

Data Sheet : F-12GSDI-B-TX/RX

Bi-Directional 12G-SDI Transmitter & Receiver

1 channel bi-directional 12G SDI video, single mode fiber up to 10km



The F-12GSDI-B-TX/RX is a high-performance, bi-directional 12G-SDI to optical fiber converter designed for professional UHD video transmission over long distances. One of its most significant advantages is the ability to transmit uncompressed, high-quality 12G-SDI video signals up to 10 kilometers using a single-mode optical fiber. This is accomplished without introducing latency or signal degradation, making it an ideal solution for broadcast, live production, and high-resolution video workflows. Its compatibility with a wide range of SDI standards—from SD and HD to 3G, 6G, and 12G-SDI—ensures broad interoperability with existing infrastructure, while the built-in signal equalization and clock recovery functions enhance stability and minimize jitter.

Another major benefit of this device is its flexibility and ease of integration. Easy to use plug-and-play devices, users can easily install permanently or use as a throw down to accommodate different distances or interface requirements, making it highly adaptable for varied deployment scenarios. The wide input voltage range (5–36V DC), compact desktop design, and optional V-mount power make it particularly suitable for mobile and outdoor applications where portability and reliable performance are essential. Its low power consumption (<1.5W) and rugged build further add to its appeal for both field and studio use.

In terms of applications, the F-12GSDI-B-TX/RX excels in UHD/4K/8K video transport, digital video editing, IP media gateways, and any SMPTE-compliant video transmission setup. It supports full-color space formats including 4:4:4, 4:2:2, and 4:2:0, and is compatible with industry standards such as DVB-ASI and AES10 (MADI). Whether used in permanent broadcast installations or temporary live event setups, this converter provides a reliable, high-fidelity method for transmitting video over fiber, with minimal setup and maximum durability.

Applications

1. SMPTE compatible with serial digital interface
2. UHDTV/4K/8K/HDTV/SDTV video
3. Live Events, ultra-fast uncompressed video over one fiber
4. Digital video processing and editing

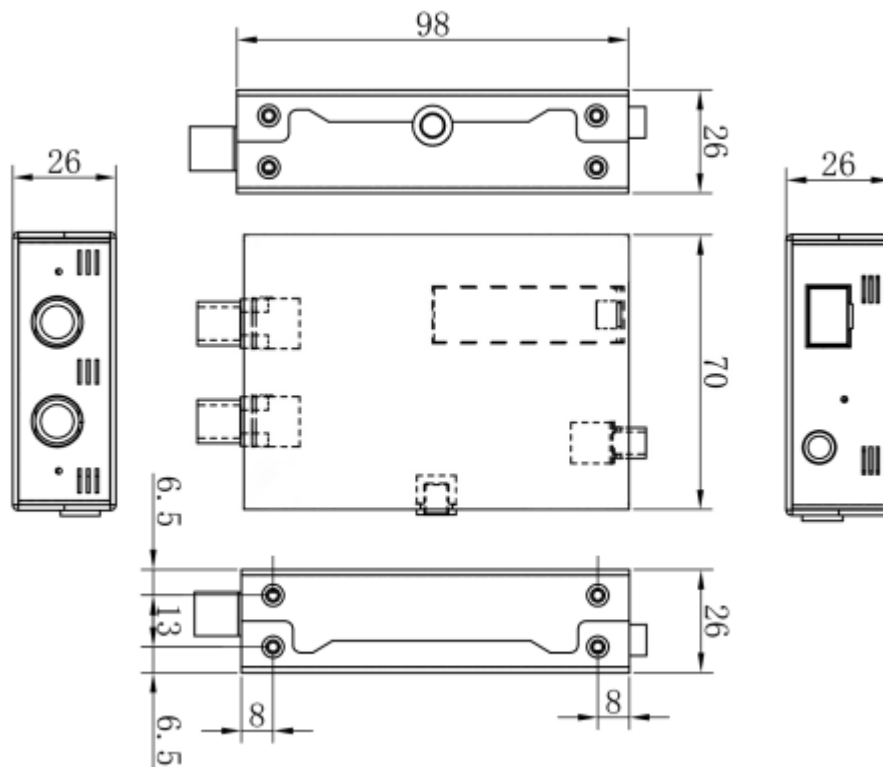
Features

1. ST-2082-1 (12G), ST-2081-1 (6G), ST-424 (3G), ST-292 (HD) and ST-259 (SD); compatible with DVB-ASI and AES10 (MADI)
2. Both transmitter and receiver have clock recovery function; (clock restorer can reduce high frequency jitter and completely regenerate data with pure low jitter clock)
3. The clock restorer is locked to 11.88Gbps, 5.94Gbps, 2.97Gbps, 1.485Gbps or 1.001 frequency division sub rate and SMPTE rate of 270Mbps
4. SDI input has automatic cable equalization (EQ)
5. Plug and play SFP optical module, 10km SFP included (Singlemode Fiber only) 1270-1330nm
6. Status lights
8. Support wide voltage of 5-36V DC power supply, power socket with lock mechanism to prevent the equipment from falling off during operation
9. Latency > 1ms

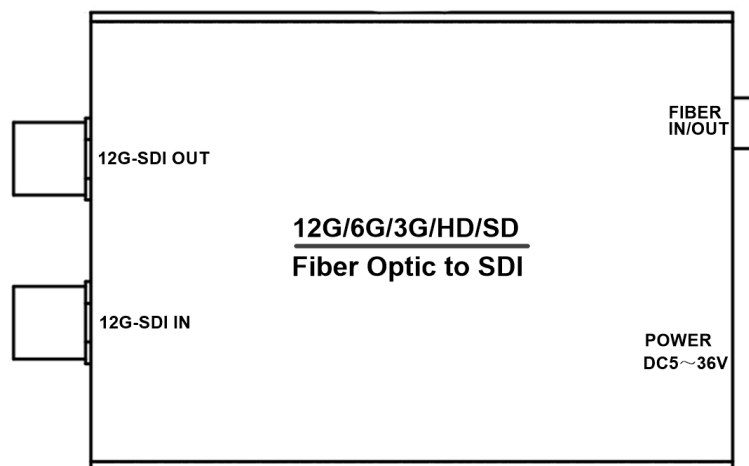
Specifications

Fiber parameters	
Wavelength	1270/1330nm (single fiber)
Fiber type	9/125um single-mode
Rate	12Gbps
Transmitter power	0~-3dB
Receiver sensitivity	-12dB
Fiber connector	LC (via SFP)
Optical parameters	Single-mode fiber, 10km
Video parameters	
Protocol standard	SMPTE ST-2082
SMPTE rate	270Mbit/s, 1.48Gbit/s, 2.97Gbit/s, 5.94Gbit/s, 11.88Gbit/s
Color space	12G 4:2:2 6G/3G/HD/SD 4:4:4 / 4:2:2 / 4:2:0
Standards (digital video format)	SMPIE 259M SD-SDI 480i, 576i
	SMPIE 344M ED-SDI 480P, 576P
	SMPIE 292M HD-SDI 720P, 1080i
	SMPIE 424M 3G-SDI 1080P60Hz
	SMPIE ST-2081 6G-SDI 2160P30Hz
	SMPIE ST-2082 12G-SDI 2160P60Hz
EQ mode cable transmission distance	75m at 11.88Gbps
	120m at 5.94 Gbps
	200m at 2.97 Gbps
	300m at 1.485 Gbps
	600m at 270Mbps
Signal amplitude	800mV±10%
Impedance	75Ω
Connector	BNC - IEC169-8 standard
Power parameter	
Input voltage	5~36V
Power supply physical interface	DC 5.5-2.1mm
Power consumption	<1.5W
Mechanical parameter	
Casing	Aluminum alloy and iron
Product size	98*70*26(mm)
Net weight of product	243g/unit
Package	
Package size	275*220*55mm
Gross weight	0.85kg
Other parameter	
Working temp	-20°C ~+75°C
Storage temp	-40°C ~+85°C
Relative humidity	5 to 95% (non-condensing)
MTBF	> 10,0000 hours

Product Size (Unit : mm)



Design



12G-SDI OUT	12G-SDI signal output
12G-SDI IN	12G-SDI signal input
FIBER IN/OUT	Bi-directional SFP fiber module
POWER DC 5 ~ 36V	DC 5 ~ 36V power supply

Connection Diagram

