

# Industrial Serial Fiber Converter



## IFC-FDC

RS-232/422/485 Daisy Chain Fiber Converter

## IFC-Serial

RS-232/422/485 Fiber Converter

IFC Series converters are capable of selecting interface modes for connection to RS-232 (3 wire), RS-485 (2 wire, half duplex) or RS-422/485 (4 wire, full duplex) and feature a three-way communication plus a second independent RS-232 communication channel. Additionally, the terminal block offers an alarm relay contact and two redundant DC power inputs. IFC Series converters are also available in two operating temperature ranges, a standard -10° to 60°C commercial temperature range and an extended -40° to 75°C range. With all these specifically designed features, IFC Series are reliable and ideal solutions for keeping your industrial automation applications running smoothly and continuously even in harsh environments.

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### Features

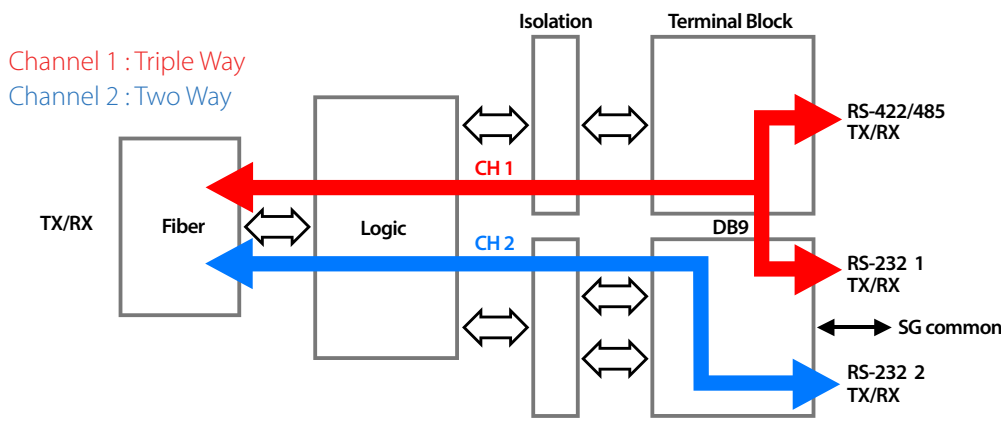
- Supports 2 fiber link (IFC-FDC)
- Supports 1 fiber link (IFC-Serial)
- Supports dual channel communication, including Triple-Way communication, and Two-Way communication
- Extend serial transmission distance up to 2km, 30km, 60km
- Supports several topology, cable redundancy(Figure 2), ring redundancy (Figure 3), daisy chain (Figure 4), point to point (IFC-FDC)
- Supports point to point (Figure 6) (IFC-Serial)
- Redundant dual power inputs (12/24/48VDC)
- Supports RS-232, RS-422, RS-485(2/4 wire) transmission to dual fiber connections
- Enhanced serial baudrate up to 1024kbps
- 2.5KV isolation for serial signal
- Supports relay output for power or link failure warning
- Hardened housing with IP30 protection
- Fanless and DIN-Rail design for harsh industrial environment
- Adjustable pull high/low resistor and terminator for RS-422/485 transmission

### Specifications

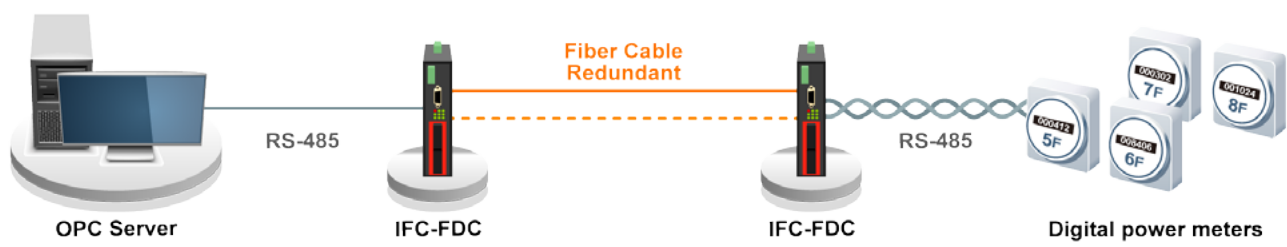
<b>Data Flow</b>	Dual Channel Communication	Both of Triple-Way and Two-Way Communication Way (Figure 1 or 6)	
<b>Optical Interface</b>	Connector	SC, ST	
	Fiber Optical rate	36.864Mbps	
	Fiber Port	2 fiber ports (IFC-FDC) with WDM option 1 fiber port (IFC-Serial)	
	Fiber Type	MM 2km, SM 30km, 60km Bidi 20KM	
	Wavelength	MM 1310nm, SM 1310 Bidi: Mode A : TX1310nm/RX1550nm Mode B : TX1550nm/RX1310nm	
<b>Optical Topology</b>	Point to Point Transmission	Full duplex	
	Ring Transmission	Full duplex, self-healing operation	
	Cable redundancy(Figure 2), ring redundancy(Figure 3), daisy chain(Figure 4), point to point (IFC-FDC) Point to point(Figure 6) (IFC-Serial)		
<b>Electrical Interface</b>	Serial Port Connector	RS-232(DB9), RS-422/RS-485(5 pin terminal block) RS-485 : 4, 2 wires, RS-422 : 4 wires	
	RS-485 direction	Automatically detection	
	Copper Baud rate	50 up to 1024Kbps	
	Serial Isolation	2.5KV for serial signals	
	Surge Protection	8KV ESD for serial signals	
	Pull High	Selected by 10 position rotary switch	
	Pull Low	Selected by 10 position rotary switch	
	120 ohm terminator	Built-in 120 ohm terminator (Option by Dip Switch)	
	<b>Environmental</b>	Operating Temperature	-10 ~ 60°C (IFC-FDC, IFC-Serial) -40 ~ 75°C (IFC-FDC-E, IFC-Serial-E)
		Storage Temperature	-40 ~ 85°C
Humidity		5 ~ 95% RH	
<b>LED Indications</b>	PWR1, PWR2, Alarm, Master, TD, RD, Fiber Link, Fiber2 Link (IFC-FDC only), Ringg		
<b>Power</b>	Power Input	Redundant Dual Power 12, 24, 48 VDC (9.6 ~ 58VDC)	
	Power Consumption	6W (IFC-FDC) 5W (IFC-Serial)	
	Power Reversal Protection	Yes	
	Over Current Protection	Signal Short Together Protected	
	Terminal Block for Power and Alarm	Terminal Block : V1+, V1-, V2+, V2-, Alarm NC, Alarm COM, Alarm NO	
<b>Mechanical</b>	Water & Dust Proof	IP30 Protection, Fanless	
	Dimensions	106 x 38.6 x 142.1mm (D x W x H)	
	Mounting	DIN-Rail, wall mount	
	Weight	0.64kg (IFC-FDC) 0.63kg (IFC-Serial)	
<b>Certification</b>	Safety	UL60950-1	
	EMC	CE, FCC	
	EMI	EN55022 Class A	
	EMS	EN61000-6-4 – Emission for heavy industrial environment	
		EN61000-6-2 – Immunity for heavy industrial environment	
		EN61000-4-2 ESD Level 3	
		EN61000-4-3 RS Level 3	
		EN61000-4-4 EFT Level 3	
	EN61000-4-5 Surge Level 3		
	EN61000-4-6 CS Level 3		
	Free Fall	IEC 60068-2-32	
	Vibration	IEC 60068-2-6	
	Shock	IEC 60068-2-27	
Green	RoHS		
MTBF	687,418 Hrs (IFC-FDC)		
	797,101 Hrs (IFC-Serial) (MIL-HDBK-217)		

Application & Topology (IFC-FDC)

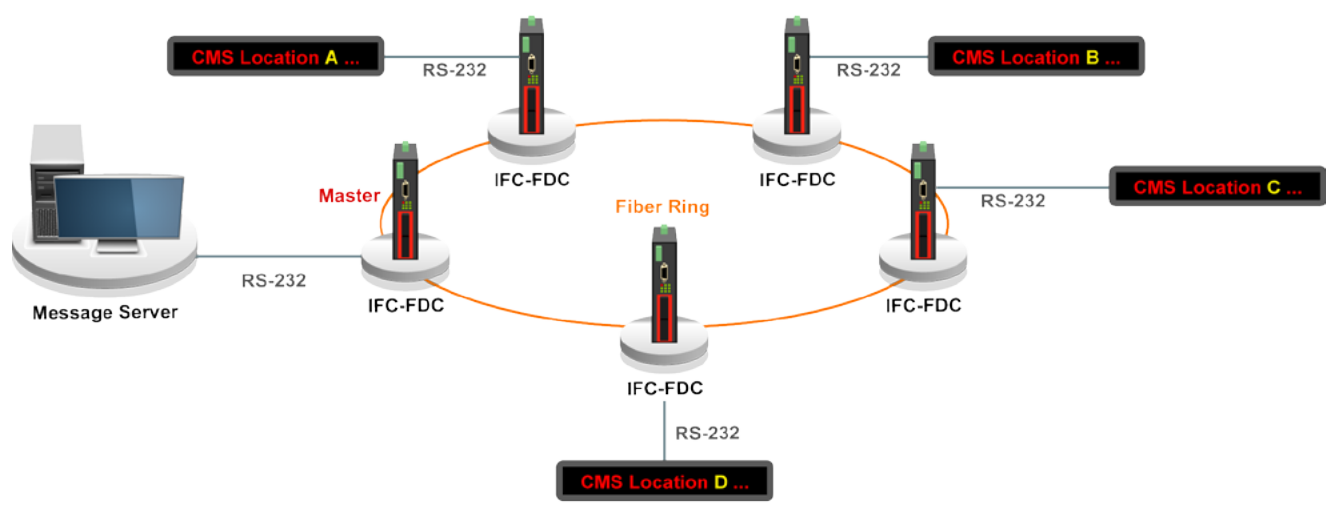
► Figure 1 : Dual Channel Data Flow



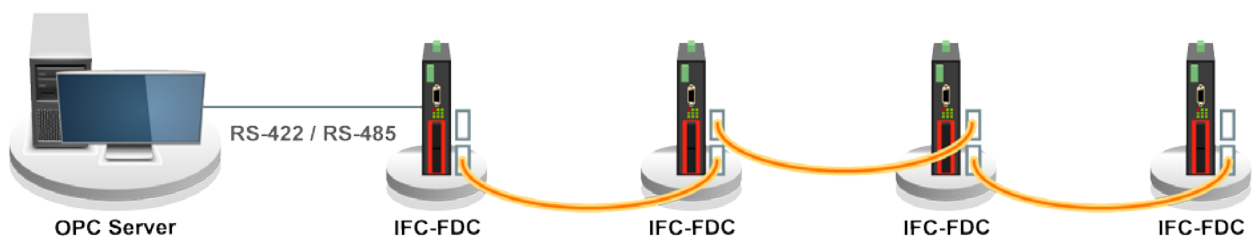
► Figure 2 : Cable Redundancy Application



► Figure 3 : Ring Redundancy Application



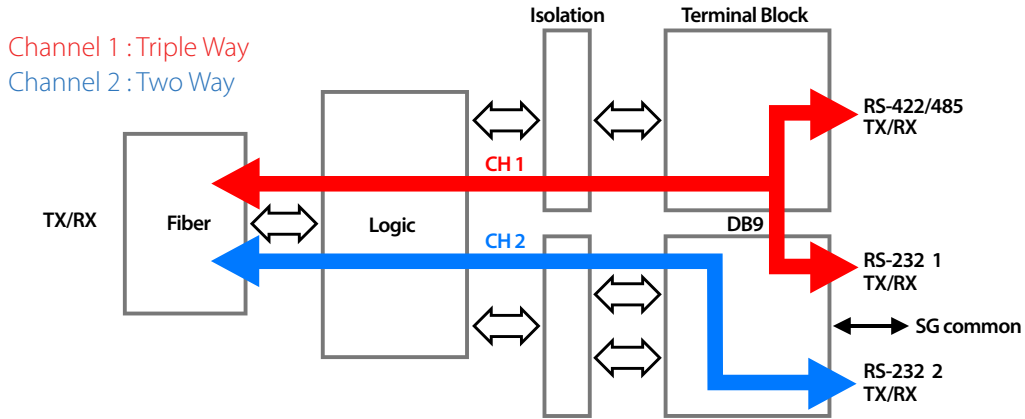
► Figure 4 : Daisy Chain Application



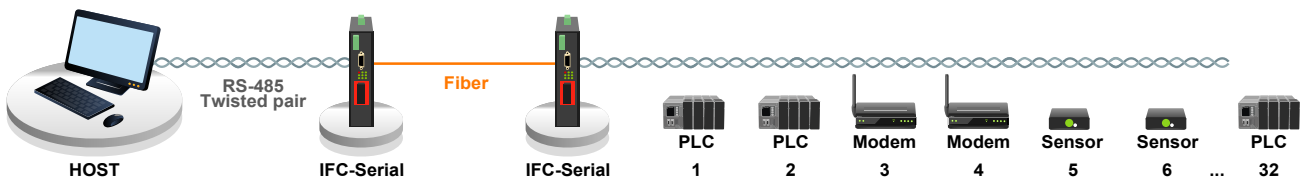
# Industrial Serial Fiber Converter

## Application & Topology (IFC-Serial)

► Figure 5 : Dual Channel Data Flow

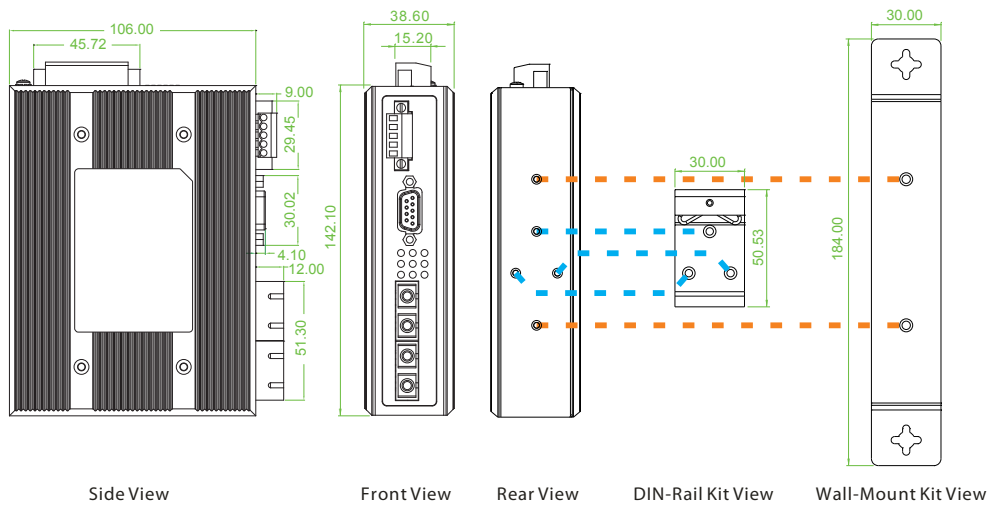


► Figure 6 : Point to Point

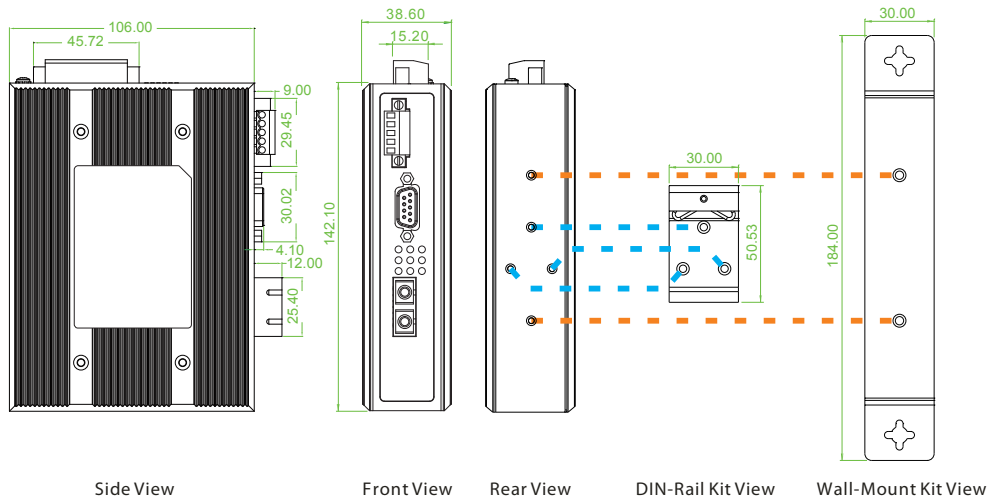


## Dimensions

► IFC-FDC



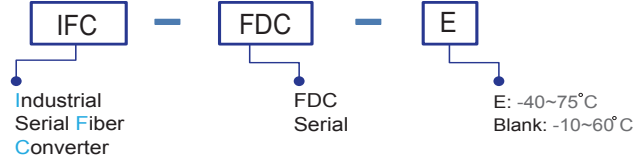
► IFC-Serial



## Ordering Information

Model Name	Dual Channel	Serial			Fiber		Certification				Operating Temperature
		RS232	RS422/485	Isolation 2.5KV	SC/ST	Daisy Chain	Safety UL60950-1	EN61000-6-2 EN61000-6-4	CE	FCC	
IFC-FDC	V	2	1	V	2	V	V	V	V	V	-10~60 C
IFC-FDC-E	V	2	1	V	2	V	V	V	V	V	-40~75 C
IFC-Serial	V	2	1	V	1	—	V	V	V	V	-10~60 C
IFC-Serial-E	V	2	1	V	1	—	V	V	V	V	-40~75 C

### Model Naming Rule



Connector Type	Connectivity Distance
SC,ST	002: 2km 030: 30km 060: 60km 020AB: 20KM Bidi (20KM 1x mode A + 1x Mode B) Mode A: TX 1310nm Mode B: TX 1550nm

Example: IFC – FDC –   –              
 Example: IFC – FDC – E – SC002

## Optional Accessories

### Industrial Power Supply

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

## Package List

- One device of the series
- Quickly installation guide
- Din Rail with screws
- Wall mount bracket with screws
- Terminal block
- DC Power JACK adapter cable