

## User Manual

# SD/HD/3G-SDI 1 to 2 Distribution Amplifier & Extender for HD Camera Solution

**HD-SDE-122**

Economical Type

**HD-SDE-122R**

Re-clocking Function



**HD-SDE-122**



**HD-SDE-122R**

This Economical device receives one SDI input and perfectly duplicates it. Then it re-transmits four SDI outputs for real time multi-viewing. It is a reliable video device splitting a SDI or HD-SDI video source to four HD-SDI or SD-SDI display at the same time.

Re-clocking function type is also available. This device is the same as the Economical type but it takes one input then re-clocks and equalizes the signal and distributes it to two identical outputs.

## Features

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- SDI Standard: 3G-SDI, HD-SDI, SD-SDI
- Data Rates: 270/1483/1485 Mbps
- Signal Type: SMPTE 292M, SMPTE 259M
- Two separately buffered outputs
- Cable equalization (Beldon 1694A) and signal retiming
- Re-clocking function capability – unlimited repeater connection (only available for **HD-SDE-122R**)
- Dual color LED indication of input lock and rate
- Pass all ancillary data
- 5V DC, 1.5A (**HD-SDE-122**)
- 5V~24V DC (**HD-SDE-122R**)



Please read the Manual before attempting to use this product.

Specifications and appearance are subject to change without notice.



## CAUTION

RISK OF ELECTRIC SHOCK  
DO NOT OPEN!



TO REDUCE THE RISK OF ELECTRICAL SHOCK,  
DO NOT OPEN COVERS (OR BACK).  
NO USER SERVICEABLE PARTS INSIDE.  
REFER SERVICING TO QUALIFIED  
SERVICE PERSONNEL.



### 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

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This product has been tested for conformance to safety regulations and requirements. However, like all electronic equipment, this product should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

#### 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

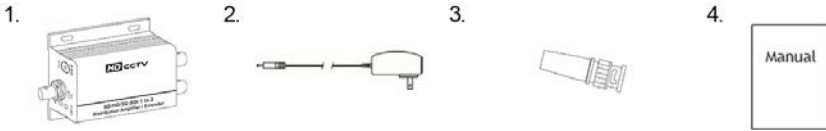
Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

## 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) SDI 1 to 2 Distribution Amplifier & Extender Unit
2. One (1) 5V DC, 1.5Amp Power Adapter for **HD-SDE-122 Or**  
One (1) 12V DC 1Amp Power Adapter w/ Locking Power Connector for **HD-SDE-122R**
3. One (1) BNC to RCA Cover Connector (Please See Note)
4. One (1) User Manual



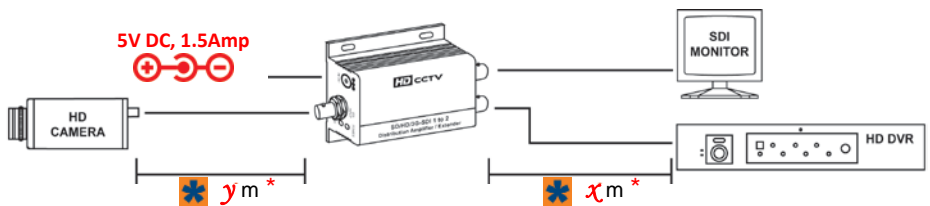
**NOTE:** The input power will be split among the 2 BNC outputs. If only 1 BNC output is in use, cover the 2<sup>nd</sup> BNC output with the BNC to RCA Cover Connector.

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.

## Application Diagram

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

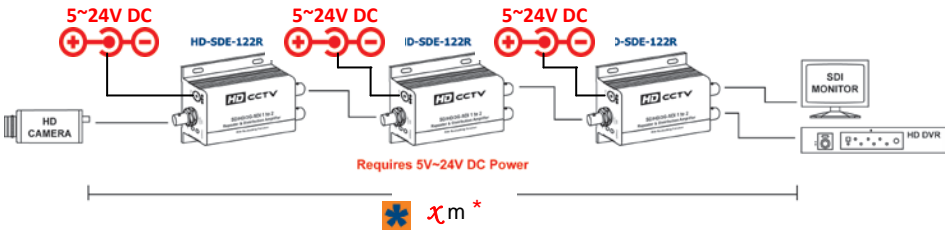
### Economical Type: HD-SDE-122



$y$ m = up to	90m	3G-SDI, 1080p, 30
	150m	HD-SDI, 1080i, 720p
	200m	SD-SDI, 480i

$x$ m = up to	120m	3G-SDI, 1080p, 30
	150m	HD-SDI, 1080i, 720p
	300m	SD-SDI, 480i

## Re-clocking Function Type: HD-SDE-122R

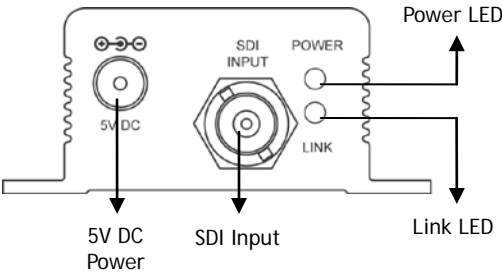


**\*** See page 6 for Important Notes about Cable and Connector for SDI HD Camera

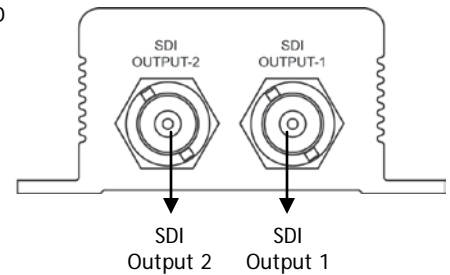
## Parts & Functions

### Economical Type: HD-SDE-122

Left Side View:

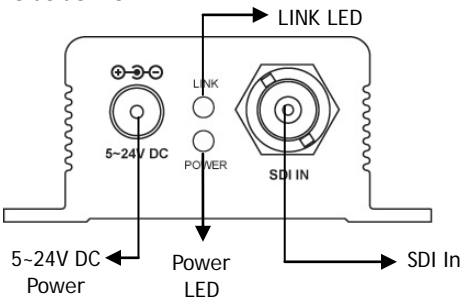


Right Side View:

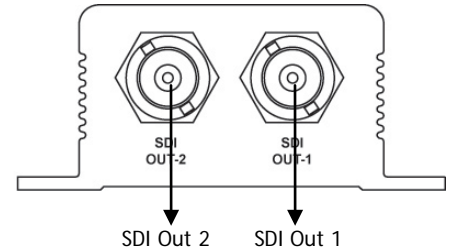


### Re-clocking Function Type: HD-SDE-122R

Left Side View:



Right Side View:



## Hardware Installation

1. Connect a camera or other devices equipped with HD/SD-SDI outputs to the **HD-SDE-122 / HD-SDE-122R** Serial (3G/HD/SD-SDI) input.
2. Connect devices equipped with HD/SD-SDI inputs (e.g. monitors or video processors) to the **HD-SDE-122 / HD-SDE-122R** Serial (3G/HD/SD-SDI) outputs.
3. Plug power adapter cable into power jack.

## Technical Specifications

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Model	HD-SDE-122	HD-SDE-122R
Re-clocking Function	No	Yes
SDI Standards	3G-SDI, SD-SDI, HD-SDI	
HD/SD-SDI Detection	Auto	
Supported Protocols	SMPTE 259M SMPTE 292M SMPTE 424M SMPTE 425M	SMPTE 259M SMPTE 292M SMPTE 344M
Video Bandwidth	2.97Gpbs & 2.97/1.001Gpbs	
Data Rates	270 / 1483 / 1485 Mbps	
Video Support	[HD] 720p50/59.94/60, 1035i50/59.94/60, 1080i50/59.94/60, 1080p24/30 [SD] NTSC@59.94Hz, PAL@50Hz	
SDI Signal Type	SMPTE-292M, SMPTE-259M	
Output Impedance	75 ohms	
Cable Equalization	HD-SDI up to 150m/500ft SD-SDI up to 300m/1000ft	Unlimited repeater connection
Audio Support	No	
RP-918 Pathological Patterns	Immune	
PCB Stack-up	4-layer board [impedance control -- differential 100 ohms; single 50 ohms]	
Input	1x BNC [SDI]	
Output	2x BNC [SDI]	
BNC Connector	75 ohms inter-locked socket	
Eye Pattern Characteristics	Amplitude: Within 800mV $\pm$ 3% (<10%) Rise overshoot: Less than 2% (<10%) Fall overshoot: Less than 2% (<10%) Long time jitter: 0.195 UI (<1.0 UI) Timing jitter: 0.195 UI (<1.0 UI) Alignment jitter: 0.127 UI (<0.2 UI)	
Fixedness	Inter-locked power supply	
Power Adapter	5V DC, 1.5Amp	5V~24V DC w/ Locking Power Connector
Power Consumption	4W	
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F	
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F	
Relative Humidity	20~90% RH (no condensation)	
Housing Material	Aluminum	
Dimension	145 x 80 x 25mm / 5.7 x 3.2 x 1 inches	
Weight	300 g / 0.66 lbs	

\*Specifications are subject to change without notice

## Key Components

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The key components listed below are for Re-clocking tyupe **HD-SDE-122R** only.

### Components Made in USA for this product:

Name of Component	Manufacturer
M21315 (HD/SD-SDI) Auto-rate Reclocker	Mindspeed Technologies
Multi-Rate SDI Adaptive Cable Equalizer	Mindspeed & Gennum
Multi-Rate Dual Slew-Rate Cable Driver	Mindspeed & Gennum & Semiconductor
Data Communication IC	MAXIM

### Components Made in Taiwan for this product:

Name of Component	Manufacturer
DC/DC Converter	Richtek

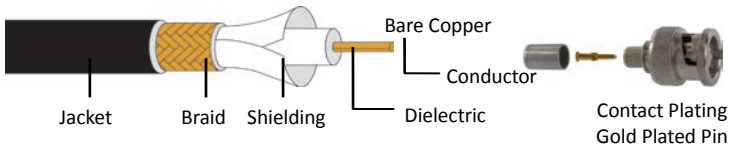
\*Key components are listed by the manufacturer and are subject to change without notice



### IMPORTANT NOTE: Cable & Connector for SDI 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 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.

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## Related Products

### **SD/HD/3G-SDI 1 to 4 Distribution Amplifier**

SD-9

HD-SD-124



This Distribution Amplifier distributes a single SDI video signal data to several video signal adapter amplification equipment of SDI signal at the same time. There is no signal loss in the switching process. It supports almost all video formats which is SMPTE compliant. It can also achieve up to 1080p@60Hz for Full HD output performance perfectly.

## SD/HD/3G-SDI to HDMI & CVBS Converter Pro series with no delay

SD-8P

HD-SD-HDMI-PRO



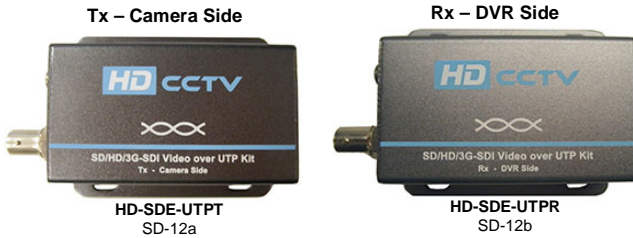
This device converts a single channel SDI signal to different kinds of HD Multimedia HDMI signals and CVBS signals. It integrates SDI Cable equalizer and reclocker to enhance video performance and stability. Simultaneously, it also separates and converts the audio signals of SDI, embedding it to HDMI signal or output to analog audio DACs.

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## SD/HD-SDI Video Extender over CAT5 / 6 Kit

SD-12\_SD-12a\_SD-12b

HD-SDE-UTPK



This kit allows HD-SDI to be transmitted up to 50m / 160ft via CAT6 and 60m / 200ft via CAT6 cable in a point-to-point configuration. The SDI-UTP Extender supports transmission of up to 1.485 Gbps uncompressed, un-encrypted digital video (optionally including embedded Audio and/or Time Code) within television facilities and between professional video equipment.



HD-SDE-122  
HD-SDE-122R

MADE IN TAIWAN  
MADE IN CHINA