Overview

The data series fiber transmission products support optical transmission of bi-directional data up to 4 channels through one fiber either in multi-mode or single-mode. Adjustment and maintenance free, these modules are designed to support data interface.

A cost-effective single unit design, this product is well-suited for in field configuration and also accommodates installation and system growth while delivering long operating distances of up to 60 Km. Featuring robust construction well suited for harsh environments the unit is available in both rack mount and wall mount configuration. Plug-and-Play design ensures ease of installation requiring no electrical or optical adjustments.

Standard Features

Data
- Supports one or four bi-directional data
- Supports multi-protocol data in RS232, RS422 & RS485
- 2 or 4-Wire Tri-state formats
- External access for data format selection via DIP switches

LEDs
- Duplicated LED indicators on the front and rear of the unit for the convenience of observation

Network management system for rack communications
- Web browser support
- Systems data performance monitoring
- System devices and components Transmitters, Receivers, Modules, etc. status monitoring and operational management
- LAN, Ethernet networking capabilities
- IP addressable
- Alarm activation, execution, message responding and reporting
- Operational level determination and access control
- Network ready for health and connection monitoring

Others
- Adjustment and maintenance free
- Unique modular design for in field configuration to match installation and system growth
- Long distances operation up to 60Km
- No setup just plug-and-play
- Excellent suppression of EMI & RFI and elimination of ground loop
- Transient voltage protection on power supply and all signal inputs & outputs
- Robust design for harsh environment applications
## Specifications

### Data
- **Data Direction**: Bi-directional Duplex
- **Data Interface**: RS232, RS422, RS485 2 or 4-wire Tri-state
- **Selection Method**: DIP switch-selectable
- **Data Rate**: 0~115,200bps
- **Data Protocol**: Protocol transparency
- **Line Carrier Detection**: RS485 (2/4-wire) Tri-state output
- **Data Tx & Rx Status**: Green/Red LED lit
- **Input/Output Connectors**: 7-pin screw terminals

### Optical
- **Wavelength**: 1310nm and 1550nm
- **Number of Fiber**: 1
- **Tx Output Power:**
  - Single Mode (60Km): 1310nm & 1550nm -9dBm ± 3 dBm
  - Multi-Mode (4km): 1310nm & 1550nm -7dBm ± 2 dBm
- **Optical Buget:**
  - Multi-mode (62.5μm/125μm): 12dB
  - Single-mode (9μm/125μm):
    - 18dB (wavelength in 1310nm)
    - 14dB (wavelength in 1550nm)
  - Single-mode (9μm/125μm) Long Haul:
    - 25dB (wavelength in 1310nm)
    - 19dB (wavelength in 1550nm)
- **Transmission Distance:**
  - Multi-Mode (Limited by Fiber Bandwidth): 4Km (DFVMMD101-T/R & DFVMMD102-T/R)
  - Single-Mode (Limited by Fiber Bandwidth): 40Km
  - Fiber Connector (Standard Supply): ST

### Mechanical
- **Dimensions or module HxWxD in mm**:
  - a) 25.4 x 158.4 x 231.8 1-Slot
  - b) 50.8 x 158.4 x 231.8 2-Slot
- **Shipping weight**:
  - a) 0.74kg  1-slot
  - b) 1.07kg  2-slot

### Environmental
- **Operating Temp**: -40 C to +75 C
- **Storage Temp**: -40 C to +85 C
- **Relative Humidity**: 0 to 95% non-condensing

### Power Requirement
- **Supply Voltage**: 12VDC
- **Cord protection**: Poly Fuse 1A
- **Current Consumption**: Max. 500mA

*Note: Long Haul refers to transmission distances beyond the standard ranges, often used for very long-distance connections.*
Application Diagram

Cable connection of DFDSM004-TX/RX, DFDSML004-TX/RX and DFDM004-TX/RX

Model Number Key

<table>
<thead>
<tr>
<th>DF</th>
<th>10 bit rack/module</th>
</tr>
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<tbody>
<tr>
<td>F</td>
<td>8 bit rack/module</td>
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<tr>
<td>MF</td>
<td>8 bit module only</td>
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<tr>
<td>V</td>
<td>Video</td>
</tr>
<tr>
<td>D</td>
<td>Data</td>
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<tr>
<td>A</td>
<td>Audio</td>
</tr>
<tr>
<td>CC</td>
<td>Contact Closure</td>
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<tr>
<td>SM</td>
<td>Single mode</td>
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<tr>
<td>MM</td>
<td>Multimode</td>
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<tr>
<td>L</td>
<td>Long distance</td>
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<tr>
<td>D</td>
<td>Duplex</td>
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</table>

First digit  Number of video channels
Second digit Number of audio channels
Third digit  Number of data channels
Forth digit  Number of contact closures
T  Transmitter
R  Receiver

Part Number Key

DFD □ M(L)00□ □ □

Optical type
S Single Mode
M Multi Mode

Number of Data Channels
1
4

Data type
TX Transmitter
RX Receiver
### Ordering Information

<table>
<thead>
<tr>
<th>Fiber Type</th>
<th>Part Number</th>
<th>Description</th>
<th>Opt. PWR. Budget dB</th>
<th>Max. Distance (Km)</th>
<th>No. of Slots</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td><strong>1310nm</strong></td>
<td><strong>1550nm</strong></td>
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<tr>
<td>(i) Single-mode (9/125μm)</td>
<td>DFDSM001-TX</td>
<td>1-Ch. Bi-directional Data Transceiver</td>
<td>18</td>
<td>14</td>
<td>40</td>
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<tr>
<td></td>
<td>DFDSM001-RX</td>
<td>1-Ch. Bi-directional Data Transceiver</td>
<td>18</td>
<td>14</td>
<td>40</td>
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<tr>
<td>(ii)</td>
<td>DFDSM004-TX</td>
<td>4-Ch. Bi-directional Data Transceiver</td>
<td>18</td>
<td>14</td>
<td>40</td>
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<tr>
<td></td>
<td>DFDSM004-RX</td>
<td>4-Ch. Bi-directional Data Transceiver</td>
<td>18</td>
<td>14</td>
<td>40</td>
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<tr>
<td>(iii) Long Distance Transmission (9/125μm)</td>
<td>DFDSML001-TX</td>
<td>1-Ch. Bi-directional Data Transceiver</td>
<td>25</td>
<td>19</td>
<td>60</td>
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<tr>
<td></td>
<td>DFDSML001-RX</td>
<td>1-Ch. Bi-directional Data Transceiver</td>
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<td>19</td>
<td>60</td>
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<tr>
<td>(ii)</td>
<td>DFDSML004-TX</td>
<td>4-Ch. Bi-directional Data Transceiver</td>
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<td>19</td>
<td>60</td>
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<td>DFDSML004-RX</td>
<td>4-Ch. Bi-directional Data Transceiver</td>
<td>25</td>
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<td>60</td>
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<td>(iii) Multi-mode (62.5/125μm)</td>
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<td>DFDDM001-RX</td>
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<td>DFDDM004-RX</td>
<td>4-Ch. Bi-directional Data Transceiver</td>
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<td>12</td>
<td>4</td>
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</tbody>
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**Accessories**
- DFR, 19' Rack mount chassis purchased separately for housing modules

**Options**
- ST type connector is standard

**Notes**: Transmission distance will suffer if additional losses are introduced by the optical connectors, fusions, splices and the fibers within the network. Operating distance of multimode is limited by the characteristics of the fiber bandwidth.