DSM Series
Serial Console Servers

Products Covered:
DSM-40 Series Models
DSM-24 Series Models
DSM-8 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

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

2. When installing 48 VDC rated equipment, it must be installed only per the following conditions:

    A. Connect the equipment to a 48 VDC supply source that is electrically isolated from the alternating current source. The 48 VDC source is to be connected to a 48 VDC SELV source.

    B. Input wiring to terminal block must be routed and secured in such a manner that it is protected from damage and stress. Do not route wiring past sharp edges or moving parts.

    C. A readily accessible disconnect device, with a 3 mm minimum contact gap, shall be incorporated in the fixed 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.

Two Power Supply Cables

Note that some DSM Series units feature two separate power inlets and a separate power supply cable for each power inlet. If your DSM unit includes two power inlets, make certain to disconnect both 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.

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 DSM Series Remote Site Managers with Power Control. DSM 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.

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

Model Numbers Covered

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

2. Unit Description

2.1. DSM Series - Front Panel
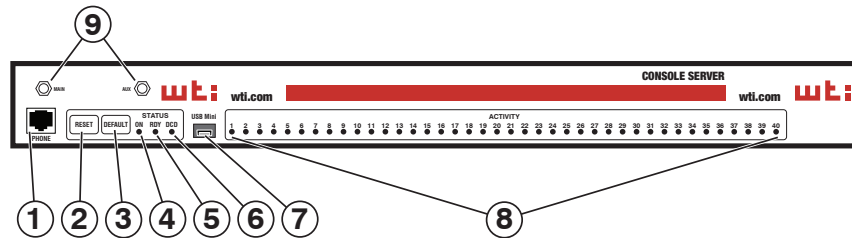
Figure 2.1: DSM-40 Series - Front Panel
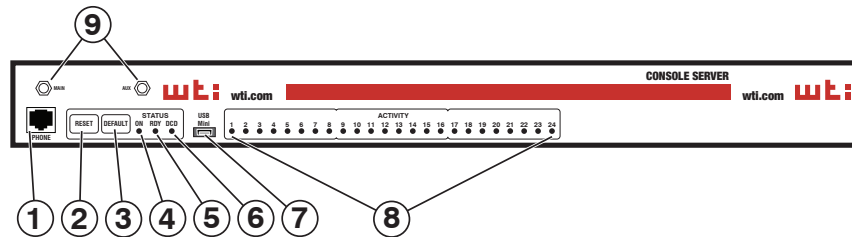
Figure 2.2: DSM-24 Series - Front Panel
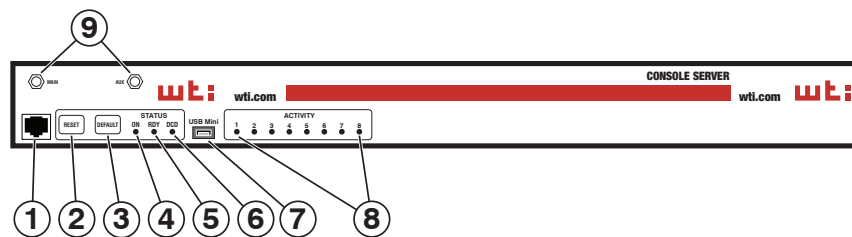
Figure 2.3: DSM-8 Series Units - Front Panel

As shown in Figure 2.1, Figure 2.2 and Figure 2.3, DSM Series front panels include the following components:

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

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

2. **RESET:** Restarts the DSM operating system as described in Section 2.3.

3. **DEFAULT:** Initializes the DSM to default parameters as described in Section 2.3.

4. **ON:** Lights when AC Power is applied.

5. **RDY:** (Ready) Flashes to indicate that the unit is operational.

6. **DCD:** (Data Carrier Detect) Lights when the DCD signal is present.

7. **USB SetUp Port:** The USB SetUp Port can be connected to a PC or laptop in order to provide local access to DSM 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 DSM back panel can also be used to provide local access to DSM command mode.*

8. **ACTIVITY LEDs:** 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.

9. **Cellular Antenna Connectors (Optional):** When the Cellular Modem Option is present, the DSM front panel will include two screw-on connectors for the Cell Antennae. For more information on the Cellular Modem Option, please refer to Section 4.6.
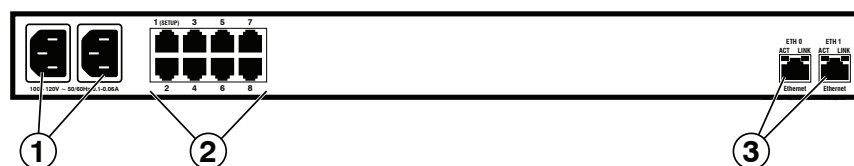
Figure 2.4: DSM-8 Series Units - Back Panel
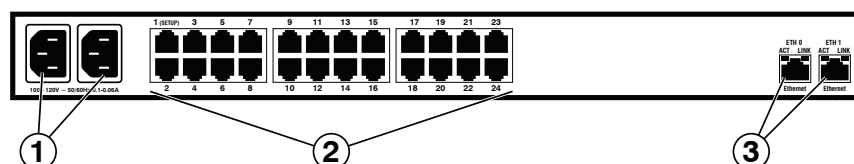
Figure 2.5: DSM-24 Series Units - Back Panel
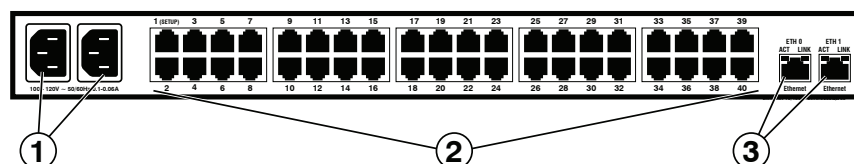
Figure 2.6: DSM-40 Series Units - Back Panel

2.2.   DSM Series - Back Panel

As shown in Figure 2.4, Figure 2.5 and Figure 2.6, the DSM Back Panel includes the following components:

1. **Power Inlet(s):** IEC-320-C14 inlet(s), for connection to 100 to 240 VAC power supplies.

    ### Notes:
    - *48 VDC powered models include a terminal block assembly in place of the power inlet.*

    - *Some DSM series units include an optional, secondary IEC-320-C14 power inlet. This allows connection to a secondary power source in power redundancy applications.*

2. **RS232 Serial Ports:** For connection to console ports on target devices. DSM 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 4.5, plus Appendix B and Appendix C.

    - DSM-8 series units include 8 Serial Ports.

    - DSM-24 series units include 24 Serial Ports.

    - DSM-40 series units include 40 Serial Ports.

3. **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 more information on Network Port configuration, please refer to the WTI Firmware Guide.

Notes:

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

*   *When connecting only a single network cable to a DSM series unit that includes the optional, secondary Network Port, make certain to connect to Port ETH0.*

2.3.   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 DSM 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 DSM 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 DSM 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 DSM 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 then stop blinking during the reboot.*

3. Getting Started

This section describes a simplified bench test procedure for DSM 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 DSM 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 DSM

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 DSM to an appropriate power source.

Notes::
- *Some AC Powered DSM Series products feature two power inlets.*
- *When connecting a DC Powered DSM Series unit to your DC Power source, note that the DC terminal block is designed for connection to two separate power sources.*

When power is applied to the DSM, 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 DSM

In the default state, communication with the DSM 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 DSM 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 DSM'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 DSM 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 DSM, please refer to Appendix B and Appendix C in this Hardware Guide.*

3.3. Communicating with the DSM

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 DSM 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 DSM 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 DSM will display either the Main Menu (Web Browser Interface) or the Port Status Screen (Text Interface.)

3.4. Connecting Serial Ports

If you wish to verify that the DSM 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. **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 DSM hardware.

Notes:

- *For a detailed description of configurations options and advanced operating features, please refer to the WTI Firmware Guide.*

- *If your DSM Series unit includes the Cellular Modem Option, it is recommended to install the cellular antennae and SIM card as described in Section 4.6 prior to performing this Hardware Installation procedure.*

4.1. Connecting the Power Supply Cables

4.1.1. Connect the DSM to Your Power Supply

Please Refer to the cautions listed below and at the beginning of this Hardware Guide. In addition, check the power rating label on the unit concerning power requirements and maximum load. Connect the power supply cables to the unit's power inlets, and then connect the cable to an appropriate power supply. When connecting power to a DC powered DSM unit, please refer to Section 4.1.2.

When power is applied to the DSM, 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 DSM models include an optional, secondary power inlet in order to allow connection to a secondary power supply.*

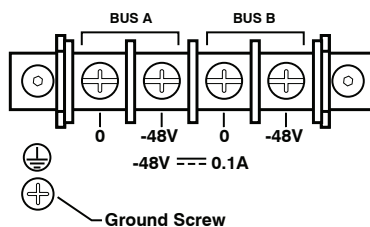- *Some DSM Series units include two power inlets and two power supply cables.*

BUS A   BUS B

0   -48V   0   -48V

-48V === 0.1A

Ground Screw

Figure 4.1: Terminal Block Assembly (DSM Series, DC Units Only)

4.1.2.   DC Powered Units

When connecting a DC Powered DSM Series unit to your DC Power source, note that the DC terminal block is designed for connection to two separate power sources. First remove the protective cover from the terminal block, attach the wires from the -48 VDC power sources to the screw terminals, connect the ground line to the labeled ground screw, tighten the screw terminals, making certain that the wires are securely fastened, and then replace the protective cover.

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 DSM series units include an optional, secondary Network port in addition to the primary network port. When installing the DSM 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 DSM unit that includes two Ethernet ports make certain to connect to Port ETH0.*

- *The DSM 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 DSM will auto negotiate speed and duplex mode.*

4.3.   The Internal Modem Port

If your DSM 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:
- *DSM 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 DSM serial ports as described in Section 4.5. 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 DSM 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 DSM's SetUp Port (Serial Port 1.) (Serial Port 1.)

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

4.5.   Connecting Devices to the DSM Serial Ports

DSM 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 DSM; 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 DSM.

Notes:
- *DSM Series products are available with either Standard Pinout RJ45 Serial Ports or Straight Pinout RJ45 Serial Ports. To determine which pinout is present, first access the 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 DSM unit, please refer to Appendix B and Appendix C.*

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

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

4.6.   The Cellular Modem Option

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

Notes:

- *It is recommended to install the Cellular Antennae and SIM card **before** connecting cables to the DSM 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 DSM 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)

4.6.1.   Attach the Cellular Antennae

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

4.6.2.   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 DSM device. To install the SIM card, proceed as follows:

Note: *Prior to installing the SIM Card, make certain that the WTI DSM 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 DSM 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 DSM 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 DSM unit, please contact WTI Customer Support as described in Appendix D.

Appendix A.   Specifications

RS232 Port Interface:

    Connectors:
- **DSM-8 Series Models:** Eight (8) RJ45 connectors, One (1) USB Mini SetUp Port
- **DSM-24 Series Models:** Twenty Four (24) RJ45 connectors, One (1) USB Mini SetUp Port
- **DSM-40 Series Models:** Forty (40) RJ45 connectors, One (1) USB Mini SetUp Port

    Coding: 7/8 bits, Even, Odd, No Parity, 1, 2 Stop Bits.

    Data Rate: 300 bps to 230 kbps (all standard rates).

    Inactivity Timeout: No activity timeout disconnects port/modem sessions. Off, 5, 15, 30, 90 minutes.

Memory: Stores Parameters and captured data. 256K per port.

Break: Send Break or Inhibit Break

Site ID: 32 Characters.

Port Name: 16 Characters per port.

Usernames & Passwords: 16 characters each (case sensitive.) Up to 128 pairs.

LEDs: On, Ready, DCD, plus Connection Activity for each RS232 Serial Port.

Physical / Environmental:

    Size:
- **Width:** 19” (48.3 cm) (Including Rack Brackets)
- **Depth:** 6.5” (16.5 cm)
- **Height:** 1.75” (4.5 cm) One Rack U

    Power:
- **AC Models:** IEC-320-C14 Inlet, 100 to 240 VAC, 50/60 Hz, 10 Watts Max. (Optional, Secondary IEC-320-C14 Inlet Available.)
- **DC Models:** Terminal Strip, -48 VDC (-18 to -72 VDC)

    Operating Temperature: 32°F to 140°F (0°C to 60°C)

    Storage Temperature: -4°F to 128°F (-20°C to 70°C)

    Humidity: 10 to 90% RH, Non-Condensing

    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 connector 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:

- *DSM Series products are available with either Standard Pinout RJ45 Serial Ports or Straight Pinout RJ45 Serial Ports. To determine which pinout is present, first access the 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.*
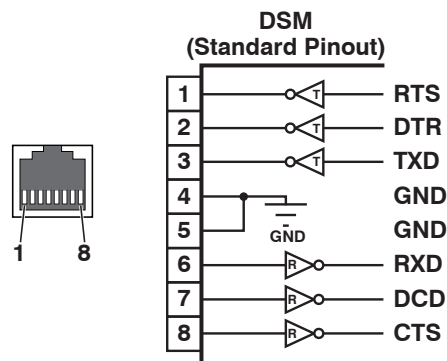- *For information on connecting devices to either type of Serial Port, please refer to Appendix C.*

**DSM
(Standard Pinout)**

1	RTS
2	DTR
3	TXD
4	GND
5	GND
6	RXD
7	DCD
8	CTS

Figure B.1: DSM Series RS232 Port Interface (RJ45 - Standard Pinout)

**DSM
(Straight Pinout)**

1	CTS
2	DCD
3	RXD
4	GND
5	GND
6	TXD
7	DTR
8	RTS
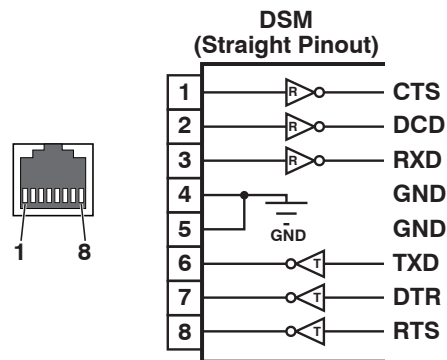
Figure B.2: DSM Series RS232 Port Interface (RJ45 - Straight Pinout)

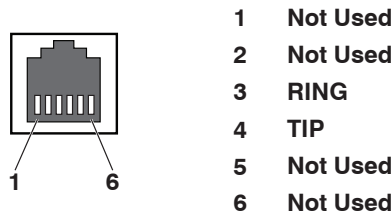|	
1	Not Used
2	Not Used
3	RING
4	TIP
5	Not Used
6	Not Used

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. DSM 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 DSM 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. DSM Series RJ45 Serial Ports - Straight Pinout Units

When connecting devices to Straight Pinout Serial Ports, please refer to Figure B.2 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 DSM 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 Appendix B.2.*

- *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.*

Appendix C.   Connecting Devices to RJ45 Serial Ports

This appendix describes the cables and adapters that are used to connect common devices to the RJ-45 serial ports on Standard Pinned and Straight Pinned DSM Series devices.

> **Note:** *DSM Series products are available with either Standard Pinout RJ45 Serial Ports or Straight Pinout RJ45 Serial Ports. To determine which pinout is present, first access the 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 appendix include the use of either an RJ-45 Straight cable or 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.
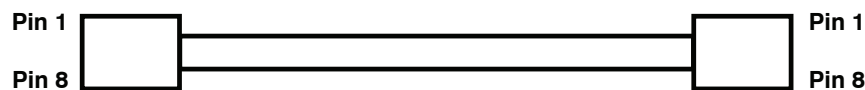
Pin 1   Pin 1

Pin 8   Pin 8

Figure C.1: Straight Cables

Pin 1   Pin 8

Pin 8   Pin 1
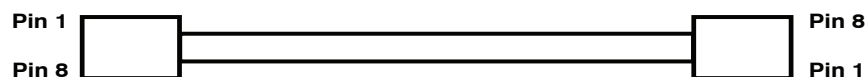
Figure C.2: Rollover Cables

C.2. Connecting Devices to Standard Pinout DSM Models

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

On Standard Pinout DSM 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 DSM Series unit, please refer to Figure C.3 and Figure C.4 below:

Notes:

- *DSM Series products are available with either Standard Pinout RJ45 Serial Ports or Straight Pinout RJ45 Serial Ports. To determine which pinout is present, first access the 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 DSM units that include Straight Pinned serial ports, please refer to Appendix C.3.*

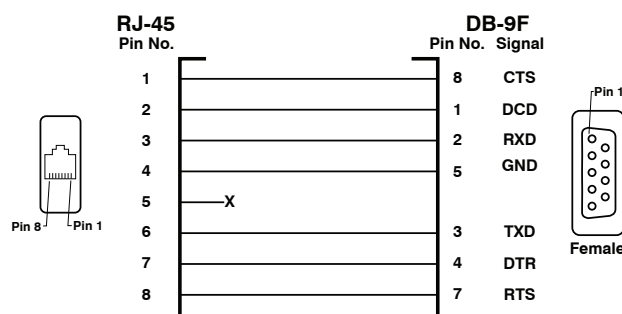- *For a description of the Standard Pinout, please refer to Appendix B.*

RJ-45 Pin No.		DB-9F Pin No.	Signal
1		8	CTS
2		1	DCD
3		2	RXD
4		5	GND
5	X		
6		3	TXD
7		4	DTR
8		7	RTS

Figure C.3: DX9F-DTE-RJ Snap Adapter Interface
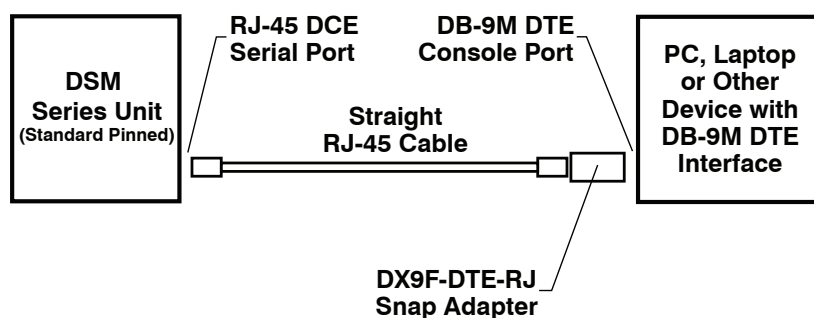

Figure C.4: Connecting DB-9M DTE Devices to Standard Pinned DSM Series Units

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

On Standard Pinned DSM 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 DSM's RJ-45 Serial Ports.

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

Notes:

- *DSM Series products are available with either Standard Pinout RJ45 Serial Ports or Straight Pinout RJ45 Serial Ports. To determine which pinout is present, first access the 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 DSM units that include Straight Pinned serial ports, please refer to Appendix C.3.*

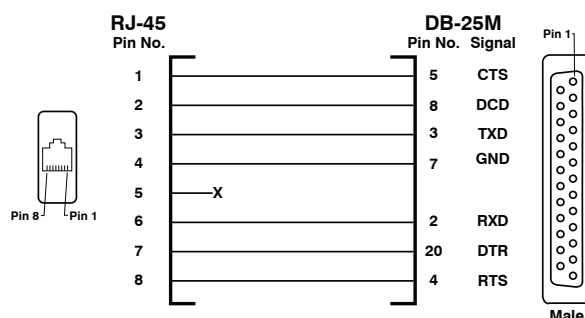- *For a description of the Standard Pinout, please refer to Appendix B.*

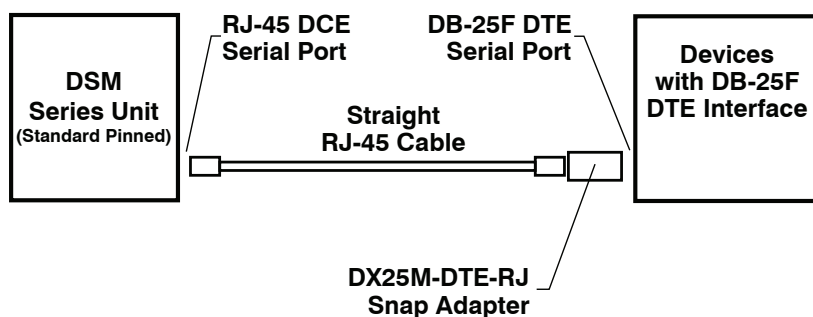**Figure C.5: DX25M-DTE-RJ Snap Adapter Interface**

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

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

On Standard Pinned DSM 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 DSM'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 DSM Series unit, please refer to Figure C.7 and Figure C.8 below:

Notes:

• *DSM Series products are available with either Standard Pinout RJ45 Serial Ports or Straight Pinout RJ45 Serial Ports. To determine which pinout is present, first access the 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 DSM units that include Straight Pinned serial ports, please refer to Appendix C.3.*

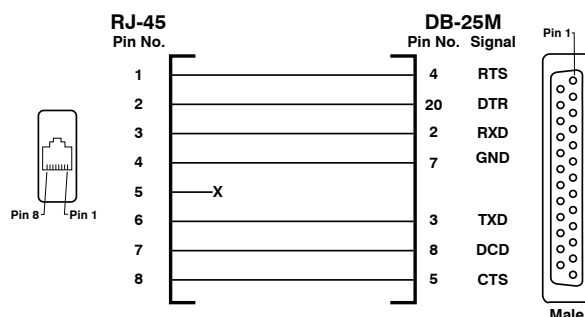• *For a description of the Standard Pinout, please refer to Appendix B.*

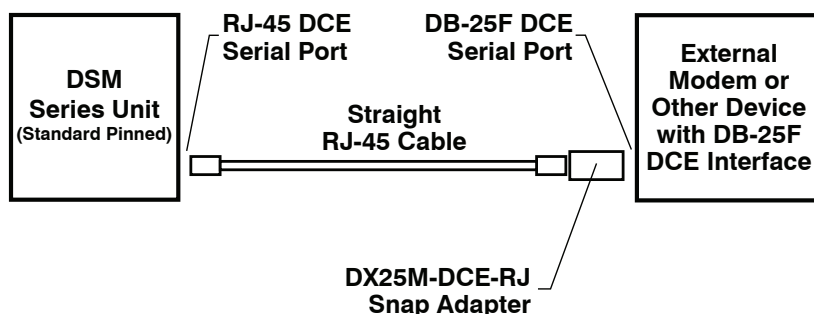**Figure C.7: DX25M-DCE-RJ Snap Adapter Interface**

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

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

On Standard Pinned DSM models, an RJ-ROLL Rollover cable can be used to connect the following RJ-45 DCE devices to the DSM'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 DSM Series units, please refer to Figure C.9 below:

Notes:

- *DSM Series products are available with either Standard Pinout RJ45 Serial Ports or Straight Pinout RJ45 Serial Ports. To determine which pinout is present, first access the 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 DSM 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.*

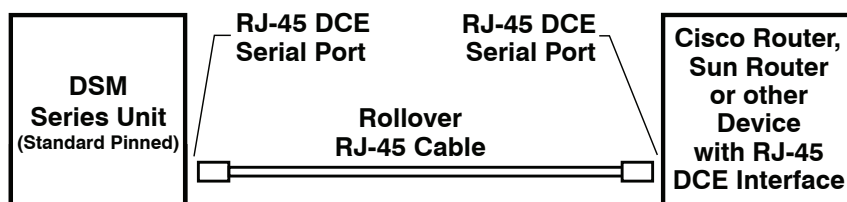**Figure C.9: Connecting RJ-45 DCE Devices to Standard Pinned DSM Series Units**

C.3. Connecting Devices to Straight Pinout DSM Models

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

On Straight Pinout DSM models, the DX9F-DTE-RJ Snap Adapter can be used with an RJ-Roll Rollover cable to attach the following DB-9M DTE devices to the DSM'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 DSM Series unit, please refer to Figure C.10 and Figure C.11 below:

Notes:

- *DSM Series products are available with either Standard Pinout RJ45 Serial Ports or Straight Pinout RJ45 Serial Ports. To determine which pinout is present, first access the 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 DSM 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.*

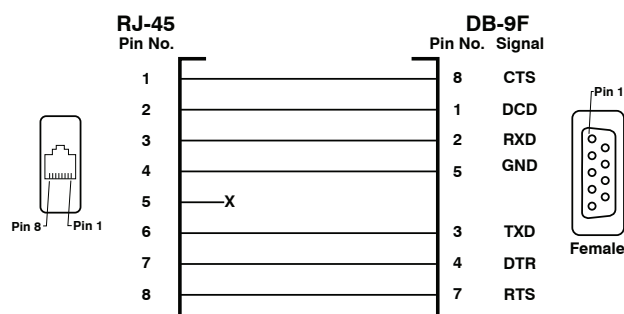| RJ-45 Pin No.		DB-9F Pin No.	Signal
1		8	CTS
2		1	DCD
3		2	RXD
4		5	GND
5	X		
6		3	TXD
7		4	DTR
8		7	RTS

Pin 8 — Pin 1   Pin 1   Female

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

DSM Series Unit (Straight Pinned) — RJ-45 DTE Serial Port — Rollover RJ-45 Cable — DB-9M DTE Console Port — PC, Laptop or Other Device with DB-9M DTE Interface — DX9F-DTE-RJ Snap Adapter
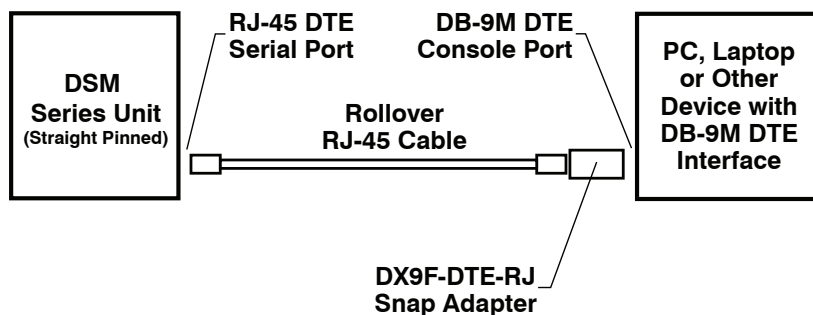
Figure C.11: Connecting DB-9M DTE Devices to Straight Pinned DSM Series Units

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

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

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

Notes:

- *DSM Series products are available with either Standard Pinout RJ45 Serial Ports or Straight Pinout RJ45 Serial Ports. To determine which pinout is present, first access the 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 DSM 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.*

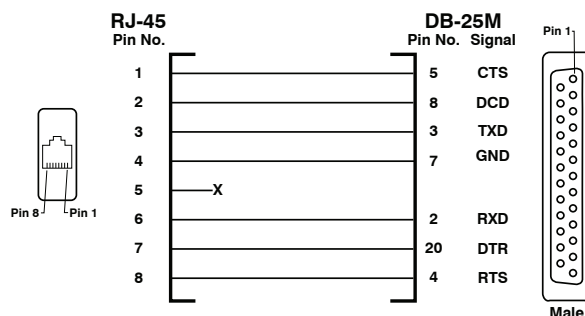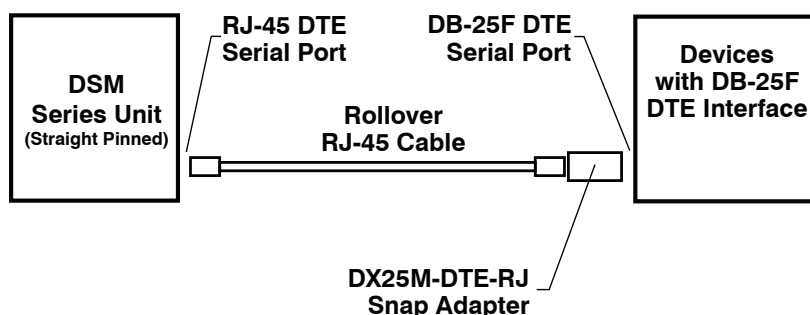*Figure C.12: DX25M-DTE-RJ Snap Adapter Interface*

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

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

On Straight Pinned DSM models, the DX25M-DCE-RJ Snap Adapter can be used with an RJ-Roll Rollover cable to attach the following DB-25F DCE devices to the DSM'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 DSM Series unit, please refer to Figure C.14 and Figure C.15 below:

Notes:

- *DSM Series products are available with either Standard Pinout RJ45 Serial Ports or Straight Pinout RJ45 Serial Ports. To determine which pinout is present, first access the 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 DSM 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.*

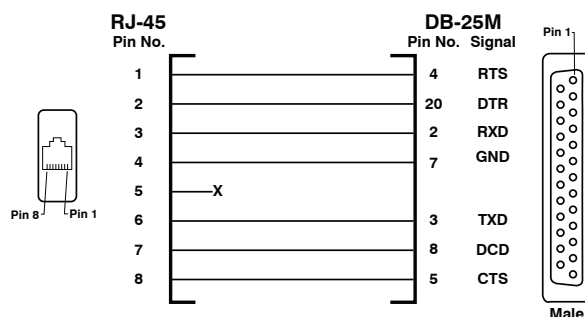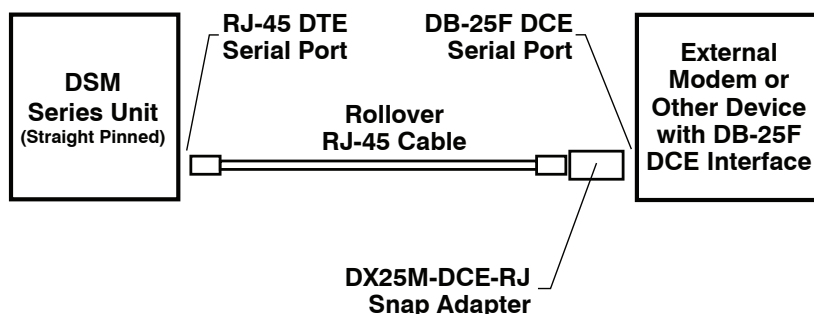*Figure C.14: DX25M-DCE-RJ Snap Adapter Interface*

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

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

On Straight Pinned DSM models, a Straight RJ-45 cable can be used to connect the following RJ-45 DCE devices to the DSM'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 DSM Series units, please refer to Figure C.16 below:

Notes:

- *DSM Series products are available with either Standard Pinout RJ45 Serial Ports or Straight Pinout RJ45 Serial Ports. To determine which pinout is present, first access the 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 DSM 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.*
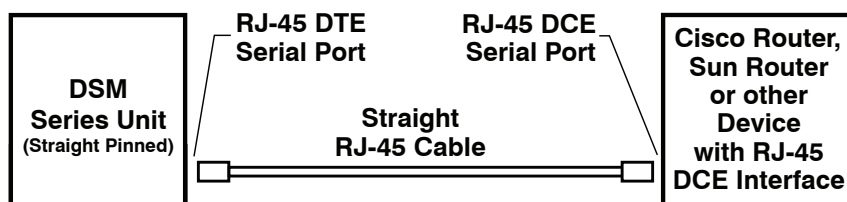

Figure C.16: Connecting RJ-45 DCE Devices to Standard Pinned DSM Series Units

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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