

**picolink Series**

# ENC-291p

Guide to Installation  
and Operation

M824-9900-100

# 12-bit SDI to NTSC/PAL Encoder

Copyright 2006  
Miranda Technologies Inc.  
Specifications may be subject to change.  
Printed in Canada  
May 2006



Miranda  
Technologies inc.  
3499 Douglas-B.-Floreni  
St-Laurent, Québec, Canada H4S 1Y6

Tel. 514-333-1772  
Fax. 514-333-9828  
[www.miranda.com](http://www.miranda.com)

# ENC-291p

### **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.*

### **CONTACT MIRANDA**

For technical assistance, please contact the Miranda Technical Support centre nearest you:

#### **Americas**

*Telephone:*

+1-800-224-7882

*e-mail:*

techsupp@miranda.com

#### **Asia**

*Telephone:*

+81-3-5730-2987

*e-mail:*

asiatech@miranda.com

#### **Europe, Middle East, Africa, UK**

*Telephone:*

+44 (0) 1491 820222

*e-mail:*

eurotech@miranda.com

#### **France (only)**

*Telephone:*

+33 (0) 1 55 86 87 88

*e-mail:*

francetech@miranda.com

Visit our web site at [www.miranda.com](http://www.miranda.com)

# CONTENTS

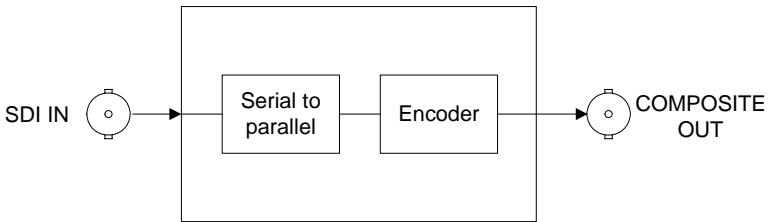
	<i>page</i>
<b>1.0 ENC-291p SDI to NTSC/PAL Encoder.....</b>	<b>1</b>
<b>1.1 Introduction .....</b>	<b>1</b>
<b>1.2 Features .....</b>	<b>1</b>
<b>2.0 Physical Layout .....</b>	<b>2</b>
<b>3.0 Installation .....</b>	<b>3</b>
<b>3.1 Power Supply .....</b>	<b>3</b>
<b>3.2 SDI Input .....</b>	<b>3</b>
<b>3.3 Composite Output .....</b>	<b>3</b>
<b>4.0 Operation .....</b>	<b>4</b>
<b>4.1 Switch Settings .....</b>	<b>4</b>
<b>4.2 Status LED .....</b>	<b>5</b>
<b>5.0 Specifications .....</b>	<b>6</b>



## 1.0 ENC-291p 12-bit SDI to NTSC/PAL Encoder

### 1.1 Introduction

The ENC-291p is the industry's smallest composite encoder. This product automatically detects 525-line and 625-line SDI signals conforming to the SMPTE 259M-C standard and provides a NTSC, PAL, PAL-M, or PAL-N composite output signal. An internal test pattern generator provides a color bars test signal. This feature-packed unit delivers ease-of-use, a simplified design, easy installation and operation.



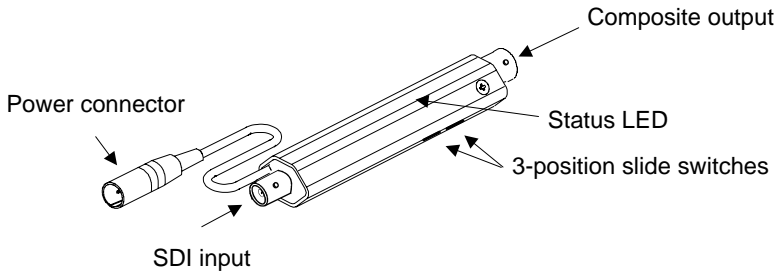
**Figure 1:** ENC-291p functional block diagram

### 1.2 Features

- Automatic 525-line and 625-line format input detection
- NTSC or PAL-M composite output for 525-line input and PAL or PAL-N composite output for 625-line input
- Y-only (monochrome) output selection
- Output setup selection: 7.5 or 0 IRE
- Color bars generator
- Bi-color LED providing error status on input SDI signal
- Very small packaging with aluminum extruded body

## 2.0 Physical Layout

Figure 2 illustrates the ENC-291p's major parts and their locations. The video source is connected to the SDI input BNC and the encoded signal is provided by the composite output. Error status is provided by the status LED and mode settings are configured by two 3-position slide switches. Finally, the power source is connected to the power connector.



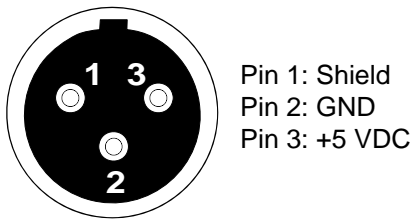
**Figure 2:** Overall view of the ENC-291p

### 3.0 Installation

#### 3.1 Power Supply

The LKS-WSU power supply is used to power the ENC-291p for both 110V and 220V operation. This power supply provides a regulated +5 VDC@1A power source over an input range of 90 – 260 VAC. The ENC-291p employs a mini XLR-3 connector for its power needs. Figure 3 provides a detailed pinout of the male connector.

(male connector-facing)



**Figure 3:** Power connector pinout

#### 3.2 SDI Input

Connect an SDI serial digital signal to the BNC labeled SDI IN. The SDI input signal must conform to the SMPTE 259M-C standard.

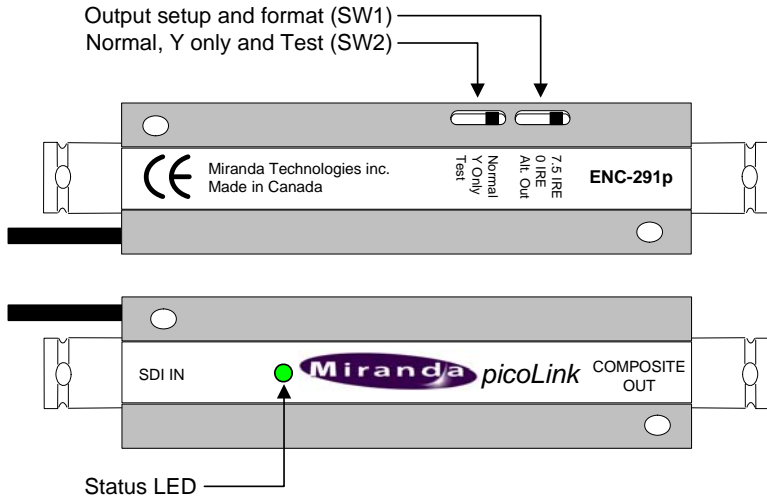
#### 3.3 Composite Output

A composite signal conforming to the SMPTE 170M or ITU-R BT.470-6 standard is provided at the composite output BNC.

## 4.0 Operation

### 4.1 Switch Settings

Figure 4 shows the location of the slide switches and the status LED.



**Figure 4:** ENC-291p slide switch and LED locations

#### **Output setup and format switch (SW1)**

**7.5 IRE:** To add a 7.5 IRE setup to the output NTSC composite signal, set SW1 to this position. There is no setup for PAL, PAL-M, and PAL-N output signals.

**0 IRE:** For no setup on the output composite signal, set SW1 to this position.

**Alt. Out:** To enable PAL-M and PAL-N outputs during 525-line and 625-line input formats respectively, set SW1 to this position. Refer to Table 1 for the output format provided during this setting.



4:2:2 input	Output	
	SW1=7.5 IRE or 0 IRE	SW1=Alt. Out
525-lines	NTSC	PAL-M
625-lines	PAL	PAL-N

**Table 1:** Output format conversion

**Normal, Y-only, and test pattern switch (SW2)**

- Normal: For normal operation, set SW2 to this position.  
 Y-Only: Setting SW2 to this position provides a monochrome output signal by forcing the output chroma to 0.  
 Test: Set SW2 to Test in order to enable the test pattern generator. Make sure a valid SDI input signal is installed. For all output formats, the test signal is 75% color bars with 100% white bar.

**4.2 Status LED**

The color of the status LED, located on top near the Miranda logo, identifies the presence of input errors and the selection of the test pattern. Possible indications are:

- Green: Indicates the ENC-291p is powered and has detected a valid SDI serial digital signal at its input.  
 Red: Indicates that the input is in error:
  - no input signal has been detected
  - an invalid input signal has been detected.
 Orange: The test pattern is selected.

**If an input signal error is detected while the test pattern is enabled, the status LED will turn and remain red.**

## 5.0 Specifications

### Input

Signal:	SMPTE 259M-C (270 Mbps)
Cable length:	300 m (985') Belden 8281
Return loss:	> 15 dB up to 270 MHz
Connector:	75 $\Omega$ BNC

### Output

Signal:	NTSC-M (525/60) SMPTE 170M or PAL (625/50) ITU-R BT.470-6 PAL-M (525/60) ITU-R BT.470-6 PAL-N (625/50) ITU-R BT.470-6
Return loss:	> 35 dB up to 5 MHz
Connector:	75 $\Omega$ BNC

### Processing performance

Signal path:	10 bits
Quantization:	12 bits
Sampling:	216 MHz (16X oversampling)
Freq. response:	$\pm 0.5$ dB to 5 MHz
Processing delay:	3.2 $\mu$ s
Test signal:	75% color bars with 100% white

### Electrical

Voltage requirement:	+5 VDC
Power consumption:	1.2 W (typical)
Power connector:	Mini XLR-3

### Mechanical

Overall size:	102 mm x 25 mm x 18 mm (4" x 1" x 0.7")
Power cable length:	127 mm (5")
Full spec. temp. range:	0°C (32°F) to 30°C (86°F)