IPS-15

Internet Power Switch

User's Guide

western™
telematic inc.

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1. Introduction

Electronic equipment sometimes "locks-up," requiring a service call just to flip the power switch to perform a simple reboot. The IPS-15 Internet Power Switch gives you the ability to perform this function from anywhere, just point your browser to the IPS's IP address, enter the secure user name and password, and you're just a click away from remote power On, Off or Reboot!

Intelligent Power Control
In addition to web browser access, the IPS can also communicate over any TCP/IP network using standard Telnet, or out-of-band using an external modem and basic VT100 type terminal emulation.

Expandable
The Main IPS unit can be linked to four additional low cost satellite units for a total of five individually controlled outlets. If Satellite Units are addressed in a gang configuration (multiple units assigned to each address), then up to 16 Satellite Units can be linked together.

Flexible mounting options are also available. A Zero U rack bracket lets you mount the IPS on the outside of a standard 19 inch rack rail. A 1U rack tray allows mounting one main unit and two satellite units in a 19 inch rack.

Security Features
To assure security, web browser access requires the user to enter an assigned user name and password. The IPS provides two levels of operational passwords; the System Administrator Level, which allows access to all configuration and switching functions, and the User Level, which only allows switching of assigned plugs.

Easy to Configure, Easy to Use

The IPS can be configured over the network, via modem, or locally via the IPS console port. Easy to use commands let you assign a location name, set system parameters and view plug status. Outlets can be switched On, Off, or booted using plug numbers or names.

Reliability and Support

The IPS is built in the USA and backed by a two year warranty. NetReach products are installed in thousands of network sites world wide. Our customers know they can depend on WTI for superior quality and reliability for their most mission-critical operations.

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. The Master (Main) Unit

2.1.1. Master Unit Front Panel

As shown in Figure 2.1, the front panel of the IPS-15 Master Unit includes connectors, LEDs and a manual control button.
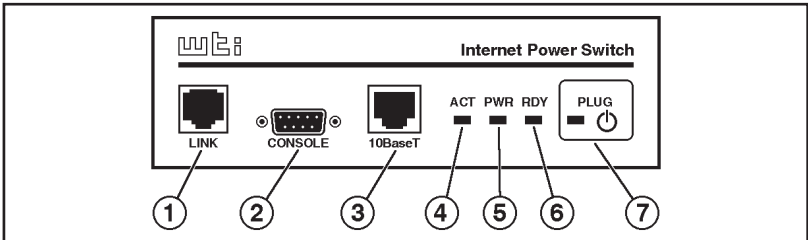
Figure 2.1: IPS-15 Master Unit - Front Panel

① **Link Port:** An RJ-11 port, used to connect the IPS-15 Master Unit to the optional Satellite Unit(s). For more information, please refer to Section 4.5.

② **Console Port:** A DB9, RS232 serial port (DTE), for connection to a local terminal or external modem, as described in Section 4.3.

③ **Network Port:** An RJ45 Ethernet Port for connection to your TCP/IP network. The default IP Address is 192.168.168.168, for more information, please refer to Section 5.3.1 and Section 4.4.

④ **ACT Indicator:** Flashes to indicate activity at the Network Port.

⑤ **PWR Indicator:** Lights when Power is Applied to the Master Unit. Note that this LED does not indicate the On/Off status of the Master Unit's switched AC outlet.

⑥ **RDY Indicator:** Flashes when the IPS-15 Master Unit is ready to receive commands.

⑦ **Plug Indicator and Manual Control Button:** An On/Off
Indicator and Manual Control Button for the Master Unit's
switched plug. To manually switch the plug "On" or "Off",
press and hold the control button for one second.

Note: If desired, the Manual Control Button can also
be disabled, set to control only the plug on the Master
Unit, or set to control the Master Unit plus all
connected Satellite Units as described in Section 5.3.1.

2.1.2. Master Unit Back Panel

The Back Panel of the IPS-15 Master Unit includes a master power
switch, the switched AC outlet, a power inlet, and a circuit breaker
as described below.
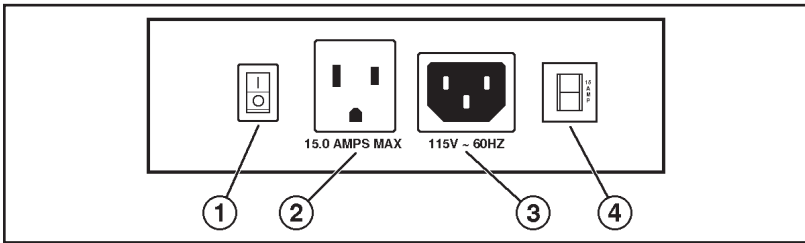
Figure 2.2: IPS-15 Master Unit - Back Panel

① **Master Power Switch:** This switch must be "On" in order for
the IPS-15 to function. Note that this switch is not used to set
the On/Off status of the switched outlets.

② **Switched AC Outlet:** A 115 VAC outlet, that can switch up
to 15 Amps. If more than one switched outlet is required,
optional IPS-15 Satellite Units can be easily added to provide
control of up to 17 outlets.

③ **Power Inlet:** A 115 VAC inlet that supplies power for the
IPS's command functions and the switched plug.

④ **Circuit Breaker:** 115 VAC, 15 Amps.

2.2. The Optional Satellite Unit

The optional, IPS-15 Satellite Unit allows you to add switched outlets whenever you need them. Satellite Units can be switched On, Off, or rebooted in response to commands issued at the IPS-15 Master Unit.

2.2.1.   Satellite Unit Front Panel

The front panel of the IPS-15 Satellite Unit includes two link ports, an address selector switch, and power indicator lights.
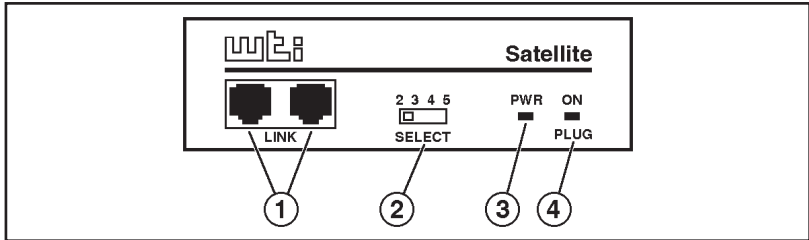
Figure 2.3: IPS-15 Satellite Unit - Front Panel

① **Link Ports:** Two RJ11 jacks used to connect the Satellite Unit to the IPS-15 Master Unit, and/or to other IPS Satellite Units. Switching commands are sent from the Master Unit to the Satellite Unit(s) via the Link Ports.

② **Address Selector Switch:** A four position slider switch, which is used to select the address for each IPS Satellite Unit. Note that the address for the Master Unit is always "1." For more information, please refer to Section 4.5.

③ **PWR Indicator:** Lights when power is applied to the Satellite Unit. Note that the PWR LED does not indicate the On/Off status of the Satellite Unit's switched AC outlet.

④ **PLUG ON Indicator:** Lights when the Satellite Unit's switched AC outlet is switched "On."

2.2.2. Satellite Unit Back Panel

The back panel of the IPS-15 Satellite Unit includes a switched AC outlet, a power inlet, and a circuit breaker as described below.
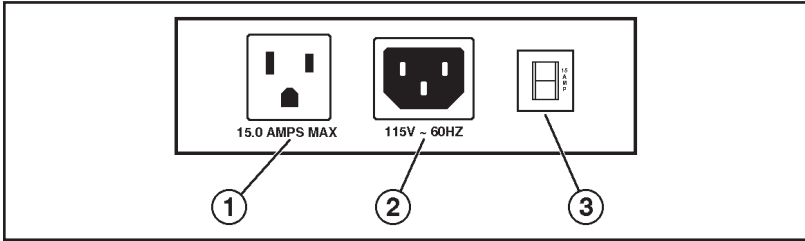
Figure 2.4: IPS-15 Satellite Unit - Back Panel

① **Switched AC Outlet:** A 115 VAC outlet, that can switch up to 15 Amps. This outlet can be switched On, Off, or rebooted in response to commands issued at the IPS-15 Master Unit.

② **Power Inlet:** A 115 VAC inlet that supplies power for both command functions and the switched plug.

③ **Circuit Breaker:** 115 VAC, 15 Amps.

3. Quick Start

This Quick Start procedure is included primarily to provide a quick demonstration of IPS capabilities. In order to take full advantage of the complete range of features provided by this unit, it is strongly recommended that you should complete the Installation and Configuration sections after completing the Quick Start procedure.

3.1. Hardware Installation

Make the following connections as described in Figure 3.1.

1. **Switched AC Outlet:** Connect the power cable from the switched device to the Switched AC outlet on the back panel of the IPS Master Unit.

2. **Power Inlet:** Connect the supplied power cable to the Power Inlet on the back panel of the IPS Master Unit. Connect the other end of the power cable to an appropriate power supply.

   CAUTION: Make certain to review the safety precautions listed in Section 4.1.

3. **10BaseT (Network) Port:** Connect your 10Base-T or 100Base-T network interface to the IPS Network Port. For more information, please refer to Section 4.4.

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

4. **Network Cable:** Your 10Base-T or 100Base-T network interface.
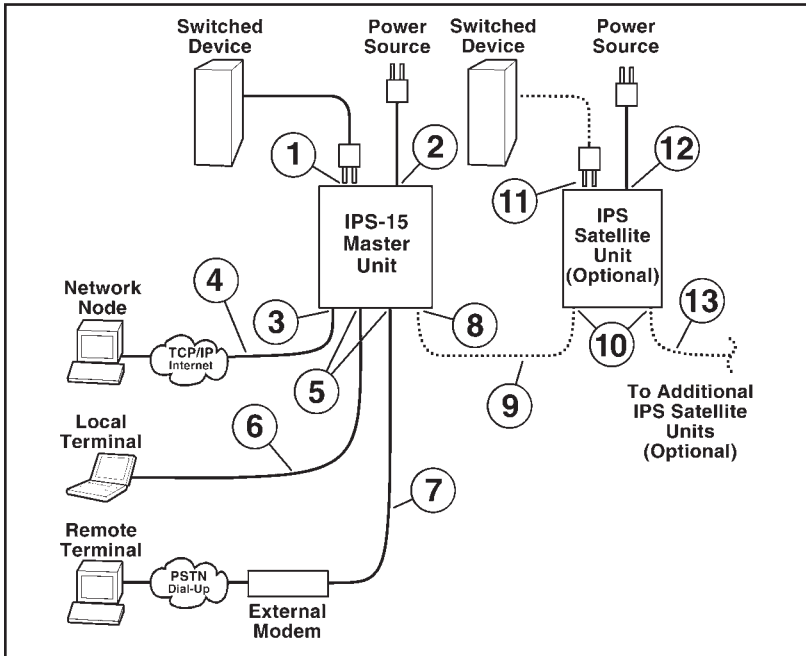
Figure 3.1: Connections Diagram

5. **Console Port:** The IPS's serial Console port is an RS232C, DB9 connector, wired in a DTE configuration, which allows you to attach either a local terminal or an external modem to the IPS Master Unit. Note that you cannot attach both a modem and local PC simultaneously, and that the "Serial Port Mode" prompt in the General Parameters menu must be used to specifically configure the Console Port for use with either a Modem or Local PC.

    a) **Modem:** Use a standard serial modem cable to connect your external modem to the IPS's Modem Port. For more information, please refer to Section 4.3.2.

    b) **Local PC:** Attach a standard null modem cable from your PC COM port to the Console Port connector on the IPS back panel.

6. **Local PC Cable:** A standard null modem cable. For a description of the port interface, please refer to Appendix A.

7. **Modem Cable:** A standard serial modem cable. For more information, please refer to Section 4.3.2.

For Optional Satellite Units Only

Steps 8 through 13 apply only to installations that include optional IPS Satellite Units. If your installation does not include satellite units, please skip steps 8 through 13.

8. **Link Port (Optional):** An RJ-11 jack, which is used to link IPS Satellite units to the IPS Master Unit.

    Note: The IPS-15 Master Unit and Satellite Units should not be placed more than 100 feet apart.

9. **RJ-11 Cable (Optional):** Use standard, straight wired, six conductor RJ-11 cable, such as WTI's AC-10, AC-15 or AC-25 cables. For a description of straight wired RJ11 cables, please refer to Appendix A.2.

10. **Satellite Unit Link Ports (Optional):** A pair of RJ-11 Jacks, which are used to connect the Satellite unit to the IPS Master Unit. If additional Satellite units are to be installed, the Link Port is also used to connect to the next Satellite unit in the chain.

11. **Connect Switched Device to Satellite Unit (Optional):** Connect the power cable from your switched device to the Switched AC Outlet on the Satellite Unit's back panel.

12. **Satellite Unit Power Inlet (Optional):** Use the supplied power cord to connect the Satellite unit to an appropriate power source. Make certain to observe the safety warning listed in Section 4.1.

13. **RJ-11 Cable to Link Additional Satellite Units (Optional):** If your installation will include more than one Satellite unit, repeat items 8 through 12 above for each of the remaining Satellite Units.

3.2. Communicating with the IPS-15

Note that the IPS offers two different user interfaces: a Web Browser Interface and a Text Interface. The Web Browser interface allows you to contact the IPS via a TCP/IP network using a standard, JavaScript enabled web browser (such as Internet Explorer or Netscape Navigator.) The Text Interface consists of a series of ASCII text menus, which may be accessed via TCP/IP network, dial-up modem, or local PC. Both Interfaces are discussed further in the sections that follow.

3.2.1. The Web Browser Interface

When communicating with the IPS-15 via web browser, switch functions and status screens are accessed by clicking the appropriate button(s) on the browser screen. This section briefly describes the procedure for contacting the IPS unit via Web Browser, and selecting items from the web interface menus.

Notes:

- In order to use a web browser to communicate with the IPS-15, the IPS-15 Master Unit must be connected to your network, and the PC being used to control the IPS must have a TCP/IP network connection and a JavaScript enabled web browser.

- The IPS includes a default IP Address and Subnet Mask. This allows initial contact with the unit via network without first defining an IP address (providing you are contacting the IPS from another node on the same subnet.) When installing the IPS in a working network environment, it is recommended to define network parameters as described in Section 5.3.3.

1. **Web Browser Access:** Start your JavaScript enabled Web Browser. Enter the IPS-15's default IP address (http://192.168.168.168) in your web browser's address bar and then press **[Enter]**.

2. **Password Prompt:** When the IPS-15 is accessed via the Web Browser Interface, the Password Prompt will always be displayed. If the User Name and/or System Password have not yet been defined, click "OK" without keying in a user name or password. If the User Name and/or System Password have already been defined, key in the user name and system password and then click "OK". The IPS Plug Status Screen should be displayed as shown in Figure 3.2.
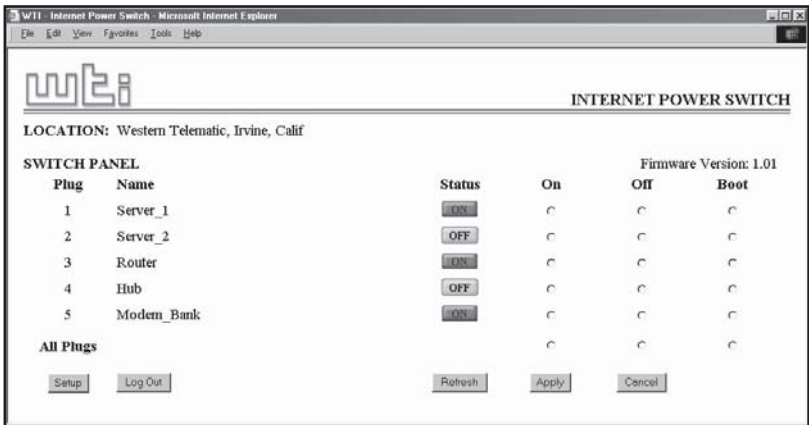
Figure 3.2: The IPS Plug Status Screen, Web Interface

3. **Test Switching Functions:** When the IPS-15 is powered up, the Switched AC Outlet will be set in the ON position. To test On/Off/Reboot functions, proceed as follows:

a) **Reboot Outlet:** Click on the "Boot" radio button for Plug one. Next, click the "Apply" button. The IPS will display a screen indicating that the reboot operation is in progress, then return to the Plug Status Screen. Plug 1 should now be in the "On" position.

b) **Switch Outlet Off:** Click the "Off" radio button for Plug one. Next, click the "Apply" button; the IPS will display a screen indicating that the switch operation is in progress, then return to the Plug Status Screen. Note that the Status Indicator for Plug One now indicates that the plug is switched "Off."

c) **Switch Outlet On:** Click the "On" radio button for Plug One. Next, click the "Apply" button, the IPS will display a screen indicating that the switch operation is in progress, then return to the Plug Status Screen. Note that the Status Indicator for Plug One now shows that the plug is switched "On."

4. **Log Out:** When you have finished exploring the IPS-15's Web Interface, click on the "Log Out" button to terminate your connection to the IPS-15.

Note: When you have finished communicating with the IPS-15 unit, it is important to always log off rather than simply closing your Telnet or communications program. When you log off using either the "Log Off" button in the Web Interface, or the /X command in the Text Interface, this ensures that the IPS-15 has completely exited from command mode, and is not waiting for the inactivity timeout to elapse before allowing additional connections.

This completes the introductory overview of the IPS-15 Web Interface. If you wish to see the Text Interface, please proceed to the next section, or refer to Sections 4 and 5 for complete installation and configuration procedures.

3.2.2. The Text Interface

This section provides a brief description of the IPS-15's Text Interface. The Text Interface is a series of simple, ASCII menus, that are used to invoke commands and select configuration parameters. The Text Interface can be used when the unit is contacted via Telnet, modem or Local PC.

Notes:

- In order to contact the IPS-15 via modem, you must connect an external modem to the IPS-15 Master Unit's Console Port and attach a phone line to the external modem. Please refer to Section 4.3.2 for further instructions regarding external modems.

- The Console Port can be connected to either a Local PC or an external modem, but not both at the same time.

- In order to access the IPS-15 Text Menus, your PC must include a communications program, such as Hyperterminal or ProComm.

```
Internet Power Switch v1.01    Site ID: WTI Internal Test Unt v 1.01

Plug | Name              | Status  | Boot Delay |
-----+-----------------+---------+-----------+
 1   | Server_1          |    ON   |  5   sec   |
 2   | Server_2          |   OFF   |  5   sec   |
 3   | Router            |    ON   |  5   sec   |
 4   | Hub               |   OFF   |  5   sec   |
 5   | Modem_Bank        |    ON   |  5   sec   |
-----+-----------------+---------+-----------+


"/H" for help.
IPS>
```

Figure 3.3: The IPS Plug Status Screen, Text Interface

1. **Access the IPS-15 Command Mode:** In order to invoke
    commands or view status screens, you must first access the
    IPS-15 Command Mode.

    a) **Telnet Access:** Start your Telnet program, then Telnet to
       the IPS-15's default IP Address (192.168.168.168.) For
       example, on a UNIX system, the telnet command would
       be invoked as shown below.

       $ telnet 192.168.168.168 [Enter]

       If the System Password has been defined, the IPS will
       display a password prompt; key in the System Password
       and press **[Enter]**. If the System Password has *not* been
       defined, the IPS Plug Status Screen (Figure 3.3) should be
       displayed, followed by the IPS> command prompt.

    Note: If you wish to contact the IPS from a node that
    is *not* on the same subnet you can either change your
    PC's IP address to an address that is on the same subnet
    as the IPS (e.g., 192.168.168.xxx), or access the IPS
    command mode via modem or Console Port, and define
    Network Parameters as described in Section 5.3.3.

    b) **Modem Access:** Start your communications program, and
       dial the number for the external modem. The IPS Plug
       Status Screen (Figure 3.3) should be displayed, followed
       by the IPS> command prompt.

    c) **Console Port Access (Local PC):** Start your
       communication program, make certain that it is set for the
       PC COM port which is attached to the IPS, and then press
       [Enter]. The IPS Plug Status Screen (Figure 3.3) should
       be displayed, followed by the IPS> command prompt.

2. **Test Switching Commands:** When the IPS-15 is powered up, the Switched AC Outlet will be set in the ON position. To test On/Off/Reboot functions, proceed as follows:

   a) **Reboot Outlet:** To initiate a boot cycle, go to the IPS> command prompt, type **/BOOT 1** and press **[Enter]**. Power to the Switched AC Outlet will be switched OFF. After the Boot Delay Period (Default = 5 Seconds), power to the Switched Outlet will then be switched back ON.

   b) **Switch Outlet OFF:** To power the Switched AC Outlet OFF, go to the IPS> command prompt, type **/OFF 1** and press **[Enter]**. Power to the Switched Outlet will be switched OFF.

   c) **Switch Outlet ON:** To power the Switched AC Outlet ON, go to the IPS> command prompt, type **/ON 1** and press **[Enter]**. Power to the Switched Outlet will be switched ON.

3. **Exit Command Mode:** When you have finished testing the IPS unit, type **/X** and press **[Enter]** to exit from the Command Mode. Note that it is recommended to always disconnect using the /X command. If the /X command is not invoked at the end of a command session, then the IPS will not exit from command mode until the No Activity Timeout feature closes the session. In this case, further access to the IPS command mode may not be allowed until the current session times out.

This completes the introductory overview of the IPS. Please proceed to Sections 4 and 5 for complete installation and configuration procedures.

4. Installation

This section provides further details regarding the connections that are made in the process of installing the IPS-15. For a brief description of the overall installation procedure, and a connections diagram, please refer to Section 3.

4.1. Power Supply Connection

Use the supplied power cord to connect the IPS-15 Master Unit to an appropriate power supply. The Master Power Switch on the IPS back panel must be "On" in order for the IPS to operate. Note that if your installation will include optional IPS Satellite Units, then this procedure should be repeated for each Satellite Unit in the chain.

⚠ 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.**

4.2. Connection to Switched Outlets

Connect the power cord from the Switched Device to the Switched AC Outlet on the IPS Master Unit's back panel. When the unit is powered On, the Switched AC Outlet will be switched "ON" (this also applies to the switched outlets on any optional IPS Satellite units) . The Switched Outlet can switch up to 15 Amps AC. If your installation will include IPS Satellite Units, then repeat this procedure for each Satellite Unit.

4.3. Console Port Connection

The Console Port is a male, RS232C DB9 connector, wired in a DTE configuration similar to an AT computer. The Console Port can be connected to either an external modem or a local PC, but not both items at the same time. Appendix A describes the Console Port interface.

4.3.1. Connecting a Local PC

When connecting the Console Port to a Local PC, note that the port uses a DTE configuration. After the Local PC has been connected, make certain to set the Serial Port Mode to "Console" as described in Section 5.3.1.

4.3.2. Connecting an External Modem

When connecting directly to an external modem, use a standard AT to Modem cable. Make certain that the modem is initialized at the same communications parameters as the IPS Console Port (default = 9600 bps, no parity, 8 data bits, 1 stop bit.) The modem must be set to Auto-Answer, in one ring. Please refer to the modem user's guide for more information. Sections 5.3.1 describes the procedure for defining modem command strings.

4.4. 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. Note that the IPS-15 features a default IP address (192.168.168.168). When installing the IPS in a working network environment, it is recommended to define network parameters as described in Section 5.3.3.

> **Note:** The IPS features a 10Base-T Interface. When connecting to a 100Base-T interface, most router switches will autosense to determine if the device is 100Base-T or 10Base-T, and then configure the network interface accordingly. If your router switch does not autosense, the network interface port must be manually set to 10Base-T.
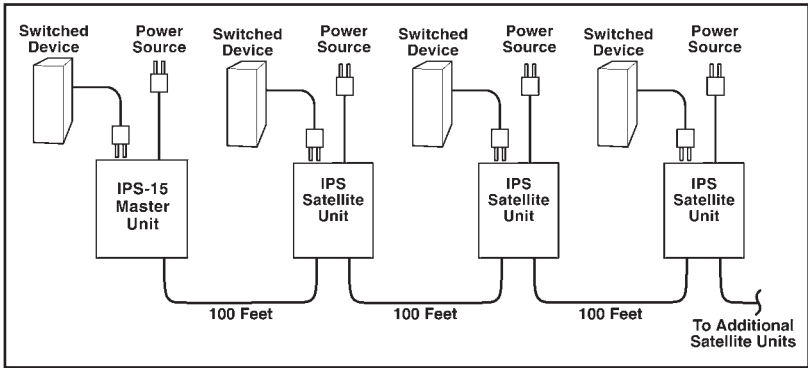
Figure 4.1: Connecting Optional IPS Satellite Units

4.5. Connecting Optional IPS Satellite Units

If desired, up to 16 optional IPS Satellite Units can be connected to each IPS Master Unit. Satellite units are connected in a "chain", with the Master unit being the first "link" in the chain as shown in Figure 4.4. To connect IPS Satellite Units, proceed as follows:

1. **Linking:** Use a standard, straight wired RJ-11 cable (such as WTI's AC-10, AC-50, or AC-100 cables) to connect the Master Unit and the Satellite Unit(s). Note that the two RJ11 jacks on the Satellite Unit's "Link" ports are interchangeable; either RJ11 jack can be used.

   Note: The distance between each IPS unit should not exceed 100 feet.

2. **Address Selection:** When connecting the optional Satellite Units, note that an address must be selected for each satellite, and up to four Satellite Units can share the same address. These addresses allow the IPS-15 Master Unit to direct On/Off/Boot commands to a specific Satellite Unit, or group of Satellite Units.

   a) The IPS-15 Master Unit always has an address of "1."

   b) The Address Selector slider on the front panel is used to set the address to "2" to "5" for each Satellite Unit.

c) When addresses are assigned to a series of IPS Satellite Units, all satellites that share a specific address (for example "2"), are considered to be part of the same "Zone." For example, if your application includes three satellite units whose Address Selector Switches are set at "2", then those three Satellite units would all be part of "Zone 2", and any commands directed to Zone 2 would be applied to those three satellite units.

d) For more information on Satellite Addresses and Zones, please refer to Section 6.1.

Notes:

• The Master Unit will not recognize Satellite Units that are connected while the Master Unit is powered up, until the Master Unit has been powered off and on.

• If you attempt to address a command to a Satellite Unit that was connected after Power Up, the IPS-15 Plug Status Screen will indicate that the Satellite Unit is not recognized.

• After connecting Satellite Units to the IPS-15 Master Unit, use the Master Power Switch on the Master Unit's back panel to power the Master Unit Off, and then Back on again. This will allow the Master Unit to recognize all newly connected Satellite units.

This completes the IPS-15 installation instructions. Please proceed to the next Section for instructions regarding unit configuration.

5. Configuration

5.1. System Mode and User Mode

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

- **System Mode:** Allows access to all configuration menus, switching functions and status screens. The System Mode Status Screens show On/Off conditions for all switched outlets, and list currently defined system parameters.

- **User Mode:** Allows access to all status screens and On/Off/Boot commands, but does not allow access to configuration menus and functions. Users can direct commands to all Satellite Units and view status screens, but are not allowed to change configuration parameters.

The IPS will display a password prompt when the unit is contacted via the Console 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 is entered, the System Mode will be active. If the User Password is entered, the User Mode will be active. Both the System Password and User Password are defined via the General Parameters menu as described in Section 5.3.1.

Notes:

- If you wish to restrict user access to configuration menus, you must define the System Password.

- If the System Password is not defined, the IPS will always start-up in System Mode.

- If the System Password has not been defined, the Password Prompt will not be displayed when you access the IPS via the Text Interface. The prompt will always be displayed when the IPS is contacted via the Web Browser Interface.

- When the IPS is contacted via Network, the password prompt will also include a field for the user name. If you have *not* defined a user name, then you may leave this field blank, and only the password is required to gain access to the unit. The user name prompt is not displayed when the unit is contacted via the Text Interface.
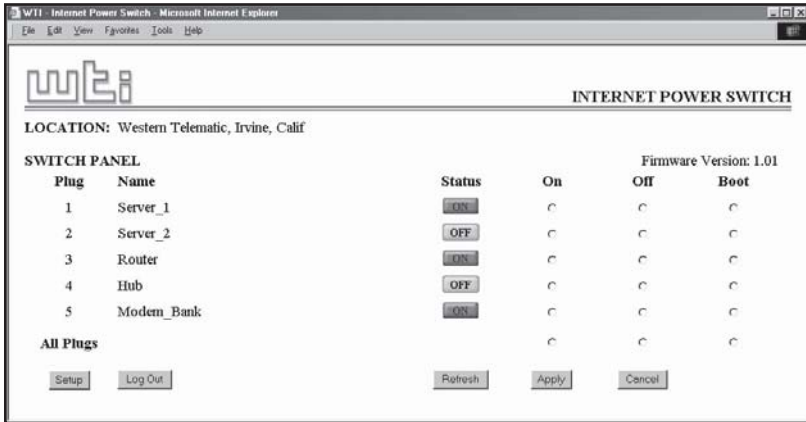
Figure 5.1: Plug Status Screen - Web Browser Interface

5.2. Communicating with the IPS

In order to configure the unit or invoke command functions, the user must first connect to the IPS and access the command mode. As discussed in Section 3, the IPS-15 offers two separate command interfaces: the Web Browser Interface, and the Text Interface.

In addition, the IPS also offers three different methods for accessing the command mode; via network, via external modem, or via local console. The Web Browser Interface is only available when the IPS is contacted via network, and the Text Interface is available via network, modem or local PC.

The sections that follow describe the procedure for accessing the Web Browser Interface or the Text Interface.

5.2.1. Accessing the Web Browser Interface

In order to issue commands via the Web Browser Interface, the IPS Master Unit must be connected to a TCP/IP network, and your PC or workstation must be equipped with a JavaScript enabled web browser (such as Internet Explorer or Netscape Navigator.)

1. Start your JavaScript enabled Web Browser.

2. Key the unit's IP address (default = http://192.168.168.168) into the web browser's address bar, and then press **[Enter]**.

3. **Password Prompt:** The IPS will display a prompt, which asks for your name and password.

    a) **User Name:** If you have not previously defined a user name, then this field should be left blank. A user name is only required when one has been defined via the General Parameters menu.

    b) **Password:** Key in your System Password or User Password and then click "OK".

    c) If the System Password has *not* been defined, simply click the "OK" button without keying in a name or password.

If a valid password is entered, the Plug Status Screen will appear.

5.2.2. Accessing the Text Interface

The Text Interface can be accessed via Network, modem or local PC. In order to access the Text Interface, your installation must include the following:

*   **Access Via Network:** The IPS Master Unit must be connected to your TCP/IP Network, and your PC must include a communications program (such as Hyperterminal.)
*   **Access Via Modem:** An external modem must be connected to the IPS Master Unit's Console Port, and a phone line must be connected to the external modem. Your PC Must include a communications program.
*   **Access Via Local PC:** Your local PC Must be connected to the IPS Master Unit's Console Port. The local PC must include a communications program.

To access command mode via the Text Interface, proceed as follows:

1. The IPS 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 is set for the appropriate baud rate, bits, parity and Comm Port.

    a) **Via Modem:** Start your communications program. Dial the external modem connected to the IPS. Wait for the Connect message, then proceed to Step 2.

    b) **Via Local PC:** Start your communications program and press **[Enter]**. Wait for the connect message, then proceed to Step 2.

```
Internet Power Switch v1.01    Site ID: IPS-15 Live Demo Unit

Plug | Name              | Status  | Boot Delay |
-----+-----------------+---------+------------+
  1  | Server_1          |   ON    |   5   sec  |
  2  | Server_2          |   OFF   |   5   sec  |
  3  | Router            |   ON    |   5   sec  |
  4  | Hub               |   OFF   |   5   sec  |
  5  | Modem_Bank        |   ON    |   5   sec  |
-----+-----------------+---------+------------+

"/H" for help.
IPS>
```

Figure 5.2: The Plug Status Screen - Text Interface

    c) **Via Network:** The IPS-15 includes a default IP address (192.168.168.168), which allows you to contact the unit from any network node on the same subnet. When the IPS is installed in a working network environment, it is recommended that you redefine the IP Address, Subnet Mask, and Gateway Address as described in Section 5.3.3.

        i. Telnet to the IPS-15's IP address. For example, if the IP address is "192.168.168.168", then on a UNIX system, the Telnet command would be:

        $ telnet 192.168.168.168 [Enter]

        ii. Note that if the Telnet connection is refused, this may mean that either the IP Security feature has denied the connection, or the unit is operating on a 100BaseT network that does not autosense for 10BaseT devices (see Section 4.4.)

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 when the unit is accessed via the Text Interface. Note that the Password feature is case sensitive.

3. If a valid System Password or User Password is entered, the IPS will display the Plug Status Screen as shown in Figure 5.2, followed by the IPS> Command Prompt.

5.3. Configuration Menus

As described in the sections that follow, configuration parameters for the IPS can be selected via the Web Browser Interface or Text Interface. Although the Web Browser and Text Interface provide two separate means for selecting parameters, both interfaces allow access to essentially the same set of parameters, and parameters selected via one interface will also be applied to the other.

Web Browser Interface: Click the "Setup" button to gain access to the configuration menus; a row of buttons will be displayed along the right hand edge of the screen. Click the appropriate button to access the desired menu. Note the following:

- Newly selected parameters will not be applied until you click the "Apply" button.
- Click "Switch Panel" to return to the main status screen.

Text Interface: Refer to the Help Screen (/H) and then enter the appropriate command to access the desired menu. When the configuration menu appears, key in the number or letter for the parameter that you wish to define and follow the instructions in the resulting submenu. Note the following:

- To exit from a parameters menu, press the **[Esc]** key.

The following sections describe the options and parameters that are available in each of the configuration menus. Please note that essentially the same selection of parameters and options are available via both the Web Browser Interface and Text Interface.

> **Note:** Configuration menus are only available when the System Mode is active. Configuration menus are *not* available if you have logged in with the User Password.

5.3.1. The General Parameters Menus

The General Parameters Menus allow you to select parameters such as the Passwords, User Name, Site I.D., Modem Commands and other options.

Web Browser Interface: Click the "Setup" button to access the Setup Menus, and then click the "General Parameters" button. The General Parameters Menu will be displayed as shown in Figure 5.3.

Text Interface: Type **/G** and press **[Enter]**. The General Parameters Menu will be displayed as shown in Figure 5.4.
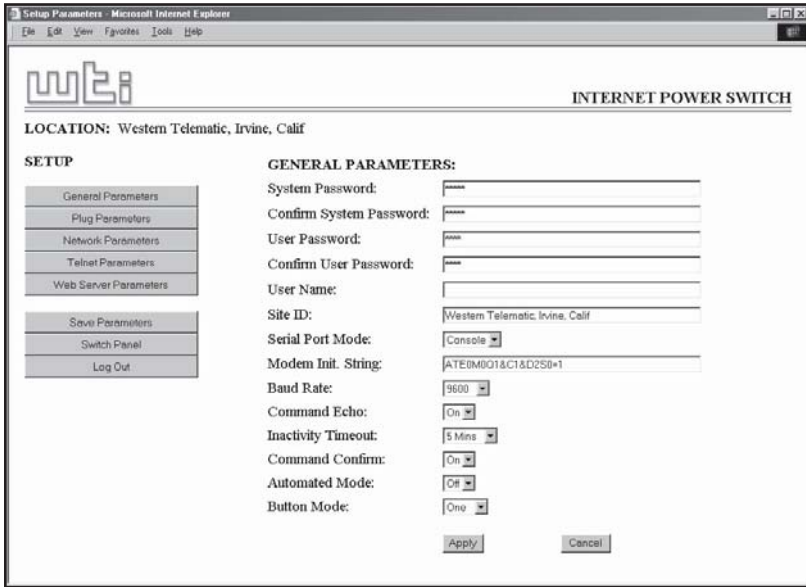
Figure 5.3: General Parameters Menu - Web Browser Interface

The General Parameters Menu allows the following parameters to be defined. Please note that, except where indicated, all parameters are available via both the Web Browser Interface and the Text Interface.

- **System Password:** The IPS will display a password prompt when you attempt to access the command mode. When the System Password is entered at log on, the System Mode will be active, allowing access to both switching command functions and configuration menus. (16 Characters, Default = undefined.)

Notes:
  - If the System Password is not defined, then the IPS will always start up in System Mode, and configuration functions will then be available to anyone who accesses the Command Mode.
  - When defining passwords via Web Browser Interface, you must re-key the desired password in the "Confirm Password" field. When defining passwords via the Text Interface, the submenu will also ask you for confirmation.

- **User Password:** The User Password allows access to all On/Off/Boot command functions, but does not allow access to configuration menus. (16 Characters, Default = undefined.)

```
GENERAL PARAMETERS:

1.  System Password:       (defined)
2.  User Password:         (defined)
3.  User Name:             (undefined)
4.  Site ID:               WTI Internal Test Unt v 1.01
5.  Serial Port Mode:      Console
6.  Modem Init. String:    ATE0M0Q1&C1&D2S0=1
7.  Baud Rate:             9600,N,8,1
8.  Command Echo:          On
9.  Inactivity Timeout:    5 Min
10. Command Confirmation:  On
11. Automated Mode:        Off
12. Button Mode:           One

A. Default Parameters

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

Figure 5.4: General Parameters Menu - Text Interface

- **User Name:** (Optional) The User Name allows you to set up an additional layer of security for web access to the command mode by requiring that users correctly enter a name in addition to a password. Note that the User Name is only required when the unit is accessed via the Web Interface. (16 Characters, Default = undefined.)

- **Site ID:** Defines a brief text message, which can be used to identify the installation location of the IPS unit. (Up to 32 characters, Default = undefined.)

- **Serial Port Mode:** Sets up the IPS Console Port for use with either a local PC ("Console") or an external modem ("Modem"). Note that when the Serial Port Mode is set at "Modem" the modem initialization string will be sent every 15 minutes. (Default = Console.)

- **Modem Initialization String:** Defines a command string (up to 32 characters long) which can be sent out the serial Console Port to initialize an external modem. If the Serial Port Mode is set to "Console", the modem initialization string will not be sent. For more information on initialization commands, refer to the user's guide for your modem. (Default = **ATE0M0Q1&C1&D2S0=1**)

- **Baud Rate:** The Baud Rate for the IPS Master Unit's Console Port. (Default = 9600 bps, No Parity, 8 Data Bits, 1 Stop Bit.)

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

- **Command Echo:** Enables/Disables command echo. When enabled, ASCII commands sent via the Text Interface to the IPS will be echoed back, allowing keystrokes to be displayed. Note that this feature applies primarily to the text interface, and has no visible effect on the Web Browser Interface. (Default = On.)

- **Inactivity Timeout:** Determines how long the IPS will wait for additional commands during periods of inactivity. When the Timeout Period elapses, the user will be disconnected from the IPS command mode. (Default = 2 Minutes.)

- **Command Confirm:** When enabled, the IPS will display a confirmation prompt before switching, reboot, and default commands when the unit is controlled via Text Interface. When disabled, the prompt will be suppressed. (Default = On/Enabled.)

- **Automated Mode:** When enabled, the IPS will execute On, Off, Boot, and exit commands without displaying a confirmation prompt, status screen or confirmation messages. This allows the IPS to be controlled by a device that generates commands to control switching without human intervention. For more information, please refer to Section 6.5. (Default = Off.)

    Note: When this option is enabled, security functions are suppressed, and users are able to access System Level menus and control plugs without entering a password. If security is a concern and the Automated Mode is required, it is recommended to use the IP Security feature (Section 5.3.3.1) to restrict access.

- **Button Mode:** Enables and configures the manual plug control button. (Default = "One".)

    ○ **None:** Disables the manual plug button.

    ○ **One:** The manual plug button will only control the outlet on the Master Unit; outlets on Satellite Units will *not* be effected by the manual plug button.

    ○ **All:** The manual plug button will control the outlet on the Master Unit *and* all connected Satellite Units.

- **Default Parameters:** Resets the IPS to default parameters. All menu selected parameters, including port names and passwords, will be cleared. This option is only available via Text Interface.

    Note: If the this function is invoked via Network Port, the IP Address is *not* reset. If this function is invoked via Console Port or Modem Port, the IP Address *will* be reset.
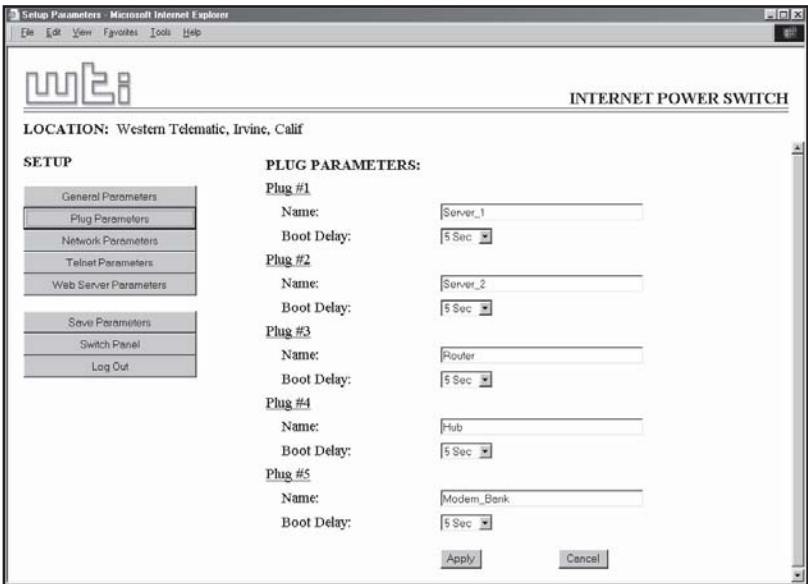
Figure 5.5: Plug Parameters Menu - Web Browser Interface

```
PLUG #1 PARAMETERS:

1. Plug Name:        Server_1
2. Boot Delay:       5 Sec


Enter Selection or <ESC> to Exit ...
```
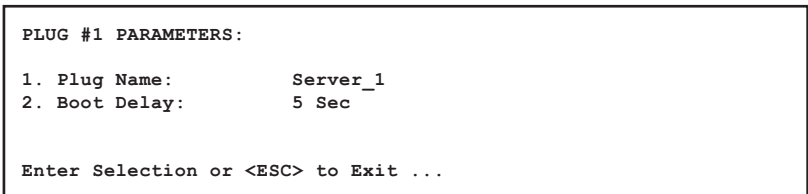
Figure 5.6: Plug Parameters Menu - Text Interface

5.3.2. Plug Parameters Menus

The Plug Parameters Menus are used to define names and boot delay times for each of the IPS's five "Zones". Plug 1 (Zone 1) always refers to the Switched Outlet on the IPS Master Unit, and Plugs 2 through 5 (Zones 2 to 5) refer to Satellite Units. The Zone number for each Satellite is set using the selector switch on the satellite's front panel. For more information, please refer to Section 4.5.

Web Browser Interface: Click the "Setup" button to access the configuration menus, then click the "Plug Parameters" button. The Plug Parameters Menu will be displayed as shown in Figure 5.5.

Text Interface: Type **/P *n*** and then press **[Enter]** (Where *n* is the number or name of the plug you wish to configure.) The Plug Parameters Menu will be displayed as shown in Figure 5.6.

Please note that the major difference between the Web Browser Interface and Text Interface in this case, is that the Web Interface allows you to select parameters for all five plugs/zones from a single menu, where as the Text Interface includes a separate menu for each plug/zone. The Plug Parameters Menu allows the following parameters to be defined:

• **Name:** Assigns a name to the plug. (Up to 32 Characters, Default = undefined.)

• **Boot Delay:** During a Boot Cycle, power to the outlet is switched off and then switched back on. The Boot Delay is the amount of time that elapses between power off and power on. (Default = 5 Seconds.)

5.3.3. Network Parameters Menus

The Network Parameters Menus are used to select the IP Address and other network parameters.

Web Browser Interface: Click the "Setup" button to access the Setup Menus, and then click the "Network Parameters" button. The Web Parameters Menu will be displayed as shown in Figure 5.7

Text Interface: Type **/N** and press **[Enter]**. The Network Parameters Menu will be displayed as shown in Figure 5.8.

Notes:
  • Although both the Web Browser Interface and Text Interface both allow configuration of the same network parameters, note that when parameters are defined via the Text Interface, the IP Security feature is configured via a separate submenu. For more information on IP Security, please refer to Section 5.3.3.1.

  • Settings for network parameters depend on the configuration of your individual network. Contact your network administrator for appropriate settings.

The Network Parameters Menu allows the following parameters to be defined. Except where noted, all parameters listed here are available via both the Web Browser Interface and the Text Interface.

• **IP Address:** Defines the IP address for the IPS unit. (Default = 192.168.168.168.)

• **Subnet Mask:** Defines the Subnet Mask for the IPS unit. (Default = 255.255.255.0.)
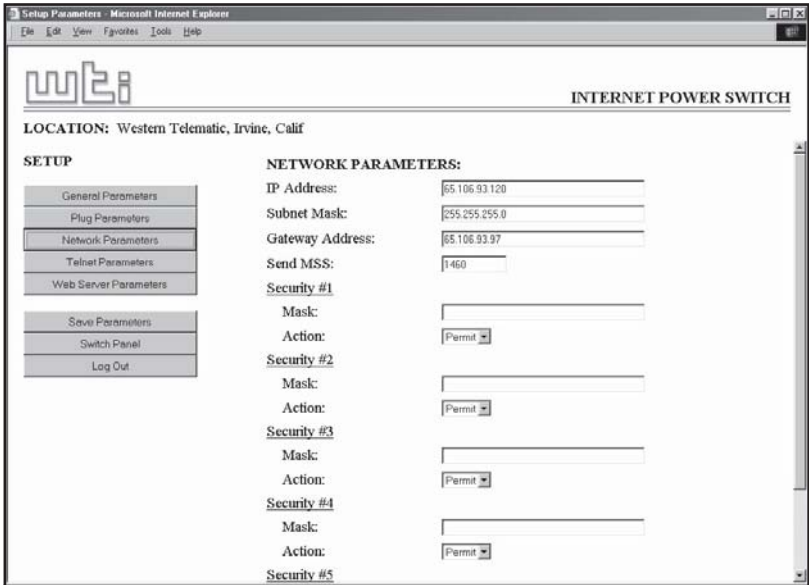
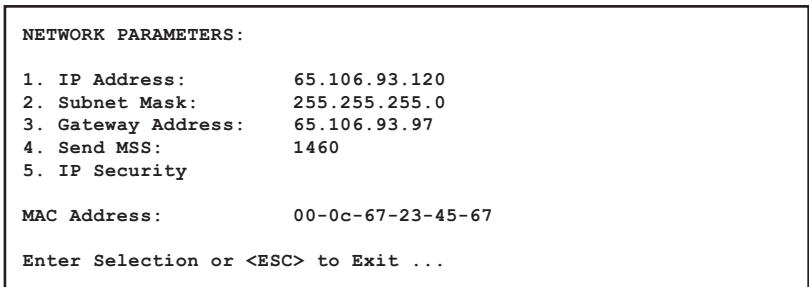*Figure 5.7: Network Parameters Menu - Web Browser Interface*

```
NETWORK PARAMETERS:

1. IP Address:          65.106.93.120
2. Subnet Mask:         255.255.255.0
3. Gateway Address:     65.106.93.97
4. Send MSS:            1460
5. IP Security

MAC Address:            00-0c-67-23-45-67

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

Figure 5.8: Network Parameters Menu - Text Interface

- **Gateway Address:** Defines the Gateway Address for the IPS unit. (Default = undefined.)

- **Send MSS:** Defines the Maximum Segment Size that will be sent by the IPS-15. (Default = 536.)

- **IP Security:** Please refer to Section 5.3.3.1 for a detailed description of the IP Security feature.

- **MAC Address:** Displays the unit's MAC Address. Please note that this item only displays the assigned MAC Address, and cannot be used to redefine the address.

5.3.3.1. IP Security Feature

The IP Security feature can be used to restrict unauthorized IP addresses from establishing a connection with the IPS-15. In the default state, the IPS accepts incoming IP connections from all hosts. To configure the IP Security feature, proceed as follows:

1. Access the IP Security Menu:

    a) **Web Browser Interface:** The IP Security feature is configured using the fields at the bottom of the Network Parameters Menu as shown in Figure 5.7.

    b) **Text Interface:** Go to the Network Parameters menu (**/N**), type **5** and press **[Enter]**. The IP Security menu will be displayed as shown in Figure 5.9.

2. The IP Security menu lists five IP Security "masks" along with the selected permit/deny action for each mask.

    a) Each Security Mask prompt defines a specific IP address or range of addresses. Each Mask Action prompt defines 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.

```
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 5.9: IP Security Menu - Text Interface

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.

Note:
- 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), you will not be able to access the IPS Command Mode via network. Access will only be allowed via a Local PC or external modem connected to the IPS Console Port.
- When using the wild card address "255.255.255.255", make certain that at least one higher priority mask permits access by your IP address.

5.3.4. The Telnet Parameters Menus

The Telnet Parameters Menus are used to enable/disable Telnet access to the IPS command mode and select the default TCP port for Telnet connections.

Web Browser Interface: Click the "Setup" button to access the configuration menus, and then click the "Telnet Parameters" button to display the menu shown in Figure 5.10.

Text Interface: Type **/T** and press **[Enter]**. The Telnet Parameters Menu will be displayed as shown in Figure 5.11.
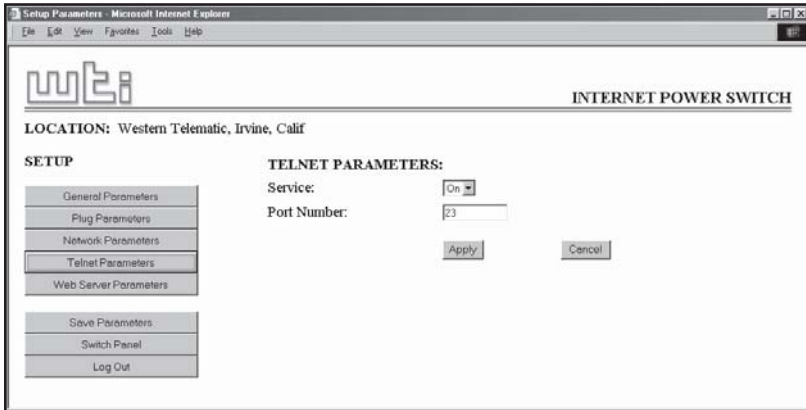
Figure 5.10: Telnet Parameters Menu - Web Browser Interface

```
TELNET PARAMETERS:

1. Service:        On
2. Telnet Port #:  23




Enter Selection or <ESC> to Exit ...
```
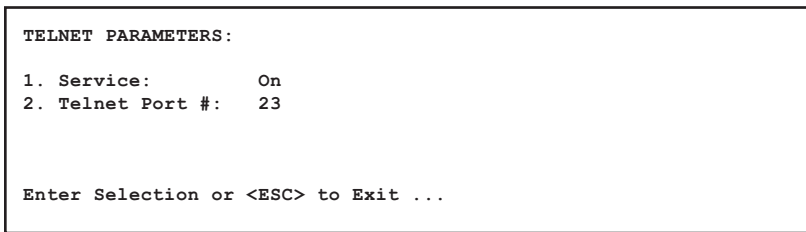
Figure 5.11: Telnet Parameters Menu - Text Interface

The Telnet Parameters Menus allow the following parameters to be defined. Please note that all parameters listed here are available via both the Web Browser Interface and Text Interface.

- **Service:** Enables/Disables Telnet communication with the IPS unit. When this item is set to the "Off" condition, user's will not be able to contact the unit via Telnet. (Default = On.)

- **Port Number:** Selects the port number that will be used for Telnet connections. (Default = 23.)

5.3.5. Web Server Parameters Menus

The Web Server Parameters Menus are used to configure the IPS's internal web server, which allows the unit to be operated via the Web Browser Interface.

Figure 5.12: Web Browser Parameters Menu - Web Browser Interface

```
WEB SERVER:

1. Service:        On
2. Server Port #:  80


Enter Selection or <ESC> to Exit ...
```
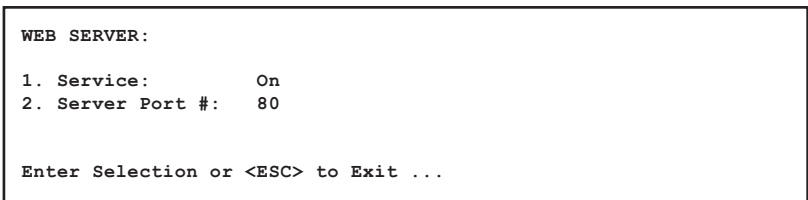
Figure 5.13: Web Browser Parameters Menu - Text Interface

Web Browser Interface: Click the "Setup" button to access the configuration menus, and then click the Web Server Parameters button. The Web Server Parameters Menu will be displayed as shown in Figure 5.12.

Text Interface: Type **/W** and press **[Enter]**. The Web Server Parameters Menu will be displayed as shown in Figure 5.13.

The Web Server Parameters Menu allows the following parameters to be defined. Please note that all parameters listed here are available via both the Web Browser Interface and the Text Interface.

• **Service:** Enables/Disables the IPS's Web Server. Note that when the Web Server is disabled, you will not be able to communicate via the Web Browser Interface. (Default = On.)

• **Port Number:** Sets the TCP/IP Port Number. The Port Number can be set to any valid number except 23; this is because 23 is the default port number that is used for communication with the unit via Telnet. (Default = 80.)

5.4. Save Configuration Parameters

The IPS-15 offers two methods for saving parameters; Saving to Flash Memory, and Saving to an ASCII File.

Saving parameters to flash memory ensures that your user-defined configuration will remain intact if power to the IPS Master Unit is temporarily interrupted. After the configuration menus have been used to change parameters, the IPS will prompt you to save parameters before exiting from Command Mode. At this point, the IPS offers the options to Save parameters to flash, continue without saving, or revert to the previously saved parameters.

Saving Parameters to an ASCII file allows you to create a "backup" of your currently defined configuration. As described in Section 7, this provides quick recovery in the event that the unit is accidentally reset to default parameters, and also allows you to copy parameters to other IPS-15 units, when several Master Units need to be configured with the same parameters.

Notes:

- After new Parameters have been applied, the IPS will display a "Save" prompt. In the Web Browser Interface, this prompt appears when you leave the configurations menus. In the Text Interface, the "Save" prompt appears when you disconnect from the unit. At this point, you have the option of saving new parameters to flash memory, continuing without saving, or reverting to previously saved parameters.

- If parameters have not been saved, and if power to the Master Unit is interrupted, newly defined parameters will be lost. When power is restored, the unit will then be configured with the previously saved parameters.

6. Operation

As discussed in Section 5, "Configuration", the IPS-15 offers two separate command interfaces; the Web Browser Interface and the Text Interface. Note that Both interfaces offer essentially the same command options and features, and that parameters defined via the Web Interface will also apply when communicating via the Text Interface (and vice versa.)

6.1. Plug Numbers and Plug Zones

As described in Section 4.5, the IPS-15 Master Unit can be connected to up to 16 optional IPS Satellite Units. This allows the IPS Master Unit to expand to meet the needs of your power control application when additional switching requirements are added to your installation.

In order to allow the IPS to direct On / Off / Boot commands to specific groups of satellite units, the switched outlet on each satellite unit is assigned to one of four possible Plug Numbers or "Zones." Zones are determined by the setting of the Address Selector Switch on each individual satellite unit. For example, all satellite units that have their Address Selector Switch set to "2" are defined as "Plug 2" or "Zone 2", all satellite units that have their Address Selector Switch set to "3" are defined as "Plug 3" or "Zone 3", and etc..

By grouping satellite units into Zones, the user is able to direct switching commands to all satellites that share the same address. If your application does not include optional satellite units, then switching commands should always be directed to Plug 1 or Zone 1 (the Switched AC Outlet on the IPS Master Unit.)

Note that the IPS-15 will only detect IPS Satellite Units that were connected at the time that the master unit was last powered up. Satellite units that were connected after the master unit is powered up, will not be detected until the master unit has been powered Off, and back On again.
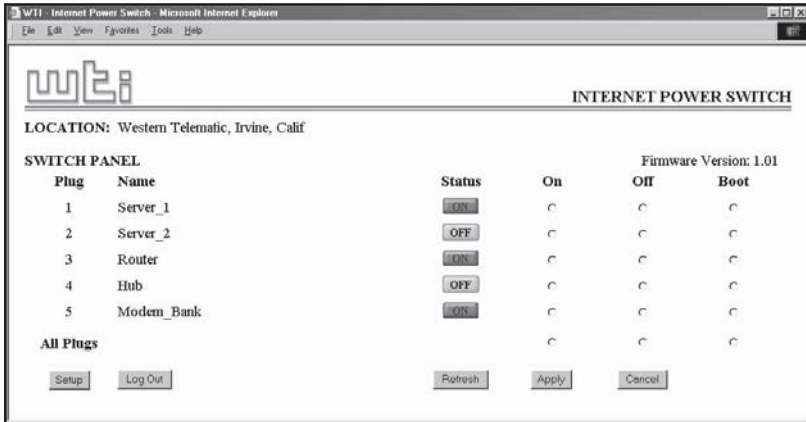
Figure 6.1: Plug Status Menu - Web Browser Interface

6.2. Operation via the Web Browser Interface

When using the Web Browser Interface, all switching commands are invoked via the Plug Status Screen, which also displays the status of the switched outlet on the IPS Master Unit, as well as the status of outlets on any connected IPS Satellite Units.

6.2.1. The Plug Status Screen - Web Browser Interface

When you log on to the IPS command mode, using the Web Browser Interface, the first screen that is displayed after login is the Plug Status Screen (or "Switch Panel".) The Plug Status Screen (Figure 6.1) lists the current status of the IPS-15's Switched Outlet(s) and provides a series of "radio buttons" which are used to control On/Off/Boot switching of the outlet(s).

If one or more optional IPS Satellite Units have been connected to the IPS Master Unit, then the Plug Status Screen will indicate the On/Off status of each plug zone. If your installation includes only the IPS Master Unit, and no optional Satellite Units, then the Plug Status Screen will only list the status for Plug 1 (the Master Unit's Switched AC Outlet), and the fields where Plugs 2 through 5 are normally listed, will be dashed out.

To invoke On/Off/Boot commands or view plug status via the Web Browser Interface, proceed as follows:

1. Access the IPS-15 Command Mode as described in Section 5.2.1.

2. When the Plug Status Screen (Figure 6.1) appears, note that the screen includes a status field and On/Off/Boot controls for every satellite unit that was connected at the time that the master unit was powered up.

3. **Switching Plugs On:** To switch one or more plugs On click the "On" radio button next to the desired plug(s), and then click on the "Apply" button.

   a) To switch all Plugs On, click on the "On" radio button in the "All Plugs" line, and then Click "Apply."

   b) The IPS will display a screen which indicates that the switching operation is in progress, and then return to the updated Plug Status Screen (which should now show the selected plugs in the On position.)

4. **Switching Plugs Off:** To switch one or more plugs Off, click the "Off" radio button next to the desired plug(s), and then click on the "Apply" button.

   a) To switch all Plugs Off, click on the "Off" radio button in the "All Plugs" line, and then Click "Apply."

   b) The IPS will display a screen which indicates that the switching operation is in progress, and then return to the updated Plug Status Screen (which should now show the selected plugs in the Off position.)

5. **Reboot Cycles:** To initiate a Reboot Cycle, click on the "Boot" radio button next to the desired plug(s), and then click on the "Apply" Button.

   a) To reboot all Plugs, click on the "Boot" button in the "All Plugs" line, and then Click "Apply."

   b) The IPS will display a screen which indicates that the Reboot Cycle is in progress, and then return to the Plug Status Screen (which should now show the selected plugs in the On position.) Note that if different Boot Delay Times have been assigned to each selected Plug, then the Plug Status Screen will not be redisplayed until the longest defined Boot Delay Time has elapsed.

```
Internet Power Switch v1.01    Site ID: WTI Internal Test Unt v 1.01

Plug | Name              | Status  | Boot Delay |
-----+-------------------+---------+------------+
  1  | Server_1          |   ON    |   5   sec  |
  2  | Server_2          |   OFF   |   5   sec  |
  3  | Router            |   ON    |   5   sec  |
  4  | Hub               |   OFF   |   5   sec  |
  5  | Modem_Bank        |   ON    |   5   sec  |
-----+-------------------+---------+------------+


"/H" for help
```

Figure 6.2: Plug Status Screen - Text Interface

6.3. Operation via the Text Interface

When using the Text Interface, all switching functions are performed by invoking simple, ASCII commands. ASCII commands are also used to display status screens and to log out of command mode. The Text Interface also includes a Help Menu, which summarizes all available IPS-15 commands. To display the Text Interface Help Menu (Figure 6.3), type **/H** and press **[Enter]**.

6.3.1.   The Plug Status Screen - Text Interface

When you log in to the IPS command mode using the Text Interface, the first screen that is displayed after login is the Plug Status Screen. The Plug Status Screen (Figure 6.2) lists the current status of the IPS's Switched Outlet(s) and displays the firmware version and currently defined Site I.D. Message.

Normally, the Plug Status Screen will also be redisplayed every time that a command is successfully executed. Note however, that if the Automated Mode is enabled (See Section 6.5), the Plug Status Screen will not be redisplayed after each command is executed.

6.3.2.   Boot/On/Off Commands - Text Interface

These commands are used to Boot or toggle the On/Off status of the IPS's switched plug(s). Plugs may be specified by name or number.

Notes:

- Wait for the "IPS>" 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 IPS will display the Status Screen after the Boot/On/Off commands are successfully completed.

```
Internet Power Switch v1.01    Site ID: WTI Internal Test Unt v 1.01

Display                                 Configuration
/H          Display Help Screen         /G          View/Set General Parameters
/S          Display Plug Status         /P [n]      View/Set Plug Parameters
/SN         Display Network Status      /N          View/Set Network Parameters
                                        /T          View/set Telnet Parameters
Control                                 /W          View/Set Web Server
/Boot <n>   Boot Plug n                 /E          Save Parameters
/On <n>     Turn On Plug n              /R          Recall Parameters
/Off <n>    Turn Off Plug n             /DL         Download Parameters to File
/X          Exit/Disconnect
                                        Utilites
+---------------------------------+ /I          Reset Network Interface
| [n] = optional plug name or number | /U          Upgrade Firmware
| <n> = required plug name or number |
| n+n or n n = plug n and plug n     |
| n:n = plug n through plug n         |
| *   = all plugs                     |
| ,y  = bypass "Sure? (y/n)"          |
+---------------------------------+

IPS>
```

Figure 6.3: The IPS-15 Help Screen - Text Interface

To Switch Plugs, or initiate a Boot Cycle, proceed as follows:

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 or "zone." 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 or "zone." 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 or "zone." 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**

6.3.3. Applying Commands to Several Plugs - Text Interface

As described below, Boot/On/Off commands can be applied to only the switched outlet on the IPS Master Unit, or to an assortment of plugs on the Master Unit and linked Satellite Units.

> **Note:** When commands are applied to several plugs, the IPS will delay for approximately one (1) second between switching actions. For example, when switching Plugs One and Two On, the IPS will switch Plug 1 On, delay one second, then switch Plug 2 On.

1. **Several Plugs:** To apply an On / Off / Boot command to several plugs or zones, enter the numbers or names for the plugs, separated by a "plus sign" (+). For example to switch plugs 1, 4, and 5 Off, enter the following:

   /OFF 1+4+5 [Enter]

2. **Series of Plugs:** To apply a command to a series of IPS Plugs or "zones", enter the number for the plugs that mark the beginning and end of the series, separated by a colon. For example, to switch plugs 1 through 3 On, enter the following:

   /ON 1:3 [Enter]

4. **All Plugs:** To apply a command to all plugs (the IPS Master Unit plus each connected Satellite Unit), enter an asterisk in place of the name or number. For example, to Boot the Master Unit Plug, and all plugs on connected satellite units, enter the following:

   /BO * [Enter]

6.4. Logging Out of Command Mode

When you are finished communicating with the IPS, it is important to always disconnect using either the "Log Out" button (Web Browser Interface) or /X command (Text Interface), rather than simply closing your browser window or communications program.

When you disconnect using the Log Out button or /X command, this ensures that the IPS has completely exited from command mode, and is not waiting for the inactivity timeout period to elapse before allowing additional connections. This ensures that IPS unit will be available to other users, and they will not have to wait for the timeout period to elapse before accessing the IPS Command Mode.

6.5. The Automated Mode

The Automated Mode allows the IPS to execute switching and reboot commands, without displaying menus or generating response messages. Automated Mode is designed to allow the IPS to be controlled by a device which can generate commands to control power switching functions without human intervention.

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

Note that although the Automated Mode can be enabled using either the Web Browser Interface or Text Interface, Automated Mode is designed primarily for users who wish to send ASCII commands to the IPS without operator intervention, and therefore does not specifically apply to a GUI style, Web Browser Interface. When the Automated Mode is enabled, the Web Browser Interface can still be used to invoke On / Off / Boot commands.

Notes:
- When Automated Mode is enabled, all IPS password security functions are disabled, and users are able to access System Level command functions (including the configuration menus) and control plugs without entering a password.
- If you need to enable the Automated Mode, but want to restrict network access to IPS configuration menus, it is recommended to enable and configure the IP Security Function as described in Section 5.3.3.1.

To enable/disable the Automated Mode, access the General Parameters menu (see Section 5.3.1) and then set the "Automated Mode" option to the "On" state. When the Automated Mode is enabled, IPS functions will change as follows:

1. **All Password Security Suppressed:** When a user attempts to access the command mode, the password prompt will not be displayed at either the Console Port or Network Port. Unless specifically restricted by the IP Security Function, all users will be allowed to access both switching and configuration functions, and all commands will be immediately accepted without the requirement to enter a password.

2. **Status Screen Suppressed:** The status screens 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 if needed.

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 IPS 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.

6.6. Manual Operation

In addition to the command driven functions available via the Web Browser Interface and Text Interface, the IPS's switched plugs can also be toggled On and Off manually. To manually toggle plug(s) On or Off, press the Manual Control Button, and hold it down for approximately one second; the corresponding plug(s) will be toggled On or Off.

If desired, the Button Mode Parameter (which is accessed via the General Parameters Menu in both the Web Browser Interface and Text Interface), can be used to disable the manual power button completely. In addition, the Button Mode Parameter also allows you to restrict manual control to the master unit's switched plug only, or allow the manual control button to control switched outlets on the IPS-15 *and* all connected Satellite Units.

For more information on the Button Mode Parameter, please refer to Section 5.3.1.

7. Saving and Restoring Configuration Parameters

After the IPS has been properly configured, parameters can be downloaded and saved as an ASCII text file on your local or remote PC. 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 IPS 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.

> **Note:** Although this function is available only via the Text Interface, parameters that have been defined via the Web Browser Interface will also be sent to the ASCII file.

7.1. Sending Parameters to a File

1. Start your communications program and access the IPS command mode using the System Level Password.

2. When the IPS command prompt appears, type **/DL** and press **[Enter]**. The IPS-15 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. IPS.PAR).

3. When the communications program is ready to receive the file, return to the IPS command mode, and press **[Enter]** to proceed.

4. The IPS will send a series of ASCII command lines which specify the currently selected IPS parameters.

7.2. Restoring Saved Parameters

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

> **Note:** Parameters that have been saved to an ASCII file can only be restored via the Text Interface. This procedure cannot be performed via the Web Browser Interface.

1. Start your communications program and access the IPS command mode via the Text Interface as described in Section 5.2.2.

2. If the Password Prompt is displayed, key in your System Level Password and press **[Enter]**.

3. Configure your communications program to upload an ASCII text file.

4. Upload the file with the saved parameters. If necessary, key in the file name and directory path.

5. When the upload is complete, make certain to terminate the communications program's upload mode.

Note:

- The current On/Off status of each IPS 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 IPS via telnet, the unit's IP Address, Subnet Mask, and Gateway Address cannot be altered.

At this point, saved parameters should have been restored to the IPS unit. Check the Plug Status Screen, General Parameters Menu, Plug Parameters Menu and Network Parameters Menu to make certain that saved parameters have been accurately restored.

A. Interface Descriptions

A.1. Console Port Interface
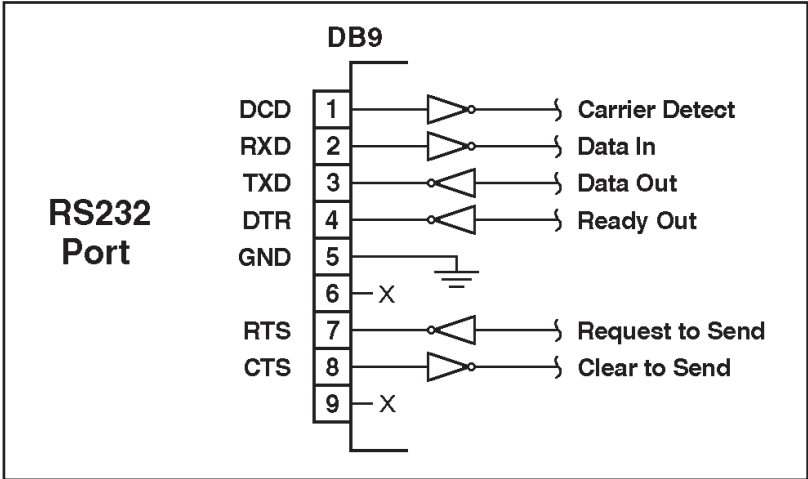
Figure A.1: Console Port Interface

A.2. Straight Wired RJ11 Cables

Straight Cables: Facing identical sides, wires begin and end with the same colors
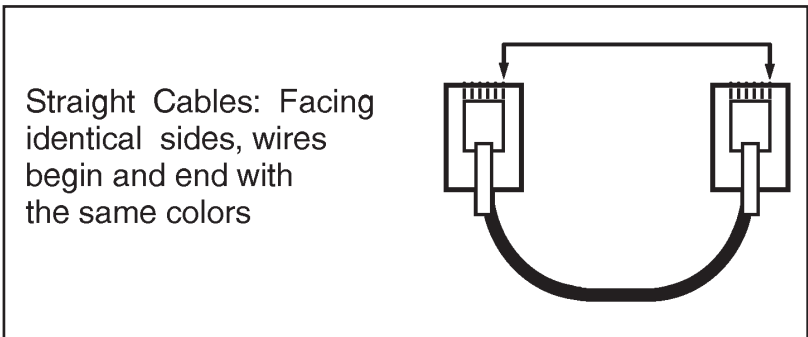
Figure A.2: Straight Wired RJ11 Cables

B. Specifications

Power Input / Output ; Model IPS-115M (115 VAC)
  AC Input: 15 Amps Max
  Voltage: 105 - 120 VAC 60 Hz
  Connector: IEC-320 Inlet, Line Cord Supplied

  AC Output: One (1) - Expandable to 5
  Connector: NEMA 5-15 Outlet
  Load: 15 Amps Total

Console / Modem Port Interface:
  Connector: DB9M, RS232C, DTE
  Coding: Serial ASCII, 8 Bits, No Parity

Physical / Environmental:
  Size:
    Height: 1.75" (4.5 cm)
    Depth: 7.00" (17.8 cm)
    Width:
      Master Unit: 5.80" (14.7 cm)
      Satellite Unit: 4.60" (11.7 cm)
  Weight: 4 lbs. Shipping Weight
  Temperature: (Operating) 32F to 122F (0C to 50C)
  Humidity: 10 - 90% RH

Ordering Information:
  IPS-15M: Master Control Unit, 115VAC @ 15 Amps
  IPS-15S: Satellite Unit, 115 VAC @ 15 Amps
  IPS-15R: 19" Rack Mount Tray, 1 RU
    (Mounts Master Unit plus two Satellite Units)
  IPS-15ZU: Mounting Bracket for Zero U Mounting

C. 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

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