

IQS-402XSM-4PH Industrial Managed 2.5G/10G PoE Switch

4x 2.5G RJ45 + 2x 1G/2.5G/10G SFP+ with 4x PoE 120W, Compact Size

- » Advanced PoE Management, PoE PD Failure Auto Checking and Auto Reset When PD Fail, PoE Port On/Off Weekly Scheduling
- » Redundant 48VDC Power Input
- » Supports μ -Ring, ERPS, EPS, MSTP, RSTP, STP for Redundant Cabling
- » EN50121-4, EN61000-6-2, EN61000-6-4, CE and FCC Certified



The industrial 2.5G PoE Ethernet switch IQS-402XSM-4PH features 4 2.5G UTP ports, each supporting 30W PoE+. Equipped with 2 10G SFP+ slots to meet high-bandwidth transmission requirements, fanless design, high MTBF, supports wide operating temperature, and redundant 48VDC power input, it is suitable for heavy-duty applications in harsh environments such as industrial factory automation and data centers, intelligent transportation systems, military and utility market applications where environmental conditions exceed commercial product specifications.

Features

- 4x 10/100/1G/2.5G Base-T RJ-45 + 2x 1G/2.5G/10G Base-X SFP+ with 4x PoE, total 120W power budget
- Provides 3 ring instances that each can support μ -Ring, μ -Chain or Sub-Ring type for flexible uses.
- Supports up to 3 rings in one device (Please see CTC μ -Ring white paper for more details and more topology application)
- DHCP Server/Client/Relay/Snooping/Snooping option 82/Relay option 82
- QoS, Traffic classification QoS, CoS, bandwidth control for Ingress and Egress, Storm Control, DiffServ
- IEEE802.1q VLAN, MAC based VLAN, IP subnet based VLAN, Protocol based VLAN, VLAN translation, GVRP, MVR
- Dynamic IEEE 802.3ad LACP Link Aggregation, Static Link Aggregation
- IGMP snooping V1/V2/V3, IGMP Filtering/ Throttling, IGMP query, IGMP proxy reporting, MLD snooping V1/V2
- Flexibility security: Port based and MAC based IEEE802.1X, RADIUS, ACL, TACACS+, HTTP/HTTPS, SSL/SSH v2
- Software upgrade via TFTP and HTTP, redundant firmware to avoid upgrade failure
- RMON, MIB II, Port mirroring, Event syslog, DNS, NTP, SNTP, IEEE802.1ab LLDP
- Supports IPv6 Telnet server /ICMP v6
- CLI, Web based management, SNMP v1/v2c/v3, Telnet server for management

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 802.3bz	2.5GBase-T
	IEEE 802.3z	1000Base-X Gbit/s Ethernet over Fiber-Optic
	IEEE 802.3ae	10G bit/s Ethernet over Fiber
	ITU-T G.8032 / Y.1344	ERPS (Ethernet Ring Protection Switching)
	ITU-T G.8031 / Y.1342	EPS (Ethernet Protection Switching)
	IEEE 802.1d	STP (Spanning Tree Protocol)
	IEEE 802.1w	RSTP (Rapid Spanning Tree Protocol)
	IEEE 802.1s	MSTP (Multiple Spanning Tree Protocol)
	IEEE 802.1Q	Virtual LANs (VLAN)
	IEEE 802.1X	Port based and MAC based Network Access Control, Authentication

Standard	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 802.3af	PoE (Power over Ethernet)		
	IEEE 802.3at	PoE+ (Enhance Power over Ethernet)		
Switch Architecture	Back-Plane (Switching Fabric): 60Gbps (Full Wire-Speed)			
Data Processing	Store and Forward			
Flow Control	IEEE 802.3x for full duplex mode Back pressure for half duplex mode			
Network Connector	4x 10M/100M/1G/2.5GBase-T RJ-45 + 2x 1G/2.5G/10GBase-X SFP			
	RJ-45 UTP port supports Auto negotiation			
	Auto MDI/MDI-X function			
	SFP port supports 1G/2.5G/10G speed with DDMI			
PoE Standard & RJ-45 Pin Assignment	4x IEEE 802.3af/at PoE+ End-Span, Alternative A mode. Positive (V+) : RJ-45 pin 1, 2. Negative (V-) : RJ-45 pin 3, 6. Data (1, 2, 3, 6, 4, 5, 7, 8)			
Network Cable	UTP/STP Cat. 5e cable or above			
	EIA/TIA-568 100-ohm (100meter)			
Protocols	CSMA/CD			
Overload Current Protection	Supported			
CPU Watch Dog	Supported			
Power Supply	Redundant dual power input 48VDC (44~57VDC) (Removable terminal block)			
	(50~57VDC input is recommended for IEEE 802.3at PoE+ in 30W applications)			
Power Consumption	Input Voltage	Total Power Consumption	Device Power Consumption	PoE Budget
	50VDC	139.4W	14W	120W
PoE Power Budget	Maximum PoE Output power budget 30W/port, Total 120W			
LED	System: Power 1 (Green), Power 2 (Green)			
	UTP: 10/100 Link/Active (Green), 1G/2.5G Link/Active (Amber)			
	SFP Slot: Link/Active (Green)			
	PoE: ON (Green)			
Jumbo Frame	9.6K Byte			
IEEE802.3ac	Max frame size extended to 1522Bytes (allow Q-tag in packet)			
MAC Address Table	8K			
Memory Buffer	512K Bytes for packet buffer			
Device Memory	128M Bytes Flash ROM, 256M 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			
Removable Terminal Block	Provides redundant power PWR1, PWR2 and Alarm Relay, 6 pin			
Operating Temperature	-10 ~ 60°C			
Operating Humidity	5% to 95% (Non-condensing)			
Storage Temperature	-40 ~ 85°C			
Housing	Rugged Metal, IP30 Protection, Fanless			
Dimensions	127.6 x 48.6 x 160mm (D x W x H)			
Weight	1,535g			
Installation Mounting	DIN Rail mounting or wall mounting (Optional)			
MTBF	531,055 Hours (MIL-HDBK-217)			

Certification

EMC	CE (EN55032, EN55035)
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) Protection Level	EN61000-4-2 (ESD) Level 3, Criteria B 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
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-31
Vibration	IEC 60068-2-6

Software Specifications

Topology

VLAN	IEEE 802.1q VLAN, up to 4094 802.1Q VLAN ID 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 (Hash with SA, DA, IP, TCP/UDP port), up to 5 trunk group Dynamic (IEEE 802.3ad LACP), up to 5 trunk group
Spanning Tree	IEEE802.1d STP IEEE802.1w RSTP IEEE802.1s MSTP
Multiple μ-Ring	Up to 5 instances that each supports μ -Ring, μ -Chain or Sub-Ring type for flexible uses, and maximum up to 5 Rings Recovery time <10ms The maximum number of device is allowed 250 nodes in a Ring.
ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection)	Recovery time <50ms Single Ring, Sub-Ring, Multiple ring topology network
ITU-T G.8031 / Y.1342 EPS (Ethernet Protection Switching)	Supported
Loop Protection	Supported
QoS Features	
Class of Service	IEEE802.1p 8 active priorities queues for per port
Traffic Classification QoS	IEEE802.1p based CoS IP Precedence based CoS IP DSCP based CoS 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	100~1,000,000 when the "Unit" is "kbps", and 1~1,000 when the "Unit" is "Mbps"
Bandwidth Control for Egress	100~1,000,000 when the "Unit" is "kbps", and 1~1,000 when the "Unit" is "Mbps" Per queue / Port shaper

DiffServ (RF 2474) Remarking**Storm Control** For Unicast, Broadcast and 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

RADIUS Authentication & Accounting**TACACS+** Authentication, Authorization and Accounting**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

Management Features**CLI** Cisco® like CLI**Web UI** Supported**Telnet** Server**SNMP** V1, V2c, V3**sFlow** Supported**Modbus/TCP** Support for management and monitoring

SW & Configuration Upgrade SFTP, 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**Port Mirroring** Supported**Event Syslog** Syslog server (RFC3164) (Supports 4 servers)**Warning Message** System syslog, SMTP/e-mail event message, alarm relay**DNS** Client, Proxy**NTP, 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

Advanced PoE

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

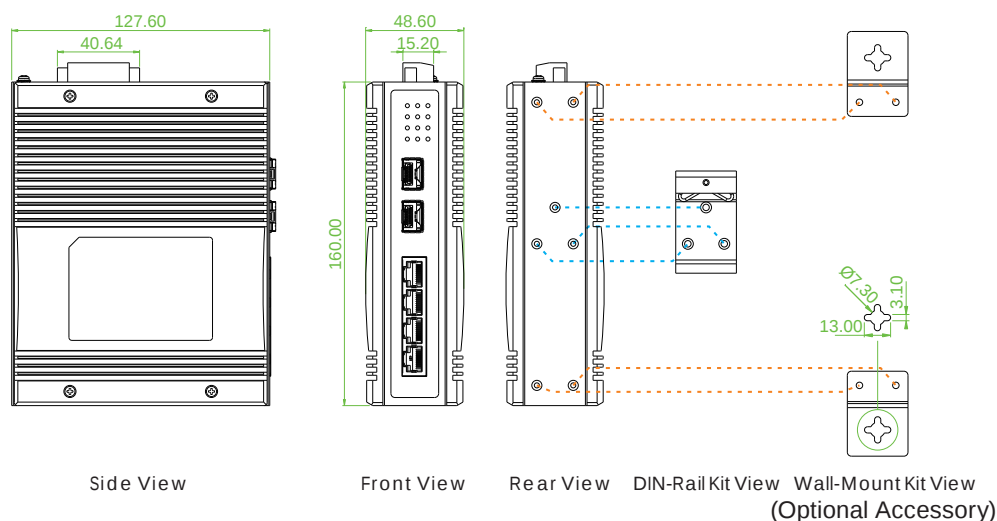
Power limit by classification

Power limit by management

Total PoE power budget limitation: maximum 120W

Power feeding priority

Dimensions



Ordering Information

Model Name	Total Ports	RJ45	SFP	PoE		Redundant Power Input	Certification		
		10/100/1G/2.5G Base-T(X)	1G/2.5G/10G	IEEE802.3af/at	Power Budget		EN50121-4	EN61000-6-2 EN61000-6-4	CE FCC
IQS-402XSM-4PH	6	4	2	4	120W	48VDC	V	V	V

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 10GBase-SR MM, 300meter, wave length 850nm LC, DDMI, -10~70°C (-40~85°C)
ISFP-S9010-31-D(E)	Industrial SFP 10GBase-LR SM, 10km, 1310nm, 6.4dB, LC, 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)

■ Industrial Power Supply

NDR-120-48	Industrial Power, Input 90 ~ 264VAC/127 ~ 370VDC, Output 48VDC, 120W, -20 ~ 70°C (IQS-402XSM-4PH)
NDR-240-48	Industrial Power, Input 90 ~ 264VAC/127 ~ 370VDC, Output 48VDC, 240W, -20 ~ 70°C (For more ref.)