



KRAMER ELECTRONICS LTD.

USER MANUAL

MODEL:

SID-X1N
Step-in Commander

P/N: 2900-300302 Rev 2

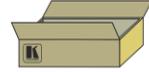


SID-X1N Step-in Commander Quick Start Guide

This guide helps you install and use your product for the first time. For more detailed information, go to http://www.kramerelectronics.com/support/product_downloads.asp to download the latest manual or scan the QR code on the left.

Step 1: Check what's in the box

- SID-X1N Step-in Commander
- 4 Rubber feet
- 1 Power adapter (12V DC output)
- Quick Start Guide



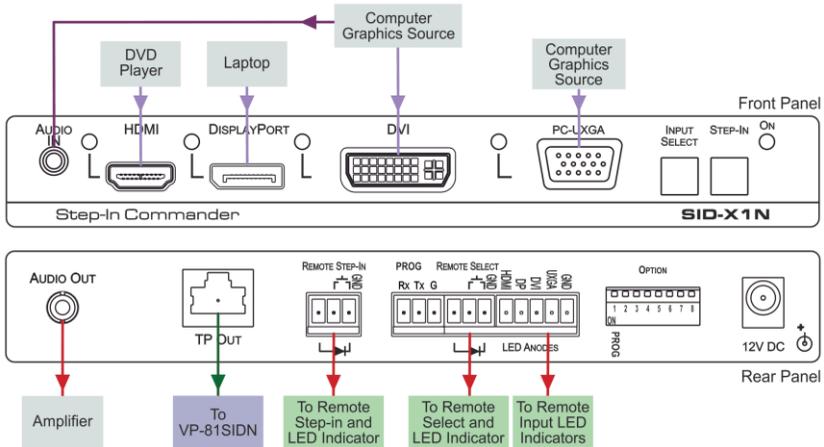
Save the original box and packaging materials in case your Kramer product needs to be returned to the factory for service.

Step 2: Install the SID-X1N

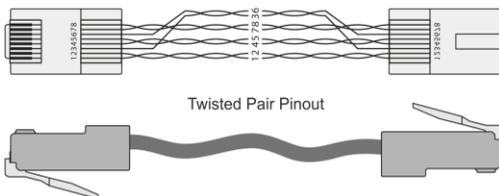
Mount the device in a rack (using the optional **RK-T2B** rack adapter available for purchase) or attach the rubber feet and place it on a shelf.

Step 3: Connect the inputs and outputs

Always switch off the power to all devices before connecting them to your **SID-X1N**.



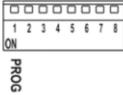
For best results, we recommend that you always use Kramer high-performance cables when connecting AV equipment to the **SID-X1N**. For optimum range and performance, use Shielded Twisted Pair (STP), non-skew free cable, such as the Kramer **BC-DGKat623** or **BC-DGKat7a23**.



EIA / TIA 568B	
PIN	Wire Color
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown

Step 4: Set the DIP-switches

#	Feature	Function	DIP-switch
1	Program	Enables firmware updates	On—Enable updating Off—Disable updating
2	General audio control	Selects whether the analog audio is embedded in the output	On—Use embedded audio and DIP-switch 3 controls DVI audio Off—Use analog audio
3	DVI audio control (active only when DIP-switch 2 is on)	Selects whether the analog audio is embedded in the DVI signal	On—Use analog audio in DVI signal Off—Use whatever audio is present on the DVI input
4	Video mode input selection	Sets the video input selection mode to either last connected or manual	On—Last connected Off—Manual
5	Lock EDID	Locks the current EDID	On—Locked EDID Off—Automatic EDID selection
6	Switching delay	Selects the time delay before switching occurs when a change in inputs is detected	On—15 seconds Off—5 seconds
7	For future use		
8			



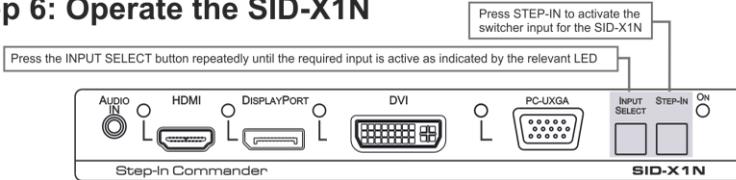
Step 5: Connect the power

Connect the power adapter to the **SID-X1N** and plug the adapter into the mains electricity.



Note: Operation is fully automatic - no manual adjustment is needed.

Step 6: Operate the SID-X1N



Optional: Lock the current EDID if required.

Contents

1	Introduction	1
2	Getting Started	2
2.1	Achieving the Best Performance	2
2.2	Safety Instructions	2
2.3	Shielded Twisted Pair/Unshielded Twisted Pair	3
2.4	Recycling Kramer Products	3
3	Overview	4
4	Defining the SID-X1N Step-in Commander	5
5	Connecting the SID-X1N	7
5.1	Connecting the Remote Step-In Switch and LED	8
5.2	Connecting the Remote Select Switch and LED	9
5.3	Connecting the Remote Input Selection LEDs	10
6	Principles of Operation	11
6.1	Video Input Selection	11
6.2	Audio Signal Control	12
7	Operating the SID-X1N	13
7.1	Manually Selecting an Input	13
7.2	Taking Control of the Switcher Input	13
7.3	Locking the EDID	14
8	Configuring and Maintaining the SID-X1N	15
8.1	Setting the Configuration DIP-switch	15
9	Wiring the Twisted Pair RJ-45 Connectors	16
10	Technical Specifications	17

Figures

Figure 1:	SID-X1N Step-in Commander Front Panel	5
Figure 2:	SID-X1N Step-in Commander Rear Panel	6
Figure 3:	Connecting the SID-X1N Step-in Commander	7
Figure 4:	Remote Step-In Switch and LED Wiring	8
Figure 5:	Remote Select Switch and LED Wiring	9
Figure 6:	Remote Input Indicator LED Connections	10
Figure 7:	Example of a Remote Input Indicator LED Wiring for the DVI Input	10
Figure 8:	The Configuration DIP-switch	15
Figure 9:	TP Pinout Wiring	16

1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront video, audio, presentation, and broadcasting professionals on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better!

Our 1,000-plus different models now appear in 11 groups that are clearly defined by function: GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Routers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters and GROUP 11: Sierra Video Products.

Thank you for purchasing the Kramer MegaTOOLS® **SID-X1N** *Step-in Commander* which is ideal for:

- Display systems requiring simple input selection
- Remote monitoring of computer activity in schools and businesses
- Rental/staging applications
- Multimedia and presentation source selection

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



Go to http://www.kramerelectronics.com/support/product_downloads.asp to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

2.1 Achieving the Best Performance

To achieve the best performance:

- Use only good quality connection cables (we recommend Kramer high-resolution, high-quality cables) to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Do not secure the cables in tight bundles or roll the slack into tight coils
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality
- Position your Kramer **SID-X1N** away from moisture, excessive sunlight and dust



This equipment is to be used only inside a building. It may only be connected to other equipment that is installed inside a building.

2.2 Safety Instructions



Caution: There are no operator serviceable parts inside the unit

Warning: Use only the Kramer Electronics input power wall adapter that is provided with the unit

Warning: Disconnect the power and unplug the unit from the wall before installing

2.3 Shielded Twisted Pair/Unshielded Twisted Pair

Kramer engineers have developed special twisted pair cables to best match our digital twisted pair products; the Kramer **BC-DGKat623** (CAT 6 23 AWG cable), and the Kramer **BC-DGKat7a23** (CAT 7a 23 AWG cable). These specially built cables significantly outperform regular CAT 6 and CAT 7a cables.

2.4 Recycling Kramer Products

The Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC aims to reduce the amount of WEEE sent for disposal to landfill or incineration by requiring it to be collected and recycled. To comply with the WEEE Directive, Kramer Electronics has made arrangements with the European Advanced Recycling Network (EARN) and will cover any costs of treatment, recycling and recovery of waste Kramer Electronics branded equipment on arrival at the EARN facility. For details of Kramer's recycling arrangements in your particular country go to our recycling pages at <http://www.kramerelectronics.com/support/recycling/>.

3 Overview

The **SID-X1N** accepts an HDMI, DisplayPort, DVI and PC graphics video input, as well as an unbalanced stereo audio input (which is embedded into the output signal), and transmits the signal via TP (Twisted Pair) cable to a compatible switcher or DGK at receiver, (for example, the **VP-81SIDN** or **PT-572+**). The device also provides an unbalanced, stereo audio output. When the **SID-X1N** is connected to a switcher, it also controls the input and output selection of the switcher.

In particular the **SID-X1N** features:

- HDTV support
- HDMI with x.v.Color™ and 3D
- HDCP compliancy—works with sources that support HDCP repeater mode
- Input signal detection based on video clock presence
- Automatic input selection based on manual selection or last connected input
- Automatic analog audio detection and embedding
- Installation up to 50m (164ft) from the switcher, (30m with the **TP-574**)
- I-EDIDPro™ Kramer Intelligent EDID Processing™ – Intelligent EDID handling & processing algorithm ensures Plug and Play operation for HDMI systems
- A lockable EDID
- Equalization and relocking of the data
- A maximum data rate of 4.95Gbps (1.65Gb per graphics channel)
- Support for digital audio formats
- A MegaTOOLS® sized enclosure. Two devices can be mounted in a rack using the optional **RK-T2B** adapter

You can control the **SID-X1N** using the front panel buttons, or remotely via contact closure switches.

4 Defining the SID-X1N Step-in Commander

Figure 1 defines the front panel of the SID-X1N.

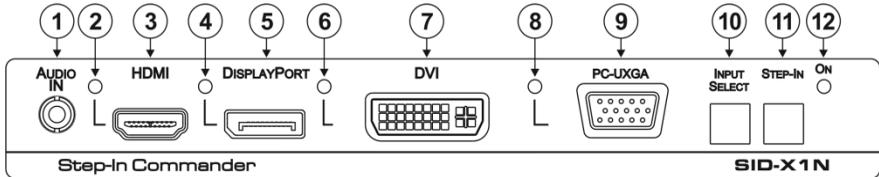


Figure 1: SID-X1N Step-in Commander Front Panel

#	Feature	Function	
1	AUDIO IN 3.5mm Mini Jack	Connect to an unbalanced stereo audio source	
2	HDMI	LED	Lights green when the HDMI input is selected
3		HDMI Connector	Connect to an HDMI source
4	DisplayPort	LED	Lights green when the DisplayPort input is selected
5		DP Connector	Connect to a DisplayPort source
6	DVI	LED	Lights green when the DVI input is selected
7		DVI Connector	Connect to a DVI source
8	PC-UXGA	LED	Lights green when the PC-UXGA input is selected
9		PC-UXGA 15-pin HD Connector (F)	Connect to a PC graphics source
10	INPUT SELECT Button	Press repeatedly to cycle through the inputs manually to select an input, (overrides automatic selection, see Section 7.1). Note: When the button is lit it is inactive and pressing the button will not activate the input	
11	STEP-IN Button	Press to activate the input on the switcher that the SID-X1N is connected to, (see Section 7.2)	
12	ON LED	Lights green when the device is powered on	

Figure 2 defines the rear panel of the **SID-X1N**.

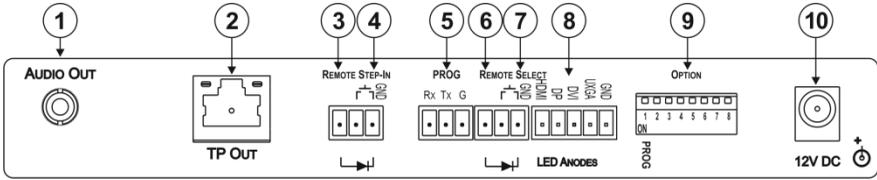


Figure 2: SID-X1N Step-in Commander Rear Panel

#	Feature	Function
1	AUDIO OUT 3.5mm Mini Jack	Connect to an unbalanced, stereo audio acceptor, (see Section 4)
2	TP OUT RJ-45 Connector	Connect to a compatible switcher or DGKat receiver, (for example, VP-81SIDN or PT-572+) using CAT 6 or higher specification cable
3	REMOTE STEP-IN	LED
4	3-pin Terminal Block	Switch
5	PROG RS-232 3-pin Terminal Block	Connect to the PC via RS-232 to perform a firmware upgrade
6	REMOTE SELECT 8-pin Terminal Block	LED
7		Switch
8		LED HDM, DP, DVI and UXGA
9	OPTION 8-way DIP-switch	Used to set the device behavior, (see Section 8.1)
10	12V DC Power Connector	Connect to supplied power adapter, center pin positive

5 Connecting the SID-X1N



Switch off the power to all devices before connecting them to your **SID-X1N**. After connecting your **SID-X1N** connect the power to other devices.

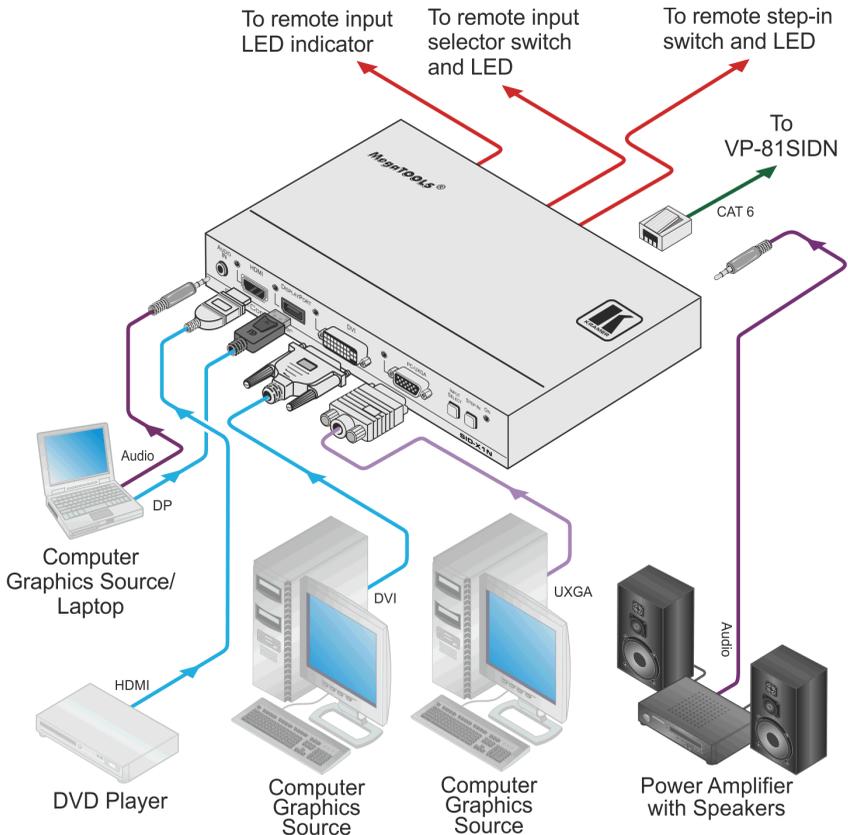


Figure 3: Connecting the SID-X1N Step-in Commander

To connect the SID-X1N as illustrated in [Figure 3](#):

1. Connect up to four video sources, (for example, Blu-ray disc player, laptop, two computer graphics sources) to the video input connectors.

2. Connect the unbalanced stereo audio source, (for example, the audio output from the laptop) to the AUDIO IN 3.5mm mini jack.
3. Connect the AUDIO OUT 3.5mm mini jack to the unbalanced, stereo audio acceptor, (for example, a power amplifier with speakers).
4. Connect the TP OUT RJ-45 connector to a compatible switcher, (for example, **VP-81SIDN**).
5. Connect the REMOTE STEP-IN 3-way terminal block to a contact-closure switch and LED (see [Section 5.1](#)).
6. Connect the REMOTE SELECT 3-way terminal block to a momentary contact-closure switch and LEDs (see [Section 5.2](#)).
7. Connect the LED ANODES 5-way terminal block to the remote input indicator LEDs (see [Section 5.3](#)).
8. Connect the power adapter to the **SID-X1N** and to the mains power.

Note: All LED supplies include a current limiting resistor and are designed to work with any standard LED.

5.1 Connecting the Remote Step-In Switch and LED

You can connect a remote, contact closure step-in switch to take control of the input of the attached switcher, as well as a remote step-in LED to the REMOTE STEP-IN terminal block on the rear panel of the **SID-X1N**.

[Figure 4](#) illustrates the connections from the terminal block to the switch and LED.

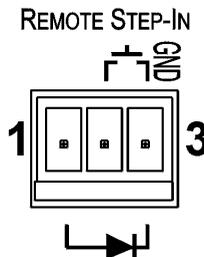


Figure 4: Remote Step-In Switch and LED Wiring

To connect a remote step-in switch and LED as illustrated in the example in [Figure 4](#):

1. Connect pins 2 and 3 from the terminal block to the remote step-in switch.
2. Connect pin 1 from the terminal block to the anode of the remote step-in LED.
3. Connect pin 3 from the terminal block to the cathode of the remote step-in LED.

5.2 Connecting the Remote Select Switch and LED

You can connect a remote, contact closure, input selection switch to activate an input (momentary contact is sufficient to switch inputs), as well as an indicator LED to the terminal block on the rear panel of the **SID-X1N**.

[Figure 5](#) illustrates the connections from the terminal block to the switch and LED.

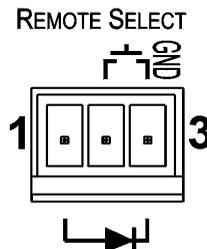


Figure 5: Remote Select Switch and LED Wiring

To connect a remote selection switch and LED as illustrated in the example in [Figure 5](#):

1. Connect pins 2 and 3 from the terminal block to the remote selection switch.
2. Connect pin 1 from the terminal block to the anode of the remote selection LED.
3. Connect pin 3 from the terminal block to the cathode of the remote selection LED.

5.3 Connecting the Remote Input Selection LEDs

You can connect remote, input selection LEDs to the LED terminal block on the rear panel of the **SID-X1N** to indicate which is the active input.

[Figure 6](#) illustrates the connections from the terminal block to the LEDs.

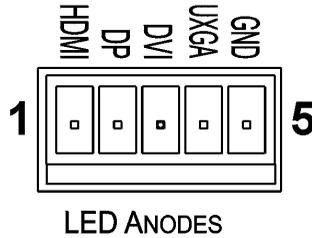


Figure 6: Remote Input Indicator LED Connections

To connect remote input indicator LEDs:

1. Connect pin 1 from the terminal block to the anode of the remote HDMI indicator LED.
2. Connect pin 2 from the terminal block to the anode of the remote DP indicator LED.
3. Connect pin 3 from the terminal block to the anode of the remote DVI indicator LED (see the example in [Figure 7](#)).
4. Connect pin 4 from the terminal block to the anode of the remote UXGA indicator LED.
5. Connect pin 5 from the terminal block to the cathode of each LED.

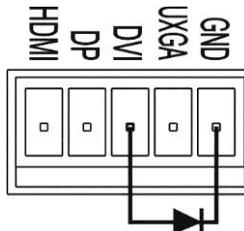


Figure 7: Example of a Remote Input Indicator LED Wiring for the DVI Input

6 Principles of Operation

This chapter describes the principles of operation of the **SID-X1N** and comprises:

- Video input selection (see [Section 6.1](#))
- Audio signal control (see [Section 6.2](#))

The **SID-X1N** selects video and audio inputs based on the rules described below.

6.1 Video Input Selection

The video mode selection is set by the DIP-switches (see [Section 8.1](#)) to either of the following:

- Manual
- Last connected

In manual mode the input is selected using the front panel buttons and occurs whether or not there is a live signal present on the input.

In last connected mode the **SID-X1N** selects the input based on which input was connected last. If the signal on this input is subsequently lost for any reason, the input with a live signal with the highest priority is selected automatically. The priority from highest to lowest is:

- HDMI
- DisplayPort
- DVI
- PC

Note: In last connected mode, manually selecting an input using the front panel Input Select button overrides the last-connected automatic selection.

When the input signal sync is lost (but the cable is not removed) there is a delay of six seconds before another input is automatically selected. When an input cable is removed, the delay before automatic switching takes place is configurable, (see [Section 8.1](#)).

6.2 Audio Signal Control

The Option DIP-switches 2 and 3 (see [Section 8.1](#)) control the manner in which audio is handled.

The following table describes which audio signal is embedded in the output.

DIP-switch 2	DIP-switch 3	3.5mm Mini Jack	Input	Audio on Output
On/Off	On/Off	On/Off	VGA	3.5mm mini jack
Off	On/Off	Inserted	HDMI/DP/DVI	3.5mm mini jack
		Not inserted		Embedded HDMI/DP/DVI
On	On/Off	Inserted/Not inserted	HDMI/DP	Embedded HDMI/DP
On	Off	Inserted/Not inserted	DVI	Embedded DVI
On	On	Inserted/Not inserted		3.5mm mini jack

7 Operating the SID-X1N

This chapter describes the operating procedures of the **SID-X1N** and comprises:

- Manually selecting an input (see [Section 7.1](#))
- Taking control of the switcher input (see [Section 7.2](#))
- Locking the EDID (see [Section 7.3](#))

Powering up the **SID-X1N** recalls from the non-volatile memory the last settings that were in force when the device was powered down.

The **SID-X1N** inputs can be selected remotely via the **VP-81SIDN**. For details on how to do so, see the **VP-81SIDN User Manual**.

7.1 Manually Selecting an Input

Note: When the button is lit it is inactive and pressing the button will not activate the input.

To manually select an input:

- Press the INPUT SELECT button repeatedly until the required input is active as indicated by the associated LED.

Note: The manual selection overrides any input selection when in last connected mode and remains in effect until the device is power cycled.

7.2 Taking Control of the Switcher Input

To activate the input of the switcher to which the **SID-X1N** is connected, press the STEP-IN button. If the switcher grants the **SID-X1N** access to the input, the STEP-IN button lights. If the switcher does not grant access for some reason, the button flashes for a few seconds and then does not light. One reason for this may be that the switcher input connected to the **SID-X1N** has been set to have a lower priority than the currently active input.

Note: Input priority on the switcher is set using the Kramer Control Software.

7.3 Locking the EDID

The currently stored EDID can be locked to prevent it from being overwritten. To lock the current EDID, set DIP-switch 5 to ON (see [Section 8.1](#)).

Note: The device must be power-cycled after you change this DIP-switch.

8 Configuring and Maintaining the SID-X1N

8.1 Setting the Configuration DIP-switch

The 8-way dip-switch provides the ability to configure a number of device functions. A switch that is down is on, a switch that is up is off. By default, all switches are up (off).

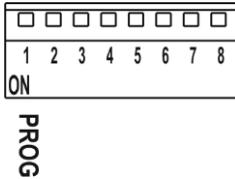


Figure 8: The Configuration DIP-switch

#	Feature	Function	DIP-switch
1	Program	Enables firmware updates	On—Enable updating Off—Disable updating
2	General audio control	Selects whether the analog audio is embedded in the outputs, (see Section 6.2)	On—Use embedded audio and DIP-switch 3 controls DVI audio Off—Use analog audio
3	DVI audio control (active only when DIP-switch 2 is on)	Selects whether the analog audio is embedded in the DVI signal	On—Use analog audio in DVI signal Off—Use whatever audio is present on the DVI input
4	Video mode input selection	Sets the video input selection mode to either last connected or manual, (see Section 6.1)	On—Last connected Off—Manual
5	Lock EDID	Locks the current EDID, (see Section 7.3)	On—Locked EDID Off—Automatic EDID selection
6	Switching delay	Selects the time delay before switching occurs when a input cable is removed	On—0.5seconds Off—5 seconds Note: When the input sync is lost but the cable is not removed, the delay is always six seconds
7	For future use		
8			

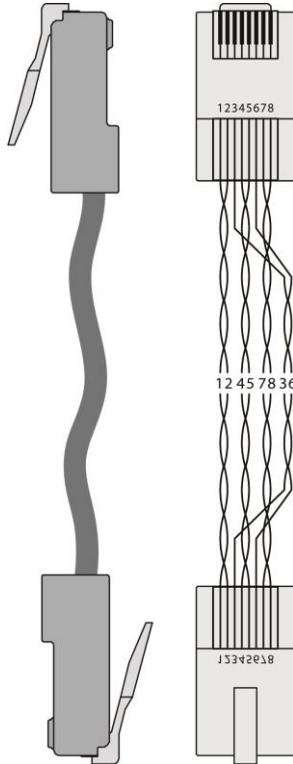
Note: DIP-switch 2 must be set to ON to enable DIP-switch 3 to control the DVI audio mode selection.

9 Wiring the Twisted Pair RJ-45 Connectors

When using STP cable, connect/solder the cable shield to the RJ-45 connector shield. [Figure 9](#) defines the TP pinout using a straight pin-to-pin cable with RJ-45 connectors.

EIA /TIA 568B	
PIN	Wire Color
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown
Pair 1	4 and 5
Pair 2	1 and 2
Pair 3	3 and 6

Figure 9: TP Pinout Wiring



Warning: Using a TP cable that is incorrectly wired will cause permanent damage to the device

10 Technical Specifications

INPUTS:	Video:	1 HDMI on an HDMI connector 1 DP on a DisplayPort connector 1 DVI-D on a DVI-I connector 1 VGA on a 15-pin HD (F) connector
	Audio:	1 Unbalanced stereo audio on a 3.5mm mini jack
OUTPUTS:	1 TP on an RJ-45 1 Unbalanced stereo audio in a 3.5mm mini jack	
PORTS:	1 RS-232 3-pin terminal block for programming	
CONTROLS:	Front panel buttons, remote step-in switch, remote input selection switches	
STANDARDS:	HDMI with x.v.Color™ and 3D HDCP: Works with sources that support HDCP repeater mode	
MAXIMUM DATA RATE:	4.95Gbps (1.65Gb per graphics channel)	
MAXIMUM STEP-IN DISTANCE:	50m (164ft) up to 1080p @60Hz @24bpp	
POWER CONSUMPTION:	12V DC, 950mA	
OPERATING TEMPERATURE:	0° to +40°C (32° to 104°F)	
STORAGE TEMPERATURE:	-40° to +70°C (-40° to 158°F)	
HUMIDITY:	10% to 90%, RHL non-condensing	
DIMENSIONS:	18.8cm x 11.3cm x 2.5cm (7.4" x 4.5" x 1") W, D, H rack-mountable	
WEIGHT:	0.48kg (1.1lbs) approx.	
INCLUDED ACCESSORIES:	Power adapter	
OPTIONS:	19" Rack adapter RK-T2B, RTBUS-12, RTBUS-22, SID-X1BP Kit (substitute black top plate for the SID-X1N to blend in with the color of the modular TBUS-10xl)	

LIMITED WARRANTY

The warranty obligations of Kramer Electronics for this product are limited to the terms set forth below:

What is Covered

This limited warranty covers defects in materials and workmanship in this product.

What is Not Covered

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Kramer Electronics to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product.

Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

How Long Does this Coverage Last

Seven years as of this printing; please check our Web site for the most current and accurate warranty information.

Who is Covered

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

What Kramer Electronics will do

Kramer Electronics will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Kramer Electronics will also pay the shipping costs necessary to return this product once the repair is complete.
2. Replace this product with a direct replacement or with a similar product deemed by Kramer Electronics to perform substantially the same function as the original product.
3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

What Kramer Electronics will not do Under This Limited Warranty

If this product is returned to Kramer Electronics or the authorized dealer from which it was purchased or any other party authorized to repair Kramer Electronics products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

How to Obtain a Remedy under this Limited Warranty

To obtain a remedy under this limited warranty, you must contact either the authorized Kramer Electronics reseller from whom you purchased this product or the Kramer Electronics office nearest you. For a list of authorized Kramer Electronics resellers and/or Kramer Electronics authorized service providers, please visit our web site at www.kramerelectronics.com or contact the Kramer Electronics office nearest you.

In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required. You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.

If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

Limitation on Liability

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CE



SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing



P/N: 2900-300302



Rev: 2