

picoLink Series

SDM-870p

Guide to Installation
and Operation
M640-9700-101

SD/HD Serial Digital to CAV Converter

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SDM-870p

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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Contents

	<i>page</i>
1 SDM-870p SD/HD Serial Digital to CAV Converter	1
1.1 Introduction.....	1
1.2 Features.....	1
2 Overall View	2
3 Installation	3
3.1 Power Supply.....	3
3.2 HD/SD Serial Digital Video Input with Active Loop-through.....	3
3.3 CAV Video Output.....	4
4 Operation	5
4.1 Switch Settings.....	5
4.2 Status LED.....	6
5 Specifications	7

1.0 SDM-870p SD/HD Serial Digital to CAV Converter

1.1 Introduction

The SDM-870p is a miniature, High-Definition DAC converting serial digital SD/HDTV (SMPTE 292M) to high-definition CAV (Y/Pb/Pr or GBR user selectable). The SDM-870p provides automatic input scan rate detection and supports a wide variety of input formats, including 720p, 525i, 625i, 1080i and 1080p. The SDM-870p's flexible sync output supports both traditional studio and computer monitors.

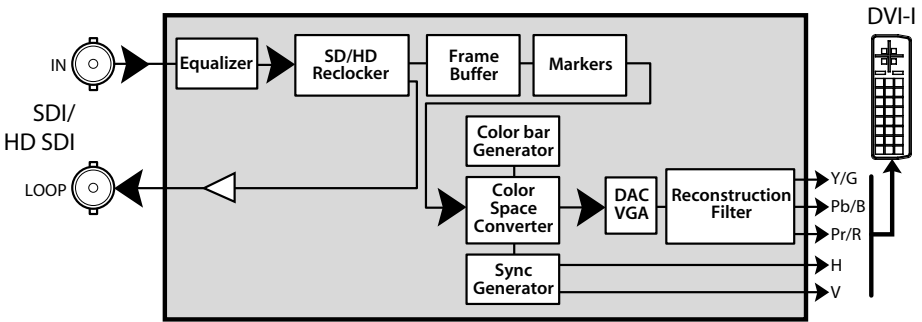


Figure 1 SDM-870p functional block diagram

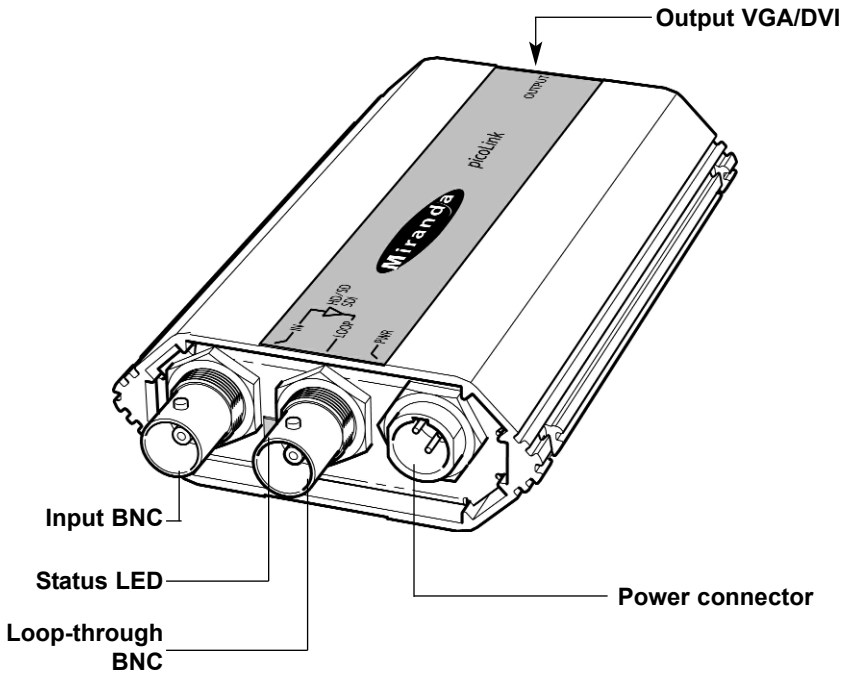
1.2 Features

- SDI and HD SDI video input with active loop-through
- CAV output (YPbPr, RGB)
- Composite Sync on all Components (Bi-Level or Tri-Level) or Separate H and V sync out (TTL-Level)
- Supports 525i, 625i, 720p, 1080p, 1080i with automatic input scan rate detection
- Supports direct output, p to PsF, PsF to p
- Built-in test signal and 4:3 markers
- Compact stand-alone package

2.0 Overall View

Figure 2 illustrates the SDM-870p'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 CAV output is provided by the DVI-I connector. Error status is provided by the status LED. Finally, the power source is connected to the lock-able power connector.

Figure 2 Overall view of the SDM-870p



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-870p. The power supply provides a regulated +5 VDC@2.4 A power source. The SDM-870p 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 CAV Output

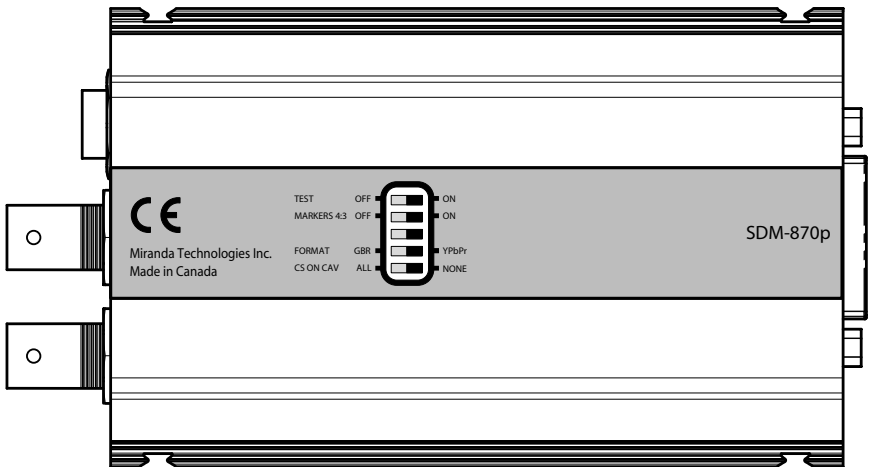
The high definition component analog video output signal (Y/Pb/Pr and RGB) is provided by the DVI-I (female) labeled OUTPUT. A DVI-to-VGA adapter is supplied to facilitate cabling. The output format is automatically selected according to the input signal; for a complete list of the output formats and 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-870p 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.

Output format

GBR: For GBR CAV output, set the slide switch to this position.

YPbPr: For Y/Pb/Pr CAV output, set the slide switch to this position.

CS (Composite Sync) on CAV

All: Set the slide switch to this position to add sync to the color components of the signal. Composite sync is bi-level for GBR output and tri-level for YPbPr output.

None: Set the slide switch to this position to output separate H and V sync.

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-875p 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 259M-C (270Mbps) and SMPTE 292M (1.485, 1.485/1.001 Gbps) with re-clocked loop-through output

Cable length: 100 m (350') (Belden 1694A)

Return loss: >15 dB up to 1.5 GHz

Connector: 75Ω BNC

Output

Signal: Analog user-selectable Y/Pb/Pr or GBR

Connector: DVI-I, Female, compliant to DVI 1.0 pin out

Analog Format: Auto select based on input signal
See *Supported Format Table*

Sync out (user-selectable):
Bi-Level or Tri-Level CS on all components;
CS on all components or none (H/V activated)

H/V Level: TTL Level

General specification

Quantization: 10 bits

Processing delay: see *Supported Format Table*

Power voltage: 5VDC

Consumption: 5 W

SDM-870p

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
1280x720 59.94p	SMPTE-296M	Dir.Output	1280x720 59.94p	SMPTE-296M	< 5us
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
1920x1080 24 PsF	SMPTE-274M	Dir.Output	1920x1080 24 PsF	SMPTE-274M	< 5us
1920x1080 23.98PsF	SMPTE-274M	Dir.Output	1920x1080 23.98 PsF	SMPTE-274M	< 5us
1920x1080 25p	SMPTE-274M	Dir.Output	1920x1080 25p*	SMPTE-274M	< 5us
1920x1080 24p	SMPTE-274M	Dir.Output	1920x1080 24p	SMPTE-274M	< 5us
1920x1080 23.98p	SMPTE-274M	Dir. Output	1920x1080 23.98p	SMPTE-274M	< 5us

* Not yet tested

Analog Luminance (Y) Performance

Frequency response: ± 0.25 dB up to 30 MHz

Analog Chrominance (Pb, Pr) Performance

Frequency response: ± 0.4 dB up to 15 MHz

Y, Pb, Pr

Group delay: <6.7 ns up to 30 MHz

Noise ratio: 58 dB up to 30 MHz

Return loss: >20 dB up to 30 MHz