Satyrn INDUSTRIAL SWITCHES

SATYRN L SERIES
USER MANUAL

COMTROL GmbH
Unit 2 | Staplehurst | Weston on the Green
Bicester | OX25 3QU | UK

T: +44 (0)1869 352740
F: +44 (0)1869 351848
E: support@comtrol.co.uk
www.comtrol.co.uk

Comtrol
WWW.COMTROL.CO.UK

Table of Contents

Comtrol GmbH

Staplehurst

Weston on the Green

Bicester

OX25 3QU

UK

TELEPHONE

Switchboard	+44 (0) 1869 352740
Fax	+44 (0) 1869 351848
Support	+44 (0) 1869 352743

E-MAILS

Sales	sales@comtrol.co.uk
Support	support@comtrol.co.uk
Enquiries	enquiries@comtrol.co.uk
General	info@comtrol.co.uk

1 Getting to Know Your Switch

1.1 About the L Series Lite-Managed Industrial Switch

The Satyrn L series switches are cost-effective and powerful industrial switches with many features. These switches can work across a wide range of temperatures, in dusty environment, and humid conditions. The Satyrn L Series switches can be managed using a Windows browser utility called Satyrn View. Satyrn View is powerful network management software. With its easy-to-use, sophisticated interface, you can easily configure multiple switches and monitor their status.

1.2 Software Features

- World's fastest redundant Ethernet ring (Recovery time <10ms with up to 250 units)
- Ring Coupling and Dual Homing using Satyrn Ring and standard STP/RSTP
- Fast recovery mode
- Easy to configure directly or using Satyrn View.
- Excellent network management

1.3 Hardware Features

- Wide operating temperature range: -40 to 70°C
- Storage temperature range: -40 to 85°C
- Operating humidity: 5% to 95%, (non-condensing)
- 10/100Base-T(X) Ethernet port (all models)
- 10/100Base-T(X) Ethernet port with PSE providing 25 watts (L042-PE, L042-PP, L042-PM & L042-PS)
- 100Base-FX fibre Multi mode (L042-PM & L042-EM)
- 100Base-FX fibre Single mode (L042-PS & L042-ES)
- 100Base-FX SFP port (L042-PP & L042-EP)

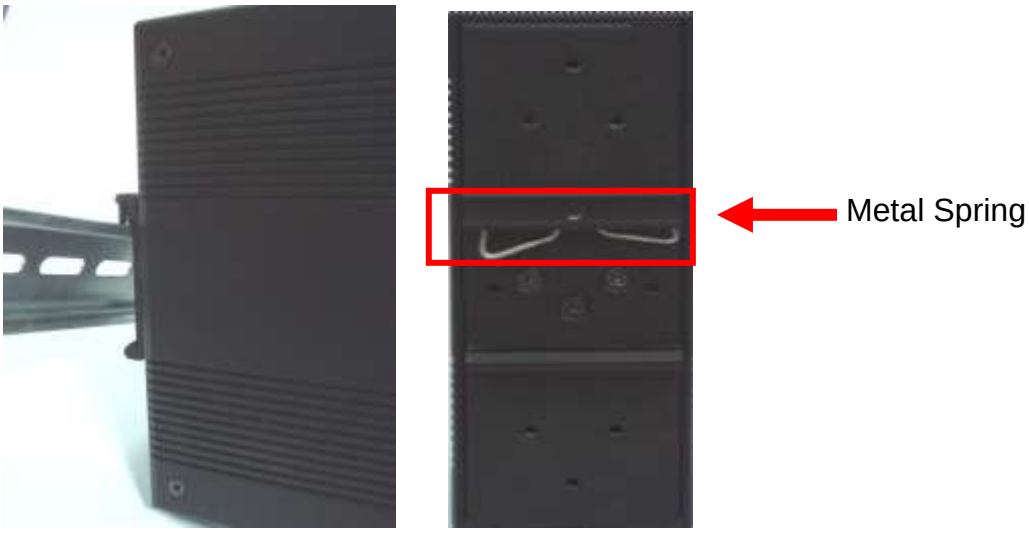
2 Hardware Installation

2.1 Installing Switch on DIN-Rail

Each switch has a DIN-Rail kit on its rear panel. The DIN-Rail kit permits the switch to be fixed on a DIN-Rail without difficulty. Note the dimensions of the switch may vary but the principle of fixing remains the same.

2.2 Mount L Series switches on to a DIN-Rail

Step 1: Tilt the switch and mount the metal spring on to the DIN-Rail.



Step 2: Push the switch toward the DIN-Rail until you hear an audible "click".

2.2 Wall Mounting Installation

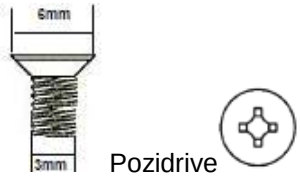
Each switch has an alternative installation option. A wall mount panel is included in the package. The following steps show how to mount the switch on the wall. Note the dimensions of the switch may vary but the principle of fixing remains the same.

2.2.1 Mount L Series switches on to a wall

Step 1: Remove the DIN-Rail kit.

Step 2: Take the 6 screws that are included in the package and use them to attach the included wall mount to the switch as the picture shows below:

The screw specifications are shown below in case replacements are needed. In order to avoid damaging the switches, screws that are larger than those included with the L series switches should not be used.

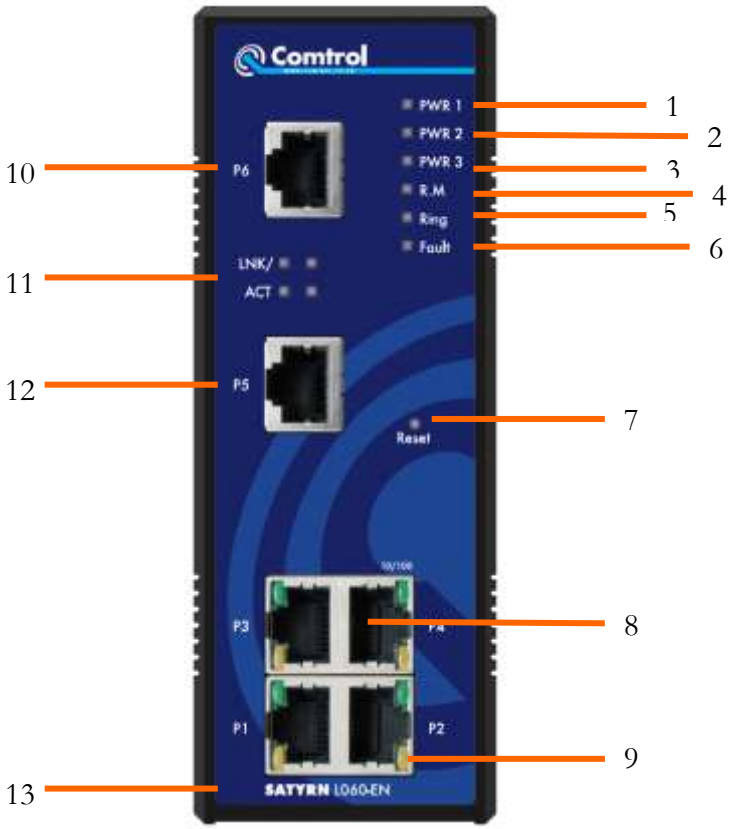


Step 3: Mount the switch with the attached wall mount unit to the wall.

3 Layout

3.1 Front panel

3.1.1 Satyrn L060-EN



1 Solid green LED when DC power module 1 active

2 Solid green LED when DC power module 2 active

3 Solid green LED when DC power jack active

4 Solid green LED when this switch is the Ring Master of the Satyrn-Ring.

5 Solid green LED when the Satyrn Ring is enabled
Slow blinking green LED when there is a problem with the Satyrn-Ring topology
Fast blinking green LED when the Satyrn-Ring is working properly

6 Solid amber LED if there is a power failure or port failure.

7 Hold down this Reset button for three seconds to reset and hold down five seconds to return to the factory default settings.

8 10/100Base-T(X) Ethernet ports.

9 LED for Ethernet ports status.

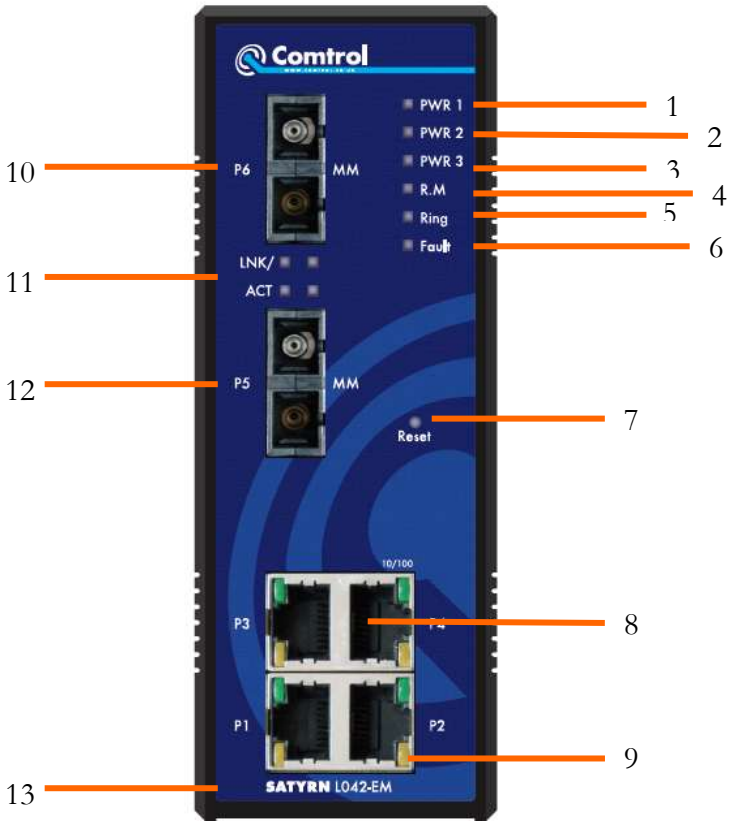
10 10/100Base-T(X) Ethernet port.

11 LED for port status

12 10/100Base-T(X) Ethernet port.

13 Model name

3.1.2 Satyrn L042-EM & L042-ES



1 Solid green LED when DC power module 1 active

2 Solid green LED when DC power module 2 active

3 Solid green LED when DC power jack active

4 Solid green LED when this switch is the Ring Master of the Satyrn-Ring.

5 Solid green LED when the Satyrn Ring is enabled
Slow blinking green LED when there is a problem with the Satyrn-Ring topology
Fast blinking green LED when the Satyrn-Ring is working properly

6 Solid amber LED if there is a power failure or port failure.

7 Hold down this Reset button for three seconds to reset and hold down five seconds to return to the factory default settings.

8 10/100Base-T(X) Ethernet ports.

9 LED for Ethernet ports status.

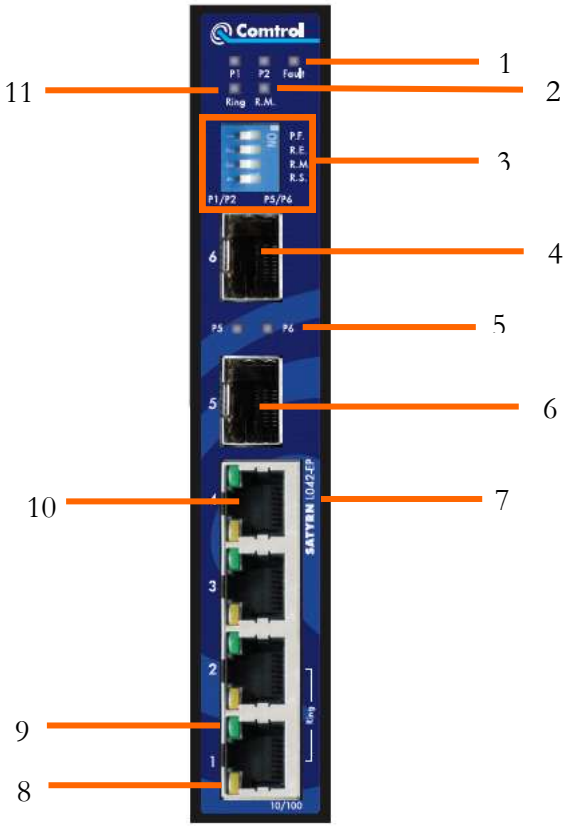
10 100BaseFX fibre port.

11 LNK/ACT LED for fibre port.

12 100BaseFX fibre port.

13 Model name

3.1.3 Satyrn L042EP



1 Solid amber LED if there is a power failure or port failure.

2 Solid green LED when this switch is the Ring Master of the Satyrn-Ring.

3 Dip Switch setting when the Dip set within the firmware
PF Power fault
RE Ring Enable
RM Ring Master
RS Ring Select (P1/P2 Port 1 & Port 2, P5/P6 Port 5 & Port 6)

4 SFP 100Base Fibre port

5 Solid green LED when the port is connected to the network. Blinking green LED when data is being transmitted

6 Model name

7 Solid green LED P1 when DC power module 1 active, Solid green LED P2 when DC power module 2 active

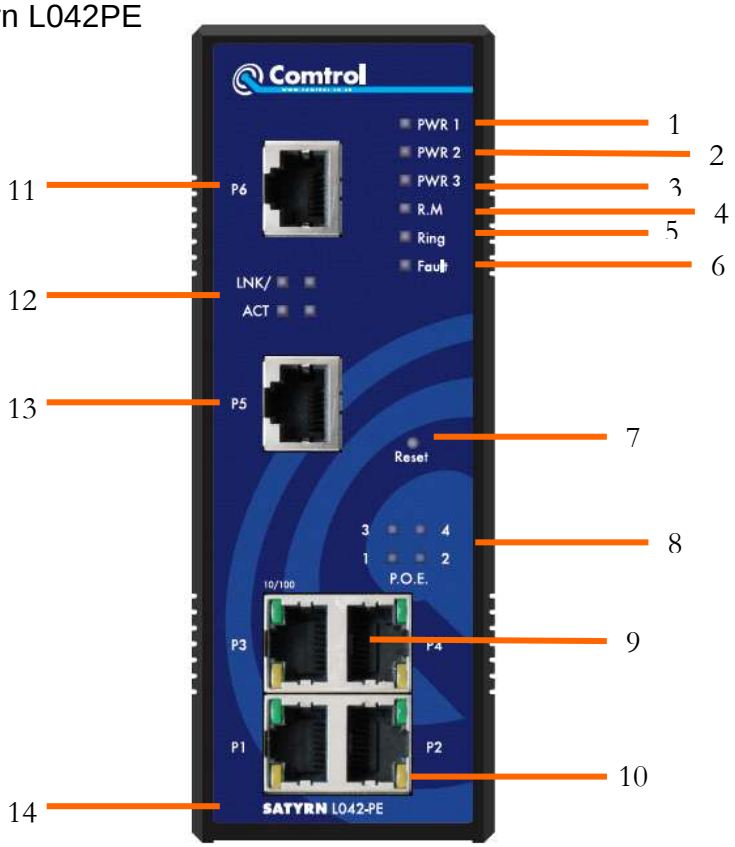
8 Solid green LED when the Satyrn Ring is enabled
Slow blinking green LED when there is a problem with the Satyrn-Ring topology
Fast blinking green LED when the Satyrn-Ring is working properly

9 10/100Base-T(X) Ethernet ports

10 LED for Ethernet port LINK/ACT status.
Solid green LED when the port is connected to the network. Blinking green LED when data is being transmitted

11 LED for Ethernet port LINK status.
Solid green LED when the port is connected to the network.

3.1.4 Satyrn L042PE



1 Solid green LED when DC power module 1 active

2 Solid green LED when DC power module 2 active

3 Solid green LED when DC power jack active

4 Solid green LED when this switch is the Ring Master of the Satyrn-Ring.

5 Solid green LED when the Satyrn Ring is enabled
Slow blinking green LED when there is a problem with the Satyrn-Ring topology
Fast blinking green LED when the Satyrn-Ring is working properly

6 Solid amber LED if there is a power failure or port failure.

7 Hold down this Reset button for three seconds to reset and hold down five seconds to return to the factory default settings.

8 LED for P.O.E. power supplied.

9 10/100Base-T(X) P.S.E. Ethernet ports.

10 LED for Ethernet ports status.

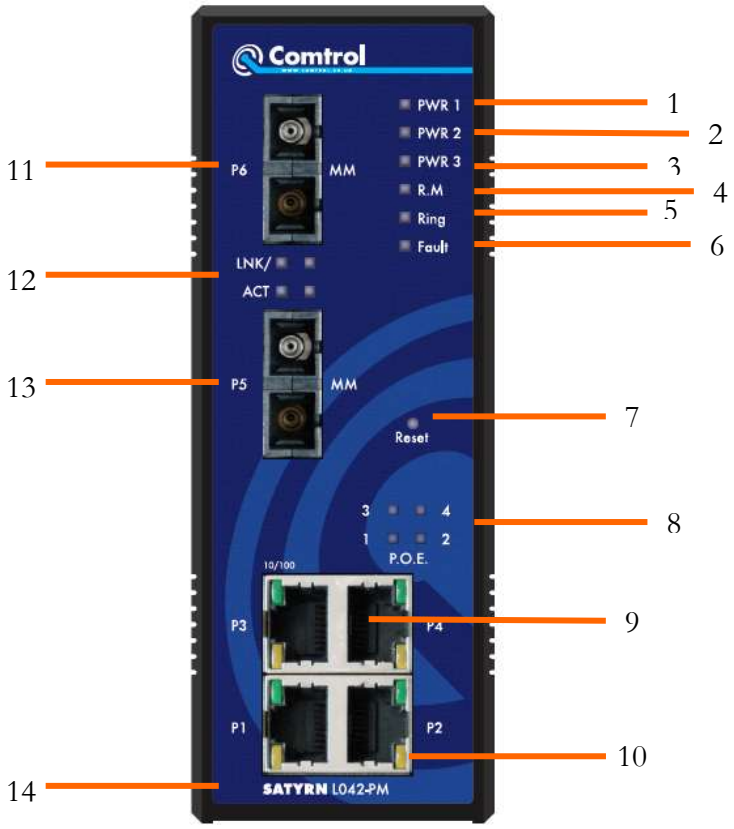
11 10/100Base-T(X) Ethernet ports.

12 LED for Ethernet ports status.

13 10/100Base-T(X) Ethernet ports.

14 Model name

3.1.5 Satyrn L042-PM & L042-PS



1 Solid green LED when DC power module 1 active

2 Solid green LED when DC power module 2 active

3 Solid green LED when DC power jack active

4 Solid green LED when this switch is the Ring Master of the Satyrn-Ring.

5 Solid green LED when the Satyrn Ring is enabled
Slow blinking green LED when there is a problem with the Satyrn-Ring topology
Fast blinking green LED when the Satyrn-Ring is working properly

6 Solid amber LED if there is a power failure or port failure.

7 Hold down this Reset button for three seconds to reset and hold down five seconds to return to the factory default settings.

8 LED for PoE power supplied

9 10/100Base-T(X) P.S.E. Ethernet ports.

10 LED for Ethernet ports status.

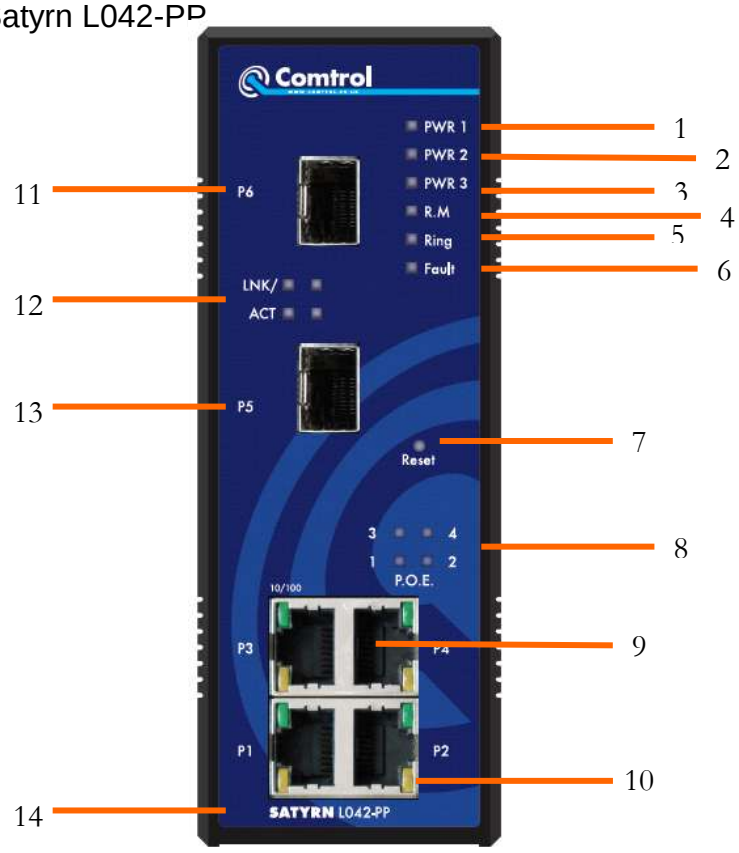
11 100BaseFX fibre port.

12 LNK/ACT LED for fibre port.

13 100BaseFX fibre port.

14 Model name

3.1.6 Satyrn L042-PP



1 Solid green LED when DC power module 1 active

2 Solid green LED when DC power module 2 active

3 Solid green LED when DC power jack active

4 Solid green LED when this switch is the Ring Master of the Satyrn-Ring.

5 Solid green LED when the Satyrn Ring is enabled
Slow blinking green LED when there is a problem with the Satyrn-Ring topology
Fast blinking green LED when the Satyrn-Ring is working properly

6 Solid amber LED if there is a power failure or port failure.

7 Hold down this Reset button for three seconds to reset and hold down five seconds to return to the factory default settings.

8 LED for P.O.E. power supplied.

9 10/100Base-T(X) P.S.E. Ethernet ports..

10 LED for Ethernet ports status.

11 SFP 100Base Fibre port

12 LED for SFP ports status.

13 SFP 100Base Fibre port

14 Model name

3.2 Bottom Panel

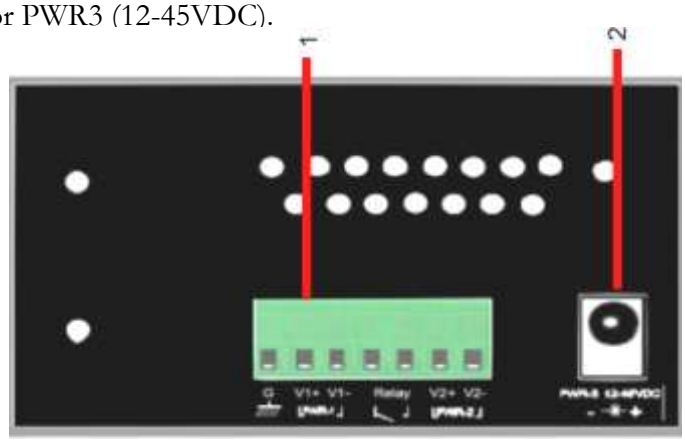
The bottom panel components of Satyrn L series switches are shown in the sections below.

Note the dimensions of the switch may vary but the principle of connecting the power supply and relay output remains the same.

3.2.1 Satyrn L060-EN, L042-EM, & L042-ES.

1. Terminal block includes: PWR1, PWR2 (12-48V DC) and Relay output (1A@24VDC).
2. Power jack for PWR3 (12-45VDC).

.



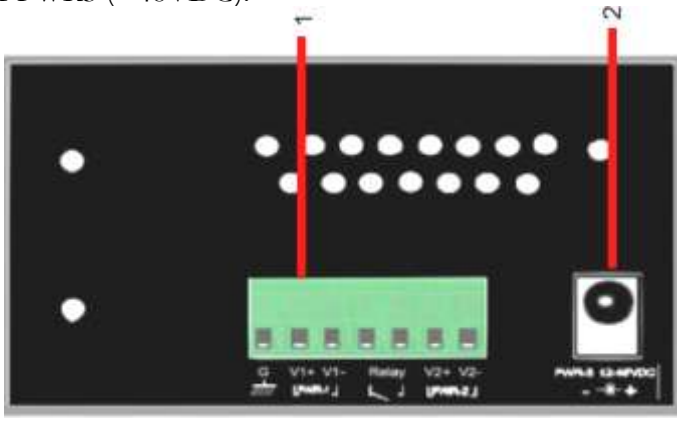
3.2.2 Satyrn L042-EP

Terminal block includes: PWR1, PWR2 (12-48V DC) and Relay output (1A@24VDC).

3.2.3 L042-PE, L042-PM, L042-PS & L042-PP

1. Terminal block includes: PWR1, PWR2 (+48V DC) and Relay output (1A@24VDC).
2. Power jack for PWR3 (+48VDC).

.

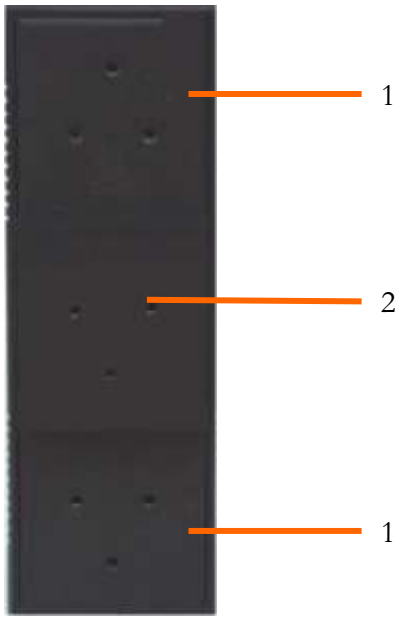


3.3 Rear Panel

The rear panel components of the Satyrn L series switches are shown below:

1. Screw holes for wall mount kit.
2. DIN-Rail kit

Note the dimensions of the switch may vary but the principle of fixing remains the same.



4 Cables

4.1 Ethernet Cables

All of the L Series Satyrn switches have standard Ethernet ports. Depending on the link type, the switches use CAT 3, 4, 5,5e UTP cables to connect to any other network device. Please refer to the following table for cable specifications.

Cable Types and Specifications

Cable	Type	Max. Length	Connector
10BASE-T	Cat. 3, 4, 5 100-ohm	UTP 100 m (328 ft)	RJ-45
100BASE-TX	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	RJ-45
1000Base-TX	Cat. 5/Cat. 5e 100-ohm UTP	100 m (328ft)	RJ-45

4.1.1 100BASE-TX/10BASE-T RJ-45 Pin Assignments

With 100BASE-TX/10BASE-T cable, pins 1 and 2 are used for transmitting data, and pins 3 and 6 are used for receiving data.

Pin Number	Assignment
1	TD+
2	TD-
3	RD+
4	Not used (PoE + when available)
5	Not used (PoE + when available)
6	RD-
7	Not used (PoE - when available)
8	Not used (PoE - when available)

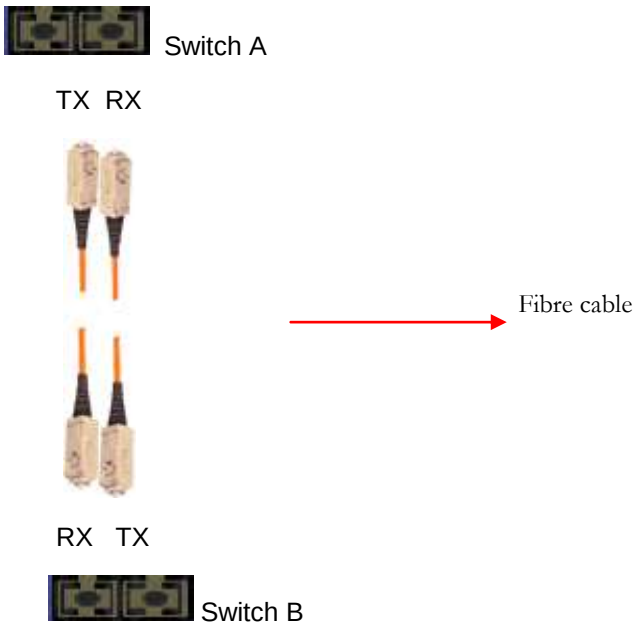
L Series Satyrn switches support auto MDI/MDI-X operation. You can use a straight-through cable to connect the switch to a PC. The following table below shows the 10BASE-T/ 100BASE-TX MDI and MDI-X port pin outs.

Pin Number	MDI port	MDI-X port
1	TD+(transmit)	RD+(receive)
2	TD-(transmit)	RD-(receive)
3	RD+(receive)	TD+(transmit)
4	Not used	Not used
5	Not used	Not used
6	RD-(receive)	TD-(transmit)
7	Not used	Not used
8	Not used	Not used

Note: "+" and "-" signs represent the polarity of the wires that make up each wire pair.

4.2 Fibres

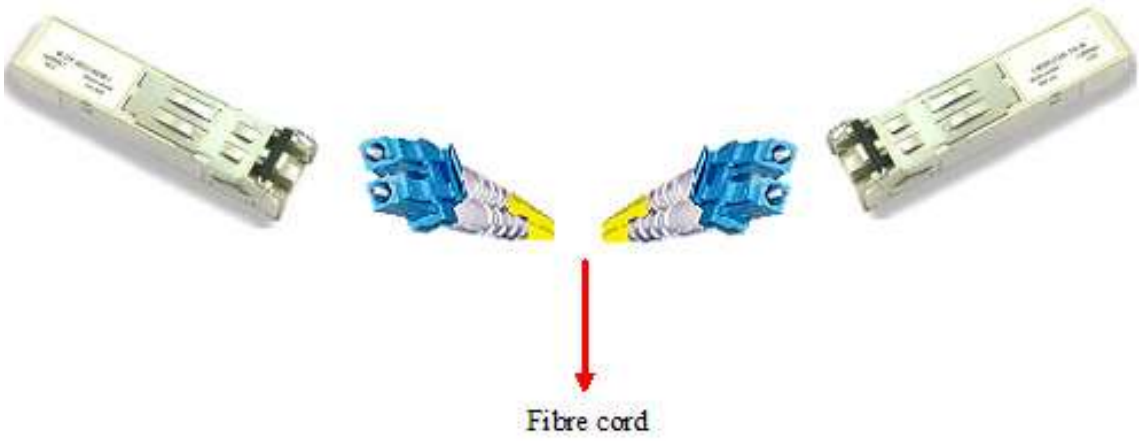
The following models, L042-EM, L042-ES, L042-PM and L042-PS have fibre optic ports. The fibre optic ports are in multi-mode (0 to 2 km, 1310 nm in 50/125 μm, 62.5/125 μm) and single-mode (9/125 μm) with an SC connector. Note that the TX port of Switch A should be connected to the RX port of Switch B.



4.3 SFP

The following models, L042-PP & L042-EP, have fibre optic ports with SFP connectors.

Note that the TX port of Switch A should be connected to the RX port of Switch B.



5 Browser Management

WARNING! – It is important that, whilst setting up or during firmware upgrade, you do NOT power off the switch.

5.1 Configuring the L Series Satyrn switches using a Browser

This section applies to all of the L Series Satyrn switches. If there is additional information for specific models, this will be clearly stated.

5.1.1 Browser-based Management

An embedded HTML web site resides in flash memory on the CPU board. It contains advanced management features and allows you to manage the switch from anywhere on the network through a standard web browser such as Microsoft Internet Explorer. The browser-based management function supports Internet Explorer 5.0 or higher. It is based on Java applets with an aim to reduce network bandwidth consumption, enhance access speed and provide an easy, useful interface.

Note: By default, version IE5.0 or later does not allow Java Applets to open sockets. You will need to explicitly modify the browser settings in order to enable Java applets to use the network port.

Preparing for Browser-based Management

The default settings are as follows:

IP Address	192.168.250.250
Subnet Mask	255.255.255.0
Default Gateway	192.168.250.1
User Name	comtrol
Password	satyrn

System Login

Launch Internet Explorer or another Internet browser.

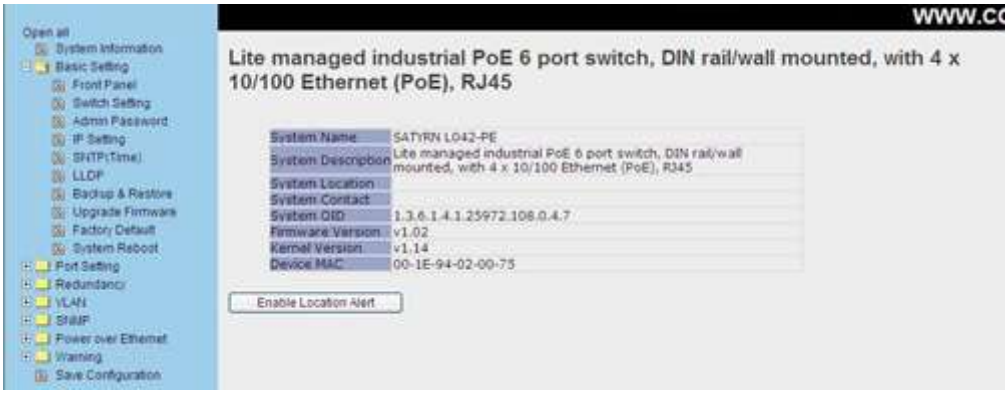
Type http:// followed by the IP address of the switch (the default IP address is 192.168.250.250) into the address field and then press "Enter".

When the login screen appears, enter the User name and Password (the default User name is comtrol and the default Password is satyrn) into the fields and then press "Enter" or click the OK button.

The main interface of the Browser-based management will appear.

5.1.2 System Information

This contains the basic information about the switch.



5.1.2.1 Location Alert

This function helps you physically locate a specific switch by flashing its PWR and Fault lights.

Enable Location Alert switches on the flashing the PWR and Fault lights.

Disable Location Alert switches off the flashing the PWR and Fault lights

5.1.2.2 Panel Schematic

Click on any of the ports to get basic information on the port status and activity. Click on 'Close' below the schematic to remove the schematic from view. To return the schematic to view, see the section below.

5.1.3 Basic Setting

This section allows you to set the basic switch settings, IP address as well as perform various backup, restore, factory default and reboot operations.

5.1.3.1 Front Panel

This returns the switch schematic to view.

5.1.3.2 Switch setting

This is the standard switch setting interface.

The following table describes the options available.

Option	Description
System Name	Assigns the switch name here. Maximum length is 64 characters.
System Description	Displays the description of the switch.
System Location	Assign the switch's physical location here. The maximum length is 64 characters.
System Contact	Enter the name of a contact person or organization.
System OID	Displays the switch's OID information
Firmware Version	Displays the switch's firmware version

Kernel Version	Displays the kernel software version.
MAC Address	Displays the unique hardware address assigned by the manufacturer.

5.1.3.3 Admin Password

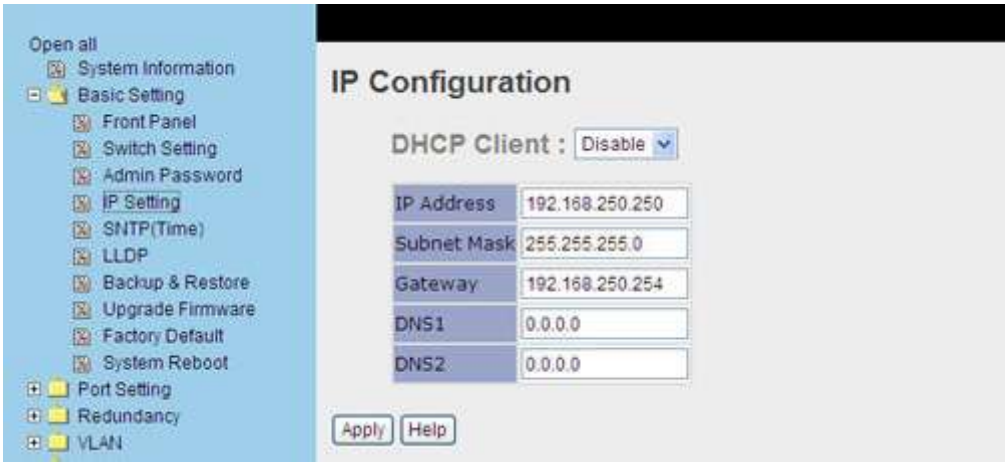
You can change Browser management login username and password here.

The following table describes the options available.

Option	Description
User name	Enter the new username (The default is "**comtrol**")
New Password	Enter the new password (The default is "**satyrn**")
Confirm password	Re-type the new password.
Apply	Click "**Apply**" to save the changed configuration settings.

5.1.3.4 IP Setting

You can configure the IP Settings and DHCP client function here.



The following table describes the options available.

Option	Description
DHCP Client	Enable or disable the DHCP client function. When the DHCP client function is enabled, the switch will assign the IP address from the network DHCP server and the default IP address will be replaced by the IP address which the DHCP server has assigned. After clicking the "**Apply**" button, a popup dialog will show up to inform you that the DHCP client is enabled. The current IP will be replaced by the new IP address on the DHCP server.
IP Address	Assign the IP address that the network is using. If DHCP client function is enabled, the IP address will be assigned automatically for you. The network DHCP server will assign the IP address for the switch and displayed here. The default IP address is 192.168.10.1
Subnet Mask	Assign the subnet mask for the IP address. If DHCP client function is enabled, you do not need to assign the subnet mask.
Gateway	Assign the network gateway for the switch. The default gateway is 192.168.250.250
DNS1	Assign the primary DNS IP address
DNS2	Assign the secondary DNS IP address
Apply	Click "**Apply**" to save the changed configuration settings.

5.1.3.5 SNTP Configuration

The SNTP (Simple Network Time Protocol) settings allow you to synchronize switch clocks over the network.

The following table describes the options available.

Option	Description
SNTP Client	Enable or disable SNTP function to obtain the time from the specified SNTP server.
Daylight Saving Time	Enable or disable the daylight saving time function. When daylight saving time is enabled you need to specify the dates it applies.
UTC Time zone	Set the switch's time zone. The table at the end of this section lists the different time zones for your reference.
SNTP Server IP Address	Set the SNTP server's IP address.
Daylight Saving Period	Set up the Daylight Saving start time and Daylight Saving end time. Note that both will be different every year.
Daylight Saving Offset	Set up the offset time.
Switch Timer	Display the switch's current time.
Apply	Click "**Apply**" to save the changed configuration settings.

Local Time Zone	Conversion from UTC	Time at 12:00 UTC
November Time Zone	- 1 hour	11 am
Oscar Time Zone	-2 hours	10 am
ADT - Atlantic Daylight	-3 hours	9 am
AST - Atlantic Standard EDT - Eastern Daylight	-4 hours	8 am
EST - Eastern Standard CDT - Central Daylight	-5 hours	7 am
CST - Central Standard MDT - Mountain Daylight	-6 hours	6 am
MST - Mountain Standard PDT - Pacific Daylight	-7 hours	5 am
PST - Pacific Standard ADT - Alaskan Daylight	-8 hours	4 am
ALA - Alaskan Standard	-9 hours	3 am
HAW - Hawaiian Standard	-10 hours	2 am
Nome, Alaska	-11 hours	1 am
CET - Central European FWT - French Winter MET - Middle European MEWT - Middle European Winter	+1 hour	1 pm

SWT - Swedish Winter		
EET - Eastern European, USSR Zone 1	+2 hours	2 pm
BT - Baghdad, USSR Zone 2	+3 hours	3 pm
ZP4 - USSR Zone 3	+4 hours	4 pm
ZP5 - USSR Zone 4	+5 hours	5 pm
ZP6 - USSR Zone 5	+6 hours	6 pm
WAST - West Australian Standard	+7 hours	7 pm
CCT - China Coast, USSR Zone 7	+8 hours	8 pm
JST - Japan Standard, USSR Zone 8	+9 hours	9 pm
EAST - East Australian Standard GST Guam Standard, USSR Zone 9	+10 hours	10 pm
IDLE - International Date Line NZST - New Zealand Standard NZT - New Zealand	+12 hours	Midnight

5.1.3.6 LLDP

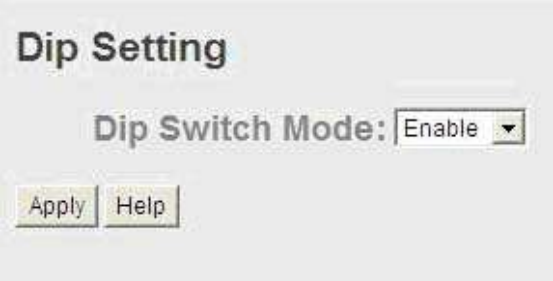
LLDP (Link Layer Discovery Protocol) function allows the switch to advertise its information to other nodes on the network and store the information it receives.

The following table describes the options available.

Option	Description
LLDP Protocol	"Enable" or "Disable" the LLDP function.
LLDP Interval	The interval for resending LLDP frames (default 30 seconds).
Apply	Click "**Apply**" to save the changed configuration settings.
Help	Show help file.

5.1.3.7 Dip Switch settings (L042-EP)

You can enable or disable the Dip switch here.

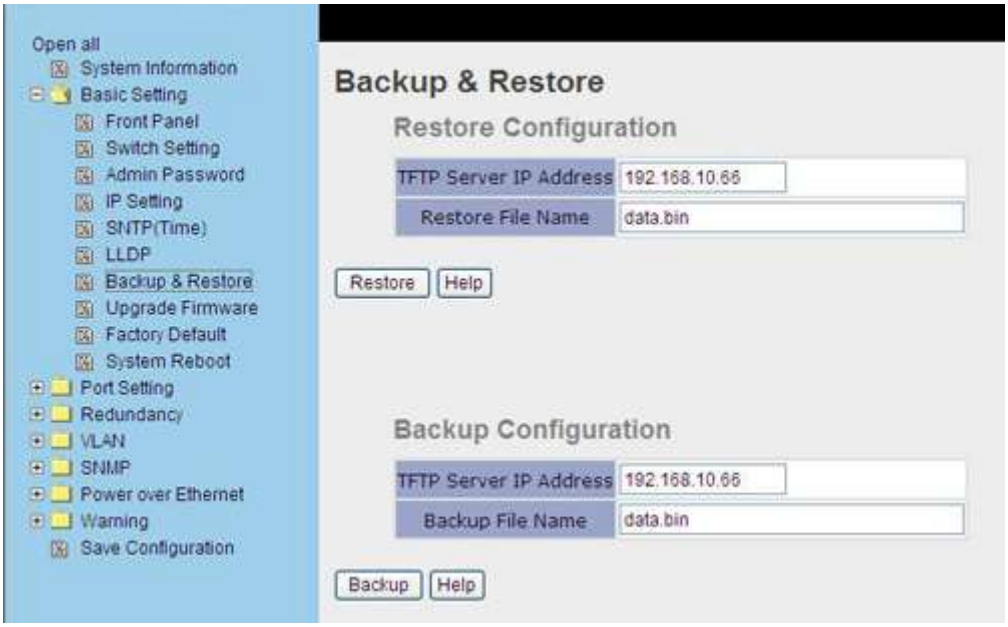


The following table describes the options available.

Options	Description
Dip Switch Mode	Enable or disable Dip Switch control
Apply	Apply setting

5.1.3.8 Backup & Restore

The switch configuration is stored on an EEPROM. This can be backed up to the TFTP server, and then later restored.



The following table describes the options available.

Option	Description
TFTP Server IP Address	Enter the TFTP server IP address
Restore File Name	Enter the restore file name.
Restore	Click "**restore**" to restore the configuration.

Backup File Name	Enter the backup file name.
Backup	Click "**backup**" to backup the current configuration.

5.1.3.9 Upgrade Firmware

Upgrade Firmware allows you to update the switch's firmware. Before updating, be sure to have your TFTP server ready and the firmware image available on the TFTP server.

The following table describes the options available.

Options	Description
TFTP Server IP Address	Enter the TFTP server IP address.
Firmware File Name	Enter the switch file name
Upgrade	Click "Upgrade" to upgrade the firmware

5.1.3.10 Factory Default

Click "Reset" to reset all configurations to their default values.

You can select "**Keep current IP address setting**" and "**Keep current username & password**" to avoid returning the current IP address and username & password to the default settings.

5.1.3.11 System Reboot

Click "Reboot" to restart/reboot the switch.

5.1.4 Port Setting

This section enables you to assign specific parameters to each individual port.

5.1.4.1 Port Control

The Port Control function allows you to set the state, speed/duplex, flow control, and security of the individual ports.

The following table describes the options available.

Options	Description
Port No.	Port identification number.

State	Enable or Disable the port.
Speed/Duplex	Options: Auto-negotiation, 100 full, 100 half, 10 full, 10 half mode.
Flow Control	Support symmetric and asymmetric mode to avoid packet loss when congestion occurs.
Apply	Click "**Apply**" to save the changed configuration settings.

5.1.4.2 Port Status

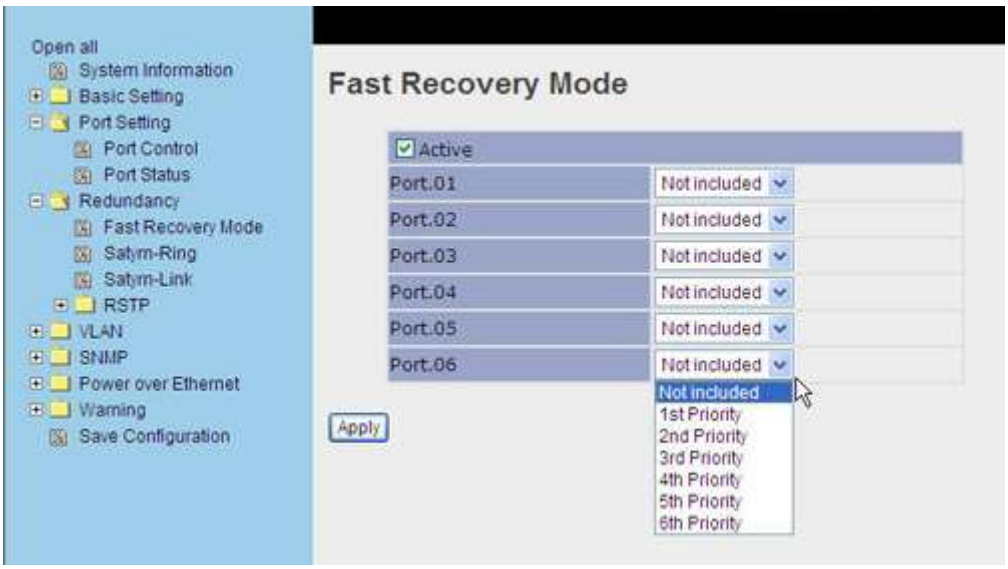
Once the Port Control settings have been made they can then be seen in the Port Status.

5.1.5 Redundancy

Satyrn L Series Switches have a number of Redundancy modes from Fast Recovery to full ring control.

5.1.5.1 Fast Recovery Mode

The Fast Recovery Mode can be set to connect multiple ports to one or more switches. The L Series switch in fast recovery mode will provide the redundant links. Fast Recovery mode supports priorities based on the number of ports available. The port with the first priority will be the active port; the other three ports configured with lower priorities will be the backup ports.

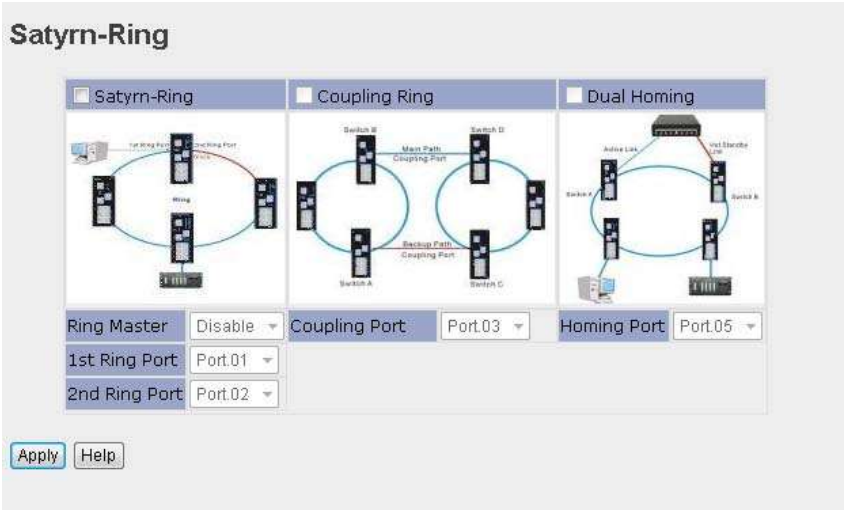


The following table describes the options available.

Options	Description
Active	Activate fast recovery mode.
port	Port can be configured with up to five priorities. The port with the highest priority is the active port. Priorities range from 1st to nth, where 'n' is the number of ports available
Apply	Click "**Apply**" to save the changed configuration settings.

5.1.5.2 Satyrn-Ring

Satyrn-Ring features one of the most powerful redundant ring technologies in the world. The recovery time of Satyrn-Ring is less than 10 mS over 250 units of connections. This redundancy can reduce unexpected malfunctions caused by changes to the network topology. Satyrn-Ring technology supports three ring topologies for network redundancy: Satyrn-Ring, Coupling Ring and Dual Homing.



The following table describes the options available.

Option	Description
Satyrn-Ring	Check box to enable Satyrn-Ring.
Ring Master	There should be only one Ring Master in a ring. However if there are two or more switches for which Ring Master is enabled, the switch with the lowest MAC address will serve as the Ring Master and others will serve as Backup Masters.
1st Ring Port	The Ring Master's primary port.
2nd Ring Port	The Ring-Master's secondary port.
Coupling Ring	Check box to enable Coupling Ring. Coupling Ring can be used to divide a big ring into two smaller rings to prevent network topology changes from affecting all the switches.. It is useful for connecting two Satyrn-Rings.

Coupling Port	Link to Coupling Port of the switch in another ring. A Coupling Ring needs four switches to build active and backup links. Set a port as coupling port. The coupled four ports of four switches will be run in active/backup mode.
Control Port	Link to Control Port of the switch of the same ring. Control Port used to transmit control signals.
Dual Homing	Check box to enable Dual Homing. By selecting Dual Homing mode, Satyrn-Ring will be connected to normal switches through two RSTP links (ex: backbone Switch). The two links work in active/backup mode and connect each Satyrn-Ring to the normal switches in RSTP mode.
Apply	Click "**Apply**" to save the changed configuration settings.

Note: Do not set one switch as both a Ring Master and a Coupling Ring at the same time as this will place a heavy load on the network.

5.1.5.3 Satyrn-Open

Satyrn-Open technology can be utilized with proprietary rings from other vendors. Satyrn switches can be added to networks based on other ring technologies and will cooperate with managed switches from other vendors.

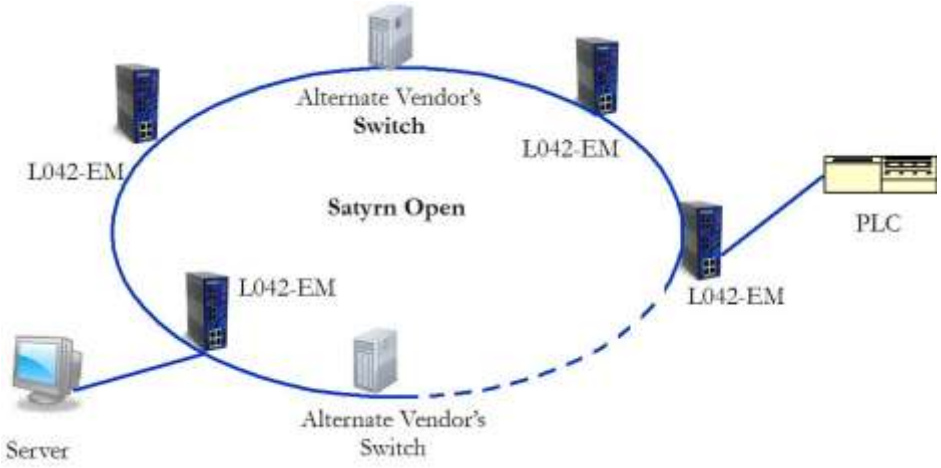
Click "Connect to other vendor's ring….." to join the ring constructed by another vendor.

Further vendors are being added all the time. Contact Technical Support for an up to date list.

The following table describes the options available.

Option	Description
Enable	Enable the Satyrn-Open function.
Vendor	Select the appropriate vendor for the ring you want to join.
1st Ring Port	Select the port to connect to the ring
2nd Ring Port	Select the port to connect to the ring

An example of a Satyrn-Open connection is shown below.



5.1.5.4 Satyrn Link

Satyrn Link allows you to add on network redundancy topology for any backbone network. This enables multiple redundant network rings to combine together and function as a larger more robust network.

Satyrn Link only requires the edge port of the edge switch to be identified with other switches in the ring with Satyrn Link enabled.

The following table describes the options available.

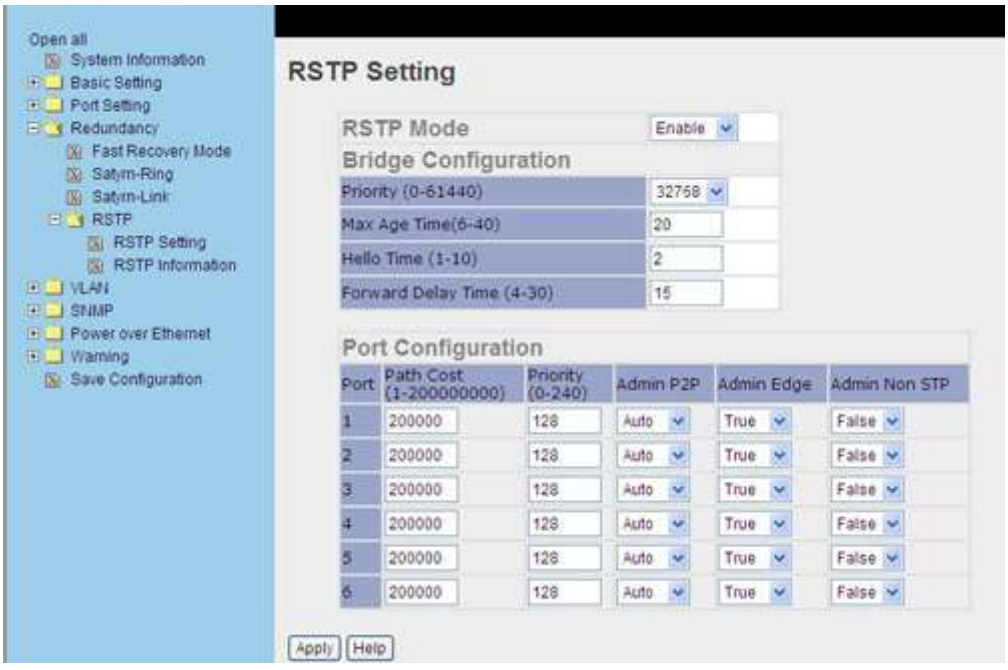
Option	Description
Enable	Enable the Satyrn-Link function.
Uplink Port	Select the appropriate port for 1st or 2nd uplink port
Edge Port	Select the port connected to the main riing
Apply	Apply the selected settings

5.1.5.5 RSTP

The Rapid Spanning Tree Protocol (RSTP) is an improved variant of the Spanning Tree Protocol. It provides faster spanning tree convergence after a change to the network topology. The system also supports STP and will auto detect connected devices that are running STP or RSTP protocol.

RSTP Settings

You can enable or disable the RSTP function, and set the parameters for each port.



The following table describes the options available.

Option	Description
RSTP mode	The RSTP function must be enabled before configuring the related parameters.
Priority (0-61440)	A value used to identify the root bridge. The bridge with the lowest value has the highest priority and is selected as the root. If the priority value changes, the switch must be rebooted. The value must be multiple of 4096.

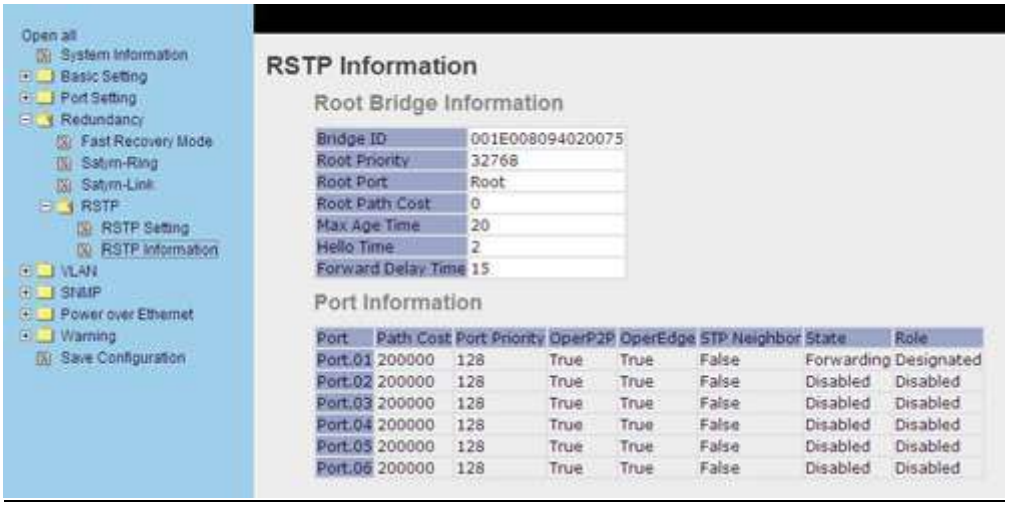
Max Age (6-40)	The number of seconds a bridge waits without receiving Spanning Tree Protocol configuration messages before attempting a reconfiguration. Select a value between 6 and 40.
Hello Time (1-10)	The time in which the switch sends out a BPDU (Bridge Protocol Data Unit) packet to check current RSTP status. Enter a value between 1 through 10.
Forwarding Delay Time (4-30)	The number of seconds a port waits before changing from its Rapid Spanning Tree Protocol learning and listening states to the forwarding state. Enter a value between 4 and 30.
Path Cost (1-200000000)	The cost of the path to the other bridge from the transmitting bridge at the specified port. Enter a number between 1 and 200000000.
Priority (0-240)	Select which port should be blocked by setting the LAN priority. The priority must be a value between 0 and 240 and be a multiple of 16.
Admin P2P	Some of the rapid state transactions that are possible within RSTP are dependent upon whether the port concerned can only be connected to exactly one other bridge (i.e. It is served by a point-to-point LAN segment), or it can be connected to two or more bridges (i.e. It is served by a shared medium LAN segment). This function allows the P2P status of the link to be modified administratively. True means P2P is enabled. False means P2P is disabled.
Admin Edge	The port is directly connected to end stations and cannot create bridging loop in the network. To configure the port as an edge port, set the port to "**True**".
Admin Non STP	The port includes the STP mathematic calculation. **True** does not include the STP mathematic calculation. **False** includes the STP mathematic calculation.
Apply	Click "**Apply**" to save the changed configuration settings.

NOTE: Use the following formula to configure the MAX Age, Hello Time, and Forward Delay Time:

2 x (Forward Delay Time value –1) ≥ Max Age value ≥ 2 x (Hello Time value +1)

RSTP Information

Once the RSTP settings have been made they can then be seen in the RSTP Information.



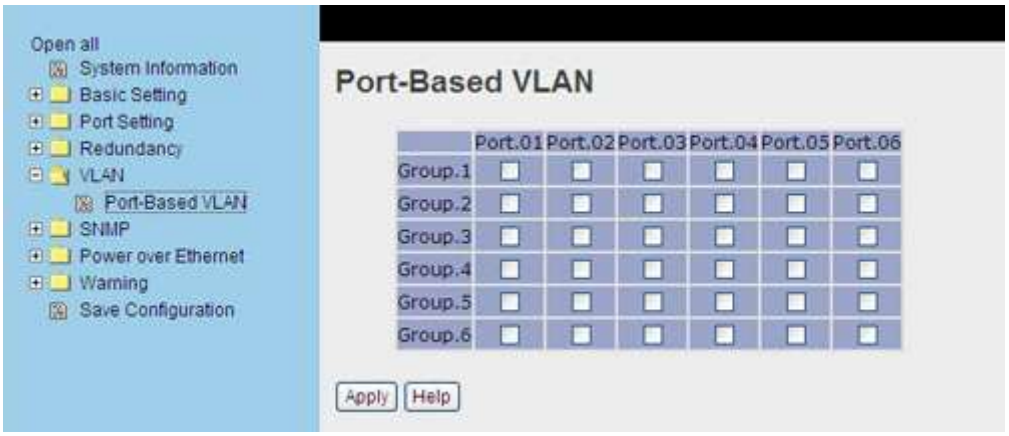
5.1.6 VLAN

A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain, which allows you to isolate network traffic. Only the members of the VLAN will receive traffic from the same members of VLAN. Basically, creating a VLAN from a switch is logically equivalent of reconnecting a group of network devices to another Layer 2 switch. However, all the network devices are still plugged into the same switch physically.

The L Series Satyrn switches support port-based VLAN only.

5.1.6.1 VLAN Configuration – Port Based

Traffic is forwarded to the member ports of the same VLAN group.



The following table describes the options available.

Option	Description
Group	Check the box to assign the port into VLAN group.
Apply	Click "**Apply**" to save the changed configuration settings.
Help	Show help file.

5.1.7 SNMP Configuration

Simple Network Management Protocol (SNMP) is the protocol developed to manage nodes (servers, workstations, routers, switches and hubs etc.) on an IP network. SNMP enables network administrators to manage network performance, detect and repair network problems, and accommodate network growth. Network management systems are informed of problems by receiving traps, or change notices, from network devices utilizing SNMP.

5.1.7.1 Agent Setting

You can set SNMP agent-related information with the Agent Setting Function.

The following table describes the options available.

Option	Description
SNMP – Agent Setting	SNMP Community should be set for SNMP. Four sets of "Community String/Privilege" are supported. Each Community String has a maximum 32 characters. Leave this box empty to remove the Community string.

5.1.7.2 Trap Setting

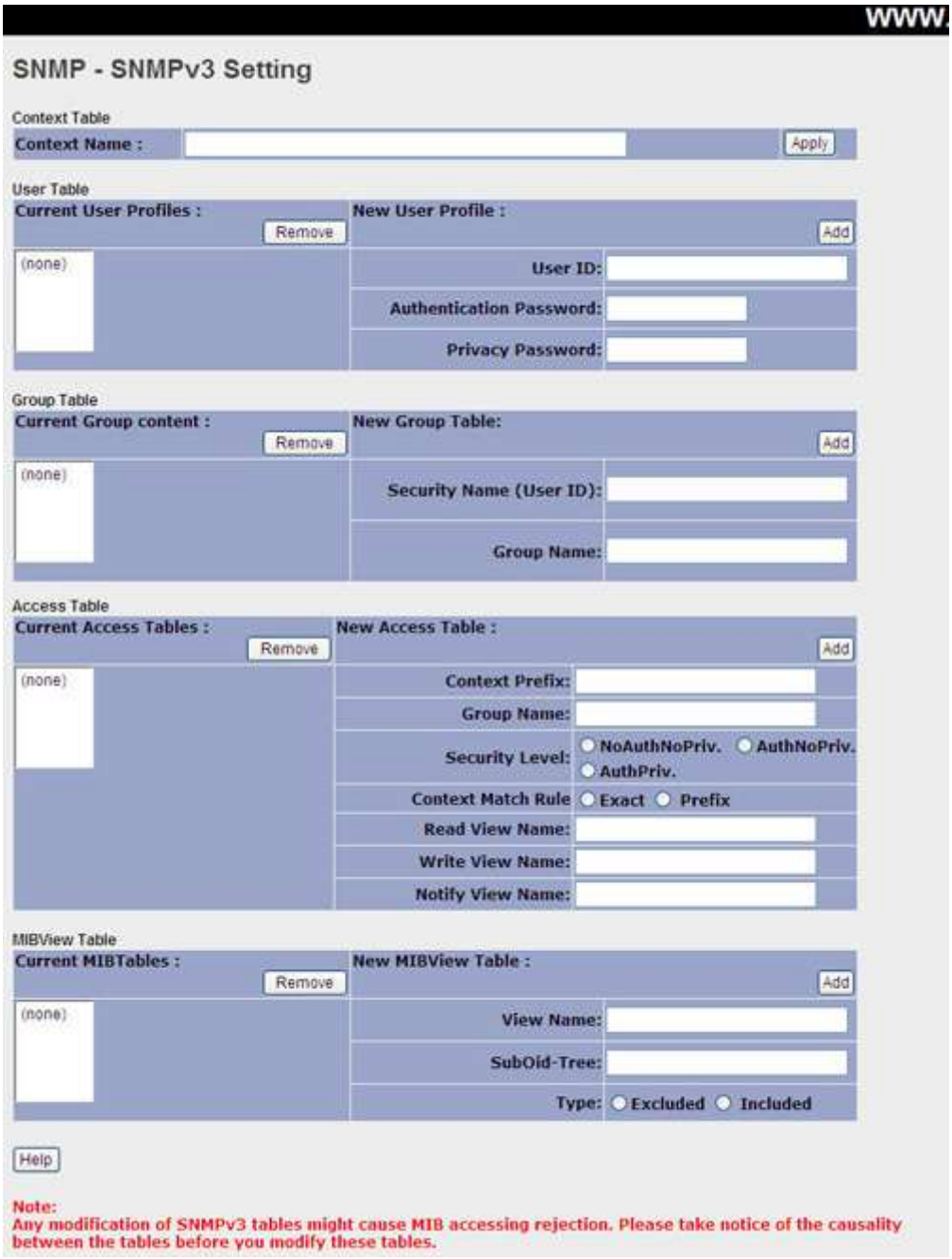
A trap manager is a management station that receives traps, the system alerts generated by the switch. If no trap manager is defined, no traps will be issued. To create a trap manager enter the IP address of the station and a community string. To define a management station as a trap manager, enter SNMP community strings and select the SNMP version.

The following table describes the options available.

Option	Description
Server IP	The server IP address to receive traps
Community	Community for authentication
Trap Version	Trap Version supports V1 and V2c.
Add	Add trap server profile.
Remove	Remove trap server profile.
Help	Show help file.

5.1.7.3 SNMPv3 Setting

SNMPv3 adds security and remote configuration enhancements to SNMP. Use this section to set the SNMPv3 features.



The following table describes the options available.

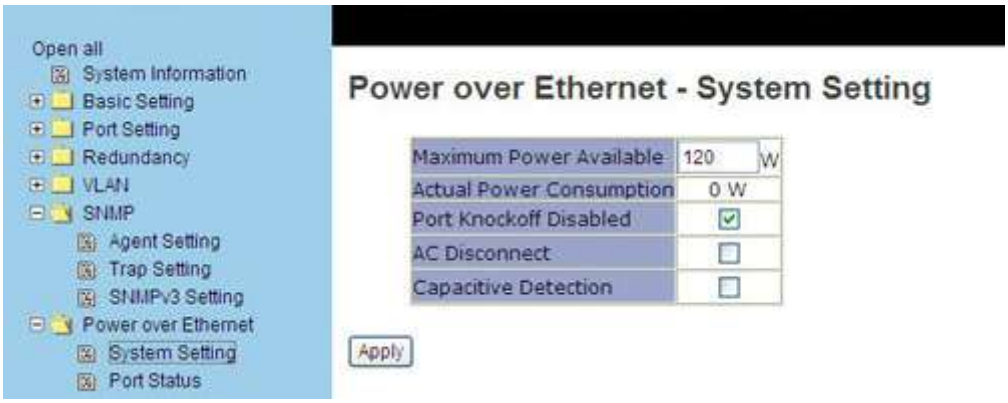
Options	Description
Context Table	Configure SNMP v3 context table. Assign the context name of context table. Click "Apply" to change context name
User Table	1. Configure SNMP v3 user table.

	2. **User ID:** set up the user name. 3. **Authentication Password:** set up the authentication password. 4. **Privacy Password:** set up the private password. 5. Click "Add" to add context name. 6. Click "Remove" to remove context name.
Group Table	1. Configure SNMP v3 group table. 2. **Security Name (User ID):** assign the user name that you have set up in user table. 3. **Group Name:** set up the group name. 4. Click "Add" to add context name. 5. Click "Remove" to remove context name.
Access Table	1. Configure SNMP v3 access table. 2. **Context Prefix:** set up the context name. 3. **Group Name:** set up the group. 4. **Security Level:** select the access level. 5. **Context Match Rule:** select the context match rule. 6. **Read View Name:** set up the read view. 7. **Write View Name:** set up the write view. 8. **Notify View Name:** set up the notify view. 9. Click "Add" to add context name. 10. Click "Remove" to remove context name.
MIBview Table	1. Configure MIB view table. 2. **ViewName:** set up the name. 3. **Sub-Oid Tree:** fill the Sub OID. 4. **Type:** select the type – exclude or included. 5. Click "Add" to add context name. 6. Click "Remove" to remove context name.
Help	Show help file.

5.1.8 Power over Ethernet, PoE (L042-PE, L042-PM, L042-PS & L042-PP only)

5.1.8.1 Basic settings

The following interface is used to set the PoE interface. There are 4 ports (port 1 to port 4) which act as Power Supply Equipment (PSE) ports providing power over the Ethernet cable to Powered Devices (PD).

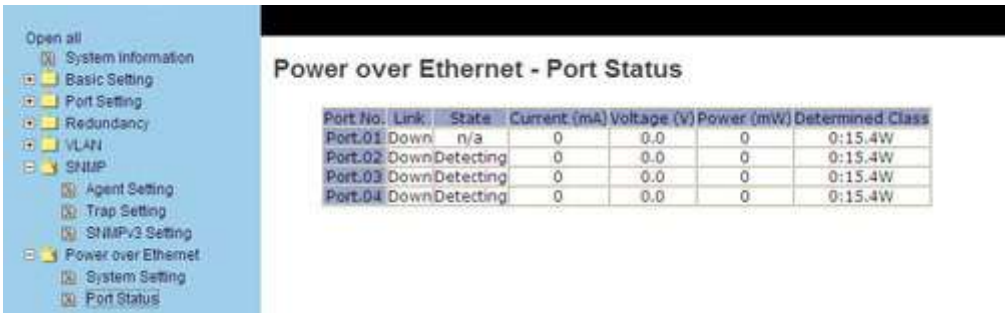


The following table describes the options available.

Option	Description
Maximum Power Available	Displays the maximum power available.
Actual Power Consumption	Displays the actual power consumption.
Main Supply Voltage	Displays the main supply voltage.
Port Knockoff Disabled	Click here to enable "Port Knock off Disabled" function.
AC Disconnect	Click here to enable "**AC Disconnect**" function.
Capacitive Detection	Click here to enable "**Capacitive Detection**" function
Apply	Click "**Apply**" to set the configurations.

5.1.8.2 Port Status

This interface identifies the status of each port.

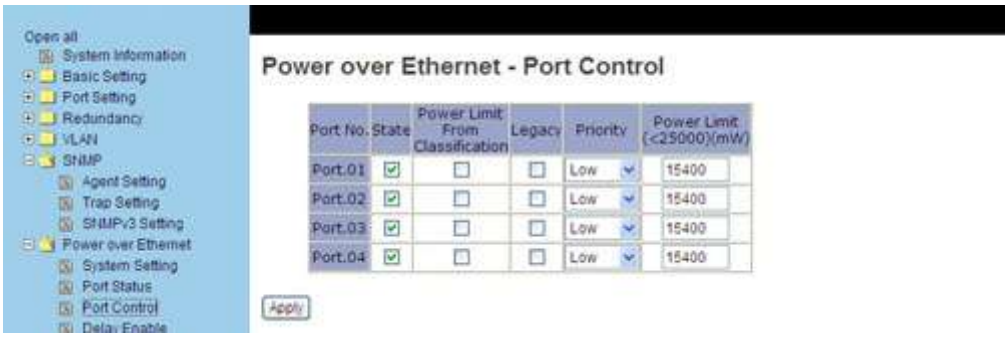


The following table describes the options available.

Option	Description
Link	Link direction
State	Displays the powered device's current operation mode
Current (mA)	Displays the current drawn by the powered device
Voltage (V)	Displays voltage of the powered device
Power (mW)	Displays the power drawn by the powered device
Determined Class	Displays the power class.

5.1.8.3 Port control settings

The following interface is used to set the individual port settings.

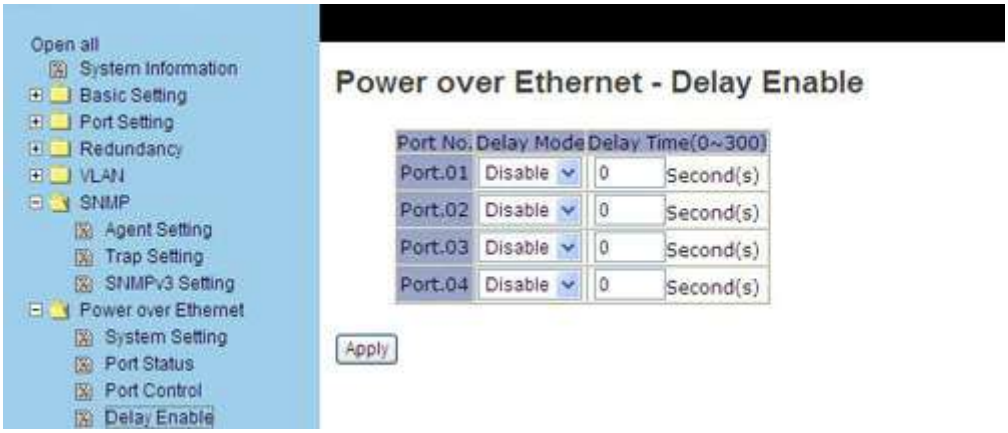


The following table describes the options available.

Options	Description
Port	Port number.
Enable state	Click here to enable the PoE function for the specific port
Power Limit From Classification	Click here for the switch to auto detect the power requirement for the connected PD.
Legacy	The legacy detection is to identify the powered devices that do not follow the IEEE 802.3af standard. Once identified PoE switch can then provide power to these devices.
Priority	Sets port priority for the PoE power management. 1 = C (critical), 2 = H (High), 3 = L (Low)
Power Limit (mW)	Sets the power limit value. The value must less 25000mW
Apply	Click "**Apply**" to set the configurations.

5.1.8.4 Delay Enable

This function allows you to delay the availability of power on the appropriate PoE port at start up, power restart or Firmware restart.



The following table describes the options available.

Option	Description
Port No	The port where the power is delayed
Delay Mode	Enable or Disable the delay function
Delay Time	Delay time after power restart. Maximum 300 seconds

5.1.8.5 Auto-Ping Check

This interface controls the monitoring of the status of the attached PD in real time. The switch pings the attached PD and if it responds in a timely manner it is assumed the PD is working correctly. If the PD fails to respond the action in 'Failure Action' is implemented.

The following table describes the options available.

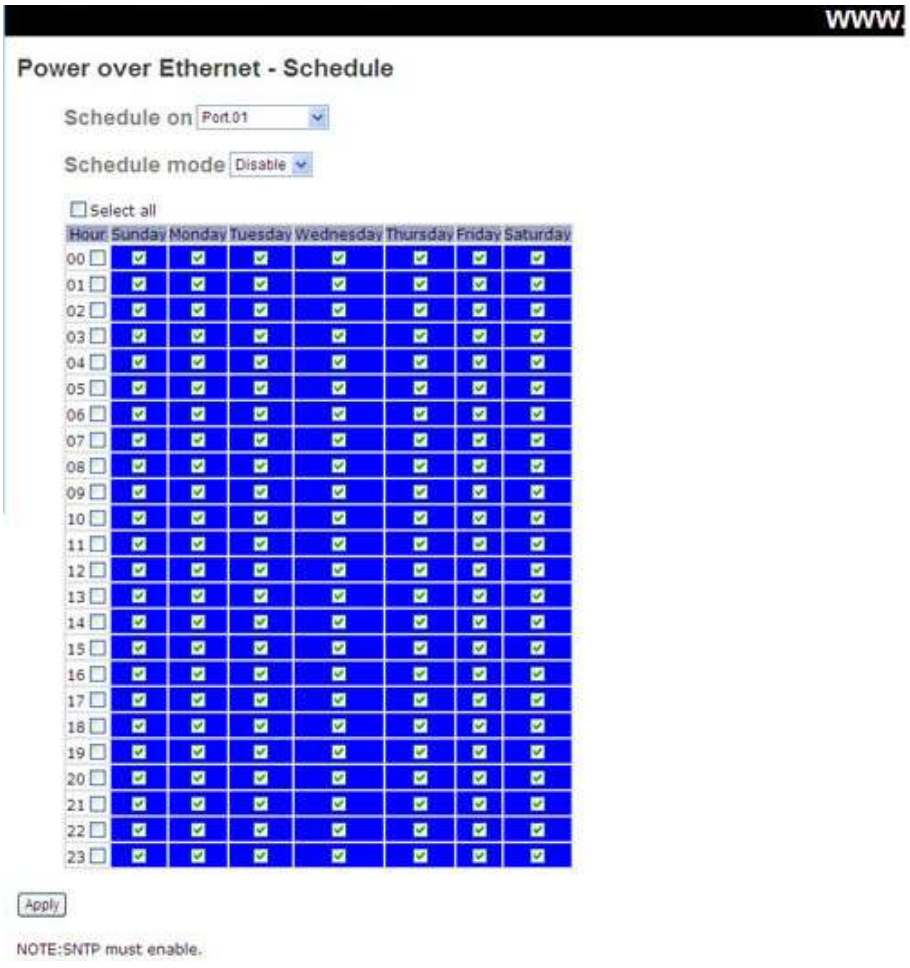
Option	Description
Ping Check	Enable or disable the Ping Check function

Send Mail	When " ping " fails, users can be notified by e-mail
Port	The port you are pinging
Ping IP Address	The IP Address of the pinged device
Interval Time	The time interval between pings
Retry Time	The number of ping tries before failure is notified
Failure Action	The actions to be undertaken when there is no response from the PD. o Nothing – no action taken o Restart Forever – Continuous cycling of the power to the PD o Restart Once – Cycle the power once to the PD o Power On – Keep the power connected to the PD o Power Down – Turn off the power to the PD
Reboot Time	

5.1.8.6 Schedule

The power to each port can be scheduled on a daily and hourly basis. So, for example, if a powered device is not needed during daylight hours the power can be disconnected during this period.

Note the SNTP Function must be Enabled.



The following table describes the options available.

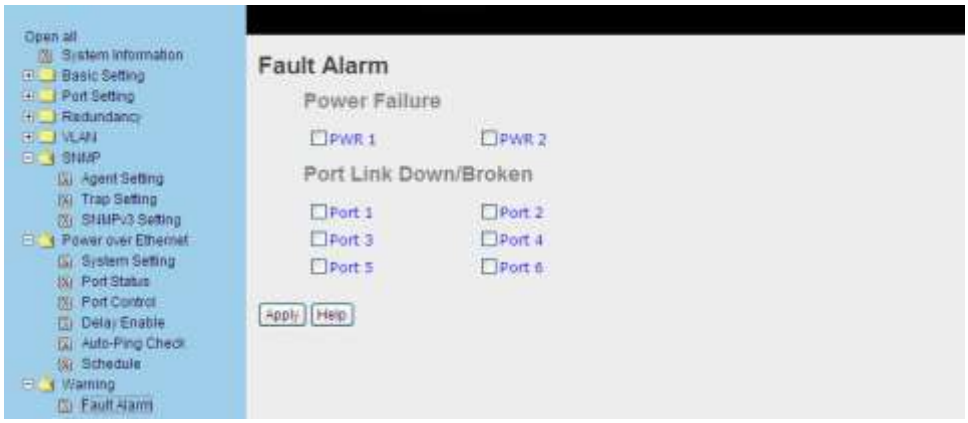
Options	Description
Schedule on	Select the port for scheduling
Schedule mode	Select schedule (Enable/Disable)
Select all	Select all Data & Time slots
Hour	Set port power on time indicated each day
Sunday ~ Saturday	Set power on time for each cell in the matrix

5.1.9 Warning

The warning function is very useful for monitoring the switch status on remote locations. Warnings can be received by SYSLOG, email, and Fault Relay. When problems occur, the warning message will be sent to your appointed server, email, or relay fault on the switch panel.

5.1.9.1 Fault Alarm

When any selected fault event occurs, the Fault LED on the switch front panel will light up and the electric relay will signal at the same time.



The following table describes the options available.

Option	Description
Power Failure	Check the box to monitor PWR 1 or PWR 2.
Port Link Down/Broken	Check the box to monitor port 1 to port 8.
Apply	Click "**Apply**" to save the changed configuration.
Help	Show help file.

5.1.9.2 Event Selection

SYSLOG and SMTP are the two warning methods that are supported by the system. Check the corresponding box to enable the system event warning method you wish to activate. Please note that the checkbox cannot be checked when SYSLOG or SMTP are disabled.

The following table describes the options available.

Options	Description
System Event	Select the method for System warning
System Cold Start	Alert when the system restarts via SYSLOG and/or SMTP
Satyrn-Ring Topology Change	Alert when the Satyrn-Ring topology changes via SYSLOG and/or SMTP
Port Event	○ Disable ○ Link Up ○ Link Down ○ Link Up & Link Down
Apply	Click "**Apply**" to save the changed configuration settings.
Help	Show help file.

5.1.9.3 SYSLOG Setting

The SYSLOG is a protocol to transmit event notification messages across networks. Please refer to RFC 3164 - The BSD SYSLOG Protocol for more detail.

The following table shows the options available.

Option	Description
SYSLOG Mode	○ **Disable:** disable SYSLOG ○ **Client Only:** log to local system ○ **Server Only:** log to a remote SYSLOG server. ○ **Both:** log to both local and remote servers.
SYSLOG Server IP Address	The remote SYSLOG Server IP address.
Apply	Click "**Apply**" to save the changed configuration.
Help	Show help file.

5.1.9.4 System Event LOG

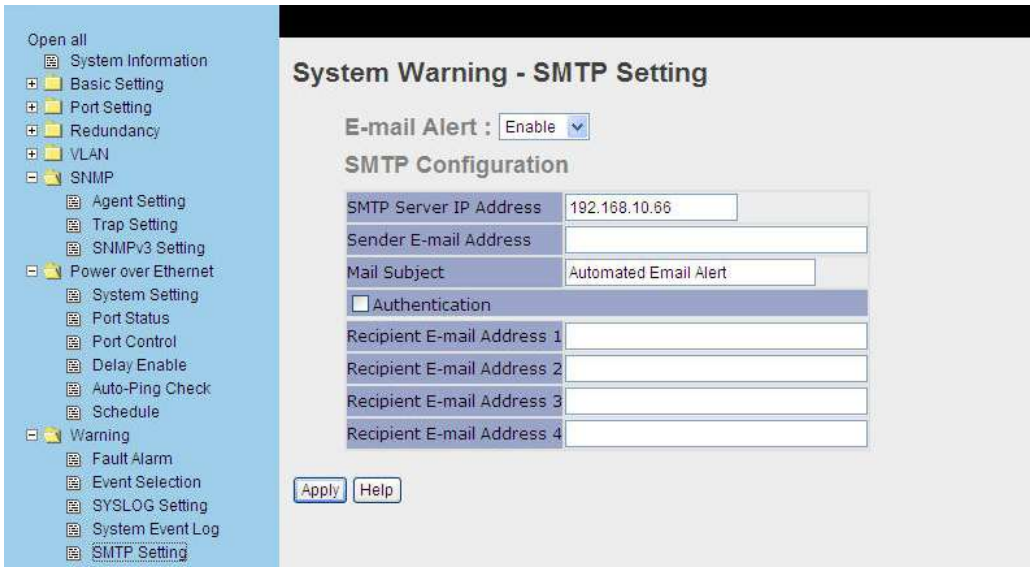
If the system log client is enabled, the system event logs will be recorded in this table.

The following table shows the options available.

Options	Description
Page	Select LOG page.
Reload	Refresh the page and show the newest event logs.
Clear	Clear log.
Help	Show help file.

5.1.9.5 SMTP Setting

SMTP is a protocol for email transmission across the Internet. Please refer to RFC 821 - Simple Mail Transfer Protocol for details.



The following table describes the options available.

Option	Description
E-mail Alarm	Enable/Disable transmission system warning events by email.
Sender E-mail Address	The SMTP server IP address
Mail Subject	The subject of the email
Authentication	○ **Username:** the authentication username ○ **Password:** the authentication password ○ **Confirm Password:** re-enter password.
Recipient E-mail Address	The recipient's E-mail address. Up to 6 recipients per email are supported.
Apply	Click "**Apply**" to save the changed configuration settings.
Help	Show help file.

5.1.10 Save Configuration

Expand the tree view in the left hand panel to see the various options available.

If any configuration setting has been changed, "**Save Configuration**" should be clicked in order to save current configuration data into the permanent flash memory. Otherwise, the updated configuration will be lost when the power is turned off or the system reset.

The following table describes the options available.

Options	Description
Save	Save all configuration changes.
Help	Show help file.

6 Command Line Interface Management

6.1 About CLI Management

The Satyrn M Series switches can not only be managed through a browser based system described in the preceding sections but also via a Command Line Interface (CLI). Either the Serial Console port or Telnet can be used to manage the switch by CLI.

6.1.1 CLI Management by Telnet

Telnet can be used to configure the switch.

The default values are as follows:

IP Address	192.168.250.250
Subnet Mask	255.255.255.0
Default Gateway	192.168.250.1
User Name	comtrol
Password	satyrn

Follow the steps below to access the console via Telnet.

Step 1 Telnet to the IP address of the switch from the Windows "**Run"** command, (or from the MS-DOS prompt) as below.

Step 2 The console login screen will appear.

Step 3 Use the keyboard to enter the Username and Password. Default is

User name	comtrol
Password	satyrn

then press "**Enter**".

6.2 Commands Level

Modes	Access Method	Prompt	Exit Method	About This Model
User EXEC	Begin a session with your switch.	switch>	Type **logout** or **quit**.	The user command available at the level of user is a subset of those available at the privileged level. Use this mode to • Enter menu mode. • Display system information
Privileged EXEC	Enter the **enable** command while in user EXEC mode.	switch#	Type **disable** to exit.	The privileged command is an advanced mode Use this mode to • Display advanced function status • Save configurations
Global configuration	Enter the **configure** command while in privileged EXEC mode.	switch(config)#	To exit to privileged EXEC mode, enter **exit** or **end**	Use this mode to configure the parameters that apply to your switch as a whole.

6.3 Command Level Indicators

Mode	Command Level
User EXEC	E
Privileged EXEC	P
Global configuration	G

6.4 Commands Set List—System Commands Set

Satyrn M series Commands	Level	Description	Example
show config	**E**	Show switch configuration	switch>show config
show terminal	**P**	Show console information	switch#show terminal
write memory	**P**	Save the current configuration into permanent memory (flash rom)	switch#write memory

system name [System Name]	**G**	Configure system name	switch(config)#system name xxx
system location [System Location]	**G**	Set switch system location string	switch(config)#system location xxx
system description [System Description]	**G**	Set switch system description string	switch(config)#system description xxx
system contact [System Contact]	**G**	Set switch system contact window string	switch(config)#system contact xxx
show system-info	**E**	Show system information	switch>show system-info
ip address [Ip-address] [Subnet-mask] [Gateway]	**G**	Configure the switch's IP address.	switch(config)#ip address 192.168.1.1 255.255.255.0 192.168.1.254
ip dhcp	**G**	Enable DHCP client function of switch	switch(config)#ip dhcp
show ip	**P**	Show IP information of switch	switch#show ip
no ip dhcp	**G**	Disable DHCP client function of switch	switch(config)#no ip dhcp
reload	**G**	Halt and perform a cold restart	switch(config)#reload
default	**G**	Restore to default	Switch(config)#default
admin username [Username]	**G**	Changes a login username. (maximum 10 words)	switch(config)#admin username xxxxxx
admin password [Password]	**G**	Specifies a password (maximum 10 words)	switch(config)#admin password xxxxxx
show admin	**P**	Show administrator information	switch#show admin

6.5 Commands Set List—Port Commands Set

Satyrn M series Commands	Level	Description	Example
interface fastEthernet [Portid]	**G**	Choose the port for modification.	switch(config)#interface fastEthernet 2

duplex **[full | half]**	**I**	Use the duplex configuration command to specify the duplex mode of operation for Fast Ethernet.	switch(config)#interface fastEthernet 2 switch(config-if)#duplex full
speed **[10|100|1000|auto]**	**I**	Use the speed configuration command to specify the speed mode of operation for Fast Ethernet. The speed cannot be set to 1000 if the port is not a gigabit port.	switch(config)#interface fastEthernet 2 switch(config-if)#speed 100
flowcontrol mode	**I**	Use the flow control configuration command on Ethernet ports to control traffic rates during periods of congestion.	switch(config)#interface fastEthernet 2 switch(config-if)#flowcontrol mode enable
no flowcontrol	**I**	Disable flow control of interface	switch(config-if)#no flowcontrol
state **[Enable | Disable]**	**I**	Use the state interface configuration command to specify the state mode of operation for Ethernet ports. Use the disable form of this command to disable the port.	switch(config)#interface fastEthernet 2 switch(config-if)#state Disable
show interface configuration	**I**	show the interface configuration status	switch(config)#interface fastEthernet 2 switch(config-if)#show interface configuration
show interface status	**I**	show interface actual status	switch(config)#interface fastEthernet 2 switch(config-if)#show interface status

6.6 Commands Set List—VLAN command set

Satyrn M series Commands	Level	Description	Example
vlan database	**P**	Enter VLAN configure mode	switch#vlan database
vlan **[8021q | gvrp]**	**V**	Set switch VLAN mode.	switch(vlan)# vlanmode 802.1q or switch(vlan)# vlanmode gvrp
no vlan **[VID]**	**V**	Disable VLAN group (by VID)	switch(vlan)#no vlan 2
no gvrp	**V**	Disable GVRP	switch(vlan)#no gvrp
IEEE 802.1Q VLAN			
vlan 8021q port **[PortNumber]** **access-link untag** **[UntaggedVID]**	**V**	Assign an access link for VLAN by port. Note: if the port belongs to a trunk group, this command cannot be used.	switch(vlan)#vlan 802.1q port 3 access-link untag 33
vlan 8021q port **[PortNumber]** **trunk-link tag** **[TaggedVID List]**	**V**	Assign a trunk link for VLAN by port. Note: if the port belong to a trunk group, this command cannot be used.	switch(vlan)#vlan 8021q port 3 trunk-link tag 2,3,6,99 or switch(vlan)#vlan 8021q port 3 trunk-link tag 3-20
vlan 8021q port **[PortNumber]** **hybrid-link untag** **[UntaggedVID]** **tag** **[TaggedVID List]**	**V**	Assign a hybrid link for VLAN by port. Note: if the port belong to a trunk group, this command cannot be used.	switch(vlan)# vlan 8021q port 3 hybrid-link untag 4 tag 3,6,8 or switch(vlan)# vlan 8021q port 3 hybrid-link untag 5 tag 6-8
vlan 8021q aggreator **[TrunkID]** **access-link untag** **[UntaggedVID]**	**V**	Assign an access link for VLAN by trunk group	switch(vlan)#vlan 8021q aggreator 3 access-link untag 33
vlan 8021q aggreator **[TrunkID]** **trunk-link tag** **[TaggedVID List]**	**V**	Assign a trunk link for VLAN by trunk group	switch(vlan)#vlan 8021q aggreator 3 trunk-link tag 2,3,6,99 or switch(vlan)#vlan 8021q aggreator 3 trunk-link tag 3-20
vlan 8021q aggreator **[PortNumber]** **hybrid-link untag** **[UntaggedVID]** **tag** **[TaggedVID List]**	**V**	Assign a hybrid link for VLAN by trunk group	switch(vlan)# vlan 8021q aggreator 3 hybrid-link untag 4 tag 3,6,8 or switch(vlan)# vlan 8021q aggreator 3

			hybrid-link untag 5 tag 6-8
show vlan [VID] or **show vlan**	**V**	Show VLAN information	switch(vlan)#show vlan 23

6.7 Commands Set List—Spanning Tree command set

Satyrn M series Commands	Level	Description	Example
spanning-tree enable	**G**	Enable spanning tree	switch(config)#spanning-tree enable
spanning-tree priority [0to61440]	**G**	Configure spanning tree priority parameter	switch(config)#spanning-tree priority 32767
spanning-tree max-age [seconds]	**G**	Use the spanning-tree max-age global configuration command to change the interval between messages the spanning tree receives from the root switch. If a switch does not receive a bridge protocol data unit (BPDU) message from the root switch within this interval, it will recompute the Spanning Tree Protocol (STP) topology.	switch(config)# spanning-tree max-age 15
spanning-tree hello-time [seconds]	**G**	Use the spanning-tree hello-time global configuration command to specify the interval between hello bridge protocol data units (BPDUs).	switch(config)#spanning-tree hello-time 3
spanning-tree forward-time [seconds]	**G**	Use the spanning-tree forward-time global configuration command to set the forwarding-time for the specified spanning-tree instances. The forwarding time determines how long	switch(config)# spanning-tree forward-time 20

		each of the listening and learning states last before the port begins forwarding.	
stp-path-cost **[1to200000000]**	**I**	Use the spanning-tree cost interface configuration command to set the path cost for Spanning Tree Protocol (STP) calculations. In the event of a loop, the spanning tree will consider the path cost when selecting an interface to place into the forwarding state.	switch(config)#interface fastEthernet 2 switch(config-if)#stp-path-cost 20
stp-path-priority **[Port Priority]**	**I**	Use the spanning-tree port-priority interface configuration command to configure a port priority that is used when two switches are both positioned as the root switch.	switch(config)#interface fastEthernet 2 switch(config-if)# stp-path-priority 127
stp-admin-p2p **[Auto|True|False]**	**I**	Admin P2P of STP priority on this interface.	switch(config)#interface fastEthernet 2 switch(config-if)# stp-admin-p2p Auto
stp-admin-edge **[True|False]**	**I**	Admin Edge of STP priority on this interface.	switch(config)#interface fastEthernet 2 switch(config-if)# stp-admin-edge True
stp-admin-non-stp **[True|False]**	**I**	Admin NonSTP of STP priority on this interface.	switch(config)#interface fastEthernet 2 switch(config-if)# stp-admin-non-stp False
Show spanning-tree	**E**	Display a summary of the spanning-tree states.	switch>show spanning-tree
no spanning-tree	**G**	Disable spanning-tree.	switch(config)#no spanning-tree

6.8 Commands Set List—SNMP command set

Satyrn M series Commands	Level	Description	Example
snmp agent-mode [v1v2c | v3]	G	Select the agent mode of SNMP	switch(config)#snmp agent-mode v1v2c
snmp-server host [IP address] **community** [Community-string] **trap-version** [v1|v2c]	G	Configure SNMP server host information and community string	switch(config)#snmp-server host 192.168.10.50 community public trap-version v1 (remove) Switch(config)# no snmp-server host 192.168.10.50
snmp community-strings [Community-string] **right** [RO|RW]	G	Configure the community string right	switch(config)#snmp community-strings public right RO or switch(config)#snmp community-strings public right RW
snmp snmpv3-user [User Name] **password** [Authentication Password] [Privacy Password]	G	Configure the userprofile for SNMPv3 agent. Privacy password can be left empty.	switch(config)#snmp snmpv3-user test01 password AuthPW PrivPW
show snmp	P	Show SNMP configuration	switch#show snmp
show snmp-server	P	Show specified trap server information	switch#show snmp-server
no snmp community-strings [Community]	G	Remove the specified community.	switch(config)#no snmp community-strings public
no snmp snmpv3-user [User Name] **password** [Authentication Password] [Privacy Password]	G	Remove specified user of SNMPv3 agent. Privacy password can be left empty.	switch(config)# no snmp snmpv3-user test01 password AuthPW PrivPW
no snmp-server host [Host-address]	G	Remove the SNMP server host.	switch(config)#no snmp-server 192.168.10.50

6.9 Commands Set List—TFTP command set

Satyrn M series Commands	Level	Description	Defaults Example
backup flash:backup_cfg	G	Save configuration to TFTP. The IP of TFTP server and the file name of image must be specified.	switch(config)#backup flash:backup_cfg
restore flash:restore_cfg	G	Get configuration from TFTP server. The IP of TFTP server and the file name of image must be specified.	switch(config)#restore flash:restore_cfg
upgrade flash:upgrade_fw	G	Upgrade firmware by TFTP. The IP of TFTP server and the file name of image must be specified.	switch(config)#upgrade lash:upgrade_fw

6.10 Commands Set List—SYSLOG, SMTP, EVENT command set

Satyrn M series Commands	Level	Description	Example
systemlog ip **[IP address]**	G	Set System log server IP address.	switch(config)# systemlog ip 192.168.1.100
systemlog mode **[client|server|both]**	G	Specified the log mode.	switch(config)# systemlog mode both
show systemlog	E	Display system log.	Switch>show systemlog
show systemlog	P	Show system log client and server information.	switch#show systemlog
no systemlog	G	Disable system log functon.	switch(config)#no systemlog
smtp enable	G	Enable SMTP function.	switch(config)#smtp enable
smtp serverip **[IP address]**	G	Configure SMTP server IP.	switch(config)#smtp serverip 192.168.1.5
smtp authentication	G	Enable SMTP authentication.	switch(config)#smtp authentication
smtp account **[account]**	G	Configure authentication account.	switch(config)#smtp account User

smtp password [password]	**G**	Configure authentication password.	switch(config)#smtp password
smtp rcptemail [Index] [Email address]	**G**	Configure reciever's email address	switch(config)#smtp rcptemail 1 Alert@test.com
show smtp	**P**	DisplaySMTP information.	switch#show smtp
no smtp	**G**	Disable SMTP function	switch(config)#no smtp
event device-cold-start [Systemlog|SMTP|Both]	**G**	Set cold start event type.	switch(config)#event device-cold-start both
event authentication-failure [Systemlog|SMTP|Both]	**G**	Set authentication failure event type.	switch(config)#event authentication-failure both
event O-Ring-topology-change [Systemlog|SMTP|Both]	**G**	Set ring topology changed event type.	switch(config)#event ring-topology-change both
event systemlog [Link-UP|Link-Down|Both]	**I**	Set port event for system log.	switch(config)#interface fastethernet 3 switch(config-if)#event systemlog both
event smtp [Link-UP|Link-Down|Both]	**I**	Set port event for SMTP.	switch(config)#interface fastethernet 3 switch(config-if)#event smtp both
show event	**P**	Show event selection.	switch#show event
no event device-cold-start	**G**	Disable cold start event type.	switch(config)#no event device-cold-start
no event authentication-failure	**G**	Disable authentication failure event type.	switch(config)#no event authentication-failure
no event O-Ring-topology-change	**G**	Disable O-Ring topology changed event type.	switch(config)#no event ring-topology-change
no event systemlog	**I**	Disable port event for system log.	switch(config)#interface fastethernet 3 switch(config-if)#no event systemlog
no event smpt	**I**	Disable port event for SMTP.	switch(config)#interface fastethernet 3 switch(config-if)#no event smtp
show systemlog	**P**	Show system log client and server	switch#show systemlog

		information.	

6.11 Commands Set List—SNTP command set

Satyrn M series Commands	Level	Description	Example
sntp enable	**G**	Enable SNTP function.	switch(config)#sntp enable
sntp daylight	**G**	Enable daylight saving time. This command can't be applied if SNTP function is inactive.	switch(config)#sntp daylight
sntp daylight-period **[Start time] [End time]**	**G**	Set period of daylight saving time. This command can't be applied if SNTP function is inactive. Parameter format: [yyyymmdd-hh:mm]	switch(config)# sntp daylight-period 20060101-01:01 20060202-01-01
sntp daylight-offset **[Minute]**	**G**	Set offset of daylight saving time. This command can't be applied if SNTP function is inactive.	switch(config)#sntp daylight-offset 3
sntp ip **[IP]**	**G**	Set SNTP server IP. This command can't be applied if SNTP function is inactive.	switch(config)#sntp ip 192.169.1.1
sntp timezone **[Timezone]**	**G**	Set timezone index. Use "show sntp timzezone" command to obtain more information about index number.	switch(config)#sntp timezone 22
show sntp	**P**	Show SNTP information.	switch#show sntp
show sntp timezone	**P**	Show index number of time zone list.	switch#show sntp timezone
no sntp	**G**	Disable SNTP function.	switch(config)#no sntp
no sntp daylight	**G**	Disable daylight saving time.	switch(config)#no sntp daylight

6.12 Commands Set List—Satyrn-Ring command set

IES-3000 series Commands	Level	Description	Example
Ring enable	**G**	Enable Satyrn-Ring.	switch(config)# ring enable
Ring master	**G**	Enable ring master.	switch(config)# ring master
Ring couplering	**G**	Enable couple ring.	switch(config)# ring couplering
Ring dualhoming	**G**	Enable dual homing.	switch(config)# ring dualhoming
Ring ringport **[1st Ring Port] [2nd Ring Port]**	**G**	Configure 1st/2nd Ring Port.	switch(config)# ring ringport 7 8
Ring couplingport **[Coupling Port]**	**G**	Configure Coupling Port.	switch(config)# ring couplingport 1
Ring controlport **[Control Port]**	**G**	Configure Control Port.	switch(config)# ring controlport 2
Ring homingport **[Dual Homing Port]**	**G**	Configure Dual Homing Port.	switch(config)# ring homingport 3
show Ring	**P**	Show Satyrn-Ring information.	switch#show ring
no Ring	**G**	Disable Satyrn-Ring.	switch(config)#no ring
no Ring master	**G**	Disable ring master.	switch(config)# no ring master
no Ring couplering	**G**	Disable couple ring.	switch(config)# no ring couplering
no Ring dualhoming	**G**	Disable dual homing.	switch(config)# no ring dualhoming

7 Technical Specifications

Technology	
Ethernet Standards	IEEE802.3 10BASE-T IEEE802.3u 100BASE-TX IEEE802.3x Flow Control and Back pressure IEEE802.3af Power over Ethernet specification IEEE802.1D Spanning tree protocol IEEE802.1w Rapid Spanning tree protocol IEEE802.1AB LLDP
MAC addresses	2048
Flow Control	IEEE 802.3x Flow Control and Back-pressure
VLAN	Port based
Processing	Store-and-Forward
Firmware upgrade	TFTP
Ring redundancy	STP RSTP Couple Ring Dual Homing Satyrn-Ring Satyrn-Open Fast recovery
Interface	
RJ45 Ports	10/100Base-T(X), Auto MDI/MDI-X 4 x PoE (PSE) on selected models
Fibre Ports	100 Base-FX (SC Connector) on selected models 100 Base-FX (SFP) on selected models Multi-Mode: 0 to 2 km, 1310 nm (50/125 µm to 62.5/125 µm) Single-Mode: 0 to 30 km, 1310 nm (9/125 µm)
LED Indicators	Per Unit : Power x 3 (Green)

	RJ45 Ports: Per Port : Link/Activity (Green/Blinking Green), Full LINK (Amber) Fibre Ports: Per Port : Activity (Green), Link (Amber) SFP Ports: Per Port : Link/Activity (Green) PoE Ports: P.O.E. power supplied (Green)
Power Requirements	
Power Input Voltage	PWR1/2: 12 ~ 48V DC on Terminal block PWR1/2 +48V on terminal block (on PoE models) PWR3: (If present) 12 to 45VDC on Power Jack PW3 +48V on Power Jack (on PoE models)
Reverse Polarity Protection	Present
Power Consumption	L060-EN – 5 Watts L042-EM – 7 Watts L042-ES – 7 Watts L042-EP – 7 Watts L042-PE – 5 Watts (Power supplied to PD not included) L042-PM – 7 Watts (Power supplied to PD not included) L042-PS – 7 Watts (Power supplied to PD not included) L042-PP – 7 Watts (Power supplied to PD not included)
Environmental	
Wide Operating Temperature	-40 to 70^{o}C
Storage Temperature	-40 to 85^{o}C
Operating Humidity	5% to 95%, non-condensing
Mechanical	
Dimensions(W x D x H)	L060-EN - 52 mm(W)x 106 mm(D) x 144 mm(H) L042-EM - 52 mm(W) x 106 mm(D) x 144 mm(H) L042-ES - 52 mm(W)x 106 mm(D) x 144 mm(H) L042-EP – 26.1mm(W)x 95mm(D) x 144.3mm L042-PE - 52 mm(W)x 106 mm(D)x 144 mm(H)

	L042-PM - 52 mm(W)x 106 mm(D) x 144 mm(H) L042-PS - 52 mm(W)x 106 mm(D) x 144 mm(H) L042-PP - 54.2 mm(W)x 106.1 mm(D) x 145.4 mm(H)
Casing	IP-30 protection
Regulatory Approvals	
Regulatory Approvals	FCC Part 15, CISPER (EN55022) class A
EMS	EN61000-4-2 (ESD) EN61000-4-3 (RS) EN61000-4-4 (EFT) EN61000-4-5 (Surge) EN61000-4-6 (CS)
Shock	IEC 60068-2-27
Free Fall	IEC 60068-2-32
Vibration	IEC 60068-2-6
Warranty	5 years