

## Product Datasheet

# 14-Port Full Gigabit Managed Industrial Ethernet Switch

## ONV-IPS33148FM

- 10\*10/100/1000M RJ45 ports and 4\*100/1000M SFP uplink SFP slot ports.
- Support G.8032 ERPS ring network protocol (self-healing time <20ms), RSTP, STP and MSTP are used for Ethernet ring network redundancy.
- Support IPV4/IPV6 dual stack protocol, TACACS+, ACL, IEEE 802.1X, HTTPS and SSH to enhance network security.
- Support various management and maintenance of Web network management, Console, SNMP (V1/V2/V3), and Telnet.
- Support dual power supply redundancy access, support anti-reverse protection, DC48-57V input, 6KV port lightning protection, IP40 protection level.
- -40°C+80°C working temperature, no fear of harsh environment.
- Support single-pole double-throw alarm switch interface, supporting DIN rail mounting.



## OVERVIEW

The ONV-IPS33148FM series is a full gigabit managed industrial Ethernet fiber switch independently developed by ONV. It has 10\*10/100/1000Base-T RJ45 ports and 4\*100/1000Base-X SFP fiber ports. Each port can support wire-speed forwarding.

The ONV-IPS33148FM has L2+ network management function, supports IPV4/IPV6 management, supports static route forwarding, complete security protection mechanism, ACL/QoS policy, and VLAN function, 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. When a one-way network fails, it can be quickly Resume communication and ensure uninterrupted communication. Configure the port management, routing address management, port traffic control, VLAN division, IGMP, and security policy based on the network management methods such as Web, CLI, SNMP, and Telnet. The ONV-IPS33148FM industrial Ethernet switch follows the industrial product design and materials. The outer casing is made of aluminum alloy to enhance the heat dissipation performance. It has excellent industrial field environment adaptability (mechanical stability, climatic environment adaptability, electromagnetic environment adaptability, etc.) and protection. grade IP40, support dual redundant power supply, low power fanless cooling technology, MTBF mean time between failures up to 35 years, 5 years warranty. It is suitable for industrial channels such as intelligent transportation, rail transit, power industry, mining, petroleum, shipping, metallurgy and green energy construction to form a cost-effective, stable and reliable communication network.

## FEATURE

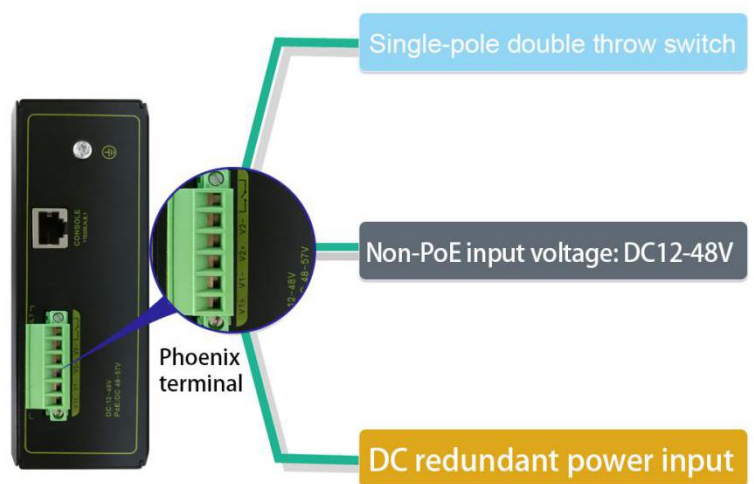
### ■ Full gigabit port access

- ◇ All series supports gigabit Ethernet port and gigabit 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.



■ Port lightning protection, ultra-wide voltage input

- ◇ Contact discharge 8KV, air discharge 15KV; port lightning protection common-mode 4KV, differential mode 2KV;
- ◇ Industrial dual power input
- ◇ Non-PoE DC INPUT: 12-48V.



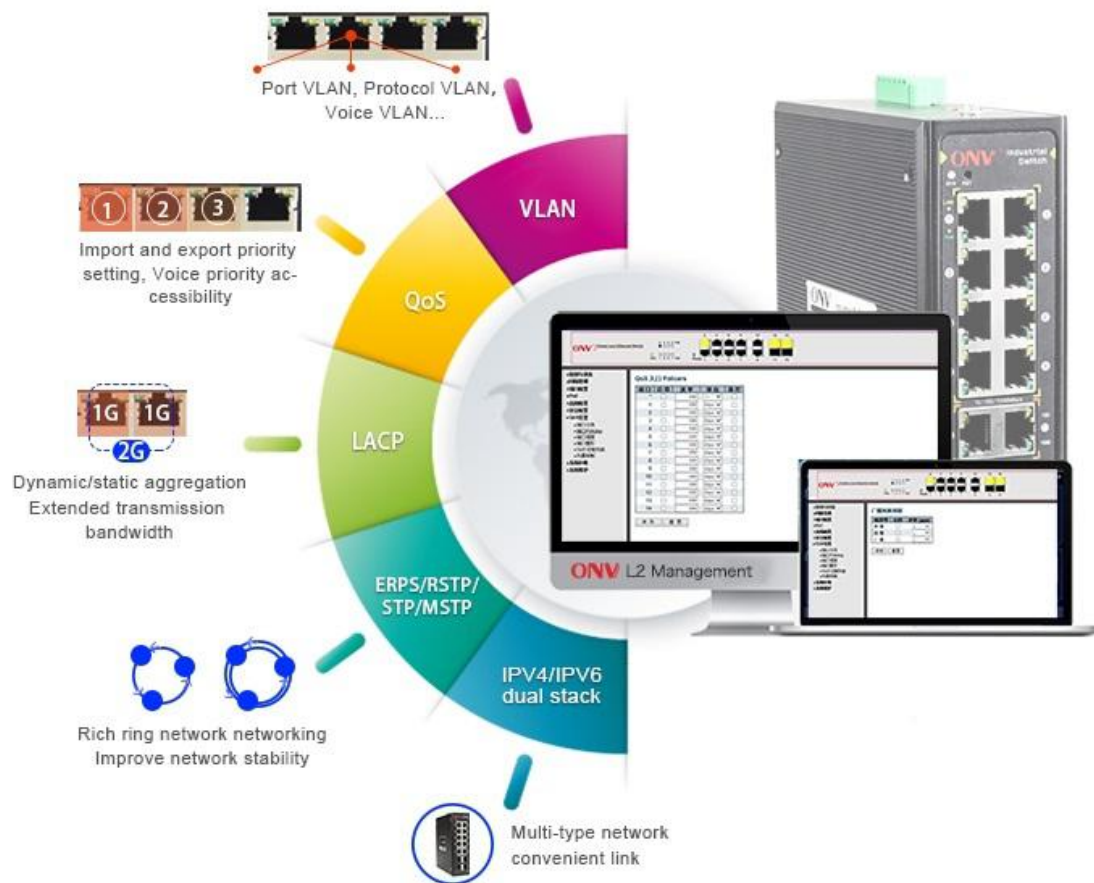
Contact discharge 8KV

Air discharge 15KV

Port lightning protection 6KV

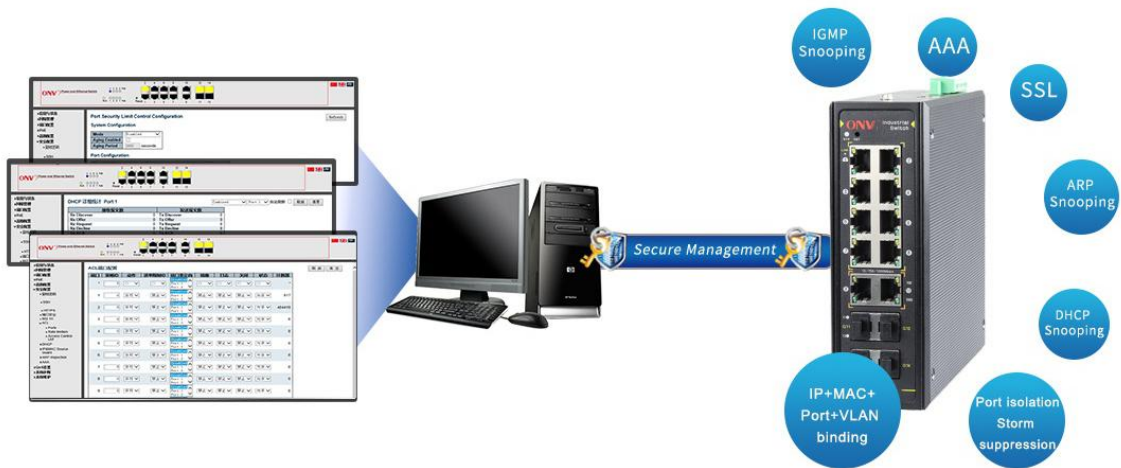
## ■ Network management and fast Ring function

- ◇ IGMP V1/V2 and IGMP Snooping.
- ◇ ERPS/STP/RSTP/MSTP.
- ◇ Static and dynamic aggregation.
- ◇ IEEE802.1Q VLAN, flexible VLAN division 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.



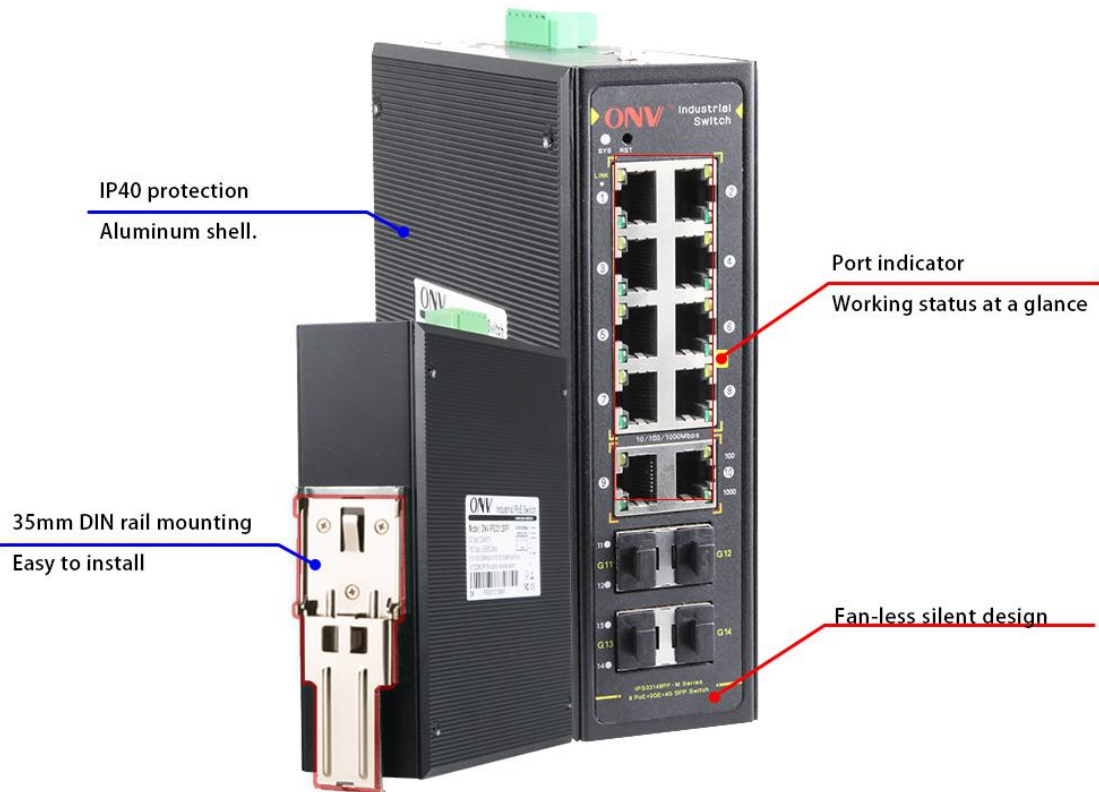
## ■ Security

- ◇ 802.1X authentication.
- ◇ Port isolation, Storm control.
- ◇ IP-MAC-VLAN-Port binding.



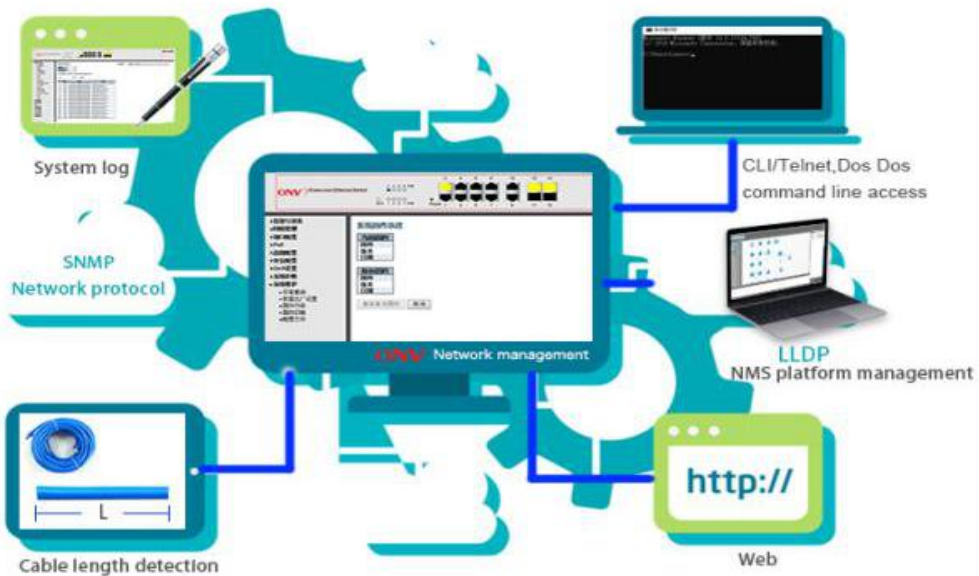
■ Stable and reliable

- ◇ Low power consumption, fan-less design, aluminum shell.
- ◇ CE, FCC, RoHS.
- ◇ The user-friendly panel, it can show the device status through the LED indicator of PWR, SYS, Link.



■ **One-stop remote control and management**

- ◇ Web management, CLI command line (Console, Telnet), SNMP (V1/V2/V3).
- ◇ HTTPS, SSLV3, and SSHV1/V2.
- ◇ RMON, system log, LLDP, and port traffic statistics.
- ◇ CPU monitoring, memory monitoring, Ping test, and cable diagnose.



**TECHNICAL SPECIFICATION**

| Model                            | ONV-IPS33128FM  | ONV-IPS33148FM  |
|----------------------------------|---|---|
| <b>Interface Characteristics</b> |   |   |
| Fixed Port                       | 10*10/100/1000Base-T RJ45 ports (Data)<br>2*100/1000Base-X uplink SFP fiber slot ports (Data)<br>1 * RS232 console port(115200,N,8,1)<br>2 set of V+, V- redundant DC | 10*10/100/1000Base-T RJ45 ports (Data)<br>4*100/1000Base-X uplink SFP fiber slot ports (Data)<br>1 * RS232 console port(115200,N,8,1)<br>2 set of V+, V- redundant DC |

|                           |   |  |
|---------------------------|---|--|
|                           | power interface (5 Pin Phoenix terminal)  | power interface (6 Pin Phoenix terminal)<br>Power-off alarm switch (FAULT) |
| Ethernet Port             | 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)<br>100BASE-TX: Cat5 or later UTP(≤100 meter)<br>1000BASE-T: Cat5e or later UTP(≤100 meter)                                     |  |
| SFP Slot Port             | Gigabit SFP optical fiber interface, default not matching optical modules (optional order single-mode / multi-mode, single fiber / dual fiber optical module. LC) |  |
| SFP Port Expansion        | No  | Turbo overclocking 2.5G optical module and ring                            |
| Optical Fiber / Distance  | Multi mode: 850nm / 0 ~500m,<br>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;<br>IEEE802.3u 100Base-TX/FX;<br>IEEE802.3ab 1000Base-TX<br>IEEE802.3z 1000Base-X<br>IEEE802.3x                           |  |
| Forwarding Mode           | Store and Forward(Full Wire Speed)  |  |
| Switching Capacity        | 192Gbps   | 256Gbps  |
| Forwarding Rate@64byte    | 17.86Mpps   | 20.83Mpps  |
| MAC                       | 8K  |  |
| Buffer Memory             | 6M  |  |

|  |   |   |
|--|---|---|
| Jumbo Frame                                | 9.6K  |   |
| LED Indicator                              | Power: PWR (green), System : SYS (green), Network: Link (yellow), SFP: L/F (green)          |   |
| Reset Switch                               | Yes, Press and hold the reset switch for 10s and release it to restore the factory settings |   |
| <b>Power</b>                               |   |   |
| Working Voltage                            | 12-48VDC, 5 Pin industrial<br>Phoenix terminal, support<br>anti-reverse protection.         | 12-48VDC, 6 Pin industrial<br>Phoenix terminal, support<br>anti-reverse protection. |
|  | Power Consumption   | Standby<8W;Full load<13W  |
| Power Supply                               | No, optional 24V/24W industrial power supply  |   |
| <b>Physical Parameter</b>                  |   |   |
| Operation TEMP /<br>Humidity               | -40~+80°C;5%~90% RH Non condensing  |   |
| Storage TEMP /<br>Humidity                 | -40~+85°C;5%~95% RH Non condensing  |   |
| Dimension (L*W*H)                          | 165*148*54mm  |   |
| Net /Gross Weight                          | <0.8kg / <1.3kg   | <1.1kg / <1.4kg   |
| Installation                               | Desktop, DIN rail   |   |
| <b>Certification &amp; Warranty</b>        |   |   |
| Lightning protection /<br>protection level | 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                       |   |

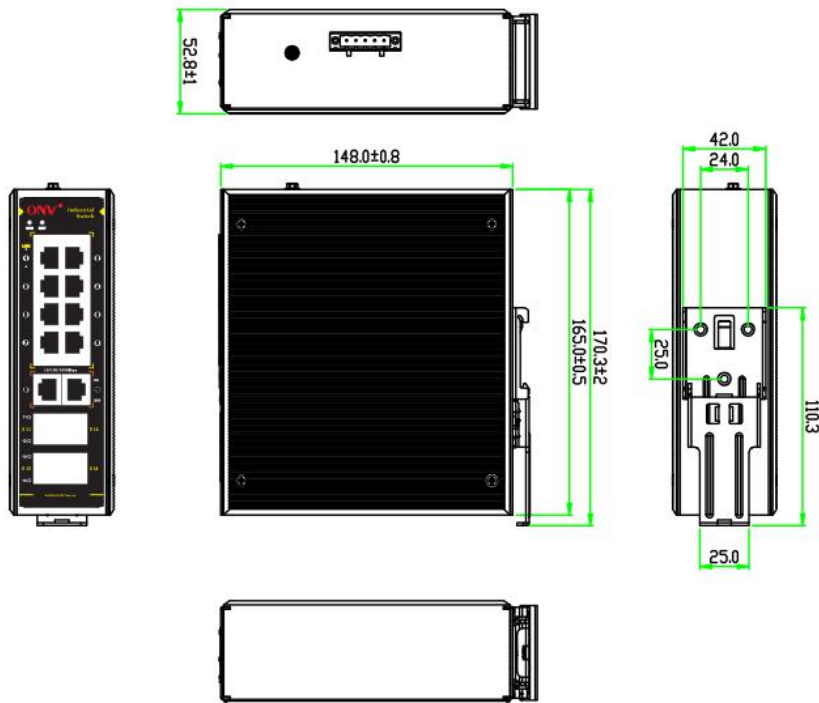


|                                    |  |  |
|------------------------------------|--|--|
|                                    | IEC61000-4-9(pulsed magnet field):1000A/m<br>IEC61000-4-10(damped oscillation):30A/m 1MHz<br>IEC61000-4-12/18(shockwave):CM 2.5kV,DM 1kV<br>IEC61000-4-16(common-mode transmission):30V; 300V,1s<br>FCC Part 15/CISPR22(EN55022):Class A<br>IEC61000-6-2(Common Industrial Standard) |  |
| Mechanical Properties              | IEC60068-2-6 (anti vibration)<br>IEC60068-2-27 (anti shock)<br>IEC60068-2-32 (free fall)   |  |
| Certification                      | CCC;CE mark, commercial; CE/LVD EN60950;FCC Part 15 Class B;<br>RoHS   |  |
| Warranty                           | 5 years , lifelong maintenance.  |  |
| <b>Network Management Features</b> |  |  |
| Interface                          | IEEE802.3X (Full-duplex)<br>Port temperature protection setting<br>Port green Ethernet Energy-saving setting<br>Broadcast storm control based on port speed<br>The speed limit of the message flow in the access port.<br>The minimum particle size is 64Kbps.                       |  |
| Layer 3 Features                   | L2+ network management ,IPV4/IPV6 management<br>L3 soft routing forwarding,<br>Static route, Default route @ 128 pcs, APR @ 1024 pcs   |  |
| VLAN                               | 4K VLAN based on port, IEEE802.1q<br>VLAN based on the protocol<br>VLAN based on MAC<br>Voice VLAN, QinQ configuration<br>Port configuration of Access, Trunk, Hybrid  |  |
| Port Aggregation                   | LACP, Static aggregation<br>Max 6 aggregation groups and 8   | LACP, Static aggregation<br>Max 7 aggregation groups and 8 |

|                                  | ports per group.   | 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<br>250 Ring at most, Max 1024 devices per ring.  |                  |
| Multicast                        | MLD Snooping v1/v2, Multicast VLAN<br>IGMP Snooping v1/v2, Max 250 multicast groups, Fast log out  |                  |
| Port Mirroring                   | Bidirectional data mirroring based on port   |                  |
| QoS                              | Flow-based Rate Limiting<br>Flow-based Packet Filtering<br>8*Output queues of each port<br>802.1p/DSCP priority mapping<br>Diff-Serv QoS, Priority Mark/Remark<br>Queue Scheduling Algorithm (SP, WRR, SP+WRR)   |                  |
| ACL                              | Port-based Issuing ACL, ACL based on port and VLAN<br>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<br>ARP inspection, Anti-DoS attack<br>AAA & RADIUS, MAC learning limit<br>Mac black holes, IP source protection<br>IEEE802.1X & MAC address authentication<br>Broadcast storm control, Backup for host datum<br>SSH 2.0, SSL, Port isolation, ARP message speed limit<br>User hierarchical management and password protection |                  |
| DHCP                             | DHCP Client, DHCP Snooping, DHCP Server, DHCP Relay  |                  |
| Management                       | One-key recovery<br>Cable Diagnose, LLDP<br>Web Management (HTTPS)   |                  |

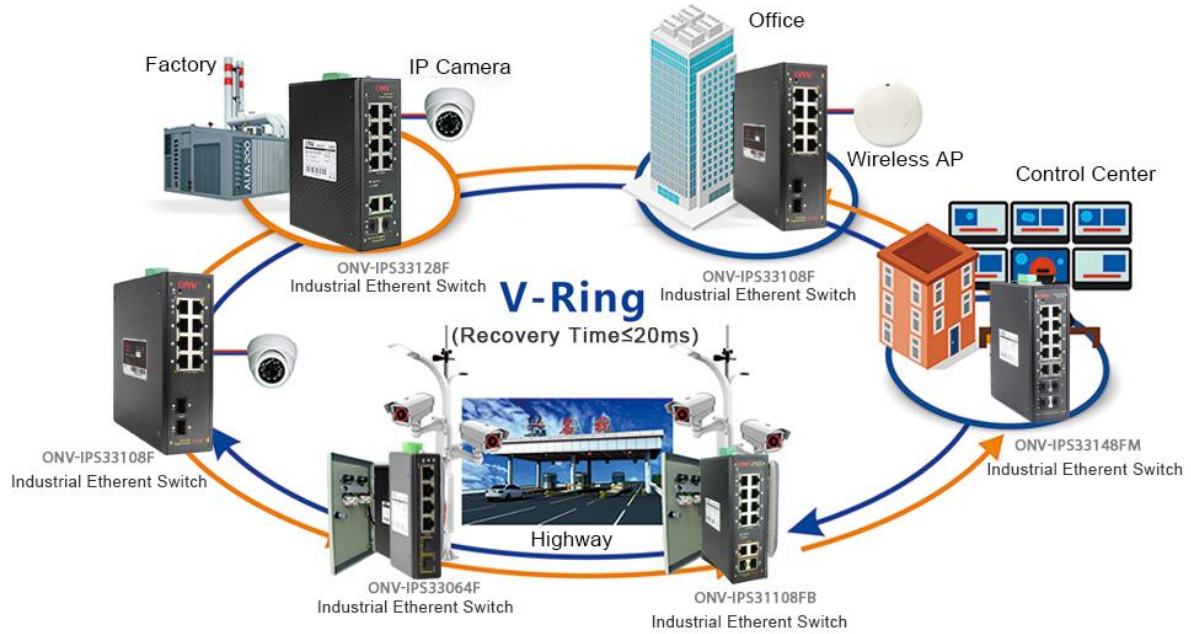
|               |   |
|---------------|---|
|               | <p>NTP, System work log, Ping Test</p> <p>CPU instant utilization status view</p> <p>Console/AUX Modem/Telnet/SSH2.0 CLI</p> <p>Download &amp; Management on FTP, TFTP, Xmodem, SFTP, SNMP V1/V2C/V3</p> <p>ONV NMS - smart network management system platform(LLDP+SNMP)</p>   |
| <p>System</p> | <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

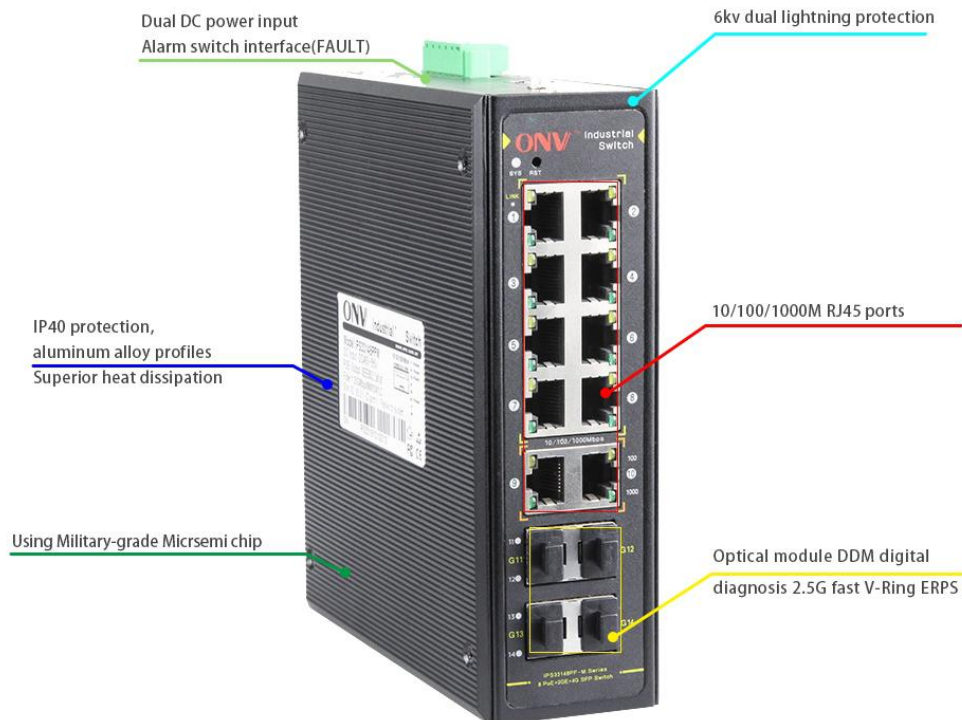


## APPLICATION

## Network architecture diagram



## Product feature overview



## ORDERING INFORMATION

| Model          | Description   | Recommended Power Supply |
|----------------|---|--------------------------|
| ONV-IPS33148FM | L2+ managed industrial Ethernet fiber switch with 10*10/100/1000M RJ45 ports and 4*100/1000M SFP fiber ports. It can support DC dual power supply and DIN rail mounting. 1 way alarm switch output. | 24W                      |
| ONV-IPS33128FM | L2+ managed industrial Ethernet fiber switch with 10*10/100/1000M RJ45 ports and 2*100/1000M SFP fiber ports. It can support DC dual power supply and DIN rail mounting.                            | 24W                      |

**Note:** Industrial Ethernet switch does not match the SFP optical module and power supply.

## PACKING LIST

|              | CONTENT   | QTY | UNIT |
|--------------|---|-----|------|
| PACKING LIST | 14-port full gigabit 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<br>Optical<br>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   |
|                            | 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-S<br>C | SFP optical module, 1.25G, single-mode single fiber TX1310nm/RX1550nm, transmission distance: 20km, SC interface, support DDM function, support                               | PC   |

|                 |                   |   |    |
|-----------------|-------------------|---|----|
|                 |                   | hot plug and pull.  |    |
|                 | ONV-2613-R-S<br>C | SFP optical module, 1.25G, single-mode single fiber<br>TX1550nm/RX1310nm, transmission distance:<br>20km, SC interface, support DDM function, support<br>hot plug and pull. | PC |
| Power<br>Module | ONV-2633          | 1.25G SFP optical module transfers to<br>10/100/1000M RJ45 port.  | PC |

## POWER SUPPLY SELECTION TABLE

| Product                                    | Model       | Description   | Unit |
|--|-------------|---|------|
| 24W DIN Rail<br>Industrial Power<br>Supply | GWS-DP24-24 | Din Rail type 24W single set of output<br>power supply;<br>Input Voltage:AC 100V~240V<br>50-60Hz,0.35A<br>Output Voltage:DC 24V 1A<br>Operation Temperature:-40℃—+70℃ | PC   |

## RELATED PRODUCT

| Model          | Description   |
|----------------|---|
| ONV-IPS33064FM | L2+ managed industrial Ethernet fiber switch with 4*10/100/1000M<br>RJ45 ports and 2*100/1000M SFP fiber ports. It can support DC dual<br>power supply and DIN rail mounting. |
| ONV-IPS33084FM | L2+ managed industrial Ethernet fiber switch with 4*10/100/1000M<br>RJ45 ports and 4*100/1000M SFP fiber ports. It can support DC dual  |

|                        |   |
|------------------------|---|
|                        | power supply and DIN rail mounting.   |
| ONV-IPS33108FM         | L2+ managed industrial Ethernet fiber switch with 8*10/100/1000M RJ45 ports and 2*100/1000M SFP fiber ports. It can support DC dual power supply and DIN rail mounting.   |
| ONV-IPS33168FM         | L2+ managed industrial Ethernet fiber switch with 8*10/100/1000M RJ45 ports and 8*100/1000M SFP fiber ports. It can support DC dual power supply and DIN rail mounting.   |
| ONV-IPS33168FM-4<br>GF | L2+ managed industrial Ethernet fiber switch with 12*10/100/1000M RJ45 ports and 4*100/1000M SFP fiber ports. It can support DC dual power supply and DIN rail mounting.  |
| ONV-IPS38168FM         | L3 managed industrial Ethernet core fiber switch with 12*10/100/1000M RJ45 ports and 4*1/10G SFP+ fiber ports. It can support DC dual power supply and DIN rail mounting. |

## CONTACT US



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