



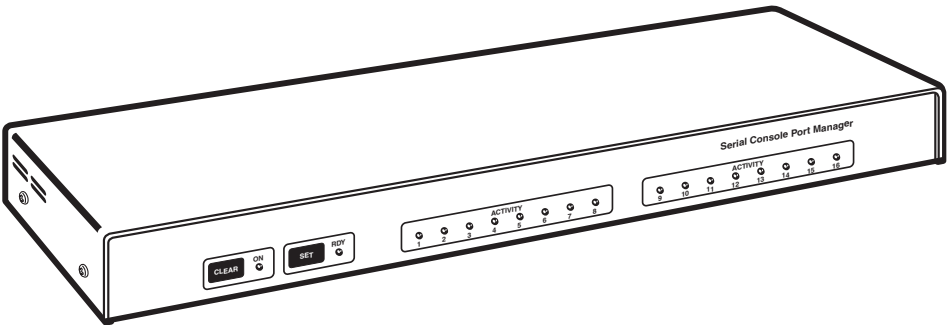
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## Serial Console Port Manager



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## NORMAS OFICIALES MEXICANAS (NOM) ELECTRICAL SAFETY STATEMENT

### INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
  - A: El cable de poder o el contacto ha sido dañado; u
  - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
  - C: El aparato ha sido expuesto a la lluvia; o
  - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
  - E: El aparato ha sido tirado o su cubierta ha sido dañada.

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# 1. Specifications

<b>Interface</b> —	EIA/TIA RS-232 serial, DTE, pinned according to TIA-574
<b>Protocol</b> —	Asynchronous
<b>Data Format</b> —	ASCII: 7 or 8 data bits; even, odd, or no parity; 1 or 2 stop bits (user-selectable)
<b>Flow Control</b> —	X-ON/X-OFF, RTS/CTS, both, or none (user-selectable)
<b>Data Rate</b> —	Any standard rate from 300 bps to 115.2 kbps (user-selectable)
<b>Timeout</b> —	No-activity timeout disconnects port: 1, 5, 10, 15, or 30 seconds, or 1, 5, 15, 30, or 90 minutes (user-selectable)
<b>Break Handling</b> —	Accept Break or Refuse Break (user-selectable)
<b>Memory</b> —	512 KB of statically allocated nonvolatile SRAM buffer memory stores parameters and captured data
<b>User Controls</b> —	(8) DIP switches (“Setup Switches”) determine default parameters for baud rate, flow control, response-message format, and command echo
<b>Indicators</b> —	(24) [SW542A] or (48) [SW543A] Front-mounted LEDs: (1) Power On, (1) Ready, and (1) Data Activity for each RS-232 port
<b>Connectors</b> —	(8) [SW542A] or (16) [SW543A] Rear-mounted DB9 male
<b>Temperature Tolerance</b> —	32 to 113°F (0 to 45°C)
<b>Humidity Tolerance</b> —	10 to 90% noncondensing
<b>Ventilation</b> —	Through side vents; maintain adequate clearance at all times
<b>Power</b> —	Through IEC 320 inlet: 115/230 VAC, 50/60 Hz, 5 watts
<b>Size</b> —	1.75"H (1U) x 17"W x 6.5"D (4.5 x 43.2 x 16.5 cm)
<b>Weight</b> —	8 lb. (3.6 kg)



## 2. Introduction

### 2.1 Features

The Serial Console Port Manager allows reliable, high-speed connections between PCs, modems, and other devices using dissimilar baud rates, parity, and handshaking. It comes in 8-port (product code SW542A) and 16-port (SW543A) versions. The Port Manager supports communication at speeds up to 115.2 kbps and features full RTS/CTS hardware handshaking.

Lightning-swift data throughput and full flow control make the Serial Console Port Manager the perfect data switch for today's high-speed communications applications.

#### VERSATILE CONNECTIVITY

Up to 8 or 16 different devices can be connected to the Port Manager without the need to select a common baud rate or parity. Each port can be individually configured for specific baud rates, parity, handshaking, and various other parameters and options.

#### EASY SETUP AND OPERATION

Configuring the Port Manager is simple. A menuing system is used to select communications parameters and enable or disable options. The Port Manager can easily adapt to the requirements of almost any data-communications application.

#### PASSWORD-PROTECTED CONNECTION AND COMMAND ACCESS

The Serial Console Port Manager is ideal for situations that require limited access to important commands. The Port Manager has two security levels: Each port can function as either a Supervisor Port or a User Port, depending on the password entered at login. Supervisor Ports are allowed to change configuration, display status, and connect to any other port; User Ports are only allowed to connect to the ports authorized for their password. You can assign passwords up to sixteen characters long.

In addition, the Port Manager also supports a Passive Mode that allows connection to other ports, but does not allow access to command functions.

# **SERIAL CONSOLE PORT MANAGER**

## **NON-VOLATILE MEMORY**

If AC power to the unit is lost or interrupted, the Port Manager's non-volatile memory will retain user-defined parameters and port connections.

## **COLLECTING DATA FROM MULTIPLE SOURCES**

A Buffer Mode allows the Port Manager to collect data from up to six or fourteen different devices (all devices except those on Ports 1 and 2) and store that data for later retrieval.

## **MODULAR DESIGN**

DB9 jacks provide quick, easy connection to computers, modems, and other LAN hardware. The Serial Console Port Manager is compact and takes only one unit (1.75 inches, 4.5 cm) of vertical rack space.

## **MODEM COMMUNICATION**

The Port Manager can be controlled either from a local PC that communicates with the Port Manager across a cable, or remotely through an external modem. A communications program such as ProComm is used to send commands to connect ports or display status.

## **CONFIGURATION BACKUP**

Once you have configured the Serial Console Port Manager to fit your application, parameters and options can be saved to an ASCII text file on a connected computer. This means that if the Port Manager's configuration is accidentally altered or deleted, you can quickly restore user-selected parameters. You can also upload this file to other Port Managers, which allows quick setup of multiple units with identical or similar parameters.

## 2.2 Physical Description

### 2.2.1 FRONT PANEL

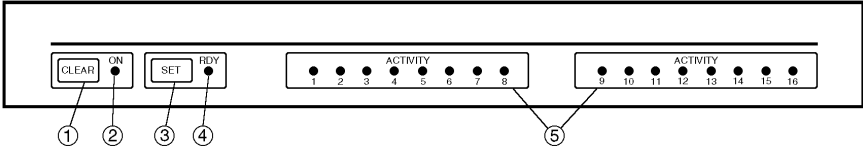


Figure 2-1. The Port Manager's front panel (16-port model shown).

- ① **CLEAR:** Restarts the Serial Console Port Manager's operating program without changing user-selected parameter settings or breaking port connections.
- ② **ON:** Lit when AC power is applied.
- ③ **SET:** Used to initialize the Port Manager to defaults specified by the Setup Switches. To initialize, press and hold both the SET and CLEAR buttons, release only the CLEAR button, and then release the SET button.

### NOTE

During initialization, three things will happen: (a) All port LEDs will flash ON for approximately half a second, (b) all command-selected parameters will be cleared, and (c) the Serial Console Port Manager will revert to the default parameters specified by the Setup Switches.

- ④ **RDY:** Flashes to indicate that the Port Manager is operational.
- ⑤ **ACTIVITY LEDs (numbered 1 through 8 [SW542A] or 1 through 16 [SW543A]):** Lit when corresponding port is receiving data.

# SERIAL CONSOLE PORT MANAGER

## 2.2.2 REAR PANEL

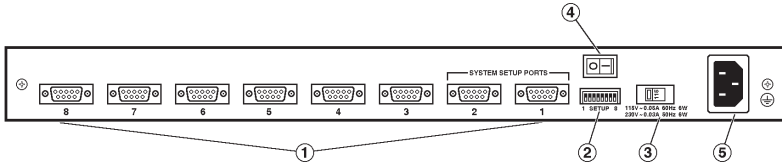


Figure 2-2. The 8-port Port Manager's rear panel.

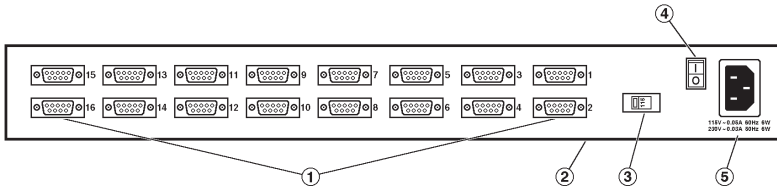


Figure 2-3. The 16-port Port Manager's rear panel.

- ① **RS-232 Ports:** Standard DB9 connectors configured as DTE ports for connection to switched devices. The RS-232 ports are similar to standard serial ports on a PC. When connecting a modem, use a standard serial cable. When connecting a PC or other DTE device, use a null-modem cable.

Ports 1 and 2 are used for communication during set-up and configuration. When the Port Manager is initialized to defaults, Ports 1 and 2 are the only ports with access to All (Administrator) commands. Access to Administrator commands *can't* be disabled at Ports 1 and 2, so be careful what you connect to them.

- ② **Setup Switches:** A bank of eight DIP switches that you'll use to set the default baud rate, handshake, message type, and duplex mode. These Setup Switches are on the rear panel of 8-port units, but they're on the bottom of 16-port units.
- ③ **115/230 Voltage Selector**
- ④ **Power Switch**
- ⑤ **Power Cable Receptacle**

# 3. Getting Started

## 3.1 Communication Parameters

The Setup Switches, located on the back of the 8-port Serial Console Port Manager or the underside of the 16-port Port Manager, select default settings for the RS-232 ports. Setup Switch functions are summarized in **Section 4.1** (and on a label next to the switches).

When the Port Manager is shipped from the factory, the Setup Switches are set for 9600 baud, 8 Bits/No Parity, RTS/CTS handshaking, verbose command response, and command echo enabled (all switches ON).

The rest of this chapter provides a brief overview of the Port Manager's capabilities. For this overview only, we'll assume the default Setup-Switch configuration. Set your communications program (for example, ProComm®) to the parameters listed below. After completing the overview and installing the Port Manager, refer to **Chapter 5** for instructions on selecting faster communication speeds and other parameters.

- 9600 Baud
- RTS/CTS Handshaking
- Full Duplex (command echo enabled)
- 8 Bits, No Parity, 1 Stop Bit

**Using Other Parameters for this Overview (Optional):** If you'd like, the Port Manager can match the parameters used by your communications program. Refer to **Section 4.1** and configure the Setup Switches accordingly. After changing the switches, reset the Port Manager; press and hold both the SET and CLEAR buttons, release only CLEAR, wait for the port LEDs to flash, and then release SET.

### NOTE

**If Setup Switches are changed, the new configuration will not take effect until the Port Manager is reset.**

## 3.2 Applying Power to the Port Manager

Connect the power cable to the Serial Console Port Manager and plug the cable into an AC power source. Press the power switch to turn the Port Manager ON. The ON LED should light, and the RDY LED should begin to flash.

### 3.3 System-Setup Ports

In order to ensure access to important command functions, Ports 1 and 2 are designated as System-Setup Ports. System-Setup Ports always have access to *all* Serial Console Port Manager commands.

Although any Serial Console Port Manager port can be granted access to all commands, Ports 1 and 2 are the only ports that *always* have access to all command functions, even when the Port Manager has been reset to the default state. Supervisor Mode *cannot* be disabled at Ports 1 and 2.

Ports 1 and 2 provide a gateway through which the system administrator is guaranteed access to all commands. Therefore, Ports 1 and 2 are always used for communication during initial setup and configuration, or after the unit has been re-initialized (reset) to default parameters.

#### NOTE

For more information on System-Setup Port capabilities, refer to Section 5.2.

### 3.4 Connecting Your PC to the Serial Console Port Manager

The Serial Console Port Manager can be controlled either (a) by a local PC that communicates across a cable, or (b) through an external modem. For this overview, assume we're using a local PC running ProComm (or a similar communications program) connected with a cable to Port 1; if you'll be using a modem link instead, see **Section 4.3**.

1. Attach a standard null-modem cable to your PC's COM port. Make certain to connect to the COM port used by your communications program.
2. Connect the other end of the cable to the Port Manager's Port 1. For a description of the port interface, please refer to the **Appendix**.

### 3.5 Communicating with the Serial Console Port Manager

Perform the following procedure to enter Command Mode, explore the basic features, and check for proper operation.

1. Start your communications program (for example, ProComm) and make sure it's set to 9600 bps, 8 data bits, no parity, and 1 stop bit.
2. Press **[Enter]** to wake the port and access Command Mode.
  - a) In order for **[Enter]** to be recognized as a wake-up command, it must be pressed without any characters preceding it. (If you've already hit other keys, press **[Enter]** twice.)
  - b) (Optional) If you are performing this overview across a modem link, refer to **Section 5.1** for additional instructions.
3. The Port Status Screen (refer to step 5) will be displayed, followed by the "APS>" prompt, indicating that you have successfully accessed the Command Mode. If the "APS>" prompt is not displayed, this may indicate a communication problem. Check the following:
  - a) **Cable Connection:** Check the cable connection between the Port Manager and the PC. Make certain the cable connectors are firmly seated.
  - b) **Communication Parameters:** Make certain the Port Manager and your communications program are using the same baud rate.
4. Type `/H` and press **[Enter]** to display the Help screen (Figure 3-1).

```

COMMAND MENU

DISPLAY                                CONFIGURATION
/S[P]      Port Status                  /F        System Parameters
/SD        Port Diagnostics             /P [n]    Port Parameters
/W[P] [n]  Port Parameters (Who)        /I        Default & Test
/J         Site ID                       /CP       Copy Port Parameters
/H         Command Menu (Help)

CONTROL                                     +-----+
<Enter>    Enter Command Mode           | P   Show Passwords   |
/X         Exit Command Mode           | n   Port # or Name   |
/C <n> [n] Connect Local [Remote]      | *   "all"            |
/D <n| ... |*> Disconnect              | |   "or"              |
/E <n| ... |*> Erase Buffer               | <>  Required Entry    |
/U         Send Parameter File          | []  Optional Entry    |
                                           +-----+

/D, /E, /I Commands: Add /Y to bypass "Sure (Y/N)?"

```

Figure 3-1. Help screen.

```

PORT STATUS:   Version 2.0,   Site ID: (undefined)

```

PORT	NAME	PASSWORD	STATUS	MODE	BUFFER COUNT
01	(undefined)	(undefined)	Free	Any	0
02	(undefined)	(undefined)	Free	Any	0
03	(undefined)	(undefined)	Free	Any	0
04	(undefined)	(undefined)	Free	Any	0
05	(undefined)	(undefined)	Free	Any	0
06	(undefined)	(undefined)	Free	Any	0
07	(undefined)	(undefined)	Free	Any	0
08	(undefined)	(undefined)	Free	Any	0
09	(undefined)	(undefined)	Free	Any	0
10	(undefined)	(undefined)	Free	Any	0
11	(undefined)	(undefined)	Free	Any	0
12	(undefined)	(undefined)	Free	Any	0
13	(undefined)	(undefined)	Free	Any	0
14	(undefined)	(undefined)	Free	Any	0
15	(undefined)	(undefined)	Free	Any	0
16	(undefined)	(undefined)	Free	Any	0

Enter /H for Command Menu

**Figure 3-2. Port Status screen (default values shown).**

5. Type `/S` and press **[Enter]** to redisplay the Port Status screen (Figure 3-2). The Port Status screen summarizes conditions at all ports. The various fields of the Port Status screen are explained in **Section 6.1**.
6. **Port Connection:** The Port Manager can perform two different types of port connections: Resident Connections and Third-Party Connections.
  - a) **Resident Connection:** Your resident port (for example, Port 1) issues a `/C` command to connect to a second port.
    - i. To connect Port 1 to Port 2, type `/C 2` and press **[Enter]**. While Port 1 is connected, the Port Manager will not recognize commands issued at Port 1. However, the unit will recognize a Resident Disconnect Sequence issued at Port 1 or Port 2.
    - ii. To issue the Resident Disconnect Sequence (Logoff Sequence), type **“[Enter]+++[Enter]”**.
  - b) **Third-Party Connection:** Your resident port (for example, Port 1) issues a `/C` command to create a connection between two other ports.
    - i. To connect Port 2 to Port 3, type `/C 2 3` and press **[Enter]**.
    - ii. While Ports 2 and 3 are connected, Port 1 will still recognize the Port Manager commands. Type `/S` and press **[Enter]** to display the Port Status screen. The “STATUS” column should now list Ports 2 and 3 as connected, and Port 1 as “Free.”



- iii. Issue a Third-Party Disconnect command to disconnect Ports 2 and 3; type `/D 2` and press **[Enter]**. The Port Manager will display the “Are you Sure (y/n)?” prompt. Type **y** and press **[Enter]** to disconnect.
  - iv. Type `/S` and press **[Enter]** to display the Port Status screen. The “STATUS” column should now list Ports 2 and 3 as “Free.”
7. Define the Site ID Message, which is a text string that indicates the name or location of the Port Manager. The Site ID can't include double quotes (“”).
- a) Type `/F` and press **[Enter]**. When the System Parameters menu appears, type `1` (the number one) and press **[Enter]**. A prompt will appear. Key in the desired text (up to 32 characters) and press **[Enter]**.
  - b) To display the Site ID, type `/J` and press **[Enter]**.
  - c) The Site ID will be cleared when the Port Manager is initialized.

## 4. Hardware Installation

### 4.1 Configure Setup Switches

The Serial Console Port Manager has a bank of eight DIP switches that you'll use to set the Port Manager's default baud rate, handshake, message type, and duplex mode. These Setup Switches are on the rear panel of 8-port units; they're on the bottom of 16-port units.

When the Port Manager is shipped from the factory, the Setup Switches are configured for 9600 baud, RTS/CTS handshaking, verbose command response, and command echo enabled (all switches ON). These switch settings are compatible with most applications. If the default settings are not compatible with your application, change the switch settings as described in this chapter.

The Setup Switches should be configured to match the parameters your control device will use when communicating with the Serial Console Port Manager. This allows access to command functions, even if the Port Manager is initialized to default parameters.

### NOTES

**On the 8-port Port Manager, the Setup Switches are OFF when UP and ON when DOWN. On the 16-port Port Manager, please refer to the label next to the Setup Switches to determine their ON/OFF positions.**

**Communication parameters (baud rate, parity, etc.) can be selected for each port using the /P command as described in Section 5.5.3. The /P command can select different parameters for each Port Manager port.**

**When the Serial Console Port Manager is initialized, its parameters will return to the settings specified by the Setup Switches. Changes to the Setup Switch settings will not take effect until the Manager is initialized.**

## 4.1.1 DEFAULT BAUD RATE (SW1, SW2, AND SW3)

Setup Switches 1 through 3 select the *default* baud rate for all ports. The default baud rate must match the rate your control device will use when communicating with the Serial Console Port Manager. If the control device will communicate using a modem, select a default baud rate that is compatible with the modem. The /P command can also be used to select a different *operating* baud rate for each port.

Switch			Default Baud Rate
1	2	3	
ON	ON	ON	9600 (factory setting)
OFF	ON	ON	300
ON	OFF	ON	1200
OFF	OFF	ON	2400
ON	ON	OFF	19.2K
OFF	ON	OFF	38.4K
ON	OFF	OFF	57.6K
OFF	OFF	OFF	115.2K

## 4.1.2 DEFAULT HANDSHAKE (SW4 AND SW5)

The default handshake format must match the format your control device will use when communicating with the Port Manager. Setup Switches 4 and 5 can select RTS/CTS (hardware), X-ON/X-OFF, Both, or None. The /P command can also be used to select a different handshake format for each port.

Switch		Default Handshake
4	5	
ON	ON	RTS/CTS (factory setting)
OFF	ON	X-ON/X-OFF
ON	OFF	Both
OFF	OFF	None

### 4.1.3 DEFAULT RESPONSE-MESSAGE FORMAT (Sw6)

When commands are invoked, the Serial Console Port Manager can respond with either verbose (English-text) or terse (numeric/abbreviated) messages. Response messages are summarized in **Section 9.2**. After installation, the /P command can also set the response format to “none” (Quiet Mode). When Quiet Mode is selected, the Port Manager will not send response messages at all. The /P command can also be used to select a different response-message format for each port.

<b>Switch 6</b>	<b>Default Response-Message Type</b>
ON	Verbose (English text, factory setting)
OFF	Terse (abbreviated/numeric)

### 4.1.4 DEFAULT COMMAND ECHO (Sw7)

Setup Switch 7 enables or disables command echo (full duplex). When echo is enabled, characters sent to the Serial Console Port Manager will be echoed back to the control device. The /P command can also be used to enable or disable command echo at each individual port.

<b>Switch 7</b>	<b>Default Command Echo</b>
ON	Enabled (full duplex, factory setting)
OFF	Disabled (half-duplex)

## NOTES

**When you change Setup-Switch settings, the changes won't take effect until the Port Manager is initialized as described in Section 4.2.**

**Setup Switch 8 is not currently used.**

## 4.2 Initialize Unit to Default Settings

If Setup Switches are changed, the new parameters will not take effect until the Serial Console Port Manager is initialized.

### CAUTION

**After initialization, the Serial Console Port Manager will revert to the parameters specified by the Setup Switches. Any command-selected parameters will be lost.**

1. Simultaneously press the SET and CLEAR buttons on the Serial Console Port Manager's front panel.
2. Release the CLEAR button, wait for the port LEDs to flash, and then release the SET button.

## 4.3 Connecting Devices to the Serial Console Port Manager

1. Access the Command Mode.
2. Determine which port will be used for connection to the new device (for example, Port 3).
3. **Clear Buffer:** Type `/S` and press **[Enter]** to display the Port Status screen. Check the "Buffer Count" column, which lists the amount of data stored in the buffer for each port. If your desired port's buffer contains any stored data, clear it by typing `/E xx` (where "xx" is the name or number of the port) and pressing **[Enter]**. (Note that cleared data cannot be recovered.)
4. Run an appropriate DB9 cable from the chosen Port Manager port to an RS-232 serial port on the device you intend to connect:
  - a) **External modems and other DCE devices:** Use a standard serial cable.
  - b) **PCs and other DTE devices:** Use a standard null-modem cable.
5. Select communication parameters for each port as described in **Chapter 5**.

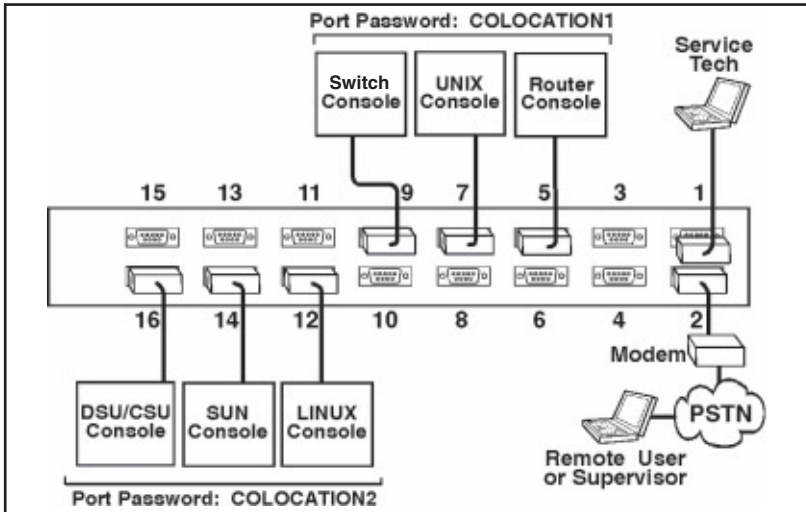


Figure 4-1. Application example for a 16-port unit.

## 4.4 Application Example

The example in Figure 4-1 shows one of many possible installation configurations for the Serial Console Port Manager. In this example, ports have been configured as follows:

- Port 1 (System-Setup Port):** As is commonly done, this port is used for temporary connections by on-site service personnel, so that they can access the Command Mode without disrupting other ports. Since Port 1 is a System-Setup Port, the service tech is allowed password-protected access to Supervisor Level commands, and is able to connect to any port, change configuration, or display unit status.
- Port 2 (Modem Port):** An external modem has been installed on Port 2. This port has also been configured for Modem Mode, which allows definition of a modem-reset string, initialization string, and hang-up string. When a caller contacts the Port Manager using a modem, a password prompt will be displayed. If the Supervisor Password is entered, the Port Manager will permit access to Supervisor-Level Commands; if a Port Password is entered, the Port Manager will only recognize User-Level Commands. Supervisors are allowed to adjust port configuration, connect to any port, or review unit status. Users are only allowed to review status and connect to the ports allowed by their Port Password.

- **Ports 5, 7, and 9 (User Ports):** The Port Password “COLOCATION1” has been assigned to these three ports. If the Port Manager is contacted through the Modem Port, and this password is entered at login, users will only be able to review status of permitted ports and connect to the devices attached to Ports 5, 7, and 9.
- **Ports 12, 14, and 16 (User Ports):** The Port Password “COLOCATION2” has been assigned to these three ports. If the Port Manager is contacted through the Modem Port, and this password is entered at login, users will only be able to review status of permitted ports and connect to the devices attached to Ports 12, 14, and 16.

Note that in this example, Ports 3 through 16 could be a mixture of user ports connected to external modems, and ports connected to devices such as file servers or tape archives. This would allow remote users to dial in and access a specific file server or archive after entering a valid Port Password (if these have been defined) at login.

## 5. Configuration

### 5.1 Access to the Serial Console Port Manager's Command Mode

When Command Mode is active, you can invoke commands to select parameters and connect or disconnect ports.

#### NOTE

**Command Mode cannot be accessed from a Buffer Mode Port, Passive Mode Port, or any port that is currently connected to another Serial Console Port Manager port.**

1. Start the communications program (for example, ProComm). Make certain the Serial Console Port Manager and your communications program are set for the same parameters (baud rate, parity, etc.).
2. Access the Command Mode:
  - a) **Local Access:** To wake the port and access Command Mode from a local PC connected to the Port Manager with a cable, press **[Enter]**.
    - i. In order for **[Enter]** to be recognized as a wake-up command, it must be pressed without any characters preceding it. If you have already hit other keys, press **[Enter]** twice.
    - ii. If the Supervisor Password has been defined, the password prompt will be displayed. Key in your Supervisor or Port Password and press **[Enter]**. The "APS>" prompt will appear.
  - b) **Remote Access:** To access Command Mode using a modem, proceed as follows:
    - i. Dial the number for the external modem connected to the Serial Console Port Manager. The Port Manager will send the password prompt.
    - ii. If you have defined the Supervisor Password, a password prompt will be displayed. Key in your Supervisor or Port Password and press **[Enter]**. If the Supervisor Password has *not* been defined, just press **[Enter]**. The "APS>" prompt will appear.



## 5.2 System-Setup Ports

As discussed previously in **Chapter 3**, the Serial Console Port Manager's Ports 1 and 2 are designated as System-Setup Ports. Ports 1 and 2 will always allow password-protected access to all command functions, even when the Port Manager is reset to default parameters.

In order to ensure that access to command functions is always available, Ports 1 and 2 cannot be configured as Buffer Mode Ports or Passive Mode Ports. Buffer Mode Ports and Passive Mode Ports are not able to access the Command Mode. In addition, Ports 1 and 2 always have password-protected access to Supervisor-Level commands; Supervisor Mode *cannot* be disabled at these two ports.

## 5.3 Password Functions

The Serial Console Port Manager features two different types of passwords: the Supervisor Password and the Port (User) Passwords. The Supervisor Password allows system administrators to invoke unit-configuration commands, and the Port Passwords allow users to access specific ports they're permitted to use in order to create port-to-port connections or to view port-configuration parameters.

### 5.3.1 THE SUPERVISOR PASSWORD

The Supervisor Password allows access to higher-level Port Manager configuration commands, with which administrators can select communication parameters, assign port-access rights, and perform other system-management tasks.

When the Supervisor Password is defined (through the System Parameters menu), the Port Manager will display a password prompt whenever anyone tries to access the Command Mode. If the correct Supervisor Password is entered, the Port Manager goes into Supervisor Mode. **Section 9.3** summarizes the Supervisor-Level commands.

## NOTES

**If the Supervisor Password is not defined, then Supervisor-Level commands will be available to all ports, and port access and configuration functions will not be password-protected.**

**If you wish to restrict user ports from changing Port Manager configuration parameters or connecting to restricted ports, the Supervisor Password must be defined.**

**When defining a Supervisor Password, we *strongly recommend* that you record the password for future use. If you forget or lose your Supervisor Password, you will not be able to access Supervisor-Level commands. In this case, the only way to access the Supervisor Mode is to reinitialize the Port Manager to its default values, as described in Section 4.2.**

### NOTES (continued)

**When the Supervisor Password is defined, the Port Manager will display a password prompt when you attempt to access the Command Mode. Any RS-232 port that has not been assigned a Port Password can then only be accessed using the Supervisor Password.**

Normally, the Supervisor Password can be entered at any port in order to gain access to Supervisor-Level commands. Note that if you wish to completely deny a port's access to Supervisor Mode (even with the Supervisor Password), the Port Parameters menus (/ P) can be used to disable the Supervisor Mode at ports 3 through 16. The Supervisor Mode cannot be disabled at System-Setup Ports 1 and 2.

Also note that if the Port Manager is reset to its default parameters, all ports will revert to the default state, where Supervisor-Level commands are available to all ports, without password protection.

#### 5.3.2 THE PORT PASSWORDS

The Port Passwords (or User Passwords) allow system administrators to restrict access to a specific group of ports. When the Serial Console Port Manager's Command Mode is accessed with a Port Password, users may only connect to (and review the configuration of) the RS-232 ports to which they have been granted access. Port Passwords do not grant access to Port Manager configuration commands.

The configuration menus (/P) allow a Port Password to be assigned to each RS-232 port. In order to allow a Port Password to grant access to a group of Port Manager ports, the same Port Password is assigned to each port in the group. For example, if the Port Password "test" is assigned to ports 3, 4, and 5, then when "test" is entered at the password prompt, the user will only be able to connect to ports 3, 4, and 5, and will only be able to view parameters for ports 3, 4, and 5.

If desired, all Port Manager ports can function as either Supervisor Ports or User Ports, depending on which password is entered at the login prompt. However, if you wish to prevent a port from being able to access the Supervisor Mode at all (even with the Supervisor Password), the Supervisor Mode can be disabled at the RS-232 Ports using the Port Configuration menus as described in **Section 5.5.3**. Note, however, that the Supervisor Mode cannot be disabled at Ports 1 and 2; these ports are designated as System-Setup Ports, and are always allowed password-protected access to Supervisor-Level commands.

### NOTE

**When Port Passwords are defined, the Port Manager won't allow you to select a Port Password that's the same as the Supervisor Password.**

## 5.4. Defining the Site ID and Supervisor Password

Before configuring individual ports, the Site ID and Supervisor Password should be defined. The Site ID indicates the location or name of the Serial Console Port Manager; the Supervisor Password restricts access to sensitive command functions. The Site ID and Supervisor Password are defined using the System Parameters menu (/F).

### NOTES

**The Site ID cannot include double quotes.**

**The Supervisor Password cannot include an asterisk, forward slash, spaces, or double quotes.**

**Both the Site ID and Supervisor Password will be cleared if the Port Manager is initialized to default settings.**

**The Port Manager will not allow you to select a Supervisor Password that is the same as an existing Port Password.**

**The System Parameters Menu is only available in Supervisor Mode.**

1. Access the Command Mode. Type /F and press **[Enter]** to display the System Parameters Menu.
2. Site ID Message (up to 32 characters long; undefined by default): Type 1 (one) and press **[Enter]**; a prompt will appear. Key in the desired text and press **[Enter]**. The Site ID will be listed on the Port Status and Port Diagnostic screens.
3. Supervisor Password (up to 16 characters long; undefined by default) Type 2 and press **[Enter]**; a prompt will appear. Key in the desired password, then press **[Enter]**. The Port Manager will prompt you to re-key the password to confirm spelling and capitalization. Key in the password a second time, then press **[Enter]**.

### NOTES

**The Supervisor Password is case sensitive. Make certain to note the exact password entered, including the case of each letter.**

**Make certain to write down your Supervisor Password. If the password is lost or forgotten, you will not be able to access Supervisor-Level commands unless you initialize the unit and clear all parameters as described in Section 4.2.**

## 5.5 Port Configuration

### 5.5.1 CONFIGURATION CONVENTIONS

When responding to prompts, invoking commands, and selecting items from the port configuration menus, note the following:

- To select an item from a Port Configuration menu, key in the number for the item and press **[Enter]**.
- To clear an item in a Port Configuration menu, enter the number for the desired item and press **[Enter]**. When the prompt appears, press **[Space]** and then press **[Enter]**.
- When defining the Port Name, do not use the forward-slash character (/), double quotes ("), the asterisk character (\*), or blank spaces.
- Port Names cannot begin with a number.
- Refer to the instructions in each screen for additional functions available under that screen.
- To exit a menu or prompt without changing its current value, press **[Esc]**.
- Passwords and port names are case sensitive. When defining passwords and port names, note the exact text, including the case of each character.
- If you are configuring the Serial Console Port Manager through a modem, communication parameters will not be changed until after you exit from Command Mode and disconnect from the Port Manager.

### 5.5.2 PORT MODES

The Serial Console Port Manager offers four different port operation modes: Any-to-Any Mode, Passive Mode, Buffer Mode, and Modem Mode.

- **Any-to-Any Mode:** Allows communication between connected ports. Any-to-Any Mode Ports can be connected to other Any-to-Any, Passive, Buffer, or Modem Mode Ports by accessing Command Mode and invoking the /C command (see **Section 7.1.1**). The Any-to-Any Mode is available to all ports.
- **Passive Mode:** Allows communication between connected ports, but does not allow access to Command Mode. Passive Mode Ports can be connected by accessing Command Mode from a free Any-to-Any or Modem Mode port and invoking the /C command (see **Section 7.1.1**). The Passive Mode is not available to Ports 1 or 2.
- **Buffer Mode:** Allows collection and storage of data received from connected devices. Collected data can be retrieved by accessing Command Mode from a free Any-to-Any or Modem Mode Port, then issuing the Connect (/C) command. Note that the Buffer Mode also allows pass-through communication with the connected device. The Buffer Mode is not available to Ports 1 or 2.
- **Modem Mode:** Allows communication between connected ports and simplifies connection to an external modem. A port configured for the Modem Mode can perform all functions normally available in Any-to-Any Mode. The Modem Mode also allows definition of a Hang-Up String, Reset String, and Initialization String. Any port can be configured for the Modem Mode.

## 5.5.3 PORT CONFIGURATION MENUS

The Port Configuration menus are used to select options for each port. Parameters selected using these menus will stay in effect until the Serial Console Port Manager is initialized or the /P command is used to reconfigure the port. After initialization, parameters will revert to the defaults specified by the Setup Switches.

After parameters have been selected, we strongly recommend that you save the configuration to an ASCII file on an attached PC. Later, if the configuration is altered or deleted, the file with the saved parameters can be used to quickly restore the unit to its former state. **Chapter 8** describes the procedure for saving and restoring configuration parameters.

To select port parameters:

1. Access the Command Mode. If the password prompt is displayed, key in your Supervisor Password.
2. Type /P, followed by the number of the port to be configured, and press [Enter]. For example, to configure Port 2, type /P 2 and press [Enter]. The Port Configuration menu will appear, as shown in Figure 5-1.
  - a) If the /P Command is entered without the port number (in other words, if you type /P and press [Enter]), the configuration menu for your resident port will be displayed.
  - b) The /P command is only available in Supervisor Mode.

```
PORT PARAMETERS #02

1.  Port Name:                (undefined)
2.  Password:                 (undefined)
3.  Baud Rate:                9600
4.  Bits/Parity:              8-None
5.  Stop Bits:                1
6.  Handshake Mode:          CTS/RTS
7.  Port Mode:                Any-to-Any
   74. DTR Output:            Pulse
8.  Supervisor Mode:          Permit
9.  Logoff Character:         +
10. Sequence Disconnect:      Three Characters
11. Timeout Disconnect:       Off
12. Response Type:            Verbose
13. Command Echo:             On
14. Accept Break:             Yes

Enter:  "<" Previous Port,
        ">" Next Port,
        <ESC> Exit ...
```

Figure 5-1. Port Configuration menu (Port 2 shown).

The Port Configuration menu offers the following options:

1. **Port Name** (up to 16 characters, undefined by default): Assigns a name to the port.
2. **Password** (up to 16 characters, undefined by default): Defines the Port Password for this port. Note that identical Port Passwords are generally assigned to several ports. When this password is entered at the login prompt, the user will then have access to all ports that share this password.

## NOTES

**The Port Password is not displayed by the Port Parameters menu. When the Port Password has been defined, the field for this item will read “defined.” To display Port Passwords, invoke the /SP or /WP commands as described in Chapter 6.**

**The Port Manager will not allow you to define a Port Password which is the same as the existing Supervisor Password.**

3. **Baud Rate:** Selects the baud rate for the port. Can be set to any standard rate from 300 to 115.2 kbps. The default value is the baud rate selected with Setup Switches 1 through 3 (see **Section 4.1.1**).
4. **Bits/Parity:** Sets data bits and parity for this port. (The default value is 8 data bits, no parity.)
5. **Stop Bits:** Sets stop bits for this port. (The default value is 1 stop bit.)
6. **Handshake Mode:** Selects the handshake format for this port. Can be set to X-ON/X-OFF (software), RTS/CTS (hardware, the default value), both, or none.
7. **Port Mode:** Defines the operation mode for this port. The user can select Any-to-Any Mode (the default value), Passive Mode, Buffer Mode, or Modem Mode. Note that Ports 1 and 2 *cannot* be configured for Passive Mode or Buffer Mode.  
When Any-to-Any, Passive, or Buffer Mode is selected, the Port Manager will display the DTR Output prompt as shown in Figure 5-1 on the previous page. The DTR Output prompt is not displayed when Modem Mode is selected.
74. **DTR Output:** Determines how DTR will react when this port disconnects. DTR can be held low, held high, or pulsed for 0.5 seconds and then held high (the default value). For more information on DCD and DTR hardware lines, please refer to the **Appendix**.

When Modem Mode is selected, the menu will include additional prompts (see Figure 5-2) that are used to define these modem strings:

- 71. Reset String:** When necessary, this prompt can be used to redefine the reset string that will be sent to the attached modem. The Reset String is sent prior to the Initialization String in order to provide a common initial setting for modem parameters. The default Reset Message is "ATZ".
- 72. Initialization String:** Defines a command string up to 48 characters long that is sent after the Reset String to initialize modem parameters to settings required by your application. The default Initialization String is "AT&C1&D2S0=1".
- 73. Hang-Up String:** Defines the hang-up string that will be sent to the attached modem. Although the Port Manager will pulse the DTR line in order to hang up an attached modem, the Hang-Up String is often useful for controlling modems that do not use the DTR line. The Hang-Up String is undefined by default.

### NOTE

**When you're communicating with the Serial Console Port Manager through a modem, communication parameters will not be changed until you exit from Command Mode and close the modem connection to the Port Manager.**

```
PORT PARAMETERS #02

1.  Port Name:                (undefined)
2.  Password:                 (undefined)
3.  Baud Rate:                 9600
4.  Bits/Parity:              8-None
5.  Stop Bits:                1
6.  Handshake Mode:           CTS/RTS
7.  Port Mode:                Modem
   71. Reset String:           ATZ
   72. Init String:            AT&C1&D2S0=1
   73. Hang-Up String:         (undefined)
8.  Supervisor Mode:          Permit
9.  Logoff Character:         +
10. Sequence Disconnect:      Three Characters
11. Timeout Disconnect:       Off
12. Response Type:            Verbose
13. Command Echo:             On
14. Accept Break:             Yes

Enter:  "<" Previous Port,
        ">" Next Port,
        <ESC> Exit ...
```

**Figure 5-2. Port Configuration menu (Modem Mode).**



- 8. Supervisor Mode:** Permits or denies access to Supervisor Mode. When Supervisor Mode is enabled (“Permit,” the default value), and the valid Supervisor Password is entered, the port will allow access to Supervisor-Level commands. When Supervisor Mode is disabled (“Deny”), the port may not enter Supervisor Mode, even when the Supervisor Password is entered.
- 9. Logoff Character:** Defines the Logoff Character for this port. The Logoff Character determines the disconnect sequence that must be issued at this port in order to disconnect it from a second port (Resident Disconnect). Things to keep in mind:
- The default Logoff Character is “+”. As a result, the default Resident Disconnect Sequence is **[Enter]+++[Enter]**.
  - The default three-character Resident Disconnect Sequence uses the format **[Enter]LLL[Enter]**, where L is the Logoff Character. If the One-Character Disconnect Sequence is selected (see item 10 below), a resident connection is terminated by simply typing the Logoff Character once (without carriage returns).
  - The Logoff Character can also be a control character such as  $\text{^X}$  (**[Ctrl] X**).
- 10. Sequence Disconnect:** Enables/disables and configures the Resident Disconnect command. This prompt offers the option to either disable the Sequence Disconnect, select a Three-Character format for it (the default value), or select a One-Character format for it. Things to keep in mind:
- When a Resident Connection is initiated, the Serial Console Port Manager will send a message that lists the connected ports, then displays the disconnect command that will be required in order to terminate the connection.
  - The One-Character Disconnect Sequence is intended for situations in which the destination port will *not* receive the disconnect command. When the Three-Character format is selected, the disconnect sequence *will* pass through to the destination port prior to breaking the connection.
  - When the Three-Character format is selected, the Resident Disconnect Sequence takes the form “**[Enter]LLL[Enter]**”, where L is the selected Logoff Character.
  - When the One-Character format is selected, resident connections are terminated by entering the selected Logoff Character only (for example,  $\text{^X}$ ). There is no need to press **[Enter]** before and after the Logoff Character when the One-Character format is selected.

- 11. Timeout Disconnect:** Enables and selects the Timeout Period for this port. If Timeout Disconnect is enabled, the port will disconnect if it does not receive or transmit data for the specified Timeout Period. In Any-to-Any Mode, Passive Mode, or Buffer Mode, the default setting for this item is “OFF.” When the port is set for Modem Mode, the default Timeout Disconnect setting is 15 minutes.

### NOTES

**The Timeout Disconnect is also applied to non-connected ports that are left in Command Mode. If no additional data activity is detected, an unconnected port will exit from Command Mode when the Timeout Disconnect value expires.**

**When connected ports time out and are disconnected, both ports will also exit from Command Mode.**

- 12. Response Type:** Selects the type of messages that this port will send in response to commands. The user can select Verbose (English text, the default value), Terse (numeric/abbreviated), or Quiet Mode (no response).
- 13. Command Echo:** Enables or disables command echo for this port. Command echo enabled, which is equivalent to full-duplex transmission, is the default value. Command echo disabled is equivalent to half-duplex transmission.
- 14. Accept Break:** Determines whether the port will accept breaks received from the attached device and pass them along to a connected port. When Accept Break is enabled (the default value), breaks received at this port will be passed to any port that this port is connected to, and sent along to the device connected to the other port. When Accept Break is disabled, breaks will be refused at this port and not sent to the other port.

## 5.6 Copying Parameters to All Ports

The /CP (Copy Port Parameters) command provides a convenient means for selecting identical (or similar) parameters for all of the Serial Console Port Manager's RS-232 ports.

When the /CP command is invoked, the Port Manager will display the menu shown in Figure 5-3. From this menu, you can select port-communication parameters and then copy them to all of the Port Manager's RS-232 ports. The Copy Port Parameters menu can be used to set *all* or only *some* parameters for all ports.

### NOTES

The /CP command is only available in Supervisor Mode.

The Copy Port Parameters menu will not display the Port Password. This field will read either "undefined" or "defined," depending on whether or not the Port Password has been specified.

The /CP command cannot be used to set Ports 1 and 2 to Passive Mode or Buffer Mode (Port Mode, Item 7).

The /CP command cannot be used to disable the Supervisor Mode at Ports 1 and 2 (Supervisor Mode, Item 8).

```

COPY PORT PARAMETERS:

1. Port Name:
2. Password:                (undefined)
3. Baud Rate:
4. Bits/Parity:
5. Stop Bits:
6. Handshake Mode:
7. Port Mode:
   74. DTR Output:
8. Supervisor Mode:
9. Logoff Character:
10. Sequence Disconnect:
11. Timeout Disconnect:
12. Response Type:
13. Command Echo:
14. Accept Break:

(Note: Ports 1 & 2 will NOT have restricted values changed.)
Enter: Parameter # <CR> to define parameter value to copy to all ports,
      -<CR> to remove all values set,
      X<CR> to exit WITHOUT copy,
      <ESC> to copy to all ports and exit ...

```

Figure 5-3. The Copy Port Parameters menu.

To select common parameters for all of the Port Manager's RS-232 ports, proceed as follows:

1. Access the Port Manager's Command Mode. If the password prompt is displayed, key in your Supervisor Password.
2. At the command prompt, type `/CP` and press **[Enter]**. The Copy Port Parameters menu will be displayed.
3. **Selecting Parameters:** To select parameters to be copied, key in the number for the desired parameter, press **[Enter]**, and then follow the instructions in the submenu. Note that it is not necessary to define all port parameters; for example, the `/CP` command could be used to select only the Baud Rate for all ports.

### NOTE

**The `/CP` command will only copy the parameters that are currently displayed by the Copy Port Parameters menu. One exception: Although the Port Password is not displayed, the selected password will be copied if the field for this item reads "defined".**

4. **Clear Menu:** After defining several parameters, if you wish to clear the `/CP` menu and start again, type `-` (dash) and press **[Enter]**. The menu will be reset.
5. **Copy Parameters:** When you have finished selecting parameters, press **[Esc]** to copy the selected parameters to all of the Port Manager's RS-232 ports and exit from the Copy Port Parameters menu. Note that the Port Manager will display an "Are you sure?" prompt before copying parameters to other ports.

## 5.7 Saving User-Selected Parameters

Although you don't have to, we *strongly recommend* that you save all user-defined parameters to an ASCII file on an attached PC. Later, if the configuration is altered or deleted, the file with the saved parameters can be used to quickly restore the Serial Console Port Manager to its former state. **Chapter 8** describes the procedure for saving and restoring configuration parameters.

## 6. The Status Screens

The Serial Console Port Manager's Status screens display the connection status and communication parameters for its RS-232 ports. There are three different types of status screens: The Port Status screen (/S), the Port Diagnostics screen (/SD), and the Port Parameters screens (/W).

### 6.1. The Port Status Screen (/S)

The Port Status screen lists the general status of the Serial Console Port Manager's RS-232 ports. To display the Port Status screen, access the Command Mode and type /S [Enter]. The screen will appear as shown in Figure 6-1.

Although both Supervisors and Users can display the Port Status screen, the screen will contain slightly different information depending on whether the Command Mode was accessed with the Supervisor Password or a Port Password. When a Port Password (User Mode) is entered at login, the Port Status screen will only display the status of those ports that share the same Port Password that was entered at login.

When the Supervisor Mode is active, the Port Status screen offers the option to either display or suppress Port Passwords. Normally, when the /S command is invoked, the Password column will read either "defined" or "undefined", depending on whether or not the password for each port has been specified. To display the Port Status screen with Port Passwords included, type /SP and then press [Enter]. The /SP command option is not available in User Mode.

```

PORT STATUS:   Version 1.02, Site ID: (undefined)

```

PORT	NAME	PASSWORD	STATUS	MODE	BUFFER COUNT
01	(undefined)	(undefined)	Free	Any	0
02	(undefined)	(undefined)	Free	Any	0
03	(undefined)	(undefined)	Free	Any	0
04	(undefined)	(undefined)	Free	Any	0
05	(undefined)	(undefined)	Free	Any	0
06	(undefined)	(undefined)	Free	Any	0
07	(undefined)	(undefined)	Free	Any	0
08	(undefined)	(undefined)	Free	Any	0
09	(undefined)	(undefined)	Free	Any	0
10	(undefined)	(undefined)	Free	Any	0
11	(undefined)	(undefined)	Free	Any	0
12	(undefined)	(undefined)	Free	Any	0
13	(undefined)	(undefined)	Free	Any	0
14	(undefined)	(undefined)	Free	Any	0
15	(undefined)	(undefined)	Free	Any	0
16	(undefined)	(undefined)	Free	Any	0

Enter /H for Command Menu

Figure 6-1. The Port Status screen.

The Port Status screen lists the following items for each port:

- **Port:** The port's number.
- **Name:** The port's user-defined name.
- **Password:** The port's user-defined password. Actual passwords are not displayed; this column will read either "undefined" or "defined". To display Port Passwords, type /SP [Enter] (Supervisor Mode only).
- **Status:** The port's connect status. When a port is connected, this column will list the number of the port it's connected to.
- **Mode:** The user-selected Port Mode. This column will read Any (Any-to-Any), Modem, Passive, or Buffer depending on the port's selected configuration.
- **Buffer Count:** The amount of data (in bytes) stored in the port's buffer.

## 6.2 The Port Diagnostics Screen (/SD)

The Port Diagnostics screen provides more detailed information about each port, including the port's name and communication parameters. To display the Port Diagnostics screen, access the Command Mode and type /SD [Enter]. The screen will appear as shown in Figure 6-2.

Like the Port Status screen, the Port Diagnostics screen is available to both Supervisors and Users, will contain slightly different information depending on whether the Command Mode was accessed with the Supervisor Password or a Port Password.

```

PORT DIAGNOSTICS:  Version 1.02      Site ID: (undefined)

```

PORT	NAME	STATUS	BAUD	COM	HS	MODE	BUF	CTS
01+	(undefined)	*Free	9600	8N1	RTS	Any	0	H
02+	(undefined)	*Free	9600	8N1	RTS	Any	0	L
03+	(undefined)	*Free	9600	8N1	RTS	Any	0	L
04+	(undefined)	*Free	9600	8N1	RTS	Any	0	L
05+	(undefined)	*Free	9600	8N1	RTS	Any	0	L
06+	(undefined)	*Free	9600	8N1	RTS	Any	0	L
07+	(undefined)	*Free	9600	8N1	RTS	Any	0	L
08+	(undefined)	*Free	9600	8N1	RTS	Any	0	L
09+	(undefined)	*Free	9600	8N1	RTS	Any	0	L
10+	(undefined)	*Free	9600	8N1	RTS	Any	0	L
11+	(undefined)	*Free	9600	8N1	RTS	Any	0	L
12+	(undefined)	*Free	9600	8N1	RTS	Any	0	L
13+	(undefined)	*Free	9600	8N1	RTS	Any	0	L
14+	(undefined)	*Free	9600	8N1	RTS	Any	0	L
15+	(undefined)	*Free	9600	8N1	RTS	Any	0	L
16+	(undefined)	*Free	9600	8N1	RTS	Any	0	L

Enter /H For Command Menu

Figure 6-2. The Port Diagnostics screen.

In User Mode, the Port Diagnostics screen will display only the status of those ports that share the same Port Password that was entered at login. Ports that are protected by other passwords will not be displayed.

The Port Diagnostics screen lists the following items for each port:

- **Port:** The port's number. Note that if this column contains a plus sign ( + ), the port will be allowed to access the Supervisor Mode if the appropriate Supervisor Password is entered at login.
- **Name:** The port's user-defined name.
- **Status:** The port's connect status. When a port is connected, this column will list the number of the port it's connected to. If this column contains an asterisk, the port has accessed the Command Mode.
- **Baud:** The port's user-selected baud rate.
- **COM:** The port's user-selected data bits, parity, and stop bits. For example, "8N1" indicates eight data bits, no parity, and one stop bit.
- **HS:** The port's user-selected handshaking (flow-control) mode.
- **Mode:** The user-selected Port Mode. This column will read Any (Any-to-Any), Modem, Passive, or Buffer, depending on the configuration selected for each port.
- **BUF:** The amount of data (in bytes) currently stored in the port's buffer.
- **CTS:** The High/Low status of the CTS line in the port's RS-232 interface.

## 6.3 The Port Parameters Screens (/W)

The /W command displays even more detailed information about an individual Serial Console Port Manager port. Rather than listing connection information for all ports like the Port Status screens, the Port Parameters screen lists all defined parameters for a specific port, as shown in Figure 6-3.

The /W command is available in both Supervisor Mode and User Mode. However, when you log in with a Port (User) password, the Port Manager will only display information regarding your resident port.

When Supervisor Mode is active, the Port Parameters screens offer the option to either display or suppress Port Passwords. Normally, when /W is invoked, the Password field will read either “defined” or “undefined”, depending upon whether or not the port’s password has been specified. To display the Port Parameters screen with the Port Password, type /WP followed by the desired port number, then press [Enter]. The /WP command option is not available in User Mode.

The /W command uses the format “/W[P] xx [Enter]”, where “P” is the command option to display port passwords and “xx” is the desired port number. When the “P” option is included (for example, in “/WP 5”) in a Supervisor-Mode command, the Port Parameters screen will display any password that’s been defined for the port.

```
PORT PARAMETERS #03:

1. Port Name:                (undefined)
2. Password:                 (undefined)
3. Baud Rate:                9600
4. Bits/Parity:              8-None
5. Stop Bits:                1
6. Handshake Mode:          RTS/CTS
7. Port Mode:                Any-to-Any
   74. DTR Output:           Pulse
8. Supervisor Mode:         Permit
9. Logoff Character:         +
10. Sequence Disconnect:    Three Characters
11. Timeout Disconnect:     Off
12. Response Type:          Verbose
13. Command Echo:           On
14. Accept Break:           Yes

Enter: "<" previous port,
       ">" next port,
       <ESC> exit ...
```

Figure 6-3. A Port Parameters screen.



# 7. Operation

## 7.1 Any-to-Any Mode

Any-to-Any Mode Ports can be connected to other Any-to-Any Mode, Passive Mode, Buffer Mode, or Modem Mode Ports by accessing Command Mode and issuing the Connect Command (/C). All ports can be configured for the Any-to-Any Mode.

### 7.1.1 PORT CONNECTION AND DISCONNECTION

The Serial Console Port Manager allows communication between devices without the requirement that both devices use the same communication parameters. This enables the user to connect devices that use dissimilar baud rates, parity, handshake, etc. The Port Manager converts data rates and other parameters, eliminating the need to select common parameters for all connected devices.

#### 7.1.1.1 Using ASCII Commands to Connect Ports

Two different types of connections can be made between Serial Console Port Manager ports: Resident Connections and Third-Party Connections.

- **Resident Connections:** Your resident port issues a /C command to connect to a second port. For example, Port 4 issues the /C command to connect to Port 5.
- **Third-Party Connections (Supervisor Mode only):** Your resident port issues a /C command to create a connection between two other ports. For example, if you are in Supervisor Mode and Port 1 is your resident port, you can issue a /C command from Port 1 to connect Port 2 to Port 3.

### NOTE

If a port has accessed Command Mode using the Port Password (User Mode), then that port will only be able to connect to other ports that share the same port password.

To connect ports:

1. Access the Command Mode. If the Password Prompt is displayed, enter your Supervisor or Port Password.
2. Invoke the `/C` command to connect the desired ports.
  - a) **Resident Connect:** To connect your resident port to another port, type `/C xx` and press **[Enter]**, where “xx” is the number or name of the port you want to connect. For example, to connect your resident port to Port 8, type `/C 8` and press **[Enter]**. Or, to connect your resident port to a port named “MODEM”, type `/C MODEM` and press **[Enter]**.
  - b) **Third-Party Connect (Supervisor Mode only):** To connect any two ports (other than your resident port), type `/C xx yy` and press **[Enter]**, where “xx” and “yy” are two port names or numbers. For example, to connect Port 5 to Port 6 from a port in Supervisor Mode, type `/C 5 6` and press **[Enter]**. Or, to connect a port named “SALES” to a port named “MODEM” from a port in Supervisor Mode, type `/C SALES MODEM` and press **[Enter]**.

Actually, when the `/C` command specifies the port name, it is only necessary to enter enough letters to differentiate the desired port from other ports; type an asterisk (\*) to represent the remaining characters in the port name. For example, if there are no other ports whose names begin with “S”, you can connect your resident port to a port named “SALES” by typing in just `/C S*` **[Enter]**.

### 7.1.1.2 Disconnecting Ports

There are three different methods for disconnecting ports: the Resident Disconnect, the Third-Party Disconnect, and the No Activity Timeout. If the Timeout feature has been enabled, a No Activity Timeout will disconnect resident ports or third-party ports.

## NOTE

**Option 74 in the Port Parameters menu determines how the DTR signal will react when the port disconnects. The DTR signal can either be held low, held high, or pulsed for 0.5 seconds and then held high.**

1. **Resident Disconnect:** Disconnects your resident port from another port. For example, if you are communicating through Port 3, and Port 3 is connected to Port 4, a Resident Disconnect would be used to disassociate the two ports. The Serial Console Port Manager offers two different Resident Disconnect command formats: the Three-Character Format and the One-Character Format (see **Section 5.5.3**):
  - a) **Three Characters (default):** Takes the form “[ **Enter**]<sub>LLL</sub>[**Enter**]”, where **L** is the selected Logoff Character. The Default Resident Disconnect Sequence is [**Enter**]<sub>+++</sub>[**Enter**].
  - b) **One Character:** When the One Character Disconnect Sequence is selected, simply enter the selected Logoff Character once. The default Logoff Character is the plus sign (+). Note that it is not necessary to enter a carriage return before or after the Logoff Character.
  - c) If the default Resident Disconnect Sequence is not compatible with your application, both the command format and the Logoff Character can be redefined using the Port Configuration menus, as described in **Section 5.5.3**.

- Third-Party Disconnect (Supervisor Mode only):** The /D command is issued from your resident port to disconnect two third-party ports. For example, if your Resident Port is Port 1, a Third-Party Disconnect would be used to disconnect Port 3 from Port 4.

Strictly speaking, the /D command uses the format: /D *xx yy* [Enter], where “*xx*” and “*yy*” are the numbers of the two ports that you wish to disconnect. But the /D command can specify either or both connected ports. For example, if Port 1 is your resident port, any of the following commands can be used to disconnect Port 3 from Port 4:

```
/D 3 4 [Enter]
```

or

```
/D 3 [Enter]
```

or

```
/D 4 [Enter]
```

- No Activity Timeout:** Providing that the Timeout Disconnect feature is enabled at either connected port, the No Activity Timeout can disconnect Resident or Third-Party Connections.
  - To configure the Timeout Feature, invoke the /P command to display the Port Configuration menu for the desired port, as described in **Section 5.5.3**. Option 11 enables and defines the Timeout Feature.
  - When the Timeout Feature is enabled, the port will automatically disconnect if no data is received for the defined Timeout Period.

## NOTES

**When connected ports time out, both ports will exit Command Mode after disconnecting.**

**When an unconnected port is left in Command Mode and no additional data activity is detected, the port will automatically exit Command Mode when its defined timeout value elapses.**

### 7.1.2 DEFINING HUNT GROUPS

A Hunt Group is a group of ports that the Serial Console Port Manager will scan and connect to the first available port in the group. Hunt Groups are created by assigning identical or similar names to two or more ports. Hunt Groups can be defined using Any-to-Any Mode, Passive Mode, Buffer Mode, or Modem Mode Ports.

1. Access the Command Mode.
2. Invoke the /P command to access the Port Configuration menu for the desired Port(s), as described in **Section 5.5.3**. For example, to configure Port 4, type /P 4 and press **[Enter]**.
3. From the Port Configuration menu, select item 1 to define the Port Name.
4. Repeat steps 2 and 3 above to assign identical names to the other ports in the Hunt Group. For example, a series of ports in a group could all be named "PRINTER" or "SERVER".
5. To connect to the next available port in the Hunt Group, invoke the /C command using the port name to specify the desired group. For example, type /C SERVER and press **[Enter]**.
6. Your port will be connected to the first available port in the group. If all ports are presently connected, the Serial Console Port Manager will respond with a "BUSY" message.
7. It is only necessary to enter enough letters of the port name to differentiate the Hunt Group ports from other ports. Type an asterisk (\*) to represent the remaining characters in the port name. For example, to connect your resident port to the first available port in a group of ports named "SALES1", "SALES2", and "SALES3" (assuming that no other port names begin with the letter "S"), issue the connect command by typing /C S\* and pressing **[Enter]**.

Hunt Group port names must be unique. Otherwise, ports with similar names will also be included in the Hunt Group.

#### Hunt Group Example 1:

1. Ports 1 and 2 are Modem Mode ports, and modems are installed at both ports. Port 1 is named "MODEM1" and Port 2 is named "MODEM2".
2. Your resident port is Port 4. To connect to the first available modem, access the Command Mode and type /C MODEM\* and press **[Enter]**.

## Hunt Group Example 2:

1. Ports 3, 4, and 5 are Any-to-Any Mode ports and servers are attached to each port. All three ports are named “SERVER”.
2. Your resident port is Port 1, you are in Supervisor Mode, and you want to connect Port 2 to the first available printer. Access the Command Mode and type `/C 2 SERVER` and press **[Enter]**.

## 7.2 Passive Mode

Passive Mode Ports function the same as Any-to-Any Mode Ports, but do not allow access to Command Mode. A Passive Mode Port can communicate with other ports, but cannot enter Command Mode, and therefore cannot invoke commands to redefine port parameters, display status, etc.

Passive Mode Ports can be connected by accessing the Command Mode from a free Any-to-Any Mode or Modem Mode Port, and invoking the Third-Party Connect or Resident Connect Command as described in **Section 7.1.1**. Passive Mode ports will not buffer data unless it's necessary for baud-rate conversion.

### NOTE

**In order to ensure supervisor access to important command functions, the Passive Mode is not available to Ports 1 and 2 (the System-Setup Ports).**

## 7.3 Buffer Mode

Ports configured for the Buffer Mode will collect data from the connected device and store it in the Serial Console Port Manager's statically allocated memory. Each Port Manager port has a fixed-length, fixed-position data buffer.

The Buffer Mode allows collection of data from various devices without the requirement that all devices use the same communication parameters (baud rate, parity, etc.).

### NOTE

**Buffer Mode Ports can't access Command Mode.**

**In order to ensure supervisor access to important command functions, the Buffer Mode is not available to Ports 1 and 2 (the System-Setup Ports).**

### 7.3.1 READING DATA FROM BUFFER MODE PORTS

To retrieve data from Buffer Mode Ports, you must first determine which port buffers contain data. To check port buffers for stored data, access the Command Mode, type `/S`, and press **[Enter]** to display the Port Status screen. The Port Status screen's "Buffer Count" column indicates the amount of data currently stored in the buffer memory for each port.

To retrieve data from buffer memory, go to a free Any-to-Any Mode or Modem Mode Port, access the Command Mode as a Supervisor, and issue the `/C` (Connect) command by typing `/C xx` and pressing **[Enter]**, where "xx" is the number or name of the port buffer to be read.

If the port's buffer is empty, the Port Manager will send a message which reads "Connected xx, Buffer Empty", where "xx" is the port number. If the buffer contains data, the Port Manager will display a prompt that offers four options:

- **Next Screen:** To scroll through data one screen at a time, press the spacebar. Each time the spacebar is pressed, the next full screen of data will be sent.
- **Scroll All:** To send all stored data without pausing, press [1].
- **Skip/Connect:** To connect to the buffer port without sending data, press [2].
- **Erase/Connect:** To connect to the buffer port and erase stored data, press [3]. Buffered data will be erased immediately and will not be sent.

## NOTE

**All four of these options also allow pass-through communication with the device connected to the Buffer Mode port.**

To clear data from the buffer, either (a) use the Erase/Connect option or (b) go to an Any-to-Any or Modem Mode Port, access Command Mode as a Supervisor, and issue the `/E` (Erase Buffer) command by typing `/E xx` and pressing **[Enter]**, where "xx" is the number or name of the port buffer to be cleared.

### 7.3.2 PORT BUFFERS

The Port Status screen lists the amount of Buffer Memory currently used by each port. The Serial Console Port Manager uses buffer memory in two different ways, depending on the user-selected port mode. When a port is in Buffer Mode, the buffer memory stores data received from connected devices. (The user issues a `/C` connect command from an Any-to-Any Mode or Modem Mode port to retrieve this data.) When a port is in any other mode, the buffer memory prevents data overflow at the slower port when two ports are communicating at dissimilar baud rates.

If the Port Status screen indicates an accumulation of data, the `/E` (Erase Buffer) command can be invoked to clear the buffer (see **Section 7.3.1**).

### 7.4 Modem Mode

In addition to allowing data transfer, the Modem Mode also provides additional functions specifically related to modem communication. A Modem Mode Port can perform all functions normally available in Any-to-Any Mode. Any Serial Console Port Manager port can be configured as a Modem Mode Port.

When the Modem Mode is selected, the Port Configuration menu (command /P) will display three additional prompts which allow the user to redefine the modem reset string, initialization string, and hangup string.

When the Modem Mode is selected for a port with Supervisor-Level command access, the Supervisor Password should be defined. This will discourage unauthorized access to higher command functions.

When a call is received, the Port Manager will prompt the caller to enter a password. The Port Manager allows three attempts to enter a valid password. If the correct password is not entered in three attempts, or if the user does not respond to the password prompt within 30 seconds, the modem will disconnect.

The password can be defined and enabled by invoking the /P command as described in **Section 5.5.3**.

### NOTE

**When a Modem Mode Port exits Command Mode, or if the DCD line is lost while the Command Mode is active, the Serial Console Port Manager will pulse the DTR line to the modem. The Port Manager will then send the user-defined modem command strings to make certain the modem is properly disconnected and reinitialized.**

**When an external modem is installed on a Port Manager port, other ports can use the modem for calling out. To call out, invoke the /C command to connect to the port, and then access the modem as you normally would.**



# 8. Saving and Restoring Configuration Parameters

After the Serial Console Port Manager is configured to fit the requirements of your application, parameters can be downloaded and saved as an ASCII text file. Later, if the configuration is accidentally altered, the file with the saved parameters can be uploaded to automatically reconfigure the Port Manager without the need to manually assign each parameter.

Saved parameters can also be uploaded to other Port Managers. This allows rapid setup when several Port Managers will be configured with the same parameters.

These procedures can be performed from any terminal-emulation program that allows downloading and uploading of ASCII files, including ProComm, CrossTalk®, HyperTerminal™, etc.

## 8.1 Sending Parameters to a File

1. Start ProComm and access the Serial Console Port Manager's Command Mode. If the password prompt is displayed, enter the Supervisor Password.
2. When the command prompt appears, type `/U` and press **[Enter]**. The Port Manager will prompt you to configure your terminal-emulation program to receive an ASCII download:
  - a) Set the program to receive an ASCII-format download.
  - b) Specify a name for the file that will receive the saved parameters ("MANAGER.PAR," for example).
  - c) Disable the Line Wrap function for the terminal-emulation program. This will prevent command lines from being broken in two during transmission.
3. When the terminal-emulation program is ready to receive the file, return to the Save Parameter File menu and press **[Enter]** to proceed with the download. The Port Manager's parameters will be saved on your hard drive in the file specified in Step 2b above.
4. The Port Manager will send a series of ASCII command lines which specify its currently selected parameters. The last line of the file should end with a `/G-00` command. When the download is complete, press **[Enter]** to return to the "APS>" command prompt.

### 8.2 Restoring Saved Parameters

This section describes the procedure for uploading stored parameters to the Serial Console Port Manager.

1. Start your terminal-emulation program and access the Port Manager's Command Mode; if the password prompt is displayed, enter the Supervisor Password.
2. Configure your terminal-emulation program to upload an ASCII text file.
3. Upload the ASCII text file with the saved Port Manager parameters. If necessary, key in the file name and directory path.
4. Your terminal emulation program will send the ASCII text file to the Port Manager. When the terminal program is finished with the upload, make certain to terminate the Upload mode.

#### NOTE

**If the Port Manager detects an error in the parameters file, it will respond with the "Invalid Parameter" message. If an error message is received, carefully check the contents of the parameters file, correct the problem, and then repeat the upload procedure.**

5. If the parameter-upload procedure is successful, the Port Manager will send a confirmation message, and then return to the "APS>" command prompt.

# 9. Command Reference Guide

## 9.1 Command Conventions

The commands described in this section conform to the following conventions:

- **Slash Character:** Most Serial Console Port Manager commands begin with the slash character (/).
- **Apply Command to All Ports:** When the asterisk character is entered as the argument of the /D (Disconnect Port) or /E (Erase Buffer) commands, the command will be applied to all ports. For example, to erase all port buffers, type /E \* [Enter].
- **Port Name Wild Card:** It is not always necessary to enter the entire port name. Port names can be abbreviated in command lines by entering the first character(s) of the name followed by an asterisk (\*). For example, a port named “SERVER” can be specified as “S\*”. Note, however, that this command would also be applied to any other port name that begins with the letter “S”.
- **Suppress “Sure?” Prompt:** When the /D (Disconnect Port), /E (Erase Buffer), or /I (Default and Test Unit) command is invoked, the /Y option can be included in the command line to override the “Are you Sure (y/n)?” prompt. For example, to disconnect Port 8 without displaying the “Sure?” prompt, type /D/Y 8 [Enter].
- **Enter Key:** All commands are invoked by pressing [Enter].
- **Command Mode:** Serial Console Port Manager ports will only recognize commands when the Command Mode has been activated. The Command Mode can be accessed from any free Any-to-Any Mode Port or Modem Mode Port. To access the Command Mode, proceed as described in **Section 5.1**.
- **Connected Ports:** When two ports are connected, most Serial Console Port Manager commands will not be recognized by either of the connected ports. The only exception is the Resident Disconnect Sequence (default = [Enter]+++[Enter]).
- **Configuration Menus:** To exit from a configuration menu, you must press [Esc] or [Ctrl] X.

## 9.2 Command Response

When commands are sent to the Serial Console Port Manager, the Port Manager can respond with either verbose (English-text) or terse (numeric/abbreviated) messages. The default message type for all ports can be set to either terse or verbose using Setup Switch Sw6 (see **Section 4.1.3**).

After the Port Manager is installed and configured, the Port Configuration (/P) command can specify an individual response message format for each port. In addition to the Terse and Verbose response modes, the /P command can also select the Quiet Mode. When the Quiet Mode is selected, the port will not send any messages at all in response to commands.

The table below summarizes the various response messages for both the Terse and Verbose modes.

<u>Terse</u>	<u>Verbose</u>
0	OK
0	RAM Test Passed
1	Connected *
2	Busy
3	Disconnected
4	Invalid Command
5	Are You Sure (Y/N) ?
6	Invalid Parameter
7	Invalid Syntax
8	Invalid Access
9	Enter Site ID:
A	Aborted
B	Enter Password:
C	Invalid Password
D	RAM Test Failed at *
E	Inactivity Timeout, Disconnected
F	Data in Buffer from Previous Connection ... Re-Enter Logoff Sequence to Purge Buffer.
G	Asleep

\* These verbose Response Messages include additional information not provided by terse Response Messages.

## 9.3 Command Summary

The chart below summarizes all the commands available with the Serial Console Port Manager.

Function	Command Syntax	Command Availability	
		Supervisor	User
Enter Command Mode	[Enter]	√	√
Exit Command Mode	/X [Enter]	√	√
Help Menu	/H [Enter]	√	√
Display Site ID	/J [Enter]	√	√
Display Port Status	/S[P] [Enter]	√ <sup>1, 2</sup>	√ <sup>1</sup>
Display Port Diagnostics	/SD [Enter]	√ <sup>1</sup>	√ <sup>1</sup>
Display Port Parameters	/W[P] xx [Enter]	√ <sup>2</sup>	√ <sup>3</sup>
Set System Parameters	/F [Enter]	√	
Set Port Parameters	/P xx [Enter]	√	
Copy Port Parameters	/CP [Enter]	√	
Connect	/C xx [yy] [Enter]	√	√ <sup>4</sup>
Resident Disconnect <sup>5</sup>	[Enter]+++[Enter]	√	√
Third-Party Disconnect <sup>6</sup>	/D[Y] xx [yy] [Enter] /D[Y] * [Enter]	√	
Erase Buffer	/E[Y] xx [yy] [Enter] /E[Y] * [Enter]	√	
Default and Test	/I[Y] [Enter]	√	
Save Parameters	/U [Enter]	√	

<sup>1</sup>Supervisor Mode displays parameters for all ports; User Mode only displays parameters for ports allowed by Port Password.

<sup>2</sup>Supervisor Mode only: Include the “P” in the “SP” or “WP” command to display ports’ passwords.

<sup>3</sup>A port with “User” command capability can only view its own parameters. A User Port *cannot* view parameters for other ports.

<sup>4</sup>A User Port *cannot* perform a Third-Party Connect.

<sup>5</sup>Resident Disconnect: Disconnects your resident port from another port. Note that the Resident Disconnect Sequence can be redefined through the Port Configuration menus.

<sup>6</sup>Third-Party Disconnect: Disconnects two or more nonresident ports. Must be issued from a third port with Supervisor command capability.

## 9.4 Command Set

### [ENTER] — ENTER COMMAND MODE

In order to set parameters or connect ports, you must first access the Command Mode as described in **Section 5.1**. When the Command Mode is inactive (port asleep), the port will only respond when the [Enter] key is pressed without any characters preceding it. If the Supervisor Password (command /F) has been defined, the unit will require a password before allowing access to Command Mode.

**Availability:** Supervisor/User.

**Format:** [Enter] (press [Enter] twice if other characters have already been typed)

**Response:** The Port Status screen will be displayed, followed by the “APS>” command prompt.

### [ENTER]+++[ENTER] — RESIDENT DISCONNECT SEQUENCE

The Resident Disconnect Sequence is issued to disconnect your resident port from another port. For example, if you are communicating via Port 3, and Port 3 is connected to Port 4, the Resident Disconnect Sequence would be used to disconnect Port 3 from Port 4. Although the default Resident Disconnect Sequence is [Enter]+++[Enter], the command format and Logoff Character can also be redefined through the Port Configuration menus, as described in **Section 5.5.3**. Note that a one-character disconnect command can also be selected.

**Availability:** Supervisor/User.

**Format:** [Enter]xxx[Enter], where “x” is the selected Logoff Character (default is “+”).

**Response:**

**Verbose:** “Disconnected” message followed by the Port Status screen.

**Terse:** 3

**/C — CONNECT**

Establishes a bidirectional connection between two ports. For more information and command line examples, please refer to **Section 7.1**. There are two different types of port connections:

- **Resident Connect:** If the /C command specifies one port name or number, your resident port will be connected to the specified port.
- **Third-Party Connect:** If the /C command specifies two port names or numbers, the unit will connect the two ports indicated. A Third-Party Connect command must be issued from a third port with Supervisor command capability. User Ports cannot initiate a Third-Party Connect.

**NOTES**

**Ports with User command capability can only connect to ports that share the same Port Password.**

**Ports with Supervisor command capability are allowed to connect to all other ports.**

**Availability:** Supervisor/User.

**Format:** /C xx [yy] [Enter], where “xx” and “yy” are the names or numbers of the ports to be connected.

**Response:**

**Verbose:** “Connected xx” (when a Resident Connection is initiated, the Port Manager will also display the currently selected Resident Disconnect Sequence for your port).

**Terse:** 1

**/CP — COPY PORT PARAMETERS**

Allows quick setup when all of the Serial Console Port Manager’s RS-232 ports will be configured with the same or similar parameters. When the /CP command is invoked, the Port Manager will display a menu that is used to select common port parameters, which can then be copied to all of its ports. For more information, please refer to **Section 5.6**.

**Availability:** Supervisor/User.

**Format:** /CP [Enter]

**Response:** Displays Copy Parameters menu.

### **/D — THIRD-PARTY DISCONNECT**

Invoke the /D command at your resident port to disconnect two other ports. The /D command cannot be used to disconnect your resident port. To disconnect your resident port, issue the Resident Disconnect Sequence or wait for the Timeout Period to elapse (if one is enabled).

**Availability:** Supervisor only.

**Format:** /D[/Y] xx [yy] [Enter], where “/Y” optionally suppresses the “Sure?” prompt and “xx” and “yy” are the numbers or names of the ports to be disconnected (enter an asterisk “\*” instead of a port name/number to disconnect all ports).

#### **Response:**

**Verbose:** “Are you Sure (y/n)?” prompt, followed by “Disconnected” if you type “Y”.

**Terse:** 5, followed by 3 if you type “Y”.

**Example:** To disconnect Port 2 from Port 3 without the “Sure?” prompt, access the Command Mode from a third port with Supervisor command capability and type one of the following commands:

```
/D/Y 2 [Enter] or /D/Y 3 [Enter]
```

### **/E — ERASE BUFFER**

Erases data from the buffer for a specified port or several ports. Erased data *cannot* be recovered.

**Availability:** Supervisor only.

**Format:** /E[/Y] xx [yy] [Enter], where “/Y” optionally suppresses the “Sure?” prompt and “xx” and “yy” are the numbers or names of the ports whose buffers are to be erased (enter an asterisk “\*” instead of a port name/number to clear all port buffers).

#### **Response:**

**Verbose:** “Are you Sure (y/n)?” prompt, followed by “OK” if you type “Y”.

**Terse:** 5, followed by 0 if you type “Y”.

**Example:** To clear the buffer for Port 3, access the Command Mode from a port with Supervisor command capability, and type /E 3 [Enter].



**/F — SET SYSTEM PARAMETERS**

Displays a menu which is used to define the Site ID message and Supervisor Password. When the Supervisor Password is defined, the Serial Console Port Manager will display a password prompt before allowing access to Command Mode. For more information, refer to **Section 5.4**.

**Availability:** Supervisor only.

**Format:** /F [Enter]

**Response:** Displays System Parameters menu.

**/H — HELP**

Displays a Help screen, which lists all of the Serial Console Port Manager's commands along with a brief description of each command.

**Availability:** Supervisor/User.

**Format:** /H [Enter]

**Response:** Displays Help screen (the User-level Help screen does not include information about Supervisor commands).

**/I — DEFAULT AND TEST**

Tests internal memory and initializes the Port Manager with the default parameters specified by the Setup Switches.

**CAUTION**

**When the /I command is invoked, the Serial Console Port Manager will revert to the parameters specified by the Setup Switches. Any command-selected parameters will be lost.**

**Availability:** Supervisor only.

**Format:** /I [/Y] [Enter], where “/Y” optionally suppresses the “Sure?” prompt.

**Response:**

**Verbose:** “Are you Sure (y/n)?” prompt, followed by memory test and initialization if you type “Y”.

**Terse:** 5, followed by memory test and initialization if you type “Y”.

### **/J — DISPLAY SITE ID**

Displays the user-defined Site ID message.

**Availability:** Supervisor/User.

**Format:** /J [Enter]

**Response:** Displays Site ID Message.

### **/P — SET PORT PARAMETERS**

Displays a menu which allows you to select options and parameters for the selected port. **Section 5.5.3** describes the procedure for defining port parameters.

**Availability:** Supervisor only.

**Format:** /P [xx] [Enter], where “xx” is the number or name of the port to be configured; if the port number or name is not specified, the Port Configuration menu for your resident port will be displayed.

**Response:** Displays Port Parameters menu.

### **/S — DISPLAY PORT STATUS**

Displays the Port Status screen, which lists current conditions and parameters for all ports. Normally, the Port Status screen will not display Port Passwords; the Password column will read either “defined” or “undefined”, depending on whether or not the password for each port has been specified. When the Supervisor Mode is active, the /SP command offers the option to either display or suppress Port Passwords. In User Mode, the /S command will only display information for the ports that share the same password entered at login. For more information on the Port Status screen, please refer to **Section 6.1**.

**Availability:** Supervisor/User.

**Format:** /S[P] [Enter], where “P”, if included in a command sent from a Supervisor port, causes the screen to list all defined port passwords.

**Response:** Displays Port Status screen.

### **/SD — DISPLAY PORT DIAGNOSTICS**

Provides more detailed information regarding the operational status of each port. Note that in User Mode, this screen will only display parameters for the ports that are allowed by the Port Password that was entered at log in. For more information on the Port Diagnostics screen, please refer to **Section 6.2**.

**Availability:** Supervisor/User.

**Format:** /SD [Enter]

**Response:** Displays Port Diagnostics screen.

**/U — SAVE PARAMETERS**

Sends the Serial Console Port Manager's configuration parameters to an ASCII text file as described in **Chapter 8**.

**Availability:** Supervisor only.

**Format:** /U [Enter]

**Response:** Displays Save Parameter File menu; when you finish configuring your terminal-emulation program and press [Enter], sends a series of command lines to the specified file.

**/W — DISPLAY PORT PARAMETERS**

Displays configuration of an individual port, but does not allow the user to change parameters. Ports with User-Level command capability cannot display parameters for other ports. Normally, the Port Parameters screens will not include the Port Password. Note, however, that when the Supervisor Mode is active, the /WP option can be used to display the password for the target port. For more information, please refer to **Section 6.3**.

**Availability:** Supervisor/User.

**Format:** /W[P] [xx] [Enter], where "P", if included in a command sent from a Supervisor port, causes the screen to list all defined port passwords, and "xx" is the port number or name; if "xx" is not included, parameters for your resident port will be displayed.

**Response:** Displays Port Parameters screens.

**Example:** To display parameters for a port named "SERVER", access the Command Mode from a port with Supervisor-Level command capability, and type /W SERVER [Enter].

**/X — EXIT COMMAND MODE**

Exits Command Mode. (This will not terminate port connections.) If the port is in Modem Mode, this command also disconnects and resets the modem by sending the hangup string, dropping the DTR line to the modem for 500 ms, and sending the modem reset string.

**Availability:** Supervisor/User.

**Format:** /X [Enter]

**Response:** Disconnected.

# 10. Troubleshooting

## 10.1 Calling Black Box

If you determine that your Serial Console Port Manager is malfunctioning, *do not attempt to alter or repair it*. It contains no user-serviceable parts. Contact Black Box Technical Support at 724-746-5500.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

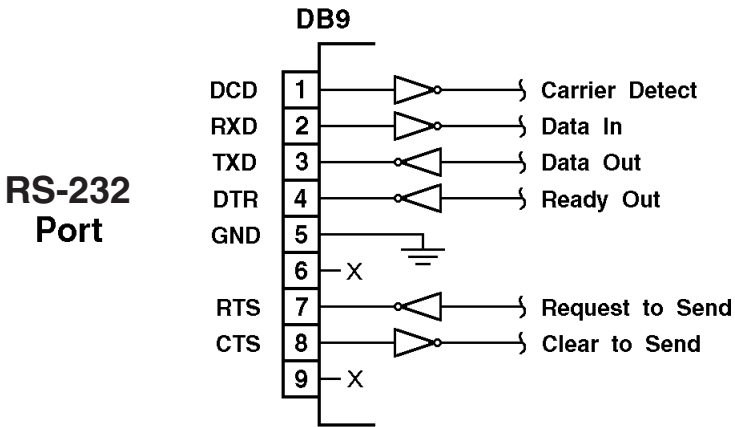
- the nature and duration of the problem;
- when the problem occurs;
- the components involved in the problem;
- any particular application that, when used, appears to create the problem or make it worse; and
- the results of any testing you've already done.

## 10.2 Shipping and Packaging

If you need to transport or ship your Serial Console Port Manager:

- Package it carefully. We recommend that you use the original container.
- Before you ship the unit back to Black Box for repair or return, contact us to get a Return Authorization (RA) number.

# Appendix: RS-232 Port Interface



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 (Parameters menu, Option 74). Upon disconnect, Option 74 allows DTR output to be held low, held high, or pulsed for 0.5 seconds and then held high.

## NOTES

## NOTES

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