

# CloudEngine S5735-S-I Series Extended-Temperature Switches

CloudEngine S5735-S-I series extended-temperature switches have an industrial-grade operating temperature range as well as professional outdoor surge protection to withstand harsh outdoor cabinet environments.


## Product Overview

Huawei CloudEngine S5735-S-I series extended-temperature switches (S5735-S-I for short) are next-generation standard Layer 3 gigabit switches that provide flexible all-gigabit access and 10GE uplink ports.

Extended-temperature switches have an industrial-grade operating temperature range as well as professional outdoor surge protection to withstand harsh outdoor cabinet environments. As such, they can be widely used in access scenarios such as Safe City and Ethernet to the x (ETTx).

## Models and Appearances

Models and appearances of the CloudEngine S5735-S-I series

Models and Appearances	Description
 <p>CloudEngine S5735-S24T4X-I</p>	<ul style="list-style-type: none"> <li>• 24 x 10/100/1000Base-T Ethernet ports and 4 x 10GE SFP+ ports</li> <li>• 1+1 power supply backup</li> <li>• Forwarding performance: 95.2 Mpps</li> <li>• Switching capacity:128 Gbps/336 Gbps</li> </ul>

## Features and Highlights

### Industrial-Grade Reliability, withstanding harsh outdoor environments

- Extended operating temperature range ( - 40° C to +70° C), enabling it to work in harsh outdoor environments.
- Built-in surge protector, meeting outdoor surge protection requirements.
- IP55-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

- Supports Super Virtual Fabric (SVF) that virtualizes "Core/Aggregation + Access Switches" into a single logical device. The CloudEngine S5735-S-I can function as the SVF client. SVF provides the innovative 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.

## 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.
- The all-in-one chassis supports current leakage protection, short-circuit protection, and automatic detection and recovery mechanisms. In the event of a short circuit, the CloudEngine S5735-S-I can automatically power off to protect its components. In addition, it supports the short circuit detection and protection function for connected terminals. Once the short circuit is recovered, the switch automatically resumes power supply. Moreover, the switch supports current leakage protection, and has passed the 700 V DC and 1200 V AC surge test before delivery to ensure device security.

## Mature IPv6 Technologies

- The CloudEngine S5735-S-I series video backhaul switch uses the mature, stable VRRP platform and supports IPv4/IPv6 dual stack, IPv6 RIPng, and IPv6 over IPv4 tunnels including manually configured, 6to4, and Intra-Site Automatic Tunnel

Addressing Protocol (ISATAP) tunnels. With these IPv6 features, the switch can be deployed on IPv4-only networks, IPv6-only networks, or networks that run both IPv4 and IPv6, meeting the requirements for IPv4-to-IPv6 transition.

## Intelligent Upgrade

- Switches support the intelligent upgrade feature. Specifically, switches obtain the version upgrade path and download the newest version for upgrade from the Huawei Online Upgrade Platform (HOUP). The entire upgrade process is highly automated and achieves one-click upgrade. In addition, preloading the version is supported, which greatly shortens the upgrade time and service interruption time.
- The intelligent upgrade feature greatly simplifies device upgrade operations and makes it possible for the customer to upgrade the version independently. This greatly reduces the customer's maintenance costs. In addition, the upgrade policies on the HOUP platform standardize the upgrade operations, which greatly reduces the risk of upgrade failures.

## Cloud Management

- The Huawei cloud management platform allows users to configure, monitor, and inspect switches on the cloud, reducing on-site deployment and O&M manpower costs and decreasing network OPEX. Huawei switches support both cloud management and on-premise management modes. These two management modes can be flexibly switched as required to achieve smooth evolution while maximizing return on investment (ROI).

## OPS

- CloudEngine S5735-S-I supports Open Programmability System (OPS), an open programmable system based on the Python language. IT administrators can program the O&M functions of a CloudEngine S5735-S-I switch through Python scripts to quickly innovate functions and implement intelligent O&M.

## Product Specifications

Item	CloudEngine S5735-S24T4X-I
Fixed port	24 x 10/100/1000Base-T ports and 4 x 10G SFP+ ports
Dimensions (H x W x D)	43.6 mm x 442.0 mm x 420.0 mm
Chassis height	1U
Weight (with packaging)	7.21kg
Power supply type	60 W AC
Rated voltage range	<ul style="list-style-type: none"> <li>AC input: 100 V AC to 240 V AC, 50/60 Hz</li> <li>High-Voltage DC input: 240 V DC</li> </ul>
Maximum voltage range	<ul style="list-style-type: none"> <li>AC input: 90 V AC to 264 V AC, 47 Hz to 63 Hz</li> <li>High-Voltage DC input: 190 V DC to 290 V DC</li> </ul>
Maximum power consumption (100% throughput, full speed of fans)	55.2 W
Minimum power consumption	23.7 W
Operating temperature	-40°C~70°C <b>NOTE</b> When the altitude is 1800-5000 m, the highest operating temperature reduces by 1°C every time the altitude increases by 220 m.
Storage temperature	-40°C to +70°C

Item	CloudEngine S5735-S24T4X-I
Power supply surge protection	±6 kV in differential mode, ±6 kV in common mode
Service port surge protection	Common mode: ±7 kV
Noise under normal temperature (27°C, sound power)	< 58.9 dB(A)
Relative humidity	5% to 95%, noncondensing
Heat dissipation	Air-cooled heat dissipation and intelligent speed adjustment

## 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 tracer, and IPv6 Telnet
	6to4 tunnels, ISATAP tunnels, and manually configured tunnels

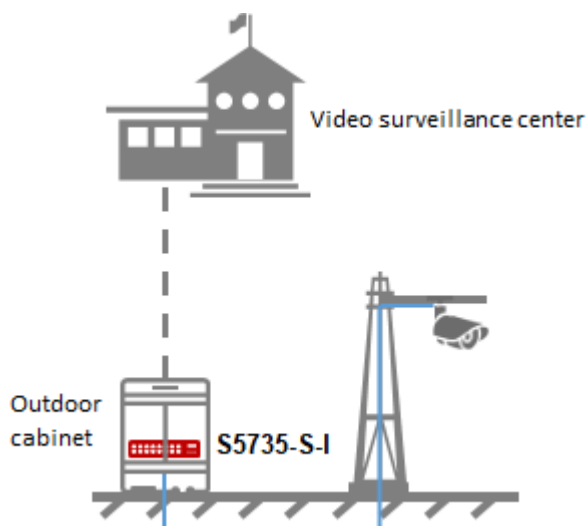
Item	Description
Multicast	IGMP v1/v2/v3, PIM-SM, PIM-DM, and PIM-SSM
	IGMP v1/v2/v3 snooping and IGMP fast leave
	MLD v1/v2 and MLD v1/v2 snooping
	Intra-VLAN multicast forwarding and inter-VLAN multicast replication
	Multicast load balancing among member ports of a trunk link
	Controllable multicast
	Port-based multicast traffic statistics collection
QoS/ACL	Inbound and outbound traffic rate limiting on a port
	Packet redirection
	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

Item	Description
	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
	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

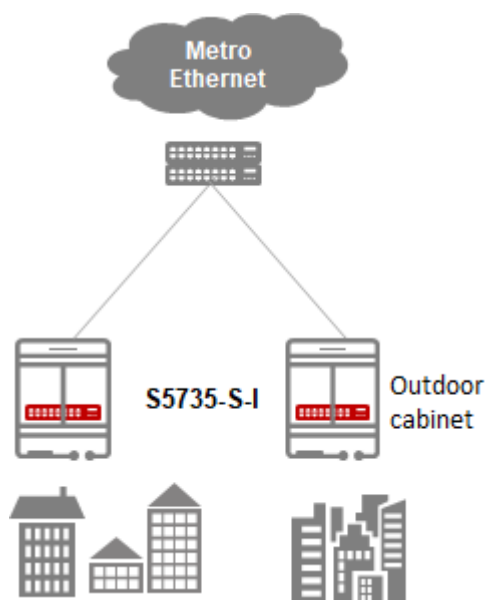
### Video surveillance application, outdoor cabinet

CloudEngine S5735-S-I series switches supports extended operating temperature range, with professional surge protection capabilities, suitable for outdoor cabinet environment. CloudEngine S5735-S-I series switch can be used for safe city scenario to provide remote access for the camera.



## ETTx scenario

CloudEngine S5735-S-I series switches supports extended operating temperature and provides GE access and 10GE uplinks for ETTx access scenarios.



## Ordering Information

Module	Description
CloudEngine S5735-S24T4X-I	CloudEngine S5735-S24T4X-I (24*10/100/1000BASE-T ports, 4*10GE SFP+ ports, without power module)
PAC60S12-AR	60 W AC power module
N1-S57S-M-Lic	S57XX-S Series Basic SW, Per Device
N1-S57S-M-SnS1Y	S57XX-S Series Basic SW, SnS, Per Device, 1Year
N1-S57S-F-Lic	N1-CloudCampus, Foundation, S57XX-S Series, Per Device
N1-S57S-F-SnS1Y	N1-CloudCampus, Foundation, S57XX-S Series, SnS, Per Device, 1Year
N1-S57S-A-Lic	N1-CloudCampus, Advanced, S57XX-S Series, Per Device
N1-S57S-A-SnS1Y	N1-CloudCampus, Advanced, S57XX-S Series, SnS, Per Device, 1Year

Module	Description
N1-S57S-FToA-Lic	N1-Upgrade-Foundation to Advanced,S57XX-S,Per Device
N1-S57S-FToA-SnS1Y	N1-Upgrade-Foundation to Advanced,S57XX-S,SnS,Per Device,1Year

## 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](mailto:support_e@huawei.com)

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