PoE Extenders

PANDUIT®
SPECIFICATION SHEET

SPECIFICATIONS

The PoE Extenders shall deliver 10/100Mbps full duplex data at lengths up to 2000 ft. (610m) over standard 2 or 4-pair twisted-pair cable. They shall be capable of providing up to 25.5W PoE power per 802.3af and 802.3at specification at receiver output ports. The PoEXRX1 receiver shall be capable, when connected to ethernet switches and powered devices that support Cisco UPOE, of increasing power available to the powered device to more than 25.5W, and up to 50W. PoE power delivery capabilities shall be subject to wire gauge, wire construction, wire length, ambient temperature, power source ratings, and network topology. The PoE Extenders shall reduce the additional costs and disruptions associated with other products or solutions.

TECHNICAL INFORMATION

Part Number	Model Type	Dimensions LXWXH, in. (cm)	Weight, oz. (g)	Interface on both sides
POEXTX1	Transmitter	3.51 x 1.98 x 1.01 (8.91 × 5.03 × 2.57)	4.0 (114)	1 RJ45 port to 1 RJ45 port
POEXRX1	Receiver			
POEXTX1	Transmitter			
POEXRX4	Receiver	3.88 × 3.80 × 1.01 (9.86 × 9.66 × 2.57)	7.6 (214)	1 RJ45 port to 4 RJ45

Power consumption, Watts:	1.5
RoHS compliance:	Compliant
UL rating:	UL 60950-1
Data support capability:	Switch and End IP Device must both be capable of transmitting at the same data rate of either 10BASE-T (for 10Mbps) or 100BASE-TX (for 100Mbps)
PoE support capability:	End IP device must be IEEE 802.3af/at compliant
Operating temperature:	-40°F to 158°F (-40°C to 70°C)
Mean time before failure (MTBF):	20+ years
Humidity:	10% to 95% (non-condensing) at 35°C
Cable requirements:	Required: 24 AWG 2-pair Category 5e Recommended: 23 AWG 4-pair Category 6
Supported data rate:	10/100Mbps full duplex
Optional Power Supply:	The PoE Extenders will accept an optional power supply with an output of 55 VDC, 2 amperes (37 to 56 VDC required, 48 to 55 VDC recommended)
EMC:	Emission (Class A for POEXRX4 and Class B for POEXRX1 and POEXTX1) EN 55032:2012, FCC Part 15,EN 5021-4:2015 (POEXRX4, POEXRX1, and POEXTX1) Immunity: EN 55024:2010, EN 50121-4:2015 (POEXRX4, POEXRX1, and POEXTX1)
Safety:	CSA C22.2 No. 60950-1-07 2nd Ed 2014-10 IEC 60950-1:2005 + A1 + A2, EN 60950-1:2006 + A11 + A12 + A1 + A2

KEY FEATURES AND BENEFITS

Low cost of installation:	Significant cost savings compared to fiber cable and media convertors option or other options in the market
4-port option:	Can power and provide data for up to 4 IP devices in one cable run. Applicable for entry way applications to power cameras, access card readers and VoIP phones
Compatibility with existing PoE or non-PoE switches:	These extenders fit very easily into an existing infrastructure and help extend PoE over the standard 100 meters range

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PoE Extender Kits	
POEXKIT1: 1-port Extender Kit includes:	
1-port transmitter box:	1 × POEXTX1
1-port receiver box:	1 × POEXRX1
Power supply:	1 × 60 W, 55 V
PoE Extenders Kit, includes 1-port transmitter and receiver box, 60 W power:	POEXKIT1-NP
POEXKIT4: 4-port Extender Kit includes:	
1-port transmitter box:	1 × POEXTX1
4-port receiver box:	1 × POEXRX4
Power supply:	1 × 110 W, 55 V
PoE Extenders Kit, includes 1-port transmitter and receiver box, 110 W power supply, no power plug:	POEXKIT4-NP
PoE Patch Panel	
Long reach PoE extender rack:	POEXPANEL-BL
PoE Extender Transmitters	
1-port transmitter box:	POEXTX1
PoE Extender Receivers	
1-port receiver box	POEXRX1
4-port receiver box:	POEXRX4
Field-term Plugs	
Field-term Plug:	FP6X88MTG
UTP Copper Cable	
Cat6 outside plant, 1,000 ft. reel:	PUO6C04BL-CEG
Cat6 plenum, 1,000 ft. reel:	PUP6004BU-WLP
Cat6 riser, 1,000 ft.reel:	PUR6004BU-W
Cat6, UTP w/ TX6™ Modular Plugs:	UTPSP*Y
Tools and Accessories	
Termination Tool for FP6X88MTG:	EGJT-1
Power Cord, 3-pin, 10A, 2m,EC320-C13 to CEE 7/7 (EU):	C13CORD-F
Power Cord, 3-pin, 10A, 2m,IEC320-C13 to BS1363A (UK):	C13CORD-G
Power Cord, 3-pin, 10A, 2m,IEC320-C13 to GB2099 (China):	C13CORD-I
Power Cord, 3-pin, 10A, 2m, IEC320-C13 to GB2099 (Americas):	C13CORD-B
Power Supply 60 W C14M AC-55VDC 1.1A P2.1X5.5MM:	POWER-60W
Power Supply 110 W C14M AC-55VDC 2.0A P2.1X5.5MM:	POWER-110W
Power Supply 190 W C14M AC-55VDC 3.5A P2.1X5.5MM:	POWER-190W

KEY FEATURES AND BENEFITS (CONTINUED)

Uses standard twisted 4-pair cable:	Does not require the usage of specialized cables such as hybrid copper/fiber cables
RJ45 interface:	Utilizes standard RJ45 interfaces which makes it easy for field terminations of copper cable being used to transmit PoE
Individually serialized:	Marked with quality control number for future traceability
Doubles as PoE injectors:	Optional external power supply option helps to inject power into the channel when non-PoE switch is being used
Small profile:	Small size makes it fit into smaller spaces like a base of a light pole

APPLICATIONS

PoE extenders are best suited for providing power and 100Mbps data to IEEE 802.3af/at compliant devices such as cameras, VoIP phones, access card readers, PoE lights and others, at a distance beyond the standard 100m channel.

TERMS USED

2-pair:	In a PoE system, power is provided on only 2 of the Ethernet pairs of wires. Standards based systems use Mode A or Mode B, but not both.
4-pair:	In a PoE system, power is provided on all 4 of the Ethernet pairs of wires. Standards based systems will provide both Mode A and Mode B power delivery. Power loss in a 4-pair PoE system is usually half that in a 2-pair PoE system.
Class:	In a PoE system, powered devices (PDs) are specified by class, based on the power they consume, their under-voltage lockout (UVLO) and whether they are 2-pair or 4-pair devices.
Mode A:	In a PoE 2-pair system, power is supplied on Ethernet connector pins 12 and 36.
Mode B:	In a PoE 2-pair system, power is supplied on Ethernet connector pins 45 and 78.
Powered Device (PD):	In a PoE system, these devices draw power from the source, or PSE. Currently, there are up to eight “classes” of powered devices enumerated in the PoE standards.
Power Sourcing Equipment (PSE):	In a PoE system, this device transmits power to the system. Currently, there are four “types” of PSE enumerated in the PoE standards.
Under-Voltage Lockout (UVLO):	In power systems, this is the voltage threshold below which a device no longer operates. Most PoE systems have UVLO of about 30 volts. If the PoE voltage drops below 30V, the power devices (PDs) may stop operating.

POWER SUPPLY OPTIONS

Power supply options show the power available at the Powered Device (PD).

Scenario 1: 1-port (POEXTX1) Transmitter Box Powered by 50 W Power Sourcing Switch (assuming 55 VDC output).

PoE Class	Standard	Max Wattage at PD	Under Voltage Lockout at PD	PSE-TX1 - ft.	TX1 - RX1 - Cable Distance (ft.)		RX1 - PD - ft.
					23 AWG 1.04Ω/100 ft.	24 AWG 1.04Ω/100 ft.	
1	802.3af	3.84	37	50	2000	2000	50
2		6.49					
3		12.95			1791	1303	
4	802.3at	25.50	42		1257	914	
5	802.3bt	-	-		-	-	
6							

Scenario 2: 1-port transmitter (POEXTX1) locally powered (55Vdc output, Panduit POWER-60W). Turn off ethernet switch PoE power on extender ports.

PoE Class	Standard	Max Wattage at PD	Under Voltage Lockout at PD	SW - TX1 - m	TX1 - RX1 - Cable Distance (ft.)		RX1 - PD - ft.
					23 AWG 1.04Ω/100 ft.	24 AWG 1.04Ω/100 ft.	
1	802.3af	3.84	37	≤ 100	2000	2000	50
2		6.49					
3		12.95			1791	1303	
4	802.3at	25.50	42		1257	914	
5	802.3bt	-	-		-	-	
6							

Scenario 3: 1-port transmitter (POEXTX1) powered by 50W Power Sourcing Switch (assuming 55Vdc output) with 1-port receiver (POEXRX1) locally powered (55Vdc output, Panduit POWER-60W).

PoE Class	Standard	Max Wattage at PD	Under Voltage Lockout at PD	PSE - TX1 - ft.	TX1 - RX1 - Cable Distance (ft.)		RX1 - PD - m
					23 AWG 1.04Ω/100 ft.	24 AWG 1.04Ω/100 ft.	
1	802.3af	3.84	37	50	2000	2000	≤ 100
2		6.49					
3		12.95					
4	802.3at	25.50	42				
5	802.3bt	-	-		-	-	
6	802.3bt						

Scenario 4: 1-port transmitter (POEXTX1) powered by 50W Power Sourcing Switch (assuming 55Vdc output) with 1-port receiver (POEXRX1) locally powered (55Vdc output, Panduit POWER-60W).

PoE Class (4-port)	Standard	Total Wattage Availabe for PD(s)*	Under Voltage Lockout at PD	PSE - TX1 - ft.	TX1 - RX4 - Cable Distance (ft.)		RX4 - PD(s) - ft.
					23 AWG 1.04Ω/100 ft.	24 AWG 1.04Ω/100 ft.	
1	802.3af	15.36	37	50	2000	2000	50
2		25.96	37		1791	1303	
3		-	-		-	-	
4							
5	802.3bt						
6							

Scenario 5: 1-port transmitter (POEXTX1) locally powered (55Vdc output, Panduit POWER-60W). Turn off ethernet switch PoE power on extender ports.

PoE Class (4 ports)	Standard	Total Wattage Availabe for PD(s)*	Under Voltage Lockout at PD	SW - TX1 - m	TX1 - RX4 - Cable Distance (ft.)		RX4 - PD(s) - ft.
					23 AWG 1.04Ω/100 ft.	24 AWG 1.04Ω/100 ft.	
1	802.3af	15.36	37	≤ 100	2000	2000	50
2		25.96			1791	1303	
3		-	-		-	-	
4							
5	802.3bt						
6							

Scenario 6: 1-port transmitter (POEXTX1) powered by 50W Power Sourcing Switch (assuming 55Vdc output) with 4-port receiver (POEXRX4) locally powered (55Vdc output, Panduit POWER-110W)

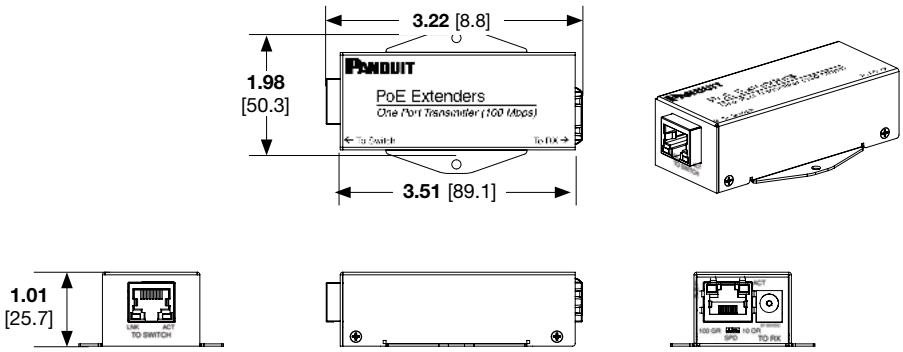
PoE Class (4 ports)	Standard	Total Wattage Available for PD(s)*	Under Voltage Lockout at PD	PSE - TX1 - ft.	TX1 - RX4 - Cable Distance (ft.)		RX4 - PD(s) - ft
					23 AWG 1.04Ω/100 ft.	24 AWG 1.04Ω/100 F	
1	802.3af	15.36	37	50	2000	2000	50
2		25.96					
3		51.8					
4		102.0	42				
5	802.3bt	-	-		-	-	
6							

* Total wattage available refers to the amount of power available to all connected PDs. 25.96W available can power four Class 1 PDs (3.84W each x 4 = 15.36W) , or three Class 2 PDs (6.49W each x 3 = 19.47W) or two Class 2 PDs (12.95W each x 2 = 25.9W). Different PD classes can be mixed on the POEXRX4 if total PD power never exceeds the “Total wattage available” and no PD draws more than 25.5Watts

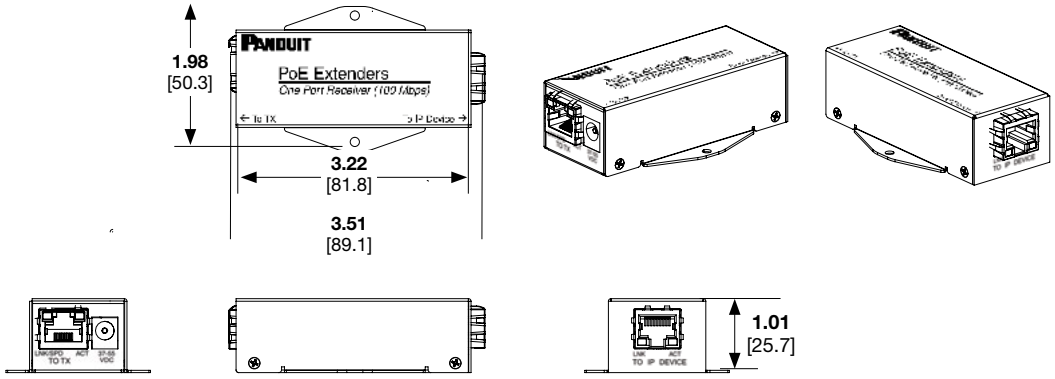
PoE Extenders

ENGINEERING DRAWINGS

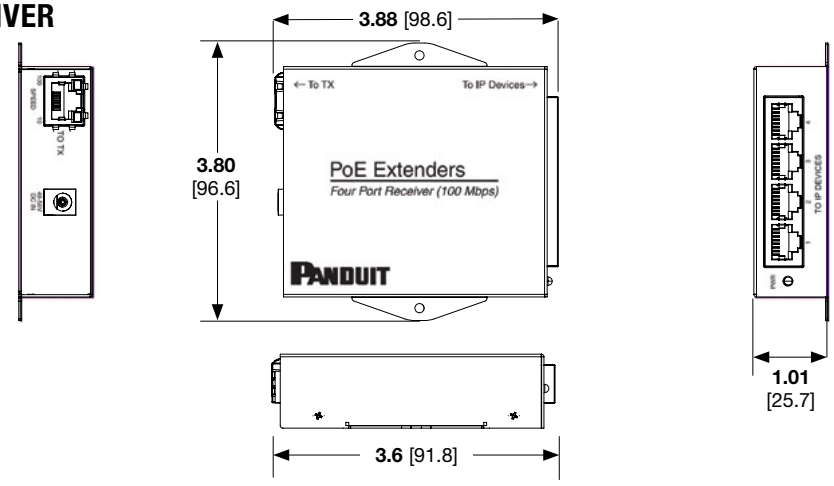
1-PORT TRANSMITTER



1-PORT RECEIVER



4-PORT RECEIVER



Dimensions are in inches. [Dimensions in brackets are metric].

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