

**NEW**



# IFS-1604GSM

## 16x 10/100Base-TX+ 4x 100/1000Base-X SFP Slot Ethernet Managed Switch

IFS-1604GSM models are managed industrial grade Fast Ethernet switches with 16x 10/100Base-TX ports and 4 SFP Gigabit/Fast Ethernet ports that provide stable and reliable Ethernet transmission. The Ethernet switches support a variety of management functions, including STP/RSTP/MSTP and ITU-T G.8032 Ring <50ms recovery time, layer 2 Ethernet IGMP, VLAN, QoS, Security, IPv6, bandwidth control, port mirroring, cable diagnostic and Green Ethernet. Housed in rugged DIN rail or wall mountable enclosures, these switches are designed for harsh environments, such as industrial networking, security automation applications, intelligent transportation systems (ITS) and are also suitable for many military and utility market applications where environmental conditions exceed commercial product specifications. Standard operating temperature range models (-10 to 60°C) and wide operating temperature range models (-40 to 75°C) fulfill the special needs of industrial automation applications.

### Features

- 16x 10/100Base-TX RJ-45 with 4x 100/1000Base-X SFP Fiber
- UL60950-1, CE, FCC, Rail Traffic EN50121-4 certified
- Industrial Grade EMS, EMI, EN61000-6-2, EN61000-6-4 certified
- Cable diagnostic, Measuring cable OK or broken point distance
- Supports IEEE802.3az EEE (Energy Efficient Ethernet) Management to optimize the power consumption
- STP, RSTP, MSTP, ITU-T G.8032 Ethernet Protection Ring(EPR) for cabling redundant
- **μ-Ring** for Redundant Ethernet Ring, recovery time<20ms in 250 units
- QoS, Traffic classification QoS, CoS, bandwidth control for Ingress and Egress, Storm Control, DiffServ
- IEEE802.1Q VLAN, port based VLAN, MAC based VLAN, IP subnet based VLAN, Protocol based VLAN, VLAN translation, MVR
- Dynamic IEEE 802.3ad LACP Link Aggregation, Static Link Aggregation
- IGMP/MLD snooping V1/V2/V3, IGMP Filtering/ Throttling, IGMP query, IGMP proxy reporting, MLD snooping
- Security : Port based and MAC based IEEE802.1X, RADIUS, ACL, TACACS+, HTTP/HTTPS, SSL/SSH v2
- Software upgrade via TFTP and HTTP, redundant firmware in case of upgrade failure
- DHCP client/Relay/Snooping/Snooping option 82/Relay option 82
- RMON, MIB II, Port mirroring, Event syslog, DNS, NTP/SNTP, IEEE802.1ab LLDP
- Supports IPv6 Telnet server /ICMP v6, SNMP, HTTP, SSH/SSL, NTP/ SNTP, TFTP, QoS, ACL
- CLI, Web based management, **SNMP v1/v2c/v3**, Telnet server for management
- **SmartView** Management System

### Specifications

<b>Standard</b>	IEEE 802.3 10Base-T 10Mbit/s Ethernet
	IEEE 802.3u 100Base-TX, 100Base-FX, Fast Ethernet
	IEEE 802.3ab 1000Base-T Gbit/s Ethernet over twisted pair
	IEEE 802.3z 1000Base-X Gbit/s Ethernet over Fiber-Optic
	IEEE 802.1d STP (Spanning Tree Protocol)
	IEEE 802.1w RSTP (Rapid Spanning Tree Protocol)
	IEEE 802.1s MSTP (Multiple Spanning Tree Protocol)
	ITU-T G.8032 / Y.1344 EPR (Ethernet Protection Ring )
	IEEE 802.1Q Virtual LANs (VLAN)
	IEEE 802.1X Port based Network Access Control, Authentication
	IEEE 802.3ad Link aggregation for parallel links with LACP (Link Aggregation Control Protocol)
	IEEE 802.3x Flow control for Full Duplex
	IEEE 802.1ad Stacked VLANs, Q-in-Q
	IEEE 802.1p LAN Layer 2 QoS/CoS Protocol for Traffic Prioritization
	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
	IEEE 802.3az EEE (Energy Efficient Ethernet)
<b>VLAN ID</b>	4096
<b>Switch Architecture</b>	Back-plane : 11.2Gbps
<b>Data Processing</b>	Store and Forward
<b>Flow Control</b>	IEEE 802.3x for full duplex mode Back pressure for half duplex mode
<b>Jumbo Frame</b>	9.6KB
<b>MAC Address Table</b>	8K

<b>Network Connector</b>	16x RJ-45 10/100Base-TX auto negotiation speed, Auto MDI/MDI-X function, Full/Half duplex 4x 100/1000 Base-X dual speed mode SFP slot, with DDMI
<b>Console</b>	RS-232 (RJ-45)
<b>Network Cable</b>	UTP/STP above Cat. 5e cable EIA/TIA-568 100-ohm (100m)
<b>Protocols</b>	CSMA/CD
<b>Reverse Polarity Protection</b>	Present
<b>Overload Current Protection</b>	Present
<b>CPU Watch Dog</b>	Present
<b>Power Supply</b>	Redundant Dual DC12/24/48VDC (9.6~60VDC) Input power (Removable Terminal Block)
<b>LED</b>	Per unit: Power 1 (Green), Power 2 (Green), Fault (Amber), CPU Act (Green), Ring Master (Yellow) Per RJ-45 port: 10/100 Link/Active (Green) 1000 Link/Active (Amber) SFP Fiber Per port: Link/Active (Green)
<b>Power Consumption</b>	TBD
<b>Warning Message</b>	System syslog, SMTP/ e-mail event message, alarm relay
<b>Alarm Relay Contact</b>	Relay outputs with current carrying capacity of 1 A @24VDC
<b>Removable Terminal Block</b>	Provide 2 redundant power, alarm relay contact, 6 Pin
<b>Operating Temperature</b>	-10 ~ 60°C (IFS-1604GSM) -40 ~ 75°C (IFS-1604GSM-E)
<b>Operating Humidity</b>	5% to 95% (Non-condensing)
<b>Storage Temperature</b>	-40 ~ 85°C
<b>Housing</b>	Rugged Metal, IP30 Protection
<b>Dimensions</b>	106 x 72 x 152 mm (D x W x H)

Specifications & design are subject to change without prior notice. Please visit CTC Union website for more details.

## Specifications

<b>Installation Mounting</b>	DIN Rail mounting or wall mounting
<b>EMC/EMS</b>	CE, FCC
<b>EMI</b>	FCC Part 15 Subpart B Class A, CE EN 55022 Class A EN61000-6-4 – Emission for industrial environment
<b>EMS</b>	EN61000-6-2 – Immunity for Industrial environment EN61000-4-2 (ESD) Level 3, Criteria B EN61000-4-3 (RS) Level 3, Criteria A EN61000-4-4 (EFT) Level 3, Criteria A EN61000-4-5 (Surge) Level 3, Criteria B EN61000-4-6 (CS) Level 3, Criteria A EN61000-4-8 (Magnetic Field) Level 3, Criteria A

## Software Specifications

<b>Topology</b>	
<b>VLAN</b>	IEEE 802.1q VLAN, up to 4095 ID IEEE 802.1q VLAN, up to 4095 Groups IEEE 802.1ad Q-in-Q Port Based VLAN MAC-based VLAN, up to 256 entries IP Subnet-based VLAN, up to 128 entries Protocol-based VLAN(Ethernet, SNAP, LLC), up to 128 entries VLAN Translation, up to 256 entries MVR ( Multiple VLAN Registration )
<b>Link Aggregation (Port Trunk)</b>	Static (Hash with SA, DA, IP, TCP/UDP port), up to 5 trunk group Dynamic (IEEE 802.3ad LACP), up to 5 trunk group
<b>Spanning Tree</b>	IEEE802.1d STP IEEE802.1w RSTP IEEE802.1s MSTP
<b>Loop Protection</b>	Present
<b>µ-Ring</b>	Easy set for Ethernet protection Ring, Recovery Time <20ms, Maximum 250 Node
<b>ITU-T G.8032 / Y.1344 ERPS (Ethernet Ring Protection)</b>	Convergence time <50ms Single Ring, Sub-Ring, Multiple ring topology network
<b>QoS Feature</b>	
<b>Class of Service</b>	IEEE802.1p 8 active priorities queues for per port
<b>Traffic Classification QoS</b>	IEEE802.1p based CoS IP Precedence based CoS IP DSCP based CoS QCL(QoS Control List): MAC Access control list (Source/Destination MAC, Ether type, Priority ID/ VLAN ID) QCL: IP extended access control list (Source/Destination IP, Protocol, TCP/UDP port number)
<b>Bandwidth Control for Ingress</b>	Rate in steps : 100 kbps / 1fps / 100fps Range : 100 kbps to 1Gbps / 1fps to 3300kfps Rate Unit : bit or frame
<b>Bandwidth Control for Egress</b>	Rate in steps : 100 kbps / 1fps / 100fps Range : 100 kbps to 1Gbps / 1fps to 3300kfps Rate Unit : bit or frame Per queue shaper
<b>DiffServ (RF 2474) Remarking</b>	
<b>Storm Control</b>	for Unicast, Broadcast, Multicast
<b>IP Multicasting Feature</b>	
<b>IGMP / MLD Snooping</b>	IGMP Snooping v1, v2, v3 / MLD Snooping v1, v2 Port Filtering Profile Throttling Fast Leave Query
<b>Security Features</b>	
<b>IEEE 802.1X</b>	Port-Based MAC-Based
<b>ACL</b>	Number of rules : up to 256 entries for L2 / L3 / L4

<b>Safety</b>	UL60950-1 (Pending)
<b>Rail Traffic</b>	EN 50121-4
<b>Shock</b>	IEC 60068-2-27
<b>Freefall</b>	IEC 60068-2-32
<b>Vibration</b>	IEC 60068-2-6
<b>MTBF</b>	TBD (Above 30 years )
<b>Warranty</b>	5 years

<b>RADIUS authentication &amp; accounting</b>	
<b>TACACS+ authentication &amp; accounting, TACACS+ 3.0</b>	
<b>HTTPS, HTTP</b>	
<b>SSL / SSH v2</b>	
<b>User Name</b>	Local Authentication
<b>Password</b>	Remote Authentication (via RADIUS / TACACS+)
<b>Authentication</b>	
<b>Management</b>	
<b>Interface Access</b>	Web, Telnet / SSH
<b>Filtering</b>	
<b>Management Features</b>	
<b>CLI</b>	
<b>Web Based Management</b>	
<b>Telnet</b>	Server
<b>SNMP</b>	V1, V2c, V3
<b>SW &amp; Configuration Upgrade</b>	TFTP, HTTP Redundant firmware in case of upgrade failure
<b>RMON</b>	RMON I (1, 2, 3, 9 group), RMON II
<b>MIB II</b>	RFC 1213
<b>DHCP</b>	Client Relay Snooping Snooping option 82 Relay option 82
<b>IP Source Guard</b>	
<b>Port Mirroring</b>	
<b>Event Syslog</b>	Syslog server (RFC3164) (Support 1 server )
<b>Warning Message</b>	System syslog, e-mail, alarm relay
<b>DNS</b>	Client, Proxy
<b>NTP /SNTP</b>	
<b>LLDP (IEEE 802.1ab)</b>	Link Layer Discovery Protocol LLDP-MED
<b>IPv6 Features</b>	
<b>IPv6 Management</b>	Telnet Server/ICMP v6
<b>Stateless Auto-Configuration</b>	
<b>SNMP over IPv6</b>	
<b>HTTP over IPv6</b>	
<b>SSH over IPv6</b>	
<b>IPv6 Telnet Support</b>	
<b>IPv6 NTP / SNTP Support</b>	
<b>IPv6 TFTP Support</b>	
<b>IPv6 QoS</b>	
<b>IPv6 ACL</b>	Number of rules: up to 256 entries L2 / L3 / L4
<b>Others Features</b>	
<b>Green Ethernet</b>	Supports IEEE802.3az EEE (Energy Efficient Ethernet) Management to optimize the power consumption Determine the cable length and lowering the power for ports with short cables Lower the power for a port when there is no link LED Power Management : Adjustment LEDs intensity
<b>Cable Diagnostic</b>	Measuring cable OK or broken point distance

## Application

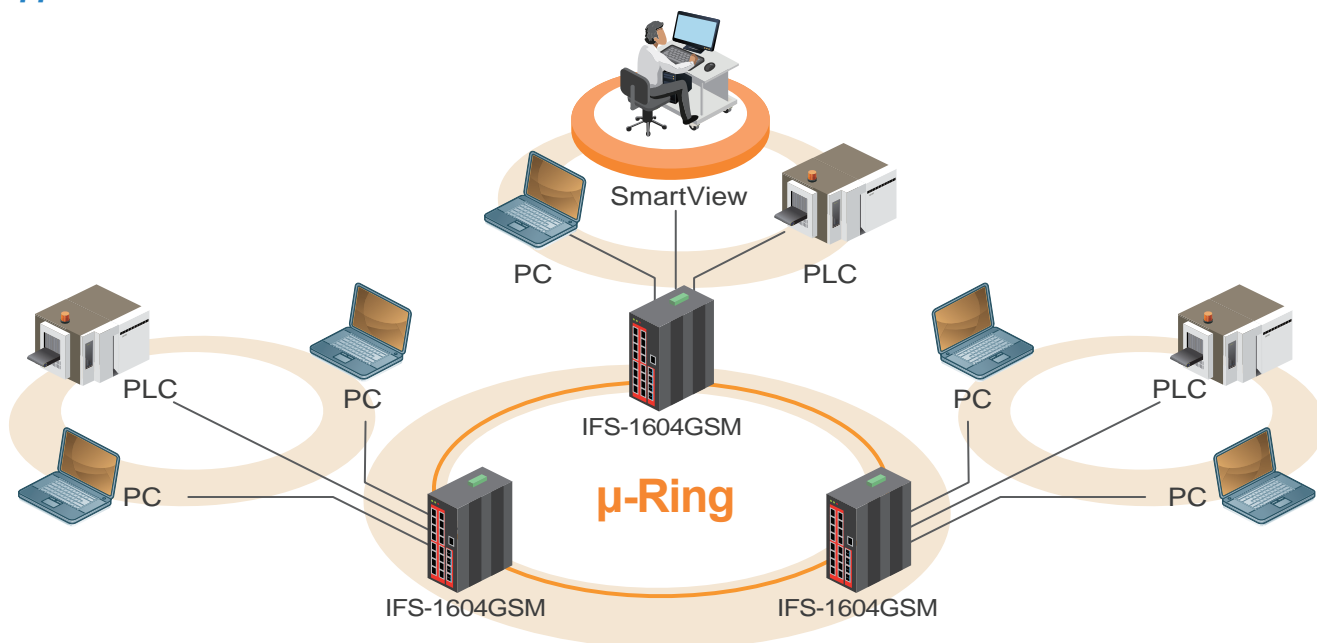
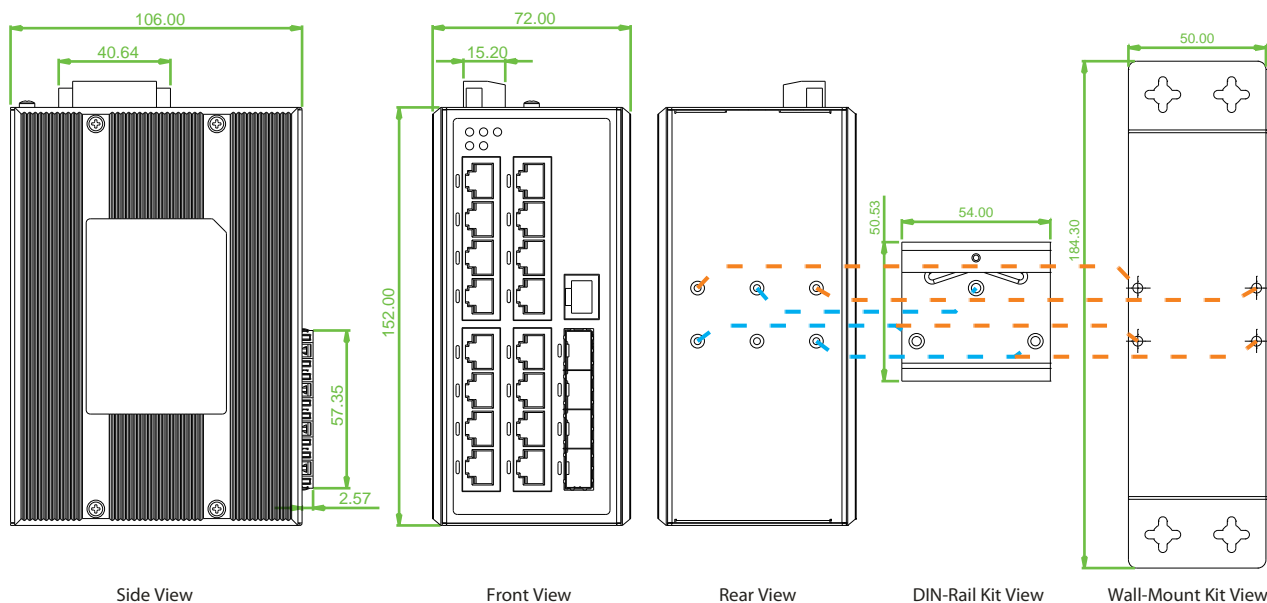


Figure : Topology

## Dimensions

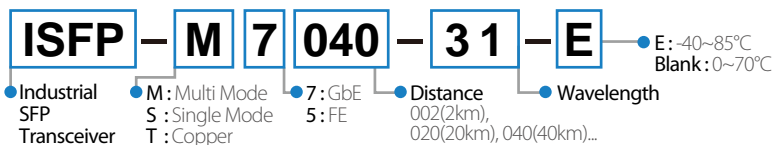


## Ordering Information

Model Name	Description
IFS-1604GSM	16x 10/100Base-TX + 4x 100/1000Base-X SFP Slot Managed Switch (-10~60°C)
IFS-1604GSM-E	16x 10/100Base-TX + 4x 100/1000Base-X SFP Slot Managed Switch (-40~75°C)

### Accessories

DR-4524	Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 48W, -10 ~ +50°C
MDR-40-24	Industrial Power, Input 85 ~ 264VAC, Output 24VDC, 40W, -20 ~ +70°C
SFP Transceiver	Compatible, Reliable, 5-year Warranty



Temperature  
**IFS-1604GSM -**   
 Example: IFS-1604GSM - E