User Manual

4CH SD/HD-SDI Optical Transceiver

NOTE: The casing design is subject to change without notice.

Our 4CH SD/HD-SDI Optical Transceiver is to transmit HD/HD-SDI video to up to 20KM with embedded audio and RS485 data via single fiber

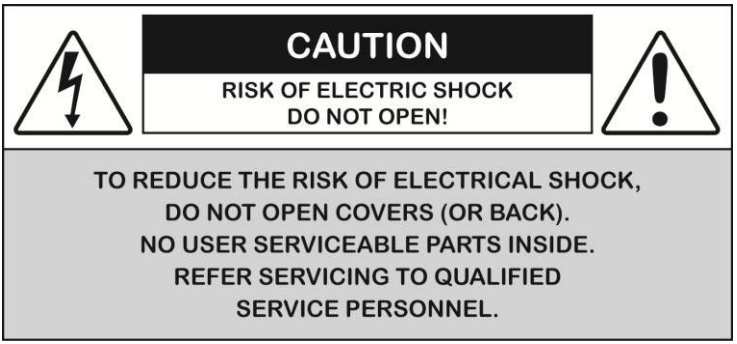
This kit include a transmitter and receiver.Transmitter is used as sending and Receiver is used as receiving .System support in accordance with SMPTE424M, SMPTE292M, SMPTE259M standard, as well as DVB-ASI (EN50083-9) digital TV signal format.

Features ..

- Support 4 channel SD/ HD-SDI video built-in digital audio signal
- SD/HD-SDI input automatic detection, supported transmission rate from 270M bit/s to 1.485G bit/s
- Transmission distance is from 0km to 20KM via single mode fiber.
- Support SSMPTE 292M (270Mbps),MPTE 259M (1.485Gbps and DVB-ASI signal
- Support plug and play function
- Operation status indicated by LED

Please read the Manual before attempting to use this product.

Specifications and appearance are subject to change without notice.



Disposal of Old Electrical & Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems).

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Caution ..

1. Handle this product with care

Avoid any shock or bumping of the product. Improper handling could damage the product. Do not handle the unit with wet hands. Provide proper ventilation and air circulation and do not use near water.

2. Requires a proper operating environment

This product is not waterproof and is designed for indoor use. The allowable temperature range for operation of this product is between 0°C~40°C / 32°F~104°F.

3. Check the power source voltage

The power source voltage should be within the specified range. (Product must meet the specifications).

4. Objects and liquid entry

Never push objects of any kind into this product as this may touch dangerous voltage points of short out parts that could result in a fire or electric shock. Never spill any kind of liquid on the product.

5. Cleaning

Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

6. Servicing

Do not attempt to service this product by yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all service to qualified servicing personnel.

Package Contents ..

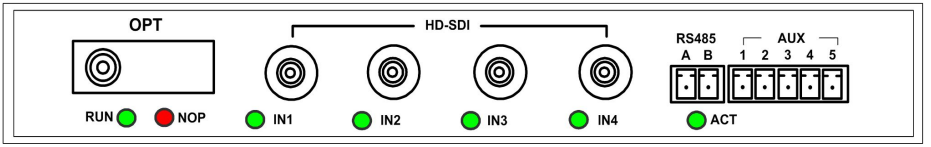
1. One (1) Transmitter
2. One (1) Receiver
3. One (1) User Manual
4. One (1) AC Adapter

1. 2. 3.

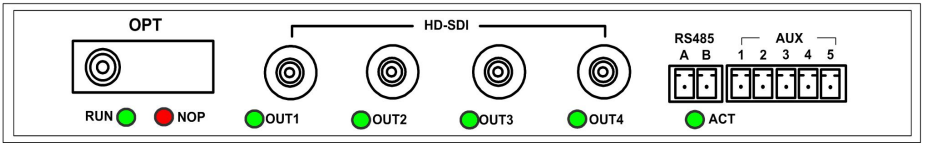
For any returns, please include all components listed above with original packaging in **Resalable Condition**. **Absolutely No Returns** will be accepted if any component is missing/damaged.

Parts & Functions ..

Front panel



(Transmitter)



(Receiver)

Rear panel

Name	Description	
OPT	Optical interface, bi-directional, adopts FC connector	
HD-SDI	IN [1:4]	HD-SDI input 1/2/3/4
	OUT [1:4]	HD-SDI output1/2/3/4
RS485	RS485 serial management interface, adopts PHOENIX connector	
	A	RS485 positive terminal
	B	RS485 negative terminal
AUX	One auxiliary channel, which can be 2-channel bi-directional audio, or 2-channel unidirectional audio, or 4-channel unidirectional audio, or 2-channel contact closure input/output, or 1-channel bi-directional RS422 , or 2-channel bi-directional RS232 channel. Refer to table 2-1-3 for more.	

AUX interface

AUX interface	No.	Name	Description
2-channel bi-directional audio	1	AOUT1	Audio channel -1 output
	2	AOUT2	Audio channel -2 output
	3	G	Ground
	4	AIN1	Audio channel -1 input
	5	AIN2	Audio channel -2 input
2-channel unidirectional	1	AIN1	Audio channel -1 input
	2	AIN2	Audio channel -2 output

audio input	3	G	Ground
	4	--	--
	5	--	--
2-channel unidirectional audio output	1	AOUT1	Audio channel -1 output
	2	AOUT2	Audio channel -2 output
	3	G	Ground
	4	--	--
	5	--	--
4-channel unidirectional audio Input	1	AIN1	Audio channel -1 input
	2	AIN2	Audio channel -2 input
	3	G	Ground
	4	AIN3	Audio channel -3 input
	5	AIN4	Audio channel -4 input
4-channel unidirectional audio Output	1	AOUT1	Audio channel -1 output
	2	AOUT2	Audio channel -2 output
	3	G	Ground
	4	AOUT3	Audio channel -3 output
	5	AOUT4	Audio channel -4 output
2-channel contact closure output	1	NC0	The first channel contact closure output No alarm: the contact is normally-closed (NC) Alarm: the contact is open
	2	COM0	Command contact of the first channel contact closure
	3	NC1	The second channel contact closure output No alarm: the contact is normally-closed (NC) Alarm: the contact is open
	4	CO	Command contact of the first channel contact

		M1	closure
	5	--	--
2-channel contact closure input	1	K0	The first channel contact closure input
	2	CO M0	Command contact of the first channel contact closure
	3	K1	The second channel contact closure input
	4	CO M1	Command contact of the second channel contact closure
	5	--	--
1-channel bi-directional RS232	1	TXA	RS422 differential signal A output
	2	TXB	RS422 differential signal B output
	3	RXA	RS422 differential signal A input
	4	RXB	RS422 differential signal B input
	5	G	Ground
2-channel bi-directional RS232	1	TX1	RS232 signal output 1
	2	RX1	RS232 signal input 1
	3	G	Ground
	4	TX2	RS232 signal output 2
	5	RX2	RS232 signal input 2

Note: The AUX interface of transmitter and receiver are used in pairs, e.g. If transmitter use 2-channel unidirectional audio output interface, receiver should use 2-channel unidirectional audio input interface.

Technical Specifications ..

Model	4CH HD-SDI optical transceiver
Input	4 ch BNC (75 ohm,SDI)
Signal Type	SD-SDI(270Mbps)/ HD-SDI(1.485Gbps)
Support Input Format	SD: 525i @ 59.94Hz, 625i @ 50Hz ■ HD: 1080P@30,25,24, 1080I@60,50 and 720P@60,50,30,25,24
Video Standard	SMPTE 292M and SMPTE 259M
In-out electrical level	800mVp-p±10%

Audio	Integrated SDI signal
Digital Audio	48KHz
AES digital audio channel	8CH
Fiber interface	FC/PC (SC to custom)
Fiber type	Single Mode, Single Fiber **(Multimode custom)**
Wavelength	1310/1550nm
Max. Distance	0m-20Km **(40/60 KM to custom)**
Transmitted power	-5dbm～-10dbm
Maximum Receiving Sensitivity	-28dBm
DATA comm. method	RS-485/Half duplex
Power Supply	5~24DC
Power Consumption	3~5 Watts
Operating Temperature	0°C ~ 60°C / 32°F ~ 140°F
Storage Temperature	-30°C ~ 70°C / -22°F ~158°F
Relative Humidity	20~90% RH (Non-condensation)
Dimension	180X123X30 MM
Weight	800g (Tx and Rx)

*Specifications are subject to change without notice

Key Components ..

Components Made in USA for this product:

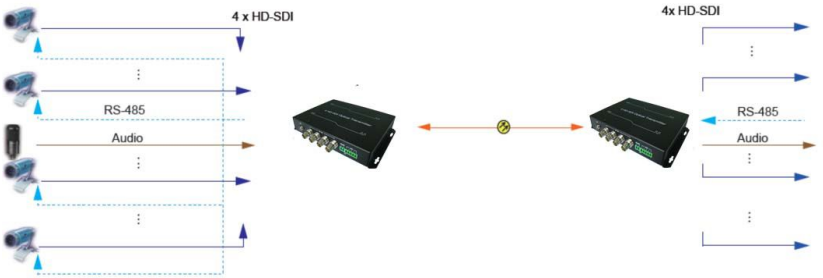
Name of Component	**Manufacturer**
Multi-Rate SDI Adaptive Cable Equalizer	*Gennum*
Multi-Rate SDI Automatic Reclocker	*Gennum*
Multi-Rate Dual Slew-Rate Cable Driver	*Mindspeed & Gennum*
SDI SPD	*Bourns*
HDMI ESD Protection	*Semtech*
Micro Controller Unit	*Texas Instruments*

Components Made in China for this product:

Name of Component	**Manufacturer**
DC/DC Converter	*Richtek*

*Key components are listed by the manufacturer and are subject to change without notice

Application Diagram ..



* **The distance depends on the quality of the SDI signal from the HD camera source and also the Coax Cable & Connector**

Install Guide :

1) Connect the SDI source (such as SDI CAM) to the SDI IN of Transmitter

2) Connect the SDI out of Receiver to HDTV display or SDI device like SDI converter ,SDI DVR

3) Use the quality FC patch cord to connect FC connector of the transmitter and Receiver and then connect to the fiber-optic cable pigtail

4) Connect the output data port of Receiver (eg. TX+ and TX-) of other control device such as Keyboard to the RX+ and RX- of the RX.

Connect the input data port of transmitter (eg. RX+ and RX-) of other under- controlled device s such as SDI camera to the TX+ and TX- of the TX. GND in both TX and RX should be connected directly to user's equipment.

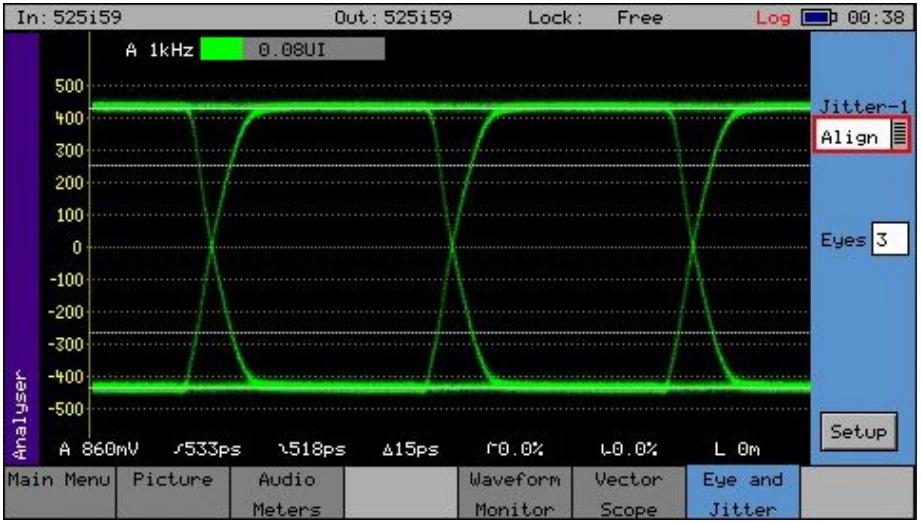
5) Plug two pieces of 12V power supply into the transmitter and Receiver.

6) Power on the other devices like SDI camera and SDI DVR , HDTV monitor ect

Eye Diagram ..

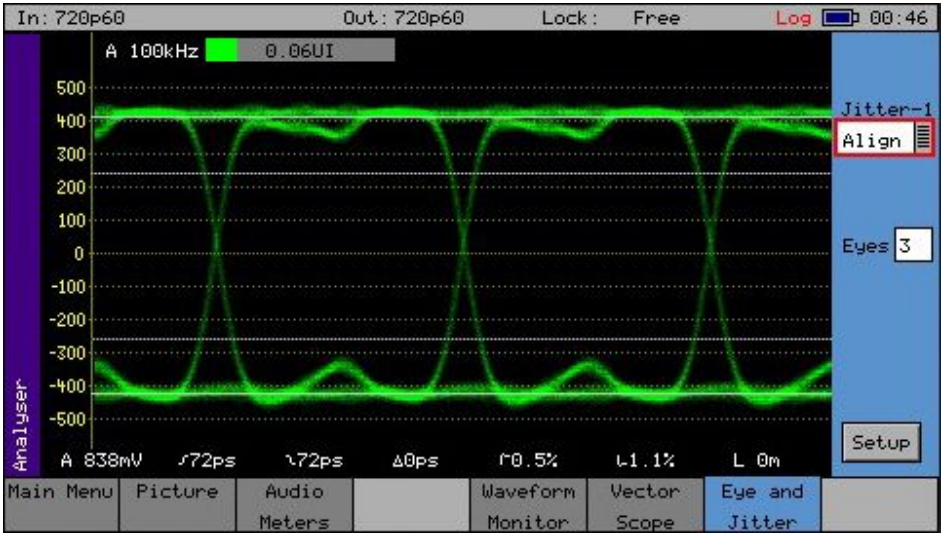
SD Mode

525i59

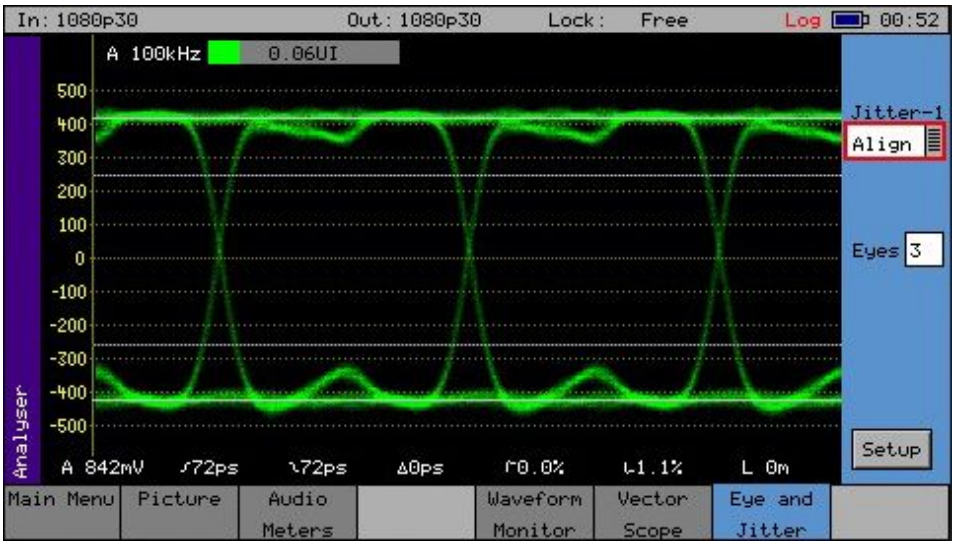


HD Mode

720p60


In: 720p60
Out: 720p60
Lock: Free
Log
00:46
A 100kHz
0.06UI
500
400
300
200
100
0
-100
-200
-300
-400
-500
Analyser
Jitter-1
Align
Eyes 3
Setup
A 838mV
72ps
72ps
Δ0ps
0.5%
1.1%
L 0m
Main Menu
Picture
Audio Meters
Waveform Monitor
Vector Scope
Eye and Jitter

`1080p30


In: 1080p30
Out: 1080p30
Lock: Free
Log
00:52
A 100kHz
0.06UI
500
400
300
200
100
0
-100
-200
-300
-400
-500
Jitter-1
Align
Eyes 3
Analyser
A 842mV
↗72ps
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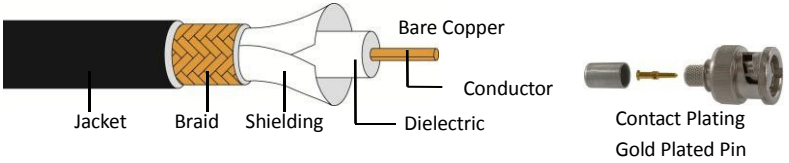
Setup
Main Menu
Picture
Audio Meters
Waveform Monitor
Vector Scope
Eye and Jitter

IMPORTANT NOTE: Cable & Connector for HD Camera

In order to achieve the Best Quality and Long Range coax cable run of up to 200m / 600ft, you will need:

1. **Good Quality Cable**: We suggest using RG6 Belden 1694A Low Loss Serial Digital coax cable because RG6 cables have better grounding than RG59 cables. RG6 is for Digital Signal and RG59 is for Analog Signal.
2. **Good Quality BNC Connectors**: Contact Plating Gold plated pins provide exceptional conductivity.
3. **Good Quality Installation**: Do not over cut the braid because it will affect the grounding. The image will have lines and noise.



Limited Warranty ..

LIMITED ONE (1) YEAR WARRANTY AND EXCLUSIONS

Manufacturer warrants to the original consumer purchaser and not for the benefit of anyone else that this product at the time of its sale by Manufacturer is free of defects in materials and workmanship under normal and proper use for one (1) year from the purchase date. Manufacturer's only obligation is to correct such defects by repair or replacement, at its option, if within such one (1) year period the product is returned prepaid, with proof of purchase date, and a description of the problem. This warrant excludes and there is disclaimed liability for labor for removal of this product or reinstallation. **This warranty is voided if this product is installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner, or is not used under normal operating conditions or not in accordance with any labels or instructions. There are no other implied warranties of any kind, including merchantability and fitness or a particular purpose**, but if any implied warranty is required by the applicable jurisdiction, the duration of any such implied warrant, including merchantability and fitness of or a particular purpose, is limited to one (1) year.

Manufacturer is not liable for incidental, indirect, special, or consequential damages, including without limitation, damage to, or loss of use of, any equipment, loss sales or profits or delay or failure to perform this warranty obligation. The remedies, provided therein are the exclusive remedies under this warranty, whether based on contract, tort or otherwise.