

## L2+ 4-Port 10/100/1000T 802.3bt PoE + 4-Port 10/100/1000T 802.3at PoE + 2-Port 10G SFP+ Managed AV Switch



### Optimized Integration for Professional AV Applications

Planet's latest innovation, AVS-4210-8HP2X, is specifically designed for the evolving needs of the Professional AV industry. It provides IPv6/IPv4 dual stack management, a built-in Layer 3 static routing capability, and a powerful L2+/L4 Gigabit switching engine along with 8 10/100/1000BASE-T RJ45 ports and 2 10G SFP+ slots for higher uplink bandwidth. In the realm of Power over Ethernet (PoE), the AVS-4210-8HP2X offers robust IEEE 802.3bt PoE++ output on Ports 1-4, perfect for high-powered AV devices, while simultaneously providing IEEE 802.3at PoE+ support on Ports 5-8, making it versatile for a wide range of applications. The switch boasts a total 240-watt PoE budget, establishing it as a compact yet powerful solution capable of efficiently supplying power to a variety of devices such as cameras, speakers and displays in Pro AV applications

### Compact AV Switch Designed for Flexible Integration

In AV setups where space is limited and clean cable routing matters, the AVS-4210-8HP2X delivers both performance and practicality. Its compact design fits seamlessly on TV stands or media shelves, minimizing clutter while powering devices like PoE speakers or control panels with just a single Ethernet cable. Ideal for home theaters and multimedia installations, this switch helps create a streamlined AV environment without the complexity of traditional racks.



### Physical Port

- 4 10/100/1000BASE-T ports with 95W 802.3bt PoE++ injector function (Ports 1 to 4)
- 4 10/100/1000BASE-T ports with 32W 802.3at PoE+ injector function (Ports 5 to 8)
- 2 10GBASE-SR/LR SFP+ slots, compatible with 100/1G/2.5G BASE-X SFP transceivers (Ports XG1 to XG2)
- RJ45 to DB9 console interface for switch basic management and setup

### Pro AV Design

- **Dual UI design** features a streamlined Pro AV interface and a conventional Standard UI
- **Pre-configured IGMP snooping** enables instant multicasting functionality upon powering on
- **Pre-configured Dante and NDI templates** simplify the configuration process for immediate plug-and-play capability
- **Fanless mode** eliminates the fan noise, ensuring disturbance-free operation

### Switching

- Hardware-based 10/100Mbps (half/full duplex), 1000Mbps (full duplex), auto-negotiation and auto MDI/MDI-X
- IEEE 802.3x flow control for full duplex operation and back pressure for half duplex operation
- 16K MAC address table size
- 12K jumbo frame
- Automatic address learning and address aging

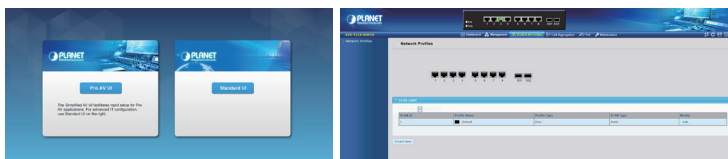
Some of the features listed below are only available in the standard UI.

### Power over Ethernet

- Compliant with IEEE 802.3bt Power over Ethernet Plus Plus
- 4 ports supporting IEEE 802.3bt PoE++ , with each offering up to 95 watts (ports 1-4)
- 4 ports supporting IEEE 802.3at PoE+ , with each offering up to 32 watts (ports 5-8)
- Total PoE power budget of 240 watts
- Fanless mode
- Automatic detection of powered devices (PD)
- Built-in circuit protection to prevent power interference between ports
- Remote power feeding up to 100 meters

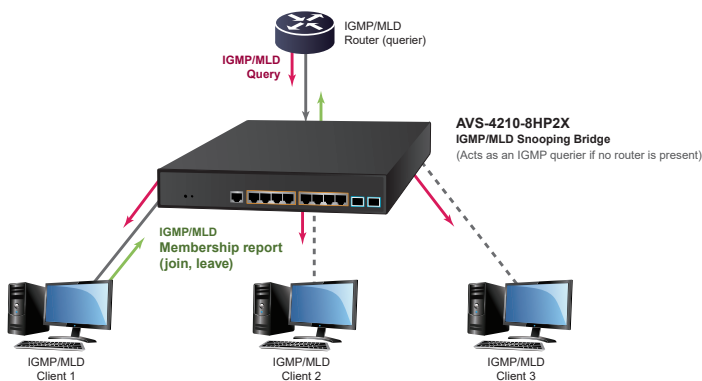
### Streamline AV-over-IP Streaming with Simplified, Intuitive Web UI Configuration

Traditional switches typically require advanced networking know-how for AV-over-IP streaming, presenting a significant hurdle. Planet's innovative AV switch, on the other hand, boasts a simplified, intuitive web interface, facilitating effortless adjustments to basic settings and enabling rapid AV-over-IP system deployment. This reduces the reliance on extensive technical skills, broadening access to AV networking. Additionally, it retains the standard switch setting UI, providing flexibility for users with a strong grasp of networking.



### Ready-to-Use Multicast Management

IGMP snooping and MLD snooping are available immediately upon powering up the Pro AV switch. This feature ensures efficient management of multicast traffic, a critical aspect in AV networks where multiple streams of content are often delivered simultaneously. By pre-configuring these settings, the switch can intelligently manage bandwidth and optimize network performance, ensuring high-quality, uninterrupted audiovisual experiences.



### Popular Pre-configured Audiovisual IP Networking Protocol

Planet's Pro AV switch seamlessly integrates key Audio/Video IP Networking Protocols like Dante and NDI, enabling effortless plug-and-play functionality. This eliminates the complexity of configuring protocols, streamlining the setup process.

Dante is widely used in professional audio settings like live sound in residential AV systems, recording studios, broadcast, and commercial installations, allowing for flexible and scalable audio networking without the need for traditional, heavy multi-core audio cables. It supports various audio channels and can handle complex setups with ease, making it a popular choice in the AV industry.

- Advanced PoE management capabilities:
  - Total PoE power budget control
  - Per port PoE function enable/disable
  - PoE port power feeding priority
  - Per PoE port power limitation
  - Detection of PD classification
- Intelligent PoE features
  - PD alive check
  - PoE schedule
  - Scheduled power recycling

### Layer 3 IP Routing Features

- Supports maximum 32 static routes and route summarization
- Routing interface provides per VLAN routing mode

### Layer 2 Features

- Supports VLAN
  - IEEE 802.1Q tagged VLAN
  - Provider bridging (VLAN Q-in-Q, IEEE 802.1ad) support
  - Protocol VLAN
  - Private VLAN (Protected port)
  - Management VLAN
  - GVRP
- Supports Spanning Tree Protocol
  - STP (Spanning Tree Protocol)
  - RSTP (Rapid Spanning Tree Protocol)
  - MSTP (Multiple Spanning Tree Protocol)
  - STP BPDU Guard, BPDU Filtering and BPDU Forwarding
- Supports Link Aggregation
  - IEEE 802.3ad Link Aggregation Control Protocol (LACP)
  - Cisco ether-channel (static trunk)
  - Maximum 8 trunk groups, up to 8 ports per trunk group
- Supports port mirror (many-to-1)
- Loop protection to avoid broadcast loops
- Supports ERPS (Ethernet Ring Protection Switching)
- Link Layer Discovery Protocol (LLDP)

### Quality of Service

- Ingress and egress rate limit per port bandwidth control
- Storm control support
  - Broadcast/Unknown unicast/Unknown multicast
- Traffic classification
  - IEEE 802.1p CoS
  - TOS/DSCP/IP precedence of IPv4/IPv6 packets
- Strict priority and Weighted Round Robin (WRR) CoS policies

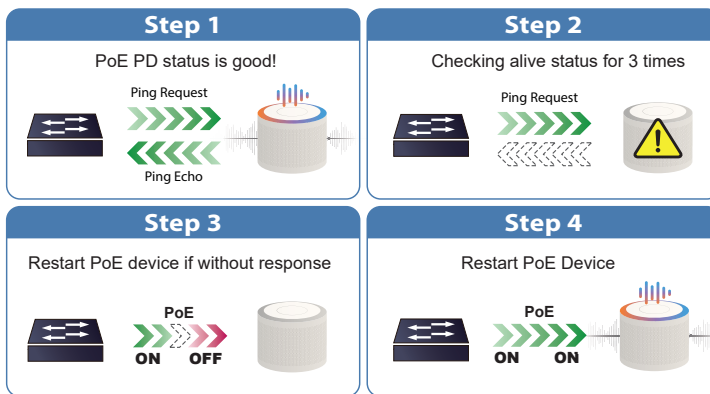
### Multicast

- Supports IPv4 IGMP snooping v2 and v3

On the other hand, NDI is designed to be easy to use and accessible, supporting multiple video standards and resolutions. It is particularly popular in broadcast and live event production due to its efficiency and flexibility, allowing for the easy setup and reconfiguration of video networks without the need for extensive cabling or specialized infrastructure. Planet's Pro AV switch is designed to be compatible with NDI protocol.

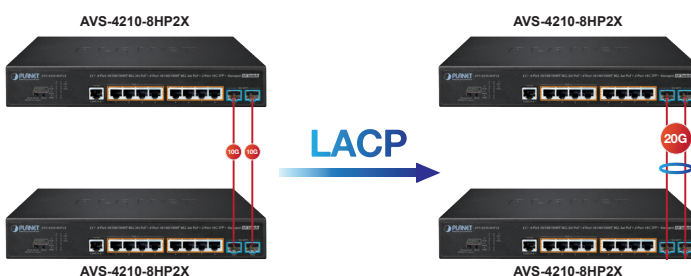
### Power-over-Ethernet for Flexibility and Remote Control

In modern Pro AV setups, using PoE for devices such as microphones, speakers, and displays offers ease of installation and enhanced flexibility. Planet's intelligent PoE management, including PD Alive Check, can automatically detect and restart non-responsive devices, simplifying maintenance and improving efficiency and convenience.



### Link Aggregation & 10G SFP+ Connectivity on High-bandwidth Networks

In Pro AV applications, scenarios often demand high-bandwidth connectivity, such as video streaming or transferring large video files across multiple switches in studio, theater or auditorium setups. Link aggregation plays a vital role in these scenarios, ensuring that networks can manage high traffic loads efficiently without experiencing bottlenecks which is crucial for maintaining the quality and consistency of AV streams. Employing Link Aggregation technology alongside 10G SFP+ connectivity offers an unparalleled, streamlined experience, enhancing efficiency and performance in ways previously unimagined.



- Supports IPv6 MLD snooping v1, v2
- IGMP querier mode support
- IGMP snooping port filtering
- MLD snooping port filtering

### Security

- Authentication
  - Built-in RADIUS client to cooperate with the RADIUS servers
  - RADIUS/TACACS+ login user access authentication
  - DHCP Option 82
- Access control list
  - IPv4/IPv6 IP-based ACL
  - IPv4/IPv6 IP-based ACE
  - MAC-based ACL
  - MAC-based ACE
- MAC security
  - Static MAC
  - MAC filtering
- Port security for source MAC address entries filtering
- DHCP snooping to filter distrusted DHCP messages
- Dynamic ARP Inspection discards ARP packets with invalid MAC address to IP address binding
- IP source guard prevents IP spoofing attacks
- DoS attack prevention

### Management

#### Pro AV UI Specific Settings

- Intuitive Network Profile (VLAN) setup
  - Color-coded groups for straightforward identification
  - Pre-set profile templates
    - ◆ Dante, NDI, Data
  - IGMP querier designation

#### Standard UI

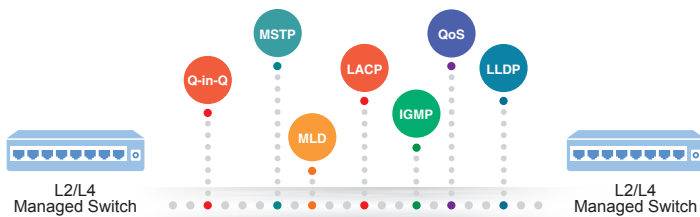
- IPv4 and IPv6 dual stack management
- Switch management interface
  - Web switch management
  - Console and telnet command line interface
  - SNMP v1 and v2c switch management
  - SSHv2, TLSv1.2, TLSv1.3 and SNMP v3 secure access
- SNMP Management
  - Four RMON groups (history, statistics, alarms and events)
  - SNMP trap for interface link up and link down notification
- User privilege levels control
- Built-in Trivial File Transfer Protocol (TFTP) client
- Static and DHCP for IP address assignment
- System maintenance

### Layer 3 IPv4 and IPv6 VLAN Routing for Secure and Flexible Management

The AVS-4210-8HP2X switch not only provides ultra high transmission performance, and excellent Layer 2 and Layer 4 technologies, but also Layer 3 IPv4 and IPv6 VLAN routing feature which allows to cross over different VLANs and different IP addresses for the purpose of having a highly-secure, flexibly-managed and simple networking application.

### Robust Layer 2 Features

The AVS-4210-8HP2X can be programmed for advanced switch management functions such as dynamic port link aggregation, 802.1Q VLAN and Q-in-Q VLAN, Multiple Spanning Tree Protocol (MSTP), loop and BPDU guard, IGMP snooping, and MLD snooping. Via the link aggregation, the AVS-4210-8HP2X allows the operation of a high-speed trunk to combine with multiple ports, and supports fail-over as well. Also, the Link Layer Discovery Protocol (LLDP) is the Layer 2 protocol included to help discover basic information about neighboring devices on the local broadcast domain.



- Firmware upload/download via HTTP/TFTP
- Configuration upload/download through HTTP/TFTP
- Dual images
- Hardware-based reset button for system reboot or reset to factory default
- SNMP Network Time Protocol
- Network Diagnostic
  - SFP-DDM (digital diagnostic monitor)
  - Cable diagnostics
  - ICMPv4/ICMPv6 remote ping
- Link Layer Discovery Protocol (LLDP) and LLDP-MED
- Event message logging to remote syslog server
- PLANET Smart Discovery Utility for deployment management
- PLANET NMS and CloudNMS for deployment management

### Remote Management Solution

PLANET's Universal Network Management System (UNI-NMS) and CloudNMS app support IT staff by remotely managing all network devices and monitoring PDs' operational statuses. Thus, they're designed for both the enterprises and industries where deployments of PDs can be as remote as possible, without having to go to the actual location once a bug or faulty condition is found. With the UNI-NMS or CloudNMS app, all kinds of businesses can now be speedily and efficiently managed from one platform.



**PLANET CloudNMS – Cloud-Based Universal Network Management**

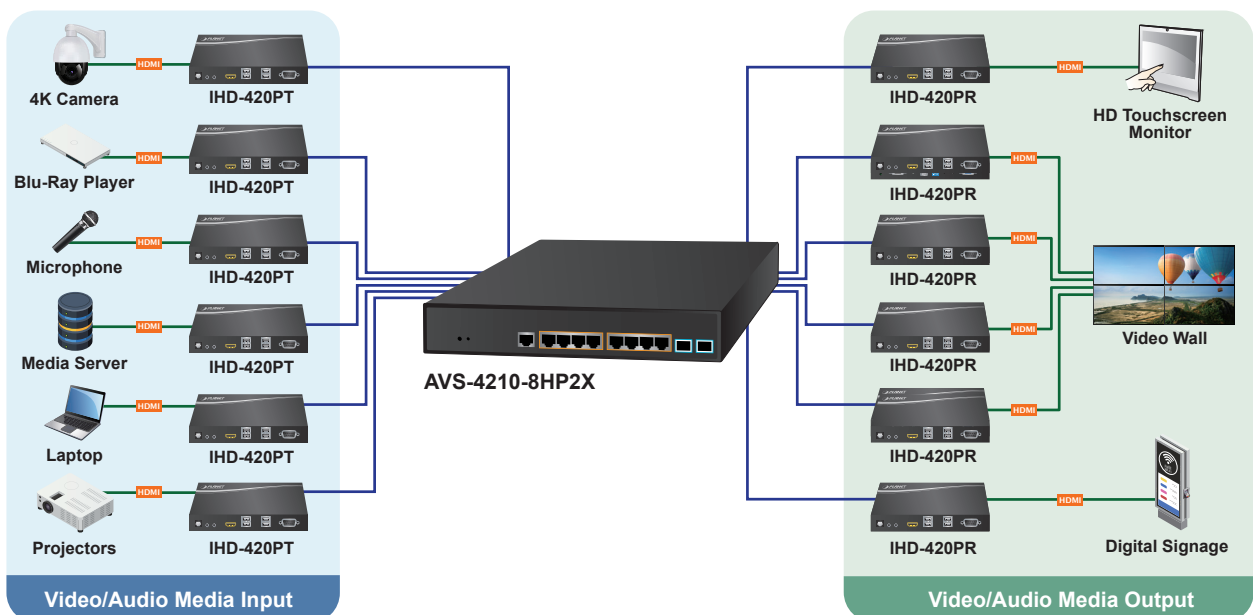
PLANET’s CloudNMS platform and mobile app empower IT staff to remotely manage all network devices and Powered Devices (PDs) in real time. Designed for enterprises and industries, CloudNMS minimizes the need for on-site troubleshooting by providing centralized monitoring, fault detection, and instant alerts. With CloudNMS, businesses can manage diverse network deployments more efficiently, securely, and intelligently—all from a single cloud-based platform.



**Applications**

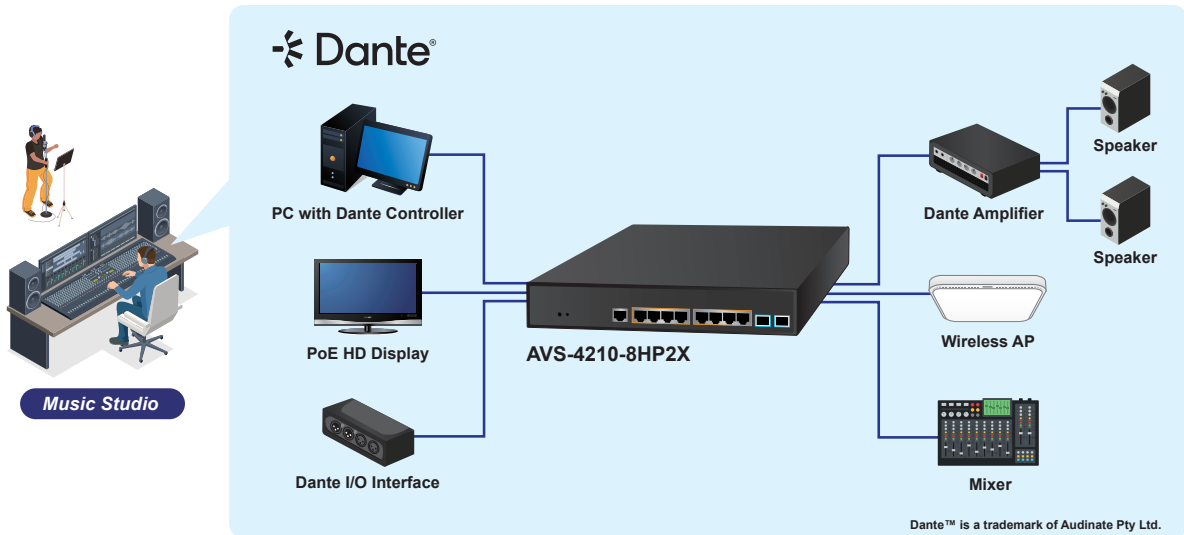
*Streamline Multimedia Experience with Planet’s Tailored Pro AV Switching Solution*

The AVS-4210-8HP2X Pro AV switch facilitates the convergence of diverse AV inputs from devices such as 4K cameras, microphones, Blu-Ray players, media server, and laptops. These inputs are then encoded, transmitted over Ethernet, and decoded to various output devices, including HDTV touchscreens, digital signage, projectors, video walls, and smart TVs.



*Seamless Audiovisual Integration with Dante-enabled AVS-4210-8HP2X*

The AVS-4210-8HP2X, a central hub expertly crafted for Dante-compliant devices, enables a unified and sophisticated audiovisual setup. Laptops, amplifiers, and microphones are connected to your network with ease. This Ethernet switch not only simplifies the connections but also ensures top-tier, studio-quality sound across the entire system.



## Specifications

Product	AVS-4210-8HP2X
<b>Hardware Specifications</b>	
Copper Ports	4 10/100/1000BASE-T with 95W 802.3bt PoE++ injector function (Ports 1 to 4) 4 10/100/1000BASE-T with 32W 802.3at PoE+ injector function (Ports 5 to 8)
PoE Injector Port	4 ports with 802.3bt PoE++ injector function (Ports 1 to 4) 4 ports with 802.3at PoE+ injector function (Ports 5 to 8)
SFP Ports	2 10GBASE-SR/LR SFP+ interfaces (Port XG1 to Port XG2) Backward compatible with 100/1G/2.5GBASE-SX/LX/BX SFP transceivers
Console	1 x RJ45-to-RS232 serial port (115200, 8, N, 1)
Reset Button	< 5 sec: System reboot > 5 sec: Factory default
Power Requirements	AC 100~240V, 50/60Hz
Power Consumption/ Dissipation	Max. 10.7 watts/36.5BTU (Power on without any connection) Max. 269 watts/917.87BTU (Full loading)
Dimensions (W x D x H)	280 x 230 x 44mm
Weight	1,885g
Installation	Desktop & Rack-mount
ESD Protection	Contact Discharge 6KV DC Air Discharge 8KV DC
LED	<b>System</b> Power LED (Green) SYS LED (Green) <b>LED Mode</b> LNK/ACT (Green) PoE-in-use (Amber) <b>Ports</b> 10/100/1000 RJ45 Ports LNK/ACT (Green) 10G SFP+ Interface LNK/ACT (Green) PoE-in-Use (Amber)
<b>Switching Specifications</b>	
Switch Architecture	Store-and-Forward
Switch Fabric	56Gbps/non-blocking
Switch Throughput	41.66Mpps @64 bytes
MAC Address Table	16K entries
Shared Data Buffer	12Mbits

Flow Control	IEEE 802.3x pause frame for full duplex Back pressure for half duplex
Jumbo Frame	12 Kbytes
<b>Power over Ethernet</b>	
PoE Standard	IEEE 802.3bt PoE++ PSE (Ports 1 to 4) IEEE 802.3af/at PoE+ PSE (Ports 5 to 8)
PoE Power Supply Type	End-span/802.3bt (Ports 1 to 4) End-span (Ports 5 to 8)
Power Pin Assignment	802.3bt/UPoE: 1/2(-), 3/6(+), 4/5(+), 7/8(-) 802.3at PoE: End-span: 1/2(-), 3/6(+)
PoE Power Output	Port 1 to 4 – 95W (max.) Port 5 to 8 – 32W (max.)
PoE Power Budget	240 watts (max.) 120 watts@Fanless mode
Max. Number of 95W 802.3bt Type 4 PDs	2
Max. Number of 60W 802.3bt Type 3 PDs	4
Max. Number of 30W 802.3at Type 2 PDs	8
<b>PoE Management Functions</b>	
PoE Management	System PoE Admin Mode Fanless Mode Consumption Mode/Allocation Mode Temperature Threshold
Enhanced PoE Mode	Standard/Force
Active PoE Device Live Detection	Yes
PoE Power Recycling	Yes, daily or predefined schedule
PoE Schedule	4 schedule profiles
PoE Extended Mode	Yes, max. up to 250 meters
<b>Layer 2 Functions</b>	
Port Mirroring	TX/RX/Both Many-to-1 monitor Up to 4 sessions
VLAN	802.1Q tagged VLAN 802.1ad Q-in-Q tunneling (VLAN stacking) Protocol VLAN Private VLAN (Protected port) GVRP Management VLAN Up to 256 VLAN groups, out of 4094 VLAN IDs
Link Aggregation	IEEE 802.3ad LACP and static trunk Supports 8 groups with 8 ports per trunk
Spanning Tree Protocol	IEEE 802.1D Spanning Tree Protocol (STP) IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) STP BPDU Guard, BPDU Filtering and BPDU Forwarding
IGMP Snooping	IPv4 IGMP snooping v2, v3 IGMP querier Up to 256 multicast groups
MLD Snooping	IPv6 MLD snooping v2, v3, up to 256 multicast groups
Access Control List	IPv4/IPv6 IP-based ACL/MAC-based ACL IPv4/IPv6 IP-based ACE/MAC-based ACE
QoS	8 mapping IDs to 8 level priority queues - Port number - 802.1p priority - DSCP/IP precedence of IPv4/IPv6 packets Traffic classification based, strict priority and WRR Ingress/Egress Rate Limit per port bandwidth control
Ring	Supports ERPS, and complies with ITU-T G.8032 Recovery time < 450ms
<b>Layer 3 Functions</b>	
IP Interfaces	Max. 64 VLAN interfaces
Routing Table	Max. 32 routing entries
Routing Protocols	IPv4/IPv6 hardware static routing

Security Functions		
Access Control List	IPv4/IPv6 IP-based ACL/MAC-based ACL IPv4/IPv6 IP-based ACE/MAC-based ACE Max. 256 ACL entries	
Port Security	Built-in RADIUS client to co-operate with RADIUS server RADIUS/TACACS+ user access authentication	
MAC Security	IP-MAC port binding MAC filter Static MAC address, max. 256 static MAC entries	
Enhanced Security	DHCP Snooping and DHCP Option82 STP BPDU guard, BPDU filtering and BPDU forwarding DoS attack prevention ARP inspection IP source guard	
Management Functions		
Basic Management Interfaces	RS232 Console Web browser Telnet SNMP v1, v2c	
Secure Management Interfaces	SSHv2, TLSv1.2, TLSv1.3, SNMP v3	
System Management	Firmware upgrade by HTTP/TFTP protocol through Ethernet network Configuration upload/download through HTTP/TFTP LLDP protocol SNTP PLANET Smart Discovery Utility PLANET NMS/CloudNMS	
Event Management	Remote/Local Syslog System log SMTP Email notification	
SNMP MIBs	RFC 1213 MIB-II RFC 1215 Generic Traps RFC 1493 Bridge MIB RFC 2674 Bridge MIB Extensions RFC 2737 Entity MIB (Version 2) RFC 2819 RMON (1, 2, 3, 9) RFC 2863 Interface Group MIB RFC 3635 Ethernet-like MIB RFC 3621 Power Ethernet MIB LLDP MIB PLANET-Aggr-MIB PLANET-DDMI-MIB PLANET-Firmware-MIB PLANET-GVRP-MIB PLANET-LACP-MIB PLANET-SYSUTIL-MIB	
Standards Conformance		
Regulatory Compliance	FCC Part 15 Class A, CE	
Standards Compliance	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX/100BASE-FX IEEE 802.3z Gigabit 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 802.1ab LLDP IEEE 802.3af Power over Ethernet	IEEE 802.3at Power over Ethernet Plus IEEE 802.3bt Power over Ethernet Plus Plus IEEE 802.3az for Energy-Efficient Ethernet RFC 768 UDP RFC 783 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 RFC 3810 MLD v2 ITU-T G.8032 ERPS Ring

Environment	
Operating Temperature	0 ~ 50 degrees C
Storage Temperature	-10 ~ 60 degrees C
Humidity	5 ~ 95% (non-condensing)

## Ordering Information

AVS-4210-8HP2X	L2+ 4-Port 10/100/1000T 802.3bt PoE + 4-Port 10/100/1000T 802.3at PoE + 2-Port 10G SFP+ Managed AV Switch
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## Related Products

AVS-4210-24HP4X	8-Port 10/100/1000T 802.3bt PoE + 16-Port 10/100/1000T 802.3at PoE + 4-Port 10G SFP+ Managed AV Switch
GS-4210-16UP8T4X	16-Port 10/100/1000T 802.3bt PoE++ plus 4-Port Gigabit TP/SFP Combo Managed Switch
GS-4210-24UP4X	24-Port 10/100/1000T 802.3bt PoE++ plus 4-Port Gigabit TP/SFP Combo Managed Switch
IHD-420PT	Video Wall Ultra 4K HDMI/USB Extender Transmitter over IP with PoE
IHD-420PR	Video Wall Ultra 4K HDMI/USB Extender Receiver over IP with PoE
XGS-6350-24X2C	Layer 3 24-Port 10G SFP+ + 2-Port 100G QSFP28 Stackable Managed Switch
MTB-Series Module	10GBASE-LR/SR/BX/T Modules
MGB-Series Transceiver	1000BASE-SX/LX SFP Transceiver
MFB-Series Transceiver	100BASE-FX SFP Transceiver

## Available SFP/SFP+ Modules

### 10 Gigabit Ethernet Transceiver (10GBASE-X SFP+)

MTB-LB40	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 40km (TX:1330nm RX:1270nm)
MTB-LA40	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 40km (TX:1270nm RX:1330nm)
MTB-LB20	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 20km (TX:1330nm RX:1270nm)
MTB-LA20	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 20km (TX:1270nm RX:1330nm)
MTB-SR	1-Port 10GBASE-SR SFP+ Fiber Optic Module - 300m
MTB-LR	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 10km
MTB-LA60	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 60km (TX:1270nm RX:1330nm)
MTB-LB60	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 60km (TX:1330nm RX:1270nm)
MTB-RJ	1-Port 10GBASE-T SFP+ Copper Fiber Optic Module - 30m
MTB-LR40	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 40km
MTB-SR2	1-Port 10GBASE-SR SFP+ Fiber Optic Module - 2km
MTB-LR20	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 20km
MTB-LR60	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 60km
MTB-LR80	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 80km
MTB-LA10	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 10km (TX:1270nm RX:1330nm)
MTB-LB10	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 10km (TX:1330nm RX:1270nm)

### 2.5 Gigabit Ethernet Transceiver (2500GBASE-X SFP)

MGB-2GSR	2.5G SFP Transceiver (Multi-mode, 850nm, DDM, 0~70 degrees C) - 300m
MGB-2GLA20	2.5G SFP Transceiver (Single mode WDM, TX:1310nm RX:1550nm, DDM, 0~70 degrees C) - 20km
MGB-2GLB20	2.5G SFP Transceiver (Single mode WDM, TX:1550nm RX:1310nm, DDM, 0~70 degrees C) - 20km
MGB-2GLR20	2.5G SFP Transceiver (Single mode, 1310nm, DDM) - 20km
MGB-2GLR2	2.5G SFP Transceiver (Single mode, 1310nm, DDM) - 2km

**2.5 Gigabit Ethernet Transceiver (2500GBASE-X SFP) Gigabit Ethernet Transceiver (1000GBASE-X SFP)**

MGB-GT	SFP-Port 1000BASE-T Module
MGB-LX	SFP-Port 1000BASE-LX mini-GBIC module - 20km
MGB-SX	SFP-Port 1000BASE-SX mini-GBIC module - 550m
MGB-SX2	SFP-Port 1000BASE-SX mini-GBIC module - 2km
MGB-L40	SFP-Port 1000BASE-LX mini-GBIC module - 40km
MGB-L80	SFP-Port 1000BASE-LX mini-GBIC module - 80km
MGB-L120	SFP-Port 1000BASE-LX mini-GBIC module - 120km
MGB-LA10	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 10km
MGB-LB10	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 10km
MGB-LA20	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 20km
MGB-LB20	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 20km
MGB-LA40	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 40km
MGB-LB40	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 40km
MGB-LA80	SFP-Port 1000BASE-BX (WDM, TX:1490nm) mini-GBIC module - 80km
MGB-LB80	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 80km
MGB-GT	SFP-Port 1000BASE-T Module
MGB-LX	SFP-Port 1000BASE-LX mini-GBIC module - 20km
MGB-SX	SFP-Port 1000BASE-SX mini-GBIC module - 550m
MGB-SX2	SFP-Port 1000BASE-SX mini-GBIC module - 2km
MGB-L40	SFP-Port 1000BASE-LX mini-GBIC module - 40km
MGB-L80	SFP-Port 1000BASE-LX mini-GBIC module - 80km
MGB-L120	SFP-Port 1000BASE-LX mini-GBIC module - 120km
MGB-LA10	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 10km
MGB-LB10	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 10km
MGB-LA20	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 20km
MGB-LB20	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 20km
MGB-LA40	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 40km
MGB-LB40	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 40km
MGB-LA80	SFP-Port 1000BASE-BX (WDM, TX:1490nm) mini-GBIC module - 80km
MGB-LB80	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 80km

**Fast Ethernet Transceiver (100BASE-X SFP)**

MFB-FX	SFP-Port 100BASE-FX Transceiver (1310nm) -2km
MFB-F20	SFP-Port 100BASE-FX Transceiver (1310nm) - 20km
MFB-FA20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1310nm) -20km
MFB-FB20	SFP-Port 100BASE-BX Transceiver (WDM,TX:1550nm) -20km
MFB-F40	SFP-Port 100BASE-FX Transceiver (1310nm) - 40KM
MFB-F60	SFP-Port 100BASE-FX Transceiver (1310nm) - 60KM
MFB-F120	SFP-Port 100BASE -FX Transceiver (1550nm) - 120km