

12G-SDI to Fiber Optic Mini Converter

Bi-Directional RX / TX Set · 4K UHD over a single fiber

MODEL: BIONI-12G-SDI-FBR



4K UHD	Up to 3840×2160 @ 60 Hz
20 km	Single-mode fiber, LC connector
EMI-Free	Optical link rejects RFI & ground loops
< 2 W	Low-power, 12 V DC, fanless
Bi-Dir	Independent forward + backward 12G-SDI

Overview

The Bioni 12G-SDI to Fiber Optic Mini Converter is a compact transmitter-and-receiver set that extends uncompressed 12G/6G/3G/HD/SD-SDI video over a single fiber strand for distances up to 20 km. The link is fully bi-directional and rate-agile, supporting resolutions up to 4K UHD (3840 × 2160 @ 60 Hz) with embedded audio and zero compression. Because the signal travels as light through optical fiber, the link is inherently immune to electromagnetic interference (EMI), radio-frequency interference (RFI) and ground-loop noise — making it ideal for clinical environments where copper-borne interference is a concern.

Each unit features serial clock recovery, automatic cable equalization and signal reclocking, and accepts plug-in SFP optical modules so the link distance and wavelength can be tailored to the installation. The aluminum chassis is fanless, draws under 2 W, and mounts easily on a procedure cart, equipment boom, camera rig, or rack shelf.

1-channel **bi-directional** uncompressed 12G/6G/3G/HD/SD-SDI over a single fiber

Resolutions up to **4K UHD 3840 × 2160 @ 60 Hz**, plus 1080p, 1080i, 720p

Compliant with **SMPTE ST-2082-1, ST-2081-1, ST-424, ST-292, ST-259**; compatible with DVB-ASI and AES10 (MADI)

Integrated clock recovery locks to 11.88 / 5.94 / 2.97 / 1.485 Gbps and 270 Mbps SMPTE rates

Long-distance transmission up to 20 km over single-mode fiber (LC connector)

Hot-swappable **SFP optical module** — choose wavelength and reach to suit the site

Automatic cable equalization and reclocking on the SDI inputs

Hot-plug support, low power consumption (< 2 W), 12 V DC input

Compact aluminum chassis — easy to install on cameras, carts, dollies, or in racks

Typical Applications

SDI video signal transmission from the source processor to reporting or archive workstations, and any installation where 4K-SDI must travel further than coax allows or where electrical-noise immunity is critical. Because fiber is impervious to EMI, RFI, and ground-loop interference, the Bioni converter set is particularly well-suited to clinical and industrial environments:

Key Features

- **Electrophysiology (EP) labs** — preserves video signal integrity in environments dense with ECG, intracardiac mapping, and ablation equipment, where stray electrical noise on copper runs is a clinical concern.
- **Endoscopy setups ultrasound platform** — cleanly extends procedural video from the processor and endoscopy tower to remote reporting workstations, archiving systems, or teaching displays without picking up theater-floor interference.
- **Diathermy and electrosurgical procedures** — high-frequency currents from diathermy units are a notorious source of interference on copper video runs. Because fiber carries the signal as light rather than electricity, the link is fully immune to diathermy-induced EMI, keeping the procedural image clean.
- **Hybrid ORs and cath labs** — isolates video runs from electrosurgical units and high-RF equipment.
- **Broadcast, ENG, and live event production** — long camera runs at stadiums, arenas, concerts, and houses of worship.
- **Industrial monitoring and surveillance** — robust 4K transport across plant floors and campus installations.

Supported standards	SMPTE ST-2082-1 (12G), ST-2081-1 (6G), ST-424 (3G), ST-292 (HD), ST-259 (SD)
Compatibility	DVB-ASI, AES10 (MADI), 12G/6G/3G-SDI camera systems
Max resolution	3840 × 2160 @ 60 Hz (4K UHD), 1080p, 1080i, 720p
Reclocking rates	11.88 / 5.94 / 2.97 / 1.485 Gbps, 270 Mbps (and ±1.001 sub-rates)
Embedded audio	Up to 8 channels embedded per SDI stream
CONNECTIVITY	
Transmitter (TX)	1 × Forward 12G-SDI BNC, 1 × Backward 12G-SDI BNC
Receiver (RX)	1 × Forward 12G-SDI BNC, 1 × Backward 12G-SDI BNC
Optical interface	1 × LC, single-mode fiber (SFP module included)
Optical bandwidth	270 MHz – 12 GHz
CABLE & DISTANCE	
SDI cable spec (in/out)	≤ 70 m @ 12G-SDI on Belden 1694A
Fiber transmission distance	Up to 20 km (single-mode, LC)
POWER & ENVIRONMENT	
Power input	12 V DC
Power consumption	< 2 W (max.)
Operating temperature	−40 °C to +85 °C
Storage temperature	−40 °C to +80 °C
MECHANICAL	
Dimensions (L × W × H)	115 × 86 × 26 mm
Chassis	Aluminum, fanless
Mounting	Desktop / camera rig / cart / equipment boom

What's in the Box: 1 × Transmitter (TX) · 1 × Receiver (RX) · 2 × SFP optical modules (single-mode LC) · 2 × DC power adapters · Quick-start guide

Ordering Information

Model	Description	Order Now
BIONI-12G-SDI-FBR-20	Bi-Directional 12G-SDI Fiber Mini Converter Set, single-mode, LC, 20 km — TX + RX, sold as a pair	bioni.com.au/product/12g-sdi-to-fiber