

**F-M1SDI-3G-TxRx**  
**3G-SDI Fiber Link**  
**with RS485**

**User Manual**

**2017**

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# 1 Introduction

## 1.1 Overview

The F-M1SDI-3G-TxRx is Thor Fiber’s compact throw down for SD/HD/3G-SDI video applications that necessitate up to 3G SDI over a single fiber. Kit includes a transmitter named F-M1SDI-T and a receiver named F-M1SDI-R, which can send any SD/HD/3G-SDI signal (audio signal embedded) and provides one reverse RS485 data channel, and can be used for control in a wide variety of SDI-camera applications that is specifically designed for ease of use in any project that necessitates a compact throw down over fiber.

## 1.2 Features

- High-definition 3G-SDI transmission without compression technology for real-time, loss-free and high-quality video transmission
- SMPTE-292M HD-SDI and SMPTE-259M SD-SDI standard, supports 1.485Gb/s and 270Mb/s
- Optional 3G-SDI compliant to SMPTE 424M standard, with bit rate of 2.97Gb/s
- F-M1SDI-T: one SD/HD/3G-SDI input (BNC)
- F-M1SDI-R: one SD/HD/3G-SDI output (BNC)
- Up to 8 audio channels embedded
- 1080P@60,50,30,29.97, 25,24,23.98, 1080I@60,59.94, 50, 720P@60,59.94, 50,30,29.97,25,24, 23.98, and 625i, 525i
- Integrated HD-SDI re-clocker and cable equalizer
- NOP (No optical signal) alarm indications, output status indicator and input lock indicator
- One reverse RS485 channel, half duplex, up to 115.2Kb/s baud rate
- 12V DC power supply
- Compact thrown down case for any application

## 1.3 Typical Application

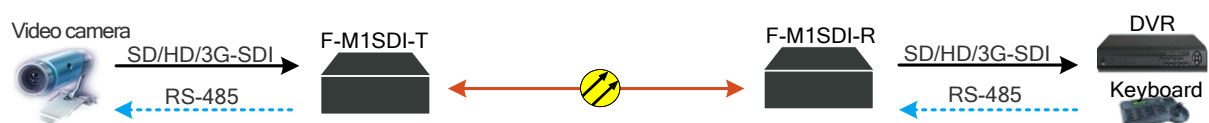


Figure1-3-1 Application

## 2 Panel Description

### 2.1 Front Panel

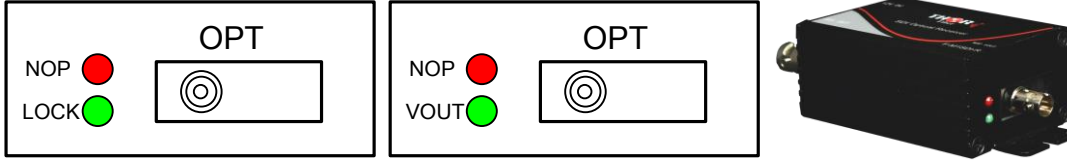


Figure 2-1-1 F-M1SDI-T front panel Figure 2-1-2 F-M1SDI-R front panel

Table 2-1-1 F-M1SDI-T/R front panel

Interface	Description
OPT	Optical interface, bi-directional, ST/PC connector
NOP	Optical signal loss alarm indicator, red. ON: Optical signal loss is detected at the port. OFF: the optical port receive normal signal.
LOCK	The HD-SDI input lock indicator, green. ON: connect normally. OFF: connect abnormally.
VOUT	The HD-SDI output status indicator, green. ON: output normally. OFF: output abnormally.

### 2.2 Rear Panel

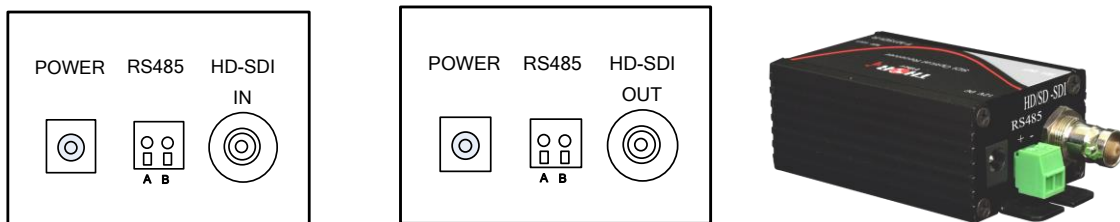


Figure 2-2-1 F-M1SDI-T rear panel Figure 2-2-2 F-M1SDI-R rear panel

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

Interface	Description	
POWER	12V DC power input	
RS485	A	RS485 positive terminal
	B	RS485 negative terminal
HD-SDI IN	SD/HD/3G-SDI video input	

Table 2-2-2 F-M1SDI-R Rear Panel

Interface		Description
POWER		12V DC power input
RS485	A	RS485 positive terminal
	B	RS485 negative terminal
HD-SDI OUT		SD/HD/3G-SDI video output

### 3 Technical Specifications

Table3-1 Technical Specification

Item	Description				
<b>F-M1SDI-T optical interface</b>					
Wavelength(nm)	Tx1310FP /Rx1550	Tx1310FP /Rx1550	Tx1550DFB /Rx1310	Tx1550DFB /Rx1310	Tx1550DFB /Rx1310
Transmission distance (Km)	10	20	40	60	80
launched power (dBm)	-9~-3	-6~-1	-7~-2	-5~0	-2~+3
Connector	FC	FC	FC	FC	FC
Maximum receive sensitivity (dBm)	-32	-32	-33	-36	-37
<b>F-M1SDI-R optical interface</b>					
Wavelength(nm)	Tx1550FP /Rx1310	Tx1550FP /Rx1310	Tx1310FP /Rx1550	Tx1310FP /Rx1550	Tx1310FP /Rx1550
Transmission distance (Km)	10	20	40	60	80
launched power (dBm)	-14~-7	-14~-7	-8~-3	-5~0	0~+5
Connector	FC	FC	FC	FC	FC
Maximum receive sensitivity (dBm)	-21	-21	-24	-24	-26
<b>SDI interface</b>					
Connector	BNC				
Bit rate	2.97Gb/s, 1.485Gb/s and 270Mb/s auto adaptive				
Impedance	75Ω				
Return loss	>15dB				
level	800mVp-p±10%				
Rise and fall time (HD-SDI)	≤270ps				
Rise and fall time (SD-SDI)	≤1.50ns				
SD-SDI Alignment jitter (1KHz)	≤0.2UI				
SD-SDI Timing jitter (10Hz)	≤0.2UI				
HD-SDI Alignment jitter (100KHz)	≤0.2UI				
Standard	Comply to SMPTE 424M 3G-SDI, SMPTE-292M HD-SDI and SMPTE-259M SD-SDI standard				
<b>RS485 interface</b>					
Connector	PHOENIX connector				

Baud rate	0~115.2Kb/s
Bit error ratio	<10 <sup>-9</sup>
Work mode	Half-duplex
<b>Power and Consumption</b>	
Power supply	DC 12V
range	8V~14V
Power consumption	1.5W±10%
<b>Environment Requirements</b>	
Working temperature	-30~+60℃
Relative Humidity	≤95%, no condensation
Storage temperature	-40~85℃
<b>Equipment dimension</b>	
Equipment dimension	93.2mm×46.2mm×29.6mm

Note: The optical module is optional for users, the default is 20Km, other long distance needs to be declared when ordering.