



# COMPACT HD-SDI/SDI ROUTING SWITCHERS



BROADCAST STUDIOS  
POST-PRODUCTION FACILITIES  
LIVE-TO-AIR ENVIRONMENTS  
REMOTE TRUCKS  
DUPLICATION HOUSES



[www.sierravideo.com](http://www.sierravideo.com)



#### FEATURES:

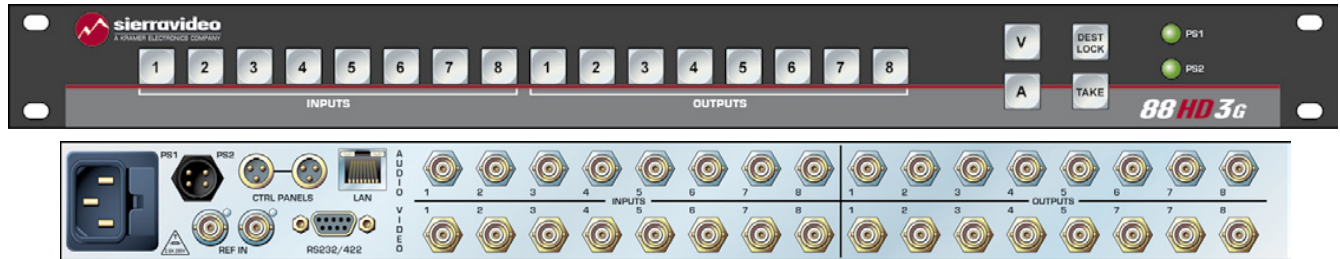
- HD-SDI MULTI-RATE VIDEO IN 1RU FRAME
- 3GBPS VIDEO IN 8X8 AND 16X16
- 1.5GBPS VIDEO IN 1602 AND 1601X2 (DUAL OUTPUT)
- DIGITAL & ANALOG AUDIO OPTIONS
- AUTOMATIC RECLOCKING
- EQUALIZED INPUTS
- FRONT PANEL PUSH-BUTTON CONTROL
- RS-232/422 AND IP CONTROL

SHASTA HD COMPACT HD-SDI ROUTING SWITCHERS OFFER SUPERIOR PERFORMANCE IN A SLIM PROFILE. FITTING INTO A MERE 1RU FRAME, SHASTA HD ROUTING SWITCHERS COME IN 8X AND 16X CONFIGURATIONS. ALL SHASTA HD ROUTING SWITCHERS INCLUDE FRONT PANEL CONTROL AS WELL AS RS-232, RS-422, AND IP FOR REMOTE CONTROL.

# 3G SERIES

## SHASTA 88HD3G

8 X 8 HD-SDI ROUTING SWITCHER



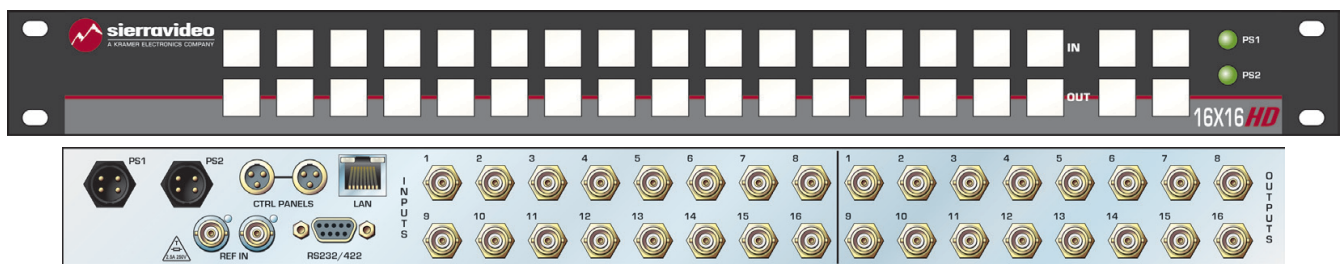
### OPTIONAL CONFIGURATIONS:

- Shasta 88HDEE3G 8 x 8 HD-SDI routing switcher + 2-streams AES/EBU balanced audio
- Shasta 88HDE3G 8 x 8 HD-SDI routing switcher + 1-stream AES/EBU unbalanced audio
- Shasta 88HDS3G 8 x 8 HD-SDI routing switcher + balanced analog stereo audio
- Shasta 88HD3G 8 x 8 HD-SDI video-only routing switcher

For redundant power supply, add model number 704208 when ordering.

## SHASTA 1616HD3G

16 X 16 HD-SDI ROUTING SWITCHER



### OPTIONAL CONFIGURATIONS:

- Shasta 1616HD3G 16 x 16 HD-SDI video-only routing switcher

For redundant power supply, add model number 726014-00 when ordering.

### FEATURES:

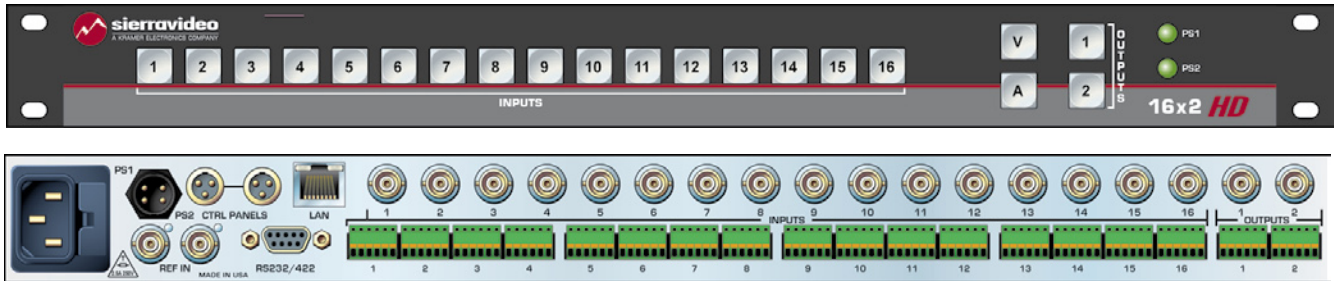
Shasta HD 3G series high definition routing switchers employ multi-rate video boards capable of handling standard serial digital video signals including SMPTE 310M, SMPTE 259M, SMPTE 344M, ITU-R BT.601 and DVB-ASI along with HD serial digital video signals conforming to SMPTE 424M. The series provides automatic reclocking and equalized inputs.

Shasta 88HD3G frames can be ordered as video only or with unbalanced (1-stream) AES/EBU digital audio, balanced (2-streams) AES/EBU digital or balanced analog stereo audio. 3G Series frames can be controlled locally using their front panel push-button control panel or remotely using any of Sierra Video's SCP programmable, XY, or Single Bus control panels. Shasta 1616HD3G can be ordered with a blank front panel for remote control only. All Shasta HD 3G series frames can be controlled over a network using a web browser, TCP/IP, or serially using RS-232/RS-422 control.

# 1.5G SERIES

## SHASTA 1602HD

16 X 2 HD-SDI ROUTING SWITCHER



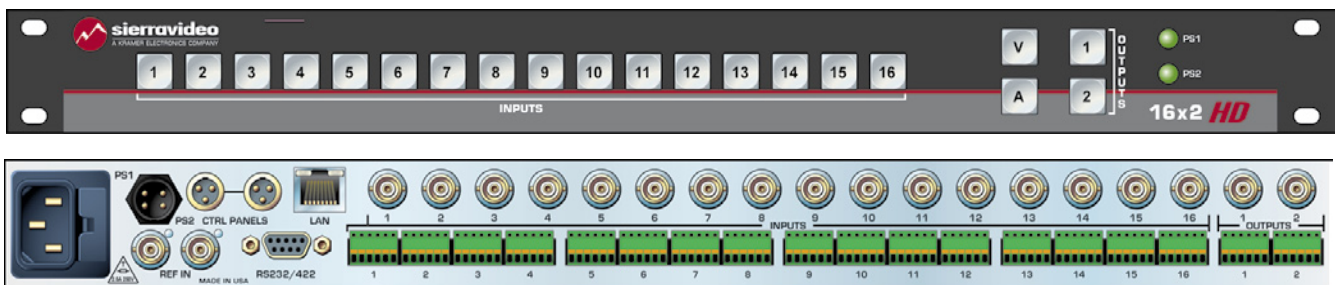
### OPTIONAL CONFIGURATIONS:

Shasta 1602HDEE	16 x 2 HD-SDI routing switcher + 2-streams AES/EBU balanced audio
Shasta 1602HDE	16 x 2 HD-SDI routing switcher + 1-stream AES/EBU unbalanced audio
Shasta 1602HDS	16 x 2 HD-SDI routing switcher + balanced analog stereo audio
Shasta 1602HD	16 x 2 HD-SDI video-only routing switcher

For redundant power supply, add model number 704208 when ordering.

## SHASTA 1601X2HD

16 X 1 HD-SDI ROUTING SWITCHER WITH DUAL OUTPUTS



### OPTIONAL CONFIGURATIONS:

Shasta 1601x2HDEE	16 x 1 HD-SDI routing switcher + 2-streams AES/EBU balanced audio with dual outputs
Shasta 1601x2HDE	16 x 1 HD-SDI routing switcher + 1-stream AES/EBU unbalanced audio with dual outputs
Shasta 1601x2HDS	16 x 1 HD-SDI routing switcher + balanced analog stereo audio with dual outputs
Shasta 1601x2HD	16 x 1 HD-SDI video-only routing switcher with dual outputs

For redundant power supply, add model number 704208 when ordering.

### FEATURES:

Shasta HD 1.5G series high definition routing switchers employ multi-rate video boards capable of handling standard serial digital video signals including SMPTE 310M, SMPTE 259M, SMPTE 344M, ITU-R BT.601 and DVB-ASI along with HD serial digital video signals conforming to SMPTE 292M (1.485Gbps single link) or SMPTE 372M (2.97Gbps dual link). The basic 1.5G series frame can be configured with 16 inputs/2 outputs or 16 inputs/dual output (2 outputs that switch in conjunction, eliminating the need for additional DA hardware).

Shasta HD 1.5G series frames can be ordered as video only or with unbalanced (1-stream) AES/EBU digital audio, balanced (2-streams) AES/EBU digital or balanced analog stereo audio. The series provides automatic reclocking and equalized inputs, and can be controlled locally using their front panel push-button control panel or remotely using any of Sierra Video's SCP programmable, XY, or Single Bus control panels. Additionally, they can be controlled over a network using a web browser, TCP/IP, or serially using RS-232/RS-422 control.

# RELIABLE PRODUCTS, EXPERT SUPPORT

For over 25 years, Sierra Video has been assisting customers and providing solutions for almost any signal routing application imaginable. Our outstanding Customer Service and Technical Support teams are industry experts, skilled at answering your questions and optimizing your systems. Call direct during business hours and speak with a Technical Support Engineer, or take advantage of our After-Hours Technical Service: check our website for details. Technical manuals and online help are also available 24-hours a day at [www.sierravideo.com](http://www.sierravideo.com).

Whether you need immediate on-site guidance or have repair questions, contact the best real-time customer service in the business. You can reach our Customer Service Department from 8 A.M. to 5 P.M. Pacific, Monday through Friday, or access 24-hour online support.

Tel: (530) 478-1000  
After Hours: (530) 888-3195  
E-mail: [service@sierravideo.com](mailto:service@sierravideo.com)  
Web: [www.sierravideo.com](http://www.sierravideo.com)

## SEVEN-YEAR WARRANTY

Routing switchers are the core of your system - "glueware" that is often taken for granted. In today's demanding video environment, you need to know that the backbone of your system will keep on working. When choosing a routing switcher, it is important that you discuss your requirements with a knowledgeable sales staff and identify the company's ability to provide long-term support. Be sure to make the right choice! Sierra Video is proud to offer a Seven-Year Warranty on most of our products. We've offered this warranty for two decades and stand behind our quality products. We have been successful because we believe in providing quality products that don't come back, to customers who do.

## TRADE IN – TRADE UP™ ROUTING SWITCHER EXCHANGE PROGRAM

With Sierra Video, you can maximize the impact of your investment by adding or exchanging systems as your needs grow. Most of our routing systems are designed to expand with you, using flexible plug-in modules or easy factory modifications. With these, you may choose from a variety of frames and modular combinations that meet your needs.

However, if your system is a single frame all-in-one solution, simply send it back and we will either modify it by adding new modules or you can opt to trade it in for a new, larger system using our unique Trade In – Trade Up Routing Switcher Exchange Program. The Trade In – Trade Up Program allows a generous credit for a customer's entire system when it is traded in for a larger Sierra Video routing switcher. Let us know what your needs are and we will make every effort to accommodate you.

## PERFORMANCE SPECIFICATIONS

### HD-SDI/SDI MULTI-RATE DIGITAL VIDEO

DATA RATES	1.5G SERIES 19MBPS - 1.458GBPS	3G SERIES 19MBPS - 2.97GBPS
DATA TYPES	1.5G SERIES SMPTE 259M, SMPTE 292M, SMPTE 310M, SMPTE 344M, DVB-ASI	3G SERIES SMPTE 259M, SMPTE 292M, SMPTE 310M, SMPTE 344M, SMPTE 424M, DVB-ASI
JITTER	<0.2 UI	

#### INPUT

VIDEO LEVEL	800MV P-P +/-10%	
IMPEDANCE	75 OHM	
RETURN LOSS	1.5G SERIES < -15DB UP TO 1.5GHZ	3G SERIES < -15DB UP TO 1.5GHZ, < -10DB 1.5GHZ TO 3GHZ
CABLE EQUALIZATION RANGE	0-100 METERS FOR SMPTE 424M, BELDEN 1694A 0-100 METERS FOR SMPTE 292M OR SMPTE 372M, BELDEN 8281 0-300 METERS FOR ALL OTHER STANDARDS, BELDEN 8281	
CONNECTOR TYPE	BNC	

#### OUTPUT

VIDEO LEVEL	800MV P-P +/- 10%	
IMPEDANCE	75 OHM	
RETURN LOSS	1.5G SERIES < -15DB UP TO 1.5GHZ	3G SERIES < -15DB UP TO 1.5GHZ, < -10DB 1.5GHZ TO 3GHZ
RISE/FALL TIMES	< 270PSEC	
CONNECTOR TYPE	BNC	
AES/EBU DIGITAL AUDIO	AES3	AES3ID

DATA RATES	32KHZ - 96KHZ	32KHZ - 96KHZ
JITTER	<0.025 UI P-P @ 48 KHZ SAMPLING RATE	<0.025 UI P-P @ 48 KHZ SAMPLING RATE

#### INPUT

IMPEDANCE	75 OHM	75 OHM
RETURN LOSS	<-30DB @ 6MHZ	<-30DB @ 6MHZ
MINIMUM INPUT	1V P-P	1V P-P
CONNECTOR TYPE	5-PIN TERMINAL BLOCK	5-PIN TERMINAL BLOCK

#### OUTPUT

IMPEDANCE	4V P-P	1V P-P
RETURN LOSS	<-30DB @ 6MHZ	<-30DB @ 6MHZ
CONNECTOR TYPE	6-PIN TERMINAL BLOCK	BNC

ANALOG AUDIO	
FREQUENCY RESPONSE	20HZ TO 20KHZ +/- 0.5DB (TYPICAL -3DB @ 120KHZ)
DYNAMIC RANGE	104 DB (20-20KHZ UNWEIGHTED REFERENCED TO +24 DBU)
CROSSTALK	<- 80DB @ 1KHZ <- 60DB @ 10KHZ
THD	< 0.025% (20HZ - 20KHZ @ +4DBU)
IM	< 0.025 SMPTE-DIN @ +4DBU, < 0.02 % CCIF @ +10DBU
INPUT	
MAX. SOURCE LEVEL	+24DBU BALANCED
IMPEDANCE	20K OHM BALANCED, 10K OHM UNBALANCED
CONNECTOR TYPE	6-PIN TERMINAL BLOCK FOR BALANCED
OUTPUT	
MAX. SOURCELEVEL	+24DBU BALANCED, +18DBU UNBALANCED
IMPEDANCE	< 47 OHM
CONNECTOR TYPE	6-PIN TERMINAL BLOCK
CONTROL	
SERIAL	GENERAL PURPOSE 9 PIN-D FOR RS-232, 9600, 38400, 115200 BAUD
PROTOCOLS	SVS HOST, SIMPLE KRAMER AND SELECT OTHERS
ETHERNET	10 BASE-T, FULL DUPLEX, RJ-45 CONNECTOR
CONTROL PANELS	SUPPORTS FULL LINE OF SCP REMOTE CONTROL PANELS
GENERAL	
RACK UNIT/FRAME SIZE	1RU
WEIGHT	7 LBS/3.1 KG
DIMENSIONS	88HD3G & 16HD Series: 19"w x 1.75"h x 20.375" d; 16HD3G: 19"w x 1.75"h x 9.25" d MOUNTS IN STANDARD 19" RACK DEPTH MEASUREMENTS DO NOT INCLUDE FRONT PANEL HARDWARE OR REAR CABLING
POWER	90 VAC -> 240 VAC 50/60HZ (64 WATTS) AUTO-RANGING
REDUNDANT POWER SUPPLY	OPTIONAL WITH EXTERNAL POWER SUPPLY
STORAGE TEMPERATURE	-40° TO +150° F
OPERATING TEMPERATURE	30° TO 100° F AMBIENT
HUMIDITY	10% TO 90% NON-CONDENSING
WARRANTY	7 YEARS

### SIERRA VIDEO HEADQUARTERS

PO Box 2462, Grass Valley, CA, 95945, USA  
Toll-free: (888) 886-8875  
Tel: (530) 478-1000  
Fax: (530) 478-1105  
E-mail: info@sierravideo.com  
Tech Support – Worldwide:  
Tel: (530) 478-1000  
After Hours: (530) 888-3195  
E-mail: service@sierravideo.com  
Web: www.sierravideo.com

### KRAMER ELECTRONICS, Ltd.

3 Am VeOlamo St.  
Jerusalem, Israel, 95463  
Tel: + 972 2 654 4000  
Fax: + 972 2 653 5369  
E-mail: info@kramerel.com  
Web: www.kramerelectronics.com

### KRAMER ELECTRONICS USA, INC. HEADQUARTERS

96 Route 173 West Suite 1  
Hampton, NJ 08827  
Tel: (908) 735 0018  
(888) 275 6311  
Fax: (908) 735 0515  
Tech Support after 6pm EST:  
(888) 275 6311  
E-mail: info@kramerus.com  
Web: www.kramermatrix.com

### SIERRA VIDEO HEADQUARTERS

PO Box 2462, Grass Valley, CA, 95945, USA  
Toll-free: (888) 886-8875  
Tel: (530) 478-1000  
Fax: (530) 478-1105  
E-mail: info@sierravideo.com  
Tech Support – Worldwide:  
Tel: (530) 478-1000  
After Hours: (530) 888-3195  
E-mail: service@sierravideo.com  
Web: www.sierravideo.com

### KRAMER ELECTRONICS EUROPE SA

Rue du Roussarf, 2  
B-1410 Waterloo, BELGIUM  
Tel: + 32 2 357 01 40  
Fax: + 32 2 357 01 49  
E-mail: info.kramee@skynet.be

### KRAMER ELECTRONICS UK, Ltd.

2 Premus, Coldharbour Way,  
Aylesbury, Bucks. HP19 8AP  
Tel: + 44 1296 330011  
Fax: + 44 1296 330055  
E-mail: info@kramerelectronics.co.uk  
Web: www.kramerelectronics.co.uk

### KRAMER ELECTRONICS FRANCE S.A.R.L.

ZI de la Bonde - Parc de la Roseraie - Bat F  
15 rue du Buisson aux Fraises,  
91300 Mussy  
Tel: + 33 (0)1 69 75 29 80  
Fax: + 33 (0)1 60 11 76 94  
E-mail: info@kramerfrance.com  
Web: www.kramerfrance.com

### KRAMER ELECTRONICS ITALIA S.R.L.

Via Cesare Cantù, 25  
20092 Cinisello Balsamo (MI)  
Tel: + 39 02 66594771  
Fax: + 39 02 61296221  
E-mail: info@krameritalia.com  
Web: www.krameritalia.com

### KRAMER ELECTRONICS ESPAÑA S.L.

C/ Sierra De Gata 9 Nave 4  
San Fernando De Henares  
28830 Madrid  
Tel: + 34 917478410  
Fax: + 34 917473409  
E-mail: info@kramerspain.com  
Web: www.kramerspain.com

### KRAMER GERMANY GMBH

An Fürthenrode 59  
52511 Geilenkirchen  
Tel: + 49 (0) 2451 91161 0  
Fax: + 49 (0) 2451 91161 10  
E-mail: info@kramergermany.com  
Web: www.kramergermany.com

### KRAMER ELECTRONICS SWEDEN AB

Energigatan 4,  
Kungsbacka 43437  
Tel: + 46 300 43 18 10  
Fax: + 46 300 43 17 19  
E-mail: info@kramersweden.com  
Web: www.kramersweden.com

### KRAMER ELECTRONICS POLSKA SP. Z O.O.

ul. Okrzei 1 A  
03 - 715 Warszawa, Poland  
Tel: + 48 22 333 80 31  
Fax: + 48 22 333 80 30  
E-mail: info@kramerpoland.com  
Web: www.kramerpoland.com

### KRAMER ELECTRONICS CANADA

3465 Mainway, Unit #3  
Burlington, Ontario  
L7M 1A9  
Tel: 1 866 726 9921  
(905) 592 9739  
Fax: (905) 592 9762  
E-mail: info@kramercanada.ca  
Web: www.kramercanada.ca

### KRAMER ELECTRONICS MEXICO

Heriberto Frías # 918  
Col. Del Valle, C.P. 03100  
Ciudad de México  
Tel: + 52 (55) 5523 0604  
+ 52 (55) 5523 0629  
Fax: + 52 (55) 5543 5945  
E-mail: glopez@kramermexico.com  
Web: www.kramermexico.com

### KRAMER LATIN AMERICA

Tel: + 1 305 600 4726  
Tel: + 1 212 300 5188  
E-mail: info@kramerlatinamerica.com  
Web: www.kramerlatinamerica.com

### KRAMER DO BRASIL COMÉRCIO DE ELETRÔNICOS LTDA

Av. Lacerda Franco, 1550, Cambuci  
São Paulo, SP, 01536-001, Brasil  
Tel: + 55 11 3926-9435  
E-mail: info@kramerbrasil.com  
Web: www.kramerbrasil.com

### KRAMER ELECTRONICS ARGENTINA

Tel: + 54 (11) 4554 4621  
Cel: + 54 (911) 6398 7576  
Arg.: 011 15 6398 7576  
Nextel: 593\*476  
E-mail: info@kramerargentina.com  
Web: www.kramerargentina.com

### KRAMER ELECTRONICS COLOMBIA

Tel.: + 57 (1) 647 6038  
Cel: + 57 (310) 245 8036  
E-mail: info@kramercolombia.com  
Web: www.kramercolombia.com

### KRAMER ASIA PACIFIC Pte, Ltd.

69 Ubi Crescent,  
#03-06/07 CES Building  
Singapore 408561  
Tel: + 65 6274 4474  
Fax: + 65 6274 4414  
E-mail: kap@kramerasia.com  
Web: www.kramerasia.com

### KRAMER ELECTRONICS AUSTRALIA Pty, Ltd.

Unit 3/1-5, Knobel Court  
Shailer Park, 4128, QLD  
Brisbane, Australia  
Tel: + 61 7 38 06 4290  
Fax: + 61 7 38 06 4295  
E-mail: sales@krameraustralia.com.au  
Web: www.krameraustralia.com.au

### KRAMER ELECTRONICS CHINA

1204, Kuenyang International  
Business Plaza  
798 Zhaohaiyang Road,  
Shanghai 200030, China  
Tel: + 86 21 64453139,  
+ 86 21 64453136  
Fax: + 86 21 64455934  
E-mail: info@kramerchina.com  
Web: www.kramerchina.com

### KRAMER ELECTRONICS KOREA

#201 HyeopSung Bldg  
309-148, Seongsu-dong 2Ga,  
Seongdong-gu  
Seoul, Korea  
Tel: + 82 2 467 4747  
Fax: + 82 2 467 4750  
E-mail: info@kramerkorea.com  
Web: www.kramerkorea.com

### KRAMER ELECTRONICS INDIA PVT. LTD.

Unit 205, Saleh Centre;  
18/10, Cunningham Road;  
Bangalore-560052.  
Karnataka, India.  
Tel: + 91 80 4148 5388  
Fax: + 91 80 4148 5387  
E-mail: sales@kramerindia.com  
Web: www.kramerindia.com