New

IFS-401F
4x 10/100Base–TX+
1x 100Base–FX FE Switch

IFS-402F
4x 10/100Base–TX+
2x 100Base–FX FE Switch

IFS-800
8x 10/100Base–TX Fast Ethernet Switch

IFS-802GS
8x 10/100Base–TX +
2x 1000Base-X SFP FE Switch

IFS-1602GS
16x 10/100Base–TX +
2x 1000Base-X SFP Switch

These models are unmanaged industrial grade switches with 4~16 10/100Base-TX ports and 0~2 fiber ports, that provide stable and reliable Ethernet transmission.Housed in rugged DIN rail or wall mountable enclosures, these switches are designed for harsh environments, such as industrial networking, intelligent transportation systems (ITS) and are also suitable for many military and utility market applications where environmental conditions exceed commercial product specifications Specifications (See Figure 1, 2). 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

- 4x 10/100Base-TX RJ45 + 1x 100Base-FX Fiber (IFS-401F)
- 4x 10/100Base-TX RJ45 + 2x 100Base-FX Fiber (IFS-402F)
- 8x 10/100Base-TX RJ45 (IFS-800)
- 8x 10/100Base-TX RJ45 +2x 1000Base-X SFP (IFS-802GS)
- 16x 10/100Base-TX RJ45 +2x 1000Base-X SFP (IFS-1602GS)
- Redundant dual DC input power 12/24/48VDC (9.6~60VDC)
- IP30 rugged metal housing and Fanless
- Wide operating temperature -40 ~ 75°C (-E model)
- Provides broadcast storm protection (IFS-401F, IFS-402F, IFS-800, IFS-1602GS)
- Supports DIP SW for alarm setting and broadcast storm protection
- Supports power failure alarm message by relay
- Supports flow control
- CE, FCC,and EN50121-4 certification
- Heavy industrial grade EMS, EMI, EN61000-6-2, EN61000-6-4 certified
- 4KV surge protection for UTP ports (IFS-1602GS)
- 2.25K VDC Hi-pot isolation protection for Ethernet ports and power (IFS-1602GS)

Specifications

IEEE Standard	IEEE 802.3 10Base-T Ethernet
	IEEE 802.3u 100Base-TX and 100Base-FX Fast Ethernet
	IEEE 802.3x Flow Control and Back Pressure
	IEEE 802.3z 1000Base-X Gbit/s Ethernet over Fiber-Optic
Switch Architecture	Back-plane (Switching Fabric) : 1.0Gbps (IFS-401F) 1.2Gbps (IFS-402F) 1.6Gbps (IFS-800) 5.6Gbps (IFS-802GS) 7.2 Gbps (IFS-1602GS) Full wire-speed
Data Processing	Store and Forward
Transfer Rate	14,880pps for Ethernet port
	148,800pps for Fast Ethernet port
	1,488,000pps for Giga Ethernet port
Flow Control	IEEE 802.3x flow control, back pressure flow control
Provides Broadcast Storm Protection	Present, Enable /Disable set by DIP SW (IFS-401F, IFS-402F, IFS-800, IFS-1602GS)
MAC Address Table	2K (IFS-401F, IFS-402F, IFS-800) 8K (IFS-802GS) 16K (IFS-1602GS)
Packet Buffer Size	448Kbit (IFS-401F, IFS-402F, IFS-800) 1024Kbit (IFS-802GS) 4M bit (IFS-1602GS)
Network Connector	4x RJ-45, 1x Fiber (IFS-401F), 4x RJ-45, 2 Fiber (IFS-402F)
	8x RJ-45 (IFS-800)
	8x RJ-45, 2 SFP (IFS-802GS)
	16x RJ-45, 2x SFP (IFS-1602GS)
	RJ-45 Port: Auto MDI/MDI-X function, 10/100Base-TX auto negotiation speed, Full/Half duplex
	1 or 2x 100Base-FX SC/ST fiber port, Multi/Single Mode (IFS-401F, IFS-402F) 2x 1000Base-X SFP port (IFS-802GS, IFS-1602GS)
Network Cable	10Base-T: 2-pair UTP/STP Cat. 5e cable
	EIA/TIA-568 100-ohm (100m)
	100Base-TX: 2-pair UTP/STP Cat. 5e cable
	EIA/TIA-568 100-ohm (100m)
	Fiber Cable (Multi-mode): 50/125um~62.5/125um
Network Cable	Fiber Cable (Single-mode): 8/125um~10/125um
	Wavelength: 1310nm (Multi-mode/Single-mode)
	Available distance: 2KM (Multi-Mode) 30KM (Single-Mode) 50KM (Single Mode)
	SFP: Distance depend on SFP Fiber Transceiver

Protocol	CSMA/CD	
LED	Per unit: Power 1 (Green), Power 2 (Green), Fault (Amber)	
	RJ-45 Per port: Link/Active (Green), Speed 100 (Yellow)	
	Fiber Per port: Link/Active (Green) (IFS-401F, IFS-402F) SFP Port : Link/Active (Green) (IFS-802GS, IFS-1602GS)	
DIP SW	DIP 1	OFF : Enable power failure alarm ON : Disable
	DIP 2	Broadcast storm protection (IFS-401F, IFS-402F, IFS-800, IFS-1602GS) OFF : Enable ON : Disables
Reverse Polarity Protection	Supported for Power Input	
Overload Current Protection	Supported	
Power Supply	Redundant Dual DC 12/24/48V (9.6~60VDC) Input power (Removable Terminal Block)	
Power Consumption	4.4W (IFS-401F) 5.8W (IFS-402F) 4.4W (IFS-802GS) 3.9W (IFS-800) 8.7W (IFS-1602GS)	
Alarm Relay Contact	Relay outputs with current carrying capacity of 1 A @24VDC, NC	
Removable Terminal Block	Provides 2 Redundant power, Alarm relay contact, 6 Pin	
Operating Temperature	-10 ~ 60°C (IFS-401F, IFS-402F, IFS-800, IFS-802GS, IFS-1602GS)	
	-40 ~ 75°C (IFS-401F-E, IFS-402F-E, IFS-800-E, IFS-802GS-E, IFS-1602GS-E)	
Operating Humidity	5% to 95% (Non-condensing)	
Storage Temperature	-40 ~ 85°C	
Housing	Rugged Metal, IP30 Protection and Fanless	
Dimensions	106 x 31.6 x 142mm (D x W x H) (IFS-401F, IFS-402F, IFS-800) 106 x 72 x 152 mm (D x W x H) (IFS-802GS, IFS-1602GS)	
Weight	0.37kg (IFS-401F), 0.42kg (IFS-402F), 0.67kg (IFS-802GS) 0.43kg (IFS-800), 0.82kg (IFS-1602GS)	
Installation Mounting	DIN Rail mounting, or wall mounting (Optional)	
MTBF	908,971 Hours (IFS-401F) 907,622 Hours (IFS-402F) 1,064,064 Hours (IFS-800) 837,414 Hours (IFS-802GS) 461,653 Hours (IFS-1602GS) (MIL-HDBK-217)	

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

Warranty	5 years
Certification	
EMC/EMS	CE
EMI (Electromagnetic Interference)	FCC Part 15 Subpart B Class A, CE
Railway Traffic	EN50121-4
Immunity for Heavy Industrial Environment	EN61000-6-2
Emission for Heavy Industrial Environment	EN61000-6-4

EMS (Electromagnetic Susceptibility) Protection Level	EN61000-4-2 (ESD) Level 3, Criteria B
	EN61000-4-3 (RS) Level 3, Criteria A
	EN61000-4-4 (Burst) Level 3, Criteria A
	EN61000-4-5 (Surge) Level 3, Criteria B
	EN61000-4-6 (CS) Level 3, Criteria A
	EN61000-4-8 (PFMF, Magnetic Field) Field Strength: 300A/m, Criteria A
Safety	UL60950-1 (Pending)
Hi-pot isolation protection	DC 2.25KV for power to chassis ground, and UTP port to chassis ground (IFS-1602GS)
4KV surge protection	Supported for UTP Port (IFS-1602GS)
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

Application

Figure 1 : IFS-402F Fast Ethernet Switch Transmission with Daisy Chain

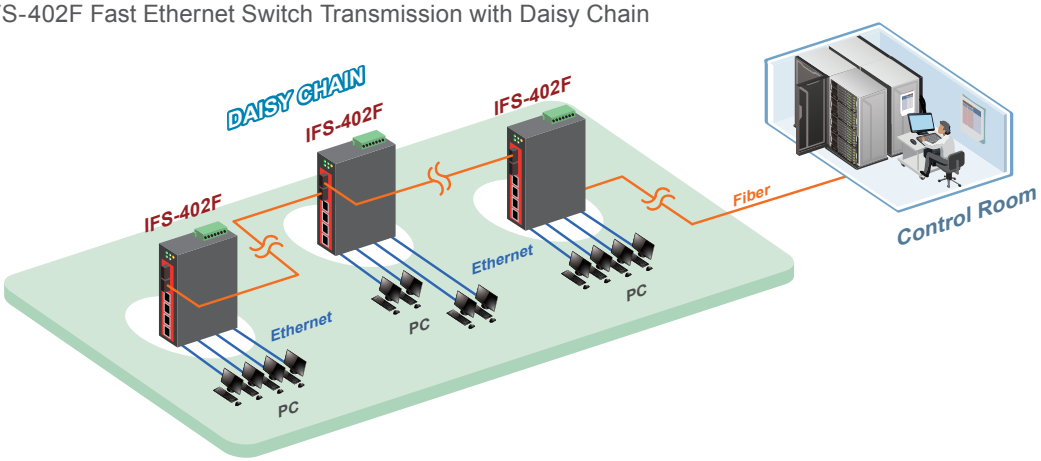
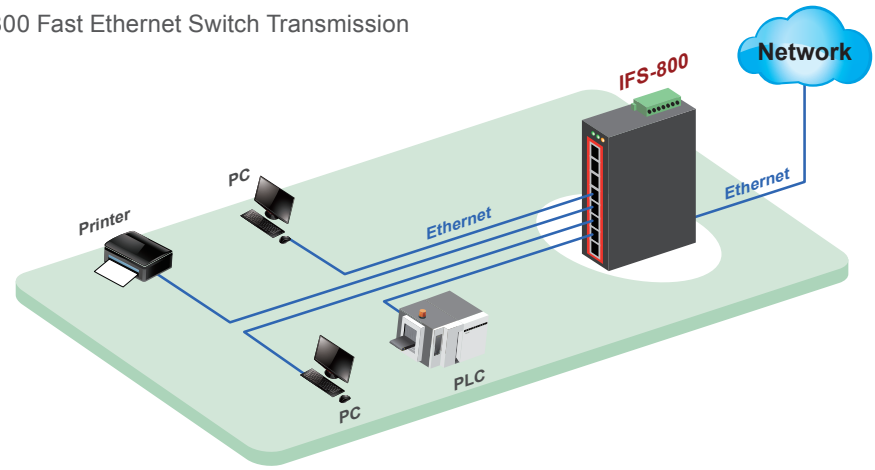
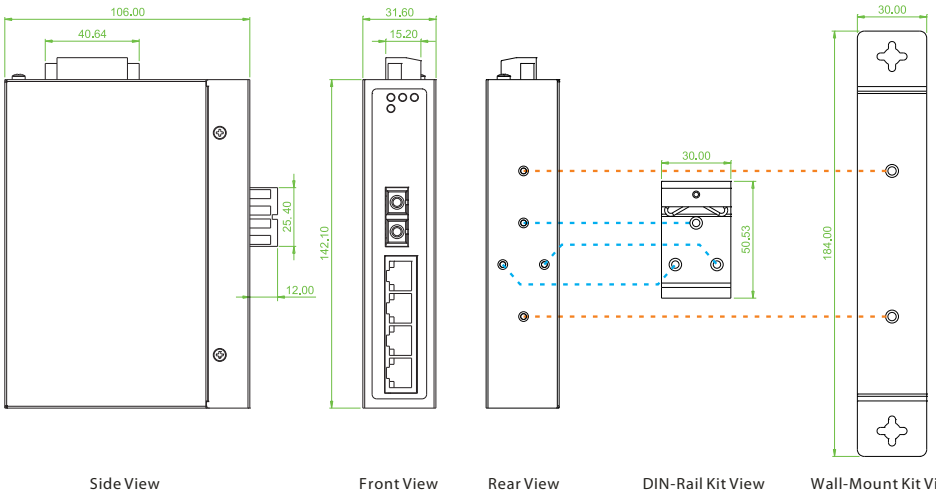


Figure 2 : IFS-800 Fast Ethernet Switch Transmission

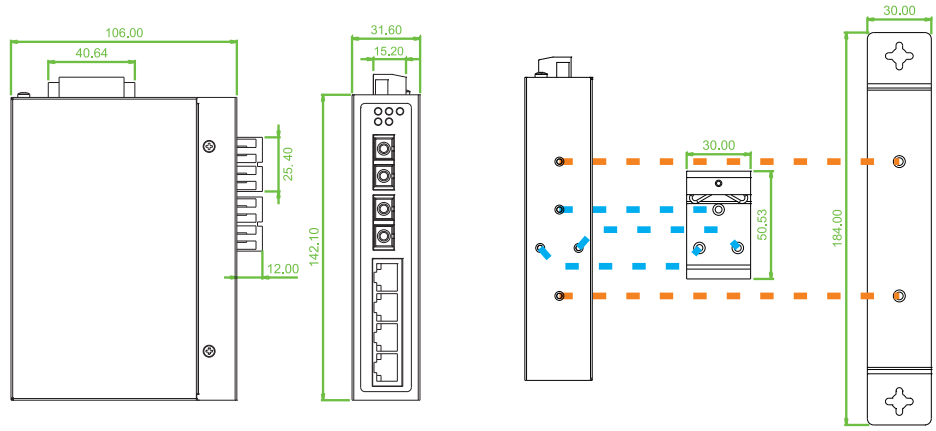


Dimensions

▶ IFS-401F

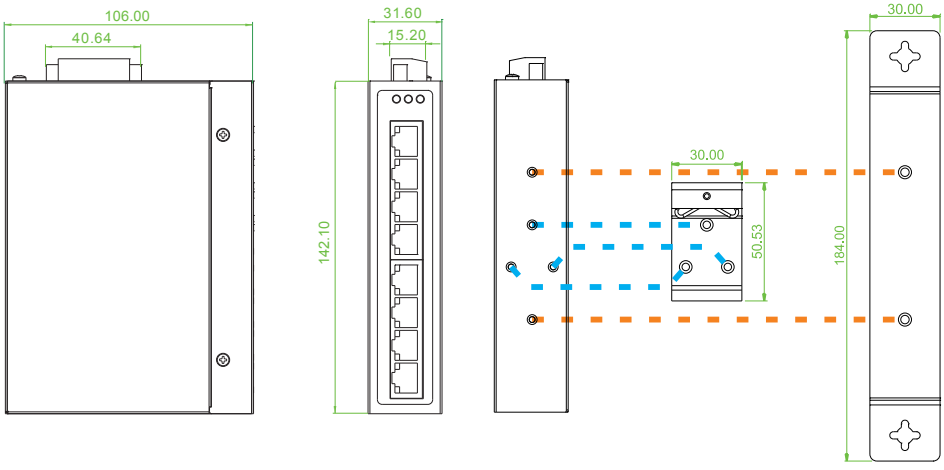


▶ IFS-402F



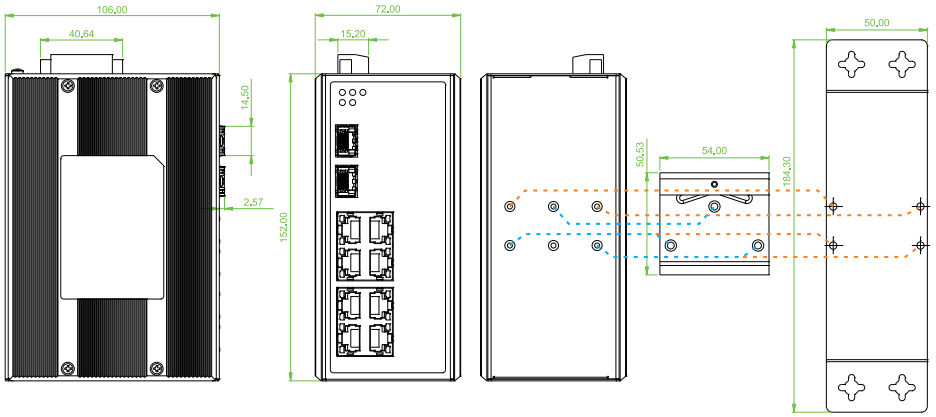
Side View　Front View　Rear View　DIN-Rail Kit View　Wall-Mount Kit View
(Optional accessory)

▶ IFS-800



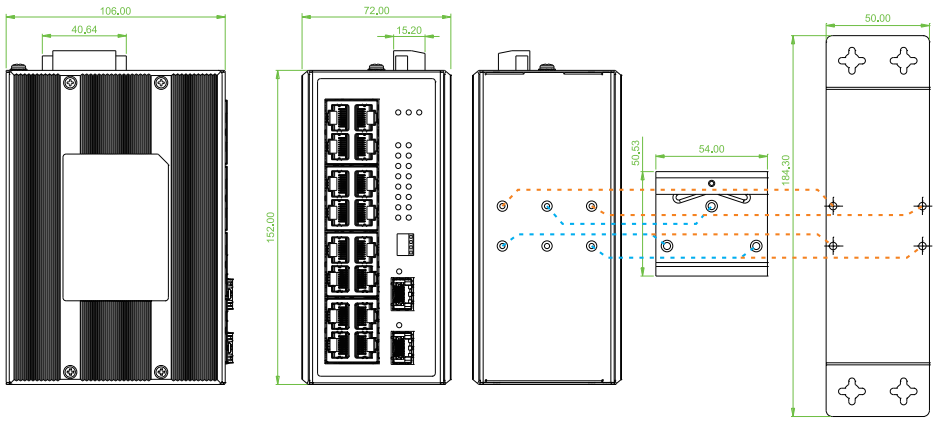
Side View　Front View　Rear View　DIN-Rail Kit View　Wall-Mount Kit View
(Optional accessory)

▶ IFS-802GS



Side View　Front View　Rear View　DIN-Rail Kit View　Wall-Mount Kit View
(Optional accessory)

▶ IFS-1602GS



Side View　Front View　Rear View　DIN-Rail Kit View　Wall-Mount Kit View
(Optional accessory)

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Ordering Information

Model Name	Total Port	RJ45 UTP Port	Fiber Port		Certification				Operating Temperature
		10/100Base-TX	100Base-FX	1000Base-X	Railway EN50121-4	EN61000-6-2 EN61000-6-4	CE	FCC	
IFS-401F	5	4	1 SC/ST		V	V	V	V	-10~60℃
IFS-401F-E	5	4	1 SC/ST		V	V	V	V	-40~75℃
IFS-402F	6	4	2 SC/ST		V	V	V	V	-10~60℃
IFS-402F-E	6	4	2 SC/ST		V	V	V	V	-40~75℃
IFS-800	8	8			V	V	V	V	-10~60℃
IFS-800-E	8	8			V	V	V	V	-40~75℃
IFS-802GS	10	8		2 SFP	V	V	V	V	-10~60℃
IFS-802GS-E	10	8		2 SFP	V	V	V	V	-40~75℃
IFS-1602GS	18	16		2 SFP	V	V	V	V	-10~60℃
IFS-1602GS-E	18	16		2 SFP	V	V	V	V	-40~75℃

Model Naming Rule

IFS – 4 – 02F – E – SC002

- IFS: Industrial Fast Ethernet Switch
- 4: 4x FE UTP; 8: 8x FE UTP; 16: 16x FE UTP
- 01F: 1x FE Fiber; 02F: 2x FE Fiber; 00: 0x Fiber; 02GS: 2x GbE SFP
- E: -40~75˚C; Blank: -10~60˚C
- SC002: See below for more detail (For IFS-401F, IFS-402F)

Fiber Option Type	Connectivity Distance
SC, ST (for IFS-401F, IFS-402F)	002: 2km 030: 30km 050: 50km 020A: WDM Bidi 20km A type (TX:1310nm) 020B: WDM Bidi 20km B type (TX: 1550nm)

IFS – □□□□ – □ – □□□□□ (Port Number / Temperature / Connector Type / Connectivity Distance)

Example: IFS – 402F – E – SC002

Package List

- One device of the series
- Quickly installation guide
- Din Rail with screws
- Terminal block
- Protective caps for SFP ports (for IFS-802GS, IFS-1602GS)

Optional Accessories

Wall mount kit Accessories

IND-WMK01	Wall Mount kit for Industrial product, 184 x 30mm (Narrow) (For IFS-401F, IFS-402F, IFS-800)
IND-WMK02	Wall Mount kit for Industrial product, 184 x 50mm (Wide) (For IFS-802GS, IFS-1602GS)

Industrial SFP Transceiver

The ISFP series of industrial grade SFP modules have been fully tested with the IFS-802GS & IFS-1602GS product for guaranteed compatibility and performance. The best performance can be guaranteed even in mission-critical applications. (Please see CTC Union's Industrial SFP datasheet for more details and more items.)

ISFP-M7000-85-(E)	Industrial SFP GbE 1000Base-SX, M/M, 500 meter,wave length 850nm, 7.5dB, LC, -10~70℃ (-40~85℃)
ISFP-S7020-31-(E)	Industrial SFP 1000Base-LX, S/M, 20km, wave length 1310nm, 15dB, LC, -10~70℃ (-40~85℃)
ISFP-T7T00-00-(E)	Industrial SFP 1000Base-T UTP 100meter, -10~70℃ (-40~85℃)

SFP Naming Rule

ISFP – S – 7 – 040 – 31 – D – E

- ISFP: Industrial SFP Transceiver
- S: M: Multi Mode; S: Single Mode; T: UTP
- 7: 9: 10G; 7: GbE; 5: FE
- 040: Distance — T00: (UTP); 000: (500m); 002: (2km); 020: (20km); 040: (40km)
- 31: Wavelength — 00: UTP; 85: 850nm; 31:1310nm; 55:1550nm; WA: TX/1310nm (Bidi mode A); WB: TX/1550nm (Bidi Mode B)
- D: DDMI; Blank: Non DDMI
- E: E:-40~85˚C; Blank:0~70˚C