



## 12G 3G HD SD-SDI to fiber 4K transmitter receiver kit

### **F-12G-SDI-TX/RX**

#### **INTRODUCTION**

The most powerful Thor Fiber Transmitter provides one SDI input and one SDI loopout, and Receiver provides two SDI outputs. Utilizing single mode fiber, this multirate Ultra High Definition has zero delay to perform under the most critical applications in real world conditions.

This unit provides transparent and loss-free transmission technology, which ensures that the quality of images is up to broadcast level, and also guarantees the normal transmission of embedded audio signals. It can be widely used in 4K/8K ultra high-definition TV program production, live broadcast of Large-scale concert or Sports events.

12G-SDI solutions can simplify production and post workflows, providing bandwidth to handle high resolution, high frame rate and deep color content over one single mode cable, by directly connect camera to fiber

**Thor also has a second model, very similar, that is powered with USB-C and has RS-485 included, this model number is F-12G-SDI-D-TxRx (single mode fiber only up to 10km)**

## FEATURES

1. Compact design with a casing size of 93.0mm×45.0mm×29.2mm
2. Unidirectional 12G/6G/3G/HD/SD-SDI signal transparent transmission, the bit rate is auto-adaptive
3. PAL/NTSC auto-detection
4. Passes SDI pathological code test and compliant with SMPTE RP178 standard
5. **Transmitter**
  - Integrated cable equalizer and Re-Clocker for SDI input
  - Provides one SDI loop output, supports long-distance 20km
  - Provides SDI input lock indicator and power indicator
6. **Receiver**
  - Provides dual SDI outputs, with integrated re-clocker
  - Provides optical input lock indicator and power indicator
7. BNC input/output interface has 15kV electrostatic protection ability, which can meet indoor application
8. Compliant with SMPTE ST297, ST2081, ST2082, SMPTE 424M, SMPTE 292M, SMPTE 344M, SMPTE 259M, and DVB-ASI standard
9.
  - Standards:
  - SD Video Standards: 525i59.94 NTSC, 625i50 PAL
  - HD Video Standards:
    - 720p50, 720p59.94, 720p60
    - 1080p23.98, 1080p24, 1080p25, 1080p29.97, 1080p30, 1080p50, 1080p59.94, 1080p60
    - 1080P@23.98, 1080P@24, 1080P@25, 1080P@29.97, 1080P@30
    - 1080i50, 1080i59.94, 1080i60
  - 2K Video Standards:
    - 2K DCI 23.98p, 2K DCI 24p, 2K DCI 25p
    - 2K DCI 23.98PsF, 2K DCI 24PsF, 2K DCI 25PsF
  - Ultra HD Video Standards: 2160p23.98, 2160p24, 2160p25, 2160p29.97, 2160p30
  - 4K Video Standards: 4K DCI 23.98p, 4K DCI 24p, 4K DCI 25p
10. SFP LC/PC optical module INCLUDED, with 1310nm, 20km long haul, compliant with SFP MSA and SFF-8472 standard
  - With higher overload power, allows for short jumpers to connect for testing purposes
  - Optional LC/ST cable
11. Video Input Digital: 1-Channel independent 12G-SDI, SMPTE-259/292/424/2081/2082
12. Video Output Digital: 1-Channel independent 12G-SDI Loop out, SMPTE-259/292/424/2081/2082; 1-Channel Single Mode LC Fiber connector, SMPTE-297/259/292/424/2081/2082
13. Reclocking: 270 Mbps, 1.483 Gbps, 1.485 Gbps, 2.967 Gbps, 2.970 Gbps, 5.934 Gbps, 5.940 Gbps, 11.868 Gbps, 11.880 Gbps - Auto Select; All other rates are passed through and not reclocked
14. Power adaptor
  - Input :AC 90~264V @50~60Hz
  - Output DC +12V
  - The power plug has anti-shedding protection function
15. Provides CLI interface for failure location
16. Working temperature: -40°C~+85°C

# Model Selection

F-12G-SDI-TX - 12G SDI fiber optic transmitter

F-12G-SDI-RX - 12G SDI fiber optic receiver

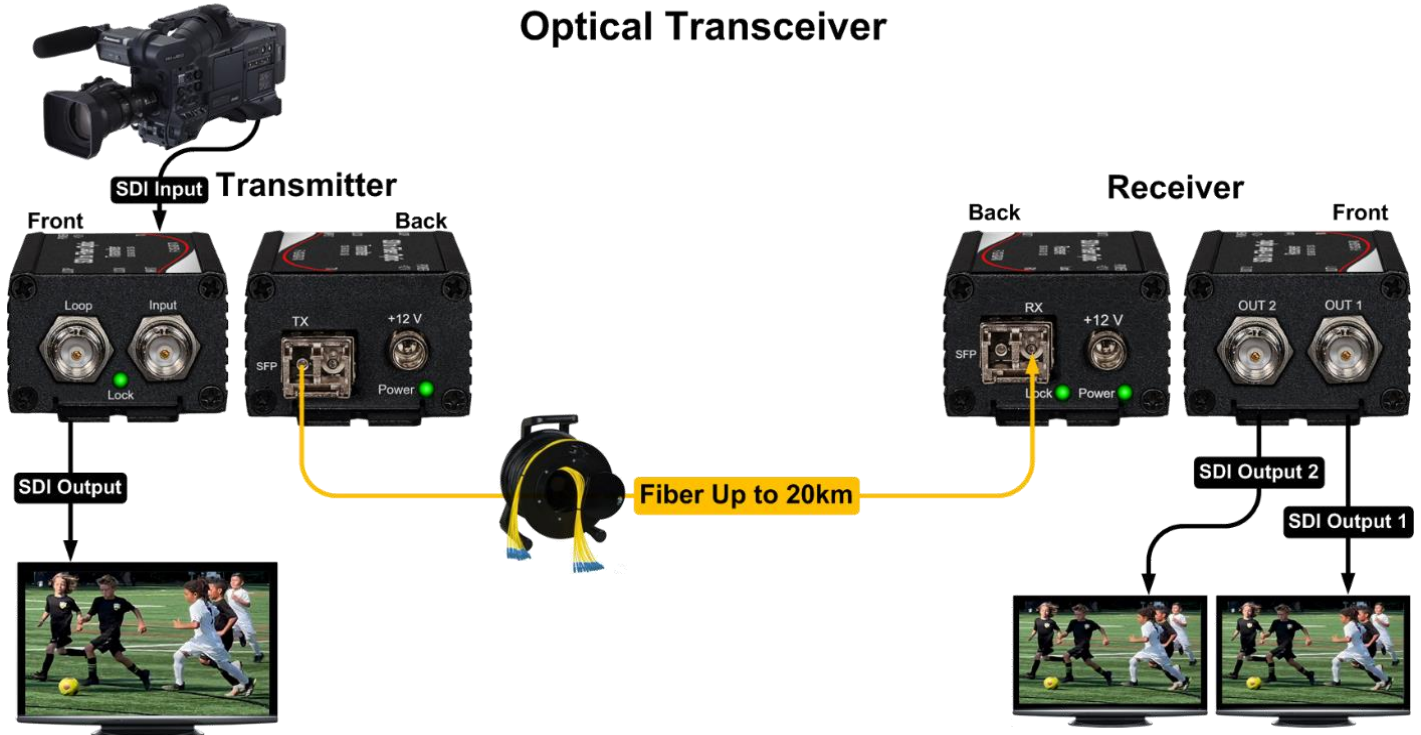
F-12G-SDI-TX/RX - 12G SDI fiber optic transmitter receiver kit

F-12G-SDI-D-TxRx - 12G SDI over Fiber Transmitter and Receiver set with return path RS485

Part Number	Description	Image
F-12G-SDI-D-TX/RX	Unidirectional 12G/6G/3G/HD/SD-SDI (USB-C power supply with RS485)	
F-12G-SDI-TX/RX	Unidirectional 12G/6G/3G/HD/SD-SDI signal transparent transmission, the bit rate is auto-adaptive	

# DRAWING

## 1 Channel 12G / 6G / 3G / HD / SD-SDI Optical Transceiver



# SPECIFICATION

	Item	Typical value
<b>SD/HD/ 3G/6G/ 12G-SDI Interface</b>	Connector	BNC for SDI LC connector via SFP
	Bit rate	12Gb/s, 6Gb/s, 2.97Gb/s, 1.485Gb/s and 270Mb/s auto adaption
	Impedance	75Ω
	Return loss	≤-4dB@12G-SDI ≤-7dB@6G-SDI ≤-10dB@3G-SDI ≤-15dB@HD-SDI
	Output level	800mVp-p±10%
	Amplitude overshoot	<10%
	Rise and fall time (SD-SDI)	≤1.50ns
	Rise and fall time (HD-SDI)	≤270ps
	Rise and fall time (3G-SDI)	≤130ps
	Rise and fall time (6G-SDI)	≤84ps
	Rise and fall time (12G-SDI)	≤64ps
	SD-SDI alignment jitter (1KHz)	≤0.15UI
	SD-SDI timing jitter (10Hz)	≤0.15UI
	HD-SDI alignment jitter (100KHz)	≤0.15UI
	HD-SDI timing jitter (10Hz)	≤1.0UI
	3G-SDI alignment jitter (100KHz)	≤0.2UI
	3G-SDI timing jitter (10Hz)	≤0.35UI
	6G-SDI alignment jitter	≤0.3UI
	6G-SDI timing jitter	≤0.6UI
	12G-SDI alignment jitter	≤0.3UI
12G-SDI timing jitter	≤0.6UI	
<b>Power</b>	Power supply	DC 12V
	Input voltage range	11V~13V
	Power consumption	Transmitter: 3.6W±10% Receiver: 2.6W±10%
<b>Environment Requirements</b>	Working temperature	-40°C ~ 85°C
	Relative Humidity	≤95%, no condensation
	Storage temperature	-40°C 85°C
<b>Mechanical Dimension</b>		93.0mm×45.0mm×29.2mm