

## Product Datasheet

# 18-port Full Gigabit L2+ Managed Industrial Ethernet Switch (ONV-IPS33018FM)



## OVERVIEW

The ONV-IPS33018FM is a full gigabit managed industrial Ethernet fiber switch independently developed by ONV. It has 16\*10/100/1000Base-T adaptive RJ45 ports and 2\*100/1000Base-X uplink SFP fiber ports. Each port can support wire-speed forwarding.

The ONV-IPS33018FM has L2+ network management function, supports IPV4/ IPV6 management, static route forwarding, complete security protection mechanism, complete ACL/QoS policy, and rich VLAN functions for easy management and maintenance. Supports multiple network redundancy protocols STP/RSTP/MSTP (<50ms) and (ITU-T G.8032) ERPS (<20ms) to improve link backup and network reliability, and can quickly restore communications when a one-way network fails. Ensure uninterrupted communication for important applications. According to the application needs, various application services configurations such as port management, routing address management, port flow control, VLAN division, IGMP, security policy, and other network management methods are carried out through Web, CLI, SNMP, Telnet, and other network management methods. It meets the needs of various industrial Ethernet application environments and is suitable for establishing economical, efficient, stable, and reliable communication networks in industrial scenarios such as intelligent transportation, rail transportation, power industry, mining, petroleum, shipping, metallurgy, and green energy construction.

## FEATURE

### ■ Gigabit access, Gigabit SFP port uplink

- ◇ Support non-blocking wire-speed forwarding.
- ◇ Support full-duplex based on IEEE802.3x and half-duplex based on Backpressure.
- ◇ Support Gigabit RJ45 port and uplink SFP fiber port to meet the networking requirements of various scenarios.

### ■ Strong business processing capability

- ◇ Support ERPS ring network and STP/RSTP/MSTP to eliminate layer 2 loops and realize link backup.
- ◇ Support IEEE 802.1Q VLAN, users can flexibly divide VLANs according to needs and support Voice VLAN and QinQ configuration.
- ◇ 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

- ◇ Port isolation and storm control.
- ◇ IP+MAC+port+VLAN quadruple flexible combination binding function.
- ◇ 802.1X authentication provides authentication functions for LAN computers and controls the authorization status of controlled ports according to the authentication results.

### ■ Stable and reliable

- ◇ CCC, CE, FCC, RoHS.
- ◇ Adopt self-developed power supply and redundant to provide long-term stable power output.

- ◇ The user-friendly panel can show the device status through the LED indicator of PWR and Link.
- ◇ Low power consumption, no fan, galvanized steel metal shell, and excellent heat dissipation to ensure the stable operation of the switch.

### ■ Easy O&M 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), and other diversified management and maintenance.

## TECHNICAL SPECIFICATION

| Model                            | ONV-IPS33018FM  |
|----------------------------------|---|
| <b>Interface Characteristics</b> |   |
| Fixed Port                       | 1*Console port (115200,N,8,1)<br>Power-off alarm switch (FAULT)<br>2*AC100-240V power input ports<br>16*10/100/1000Base-T RJ45 ports (Data)<br>2*100/1000Base-X uplink SFP fiber ports (Data)<br>2*DC12-48V power input ports (support anti-reverse protection) |
| Ethernet Port                    | Port 1-16 support 10/100/1000Base-T(X) auto-sensing, full/ half duplex<br>MDI/ MDI-X self-adaption  |
| Twisted Pair                     | 10BASE-T: Cat3,4,5 UTP (≤100 meters)  |
| Transmission                     | 100BASE-TX: Cat5 or later UTP (≤100 meters)   |

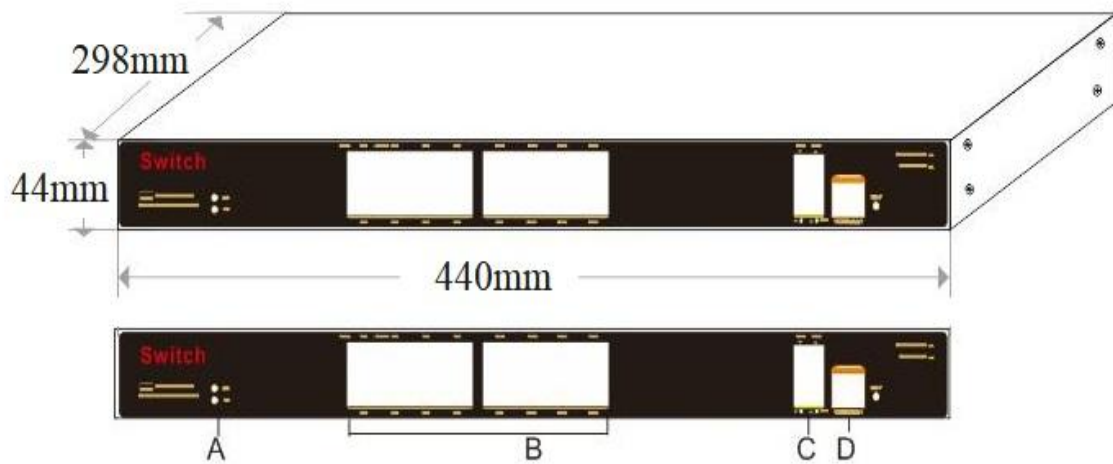
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|------------------------------|--|
|                              | 1000BASE-T: Cat5e or later UTP (≤100 meters)   |
| Optical Fiber Port           | Gigabit optical fiber interface, default no include optical module (optional single-mode/ multi-mode, single fiber/ dual fiber optical module. LC)   |
| Optical Cable/<br>Distance   | Multi-mode: 850nm/ 0-500m, Single-mode: 1310nm/ 0-40km, 1550nm/<br>0-120km.  |
| <b>Chip Parameter</b>        |  |
| Network<br>Management Type   | L2+  |
| Network Protocol             | IEEE 802.3 10BASE-T, IEEE 802.3i 10Base-T, IEEE 802.3u 100Base-TX,<br>IEEE 802.3ab 1000Base-T, IEEE 802.3z 1000Base-X, IEEE 802.3x   |
| Forwarding Mode              | Store and Forward (Full Wire Speed)  |
| Switching Capacity           | 52Gbps (non-blocking)  |
| Forwarding<br>Rate@64byte    | 26.78Mpps  |
| MAC                          | 8K   |
| Buffer Memory                | 6M   |
| Jumbo Frame                  | 9.6K   |
| LED Indicator                | Power: PWR(Yellow), System: SYS(Yellow), Network: Link(Yellow), Rate:<br>SPEED: (Green), Fiber port: L/A(Green)  |
| Reset Switch                 | Yes, Press and hold the reset switch for 10s and release it to restore the<br>factory settings   |
| <b>Power Supply</b>          |  |
| Total PWR / Input<br>Voltage | 30W/ (AC100-240V)  |
| Power Consumption            | Standby<16W, Full load<30W   |
| Power Supply                 | Built-in power supply, AC100~240V 50-60Hz, 0.56A   |
| Power Supply                 | Alarm switch port, 2*AC power input ports, 2*DC12-48V input ports<br>Dual input power port design: AC power supply priority to support<br>anti-reverse connection protection, and automatically switches to DC |

|                                     |   |
|-------------------------------------|---|
|                                     | connection when power fails.  |
| <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)                   | 440*298*44mm  |
| Net /Gross Weight                   | 3.75kg / 4.4kg  |
| Installation                        | Desktop, 1U/19" cabinet   |
| <b>Certification &amp; Warranty</b> |   |
| Lightning Protection                | <p>Protection level: IP40</p> <p>Lightning protection: 6KV 8/20us</p> <p>IEC61000-4-3(RS):10V/m (80~1000MHz)</p> <p>FCC Part 15/CISPR22(EN55022): Class B</p> <p>IEC61000-6-2(Common Industrial Standard)</p> <p>IEC61000-4-9(Pulsed magnet field): 1000A/m</p> <p>IEC61000-4-10(Damped oscillation): 30A/m, 1MHz</p> <p>IEC61000-4-12/18(Shockwave): CM 2.5kV, DM 1kV</p> <p>IEC61000-4-4(EFT): Power cable:±4kV, Data cable: ±2kV</p> <p>IEC61000-4-16(Common-mode transmission): 30V, 300V, 1s</p> <p>IEC61000-4-2(ESD): ±8kV contact discharge, ±15kV air discharge</p> <p>IEC61000-4-6(Radio frequency transmission): 10V(150kHz~80MHz)</p> <p>IEC61000-4-8(Power frequency magnetic field):100A/m,1000A/m,1-3s</p> <p>IEC61000-4-5(Surge): Power cable: CM±4kV/DM±2kV, Data cable: ±4kV</p> |
| Mechanical<br>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 Feature       |  |
|----------------------------------|--|
| Interface                        | <p>Port temperature protection settings</p> <p>IEEE 802.3x flow control (Full duplex)</p> <p>Broadcast storm control based on port speed</p> <p>Port EEE Green Ethernet energy-saving configuration</p> <p>Limit the speed of the message traffic at the inbound and outbound ports, with a mini granularity of 64Kbps</p> |
| L3 Features                      | <p>IPV4/IPV6 static route/ default route max 128 entries</p> <p>ARP protocol, max 1024 entries, L2+ network management function</p> <p>L3 routing and forwarding, support communication between different network segments and different VLAN</p>  |
| VLAN                             | <p>Port configuration of Access, Trunk, Hybrid</p> <p>VLAN based on MAC, VLAN based on the protocol</p> <p>(4K) VLAN based on port, IEEE802.1q, Voice VLAN, QinQ configuration</p>   |
| Port Aggregation                 | <p>Static aggregation, LACP dynamic aggregation</p> <p>Max 9 aggregation groups, per group support up to 8 ports</p>   |
| Spanning Tree                    | STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s)   |
| Industrial Ring Network Protocol | Support ERPS ring network, Recovery time less than 20ms, 255 Ring at most, max 254 devices per ring.   |
| Multicast                        | <p>IGMP Snooping v1/v2/v3, Max 1024 multicast groups</p> <p>MLD Snooping, Multicast VLAN, User quick exit mechanism</p>  |
| Port Mirroring                   | Bidirectional data mirroring based on port   |
| QoS                              | <p>Queue Scheduling Algorithm (SP, WRR, SP+WRR)</p> <p>Flow-based rate limiting, Flow-based packet filtering</p> <p>Flow-based redirection, Diff-Serv QoS, Priority Mark/ Remark</p> <p>8*Output queues of each port, 802.1p/DSCP priority mapping</p>   |
| ACL                              | <p>ACL issued based on port and VLAN</p> <p>L2-L4 packet filtering function can match the first 80 bytes of the message and provide ACL definition based on source MAC address, destination</p>  |

|            |  |
|------------|--|
|            | MAC address, source IP address, destination IP address, IP protocol type, TCP/UDP port, TCP/UDP port range, VLAN, etc.   |
| Security   | <p>MAC address the black hole</p> <p>Port broadcast message suppression</p> <p>Port-based IEEE802.1X authentication</p> <p>MAC address the learning number limit</p> <p>SSL ensures data transmission security</p> <p>IP+MAC+VLAN+port four-way binding function</p> <p>Port isolation, ARP message rate limit function</p> <p>DoS attack prevention, ARP intrusion detection function</p> <p>User hierarchical management and password protection</p> <p>AAA &amp; RADIUS &amp; TACACS+ certification, ARP inspection</p> <p>IP source address protection, Host data backup mechanism</p> <p>SSH 2.0 provides a secure encrypted channel for user login</p> |
| DHCP       | DHCP Client, DHCP Snooping, DHCP Server, DHCP Relay  |
| Management | <p>System work log, Link Layer Discovery Protocol</p> <p>NTP clock, Cable length detection, SNMP V1/V2/V3</p> <p>Ping detection, Web network management (HTTPS)</p> <p>ONV-NMS platform cluster management (LLDP+SNMP)</p> <p>One click recovery, View CPU real-time utilization status</p> <p>FTP, TFTP, Xmodem, SFTP file upload and download management</p> <p>Console/ AUX Modem/ Telnet/ SSH2.0 CLI command line configuration</p>  |
| System     | <p>Web browser: Mozilla Firefox 2.5 or higher, Google Chrome V42 or higher, Cat5 and above Ethernet cable</p> <p>TCP/IP, network adapter, and network operating system (such as Microsoft Windows, Linux, Mac OS X) installed on each computer in the network</p> <p>Cat5 and above Ethernet cable</p>   |

## DIMENSION



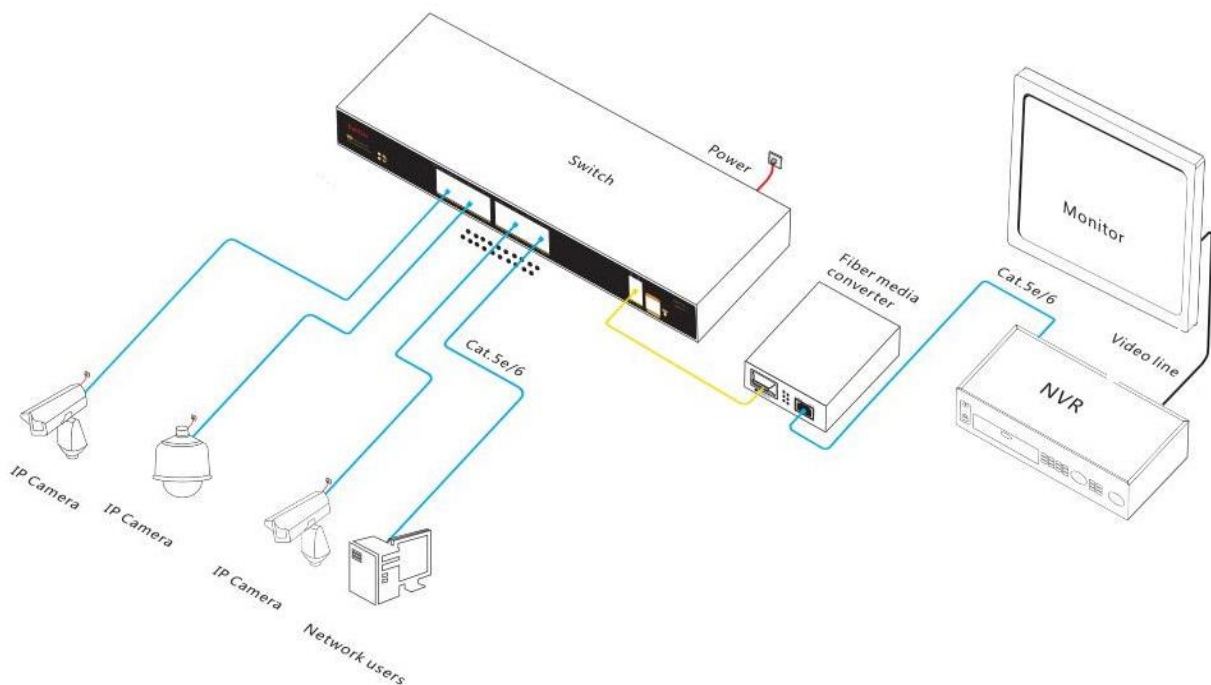
A. Working indicator

B. 16\*10/100/1000M RJ45 ports

C. 2\*100/1000M uplink SFP fiber ports

D. Console port

## APPLICATION



## ORDERING INFORMATION



| Model          | Description  | Built-in Power Supply |
|----------------|--|-----------------------|
| ONV-IPS33018FM | L2+ managed industrial Ethernet switch with 16*10/100/1000M RJ45 ports and 2*100/1000M uplink SFP fiber ports. It built-in power supply and supports 2AC+DC power input and 1U/19-inch cabinet installation. | 2*30W                 |

**Note:** The optical module is not included and needs to be purchased separately.

## PACKING LIST

|              | Content   | Qty | Unit |
|--------------|---|-----|------|
| Packing List | 18-port full gigabit L2+ managed industrial Ethernet switch | 1   | SET  |
|              | AC Power Cable  | 1   | PC   |
|              | RJ45-DB9 Line   | 1   | PC   |
|              | Mounting Kits   | 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. 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-SC-G | 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-SC-G | Industrial SFP optical module, 1.25G single-mode single fiber TX1550nm/ RX1310nm, transmission distance: 20km, SC interface. supports DDM function and hot plugging. | PC |
| Power Module | 2633        | 1.25G SFP optical module transfers to 10/100/1000M RJ45 port.  | PC |

## RELATED PRODUCT

| Model          | Description   |
|----------------|---|
| ONV-IPS33026FM | L2+ managed industrial Ethernet fiber switch with 24*10/100/1000M RJ45 ports and 4*100/1000M SFP fiber combo ports. It built-in 30W power supply and supports 2AC+DC power terminal input and 1U/19-inch cabinet installation.                      |
| ONV-IPS36028FM | L2+ managed industrial Ethernet fiber switch with 24*10/100/1000M RJ45 ports and 4*1/10G uplink SFP+ fiber ports. It built-in 60W power supply and supports 2AC+DC power input and 1U/19-inch cabinet installation.                                 |
| ONV-IPS36036FM | L2+ managed industrial Ethernet fiber switch with 24*10/100/1000M RJ45 ports and 8*100/1000M SFP fiber ports and 4*1/10G uplink SFP+ fiber ports. It built-in 60W power supply and supports 2AC+DC power input and 1U/19-inch cabinet installation. |
| ONV-IPS36368FM | L2+ managed industrial Ethernet fiber switch with 8*10/100/1000M RJ45 ports and 24*100/1000M SFP fiber ports and 4*1/10G uplink SFP+ fiber ports. It built-in 60W power supply and supports 2AC+DC power input and                                  |

|                |  |
|----------------|--|
|                | 1U/19-inch cabinet installation.   |
| ONV-IPS36448FM | L2+ managed industrial Ethernet fiber switch with 12*10/100/1000M RJ45 ports and 28*100/1000M SFP fiber ports and 4*1/10G uplink SFP+ fiber ports. It built-in 60W power supply and supports 2AC+DC power input and 1U/19-inch cabinet installation. |
| ONV-IPS36048FM | L2+ managed industrial Ethernet fiber switch with 48*10/100/1000M RJ45 ports and 4*1/10G uplink SFP+ fiber ports. It built-in 60W power supply and supports 2AC+DC power input and 1U/19-inch cabinet installation.                                  |

## CONTACT US

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