



HDMI to HD-SDI, EX-SDI Scale Converter

SC-HDT01E

User Manual



SC-HDT01E

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 working.
- 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, etc.) or repeater. It may affect the image signal, or cause disorders such as noise or crack on the screen.
- 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


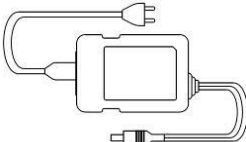

SC-HDT01E is a product that converts HDMI signals to 3G-SDI, HD-SDI, EX-SDI 1.0 / 2.0 / 3G signals and transmits them over long distances. This device also has a scaling function that can be used to select different resolutions in the SDI output. It has an HDMI loop-through connector to output HDMI input with the same resolution without any loss of signal.

It is possible to convert the EX-SDI signal into HDMI and CVBS signals by coupling it with the sister product SC-HDR01E.

1-2. Features

- HDMI 1.3 input
- HDMI Loop Through output
- 3G-SDI, HD-SDI, EX-SDI 1.0 / 2.0 / 3G output with scaling (selection of output resolution) available (EX-SDI 3G: a standard that converts and transmits 1080p 50/60 to EX-SDI).
- RS-485 available(simplex supported) when connected with its sister product(SC-HDR01E).
- Transmits EX-SDI 2.0 maximum 600m(in 5C-HFBT).
- Built-in surge protection circuit for safety.

2. Components

Model	Product	DC 12V ADAPTER (Optional)	User's Manual
SC-HDT01E			

3. Product Parts & Peripheral Devices Connection

3-1. SC-HDT01E

- Available to loop the HDMI input signal through to another HDMI port
- Available for scaling HDMI input signals and outputs as HD-SDI, EX-SDI 1.0 / 2.0 / 3G
- RS-485 is supported in the EX-SDI output port when connected to the SC-HDR01E



① **HDMI INPUT:** HDMI input port. HDMI-A Type.

② **HDMI OUTPUT:** HDMI output port. HDMI-A Type.

③ **Program Update Port:** Product update port. Micro USB.

④ **DIP Switch:** Not used.

⑤ **RS-485 communication PORT:** RS-485 connection port.

※ **Attention: Only Simplex available.** It is only available for outputting data signals as RS-485 goes through the EX-SDI port.

※ Pay attention to the polarity when connecting.

※ RS-485 communication available when connected to sister product SC-HDR01E.

⑥ **HD-SDI OUTPUT:** 3G-SDI, HD-SDI output port(RS-485 communication **unavailable port**)

※ The resolution set on the rotary switch is output.

⑦ **HD/EX-SDI OUTPUT:** 3G-SDI, HD-SDI, EX-SDI 1.0, EX-SDI 2.0, EX-SDI 3G output port.

RS-485 communication available port.

※ Set the output mode by EX-SDI Switch. (paragraph '⑨', refer to page 5)

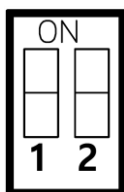
※ RS-485 communication available when connected with the sister product, SC-HDR01E.

※ The resolution set on the rotary switch is output

⑧ LED display for the status of the input and output signal

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

⑨ EX-SDI Switch: DIP switch to select 3G / HD-SDI, EX-SDI 1.0, EX-SDI 2.0, EX-SDI 3G output.



SW1	SW2	SET
OFF	OFF	EX-SDI 2.0
ON	OFF	EX-SDI 1.0
OFF	ON	HD-SDI Loop Out
ON	ON	Not Used

※ DIP switch is set to OFF&OFF(EX-SDI 2.0) as default.

※ With **EX-SDI 3G (1080p 60/50)** the signal is output if the rotary switch is selected as 1080p 50 or 60 and the DIP switch as EX-SDI 2.0 or EX-SDI 1.0.

⑩ Rotary Switch: A switch to select the SDI 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

※ The rotary switch is set to 4 (1920 * 1080p 30) by default.

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

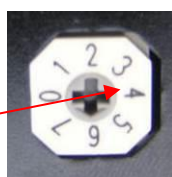
- The reason is that you could accidentally touch it and the resolution can be changed.

※ Without adjustment cap, you can adjust the switch with a screwdriver or other tools.

► Precautions to be taken when reinstalling the adjustment cap



[Adjustment cap assembled]



[Adjustment cap removed]

- Attention: When assembling, make sure that the direction of "①" (arrow direction) corresponds.

In the event of improper assembly, the setting value of the rotary switch and the output resolution may differ.

⑪ DC 12V INPUT: DC 12V input port.

※ Use a 12V 0.5A adapter or higher for DC Jack Ø 5.5, DC12V input port.

3-2. Input, output resolution display

► How to check the input resolution

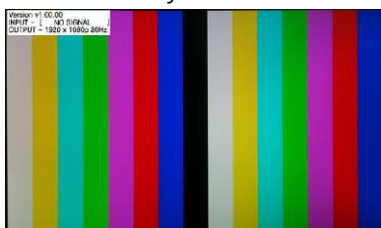
- When the SDI signal is input correctly and the screen is output, the resolution will be displayed in the upper left of the monitor for about 10 seconds as shown below.
- If you switch the rotary switch to a different resolution and then reset it again, the screen on the monitor will turn off, then come back up and appear as shown below.



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

► Display mode when there is no HDMI input

- The value set on the rotary switch is displayed in the color bar pattern for about 10 seconds as follows.
- Check the rotary switch number and check the information on the front of the device.



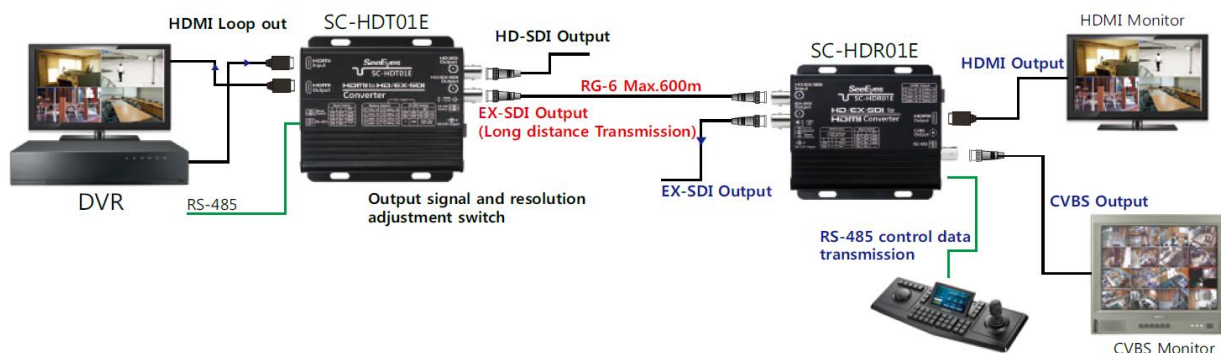
Version v1.00.00
 INPUT - [NO SIGNAL]
 OUTPUT - 1920 x 1080p 30Hz

※ The video may be distorted when entering a certain resolution.

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	350
RG59/U(1505A)	BELDEN	9.1	0.0455	150	85	330	500

※ The transmission distance is equal to EX-SDI 1.0 when you set the Rotary Switch to 1080p 50/60 resolution and convert it to EX-SDI(EX-SDI 3G signal transmission distance).

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

- Depending on the field situation, use 70% of the maximum transmission distance, taking the cable attenuation into account.
- When installing coaxial cables or connectors, it is recommended that you use low resistance BNC.
- During installation, attention must be paid to cable distortion due to compression (kinked cable).
- Do not pull with excessive force when routing the cable.
- If you install the input and output cable to the rear of the rack and bend it tightly with a tie, the inner and outer insulation will be deformed so that it must be loosely tied with space for about a cable. In other words, be careful not to bend under the radius of curvature of the cable.

5. Troubleshooting

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(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 HDMI input cable is connected properly. • Check the cable transmission distance of output signal. • Check the connection status between HD-SDI output port and EX-SDI output port. . • Check if the HDMI input signal is output properly.
Noise or crack occurs on the screen.	<ul style="list-style-type: none"> • Check if the cable distance is enough to transmit. • Check the access point of cable. • Check if the HDMI cable is connected properly.
The LED is not on.	<ul style="list-style-type: none"> - RED LED off <ul style="list-style-type: none"> • Check that the adapter's power cord is properly connected. • Check whether the specification of the adapter is DC12V (0.5A ~). - GREEN LED off <ul style="list-style-type: none"> • Check the HDMI cable and its connection status. • Check that the device's HDMI signal is working properly. .
RS-485 control fails.	<ul style="list-style-type: none"> • Check if the CAMERA is compatible with DVR. • When using SC-HDT01E only, RS-485 communication is not enabled. - RS-485 is available when used with our product, SC-HDR01E. • Check if the Baud Rate of SC-HDT01E is the same with SC-HDR01E. • Check if the product is connected with HD/EX-SDI of SC-HDT01E. • When 'EX-SDI Switch' of SC-HDT01E is set to 'Loop out(HD-SDI)', RS-485 is not enabled(supported in EX-SDI mode only).

6. Specifications

Model		SC-HDT01E			
HDMI Input		HDMI 1.3, DVI Compliant available resolution CEA 861, VESA V1.0 REV11			
HDMI Output		HDMI, DVI Compliant			
HD-SDI port output		3G-SDI, HD-SDI 1920*1080p 60/50, 1920*1080p 30/25, 1920*1080i 60/50, 1280*720p 60/50			
HD/EX-SDI port output		3G-SDI, HD-SDI, EX-SDI 1.0, EX-SDI 2.0, EX-SDI 3G 1920*1080p 60/50, 1920*1080p 30/25, 1920*1080i 60/50, 1280*720p 60/50			
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(control data outputs)			
Connection Port	HDMI Input/Output	HDMI-A Type			
	SDI Output	BNC-F_75Ω			
	Power Input	DC-Jack, Ø 5.5			
	RS-485	2Pin Terminal Block			
LED	Green	On: HDMI Input On / Off: HDMI Input Off			
	Red	On: Power Input On / Off: Power Input Off			
Power Input		Over 0.5A / DC12V			
Power Consumption		MAX 3W			
Temperature / Humidity		-10°C ~ +50°C / 0 ~ 80%			
Case Material / Weight		Aluminum / 206 g			
Dimension		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.



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