

Ethernet Bridge Powering Options | PEBC Model



Introduction

The Ethernet Bridge Series are devices that transmit and receive Ethernet signals over coax cable for distribution throughout a residence. This avoids the costly expense of rewiring the residence with Ethernet cables.

To provide installation flexibility, the PEBC model of the Ethernet Bridge can be powered in a number of ways. These are:

- Multiple PEBC's can be remotely powered over coax from a central power splitter/insertor and power supply
- Individual PEBC's can be remotely powered over coax using a power insertor and power supply
- Individual PEBC's can be locally powered using a wall/outlet mount power supply

While PPC recommends the PEBC be powered over coax from a central splitter/power insertor, there may be circumstances where other powering options may need to be used. Each of these powering options will be discussed in depth below.

Remote powering over coax from a centrally located power splitter/insertor:

Remotely powering the PEBC is preferred as it removes the power supply from the main household and places it in a secure location that is isolated and cannot be easily disturbed. This approach also uses a centrally-located power splitter/insertor that adds power to the coax, provides short-circuit protection to each connection and combines or splits the high-frequency Ethernet over coax signals.

3-way and 6-way Power Splitters

PPC offers two different power splitters: A 3-way (PN: PPC4PS73B1P) and a 6-way (PN: PPC7PS76B1P). These operate similarly to standard cable TV splitters because they are able to split and combine signals from 5 – 1675MHz. They can also use one power supply to provide power to multiple PEBCs. The 3-way can provide power and signals to three PEBCs, while the 6-way can provide power and signals to six PEBCs. It is possible to connect these splitters into larger configurations.

Both the 3-way and the 6-way ensure network integrity by providing short-circuit protection at each output. If a short circuit happens on any coax cable connected to a power splitter output, the output will automatically be isolated from the powering circuit, keeping the other PEBCs powered and connected. If a short circuit occurs on any output, remove the short and leave the output disconnected for five seconds before reconnecting. This allows the output circuit to be reset. **DO NOT TERMINATE UNUSED PORTS** as the DC on the port will burn out the terminating resistor.



The 3-way and the 6-way splitters can be installed into larger hubs to connect several PEBCs. Select the correct power supply to match the power requirements needed. Each connected PEBC can draw up to 2 Watts of power. If three PEBCs are connected to one 3-way, a 15VDC supply - capable of providing 6 Watts of power minimum - must be used. Similarly, if six PEBCs are connected to one 6-way, a 15VDC supply - capable of providing 12 Watts of power - must be used.

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Remote powering over coax from a centrally located power splitter/inserter:

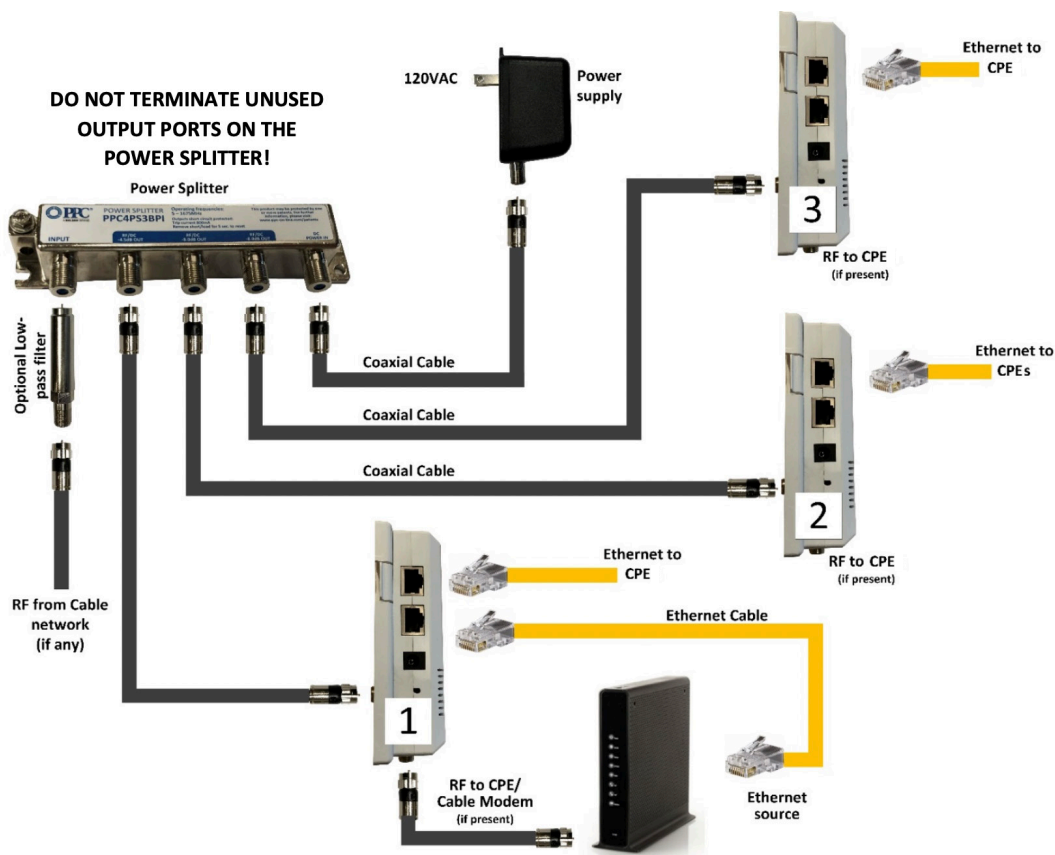
6.75 Watt and 22.5 Watt Power Supplies

PPC offers two wall mount power supplies that utilize an F-connector to deliver power. Both have a 120VAC input and a 15VDC output. The 6.75 Watt power supply (PN: PPC-PS15450) can power up to three PEBCs and provides a 15VDC 450mA output. The 22.5 Watt power supply (PN: PPC-PS151500) can power up to 11 PEBCs and provides a 15VDC 1.5A output.

Installation Using a 3-way Power Splitter

The below diagram shows how three PEBCs can be powered via one 3-way splitter and one PPC-PS15450 power supply. This installation could be used in two example scenarios: (1) in a single subscriber's residence where Ethernet is shared across the household; (2) in a two-unit MDU where PEBC #1 would be located at a central location and PEBCs #2 and #3 would serve two residential units.

The 6-way splitter could be connected similarly to serve more residential units with Ethernet services. A larger power supply (PN: PPC-PS151500) would need to be used. Please consult with PPC for information on connecting larger groups of PEBCs. **DO NOT TERMINATE UNUSED PORTS** as the DC on that port will burn out the terminating resistor.



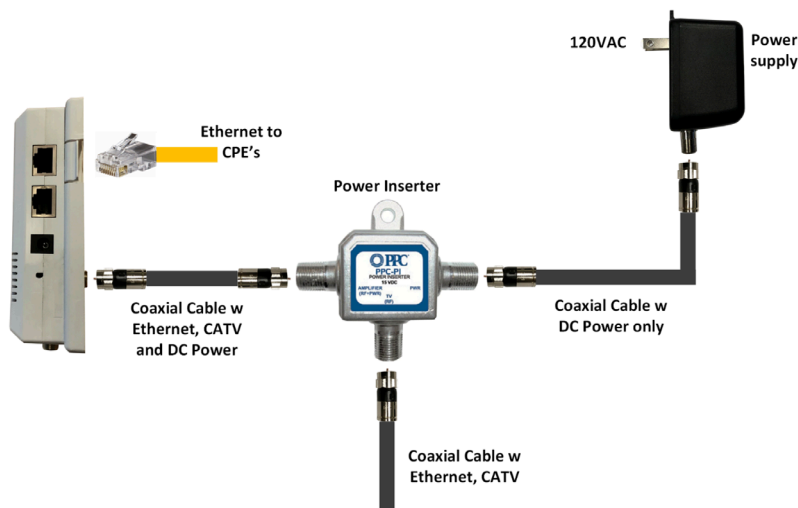
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Remote powering over coax using a power inserter and power supply:

Sometimes powering over coax may not be possible because of an inaccessible splitter or another device that blocks power from being sent over a coax cable. If the connecting coax is accessible prior to attaching to a PEBC, power can be added to the coax by using a power inserter and power supply. CATV technicians may be familiar with this method because it's similar to the technique used to power some in-home amplifiers.

In the example below, we are using one PPC power inserter (PN: PPC-PI) and a PPC 15VDC 6.75W power supply (PN: PPC-PS15450) to power the PEBC.



Locally powering using a wall mount DC supply with a 5.5x2.1mm connector:

Powering over coax may not always be possible. This could be due to an inaccessible splitter or other device that blocks power from being sent down a coax.

Another way to provide power to a PEBC when coax power cannot be used is to provide power locally. A 12–15VDC power supply capable of providing at least 2 Watts of power that has a 5.5x2.1mm DC connector (positive center) can be used to power the PEBC. If local power is provided and the PEBC is getting power over coax at the same time, no damage will occur. The PEBC will draw power from the source with the highest voltage.

In the example below, one 12–15VDC wall mount power supply is being used to power the PEBC.

