

# ECS4100-12PH

## L2+/L3 Lite UPoE Gigabit Ethernet Access Switch



### Product Overview

The Edgecore ECS4100-12PH switch is an 8-port PoE Gigabit Ethernet access switch with 2 combo and 2 FE/1G uplink SFP ports. The switch is ideal for Internet Service Providers (ISPs) and Multiple System Operators (MSOs) to provide home users with triple-play services and up to a Gigabit of bandwidth. The PoE function can be used to connect to WiFi APs for a hotspot service, or to connect to IP surveillance devices. It is also an ideal Gigabit access switch for SMB, enterprise, and campus networks connect to IP phones, WiFi APs, and IP surveillance cameras. The ECS4100-12PH switch is packed with features that bring high availability, comprehensive security, robust multicast control, and advanced QoS to the network edge, while maintaining simple management. The switch also supports the most advanced IPv6 management, IPv6 security, and IPv6 multicast control in accordance with the growth of IPv6 deployment. ISPs can expand their services for home to business users by providing a more reliable and resilient network (ITU-T G.8032 ERPS), L2 VPNs, and advanced OAM (Operations, Administration, and Maintenance) functions to ensure service-level agreements. This is the first Edgecore PoE switch that supports up to 60 W Ultra PoE IEEE 802.3bt.

### Key Features and Benefits Performance and Scalability

The Edgecore ECS4100-12PH is a high-performance Gigabit Ethernet Layer 2+ managed switch with 24 Gbps switching capacity. The switch delivers wire-speed switching performance on all Gigabit ports, taking full advantage of existing high-performance Gigabit CPEs, PCs, 11n/ac Wi-Fi APs etc, significantly improving the responsiveness of applications and file transfer times.

The four 1G SFP ports provide uplink flexibility, allowing the insertion of fiber or copper Gigabit transceivers, to create up to 4 Gbps high-speed uplinks to service provider, corporate, or campus networks, reducing bottlenecks and increasing the performance of the access network.

### Continuous Availability

The IEEE 802.1w Rapid Spanning Tree Protocol provides a loop-free network and redundant links to the core network with rapid convergence, to ensure faster recovery from failed links, enhancing overall network stability and reliability.

The IEEE 802.1s Multiple Spanning Tree Protocol runs STP per VLAN base, providing Layer 2 load sharing on redundant links up to 64 instances.

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The ECS4100-12PH supports IEEE 802.3ad Link Aggregation Control Protocol (LACP). It increases bandwidth by automatically aggregating several physical links together as a logical trunk and offers load balancing and fault tolerance for uplink connections.

The ECS4100-12PH supports G.8032 Ethernet Ring Protection Switching with the ability for the network to detect and recover from incidents without impacting users, meeting the most demanding quality and availability requirements. Rapid recovery time when problems do occur is as low as 50 ms.

### Reliability and Energy Efficiency

The design of the ECS4100-12PH incorporates high energy efficiency in order to reduce the impact on the environment. The Green Ethernet power-saving features and fanless design significantly reduce the power consumption.

### Enhanced Security

Port security limits the total number of devices from using a switch port and protects against MAC flooding attacks. IEEE 802.1X port-based or MAC-based access control ensures all users are authorized before being granted access to the network. When a user is authenticated, the VLAN, QoS and security policy are automatically applied the port where the user is connected, otherwise the port is grouped in a guest VLAN with limited access.

DHCP snooping allows a switch to protect a network from rogue DHCP servers that offer invalid IP addresses. IP Source Guard prevents users from using IP addresses that were not assigned to them.

Access Control Lists (ACLs) can be used to restrict access to sensitive network resources by denying packets based on source and destination MAC addresses, IP addresses, or TCP/UDP ports. ACLs are hardware supported, so switching performance is not compromised.

Traffic segmentation ( Private VLAN) isolate edge ports to ensure user privacy.

DAI (Dynamic ARP Inspection) is a security feature that validates Address Resolution Protocol (ARP) packets in a network. DAI allows a network administrator to intercept, log, and discard ARP packets with invalid MAC-to-IP address bindings.

Secure Shell (SSH) and Secure Sockets Layer (SSL/HTTPS) encrypt Telnet and web access to the switch, providing secure network management.

## Key Features and Benefits

### Comprehensive QoS

The ECS4100-12PH offers advanced QoS for marking, classification, and scheduling to deliver best-in-class performance for data, voice, and video traffic at wire speed. Eight egress queues per port enable differentiated management of up to eight traffic types through the switch.

Traffic is prioritized according to 802.1p and DSCP to provide optimal performance for real-time applications. Weighted Round Robin (WRR) and strict priority ensure differential prioritization of packet flows and avoid congestion of ingress and egress queues. Asymmetric bidirectional rate-limiting, per port or per traffic class, preserves network bandwidth and allows maximum control of network resources.

### Robust Multicast Control

IGMP snooping prevents the flooding of multicast traffic by dynamically configuring switch ports so that multicast traffic is forwarded to only those ports associated with an IP multicast receiver. IGMP increases the performance of networks by reducing multicast traffic flooding.

IGMP groups allow you to create customer packages for IP-TV channels, making switch configuration easy. IGMP Filtering prevents subscribers seeing unsubscribed IP-TV channels. And, IGMP Throttling allows you to set how many IP-TV channels a subscriber can receive simultaneously.

Multicast VLAN Registration (MVR) is designed for applications such as Media-on-Demand that send multicast traffic across an Ethernet network. Multicast VLANs are shared in the network, while subscribers remain in separate VLANs. This increases network security and saves bandwidth on core links. Multicast streams do not have to be routed in core L3 switches, which saves CPU power.

### IPv6 Support

The switch supports a number of IPv6 features, including IPv6 Management, DCHPv6 Snooping with Option 37, IPv6 Source Guide, and MVR6.

### Superior Management

An industry-standard command-line interface (CLI), accessed through the console port or Telnet, provides a familiar user interface and command set for users to manage the switch.

An embedded user-friendly web interface helps users to quickly and simply configure switches.

The ECS4100-12PH supports SNMPv1,2c,3 and four-group RMON. The switch provides a complete private MIB for the configuration of most functions via the SNMP protocol.

Administrators can backup and restore firmware and configuration files via TFTP or FTP. The switch also provides the configuration of auto-provision for ease of use in large deployments.

AAA (Authentication, Authorization and Accounting) via RADIUS, TACACS+, enables centralized control of the switches. Access rights can be authorized per user and account for all actions performed by administrators.

### Service Monitoring and Management

The ECS4100-12PH supports IEEE 802.1ag and ITU-T Y.1731, allowing service providers to monitor end-to-end services, identify connectivity and performance issues, and isolate problems from a remote location without dispatching an engineer onsite.

The switch also provides the capability to monitor service availability, delay for verifying SLA conformance (for billing purposes) and providing advance indication of performance degradation before a service outage occurs.

### Virtual Private Networks

The ECS4100-12PH supports Layer 2 VPNs by using Q-in-Q functions, where an 802.1Q tag from a customer VLAN (called CE-VLAN ID) is encapsulated in a second 802.1Q tag from a service-provider network (called an SP-VLAN ID). The switch supports rewriting the VLAN tag of egress traffic when the ingress traffic is tagged.

The switch also supports Layer 2 Protocol Tunneling for STP, CDP, VTP, PVST+, with Cisco-proprietary multicast address (01-00-0c-cd-cd-d0) replacement.

### PoE Features

The ECS4100-12PH can provide up to 60 Watts of power to high power devices such as PTZ IP cam with heater or 30 Watts of power to attached devices, such as VoIP phones, wireless access points, surveillance cameras, etc, all over existing Cat. 5 cables. The switch can deliver up to 60 Watts on 3 ports, 30 Watts on 6 ports, or 15.4 Watts on 8 ports.

PoE eliminates the need for individual power sources for devices in the network, saving on costs for power cables and avoiding power outlet availability issues. If the power demand exceeds the switch's maximum power budget, ports can be prioritized to receive power.

Intelligent fan control: The switch fan operates according to the ambient temperature and PoE power budget. The fan does not operate when under 70 W PoE power budget usage for silent operation.

## Features

Product Model		ECS4100-12PH
Product Image		
Port	RJ-45 10/100/1000BASE-T Ports	8 (PoE)
	100/1000 SFP Ports	2
	10/100/1000 Combo Ports	2
	SFP+ 10 Gigabit Uplink Ports	0
	GE Out-of-Band Management Port	No
	RJ-45 Console Port	1
Performance	Switching Capacity	24 Gbps
	Forwarding Rate	17.85 Mpps
	Flash Memory	32 MB
	DRAM	256 MB
	MAC Address Table Size	16 K
	Jumbo Frames	12 KB
	Auto-negotiation, Auto-MDI/MDIX	Yes
PoE	Ultra PoE 60 W	Yes (3 ports)
	PoE+ based on IEEE 802.3bt/802.3af/802.3at	Yes
	Auto disable after exceeding power budget	Yes
	Dynamic Power Allocation	Yes
	PoE Power Budget	180 W
Mechanical	Dimension (W x D x H) cm	28 x 22 x 4.4
	Weight	2381 g
	Acoustics	48 dB (A)
Power Supply	100-240 VAC, 50-60 Hz	Yes
	Max System Power Consumption (Watts)	20 W (w/o PoE)
Environmental	Operating Temperature	0°C to 50°C (180 W PoE budget) standard operation 0°C to 55°C (120 W PoE budget) ≤ 70W PoE budget, fanless for silent operation
	Storage Temperature	-40°C to 70°C
	Operating Humidity (non-condensing)	10% to 90%
	Storage Humidity (non-condensing)	10% to 90%
	Environmental Regulation Compliance: WEEE	Yes
	Environmental Regulation Compliance: RoHS	Yes
Certification	FCC Class A	Yes
	CE	Yes
	Safety Compliance: CB	Yes
	Safety Compliance: UL	Yes

## Features

### L2 Features

- Tri-speed (10/100/1000BASE-T) copper interfaces
- Auto-negotiation for port speed and duplex mode
- Auto MDI/MDI-X
- 100 M/1 G fiber interface
- SFP ports support:
  - IEEE802.3 100BASE-FX
  - IEEE 802.3z (1000BASE-SX/LX/LHX/ZX) transceivers
- Transceiver-threshold current/rx-power/temperature/tx-power/voltage/high-low alarm and warning
- Digital Diagnostic Monitoring (DDM) on SFP port only
- Flow Control:
  - IEEE 802.3x for full duplex mode
  - Back-Pressure for half duplex mode
- Jumbo frames: 12 KB
- Broadcast/Multicast/ Unknown Unicast Storm Control
- Spanning Tree Protocol:
  - IEEE 802.1D Spanning Tree Protocol (STP)
  - IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
  - IEEE 802.1s Multiple Spanning Tree Protocol (MSTP), 64 instances
- Spanning-tree restricted-tcn
- Spanning-tree tc-prop-stop Stops propagation of topology change information
- BPDU Guard
- BPDU filtering
- Root Guard
- BPDU transparent
- Loopback detection
- Non-Spanning Tree Loopback detection
- ITU-T G.8032 Ethernet Ring Protection Switching:
  - Sub 50 msec convergence
  - Non-revertive operation mode
  - Multiple-ring topology
- VLANs:
  - Supports 4K VLAN
  - Port-based VLAN
  - IEEE 802.1Q VLAN
  - GVRP (256 VLAN)
  - IEEE 802.1v Protocol-based VLAN
  - IP Subnet-based VLAN
  - MAC-based VLAN
  - Traffic Segmentation
- L2 Virtual Private Networks (Q-in-Q):
  - Selective QinQ
  - VLAN Translation
  - L2 Protocol tunneling (xSTP, CDP, VTP and PVST+, LLDP)
  - CDP/PVST+ Filtering
- Link Aggregation:
  - Static Trunk
  - IEEE 802.3ad Link Aggregation Control Protocol
  - Trunk groups: 16, up to 8 GE ports per group
  - Load Balancing: SA+DA, SA, DA, SIP+DIP, SIP, DIP
- IGMP Snooping:
  - IGMP v1/v2/v3 snooping
  - IGMP Proxy reporting
  - IGMP Filtering
  - IGMP Throttling
  - IGMP Immediate Leave
  - IGMP Querier
  - IGMP mrouter-forward mode
  - IGMP router-alert-option-check
  - IGMP router-port-expire-time
  - IGMP tcn-flood
  - IGMP tcn-query-solicit
  - IGMP unregistered-data-flood
- MVR (Multicast VLAN Registration): Supports 5 multicast VLANs
- Port mirroring (many source ports to one destination port. One source port to one destination port only)
- Remote port mirror (RSPAN)

### Security

- User Security for Enterprise:
  - IEEE 802.1X port based and MAC based authentication
  - Dynamic VLAN Assignment, Auto QoS
  - MAC authentication
  - Web authentication
  - Voice VLAN
  - Guest VLAN
- User Security for ISP/MSO:
  - L2/L3/L4 Access Control List
  - MAC Access control list (Source/Destination MAC, Ether type, Priority ID/ VLAN ID)
  - IP standard access control list (Source IP)
  - IP extended access control list (Source/Destination IP, Protocol, TCP/UDP port number)
  - DHCP Snooping
  - DHCP Option 82
  - DHCP Option 82 Relay
  - IP Source Guard
- Network Security:
  - IPv6 ACL
  - Port security
  - PPPoE IA
  - Dynamic ARP Inspection
  - CPU guard
  - CPU/Memory threshold and alarm
  - Denial of Service protection
    - echo-charge
    - smurf
    - tcp-flooding
    - tcp-null-scan
    - tcp-syn-fin-scan
    - tcp-xmas-scan
    - udp-flooding
    - win-nuke
- Management Security:
  - Login Security
  - RADIUS authentication
  - RADIUS accounting
  - TACACS + authentication
  - TACACS + accounting
  - TACACS + authorization
  - Management Interface Access Filtering (SNMP, Web, Telnet)
  - SSH (v1.5/v2.0) for security Telnet
  - SSL for HTTPS
  - SNMPv3

### Green Ethernet

- IEEE 802.3az Energy-Efficient Ethernet (EEE)

### OAM

- IEEE 802.3ah Link
- IEEE 802.1ag Connectivity Fault Management:
  - Connectivity check
  - Loopback
  - Linktrace
- ITU-T Y.1731 Performance and Throughput Management:
  - Frame Delay
  - Frame Delay variation

## Features

### QoS Features

Priority Queues: 8 hardware queues per port  
Traffic classification:  
IEEE 802.1p CoS  
IP Precedence  
DSCP  
MAC Access control list ( Source/Destination MAC, Ether type, Priority ID/ VLAN ID )  
IP Standard access control list (Source IP)  
IP extended access control list (Source/Destination IP, Protocol, TCP/UDP port number)  
Traffic Scheduling:  
Strict Priority  
Weighted Round Robin  
Strict + WRR  
Ingress policy map (police rate, remark CoS)  
Egress policy map (police rate, remark CoS/DSCP)  
Rate Limiting (Ingress and Egress, per port base):  
GE: Resolution 64Kbps ~ 1,000Mbps  
Auto Traffic Control

### IPv6 Features

IPv4/IPv6 Dual Protocol stack  
IPv6 Address Types Stack: Unicast  
IPv6 Neighbor Discovery:  
Duplicate address  
Address resolution  
Unreachable neighbor detection  
Stateless auto-configuration  
Manual configuration  
Remote IPv6 ping  
IPv6 Telnet support  
HTTP over IPv6  
SNMP over IPv6  
IPv6 Syslog support  
IPv6 TFTP support  
IPv6 MLD filter: MLD max-groups(throttling)  
IPv6 ND snooping  
MLD Snooping v1/v2  
IPv6 source guard  
DHCPv6 snooping  
MVR6

### Routing

IPv4 Static Route  
IPv6 Static Route  
RIP v1/v2  
Traceroute  
Traceroute6

### Management

Switch Management:  
CLI via console port or Telnet  
Web management  
SNMP v1, v2c, v3  
IP clustering (32 members)  
Firmware & Configuration:  
Firmware upgrade via TFTP/HTTP/FTP server  
Dual images  
Multiple configuration files  
Configuration file upload/download via TFTP/HTTP/FTP server  
Firmware auto upgrade  
RMON (groups 1, 2, 3 and 9)  
BOOTP, DHCP client for IP address assignment  
DHCP dynamic provision option 66,67  
SNTP/NTP  
DNS client  
Event/Error Log  
Syslog  
SMTP  
Supports LLDP (802.1ab)  
sFlow v4, v5  
Cable diagnostics  
Traceroute  
Traceroute6  
(Optional) ECView Pro, a powerful network management software that maximizes the managed capabilities of Edgecore devices with:  
Topology management  
Performance management  
Configuration management  
Event management  
SNMP management

### Safety

UL (CSA 22.2. NO 60950-1 & UL60950-1)  
CB (IEC60950-1)

### Electromagnetic Compatibility

CE Mark  
FCC Class A  
CISPR Class A  
BSMI

### Environmental Specifications

Temperature:  
0°C to 50°C (180 W PoE budget) standard operation  
0°C to 55°C (120 W PoE budget)  
≤ 70W PoE budget, fanless for silent operation  
-40°C to 70°C (Non-Operating)  
Humidity: 10% to 90% (Non-condensing)

### Power Supply

Power input  
100 to 240 VAC, 50/60 Hz  
AC/DC: 90VAC~300VAC, 50/60 Hz  
Dying gasp

### Warranty

Please check [www.edge-core.com](http://www.edge-core.com) for the warranty terms in your country.

## Features

### For More Information

To find out more about Edgecore Networks Corporation products and solutions, visit [www.edge-core.com](http://www.edge-core.com).

### About Edgecore Networks Corporation

Edgecore Networks Corporation is in the business of providing innovative network solutions. In the service provider network, in the data center or in the cloud, Edgecore Networks Corporation delivers the software and systems that transform the way the world connects. Edgecore Networks Corporation serves customers and partners worldwide. Additional information can be found at [www.edge-core.com](http://www.edge-core.com).

Edgecore Networks Corporation is a subsidiary of Accton Technology Corporation, the leading network ODM company. The Edgecore Data Center switches are developed and manufactured by Accton.

To purchase Edgecore Networks solutions, please contact your Edgecore Networks Corporation representatives at +886 3 563 8888 (HQ) or +1 (949)-336-6801 or authorized resellers.

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## Ordering Information

Optional Accessories	Product Description
ET4201-LX5	1Gbps, Small Form Factor Pluggable (Distance: 5 km; Wavelength: 1310 nm)
ET4201-LX15	1Gbps, Small Form Factor Pluggable (Distance: 15 km; Wavelength: 1310 nm)
ET4201-LHX	1Gbps, Small Form Factor Pluggable (Distance: 40 km; Wavelength: 1310 nm)
ET4201-ZX	1Gbps, Small Form Factor Pluggable (Distance: 80 km; Wavelength: 1550 nm)
ET4202-SX	1Gbps, Small Form Factor Pluggable (Distance: 500 m; Wavelength: 850 nm, DDM)
ET4202-LX	1Gbps, Small Form Factor Pluggable (Distance: 10 km; Wavelength: 1310 nm, DDM)
ECView Pro	Network Management Software
ET3201-FXP	100BASE-FX Multi mode LC Duplex SFP transceiver, up to 2 km (1310 nm)
ET3201-FX20	100BASE-FX Single mode LC Duplex SFP transceiver, up to 20 km (1310 nm)
ET3203-BX20	100BASE-FX Single mode LC Simplex SFP transceiver, up to 20 km Tx1310 nm/Rx1550 nm
ET3203-BX20D	100BASE-FX Single mode LC Simplex SFP transceiver, up to 20 km Tx1550 nm/Rx1310 nm