Product Datasheet

16-port 10G Uplink Managed Ethernet Switch

(ONV56168FM)

OVERVIEW

The ONV56168FM is a 10G uplink managed Ethernet switch independently developed by ONV. It has 8*10/100/1000Base-T adaptive RJ45 ports and 4*100/1000Base-X SFP fiber ports and 4*1/10G uplink SFP+ fiber ports. Each port can support wire-speed forwarding. The ONV56168FM has L3 network management functions, supports IPV4/ IPV6 management, dynamic routing and forwarding, complete security protection mechanism, perfect ACL/QoS strategy, and rich VLAN function 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 a unidirectional network fails, communication can be quickly restored to ensure uninterrupted communication of important applications. According to actual application

needs, port management, routing address management, port flow control, VLAN division, IGMP, security policy, and other application business configurations can be performed through network management methods such as Web, CLI, SNMP, Telnet, etc. It meets the high-density network application environment and is suitable for hotels, campuses, parks, supermarkets, scenic spots, hospitals, banks, and other small and medium-sized scenes to build economical, efficient, and reliable communication networks.

FEATURE

Gigabit access, uplink 1/10G SFP+ fiber port

- ◇ Support non-blocking wire-speed forwarding.
- ◇ Support full-duplex based on IEEE802.3x and half-duplex based on Backpressure.
- ◇ Support Gigabit RJ45 port and 1/10G uplink SFP+ fiber port combination, which enables users to flexibly build networking to meet the needs 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 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 V1/V2/V3 multicast protocol, IGMP Snooping meets multi-terminal high-definition video surveillance and video conference access requirements.

Security

- ◇ Support port isolation and port broadcast storm suppression.

◇ Support port+ MAC binding and IP+ MAC+ port binding functions.

◇ Support 802.1X authentication, provide authentication function for LAN computers, and control the authorization status of controlled ports according to the authentication results.

■ Stable and reliable

◇ CCC, CE, FCC, RoHS.

◇ Self-developed power supply, high redundancy, providing a long-term and stable power output.

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

◇ Low power consumption, Galvanized steel housing, and excellent heat dissipation to ensure the stable operation of the switch.

■ Easy O&M management

◇ Support CPU monitoring, memory monitoring, and Ping detection.

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

◇ Support RMON, system log, and port traffic statistics to facilitate network optimization and transformation.

◇ 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

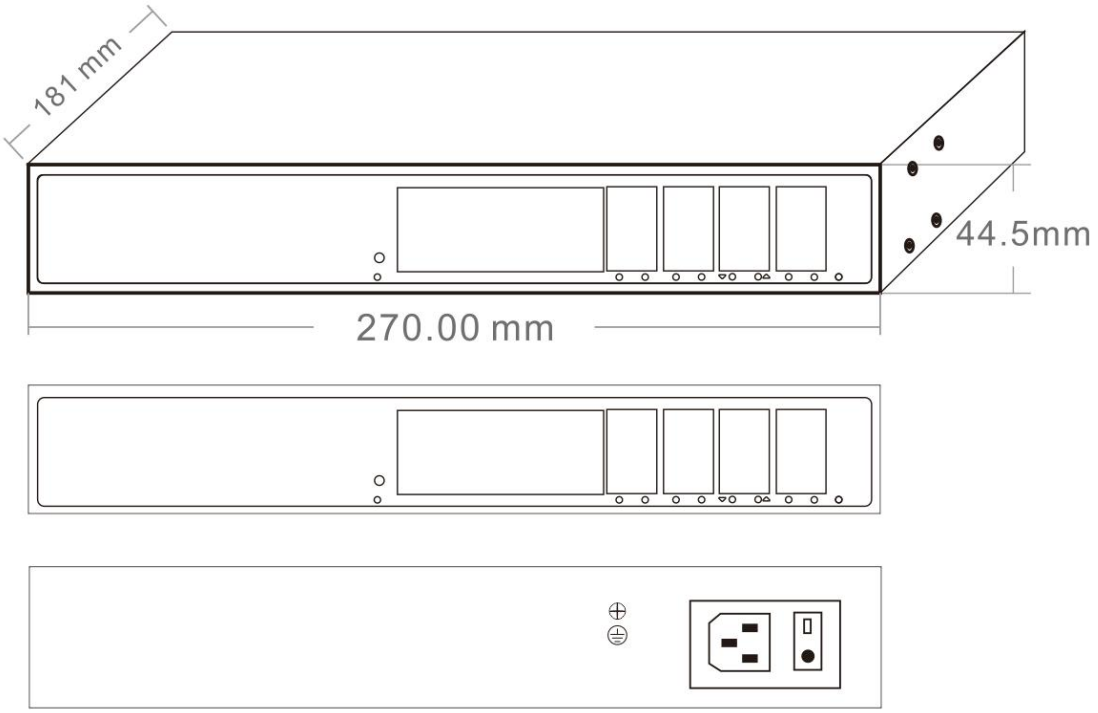
Model	ONV56168FM
Interface Characteristics	
Fixed Port	1*Console port (115200,N,8,1) 4*1/10G uplink SFP+ fiber ports (Data) 8*10/100/1000Base-T RJ45 ports (Data) 4*100/1000Base-X SFP fiber ports (Data)
Ethernet Port	Port 1-8 can support 10/100/1000Base-T(X) auto-sensing, full/ half duplex MDI/ MDI-X self-adaption
Twisted Pair Transmission	10BASE-T: Cat3,4,5 UTP (≤100 meters) 100BASE-TX: Cat5 or later UTP (≤100 meters) 1000BASE-T: Cat5e/6 or later UTP (≤100 meters)
Optical Fiber Port	Default no include optical module (optional single-mode/ multi-mode, single fiber/ dual fiber optical module. LC)
Optical Fiber Port Expansion	Turbo overclocking 2.5G optical module expansion and ring network
Optical Cable/ Distance	Multi-mode: 850nm/ 0-550m (1G), 850nm/ 0-300m (10G), Single-mode: 1310nm/ 0-40km, 1550nm/ 0-120km
Chip Parameter	
Network Management Type	L3
Network Protocol	IEEE802.3 10BASE-T, IEEE802.3i 10Base-T, IEEE 802.3u100Base-TX, IEEE802.3ab 1000Base-T, IEEE802.3z 1000Base-X, IEEE802.3ae 10GBase-SR/LR, IEEE802.3x
Forwarding Mode	Store and forward (Full wire speed)
Switching Capacity	128Gbps (non-blocking)
Forwarding Rate@64byte	77.38Mpps
CPU(Hz)	800M

DRAM	1G
FLASH	128M
MAC	16K
Buffer Memory	12M
Jumbo Frame	12K
LED Indicator	Fiber port: L/A (Green), Network: Link (Yellow), System: SYS (Green)
Reset Switch	Yes, press and hold the switch for 10 seconds and release it to restore the factory settings
Power Supply	
Total Power/ Input Voltage	30W/ (AC100-240V)
Power Consumption	Standby<13W, full load<20W
Power Supply	Built-in power supply, AC100~240V 50-60Hz, 0.65A
Physical Parameter	
Operation Temp/ Humidity	-20~55°C, 5%~90% RH non condensing
Storage Temp/ Humidity	-40~75°C, 5%~95% RH non condensing
Dimension (L*W*H)	270*181*44.5mm
Net /Gross Weight	1.3kg/ 1.8kg
Installation	Desktop, 1U/19” cabinet
Certification& Warranty	
Lightning Protection	Lightning protection: 4KV 8/20us, Protection level: IP30
Certification	CCC, CE mark, commercial, CE/LVD EN62368-1, FCC Part 15, RoHS
Warranty	3 years, lifelong maintenance.
Network Management Feature	
Interface	Port real-time flow management (Flow Interval) Broadcast storm suppression based on port rate SFP optical module DDMI real-time digital diagnosis Port EEE Green Ethernet Energy-Saving configuration and status view IEEE802.3x flow control (Full duplex), Port exception protection mechanism Limit the rate of packet traffic on incoming and outgoing ports, the mini

	granularity is 16Kbps and max 1Gbps
L3 Feature	Pingv6, Telnetv6, TFTPv6, DNSv6, ICMPv6 VLANIF interfaces for IPV4/IPV6, up to 64 entries IPV4/IPV6 static routing/default routing, up to 64 entries NG protocol max 1000 entries, ARP protocol max 1000 entries IPV4 equal cost routing, VRRP for IPV4/IPV6, up to 255 entries IPV4 dynamic routing, RIPv1/v2, OSPFv2, routing 2000 entries L3 network management function, IPV4/ IPV6 dual-stack management L3 routing and forwarding, support communication between different network segments and different VLAN
VLAN	Port configuration of Access, Trunk, Hybrid, IEEE 802.1q Voice VLAN, GVRP VLAN protocol, Port-based VLAN (4K) Protocol-based VLAN, MAC address-based VLAN, QinQ configuration
Port Aggregation	LACP dynamic aggregation, Static aggregation, Max 8 aggregation groups and max 8 ports per group.
Spanning Tree	STP BPDU Guard, BPDU filtering and BPDU forwarding STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s)
ERPS Ring Network	ERPS ring network, Recovery time less than 20ms, ITU-T G.8032
Multicast	Multicast VLAN, User quick log out, MLD Snooping, MVR (Multicast VLAN Registration), IGMP Snooping v1/v2/v3 and 1024 multicast groups at most
Mirroring	Bidirectional traffic mirroring for basic ports one-to-multiple mirroring, supports up to 4 port sessions
QoS	Flow-based Rate Limiting, Flow-based redirection Queue Scheduling Algorithm (SP, WRR, SP+WRR) Flow-based Packet Filtering, 8*Output queues of each port 802.1p/DSCP priority mapping, Diff-Serv QoS, Priority Mark/Remark
ACL	ACL is issued based on port and VLAN L2-L4 packet filtering function can match the first 80 bytes of the message and provide ACL definition based on source MAC address, destination MAC

	address, source IP address, destination IP address, IP protocol type, TCP/UDP port range, VLAN, etc.
Security	Port based IEEE802.1X authentication Port isolation, IP Source Guard function SSL guarantees data transmission security Quad binding function of IP+MAC+VLAN+ports MAC address learning limit, MAC address black hole Anti DoS attack, Port broadcast message suppression Hierarchical user management and password protection SSH 2.0 provides a secure encrypted channel for user login Host data backup mechanism, ARP intrusion detection function IP source address protection, ARP message speed limit function Support AAA, RADIUS, TACACS+ authentication (only supports authentication, not authorization and accounting)
DHCP	DHCP Client, DHCP Snooping, DHCP Server
Management	System work log, Link Layer Discovery Protocol NTP clock, Cable length detection, SNMP V1/V2/V3 Ping detection, Web network management (HTTPS) HTTP, TFTP file upload and download management Console/ SSH/ Telnet/ CLI command line configuration ONV-NMS platform cluster management (LLDP+SNMP) One click recovery, View CPU real-time utilization status
System	Web browser: Mozilla Firefox 2.5 or higher, Google Chrome V42 or higher, Cat5 and above Ethernet cable TCP/IP, network adapter, and network operating system (such as Microsoft Windows, Linux, Mac OS X) installed on each computer in the network Cat5 and above Ethernet cable

DIMENSION



APPLICATION

ORDERING INFORMATION

Model	Description	Built-in Power Supply
ONV56168FM	L3 managed Ethernet switch with 8*10/100/1000M RJ45 ports and 4*100/1000M SFP fiber ports and 4*1/10G uplink SFP+ fiber ports. It built-in power supply and 1U/19” cabinet installation.	30W
Note: The optical module is not included and needs to be purchased.		

PACKING LIST

	Content	Qty	Unit
Packing List	16-port 10G uplink managed Ethernet switch	1	Set
	RJ45-DB9 Adapter Cable	1	PC
	User Guide	1	PC
	Warranty Card and Certificate of Conformity	1	PC

OPTICAL MODULE

Product	Model	Description	Unit
1.25G Optical Module	2630	SFP optical module, 1.25G multi-mode dual fiber 850nm, transmission distance: 550m, LC interface, supports DDM function and hot plugging.	PC
	2632	SFP optical module, 1.25G single-mode dual fiber 1310nm, transmission distance: 20km, LC interface, supports DDM function and hot plugging.	PC
	2612-T	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	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	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	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	SFP+ optical module, 10G multi-mode dual fiber 850nm, transmission distance: 300m, LC interface, supports DDM function and hot plugging.	PC
	7832	SFP+ optical module, 10G single-mode dual fiber 1310nm, transmission distance: 20km, LC interface, supports DDM function and hot plugging.	PC
	7832-33	SFP+ optical module, 10G single-mode single fiber TX1330nm/ RX1270nm, transmission distance: 20km, LC interface, supports DDM function and hot plugging.	PC
	7832-27	SFP+ optical module, 10G single-mode single fiber TX1270nm/ RX1330nm, transmission distance: 20km, LC interface, supports DDM function and hot plugging.	PC

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