IGS-402SW-4PB

4x GbE RJ45 + 2x 100/1000Base-X SFP with 4x IEEE802.3bt PoE++ 240W, 48VDC

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- *Supports MSTP, RSTP, STP for Redundant Cabling*
- *Auto Checking and Auto Reset When PoE PD Fail*
- *4KV Surge Protection for PoE, RJ45 and SFP Ports*
- *EN50121-4, EN61000-6-2, EN61000-6-4, CE and FCC Certified*

The industrial 90W PoE Ethernet switch IGS-402SW-4PB, Layer 2 managed, has 4 Gigabit UTP ports, each port complies with the IEEE802.3bt 90W PoE++ standard. Equipped with two 100/1000Mbps SFP slots for fiber optic connections to meet the requirements for extended transmission distance, fanless design, high MTBF, and supports wide operating temperature, redundant 48VDC power input, suitable for heavy-duty applications in harsh environments, such as industrial factory automations, data centers, intelligent transportation systems, military and utility market applications where environmental conditions exceed commercial product specifications.

Features

- 48VDC (44~57VDC) redundant dual power input
- Provides 4-port IEEE802.3bt PoE++ output (90W per port, total 240W)
- Cable diagnostics, identifies opens/shorts distance
- Supports EMS 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 802.3z	1000Base-X Gbit/s Ethernet over Fiber-Optic
	IEEE 802.3af	PoE (Power over Ethernet)
	IEEE 802.3at	PoE+ (Power over Ethernet enhancements)
	IEEE802.3bt	PoE++
	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
	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)

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Switch Architecture	Back-Plane (Switching Fabric): 12Gbps (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 10/100/1000Base-T RJ-45 + 2x 100/1000Base-X SFP
	RJ-45 UTP port supports Auto negotiation speed, Auto MDI/MDI-X function
	SFP port supports 100/1000 dual speed with DDMI
Console	USB Type C
PoE Standard & RJ-45 Pin Assignment	4x IEEE 802.3af/at/bt PoE++ 4 pairs PoE, 90W/port End-Span, Alternative A and B mode. Positive (V+) : RJ-45 pin 1, 2, 4, 5 Negative (V-) : RJ-45 pin 3, 6, 7, 8
Network Cable	UTP/STP Cat. 5e cable or above
	EIA/TIA-568 100-ohm (100meter)
Protocols	CSMA/CD
Reverse Polarity Protection	Supported for power input
Overload Current Protection	Supported
CPU Watch Dog	Supported
Power Supply	Redundant Dual DC 48V (44~57VDC) input power, (Removable terminal block) Below recommended is for different PoE application 54~57VDC VDC for 90W (4 Pairs) PoE application 52~57VDC for 60W (4 Pairs) PoE application 52~57VDC for 30W (2 Pairs) PoE application 44~57VDC for 15.4W (2 Pairs) PoE application
Power Consumption	

Input Voltage	Total Power Consumption	Device Power Consumption	PoE Budget
57VDC	254	9	240

PoE Power Budget	Maximum PoE Output power budget 90W/port Total 240W
LED	System: Power 1 (Green), Power 2 (Green),
	UTP: 10/100 Link/Active (Green), 1000 Link/Active (Amber)
	SFP Slot: Link/Active (Green)
	PoE: ON (Green)
Jumbo Frame	9KB
IEEE802.3ac	Max frame size extended to 1522Bytes (allow Q-tag in packet)
MAC Address Table	4K
Memory Buffer	220K Bytes for packet buffer
Device Memory	128M Bytes Flash ROM, 256M Bytes RAM
Warning Message	System Syslog, SMTP/ e-mail event message
Removable Terminal Block	Provide 2 redundant power, 4 Pin
Operating Temperature	-10 ~ 60°C (IGS-402SW-4PB) -40 ~ 75°C (IGS-402SW-4PBE)
Operating Humidity	5% to 95% (Non-condensing)
Storage Temperature	-40 ~ 85°C
Housing	Rugged Metal, IP30 Protection, Fanless
Dimensions	106 x 38.6 x 152mm (D x W x H)
Weight	635g
Installation Mounting	DIN Rail mounting or wall mounting (Optional)
MTBF	772,953 Hours (MIL-HDBK-217)
Warranty	5 years
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
Surge Protection	4KV for PoE, UTP and Fiber ports
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
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 (Ethernt, 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	IEEE 802.1D STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP
Loop Protection	Supported
QoS Features	
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
	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, Console
Management Features	
CLI	Cisco® like CLI
Web UI	Supported
Telnet	Server
SNMP	V1, V2c, V3
sFlow	Supported
Modbus/TCP	Supports for management and monitoring
SW & Configuration Upgrade	SFTP, TFTP, HTTP
	Redundant firmware in case of upgrade failure
FTP client	Supports for upload/download configuration
RMON	RMON I (1, 2, 3, 9 group), RMON II
MIB	RFC1213 MIB II, Private MIB
UPnP	Supported
BOOTP	Supported
DHCP	Server, Client, Relay, Relay option 82, Snooping
RARP	Supported
IP Source Guard	Supported
Port Mirroring	Supported
Event Syslog	Syslog server (RFC3164)
Warning Message	System syslog, e-mail
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
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

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 feeding priority
Total PoE power budget limitation: maximum 240W

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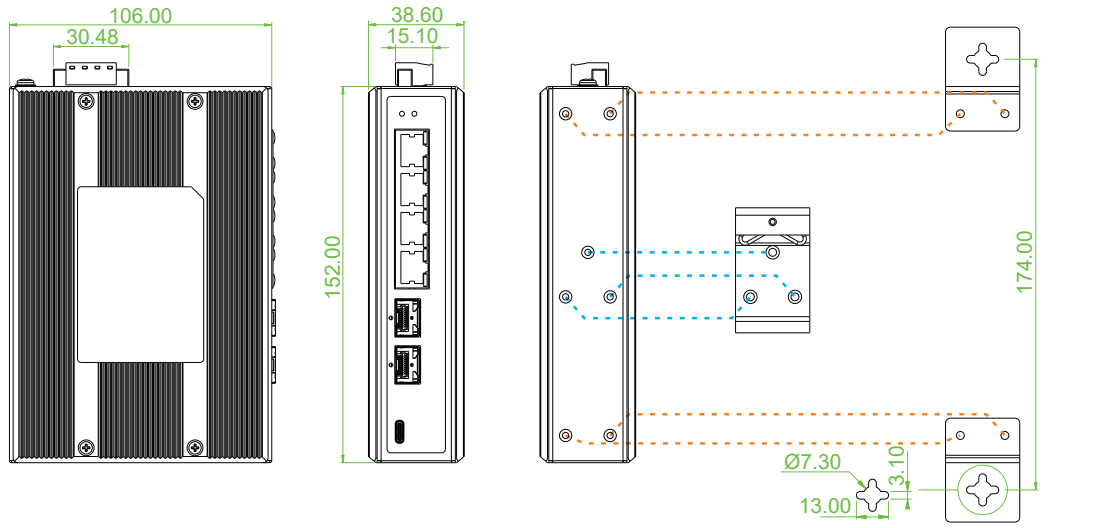
Dimensions



Side View | Front View | Rear View | DIN-Rail Kit View | Wall-Mount Kit View (Optional Accessory)

Ordering Information

Model Name	Total Port	RJ45	SFP	PoE		Input Power	Certification			Operating Temperature
		10/100/1000 Base-T(X)	100/1000 Base-X	IEEE 802.3 af/at/bt 90W	Power Budget	Redundant	EN50121-4	EN61000-6-2 EN61000-6-4	CE FCC	
IGS-402SW-4PB	6	4	2	4	240W	48VDC	V	V	V	-10~60°C
IGS-402SW-4PBE	6	4	2	4	240W	48VDC	V	V	V	-40~75°C

Optional Accessories

■ Wall Mount Kit

IND-WMK05	Wall Mount kit for Industrial product (2pcs in 1 set, 42 x 30mm)

■ 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-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-240-48	Industrial Power, Input 90 ~ 264VAC/127 ~ 370VDC, Output 48VDC, 240W, -20 ~ 70°C
NDR-480-48	Industrial Power, Input 90 ~ 264VAC/127 ~ 370VDC, Output 48VDC, 480W, -20 ~ 70°C (For more ref.)