# IFC-FDC-PRO NEW
### PROFIBUS to Daisy Chain Fiber Converter

# IFC-Serial-PRO NEW
### PROFIBUS to Fiber Converter

These products are PROFIBUS to fiber optic converters which secure PROFIBUS data transmission via fiber optical cabling for extending distance and isolating EMC/noise to reduce mutual interference between PROFIBUS devices.

These products are protocol transparent, can be applied to the PROFIBUS, and also can be applied to other networks using RS485 interfaces (See Figure 1).

These converters are capable of selecting interface modes for connection to RS-485 2-wire half duplex or 4-wire full duplex. 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, the series is reliable and an ideal solution for keeping your industrial automation applications running smoothly and continuously even in harsh environments.

## Features

- Supports 2 fiber link (IFC-FDC-PRO)
- Supports 1 fiber link (IFC-Serial-PRO)
- Extend serial transmission distance up to 2km, 30km, 60km
- Supports several topology , cable redundancy(Figure 3), ring redundancy (Figure 4), daisy chain (Figure 5), point to point (IFC-FDC-PRO)
- Supports point to point (Figure 6) (IFC-Serial-PRO)
- Redundant dual power inputs (12/24/48VDC)
- Protocol transparent. These products can be applied to the PROFIBUS, but also can be applied to other network using RS485 interface

- Baudrate up to 12Mbps
- Auto baudrate, no need to set baudrate
- 2.5KVrms isolation for serial port
- CE, FCC, heavy industrial grade EMS, EMI, EN61000-6-2, EN61000-6-4 certified
- 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

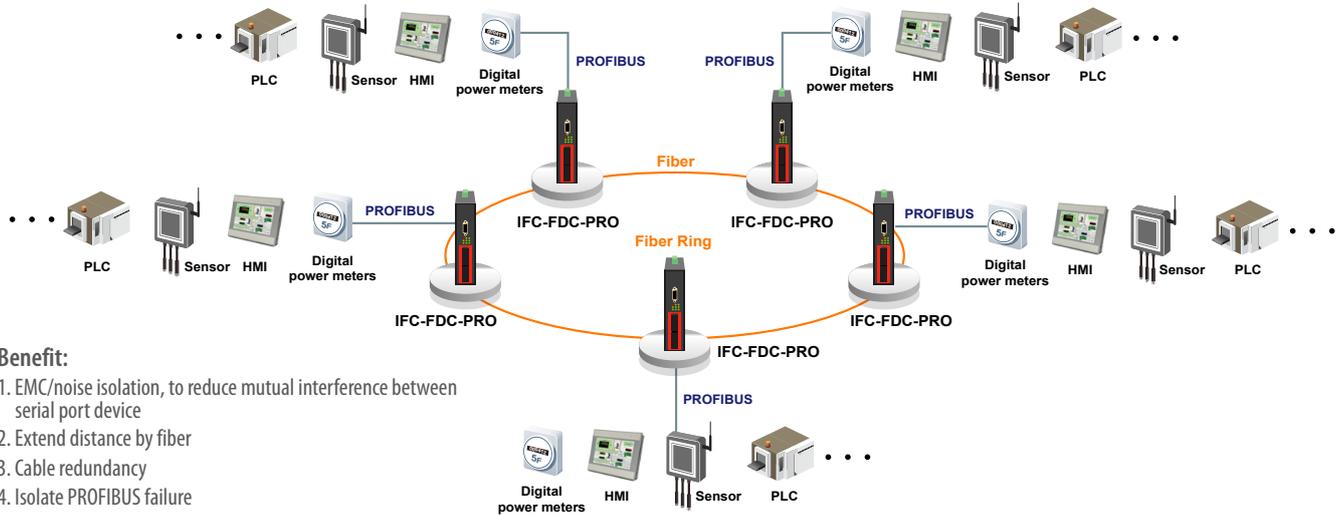| | | |
|---|---|---|
| **FieldBus Protocol** | Protocol transparent | PROFIBUS and all operations available on RS485 |
| **Problem isolation** | | Isolate EMC/noise to reduce mutual interference between PROFIBUS device. Isolate the PROFIBUS side of the failure, to avoid the impact of the other side (See Figure 2 ) |
| **Fiber Port Interface** | Connector | SC, ST |
| | Fiber Port | 2 fiber ports (IFC-FDC-PRO) 1 fiber port (IFC-Serial-PRO) |
| | Fiber Type | MM 2km, SM 30km, 60km Bidi 20KM |
| | Wavelength | MM 1310nm, SM 1310 Bidi: Mode A : TX1310nm/RX1550nm Mode B : TX1550nm/RX1310nm |
| | Point to Point Transmission | Full duplex |
| | Ring Transmission | Full duplex, self-healing operation Zero recovery time |
| **Fiber port Topology** | | Cable redundancy(Figure 3) with zero recovery time Ring redundancy(Figure 4) with zero recovery time Daisy chain(Figure 5) Point to point (IFC-FDC-PRO) |
| | | Point to point(Figure 6) (IFC-Serial-PRO) |
| **Serial port Interface** | Serial Port Connector | DB9 Female |
| | | RS-485 : 4, 2 wires |
| | RS-485 direction | Automatically detection |
| | Serial port Baudrate | 50 to 12Mbps Auto baudrate, no need to set baudrate |
| | Serial port isolation | 2.5KVrms isolation for serial signals EMC/noise isolation, to reduce mutual interference between serial port device |
| | Pull high resistor | Selected by 10 position rotary switch |
| | Pull low resistor | Selected by 10 position rotary switch |
| | 120 ohm terminator | Built-in 120 ohm terminator (Selected by Dip Switch) |

| | | |
|---|---|---|
| **Environmental** | Operating Temperature | -10 ~ 60°C (IFC-FDC-PRO, IFC-Serial-PRO) -40 ~ 75°C (IFC-FDC-PRO-E, IFC-Serial-PRO-E) |
| | Storage Temperature | -40 ~ 85°C |
| | Humidity | 5 ~ 95% RH |
| **LED Indications** | | PWR1, PWR2, Alarm, Master, TD, RD, Fiber Link, Fiber2 Link (IFC-FDC-PRO only), Ring |
| **Alarm Relay** | | Alarm exists for power, fiber link or ring protection Relay output with carry capacity 1A @ 24VDC |
| **Power** | Power Input | Redundant Dual Power 12, 24, 48 VDC (9.6 ~ 60VDC) |
| | 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, Fanless |
| | Dimensions | 106 x 38.6 x 142.1mm (D x W x H) |
| | Mounting | DIN-Rail, or wall mounting (Optional) |
| | Weight | TBD |

| Certification | |
|---|---|
| **EMC** | CE |
| **EMI** | FCC Part 15 Subpart B Class A, CE |
| **Immunity for Heavy Industrial Environment** | EN61000-6-2 |
| **Emission for Heavy Industrial Environment** | EN61000-6-4 |

6

**Industrial Serial Fiber Converter**

| EMS (Electromagnetic Susceptibility) Protection Level | EN61000-4-2 ESD Level 3 | | Free Fall | IEC 60068-2-32 |
|---|---|---|---|---|
| | EN61000-4-3 RS Level 3 | | Vibration | IEC 60068-2-6 |
| | EN61000-4-4 EFT Level 3 | | Shock | IEC 60068-2-27 |
| | EN61000-4-5 Surge Level 3 | | Green | RoHS |
| | EN61000-4-6 CS Level 3 | | MTBF | TBD |

# Application & Topology (IFC-FDC-PRO)

**Figure 1 :** Application for PROFIBUS Network



**Benefit:**

1. EMC/noise isolation, to reduce mutual interference between serial port device
2. Extend distance by fiber
3. Cable redundancy
4. Isolate PROFIBUS failure
5. Achieve a reliable network environment
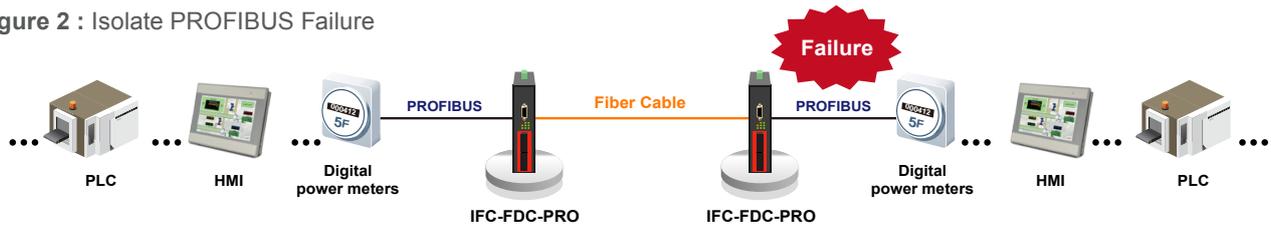
**Figure 2 :** Isolate PROFIBUS Failure



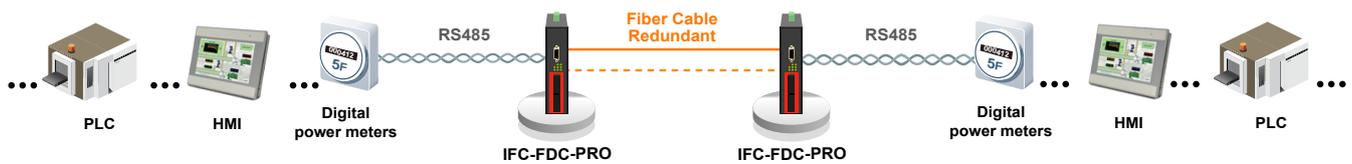**Figure 3 :** Fiber Cable Redundancy topology & application



**Figure 4 :** Fiber Ring Redundancy topology & application

**6-2**

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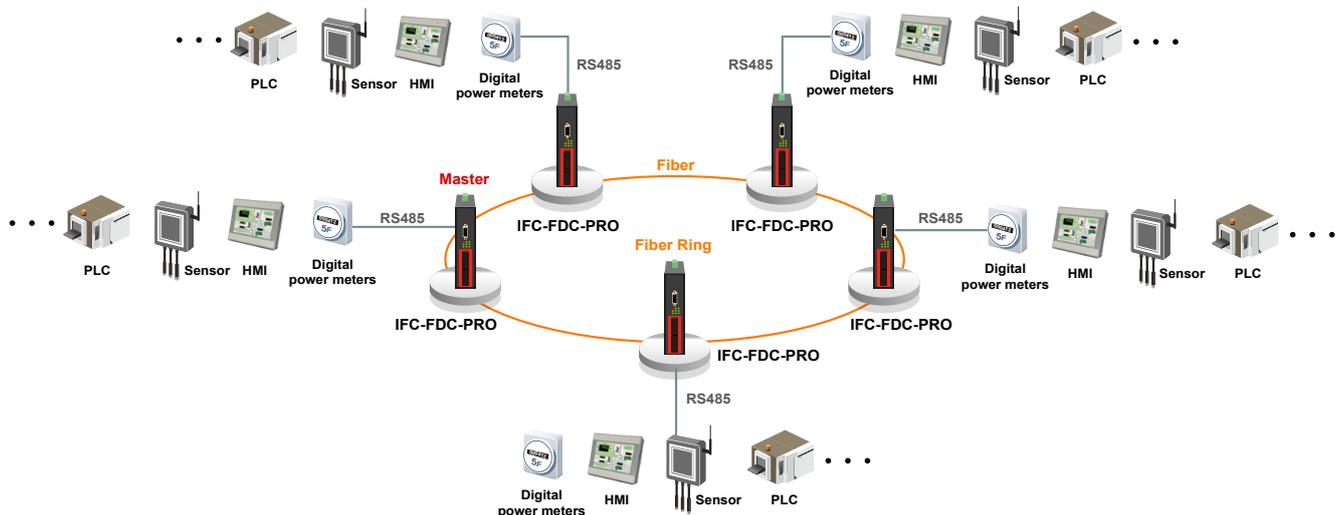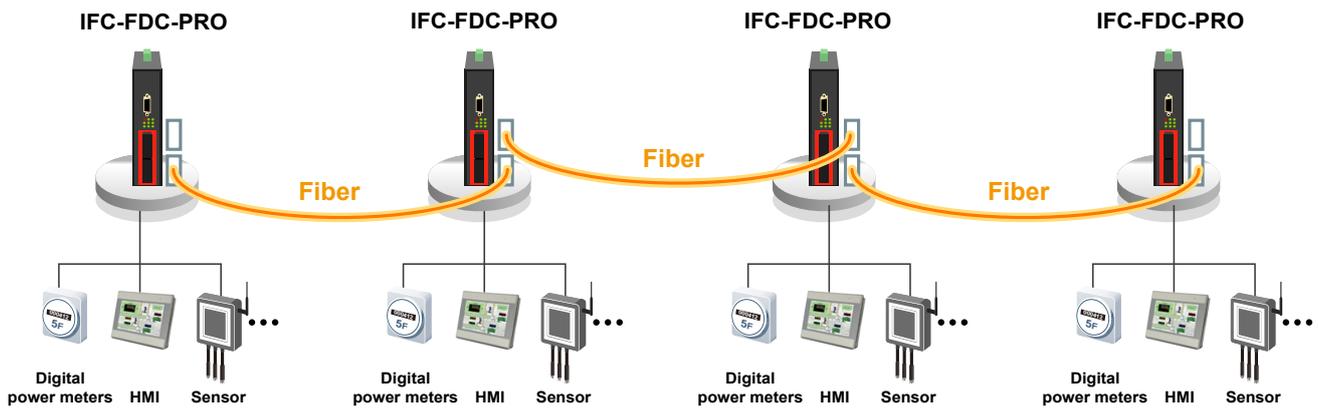
**Figure 5 :** Fiber Daisy Chain topology & application



## Application & Topology (IFC-Serial-PRO)

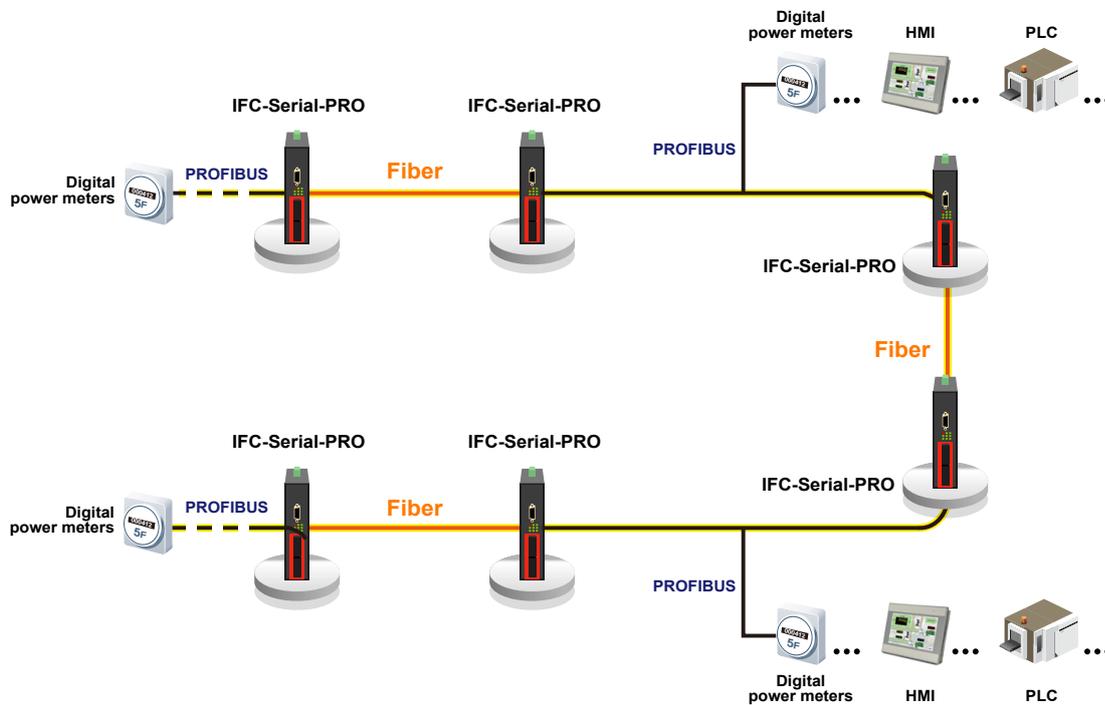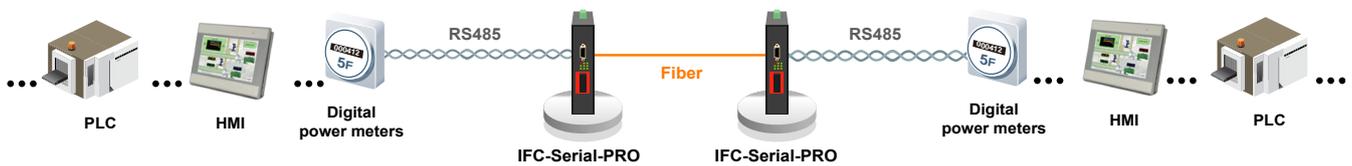**Figure 6 :** IFC-Serial-PRO Application for PROFIBUS



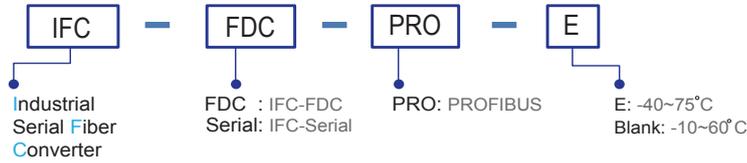**Figure 7 :** Fiber Point to Point topology & application



**Benefit:**

1. Reduce mutual interference between serial port device
2. Extend distance by fiber
3. Achieve a reliable network environment

## Ordering Information

| Model Name | Serial (ProfiBus) | | Fiber | Power Input | Certification | | | Operating Temperature |
|---|---|---|---|---|---|---|---|---|
| | RS422/485 | Isolation 2.5KV | SC/ST | Redundant | EN61000-6-2 EN61000-6-4 | CE | FCC | |
| IFC-FDC-PRO | 1 | V | 2 | 12/24/48VDC | V | V | V | -10~60℃ |
| IFC-FDC-PRO-E | 1 | V | 2 | 12/24/48VDC | V | V | V | -40~75℃ |
| IFC-Serial-PRO | 1 | V | 1 | 12/24/48VDC | V | V | V | -10~60℃ |
| IFC-Serial-PRO-E | 1 | V | 1 | 12/24/48VDC | V | V | V | -40~75℃ |

### Model Naming Rule

IFC — FDC — PRO — E

Industrial Serial Fiber Converter

FDC : IFC-FDC
Serial: IFC-Serial

PRO: PROFIBUS

E: -40~75℃
Blank: -10~60℃

| Connector Type | Connectivity Distance |
|---|---|
| SC, ST | 002: M/M 2km  030: S/M 30km  060: S/M 60km<br>020AB: 20KM Bidi (20KM 1x mode A + 1x Mode B) (for IFC-FDC-PRO)<br>020A: 20KM Bidi mode A  (for IFC-Serial-PRO)<br>020B: 20KM Bidi mode B  (for IFC-Serial-PRO)<br>Mode A: TX 1310nm/RX1550nm    Mode B: TX 1550nm/RX1310nm |

Temperature    Connector Type    Connectivity Distance

IFC – FDC –PRO– ☐ – ☐☐☐☐☐

Example: IFC – FDC –PRO – E– SC002

## Optional Accessories

### ■ Wall Mount kit Accessories

| IND-WMK01 | Wall Mount kit for Industrial product, 184 x 30mm |
|---|---|

## Package List

- One device of the series
- Quickly installation guide
- Din Rail with screws
- Terminal block

**6-4**

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