

# APL-SW-3 User Manual

## Introduction

The APL-SW-3 (APL switch) connects Ethernet networks to the new Ethernet Advanced Physical Layer (APL) interface. The APL-SW-3 can connect up to 3 APL Field Devices to the Ethernet network. When used with a HART to APL interface, such as the ProComSol HART-APL-PCB, existing HART devices can be converted to Ethernet-APL devices and connected to this switch. This allows HART instruments to connect to an Ethernet-APL network. The APL Switch also connects “native” APL devices to the Ethernet-APL network.

## System Diagram

An Ethernet-APL network consists of the APL switch, a 24Vdc power supply, an Ethernet router, APL field devices, and a host device running a HART-IP compliant App.

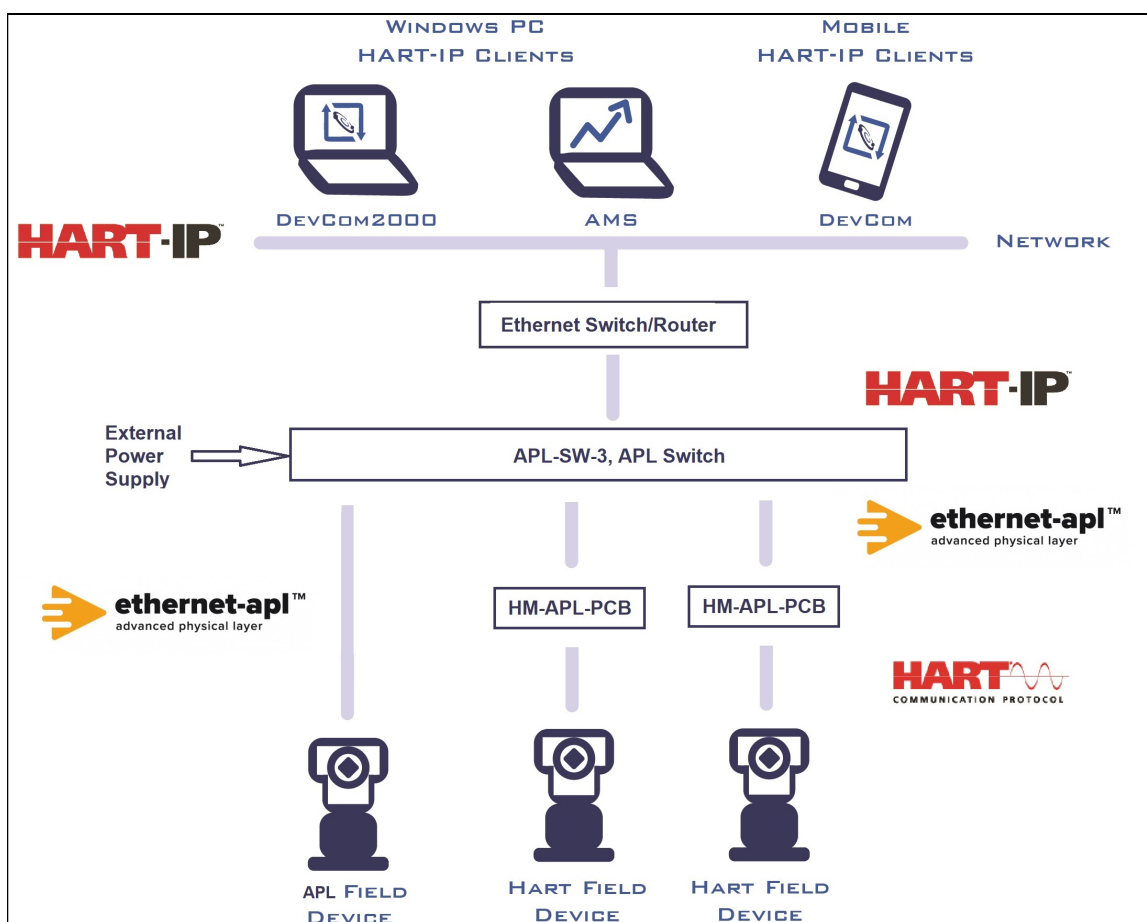


Figure 1. APL-SW-3 System Diagram

## Power Connections

Connect a 24Vdc power supply to the connector pins 24V and GND as shown in Fig 2. Note that the top row label refers to the “2<sup>nd</sup> level” connector on the APL Switch. The 2<sup>nd</sup> level connector is the connector closest to the DIN rail.

## APL Connections

APL is a two wire Ethernet physical layer. Each APL transmitter is connected via a twisted pair cable to the APL switch. The APL switch supplies power to the individual APL field devices.

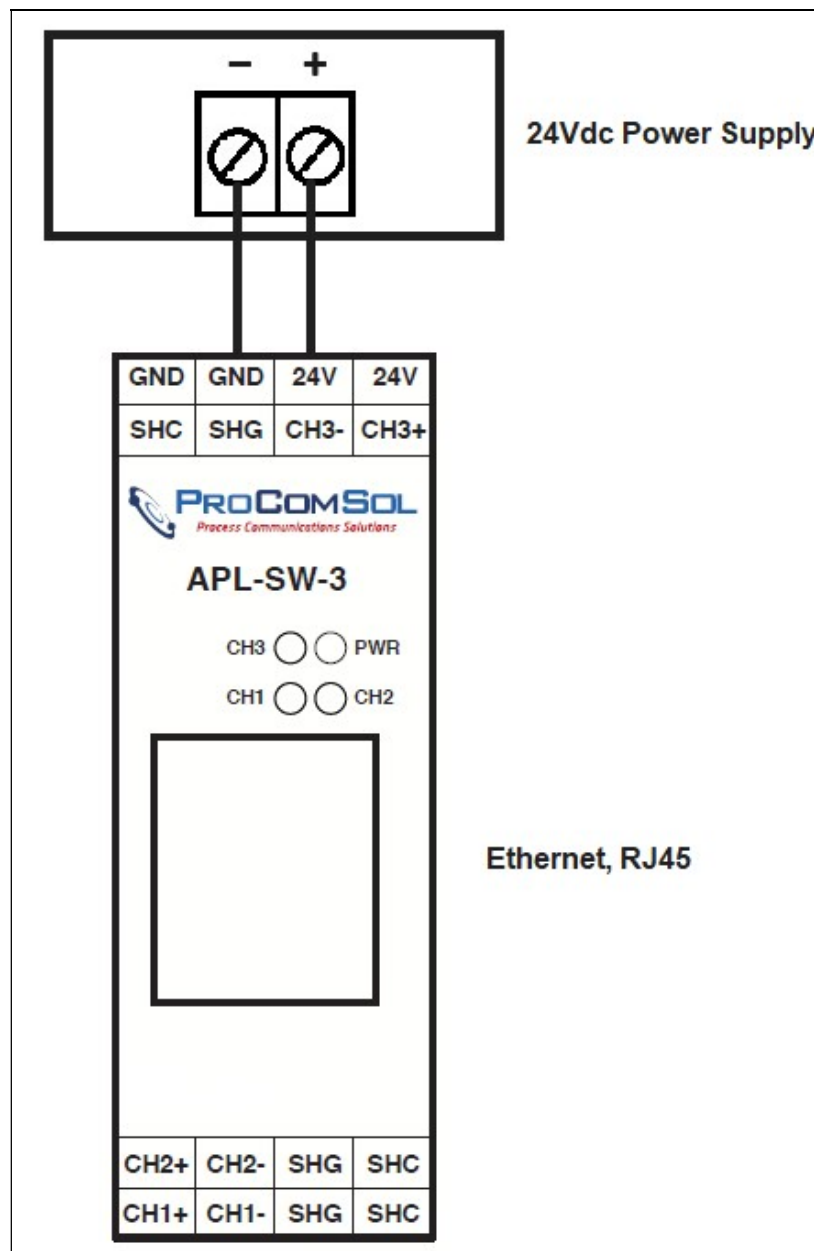


Figure 2. APL-SW-3 Pin outs

## Front Panel LEDs

The front panel LEDs indicate APL Switch status:

PWR – Green means the APL Switch is on.

CHx – Yellow means there is an APL field device connected to APL Channel x.

Blinking Yellow means communication activity on that channel. x is 1, 2, or 3.

## Ethernet Addressing

The APL switch has the DHCP server enabled as the default setting. The APL switch will appear on the network at 192.168.2.1. The APL switch starts assigning addresses at 192.168.2.26.

For example, if a PC is connected directly to the APL-SW-3 via an Ethernet cable, the switch will assign address 192.168.2.26 to the PC. When APL field devices are connected to the switch, they will be assigned the next available address. So they will appear as 192.168.2.27 (Channel 1), 192.168.2.28 (Channel 2), and 192.168.2.29 (Channel 3).

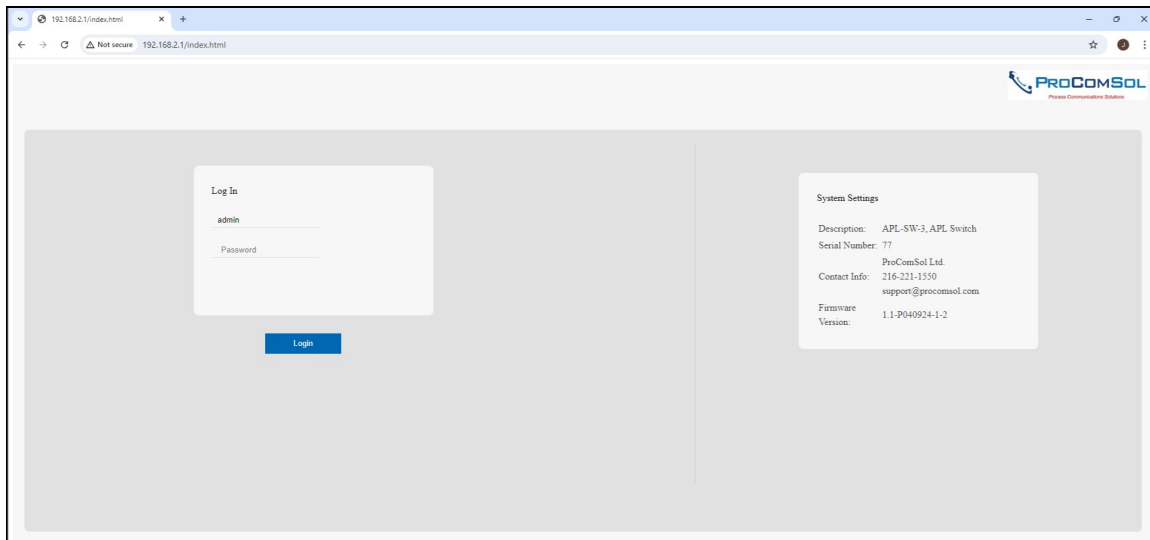
Note, each time the APL switch is power cycled, the IP address assignments for each channel may change, including the connected PC.

The DHCP server can be enabled/disabled via the Web Browser interface. An external DHCP server, such as a network router, will then set the IP addresses for the APL Switch and APL channels.

Be mindful that only one DHCP server can be active on a network.

## APL Switch Configuration Management via Browser

Connect a PC to the APL switch via an Ethernet cable and launch a browser on the PC. Enter 192.168.2.1 for the URL. Note this is the default address and may be changed by the user after the initial connection. The login screen appears:



The default login credentials are:

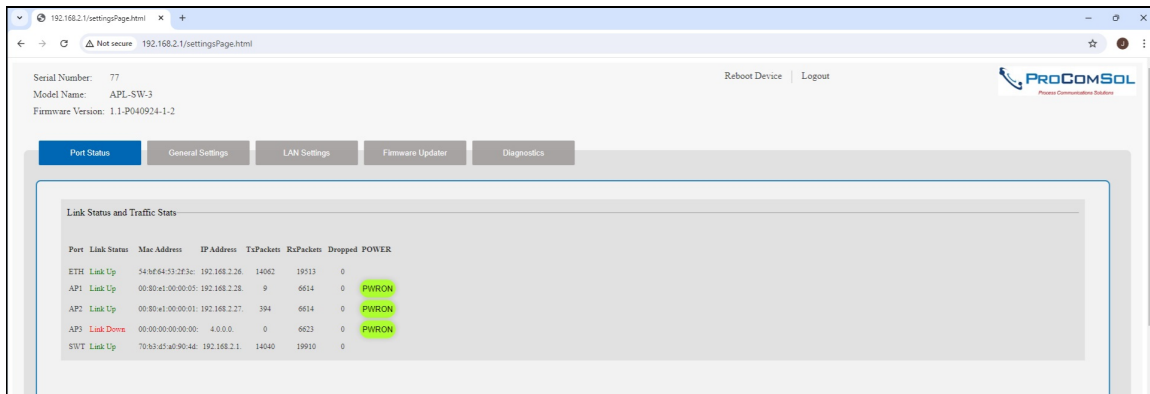
User Name: admin

Password: root

These credentials can be changed.

After login, the Port Status screen is shown. Navigate to other screens using the tabs. Each screen is explained next:

## Port Status Screen



The Port Status screen shows Link Status and Traffic data.

Detail from above:

Port	Link Status	Mac Address	IP Address	TxPackets	RxPackets	Dropped	POWER
ETH	Link Up	54:bf:64:53:2f:3c	192.168.2.26	18374	25202	0	
AP1	Link Up	00:80:e1:00:00:05	192.168.2.28	9	8538	0	PWRON
AP2	Link Up	00:80:e1:00:00:01	192.168.2.27	536	8538	0	PWRON
AP3	Link Down	00:00:00:00:00:00	4.0.0.0	0	8547	0	PWRON
SWT	Link Up	70:b3:d5:a0:90:4d	192.168.2.1	18356	25747	0	

## Port

There are 3 types of ports:

- The ETH port is the PC connected to the APL switch.
- APx is the APL Channel 1, 2, or 3
- SWT is the APL switch itself.

### Link Status

Green Link Up means connected and communicating.  
Red Link Down means not connected.

In the above example, Channel 3 does not have an APL field device connected to it.

### Mac Address

The MAC Address of the connected device.

### IP Address

The IP Address of the connected device. For the APL channels, this IP address is used by the Host software to connect to the APL device.

### TxPackets

The number of data packets sent to the device

### RxPackets

The number of data packets received by the device.

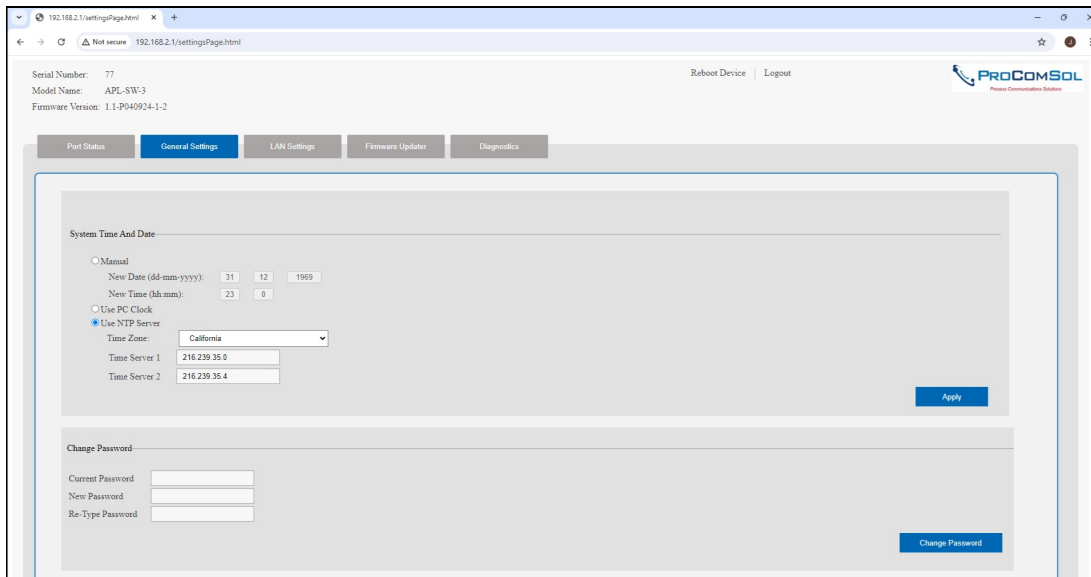
### Dropped

The number of communication errors

### POWER

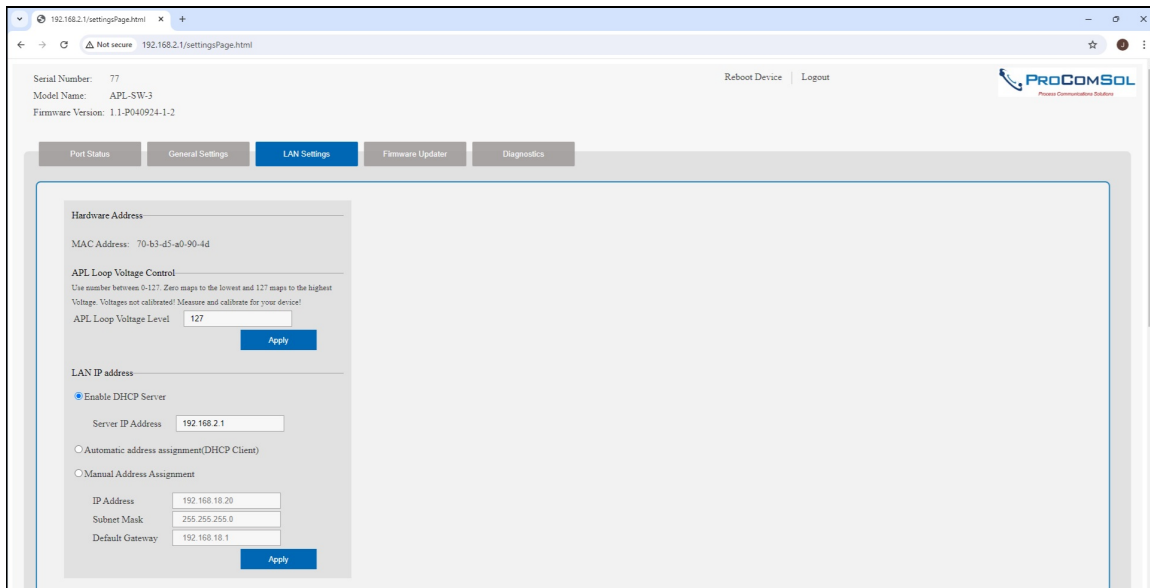
Green “PWRON” means the APL Switch is supplying power to the APL device. Click the PWRON button to turn the power off to that APL channel. The APL device will then need to be powered by an external source. Click the Red “PWROFF” button to turn power back on for that APL channel.

## General Settings Screen



The General Settings screen is used to set the APL switch clock and to change the password for browser access to the APL switch. Default password is “root”. It is recommended to change the password after first connection to the APL switch via a browser.

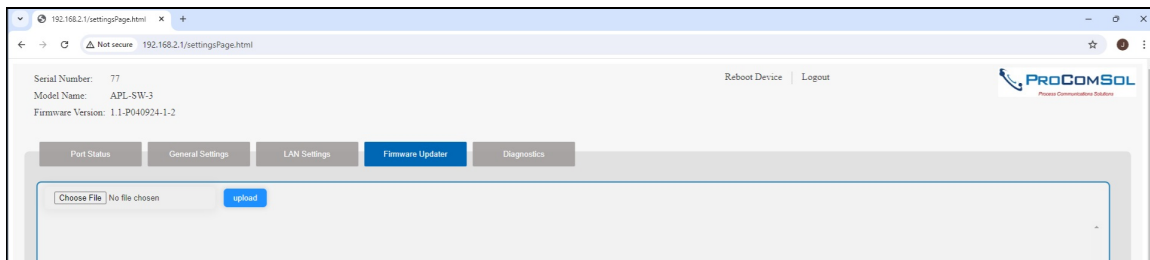
## LAN Settings Screen



The LAN Settings screen is used to set the IP Address (if needed) and to manage the built-in DHCP Server.

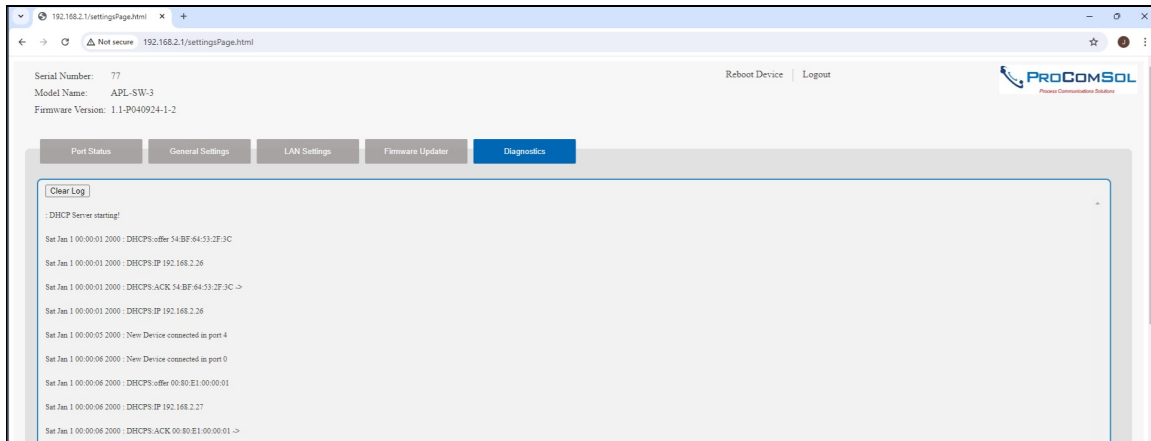
You can also control the power provided to the APL channels. Default is the maximum voltage which is approximately 15.5 Vdc.

## Firmware Update Screen



The Firmware Update screen allows the user to update the firmware for the APL switch. If a firmware update is required, save the update file (.bin) to the hard drive on the PC. Click Choose File and select the downloaded file. Then click Update to send the file to the APL Switch. After the Success message, please wait at least 5 minutes before logging back on to the APL Switch or resuming control.

## Diagnostics Screen



The Diagnostics screen shows APL switch events that can be useful for troubleshooting any connection issues.

### HART-IP Host Connection Procedure

1. Connect APL field devices to the APL channel terminals on the APL switch.
2. Apply 24 Vdc power to the APL switch. This will also power the APL field devices.
3. Connect the APL switch to an Ethernet network or a PC.
4. Configure the APL switch using the browser interface, if required.
5. Launch DevCom or some other HART-IP enabled host on a PC or mobile device connected to the same Ethernet network as the APL switch.
6. Configure DevCom to use TCP/IP (HART-IP).
7. Enter the IP address of the APL channel you wish to communicate with.
8. Poll the network.
9. You should see the APL switch with the APL field device listed as a sub device.
8. Click or tap the APL field device.
9. You can now view the APL field device parameters. You can view and edit parameters, run methods, etc. based on what DD (Device Descriptor) file is loaded for the connected APL field device.

**Warranty**

The APL-SW-3 is warranted for 1 year for materials and workmanship. Contact Support at ProComSol, Ltd if having any problems. An RMA (Return Material Authorization) number obtained from ProComSol, Ltd is required on all returned items.

**Contact Information****ProComSol, Ltd**

Process Communications Solutions  
13001 Athens Ave  
Suite 220  
Lakewood, OH 44107  
USA

Phone: 216.221.1550

Email: [sales@procomsol.com](mailto:sales@procomsol.com)  
[support@procomsol.com](mailto:support@procomsol.com)

Web: [www.procomsol.com](http://www.procomsol.com)