

EX-36KRM

12G/6G/3G/HD/SD-SDI Fiber Extender
with Bi-Directional RS232

User Manual

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Transmitting



Receiving

INTRODUCTION

The **EX-36KRM 12G/6G/3G/HD/SD-SDI Fiber Extender with Bi-Directional RS232** is an ideal and economic 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 optical SDI signals. The receiver module receives optical signal from input SFP connector, and then perfectly converts it to electrical SDI signal. EX-36KRM 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 re-clocking at input unit in order to re-construct the signal for consistent quality. The EX-36KRM is perfect for today's broadcast applications, including video production, video editing, studio to studio and studio to CATV head end. EX-36KRM is also equipped with bi-directional RS-232 serial port control. This bonus features allow users to boost RS-232 control distance up to 10km (32800ft) through Optical fiber cable with SDI signals. 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 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 re-clocking
- Supports one SDI loop through
- 12G/6G/3G/HD/SDI Input signal detection LED
- Full Duplex RS-232 control up to 921,600 bps through connector

	EX-36KRM
SDI Loop-Out	●
Fiber Loop-Out	
DVB Support	●
Immune to RP-198 ¹	●
12G/HD/SD Detection	●
Re-clocking	●
Cable EQ	●
Jitter (<0.2 UI)	●
Bandwidth(12Gbps)	●
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

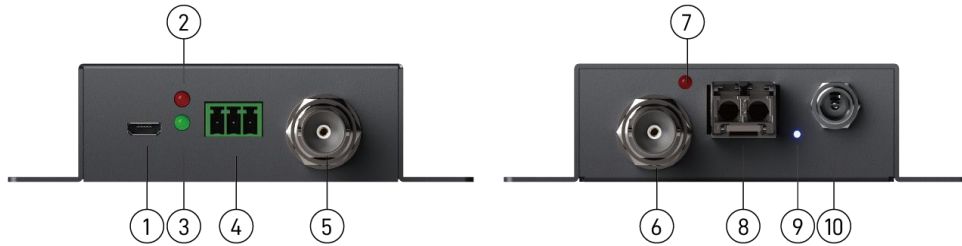
- 1 x EX-36KRM [TX & RX]
- 1x12G SDI Single Mode CSFP fiber module [TX & RX]
- 2x 3-Pin Terminal Block Connector
- 2x 12V power adapter
- 1x User Manual

SPECIFICATIONS

Model Name	EX-36KRM	
Technical	EX-36KRM-TX	EX-36KRM-RX
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), DVB ASI (270Mbps) SMPTE 292M / HDTV (1.485Gbps and 1.485/1.001Gbps) SMPTE 424M / HDTV (2.97Gbps and 2.97/1.001Gbps) SMPTE 2081 / HDTV (5.94Gbps and 5.94/1.001Gbps) SMPTE 2082 / HDTV (11.88Gbps and 11.88/1.001Gbps)	
Video bandwidth	[11.88Gpbs & 11.88/1.001Gbps]	
Video support	720p50/59.94/60, 1035i50/59.94/60, 1080i50/59.94/60, 1080p24/30,1080p60,1080p59.94, 4K2K29.97, 4K2K30, 4K2K59.94, 4K2K60 NTSC@59.94Hz, PAL@50Hz	
SDI signal type	SMPTE 2081, SMPTE 2082, SMPTE-424M, SMPTE-292M, SMPTE-259M, DVB-ASI	
Output impedance	75Ω	
Auto reclocker mode	270Mbps / 1.483Gbps / 1.485Gbps / 2.97Gbps / 2.967Gbps / 5.94Gbps / 5.934Gbps / 11880Gbps / 11868Gbps	
Fiber Transmission	10km (6.25mi)	
Audio support	Yes	
RS-232 support	Yes	
RP-198 pathological patterns	Immune	
PCB Stack-up	4-layer board [impedance control — differential 100Ω; single 50Ω]	
Input	1x SDI	1x Optical LC (SFP)
Output	1x Optical SFP [SDI] 1x SDI (Loopout)	1x SDI
BNC connector	75Ω inter-locked socket	
Optical fiber connector	SFP-type	
Mechanical		
Housing	Metal case	
Dimensions [L x W x H]	Model	99 x 62 x 25mm [3.9" x 2.4" x 1"]
	Package	264 x 170 x 77mm[10.3" x 6.7" x 3"]
	Carton	430 x 358 x 291mm[1'4" x 1'2" x 11.5"]
Weight	Model	171g [6 oz]
	Package	610g [1.3 lbs]
Fixedness	Inter-locked power supply	
Power supply	12V	
Power consumption	5 Watts [max]	5 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]	

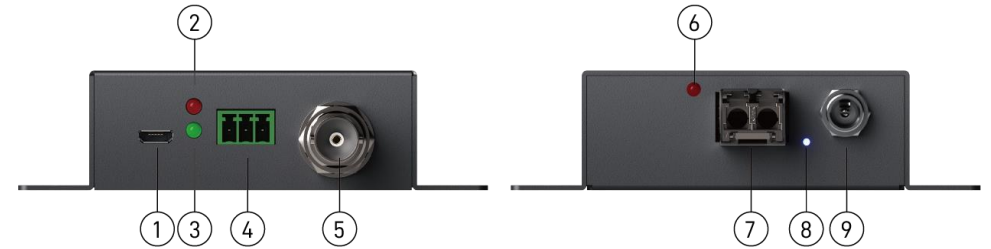
PANEL DESCRIPTIONS

Transmitting unit ▶ EX-36KRM-TX



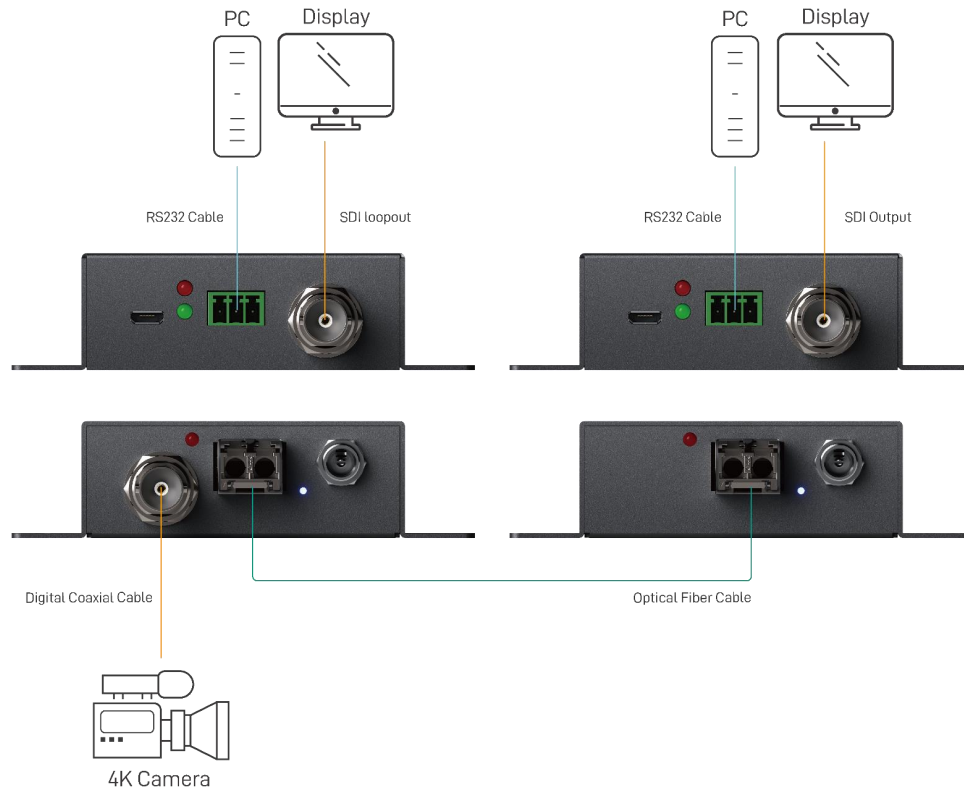
1. **Micro USB:** F/W update
2. **RS-232 LED indicator (Red):** When RS-232 transmit the signal, the LED light will shine
3. **RS-232 LED indicator (Green):** When RS-232 receive the signal, the LED light will shine
4. **RS-232 (terminal block format):** The order of RS-232 pin are RX, TX, GND (from the left side to the right)
5. **SDI loopout:** Connect to a 12G/6G/3G/HD/SD-SDI display
6. **SDI input:** Connect to a 12G/6G/3G/HD/SD-SDI source
7. **LED indicator:**
[Blinking green] Receive the input signal
[Solid Red] Bi-direction RS-232 link
[Solid green] Both receive the input signal and bi-direction RS-232 link
8. **Optical:** Link to the receiving unit EX-36KRM-RX (Module: [Left] SDI; [Right] Bi-direction RS-232)
9. **Power LED indicator**
10. **Power jack:** 12V DC power

Receiving unit ▶ EX-36KRM-RX



1. **Micro USB:** F/W update
2. **RS-232 LED indicator (Red):** When RS-232 transmit the signal, the LED light will shine
3. **RS-232 LED indicator (Green):** When RS-232 receive the signal, the LED light will shine
4. **RS-232 (terminal block format):** The order of RS-232 pin are RX, TX, GND (from the left side to the right)
5. **SDI output:** Connect to a 12G/6G/3G/HD/SD-SDI display
6. **LED indicator:**
[Blinking green] Receive the input signal
[Solid Red] Bi-direction RS-232 link
[Solid green] Both receive the input signal and bi-direction RS-232 link
7. **Optical:** Link to the transmitting unit EX-36KRM-TX (Module: [Left] SDI; [Right] Bi-direction RS-232)
8. **Power LED indicator**
9. **Power jack:** 12V DC power

CONNECTION DIAGRAM



WARRANTY

The SELLER warrants the **EX-36KRM 12G/6G/3G/HD/SD-SDI Fiber Extender with Bi-Directional RS232** to be free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surges.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables are limited to a 30 day warranty and cable must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. **Also, the technical information contained herein regarding the EX-36KRM features and specifications is subject to change without further notice.**