Product Datasheet

16-port 10G Uplink Managed Industrial PoE Switch

(ONV-IPS36168PFM)

OVERVIEW

The ONV-IPS36168PFM is a 10G uplink L2+ managed industrial PoE fiber switch independently developed by ONV. It has 12*10/100/1000Base-T RJ45 ports and 4*1/10G SFP+ ports. Port 1-8 can support IEEE 802.3 af/at PoE standard, and single-port PoE power reaches 30W. As a PoE power supply device can automatically detect and identify powered devices that meet standards and power them through network cables. It can power PoE terminal equipment such as wireless AP, IP cameras, Internet phones, and industrial sensors through network cables. It meets the network environment that requires a high-density PoE power supply and is suitable for intelligent transportation, rail transportation, power industry, mining, metallurgy, and green Establish cost-effective, stable, and reliable communication networks in industrial scenarios such as energy construction.

The ONV-IPS36168PFM has L2+ network management function, supports IPV4/IPV6 management, static routing is forwarded at full line speed, complete security protection mechanism, ACL/QoS policy, and rich VLAN functions are easy to manage and maintain. It has leading ring network technology that supports a variety of industrial-grade redundant ring network protocols. Any port can form a ring, supporting chain, star, double star, ring, tangent ring, intersecting ring, coupling ring, and the ring network will self-heal

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within 20ms. ONV-IPS36168PFM industrial switch has high reliability, high security, and high manageability, ensuring reliable transmission of critical data. It supports remote management and cooperates with the ONV-NMS network management platform for cluster management to achieve full-process blind-spot management. ONV-IPS36168PFM follows industrial product design and materials, and its outer shell is made of aluminum alloy. It has industrial site environment adaptability (mechanical stability, climate environment adaptability, electromagnetic environment adaptability), protection level IP40, dual redundant power supply, low power consumption and fanless cooling, and a 5-year 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 1/10G SFP+ uplink 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.

◇ 8*10/100/1000Base-T RJ45 ports, meeting the needs of security monitoring, teleconferencing system, wireless coverage, and other scenarios.

◇ Priority system for PoE port, it will supply power to the high priority level port first when the power budget is insufficient and avoid overwork of the device.

■ **Strong business processing capability**

◇ Support ERPS ring network and STP/RSTP/MSTP to eliminate layer 2 loops and realize link backup.

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◇ 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 Snooping V1/V2/V3 multicast protocol IGMP to meet the 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.

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

■ Easy O&M management

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

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

◇ RMON, system logs, and port traffic statistics facilitate network optimization and

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transformation.

◇ LLDP facilitates the network management system to query and determine the communication status of the link.

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

TECHNICAL SPECIFICATION

Model	ONV-IPS36168PFM
Interface Characteristics	
Fixed Port	Power off alarm switch (FAULT) 4*1/10G uplink SFP+ ports (Data) 4*10/100/1000Base-T uplink RJ45 ports (Data) 8*10/100/1000Base-T PoE ports (Data/Power) 2 set of V+, V- redundant DC power interface (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 interface, default no include optical modules (optional single-mode / multi-mode, single fiber / dual fiber optical module. LC)
SFP Port Expansion	Turbo overclocking 2.5G optical module and ring
Optical Cable/ Distance	Multi-mode: 850nm/ 0-500m, 0-300m(10G), 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, IEEE802.3z 1000Base-X
	IEEE802.3ab 1000Base-T, 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), PoE: PoE (Green)
	Network: Link (Yellow), Fiber Port: L/A (Green)
Reset Switch	Yes, Press and hold the reset switch for 10s and release it to restore the factory settings

PoE & Power Supply

PoE Port	Port 1 to 8
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.

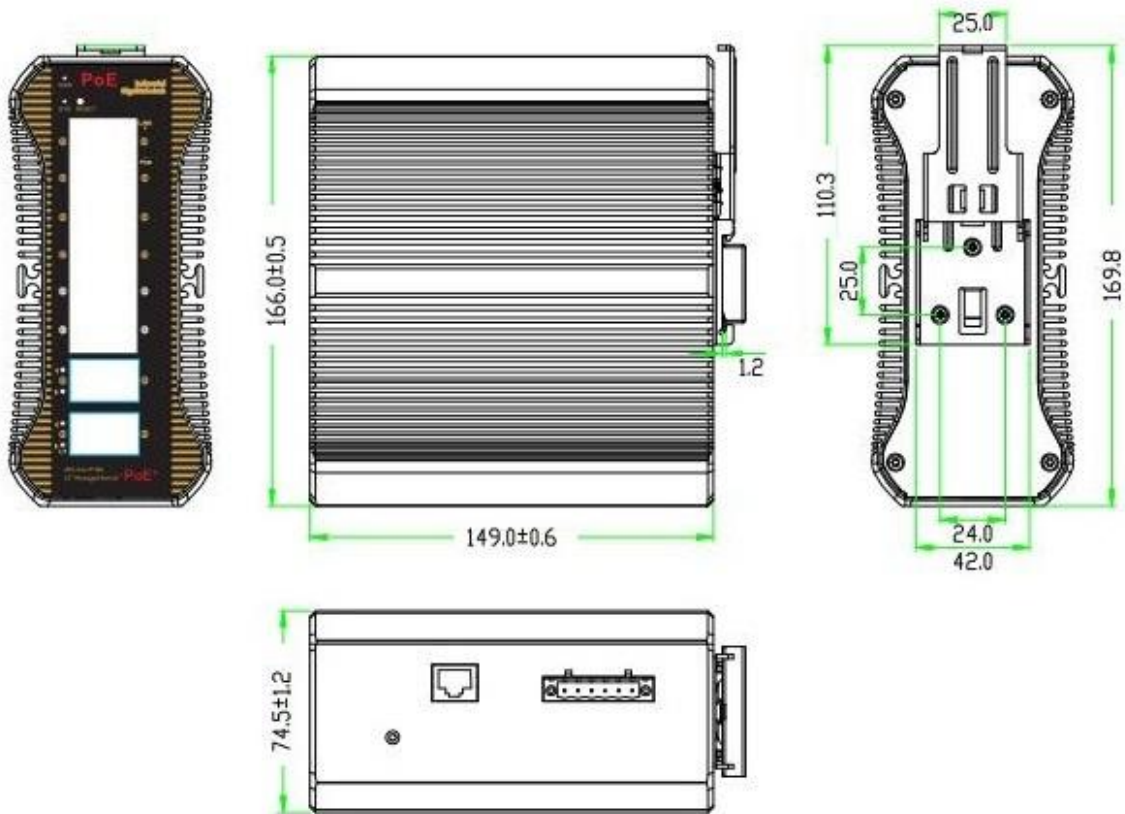| Power Supply	No, optional 48V/120W or 48V/240W industrial power supply
Physical Parameter	
Operation TEMP/ Humidity	-40°C~+80°C, 5%~90% RH Non condensing
Storage TEMP/ Humidity	-40°C~+85°C, 5%~95% RH Non condensing
Dimension (L*W*H)	166*150*75mm
Net /Gross Weight	<1.9kg / <2.4kg
Installation	Desktop, 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 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.

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Network Management Features	
Interface	Port temperature protection settings
	IEEE802.3x flow control (Full duplex)
	Broadcast storm suppression based on port rate
	Port EEE green Ethernet energy-saving configuration
	Limit the rate of packet traffic on incoming and outgoing ports, with mini granularity of 64 Kbps
Layer 3 Features	ARP protocol, max entries 1024
	Static route/ default route, max entries 128
	L2+ network management function, IPV4/IPV6 dual-stack management
	L3 routing and forwarding support communication between different network segments and different VLAN
VLAN	Access, Trunk, and Hybrid port configurations
	Voice VLAN, MAC-based VLAN, QinQ configuration
	Port-based VLAN(4K), IEEE802.1q, Protocol-based VLAN
Port Aggregation	LACP, static aggregation
	Max 8 aggregation groups and per group support up to 8 ports
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 quick log out
Port Mirroring	Bidirectional data mirroring based on port
QoS	Queue scheduling algorithm (SP, WRR, SP+WRR)
	Flow-based rate limiting, Flow-based packet filtering
	Flow-based redirection, Diff-Serv QoS, Priority mark/ remark
	8*Output queues of each port, 802.1p/ DSCP priority mapping
ACL	ACL distribution based on port and VLAN
	L2-L4 packet filtering function, matching the first 80 bytes message, and

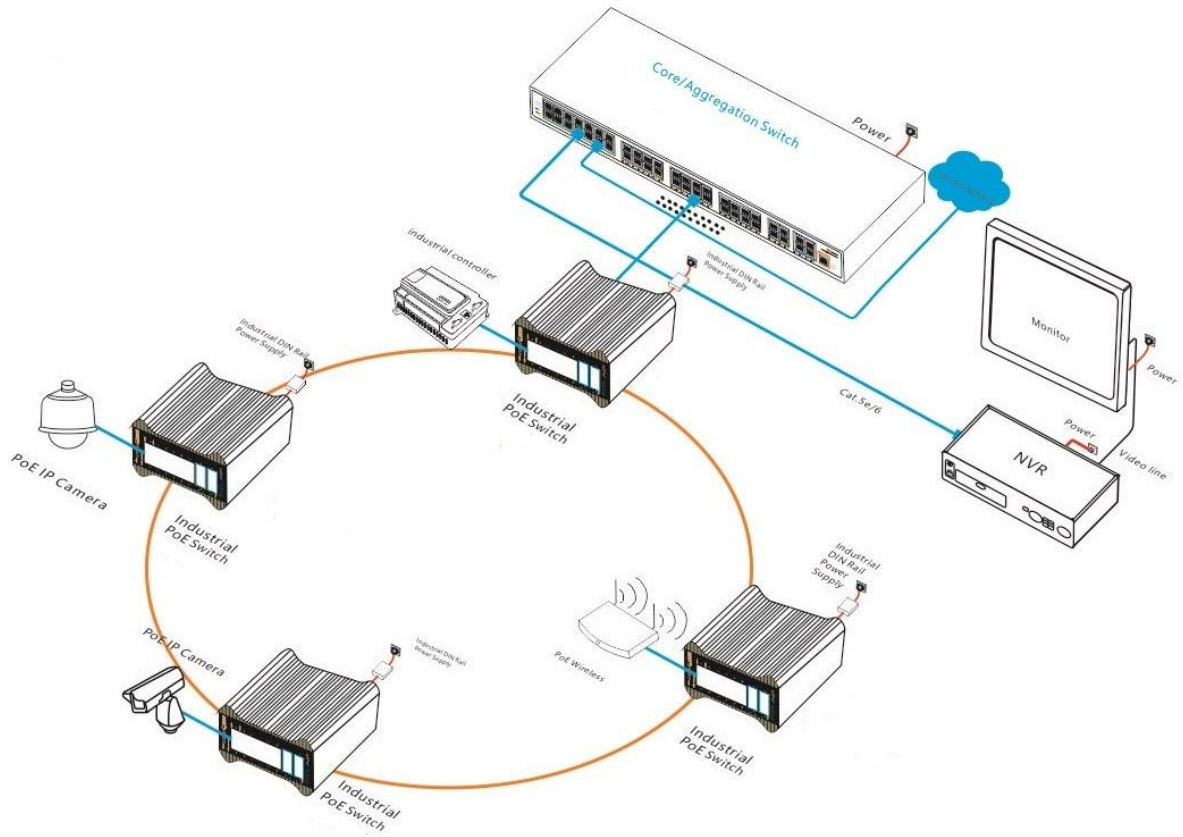|	
	provides ACL definitions based on source MAC address, destination MAC address, source IP address, destination IP address, IP protocol type, TCP/UDP port, TCP/UDP port range, VLAN, etc.
Security	IP source address protection ARP intrusion detection function ARP message rate limiting function Port broadcast 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 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

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Microsoft Windows, Linux, or Mac OS X) installed on each computer in a network

DIMENSION

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APPLICATION

ORDERING INFORMATION

Model	Description	Recommended Power Supply
ONV-IPS36168PFM	L2+ 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 supply input and DIN rail mounting.	120W/240W

Note: The optical module and power supply are not included. need to be purchased separately.

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PACKING LIST

	Content	Qty	Unit
Packing List	16-port 10G uplink L2+ 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
	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 Power Adapter	GWS-AP250-52	Desktop 250W single set of output power adapter Input Voltage: AC100V~240V 50-60Hz,4.1A Output Voltage: DC52V, 4.8A Operation Temperature: -20℃ to +65℃	PC
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 supply 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 supply 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 can support IEEE 802.3 af/at PoE standard. It can support dual DC power supply input and DIN rail mounting.
ONV-IPS36248PFM	L2+ managed industrial PoE fiber switch with 12*10/100/1000M RJ45 ports and 8*100/1000M SFP 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 supply input and DIN rail mounting.
ONV-IPS36248PFM-8G	L2+ 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 supply input and DIN rail mounting.

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