

# S3950-4T12S Switch

IDEAL FOR ENTERPRISE, CAMPUS NETWORKS, INTERNET, BAR AND MARKET



## Overview

The S3950-4T12S 16-port Gigabit Ethernet Layer 2+ switch features 4x 10/100/1000BASE-T downlinks and 12x 10Gb SFP+ uplinks. This managed enterprise switch delivers 248 Gbps switching capacity and 178.6 Mpps forwarding rate for superior processing performance and network reliability.

With comprehensive Layer 2 function, MLAG, ARP, VRRP, Static Routing, and a suite of security and management features, the switch is ideal for large-scale campus network accesses, small and medium-sized network cores and aggregations to meet the needs of high-speed, safe, intelligent enterprise networks and Internet bar market.

## Benefits

- MLAG (Multi-Chassis Link Aggregation)
- Support ARP, Static Routing, RIP, DHCP Server
- Comprehensive Network Security Policies
- Industry-standard CLI & Web Management
- RPC-API for SDN

## Key Features

### High Reliability

Support MLAG (Multi-Chassis Link Aggregation) to aggregate links across different devices. MLAG can build an Active-Active system to improve the reliability of the network links from single board grade to device grade.

Support Route policy, VRRP, VARP for MLAG and IP SLA as the enhancement.

Support xSTP, ERPS for loop protection.

Support advanced L3 features, such as ARP, Static Routing, RIP.

Support patented technology “Sysmon” for CPU status monitoring can take action when system is error.

### Outstanding QoS Control

Support multi-stage scheduling technology such as WDRR (Weighted Deficit Round Robin)/SP (Strict Priority) and TD (Tail Drop)/WRED (Weighted Random Early Detection) to prevent congestion.

Support flexible queue scheduling mechanism to do the shaping for queue or port traffic.

Support ingress and egress policer for intelligent bandwidth monitoring, which support to adjust the granularity according to the port speed.

Support srTCM (Single Rate Three Color Marker) and trTCM (Two Rate Three Color Marker).

### Triple-play Service Support

Offer high bandwidth for Triple-Play services such as IPTV, video monitoring.

Support built-in QoS capabilities and flexible queuing technologies to guarantee high quality of services.

Support L2 multicast protocol IGMP Snooping.

### Comprehensive Network Security Policy

Support subscriber-class/switch-class/network-class security control.

Support IPv4/MAC ACL, which can filter kinds of packet respectively. Besides that, extended IPv4 ACL which can match Layer 2/Layer 3/Layer 4 information in one rule is available. The ACLs can apply to physical ports/vlan/port group/vlan group.

Support ARP Inspection and IP Source Guard features, which prevents network from malicious ARP attack.

Support CPU Traffic Protection, Storm Control and CPU load optimization features.

Support centralized 802.1x authentication feature to forbidden illegal user accessing network.

### Convenient Management Features

Support varied management interfaces, including console port/inband network ports/outband network port.

Support CLI (Command Line Interface), web management, Telnet and FTP connection.

Support SNMPv1/v2/v3, SSH2.0, SSL and OAM.

Support RPC-API for SDN (Software Defined Network).

## Technical Specification

S3950-4T12S switch comes with advanced hardware architecture design and abundant L2 and L2+ features. Here’s a look at the details.

### CHARACTERISTICS

	S3950-4T12S
Ports	
Ports	4x 10/100/1000BASE-T RJ45, 12x 10G SFP+
Max. 10G Ports	12
Max. 1G Ports	16
Operating System	
OS	FSOS
Key Components	
CPU	PowerPC P1010
Performance	
Layer Type	Layer 2+
Switching Capacity	248 Gbps
Forwarding Rate	178.6 Mpps
Max./Min. Latency	2.27μs/0.97μs
Flash Memory	512MB
DRAM	512MB
Packet Buffer	3MB
Jumbo Frame	9,600
MAC Address	64,000
Number of VLANs	4,094
MTBF (Hours)	>100,000
Authentication Methods	802.1X, AAA
Remote Management Protocol	SNMP, RMON, Telnet, SSH
Status Indicators	System, PWR, MGMT, LINK activity

CHARACTERISTICS

	S3950-4T12S
Power	
Input Voltage	100-240VAC, 50-60Hz
Max. Power Consumption	47W
Physical and Environmental	
Dimensions (HxWxD)	1.73"x17.32"x8.66" (44×440×220mm)
Rack Space	1U
Power Device	Power Supply - Internal
Fan Number	2
Airflow	Front-to-Back
ARP Table	3,072
Ipv4 Routing Table	6,144
Operating Temperature	32°F to 113°F (0°C to 45°C)
Storage Temperature	-40°F to 158°F (-40°C to 70°C)
Operating Humidity	0 to 95% (Non-condensing)
Storage Humidity	0 to 95% (Non-condensing)
Weight	7.61 lbs (3.45kg)
Warranty	
Warranty	5 Years

FEATURES

Functionality	Description
Ethernet Features	<ul style="list-style-type: none"><li>Support Ethernet interface operating modes (full duplex, half duplex, and auto-negotiation)</li><li>Support Ethernet interface operating rates</li><li>Support Jumbo Frame</li><li>Support port-xconnect</li><li>Support Flow-control tx/rx</li><li>Support Port based storm-control</li><li>Support L2/All Port-isolate</li><li>Support Store-and-forward</li></ul>
VLAN Features	<ul style="list-style-type: none"><li>Support 4094 VLANs</li><li>Support VLAN access mode: Access/Trunk</li><li>Support Default VLAN</li><li>Support VLAN Classification (port based/mac based/ip based/protocol based)</li><li>Support Private VLAN</li><li>Support Guest VLAN</li><li>Support Voice VLAN</li></ul>
MAC Address Table	<ul style="list-style-type: none"><li>Support Automatic learning and aging of MAC addresses</li><li>Support Static and dynamic MAC address entries</li><li>Support Black-hole MAC</li><li>Support MAC Flapping detect</li></ul>
Link Aggregation	<ul style="list-style-type: none"><li>Support static link aggregation</li><li>Support LACP</li><li>Support static load balancing (SLB)</li><li>Support dynamic load balancing (DLB)</li><li>Support MLAG basic</li><li>Support MLAG orphan Port</li></ul>
Reliability Features	<ul style="list-style-type: none"><li>Support STP/RSTP/MSTP protocol</li><li>Support BPDU Filter/Guard, Root Guard, Loop Guard, Anti TC-BPDU attack</li><li>Support single ERPS ring/tangent ERPS rings/intersecting ERPS rings</li><li>Support compatible with RRPP</li><li>Support Loopback-detection</li><li>Support multi-instance</li><li>Support load balance</li><li>Support Multi-Link</li><li>Support Monitor-link</li><li>Support Smart-Link</li></ul>

FEATURES

Functionality	Description
ARP Features	<ul style="list-style-type: none"><li>• Support Static and dynamic ARP entries</li><li>• Support Aging of ARP entries</li><li>• Support Gratuitous ARP</li><li>• Support basic ARP-Proxy and local ARP-Proxy</li><li>• Support VARP（Virtual-ARP）</li><li>• Support VARP subnet</li></ul>
IPv4 Forwarding	<ul style="list-style-type: none"><li>• Support IPv4 Static Routes</li><li>• Support Black-hole Routes</li><li>• Support co-work with IP SLA</li><li>• Support uRPF check</li><li>• Support RIPv1, RIPv2</li><li>• Support Route-map</li><li>• Support IPv4 prefix-list</li><li>• Support ICMP redirect and ICMP unreachable</li><li>• Support ECMP (SLB)</li><li>• Support VRRP</li><li>• Support Track for VRRP</li><li>• Support GRE Tunnel</li></ul>
Multicast Features	<ul style="list-style-type: none"><li>• Support IGMP v1/v2/v3 Snooping</li><li>• Support fast leave</li><li>• Support static IGMP snooping group</li></ul>
QoS Features	<ul style="list-style-type: none"><li>• Support traffic classification based on COS/DSCP (simple classification)</li><li>• Support traffic classification based on ACL (complex classification)</li><li>• Support queue scheduling</li><li>• Support Remark the priority fields (COS/DSCP) of the packet based on ACL</li><li>• Support flow redirection</li><li>• Support flow mirror</li><li>• Support traffic policing based on direction(in/out) of Port</li><li>• Support traffic policing based on direction(in/out) of flow</li><li>• Support traffic policing based on direction(in/out) of aggregated flow</li><li>• Support Queue based traffic shaping</li><li>• Support Port based traffic shaping</li><li>• Support SP (Strict Priority) scheduling</li><li>• Support WDRR (Weighted Deficit Round Robin) scheduling</li><li>• Support SP+WDRR mixed scheduling</li><li>• Support TD (Tail Drop)</li><li>• Support WRED (Weighted Random Early Detection)</li><li>• Support Packet counts and bytes statistics based on traffic classification</li></ul>

FEATURES

Functionality	Description
Security Features	<ul style="list-style-type: none"><li>• Support SSH v1/v2</li><li>• Support RSA Key generation</li><li>• Support RADIUS</li><li>• Support TACAS+</li><li>• Support AAA (Authentication/Authorization/Accounting)</li><li>• Support port based dot1x and MAC based dot1x</li><li>• Support Guest VLAN</li><li>• Support MAC/IP ACL</li><li>• Support Time-Range</li><li>• Support ARP inspection</li><li>• Support IP source guard</li><li>• Support limitation on MAC address learning on interface</li><li>• Support limitation on MAC address learning on VLAN</li><li>• Support CPU Traffic Limit</li><li>• Support Prevent DDOS attack</li><li>• Support Telnet/SSH ACL filtering</li><li>• Support Link-Flapping detection</li></ul>
	<ul style="list-style-type: none"><li>• Support DHCP Server</li><li>• Support DHCP Relay</li><li>• Support DHCP Snooping</li><li>• Support DHCP Client</li><li>• Support DHCP Option82</li><li>• Support DHCP Option252</li><li>• Support RMON</li><li>• Support sFlow v4/v5</li><li>• Support IP SLA</li><li>• Support NTP (Network Time Protocol)</li><li>• Support errdisable detection and recovery</li><li>• Support static DNS Client</li><li>• Support LLDP</li></ul>
	<ul style="list-style-type: none"><li>• Support per-module Debug features</li><li>• Support ICMP Debug</li><li>• Support Software process monitor: BHM（Beat Heart Monitor）</li><li>• Support Hardware Watch Dog</li><li>• Support CPU usage display and alarm</li><li>• Support Memory usage display and alarm</li><li>• Support Device temperature, PSU, FAN, status display and alarm</li><li>• Support user operation logs</li></ul>
Configuration and maintenance	
Debugging Features	

FEATURES

Functionality	Description
Debugging Features	<ul style="list-style-type: none"><li>• Support management of logs, alarms, and debugging information</li><li>• Support VCT (Virtual Cable Test)</li><li>• Support Detailed Diagnostic-information collection</li><li>• Support Manual Reboot</li><li>• Support Schedule Reboot</li><li>• Support Reboot Information logging</li><li>• Support Ping</li><li>• Support Traceroute</li><li>• Support port mirror</li><li>• Support flow mirror</li><li>• Support remote mirror</li><li>• Support multi-destination mirror (m:n)</li><li>• Support using CPU as mirror source</li><li>• Support using CPU as mirror destination and analyze packet</li><li>• Support ERSPAN</li><li>• Support CPU/From CPU packets statistics</li><li>• Support layer2 network connectivity detection - L2Ping (MAC Ping/Trace)</li><li>• Support UDLD (Unidirectional Link Detection)</li><li>• Support port loopback</li><li>• Support hardware loopback (internal/external)</li><li>• Support Time configuration</li><li>• Support Timezone</li></ul>
	<ul style="list-style-type: none"><li>• Support configurations through CLI (Command Line Interface)</li><li>• Support Banner configuration</li><li>• Support help information in English</li><li>• Support VTY Terminal service</li><li>• Support Console Terminal service</li><li>• Support Inband management interface and configuration</li><li>• Support Outband management interface and configuration</li><li>• Support privileged user proirity and privileged commands</li><li>• Support network management based on SNMP v1/v2c/v3</li><li>• Support public and private MIB</li><li>• Support public and private Trap</li><li>• Support configuration and management based on WEB UI</li><li>• Support configuration and management based on RPC-API</li><li>• Support SmartConfig (Automatically configuration when system start)</li><li>• Support changing the system specifications by choose different STM Profiles</li><li>• Support restore factory default configuration</li></ul>

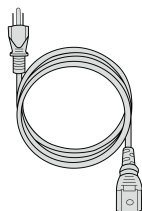
Management Features



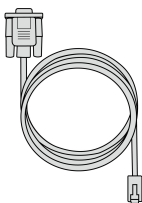
FEATURES

Functionality	Description
File System	<ul style="list-style-type: none"><li>Support file system (directory and file management)</li><li>Support upload/download files via FTP/TFTP</li><li>Support upload and download files through Xmodem</li></ul>

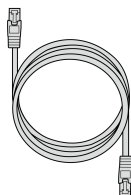
Accessories



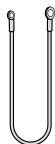
Power Cord x1



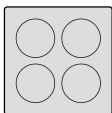
Console Cable x1



Cat5e Cable x1



Grounding Cable x1



Rubber Pad x4



M4 Screw x6



Mounting Bracket x2



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