

**Kramer Electronics, Ltd.**



# **USER MANUAL**

**Model:**

**FC-113**

*HDMI to SD/HD-SDI Converter*

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## 1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 1,000-plus different models now appear in 11 groups<sup>1</sup> that are clearly defined by function.

Thank you for purchasing the Kramer DigiTOOLS® **FC-113** *HDMI to SD/HD-SDI Converter*, which is ideal for:

- Home theater, presentation and multimedia applications
- Rental and staging
- HDMI to SD/HD-SDI Converter for medical equipment

The package includes the following items:

- **FC-113**
- Power supply (5V DC)
- This user manual<sup>2</sup>

## 2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high-performance high-resolution cables<sup>3</sup>

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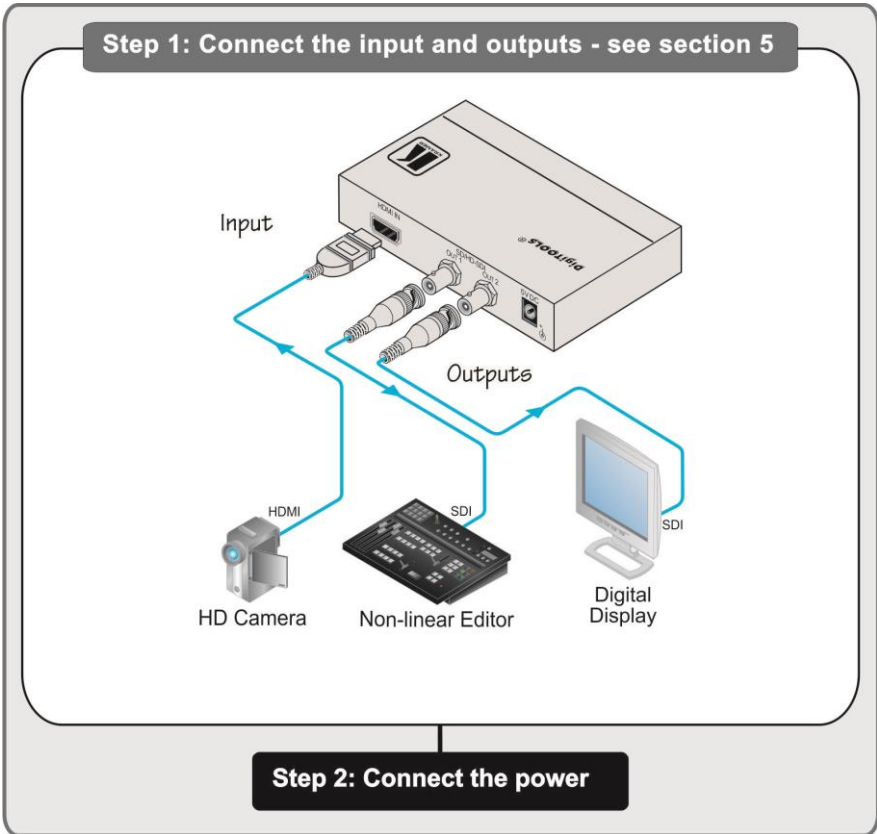
1 GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Routers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

2 Download up-to-date Kramer user manuals from <http://www.kramerelectronics.com>

3 The complete list of Kramer cables is available from <http://www.kramerelectronics.com>

## 2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps.



## 3 Overview

The **FC-113 HDMI to SD/HD-SDI Converter** is a high-performance format converter for SDI (SMPTE 259M), HD-SDI (SMPTE 292M), and 3G HD-SDI (SMPTE 424M) signals. It converts an HDMI input to two identical SDI video with embedded audio output signals. The **FC-113** does not perform frame rate or resolution conversion<sup>1</sup>.

<sup>1</sup> It has to receive an HD or SD signal to convert it to SD/HD-SDI signals

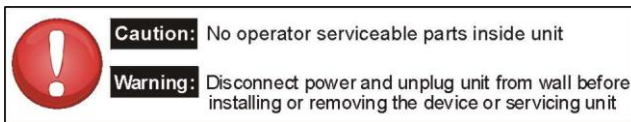
The **FC-113** features:

- One HDMI input
- Two SD/HD-SDI/3G HD-SDI outputs on BNC connectors
- HDTV compatibility
- Active LED indicators on the front panel. Green indicates a standard (SDI) definition and blue indicates a (HD-SDI) high-definition input signal
- 5V DC power
- Medical equipment compliance

### 3.1 Recommendations for Best Performance

To achieve the best performance:

- Use only good quality connection cables<sup>1</sup> to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Do not secure the cables in tight bundles or roll the slack into tight coils
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality and position your Kramer **FC-113** away from moisture, excessive sunlight and dust



### 3.2 Accessory to Medical Equipment (IEC 60601-1)

In the modern medical environment remote access is essential, for example, to transfer clinical data between doctors and to train to medical students. The **FC-113** is certified according to the IEC 60601-1-2, Clause 2.1.3, Medical Electrical Equipment, Part 1: General Requirements for EMC standard which is required when accessory devices are used at locations where medical personnel and patients are present.

The **FC-113** constitutes an optional component that can be considered necessary and suitable as part of medical equipment or for use as part of a medical system to provide real time simultaneous video feeds to those present at the local medical environment and at remote locations. In this

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<sup>1</sup> Available from Kramer Electronics on our Web site at <http://www.kramerelectronics.com>

environment, the **FC-113** can be added to the system **ONLY** if the connecting equipment has been evaluated and meets the IEC 60601-1-2 EMC standards. Note, that when attaching accessory devices to a digital or analog interface, they must comply with the IEC standard for which they are used: EMC Standard (IEC 60601-1-2), Information Technology equipment (IEC 60950-1 (2ed)).

#### 4 Defining the FC-113 HDMI to SD/HD-SDI Converter

[Figure 1](#) and [Table 1](#) define the **FC-113 HDMI to SD/HD-SDI Converter**.

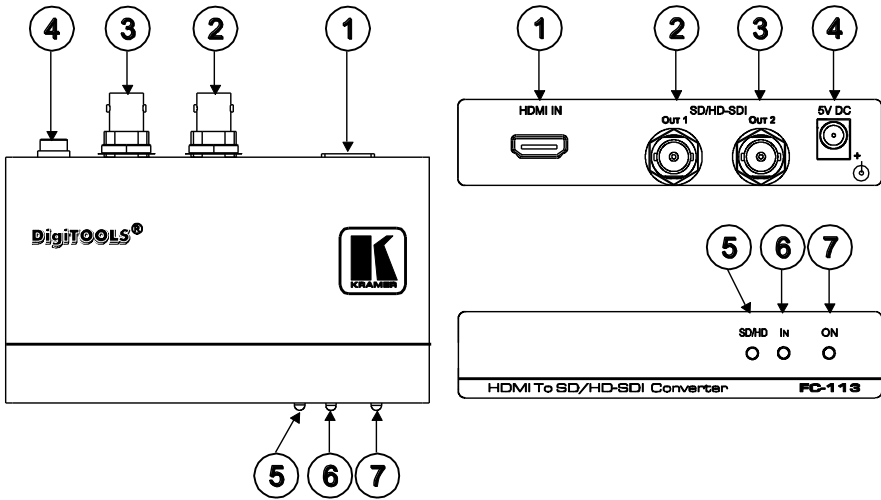


Figure 1: FC-113 HDMI to SD/HD-SDI Converter

Table 1: FC-113 HDMI to SD/HD-SDI Converter Features

#	Feature	Function
1	HDMI IN Connector	Connect to an HDMI source
2	SD/HD-SDI OUT 1 BNC Connector	Connect to an SD or HD-SDI acceptor 1
3	SD/HD-SDI OUT 2 BNC Connector	Connect to an SD or HD-SDI acceptor 2
4	5V DC	+5V DC connector for powering the unit
5	SD/HD LED	Lights green for an SD input signal and blue for an HD-SDI input signal
6	IN LED	Lights green to indicate an HDMI signal
7	ON LED	Lights green when receiving power

## 5 Connecting the FC-113 HDMI to SD/HD-SDI Converter

To connect<sup>1</sup> the **FC-113**, as illustrated in [Figure 2](#):

1. Connect an HDMI source (for example, a video camera) to the HDMI IN connector.
2. Connect the SD/HD-SDI OUT 1 connector to an acceptor (for example, a non-linear editor).
3. Connect the SD/HD-SDI OUT 2 connector to a digital display.
4. Connect the 5V DC power adapter to the power socket and connect the adapter to the mains electricity (not illustrated in [Figure 2](#)).

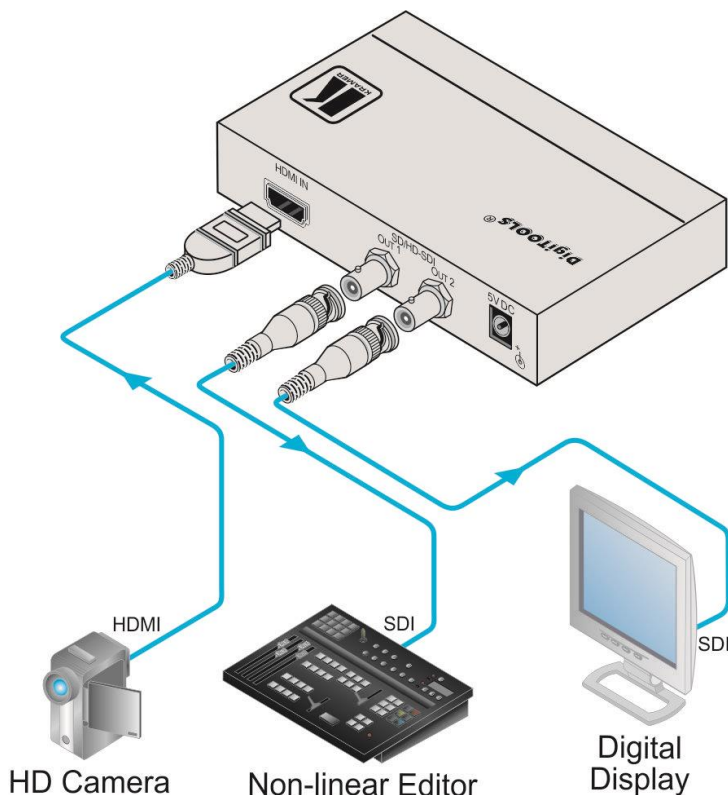


Figure 2: Connecting the FC-113 HDMI to SD/HD-SDI Converter

<sup>1</sup> Switch off the power on each device before connecting it to your FC-113. After connecting your FC-113, switch on its power and then switch on the power on each device

## 6 Technical Specifications

The **FC-113** technical specifications are shown in [Table 2](#):

*Table 2: Technical Specifications<sup>1</sup> of the FC-113 HDMI to SD/HD-SDI Converter*

INPUT:	1 HDMI connector
OUTPUTS:	2 SD/HD-SDI, 3G HD-SDI on BNC connectors
INPUT FORMATS:	525i, 625i 1080p @23.98/24/25/29.97/30/50/59.94/60 1080i @50/59.94/60 720p @50/59.94/60
OUTPUT FORMATS:	SMPTE-259M/292M/424M
MAX DATA RATE:	Up to 3Gbps
STANDARD COMPLIANCE:	HDMI
INDICATOR LEDES:	SD/HD, OUT, ON
POWER SOURCE:	5V DC, 470mA
DIMENSIONS:	12cm x 7.2cm x 2.4cm (4.7" x 2.8" x 1.0") W, D, H
WEIGHT:	0.3kg (0.67lbs)
ACCESSORIES:	Power supply
OPTIONS:	19" rack mount adapter

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<sup>1</sup> Specifications are subject to change without notice



## LIMITED WARRANTY

The warranty obligations of Kramer Electronics for this product are limited to the terms set forth below:

### What is Covered

This limited warranty covers defects in materials and workmanship in this product.

### What is Not Covered

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Kramer Electronics to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product.

Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

### How Long Does this Coverage Last

Seven years as of this printing; please check our Web site for the most current and accurate warranty information.

### Who is Covered

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

### What Kramer Electronics will do

Kramer Electronics will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Kramer Electronics will also pay the shipping costs necessary to return this product once the repair is complete.
2. Replace this product with a direct replacement or with a similar product deemed by Kramer Electronics to perform substantially the same function as the original product.
3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

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If this product is returned to Kramer Electronics or the authorized dealer from which it was purchased or any other party authorized to repair Kramer Electronics products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

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In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required. You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.

If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

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**For the latest information on our products and a list of Kramer distributors visit [www.kramerelectronics.com](http://www.kramerelectronics.com) where updates to this user manual may be found. We welcome your questions, comments and feedback.**



**Caution**

**Safety Warning:**

Disconnect the unit from the power supply before opening/servicing.



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Rev:

7

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