CPM Series

Remote Site Managers with Power Control

Products Covered:

CPM-1600 Series Models
CPM-800 Series Models

Hardware Guide

wti

Power & Console Solutions I wti.com

⚠️ Warnings and Cautions: ⚡
Installation Instructions

Secure Racking

If Secure Racked units are installed in a closed or multi-unit rack assembly, they may require further evaluation by Certification Agencies. The following items must be considered.

1. The ambient within the rack may be greater than room ambient. Installation should be such that the amount of air flow required for safe operation is not compromised. The maximum temperature for the equipment in this environment is 60°C. Consideration should be given to the maximum rated ambient.

2. Installation should be such that a hazardous stability condition is not achieved due to uneven loading.

Input Supply

Check nameplate ratings to assure there is no overloading of supply circuits that could have an effect on overcurrent protection and supply wiring.

Grounding

Reliable earthing of this equipment must be maintained. Particular attention should be given to supply connections when connecting to power strips, rather than direct connections to the branch circuit.

No Serviceable Parts Inside; Authorized Service Personnel Only

Do not attempt to repair or service this device yourself. Internal components must be serviced by authorized personnel only.

- **Shock Hazard - Do Not Enter**

- **Lithium Battery**
  CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Disconnect Power

If any of the following events are noted, immediately disconnect the unit from the outlet and contact qualified service personnel:

1. If the power cord becomes frayed or damaged.

2. If liquid has been spilled into the device or if the device has been exposed to rain or water.

Up to Four Power Supply Cables

Note that some CPM series units feature up to four separate power inlets and a separate power supply cable for each power inlet. Make certain to disconnect all power supply cables from their power source before attempting to service or remove the unit.

Modem Cables

CAUTION: To reduce the risk of fire, use only No. 26 AWG or larger (e.g., 24 AWG) UL Listed or CSA Certified Telecommunication Line Cord.

ATTENTION: Pour réduire les risques d'incendie, utiliser uniquement des conducteurs de télécommunications 26 AWG au de section supérieure.

Restricted Access

CPM Series units are intended for installation in Restricted Access Location.

Les matériels sont destinés à être installés dans des EMPLACEMENTS À ACCÈS RESTREINT.

Agency Approvals

FCC Part 15 Regulation

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.

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, and (2) this device must accept any interference received, including interference that may cause undesired operation

WARNING: *Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment*

EMC and Safety Directive Compliance

The CE mark is affixed to this product to confirm compliance with the following European Community Directives:

- **Council Directive 2014/30/EU of 26 February 2014 on the approximation of the laws of Member States relating to electromagnetic compatibility;**

   and

- **Council Directive 2014/35/EC of 26 February 2014 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits.**

Industry Canada - EMI Information

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

This product meets the applicable Industry Canada technical specifications

The Ringer Equivalence Number is an indication of the maximum number of devices allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices does not exceed five.

Table of Contents

1. Introduction

This Hardware Guide covers hardware set-up and installation for our CPM Series Remote Site Managers with Power Control. CPM Series units are designed to simplify the process of remotely managing vital network elements located at distant network equipment sites and off-site facilities by providing secure remote access to console ports on distant network equipment and also include the ability to remotely control power switching and reboot functions at the remote network equipment site.

> **Note:** *For instructions regarding configuration and operation of the WTI Device, please refer to the WTI Firmware Guide.*

Model Numbers Covered

This Hardware Guide discusses all WTI CPM Series products. Throughout this Hardware Guide, all of these units are referred to as the "CPM."

2. Unit Description

2.1. CPM-1600 Series - Front Panel
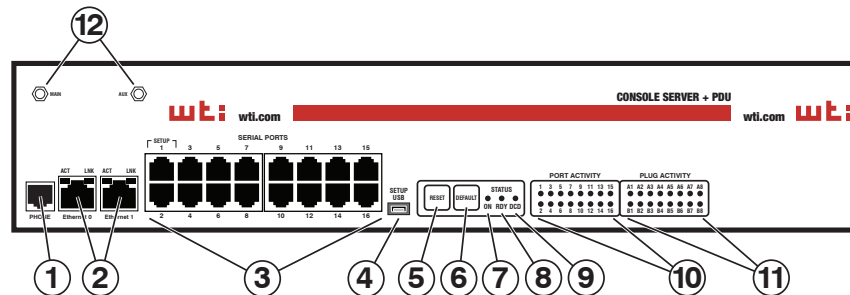
Figure 2.1: CPM-1600 Series - Front Panel

As shown in Figure 2.1, the CPM-1600 Series front panel includes the following components:

1. **Phone Line Port (Internal Dial-Up Modem Port):** When the Internal Modem is present, the phone line port is used for connection to your external phone line.

    Note: *The phone line port is not present on CPM Series units that include the optional Cellular Modem.*

2. **Network Port(s):** RJ45 Ethernet port(s) for connection to your 10/100/1000 Base-T, TCP/IP network(s). Each Network Port also includes two, small LED indicators for Link and Data Activity. For information on Network Port configuration, please refer to the WTI Firmware Guide.

    ### Notes:
    * *Some CPM series units include an optional, secondary Ethernet port. This allows the CPM to be connected to both a primary network and secondary network.*

    * *When connecting only one network cable to a CPM series unit that includes the Dual Ethernet Ports option, make certain to connect to Port ETH0.*

3. **Serial Ports:** For connection to console ports on target devices. CPM Series units are available with either Standard Pinned Serial Ports or Straight Pinned Serial Ports. For more information on connecting devices to the serial ports, please refer to Section 4.6, plus Appendix B and Appendix C.

4. **USB SetUp Port:** The USB SetUp Port can be connected to a PC or laptop in order to provide local access to CPM command mode functions. When connecting a device to the USB SetUp Port, please refer to Section 4.4. When configuring the USB SetUp Port, please refer to the WTI Firmware Guide.

   Note: *Serial Port 1, on the CPM front panel can also be used to provide local access to the CPM command mode.*

5. **RESET Button:** Restarts the CPM-1600 as described in Section 2.7.

6. **DEFAULT Button:** Switches all plugs Off or sets plugs to default values as described in Section 2.7.

7. **ON Indicator:** Lights when AC Power is applied to the unit.

8. **RDY Indicator:** (Ready) Flashes to indicate the unit is ready to receive commands.

9. **DCD Indicator:** The Data Carrier Detect indicator.

10. **Port Activity Indicators:** A series of LEDs, which will light when a CTS signal is detected and flash during data transmission to indicate activity at the port.

11. **Plug Activity Indicators:** A series of sixteen LED indicators which light when power is applied to the corresponding switched outlet.

    Note: *Providing that power is still present at the secondary power inlet for a given branch, the Plug Activity indicators for that branch will blink on and off when the primary power source for that branch is lost or disconnected.*

12. **Cellular Antenna Connectors (Optional):** When the Cellular Modem Option is present, the CPM front panel will include two screw-on connectors for the Cell Antennae. For information on setting up the optional Cellular Modem hardware, please refer to Section 4.8.

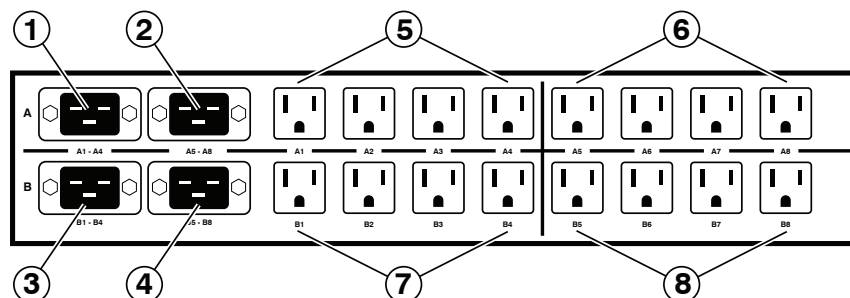*Figure 2.2: CPM-1600 Standard Series Series - Back Panel (Model CPM-1600-1 Shown)*

2.2. CPM-1600 Standard Series - Back Panel

As shown in Figure 2.2, the CPM-1600 Standard Series back panel includes the following components:

> **Note:** *In standard CPM-1600 models, each power inlet supplies power to a single four-outlet Bus. If the power supply for any given power inlet fails, then the four-outlet bus associated with that power inlet will be deprived of power.*

1. **Branch A1-A4 Power Inlet:** An IEC-320-C20 inlet that supplies power to Switched Outlets A1 through A4. Also includes cable keeper (not shown.)

2. **Branch A5-A8 Power Inlet:** An IEC-320-C20 inlet that supplies power to Switched Outlets A5-A8. Also includes cable keeper (not shown.)

3. **Branch B1-B4 Power Inlet:** An IEC-320-C20 inlet that supplies power to Switched Outlets B1 through B4. Also includes cable keeper (not shown.)

4. **Branch B5-B8 Power Inlet:** An IEC-320-C20 inlet that supplies power to Switched Outlets B5-B8. Also includes cable keeper (not shown.)

5. **Switched Outlets A1-A4:** Four Switched AC outlets that draw power from the Branch A1-A4 Power Inlet.

    • **CPM-1600-1 Series:** Four (4) each, NEMA 5-15R Outlets.
    • **CPM-1600-2 Series:** Four (4) each, IEC320-C13 Outlets.

6. **Switched Outlets A5-A8:** Four Switched AC outlets that draw power from the Branch A5-A8 Power Inlet.

    • **CPM-1600-1 Series:** Four (4) each, NEMA 5-15R Outlets.
    • **CPM-1600-2 Series:** Four (4) each, IEC320-C13 Outlets.

7. **Switched Outlets B1-B4:** Four Switched AC outlets that draw power from the Branch B1-B4 Power Inlet.

    • **CPM-1600-1 Series:** Four (4) each, NEMA 5-15R Outlets.
    • **CPM-1600-2 Series:** Four (4) each, IEC320-C13 Outlets.

8. **Switched Outlets B5-B8:** Four Switched AC outlets that draw power from the Branch B5-B8 Power Inlet.

    • **CPM-1600-1 Series:** Four (4) each, NEMA 5-15R Outlets.
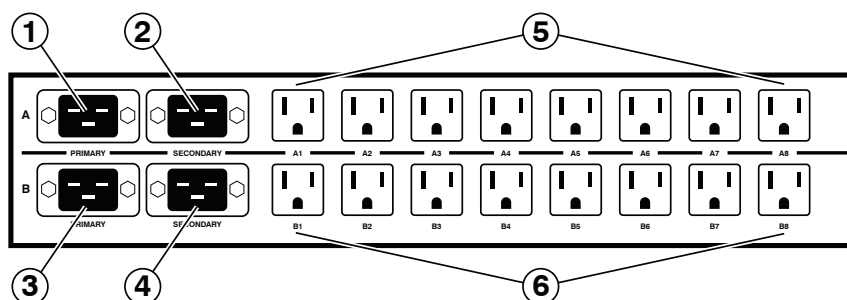   • **CPM-1600-2 Series:** Four (4) each, IEC320-C13 Outlets.

Figure 2.3: CPM-1600-A Series (ATS Option) - Back Panel (Model CPM-1600-A-1 Shown)

2.3.   CPM-1600-A Series (ATS Option) - Back Panel

As shown in Figure 2.3, the CPM-1600-A Series (ATS Option) back panel includes the following components:

> **Note:** *CPM-1600-A models include an internal Automatic Transfer Switch (ATS.) The Primary and Secondary Branch A Power Inlets supply power to the Branch A Power Outlets and the Primary and Secondary Branch B Power Inlets supply power to the Branch B Power Outlets. If the power supply connected to any given power inlet fails, then the CPM will automatically begin drawing power from the other power inlet for that branch.*

1. **Primary Branch A Power Inlet:** An IEC-320-C20 inlet that supplies primary power to Switched Outlets A1 through A8. Also includes cable keeper (not shown.)

2. **Secondary Branch A Power Inlet:** An IEC-320-C20 inlet that supplies secondary power to Switched Outlets A1 through A8. Also includes cable keeper (not shown.)

3. **Primary Branch B Power Inlet:** An IEC-320-C20 inlet that supplies primary power to Switched Outlets B1 through B8. Also includes cable keeper (not shown.)

4. **Secondary Branch B Power Inlet:** An IEC-320-C20 inlet that supplies secondary power to Switched Outlets B1 through B8. Also includes cable keeper (not shown.)

5. **Branch A Switched Outlets:** Eight switched AC outlets that draw power from the Primary and Secondary Branch A Power Inlets.

    • **CPM-1600-A-1:** Eight (8) each, NEMA 5-15R Outlets.
    • **CPM-1600-A-2:** Eight (8) each, IEC320-C13 Outlets.

6. **Branch B Switched Outlets:** Eight switched AC outlets that draw power from the Primary and Secondary Branch B Power Inlets.

    • **CPM-1600-A-1:** Eight (8) each, NEMA 5-15R Outlets.
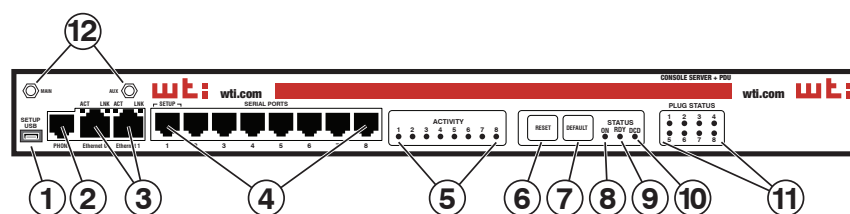   • **CPM-1600-A-2:** Eight (8) each, IEC320-C13 Outlets.

Figure 2.4: CPM-800 Series - Front Panel

2.4.   CPM-800 Series - Front Panel

As shown in Figure 2.4, the CPM-800 Series front panel includes the following components:

1. **USB SetUp Port:** The USB SetUp Port can be connected to a PC or laptop in order to provide local access to CPM command mode functions. When connecting a device to the USB SetUp Port, please refer to Section 4.4. When configuring the USB SetUp Port, please refer to the WTI Firmware Guide.

    Note: *Serial Port 1, on the CPM front panel can also be used to provide local access to the CPM command mode.*

2. **Phone Line Port (Internal Modem Port):** When the optional Internal Modem is present, the phone line port is used for connection to your external phone line.

    Note: *The phone line port is not present on CPM Series units that include the optional Cellular Modem.*

3. **Network Port(s):** RJ45 Ethernet port(s) for connection to your 10/100/1000Base-T, TCP/IP network. Each Network Port includes two LED indicators for Link and Data Activity.

    Note:
    *   *Some CPM series units include an optional, secondary Ethernet Port. This allows the CPM to be connected to both a primary network and secondary network.*
    *   *When connecting only one network cable to a CPM series unit that includes the optional, secondary Network Port, make certain to connect to Port ETH0.*

4. **Serial Ports:** Eight serial ports for connection to console ports on target devices. CPM Series units are available with either Standard Pinned Serial Ports or Straight Pinned Serial Ports. For more information on connecting devices to the serial ports, please refer to Section 4.6, plus Appendix B and Appendix C.

5. **ACTIVITY Indicators:** A series of LEDs, which will light when a CTS signal is detected, and will flash during data transmission to indicate activity at the corresponding port.

6. **RESET Button:** Restarts the CPM-800 as described in Section 2.7.

7. **DEFAULT Button:** Switches all plugs Off or sets plugs to default values as described in Section 2.7.

8. **ON Indicator:** An LED Indicator which lights when AC Power is applied to the unit.

9. **RDY Indicator:** (Ready) Flashes to indicate that the unit is ready to receive commands.

10. **DCD Indicator:** The Data Carrier Detect indicator.

11. **Plug Status Indicators:** A series of eight LED indicators which light when power is applied to the corresponding switched outlet.

    Note: *Providing that power is still present at the secondary power inlet, the Output Status indicators will blink on and off when the primary power source is lost or disconnected.*

12. **Cellular Antenna Connectors (Optional):** When the Cellular Modem Option is present, the CPM front panel will include two screw-on connectors for the Cell Antennae. For more information on setting up the optional Cellular Modem hardware, please refer to Section 4.8.
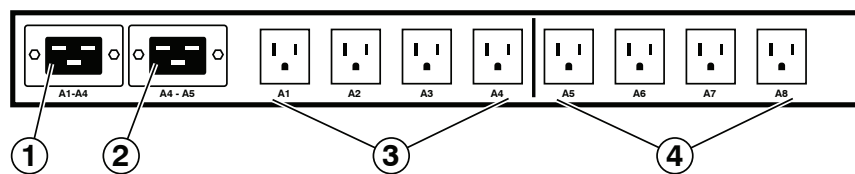
Figure 2.5: CPM-800 Standard Series - Back Panel (Model CPM-800-1 Shown)

2.5.   CPM-800 Standard Series - Back Panel

As shown in Figure 2.5, the CPM-800 Standard Series back panel includes the following components:

> **Note:** *In standard CPM-800 models, each power inlet supplies power to a single four-outlet Bus. If the power supply for any given power inlet fails, then the four-outlet bus associated with that power inlet will be deprived of power.*

1.   **Branch A1-A4 Power Inlet:** An IEC-320-C20 inlet that supplies power to Switched Outlets A1 through A4. Also includes cable keeper (not shown.)

2.   **Branch A5-A8 Power Inlet:** An IEC-320-C20 inlet that supplies power to Switched Outlets A5-A8. Also includes cable keeper (not shown.)

3.   **Switched Outlets A1-A4:** Four Switched AC outlets that draw power from the Branch A1-A4 Power Inlet.

   • **CPM-800-1 Series:** Four (4) each, NEMA 5-15R Outlets.
   • **CPM-800-2 Series:** Four (4) each, IEC320-C13 Outlets.

4.   **Switched Outlets A5-A8:** Four Switched AC outlets that draw power from the Branch A5-A8 Power Inlet.

   • **CPM-800-1 Series:** Four (4) each, NEMA 5-15R Outlets.
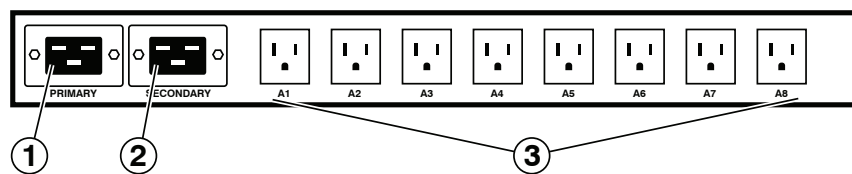   • **CPM-800-2 Series:** Four (4) each, IEC320-C13 Outlets.

Figure 2.6: CPM-800-A Series (ATS Option) - Back Panel (Model CPM-800-1 Shown)

2.6.   CPM-800-A Series (ATS Option) - Back Panel

As shown in Figure 2.6, the CPM-800-A Series (ATS Option) back panel includes the following components:

> **Note:** *CPM-800-A models include an internal Automatic Transfer Switch (ATS.) The Primary and Secondary Branch A Power Inlets supply power to the Branch A Power Outlets. If the either the primary or secondary power supply fails, then the CPM will automatically begin drawing power from the other power inlet.*

1. **Primary Branch A Power Inlet:** An IEC-320-C20 inlet that supplies primary power to Switched Outlets A1 through A8. Also includes cable keeper (not shown.)

2. **Secondary Branch A Power Inlet:** An IEC-320-C20 inlet that supplies secondary power to Switched Outlets A1 through A8. Also includes cable keeper (not shown.)

3. **Branch A Switched Outlets:** Eight switched AC outlets that draw power from the Primary and Secondary Branch A Power Inlets.
    * **CPM-800-1:** Eight (8) each, NEMA 5-15R Outlets.
    * **CPM-800-2:** Eight (8) each, IEC320-C13 Outlets.

2.7.   Front Panel Button Functions

The front panel buttons can be used to perform several functions described below:

Notes:

- *Front Panel button functions can also be disabled via the System Parameters menu, as described in the WTI Firmware Guide.*

- *When the CPM is reset to factory defaults, all user-defined configuration parameters will be cleared and the default "super" user account will also be restored.*

- *When the CPM is reinitialized, all ports will be disconnected.*

- *During the reboot procedure, all port activity LEDs will flash once.*

1. **Reboot Operating System - Keep User-Defined Parameters:**

    a) Press and hold the CLEAR (or RESET) button for five seconds, and then release.

    b) The CPM operating system will reboot; all user-defined parameters will be retained.

2. **Reboot Operating System - Reset All Parameters to Factory Defaults:**

    a) Simultaneously press both the SET (or DEFAULT) button and the CLEAR (or RESET) button, hold them for five seconds, and then release.

    b) The CPM operating system will reboot; all user-defined parameters will be reset to factory default settings.

    Note: *The RDY Indicator will continue to blink for about 45 seconds while parameters are being erased and keys are rebuilt. The RDY Indicator will stop blinking when the reboot is executed.*

3. Getting Started

This section describes a simplified bench test procedure for CPM Series products, which will allow you to communicate with the unit in order to demonstrate basic features and check for proper operation.

- For more information regarding installing the CPM hardware in a working network environment, please refer to Section 4.

- For instructions regarding configurations options and advanced operating features, please refer to the WTI Firmware Guide.

3.1. Apply Power to the CPM

First, check the safety precautions listed at the beginning of this Hardware Guide, and refer to the power rating label on the unit regarding power requirements and maximum load and then connect the CPM to an appropriate power source. Note that some CPM Series products feature two or more power inlets. When power is applied to the CPM, the ON LED on the instrument front panel should light, and the RDY LED should begin to flash within 90 seconds. This indicates that the unit is ready to receive commands.

3.2. Connect Your Computer to the CPM

In the default state, communication with the CPM via Telnet, HTTP and HTTPS are disabled. Although communication via Telnet, HTTP and/or HTTPS can be enabled as described in the WTI Firmware Guide, during this bench test procedure, the CPM will be controlled via the Command Line Interface (CLI) using a local PC, connected to either the Mini USB Port, Serial SetUp Port or Network Port:

- **Mini USB Port:** Use a standard USB-to-Mini-USB Cable. In the default state, the Mini USB Port is configured for 9600 bps.

- **Serial SetUp Port:** Refer to Appendix B and then use an appropriate adapter and cable to connect your PC COM port to the CPM's SetUp Port. In the default state, the Serial SetUp Port is configured for 9600 bps.

- **Network Port:** Use a standard Ethernet Cable. The default IPv4 address for the Network Port is 192.168.168.168.

Notes:
- *If your CPM includes dual Ethernet Ports and you only intend to connect to one of the two avalable Network Ports, connect to eth0*

- *For cable recommendations and other information regarding the procedure for connecting network elements and other equipment to the CPM, please refer to Appendix B and Appendix C in this Hardware Guide.*

3.3. Communicating with the CPM

Notes:

• *Default serial port parameters are set as follows: 9600 bps, RTS/CTS Handshaking, 8 Data Bits, One Stop Bit, No Parity. Although these parameters can be easily redefined, for this bench test procedure, it is recommended to configure your communications program to accept the default parameters.*

• *The CPM features a default IP Address (192.168.168.168) and a default Subnet Mask (255.255.255.0.) This allows network IPv4 access to the Command Line Interface, providing that you are contacting the CPM from a node on the same subnet.*

1. **Access the User Interface:** Start your communications program and (e.g., Tera Term, Putty, etc.) then press **[Enter]**. Note that when viewed by a PC running Windows XP or later, the Serial COM Port menu will list the USB Mini Port as, "USB to Serial."

2. **Username** / **Password Prompt:** A message will be displayed, which prompts you to enter your username (Login) and password. The default username is "`super`" (all lower case, no quotes), and the default password is also "`super`". If a valid username and password are entered, the CPM will display either the Main Menu (Web Browser Interface) or the Port Status Screen (Text Interface.)

3.4. Connecting Ports and Switching Outlets

If you wish to verify that the CPM is operating properly before deploying the unit in a working network environment, proceed as follows to connect ports and switch outlets:

1. **Review the Help Menu:** At the Text Interface command prompt, type `/H` and press **[Enter]** to display the Help Menu.

2. **Creating Connections Between Ports:** Commands issued via the Command Line Interface (CLI) can be used to create a connection between two other ports.

    a) To connect Port 3 to Port 4, type `/C 3 4` **[Enter]**.

    b) While Ports 3 and 4 are connected, your resident port will still recognize commands. Type `/S` **[Enter]** to display the Status Screen. The "STATUS" column should now list Ports 3 and 4 as connected and other ports as "Free".

    c) Issue a Disconnect command; type `/D 3` **[Enter]**. The unit will display the "Are you Sure (y/n)?" prompt. Type `y` and press **[Enter]** to disconnect.

    d) Type `/S` **[Enter]** to display the Status Screen. The "STATUS" column should now list Ports 3 and 4 as "Free".

3. **Controlling Outlets:** You may wish to perform the following tests in order to make certain that the switched outlets are functioning properly.

    a) **Reboot Outlet:** At the command prompt, type `/BOOT 1` and press **[Enter]**. The status indicator for Plug 1 should go Off, pause for a moment and then go back On, indicating that the boot cycle has been successfully completed.

    b) **Switch Outlet Off:** At the command prompt, type `/OFF 1` and then press **[Enter]**. The status indicator for Plug 1 should go Off, indicating that the command has been successfully completed. Leave Plug 1 in the "Off" state, and then proceed to the next step.

    c) **Switch Outlet On:** At the command prompt, type `/ON 1` and press **[Enter]**. The status indicator for Plug 1 should then go back On, indicating that the command has been successfully completed.

4. **Exit from User Interface:** To exit the user interface, type `/X` and press **[Enter]**.

4. Hardware Installation

This section describes the installation procedure for the CPM hardware.

Notes:
- *For a detailed description of configurations options and advanced operating features, please refer to the WTI Firmware Guide.*
- *If your CPM Series unit includes the Cellular Modem Option, it is recommended to install the cellular antennae and SIM card as described in Section 4.8 prior to performing this Hardware Installation procedure.*

4.1. Connecting the Power Supply Cables

4.1.1. Connect the CPM to Your Power Supply

Refer to the cautions listed below and at the beginning of this Hardware Guide. Connect the power supply cables to the unit's power inlets, snap the Cable Keepers into place as described in Section 4.1.2, and then connect the cable to an appropriate power supply.

Please refer to the power rating label on the unit concerning power requirements and maximum load. When power is applied to the CPM, the ON LED on the instrument front panel should light, and the RDY LED should begin to flash within 90 seconds. This indicates that the unit is ready to receive commands.

⚠ **CAUTIONS:** ⚡

- *Before attempting to install this unit, please review the warnings and cautions listed at the front of the user's guide.*
- *This device should only be operated with the type of power source indicated on the instrument nameplate. If you are not sure of the type of power service available, please contact your local power company.*
- *Reliable earthing (grounding) of this unit must be maintained. Particular attention should be given to supply connections when connecting to power strips, rather than directly to the branch circuit.*
- *Some CPM models include an optional, secondary power inlet in order to allow connection to a secondary power supply.*
- *CPM-1600 Series units include up to four power inlets split between either two branches or four branches.*

4.1.2. Installing the Power Supply Cable Keeper(s)

CPM Series units includes cable keepers, which are designed to prevent the AC power supply cables from being accidentally disconnected from the unit. When attaching power supply cables to the unit, first swing the cable keeper out of the way, then plug the power cable securely into the power input. When the cable is in place, snap the cable keeper over the plug to secure the cable to the unit.

4.2.   Connecting the Network Cable

The Network Port is an RJ45 Ethernet jack, for connection to a TCP/IP network. Connect your 10/100/1000Base-T cable to the Network Port. Some CPM series units include an optional, secondary Network port in addition to the primary network port. When installing the CPM in a working network environment, it is recommended to define network parameters as described in the WTI Firmware Guide.

Notes:

* *When connecting only one network cable to a CPM unit that includes two Ethernet ports make certain to connect to Port ETH0.*

* *The CPM features a 10/100/1000Base-T auto-negotiating Interface; speed and duplex mode will be automatically negotiated. When connecting to an Ethernet interface, most router switches will autosense to determine if the device is 1000Base-T, 100Base-T or 10Base-T, and then configure the network interface accordingly. If your router switch does not autosense, the CPM will auto negotiate speed and duplex mode.*

4.3.   The Internal Modem Port

If your CPM unit includes the optional internal modem, connect an RJ11 phone line to the Phone Line Port. For information on Modem configuration, please refer to the WTI Firmware Guide.

Notes:

* *CPM Series units that include the Cellular Modem Option do not include an internal, dial-up modem.*

* *An external modem can also be connected to the CPM serial ports as described in Section 4.6. For further information, please refer to Appendix B and Appendix C.*

4.4.   Connection to the SetUp Port(s)

In order to select configuration parameters and review unit status, commands are issued to the CPM via either the Network Port, Setup Port or USB Mini Port. Note that it is not necessary to connect to all three ports. Connect your PC COM Port to the SetUp Port or USB Mini Port. For a description of the port pinouts, please refer to Appendix B.

* **RJ45 SetUp Port:** When connecting to the RJ45 SetUp Port, refer to Appendix B and then use an appropriate adapter and cable to connect your PC COM port to the CPM's SetUp Port (Serial Port 1.)

* **USB Mini SetUp Port:** When connecting to the USB Mini Port, use a standard USB Mini Port cable.

4.5. Connection to Switched Outlets

Connect the power cables from your switched devices to the AC Outlets located on the CPM back panel. Note that when power is applied to the CPM, the AC Outlets will be switched "ON" by default.

4.6. Connecting Devices to the CPM Serial Ports

CPM units feature RJ45 RS232 connectors. In the default state, the serial ports are configured for 9600 bps, no parity, 8 data bits, 1 stop bit. For a description of the serial port interface, please refer to Appendix B.

When properly configured, the serial ports can be connected to almost any device that includes an RS232 console port. In addition, the serial ports can also be used to allow local users to configure and control the CPM; Serial Port 1 is designated as a "Set Up Port", and accordingly cannot be reconfigured as a buffer mode or passive mode port in order to ensure the port's availability for local communication with the CPM.

Notes:

- *CPM Series products are available with either Standard Pinned RJ45 Serial Ports or Straight Pinned RJ45 Serial Ports. To determine which pinout is present, first access the CPM's CLI as described in Section 3.3, and then type* /J* *and press [Enter] to display the Unit Information screen. If the part number shown in the Option field includes the characters, "WPO" then the SetUp Port uses the Straight Pinout format.*

- *For cable recommendations and other information on connecting devices to the CPM unit, please refer to Appendix B and Appendix C.*

- *To connect external modems, router switches, or other DTE and DCE devices to the CPM serial ports, please refer to Appendix C for information regarding cables and adapters.*

After connecting new devices to CPM Serial Ports, access the CPM command mode and select communication parameters for each serial port as described in the WTI Firmware Guide.

4.7. Emergency Shut Off Function

CPM series units also include an Emergency Shut Off function, that can be used to immediately shut off all power outlets in case of emergency. For more information regarding the Emergency Shut Off feature, please contact WTI Tech Support at service@wti.com.

4.8. The Cellular Modem Option

This section provides a basic overview of the procedure for installing and setting up WTI's Cellular Modem option on CPM series products.

Notes:

- *It is recommended to install the Cellular Antennae and SIM card **before** connecting cables to the CPM power outlets and serial ports.*

- *For instructions regarding configuring the Cellular Modem and defining the Static Route, please refer to the WTI Firmware Guide.*

In order to communicate with your CPM device via the Cellular Modem Option, you will first need to purchase a cellular plan. When choosing a cellular plan, WTI recommends that the plan should provide the following:

- A Static IP Address
- A VPN (Virtual Private Network)

4.8.1. Attach the Cellular Antennae

Attach the two Cellular Antennae, (included with the unit,) to the two threaded connectors on the CPM face plate.

4.8.2. Install the SIM Card

Once you have purchased a cellular plan, the next step is to install the SIM card, (provided with your cellular plan,) in your CPM device. To install the SIM card, proceed as follows:

Note: *Prior to installing the SIM Card, make certain that the WTI CPM series unit is powered Off and disconnected from the power source.*

1. Remove the SIM Card cover panel on the left hand side of the WTI unit, located adjacent to the cellular antenna. Note that the panel is held in place by a small Phillips Head screw.

2. Carefully slide the SIM card into the SIM Card Slot with the keyed/notched corner of the card facing towards the unit's faceplate (see diagram on cover plate.) Make certain the SIM Card is firmly seated, but do not apply excess pressure that might damage the card.

3. Replace the panel that covers the SIM Card Slot, reinstall the retaining screw and restore power to the CPM unit.

4. For instructions regarding configuring the SIM card, defining Static Route parameters, enabling web access and setting up the firewall/IP tables, please refer to the WTI Firmware Guide.

This completes the CPM Hardware Guide. Prior to placing the unit into operation, it is recommended to refer to the WTI Firmware Guide for important information regarding advanced configuration options, security functions and more detailed operation instructions. If you have further questions regarding the CPM unit, please contact WTI Customer Support as described in Appendix D.

Appendix A.   Specifications

Power Input/Output:
    Voltage:
        CPM-1600-1 and CPM-800-1 Series: 100 - 120 VAC, 50/60 Hz
        CPM-1600-2 and CPM-800-2 Series: 208 - 240 VAC, 50/60 Hz
    AC Input Feed:
        CPM-1600 Series and CPM-800 Series: 20 Amps Max. Input Feed per Inlet
    AC Inlets:
        CPM-1600 Series: Four (4) IEC320-C20
        CPM-800 Series: Two (2) IEC320-C20
    AC Outlets:
        CPM-1600-1 Series: 16 each, NEMA 5-15R Outlets
        CPM-1600-2 Series: 16 each, IEC320-C13 Outlets
        CPM-800-1 Series: 8 each, NEMA 5-15R Outlets
        CPM-800-2 Series: 8 each, IEC320-C13 Outlets

RS232 Port Interface:
    Connectors:
        CPM-1600 Series: Sixteen (16) RJ45 connectors
        CPM-800 Series: Eight (8) RJ45 connectors
    Coding: 7/8 bits, Even, Odd, No Parity, 1, 2 Stop Bits.
    Data Rate: 300 bps to 230 kbps (all standard rates).

Internal Modem:
    CPM-1600 Series and CPM-800 Series: Internal 56K v.92 Modem (Optional)

Physical/Environmental:
    CPM-1600 Series:
        Width: 19" (48.3 cm) (Including Rack Brackets)
        Depth: 12.5" (31.75 cm)
        Height: 3.5" (8.9 cm)
    CPM-800 Series:
        Width: 19" (48.3 cm) (Including Rack Brackets)
        Depth: 8.75" (22.2 cm)
        Height: 1.75" (4.5 cm) One Rack U

    Operating Temperature: 32˚F to 140˚F (0˚C to 60˚C)
    Humidity: 10 - 90% RH
    Agency Approvals: FCC, UL, CE
    Venting: Side vents are used to dissipate heat generated within the unit. When mounting the unit in an equipment rack, make certain to allow adequate clearance for venting.

Control Ports:
    Ethernet Port: 10/100/1000Base-T, RJ45, multi-session.
        (Optional Secondary 10/100/1000Base-T Ethernet Port Also Available.)
    Internal Modem Port (Phone Line): (Optional) RJ11 for connection to your Telco line
    Internal Cellular Modem Port: (Optional) 4G LTE for Verizon, AT&T or EU
    USB SetUp Port: USB Mini Port for Local Access

Appendix B.   Serial Interface Description

Notes:
- *CPM Series products are available with either Standard Pinned RJ45 Serial Ports or Straight Pinned RJ45 Serial Ports. To determine which pinout is present, first access the CPM's CLI as described in <u>Section 3.3</u>, and then type* `/J*` *and press **[Enter]** to display the Unit Information screen. If the part number shown in the Option field includes the characters, "*`WPO`*" then the SetUp Port uses the Straight Pinout format.*
- *For information on connecting devices to either type of Serial Port, please refer to <u>Appendix C</u>.*
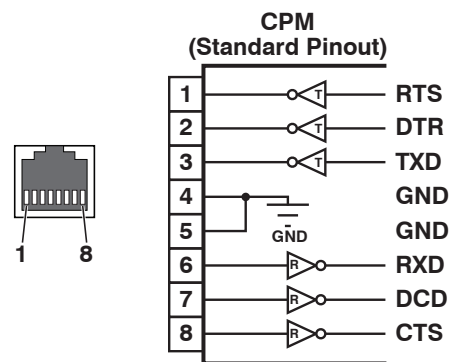
Figure B.1: CPM Series RS232 Port Interface (RJ45 - Standard Pinout)
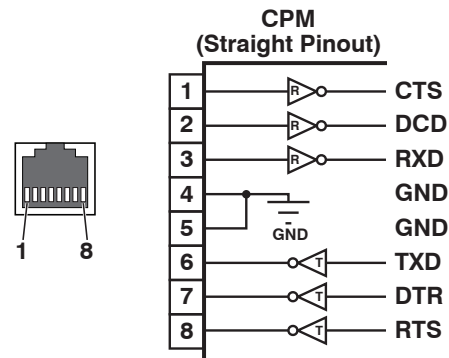
Figure B.2: CPM Series RS232 Port Interface (RJ45 - Straight Pinout)
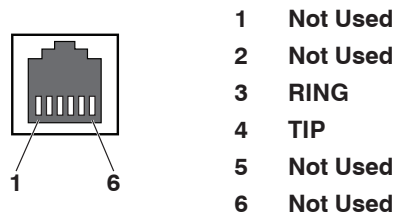

Figure B.3: RJ11 Phone Line Port (for Optional Internal Modem)

B.1. Serial Port (RS232)

DCD and DTR hardware lines function as follows:

1. **When connected:**

   a) If either port is set for Modem Mode, the DTR output at either port reflects the DCD input at the other end.

   b) If *neither* port is set for Modem Mode, DTR output is held high (active).

2. **When not connected:**

   a) If the port is set for Modem Mode, upon disconnect DTR output is pulsed for 0.5 seconds and then held high.

   b) If the port is *not* set for Modem Mode, DTR output is controlled by the DTR Output option (Serial Port Parameters Menu, Option 23). Upon disconnect, Option 23 allows DTR output to be held low, held high, or pulsed for 0.5 seconds and then held high.

B.2. CPM Series RJ45 Serial Ports - Standard Pinout Units

When connecting devices to Standard Pinout Serial Ports, please refer to Figure B.1 and the table below:

Target Device End	Adapter	Cable	WTI Device End
RJ Serial Console Ports: Cisco Routers, Juniper Routers and Other Network Devices with RJ45 Serial Console Port	(None Required)	RJ45 Rollover Cable: RJ-ROLL (7 Feet) RJ-ROLL-25 (25 Feet)	WTI CPM Series - RJ45, DCE Serial Console Port
DB9M Serial Console Ports: Linux PC or Liinux Laptop, WTI RSM Series Units, WTI MPC Series Units and Other Devices with a DB9M Serial Console Port	DX9F-DTE-RJ Snap Adapter	RJ45 Straight Cable: RJX-7 (7 Feet) RJX-15 (15 Feet) RJX-25 (25 Feet) RJX-50 (50 Feet)	
DB25F Serial Console Ports: Terminal/DTE and Other Devices with DB25F Serial Console Port	DX25M-DTE-RJ Snap Adapter	RJ45 Straight Cable: RJX-7 (7 Feet) RJX-15 (15 Feet) RJX-25 (25 Feet) RJX-50 (50 Feet)	

Notes:

- *For information regarding Straight Pinout Serial Ports, please refer to Appendix B.3.*

- *For RJ45 console ports on target devices that are not pinned as a Cisco interface, try standard Cat5 straight cable. For all other non-standard interfaces, please contact WTI Technical Support for assistance as described in Appendix D. When contacting Technical Support, please be prepared to provide a serial pinout and signal directions for the target interface.*

B.3. CPM Series RJ45 Serial Ports - Straight Pinout Units

When connecting devices to Straight Pinout Serial Ports, please refer to <u>Figure B.2</u> and the table below:

Target Device End	Adapter	Cable	WTI Device End
RJ Serial Console Ports: Cisco Routers, Juniper Routers and Other Network Devices with RJ45 Serial Console Port	(None Required)	RJ45 Straight Cable: RJX-7 (7 Feet) RJX-25 (25 Feet)	WTI CPM Series - RJ45, DTE Serial Console Port
DB9M Serial Console Ports: Linux PC or Liinux Laptop, WTI RSM Series Units, WTI MPC Series Units and Other Devices with a DB9M Serial Console Port	DX9F-DTE-RJ Snap Adapter	RJ45 Rollover Cable: RJ-Roll-7 (7 Feet) RJ-Roll-15 (15 Feet) RJ-Roll-25 (25 Feet) RJ-Roll-50 (50 Feet)	
DB25F Serial Console Ports: Terminal/DTE and Other Devices with DB25F Serial Console Port	DX25M-DTE-RJ Snap Adapter	RJ45 Rollover Cable: RJ-Roll-7 (7 Feet) RJ-Roll-15 (15 Feet) RJ-Roll-25 (25 Feet) RJ-Roll-50 (50 Feet)	

Notes:

- *For information regarding Standard Pinout Serial Ports, please refer to <u>Appendix B.2</u>.*

- *For RJ45 console ports on target devices that are not pinned as a Cisco interface, try standard Cat5 straight cable. For all other non-standard interfaces, please contact WTI Technical Support for assistance as described in <u>Appendix D</u>. When contacting Technical Support, please be prepared to provide a serial pinout and signal directions for the target interface.*

Appendix C.   Connecting Devices to RJ45 Serial Ports

This section describes the cables and adapters that are used to connect common devices to the Standar Pinned and Straight Pinned RJ-45 serial ports on CPM Series devices.

> **Note:** *CPM Series products are available with either Standard Pinned RJ45 Serial Ports or Straight Pinned RJ45 Serial Ports. To determine which pinout is present, first access the CPM's CLI as described in Section 3.3, and then type /J* and press [Enter] to display the Unit Information screen. If the part number shown in the Option field includes the characters, "WPO" then the SetUp Port uses the Straight Pinout format.*

C.1.   Straight RJ-45 Cables and Rollover RJ-45 Cables

The connection examples described in this section include the use of either an RJ-45 Straight cable or an RJ-45 Rollover cable. In Straight Cables the pins on each connector are linked to the same pin number on the connector at the other end of the cable; for example, Pin 1 on the right hand connector is linked to Pin 1 on the left hand connector, as shown in Figure C.1 below.

For Rollover Cables, the order of the pins is reversed; Pin 1 on the right hand connector would be linked to Pin 8 on the left hand connector, as shown in Figure C.2.
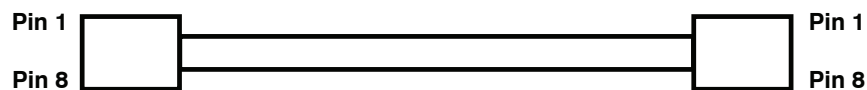
Pin 1   Pin 1

Pin 8   Pin 8

Figure C.1: Straight Cables

Pin 1   Pin 8

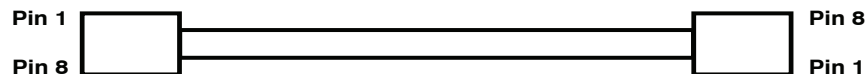Pin 8   Pin 1

Figure C.2: Rollover Cables

C.2. Connecting Devices to Standard Pinout CPM Models

C.2.1. Connecting DB-9M DTE Devices - Standard Pinout CPM Models

On Standard Pinout CPM models, the DX9F-DTE-RJ Snap Adapter can be used with a Straight RJ-45 cable to attach the following DB-9M DTE devices to the RJ-45 Serial Ports:

- PCs and Laptops
- Console Ports on WTI MPC Series Units
- Other Devices with a DB-9M DTE Console Port

When connecting a DB-9M DTE device to an RJ-45 Serial Port on a Standard Pinned CPM Series unit, please refer to Figure C.3 and Figure C.4 below:

Notes:

- *CPM Series products are available with either Standard Pinned RJ45 Serial Ports or Straight Pinned RJ45 Serial Ports. To determine which pinout is present, first access the CPM's CLI as described in Section 3.3, and then type* /J* *and press* **[Enter]** *to display the Unit Information screen. If the part number shown in the Option field includes the characters, "*WPO*" then the SetUp Port uses the Straight Pinout format.*

- *For a information regarding connecting devices to CPM units that include Straight Pinned serial ports, please refer to Appendix C.3.*

- *For a description of the Standard Pinout, please refer to Appendix B.*
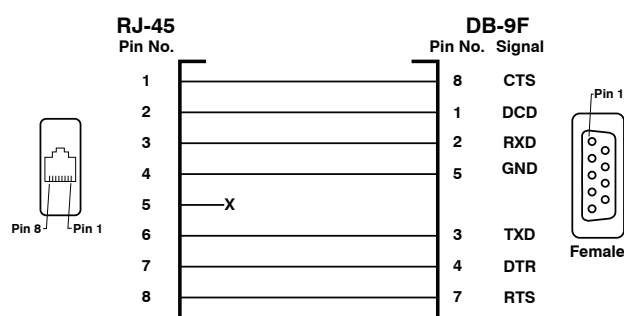
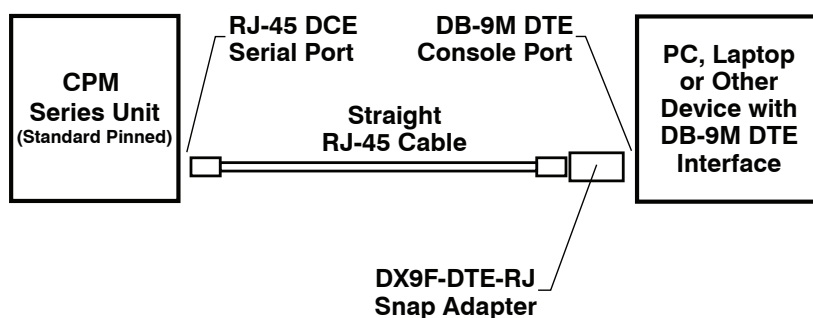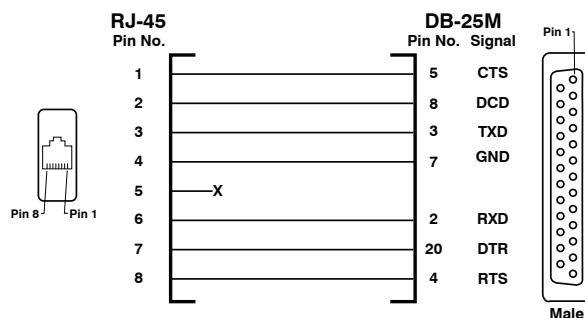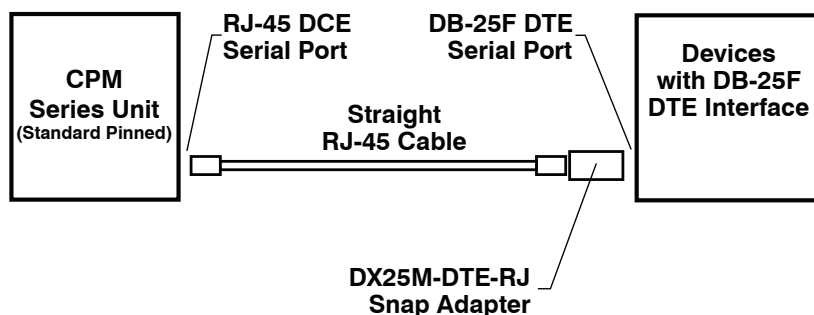*Figure C.3: DX9F-DTE-RJ Snap Adapter Interface*

Figure C.4: Connecting DB-9M DTE Devices to Standard Pinned CPM Series Units

C.2.2. Connecting DB-25F DTE Devices - Standard Pinout CPM Models

On Standard Pinned CPM models, the DX25M-DTE-RJ Snap Adapter can be used with a Straight RJ-45 cable to attach the most DB-25F DTE devices to the CPM's RJ-45 Serial Ports.

When connecting a DB-25F DTE device to an RJ-45 Serial Port on a Standard Pinned CPM Series unit, please refer to Figure C.5 and Figure C.6 below:

Notes:
- *CPM Series products are available with either Standard Pinned RJ45 Serial Ports or Straight Pinned RJ45 Serial Ports. To determine which pinout is present, first access the CPM's CLI as described in Section 3.3, and then type* /J* *and press [Enter] to display the Unit Information screen. If the part number shown in the Option field includes the characters, "*WPO*" then the SetUp Port uses the Straight Pinout format.*

- *For a information regarding connecting devices to CPM units that include Straight Pinned serial ports, please refer to Appendix C.3.*

- *For a description of the Standard Pinout, please refer to Appendix B.*

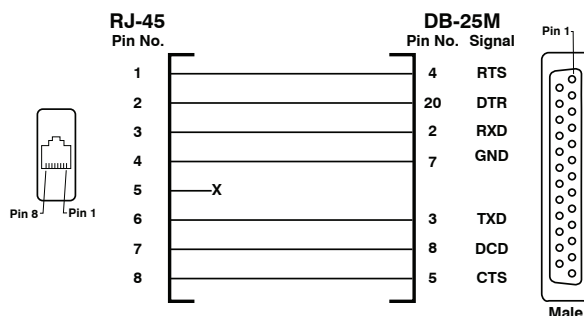*Figure C.5: DX25M-DTE-RJ Snap Adapter Interface*

Figure C.6: Connecting DB-25F DTE Devices to Standard Pinned CPM Series Units

C.2.3. Connecting DB-25F DCE Devices - Standard Pinout CPM Models

On Standard Pinned CPM models, the DX25M-DCE-RJ Snap Adapter can be used with a Straight RJ-45 cable to attach the following DB-25F DCE devices to the CPM's RJ-45 Serial Ports:

• External Modems with DB-25F DCE Serial Port

• Other Devices with a DB-25F DCE Console Port

When connecting a DB-25F DCE device to an RJ-45 Serial Port on a Standard Pinned CPM Series unit, please refer to Figure C.7 and Figure C.8 below:

Notes:

• *CPM Series products are available with either Standard Pinned RJ45 Serial Ports or Straight Pinned RJ45 Serial Ports. To determine which pinout is present, first access the CPM's CLI as described in Section 3.3, and then type* `/J*` *and press [Enter] to display the Unit Information screen. If the part number shown in the Option field includes the characters, "*`WPO`*" then the SetUp Port uses the Straight Pinout format.*

• *For a information regarding connecting devices to CPM units that include Straight Pinned serial ports, please refer to Appendix C.3.*

• *For a description of the Standard Pinout, please refer to Appendix B.*

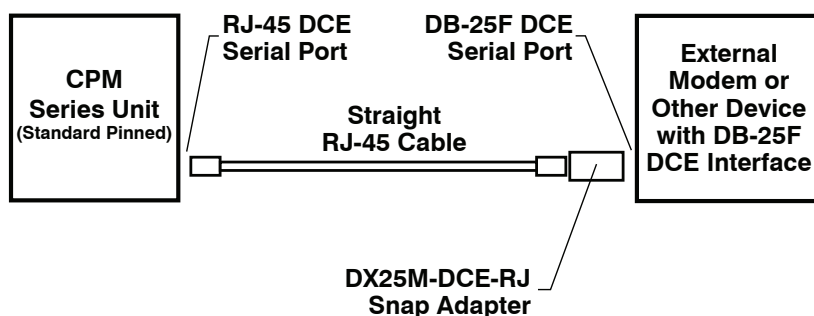*Figure C.7: DX25M-DCE-RJ Snap Adapter Interface*

Figure C.8: Connecting DB-25F DCE Devices to Standard Pinned CPM Series Units

C.2.4. Connecting RJ-45 DCE Devices - Standard Pinout CPM Models

On Standard Pinned CPM models, an RJ-ROLL Rollover cable can be used to connect the following RJ-45 DCE devices to the CPM's RJ-45 Serial Ports:

- Cisco Routers with RJ-45 DCE Console Port
- Sun Routers with RJ-45 DCE Console Port
- Other Devices with RJ-45 DCE Console Port

When connecting an RJ-45 DCE device to an RJ-45 serial port on a Standard Pinned CPM Series units, please refer to Figure C.9 below:

Notes:

- *CPM Series products are available with either Standard Pinned RJ45 Serial Ports or Straight Pinned RJ45 Serial Ports. To determine which pinout is present, first access the CPM's CLI as described in Section 3.3, and then type* `/J*` *and press* **[Enter]** *to display the Unit Information screen. If the part number shown in the Option field includes the characters, "*`WPO`*" then the SetUp Port uses the Straight Pinout format.*

- *For a information regarding connecting devices to CPM units that include Straight Pinned serial ports, please refer to Appendix C.3.*

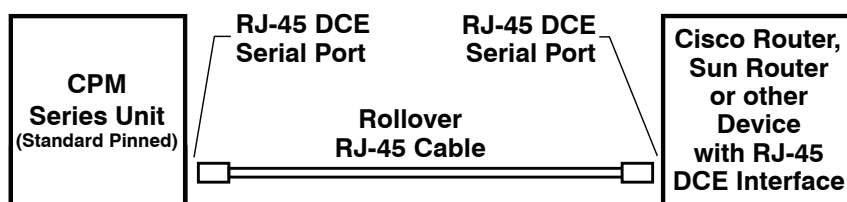- *For a description of the Standard Pinout, please refer to Appendix B.*

Figure C.9: Connecting RJ-45 DCE Devices to Standard Pinned CPM Series Units

C.3. Connecting Devices to Straight Pinout CPM Models

C.3.1. Connecting DB-9M DTE Devices - Straight Pinout CPM Models

On Straight Pinout CPM models, the DX9F-DTE-RJ Snap Adapter can be used with an RJ-Roll RJ-45 Rollover cable to attach the following DB-9M DTE devices to the CPM's RJ-45 Serial Ports:

- PCs and Laptops
- Console Ports on WTI MPC Series Units
- Other Devices with a DB-9M DTE Console Port

When connecting a DB-9M DTE device to an RJ-45 Serial Port on a Straight Pinned CPM Series unit, please refer to Figure C.10 and Figure C.11 below:

Notes:

- *CPM Series products are available with either Standard Pinned RJ45 Serial Ports or Straight Pinned RJ45 Serial Ports. To determine which pinout is present, first access the CPM's CLI as described in Section 3.3, and then type* `/J*` *and press* **[Enter]** *to display the Unit Information screen. If the part number shown in the Option field includes the characters,* "`WPO`" *then the SetUp Port uses the Straight Pinout format.*

- *For a information regarding connecting devices to CPM units that include Standard Pinned serial ports, please refer to Appendix C.2.*

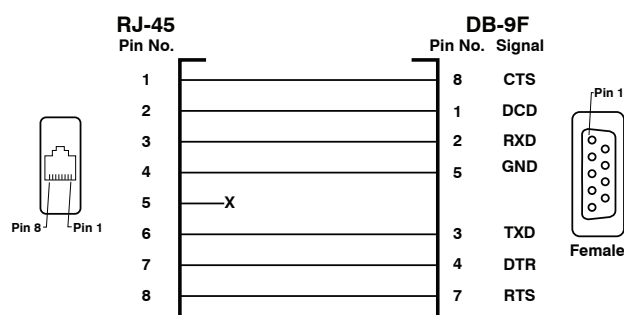- *For a description of the Straight Pinout, please refer to Appendix B.*

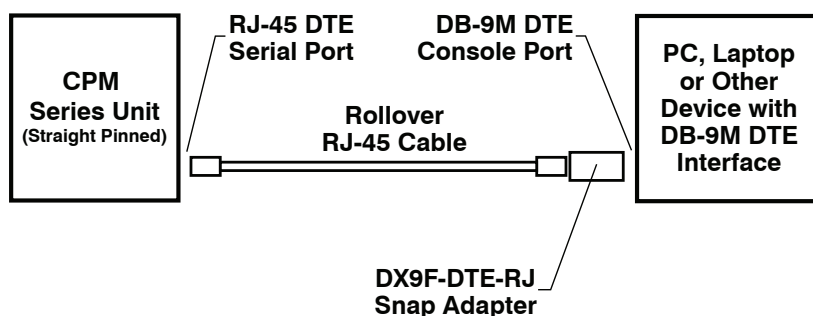**Figure C.10: DX9F-DTE-RJ Snap Adapter Interface**

Figure C.11: Connecting DB-9M DTE Devices to Standard Pinned CPM Series Units

C.3.2. Connecting DB-25F DTE Devices - Straight Pinout CPM Models

On Straight Pinned CPM models, the DX25M-DTE-RJ Snap Adapter can be used with an RJ-Roll RJ-45 Rollover cable to attach the most DB-25F DTE devices to the CPM's RJ-45 Serial Ports.

When connecting a DB-25F DTE device to an RJ-45 Serial Port on a Straight Pinned CPM Series unit, please refer to Figure C.12 and Figure C.13 below:

Notes:

- *CPM Series products are available with either Standard Pinned RJ45 Serial Ports or Straight Pinned RJ45 Serial Ports. To determine which pinout is present, first access the CPM's CLI as described in Section 3.3, and then type* /J* *and press* **[Enter]** *to display the Unit Information screen. If the part number shown in the Option field includes the characters, "*WPO*" then the SetUp Port uses the Straight Pinout format.*

- *For a information regarding connecting devices to CPM units that include Standard Pinned serial ports, please refer to Appendix C.2.*

- *For a description of the Straight Pinout, please refer to Appendix B.*

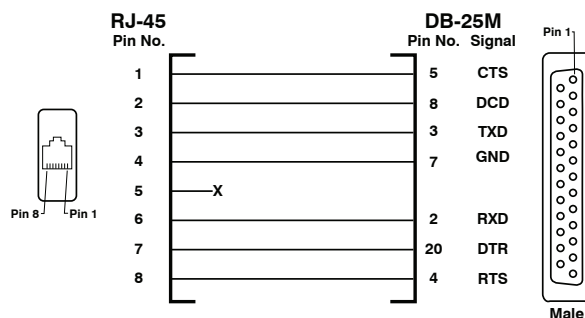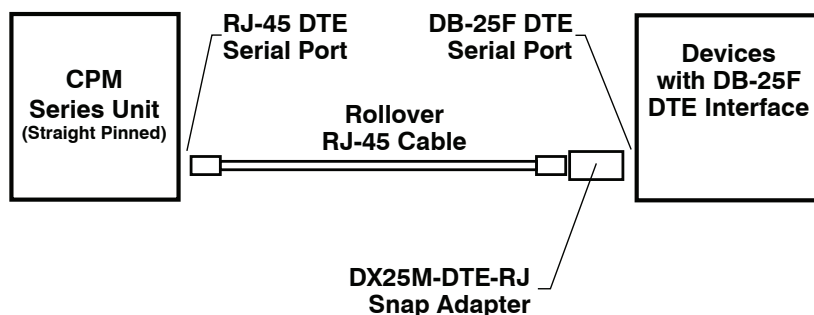*Figure C.12: DX25M-DTE-RJ Snap Adapter Interface*

Figure C.13: Connecting DB-25F DTE Devices to Straight Pinned CPM Series Units

C.3.3. Connecting DB-25F DCE Devices - Straight Pinout CPM Models

On Straight Pinned CPM models, the DX25M-DCE-RJ Snap Adapter can be used with an RJ-Roll RJ-45 Rollover cable to attach the following DB-25F DCE devices to the CPM's RJ-45 Serial Ports:

- External Modems with DB-25F DCE Serial Port
- Other Devices with a DB-25F DCE Console Port

When connecting a DB-25F DCE device to an RJ-45 Serial Port on a Straight Pinned CPM Series unit, please refer to Figure C.14 and Figure C.15 below:

Notes:

- *CPM Series products are available with either Standard Pinned RJ45 Serial Ports or Straight Pinned RJ45 Serial Ports. To determine which pinout is present, first access the CPM's CLI as described in Section 3.3, and then type /J* and press [Enter] to display the Unit Information screen. If the part number shown in the Option field includes the characters, "WPO" then the SetUp Port uses the Straight Pinout format.*
- *For a information regarding connecting devices to CPM units that include Standard Pinned serial ports, please refer to Appendix C.2.*
- *For a description of the Straight Pinout, please refer to Appendix B.*

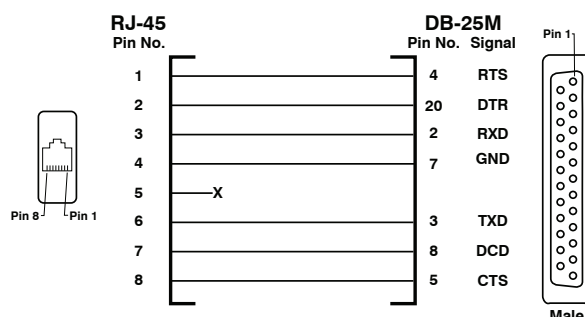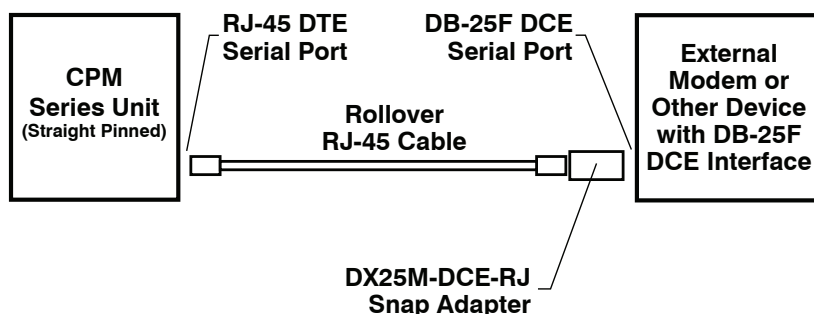*Figure C.14: DX25M-DCE-RJ Snap Adapter Interface*

Figure C.15: Connecting DB-25F DCE Devices to Straight Pinned CPM Series Units

C.3.4. Connecting RJ-45 DCE Devices - Straight Pinout CPM Models

On Straight Pinned CPM models, an RJ-X Straight cable can be used to connect the following RJ-45 DCE devices to the CPM's RJ-45 Serial Ports:

- Cisco Routers with RJ-45 DCE Console Port
- Sun Routers with RJ-45 DCE Console Port
- Other Devices with RJ-45 DCE Console Port

When connecting an RJ-45 DCE device to an RJ-45 serial port on a Straight Pinned CPM Series units, please refer to Figure C.16 below:

Notes:

- *CPM Series products are available with either Standard Pinned RJ45 Serial Ports or Straight Pinned RJ45 Serial Ports. To determine which pinout is present, first access the CPM's CLI as described in Section 3.3, and then type /J* and press **[Enter]** to display the Unit Information screen. If the part number shown in the Option field includes the characters, "WPO" then the SetUp Port uses the Straight Pinout format.*

- *For a information regarding connecting devices to CPM units that include Standard Pinned serial ports, please refer to Appendix C.2.*

- *For a description of the Straight Pinout, please refer to Appendix B.*
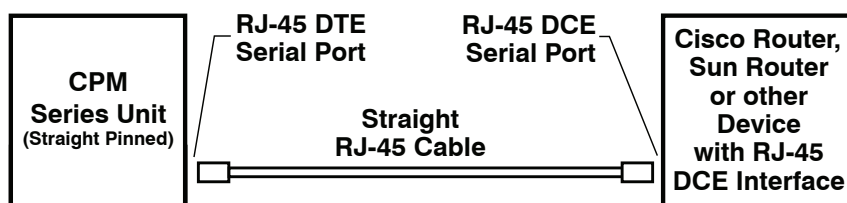

Figure C.16: Connecting RJ-45 DCE Devices to Straight Pinned CPM Series Units

Appendix D.   Customer Service

Customer Service hours are from 8:00 AM to 5:00 PM, PST, Monday through Friday. When calling, please be prepared to give the name and make of the unit, its serial number and a description of its symptoms. If the unit should need to be returned for factory repair it must be accompanied by a Return Authorization number from Customer Service.

WTI Customer Service
5 Sterling
Irvine, California   92618

Local Phone: (949) 586-9950
Toll Free Service Line: 1-888-280-7227
Service Fax: (949) 583-9514

Email: service@wti.com

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June, 2019
Part Number: 14528, Revision: B

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