PoE Extenders

specifications

The PoE Extenders shall deliver 10/100Mbps full duplex data and shall deliver up to 50 W PoE at lengths up to 2000 ft. (610m) over standard 2-or 4-pair twisted-pair cable. The PoE Extenders shall reduce the additional costs and disruptions associated with other products or solutions.

technical information

Part Number	POEXTX1	POEXRX1
Model type:	Transmitter	Receiver
Dimensions:	3.51" × 1.98" × 1.01" (L×W×H) 8.91cm × 5.03cm × 2.57cm (L×W×H)	
Weight:	4 oz. (114g)	
Interface on both sides:	1 RJ45 port to 1 RJ45 port	
Power consumption:	1.5 W	
RoHS compliance:	Compliant	
UL rated:	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)	

Part Number	POEXTX1	POEXRX4
Model type:	Transmitter	Receiver
Dimensions:	3.51" × 1.98" × 1.01" (L×W×H) 8.91cm × 5.03cm × 2.57cm (L×W×H)	3.88" × 3.80" × 1.01" (L×W×H) 9.86cm × 9.66cm × 2.57cm (L×W×H)
Weight:	4 oz. (14g)	7.6 oz. (214g)
Interface on both sides:	1 RJ45 port to 1 RJ45 port	1 RJ45 port to 4 RJ45 ports
Power consumption:	1.5 W	
RoHS compliance:	Compliant	
UL rated:	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)	

PoE length and guidelines, see tables located on page 2 of specification sheet.

PoE Extender Kits

POEXKIT1: 1-port Extender Kit includes:

1 × POEXTX1:	1-port transmitter box
1 × POEXRX1:	1-port receiver box
1 × 60 W, 55 V:	Power supply
POEXKIT1-NP:	PoE Extenders Kit, includes 1-port transmitter and receiver box, 60 W power supply, no power plug

POEXKIT4: 4-port Extender Kit includes:

1 × POEXTX1:	1-port transmitter box
1 × POEXRX4:	4-port receiver box
1 × 110 W, 55 V:	Power supply
POEXKIT4-NP:	PoE Extenders Kit, includes 1-port transmitter and receiver box, 110 W power supply, no power plug

PoE Patch Panel

POEXPANEL-BL:	Long Reach PoE Extender Rack, Black

PoE Extender Transmitters

POEXTX1:	1-port transmitter box

PoE Extender Receivers

POEXRX1:	1-port receiver box

Field-term Plugs

RJ45 Plug, 4-pair, Category 5e, 6, 6A compatible:	FP6X88MTG

UTP Copper Cable

PUO6C04BL-CEG:	Category 6 Outside plant (OSP), 1,000 ft. Reel
PUP6004BU-WLP:	Category 6 Plenum (CMP), 1,000 ft. Reel
PUR6004BU-W:	Category 6 Riser (CMR), 1,000 ft. Reel

UTP Patch Cord

UTPSP*Y:	Category 6, UTP with TX6™ Modular Plugs

Tools and Accessories

EGJT-1:	(for FP6X88MTG)
C13CORD-F:	Power Cord, 3-pin, 10A, 2m, IEC320-C13 to CEE 7/7 (EU)
C13CORD-G:	Power Cord, 3-pin, 10A, 2m, IEC320-C13 to BS1363A (UK)
C13CORD-I:	Power Cord, 3-pin, 10A, 2m, IEC320-C13 to GB2099 (China)
C13CORD-B:	Power Cord, 3-pin, 10A, 2m, IEC320-C13 to GB2099 (Americas)
POWER-60W:	Power Supply 60 W C14M AC-55VDC 1.1A P2.1X5.5MM
POWER-110W:	Power Supply 110 W C14M AC-55VDC 2.0A P2.1X5.5MM
POWER-190W:	Power Supply 190 W C14M AC-55VDC 3.5A P2.1X5.5MM

*For lengths 1 to 20 feet (increments of one foot) and 25, 30, 35, 40 feet, change the length designation in the part number to the desired length.

For standard cable colors other than Off White, add suffix BL (Black), BU (Blue), GR (Green), RD (Red), YL (Yellow), OR (Orange) or VL (Violet) before the Y at the end of the part number.

For example, the part number for a blue 15-foot patch cord is UTPSP15BUY.

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 100m range
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.

additional specifications

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

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 Lock Out: (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.

p o w e r   s u p p l y   o p t i o n s

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	TX1 - RX1 - Cable Distance (Ft.)		RX1 - PD
					23 AWG 1.04Ω/100 Ft.	24 AWG 1.43Ω/100 Ft.	
1	802.3af	3.84	37	50 ft.	2000	2000	50 ft.
2	802.3af	6.49	37		2000	2000	
3	802.3af	12.95	37		1791	1303	
4	802.3at	25.5	42		1257	914	
5	802.3bt	N/A	N/A		N/A	N/A	
6	802.3bt	N/A	N/A		N/A	N/A	

Scenario 2: 1-port (POEXTX1) Transmitter Box Locally Powered (55 VDC output)

PoE Class	Standard	Max Wattage at PD	Under Voltage Lockout at PD	SW - TX1	TX1 - RX1 - Cable Distance (Ft.)		RX1 - PD
					23 AWG 1.04Ω/100 Ft.	24 AWG 1.43Ω/100 Ft.	
1	802.3af	3.84	37	Up to 100m	2000	2000	50 ft.
2	802.3af	6.49	37		2000	2000	
3	802.3af	12.95	37		1798	1303	
4	802.3at	25.5	42		1263	915	
5	802.3bt	N/A	N/A		N/A	N/A	
6	802.3bt	N/A	N/A		N/A	N/A	

Scenario 3: 1-port (POEXRX1) Receiver Box Locally Powered (PoE Switch at head end)

PoE Class	Standard	Max Wattage at PD	Under Voltage Lockout at PD	PSE - TX1	TX1 - RX1 - Cable Distance (Ft.)		RX1 - PD
					23 AWG 1.04Ω/100 Ft.	24 AWG 1.43Ω/100 Ft.	
1	802.3af	3.84	37	50 ft.	2000	2000	50 ft.
2	802.3af	6.49	37		2000	2000	
3	802.3af	12.95	37		2000	2000	
4	802.3at	25.5	42		2000	2000	
5	802.3bt	40	42		2000	2000	
6	802.3bt	N/A	N/A		N/A	N/A	

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

PoE Class (4-ports)	Standard	Total Wattage Availabe for PD(s)*	Under Voltage Lockout at PD	PSE - TX1	TX1 - RX4 - Cable Distance (Ft.)		RX4 - PD(s)
					23 AWG 1.04Ω/100 Ft.	24 AWG 1.43Ω/100 Ft.	
1	802.3af	15.36	37	50 ft.	2000	2000	50 ft.
2	802.3af	25.96	37		1791	1303	
3	802.3af	N/A	N/A		N/A	N/A	
4	802.3af	N/A	N/A		N/A	N/A	
5	802.3bt	N/A	N/A		N/A	N/A	
6	802.3bt	N/A	N/A		N/A	N/A	

*Total wattage available refers to the maximum amount of power available at the PD. For example, in Class 2 scenario above which shows 25.96 W available this can support four Class 2 devices or two Class 3 devices.

Scenario 2: 1-port (POEXTX1) Transmitter Box Locally Powered (55 VDC output)

| PoE Class (4 ports)	Standard	Total Wattage Availabe for PD(s)*	Under Voltage Lockout at PD	SW - TX1	TX1 - RX4 - Cable Distance (Ft.)		RX4 - PD(s)
					23 AWG 1.04Ω/100 Ft.	24 AWG 1.43Ω/100 Ft.	
1	802.3af	15.36	37	Up to 100m	2000	2000	50 ft.
2	802.3af	25.96	37		1798	1303	
3	802.3af	N/A	N/A		N/A	N/A	
4	802.3af	N/A	N/A		N/A	N/A	
5	802.3bt	N/A	N/A		N/A	N/A	
6	802.3bt	N/A	N/A		N/A	N/A	

*Total wattage available refers to the maximum amount of power available at the PD. For example, in Class 2 scenario above which shows 25.96 W available this can support four Class 2 devices or two Class 3 devices.

Scenario 3: 4-port (POEXRX4) Receiver Box Locally Powered (PoE Switch at head end)

PoE Class (4 ports)	Standard	Total Wattage Available for PD(s)*	Under Voltage Lockout at PD	PSE - TX1	TX1 - RX4 - Cable Distance (Ft.)		RX4 - PD(s)
					23 AWG 1.04Ω/100 Ft.	24 AWG 1.43Ω/100 Ft.	
1	802.3af	15.36	37	50 ft.	2000	2000	50 ft.
2	802.3af	25.96	37		2000	2000	
3	802.3af	51.8	37		2000	2000	
4	802.3af	102	42		2000	2000	
5	802.3bt	N/A	N/A		N/A	N/A	
6	802.3bt	N/A	N/A		N/A	N/A	

*Total wattage available refers to the maximum amount of power available at the PD. For example, in Class 2 scenario above which shows 25.96 W available this can support four Class 2 devices or two Class 3 devices.
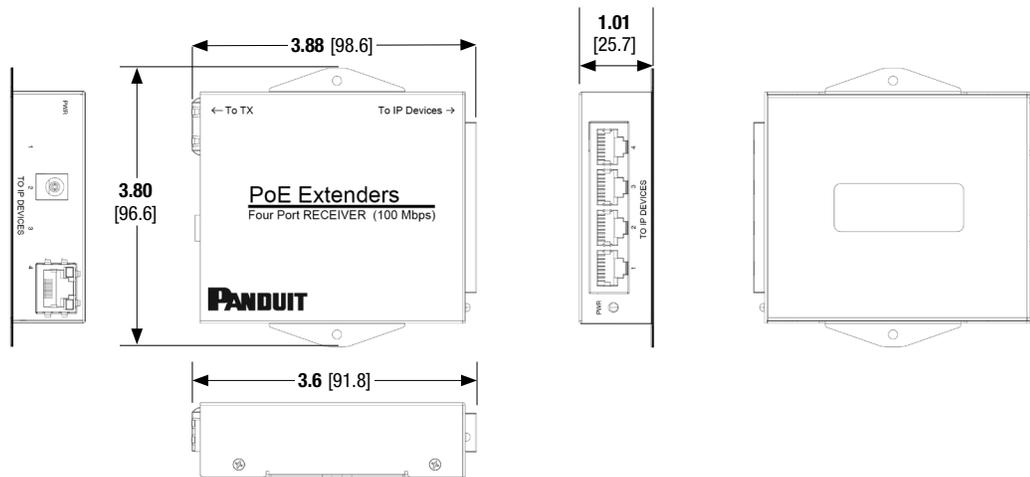
PoE Extenders

1-port transmitter
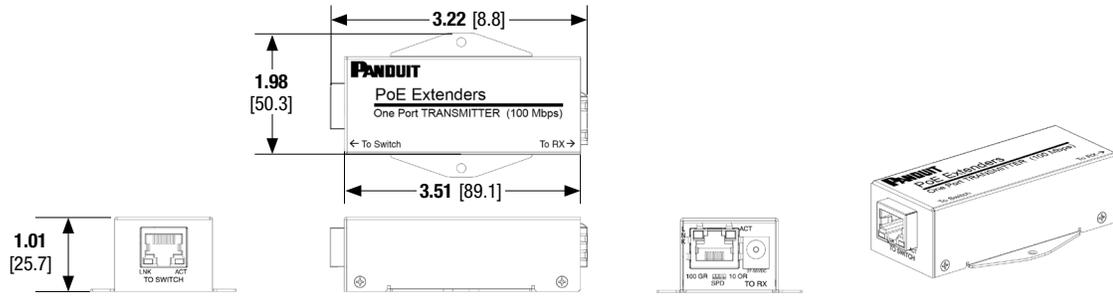
1-port receiver
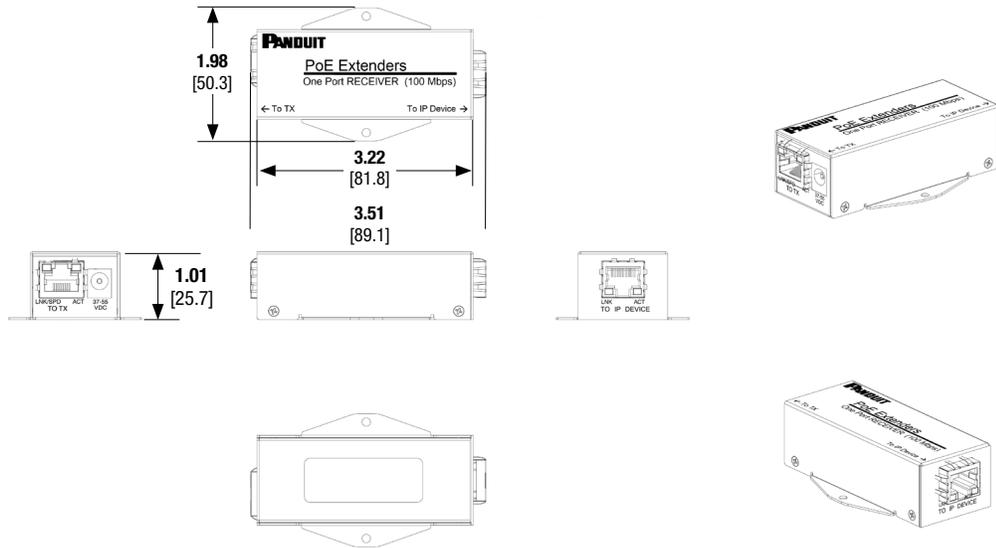
4-port receiver

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

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