

CloudEngine S5735-L-I Series Extended-Temperature Switches-R21C00

CloudEngine S5735-L-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. They can be widely used in scenarios such as Safe City and Ethernet to the x (ETTx).

Product Overview

Huawei CloudEngine S5735-L-I series extended-temperature switches (S5735-L-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-L-I series

Models and Appearances	Description
 <p>CloudEngine S5735-L8T4X-IA1</p>	<ul style="list-style-type: none"> • 8 x 10/100/1000Base-T ports, 4 x 10 GE SFP+ ports • AC power supply • Forwarding performance: 72 Mpps • Switching capacity: 96 Gbps/336 Gbps
 <p>CloudEngine S5735-L8P4X-IA1</p>	<ul style="list-style-type: none"> • 8 x 10/100/1000Base-T ports, 4 x 10 GE SFP+ ports • AC power supply • PoE+ • Forwarding performance: 72 Mpps • Switching capacity: 96 Gbps/336 Gbps
 <p>CloudEngine S5735-L24T4X-IA1</p>	<ul style="list-style-type: none"> • 24 x 10/100/1000Base-T ports, 4 x 10 GE SFP+ ports • AC power supply • Forwarding performance: 96 Mpps • Switching capacity: 128 Gbps/336 Gbps

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.

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-L-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), 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-L-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-L-I series video backhaul switch uses the mature, stable VRP platform and supports IPv4/IPv6 dual stack, IPv6 RIPng. 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-L-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-L-I switch through Python scripts to quickly innovate functions and implement intelligent O&M.

Licensing

CloudEngine S5735-L supports both the traditional feature-based licensing mode and the latest Huawei IDN One Software (N1 mode for short) licensing mode. The N1 mode is ideal for deploying Huawei CloudCampus Solution in the on-premises scenario, as it greatly enhances the customer experiences in purchasing and upgrading software services with simplicity.

Software Package Features in N1 Mode

Switch Functions	N1 Basic Software	N1 Foundation Software Package	N1 Advanced Software Package
Basic network functions: Layer 2 functions, IPv4, IPv6, SVF, and others Note: For details, see the Service Features	√	√	√
Basic network automation based on the iMaster NCE-Campus: <ul style="list-style-type: none"> ● Basic automation: Plug-and-play ● Basic monitoring: Application visualization ● NE management: Image and topology management and discovery 	×	√	√

Switch Functions	N1 Basic Software	N1 Foundation Software Package	N1 Advanced Software Package
Advanced network automation and intelligent O&M: User access authentication and CampusInsight basic functions	x	x	√

Product Specifications

Item	CloudEngine S5735-L8T4X-IA1	CloudEngine S5735-L8P4X-IA1	CloudEngine S5735-L24T4X-IA1
Fixed port	8 x 10/100/1000Base-T ports, 4 x 10 GE SFP+ ports	8 x 10/100/1000Base-T ports(PoE+), 4 x 10 GE SFP+ ports	24 x 10/100/1000Base-T ports, 4 x 10 GE SFP+ ports
Dimensions (H x W x D)	43.6 mm x 300 mm x 220 mm	43.6 mm x 300 mm x 220 mm	43.6 mm x 442 mm x 220 mm
Chassis height	1 U	1 U	1 U
Chassis weight (including packaging)	2.78 kg	3.04 kg	3.3 kg
Power supply type	Built-in AC power	Built-in AC power	Built-in AC power
Rated voltage range	AC input: 100 V AC to 240 V AC, 50/60 Hz	AC input: 100 V AC to 240 V AC, 50/60 Hz	AC input: 100 V AC to 240 V AC, 50/60 Hz
Maximum voltage range	AC input: 90 V AC to 290 V AC, 45 Hz to 65 Hz	AC input: 90 V AC to 264 V AC, 45 Hz to 65 Hz	AC input: 90 V AC to 290 V AC, 45 Hz to 65 Hz
Maximum power consumption	30 W	<ul style="list-style-type: none"> 33 W (without PD) 178 W (with PD, PD power consumption of 124 W) 	46 W
Noise	<ul style="list-style-type: none"> Under normal temperature (sound power): 43dB (A) 	<ul style="list-style-type: none"> Under normal temperature (sound power): 42.2dB (A) 	<ul style="list-style-type: none"> Under normal temperature (sound power): 39dB (A)
Long-term operating temperature	-40°C to +65°C NOTE <ul style="list-style-type: none"> 1800-5000 m altitude: The operating temperature reduces by 1°C every time the altitude increases by 220 m. 	-40°C to +65°C NOTE <ul style="list-style-type: none"> 1800-5000 m altitude: The operating temperature reduces by 1°C every time the altitude increases by 220 m. 	-40°C to +65°C NOTE <ul style="list-style-type: none"> 1800-5000 m altitude: The operating temperature reduces by 1°C every time the altitude increases by 220 m.
Short-term operating temperature	-40°C~+70°C NOTE <ul style="list-style-type: none"> The device supports short-term operation when the temperature exceeds the normal operating range of 65°C. 	-40°C~+70°C NOTE <ul style="list-style-type: none"> The device supports short-term operation when the temperature exceeds the normal operating range of 65°C. 	-40°C~+70°C NOTE <ul style="list-style-type: none"> The device supports short-term operation when the temperature exceeds the normal operating range of 65°C.
Storage temperature	-40°C to +75°C	-40°C to +75°C	-40°C to +75°C

Item	CloudEngine S5735-L8T4X-IA1	CloudEngine S5735-L8P4X-IA1	CloudEngine S5735-L24T4X-IA1
Relative humidity	5% to 95% (non-condensing)	5% to 95% (non-condensing)	5% to 95% (non-condensing)
Surge protection specification (service port)	±10 kV in common mode	±10 kV in common mode	±10 kV in common mode
Surge protection specification (power port)	<ul style="list-style-type: none"> Differential mode: ± 6 kV Common mode: ± 6 kV 	<ul style="list-style-type: none"> Differential mode: ± 6 kV Common mode: ± 6 kV 	<ul style="list-style-type: none"> Differential mode: ± 6 kV Common mode: ± 6 kV
Heat dissipation	Air-cooled heat dissipation and intelligent speed adjustment	Air-cooled heat dissipation and intelligent speed adjustment	Air-cooled heat dissipation and intelligent speed adjustment

Service Features

Item	Description
MAC address table	MAC address learning and aging
	32896 MAC entries(MAX)
	Static, dynamic, and blackhole MAC address entries
	Packet filtering based on source MAC addresses
	Interface-based MAC learning limiting
VLAN features	4K VLANs
	Guest VLAN and voice VLAN
	GVRP
	MUX VLAN
	VLAN assignment based on MAC addresses, protocols, IP subnets, policies, and interfaces
	1: 1 and N: 1 VLAN mapping
Ethernet loop protection	RRPP ring topology and RRPP multi-instance
	Smart Link tree topology and Smart Link multi-instance, providing millisecond-level protection switchover
	SEP
	ERPS (G.8032)
	STP (IEEE 802.1d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s)
	BPDU protection, root protection, and loop protection
	BPDU tunnel
Multicast	PIM DM, PIM SM, PIM SSM
	IGMPv1/v2/v3 and IGMPv1/v2/v3 snooping
	MLD v1/v2 and MLDv1/v2 snooping
	Multicast forwarding in a VLAN and multicast replication between VLANs

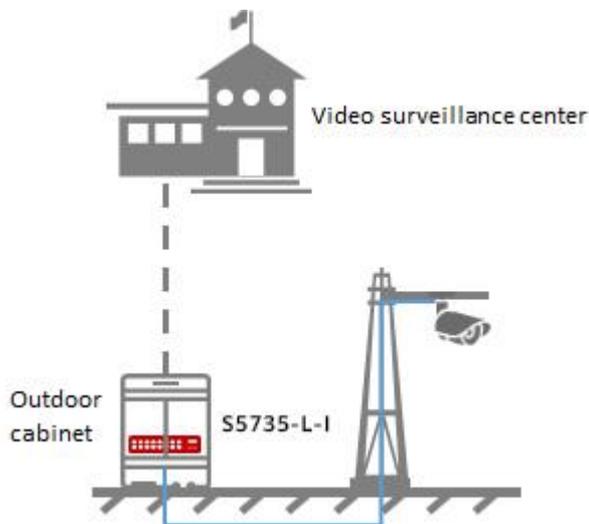
Item	Description
	Multicast load balancing among member ports of a trunk
	Controllable multicast
	Interface-based multicast traffic statistics
IP routing	Static route, RIP, RIPng, OSPF, OSPFv3
	Up to 4096 FIBv4 entries(MAX)
	Up to 1024 FIBv6 entries(MAX)
IPv6 features	Up to 1024 ND entries(MAX)
	Path MTU (PMTU)
	IPv6 ping, IPv6 tracert, and IPv6 Telnet
Reliability	EFM OAM (802.3ah)
	CFM OAM (802.1ag)
	ITU-Y.1731
	DLDP
	LACP
QoS/ACL	Rate limiting on packets sent and received by an interface
	Packet redirection
	Interface-based traffic policing and two-rate and three-color CAR
	Eight queues on each interface
	WRR, DRR, SP, WRR+SP, and DRR+SP queue scheduling algorithms
	Re-marking of the 802.1p priority and DSCP priority
	Packet filtering at 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 port number, protocol type, and VLAN ID
	Rate limiting in each queue and traffic shaping on interfaces
Security	Hierarchical user management and password protection
	DoS attack defense, ARP attack defense, and ICMP attack defense
	Binding of the IP address, MAC address, interface number, and VLAN ID
	Port isolation, port security, and sticky MAC
	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 an interface
	AAA authentication, RADIUS authentication, HWTACACS authentication, and NAC
	SSH V2.0
	Hypertext Transfer Protocol Secure (HTTPS)

Item	Description
	CPU defense
	Blacklist and whitelist
	DHCP relay, DHCP server, DHCP snooping
	DHCPv6 relay, DHCPv6 server, DHCPv6 snooping
	Supports separation between user authentication and policy enforcement points
Super Virtual Fabric (SVF)	Working as an SVF client that is plug-and-play with zero configuration
	Automatically loading the system software packages and patches of SVF clients
	Automatically delivering service configurations in a one-click manner
	Independent running of SVF clients
Management and maintenance	iStack
	Cloud management based on Netconf/Yang
	Virtual Cable Test (VCT)
	Remote configuration and maintenance using Telnet
	SNMPv1/v2c/v3
	RMON
	eSight and web-based NMS
	HTTPS
	LLDP/LLDP-MED
	System logs and multi-level alarms
	802.3az EEE
Interoperability	Supports VBST (Compatible with PVST/PVST+/RPVST)
	Supports LNP (Similar to DTP)
	Supports VCMP (Similar to VTP)

Networking and Applications

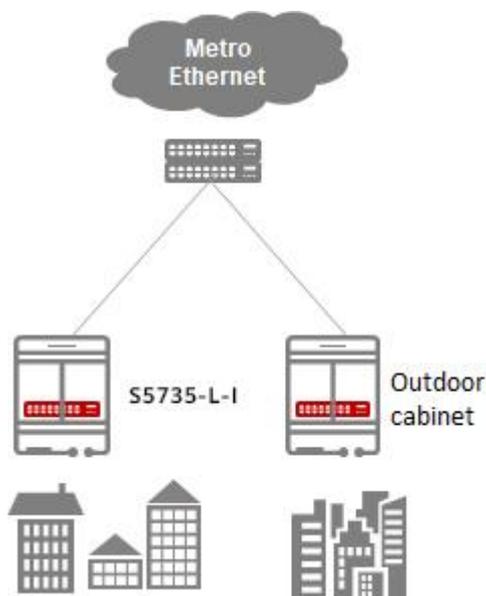
Video surveillance application, outdoor cabinet

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



ETTx scenario

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



Ordering Information

Module	Description
CloudEngine S5735-L8T4X-IA1	CloudEngine S5735-L8T4X-IA1 (8*10/100/1000BASE-T ports, 4*10GE SFP+ ports, AC power)
CloudEngine S5735-L8P4X-IA1	CloudEngine S5735-L8P4X-IA1 (8*10/100/1000BASE-T ports, 4*10GE SFP+ ports, PoE+, AC power)
CloudEngine S5735-L24T4X-IA1	CloudEngine S5735-L24T4X-IA1 (24*10/100/1000BASE-T ports, 4*10GE SFP+ ports, AC power)
N1-S57L-M-Lic	S57XX-L Series Basic SW,Per Device
N1-S57L-M-SnS1Y	S57XX-L Series Basic SW,SnS,Per Device,1Year
N1-S57L-F-Lic	N1-CloudCampus,Foundation,S57XX-L Series,Per Device

Module	Description
N1-S57L-F-SnS	N1-CloudCampus,Foundation,S57XX-L Series,SnS,Per Device
N1-S57L-A-Lic	N1-CloudCampus,Advanced,S57XX-L Series,Per Device
N1-S57L-A-SnS	N1-CloudCampus,Advanced,S57XX-L Series,SnS,Per Device
N1-S57L-FToA-Lic	N1-Upgrade-Foundation to Advanced,S57XX-L,Per Device
N1-S57L-FToA-SnS	N1-Upgrade-Foundation to Advanced,S57XX-L,SnS,Per Device

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

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