# IFS-401F & IFS-402F



## 4x FE RJ45 + 1x (or 2x) 100Base-FX Fiber (ST/SC)

- >> Provides a DIP-Switch to Set Functions
- >> Supports Power Failure Slarm Message by Relay
- >> 12/24/48VDC (9.6~60VDC) Redundant Dual Power Input
- > IP30, Rugged Metal Housing, Fanless
- > EN50121-4, EN61000-6-2, EN61000-6-4, CE and FCC Certified









The industrial unmanaged Ethernet switches provide stable and reliable Ethernet transmission, IFS-401F and IFS-402F have 4-port 10/100Base-TX UTP and are equipped with 1 or 2 100Base-FX SC/ST optical fiber ports to meet Requirements for extending transmission distance Housed in rugged enclosures, designed for harsh environments, fanless, high MTBF, supports wide operating temperature, and redundant 12/24/48VDC power input, it is suitable for heavy-duty applications 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.

#### **Features**

- Wide operating temperature -40 ~ 75°C (-E model)
- Provides broadcast storm protection

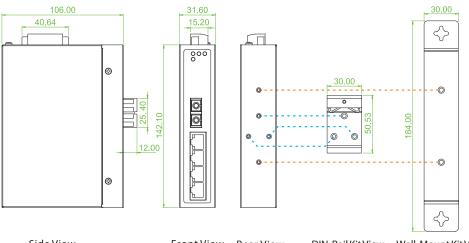
<b>Specifications</b>				
Standard	IEEE 802.3	10Base-T Ethernet		
	IEEE 802.3u 100Base-TX and 100Base-FX Fast Ethernet			
	IEEE 802.3z	1000Base-X Gigabit Ethernet over fiber-optic		
	IEEE 802.3x	Flow Control and Back Pressure		
	IEEE 802.3x	Flow Control and Back Pressure		
Switch Architecture	Back-Plane (Switching Fabric): IFS-401 1.0Gbps / IFS-402 1.2Gbps (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	l, back pressure flow control		
Provides Broadcast Storm Protection	Procent Enable / Dicable cet by LIP SW			
MAC Address Table	2K			
Packet Buffer Size	448Kbit			
<b>Network Connector</b>	4x RJ-45, 1x Fiber (IFS-401F) / 4x RJ-45, 2x Fiber (IFS-402F)  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		

# **Industrial Fast Ethernet Switch**

Network Cable
Fiber Cable (Multi-mode): 50/125um-62:5/125um 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)  Protocol  CSMA/CD  System: Power 1 (Green), Power 2 (Green), Fault (Amber) UFD: Link/Active (Green), Speed 100 (Yellow) Fiber: Link/Active (Green)  DIP SW  DIP 1  OFF: Enable power failure alarm ON: Disable  ON: Disables  Reverse Polarity Protection OFF: Enable
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)   Available distance: 2KM (Multi-Mode), 30KM (Single-Mode), 50KM (Single Mode)   Available distance: 2KM (Multi-Mode), 30KM (Single-Mode), 50KM (Single Mode)   Available distance: 2KM (Multi-Mode), 30KM (Single-Mode), 50KM (Single Mode)   Available distance: 2KM (Multi-Mode), 30KM (Single-Mode), 50KM (Single Mode)   Available distance: 2KM (Multi-Mode), 30KM (Single-Mode), 50KM (Single Mode)   Available distance: 2KM (Multi-Mode), 30KM (Single-Mode), 50KM (Single Mode)   Available distance: 2KM (Multi-Mode), 30KM (Single-Mode), 50KM (Single Mode)   Available distance: 2KM (Multi-Mode), 30KM (Single-Mode), 50KM (Single Mode)   Available distance: 2KM (Multi-Mode), 30KM (Single-Mode), 50KM (Single Mode)   Available distance: 2KM (Multi-Mode), 30KM (Single-Mode), 50KM (Single Mode)   Available distance: 2KM (Multi-Mode), 30KM (Single-Mode), 50KM (Single Mode), 50KM
Wavelength: 1310nm (Multi-mode/Single-mode)   Available distance: 2KM (Multi-mode), 30KM (Single-Mode), 50KM (Single Mode )   Protocol   CSMA/CD
Available distance: 2KM (Multi-Mode), 30KM (Single-Mode), 50KM (Single Mode)  Protocol  CSMA/CD  System: Power 1 (Green), Power 2 (Green), Fault (Amber)  UTP: Link/Active (Green), Speed 100 (Yellow) Fiber: Link/Active (Green)  PIP SW  PIP 1  OFF: Enable power failure alarm ON: Disable  Broadcast storm protection OFF: Enable ON: Disables  Reverse Polarity Protection OFF: Enable ON: Disables  Reverse Polarity Protection OFF: Enable ON: Disables  Reverse Power Supply Redundant Dual DC 12/24/48V (9.6~60VDC) Input power (Removable Terminal Block)  Alarm Relay Contact Removable Terminal Block Povering Temperature Operating Temperature 10 ~ 60°C (IFS-401F, IFS-402F) - 40 ~ 75°C (IFS-401F, E, IFS-402F)  Operating Humidity Storage Temperature Available distance: 2KM (Multi-Mode), 30KM (Single Mode) Solk (Green), Power 2 (Green), Fault (Amber) Cyellow) Fower 2 (Green), Fault (Amber) OY: Divide 2 (Green) OY: Divide 2 (Green) OY: Divide 2 (Green) OY: Divide 2 (Green) OY: Divide 3 (Green) OY: Divide 3 (Green) OY: Divide 4 (Green) OY: D
Protocol   CSMA/CD   System: Power 1 (Green), Power 2 (Green), Fault (Amber)   UTP: Link/Active (Green), Speed 100 (Yellow)   Fiber: Link/Active (Green), Speed 100 (Yellow)   Fiber: Link/Active (Green)   OFF : Enable power failure alarm   ON : Disable   ON : Disable   ON : Disable   ON : Disable   ON : Disables   OFF : Enable   ON : Disables   O
System: Power 1 (Green), Power 2 (Green), Fault (Amber)   UTP: Link/Active (Green), Speed 100 (Yellow)   Fiber: Link/Active (Green), Speed 100 (Yellow)   OFF: Enable power failure alarm   ON: Disables   Broadcast storm protection   OPF: Enable oN: Disables   ON: Disables   ON: Disables   ON: Disables   ON: Disables   OPF Enable oN: Disables
UTP: Link/Active (Green), Speed 100 (Yellow)   Fiber: Link/Active (Green), Speed 100 (Yellow)   OFF: Enable power failure alarm   ON: Disables
Fiber: Link/Active (Green)  PIP SW PIP 1  OFF: Enable power failure alarm ON: Disable  Prover Supported for Power Input  Overload Current Protection Overload Current Protection Power Supported  Redundant Dual DC 12/24/48V (9.6~60VDC) Input power (Removable Terminal Block )  Power Consumption Alarm Relay Contact Removable Terminal Block Provides 2 Redundant power, Alarm relay contact, 6 Pin  Operating Temperature Operating Humidity Storage Temperature At 0~85°C  Housing Rugged Metal, IP30 Protection and Fanless  Dimensions  OFF: Enable power failure alarm ON: Disables  Broadcast storm protection OFF: Enable o
DIP SW DIP 1  OR: Enable power failure alarm ON: Disable  DIP 2  Broadcast storm protection OFF: Enable ON: Disables  Reverse Polarity Protection OFF: Enable ON: Disables  Reverse Polarity Protection 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)  Alarm Relay Contact Removable Terminal Block Provides 2 Redundant power, Alarm relay contact, 6 Pin  Operating Temperature -10 ~ 60°C (IFS-401F, IFS-402F) -40 ~ 75°C (IFS-401F-E, IFS-402F-E)  Operating Humidity Storage Temperature -40 ~ 85°C  Housing Rugged Metal, IP30 Protection and Fanless  Dimensions 106 x 31.6 x 142mm (D x W x H)
DIP 1   ON : Disable     DIP 2   Broadcast storm protection     OFF : Enable   ON : Disables     ON : Disables     OFF : Enable   ON : Disables     OFF : Enable   ON : Disables     OFF : Enable   ON : Disables     OVerload Current Protection     Overlo
Power Supply   Redundant Dual DC 12/24/48V (9.6~60VDC) Input power (Removable Terminal Block )   Power Consumption   A,4W (IFS-401F) / 5.8W (IFS-402F)     Removable Terminal Block   Provides 2 Redundant power, Alarm relay contact, 6 Pin
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)  Alarm Relay Contact Relay outputs with current carrying capacity of 1A @24VDC, NC  Removable Terminal Block Provides 2 Redundant power, Alarm relay contact, 6 Pin  Operating Temperature -10 ~ 60°C (IFS-401F, IFS-402F) -40 ~ 75°C (IFS-401F-E, IFS-402F-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)
Overload Current ProtectionSupportedPower SupplyRedundant Dual DC 12/24/48V (9.6~60VDC) Input power (Removable Terminal Block )Power Consumption4.4W (IFS-401F) / 5.8W (IFS-402F)Alarm Relay ContactRelay outputs with current carrying capacity of 1A @24VDC, NCRemovable Terminal BlockProvides 2 Redundant power, Alarm relay contact, 6 PinOperating Temperature-10 ~ 60°C (IFS-401F, IFS-402F)-40 ~ 75°C (IFS-401F-E, IFS-402F-E)Operating Humidity5% to 95% (Non-condensing)Storage Temperature-40 ~ 85°CHousingRugged Metal, IP30 Protection and FanlessDimensions106 x 31.6 x 142mm (D x W x H)
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Power Consumption Alarm Relay Contact Removable Terminal Block Operating Temperature Operating Humidity Storage Temperature Housing Dimensions  4.4W (IFS-401F) / 5.8W (IFS-402F) 5.8W (IFS-402F) 6.8W (IFS-401F, IFS-402F) 6.8W (IFS-401F, IFS-402F) 6.9V (IFS-401F, IFS-402F) 6.9V (IFS-401F-E, IFS-402F-E) 6.9V
Alarm Relay Contact Removable Terminal Block Provides 2 Redundant power, Alarm relay contact, 6 Pin  Operating Temperature -10 ~ 60°C (IFS-401F, IFS-402F) -40 ~ 75°C (IFS-401F-E, IFS-402F-E)  Operating Humidity Storage Temperature -40 ~ 85°C  Housing Rugged Metal, IP30 Protection and Fanless  Dimensions  106 x 31.6 x 142mm (D x W x H)
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$ \begin{array}{c} \textbf{Operating Temperature} \\ -10 \sim 60^{\circ}\text{C} \ \ (\text{IFS-401F, IFS-402F}) \\ -40 \sim 75^{\circ}\text{C} \ \ \ (\text{IFS-401F-E, IFS-402F-E}) \\ \hline \textbf{Operating Humidity} \\ \textbf{Storage Temperature} \\ \textbf{-40} \sim 85^{\circ}\text{C} \\ \hline \textbf{Housing} \\ \textbf{Dimensions} \\ \hline \textbf{Dimensions} \\ \hline \end{tabular} \begin{array}{c} -10 \sim 60^{\circ}\text{C} \ \ \ (\text{IFS-401F, IFS-402F-E}) \\ \hline 5\% \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
-40 ~ 75°C (IFS-401F-E, IFS-402F-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)
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Housing Rugged Metal, IP30 Protection and Fanless  Dimensions 106 x 31.6 x 142mm (D x W x H)
<b>Dimensions</b> 106 x 31.6 x 142mm (D x W x H)
100 X O HO X T IZHIIN (B X N X N)
<b>Weight</b> 0.37kg (IFS-401F) / 0.42kg (IFS-402F)
Installation Mounting DIN Rail mounting or wall mounting (Optional)
MTBF 908,971 Hours (IFS-401F) / 907,622 Hours (IFS-402F)
(MIL-HDBK-217)  Warranty 5 years
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Certification FMC/FMS OF /FMFF000 FMFF00F
EMC/EMS CE (EN55032, EN55035)  EMI
(Electromagnetic FCC Part 15 Subpart B Class A, CE Interference)
Railway Traffic EN50121-4
Immunity for Heavy Industrial Environment EN61000-6-2
Emission for Heavy Industrial Environment
EMS EN61000-4-2 (ESD) Level 3, Criteria B  (Electromagnetic ENC1000 4.3 (FD) Level 3, Criteria A
Susceptibility) END 1000-4-3 (RS) Level 3, Utiletia A
Protection Level 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
<b>Shock</b> IEC 60068-2-27
Freefall IEC 60068-2-32
Vibration IEC 60068-2-6

### **Dimensions**

► IFS-401F

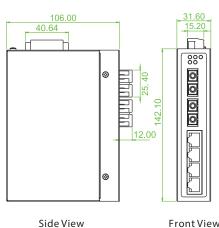


Side View

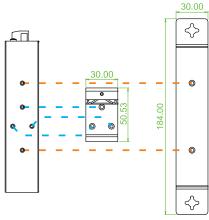
Front View Rear View

DIN-Rail Kit View Wall-Mount Kit View (Optional Accessory)

► IFS-402F



Front View



Rear View DIN-Rail Kit View Wall-Mount Kit View (Optional Accessory)

## **Ordering Information**

	Tabal	RJ45	SC/ST	Certification			0
Model Name	Total Port	10/100Base-TX	100Base-FX	EN50121-4	EN61000-6-2 EN61000-6-4	CE, FCC	Operating Temperature
IFS-401F	5	4	1	V	V	V	-10~60°C
IFS-401F-E	5	4	1	V	V	V	-40~75°C
IFS-402F	6	4	2	V	V	V	-10~60°C
IFS-402F-E	6	4	2	V	V	V	-40~75°C

Fiber Connector	Connectivity Distance	
SC, ST	002: 2km 030: 30km 050: 50km	
	020A: WDM Bidi 20km A type (TX:1310nm)	
	020B: WDM Bidi 20km B type (TX: 1550nm)	

<sup>\*</sup> MOQ is requested for ST type

# **Optional Accessories**

#### ■ Wall Mount Kit

IND-WMK01 Wall Mount kit for Industrial product, 184 x 30mm (Narrow)

### ■ Industrial Power Supply

MDR-20-24	Industrial Power, Input 85 ~ 264VAC/120 ~ 370VDC, Output 24VDC, 24W, -20 ~ 70°C
MDR-40-48	Industrial Power, Input 85 ~ 264VAC/120 ~ 370VDC, Output 48VDC, 40W, -20 ~ 70°C