Web Power Switch *Pro*

USER'S GUIDE

Product Features

Congratulations on selecting the Pro, a smart web-controlled AC power switch. Features include:

Simple Web Interface

The internal web server is accessible from any browser. Simply enter an IP. Configuration and control are web-based.

AutoPing™ Reboot

AutoPing continuously monitors an IP address. If a server, router, or other peripheral goes down, AutoPing can automatically reboot it without user intervention. The Pro can monitor several devices and multiple IPs simultaneously.

8 Switched Duplex Outlets + 2 Unswitched Outlets

Eight individually switched control circuits are provided. Outlets are spaced for plugs and adapters. Un-switched outlets are provided for "always on" devices.

Programmable LCD Display & Keypad

A 2x16 LCD displays status for each outlet. Custom messages can be displayed via user scripts A keypad adds local control.

Multi-User Password Security

Multi-user authentication limits access to the Pro. The administrator selects which outlets each user can control.

Sequenced "On Timer"

A programmable delay timer allows outlets to be switched on in sequence, rather than simultaneously. Most devices draw a surge of power when initially switched on. Using this timer, more equipment can share a single circuit without overloads. Programmable scripts can be used to create customized power-up and shut-down sequences with variable timing.

MOV Surge Suppression
A 3600W metal oxide varistor clamps power surges and spikes, protecting attached devices.

Scripting Language, Syslog, and Utilities
Lua scripting can be used to create custom control and reboot sequences, schedule periodic reboots, etc. Internal and external event logs are provided.

New Features
New features include Email, SNMP and Jabber notification, longer clock battery life, HTTPS, WiFi support, SSH and Lua scripting.

Field Upgradeable Firmware
Firmware is field upgradeable via Ethernet.

Package Contents

- Web Power Switch Pro with NEMA 5-15 plugs.
- RP-SMA WiFi Antenna (ships detached).
- C-19 to 5-15 power cord for 120V use.

Options

- Custom length cords & plugs: digital-loggers.com/cords.html
- L shaped bracket for rack mounting

Inspection
Please contact the freight carrier immediately if your package appears opened or damaged in transit. Call DLI at (408) 330-5599 for tech support, service, and hardware upgrades. The product performs a brief self-test when first powered up.

Important Factory Defaults

IP: **192.168.0.100**
User name: **admin**
               (lower case)
Password: **1234**
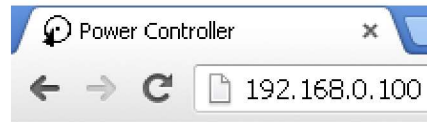
To reset to factory defaults, gently press the reset-to-defaults button below the LCD to enter the reset menu, then select a reset option.

Quick Setup

Use these shortcuts if you are an experienced installer. We recommend reading the entire manual for first-time installation.

• Unpack. Save the carton. Attach the line cord. Power up.

• Attach an Ethernet cable from the controller to your LAN. Switch power on. If you are attached through a switch, you may need to power-cycle your switch to initially establish a connection.

• Ping the default address 192.168.0.100 to confirm that a network connection is established. If you don't receive a response, proceed to the **IP Setup** section below.

• Log in to the Pro using the default user name **admin** and the password **1234** Note: *"admin" must be entered in lower case.*

• Click the **Settings** link to reach the configuration page. Select the safest power-loss configuration for your installation: (all OFF, all sequential ON, or pre-powerloss sequential ON) Note that pre-powerloss means the last previously configured state, and it does not take cycling into account. "Power loss" is defined as loss of AC power for more than 100ms.

• Configure the Pro as described below. After each change, click Submit and wait for the page to refresh before continuing.

> *Tip:* A three-bulb electrical safety-tester is handy for checking configuration before attaching loads.

IP Setup

If your network settings won't access the default IP, use a direct cable connection (temporarily bypass any switch or router) and follow these steps to add a compatible static IP, such as 192.168.0.50   Before adding an IP, close all programs and browsers. After the link is established, you can enable DHCP if necessary. You can also use the keypad to manually configure network settings as shown here: digital-loggers.com/keypad.html Hold the up & down keys together to enter keypad setup.

Windows Step 1

In Windows, the first step is locating the network adapter TCP/IP properties. The procedure differs for each Windows version:

Windows XP, 2000, 2003: Open **Start / Control Panel / Network Connections**. In "classic view", select **Start / Settings / Control Panel /Network Connections**. Right-click on **Local Area Network Connection** and select **Properties**. Proceed to step 2.

Windows Vista: Open **Start**, right click on **Network**, then on **Properties**. Double click **Network and Sharing Center**, click **Manage Newtork Connections**. A Network Connections window appears. Right click on the network connection to the switch, ie. **Local Area Network**. Proceed to step 2.
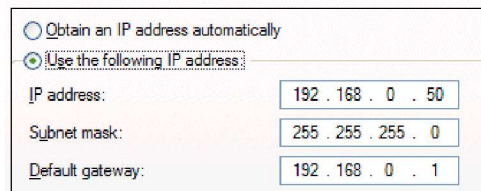
Windows 7: Open the **Start orb**, click on **Control Panel**. Click **View Network Status and Tasks**, then **Change Adapter Settings**. Proceed to step 2.

Windows 8-10: Right-click on the Windows Start button. Select **Control Panel**. Select **Network and Sharing Center or Network->Network Settings**. Click **Change Adapter Settings or Adapter Options**. Right click on your connected network and select **Properties**. Proceed to step 2.

Windows Step 2

The second step is adding an IP such as 192.168.0.50 Temporarily disable DHCP while configuring the Pro.

Select **Internet Protocall TCP/IP V4 Properties** and click **Properties**. Enter a compatible static IP such as:

Obtain an IP address automatically
Use the following IP address:

IP address:	192 . 168 . 0 . 50
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	192 . 168 . 0 . 1

Click **Apply** and close windows.

Ping the Pro to confirm the connection.

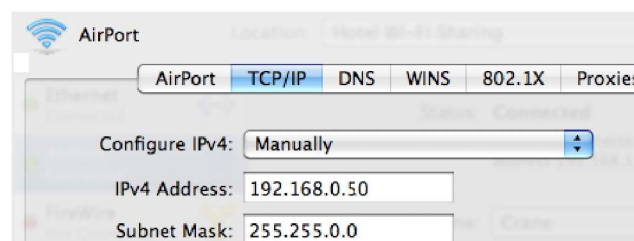Point your browser to 192.168.0.100 Log in. Find detailed instructions at digital-loggers.com/lpcfaqs.html

Mac OS X

Turn **AirPort** off temporarily. Click the Apple logo, then **System Preferences**, then **Network**. Select **Built-In Ethernet** and then **Configure.** Under the **TCP/IP** tab, select **Manually** and enter an IP address such as 192.168.0.0 as shown:

Make changes shown. Point a browser to 192.168.0.100 Log in. Find Mac setup details at digital-loggers.com/mac_ip_setup

Network Configuration

HTTPS is disabled by default. WiFi is enabled with a random key. Start by establishing a hard-wired network connection to

AirPort

| AirPort | TCP/IP | DNS | WINS | 802.1X | Proxies |

Configure IPv4: Manually

IPv4 Address: 192.168.0.50

Subnet Mask: 255.255.0.0

192.168.0.100, or use the LCD and keypad to display the default WiFi SSID and password. The **Settings** page controls network configuration:

General Network Settings	
HTTP Port	80
Enable SSH Server	☐
SSH Port	22
Syslog Server	
Same subnet access only	☑

Submit
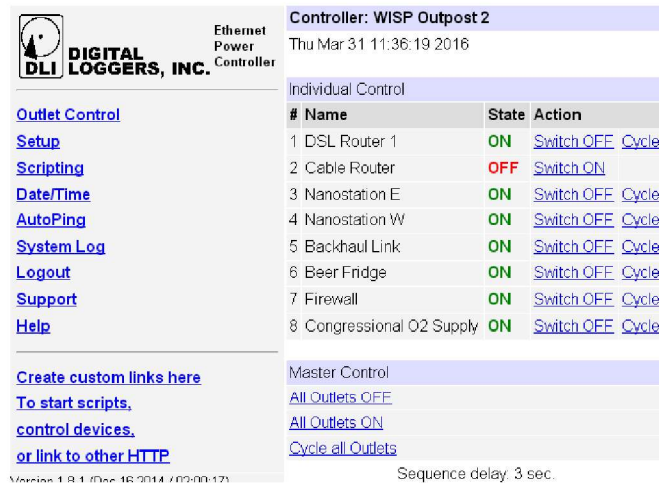
LAN Configuration	
MAC Address	7C:E1:FF:00:00:00
Protocol	Static IP ▼
IP address	192.168.0.100
Subnet mask	255.255.255.0

The IP address of the controller needs to match the "class C" of your system. In other words, the first three bytes (192.168.0) must match the IP on your computer to access the Pro. Using Ping will confirm a valid network configuration. An "unreachable" report from Ping indicates misconfigured network settings.

Once you have a connection, the Pro may be operated via a web browser. To access the Pro, enter the IP address in the URL field of your web browser. The default is http://192.168.0.100 SSH is disabled by default.

After setup, the HTTP and SSH ports (if enabled) may be moved to improve security. For example, changing the HTTP port to 2015 requires a browser URL of 192.168.0.100:2015 to reach the power controller. **Note that some browsers will deny connections to ports under 1024.** DHCP is supported, but using a fixed IP is recommended. If a DHCP lease expires, the switch may become inacessible.

Home (Outlet Control) Page

Controller: WISP Outpost 2			
Thu Mar 31 11:36:19 2016			
Individual Control			
# Name	State	Action	
1 DSL Router 1	ON	Switch OFF	Cycle
2 Cable Router	OFF	Switch ON	
3 Nanostation E	ON	Switch OFF	Cycle
4 Nanostation W	ON	Switch OFF	Cycle
5 Backhaul Link	ON	Switch OFF	Cycle
6 Beer Fridge	ON	Switch OFF	Cycle
7 Firewall	ON	Switch OFF	Cycle
8 Congressional O2 Supply	ON	Switch OFF	Cycle

Master Control
All Outlets OFF
All Outlets ON
Cycle all Outlets
Sequence delay: 3 sec.

Outlet Control
Setup
Scripting
Date/Time
AutoPing
System Log
Logout
Support
Help

Create custom links here
To start scripts,
control devices,
or link to other HTTP

To access the home page, first enter the controller's IP address in the browser URL field, then log in. User **admin** has access to all features. Other users have limited access to outlets as assigned by the administrator.

Outlet Control
Clicking "Outlet Control" links to the home page used for manually switching outlets on and off. Access to specific outlets is determined by username. Admin controls all circuits.

Setup
The setup page lets you set outlet names, create web links, adjust startup delays, and set a power loss recovery mode. You can also add user accounts and change login credentials on this page.

Scripting
The Lua language lets you easily customize the Pro. Scripts may be started manually, automatically on power-up, by external http commands, or by AutoPing events. Find a list of commands and examples at: digital-loggers.com/scripts.html

AutoPing
The AutoPing page lets you set parameters to automatically

reboot attached equipment. First, specify an IP address to ping. Next, adjust the timing settings and use the checkboxes to link the IP to power circuits. For example, if a router is unreachable, you may choose to automatically reboot both a router and a switch attached to two different circuits. Learn more on page 13 and at digital-loggers.com/AutoPing2

System Log
The Pro keeps an internal event log including logins, outlet switching, power interruptions, and AutoPing events. Recent events are stored in the log and accessible from the System Log page. SYSLOG export is supported. For more information: digital-loggers.com/syslog.html

Logout
Browser logout is automatic when a session is closed or after a time-out period. Use this link to log-out in advance.

Programmable Web Links
User-defined web links are provided. Set names and destination URLs for these links on the **Settings** page. These are convenient for connecting to other power controllers, linking to pages hosted elsewhere, and for starting scripts.

Switching Outlets On and Off
The outlet control page lets you control any outlet (except the always-on pair). A master control lets permitted users switch all outlets on or off.

To switch an outlet, simply click to the right of the outlet name or number. On->Off switching is immediate. Off->On switching speed is limited by the adjustable On Sequence Delay setting .

Use the keypad for local control: Select an outlet using the arrow keys, then press on, off, or cycle. Press ON or OFF for 5 seconds to lock or unlock an outlet. Locking prevents web access. To change the display mode, press the up and down arrows simultaneously. The keypad may be disabled on the Setup page.

You may want to Cycle a device which is connected to the Pro. This feature is useful for rebooting Ethernet devices which may interrupt the web link to the controller. Clicking **Cycle** switches power off, waits for the **Cycle time**, and then switches power back on while conforming to the ON Sequence Delay. This reboots the attached device.

You can also cycle all outlets using the Master Control on the bottom of the page. An adjustable ON sequence delay takes effect when outlets are turned on one after another, ehether when using the All Outlets On button, on power-up, or when switching manually using the front panel. This prevents power surges. A *separate* Cycle delay setting is provided on the setup page.

Master Control
All Outlets OFF
All Outlets ON
Cycle all Outlets

Depending on your web browser settings, you may need to click the Refresh button or F5 key to update the on-screen status display after changing settings. Screen refresh rate is adjusted in two places: on the Setup page and in your browser settings.

Setup Page

The **Setup** page allows the admin to configure:

Controller and Outlet Names
Use the controller name field to assign a name to the Pro. An example is **Rack 4 PDU.**. The Controller Name will appear on top of all pages. Assign a separate name to each outlet, such as **DSL Router 1** or **Email Server** to aid identification. Check the **Confirm** box to the right of the outlet name if you would like a pop-up window to appear before switching critical outlets.

Power-On Sequence Delay
When a time value is entered in the **All ON Sequence Delay** field, the Pro will pause for a period of time before switching each outlet on in sequence. This delay helps prevent power surges and blown circuit breakers which can occur when multiple devices are switched on simultaneously. A delay of 60

seconds is suggested for server applications.

You may also enter a screen refresh delay in this section. If **Enable screen refresh** is checked, and a delay value is entered, your browser should periodically update the status screen.

Wrong Password Lockout
After three failed login attempts, the Pro can disable access for a selected period of time (0-60 Minutes).

Power Loss Recovery Modes
The power loss recovery mode setting has a very important setting that determines operation after a power failure:

When recovering after power loss
- Turn all Outlets off
- Turn all Outlets on (in delayed sequence)
- Return to pre-powerloss state

1. Turn all outlets off (all systems will be switched off until manually turned on later, possibly by a script).
2. You can automatically turn all outlets on using the sequence delay timer described above.
3. You can return to the same outlet settings that were used prior to the power loss. ie: 1 On, 2 Off, etc. The ON Sequence delay timer is used here as well.

Note: If you have written a power-on script, the recovery mode takes effect before script execution begins. Scripts start after self-test, approximately 30 seconds after power-up.

User Defined Links
Add hyperlinks to other power controllers, your own web pages, or remote web sites by entering URLs in the **Setup** page. For example, enter "Site Two Power Controller" in the description field and a URL of "192.168.0.250" These links appear on the left side of the web pages.

Access Control

The administrator can grant users access to only certain outlets. To set permissions, login as admin first, then create a permissions matrix by entering user names on the left and checking allowed outlets on the right.

Network Settings

A valid fixed IP address, network mask, and gateway must be entered in this section.

When changing IPs, you may need to restart your network switch to validate the new IP on an "auto-configuring" switch port. *Be sure to record the new IP address.*

Use the **Protect** button to lock the network settings. *Once protected, the network settings cannot be changed except by pressing the physical reset button on the side of the Pro.*

AutoPing™

AutoPing Operation and Settings

AutoPing is an automatic system for rebooting IP equipment without human intervention. AutoPing will monitor a device. If it stops responding, AutoPing can cycle power to reboot it. For example, you might use AutoPing to monitor an external multi-cast IP to automatically reboot a DSL router or WiFi AP.

To use AutoPing, first add an IP address. Next, link that IP address to one or more outlets. Timing settings must be considered.

Add IP Address to AutoPing

Use this option to specify the address of an IP device you wish to monitor. After entering the IP address, the settings page will refresh and you can select the outlets associated with this address. Use the checkboxes in the AutoPing section to correlate the IP address to one or more outlets. If communications to the target IP is lost, these outlets will be rebooted. Four main

parameters control AutoPing:

Time Between Pings
This is the time between each "ping" check of the IP address. 60 seconds should be useful for most applications.

Ping Failures Before Reboot
This sets the number of failed communications attempts that must be sequentially detected before a power cycle. For example, when set to 5, the target system must fail to respond 5 times in a row before it is rebooted. Since occasional network timeouts and packet loss can occur during normal Ethernet operation, between 5 and 10 pings is suggested.

Times to Attempt Reboot
If you have an unreliable target device, or one that may be damaged be excessive power cycling, you can limit the number of times it will be rebooted here. For example, entering 5 to reboot your server up to 5 times before giving up.

Device Reboot Delay
After power cycling to reboot a device, a waiting period will occur before the IP address is re-checked by AutoPing. This delay allows the device time to reboot. Most devices take some time to reboot. Windows and Linux servers can force automatic file system checks which may take several minutes to complete. To allow for startup delays, enter a time delay in the **Device Reboot Delay** period. For example, a reasonable value for a typical server might be 10 minutes (600 seconds). Entering 600 would cause the power controller to start checking the server for normal IP operation 10 minutes after reboot.

Find more details at: digital-loggers.com/AutoPing2.html

AutoPing Example

In this example, we use AutoPing to automatically reboot a DSL router. Since the switch is connected inside the router, we select

a target IP of 8.8.8.8 This is a multi-cast address which connects to a multitude of Google name servers. We can safely assume that if none of them respond, we have lost network connectivity.

We connect the router to outlet 1, enter the external IP on the left, and leave all timing values at defaults.

	Reboot Outlets								Script	Action	Stats		
IP(s)	1	2	3	4	5	6	7	8			TX	RX	HIT
☐ 8.8.8.8	☑	☐	☐	☐	☐	☐	☐	☐	[Cycle] ▾	➕	0	0	0

AutoPing Properties

Enable AutoPing:	☐	
Time between pings:	30	seconds. (2-3600)
Ping timeout to reboot:	150	seconds. (2-3600)
Ping responses to enable autoping:	5	pings. (0-100)
Times to attempt reboot:	5	tries. (1-255)
Device reboot delay:	120	seconds. (1-43200)

Internet Access

Depending on your network configuration, router port forwarding settings may be required to access the switch over the Internet. portforward.com may be helpful.

Mobile Device Access

Non-admin accounts have a simplified UI suitable for mobile devices with small screens. Third-party applications are available to control various DLI products from Android and IOS. These apps are sold and supported by independent developers, not by DLI. Learn more: digital-loggers.com/mobile.html

Real-Time Clock

An internal Real-Time-Clock (RTC) is provided. This clock can be

set manually using the **Date/Time** link. The time zone can be selected based on GMT. Internal batteries have an estimated 15-year lifetime.

Lua Scripting

The controller can be customized using the Lua language. A full description is beyond the scope of this manual, so please visit lua.org and review the examples at: digital-loggers.com/scripts.html

Safety Shutdown

The pro uses a UL rated thermal circuit breaker for safety. In the event of an overload, the breaker will trip. Correct the situation by removing excessive load, then allow a minute or two for the breaker to cool. Cycling power on and off with the red rocker switch resets the breaker. The maximum rated current is 15A.

Open-Source Code

In compliance with the spirit of the GNU public license, source code is provided for reference. Purchasing a TLA and signing an NDA from Atheros are highly recommended before attempting any custom development. DLI can not provide warranty or offer tech support for modified units.

Technical Support & FAQs

Please register. Painless online registration gets you free tech support, access to firmware updates, and information when updates and new features become available. Take advantage of the FAQ page: digital-loggers/ProFAQs.html

Your Suggestions Are Appreciated!

We listen: engineering@digital-loggers.com.

Latest Manual

FAQs

AutoPing

Rack Mount Model

Scripting

DLI Homepage

Web Power Switch *Pro*

digital-loggers.com

Specifications

Alert Beeper	73dBa at 12". Programmable.
Applications	Commercial, industrial, and residential remote power control and reboot. Indoor use only.
Circuit Breakers	Manual reset, 15A Thermal Supplemental, UL
Clock / RTC	15 year Li battery, under 2 grams
Controls / Display	Reset -to-factory-default switch, 2x16 Backlit LCD w/ PowerSave, 5 button keypad
Enclosure	Steel, double grounded. Vented 4 sides. Fanless.
Ethernet Interface	10/100 autosensing, Static IP, TCP port selectable, 8 pin RJ-45 w/ internal FCC filtering
FCC Testing	Part 15 FCC ID 2ACIUPRO
Humidity	8-80% RH Operating
Input Power Cord	Removable 14AWG 120VAC C-19
Inlet and Outlet Rating	UL, CSA 15A, 120VAC only
Input Frequency	Power supply - DC-400Hz
Operating Temperature	-30° to 170°F, -34° to 77°C
Options - Factory	Input cord length and 120V plugs, rack bracket
Power Supply Rating	90-240V, AC/DC Autosensing
Password Transmission	Encrypted, base 64 or HTTPS
Power Dissipation	3.9W Typ Max (all on) <3 W idle
Power Fail Hold-Over	250ms minimum (all relays on)
Power-Up Modes	Last used settings, all power on or off, sequential on or run user-script ~30s after power-up
Relay Specs	40A AC NO, 1/2HP, 12V DC coil
Surge Protection	10KA 320VAC 382J Metal Oxide Varistor
Size	5.5x13.7x1.6'"
Weight (packed)	Single unit 4.7lbs 2.2kg incl 6ft AC cord
WiFi	Atheros 9331 2.4G 802.11n RP-SMA - FCC Note: Product may only be used with (1) the manu facturer supplied antenna (Gain: 2.0dBi),or (2) a 50 Ohm antenna of equal or lesser gain.

Limited Five Year Warranty

The terms of this warranty may be legally binding. If you disagree with the terms below, return the product immediately in original unopened condition for a full refund. The purchaser assumes the entire risk as to the results and performance of the unit. DLI makes reasonable efforts to ensure that this power controller is free of major defects. No agency, country, or local certifications are included with this unit. It is the responsibility of the user to obtain such certifications if necessary for the customer's application and locality. Buyer acknowledges and agrees that he is solely responsible for proper use, certification and safety testing of components supplied by DLI. DLI's entire liability and exclusive remedy as to defective hardware shall be, at DLI's option, either (a) return of the purchase price or (b) replacement or repair of the hardware that does not meet DLI's quality control standards and has been returned through proper RMA procedures. DLI's liability for repair or replacement is to DLI's customer ONLY. NO SUPPORT IS PROVIDED FOR MODIFIED FIRMWARE. ANY FIRMWARE OR HARDWARE MODIFICATION VOIDS ALL WARRANTY. Warranty service requires an original invoice from DLI and an RMA number provided by technical support. RMA material must be shipped prepaid to DLI. RMA numbers are valid for 15 days from date of issue. This warranty does not cover products which are modified (including firmware modifications), subjected to rough handling, or used in applications for which they were not originally intended. Batteries are not covered under warranty. Physical damage caused by customer or in transit to DLI is not covered under warranty. Please insure your shipments. No oral advice or verbal warranties made by DLI's employees, dealers, or distributors shall in any way increase the scope of this warranty. DLI makes no warranty as to merchantability or fitness for any particular purpose. DLI assumes no liability for incidental or consequential damages arising from the use or inability to use this product. This warranty gives you specific legal rights. You may also have other rights that vary from state to state. Since some states do not allow the exclusion of liability for consequential damages, some of the above limitations may not apply. Auto-Ping™ is a registered trademark of Computer Performance, Inc. Since this is a FLASH based product, firmware should not be updated over the Internet or a busy LAN. Packet loss could result in FLASH corruption, requiring mail-in service. This product is designed for indoor use only. It should not be used for outdoor, mobile, airborne, or FDA Class III applications.

DIGITAL LOGGERS, INC.
2695 Walsh Avenue
Santa Clara, CA 95051
Digital-Loggers.com
Support@Digital-Loggers.com

© 2018 DLI This product is protected by pending US and foreign patents
Released 9/9/2018

Related Products:

90-240VAC Smart PDU

Web Enabled DIN Relay

2x50A, 8x15A DC Smart Switch (+12,+24, or -48)

Smart PoE Injector

Call (408) 330-5599