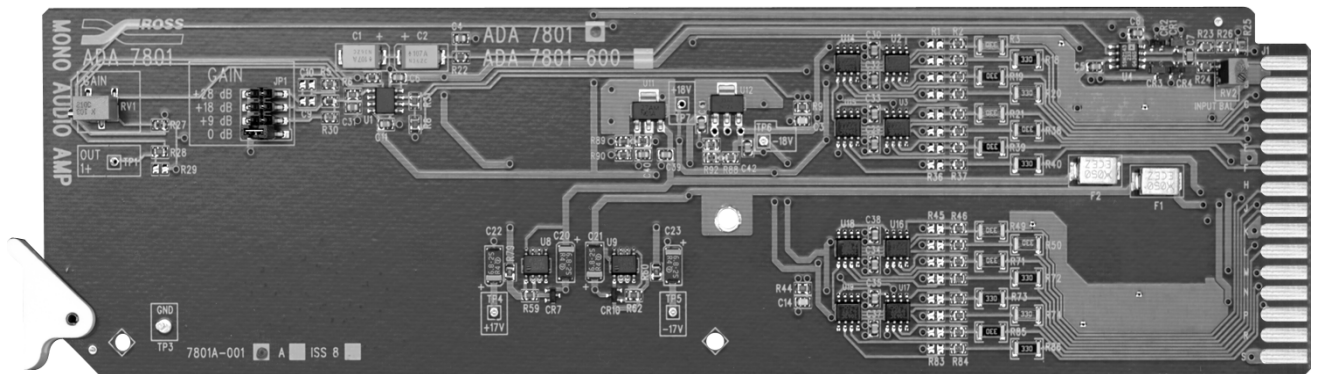


# ADA-7801 ADA-7801-600 Audio Distribution Amplifier User Manual



Ross Part Number: 7801D-004  
Issue: 08

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## ADA-7801/-600 • Audio Distribution Amplifier User Manual

- Ross Part Number: **7801D-004**
- Document Issue: **08**
- Printing Date: January 15, 2004. Printed in Canada.
- Software Issue: N/A

The information contained in this User Manual is subject to change without notice or obligation.

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## Important Regulatory and Safety Notices to Service Personnel

Please review the following material to avoid injury to personnel and to prevent product damage.

- All product servicing should be carried out by qualified service personnel.
- This product may require specific equipment, and/or installation procedures to be carried out to satisfy certain regulatory compliance requirements. The following notices have been included in the manual, to call attention to these specific requirements.

### Symbol Meanings



- **Protective Earth** — Protective Earth (PE) terminal. Provided for connection of the protective earth (green or green/yellow) supply system conductor.



- **Caution** — This CAUTION symbol on the equipment refers you to the Product Manual for additional information. This symbol appears next to required information in the manual.



- **WARNING PERSONAL INJURY:** Risk of electrical shock. This symbol warns you of a potential shock hazard where HAZARDOUS LIVE voltages greater than 30 Vrms, 42.4Vpeak, or 60Vdc may be accessible. **Failure to comply with these instructions could result in death or serious injury.**

### Important Safety Instructions



- Do not use this apparatus near water. Hazardous voltages can occur.
- Clean only with a dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other devices (including amplifiers) that produce heat.
- Do not defeat the safety purposes of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when not in use for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, such as: power-supply cord or plug is damaged, objects have fallen into the device, the device has been exposed to rain or moisture, the device does not operate normally or has been dropped.

## **EMC Notices**

- **FCC**

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense. Changes or modifications to this equipment not expressly approved by Ross Video Ltd. could void the user's authority to operate this equipment.

- **CE**

This product has been tested and meets the requirements of the European CE marking directive. A copy of the CE Declaration of Conformity can be provided upon request.

## **Maintenance/User Serviceable Parts**

Routine maintenance to this RossGear or GearLite product is not required. This product contains no user serviceable parts. If the module does not appear to be working properly, please contact Technical Support using the numbers listed under the "Contact Us" section on the last page of this manual. All RossGear products are covered by a generous 5-year warranty and will be repaired without charge for materials or labor within this period. See the "Warranty and Repair Policy" section in this manual for details.



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# Introduction

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## In This Chapter

This chapter contains the following information sections:

- A Word of Thanks
- Overview
- Functional Block Diagram
- Features
- Documentation Terms

### A Word of Thanks

Congratulations on choosing the Ross Video **ADA-7801** or **ADA-7801-600** Audio Distribution Amplifiers. The ADA-7801 distribution amplifier is part of a full line of RossGear Terminal Equipment, backed by Ross Video's experience in engineering and design expertise since 1974.

You will be pleased at how easily your new ADA-7801 fits into your overall working environment. Equally pleasing is the product quality, reliability and functionality. Thank you for joining the group of worldwide satisfied Ross Video customers!

Should you have a question pertaining to the installation or operation of your ADA-7801, please contact us at the numbers listed in the back of this publication. Our technical support staff is always available for consultation, training, or service.

### Overview

The Ross ADA-7801 Audio Distribution Amplifier provides a means of amplifying and distributing program-level audio with virtually no loss of quality. It uses the latest types of integrated circuits, developed specifically for professional audio applications, assuring a very low level of distortion and noise. The amplifier is operated as an eight-output mono amplifier.

The **ADA-7801** card is available in two models:

- **ADA-7801**, a 66Ω amplifier card for use in AFR-7800 series audio frames.
- **ADA-7801-600**, a 600Ω amplifier card for use in AFR-7800 series audio frames.

See Chapter 3, “**Specifications**” for each model’s performance details.

Please refer to the specific frame User Manual for ventilation and cooling instructions to maintain optimum operating conditions. The ADA-7801 and ADA-7801-600 cards also fit into Leitch\* FR-880 series frames to provide you with additional installation versatility.

The ADA-7801 amplifiers are part of a full line of RossGear analog distribution products engineered to satisfy the highest quality broadcast standards and the most demanding requirements of your facility.

## Functional Block Diagram

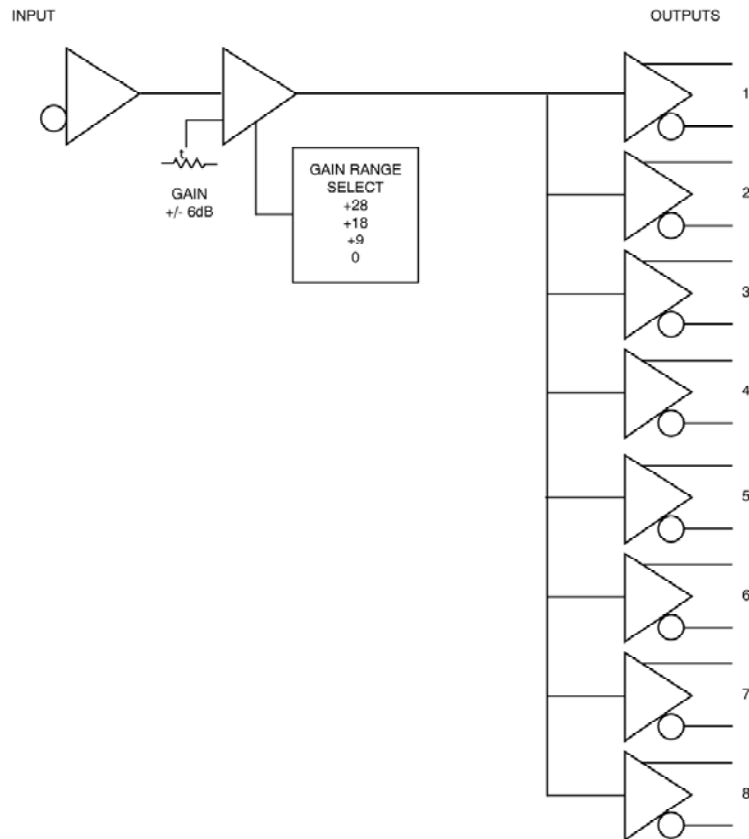


Figure 1. Simplified Block Diagram of the ADA-7801

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\* Leitch is a trademark of Leitch Technology Corporation



## Features

The following features make the ADA-7801 and ADA-7801-600 Audio Distribution Amplifiers the most flexible, high-quality card for your audio distribution requirements:

### *Features*

- 8 mono outputs
- Extremely flat frequency response
- Very low distortion
- Excellent common-mode rejection
- Low noise
- Wide gain range
- Low power consumption for cool reliable operation
- 5 year transferable warranty
- Fits Ross AFR-7812C and AFR-7814C audio frames
- Fits Leitch 880 Series frames
- Interchangeable alternative to the Leitch ADA-881 amplifier

## Documentation Terms

The following terms are used throughout this guide:

- “**Frame**” refers to the **AFR-7812C** or **AFR-7814C** frames that can house the **ADA-7801** and **ADA-7801-600** cards. See the respective User Manuals for details.
- “**Operator**” and “**User**” both refer to the person who uses the **ADA-7801** cards.
- “**Board**”, “**Card**”, and “**Module**” all refer to the **ADA-7801** cards, including all components.
- “**System**” and “**Audio system**” refers to the mix of interconnected analog production and terminal equipment in which the **ADA-7801** cards operate.



# Installation and Setup

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## In This Chapter

This chapter contains the following information sections:

- Static Discharge
- Unpacking
- Gain Jumper Setup
- Board Installation
- Gain Potentiometer Setup
- Cable Connections

### Static Discharge

Whenever handling the ADA-7801 cards and other related equipment, please observe all static discharge precautions as described in the following note:



**Caution**

Static discharge can cause serious damage to sensitive semiconductor devices. Avoid handling circuit boards in high static environments such as carpeted areas, and when wearing synthetic fiber clothing. Always exercise proper grounding precautions when working on circuit boards and related equipment.

### Unpacking

Unpack each ADA-7801 card you received from the shipping container, and check the contents against the packing list to ensure that all items are included. If any items are missing or damaged, contact your sales representative or Ross Video directly.

## Gain Jumper Setup

Use the following figure and steps to set up the ADA-7801 jumper.

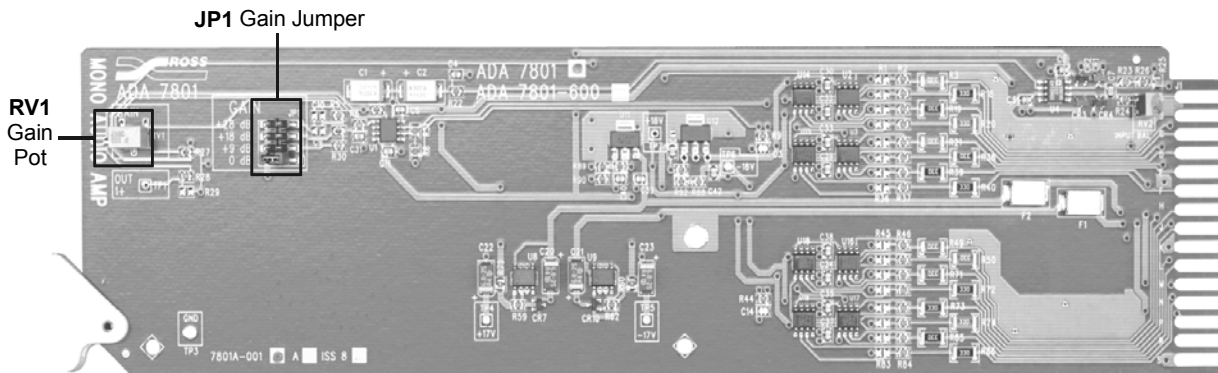


Figure 2. ADA-7801 User Control Locations

Set Jumper **JP1** to the desired gain range position as shown in the following table:

Table 1. Jumper settings

Gain Jumper Settings
+28 dB
+18 dB
+9 dB
0 dB (default)

## Board Installation

Use the following steps to install the ADA-7801 cards in a RossGear audio distribution frame:

- Refer to the User Manual of the RossGear frame, to ensure that the frame is properly installed according to instructions. If this module is to be installed in any compatible frame other than a Ross Video product, refer to the frame manufacturer's manual for specific instructions.
- Please note that heat and power distribution requirements within a frame may dictate specific slot placement of cards. Cards with many heat-producing components should be arranged to avoid areas of excess heat build-up, particularly in frames using convectional cooling.
- After selecting the desired frame installation slot, hold the ADA-7801 card by the edges and carefully align the card edges with the slots in the frame. Then fully insert the card into the frame until the rear connection plug is properly seated.

## Gain Potentiometer Setup

If necessary, use a tweaker screwdriver to adjust the **RV1** Gain potentiometer to the desired gain range. See Figure 2, above, for pot location. The potentiometer provides a fine control of the gain and has a range of +/- 6dB.

## Cable Connections

This section provides instructions for connecting cables to the ADA-7801 when mounted in RossGear frames. See the following frame rear panel diagram for cable input and output designations:

On the rear of the Ross frame there are removable connectors for the mono input and eight mono outputs. See Figure 3 below and the manual for the frame in which you have installed the ADA-7801 for further details on cable connections.

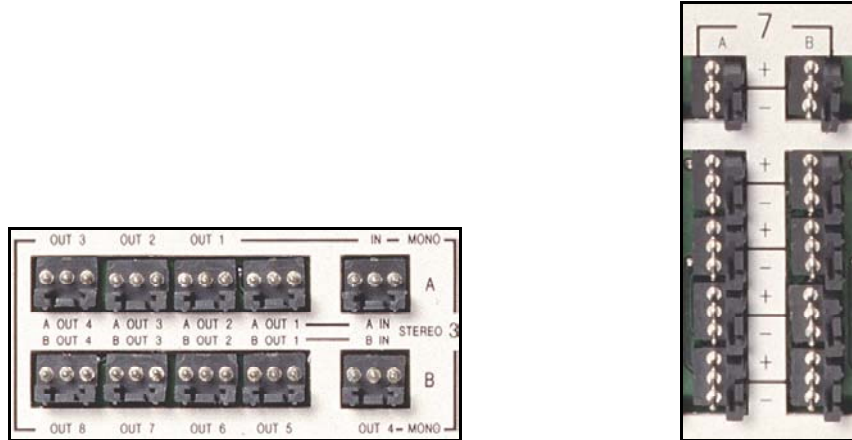


Figure 3. ADA-7801/A Cabling Designations for RossGear 7814C and 7812C Series Frames

Each connector has sockets for the positive, negative, and grounded wires of a balanced analog audio cable. Wire the external cables to the removable terminal block connectors as outlined in the figures and procedure below.

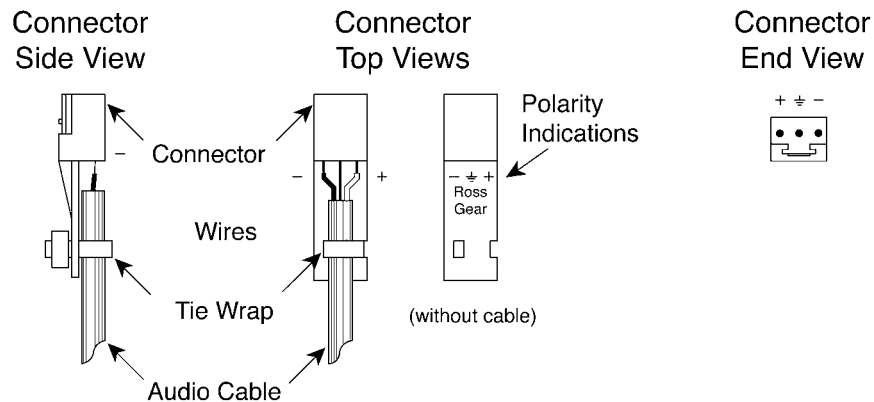


Figure 4. Connector Wiring for ADA-7801 Inputs and Outputs

1. Insert an audio wire into the designated polarity slot on the connector.
2. Use a tweaker screwdriver to tighten the corresponding screw on the underside of the connector.
3. Repeat steps 1 and 2 for each wire on each connector.
4. Secure the cable to the connector with a tie wrap.
5. Once the cables have been wired to the connectors, install the connectors to the sockets on the RossGear frame so that the slotted tongue fits in the grooves on the frame's mating connector.



# Specifications

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## In This Chapter

This chapter contains the following sections:

- ADA-7801 Technical Specifications
- ADA-7801-600 Technical Specifications

### ADA-7801 Technical Specifications

*Table 2. ADA-7801 Specifications*

Category	Parameter	Specification
Input	Input Impedance	>35k $\Omega$ , balanced
	Max Input Level	+34dBu
	Common Mode Rejection	>100dB @ 60Hz, >70dB @ 20kHz
Output	Number of Outputs	8
	Max Output Level	+28dBu
	Output Impedance	66 $\Omega$
	Output Isolation	>70dB
Performance	S/N Ratio	>100dB (unity gain) relative to +8dBu
	Gain Range	-6 to +34dB ( $\pm$ 6dB fine adjustment)
	Frequency Response	$\pm$ 0.02dB 20Hz to 20kHz
	Total Harmonic Distortion + Noise	<0.002%
	Intermodulation	<0.002% (SMPTE)
	Crosstalk between Amplifiers	>100dB
	Power Consumption @ +8dBu output	1.2W

All tests performed at +18dBu and cover 20Hz to 20kHz unless otherwise specified. All measurements made with an Audio Precision test set. Specifications are subject to change without notification.

## ADA-7801-600 Technical Specifications

Table 3. ADA-7801-600 Specifications

Category	Parameter	Specification
Input	Input Impedance	>35k $\Omega$ , balanced
	Max Input Level	+30dBm
	Common Mode Rejection	>100dB @ 60Hz, >70dB @ 20kHz
Output	Number of Outputs	8
	Max Output Level	+23dBm
	Output Impedance	600 $\Omega$
	Output Isolation	>70dB
Performance	S/N Ratio	>100dB (unity gain) relative to +8dBm
	Gain Range	-6 to +34dB ( $\pm$ 6dB fine adjustment)
	Frequency Response	$\pm$ 0.02dB 20Hz to 20kHz
	Total Harmonic Distortion + Noise	<0.009%
	Intermodulation	<0.006% (SMPTE)
	Crosstalk between Amplifiers	>100dB
	Power Consumption @ +8dBm output	2.2W

All tests performed at +8dBm and cover 20Hz to 20kHz unless otherwise specified. All measurements made with an Audio Precision test set. Specifications are subject to change without notification.



# Service Information

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## In This Chapter

This chapter contains the following sections:

- Troubleshooting Checklist
- Warranty and Repair Policy

### Troubleshooting Checklist

Routine maintenance to this RossGear product is not required. In the event of problems with your ADA-7801, the following basic troubleshooting checklist may help identify the source of the problem. If the module still does not appear to be working properly after checking all possible causes, please contact your Ross Video products distributor, or the Ross Video Technical Support department at the numbers listed under the “Contact Us” section at the end of this manual.

1. **Visual Review** – Performing a quick visual check may reveal many problems, such as connectors not properly seated or loose cables. Check the module, the frame, and any associated peripheral equipment for signs of trouble.
2. **Power Check** – Check the power indicator LED on the distribution frame front panel for the presence of power. If the power LED is not illuminated, verify that the power cable is connected to a power source and that power is available at the power main. Confirm that the power supplies are fully seated in their slots. If the power LED is still not illuminated, replace the power supply with one that is verified to work.
3. **Reseat the Card in the Frame** – Eject the card and reinsert it in the frame.
4. **Check Control Settings** – Refer to the Installation and Operation sections of the manual and verify all user-adjustable components.
5. **Input Signal Status** – Verify that source equipment is operating correctly and that a valid signal is being supplied.
6. **Output Signal Path** – Verify that destination equipment is operating correctly and receiving a valid signal.
7. **Module Exchange** – Exchanging a suspect module with a module that is known to be working correctly is an efficient method for localizing problems to individual modules.

## **Warranty and Repair Policy**

The RossGear ADA-7801 is warranted to be free of any defect with respect to performance, quality, reliability, and workmanship for a period of FIVE (5) years from the date of shipment from our factory. In the event that your RossGear ADA-7801 proves to be defective in any way during this warranty period, Ross Video Limited reserves the right to repair or replace this piece of equipment with a unit of equal or superior performance characteristics.

Should you find that this RossGear ADA-7801 has failed after your warranty period has expired, we will repair your defective product should suitable replacement components be available. You, the owner, will bear any labor and/or part costs incurred in the repair or refurbishment of said equipment beyond the FIVE (5) year warranty period.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profits) incurred by the use of this product. Implied warranties are expressly limited to the duration of this warranty.

This RossGear ADA-7801 User Manual provides all pertinent information for the safe installation and operation of your RossGear Product. Ross Video policy dictates that all repairs to the RossGear ADA-7801 are to be conducted only by an authorized Ross Video Limited factory representative. Therefore, any unauthorized attempt to repair this product, by anyone other than an authorized Ross Video Limited factory representative, will automatically void the warranty. Please contact Ross Video Technical Support for more information.

### ***In Case of Problems***

Should any problem arise with your RossGear ADA-7801, please contact Ross Video Technical Support. (Contact information is supplied at the end of this publication.)

A Return Material Authorization number (RMA) will be issued to you, as well as specific shipping instructions, should you wish our factory to repair your RossGear ADA-7801. If required, a temporary replacement module will be made available at a nominal charge. Any shipping costs incurred will be the responsibility of you, the customer. All products shipped to you from Ross Video Limited will be shipped collect.

Ross Video Technical Support will continue to provide advice on any product manufactured by Ross Video Limited, beyond the warranty period without charge, for the life of the equipment.

# Ordering Information

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## In This Chapter

This chapter contains ordering information for the ADA-7801 and related products.

### **ADA-7801 Family of Audio Cards and Related Products**

#### ***Standard Equipment***

- **ADA-7801** Audio Distribution Amplifier
- **ADA-7801-600** Audio Distribution Amplifier

#### ***Optional Equipment***

- **7801D-004** Audio Distribution Amplifier User Manual (additional User Manual)
- **AFR-7812C** Audio Products Frame and Power Supply (PS-7813) (2 RU, holds 12 modules, includes 1 power supply)
- **AFR-7814C** Audio Products Frame and Power Supply (PS-7813) (1 RU, holds 4 modules, includes 1 power supply)
- **EXT-7200** Extender Board (module servicing extension)
- **PS-7813** Power Supply (85-264 volts) (redundancy option power supply for Ross 7800 series 2RU audio product frames)

Your **ADA-7801** is a part of the RossGear family of products. Ross Video Limited offers a full line of RossGear terminal equipment including distribution, conversion, monitoring, synchronizers, encoders, decoders, AES, keyers, control switchers, as well as analog audio and video products.

# Contact Us

Contact our friendly and professional support representatives for the following:

- Name and address of your local dealer
- Product information and pricing
- Technical support
- Upcoming trade show information

<b>PHONE</b>	<b>General Business Office and Technical Support</b>	613 • 652 • 4886
	<b>After-hours Emergency</b>	613 • 652 • 4886 ext. 333
	<b>Fax</b>	613 • 652 • 4425
<b>E-MAIL</b>	<b>General Information</b>	solutions@rossvideo.com
	<b>Technical Support</b>	techsupport@rossvideo.com
<b>POSTAL SERVICE</b>	<b>Ross Video Limited</b>	8 John Street, Iroquois, Ontario, Canada K0E 1K0
	<b>Ross Video Incorporated</b>	P.O. Box 880, Ogdensburg, New York, USA 13669-0880

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