



# iPAL

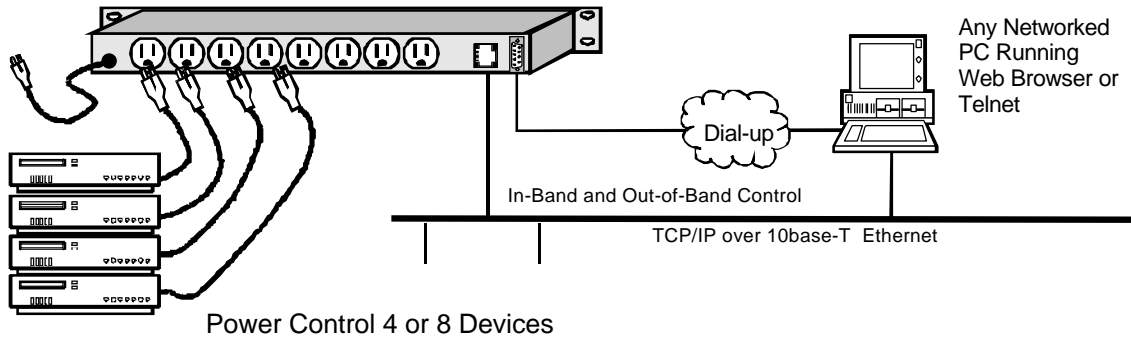
## Web Controlled Power Switches

### Overview

The iP-4xx and iP-8xx series are network attached, IP addressed, Web Controlled, multi outlet, remote A/C power switches. The following models are covered in this manual.

- iP-820                8 switched outlets, for use on 115 VAC, 20 Amp Service – NEMA N5-20
- iP-420                4 switched outlets, for use on 115 VAC, 20 Amp Service – NEMA N5-20
- iP-815                8 switched outlets, for use on 115 VAC, 15 Amp Service – NEMA N5-15
- iP-415                4 switched outlets, for use on 115 VAC, 15 Amp Service – NEMA N5-15
- iP-810                8 switched outlets, for use on 115/230 VAC, 12 /10 Amp International – IEC 320
- iP-410                4 switched outlets, for use on 115/230 VAC, 12 /10 Amp International – IEC 320

“M” suffix designations in the model name indicate models equipped with an internal modem.



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REF: PWRIP8xx\_UL\_V020318D.DOC

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 TEL: 201-967-9300      FAX: 201-967-9090  
 Website: www.dataprobe.com      Email: tech@dataprobe.com

## ***Important Safety Instructions***

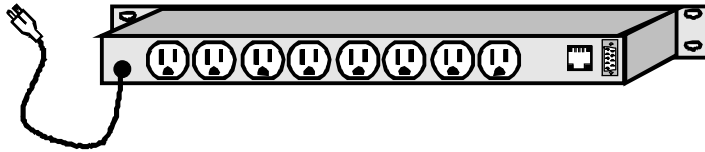
When using this product, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons, including the following:

1. Read and understand all instructions.
2. Follow all warnings in the manual and marked on the product.
3. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
4. Do not use this product in an outdoor environment or near water, for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
6. Slots and openings in this product and the back or bottom are provided for ventilation to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the product on the bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your dealer or local power company.
8. This product is equipped with a three wire grounding type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug. Do not use a 3-to-2 prong adapter at the receptacle; use of this type adapter may result in risk of electrical shock and/or damage to this product.
9. Do not allow anything to rest on the power cord. Do not locate this product where the cord will be abused by persons walking on it.
10. Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.
11. Never push objects of any kind into this product through slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electrical shock. Never spill liquid of any kind on the product.
12. To reduce the risk of electrical shock, do not disassemble this product, but take it to a qualified serviceman when some service or repair work is required. Opening or removing covers may expose you to dangerous voltages or other risks. Incorrect re-assembly can cause electric shock when the appliance is subsequently used.
13. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
  - a) When the power supply cord or plug is damaged or frayed.
  - b) If liquid has been spilled into the product.
  - c) If the product has been exposed to rain or water.
  - d) If the product does not operate normally by following the operating instructions. Adjust only those controls, that are covered by the operating instructions because improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
  - e) If the product has been dropped or has been damaged.
  - f) If the product exhibits a distinct change in performance.
14. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
15. Do not use the telephone to report a gas leak in the vicinity of the leak.
16. Do not exceed the maximum output rating of the auxiliary power receptacle.

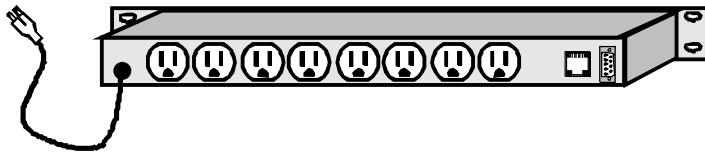
# SAVE THESE INSTRUCTIONS

## Hardware Installation

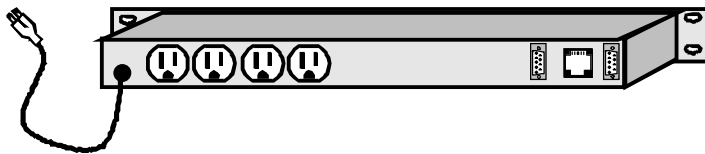
**Important Note:** Make all communications connection prior to applying power. To change communications cables, remove power or power cycle the unit after connections.



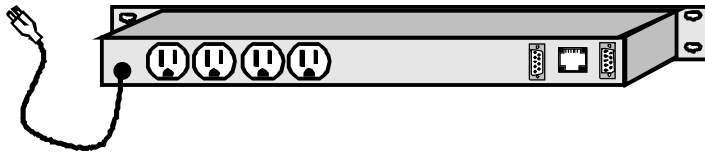
Model iP-820 & iP-815  
8 NEMA 5-15 Outlets, 115VAC  
10base-T (J2) + Serial (J1)



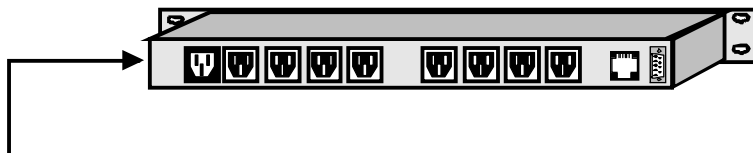
Model iP-820-M & iP-815-M  
8 NEMA 5-15 Outlets, 115VAC,  
10base-T (J2) + Internal Modem (J1\*)



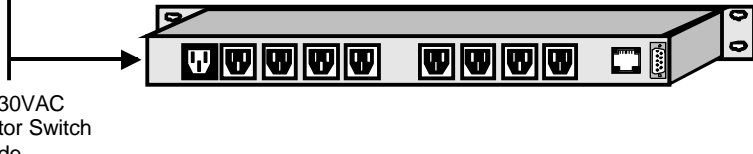
Model iP-420 & iP-415  
8 NEMA 5-15 Outlets, 115VAC,  
10base-T (J2) + Serial (J1) + Expansion (J3)



Model iP-420-M & iP-415-M  
8 NEMA 5-15 Outlets, 115VAC,  
10base-T (J2) + Internal Modem (J1\*)  
+ Expansion (J3)

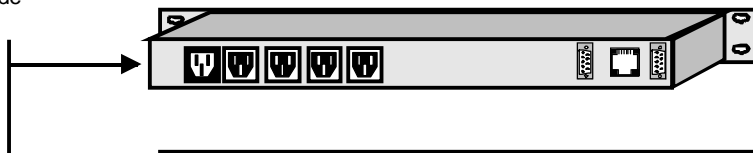


Model iP-810  
8 IEC320 Outlets, 115/230VAC,  
10base-T (J2) + Serial (J1)

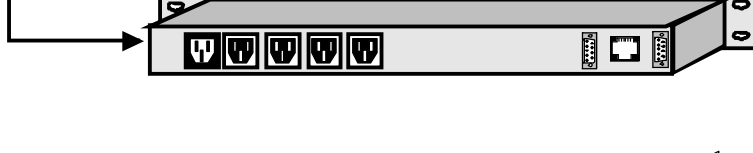


Model iP-810-M  
8 IEC320 Outlets, 115/230VAC,  
10base-T (J2) + Internal Modem (J1\*)

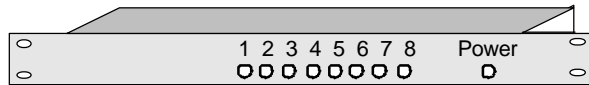
115/230VAC  
Selector Switch  
On Side



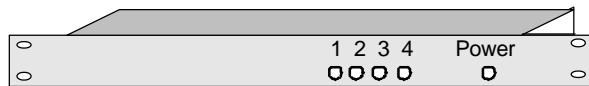
Model iP-410  
4 IEC320 Outlets, 115/230VAC,  
10base-T (J2) + Serial (J1) + Expansion (J3)



Model iP-410-M  
4 IEC320 Outlets, 115/230VAC,  
10base-T (J2) + Internal Modem (J1\*)  
+ Expansion (J3)



Front Panel  
All 8 Outlet Versions  
Outlet Status and Power Input Status LEDs



Front Panel  
All 4 Outlet Versions  
Outlet Status and Power Input Status LEDs

D9-RJ Adapter  
#1490149



\* J1 - requires D9-RJ adapter, included,  
item # 1940149 for models with modem

### 10baseT Connector

The 10baseT connector is located on the rear panel of the iPAL. It provides connection to the Ethernet.

**Note: Connection to an Ethernet hub is made using the cable provided. To directly connect to a PC, a crossover cable is required. This cable is available at any computer store.**

**An LED on the jack indicates when the connection to the network is properly established**

### Serial Connection \* for models without internal modem \*

This connection provides for RS-232 connection for out-of-band connection to the iPAL. A terminal or modem can be attached directly to this 9 pin connector. With a modem attached, connection is made using PPP (Dial-up-Networking) and Telnet.

Connection directly to a laptop or terminal requires a null modem (crossover) cable.

With a terminal directly installed, a simple menu interface is used. These menus are identical to the telnet setup and control screens. Use any terminal emulation software to connect to the iPAL.

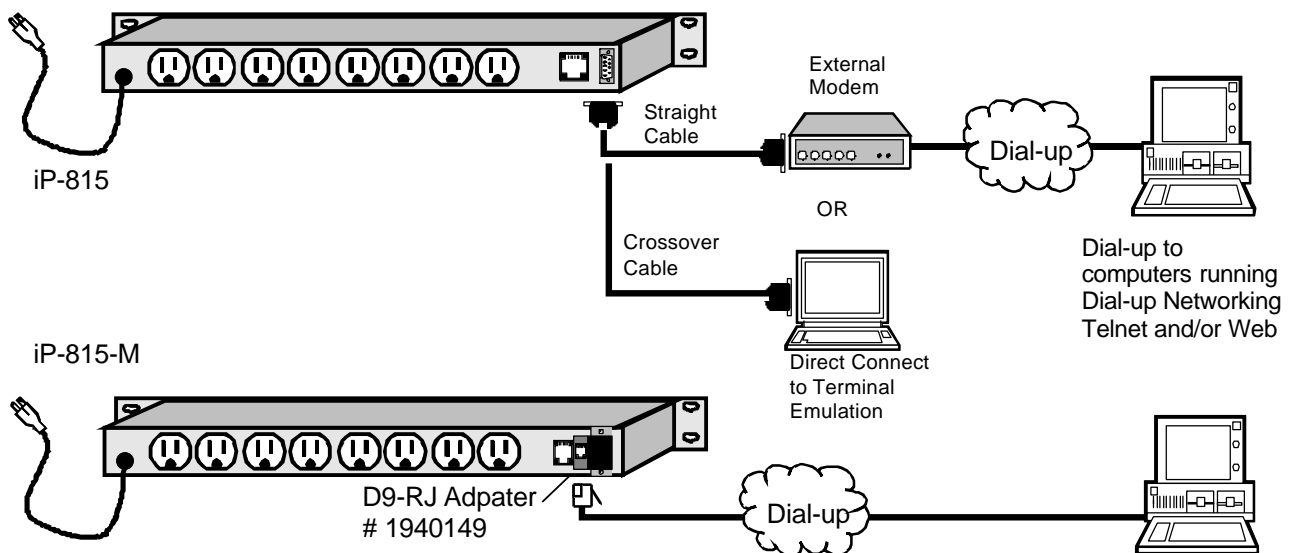
**Connection parameters are: 19200bps, 8 data bits, 1 stop bit, no parity (19200,8,n,1). Set flow control to OFF.**

Serial Port pinout:

Pin No	Description
1	Data Carrier Detect
2	Receive Data
3	Transmit Data
4	Data Terminal Ready
5	Signal Ground
6	Data Set Ready
7	Request to Send
8	Clear to Send
9	Ring Indicator

### Modem Connection \* for models with internal modem \*

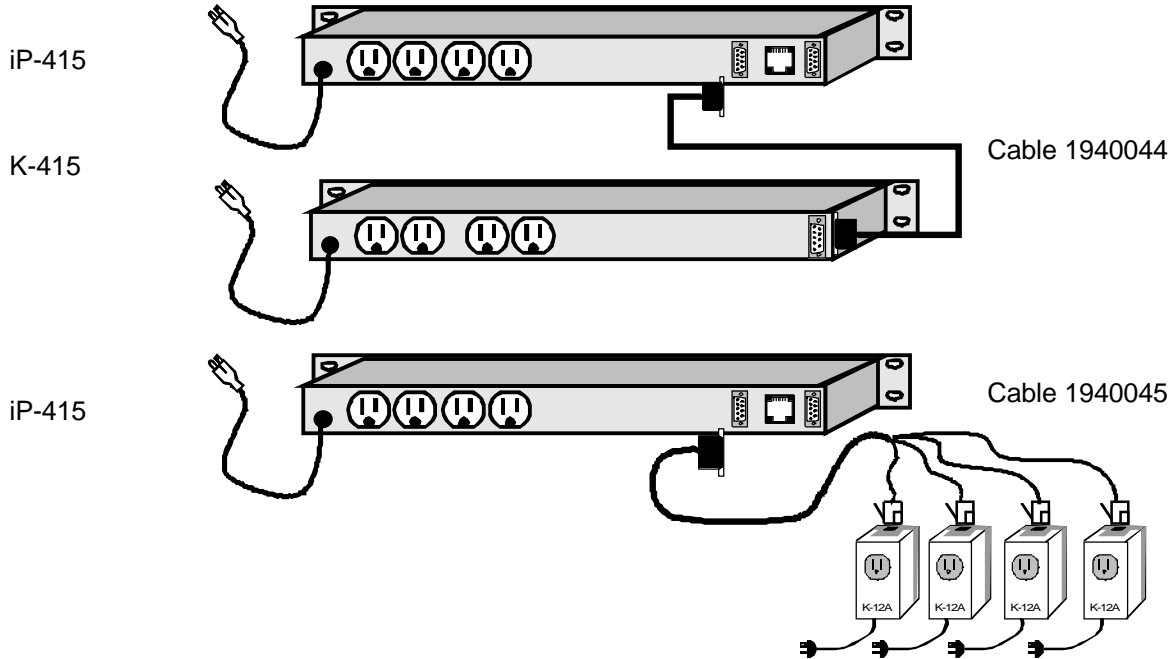
The RJ11 jack marked LINE if for direct connection to a telephone line.



**Expansion Connection \* 4 Outlet versions only \***

This connection provides for expansion to eight controlled outlets with the addition of model K-415 or K-410 and cable 1940044. Expansion can also be to individual power modules like the K-10-IEC, K-12A or K-30A using cable 1940045.

The Control interface is a contact closure (form A) and can be used with any system that responds to a relay. The Common for all control and feedback is connected to ground.



Pin No	Description
1	Control 5
2	Control 6
3	Control 7
4	Control 8
5	Control Common / Feedback Ground
6	Feedback 5
7	Feedback 6
8	Feedback 7
9	Feedback 8

For more information on use of feedback, contact Dataprobe Technical Support: [tech@dataprobe.com](mailto:tech@dataprobe.com) or 201-967-8788.

**A/C Power Connections**

The **iP-820 & iP-420** provide a linecord for connection to a 20 Amp 115VAC service. The total maximum current load for all outlets on the iP-820 or iP-420 cannot exceed 16 Amps.

The **iP-815 & iP-415** provide a linecord for connection to a 15 Amp 115VAC service. The total maximum current load for all outlets on the iP-815 or iP-415 cannot exceed 12 Amps.

The **iP-810 & iP-410** are for international applications and can be set for use on 115V or 230VAC. The iP-810 & iP-410 provide an IEC 320 style universal inlet for connecting a detachable power cord. A standard IEC to NEMA 5-15 cord set is supplied with the unit for use on 15 Amp 115VAC service. The total maximum current load for all outlets cannot exceed 12 Amps at 115VAC or 10 Amps when used at 230VAC

## iPAL Configuration

Configuration of the iPAL involves the following steps:

- 1) Setting iPAL's IP Address
- 2) Configuring Dial-up Networking (Optional)
- 3) Setting Configuration parameters using Telnet

### 1) Setting I/P Address

iPAL comes with factory installed IP address **192.168.1.254**. In most cases this will need to be changed.

Consult your Network Administrator to determine the appropriate IP address. The iPAL uses ARP to configure the IP address. iPAL does not support DHCP.

To set the IP address, the hardware (MAC) address must be known. This address is located on a label on the bottom of the unit, and on the iPAL printed circuit board. The syntax for the MAC address is: nn-nn-nn-nn-nn-nn

### Setting the IP address using ARP

To set the IP address using ARP, connect the 10Base-T connection to your local ethernet network and apply power to the unit. The computer used to set the IP address must be on the same local network as the iPAL. ARP does not work across routed networks.

### Windows 3.11, 95 and NT

1. Open a DOS window.
2. Type the following command:

**arp -s <IP Address> <MAC Address>**

Where <IP Address> is the desired IP address for the iPAL and the <MAC address> is the MAC Address of the iPAL. The MAC Address of the iPAL is located on the iPAL's serial number label. Windows 95 users see note below.

3. Ping the device to confirm that the address has been programmed properly by typing the following:

**ping <IP Address>**

If the ping command returns "host not responding" 4 times then the address has not been programmed properly, or the IP Address is incorrect. In either case redo step 2. If the problem persists contact the Dataprobe Tech Support Hot Line.

4. Delete the entry from the ARP cache by typing:

**arp -d <IP Address>**

**Note:** Due to a bug in the Windows 95 version of ARP you must first have an empty ARP table (seen with arp -a). To empty an arp table type arp -d <ip address> for each entry in the arp table as seen with arp -a. Ping an existing device on your network before setting the IP Address of the iPAL. This device must be a network device other than the one currently being used.

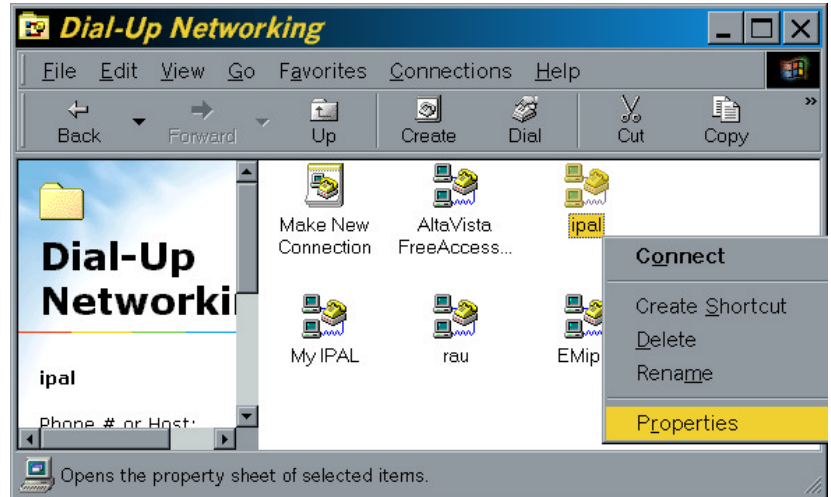
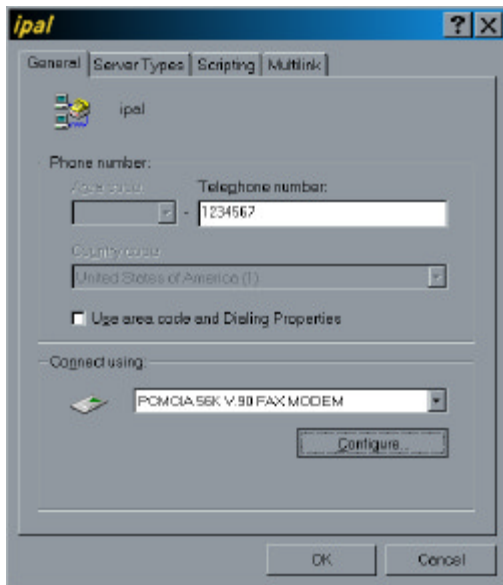
### Unix, Linux

Consult your systems administrator for information on setting an IP Address using ARP. The unit should be pinged after the IP Address has been set to confirm proper operation.

## 2) Configuring Dial-up Networking

Use of the Internal modem (if provided) or use of an external modem require the setup of PPP connection using Dial-up Networking. The following describes the procedure for setup in Windows 98. If your computer supports another operating system, consult your network administrator for proper setup details.

A) Using Make a New Connection in Dial-up Networking, setup a Dial-Up Networking connection. Set the desired modem and telephone number you wish to use. Now right click and choose properties of the Dial up networking icon you have just created.

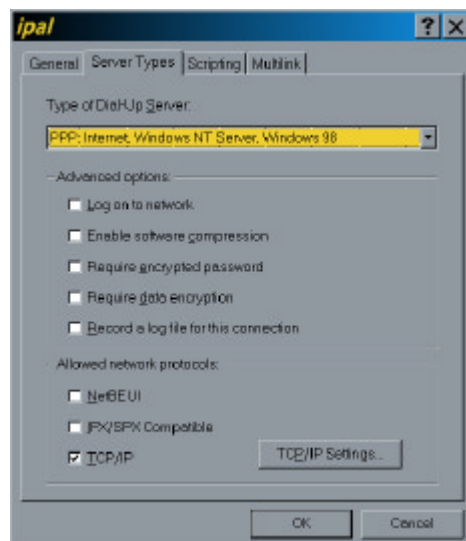


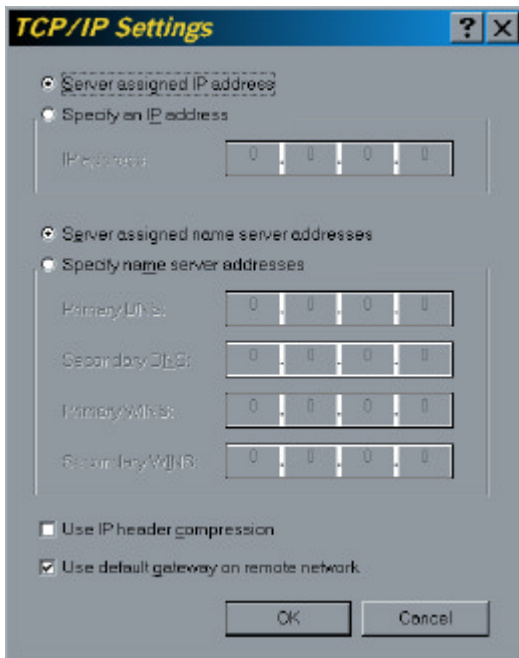
B) Under the "general" tab, click on configure to set the modem properties.



C) Under the modem properties "general" tab, change the maximum speed to 19200 and check the "connect only at this speed" box. Click on OK to close the window.

D) Under the "server types" tab, change the settings to match the screen to the right.

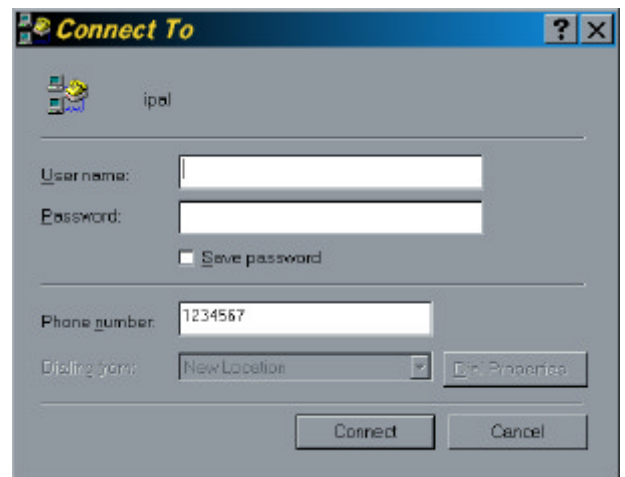




E) Click on TCP/IP settings. Change the settings to match the screen to the left and click OK. Then OK again to close the Dial-up Networking window.

### To Connect to iPAL using Dial-up Networking

- A) Double click the dial up networking icon you have just created. No user name or password is required. Click on "Connect".
- B) Once a Dial Up Networking connection has been established, you can access the iPAL using any telnet. A web browser can also be used but is not recommended due to the speed of the modem connection.
- C) When telnet or web control is complete, disconnect the dial-up networking session by double-clicking on the icon in the system tray and select Disconnect.



### 3) Setting Parameters using Telnet

Additional configuration parameters need to be set using Telnet. To connect to the iPAL using telnet, run your telnet client program (provided with your operating system) and connect to the IP address as set in step one above.

For Windows:    Select Run...Telnet  
                  Connect...192.168.1.254 (or the IP address you set as above)

**Please Note:** The iPAL system used as the controller for this product has many features and capabilities outside of its use as a power switch. Many of the setup fields are not applicable to this product and should not be changed. They are included here only for reference and to allow for re-set to factory defaults, should they become inadvertently changed.

The iPAL system is capable of controlling up to eight outlets. Model's iP-410 and iP-415 provide only four outlets, with room for expansion to eight with an additional unit. Models iP810 and iP-815 control all eight outlets.

All setup parameters that should be changed are marked    \* **For All Models** \*  
All setup parameters that should not be changed are marked \* **Std. Default =** \*

### Menu System

As soon as you connect the following message will be displayed:

```
iPal  Versi on 2. 10

Please Enter The Password >
```

The factory default password is:       **PASS**

This password is case sensitive and can be changed in the setup process. The iPAL has a security timeout feature. After 2 minutes of no activity, iPAL will automatically terminate the session. Should this occur, simply re-connect and re-enter the password.

Upon entering the password, the main menu is displayed:

```

Location

Mode = 6                Status   Feedback
1.  Outlet 1           ON      OK
2.  Outlet 2           ON      OK
3.  Outlet 3           ON      OK
4.  Outlet 4           ON      OK
5.                     OFF     OK
6.                     OFF     OK
7.                     OFF     OK
8.                     OFF     OK

# - Select relay to toggle
P# - Pulse relay
S - Setup
X - Exit

Enter >

```

Select S to access the setup Menu

```

iPal Setup

1. Circuit Names
2. Location Name      - Location
3. Operating Mode    - 6
4. Password
5. Pulse Time        - 10
6. Web Page Refresh Time - 10
X. Return to the Main Menu

Enter >

```

### ***Circuit Names \* For All Models \****

Each circuit (outlet) can be identified with a 20-character name for easy identification. Select 1 from the Setup menu. A list of all eight circuits is displayed with the option to change any circuit name. These names are used in both the telnet screens and web page. For Models iP-415 and iP-410, enter names for circuits 5-8 if the expansion unit is used.

### ***Location Name \* For All Models \****

Each iPAL can be identified by a Location name that appears at the top of each telnet and web page. Select 2 from the Setup Menu to set the Location, up to 20 characters.

**Operating Mode \* Std. Default = 6 \***

The iPAL supports seven operating modes, which determine how information is displayed, how the inputs are used and how the LED indicators operate. The following chart details each Operating mode.

Mode	Relay De-Energized Reported As:	Relay Energized Reported As:	LED On when Relay:	Input Circuit Operation
1 Generic I/O	Off	On	Energized	Independent Inputs
2 Control w/ Feedback	Off	On	Energized	Feedback Monitor
3 A/B No Feedback	A	B	Energized	Not used
4 A/B w/ Feedback	A	B	Energized	Feedback Monitor
5 Power No Feedback	On	Off	De-Energized	Not Used
<b>6 Power Bi-State Fbk</b>	<b>On</b>	<b>Off</b>	<b>De-Energized</b>	<b>Feedback Monitor</b>
7 Power Tri-State Fbk	On	Off	De-Energized	Feedback Monitor

**Password \* For All Models \***

This selection offers an opportunity to change the password required for Telnet and Web Browser Access. To change the password, Select 4 from the Setup Menu. The password can be up to 8 characters and is case sensitive. Please remember your password. If you forget your password the unit needs to be returned to Dataprobe or an Authorized Service Agent for reset.

**Pulse Time \* For All Models \***

This feature selects the time in seconds for a Pulse command for any of the relay circuits. This would typically be used to support power-off-reset for power control applications. To set the cycle time, select 5 from the Setup Menu. The Pulse Time can be from 01 to 99 seconds. Use Leading zeros when entering 01 to 09 seconds.

**Web Page Refresh Time \* Std Default \* = 10**

When using Mode 1, with independent inputs, an automatic refresh rate for Web browser status updates can be set. This will cause the iPAL to re-read the inputs and report the status. To set the Web Page Refresh Time, select 6 from the Setup Menu. Times of 00 (no refresh) to 99 are accepted.

## Telnet Operation

Access for operation via telnet is the same as access for configuration.

Locati on		
Mbde = 6	Status	Feedback
1. Outlet 1	ON	OK
2. Outlet 2	ON	OK
3. Outlet 3	ON	OK
4. Outlet 4	ON	OK
5. Outlet 5	ON	OK
6. Outlet 6	ON	OK
7. Outlet 7	ON	OK
8. Outlet 8	ON	OK
# - Select relay to toggle or A for All		
P# - Pulse relay		
S - Setup		
X - Exit		
Enter >		

The screen shows the current status of all power outlets.

To change the status of any outlet, type the outlet number and <Enter> at the prompt.

You can change all circuits simultaneously by selecting A and <Enter> for All.

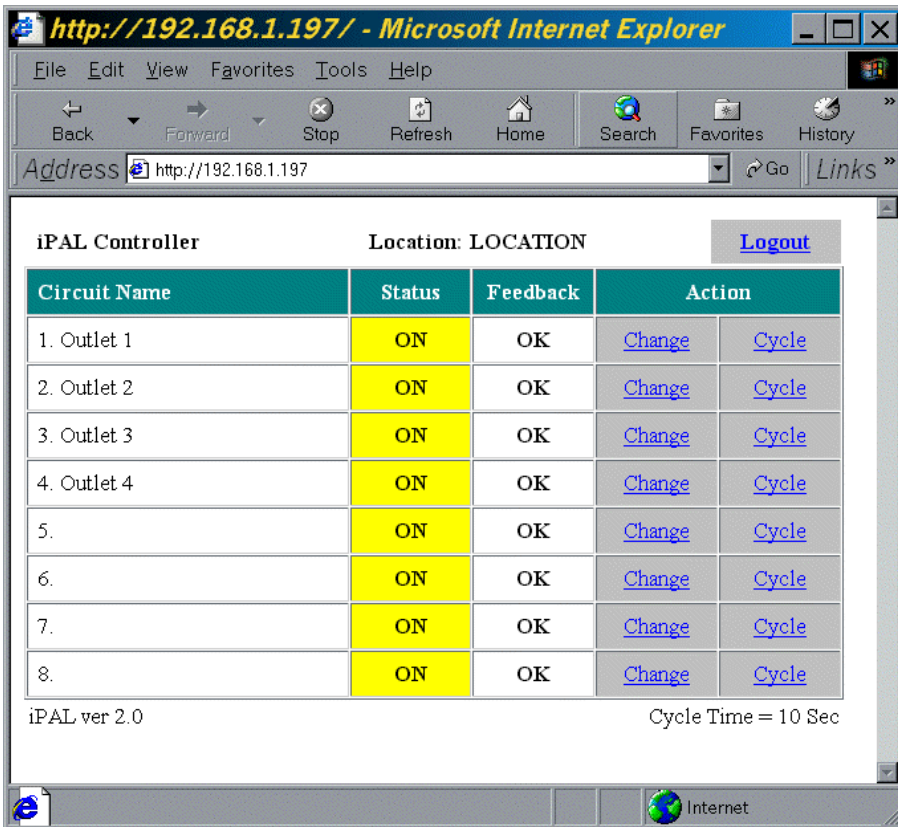
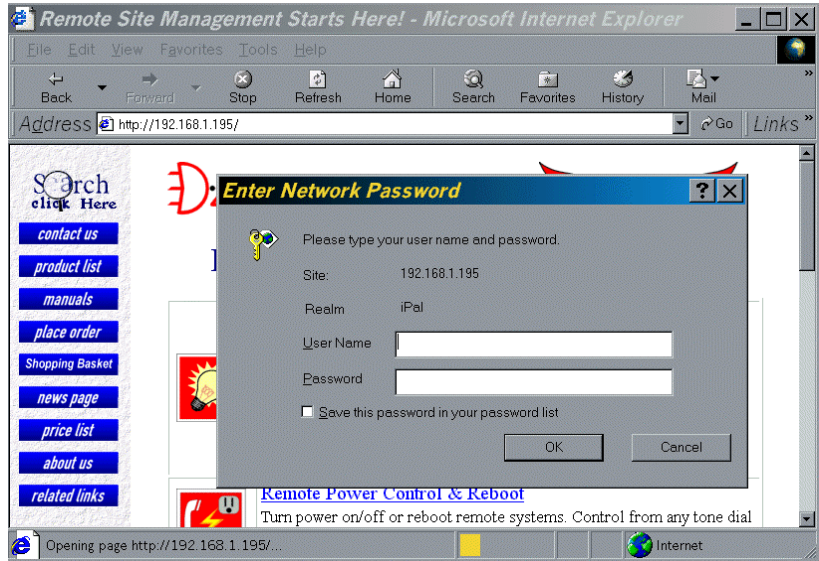
The feedback column confirms that the switch command you selected has been carried out. If this column reads "ERROR" check the unit or the external cables to any expansion unit. Switching outlets 5-8 without an attached power switch will cause this error.

To momentarily pulse (cycle) the status of an outlet, for power reboot, enter P and the outlet number plus <Enter> The status will change while the outlet is cycling. The duration of the pulse is determined in the setup. The default is 10 seconds. All circuits can simultaneously be cycled by selecting PA <Enter>.

# Web Browser Operation

iPAL can be accessed by any Web Browser. To access iPAL, address your browser to the IP address set in iPAL. As shown in the screen right, this browser is connected to iPAL with address 192.168.1.195. You can add iPAL locations to your Bookmarks or Favorite Places and name them as convenient. When connected, the Password screen is displayed.

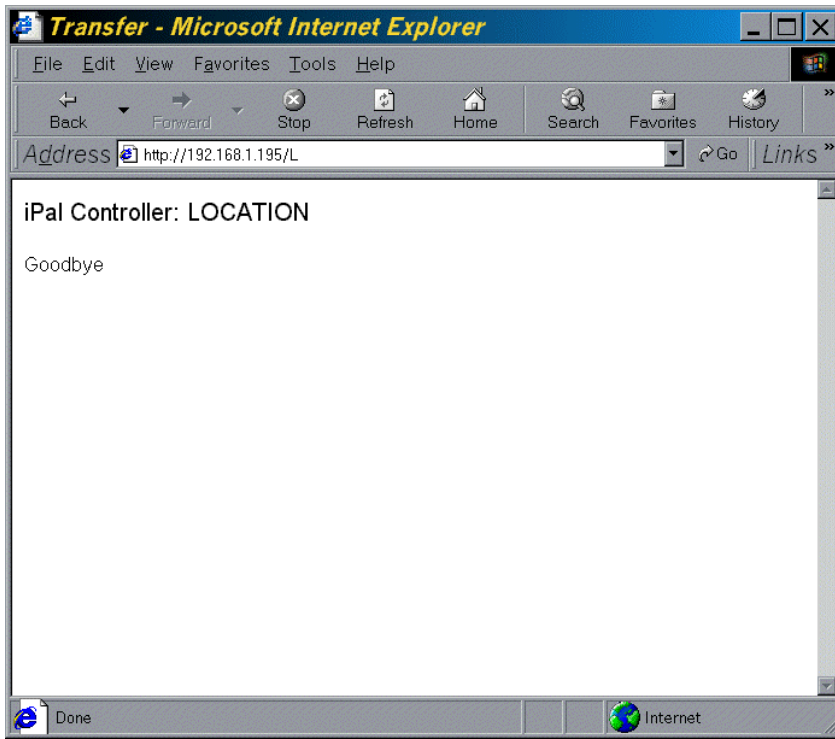
Enter the Password (no User Name is necessary) as set in the Telnet configuration. Remember; the password is case sensitive. When the password is properly entered, click OK. This brings up the Control and Status screen:



This screen provides all the control and status information required.

To change the status of any outlet, simply click on the hotlink marked **Change** next to that circuit

To Cycle (change the status for a period of time) any outlet click on the **Cycle** hotlink next that circuit. A "Cycling" message will be displayed, along with the temporary status while cycling. The duration of the cycling is determined during setup and displayed on the bottom of the screen. It can not be changed through the web page.



Upon completion of your control session, click on logout. This will terminate the session and release iPAL to the next user. The Goodbye page will be displayed:

## **SPECIFICATIONS**

### **Physical**

19" wide x 6.25" deep x 1.75" high, EIA Rack Mount -1RU



### **Power**

Model iP-820 & iP-420	110 -120VAC 60 Hz, 16A Max
Model iP-815 & iP-415	110 -120VAC 60 Hz, 12A Max
Model iP-810 & iP-410	Switch Selectable ; 110-120VAC 50-60Hz, 12A Max 210-240VAC 50-60 Hz, 10A Max

### **Communications**

### **Power Connections**

#### **iP-820 & iP-420**

Main Power Input:	NEMA 5-20 Plug on 6 foot 12/3 line cord
Output Circuits:	Standard NEMA 5-15 Receptacle
Current Maximums:	12 Amps per Receptacle 16 Amps combined total of all receptacles

#### **iP-815 & iP-415**

Main Power Input:	Standard NEMA 5-15 Plug on 6 foot 14/3 line cord - 120VAC
Output Circuits:	Standard NEMA 5-15 Receptacle
Current Maximums:	12 Amps per Receptacle 12 Amps combined total of all receptacles

#### **iP-810 & iP-410**

**Select the proper voltage, 115V or 230 V, using the selector switch on the side of the unit before making power connection**

Main Power Input:	IEC 320 Male Connector - 115/230 VAC Selectable
Output Circuits:	IEC 320 Receptacle
Current Maximums:	12 Amps per Receptacle @ 115VAC 10 Amps per Receptacle @ 230VAC 12 Amps combined total of all receptacles @ 115VAC 10 Amps combined total of all receptacles @ 230VAC

## TECHNICAL SUPPORT, RETURNS and WARRANTY

Dataprobe Technical Support is available 8:30AM to 5:30PM ET to assist you in the installation and operation of this product. To obtain Technical Support call our Tech Support Hotline at 201-967- 8788, or Email us at tech@dataprobe.com. Please have the following information available when you call:

- Model of Product
- Serial Number
- Date of Purchase
- Name of Seller (if other than Dataprobe)

If you purchased this product through an **Authorized Dataprobe Reseller**, you should contact them first, as they may have information about the application that can more quickly answer your questions.

### WARRANTY

Seller warrants this product, if used in accordance with all applicable instructions, to be free from original defects in material and workmanship for a period of One Year from the date of initial purchase. If the product should prove defective within that period, Seller will repair or replace the product, at its sole discretion.

Service under this Warranty is obtained by shipping the product (with all charges prepaid) to the address below. Seller will pay return shipping charges. Call Dataprobe Technical Service at (201) 967-8788 to receive a Return Materials Authorization (RMA) Number prior to sending any equipment back for repair. Include all cables, power supplies and proof of purchase with shipment.

**THIS WARRANTY DOES NOT APPLY TO NORMAL WEAR OR TO DAMAGE RESULTING FROM ACCIDENT, MISUSE, ABUSE OR NEGLIGENCE. SELLER MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY EXPRESSLY SET FORTH HEREIN. EXCEPT TO THE EXTENT PROHIBITED BY LAW, ALL IMPLIED WARRANTIES, INCLUDING ALL WARRANTIES OF MERCHANT ABILITY OR FITNESS FOR ANY PURPOSE ARE LIMITED TO THE WARRANTY PERIOD SET FORTH ABOVE; AND THIS WARRANTY EXPRESSLY EXCLUDES ALL INCIDENTAL AND CONSEQUENTIAL DAMAGES.**

Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from jurisdictions to jurisdiction.

**WARNING:** The individual user should take care to determine prior to use whether this device is suitable, adequate or safe for the use intended. Since individual applications are subject to great variation, the manufacturer makes no representation or warranty as to the suitability of fitness for any specific application.

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