The Kramer TOOLS

KRAMER TOOLS, Kramer Electronics' new line of products, are all housed in very small enclosures (12 cm x 7.5 cm x 2.5 cm). Each is fed from an external 12VDC source. Despite their tiny size (and price), performance of the TOOLS approaches the highest broadcast specs. There are TOOLS in almost every Kramer product category mentioned in the previous pages.

❑ Video, Audio and RF Distributors and Line Amplifiers:

The **105V**, **105VB**, **105S** and **105A** are a line of 1:5 video, s-Video and audio distributors, with video bandwidth exceeding 200 MHz. The **123V** is a differential input video DA for hum removal. The **104L** is a 4-output video line amplifier with ***420*** MHz bandwidth and the **103YC** is a unique line amplifier for Y/C video signals with 3 outputs and Y and C controls.

❑ Video and s-Video Switchers:

These small mechanical video and s-Video 4x1 switchers, with video bandwidth exceeding ***400*** MHz (**4x1V**, **4x1VB**, **4x1S**), have either RCA or BNC connectors for video.

❑ Composite - Y/C Transcoders:

Two separate machines – one converting from Y/C to Composite (**401D**) and the other from Composite to Y/C (**401C**). The **401C** has 4 outputs – 2 x Y/C and 2 x Composite, so it can be used as a DA as well.

❑ VGA / XGA Distributors, Switchers and Generators:

Included here are three VGA/XGA DA's with bandwidth exceeding 340 MHz, suitable for all graphics applications: **VP-200:** a 1:2 DA, **VP-300:** a 1:3 DA, and **VP-400:** a 1:4 DA. Also **VP-201:** a VGA/XGA 2x1 Switcher with 320 MHz bandwidth and the unique **VP-800**, a color bar generator for all common graphics resolutions for screen and data projector testing and alignment.

❑ Twisted-Pair Interfaces:

This is a line of Twisted-pair wire transmitters and receivers, for Composite Video (**705**, **704**), for Video and Mono-Audio (**707**, **708**) and for Video and Stereo-Audio (**711**, **712**). It includes the unique Y/C to Twisted-Pair interfaces, the **709** and **710**, which can send Y/C signals over twisted-pair wires for distances of hundreds of meters.

❑ Fiber-Optic Video Transceivers:

This set of a video to Optic-Fiber encoder (**611T**) and an Optic-Fiber to video decoder (**611R**) sends video, up to 5 km using Multimode fiber and up to 25 km when using single-mode devices and fibers.

❑ The Pico-Tools:

A line of ultra-small, matchbox size TOOLS, including a 1:2 DA for Y/C (**PT-102S**), one for audio (**PT-102A**) and one for video (**PT-102V**) with a video bandwidth of *430* MHz, suitable for analog and SDI.

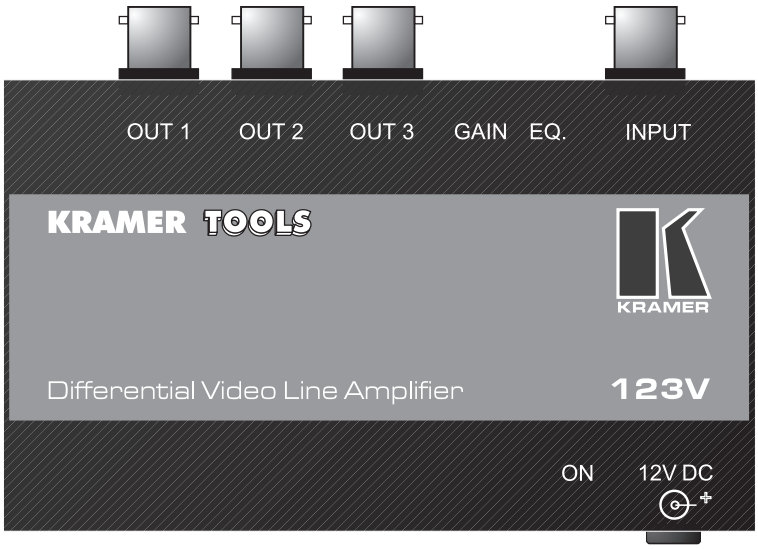
The KRAMER TOOLS:

Model	Page	Inputs	Outputs	Function	Remarks
123V	9.3	1 x CV	3 x CV	DA	Differential input Line Amplifier / 1:3 DA for hum removal.
105A	9.4	1x Audio	5 x Audio	DA	A Stereo Audio 1:5 DA using 3.5mm mini plugs.
105V	9.5	1 x CV	5 x CV	DA	280 MHz 1:5 Video DA using RCA connectors.
105VB	9.6	1 x CV	5 x CV	DA	280 MHz 1:5 Video DA on BNC connectors.
105S	9.7	1 x Y/C	5 x Y/C	DA	230 MHz 1:5 Y/C DA on 4P connectors.
104L	9.8	1 x CV	4 x CV	Line Amp / DA	420 MHz Line Amplifier and 1:4 DA, with Gain and cable EQ. controls.
104M	9.9	1 x Mic	4 x Mic/Line	Mic Amp / DA	Mono, phantom power switch, adjustable gain 1:4 DA.
104R	9.10	1 x RF	4 x RF	RF DA	40-800 MHz RF 1:4 DA for MATV and CATV.
103AV	9.11	1 x AV	3 x AV	DA	320 MHz Composite Video and Stereo Audio 1:3 DA.
103YC	9.12	1 x Y/C	3 x Y/C	Y/C Line Amp/DA	430 MHz Y/C 1:3 Line Amplifier / DA, with 2 controls for "Y" – Gain and cable EQ. and a gain control for "C".
4x1V	9.13	4 x CV	1 x CV	Switcher	400 MHz mechanical 4x1 video switcher, using RCA connectors.
4x1VB	9.14	4 x CV	1 x CV	Switcher	400 MHz mechanical 4x1 video switcher, using BNC connectors.
4x1S	9.15	4 x Y/C	1 x CV	Switcher	400 MHz mechanical 4x1 s-Video (Y/C) switcher, on 4P connectors.
401C	9.16	1 x Y/C	2xCV+ 2xY/C	Coder / DA	Y/C 1:2 DA + Composite Coder and a 1:2 Composite DA.
401D	9.17	1 x CV	1 x Y/C	Decoder	Composite to Y/C decoder.
VP-200	9.18	1 x VGA	2 x VGA	VGA DA	345 MHz High Resolution VGA/XGA DA.
VP-300	9.19	1 x VGA	3 x VGA	VGA DA	345 MHz High Resolution VGA/XGA DA.
VP-400	9.20	1 x VGA	4 x VGA	VGA DA	345 MHz High Resolution VGA/XGA DA.
VP-201	9.21	2 x VGA	1 x VGA	VGA switcher	320 MHz mechanical VGA/XGA 2x1 switcher.
VP-211	9.22	2 x VGA 2 x Audio	1 x VGA 1 x Audio	VGA/Audio switcher	517 MHz Electro-mechanical automatic VGA/Audio switcher
VP-222	9.23	2 x VGA	2 x VGA	VGA Switcher/DA	A 2 input switcher and a 1:2 DA, 365 MHz.
VP-14	9.24	1xRS232	3xRS232	Port extender	Bi-directional and programmable RS-232 port extender.
VP-43	9.25	1xRS232	2xRS422	Range extender	2 units extend RS-232 useful range up to 1.2 km.
704	9.26	TP line	1 x CV	TP Receiver	A Video on a single TP wire transmitter- receiver system for up to 500 meters.
705	9.26	1 x CV	TP line	TP Transmitter	
707	9.27	1 x AV	TP line	Transmitter	A Video + Audio-mono on a single TP wire transmitter- receiver system.
708	9.27	TP line	1 x AV	Receiver	
709	9.28	1 x Y/C	2 x TP line	Transmitter	A s-Video (Y/C) TP Transmitter- receiver system on a dual TP wire.
710	9.28	2 x TP line	1 x Y/C	Receiver	
711	9.29	1 x AV	3 x TP line	Transmitter	A Video + Audio-stereo transmitter receiver system on a triple TP wire.
712	9.29	3 x TP line	1 x AV	Receiver	
611T	9.30	1 x CV	Fiber	Fiber TX	A Fiber-optic video transmitter – receiver system.
611R	9.30	Fiber	1 x CV	Fiber RX	
VP-800	9.31	N/A	VGA/XGA	Bar Generator	Color Bar Generator for VGA/XGA for 4 resolution modes: 640x480, 800x600, 1024x768, 1280x1024.
VA-22	9.32	1 x CV	Line/ headphone	V/A Transmitter	A downstream video transmitter and upstream audio receiver system on a single coax cable.
VA-23	9.32	1 x Mic 1 x line	1 x CV	Audio Receiver	
PT-102A	9.33	1x Audio	2xAudio	DA	Matchbox size "Pico-Tools" Audio DA.
PT-102V	9.34	1xCV	2xCV	DA	Matchbox size "Pico-Tools" Video DA with 430 MHz bandwidth.
PT-102S	9.35	1xY/C	2xY/C	DA	Matchbox size "Pico-Tools" Y/C (s-Video) DA, 150 MHz.

Differential Video Line Amplifier 123V

The Kramer **123V** is a high performance differential video line amplifier designed for production and broadcast studios, retail stores, professional display systems, and other demanding applications. The **123V** splits a single input source into three identical outputs while almost completely isolating the input from the outputs. The **123V** uses special differential amplifying circuitry, eliminating noise and hum problems commonly found in long video lines. Recessed gain and equalization controls allow the user to compensate for signal loss inherent in long cable runs. A 12V power supply is included but the optional **VA-50P** can power up to six Kramer devices requiring 12VDC.

The **123V** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

INPUT:	1 Video, Differential, 1Vpp / 75Ω on a BNC connector.
OUTPUTS:	3 Video, 1Vpp / 75Ω on BNCs.
VIDEO BANDWIDTH:	55 MHz -3dB.
COUPLING:	AC.
DIFF. GAIN:	0.25%.
DIFF. PHASE:	0.35 Deg.
S/N RATIO:	-76dB.
K-FACTOR:	<0.05%.
MAX. VIDEO OUTPUT:	2 Vpp.
POWER SOURCE:	12 VDC, 30mA.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).
WEIGHT:	0.3 Kg (approx.), (0.66 Lbs.).
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

Typical applications:

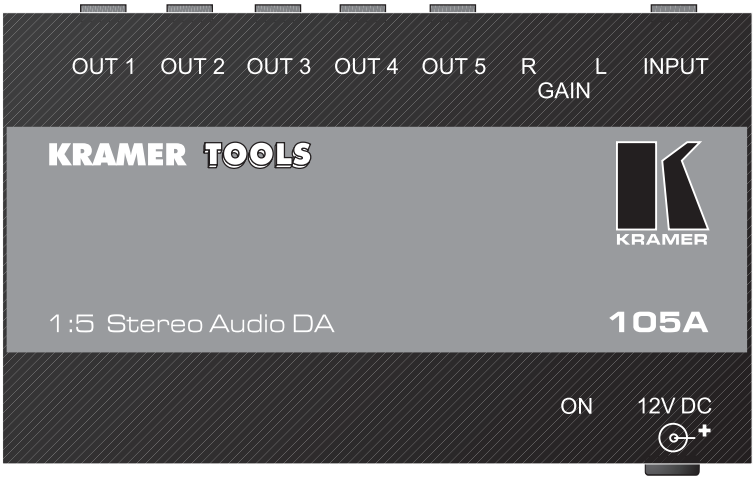
- *Any professional display system requiring long distance delivery of high quality video.*
- *In retail showrooms, delivering an identical picture to up to three distant monitors.*
- *CCTV, medical, and sports applications.*

1:5 Audio Distributor 105A

The Kramer **105A** is a high performance 1:5 distribution amplifier for stereo audio signals. It accepts one stereo input and distributes the signal to five identical outputs using 3.5mm mini jacks. Separate gain controls for left and right channels allow the user to adjust the output level.

The **105A** is typically used for unbalanced stereo audio sources such as VCR's, portable cassette and CD players, computer sound cards, etc., but can also distribute a balanced mono signal using adapter cables made from readily available parts. The **105A** is the perfect companion to Kramer video distribution amplifiers like the **105V**, **105VB**, etc. A power supply is included.

The **105A** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

INPUT:	1 Stereo-Audio / Balanced mono, 1Vpp / 33kΩ on 3.5-mm mini phone connector.
OUTPUTS:	5 Stereo-Audio / Balanced mono, 1Vpp / 50Ω on 3.5-mm mini phone connectors.
AUDIO BANDWIDTH:	20 kHz -0.1dB.
COUPLING:	AC.
S/N RATIO:	80dB Unweighted.
THD:	< 0.03% (2nd Harmonic).
CONTROLS:	Left and Right gain rear trimmers (0 / +3.5dB range).
MAX. OUTPUT:	5 Vpp (>+4dBm).
POWER SOURCE:	12 VDC, 100mA.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).
WEIGHT:	0.28 Kg. (0.62 Lbs.) Approx.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

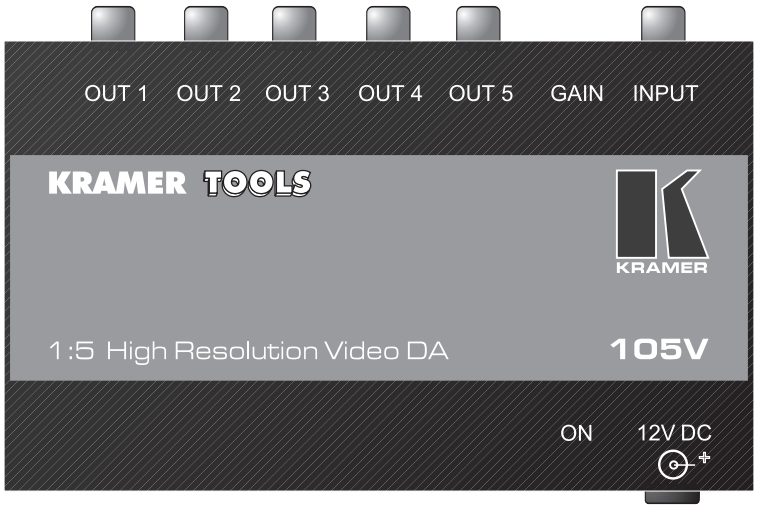
Typical applications:

- *Video/Audio duplication studios.*
- *Retail showrooms, home theater systems.*
- *Any audio system requiring multiple outputs from a single source.*

1:5 Video Distributor 105V

The Kramer **105V** is a high performance 1:5 distribution amplifier for composite video signals. It accepts a single input and distributes it to five identical outputs using RCA connectors. Video bandwidth of 280MHz ensures that the **105V** remains transparent even in the most critical applications. A 12V power supply is included but the optional **VA-50P** can power up to six Kramer devices requiring 12VDC.

The **105V** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

INPUT:	1 Video, 1Vpp / 75Ω on an RCA connector.
OUTPUTS:	5 Video, 1Vpp / 75Ω on RCAs.
VIDEO BANDWIDTH:	280 MHz -3dB.
COUPLING:	AC.
DIFF. GAIN:	0.1%.
DIFF. PHASE:	0.15 Deg.
S/N RATIO:	-75dB.
K-FACTOR:	<0.05%.
MAX. VIDEO OUTPUT:	2 Vpp.
POWER SOURCE:	12 VDC, 100mA.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).
WEIGHT:	0.28 Kg. (0.62 Lbs.) Approx.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

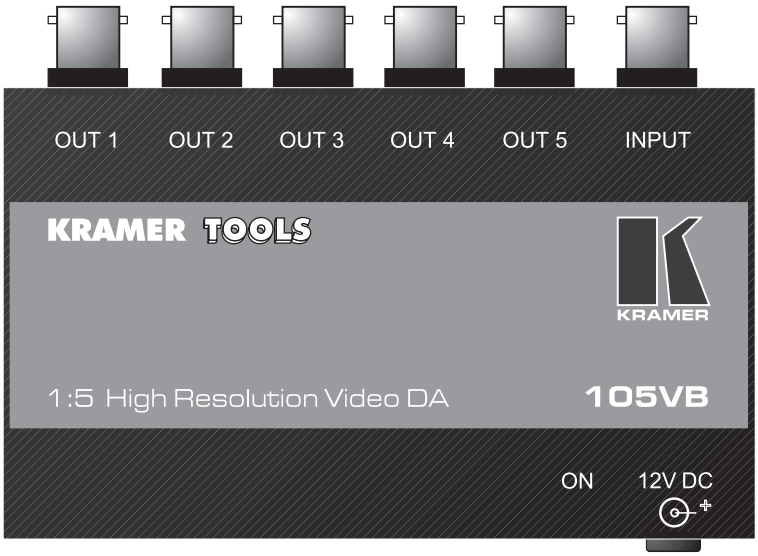
Typical applications:

- *Video duplication studios.*
- *Any professional display systems requiring an identical picture on several monitors.*
- *CCTV and home theater use.*
- *Rental and staging applications.*

1:5 Video Distributor 105VB

The Kramer **105VB** is a high performance 1:5 distribution amplifier for composite video signals. It accepts one input and distributes it to five identical outputs using BNC connectors. Video bandwidth of 280MHz ensures that the **105VB** remains transparent even in the most critical applications. A 12V power supply is included but the optional **VA-50P** can power up to six Kramer devices requiring 12VDC.

The **105VB** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

INPUT:	1 Video, 1Vpp / 75Ω on a BNC connector.
OUTPUTS:	5 Video, 1Vpp / 75Ω on BNCs.
VIDEO BANDWIDTH:	280 MHz -3dB.
COUPLING:	AC.
DIFF. GAIN:	0.1%.
DIFF. PHASE:	0.1 Deg.
S/N RATIO:	-80dB.
K-FACTOR:	<0.05%.
MAX. VIDEO OUTPUT:	2 Vpp.
POWER SOURCE:	12 VDC, 100mA.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.)
WEIGHT:	0.32 Kg. (0.7 Lbs.) Approx.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

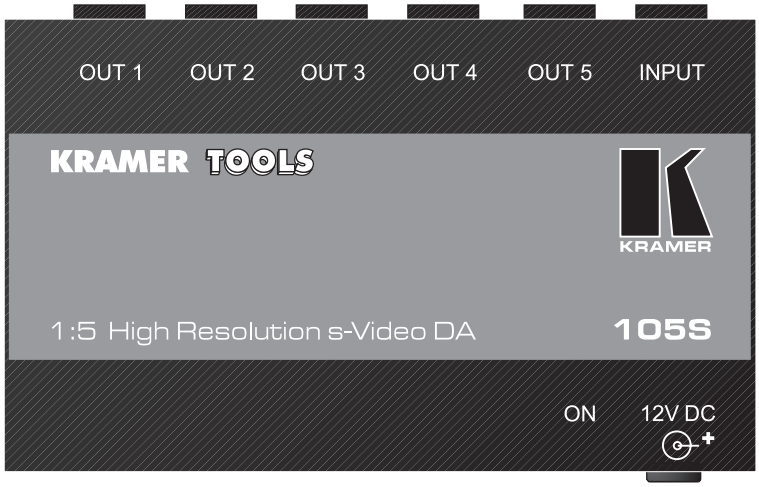
Typical applications:

- *Video duplication studios.*
- *Any professional display systems requiring an identical picture on several monitors.*
- *CCTV and home theater use.*
- *Rental and staging applications.*

1:5 s-Video Distributor 105S

The Kramer **105S** is a high performance 1:5 distribution amplifier for s-Video (Y/C) signals. It accepts one input and distributes it to five identical outputs using standard 4 pin s-Video connectors. Video bandwidth of 230MHz ensures that the **105S** remains transparent even in the most critical applications. A 12V power supply is included but the optional **VA-50P** can power up to six Kramer devices requiring 12VDC.

The **105S** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

INPUT:	1 s-Video, 1Vpp / 75Ω (Y), 0.3Vpp / 75Ω (C), on a *4P* connector.
OUTPUTS:	5 s-Video, 1Vpp / 75Ω (Y), 0.3Vpp / 75Ω (C), on *4P* connectors.
VIDEO BANDWIDTH:	230 MHz -3dB (Y).
COUPLING:	AC.
DIFF. GAIN:	0.08%.
DIFF. PHASE:	0.12 Deg.
S/N RATIO:	-72dB.
K-FACTOR:	<0.05%.
MAX. VIDEO OUTPUT:	2 Vpp (Y).
POWER SOURCE:	12 VDC, 100mA.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).
WEIGHT:	0.28 Kg. (0.62 Lbs.) Approx.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

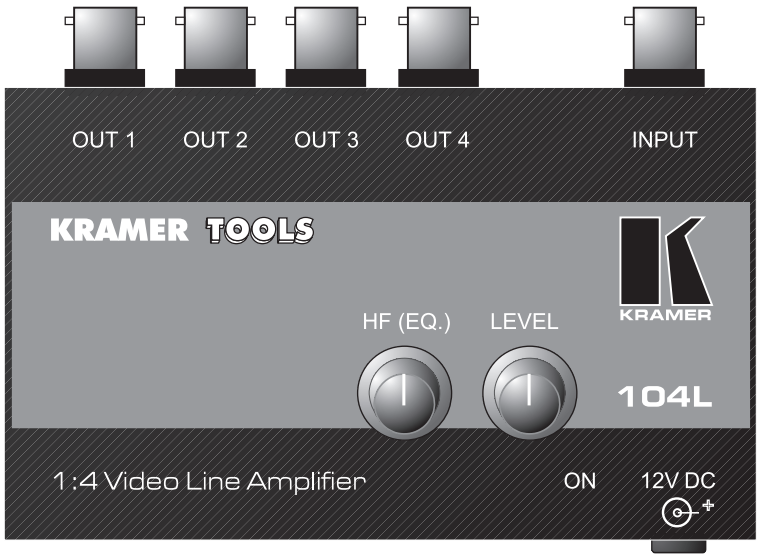
Typical applications:

- *Video duplication studios.*
- *Any professional display systems requiring an identical picture on several monitors.*
- *CCTV and home theater use.*
- *Rental and staging applications.*

Video Line Amplifier 104L

The **104L** is a high performance line amplifier which combines the functions of a distribution amplifier and a line driver. It accepts a single composite video input and provides four identical buffered outputs which are affected by gain and equalization controls located on the top panel. The gain and equalization controls are designed to compensate for signal losses inherent in long cable runs. The gain control adjusts the overall signal level, and the EQ. control boosts the upper frequencies most susceptible to loss. Bandwidth of 430MHz ensures that the **104L** remains transparent even in the most critical applications. A 12V power supply is provided, but the optional **VA-50P** can power up to six Kramer devices requiring 12VDC.

The **104L** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

INPUTS:	1 Video, 1Vpp / 75 Ω on a BNC connector.		
OUTPUTS:	4 Video, 1Vpp / 75 Ω on BNCs.		
VIDEO BANDWIDTH:	420 MHz. +/-3dB.	**COUPLING:**	AC.
DIFF. GAIN:	0.16%.	**DIFF. PHASE:**	0.08 Deg
S/N RATIO:	-76 dB.	**K-FACTOR**:	<0.05%.
CONTROLS:	LEVEL: -0.8/+6dB; HF (EQ., cable compensation) 0/+7.7dB @ Chroma SC.		
POWER SOURCE:	12 VDC, 30mA.		
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.)		
WEIGHT:	0.32 Kg. (0.71 Lbs.) Approx.		
ACCESSORIES:	Power supply, mounting bracket.		
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.		

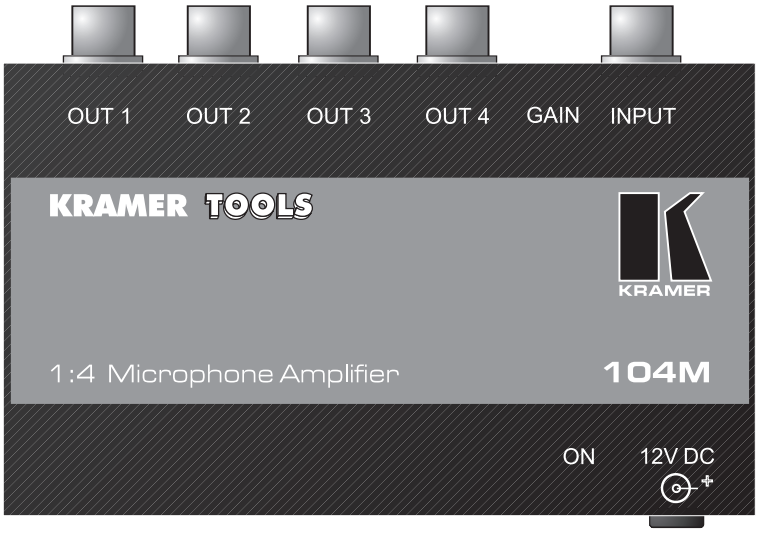
Typical applications:

- *Any system requiring a compact distribution amplifier and line driver.*
- *Auditoriums, churches, schools, home theatre systems.*
- *Rental and staging applications.*

1:4 Microphone Amplifier / DA 104M

The Kramer **104M** is a simple, high quality 1:4 microphone distribution amplifier. It accepts a single mic input which is amplified and split to four identical outputs using ¼" TRS connectors. A recessed control is provided on the side panel to set the output level. By setting an internal jumper, phantom power can be applied to the input for use with compatible condenser microphones. A 12V power supply is provided, but the optional **VA-50P** can power up to six Kramer devices requiring 12VDC.

The **104M** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

INPUT:	One Mono microphone 5mVpp/10K Ω on a 6.5mm phone connector.
OUTPUTS:	4 Mono line level 1Vpp/150 Ω on 6.5mm phone connectors.
AUDIO BANDWIDTH:	20-37000 Hz.
THD @ 1KHz:	Less than 0.1%.
MAX OUTPUT LEVEL:	4.8 Vpp.
GAIN CONTROL:	5dB to 54dB.
S/N RATIO:	Better than 78 dB.
POWER SOURCE:	12 VDC 20 mA.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.)
WEIGHT:	0.28 Kg. (0.62 Lbs.) Approx.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

Typical applications:

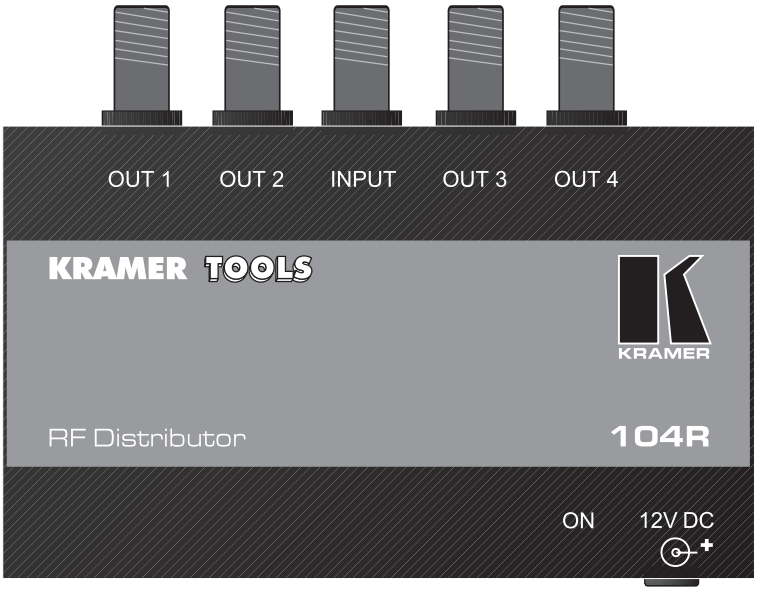
- *Audio production and duplication studios.*
- *Audio field production applications.*

1:4 RF Distributor 104R

The Kramer **104R** is a high performance 1:4 distribution amplifier for RF signals. It accepts a single RF input such as a typical CATV/MATV signal and distributes it to four identical outputs.

Extra wide bandwidth of up to 800 MHz ensures that the unit remains transparent in the most critical applications. The inputs and outputs are matched to 75 ohms impedance. A 12V power supply is included, but the optional **VA-50P** can power up to six Kramer devices requiring 12VDC.

The **104R** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

INPUTS:	1 RF, 0.5Vpp / 75 Ω (max.) on an "F" type connector.
OUTPUTS:	4 RF, 0.5Vpp / 75 Ω (max) on "F" type connectors.
BANDWIDTH:	40 - 800 MHz. +/-3dB.
COUPLING:	AC.
RF GAIN:	+4 dB @ 40 MHz, +3 dB @ 600 MHz, +1 dB @ 800 MHz.
NOISE FIGURE:	2.5 dB.
POWER SOURCE:	12 VDC, 50mA.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.)
WEIGHT:	0.32 Kg. (0.71 Lbs.) Approx.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

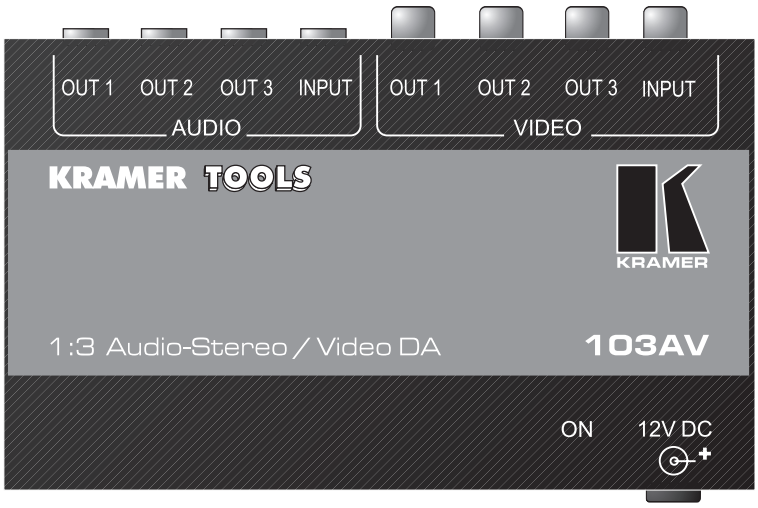
Typical applications:

- *CATV and MATV systems.*
- *Retail stores, schools, medical facilities.*
- *Home theater systems.*

1:3 Video Audio Distributor 103AV

The Kramer **103AV** is a high performance 1:3 distribution amplifier for composite video and stereo audio signals. Video bandwidth of 320MHz ensures that the **103AV** remains transparent even in the most critical applications. The **103AV** accepts a single input and distributes it to three identical outputs using RCA connectors for video, and 3.5mm phone connectors for stereo audio. A 12V power supply is provided, but the optional **VA-50P** can power up to six Kramer devices requiring 12VDC.

The **103AV** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

INPUT:	1 Composite Video, 1Vpp / 75Ω on an RCA connector. 1 Audio-stereo, 1Vpp / 33 kΩ on 3.5-mm mini phone connector.		
OUTPUTS:	3 Composite Video, 1Vpp / 75Ω on RCA connectors. 3 Audio-stereo, 1Vpp / 50 Ω on 3.5-mm mini phone connectors.		
VIDEO BANDWIDTH:	320 MHz -3dB.		
VIDEO COUPLING:	AC.	**DIFF. GAIN:**	0.1%.
DIFF. PHASE:	0.16 Deg.	**VIDEO S/N RATIO:**	72dB.
K-FACTOR:	<0.1%.	**MAX. VIDEO OUTPUT**:	2 Vpp.
AUDIO BANDWIDTH:	20-20000 Hz, -2dB.	**AUDIO THD+NOISE:**	0.02%
AUDIO S/N RATIO:	85 dB Unweighted.	**CROSSTALK:**	-70dB @20 kHz.
POWER SOURCE:	12 VDC, 100mA.		
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.)		
WEIGHT:	0.28 Kg. (0.62 Lbs.) Approx.		
ACCESSORIES:	Power supply, mounting bracket.		
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.		

Typical applications:

- *Duplication and other studio applications requiring multiple outputs of identical quality.*
- *Professional presentation and display systems.*
- *CCTV and home theater applications.*

1:3 Y/C Line Amplifier 103YC

The Kramer **103YC** is a high performance line amplifier which combines the functions of a distribution amplifier and a line driver. It accepts a single s-Video (Y/C) input and provides three identical buffered outputs which are affected by gain and equalization controls located on the top panel. The gain and equalization controls are designed to compensate for signal losses inherent in long cable runs.

Separate overall gain controls for Y (luma) and C (chroma) are provided, and the EQ control boosts the upper frequencies of the Y component most susceptible to loss. Bandwidth exceeding 430MHz ensures that the **103YC** remains transparent even in the most critical applications. A 12V power supply is provided, but the optional **VA-50P** can power up to six Kramer devices requiring 12VDC. The **103YC** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.

Technical Specifications:

INPUTS:	1 Y/C, 1Vpp / 75Ω, (Y), 0.3 Vpp/75Ω (C) on a 4P connector.		
OUTPUTS:	3 Y/C, 1Vpp / 75Ω, (Y), 0.3 Vpp/75Ω (C) on 4P connectors.		
"Y" BANDWIDTH:	430 MHz -3dB.		
CONTROLS:	-0.8dB / +6dB Gain (Y), 0.9dB / +9.5dB (Y EQ. @ 5.8 MHz); -0.5dB / +4.3dB (C level).		
COUPLING:	AC.	**DIFF. GAIN:**	0.03%.
DIFF. PHASE:	0.03 Deg.	**K-FACTOR:**	<0.05% (normal).
MAX. VIDEO OUTPUT:	2.5 Vpp.	**S/N RATIO:**	>80 dB.
POWER SOURCE:	12 VDC, 40mA.		
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).		
WEIGHT:	0.3 Kg. (0.67 Lbs.) Approx.		
ACCESSORIES:	Power supply, mounting bracket.		
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.		

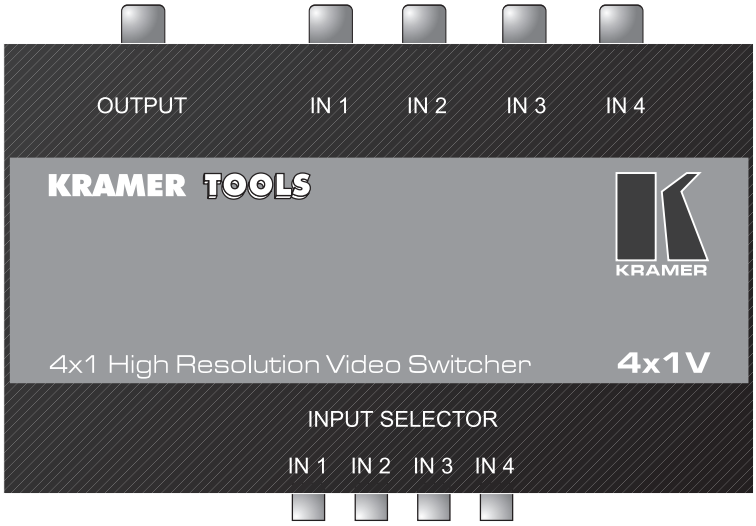
Typical applications:

- *Any system requiring a compact distribution amplifier and line driver.*
- *Auditoriums, churches, schools, home theatre systems.*
- *Rental and staging applications.*

4x1 Video Switcher 4x1V

The Kramer **4x1V** is a high quality 4x1 mechanical switcher designed for composite video signals and using RCA connectors. It accepts up to four inputs and allows the user to select any input to be routed to one output using buttons located on the side panel. High quality switching components are used to ensure minimal crosstalk and very high bandwidth. The entirely passive design of the **4x1V** eliminates the need for a power supply. Unselected inputs are automatically terminated via 75 ohm resistors.

The **4x1V** is part of the Kramer TOOLS family of compact, high quality, cost effective solutions for a variety of applications.



Technical Specifications:

INPUTS:	4 Video, 1Vpp/75 Ω on RCA connectors.
OUTPUTS:	1 Composite or single Component Video, 1 Vpp/75 Ω on an RCA connector.
BANDWIDTH:	> 400 MHz.
SWITCHING SYSTEM:	Mechanical, Break-before-make.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).
WEIGHT:	0.28 Kg. (0.62 Lbs.) Approx.
ACCESSORIES:	Mounting bracket.

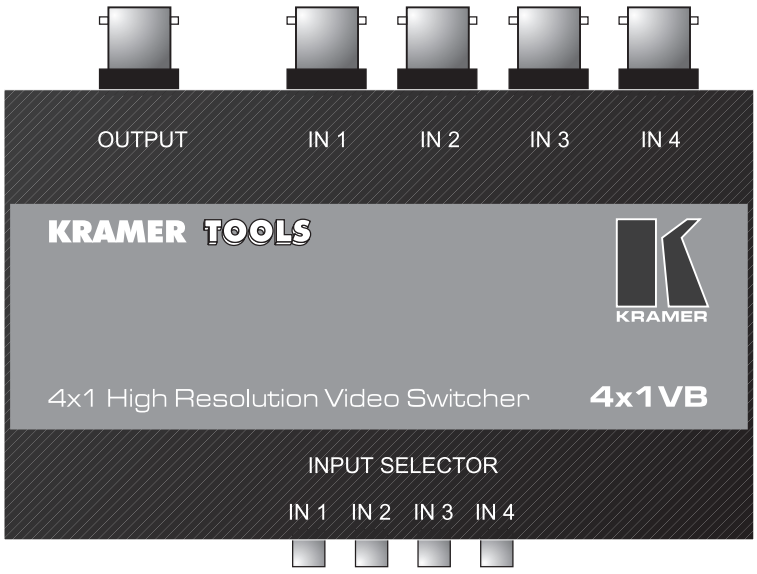
Typical applications:

- *Presentation and display systems.*
- *CCTV and home theater applications.*
- *Rental and staging applications.*
- *Also compatible with SDI and any other high frequency signals.*

4x1 Video Switcher 4x1VB

The Kramer **4x1VB** is a high quality 4x1 mechanical switcher designed for composite video signals using BNC connectors. It accepts up to four inputs and allows the user to select any input to be routed to one output using buttons located on the side panel. High quality switching components are used to ensure minimal crosstalk and very high bandwidth. The entirely passive design of the **4x1VB** eliminates the need for a power supply. Unselected inputs are automatically terminated via 75 ohm resistors.

The **4x1VB** is part of the Kramer TOOLS family of compact, high quality, cost effective solutions for a variety of applications.



Technical Specifications:

INPUTS:	4 Video, 1Vpp/75 Ω on BNC connectors.
OUTPUTS:	1 Composite or single Component Video, 1 Vpp/75 Ω on a BNC connector.
BANDWIDTH:	> 400 MHz.
SWITCHING SYSTEM:	Mechanical, Break-before-make.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.)
WEIGHT:	0.3 Kg. (0.67 Lbs.) Approx.
ACCESSORIES:	Mounting bracket.

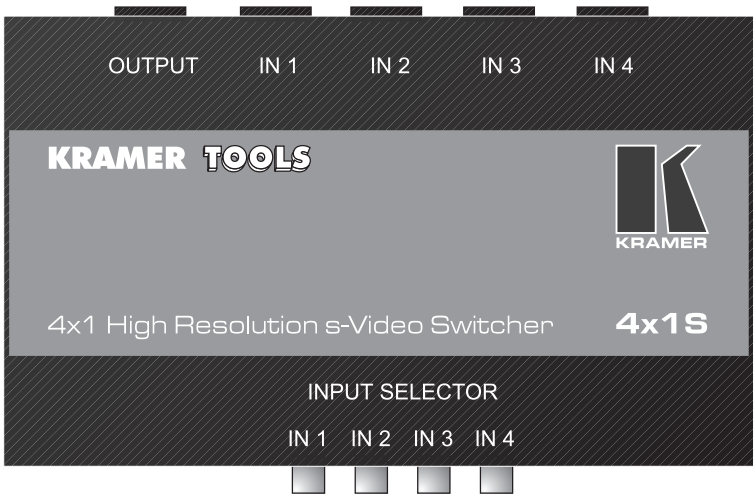
Typical applications:

- *Presentation and display systems.*
- *CCTV and home theater applications.*
- *Rental and staging applications.*
- *Also compatible with SDI and any other high frequency signals.*

4x1 s-Video Switcher 4x1S

The Kramer **4x1S** is a high quality 4x1 mechanical switcher designed for s-Video (Y/C) signals using standard 4 pin s-Video connectors. It accepts up to four inputs and allows the user to select any input to be routed to one output using buttons located on the side panel. High quality switching components are used to ensure minimal crosstalk and very high bandwidth. The entirely passive design of the **4x1S** eliminates the need for a power supply. Unselected inputs are automatically terminated via 75 ohm resistors.

The **4x1S** is part of the Kramer TOOLS family of compact, high quality, cost effective solutions for a variety of applications.



Technical Specifications:

INPUTS:	4 s-Video, 1Vpp / 75 Ω (Y), 0.3Vpp / 75Ω (C) on 4P connectors.
OUTPUTS:	1 s-Video, 1Vpp / 75 Ω (Y), 0.3Vpp / 75Ω (C) on a 4P connector.
BANDWIDTH:	> 400 MHz (Y).
SWITCHING SYSTEM:	Mechanical, Break-before-make.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).
WEIGHT:	0.25 Kg. (0.55 Lbs.) Approx.
ACCESSORIES:	Mounting bracket.

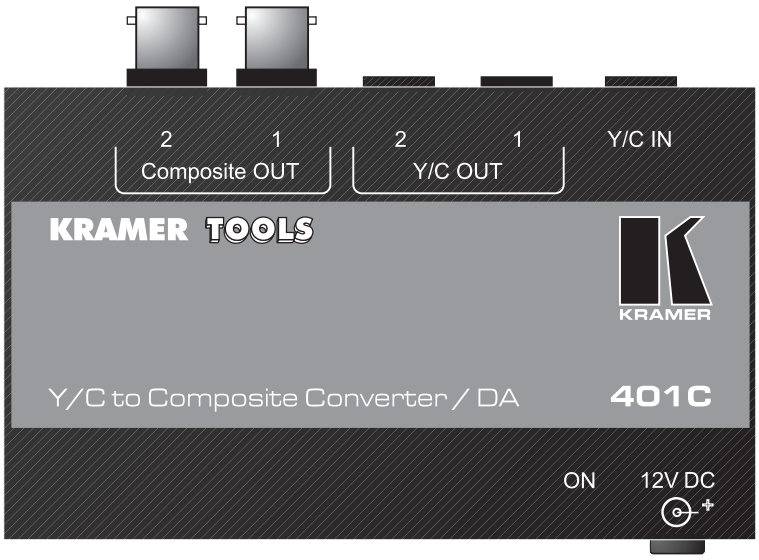
Typical applications:

- *Presentation and display systems.*
- *CCTV and home theater applications.*
- *Rental and staging systems.*

s-Video DA / Converter 401C

The Kramer **401C** combines the functions of a distribution amplifier and encoder into a single compact unit. It accepts one s-Video (Y/C) input and distributes the signal to a total of four outputs, two of which are s-Video, and two that are converted into the composite video format. The **401C** is an ideal compatibility solution for presentation systems consisting of display, recording, and routing equipment requiring different signal formats. A power supply is included but the optional **VA-50P** can power up to six Kramer devices requiring 12VDC.

The **401C** is part of the Kramer TOOLS family of compact, high quality, cost effective solutions for a variety of applications.



Technical Specifications:

INPUT:	One s-Video (Y/C), Y=1 Vpp/75 Ω, C=0.3 Vpp/75Ω on a “4P” connector.		
OUTPUTS:	2 s-Video (Y/C), Y=1 Vpp/75 Ω, C=0.3 Vpp/75 Ω on “4P” connectors. 2 Composite Video, 1Vpp/75Ω on a BNC.		
VIDEO BANDWIDTH:	Exceeding 160 MHz (Y channel).	**DIFF. GAIN:**	0.05%
NON LINEARITY:	Less than 0.05%.	**DIFF. PHASE:**	0.03 Deg.
VIDEO S/N RATIO:	Better than 80 dB (Y channel).	**K-FACTOR:**	0.1%.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).		
POWER SOURCE:	12 VDC 60 mA.		
WEIGHT:	0.28 Kg. (0.62 Lbs.) Approx.		
ACCESSORIES:	Power supply, mounting bracket.		
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.		

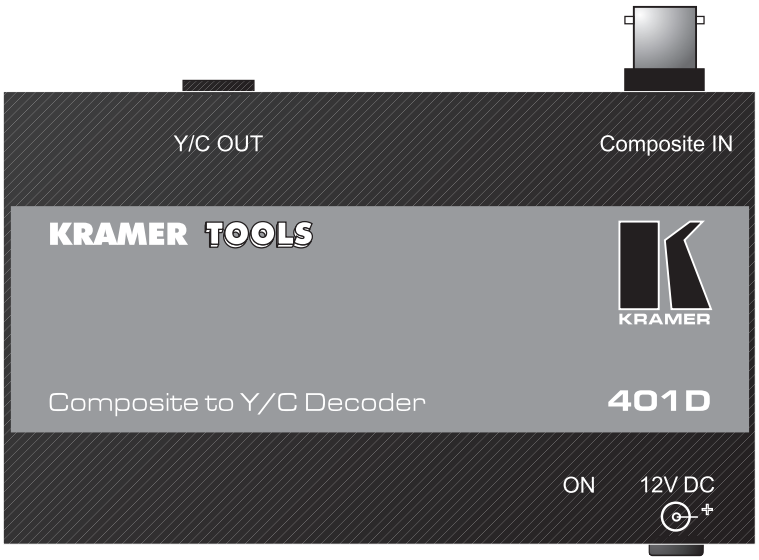
Typical applications:

- *Professional presentation and display systems.*
- *Video duplication studios, delivering high quality s-Video duplicates, while providing composite video outputs for simple monitoring.*
- *Teleconference systems.*
- *Any requirements for s-Video to composite video conversion.*

Composite to Y/C Decoder 401D

The Kramer **401D** is a high quality decoder designed to convert composite video into s-Video (Y/C). It is an excellent compatibility solution for many applications in which composite sources need to be interfaced with s-Video compatible displays, switching systems, etc. The **401D** has full compensation for Y/C delay, and comes with a 12V power supply. The optional **VA-50P** can power up to six Kramer devices requiring 12VDC.

The **401D** is part of the Kramer TOOLS family of compact, high quality, cost effective solutions for a variety of applications.



Technical Specifications:

INPUT:	1 Composite Video 1Vpp/75 Ω on a BNC connector.
OUTPUT:	1 Super-Video on a *4P* connector: LUMA: 1Vpp/75 Ω; CHROMA: 0.3Vpp/75 Ω.
VIDEO BANDWIDTH:	>3.6 MHz.
DIFF. GAIN:	0.7%.
DIFF. PHASE:	0.45 Deg.
MAX. VIDEO OUTPUT:	1.5Vpp / 75 Ω (Y) .
LUMA S/N RATIO:	77 dB.
POWER SOURCE:	12VDC, 70mA.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).
WEIGHT:	0.28 Kg. (0.62 Lbs.) Approx.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

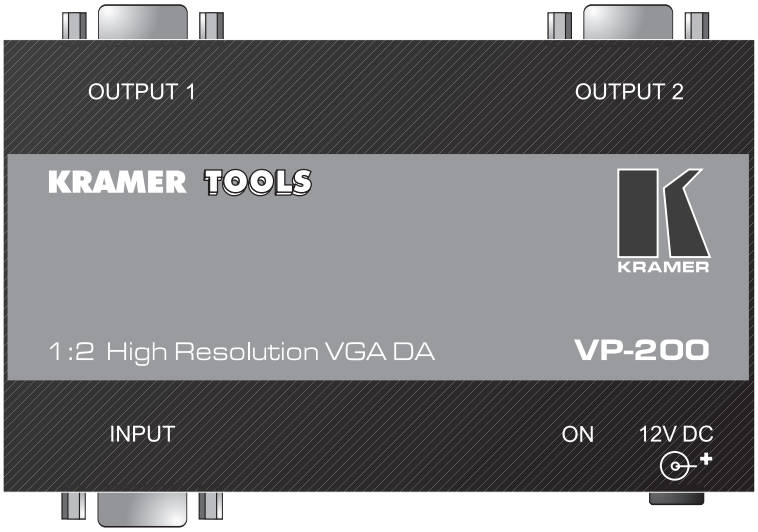
Typical applications:

- *Video production and duplication studios.*
- *Professional presentation and display systems.*
- *Teleconference systems.*
- *Any requirement for simple composite to s-Video conversion.*

1:2 VGA Distributor VP-200

The Kramer **VP-200** is a high performance 1:2 distribution amplifier for VGA signals. It accepts one input, provides correct buffering and isolation, and then distributes the signal to two identical outputs using high-density 15 pin D connectors. Video bandwidth exceeding 345MHz ensures that the **VP-200** remains transparent even at high-resolution VGA modes such as XGA. It is ideal for dual monitor applications, or presentation systems requiring a local monitor and a large screen display device such as a projector. A 12V power supply is included.

The **VP-200** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

INPUT:	Analog Red, Green, Blue signals - 0.7 Vpp/75 Ω, H & V sync, TTL level, on HD15F connector.
OUTPUTS:	2 Analog Red, Green, Blue signals - 0.7 Vpp/75 Ω, H & V syncs-TTL level, on HD15F connectors.
VIDEO BANDWIDTH:	Exceeding 345 MHz.
DIFF. GAIN:	0.06%.
DIFF. PHASE:	0.13 Deg.
COUPLING:	AC.
K-FACTOR:	<0.05%.
S/N RATIO:	74 dB.
POWER SOURCE:	12 VDC, 70 mA.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).
WEIGHT:	0.25 Kg. (0.55 Lbs.) Approx.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

Typical applications:

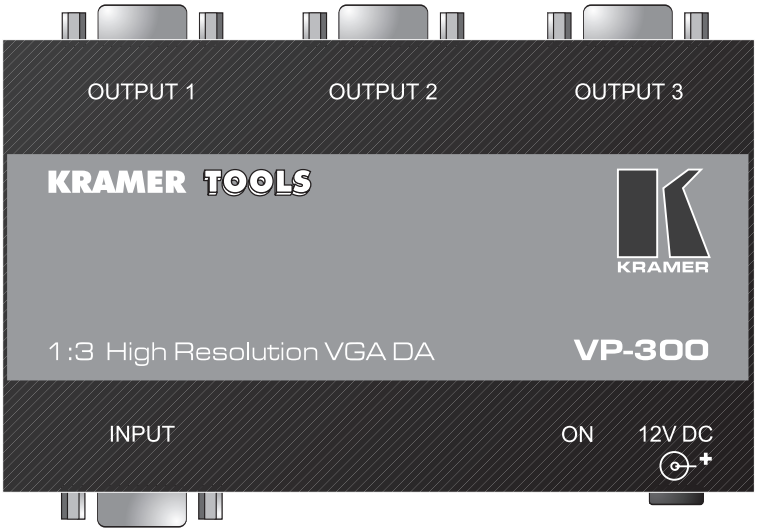
- *Dual monitor systems.*
- *Presentation systems requiring a local monitor a projector operating simultaneously.*

1:3 VGA Distributor VP-300

The Kramer **VP-300** is a high performance 1:3 distribution amplifier for VGA signals. It accepts one input, provides correct buffering and isolation, and then distributes the signal to three identical outputs using high-density 15 pin D connectors. Unused outputs do not require special termination.

Video bandwidth exceeding 345MHz ensures that the **VP-300** remains transparent even for high-resolution VGA modes like XGA. It is ideal for presentation systems requiring a local monitor and two projectors. A 12V power supply is included.

The **VP-300** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

INPUT:	Analog Red, Green, Blue signals - 0.7 Vpp/75 Ω, H & V sync, TTL level, on HD15F connector.		
OUTPUTS:	3 Analog Red, Green, Blue signals - 0.7 Vpp/75 Ω, H & V syncs-TTL level, on HD15F connectors.		
VIDEO BANDWIDTH:	Exceeding 345 MHz.	**S/N RATIO:**	74 dB.
DIFF. GAIN:	0.06%.	**DIFF. PHASE:**	0.13 Deg.
COUPLING:	AC.	**K-FACTOR:**	<0.05%.
POWER SOURCE:	12 VDC, 75 mA.		
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).		
WEIGHT:	0.28 Kg. (0.62 Lbs.) Approx.		
ACCESSORIES:	Power supply, mounting bracket.		
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.		

Typical applications:

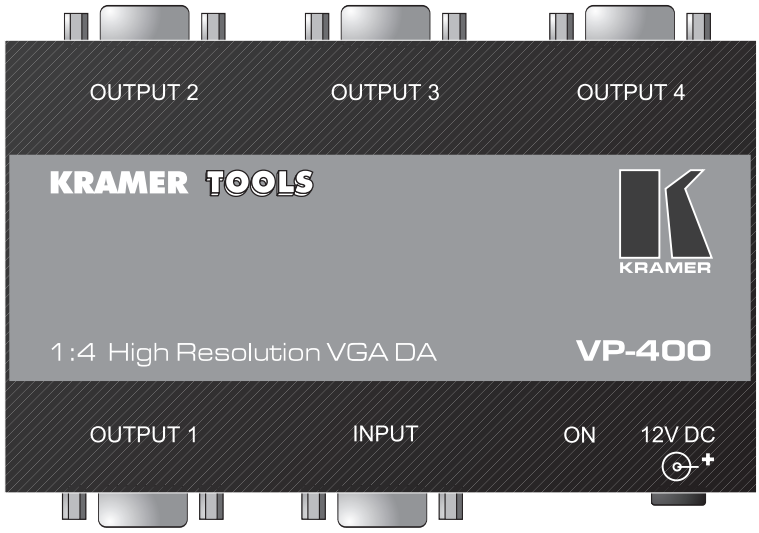
- *Any professional display system requiring multiple outputs from a single VGA source.*
- *Can be used as a multi-channel video or component DA with BNC breakout cables.*
- *Schools, Churches, Corporate applications.*
- *Rental and staging systems.*

1:4 VGA Distributor VP-400

The Kramer **VP-400** is a high performance 1:4 distribution amplifier for VGA signals. It accepts one input, provides correct buffering and isolation, and then distributes the signal to four identical outputs on high-density 15 pin D connectors. Unused outputs do not require special termination.

Video bandwidth exceeding 345MHz ensures that the **VP-400** remains transparent even for high-resolution VGA modes like XGA. It is ideal for presentation systems requiring a local monitor and up to three projectors. A 12V power supply is included.

The **VP-400** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

INPUT:	Analog Red, Green, Blue signals - 0.7 Vpp/75 Ω, H & V sync, TTL level, on HD15F connector.		
OUTPUTS:	4 Analog Red, Green, Blue signals - 0.7 Vpp/75 Ω, H & V syncs-TTL level, on HD15F connectors.		
VIDEO BANDWIDTH:	Exceeding 345 MHz.	**COUPLING:**	AC.
DIFF. GAIN:	0.06%.	**DIFF. PHASE:**	0.13 Deg.
K-FACTOR:	<0.05%.	**S/N RATIO:**	74 dB.
POWER SOURCE:	12 VDC, 90 mA.		
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).		
WEIGHT:	0.3 Kg. (0.67 Lbs.) Approx.		
ACCESSORIES:	Power supply, mounting bracket.		
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.		

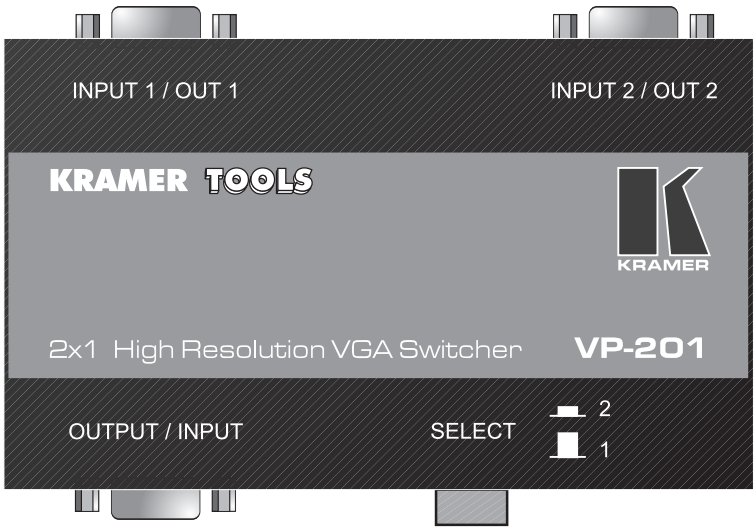
Typical applications:

- *Any professional presentation system requiring multiple outputs from a single VGA source.*
- *Can be used as a multi-channel video or component DA with BNC breakout cables.*
- *Schools, churches, corporate applications.*
- *Rental and staging.*

2x1 VGA Switcher VP-201

The Kramer **VP-201** is a high quality 2x1 mechanical switcher designed for VGA signals using high-density 15 pin D connectors. It accepts two inputs and allows the user to select either input using a switch located on the side panel. High quality switching components and careful circuit design are used to ensure very high bandwidth and minimal crosstalk. The passive design of the **VP-201** eliminates the need for a power supply, and makes it possible to operate "backwards" by taking a single input and toggling between two displays. Note that it cannot route the signal to two ports simultaneously.

The **VP-201** is part of the Kramer TOOLS family of high quality, cost effective solutions for a variety of applications.



Technical Specifications:

INPUT:	2 Analog Red, Green, Blue signals - 0.7 Vpp/75 Ω, H & V sync, TTL level, on HD15F connector.
OUTPUTS:	1 Analog Red, Green, Blue signals - 0.7 Vpp/75 Ω, H & V syncs-TTL level, on HD15F connectors.
VIDEO BANDWIDTH:	Exceeding 320 MHz.
SWITCHING METHOD:	Mechanical.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).
WEIGHT:	0.26 Kg. (0.58 Lbs.) Approx.
ACCESSORIES:	Mounting bracket.

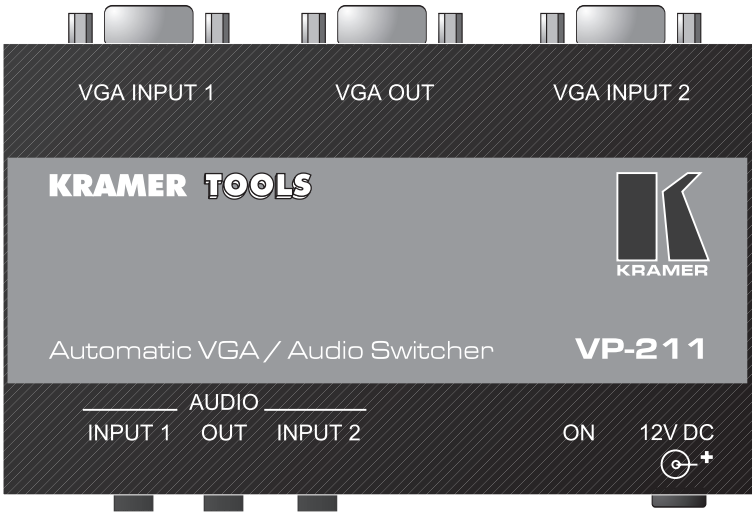
Typical applications:

- *Any presentation system requiring simple two-way VGA switching.*
- *Can be used for video, component, or other signals with BNC breakout cables.*
- *Schools, churches.*
- *Rental/staging.*

Automatic VGA / Audio Switcher VP-211

The Kramer **VP-211** is a high performance 2x1 automatic switch for VGA and stereo audio signals. It is designed to detect the presence of a VGA-type signal, and automatically switch to the active input. If signal is present on both inputs, number one is selected. Audio is always switched together with the corresponding VGA input. Video bandwidth exceeding 517 MHz ensures that the **VP-211** remains transparent even when operating at the highest resolutions. A 12V power supply is included but the optional **VA-50P** can power up to six Kramer devices requiring 12VDC.

The **VP-211** is part of the Kramer TOOLS family of compact, high quality and cost effective solutions for a variety of applications.



Technical Specifications:

INPUT:	2 analog red, green, blue signals - 0.7 Vpp/75 Ω, H & V sync, TTL level, on HD15F connectors. 2 stereo audio +4dBm nom. on 3.5 mm mini plugs.
OUTPUTS:	1 analog red, green, blue signals - 0.7 Vpp/75 Ω, H & V syncs-TTL level, on an HD15F connector. 1 stereo audio +4dBm nom. on a 3.5 mm mini plug.
VIDEO BANDWIDTH:	Exceeding 517 MHz.
AUDIO BANDWIDTH:	100 kHz.
SWITCHING METHOD:	Electro mechanical.
SYNC DETECTOR:	Vertical sync - TTL level.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.)
POWER SOURCE:	12 VDC, 120 mA.
WEIGHT:	0.26 Kg. (0.58 Lbs.) Approx.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

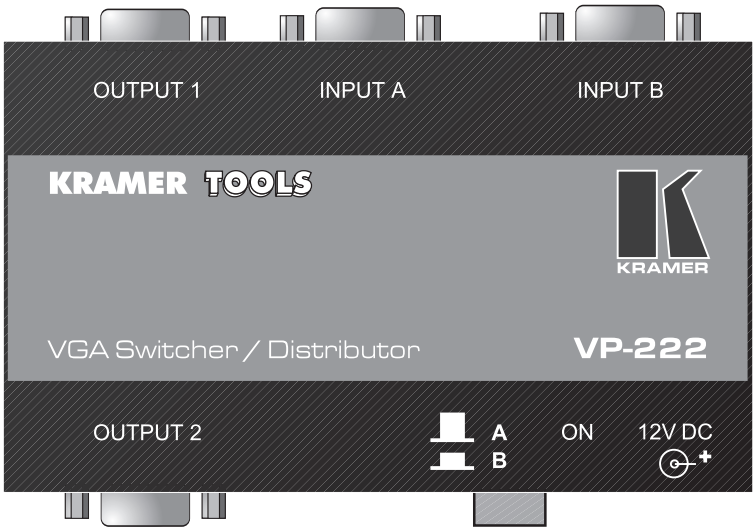
Typical Applications:

- *Any system requiring automatic computer and presentation VGA/XGA routing.*
- *Presentation systems with wall plates.*

VGA Switcher/Distributor VP-222

The Kramer **VP-222** is a unique product which combines the functions of a 2x1 switcher, and a 1:2 distribution amplifier for VGA-type signals. It accepts two inputs and provides a button to switch between the two sources. The selected input is properly buffered and isolated, then distributed to two identical outputs designed to drive monitors, projectors, or other receiving devices. Signal bandwidth of 365MHz ensures that the **VP-222** remains transparent even when operating at the highest resolution VGA modes. A 12V power supply is included but the optional **VA-50P** can power up to six Kramer devices requiring 12VDC.

The **VP-222** is part of the Kramer TOOLS family of compact, high quality and cost effective solutions for a variety of applications.



Technical Specifications:

INPUT:	2 analog red, green, blue signals - 0.7 Vpp/75 Ω, H & V sync, TTL level, on HD15F connectors.
OUTPUTS:	2 analog red, green, blue signals - 0.7 Vpp/75 Ω, H & V syncs-TTL level, on HD15F connectors.
VIDEO BANDWIDTH:	Exceeding 365 MHz.
NON-LINEARITY:	<0.1%.
DIFF. GAIN:	<0.06%.
DIFF. PHASE:	<0.04 Deg.
VIDEO S/N RATIO:	>76 dB.
K-FACTOR:	<0.05%.
CROSSTALK:	-52 dB @ 5 MHz.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.)
POWER SOURCE:	12 VDC, 120 mA.
WEIGHT:	0.26 Kg. (0.58 Lbs.) Approx.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

Typical Applications:

- *Computer and presentation VGA/XGA routing and distribution.*
- *Component video switching and distribution with the appropriate adapters.*

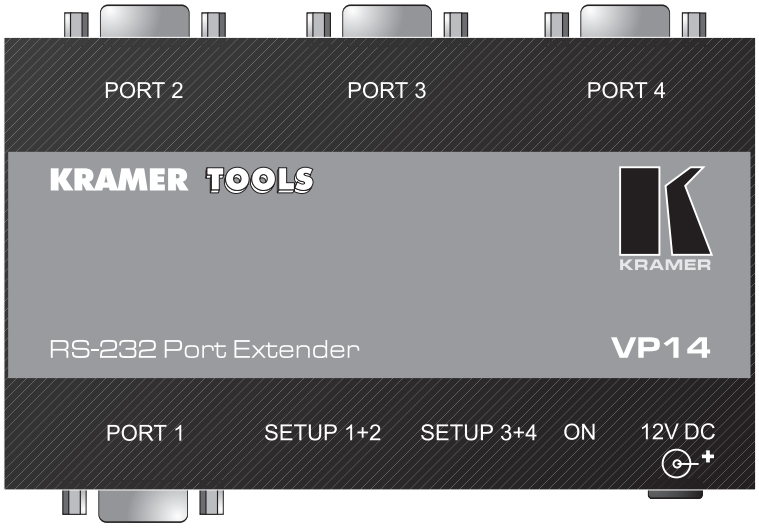
RS-232 Port Extender VP-14

The Kramer **VP-14** is a unique product designed to distribute RS-232 commands as transmitted by a touch screen control system, personal computer, or other type of control system. It allows the user to control up to three compatible devices when just one serial port or RS-232 card is available. There are a total of four 9-pin ports, any of which can receive incoming RS-232. The incoming commands are then distributed to the remaining ports. An extensive set of DIP switches allows the unit to be configured for use with crossed or straight (uncrossed) cables.

The **VP-14** was designed specifically for use with Kramer switchers and routers, but can be easily adapted for use with any other equipment, which uses RS-232 in null-modem configuration.

A 12V power supply is included for typical operation.

The **VP-14** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

RS-232 PORTS:	Null-modem RS-232-C compatible TX / RX signals.
POWER SOURCE:	12VDC, 30mA.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).
WEIGHT:	0.28 Kg. (0.62 Lbs.) Approx.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

Typical applications:

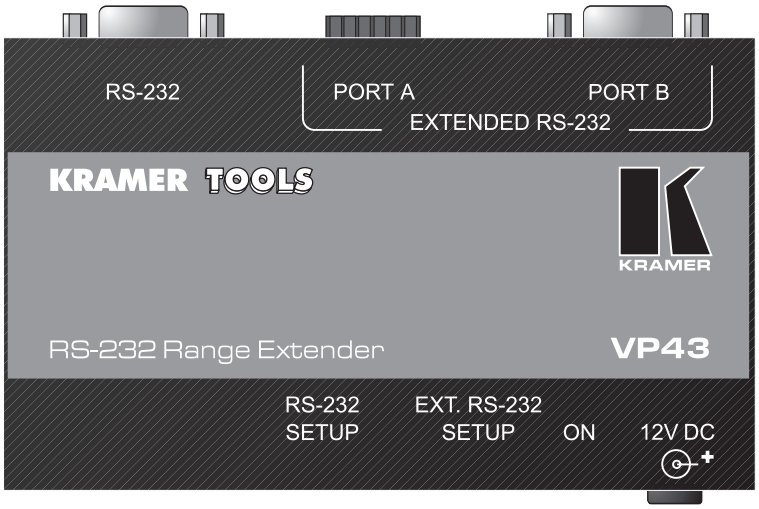
- *Controlling a single matrix switcher or other product via several PC's and / or controllers.*
- *Monitoring of several RS-232 controlled machines via one PC port.*
- *Inter-communication between several pieces of serially controlled machines.*

RS-232 Range Extender VP-43

The Kramer **VP-43** is a unique product designed to overcome cable length limitations when transmitting RS-232 information. It is a bi-directional device intended to operate in pairs with one **VP-43** connected to the control system's serial port, and another one located at the device being controlled. Connected in this fashion, the cable between the two units can be extended to more than 100 times that of conventional RS-232. A 12V power supply is provided

DIP switches allow the unit to be configured for use with crossed or straight (uncrossed) cables. Also, the "extended" RS-232 cable can be connected using either a DB-9 connector, or a detachable screw terminal connector. The **VP-43** was designed specifically for use with Kramer switchers and routers, but can easily be adapted for use with other products which use RS-232 in null-modem configuration.

The **VP-43** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

RS-232 PORT:	Null-modem RS-232-C compatible TX / RX signals.
EXTENDED RS-232 PORT:	RS-485 (RS-422) compatible signals, TX and RX on separate differential pairs.
EFFECTIVE RANGE:	>1.2km.
POWER SOURCE:	12VDC, 30mA.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).
WEIGHT:	0.28 Kg. (0.62 Lbs.) Approx.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets..

Typical applications:

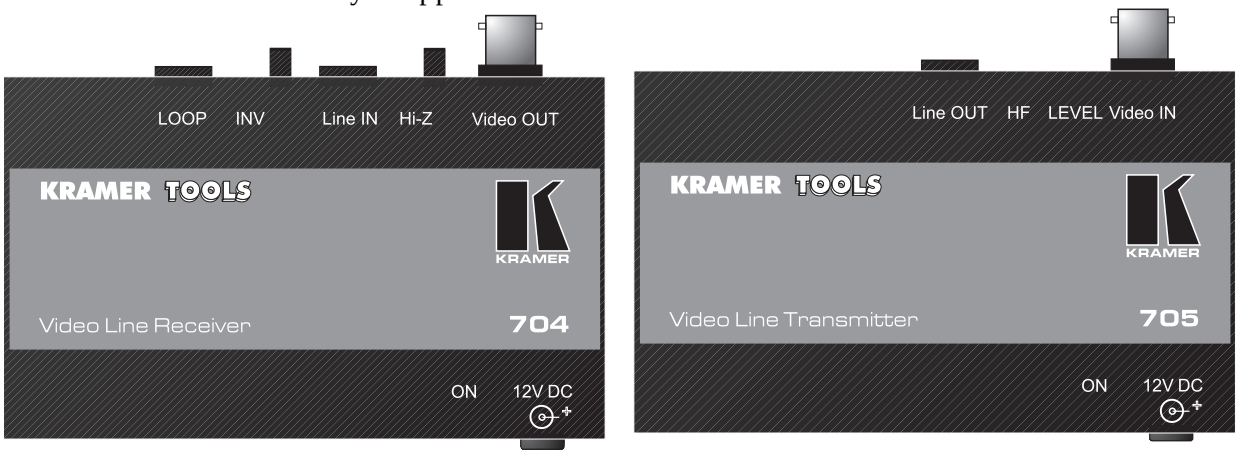
- *Control of ceiling mounted video projectors when control system is in a distant rack.*
- *Allows inexpensive twisted pair cable to be used as control cable for long runs.*
- *Allows Kramer matrix switchers to be placed in a remote rack using the BC-2000 as the user interface.*

Video Line Transmitter/Receiver 704/705

The Kramer **705** is a high performance composite video to twisted pair transmitter, and the **704** is its companion unit which converts the twisted pair format back to composite video. Transmission via twisted pair cable carries video signals farther than conventional coax cable, and is lighter and significantly less expensive.

A simple system consists of a **705** located at the video source, and a **704** located at the remote display device. For systems with multiple monitors, the **704** receiver has a loop out and termination switch allowing several **704** receivers to be placed on the same TP cable driven by a **705**. Even at a cable length of 400 meters, the frequency response is well over 6 MHz and at shorter distances, they provide close to broadcast level performance. Recessed gain and equalization controls are provided to optimize signal levels. A 12V power supply is provided with each unit.

The **705** and **704** are part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

INPUTS:	**705**: 1 Composite Video, 1Vpp / 75 Ω.		
	704: looping balanced 150 Ω on 6/4 standard telephone sockets, with termination switch and polarity inversion switch.		
OUTPUTS:	**705**: 1 Balanced, 150 Ω on 6/4 standard telephone socket.		
	704: 1 Composite Video, 1Vpp/75 Ω unbalanced on a BNC connector.		
BANDWIDTH:	50 MHz. -3dB at 30 meters, 6.3 MHz -3dB at 400 meters.		
NON-LINEARITY:	Less than 0.2% at 100 meters.		
DIFF. GAIN (PAIR):	0.43%	**DIFF. PHASE (PAIR):**	0.32 Deg.
S/N RATIO:	74 dB.	**K-FACTOR (@ 400m):**	1.6 %.
COMPENSATION:	Gain and HF above 2.5MHz +/- 9dB.		
SYSTEM DELAY:	1 microsecond TYP. at 100 meters.		
POWER SOURCE:	12 VDC 40mA each **705** and **704**.		
WEIGHT:	0.28 Kg. (0.62 Lbs.) Approx.		
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).		
ACCESSORIES:	Power supply, mounting bracket.		
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.		

Typical applications:

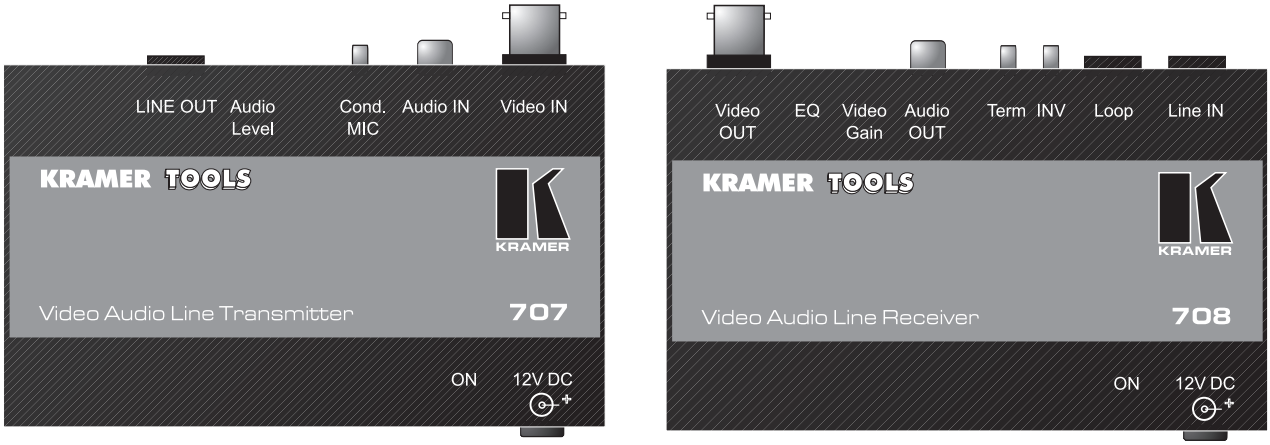
- *Remote monitoring for CCTV, medical, schools, broadcast applications.*
- *Ideal for existing facilities with TP cable already installed.*
- *Teleconferencing in offices and hospitals using existing intercom or telephone wiring.*

Video-Audio Line Transmitter/Receiver 707/708

The Kramer **707** is a high performance composite video and mono audio to twisted pair transmitter, and the **708** is its companion unit which converts the twisted pair format back to composite video and audio. Transmission via twisted pair cable carries video signals farther than conventional coax cable, and is lighter and significantly less expensive.

A simple system consists of a **707** located at the source, and a **708** located at the remote display device. For systems with multiple monitors, the **708** receiver has a loop out and termination switch allowing several **708** receivers to be placed on the same TP cable driven by a **707**. Even at a cable length of 400 meters, the frequency response is well over 6 MHz, and at shorter distances they provide close to broadcast level performance. Recessed gain and equalization controls are provided to optimize signal levels. A 12V power supply is provided with each unit.

The **707** and **708** are part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

INPUTS:	**707**: 1 Composite Video, 1Vpp / 75 Ω, 1 Audio, 1mV - 2 V / 33k.		
	708: looping balanced 150 Ω on 6/4 standard telephone sockets, with termination switch and polarity inversion switch.		
OUTPUTS:	**707**: 1 Balanced, 150 Ω on 6/4 standard telephone socket.		
	708: 1 Composite Video, 1Vpp/75 Ω unbalanced on a BNC connector. 1 Audio - Mic or line level, up to 4.6 Vpp / 100 Ω.		
BANDWIDTH (PAIR):	Video: 50 MHz. -3dB, Audio: 30 kHz -3dB at 30 meters without lightning arrestors.		
NON-LINEARITY(PAIR):	Less than 0.2% at short distances.		
DIFF. GAIN (PAIR):	0.41%.	**DIFF. PHASE (PAIR):**	0.3 Deg.
S/N RATIO(PAIR):	72 dB.	**K-FACTOR (@ 20m, PAIR):**	0.1 %.
CONTROLS (@ 20m):	Video Gain: -1.8 / + 2.3dB, EQ above 2.5MHz 0 / 16dB, Audio: 0 / 52 dB. **707:** Condenser Mic power. **708:** loop termination, signal invert.		
POWER SOURCE:	12 VDC 40mA each	**WEIGHT:**	0.28 Kg. (0.62 Lbs.) Approx.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).		
ACCESSORIES:	Power supply, mounting bracket.		
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.		

Typical applications:

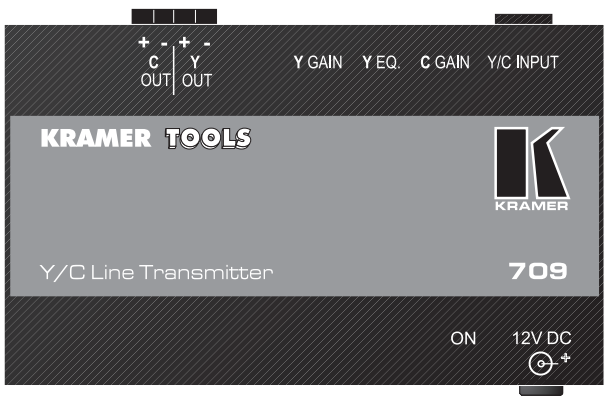
- *Remote monitoring for CCTV, medical schools, broadcast applications.*
- *Ideal for existing facilities with TP cable already installed.*
- *Teleconferencing in offices and hospitals using existing intercom or telephone wiring.*

Y/C Line Transmitter/Receiver 709/710

The Kramer **709** is a high performance s-Video to twisted pair transmitter, and the **710** is its companion unit which converts the twisted pair format back to s-Video. Transmission via twisted pair cable carries video signals farther than conventional coax cable, and is lighter and less expensive. Cable lengths of several hundred meters is possible.

A simple system consists of a **709** located at the s-Video source, and a **710** located at the remote display device. For systems with multiple monitors, the **710** receiver has a loop out and termination switch allowing several **710**s to be placed on the same TP cable driven by a **709**. Recessed gain and equalization controls are provided to optimize signal levels, and a 12V power supply is included with each unit.

The **709** and **710** are part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

INPUTS: s-Video, 1Vpp/75 Ω (Y), 0.3Vpp/75Ω (C) on a 4P connector (**709**), 4-pin terminal block (**710**).
OUTPUTS: 4-pin terminal block (**709**), s-Video, 1Vpp/75 Ω (Y), 0.3Vpp/75Ω (C) on a 4P connector (**710**).

VIDEO BANDWIDTH:	8.4 MHz -3dB, (Y).
GAIN RANGE:	-2.4 to +6.5 dB (Y), -2.7 to 15.6dB, (EQ.), -5.8 to +7.8 dB (C).
VIDEO S/N RATIO:	Better than 60 dB.
DIFF. GAIN:	0.04%.
NON-LINEARITY:	0.07%.
POWER SOURCE:	12 VDC, 40mA (**709**), 40mA (**710**).
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).
WEIGHT:	0.26 Kg. (0.58 Lbs.) Approx.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

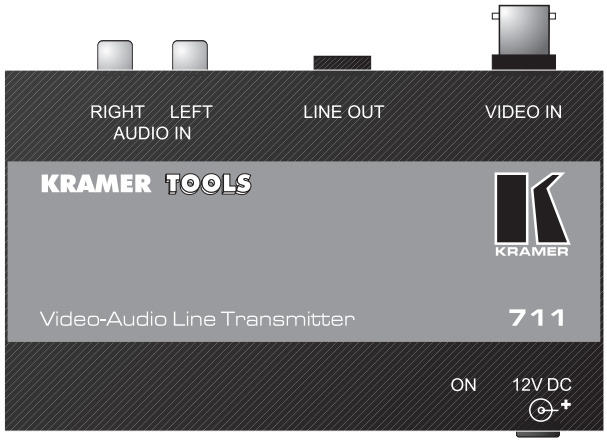
Typical applications:

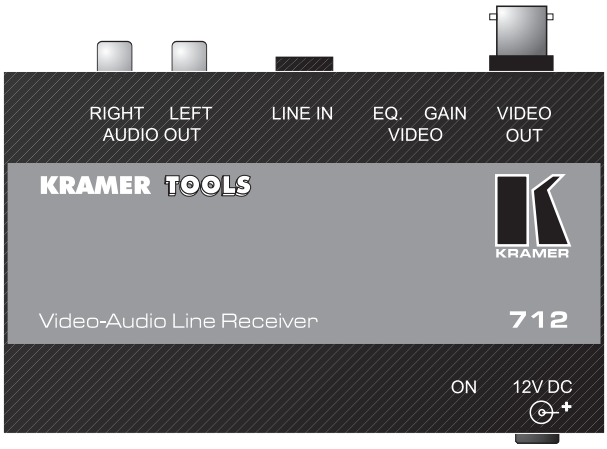
- *Remote monitoring for CCTV, medical, schools and broadcast applications.*
- *Ideal for facilities with TP cable already installed.*
- *Teleconferencing in offices and hospitals using existing intercom or telephone wiring.*

AV Line Transmitter/Receiver 711/712

The Kramer **711** is a transmitter used to convert composite video and stereo audio to twisted pair cable for long cable runs, and the **712** is its companion unit which converts the twisted pair format back to video and stereo audio. It requires three pairs of wires and offers frequency response of well over 64 MHz. The **712** provides video gain and equalization to optimize signal levels, and a power supply is provided with each unit. The system uses the standard RJ-45 connector and wire system (8 wires, 4 pairs), often used for computer network and telephone installation.

The **711** and **712** are part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.





Technical Specifications:

INPUTS:	Video, 1Vpp/75 Ω on a BNC, Audio 1Vpp / 33KΩ on RCAs (**711**), RJ-45 connector (**712**).		
OUTPUTS:	RJ-45 connector (**711**) Video, 1Vpp/75 Ω on a BNC, Audio 1Vpp / 150Ω on RCAs (**712**).		
VIDEO BANDWIDTH:	64 MHz -3dB.	**AUDIO BANDWIDTH:**	100 kHz -3dB.
VIDEO S/N RATIO:	Better than 75 dB.	**AUDIO S/N RATIO:**	73 dB.
DIFF. GAIN:	1.4%.	**AUDIO THD + NOISE:**	0.033%
DIFF. PHASE:	0.63 Deg.	**AUDIO 2nd HARMONIC:**	0.002%.
VIDEO GAIN CONTROL:	-0.7 to +4.1 dB, -0.6 to +7.3 dB (EQ.).		
MAX. SIGNAL LEVEL:	2.1 Vpp (Video), 4.2 Vpp (Audio).		
POWER SOURCE:	12 VDC, 80mA (**711**), 40mA (**712**).		
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.).		
WEIGHT:	0.28 Kg. (0.62 Lbs.) Approx.		
ACCESSORIES:	Power supply, mounting bracket.		
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.		

Typical applications:

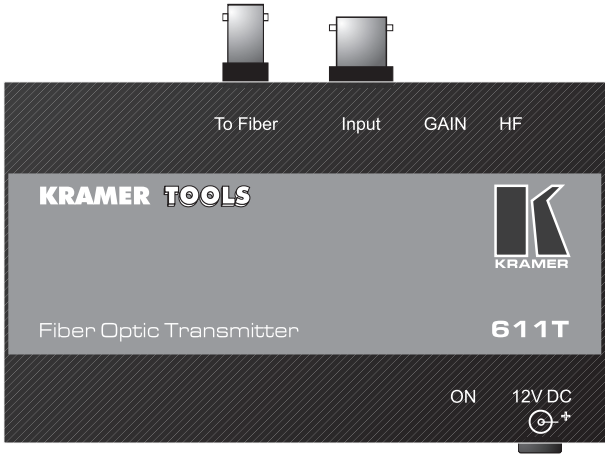
- *Remote monitoring for CCTV, medical schools, broadcast applications.*
- *Ideal for facilities with TP cable already installed.*
- *Teleconferencing in offices and hospitals using existing intercom or telephone wiring.*

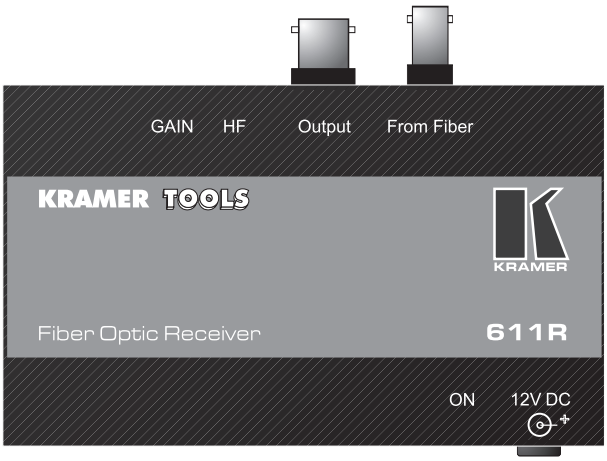
Fiber Optic Transmitter/Receiver 611T/611R

The Kramer **611T** is a high performance composite video to fiber optic transmitter, and the **611R** is its receiving unit which converts the fiber optic signal back to standard video. Transmission via fiber carries signals much farther than ordinary coax cable, and is lighter. Another advantage of fiber transmission is complete ground isolation between source and display.

A simple system consists of a **611T** located at the video source, and a **611R** at the display device. Standard units use multi-mode technology allowing up to 5 kilometers transmission distance, but single mode versions, available by special order, provide distances up to 25 kilometers. A 12V power supply is provided with each unit.

Both units are part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.





Technical Specifications:

INPUTS:	Composite Video, 1Vpp/75 Ω on a BNC (**611T**), Optic Fiber ST connector (**611R**).
OUTPUTS:	Optic Fiber ST connector (**611T**), Composite Video, 1Vpp/75 Ω on a BNC (**611R**).
OPERATION DISTANCE:	Up to 5km (MultiMode), up to 25km (Single mode).
VIDEO BANDWIDTH:	55 MHz (-3dB), 20 MHz (-0.1dB).
VIDEO S/N RATIO:	Better than 60 dB.
DIFF. GAIN:	0.4%.
NON-LINEARITY:	0.6%.
POWER SOURCE:	12 VDC, 80mA (**611T**), 40mA (**611R**).
DIMENSIONS:	12cm X 7.5cm X 2.5cm (4.7" x 3 " x 2", W, D, H.).
WEIGHT:	0.27 Kg. (0.59 Lbs.) Approx.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

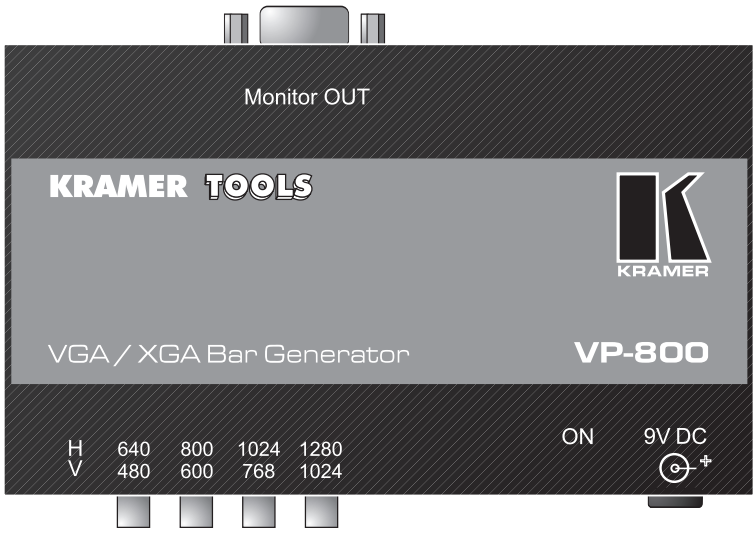
Typical applications:

- *Remote monitoring systems for CCTV, medical, broadcast, and industrial use.*
- *Signal distribution in broadcast and production studios.*
- *Board room and other presentation systems.*
- *Rental and staging applications.*

VGA/XGA Bar Generator VP-800

The Kramer **VP-800** is a simple, compact, and affordable VGA/XGA color bar generator. It is a uniquely practical product for testing and adjusting VGA/XGA display devices such as monitors, projectors, etc. in the four most common VGA resolution modes - 640x480, 800x600, 1024x768 and 1280x1024. Whenever power is applied, and one of the resolution select buttons is pressed, it outputs a color bar pattern through the high-density 15 pin D connector. The **VP-800** can eliminate the need for a full computer, or more expensive pattern generators, in many field and shop testing situations. A 9/12V power supply is included.

The **VP-800** is part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.



Technical Specifications:

OUTPUTS:	Standard VGA/XGA RGBHV signal on a HD-15 connector.
RESOLUTIONS:	640x480, 60 Hz. 800x600, 75 Hz. 1024x768, 75 Hz. 1280x1024, 74 Hz.
POWER SOURCE:	9 VDC, 200 mA.
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98"), (W, D, H.).
WEIGHT:	0.3 Kg. (approx.), 0.66 Lbs.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

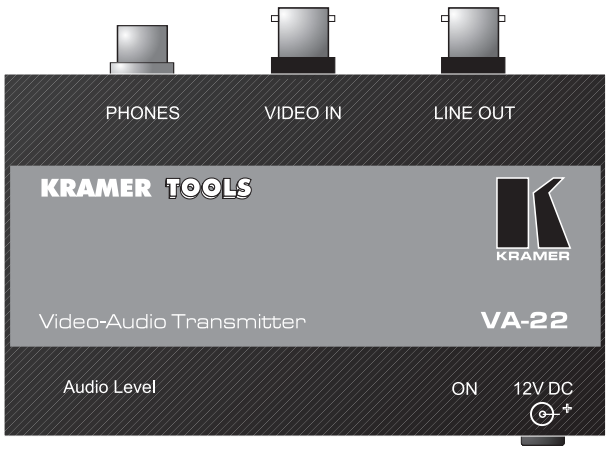
Typical applications:

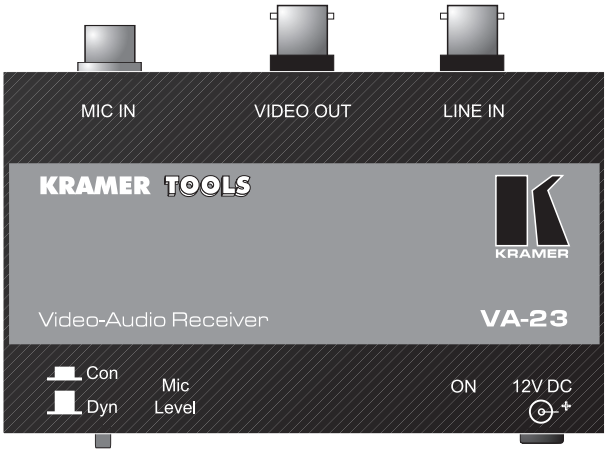
- *Testing and alignment of computer monitors and large screen projectors.*
- *Standard color bar for use with scans converters (VGA/XGA to video).*
- *All purpose generator for testing switching and distribution systems.*
- *Rental and staging.*

Video-Audio /Transmitter Receiver VA-22/VA-23

The Kramer **VA-22** video and audio transmitter and the **VA-23** video and audio receiver, work as a pair for transmitting video downstream while receiving headphone-level audio; and receiving video while transmitting an amplified microphone signal upstream, using a single coax wire. The **VA-23** allows selection between condenser and dynamic microphones as well as microphone level control, while the **VA-22** allows headphone level control. They allow, for example, a director's comments to be transmitted to the cameraman while receiving the video image on the same cable. A 12VDC power supply is included for typical operation, but the optional **VA-50P** can power up to six Kramer devices requiring 12VDC.

The **VA-22** and **VA-23** are part of the Kramer TOOLS family of compact, high quality, and cost effective solutions for a variety of applications.





Technical Specifications:

INPUTS:	**VA-22**:	1 Composite Video, 1Vpp / 75 Ω on a BNC.
	VA-23:	1 Mixed line in, 1 Vpp / 75 Ω on a BNC.
		1 Mic, 3 mV, 10 kΩ, Condenser or Dynamic switch selectable) on a 6.5mm phone connector.
OUTPUTS:	**VA-22**:	Mixed line out, 1Vpp /75 Ω on a BNC.
		Headphone out, 100 mW / 8 Ω on a 6.5mm phone connector.
	VA-23:	1 Composite Video, 1Vpp/75 Ω on a BNC connector.

BANDWIDTH (PAIR):	Video: 20 MHz. -3dB, Audio: 30 kHz -3dB.		
DIFF. GAIN (PAIR):	0.06%.	**DIFF. PHASE (PAIR):**	0.2 Deg.
VIDEO S/N (PAIR):	82 dB.	**K-FACTOR (PAIR):**	0.3 %.
CONTROLS:	Mic level: 20 dB control, Headphone: -60 to +5dB control.		
POWER SOURCE:	12 VDC 60mA max each.		
DIMENSIONS:	12cm x 7.5cm x 2.5cm (4.7" x 2.95" x 0.98", W, D, H.)		
WEIGHT:	0.28 Kg. (0.62 Lbs.) Approx.		
ACCESSORIES:	Power supply, mounting bracket		
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.		

Typical Applications:

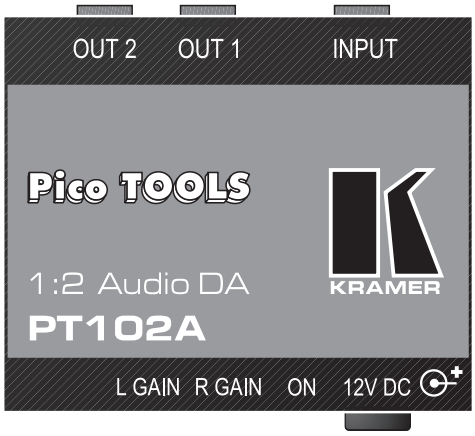
- *Director - Cameraman communication*
- *Small studio control*
- *Security and CCTV applications*

1:2 Audio Distributor PT102A

The Kramer **PT102A** is a high performance 1:2 distribution amplifier for stereo audio signals. It accepts a single input and distributes it to two identical outputs using 3.5mm mini jacks. Separate left and right gain controls allow the user to optimize signal levels.

The PT102A is typically used for unbalanced stereo audio sources such as VCR's, portable cassette and CD players, computer sound cards, etc., but can also distribute a balanced mono signal using readily available adapter cables. It is also the ideal companion to video Pico TOOLS such as the **PT102V** and **PT102S**. A 12V-power supply is provided.

The **PT102A** is part of the new Kramer Pico TOOLS family of products for applications requiring uncompromising quality and compact size at an affordable price.



Technical Specifications:

INPUT:	1 Audio-stereo, 1Vpp / 20kΩ on a 3.5 mm miniplug connector.
OUTPUTS:	2 Audio-stereo, 1Vpp /150 Ω on 3.5 mm miniplug connectors.
AUDIO BANDWIDTH:	100 kHz -3dB.
COUPLING:	AC.
THD+NOISE:	0.017%, 1kHz.
CONTROLS:	Gain: -0.7 to + 2.3 dB, EQ.: 0 to 2.2 dB, via trimmers accessible from front panel.
S/N RATIO:	-71.6dB.
MAX. AUDIO OUTPUT:	6 Vpp.
POWER SOURCE:	12 VDC, 30mA.
DIMENSIONS:	6cm X 6.5cm X 2.5cm (2.36" x 2.56" 1", W, D, H.).
WEIGHT:	0.1 Kg (0.22 Lbs.) Approx.
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

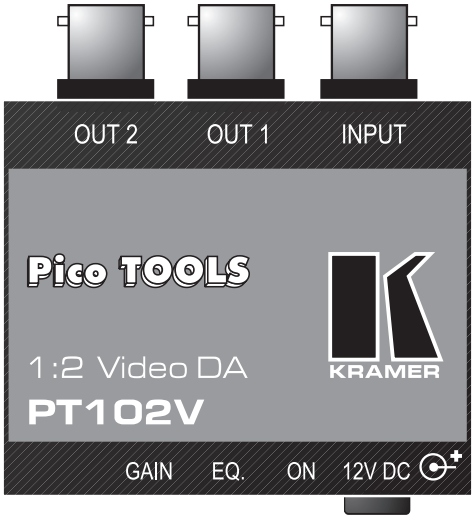
Typical applications:

- *Audio/video duplication studios*
- *Retail showrooms, home theatre systems*
- *CCTV and security systems*

1:2 Video Distributor PT102V

The Kramer **PT102V** is a high performance 1:2 distribution amplifier for composite video signals. It accepts a single input and distributes it to two identical outputs using BNC connectors. Video bandwidth of 430MHz ensures that the **PT102V** remains transparent even in the most critical applications. It is the ideal companion to the model **PT102A** audio Pico TOOL. A 12V power supply is included.

The **PT102V** is part of the new Kramer Pico TOOLS family of products for applications requiring uncompromising quality and compact size at an affordable price.



Technical Specifications:

INPUT:	1 Video, 1Vpp / 75Ω on a BNC connector.
OUTPUTS:	2 Video, 1Vpp / 75Ω on BNCs.
VIDEO BANDWIDTH:	430 MHz -3dB, 415 MHz -0.1dB.
COUPLING:	AC.
DIFF. GAIN:	0.16%.
DIFF. PHASE:	0.11 Deg.
CONTROLS:	Gain: -0.7 to + 2.3 dB, EQ.: 0 to 2.2 dB, via trimmers accessible from front panel.
S/N RATIO:	-71.6dB.
K-FACTOR:	<0.1%.
MAX. VIDEO OUTPUT:	2 Vpp.
POWER SOURCE:	12 VDC, 30mA.
DIMENSIONS:	6cm X 6.5cm X 2.5cm (2.36" x 2.56" 1", W, D, H.).
WEIGHT:	0.14 Kg (0.31 Lbs.) Approx.
ACCESSORIES:	Power supply.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

Typical applications:

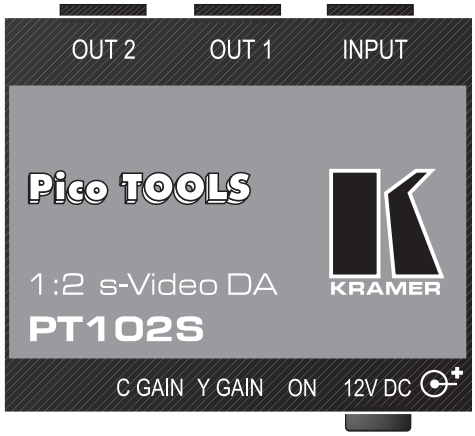
- *Video duplication studios.*
- *Any professional display system requiring an identical picture on several monitors.*
- *Rental/staging, CCTV, and home theater use.*
- *High bandwidth is ideal for high-resolution sources such as medical imaging equipment.*

1:2 s-Video Distributor PT102S

The Kramer **PT102S** is a high performance 1:2 distribution amplifier for s-Video (Y/C) signals. It accepts a single input and distributes it to two identical outputs using 4 pin connectors.

Video bandwidth of 150MHz ensures that the **PT102S** remains transparent even in the most critical applications. It is the ideal companion to the **PT102A** audio Pico TOOL. A 12V power supply is included.

The **PT102S** is part of the new Kramer Pico TOOLS family of products for applications requiring uncompromising quality and compact size at an affordable price.



Technical Specifications:

INPUT:	1 s-Video, 1Vpp / 75Ω (Y), 0.3Vpp /75Ω (C) on a 4P connector.
OUTPUTS:	2 s-Video, 1Vpp / 75Ω (Y), 0.3Vpp /75Ω (C) on 4P connectors.
VIDEO BANDWIDTH:	150 MHz -3dB (Y).
COUPLING:	AC.
DIFF. GAIN:	0.03%.
DIFF. PHASE:	0.03 Deg.
CONTROLS:	Gain: 8 dB, each "Y" and "C", via trimmers accessible from front panel.
S/N RATIO:	78 dB.
K-FACTOR:	<0.05%.
MAX. VIDEO OUTPUT:	2 Vpp.
POWER SOURCE:	12 VDC, 30mA.
DIMENSIONS:	6cm X 6.5cm X 2.5cm (2.36" x 2.56" 1", W, D, H.).
WEIGHT:	0.12 Kg (0.26 Lbs.) Approx.
ACCESSORIES:	Power supply.
OPTIONS:	Model VA-50P power supply with six 12VDC outlets.

Typical Applications:

- *Video duplication studios.*
- *Any professional display system requiring an identical picture on several monitors.*
- *CCTV and home theater use.*
- *Rental and staging applications.*