

## User Manual

# SD/HD/3G-SDI Transmission over Ethernet Kit

## HD-SDE-SEDK

Encoder



**HD-SDE-SE**  
SD-11a

Decoder



**HD-SDE-SD**  
SD-11b

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

The HD SDI video network H.264 Encoder/Decoder adopts industrial level design, reliable performance, and outstanding quality. The Encoder supports 1 channel SD/HD/3G-SDI input interface and it supports high definition digital video which is up to 1080p30 and AES/EBU embedded audio. The SDI can output with loopback circuit simultaneously.

The Decoder receives signal from the Encoder from TCP/IP network. After getting through the self-adaptive decoding, it will output video/audio signals as the SD/HD/3G-SDI standard signal formats. The Decoder can output 2 channel SDI signals simultaneously. Even if the Decoder connects with an encoding video of low code rate, the network packet loss is only about 10% because of the integration of image enhancement and fault-tolerant technology. It can clearly restore encoding video and audio with no obvious distortion, smear, frame loss and mosaic.

To ensure picture quality and acoustic fidelity, the Encoder and Decoder should match the code rate from 512Kbps to 30Mbps of the adjustable encoder video to network. The Decoder can configure and select the output video formats and it also supports the multi formats of 1080p24/25/30, 720p60/50.

The Encoder and Decoder is convenient to integrate with any kind of software management platform because it offers operation and management of web, supports the RTP/RTSP transmission protocol standards, supports network management programming interface and supports NAT Transversal (firewall penetration). Both the Encoder and Decoder supports 2-way voice talkback, 1 channel RS-485 signaling and 1 channel bi-directional alarm semaphore.



**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**

#### **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  $-0^{\circ}\text{C}\sim 80^{\circ}\text{C}$  /  $32^{\circ}\text{F}\sim 176^{\circ}\text{F}$ .

#### **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

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1. One (1) Encoder
2. One (1) Decoder
3. One (1) User Manual



*\*5V~24V DC Power Adapter not included*

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.

## Features

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### Encoder

- Supports SD/HD/3G-SDI interface and AES/EBU embedded audio
- Supports various formats of 1080p30/25/24, 1080i, 1080i50, 720p60/50, 480i/p, 576i/p
- H.264 High Profile compressing technology, high definition, high acoustic fidelity, below 50ms of encoding delay
- Encoding code rate is adjustable, picture quality can be controlled
- Supports 2-way voice talkback, RS-485 signaling and alarm semaphore
- JPEG preview and screenshot
- 5V~24V DC

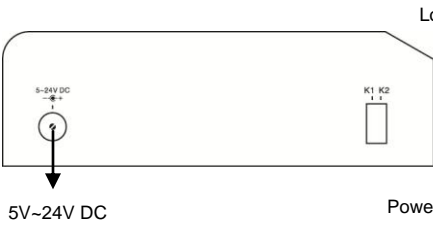
### Decoder

- Supports SD/HD/3G-SDI interface and AES/EBU embedded audio
- Dual SDI output interfaces
- Supports various formats of 1080p30/25/24, 1080i, 1080i50, 720p60/50, 480i/p, 576i/p
- Intelligent Network delay controlling, the decoding delay is bellow 150ms under the typical network environments
- Image enhancement and fault-tolerant technology, strong resisting error code capability, excellent picture quality, clear acoustic

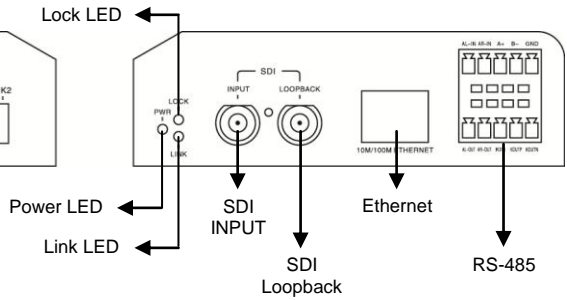
# Parts & Functions

## Encoder

Right Side View:

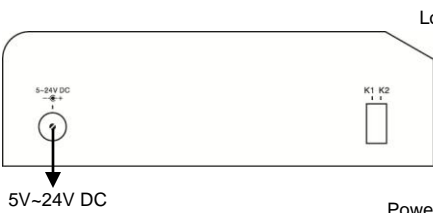


Left Side View:

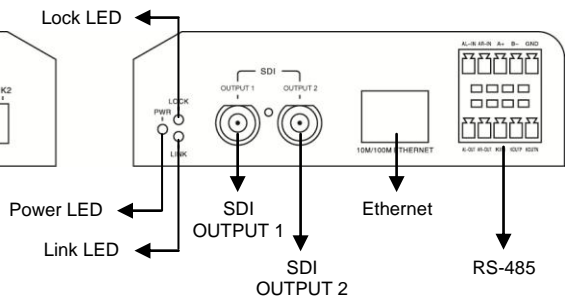


## Decoder

Right Side View:

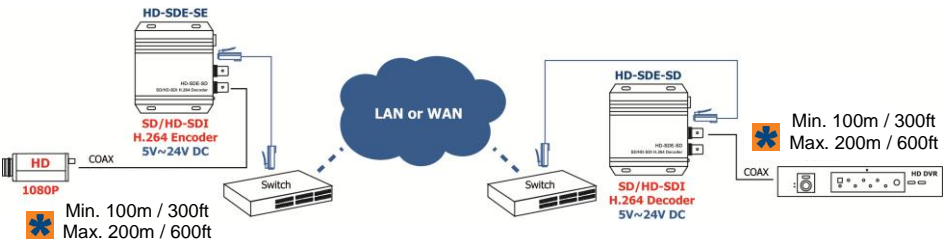


Left Side View:



# Application Diagram

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



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

## Technical Specifications

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Kit Model	HD-SDE-SEDK	
Model	HD-SDE-SE	HD-SDE-SD
Type	Encoder	Decoder
Input Interface	1x BNC SDI	2x BNC SDI
Video Looping Out	1x BNC SDI	--
Analog Voice Frequency Input / Output	1x Industrial Terminal Block Unbalanced Connection	
Alarm Semaphore	1x Industrial Terminal Block	
RS-485 Connector	1x Industrial Terminal Block	
Network Connector	1x RJ45, Ethernet Connected	
Output Signal Type	SD-SDI (270Mbps), HD-SDI (1.485Gbps), 3G-SDI (2.97Gbps)	
Support Input Format	1080p24/25/30, 1080i60/50, 720p60/50, 480i/p, 576i/p	
SDI Signal Range	0.8V p-p	
SDI Impedance	75 ohms	
SDI Coupling Type	AC Coupling	
Video Compression Standard	H.264 High Profile	
Audio Compression Standard	AAC-LC	
Video Encoding Code Rate	512Kbps ~ 30Mbps are adjustable	--
Audio encoding Code Rate	64Kbps	--
Encoding Delay	≤ 50ms	--
Decoding Delay	--	≤ 150ms
Media Transmission Protocols	RTP/RTSP, Compatible RTP over TCP Transmission Mode	
Signal Protocol	TCP	
Network Management Protocol	HTTP	
Management Interface	Web	
Remote Management / Remote Firmware	Yes	
Max. Input Coax Length	Belden 1694A SD-SDI 400m / 1300ft ; HD-SDI 200m / 600ft ; 3G-SDI 140m / 450ft	
Power Supply	5V~24V DC, 2A	
Power Consumption	6 Watts (max)	
Operating Temperature	0°C ~ 80°C / 32°F ~ 176°F	
Storage Temperature	-20°C ~ 60°C / -4°F ~140°F	
Relative Humidity	20~90% RH (Non-condensation)	

\*Specifications are subject to change without notice

## Key Components

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### Components Made in USA for this product:

Name of Component	Manufacturer
HD H.264 Video Codec	MAXIM
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

### Components Made in Taiwan for this product:

Name of Component	Manufacturer
DC/DC Converter	Richtek

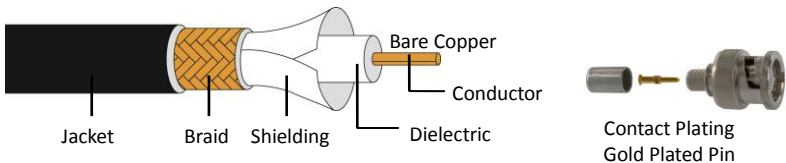
\*Key components are listed by the manufacturer and are subject to change without notice



### 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:

- 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.
- Good Quality BNC Connectors:** Contact Plating Gold plated pins provide exceptional conductivity.
- 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.

## Related Products

### **SD/HD/3G-SDI 1x2 Distribution Amplifier & Extender HD-SDE-122**

This Economical device 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. Receives one SDI input, perfectly duplicates it, then it re-transmits, for real time multi-viewing.



### **SD/HD/3G-SDI 1x2 Repeater & Distribution Amplifier with Re-clocking Function HD-SDE-122R**

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.



### **SD/HD/3G-SDI Extender over UTP CAT5 / 6 Kit HD-SDE-UTPK**

This kit allows HD-SDI to be transmitted up to 60m / 200ft via CAT5e/6 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.

### **SD/HD/3G-SDI to HDMI Converter HD-SD-HDMI**

This Standard Series device converts a single channel SDI signal to different kinds of HD Multimedia HDMI signal. 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.



### **SD/HD/3G-SDI to HDMI & CVBS Converter HD-SD-HDMI-PRO**

The Pro Series device converts a single channel SDI signal to different kinds of HD Multimedia HDMI signals AND CVBS signal. 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.



### **SD/HD/3G-SDI Video + Power + Data RS-485 Transmission over Coax**

- HD-SDE-VDK** Tx and Rx Kit
- HD-SDE-VDP** Repeater Only

These devices are HD-SDI repeater for transmission distance extension. With supporting 14 types of SMPTE-compliance HD formats (1.485Gb/s, 1.485/1.001Gbps), these devices equalizes and re-clocks the input video signal and distributes it to 2 identical channels.



### **SD/HD/3G-SDI 1 to 4 Distribution Amplifier HD-SD-124**

This device 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.

