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> AVMATRIX SC1221-12G HDMI 2.0 to 12G-SDI Broadcast Converter User Manual

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Model: SC1221-12G

1. INTRODUCTION

The AVMATRIX SC1221-12G is a compact and robust broadcast converter designed to seamlessly transform HDMI 2.0 signals into 12G-SDI. This device supports resolutions up to 4K@60Hz, making it suitable for professional broadcast applications requiring high-quality video transmission with zero latency. It features an HDMI 2.0 input, an HDMI 2.0 loopout, and two 12G-SDI outputs, all powered conveniently via USB Type-C.

2. KEY FEATURES

- **HDMI 2.0 Input and Loopout:** Equipped with one HDMI 2.0 input and one HDMI 2.0 loopout for real-time video monitoring.
- **Dual 12G-SDI Outputs:** Provides two simultaneous 12G-SDI outputs for flexible distribution.
- **Zero Latency Conversion:** Ensures direct conversion without any noticeable delay, critical for live broadcast environments.
- **4K@60 Resolution Support:** Supports a wide range of input and output resolutions, including crystal-clear 4K@60 (4096x2160).
- **Automatic Detection:** Advanced auto-detection technology seamlessly matches HDMI input to SDI output.
- **USB Type-C Power:** Conveniently powered by a 5V USB Type-C connection, allowing for power supply anytime, anywhere.
- **Firmware Upgradable:** USB Type-C port also facilitates firmware upgrades and program version checks.

3. PACKAGE CONTENTS

Please verify that all items are present in your package:

- AVMATRIX SC1221-12G Converter Unit
- USB Type-C Power Cable
- User Manual (this document)

4. DEVICE OVERVIEW

Familiarize yourself with the ports and indicators on the SC1221-12G converter.



Figure 4.1: Front and Rear View of the SC1221-12G Converter. This image displays the HDMI 2.0 IN, HDMI 2.0 LOOP OUT, two 12G-SDI OUT ports, and the USB-C POWER input, clearly labeled for easy identification.

- **HDMI 2.0 IN:** Connect your HDMI source device here.
- **HDMI 2.0 LOOP OUT:** Connect an HDMI monitor for real-time signal monitoring.
- **12G-SDI OUT (x2):** Connect your SDI receiving devices (e.g., monitors, recorders).
- **USB-C POWER:** Connect the provided USB Type-C cable to a 5V power source.

5. SETUP AND CONNECTION

Follow these steps to connect your AVMATRIX SC1221-12G converter:

1. **Connect HDMI Source:** Use an HDMI 2.0 cable to connect your HDMI source device (e.g., camera, media player) to the **HDMI 2.0 IN** port on the converter.
2. **Connect SDI Devices:** Use 12G-SDI cables to connect your SDI receiving devices (e.g., broadcast monitors, switchers, recorders) to the **12G-SDI OUT** ports. You can use one or both outputs simultaneously.
3. **Connect HDMI Monitor (Optional):** If real-time monitoring of the HDMI input is required, connect an HDMI monitor to the **HDMI 2.0 LOOP OUT** port using an HDMI 2.0 cable.

4. **Apply Power:** Connect the provided USB Type-C power cable to the **USB-C POWER** port on the converter and then to a 5V USB power source (e.g., USB wall adapter, computer USB port). The converter will power on automatically.

USB Type-C Power

Power Supply Anytime, Anywhere

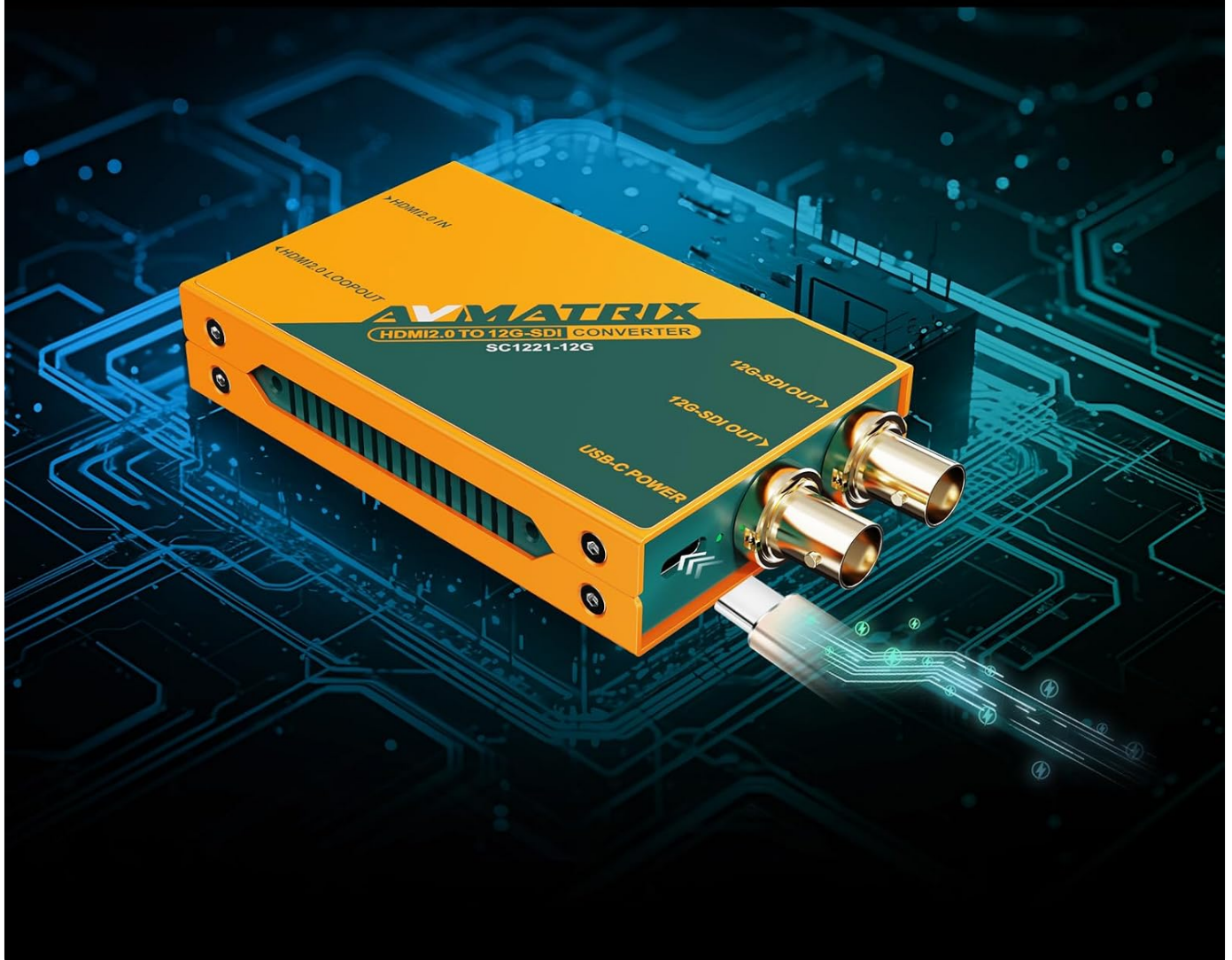


Figure 5.1: Example connection diagram showing the AVMATRIX SC1221-12G converter integrated into a video production workflow, connecting an HDMI source to SDI monitors and an HDMI loopout monitor.

6. OPERATION

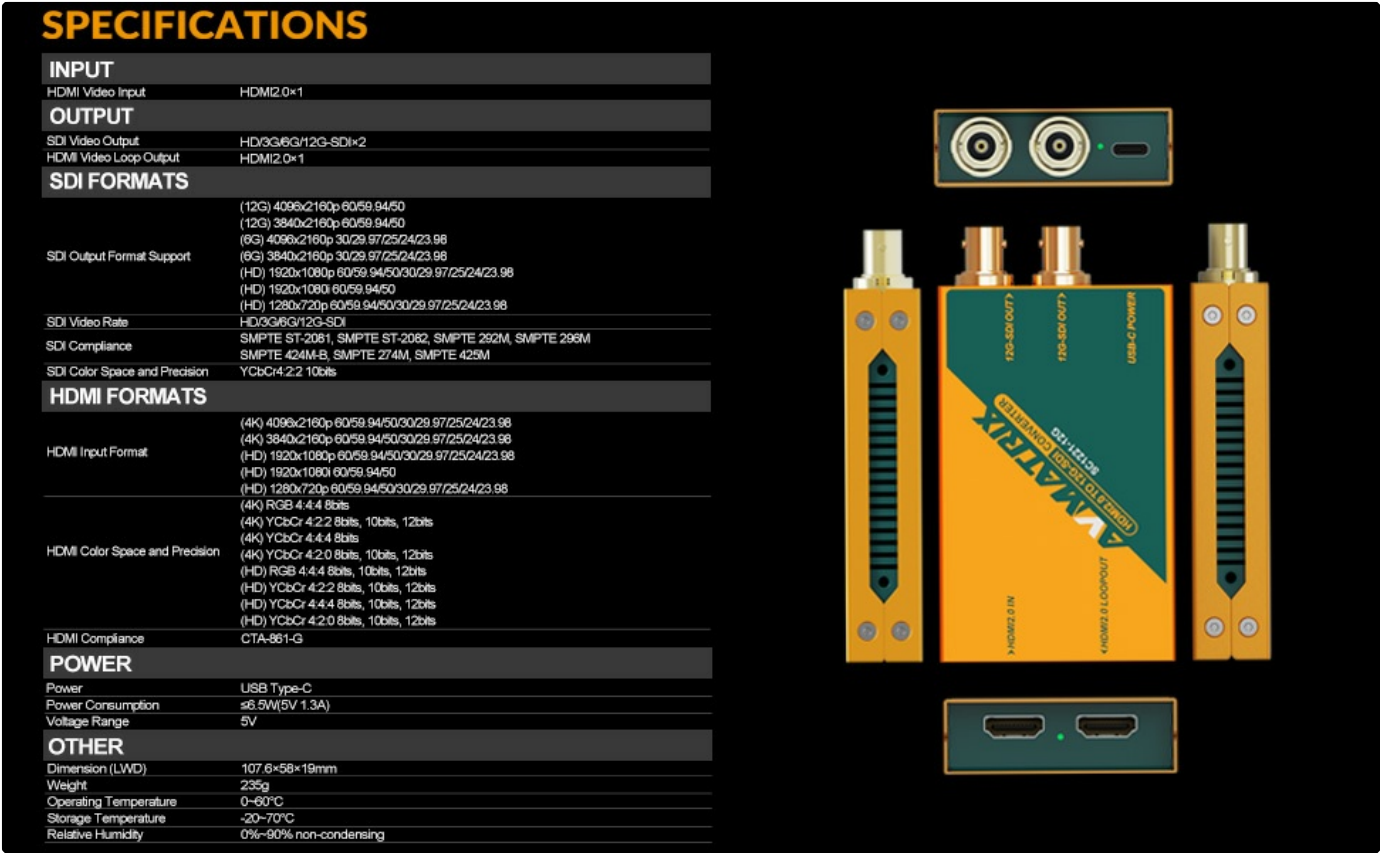
The AVMATRIX SC1221-12G is designed for plug-and-play operation with automatic signal detection.

- **Automatic Signal Conversion:** Once powered on and connected, the converter will automatically detect the incoming HDMI signal resolution and format, then convert it to the appropriate 12G-SDI signal. No manual configuration is typically required for standard operation.
- **Monitoring:** The HDMI 2.0 loopout provides a direct pass-through of the input HDMI signal, allowing for local monitoring without affecting the SDI conversion.
- **Firmware Updates:** Periodically check the AVMATRIX official website for potential firmware updates. Connect the

converter to a computer via the USB Type-C port to perform updates as instructed by the manufacturer.

7. SPECIFICATIONS

Detailed technical specifications for the AVMATRIX SC1221-12G converter:



Category	Specification
SDI Color Space & Precision	YCbCr4:2:2 10bits
HDMI Input Format	• (4K) 4096x2160p 60/59.94/50/30/29.97/25/24/23.98 • (4K) 3840x2160p 60/59.94/50/30/29.97/25/24/23.98 • (HD) 1920x1080p 60/59.94/50/30/29.97/25/24/23.98 • (HD) 1920x1080i 60/59.94/50 • (HD) 1280x720p 60/59.94/50/30/29.97/25/24/23.98 • (4K) RGB 4:4:4 8bits • (4K) YCbCr 4:2:2 8bits, 10bits, 12bits • (4K) YCbCr 4:4:4 8bits
HDMI Color Space & Precision	• (4K) YCbCr 4:2:0 8bits, 10bits, 12bits • (HD) RGB 4:4:4 8bits • (HD) YCbCr 4:2:2 8bits, 10bits, 12bits • (HD) YCbCr 4:4:4 8bits, 10bits, 12bits • (HD) YCbCr 4:2:0 8bits, 10bits, 12bits
HDMI Compliance	CTA-861-G
Power Input	USB Type-C
Power Consumption	≤6.5W (5V 1.3A)
Voltage Range	5V
Dimensions (LWD)	107 x 58 x 19 mm
Weight	235g
Operating Temperature	0~50°C
Storage Temperature	-20~70°C
Relative Humidity	0~90% non-condensing

8. TROUBLESHOOTING

If you encounter issues with your SC1221-12G converter, please refer to the following common problems and solutions:

- **No Signal on SDI Output:**
 - Ensure the HDMI source is powered on and outputting a signal.
 - Verify that the HDMI cable is securely connected to both the source and the converter's **HDMI 2.0 IN** port.
 - Check that the 12G-SDI cables are correctly connected to the **12G-SDI OUT** ports and your receiving device.
 - Confirm that the SDI receiving device is set to the correct input and supports the converted SDI format.
 - Ensure the converter is receiving adequate power via the USB Type-C port.
- **Incorrect Resolution or Format:**
 - The converter automatically detects the input resolution. Ensure your HDMI source is outputting a resolution

supported by the converter (refer to Specifications section).

- Some SDI devices may have specific resolution or frame rate requirements. Check your SDI receiving device's specifications.
- **No HDMI Loopout Signal:**
 - Verify the HDMI cable connecting to the **HDMI 2.0 LOOP OUT** port is secure and functional.
 - Ensure the HDMI monitor is powered on and set to the correct input.

If problems persist, please contact AVMATRIX technical support for further assistance.

9. WARRANTY AND TECHNICAL SUPPORT

AVMATRIX provides a **3-year guarantee** for the SC1221-12G converter, ensuring product quality and reliability. Additionally, lifetime technical support is available to assist with any questions or issues you may encounter during the product's lifespan.

For technical assistance, warranty claims, or general inquiries, please visit the official AVMATRIX website or contact their customer support channels. Please have your product model (SC1221-12G) and purchase information ready when contacting support.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question

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