

Product Datasheet

16-port Full Gigabit Managed Industrial Ethernet Switch

IND-D-M-FG-1600-N



OVERVIEW

The IND-D-M-FG-1600-N is a full gigabit L2+ managed industrial Ethernet switch. It has 16*10/100/1000Base-T RJ45 ports. Each port can support wire-speed forwarding.

The IND-D-M-FG-1600-N has L2+ network management function, support IPV4/IPV6 management, static route full line-rate forwarding, security protection mechanism, ACL/QoS policy and rich VLAN functions, and is easy to manage and maintain. Support 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, communication can be quickly restored to ensure important Uninterrupted communication for applications. According to the actual application requirements, you can configure multiple application services such as port

traffic control, VLAN division, and SNMP through the Web network management mode. Industrial switches meet the needs of the industrial Ethernet application environment. It is suitable for intelligent transportation, rail transit, power industry, mining, petroleum, shipping, metallurgy, and green energy construction and other industrial scenarios to form a cost-effective, stable, and reliable network.

FEATURE

■ Full Gigabit access, wire-speed transmission

- ◇ Support line-speed full Gigabit Ethernet port, which facilitates flexible networking of users and meets networking requirements in various scenarios.
- ◇ Support non-blocking wire-speed forwarding.
- ◇ Support full-duplex based on IEEE802.3x and half-duplex based on backpressure.

■ Security

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

■ Strong business processing capability

- ◇ ERPS/STP/RSTP/MSTP.
- ◇ Static and dynamic aggregation.
- ◇ IGMP V1/V2 and IGMP Snooping.
- ◇ 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.

■ Stable and reliable

- ◇ CCC, CE, FCC, RoHS.
- ◇ Low power consumption, no fan, aluminum shell.
- ◇ The user-friendly panel, it can show the device status through the LED indicator of PWR, SYS, Link, L/A.
- ◇ The DIN rail industrial switch series products do not have a power supply by default and need to be purchased.

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

TECHNICAL SPECIFICATION

Model	IND-D-M-FG-1600-N
Interface Characteristics	
Fixed Port	16*10/100/1000Base-T RJ45 ports (Data) 1*RS232 Console port (115200,N,8,1) Power-off alarm switch (FAULT) 2 set of V+, V- redundant DC power interface (6 Pin Phoenix terminal)
Ethernet Port	Port 1-16 support 10/100/1000Base-T, auto-sensing, Full/half duplex MDI/MDI-X self-adaption
Twisted Pair	10BASE-T: Cat3,4,5 UTP(≤100 meter)

Transmission	100BASE-TX: Cat5 or later UTP(≤100 meter) 1000BASE-T: Cat5e or later UTP(≤100 meter)
Chip Parameter	
Network Management Type	L2+
Network Protocol	IEEE802.3 10BASE-T, IEEE802.3i 10Base-T IEEE802.3u 100Base-TX , IEEE802.3ab 1000Base-T IEEE802.3x
Forwarding Mode	Store and Forward(Full Wire Speed)
Switching Capacity	256Gbps (Non-blocking)
Forwarding Rate@64byte	23.81Mpps
MAC	8K
Buffer Memory	6M
Jumbo Frame	9.6K
LED Indicator	Power: PWR(green), system: SYS(green), Network: Link (yellow)
Reset Switch	Yes. press and hold for 10 seconds and then release to restore factory settings
Power	
Total PWR / Input Voltage	24W/(DC12-48V)
Power Consumption	Standby<10W, Full Load<20W

Power Input Interface	12-48VDC, 6 Pin industrial Phoenix terminal, support anti-reverse protection.
Power Supply	No, optional 24V/24W 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)	165*148*54mm
Net /Gross Weight	<1.2kg / <1.5kg
Installation	Desktop, DIN rail
Certification & Warranty	
Lightning protection / protection level	Port 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.

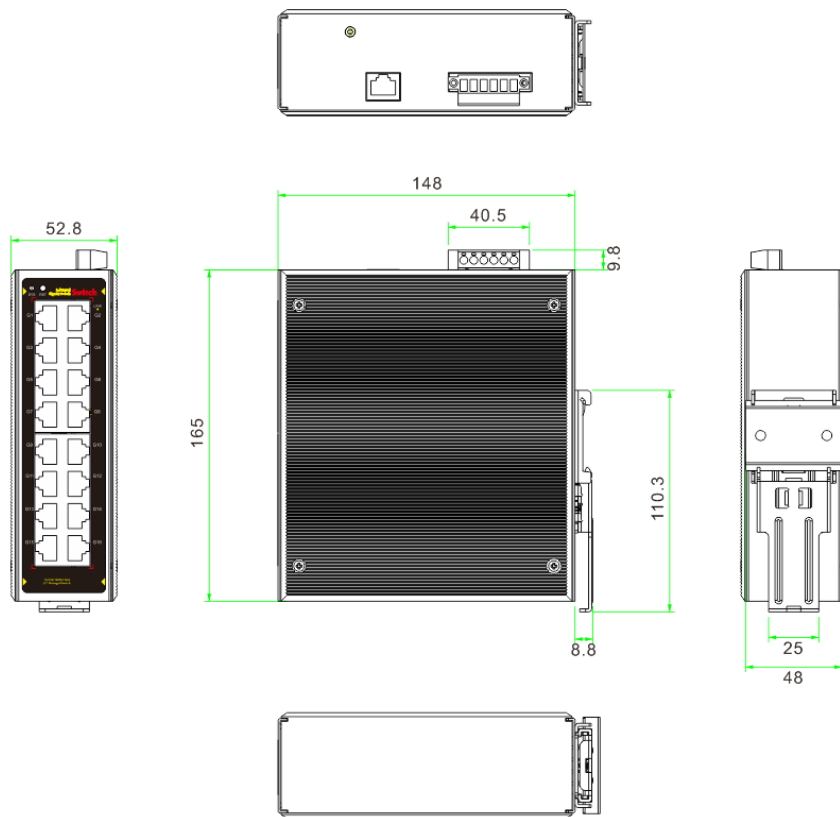
Network Management Features

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	L2+ network management ,IPV4/IPV6 management L3 soft routing forwarding, Static route, Default route @ 128 pcs, APR @ 1024 pcs
VLAN	4K VLAN based on port, IEEE802.1q VLAN based on the protocol

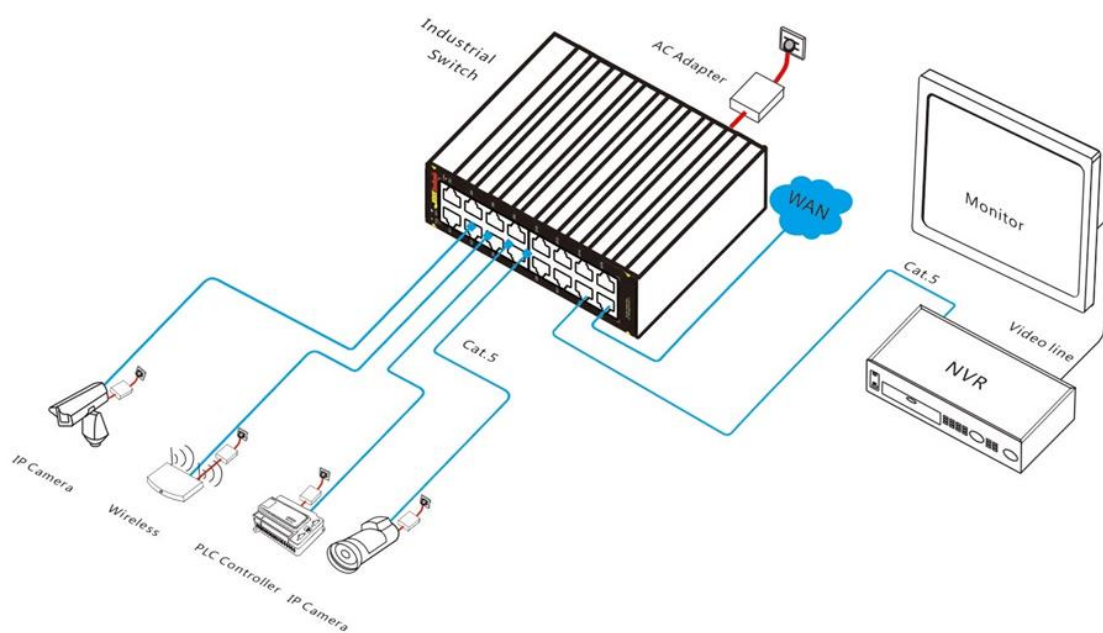
	VLAN based on MAC Voice VLAN, QinQ configuration Port configuration of Access, Trunk, Hybrid
Port Aggregation	LACP, Static aggregation Max 8 aggregation groups and 8 ports per group.
Spanning Tree	STP (IEEE802.1d), RSTP (IEEE802.1w), MSTP (IEEE802.1s)
Industrial Ring Network Protocol	G.8032 (ERPS), Recovery time less than 20ms 250 Ring at most, Max 250 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 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 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 Explorer 10 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



ORDERING INFORMATION

Model	Description	Recommended Power Supply
IND-D-M-FG-1 600-N	L2+ managed industrial Ethernet switch with 16* 10/100/1000M RJ45 ports. It can support DC dual power supply input and DIN rail mounting.	24W

Note: The DIN rail industrial switch series products are not equipped with power supply by default and need to be purchased. Please refer to the accessory product information.

PACKING LIST

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

POWER SUPPLY SELECTION TABLE

Product	Model	Description	Unit
24W DIN Rail Industrial Power Supply	DP24-24	Din Rail type 24W single set of output power supply; Input Voltage: AC 100V~240V 50-60Hz, 0.35A Output Voltage: DC 24V 1.0A Operation Temperature: -40°C—+70°C	PC

RELATED PRODUCT

Model	Description
IND-D-M-FG-0402-N	L2+ managed industrial Ethernet fiber switch with 4*10/100/1000M RJ45 ports and 2*100/1000M SFP slot ports. It can support DC dual power supply input and DIN rail mounting.
IND-D-M-FG-0404-N	L2+ managed industrial Ethernet fiber switch with 4*10/100/1000M RJ45 ports and 4*100/1000M SFP slot ports. It can support DC dual power supply input and DIN rail mounting.
IND-D-M-FG-0802-N	L2+ managed industrial Ethernet fiber switch with 8*10/100/1000M RJ45 ports and 2*100/1000M SFP slot ports. It can support DC dual power supply input and DIN rail mounting.
INF-D-M-FG-1004-N	L2+ managed industrial Ethernet fiber switch with 10*10/100/1000M RJ45 ports and 4*100/1000M uplink SFP slot ports. It can support DC dual power supply input and DIN rail mounting.
IND-D-M-FG-0808-N	L2+ managed industrial Ethernet fiber switch with 8*10/100/1000M RJ45 ports and 8*100/1000M SFP slot ports. It can support DC dual power supply input and DIN rail mounting.
IND-D-M-FG-1204-N	L2+ managed industrial Ethernet fiber switch with 12*10/100/1000M RJ45 ports and 4*100/1000M SFP slot ports. It can support DC dual power supply input and DIN rail mounting.



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