



HD-SDI, EX-SDI to HDMI Scale Converter
(With SDI to CVBS Output)

SC-HDR01E

User Manual



SC-HDR01E

Precaution and Safety Guidelines

The content of this guideline is to protect the safety of users and prevent property damage.

Be sure to read this user's manual thoroughly and use the device correctly.



Warning (If you do not keep any of the below guidelines, you may get seriously injured or cause somebody's death.)

- Do not disassemble the device arbitrarily as its exclusive adapter has electric shock hazard.
- Disconnect the power cord if the device is not in use.
- Avoid direct sunlight, high temperature, high humidity and low temperature. Place the device in well ventilated site.
- Strong shock or vibration may cause device failure, so use with caution.
- Do not open the lid arbitrarily as this device has high voltage part inside. Never disassemble, repair or modify it.
 - By abnormal working, it may cause fire, electric shock and personal injury.
- Avoid installing near strong magnetic fields or radio waves and wireless devices such as radio or TV.
- If rain, coffee or foreign substances entered the device, fire or electric shock may occur in the event of smoke or smell. Unplug the power cord immediately and contact the place of purchase or service center.
- Always keep the location of the appliance clean during or after installation to prevent dust. Especially when cleaning the device, wipe it with dry towel and do not use water, thinner or organic solvent.
- Keep the device in a cool place where doesn't let direct sunlight. Keep it at a proper temperature and avoid heating appliances like candle or heater. Also, keep the equipment or tools away from places where people come and go.
 - It may cause fire.
- Pay attention to possible hazards in the workplace, such as wet floor, ungrounded power extension cables, old power cords and a lack of safety earth. Consult your place of purchase or professional if problems arise.
 - It may cause fire and electric shock.
- Concerning the input voltage for operating this device, a voltage range must be within 10% of rated voltage, and the power outlet must be grounded. Also, do not use a heat source such as a hair dryer, iron and refrigerator to the same power unit.
 - It may cause abnormal heat, fire and electric shock.



Caution (If you do not keep any of the below guidelines, you may get injured or suffer property loss.)

- **Be sure to disconnect the power cord during installation or operation.**
- **Proper ambient temperature and humidity are recommended.**
 - Avoid extremely high temperatures(over 50°C) or low(below -10°C), and humid conditions.
- **Do not place heavy items on the product or let foreign substances enter inside the device.**
 - It may cause failure.
- **Install in well ventilated place, and avoid direct sunlight or heat appliance.**
- **Install at a flat and stable place. Do not use an upright or slanted position.**
 - It may not operate properly or might be dangerous due to the fall of the device.
- **Strong shock or vibration may cause device failure. Be careful when using the device.**
 - Install in a place without severe vibration.
- **Make sure to check the specification and usage of the device before performing the installation.**
- **During installation, secure space to emit heat between devices.**
- **Refer the device to the service center and get regular checkup to maintain the performance of the system.**
 - We are not responsible for any damages caused by user's carelessness.
- **Place the power plug in a location that is easy to operate.**
 - If a failure of the product occurred, the power plug must be unplugged to power down completely.
- **Disconnect the power plug with care during thunder and lightning.**
- **Do not use this device in close proximity to a device that produces strong waves such as radio set(TRANSEIVER, Walkie-talkie) or repeater. It may affect the image signal, or cause disorders such as noise or crack on the screen.**
- **Before entering power, make sure that your PoC port is connected with the exclusive camera or transmitter.**
- **Refer to the user's manual for problems or questions besides the above. Contact our service center if you need assistance from a professional technician.**
- **To extend or terminate the coaxial cables, you should connect them in the following way.**
 - BNC-M(Male) - BNC-JJ - BNC-M(Male): BNC Connector Connection Example
- **The joint part of the connectors must be insulated to prevent the metal part from exposure.**



1. Introduction

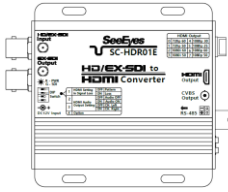



1-1. Overview

This converter is a product that converts 3G-SDI, HD-SDI, EX-SDI 1.0 / 2.0 / 3G to HDMI and CVBS. This device also has a scaling function that allows different resolutions to be selected in the HDMI output and a loop-through output for distribution and use of HD-SDI, EX-SDI 1.0 / 2.0 / 3G input. With the sister product SC-HDT01E (an HDMI-to-HD-SDI-, EX-SDI scaling converter) it is possible to transmit HDMI signals over long distances.

1-2. Features

- SDI input signal: 3G-SDI, HD-SDI, EX-SDI 1.0/2.0/3G
- SDI Loop out signal: HD-SDI, EX-SDI 1.0/2.0/3G, Max. 3 available
- Output signal: HDMI, CVBS
- Scale (select output resolution): HDMI
- RS-485 available(only uplink data to the camera supported) when connected with its sister product(HDMI to HD-SDI, EX-SDI Scale Converter)
- Transmits EX-SDI 2.0 Max. 600m(over RG-6)
- Built-in surge protection circuit for safety

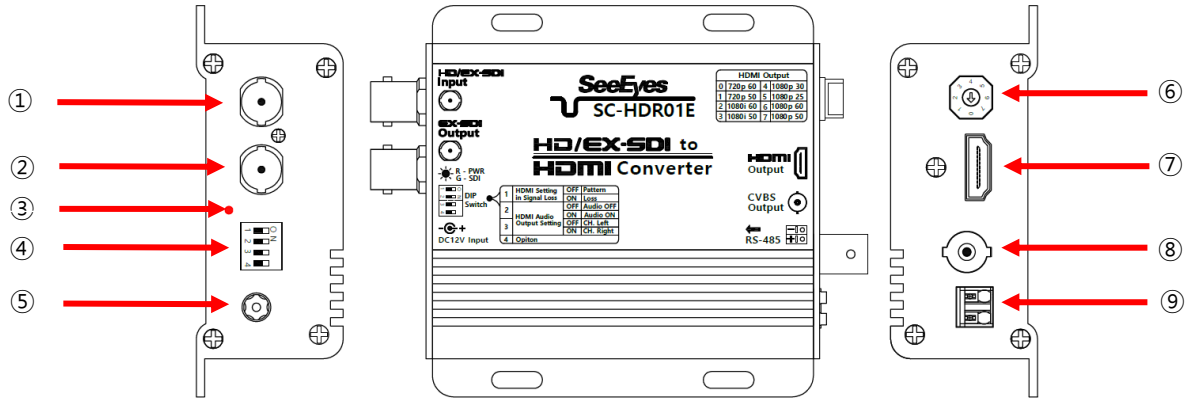
2. Components

Model	Product	DC 12V Adapter (Optional)	Power Code (Optional)	User's Manual
SC-HDR01E				

3. Product Parts & Peripheral Device Connection

3-1. SC-HDR01E

- Receive 3G/HD/EX-SDI signal and converts into HDMI(Scale function) and CVBS
- Loop Out HD/EX-SDI input signal(not available in 3G-SDI)
- RS-485 supported in EX-SDI input port when connected with its sister product.



- ① **HD/EX-SDI INPUT:** SDI signal input port. BNC-F/75Ω
- Supported Signal: 3G-SDI, HD-SDI, EX-SDI 1.0, EX-SDI 2.0, EX-SDI 3G
 - RS-485 Communication available when connected with its sister product., SC-HDT01E

- ② **EX-SDI OUTPUT:** SDI signal output port. BNC-F/75Ω
- Loop Output of input signal(not available in 3G-SDI signal)
 - Maximum 3 connections available

Example: Source product → SC-HDR01E → SC-HDR01E → SC-HDR01E (1:3 connected)

③ **Input, Output Signal State Display LED**

LED state	Indication
RED	On : Power Input On
	Off : Power Input Off
GREEN	On : SDI Input On
	Off : SDI Input Off

④ **HDMI:** Switch to select HDMI output signal, BAUD RATE switch terminal for RS-485.

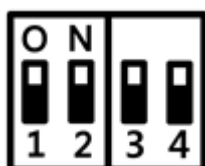
A port for setting audio output(Mono audio)

- **HDMI Output Signal Setting SWITCH (Without SDI signal)**



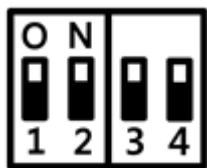
SW1	HDMI Output Signal
OFF	PATTERN
ON	LOSS

- **Audio Output Setting SWITCH by HDMI terminal**



SW2	Audio Output
OFF	MUTE(Audio OFF)
ON	MONO output(Audio ON)

• **Left/Right Channel Setting when Audio Output Setting is ON**



SW3	Audio Output CH
OFF	CH. Left
ON	CH. Right

※ SW4 is not used.

※ EX-SDI Output is Loop out port for SDI input signal, and is independent of the switch setting.


※ If there is no audio signal, beep sound may come out. Then, set the audio output SWITCH as OFF.

※ If there is no audio signal after setting the audio switch as ON, please adjust the SW#3 and check if the audio comes out. Input audio signal should be selected as Left or Right, since this converter supports MONO audio.

⑤ **DC 12V INPUT:** DC 12V input port. DC Jack \varnothing 5.5

※ Use adapter higher than 0.5A for DC12V input port.

⑥ **Rotary Switch:** Switch terminal to select HDMI output resolution.

Image	S/W No.	Output resolution	S/W No.	Output resolution
	0	1280*720p 60	4	1920*1080p 30
	1	1280*720p 50	5	1920*1080p 25
	2	1920*1080i 60	6	1920*1080p 60
	3	1920*1080i 50	7	1920*1080p 50

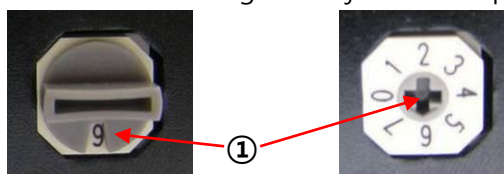
※ Factory default setting of Rotary Switch is #6 (1920*1080p 60).

※ After selecting output resolution, remove the adjustment cap and store it.

- You may touch the cap by mistake and the resolution may be changed.

※ You can adjust the switch with a screwdriver or other tools without adjustment cap.

▶ Precaution When Reassembling the Adjustment Cap



[Attached adjustment cap] [Detached adjustment cap]

- Attention: When assembling, make sure that the direction of "①" (arrow direction) corresponds. If assembled improperly, Rotary switch set value and output resolution may be different.

⑦ **HDMI OUTPUT:** HDMI signal output port. HDMI-A Type.

• The resolution set on the rotary switch is output.

⑧ **CVBS OUTPUT:** CVBS signal output port. BNC-F/75 Ω

• Audio is not supported in CVBS OUTPUT port.

⑨ **RS-485 Communication PORT:** RS-485 connection port. 2Pin terminal block.

※ **Caution: Only uplink(simplex) data is available. In other words, the control data only outputs through SDI input port.**

• Pay attention to the polarity when connecting.

3-2. Input, Output Resolution Display

▶ How to check the input resolution

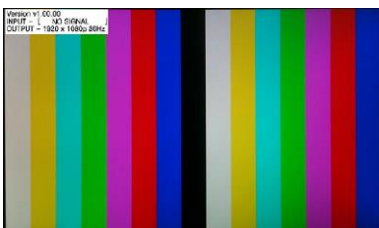
- When SDI signal is inputted properly and the screen is outputted, the resolution is displayed on the top left side of the monitor for about 10 seconds as below.
- When you change Rotary Switch to a different resolution and then return it, the screen on the monitor is turned off, then back up, and displayed as below.



Version v1.00.00
INPUT - 1920 x 1080p 30Hz
OUTPUT - 1920 x 1080p 30Hz

▶ Display mode when there is no SDI input

- The value set by Rotary Switch is displayed on the Color Bar pattern about 10 seconds as below.
- Check the Rotary Switch number and check the specifications on the front panel of the device.
- If you set the pattern output, only HDMI OUTPUT comes out as a pattern.
- CVBS OUTPUT doesn't come out as a pattern if there is no SDI signal.

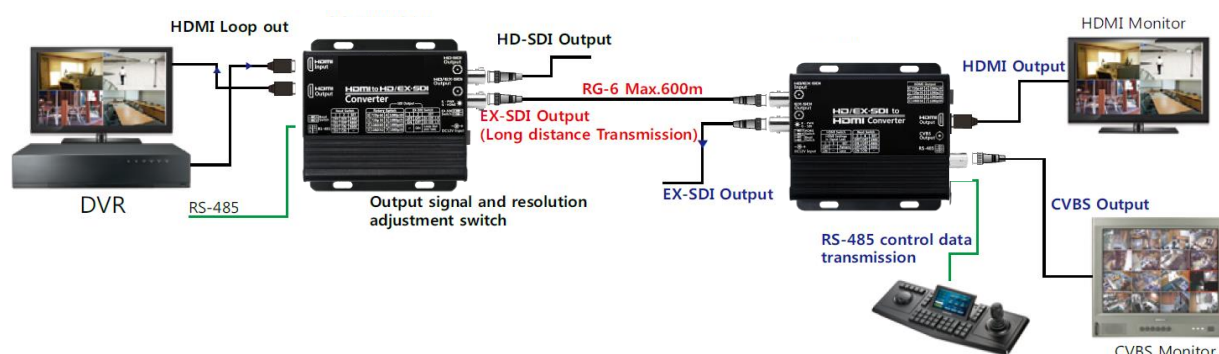


Version v1.00.00
INPUT - [NO SIGNAL]
OUTPUT - 1920 x 1080p 30Hz

4. System Configuration & Transmission Distance

4-1. System Configuration Example

It is possible to broadcast the same HDMI resolution video from the DVR to another surveillance point over a long distance. The application diagram is shown as follows.



4-2. Transmission Distance by Coaxial Cable Type

CABLE Type	M.F	LOOP Resistance(Ω)		Maximum SDI Transmission Distance(m)			
		R/200m	R/m	HD-SDI	3G-SDI	EX-SDI1.0/3G	EX-SDI2.0
5C-HFBT	U-JIN	8.32	0.0416	200	100	400	600
	KUMKANG	10	0.05	200	100	400	600
L-5CFB	CANARE	6.2	0.031	200	100	400	600
S-5C-FB	TACHII	7.4	0.037	200	100	390	590
S-5C-FV	TACHII	10.4	0.052	180	80	360	540
L-5C-2V	CANARE	8.8	0.044	120	70	270	400
L-3C-2V	CANARE	21	0.105	90	50	170	260
RG6/U(1694A)	BELDEN	6.1	0.0305	200	100	430	650
RG59/U(1505A)	BELDEN	9.1	0.0455	150	85	330	500

※ The Distance may be reduced depending on the performance of DVR and receiver.

- Depending on the situation in the field, use 70% of the maximum transmission distance taking into account the cable attenuation.
- When installing coaxial cable or connector, it is recommended to use BNC with low connection resistance.
- While installation, care must be taken to cable distortion due to compression(cable pressed).
- When laying cable, do not pull with excessive force.
- If you install the cable at the back of the rack and bend it sharply with ties, the inner and outer insulators will be deformed. So it has to be tied loosely with space for about another cable. In other words, be careful not to bend less than the radius of curvature of the cable.

5. Troubleshooting Method

Symptoms	Identification Method
No power	<ul style="list-style-type: none"> • Check the adapter input status. • Check if you used the exclusive adapter(DC 12V, over 0.5A). • Check if the power LED(RED) is on.
No video	<ul style="list-style-type: none"> • Check if the GREEN LED is on. • Check if the cables are connected properly. • Check the distance between input signal and installed coaxial cable. • Check the coaxial track. • Check if your monitor supports the set resolution of rotary switch.
How many converters can be used in daisy-chain (as a repeater)?	<ul style="list-style-type: none"> • A maximum of 3 are available. The connection is possible as follows: SC-HDT01E (source) + SC-HDR01E + SC-HDR01E + SC-HDR01E
No audio	<ul style="list-style-type: none"> • The default setting for the audio switch is OFF. If you want to use the audio function, set DIP switch 2 on the side of the device to ON. ※ Während der Bildunterbrechung und des Erkennungsprozesses kann nach dem Einschalten dieses Produkts zeitweise Rauschen auftreten.
Noise or crack occurs on the screen.	<ul style="list-style-type: none"> • Check whether the cable distance is sufficient for the transmission. • Check the cable's access point. • Check that the HDMI cable is connected properly or that it is not defective.

6. Specifications

Model		SC-HDR01E			
SDI Input Signal		3G-SDI, HD-SDI, EX-SDI 1.0, EX-SDI 2.0, EX-SDI 3G			
SDI Output Signal		Loop Out (3G-SDI is not available)			
HDMI Output		HDMI 1.3, DVI 1.0 Compliant			
CVBS Output		1Vpp, 75Ω termination			
SDI Output Resolution (Rotary DIP Switch)		SW NO	OUTPUT	SW NO	OUTPUT
		0	1280*720p 60	4	1920*1080p 30
		1	1280*720p 50	5	1920*1080p 25
		2	1920*1080i 60	6	1920*1080p 60
		3	1920*1080i 50	7	1920*1080p 50
RS-485		Simplex available(uplink data supported only)			
Connection Port	SDI In/Output	BNC-F_75Ω			
	HDMI Output	HDMI-A Type			
	CVBS Output	BNC-F_75Ω			
	Power Input	DC-Jack, Ø 5.5			
	RS-485	2Pin Terminal Block			
LED	Green	On: SDI Input On / Off: SDI Input Off			
	Red	On: Power Input On / Off: Power Input Off			
Power Input		0.5A / DC12V or higher			
Power Consumption		MAX 2.5 W			
Temperature / Humidity		-10°C ~ +50°C / 0 ~ 80%			
Case body / Weight		Aluminum / 204g			
Dimensions		93(W) X 92.5(H) X 35(D)mm			

7. Warranty Certificate

This product has passed thorough quality control and test, and if this gets broken during normal use, we provide the two-year warranty service.

Model No.		
Serial No.		
Distributor		
Date you purchased		
Place you purchased		
Warranty Period		Two (2) year from the date of purchase
Purchaser	Name	
	Address	

- Please check this warranty indication first.
 - Please contact your distributor after checking out any defect in the products.
 - The standard for repairing, replacement or reimbursement follows Customer.
 - Warranty content any defect under normal use within the warranty service period we give you free repair service according to the warranty certificate.
 - We charge you with the fee of parts and service despite of free warranty service period.
- Any breakage made without care such as:
- Breakdown due to natural disasters (lightning, fire, flood, tsunami, etc.)
 - When disassembled or repaired by the user
 - When connecting power other than rated power.
 - When you want to reassemble for full system or replace parts within warranty service period.
 - When unauthorized person modified or made damage on the product trying to repair it.
 - Failure due to careless handling of the user
 - When replacing consumables
 - Lightning strike.
- Please note that we don't support the breakage after warranty service period expired. If the customer wants to get it repaired, we charge them with the fee.
 - The specification is subject to change without prior notice for quality improvement.



 **SeeEyes Co., Ltd**

#503~509, 511~512, Sunil Technopia, 555 Dunchon-daero, Jungwon-gu,
Seongnam City, Gyeonggi Province, Korea (Zip Code: 13215)

TEL: +82-(0)31-730-5833

FAX: +82-(0)31-777-3512

EMAIL: overseas@sscctv.com

<http://www.sscctv.com/eng>
