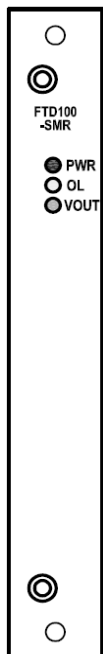




All Digital Fiber Optic Manufacturing Specialists

# Installation and Operation Manual

## FTD100 Series



## 8-bit Digital Series

1-ch Video

Fiber Optic Converter

## **Models covered in this manual**

### Single-Mode Transmitters

FTD100-SST

FTD100-SSTL

### Single-Mode Receivers

FTD100-SSR

FTD100-SSRL

### Multi-Mode Transmitters

FTD100-SMT

### Multi-Mode Receivers

FTD100-SMR

## **Compatible with the following Series:**

FTD100Micro

FTD100M

FTD100-XXR3

### **Remark:**

If the optical connector is FC type, the suffix in the model number will be “-**FXX**”. Eg. FTD100-**FST**

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## (1) Safety Instructions

**Please be familiar with all information in this manual prior to installation and operation.**

**Note 1:** The products described each contains a Class 1 laser or LED fiber optic emitter. The following safety precautions apply.

**Warning:** Do not disconnect the fiber optic connector while the unit is powered up. Exposure to Class I invisible optical radiation is possible when the internal fiber optic connector is disconnected while the unit is powered up.

**Caution:** Any access to the controls, adjustments, or performing operations, which are other than those facilitated and/or specified may result in hazardous radiation exposure. Permanent eye damage or other bodily injuries may be resulted from such exposure even for only seconds.

**Note 2:** This assembly contains parts sensitive to damage by electrostatic discharge (ESD). ESD precautionary procedures should be applied in the course of touching, removing or inserting parts or assemblies.

## (2) Product Overview

### 2.1 Introduction

The FTD100 Series products comprise of single-mode and multi-mode Fiber-optic transmitters and receivers catering for optical transmission of ONE forward (Tx → Rx) video in a single fiber. The products work at wavelengths 1310nm with either a 9/125um or 62.5/125um fiber for single-mode or multi-mode transmission respectively.

A non-compressed 8-bit digital video transmission scheme is implemented which also supports multi-systems video in NTSC, PAL and SECAM formats. For the single-mode transmission, we also offer specifically designed products for long-haul transmissions up to 60Km. Their model names include a letter “L” in the suffix, e.g. FTD100-SSTL for Tx, FTD100-SSRL for Rx, etc.

The FTD100 Series units are available as plug-in cards installed in 19” rack-mount chassis deployed in small, medium to large systems. Each plug-in card occupies one slot space inside the rack-mount chassis. The rack mount chassis has to be ordered separately which is integrated with a power supply unit for powering the installed card modules.

### 2.2 Models selection table

| Mode        | Model <sup>1</sup> | Description  | Installation requirements             | Remarks                                     |
|-------------|--------------------|--|---------------------------------------|---|
| Single-Mode | FTD100-SST         | Single-mode 1-Ch Video Transmitter Card Module           | Housed in FT-C18 chassis <sup>2</sup> | FT-C18 chassis has to be ordered separately |
|             | FTD100-SSTL        | Single-mode Long-haul 1-Ch Video Transmitter Card Module |                                       |   |
|             | FTD100-SSR         | Single-mode 1-Ch Video Receiver Card Module              |                                       |   |
|             | FTD100-SSRL        | Single-mode Long-haul 1-Ch Video Receiver Card Module    |                                       |   |
| Multi-Mode  | FTD100-SMT         | Multi-mode 1-Ch Video Transmitter Card Module            |                                       |   |
|             | FTD100-SMR         | Multi-mode 1-Ch Video Receiver Card Module               |                                       |   |

<sup>1</sup> If the optical connector is FC type, the suffix in the model number will be “-FXX”. Eg. FTD100-FST

<sup>2</sup> Refer to FT-C18 product manual for specifications

## (3) Installation

### 3.1 General

All OT Systems products are thoroughly inspected, tested and securely packed before delivery to ensure a stable, intact and trouble-free service. Please check the equipment upon receipt for any visible damage which may have been caused during transit.

The FTD100 Series cards are housed inside the FT-C18 rack-mount chassis (Fig. 3.1) with an included power supply unit. The whole chassis is powered by a local residential power supply outlet. FT-C18 is a standard 19" (483mm) rack-mount chassis which occupies 4 rack units space (177.8mm) in height. Each FTD100 card module occupies ONE slot space inside and a total of 18 cards can be housed inside the chassis.



Fig. 3.1 FT-C18 chassis

### 3.2 Card module installation

- Insert the card module into a FT-C18 chassis along the top and bottom card guides of an empty slot and push the card into the multi-pin socket at the rear firmly.
- Repeat the above procedure for all the rest card modules. Unused slots must be covered with blank panels (provided separately).
- Once the chassis is powered up, check that the red POWER LED on the front and back panels of the card modules are lit. If not, check the power supply cable connections between the chassis and the power supply socket. For failures of individual card's POWER LEDs, check the corresponding card modules whether they have been inserted properly.
- Connect all the signal inputs and outputs to the card modules at the back of the chassis with appropriate cables: fiber optic cable for optical link, BNC cable for video input/output (Tx/Rx).
- With all the signals available at the input and output ports, check the status of LEDs. With correct status of each LED, installation is now completed [for LEDs status, see **Operational Guides** on this manual's section (5)].

#### (4) Cable Connections & Setup Procedures

| Signal Type | Cable Type                       | Connector            |
|-------------|----------------------------------|----------------------|
| Optical     | Single-mode or Multi-mode Fibers | ST (or FC) Connector |
| Video       | Coaxial Video Cable              | BNC Connector        |

Typical System Cable Connections Diagram:

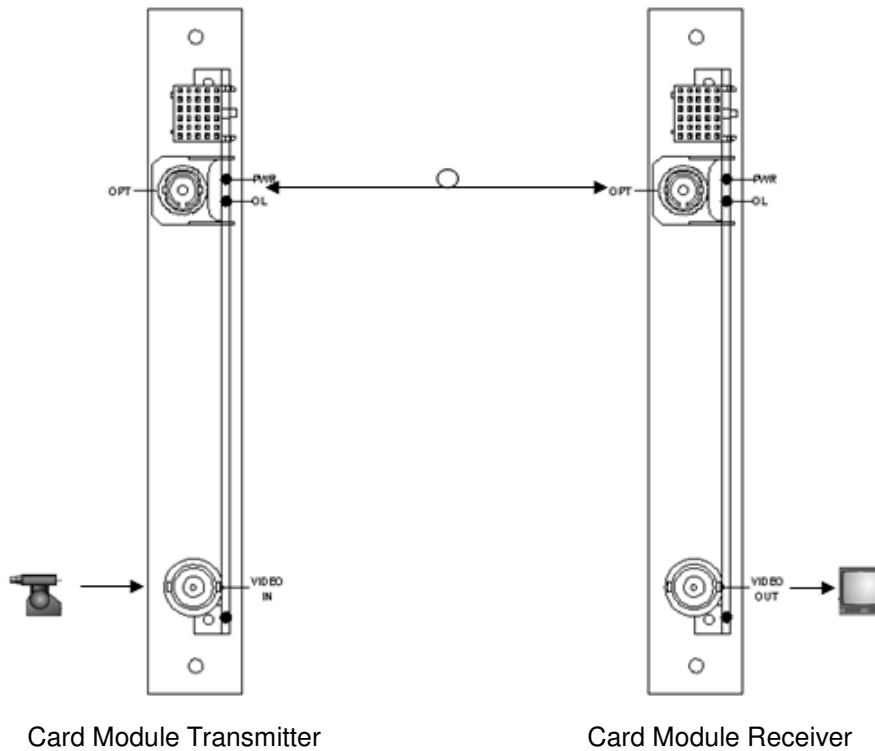


Fig 4.1 Card Module to Card Module connection diagram

## (5) Operational Guides

### 5.1 FT100 Series Transmitter

#### LED Indicators

| Indicator      | Color  | Description  |
|----------------|--------|--|
| PWR            | Red    | Lit when power is supplied to the Transmitter.                   |
| OL             | Yellow | Lit when optical signal from receiver to transmitter is active.* |
| VIDEO IN / VIN | Green  | Lit when video signal is fed into the VIDEO IN connector.        |

\* For products with uni-directional signal transmission, the OL LED on the Tx is **not lit** because optical signal from the Rx to the Tx is always inactive.

#### Signal Ports

|            |  |
|------------|--|
| OPT -      | ST (or FC) Optical Connector for fiber cable connection. |
| VIDEO IN - | BNC Video Connector for video signal input.              |

### 5.2 FTD100 Series Receiver

#### LED Indicators

| Indicator        | Color  | Description   |
|------------------|--------|---|
| PWR              | Red    | Lit when power is supplied to the Receiver.                     |
| OL               | Yellow | Lit when optical signal from transmitter to receiver is active. |
| VIDEO OUT / VOUT | Green  | Lit when video signal is received at VIDEO OUT connector.       |

#### Signal Ports

|             |  |
|-------------|--|
| OPT -       | ST (or FC) Optical Connector for fiber cable connection. |
| VIDEO OUT - | BNC Video Connector for video signal output.             |



**(6) Specifications**

| <b>PARAMETERS</b> \ <b>MODELS*</b> | <b>FTD100-SST(R)</b><br><b>(Single-Mode)</b> | <b>FTD100-SST(R)L</b><br><b>(Single-Mode)</b> | <b>FTD100-SMT(R)</b><br><b>(Multi-Mode)</b> |
|------------------------------------|--|---|---|
| <b>OPTICAL</b>                     |  |   |   |
| No. of Fiber / Connector           | 1 / ST(or FC)                                | 1 / ST(or FC)                                 | 1 / ST(or FC)                               |
| Wavelength                         | 1310 nm                                      | 1550 nm                                       | 1310 nm                                     |
| Optical Power Budget               | 17 dB  | 24 dB   | 23 dB                                       |
| Max Distance                       | 40 km  | 60 km   | 4 km  |
| <b>ELECTRICAL VIDEO</b>            |  |   |   |
| Channel / Connector                | 1 / BNC                                      |   |   |
| System                             | PAL, NTSC, SECAM                             |   |   |
| Bandwidth                          | 6.5 MHz                                      |   |   |
| Input/Output Impedance             | 75 Ohm                                       |   |   |
| Input/Output Level                 | 1.0 Vp-p typical                             |   |   |
| Differential Gain                  | < 1% typical                                 |   |   |
| Differential Phase                 | < 1° typical                                 |   |   |
| SNR                                | >60dB  |   |   |
| <b>POWER</b>                       |  |   |   |
| Power consumption                  | 12VDC @ 3W                                   |   |   |
| Power supply                       | Powered by FT-C18 chassis                    |   |   |
| Connector (Mini unit)              | 2-pin Screw Terminal                         |   |   |
| <b>PHYSICAL</b>                    |  |   |   |
| Weight                             | 0.16 kg                                      |   |   |
| Dimensions (H x W x D)             | 148 x 20.4 x 198.5 mm (MAX)                  |   |   |
| <b>ENVIRONMENTAL</b>               |  |   |   |
| Operating Temperature              | -40°C ~ +75°C                                |   |   |
| Storage Temperature                | -40°C ~ +85°C                                |   |   |
| Relative Humidity                  | 0 ~ 95% non-condensing                       |   |   |
| <b>MTBF</b>                        | >100'000 Hours                               |   |   |

\*If the optical connector is FC type, the suffix in the model number will be “-FXX”. Eg. FTD100-FST

## **(7) Warranty Information**

All OT Systems products are subject to limited life-time warranty offered by the company in normal circumstances. Please refer to the OT Systems Products Warranty Statement for details. Access to the statement is available in our company website at [www.ot-systems.com](http://www.ot-systems.com).

## **(8) Contact Information**

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