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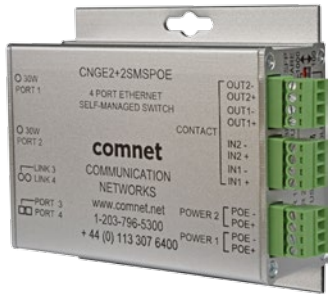

INSTALLATION AND OPERATION MANUAL

CNGE2+2SMS[POE][HO]

10/100/1000 MBPS INTELLIGENT REDUNDANT RING GIGABIT SWITCH WITH OPTIONAL POE+

This manual serves the following ComNet Model Numbers:

CNGE2+2SMS
CNGE2+2SMSPOE
CNGE2+2SMSPOEHO

The ComNet CNGE2+2SMS[POE][HO] is a four port intelligent switch with light management functionality. It provides two 10/100/1000Base-T(X) copper ports and two 100/1000Base-FX SFP ports. The CNGE2+2SMS[POE][HO] provides exclusive functionality for easy field deployment including DIP switch based operation of RSTP for creating redundant network topologies as well as preventing network video flooding of multicast traffic with IGMP snooping. Ports 1 and 2 can optionally supply up to thirty (30) watts of power per port based on the IEEE 802.3at standard. An optional High Output (HO) version is also available that can supply up to sixty (60) watts of PoE from ports 1 and 2. This product is fully compatible with the ComNet exclusive CopperLine® SFP modules for operation over extended distance UTP or Coax cable. The ComNet exclusive Port Guardian feature provides additional cyber security protection by enabling physical port lockout in the event that an existing cable is disconnected and prevents a potential network incursion using common spoofing techniques. The intrusion event is reported back to the operator using SNMP.

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Regulatory Compliance Statement

Product(s) associated with this publication complies/comply with all applicable regulations. Please refer to the Technical Specifications section for more details.

Warranty

ComNet warrants that all ComNet products are free from defects in material and workmanship for a specified warranty period from the invoice date for the life of the installation. ComNet will repair or replace products found by ComNet to be defective within this warranty period, with shipment expenses apportioned by ComNet and the distributor. This warranty does not cover product modifications or repairs done by persons other than ComNet-approved personnel, and this warranty does not apply to ComNet products that are misused, abused, improperly installed, or damaged by accidents.

Please refer to the Technical Specifications section for the actual warranty period(s) of the product(s) associated with this publication.

Disclaimer

Information in this publication is intended to be accurate. ComNet shall not be responsible for its use or infringements on third-parties as a result of its use. There may occasionally be unintentional errors on this publication. ComNet reserves the right to revise the contents of this publication without notice.

Safety Indications

» The equipment can only be accessed by trained ComNet service personnel.

» This equipment should be installed in secured location.

Overview

Introduction

The CNGE2+2SMS is a light managed, hardened Ethernet switch that contains many features. The switch will work under a wide variety of temperature, dirty and humid conditions. It can be managed through WEB, USB Console or other third-party SNMP software. With the easy to use and intuitive web and CLI interfaces, the switch can be easily monitored by a utility called eVision, which is part of the ComNet eConsole software suite.

eConsole is network management software that is very effective. With easy to use and intuitive interface, you can easily monitor the status of the switches.

Software Features

» Supports SNMPv1/v2c
» Event notification by SNMP trap and Relay Output (Relay Output for PoE models only)
» Web-based GUI and USB Console CLI configuration
» Enable/disable ports
» LLDP (Link Layer Discovery Protocol) support (802.1AB)
» PoE status monitoring and health check
» RSTP (802.1w)
» IGMP snooping v2 (64 groups)
» Jumbo Frame support (10240 MTU)
» Static MAC lock (per port)
» Static multicast MAC routing
» Field firmware upgrade capable
» Port Guardian physical port lockout feature
» Active ping check with SNMP trap, port reset & port shutdown capability

Hardware Features

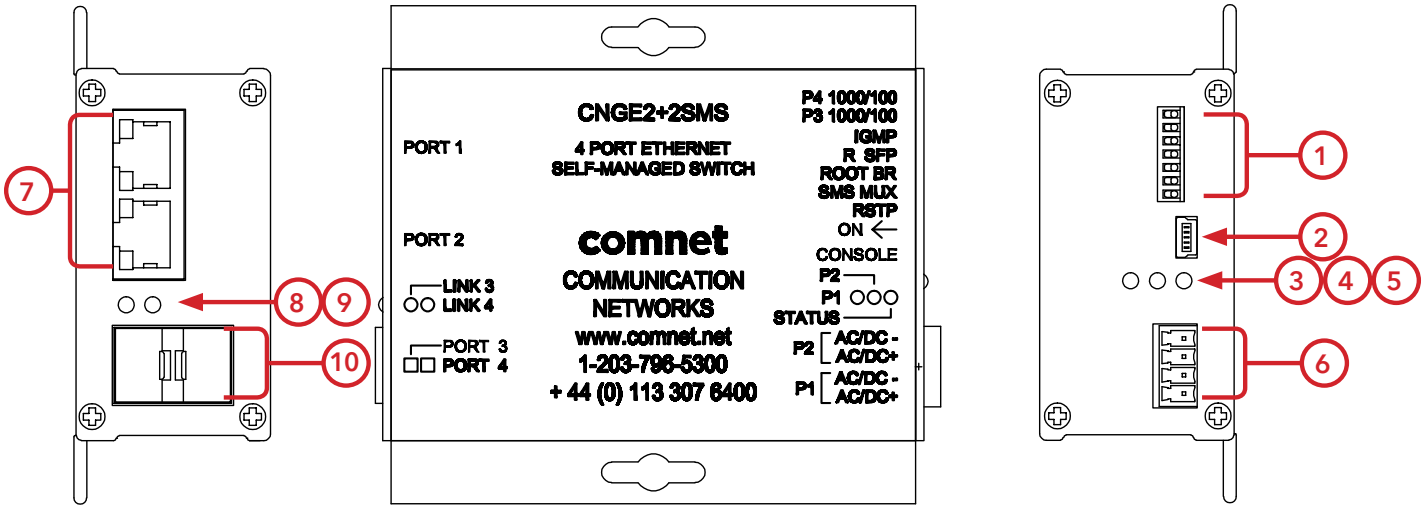
» 7 × DIP Switches for quick feature selection
» 2 × Redundant DC power inputs
» Operating Temperature: -40 – 75°C
» Storage Temperature: -40 – 85°C
» Operating Humidity: 5% – 95%, non-condensing
» 2 × 10/100/1000Base-T(X) Gigabit Ethernet port
» 2 × 100/1000Base-X SFP
» 2 × Dry Contact Inputs (PoE models only)
» 2 × Form A Relays (PoE models only)
» USB Console Port
» Dimensions: 4.1 × 3.7 × 1.46 in (10.4 × 9.4 × 3.7 cm)

Hardware Overview

Side Panels

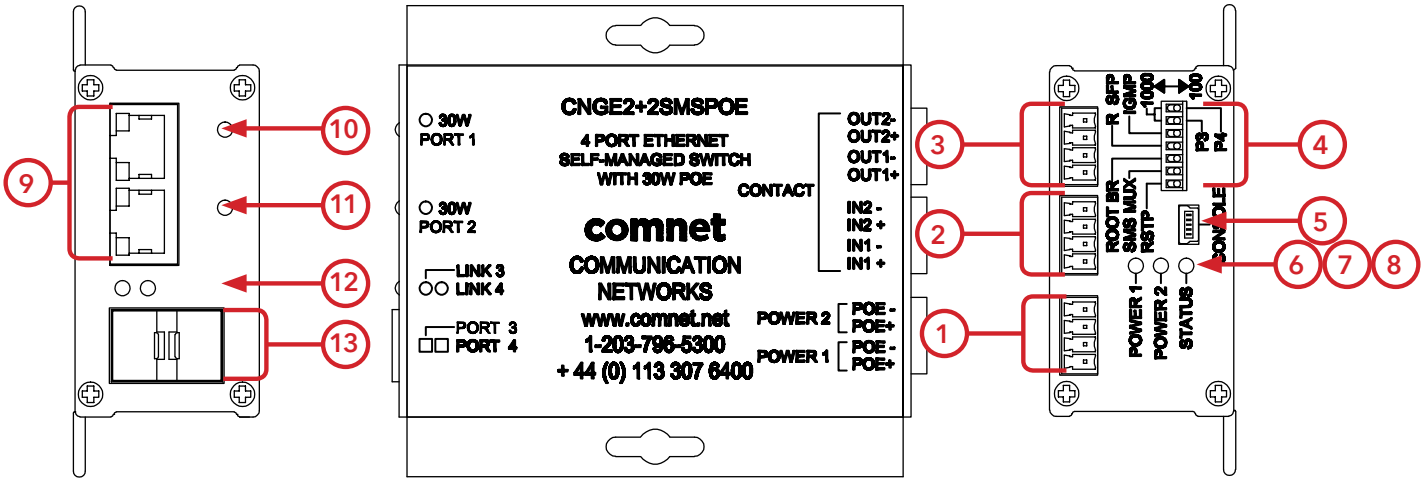
The following table describes the ports that are on the sides of the CNGE2+2SMS.

Port	Description
10/100/1000Base-T(X) RJ-45 Ethernet ports	2 × 10/100/1000Base-T(X) RJ-45 fast Ethernet ports support auto-negotiation. Default Settings: Speed: auto Duplex: auto Flow control: disable
SFP Ports	2 × 100/1000Base-X SFP
USB Console	Use the included mini USB cable to manage the switch.

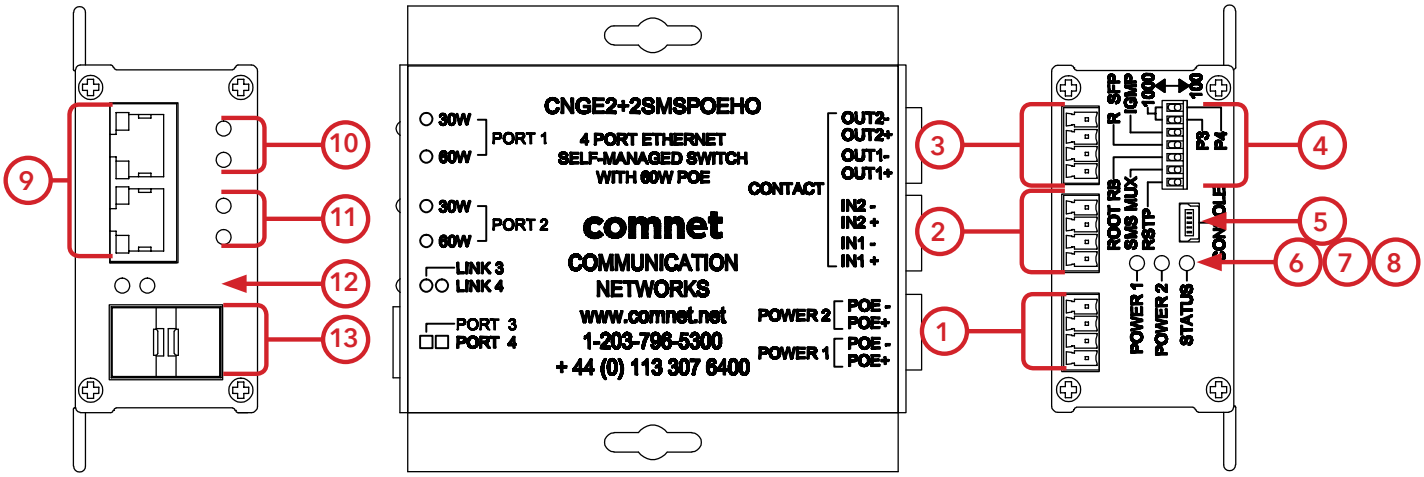


CNGE2+2SMS

1. Configuration DIP switches
2. Console Mini USB
3. LED for PWR1
4. LED for PWR2
5. LED for STATUS
6. Power Connections
7. RJ-45 Ports
8. Link/Activity LEDs for SFP Port 3
9. Link/Activity LEDs for SFP Port 4
10. SFP Ports



CNGE2+2SMSPOE



CNGE2+2SMSPOEHO

1. Power connections
2. Contact IN terminal block
3. Contact OUT terminal block
4. Configuration DIP switches
5. Console Mini USB
6. LED for Power 1
7. LED for Power 2
8. LED for Status
9. RJ-45 Ports
10. PoE Status LEDs for RJ-45 Port 1
11. PoE Status LEDs for RJ-45 Port 2
12. Link/Activity LEDs for SFP Ports 3 and 4
13. SFP Ports 3 and 4

Indicating LEDs

LED	Color	Status	Description
PWR1	Green	On	DC Power Input 1 Good
		Off	No power detected
PWR2	Green	On	DC Power Input 2 Good
		Off	No power detected
STATUS	Green	On	Initialization passed
	Red	On	Failed
10/100/1000Base-T(X) Ethernet ports			
LNK/ACT	Green	On	Port link up
		Blinking	Data transmitting
1000 Mbps indicator	Amber	On	Port speed is 1000 Mbps
30W	Green	On	30W PoE power being supplied (POE units only)
60W	Green	On	60W PoE power being supplied (POEHO units only)
SFP			
LNK/ACT	Green	On	Port link up.
		Blinking	Data transmitted.

Cables

Ethernet Cables

The CNGE2+2SMS switches have standard Ethernet ports. According to the link type, the switches use CAT 3, 4, 5, & 5e UTP cables to connect to any other network device (PCs, servers, switches, routers, or hubs). Please refer to the following table for cable specifications.

Cable Types and Specifications

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

10/100/1000BASE-T(X) Pin Assignments

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

10/100 Base-T RJ-45 Pin Assignments

Pin Number	Assignment
1	TD+
2	TD-
3	RD+
4	Not used
5	Not used
6	RD-
7	Not used
8	Not used

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

1000 Base-T RJ-45 Pin Assignments

Pin Number	Assignment
1	BI_DA+
2	BI_DA-
3	BI_DB+
4	BI_DC+
5	BI_DC-
6	BI_DB-
7	BI_DD+
8	BI_DD-

The CNGE2+2SMS switches support auto MDI/MDI-X operation. You can use a straight-through cable to connect PC to switch. The following table below shows the 10/100BASE-T(X) MDI and MDI-X port pin-outs:

10/100 Base-T MDI/MDI-X pin assignments

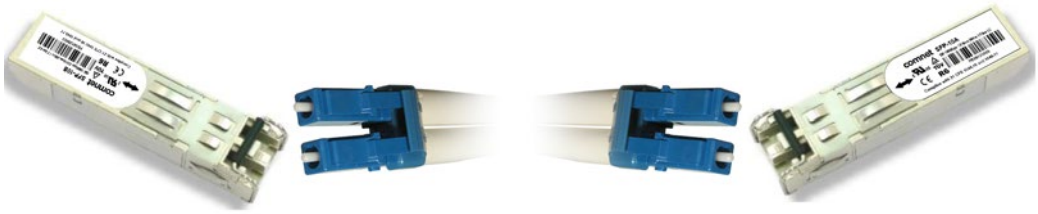
Pin Number	MDI port	MDI-X port
1	TD+ (transmit)	RD+ (receive)
2	TD- (transmit)	RD- (receive)
3	RD+ (receive)	TD+ (transmit)
4	Not used	Not used
5	Not used	Not used
6	RD- (receive)	TD- (transmit)
7	Not used	Not used
8	Not used	Not used

1000 Base-T MDI/MDI-X pin assignments

Pin Number	MDI port	MDI-X port
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

SFP

The Switch has fiber optic ports that utilize SFP connectors. ComNet offers a wide selection of SFP modules that offer different fiber type, connector type and distances. Please remember that the TX port of Switch A should be connected to the RX port of Switch B.



Switch A *Fiber Cord* *Switch B*

Console Cable

Each CNGE2+2SMS switch can have the initial network settings configured by the management console port. You can connect them to a PC with USB Ports using the supplied USB to USB Mini B male plug cable.

DIP Switches

The CNGE2+2SMS's dip switches configure switch features. The DIP Switches are numbered from left to right when viewing the side of the Switch with the backplate on the bottom and the power connections on the left. If "Web Management Enable" is selected in the management software under System Settings, the DIP switch settings will be overridden by any settings made in the browser interface.

DIP Switch Position	Description
1	RSTP enable (down = disabled, up enabled)
2	Port SMS Mux
3	Root Bridge Select
4	Redundant SFP mode
5	IGMP enable
6	SFP Port 3 speed. Up: 1000M/Down: 100M
7	SFP Port 4 speed. Up: 1000M/Down: 100M

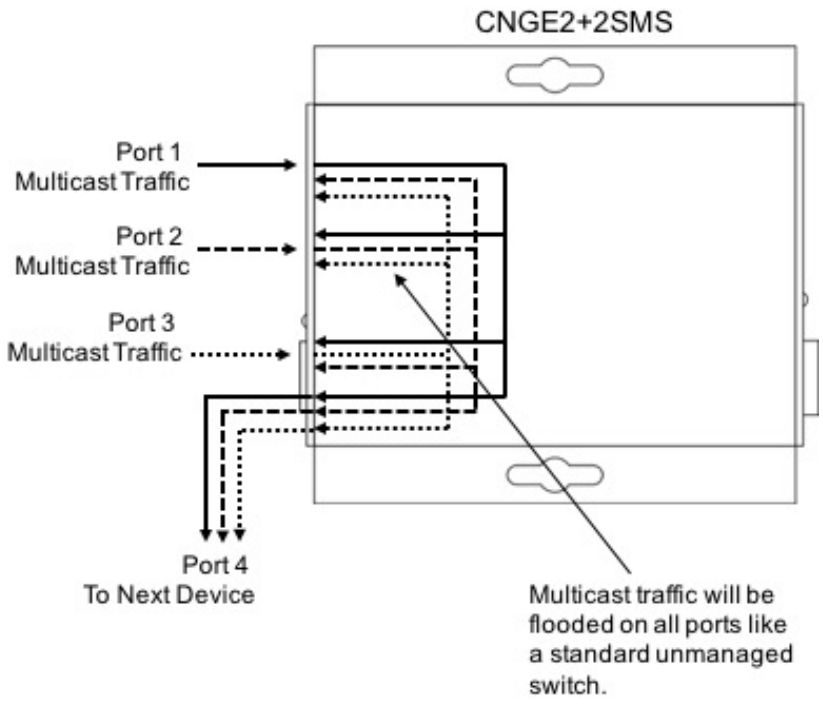
Switch Function Listing

The switch functions may be set individually or may be combined in the following order to perform enhanced functions above the individual operation. The table below describes the operation of the switch functions. This same table is also available in the help menu of the system webpage.

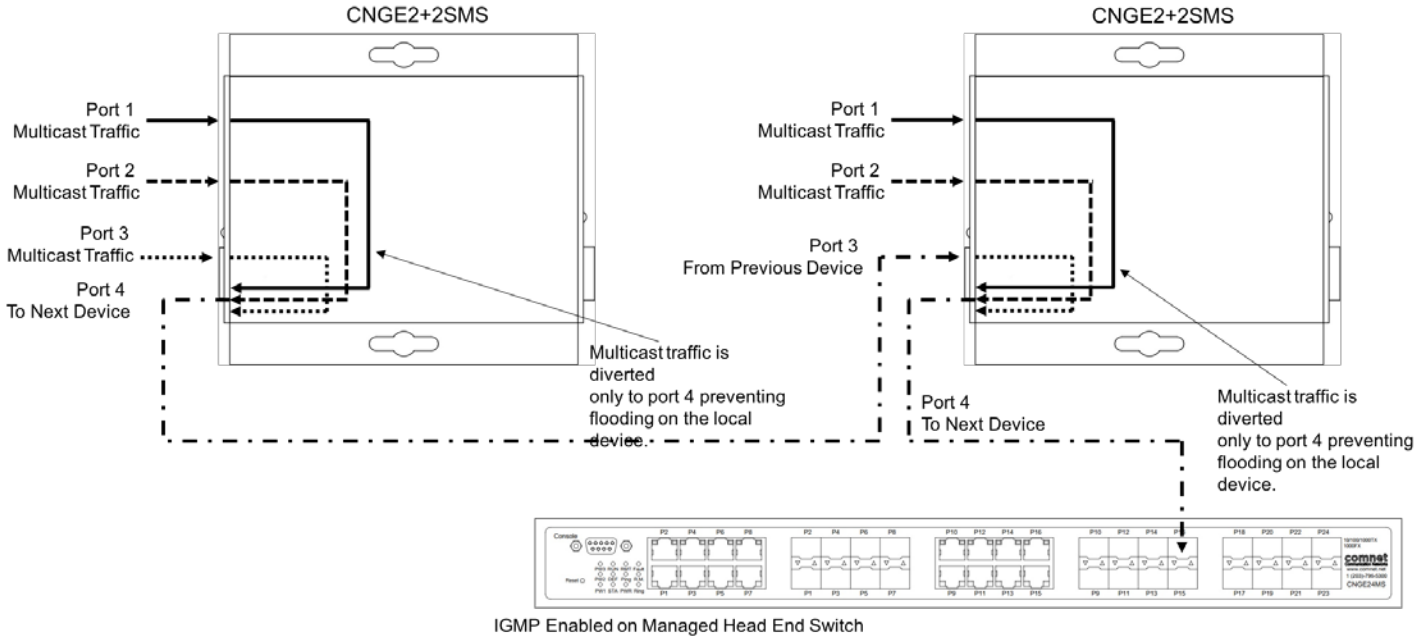
Summary of the switch configurations (in order of switch priority)

RSTP (Switch 1)	SMS MUX (Switch 2)	ROOT BR (Switch 3)	R SFP (Switch 4)	Resulting Mode	Comment
ON	OFF	OFF	OFF	RSTP	All ring configurations
ON	OFF	ON	OFF	RSTP	RSTP this bridge set to root
OFF	ON	OFF	OFF	SMS	Port4 is uplink (traffic from ports 1-3 is sent only to port 4)
OFF	ON	OFF	ON	SMS with Redundant SFP	Fiber fail over with Port1 and Port2 isolation
OFF	OFF	OFF	ON	Redundant SFP	Fiber fail over Port 4 is primary port

SMS MUX Disabled (DIP Switch 2 in OFF Position)

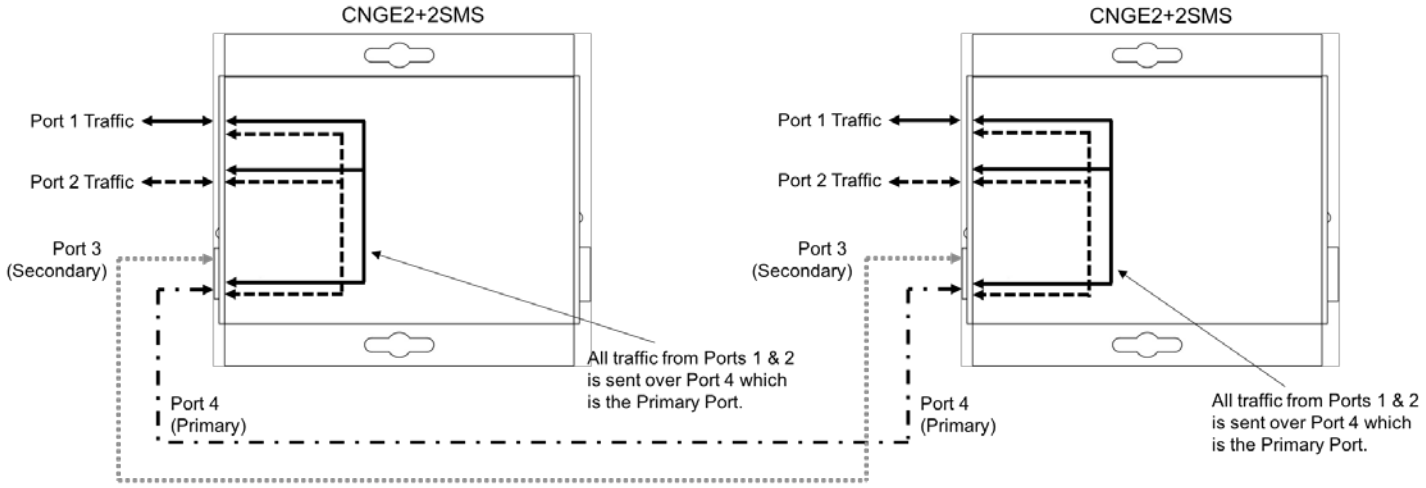


SMS MUX Enabled (DIP Switch 2 in On Position)



IGMP Enabled on Managed Head End Switch

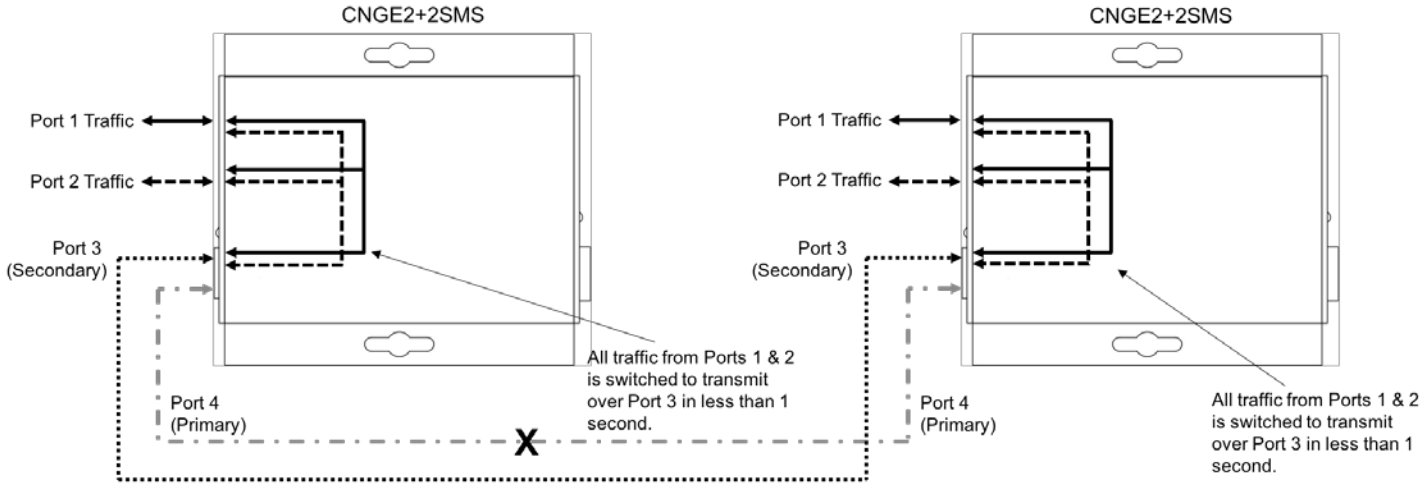
Redundant SFP (RSFP) Enabled (DIP Switch 4 in On Position)



Normal Operation Condition

Note: There is no port isolation between Ports 1 & 2 as shown. Ports 1 & 2 are free to send traffic between each other as per a normal switch.

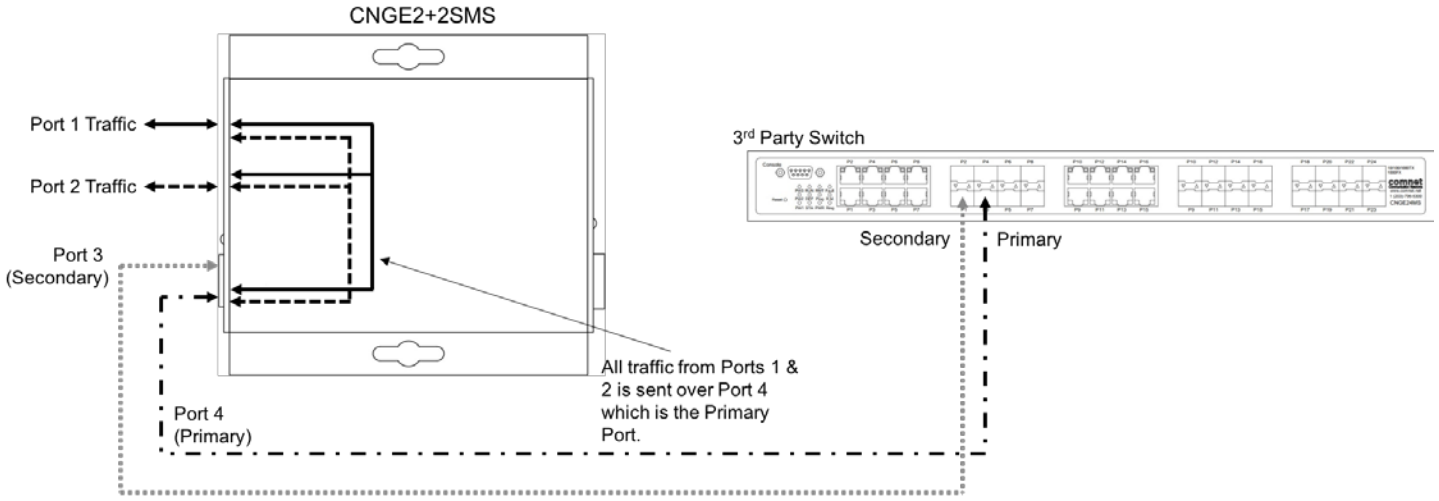
Redundant SFP (RSFP) Enabled (DIP Switch 4 in On Position)



Port 4 Fault Condition

Note: There is no port isolation between Ports 1 & 2 as shown. Ports 1 & 2 are free to send traffic between each other as per a normal switch.
When Port 4 comes back online all traffic from Ports 1 & 2 is switched back to transmit over Port 4 in less than 1 second.

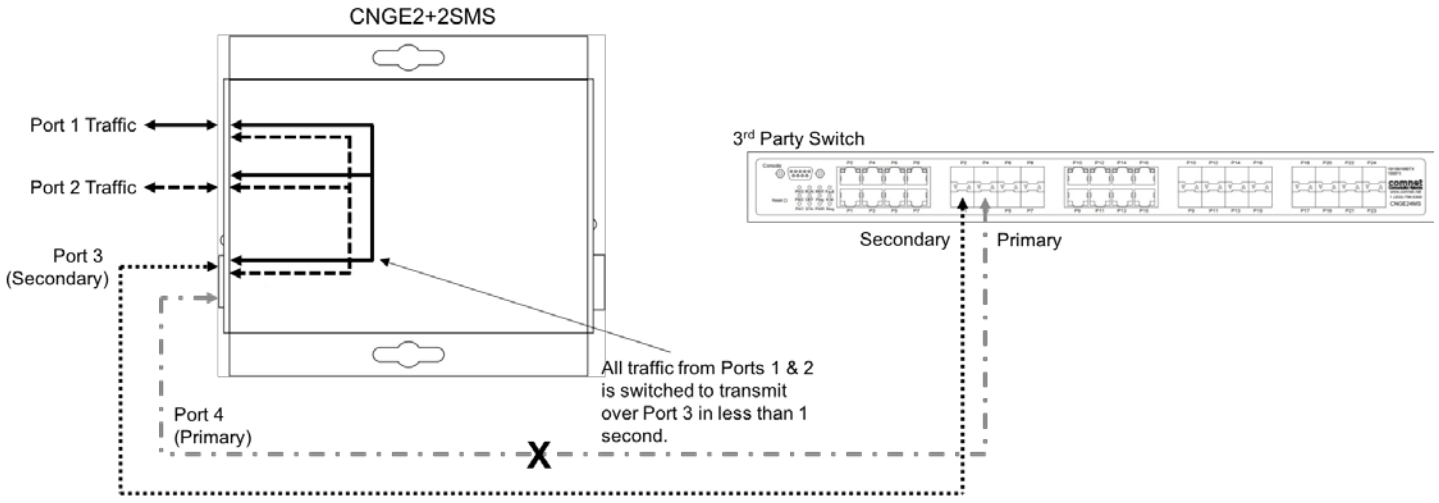
Redundant SFP (RSFP) Enabled (3rd Party Switch) (DIP Switch 4 in On Position)



Normal Operation Condition

Note: Disabling MAC Address Learning on the 3rd party switch (if supported) can sometimes allow for faster port switchover times.
There is no port isolation between Ports 1 & 2 as shown. Ports 1 & 2 are free to send traffic between each other as per a normal switch.

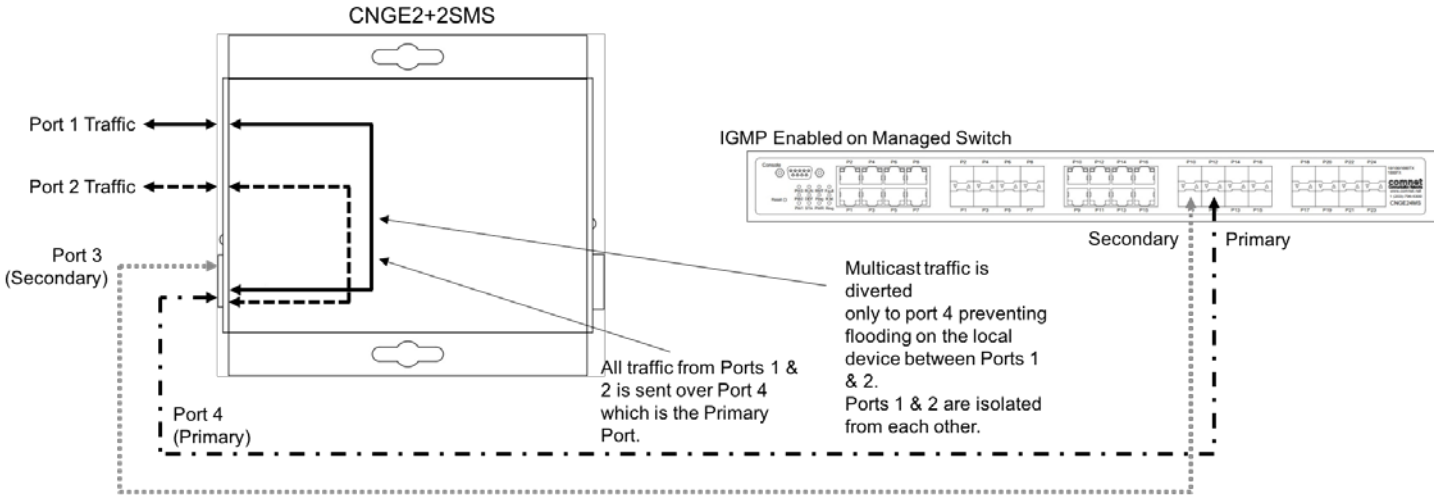
Redundant SFP (RSFP) Enabled (3rd Party Switch) (DIP Switch 4 in On Position)



Port 4 Fault Condition

Note: Disabling MAC Address Learning on the 3rd party switch (if supported) can sometimes allow for faster port switchover times.
There is no port isolation between Ports 1 & 2 as shown. Ports 1 & 2 are free to send traffic between each other as per a normal switch.
When Port 4 comes back online all traffic from Ports 1 & 2 is switched back to transmit over Port 4 in less than 1 second.

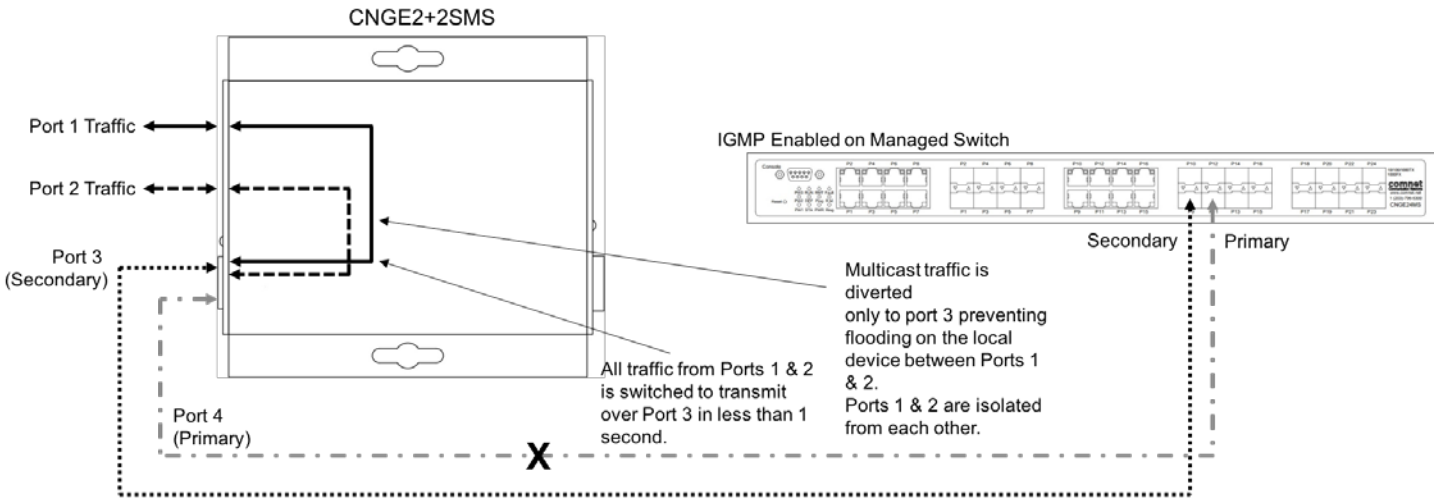
Redundant SFP (RSFP) Enabled + SMS MUX Enabled (3rd Party Switch) (DIP Switch 2 & 4 ON)



Normal Operation Condition

Note: Disabling MAC Address Learning on the 3rd party switch (if supported) can sometimes allow for faster port switchover times.
Multicast traffic is diverted only to port 4 preventing flooding on the local device between Ports 1 & 2. Ports 1 & 2 are isolated from each other.

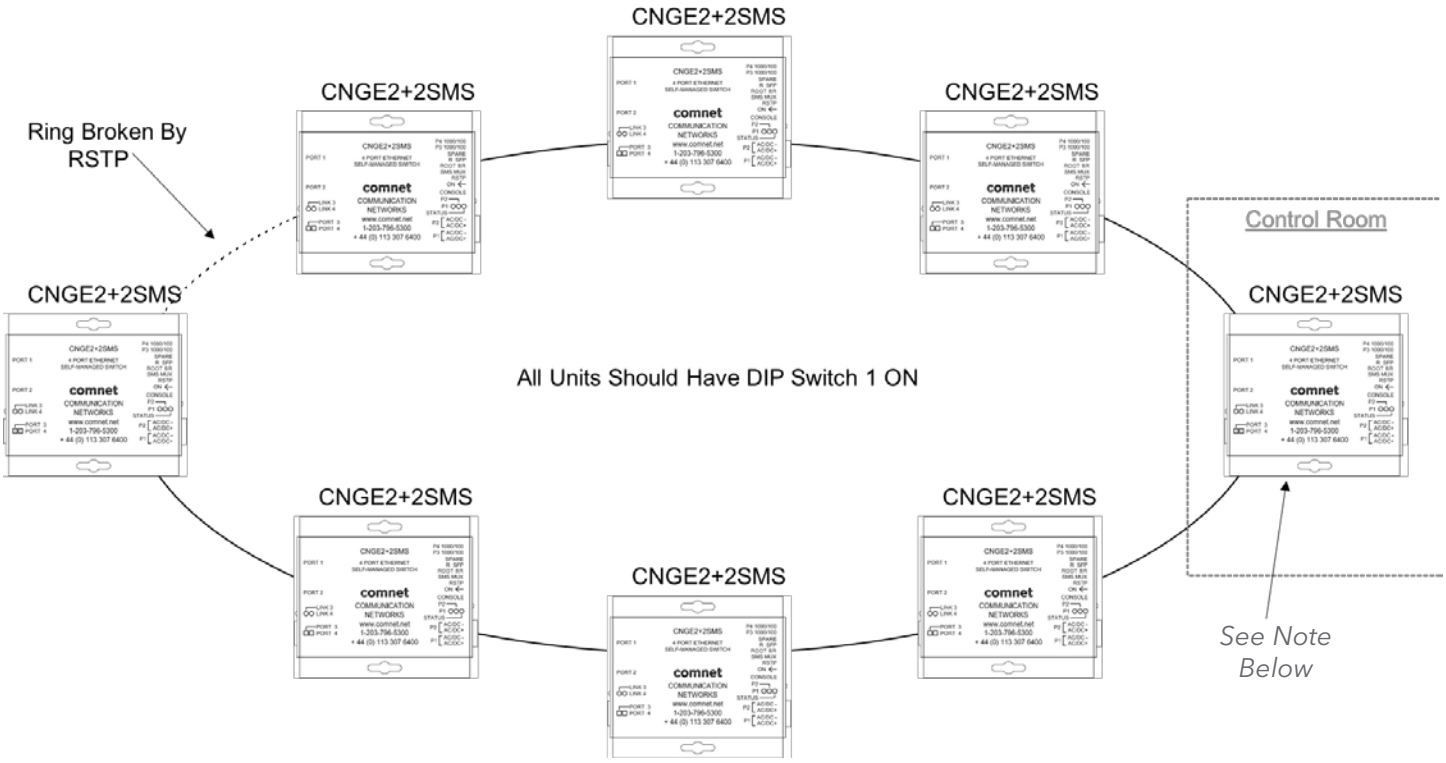
Redundant SFP (RSFP) Enabled + SMS MUX Enabled (3rd Party Switch) (DIP Switch 2 & 4 ON)



Port 4 Fault Condition

Note: Disabling MAC Address Learning on the 3rd party switch (if supported) can sometimes allow for faster port switchover times.
Multicast traffic is diverted only to port 4 preventing flooding on the local device between Ports 1 & 2. Ports 1 & 2 are isolated from each other.
When Port 4 comes back online all traffic from Ports 1 & 2 is switched back to transmit over Port 4 in less than 1 second.

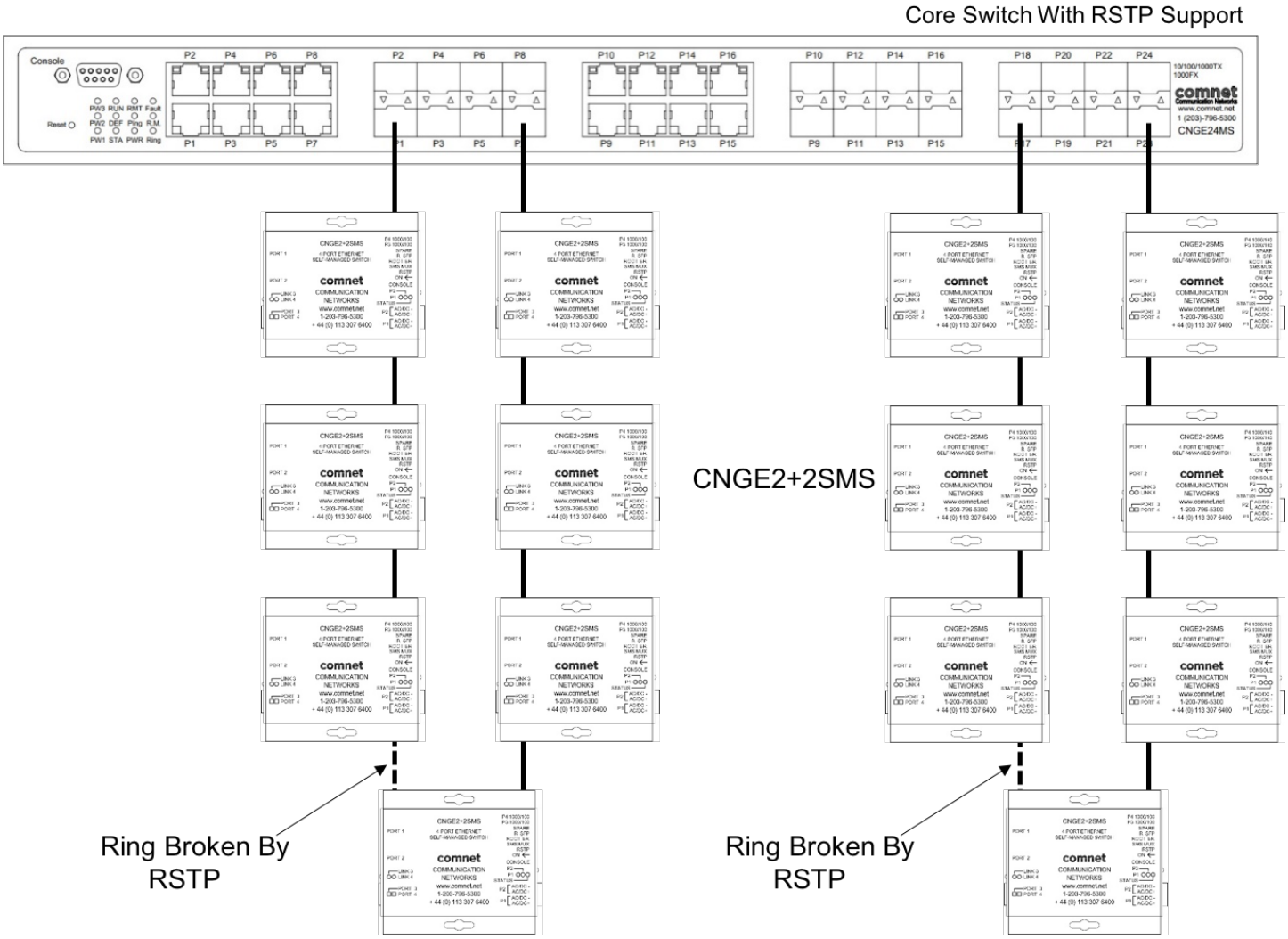
RSTP Enabled (Single Ring) (DIP Switch 1 ON)



Attention: ComNet recommends maximum number of units per ring is limited to 20 devices. Numbers higher than this may cause undesired performance and are not supported by ComNet.

Note: The unit at the control room location should have DIP switch 3 ON (ROOT BR). This will force the ring to break at the half way point and ensure most effective load sharing on the network.

RSTP Enabled (Multiple Rings) (DIP Switch 1 ON)

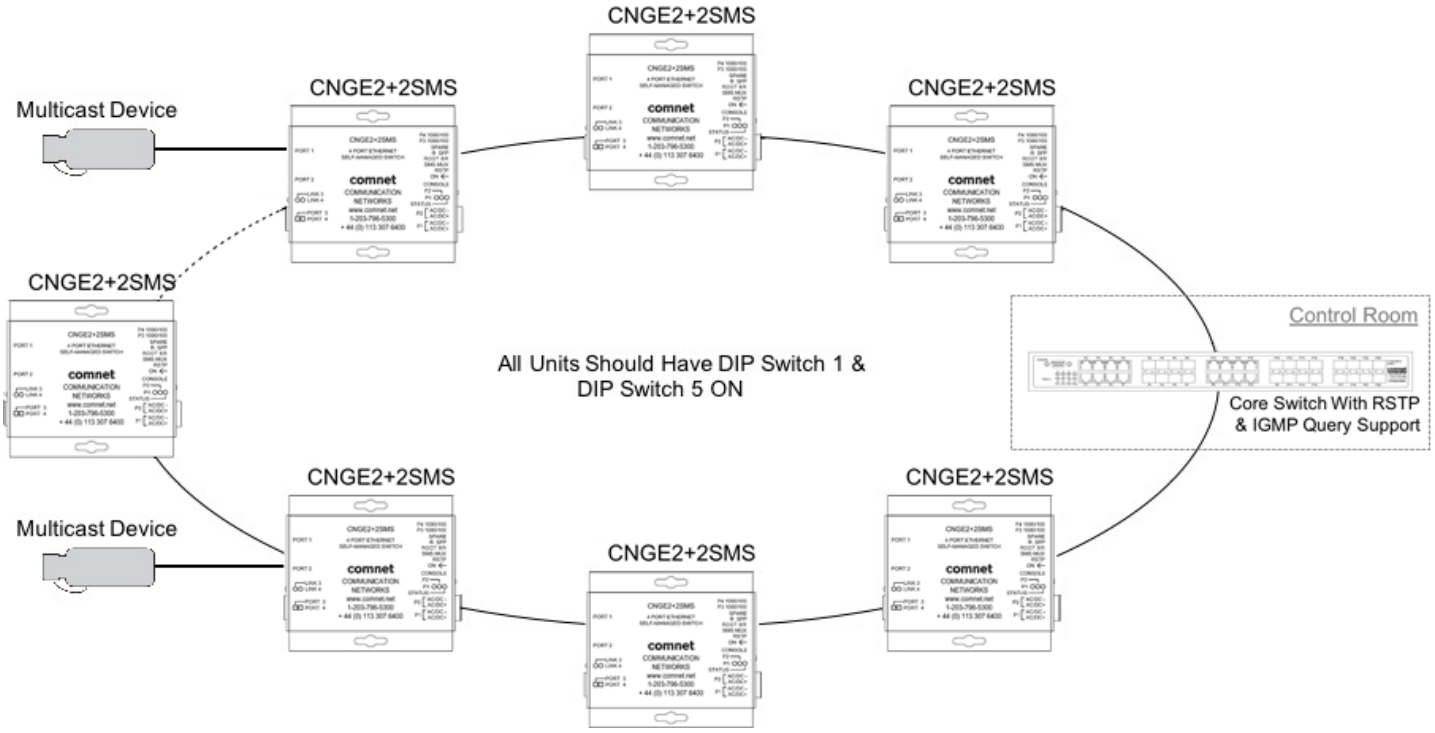


Attention: ComNet recommends maximum number of units per ring is limited to 20 devices. Numbers higher than this may cause undesired performance and are not supported by ComNet.

Attention: Central switch must be manually configured to be the root bridge. This requirement is mandatory for correct performance in a multiple ring scenario.

Attention: ComNet recommends maximum number of rings per core switch is limited to 3-4. The actual number supported will depend on the processing power of the core switch used and other features that may be enabled on the core switch. Please contact ComNet Technical Support to discuss your application prior to ordering.

IGMP & RSTP Enabled (DIP Switch 1 & 5 ON)



Important Note: The CNGE2+2SMS supports IGMP snooping only. When using the IGMP function a managed switch must be implemented within the network that is configured as the IGMP Querier as shown.
Up to 64 IGMP groups are supported on the CNGE2+2SMS switch.

WEB Management

Attention: While installing and upgrading firmware, please remove physical loop connection first. DO NOT power off equipment while the firmware is upgrading!

Configuration by Web Browser

This section provides instruction on configuration through the Web browser.

About Web-based Management

An embedded HTML web site resides in the 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 Web-Based Management function supports Internet Explorer 5.0 or later.

Preparing for Web Management

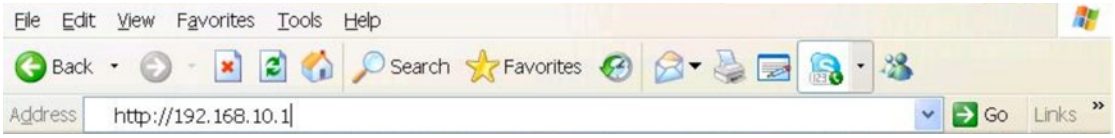
The default value is as below:

IP Address: 192.168.10.1
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.10.254
User Name: admin
Password: admin

System Login

1. Launch your Web Browser.

2. Type http:// and the IP address of the switch. Press Enter.



3. The login screen appears.

4. Enter username and password. The default username and password is admin.

5. Select Enter or OK button, then the main interface of the Web-based management appears.

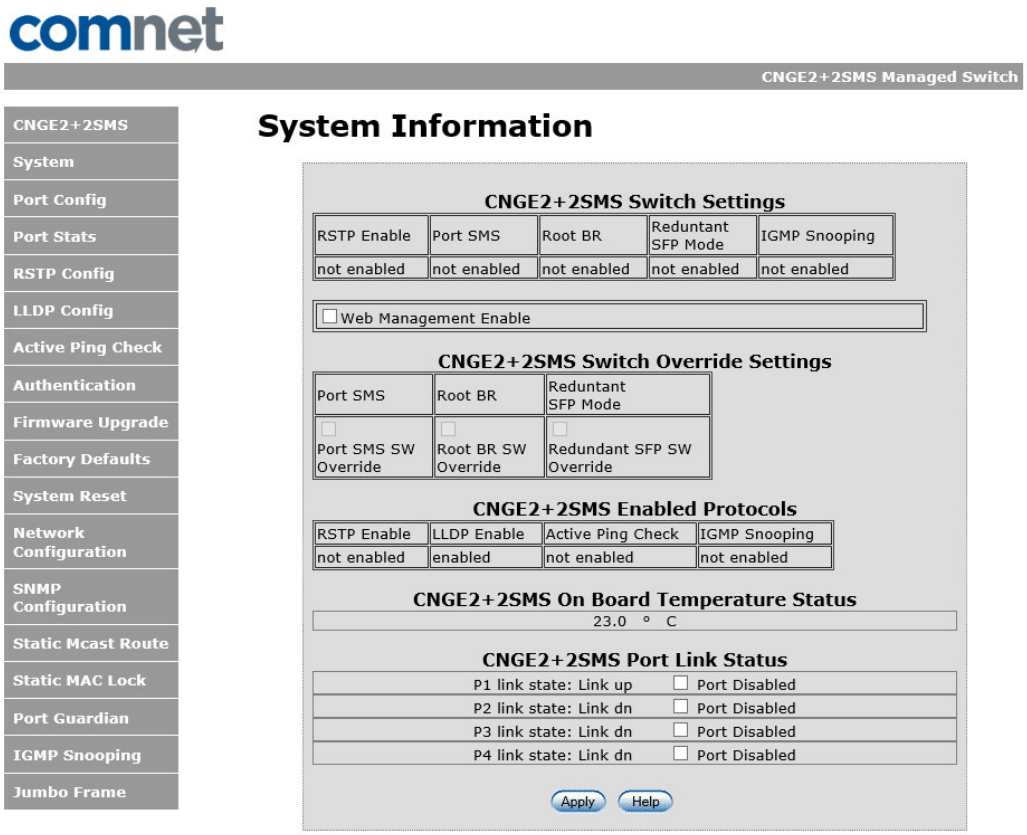
Login screen

Main Interface

Main interface

System Information

The switch system information is provided here.



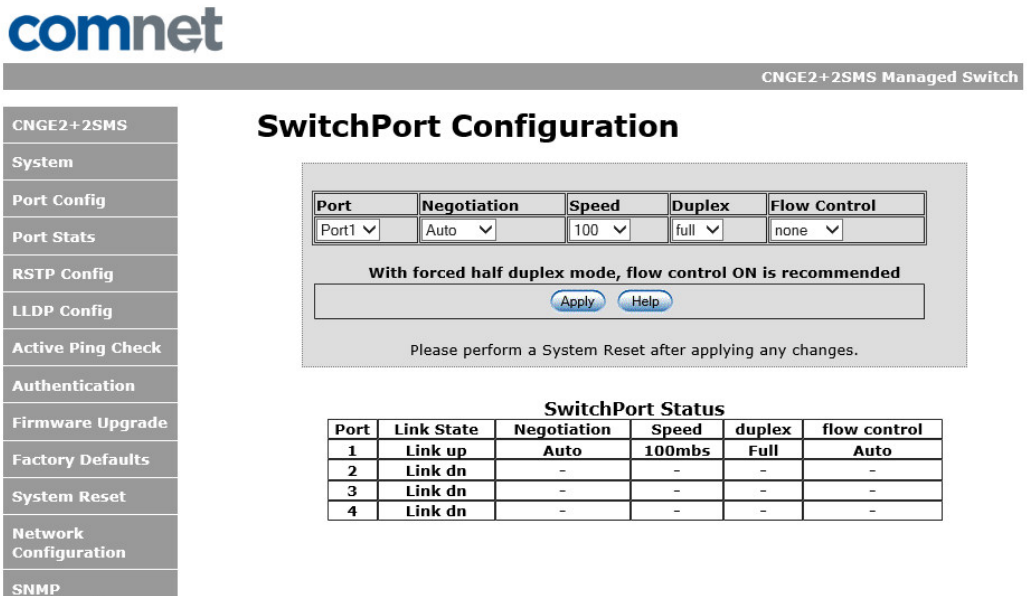
System Information interface

Label	Description
Switch Settings	Summary table of external switch settings
Web Management Enable	Override the side panel switches setting to use the webpage settings instead.
Switch override	Override individual switch functions
Enabled protocols	Summary table of enabled protocols
Temperature	Unit's internal board temperature reading
Port link status	Link status and port disable

Switch Port Configuration

Unless you have reason to change this setting, it is recommended to leave the negotiation set to auto.

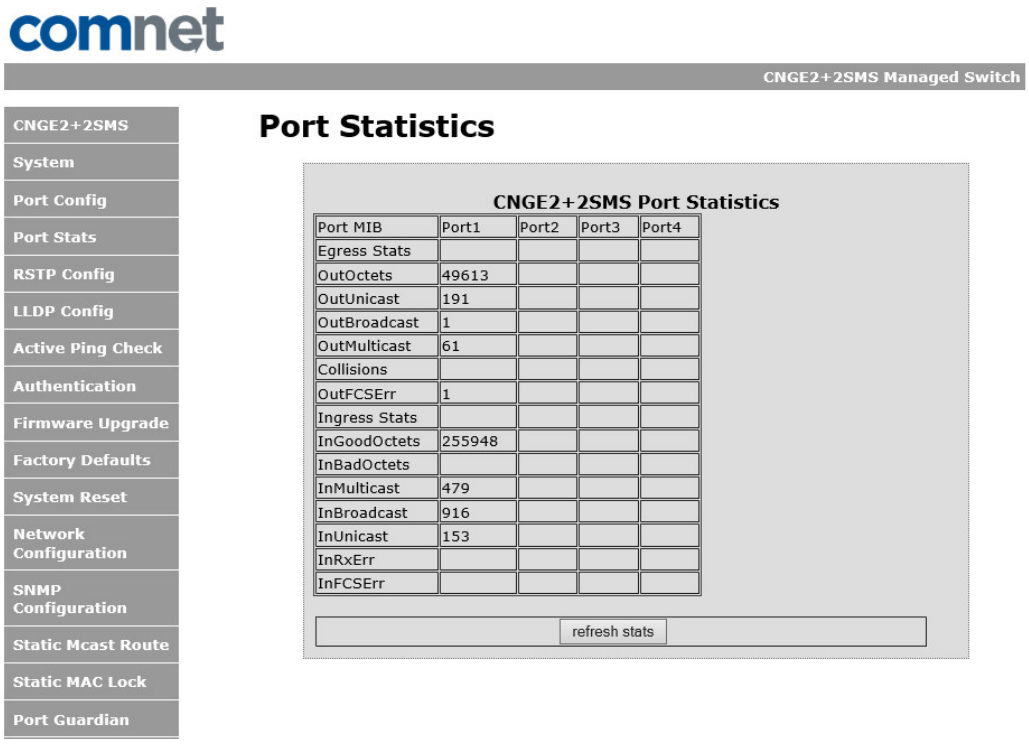
The link segment requires forcing the settings. Both ends of the link need to have the same selection.



SwitchPort Configuration interface

Port Statistics

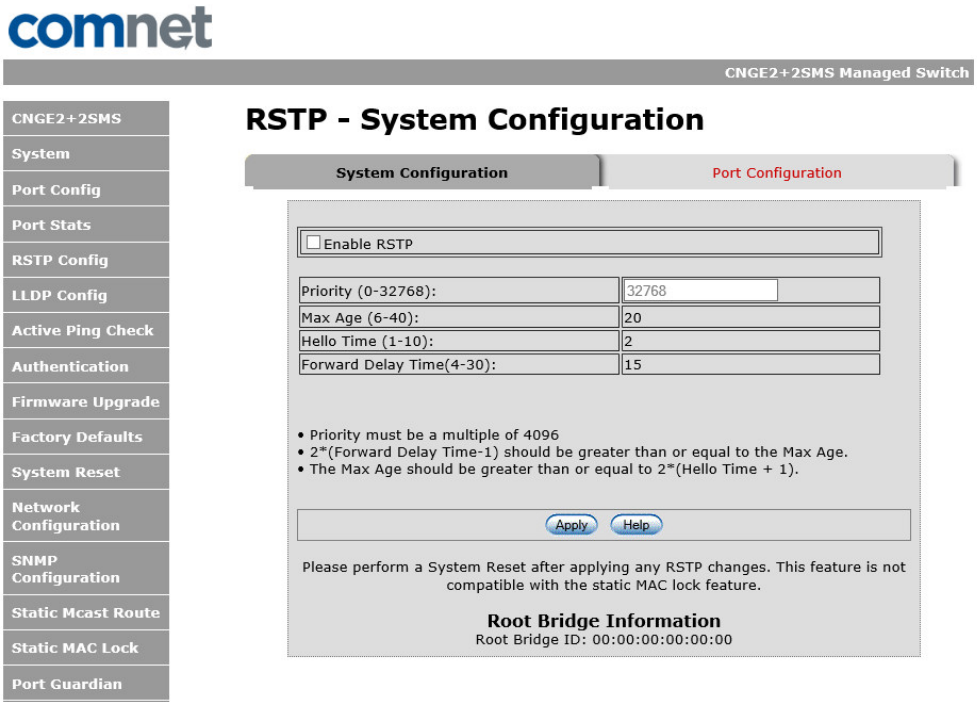
Use the refresh button to update the port statistics.



Port Statistics interface

RSTP System Configuration

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

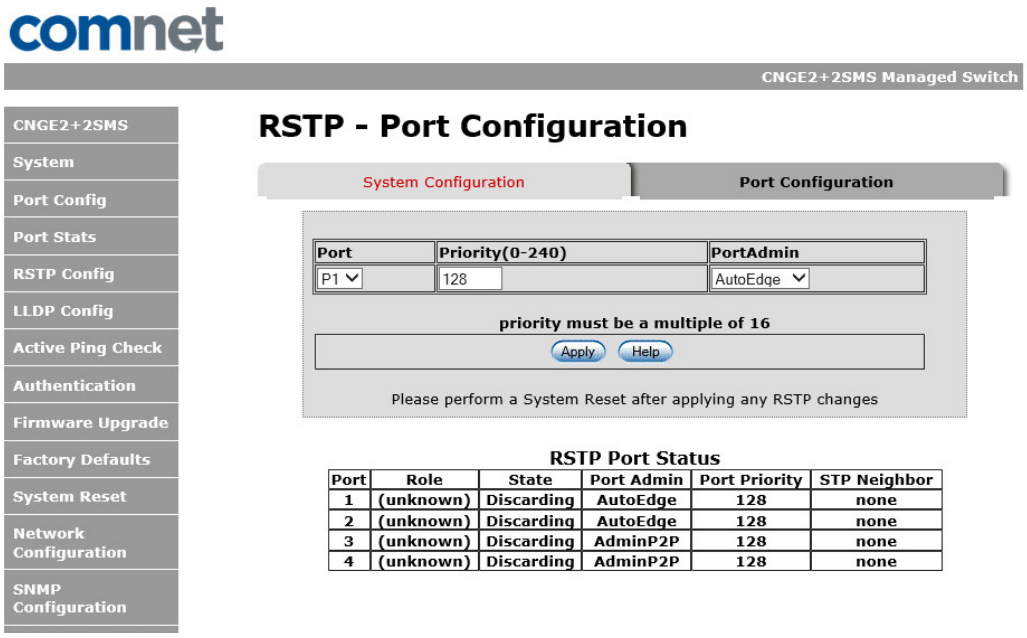


RSTP System configuration interface

Label	Description
Enable RSTP	Select to enable RSTP (only available when the DIP switch settings have been overridden by web management mode. See Page 26.)
Priority	Configure bridge priority, must be a multiple of 4096. If the ROOT BR dip switch is enabled this value will be set to 4096. If the ROOT BR dip switch is disabled this value will be set to 32768 by default.
Root Bridge ID	MAC address of the root bridge

Important Note: RSTP cannot be used in conjunction with the Static MAC Lock feature. A system reset must be performed after making changes to the RSTP settings.

RSTP Port Configuration



RSTP Port configuration interface

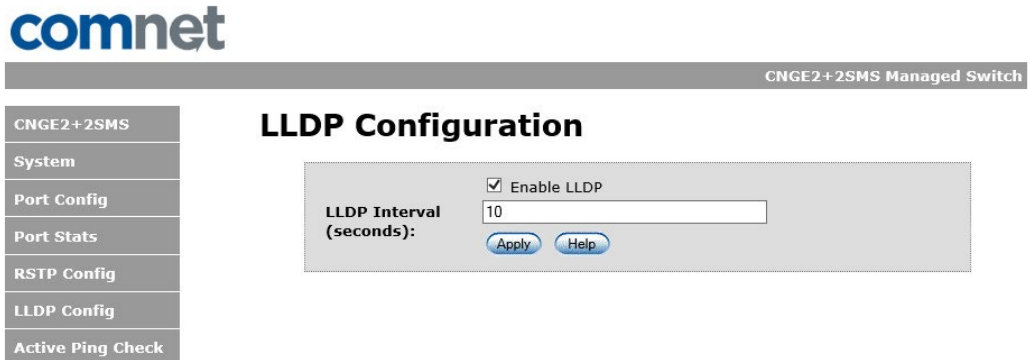
Label	Description
Port Priority	Configure port priority, must be a multiple of 16.
Port Admin	Configure port Admin or Auto Edge status.
Port Status	Summary table of RSTP port status

Important Note: A system reset must be performed after making changes to the RSTP settings.

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 discovers.

LLDP is enabled by default with the interval set to 10 seconds.

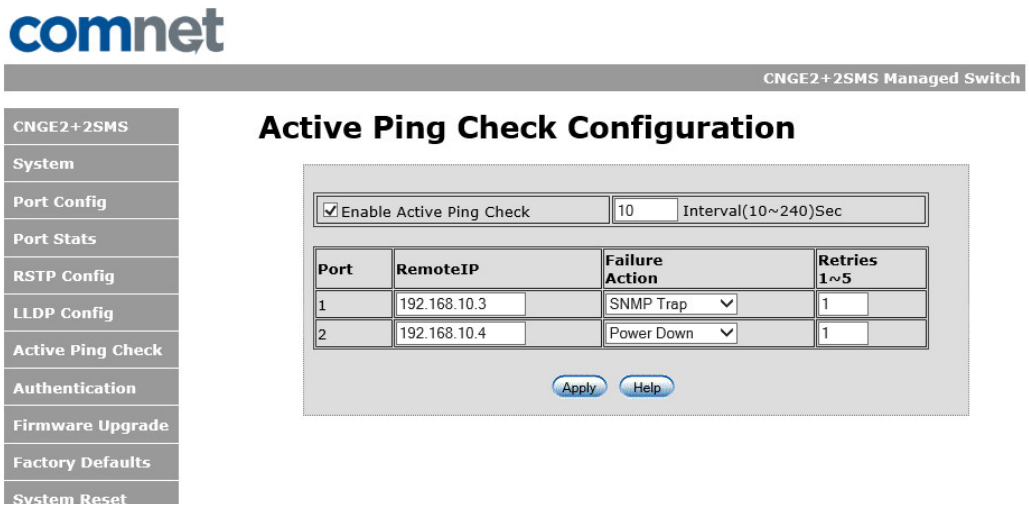


LLDP configuration interface

Active Ping Check Configuration

Non PoE Model CNGE2+2SMS

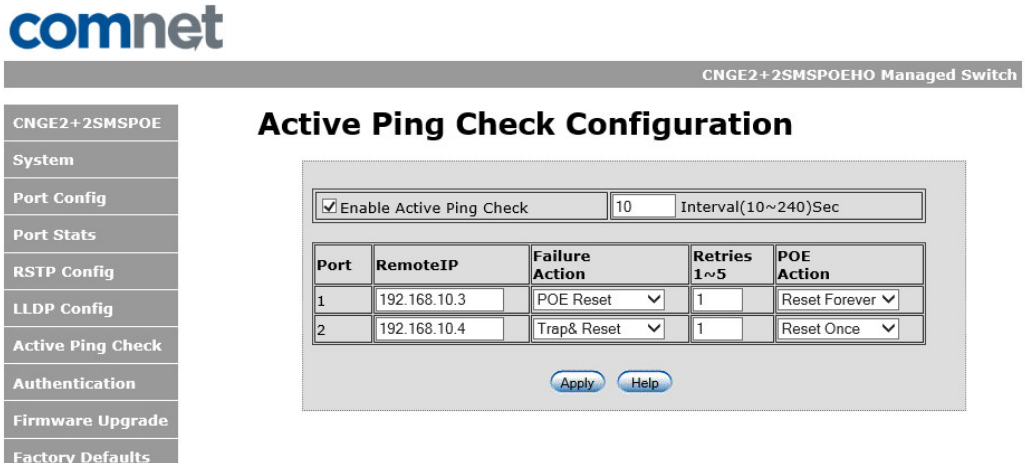
The active ping check function allows the switch to check that a configured IP address is alive on each of the RJ45 ports. If the specified IP address becomes unreachable then the switch will perform the action selected in the Failure Action menu.



Active Ping Check configuration interface

Label	Description
Enable	Select to enable the active ping check function
Interval	Active ping check interval in seconds
Remote IP	Configure IP addresses of remote device to ping
Failure action	Configure action to take upon failure No Action - No action taken SNMP Trap - Issue an SNMP trap Power Down - Turn off the RJ45 port PwrDwn & Trap - Issue an SNMP trap and then turn off the RJ45 port
Retries	Number of times to retry the ping check on failure before proceeding with the selected failure action.

PoE Model CNGE2+2SMSPOE and CNGE2+2SMSPOEHO

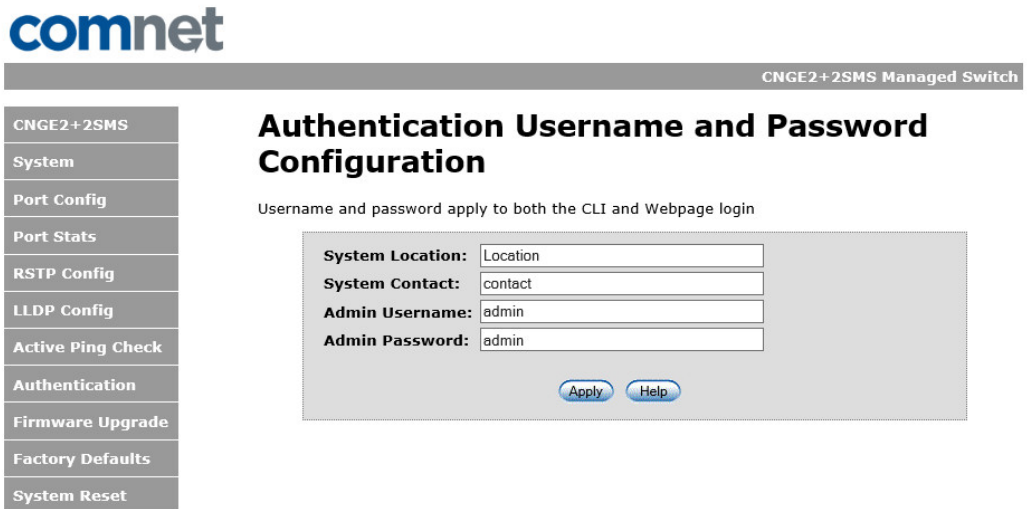


Label	Description
Enable	Select to enable the active ping check function
Interval	Active ping check interval in seconds
Remote IP	Configure IP addresses of remote device to ping
Failure action	Configure action to take upon failure No Action - No action taken SNMP Trap - Issue an SNMP trap POE Reset - Reboot the PoE device Trap & Reset - Issue an SNMP trap and then reboot the PoE device Power Down - Turn off the RJ45 port PwrDwn & Trap - Issue an SNMP trap and then turn off the RJ45 port
Retries	Number of times to retry the ping check on failure before proceeding with the selected failure action.
PoE Action	PoE action to take Reset Once - Reboot the PoE device once Reset Forever - Reboot the PoE device forever until it comes back online Power Down - Turn off the RJ45 port

If power down is selected for PoE action, the PoE power may be turned on remotely using the port power up feature on the PoE-PSE status page.

Authentication Username and Password Configuration

The username and password entered here are also used in the CLI.



Authentication Username and Password configuration interface

Upgrade Firmware

Upgrade Firmware allows you to update the firmware of the switch. Before updating, have your Windows firmware update application ready and the firmware image is available. RSTP is not available during the firmware update process so please, observe the network topology before upgrading.

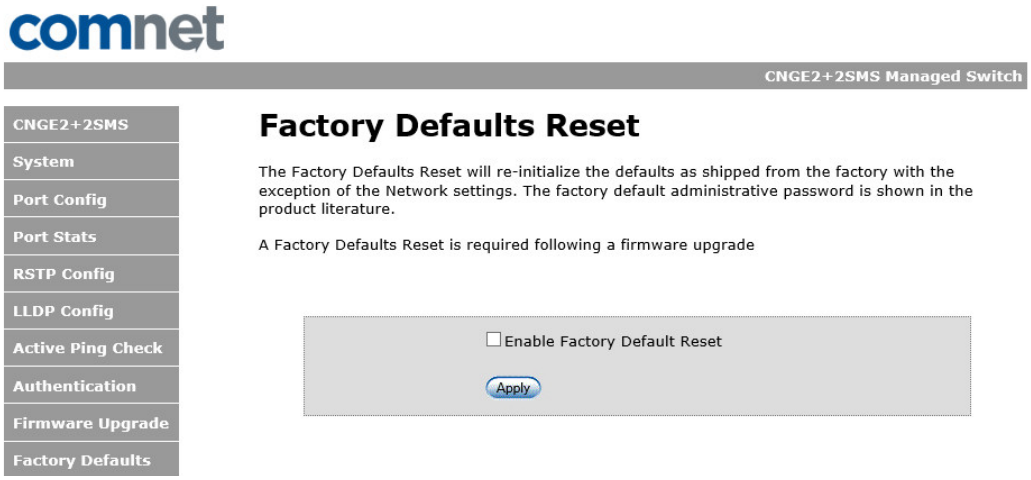
Update Firmware interface

Details on how to upload the new image is located in Firmware Upgrade section on Page 51.

After applying a new firmware version, it is recommended that a Factory Default Reset is performed to ensure that all new or adjusted settings take effect. Please note that performing a Factory Default reset will erase all the devices settings except for the IP address.

Warning Do not enable the firmware update process unless you have a firmware file available and are ready to upgrade the unit. Once this processed is started it cannot be cancelled and if a new firmware is not uploaded to the unit it will be necessary to return the unit to the factory for re-programming.

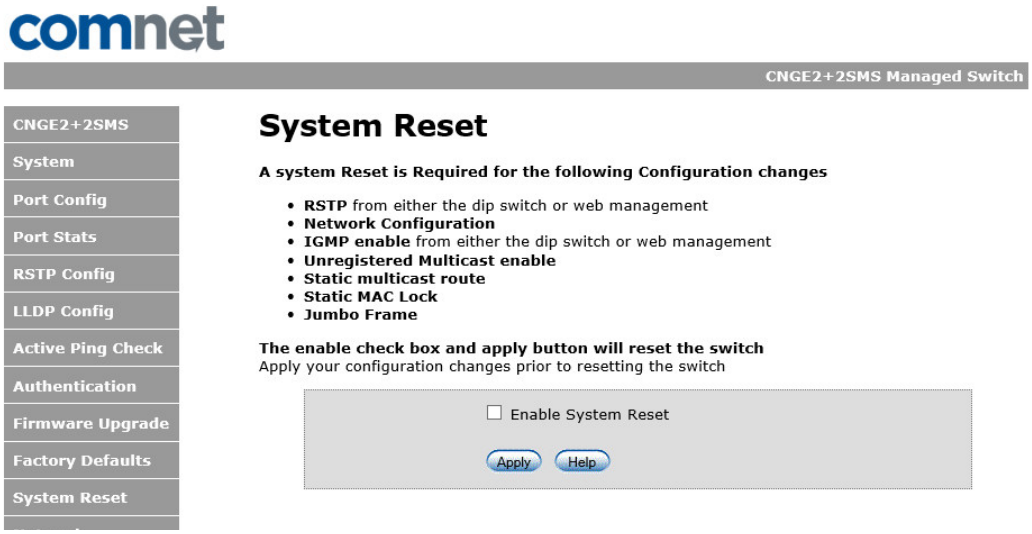
Factory Defaults



Factory Defaults Reset interface

This function restores the system configuration back to the factory default values. All parameters will revert back to the original factory default values except the network configuration settings.

System Reset



System Reset interface

This feature will perform a system reset.

Some system configuration changes require a system reset to take effect:

-RSTP changes

-File System updates

-Network configuration changes

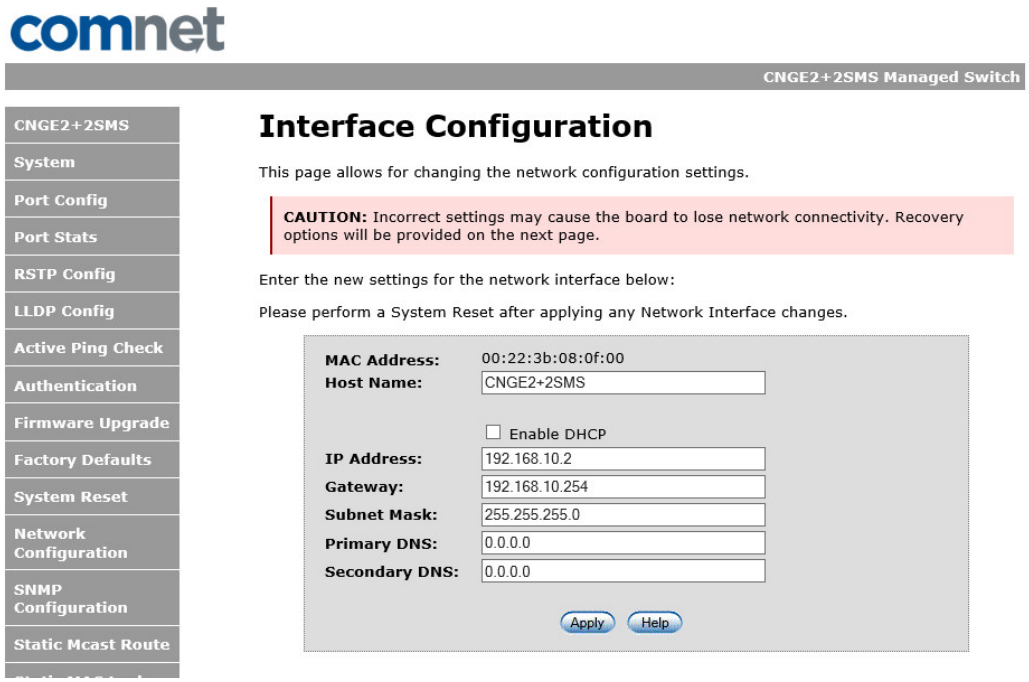
- IGMP changes

- Static Mack Lock changes

- Static Mcast routing

After a system reset there may be a delay of up to 15 seconds before the device becomes responsive again.

Network Interface Configuration



Interface Configuration interface

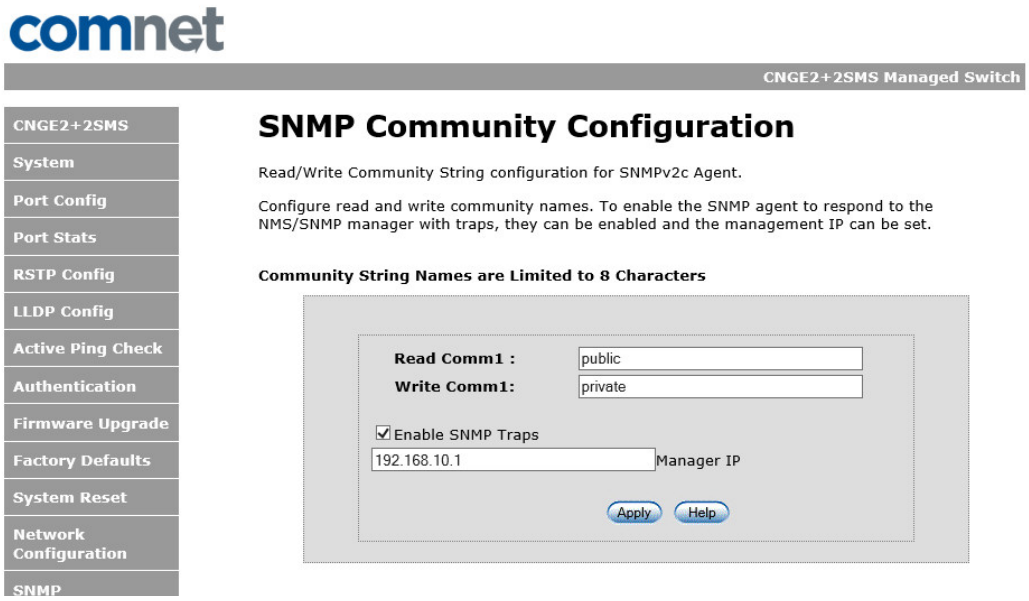
Label	Description
Host Name	Assign a name to the device (this is used for CLI and SNMP functions)
Enable DHCP	To enable or disable the DHCP client function. When DHCP client function is enabled, the switch will be assigned the IP address from the network DHCP server. The default IP address will be replaced by the IP address which the DHCP server has assigned.
IP Address	Assign the IP address that the switch will use. If DHCP client Function is enabled, you do not need to assign the IP address.
Gateway	Assign the network gateway for the switch.
Subnet Mask	Assign the subnet mask for the switch.
Primary DNS	Assign the primary DNS IP address
Secondary DNS	Assign the secondary DNS IP address
Apply	Select Apply to set the configurations.

Important Note: A system reset must be performed after making changes to the network settings.

SNMP

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, find and solve network problems, and plan for network growth. Network management systems learn of problems by receiving traps or change notices from network devices implementing SNMP.

SNMP – Config

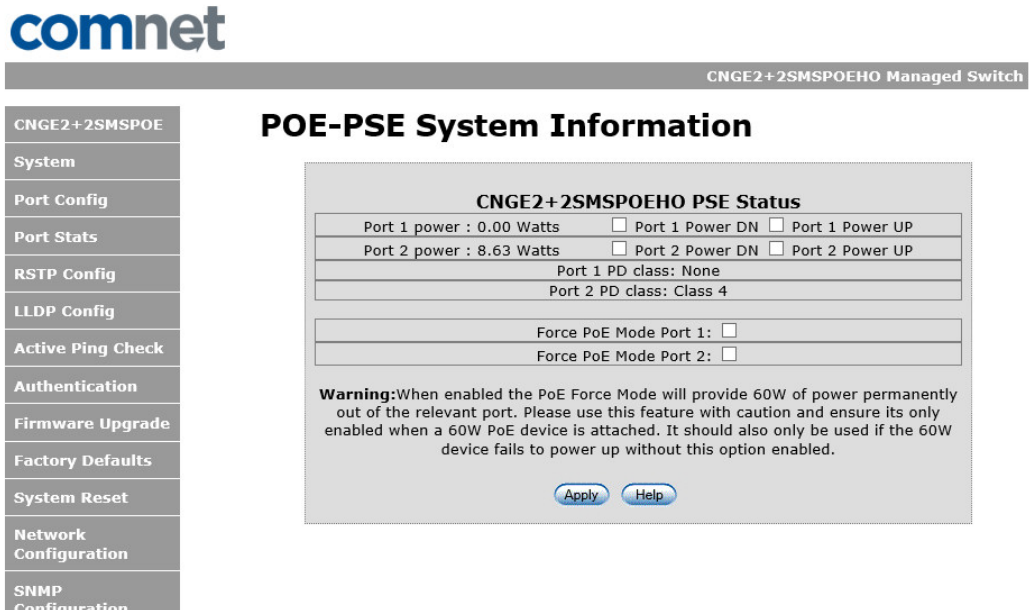


SNMP Community Configuration interface

The following table describes the labels in this screen.

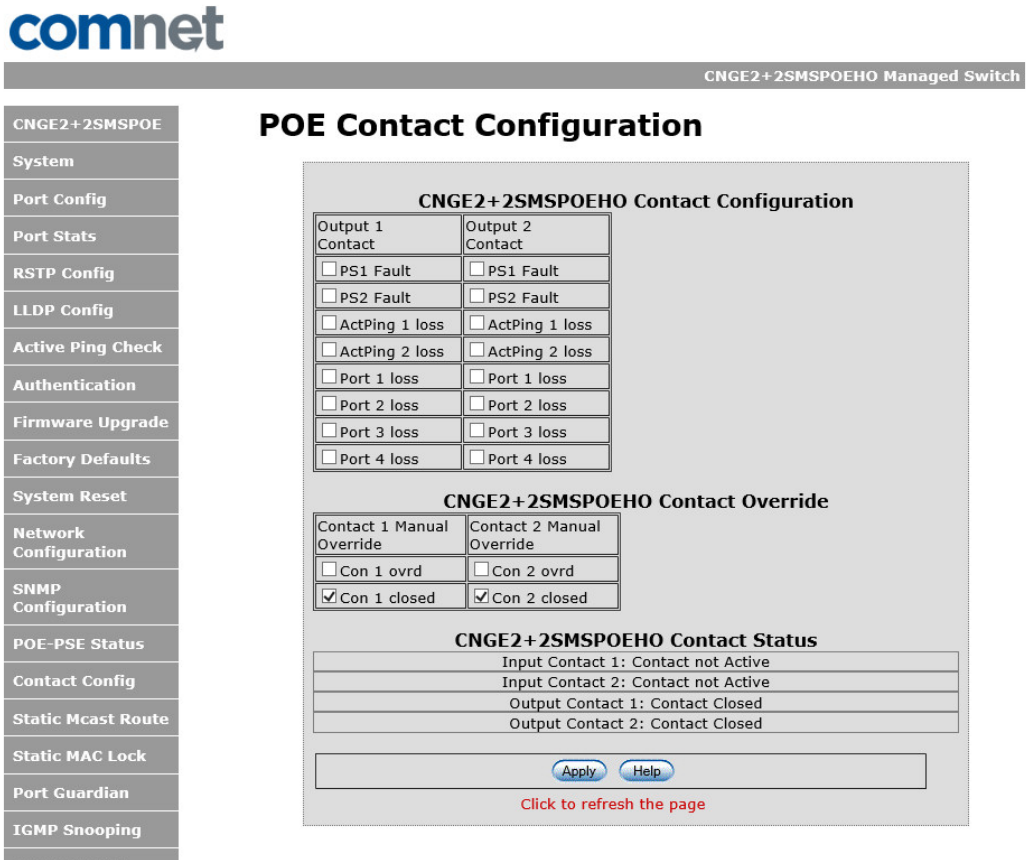
Label	Description
SNMP V1/V2c Community	The switch supports one Read and one Write SNMP community string. Community string names are limited to 8 characters. To disable a community string leave its entry blank.
SNMP trap enable	Enable SNMP traps to be sent to the manager
Manager IP address	IP address of the management software
Apply	Select Apply to activate the configurations.
Help	Show help file.

CNGE2+2SMSPOE[HO] PoE-PSE-Status Information



Label	Description
Port Power	Displays the amount of power being used on the port in watts
Port Power DN	Turns off PoE power to the associated port
Port Power UP	Turns on PoE power to the associated port
Port PD Class	Displays the PoE class being used by the PoE device
Force PoE Mode	Enables 60 W of PoE in manual forced mode (HO models only). ***Warning - please use this feature with caution and ensure it's only enabled when a 60 W PoE device is attached. It should only be enabled if the 60 W devices fail to power up without this option enabled.***
Apply	Select Apply to activate the selected configurations
Help	Show help file

CNGE2+2SMSPOE[HO] PoE Contact Information

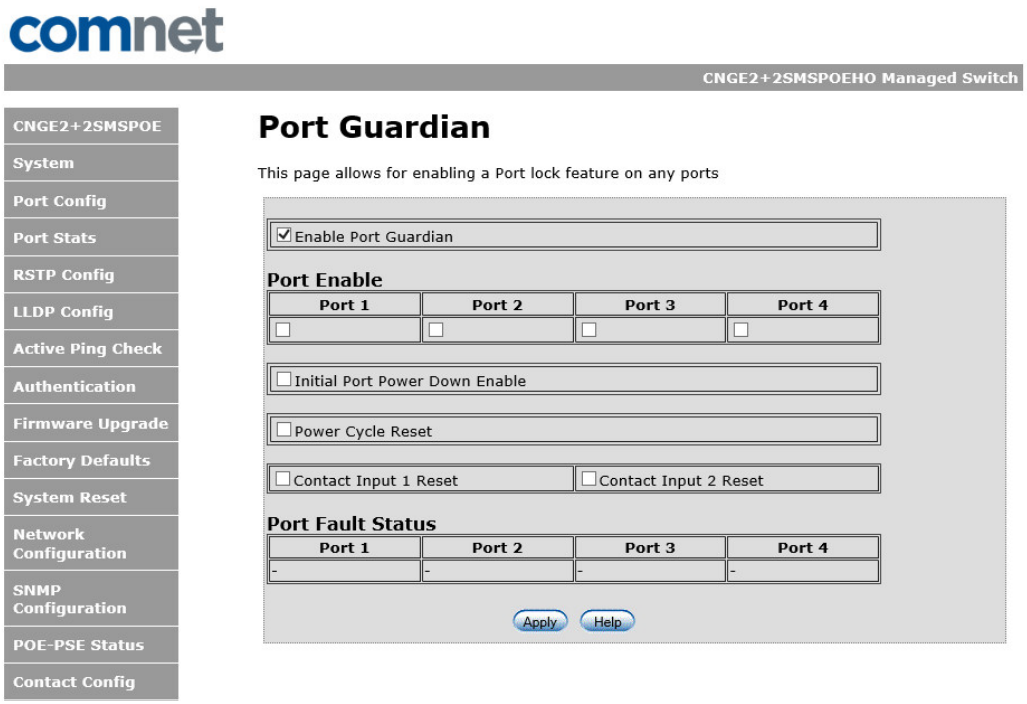


Label	Description
Output Contact	The faults that trigger the output contacts are fully configurable by selecting the source(s) to monitor
Contact Override	The contacts may also be forced to an opened or closed state, the state box checked will close the contact when override is selected
Contact status	The input and output contact states are displayed

Port Guardian

The Port Guardian feature provides a high security managed port lock out mode and when enabled will power down the port as soon as a link loss status is detected when a cable is disconnected. This provides high security against network attack by an intruder who accesses the edge device and disconnects it to then try and connect their own intrusion device (laptop, network sniffer etc.).

To reset a port from a lock out state the network administrator can issue an SNMP reset or can reset a port by using the CLI via the USB serial port. In PoE models a reset can also be initiated by using one of the contact inputs.

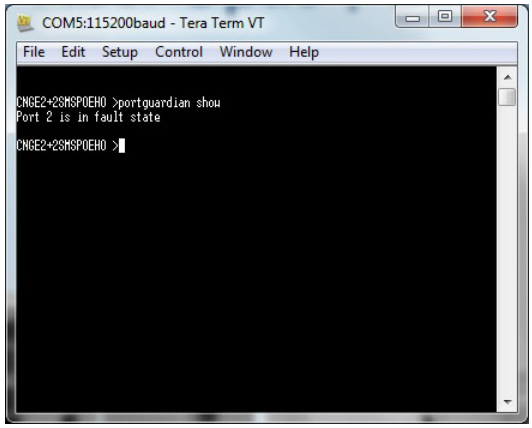


Label	Description
Enable	Enable the Port Guardian feature
Port Enable	Enable the Port Guardian feature on each port
Initial Port Power Down	If enabled, then power cycling the unit will not change the lock out state of any ports
Power Cycle Reset	If enabled, any ports which were in lock out state will be re-enabled after a power cycle
Contact Input Reset	If enabled, closing the relevant contact input will reset any ports that were previously in lock out state (PoE Models Only)
Port Fault Status	Shows the state of each port
Apply	Select **Apply** to activate the selected configurations
Help	Show Help file

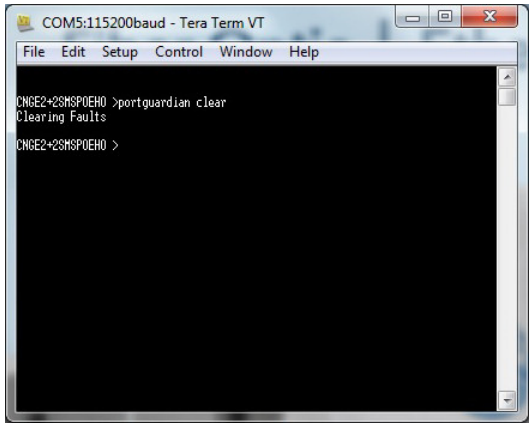
Port Guardian – CLI Reset

The Port Guardian feature can be cleared from the USB serial port connection on the unit through the CLI and also the port status can be displayed to show any ports that are in lock out state.

To access the Port Guardian CLI commands connect to the CLI using the procedure described in the Command Line Interface Management section on page 48 and then use the commands described below.

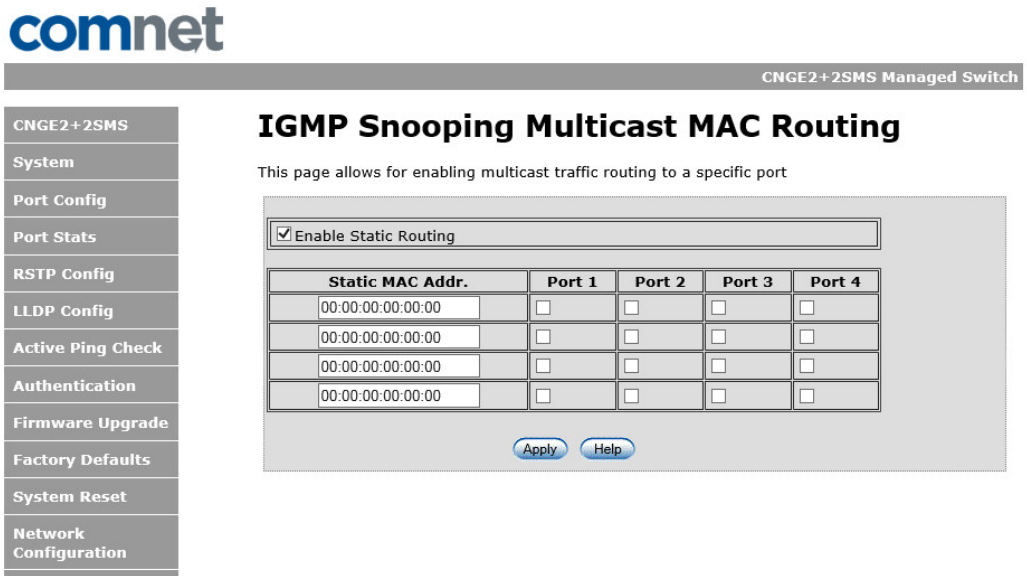


Command	Description
portguardian show	Will display any ports that are currently in port lockout fault state.



Command	Description
portguardian clear	Will clear any ports that were previously in port lockout fault state.

Static Multicast MAC Routing Per Port

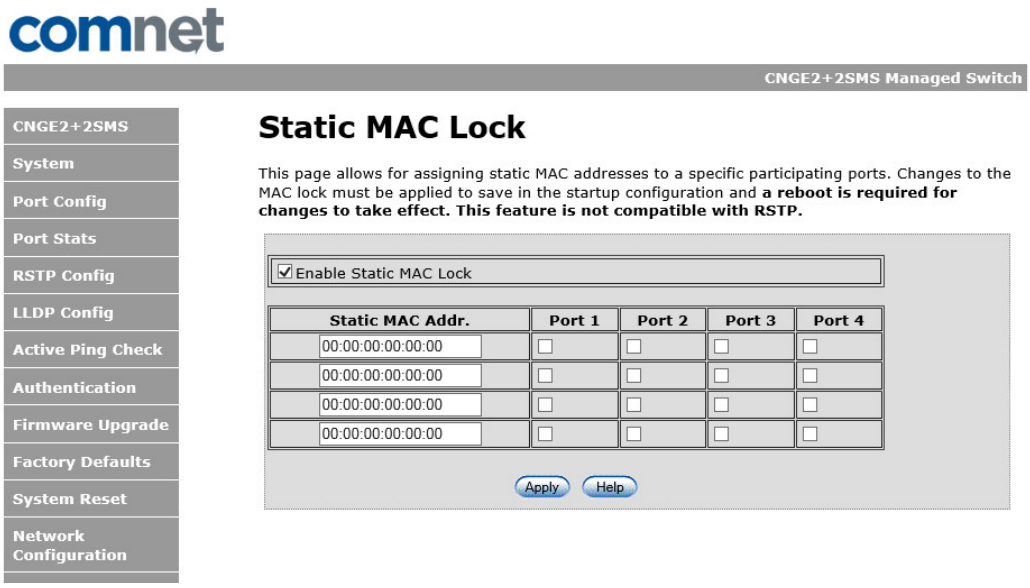


Static Multicast MAC Routing interface

Label	Description
Enable	Enable static multicast MAC routing
MAC Addr.	Destination Multicast MAC address of the stream
Port Number	Ports to be included in the multicast route
Apply	Select Apply to activate the configurations.
Help	Show help file.

Important Note: A system reset must be performed after making changes to the MAC routing settings.

Static MAC Lock Configuration

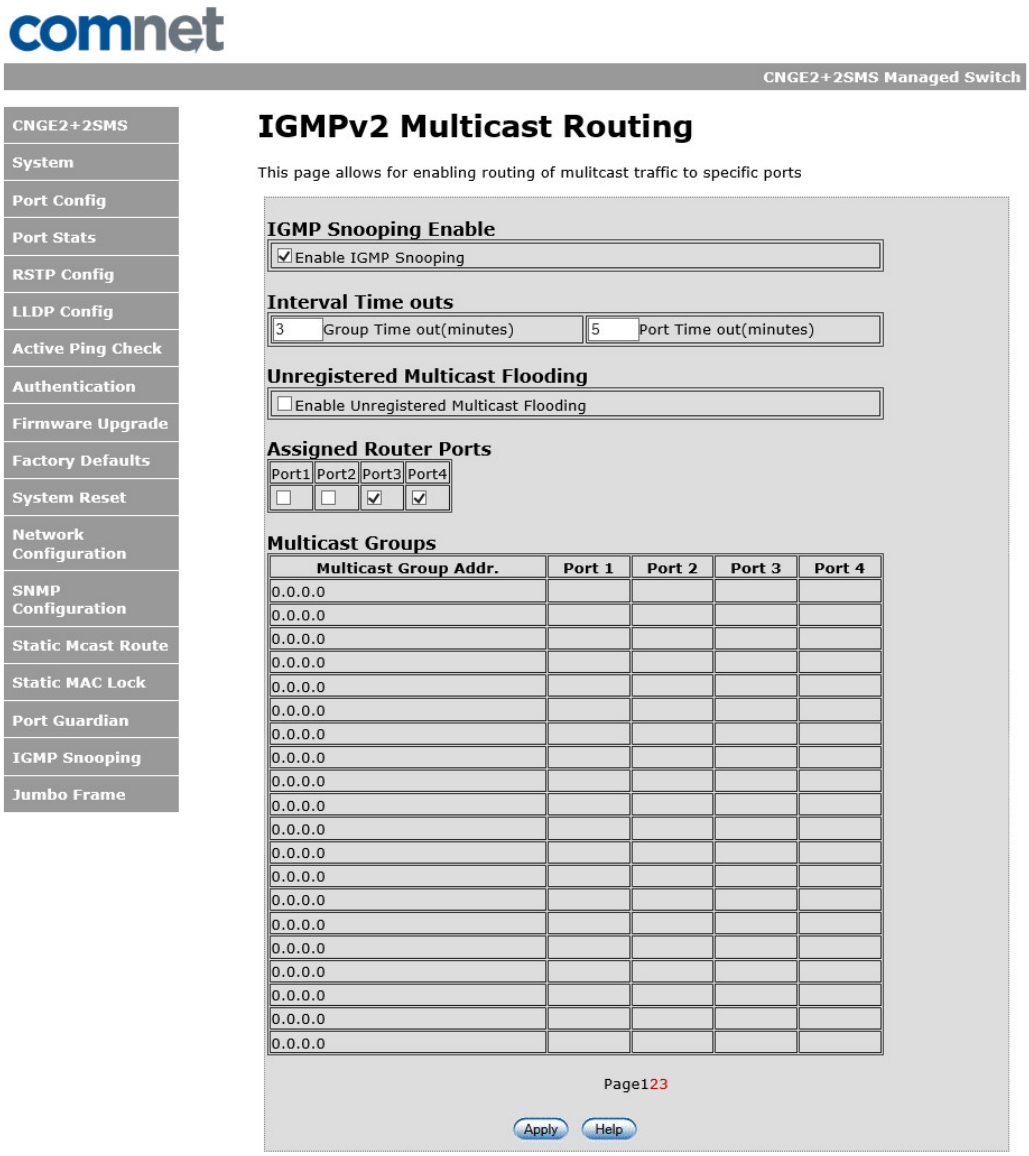


Static MAC Lock Configuration interface

Label	Description
Enable	Enable static MAC locking
MAC Addr.	MAC address of the device that is allowed to forward and receive traffic. Packets will be dropped for MAC addresses not listed in the table
Port Number	Ports to be included in the locked list
Apply	Select Apply to activate the configurations.
Help	Show help file.

Important Note: RSTP cannot be used in conjunction with the Static MAC Lock feature. A system reset must be performed after making changes to the static MAC lock settings.

IGMPv2 Snooping

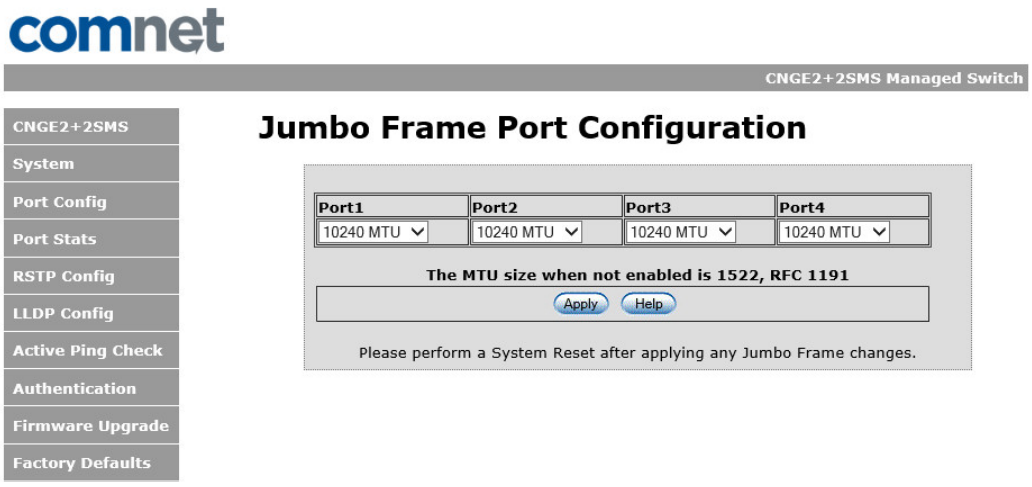


IGMPv2 Multicast Routing interface

Label	Description
Enable	Enable IGMP Snooping
Group timer	Must be set above the general query interval
Port Timer	Expected wait interval of membership reports for a specific group
Unregistered Flooding	Allow unregistered multicast traffic to propagate across ports
Assigned router port	Router ports forward membership reports
Multicast Groups	The IP address of the groups are displayed along with the port assignment, 64 multicast groups are supported and the table spans across 3 pages.
Apply	Select **Apply** to activate the configurations.
Help	Show help file.

Important Note: A system reset must be performed after making changes to the IGMP settings.

Jumbo Frame support



Jumbo Frame Port Configuration interface

Label	Description
MTU size	the drop down box allows for maximum frame size, the default is the maximum frame size 10,240. Not enabled defaults the maximum frame size to 1522 MTU.
Apply	Select **Apply** to activate the configurations.
Help	Show help file.

Important Note A system reset must be performed after making changes to the Jumbo Frame settings.

Command Line Interface Management

Configuration by Command Line Interface (CLI).

About CLI Management

Besides WEB-base management, the CNGE2+2SMS also supports CLI management for network configuration. You can use USB console to manage the switch by CLI.

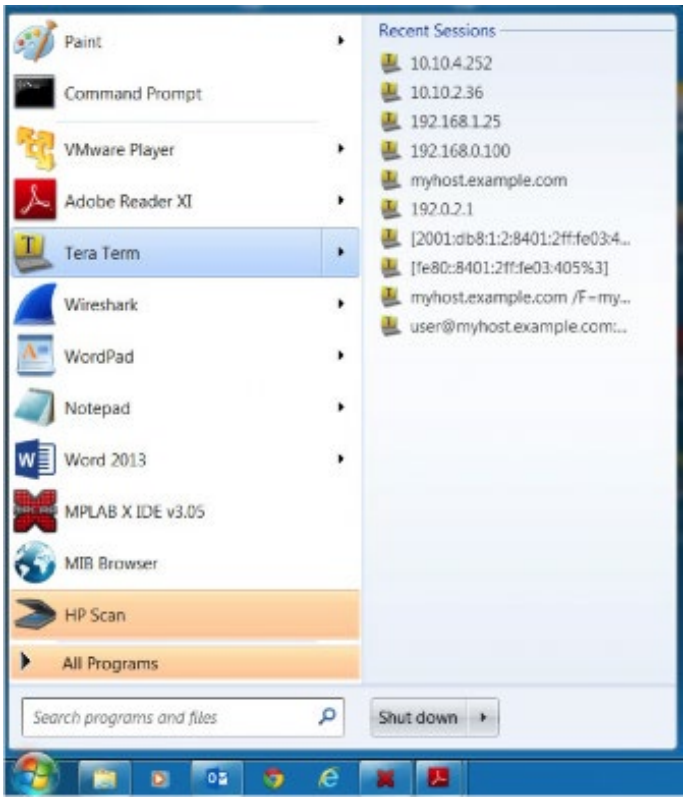
CLI Management by USB Console (115200, 8, none, 1, none)

Before configuring by USB console, use a USB mini B cable to connect the switch's Console port to your PC's USB port.

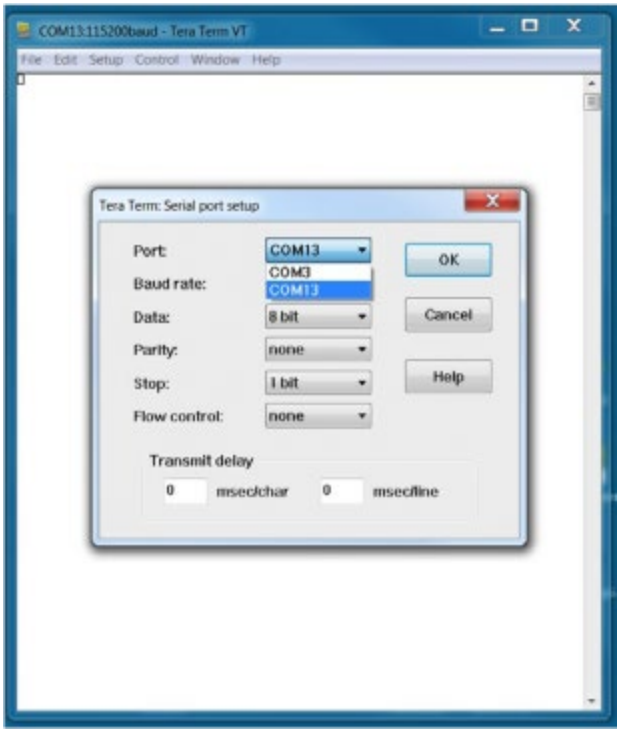
Follow the steps below to access the console via USB mini B cable.

Step 1. Connect the USB cable between the PC and the CNGE2+2SMS. If the device driver is not found, the product CD includes the windows .inf driver.

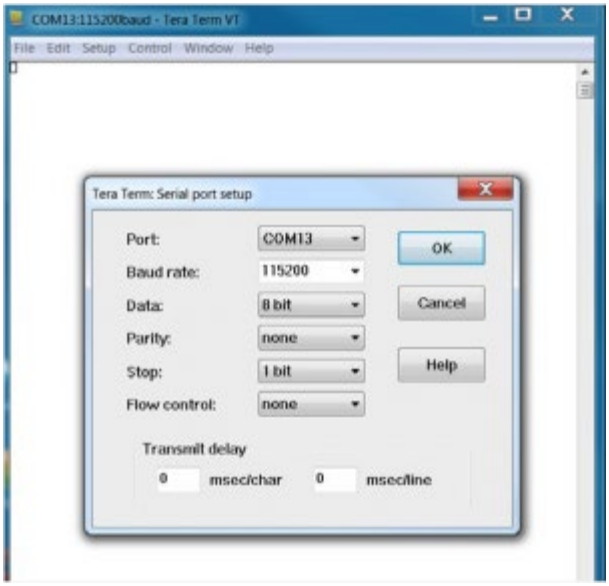
Step 2. From the Windows desktop, select on Start -> Tera Term



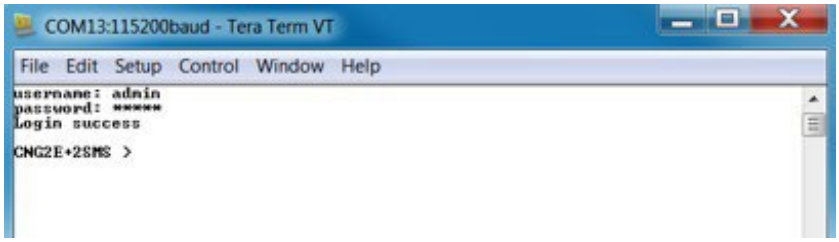
Step 3. Select the COM port number



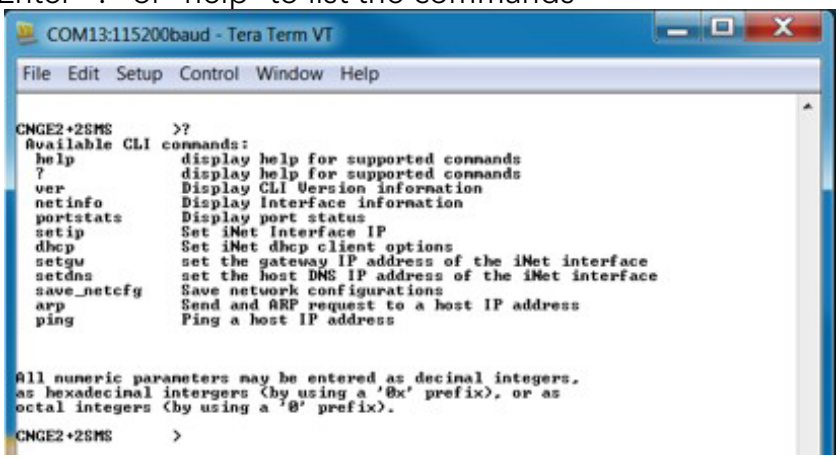
Step 4. The COM port properties setting, 115200 for Bits per second, 8 for Data bits, None for Parity, 1 for Stop bits and none for Flow control.



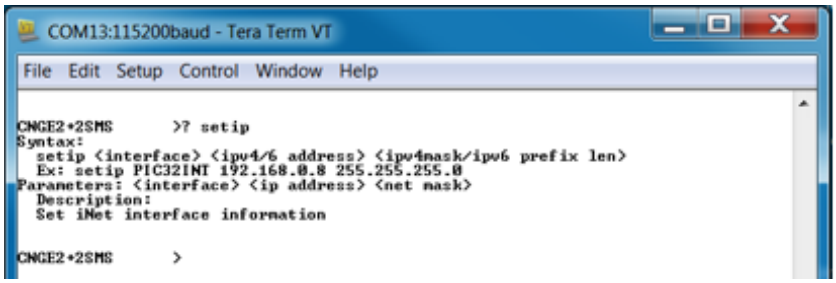
Step 5. Hit enter to initiate the connection and receive the username prompt. After entering the username and password the console will be presented with a CLI prompt.



Enter "?" or "help" to list the commands



More detailed help for each command is available using help in front of the command name.



Issuing a "netinfo" command will display the ip address of the switch

To change the network configuration using the CLI, the following commands must be used:

-setip
-setgw
-setdns

Save_netcfg if you want to save these changes in the startup configuration. Not using this command will not save the changes persistently.

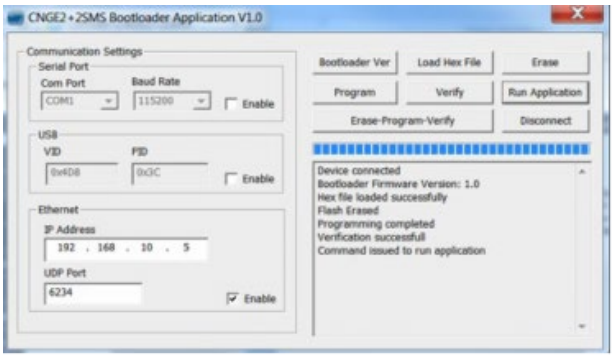
Firmware Upgrade Procedure

Push Bootloader Image Uploader interface

The steps for upgrading the unit with the push boot loader are as follows;

1. Bring up the web server and open the FileSystem Upload page click the Enable Image upload check box and hit apply.

2. Open the Windows bootloader application, click the enable Ethernet check box and adjust the IP address to the target IP



3. Click the “Load Hex File” and select the new firmware file.
   - Click Erase
   - Click Program
   - Click Verify
   - Click run application

   Note: The “Erase-Program-Verify” button is not supported at this time. Please use the individual buttons.

Warning: Do not enable the firmware update process unless you have a firmware file available and are ready to upgrade the unit. Once this processed is started it cannot be cancelled and if a new firmware is not uploaded to the unit it will be necessary to return the unit to the factory for re-programming.

Technical Specifications

Technology	
Ethernet Standards	IEEE 802.3 for 10BASE-T IEEE 802.3u for 100BASE-TX and 100BASE-FX IEEE 802.3z for 1000BASE-X IEEE 802.3ab for 1000BASE-T IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol) IEEE 802.1AB for LLDP (Link Layer Discovery Protocol) IEEE 802.3at for Power Sourcing Equipment (PSE) and PoE (≤ 30 W per port) IEEE 802.3x Flow Control and Back Pressure
Software Features	RSTP (IEEE 802.1D/w) Port Configuration, Status, Statistics, Security PoE Configuration, Status, Health Check SNMP Enable/Disable Ports Port Guardian Physical Port Lockout IGMP Snooping v2 SNMP Trap LLDP Static Multicast MAC Routing Static MAC Lock Security Active Ping Check with SNMP Trap, Port Reset & Port Shutdown capability
Interface	
SFP	2 × 100/1000Base-X SFP
RJ45 Ports	2 × 10/100/1000Base-T(X), Auto MDI/MDIX
LED Indicators	Per Unit : Power × 2 (Green) RJ45 Ports: Per Port : Link/Activity(Green/Blinking Green), 1000 Mbps indicator (Amber) SFP Ports: Per Port : Link/Activity(Green/Blinking Green)
Power Requirements	
Power Input Voltage	Dual 48 to 57 VDC PoE, 9 to 36 VDC or 24 VAC non PoE
Current Draw	3.5A max, with PoE, 1A w/out PoE
Reverse Polarity Protection	Present (On Terminal Block of Non-PoE Models Only)
Environmental	
Operating Temperature	-40 to +75 °C
Storage Temperature	-40 to +85 °C
Operating Humidity	5% to 95%, non-condensing

Mechanical	
Dimension	4.1 × 3.7 × 1.46 in (10.4 × 9.4 × 3.7 cm)
Casing	Aluminum
Regulatory Approvals	
EMC	EN50130-4:2011 EN55024:2010 EN55022:2010
EMS	EN 55022:2010 Radiated Emissions EN 55022:2010 Conducted Emissions EN 61000-3-2-2006+A2:2009 Harmonic Current Emissions EN 61000-3-3:2013 Voltage Fluctuations EN 61000-4-2:2009 ESD EN 61000-4-3:2006 + A2:2010 Radiated Electromagnetic Field Immunity EN 61000-4-4:2012 EFT EN 61000-4-5:2006 Surge Immunity EN 61000-4-8:2010 Magnetic Field Immunity EN 61000-4-11:2004 Voltage Dips and Fluctuations EN 50130-4:2011 Mains Supply Variations
Safety	EN 60950-1 SELV
Warranty	Lifetime

ComNet Customer Service
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