S5720I-SI Series Video Backhaul Switch

Product Overview

Huawei S5720I-SI series video backhaul switch is ideal for implementing outdoor video backhaul in public safety scenarios. The S5720I-SI series video backhaul switch integrates multiple modules, including an extended-temperature switch, surge protector, multiple power outputs, fiber splice tray, protection shell, and mechanical lock, meeting all the needs of an outdoor access site.

Leveraging its high-performance hardware and Huawei Versatile Routing Platform (VRP), the switch provides flexible full gigabit access ports and 10GE uplink ports, supports simple operations and maintenance (O&M) and flexible Ethernet networking, and provides enhanced Layer 3 features as well as mature IPv6 functions. The S5720I-SI series video backhaul switch supports an industrial-grade operating temperature range and has a high level of outdoor surge protection. It is also IP65-rated and comes with salt spray protection. It can withstand harsh weather conditions in outdoor environments, and can be used for video access in Safe City scenarios.

This series is available in two models: S5720I-6X-PWH-SI-AC and S5720I-10X-PWH-SI-AC.

Models and Appearances

Models and Appearances	Description
 S5720I-6X-PWH-SI-AC	• Integrates multiple modules including the protection shell, surge protector, fiber splice tray, and multiple power outputs • 4 x 10/100/1000Base-T Ethernet ports and 2 x 10 GE SFP+ ports • PoE++ • Built-in AC power supply • IP66 • Surge protection • Salt spray protection • Forwarding performance: 35.7 Mpps • Switching capacity: 168 Gbit/s • Operating temperature: -40°C to +55°C

Models and Appearances	Description
 S5720I-10X-PWH-SI-AC	• Integrates multiple modules including the protection shell, surge protector, fiber splice tray, and multiple power outputs • 8 x 10/100/1000Base-T Ethernet ports and 2 x 10 GE SFP+ ports • PoE++ • Built-in AC power supply • IP66 • Surge protection • Salt spray protection • Forwarding performance: 42 Mpps • Switching capacity: 168 Gbit/s • Operating temperature: -40°C to +55°C

Features and Highlights

Industrial-Grade Reliability, withstanding harsh outdoor environments

Extended operating temperature range (-40°C to +55°C), enabling it to work in harsh outdoor environments.

Built-in surge protector, meeting outdoor surge protection requirements.

IP66-rated, easily adapting to complex outdoor environments.

Salt spray protection, supporting installation in areas more than 500 meters from the sea.

High-level integration and easy installation/deployment

The S5720I-SI series video backhaul switch integrates multiple modules, including a built-in surge protector, fiber splice tray, PoE++ power supply, multiple power outputs (12 V DC/24 V DC(or 24V AC, depending on the model)/220 V AC), protection shell, and mechanical lock, eradicating the need for on-site installation. Additionally, the switch weighs only about 10 kg, facilitating wall- and pole-mounting.

Supports Super Virtual Fabric (SVF) that virtualizes "Core/Aggregation + Access Switches" into a single logical device. The S5720I-SI can function as the SVF client. SVF provides the simplest network management solution in the industry, simplifies device management, and supports plug-and-play of devices, as well as supporting service configuration profiles. These profiles are configured on the core device and automatically delivered to access devices, implementing centralized control, simplifying service configuration, and enabling flexible configuration modification.

Supports zero-touch provisioning (ZTP), USB-based deployment, configuration-free replacement of a faulty device, batch configuration, and batch remote upgrade. These functions facilitate device deployment, service provisioning, and other management and maintenance work, greatly reducing O&M costs. The switch can be managed and maintained using Simple Network Management Protocol (SNMP) v1, v2c, and v3, command line interface (CLI), web system, or Secure Shell (SSH) v2.0. Additionally, it supports remote network monitoring (RMON), multiple log hosts, interface traffic statistics collection, and network quality analysis that facilitates network optimization and reconstruction.

Professional video surveillance features

Smart Fault Diagnosis (SFD) of the downstream IP cameras (IPCs): Specifically, the switch works with Huawei's network management system—eSight—to implement fast fault diagnosis based on the device management status, port status, and alarms of the network path on which the IPC resides, and quickly demarcate the type of fault that led to the IPC disconnection (for example, an IPC fault, network device fault, power failure, or optical fiber link fault). This capability improves O&M efficiency, reduces O&M costs, and increases the IPC connectivity rate.

eMDI video quality demarcation: The switch works with Huawei eSight to analyze video service quality and quickly demarcate the video quality problem type, such as artifacts and frame freezing on the screen when playing a video.

Mechanical lock and alarm reporting upon cover being opened: It can quickly detect damage and intrusion, ensuring device security.

Leading PoE++ power supply

PoE ++ (802.3bt): A single PoE ++ port provides up to 60 W power.

Long-distance PoE++ power supply: When PoE++ ports on the switch work in FE mode and Category 5e and above network cables are used, the switch can provide 200-meter PoE power supply to the following Huawei cameras: M2220-I, M2221-FL, M2221-VL, M2260-I, and M2220-I.

Fast PoE: The switch can supply power to PDs within 10s after it is powered on. This is different from common switches that generally take 1 to 3 minutes to start to supply power to PDs. The fast PoE capability greatly shortens the service interruption time caused by power supply interruption, and enables the switch and PDs to start almost at the same time. That is, after the switch is fully started, PDs can immediately function properly.

Perpetual PoE technology: The switch supplies uninterrupted power to PDs even when it reboot, eliminating fault-triggered interruptions.

Powerful Service Processing Capability and Multiple Security Control Mechanisms

Various Layer 2 and Layer 3 multicast protocols, including Protocol Independent Multicast Sparse Mode (PIM SM), PIM Dense Mode (DM), PIM Source-Specific Multicast (SSM), Multicast Listener Discovery (MLD), and Internet Group Management Protocol (IGMP) snooping, ensuring high-quality HD video surveillance services.

Layer 3 features, such as Open Shortest Path First (OSPF), Intermediate System to Intermediate System (IS-IS), Border Gateway Protocol (BGP), and Virtual Router Redundancy Protocol (VRRP), meeting enterprise access and aggregation service requirements and supporting more voice, video, and data applications.

MAC address authentication, 802.1X authentication, Portal authentication, and dynamic delivery of user policies (VLAN, QoS, and ACL).

Series of mechanisms to defend against DoS attacks and user-targeted attacks. DoS attacks are targeted at switches and include SYN flood, LAND, Smurf, and ICMP flood attacks. User-targeted attacks include bogus DHCP server attacks, IP/MAC address spoofing, DHCP request flood, and changing the DHCP CHADDR value.

Setting up and maintaining a DHCP snooping binding table, and discarding the packets that do not match the table entries. DHCP snooping allows a physical port to be configured as a trusted or untrusted port to ensure that users are connected to only authorized DHCP servers.

Strict ARP learning, protecting the network against ARP spoofing attacks and ensuring normal network access.

Multiple Reliability Mechanisms

Huawei-developed Smart Ethernet Protection (SEP) technology and the latest Ethernet ring protection switching (ERPS) standard in addition to the traditional Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), and Multiple Spanning Tree Protocol (MSTP). SEP is a ring protection protocol dedicated to the Ethernet link layer. It is applicable to various ring topologies such as open ring topology, closed ring topology, and cascading ring topology. SEP is reliable and easy to maintain, and implements fast protection switching (under 50 ms). ERPS is defined in ITU-T G.8032. It implements protection switching within milliseconds based on the traditional Ethernet MAC and bridging functions.

Smart Link. One switch can be connected to multiple aggregation switches through multiple links to implement uplink backup, greatly improving the reliability of access devices.

Ethernet OAM (IEEE 802.3ah/802.1ag), quickly detecting link faults.

Mature IPv6 Technologies

The S5720I-SI series video backhaul switch uses the mature, stable VRP platform and supports IPv4/IPv6 dual stacks, IPv6 RIPng, and IPv6 over IPv4 tunnels including manual, 6-to-4, and Intra-Site Automatic Tunnel Addressing Protocol (ISATAP) tunnels. With these IPv6 features, the switch can be deployed on IPv4 networks, IPv6 networks, or networks that run both IPv4 and IPv6, meeting the requirements for IPv4-to-IPv6 transition.

Product Specifications

Item	S5720I-6X-PWH-SI-AC	S5720I-10X-PWH-SI-AC
Fixed port	4 x 10/100/1000Base-T ports and 2 x 10G SFP+ ports	8 x 10/100/1000Base-T ports and 2 x 10G SFP+ ports
Management port	Console port (RJ45) and USB 2.0 port	
PoE	4 PoE++ ports, each providing up to 60 W power Maximum total PoE output power: 200 W (shared with 12 V DC and 24 V AC outputs) 802.3af/802.3at/802.3bt standards compliance	8 PoE++ ports, each providing up to 60 W power Maximum total PoE output power: 200 W (shared with 12 V DC and 24 V DC outputs) 802.3af/802.3at/802.3bt standards compliance
Dimensions (W x D x H, mm)	300x110x390	300 x 100 x 390
Weight	10.1 kg	9.8 kg
Input voltage	Rated AC voltage: 220-240 V AC, 50/60 Hz Maximum AC voltage: 176-264 V AC, 45–66 Hz	Rated AC voltage: 100-240 V AC, 50/60 Hz Maximum AC voltage: 90-264 V AC, 47–63 Hz
Power output	Maximum total output power of 12V DC/24V AC/PoE: 150 W 12V DC (two outputs): 48 W in total, with a maximum of 48 W for each output 24V AC (one output): 72 W 220V AC (one output): maximum current of 4 A	Maximum total output power of 12V DC/24V DC/PoE: 200 W 12V DC (two outputs): 96 W in total, with a maximum of 96 W for each output 24V DC (one output): 72 W AC: 220V AC (one output): maximum current of 4 A
Mechanical lock	Supported	
Cable cover	Supported (optional)	
Fiber splice tray	Built-in	
Protection rating	IP66	
Surge protection	AC input: Common mode: 20 kA; differential mode: 20 kA	
	12V DC output: Common mode: 4 kV; differential mode: 2 kV 24V AC output: Common mode: 6 kV; differential mode: 2 kV	12 V/24 V DC output: Common mode: 6 kV; differential mode: 6 kV
	Network port: Differential mode: 6 kV; common mode: 1.5 kV	
Salt spray protection	Supported, allowing the switch to be installed in areas more than 500 meters away from the sea	
Heat dissipation	Natural heat dissipation	
Installation mode	Pole-mounted or wall-mounted	

Service Features

Item	Description
MAC	IEEE 802.1d compliance
	16K MAC address entries
	Automatic learning and aging of MAC address entries
	Static, dynamic, and blackhole MAC address entries
	Packet filtering based on source MAC addresses
VLAN	4K VLANs
	Guest VLAN and voice VLAN
	GVRP
	MUX VLAN
	VLAN assignment based on MAC addresses, protocols, IP subnets, policies, and ports
	VLAN mapping
Reliability	RRPP ring topology and RRPP multi-instance
	Smart Link tree topology and Smart Link multi-instance, providing protection switching within milliseconds
	SEP
	STP (IEEE 802.1d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s)
	ERPS (G.8032)
	BPDU protection, root protection, and loop protection
IP routing	Static routing, RIPv1/v2, RIPng, OSPF, OSPFv3, IS-IS, IS-ISv6, BGP, BGP4+, VRRP, VRRP6, and ECMP
IPv6 features	Neighbor Discovery (ND)
	Path MTU (PMTU)
	IPv6 ping, IPv6 tracert, and IPv6 Telnet
	6to4 tunnels, ISATAP tunnels, and manually configured tunnels
Multicast	IGMP v1/v2/v3, PIM-SM, PIM-DM, and PIM-SSM
	IGMP v1/v2/v3 snooping and IGMP fast leave
	MLD v1/v2 and MLD v1/v2 snooping
	Intra-VLAN multicast forwarding and inter-VLAN multicast replication
	Multicast load balancing among member ports of a trunk link
	Controllable multicast
	Port-based multicast traffic statistics collection
QoS/ACL	Inbound and outbound traffic rate limiting on a port
	Packet redirection

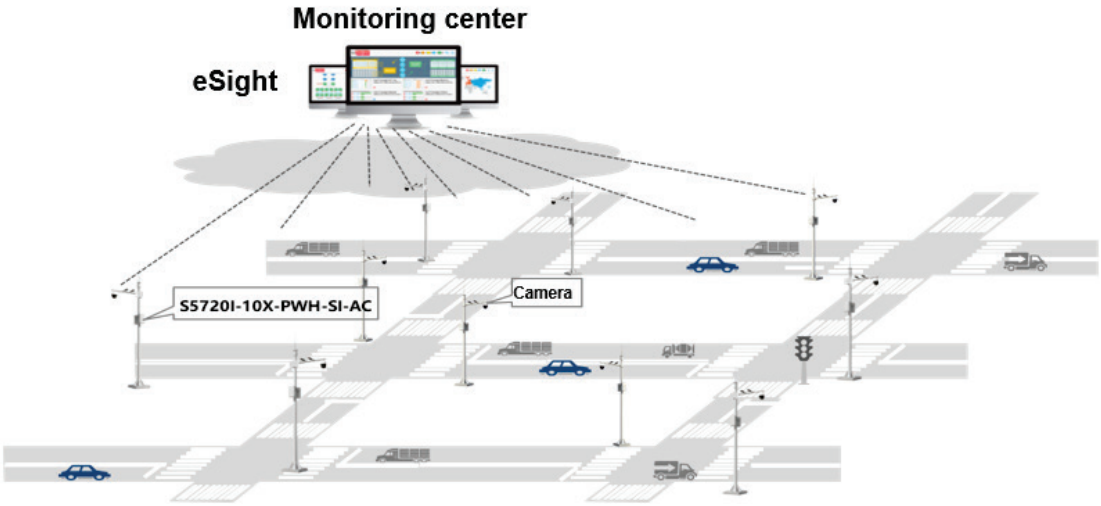
Item	Description
	Port-based traffic policing and two-rate, three-color CAR
	Eight queues per port
	DRR, SP, and DRR+SP queue scheduling algorithms
	Re-marking of the 802.1p priority and DSCP value of packets
	Packet filtering on Layer 2 to Layer 4, filtering out invalid frames based on the source MAC address, destination MAC address, source IP address, destination IP address, TCP/UDP source/destination port number, protocol number, and VLAN ID
	Queue-based rate limiting and traffic shaping on ports
Security features	Hierarchical user management and password protection
	DoS attack defense, ARP attack defense, and ICMP attack defense
	Binding of the IP address, MAC address, port number, and VLAN ID
	Port isolation, port security, and sticky MAC
	MAC Forced Forwarding (MFF)
	Blackhole MAC address entries
	Limit on the number of learned MAC addresses
	IEEE 802.1X authentication and limit on the number of users on a port
	AAA authentication, RADIUS authentication, and HWTACACS authentication
	NAC
	SSH v2.0
	HTTPS
	CPU protection
	Blacklist and whitelist
	DHCPv4/v6 client/relay/server/snooping
	Attack source tracing and punishment for IPv6 packets such as ND, DHCPv6, and MLD packets
	Separation between user authentication and policy enforcement points
Reliability	LACP
	E-trunk
	Ethernet OAM (IEEE 802.3ah and 802.1ag)
	ITU-Y.1731
	DLDP
	LLDP
	BFD for BGP/IS-IS/OSPF/static route
Super Virtual Fabric (SVF)	Plug-and-play
	Automatic loading of software and patches
	One-click automatic provisioning of services

Item	Description
	Configuration of an AS in independent mode and configuration of services that are not supported by the profile on the parent
OAM	EFM
	CFM
	Y.1731
Management and maintenance	Virtual cable test
	SNMPv1/v2c/v3
	RMON
	Network management system (NMS) and web-based network management features
	System logs and multi-level alarms
	sFlow
	NETCONF
	Dying gasp
	Alarms upon opening the cover of the device
	Offline IPC fault diagnosis
	eMDI
Interconnection and interoperability	VLAN-based Spanning Tree (VBST) (compatible with PVST/PVST+/RPVST)
	Link-type Negotiation Protocol (LNP) (similar to DTP)
	VLAN Central Management Protocol (VCMP) (similar to VTP)

Networking and Applications

Video surveillance network in Safe City scenarios

The S5720I-SI series video backhaul switch supports an extended operating temperature range, has a built-in surge protector, and provides IP65 protection as well as salt spray protection capabilities. It is applicable to outdoor environments and can be used in Safe City scenarios to provide long-distance PoE access for cameras.



Ordering Information

Module	Description
S5720I-6X-PWH-SI-AC	S5720I-6X-PWH-SI-AC (4*10/100/1000BASE-T ports, 2*10GE SFP+ ports, PoE++, AC power supply)
S5720I-10X-PWH-SI-AC	S5720I-10X-PWH-SI-AC (8*10/100/1000BASE-T ports, 2*10GE SFP+ ports, PoE++, AC power supply)
ES5MPJB00000	Cable cover (used in S5720I-10X-PWH-SI-AC and S5720I-6X-PWH-SI-AC)

More Information

For more information about Huawei Campus Switches, visit http://e.huawei.com or contact us in the following ways:

- Global service hotline: http://e.huawei.com/en/service-hotline
- Logging in to the Huawei Enterprise technical support website: http://support.huawei.com/enterprise/
- Sending an email to the customer service mailbox: support_e@huawei.com

Huawei Technologies Co., Ltd.

Address:Huawei Industrial Base Bantian, Longgang Shenzhen 518129 People's Republic of China

Website:www.huawei.com