

ICS-G24044X-24PH

24x GbE RJ45 + 4x 100/1000Base SFP + 4x 1G/2.5G/10G SFP with 24x PoE (400W,48VDC)



- Supports IEEE 1588 PTP V2
- Support u-Ring, ERPS, MSTP, RSTP, STP for redundant cabling
- Support maximum up to 14 u-rings in one device
- UL60950-1, EN60950-1, CE, FCC, EN50121-4, EN61000-6-2, EN61000-6-4 certified
- 4KV surge protection for PoE, RJ45 and SFP ports



ICS-G24044X-24PH is a hardened L2 managed core switch which also supports PoE+/PSE for rigorous demands of centralize and critical applications. ICS-G24044X-24PH supports 4 uplink ports with 10GbE SFP+ and 24 GbE (10/100/1000BaseTX) PoE+ RJ-45 ports plus 4 dual speed (100/1000Base-X) SFP fiber optical slots. ICS-G24044X-24PH is an ideal solution for Smart City, surveillance, Intelligent traffic control systems and production automation applications and supports up to 24 PoE/PoE+ (IEEE 802.3af/IEEE 802.3at) ports which can provide 15.4/30watts power output per port for connecting with heavy-duty industrial PoE devices, such as PTZ IP surveillance cameras, high-performance wireless access points, digital signage and IP phones. The ICS-G24044X-24PH is designed especially for harsh outdoor cabinet applications with 4kV surge protection to ensure the uninterrupted reliability of PoE systems.

Features

- Maximum up to 24x IEEE 802.3af / 802.3at PoE+ output, 30W per port, 400W PoE power budget in total
- Redundant dual input power 48VDC (44~57VDC)
- Provides 14 instances each can support μ -Ring, μ -Chain or Sub-Ring for flexible networking applications
- μ -Ring redundancy, recovery time <20ms in 250 devices
- Supports IEEE 1588 PTP V2 for precise time synchronization to operate in Ordinary-Boundary, Peer to Peer Transparent Clock, End to End Transparent Clock, Master, Slave mode by each port
- Provides SmartConfig for quick and easy mass Configuration*
- Supports SmartView for Centralized Management*

*Please see Chapter 1- **Software Management** for more details

Specifications

| | | | | | |
|----------------------------|--|--|--------------------------|------------------------------------|---|
| Standard | IEEE 802.3 | 10Base-T 10Mbit/s Ethernet | Network Connector | 10GbE SFP+: | 4x 1G/2.5G/10G SFP socket Supports DDMI |
| | IEEE 802.3u | 100Base-TX, 100Base-FX, Fast Ethernet | | SFP: | 4x 100/1000Base-X SFP socket Support DDMI |
| | IEEE 802.3ab | 1000Base-T Gbit/s Ethernet over twisted pair | | RJ45: | 24x 10/100/1000Base-T RJ-45 Support Auto negotiation speed, Auto MDI/MDI-X function |
| | IEEE 802.3z | 1000Base-X Gbit/s Ethernet over Fiber-Optic | | PoE: | 24x IEEE 802.3af /IEEE 802.3at PoE+ End-Span, Alternative A mode. Maximum 30W per port, 400W PoE power budget in total |
| | IEEE 802.3ae | 10 Gbit/s Ethernet over fiber | | RJ45 Pin Assignment: | PoE Positive (V+) : RJ-45 pin 1, 2. PoE Negative (V-) : RJ-45 pin 3, 6. Data (1,2,3,6,4,5,7,8) |
| | IEEE 802.1d | STP (Spanning Tree Protocol) | | Console | RS-232 (RJ-45) |
| | IEEE 802.1w | RSTP (Rapid Spanning Tree Protocol) | | Network Cable | UTP/STP Cat.5e cable or above EIA/TIA-568 100-ohm (100m) |
| | IEEE 802.1s | MSTP (Multiple Spanning Tree Protocol) | | Protocols | CSMA/CD |
| | ITU-T G.8032 / Y.1344 | ERPS (Ethernet Ring Protection Switching) | | Reverse Polarity Protection | For input power |
| | IEEE 802.1Q | Virtual LANs (VLAN) | | Overload Current Protection | Supported |
| | IEEE 802.1X | Port based and MAC based Network Access Control, Authentication | | CPU Watch Dog | Supported |
| | IEEE 802.3ac | Max frame size extended to 1522Bytes | | Power Supply | Redundant dual input power 48VDC (44~57VDC) (Removable terminal block) (50~57VDC input is recommended for IEEE 802.3at PoE+ in 30W applications) |
| | IEEE 802.3ad | Link aggregation for parallel links with LACP(Link Aggregation Control Protocol) | | Power Consumption | < 33W @50VDC without PoE load < 449W @50VDC with 400W PoE load |
| | IEEE 802.3af | PoE (Power over Ethernet) | | | |
| | IEEE 802.3at | PoE+ (Power over Ethernet enhancement) | | | |
| | IEEE 802.3X | Flow control for full duplex | | | |
| IEEE 802.1ad | Stacked VLANs, Q-in-Q | | | | |
| IEEE 802.1p | LAN Layer 2 QoS/CoS Protocol for Traffic Prioritization | | | | |
| IEEE 802.1ab | Link Layer Discovery Protocol (LLDP) | | | | |
| IEEE 802.3az | EEE (Energy Efficient Ethernet) | | | | |
| Data Processing | Store and Forward | | | | |
| VLAN ID | 4094 IEEE 802.1Q VLAN VID | | | | |
| Switch Architecture | Back-plane (Switching Fabric): 136Gbps (Full wire-speed) | | | | |
| Data Processing | Store and Forward | | | | |

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| LED | Per unit: Power 1 (Green), Power 2 (Green), Act /Alarm (Green/Amber), Ring Master (Green) P1~P24 Per RJ-45 port: 10/100 Link/Active (Green) 1000 Link/Active (Amber) P25~P28 Per SFP Fiber port: 100/1000Base-X Link/Active (Amber) P29~P32 Per SFP+ Fiber port: 1000Base-X Link/Active (Amber) 10GBase-X Link/Active (Blue) PoE port (P1~P24): PoE ON (Green) |
| Jumbo Frame | 10K Byte |
| MAC Address Table | 32K |
| Memory Buffer | 4M Bytes for packet buffer |
| Warning Message | System Syslog, SMTP/ e-mail event message, alarm relay |
| Alarm Relay Contact | Relay outputs with current carrying capacity of 1A @24VDC, 2-Pin removable terminal block |
| Operating Temperature | -10 ~ 60°C |
| Operating Humidity | 5% to 95% (Non-condensing) |
| Storage Temperature | -40 ~ 85°C |
| Housing | Rugged Metal, IP30 Protection, Fanless |
| Dimensions | 280x 440 x 44mm (D x W x H) |
| Weight | 4.26kg |
| Installation Mounting | 19" rack mount |

Software Specifications

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| Topology | |
| VLAN | IEEE 802.1q VLAN, up to 4094 802.1Q VLAN VID IEEE 802.1q VLAN, up to 4094 Groups IEEE 802.1ad Q-in-Q MAC-based VLAN, up to 256 entries IP Subnet-based VLAN, up to 128 entries Protocol-based VLAN (Ethernet, SNAP, LLC), up to 128 entries VLAN Translation, up to 256 entries GVRP (GARP VLAN Registration Protocol) MVR (Multicast VLAN Registration) |
| Link Aggregation (Port Trunk) | Static (Hash with SA, DA, IP, TCP/UDP port), Maximum trunk group : 16group Dynamic (IEEE 802.3ad LACP), Maximum trunk group : 16group Per group up to 8 port |
| Spanning Tree | IEEE 802.1d STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP |
| Multiple μ-Ring | Up to 14 instances each support μ-Ring, μ-Chain or Sub-Ring for flexible networking applications. Recovery time <20ms The maximum number of device is allowed 250 in a Ring. |
| Loop Protection | Supported |
| ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection) | Recovery time <20ms |
| QoS Features | Single Ring, Sub-Ring, Multiple ring topology |
| Class of Service | IEEE 802.1p 8 active priorities queues for per port |
| Traffic Classification QoS | IEEE 802.1p based CoS IP Precedence based CoS IP DSCP based CoS |
| Traffic Classification QoS | QCL (QoS Control List): Frame Type, Source/Destination MAC, VLAN ID, PCP, DEI Protocol, Source IP, IP Fragment, DSCP, TCP/UDP port number |
| Bandwidth Control for Ingress | Per port based |
| Bandwidth Control for Egress | Per port based Per queue / Per port shaper |
| DiffServ (RF 2474) Remark | |
| Storm Control | for Unicast, Broadcast, Multicast |
| IP Multicasting Features | |
| IGMP / MLD Snooping | IGMP Snooping v1, v2, v3 / MLD Snooping v1, v2 Port Filtering Profile Throttling, Fast Leave Maximum Multicast Group : up to 1022 entries Query / Static Router Port |

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| MTBF | 97,078 Hours (MIL-HDBK-217) |
| Warranty | 5 years |
| Certification | |
| EMC | CE (EN55024, EN55032) |
| EMI (Electromagnetic Interference) | FCC Part 15 Subpart B Class A, CE |
| Railway Traffic | EN50121-4 |
| Immunity for Heavy Industrial Environment | EN61000-6-2 |
| Emission for Heavy Industrial Environment | EN61000-6-4 |
| EMS (Electromagnetic Susceptibility) | EN61000-4-2 (ESD) Level 3, Criteria B EN61000-4-3 (RS) Level 3, Criteria A |
| Protection Level | EN61000-4-4 (Burst) Level 3, Criteria A EN61000-4-5 (Surge) Level 3, Criteria B EN61000-4-6 (CS) Level 3, Criteria A EN61000-4-8 (PFMF, Magnetic Field) Field Strength: 300A/m, Criteria A |
| Safety | UL60950-1, EN60950-1 |
| Surge protection | 4KV for PoE, RJ45 and SFP |
| Shock | IEC 60068-2-27 |
| Freefall | IEC 60068-2-32 |
| Vibration | IEC 60068-2-6 |

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| Security Features | |
| IEEE 802.1X | Port-Based MAC-Based |
| ACL | Number of rules : up to 256 entries for L2 / L3 / L4 L2 : Mac address SA/DA/VLAN L3 : IP address SA/DA, Subnet L4 : TCP/UDP |
| RADIUS authentication & accounting | |
| TACACS+ authentication & accounting, TACACS+ 3.0 | |
| HTTPS, HTTP | Supported |
| SSL / SSH v2 | Supported |
| User Name | Local Authentication |
| Password Authentication | Remote Authentication (via RADIUS / TACACS+) |
| Management Interface Access Filtering | Web, Telnet / SSH , CLI RS-232 console |
| Management Features | |
| CLI | Cisco® like CLI |
| Web Based Management | |
| Telnet | Server |
| SNMP | V1, V2c, V3 |
| Modbus/TCP | Support for management and monitoring |
| SW & Configuration Upgrade | TFTP, HTTP Redundant firmware in case of upgrade failure |
| RMON | RMON I (1, 2, 3, 9 group), RMON II |
| MIB | RFC1213 MIB II, Private MIB |
| UPnP | Supported |
| DHCP | Server/Client/Relay/Relay option 82/Snooping |
| IP Source Guard | Supported |
| Mirroring | Local and Remote |
| Event Syslog | Syslog server (RFC3164) (Support 1 server) |
| Warning Message | System syslog, e-mail, alarm relay |
| DNS | Client, Proxy |
| IEEE 1588 PTP V2 | Supports 5 operating mode in each port : Ordinary-Boundary, Peer to Peer Transparent Clock, End to End Transparent Clock, Master, Slave |
| NTP V4.0, SNTP | Client |
| SNLLDP (IEEE 802.1ab)MP | Link Layer Discovery Protocol LLDP-MED |
| IPv6 Features | |
| IPv6 Management | Telnet Server/ICMP v6 |
| SNMP over IPv6 | Supported |
| HTTP over IPv6 | Supported |

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| SSH over IPv6 | Supported |
| IPv6 Telnet | Supported |
| IPv6 NTP, SNTP | Client |
| IPv6 TFTP | Supported |
| IPv6 QoS | Supported |
| IPv6 ACL | Number of rules: up to 256 entries for L2 / L3 / L4 L2 : Mac address SA/DA/VLAN L3 : IP address SA/DA, Subnet L4 : TCP/UDP |

Advanced PoE Management
 PoE PD failure auto checking, and auto reset when PD fail
 PoE port on/off weekly scheduling
 PoE Configuration
 PoE Enable/Disable
 Power limit by classification
 Power limit by management
 Total PoE Power budget limitation management:
 Maximum 400W power budget
 Power feeding priority

Others Features
Green Ethernet
 Supports IEEE 802.3az EEE (Energy Efficient Ethernet)
 Management to optimize the power consumption
 Determine the cable length and lowering the power for ports with short cables
 Lower the power for a port when there is no link
 LED Power Management : Adjustment LEDs intensity
Cable Diagnostic
 Measuring UTP cable normal or broken point distance

Application

Figure 1 : 10G Backbone application

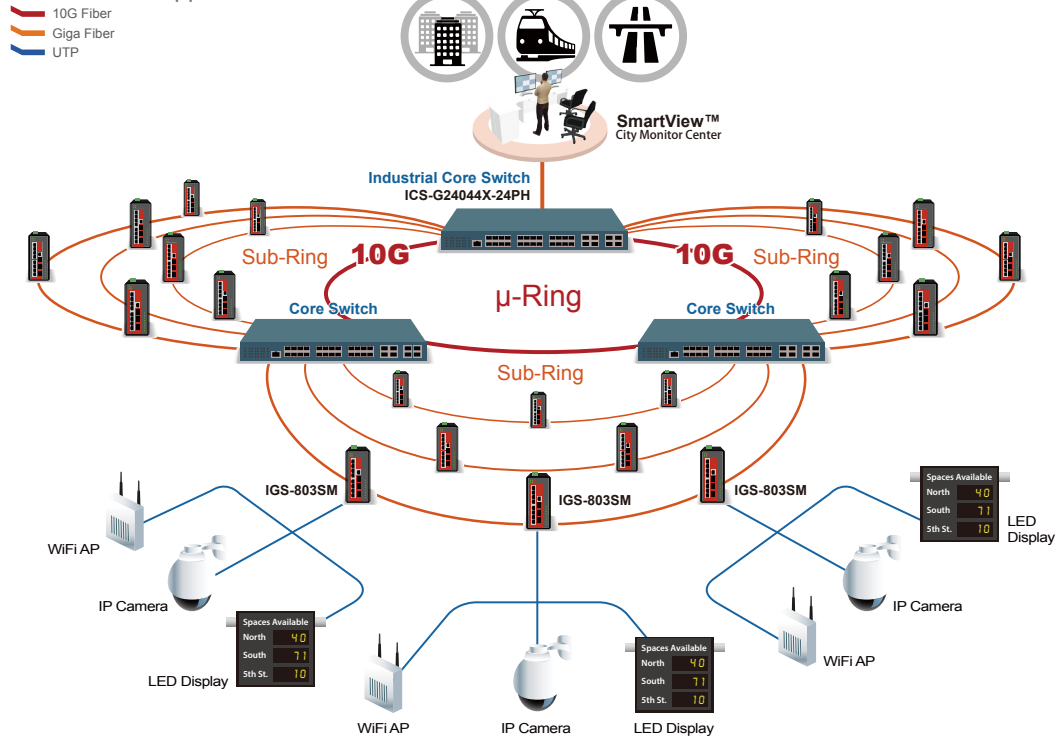
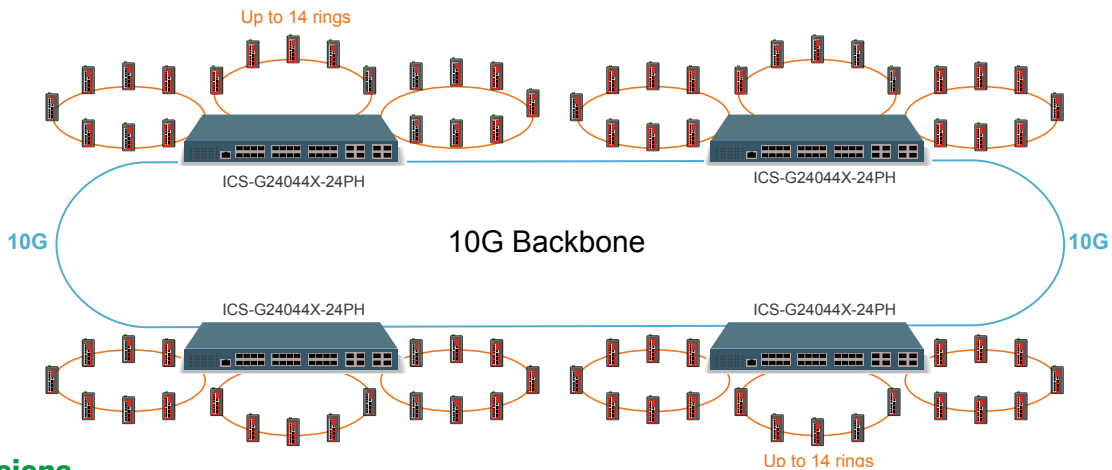


Figure 2 : 10G Backbone with μ -Ring topology



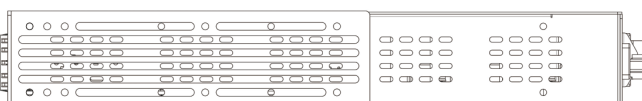
Dimensions

-DD Power

Rear View



Side View

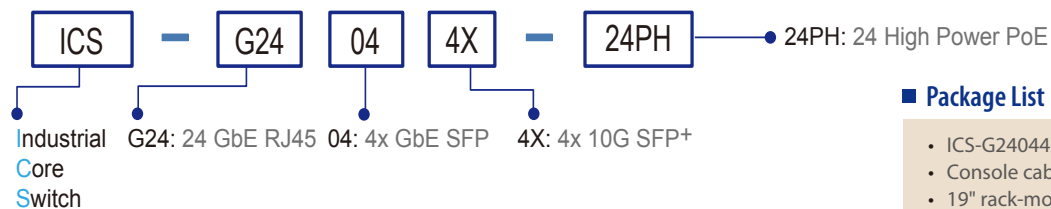




Ordering Information

| Model Name | Total Port | GbE Port | | 10 GbE | PoE port | | Input power | Certification | | | Operating Temperature | |
|------------------|------------|----------------------------|---------------------|-----------------------|-----------------|--------------|-------------|---------------|----------------------------|-----------|-----------------------|-------------------------|
| | | 10/100/1000 Base-T(X) RJ45 | 100/1000 Base-X SFP | G/2.5G/10GBase-X SFP+ | IEEE 802.3at/af | Power Budget | | 48VDC | Safety UL60950-1 EN60950-1 | EN50121-4 | | EN61000-6-2 EN61000-6-4 |
| ICS-G24044X-24PH | 32 | 24 | 4 | 4 | 24 | 400W | 2 | V | V | V | V | -10 ~ 60°C |

Model Naming Rule



Package List

- ICS-G24044X-24PH device
- Console cable (RJ-45 to DB-9)
- 19" rack-mount kit (brackets and screws)
- Protective caps for SFP ports

Optional Accessories

Industrial SFP Transceiver

The ISFP series of industrial grade SFP modules have been fully tested with the series product for guaranteed compatibility and performance. The best performance can be guaranteed even in mission-critical applications.

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|---------------------------|---|
| ISFP-M9000-85-D(E) | Industrial SFP 10GbE 10GBase-SR, M/M, 300 meter (OM3 fiber), wave length 850nm, DDML, -10~70°C (-40~85°C) |
| ISFP-S9010-31-D(E) | Industrial SFP 10GbE 10GBase-LR, S/M, 10km, wave length 1310nm, DDML, -10~70°C (-40~85°C) |
| ISFP-M7000-85-D(E) | Industrial SFP GbE 1000Base-SX, M/M, 500 meter, wave length 850nm, 7.5dB, LC, DDML, -10~70°C (-40~85°C) |
| ISFP-S7020-31-D(E) | Industrial SFP 1000Base-LX, S/M, 20km, wave length 1310nm, 15dB, LC, DDML, -10~70°C (-40~85°C) |
| ISFP-T7T00-00-(E) | Industrial SFP 10/100/1000Base-T UTP 100meter, -10~70°C (-40~85°C) |
| ISFP-M5002-31-D(E) | Industrial SFP 155M 100Base-FX, MM, 2km, wave length 1310nm, 12dB, LC, DDML, -10~70°C (-40~85°C) |
| ISFP-S5030-31-D(E) | Industrial SFP 155M 100Base-FX, SM, 30km, 1310nm, 19dB, LC, DDML, -10~70°C (-40~85°C) |

SFP Naming Rule

