IFC-FDC

RS-232/422/485 Daisy Chain Fiber Converter

The IFC-FDC Series are industrial grade fiber media converters that provide dual fiber connections to extend asynchronous RS-232, RS-485 or RS-422 serial transmissions over a distance of up to 2km using multimode fiber or up to 60km using single mode fiber. The dual fiber inputs allow connecting multiple devices in a cascade or "daisy chain" fashion as well as creating ring architecture for fiber redundancy. The converter is 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). IFC-FDC Series media converters feature a three-way communications plus a second independent RS-232 communication channel. Models also feature an alarm relay contact and two redundant DC power inputs. The IFC-FDC Series reliable industrial design is perfect for keeping your industrial automation applications running smoothly and continuously. The IFC-FCD Series media converters are available in two operating temperature ranges, a standard -10° to 60°C commercial temperature range or an extended -40° to 75°C range (IFC-FDC-E).

Features

- Supports dual channel communication, including Triple-Way communication, and Two-Way communication
- Extend serial transmission distance up to 2km, 30km, 60km
- Supports fiber daisy chain or ring connections
- Redundant dual power inputs (12~48VDC)
- Supports dual fiber link redundancy
- 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
- Fan-less 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)
Optical Interface	Connector	SC, ST
	Fiber Optical rate	36.864Mbps
	Fiber Port	Two fiber ports
	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
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) -40 ~ 75°C (IFC-FDC-E)
	Storage Temperature	-40 ~ 85°C
	Humidity	5 ~ 95% RH
LED Indications	PWR1, PWR2, Alarm, Master, TD, RD, Fiber Link, Fiber2 Link, Ring	
Power	Power Input	Redundant Dual Power 12, 24, 48 VDC (9.6 ~ 58VDC)
	Power Consumption	6W
	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
	Dimensions	106 x 38 x 142mm (D x W x H)
	Mounting	DIN-Rail, wall mount
	Weight	0.64kg
Certification	Safety	UL60950-1
	EMC	CE, FCC
	EMI	EN55022 Class A
		EN61000-6-4 – Emission for industrial environment
	EMS	EN61000-6-2 – Immunity for 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

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

Block Diagram
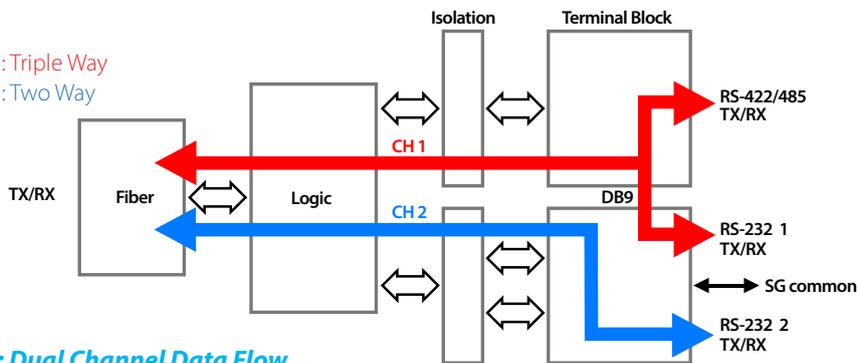
Channel 1 : Triple Way
Channel 2 : Two Way

Isolation
Terminal Block

TX/RX

Fiber

Logic

CH 1
CH 2

DB9

RS-422/485 TX/RX
RS-232 1 TX/RX
SG common
RS-232 2 TX/RX

Figure 1 : Dual Channel Data Flow

Application

OPC Server

RS-485

Point to point connections

RS-485

Digital power meters

Figure 2 : Dual Fiber Auto Recovery

Message Server

RS-232

Master

CMS Location A

CMS Location B

RS-232

RS-232

Fiber Ring

RS-232

RS-232

CMS Location C

CMS Location D
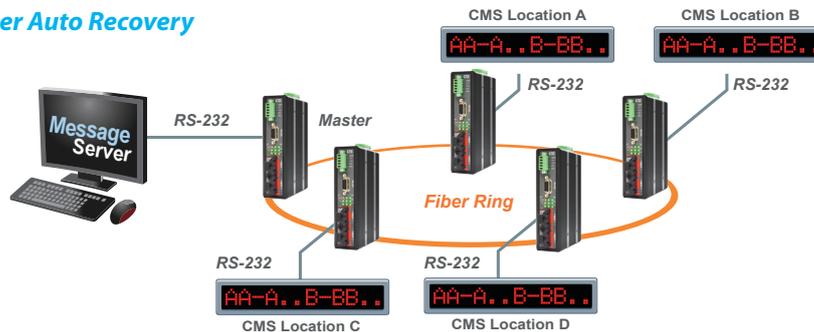
Figure 3 : Fiber Ring for RS-232 Data Broadcasting

OPC Server

RS-422 / RS-485

Figure 4 : RS-422/485 Fiber Daisy Chain

Dimensions

Side View
Front View
Rear View
DIN-Rail Kit View
Wall-Mount Kit View
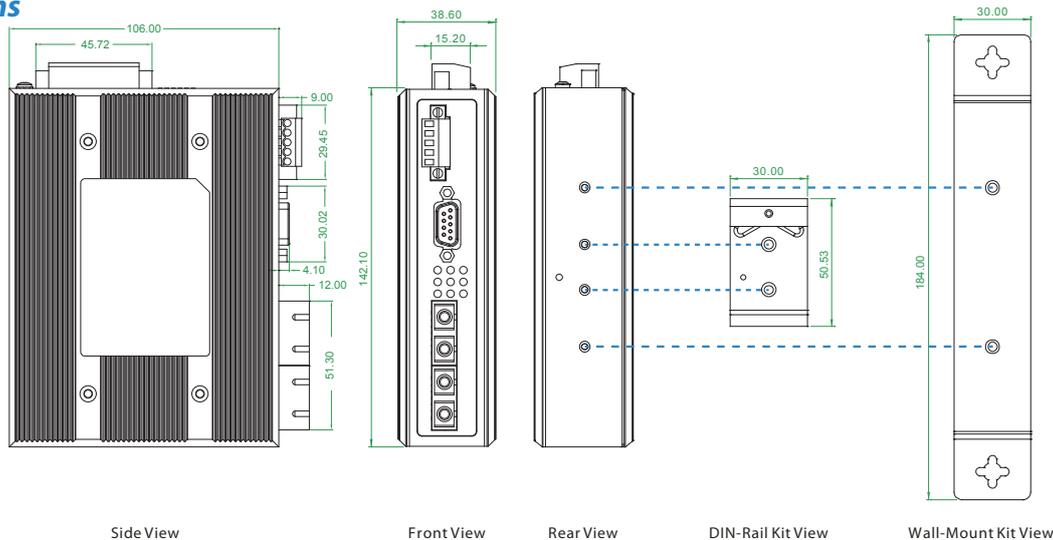
Ordering Information

Model Name	Description
IFC-FDC	RS-232/422/485 serial to dual fiber media converter; Temperature Range : -10 ~ 60°C
IFC-FDC-E	RS-232/422/485 serial to dual fiber media converter; Temperature Range : -40 ~ 75°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