Product Datasheet

16-port 10G Uplink Managed Industrial Ethernet Fiber Switch

(ONV-IPS36168FM)

OVERVIEW

The ONV-IPS36168FM is a 10G uplink managed industrial Ethernet fiber switch independently developed by ONV. it has 12*10/100/1000Base-T RJ45 ports and 4*1/10G SFP+ fiber slot ports. Each port can support wire-speed forwarding.

The ONV-IPS36168FM has L2+ full network management function, IPV4/IPV6 management, software/static route forwarding, security protection mechanisms, complete ACL/QoS policies, and rich VLAN functions, and is easy to manage and maintain. Supports multiple network redundancy protocols STP/RSTP/MSTP (<50ms) and (ITU-T G.8032) ERPS(<20ms) to improve link backup and network reliability. Any port can be looped, supporting chain, star, Double star, ring, tangent ring, intersecting ring, coupling ring, self-healing within 20ms of the ring network. When a one-way network fails, communication can be quickly resumed to ensure uninterrupted communication of important applications. This series of models has high reliability, high security, and high

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manageability. It ensures reliable transmission of critical data, supports remote management, and can be clustered with the ONV-NMS network management platform of the optical network to achieve blind management. ONV-IPS36168FM industrial grade series products fully comply with industrial product design and materials. The shell is made of aluminum alloy to enhance heat dissipation performance, and has excellent industrial field environment adaptability (including mechanical stability, climatic environment adaptability, electromagnetic environment adaptability, etc.), protection class up to IP40, support dual redundant power supply, low power fanless cooling technology, MTBF average trouble-free working time up to 35 years, 5-year warranty.

FEATURE

■ **Full gigabit port ,10G uplink**

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

◇ Support non-blocking wire-speed forwarding.

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

■ **Strong business processing capability**

◇ IEEE802.1Q VLAN, flexible VLAN division,Voice VLAN and QinQ configuration.

◇ QoS, Priority mode based on 802.1P, Port & DSCP, queue scheduling algorithm

including Equ, SP, WRR & SP+WRR.

◇ ALC, filter data packet through configuring matching rules, processing operation &

time permission, and provide flexible and safe access control.

◇ IGMP V1/V2 and IGMP Snooping.
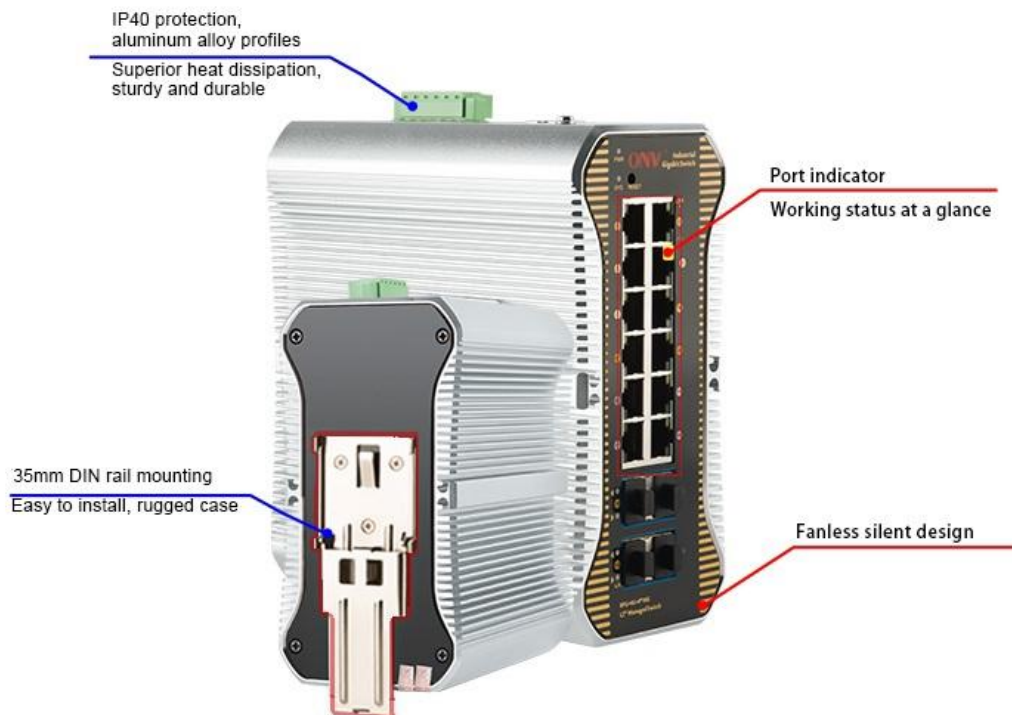
◇ ERPS/STP/RSTP/MSTP.

◇ Static and dynamic aggregation.
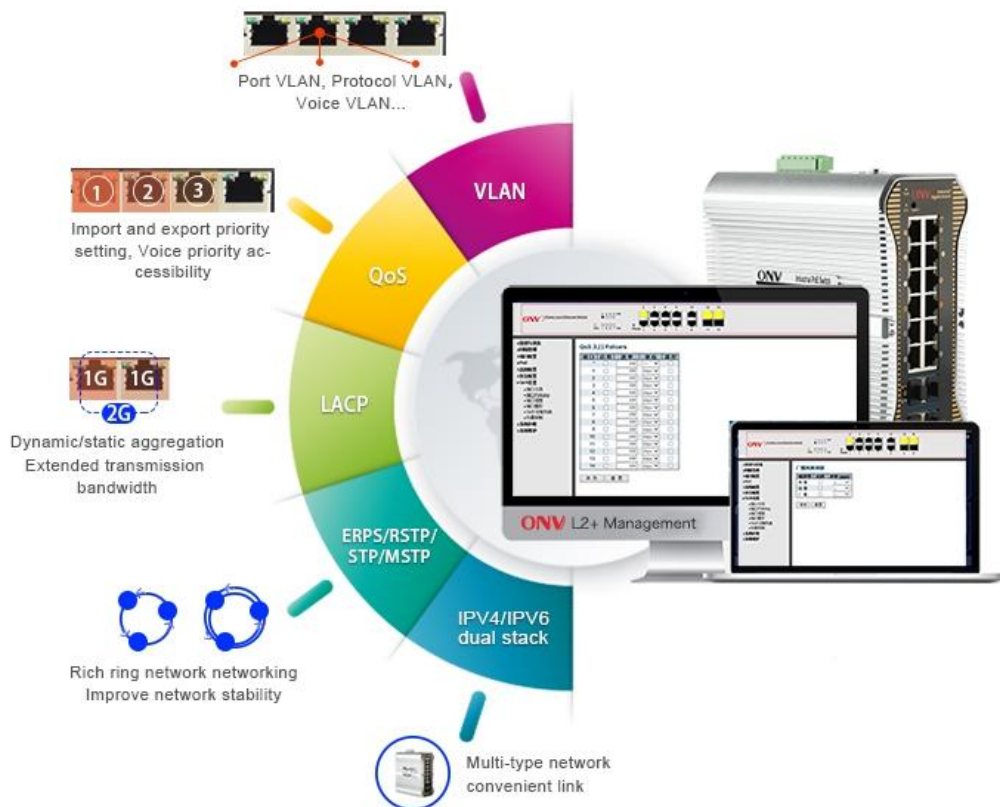
■ **Security**

◇ 802.1X authentication.

◇ Port isolation,Storm control.

◇ IP-MAC-VLAN-Port binding.

■ **Stable and reliable**

◇ CCC,CE, FCC, RoHS.

◇ Low power consumption, no fan , aluminum casing.

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

■ **Easy operation and maintenance management**

◇ HTTPS, SSLV3, and SSHV1/V2.

◇ RMON, system log, LLDP, and port traffic statistics.

◇ CPU monitoring, memory monitoring, Ping test, and cable diagnose.

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◇ Web management, CLI command line (Console, Telnet), SNMP (V1/V2/V3).

TECHNICAL SPECIFICATION

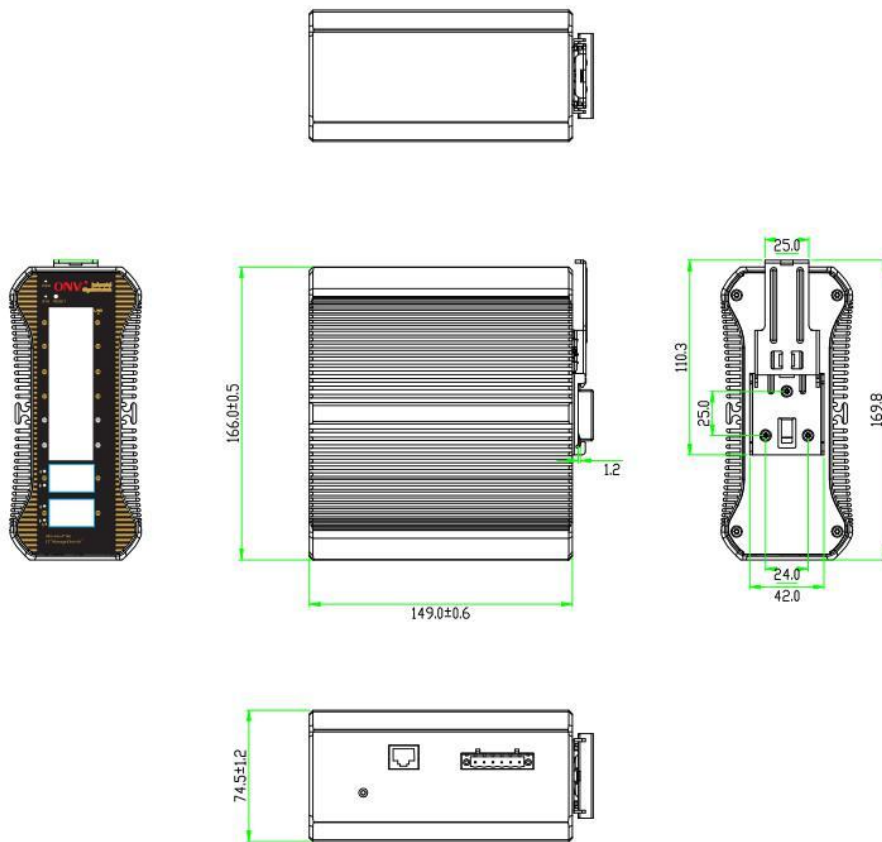| Model	ONV-IPS36168FM
Interface Characteristics	
Fixed Port	12*10/100/1000Base-T uplink RJ45 ports (Data) 4*1/10G uplink SFP+ slot ports (Data) 2 set of V+, V- redundant DC power interface (6 Pin Phoenix terminal) Power off alarm switch (FAULT)
Ethernet Port	Port 1-12 support 10/100/1000Base-T,auto-sensing,Full/half duplex MDI/MDI-X self-adaption
Twisted Pair Transmission	10BASE-T: Cat3,4,5 UTP(≤100 meter) 100BASE-TX: Cat5 or later UTP(≤100 meter) 1000BASE-T: Cat5e or later UTP(≤100 meter)
Optical Fiber Port	Gigabit SFP /10G SFP+ optical fiber interface, default 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, 850nm / 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 IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-X IEEE802.3ae 10GBase-LR/SR, IEEE802.3x

Forwarding Mode	Store and Forward(Full Wire Speed)
Switching Capacity	368Gbps
Forwarding Rate@64byte	77.38Mpps
MAC	24K
Buffer Memory	24M
Jumbo Frame	9.6K
LED Indicator	System: SYS (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
Power Supply	
Total PWR / Input Voltage	36W/48V
Working Voltage	12-48VDC, 6 Pin industrial Phoenix terminal, support anti-reverse protection.
Power Consumption	Standby<16W, Full load<28W
Power Supply	No, optional 24V/36W 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*149*74.5mm
Net /Gross Weight	<1.9kg / <2.4 kg
Installation	Desktop, DIN rail
Certification & Warranty	
Lightning Protection	Lightning protection: 6KV 8/20us; Protection level: IP40 IEC61000-4-2(ESD):±8kV contact discharge,±15kV air discharge

	IEC61000-4-3(RS):10V/m(80~1000MHz)
	IEC61000-4-4(EFT): power cable:±4kV; data cable:±2kV
	IEC61000-4-5(Surge):power cable:CM±4kV/DM±2kV; data cable:±4kV
	IEC61000-4-6(radio frequency transmission):10V(150kHz~80MHz)
	IEC61000-4-8(power frequency magnetic field):100A/m;1000A/m ,1s to 3s
	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
	IEC61000-4-16(common-mode transmission):30V; 300V,1s
	FCC Part 15/CISPR22(EN55022):Class A
	IEC61000-6-2(Common Industrial Standard)
Mechanical Properties	IEC60068-2-6 (anti vibration)
	IEC60068-2-27 (anti shock)
	IEC60068-2-32 (free fall)
Certification	CCC;CE mark, commercial; CE/LVD EN60950;FCC Part 15 Class B; RoHS
Warranty	5 years, lifelong maintenance.

Network Management Features

|	
Interface	IEEE802.3X (Full-duplex)
	Port temperature protection setting
	Port green Ethernet Energy-saving setting
	Broadcast storm control based on port speed
	The speed limit of the message flow in the access port.
	The minimum particle size is 64Kbps.
Layer 3 Features	Support ARP protocol, maximum 1024 pcs
	Support static route/default route, maximum 128 pcs
	Support L2+ network management function, support IPV4/IPV6 dual stack management

	Support L3 routing and forwarding, support communication between different network segments and different VLANs
VLAN	4K VLAN based on port, IEEE802.1q VLAN based on the protocol VLAN based on MAC Voice VLAN, QinQ configuration 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	G.8032 (ERPS),Recovery time less than 20ms 250 Ring at most, Max 254 devices per ring.
Multicast	MLD Snooping v1/v2,Multicast VLAN IGMP Snooping v1/v2, Max 1024 multicast groups, Fast log out
Port Mirroring	Bidirectional data mirroring based on port
QoS	Flow-based Rate Limiting Flow-based Packet Filtering 8*Output queues of each port 802.1p/DSCP priority mapping Diff-Serv QoS,Priority Mark/Remark Queue Scheduling Algorithm (SP, WRR, SP+WRR)
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-MAC-VLAN-Port binding ARP inspection,Anti-DoS attack AAA & RADIUS,MAC learning limit Mac black holes,IP source protection

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9	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
DHCP	DHCP Client,DHCP Snooping, DHCP Server,DHCP Relay
Management	One-key recovery Cable Diagnose,LLDP Web Management (HTTPS) NTP,System work log,Ping Test CPU instant utilization status view Console/AUX Modem/Telnet/SSH2.0 CLI Download & Management on FTP, TFTP, Xmodem, SFTP,SNMP V1/V2C/V3 ONV NMS - smart network management system platform(LLDP+SNMP)
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

APPLICATION

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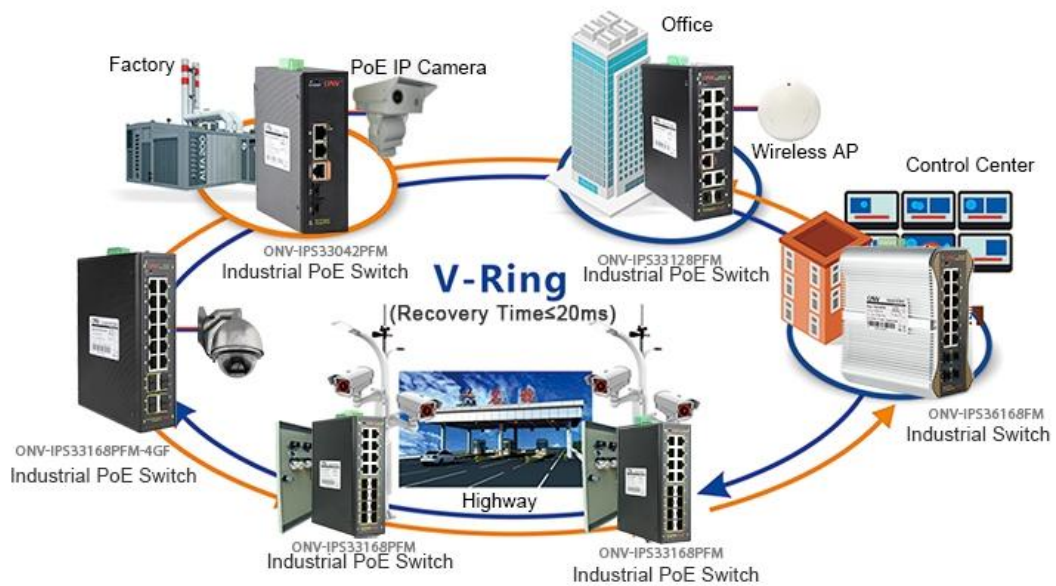
ORDERING INFORMATION

Model	Description	Recommended Power Supply
ONV-IPS36168FM	L2+ managed industrial Ethernet fiber switch with 12*10/100/1000M RJ45 ports and 4*1/10G uplink SFP+ slot ports, Support dual DC power supply input and DIN rail mounting.	36W
Note: Industrial Ethernet switch does not include SFP optical module and power supply.		

PACKING LIST

	CONTENT	QTY	UNIT
PACKING LIST	16-port 10G uplink managed industrial Ethernet switch	1	SET
	RJ45-DB9 Line	1	PC
	User Guide	1	PC
	Warranty Card	1	PC

OPTICAL MODULE INFORMATION

Product	Model	Description	Unit
1.25G Optical Module	ONV-2630	SFP optical module, 1.25G, multi mode dual fiber 850nm, transmission distance: 550m, LC interface, support DDM function, support hot plug and pull.	PC

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	ONV-2632	SFP optical module, 1.25G, single-mode dual fiber 1310nm, transmission distance: 20km, LC interface, support DDM function, support hot plug and pull.	PC
	ONV-2612-T	SFP optical module, 1.25G, single-mode single fiber TX1310nm/RX1550nm, transmission distance: 20km, LC interface, support DDM function, support hot plug and pull.	PC
	ONV-2613-R	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-G	Industrial SFP optical module, 1.25G, single-mode single fiber TX1310nm/RX1550nm, transmission distance: 20km, LC interface, support DDM function, support hot plug and pull.	PC
	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
	ONV-2612-T-SC	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
	ONV-2613-R-SC	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
Power Module	ONV-2633	1.25G SFP optical module transfers to 10/100/1000M RJ45 port.	PC
10G Optical Module	ONV-6630	SFP+ optical module,10G Multi-mode dual fiber 850nm, transmission distance: 300m, LC interface, support DDM function,support hot plug and pull.	PC
	ONV-7832	SFP+ optical module,10G Single-mode dual fiber 1310nm,	PC

	ONV-7832-33	SFP+ optical module,10G Single-mode single fiber TX1330nm/RX1270nm , transmission distance: 20km, LC interface, support DDM function, support hot plug and pull.	PC
		transmission distance: 20km, LC interface, support DDM function, support hot plug and pull.	
	ONV-7832-27	SFP+ optical module,10G Single-mode single fiber TX1270nm/RX13300nm , transmission distance: 20km, LC interface, support DDM function, support hot plug and pull.	PC

POWER SUPPLY SELECTION TABLE

Product	Model	Description	Unit
36W DIN Rail Industrial Power Supply	GWS-DP36-24	Din Rail type 36W single set of output power supply; Input Voltage:AC 100V~240V 50-60Hz, 0.56A Output Voltage:DC24V 1.5A Operation Temperature:-40℃—+70℃	PC

RELATED PRODUCT

Model	Description
ONV-IPS33168FM	L2+ managed industrial Ethernet fiber switch with 8*10/100/1000M RJ45 ports and 8*100/1000M SFP slot ports. Support dual DC power supply input and DIN rail mounting.
ONV-IPS33168FM-4GF	L2+ managed industrial Ethernet fiber switch with 12*10/100/1000M RJ45 ports and 4*100/1000M SFP slot ports. Support dual DC power supply input and DIN rail mounting.
ONV-IPS33248FM	L2+ managed industrial Ethernet fiber switch with 12*10/100/1000M RJ45 ports and 12*100/1000M SFP slot ports. Support dual DC power supply input and DIN rail mounting.
ONV-IPS33248FM-4GF	L2+ managed industrial Ethernet fiber switch with 20*10/100/1000M RJ45 ports and 4*100/1000M SFP slot ports. Support dual DC power supply input and DIN rail mounting.
ONV-IPS36248FM	L2+ managed industrial Ethernet fiber switch with 12*10/100/1000M RJ45 ports and 8*100/1000M uplink SFP slot ports and 4*1/10G uplink SFP+ slot ports. Support dual DC power supply input and DIN rail mounting.
ONV-IPS38248FM	L3 managed industrial Ethernet fiber switch with 12*10/100/1000M RJ45 ports and 8*100/1000M uplink SFP slot ports and 4*1/10G uplink SFP+ slot ports. Support dual DC power supply input and DIN rail mounting.

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