

picoLink Series

SDM-872p

Guide to Installation
and Operation

M640-9800-101

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SD/HD Serial Digital to DVI Converter

SDM-872p

Radio Frequency Interference and Immunity

This unit generates, uses, and can radiate radio frequency energy. If the unit is not properly installed and used in accordance with this guide, it may cause interference with radio communications. Operation with non-certified peripheral devices is likely to result in interference with radio and television reception. This equipment has been tested and complies with the limits in accordance with the specifications in:

- FCC Part 15, Subpart B
- CE EN50081-1:1992
- CE EN50082-1:1992.

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1.0 SDM-872p SD/HD Serial Digital to DVI-HDTV Converter

1.1 Introduction

The SDM-872p is a miniature, digital video interface converting SDI and HDSDI video signal to Digital RGB (DVI-HDTV, DVI-SDTV) without resizing. The SDM-872p provides automatic input scan rate detection and supports a wide variety of input formats including 525i, 625i, 720p, 1080i and 1080p. Output formats are compliant to EIA/CEA-861-B standard. The primary application is to convert SD and HD serial to Digital RGB for the purposes of feeding a computer monitor and projector. (CRT, LCD, Plasma, DLP, D-ILA etc). In order to support the emerging popularity of 24p equipment and digital display, the SDM-872p DVI output with selectable 3:2 sequence insertion.

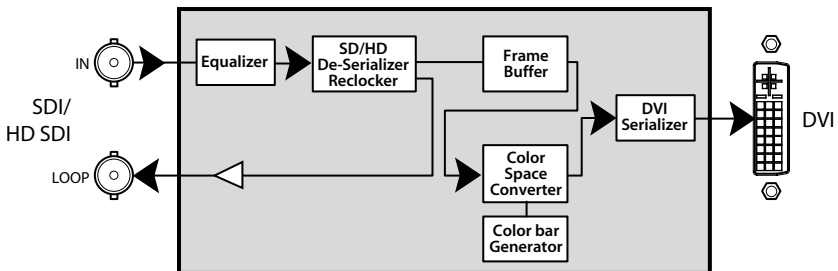


Figure 1 SDM-872p functional block diagram

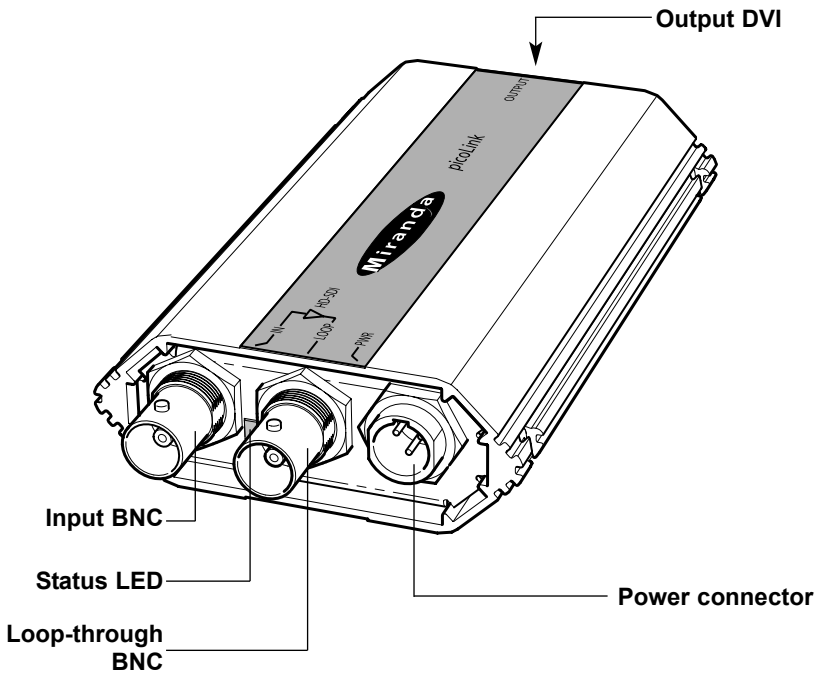
1.2 Features

- SDI and HD SDI video input with active loop-through
- Digital RGB output compliant to DVI 1.0
- Supports 525i, 625i, 720p, 1080p, 1080i with automatic input scan rate detection
- Supports direct output, p to PsF, PsF to p, 3:2 insert, Panasonic Varicam
- Built-in test signal and 4:3 markers
- Compact stand-alone package

2.0 Overall View

Figure 2 illustrates the SDM-872p's major parts and their locations. A high-definition or standard definition digital video source is connected to the HD/SD SDI IN BNC and the Digital RGB output is provided by the DVI-D connector. Error status is provided by the status LED. Finally, the power source is connected to the lockable power connector.

Figure 2 Overall view of the SDM-872p



3.0 Installation

3.1 Power Supply

The power supplies LKS-WSU, for 110 V and 220 V operation, is used to power the SDM-872p. The power supply provides a regulated +5 VDC@2.4 A power source. The SDM-872p employs a mini XLR-3 connector for its power needs. Figure 3 provides a detailed pinout of the male connector.



Figure 3 Power connector pinout

3.2 HD/SD Serial Digital Video Input with Active Loop-Through

Connect a high-definition or standard definition digital video signal to the BNC labeled HD-SDI IN. The high-definition serial digital input signal must conform to the SMPTE 292M standard. The standard definition serial digital input signal must conform to the SMPTE 259M-C standard.

Make sure that the input signal cable has a maximum length of 75m (250') and that all serial digital video equipment are connected point-to-point. For instance, there must be a point-to-point connection between the HD/SD SDI IN BNC and the source equipment. If a T-connector is used to connect other equipment, the maximum specified cable length is no longer valid.

3.3 Digital RGB Video Output

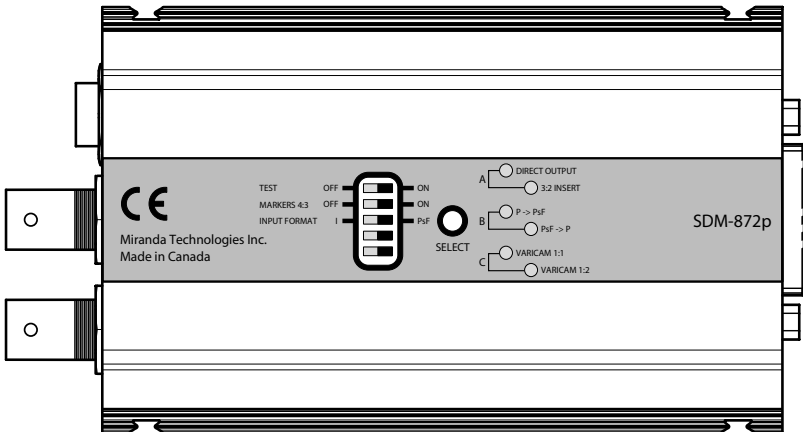
The digital RGB video output signal (DVI-HDTV) is provided by the DVI-D (female) labeled OUTPUT. The output format is automatically selected according to the input signal; for a complete list of the output formats and related SMPTE standards refer to section **5 Specifications**.

4.0 Operation

4.1 Switch Settings

Figure 4.1 outlines the slide switches and pushbutton selection.

Figure 4.1 SDM-872p Underside



Slide Switches selection:

Test Pattern Selection

On: Set the "Test" slide switch to this position to enable the test pattern on output. The test pattern consists of a HDTV color bars.

Off: The test pattern is disabled.

Note: in order to output a test pattern, a valid input signal must be installed.

Markers 4:3 Selection:

- On: Set the “Markers 4:3” slide switch to this position to display 4:3 markers on the 16:9 image.
- Off: The 4:3 markers are disabled.

Input format

- I: Set the “Input Format” slide switch to this position for most input signal.
- Psf: Set the “Input Format” slide switch to this position to access additional output format when input format is 1920x1080 25PsF.

Pushbutton Selection

The “Select” pushbutton allows the selection of different processing modes, according to the input format. When the pushbutton is depressed once, the LED indicating the currently selected processing mode flashes red and green; when depressed again, the alternate option LED flashes in its turn if it is available. Confirm the selection by depressing the pushbutton again. Other processing modes are accessed by depressing the pushbutton consecutively until the desired mode is reached. For processing mode A, B and C, both LEDs need to be turned on. See the supported format table in section **5 Specification** for details on resulting outputs.

Mode A: use this mode to output 25PsF signal from a 24p or 24PsF input signal.

Direct output:

use this selection to output a signal with the same format as the input signal.

3:2 Insert: inserts a 3:2 sequence to output a 59.94i and 60i signal.

Mode B: reserved for future use

P→PsF: use this selection to output an interlaced signal from

PsF→P: a progressive input signal.
use this selection to output a progressive signal from an interlaced input signal.

Mode C: reserved for future use

Varicam 1:1:
use this setting to output a 24p, 25p or 30p signal from a 60p or 59.94p signal originating from a Panasonic varicam system.

Varicam 1:2:
use this setting to output a 50p signal from a 60p signal originating from a Panasonic varicam system.

4.2 Status LED

The multicolored status LED, located between the HD/SD SDI IN and LOOP BNC connectors, is provided to identify any input errors and the selection of the test pattern. The following lists all possible situations.

Green: Indicates that the SDM-872p is powered and has detected a valid input signal.

Red: Indicates an invalid input signal or simply, there is no input signal installed.

Orange: The test pattern is selected.

5.0 Specifications

Input

Signal:	SMPTE 292M (1.485, 1.485/1.001 Gbps) with re-clocked loop-through output
Cable length:	75 m (250') (Belden 1694A)
Return loss:	>15 dB up to 1.5 GHz
Connector:	75Ω BNC

Output

Signal:	Digital fixed GBR (DVI)
Connector:	DVI-D, Female, compliant to DVI 1.0 pin out
Digital format:	DVI output format are compliant to EIA/CEA-861-B except for: 1920x1080/24,23.98/PsF
Analog Format:	Auto select based on input signal See Supported Format Table
H/V Level:	TTL Level

General specification

Processing delay:	see <i>Supported Format Table</i>
Power voltage:	5VDC
Consumption:	4 W

Supported Format

Input format	Standard	Mode	VGA & DVI output format	Standard	Delay
525	SMPTE-125M SMPTE-267M	Dir.Output	720x486 59.94i	SMPTE-125M SMPTE-267M	< 5us
625	EBU	Dir.Output	720x576 50i	EBU	< 5us
1280x720 60p	SMPTE-296M	Dir.Output	1280x720 60p	SMPTE-296M	< 5us
		Varicam 1:1	1280x720 24p	SMPTE-296M	1 Fr.
		Varicam 1:1	1280x720 25p	SMPTE-296M	1 Fr.
		Varicam 1:1	1280x720 30p	SMPTE-296M	1 Fr.
		Varicam 1:1	1280x720 50p	SMPTE-296M	1 Fr.
		Varicam 1:2	1280x720 50p	SMPTE-296M	1 Fr.
1280x720 59.94p	SMPTE-296M	Dir.Output	1280x720 59.94p	SMPTE-296M	< 5us
		Varicam 1:1	1280x720 23.98p	SMPTE-296M	1 Fr.
		Varicam 1:1	1280x720 29.97p	SMPTE-296M	1 Fr.
		Varicam 1:1	1280x720 49.95p	SMPTE-296M	1 Fr.
		Varicam 1:2	1280x720 49.95p	SMPTE-296M	1 Fr.
1280x720 50p	SMPTE-296M	Dir.Output	1280x720 50p	SMPTE-296M	< 5us
1920x1080 60i	SMPTE-274M	Dir.Output	1920x1080 60i	SMPTE-274M	< 5us
1920x1080 59.94i	SMPTE-274M	Dir.Output	1920x1080 59.94i	SMPTE-274M	< 5us
1920x1080 50i	SMPTE-274M	Dir.Output	1920x1080 50i	SMPTE-274M	< 5us
1920x1080 25 PsF	SMPTE-274M	Dir.Output	1920x1080 25 PsF*	SMPTE-274M	< 5us
		PsF→P	1920x1080 25p*	SMPTE-274M	1 Fr.
1920x1080 24 PsF	SMPTE-274M	Dir.Output	1920x1080 24 PsF	SMPTE-274M	< 5us
		PsF→P	1920x1080 24p	SMPTE-274M	1 Fr.
		3:2 Insert	1920x1080 60i	SMPTE-274M	1 Fr.
		A	1920x1080 25 PsF*	SMPTE-274M	1 Fr.
1920x1080 23.98PsF	SMPTE-274M	Dir.Output	1920x1080 23.98 PsF	SMPTE-274M	< 5us
		PsF→P	1920x1080 23.98p	SMPTE-274M	1 Fr.
		3:2 Insert	1920x1080 59.94i	SMPTE-274M	1 Fr.
		A	1920x1080 24.97 PsF		1 Fr.
1920x1080 25p	SMPTE-274M	Dir.Output	1920x1080 25p*	SMPTE-274M	< 5us
		P→PsF	1920x1080 25 PsF*	SMPTE-274M	1 Fr

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1920x1080 24p	SMPTE-274M	Dir.Output	1920x1080 24p	SMPTE-274M	< 5us
		P→PsF	1920x1080 24 PsF	SMPTE-274M	1 Fr.
		3:2 Insert	1920x1080 60i	SMPTE-274M	1 Fr.
		A	1920x1080 25 PsF*	SMPTE-274M	1 Fr.
1920x1080 23.98p	SMPTE-274M	Dir. Output	1920x1080 23.98p	SMPTE-274M	< 5us
		P→PsF	1920x1080 23.98 PsF	SMPTE-274M	1 Fr.
		3:2 Insert	1920x1080 59.94i	SMPTE-274M	1 Fr.

* Not yet tested