Product Datasheet

16-port 10G Uplink L3 Managed Industrial PoE Switch
(ONV-IPS38168PFM)

OVERVIEW

The ONV-IPS38168PFM is a 10G uplink L3 managed industrial PoE fiber switch independently developed by ONV. It has 12*10/100/1000Base-T adaptive RJ45 ports and 4*1/10G SFP+ fiber ports. Port 1-8 can support IEEE 802.3 af/at PoE standard. Single-port POE power up to 30W. As a PoE power supply device, it can automatically detect and recognize power-compliant devices that meet the standard and supply power through the network cable. It can supply power to POE terminal equipment such as wireless AP, IP camera, VoIP, and industrial sensors through the network cable, and meet the network environment that needs a high-density PoE power supply. It is suitable for intelligent transportation, rail transit, power industry, mining, petroleum, and industrial scenes such as shipping, metallurgy, and green energy construction form a cost-effective, stable, and reliable communication network.

The ONV-IPS38168PFM has L3 full network management, supports IPV4/IPV6 management, dynamic routing full line-speed forwarding, complete security protection

mechanism, perfect ACL/QoS policy, and rich VLAN functions, easy to manage and maintain. With industry-leading ring network technology. It supports a variety of industrial-grade redundant ring network protocols, and each port can form a ring network, supporting chain ring network, starring network, double starring network, ring network, tangent network ring network, intersecting ring network, coupled ring network, self-healing within 20ms of the ring network. The switches has high reliability, high security, and high manageability, ensures reliable transmission of key data, supports remote management, and cooperates with the ONV-NMS network management platform for cluster management to achieve no blind spot network management throughout the process. The Industrial grade products completely follow the industrial product design and materials. The shell is made of metal material to enhance heat dissipation. It has excellent adaptability to the industrial site environment (including mechanical stability, climate environment adaptability, electromagnetic environment adaptability, etc.). Protection level is IP40, support dual redundant power supply. Low power consumption, heat dissipation technology, 5 years warranty.

FEATURE

■ **Full gigabit port ,10G uplink**

◇ Support non-blocking wire-speed forwarding.

◇ Support full-duplex based on IEEE802.3x and half-duplex based on Backpressure.

◇ Support gigabit Ethernet port and 10G SFP+ port combination, which enables users to flexibly build networking to meet the needs of various scenarios.

■ **Intelligent PoE power supply**

◇ PoE network management, realize PoE port power allocation, priority setting, port power status viewing, time scheduling, etc.

◇ Comply with IEEE 802.3 af/at PoE standard, automatically identify PoE devices for power supply, and not damage non-PoE devices.

◇ The PoE port supports the priority mechanism. When the remaining power is insufficient, the power of the high-priority port is given priority to avoid overloading of

the device.

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

■ **Strong business processing capability**

◇ 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**

◇ Support port isolation.

◇ Support port broadcast storm suppression.

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

◇ Support 802.1X authentication to provide authentication functions for LAN computers, and control the authorization status of controlled ports according to the authentication results.

■ **Stable and reliable**

◇ CCC, CE, FCC, RoHS.

◇ The user-friendly panel can show the device status through the LED indicator of PWR, Link, PoE.

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◇ Low power consumption, no fan, aluminum shell, excellent heat dissipation to ensure the stable operation of the switch.

■ **Easy O&M management**

◇ Support CPU monitoring, memory monitoring, Ping detection, cable length detection.

◇ Support RMON, system log, and port traffic statistics to facilitate network optimization and transformation.

◇ Support HTTPS, SSLV3, SSHV1/V2 and other encryption methods, making management more secure.

◇ Support LLDP to facilitate the network management system to query and judge the communication status of the link.

◇ Support Web network management, CLI command line (Console, Telnet), SNMP (V1/V2/V3) and other diversified management and maintenance.

TECHNICAL SPECIFICATION

Model	ONV-IPS38168PFM
Interface Characteristics	
Fixed Port	4*1/10G uplink SFP+ ports (Data) Power off alarm switch port (FAULT) 8*10/100/1000Base-T PoE ports (Data/Power) 4*10/100/1000Base-T uplink RJ45 ports (Data) 2 set of V+, V- redundant DC power ports (6 Pin Phoenix terminal)
Ethernet Port	Port 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	1/10G SFP+ optical fiber port, default no include optical modules (optional order single-mode / multi-mode, single fiber / dual fiber optical

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	module. LC)
Optical Fiber Port Expansion	Turbo overclocking 2.5G optical module expansion and ring network
Optical Cable/ Distance	Multi-mode: 850nm / 0~500m, 0~300M(10G), Single-mode: 1310nm / 0~ 40km, 1550nm / 0~120km.
Chip Parameter	
Network Management Type	L3
Network Protocol	IEEE802.3 10BASE-T, IEEE802.3i 10Base-T IEEE802.3u 100Base-TX, IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-X, IEEE802.3ae 10GBase-SR/LR, IEEE802.3x
Forwarding Mode	Store and Forward(Full Wire Speed)
Switching Capacity	104Gbps
Forwarding Rate@64byte	77.38Mpps
CPU	500MHz
DRAM	2G
FLASH	128M
MAC	32K
Buffer Memory	32M
Jumbo Frame	10K
LED Indicator	System: SYS (Green), Network: Link (Yellow), PoE: PoE (Green), Fiber port: L/A (Green)
Reset Switch	Yes, press and hold the switch for 10 seconds and release it to restore the factory settings
PoE & Power Supply	
PoE Port	Port 1 to 8, IEEE 802.3 af/at
PoE Management	PoE power supply total power limit configuration

	Power delay start, Port PoE output priority configuration
	PoE work and time scheduling, Port PoE working status display
	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 802.3 af/at
Power Consumption	Standby<15W, Full load af<120W, at<240W
Working Voltage	DC48-57V, 6 Pin industrial Phoenix terminal, support 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)	166*150*75mm
Net /Gross Weight	<1.9kg / <2.4kg
Installation	Desktop, 35mm DIN rail
Certification & Warranty	
Lightning Protection	Protection level: IP40
	Lightning protection: 6KV 8/20us
	IEC61000-4-3(RS):10V/m (80~1000MHz)
	FCC Part 15/CISPR22(EN55022): Class B
	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): CM 2.5kV, DM 1kV
	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

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	IEC61000-4-6(Radio frequency transmission): 10V(150kHz~80MHz)
	IEC61000-4-8(Power frequency magnetic field):100A/m,1000A/m,1 to 3s
	IEC61000-4-5(Surge): Power cable: CM±4kV/DM±2kV, Data cable: ±4kV
Mechanical Properties	IEC60068-2-6 (Anti vibration) IEC60068-2-32 (Free fall), IEC60068-2-27 (Anti shock)
Certification	CCC, CE mark, commercial, CE/LVD EN62368-1, FCC Part 15 Class B, RoHS
Warranty	5 years, lifelong maintenance.
Network Management Features	
Interface	IEEE802.3X (Full-duplex) Port temperature protection setting No connection port automatic sleep Port green Ethernet Energy-saving setting Broadcast storm control based on port speed SFP+ optical port DDMI real-time digital diagnosis The speed limit of the message flow in the access port, mini particle size is 64Kbps.
Layer 3 Features	IPV4 Equal Cost Routing NG protocol, maximum 1000 entries ARP protocol, maximum 1000 entries Pingv6, Telnetv6, TFTPv6, DNSv6, ICMPv6 IPV4/IPV6 VRRP, the maximum group is 255 IPV4/IPV6 VLANIF interface supports up to 128 IPV4/IPV6 static route/default route supports up to 128 entries IPV4 dynamic routing, RIPv1/v2, OSPFv2, BGP4+, 4000 routing entries IPV6 dynamic routing OSPFv3, BGP+, RIPng, IPV6 management, 1000 routing entries L3 network management function, IPV4/IPV6 dual-stack management L3 routing and forwarding, support communication between different

	network segments and different VLAN
VLAN	Voice VLAN, QinQ configuration, IEEE802.1q VLAN based on MAC, VLAN based on the protocol 4K VLAN based on port, Port configuration of Access, Trunk, Hybrid.
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	250 Ring at most, Max 250 devices per ring. G.8032 (ERPS), Recovery time less than 20ms
Multicast	IGMP Snooping v1/v2, Max 1024 multicast groups MLD Snooping v1/v2, Multicast VLAN, Fast log out
Port Mirroring	Bidirectional data mirroring based on port
QoS	Diff-Serv QoS, Priority Mark/Remark Queue Scheduling Algorithm (SP, WRR, SP+WRR) Flow-based Rate Limiting, Flow-based Packet Filtering 8*Output queues of each port, 802.1p/DSCP priority mapping
ACL	Port-based Issuing ACL, ACL based on port and VLAN L2 to L4 packet filtering, matching first 80 bytes message. Provide ACL based on MAC, Destination MAC address, IP Source, Destination IP, IP Protocol Type, TCP/UDP Port, TCP/UDP Port Range, and VLAN, etc.
Security	IP source address protection ARP intrusion detection function ARP message rate limiting function Port broadcast message suppression SSL ensures data transmission security AAA & RADIUS & TACACS+ certification Anti-DoS attack, MAC address black hole Limit the number of MAC addresses learned Port isolation, Host data backup mechanism

9	Quadruple binding function of IP+MAC+VLAN+port
	User hierarchical management and password protection
	SSH 2.0 provides a secure encrypted channel for user login
	IEEE802.1X authentication/ centralized MAC address authentication
DHCP	DHCP Client, DHCP Snooping, DHCP Server, DHCP Relay
Management	NTP clock, Cable length detection
	View CPU real-time utilization status
	One click recovery, SNMP V1/V2/V3
	System work log, Link Layer Discovery Protocol
	Ping detection, Web network management (HTTPS)
	ONV-NMS platform cluster management (LLDP+SNMP)
	FTP, TFTP, Xmodem, SFTP file upload and download management
	Console/ AUX Modem/ Telnet/ SSH2.0 CLI command line configuration
System	Category 5 Ethernet network cable
	Web browser: Mozilla Firefox 2.5 or higher, Google browser chrome V42 or higher, Microsoft Internet Explorer10 or later
	TCP/IP, network adapter, and network operating system (such as Microsoft Windows, Linux, or Mac OS X) installed on each computer in a network

DIMENSION
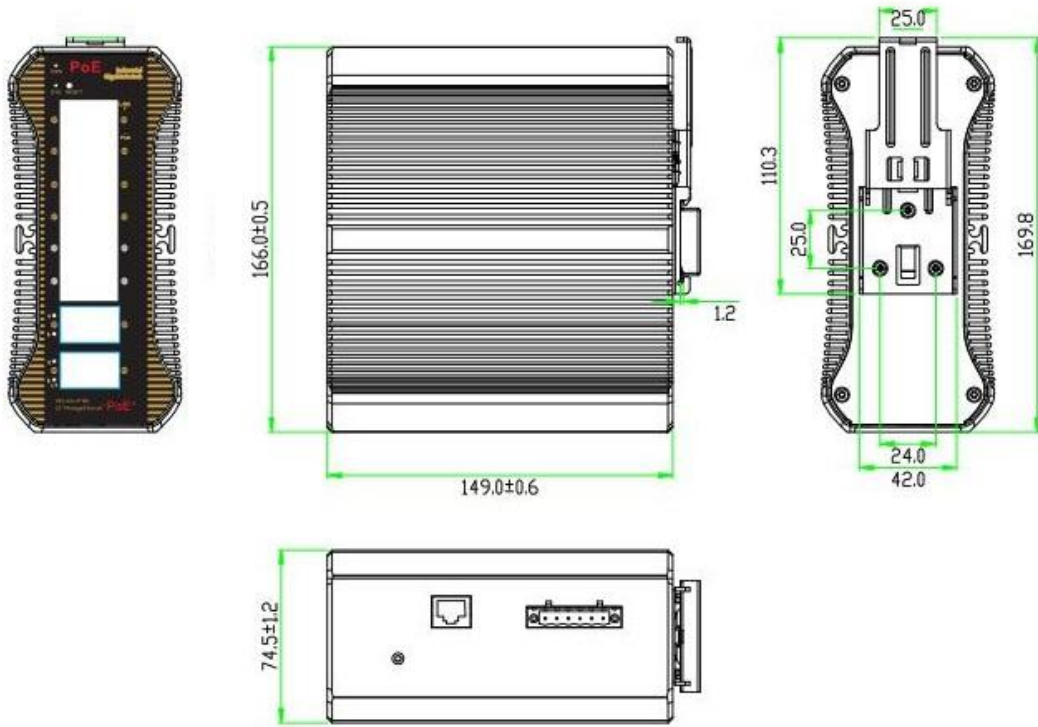
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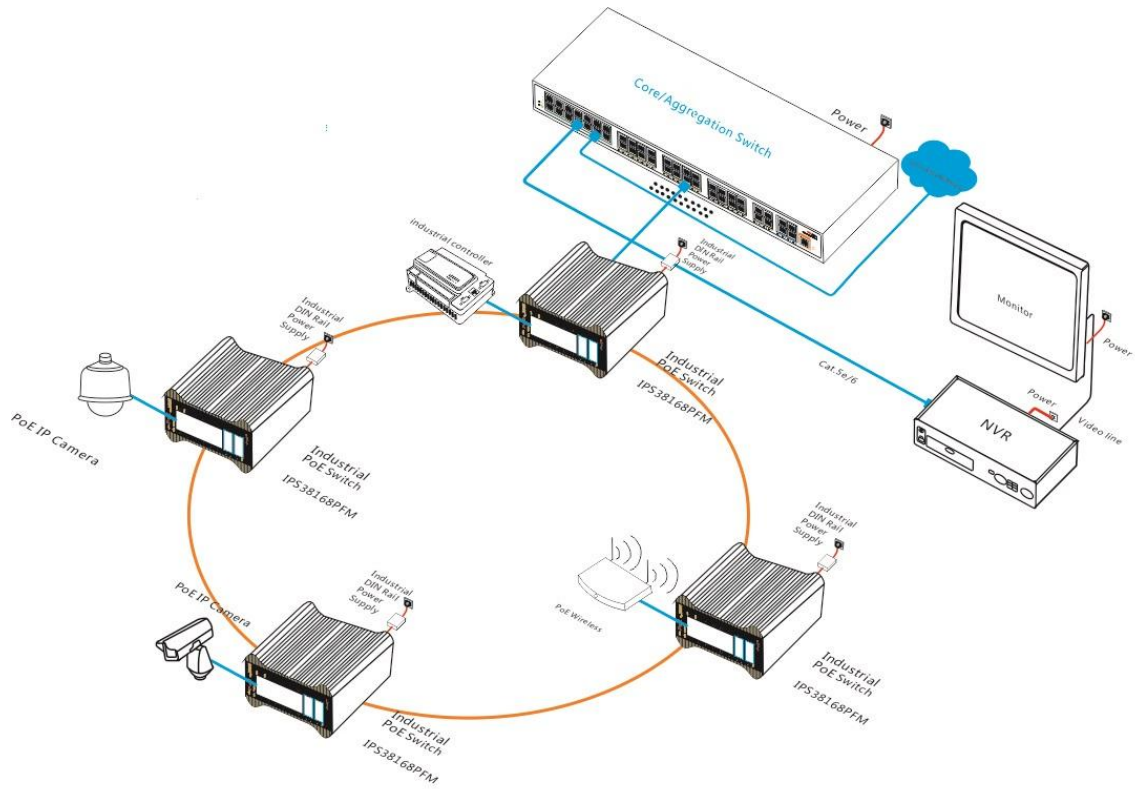
ORDERING INFORMATION

Model	Description	Recommended Power Supply
ONV-IPS38168PFM	L3 managed industrial PoE fiber switch with 12*10/100/1000M RJ45 ports and 4*1/10G uplink SFP+ ports. Port 1-8 can support IEEE 802.3 af/at PoE standard. It can support dual DC power input and DIN rail mounting.	120W/240W
Note: The optical module and power supply are not included. need to be purchased separately.		

PACKING LIST

	Content	Qty	Unit
Packing List	16-port 10G uplink L3 managed industrial PoE switch	1	SET
	RJ45-DB9 Line	1	PC
	User Guide	1	PC
	Warranty Card	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

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Product	Model	Description	Unit
	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
	2612-T-G-SC	Industrial SFP optical module, 1.25G, single-mode single fiber TX1310nm/ RX1550nm, transmission distance: 20km, SC interface, supports DDM function and hot plugging.	PC
	2613-R-G-SC	Industrial SFP optical module, 1.25G, single-mode single fiber TX1550nm/ RX1310nm, transmission distance: 20km, SC interface, supports DDM function and hot plugging.	PC
10G Optical Module	6630-G	Industrial SFP+ optical module, 10G, multi-mode dual fiber 850nm, transmission distance: 300m, LC interface, supports DDM function and hot plugging.	PC
	7832-G	Industrial SFP+ optical module, 10G, single-mode dual fiber 1310nm, transmission distance: 20km, LC interface, supports DDM function and hot plugging.	PC
	7832-33-G	Industrial SFP+ optical module, 10G, single-mode single fiber TX1330nm/ RX1270nm, transmission distance: 20km, LC interface, supports DDM function and hot plugging.	PC
	7832-27-G	Industrial SFP+ optical module, 10G, single-mode single fiber TX1270nm/ RX13300nm, transmission distance: 20km, LC interface, supports DDM function and hot plugging.	PC

POWER SUPPLY

Product	Model	Description	Unit
130W Desktop Power Adapter	GWS-AP130-52	Desktop 130W single set of output power adapter Input Voltage: AC100V~240V 50-60Hz, 2.3A Output Voltage: DC52V, 2.5A Operation Temperature: -20℃ to +65℃	PC
250W Desktop	GWS-AP250-52	Desktop 250W single set of output power adapter	PC

Power Adapter		Input Voltage: AC100V~240V 50-60Hz,4.1A Output Voltage: DC52V, 4.8A Operation Temperature: -20℃ to +65℃	
120W DIN Rail Industrial Power Supply	GWS-DP120-48	DIN Rail 120W single set of output power supply Input Voltage: AC100V~240V 50-60Hz,1.5A 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 of output power supply Input Voltage: AC100V~240V 50-60Hz,3A Output Voltage: DC48V, 5.0A Operation Temperature: -40℃ to +70℃	PC

RELATED PRODUCT

Model	Description
ONV-IPS33168PFM-4GF	L2+ managed industrial PoE fiber switch with 12*10/100/1000M RJ45 ports and 4*100/1000M SFP ports. Port 1-8 can support IEEE 802.3 af/at PoE standard. It can support dual DC power input and DIN rail mounting.
ONV-IPS33248PFM	L2+ managed industrial PoE fiber switch with 12*10/100/1000M RJ45 ports and 12*100/1000M SFP ports. Port 1-8 can support IEEE 802.3 af/at PoE standard. It can support dual DC power input and DIN rail mounting.
ONV-IPS33248PFM-4GF	L2+ managed industrial PoE fiber switch with 20*10/100/1000M RJ45 ports and 4*100/1000M SFP ports. Port 1-8 cansupport IEEE 802.3 af/at PoE standard. It can support dual DC power input and DIN rail mounting.
ONV-IPS38248PFM	L3 managed industrial PoE fiber switch with 12*10/100/1000M RJ45 ports and 8*100/1000M SFP ports and 4*1/10G SFP+

14	ports. Port 1-8 can support IEEE 802.3 af/at PoE standard. It can support dual DC power input and DIN rail mounting.
ONV-IPS38248PFM-8G	L3 managed industrial PoE fiber switch with 20*10/100/1000M RJ45 ports and 4*1/10G uplink SFP+ ports. Port 1-8 can support IEEE 802.3 af/at PoE standard. It can support dual DC power input and DIN rail mounting.

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14

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