Industrial 8-Port 10/100/1000T 802.3at PoE + 2-Port 100/1000X SFP Managed Switch with Wide Operating Temperature

Environmentally Hardened Design

The Industrial 8-Port Gigabit 802.3at PoE Switch, IGS-10020HPT is equipped with rugged IP30 metal case for stable operation in heavy Industrial demanding environments. With IP30 industrial case protection, the IGS-10020HPT provides a high level of immunity against electromagnetic interference and heavy electrical surges which are usually found on plant floors or in curb side traffic control cabinets. Being able to operate under wide temperature range from -40 to 75 Degree C, the IGS-10020HPT can be placed in almost any difficult environment. The IGS-10020HPT also allows either DIN rail or wall mounting for efficient use of cabinet space.

High Power PoE for Security and Public Service Applications

To fulfill the demand of High Power PoE for network applications with Gigabit speed transmission under wide temperature, the IGS-10020HPT provides 8 10/100/1000Mbps port featuring both IEEE 802.3af and High Power IEEE 802.3at Power over Ethernet (PoE) that combines up to 270 Watts power output and data per port over one Cat.5E / 6 Ethernet cable. With totally 270 Watts PoE budget on whole system, the IGS-10020HPT is designed specifically to satisfy the growing demand of higher power consuming network PD (powered devices) such as PTZ (Pan, Tilt & Zoom) / Speed Dome network cameras, multi-channel (802.11a / b / g / n) wireless LAN access points and other PoE network devices by providing double PoE power than conventional 802.3af PoE currently.

Physical Port

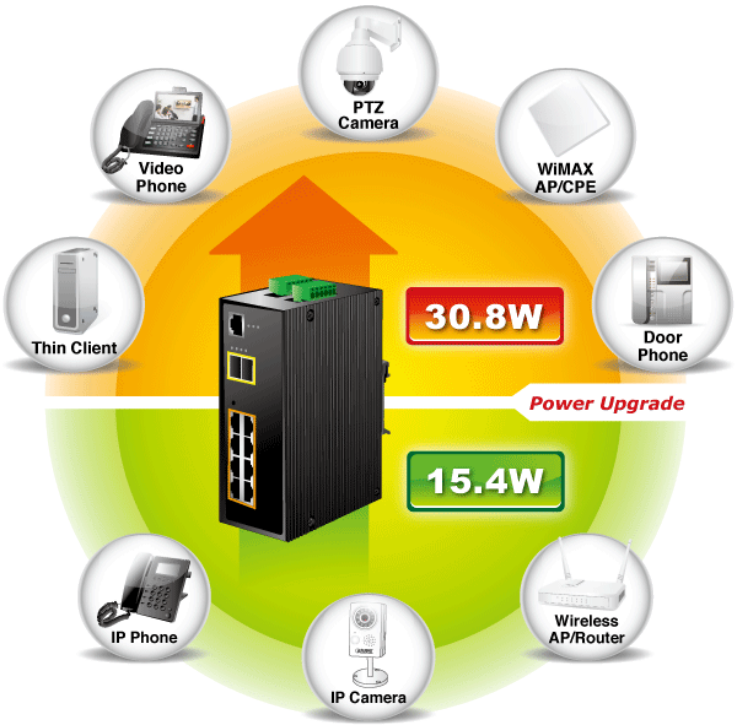
- 8-Port 10/100/1000Base-T Gigabit Ethernet RJ-45 with IEEE 802.3af / 802.3at PoE Injector
- 2 100/1000Base-X mini-GBIC/SFP slots, SFP type auto detection
- One RJ-45 console interface for basic management and setup

Power over Ethernet

- Complies with IEEE 802.3af / IEEE 802.3at Power over Ethernet / End-Span PSE
- Up to 8 IEEE 802.3af / 802.3at devices powered
- Supports PoE Power up to 30.8 Watts for each PoE ports
- Auto detect powered device (PD)
- Circuit protection prevent power interference between ports
- Remote power feeding up to 100m
- PoE Management features
  - IEEE 802.3af and IEEE 802.3at mode switch control
  - Total PoE power budget control
  - Per port PoE function enable/disable
  - PoE Admin-mode control
  - PoE Port Power feeding priority
  - Per PoE port power limit
  - PD classification detection
  - Temperature Threshold Control
  - PoE Usage Threshold Control
  - PD Alive Check
  - PoE schedule

Industrial Case / Installation

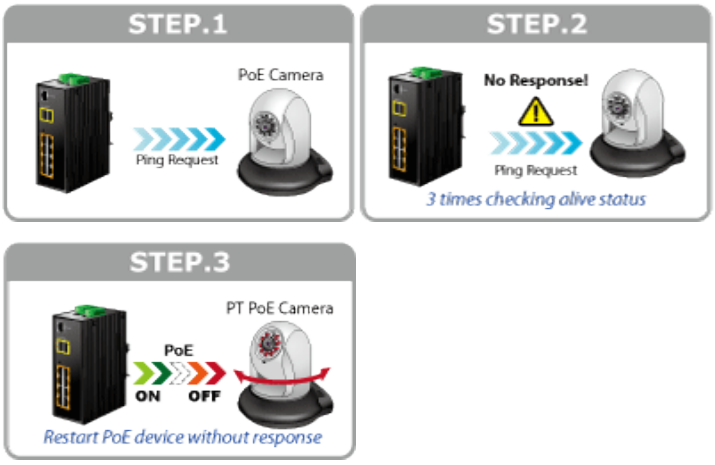
- IP30 Aluminum metal case protection
- DIN Rail and Wall Mount Design
- 48V DC, redundant power with polarity reverse protect function
- Supports EFT protection 6000 VDC for power line
- Supports 6000 VDC Ethernet ESD protection
- -40 to 75 Degree C operating temperature



Intelligent Alive Check for Powered Device

The IGS-10020HPT PoE Switch can be configured to monitor connected PD's status in real-time via ping action. Once the PD stops working and no response, the IGS-10020HPT will recycle the PoE port power and bring the PD back to work. It also greatly enhances the reliability owing that the PoE port will reset the PD power and thus reduce administrator's management burden.

PoE PD Alive-checking



Digital Input / Digital Output

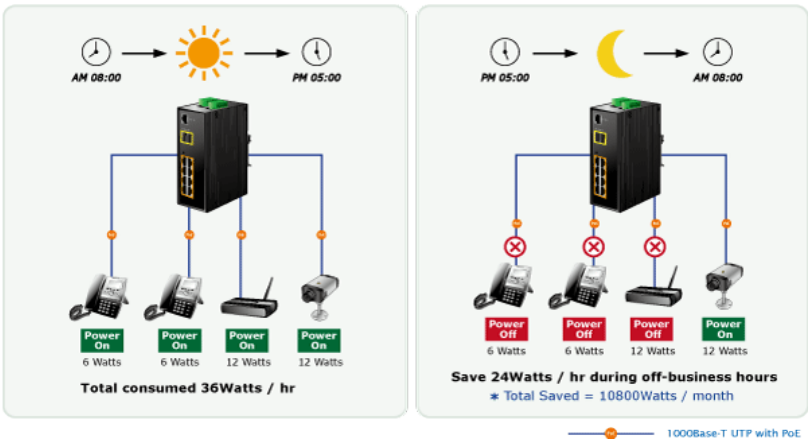
- 2 Digital Input (DI)
- 2 Digital Output (DO)
- Integrate sensors into auto alarm system
- Transfer alarm to IP network via email and SNNP trap

Layer 2 Features

- Prevents packet loss with back pressure (Half-Duplex) and IEEE 802.3x PAUSE frame flow control (Full-Duplex)
- High performance of Store-and-Forward architecture and runt/CRC filtering eliminate erroneous packets to optimize the network bandwidth
- Storm Control support
  - Broadcast / Multicast / Unicast
- Supports VLAN
  - IEEE 802.1Q Tagged VLAN
  - Up to 255 VLANs groups, out of 4094 VLAN IDs
  - Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
  - Private VLAN Edge (PVE)
  - Protocol-Based VLAN
  - MAC-Based VLAN
  - Voice VLAN
- Supports Spanning Tree Protocol
  - STP, IEEE 802.1D Spanning Tree Protocol
  - RSTP, IEEE 802.1w Rapid Spanning Tree Protocol
  - MSTP, IEEE 802.1s Multiple Spanning Tree Protocol, spanning tree by VLAN
  - BPDU Guard
- Supports Link Aggregation
  - 802.3ad Link Aggregation Control Protocol (LACP)
  - Cisco ether-channel (Static Trunk)
  - Maximum 5 trunk groups, up to 8 ports per trunk group
  - Up to 16Gbps bandwidth (Duplex Mode)
- Provides Port Mirror (1-to-1)
- Port Mirroring to monitor the incoming or outgoing traffic on a particular port
- Loop protection to avoid broadcast loops

PoE Schedule for Energy Saving

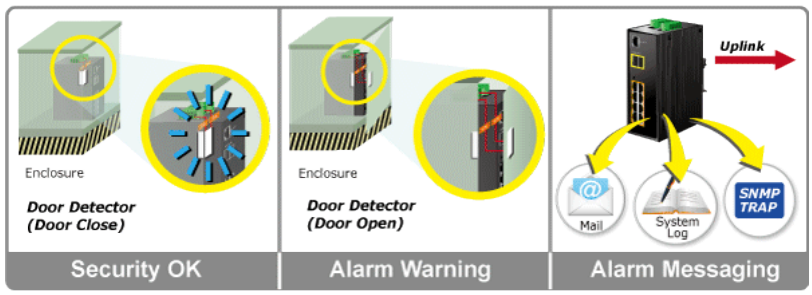
Under the trend of energy saving worldwide and contributing to environment protection on the earth, the IGS-10020HPT can effectively control the power supply besides its capability of giving high watts power. The built-in “PoE schedule” function helps you to enable or disable PoE power feeding for each PoE port during specified time intervals and it is a powerful function to help SMB or Enterprise save power and money.



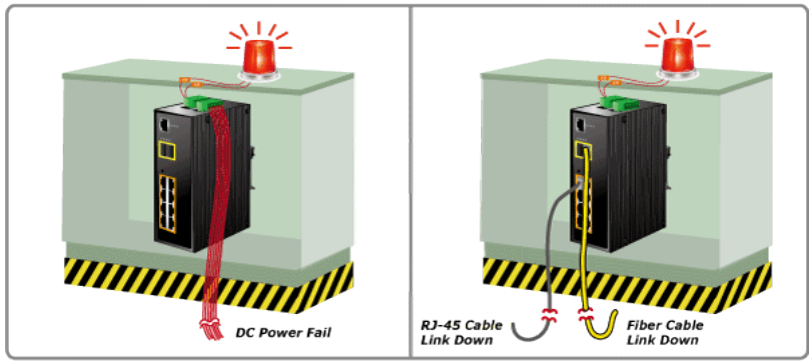
Digital Input and Digital Output for external Alarm

The IGS-10020HPT supports Digital Input, and Digital Output on its front panel. This external alarm enables users to use Digital Input to detect, log external device status (such as door intrusion detector), and send event alarm to the administrators. The Digital Output could be used to alarm the administrators if the IGS-10020HPT port link down, link up or power failure.

Digital Input



Digital Output



Quality of Service

- Ingress Shaper and Egress Rate Limit per port bandwidth control
- 8 priority queues on all switch ports
  - Traffic classification
  - IEEE 802.1p CoS
  - IP TOS / DSCP / IP Precedence
  - IP TCP/UDP port number
  - Typical network application
- Strict priority and Weighted Round Robin (WRR) CoS policies
- Supports QoS and In/Out bandwidth control on each port
- Traffic-policing policies on the switch port
- DSCP remarking

Multicast

- Supports IGMP Snooping v1, v2 and v3
- Supports MLD Snooping v1 and v2
- Querier mode support
- IGMP Snooping port filtering
- MLD Snooping port filtering
- MVR (Multicast VLAN Registration)

Security

- IEEE 802.1x Port-Based / MAC-Based network access authentication
- Built-in RADIUS client to co-operate with the RADIUS servers
- TACACS+ login users access authentication
- RADIUS / TACACS+ users access authentication
- IP-Based Access Control List (ACL)
- MAC-Based Access Control List
- Source MAC / IP address binding
- DHCP Snooping to filter untrusted DHCP messages
- Dynamic ARP Inspection discards ARP packets with invalid MAC address to IP address binding
- IP Source Guard prevents IP spoofing attacks
- Auto DoS rule to defend DoS attack
- IP address access management to prevent unauthorized intruder

Robust Layer 2 Features

The IGS-10020HPT can be programmed for advanced switch management functions such as dynamic Port link aggregation, Q-in-Q VLAN, private VLAN, Rapid Spanning Tree protocol, Layer 2 to Layer 4 QoS, bandwidth control and IGMP Snooping. The IGS-10020HPT provides 802.1Q Tagged VLAN, and the VLAN groups allowed will be maximally up to 255. Via aggregation of supporting ports, the IGS-10020HPT allows the operation of a high-speed trunk combining multiple ports. It enables maximum up to 5 groups of 8 ports for trunking, and supports fail-over as well.

Efficient Management

For efficient management, the IGS-10020HPT Managed Ethernet Switch is equipped with console, WEB and SNMP management interfaces. With the built-in Web-based management interface, the IGS-10020HPT offers an easy-to-use, platform-independent management and configuration facility. For text-based management, the IGS-10020HPT can be accessed via Telnet and the console port. Moreover, it also offers secure remote management via any standard-based management software by supporting SNMPv3 connection which encrypts the packet content at each session.

Powerful Security

The IGS-10020HPT offers comprehensive Layer 2 to Layer 4 Access Control List (ACL) for enforcing security to the edge. It can be used to restrict network access by denying packets based on source and destination IP address, TCP/UDP ports or defined typical network applications. Its protection mechanism also comprises of 802.1x Port-Based and MAC-Based user and device authentication. With the private VLAN function, communication between edge ports can be prevented to ensure user privacy. The network administrators can now construct highly secured corporate networks with considerably less time and effort than before.

Flexibility and Extension Solution

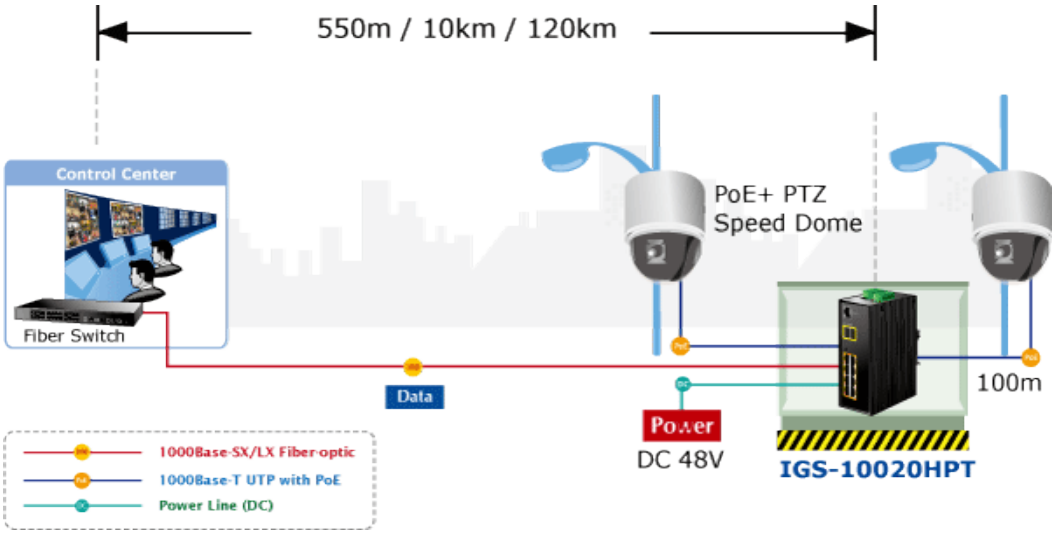
The two mini-GBIC slots built in the IGS-10020HPT support Dual-Speed, 100Base-FX and 1000Base-SX/LX SFP (Small Form-factor Pluggable) fiber-optic modules, that means, the administrator now can flexibly choose the suitable SFP transceiver according to not only the transmission distance but also the transmission speed required. The distance can be extended from 550 meters (Multi-Mode fiber) up to above 10/50/70/120 kilometers (Single-Mode fiber or WDM fiber). They are well suited for applications within the enterprise data centers and distributions.

Perfect Integration Solution for Outdoor IP PoE Camera and NVR System

The IGS-10020HPT provides 8 10/100/1000Mbps 802.3at PoE ports and can offer sufficient PoE power for 8 PoE IP cameras at the same time. In addition, with the 2-Port 100/1000Base-X SFP interfaces, the IGS-10020HPT can connect to core fiber switch and send video stream to NVR and monitor center. Through the high performance switch architecture, the IGS-10020HPT facilitates the recorded video files from the 8 PoE IP Cameras to be saved in the NVR systems. Furthermore, the NVR systems can be controlled and monitored both in the local LAN and the remote site via Internet. The IGS-10020HPT undoubtedly brings an ideal secure surveillance system with lower total cost.

Management

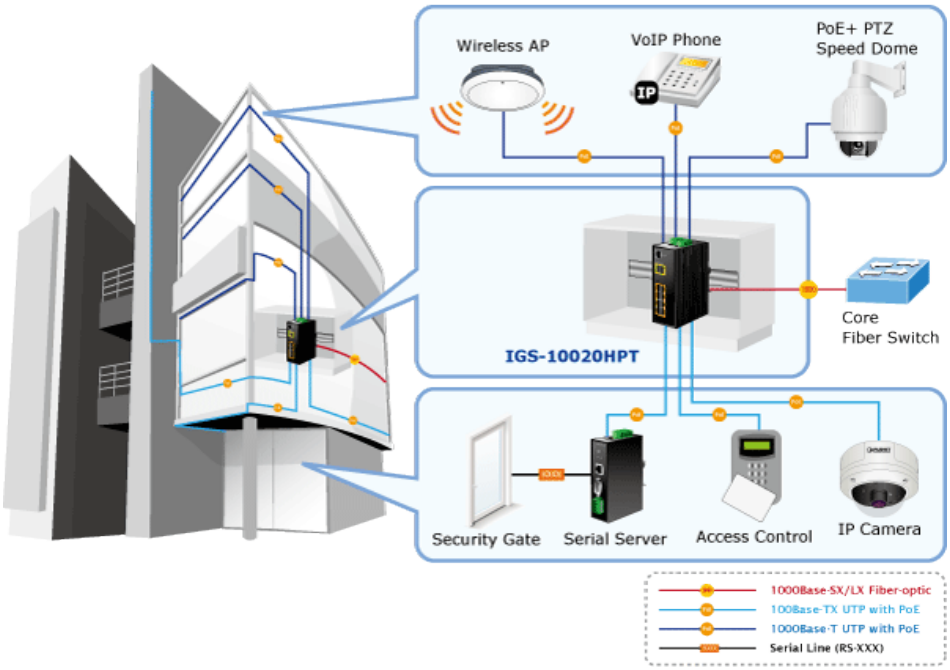
- Switch Management Interfaces
  - Console / Telnet Command Line Interface
  - Web switch management
  - SNMP v1 and v2c switch management
  - SSH / SSL and SNMP v3 secure access
- Four RMON groups (history, statistics, alarms, and events)
- IPv6 IP Address / NTP / DNS management
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- Firmware upload / download via HTTP / TFTP
- DHCP Relay
- DHCP Option 82
- User Privilege levels control
- NTP (Network Time Protocol)
- Link Layer Discovery Protocol (LLDP) Protocol
- Cable Diagnostic technology provides the mechanism to detect and report potential cabling issues
- Reset button for system reboot or reset to factory default
- PLANET Smart Discovery Utility for deploy management



Application

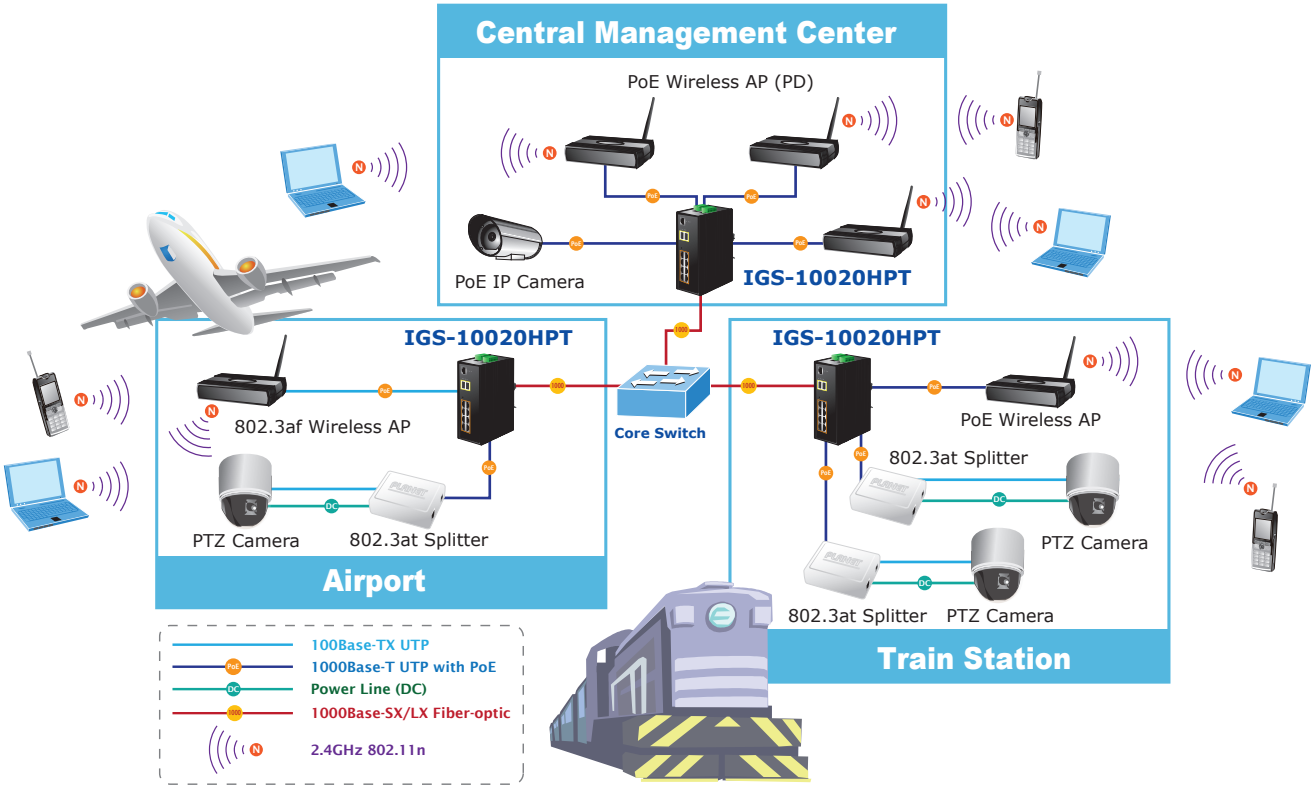
Industrial Area Department / Workgroup PoE Switch

Providing up to 8 PoE+, in-line power interface, the IGS-10020HPT can easily build a power central-controlled IP phone system, IP camera system, or wireless AP group for Industrial network. For instance, 8 PoE IP cameras or Wireless Access Points can be easily installed around the corner in the industrial environment for surveillance demands or for a wireless roaming network. Without the power-socket limitation, the IGS-10020HPT makes the installation of IP cameras or Wireless AP more easily and efficiently.



High Power IP Surveillance and Wireless LAN Service in Public Transportation

Having the capability of IEEE 802.3at Power over Ethernet standard, the IGS-10020HPT can directly connect with any IEEE 802.3at end-nodes like PTZ (Pan, Tilt & Zoom) network cameras, PTZ Speed Dome cameras, color touch- screen Voice over IP (VoIP) telephones, and multi-channel wireless LAN access points. Besides the wired Internet network, the wireless LAN would be more efficient for the transportation station to provide high speed and wide area Internet services for travelers. By adopting PoE Wireless LAN structure, the transportation authority gains benefits from less cost while providing better Internet services in wider areas for the travelers.



Specification

Product	IGS-10020HPT
Hardware Specification	
Copper Ports	8 10/ 100/1000Base-T RJ-45 Auto-MDI/MDI-X ports
SFP/mini-GBIC Slots	2 1000Base-SX/LX/BX SFP interfaces (Port-9 and Port-10) Compatible with 100Base-FX SFP
Console	1 x RJ-45-to-RS-232 serial port (115200, 8, N, 1)
Switch Architecture	Store-and-Forward
Switch Fabric	20Gbps / non-blocking
Throughput (packet per second)	14.8Mpps@ 64Bytes packet
Address Table	8K entries, automatic source address learning and ageing
Share Data Buffer	4Mbits
Flow Control	IEEE 802.3x Pause Frame for Full-Duplex Back pressure for Half-Duplex
Jumbo Frame	9Kbytes
Reset Button	< 5 sec: System reboot > 5 sec: Factory Default
ESD Protection	6KV DC
EFT Protection	6KV DC
Enclosure	IP30 Aluminum Metal Case
Installation	DIN Rail Kit and Wall Mount Kit
Alarm	One relay output for power fail. Alarm Relay current carry ability: 1A @ DC 24V
DI/DO	2 Digital Input (DI): Level 0: -24V~2.1V (±0.1V) Level 1: 2.1V~24V (±0.1V) Input Load to 24V DC, 10mA max. 2 Digital Output (DO): Open collector to 24VDC, 100mA max.
LED Indicator	**System:** Power 1 (Green) Power 2 (Green) Fault Alarm (Green) Ring* (Green) Ring Owner* (Green) **Per 10/100/1000T RJ-45 Ports:** PoE In-Use (Orange) LNK/ACT (Green) **Per SFP Interface:** 1000 (Orange) LNK/ACT (Green)
Dimension (W x D x H)	152 x 107x 72 mm
Weight	1684g
Power Requirement	DC 48V
Power Consumption	31.9 Watts / 108.78BTU (Full loading without PoE function) 306 Watts / 1043.46BTU (Full loading with PoE function)
Power Over Ethernet	
PoE Standard	IEEE 802.3af / IEEE 802.3at Power over Ethernet / PSE
PoE Power Supply Type	End-Span
PoE Power Output	Per Port 56V DC, 350mA . Max. 15.4 watts (IEEE 802.3af) Per Port 56V DC, 590mA. Max. 30 watts (IEEE 802.3at)

Power Pin Assignment	1/2(+), 3/6(-)
PoE Power Budget	270W maximum (depends on power input)
Max. number of Class 2 PD	8
Max. number of Class 3 PD	8
Max. number of Class 4 PD	8
Layer 2 Function	
Basic Management Interfaces	Console, Telnet, Web Browser, SNMP v1, v2c
Secure Management Interfaces	SSH, SSL, SNMP v3
Port Configuration	Port disable/enable Auto-Negotiation 10/100/1000Mbps full and half duplex mode selection Flow Control disable / enable Power saving mode control
Port Status	Display each port's speed duplex mode, link status, Flow control status, Auto negotiation status, trunk status
Port Mirroring	TX / RX / Both 1 to 1 monitor
VLAN	802.1Q Tagged Based VLAN, up to 255 VLAN groups Q-in-Q tunneling Private VLAN Edge (PVE) MAC-Based VLAN Protocol-Based VLAN Voice VLAN MVR (Multicast VLAN Registration) Up to 255 VLAN groups, out of 4094 VLAN IDs
Link Aggregation	IEEE 802.3ad LACP / Static Trunk Supports 5 groups of 8-Port trunk support
QoS	Traffic classification based, Strict priority and WRR 8-Level priority for switching - Port Number - 802.1p priority - 802.1Q VLAN tag - DSCP/TOS field in IP Packet
IGMP Snooping	IGMP (v1/v2/V3) Snooping, up to 255 multicast Groups IGMP Querier mode support
MLD Snooping	MLD (v1/v2) Snooping, up to 255 multicast Groups MLD Querier mode support
Access Control List	IP-Based ACL / MAC-Based ACL Up to 123 entries
Bandwidth Control	Per port bandwidth control Ingress: 500Kb~1000Mbps Egress: 500Kb~1000Mbps
SNMP MIBs	RFC-1213 MIB-II IF-MIB RFC-1493 Bridge MIB RFC-1643 Ethernet MIB RFC-2863 Interface MIB RFC-2665 Ether-Like MIB RFC-2819 RMON MIB (Group 1, 2, 3 and 9) RFC-2737 Entity MIB RFC-2618 RADIUS Client MIB RFC-2933 IGMP-STD-MIB RFC3411 SNMP-Frameworks-MIB IEEE 802.1X PAE LLDP MAU-MIB

Standards Conformance	
Regulation Compliance	FCC Part 15 Class A, CE
Stability Testing	IEC60068-2-32 (Free fall) IEC60068-2-27 (Shock) IEC60068-2-6 (Vibration)
Standards Compliance	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX/100Base-FX IEEE 802.3z Gigabit SX/LX IEEE 802.3ab Gigabit 1000T IEEE 802.3x Flow Control and Back pressure IEEE 802.3ad Port trunk with LACP IEEE 802.1D Spanning tree protocol IEEE 802.1w Rapid spanning tree protocol IEEE 802.1s Multiple spanning tree protocol IEEE 802.1p Class of service IEEE 802.1Q VLAN Tagging IEEE 802.1x Port Authentication Network Control IEEE 802.1ab LLDP IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet RFC 768 UDP RFC 793 TFTP RFC 791 IP RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP version 1 RFC 2236 IGMP version 2

• Feature to expect in future

Ordering Information

IGS-10020HPT	Industrial 8-Port 10/100/1000T 802.3at PoE + 2-Port 100/1000X SFP Managed Switch with Wide Operating Temperature

Available Modules for IGS-10020HPT

• 1000Mbps SFP transceiver modules

MGB-GT	SFP-Port 1000Base-T Module
MGB-SX	SFP-Port 1000Base-SX mini-GBIC module - 550m
MGB-SX2	SFP-Port 1000Base-SX mini-GBIC module - 2km
MGB-LX	SFP-Port 1000Base-LX mini-GBIC module - 10km
MGB-L30	SFP-Port 1000Base-LX mini-GBIC module - 30km
MGB-L50	SFP-Port 1000Base-LX mini-GBIC module - 50km
MGB-L70	SFP-Port 1000Base-LX mini-GBIC module - 70km
MGB-L120	SFP-Port 1000Base-LX mini-GBIC module - 120km
MGB-LA10	SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module - 10km
MGB-LB10	SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module - 10km
MGB-LA20	SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module - 20km
MGB-LB20	SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module - 20km
MGB-LA40	SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module - 40km
MGB-LB40	SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module - 40km
MGB-TSX	SFP-Port 1000Base-SX mini-GBIC module - 550m (-40 ~ 75 Degree C)
MGB-TLX	SFP-Port 1000Base-LX mini-GBIC module - 10km (-40 ~ 75 Degree C)
MGB-TL30	SFP-Port 1000Base-LX mini-GBIC module - 30km (-40 ~ 75 Degree C)
MGB-TL70	SFP-Port 1000Base-LX mini-GBIC module - 70km (-40 ~ 75 Degree C)

• 100Mbps SFP transceiver modules

MFB-FX	SFP-Port 100Base-FX Transceiver (1310nm) - 2km
MFB-F20	SFP-Port 100Base-FX Transceiver (1310nm) - 20km
MFB-F40	SFP-Port 100Base-FX Transceiver (1310nm) - 40km
MFB-F60	SFP-Port 100Base-FX Transceiver (1310nm) - 60km
MFB-FA20	SFP-Port 100Base-BX Transceiver (WDM,TX:1310nm) - 20km
MFB-FB20	SFP-Port 100Base-BX Transceiver (WDM,TX:1550nm) - 20km
MFB-TFX	SFP-Port 100Base-FX Transceiver (1310nm) - 2km (-40 ~ 75 Degree C)
MFB-TF20	SFP-Port 100Base-FX Transceiver (1310nm) - 20km (-40 ~ 75 Degree C)

Available PD for IGS-10020HPT

ICA-2200	Full HD PoE Box IP Camera
ICA-2500	5 Mega-Pixel PoE Box IP Camera
ICA-3250V	Full HD Outdoor IR PoE IP Camera
ICA-3350V	3 Mega-Pixel Vari-Focal Bullet IR IP Camera
ICA-4200V	Full HD 20M IR Vari-Focal Dome IP Camera
ICA-5350V	3 Mega-Pixel Vandal Proof IR IP Camera
ICA-8350	3 Mega-Pixel Vandal Proof Fisheye IP Camera
ICA-HM126	H.264 Full HD Box IP Camera
ICA-HM127	3 Mega-Pixel H.264 Box IP Camera
ICA-HM131	H.264 Full-HD Fixed Dome IP Camera
ICA-HM131R	H.264 Real Time Full-HD Fixed Dome IP Camera
ICA-HM132	H.264 2 Mega-Pixel 20M IR Vari-Focal Dome IP Camera
ICA-HM136	H.264 2 Mega-Pixel 20M IR Vandal Proof Dome IP Camera
ICA-HM312	2 Mega-Pixel 25M IR Outdoor Bullet PoE IP Camera
ICA-HM316	2 Mega-Pixel Outdoor IR PoE IP Camera
ICA-HM351	2 Mega-Pixel 35M IR Outdoor Box PoE IP Camera
ICA-HM835	2 Mega-Pixel Vandal Proof Fish-Eye IP Camera
ICA-HM620	2 Mega-Pixel PoE Plus Speed Dome Internet Camera
POE-152S	IEEE 802.3af Power over Ethernet Splitter
POE-162S	IEEE 802.3at Gigabit High Power over Ethernet Splitter
POE-E101	IEEE 802.3af Power over Ethernet Extender
POE-E201	IEEE 802.3at Power over Ethernet Extender
WNAP-C3220	802.11n Wireless Ceiling Mount PoE Access Point
WNAP-1120PE	802.11n Wireless Access Point with PoE
ICF-1700	Touch Screen Internet Multimedia Phone
VIP-255PT	Multi–Language PoE IP Phone
VIP-256PT	802.3af PoE SIP IP Phone
VIP-360PT	Business PoE IP Phone
VIP-361PE	Professional PoE IP Phone (5-Line)
VIP-560PT	Professional PoE IP Phone

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