

Twisted-Pair Interfaces

Kramer Electronics has a full line of video/audio to twisted-pair wire interfaces. Using twisted-pair technology simplifies studio and industrial wiring. The price of twisted-pair wire is far lower than that of coaxial cables, so it is an attractive alternative for many applications. Some twisted-pair machines use a 12V DC source, making them suitable for fieldwork. The DC fed machines can power one another using a 4-wire setup.

The twisted-pair interfaces include three categories:

❑ Twisted-Pair Transmitters.

The machines in this family are used to convert video and audio signals to a twisted-pair signal format (balanced line). Some of the machines convert video or s-Video only, while others convert video and two channels of audio to one twisted-pair compatible signal. The video/audio twisted pair transmitters use one twisted-pair wire for the three signals, completely eliminating the need for three coaxial cables. The twisted-pair transmitters have user-accessible trimmers for signal level and cable compensation.

❑ Twisted-Pair Receivers.

The machines in this family are used to convert a twisted-pair format signal to video and audio signals. Some receivers have looping possibility, so several receivers may be chained together on one twisted-pair wire. Some have a polarity switch, allowing the user to connect the wire using any polarity.

❑ Twisted-Pair Line Amplifiers.

Machines in this category are used to extend the operating distance of the twisted-pair system, by adding amplification and cable compensation along the twisted-pair wire. The machine may be power-fed via a 4-wire system, eliminating the need to forward power to a remote location where the line amplifier is installed.

Applications:

- ❖ Video and audio signal distribution over long distances, using a simple cable system.
- ❖ Large apartment houses, hospitals and educational institutions, in CCTV applications, to distribute video and audio signals on existing intercom or other simple twisted-pair wires.
- ❖ Security and military applications, for fast and easy setup for video monitoring.

Twisted-Pair Interfaces:

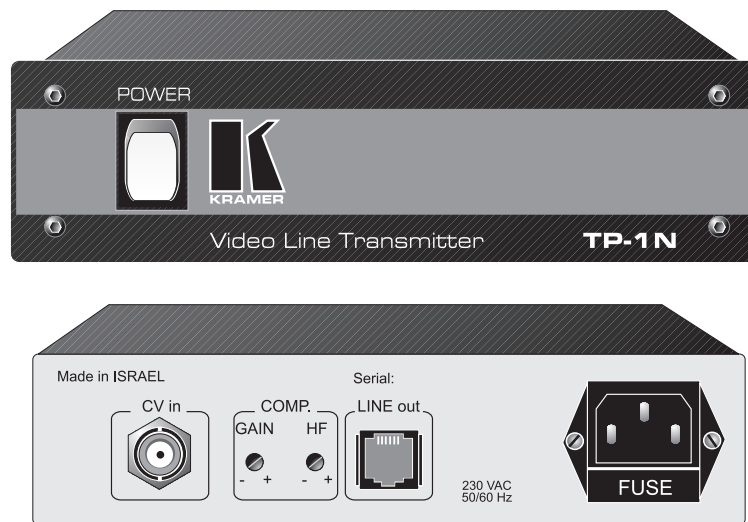
Model	Size	Page	Function	Inputs	Outputs	Remarks
TP-1N	Compact	7.3	Line Transmitter	1 x CV	Telephone Connector	A Video transmitter-receiver system on a single TP wire, for up to 500 meters.
TP-2N	Compact	7.4	Line Receiver	Telephone Connector	1 x CV	
TP-6	Mini	7.5	Line Amplifier	Telephone Connector	Telephone Connector	With level and HF controls, 12 VDC feed.
TP-11N	Compact	7.6	Line Transmitter	1 x CV, 2 x Audio	Telephone Connector	A Video – Stereo Audio transmitter-receiver system on a single TP wire, for up to 500 meters.
TP-12N	Compact	7.7	Line Receiver	Telephone Connector	1 x CV, 2 x Audio	
704	TOOL	9.26	Receiver	TP line	1 x CV	A Video transmitter-receiver system on a single TP wire, for up to 500 meters, 12 VDC feed.
705	TOOL	9.26	Transmitter	1 x CV	TP line	
707	TOOL	9.27	Transmitter	1 x AV	TP line	A Video + Audio-mono transmitter-Receiver system on a single TP wire 12 VDC feed.
708	TOOL	9.27	Receiver	TP line	1 x AV	
709	TOOL	9.28	Transmitter	1 x Y/C	2 x TP line	An s-Video (Y/C) TP transmitter-receiver system on a dual TP wire 12 VDC feed.
710	TOOL	9.28	Receiver	TP line	1 x Y/C	
711	TOOL	9.29	Transmitter	1 x AV	3 x TP line	A Video + Audio-stereo transmitter-receiver system on a triple TP wire 12 VDC feed.
712	TOOL	9.29	Receiver	TP line	1 x AV	



Video Line Transmitter

TP-1N

The Kramer **TP-1N** is a high performance composite video to twisted pair transmitter designed to work in conjunction with the **TP-2N** receiver, to transmit video signals over long distances using common twisted pair cable. Using good quality cable, the system can maintain the bandwidth of an industrial color video signal up to several hundred meters, and broadcast quality (up to 12 MHz) for as much as 100 meters. At shorter distances, bandwidth of 30 MHz is easily achieved. The **TP-1N** provides gain and high frequency compensation controls to optimize levels in extremely long runs. Kramer twisted pair adapters are an excellent way to solve remote monitoring requirements without using more costly fiber or wireless transmission systems. Using the **RK-50R** kit, two **TP-1N**'s can be mounted in two vertical spaces of a standard 19" rack.



Technical Specifications:

INPUTS:	1 Composite Video, 1Vpp/75 Ω on a BNC type connector.
OUTPUTS:	Balanced, 150 Ω on 6/4 standard telephone socket.
BANDWIDTH:	9 MHz. -3dB at 300 meters.
DIFF. GAIN:	0.95%.
DIFF. PHASE:	0.35 Deg.
COMPENSATION:	Gain and HF above 2.5MHz +/- 6dB.
SYSTEM DELAY:	<1 microsecond TYP. at 100 meters.
DIMENSIONS:	16.5cm x 12cm x 4.5cm (6.5" x 4.7" x 1.8", W, D, H.).
POWER SOURCE:	230 VAC, 50/60 Hz, (115VAC, U.S.A.) 2.3 VA.
WEIGHT:	0.7 Kg. (1.6 Lbs.) Approx.
ACCESSORIES:	Power cord.
OPTIONS:	RK-50R rack kit holds two units in two vertical rack spaces.

Typical Applications:

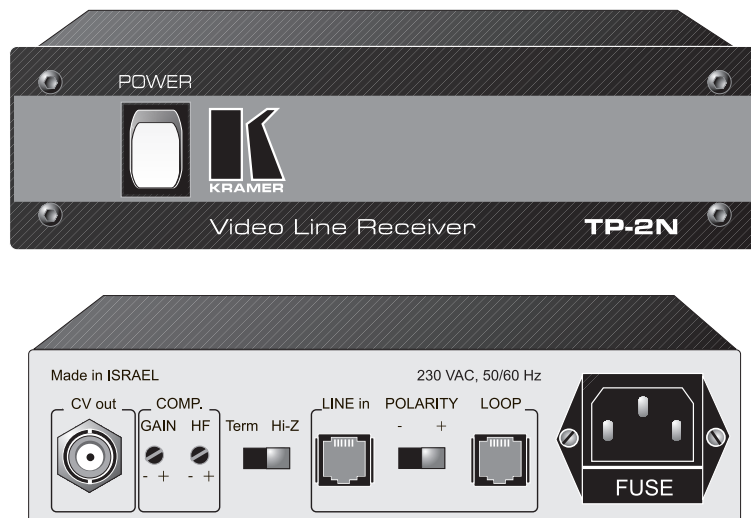
- ❖ *Simplification of security and CCTV installations.*
- ❖ *Teleconferencing in offices and hospitals using existing intercom or telephone wiring.*
- ❖ *Simple and quick studio wiring.*



Video Line Receiver

TP-2N

The Kramer **TP-2N** is a high performance video line receiver, which works in conjunction with the **TP-1N** video line transmitter to convert a video signal from the twisted pair format back to standard composite video. A looping output in the twisted pair format is provided which allows multiple **TP-2Ns** to be placed on the same line allowing one transmitter to drive multiple receivers. For this type of operation, the rear panel termination switch should be set to the Hi-Z position on all units but the last. The twisted pair line can be tapped at any location without effecting image quality. The frequency response of the **TP-2N** matches that of the **TP-1N** transmitter and also provides gain and HF compensation. Using the **RK-50R** kit, two **TP-2Ns** can be mounted in two vertical spaces of a standard 19" rack.



Technical Specifications:

INPUTS:	1 looping balanced 150 Ω on 6/4 standard telephone sockets, with termination switch.
OUTPUTS:	1 Composite Video, 1Vpp/75 Ω unbalanced on a BNC type connector.
BANDWIDTH:	9.5 MHz. -3dB at 300 meters.
DIFF. GAIN:	0.95%.
DIFF. PHASE:	0.35 Deg.
COMPENSATION:	Gain and HF above 2.5MHz +/- 6dB.
SYSTEM DELAY:	1 microsecond TYP. at 100 meters.
DIMENSIONS:	16.5cm x 12cm x 4.5cm (6.5" x 4.7" x 1.8", W, D, H.).
POWER SOURCE:	230 VAC, 50/60 Hz, (115VAC, U.S.A.) 3.5 VA.
WEIGHT:	0.7 Kg. (1.6 Lbs.) Approx.
ACCESSORIES:	Power cord.
OPTIONS:	RK-50R rack kit holds two units in two vertical spaces of a 19 inch rack.

Typical Applications:

- ❖ *Any system requiring remote monitoring of a standard video source.*
- ❖ *Simplification of security and CCTV installations.*
- ❖ *Teleconferencing in offices and hospitals using existing intercom or telephone wiring.*
- ❖ *Simple and quick studio wiring.*

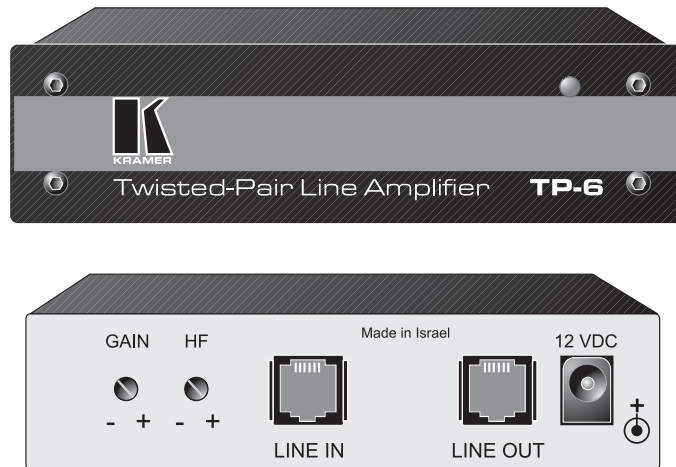


Twisted-Pair Line Amplifier

TP-6

The Kramer **TP-6** is a high performance twisted pair line amplifier designed to extend the cable length of any of the **TP** series transmitters/receivers to almost any desired distance. The **TP-6** comes with a 12VDC power supply for typical operation, but can receive power from the twisted pair wire (in a 4-wire setup). Also, due to its very small power consumption, several units may be cascaded and powered from one standard 12V DC supply.

Any number of **TP-6** units may be used in cascade operation. Rear panel controls allow the video gain and high frequency EQ to be optimized for best performance. It is housed in a compact enclosure but can be rack mounted using the **RK-SM** kit which holds three units in two vertical spaces of a standard 19" rack.



Technical Specifications:

INPUT:	Balanced, 150 Ω on 6/4 standard telephone socket.
OUTPUT:	Balanced, 150 Ω on 6/4 standard telephone socket.
BANDWIDTH:	12 MHz. -3dB at 100 meters, 4 MHz -3dB at 600 meters typ.
NONLINEARITY:	Less than 1% at 100 meters.
COMPENSATION:	Gain and HF above 2.5MHz up to +6dB, rear panel accessible.
SYSTEM DELAY:	1 microsecond TYP. at 100 meters.
DIMENSIONS:	11.7cm x 6cm x 3.2cm (4.6" x 2.4" x 1.3", W, D, H.).
POWER SOURCE:	12 VDC 30 mA.
WEIGHT:	0.24 Kg. (0.53 Lbs.) Approx.
ACCESSORIES:	12VDC power supply.
OPTIONS:	RK-SM rack kit holds three TP-6s in two vertical rack spaces.

Typical Applications:

- ❖ *Extension and simplification of security, CCTV and studio installations.*
- ❖ *Field applications where simple 12V DC power is available.*

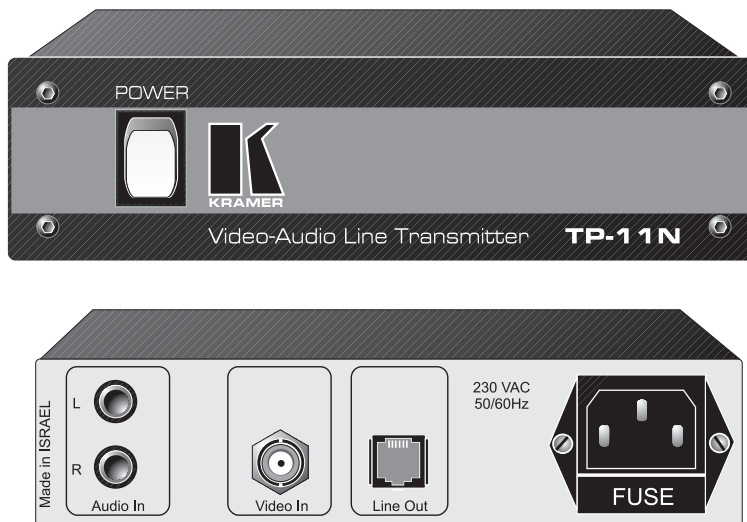


Video-Audio Line Transmitter

TP-11N

The Kramer **TP-11N** is a high performance transmitter used to convert composite video and stereo audio to twisted pair cable for long cable runs. The primary advantage of transmission via twisted pair cable is its ability to carry video signals much farther than conventional coax cable. TP cable is also considerably lighter and less expensive. Only one pair is required for video and both channels of audio. A typical system consists of a **TP-11N** located at the source, and a **TP-12N** at the remote receiving device to convert the twisted pair back to standard video and audio.

Cable runs of several hundred meters are possible, and "broadcast" quality can be maintained as far as 100 meters. The **TP-11N** is dependable, rugged, and can be rack mounted if desired, using the **RK-50R** kit. This rack kit holds two **TP-11s** or **TP-12s** and requires two vertical spaces of a standard 19" rack.



Technical Specifications:

INPUTS:	1 composite video, 1Vpp/75Ω on a BNC type connector. 1 stereo audio, 1 Vpp/10kΩ on RCAs.
OUTPUTS:	Balanced, 150Ω on 4 pin standard telephone connector (1 pair required).
BANDWIDTH:	6 MHz. -3dB at 100 meters, 5 MHz -3dB at 600 meters.
COMPENSATION:	Gain and HF above 2.5MHz +/- 6dB.
VIDEO S/N RATIO:	73 dB.
DIFF. PHASE:	0.55 Deg.
SYSTEM DELAY:	1 microsecond TYP. at 100 meters.
DIMENSIONS:	16.5cm x 12cm x 4.5cm (6.5" x 4.7" x 1.8", W, D, H.).
POWER SOURCE:	230 VAC, 50/60 Hz, (115VAC, U.S.A.) 4.6 VA.
WEIGHT:	0.8 Kg. (1.8 Lbs.) Approx.
ACCESSORIES:	Power cord.
OPTIONS:	Model RK-50R rack mount kit (holds 2 units in 2 vertical rack spaces).

Typical applications:

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

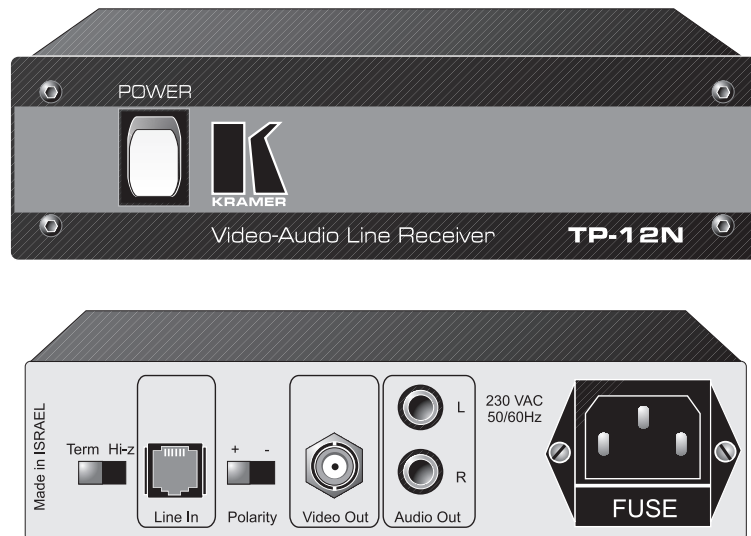


Video-Audio Line Receiver

TP-12N

The Kramer **TP-12N** is a twisted pair receiver, designed to function as the companion to the **TP-11N** transmitter. The **TP-12N** accepts the twisted pair signal format and converts it back to standard video and stereo audio. The termination switch allows parallel connection of several **TP-12s** on the same line for systems requiring multiple receivers. The twisted pair line can be tapped at any location without effecting image quality. The frequency response of the **TP-12N** matches that of the **TP-11N** transmitter.

The **TP-12N** provides polarity switching on the rear panel.



Technical Specifications:

INPUT:	1 balanced, 150 Ω on 4 pin standard telephone sockets, with termination switch.
OUTPUTS:	1 composite video, 1Vpp/75 Ω unbalanced on a BNC connector. 1 stereo audio (L, R), 1Vpp /100 Ω on RCAs.
BANDWIDTH:	6 MHz. -3dB at 100 meters, 5 MHz -3dB at 600 meters.
NON-LINEARITY:	Less than 1% at 100 meters.
COMPENSATION:	Gain and HF above 2.5MHz +/- 6dB (internally).
SYSTEM DELAY:	1 microsecond TYP. at 100 meters.
DIMENSIONS:	16.5cm x 12cm x 4.5cm (6.5" x 4.7" x 1.8", W, D, H.).
POWER SOURCE:	230 VAC, 50/60 Hz, (115VAC, U.S.A.) 3.4 VA.
WEIGHT:	0.8 Kg. (1.8 Lbs.) Approx.
ACCESSORIES:	Power cord.
OPTIONS:	Model RK-50R rack mount kit (holds 2 units in 2 vertical rack spaces).

Typical applications:

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