Product Datasheet

16-port Gigabit Managed Industrial PoE Switch

(ONV-IPS33168PFM-4GF)

OVERVIEW

The ONV-IPS33168PFM-4GF is a Gigabit L2+ managed industrial PoE fiber switch independently developed by ONV. It has 12*10/100/1000Base-T auto-sensing RJ45 ports and 4*100/1000Base-X SFP fiber ports. Ports 1-8 support the IEEE 802.3af/at PoE standard, with a single-port PoE power of up to 30W. As a PoE power supply device, it can automatically detect and identify compliant powered devices and supply power via the network cable. It can power PoE terminal devices such as wireless APs, network cameras, VoIP phones, and industrial sensors via network cable, meeting the needs of network environments requiring high-density PoE power supply. It is suitable for building economical, efficient, stable, and reliable communication networks in industrial scenarios such as intelligent transportation, rail transit, power industry, mining, oil, shipping, metallurgy, and green energy construction.

The ONV-IPS33168PFM-4GF features L2+ network management capabilities, supports IPv4/IPv6 management, static route forwarding, and a comprehensive security protection mechanism. It offers robust ACL/QoS policies and rich VLAN functionality, making it easy to manage and maintain. It supports multiple network redundancy protocols, including

STP/RSTP/MSTP (<50ms) and (ITU-T G.8032) ERPS (<20ms), enhancing link backup and network reliability. It can quickly restore communication in the event of a one-way network failure, ensuring uninterrupted communication for critical applications. Depending on the application requirements, it provides PoE power management via Web, CLI, SNMP, Telnet, and other network management methods, enabling port management, routing address management, port flow control, VLAN segmentation, IGMP, security policies, and other application service configurations.

FEATURE

■ Gigabit access, SFP port uplink

◇ Supports non-blocking line-speed forwarding for smoother transmission.

◇ Supports IEEE 802.3x full-duplex flow control and backpressure half-duplex flow control.

◇ Supports combinations of Gigabit RJ45 ports and optical ports, facilitating flexible network configuration to meet various networking needs.

■ Smart PoE power supply

◇ PoE ports support a priority mechanism; when remaining power is insufficient, higher-priority ports are prioritized for power supply to prevent overload of devices.

◇ Compliant with the IEEE 802.3 af/at PoE power supply standard, automatically identifying PoE devices and providing power without damaging non-PoE devices.

◇ 8*10/100/1000Base-T RJ45 ports support PoE power supply, meeting the PoE power supply requirements of security monitoring, teleconferencing systems, wireless coverage, and other scenarios.

◇ Supports PoE network management functions, which can be configured through the network management system to achieve power allocation, priority setting, port power status viewing, time scheduling, etc., for each PoE port.

■ Strong business processing ability

◇ Support ERPS ring network and STP/RSTP/MSTP to eliminate layer 2 loops and

realize link backup.

◇ Support IEEE802.1Q VLAN; users can flexibly divide VLAN, Voice VLAN, and QinQ configuration according to their needs.

◇ Support static and dynamic aggregation to effectively increase link bandwidth, realize load balancing, link backup, and improve link reliability.

◇ Support QoS, port-based, 802.1P-based, and DSCP-based three priority modes and four queue scheduling algorithms: Equ, SP, WRR, and SP+WRR.

◇ Support ACL to filter data packets by configuring matching rule processing operations and time permissions, and provide flexible security access control policies.

◇ Support IGMP V1/V2/V3 multicast protocol; IGMP Snooping meets multi-terminal high-definition video surveillance and video conference access requirements.

■ Security

◇ Port isolation and storm control.

◇ IP+MAC+port+VLAN quadruple flexible combination binding function.

◇ 802.1X authentication provides authentication functions for LAN computers and controls the authorization status of controlled ports according to the authentication results.

■ Stable and reliable

◇ CE, FCC, RoHS.

◇ The user-friendly panel can show the device status through the LED indicators of PWR, SYS, Link, L/A, and PoE.

◇ Low power consumption, aluminum alloy housing, and excellent heat dissipation to ensure stable operation of the switch.

■ Easy O&M management

◇ CPU monitoring, memory monitoring, Ping detection, and cable detection.

◇ HTTPS, SSLV3, SSH V1/V2, and other encryption methods make management more secure.

- ◇ RMON, system logs, and port traffic statistics facilitate network optimization and transformation.
- ◇ LLDP facilitates the network management system to query and determine the communication status of the link.
- ◇ Web network management, CLI (Console, Telnet), SNMP (V1/V2/V3), and other diversified management and maintenance methods.

TECHNICAL SPECIFICATION

Model	ONV-IPS33168PFM-4GF
Interface Characteristics	
Fixed Port	Power-off alarm switch (FAULT) 1*Console RS232 port (115200, N,8,1) 8*10/100/1000Base-T PoE ports (Data/ Power) 4*10/100/1000Base-T uplink RJ45 ports (Data) 4*100/1000Base-X uplink SFP fiber ports (Data) 2 set V+, V- redundant DC power port (6P industrial Phoenix terminal)
Ethernet Port	Ports 1-12 support 10/100/1000Base-T auto-sensing, full/ half duplex MDI/ MDI-X self-adaption
Twisted Pair Transmission	10BASE-T: Cat3,4,5 UTP (≤100 meters) 100BASE-TX: Cat5 or later UTP (≤100 meters) 1000BASE-T: Cat5e or later UTP (≤100 meters)
Optical Fiber Port	Gigabit SFP fiber port, does not include optical module (optional single-mode/ multi-mode, single fiber/ dual fiber optical module, LC)
Optical Fiber Port Expansion	Support Turbo overclocking 2.5G optical module expansion and ring network
Optical Cable/ Distance	Multi-mode: 850nm/ 0-550m, Single-mode: 1310nm/ 0-40km, 1550nm/ 0-120km
Chip Parameter	

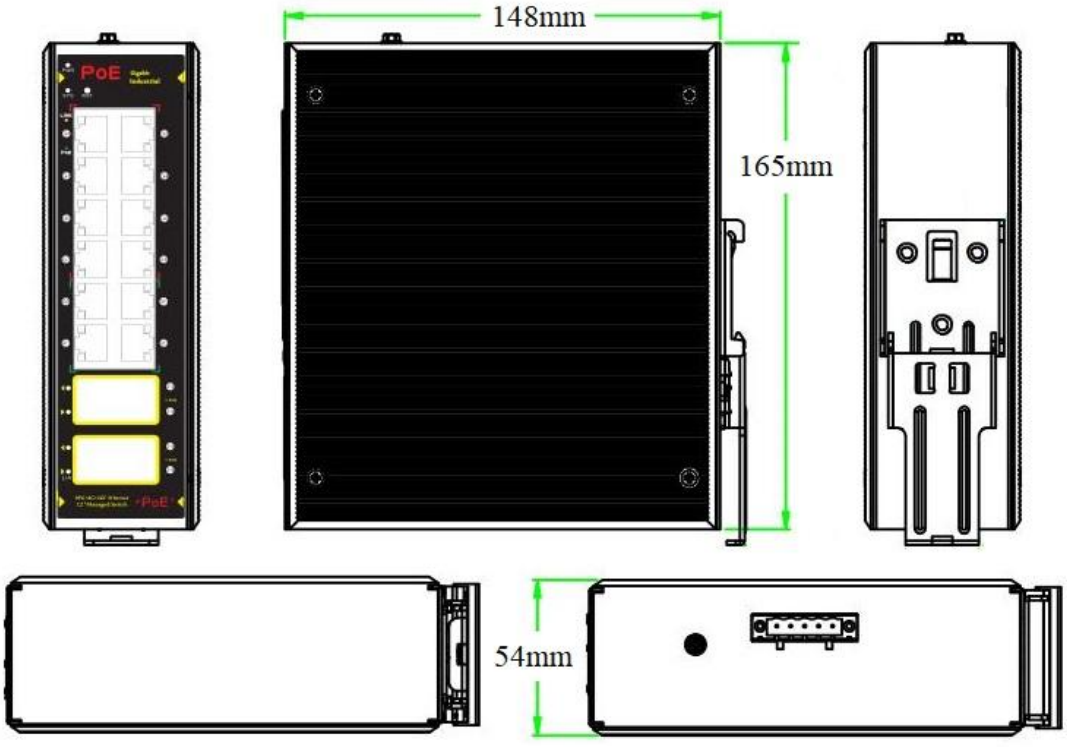
Network Management Type	L2+
Network Protocol	IEEE802.3 10BASE-T, IEEE802.3i 10Base-T, IEEE802.3u 100Base-TX, IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-X, IEEE802.3x
Forwarding Mode	Store and forward(Full wire speed)
Switching Capacity	52Gbps (non-blocking)
Forwarding Rate@64byte	23.81Mpps
CPU	416M
DRAM	1G
FLASH	128M
MAC	8K
Buffer Memory	4M
Jumbo Frame	9.6K
LED Indicator	Power/ System: SYS(Green), Network: Link (Yellow), Fiber port: L/A (Green), PoE: PoE(Green), Rate: 100/1000M(Green)
Reset Switch	Yes
PoE& Power Supply	
PoE Port	Port 1-8
PoE Management	PoE power supply total power limit configuration Power delay start, PoE work and time scheduling Port PoE working status display, Port PoE output priority configuration Port PoE output power distribution, PoE on/off, af/at power distribution
Power Supply Pin	1/2 (+) 3/6 (-)
Max Power Per Port	30W, IEEE 802.3af/at
Power Consumption	Standby<10W, full load<120W, at<240W
Input Voltage/ Interface	DC44-57V, 6P industrial Phoenix terminal supports anti-reverse protection
Power Supply	No, optional 48V/120W or 48V/240W industrial power supply
Physical Parameter	
Operation Temp/ Humidity	-40~+80°C, 5%~90% RH non-condensing

Storage Temp/ Humidity	-40~+85°C, 5%~95% RH non-condensing
Dimension (L*W*H)	165*148*54mm
Net /Gross Weight	1.1kg/ 1.3kg
Installation	Desktop, 35mm DIN Rail
Certification& Warranty	
Lightning Protection	IEC61000-4-3 (RS):10V/m (80-1000MHz) FCC Part 15/CISPR22 (EN55022): Class A IEC61000-6-2 (Common Industrial Standard) IEC61000-4-9 (Pulsed magnet field): 1000A/m IEC61000-4-10 (Damped oscillation): 30A/m 1MHz IEC61000-4-12/18 (Shockwave): CM2.5kV, DM1kV Protection level: IP40, Lightning protection: 6KV 8/20us IEC61000-4-4(EFT): Power cable: ±4kV, data cable: ±2kV IEC61000-4-16 (Common-mode transmission): 30V, 300V, 1s IEC61000-4-2 (ESD): ±8kV contact discharge, ±15kV air discharge IEC61000-4-6 (Radio frequency transmission): 10V(150kHz~80MHz) IEC61000-4-8 (Power frequency magnetic field): 100A/m, 1000A/m, 1s-3s IEC61000-4-5 (Surge): Power cable: CM±4kV/ DM±2kV, data cable: ±4kV
Mechanical Properties	IEC60068-2-6 (Anti Vibration), IEC60068-2-27 (Anti Shock), IEC60068-2-32 (Free Fall)
Certification	CE mark, commercial, CE/LVD EN62368-1, FCC Part 15 Class A, RoHS
Warranty	5 years, lifelong maintenance.
Network Management Feature	
Interface	Port green Ethernet Energy-saving setting Broadcast storm control based on port speed Port temperature protection setting, IEEE802.3x flow control (Full duplex) The speed limit of the message flow in the access port, mini particle size is 64Kbps.
L3 Feature	ARP protocol max 1024 entries

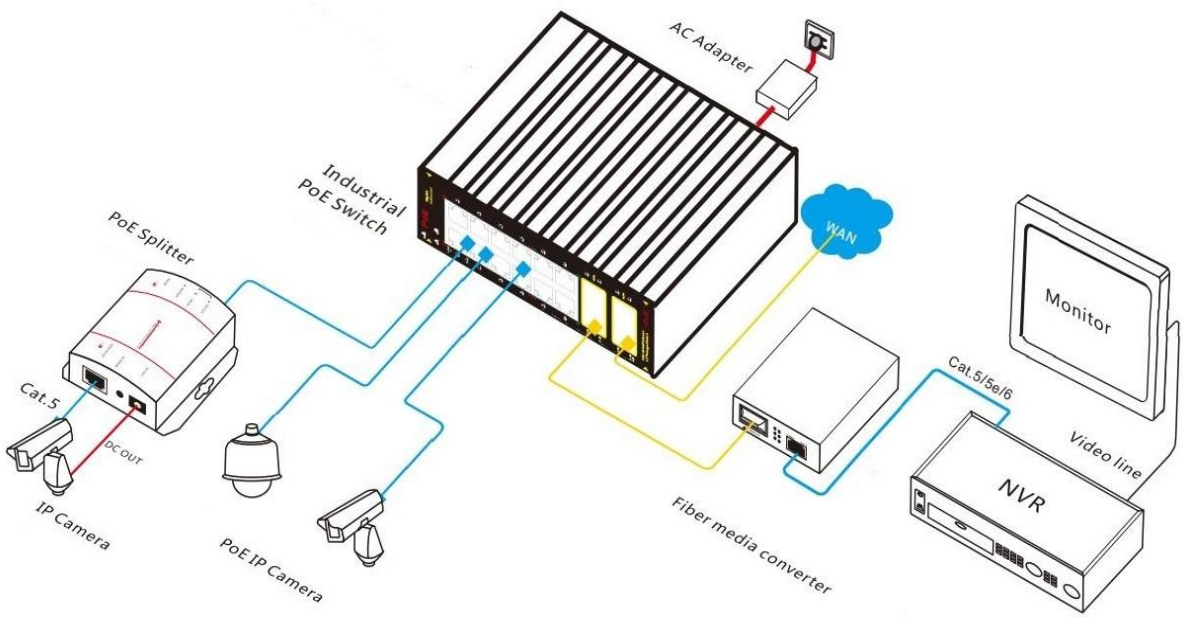
	Static routing/ default routing max 128 entries L2+ network management, IPV4/IPV6 dual stack management L3 routing and forwarding, and communication between different network segments and different VLAN
VLAN	Access, Trunk, and Hybrid port configurations Port-based VLAN (4K), IEEE802.1q, QinQ configuration Voice VLAN, Protocol-based VLAN, MAC address-based VLAN
Port Aggregation	LACP, Static aggregation, Max 8 aggregation groups and 8 ports per group.
Spanning Tree	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s)
Industrial Ring Network Protocol	G.8032 (ERPS), Recovery time less than 20ms. 250 Ring at most, Max 250 devices per ring.
Multicast	MLD Snooping v1/v2, Multicast VLAN, IGMP Snooping v1/v2, Max 1024 multicast groups, User quickly left.
Port Mirroring	Bidirectional data mirroring based on port
QoS	Flow-based Rate Limiting, Flow-based redirection Queue Scheduling Algorithm (SP, WRR, SP+WRR) Flow-based Packet Filtering, 8*Output queues of each port 802.1p/ DSCP priority mapping, Diff-Serv QoS, Priority Mark/ Remark
ACL	ACL distribution based on port and VLAN L2-L4 packet filtering function, matching the first 80 bytes message, and provides ACL definitions based on source MAC address, destination MAC address, source IP address, destination IP address, IP protocol type, TCP/UDP port, TCP/UDP port range, VLAN, etc.
Security	Mac black holes, IP source protection IEEE802.1X & MAC address authentication Broadcast storm control, Backup for host datum SSH 2.0, SSL, Port isolation, ARP message speed limit User hierarchical management and password protection Anti-DoS attack, AAA& RADIUS&TACACS+ certification

	IP-MAC-VLAN-Port binding, ARP inspection, MAC learning limit
DHCP	DHCP Client, DHCP Snooping, DHCP Server, DHCP Relay
Management	NTP clock, One-click restore, SNMP V1/V2C/V3 System work log, Web network management (HTTPS) Ping detection, Link Layer Discovery Protocol (LLDP) ONV NMS platform cluster management (LLDP+SNMP) Cable status check, CPU real-time utilization status viewing Console/ AUX Modem/ Telnet/ SSH2.0 CLI command line configuration FTP, TFTP, Xmodem, SFTP file upload and download management
System	Web browser: Mozilla Firefox 2.5 or later, Google Chrome 42 or later, Microsoft Internet Explorer 10 or later TCP/IP, network adapters, and network operating systems (such as Microsoft Windows, Linux, or Mac OS X) are installed on each computer in the network.

DIMENSION



APPLICATION



ORDERING INFORMATION

Model	Description	Recommended Power Supply
ONV-IPS33168PFM-4GF	L2+ managed industrial PoE switch with 12*10/100/1000M RJ45 ports and 4*100/1000M uplink SFP fiber ports. Ports 1-8 support the IEEE 802.3af/at PoE standard. It supports dual DC redundant power input (Phoenix terminal connection) and DIN rail mounting.	120W/240W
Note: The optical module and power supply are not included and need to be purchased.		

PACKING LIST

	Content	Qty	Unit
Packing List	16-port Gigabit managed industrial PoE switch	1	PC
	RJ45-DB9 Adapter Cable	1	PC
	User Guide	1	PC
	Warranty Card and Certificate of Conformity	1	PC

OPTICAL MODULE

Product	Model	Description	Unit
1.25G Optical Module	2630-G	Industrial SFP optical module, 1.25G multi-mode dual fiber 850nm, transmission distance: 550m, LC interface. supports DDM function and hot plugging.	PC
	2632-G	Industrial SFP optical module, 1.25G single-mode dual fiber 1310nm, transmission distance: 20km, LC interface. supports DDM function and hot plugging.	PC
	2612-T-G	Industrial SFP optical module, 1.25G single-mode single fiber TX1310nm/ RX1550nm, transmission distance: 20km, LC interface. supports DDM function and hot plugging.	PC
	2613-R-G	Industrial SFP optical module, 1.25G single-mode single fiber TX1550nm/ RX1310nm, transmission distance: 20km, LC interface. supports DDM function and hot plugging.	PC
Power Module	2633	1.25G SFP optical module transfers to 10/100/1000M RJ45 port.	PC

POWER SUPPLY

Product	Model	Description	Unit
120W DIN Rail industrial power supply	GWS-DP120-48	DIN Rail 120W single-set output power supply Input voltage: AC100V~240V 50-60Hz, 2.3A Output voltage: DC48V, 2.5A Operation temperature: -40℃ to +70℃	PC
240W DIN Rail industrial power supply	GWS-DP240-48	DIN Rail 240W single-set output power supply Input voltage: AC100V~240V 50-60Hz, 3.0A Output voltage: DC48V, 5.0A Operation temperature: -40℃ to +70℃	PC

RELATED PRODUCT

Model	Description
ONV-IPS33064PFM	L2+ managed industrial PoE switch with 4*10/100/1000M RJ45 ports and 2*100/1000M uplink SFP fiber ports. Ports 1-4 support the IEEE 802.3af/at PoE standard. It supports dual DC redundant power input (Phoenix terminal connection) and DIN rail mounting.
ONV-IPS33084PFM	L2+ managed industrial PoE switch with 4*10/100/1000M RJ45 ports and 4*100/1000M uplink SFP fiber ports. Ports 1-4 support the IEEE 802.3af/at PoE standard. It supports dual DC redundant power input (Phoenix terminal connection) and DIN rail mounting.
ONV-IPS33108PFM	L2+ managed industrial PoE switch with 8*10/100/1000M RJ45 ports and 2*100/1000M SFP fiber ports. Ports 1-8 support the IEEE 802.3af/at PoE standard. It supports dual DC redundant power input (Phoenix terminal connection) and DIN rail mounting.
ONV-IPS33148PFM	L2+ managed industrial PoE switch with 10*10/100/1000M RJ45 ports and 4*100/1000M uplink SFP fiber ports. Ports 1-8 support the IEEE

	802.3af/at PoE standard. It supports dual DC redundant power input (Phoenix terminal connection) and DIN rail mounting.
ONV-IPS33168PFM	L2+ managed industrial PoE switch with 8*10/100/1000M RJ45 ports and 8*100/1000M uplink SFP fiber ports. Ports 1-8 support the IEEE 802.3af/at PoE standard. It supports dual DC redundant power input (Phoenix terminal connection) and DIN rail mounting.

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