

3G-SDI Optical Extender

FSE-4X3G-T/FSE-4X3G-R

Features

- Extend SDI signal up to 2km-80km over fiber
- Data rate per lane up to 3G, total 12G for 4K
- Plug and play, no software to be installed
- Longer, thinner cable without EMI/RFI emissions
- Operating case temperature: 0 to 60°C
- All-metal housing for superior EMI performance
- RoHS compliant (lead free)
- Supports SMPTE-424M/292M/295M/297M/305M/310M and DVB-ASI



Applications

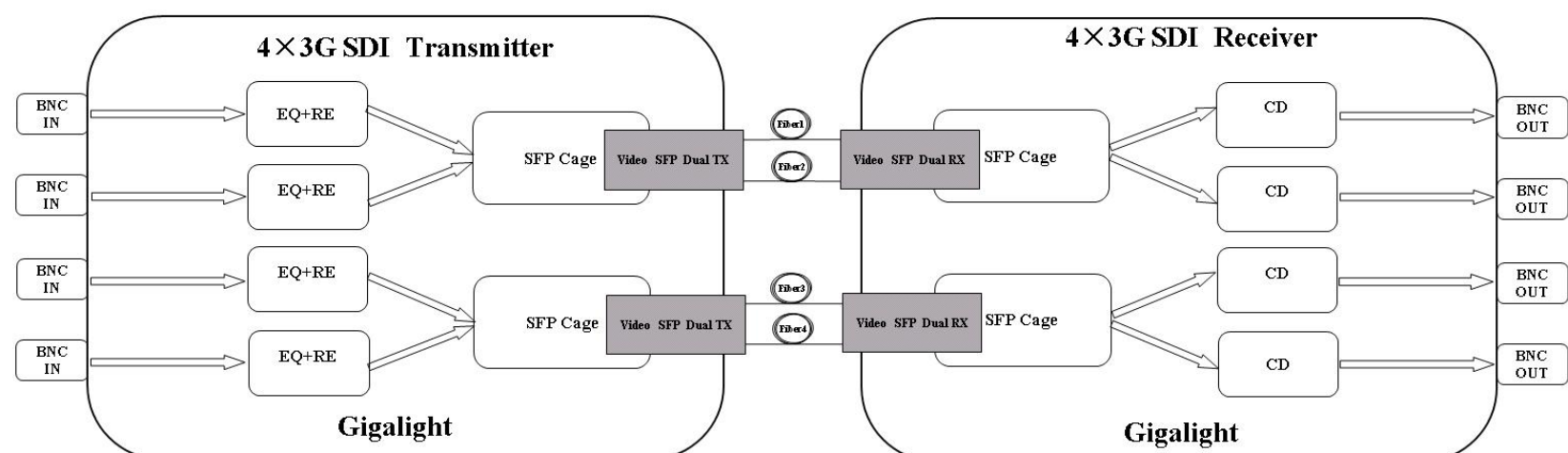
- Live Broadcast
- 4K Screen
- 4K Camera
- Video Meeting
- Security Monitoring

Description

The FiberStamp 3G-SDI extender is used to extend 4K transmission distance between the SDI Source and Sink devices up to 80km. The distance is up to what kind of SDI optical module used with the extender. Each extender includes 4 lanes of transmitter or receiver.

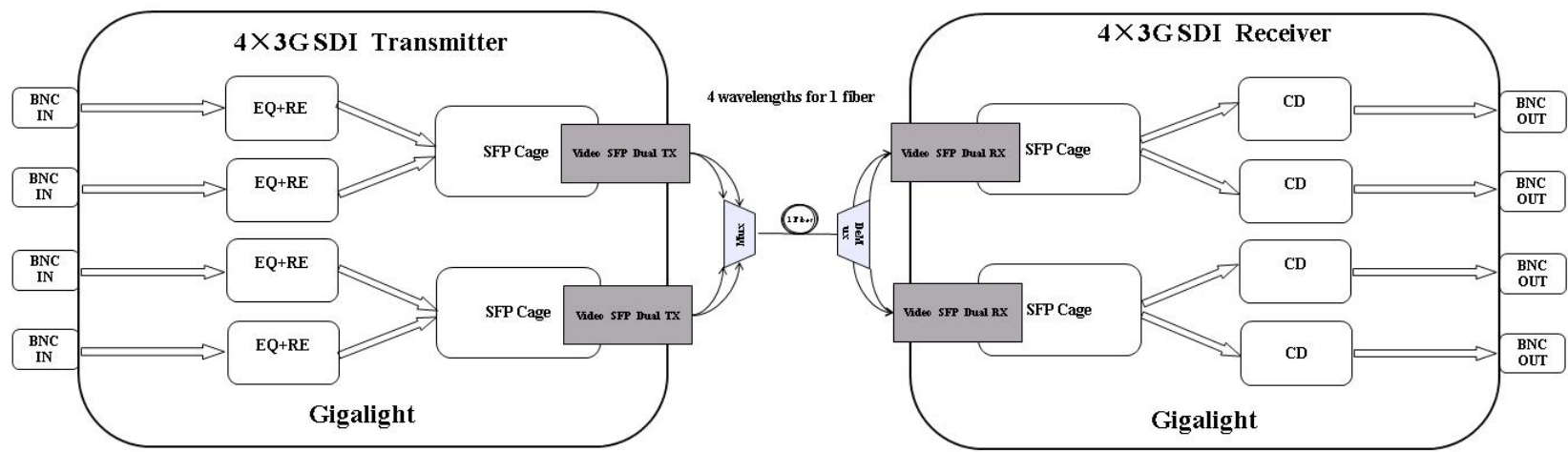
The Transmitter Extender has four standard BNCs used to receive SDI signal from source and offers Co-axis cable equalizer to recovery SDI signal quality, at the same time, transforms SDI to SFP; The Receiver Extender firstly transforms SFP to SDI, and it also has four standard BNCs used to transmit recovered 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, the left 3G-SDI Extender is consisted of 4x3G-SDI Transmitter; the right 4x3G-SDI Receiver.



(a) Application 1





(b) Application 2

Figure1. 4x3G SDI Set-up diagram: (a) Application 1; (b) Application 2.

There are two methods to apply the 4x3G SDI Extenders. Application 1, as Figure1 (a) shows 4x3G-SDI Extender uses four fibers to transmit 12G SDI for 4K through two pairs of 3G-SDI SFP 2Tx/2Rx optical modules. Application 2, as Figure1 (b) shows 4x3G-SDI Extender uses one fiber to transmit 12G-SDI for 4K through two pairs of 3G-SDI CWDM SFP 2Tx/2Rx optical modules and a pair of passive CWDM Mux/DeMux.

Figure2 below is an application scenario of the extender. A 4K Camera collects SDI video and outputs the SDI signals from four standard BNCs. The four SDI signals are transmitted over four co-axis cables into the 4x3G-SDI Transmitter Extender, and then are transformed into four lanes of optical signals over fiber. On the remote end, the 4x3G-SDI Receiver Extender receives the four lanes of optical signals and transforms into four SDI signals for display.

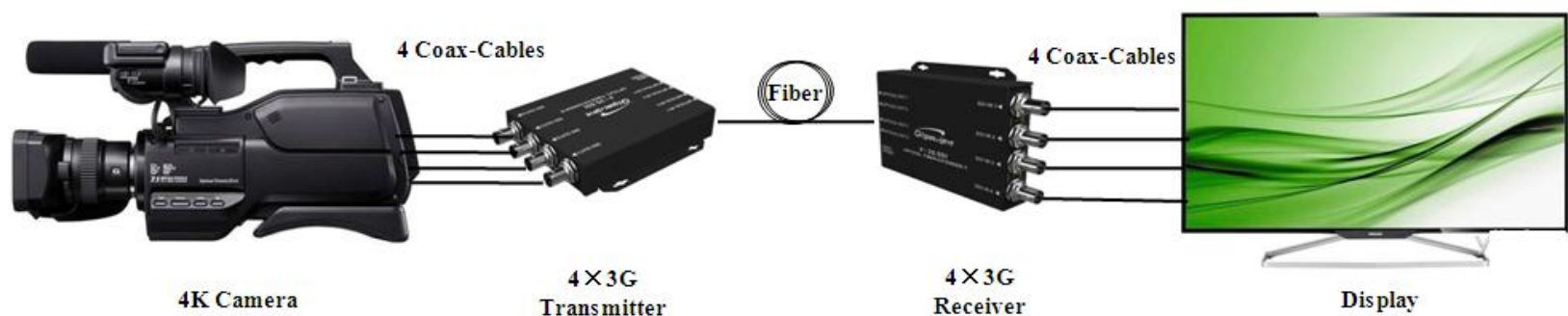


Figure2. The application filed of 4x3G SDI Extender

Absolute Maximum Ratings

Parameter	Symbol	Description	Unit
Storage temperature	Ts	-10~70	°C
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	°C
Supply current	Icc	/	TBD	/	A

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



4×3G-SDI Transmitter Extender

Parameter	Symbol	Description
Channel numbers	N	Four lanes, SDI signal input
Interface for cable	/	Standard BNC
Impedence 1	RBNC	75Ω for single end
Interface for module	/	SFP Connector
Impedence 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	V _{ipp}	600~1000mV
Auto Equalizer	/	100m for Belden 1694A
Rise/fall time	t	<135ps
LED Indication	/	Power Indicator, SDI Signal Indicator

Notes:

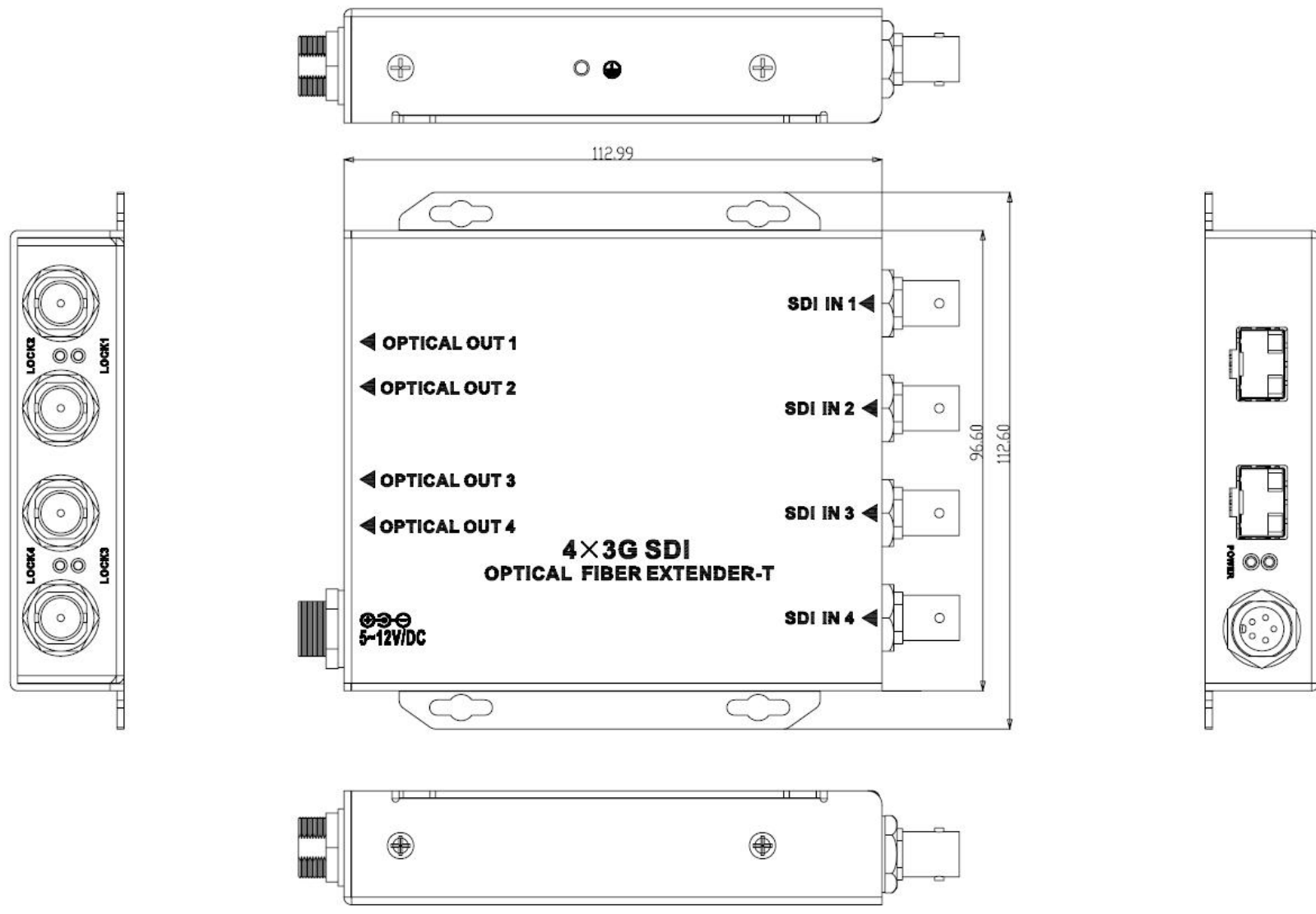
1. The optical modules are optional up to what distance you need.
2. LC is recommended for fiber connector
3. The distance you can get includes 10km、20km、40km、80km.
4. The number of fibers is 1 or 4.

4×3G-SDI Receiver Extender

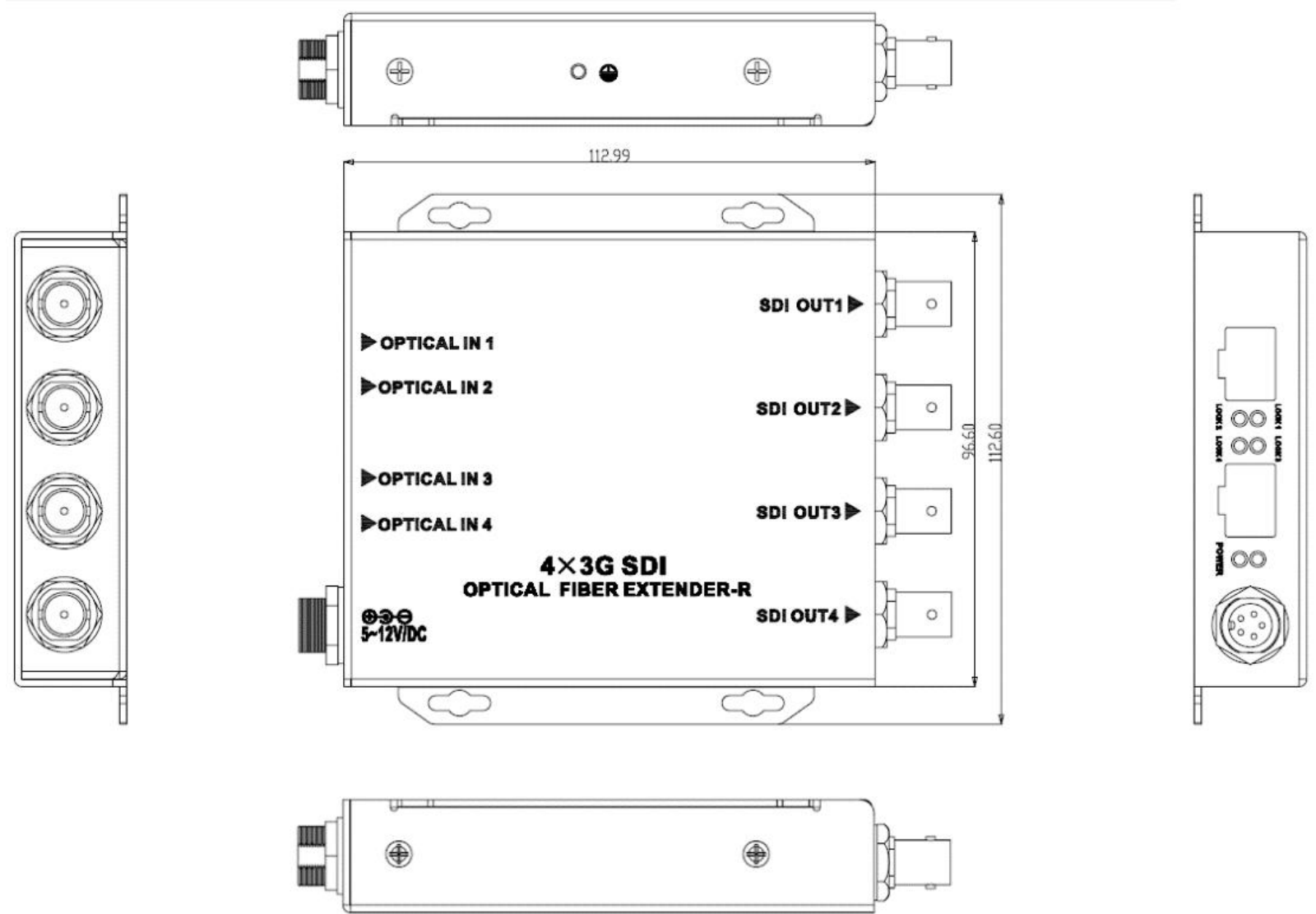
Parameter	Symbol	Description
Channel numbers	N	Four lanes, SDI signal output
Interface for cable	/	Standard BNC
Impedence 1	RBNC	75Ω for single end
Interface for module	/	SFP Connector
Impedence 2	RM	100Ω for differential pair
Rx Data Rate per lane	3G-SDI	2.97Gbps (SMPTE-424)
	HD-SDI	1.485Gbps (SMPTE-292)
	SD-SDI	270Mbps (DVB-ASI)
Output Swing	V _{opp}	800mV
Overshoot	/	<10%
Output Jitter	J _p	<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



Mechanical Specifications



(a) The structure of 4x3G Transmitters



(b) The structure of 4x3G Receivers

Figure3. Mechanical Specifications of 4x3G SDI Extender: (a) 4x3G Transmitters; (b) 4x3G Receivers

Note: The unit of those mechanical specifications is mm.



Ordering information

Part Number	Product Description
FSE-4X3G-T	3G-SDI Optical Extender, 4x3G-SDI transmitters, 2 SFP Ports, 4 BNCs
FSE-4X3G-R	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-xyyyC40N	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

Important Notice

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