

ICS-G24044X & ICS-G4804X

◀ 24x GbE RJ45 + 4x 100/1000Base SFP + 4x 1G/2.5G/10G SFP+

▶ 48x GbE RJ45 + 4x 1G/2.5G/10G SFP+



- Support u-Ring, ERPS, EPS, MSTP, RSTP, STP for redundant cabling
- Supports maximum up to 14 u-rings in one device
- EN62368-1, CE, FCC certified
- 4KV surge protection for RJ45 and SFP ports
- Supports negative voltage power input



ICS-G24044X and ICS-G4804X are industrial grade, hardened design, managed L2+ switches, built for the rigorous demands of centralized and critical applications. The switch supports 4-ports 10GbE SFP+ and 24 / 48 GbE (10/100/1000BaseTX) RJ-45 ports, plus 4 dual speed (100/1000Base-X) SFP fiber optical slots. ICS series models are all fan-less designs with redundant, isolated power supplies (2 AC, 2 DC, AC + DC) and can be mounted in 19-inch EIA standard rack. ICS Series are certified with many industrial-grade standards and are ideal for deployments in harsh environments to deliver mission-critical network services. This product is ideal for Smart City, surveillance, Intelligent traffic control systems and production automation applications.

Features

- Redundant isolated 24/48/-48VDC (18~60VDC), or/and isolated 110/220VAC power inputs
- Supports negative voltage power input
- 2.25K VDC Hi-pot isolation protection for Ethernet ports and power
- STP, RSTP, MSTP, ITU-T G.8032 Ethernet Ring Protection Switching (ERPS) for network redundancy
- Provides 14 instances each can support μ -Ring, u-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 (ICS-G24044X)
- Supports SmartView™ for Centralized Management*

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

Specifications

Standard	IEEE 802.3 10Base-T 10Mbit/s Ethernet IEEE 802.3u 100Base-TX, 100Base-FX, Fast Ethernet IEEE 802.3ab 1000Base-T Gbit/s Ethernet over twisted pair IEEE 802.3z 1000Base-X Gbit/s Ethernet over Fiber-Optic IEEE 802.3ae 10 Gbit/s Ethernet over fiber IEEE 802.1d STP (Spanning Tree Protocol) IEEE 802.1w RSTP (Rapid Spanning Tree Protocol) IEEE 802.1s MSTP (Multiple Spanning Tree Protocol) ITU-T G.8032 / ERPS (Ethernet Ring Protection Switching) Y.1344 ITU-T G.8031 / EPS (Ethernet Protection Switching) Y.1342 IEEE 802.1Q Virtual LANs (VLAN) IEEE 802.1X Port based and MAC based Network Access Control, Authentication IEEE 802.3ac Max frame size extended to 1522Bytes IEEE 802.3ad Link aggregation for parallel links with LACP(Link Aggregation Control Protocol) 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)	Network Cable UTP/STP Cat.5e cable or above EIA/TIA-568 100-ohm (100meter)
VLAN ID	4094 IEEE 802.1Q VLAN VID	Protocols CSMA/CD
Switch Architecture	Back-plane (Switching Fabric): 136Gbps (ICS-G24044X) 156Gbps (ICS-G4804X) (Full wire-speed)	Reverse Polarity Protection for input power
Data Processing	Store and Forward	Overload Current Protection Supported
Network Connector	10GbE SFP+ : 4x 1G/2.5G/10G SFP socket Supports DDMI GbE SFP: 4x 100/1000Base-X SFP socket (ICS-G24044X) Support DDMI RJ45: 24x 10/100/1000Base-T RJ-45 (ICS-G24044X) 48x 10/100/1000Base-T RJ-45 (ICS-G4804X) Support Auto negotiation speed, Auto MDI/MDI-X function	CPU Watch Dog Supported
Console	RS-232 (RJ-45)	Power Supply Redundant 2x AC input power (-AA model) Redundant 1x AC and 1x DC input power (-AD model) Redundant 2x DC input power (-DD model) AC input power (A) : Isolated 110/220VAC (85VAC~264VAC) DC input power (D) : Isolated 24/48/-48VDC (18~60VDC), Removable Terminal Block Supports negative voltage power input
		Power Consumption Consumption: <33W (ICS-G24044X) TBD (ICS-G4804X)
		LED Per unit: Power 1 (Green), Power 2 (Green), Act /Alarm (Green/Amber), Ring Master (Green) P1~P24 (ICS-G24044X) Per RJ-45 port: 10/100 Link/Active (Green) 1000 Link/Active (Amber) P25~P32 (ICS-G24044X) Per SFP Fiber port: Link/Active (Amber) TBD (ICS-G4804X)
		Jumbo Frame 10K Byte
		MAC Address Table 32K
		Memory Buffer 4M Bytes for packet buffer
		Device Memory 16M Bytes Flash ROM, 1G Bytes RAM
		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 -40 ~ 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	4,755kg (ICS-G24044X-AA) 4.51kg (ICS-G24044X-AD) 4.26kg (ICS-G24044X-DD) TBD (ICS-G4804X)
Installation Mounting	19" rack mount
MTBF	103,057 Hours (ICS-G24044X-AA) 103,451 Hours (ICS-G24044X-AD) 103,447 Hours (ICS-G24044X-DD) TBD (ICS-G4804X) (MIL-HDBK-217)
Warranty	5 years
Certification	
EMC	CE (EN55032, EN55035)
EMI (Electromagnetic Interference)	FCC Part 15 Subpart B Class A, CE

Software Specifications

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 Private VLAN for port isolation GVRP (GARP VLAN Registration Protocol) MVR (Multicast VLAN Registration) Voice VLAN
Link Aggregation (Port Trunk)	Static (IEEE 802.3ad LACP), Maximum trunk group: 16group (ICS-G24044X) 26group (ICS-G4804X) Dynamic (IEEE 802.3ad LACP), Maximum trunk group: 16group (ICS-G24044X) 26group (ICS-G4804X) 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 <50ms Single Ring, Sub-Ring, Multiple ring topology
ITU-T G.8031 / Y.1342 EPS (Ethernet Protection Switching)	Supported
QoS Features	
Class of Service	IEEE 802.1p 8 active priorities queues 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) Remarking	
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
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

	EN61000-4-3 (RS) Level 3, Criteria A 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	EN62368-1
Hi pot protection	DC 2.25KV for power to chassis ground, Ethernet port to chassis ground
4KV surge protection	Supported for RJ45 and SFP ports
Shock	IEC 60068-2-27
Freelfall	IEC 60068-2-32
Vibration	IEC 60068-2-6

RADIUS authentication & accounting	
TACACS+ authentication & accounting, TACACS+ 3.0	
HTTPS, HTTP	Supported
SSL / SSH v2	Supported
User Name Password Authentication	Local 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
sFlow	Supported
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)
Warning Message	System syslog, e-mail, alarm relay
DNS	Client, Proxy
IEEE 1588 PTP V2 (ICS-G24044X)	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
LLDP (IEEE 802.1ab)	Link Layer Discovery Protocol LLDP-MED
IPv6 Features	
IPv6 Management	Telnet Server/ICMP v6
SNMP over IPv6	Supported
HTTP over IPv6	Supported
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 SIP, Subnet (32bit) L4 : TCP/UDP
Other 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

Applicatio

Figure 1 : 10G Backbone application

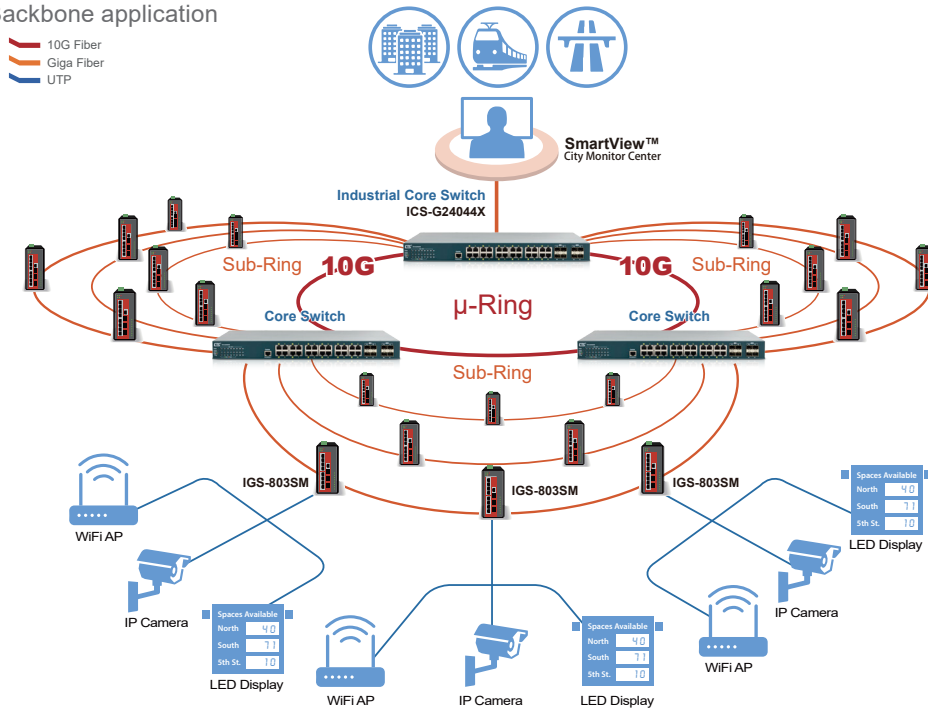
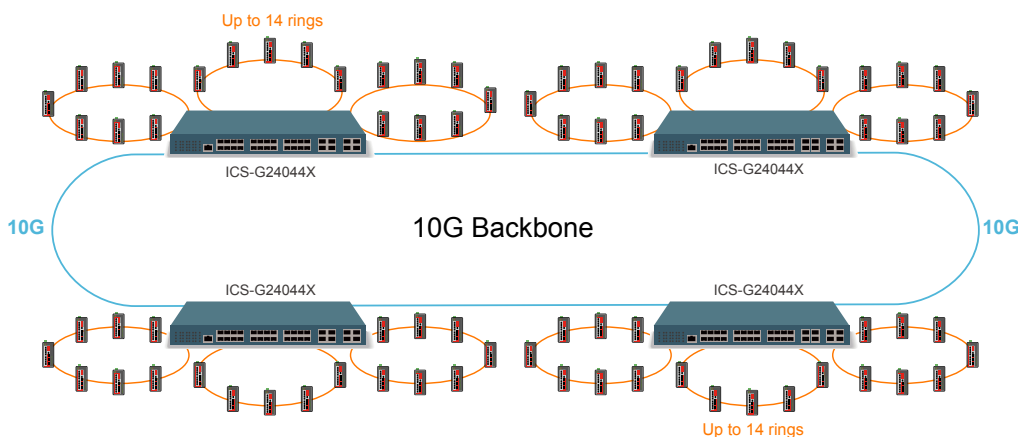


Figure 2 : 10G Backbone with μ-Ring topology



Dimensions

Rear View

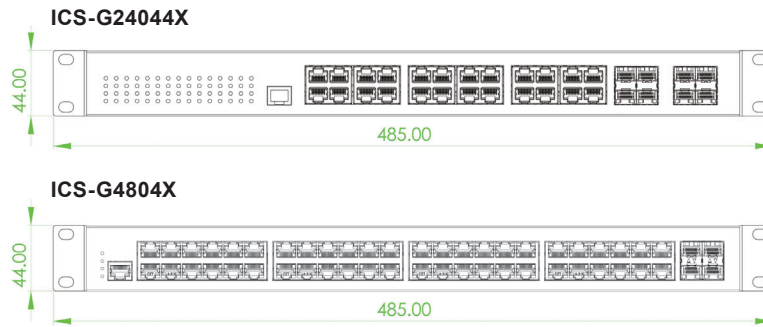
ICS-G24044X



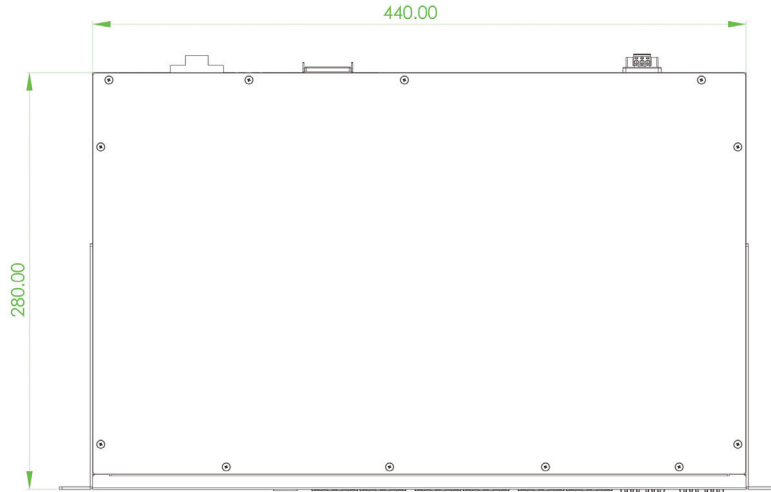
ICS-G4804X



Front View



Top View



Side View



Ordering Information

Model Name	Managed	Total Ports (Maximum)	GbE		10GbE	Input Power		Certification	
			10/100/1000 Base-T(X) RJ45	100/1000 Base-X SFP	1G/2.5G/10GBase-X SFP+	24/48/48VDC	110/220VAC	Safety EN62368-1	CE, FCC
ICS-G24044X-AA	V	32	24	4	4		2	V	V
ICS-G24044X-AD	V	32	24	4	4	1	1	V	V
ICS-G24044X-DD	V	32	24	4	4	2		V	V
ICS-G4804X-AA	V	52	48		4		2	V	V
ICS-G4804X-AD	V	52	48		4	1	1	V	V
ICS-G4804X-DD	V	52	48		4	2		V	V

Package List

- ICS-G4804X or ICS-G24044X device
- Console cable (RJ-45 to DB-9)
- 19" rack-mount kit (brackets and screws)
- Protective caps for SFP ports
- AC Power cord (for AC power -A model)

Optional Accessories

Industrial SFP Transceiver

The ISFP series of industrial grade SFP modules have been fully tested with all CTC Union industrial grade Ethernet switches for guaranteed compatibility and performance. Best performance can be guaranteed, even in mission-critical applications. (Please see CTC Union's Industrial SFP datasheets for more items and detailed information.)

ISFP-M9000-85-D(E)	Industrial SFP 10GbE 10GBase-SR, M/M, 300 meter (OM3 fiber), wave length 850nm, DDMI, -10~70°C (-40~85°C)
ISFP-S9010-31-D(E)	Industrial SFP 10GbE 10GBase-LR, S/M, 10km, wave length 1310nm, DDMI, -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, DDMI, -10~70°C (-40~85°C)
ISFP-S7020-31-D(E)	Industrial SFP 1000Base-LX, S/M, 20km, wave length 1310nm, 15dB, LC, DDMI, -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, DDMI, -10~70°C (-40~85°C)
ISFP-S5030-31-D(E)	Industrial SFP 155M 100Base-FX, SM, 30km, 1310nm, 19dB, LC, DDMI, -10~70°C (-40~85°C)

Industrial Power Supply

NDR-120-48	Industrial Power, Input 90 ~ 264VAC/127 ~ 370VDC, Output 48VDC, 120W, -20 ~ +70°C (For DC type)
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