

## Product Specifications

### Layer 3 24-Port 10/100/1000T 802.3at PoE + 4-Port 10G SFP+ Stackable Managed Switch (370W)

### SGS-6341-24P4X

Version 2.0

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#### Change History:

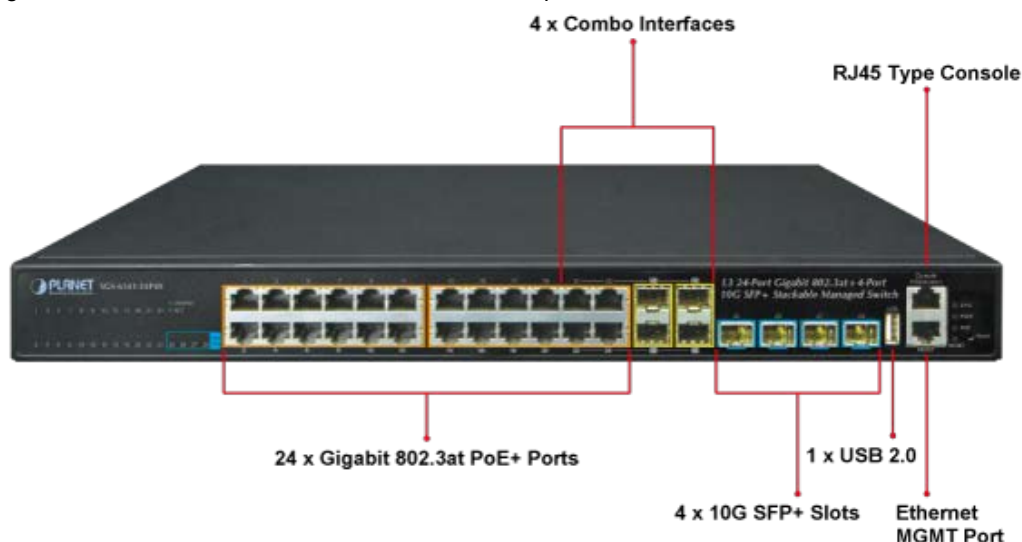
Revision	Date	Author	Change List
Version 2.0	2017/11/9	Bryant Wu	Hardware Upgrade
Version 1.0	2016/05/25	Neo Tsai	Initial Release

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Reviewed by:		Approved by:	Kent Kang

## 1. PRODUCT DESCRIPTION

### Powerful Layer 3 Gigabit Routing for Enterprise-level Solution

PLANET SGS-6341-24P4X Layer 3 PoE Stackable Managed Gigabit Switch provides high-density performance, **Layer 3 static routing, RIP (Routing Information Protocol) and OSPF (Open Shortest Path First)**. With **128Gbps switching fabric**, the SGS-6341-24P4X can handle extremely large amounts of data in a secure topology linking to an enterprise backbone or high capacity servers. The powerful WRR (Weighted Round Robin) and Network Security features make the SGS-6341-24P4X perform effective data traffic control for ISP and enterprise VoIP, video streaming, and multicast applications. The SGS-6341-24P4X has 24 IEEE 802.3at PoE+ ports and PoE budget up to 370 watts for catering to medium to large scale VoIP or IP surveillance networks at a competitive cost.



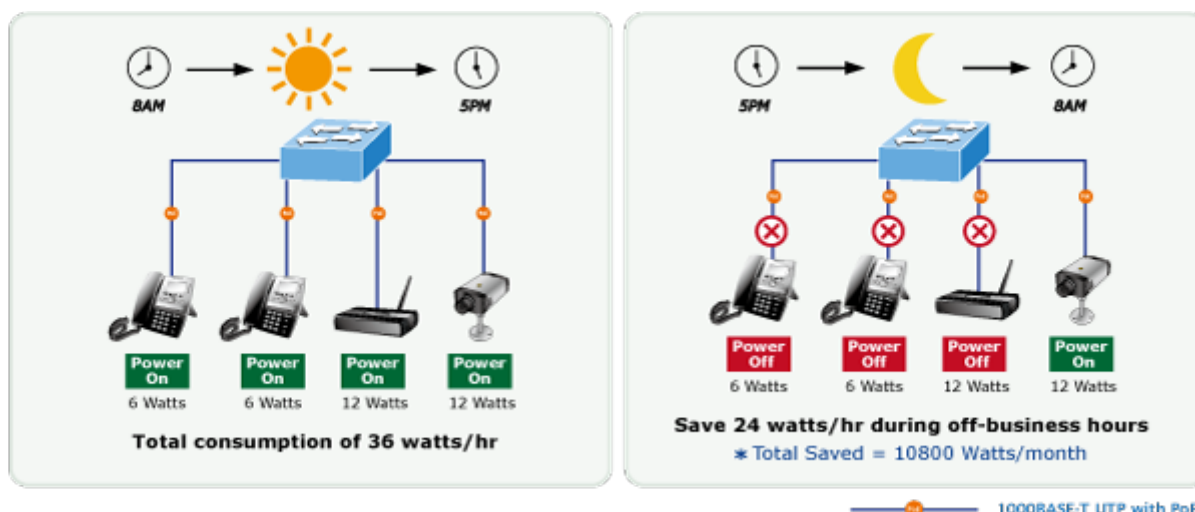
### Centralized Power Management for Gigabit Ethernet PoE Networking

To fulfill the needs of higher power required PoE network applications with Gigabit speed transmission, the SGS-6341-24P4X features high-performance Gigabit IEEE 802.3af PoE (up to 15.4 watts) and IEEE 802.3at PoE+ (up to 30 watts) on all ports. It perfectly meets the power requirements of PoE VoIP phone and all kinds of PoE IP cameras such as IR, PTZ, speed dome cameras or even box type IP cameras with built-in fan and heater.

The SGS-6341-24P4X's PoE capabilities also help to reduce deployment costs for network devices as a result of freeing from the restrictions of power outlet locations. Power and data switching are integrated into one unit, delivered over a single cable and managed centrally. It thus eliminates the cost for additional AC wiring and reduces installation time.

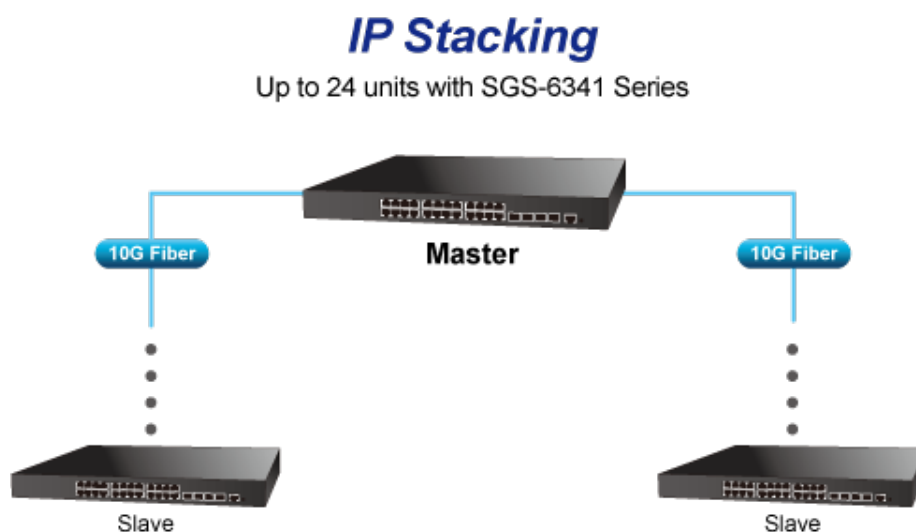
### PoE Schedule for Energy Saving

Besides being used for IP surveillance, the SGS-6341-24P4X is certainly applicable to build any PoE network including VoIP and wireless LAN. Under the trend of energy saving worldwide and contributing to the environmental protection on the Earth, the SGS-6341-24P4X can effectively control the power supply besides its capability of giving high watts power. The "PoE schedule" function helps you to enable or disable PoE power feeding for each PoE port during specified time intervals and it is a powerful function to help SMBs or enterprises save energy and budget.



### IP Stacking Management

The SGS-6341-24P4X supports IP stacking function that helps network managers to easily configure up to 24 switches in the same series via one single IP address instead of connecting and setting each unit one by one. The IP Stacking technology groups PLANET SGS-6341 switch series together to enable centralized management through a single unit, regardless of physical location or switch type, as long as they are connected to the same local network.



### Layer 3 Routing Support

The SGS-6341-24P4X enables the administrator to conveniently boost network efficiency by configuring Layer 3 static routing manually, the RIP (Routing Information Protocol) or OSPF (Open Shortest Path First) settings automatically. The RIP can employ the hop count as a routing metric and prevent routing loops by implementing a limit on the number of hops allowed in a path from the source to a destination. The OSPF is an interior dynamic routing protocol for autonomous system based on link state. The protocol creates a database for link state by exchanging link states among Layer 3 switches, and then uses the Shortest Path First algorithm to generate a route table based on that database.

### Full IPv6 Support

The SGS-6341-24P4X provides **IPv6 management** and enterprise-level secure features such as **SSH, ACL, WRR** and **RADIUS** authentication. It thus helps the enterprises to step in the IPv6 era with the lowest investment. In addition, you don't need to replace the network facilities when the IPv6 FTTx edge network is built.

## Robust Layer 2 Features

The SGS-6341-24P4X can be programmed for basic switch management functions such as port speed configuration, port aggregation, VLAN, Multiple Spanning Tree Protocol, WRR, bandwidth control and IGMP snooping. This switch provides 802.1Q tagged VLAN, Q-in-Q, voice VLAN and GVRP Protocol functions. By supporting port aggregation, the SGS-6341-24P4X allows the operation of a high-speed trunk combined with multiple ports. It enables up to 16 groups for trunking with a maximum of 8 ports for each group.



## Excellent Layer 2 to Layer 4 Traffic Control

The SGS-6341-24P4X is loaded with powerful traffic management and WRR features to enhance services offered by telecoms. The WRR functionalities include wire-speed Layer 4 traffic classifiers and bandwidth limitation which are particularly useful for multi-tenant unit, multi-business unit, Telco, or network service applications. It also empowers the enterprises to take full advantage of the limited network resources and guarantees the best in VoIP and video conferencing transmission.

## Powerful Security

The SGS-6341-24P4X supports ACL policies comprehensively. The traffic can be classified by source/destination IP addresses, source/destination MAC addresses, IP protocols, TCP/UDP, IP precedence, time ranges and ToS. Moreover, various policies can be conducted to forward the traffic.

The SGS-6341-24P4X also provides IEEE 802.1x port based access authentication, which can be deployed with RADIUS, to ensure the port level security and block illegal users.

## Efficient and Secure Management

For efficient management, the SGS-6341-24P4X Managed Gigabit Switch is equipped with console, Web and SNMP management interfaces. With its built-in Web-based management interface, the SGS-6341-24P4X offers an easy-to-use, platform-independent management and configuration facility. The SGS-6341-24P4X supports standard Simple Network Management Protocol (SNMP) and can be managed via any standard-based management software.

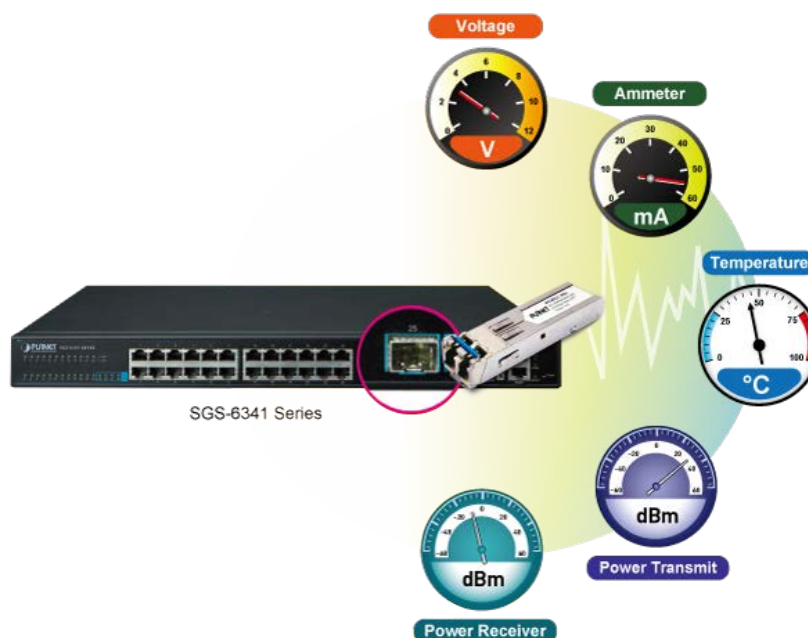
For reducing product learning time, the SGS-6341-24P4X offers Cisco-like command via Telnet or console port and customer doesn't need to learn new command from these switches. Moreover, the SGS-6341-24P4X offers secure remote management by supporting SSH connection which encrypts the packet content at each session.



## Intelligent SFP Diagnosis Mechanism

The SGS-6341-24P4X supports **SFP-DDM (Digital Diagnostic Monitor)** function that greatly helps network administrator to easily monitor real-time parameters of the SFP and SFP+ transceivers, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.

### Digital Diagnostic Monitor (DDM)



## 2. PRODUCT FEATURES

### ➤ Physical Ports

- ☐ 24-port 10/100/1000BASE-T Gigabit Ethernet RJ45 with 24-port **IEEE 802.3at/af PoE** injector
- ☐ **4 10GBASE-SR/LR SFP+** slots, compatible with 1000BASE-SX/LX/BX SFP
- ☐ RJ45 to DB9 console interface for switch basic management and setup

### ➤ Power over Ethernet

- ☐ Complies with IEEE 802.3at Power over Ethernet Plus, end-span PSE
- ☐ Backward compatible with IEEE 802.3af Power over Ethernet
- ☐ Up to 24 ports of IEEE 802.3af/802.3at devices powered
- ☐ Supports PoE power up to 30 watts for each PoE port
- ☐ Auto detects powered device (PD)
- ☐ Circuit protection prevents power interference between ports
- ☐ Remote power feeding up to 100 meters
- ☐ PoE management
  - Total PoE power budget control
  - Per port PoE function enable/disable
  - PoE port power feeding priority
  - Per PoE port power limitation
  - PD classification detection
  - PoE schedule

➤ **IP Stacking**

- ☐ Connects with stack member via both Gigabit TP and SFP interfaces
- ☐ Single IP address management, supporting up to 24 units stacked together

➤ **IP Routing Features**

- ☐ IP routing protocol supports **RIPv1/v2, RIPv6, OSPFv2/v3, BGP4/4+**
- ☐ Routing interface provides per VLAN routing mode
- ☐ **VRRPv1/v3** protocol for redundant routing deployment
- ☐ Supports route redistribution

➤ **Multicast Routing Features**

- ☐ Supports PIM-DM (Protocol Independent Multicast – Dense Mode) and PIM-SM (Protocol Independent Multicast – Sparse Mode) and PIM-SSM (Protocol Independent Multicast – Source Specific Multicast)
- ☐ Supports DVMRP (Distance Vector Multicast Routing Protocol)
- ☐ Supports IGMP v1/v2/v3 and MLD v1/v2

➤ **Layer 2 Features**

- ☐ Complies with the IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3z Gigabit Ethernet standard
- ☐ Supports auto-negotiation and half-duplex/full-duplex modes for all 10BASE-T, 100BASE-TX and 1000BASE-T ports
- ☐ Auto-MDI/MDI-X detection on each RJ45 port
- ☐ Prevents packet loss flow control
  - IEEE 802.3x pause frame flow control in full-duplex mode
  - Back-pressure flow control in half-duplex mode
- ☐ High performance Store-and-Forward architecture, broadcast storm control, port loopback detect
- ☐ 16K MAC address table, automatic source address learning and aging
- ☐ Supports VLAN
  - IEEE 802.1Q tag-based VLAN
  - GVRP for dynamic VLAN management
  - Up to 256 VLANs groups, out of 4095 VLAN IDs
  - Provider Bridging (VLAN Q-in-Q, IEEE 802.1ad) supported
  - Private VLAN Edge (PVE) supported
  - GVRP protocol for Management VLAN
  - Protocol-based VLAN
  - MAC-based VLAN
  - IP subnet VLAN
- ☐ Supports Link Aggregation
  - Maximum 12 trunk groups, up to 8 ports per trunk group
  - IEEE 802.3ad LACP (Link Aggregation Control Protocol)
  - Cisco ether-channel (static trunk)
- ☐ Supports Spanning Tree Protocol
  - STP, IEEE 802.1D (Classic Spanning Tree Protocol)

- RSTP, IEEE 802.1w (Rapid Spanning Tree Protocol)
- MSTP, IEEE 802.1s (Multiple Spanning Tree Protocol, spanning tree by VLAN)
- Supports BPDU & root guard
- ☐ Port mirroring to monitor the incoming or outgoing traffic on a particular port (many to many)
- ☐ Provides port mirror (many-to-1)

#### ➤ **Quality of Service**

- ☐ 8 priority queues on all switch ports
- ☐ Support for strict priority and WRR (Weighted Round Robin) CoS policies
- ☐ Traffic classification
  - IEEE 802.1p CoS/ToS
  - IPv4/IPv6 DSCP
  - Port-based WRR
- ☐ Strict priority and WRR CoS policies

#### ➤ **Multicast**

- ☐ Supports IPv4 IGMP snooping v1, v2 and v3; IPv6 MLD v1 and v2 snooping
- ☐ Querier mode support
- ☐ Supports Multicast VLAN Register (MVR)

#### ➤ **Security**

- ☐ IEEE 802.1x port-based network access authentication
- ☐ MAC-based network access authentication
- ☐ Built-in RADIUS client to cooperate with the RADIUS servers for IPv4 and IPv6
- ☐ TACACS+ login users access authentication
- ☐ IP-based Access Control List (ACL)
- ☐ MAC-based Access Control List
- ☐ Supports DHCP snooping
- ☐ Supports ARP inspection
- ☐ **IP Source Guard** prevents IP spoofing attacks
- ☐ **Dynamic ARP Inspection** discards ARP packets with invalid MAC address to IP address binding

#### ➤ **Management**

- ☐ Management IP for IPv4 and IPv6
- ☐ Switch Management Interface
  - Console/Telnet Command Line Interface
  - Web switch management
  - SNMP v1, v2c, and v3 switch management
  - SSH/SSL secure access
- ☐ BOOTP and DHCP for IP address assignment
- ☐ Firmware upload/download via TFTP or HTTP Protocol for IPv4 and IPv6
- ☐ SNTP (Simple Network Time Protocol) for IPv4 and IPv6

- ☐ User privilege levels control
- ☐ Syslog server for IPv4 and IPv6
- ☐ Supports DDM
- ☐ Four RMON groups 1, 2, 3, 9 (history, statistics, alarms and events)
- ☐ Supports sFlow
- ☐ Supports ULDP
- ☐ Supports ULPP (Uplink Protection Protocol)
- ☐ Supports ULSM (Uplink State Monitor protocol)
- ☐ Supports LLDP/LLDP MED
- ☐ Supports DHCP Option82, Option37/38
- ☐ Supports ping, trace route function for IPv4 and IPv6



### 3. PRODUCT SPECIFICATIONS

#### 3.1 MAIN COMPONENTS

Switch ASIC:	Marvell 98DX3236	x 1
Switch PHY:	Marvell 88E1680	x 4
PoE Chipset	BCM59121	x 3
CPU:	ARM V7 800MHZ	-
DRAM:	512Mbytes	x 1
Flash:	32Mbytes	x 1

#### 3.2 FUNCTION SPECIFICATIONS

Product	SGS-6341-24P4X
<b>Hardware Specifications</b>	
Hardware Version	2
Copper Ports	24 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports
SFP/mini-GBIC Slots	4 100/1000BASE-X SFP combo interfaces with Port-21 to Port-24 Supports 100/1000Mbps dual mode and DDM
SFP+ Slots	4 10GBASE-SR/LR SFP+ interface (port-25 to port-28) Compatible with 1000BASE-SX/LX/BX SFP transceiver
Console	1 x RJ45-to-RS232 serial port (115200, 8, N, 1)
Switch Architecture	Store-and-forward
Switch Fabric	128Gbps/non-blocking
Switch Throughput	95.23Mpps
Address Table	16K MAC address table with auto learning function
Shared Data Buffer	1.5MB
Flow Control	Back pressure for half duplex IEEE 802.3x pause frame for full duplex
Jumbo Frame	10KB
LED	System: PWR/MGMT/SYS/PoE Ports: 10/100/1000T RJ45 Port: LNK/ACT and PoE-in-Use 1/10G SFP+ slot: LNK/ACT
Dimensions (W x D x H)	440 x 320 x 43.6 mm, 1U height
Weight	4503g
Power Consumption	15.4 watts/52.51 BT U (System) 401.7 watts/ 1369.8 BT U (System+PoE)
Power Requirements	AC 100~240V, 50/60Hz

Power over Ethernet	
PoE Standard	IEEE 802.3af/802.3at PoE+ PSE
PoE Power Supply Type	End-span
PoE Power Output	Per port 53V DC, 30.8 watts (max.)
Power Pin Assignment	1/2(+), 3/6(-)
PoE Power Budget	370 watts (max.)
PoE Ability PD @ 9 watts	24 units
PoE Ability PD @ 15 watts	24 units
PoE Ability PD @ 30 watts	12 units
Management Function	
System Configuration	Console, Telnet, SSH, Web browser, SNMP v1, v2c and v3
Management	Supports both IPv4 and IPv6 addressing Supports the user IP security inspection for IPv4/IPv6 SNMP Supports MIB and TRAP Supports IPv4/IPv6 FTP/TFTP Supports IPv4/IPv6 NTP Supports RMON 1, 2, 3, 9 four groups Supports the RADIUS authentication for IPv4/IPv6 Telnet user name and password Supports IPv4/IPv6 SSH The right configuration for users to adopt RADIUS server's shell management Supports CLI, console, Telnet Supports SNMP v1, v2c and v3 Supports Security IP safety net management function: avoid unlawful landing at nonrestrictive area Supports Syslog server for IPv4 and IPv6 Supports TACACS+
IPv4 Layer 3 functions	
IP Routing Protocol	Static route, RIPv1/v2, OSPFv2, BGPv4 Policy-based routing (PBR) LPM routing (MD5 authentication)
Multicast Routing Protocol	IGMP v1/v2/v3, DVMRP, PIM-DM/SM, PIM-SSM
Layer 3 Protocol	VRRP v1/v3, ARP, ARP Proxy
IPv6 Layer 3 functions	
IP Routing Protocol	RIPng, OSPFv3, BGPv4+, IPv6 LPM Routing, IPv6 Policy-based Routing(PBR) IPv6 VRRPv3, IPv6 URPF, IPv6 RA
Multicast Routing Protocol	PIM-SM/DM for IPv6 MLD for IPv6 (v1) MLDv1/v2

	MLD Snooping, 6to4 Tunnels IPv6 Any Cast RP Multicast receive control Illegal multicast source detect
<b>Layer 3 Protocol</b>	Configured Tunnels, ISATAP, GRE Tunnel
<b>Other</b>	ICMPv6,ND,DNSv6
<b>Layer 2 Function</b>	
<b>Port Configuration</b>	Port disable/enable Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Flow control disable/enable Bandwidth control on each port Port loopback detect
<b>Port Status</b>	Display each port's speed duplex mode, link status, flow control status and auto negotiation status
<b>VLAN</b>	802.1Q tagged based VLAN, up to 256 VLAN groups 802.1ad Q-in-Q (VLAN stacking) GVRP for VLAN management Private VLAN Edge (PVE) supported Protocol-based VLAN MAC-based VLAN IP subnet VLAN
<b>Bandwidth Control</b>	TX/RX/Both
<b>Link Aggregation</b>	IEEE 802.3ad LACP/static trunk Supports 12 groups with 8 ports per trunk group
<b>QoS</b>	8 priority queues on all switch ports Supports strict priority and Weighted Round Robin (WRR) CoS policies Traffic classification: - IEEE 802.1p CoS/ToS - IPv4/IPv6 DSCP - Port-based WRR
<b>Multicast</b>	IGMP v1/v2/v3 snooping Querier mode support MLD v1/v2 snooping Multicast VLAN Register (MVR)
<b>Access Control List</b>	Supports Standard and Expanded ACL IP-based ACL/MAC-based ACL Time-based ACL Up to 512 entries
<b>Bandwidth Control</b>	At least 64Kbps step
<b>Security</b>	Supports MAC + port binding

	IPv4/IPv6 + MAC + port binding IPv4/IPv6 + port binding Supports MAC filter ARP scanning prevention
<b>Authentication</b>	IEEE 802.1x port-based network access control AAA authentication: TACACS+ and IPv4/IPv6 over RADIUS
<b>SNMP MIBs</b>	RFC 1213 MIB-II RFC 1215 Internet Engineering Task Force RFC 1271 RMON RFC 1354 IP-Forwarding MIB RFC 1493 Bridge MIB RFC 1643 Ether-like MIB RFC 1907 SNMP v2 RFC 2011 IP/ICMP MIB RFC 2012 TCP MIB RFC 2013 UDP MIB RFC 2096 IP forward MIB RFC 2233 if MIB RFC 2452 TCP6 MIB RFC 2454 UDP6 MIB RFC 2465 IPv6 MIB RFC 2466 ICMP6 MIB RFC 2573 SNMP v3 notify RFC 2574 SNMP v3 vacm RFC 2674 Bridge MIB Extensions (IEEE 802.1Q MIB) RFC 2674 Bridge MIB Extensions (IEEE 802.1P MIB)
<b>Standard Conformance</b>	
<b>Regulatory Compliance</b>	FCC Part 15 Class A, CE
<b>Standards Compliance</b>	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3z Gigabit 1000BASE-SX/LX IEEE 802.3ab Gigabit 1000BASE-T IEEE 802.3ae 10Gb/s Ethernet IEEE 802.3x flow control and back pressure IEEE 802.3ad port trunk with LACP IEEE 802.1D Spanning Tree Protocol IEEE 802.1w Rapid Spanning Tree Protocol IEEE 802.1s Multiple Spanning Tree Protocol IEEE 802.1p Class of Service

	IEEE 802.1Q VLAN tagging IEEE 802.1X port authentication network control IEEE 802.1ab LLDP IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet PLUS RFC 768 UDP RFC 793 TFTP RFC 791 IP RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP v1 RFC 2236 IGMP v2 RFC 3376 IGMP v3 RFC 2710 MLD v1 FRC 3810 MLD v2 RFC 2328 OSPF v2 RFC 1058 RIP v1 RFC 2453 RIP v2
<b>Environment</b>	
<b>Operating</b>	Temperature: 0 ~ 50 degrees C Relative Humidity: 5 ~ 90% (non-condensing)
<b>Storage</b>	Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 90% (non-condensing)

### 3.3 PHYSICAL SPECIFICATIONS:

#### Dimensions:

440 x 320 x 43.6 mm (W x D x H)

#### Weight:

4503g

## Front View:



## LED Definition:

### System

LED	Color	Function
PWR	Green	Lights to indicate that the Switch has power.
	Off	Power is off.
SYS	Green	Lights to indicate the system diagnosis is completed.
		Blinks to indicate system diagnosis is running.
MGMT	Green	Lights to indicate the link through that port is successfully established
		Blinks to indicate that the port is activity
	Off	No connection

### 10/100/1000BASE-T Interfaces (Port-1 to Port-24)

LED	Color	Function	
LNK/ACT	Green	Lights:	To indicate the link through that port is successfully established.
		Blinks:	To indicate that the switch is actively sending or receiving data over that port.
PoE	Green	Lights:	To indicate the port is providing DC in-line power with PoE+.

### 1/10G SFP+ Interfaces (Port-25 to Port-28)

LED	Color	Function	
LNK/ACT	Green	Lights:	To indicate the link through that port is successfully established.
		Blinks:	To indicate that the switch is actively sending or receiving data over that port.

## 3.4 ENVIRONMENTAL SPECIFICATIONS

### Operating:

Temperature: 0 ~ 50 degrees C

Relative Humidity: 5% ~ 95% (non-condensing)

### Storage:

Temperature: -10 ~ 70 degrees C

Relative Humidity: 5% ~ 95% (non-condensing)

### 3.5 ELECTRICAL SPECIFICATIONS

<b>Power Consumption (System on):</b>	110V	<b>15.3</b> watts/52.17 BTU
	120V	<b>15.3</b> watts/52.17 BTU
	220V	<b>15.3</b> watts/52.17 BTU
	240V	<b>15.4</b> watts/52.51 BTU
<b>Power Consumption (Ethernet Full Loading):</b>	110V	<b>31.7</b> watts/108.1 BTU
	120V	<b>31.4</b> watts/107.1 BTU
	220V	<b>31.4</b> watts/107.1 BTU
	240V	<b>31.6</b> watts/107.76 BTU
<b>Power Consumption (Ethernet Full Loading):</b>	110V	<b>401.7</b> watts/ 1369.8 BTU
	120V	<b>401.4</b> watts/1368.77 BTU
	220V	<b>401.4</b> watts/1368.77 BTU
	240V	<b>401.6</b> watts/1369.46 BTU

### 3.6 REGULATORY COMPLIANCE

FCC Class A, CE

### 3.7 RELIABILITY

MTBF > 50,000Hrs @ 25 degrees C

### 3.8 BASIC PACKAGING

<input checked="" type="checkbox"/> The Managed Switch	x 1
<input checked="" type="checkbox"/> Quick Installation Guide	x 1
<input checked="" type="checkbox"/> RJ45-to-DB9 RS232 cable	x 1
<input checked="" type="checkbox"/> Rack Mounting Kit	x 1
<input checked="" type="checkbox"/> SFP Dust Cap	x 8
<input checked="" type="checkbox"/> Ground Cable	x 1

### 3.9 PACKING

<b>Dimensions:</b>	500 x 375 x 565 mm (W x D x H)
<b>Weight:</b>	TBD
<b>Quantity:</b>	3pcs in one carton