L3 12-port Managed Full Fiber Switch
12-SFP+ 10G slot

L3-10XGF12

Rich L3 Features	L3 DHCP Server/Relay	L3 DHCP Snooping	NMS Docking
L3 OSPF Routes Support	IPv4/v6 L3 Static Route	10G SFP+	ACL, ERPS

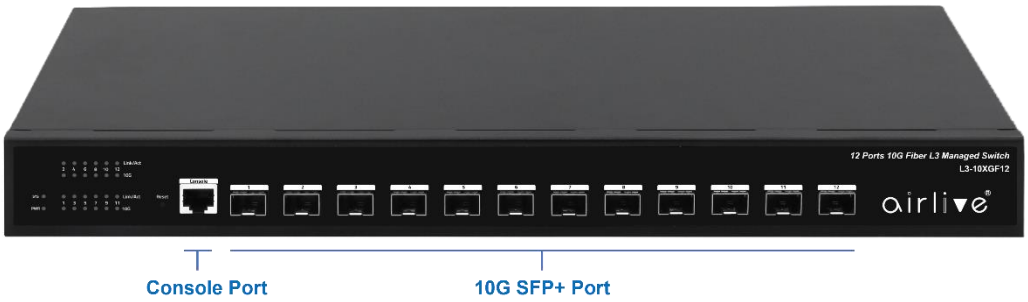
Overview

Rich L3 Features

The L3-10XGF12 offers high performance hardware IP routing, Static route, OSPF and RIP provide dynamic routing by exchanging routing information with other Layer 3 switches and routers. With the L3-10XGF12, customers could easily achieve a Policy-based Route (PBR), which is important when they need a Fiber Switch to switch application and short network heal time.

What Is a Layer 3 Switch?

A Layer 3 switch is a specialized hardware device used in network routing. Layer 3 switches technically have a lot in common with typical routers, and not only in physical appearance. Both can support the same routing protocols, inspect incoming packets, and make dynamic routing decisions based on the source and destination addresses inside. One of the main advantages of a Layer 3 switch over a router is in the way routing decisions are performed. Layer 3 switches are much lower network latency since packets don't have to take additional steps through a router.



Features

- Rich Layer 3 Features
- Fully L2 features provide easier manageability, security and QoS
- ITU-T G.8032 Ethernet Ring Protection Switching (ERPS)
- SNMP, WEB, CLI, SSH2.0, Telnet
- VLAN Division Voice
- IPv4/IPv6 L3 static route
- OSPF Routes dynamic routing
- SFP+ 10Gbps Fiber Long Distance
- Voice Vlan Support
- Clear Statues display including traffic, CPU, fiber consumption, per-port status
- Web-UI for easy management; CLI and Command Script for advance setting; SNMP used for popular network tools management

Major Specifications

- 12 x 10G SFP+ slot
- Rich Layer 3 Features
- L3 DHCP Server/Relay
- L3 DHCP Snooping
- IPv4/IPv6 L3 static route
- OSPF Routes dynamic routing
- Surge Protection 6KV，ESD Protection 8KV
- Authentication: 802.1x, AAA
- DHCP Snooping prevents unauthorized router installed
- NMS Docking

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Applications of Layer-3 Switches

- Layer3 Switch is widely used in data centers and universities, factory, enterprise, where there is a very big setup of computer networking. Owing to its features like static, dynamic routing and its fast-switching speed than a router, it is used in LAN connectivity for interconnection of several VLAN and LAN networks.

- L3-10XGF12 have the skills to offload the overloaded routers. This can be done by configuring a layer-3 switch, each with a main router in a wide area networking scenario so that the switch can manage all the local level VLAN routing.

- The layer-3 switch in combination with a number of layer-2 switches supports more users to connect on the network without the need for implementation of an extra layer-3 switch and more bandwidth. Thus, it is widely implemented in universities and small-scale industries. In case if the number of end users on a network platform increases, then without any enhancement of the network, it can be accommodated in the same running scenario easily.

- A layer-3 switch is smart enough to handle and manage the routing and traffic controlling of locally connected servers and end devices utilizing its high bandwidth.

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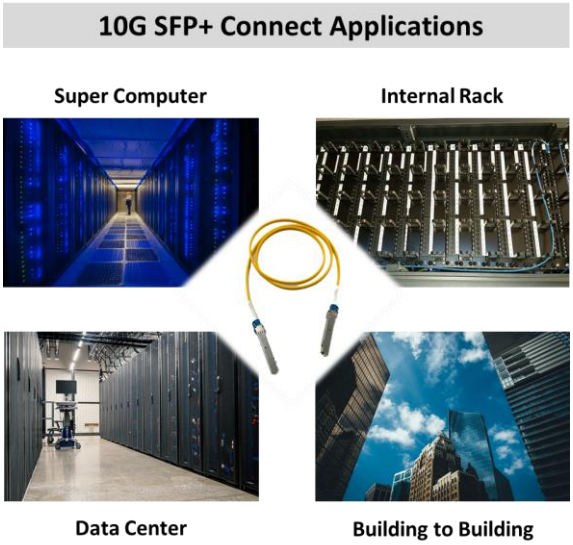
10G Performance and Scalability

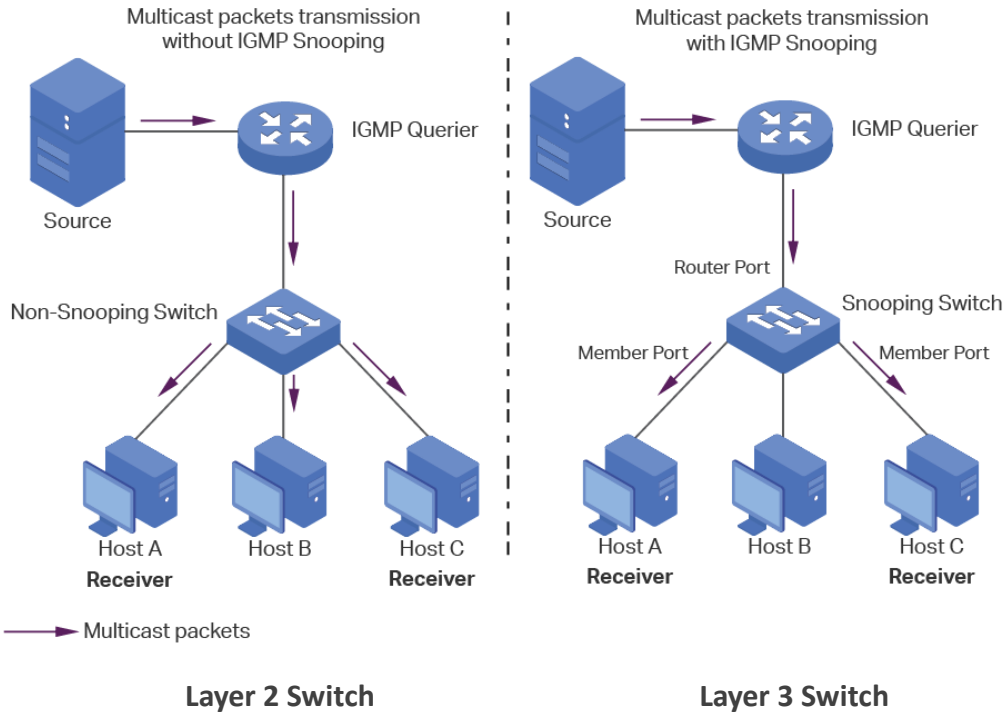
With high switching capacity, the L3-10XGF12 support wire-speed L2/L3 forwarding and high routing performance for IPv4 and IPv6 protocols.

The 10 Gigabit Ethernet connectivity of L3-10XGF12 is accomplished via a hot-pluggable 10 Gigabit SFP+ transceiver which supports distance up to 300 meters over multimode fiber and 10 to 40km over single-mode fiber (The distance depends on the optical module chosen).



Strong L3 IGMP Snooping Multicast

L3 multicast protocols is compliant with IGMPv1/v2/v3 and supports abundant multicast features such as IGMP v2/v3 snooping and fast leave. With Multicast VLAN Register (MVR), multicast receiver/sender control and illegal multicast source detect functions; the L3-10XGF12 fiber series provides a great application experience for the customer.



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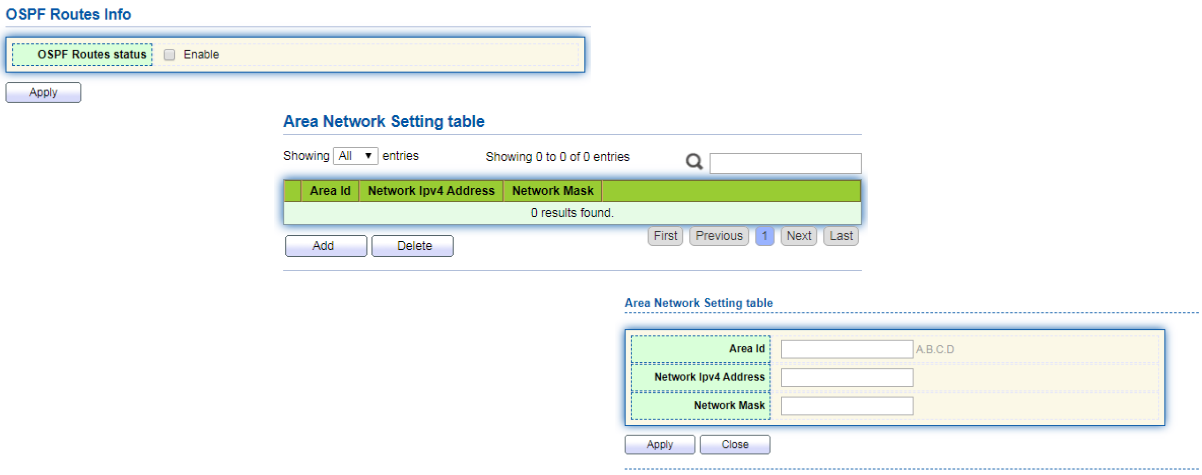
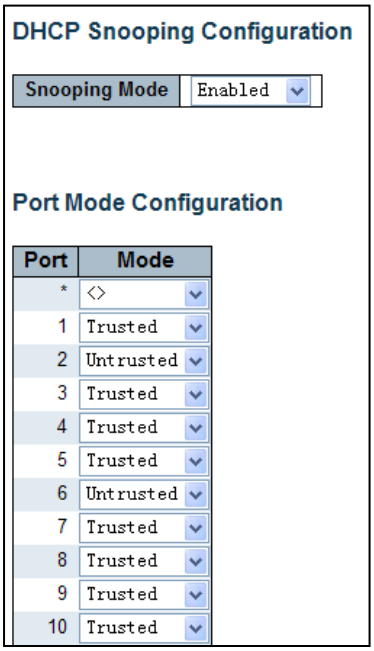
L3 OSPF Routes Management

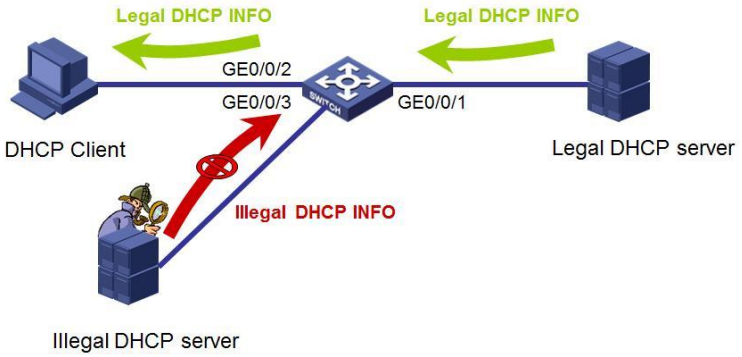
Open shortest path first (OSPF) is a link-state routing protocol that is used to find the best path between the source, which is generally used in the same routing domain. Here, routing domain refers to an autonomous system (as), which refers to a group of networks that exchange routing information through a unified routing policy or routing protocol. In this as, all OSPF routers maintain the same database describing the as structure, which stores the state information of the corresponding links in the routing domain. It is through this database that OSPF routers calculate their OSPF routing tables.
As a link state routing protocol, OSPF transmits link state multicast data LSA (link state advertisement) to all routers in a certain area, which is different from distance vector routing protocol. The router running distance vector routing protocol passes part or all of the routing tables to its neighboring routers.



L3 DHCP Snooping Support

Prevention against illegal Router(DHCP Server) attacks or sending DHCP information.





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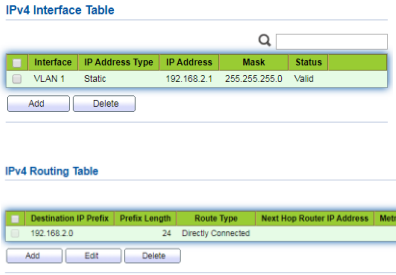
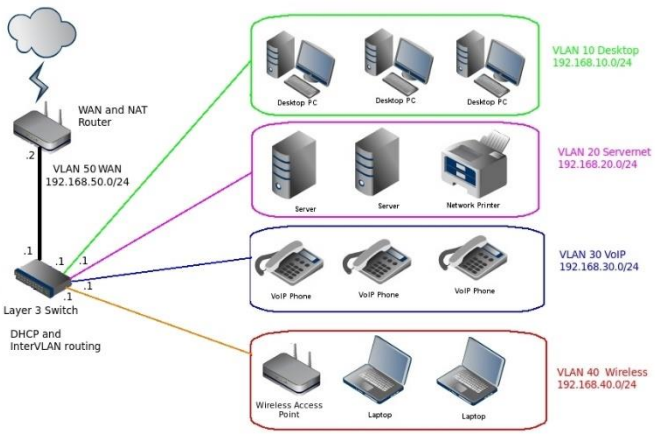
L3 VLAN IP Routing Interface Management

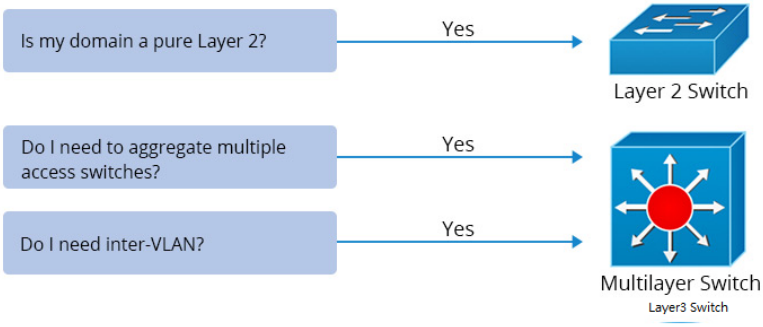
The L3-10XGF12 provides 3 layers of VLAN interface, which is used to communicate with network layer devices. VLAN interface is a network layer interface, which can be configured with IP address. Before creating VLAN interface, the corresponding VLAN should be created first. With the help of VLAN interface, switches can communicate with other network layer devices.





Layer 2 vs Layer 3 Switch

The layer 2 and Layer 3 differs mainly in the routing function. A Layer 2 switch works with MAC addresses only and does not care about IP address or any items of higher layers. Layer 3 switch, or multilayer switch, can do all the job of a layer 2 switch and additional static routing and dynamic routing as well. That means, a Layer 3 switch has both MAC address table and IP routing table and handles intra-VLAN communication and packets routing between different VLANs. There is also layer 2+ (layer 3 Lite) switch that adds only static routing. Other than routing packets, layer 3 switches also include functions that require to understand the IP address information of data entering the switch, such as tagging VLAN traffic based on IP address instead of manually configuring a port. Layer 3 switches are increased in power and security as demanded.



Item	Layer 2 Switch	Layer 3 Switch
Routing Function	Mac address only	Supports higher routing such as static routing and dynamic routing
VLAN Tagging Based on IP Address	No	Yes
Inter-VLAN	No	Yes
Using Scenario	Pure Layer 2 domain	Aggregate multiple access switches

Specification

Model	AirLive L3-10XGF12

Hardware

- **Device Interface:**
  12 x 10G SFP+ slot
  1 x RJ45 Console Port

Standard

IEEE 802.3：Ethernet MAC Protocol
IEEE 802.3u：100BASE-TX Fast Ethernet
IEEE 802.3ab：1000BASE-T Gigabit Ethernet
IEEE 802.3z：1000BASE-X Gigabit Ethernet (optical fiber)
IEEE 802.3ae：10G Ethernet (optical fiber)
IEEE 802.3az：Energy Efficient Ethernet
IEEE 802.3ad：Standard method for performing link aggregation
IEEE 802.3x：Flow control
IEEE 802.1ab： LLDP/LLDP-MED (Link Layer Discovery Protocol)
IEEE 802.1p：LAN Layer QoS/CoS Protocol Traffic Prioritization(Multicast filtering function)
IEEE 802.1q：VLAN Bridge Operation
IEEE 802.1x：Client/Server Access Control and Authentication Protocol
IEEE 802.1d：STP
IEEE 802.1s：MSTP IEEE 802.1w：RSTP

- **LED Indicators**:
  PWR(Power indicator),SYS(System lights), 10G(Link light), ACT(data light)
- **Lighting Surge Protection:**
  Surge 6KV，ESD 8KV
- **Mechanical**
  Solid metal 19" 1U rack-mountable, IP30

Power

- **Power Input:** AC 100~240V 50~60Hz

Switch Architecture | Performance

- **Switching Performance**
  Bandwidth:240Gbps
  Packet Forwarding Rate:178.56Mpps
  DDR SDRAM:128MB
  Flash Memory:16MB
  Package cache:16Mbit
  MAC Address:32K
  Jumbo frame:12Kbytes
  VLANs:4096
  MTBF:100000 hour

Fiber Medium:

Multi-mode Fiber: 50/125, 62.5/125, 100/140um
Single-mode Fiber: 8/125, 8.7/125, 9/125, 10/125um

ERPS Ethernet Ring Protection

- Support G.8032 (ERPS), support 255 loops at most, and supports 1024 devices per ring.
- Support STP/RSTP/MSTP(ERPS), support loop detection and self-healing, support remote loopback monitoring and control (802.3ah OAM
- The self-healing time of the ring network is less than 20ms

Software Function

- **Basic function:**
  Support hardware watchdog, factory reset, system and port LED
  Support global information, statistical information, log information
  Support User management, alarm management, configuration management
  Support Port rate, duplex, flow control, maximum frame length configuration
  Support Port mirroring, port speed limit, port energy saving
  Layer 3 Interface:
  Support Layer 3 interface
  Support IPv4, IPv6 address configuration
  Support ARP configuration
  Support ND configuration
- **Layer 3 Routing:**
  Support IPv4 static routing
  Support IPv6 static routing
  Support RIP V1/V2
  Support OSPF
- **DHCP:**
  Support DHCP server
  Support DHCP relay
  Support DHCP Snooping
  VLAN:
  Support 4K VLAN
  Support 802.1Q VLAN，based on port VLAN
  Support Access、Trunk、Hybrid VLAN mode
  Support GVRP (VLAN registration protocol)
  Support MAC VLAN 、IP VLAN
  Support Voice VLAN
- **MAC Address:**
  Support MAC address automatic learning and aging
  Support Static, dynamic, filtered address table

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Specification

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- **Security features:**
  Password protection
  Support Restrict user access based on port number, IP address, MAC address
  Support HTTPS、SSH V1/V2
  Support VLAN-IP-MAC-PORT binding
  Support ARP detection, IP source protection, DoS protection
  Support DHCP Snooping、DHCP Attack protection
  Support 802.1X Certification
  Support AAA (Authentication, Authorization, Accounting),
  Support RADIUS protocol, TACACS+
  Support Port security, port isolation
- **Access control:**
  Support L2(Layer 2)～L4(Layer 4) Packet filtering function
  Support Port mirroring, flow rate limiting, QoS remarking
- **QoS:**
  Support 8 port queues
  Support Port priority, 802.1P priority, DSCP priority
  Support SP, WRR Priority scheduling algorithm
- **Spanning tree:**
  Support STP(IEEE 802.1d), RSTP(IEEE 802.1w) and MSTP(IEEE 802.1s) protocol
  Support Multi-instance, Support Aggregate interface
  Support BPDU protection
- **Multicast:**
  Support IGMP v1/v2/v3 Snooping
  Support MLD v1/v2 Snooping
  Support Layer 2 multicast fast leave mechanism, querier
  Support Layer 2 IPv4 static multicast
  Support Layer 2 IPv6 static multicast
  Support IGMP v1/v2/v3 Layer 3 multicast
- **Storm Suppression:**
  Support multicast suppression
  Support broadcast storm suppression
  Support unknown unicast suppression
- **Ring protection**
  Support Ring protection
- **Link Aggregation**
  Support Static Aggregation
  Support LACP Dynamic Aggregation
  Support based on IP, MAC, mixed load-balancing modes
  Maximum support 8 aggregation groups (8 ports per aggregation group)
- **IPv6**
  Support IPv6 Ping、IPv6 Traceroute、IPv6 Telnet
  Support IPv6 SSH
  Support IPv6 HTTP 、IPv6 HTTPS

Management and Maintenance

Support WEB Management (HTTP、HTTPS)
Support CLI (Telnet, SSH V1/V2, Local serial port)
Support SNMP V1/V2/V3
Support RMON V2
Support LLDP Device discovery
Support SNTP Time synchronization
Support DNS Client
Support CPU Monitoring, Memory Monitoring
Support System log, classification warning
Support Ping, Traceroute detection, cable detection

Environment

- **Operating Temperature:** -10°C to +50°C
- **Storage Temperature:** -40°C to +70°C
- **Working Humidity**: 10%~90%, non-condensing
- **Storage Humidity**: 5%~90%, non-condensing

Standard package of switch

- **Product size:** 44x20.5x4.4 cm
- **Package Dimensions:** 50x29x8.5 cm
- **Package Weight:** N.W: 2.50KG / G.W: 3.12KG
- **Package content**: Switch x 1, QIG x 1, Power cord x 1, Serial cable x 1, Rack ear x 1

Standard carton package

Carton Dimensions: 52x44.5x30 cm
Packing QTY: 5 PCS
Packing weight: 16.6KGS

Ordering Information

- **Model:**
  L3-10XGF12
  Name:
  L3 12-port Managed Full Fiber 10G SFP+ Switch

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