HDMI to 3G-SDI Converter with Dual SDI Outputs, Re-Clocking & EQ, up to 1080p60

Converts one HDMI source to two SD/HD/3G-SDI BNC outputs, up to 1080p60, with built-in re-clocking



The KanexPro SDI-HDSDXPRO converts one HDMI (or DVI) source into two **SDI** outputs on BNC, for broadcast, post-production and filming. It detects the incoming signal and automatically outputs the matching SD-SDI, HD-SDI or 3G-SDI standard, up to 1080p60 (SMPTE 425M Level A, 4:2:2 10-bit). The second SDI output is a loop output, so you can feed a second device or cascade more SDI units. Built-in re-clocking and equalization let the SDI signal run up to 130 m in 3G mode, 170 m in HD mode and 300 m in SD mode on 75-ohm RG59 coax. It supports 2-channel audio. Conversion is one way only, from HDMI to SDI.

Applications:

Perfect for broadcasting from HDMI sources such as HDMI cameras and laptops to SDI displays. Used in surveillance systems, rental & staging facilities, post-production, TV studio, digital cinema, or other A/V applications.

Surge Protection Recommended — This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, or lightning strikes. Use of surge protection systems is highly recommended.

TABLE OF CONTENTS

1. Features 2
2. Specifications 2
3. Product check 2
4. Description 2
5. Connection Diagram 2
6. Panel descriptions 2
Front panel 2
Rear panel 3
7. DIP Switch 3
EDID 3
LED Mode 3
3GA/3GB 4
8. EDID Learning 4
9. Firmware Upload 4
10. Update List 4
11. Warranty 5
12. Connection Diagram 5
13. Troubleshooting 6
14. Installation FAQ 6
15. Integration FAQ 6

1. Features

- ✓ Converts one HDMI input to SD-SDI, HD-SDI or 3G-SDI
- ✓ Two SDI BNC outputs: SDI loop output for duplication or broadcasting
- ✓ Built-in re-clocking & equalization
- ✓ Supports 2-channel audio
- ✓ Supports multiple video resolutions:
- ✓ SD: 525i, 625i
- ✓ HD: 720p 24, 25, 30, 50 & 60 Hz
- ✓ HD: 1080i 50 & 60 Hz
- ✓ HD: 1080p 24, 25, 30, 50 & 60 Hz
- ✓ 3G mode length up to 130m
- ✓ HD mode length up to 170m
- ✓ SD mode length up to 300m
- ✓ Supports conversion to SMPTE 425M Level A 1080p 50/59.94/60 4:2:2 10-bit
- ✓ Supports cascading of multiple SDI units in an application
- ✓ Automatically switches between SD, HD and 3G-SDI standards
- ✓ Compact, ruggedized housing for mobile broadcasting
- ✓ Micro-USB port for firmware update
- ✓ Locking power supply & mounting ears

2. Specifications

3. Product check

The manual matches the MPN. SDI-HDSDXPRO is a converter with one HDMI input and two SDI outputs, and that is the product this manual describes. Extraction continues below.

This step does not pick one.

4. Description

The SDI-HDSDXPRO converts one HDMI signal into two identical SDI outputs (3G-SDI, HD-SDI or SD-SDI). It is built for professional broadcasting, post-production and filming. The converter detects the incoming HDMI signal and sends it out in the matching SDI format, so you do not need to set the output format yourself.

5. Connection Diagram

The diagram below shows a typical installation. An HDMI source connects to the converter's HDMI input, and the two SDI outputs connect to SDI equipment over 75Ω coaxial cable.

6. Panel descriptions

FRONT PANEL

No.	Name	Description
1	**3G/HD/SD-SDI Output 1**	First SDI output, on a BNC connector. It carries 3G-SDI, HD-SDI or SD-SDI, depending on the input signal.
2	**3G/HD/SD-SDI Output 2**	Second SDI output, on a BNC connector. It carries the same signal as Output 1, so you can feed a second SDI device or pass the signal on down the chain.

continued

No.	Name	Description
3	**3G/HD/SD/HDCP LED indicator**	Four status LEDs (SD, HD, 3G and HDCP). What they show depends on the LED Mode DIP switch. See "DIP Switch" below.

REAR PANEL

No.	Name	Description
1	**Power (+6V ~ +15V)**	DC power input. Connect the power adapter here. The unit accepts +6V to +15V DC.
2	**HDMI Input**	Connect your HDMI source here. During EDID learning you connect the display here for a short time instead.
3	**Power LED indicator**	Lights when the unit has power.
4	**Dip Switch**	Three-pin DIP switch. Up (↑) is ON and down (↓) is OFF. **a.** EDID **b.** LED Mode **c.** 3GB/3GA Switch

7. DIP Switch

The rear-panel DIP switch has three pins. Push a pin up (↑) to turn it ON, or down (↓) to turn it OFF.

EDID

The SDI-HDSDXPRO can learn the EDID of a display, which keeps the HDMI connection compatible with most monitors. Leave the EDID pin ON (up) to use the built-in default EDID. Set it OFF (down) to use EDID learning, as described in "EDID Learning" below.

EDID PIN	FUNCTION
ON (↑)	Default EDID
OFF (↓)	Learning EDID

LED MODE

The LED Mode pin sets what the four front-panel LEDs tell you.

With the LED Mode pin **OFF (down)**, the four LEDs together show the exact input resolution:

RESOLUTION	SD LED	HD LED	3G LED	HDCP LED
720 x 480i (NTSC)	○	○	○	●
720 x 576i (PAL)	○	○	●	○
1280 x 720 p50	○	○	●	●
1280 x 720 p60	○	●	○	○
1920 x 1080 i50	○	●	○	●
1920 x 1080 i60	○	●	●	○
1920 x 1080 p24	○	●	●	●
1920 x 1080 p25	●	○	○	○
1920 x 1080 p30	●	○	○	●
1920 x 1080 p50	●	○	●	○
1920 x 1080 p60	●	○	●	●
Unsupported	●	●	●	●

● = LED on ○ = LED off

With the LED Mode pin **ON (up)**, one LED lights to show which SDI standard is being output. Note that the columns in this table are in a different order from the table above:

RESOLUTION	3G LED	HD LED	SD LED
NTSC / PAL	○	○	●
720p / 1080i / 1080 [24p, 30p]	○	●	○
1080 [50p, 60p] / 2K	●	○	○

● = LED on ○ = LED off

3GA/3GB

The third pin chooses whether 3G-SDI is sent as Level A (3GA) or Level B (3GB). It affects only 1920 x 1080 p60, 1920 x 1080 p59 and 1920 x 1080 p50. All other resolutions are output the same way in either position. The switch positions for 3GA and 3GB are shown in the illustration on this page.

8. EDID Learning

Follow these steps to make the converter learn the EDID of your display:

1. Turn off the SDI-HDSDXPRO and set the EDID pin of the DIP switch to OFF (down). 2. Connect the display to the SDI-HDSDXPRO's HDMI port, then turn the SDI-HDSDXPRO on. 3. Watch the front-panel LEDs. They step through the sequence below, and when the sequence ends the EDID learning is finished. 4. Disconnect the display, then connect the SDI-HDSDXPRO to your HDMI source with an HDMI cable.

LED SEQUENCE	SD LED	HD LED	3G LED	HDCP LED
Start	○	○	○	●
	○	○	●	●
	○	●	●	●
	●	●	●	●
Finish	○	○	○	○

● = LED on ○ = LED off

9. Firmware Upload

You can update the firmware in the field through the converter's USB port. You need a Windows PC, a USB cable, the firmware upload program (tools.exe) and the firmware .bin file.

1. Open the firmware upload program (tools.exe) and connect the converter to your PC with the USB cable. 2. Plug in the DC adapter and then unplug it, to switch the converter on and off. The connection status in the program changes to "Connect". 3. Plug in the DC adapter and unplug it once more. The connection status changes to "Connected". Click **Open File** and select the firmware .bin file. 4. Click **Start** to program the new firmware. A **PASS** message appears when programming is finished. 5. Close the firmware upload program.

10. Update List

DATE	VERSION	CHANGE
2013.02.25	V1.0	Specification changed for audio support.
2016.02.23	V1.1	3GB format added (firmware FW-0205).

11. Warranty

A. Limited warranty. KanexPro™ warrants that (a) its products (the "Product") will perform substantially in accordance with the accompanying written materials for 36 months (3 full years) from the date of receipt, and (b) the Product will be free from defects in materials and workmanship under normal use and service for 3 years.

B. Customer remedies. KanexPro's entire liability, and the customer's exclusive remedy, is at KanexPro's option either a refund of the price paid for the Product, or repair or replacement of a Product that does not meet this Limited Warranty and is returned to KanexPro with a copy of the customer's receipt. This Limited Warranty is void if the Product failed because of accident, abuse or misapplication. A replacement Product is warranted for the remainder of the original 3-year warranty period.

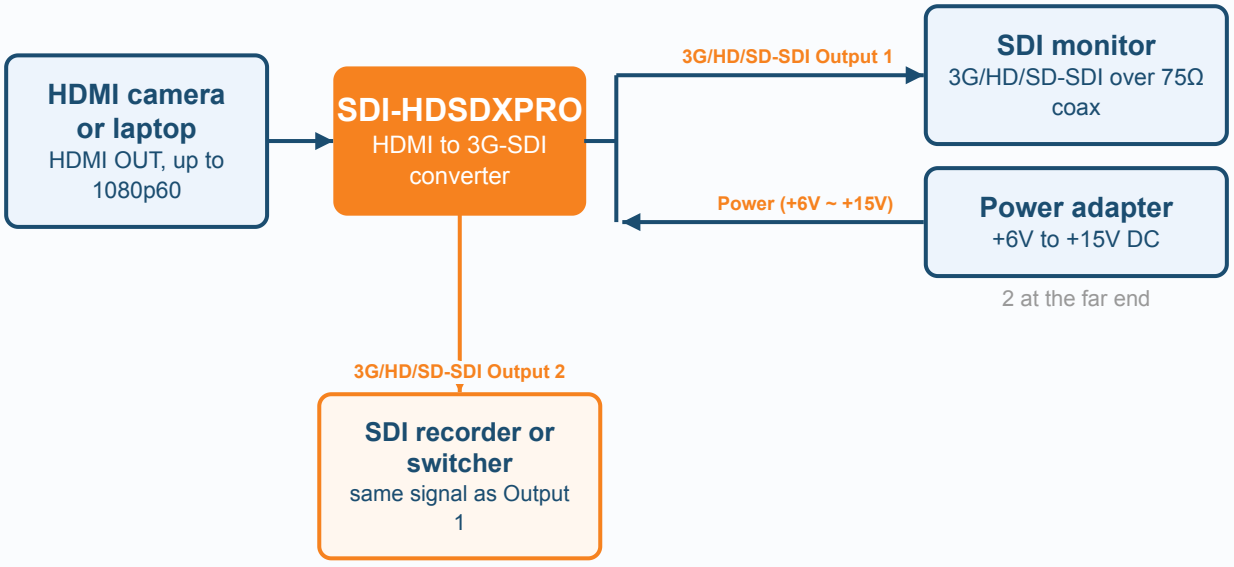
C. No other warranties. To the maximum extent permitted by applicable law, KanexPro disclaims all other warranties, express or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose, with regard to the Product and any related written materials. This limited warranty gives customers specific legal rights. Customers may have other rights depending on the jurisdiction.

D. No liability for damages. To the maximum extent permitted by applicable law, KanexPro shall in no event be liable for any damages whatsoever (including without limitation special, incidental, consequential or indirect damages for personal injury, loss of business profits, business interruption, loss of business information, or any other pecuniary loss) arising out of the use of or inability to use this Product, even if KanexPro has been advised of the possibility of such damages.

12. Connection Diagram

TYPICAL SETUP

HDMI to 3G-SDI Converter with Dual SDI Outputs, Re-Clocking & EQ, up to 1080p60



How it works: Applications: Perfect for broadcasting from HDMI sources such as HDMI cameras and laptops to SDI displays. Used in surveillance systems, rental & staging facilities, post-production, TV studio, digital cinema, or other A/V applications.

13. Troubleshooting

Q: The power LED on the rear does not light. What should I check?
A: Make sure the included DC adapter is firmly connected to the power input on the rear panel. Then check that the adapter is plugged into a live 100-240V AC outlet.

Q: All four front LEDs are on and there is no SDI output. What does that mean?
A: With the LED Mode pin OFF, all four LEDs on means the input resolution is not supported. Set the source to a supported format such as 720 x 480i, 720 x 576i, 720p50/60, 1080i50/60 or 1080p24/25/30/50/60.

Q: My HDMI source will not output a picture to the converter. What should I try?
A: First set the EDID pin ON (up) so the converter presents its built-in default EDID, and power-cycle the unit. If the source still has trouble, run EDID learning with your display so the converter presents that display's EDID instead.

Q: SDI equipment shows a picture at 720p and 1080i but not at 1080p50 or 1080p60. What should I check?
A: Check the 3GA/3GB DIP pin. It changes only 1080p50, 1080p59 and 1080p60, so if your equipment expects the other 3G level, switch the pin to that position and check the picture again.

Need help? — For additional support, visit kanexpro.com/support, or scan the QR code below for the product page.

14. Installation FAQ

Q: Which connections are on the front and which are on the rear?
A: The rear panel has the DC power input, the HDMI input, the power LED and the 3-pin DIP switch. The front panel has SDI Output 1, SDI Output 2 and the four status LEDs (SD, HD, 3G and HDCP).

Q: How is the SDI-HDSDXPRO powered?
A: It runs on the DC power supply in the box, which takes 100-240V AC and plugs into the power input on the rear panel. The power LED on the rear lights when the unit has power.

Q: How should I set the DIP switch for a normal installation?
A: Leave the EDID pin ON (up) to use the built-in default EDID. Set the LED Mode pin OFF (down) if you want the LEDs to show the exact input resolution, or ON (up) to show which SDI standard is being output. The third pin only matters if you send 1080p50, 1080p59 or 1080p60, where it chooses 3G Level A or Level B.

Q: How do I connect the SDI-HDSDXPRO in a typical system?
A: Connect the HDMI source to the HDMI input. Then run 75-ohm coax (RG6 or RG59) from each BNC output to your SDI equipment.

15. Integration FAQ

Q: Does the SDI-HDSDXPRO need a control system or software to operate?
A: No. It detects the incoming HDMI signal and outputs the matching SDI format on its own, and all settings are made on the rear DIP switch. The Micro-USB port is used only for firmware updates.

Q: Can one SDI-HDSDXPRO feed an SDI monitor and an SDI recorder at the same time?
A: Yes. The two BNC outputs carry identical signals, so one can feed a monitor while the other feeds a recorder or passes the signal on down the chain.

Q: How can I confirm which SDI standard the converter is sending to my downstream equipment?
A: Set the LED Mode DIP pin ON (up). One LED then lights: SD for NTSC or PAL, HD for 720p, 1080i or 1080p24/30, and 3G for 1080p50/60 or 2K. Check this against the formats your SDI equipment accepts.

Q: Which kinds of systems is the SDI-HDSDXPRO built to join?
A: It is built to bring HDMI cameras, computers and other HDMI sources into SDI systems for professional broadcasting, post-production and filming. Its SECC steel housing suits mobile broadcast setups.