IGS-5416P

Industrial 16-Port Gigabit PoE+ Web Managed Switch with 8 PoE+ Ports & 4 SFP Slots

The Edimax Pro IGS-5416P industrial 16-port Gigabit web managed switch comes with 8 PoE+ ports and 4 SFP slots for high-speed Gigabit, long-range copper or optical connections and for enduring, reliable, flexible industrial network deployment. Supporting the redundancy of network and power, IGS-5416P protects the system with uninterrupted data transmission and damage to ensure the network connection reliability.

Dedicated ruggedized IP30-rated housing with compact aluminum alloy case to use in the harsh environment with -40~75°C to endure wide temperature & surges range, vibrations and shock. It is the ideal solution for industries networks such as automotive, factory automation, oil and gas, mining, military, transportation, substation, energy and outdoor applications of railways, roads, tunnels, smart cities, city surveillance and traffic monitoring.

With smart and secure features in SNMP v1/v2c/v3, PoE PD Alive Check, IGMP Snooping v1/v2/v3, DHCP Snooping, QoS, CoS, STP, 802.1Q VLAN, Link Aggregation Control Protocol (LACP), Rate Control, IPv4/IPv6, Port Trunk, Mirror and etc., the IGS-5416P web managed switch that makes managing your network easy and provides a cost effective, reliable, scalable and secure switch solution for small to medium industrial networks.

Durable Performance with Industrial Ruggedized Design
Equipped with industrial IP30-rated compact aluminum alloy case, the switch is designed to withstand a high degree of vibration, shock, protection against ESD/EMI surge, and operates with a wide temperature range from -40 to 75°C (-40 to 167°F) for harsh environments. Its 48-57VDC input sources can be used as a stand-alone device for buses, trucks, and other vehicles for Surveillance purposes. The industrial grade components are used which gives the IGS-5416P a MTBF of >100,000 hours and ensures a long service life.

Reliable Network Redundancy with RSTP, MSTP, ERPS, LACP
Supporting the network redundancy with RSTP, MSTP, ERPS and LACP, IGS-5416P protects the system with uninterrupted data transmission to ensure the network connection reliability. Acting as a quick-response backup when a network device or path failure and unavailability in less than 20ms, the IGS-5416P network redundancy is to ease the unexpected risk and ensure continuity of network connection by instantly responding to and reducing the effects.

Stable Power Redundancy & Embedded Protecting Circuit
This IGS-5416P industrial switch provides two power inputs that can be connected to live DC power source simultaneously as an automatic power backup to ensure stable and reliable network service quality. Supporting with automatic protection switching and load balance, the IGS-5416P embedded protecting circuit can protect the network from over input or output voltages and rectifier malfunctions.

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PoE for Easy, Flexible Deployment and Better Cost Efficiency

Power over Ethernet technology enables the Ethernet cable to carry both data and power, reducing cable installation and eliminating the need for extension cords or electrical outlets on the walls and ceiling. Overall the IGS-5416P with 8 Gigabit high-speed performance PoE+ ports compliant with both IEEE802.3af and IEEE802.3at can deliver up to 15.4W and 30W power per port with lower installation costs and simplify deployment effort and can be used with different PoE products such as access points, WiMAX system, IP cameras or VoIP devices and is an effective solution for network environments where power outlets are difficult to access.

PoE Powered Device Alive Check

Featuring PoE Powered Device (PD) alive check, the switch can be configured to monitor real-time status of connected PDs by ping action (sending alive-checking packets). If a PD fails to response, the IGS-5416P PoE Switch will reboot the PD, which enhances the reliability of the network and reduces administrator management burden.

Convenient USB Console Port for Backup, Restore and Upgrade

Designed with the USB console port for system backup and restoration to enhance maintenance efficiency and reduce system downtime and save onsite installation effort. To save and restore configuration files, back up event logs, and firmware on the USB (universal serial bus) interface storage device and load on the switches, the USB console port makes the IGS-5416P easier to manage the backup of system setups and configuration.

Fiber-Optical Link for Distance Extension Network

Featuring two dual-speed fiber SFP slots, connects the IGS-5416P with the Edimax Pro MG-1000 Series 100BASE-FX /1000BASE-SX/LX SFP (Small Form-factor Pluggable) fiber transceiver to uplink to backbone switch and monitoring center in long distance from 550 meters to 30 kilometers. Other brands SFP fiber transceiver distance might be various. The IGS-5416P industrial switch is ideal for applications within the enterprise data centers and long distance data distributions.

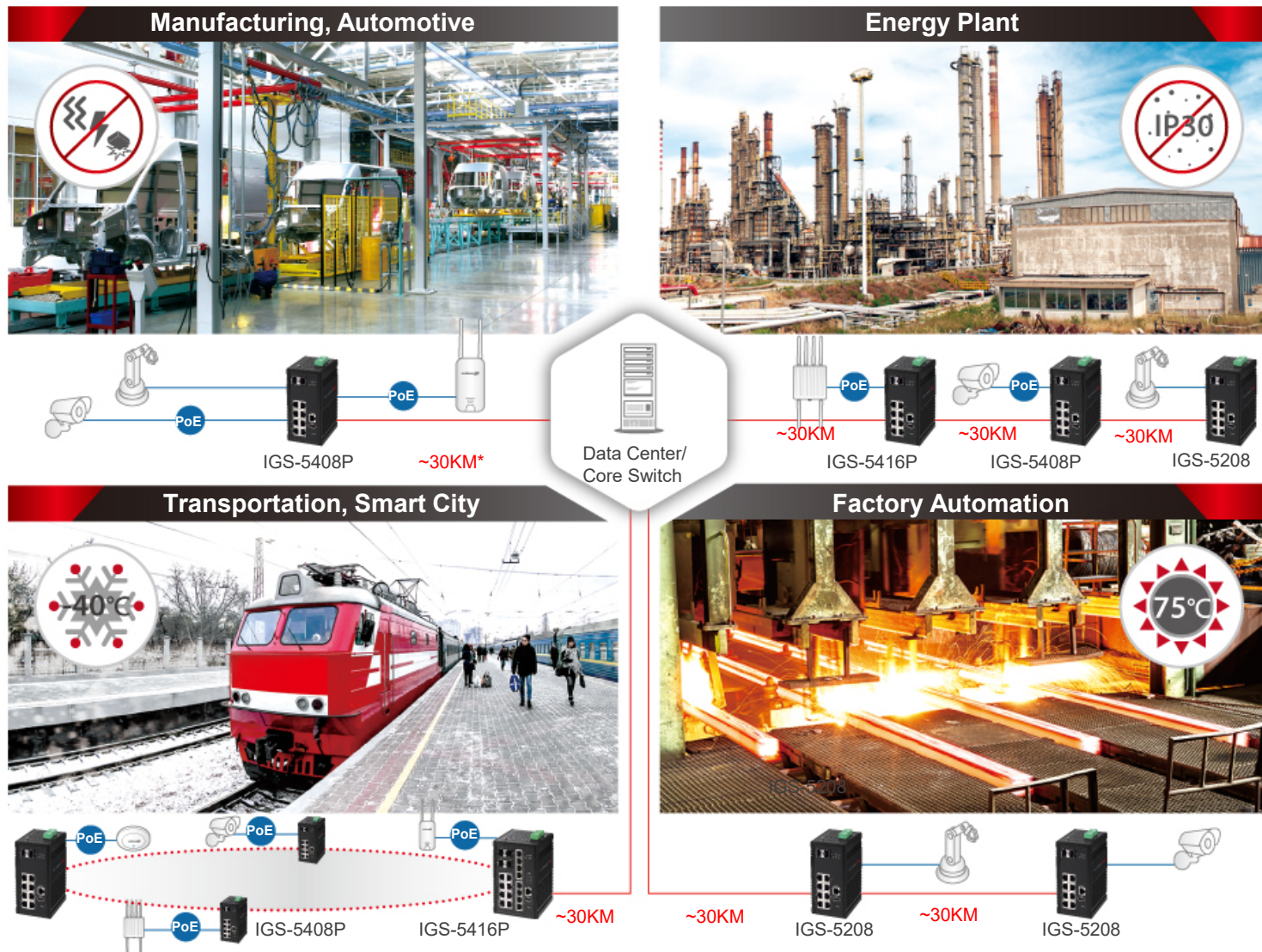## Smart Tools for Improved Network Efficiency and Security

The switch features smart and simple network monitoring tools that allow for improved network efficiency and security. The web-based interface management features include QoS (Quality of Service) bandwidth control for better traffic control, VLAN (Virtual LAN) for enhanced network security and multicast IGMP snooping v1/v2/v3 for streaming applications. For quick and easy setup, the web-based management integrates advanced management and security functions of Access Control List (ACL), CoS, STP, IPv4/IPv6, Port Trunk, IGMP v1/v2/v3 Snooping and Mirror.

KEY FEATURES

- Sixteen Gigabit Ethernet ports with eight PoE+ ports and four SFP slots.
- IEEE 802.3af/at PoE compliant.
- Up to 30W per port (total power budget: 240W) for powering PoE-enabled devices.
- PoE powered devices (PD) alive check to enhance the reliability of the network.
- Built for harsh environments with -40~75°C wide temperature range.
- Industrial ruggedized design with IP30-rating aluminum alloy case.
- Supports RSTP, MSTP, ERPS, LACP for network redundancy to ensure the network connection reliability.
- Equipped with redundant power inputs (both Digital Input (DI) and Digital Output (DO)) and embedded protecting circuit to avoid damaging the switch.
- Supports Storm Control to suppress a packet storm in a network (Storm Protection).
- DHCP snooping to protect the integrity of legitimate DHCP server and its operations.
- Supports SNMP v3, Access Control List (ACL), QoS, CoS, STP, 802.1Q VLAN, IPv4/IPv6, Port Trunk, IGMP v1/v2/v3 Snooping and Mirror.
- USB console port for efficient configuration backup and restore and firmware upgrade.
- 40Gbps switch capacity.
- 16K MAC address table and jumbo frame support up to 16KB.
- Fanless, compact size with DIN-Rail and wall mounting enabled design.

Industrial 16-Port Gigabit PoE+ Web Managed Switch with 8 PoE+ Ports & 4 SFP Slots

APPLICATION DIAGRAM

Manufacturing, Automotive

IGS-5408P   ~30KM*

Data Center/ Core Switch

Energy Plant

~30KM   IGS-5416P   ~30KM   IGS-5408P   ~30KM   IGS-5208

Transportation, Smart City

IGS-5408P   IGS-5416P   ~30KM

Factory Automation

~30KM   IGS-5208   ~30KM   IGS-5208

IEC Certified
- Vibration
- Shock
- Free Fall
- EMC & EMS

.... Ethernet Ring Support ERPS V2

——— Gigabit Fiber Optic

——— Gigabit Fast Ethernet

(PoE) Gigabit PoE Fast Ethernet

*The maximum fiber optic cable distance is subject to the SFP transceiver specification.

RELATED PRODUCTS

IGS-5408P
Industrial 8-Port Gigabit PoE+ Web Managed Switch with 4 SFP Slots

IGS-5208
Industrial 8-Port Gigabit Web Managed Switch with 2 SFP Slots

MG-1000 Series V2
1000Base-T SX LX SFP Modules

Industrial 16-Port Gigabit PoE+ Web Managed Switch with 8 PoE+ Ports & 4 SFP Slots

SPECIFICATIONS

Hardware

Ports	• 8 x RJ45 10/100/1000Base-T Gigabit PoE+ ports • 8 x RJ45 10/100/1000Base-T Gigabit ports • 4 x SFP 1000Base-X slots • 1 x Console port for CLI management • 1 x USB 2.0 port for firmware update, configuration backup, restore, boot up and system log storage
Button	1 x Multiple function reset button
Transmission Method	Store and forward
LED Indicators	• Per unit: PWR1, PWR2, Fault, Ring Master, Ring State • Port: Link/Active with highest speed (green), low speed (amber) • PoE: Output Power
Power Input	Redundant Dual DC 48V-57V
Power Consumption	Max. 22.08W (system power consumption) 0.46A@48VDC
Power Connection	1 Removable 4-connect terminal block
Digital Input	• 1 x Isolated input from the electronics • +13 to +30V fro state "1" • -30 to +3V for state "0" • Max. input current: 8mA
Reserve Polarity Protection	Yes
Overload Current Protection	Yes
Alarm Contact	1 x relay output with current carrying capacity of 1A@24VDC
Fan	Fanless
Housing	Ruggedized aluminum alloy case, IP30-rated
Installation	DIN-rail mounting or optional wall mounting
Dimensions (LxWxH)	90.8 × 145 × 113 mm
Weight	1.4kg

Performance

Switching Capacity	40Gbps
MAC Address	16K
Buffer Memory	12M bit
Jumbo Frame	16K
Filtering/ Forwarding Rates	1000Mbps port - 1,488,000pps per port 100Mbps port - 148,800pps per port 10Mbps port - 14,880pps per port Max. 29.76Mpps

Power over Ethernet

Standard	IEEE 802.3af (PoE), IEEE 802.3at (PoE+)
Power Output	Up to 30W per port
Pin Assignment	1/2(+), 3/6(-) End-Span (mode A)
Total PoE Power Budget	Max. 240W
Power Feeding Detecting Capability on PD	Yes
PD Classification	Yes
Power Management (Per Port)	• Enable/Disable PoE • Priority setting • Power level setting • Overloading protection • PoE PD alive check • PoE scheduling

Environment

Temperature	Operating: -40 to 75ºC Storage: -40 to 85ºC
Humidity (Non-condensing)	5 to 95%
MTBF (Mean Time Between Failure)	>100,000 hours

Smart Features

Quality of Service (QoS)	• Eight queues on each port • WRR, SP, WRR+SP queue scheduling algorithms • Re-marking of the 802.1p priority and DSCP priority
Class of Service (CoS)	• IEEE 802.1p Class of Service (SPQ, WRR) • Port-based CoS • IP TOS precedence • 802.1p VLAN Information based CoS • DSCP based CoS • TCP/UDP Based CoS
Spanning Tree	• IEEE 802.1d Spanning Tree Protocol (STP) • IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) • IEEE 802.1s Multiple Spanning Trees (MSTP)
VLAN	• Up to 200 VLANs and 4094 VLAN IDs • 802.1Q tag-based VLAN • Port-based VLAN • Q-in-Q
Link Aggregation	• IEEE 802.3ad with LACP
IPV6	• IPv6 over Ethernet (RFC 2464) • Dual-stack (RFC 4213) • ICMPv6 (RFC 4884) • Neighbor discovery (RFC 4861) • Auto configuration • Static IPv6 address and prefix length • Static IPv6 default gateway • IPv6 duplicate address detection
Port Trunk	IEEE 802.3ad LACP Trunk-Static trunk up to 8 trunk groups
IGMP Snooping	• IGMP v1/v2 /V3 Snooping (1023 IGMP groups) • IGMP Static Multicast Addresses • Querier, Immediate Leave
Mirror	Port mirroring both on ingress and egress traffic
Security	• Storm Control • Management system user name/password protection • IEEE 802.1x Port-based access control • RADIUS (Authentication, Authorization, Accounting) • TACACS+ • HTTP & SSL (Secure Web) • HHS v2.0 (Secured Telnet Session)
Management	• User Interface: Web-based management • User Account: Login account configuration • Firmware Upgrade: Firmware upgrade by WEB HTTP • Syslog: Support event log, error log • Command Line Interface (CLI) • Telent • Configuration download/upload • SNMP (v1/v2/v3) • RMON (1, 2, 3 & 9 groups) • DHCP (server/Client/Relay/Option82) • NTP/LLDP • Port Mirroring • Industrial Profiles: Modbus TCP, Ethernet/IP

Standards Compliance

Standards	IEEE 802.3 10BaseT Ethernet IEEE 802.3u 100BaseTX Fast Ethernet IEEE 802.3ab 1000BaseT Gigabit Ethernet IEEE 802.3z 1000BaseSX/LX IEEE 802.3af Power over Ethernet (PoE) IEEE 802.3at Power over Ethernet (PoE+) IEEE 802.3x Full-duplex and flow control

Certifications

EMI	FCC Part 15 Subpart B Class A CE EN 55032 Class A
EMS	IEC61000-4-2 (ESD) IEC61000-4-3 (RS) IEC61000-4-4 (EFT) IEC61000-4-5 (Surge) IEC61000-4-6 (CS) IEC61000-4-8 (Magnetic Field)
EMC	61000-6-2 61000-6-4
Green	RoHS Compliant
Vibration	IEC60068-2-6
Shock	IEC60068-2-27
Free Fall	IEC60068-2-32

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