





### **Table of Contents**

1. Overview	3
2. Required Items	3
3. Installing the Power Splitter and Power Supply	3
4. Installing the First PEBC Module	4
5. PEBC Mounting	4
6. PEBC Dismounting	4
7. PEBC Connections And Indicators	5
8. Connecting Additional PEBC Modules	6



#### Overview

The Entry Series<sup>®</sup> PEBC are devices that transmit and receive Ethernet signals onto coax for distribution throughout a residence. This avoids the costly expense of rewiring the residence with Ethernet cables.

One PEBC must be installed near where the Ethernet signals are generated. This may be at a Fiber-to-the-Home NIU or a DOCSIS Cable Modem. At least one other PEBC needs to be installed at the end of a coaxial line at another point in the residence to create an Ethernet Link. Up to 16 PEBC's can be interconnected or linked off of one Ethernet source. Each PEBC can source/sink up to 2Gbps or 1Gbps/Ethernet connector. A 2Gpbs "pipe" can be created by one PEBC which then can be shared with up to 15 other PEBC's.

Each PEBC can be either remotely powered over the coax or locally powered. If remotely powered, a power splitter/inserter will be installed at a central location which is then connected to each of the PEBC's via a home run connection. It is important to ensure that there are no splitters connected between the power splitter and the connected PEBC as these devices will block power from reaching the PEBC. If there is a splitter in a wall that cannot be accessed, the PEBC on that line will have to be locally powered.

#### **Required Items**

The PEBC's can either be remotely or locally powered. To simplify these instructions, it shall be assumed that the PEBC's will be remotely powered using the PPC 3-way power splitter. Therefore the following material is required, each are sold separately;

- Quantity 2 of the same model PEBC's. At last two PEBC's are needed to create an Ethernet link. There are two models
  dependent on the frequencies used by the connected cable network (if so connected). If there is no cable network
  connected, either model can be used.
  - For those cable networks using the frequencies 5 1002MHz, use PEBC model # PEBCM1W2P-\*\*
  - For those cable networks using the frequencies 5 1218MHz, use PEBC model # PEBCM2W2P-\*\*
- Quantity one of PPC power splitter PPC4PS73B1P for up to three connected PEBC's
- Quantity one of power supply PPC-PS15450
- Coaxial cable (RG-59, RG-6, RG-11) with connectors
- Philips or straight-blade screwdriver and/or 1/4" hex-head nut driver to mount the unit(s)
- Open ended 7/16" torque wrench to tighten F-connectors

#### Installing the Power Splitter and Power Supply

Up to 3 PEBC modules can be powered/connected to one PPC 3-way power splitter. The 3-way power splitter needs to be ideally installed at a central location where "home run" connections can be made to wherever the PEBC modules will be eventually installed. This location may be in a house box, attic or basement. Once the power splitter has been installed, plug the power supply into a nearby 120VAC outlet and connect a run of coaxial cable from the power supply to the power splitter's "DC Power In" port. Connect up to three coaxial cables, each cable a "home run" connection to a PEBC mounting location. Note: There is protection circuitry in the power splitter to isolate any connected cable that has an electrical "short". Power and signal will still be available on those cables that do not have the electrical short. Power and signal will be restored to the shorted connection upon removal of the cause of the electrical short. **DO NOT TERMINATE UNUSED PORTS ON THE POWER INSERTER/SPLITTER!!** 

If the residence is to be connected to a cable network, the RF of the cable network is to be connected to the "Input" of the PPC power splitter. With a cable RF connection, it is recommended that a low pass filter such as the PPC SNLP-1G or similar be used to improve the residence network performance as well as isolate the residence Ethernet traffic from it's neighbors.



#### Installing the First PEBC Module

The first PEBC should be installed near the source of the Ethernet signal. This location may be near a DOCSIS modem, Ethernet switch or other Ethernet source such as a Fiber-to-the-X NIU. If the PEBC is to be mounted onto an electrical utility box/bracket then install the PEBC's mounting bracket first. Connect the coaxial cable carrying the power to the F-connector on the back of the PEBC and tighten to 30 in-lbs. If the power supply is active, then the top LED will turn on indicating that the PEBC is powered. Mechanically attach the PEBC to its bracket following the instructions below. Connect at least one of the Ethernet ports to the Ethernet source. Connect any RF devices (if connected to a cable network) to the output F-port.

#### PEBC Mounting

Orient and install the PEBC bracket as shown so that the long curved mounting slot is at the top. Press the PEBC into its bracket ensuring that the two PEBC mounting tabs pass through the appropriate slots in the bracket. Once the tabs are aligned, twist the PEBC module clockwise to lock it in place. Some force may be required.



Once the PEBC is flush to its mounting bracket, twist the PEBC clockwise to lock it in place

#### **PEBC Dismounting**

To remove the PEBC from its bracket, simply rotate the PEBC counter-clockwise until the mounting tabs clear the slots.







#### **PEBC Connections and Indicators**

The below diagrams show the electrical connections and indicators on the PEBC module. For additional detail on these connections contact your PPC representative.



**Ethernet Ports** – Quantity 2. Each port is capable of 1Gbps. A 2Gbps signal stream can be created by connecting each port to separate Ethernet sources/streams. Each Ethernet port can also be used independently to connect to Ethernet sources and/or customer devices.

Local Power Port - 6 to 15VDC, center contact is +. Power applied locally will only power that local unit.

**Reset Button** – A short press will reboot the unit into its last operating firmware. A long press (+15 seconds) will force unit into its backup firmware image.

Power LED – When lit indicates that the PEBC is powered. Normally should be "on" continuously.

**Link LED** – When lit indicates that the PEBC has established a link with another PEBC. A link must be present for Ethernet to flow from one PEBC to another. Normally should be "on" continuously indicating an active Link.

**Ethernet LED** – When flashing indicates that an Ethernet device is plugged into one of the Ethernet ports and is exchanging data. This LED may flash indicating traffic between the PEBC and connected Ethernet device even if there is no active Link.

**Input F-port** – The PEBC is powered and connects to other PEBC's and a cable network (if present) through this port. The frequency range is 5 – 1675MHz.

**Output F-port** – The PEBC passes either 5 – 1002MHz or 5 – 1218MHz (dependent on model) from the cable network, if present, to/from any connected modem or customer-premise-device such as set-top boxes, DVR's etc. It is recommended that any output ports not used be terminated.



#### **Connecting Additional PEBC Modules**

Connect additional PEBC modules similarly as the first. Once a second unit is connected, the Link LED should indicate that an active Link is present. It may take a few minutes to establish a Link. If a Link is not established after 5 minutes, ensure that the PEBC is powered on and ensure that there is 56dB or less of cable and device loss between PEBC's in the 1125 – 1675MHz frequency band. As these frequencies are difficult to measure, calculation and estimation may be the only way to determine path loss.

If a Link still cannot be established, take the PEBC module to the PPC power splitter. Remove the RF cable which would normally connect to the PEBC and, using a short piece of coaxial cable, connect the PEBC module directly to the power splitter. The PEBC should power up and shortly show that a Link has been established. If a Link still cannot be established troubleshoot the other PEBC's and cabling until a Link is established. Once a Link has been made, restore the RF connections at the power splitter and return and reconnect the PEBC to its intended mounting location and verify that a Link has been established.

A common error encountered when installing is not accounting for the additional loss of RF/Cable signals passing through the power splitter, particularly when adding PEBC modules to an existing installation. The 3-way power splitter will add 4 to 7dB of loss to any cable signals passing through it. Make sure that any CPE connected to a PEBC module has the appropriate signal level to operate normally.

Connect the installed PEBC module to Ethernet and/or RF devices as appropriate. Proceed to install any additional PEBC modules as needed. Refer to the below diagram showing an installation of three PEBC modules. Information on additional troubleshooting tools and configurations are available by contacting your PPC representative.







TEL: 315-431-7200 | FAX: 315-431-7201