

picoLink Series

ARC-371p

Guide to Installation
and Operation
M153-9900-201

Copyright 2002

Miranda Technologies Inc.

Specifications may be subject to change.

Printed in Canada

August 2002



Miranda

Technologies inc.

3499 Douglas-B.-Floreni

St-Laurent, Québec, Canada H4S 1Y6

Tel. 514-333-1772

Fax. 514-333-9828

www.miranda.com

Composite Aspect Ratio Converter

ARC-371p

Warranty Policies

Warranty Statement

Miranda Technologies Inc. warrants that the equipment it manufactures shall be free from defects in material and workmanship for a period of two (2) years from the date of shipment from the factory. If equipment fails due to such defects, Miranda Technologies Inc. will, at its option, repair or provide a replacement for the defective part or product. Equipment that fails after the warranty period, has been operated or installed in a manner other than that specified by Miranda, or has been subjected to abuse or modification, will be repaired for time and material charges at the Buyer's expense.

All out-of-warranty repairs are warranted for a period of ninety (90) days from the date of shipment from the factory.

Miranda Technologies Inc. makes no other warranties, expressed or implied, of merchantability, fitness for a particular purpose or otherwise. Miranda's liability for any cause, including breach of contract, breach of warranty, or negligence, with respect to products sold by it, is limited to repair or replacement by Miranda, at its sole discretion. In no event shall Miranda Technologies Inc. be liable for any incidental or consequential damages, including loss of profits.

Effective January 1, 2002

Warranty Exchange Policies

Miranda Technologies Inc. warrants that the equipment it manufactures shall be free from defects in materials and workmanship for a period of two (2) years from the date of shipment from the factory. If equipment fails due to such defects, Miranda will provide repair of the failed unit under the terms of the Miranda warranty.

If the equipment has been proven to be defective on arrival, Miranda will ship a new product in exchange, usually within 36 hours of factory notification.

If the equipment to be repaired is essential and the customer so requests, Miranda will, at its option, provide a service replacement or loaner part or product, usually within 36 hours of factory notification, weekends and holidays excluded.

All warranty exchange or loaner parts or products shall be shipped to the Buyer with a packing list clearly describing the items and stating the date of shipment. Repaired parts or products will be shipped to the Buyer with a similar packing list. In the case of exchange, the defective products or parts must be returned to Miranda within fifteen (15) days from receipt by the customer of the exchange product. In the case of a loaner, the loaned

products or parts must be returned to Miranda within fifteen (15) days from receipt by the customer of the repaired equipment.

If the equipment is not returned within fifteen (15) days, as described for either exchanges or loans, A Rental Invoice will be generated. Rental terms will be fifteen (15) percent of the current list price of the products or parts per month or a fraction thereof. Before returning the equipment to Miranda Technologies Inc., for any reason, the Buyer must first obtain a Return Authorization Number from Miranda Technologies Inc. Miranda Technologies Inc will pay freight and insurance charges for the delivery of the loaner or exchange products or parts. Freight and insurance charges for the return of the defective product or part will also be paid by Miranda Technologies.

Out-Of-Warranty Repair Policy

Miranda will repair equipment which is out of Warranty. The current pricing structure for this service is available from the Miranda web site at www.miranda.com or from Miranda Technical Support Services at (514) 333-1772. All out-of-warranty repairs are warranted for a period of 90 days from the date of shipment from the factory. Before returning the equipment to Miranda Technologies Inc., for any reason, the Buyer must first obtain a Return Authorization Number from Miranda Technologies Inc. In the case of a product deemed by Miranda to be beyond repair, the customer must purchase a new product at current retail prices.

The Buyer will pay freight and insurance charges for the return of the defective product or part to the manufacturer for repair. Miranda Technologies will pay freight and insurance charges for the return of the repaired product or part to the Buyer.

Out-Of Warranty Equipment Updates and Spare Parts Policy

Miranda Technologies' current pricing structure for out-of-warranty equipment updates, or the sale of spare parts, is available from Miranda Technical Support Services at (514) 333-1772.

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.

How to contact us:

Head Office

Miranda Technologies Inc.
3499 Douglas-B.-Floreani
St. Laurent (Montreal), Que. H4S 1Y6
Canada

Tel +1 (514) 333-1772

Fax +1 (514) 333-6914

Toll free: 1-800-224-9828

Miranda Europe

222, 226 Rue De Rosny
93100 Montreuil
France

+33 1 55 86 87 88

+33 1 55 86 00 29

www.miranda.com

Miranda Asia

Mita Nexus Bldg. 2F
1-3-33 Mita, Minato-Ku
Tokyo, Japan 108-0073

+81 3 5730 2988

+81 3 5730 2973

CONTENTS

	<i>page</i>
1.0 ARC-371p	1
1.1 Introduction	1
1.2 Features	1
2.0 Overall View	2
3.0 Installation	3
3.1 Power Supply	3
3.2 Composite Input	4
3.3 Composite Output	4
4.0 Operation	5
4.1 Switch Settings	5
4.2 Status LED	7
5.0 Specifications	9
6.0 Schematic Diagrams.....	11

1.0 ARC-371p

1.1 Introduction

The ARC-371p is the industry's smallest composite aspect ratio converter. This product automatically detects NTSC, PAL, PAL-M, PAL-N, and SECAM standards and provides a composite output signal. Coupled with an excellent price/performance ratio, aspect ratio conversion is available from 16:9 to 4:3 and 4:3 to 16:9. Disabling the aspect ratio converter forces the unit in a transparent mode. The ARC-371p sports an additional feature aimed at converting standards: NTSC to/from PAL-M, PAL to/from PAL-N, or SECAM to PAL or PAL-N. This feature-packed unit delivers ease-of-use, a simplified design, easy installation and operation.

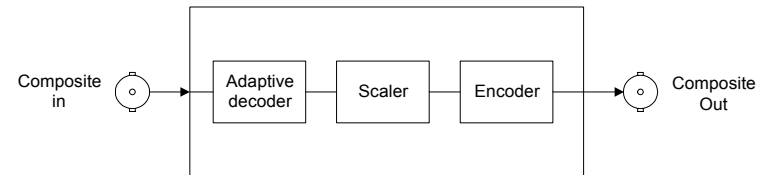


Figure 1: ARC-371p functional block diagram

1.2 Features

- Automatic NTSC/PAL/PAL-M/PAL-N/SECAM input standard detection
- Composite output
- 3-line adaptive comb filter
- Aspect ratio conversion: 16:9 to 4:3, none, or 4:3 to 16:9
- Chroma modulation conversion: on or off
- Input setup selection: 7.5 or 0 IRE
- Color bars generator
- Bi-color LED providing error status on input composite signal
- Very small packaging aluminum extruded body

2.0 Overall View

Figure 2 illustrates the ARC-371p's major parts and their locations. The video source is connected to the analog composite input and the converted signal is provided by the composite output. Error status is provided by the status LED and mode settings are configured by three 3-position slide switches. Finally, the power source is connected to the power connector.

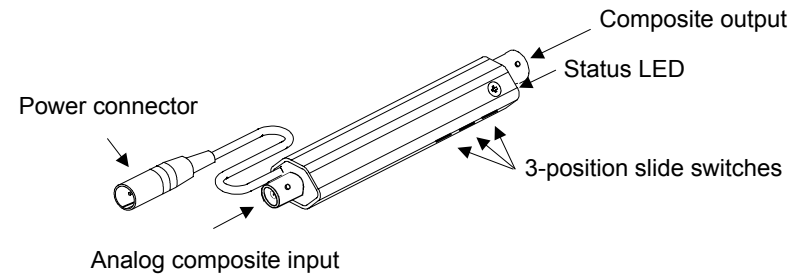


Figure 2: Overall view of the ARC-371p

3.0 Installation

3.1 Power Supply

The power supplies LKS-WSA and LKS-WSE, for 110 V and 220 V operation respectively, are used to power the ARC-371p. Each power supply provides a regulated +5 VDC@750 mA power source. The ARC-371p employs a mini XLR-3 connector for its power needs. Figure 3 provides a detailed pinout of the male connector.

(male connector-facing)

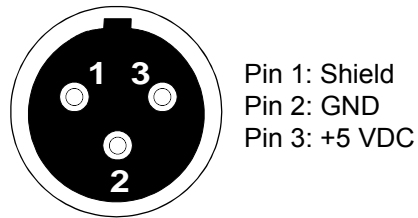


Figure 3: Power connector pinout

3.2 Composite Input

Connect a composite signal to the BNC labeled COMPOSITE IN. The supported sources are NTSC composite signals conforming to the SMPTE 170M standard and PAL/PAL-M/PAL-N/SECAM composite signals conforming to the ITU (CCIR) 624-4 standard. Both stable and non-time base sources are supported.

3.3 Composite Output

A composite signal conforming to the SMPTE 170M or ITU (CCIR) 624-4 standard is provided by the composite output BNC.

4.0 Operation

4.1 Switch Settings

Figure 4 outlines the slide switch functions.

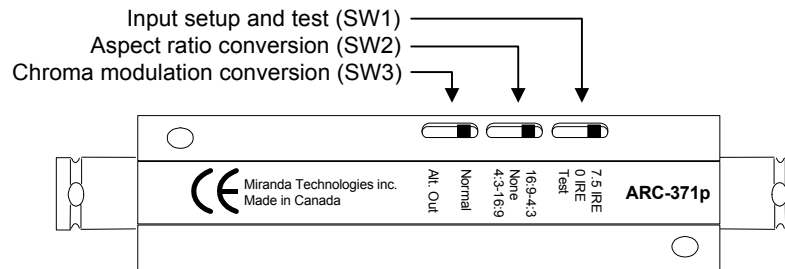


Figure 4: ARC-371p switch settings

Input setup and test pattern switch (SW1)

- 7.5 IRE:** This position indicates the input composite signal has a setup of 7.5 IRE. During PAL, PAL-N, and SECAM operation, this setting has no effect.
- 0 IRE:** This position indicates the input composite signal has 0 IRE setup. During PAL, PAL-N, and SECAM operation, this setting has no effect.
- Test:** Set SW1 to Test in order to enable the test pattern generator. Make sure a valid analog composite signal is installed. NTSC outputs produce a 75% color bars signal whereas PAL, PAL-M, and PAL-N outputs produce a 75% color bars with 100% white bar signal.

Aspect ratio conversion switch (SW2)

16:9-4:3: Set SW2 to this position in order to convert 16:9 composite signals to 4:3 composite signals. During this type of aspect ratio conversion, letterbox is the conversion format adopted. The letterbox format performs vertical downscaling in order to permit the addition of black bars on the top and bottom regions of the image. There is no picture loss with this format. Refer to Figure 5.

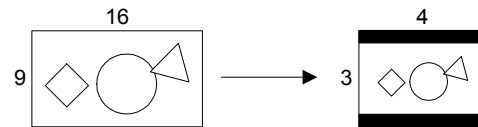


Figure 5: 16:9 to 4:3 aspect ratio conversion

None: Set to this position to disable the aspect ratio converter.

4:3-16:9: Set SW2 to this position in order to convert 4:3 composite signals to 16:9 composite signals. Converting from 4:3 to 16:9 aspect ratios, black side panels are added to either side of the image very much like the letterbox format used in 16:9 to 4:3 conversion. However, horizontal downscaling is performed in order to allow the addition of black side panels. There is no picture loss with this format. Refer to Figure 6.

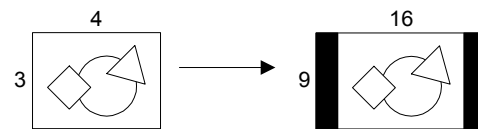


Figure 6: 4:3 to 16:9 aspect ratio conversion

Chroma modulation conversion switch (SW3)

- Normal: The Normal position disables the chroma modulation converter. Table 1 provides the output formats available for various inputs.
- Alt. Out: Set SW3 to this position to enable the chroma modulation converter. Refer to Table 1 for the output format provided during this setting.

Input	Output	
	SW3=Normal	SW3=Alt. Out
NTSC	NTSC	PAL-M
PAL	PAL	PAL-N
PAL-M	PAL-M	NTSC
PAL-N	PAL-N	PAL
SECAM	PAL	PAL-N

Table 1: Chroma modulation conversion

4.2 Status LED

The bi-colored status LED, located next to the composite output BNC, is provided to identify any input errors and the selection of the test pattern. The following lists all possible situations.

- Green: Indicates the ARC-371p is powered and has detected a valid analog composite signal.
- Red: Indicates an error with the input signal has been detected or simply, there is no input signal installed.
- Yellow: The test pattern is selected.

If, during a test pattern selection, an error is detected with the input signal, the status LED will remain red.

5.0 Specifications

Input

Signal: NTSC-M (525/60) SMPTE 170M or
PAL (625/50) ITU (CCIR) 624-4
PAL-M (525/60) ITU (CCIR) 624-4
PAL-N (625/50) ITU (CCIR) 624-4
SECAM (625/50) ITU (CCIR) 624-4

Aspect ratio: 16:9 or 4:3

Return loss: > 35 dB up to 5 MHz

Connector : 75 Ω BNC

Output

Signal: NTSC-M (525/60) SMPTE 170M or
PAL (625/50) ITU (CCIR) 624-4
PAL-M (525/60) ITU (CCIR) 624-4
PAL-N (625/50) ITU (CCIR) 624-4
1 V_{pp} nominal

Aspect ratio: 16:9 or 4:3

Return loss: > 35 dB up to 5 MHz

Connector : 75 Ω BNC

Processing performance

Signal path: 8 bits

Quantization: 10 bits

Freq. response: ± 0.5 dB 100 Hz to 4 MHz

Filtering: Luminance: 3-line adaptive comb
(NTSC)

Chrominance: 3-line comb

Processing delay: 16:9 to 4:3: 32 lines (NTSC/PAL-M),
36 lines (PAL/PAL-N/
SECAM)

4:3 to 16:9: 2 lines

Transparent: 2 lines

VANC: Bypassed to luma channel, chroma
blanked

Electrical

Voltage requirement: +5 VDC
Power consumption: 3.3 W (660 mA @ 5V)
Power connector: Mini XLR-3

Mechanical

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

6.0 Schematic Diagrams