

# Data Sheet

## F-SDI-3G-B-TX/RX

**3G-SDI (Bi-directional) over one Fiber**  
1 channel bi-directional 3G-SDI video over single mode 20km



The F-SDI-3G-B-TX/RX by Thor Fiber is a bidirectional optical SDI converter that transmits uncompressed 3G-SDI, HD-SDI, SD-SDI, and DVB-ASI video signals over single-mode fiber up to 20 km. It supports major SMPTE standards (259M, 292M, 424M) and offers plug-and-play operation with no compression or delay, ensuring high-quality, real-time video transmission for professional applications.

Its key advantages include long-distance reach, strong anti-interference, and signal stability, making it ideal for broadcast, medical, military, and surveillance use. Features include jitter reduction, cable equalization, and pathological signal support ensure reliable performance in complex environments.

Built for flexibility and durability, the device uses a modular design with ST/PC fiber connectors and industrial-grade components. With a rugged aluminum housing, wide temperature tolerance, and safety protections, it delivers consistent performance in demanding conditions.

### Supported SDI Standard List

Standard	Name	Bit rate	Video format example
SMPTE 259M	SD-SDI	270 Mbit/s, 360 Mbit/s, 143 Mbit/s, and 177 Mbit/s	480i, 576i
MPTE 344M	ED-SDI	540 Mbit/s	480p, 576p
SMPTE 292M	HD-SDI	1.485 Gbit/s, and 1.485/1.001 Gbit/s	720p, 1080i
SMPTE 372M	Dual Link HD-SDI	2.970 Gbit/s, and 2.970/1.001 Gbit/s	1080p
SMPTE 424M	3G-SDI	2.970 Gbit/s, and 2.970/1.001 Gbit/s	1080p

## Summary:

The F-SDI-3G-B-TX/RX stands out from competitors primarily due to its true broadcast-grade quality and use of pure hardware architecture. While many similar converters on the market rely on software-based processing, which can introduce latency or compatibility issues, this unit offers zero-compression, zero-delay transmission with superior signal integrity. Its full compliance with SMPTE standards (including 424M for 3G-SDI) ensures that it works seamlessly with professional video equipment, and its ability to handle pathological test patterns gives it an edge in environments where signal reliability is non-negotiable.

Another key advantage is its longer transmission range and versatility. Many competing SDI-to-fiber converters are limited to shorter distances or require dual fibers for bidirectional communication. The F-SDI-3G-B-TX/RX supports bidirectional video over a single fiber up to 20 kilometers without repeaters, reducing installation complexity and cost. It also supports CWDM (Coarse Wavelength Division Multiplexing), allowing for scalable multi-channel setups—something not typically available in entry-level or mid-range devices.

Additionally, its rugged industrial design and modular flexibility provide significant operational benefits over competing products. Combined with robust safety features, extreme temperature tolerance, and plug-and-play ease of use, the F-SDI-3G-B-TX/RX delivers a professional-grade solution that goes well beyond the capabilities of typical SDI fiber converters.

## Features

- DVB-ASI, SMPTE424M, SMPTE292M, and SMPTE259M (C) standards;
- 1ms delay
- APC circuit, constant output optical power, wide dynamic range
- Optical CWDM multiplexing technology achieve instant Bi-Directional signal transmission at the same time
- It can handle distortion very well
- Industrial grade design, modular design makes the equipment reliable and flexible
- Single multi, distance of up to 20 kilometers
- Support for pathological signal
- Equalizer signal; it will truly reflect the design state of the equalizer.
- Effectively balance and process the coaxial cable signals of different distances within a certain range to ensure the integrity of the signals
- Plug and play, no setup required
- Sold as a set. Note that devices are distinguished between transmitter and receiver

## Specifications

Fiberparameter	
Wavelength	1310nm-1470nm
Rate	3G bps
Transmitter power	> -6db
Receiver sensitivity	> -14db
Fiber type	Single mode, single fiber
Distance	20km
Fiber connector	ST/PC
Videoparameter	
Signal type	DVB –ASI, SD-SDI, HD-SDI, 3G-SDI
Work standards	DVB-ASI 、 SMPTE259M-C、 SMPTE292M、 SMPTE424M
Bit rates	270 Mbps, 1.485Gbps, 2.97Gbps
Video input/output	
Signal type	1channel DVB-ASI, SD-SDI, HD-SDI, 3G-SDI digital video
Input impedance	75 Ohm
Clock recovery	When 270 Mbps, 1.485 Gbps, and 2.97Gbps are automatic, the others are bypassed
Input level	800mVp-p±10%
Enter the echo loss	> 10dB @ 2.97 Gbps
Output DC offset	<±0.5V
Output echo loss	> 10dB @ 2.97 Gbps
The biggest shake	< 0.1UI(1485Mbps)
Signal overshoot	< 5% (1485Mbps)
Equipment information	
Product size	192*167*28mm / 7.56 × 6.57 × 1.10 inches
Product net weight (pair)	0.45KG
Product weight (including the outer packaging)	2.5KG
Packing size	345*210*90mm /13.58 × 8.27 × 3.54 inches
Input voltage	100VAC~242VAC,50-60Hz
Power supply	DC 5V
Power dissipation	< 1.5W
Other parameter	
Operating temperature-20°C ~75°C	
Storage temperature	-40°C ~85°C
Relative humidity	From 5 to 95% (non-condensing)
MTBF (Mean Time Between Failures)	> 100,000 hours