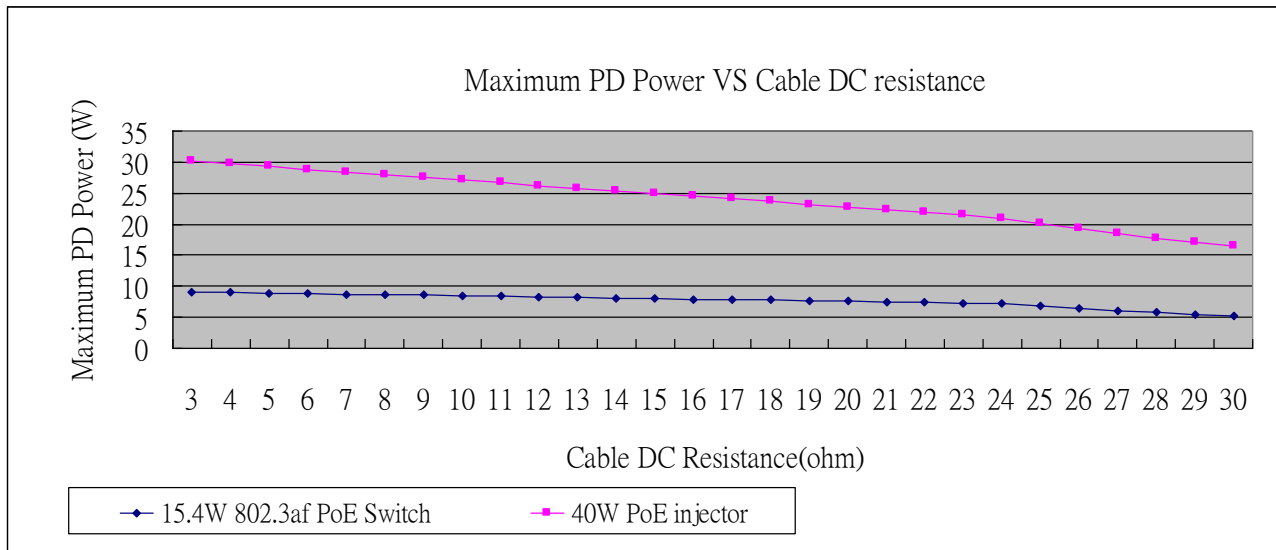
Impedance: 100Ω   +/-15%。

Application:

Fig. 1 Maximum PD power vs. cable dc resistance

1. Used 40W PoE power injector of PENT1040B5600F01 for test

2. 15.4W 802.3af SW: standard POE Switch, 48V/350mA.

3. Total DC cable resistance has to include 3 cables : PSE(PoE injector) to TX、TX to RX、RX to PD(IPCAM).

   The cable between TX and RX use 8lines to transmit power, so,

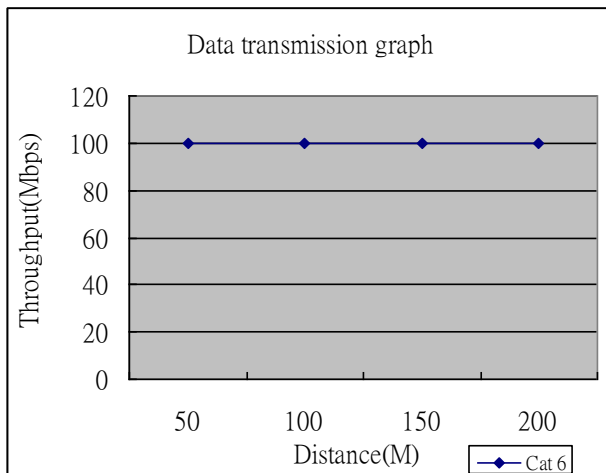   Typically, regular resistance of Cat 5E is 5 ohm/100m, (TATUNG CO.).

      Typically, regular resistance of Cat6 is 3.5 ohm/100m, (TATUNG CO.).

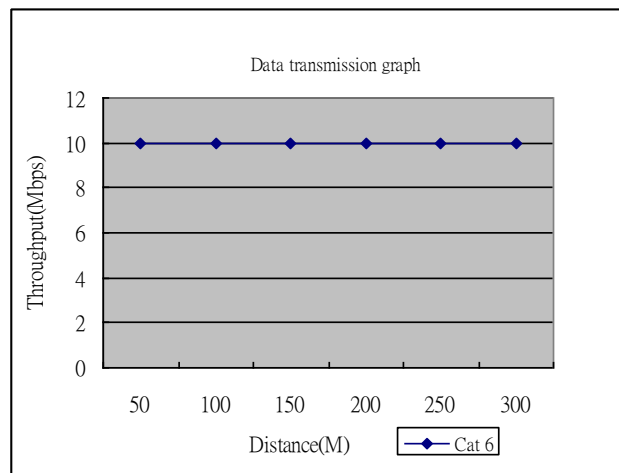   The cable between PSE and TX、RX to IPCAM use 4line to transmit power, so,

      Typically, regular resistance of Cat 5E is 10 ohm/100m, (TATUNG CO.).

      Typically, regular resistance of Cat6 is 7 ohm/100m, (TATUNG CO.).

Data transmission graph

100Mbps Throughput

10Mbps Throughput