4×3G-SDI Optical Extender
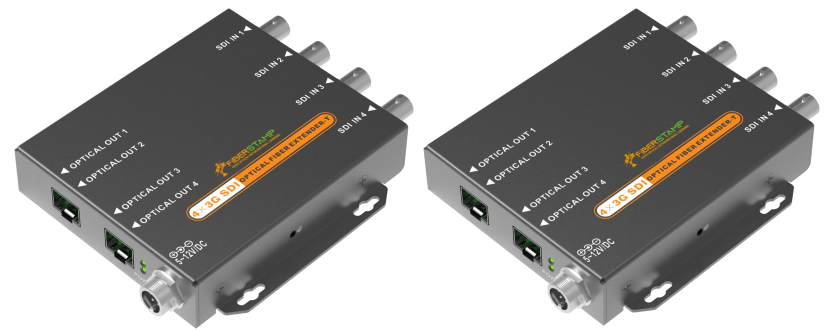## FE2SP-4V3GT/FE2SP-4V3GR

Features

- Extend SDI signal up to 2km~80km over fiber optics.
- Data rate per lane up to 3G, total 12G for 4K.
- Compliant with SMPTE-424M、SMPTE-292M、SMPTE295M、

SMPTE297M、SMPTE305M、SMPTE310M and DVB-ASI.

- Plug and play, no software to be installed
- Longer, thinner cable without EMI/RFI emissions
- Operating case temperature: 0 to 60℃
- All-metal housing for superior EMI performance
- RoHS compliant (lead free)

Applications

- Live Broadcast
- 4K Screen
- 4K Camera
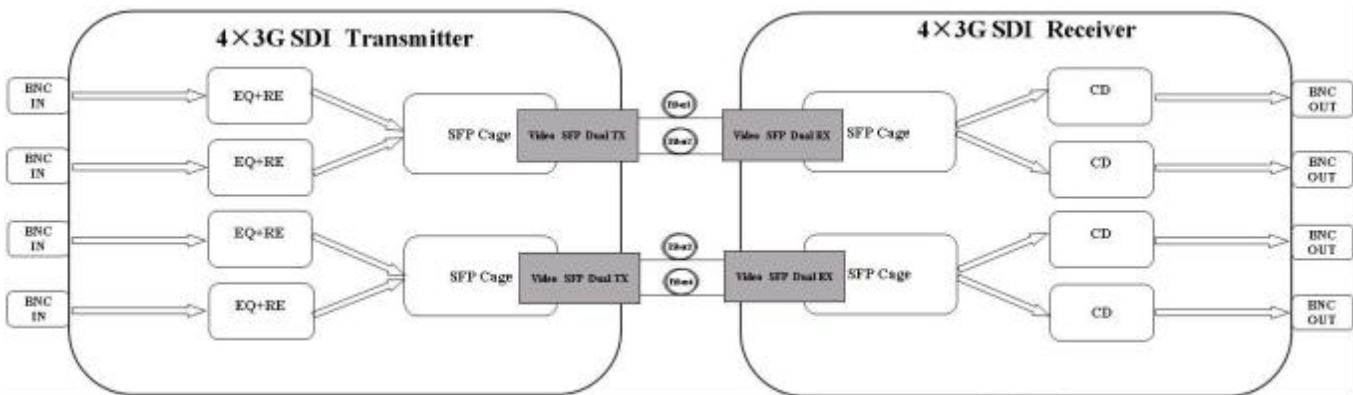- Video Meeting
- Security Monitoring

Description

The FIBERSTAMP 4×3G SDI Extender is a kind of SDI extender for 4K used to extend the transmission distance between SDI Source and Sink devices. The transmission distance can be up to 80km or more. It is up to what kind of optical module you insert into it. It includes two parts: one is 4 lanes Transmitter and another one is 4 lanes Receiver.

The Transmitter has four standard BNCs used to receive SDI signal from source and offers Co-axis cable equalizer to recovery SDI signal quality, at the same time, transforms SDI to SFP; The Receiver firstly transforms SFP to SDI, and it also has four standard BNCs used to transmit recovered SDI signal to sink, at the same time, offers Co-axis cable driver to amplify SDI signal for cable.
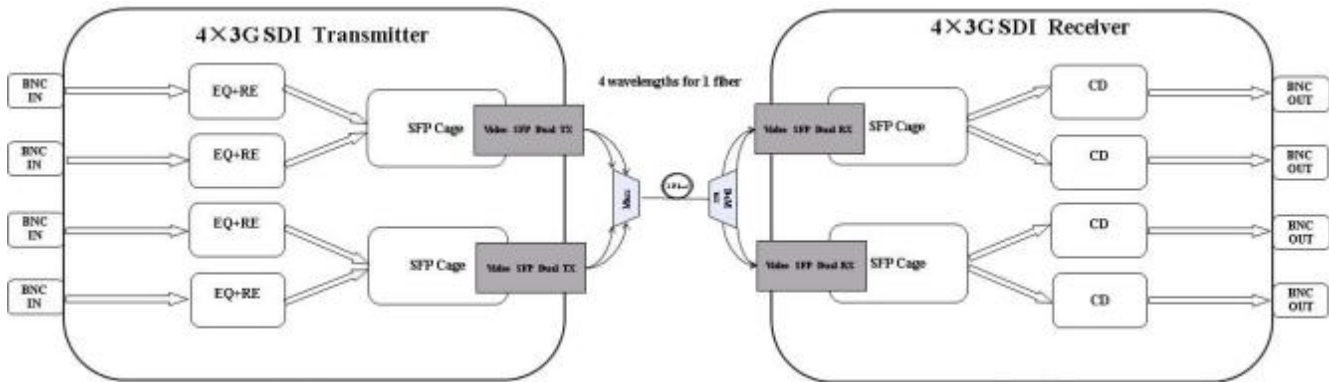
As the picture 1 shows below, 4×3G SDI Extender is consisted of one 4×3G SDI Transmitter, its structure is showed left; the other one 4×3G SDI Receiver, its structure is showed right below.

There are two methods to apply 4×3G SDI Extender. Application 1 you can see Figure1 (a), it shows 4×3G SDI Extender uses four fibers to transmit 12G SDI for 4K, it needs four optical modules: two double transmitted SFPs and two double received SFPs. Application 2 you can see Figure1 (b), it shows 4×3G SDI Extender uses one fiber to transmit 12G SDI for 4K, it needs four optical modules: two double transmitted SFPs and two double received SFPs, but two double transmitted SFPs must be four different wavelengths, at the same time , one MUX and one DeMUX are required .

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Application 1

Application 2

Figure1. 4×3G SDI Set-up diagram: (a) Application 1; (b) Application 2.

Figure2 below is one of application scenarios. A 4K Camera collects SDI video from somewhere and disposes well, after that outputs from four standard BNCs. Four SDI signals transmit to four co-axis cables into the 4×3G SDI Transmitter, and then are transformed into optical signals over fiber. On the remote end, the 4×3G SDI Receiver receives optical signals and transforms into four SDI signals for display.
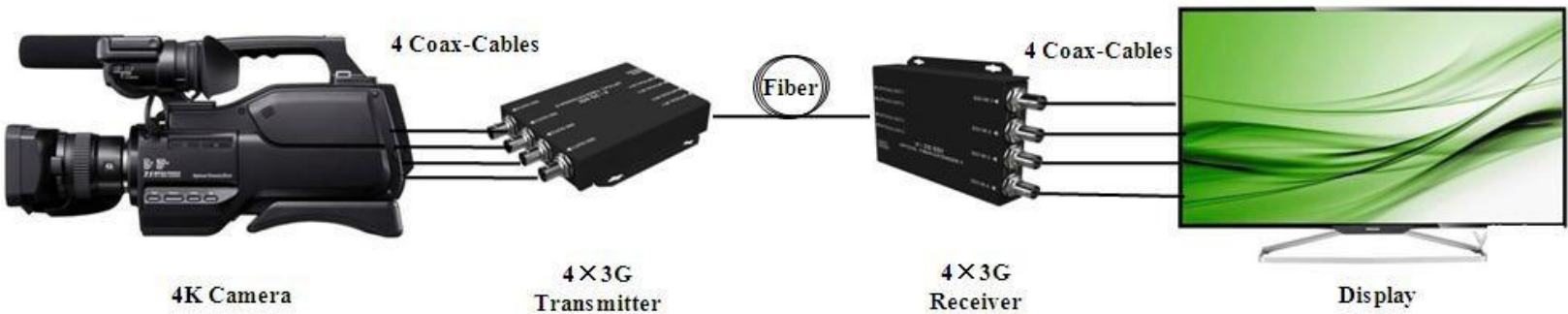

Figure2. The application filed of 4×3G SDI Extender

4×3G SDI Extender Specifications

Absolute Maximum Ratings

Parameter	Symbol	Description	Unit
Storage temperature	Ts	-10~70	℃
Operating Humidity	H	5~80	%
Supply Voltage	Vcc	-0.5~6V	V

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Operation Voltage	Vcc	4.5	5	5.5	V
Operation temperature	T	0	45	60	℃
Supply current	Icc	/	TBD	/	A

Note: TBD means the operation current is up to the module used in the box.

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4×3G Transmitters

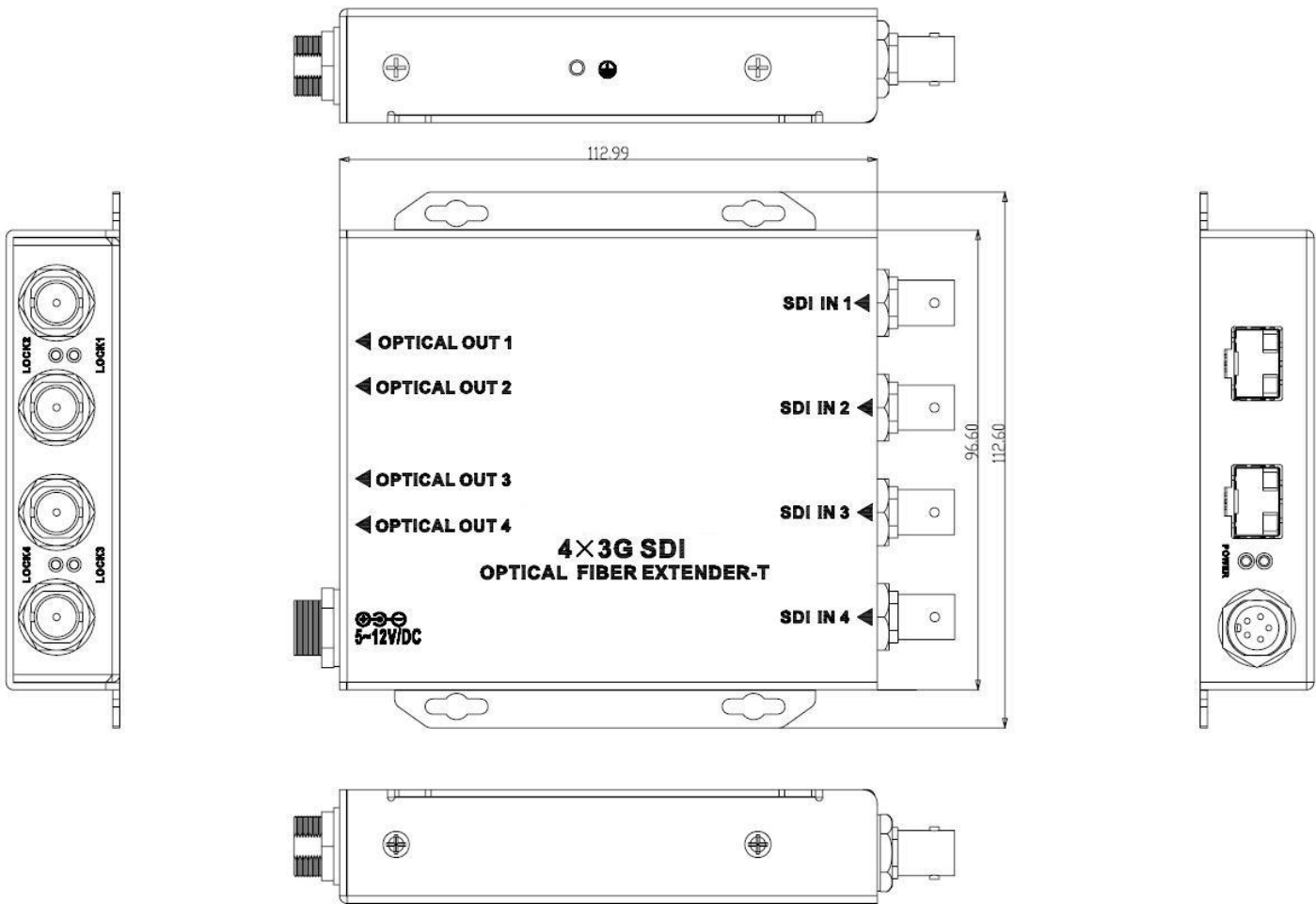| Parameter	Symbol	Description
Channel numbers	N	Four lanes, SDI signal input
Interface for cable	/	Standard BNC
Impendence 1	RBNC	75Ω for single end
Interface for module	/	SFP Connector
Impendence 2	RM	100Ω for differential pair
Tx Data Rate per lane	3G-SDI	2.97Gbps（SMPTE-424）
	HD-SDI	1.485Gbps（SMPTE-292）
	SD-SDI	270Mbps（DVB-ASI）
Input Swing	Vipp	600~1000mV
Auto Equalizer	/	100m for Belden 1694A
Rise/fall time	t	<135ps
LED Indication	/	Power Indicator, SDI Signal Indicator

Note:

1. The optical modules are optional up to what distance you need.

2. LC is recommended for fiber connector

3. The distance you can get includes 10km、20km、40km、80km.

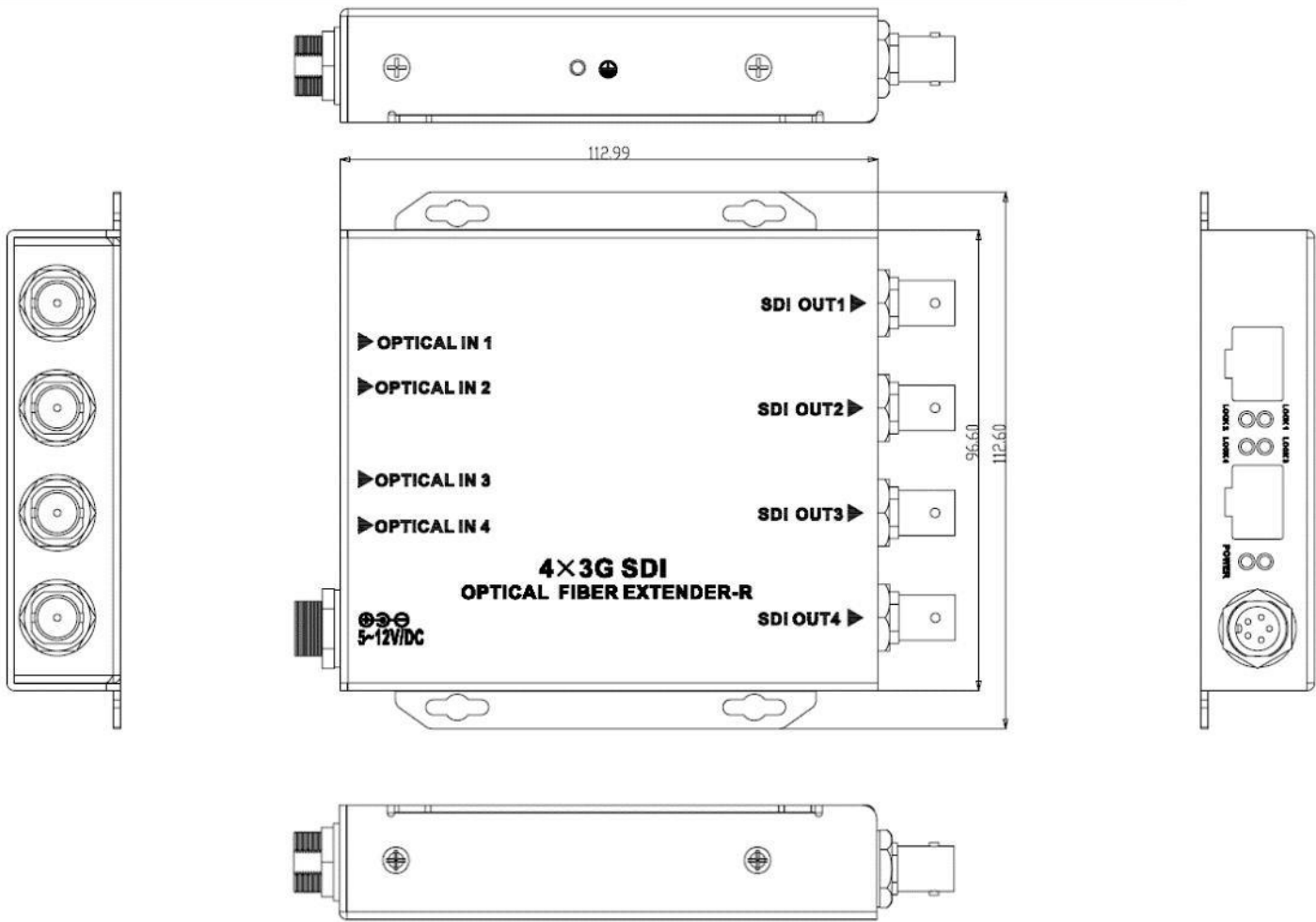4. The number of fibers is 1 or 4.

4×3G Receivers

Parameter	Symbol	Description
Channel numbers	N	Four lanes, SDI signal output
Interface for cable	/	Standard BNC
Impendence 1	RBNC	75Ω for single end
Interface for module	/	SFP Connector
Impendence 2	RM	100Ω for differential pair
Rx Data Rate per lane	3G-SDI	2.97Gbps（SMPTE-424）
	HD-SDI	1.485Gbps（SMPTE-292）
	SD-SDI	270Mbps（DVB-ASI）
Output Swing	Vopp	800mV
Overshoot	/	<10%
Output Jitter	Jp	<0.2UI for 10Hz
Return Loss	RL	>15dB
Cable Driver	/	Belden 1694A for recommend
Rise/fall time	t	<135ps
LED Indication	/	Power Indicator, SDI Signal Indicator
Each channel Skew	Skew	<10ns

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Mechanical Specifications

(a) The structure of 4×3G Transmitters

The structure of 4×3G Receivers

Figure3. Mechanical Specifications of 4×3G SDI Extender: (a) 4×3G Transmitters; (b) 4×3G Receivers

Note: The unit of those mechanical specifications is mm.

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Ordering information

4× 3G-SDI optical Extender:

Part Number	Product Description
FE2SP-4V3GT	3G-SDI Optical Extender, 4x3G-SDI transmitters, 2 SFP Ports, 4 BNCs
FE2SP-4V3GR	3G-SDI Optical Extender, 4x3G-SDI receivers, 2 SFP Ports, 4 BNCs

Note:

1. 3G SDI Extender is compatible backward, if you need 1.5G SDI Extender or low, you can also choose these.

2. We also offer the 3G SDI SFP to work with these SDI Extender. Please check from the table below.

3G-SDI SFP:

Part Number	Product Description
FSDT-3G-3102N	3G-SDI SFP 2Tx, 1310nm, 2km, Non-MSA
FSDT-3G-3120N	3G-SDI SFP 2Tx, 1310nm, 20km, Non-MSA
FSDT-3G-3140N	3G-SDI SFP 2Tx, 1310nm, 40km, Non-MSA
FSDT-3G-5540N	3G-SDI SFP 2Tx, 1550nm, 40km, Non-MSA
FSDT-3G-xxyyC40N	3G-SDI CWDM SFP 2Tx, 1270nm-1610nm, 40km, Non-MSA
FSDR-3G-02N	3G-SDI SFP 2Rx, 2km, Non-MSA
FSDR-3G-20N	3G-SDI SFP 2Rx, 20km, Non-MSA
FSDR-3G-40N	3G-SDI SFP 2Rx, 40km, Non-MSA

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