IFC-FDC

RS-232/422/485 Daisy Chain Fiber Converter

IFC-Serial

RS-232/422/485 Fiber Converter

IFC Series are industrial grade serial/fiber converters that provide a single fiber or dual fiber connections to extend asynchronous RS-232, RS-485 or RS-422 serial transmissions over a distance of up to 2km using multi-mode fiber or up to 60km using single-mode fiber. The single duplex fiber provides point-to-point connections and allows connecting multiple devices in a cascaded or "daisy chain" fashion. However, no redundancy is provided for the model with a single fiber and any single port failure can disable the entire ring. On the other hand, the dual fiber inputs not only allow connecting multiple devices in a cascade or "daisy chain" fashion but also can create ring architecture for fiber redundancy and auto recovery.

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.

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 connections (Figure 3), fiber daisy chain (Figure 4) ,point to point (IFC-FDC)
- Supports half-duplex ring application(Figure 6), point to point (Figure 7) (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 1024kpbs
- 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

Data Flow	Dual Channel Communication	Both of Triple-Way and Two-Way Communication Way (Figure 1 or 6)
Optical Interface	Connector	SC, ST
	Fiber Optical rate	36.864Mbps
	Fiber Port	2 fiber ports (IFC-FDC) 1 fiber port (IFC-Serial)
	Fiber Type	MM 2km, SM 30km/60km
	Wavelength	MM 1310nm, SM 1310, 1550nm
	Point to Point Transmission	Half or Full duplex
	Ring Transmission	Half / Full duplex, self-healing operation
Optical Topology	Cable redundancy(Figure 2), ring connections (Figure 3), fiber daisy chain (Figure 4), point to point (IFC-FDC)	
	Half-duplex ring application(Figure 7), point to point(Figure 6) (IFC-Serial)	
Electrical Interface	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)
Environmental	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
LED Indications	PWR1, PWR2, Alarm, Master, TD, RD, Fiber Link, Fiber2 Link (IFC-FDC only), Ringg	

Power	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	
Mechanical	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)
Certification	Safety	UL60950-1
	EMC	CE, FCC
	EMI	EN55022 Class A
		EN61000-6-4 – Emission for heavy industrial environment
	EMS	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)

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

IFC-FDC Topology & Application

Figure 1 : Dual Channel Data Flow

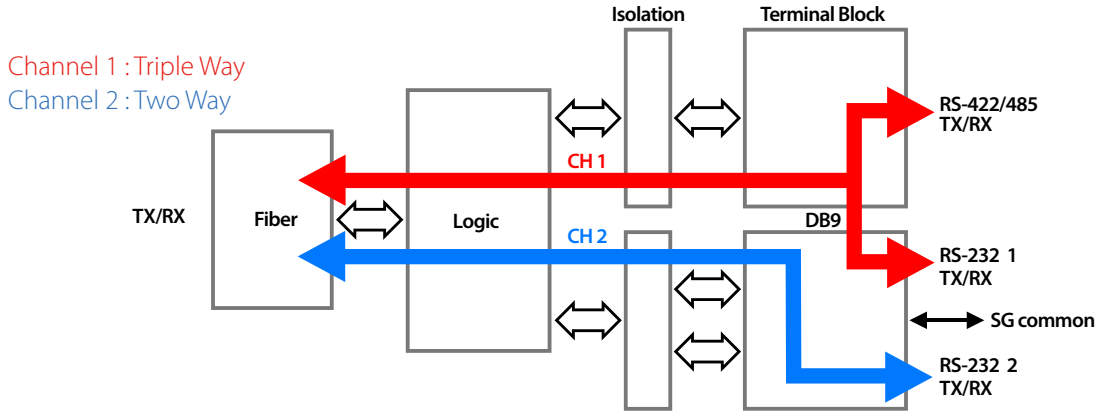


Figure 2 : Dual Fiber for Cable Redundancy

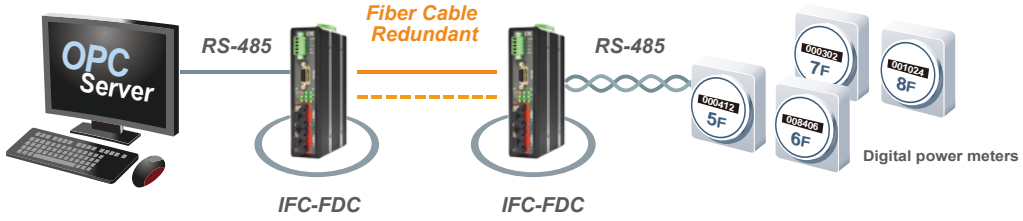


Figure 3 : Fiber Ring for Cable Redundancy

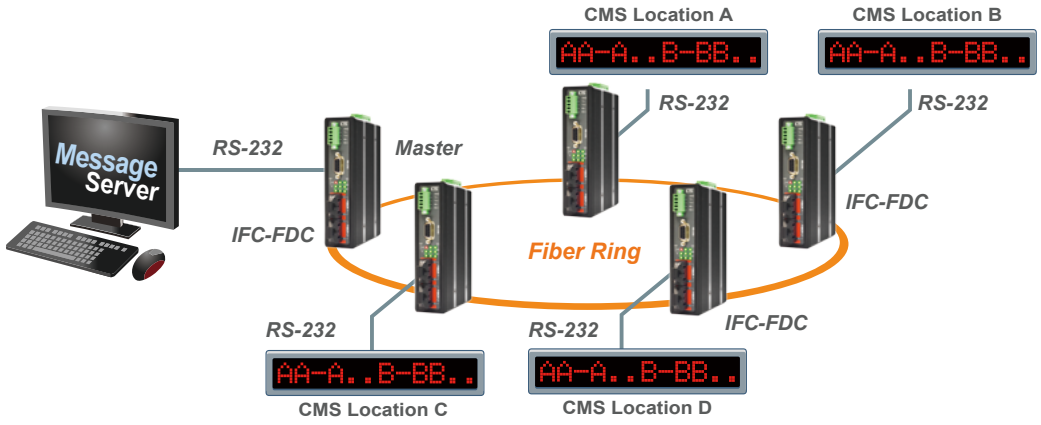
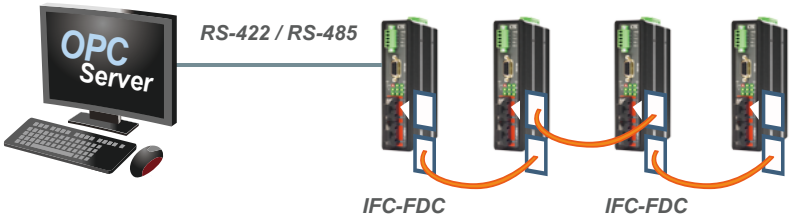


Figure 4 : Dual Fiber for Daisy Chain



IFC-Serial Topology & Application

Figure 5 : Dual Channel Data Flow

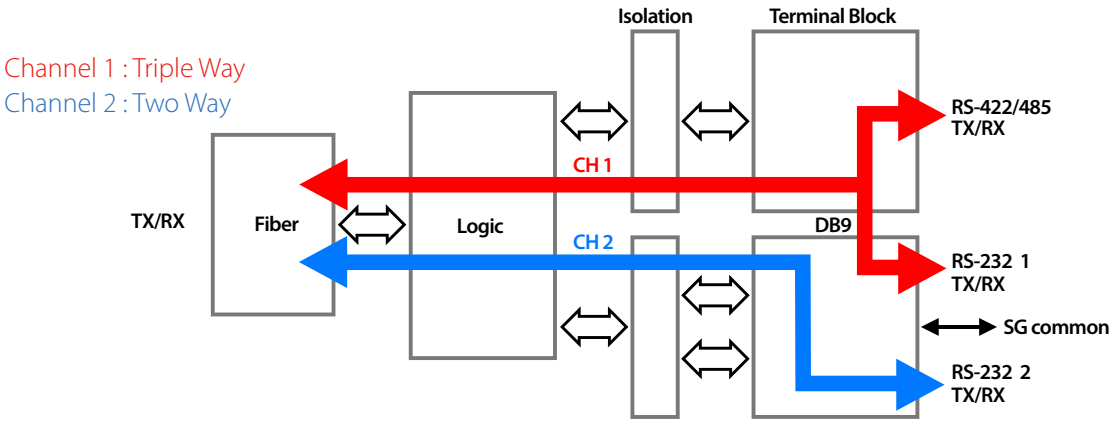


Figure 6 : Point to Point

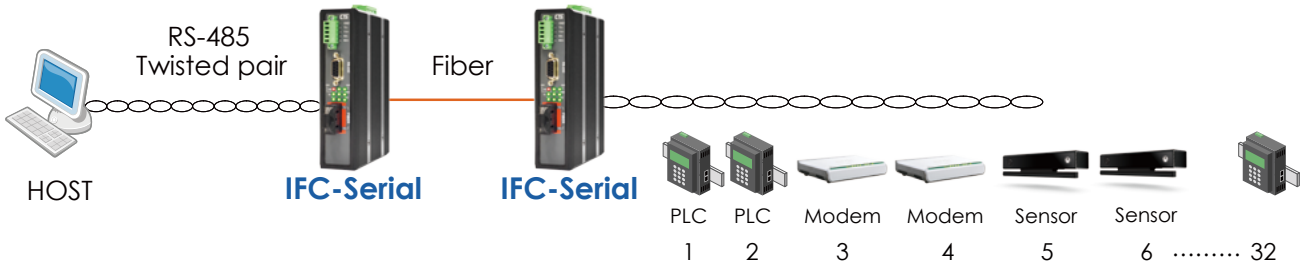
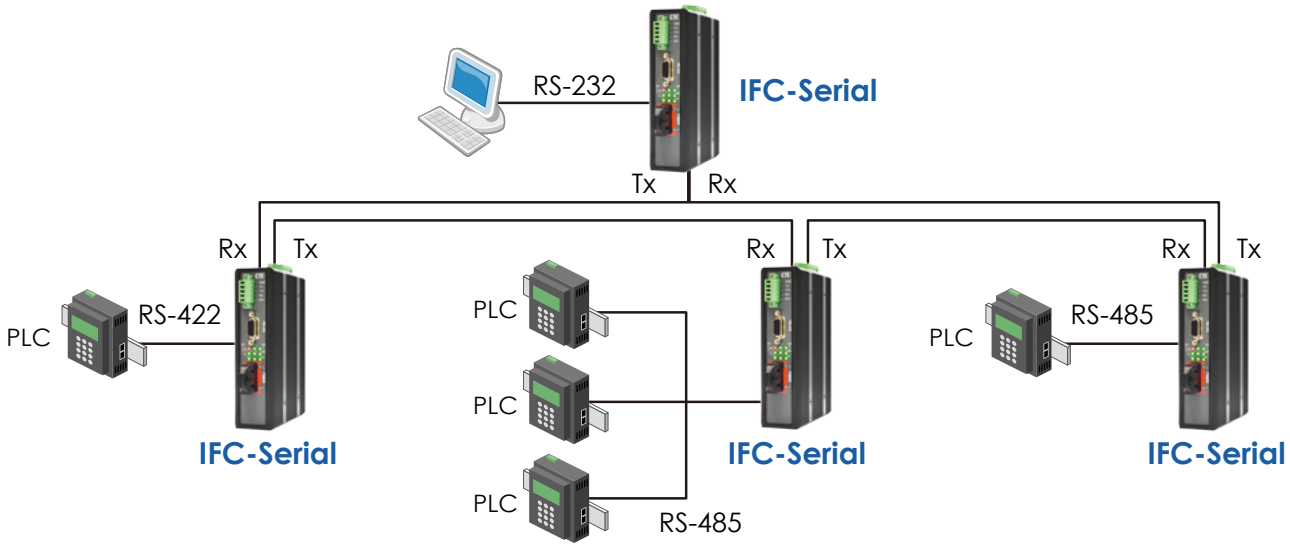
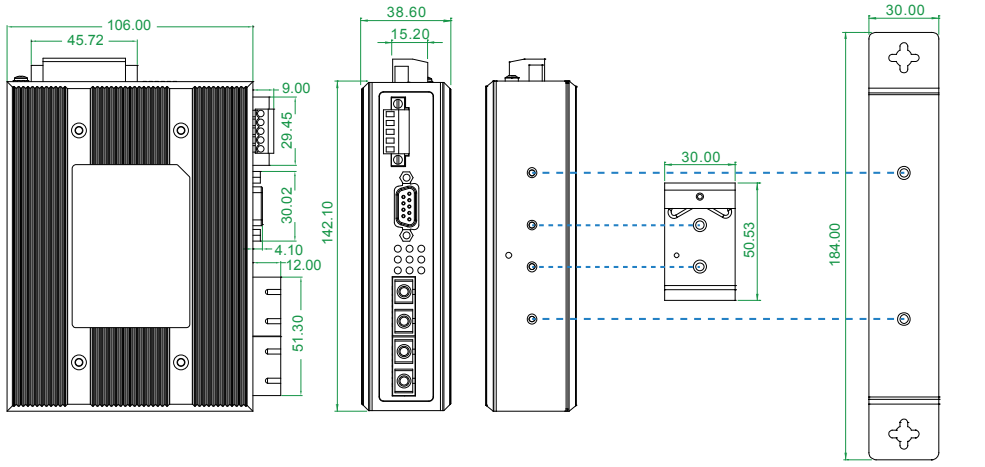


Figure 7 : Ring (Half duplex)



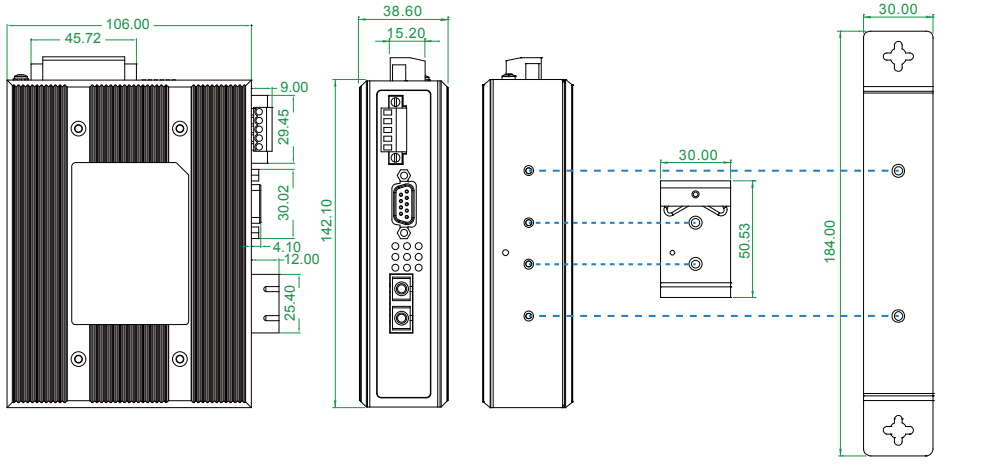
Dimensions

IFC-FDC



Side View | Front View | Rear View | DIN-Rail Kit View | Wall-Mount Kit View

IFC-Serial



Side View | Front View | Rear View | DIN-Rail Kit View | Wall-Mount Kit View

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

IFC – FDC – E

- IFC: Industrial Serial Fiber Converter
- FDC: FDC Serial
- E: -40~75°C; Blank: -10~60°C

Connector Type	Connectivity Distance
SC, ST	002: 2km 030: 30km 060: 60km

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

Temperature / Connector Type / Connectivity Distance

IFC – FDC – □ – □□□□□

Example: IFC – FDC – E – SC002

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