



KRAMER ELECTRONICS LTD.

USER MANUAL

MODEL:

SID-X2N
Step-in Commander

P/N: 2900-300303 Rev 2



SID-X2N 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-X2N Step-In Commander
- 1 Quick start guide
- Power adapter (12V DC)
- 4 Rubber feet



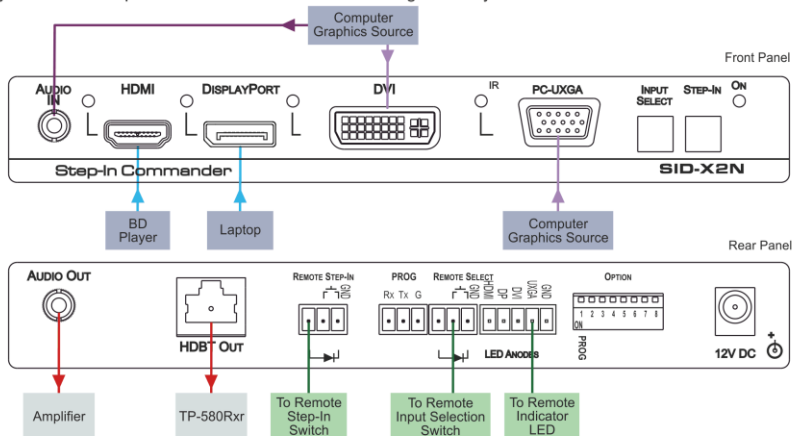
Save the original box and packaging materials in case your Kramer product needs to be returned to the factory for service.

Step 2: Install the SID-X2N

Mount the device in a rack (using the optional **RK-3T** rack adapter available for purchase) or attach the rubber feet and place it on a shelf.

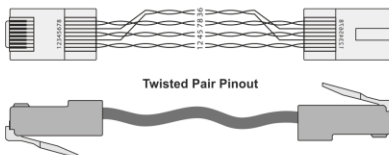
Step 3: Connect the inputs and output

Always switch off the power to all devices before connecting them to your **SID-X2N**.



For optimum performance we recommend the Kramer **BC-DGKat524** (CAT 5 24 AWG), **BC-HDKat6a** (CAT 6 23 AWG), and the **BC-DGKat7a23** (CAT 7a 23 AWG) cables. These specially built cables significantly outperform regular CAT 5/ CAT 6/CAT 7a cables.

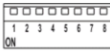
Note: The **SID-X2N** cannot work with unshielded cables.



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			
8	For future use		



Prog

Step 5: Connect the power

Connect the power adapter to the **SID-X2N** and plug the adapter into the mains electricity.



Step 6: Operate the SID-X2N

» Press the Step-In button to activate the input.

» Press the Input Select button to toggle through the inputs.

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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-X2N** *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-X2N** 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-HDKat6a** (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-X2N** 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 HDBaseT (Twisted Pair) cable to a compatible receiver (for example, the **TP-580Rxr**). The device also provides an unbalanced, stereo audio output.

The **SID-X2N** provides:

- A bandwidth of up to 10.2Gbps (3.4Gbps per graphic channel) in normal mode; up to 4.95Gbps (1.65Gbps per graphic channel) in ultra mode
- A range to a receiver of up to 130m (430ft) in normal mode (1080p@60Hz @36bpp); up to 180m (590ft) in extended range mode (1080p@60Hz @24bpp) when using **BC-HDKat6a** cables



For optimum range and performance, use Kramer's **BC-DGKat524**, **BC-HDKat6a** and **BC-DGKat7a23** shielded twisted pair (STP) cables. Note that the transmission range depends on the signal resolution, graphics card and display used. The distance using non-Kramer CAT 5, CAT 6, and CAT 7 cables may not reach these ranges.

In particular the **SID-X2N** features:

- HDTV support
- HDMI with Deep Color, x.v.Color™ and 3D
- HDCP compliancy—works with sources that support HDCP repeater mode
- Automatic live input detection based on video clock presence
- Automatic input selection based on manual selection or last connected input
- Automatic analog audio detection and embedding
- 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-X2N** using the front panel buttons, or remotely via contact closure switches.

4 Defining the SID-X2N Step-in Commander

Figure 1 defines the front panel of the SID-X2N.

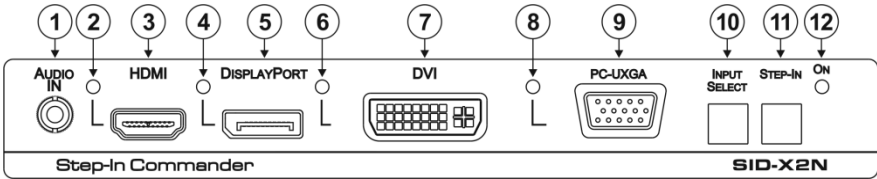


Figure 1: SID-X2N Step-in Commander Front Panel

#	Feature	Function
1	AUDIO IN 3.5mm Mini Jack	Connect to an unbalanced stereo audio source
2	HDMI	LED
3		HDMI Connector
4	DisplayPort	LED
5		DP Connector
6	DVI	LED
7		DVI Connector
8	PC-UXGA	LED
9		PC-UXGA 15-pin HD Connector (F)
10	INPUT SELECT Button	Press repeatedly to cycle through the inputs manually to select an input signal and override the 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-X2N is connected to
12	ON LED	Lights green when the device is powered on

Figure 2 defines the rear panel of the **SID-X2N**.

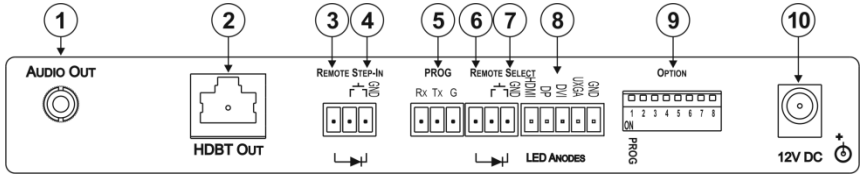


Figure 2: SID-X2N Step-in Commander Rear Panel

#	Feature	Function	
1	AUDIO OUT 3.5mm Mini Jack	Connect to an unbalanced, stereo audio acceptor (see Section 4)	
2	HDBT OUT RJ-45 Connector	Connect to a compatible receiver, for example, the TP-580Rxr using CAT 6 or higher specification cable	
3	REMOTE STEP-IN	LED	Connect to the anode of the remote Step-In LED indicator
4	3-pin Terminal Block	Switch	Connect to the remote, Step-In switch, (see Section 5.1)
5	PROG RS-232 3-pin Terminal Block		Connect to the PC via RS-232 to perform a firmware upgrade
6	REMOTE SELECT	LED	Connect to the anode of the remote Input Select LED indicator, (see Section 4)
7	8-pin Terminal Block	Switch	Connect to the remote, Input Select switch, (see Section 5.2)
8	REMOTE SELECT Terminal Block	LED HDMI, DP, DVI and UXGA	Connect to the anodes of the remote input indicators (see Section 5.3)
9	OPTION 8-way DIP-switch		Sets the device behavior, (see Section 8.1)
10	12V DC Power Connector		Connect to supplied power adapter, center pin positive

5 Connecting the SID-X2N



Switch off the power to all devices before connecting them to your **SID-X2N**. After connecting your **SID-X2N** connect the power to other devices.

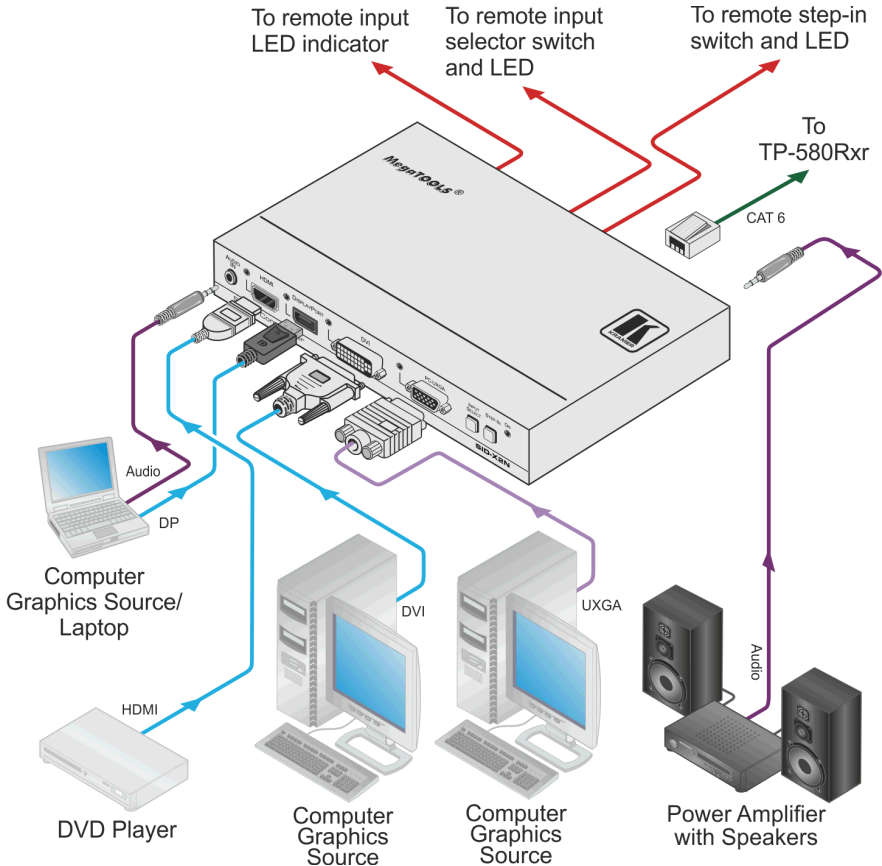


Figure 3: Connecting the SID-X2N Step-in Commander

To connect the SID-X2N and the as illustrated in [Figure 3](#):

1. Connect up to four video sources (HDMI, DisplayPort, DVI and PC graphics) to the video input connectors.

2. Connect the unbalanced stereo audio source to the AUDIO IN 3.5mm mini jack.
3. Connect the AUDIO OUT 3.5mm mini jack to the unbalanced, stereo audio acceptor.
4. Connect the TP OUT RJ-45 connector to a compatible receiver (for example, the **TP-580Rxr**).
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-X2N** 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-X2N**.

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

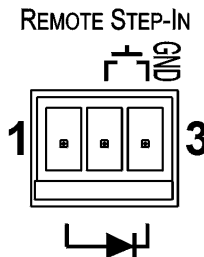


Figure 4: Remote Step-In Switch and LED Wiring

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-X2N**.

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

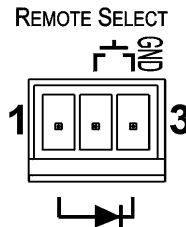


Figure 5: Remote Select Switch and LED Wiring

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-X2N** to indicate which is the active input.

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

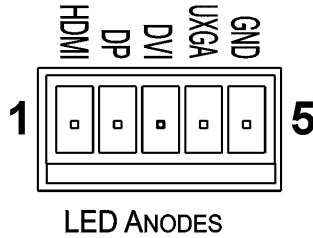


Figure 6: Remote Input Indicator LED Connections

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.

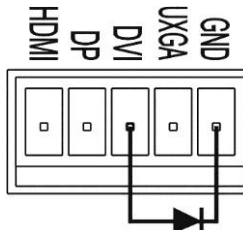


Figure 7: Example of a Remote Input Indicator LED Wiring for the DVI Input

6 Principles of Operation

This chapter describes the principles of operation of the **SID-X2N** and comprises:

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

The **SID-X2N** selects video and audio inputs based on the rules described below.

6.1 Active Input Selection

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

- 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-X2N** 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-X2N

This chapter describes the operating procedures of the **SID-X2N** and comprises:

- Selecting an input manually (see [Section 7.1](#))
- Locking the EDID (see [Section 7.2](#))

Powering up the **SID-X2N** recalls the last settings (that is, the configuration of the device when it was powered down) from the non-volatile memory.

7.1 Selecting an Input Manually

To select an input, press the INPUT SELECT button repeatedly until the required input is active as indicated by the associated LED.

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

7.2 Locking the EDID

To prevent the stored EDID (either default or read from a device) from being overwritten, 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-X2N

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).

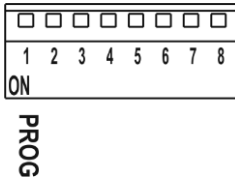


Figure 8: The Configuration DIP-switch

#	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	On—Last connected Off—Manual
5	Lock EDID	Locks the current EDID, (see Section 7.2)	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			

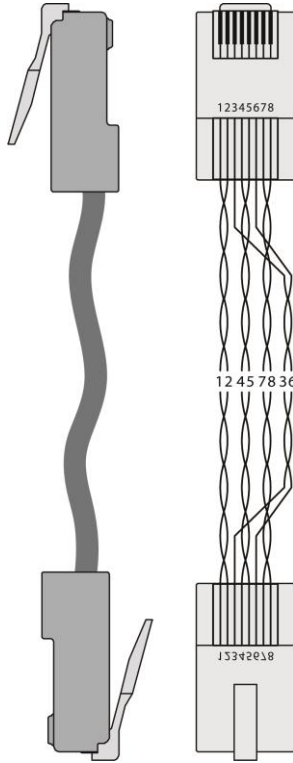
Note: DIP-switch 2 must be set to ON to enable DIP-switch 3 to control the DVI audio mode selection.

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 HDBaseT 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 Deep Color, x.v.Color™ and 3D HDCP: Works with sources that support HDCP repeater mode	
MAXIMUM TRANSMISSION DISTANCE:	180m (590ft) up to 1080p @60Hz @24bpp in extended mode 130m (430ft) up to 1080p @60 @36bpp in normal mode	
POWER CONSUMPTION:	12V DC, 720mA	
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)	

11 Default EDID

Each input on the **SID-X2N** is loaded with a factory default EDID.

11.1 HDMI, DisplayPort and DVI

Monitor

Model name..... SID-X2N
Manufacturer..... KRM
Plug and Play ID..... KRM1200
Serial number..... 505-709990100
Manufacture date..... 2011, ISO week 255

EDID revision..... 1.3
Input signal type..... Digital
Color bit depth..... Undefined
Display type..... RGB color
Screen size..... 520 x 320 mm (24.0 in)
Power management..... Standby, Suspend, Active off/sleep
Extension blocs..... 1 (CEA-EXT)

DDC/CI..... n/a

Color characteristics

Default color space..... Non-sRGB
Display gamma..... 2.20
Red chromaticity..... Rx 0.674 - Ry 0.319
Green chromaticity..... Gx 0.188 - Gy 0.706
Blue chromaticity..... Bx 0.148 - By 0.064
White point (default)... Wx 0.313 - Wy 0.329
Additional descriptors... None

Timing characteristics

Horizontal scan range.... 30-83kHz
Vertical scan range..... 56-76Hz
Video bandwidth..... 170MHz
CVT standard..... Not supported
GTF standard..... Not supported
Additional descriptors... None
Preferred timing..... Yes
Native/preferred timing.. 1280x720p at 60Hz (16:10)
Modeline..... "1280x720" 74.250 1280 1390 1430 1650 720 725 730 750 +hsync +vsync

Standard timings supported

720 x 400p at 70Hz - IBM VGA
640 x 480p at 60Hz - IBM VGA
640 x 480p at 75Hz - VESA
800 x 600p at 60Hz - VESA
800 x 600p at 75Hz - VESA
1024 x 768p at 60Hz - VESA
1024 x 768p at 75Hz - VESA
1280 x 1024p at 75Hz - VESA
1280 x 1024p at 60Hz - VESA STD
1600 x 1200p at 60Hz - VESA STD
1152 x 864p at 75Hz - VESA STD

EIA/CEA-861 Information

Revision number..... 3
IT underscan..... Supported
Basic audio..... Supported
YCbCr 4:4:4..... Supported
YCbCr 4:2:2..... Supported
Native formats..... 1
Detailed timing #1..... 1920x1080p at 60Hz (16:10)
Modeline..... "1920x1080" 148.500 1920 2008 2052 2200 1080 1084 1089 1125 +hsync +vsync
Detailed timing #2..... 1920x1080i at 60Hz (16:10)

Modeline..... "1920x1080" 74.250 1920 2008 2052 2200 1080 1084 1094 1124 interlace +hsync
+vsync
Detailed timing #3..... 1280x720p at 60Hz (16:10)
Modeline..... "1280x720" 74.250 1280 1390 1430 1650 720 725 730 750 +hsync +vsync
Detailed timing #4..... 720x480p at 60Hz (16:10)
Modeline..... "720x480" 27.000 720 736 798 858 480 489 495 525 -hsync -vsync

CE video identifiers (VICs) - timing/formats supported

1920 x 1080p at 60Hz - HDTV (16:9, 1:1)
1920 x 1080i at 60Hz - HDTV (16:9, 1:1)
1280 x 720p at 60Hz - HDTV (16:9, 1:1) [Native]
720 x 480p at 60Hz - EDTV (16:9, 32:27)
720 x 480p at 60Hz - EDTV (4:3, 8:9)
720 x 480i at 60Hz - Doublescan (16:9, 32:27)
720 x 576i at 50Hz - Doublescan (16:9, 64:45)
640 x 480p at 60Hz - Default (4:3, 1:1)
NB: NTSC refresh rate = (Hz*1000)/1001

CE audio data (formats supported)

LPCM 2-channel, 16/20/24 bit depths at 32/44/48 kHz

CE vendor specific data (VSDB)

IEEE registration number. 0x000C03
CEC physical address..... 1.1.0.0
Maximum TMDS clock..... 165MHz

CE speaker allocation data

Channel configuration.... 2.0
Front left/right..... Yes
Front LFE..... No
Front center..... No
Rear left/right..... No
Rear center..... No
Front left/right center.. No
Rear left/right center.. No
Rear LFE..... No

Raw data

00,FF,FF,FF,FF,FF,FF,00,2E,4D,00,12,01,01,01,01,FF,15,01,03,80,34,20,78,EA,B3,25,AC,51,30,B4,26,
10,50,54,A5,4B,00,81,80,A9,40,71,4F,01,01,01,01,01,01,01,01,01,01,01,01,01,1D,00,72,51,D0,1E,20,6E,28,
55,00,07,44,21,00,00,1E,00,00,00,FF,00,35,30,35,2D,37,30,39,39,39,30,31,30,30,00,00,00,FC,00,53,
49,44,2D,4D,55,4C,54,49,00,00,00,00,00,00,FD,00,38,4C,1E,53,11,00,0A,20,20,20,20,20,20,01,91,
02,03,1B,F1,48,10,05,84,03,02,07,16,01,23,09,07,07,65,03,0C,00,11,00,83,01,00,00,02,3A,80,18,71,
38,2D,40,58,2C,45,00,07,44,21,00,00,1E,01,1D,80,18,71,1C,16,20,58,2C,25,00,07,44,21,00,00,9E,01,
1D,00,72,51,D0,1E,20,6E,28,55,00,07,44,21,00,00,1E,8C,0A,D0,8A,20,E0,2D,10,10,3E,96,00,07,44,21,
00,00,18,00,46

11.2 PC-UXGA

Monitor

Model name..... SID-X2N
Manufacturer..... KRM
Plug and Play ID..... KRM1200
Serial number..... 505-709990100
Manufacture date..... 2011, ISO week 255

EDID revision..... 1.3
Input signal type..... Analog 0.700,0.000 (0.7V p-p)
Sync input support..... Separate, Composite, Sync-on-green
Display type..... RGB color
Screen size..... 520 x 320 mm (24.0 in)
Power management..... Standby, Suspend, Active off/sleep
Extension blocs..... None

DDC/CI..... n/a

Color characteristics

Default color space..... sRGB
Display gamma..... 2.20
Red chromaticity..... Rx 0.674 - Ry 0.319

Green chromaticity..... Gx 0.188 - Gy 0.706
Blue chromaticity..... Bx 0.148 - By 0.064
White point (default).... Wx 0.313 - Wy 0.329
Additional descriptors... None

Timing characteristics

Horizontal scan range.... 30-83kHz
Vertical scan range..... 56-76Hz
Video bandwidth..... 170MHz
CVT standard..... Not supported
GTF standard..... Not supported
Additional descriptors... None
Preferred timing..... Yes
Native/preferred timing.. 1280x720p at 60Hz (16:10)
Modeline..... "1280x720" 74.250 1280 1390 1430 1650 720 725 730 750 +hsync +vsync

Standard timings supported

720 x 400p at 70Hz - IBM VGA
640 x 480p at 60Hz - IBM VGA
640 x 480p at 75Hz - VESA
800 x 600p at 60Hz - VESA
800 x 600p at 75Hz - VESA
1024 x 768p at 60Hz - VESA
1024 x 768p at 75Hz - VESA
1280 x 1024p at 75Hz - VESA
1280 x 1024p at 60Hz - VESA STD
1600 x 1200p at 60Hz - VESA STD
1152 x 864p at 75Hz - VESA STD

EIA/CEA-861 Information

Revision number..... 3
IT underscan..... Supported
Basic audio..... Supported
YCbCr 4:4:4..... Supported
YCbCr 4:2:2..... Supported
Native formats..... 1
Detailed timing #1..... 1920x1080p at 60Hz (16:10)
Modeline..... "1920x1080" 148.500 1920 2008 2052 2200 1080 1084 1089 1125 +hsync +vsync
Detailed timing #2..... 1920x1080i at 60Hz (16:10)
Modeline..... "1920x1080" 74.250 1920 2008 2052 2200 1080 1084 1094 1124 interlace +hsync
+vsync
Detailed timing #3..... 1280x720p at 60Hz (16:10)
Modeline..... "1280x720" 74.250 1280 1390 1430 1650 720 725 730 750 +hsync +vsync
Detailed timing #4..... 720x480p at 60Hz (16:10)
Modeline..... "720x480" 27.000 720 736 798 858 480 489 495 525 -hsync -vsync

CE video identifiers (VICs) - timing/formats supported

1920 x 1080p at 60Hz - HDTV (16:9, 1:1)
1920 x 1080i at 60Hz - HDTV (16:9, 1:1)
1280 x 720p at 60Hz - HDTV (16:9, 1:1) [Native]
720 x 480p at 60Hz - EDTV (16:9, 32:27)
720 x 480p at 60Hz - EDTV (4:3, 8:9)
720 x 480i at 60Hz - Doublescan (16:9, 32:27)
720 x 576i at 50Hz - Doublescan (16:9, 64:45)
640 x 480p at 60Hz - Default (4:3, 1:1)
NB: NTSC refresh rate = (Hz*1000)/1001

CE audio data (formats supported)

LPCM 2-channel, 16/20/24 bit depths at 32/44/48 kHz

CE vendor specific data (VSDB)

IEEE registration number. 0x000C03
CEC physical address..... 1.1.0.0
Maximum TMDS clock..... 165MHz

CE speaker allocation data

Channel configuration... 2.0
Front left/right..... Yes
Front LFE..... No
Front center..... No
Rear left/right..... No

Rear center..... No
Front left/right center.. No
Rear left/right center... No
Rear LFE..... No

Raw data

00,FF,FF,FF,FF,FF,FF,00,2E,4D,00,12,01,01,01,01,FF,15,01,03,6E,34,20,78,EE,B3,25,AC,51,30,B4,26,
10,50,54,A5,4B,00,81,80,A9,40,71,4F,01,01,01,01,01,01,01,01,01,01,01,01,01,01,01,01,01,1D,00,72,51,D0,1E,20,6E,28,
55,00,07,44,21,00,00,1E,00,00,00,FF,00,35,30,35,2D,37,30,39,39,39,30,31,30,30,00,00,00,FC,00,53,
49,44,2D,4D,55,4C,54,49,00,00,00,00,00,00,FD,00,38,4C,1E,53,11,00,0A,20,20,20,20,20,20,00,A0,
02,03,1B,F1,48,10,05,84,03,02,07,16,01,23,09,07,07,65,03,0C,00,11,00,83,01,00,00,02,3A,80,18,71,
38,2D,40,58,2C,45,00,07,44,21,00,00,1E,01,1D,80,18,71,1C,16,20,58,2C,25,00,07,44,21,00,00,9E,01,
1D,00,72,51,D0,1E,20,6E,28,55,00,07,44,21,00,00,1E,8C,0A,D0,8A,20,E0,2D,10,10,3E,96,00,07,44,21,
00,00,18,00,46

12 Protocol 3000

The **SID-X2N** can be operated using serial commands from a PC, remote controller or touch screen using the Kramer Protocol 3000.

This section describes:

- Kramer Protocol 3000 syntax (see [Section 12.1](#))
- Kramer Protocol 3000 commands (see [Section 12.2](#))

12.1 Kramer Protocol 3000 Syntax

12.1.1 Host Message Format

Start	Address (optional)	Body	Delimiter
#	<i>Destination_id@</i>	Message	CR

12.1.1.1 Simple Command

Command string with only one command without addressing:

Start	Body	Delimiter
#	Command SP <i>Parameter_1,Parameter_2,...</i>	CR

12.1.1.2 Command String

Formal syntax with commands concatenation and addressing:

Start	Address	Body	Delimiter
#	<i>Destination_id@</i>	Command_1 <i>Parameter1_1,Parameter1_2,...</i> Command_2 <i>Parameter2_1,Parameter2_2,...</i> Command_3 <i>Parameter3_1,Parameter3_2,...</i> ...	CR

12.1.2 Device Message Format

Start	Address (optional)	Body	delimiter
~	<i>Sender_id@</i>	Message	CR LF

12.1.2.1 Device Long Response

Echoing command:

Start	Address (optional)	Body	Delimiter
~	<i>Sender_id@</i>	Command SP [<i>Param1 ,Param2 ...</i>] result	CR LF

CR = Carriage return (ASCII 13 = 0x0D)

LF = Line feed (ASCII 10 = 0x0A)

SP = Space (ASCII 32 = 0x20)

12.1.3 Command Terms

Command

A sequence of ASCII letters ('A'-'Z', 'a'-'z' and '-').

Command and parameters must be separated by at least one space.

Parameters

A sequence of alphanumeric ASCII characters ('0'-'9', 'A'-'Z', 'a'-'z' and some special characters for specific commands). Parameters are separated by commas.

Message string

Every command entered as part of a message string begins with a **message starting character** and ends with a **message closing character**.

Note: A string can contain more than one command. Commands are separated by a pipe ('|') character.

Message starting character

'#' – For host command/query

'~' – For device response

Device address (Optional, for K-NET)

K-NET Device ID followed by '@'

Query sign

'?' follows some commands to define a query request.

Message closing character

CR – For host messages; carriage return (ASCII 13)

CRLF – For device messages; carriage return (ASCII 13) + line-feed (ASCII 10)

Command chain separator character

When a message string contains more than one command, a pipe ('|') character separates each command.

Spaces between parameters or command terms are ignored.

12.1.4 Entering Commands

You can directly enter all commands using a terminal with ASCII communications software, such as HyperTerminal, Hercules, etc. Connect the terminal to the serial or Ethernet port on the Kramer device. To enter **CR** press the Enter key. (**LF** is also sent but is ignored by command parser).

For commands sent from some non-Kramer controllers, (for example, Crestron) some characters require special coding (such as, /X##). Refer to the controller manual.

12.1.5 Command Forms

Some commands have short name syntax in addition to long name syntax to allow faster typing. The response is always in long syntax.

12.1.6 Chaining Commands

Multiple commands can be chained in the same string. Each command is delimited by a pipe character (“|”). When chaining commands, enter the **message starting character** and the **message closing character** only once, at the beginning of the string and at the end.

Commands in the string do not execute until the closing character is entered. A separate response is sent for every command in the chain.

12.1.7 Maximum String Length

64 characters

12.2 Kramer Protocol 3000 Commands

The following table lists the Protocol 3000 commands that the **SID-X2N** supports. For a full description of the commands, see the *Kramer Protocol 3000* document available from <http://www.kramerelectronics.com>.

Note: The **SID-X2N** can only receive commands from a device, (for example, an HDBT receiver) via the HDBaseT link, and only at 9600bps.

Command	Description
#	Protocol handshaking
MODEL?	Read device model
VID	set video switch status
VID?	Get video switch status

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CE



SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing



P/N: 2900-300303



Rev: 2