

**Kramer Electronics, Ltd.**



# **USER MANUAL**

## **Models:**

**TR-1YC, *s-Video Isolation Transformer***

**TR-2YC, *s-Video Dual Isolation Transformers***

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## 1 Introduction

Welcome to Kramer Electronics (since 1981): a world of unique, creative and affordable solutions to the infinite range of problems that confront the video, audio and presentation professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 500-plus different models now appear in 8 Groups<sup>1</sup>, which are clearly defined by function.

Congratulations on purchasing your Kramer **TR-1YC** *s-Video Isolation Transformer* and/or **TR-2YC** *s-Video Dual Isolation Transformers*.

This product is ideal for:

- Broadcast and production video studios
- Staging and fieldwork

The package includes the following items:

- **TR-1YC** or **TR-2YC**
- This user manual<sup>2</sup>

## 2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual

### 2.1 Quick Start

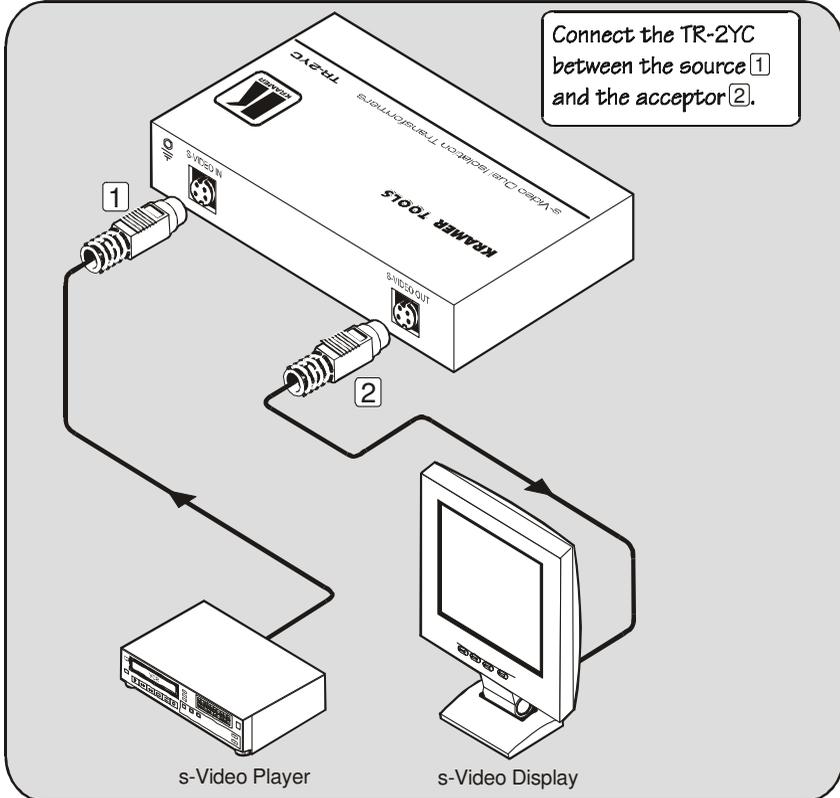
This quick start chart summarizes the basic setup and operation steps.

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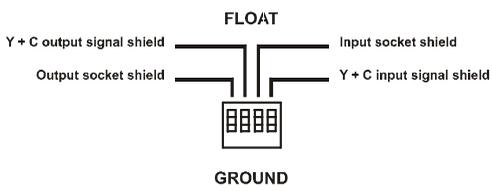
1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

2 Download up-to-date Kramer user manuals from our Web site at <http://www.kramerelectronics.com>

### Step 1: Connect the Machines



### Step 2: Set the Dipswitches



The grounding conditions are set according to the field conditions.

Check all the options to work out which option best suits your needs.

### 3 Overview

The **TR-1YC** and the **TR-2YC** are high performance video isolation transformers for s-video (Y/C) signals. In many applications, the connection between video sources and acceptors induces 50Hz or 60Hz ground loops, with an undesirable effect such as hum bars<sup>1</sup> and audio hum. The **TR-1YC** and the **TR-2YC** provide complete isolation between the video source and receptor, thus eliminating video hum, ground loops<sup>2</sup>, and DC offsets which can degrade picture quality.

In the **TR-1YC** unit, the luminance signal (Y) is transformer coupled while the band-limited chrominance (C) signal is coupled via a capacitor with high voltage breakdown. The unit is mainly intended to solve ground problems and DC offsets.

In the **TR-2YC** unit, both the luminance (Y) signal and the chrominance (C) signal are transformer-coupled to allow the broadband signal to pass with minimum deterioration.

Both the **TR-1YC** and **TR-2YC** units:

- Are designed to withstand very high potential differences - on both channels - between the input and output
- Allow the user to select the ground link by dipswitches
- Are housed in a Kramer TOOLS enclosure and require no power supply – making them ideal for field applications

To achieve the best performance:

- Connect only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoid interference from neighboring electrical and magnetic appliances that may adversely influence signal quality and position your Kramer **Isolation Transformers** away from moisture, excessive sunlight and dust

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<sup>1</sup> May show as a dark or light horizontal bar which slowly scrolls up or down the screen

<sup>2</sup> Differences in ground potential may result in ground loops

## 4 Your Isolation Transformers

Figure 1 and Table 1 define the **TR-1YC** *s-Video Isolation Transformer*:

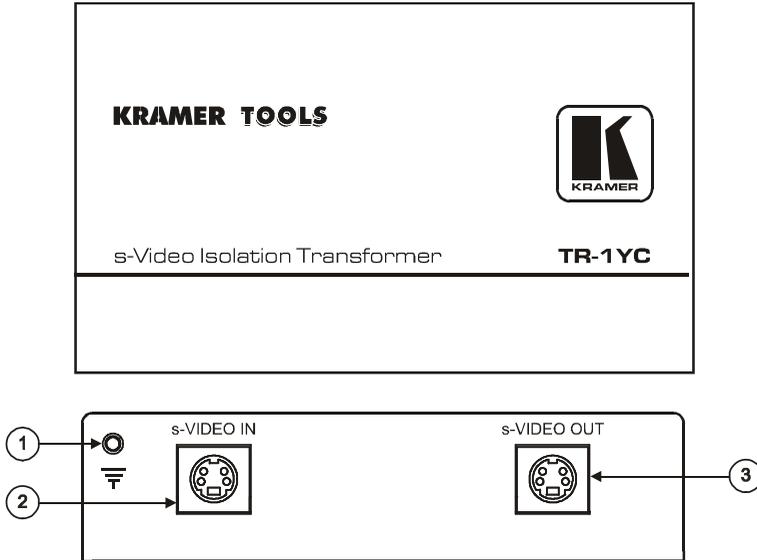


Figure 1: TR-1YC *s-Video Isolation Transformer*

Table 1: Features and Functions of the TR-1YC *s-Video Isolation Transformer*

#	Feature	Function
1	Ground	For use when connecting the unit to an external ground
2	<i>s-VIDEO IN</i> 4p Connector	Connects to the video input
3	<i>s-VIDEO OUT</i> 4p Connector	Connects to the video output

Figure 2 and Table 2 define the **TR-2YC** *s-Video Dual Isolation Transformers*:

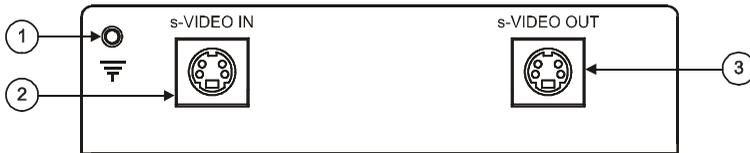
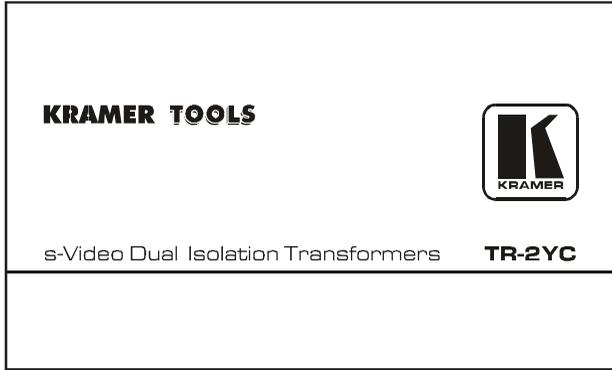


Figure 2: TR-2YC *s-Video Dual Isolation Transformers*

Table 2: Features and Functions of the TR-2YC *s-Video Dual Isolation Transformers*

#	Feature	Function
1	Ground	For use when connecting the unit to an external ground
2	<i>s-VIDEO IN</i> 4p Connector	Connects to the video input
3	<i>s-VIDEO OUT</i> 4p Connector	Connects to the video output

Figure 3 and Table 3 define the underside of the **TR-1YC** and **TR-2YC**:

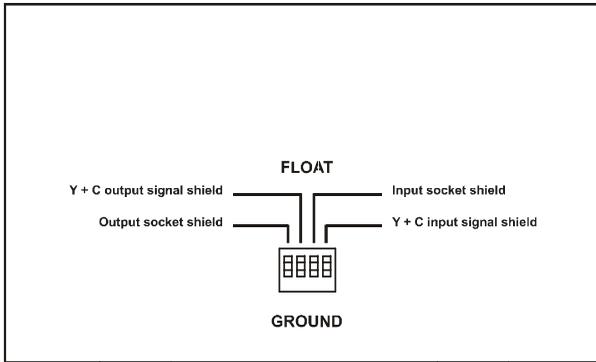


Figure 3: The s-Video Isolation Transformers Underside

Table 3: Features and Functions of the s-Video Isolation Transformers Underside

Feature	Function
Output socket shield	Set to GROUND to connect the output socket shield to the chassis. Otherwise, set to FLOAT
Y + C output signal shield	Set to GROUND to connect the Y + C output signal shield to the chassis. Otherwise, set to FLOAT
Input socket shield	Set to GROUND to connect the input socket shield to the chassis. Otherwise, set to FLOAT
Y + C input signal shield	Set to GROUND to connect the Y + C input signal shield to the chassis. Otherwise, set to FLOAT

Figure 4 illustrates the dipswitch definitions:

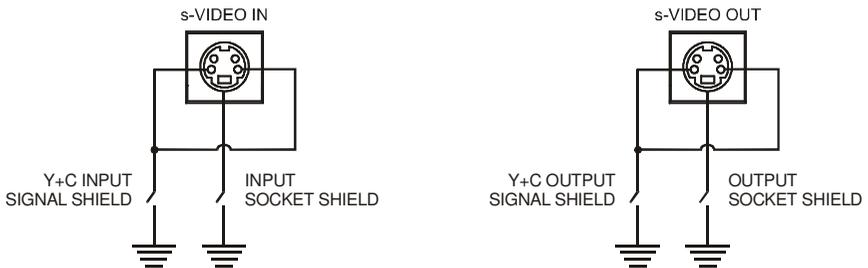


Figure 4: Dipswitch Definitions

## 5 Using the Isolation Transformer

The **Isolation Transformers** are used for s-Video signals.

There are no general rules as to how and where to connect the **Isolation Transformers**. This depends on many factors, which relate to the setup of the studio, improper grounding and so on.

The recommended method is to disconnect all the equipment and then connect together one piece at a time, checking for hum as each piece of equipment is re-connected. When hum is detected, an appropriate **Isolation Transformer** is connected at that point to break the ground loop.

The **Isolation Transformers** also provide different grounding combinations, which are set via the dipswitches for optimum operation. The grounding conditions usually are set by trial and error. Check all the options to work out which one best suits your needs<sup>1</sup>.

This section describes how to connect an **Isolation Transformer** and set the dipswitches for optimum performance (see section 5.1).

### 5.1 Connecting the Isolation Transformer

When installing an **Isolation Transformer**, you just connect it somewhere on the line between the source and the acceptor. The particular example in Figure 5 shows how to connect the **TR-2YC s-Video Dual Isolation Transformers**. However, this is not a specific recommendation, as there are many different configuration options.

To connect the **TR-2YC**, as shown in the example in Figure 5, do the following:

1. Connect a video source (for example, an s-Video player) to the s-VIDEO IN 4p connector.
2. Connect the s-VIDEO OUT 4p connector to a video acceptor (for example, an s-Video display).
3. Turn the power ON on the s-Video source and acceptor.
4. Set the dipswitches for optimum performance<sup>2</sup>.

The same principles apply to the **TR-1YC**, simply connect the unit anywhere between the source and acceptor, as required.

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<sup>1</sup> In most applications the ground is not connected

<sup>2</sup> See above – usually set by trial and error

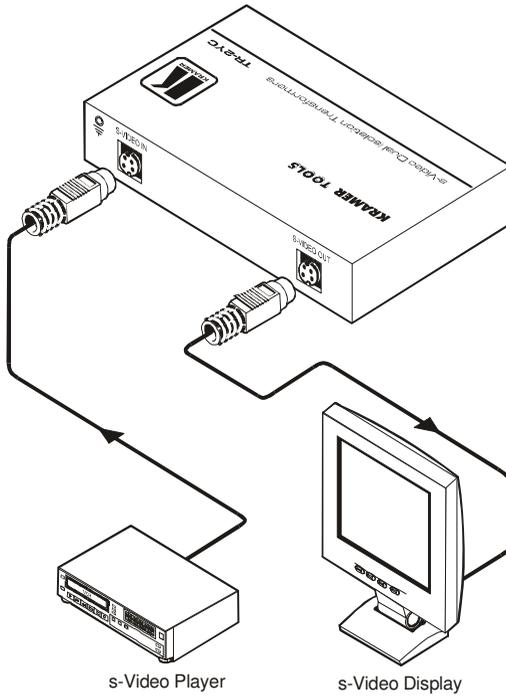


Figure 5: Connecting the TR-2YC s-Video Dual Isolation Transformers

## 6 Technical Specifications

Table 4: Technical Specifications<sup>1</sup> of the TR-1YC and TR-2YC

INPUT:	s-Video, on a 4p connector
OUTPUT:	s-Video, a 4p connector
INSERTION LOSS:	0.8dB
BANDWIDTH (-3dB):	18MHz
DIFF. GAIN:	0.12%
DIFF. PHASE:	0.13 Deg
K-FACTOR:	0.8% to 0.9%
S/N RATIO:	77.7dB
CONTROLS:	Dipswitches for grounding control
VIDEO TILT:	0.1% @ Pulse & Bar
VIDEO NON LINEARITY:	0.1%
COUPLING:	AC
DIMENSIONS:	12.1cm x 7.2cm x 3cm (4.77" x 2.85" x 1.2") W, D, H
WEIGHT:	0.34 kg. (0.75lbs.) approx.
ACCESSORIES:	Mounting brackets

<sup>1</sup> Specifications are subject to change without notice

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Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

#### **HOW LONG IS THE WARRANTY**

Labor and parts are warranted for seven years from the date of the first customer purchase.

#### **WHO IS PROTECTED?**

Only the first purchase customer may enforce this warranty.

#### **WHAT IS COVERED AND WHAT IS NOT COVERED**

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the web site [www.kramerelectronics.com](http://www.kramerelectronics.com).
2. Any product, on which the serial number has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
  - i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
  - ii) Product modification, or failure to follow instructions supplied with the product
  - iii) Repair or attempted repair by anyone not authorized by Kramer
  - iv) Any shipment of the product (claims must be presented to the carrier)
  - v) Removal or installation of the product
  - vi) Any other cause, which does not relate to a product defect
  - vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

#### **WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR**

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

#### **HOW YOU CAN GET WARRANTY SERVICE**

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

#### **LIMITATION OF IMPLIED WARRANTIES**

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

#### **EXCLUSION OF DAMAGES**

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

**NOTE:** All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

- EN-50081: "Electromagnetic compatibility (EMC);  
generic emission standard.  
Part 1: Residential, commercial and light industry"
- EN-50082: "Electromagnetic compatibility (EMC) generic immunity standard.  
Part 1: Residential, commercial and light industry environment".
- CFR-47:  
FCC Rules and Regulations:  
Part 15: "Radio frequency devices  
Subpart B – Unintentional radiators"

#### **CAUTION!**

- ☒ Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- ☒ Use the supplied DC power supply to feed power to the machine.
- ☒ Please use recommended interconnection cables to connect the machine to other components.



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**For the latest information on our products and a list of Kramer distributors, visit our Web site: [www.kramerelectronics.com](http://www.kramerelectronics.com), where updates to this user manual may be found. We welcome your questions, comments and feedback.**



**Caution**

**Safety Warning:**

Disconnect the unit from the power supply before opening/servicing.



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**Kramer Electronics, Ltd.**

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