BZB GEAR®

BG-FES12G

12G/6G/3G/HD/SD-SDI over Single mode SFP-type Fiber Optic Extender

User Manual

Transmitter	Receiver

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INTRODUCTION

The **BG-FES12G 12G/6G/3G/HD/SD-SDI over Single mode SFP-type Fiber Optic Extender** is an economical solution designed for transmission of multi-rate SDI video, with embedded audio and metadata over a single-mode fiber optic cable. The transmitter module receives one 12G/6G/3G/HD/SDI electrical input, perfectly converts SMPTE 292M, SMPTE 259M, SMPTE 424M,   SMPTE 2082 or DVB-ASI electrical SDI signal to single-mode optic SDI signals. The receiver module receives optical signal from input SFP connector, and then converts it to electrical SDI signal. BG-FES12G is immune to pathological pattern (SMPTE RP-198) without introducing any flickers, and this feature further guarantees the transmission quality over optical fibers.

Both transmitter and receiver provide equalizing and reclocking at input unit in order to re-construct the signal for consistent quality. The BG-FES12G is perfect for today's broadcast applications, including video production, video editing, studio to studio and studio to CATV head end. In addition, since transmission of content is inherently secure and immune to outside interference, fiber applications are favored in government, military, and medical environments.

FEATURES

- Enable transmission of digital video signal over optical fiber*
  - up to 10 km (6.25 miles)
- Standard SFP-type fiber optic connector
- Supports following protocols:
  - SMPTE 259M (270Mbps)
  - SMPTE 259M (360Mbps)
  - SMPTE 292M / HDTV (1.485Gbps and 1.485/1.001Gbps)
  - SMPTE 424M / HDTV (2.97Gbps and 2.97/1.001Gbps)
  - SMPTE 2082-1 / HDTV (5.94Gbps and 5.94/1.001Gbps)
  - SMPTE 2082-2 / HDTV (11.88Gbps and 11.88
  - /1.001Gbps)
  - DVB ASI (270Mbps)
- Immune to RP-198 pathological patterns
- Automatic reclocking
- One SDI loop out
- 12G/6G/3G/HD/SDI Input signal detection LED

	BG-FES12G
SDI Loop-Out	●
Fiber Loop-Out	
DVB Support	●
Immune to RP-198[1]	●
3G/HD/SD Detection	●
Re-clocking	●
Cable EQ	●
Jitter (<0.2 UI)	●
Bandwidth(2.97Gbps)	●
Fiber Type[2]	S
Optics type	SFP
Transmission[3]	~10km

⚠ 1. RP-198 is the Pathological Patterns.
2. Fiber type: M = multi-mode; S = single-mode.
3. Maximum transmission length is depended upon the optics module.

PACKAGE CONTENTS

- 1x BG-FES12G
- 2x 5V power adapter
- 1x User Manual

SPECIFICATIONS

Model Name	BG-FES12G	
Technical	BG-FES12G-T	BG-FES12G-R
Role of usage	Transmitter [TX]	Receiver [RX]
SDI standards	SD-SDI/ HD-SDI/ 3G-SDI/ 6G-SDI/12G-SDI	
Auto HD/SD-SDI detection	Yes	
Supported protocols	SMPTE 259M (270Mbps / 360Mpbs), DVB ASI (270Mbps) SMPTE 292M / HDTV (1.485Gbps and 1.485/1.001Gbps) SMPTE 424M / HDTV (2.97Gbps and 2.97/1.001Gbps) SMPTE 2082-1 / HDTV (5.94Gbps and 5.94/1.001Gbps) SMPTE 2082-2 / HDTV (11.88Gbps and 11.88/1.001Gbps)	
Video bandwidth	[11.88Gpbs & 11.88/1.001Gbps]	
Data rates	270 / 1483 / 1485 / 2967 / 2970 / 5940 / 11880Mbps	
Video support	[HD] 720p50/59.94/60, 1035i50/59.94/60, 1080i50/59.94/60, 1080p24/30,1080p60,1080p59.94, 4K2Kp30, 4K2Kp60 [SD] NTSC@59.94Hz, PAL@50Hz	
SDI signal type	SMPTE 2082-2, SMPTE 2082-1, SMPTE-424M, SMPTE-292M, SMPTE-259M, DVB-ASI	
Output impedance	75Ω	
Auto reclocker mode	Automatic detection: 270Mbps / 1.483Gbps / 1.485Gbps / 2.97Gbps / 2.967Gbps / 5.94Gbps / 5.934Gbps / 11880Gbps / 11868Gbps Automatic bypass: 177Mbps / 360Mbps / 540Mbps	
Fiber Transmission	10km (6.25mi)	
Loop-out	1 reclocking SDI loop-out	N/A
Audio support	Yes	
RP-198 pathological patterns	Immune	
PCB Stack-up	4-layer board [impedance control — differential 100Ω; single 50Ω]	
Input	1x BNC [SDI]	1x Optical SFP [SDI]
Output	1x Optical SFP [SDI] 1x BNC [SDI] (optional loop-out)	1x BNC [SDI]
BNC connector	75Ω inter-locked socket	
Optical fiber connector	SFP-type	
Mechanical		
Housing	Metal case	
Dimensions [L x W x H] — Model	74 x 74 x 26mm [2.9" x 2.9" x 1.0"]	
Dimensions [L x W x H] — Package	140 x 200 x 75mm [5.5" x 7.9" x 3"]	
Dimensions [L x W x H] — Carton	420 x 400 x 300mm [1'5" x 1'4" x 11.8"]	
Weight — Model	211g [7.4 oz]	
Weight — Package	440g [15.4 oz]	
Fixedness	Inter-locked power supply	
Power supply	5V 2A DC	
Power consumption	3 Watts [max]	
Operation temperature	0~40°C [32~104°F]	
Storage temperature	-20~60°C [-4~140°F]	
Relative humidity	20~90% RH [no condensation]	

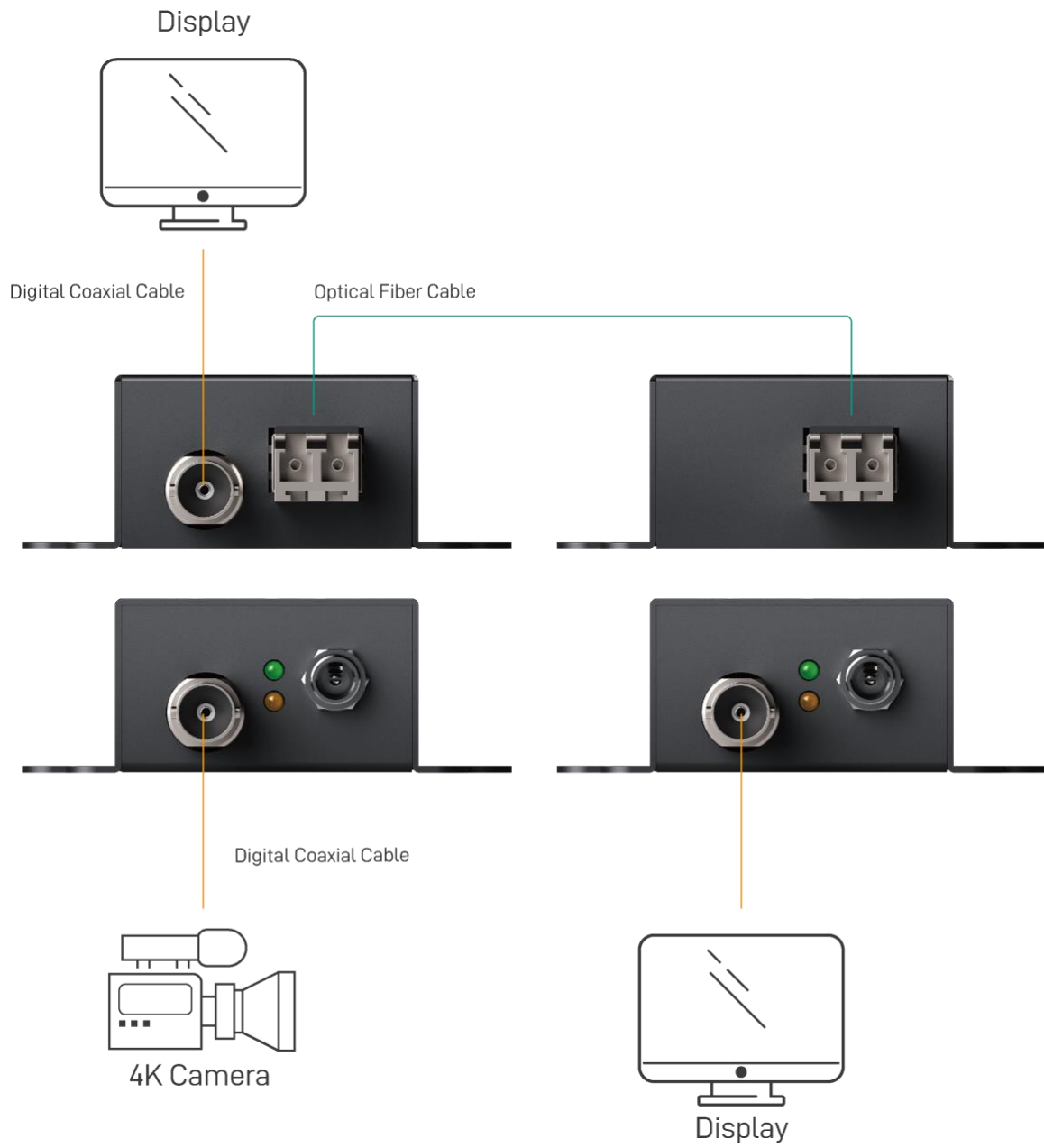# PANEL DESCRIPTIONS

Transmitting unit ▸ BG-FES12G-T

1. 12G/6G/3G/HD/SD-SDI input
2. Power indicator
3. Link indicator
4. 5V DC power jack
5. 12G/6G/3G/HD/SD-SDI loopout
6. Optical output

Receiving unit ▸ BG-FES12G-R

1. 12G/6G/3G/HD/SD-SDI output
2. Power indicator
3. Link indicator
4. 5V DC power jack
5. Optical input

CONNECTION DIAGRAM

Display

Digital Coaxial Cable

Optical Fiber Cable

Digital Coaxial Cable

4K Camera

Display

WARRANTY

BZBGEAR wants to assure you peace of mind. We're so confident in the quality of our products that along with the manufacturer's one-year limited warranty, we are offering free second-year warranty coverage upon registration*.

Taking advantage of this program is simple, just follow the steps below:

1. Register your product within 90 days of purchase by visiting BZBGEAR.com/warranty.

2. Complete the registration form. Provide all necessary proof of purchase details, including serial number and a copy of your sales receipt.

For questions, please call 1.888.499.9906 or email support@bzbgear.com.

For complete warranty information, please visit BZBGEAR.com/warranty or scan the QR code below.

*Terms and conditions apply. Registration is required.

MISSION STATEMENT

BZBGEAR manifests from the competitive nature of the audiovisual industry to innovate while keeping the customer in mind. AV solutions can cost a pretty penny, and new technology only adds to it. We believe everyone deserves to see, hear, and feel the advancements made in today's AV world without having to break the bank. BZBGEAR is the solution for small to medium-sized applications requiring the latest professional products in AV.

We live in a DIY era where resources are abundant on the internet. With that in mind, our team offers system design consultation and expert tech support seven days a week for the products in our BZBGEAR catalog. You'll notice comparably lower prices with BZBGEAR solutions, but the quality of the products is on par with the top brands in the industry. The unparalleled support from our team is our way of showing we care for every one of our customers. Whether you're an integrator, home theater enthusiast, or a do-it-yourselfer, BZBGEAR offers the solutions to allow you to focus on your project and not your budget.