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**PCS Installation Manual**  
**Issue 2, October 1996**



# **Price Check System (PCS)**

**Installation Manual**

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**FCC Warning**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions. 1) This device may not cause harmful interference. 2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**Warning**

Changes or modifications to this unit not expressly approved by Continuum Technology Corporation could void the user's authority to operate the equipment.

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**GENERAL**

The Price Check System (PCS) is a consumer self-service price verification system. The PCS consists of Price Check Terminals (PCT), and possibly a Network Controller Terminal (NCT). These units are interfaced with the store host computer to provide product information and pricing to the consumer. Each PCT provides the capability to read product bar codes and display corresponding product information. The PCS is available in four configurations: hard-wired point-to-point, hard-wired networked, Ethernet, and Radio Frequency (RF). This Installation Manual provides instructions for installing the PCTs and any associated NCT.

A hard wired point-to-point configuration consists of a single PCT connected directly to the host computer. In a hard-wired networked configuration, an NCT is required to coordinate message passing between all members of the PCT network, while also exchanging messages with the host

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computer. The host computer has the responsibility of performing product information queries. In the hard-wired configuration, the PCTs communicate with the NCT through RS-485 links and the NCT communicates with the host computer via RS-232 links. Figure 1 shows a typical PCT hard-wired networked configuration.

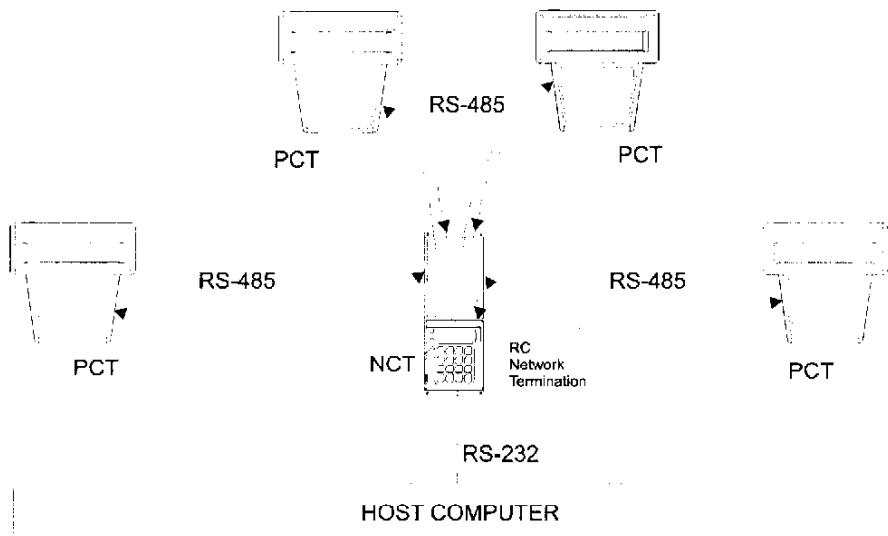


Figure 1 - PCS Network Components

### ***Pre-Installation Safety Requirements***

**Important:** When installing this equipment, safety precautions should always be followed to reduce the risk of fire, electrical shock, and injury to persons including the following.

For safe and proper installation of the PCT terminal note the following:

- **DO NOT** install the PCT around liquids or where liquids will be present.
- **DO NOT** install the PCT where condensation may form on either the inside or the outside of the PCT.
- **DO NOT** install the PCT near equipment that generates considerable heat or magnetic interference. The ideal temperature range is 50 to 86 degrees Fahrenheit.
- **DO NOT** install the PCT on an unstable cart, stand, or table. The product may fall causing serious damage to the product.
- **DO NOT** install the PCT in a location where someone will walk on the power cord.
- **DO NOT** install the PCT in a location such that other equipment will rest on the power cord.
- **DO NOT** install the PCT outdoors.

### ***Installation Requirements***

#### **Power**

- The PCT shall be located within 6 feet of an easily accessible three prong grounded electrical outlet (120VAC, 60 Hz). The receptacles shall have an earth ground connection.

#### **Cable**

- The 120 ohm twisted cable runs used to interconnect the PCS components must be in place before the PCT(s), and NCT if applicable, are installed.

**Mounting Area**

- The PCT is approximately 10 inches wide x 9.5 inches height x 8.25 inches deep and weighs 5.5 lbs.

**Equipment Required**

- PCT
- NCT
- Power module
- Mounting brackets (circular clamps or wall brackets with screws)
- Screwdriver
- Mounting hardware to mount wall brackets. Wall anchors should be used when mounting to sheetrock walls.
- Modular jack box
- Patch cable
- Small bubble level
- Small socket set with ratchet

## **INSTALLATION**

Installation of the PCS is primarily a plug-and-play process. All software is pre-loaded at the factory and requires no loading or manipulation in the field. Upon powering up of the system, the PCT will display a message "Waiting to Join the Network". This message will remain on the display until the network controller has established communication with the PCT. The message "Temporarily Out of Service" will then be displayed until the network is operational. Once the correct response is received from the host, the PCT will go online and the message "Please Pass Barcode under the Scanner" will be displayed.

In a point-to-point hard-wired PCS configuration, installation consists of physically mounting a single PCT and then connecting it directly to the host computer. Radio Frequency PCS configuration installations require only the physical mounting and power connections of the PCTs and the RF base station. Networked hard-wired configurations require installation of an NCT and multiple PCTs. The following paragraphs describe the physical mounting and cable connection procedures for NCTs and PCTs.

While the components of the PCS can be installed in any sequence, the order in which the following procedures are presented provide for easy installation of a PCS system. To facilitate the installation process, ensure the 120 ohm cable runs from the NCT to the PCTs are in place prior to beginning.

### **NCT**

Installation of the NCT consists of physically mounting the NCT to the wall and connecting cables from the PCT to the terminal block in the NCT, and from the host computer to the NCT controller. Use the following procedures to install the NCT.

#### **Physical Mounting**

Mount the NCT to a flat wall surface using four mounting screws and appropriate wall anchors. The NCT must be located within 6 feet of the host computer serial communication port and power outlet. See Figure 2. Use a small bubble level to ensure the NCT is level when mounted.

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**Caution:** Be sure to position the NCT so that the mounting screws can be fastened into a wall support (stud) or use appropriate wall anchors. Failure to do this may result in damage to the equipment.

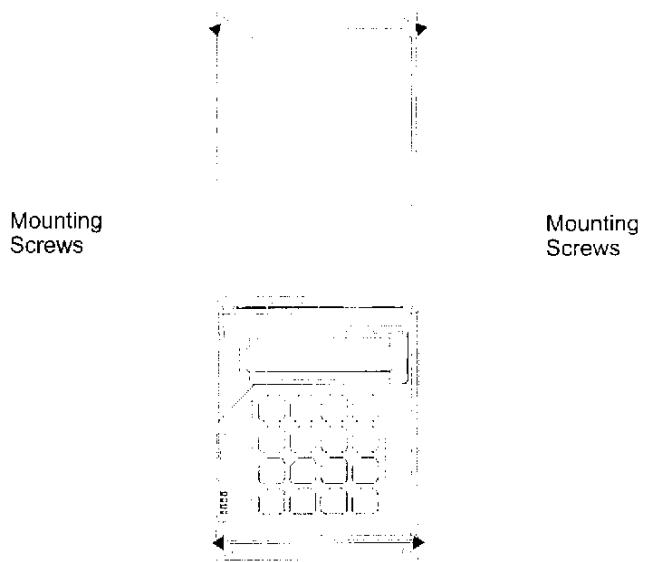
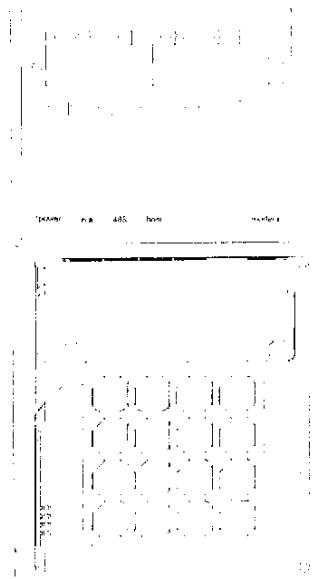


Figure 2 - NCT Physical Mounting

**Connecting NCT Cables**

In a hard-wired networked configuration, an NCT must be used to coordinate the messaging between the PCTs and the host computer. The following describes how to connect the cabling between the PCT, NCT, and the host computer. Figure 3 shows the connection ports on the NCT controller.



*Figure 3 - NCT Connection Ports*

The cable between the PCT and the NCT should contain at least two pairs of 120 ohm twisted pair wire. The twisted pairs are color coordinated (i.e., blue, and white w/blue stripe). One twisted pair should be used to go from the NCT to the PCT location and another twisted pair for the return. The return twisted pair from the last PCT on the network must be terminated with a 120 ohm resistance-capacitance (RC) network as shown in Figure 4. This RC network is comprised of an 120 ohm resistor and a 0.1 micro-farad capacitor.

The wires from the NCT to the PCT location should be terminated in a standard RJ-45 modular jack box. A short patch cable (less than 18 inches) should be used to connect the PCT to the modular jack box using an eight-position, eight-wire, straight-through cable. This cable should be terminated on both ends with an eight-position RJ-45 connector.

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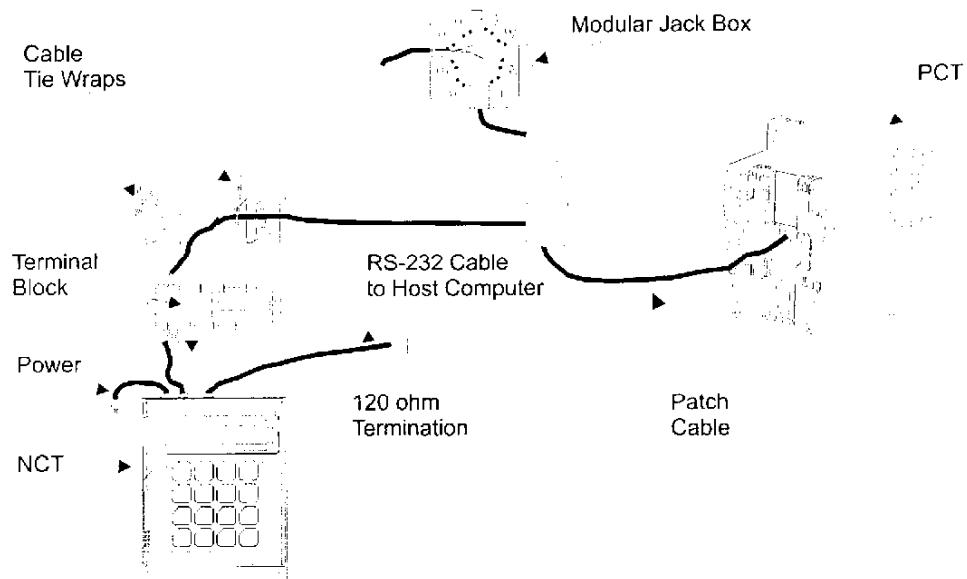


Figure 4 - NCT Cable Connections

### NCT Controller to Terminal Block

The color combinations on the terminal block plugs should flow across the terminal block. The solid wire on one side of the terminal block should be across from the solid wire on the other side of the terminal block. The white/stripe wire on one side of the terminal block should be across from the

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white/stripe wire on the other side of the terminal block. See  
Cable Tie Wraps

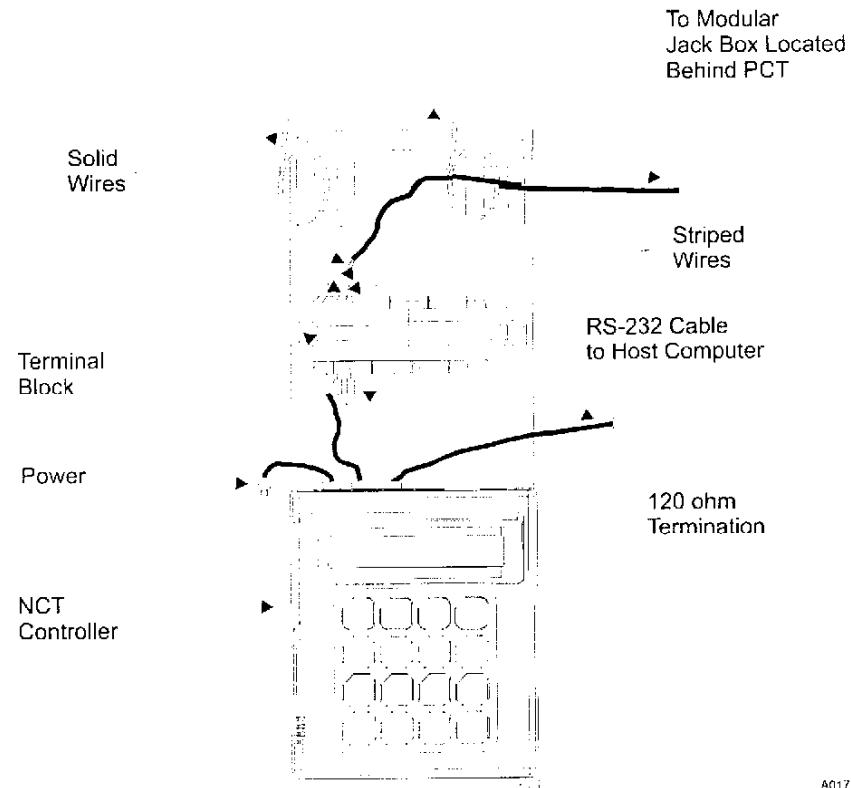


Figure 5. Verify the continuity of the daisy chain on both ends of the terminal block using a multimeter. Wire connections for the NCT from the controller to the terminal block are shown in Table A.

### *NCT Controller to Host Computer*

The RS-232 host cable (provided) must be connected to the serial port located on the host computer. A 9-pin D connector to 25-pin D connector may be required in some applications.

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Cable  
Tie Wraps

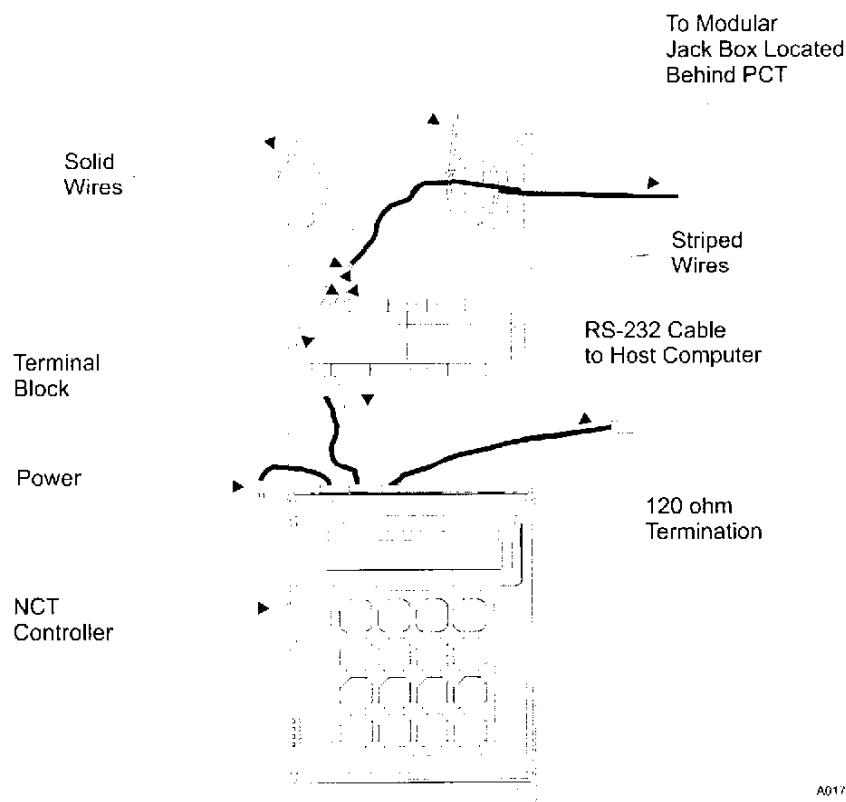


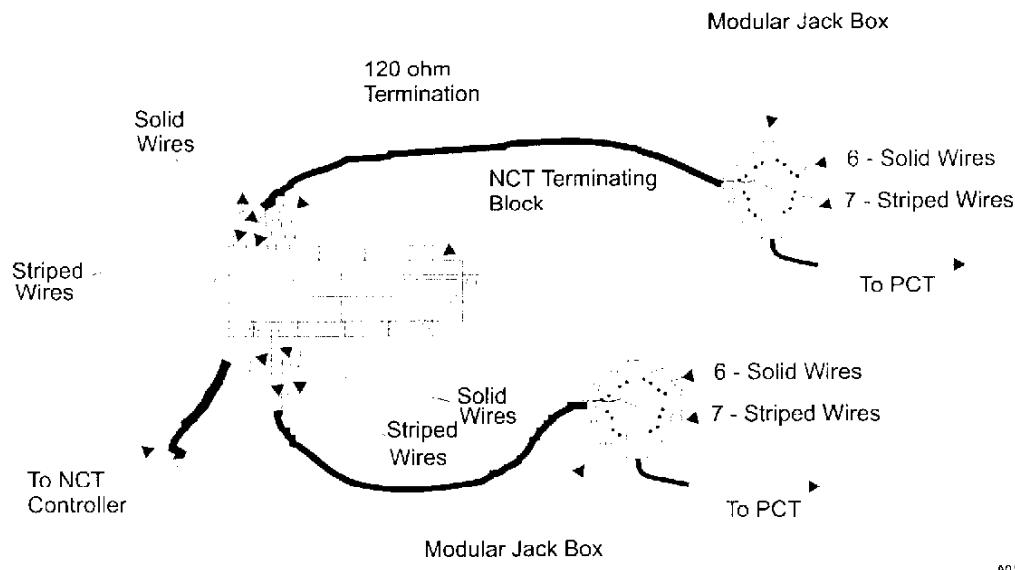
Figure 5 - NCT Controller to Terminal Block Wiring

Table A - NCT Controller to Terminal Block Connections

Signal Polarity	Wire Color
RS-485 A	Orange
RS-485 B	Yellow

***NCT to Modular Jack Box***

The wire connections from the NCT to the modular jack box (Table B) are as follows. See Figure 6.



*Figure 6 - NCT to Modular Jack Box Wiring*

*Table B - NCT to Modular Jack Box Connections*

NCT Terminal	Wire Color*	RJ-45 Modular Jack Box Terminal
1	Blue	6
2	White/Blue Stripe	7
3	Green	6
4	White/Green Stripe	7

\* Colors used for illustrative purposes only.

***Modular Jack Box to PCT***

Wire connections from the connector box to the PCT (Table C) are as follows:

*Table C - Modular Jack Box to PCT Connections*

RJ-45 Modular Jack Box Terminal	PCT
6	6 (RS-485 A)
7	7 (RS-485 B)

**PCT**

**Warning:** Do not plug power pack into wall until after all cable connections are made. Equipment damage may result.

Installation of the PCT consists of physically mounting the PCT on either a flat wall surface or on an upright pole, establishing cable interconnections with the NCT and the host computer, and connecting power to the PCT.

**Note:** Before installing the PCT, the modular jack box must be wired and placed near the mounting site of the PCT. Cable connections to the PCT must be made prior to physically mounting the PCT.

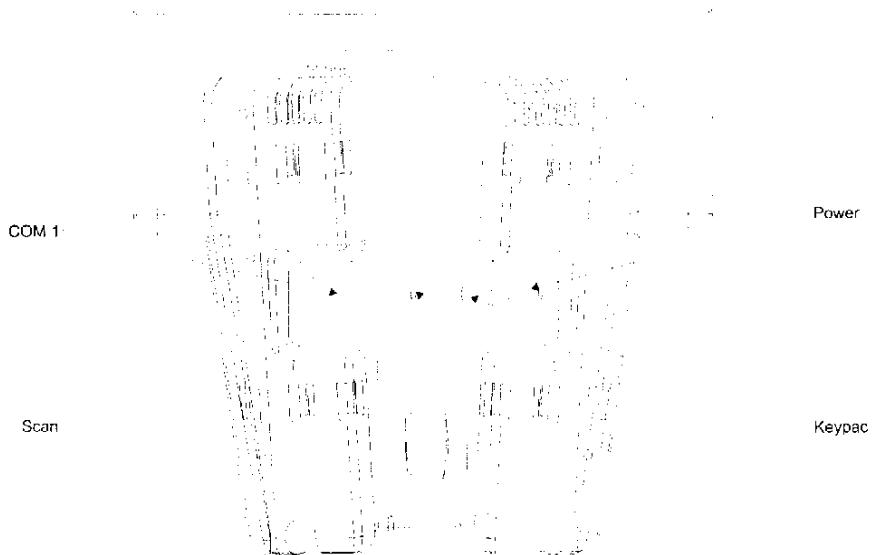
**Connecting PCT Cables - Hard-wired Serial Configurations**

Use the following procedure to connect power and communications cables to the PCT. See Figure 7. The cables are keyed to connect in a certain way. Do not twist the cables when plugging them into their ports.

1. Check the pins of the power connector to ensure that they are straight and in good condition. Insert the power connector into the PWR port ensuring that it is fully seated.

**Note:** This connection must be made before applying power to the PCT.

2. Insert one end of the patch cable into the eight-pin RJ-45 connector of the modular jack box.
3. Insert the other end of the patch cable into the COM 1 port of the PCT.



*Figure 7 - PCT Cable Connections*

4. Mount PCT per instructions provided in following sections of this document.
5. Plug the prong-grounded power connector from the power module into a grounded 120 VAC/60Hz wall power outlet. For proper operation of the PCT, the wall outlet must have an earth ground connection.

**Connecting PCT Cables - Ethernet Configurations**

Installation of the PCT, Ethernet configuration, consists of physically mounting the PCT, connecting the PCT to the Category 5 RJ-45 modular jack box, and connecting the modular jack box to the Ethernet wiring.

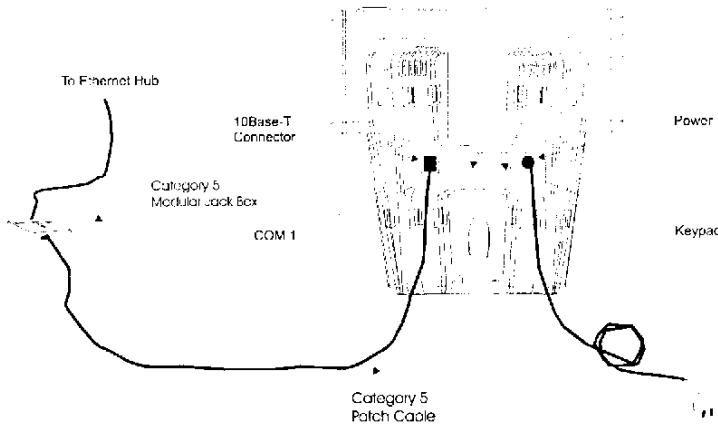
Use the following procedure to connect power and communications cables to the PCT. See Figure 8. The cables are keyed to connect in a certain way. Do not twist the cables when plugging them into their ports.

1. Check the pins of the power connector to ensure that they are straight and in good condition. Insert the power connector into the PWR port ensuring that it is fully seated.

**Note:** This connection must be made before applying power to the PCT.

2. Insert one end of the patch cable into the eight-pin RJ-45 connector of the modular jack box.
3. Insert the other end of the patch cable into the 10Base-T port of the PCT.
4. Mount PCT per instructions provided in following sections of this document.
5. Plug the prong-grounded power connector from the power module into a grounded 120 VAC/60Hz wall power outlet. For proper operation of the PCT, the wall outlet must have an earth ground connection.

The cable connections from the PCT to the modular jack box are illustrated in the following diagram.



*Figure 8 - Ethernet PCT Cable Connections*

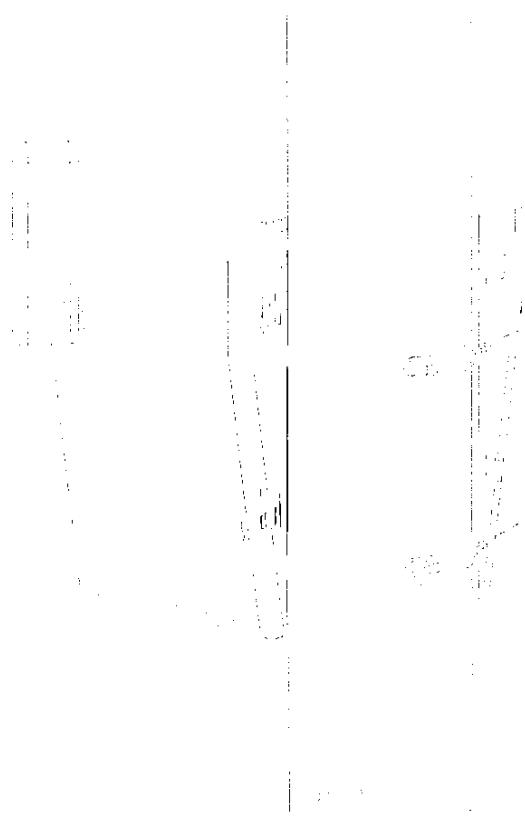
*Table D - Ethernet Cable Wiring*

RJ-45 Modular Jack Contact	Signal	Wire Color
1	TD+	Orange/White
2	TD-	Orange
3	RD+	Green/White
4	Not used	Blue
5	Not used	Blue/White
6	RD-	Green
7	Not used	Brown
8	Not used	Brown/White

**Physical Mounting**

The PCT can be mounted either on a flat wall surface or on an upright pole. Mount the PCT so that the top is approximately four feet above the floor and level.

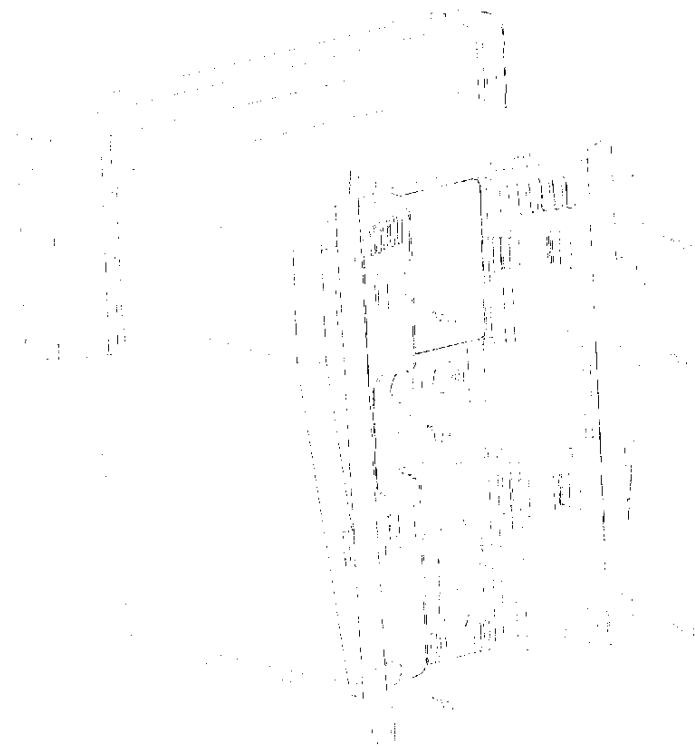
When mounting the PCT, ensure the cables are firmly seated before fastening to pole or wall. As you position the PCT in place, fit the modular jack box into the recessed area on the rear of the PCT. Figure 9 shows the PCT mounted on a pole and Figure 10 shows a wall surface mount. To mount the PCT on a pole, use two circular clamps. Thread the clamps through the slots on the back of the PCT as shown in Figure 9 and tighten securely.



*Figure 9 - Pole Mounted PCT*

To mount the PCT on a flat wall surface attach the wall mounting brackets to the back cover of the PCT with the 6 - # 10 screws provided. See Figure 10. Using four hex head screws and appropriate wall anchors, attach PCT to the wall using a small ratchet. Use a small bubble level to ensure the PCT is level when mounted.

**Caution:** Be sure to position the PCT so that the mounting screws can be fastened into a wall support (stud) or use appropriate wall anchors. Failure to do this may result in damage to the equipment.



*Figure 10 - Wall Mounted PCT*

## **Customer Service**

In the event of equipment malfunction, all repairs should be performed by our company or an authorized agent. It is the responsibility of the users requiring service to report the need for service to our company or to one of our authorized agents. Service information can be obtained at:

Continuum Technology Corporation  
220 Continuum Drive  
Fletcher, NC 28732  
Telephone 704-684-8682  
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