

TPS Series

Telnet Power Switches



Models TPS-2 and TPS-2CE



5 Sterling • Irvine • California 92618-2517
(949) 586-9950 • Toll Free: 1-800-854-7226
Fax: (949) 583-9514 • <http://www.wti.com>



Warnings and Cautions:



No Serviceable Parts Inside; Authorized Service Personnel Only

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

- **Shock Hazard - Do Not Enter**

Nameplate Power Warning

This device should only be operated with the type of power source indicated on the instrument nameplate. If you are not sure of the type of power service available, consult your local power company.

- **Connect unit only to a properly measured supply. Use only three wire cord which is provided with the unit.**
- **Reliable earthing (grounding) of this equipment must be maintained. Particular attention should be given to supply connections when connecting to power strips, rather than direct connections to the branch circuit.**

Rack Mount Installation

When installing this device in an instrument rack, the following factors must be accounted for:

1. **Enclosed Racks:** Enclosed racks must provide adequate ventilation. Make certain that the rack is not overly crowded and note that each unit in the rack generates its own heat. An enclosed rack should have louvered sides and a fan to circulate cooling air.

When mounting the unit in an enclosed rack with a ventilation fan at the top of the rack, note that excessive heat generated by devices at the bottom of the rack can be drawn upward and into the ventilation slots of units located at the top. Make certain to provide adequate ventilation for equipment installed at the bottom of the rack.

The ambient within the rack may be greater than room ambient. Installation should be such that the amount of air flow required for safe operation is not compromised. The maximum temperature for the equipment in this environment is 45°C. Consideration should be given to the maximum rated ambient.

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

2. **Open Racks:** Make certain that the rack frame does not block the ventilation slots on the instrument cover. If the device is installed on sliders, check the unit when seated all the way into the rack to make certain that ventilation slots are not blocked.

Ventilation

Slots in the instrument cover are provided to allow ventilation for heat dissipation. To ensure safe, reliable operation, these openings must not be covered or blocked.

Disconnect Power

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

1. If the power cord becomes frayed or damaged.
2. If liquid has been spilled into the device or if the device has been exposed to rain or water.

Table of Contents

1.	Introduction	1
2.	Unit Description.	3
2.1.	Front Panel	3
2.2.	Back Panel	4
3.	Installation.	5
3.1.	Option Switches	5
3.2.	Console Port Connection	5
3.3.	Connecting an External Modem	5
3.4.	Connecting the Network Cable	6
3.5.	Power Supply Connection	6
3.6.	Connection to Switched Outlets	6
3.7.	Reset Unit to Defaults	6
3.7.1.	Default Parameters Option	7
3.7.2.	Default Button (Local)	7
4.	Start-Up / Configuration	8
4.1.	System Mode and User Mode	8
4.2.	Communicating with the TPS	9
4.3.	TPS Command/Menu Conventions	11
4.4.	Defining General Parameters.	11
4.5.	Plug Parameters	13
4.6.	Network Parameters	14
4.6.1.	Implementing IP Security	15
4.7.	Save Configuration Parameters.	16
5.	Operation.	17
5.1.	Access the TPS Command Mode	17
5.2.	Displaying Plug Status	18
5.3.	Boot/On/Off Commands	19
5.3.1.	Applying Commands to Both Plugs	20
5.4.	The Default Command	20
5.5.	The Automated Mode	20
5.6.	Other Commands	21
5.6.1.	Login as Different User	21
5.6.2.	Reset Network Port	21
5.6.3.	Exit / Disconnect.	21
5.7.	Manual Operation	22
5.8.	Operating Tips	22
6.	Saving and Restoring Configuration Parameters	23
6.1.	Sending Parameters to a File	23
6.2.	Restoring Saved Parameters	23

Appendices

A. Interface Descriptions Apx-1
 A.1. Console Port Interface Apx-1
 A.2. Modem Port Interface Apx-1

B. Specifications Apx-2

C. Optional Mounting Bracket Instructions Apx-3
 C.1. Rack Mounting Instructions Apx-3
 C.2. Wall Mounting Instructions Apx-4

D. Customer Service Apx-5

Index Index-1

List of Figures

1. Front Panel 3

2. Back Panel (115 VAC Model Shown) 4

3. System Help Screen 10

4. User Help Screen 10

5. General Parameters Menu (System Mode Only) 12

6. Plug Parameters Menu (Plug 1 Shown) 13

7. Network Parameters Menu (System Mode Only) 14

8. IP Security Menu 15

9. System Status Screen (Passwords Hidden) 18

10. User Status Screen 18

A.1. Console Port Interface Apx-1

A.2. Modem Port Interface Apx-1

C.1. Rack Mounting Instructions Apx-3

C.2. Wall Mounting Instructions Apx-4

1. Introduction

Network equipment sometimes "locks-up", requiring a service call just to flip the power switch to perform a simple reboot. The TPS Series Telnet Power Switches give network administrators the ability to perform this function from anywhere on the LAN/WAN, or if the network is down, to simply dial-in from a modem for out-of-band power control.

Intelligent Power Control

The TPS can communicate over any TCP/IP network using generic Telnet, or out-of-band using an external modem and terminal emulation. Each outlet can be assigned an individual password, device name, reboot delay time and unique power-up default status.

Security and Co-Location Features

Address specific IP security masks prevent unauthorized network access to the TPS command mode. The TPS provides two password security levels; System level and User level. The System password allows access to all configuration and command functions. The User password allows access only to assigned plugs. User level security features are ideal for co-location applications, where multiple users may be allowed plug-specific access to the TPS unit.

Easy to Use, Easy to Configure

Reboots and plug switching are controlled by simple ASCII commands sent to the unit via network, modem or from a local PC. Set-up and configuration is also simple; easy-to-follow menus lead the user through the installation process.

Features:

- Turn On/Off any AC Powered Device via Telnet, Modem or Local Terminal.
- Two (2) Individual Switched Outlets
- Two Levels of Outlet Specific Password Security plus Network Security.

TPS-2 and TPS-2CE Units

This User's Guide discusses *both* the TPS-2 and TPS-2 CE Telnet Power Switches. Throughout this User's Guide, both units are referred to as "TPS". The TPS-2 is designed for 115 VAC operation and can handle loads up to 15 amps maximum, and the TPS-2 CE is designed for 230 VAC operation and can handle loads up to 10 amps maximum. All other features function identically.

Typographic Conventions

Throughout this manual, typefaces and characters have been used to denote the following:

COURIER FONT Indicates characters typed on the keyboard.

For example, `/ON 3` or `/OFF 5`.

[Bold Font] Text set in bold face and enclosed in square brackets indicates a specific key.

For example, `[Enter]` or `[Esc]`.

2. Unit Description

2.1. Front Panel

As shown in Figure 1, the TPS front panel includes a series of LED indicators which function as follows:

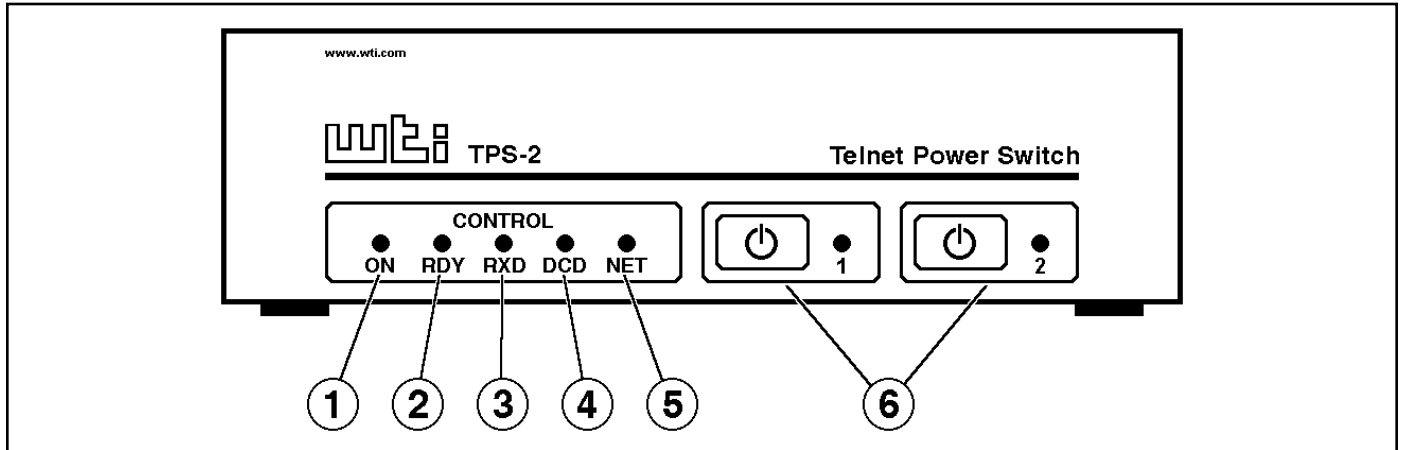


Figure 1: Front Panel

- ① **ON:** Lights when AC Power is applied to the TPS.
- ② **RDY:** Flashes when the TPS is ready to receive commands.
- ③ **RXD:** Lights when the TPS receives commands.
- ④ **DCD:** Lights when the Modem Port detects the Carrier.
- ⑤ **NET:** Lights when a Telnet session is in progress.
- ⑥ **Plug Indicators and Manual Control Buttons:** An On/Off Indicator and Manual Control Button for each switched plug. To manually switch a plug "On" or "Off", press and hold the appropriate Manual Control Button for one second; the corresponding plug will be toggled On or Off.

Note: If desired, the Manual Control Buttons can also be disabled as described in Section 4.4.

2.2. Back Panel

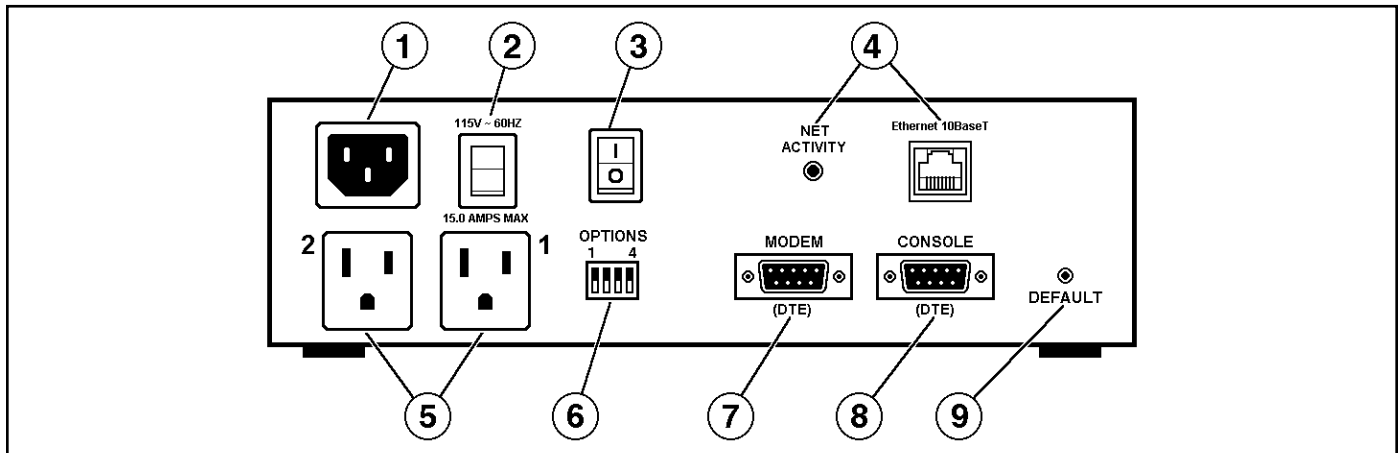


Figure 2: Back Panel (115 VAC Model Shown)

- ① **Power Inlet:** Supplies power for the TPS's command functions and the two switched plugs.
- ② **Circuit Breaker:**
 - **TPS-2:** 115 VAC, 15 Amps.
 - **TPS-2CE:** 230 VAC, 10 Amps.
- ③ **Master Power Switch:** This switch must be in "On" in order for the TPS to function. This switch is *not* used to set the On/Off status of the switched outlets.
- ④ **Network Port and Activity Indicator:** An RJ45 Ethernet port for connection to your TCP/IP network. To communicate via Network, you must first specify the IP Address, Subnet Mask and Gateway Address as described in Section 4.6.

Note: The TPS features a 10BaseT Interface. When connecting the TPS to a 100BaseT interface, note that most router switches will autosense to determine if the device is 100BaseT or 10BaseT, and then configure the network interface accordingly. If your router switch does not autosense, then the network interface port must be manually set to 10BaseT.

- ⑤ **Switched AC Outlets:**
 - **TPS-2 (115 VAC):** Each outlet can switch up to 15 Amps. Total for both outlets must not exceed 15 Amps.
 - **TPS-2CE (230 VAC):** Each outlet can switch up to 10 Amps. Total for both outlets must not exceed 10 Amps.
- ⑥ **Option Switches:** A bank of four DIP Switches which select default settings for the baud rate and other features.
- ⑦ **Modem Port:** A Male RS-232, DB9 Connector, DTE configuration. For connection to an external modem.
- ⑧ **Console Port:** A Male RS-232, DB9 Connector, DTE configuration. For connection to a local PC.
- ⑨ **Default Button:** Resets the unit to default settings as described in Section 3.7.

3. Installation

3.1. Option Switches

The Option Switches select *default* settings for the Baud Rate, Command Echo, Boot Delay and Disconnect Timeout. Default settings selected via the Option Switches will be used when the unit is reset to default parameters as described in Section 3.7.

Note: Although the Option Switches select *default* settings for these features, the TPS configuration menus can also be used to select *operating* parameters as described in Section 4.

Option Switch settings are described below:

- **Baud Rate:** The default baud rate for the Console Port and Modem Port. This rate will be selected after a power interruption, and when the unit is reset to default parameters.
- **Boot Delay:** The default Boot Delay setting. When a boot cycle is initiated, the Boot Delay determines the length of time that the switched outlet will remain off until power is restored.
- **Command Echo:** The default setting for the Command Echo for the Console Port, Modem Port and Network Port. When enabled, commands entered at your keyboard will be sent to the TPS and echoed back to your display monitor.
- **Disconnect Timeout:** The default Disconnect Timeout value. This determines how long the TPS will wait for additional commands before automatically disconnecting. Note that when the TPS times out, DTR will drop, and the modem disconnect and initialize strings will be sent.

Switch	Function	Up	Down
1	Default Baud Rate	38.4K bps	9600 bps*
2	Default Boot Delay	10 Sec.	5 Sec.*
3	Default Command Echo	Enable	Disable*
4	Default Disconnect Timeout	30 Min	2 Min*

* = Factory Setting

3.2. Console Port Connection

The Console Port is a male, DB9 connector, wired in a DTE configuration (similar to an AT computer), which is used for connection to a local PC or control device. Appendix A describes the Console Port interface.

3.3. Connecting an External Modem

When connecting directly to an external modem, use a standard AT to Modem cable. Make certain the modem is initialized at the same baud rate as the TPS (Option Switch 1). The modem must be set to Auto-Answer, in one ring. Please refer to the modem user's guide for more information. Section 4.4 describes the procedure for defining the modem command strings. Appendix A describes the modem port interface.

3.4. Connecting the Network Cable

The Network Port is an RJ45 Ethernet jack, for connection to a TCP/IP network. Connect your 10Base-T cable to the Network Port. Before attempting to access the unit via network, please assign the IP Address, Gateway Address and Subnet Mask as described in Section 4.6.

Note: The TPS features a 10BaseT Interface. When connecting the TPS to a 100BaseT interface, note that most router switches will autosense to determine if the device is 100BaseT or 10BaseT, and then configure the network interface accordingly. If your router switch does not autosense, then the network interface port must be manually set to 10BaseT.

3.5. Power Supply Connection

Connect the TPS to an appropriate power supply.



CAUTIONS:



- **This device should only be operated with the type of power source indicated on the instrument nameplate. If you are not sure of the type of power service available, please contact your local power company.**
- **Reliable earthing (grounding) of this unit must be maintained. Particular attention should be given to supply connections when connecting to power strips, rather than directly to the branch circuit.**
- **Check nameplate ratings to ensure that there is no overloading of supply circuits that could have an effect on overcurrent protection and supply wiring.**

3.6. Connection to Switched Outlets

The Main Power Switch must be "On" in order for the TPS to operate. When the unit is powered On, the two AC outlets will be switched On or Off, as specified by the user defined Power-Up Default (see Section 4.5). On TPS-2 Models (115 VAC), each outlet can switch up to 15 Amps AC (total for both outlets must not exceed 15 Amps). On TPS-2CE Models (230 VAC), each outlet can switch up to 10 Amps AC (total for both outlets must not exceed 10 Amps).

3.7. Reset Unit to Defaults

If Option Switch settings are changed, the new settings will not be applied until the unit is reset to default settings. There are two ways to reset the unit to defaults:

Note: When these reset procedures are performed, all user selected parameters, including passwords and port names will be lost. Prior to performing these reset procedures, it is strongly recommended to save configuration parameters to an ASCII text file as described in Section 6.

3.7.1. Default Parameters Option

This method allows default parameters to be set without effecting the On/Off status of the TPS's two switched plugs. To reset the unit to default parameters, proceed as follows:

1. Access the TPS Command Mode (see Section 5.1).
2. At the TPS> command prompt, type **/G** and press **[Enter]**. The General Parameters menu will appear.
3. From the General Parameters menu, type **A** and press **[Enter]**. If command confirmation is enabled, the unit will display a "Sure?" prompt. Type **Y** and press **[Enter]** to proceed with the reset procedure. After a brief pause, parameters will be reset to default values.

Note: If the Default Parameters function is invoked via the Network Port, the IP Address will *not* be reset. If this function is invoked via the Console Port or Modem Port, the IP Address *will* be reset.

3.7.2. Default Button (Local)

Typically, this method is used when devices have *not* been connected to the TPS unit, and you have immediate access to the installation site.

Note: This method will temporarily switch all plugs Off.

Set the Master Power Switch to the OFF position. Press and hold the Default Button, located on the instrument back panel. Place the Master Power switch in the ON position. Wait about 5 seconds, and then release the Default Button.

4. Start-Up / Configuration

4.1. System Mode and User Mode

In order to restrict access to sensitive command functions, the TPS features two separate operating modes; System Mode and User Mode.

The System Mode allows access to all configuration menus, command functions and status screens. When the System Mode is active, Boot/On/Off commands can be directed to *either* of the two switched outlets. The System Mode Status Screen shows On/Off conditions for both switched outlets, and lists currently defined system parameters.

The User Mode allows limited access to command functions and status screens; users are *not* allowed to access configuration menus. When the User Mode is active, Boot/On/Off commands can only be directed to the specific outlet(s) that are allowed by the User Password that was entered at login. If a different User Password is assigned to each TPS outlet, then a user who accesses the TPS using the password for Plug 1 is not allowed to boot or switch Plug 2. On the other hand, if the same User Password is assigned to both TPS outlets, then that user will be able to direct commands to both plugs. The User Mode Status Screen only shows conditions at the outlet(s) allowed by the User Password; system parameters are *not* displayed.

When properly configured, the TPS will display a password prompt when the unit is contacted via the Console Port, Modem Port or Network Port. The password entered at this prompt determines whether the unit will start-up in System Mode or User Mode. If the System Password (defined via the General Parameters menu) is entered, the System Mode will be active. If the User Password (defined via the Plug Configuration Menus) is entered, the User Mode will be active.

If the System Password is not defined, the TPS will not display the password prompt, and will always start-up in System Mode. Once the System Password has been defined, individual users can be granted access by assigning passwords to the TPS's two switched plugs as described in Section 4.5.

4.2. Communicating with the TPS

In order to configure the unit or invoke command functions, the user must first connect to the TPS and access the command mode.

1. The TPS is transparent to parity and will accept 7 or 8 bit characters, but will always answer back at 8 bits, no parity. Make certain your communication program (e.g. ProComm or HyperTerminal) is set for the appropriate baud rate, bits and parity.
 - a) **Via Modem:** Start your communications program. Dial the external modem connected to the TPS. Wait for the Connect message and proceed to Step 2.
 - b) **Via Local PC:** Start your communications program and then press **[Enter]**.
 - c) **Via Network:** During initial configuration, the TPS cannot be accessed via the Network Port. After network parameters have been defined (see Section 4.6), the unit may then be accessed via network as described in Section 5.1.
2. **Password:** If the System Password has been defined, the unit will display the Password Prompt. Key in either the System Password or User Password, and press **[Enter]**. If the system password has not been defined, the prompt will not be displayed. Note that the Password feature is case sensitive.
3. If the System Password is entered, the TPS will display the System Help Screen (Figure 3). If the User Password is entered, the TPS will display the User Help Screen (Figure 4).

```

Telnet Power Switch v1.00                Site: WESTERN TELEMATIC, INC.

Commands:

Display
/H          Display this Help Screen
/S[P]      Display Plug Status, [P] with Passwords

Configuration
/G          View/Set General Parameters
/P [n]     View/Set Plug Parameters
/N         View/Set Network Parameters
/DL        Download Configuration to File

Control
/D          Set Plugs to Default Settings
/Boot <n>  Boot Plug n
/On <n>    Turn On Plug n
/Off <n>   Turn Off Plug n
/T         Reset Network Interface
/R         Relogin as Different User
/X         Exit/Disconnect

+-----+
| [n] = Optional Plug Name or Number |
| <n> = Required Plug Name or Number |
| n+n = Plug n and Plug n           |
| n:n = Plug n through Plug n       |
| * = All Plugs with Access         |
+-----+

TPS>
    
```

Figure 3: System Help Screen

```

Telnet Power Switch v1.00                Site: WESTERN TELEMATIC, INC.

Commands:

Display
/H          Display this Help Screen
/S          Display Plug Status

Control
/D          Set Plugs to Default Settings
/Boot <n>  Boot Plug n
/On <n>    Turn On Plug n
/Off <n>   Turn Off Plug n
/X         Exit/Disconnect

+-----+
| <n> = Required Plug Name or Number |
| n+n = Plug n and Plug n           |
| n:n = Plug n through Plug n       |
| * = All Plugs with Access         |
+-----+

TPS>
    
```

Figure 4: User Help Screen

4.3. TPS Command/Menu Conventions

When invoking TPS commands and selecting items from configuration menus, note the following:

- All TPS commands can be invoked at the TPS> command prompt, or from the General Parameters Menu, Port Parameters Menus or Network Parameters Menu.
- TPS commands are *not* case sensitive. All TPS commands are invoked by pressing **[Enter]**.
- To select an item from a TPS menu, key in the number for the item and press **[Enter]**. To exit from a menu, press **[Esc]** at any time. Parameters defined up to that point will be saved.
- To display the Help Screen, type **/H [Enter]**.
- The **", Y"** option can temporarily suppress the "Sure?" confirmation prompt. The **", Y"** option is entered at the end of the command line, immediately following the command or argument. For example, to reset the network port without displaying the "Sure?" prompt, type **/T, Y [Enter]**, or to switch off Plug 2 without the "Sure?" prompt, type **/OFF 2, Y [Enter]**.

4.4. Defining General Parameters

When the "TPS>" prompt appears, type **/G [Enter]** to display the General Parameters menu (Figure 5). Note that this menu is not available in User Mode. The General Parameters menu offers the following options:

1. **System Password:** (Up to 16 characters, case-sensitive) When the System Password is defined, the TPS will display a prompt before allowing access to command mode. If the System Password is entered, the TPS will start-up in System Mode. To define the System Password, type **1** and press **[Enter]**. (Default = undefined).
- Note:** If the System Password is not defined, the password prompt will not be displayed, and the TPS will always start-up in System Mode.
2. **Site ID:** Defines a text string (up to 32 characters) that denotes the installation site. To define the Site ID, type **2** and press **[Enter]**. (Default = undefined).
 3. **Modem Initialization String:** To define the Modem Initialization String (up to 32 characters), type **3** and press **[Enter]**. For more information on the initialization string, please refer to the user's guide for your external modem. Make certain that the modem is set to auto-answer in one ring. (Default = **ATE0M0Q1 &C1 &D2S0=1**).
 4. **Modem Disconnect String:** To define the Disconnect String (up to 32 characters), type **4** press **[Enter]**, and follow the instructions in the submenu. For more information, please refer to the user's guide for your external modem. (Default = undefined).
 5. **Baud Rate:** To select the baud rate for the Modem Port and Console Port, type **5** press **[Enter]**, and follow the instructions in the submenu. Make certain to select a rate that is compatible with the external modem, and/or the device connected to the Console Port. (Default value determined by Option Switch 1; Factory Setting = 9600).

Note: When this setting is changed, the new baud rate will not be applied until the user exits and then re-enters the TPS Command Mode.


```

GENERAL PARAMETERS:

1. System Password:      (undefined)
2. Site ID:              (undefined)
3. Modem Init. String:  ATE0M0Q1&C1&D2S0=1
4. Modem Disc. String:  (undefined)
5. Baud Rate:           9600,N,8,1
6. Command Echo:        Off
7. Disconnect Timeout:  2 Min
8. Command Confirmation: On
9. Automated Mode:      On
10. Button Mode:        On

A. Default Parameters

Enter Selection or <ESC> to Exit ...

```

Figure 5: General Parameters Menu (System Mode Only)

6. **Command Echo:** Enables/Disables the command echo. When enabled, commands sent to the TPS will be echoed back to your PC, allowing keystrokes to be displayed. To enable/disable the echo, type **6**, press **[Enter]** and follow the instructions in the submenu. (Default determined by Option Switch 3; Factory Setting = Disabled).
7. **Disconnect Timeout:** Determines how long the TPS will wait for additional commands. Type **7**, press **[Enter]**, and follow the instructions in the submenu. (Default determined by Option Switch 4; Factory Setting = 2 Min.).
8. **Command Confirmation:** When enabled, the TPS will display a "Sure?" prompt before completing the /T, /X, /R, /BOOT, /ON, /OFF, /D and "A" commands, and will also display the System Status screen after commands are successfully completed. When disabled, the "Sure?" prompt is suppressed, and the Status Screen is not sent when commands are complete. (Default = Enabled).
9. **Automated Mode:** When enabled, the TPS will execute the /ON, /OFF, /BOOT, /D, and /X commands without displaying the confirmation prompt, status screen, or confirmation messages. This allows the TPS to be controlled by a device that generates commands to control power switching without human interaction. For more information, please refer to Section 5.5. (Default = Off).

Note: When this option is enabled, TPS password security functions are disabled, and users are able to access System Level menus and control both plugs without entering a password.

10. **Button Mode:** Enables/disables the manual plug control buttons on the TPS front panel. When enabled, the TPS's two switched plugs can be toggled On and Off by pressing and holding the manual control button for approximately one second. When disabled, the manual control buttons will have no effect. (Default = On).
- A. **Default Parameters:** Resets the TPS to the default values specified by the Option Switches. In addition, all menu selected parameters, including port names and passwords, will be lost. Note that if Command Confirmation is disabled, the "Sure?" prompt will not be sent.

Note: If the Default Parameters function is invoked via the Network Port, the IP Address is *not* reset. If this function is invoked via the Console Port or Modem Port, the IP Address *will* be reset.

After defining the General Parameters, press **[Esc]** to exit from the General Parameters menu.

```
PLUG #1 PARAMETERS:

1. Plug Name:          (undefined)
2. Password:           (undefined)
3. Boot Delay:         5 Sec
4. Power Up Default:   On

Enter Selection or <ESC> to Exit ...
```

Figure 6: Plug Parameters Menu (Plug 1 Shown)

4.5. Plug Parameters

The Plug Parameters menus are used to assign names and select parameters for each of the two switched outlets. There is a separate Plug Parameters menu for each outlet. Note that the Plug Parameters menus are not available in User Mode.

In addition to selecting parameters for each outlet, the Plug Parameters menus also allow you to assign an individual User Password to each plug. If the same User Password is assigned to both plugs, then that password will allow the user to direct Boot/On/Off commands to both switched plugs. If a separate password is assigned to each plug, then each password will only allow access to its corresponding plug.

To access the Plug Parameters menus from the TPS> prompt, type **/P n** and press **[Enter]** where **n** is the number or name of one of the two switched outlets. The Plug Parameters menu (Figure 6) offers the following options:

1. **Plug Name:** (Up to 16 Characters) Assigns a name to the plug. Typically, this name describes the piece of equipment that is connected to the switched outlet. When plug names are assigned, Boot/On/Off commands can be invoked using the name *or* number of the desired plug. (Default = undefined).
2. **Password:** (Up to 16 Characters) Assigns a User Password to this plug. When a User Password is assigned, the plug is then "owned" by that password. When a User Password is entered at login, the user will have access to only the plug(s) which are owned by this password. (Default = undefined).

Notes:

- If the System Password is defined, and the plug's User Password is *not* defined, then the System Password will "own" this plug, and only the System Mode will be able to control the plug.
 - If you wish to allow a single user to access both switched plugs, assign the *same* User Password to both plugs.
 - If you wish to "split" plug access between two different users (each user controls their own plug), then assign a *different* User Password to each plug.
3. **Boot Delay:** During a Boot cycle, power to the plug is first switched off and then switched back on. The Boot Delay is the length of time which elapses between the time when power is switched off and the time that power is restored. The Boot Delay can be 1, 5, 10, 15, 30 or 60 seconds. (Default determined by Option Switch 2; Factory Setting = 5 Seconds).
 4. **Power-Up Default:** Determines how this plug will react when the /D (default) command is invoked, or after a power interruption. Each plug can be automatically switched On or Off as specified by the Power-Up Default. (Default = On).

After Plug Parameters have been defined, press **[Esc]** to exit from the Plug Parameters menu.

```
NETWORK PARAMETERS:

1.  IP Address:          (undefined)
2.  Subnet Mask:        (undefined)
3.  Gateway Address:    (undefined)
4.  IP Security

MAC Address:           00-40-05-5e-f3-90

Enter Selection or <ESC> to Exit ...
```

Figure 7: Network Parameters Menu (System Mode Only)

4.6. Network Parameters

In order to communicate with the TPS via network, the IP Address, Subnet Mask and Gateway Address must first be defined via the Network Parameters menu. If desired, this menu also allows you to implement IP Security features, which can restrict command mode access based on the user's IP Address.

Settings for network parameters depend upon the configuration of your individual network. Please contact your network administrator for appropriate settings, and then assign parameters as described in this section.

To access the Network Parameters menu (Figure 7), type **/N** and press **[Enter]**. Note that this menu is not available in User Mode. The following options are available:

1. **IP Address:** Defines the IP Address for the TPS unit. Type **1** press **[Enter]**, and follow the instructions in the submenu. (Default = undefined)
2. **Subnet Mask:** Defines the Subnet Mask for the TPS unit. Type **2** press **[Enter]**, and follow the instructions in the submenu. (Default = undefined)
3. **Gateway Address:** Defines the Gateway Address for the TPS unit. Type **3** press **[Enter]**, and follow the instructions in the submenu. (Default = undefined)
4. **IP Security:** Sets up the IP Security feature as described in Section 4.6.1.
5. **Mac Address:** Displays the unit's MAC Address. Note that this item is not used to redefine the MAC Address.

```
IP SECURITY

1.  Security Mask #1:      (undefined)
2.  Mask #1 Action:       Permit
3.  Security Mask #2:      (undefined)
4.  Mask #2 Action:       Permit
5.  Security Mask #3:      (undefined)
6.  Mask #3 Action:       Permit
7.  Security Mask #4:      (undefined)
8.  Mask #4 Action:       Permit
9.  Security Mask #5:      (undefined)
10. Mask #5 Action:       Permit

Enter Selection or <ESC> to Exit
```

Figure 8: IP Security Menu

4.6.1. Implementing IP Security

The TPS can be configured to restrict unauthorized IP addresses from Telneting to the unit. This allows the user to grant Telnet access to only a specific group of IP addresses, or block a particular IP address from gaining access. In the default state, the TPS accepts incoming IP connections from all hosts. To configure the IP Security feature, proceed as follows:

1. Access the Network Parameters menu as described in Section 4.6. Note that the Network Parameters menu is not available in User Mode.
2. When the Network Parameters menu appears, type **4** and press **[Enter]** to access the IP Security menu (Figure 8).
3. The IP Security menu lists five IP Security "masks" along with the selected permit/deny action for each mask.
 - a) Each Security Mask prompt is used to define a specific IP address or range of IP addresses. Each Mask Action prompt is used to define the permit/deny action for the corresponding Mask.
 - b) Masks are listed in order of ascending priority; Mask 1 has the lowest priority, Mask 5 has the highest priority.
 - c) Masks have a cumulative effect; high priority masks supersede the effect of lower priority masks.
 - d) Each IP Address consists of a series of four eight bit numbers. The number 255 is used as a wild card.

Example 1: Deny access to all hosts except 192.1.1.5:

```
Security Mask #1: 255.255.255.255    Mask #1 Action: Deny
Security Mask #2: 192.1.1.5         Mask #2 Action: Permit
```

Since 255 is a wild card, Mask #1 blocks all IP Addresses. Mask #2 then specifically grants access to 192.1.1.5 only.

Example 2: Allow access only by addresses that begin with 192.

Security Mask #1:	255.255.255.255	Mask #1 Action:	Deny
Security Mask #2:	192.255.255.255	Mask #2 Action:	Permit

Since 255 is a wild card, Mask 1 blocks all IP addresses. Mask 2 then grants access to all addresses that begin with 192.

Example 3: Allow access only by addresses that begin with 192, deny access to 192.1.1.5.

Security Mask #1:	255.255.255.255	Mask #1 Action:	Deny
Security Mask #2:	192.255.255.255	Mask #2 Action:	Permit
Security Mask #3:	192.1.1.5	Mask #3 Action:	Deny

Since 255 is a wild card, Mask 1 blocks all IP addresses. Mask 2 then grants access to all addresses that begin with 192. Finally, Mask 3 specifically blocks access by 192.1.1.5.

Notes:

- Mask #5 has priority over the other four masks. If Mask #5 is set to deny access by "255.255.255.255" (all wild cards), all IP Addresses will be blocked, and you will not be able to access the TPS Command Mode via network. Access will only be allowed via the Console Port or Modem Port.
- When using the wild card address "255.255.255.255" to block access by all IP Addresses, make certain that at least one higher priority mask permits access by your IP address.

4.7. Save Configuration Parameters

After the unit has been completely configured, it is recommended to save parameters to an ASCII file as described in Section 6. This allows quick recovery in the event that the unit is reset to default parameters, or the configuration is accidentally deleted or altered.

5. Operation

Your PC or Control Device must send ASCII characters at the same data rate as the TPS. The unit accepts 8 bits, no parity, or 7 bits, even or odd parity, but will always answer back at 8 bits, no parity.

5.1. Access the TPS Command Mode

In order to invoke commands, the user must first access the Command Mode. Commands can be sent to the TPS via Network or modem, or from a local PC connected to the Console Port. To access the Command Mode, proceed as follows:

1. **Contact the TPS:**

- a) **Via Network:** Telnet to the TPS unit's IP Address. For example, if the IP Address is 192.1.1.1, on a UNIX system the Telnet command would be as follows:

```
$ telnet 192.1.1.1 [Enter]
```

Notes:

- In order to contact the TPS unit via telnet, you must first define the unit's Network Parameters as described in Section 4.6.
 - If the Telnet connection to the TPS is refused, this may mean that the unit is busy, or that the IP Security feature has denied the connection.
- b) **Via Modem:** Start your communications program (e.g. ProComm). Dial the external modem that is connected to the TPS, and then wait for the Connect Message.
- c) **Via Console Port:** Start your communications program and press [Enter]. Make certain you are communicating via the correct COM port.
2. **Password:** If the System password has been defined, a prompt will be displayed. Key in your System or User Password, and press [Enter].
3. **Disconnect:** If you wish to end the session, type **/x** and press [Enter] (or disconnect using Telnet software).

5.2. Displaying Plug Status

The Status Screen displays the On/Off state and selected parameters for the switched plugs. To display the Status Screen, type **/S** and press **[Enter]**. Note that although the **/S** command is available in both User and System Mode, the System Status Screen includes more information than the User Status Screen.

When the System Mode is active, the **/S** command will produce the screen shown in Figure 9, which lists status and parameters for both switched plugs, along with Console Port parameters, and modem command strings. Note that in System Mode, the **/S** command will also accept an argument which will display the User Password for each plug. To display plug passwords, access the System Mode, type **/SP** and press **[Enter]**.

When the User Mode is active, the **/S** command will produce the screen shown in Figure 10, which lists the status and parameters only for the plug(s) owned by the User password entered at login. If a separate User Password has been assigned to the other plug, the User Mode Status Screen will not list the status for that plug. In User mode, plug passwords *cannot* be displayed.

```
Telnet Power Switch v1.00   Site: WESTERN TELEMATIC, INC.

  Plug | Name           | Status | Boot Delay | Password      | Default
-----+-----+-----+-----+-----+-----
   1   | ROUTER_A       | ON     | 15 Sec    | (defined)    | ON
   2   | ROUTER_B       | OFF    | 15 Sec    | (defined)    | OFF
-----+-----+-----+-----+-----+-----

Modem Init. String:      ATE0M0Q1&C1&D2S0=1
Modem Disc. String:     +++ATZ
Communication Settings:  9600,N,8,1
Command Echo:           OFF
Disconnect Timeout:     30 Min
Command Confirmation:   ON
Automated Mode:         OFF
Button Mode:            ON

"/H" for Help
```

Figure 9: System Status Screen (Passwords Hidden)

```
Telnet Power Switch v1.00   Site: WESTERN TELEMATIC, INC.

  Plug | Name           | Status | Boot Delay | Password      | Default
-----+-----+-----+-----+-----+-----
   2   | ROUTER_B       | ON     | 15 Sec    | (defined)    | ON
-----+-----+-----+-----+-----+-----

Modem Init. String:      ATE0M0Q1&C1&D2S0=1
Modem Disc. String:     +++ATZ
Communication Settings:  9600,N,8,1
Command Echo:           OFF
Disconnect Timeout:     30 Min
Command Confirmation:   ON
Automated Mode:         OFF
Button Mode:            ON

"/H" for Help
```

Figure 10: User Status Screen

5.3. Boot/On/Off Commands

These commands are used to Boot or toggle the On/Off status of the TPS's two switched plugs. If the same password has been applied to both switched plugs, commands can be directed to Plug 1, Plug 2, or both switched plugs. If a separate User Password has been assigned to each plug, then commands can only be applied to the plug that is owned by the User Password that was entered at log in. Plugs may be specified by name or number.

Notes:

- When User Mode is active, commands will only be applied to plugs owned by the User's password. Commands will not effect a plug owned by another User Password.
 - When System Mode is active, commands can be applied to both switched plugs.
 - Wait for the "TPS>" prompt to appear before entering commands. The prompt will not reappear until the previous command is complete.
 - Commands are *not* case sensitive. All commands are invoked by pressing [**Enter**].
 - If command confirmation is enabled, the TPS will display the Status Screen after the Boot/On/Off commands are successfully completed.
1. **Switch Plug(s) On:** To power-on a plug, type **/ON n** and press [**Enter**]. Where "n" is the number or name of the desired plug. For example:

```
/ON 1 or /ON ROUTER
```
 2. **Switch Plug(s) Off:** To power-off a plug, type **/OFF n** and press [**Enter**]. Where "n" is the number or name of the desired plug. Note that the **"/OFF"** command can also be entered as **"/OF"**. For example:

```
/OFF 2 or /OF ROUTER
```
 3. **Boot Plug(s):** To initiate a Boot cycle, type **/BOOT n** and press [**Enter**]. Where "n" is a the number or name of the desired plug. Note that the **"/BOOT"** command can also be entered as **"/BO"**. For example;

```
/BOOT 1 or /BO ATMSWTCH
```
 4. **Suppress Command Confirmation Prompt:** To execute a Boot/On/Off command without displaying the "Sure?" prompt, include the **", Y"** option in the command line. The **", Y"** option is entered immediately following the command argument. For example:

```
/ON ROUTER, Y or /BOOT 2, Y
```


5.3.1. Applying Commands to Both Plugs

As described below, Boot/On/Off commands can be applied to Plug 1, Plug 2, or both switched plugs:

Notes:

- Commands can only be applied to both plugs when the unit is operating in System Mode, or when both plugs are owned by the same User Password.
- When commands are applied to both plugs, the TPS will delay for approximately 1 second between actions. For example, when switching both plugs On, the TPS will switch Plug 1 On, delay one second, then switch Plug 2 On.

1. **Single Plug:** To apply a command to a single owned plug, enter the number or name for that plug. For example:

/ON 2 or /ON ROUTER.

2. **Both Plugs:** To apply a command to both owned plugs, enter an asterisk in place of the name or number. For example:

/ON * or /BO *

5.4. The Default Command

The Default Command (**/D**) sets plugs to their default On/Off status. The default status is set using the Plug Parameters menus described in Section 4.5. Plugs will be set to these defaults when **/D** is invoked, or after a power interruption. To set both plugs to defaults, type **/D** and press **[Enter]**.

Note:

- When User Mode is active, this command will only be applied to plugs owned by the User's password. The command will not be applied to a plug that is owned by another User Password.
- When the System Mode is active, this command will be applied to both plugs.
- This command will always be applied to all owned plugs. It cannot be directed only to a specific plug.

5.5. The Automated Mode

The Automated Mode allows the TPS to perform On/Off/Boot/Default/Exit commands, without displaying menus or generating response messages. Automated Mode is designed to allow the TPS to be controlled by a computer (or another automatic system) which can generate commands to control power switching functions without human intervention.

When the Automated Mode is enabled, the **/ON**, **/OFF**, **/BOOT**, **/D** and **/X** commands are executed without a "Sure?" confirmation prompt and without command response messages; the only reply to these commands is the "TPS>" prompt, which is displayed when the command is complete.

Note: When Automated Mode is enabled, all TPS password security functions are disabled, and users are able to access System Level command functions (including the configuration menus), and control both plugs without entering a password. If you need to enable the Automated Mode, but want to restrict network access to TPS configuration menus, it is recommended to enable and configure the IP Security Function as described in Section 4.6.1.

To enable/disable the Automated Mode, access the TPS General Parameters menu, and proceed as described in Section 4.4. When the Automated Mode is enabled, TPS functions will change as follows:

1. **All Password Security Suppressed:** When a user attempts to access the TPS command mode, the password prompt will not be displayed at either the Telnet Port, Modem Port, or Console Port. Unless restricted by the IP Security Function, all users will be allowed to access System Level command functions and control both plugs. At the Console Port, all commands are immediately accepted, whether the port is awake or asleep.
2. **Status Screen Suppressed:** The status screen will not be automatically displayed after commands are successfully executed. Note however, that the /S command can still be invoked to display the status screen as required.
3. **"Sure?" Prompt Suppressed:** All commands are executed without prompting for user confirmation.
4. **Error Messages Suppressed:** If the [Enter] key is pressed without entering a command, the TPS will not respond with the "Invalid Command" message. Note however, that an error message will still be generated if commands are invoked using invalid formats or arguments.

All other status display and configuration commands will still function as normal.

5.6. Other Commands

5.6.1. Login as Different User

The /R command is used to re-login using a different password. When invoked, the TPS will display the password prompt, allowing the user to enter a different password in order to access the other plug or System Level command functions. The /R command is often used to switch from User Mode to System Mode.

The /R command is available in both System Mode and User Mode. To login as a different user, type /R, press [Enter], and then key in a different valid password at the prompt. To suppress the "Sure?" prompt, type /R, Y [Enter].

5.6.2. Reset Network Port

The /T command is used to reinitialize the TPS Network card. The /T command is not available in User Mode. To reset the Network Port, type /T and press [Enter]. To suppress the "Sure?" prompt, type /T, Y [Enter].

Note: The /T command can only be issued via the Console Port or Modem Port. The /T command cannot *be* invoked via the Network Port.

5.6.3. Exit / Disconnect

To exit from the TPS Command Mode and discontinue connection to the unit, type /X and press [Enter]. The TPS will display the "DISCONNECT" message. To suppress the "Sure?" prompt, type /X, Y [Enter].

5.7. Manual Operation

In addition to the command driven functions, the TPS's two switched plugs can also be toggled On and Off manually. To manually toggle a plug On or Off, press the appropriate Manual Control Button, and hold it down for approximately one second; the corresponding plug will be toggled On or Off. Note that if desired, the Manual Control Buttons can also be disabled via the General Parameters menu as described in Section 4.4.

5.8. Operating Tips

When connecting to the TPS via network, modem or console port, the following factors should be kept in mind:

1. **One Connection at a Time:** Only one port can access the command mode at a time. When a command port is busy, the TPS will react as follows:
 - a) **Network Port Busy:** If a second user attempts to connect via the Modem Port, the TPS will send a busy message. If a second user attempts to connect via the Console Port, the port will not wake.
 - b) **Modem Port Busy:** If a second user attempts to connect via the Network Port, the connection will be refused. If a second user attempts to connect via the Console Port, the port will not wake.
 - c) **Console Port Busy:** If a second user attempts to connect via the Network Port, the connection will be refused. If a second user attempts to connect via the Modem Port, the Console Port will disconnect and the Modem Port will be granted access; the Modem Port has priority over the Console Port.
2. **Ping Packet Size:** The TPS will not accept Ping Packets larger than approximately 1000 bytes.

If you have any questions regarding configuration or operation of the TPS, please contact WTI Technical Support as described in Appendix C.

6. Saving and Restoring Configuration Parameters

After the TPS has been properly configured, 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 unit without the need to manually assign each parameter.

Saved parameters can also be uploaded to other TPS units. This allows rapid set-up when several units will be configured with the same parameters.

The "Save Parameters" procedure can be performed from any terminal emulation program (e.g. ProComm, Crosstalk, Hyperterminal, etc.), which allows downloading of ASCII files.

6.1. Sending Parameters to a File

1. Start your communications program and access the TPS command mode using the System Level Password.
2. When the TPS command prompt appears, type **/DL** and press **[Enter]**. The TPS will prompt you to prepare your communications program. Set up your communications program to receive an ASCII download, and specify a name for the file that will receive the saved parameters (e.g. TPS.PAR).
3. When the communications program is ready to receive the file, return to the TPS command mode, and press **[Enter]** to proceed.
4. The TPS will send a series of ASCII command lines which specify the currently selected TPS parameters.

6.2. Restoring Saved Parameters

This section describes the procedure for using ProComm to send saved parameters to the TPS.

1. Start your communications program and access the TPS command mode using the System Level Password.
2. Configure your communications program to upload an ASCII text file.
3. Upload the file with the saved parameters. If necessary, key in the file name and directory path.
4. When the upload is complete, make certain to terminate the communications program's upload mode.

Note:

- The current On/Off status of each TPS plug will not be saved or restored. However, the selected default On/Off setting for each plug will be saved and restored.
 - When the configuration file is sent to the TPS via telnet, the unit's IP Address, Subnet Mask, and Gateway Address cannot be altered.
5. Type **/SP** and press **[Enter]**, the TPS will display the TPS Status Screen with passwords revealed. Check the Status Screen to make certain that saved parameters have been restored.

A. Interface Descriptions

A.1. Console Port Interface

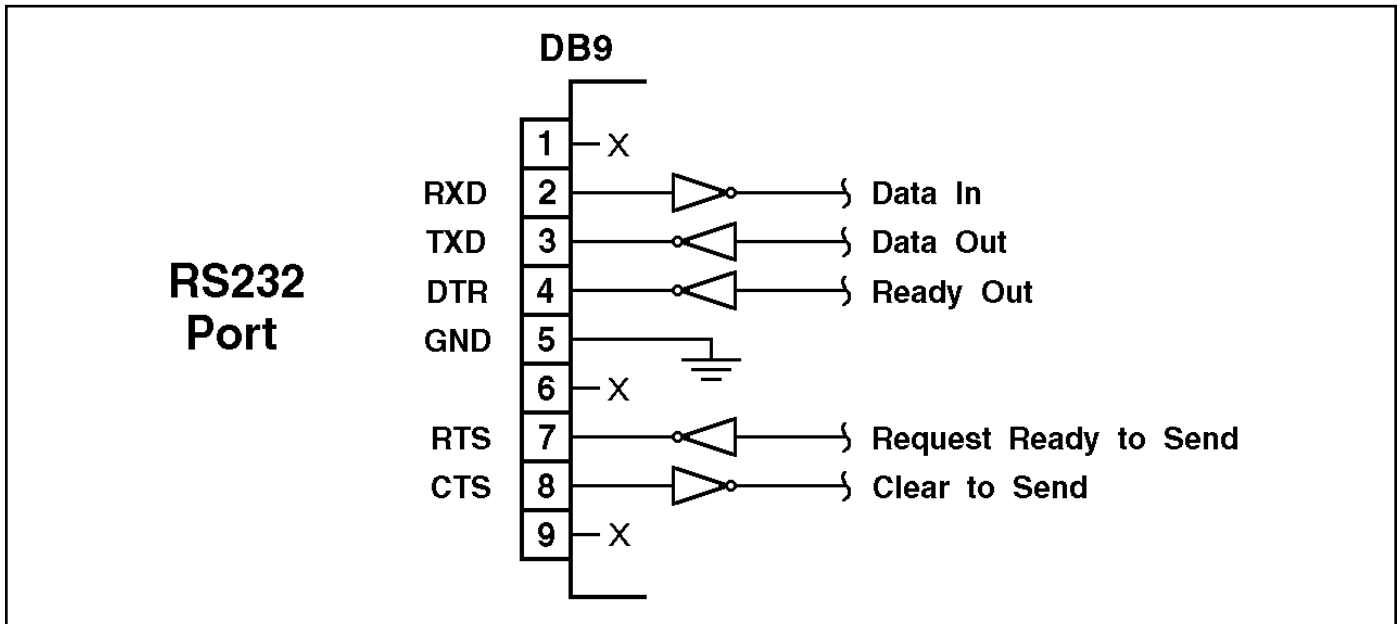


Figure A.1: Console Port Interface

A.2. Modem Port Interface

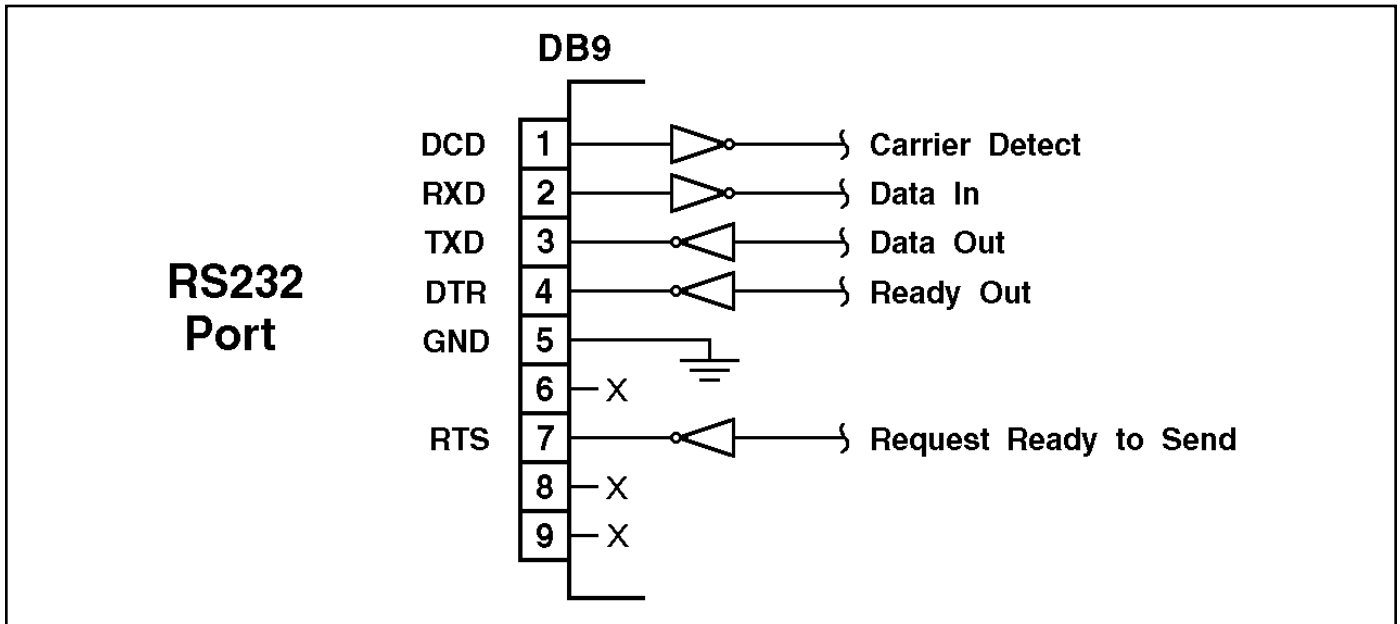


Figure A.2: Modem Port Interface

B. Specifications

Power Input/Output; TPS-2 Model (115 VAC):

AC Input: 15 Amps Maximum.

Voltage: 105 - 120 VAC, 60 Hz

Connector: IEC-320 Inlet, Line Cord Supplied

AC Outputs: Two (2)

Connector: NEMA 5-15 Outlet

Load: 15 Amps Total

Power Input/Output; TPS-2CE Model (230 VAC):

AC Input: 10 Amps Maximum.

Voltage: 210 - 250 VAC, 50 Hz

Connector: IEC-320 Inlet

AC Outputs: Two (2)

Connector: IEC-320-C13 Outlet

Load: 10 Amps Total

Modem and Console Port Interface:

Connector: DB9M, RS232C, DTE

Coding: Serial ASCII, 8 Bits, No Parity

Speed: 2400, 9600, 19.2K, 38.4K bps

Physical / Environmental:

LED Indicators: ON, RDY, RXD, DCD, NET, Outlet ON (1 - 2)

Size: 2.6" x 8" x 7.2" (H x W x D)

Weight: 6 Lbs. Shipping Weight

Operating Temperature: 0°C to 45°C

Humidity: 10 - 90% RH, Non-Condensing

Options:

TPS-WMK: Wall Mounting Kit

TPS-19R: 19 Inch Rack Bracket Kit

C. Optional Mounting Bracket Instructions

The TPS can either be placed on a desk top, installed in a 19" equipment rack, or mounted on a wall. This appendix describes the procedures for installing the optional Rack Mount Kit or the optional Wall Mount Kit.

C.1. Rack Mounting Instructions

When installing the TPS in an instrument rack, the following factors must be accounted for:

- **Enclosed Racks:** Enclosed racks must provide adequate ventilation. Make certain that the rack is not overly crowded, and note that each unit in the rack generates its own heat. An enclosed rack should have louvered sides and a fan to circulate cooling air. The maximum temperature for the equipment in this type of environment is 45°C.
- **Enclosed Racks:** When mounting the unit in an enclosed rack with a ventilation fan at the top of the rack, note that excessive heat generated by devices at the bottom of the rack can be drawn upwards into the ventilation slots on units located at the top. Make certain to provide adequate ventilation for equipment installed at the bottom of the rack.
- **Open Racks:** Make certain that the rack frame does not block the ventilation slots on the instrument cover. If the device is installed on sliders, check the unit when seated all the way into the rack to make certain that ventilation slots are not blocked.

To install the optional Rack Mount Kit, proceed as follows:

1. Disconnect the TPS from the power supply. Remove the screws which secure the TPS top cover to the chassis. Do not remove the cover from the chassis. There are two screws on each side of the unit.
2. Align the Rack Mount Brackets with the TPS unit as shown in Figure C.1.
3. Use the longer screws (supplied with the Rack Mount kit) to secure the Rack Mount Brackets and top cover to the TPS chassis. Make certain that the vents on the sides of the TPS top cover are not obstructed by the Rack Mount Brackets.

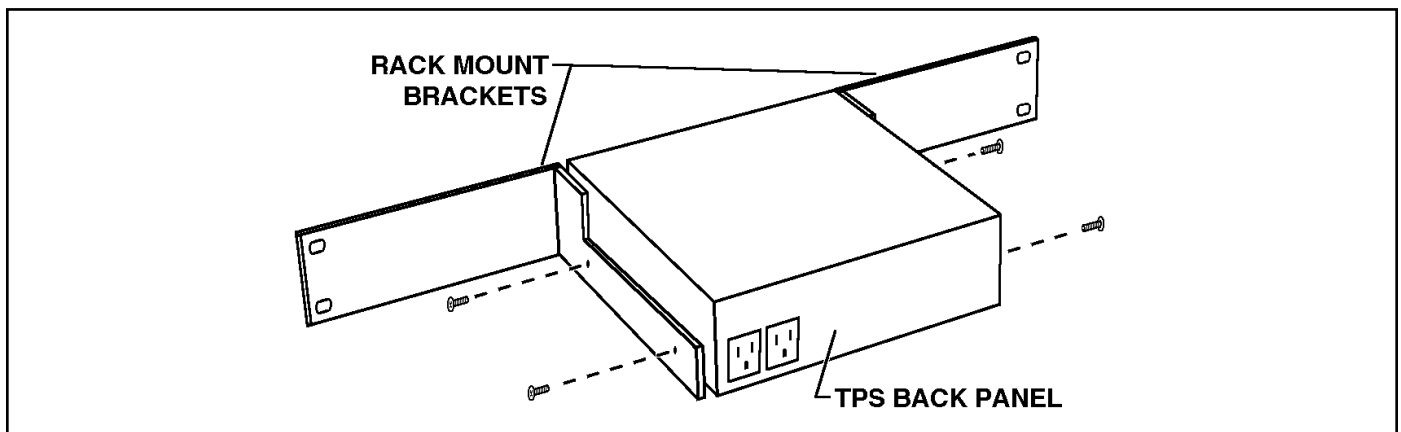


Figure C.1: Rack Mounting Instructions

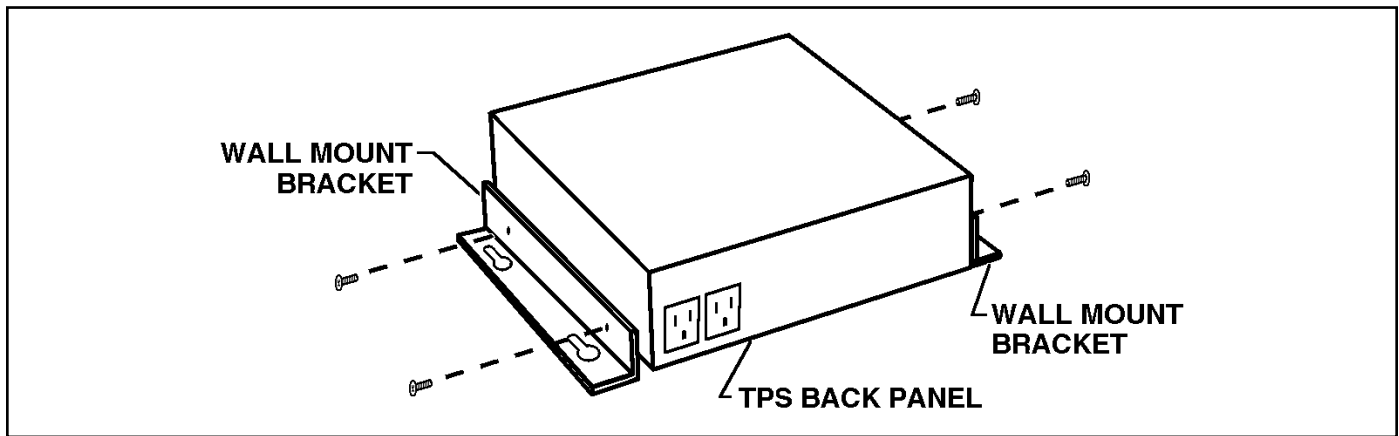


Figure C.2: Wall Mounting Instructions

C.2. Wall Mounting Instructions

1. Disconnect the TPS from the power supply. Remove the screws which secure the TPS top cover to the chassis. Do not remove the cover from the chassis. There are two screws on each side of the unit.
2. Align the Wall Mount Brackets with the TPS unit as shown in Figure C.2.
 - a) Note that the Wall Mount Brackets are interchangeable, and can be positioned to mount the TPS with either the back panel or front panel facing up.
 - b) Before installing the Wall Mount Brackets, note the position of the "i" slots which are used to secure the unit to the wall. The thin end of the "i" slot should point towards the top of the unit, and the round end of the "i" slot should point towards the floor.
3. Use the longer screws (supplied with the Wall Mount kit) to secure the Wall Mount Brackets and top cover to the TPS chassis. Make certain that the vents on the sides of the TPS top cover are not obstructed by the Wall Mount Brackets.

D. Customer Service

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

WTI Customer Service
5 Sterling
Irvine, California 92618

Toll Free Service Line: 1-888-280-7227

Local Phone: (949) 586-9950

Service Fax: (949) 457-8138

Email: service@wti.com

Trademark and Copyright Information

WTI and Western Telematic are trademarks of Western Telematic Incorporated. All other product names mentioned in this publication are trademarks of their respective companies.

Information and descriptions contained herein are the property of Western Telematic, Inc.. Such information and descriptions may not be copied, disseminated or distributed without the express written consent of Western Telematic, Incorporated.

©Copyright Western Telematic, Inc., 2001. All right reserved.

October 2001

WTI Part Number: 13116 Rev. B

Index

100BaseT Networks # 4, 6	Exit E 21	
	External Modem 5	
		F
AC Input A 6	Factory Settings. 5	
Access to Command Mode 9, 17	Front Panel Indicators 3	
Automated Mode 12, 20 to 21		G
	Gateway Address 14	
	General Parameters 11 to 12	
		H
	Hang-Up String 11	
	Help Screen. 9, 11	
		I
	Interface Description Apx-1	
	IP Address. 14	
	IP Security. 14 to 15	
		L
	LED Indicators 3	
	Login as Different User 21	
		M
	MAC Address 14	
	Manual Control Buttons. 22	
	Disabling and Enabling. 12	
	Master Power Switch 4	
	Maximum Amps 6	
	Modem	
	Connection 5	
	Disconnect String. 11	
	Initialize String 11	
	Modem Access 17	
	Modem Port. 4 - 5, 22, Apx-1	
	Mounting Instructions Apx-3 to Apx-4	
		N
	NET Indicator 3	
	Network Port. 4, 6, 14, 22	
	Access 17	
	Parameters 14	
	Reset 21	
		#
		B
	Back Panel 4	
	Baud Rate	
	Default 5	
	Operating 11	
	Boot Command 19 to 20	
	Boot Delay 13	
	Default 5	
		C
	Co-Location Features. 8, 13, 19	
	Command Confirmation 11 to 12, 19	
	Command Conventions 11	
	Command Echo	
	Default 5	
	Operating 12	
	Command Mode 9, 17, 22	
	Communication. 9, 17, 22	
	Configuration 11 to 15	
	Connecting Devices 6	
	Console Port 4 - 5, 22, Apx-1	
	Console Port Access. 17	
	Customer Service Apx-5	
		D
	Data Rate 11	
	DCD Indicator 3	
	Default Button 4, 7	
	Default Command. 20	
	Default Parameters 6, 12	
	Default Settings. 5	
	Deny Access. 15	
	Disconnect. 17, 21	
	Disconnect Timeout	
	Default 5	
	Operating 12	
	Displaying Passwords. 18	
	Downloading Parameters 23	
	Duplex Mode 5, 12	

O

Off Command 19 to 20

On Command 19 to 20

ON Indicator 3

Operating Tips. 22

Operation 17 to 21

Option Switches 4 to 6

P

Parameters

 Restoring 23

 Saving. 23

Passwords. 8, 21

 Displaying 18

 System 11

 User. 13

Permit Access 15

Ping Packet Size. 22

Plug Control. 19 to 20

Plug Defaults 13, 20

Plug Indicators 3

Plug Name. 13

Plug Ownership. 8, 13

Plug Parameters 13

Plug Password. 13

Plug Status. 18

Port Busy 22

Power Inlet 4

Power Supply 4, 6

Power-Up Default 6, 13, 20

R

Rack Mounting Apx-3

RDY Indicator 3

Reset Network Port 21

Reset Parameters 12

Restoring Parameters 23

RXD Indicator 3

S

Saving Parameters. 23

Security 8

Site ID Message. 11

Specifications Apx-2

Status Screen 18

Subnet Mask. 14

Sure Prompt 11 to 12, 19

Switched AC Outlets 4

System Mode 8, 21

System Password 11

T

Technical Support. Apx-5

Timeout 12

U

Uploading Parameters. 23

User Mode 8, 21

User Password. 13

W

Wall Mounting Apx-4