

# THOR Fiber



## F-M1SDI

1-Channel Tx & Rx  
HD-SDI Fiber Optic  
Link with RS-485

User Manual 2017

## Contents

1.	Introduction .....	3
1.	1.1 Overview .....	3
2.	1.2 Features .....	3
3.	Application with Control.....	4
4.	Application without Control .....	4
5.	Application Drawing .....	5
2.	Panel Descriptions .....	6
1.	2.1 Front Panel .....	<b>Error! Bookmark not defined.</b>
2.	2.2 Rear Panel.....	7
3.	Technical Specifications .....	8
1.	3.1 Optical Specifications Table.....	8
2.	3.2 Electrical Specifications Table.....	9

## 1. Introduction

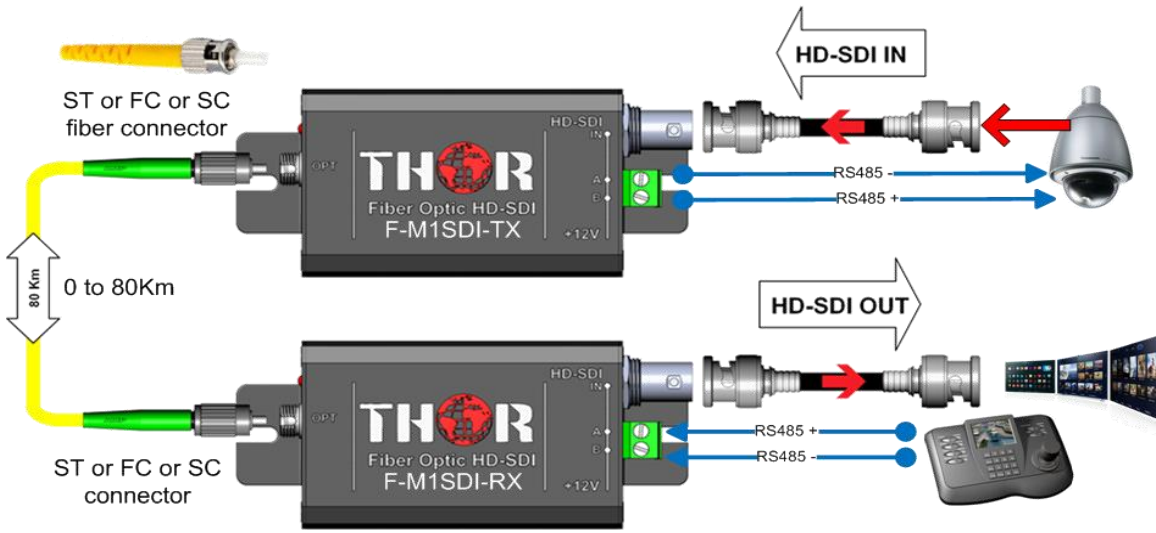
### 1. 1.1 Overview

The F-M1SDI system by Thor is designed to extend the range of SDI digital video signals by transmitting the signals over fiber cable. These units are compact and are suitable for a wide range of applications involving broadcast type SD-SDI or HD-SDI video. They are available in a range of power levels to support transport distances from 10 to 80 km when used with single mode fiber. In addition to SDI digital video, this system also provides 1 channel of RS-485 return path data from the optical receiver back to the transmitter. This is ideal for controlling equipment such as video routers, PTZ controllers, industrial equipment, or any [SDI over Fiber](#) signal up to 1.485GB/s.

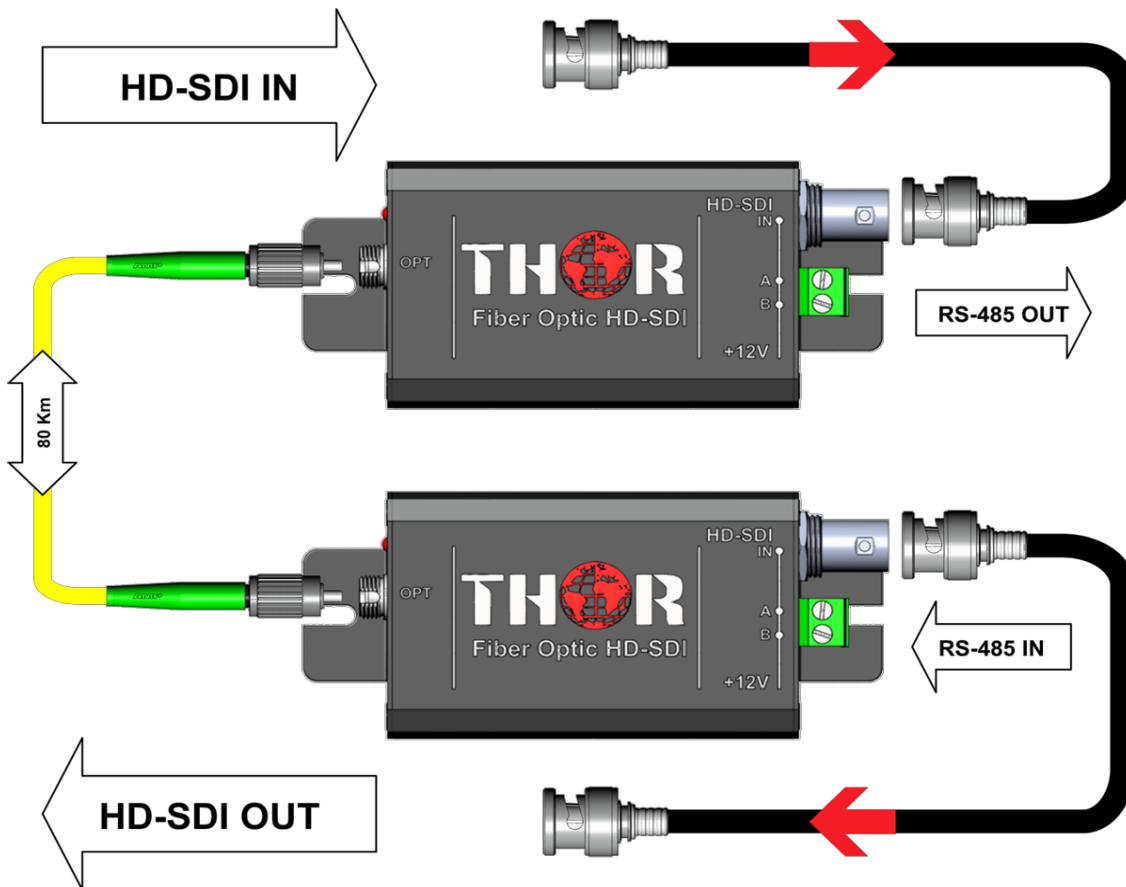
### 2. 1.2 Features

- Zero latency or loss in video quality
- Supports HD-SDI @ 1.485Gb/s (SMPTE-292M) and SD-SDI @ 270Mb/s (SMPTE-259M)
- F-M1SDI-Tx: 1x SD/HD-SDI input on BNC
- F-M1SDI-Rx: 1x SD/HD-SDI output on BNC
- Supports up to 8 audio channels embedded in the SDI
- Resolutions: 1080P@30,25,24, 1080I@60,50 and 720P@60,50,30,25,24
- Integrated HD-SDI re-clocker and cable equalizer
- Link Alarm (NOP, No optical signal) indicators on both Tx and Rx
- Reverse RS485 channel, half duplex, up to 115.2Kb/s baud rate
- 12V DC power supply
- Compact size 93.2mm x 46.2mm x 29.6mm

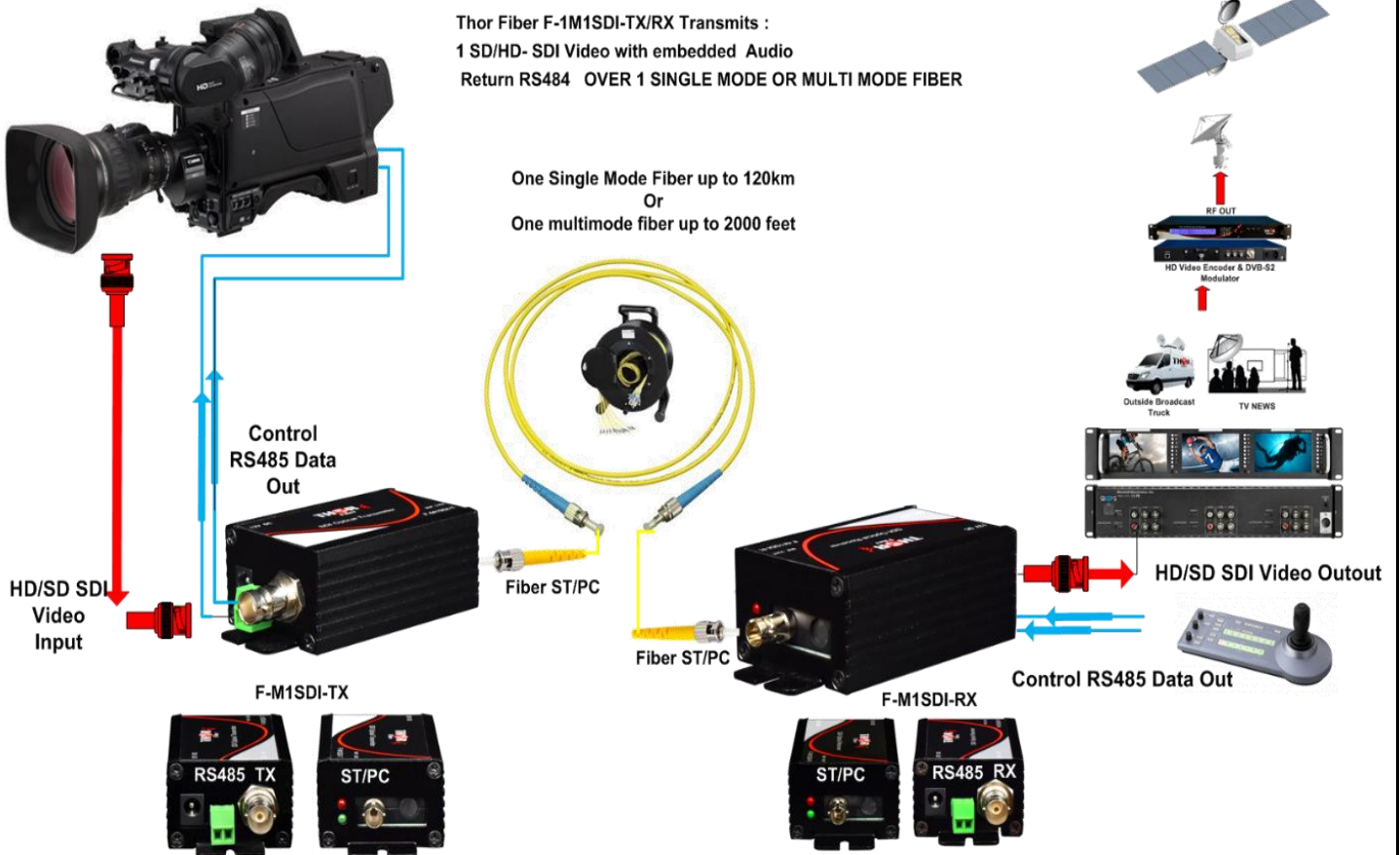
3. *Application with Control*



4. *Application without Control*



5. Application Drawing



## 2. Panel Descriptions

### 1. 2.1 Front Panel



Figure 2-1-1 F-M1SDI-Tx Front Panel

Table 2-1-1 F-M1SDI Front Panel

Interface	Description
<b>OPT</b>	Optical Fiber Interface, FC Type Connector
<b>NOP</b>	Optical signal loss alarm indicator ( <b>RED</b> )
	ON: Optical signal loss is detected on the fiber OFF: The optical port has a positive fiber lock
<b>LOCK</b>	The HD-SDI input signal detect Indicator ( <b>GREEN</b> )
	ON: Connected normally, Signal Locked OFF: Problem with SDI signal
<b>VOUT</b>	The HD-SDI Signal Output Indicator ( <b>GREEN</b> )
	ON: Output Functioning Normally OFF: Problem with Output

2. 2.2 Rear Panel



Figure 2-2-1 F-M1SDI-Tx Rear Panel

Table 2-2-1 F-M1SDI-Tx Rear Panel

Interface		Description
<b>POWER</b>		12V DC power input
<b>RS485</b>	A	RS485 positive terminal
	B	RS485 negative terminal
<b>HD/SDI IN</b>		SD/HD-SDI video input

Table 2-2-2 F-M1SDI-Rx Rear Panel

Interface		Description
<b>POWER</b>		12V DC power input
<b>RS485</b>	A	RS485 positive terminal
	B	RS485 negative terminal
<b>HD/SDI IN</b>		SD/HD-SDI video output

### 3. Technical Specifications

#### 1. 3.1 Optical Specifications Table

Item	Description				
<b>F-M1SDI-Tx optical interface</b>					
<b>Wavelength(nm)</b>	Tx:1310FP Rx:1550	Tx:1310FP Rx:1550	Tx:1550DFB Rx:1310	Tx:1550DFB Rx:1310	Tx:1550DFB Rx:1310
<b>Transmission distance (Km)</b>	10	20	40	60	80
<b>Optical Launch Power (dBm)</b>	-9~-3	-6~-1	-7~-2	-5~0	-2~+3
<b>Fiber Connector Type</b>	FC	FC	FC	FC	FC
<b>Maximum Sensitivity (dBm)</b>	-32	-32	-33	-36	-37
<b>F-M1SDI-Rx optical interface</b>					
<b>Wavelength(nm)</b>	Tx:1550FP Rx:1310	Tx:1550FP Rx:1310	Tx:1310FP Rx:1550	Tx:1310FP Rx:1550	Tx:1310vFP Rx:1550
<b>Transmission distance (Km)</b>	10	20	40	60	80
<b>Optical Launch Power (dBm)</b>	-14~-7	-14~-7	-8~-3	-5~0	0~+5
<b>Fiber Connector Type</b>	FC	FC	FC	FC	FC
<b>Maximum Sensitivity (dBm)</b>	-21	-21	-24	-24	-26

**Note:** Unless otherwise specified, the default optics are for 20 km. For longer transport distances please specify model at time of ordering.



2. 3.2 *Electrical Specifications Table*

<b>SDI Interface</b>	
<b>Connector</b>	BNC
<b>Bit rate</b>	1.485 Gb/s and 270 Mb/s auto switching
<b>Impedance</b>	75Ω
<b>Return loss</b>	>15dB
<b>Level</b>	800mVp-p±10%
<b>Rise and fall time (HD-SDI)</b>	≤270ps
<b>Rise and fall time (SD-SDI)</b>	≤1.50ns
<b>SD-SDI Alignment jitter (1KHz)</b>	≤0.2UI
<b>SD-SDI Timing jitter (10Hz)</b>	≤0.2UI
<b>HD-SDI Alignment jitter (100KHz)</b>	≤0.2UI
<b>Standard</b>	Compliant with SMPTE-292M HD-SDI and SMPTE-259M SD-SDI standard
<b>RS485 Interface</b>	
<b>Connector</b>	Terminal Block Connector
<b>Baud rate</b>	0~115.2Kb/s
<b>Bit error ratio</b>	<10 <sup>-9</sup>
<b>Work mode</b>	Half-duplex
<b>Power and Consumption</b>	
<b>Power supply</b>	DC12V
<b>Range</b>	8V~14V
<b>Power consumption</b>	1.5W±10%
<b>Environment Requirements</b>	
<b>Working temperature</b>	-30~+60°C
<b>Relative Humidity</b>	≤ 95% (no condensation)
<b>Storage temperature</b>	-40~85°C
<b>Equipment Dimensions</b>	
<b>Equipment dimension</b>	93.2mm × 46.2mm × 29.6mm