PURCHASE AGREEMENT

This Agreement is made on this the 26 of March, 2012 between All Sound Designs, a corporation organized and existing under the laws of Colorado, with its principal office located at 2768 Compass Drive, Suite 104, Grand Junction CO 81506 ("Seller"), and City of Grand Junction, a home rule municipality, whose address is 250 N. 5th Street, Grand Junction, CO 81501 ("City").

City agrees to buy, and Seller agrees to sell, for $104,207.16, subject to the terms and conditions stated below, the following audio/video/accessory equipment (the "equipment"), to be delivered at 250 N. 5th Street, Grand Junction, CO 81501. The specific equipment is described on the attached Exhibit "A," which is attached hereto and incorporated herein.

Equipment and accessories not of Seller's manufacture are warranted only to the extent that they are warranted by the manufacturers of the same.

City agrees to pay for the equipment as follows: $81,068.92 with the execution of this Agreement and the remainder $104,207.16 within thirty (30) days after the equipment has been installed or erected and is ready for power.

The risk of loss of or damage to the equipment before delivery and acceptance by the City shall be on Seller from point of shipment.

The City has contracted with Asset Engineering Limited ("Asset") as General Contractor for the City project IFB-3412-12-SDH City Hall Auditorium Remodel. The equipment shall be used for completion of the project. Seller has entered into a separate agreement with Asset to install the equipment in accordance with the contract that the City has with Asset. Seller shall deliver the equipment in accordance with the terms and agreement Seller has with Asset so that Asset is not in default of its Agreement with the City. Any delays due to Seller's failure to deliver the equipment on time shall be the responsibility of Seller.

Seller shall be responsible for $300 per day delay in liquidated damages. This provision does not apply for delays caused by the City or Asset, but only for delays caused by failure to deliver the equipment on time and operational. The parties agree and stipulate that the Seller shall pay liquidated damages to the City for each day that final completion is late due to the equipment not being delivered on time and operational. Seller agrees that the liquidated damages in the daily amount of $300 is reasonable and necessary to pay for the actual damages resulting from such delay. The parties agree that the real costs and injury to the City for such delay include hard to quantify items such as: Additional engineering, inspection and oversight by the City and its agents; additional contract administration; inability to apply the efforts of those employees to the other work of the City; perceived inefficiency of the City; citizens having to deal with the construction and the Work, rather than having the benefit of a completed Work, on time; inconvenience to the public; loss of reputation and community standing for the City during times when such things are very important and very difficult to maintain.

Liquidated damages as provided do not include any sums to reimburse the City for extra costs which the City may become obligated to pay on other contracts which were delayed or extended because of the Seller's failure to deliver the Work within the Contract Time. Should the City incur additional costs because of delays or extensions to other contracts resulting from the Seller's failure of timely performance, the Seller agrees to pay these costs that the City incurs because of the Seller's delay, and these payments are separate from and in addition to any liquidated damages.

The City agrees to furnish a suitable foundation upon which to erect the equipment, with free and ready ingress and egress to and from the same.

Seller and the City agree that the installation/erection of the equipment shall be done through Asset by separate contract with the City. The City shall be responsible for the cost of labor necessary for erection/installation.

Seller is authorized and empowered to enter in this Agreement.

Time is of the essence of this Agreement and each of the terms, conditions and provisions of this Agreement.

This Agreement shall be governed by the laws of the State of Colorado and is binding upon seller only when countersigned by an authorized officer of the City. The effective date of this Agreement shall be the date of acceptance by the City.

The parties have executed this Agreement the day and year first above written.

ALL SOUND DESIGNS

James G Fraser Manager
Print Name and Title

CITY OF GRAND JUNCTION

Scott Hockins, Purchasing Supervisor
Print Name and Title

CONTINUATION SHEET

AIA DOCUMENT G703

AIA Document G702, APPLICATION AND CERTIFICATION FOR PAYMENT, containing Contractor's signed certification is attached.

In tabulations below, amounts are stated to the nearest dollar.

Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO: ONE
APPLICATION DATE: 3/20/2012-Deposit
PERIOD TO: DEPOSIT
ARCHITECT'S PROJECT NO: IFB-3412-12-SDH

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION (D + E)	WORK COMPLETED THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G ÷ C)	BALANCE TO FINISH (C - G)	RETAINAGE
	Per Estimate # 3468								
1	Retrofit of wiring								
	Material	$5,885.00			$2,942.00	$2,942.00	49.99%	$2,943.00	
	Labor								
2	Trim plates, connectors, wire management								
	Material Only	$4,442.65			$2,221.00	$2,221.00	49.99%	$2,221.65	
3	Microphone & Audio Mixing System								
	Material	$18,631.00			$12,121.00	$12,121.00	65.06%	$6,510.00	
	Labor								
4	Primary Head End Electronics								
	Material	$45,000.81			$27,459.00	$27,459.00	61.02%	$17,541.81	
	Labor								
5	ADA Compliant Auditorium Assisted Listening System								
	Material	$1,799.00			$1,799.00	$1,799.00	100.00%		
	Labor								
6	High Brightness Commercial/Government Presentation Projectors								
	Material	$19,419.98			$19,289.00	$19,289.00	99.33%	$130.98	
	Labor								

Exhibit "A"

CONTINUATION SHEET

AIA DOCUMENT G703

PAGE OF PAGES

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APPLICATION DATE: 3/20/2012-Deposit
PERIOD TO: DEPOSIT
ARCHITECT'S PROJECT NO: IFB-3412-12-SDH

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION (D + E)	WORK COMPLETED THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G ÷ C)	BALANCE TO FINISH (C - G)	RETAINAGE
7	Control System								
	Material	$17,040.00			$8,520.00	$8,520.00	50.00%	$8,520.00	
	Labor								
8	Broadcast Room Television/mount								
	Material Only	$748.99			$649.00	$649.00	86.65%	$99.99	
9	Break Room Television/DVD, mount								
	Material	$1,504.98			$1,276.00	$1,276.00	84.79%	$228.98	
	Labor								
	Discount								
	Material	($11,051.28)			($5,525.64)	($5,525.64)	50.00%	($5,525.64)	
	Labor								
10	Broadcasting Portion of System								
	Material	$81,854.95			$81,855.00	$81,855.00	100.00%	$0.00	
	Labor								
	Balance On Materials Ordered Due After Verification Of Arrival				($71,536.44)	($71,536.44)		$71,536.44	
	GRAND TOTALS	$185,276.08			$81,068.92	$81,068.92	43.76%	$104,207.16	

ALL SOUND DESIGNS

P. O. BOX 3140
GRAND JUNCTION, CO 81502

Purchase Orde

Date	P.O. No.
3/21/2012	4021

Vendor
Multimedia Communication PO Box 27740 Las Vegas, NV 89126

Ship To
ALL SOUND DESIGNS ***NEW*** 2768 COMPASS DR STE 104 GRAND JUNCTION CO 81506

Phone #	Fax #	Ordered by
970-242-7757	970-241-0450	scl

Item	Description	Qty	Rate	Customer	Amount
MISC PARTS	Newtek Tricaster 850 Broadcast Production Device	1	24,995.00	3165--250 N. 5th, Audito...	24,995.00

Please note: Our ship to address has changed.

Total $24,995.00

ALL SOUND DESIGNS

P. O. BOX 3140
GRAND JUNCTION, CO 81502

Purchase Ord

Date	P.O. No.
3/21/2012	4019

Vendor
Shorview Distribution 69 Elm St Foxburo MA 02035

Ship To
ALL SOUND DESIGNS ***NEW*** 2768 COMPASS DR STE 104 GRAND JUNCTION CO 81506

Phone #	Fax #	Ordered by
970-242-7757	970-241-0450	scl

Item	Description	Qty	Rate	Customer	Amount
	Purchase Order For 5 Broadcast Cameras/SDI Cards/Wall Mounts, Remote For Cameras, Document Cameras, And NEC Televisions				
MISC PARTS	Sony BRCZ330 Broadcast Cameras	5	4,199.95	3165--250 N. 5th, Audito...	20,999.75
MISC PARTS	Sony BRBKHD2 Sony SDI Cards	5	1,199.95	3165--250 N. 5th, Audito...	5,999.75
MISC PARTS	Sony BRCWM-Z330 Sony Wall Mounts	5	199.95	3165--250 N. 5th, Audito...	999.75
MISC PARTS	Sony BRCH700 Sony Broadcast Cameras	3	7,349.95	3165--250 N. 5th, Audito...	22,049.85
MISC PARTS	Sony RM-BR300 Camera Remote Control	2	1,329.95	3165--250 N. 5th, Audito...	2,659.90
MISC PARTS	V321 NEC 32" Telelvision	1	573.00	3165--250 N. 5th, Audito...	573.00
MISC PARTS	V422 NEC 42" Television	1	989.00	3165--250 N. 5th, Audito...	989.00

Please note: Our ship to address has changed.

Total $54,271.00

Centrum Sound Systems

572 La Conner Drive
Sunnyvale CA 94087
Tel. 408.736.6500 Fax: 408.736.6552
http://centrumsound.com

Quotation

Rep	Date	Quotation #
AP	2/24/2012	**20224-1**

Ship To:

All Sound Designs
Sara Landis
2768 Compass Drive
Grand Junction, CO 81506

Customer approval

Signature

Print name

Bill To:

All Sound Designs
Accounts Payable
2768 Compass Drive
Grand Junction CO 81506

Purchase order #	Approval date

Charge to Credit Card #	Exp Mth/Yr	CVV2

Qty.	Item Code	Description	Unit Price	Total
1	TX90	Two channel modulator/emitter panel consisting of: WIR TX90 IR emitter TFP 010 power supply BKT 024 Wall/ceiling mount WCA 079 50 ft power cable IDP 008 wall plaque	1,261.00	1,261.00
4	RX12-4	Four-channel lavaliere-style receiver	125.00	500.00
4	HED021	Deluxe folding headphone	14.00	56.00
2	NKL001	Neckloop	45.00	90.00
1	IDP008	ADA compliant wall plaque	11.00	11.00
	DIS	Discount	-115.08	-115.08
	.S & H	Ground Service (Free)	0.00	0.00

Customer #	Customer Fax	Terms:	Quotation Expires:
970.242.7757		CWO	3/25/2012

We appreciate your business. Thank you for choosing Centrum Sound.

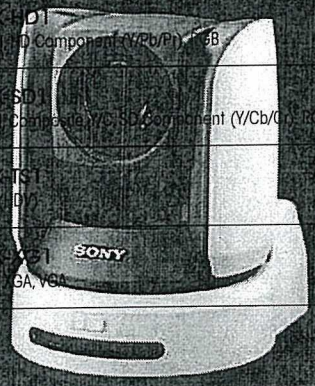
Subtotal	$1,802.92
Sales Tax (0.0%)	$0.00
Total	**$1,802.92**

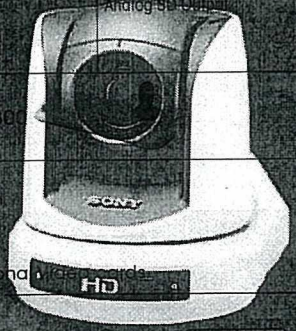
SONY
make.believe

BRC and BRU System

	BRC-H700	BRC-Z700	BRC-Z330	BRC-300
Wide Conversion Lens	—	VCL-HG0862		VCL-0737W
Optical Multiplex Card (inserted to the BRC Series)	BRBK-H700	BRBK-MF1	BRBK-SF1	BRBK-303
Optical Fiber Cable	CCFC-M100HG		CCFC-S200	CCFC-M100HG
Optical Multiplex Unit	BRU-H700		BRU-SF10	BRU-300
Optional Video Card (Inserted to the BRC Series)	HFBK-HD1 HD-SDI, HD Component (Y/Pb/Pr), RGB		BRBK-HSD2 HD/SD-SDI	BRBK-301 Composite(Y/C), SD Component (Y/Cb/Cr), RGB
	HFBK-SD1 SD-SDI, Composite(Y/C), SD Component (Y/Cb/Cr), RGB			BRBK-302 SD-SDI
	HFBK-TS1 i.LINK (DV)		BRBK-SA1 Analog SD Output	BRBK-304 i.LINK (DV)
	HFBK-XG1 WXGA, SXGA, VGA			
Remote Control Unit			RM-BR300	

The cable supplied with the VCL-HG0862K cannot be used.

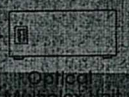




Large Scale System

Optical Multiplex Card

Optical Fiber Cable



Optical Multiplex Unit

Video Signal

Monitor

Optional Video Cards

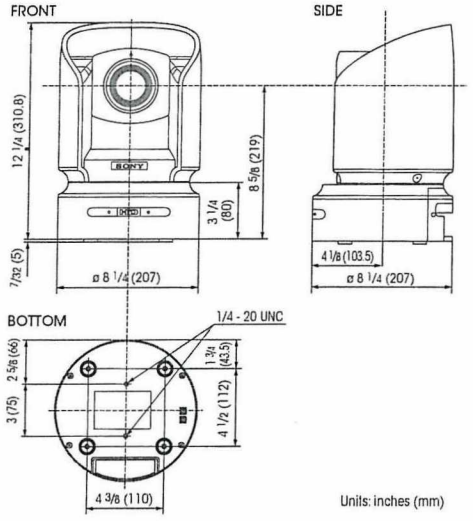
Projector

BRC Series
Color Video Cameras

BRC-H700
BRC-Z700
BRC-Z330
BRC-300

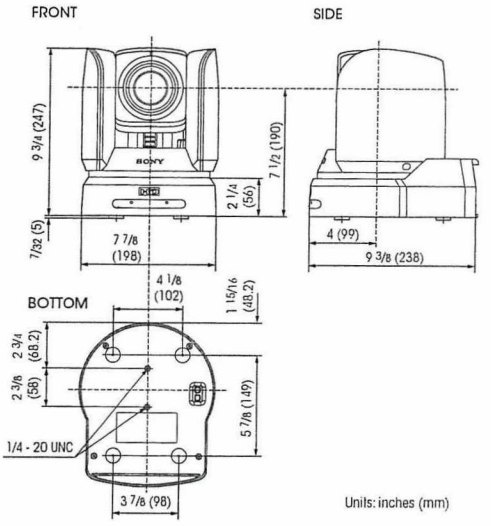
DIMENSIONS

BRC-H700



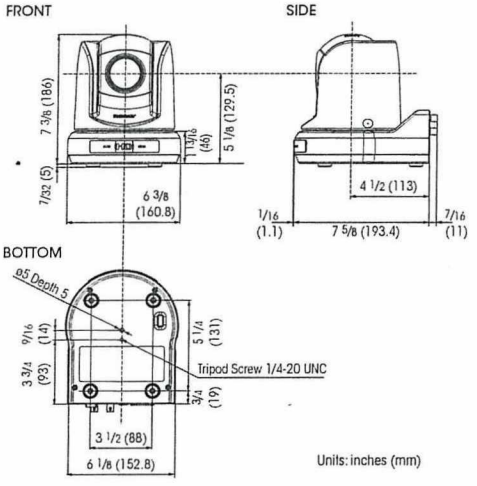
Units: inches (mm)

BRC-Z700



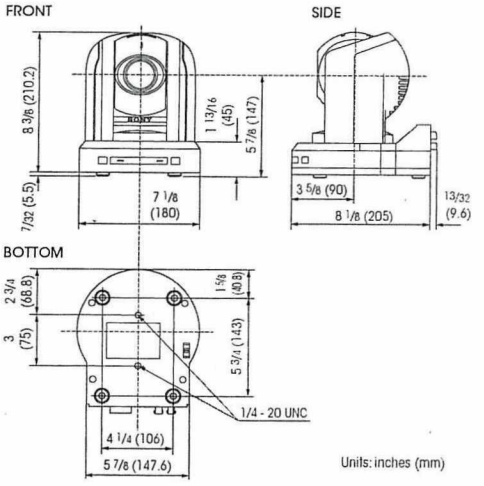
Units: inches (mm)

BRC-Z330



Units: inches (mm)

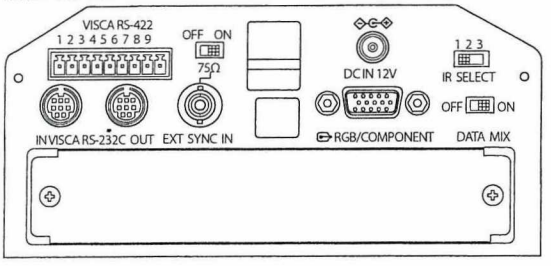
BRC-300



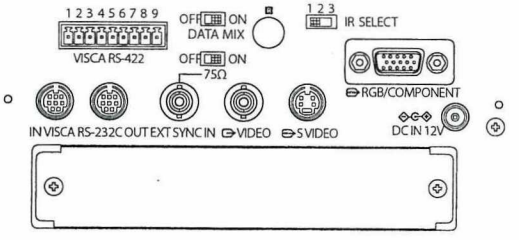
Units: inches (mm)

REAR PANELS

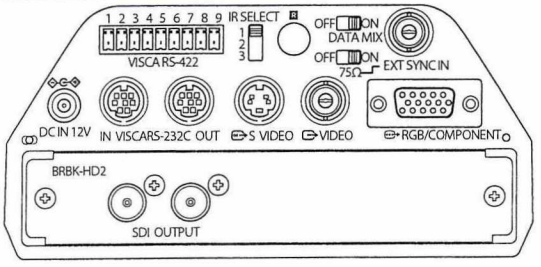
BRC-H700



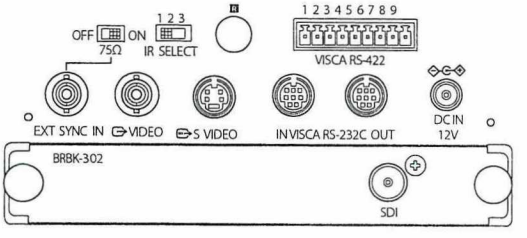
BRC-Z700



BRC-Z330



BRC-300



SPECIFICATIONS

	BRC-H700	BRC-Z700	BRC-Z330	BRC-300	
Camera					
Signal systems	1080/59.94i or 1080/50i (switchable)	1080/59.94i, NTSC or 1080/50i, PAL (switchable)	60 Hz: 1080/59.94i, 720/59.94P, NTSC 50 Hz: 1080/50i, 720/50P, PAL	NTSC	
Sync systems	Internal/External				
Image device	1/3-type IT CCD x 3	1/4-type CMOS x 3	1/3-type CMOS image sensor	1/4.7- type CCD x 3	
Effective picture elements	Approx. 1.07 Megapixels	Approx. 1.04 Megapixels	Approx. 2.16 Megapixels	Approx. 0.69 Megapixels	
Lens	12x optical zoom (48x with digital zoom), Carl Zeiss Vario-Sonnar T* lens	20x optical zoom (80x with digital zoom), Carl Zeiss Vario-Sonnar T* lens	18x optical zoom (72x with digital zoom)	12x optical zoom (48x with digital zoom)	
Focal length	f=4.5 to 54 mm (F1.6 to F2.8)	f=3.9 to 78 mm (F1.6 to F2.8)	f=4.6 to 82.8 mm (F1.6 to F2.2)	f=3.6 to 43.2 mm (F1.6 to F2.8)	
Lens filter diameter	72 mm	62 mm	—	37 mm	
Minimum object distance	500 mm (Wide), 800 mm (Tele)	10 mm (Wide, Limiter Off), 500 mm (Wide, Limiter On), 800 mm (Tele)	100 mm (Wide, Limiter Off), 500 mm (Wide, Limiter On), 1,500 mm (Tele)	300 mm (Wide), 800 mm (Tele)	
Horizontal viewing angle	5.5 to 60.3 degrees	1.8 to 55.2 degrees	3.3 to 55.1 degrees	4:3 mode: 3.3 to 37.8 degrees, 16:9 mode: 4.0 to 45.4 degrees	
Focusing system	Auto/Manual				
Pan/Tilt angle	-170 to +170 degrees (Pan), -30 to +90 degrees (Tilt)		-175 to +175 degrees (Pan), -30 to +90 degrees (Tilt)	-170 to +170 degrees (Pan), -30 to +90 degrees (Tilt)	
Pan/Tilt speed	0.25 to 60 degrees/s (Pan/Tilt)	0.22 to 60 degrees/s (Pan/Tilt)	0.25 to 60 degrees/s (Pan/Tilt)		
Minimum illumination	6 lx (50 IRE, F1.6, +18 dB)	6 lx (50 IRE, F1.6, +24 dB)		7 lx (25 IRE, F1.6, +18 dB)	
Video S/N ratio •	50 dB				
Shutter speed	1/10,000 s to 1/60 s or 1/10,000 s to 1/50 s			1/10,000 s to 1/4 s	
Gain	Auto/Manual (0 to 18 dB and Hyper Gain)	Auto/Manual (0 to 24 dB and Hyper Gain)	Auto/Manual (-3 to +24 dB and Hyper Gain)	Auto/Manual (-3 to +18 dB)	
White balance	Auto/Indoor/Outdoor/One-push/Manual	Auto1/Auto2/Indoor/Outdoor/One-push/Manual		Auto/Indoor/Outdoor/One-push/Manual	
Image stabilizer	On/Off (Optical)		—		
Image flip	On/Off				
ND filter	Off/ND1/ND2	—	Off/1/4/1/16 switchable in menu	—	
Preset positions	16			6	
Interfaces					
HD video output	D-Sub 15 pin: Component (Y/Pb/Pr) or RGB, HD, VD or SYNC			—	
SD video output	—	BNC: Composite, Mini DIN 4 pin : Y/C	Composite, Y/C	BNC: Composite (NTSC),Mini DIN 4 pin:Y/C	BNC: Composite (PAL),Mini DIN 4 pin : Y/C
External Sync input	BNC				
Camera control	Mini DIN 8 pin: RS-232C (VISCA IN), Mini DIN 8 pin: RS-232C (VISCA OUT), Connector plug 9 pin: RS-422 (VISCA IN/OUT)				
General					
Operating temperature	32 °F to 104 °F (0 °C to 40 °C)				
Storage temperature	-4 °F to +140 °F (-20 °C to +60 °C)				
Power requirements	DC 10.8 V to 13.2 V				
Power consumption	Max. 24 W (without optional cards)	Max 28.8 W (without optional cards)	Max 18 W (without optional cards)	Max. 21.6 W (without optional cards)	
Dimensions (W x H x D)	8 1/4 x 12 1/4 x 8 1/4 inches (207 x 310.8 x 207 mm)	7 7/8 x 9 3/4 x 9 3/8 inches (198 x 247 x 238 mm)	6 3/8 x 7 3/8 x 7 5/8 inches (160.8 x 186 x 193.4 mm)	7 1/8 x 8 3/8 x 8 1/8 inches (180 x 210.1 x 205 mm)	
Weight	9 lb 15 oz (4.5 kg)		4 oz (1.9 kg)	5 lb 8 oz (2.5 kg)	
Supplied accessories	IR Remote Commander Unit, AC power adaptor, AC power cord, RS-422 connector plug, Ceiling bracket x2, Wire rope, Screws, Operating instructions				

	BRU-H700	BRU-SF10	BRU-300
Interfaces			
Optical fiber connector	LC Duplex Fiber Connector		
HD video output	D-Sub 15 pin: Component (Y/Pb/Pr) or RGB, HD, VD or SYNC		—
SD video output	—		BNC: Composite (NTSC), Mini DIN 4 pin: Y/C
External sync input	BNC		
External sync output	BNC		
Audio line output	Phono jack x2 (L/R)		—
Camera control	Mini DIN 8 pin: RS-232C (VISCA IN), Mini DIN 8 pin: RS-232C (VISCA OUT), Connector plug 9 pin: RS-422 (VISCA IN/OUT)		
Optional card slots	2 slots		2 slots (When both slots are used simultaneously, the interface cards must be of two different types.)
General			
Operating temperature	32 °F to 104 °F (0 °C to 40 °C)		
Storage temperature	-4 °F to +140 °F (-20 °C to +60 °C)		
Power requirements	AC 100 V to 240 V (50/60 Hz)	DC 12 V	AC 100 V to 240 V (50/60 Hz)
Power consumption	Max. 10 W (without optional cards)	Max. 15.6 W (without optional cards)	Max. 9 W (without optional cards)
Dimensions (W x H x D)	8 3/8 x 3 1/2 x 9 1/2 inches (210 x 86 x 240 mm)		8 3/8 x 3 1/2 x 8 3/8 inches (212 x 88 x 210 mm)
Weight	5 lb 5 oz (2.4 kg)	4 lb 7 oz (2.0 kg)	4 lb 10 oz (2.1 kg)
Supplied accessories	AC power cord, RS-422 connector plug, RS-232C cable (3 m, Mini DIN 8 pin), Operating instructions	AC adapter, Power cord, DC-cord secure connection attachment, RS-232C connecting cable, RS-422 connector plug, Operationg instructions	AC power cord, RS-422 connector plug, RS-232C cable (3 m, Mini DIN 8 pin), Operating instructions

	HFBK-HD1	HFBK-SD1	HFBK-XG1	HFBK-TS1	BRBK-MF1*1	BRBK-HSD1	BRBK-HD2
Video output	D-Sub 15 pin: Component (Y/Pb/Pr) or RGB, HD, VD or SYNC BNC x2: HD-SDI	D-Sub 9 pin: Component (Y/Pb/Pr) or RGB, Composite or Y/C, SYNC BNC: Composite BNC: SD-SDI	D-Sub 15 pin: RGB, HD, VD (WXGA/XGA/VGA)	i.LINK 6 pin: HDV OUT (IEEE1394 S100)	LC Duplex Fiber Connector	BNC x2: HD-SDI or SD-SDI	HD-SDI
Audio line input	—	—	—	Phono jack x2 (L/R)	Phono jack x2 (L/R)	—	—

	BRBK-303*1	BRBK-301	BRBK-302	BRBK-304	BRBK-HSD2	BRBK-SA1	BRBK-SF1*2
Video output	LC Duplex Fiber Connector	D-Sub 9 pin: Component (Y/Pb/Pr) or RGB, Composite or Y/C, SYNC	BNC: SD-SDI	i.LINK 6 pin: DV OUT (IEEE1394 S100)	BNC x3, HD-SDI or SD-SDI	BNC x1: VIDEO, Mini DIN 4pin x1: S VIDEO, D-sub 9pin x1: RGB/SYNC	LC Duplex Fiber Connector
Audio line input	—	—	—	—	—	—	Phono jack x2 (L/R)

*1 Connection to CCFC-M100HG
*2 Connection to CCFC-S200

Sony Electronics Inc.
1 Sony Drive
Park Ridge, NJ 07656
sony.com/ptz

V-2456-B (MK10595V2)

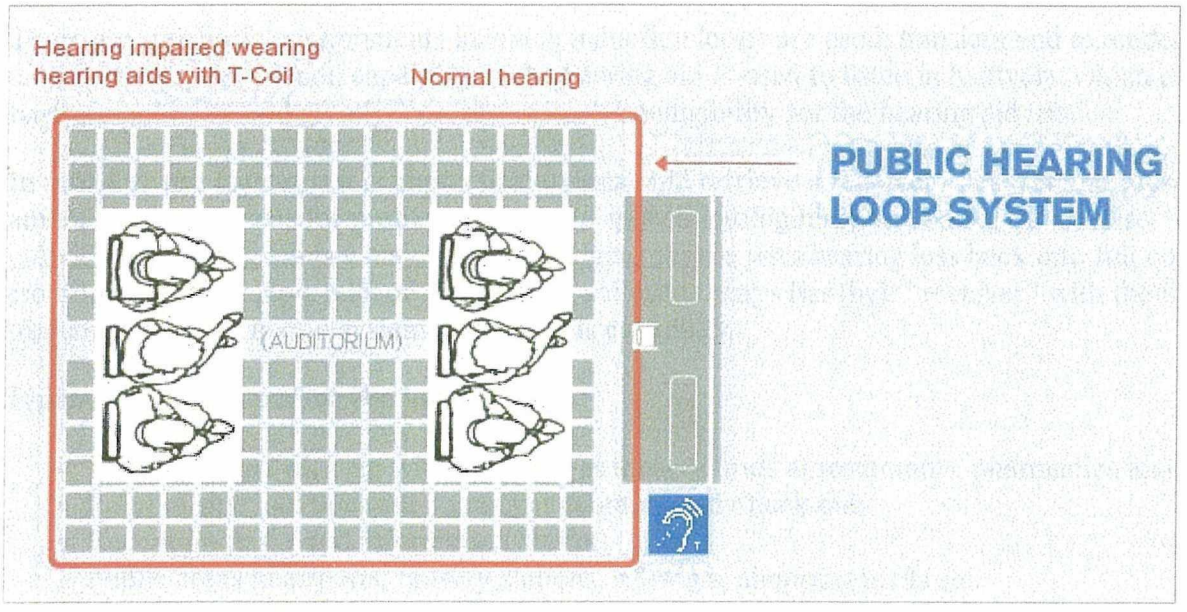
Printed in USA (8/11)

loop in the form of a strong alternating current. As the alternating current from the amplifier flows through the loop, it creates a magnetic field within the looped area and "induces" the telecoil in a hearing aid , or specifically design induction loop receiver , within the looped area.

When a hearing aid user switches their hearing aid to the "T" position on the hearing aid, the telecoil in the hearing aid picks up the fluctuations in the magnetic field and converts them back into alternating currents. The alternating currents are amplified and converted by the hearing aid into sound.

The input to the induction loop amplifier can be a sound source such as a television or stereo, a public address or sound reinforcement system, a dedicated microphone, or any sound source that users inside the looped area wish to hear more clearly.

Not all loop layouts are a simple single wire surrounding a room, but this explanation illustrates the basic principles.



"I activate my T-Coils and instantly the speaker's voice comes to me not from some distant loudspeaker but seemingly from the center of my head. My hearing aids now serve me as customized wireless loudspeakers"

David G. Myers, PhD,
Professor and social psychologist at Hope College in Holland, MI. who has hearing loss and is one of the nation's foremost advocates for loop systems.

Why use an Audio Induction Frequency Loop?

People who suffer from hearing loss require more than just increasing the volume of sound into their ears. The loss of hearing is generally associated with the brain's neurological processing of information. For people with normal hearing, a signal to noise ratio of 6dB is required for a reasonable level of speech intelligibility. This represents quite a noisy background, and includes sounds such as reverberation, air conditioning, ventilation systems or background noise such as those associated with a crowd of people.

When a person loses about 80% of their hearing, they generally need a signal to noise ratio of 15 to 20dB for a reasonable level of speech intelligibility. This can be difficult to achieve unless the desired signal is taken straight from the basic source and transmitted directly through the loop system to avoid any reverberation or additional ambient noise. Delivering a pure, clean signal directly to the hearing aid maximizes the benefits of digital hearing aids and delivers the best possible sound possible to the hearing

11952 James St
Holland, MI 49424
voice 1.800.968.2444
fax 1.616.392.6880

Approximate Cost - $10,000 - 12,000 ea

Just like a "WiFi" network delivers wireless Internet access to a computer user, a loop system delivers the sound from a sound system, via hearing aids, right into the listeners ears.

Once the system is in place, the audio source sends sound signals through an amplifier and on to the personal receiver, the hearing aid. Those wearing a T-coil equipped hearing aid will enjoy clear, crisp sound customized to their personal hearing requirements. All without having to use additional headphones or earbuds.

Learn How Hearing Loop Systems Work

When the Gerald R. Ford International Airport decided to install hearing loops at every terminal and gate, they called upon the experts at Hearing Loop Systems to design and install the system. Why trust your hearing to anyone else? We are not happy until EVERYONE can hear!

But how does all of this work? Many people may not have heard of induction loops, and do not have any idea of the great help an induction loop system can be in compensating for an audio disability.

If a hearing aid user switches their hearing aid to the telecoil (T) position, the telecoil receives the loop signal and the hearing aid converts it into sound. The magnetic field within the looped area is strong enough to allow a hearing aid user to move freely within the looped area and still receive clear sound at a comfortable listening level.

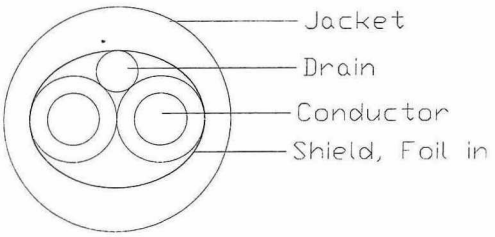
How does an Audio Frequency Induction Loop work?

In the most basic form, an audio induction loop system consists of a loop of wire around the perimeter of an area that is connected to an induction loop amplifier. An input signal is provided to the induction loop amplifier, and the induction loop amplifier drives an audio current (note current not voltage) through the

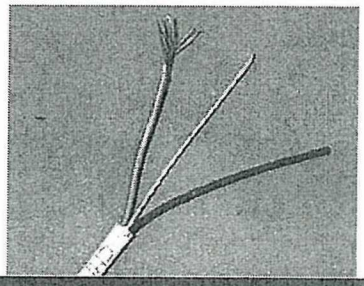
Product Specification Sheet

Catalog Number: 22-1P-CMP-EZ

Construction Detail



Product Illustration



Physical Construction

Component 1:
Shielded Pair
22 AWG 7/30 tinned copper conductors
Foam FEP Insulation: .010–inch nominal thickness
2 conductors in a 1.5-inch lay length

Final assembly:
1 of component 1
100% Aluminum/Poly shield bonded to the outer jacket with the foil facing in.
24 AWG 7/32 tinned copper drain wire in contact with the foil side of the shield.
Pressure extruded PL-PVC jacket: .015-inch nominal thickness.
Final construction: .130-inch nominal OD.
Product Print Legend: **LIBERTY QWIK STRIP PLENUM E190606-* 1/PR 22 AWG TYPE CMP 75°C C(UL)US**
Sequential footmarks are applied in conjunction with the print legend every two feet.

Description

Plenum audio broadcast wire featuring an easy strip jacket for audio, instrumentation and control applications in accordance with NEC articles 725 and 800

Color Code

22 AWG:
Black, Red

Electrical Specifications

22 AWG:
DCR: 14.8 Ω per 1000 feet
Mutual Capacitance: 21.0 pF per foot
Shield Capacitance: 27.9 pF per foot
Impedance: 75 Ω
Voltage: 300 Volts RMS
Temperature: -20°C to 75°C

Regulatory Specifications

NEC rated CMP
CEC rated CMP
EU RoHS 2002/95/EC Compliant since 06/15/2005

Specification Control

Revision Date: 04/11/2009

Liberty Wire & Cable specifications are subject to change without notice. Contact an account representative for current product specifications. Liberty Wire & Cable continuously strives to ensure product specifications are accurate and complete. All physical specifications are nominal.

Product Information

Jacket Colors:
White, Black, Red, Blue, Orange, Violet, Yellow, Green, Gray

Packaging: 1000 foot spools

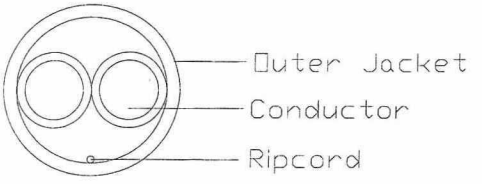
Special Instructions: Plenum wire should be conditioned for 24 hours at room temperature prior to installation and never installed below 0°C ambient temperature

Form Revision Date: 04/15/2004

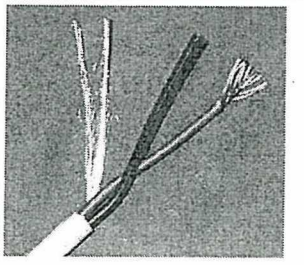
Product Specification Sheet

Catalog Number: 16-2C-P

Construction Detail



Product Illustration



Physical Construction

Component 1:
16 AWG 19x0.0117-inch bare copper conductor
PL-PVC Insulation: .009-inch nominal thickness

Final assembly:
2 of component 1 twisted in a 3-inch lay
Nylon ripcord under the jacket.
PL-PVC jacket: .015-inch nominal thickness
Final construction: .190-inch nominal OD
Product Print Legend: **LWC 16-2C-P E190606 16 AWG CMP C(UL)US OR (UL) CL3P FT6**
Sequential footmarks are applied in a conjunction with the print legend.

Description

Communications plenum rated multiconductor wire for audio, instrumentation and control applications in accordance with NEC articles 725 and 800.

Color Code

Black, Red

Electrical Specifications

16 AWG:
DCR: 4.13 Ω per 1000 feet
Mutual Capacitance: 36.6 pF/FT
Voltage: 300 Volts RMS
Temperature: -10°C to 75°C
Impedance: 55.6 Ω
Capacitance: 36.6 pF/FT

Regulatory Specifications

NEC rated CMP
CEC rated CMP
EU RoHS 2002/95/EC Compliant

Specification Control

Revision Date: 04/11/2009

Liberty Wire & Cable specifications are subject to change without notice. Contact an account representative for current product specifications. Liberty Wire & Cable continuously strives to ensure product specifications are accurate and complete. All physical specifications are nominal.

Product Information

Jacket Colors:
Natural White, Black

Packaging: 1000 foot reels

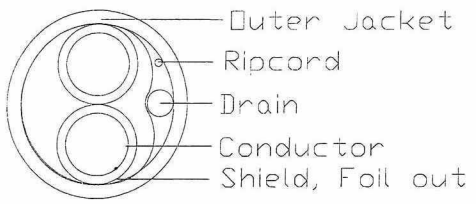
Special Instructions: Plenum wire should be conditioned for 24 hours at room temperature prior to installation and never installed below 0°C ambient temperature

Form Revision Date: 04/15/2004

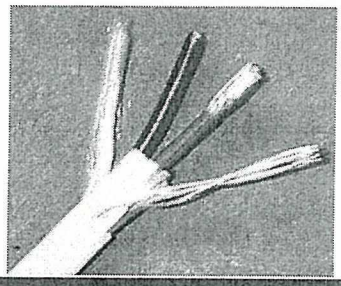
Product Specification Sheet

Catalog Number: 16-2C-PSH

Construction Detail



Product Illustration



Physical Construction

Component 1:
16 AWG 19/26 bare copper conductor
PL-PVC insulation: .009-inch nominal thickness

Final assembly:
2 of component 1 twisted in a 3-inch lay
100% Aluminum/Poly shield with the foil side facing out
20 AWG 7/28 tinned copper drain wire in contact with the foil side of the shield
Nylon ripcord under the jacket.
PL-PVC jacket: .015-inch nominal thickness
Final construction: .182-inch nominal OD
Product Print Legend: **LWC 16-2C-PSH E190606-* 16 AWG TYPE CMP C(UL)US 75°C**
Sequential footmarks are applied in conjunction with the print legend.

Description

Plenum shielded multi-conductor communications rated wire for audio, instrumentation and control applications in accordance with NEC articles 725, 800

Color Code

Black, Red

Electrical Specifications

16 AWG:
DCR: 4.35 Ω per 1000 feet
Mutual capacitance: 52 pF per foot
Shield capacitance: 102 pF per foot
Voltage: 300 Volts RMS
Temperature: -10°C to 75°C
Impedance: 36 Ω
Capacitance: 52 pF/FT

Regulatory Specifications

NEC rated CMP
CEC rated CMP
EU RoHS 2002/95/EC Compliant

Specification Control

Revision Date: 04/11/2009

Liberty Wire & Cable specifications are subject to change without notice. Contact an account representative for current product specifications. Liberty Wire & Cable continuously strives to ensure product specifications are accurate and complete. All physical specifications are nominal.

Product Information

Jacket Colors:
Natural White

Packaging: 1000 foot reels

Special Instructions: Plenum wire should be conditioned for 24 hours at room temperature prior to installation and never installed below 0°C ambient temperature

Form Revision Date: 04/15/2004

BCP-DGKat724

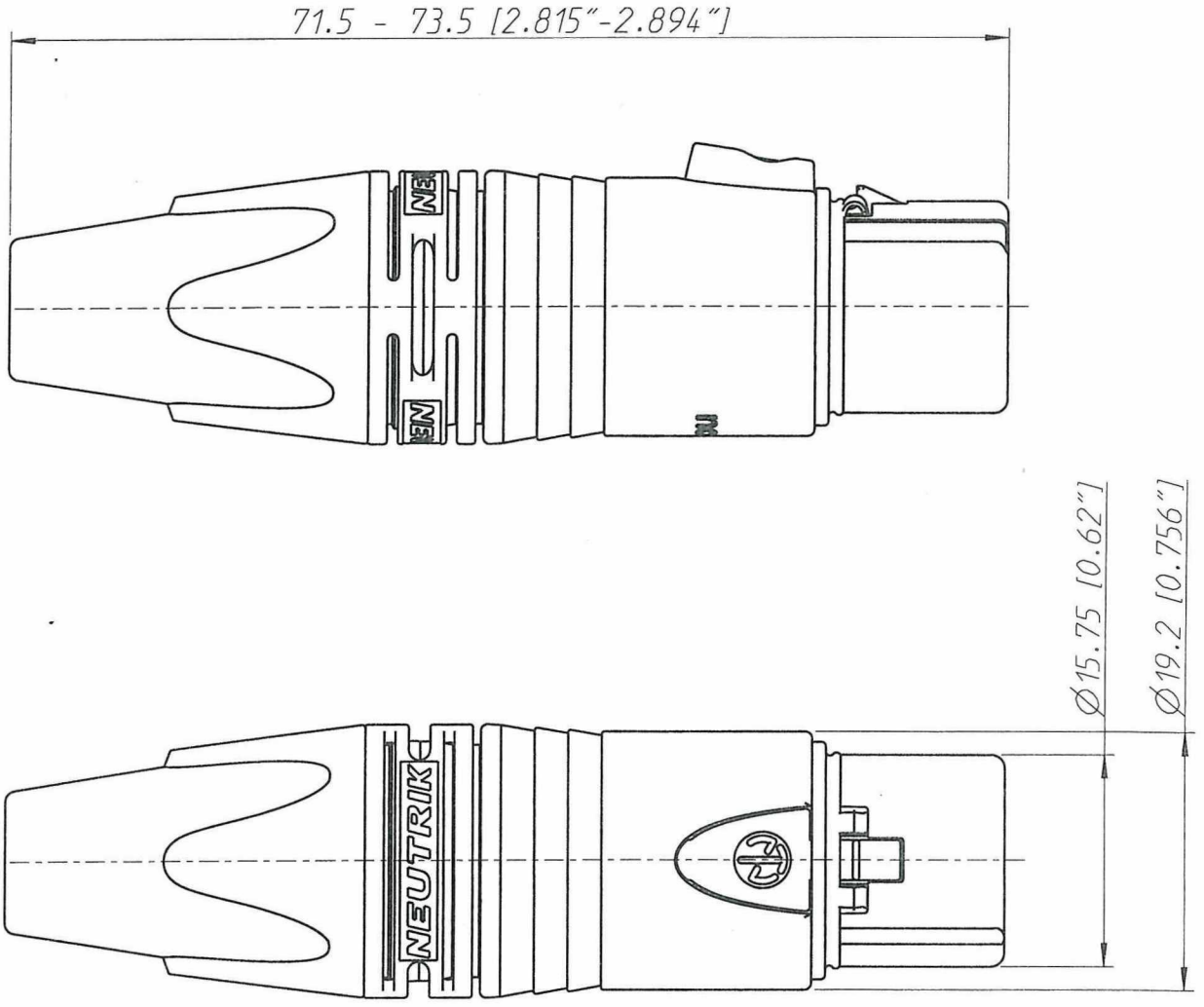
Plenum Rated STP (Shielded Twisted Pair) Data Cable

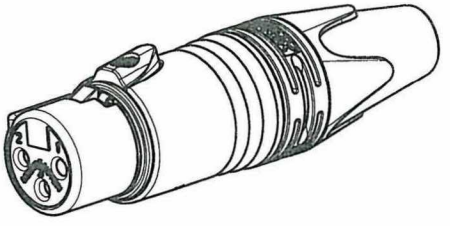
Kramer's BCP-DGKat724 is a plenum rated shielded twisted pair (STP) cable, the ideal companion to Kramer's twisted pair digital transmitter-receiver sets for optimum range and performance.

FEATURES

- Quality Construction - 4 twisted pairs of 24 AWG solid copper conductors are cabled together and shielded with a polyester-aluminum tape and outer jacket.
- Optimized for Kramer Hardware - Use with any of Kramer's wide range of twisted pair digital transmitter-receiver sets; terminate with RJ-45 connectors, or strip and attach to terminal strips or punch-down blocks as needed.
- Varied Selection of Length - Available in pull boxes of 152m (500ft) & 305m (1000ft).

Model	Description	Length	Meter
BCP-DGKat724-500	Plenum Rated Four-Pair STP Data Cable - 24 AWG	500'	152.4M
BCP-DGKat724-1000	Plenum Rated Four-Pair STP Data Cable - 24 AWG	1000'	304.8M





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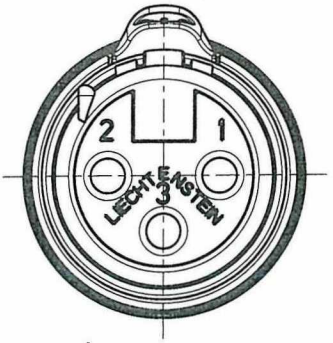

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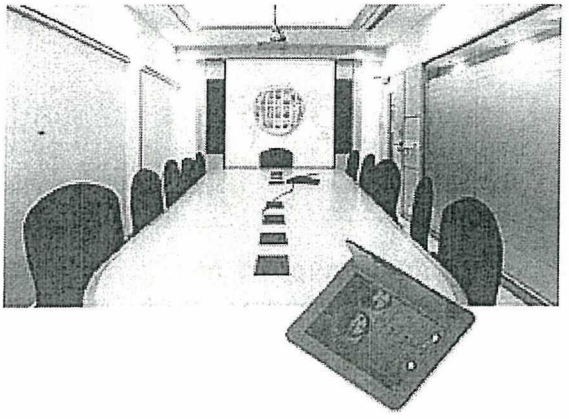
			Ersatz fuer:		Blatt 1 von 1 Bl.
NEUTRIK AG FL-9494 SCHAAN			Zeichn. Nr. ST-NC3FXX-HE		

TBUS-1A

Table Mount Modular Multi-Connection Solution - Tilt-Up Lid



Kramer's TBUS-1A provides an extremely simple, affordable and elegant multiple connection boardroom solution. TBUS-1A is flexible to configure and customize to your own needs, fast and easy to install and intuitive to operate.

FEATURES

- Modular Design - 2 110V AC (USA) or 1 220V AC plus 2 wall plate insert slots populated with cable pass-through inserts and 4 slots compatible with the full line of optional single or double-slot insert modules.
- UL and CE Qualified.
- Available 220V AC Power Sockets - Universal, UK, Germany-EU, Italy, Australia & Belgium-France.
- Installation Requirement - Table cutout of 191mm x 152mm (7.51in x 5.98in).
- Dimensions - 20.5cm x 17cm x 13.2cm (8.1" x 6.7" x 5.2") W, D, H.
- Weight - TBUS-1A: 1.5kg (3.3lbs) approx.; table clamps: 0.26kg (0.57lbs); metal template: 0.125kg (0.28lbs).

Model	Description	Length Meter
1AC	1 Socket 6 Inserts	0' 0.0M
2AC	2 Socket 6 Inserts	0' 0.0M
4AC	4 Socket 4 Inserts	0' 0.0M
Tools	2 Socket 4 Inserts	0' 0.0M
RC-8	2 Socket 4 Inserts	0' 0.0M

22 March 2011

Kramer Introduces Plenum HDMI Cable Assemblies

Hampton, NJ - Kramer's new plenum rated CP-HM/HM HDMI cables are high-performance cables with molded HDMI connectors at both ends. The low smoke and fire-resistant properties of plenum rated cable allow it to reside in air return spaces of ceiling, floors, and walls, often saving the cost of installing conduit.

The CP-HM/HM cable assemblies are made of high-quality 26 AWG (15' and 25' lengths) and 24 AWG (35' and 50' lengths) conductors. These cables come with gold-plated connectors, which resist corrosion and provide the best possible connectivity. These new plenum HDMI cables handle full 1080p @60Hz resolution and are compatible with 30-bit and 36-bit Deep Color to ensure the best possible image quality.

Kramer's CP-HM/HM plenum cable assemblies come in 15', 25', 35' and 50' lengths.

More information on Kramer's Plenum HDMI cable assemblies and all other Kramer and Sierra Video products can be found online at www.kramermatrix.com.

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Home » HDMI » PSDN-HDMI Port Saver Right Angle Down

PSDN-HDMI Port Saver Right Angle Down

Brand: Planet Waves
Model #: PSDN

Qty: 1 **Add to Cart** - OR - Add to Favorites
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Description **Unit Of Measure**

A ground breaking product from Planet Waves. An instant solution to depth, angle, and attachment issues when mounting any display. Planet Waves Port Savers allow the user to plug the HDMI™ cable in before the display is mounted, simplifying installation and removal of any display.

Port Savers are **available in three variations** allowing for easy hookup and disconnect and can be locked to any Planet Waves HDMI™ cable with the HDMILok from Planet Waves. Maintains High Speed, HDMI 1.4 and 3D spec for full 1080p support.

- Supports HDMI High Speed 1.4 spec, 3D, 4k, Ethernet w/Audio Return
- Advanced conductor construction maximizes 8 channels of digital audio signals and pure digital video signal
- All cables are CM & CL2 (UL) rated for in-wall installations

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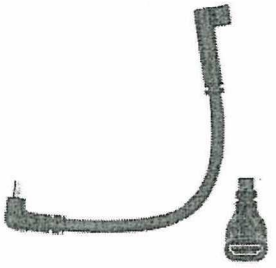
PSUP-HDMI Port Saver Right Angle Up



Brand: Planet Waves
Model #: PSUP

Qty: 1 **Add to Cart** - OR - Add to Favorites
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Description **Unit Of Measure**

A ground breaking product from Planet Waves. An instant solution to depth, angle, and attachment issues when mounting any display. Planet Waves Port Savers allow the user to plug the HDMI™ cable in before the display is mounted, simplifying installation and removal of any display.

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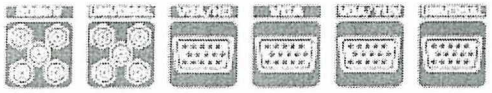
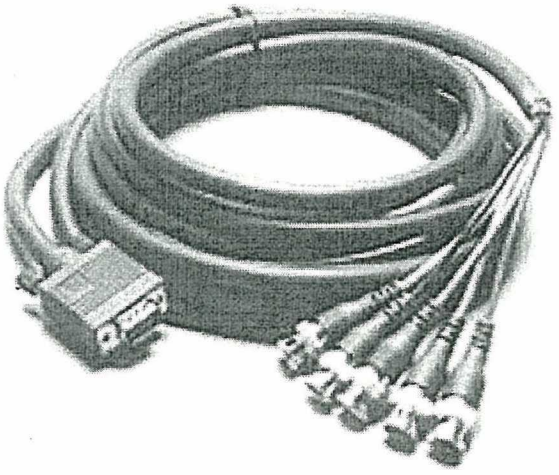
- Supports HDMI High Speed 1.4 spec, 3D, 4k, Ethernet w/Audio Return
- Advanced conductor construction maximizes 8 channels of digital audio signals and pure digital video signal
- All cables are CM & CL2 (UL) rated for in-wall installations

C-GF/5BM

15-pin HD to 5 BNC Breakout Cables





Kramer's computer graphics video breakout cables are constructed of 5 mini coax cables with a molded 15-pin HD (M or F) on one end and 5 BNC (M or F) on the other. They convert between the two most common cabling formats used for routing computer graphic video signals, 15-pin HD, and 5 BNC.

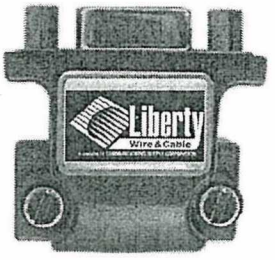
FEATURES

- Quality Construction - Constructed using Kramer BC-5X high resolution mini coax cable, terminated with molded 15-pin HD connector on one end and 75Ω BNC connectors on the other.
- Easy Installation - Models 6ft or longer have an 18in (460mm) long spread at the 5 BNC end to fit large routers/switchers such as the Sierra Pro 32 series.
- Cable Specs - See Kramer BC-5X for detailed cable specs.
- Varied Selection of Lengths - 0.5 to 100ft (0.2 to 30.5m).

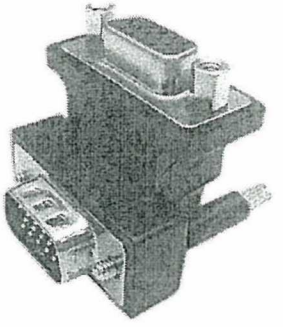
Model Female - Male	Description	Length	Meter
C-GF/5BM-1	Molded 15-pin HD (F) to 5 BNC (M) Breakout Cable	1'	0.3M
C-GF/5BM-3	Molded 15-pin HD (F) to 5 BNC (M) Breakout Cable	3'	0.9M
C-GF/5BM-6	Molded 15-pin HD (F) to 5 BNC (M) Breakout Cable	6'	1.8M
C-GF/5BM-10	Molded 15-pin HD (F) to 5 BNC (M) Breakout Cable	10'	3.0M
C-GF/5BM-15	Molded 15-pin HD (F) to 5 BNC (M) Breakout Cable	15'	4.6M
C-GF/5BM-25	Molded 15-pin HD (F) to 5 BNC (M) Breakout Cable	25'	7.6M

Liberty Wire & Cable
A DIVISION OF COMMUNICATIONS SUPPLY CORPORATION

VGA90U
Right Angle VGA Adapter



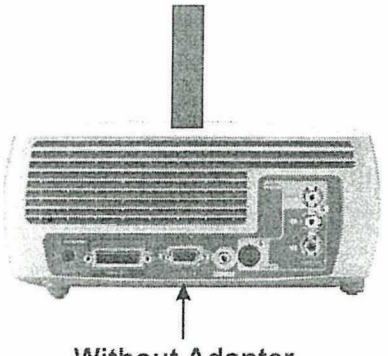
Cable Exit Up

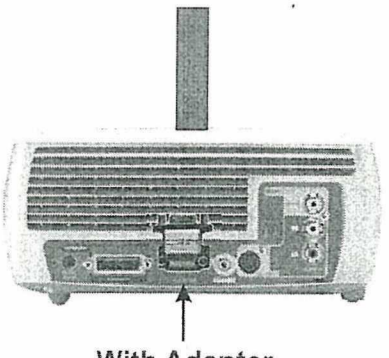


Features

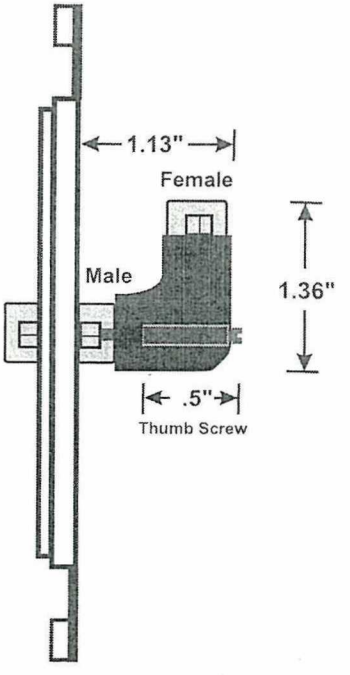
- For use with wall-plates, DLP projectors, Touch Screens or any equipment that requires low profile or a 90 degree wire termination
- Male to Female low profile style adapter
- Knurled easy grip thumb screws with slotted screwdriver ends

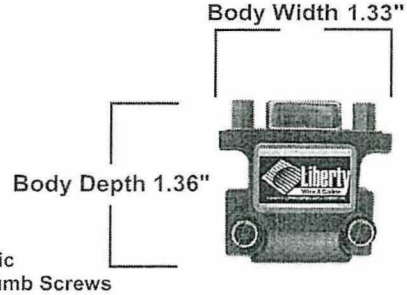
Typical Hookup Ceiling Mount Projector


Without Adapter


With Adapter

Side View Wall Plate





Specifications:

Construction: Black PVC Plastic
VGA Plug and Play passive
Gold Plated contacts
½" Stainless steel hardware with plastic easy grip knurled body and slotted thumb Screws

Liberty Wire & Cable
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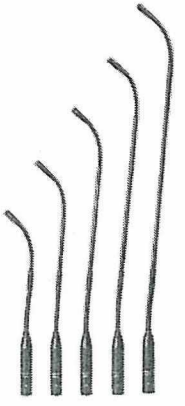


Features

- **Plugs into any standard XLRF-type connector, or direct mounts to 5/8"-27 stands using included thread-mount adapter**
- **Low-profile element provides uniform cardioid polar pattern with 120° acceptance angle**
- **Superior off-axis rejection for maximum gain before feedback**
- **UniGuard® RFI-shielding technology offers outstanding rejection of radio frequency interference (RFI)**
- **Easy-to-adjust, rugged, small-diameter, alternating gooseneck with virtually no "memory" permits quick positioning into desired shape**
- **UniSteep® filter provides a steep low-frequency attenuation to improve sound pickup without affecting voice quality**
- **Available interchangeable elements permit angle of acceptance from 90° to 360°**
- **Included low-profile isolation mount attenuates noise, shock and vibration**
- **Available in five lengths**

Description

The ES915C is a wide-range miniature condenser microphone with a cardioid polar pattern. It is designed for quality sound reinforcement, professional recording, television and other demanding sound pickup applications.

The small-diameter double gooseneck design permits highly flexible positioning while maintaining a smooth, well-contoured appearance.

The ES915C is available in the following models and lengths:

- ES915C12: 304.8 mm (12.00")
- ES915C15: 381.0 mm (15.00")
- ES915C18: 457.2 mm (18.00")
- ES915C21: 533.4 mm (21.00")
- ES915C24: 609.6 mm (24.00")

The microphone requires 11V to 52V phantom power for operation.

The microphone is equipped with UniGuard® RFI-shielding technology, which offers outstanding rejection of radio frequency interference (RFI).

The microphone's cardioid polar pattern provides a 120° angle of acceptance. Additional interchangeable elements with omnidirectional (360°), hypercardioid (100°) and MicroLine® (90°) pickup patterns are available. An XLRM-type connector insert at the base allows the microphone to be plugged directly into an XLRF-type panel jack or microphone cable.

A recessed switch permits choice of flat response or low-frequency roll-off (via integral 80 Hz high-pass UniSteep® filter) to help control undesired ambient noise.

The microphone comes equipped with a two-stage foam windscreen, a low-profile isolation mount, and a stand clamp to permit attaching the microphone to a standard 5/8"-27 or 3/8"-16 threaded mic stand or mounting flange. The microphone is enclosed in a rugged housing with a low-reflectance black finish.

Installation and Operation

The ES915C requires 11V to 52V phantom power for operation.

Output is low impedance (Lo-Z) balanced. The signal appears across Pins 2 and 3; Pin 1 is ground (shield). Output phase is "Pin 2 hot"—positive acoustic pressure produces positive voltage at Pin 2.

The microphone can be mounted on a podium or desktop with the included AT8474 low-profile isolation mount. Designed to be mounted either above or beneath the mounting surface, the AT8474 firmly secures the microphone while providing maximum attenuation of noise, shock and vibration transmitted through the mounting surface. An AT8473 stand clamp is also included to permit attaching the microphone to a standard 5/8"-27 or 3/8"-16 threaded mic stand or mounting flange.

The provided two-stage foam windscreen simply slips over the element, effectively reducing wind noise and popping.

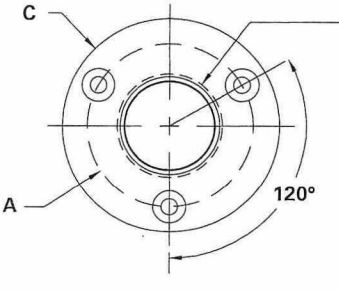
An integral 80 Hz high-pass UniSteep® filter provides easy switching from a flat frequency response to a low-end roll-off. The roll-off position reduces the microphone's sensitivity to popping in close vocal use. It also reduces the pickup of low-frequency ambient noise (such as traffic, air-handling systems, etc.), room reverberation and mechanically coupled vibrations. To engage the UniSteep® filter, use the end tip of a paperclip or other small pointed instrument to slide the switch toward the "bent" line.

Avoid leaving the microphone in the open sun or in areas where temperatures exceed 110° F (43° C) for extended periods. Extremely high humidity should also be avoided.

AT8474 Isolation Mount Installation Instructions

Mounting Dimensions

A. 1.5 mm (1/16") pilot holes 3 places on 40.0 mm (1.57") circle.
B. 25.4 mm (1.00") hole through the mounting surface.
C. Outside edge of mount, 52.4 mm (2.06") diameter.



drawing not actual size

1. The AT8474 mount can be mounted either above or below the table surface.
2. Locate the center of the mounting location and mark it. **Allow enough clearance to accommodate the AT8474 mount on the desired surface and make certain there are no physical obstructions below the desired location.**
3. Locate the three mounting screw holes and mark them.
4. Using a 1" hole saw, drill the through-hole for the microphone body. (Note: Although a 1" drill bit will work, a hole saw provides for a cleaner

hole and is less likely to damage the table surface.)

5. Using a 1.5 mm (1/16") drill bit, drill three pilot holes for the mounting screws. (If mounting below the table surface, be certain **NOT** to drill pilot holes through the table.)
6. Place the AT8474 mount over the hole and partially tighten the three screws. Then place the microphone in the AT8474 so that the microphone's power module (base) extends through the AT8474 mount into the hole. Tighten all three screws evenly. For maximum security, the screws should be tight enough to ensure that the microphone is held securely in place and cannot be removed without loosening the screws.
7. If mounting the AT8474 mount below the surface of the table, slide the rubber trim ring over the microphone (above the table surface) and seat it between the microphone and the sides of the hole for a finished appearance. (If mounting the AT8474 above the surface of the table, you may also choose to use the trim ring beneath the surface of the table, for added attenuation of noise, shock and vibration.)
8. After installing the microphone, assure maximum shock mount effectiveness by providing some slack in the connecting cable. The cable can be secured to the table with a standard wire clip or cable tie (not included).

Architect's and Engineer's Specifications

The microphone shall be a fixed-charge condenser designed for permanent installation or portable applications. It shall have a cardioid polar pattern with a uniform 120° angle of acceptance and a frequency response of 30 Hz to 20,000 Hz. It shall be capable of accepting optional interchangeable elements for additional polar patterns. The microphone shall operate from an external 11V to 52V DC phantom power source. It shall be capable of handling sound input levels up to 138 dB with a dynamic range of 109 dB. Nominal open-circuit output voltage shall be 10.0 mV at 1 V, 1 Pascal. Output shall be low impedance balanced (250 ohms). It shall offer outstanding rejection of radio frequency interference (RFI).

The microphone shall incorporate a self-contained power module with an XLRM-type connector at the base for direct connection to a mating XLRF-type panel jack or cable connector. It shall include a recessed switch to permit choice of flat response or 80 Hz low-frequency roll-off.

A universal isolation-type shock mount suitable for above or below surface installation shall be supplied for mounting the microphone in a solid surface. It shall be possible to firmly secure the microphone in the mount. The mount shall include appropriate hardware for installation. For alternative mounting and portable applications, the microphone shall be supplied with a stand clamp to permit attaching the microphone directly to a standard 5/8"-27 or 3/8"-16 thread. A two-stage foam windscreen shall also be included.

The microphone shall be a small-diameter double gooseneck design, with an overall length of [304.8 mm (12.00"): ES915C12]; [381.0 mm (15.00"): ES915C15]; [457.2 mm (18.00"): ES915C18]; [533.4 mm (21.00"): ES915C21] [609.6 mm (24.00"): ES915C24] and a head diameter of 8.4 mm (0.33"). Weight shall be [125 grams (4.4 oz): ES915C12]; [130 grams (4.6 oz): ES915C15]; [135 grams (4.8 oz): ES915C18]; [140 grams (4.9 oz): ES915C21]; [145 grams (5.1 oz): ES915C24]. Finish shall be low-reflectance black.

The Audio-Technica [ES915C12]; [ES915C15]; [ES915C18]; [ES915C21]; [ES915C24] is specified.

Specifications

Element	Fixed-charge back plate, permanently polarized condenser
Polar pattern	Cardioid
Frequency response	30-20,000 Hz
Low frequency roll-off	80 Hz, 18 dB/octave
Open circuit sensitivity	−40 dB (10.0 mV) re 1V at 1 Pa
Impedance	250 ohms
Maximum input sound level	138 dB SPL, 1 kHz at 1% T.H.D.
Dynamic range (typical)	109 dB, 1 kHz at Max SPL
Signal-to-noise ratio[1]	65 dB, 1 kHz at 1 Pa
Phantom power requirements	11-52V DC, 4 mA typical
Switch	Flat, roll-off
Weight	ES915C12: 125 g (4.4 oz) ES915C15: 130 g (4.6 oz) ES915C18: 135 g (4.8 oz) ES915C21: 140 g (4.9 oz) ES915C24: 145 g (5.1 oz)
Dimensions	ES915C12: 304.8 mm (12.00") long ES915C15: 381.0 mm (15.00") long ES915C18: 457.2 mm (18.00") long ES915C21: 533.4 mm (21.00") long ES915C24: 609.6 mm (24.00") long, All: 8.4 mm (0.33") head diameter, 18.9 mm (0.74") base diameter
Output connector	Integral 3-pin XLRM-type
Optional interchangeable elements	ESE-O omnidirectional (360°) ESE-H hypercardioid (100°) ESE-ML MicroLine® (90°)
Audio-Technica case style	M26
Accessories furnished	AT8474 universal isolation mount; AT8473 quick-mount stand adapter; 5/8"-27 to 3/8"-16 threaded adapter; AT8109 two-stage foam windscreen

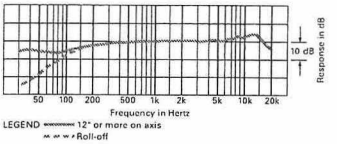
In the interest of standards development, A.T.U.S. offers full details on its test methods to other industry professionals on request.

1 Pascal = 10 dynes/cm^2 = 10 microbars = 94 dB SPL

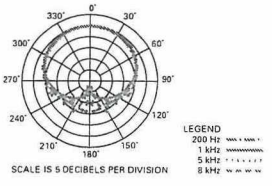
[1] Typical, A-weighted, using Audio Precision System One.

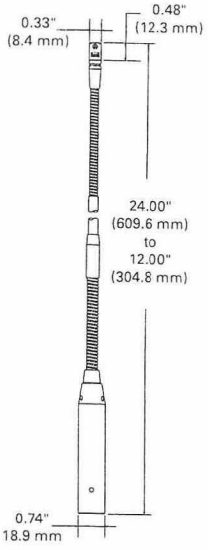
Specifications are subject to change without notice.

frequency response: 30–20,000 Hz



polar pattern





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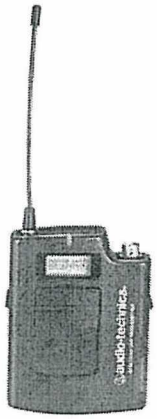
Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, Ohio 44224
Audio-Technica Limited, Old Lane, Leeds LS11 8AG England

ATW-T310b

3000 series wireless systems

Frequency-agile UHF UniPak® Body-pack Transmitter



Features

- **Rugged housing with a reversible clothing clip**
- **Recessed locking 4-pin microphone input connector**
- **Dual-color power/mute status indictor**
- **Backlit LCD status display**
- **Dual RF power output selection to optimize battery life**
- **Battery fuel gauge on LCD display**
- **996-1001 selectable frequencies in the 482.000–507.000, 541.500–566.375 or 655.500–680.375 MHz bands**
- **25 kHz frequency spacing makes it easier to find a clear, open frequency in crowded RF environments**
- **Microphone with DC bias voltage or line input**
- **Function menu displayed in backlit LCD window, controlled by internal touch switches**
- **Power/mute lock provision as well as safety door to cover controls**
- **18 dB audio input level adjustment**
- **Digital Tone Lock™ to identify the wireless transmitter to the receiver**
- **Operates on two AA batteries**
- **Captive locking battery compartment door**

Description

The ATW-T310b wireless UniPak® body-pack transmitter has both low and high impedance inputs plus a 5V DC bias connection allowing it to be used with condenser and dynamic microphones, as well as Hi-Z instrument pickups. The locking 4-pin HRS-type audio input connector is recessed to protect the connection from damage. Operating on two standard AA batteries, the transmitter features high and low-level RF output settings. The low-level setting allows two additional hours of battery life while retaining a strong RF signal link. Soft-touch controls provide convenient access to a variety of functions including: RF power, audio input level, power/mute locks and frequency selection. Each transmitter's backlit LCD display presents a great deal of setup and operating information clearly and conveniently including battery fuel remaining, mute, and operating frequency. A flashing "Lo-Batt" alert visually signals the battery life is almost depleted. A dual-color status LED illuminates green when power is on, and red when the transmitter is muted. Programmable power/mute locks limit the functioning of the transmitter's power/mute button as desired for particular users and applications. To match the audio input level to the transmitter, a four-position audio input gain setting selected through the function menu is provided.

The body-pack transmitter features a safety cover to protect the soft-touch controls from being accidently activated and a recessed input connector to increase the life of the microphone cable. Constructed of high impact materials, the body-pack transmitter features a field replaceable whip antenna and captive locking battery cover door.

Architect's and Engineer's Specifications

The frequency-agile FM wireless body-pack transmitter shall have microphone and line level inputs. It shall provide DC voltage to power microphones requiring DC bias. The body-pack transmitter shall have a reversible clothing clip allowing for up or down cable entry. The transmitter shall have a recessed 4-pin locking input connector and a viewable fuel gauge to indicate the remaining battery life. 996-1001 frequencies shall be available and be selected with the soft-touch controls under the safety panel. A dual-color LED indicator shall illuminate green when the transmitter is turned on and shall illuminate red when the transmitter is muted. A backlit LCD display shall be provided to show transmitter setup parameters or frequency. There shall be an adjustment to allow input gain changes with a range of 18 dB. The transmitter shall include Tone Lock™ to identify the wireless transmitter to the wireless receiver. This transmitter shall utilize two RF output power levels and shall operate on two AA batteries. All adjustments shall be via soft-touch controls and shall remain as set even if the transmitter loses power or the batteries are removed. The transmitter shall have a removable and field replaceable antenna and captive locking battery cover door.

The FM wireless body-pack transmitter shall be an Audio-Technica ATW-T310b or equivalent.

Specifications

	ATW-T310b UniPak® transmitter
RF power output	High: 30 mW; Low: 10 mW (switchable)
Spurious emissions	Following federal and national regulations
Input connection	Four-pin locking connector
	Pin 1: GND, Pin 2: INST INPUT, Pin 3: MIC INPUT, Pin 4: DC BIAS +5V
Batteries	Two 1.5V AA, not included
Battery life	High: 6 hours (alkaline), Low: 8 hours (alkaline), (depending on battery type and use pattern)
Dimensions	66.0 mm (2.60") W x 24.0 mm (0.94") D x 87.0 mm (3.43") H
Net weight	81 g (2.9 oz), without batteries

In the interest of standards development, A.T.U.S. offers full details on its test methods to other industry professionals on request.

Specifications are subject to change without notice.

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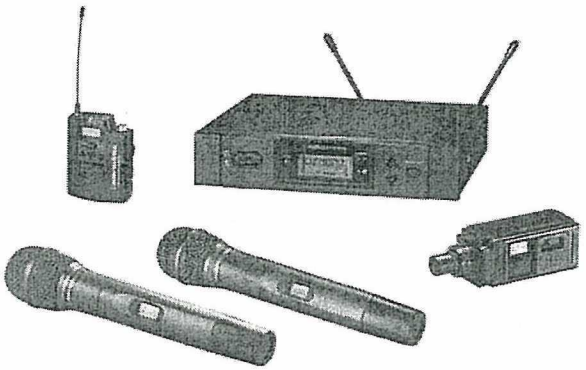
3000 Series

audio-technica

Frequency-agile True Diversity UHF Wireless Microphone Systems



Features

- **Automatic frequency scanning**
- **High sensitivity dual IF receiving design for dropout free performance**
- **High-efficiency compander for flawless audio**
- **Three compatible frequency bands with 996 - 1001 selectable UHF frequencies per band**
- **25 kHz frequency spacing makes it easier to find a clear, open frequency in crowded RF environments**
- **Nine pre-coordinated frequency scan groups simplify selection of usable frequencies in a multi-channel wireless system**
- **Receiver internal function menu with soft-touch controls**
- **Digital Tone Lock™ squelch**
- **Adjustable receiver squelch**
- **Transmitter battery life gauge on the front panel**
- **Operator alert indicators**
- **True Diversity receiver with silent, automatic switching**
- **AC or 12–18V DC operation**
- **Rear panel or front panel antenna mount options**
- **Antenna power available for powered antennas & other in-line RF devices**
- **Balanced and unbalanced outputs**
- **Output level control on the rear panel**
- **Ground lift switch on balanced output**
- **Receiver mounts in a single rack space (1 or 2 units)**
- **All transmitters offer rugged construction, programmable features, dual RF power output, backlit LCDs, and dual-color power/mute LED**

Description

The 3000 Series frequency-agile True Diversity UHF wireless systems set a new standard for audio and RF performance. Allowing large operating areas and very superb noise specifications brings its performance to a standard that provides the audio quality and reliability necessary for the high quality sound systems of today. High sensitivity dual IF design using True Diversity operation with silent automatic switching provides dropout-free performance. All 3000 Series components feature soft-touch controls for quick easy access to a large range of functions and a backlit LCD information display in each unit provides convenient visual indication of unit setting and operation.

The ATW-R3100b receiver features automatic frequency scanning that eliminates the need for searching for clear channels by automatically selecting the most appropriate frequency for the area in which the wireless is operating. 25 kHz frequency spacing enables the system to easily find an open frequency in crowded RF environments, while nine pre-coordinated frequency scan groups simplify selection of usable frequencies in a multi-channel wireless system. The flexibility in programming both the receiver and transmitters allows the customizing ability for this wireless system to meet virtually any application. Advanced digital Tone Lock™ squelch provides enhanced rejection of interference. In addition, the Tone Lock signal from the transmitter also conveys information on the transmitter's battery condition and mute status back to the receiver for display. The receiver's front panel display provides continuous indication of RF signal strength along with the audio modulation level of the received signal.

Designed to operate from AC or 12–18V DC, the receiver incorporates rear-panel connections for balanced XLR and unbalanced ¼" outputs with adjustable gain along with detachable BNC ¼" wave antennas. Switchable 12V DC antenna power is available on the BNC-type connectors for powered antenna accessories. The receiver is half-width for a standard 1U 19" rack-mount and includes rack-mount adapters.

All transmitters operate using two standard AA batteries and feature high- and low-level RF output settings. The low-level setting allows two additional hours of battery life while retaining a strong RF signal link. Each transmitter's backlit LCD display presents a great deal of setup and operating information clearly and conveniently including battery fuel remaining, mute and operating frequency. A flashing "Lo-Batt" alert visually signals the battery life is almost depleted. A dual-color power/mute indicator LED provides visual indication of transmitter status.

Programmable power/mute locks limit the functioning of the transmitter's power/mute button as desired for particular users and applications. To match the audio input level to the transmitter, audio input gain settings may be selected through the function menu. Each handheld transmitter includes a heavy-duty Quiet-Flex™ stand clamp.

The ATW-T310b UniPak® body-pack transmitter features a safety cover to protect the soft-touch controls from being accidently activated and a recessed input connector to increase the life of the microphone cable. Inputs are available on the transmitter for low impedance microphone, and high impedance musical instrument or line input. The transmitter supplies 5V DC bias to power condenser microphones. The locking 4-pin HRS-type audio input connector is recessed to protect the connection from damage. A dual-color status LED illuminates green when power is on, and red when the transmitter is muted. Constructed of high-impact materials, the body-pack transmitter features a field replaceable whip antenna, a backlit LCD display, and a secure, locking battery compartment door.

The ATW-T341b dynamic handheld transmitter features the Artist Elite® AE4100 cardioid capsule created for live sound venues. The element includes internal shock mounts for low handling noise. An integral two-stage pop filter within the rugged steel headcase protects against "p" pops and other breath plosives. Transmitter setup functions are menu-driven via soft-touch controls. To prevent accidental changes, the controls are covered by the transmitter's handle case when not being used. A dual-color status LED illuminates green when power is on, and red when the transmitter is muted. The transmitter housing is made of metal with an integral antenna and a backlit LCD display.

The ATW-T371b condenser handheld transmitter features the Artist Series ATM710 cardioid condenser capsule created for vocal applications. The element includes internal shock mounts for low handling noise. An integral two-stage pop filter within the rugged steel headcase protects against "p" pops and other breath plosives. All transmitter setup functions are menu-driven via soft-touch controls. To prevent accidental changes, the controls are covered by the transmitter's handle case when not being used. A dual-color status LED illuminates green when power is on, and red when the transmitter is muted. The transmitter housing is made of metal with an integral antenna and a backlit LCD display.

The ATW-T1802b plug-on transmitter is designed to convert a dynamic or condenser microphone to wireless operation. The transmitter features a 3-pin XLF-type connector with locking ring for secure attachment. Integral

AT8666

accessories

Microphone Desk Stand (for XLR-type Microphones)

Specifications

Input connector	3-pin XLRF-type
Output connector	3-pin XLRM-type
Dimensions	133.0 mm (5.23") maximum length, 91.0 mm (3.58") maximum width, 38.0 mm (1.49") maximum height

In the interest of standards development, A.T.U.S. offers full details on its test methods to other industry professionals on request. Specifications are subject to change without notice.

Features

- **Heavy desk stand base for gooseneck microphones with 3-pin XLRM-type output**
- **3-pin XLR-type connector for microphone input and output**
- **Heavy die-cast construction and no-slip bottom pads minimize coupling of surface vibration to the unit**
- **Reversible XLR-type connector on the top of the desk stand**
- **Low-profile design with low-reflectance black finish for minimum visibility**

Description

The AT8666 desk stand is designed to enable the user to reverse the direction of the XLR chassis connector and push tab on the top of the desk stand. (This is a useful feature if you are using a microphone whose switch would be oriented away from the user without reversing the direction of the XLR-type connector.)

To reverse the direction of the XLR-type connector on top of the AT8666 desk stand:

1. Using a Phillips screwdriver, remove the screws (2) at the corners of the XLR chassis connector on the top of the desk stand.
2. Grasp the "push" lever, lift it slightly, and turn the connector 180°, so the push lever is near the front of the desk stand.
3. Replace and tighten the corner screws on the XLR chassis connector.

Note: Placing any object on a surface (such as a conference table) before its finish is fully cured may result in damage to the finish.

Architect's and Engineer's Specifications

The heavy desk stand base shall be designed to work with any dynamic gooseneck or phantom-powered condenser gooseneck microphone with an integral 3-pin XLRM-type output connector. The unit shall offer a 3-pin XLRF-type input connector and a 3-pin XLRM-type connector for audio output. The unit shall offer a low-reflectance black finish. The unit's dimensions shall be: 133.0 mm (5.23") maximum length, 91.0 mm (3.58") maximum width, 38.0 mm (1.49") maximum height. Weight of the desk stand, less microphone, shall be 728 g (27.6 oz).

The Audio-Technica AT8666 is specified.

audio-technica.

Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, Ohio 44224
Audio-Technica Limited, Old Lane, Leeds LS11 8AG England

ASPEN

TECHNOLOGY OVERVIEW

Architecture and Signal Flow

- Optimized Architecture™
- Advanced Echo Cancellation
- Third Octave Noise Reduction
- Full crosspoint matrix with 48 outputs and unlimited input expansion
- TCP/IP Ethernet addressable
- Simultaneous multi-point 3rd party and native control
- Seamless auto-mixing with PGA™ at the matrix crosspoints
- Ultra-low latency
- Automatic Master/Slave detection
- Single CAT6 interconnection carries data, audio and control signals between units

ASPEN

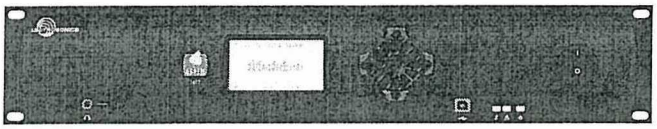
LECTROSONICS®
Rio Rancho, NM, USA
www.lectrosonics.com

Hardware Architecture

The variety of models in this series are created by combining "building block" circuit board assemblies:

- 8 input, 12 output mixer board
- 16 channel input only board
- 8 channel input only board
- Conference interface board

A single board can be enclosed by itself in a stand-alone 1RU chassis, or combined with another board in a 2RU chassis to create a variety of models. The 2RU models include an LCD with comprehensive access to all system settings and activity.



Mixer and input only units include the following models:

- SPN812 — 8 input, 12 output mixer
- SPN1612 — 16 input, 12 output mixer
- SPN1624 — 16 input, 24 output mixer
- SPN2412 — 24 input, 12 output mixer
- SPN16i — 16 channel input only
- SPN32i — 32 channel input only
- SPNConference — Conference interface
- SPNTrio — 8 input, 12 output mixer with Conference interface

Input only units deliver outputs to the digital bus, so they are always used with a mixer or conference board to provide physical audio outputs for the sound system.

The SPNConference model is used with a mixer to provide mic/line audio inputs and outputs.

When multiple units are stacked, the Master unit will automatically be detected and configured and the other units will be configured as Slaves.

All data and audio from the Slave units in the system is gathered in the Master, so a single connection between a computer and the Master allows software access to all units in the stack.

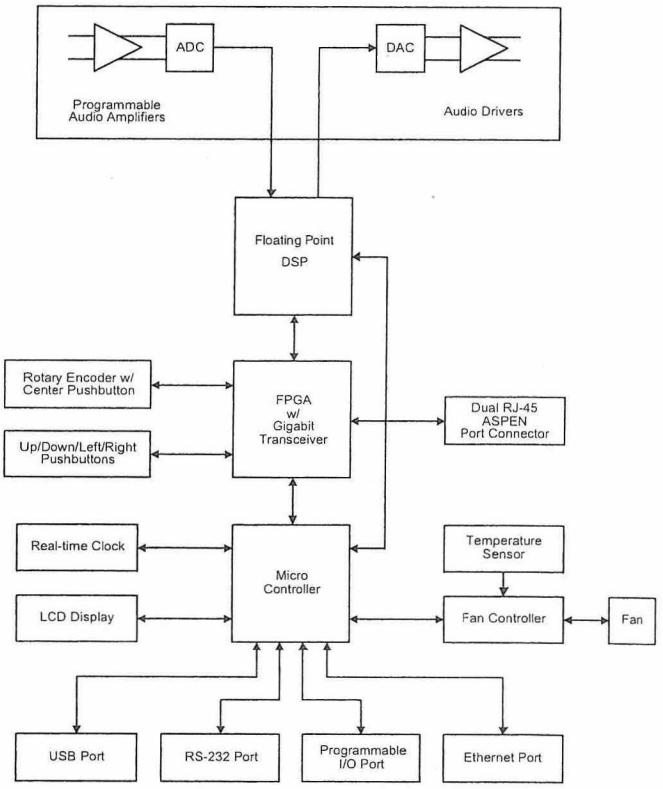
The slight throughput delay of inputs from slaves and the master in the ASPEN bus is automatically synchronized to maintain absolute signal phase at all outputs.

At the core of each ASPEN board is a powerful communications and control structure.

A latest generation SHARC® processor* performs the millions of calculations required to implement signal processing, auto mixing, echo cancellation and noise reduction.

An FPGA with a gigabit transceiver interacts with the front panel controls and coordinates the data flow in and out of the ASPEN bus.

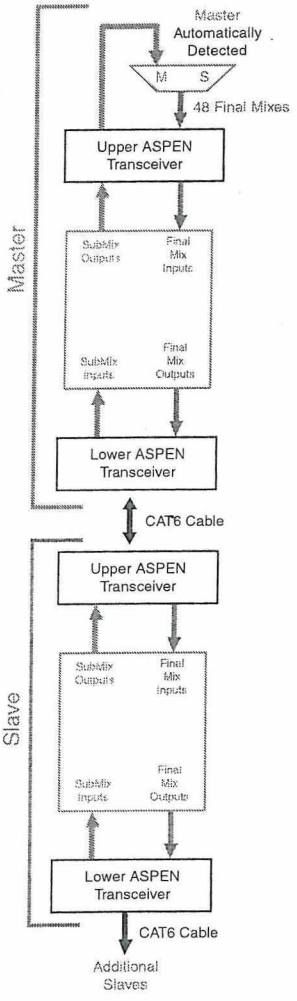
The microcontroller interfaces with the I/O ports, the front panel LCD, the real time clock and oversees the temperature regulation.



*SHARC is a registered trademark of Analog Devices, Inc.

Signal Propagation in the ASPEN Bus

The ASPEN bus provides a 1 Gbps throughput carrying audio and data with a single CAT6 connection between the units in a system.



When multiple units are stacked, Master and Slave units are automatically detected and configured for the correct signal flow.

Audio and data signals propagate through *submixes*. The lowermost slave in the system generates a submix of signals from devices connected to it and passes the submix to the next slave above it.

Each intermediate slave unit adds to the submix from the unit below it, updates the submix and passes it on to the unit above it. The process continues through all slave units in the system with no limitation on the total number of slave units that can be used.

The Master unit gathers the submix from the slave below it, updates it with its own signals and generates the final mix. The final mix is then back propagated to all slave units below it to enable system wide auto mixing and control.

The audio output of all units in the system is taken from the 48 channel final mix.

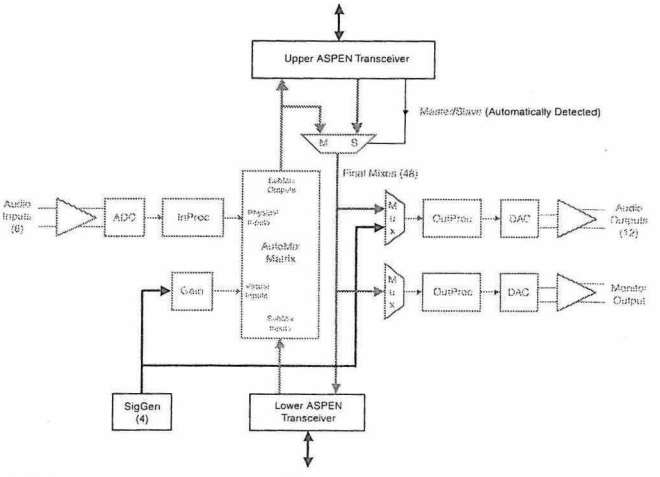
This unique architecture allows a single computer or network connection to the Master to have access to all units in the stack.

Scalability in the ASPEN Matrix

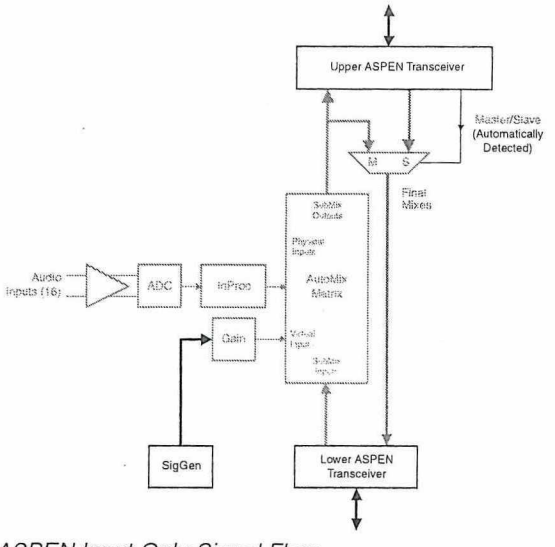
Each 8x12 mixer board provides 8 physical inputs, 12 physical outputs and access to the audio and data from the 48 final mixes in the ASPEN bus. Four *virtual inputs* are provided in any system configuration to feed signals from a built-in signal generator for setup, diagnostics and sound masking.

As multiple units are stacked, the size of the matrix grows accordingly. For example, a 16 input 2RU mixer model actually has 20 inputs when the virtual inputs are included. The matrix then consists of 960 fully functional crosspoints (20x48). As more inputs are added, the size of the matrix continues to increase without limitation.

Even with hundreds of inputs, every input can feed any one or all of the 48 outputs, with full signal processing available on every input and output.



ASPEN 8X12 Mixer Signal Flow



ASPEN Input Only Signal Flow

Optimized Architecture™

The ideal structure for signal flow and functional blocks through a system wide matrix is a direct path from inputs to crosspoints to outputs, with no extra paths or taps necessary to add signal processing. It must offer a full capability of routing every audio input to any one or all audio outputs without limitation. Every audio input should have its own dedicated signal processing blocks present at all times. Every audio output on any unit in the system should have full access to any crosspoint in the matrix, and have its own dedicated signal processing present at all times. This ideal structure is fully realized in the Optimized Architecture™ of ASPEN.

All available signal processing is enabled on every input and output with no resource meter or "gas gauge." Signal processing blocks are configured in the optimal sequence needed to ensure the highest signal to noise ratio and lowest distortion. This architecture eliminates the need to manually construct a drawing and connect one processing block to the next one in the chain. Simply enable a crosspoint and the connections are made.

Setup is straightforward and simple in spite of the immense amount of processing available. Settings are applied in real time as the system is operating without the need to compile and download files to the hardware. Once the setup is complete, it is saved to a preset in the hardware and to a disk file for backup.

Input Processing

In addition to the delay, filters and compressor, there are two special purpose processing blocks:

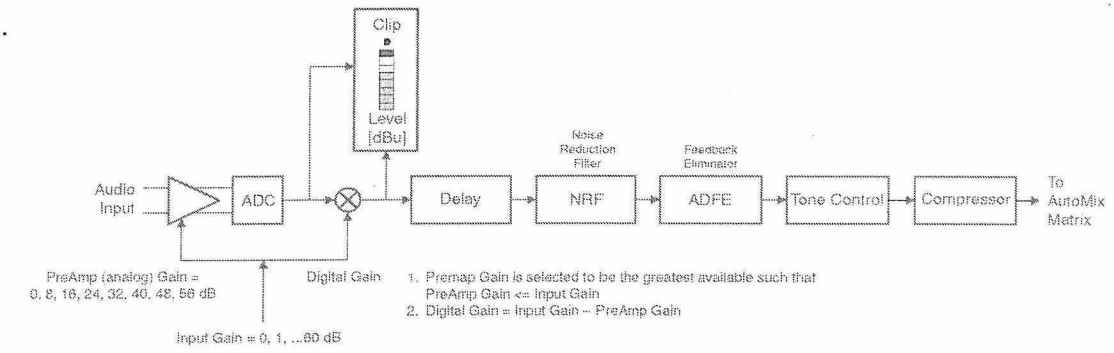
- NRF (noise reduction filter)
- ADFE (auto digital feedback eliminator)

NRF employs a proprietary noise reduction algorithm on every input channel using a 1/3 octave analysis and downward expansion. The amount of noise reduction applied to the signal at each input is adjustable from 6 dB to 35 dB as needed for the signal conditions and to satisfy individual preferences. The process is very effective, with almost no audible artifacts at 18 dB or more. Higher values are available for extremely poor conditions where noise is extremely high and intelligibility is preferred at the expense of subtle artifacts in the audio.

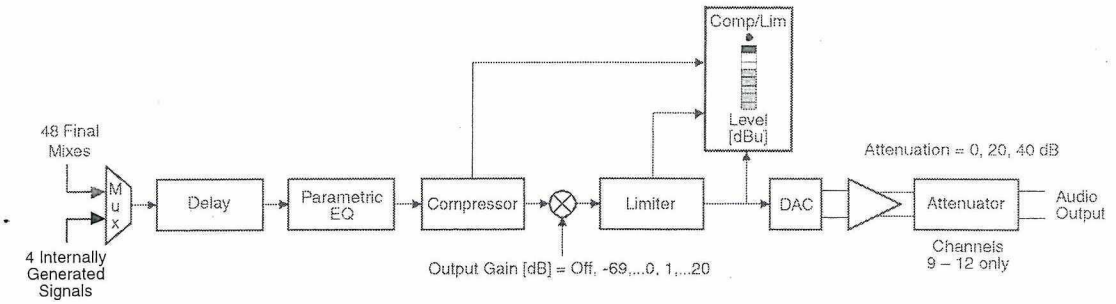
ADFE (auto digital feedback eliminator) is a notch filtering process with static or dynamic behavior as defined in the setup. Fixed notch filters can be configured as needed for appropriate applications, and dynamic notch filters can be defined to deal with changing conditions.

Output Processing

Each output channel can take its signal from the matrix or from an internal signal generator. The generator can deliver a variety of signal types for setup, diagnostics and sound masking. The processing blocks on every output are arranged in the optimal sequence used to feed power amplifiers and recorders.



Input Signal Processing Blocks



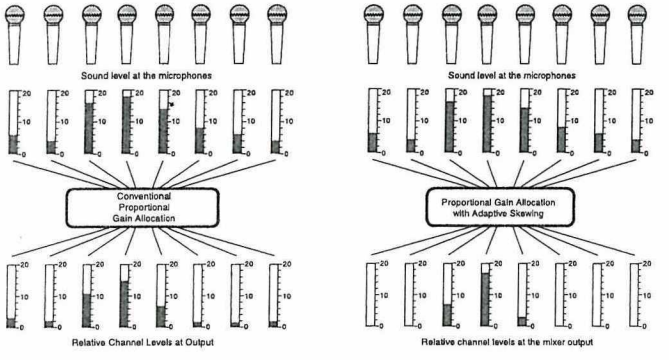
Output Signal Processing Blocks

Seamless Automatic Mixing

Lectrosonics pioneered adaptive proportional gain automatic mixing algorithms. The proprietary algorithm* employed in ASPEN is a seamless process that eliminates abrupt switching (gating), controls acoustic feedback and suppresses background noise.

All active input channels are summed, and then the level of each channel is compared to the total sum. Channels are then attenuated so that the resulting sum is equal to one channel at full level (NOM=1) with the loudest channel still the loudest in the mix. The algorithm operates in the same manner that a human operator would in mixing a conference manually on a console. Unused mics are attenuated and those in use are emphasized.

This auto mixing algorithm, working in conjunction with the AEC in the *ASPEN Conference* processor, provides impressive echo cancellation and noise reduction.



The algorithm includes a unique *automatic skewing* process that applies a subtle priority to the channel that has been the loudest for the longest period of time. The skewing further reduces inactive channels and prevents comb filtering by never allowing two channels to be mixed at the same level.

The auto mixing takes place at the matrix crosspoints, which allows each input signal to exhibit a different behavior at every output in the system. For example, input channel 4 could be configured for *Auto* behavior (normal auto mixing) at output 6 for local sound reinforcement, *Direct* behavior (no attenuation) at output 10 for recording, and so on. There are five different behaviors available:

- Direct - no attenuation
- Auto - normal gain proportional auto mixing
- Phantom - special mode for mix-minus systems
- Override - dominant in auto mixing activity
- Background - subordinate in auto mixing activity

The *Phantom* mode allows the channel to participate in the auto mixing algorithm at any crosspoint, but not deliver the actual audio signal to the output. This is used to combine zones for room-wide auto mixing activity in a mix-minus reinforcement system. The auto mixing action is common to all zones, but the audio signal routing to the loudspeakers remains as is it configured in the setup.

**US Patents 5,414,776 and 5,402,500*

Low Latency

The throughput latency of a single master board is only 1.33 ms, regardless of how much processing is being used. Each additional PCB adds only 0.125 ms.

200 inputs can be handled with only 4.33 ms latency (1.33 ms for the master PCB plus 24 additional PCBs at 0.125 ms each.

Other examples include:

- 264 inputs with only 5.33 ms total latency
- 328 inputs with only 6.33 ms total latency
- 456 inputs with only 8.33 ms total latency
- Unlimited maximum with 1 ms added for each additional 64 inputs (8 boards)

Latency is not affected by the amount of processing being used at any stage in the signal chain.

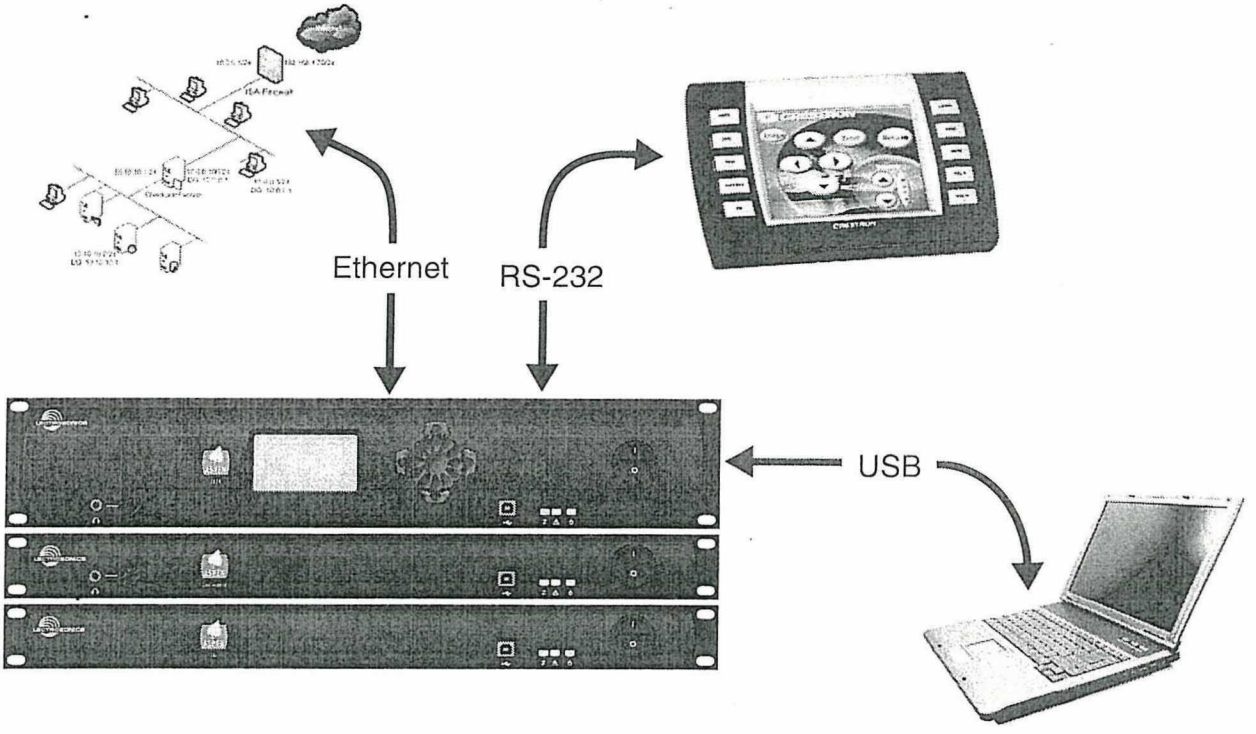
Every input is automatically synchronized to eliminate phase differences between the inputs included in the final mixes.

Single Point of Control

All ASPEN models support simultaneous use of Ethernet, RS232 and USB ports for setup, monitoring, diagnostics and control.

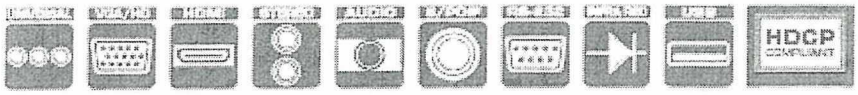
Installers and operators can use the software GUI to monitor the state of the processor via the USB port to verify that commands sent from the 3rd party controller (over RS232) are working correctly.

Remote monitoring and setup can be conducted via a network connection and from remote sites over the internet.

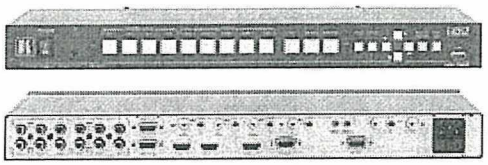


VP-728

9-Input ProScale™ Presentation Scaler/Switcher



Compatible with HDTV component video signals when used with a breakout cable such as the Kramer C-GM/GRVF.



The VP-728 is a 9-input scaler/switcher for analog and digital video, unbalanced stereo, and S/PDIF audio signals. It scales any video signal composite, s-Video (Y/C), component video (YUV), HDMI, computer graphics video and JPEG files) up or down to a selectable graphics or HDTV output resolution via HDMI or 15-pin HD outputs. It provides glitch-free switching between sources through FTB™ (fade-thru-black) switching technology.

VP-728

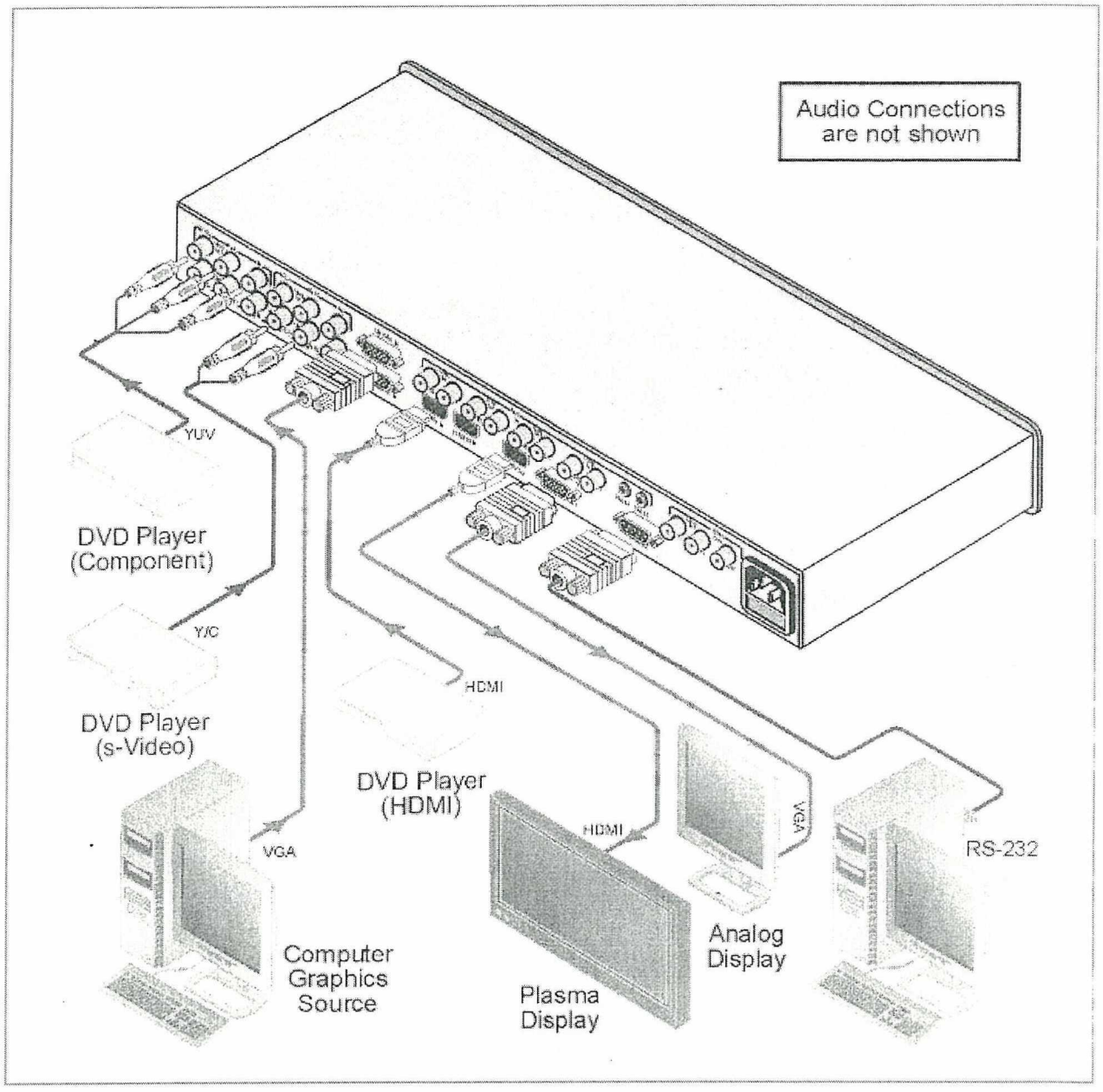
FEATURES

- HQV® Video Processing - HQV (Hollywood Quality Video) processing represents the state-of-the-art in video processing technology, with the highest quality de-interlacing (with 3:2 & 2:2 pull down), noise reduction, and scaling performance for both standard-definition and high-definition signals.
- Fade-Thru-Black (FTB™) Switching - The video fades to black and then the new input fades from black for smooth, glitch-free switching. The output signal provides constant sync so the display never glitches.
- K-IIT XL™ Picture-in-Picture Image Insertion Technology - Ultra stable picture-in-picture, picture-and-picture, and split screen capability. Any video source can be inserted into or positioned next to a computer graphics video source or vice versa with window positioning and sizing controls.
- Projector Anywhere™ Technology - Horizontal & vertical geometry controls to compensate for off-axis projector placement.
- HDTV Compatible.
- HDCP Compliant - The HDCP (High Definition Content Protection) license agreement allows copy-protected data on the HDMI input to pass only to the HDMI output.
- Video Inputs - 4 universal video (composite, s-Video, component) each on 3 RCAs, 2 computer graphics video (15-pin HD), 2 HDMI and 1 USB (for JPEG data).
- Multi-Standard - Auto, NTSC (3.58/4.43), PAL (M/N/60) & SECAM.
- HDTV Compatible Component Input.
- Scaled Video Outputs - HDMI & 15-pin HD.
- HDTV Output Resolutions - 720p, 1080i, and 1080p.
- Computer Graphics Output Resolutions - 32 plus a user definable custom output resolution with selectable refresh rates.
- Multiple Aspect Ratio Selections - 4x3 or 16x9, anamorphic, letter box, and user definable settings.
- Companion AFV (Audio-Follow-Video) for Every Analog Video Input - Supports embedded audio on the 2 HDMI inputs and outputs.
- Audio Inputs - 4 stereo audio or S/PDIF on 2 RCA connectors for each of the 4 universal video inputs; 2 unbalanced stereo audio on 3.5mm mini jacks for each of the 2 computer graphics video inputs. Each has level adjustment.
- Audio Outputs - S/PDIF and stereo audio (RCAs). Transcodes stereo or S/PDIF audio to both stereo and S/PDIF audio. Embeds & de-embeds HDMI audio. Master volume control.
- Audio Delay - Adjustable from 0 to 340msec.
- Built-in Time Base Corrector - Stabilizes unstable video sources.
- Built-in ProcAmp - Color, hue, sharpness, contrast, and brightness are set individually for each input.
- Text Overlay.
- Front Panel Lockout.
- Front Panel Freeze Frame.
- Video Blanking - Blue or black screen selectable.
- Zoom - 100% to 400%.
- Flexible Control Options - Front panel, IR remote (with on-screen menus) & RS-232.
- Worldwide Power Supply - 100-240V AC.
- Standard 19" Rack Mount Size - 1U. Rack "ears" included.

VP-728

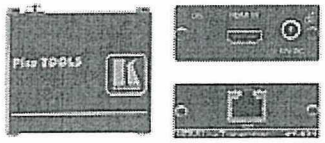
TECHNICAL SPECIFICATIONS

INPUTS:	4 x universal Y/CV, Pb/C, Pr (composite, s-Video and component) 1 Vpp/75Ω on RCA connectors; 2 x UXGA on a 15-pin HD connector (VGA through UXGA); 2 x HDMI connectors; 1 x USB connector; For each universal input there is a corresponding (unbalanced) audio stereo input (1V nom/25kΩ minimum) and digital stereo S/PDIF input (32kHz to 96kHz sample frequency/75Ω) on RCA connectors; For each UXGA input there is a corresponding (unbalanced) audio stereo input on a 3.5mm mini jack connector.
OUTPUTS:	1 HDMI connector; 1 UXGA format on a 15-pin HD connector; 1 unbalanced audio stereo output (1V nom/50Ω) on RCA connectors; 1 digital stereo S/PDIF output (32kHz to 96kHz sample frequency/75Ω) on an RCA connector.
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI and HDCP.
OUTPUT RESOLUTION:	Native HDMI, 640x480x60Hz, 640x480x75Hz, 800x600x50Hz, 800x600x60Hz, 800x600x75Hz, 1024x768x50Hz, 1024x768x60Hz, 1024x768x75Hz, 1280x768x50Hz, 1280x768x60Hz, 1280x720x60Hz, 1280x800x60Hz, 1280x1024x50Hz, 1280x1024x60Hz, 1280x1024x75Hz, 1366x768x50Hz, 1366x768x60Hz, 1400x1050x50Hz, 1400x1050x60Hz, 1600x1200x50Hz, 1600x1200x60Hz, 1680x1050x60Hz, 1920x1080x60Hz, 1920x1200x60Hz, 480px60Hz, 576px60Hz, 720px50Hz, 720px60Hz, 1080ix50Hz, 1080ix60Hz, 1080px50Hz, 1080px60Hz, 720x480x59.94Hz, 1280x720x59.94Hz, 1920x1080ix59.94Hz, 1920x1080x23.98Hz, 1920x1080x29.97Hz, 1920x1080x59.94Hz or custom.
CONTROL:	Front panel buttons/OSD, IR remote control, RS-232 on a 9-pin D-sub connector.
ADDITIONAL CONTROLS:	Picture-In-Picture: Video-in-Graphics (or vice versa), Picture-and-Picture or Split Screen (two images side-by-side), freeze, zoom, different selectable vertical refresh rates, video and audio ProcAmp control, output image scaling and aspect ratio change, EDID capture, text overlay, slide show.
POWER SOURCE:	100-240V AC, 50/60Hz, 30VA automatic power supply.
DIMENSIONS:	19" x 9.3" x 1U W, D, H, rack mountable.
WEIGHT:	3kg (6.6lbs) approx.
ACCESSORIES:	Null-modem adapter, rack "ears", IR remote control, 2 sets of C-SF/2RVM-0.5 cables, power cord, control application program via RS-232 (PC) and via Ethernet (i-Phone® and PC).


Audio Connections are not shown
YUV
DVD Player (Component)
Y/C
DVD Player (s-Video)
HDMI
DVD Player (HDMI)
VGA
HDMI
VGA
RS-232
Computer Graphics Source
Plasma Display
Analog Display

PT-571

HDMI over Twisted Pair Transmitter



The PT-571 is a DGKat™ twisted pair transmitter for HDMI signals. The PT-571 converts an HDMI signal to a single twisted pair signal and the PT-572+ converts the twisted pair signal back to an HDMI signal.

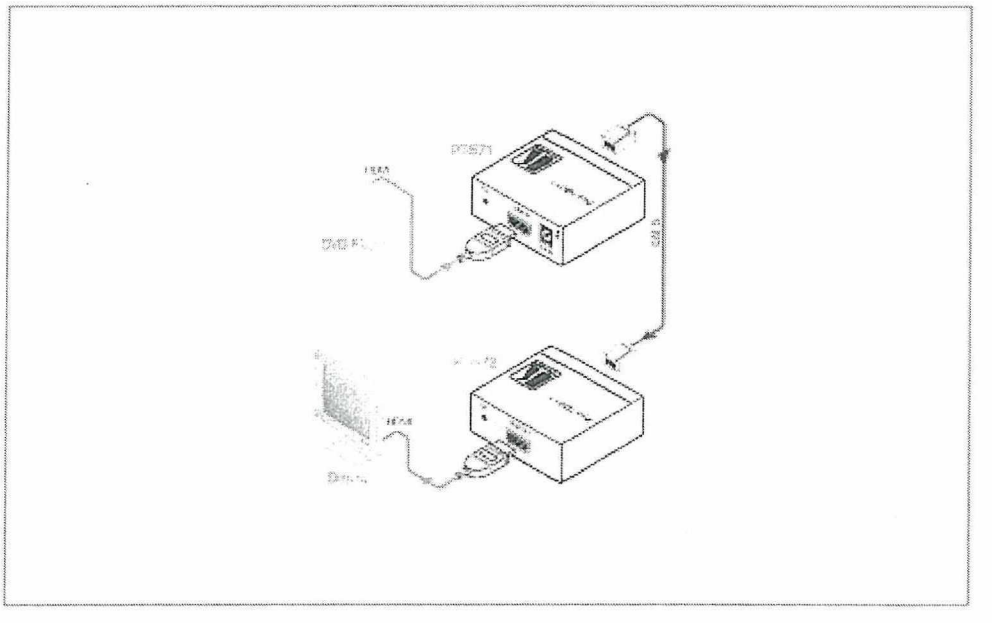
FEATURES

- Max. Data Rate - 1.65Gbps.
- HDTV Compatible.
- HDCP Compliant.
- DGKat™ Signal Integration - Kramer's unique technology for converting TMDS as well as control and communication to signals that run over twisted pair cables. We strongly recommend using Kramer DGKat™ cables designed specifically for optimum performance.
- HDMI Support - HDMI (V.1.4 with Deep Color, x.v.Color™, Lip Sync, HDMI Uncompressed Audio Channels, Dolby TrueHD, DTS-HD).
- 3D Pass-Through.
- System Range - Up to 90m (295ft) at 1080i, or up to 30m (98ft) at 1080p on shielded BC-DGKat524 cable. Up to 90m (295ft) at 1080i, or up to 70m (230ft) at 1080p on shielded BC-DGKat623 cable. Up to 100m (330ft) at 1080i or up to 90m (295ft) at 1080p on shielded BC-DGKat7a23 cable.
- Cable - Requires shielded twisted pair (STP) cable. For optimum range and performance use, use Kramer's BC-DGKat524, BC-DGKat623 and BC-DGKat7a23 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. Use only shielded cable where both ends of the shield are soldered to ground.
- EDID PassThru - Passes EDID signals between the source and display.
- Status LED - Lights red when receiving power only, orange when output and power are attached, and yellow when both an active input and output are attached.
- Power Connect™ System - A single connection to the transmitter powers the receiver.
- Ultra-Compact Pico TOOLS™ - 4 units can be rack mounted side-by-side in a 1U rack space with the optional RK-4PT rack adapter.

PT-571

TECHNICAL SPECIFICATIONS

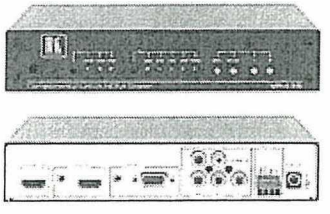
INPUTS:	1 HDMI connector.
OUTPUTS:	1 DGKat twisted pair RJ-45 connector.
BANDWIDTH:	Supports up to 1.65Gbps bandwidth per graphic channel.
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI and HDCP.
POWER SOURCE:	12V DC, 250mA (transmitter and receiver together).
DIMENSIONS:	6.2cm x 5.2cm x 2.4cm (2.4" x 2.1" x 1") W, D, H.
WEIGHT:	0.14kg (0.3lbs).
ACCESSORIES:	Power supply.
OPTIONS:	RK-4PT 19" rack adapter.



VP-435

HDMI, Component & Computer Graphics Video to HDMI ProScale™ Digital Scaler

Compatible with HDTV component video signals when used with a breakout cable such as the Kramer C-GM/GRMF.



The VP-435 is a high-quality format converter for component video, computer graphics video, HDMI video and unbalanced stereo audio signals. It scales the selected video signal to a computer graphics or HDTV output resolution, embeds the audio and outputs an HDMI signal.

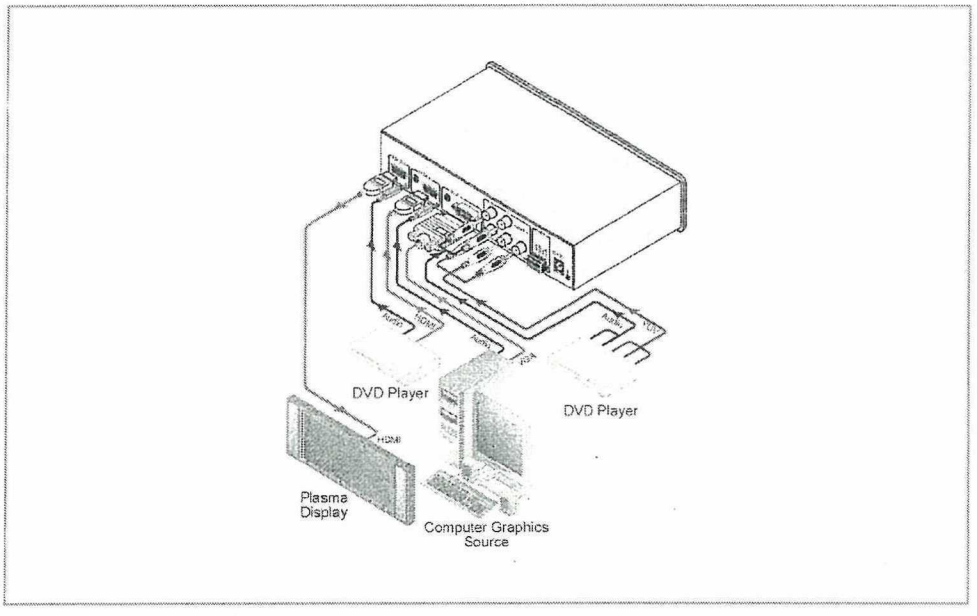
FEATURES

- HDTV Compatible.
- HDCP Compliant.
- Output Resolutions (Front Panel) - 480p, 576p, 720p, 1080i, and 1080p.
- Output Resolutions (On-Screen Menu) - 480i, 480p, 576i, 576p, 720p, 1080i, 1080p, VGA, SVGA, XGA, WXGA, SXGA, WSXGA, UXGA, WUXGA, NATIVE.
- ProcAmp Controls - Brightness, contrast, hue, saturation & sharpness.
- HDMI Input - Embedded audio or 3.5mm connector for stereo audio.
- HDTV Compatible Component Input.
- Computer Graphics Video Input - 15-pin HD connector and 3.5mm connector for stereo audio.
- Multiple Aspect Ratio Selections - Full, overscan, underscan, letter box & panscan.
- Control - Front panel and contact closure switching. Front panel and IR remote (included) for on-screen menu.
- Desktop Size - Compact size. 2 units can be rack mounted side-by-side in a 1U rack space with the optional RK-1 rack kit.

VP-435

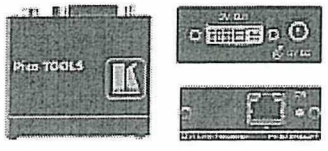
TECHNICAL SPECIFICATIONS

INPUT:	1 HDMI connector; 1 UXGA on a 15-pin HD (F) connector; 1 component video on 3 RCA connectors; 1 unbalanced stereo audio on a 3.5mm mini jack connector (for the HDMI input); 1 unbalanced stereo audio on a 3.5mm mini jack connector (for the UXGA input); 1 unbalanced stereo audio (left and right) on RCA connectors, 4dBu nominal.
OUTPUT:	1 HDMI connector.
OUTPUT RESOLUTION:	1080i, 1080p, 576i, 576p, 720p, 1080i, 1080p, WXGA, WSXGA, WUXGA, 1280x800, WXGA+, SXGA+, NATIVE, VGA, SVGA, XGA, SXGA, UXGA, 480i, 480p.
OUTPUT REFRESH RATE:	60Hz for computer graphics resolutions, 50/60Hz for HDTV resolutions.
CONTROLS:	Front panel buttons, contact closure and infrared remote for menu driven OSD control.
ADDITIONAL CONTROLS:	Contrast, brightness, hue, saturation and sharpness; red, green and blue; resolution, image size.
POWER SOURCE:	12V DC, 800mA.
DIMENSIONS:	21.5cm x 16.1cm x 4.36cm (8.46" x 6.34" x 1.7") W, D, H.
WEIGHT:	1.1kg (2.43lb) approx.
ACCESSORIES:	Power supply, IR remote control.
OPTIONS:	RK-1 19" rack adapter.



PT-572HDCP+

DVI over Twisted Pair Receiver



The PT-572HDCP+ is a DGKat™ twisted-pair receiver for DVI signals. The PT-571HDCP converts the DVI to twisted pair signal and the PT-572HDCP+ converts the twisted pair signal back to a DVI signal.

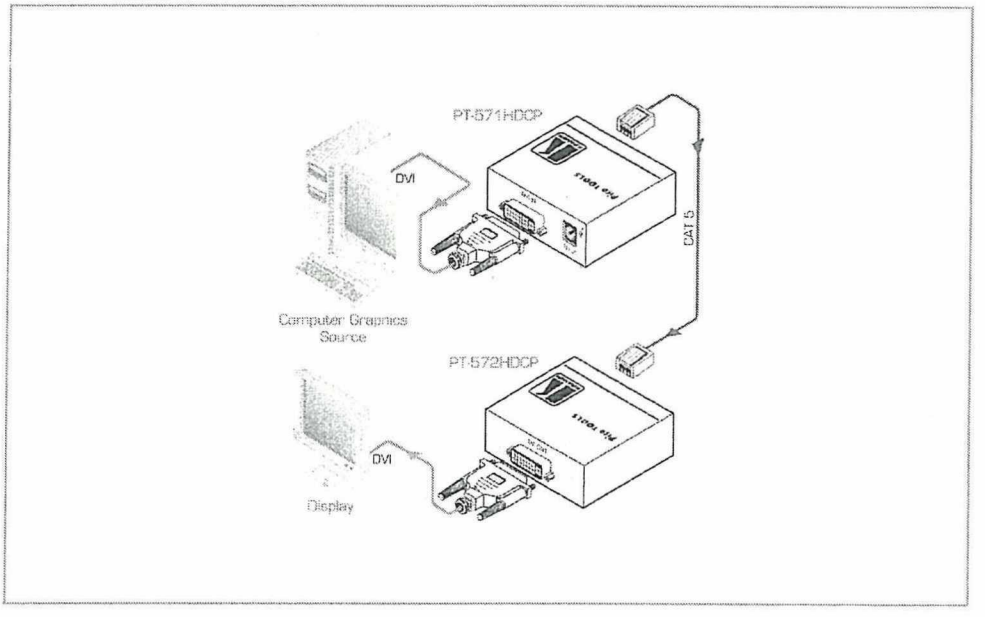
FEATURES

- Max. Data Rate - 1.65Gbps.
- HDTV Compatible.
- HDCP Compliant.
- DGKat™ Signal Integration - Kramer's unique technology for converting TMDS as well as control and communication to signals that run over twisted pair cables. We strongly recommend using Kramer DGKat™ cables designed specifically for optimum performance.
- System Range - Up to 90m (295ft) at SXGA, or up to 30m (98ft) at UXGA on shielded BC-DGKat524 cable.
  Up to 90m (295ft) at SXGA, or up to 70m (230ft) at UXGA on shielded BC-DGKat623 cable.
  Up to 100m (330ft) at SXGA, or up to 80m (265ft) at UXGA on shielded BC-DGKat7a23 cable.
- Cable - Requires STP (shielded twisted pair) cable. For optimum range and performance, use Kramer's BC-DGKat524, BC-DGKat623 or BC-DGKat7a23 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.
- EDID PassThru - Passes EDID signals between the source and display.
- Power Connect™ System - A single connection to the transmitter or the receiver powers the system when the devices are within 270ft (90m) of each other.
- Ultra-Compact PicoTOOLS™ - 4 units can be rack mounted side-by-side in a 1U rack space with the optional RK-4PT rack adapter.

PT-572HDCP+

TECHNICAL SPECIFICATIONS

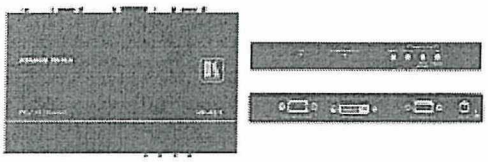
INPUTS:	1 DGKat twisted pair on an RJ-45 connector.
OUTPUTS:	1 DVI, 1.2Vpp on a DVI Molex 24-pin female connector, DDC signal 5Vpp (TTL).
BANDWIDTH:	Supports up to 1.65Gbps.
POWER SOURCE:	12V DC, 250mA.
DIMENSIONS:	6.2cm x 5.2cm x 2.4cm (2.4" x 2.1" x 1") W, D, H.
WEIGHT:	0.14kg (0.3lbs).
ACCESSORIES:	Power supply, mounting bracket.
OPTIONS:	RK-4PT 19" rack adapter.



VP-421

Computer Graphics Video & HDTV ProScale™ Digital Scaler (with DVI Output)

Compatible with HDTV component video signals when used with a breakout cable such as the Kramer C-GM/3RVF.



The VP-421 is a high-performance digital scaler for computer graphics video and HDTV signals. It scales the input up or down to a selectable computer graphics video or HDTV output signal on a 15-pin HD and DVI connector.

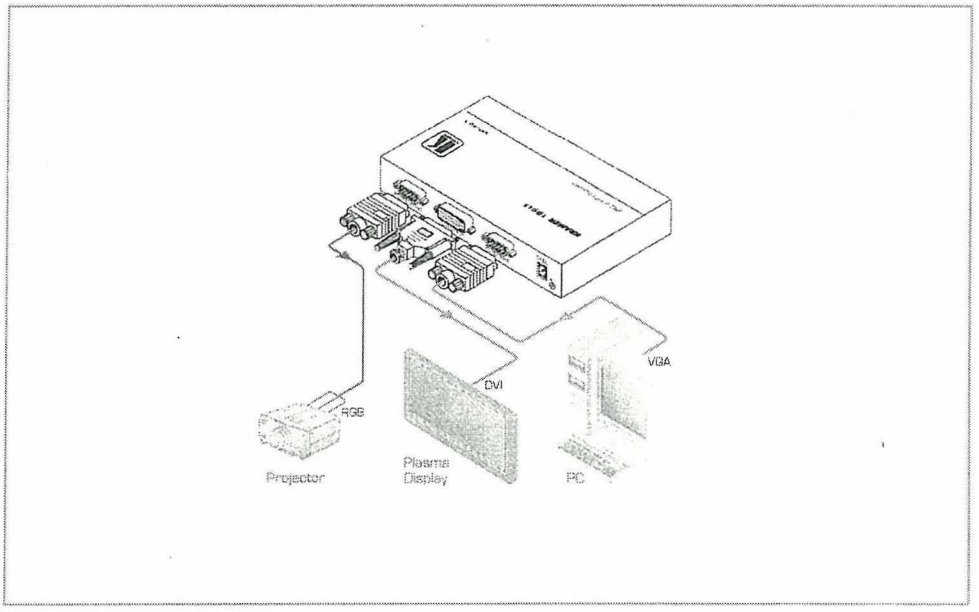
FEATURES

- Max. Resolution - WUXGA & 1080p.
- HDTV Compatible.
- Multiple Formats - Supports component (YPbPr) and VGA inputs and outputs.
- Outputs - DVI-D signal (on a DVI-I connector) & 15-pin HD.
- Built-in ProcAmp - Color, sharpness, brightness, contrast, etc.
- Digital Noise Reduction - On/Off.
- Controls - Front panel buttons, on-screen menus.
- Multiple Aspect Ratio Selections.
- Compact MegaTOOLS™ - 2 units can be rack mounted side-by-side in a 1U rack space with the optional RK-T2B universal rack adapter.

VP-421

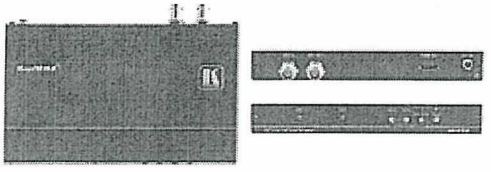
TECHNICAL SPECIFICATIONS

INPUT:	1 PC/HD on a 15-pin HD connector, RGBHV/YPbPr.
OUTPUTS:	1 PC/HD on a 15-pin HD connector, RGBHV/YPbPr; 1 DVI on a DVI connector.
OUTPUT RESOLUTIONS :	PC: VGA, SVGA, XGA, 1280x800, UXGA, SXGA, WXGA, SXGA+, WXGA+, WSXGA, WUXGA; HDTV: 480p, 576p, 720p @50/60Hz, 1080p @50/60Hz, 1080i @50/60Hz.
OUTPUT REFRESH RATE:	60Hz for computer graphics resolutions, 50/60Hz for HDTV resolutions.
PROCESSING DELAY:	3 frames.
CONTROLS:	Front panel buttons, ON and component output LEDs.
POWER SOURCE:	5V DC, 1A.
DIMENSIONS:	19cm x 13.5cm x 2.5cm (7.5" x 5.3" x 0.98") W, D, H.
WEIGHT:	0.66kg (1.45lbs) approx.
ACCESSORIES:	Power supply.
OPTIONS:	RK-T2B 19" rack adapter.



VP-472

3G HD-SDI to HDMI ProScale™ Digital Scaler



The VP-472 is a high-performance digital scaler for 3G HD-SDI signals. It up or down-scales the incoming video to computer graphics, SD or HD video resolutions that it outputs to an HDMI connector.

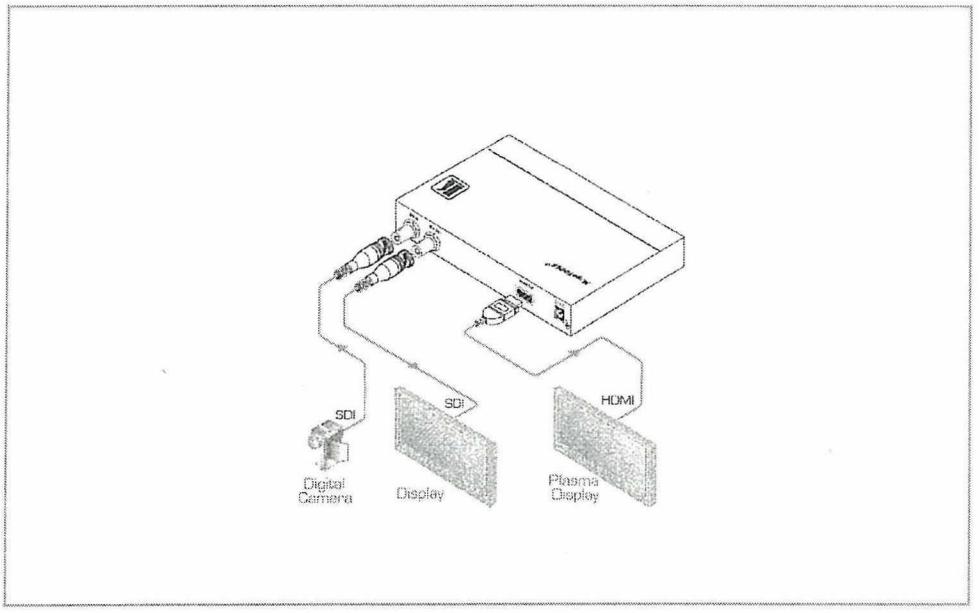
FEATURES

- Multi-Standard Operation - SDI (SMPTE 259M), HD-SDI (SMPTE 292M) and 3G HD-SDI (SMPTE 424M).
- HDTV Compatible.
- Looping Input - Reclocked and equalized.
- Video Output - HDMI.
- Computer Graphics Resolutions - SVGA, XGA, 1360x768, WXGA, SXGA, 1440x900, SXGA+, WSXGA+, UXGA, WUXGA, 720x576 @50Hz, 720x480 (NTSC), 1280x720 @50/60Hz (HD 720), 1920x1080 @50/60Hz (HD 1080).
- HDTV Output Resolutions - 720p @50/60Hz, 1080p @50/60Hz and 1080i @50/60Hz.
- Selectable Output Size & Aspect Ratio - Full, panscan, letter box, underscan and overscan settings.
- Built-In ProcAmp Features - Color hue, sharpness, contrast and brightness.
- Freeze Button.
- Non-Volatile Memory - Saves final settings.
- Controls - Front panel buttons, OSD.
- Compact MegaTOOLS™ - 2 units can be rack mounted side-by-side in a 1U rack space with the optional RK-T2B universal rack adapter.

VP-472

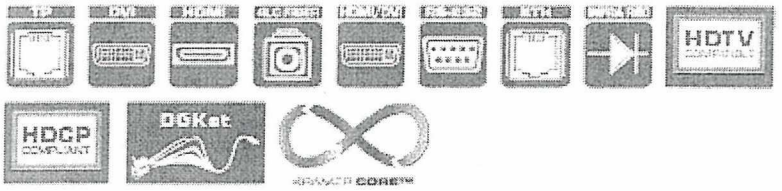
TECHNICAL SPECIFICATIONS

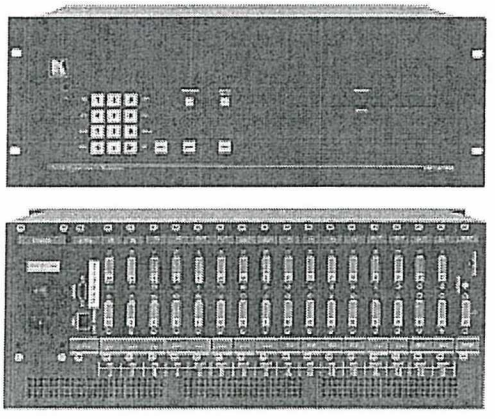
INPUT:	1 3G HD-SDI on a BNC connector.
OUTPUTS:	1 3G HD-SDI on a BNC connector, 1 HDMI on an HDMI connector.
OUTPUT RESOLUTIONS :	Native, 1920x1080p @50 (HD 1080), 1280x720p @50 (HD 720), 720x576p @50, 1920x1080p (HD 1080), 1280x720p (HD 720), 720x480p (NTSC), 1920x1200p (WUXGA), 1600x1200 (UXGA), 1680x1050 (WSXGA+), 1400x1050 (SXGA+), 1440x900, 1280x1024 (SXGA), 1280x800 (WXGA), 1360x768, 1280x768 (WXGA), 1024x768 (XGA), 800x600 (SVGA); PC: VGA, SVGA, XGA, 1280x800, UXGA, SXGA, WXGA, SXGA+, WXGA+, WSXGA, WUXGA; SDTV: 480p and 576p; HDTV: 720p @50/60Hz, 1080p @50/60Hz, 1080i @50/60Hz.
OUTPUT REFRESH RATE:	60Hz for computer graphics resolutions, 50/60Hz for HDTV resolutions.
OUTPUT SIZE:	Full, panscan, letterbox, under 2, under 1, overscan.
PROCESSING DELAY:	30ms.
CONTROLS:	Menu, Enter, "–" and +/Freeze front panel buttons.
POWER SOURCE:	5V DC, 1.2A.
DIMENSIONS:	18.8cm x 13.4cm x 2.4cm (7.4" x 5.3" x 1") W, D, H.
WEIGHT:	0.75kg (1.7lbs) approx.
ACCESSORIES:	Power supply.
OPTIONS:	RK-2TB 19" rack adapter.



VS-1616D

2x2 to 16x16 Modular Multi-Format Digital Matrix Switcher





The VS-1616D is a high-performance matrix switcher chassis for DVI & HDMI signals. The unit is modular and populated from 2x2 to 16x16 in increments of two inputs and/or two outputs. The chassis includes a power supply, control module and a test module that can monitor and test any input and output in the matrix.

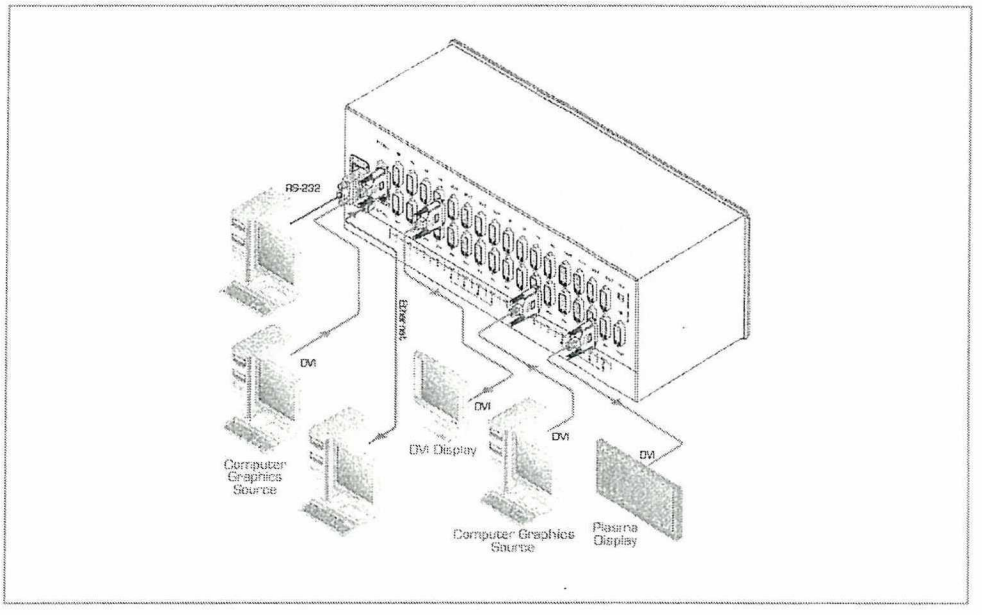
FEATURES

- Max. Data Rate - 3.2Gbps per graphics channel up to 10.4Gbps total.
- HDTV Compatible.
- HDCP Compliant - With DVI (HDCP) and HDMI modules.
- DGKat™ Signal Integration - Kramer's unique technology for converting TMDS as well as control and communication to signals that run over twisted pair cables. We strongly recommend using Kramer DGKat™ cables designed specifically for optimum performance.
- Kramer Equalization & re-Klocking™ Technology - Rebuilds the digital signal to travel longer distances.
- Modular & Easily Configurable Platform - Input or output module types can be mixed and added in increments of 2 from 2x2 up to 16x16.
- Available Modules - DVI, DVI (HDCP), DVI (Dual Link), HDMI, LC Optical & DGKat Twisted Pair (available 2nd quarter 2012).
- I-EDIDPro™ Kramer Intelligent EDID Processing™ - Intelligent EDID handling & processing algorithm ensures Plug and Play operation for DVI and HDMI systems.
- Flexible Control Options - Front panel, IR remote, RS-232 (K-Router™ Windows®-based software is included), Ethernet.
- Front Panel Lockout.
- Take Button - Executes multiple switches all at once.
- Memory Locations - Stores multiple switches as presets to be recalled and executed as needed.
- Test Pattern Module - With 4 output resolutions for troubleshooting video problems.
- Worldwide Power Supply - 100-240V AC.
- Standard 19" Rack Mount Size - 4U. Rack "ears" included.

VS-1616D

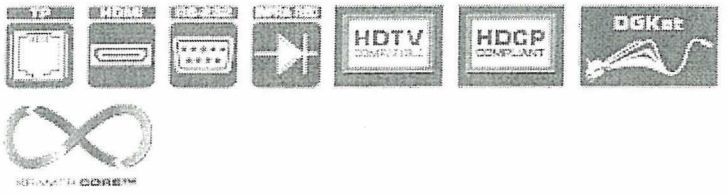
TECHNICAL SPECIFICATIONS

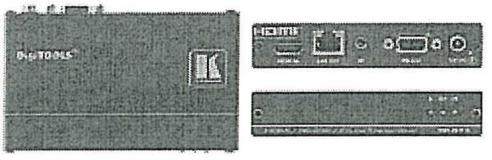
BANDWIDTH:	Supports up to 3.2Gbps bandwidth per channel (limited by the card installed).
MAX RESOLUTION:	Up to UXGA; 1080p, 1920x1200.
CONTROLS:	Front panel buttons, infrared remote control transmitter, RS-232, Ethernet.
SWITCHING:	Confirm or At Once for immediate switching.
OPERATING TEMPERATURE:	0° to +55°C (32° to 131°F).
STORAGE TEMPERATURE:	-45° to +72°C (-49° to 162°F).
HUMIDITY:	10% to 90%, RHL non-condensing.
POWER SOURCE:	100-240V AC, 50/60Hz, 135VA.
DIMENSIONS:	19" x 14.2" x 4U (W, D, H) rack-mountable.
WEIGHT:	8.1kg (17.9lbs) approx.
ACCESSORIES:	Power cord, infrared remote control transmitter.



TP-573

HDMI, Bidirectional RS-232 & IR over Twisted Pair Transmitter





The TP-573 is a DGKat™ twisted pair transmitter for HDMI, bidirectional RS-232 and infrared signals. The TP-573 converts the input signals to a twisted pair signal and the TP-574 converts it back to HDMI, RS-232 and infrared signals.

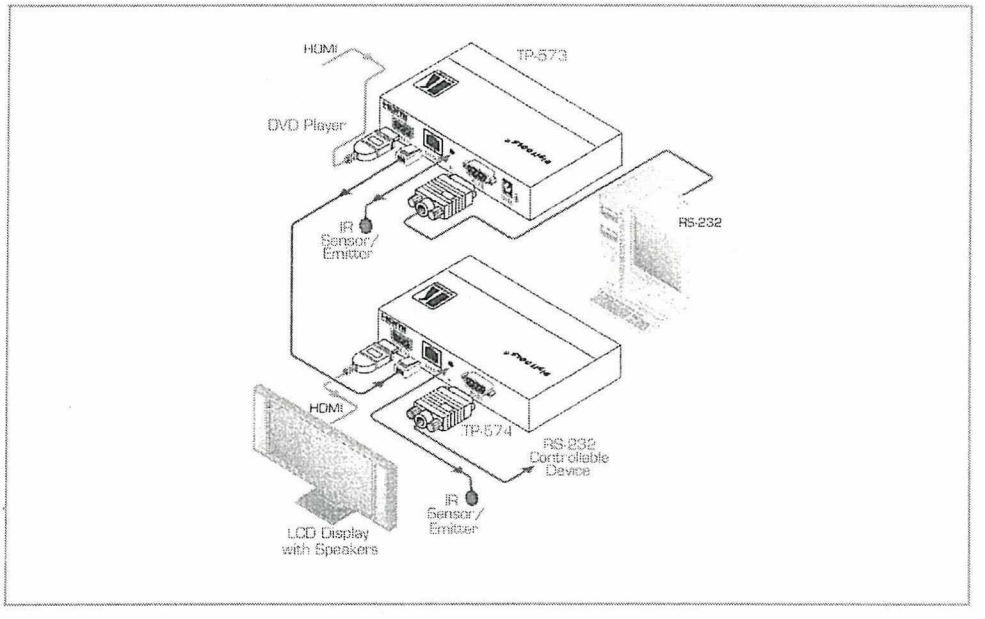
FEATURES

- Max. Data Rate - 1.65Gbps.
- HDTV Compatible.
- HDCP Compliant.
- DGKat™ Signal Integration - Kramer's unique technology for converting TMDS as well as control and communication to signals that run over twisted pair cables. We strongly recommend using Kramer DGKat™ cables designed specifically for optimum performance.
- HDMI Support - HDMI (V.1.4 with Deep Color, x.v.Color™, Lip Sync, HDMI Uncompressed Audio Channels, Dolby TrueHD, DTS-HD).
- 3D Pass-Through.
- EDID PassThru - Passes EDID signals between the source and display.
- Bidirectional RS-232 & IR Interface. - 38400 max baud rate.
- System Range - Up to 90m (295ft) at 1080i, or up to 30m (98ft) at 1080p on shielded BC-DGKat524 cable. Up to 90m (295ft) at 1080i, or up to 70m (230ft) at 1080p on shielded BC-DGKat623 cable. Up to 100m (330ft) at 1080i or up to 90m (295ft) at 1080p on shielded BC-DGKat723 cable.
- Cable - Requires shielded twisted pair (STP) cable. For optimum range and performance use, use Kramer's BC-DGKat524, BC-DGKat623 and BC-DGKat723 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. Use only shielded cable where both ends of the shield are soldered to ground.
- Power Connect System™ - A single connection to the transmitter powers both units.
- Compact DigiTOOLS® - 3 units can be rack mounted side-by-side in a 1U rack space with the optional RK-3T rack adapter.

TP-573

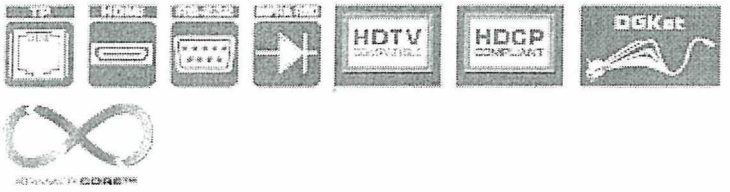
TECHNICAL SPECIFICATIONS

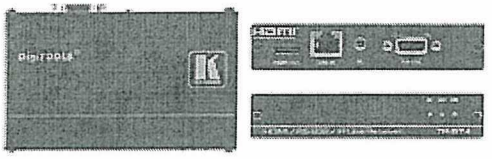
INPUTS:	1 HDMI connector, 1 bidirectional IR port on a 3.5mm mini jack, 1 bidirectional RS-232 port on a 9-pin D-sub connector.
OUTPUTS:	1 CAT 5 OUT on an RJ-45 connector.
BANDWIDTH:	Supports up to 1.65Gbps bandwidth per graphic channel.
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI and HDCP.
POWER SOURCE:	12V DC, 510mA.
DIMENSIONS:	12.1cm x 7.18cm x 2.42cm (4.76" x 2.83" x 0.95"), W, D, H.
WEIGHT:	0.3kg (0.67lbs) approx.
ACCESSORIES:	12V DC power supply.
OPTIONS:	RK-3T 19" rack mount, Kramer remote external receiver, Kramer BC DGKat524 (CAT 5 24AWG) and BC DGKat623 (CAT 6 23AWG) cables.



TP-574

HDMI, Bidirectional RS-232 & IR over Twisted Pair Receiver





The TP-574 is a DGKat™ twisted pair receiver for HDMI, bidirectional RS-232 and infrared signals. The TP-573 converts the input signals to a twisted pair signal and the TP-574 converts it back to HDMI, RS-232 and infrared signals.

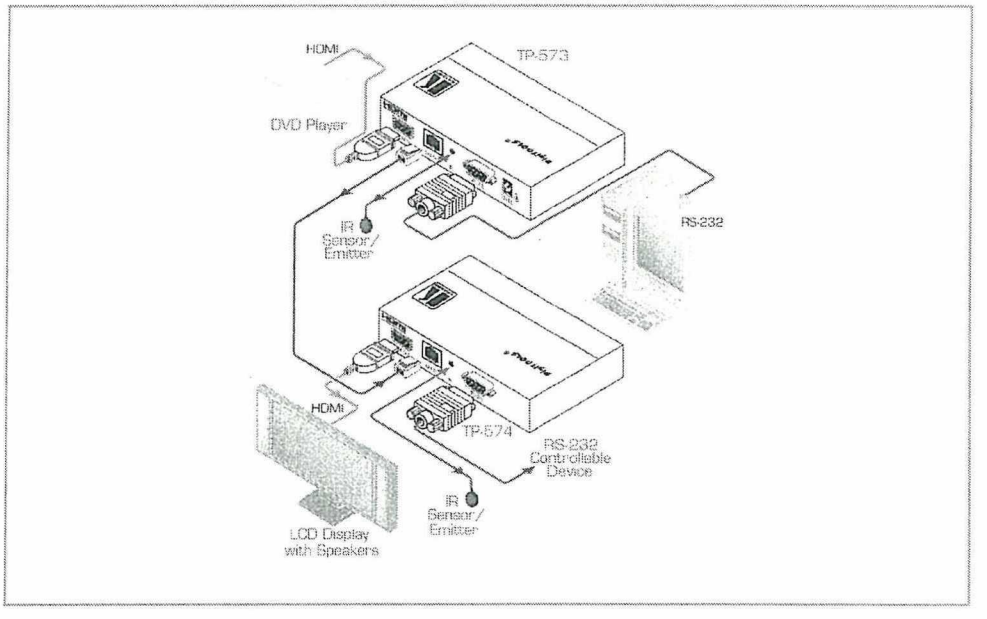
FEATURES

- Max. Data Rate - 1.65Gbps.
- HDTV Compatible.
- HDCP Compliant.
- HDMI Support - HDMI (V.1.4 with Deep Color, x.v.Color™, Lip Sync, HDMI Uncompressed Audio Channels, Dolby TrueHD, DTS-HD).
- 3D Pass-Through.
- EDID PassThru - Passes EDID signals between the source and display.
- Bidirectional RS-232 & IR Interface. - 38400 max baud rate.
- System Range - Up to 90m (295ft) at 1080i, or up to 30m (98ft) at 1080p on shielded BC-DGKat524 cable. Up to 90m (295ft) at 1080i, or up to 70m (230ft) at 1080p on shielded BC-DGKat623 cable. Up to 100m (330ft) at 1080i or up to 90m (295ft) at 1080p on shielded BC-DGKat7a23 cable.
- Cable - Requires shielded twisted pair (STP) cable. For optimum range and performance use, use Kramer's BC-DGKat524, BC-DGKat623 and BC-DGKat7a23 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. Use only shielded cable where both ends of the shield are soldered to ground.
- DGKat™ Signal Integration - Kramer's unique technology for converting TMDS as well as control and communication to signals that run over twisted pair cables. We strongly recommend using Kramer DGKat™ cables designed specifically for optimum performance.
- Power Connect System™ - A single connection to the transmitter powers both units.
- Compact DigiTOOLS® - 3 units can be rack mounted side-by-side in a 1U rack space with the optional RK-3T rack adapter.

TP-574

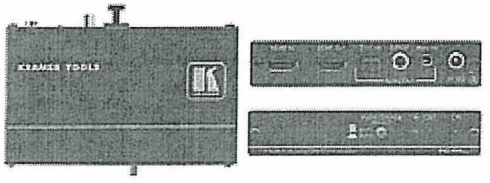
TECHNICAL SPECIFICATIONS

INPUTS:	1 CAT 5 IN on an RJ-45 connector.
OUTPUTS:	1 HDMI connector, 1 bidirectional IR port on a 3.5mm mini jack, 1 bidirectional RS-232 port on a 9-pin D-sub connector.
BANDWIDTH:	Supports up to 1.65Gbps bandwidth per graphic channel.
COMPLIANCE WITH HDMI STANDARD:	Supports HDMI and HDCP.
POWER SOURCE:	12V DC from TP-573.
DIMENSIONS:	12.1cm x 7.18cm x 2.42cm (4.76" x 2.83" x 0.95"), W, D, H.
WEIGHT:	0.3kg (0.67lbs) approx.
ACCESSORIES:	12V DC power supply.
OPTIONS:	RK-3T 19" rack mount, Kramer remote external receiver, Kramer BC DGKat524 (CAT 5 24AWG) and BC DGKat623 (CAT 6 23AWG) cables.



FC-46xl

HDMI Audio De-embedder



The FC-46xl is a high-performance HDMI audio de-embedder. The unit can de-embed audio from the HDMI input or from the HDMI output Audio Return channel to S/PDIF, TOSLINK® and analog audio outputs simultaneously.

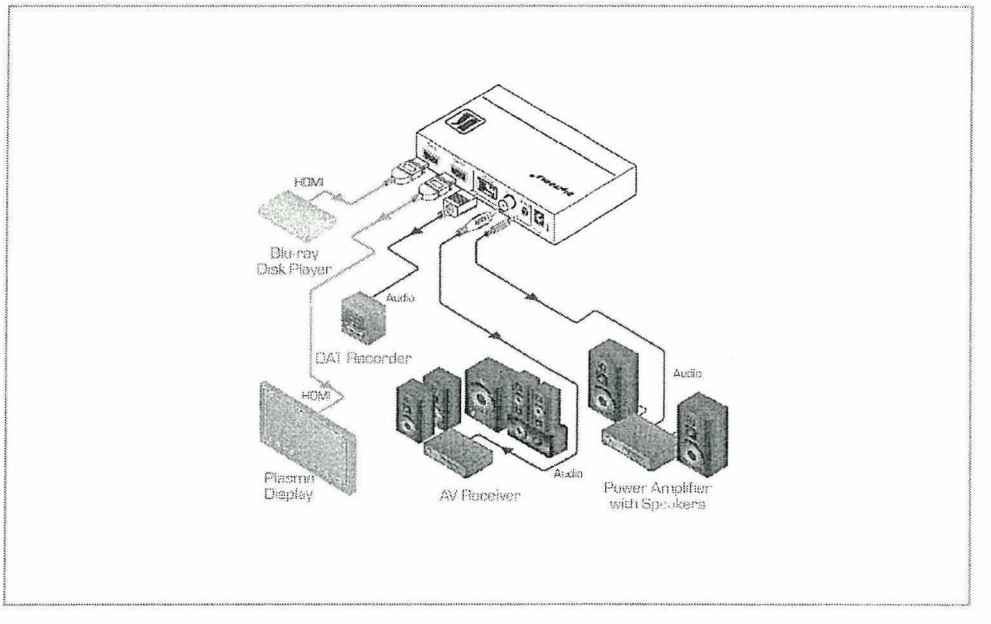
FEATURES

- Max. Data Rate - Up to 2.25Gbps.
- HDCP Compliant.
- HDTV Compatible.
- I-EDIDPro™ Kramer Intelligent EDID Processing™ - Intelligent EDID handling & processing algorithm ensures Plug and Play operation for HDMI systems.
- HDMI Support - HDMI (V.1.4 with ARC, HDMI Uncompressed Audio Channels, Dolby TrueHD, DTS-HD).
- Auto Format Detection - Digital RGB or YPbPr.
- Compact Kramer TOOLS™ - 3 units can be rack mounted side-by-side in a 1U rack space with the optional RK-3T rack adapter.

FC-46xl

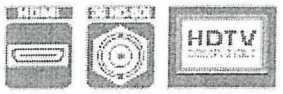
TECHNICAL SPECIFICATIONS

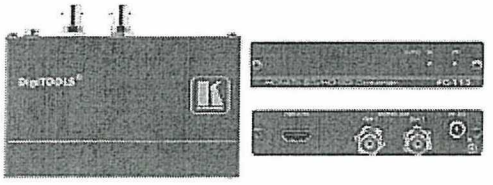
INPUT:	1 HDMI connector.
OUTPUTS:	1 HDMI connector, 1 TOSLINK® optical digital audio connector, 1 S/PDIF digital audio on an RCA connector, 1 unbalanced stereo audio on a 3.5mm mini connector.
OPERATION FREQUENCY:	Supports up to 2.25Gbps (1080p @60Hz) 36-bit Deep Color.
COMPLIANCE WITH STANDARDS:	Supports HDMI, HDCP 1.4.
CONTROLS:	Audio source select button.
INDICATOR LEDS:	ON, IN, OUT.
POWER SOURCE:	5V DC, 600mA.
DIMENSIONS:	12.4cm x 7cm x 2.4cm (4.9" x 2.8" x 0.94") W, D, H.
WEIGHT:	0.4kg (0.88lbs) approx.
ACCESSORIES:	Power supply.



FC-113

HDMI to 3G HD-SDI Format Converter





The FC-113 is a high-performance format converter for HDMI signals. It converts an HDMI input signal to two identical SDI video signals with embedded audio.

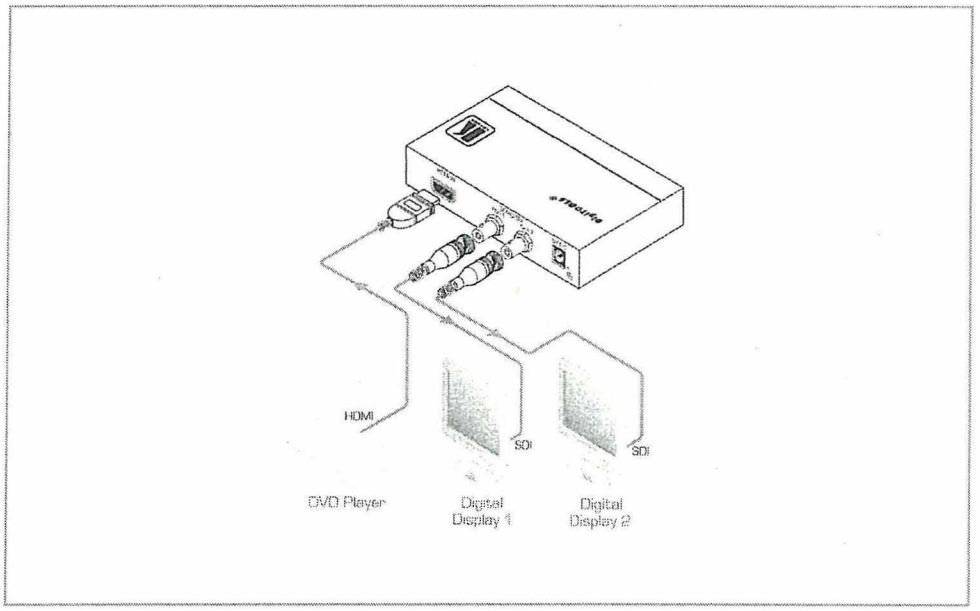
FEATURES

- Max. Data Rate - 3Gbps.
- HDTV Compatible.
- Input - 1 HDMI.
- Multi-Standard Operation - SDI (SMPTE 259M), HD-SDI (SMPTE 292M), and 3G HD-SDI (SMPTE 424M).
- No Frame Rate or Resolution Conversion.
- Active Input™ LED Reporting - Green indicates standard definition (SDI), blue indicates a high-definition (HD-SDI) input signal.
- Compact DigiTOOLS® - 3 units can be rack mounted side-by-side in a 1U rack space with the optional RK-3T rack adapter.

FC-113

TECHNICAL SPECIFICATIONS

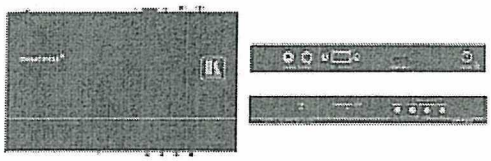
INPUT:	1 HDMI connector.
OUTPUTS:	2 SD/HD-SDI, 3G HD-SDI on BNC connectors.
MAX. DATA RATE:	Up to 3Gbps.
STANDARD COMPLIANCE:	HDMI.
INPUT FORMATS:	525i, 625i; 1080p @23.98/24/25/29.97/30/50/59.94/60; 1080i @50/59.94/60; 720p @50/59.94/60.
INDICATOR LEDS:	SD/HD, OUT, ON.
POWER SOURCE:	5V DC, 440ma.
DIMENSIONS:	12cm x 7.2cm x 2.4cm (4.7" x 2.8" x 1.0") W, D, H.
WEIGHT:	0.3kg (0.67lbs).
ACCESSORIES:	Power supply.
OPTIONS:	RK-3T 19" rack adapter.



VP-422

HDMI to Computer Graphics Video and HDTV ProScale™ Digital Scaler

Compatible with HDTV component video signals when used with a breakout cable such as the Kramer C-GM/3RVF.



The VP-422 is a high-performance digital scaler for HDMI signals. It scales the input up or down to a selectable computer graphics video or HDTV output signal on a 15-pin HD connector and de-embeds the audio to an unbalanced stereo signal.

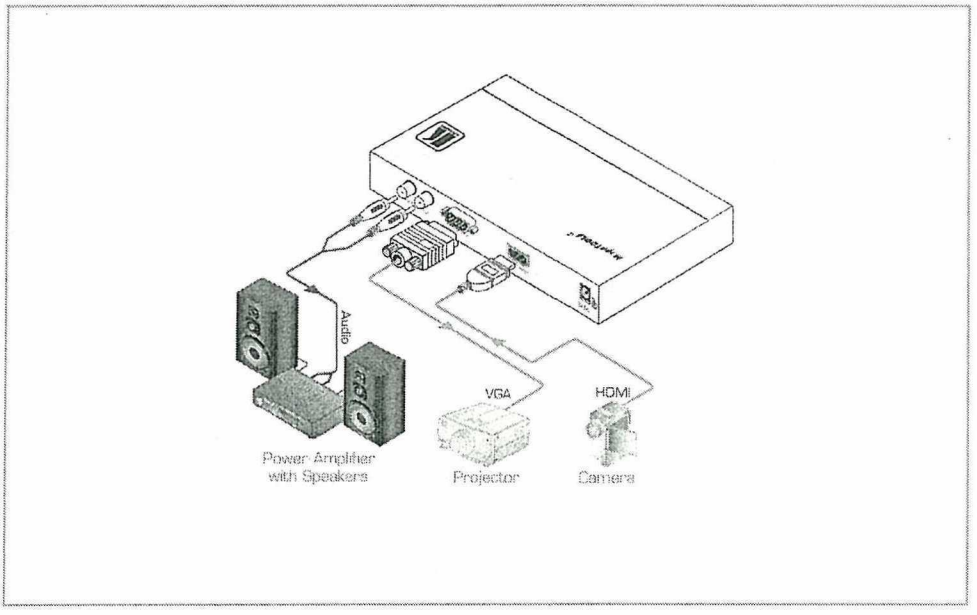
FEATURES

- Max. Resolution - WUXGA & 1080p.
- HDTV Compatible.
- Input - Non-HDCP encrypted HDMI or DVI signal on an HDMI connector.
- Outputs - RGBHV & component video (selectable) on a 15-pin HD connector, and stereo unbalanced audio on RCA connectors.
- Built-in ProcAmp - Color, sharpness, brightness, contrast, etc.
- Controls - Front panel with On-Screen Display (OSD).
- Compact MegaTOOLS™ - 2 units can be rack mounted side-by-side in a 1U rack space with the optional RK-T2B universal rack adapter.

VP-422

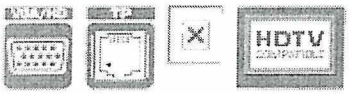
TECHNICAL SPECIFICATIONS

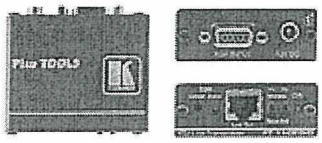
INPUT:	1 HDMI connector.
OUTPUTS:	1 VGA on a 15-pin HD connector, RGBHV/YPbPr; 1 unbalanced stereo audio on RCA connectors.
OUTPUT RESOLUTIONS:	PC: VGA, SVGA, XGA, 1280x800, UXGA, SXGA, WXGA, SXGA+, WXGA+, WSXGA, WUXGA; HDTV: 480p, 576p, 720p @50/60Hz, 1080p @50/60Hz, 1080i @50/60Hz.
OUTPUT REFRESH RATE:	60Hz for computer graphics resolutions, 50/60Hz for HDTV resolutions.
PROCESSING DELAY:	3 frames.
CONTROLS:	Front panel buttons, ON and component output LEDs.
POWER SOURCE:	5V DC, 860mA.
DIMENSIONS:	18.8cm x 11.4cm x 2.5cm (7.4" x 4.5" x 0.98") W, D, H.
WEIGHT:	0.66kg (1.45lbs) approx.
ACCESSORIES:	Power supply.
OPTIONS:	RK-T2B 19" rack adapter.



PT-110EDID

Computer Graphics Video over Twisted Pair Transmitter with EDID





The PT-110EDID is a twisted pair transmitter for computer graphics video signals. It converts a computer graphics signal into a twisted pair signal that is converted back to a computer graphics video signal when used with a compatible receiver.

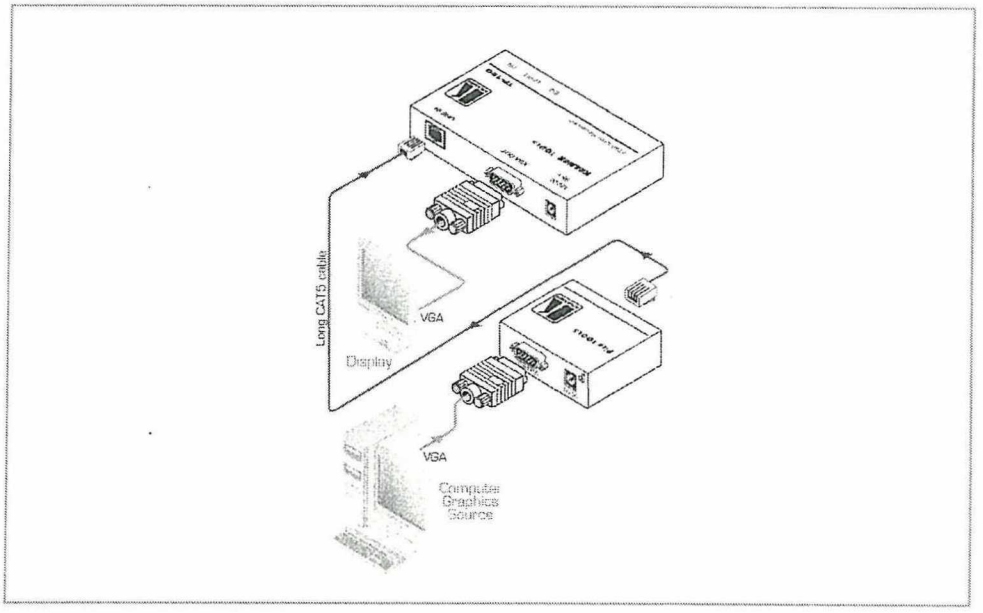
FEATURES

- Max. Resolution - WUXGA & 1080p.
- HDTV Compatible.
- EDID Capture - Copies and stores the EDID from a display device.
- Sync Polarity Settings - H & V switches for improved display compatibility with the CAT 5 outputs.
- System Range - Up to 100m (320ft). Greater distances possible depending on resolution and cable.
- Cable - STP (shielded twisted pair) such as CAT 5.
- Power Connect™ System - A single connection to the transmitter or the receiver powers both units when the devices are within 150ft (50m) of each other.
- Ultra Compact Pico TOOLS™ - 4 units can be rack mounted side-by-side in a 1U rack space with the optional RK-4PT rack adapter.

PT-110EDID

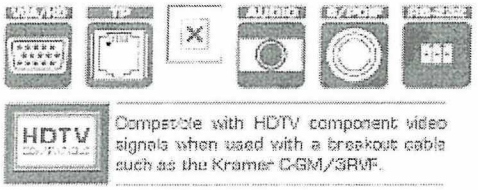
TECHNICAL SPECIFICATIONS

INPUT:	1 VGA/UXGA on a 15-pin HD connector.
OUTPUT:	1 RJ-45 LINE OUTPUT connector.
RESOLUTION:	Up to UXGA.
S/N RATIO:	69dB (worst case).
COUPLING:	AC.
POWER SOURCE:	12V DC, 60mA.
DIMENSIONS:	6cm x 6.5cm x 2.5cm (2.36" x 2.56" x 1") W, D, H.
WEIGHT:	0.14kg (0.31lbs) approx.
ACCESSORIES:	Power supply.
OPTIONS:	RK-4PT 19-inch rack adapter.

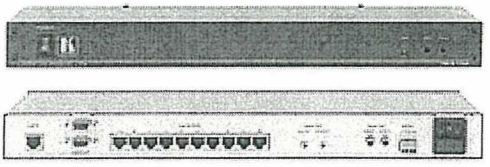


TP-310A

1:10 Computer Graphics Video, Audio & RS-232 over Twisted Pair Receiver & Distribution Amplifier



Compatible with HDTV component video signals when used with a breakout cable such as the Kramer C-GM/3RMF.



The TP-310A is a high-performance twisted pair receiver and distribution amplifier for computer graphics video, audio and RS-232 signals. The unit takes one twisted pair input and provides ten twisted pair outputs plus two computer graphics video, two stereo audio, two S/PDIF audio and two RS-232 outputs for local monitoring.

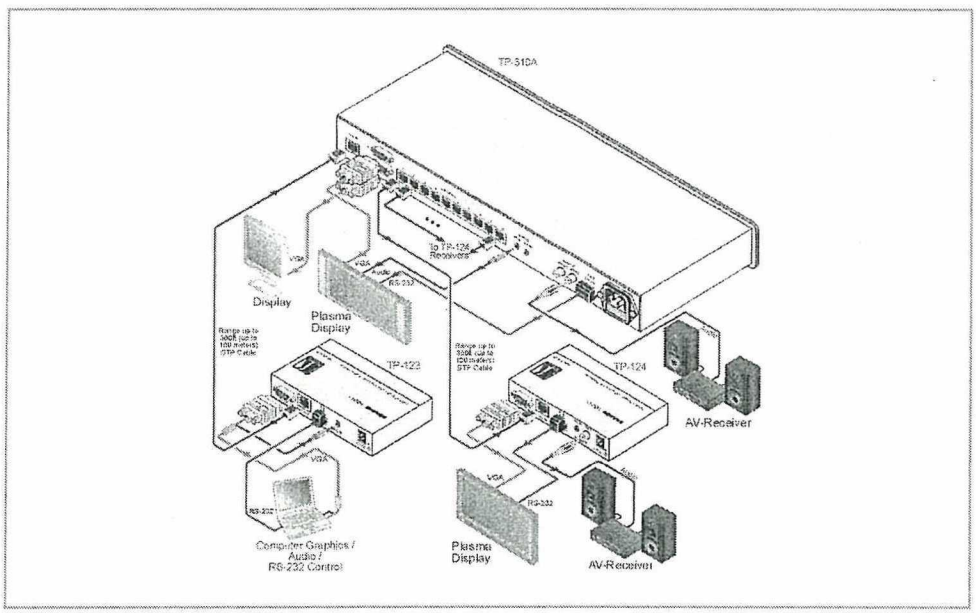
FEATURES

- HDTV Compatible.
- Max. Resolution - WUXGA & 1080p.
- Level (Gain) & EQ (Peaking) Controls - 15-pin HD outputs.
- Twisted Pair Connectors - RJ-45.
- Audio Outputs - 2 unbalanced stereo audio on 3.5mm mini jacks, 2 S/PDIF on RCA connectors.
- RS-232 Outputs - 2 RS-232 outputs on 4-pin terminal blocks.
- Sync Polarity Settings - H & V switches.
- System Range (Twisted Pair) - Up to 100m (320ft).
- Cable - UTP (unshielded twisted pair) or STP (shielded twisted pair) such as CAT 5.
- Power Connect™ System - A single connection to the TP-310A powers both units when the devices are within 150ft (50m) of each other.
- Worldwide Power Supply - 100-240V AC.
- Standard 19" Rack Mount Size - 1U. Rack "ears" included.

TP-310A

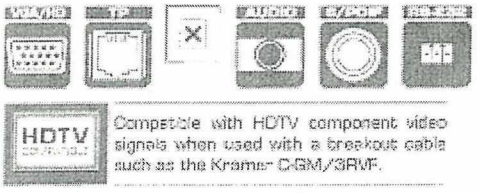
TECHNICAL SPECIFICATIONS

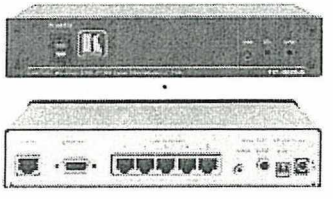
INPUT:	1 RJ-45 connector.
OUTPUTS:	10 twisted pairs on RJ-45 connectors, 2 UXGA on 15-pin HD connectors, 2 unbalanced stereo audio on 3.5mm mini jacks, 2 S/PDIF on RCA connectors, 2 RS-232 on a 4-pin terminal block.
MAX. OUTPUT LEVEL:	Video: 1.3Vpp/75Vpp; Audio: 2.3V/10kΩ.
POWER OUTPUTS:	12V DC 0.5A max via each RJ-45 output (PINs 4, 5).
MAX. RESOLUTION:	WUXGA & 1080p.
BANDWIDTH (-3dB):	20Hz to 20kHz @1dB (audio).
SAMPLING RATE FOR S/PDIF:	48kHz.
S/N RATIO:	Audio: >75dB.
TOTAL GAIN:	Analog to analog: 0dB; Analog to S/PDIF: -12dBFS (audio).
AUDIO THD+N:	<0.02%.
POWER SOURCE:	100-240V AC, 50/60Hz, 50VA.
DIMENSIONS:	19" x 9.3" x 1U W, D, H, rack mountable.
WEIGHT:	3kg (6.6lbs) approx.
ACCESSORIES:	Power cord, rack "ears".



TP-305A

1:5 Computer Graphics Video, Audio & RS-232 over Twisted Pair Receiver & Distribution Amplifier





The TP-305A is a high-performance twisted pair receiver for computer graphics video, audio and RS-232 signals. The unit takes one twisted pair input and provides five twisted pair, a computer graphics video, stereo audio and S/PDIF audio outputs and an RS-232 output for local monitoring.

FEATURES

- HDTV Compatible.
- Max. Resolution - WUXGA & 1080p.
- Level (Gain) & EQ (Peaking) Controls - 15-pin HD outputs.
- Twisted Pair Connectors - RJ-45.
- Audio Output Connectors - 3.5mm (unbalanced) & RCA (S/PDIF).
- RS-232 Output Connector - Unidirectional 2-pin terminal block.
- Sync Polarity Settings - H & V switches.
- System Range (Twisted Pair) - Up to 100m (320ft).
- Cable - UTP (unshielded twisted pair) or STP (shielded twisted pair) such as CAT 5.
- Power Connect™ System - A single connection to the TP-305A powers both units when the devices are within 150ft (50m) of each other.
- Desktop Size - Compact size. 2 units can be rack mounted side-by-side in a 1U rack space with the optional RK-1 adapter.

TP-305A

TECHNICAL SPECIFICATIONS

INPUT:	1 RJ-45 connector.
OUTPUTS:	5 RJ-45 connectors, 1 UXGA on a 15-pin HD connector, 1 unbalanced stereo audio on a 3.5mm mini jack, 1 S/PDIF on an RCA connector, 1 RS-232 on a 2-pin terminal block connector.
MAX. OUTPUT LEVEL:	Video: 1.6V; Audio: 2.3V.
POWER OUTPUTS:	12V DC, 0.5A max via each RJ-45 output (pins 4, 5).
MAX. RESOLUTION:	WUXGA & 1080p.
BANDWIDTH:	20Hz to 20kHz @1dB (audio).
SAMPLING RATE FOR S/PDIF:	48kHz.
S/N RATIO:	Audio: >75dB.
TOTAL GAIN:	Analog to analog: 0dB. Analog to S/PDIF: -12dBFS (audio).
AUDIO THD+N:	<0.02%.
POWER SOURCE:	12V DC, 2.3A.
DIMENSIONS:	21.46cm x 16.25cm x 4.36cm (8.45" x 6.4" x 1.72") W, D, H.
WEIGHT:	1.3kg (2.9lbs) approx.
ACCESSORIES:	Power supply.
OPTIONS:	RK-1 19" rack adapter.

PT-120

Computer Graphics Video over Twisted Pair Receiver

Compatible with HDTV component video signals when used with a breakout cable such as the Kramer C-GM/3RMF.

The PT-120 is a twisted pair receiver for computer graphics video signals. It converts a twisted pair signal from a PT-110 transmitter (or other compatible Kramer transmitter) to a computer graphics signal.

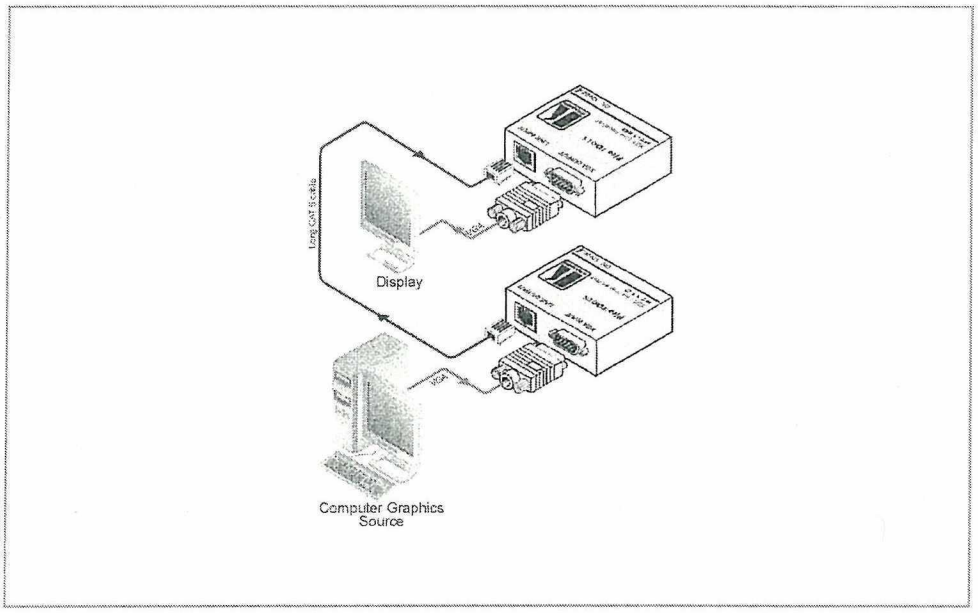
FEATURES

- HDTV Compatible.
- Max. Resolution - WUXGA & 1080p.
- Level (Gain) & EQ (Peaking) Controls.
- Twisted Pair Input Connector - RJ-45.
- System Range - Up to 100m (320ft). Greater distances possible depending on signal resolution and cable.
- Cable - UTP (unshielded twisted pair) or STP (shielded twisted pair) cable such as CAT 5.
- Power Connect™ System - A single connection to the transmitter or the receiver powers both units when the devices are within 150ft (50m) of each other.
- Ultra Compact Pico TOOLS™ - 4 units can be rack mounted side-by-side in a 1U rack space with the optional RK-4PT rack adapter.

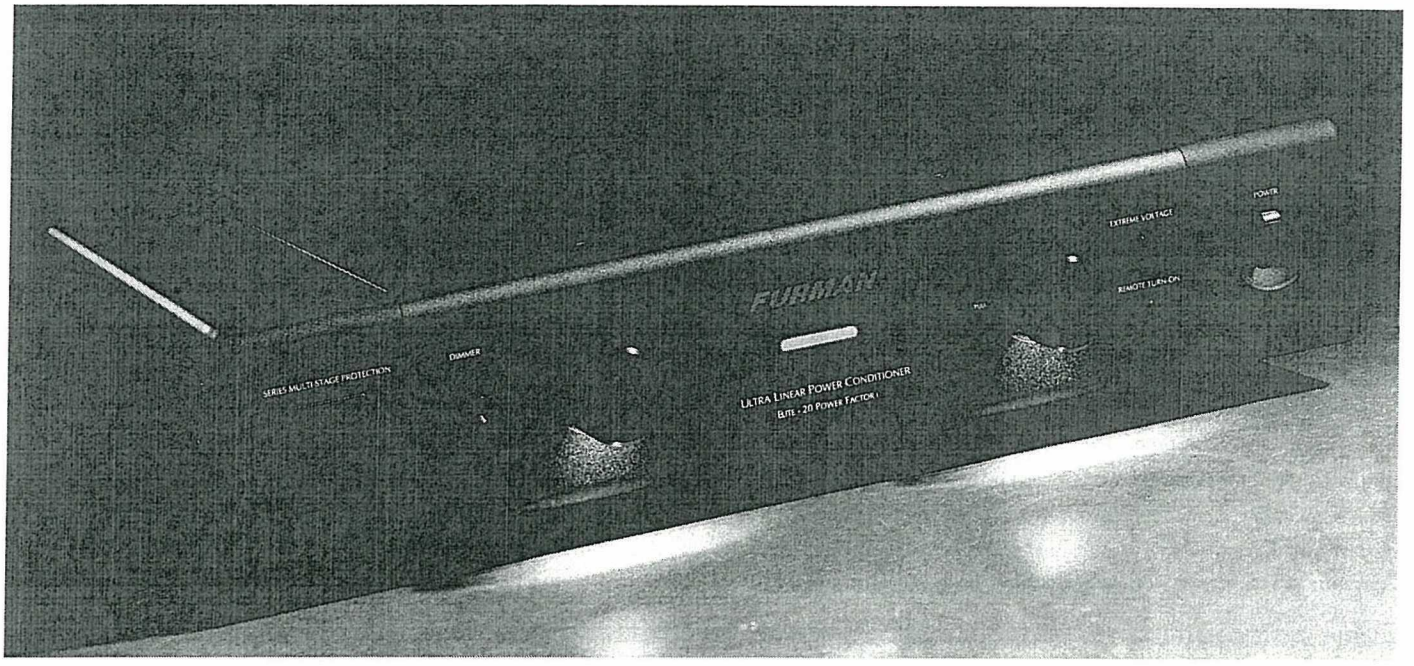
PT-120

TECHNICAL SPECIFICATIONS

INPUT:	1 RJ-45 connector.
OUTPUT:	1 VGA/UXGA on a 15-pin HD connector.
MAX. OUTPUT LEVEL:	1.5Vpp.
MAX. RESOLUTION:	WUXGA & 1080p.
DIFF. GAIN:	2.9% (worst case).
DIFF. PHASE:	0.3Deg (worst case).
K-FACTOR:	<0.05%.
S/N RATIO:	69dB (worst case).
CONTROLS:	-7.7dB to +3.1dB, 130m (level); 0dB to +25dB, (EQ.) @50MHz.
COUPLING:	DC.
POWER SOURCE:	12V DC, 175mA.
DIMENSIONS:	6cm x 6.5cm x 2.5cm (2.36" x 2.56" x 1") W, D, H.
WEIGHT:	0.14kg (0.31lbs) approx.
ACCESSORIES:	Power supply.
OPTIONS:	RK-4PT 19" rack adapter.



FURMAN



ELITE-20 PF i

ULTRA-LINEAR FILTERING AC POWER CONDITIONER

FEATURES

- Power Factor Technology provides over 55 Amps peak charge surplus current for power-starved amplifiers
- Ultra-Linear Filtering Technology for stunning audio and video clarity
- Series Multi-Stage Protection provides virtually maintenance-free AC surge suppression
- Zero ground contamination circuitry protects critical digital components
- Ultrasonic bi-filtering isolates digital and video circuits from analog components
- Retractable LED lamps illuminate a cabinet or rack full of equipment
- 12 Volt triggering for remote control

DESCRIPTION

For over 33 years, Furman has pioneered the development of AC power products for the most demanding audio, video, and broadcast professionals. Though the need for pristine AC power is nothing new, the Elite-20 Power Factor i's technology and its unique implementation are revolutionary and without peer.

The extreme AC demands encountered in the professional audio / video arena have required technological developments far in excess of typical home theater/audiophile power products. In studios, live sound, and broadcast facilities, breakdown is unacceptable. Equipment failure or poor performance is costly. The same is true of today's home theater. Our solution based technology, extensive engineering expertise, and robust build quality have answered the challenge of today's corrupted power lines, and led to the creation of the Elite-20 PF i.

Today's power lines are plagued with RF and EMI noise. When connecting sensitive equipment to your home's power outlet, AC noise couples into your system's critical components, masking low level signals and crippling performance. This low level content is critical because it relays the crucial harmonics and ambience in audio, as well as the depth and clarity in video. The Elite-20 PF i is so substantial in its ability to unmask critical signal content, its performance is surpassed only by the Furman Reference Series. With Furman's Ultra-Linear Filtering, televisions, projectors, DVD players, amplifiers, and processors are fed pristine AC power. For the first time, you will see and hear your theater or audio system as it should be – uncompromised.

Another critical feature is our exclusive Series Multi-Stage Protection featuring Extreme Voltage Shutdown (EVS). This

ELITE-20 PF i (continued from reverse)

virtually maintenance-free surge suppression assures the highest level of AC protection possible, without sacrificing itself when the offending surge is severe – no damaged equipment, no service calls, no down time. Further, our famous retractable front panel LED lamps allow easy viewing of either a rack or cabinet full of equipment, even when your theater lights are off.

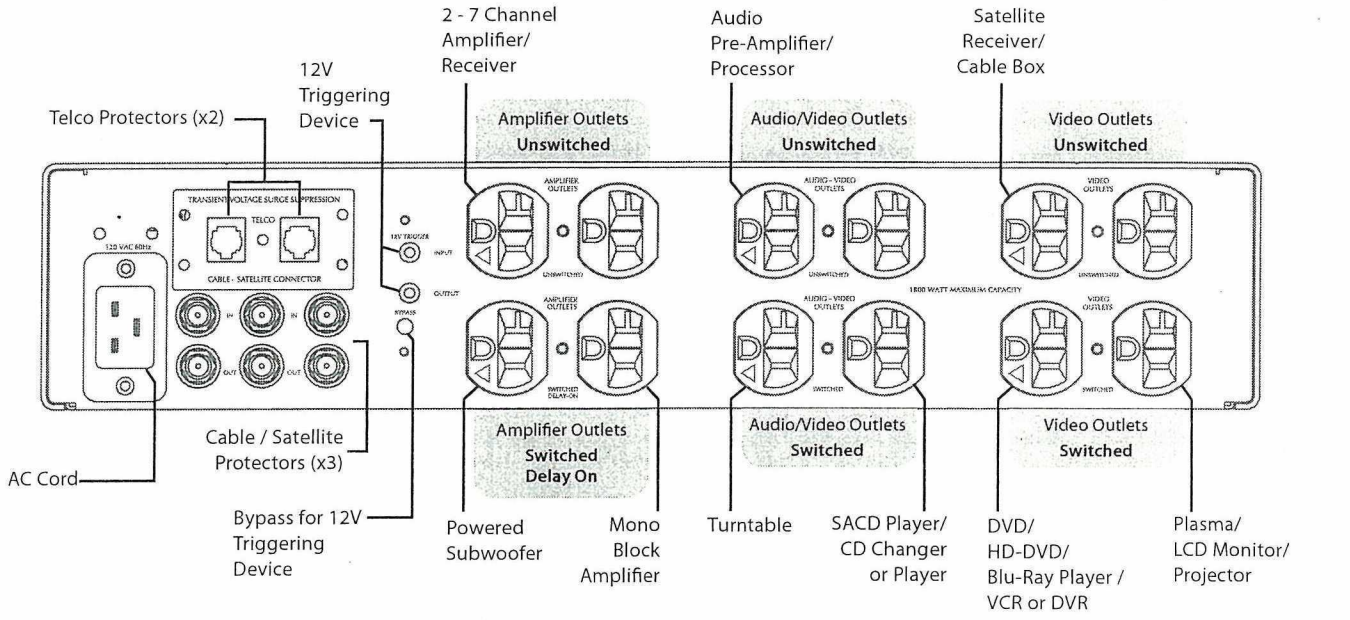
The Elite-20 PF i also features remote control capability via 12V triggering, compatible with the 12V triggering devices commonly found in power receivers and pre-amp processors. Additional products (such as a remote subwoofer) can be daisy-chained from the 12V output jack for an additional triggered unit. The 12V triggering feature may be bypassed if desired.

The essence of the Elite-20 PF i is Furman's unique Power Factor Technology. For the first time, low-level analog, digital, and video components are not modulated or distorted by the power amplifier's extreme AC current demands. Further, the power amplifier is fed a highly filtered, extremely low-impedance supply of AC power. The Elite-20 PF i, in fact, has in excess of 4 Amps of continuous current reserve (over 55 amps peak charge) for the most extreme peak power demands. This technology enables power amplifiers and powered subwoofers to operate at maximum efficiency, reaching levels of performance previously unattainable.

No longer will your amplifier's performance be at the mercy of your home's incoming AC power or inferior AC protection/filtering devices. The net effect is as if your power amplifier virtually doubled in power and improved immeasurably in quality.

When employing the Elite-20 PF i, you will immediately notice far clearer, stunningly focused sound and visual images from your system. Video presentation will be crisp and colors true with greater gray and black scale definition, as well as noticeably improved depth and clarity. Sonic transients will be startlingly fast with bass fundamentals that shake foundations with their weight and visceral impact. Mid and high frequencies will bloom with sweet, non-glaring ease as imaging improves dramatically, all the while remaining true to your system's inherent virtues.

EXAMPLE AC CONNECTION



ELITE-20 PF i SPECIFICATIONS

AC Current Capacity:
Input - 20 Amp capacity required
Output - 16-20 Amps RMS (maximum, all outlets combined - continuous)

Linear Noise Attenuation
Transverse (Differential) Mode
>40 dB from 5 kHz. - 100 kHz.
>80 dB from 100 Khz. – 1GHz.
(Linear attenuation curve from 0.05 – 100 ohms line impedance)

Transient Voltage Surge Suppression
120VAC Line (Series Multi-Stage Protection, non-sacrificial with zero ground contamination, 188V peak clamping @ 6000V 3000A input)
Telco, Cable / Satellite (Less than .1dB line loss)

Shutdown Range
140 VAC +/- 3 VAC

Outlets:
1 (Ultra-Linearly filtered outlet - front panel)
8 (Ultra-Linearly filtered outlets with additional ultrasonic filtering for either video or audio components, 4 with 12V triggering)
4 (Power Factor Technology amplifier outlets – 4.5 amps RMS reserve - reactive load - over 55 amps peak charge, 2 with 5 second delay via 12V triggering)

Dimensions:
4" H x 17" W x 14.75" D (Standard 2 RU height without feet)

Weight:
18 lbs.

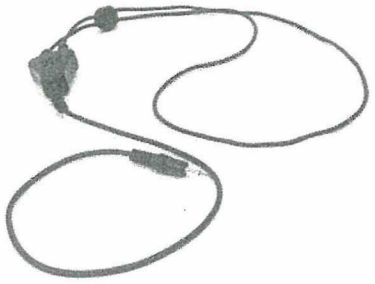
Power Consumption:
12 Watts for display and control circuits independent of actual load

Engineered in the USA by Furman Sound, LLC • 1690 Corporate Circle • Petaluma, CA. 94954 USA
Phone: (707) 763-1010 • Fax: (707) 763-1310 • www.FurmanSound.com

Williams Sound

NKL 001

Neckloop 18"



description

Use with hearing aids equipped with a T-coil switch or an induction earphone. 3.5 mm plug, mono, 8 - 16 Ω. Moderate to severe hearing loss.

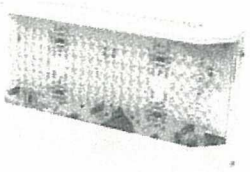
features

18" Cord
Adult size
3.5mm plug
monoaural
8-16 ohm
Recommended for FM receivers and select IR receivers
For individuals with moderate to severe hearing loss

Williams Sound

WIR TX90 WHT

SoundPlus® 2-channel Infrared Transmitter (white)



description

The powerful WIR TX90 WHT transmitter combines modulator and emitter technology into a single operating unit, which reduces operating costs, eliminates the need for rack space and eases set-up. The WIR TX90 WHT features application pre-set controls for music, voice or hearing assistance applications – no guesswork required for audio configuration. Everything you need for installation is in the box.

system includes

(1) WIR TX90 WHT transmitter (white)
(1) TFP 010 power supply
(1) WCA 079 50' power cable
(1) BKT 024 wall/ceiling mount
(1) IDP 008 ADA wall plaque

features

- Adjustable tone/volume controls
- Resistant to high-efficiency lighting interference
- Compatible with Dolby®, DTS® and Doremi® systems for audio description in cinema
- Line inputs
- No radio license required
- 5-year warranty (90 days on accessories)
- **Made in USA**

specifications

wir tx90 wht

Dimensions, Weight:	11.25" W x 6.25" H x 2.125" D (28.6 cm x 15.9 cm x 5.4 cm), 1.8 lbs (0.8 kg)
Color:	White with black legends, clear acrylic lens (optional black enclosure available)
Power Supply:	Wall Transformer, 24 VAC, 50-60Hz, 35 VA, 3-pin MOLEX Connector
	North America: TFP 010, UL/CSA
	Europe: TFP 027-01, 2-pin Schuko plug, CE
	UK: TFP 027-02, 3-pin UK plug, CE
Power Cable:	NEC Class 2 wiring, two-conductor, 18 ga., 200' (61m) max. length
Modulation:	FM Wideband, +50kHz deviation max., 50uS pre-emphasis
Carrier Frequency:	Channel A: Selectable, 2.3/2.8 MHz, Channel B: Selectable, 3.3/3.8 MHz
Emitter IR Power:	3.5 watts
Coverage Area:	28,000 sq. ft. (2600 sq. m) in single channel mode when using the RX22-4 Receiver 18,000 sq. ft (1700 sq. m) in two channel mode when using the RX22-4 Receiver 11,000 sq. ft (1000 sq. m) in four channel mode when using the RX22-4 Receiver 3,500 sq. ft (325 sq. m) in single channel mode when using the RX15-2 Receiver 3,063 sq. ft (285 sq. m) in single channel mode when using the RX18 Receiver
Signal-to-Noise Ratio:	>75 dB, +3dB

Frequency Response:	80 to 15,000 Hz, electrical response
Total Harmonic Distortion:	Less than .2%, electrical response at 1kHz
Compression:	Music preset 1:1, Voice preset 1.5:1, Hearing Assist preset 2:1
Auto Carrier Shut-Off:	20 minute timer shuts off carrier when no audio is present

TX90 Bottom View

Power Indicator:	Red LED
Audio Volume Level Controls:	CHA and CHB Input Level, press to select, 28 dB adjustable range
Audio Indicators:	CHA and CHB Audio Level, yellow LED, flash
Carrier LEDs:	2 green LED carrier "on" indicators
Phones Output:	3.5mm TRS headphone jack. CH A tip, CH B ring on jack, 32 ohm headphone (min)
Application Preset:	Music, Voice, Hearing Assist. Frequency response; Music: Flat; Voice: Mid-range boost; Hearing Assist: High frequency boost
Tone Control:	Press to select, 21 dB adjustable range (1 kHz between low boost/hi-cut and low cut/hi boost).

TX90 Back Panel

Power Input:	3-Pin Molex, 24 VAC, 50-60 Hz, 35 VA
Audio Input Connector:	CH A and CH B, 3 wire Phoenix
Input Level:	Balanced or unbalanced, 316 mVRMS (-10dBV) nominal, 5.7k input impedance; max input (over volume range) -21 to +7 dBV.
Baseband Output:	BNC, 50 Ω, for use with TX9 only
Baseband Cable:	RG 58 Coax, BNC connectors, maximum 1000' (300m) length
Operating Requirements:	0-50° C (+32°F to 122°F) ambient temperature, non-condensing, non-corrosive atmosphere
Mounting Kits:	Wall or Ceiling Mount: BKT 024 Omnidirectional mount; Optional: Tripod Stands: SS-11 or SS-6
Warranty:	5 years on transmitter, 90 days on accessories
Approvals:	CE, FCC, RoHS, WEEE
Compatible Receivers:	WIR RX22-4 Four-Channel Receiver WIR RX15-2 Two-Channel Receiver WIR RX18 Two-Channel Receiver

Notes: Specifications: Single end input, volume & tone controls at mid point, 1 kHz, "Music" Preset

other models

WIR TX90 SoundPlus® Integrated Two-channel Infrared System
WIR TX90-01 SoundPlus® Integrated Two-channel Infrared System – Euro Power Supply
WIR TX90-01 WHT SoundPlus® Integrated Two-channel Infrared System – Euro Power Supply
WIR TX90-02 SoundPlus® Integrated Two-channel Infrared System – UK Power Supply
WIR TX90-02 WHT SoundPlus® Integrated Two-channel Infrared System – UK Power Supply

Williams Sound

WIR RX22-4

SoundPlus® 4-channel Infrared Receiver

description

The WIR RX22-4 is a four-channel selectable, infrared receiver compatible with transmitters operating on the 2.3/2.8/3.3/3.8 MHz bandwidth. Dual infrared detectors maximize sensitivity and operating range. Range of up to 28,000 square feet (2,600 square meters) in single-channel mode when used with a Williams Sound WIR TX925 or WIR TX90 infrared system. Comfortable, body-pack design features convenient channel selector and easy-to-use on/off volume control. The RX22-4 can be used with mono or stereo headphones, earphones or a neckloop (lanyard included).

features

- Use with earphones, headphones or neckloop (lanyard included)
- Uses AA alkaline or rechargeable batteries
- Five-year warranty (90 days on accessories)

specifications

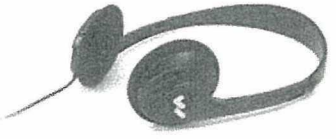
wir rx22-4

Receiver Style:	Body-Pack, dual-lens detector, lanyard
Size:	4.1" L x 2.85" W x 1.2" H (104.1 mm x 72.4 mm x 30.4 mm)
Weight:	4.5 oz (127 g) with batteries
Color and Material:	Black
Lanyard:	3 ft (.91 m), allows receiver to be worn around the neck
Operating Temperature:	-10° C to +50° C
Battery Type:	2 x AA, alkaline (BAT 001) or NiMH (BAT 026)
Battery Life:	Alkaline: 60 hours, NiMH: 30 hours/charge
Battery Drain:	25 mA, nominal
Charging Contacts:	For use only with CHG 3512
Carrier Frequency:	Channel 1: 2.3 MHz, Channel 2: 2.8 MHz Channel 3: 3.3 MHz, Channel 4: 3.8 MHz
De-Emphasis:	50 uS
FM Deviation:	±50 kHz
Signal-to-Noise Ratio:	60dB min.
Squelch:	Receiver squelches (mutes) at 40 dB S/N ratio
Frequency Response:	25 Hz to 16 KHz, +1 dB, -3 dB, electrical response
Total Harmonic Distortion:	Less than 1%, electrical response
Controls:	ON/OFF/VOLUME: combination thumbwheel knob Channel Selector: four-position rotary switch
Indicators:	Red LED "ON" indicator, flashes to indicate Low battery
Audio Output Jacks:	3.5 mm stereo mini phone jack Accepts 3.5 mm mono or stereo phone plug
Audio Output Power:	15 mW max at 32 Ω
Acoustic Output:	125 dB SSPL90 with HED 021; 110 dB SSPL90 w/ EAR 013
Sensitivity:	Better than 1 nW/cm2 for 40 dB signal-to-noise ratio
Approvals:	CE, FCC, RoHS, WEEE
Warranty:	5 years on receiver, 90 days on accessories

Williams Sound

HED 021

Folding headphones



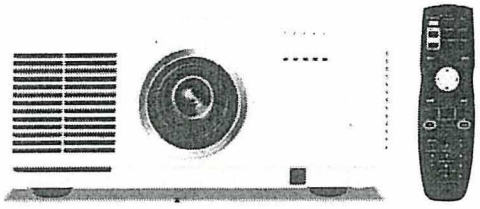
description

Folding Headphone, Adult size, 32 Ω, mono, mild and low gain hearing loss rating. Replacement earpads: HED 023, HED 023-100. 6-7/8" x 5-5/8" x 7/8" .12 lbs.

specifications

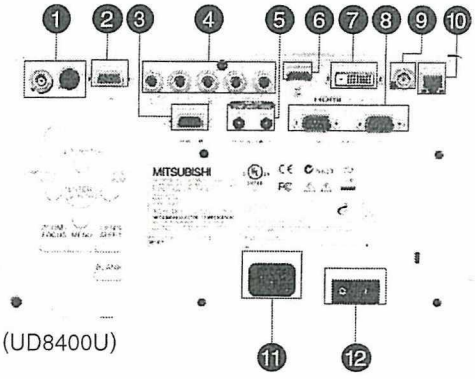
hed 021

Style	Mono, folding headphone
Plug	3.5mm mono
Cord	39"
Driver Size	30 mm
Nominal Impedance	32Ω
Freq. Response	20 - 20kHz
Weight	52g
Max Power Input	100 mW
Sensitivity	110 dB @ 1kHz
Replacement Pads	HED 023 (one pair)



8000 SERIES

UD8400U/UD8350U
WD8200U/WD8200LU
XD8100U/XD8100LU



(UD8400U)

Connection Terminals

1. S-Video/Video
2. PC/Component video input-1
3. Remote-1
4. PC/Component video input-2
5. Remote-2 (I/O)
6. HDMI
7. DVI-D
8. Serial RS-232C (I/O)
9. 3G-SDI (UD8400U only)
10. LAN (RJ-45)
11. Power in (3-pin with earth terminal)
12. Main power switch O:Off I:On

Specifications

Model	UD8400U / UD8350U	WD8200U / WD8200LU	XD8100U / XD8100LU
Display technology	0.67" 1-Chip DMD	0.65" 1-Chip DMD	0.7" 1-Chip DMD
Resolution	1920 x 1200 (Total 2,304,000 pixels)	1280 x 800 (Total 1,024,000 pixels)	1024 x 768 (Total 786,432 pixels)
Brightness	Dual lamp: 6500 lm Single lamp: 3250 lm	Dual lamp: 6500 lm Single lamp: 3250 lm	Dual lamp: 7000 lm Single lamp: 3500 lm
Contrast ratio	2000 : 1 (on/off)		
Projection lens	f = 24.5-33.1mm, F = 2.0-2.4		
Zoom / focus	Powered focus / zoom (zoom ratio 1.35 : 1)		
Picture size	40"-300"		
Throw ratio	1.77-2.27	1.77-2.27	1.77-2.27
Source lamp	Dual (330W×2): Lamp mode: Normal — hour: 2,000 hours; Lamp mode: Low — hour: 4,000 hours Single (330W×1): Lamp mode: Normal — hour: 4,000 hours; Lamp mode: Low — hour: 8,000 hours		
Computer compatibility	Resolution: 640 x 400 - 1920 x 1200 True: 1920 x 1200, Sync-on-Green available	Resolution: 640 x 400 - 1920 x 1200 True: 1280 x 800, Sync-on-Green available	Resolution: 640 x 400 - 1920 x 1200 True: 1024 x 768, Sync-on-Green available
Video compatibility	NTSC / NTSC 4.43 / PAL (including PAL-M, N) / SECAM / PAL-60 Component video: 480i/p (525i/p), 576i/p (625i/p), 720p (750p 50/60Hz), 1080i (1125i 50/60Hz), 1080p (1125p 50/60Hz) SCART (RGB + 1V sync, only mini D-sub 15-pin Terminal)		
Input terminals	PC: 5 BNC × 1, mini D-sub 15-pin × 1, DVI-D (with HDCP) x 1 Video: BNC × 1, S-Video (4-pin) × 1, HDMI (Ver 1.3, Deep Color) × 1 3G-SDI × 1 (UD8400U only)		
Communication terminals	LAN (RJ-45): × 1 (projector control), SERIAL (in): D-sub 9-pin (male) × 1 (direct command is available.), SERIAL (out): D-sub 9-pin (male) × 1 (direct command is available.) Wired remote (in): × 1 (ϕ3.5mm stereo mini jack), Wired remote (out): × 1 (ϕ3.5mm stereo mini jack), Remote: D-sub 9-pin (female) × 1		
Dimensions (W×H×D)	19.3" x 7.9" x 16.6" (exclude detachable terminal cover and protrusion)		
Weight	35.3 lbs (exclude detachable terminal cover)		
Power supply	AC 100 - 240 V, 50/60 Hz		
Included Accessories	AC Power Cable, RGB cable, RS-232C cable, Terminal-Cover, Remote Unit (incl. Battery), User Manual CD, Safety Manual, Labels for ceiling mount usage		
Warranty	3-Years or 10,000 hours (whichever comes first) Limited P&L Warranty, Express Replacement Assistance (ERA) during the warranty period, 1-yr or 500hrs lamp warranty (whichever comes first)		

*Varies depending on condition. *All brand names and product names are trademarks, registered trademarks or trade names of their respective holders. *Lamp life specification is an estimate based on verification under proper conditions and is not the duration of the warranty. Lamp will shut-off automatically when usage reaches the specified estimated maximum lamp hours. Service life may vary widely depending on usage and operating environment and conditions, as well as users' adherence to the maintenance and cleaning procedures provided in the user manual. *The above specifications are for the standard model only. Specifications are different for lens-less models *HDMI, the HDMI Logo, and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.

Optional Lenses

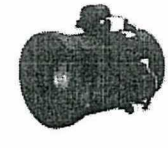
OL-XD2000SZ
Short-throw Zoom Lens (1.3-1.9)

Converter Lens
(mounted on the standard lens)

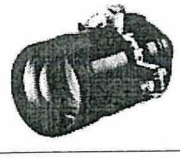
OL-XD2000LZ
Long-throw Zoom Lens (2.2-2.9)

Converter Lens
(mounted on the standard lens)

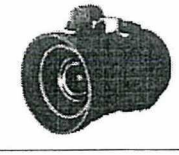
OL-XD2000TZ
Telescopic-throw Zoom Lens (2.9-4.7)



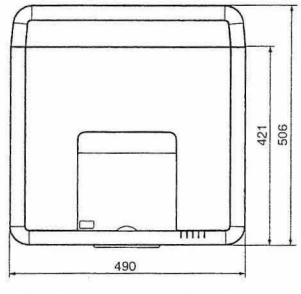
OL-XD8000UZ
Ultra-telescopic-throw Zoom Lens (4.7-9.0)

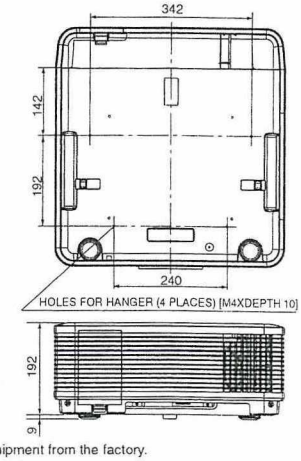


OL-XD2000FR
Rear-projection Short-throw Fixed Lens (0.8)



Dimensions (unit: mm)





* The lens focal point is the default set at the time of shipment from the factory.

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Display & Imaging Solutions Division
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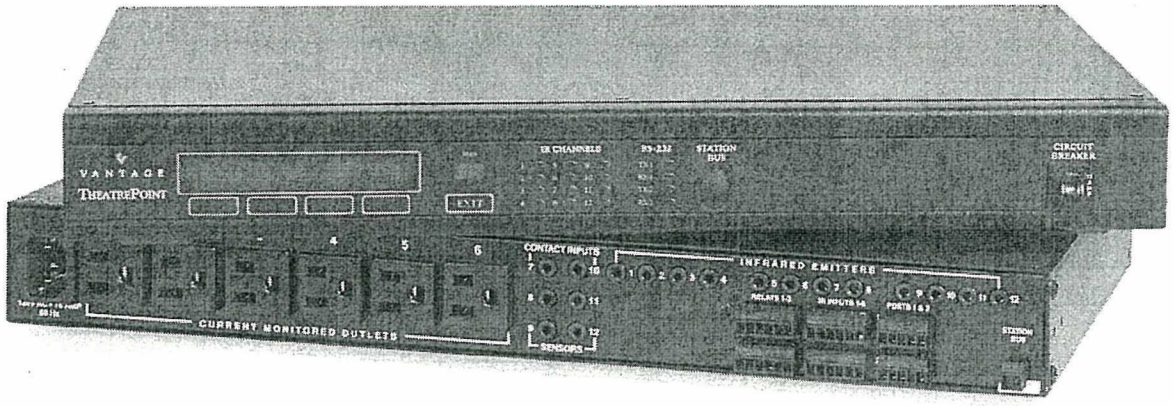
THEATREPOINT



Vantage's TheatrePoint is a companion to the C-Box or Master Controller which integrates the home theater into the whole-home automation system. TheatrePoint can control virtually any device in the home theater using previously programmed keypads, remote controls, touch screens and time controls from the C-Box or Master Controller.

TheatrePoint eliminates the need for independent lighting controllers, contact input stations, IR control stations and other products needed to fully automate a home, consequently saving money for dealers and ultimately the homeowner. TheatrePoint keeps all of your devices in sync using six current sensing outlets, which allow the Vantage system to know whether an audio video device is on or off.

TheatrePoint simply places you in control of your home theater. With a push of a button you can control your movie projector, audio system, DVD player, motorized projection screen, window coverings and more. TheatrePoint is an ideal solution for home theater control.

- Upgradeable firmware from QLink software
- Programs quickly and easily with QLink software
- Integrates third party components into the Vantage system using:
  - Twelve IR outputs
  - Two RS-232 ports
  - Six low voltage relays
  - Six current sensing outlets with power conditioning and protection
  - One station bus port
  - One built-in IR receiver
  - Six IR input ports with IR Passthrough and routing for whole-home audio and video control
  - Six contact inputs for additional buttons, sensors, Elan or Smartlinc probes.

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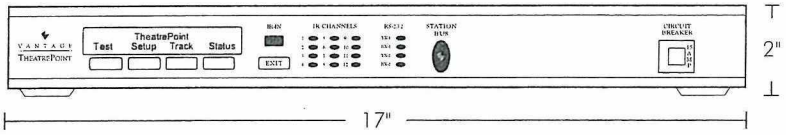
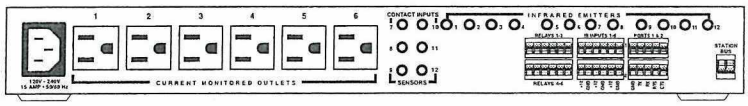
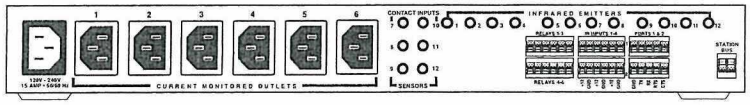


FRONT VIEW



THEPT-A BACK VIEW



THEPT-I BACK VIEW

SPECIFICATIONS

Dimensions, HWD	
	2" x 17" x 10" 50.80mm x 431.80mm x 254mm

General Specifications	
Model	THEPT-A (American); THEPT-I (International)
Weight	8 lb 3.6 kg
Ambient Operating Temperature	0–35° C (32–95° F)
Ambient Operating Humidity	5–95% noncondensing
Lightening/Surge Protection	High Voltage meets IEEE C62.41 (6000V & 3000A) Low Voltage meets IEU-T K.20 MOV, CM Choke
Power Requirements	120 or 240 VAC; 15 Amps; 50/60 Hz
IR Emitter Outputs Mono 3.5mm mini plug	12 Channels
Internal IR Receiver	1
External Inputs for Vantage, Xantech or Niles compatible IR receivers	6
Low Voltage SPST Relays (One Amp Max. Each)	6
RS-232 Ports	2
Contact Inputs	6
Current Sensing Outlets (120-240 VAC)	6
Station Bus Ports	1
Status LEDs	16
Cooling	Convection
Mounting	Rack-mountable

Wiring Specifications	
Station Bus Wiring Minimum	2 conductor, 16 AWG stranded, non-shielded twisted pair, 30 pF/foot max, UL rated CL2
Station Bus Topology	Any combination of daisy chain or star or branch or home run

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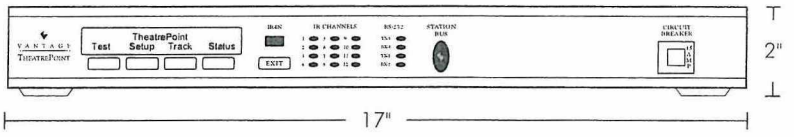
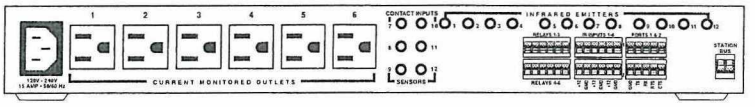
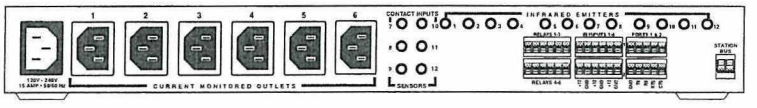
www.vantagecontrols.com



FRONT VIEW



THEPT-A BACK VIEW



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INFUSION CONTROLLER

Controllers

The InFusion Controller using a Intel XScale Processor is one of the most powerful home system controller's available. The product features a fast processor and large memory capacity which provides delay free control of large complex systems. One InFusion Controller can support up to 120 WireLink stations and up to 120 RadioLink stations. Controllers can easily network to expand the system further. Five RS-232 ports provide easy device connectivity while an ethernet connection supports IP full connectivity.

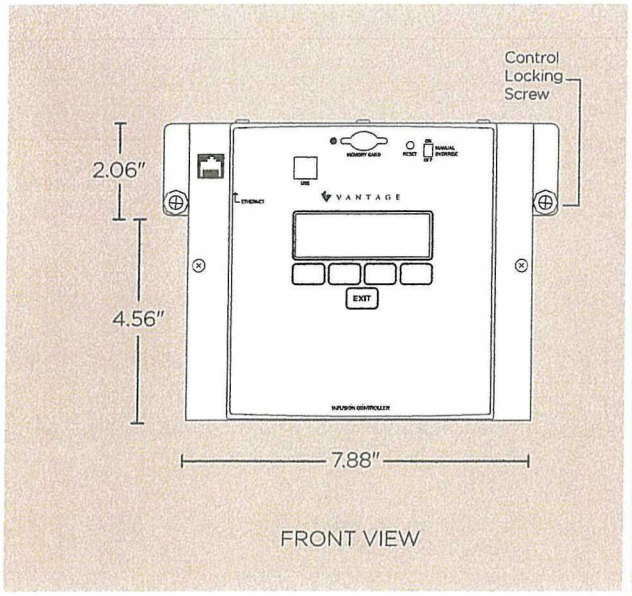
A networked home, apartment complex or luxury yacht will have a variety of controlled subsystems, including lighting, audio/video, security and climate control. The InFusion Controller provides seemless integration of those subsystems - enhancing the entire home control experience.

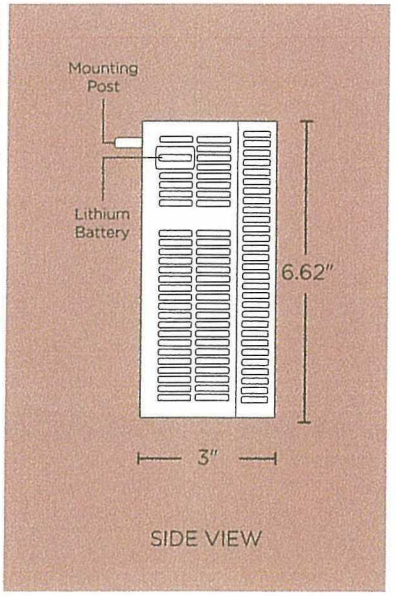
Product Highlights

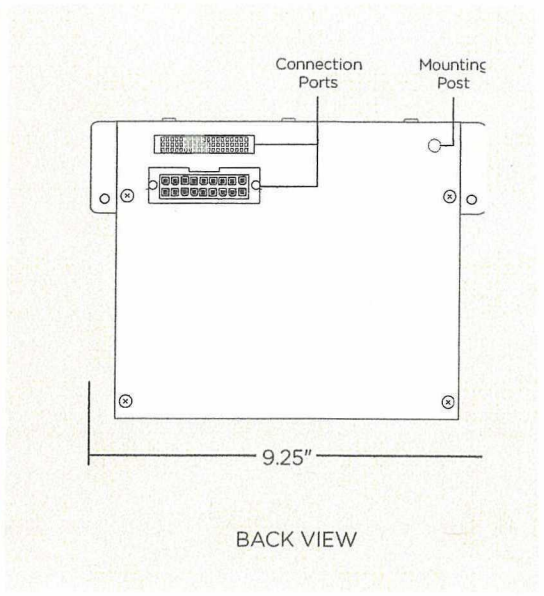
- Ethernet enabled
- Plug-and-play design
- 2 RS-485 ports
- 120 low voltage stations
- 120 available wireless stations
- Tracks real and astronomical time
- Built-in USB port
- SD Memory Card for backup of programming
- Dramatically faster processor
- Supports up to seven enclosures per Controller
- Runs on upgradeable internal software
- 24VDC and 36VDC versions

VANTAGE

InFusion Controller







Specifications

Dimensions, HWD

	6.62" x 7.88" x 3.0" 168mm x 200mm x 76mm

General Specifications

Model	IC-36 and IC-24
Ambient Operating Humidity	5-95% non-condensing
Ambient Operating Temperature	0-40°C / 32-104°F
Cooling	Convection
Dimensions HWD	6.62" x 7.88" x 3.0" (168mm x 200mm x 76mm)
Lithium Battery Backup	Disk battery CR2032, 3Volt 2.5 yrs. un-powered or 30 yrs. powered (field replaceable - see caution at end)
Max. # WireLink Stations IC-24V	Up to 50 Stations each bus or until the shared 35W supply is used
Max. # WireLink Stations IC-36V	Up to 60 Stations each bus or until the independent 60W supply is used on each bus
Max. Length of Each Controller to Controller Bus Network	2000 feet / 609 meters-Vantage spec. wire 1000 ft / 304 meters-CAT5 wire
Max. Wire From IC to SC	200 feet / 61 meters
Max. Wire Length Station Bus	2,000 feet of cabling max. on each station bus. No station more than 1,000 feet from Controller
Maximum Power Draw	200W
Station Bus Power Supply, IC-24	One 35W shared power supply to both station buses
Station Bus Power Supply, IC-36	One 60W independent power supply to each station bus.
Station Bus Specification	2C 16AWG, non-shield, <30pF per foot Station Bus should be separated a minimum of 18" from other parallel communication and/or high voltage runs.
Voltage	120-240V, 50/60Hz
Weight	3.3 lbs -or- 1.5kg
Wire Configuration of Station Bus	Daisy Chain. Branch, Star
Wiring config. C2C, IC Network	Daisy Chain
Lightning / Surge Protection	Static Shock IO. All ports and case, IEC 61000-4-2, Low Voltage, ITU-T K.20

System Compatibility

InFusion

TPT1210-1 IN-WALL DOCK

User Interfaces

The TPT1210-1 In-Wall dock is great for applications where an in-wall mount is more desirable. Vantage's TPT1210-1 In-Wall (TPT-1210-1-IW) allows the TPT1210-1 to be easily docked, flush with the wall. The dock provides full Ethernet hardwire connectivity and power to charge the touchscreen. The in-wall dock may be installed during construction or as a retrofit, mounting between the stud spaces.

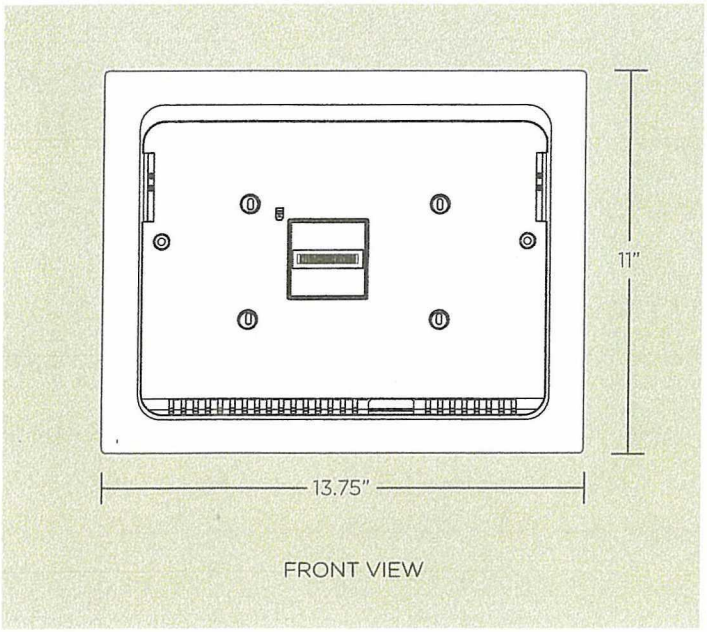
For new construction, the optional TPT rough-in wall box (part number TPT1210-1-INSTALL-16) is also available. This product was designed for pre-construction installation and installs behind the drywall and uses telescoping brackets to attach firmly to the studs. This provides rigid stabilization to optimize a removable touchscreen application.

Product Highlights

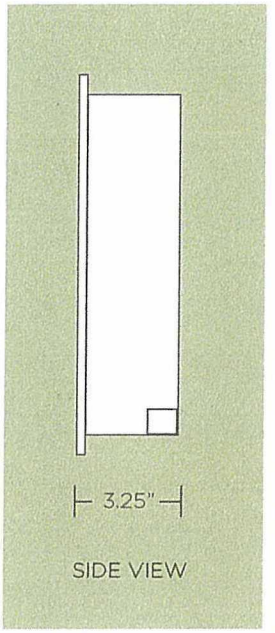
- Elegant flush mounting solution
- Provides power for charging while docked
- Provides wired Ethernet while docked
- Frees your hands for navigation

VANTAGE

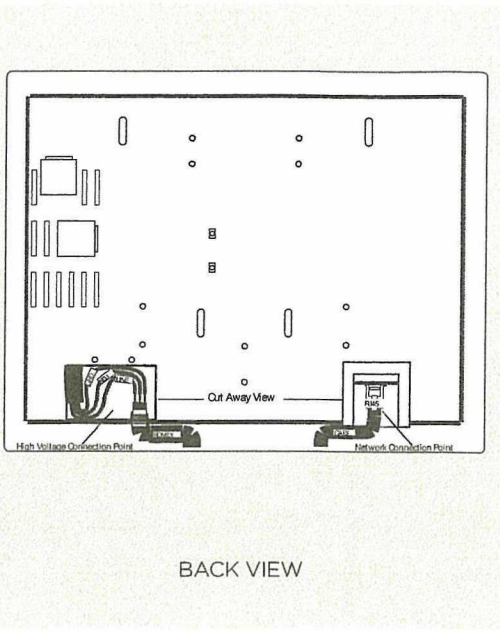
TPT1210-1 In-Wall Mounting Dock



FRONT VIEW



SIDE VIEW



BACK VIEW

Specifications

Dimensions, HWD

Overall Dimensions, HWD	11" x 13.75" x 3.25" 279mm x 349mm x 83mm
Surface Dimensions, HWD	11" x 13.75" x 0.25" 279mm x 349mm x 6mm

General Specifications

Model	TPT1210-1-IW
Weight	8.0 lbs. - 3.6 kg
Retrofit Mounting	Mounts to two 16inch telescoping brackets (included)
Pre-Installation Mounting	Mounts to TPT1210-1-ROUGHIN-16 PLEASE SEE: TPT1210-1 Rough In Wall Box_install.pdf Installation sheet
Power Connection	Inside Electrical Box - 120/240V
Built-In AC Adapter	100-240V, AC 47-63Hz, 19V DC output, 3.16A 60W Adapter
Operating Temperature	5°C - 35°C (41° F - 95° F)
Ambient Operating Humidity	5-95% non-condensing

Mounting/Dismounting TPT1210

Mount	• Dock the 1210-1 tablet by inserting the bottom first into the self guiding cupped tray • Carefully press back the top of the TPT1210-1 tablet to completely lock the docking clamps • Make sure it is locked before leaving by sliding the lock lever on the top • Press the tablet all the way back (until it bottoms) and then release to secure in the wall
Remove	• Press the tablet all the way back (until it bottoms) and then release to allow the Floating Dock to release from the wall • Unlock by sliding the lock lever on the top • Remove the TPT1210-1 by pressing in either the left or right side levers and carefully tilting the top of the TPT1210-1 away from the wall while leaving the bottom securely in the cupped tray • Finish by carefully lifting the 1210-1 from the tray

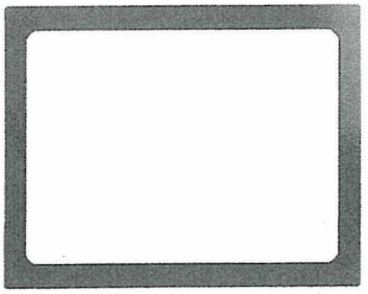
System Compatibility

InFusion

TPT1210-1 In-Wall Mounting Dock

Bezel Options

Silver



Black

Artic White

TPT1210-1 WEB TABLET

User Interfaces

The TPT1210-1 is a completely customizable hand-held touchscreen that provides the homeowner with complete wireless control of their Vantage System. This 12.1-inch, wide-angle color touch panel is ideal for any environment.

Utilizing the simple drag and drop programming of Vantage's powerful software the TPT1210-1 can be personalized to cater to the homeowner's individual tastes. Using preprogrammed libraries and widgets as well as other design elements, Vantage dealers can quickly create complex and attractive touchscreen solutions. With its optional in-wall, on-wall, or pedestal mount, the TPT1210-1 will enhance the look of any room.

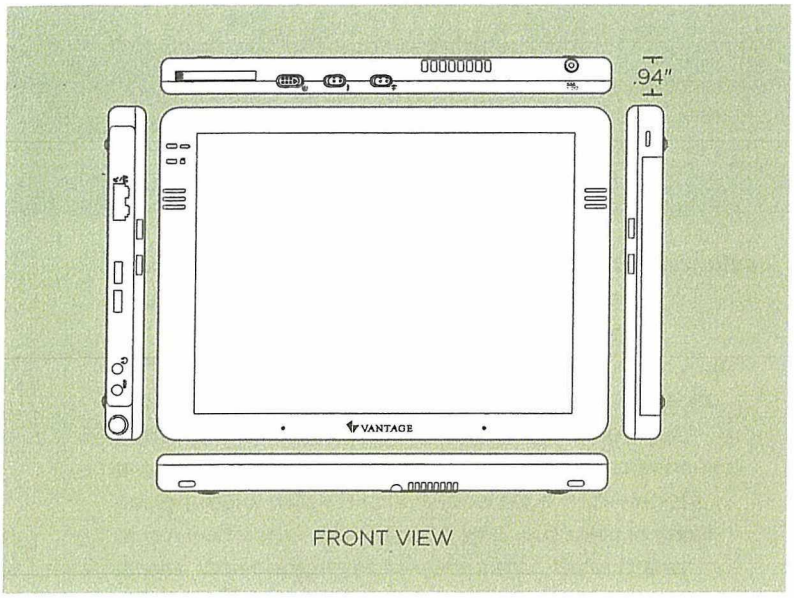
The TPT1210-1 offers total control of any project by not only controlling the lights, but also climate, security cameras, multi-room audio, home theaters and more.

Product Highlights

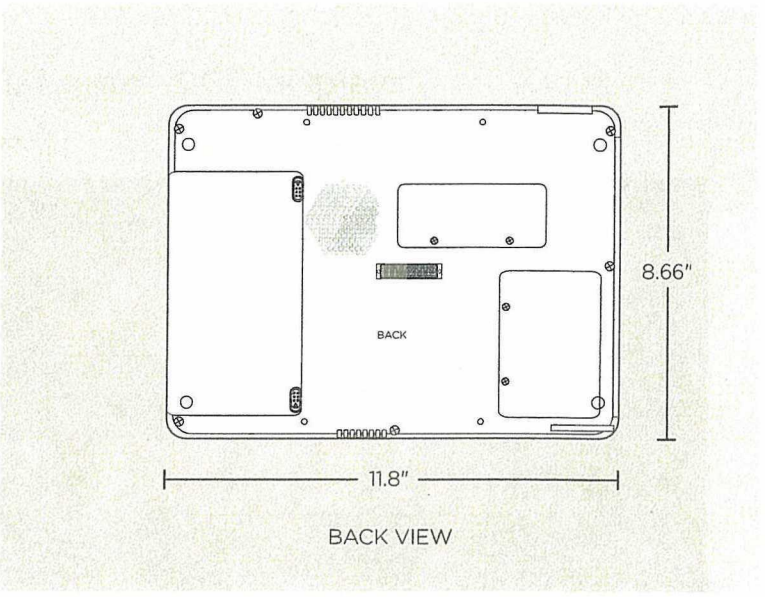
- Provides 100% design customization through Vantage's Design Center software
- Powered by Infusion Media
- Intel® Celeron®M - ULV 423
- 1024 x 768 resolution with an ultra slim 12.1" wide angle view XGA panel
- Rechargeable 6-cell 42w lithium ion battery pack
- Built-in speakers and microphone
- Intel® Pro 3945 Dual-Band/Tri-Mode 802.11 a/b/g
- Finger Print Reader

VANTAGE

TPT1210-1 WEB TABLET



FRONT VIEW



BACK VIEW

Specifications

Dimensions, HWD

	11.81" x 8.66" x 1.02"
	300mm x 220mm x 26mm

General Specifications

Model	TPT1210-1
Weight	3.57 lbs (1.62kg) with Battery Pack Installed
AC Adapter	100-240V, AC 47-63Hz, 20V DC output, 3.25A 65W
Audio Chip	Intel® High Definition Audio Interface (ICH7-M)
Battery	Rechargeable 6-Cell Lithium Ion Smart Battery Pack (3800 mAh @ 11.1 V, 42W/hr)
Video	Intel® GMA 950 PCI Express, 250 MHz Core Render Clock at 1.05V core 1024 x 768 Landscape
Certification	UL, CSA, TUV,CCC,EMI FCC, CE, VCCI,C-Tick
Communication	1x RJ-11 56Kbps v.90 Fax/Modem 1x RJ-45 10/100/1000 Mbps Full Duplex Ethernet 1x Intel® Pro 3945 Dual-Band/Tri-Mode 802.11 a/b/g
Display	12.1" TFT XGA LCD Wide Angle Display Passive Resistive Touch Screen
Processor	Intel® Celeron® M ULV 423; 1.06 GHz, 32KB/32KB L1 cache, 1 MB L2 cache, 533 MHz FSB; Intel Enhanced SpeedStep® Technology
Expansion Slot	PCMCIA 2.1 Compliant, Supports one (1) Type II 32-bit PC Card Bus
Graphics	Intel® 945 GM Express North Bridge with 533 MHz and 667 MHz
Hard Drive	2.5" 9.5 mm, Ultra DMA SATA 150 MB/s 60 GB @ 5,400 rpm
I/O Ports	1x RJ-11 56Kbps v.90 Fax/Modem; 1x RJ-45 10/100/1000 Ethernet; 2x USB 2.0; 1x 3.5mm Audio Out; 1x 3.5mm Audio In
Memory	2x SODIMM DDR2 slots with initial configurations of 1.0 GB
Operating System	Windows® XP Professional Edition
Operating Temperature	Temperature: 5°C - 35°C (41°F - 95°F) Humidity: 20% - 80% (no condensation)
Speakers/Mic	Built-in Stereo Speakers and Dual Digital Microphone Array for added fidelity and accuracy

System Compatibility

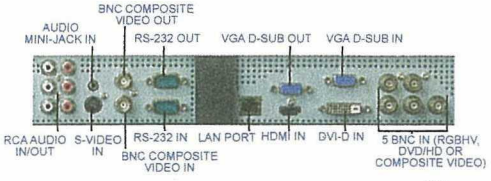
InFusion

Specifications for V321-2/V422/V462/V551/V651

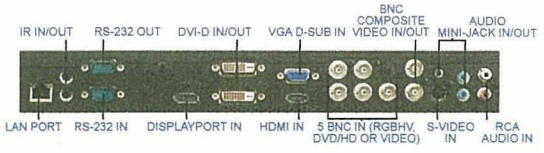
MODEL	V321-2	V422	V462	V551	V651
LCD MODULE					
Panel Technology	SPVA	S-IPS	SPVA		A-MVA
Viewable Image Size	32"	42"	46"	55"	65"
Native Resolution	1366 x 768	1920 x 1080			
Brightness (Typical)	450 cd/m²	370 cd/m²	340 cd/m²	350 cd/m²	400 cd/m²
Contrast Ratio (Typical)	3000:1	1300:1	3000:1		5000:1
Viewing Angle	178° Vert., 178° Hor. (89U/89D/89L/89R) @ CR>10				
Response Time (G-to-G)	8ms	10ms	8ms		
Aspect Ratio	16:9				
Active Screen Area (W x H)	27.5 x 15.4 in. / 697.6 x 392.3mm	36.6 x 20.6 in. / 930.2 x 523.3mm	40.1 x 22.6 in. / 1018.1 x 572.9mm	47.6 x 26.8 in. / 1209.6 x 680.4mm	56.2 x 31.6 in. / 1428.5 x 803.5mm
Orientation	Landscape/Portrait				Landscape
Displayable Colors	More than 16.7 million				
CONNECTIVITY					
PC/Mac Signal Compatibility	Yes				
Input Terminals					
Digital	HDMI, DVI-D	DisplayPort, HDMI, DVI-D			
Analog	VGA 15-pin D-sub, 5 BNC (RGBHV, DVD/HD or Video), BNC Composite, S-Video				
Audio	RCA Audio (2), Stereo Mini-Jack	RCA Audio, Stereo Mini-Jack (2), HDMI Audio, DisplayPort Audio			
External Control	RS-232, IR Remote, DDC/CI	RS-232C, Ethernet (RJ45), IR Remote, DDC/CI			
Output Terminals					
Digital	NA	DVI-D			
Analog	VGA 15-pin D-sub, BNC Composite	BNC Composite			
Audio	RCA Audio, External Speaker Jack (2)	Stereo Mini-Jack, External Speaker Jack (2)			
External Control	RS-232	RS-232C, IR Remote			
Digital Tuner	NA	V422-AVT	V462-AVT	V551-AVT	V651-AVT
POWER CONSUMPTION					
On (Typical)	75W	155W	165W	200W	330W
ECO Mode Standby	<1W	<2W	<1W		
PHYSICAL SPECIFICATIONS					
Bezel Width (L/R, T/B)	1.7 in./1.7 in., 1.6 in./1.6 in. ; 43mm/43mm, 41mm/41mm	1.8 in./1.8 in., 1.7 in./1.7 in. ; 46mm/46mm, 43mm/43mm	2 in./2 in., 1.8 in./1.8 in. ; 51mm/51mm, 46mm/46mm	2.04 in./2.04 in., 1.8 in./1.8 in. ; 52mm/51mm, 46mm/46mm	2.1 in./2.1 in., 2 in./2 in. ; 53mm/53mm, 51mm/51mm
Net Dimensions (without stand; WxHxD)	31.1 x 18.8 x 5.2 in. / 789 x 476.3 x 133mm	40.3 x 24.2 x 4.2 in. / 1022.9 x 613.5 x 105.6mm	44.2 x 26.2 x 4.2 in. / 1121.5 x 664.7 x 107mm	51.9 x 30.5 x 4.7 in. / 1317.8 x 775.8 x 118.9mm	60.6 x 35.8 x 4.7 in. / 1540.4 x 909.2 x 118.9mm
Net Weight (without stand)	31.5 lbs. / 14.3 kg	48.5 lbs. / 22 kg	55.8 lbs. / 25.3 kg	81.8 lbs. / 36 kg	118.6 lbs. / 53.8 kg
VESA Hole Configuration	400 x 200mm (12-hole)	300 x 300mm (4-hole)		400 x 400mm (4-hole)	
ENVIRONMENTAL CONDITIONS					
Operating Temperature	41-104°F / 5-40°C				
Operating Humidity	20 - 80%				
Operating Altitude	9843 ft. / 3000m				
LIMITED WARRANTY	3 years parts and labor, including backlight*				
ADDITIONAL FEATURES	Advanced thermal capabilities; Advanced cooling system; Sealed panel design; TileMatrix (10x10; 5x5 for V321-2); Separate group/Monitor ID function; CableComp+; Ethernet Control and Communication; RS-232 Control and Communication; Carbon footprint meter; Plug and Play (DDC/CI, DDC2B); Scheduler (w/ real-time clock); Sharpness/softness adjustment; Screen saver function; 6-axis color adjustment; POP; Side-by-Side; Kensington lock; Handles; Touch- and protective screen-ready; Variable picture modes; Advanced video settings (Noise Reduction, Adaptive Contrast); Input labeling; Backlight adjust; Aspect ratio control; Built-in speakers; OPS/Expansion slot; Custom input detection (V422/V462/V551/V651)				
SHIPS WITH	Power cord; VGA cable (Mini 15-pin D-sub); Wireless remote control; Batteries; Main switch cover; CD-ROM (user manual); Clamp; Screws				
OPTIONAL ACCESSORIES					
NEC Speakers	SP-3215	Integrated (10W x 2); SP-RM1 (optional); SP-4046PV (optional)		Integrated (10W x 2); SP-RM1 (optional)	
NEC Stands	ST-3215	ST-4020		ST-5220	ST-651
NEC Misc.	External Single Board Computer (TNETPC-ION); Wall Mount Kit (WMK-3257); Accessory pack for Wall Mount Kit (MIS513)	Single Board Computer (NET-SBC-01); Single Board Computer (NET-SBC-02); Single Board Computer (NET-SBC-03); External Single Board Computer (TNETPC-ION); Internal HD-SDI Card (SB-L007KK); DVI Daisychain (SB-L008WU); Digital IP Tuner (MPD-DTi); Wall Mount Kit (WMK-3257); Accessory pack for Wall Mount Kit (MIS513); Display Wall Calibrator Kit (KT-LFD-CC); OPS with Intel Core i5 (N8000-8830), OPS with AMD Dual Core Fusion, 160GB Hard Drive, W7P (OPS-PCAF-WH); OPS with AMD Dual Core Fusion, 32GB SSD, W7P (OPS-PCAF-WS); OPS with AMD Dual Core Fusion, 160GB Hard Drive, No OS (OPS-PCAF-W); OPS with AMD Dual Core Fusion, 32GB SS, W7P (OPS-PCAF-S); OPS Adapter (SB-02AM); Adapter Mount Kit (AMK-V422 for V422, AMK-V462 for V462)			

* Warranty restrictions apply. Contact your representative for details.

V321-2

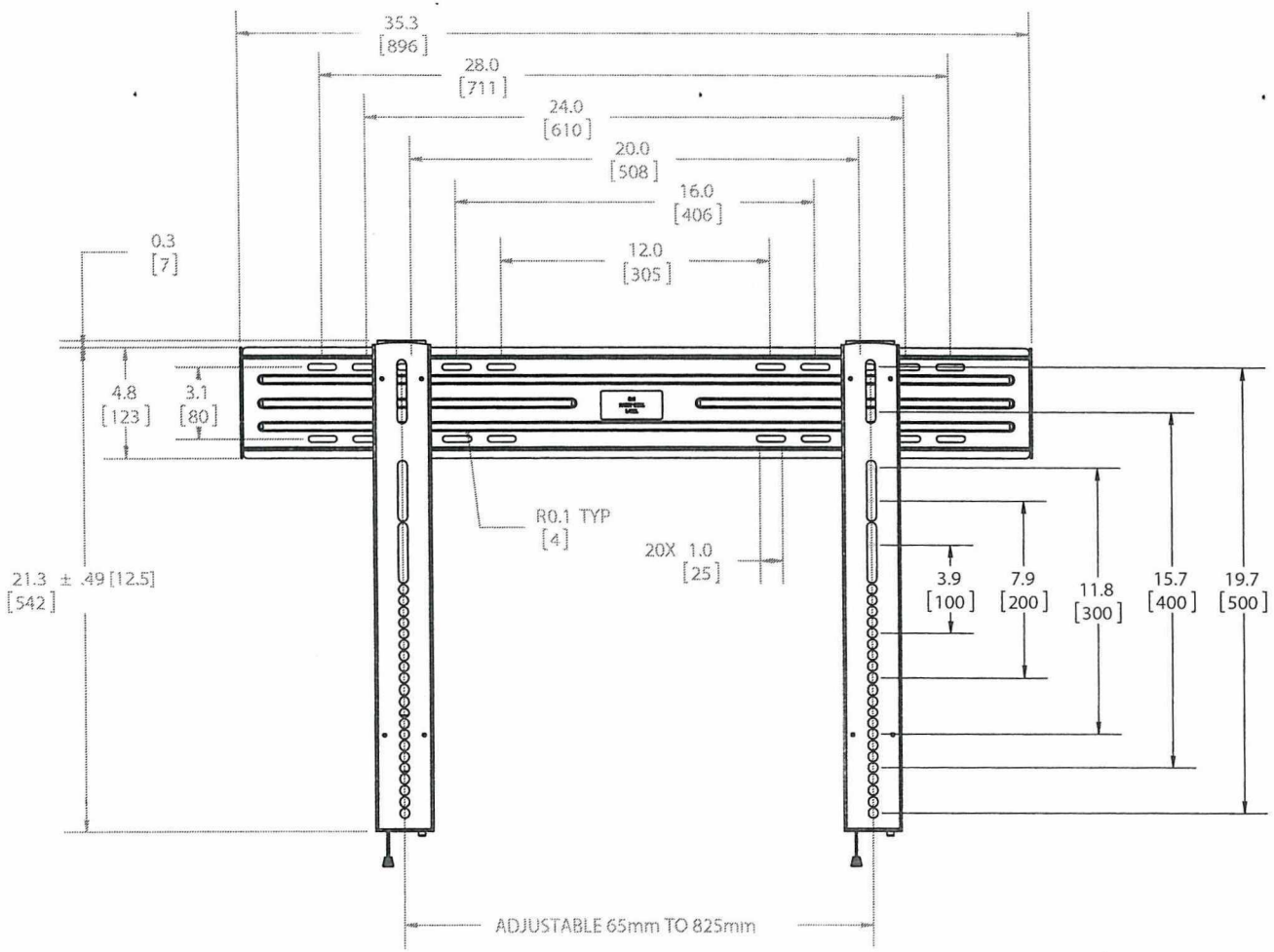


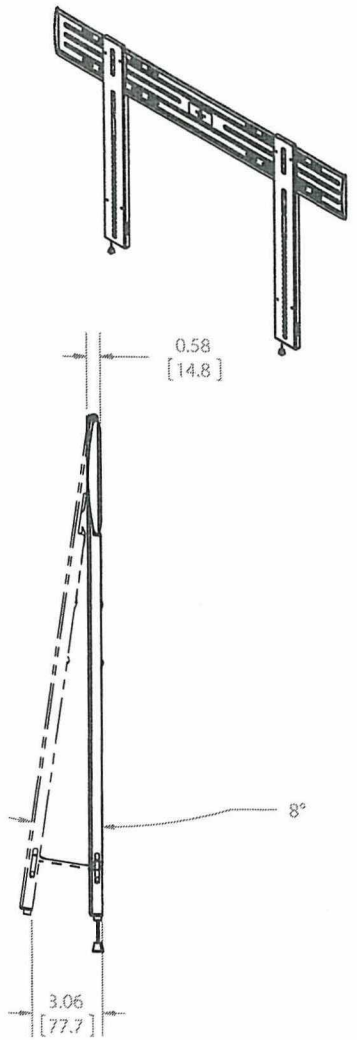
V422/V462/ V551/V651



NEC Display Solutions
500 Park Boulevard, Suite 1100
Itasca, IL 60143
866-NEC-MORE

NEC
necdisplay.com





TV SIZE: 40"-60"
WEIGHT CAPACITY: 150lbs
HEIGHT ADJUST: ± .49 [12.5]

	NAME	DATE
ENGINEER	J BURES	4/13/2009
DESIGNER	RAH	4/13/2009
APPROVED	JAS	4/13/2009

NOTES:

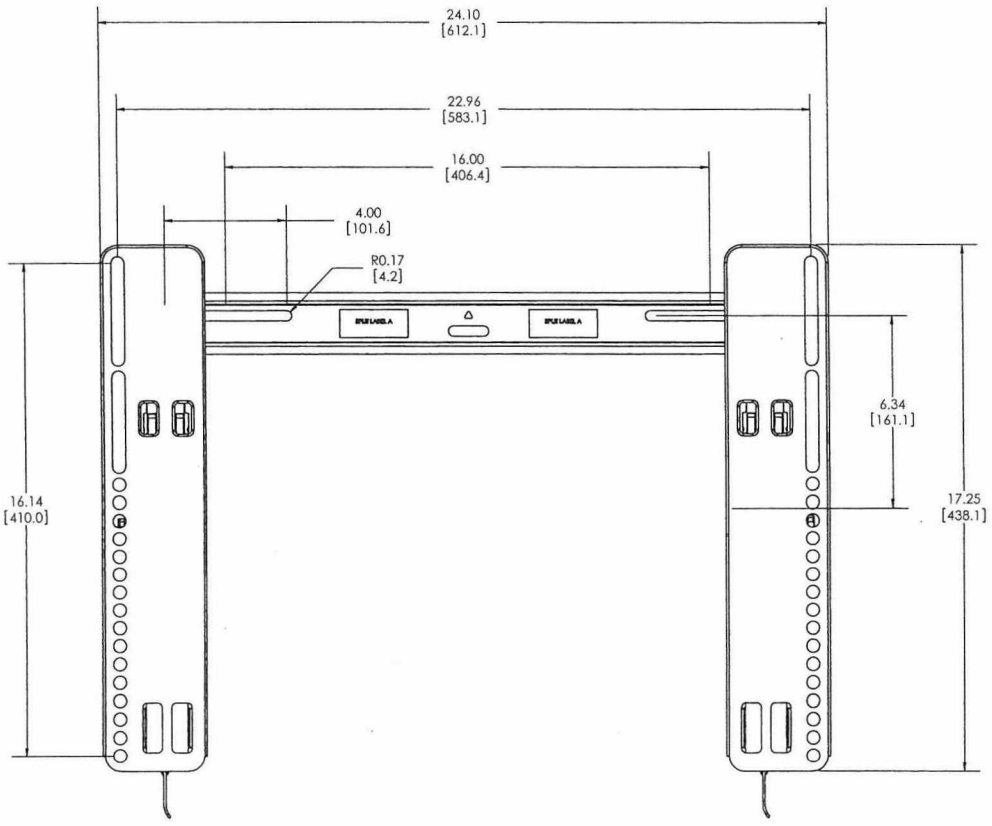
SANUS VISIONMOUNT

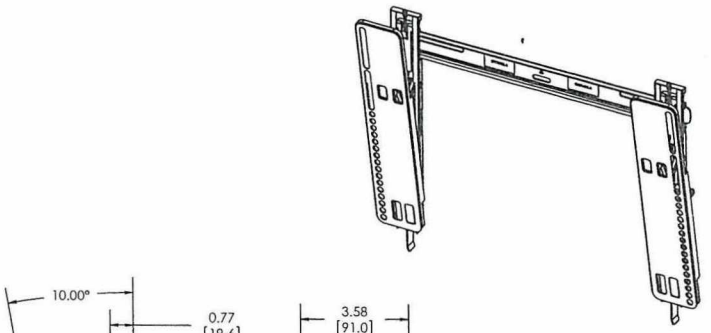
DESCRIPTION:

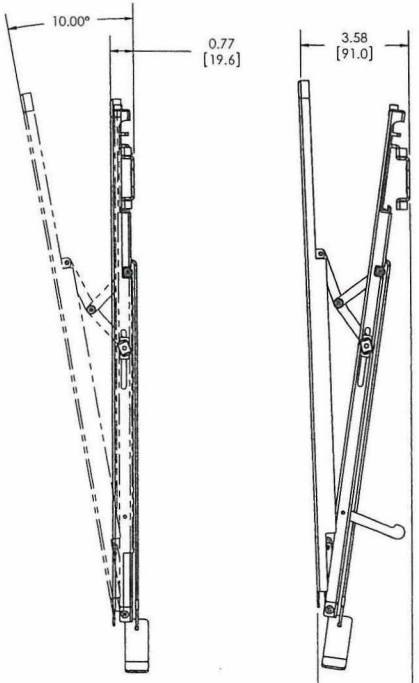
LL11

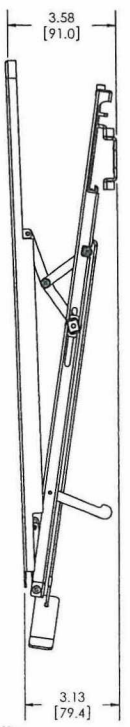
TEMPLATE REV: 06 SCALE: 1:8 SHEET 1 OF 1

5 4 3 2 1









	NAME 姓名	DATE 日期
ENGINEER工程师	NAS	9/24/2009
DESIGNER设计师	MRR	4/20/2010
APPROVED批准	NAS	4/20/2010

NOTES注释:

SANUS SYSTEMS

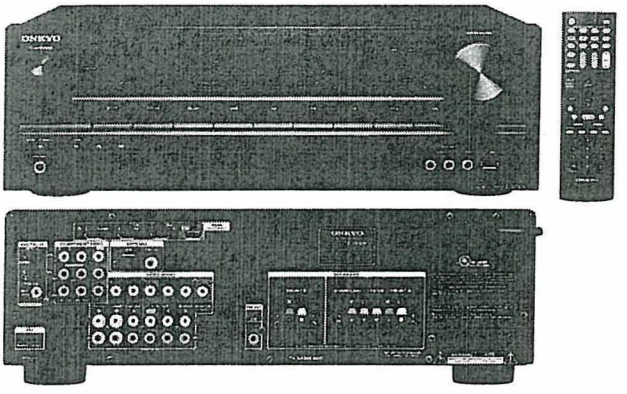
DESCRIPTION 描述:
VMT15 ASSEMBLY

TEMPLATE REV 模板修订版: 06 | SCALE 比例 1:4 | SHEET 1 OF 第 1 | SIZE 寸 B | DWG. NO. 图纸编号 VMT15 | REV修订 00

TX-SR309 BLACK

5.1-Channel Home Theater Receiver

3D READY

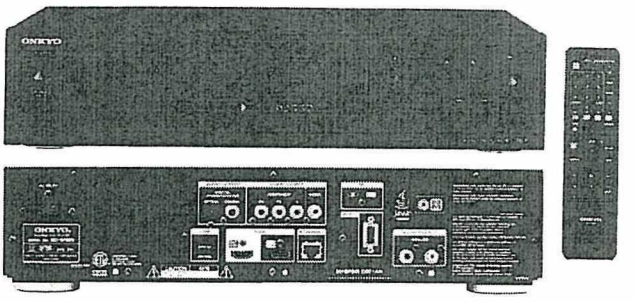


Your Entry Point into the World of Surround Sound

- 65 Watts per Channel at 8 Ohms, 20 Hz–20 kHz, 0.7%, 2 Channels Driven, FTC
- 3 HDMI® Inputs and 1 Output
- HDMI Support for 3D, Audio Return Channel, DeepColor™, x.v.Color™, LipSync, Dolby® TrueHD, DTS-HD Master Audio™, DVD-Audio, Super Audio CD, Multichannel PCM, and CEC
- Direct Digital Connection of iPod®/iPhone® via Front-Panel USB Port
- Mass Storage Class USB Memory Playback Capability
- Dolby® TrueHD and DTS-HD Master Audio™ Decoding
- TI Burr-Brown 192 kHz/24-Bit DACs for All Channels
- H.C.P.S. (High Current Power Supply) Massive High Power Transformer
- 4 DSP Modes for Gaming: Rock, Sports, Action, and RPG (Role Playing Game)
- PLL (Phase Locked Loop) Jitter-Cleaning Circuit Technology for S/PDIF Audio
- Advanced Music Optimizer for Compressed Digital Music Files
- Overlaid On-Screen Display (OSD) via HDMI

BD-SP809 BLACK

Blu-ray Disc Player

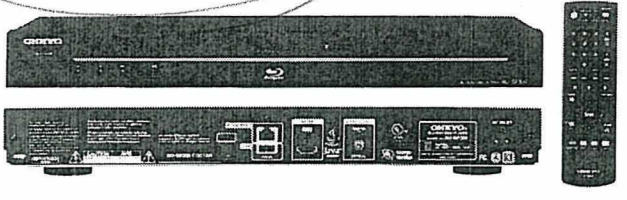


Classy and Versatile Blu-ray Player with Network Capability

- THX® Certified
- Supports Blu-ray 3D Playback
- 2 HDMI® Outputs Support 3D, 1080p, DeepColor™, x.v.Color™, and CEC
- 1080p Upscaling of Standard Video Sources (1080i, 720p, and 576i/p) with Qdeo™ Technology by Marvell
- Precision Clock for Optimal Timing of Digital Signals
- Ethernet Port for BD-Live, Firmware Updates, and Media Streaming via Internet or Home Network
- Video On Demand Capability (Netflix 3.0, Film Fresh, Blockbuster, VUDU)
- USB Port for Media Content
- Plays AVCHD, MP3, WMA, and JPEG Formats
- Independent Circuit Blocks for Audio, Digital Video, and Analog Video to Reduce Electromagnetic Interference
- Center-Mounted Drive Mechanism for Optimal Weight Balance

BD-SP309 BLACK

Blu-ray Disc Player

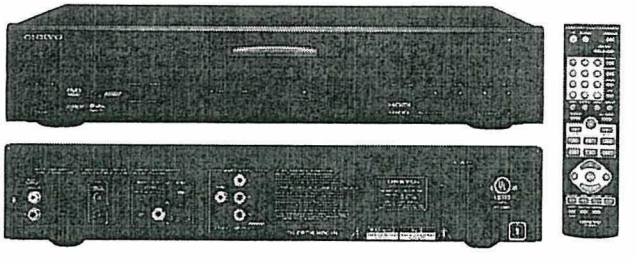


Affordable 3D-Ready Blu-ray Player Adds Home Networking

- Supports Blu-ray 3D Playback
- HDMI® Output Supports 3D, 1080p, DeepColor™, x.v.Color™ (JPEG Only), and CEC
- Dolby® TrueHD and Dolby® Digital Plus Decoding
- Supports DTS-HD Master Audio™ Essential
- 1080p Upscaling of Standard Video Sources (1080i, 720p, and 576i/p)
- 1080/24p Video Output for Full-HD Movies
- Ethernet Port for BD-Live, Firmware Updates, and Media Streaming via Internet or Home Network
- Video On Demand Capability (Netflix, VUDU)
- 2 USB Ports (Front/Rear) for Media Content
- Plays AVCHD, DivX Plus™ HD (MKV), MP3, and JPEG Formats
- BD-Live Functionality for Interactive Content
- On-Screen Display for Settings and Playback

DV-CP706 BLACK

1080p Upscaling DVD/CD/MP3 6-Disc Changer



Carousel DVD Changer Keeps the Entertainment Flowing

- DTS Digital Out® and Dolby® Digital
- Plays DVD Video, Audio CD, CD-R/RW, DVD-R/RW, DVD+R/RW, DVD-R DL, DVD+R DL*1
- Plays MP3, WMA, and JPEG Formats (with HD JPEG Resolution via HDMI)
- HDMI® Digital Interface
- 1080p Video Upscaling (via HDMI Output)
- Change Up to 5 Discs During Play
- VLSC™ (Vector Linear Shaping Circuitry)
- Simultaneous Output from All Video Connections*2
- Component (480i/480p), S-Video, and Composite (480i) Video Outputs
- Coaxial and Optical Digital Outputs
- Ultra-Quiet Loading Mechanism
- On-Screen Display (English, French, Spanish)

*1 Discs should be properly finalized. *2 Depending on setting.

TriCaster 850 Series - Technical Specifications

Switcher Channels	24
Video Input	8 simultaneous inputs HD-SDI, HD Component, SD-SDI, SD Component, Y/C (BNC) or Composite HD-SDI video conforms to SMPTE 292M and SD video conforms to SMPTE 259M and ITU-R BT.656
M/E-bus-style Virtual Inputs	8 independent mix/effect-style channels, each with presets, dedicated upstream overlay channel with transition control, and independent source effects; positioning, scaling, cropping and 3D rotation
Network Inputs	2 live sources, any combination of: - Computer displays mirrored via NewTek iVGA™ technology - iTunes and wireless iOS devices via Apple® AirPlay® from any supported app, including audio, photos and video
Media Players	5 integrated digital media players with presets, alpha channel and adjustable audio levels per clip: 2 DDRs, Stills, Titles and Sounds
Video Output	3 simultaneous outputs HD-SDI, HD Component, SD-SDI, SD Component, Y/C (BNC), or Composite HDMI, DVI and VGA output for monitors and/or projector

	Output sources include Program and AUX (configurable for Program, Program clean, Preview, any input, Effects, any frame store, alpha out)
Recording	Full HD recording of Program or AUX output in all resolutions up to 1080p MPEG-2 (normal and high profile); MP3 Adjustable audio headroom
	TriCaster 850 EXTREME ISO recording of any live input or output with IsoCorder™: -Multi-track, multi-format video recording capability -Native HD up to 8 simultaneous channels in all resolutions -Source per channel: Program output, AUX output or camera inputs -Format per channel: MPEG-2 (high and normal profiles), QuickTime®, H.264, AVI or MP3
Live Streaming	Full HD live streaming in resolutions up to 720p (16:9 aspect ratio), with simultaneous archive Streaming Profile Manager with integrated Web browser to manage or view streams, and access online CDN accounts
Audio Input	8 SDI Embedded 8 AES3/EBU 8 x 2 Balanced XLR (Mic/Line) Analog audio levels conform to SMPTE RP-155 Phantom Power Support
	TriCaster 850 EXTREME Seven-band equalizer and full stero compressor/limiter per input Sources can be grouped and routed to multiple buses Digital and audio time-base synchronizers
Audio Output	3 SDI Embedded 2 AES3/EBU 4 Balanced XLR 4 Balanced XLR (AUX) 1 Stereo 1/4" (phones)
	TriCaster 850 EXTREME Seven-band equalizer and full stereo compressor/limiter per output
Video Processing	4:4:4:4 32-bit Floating Point
Audio Processing	4 channels, 96 kHz 32-bit Floating Point
Supported Formats	NTSC: 1080/30p, 1080/24p, 1080/60i, 720/60p, 720/30p, 720/24p, 480/60i Multi-Standard: NTSC-J; PAL 1080/25p, 1080/50i, 720/50p, 720/25p, 576/25i
Source Mixing	Mix HD/SD resolution and 16:9/4:3 aspect ratios
Recording Capacity	~ 50 Hours 1080i **(~200 hours EXTREME)** ~ 300 Hours 480i **(~1200 hours EXTREME)** 4 trayless SATA III removable drive bays with hot-swap support for unlimited storage and backup
Supported Stream Types	Adobe® Flash® to Flash media server connections Microsoft® Windows Media® Push/Pull Support for most common stream profiles Support for custom multi-bitrate streaming profiles
	TriCaster 850 EXTREME Adobe Flash through browser based plug-ins
Network Connection	1 Gigabit connection for network inputs and streaming output
Transition Effects (EXTREME exclusive)	**TriCaster 850 EXTREME** Animated transitions with full-color, embedded overlay, audio and alpha channel on all 11 effects channels Animation Store Creator 2.0 application for creating custom animation transitions, with support for image sequences up to 32-bit
Virtual Input Overlay	1 per channel, upstream with keying, transitions, and independent effects: positioning, scaling, cropping and 3D rotation
	TriCaster 850 EXTREME Animation store transitions with embedded audio and alpha channel
Live Virtual Sets	20 HD live virtual sets (**24 for EXTREME**) with multiple camera angles, animated zoom, real-time reflections and specular highlights
Overlay	Dual downstream keys (DSK) with matting, transitions, and independent effects: positioning, scaling, cropping and 3D rotation
	TriCaster 850 EXTREME Animation store transitions with embedded audio and alpha channel
Preview Monitors	Full field rate displays Program, Look-Ahead Preview, and source windows configurable for All Monitors, External Monitors, Internal Monitors, Switcher Monitors and Scopes Embedded audio VU meter overlays that show/hide automatically with sound Adjustable source and switcher group monitor panes
	TriCaster 850 EXTREME Alpha channel preview with transparency checkerboard background pattern
Multi-View Monitor Output	Configurable for All Monitors, External Monitors, Internal Monitors, Program, Preview, Effects, Preview/Program and Waveform/Vectorscope
Projector Output	16:9 or 4:3 aspect ratio, up to 1920 x 1080 resolution
Integrated Character Generator	LiveText™2
Integrated Nonlinear Editor	SpeedEDIT™ 2
Playback Media Formats	Movie files: AVI, DV, DVCPro, DVCProHD, FLV, F4V, H.263, H.264, MOV, MKV, MJPEG, MPEG (1, 2 in all profiles, program or transport streams), MP4, WMV, WebM and more Image files: PSD, PNG, TGA, BMP, JPEG, EXR, RAW, TIF and more Audio files: AIFF, MP3, WAV and more Import media application for batch copying with optional transcoding of files (including Apple Pro Res) onto TriCaster
Export Media Formats	Export media applications for batch copying with optional transcoding of files to compatible formats for different applications and devices Media types: AVI, DV, DVCPro, DVD, H.264, MOV, MPEG-2, MJPEG, MP4, WebM and more Presets for external NLEs: Adobe Premiere®, Avid® Media Composer®, Apple® Final Cut Pro®, and more Presets for all mobile platforms: Android®, iPad®, iPhone®, iPod Touch® and more

Video Ingest	eSATA
Signal Monitoring	Integrated Waveform and Vectorscope Full field rate displays with color preview Support for ITU-R Rec. 601 and 709 standards
Timecode (EXTREME exclusive)	**TriCaster 850 EXTREME** External LTC timecode input
Tally	DB 15 connector for 8 PGM row tally lights
Power Supply	550W, redundant and removable
Fail-Safe	Multi-tiered software fail-safe (audio and video) **TriCaster 850 EXTREME** Multi-tiered hardware and software fail-safe (audio and video)
Form Factor	4U Rack Mount
Dimensions	19 x 7.25 x 21.5 (in) 48.3 x 18.4 x 54.6 (cm)
Weight	42 lbs (19 kg)
Accessory Options	TriCaster 850 CS TriCaster 850 TW TriCaster Virtual Set Editor (VSE) LiveText Also compatible with TriCaster 450 CS, TriCaster LC-11 and TriCaster TimeWarp™

Specifications subject to change without notice. Some restrictions on formats and bitrates might apply.

- Company
  - About Us
  - Management
  - Careers
- News & Events
  - Media Resources
  - Newsroom
  - Events
- Products
  - TriCaster 850 Series
  - TriCaster 450 Series
  - TriCaster 300
  - TriCaster STUDIO
  - TriCaster Accessories
  - 3Play 820
  - 3Play 425
  - 3Play 330
  - LightWave
- Solutions
  - Live Production
  - Slow Motion/Replay
  - 3D Animation
- Support
  - TriCaster Support
  - 3Play Support
  - LightWave Support
  - ProTek Enhanced Support
  - Documentation
  - Developer Programs
  - Certification
  - Register a Product
  - Warranties & Returns
- Communities
  - Forum
  - NewTek TV
- Where to Buy
  - Resellers
  - Store
  - Request More Info

- Privacy Policy
- Site Map

SONY

HD/SD 1CMOS Color Video Camera

BRC-Z330

Preliminary

FEATURES

Affordable HD CMOS P/T/Z Camera

Sony introduces the BRC-Z330 to its BRC Series. Equipped with a 1/3-type 2-megapixel CMOS image sensor, this camera provides "high quality" picture performance to accommodate today's growing demand for full HD images. The camera's wide pan/tilt ranges and smooth pan/tilt/zoom capability makes it perfect for deployment in locations such as houses of worship and auditoriums, and at education facilities, conferences, and concerts.

Compact Size and Silent Mechanism

The BRC-Z330 is the smallest model in Sony's BRC Series. Its compact and light body makes installation and operation very smooth. Moreover, thanks to the adoption of a direct-drive pan/tilt mechanism, it has a quiet operation that minimizes interference with ongoing events and helps it blend in naturally with surrounding environments. Above all, this camera also incorporates a relatively low-power-consuming CMOS image sensor.

18x Optical Zoom (72x With Digital Zoom)

By incorporating an 18x optical zoom lens, the BRC-Z330 enables users to zoom in on small or distant objects with a high degree of accuracy. The use of a 4x digital zoom in combination with this optical zoom greatly improves the camera's zooming capability – enabling you to capture accurate physical movements and natural facial expressions of people located far away.

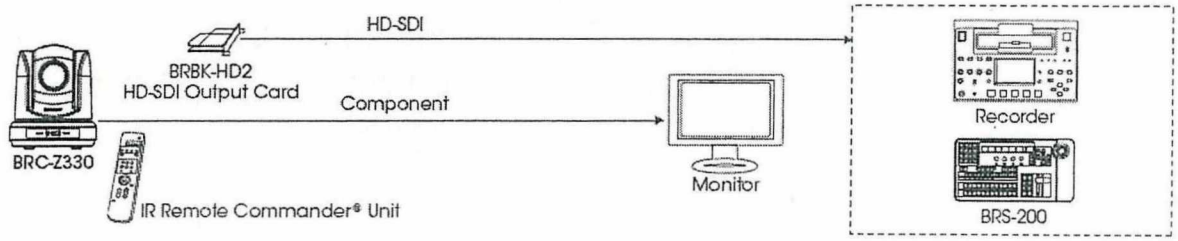
1080I, 720p, and SD Output

The BRC-Z330 simultaneously delivers stunning HD images (1080i or 720p) and SD images. This dual-output capability allows the camera to be integrated into both HD and SD systems, which is good for users who are aiming to migrate into a complete HD system.

Other Features

- Optical Card Slot
- External Synchronization Function
- VISCA™ Control (RS-232C/RS-422)

SYSTEM CONFIGURATIONS

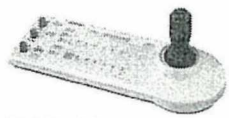


SPECIFICATIONS

BRC-Z330	
Camera	
Signal systems	1080/59.94i, 1080/50i, 720/59.94P, 720/50P
Sync systems	Internal/External
Image device	1/3-type CMOS image sensor
Effective picture elements	Approx. 2 Megapixels
Lens	18x optical zoom (72x with digital zoom)
Focal length	f=4.6 to 82.8 mm (F1.6 to F2.2)
Minimum object distance	100 mm (Wide, Limiter Off), 500 mm (Wide, Limiter On), 1,500 mm (Tele)
Horizontal viewing angle	3.3 to 55.1 degrees
Focusing system	Auto/Manual
Pan/Tilt angle	-175 to +175 degrees (Pan), -30 to +90 degrees (Tilt)
Pan/Tilt speed	0.25 to 60 degrees/s (Pan/Tilt)
Minimum illumination	6 lx (50 IRE, F1.6, +24 dB)
Video S/N ratio	50 dB
Shutter speed	1/10,000 to 1/60 s or 1/10,000 to 1/50 s
Gain	Auto/Manual (-3 to 24 dB and Hyper Gain)
White balance	Auto1/Auto2/Indoor/Outdoor/One-push/Manual
Image flip	On/Off
Preset positions	16 positions
Interfaces	
HD video output	D-Sub 15 pin: Component (Y/Pb/Pr) or RGB, HD, VD or SYNC
SD video output	Composite, Y/C
External sync input	BNC
Camera control	Mini DIN 8 pin: RS-232C (VISCA IN), Mini DIN 8 pin: RS-232C (VISCA OUT), Connector plug 9 pin: RS-422 (VISCA IN/OUT)
General	
Operating temperature	32 to 104 °F (0 to 40 °C)
Storage temperature	-4 to 140 °F (-20 to 60 °C)
Power requirements	DC 10.8 to 13.2 V
Power consumption	Max 18 W (without optional cards)
Dimensions (W x H x D)	6 3/8 x 7 5/8 x 7 3/8 inches (160.8 x 193.4 x 186 mm)
Weight	4 oz (1.9 kg)

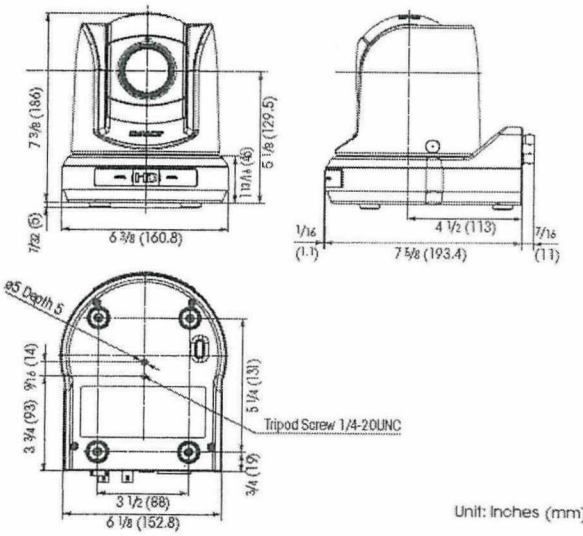
OPTIONAL ACCESSORIES

BRBK-HD2
HD-SDI Output Card



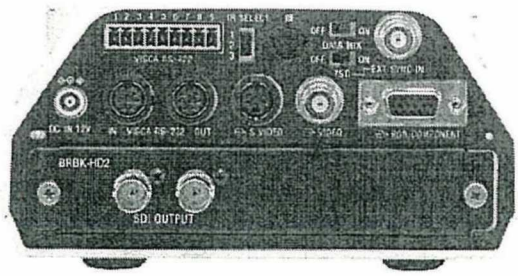
RM-BR300
Remote Control Unit

DIMENSIONS



Unit: inches (mm)

REAR PANEL



SONY

Sony Electronics Inc.
1 Sony Drive
Park Ridge, NJ 07656
click: sony.com/professional

V-2444 (MK10588V1)

Printed in USA (4/09)