

## User Manual

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

Pro series with no delay

## HD-SD-HDMI-PRO



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

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.

## Features

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- Support SDI input format: All SDI Formats
  - SD: 525i @ 59.94Hz, 625i @ 50Hz
  - HD: 720p @ 23.98Hz / 24Hz / 25Hz / 29.97Hz / 30Hz
  - 720p @ 50Hz / 59.94Hz / 60Hz
  - 1080i @ 50Hz / 59.94Hz / 60Hz
  - 1080p @ 23.98Hz / 24Hz / 25Hz / 29.97Hz / 30Hz
  - 3G: 1080p @ 50Hz / 59.94Hz / 60Hz
- Support SMPTE 425M (A level and B level), SMPTE424M, SMPTE292M, SMPTE259M-C.
- Carry 1 channel SDI signal loop out.
- Max. cable length (Belden 1694A): SD-SDI 400m/1300ft, HD-SDI 200m/600ft, 3G-SDI 140m/450ft
- Automatically embed SDI audio signal to HDMI signal.
- User selectable output format (HDMI and CVBS)
- 5V~24V DC with Locking Power Connector



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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#### 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 or short out parts that could result in a fire or electric shock. Never spill any kind of liquid on the product.

#### 5. Cleaning

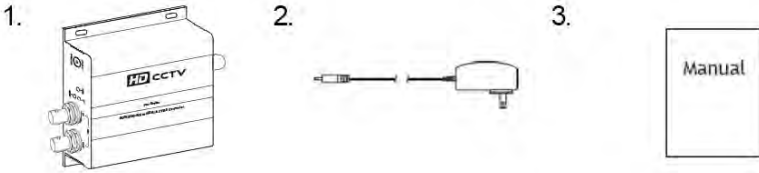
Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

## 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

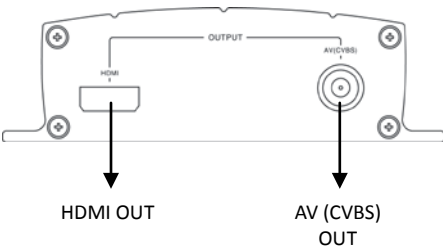
1. One (1) SDI to HDMI & CVBS Converter
2. One (1) 12V DC 1Amp Power Adapter w/ Locking Power Connector
3. One (1) User Manual



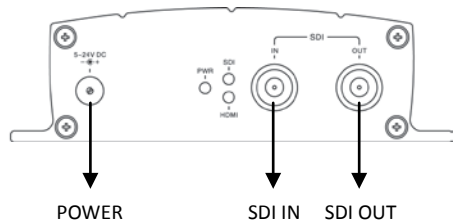
For any returns, please include all components listed above with original packaging in **Resalable Condition**. **Absolutely No Returns** will be accepted if any component is missing/damaged.

## Parts & Functions

Left Side View:

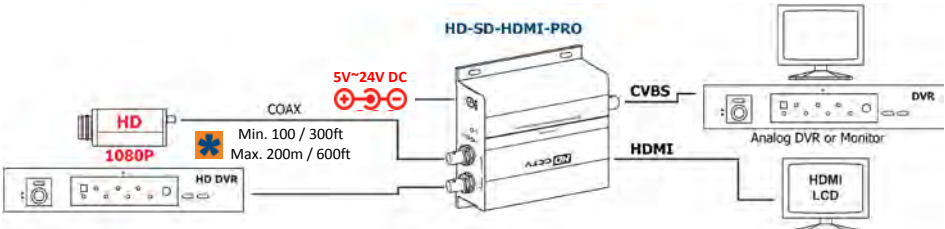


Right Side View:



## 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 8 for Important Notes about Cable and Connector for SDI HD Camera

## Technical Specifications

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|                                  |   |
|----------------------------------|---|
| <b>Model</b>                     | <b>HD-SDI-HDMI-PRO</b>  |
| <b>Input Interface</b>           | 1x BNC SDI  |
| <b>Input Signal Type</b>         | SD-SDI (270Mbps), HD-SDI (1.485Gbps),<br>3G-SDI (2.97Gbps)  |
| <b>Support Input Format</b>      | SD: 525i @ 59.94Hz, 625i @ 50Hz<br>HD: 720p @ 23.98Hz / 24Hz / 25Hz / 29.97Hz / 30Hz<br>720p @ 50Hz / 59.94Hz / 60Hz<br>1080i @ 50Hz / 59.94Hz / 60Hz<br>1080p @ 23.98Hz / 24Hz / 25Hz / 29.97Hz / 30Hz<br>3G:1080p @ 50Hz / 59.94Hz / 60Hz |
| <b>SDI Signal Range</b>          | 0.8V p-p  |
| <b>SDI Impedance</b>             | 75 ohms   |
| <b>SDI Coupling Type</b>         | AC Coupling   |
| <b>Max. Input Coax Length</b>    | Belden 1694A<br>SD-SDI 400m / 1300ft ; HD-SDI 200m / 600ft ;<br>3G-SDI 140m / 450ft   |
| <b>SDI Loop Out Interface</b>    | 1x BNC SDI  |
| <b>HDMI/DVI Output Interface</b> | 1x HDMI   |
| <b>Frequency Bandwidth</b>       | 165MHz/ up to standard with HDCP :HDMI 1.3  |
| <b>AV (CVBS) Output Format</b>   | CVBS: PAL / NTSC Auto Detection   |
| <b>Power Supply</b>              | 5V~24V DC w/ Locking Power Adapter  |
| <b>Power Consumption</b>         | 6 Watts (max)   |
| <b>Operating Temperature</b>     | 32°F ~ 104°F / 0°C ~ 40°C   |
| <b>Storage Temperature</b>       | -4°F ~ 140°F / -20°C ~ 60°C   |
| <b>Relative Humidity</b>         | 20~90% RH (Non-condensation)  |
| <b>Dimension</b>                 | 6.14" x 4.72" x 1.42" / 156 x 120 x 36mm  |

\*Specifications are subject to change without notice

## Key Components

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### Components Made in USA for this product:

| <b>Name of Component</b>                       | <b>Manufacturer</b>           |
|--|-------------------------------|
| <i>Multi-Rate SDI Adaptive Cable Equalizer</i> | <i>Gennum</i>                 |
| <i>Multi-Rate SDI Automatic Reclocker</i>      | <i>Gennum</i>                 |
| <i>Multi-Rate Dual Slew-Rate Cable Driver</i>  | <i>Mindspeed &amp; Gennum</i> |
| <i>SDI SPD</i>                                 | <i>Bourns</i>                 |
| <i>HDMI ESD Protection</i>                     | <i>Semtech</i>                |
| <i>Micro Controller Unit</i>                   | <i>Texas Instruments</i>      |

### Components Made in Taiwan for this product:

| <b>Name of Component</b> | <b>Manufacturer</b> |
|--------------------------|---------------------|
| <i>DC/DC Converter</i>   | <i>Richtek</i>      |

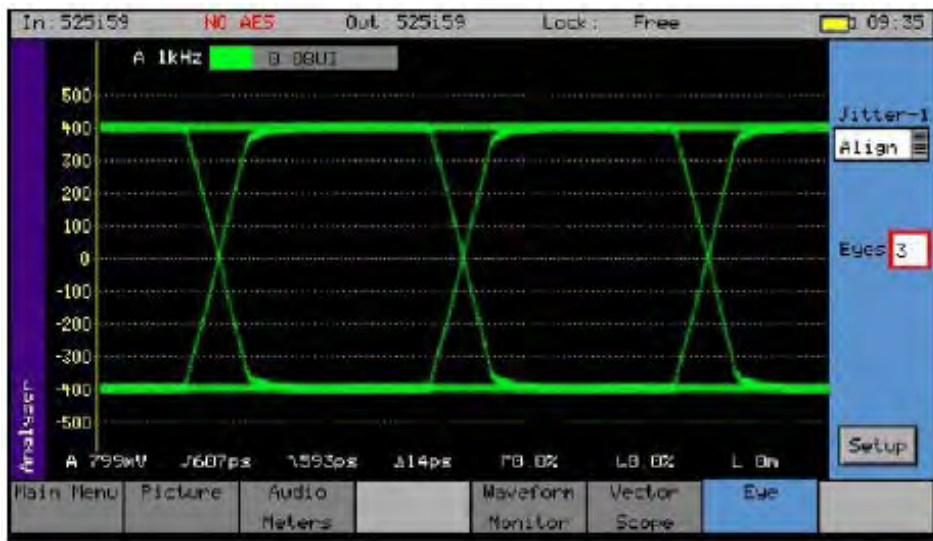
\*Key components are listed by the manufacturer and are subject to change without notice

## Eye Diagram

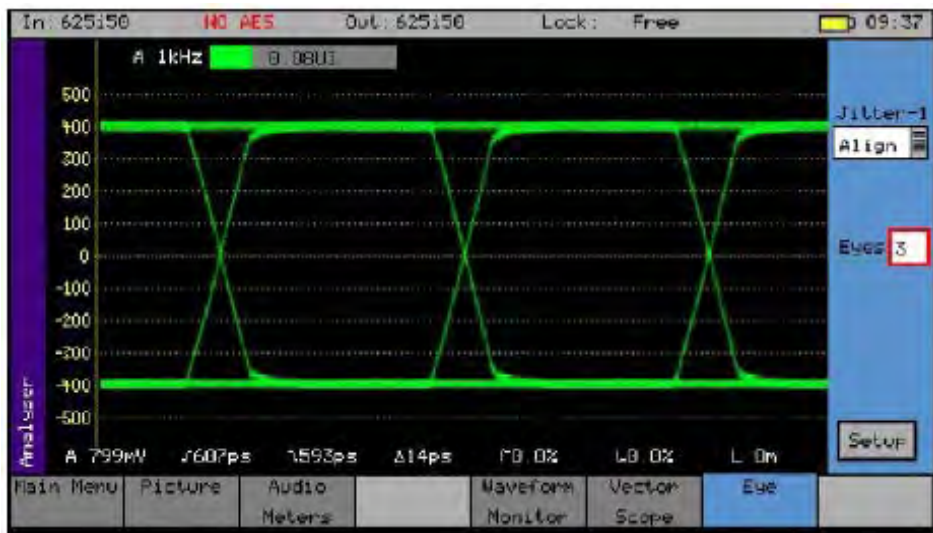
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### SD Mode

525i59

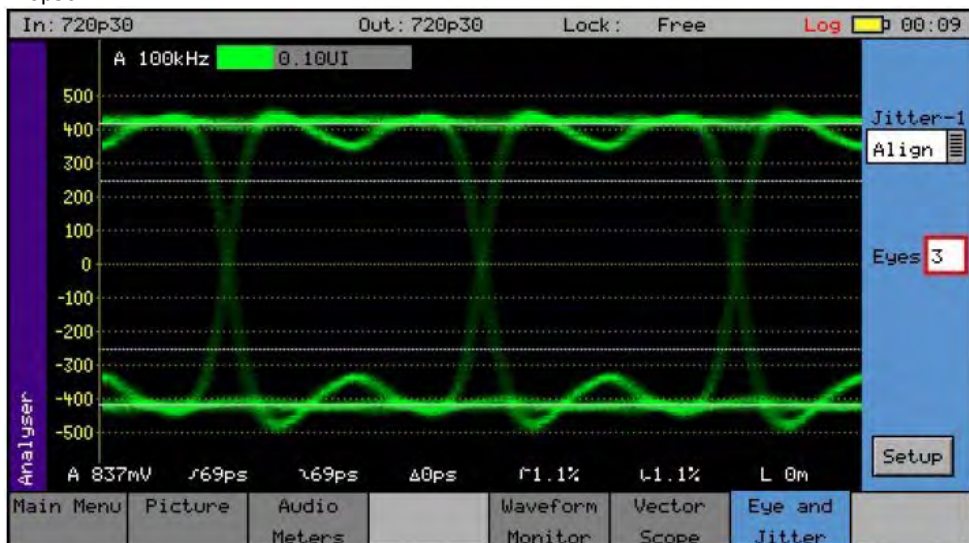


625i50

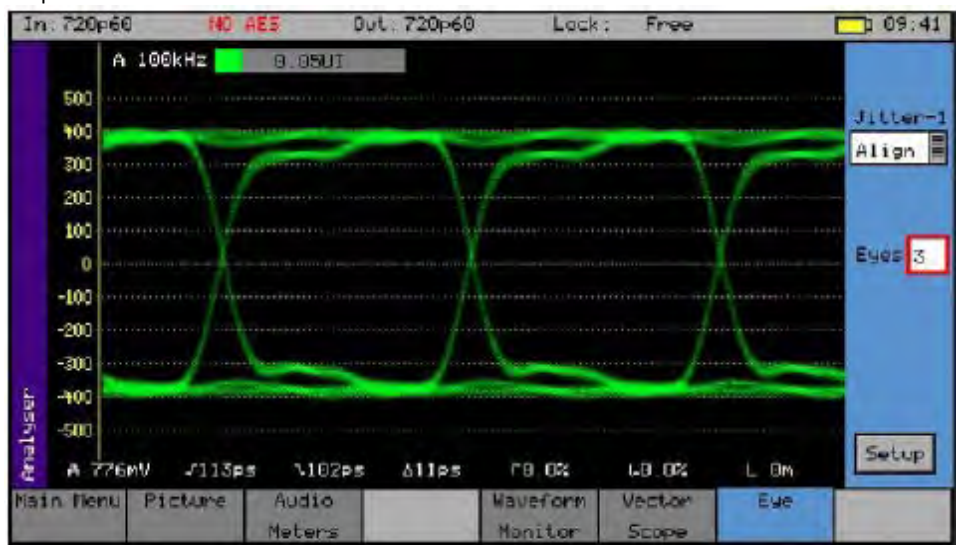


## HD Mode

### 720p30

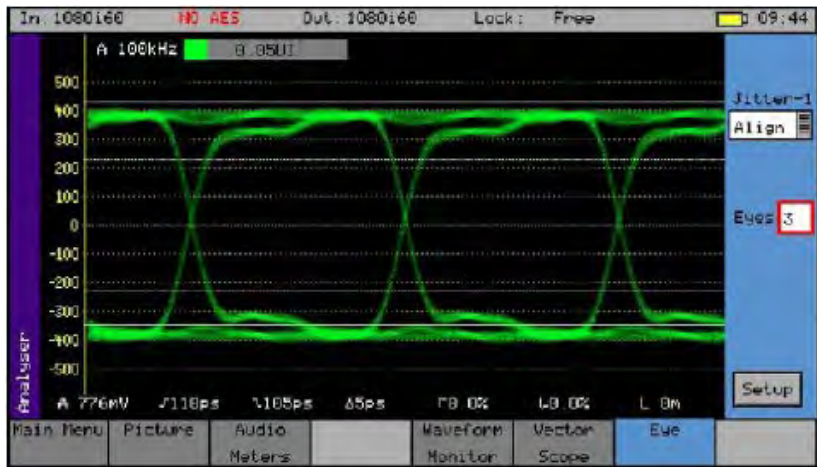


### 720p60

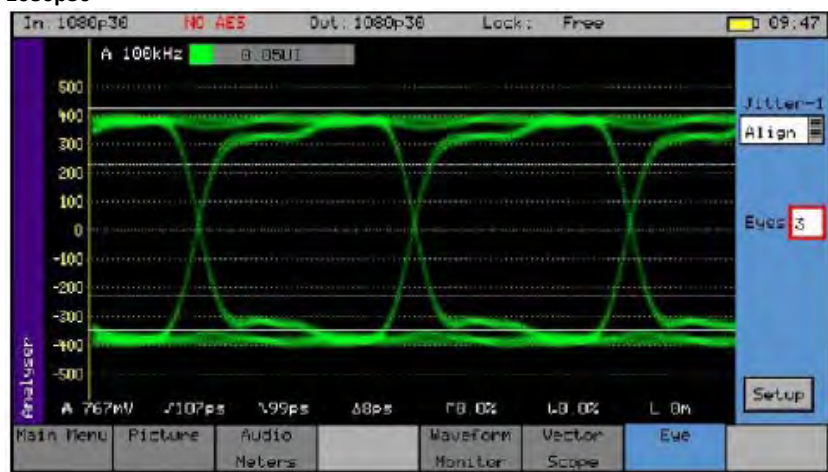




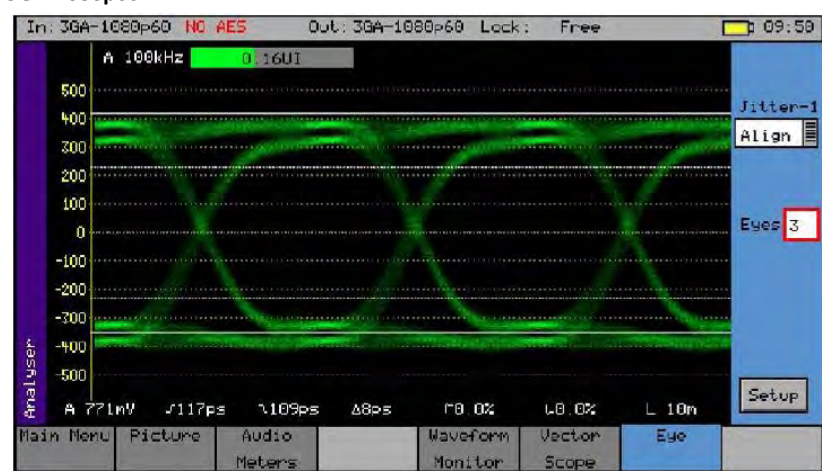
### 1080i60



### 1080p30



### 3GA-1080p60

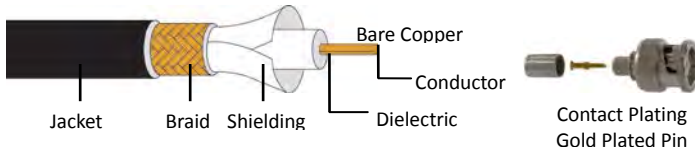




## IMPORTANT NOTE: Cable & Connector for SDI HD Camera

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 Warranty

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### **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.

[www.AAS.com.tw](http://www.AAS.com.tw)



HD-SD-HDMI-PRO

MADE IN CHINA