

## Product Datasheet

# 20-port Gigabit L2+ Managed Industrial PoE Fiber Switch (ONV-IPS33020PFM)



## OVERVIEW

The ONV-IPS33020PFM is a full Gigabit L2+ managed industrial PoE fiber switch independently developed by ONV. It has 16\*10/100/1000Base-T adaptive RJ45 ports and 4\*100/1000Base-X uplink SFP fiber ports. Port 1-16 can support IEEE 802.3 af/at PoE standard, and single-port PoE power reaches 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 forming a cost-effective, stable, and reliable communication network.

The ONV-IPS33020PFM has L2+ network management function, supports IPV4 management, static routing forward, complete security protection mechanism, perfect ACL/QoS policy, and rich VLAN functions for easy management and maintenance. It supports multiple network redundancy protocols STP/ RSTP/ MSTP (<50ms) and (ITU-T G.8032) ERPS (<20ms) to improve link backup and network reliability. When the one-way network fails, the communication can be quickly restored to ensure the uninterrupted communication of important applications. According to actual application needs, PoE

power supply management, port management, routing address management, port flow control, VLAN division, IGMP, security policy, and other application service configurations are performed through Web, CLI, SNMP, Telnet, and other network management methods.

## FEATURE

### ■ Gigabit access and Gigabit SFP 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 Gigabit SFP uplink port combination, which enables users to flexibly build networking to meet the needs of various scenarios.

### ■ Smart 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.
- ◇ 16\*10/100/1000Base-T RJ45 support PoE power, meeting the PoE power requirements of security monitoring, industrial automation systems, wireless coverage and other scenarios.

### ■ Security

- ◇ Support port isolation.
- ◇ Support port broadcast storm suppression.
- ◇ Support port+MAC binding, IP+MAC+port 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.

### ■ Strong business processing capability

- ◇ Support IEEE802.1Q VLAN, Users can flexibly divide VLAN according to their needs.
- ◇ Support ERPS ring network and STP/RSTP/MSTP to eliminate layer 2 loops and realize link backup.
- ◇ 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 multicast protocol, IGMP Snooping V1/V2/V3 meets multi-terminal high-definition video surveillance and video conference access requirements.

### ■ Stable and reliable

- ◇ CCC, CE, FCC, RoHS.
- ◇ The user-friendly panel can show the device status through the LED indicator of PWR, Link, and PoE.
- ◇ Using self-developed power supply, redundant dual power supply provides long-term stable PoE power output.
- ◇ Low power consumption, with fan, galvanized steel shell, excellent heat dissipation to ensure stable operation of the switch.

### ■ Easy O&M management

- ◇ Support NMS platform cluster management.
- ◇ Support CPU monitoring, memory monitoring, Ping detection, and 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), Telnet, and other diversified management and maintenance.

## TECHNICAL SPECIFICATION

Model	ONV-IPS33020PFM	ONV-IPS33020PFM-at
<b>Interface Characteristics</b>		
Fixed Port	2*AC100-240V input ports 1*RS232 Console port (115200, N, 8,1) 4*100/1000Base-X uplink SFP fiber ports (Data) 16*10/100/1000Base-T PoE ports (Data/Power) 1 group of DC48-57V input ports (Support reverse polarity protection)	
Ethernet Port	Port 1-16 support 10/100/1000Base-T(X) 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 optical fiber port, default no include optical module (optional single-mode/ multi-mode, single fiber/ dual fiber optical module. LC)	
Optical Cable/ Distance	Multi-mode: 850nm/ 0-500m Single-mode: 1310nm/ 0-40km, 1550nm/ 0-120km.	
<b>Chip Parameter</b>		
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	56Gbps (Non-blocking)	
Forwarding Rate@64byte	41.7Mpps	
CPU	500MHz	
DRAM	1Gbits	
FLASH	256Mbits	
MAC	8K	
Buffer Memory	4.1Mbits	
Jumbo Frame	10Kbytes	
LED Indicator	Power: PWR (Yellow), System: SYS (Yellow) PoE: PoE (Green), Network: Link/Act (Yellow), Fiber port: L/A (Green)	
Reset Switch	Yes, press and hold the switch for 10 seconds and release it to restore the factory settings	
<b>PoE &amp; Power Supply</b>		
PoE Port	Port 1-16	
PoE Management	Port PoE output on/off, Port PoE working status display	
Power Supply Pin	1/2(+)/3/6(-)	
Max Power Per Port	30W, IEEE 802.3 af/at	
Total PWR / Input Voltage	250W(AC100-240V)	400W(AC100-240V)
Power Consumption	Standby<15W, Full Load<240W	Standby<18W, Full Load<380W
Power Supply	Built-in power supply, AC100~240V 50-60Hz, 4.1A	Built-in power supply, AC100~240V 50-60Hz, 5.0A
Power Input Port	1 group of DC48-57V input ports Power-down alarm switch port, 2*AC power input ports Dual input power port: AC power supply priority, support anti-reverse	

	protection, power-off automatic switching DC connection.	
<b>Physical Parameter</b>		
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)	440*378*44.5mm	
Net /Gross Weight	5.3kg / 6.1kg	5.5kg / 6.3kg
Installation	Desktop, 19 inch 1U cabinet	
<b>Certification &amp; Warranty</b>		
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, 1s-3s IEC61000-4-5 (Surge): Power cable: CM±4kV/ DM±2kV, Data cable: ±4kV	
Mechanical Properties	IEC60068-2-32 (Free Fall), IEC60068-2-6 (Anti Vibration), 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.
<b>Network Management Feature</b>	
Interface	IEEE802.3x flow control (Full duplex) Port real-time flow management (Flow Interval) Broadcast storm suppression based on port rate Limit the rate of incoming and outgoing packet traffic, with mini granularity of 16Kbps and max of 1Gbps
Layer 3 Features	IPV4 static route/ default route, max 128 entries L2+ network management, ARP protocol, max 1024 entries
VLAN	Port configuration of Access, Trunk, Hybrid VLAN based on the protocol, (4K) VLAN based on port, IEEE802.1q
Port Aggregation	LACP dynamic aggregation, Static aggregation Max 10 aggregation groups and maximum 8 ports per group.
Spanning Tree	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s)
ITU G.8032 Ring Network	ERPS fast ring network supports up to 250 rings, The ring max support 250 devices, Ring network self-healing time is less than 20ms
Multicast	Multicast VLAN, User quick log out IGMP Snooping V1/V2/V3 and max 1024 multicast groups
Mirroring	Bidirectional traffic mirroring for basic ports
QoS	Queue scheduling algorithm (SP, WRR, SP+WRR) Flow-based rate limiting, Stream based redirection Flow-based packet filtering, 8*output queues of each port 802.1p/ DSCP priority mapping, Diff-Serv QoS, Priority Mark/ Remark
ACL	Support ACL based on port and VLAN L2-L4 packet filtering function, can match the first 80 bytes of the message, provided based on the source MAC address, destination MAC address, source IP address, destination IP address, IP protocol type, TCP/UDP port, TCP/UDP port range, Define ACLs such as VLAN
Security	Port based IEEE802.1X authentication

	<p>SSL guarantees data transmission security</p> <p>Quad binding function of IP+MAC+VLAN+ports</p> <p>MAC address learning limit, MAC address black hole</p> <p>IP Source Guard function, AAA&amp;RADIUS certification</p> <p>Anti DoS attack, Port broadcast message suppression</p> <p>Hierarchical user management and password protection</p> <p>SSH 2.0 provides a secure encrypted channel for user login</p> <p>Host data backup mechanism, ARP intrusion detection function</p> <p>Port isolation, IP Source Guard, ARP message speed limit function</p>
DHCP	DHCP Client, DHCP Snooping, DHCP Server
Management	<p>Console/ Telnet/ SSH2.0 CLI configuration</p> <p>NTP clock, One click restore, SNMP V1/V2/V3</p> <p>FTP, TFTP file upload and download management</p> <p>Web network management (HTTPS), Ping detection</p> <p>View CPU instant utilization status, System work log</p> <p>ONV-NMS platform cluster management (LLDP+SNMP)</p> <p>Cable status check, Link Layer Discovery Protocol(LLDP)</p> <p>Cloud network management and mobile APP operation and maintenance (remote O&amp;M)</p>
System	<p>Category 5 Ethernet network cable</p> <p>Web browser: Mozilla Firefox 2.5 or higher, Google browser chrome V42 or higher, Microsoft Internet Explorer10 or later</p> <p>TCP/IP, network adapter, and network operating system (such as Microsoft Windows, Linux, or Mac OS X) installed on each computer in a network</p>



## DIMENSION

## APPLICATION

## ORDERING INFORMATION

Model	Description	Power Supply
ONV-IPS33020PFM	L2+ managed industrial PoE fiber switch with 16*10/100/1000M RJ45 ports and 4*100/1000M SFP uplink fiber ports. Port 1-16 support IEEE 802.3 af/at	2*250W
ONV-IPS33020PFM-at	PoE standard, 2AC+DC redundant power terminal input, and 1U/19-inch cabinet installation.	2*400W

**Note:** The optical modules are not included. need to be purchased separately.

## PACKING LIST

	Content	Qty	Unit
Packing List	20-port Gigabit L2+ managed industrial PoE fiber switch	1	SET
	RJ45-DB9 Line	1	PC
	AC Power Cable	1	PC
	Mounting Kits (Hanging Ears)	1	SET
	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, support DDM function, support hot plug and pull.	PC
	2632-G	Industrial SFP optical module, 1.25G single-mode dual fiber 1310nm, transmission distance: 20km, LC interface, support DDM function, support hot plug and pull.	PC
	2612-T-G	Industrial SFP optical module, 1.25G single-mode single fiber	PC

		TX1310nm/ RX1550nm, transmission distance: 20km, LC interface, support DDM function, support hot plug and pull.	
	2613-R-G	Industrial SFP optical module, 1.25G single-mode single fiber TX1550nm/ RX1310nm, transmission distance: 20km, LC interface, support DDM function, support hot plug and pull.	PC
	2612-T-SC-G	Industrial SFP optical module, 1.25G single-mode single fiber TX1310nm/ RX1550nm, transmission distance: 20km, SC interface, support DDM function, support hot plug and pull.	PC
	2613-R-SC-G	Industrial SFP optical module, 1.25G single-mode single fiber TX1550nm/ RX1310nm, transmission distance: 20km, SC interface, support DDM function, support hot plug and pull.	PC

## RELATED PRODUCT

Model	Description
ONV-IPS33028PFM	L2+ managed industrial PoE fiber switch with 24*10/100/1000M RJ45 ports and 4*100/1000M uplink SFP fiber ports. Port 1-24 support IEEE 802.3 af/at PoE standard, 2AC+DC redundant power terminal input, and 1U/19-inch cabinet installation.
ONV-IPS56028PFM	L2+ managed industrial PoE fiber switch with 24*10/100/1000M RJ45 ports and 4*1/10G uplink SFP+ fiber ports. Port 1-24 support IEEE 802.3 af/at PoE standard, 2AC+DC redundant power terminal input, and 1U/19-inch cabinet installation.
ONV-IPS56052PFM	L2+ managed industrial PoE fiber switch with 48*10/100/1000M RJ45 ports and 4*1/10G uplink SFP+ fiber ports. Port 1-48 support IEEE 802.3 af/at PoE standard, 2AC+DC redundant power terminal input, and 1U/19-inch cabinet installation.

## CONTACT US

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