

ECS4100 Series

L2 Gigabit Ethernet Access and 2 10G PoE and Non-PoE Switch

Product Overview

The ECS4100 series 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, IP cameras, VoIP phones, and other powered devices. It is also an ideal Gigabit access switch for SMB, enterprise, and campus networks. The 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.

Key Features and Benefits Performance and Scalability

The ECS4100 series is a high-performance Gigabit Ethernet Layer 2 managed switch with 24/56/104/56 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.

The switch 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 switch 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 switch incorporates high energy efficiency in order to reduce the impact on the environment. The Green Ethernet power-saving design 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 switch 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, DHCPv6 snooping with option 37, IPv6 Source Guard and MVR6.

Service Monitoring and Management

The switch 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.

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 switch 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.

Virtual Private Networks

The switch 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.

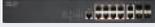
The switch also supports Layer 2 Protocol Tunneling for STP, CDP, VTP, PVST+, with Cisco-proprietary multicast address (01-00-0c-cd-cd-d0) replacement.

PoE Features

The ECS4100-12PH provides 60 W ultra PoE and ECS4100-28P/52P provide 30 Watts of power to high power devices such as PTZ IP cam, VoIP phones, wireless access points, surveillance cameras, etc, all over existing Cat. 5 cables. The ECS4100-12PH/28P/52P switch delivers up to 180 W/190 W/370 W PoE Power budget.

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.

Features

Product Model		ECS4100-12PH	ECS4100-28P	ECS4100-52P	ECS4100-28TC
Product Image					
Port	RJ-45 10/100/1000BASE-T Ports	8 (PoE)	24 (PoE)	48 (PoE)	24
	100/1000 SFP Ports	2	4	4	0
	10/100/1000 Combo Ports	2	0	0	4
	SFP+ 10 Gigabit Uplink Ports	0	0	0	0
	GE Out-of-Band Management Port	No	No	No	No
	RJ-45 Console Port	1	1	1	1
Performance	Switching Capacity	24 Gbps	56 Gbps	104 Gbps	56 Gbps
	Forwarding Rate	17.85 Mbps	41.7 Mbps	77.4 Mbps	41.7 Mbps
	Flash Memory	32 MB	32 MB	32 MB	32 MB
	DRAM	256 MB	256 MB	256 MB	256 MB
	MAC Address Table Size	16 K	16 K	16 K	16 K
	Jumbo Frames	12 KB	12 KB	12 KB	12 KB
	Auto-negotiation, Auto-MDI/MDIX	Yes	Yes	Yes	Yes
	Acoustics	48 dB (A) 0 dB (A) ≤ 70W PoE budget	53 dB (A)	N/A	0 dB (A), fanless
	MTBF	841,327 hrs	366,322 hrs	358,479 hrs	1,199,394 hrs
PoE	Ultra PoE 60 W	Yes	N/A	N/A	N/A
	PoE+ based on IEEE 802.3bt/802.3af/802.3at	Yes	Yes	Yes	N/A
	Auto disable after exceeding power budget	Yes	Yes	Yes	N/A
	Dynamic Power Allocation	Yes	Yes	Yes	N/A
	PoE Power Budget	180 W	190 W	370 W	N/A
Mechanical	Dimension (W x D x H) cm	28 x 22 x 4.4	44 x 33 x 4.4	44 x 33 x 4.4	33 x 23 x 4.4
	Weight	2381 g	3935 g	4397 g	2200 g
Power Supply	100-240 VAC, 50-60 Hz	Yes	Yes	Yes	Yes
	Max System Power Consumption (Watts)	230 W	260 W	480 W	20W
Environmental	Operating Temperature	0°C to 50°C (180 W PoE Budget) 0°C to 55°C (120 W PoE Budget) ≤ 70 W PoE budget, fanless for silent operation	0°C to 50°C	0°C to 50°C	0°C to 50°C
	Storage Temperature	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C
	Operating Humidity (non-condensing)	10% to 90%	10% to 90%	10% to 90%	10% to 90%
	Storage Humidity (non-condensing)	10% to 90%	10% to 90%	10% to 90%	10% to 90%
	Environmental Regulation Compliance: WEEE	Yes	Yes	Yes	Yes
	Environmental Regulation Compliance: RoHS	Yes	Yes	Yes	Yes
Certification	FCC Class A	Yes	Yes	Yes	Yes
	CE	Yes	Yes	Yes	Yes
	Safety Compliance: CB	Yes	Yes	Yes	Yes
	Safety Compliance: UL	Yes	Yes	Yes	Yes

Features

Product Model		ECS4100-12T	ECS4100-28T	ECS4100-52T
Product Image				
Port	RJ-45 10/100/1000 BASE-T Ports	8	24	48
	100/1000 SFP Ports	2	4	4
	Combo Gigabit (RJ-45/SFP) Ports	2	0	0
	SFP+ 10 Gigabit Uplink Ports	0	0	0
	GE out-of-band Management Port	No	No	No
	RJ-45 Console Port	1	1	1
Performance	Switching Capacity	24 Gbps	56 Gbps	104 Gbps
	Forwarding Rate	17.85 Mpps	41.6 Mpps	77.4 Mpps
	Flash Memory	32 MB	32 MB	32 MB
	DRAM	256 MB	256 MB	256 MB
	MAC Address Table Size	16 K	16 K	16 K
	Jumbo Frames	12 KB	12 K	12 K
	Auto-negotiation, Auto-MDI/MDIX	Yes	Yes	Yes
Mechanical	Rack Space	19"-1 RU	19"-1 RU	19"-1 RU
	Dimension (W x D x H) cm	18 x 16.4 x 3.75	44 x 22 x 4.4	44 x 22 x 4.4
	Weight	804 g	2.2 kg	2.5 kg
	Acoustics	0 dB (A)	0 dB (A)	0 dB (A)
Power Supply	100-240 VAC, 50/60 Hz	Yes (Rear Panel)	Yes (Front Panel)	Yes (Rear Panel)
	Max System Power Consumption (Watts)	16 W	20 W	40 W
Environmental	Operating Temperature	0°C to 50°C	0°C to 50°C	0°C to 45°C
	Storage Temperature	-40°C to 70°C	-40°C to 70°C	-40°C to 70°C
	Operating Humidity (non-condensing)	10% to 90%	10% to 90%	10% to 90%
	Storage Humidity (non-condensing)	10% to 90%	10% to 90%	10% to 90%
	Environmental Regulation compliance: WEEE	Yes	Yes	Yes
	Environmental Regulation compliance: RoHS	Yes	Yes	Yes
Certification	FCC Class A	Yes	Yes	Yes
	CE	Yes	Yes	Yes
	BSMI	Yes	Yes	Yes
	Safety Compliance: CB	Yes	Yes	Yes
	Safety Compliance: UL	Yes	Yes	Yes

Features

Product Model		ECS4100-26TX	ECS4100-26TX-ME
Product Image			
Port	RJ-45 10/100/1000 BASE-T Ports	24	24
	100/1000 BASE-X SFP Ports	0	0
	Combo Gigabit (RJ-45/SFP) Ports	0	0
	SFP+ 10 Gigabit Uplink Ports	2	2
	GE out of band Management Port	No	No
	RJ-45 Console Port	1	1
	6KV Surge Protect	No	Yes
Performance	Switching Capacity	88 Gbps	88 Gbps
	Forwarding Rate	65.5 Mpps	65.5 Mpps
	Flash Memory	32 MB	32 MB
	DRAM	256 MB	256 MB
	MAC Address Table Size	16 K	16 K
	Jumbo Frames	12 KB	12 KB
	Auto-negotiation, Auto-MDI/MDIX	Yes	Yes
Mechanical	Rack Space	19"-1RU	19"-1RU
	Dimension (W x D x H) cm	44 x 22 x 4.4	44 x 22 x 4.4
	Weight	2.2 kg	2.3 kg
Power Supply	100-240 VAC, 50-60 Hz	Yes (Rear Panel)	Yes (Rear Panel)
	DC Power Input (36-60 V)	No	Yes (Front Panel)
	Max System Power Consumption (Watts)	20 W	20 W
	Dying Gasp	Yes	Yes
Environmental	Operating Temperature	0°C to 50°C	0°C to 50°C
	Storage Temperature	-40°C to 70°C	-40°C to 70°C
	Operating Humidity (non-condensing)	10% to 90%	10% to 90%
	Storage Humidity (non-condensing)	10% to 90%	10% to 90%
	Environmental Regulation Compliance: WEEE	Yes	Yes
	Environmental Regulation Compliance: RoHS	Yes	Yes
Certification	FCC Class A	Yes	Yes
	CE	Yes	Yes
	BSMI	Yes	Yes
	Safety Compliance: CB	Yes	Yes
	Safety Compliance: UL	Yes	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 interfaces
- SFP ports support:
 - IEEE 802.3 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
 - BPDUGuard
 - BPDUFiltering
 - Root Guard
 - BPDUTransparent
 - Loopback Detection
 - Non-Spanning Tree Loopback detection
- ITU-T G.8032 Ethernet Ring Protection Switching:
 - Sub 50 msec convergence (ECS4100-12PH/28P/52P/28TC only)
 - Non-revertive operation mode
 - Multiple-ring network
- 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 Network (Q-in-Q):
 - Selective Q-in-Q
 - VLAN Translation
 - L2 Protocol tunneling (xSTP, CDP, VTP & 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)

QoS Features

- Priority Queues: 8 hardware queues per port
- Traffic classification:
 - IEEE 802.1p CoS
 - IP Precedence
 - DSCP
- Traffic Scheduling:
 - Strict Priority
 - Weighted Round Robin
 - Strict + WRR
- Diffserv:
 - 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 64 Kbps ~ 1,000 Mbps

Security

- User Security for Enterprise:
 - IEEE 802.1X port based and MAC based authentication
 - Dynamic VLAN Assignment, Dynamic QoS assignment
 - 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

Features

Green Ethernet

- IEEE 802.3az Energy-Efficient Ethernet (EEE)
- Link-Up power saving
- No-Link power saving

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 and throttling
- IPv6 ND snooping
- MLD Snooping v1/v2
- IPv6 source guard
- DHCPv6 snooping
- MVR6

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/SFTP server
 - Dual images
 - Multiple configuration files
 - Configuration file upload/download via TFTP/HTTP/FTP/SFTP 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
- (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

OAM

- IEEE 802.3ah Link
- IEEE 802.1ag Connectivity Fault Management:
 - Cross check
 - Link trace
 - Loop back
- ITU-T Y.1731 Performance and Throughput 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:
 - ECS4100-12PH:
 - 0°C to 50°C (180W PoE Budget)
 - 0°C to 55°C (120W PoE Budget)
 - < 70W PoE budget, fanless for silent operation
 - ECS4100-28P/28TC/52P:
 - 0°C to 50°C standard operation
 - ECS4100-12T/26TX/26TX-ME/28T:
 - 0° C to 50° C (32° F to 122° F) standard operating
 - ECS4100-52T:
 - 0° C to 45° C (32° F to 113° F) standard operating

Power Supply

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

Warranty

- Please check www.edge-core.com for the warranty terms in your country.

For More Information

- To find out more about Edgecore Networks Corporation products and solutions, visit 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.

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-SX	1Gbps, Small Factor Pluggable (Distance:550 m; Wavelength: 850 nm)
ET4201-LX	1Gbps, Small Factor Pluggable (Distance:10 km; Wavelength: 1310 nm)
ET4201-LHX	1Gbps, Small Factor Pluggable (Distance:40 km; Wavelength: 1310 nm)
ET4201-ZX	1Gbps, Small Factor Pluggable (Distance:80 km; Wavelength: 1550 nm)
ET4201-RJ45	1Gbps, Small Factor Pluggable (Distance:100 m)
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