

BOARD OF COMMISSIONERS
SARPY COUNTY, NEBRASKA
RESOLUTION AWARDING BID FOR AUDIO VISUAL EQUIPMENT
FOR THE SARPY COUNTY NEW LAW ENFORCEMENT CENTER

WHEREAS, pursuant to Neb. Rev. Stat. §23-104(6)(Reissue 1997), the County has the power to do all acts in relation to the concerns of the County necessary to the exercise of its corporate powers; and,

WHEREAS, pursuant to Neb. Rev. Stat. §23-103 (Reissue 1997), the powers of the County as a body are exercised by the County Board; and,

WHEREAS, bids for this matter have been solicited, made, opened and reviewed pursuant to applicable Nebraska State Statutes; and,

WHEREAS, based on those proceedings, and after a public hearing, this Board has duly deliberated and considered the bids received; and,

WHEREAS, this Board desires to proceed forthwith in order to expedite and facilitate service to the citizens of Sarpy County.

NOW, THEREFORE, BE IT RESOLVED BY THIS BOARD OF COUNTY COMMISSIONERS THAT: the low bid of Dascom Systems Group, LLC the Audio Visual Systems for the New Law Enforcement Center in the amount of One Hundred Twenty Four Thousand Two Hundred Ninety Three Dollars and No Cents (\$124,293.00) is accepted, ratified, and confirmed.

1. This Board's Chairman, Clerk, and Attorney are hereby authorized and directed to execute such ancillary documents as may be required to evidence the contract and take any and all steps necessary or required in order to carry out the terms of such contract after said documents have been reviewed by the Attorney, Fiscal Administrator, and County Administrator.

Dated this 14th day of December, 2010.

Moved by Jim Nekuda, and seconded by Tom Richards, that the above Resolution be adopted.
Carried.

YEAS: <u>[Signature]</u> <u>[Signature]</u> <u>[Signature]</u> <u>[Signature]</u> <u>Thomas F. Richard</u>	NAYS: <u>none</u> _____ _____	ABSENT: <u>none</u> _____ _____
		ABSTAIN: <u>none</u> _____ _____



SEAL

Attest:

[Signature]
Sarpy County Clerk

Approved as to form and content:

[Signature]
Sarpy County Deputy Attorney

COMPANY NAME: DASCOM SYSTEMS GROUP, LLC

Sarpy County, Nebraska
Audio Visual Systems
Bid Form

Public Meeting Room - As specified	\$ 42,304 ⁰⁰
Investigators' Conference Room - As specified	\$ 9,187 ⁰⁰
Roll Call Room - As Specified	\$ 23,226 ⁰⁰
Sheff's Conference Room - As specified	\$ 2,675 ⁰⁰
Administrative Conference Room - As specified	\$ 2,010 ⁰⁰
Interview & Polygraph Rooms - As specified	\$ 30,641 ⁰⁰
Paging System - As specified	\$ 14,250 ⁰⁰
Total Bid	\$ 124,293 ⁰⁰

*Prices are to be F.O.B. - 8335 Platteview Road, Papillion, NE 68046

INSTALLATION BEGIN DATE:

MARCH 1, 2011

Company Information:

Years in business:

15

of employees

47

Total sales last 3 years

2009 - \$ 23.3 MILLION
2008 - \$ 18.5 MILLION
2007 - \$ 14.9 MILLION

References:

Company Name: FILLMORE COUNTY COURTHOUSE
Address: P.O. BOX 466, PRESTON, MN 55965
Contact Name: JIM ATTWOOD Phone Number: (507) 765-3356
Fax Number: - Date of Purchase: 2008-ON GOING

Company Name: ANOKA COUNTY CRIME LAB
Address: 13333 HANSON BOULEVARD NORTHEAST, ANOKA, MN 55303
Contact Name: PAUL SOMMER Phone Number: (763) 421-4760
Fax Number: - Date of Purchase: SPRING 2010

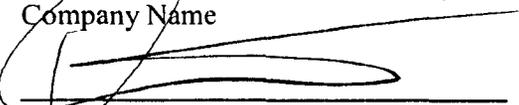
Company Name: NORTHEAST COMMUNITY COLLEGE
Address: 801 EAST BENJAMIN AVENUE, NORFOLK, NE 68702
Contact Name: TOM LARSEN Phone Number: (402) 844-7138
Fax Number: - Date of Purchase: SUMMER 2010

I certify that this bid is submitted in accordance with the specifications issued by Sarpy County.

I acknowledge receipt of the following addenda (if applicable):

Addendum #1	<u>11-22-10</u>
Addendum #2	<u>11-23-10</u>
ADDENDUM #3	<u>11-24-10</u>

Attachments: **Literature/Cut-sheets**
 Warranty Information

DASCOM SYSTEMS GROUP, LLC
Company Name

Authorized Signature DAVID HATTEY
2415 VENTURA DRIVE
Address
WOODBURY, MN 55125
City, State & Zip

NIGEL BUSS
Company Representative (Please print)
(651) 789-4472
Telephone Number
(651) 578-2555
Fax Number
nbuss@dascom-systems.com
E-Mail Address

***NOTE: Sarpy County is tax exempt and will provide the proper form upon request.**

Bid Tab
 Audio Visual Systems
 for the
 Law Enforcement Center

2:30 p.m., Thursday
 December 2, 2010

	AVI Systems	Dascom Systems Group	SKC	Midwest Sound & Lighting, Inc	CCS	Pratt Audio Visual	Concepts AV Integration	Electronic Contracting Company
Public Meeting Room	\$43,801.00	\$42,304.00	\$48,812.76	\$51,817.00	\$46,180.00	\$39,832.00	\$40,579.85	
Investigators' Conference Room	\$8,419.00	\$9,187.00	\$9,165.77	\$9,486.00	\$10,757.00	\$8,038.00	\$6,931.57	
Roof Call Room	\$25,387.00	\$23,226.00	\$28,477.66	\$27,852.00	\$27,349.00	\$23,293.00	\$23,219.65	
Sheriff's Conference Room	\$2,436.00	\$2,675.00	\$3,185.40	\$3,666.00	\$3,976.00	\$2,998.00	\$2,704.03	
Administrative Conference Room	\$2,323.00	\$2,010.00	\$3,185.40	\$2,910.00	\$3,499.00	\$2,417.00	\$2,344.29	
Interview & Polygraph Rooms	\$41,174.00	\$30,641.00	\$49,177.01	\$47,878.00	\$43,991.00	\$34,300.00	\$41,091.49	
Paging System	\$20,631.00	\$14,250.00	\$23,465.53	\$15,131.00	\$21,975.00	\$17,402.00	\$14,624.02	
Total Bid	\$144,171.00	\$124,293.00	\$165,469.53	\$158,740.00	\$157,727.00	\$128,280.00	\$131,494.90	\$138,268.00

AGREEMENT

This Agreement is entered into by and between the County of Sarpy, in the State of Nebraska, a body politic and corporate, and hereinafter "County", and Dascom Systems Group, LLC, hereinafter "Vendor".

WHEREAS, County is desirous of contracting for Audio Visual Systems for the Sarpy County Law Enforcement Center; and,

WHEREAS, the Vendor has been awarded this Agreement as a result of the bid made by Vendor in response to the Specifications and Request for Proposals prepared by County;

NOW, THEREFORE, for and in consideration of the declarations and mutual promises and covenants contained herein, the County and Vendor agree as follows:

I. DUTIES OF VENDOR:

- A. Services to be rendered by Vendor under this Agreement shall be all those services necessary and proper for the installation and materials for Audio Visual Systems in conformity with each and every term, condition, specification, and requirement of the Bid Specifications and the Bid submitted by the Vendor.
- B. All provisions of each document and item referred to in Paragraph A above shall be strictly complied with the same as if rewritten herein, and in the event of conflict among the provisions of said documents, the provisions most favorable to the County shall govern.
- C. Prior to the commencement of any work, Vendor will place on file with the Sarpy County Clerk, the required certificates of insurance, if applicable.
- D. The Vendor agrees to comply with the residency verification requirements of Neb. Rev. Stat. §4-108 through §4-114. The Vendor is required and hereby agrees to use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska. A federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee.

If the Vendor is an individual or sole proprietorship, the following applies:

1. The Vendor must complete the United States Citizenship Attestation Form, available on the Department of Administrative Services website at

www.das.state.ne.us.

2. If the Vendor indicates on such attestation form that he or she is a qualified alien, the Vendor agrees to provide the U.S. Citizenship and Immigration Services documentation required to verify the Vendor's lawful presence in the United States using the Systematic Alien Verification for Entitlements (SAVE) Program.
 3. The Vendor understands and agrees that lawful presence in the United States is required and the Vendor may be disqualified or the contract terminated if such lawful presence cannot be verified as required by Neb. Rev. Stat. Sect. 4-108.
- E. Vendor will submit an invoice to County for work completed based on the amounts specified in Vendor's bid. Such invoices shall be submitted to:

Beth Cunard
Sarpy County Purchasing
1210 Golden Gate Drive
Papillion, NE 68046

- F. The County and Vendor hereto specifically acknowledge, stipulate and agree that each and every term of the Bid Specifications and the Vendor's bid constitutes an essential term of this Agreement, and that, therefore, any violation of any term, condition, provision, or requirement constitutes a material breach hereunder, for which County shall have every right under the law to terminate this Agreement, and obtain any and all relief necessary.

II. DUTIES OF COUNTY:

In return for full, faithful and diligent rendering of services set forth above, County agrees to pay to Vendor the amount specified in Vendor's bid upon submission of the required invoice and satisfactory completion of all required work.

III. BREACH:

Should Vendor breach, violate, or abrogate any term, condition, clause or provision of this agreement, the County shall notify Vendor in writing that such an action has occurred. If satisfactory provision does not occur within ten (10) days from such written notice, the County may, at its option, terminate this agreement and obtain an alternate provider to provide all required materials. This provision shall not preclude the pursuit of other remedies for breach of contract as allowed by law.

SAVINGS CLAUSE:

This Agreement shall be interpreted, construed and enforced under the laws of the State of Nebraska. It is understood and agreed by the County and Vendor hereto that if any part, term, condition, or provision of this Agreement is held to be illegal or in conflict with any law of the State of Nebraska or of the United States, the validity of the remaining parts, terms, conditions, or provisions shall not be affected, and the rights and obligations of the County and Vendor shall be construed and enforced as if the Agreement did not contain the particular part, term, condition, or provision held to be invalid.

SCOPE OF AGREEMENT

This Agreement, along with the Bid Specifications, and Bid by Vendor contains the entire Agreement between the County and Vendor, and there are no other written or oral promises, contracts or warrants which may affect it. This Agreement cannot be amended except by written agreement of both the County and Vendor. Notice to the County and Vendor shall be given in writing to the agents for each party named below:

County: Ms. Debra Houghtaling
Clerk of Sarpy County
1210 Golden Gate Drive
Papillion, NE 68046

Vendor: Nigel Buss
Dascom Systems Group, LLC
2415 Ventura Drive
Woodbury, MN 55125

IN WITNESS WHEREOF, we the contracting parties, by our respective and duly authorized agents, hereto affix our signatures and seals in duplicate this 14th day of December, 2010.

(Seal)



ATTEST:

Debra L. Houghtaling
Sarpy County Clerk

COUNTY OF SARPY, NEBRASKA,
A body Politic and Corporate

Tom Albrecht
Chairperson 12/14/10
Sarpy County Board of Commissioners

Approved as to form and content:

[Signature]
Deputy County Attorney

Vendor: [Signature]

By: David L. Hettray

Title: CEO, Pascon

Attest:

[Signature]
Witness

DAVE EWING

Sarpy County Purchasing Department

SARPY COUNTY COURTHOUSE
1210 GOLDEN GATE DRIVE
SUITE 1129
PAPILLION, NE 68046-2845
FAX (402) 593-4304



Brian E. Hanson, Purchasing Agent
(402) 593-2349
Debby Peoples, Assistant Purchasing Agent
(402) 593-4164
Beth Cunard, Purchaser/Contract Specialist
(402) 593-4476
Lois Spethman, Supply Clerk/Purchaser
(402) 593-2102

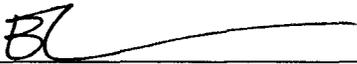
MEMO

To: Sarpy County Board of Commissioners
From: Beth Cunard
Re: Award of Audio Visual Equipment

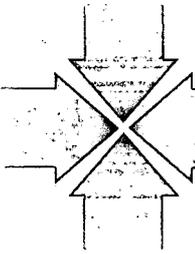
On December 2, 2010, the Purchasing Department received and opened eight (8) bids for Audio Visual Systems for the new Law Enforcement Center. The bids have been reviewed by Dan Williamson and myself and it has been recommended that the bid be awarded to the low bidder, Dascom Systems Group for \$124,293.00. A bid tabulation is attached for your review. The amount budgeted for this project in the bond issue was \$150,000.00.

Should you have any questions, please feel free to contact me at bcunard@sarpy.com or the number listed above.

December 7, 2010


Beth Cunard

cc: Mark Wayne
Scott Bovick
Deb Houghtaling
Brian Hanson
Capt. Williamson



DASCOM
SYSTEMS GROUP

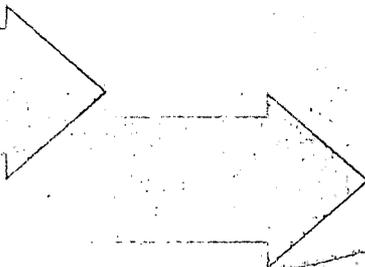
Dascom Systems Group, LLC
2415 Ventura Drive
Woodbury, MN 55125
Toll-Free: (800) 373.8266
www.dascom-systems.com

Proposal for:

**SARPY COUNTY LAW
ENFORCEMENT CENTER**

Audio Visual Systems

ORIGINAL



Video Solutions Start Here

1	BID FORM COMPANY INFORMATION REFERENCES
2	AUDIO SPECS
3	VIDEO SPECS
4	CONTROL SPECS
5	MISCELLANEOUS SPECS
6	MANUFACTURER'S WARRANTIES
7	
8	

COMPANY NAME: DASCOM SYSTEMS GROUP, LLC

Sarpy County, Nebraska
Audio Visual Systems
Bid Form

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Total Bid	\$ 124,293 ⁰⁰

*Prices are to be F.O.B. - 8335 Platteview Road, Papillion, NE 68046

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Contact Name: PAUL SOMMER Phone Number: (763) 421-4760
Fax Number: - Date of Purchase: SPRING 2010

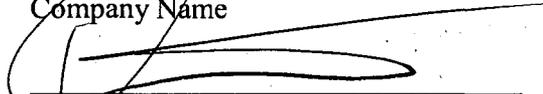
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Address: 801 EAST BENJAMIN AVENUE, NORFOLK, NE 68702
Contact Name: TOM LARSEN Phone Number: (402) 844-7138
Fax Number: - Date of Purchase: SUMMER 2010

I certify that this bid is submitted in accordance with the specifications issued by Sarpy County.

I acknowledge receipt of the following addenda (if applicable):

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Addendum #2	<u>11-23-10</u>
ADDENDUM #3	<u>11-24-10</u>

Attachments: **Literature/Cut-sheets**
 Warranty Information

DASCOM SYSTEMS GROUP, LLC
Company Name

Authorized Signature DAVID HATTEY
2415 VENTURA DRIVE
Address
WOODBURY, MN 55125
City, State & Zip

NIGEL BUSS
Company Representative (Please print)
(651) 789-4472
Telephone Number
(651) 578-2555
Fax Number
nbuss@dascom-systems.com
E-Mail Address

***NOTE: Sarpy County is tax exempt and will provide the proper form upon request.**



Nexia CS is a digital signal processor with 10 mic/line inputs and 6 mic/line outputs. Intended for a variety of conferencing applications such as boardrooms, courtrooms, and council chambers, Nexia CS includes a broad selection of audio components, routing options, and signal processing. The internal system design is completely user definable via PC software, and can be controlled via *daVinci*™ software screens, RS-232 control systems, and/or a variety of optional remote control devices. Multi-unit Nexia systems can be created utilizing Ethernet and NexLink digital audio linking.

FEATURES

- 10 balanced mic/line inputs on plug-in barrier strip
- 6 balanced mic/line outputs on plug-in barrier strip
- Ethernet port for software configuration/control
- serial port for third-party RS-232 remote control
- remote control bus for dedicated control panels
- NexLink ports for multi-unit system designs
- Nexia software for Windows® XP Professional/Vista
- pre-configured I/O with definable processing
- mix, route, combine, EQ, delay, control, etc.
- **RoHS** compliance and **AES** grounding practices
- **CE** marked and **UL** listed
- covered by Biamp Systems' five-year warranty
- Ability to select, view, and calibrate:
 - Mixers: standard, automatic, matrix, combiners
 - Equalizers: graphic, parametric, feedback
 - Filters: HPF, LPF, high shelf, low shelf, all-pass
 - Crossovers: 2-Way, 3-Way and 4-way
 - Dynamics: leveler, comp/limiter, ducker, ANC
 - Routers: 2x1 ~ 32x32
 - Delays: 0 ~ 2000 ms
 - Controls: levels, presets, logic, RS-232, etc.
 - Meters: signal present, peak, RMS
 - Generators: tone, pink-noise, white-noise
 - Diagnostics: transfer function

ARCHITECTS & ENGINEERS SPECIFICATION

The DSP conference system shall provide ten balanced mic/line inputs and six balanced mic/line outputs on plug-in barrier-strip connectors. Inputs and outputs shall be analog, with internal 24-bit A/D & D/A converters operating at a sample rate of 48kHz. All internal processing shall be digital (DSP). NexLink connections shall allow sharing of digital audio within multi-unit systems.

Software shall be provided for creating/connecting DSP system components within each hardware unit. Available system components shall include (but not be limited to) various forms of: mixers, equalizers, filters, crossovers, dynamics/gain controls, routers, delays, remote controls, meters, generators, and diagnostics. Ethernet communications shall be utilized for software control and configuration. After initial programming, processors may be controlled via dedicated software screens, third-party RS-232 control systems, and/or optional remote control devices. Software shall operate on a PC computer, with network card installed, running Windows® XP Professional/Vista. The DSP conference system shall be CE marked, UL listed, and shall incorporate AES48-2005 Grounding & EMC practices. The DSP conference system shall be compliant with EU Directive 2002/95/EC, the RoHS directive. Warranty shall be 5 years.

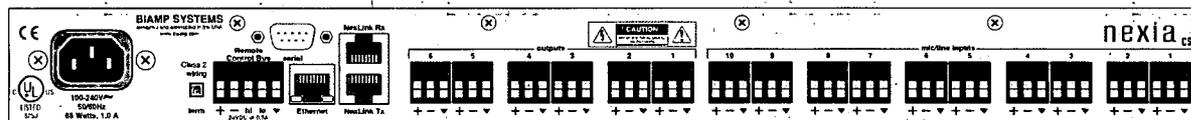
The DSP conference system shall be Nexia® CS.

BIAMP®

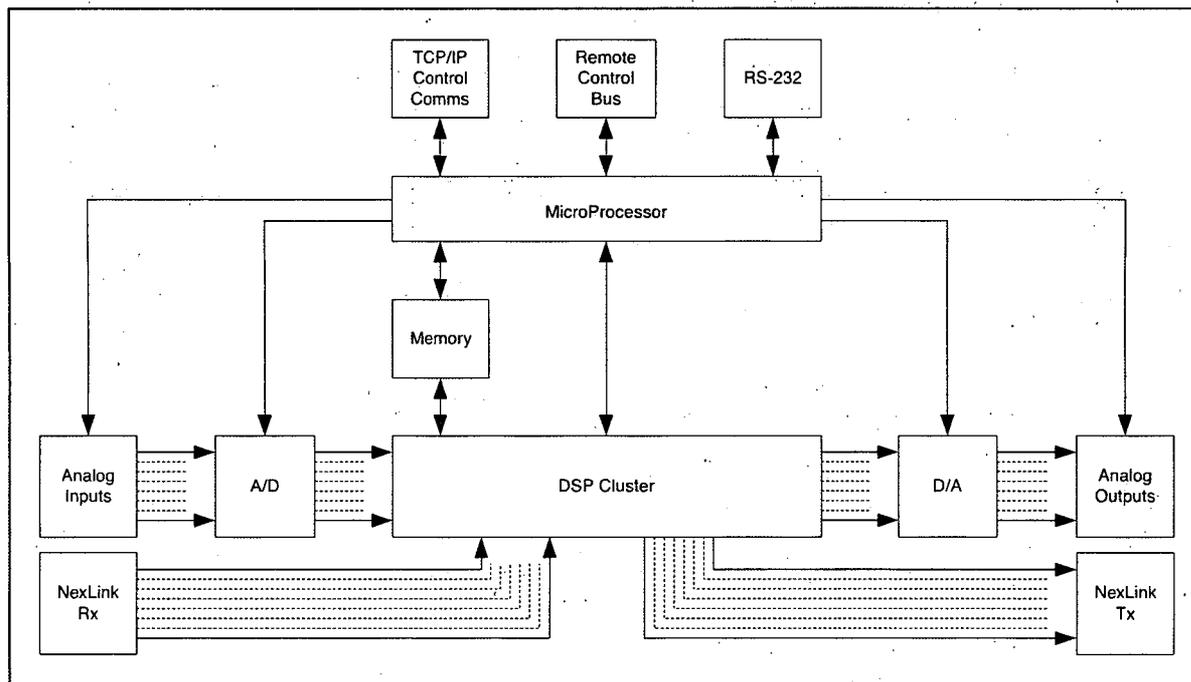
Nexia® CS SPECIFICATIONS

Frequency Response (20Hz~20kHz @ +4dBu):	+0/-0.4dB	Maximum Output (balanced):	+24dBu
THD +N (20Hz~20kHz @ +4dBu):		Full Scale Output Level (six selections):	-31dBu ~ +24dBu
line level	< 0.006%	Sampling Rate:	48kHz
mic level	< 0.05%	A/D - D/A Converters:	24-bit
Equivalent Input Noise (20Hz~20kHz, 66dB gain, 150 ohm):	125dBu	Phantom Power:	+48 VDC (7mA/input)
Dynamic Range (20Hz~20kHz, 0dB):	> 105dB	Power Consumption (100~240VAC 50/60Hz):	65 watts
Maximum Gain (mic input to line output):	66dB	Dimensions:	
Crosstalk (channel-to-channel @ 1kHz):		height	1.75 inches (45mm)
line level input	< -80dB	width	19 inches (483mm)
mic level input	< -75dB	depth	11.15 inches (283mm)
Input Impedance (mic/line balanced):	8k ohms	Weight:	8.6 lbs. (3.9kg)
Maximum Input (mic/line balanced):	+24dBu	Compliance:	AES48-2005 Grounding & EMC practices EU Directive 2002/95/EC, RoHS directive CE marked UL listed
Input Gain Range (variable):	0dB ~ +66dB		
Output Impedance (balanced):	200 ohms		

Nexia CS REAR PANEL DIAGRAM



Nexia BLOCK DIAGRAM





Nexia SP is a digital signal processor with 4 line inputs and 8 independent mix outputs. Intended for speaker processing applications requiring line inputs feeding a larger number of discrete outputs, Nexia SP includes a broad selection of audio components, routing options, and signal processing. The internal system design is completely user definable via PC software, and can be controlled via *daVinci*™ software screens, RS-232 control systems, and/or a variety of optional remote control devices. Multi-unit Nexia systems can be created utilizing Ethernet and NexLink digital audio linking.

FEATURES

- 4 balanced line inputs on plug-in barrier strips
- 8 balanced outputs on plug-in barrier strips
- Ethernet port for software configuration/control
- serial port for third-party RS-232 remote control
- remote control bus for dedicated control panels
- NexLink ports for multi-unit system designs
- Nexia software for Windows® XP Professional/Vista
- pre-configured I/O with definable processing
- mix, route, combine, EQ, delay, control, etc.
- **RoHS** compliance and **AES** grounding practices
- **CE** marked and **UL** listed
- covered by Biamp Systems' five-year warranty
- Ability to select, view, and calibrate:
 - Mixers: standard, automatic, matrix, combiners
 - Equalizers: graphic, parametric, feedback
 - Filters: HPF, LPF, high shelf, low shelf, all-pass
 - Crossovers: 2-Way, 3-Way and 4-way
 - Dynamics: leveler, comp/limiter, ducker, ANC
 - Routers: 2x1 ~ 32x32
 - Delays: 0 ~ 2000 ms
 - Controls: levels, presets, logic, RS-232, etc.
 - Meters: signal present, peak, RMS
 - Generators: tone, pink-noise, white-noise
 - Diagnostics: transfer function

ARCHITECTS & ENGINEERS SPECIFICATION

The DSP speaker processor shall provide four balanced line inputs and eight balanced line outputs on plug-in barrier-strip connectors. Inputs and outputs shall be analog, with internal 24-bit A/D & D/A converters operating at a sample rate of 48kHz. All internal processing shall be digital (DSP). NexLink connections shall allow sharing of digital audio within multi-unit systems.

Software shall be provided for creating/connecting DSP system components within each hardware unit. Available system components shall include (but not be limited to) various forms of: mixers, equalizers, filters, crossovers, dynamics/gain controls, routers, delays, remote controls, meters, generators, and diagnostics. Ethernet communications shall be utilized for software control and configuration. After initial programming, processors may be controlled via dedicated software screens, third-party RS-232 control systems, and/or optional remote control devices. Software shall operate on a PC computer, with network card installed, running Windows® XP Professional/Vista. The DSP speaker processor shall be CE marked, UL listed, and shall incorporate AES48-2005 Grounding & EMC practices. The DSP speaker processor shall be compliant with EU Directive 2002/95/EC, the RoHS directive. Warranty shall be 5 years.

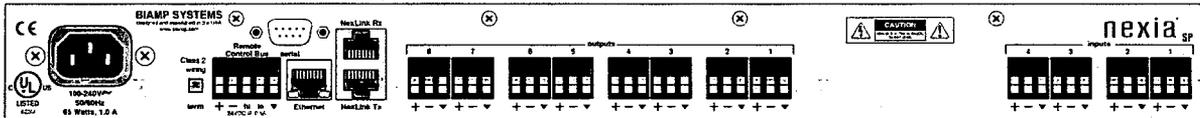
The DSP speaker processor shall be Nexia® SP.

BIAMP®

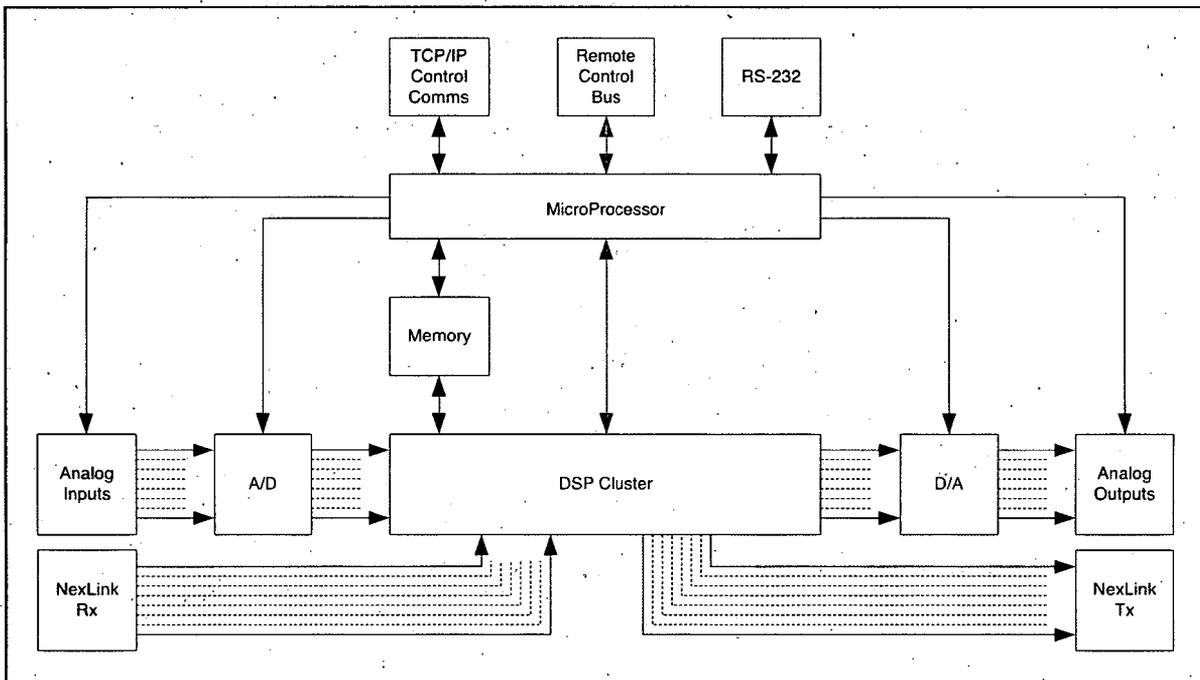
Nexia® SP SPECIFICATIONS

Frequency Response (20Hz-20kHz @ +4dBu):	+0/-0.4dB	Full Scale Output Level (five selections):	0dBu ~ +24dBu
THD +N (20Hz-20kHz @ +4dBu):	< 0.007%	Sampling Rate:	48kHz
Dynamic Range (20Hz-20kHz, 0dB):	> 105dB	A/D - D/A Converters:	24-bit
Maximum Gain (line input to line output):	18dB	Power Consumption:	65 watts
Crosstalk (channel-to-channel @ 1kHz):	< -80dB	Dimensions:	height 1.75 inches (45mm) width 19 inches (483mm) depth 11.15 inches (283mm)
Input Impedance (balanced):	15k ohms	Weight:	8.6 lbs. (3.9kg)
Maximum Input (balanced):	+24dBu	Compliance:	AES48-2005 Grounding & EMC practices EU Directive 2002/95/EC, RoHS directive CE marked UL listed
Input Gain Range (variable):	0dB ~ +18dB		
Output Impedance (balanced):	200 ohms		
Maximum Output (balanced):	+24dBu		

Nexia SP REAR PANEL DIAGRAM



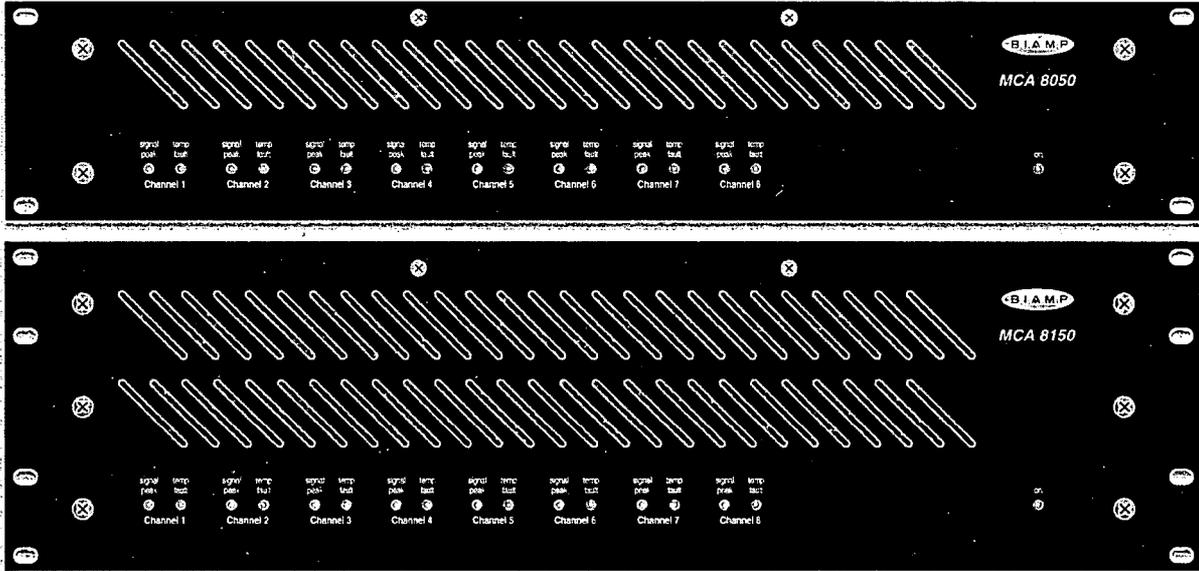
Nexia BLOCK DIAGRAM



BIAMP



MCA Series Multi-Channel Amplifiers



MCA Series Multi-Channel Amplifiers provide eight channels of power amplification. Model MCA 8050 delivers 50 watts/channel into 4 ohms. Model MCA 8150 delivers 150 watts/channel into 4 ohms. Channels may be bridged in pairs for higher combined wattage. Connections are provided for remote control of channel levels & muting. MCA Series amplifiers are covered by a five-year warranty.

FEATURES

- 8 channels of 50W (MCA 8050) or 150W (MCA 8150)
- channels may be bridged in pairs for combined power
- terminals for remote control of channel levels/muting
- balanced line-level inputs on plug-in barrier strips
- rear panel level controls & high-pass filter switches
- amplifier outputs on screw-terminal connectors
- dual-color signal/peak indicators on front & rear panels
- front panel indicators for amplifier temp/load faults
- fan cooled with complete output/speaker protection
- optional transformers for 25/70/100 Volt systems
- **RoHS** compliance and **AES** grounding practices
- **CE** marked & **UL / C-UL** listed
- **CCC** certified
- covered by Biamp Systems' five-year warranty

ARCHITECTS & ENGINEERS SPECIFICATION

The multi-channel amplifier shall provide eight individual channels of power amplification, in two different models. One model shall deliver 50 watts/channel into 4 ohms, with channels bridgeable in pairs to provide 100 watts into 8 ohms. The other model shall deliver 150 watts/channel into 4 ohms, with channels bridgeable in pairs to provide 300 watts into 8 ohms. Connections shall be provided for remote control of individual channel levels & muting, via external potentiometers & switches. Channel inputs shall be line-level, with connections provided on plug-in barrier strips. Channel amplifier outputs shall be provided on standard screw terminals.

Each channel shall include LED indication of signal presence, output clipping, over-temperature condition, and output fault condition. Each channel shall include complete self re-setting protection against short-circuit, improper load, and over-temperature conditions. Input level controls & high-pass filter switches shall be provided on each channel. Internally mounted transformers for distributed speaker systems shall be available as a user-installed option, for both individual channel & bridged-pair outputs.

Frequency Response shall be $\pm 0/-1$ dB, THD+N shall be less than 0.2%, and S/N Ratio shall be greater than 85dB (20Hz~20kHz @ rated power). Power Consumption shall be less than 900 Watts (50 watt/channel model) or 1800 Watts (150 watt/channel model). The amplifier shall be CE marked, UL / C-UL listed, and shall incorporate AES48-2005 Grounding & EMC practices. The mixer shall be compliant with EU Directive 2002/95/EC, the RoHS directive. The amplifier shall carry a five-year warranty.

The 50 Watt / channel model shall be a BIAMP MCA 8050.

The 150 Watt / channel model shall be a BIAMP MCA 8150.

BIAMP

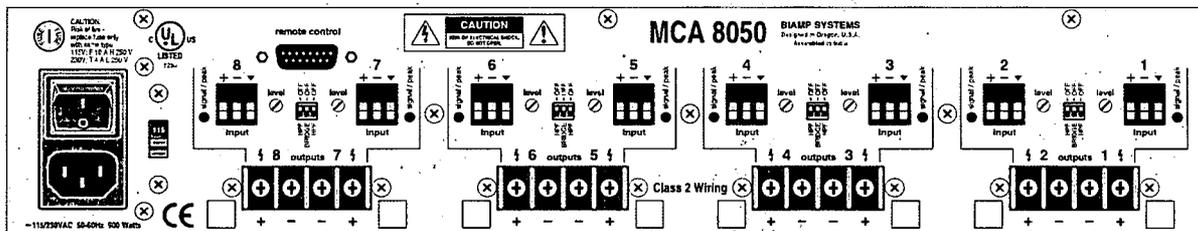
MCA 8050 SPECIFICATIONS

Maximum Power Output (@ 2kHz):	
individual channel into 4 ohm load	50 watts/channel
individual channel into 8 ohm load	30 watts/channel
bridged channels into 8 ohm load	100 watts
Signal-to-Noise Ratio (20Hz-20kHz @ rated power):	> 85dB
THD + Noise (20Hz-20kHz @ rated power):	< 0.2%
Intermodulation Distortion (SMPTE):	< 0.35%
Frequency Response (20Hz-20kHz):	+0/-1dB
Input Impedance:	
balanced	20k ohms
unbalanced	10k ohms
Input Sensitivity:	0.775 Vrms (0dBu)
Channel High-Pass Filters:	12dB/octave @ 120Hz
Power Requirements:	115/230VAC 50/60Hz
Power Consumption:	900 watts max.
Dimensions:	
height (2 rack spaces)	3.5 inches (89mm)
width	19 inches (483mm)
depth	15.5 inches (394mm)
Weight:	30 lbs. (13.6kg)
Compliance:	
	AES48-2005 Grounding & EMC practices
	EU Directive 2002/95/EC, RoHS directive
	CE marked
	UL / C-UL listed
	CCC Certified

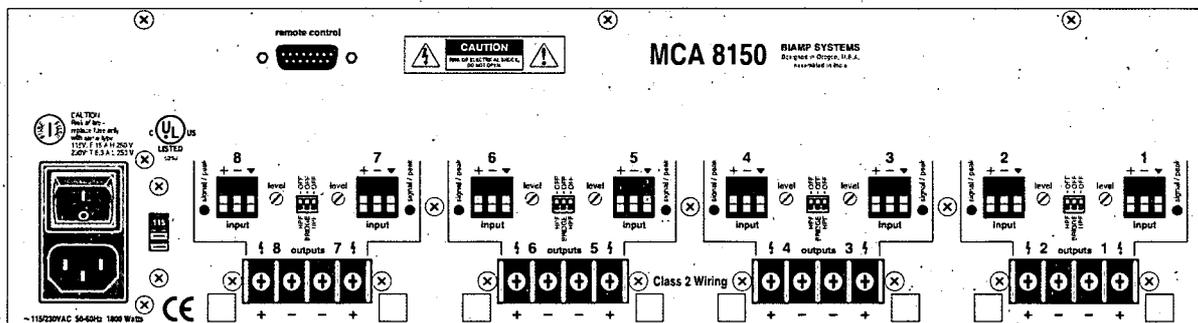
MCA 8150 SPECIFICATIONS

Maximum Power Output (@ 2kHz):	
individual channel into 4 ohm load	150 watts/channel
individual channel into 8 ohm load	90 watts/channel
bridged channels into 8 ohm load	300 watts
Signal-to-Noise Ratio (20Hz-20kHz @ rated power):	> 85dB
THD + Noise (20Hz-20kHz @ rated power):	< 0.2%
Intermodulation Distortion (SMPTE):	< 0.35%
Frequency Response (20Hz-20kHz):	+0/-1dB
Input Impedance:	
balanced	20k ohms
unbalanced	10k ohms
Input Sensitivity:	0.775 Vrms (0dBu)
Channel High-Pass Filters:	12dB/octave @ 120Hz
Power Requirements:	115/230VAC 50/60Hz
Power Consumption:	1800 watts max.
Dimensions:	
height (3 rack spaces)	5.25 inches (133mm)
width	19 inches (483mm)
depth	15.5 inches (394mm)
Weight:	35 lbs. (15.9kg)
Compliance:	
	AES48-2005 Grounding & EMC practices
	EU Directive 2002/95/EC, RoHS directive
	CE marked
	UL / C-UL listed
	CCC Certified

MCA 8050 REAR PANEL DIAGRAM



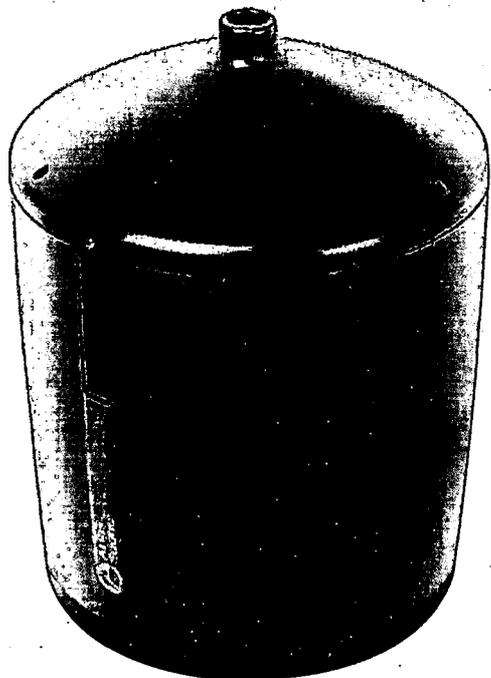
MCA 8150 REAR PANEL DIAGRAM





PM8FA

Pendant Mount Speaker Series



PM8FA-B

Features

- 8" FA138 driver provides 100° (50° off-axis) coverage in the 2 kHz octave band
- 70.7V taps @ 1.9, 3.8, 7.5, 15, 30, & 60 Watts plus 8 Ω direct input via concealed terminal block
- Outstanding full range frequency response of 65 Hz – 20 kHz.

Technical Specifications

Power Rating:	100 Watts Peak, 70 Watts RMS
70.7 Taps:	1.9, 3.8, 7.5, 15, 30, & 60 Watts
Frequency Response:	60 Hz – 20 kHz (±5 dB)
Sensitivity(1W/1M):	90 dB
Dispersion Angle:	100°
Woofer Mag. Wt.:	21 oz. (580 g)
Woofer:	8" Poly Cone & SBR Surround
HF Driver:	Coaxially Mounted PEI Dome Tweeter
Dimensions:	Diameter - 12.25" (311.15 mm) Overall Height - 16.62" (422.148 mm)
Enclosure Volume:	1075 In ³ (17,616.09 cm ³)
Weight:	25 lbs (11.34 kg)

Applications

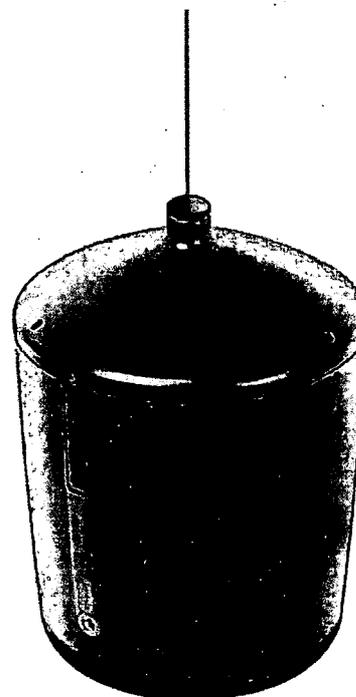
The Atlas Sound PM8FA was specifically designed for upscale performance in retail and hospitality applications, and features the popular FA138 loudspeaker in a specifically tuned and ported enclosure to provide impressive music reproduction and page intelligibility.

Attaching the PM8FA to most overhead surfaces is a breeze. For open beam ceilings a 3 meter cable kit is included with a self gripping ferrule system. If down pipe installation from hard ceiling material is required, any ¾" ceiling fan installation kit may be utilized. These kits are readily available under the FANTEC™ brand from home improvement stores with various down pipe length options to provide installation ease regardless of ceiling material angle (Up to 45°).

Either installation solution is discreetly implemented via the PM series innovative top cover design concealment cap. This "cap" includes a cable access plug that is easily removed for down pipe mounting. The cover also completely conceals the speaker cable terminations and the suspension anchor points.

Several packages are offered to suit various coverage pattern and installation scenarios. For low ceilings, Atlas Sound offers a discrete enclosure system containing a ultra wide coverage 4" FA series driver. For higher ceiling applications, Atlas Sound PM series answers the need for a variety of budget and performance requirements with three different 8" driver options, factory assembled into in a larger pendant style enclosure.

Available in black or white enclosure finish.



PM8FA-B
Hanging



Architects And Engineers Specifications

The loudspeaker system shall include a high performance 8" coaxial loudspeaker, ported and tuned bass reflex enclosure and form fit grille for conventional ceiling installation via cable or down tube mounting system.

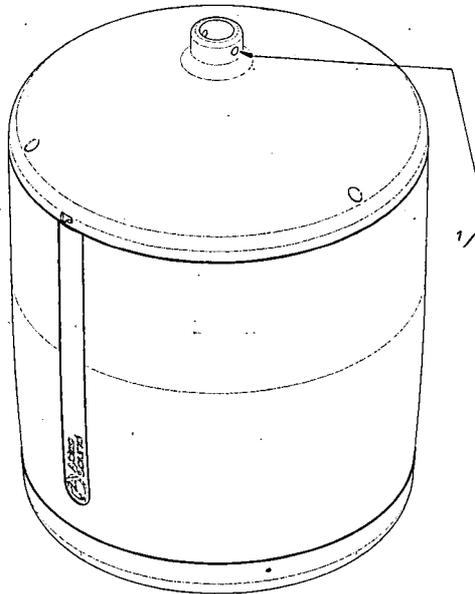
Frequency response for the system shall be 60 Hz – 20 kHz. Sensitivity shall be 90 dB peak (1 W/1 M). Loudspeaker shall be comprised of an 8" coaxial cone type driver. Cone shall be constructed of polypropylene with a butyl rubber surround; The 19 mm tweeter shall be constructed of PEI. Woofer magnet shall be a minimum of 21 oz. (595 g) and the voice coil diameter shall be 1 1/2" (38 mm).

Transformer shall be (70.7V / 100V) volt type with watt primary taps at 1.9, 3.8, 7.5, 15, 30, & 60 Watts (@70.7V) and a transformer bypass position for 8 Ω operation on an 8 position terminal block.

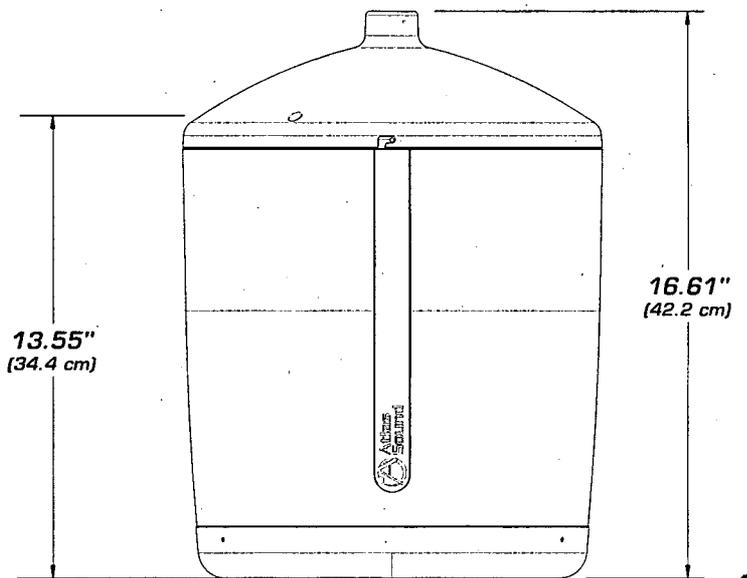
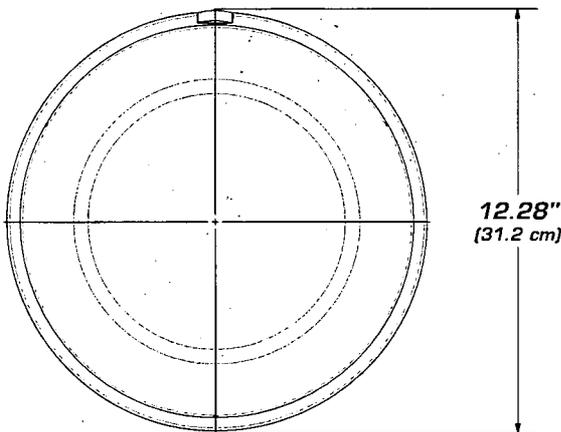
The loudspeaker system shall be the Atlas Sound PM8FA.

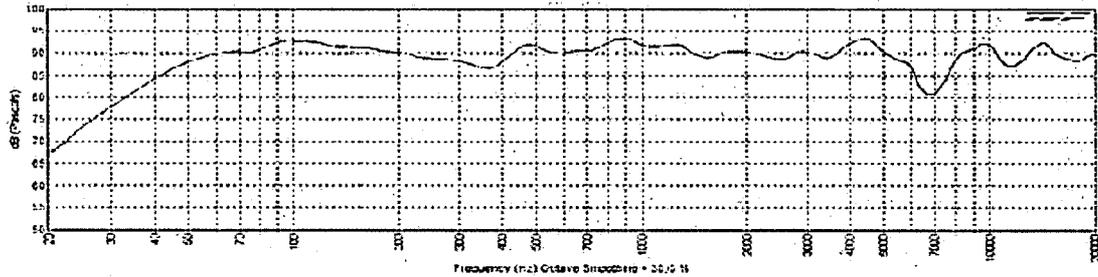


Taps Terminal Selection

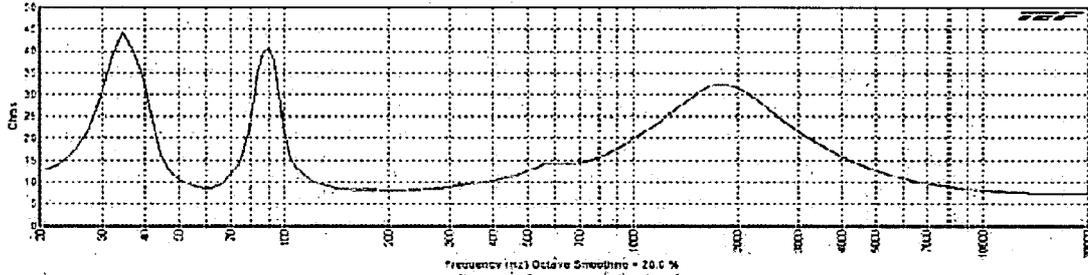


1/4-20 Thread Hole for Securing Conduit Installation

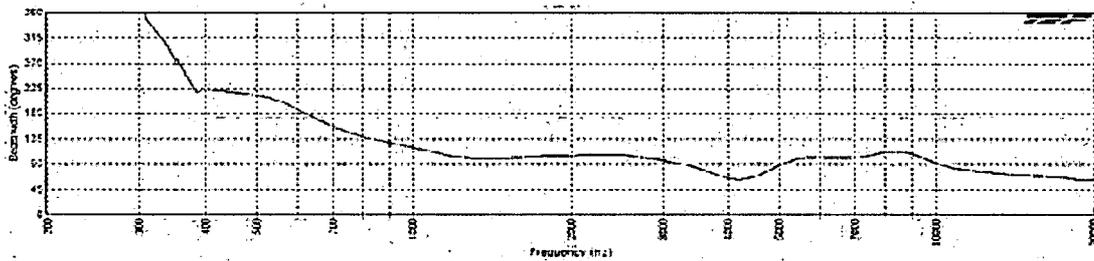




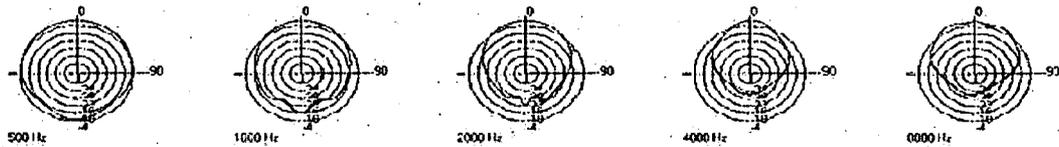
PM8FA Frequency Response



PM8FA Impedance



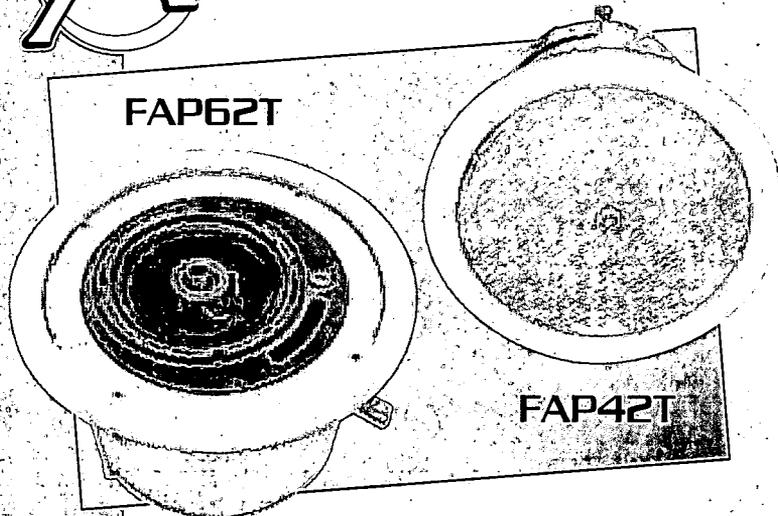
PM8FA Beamwidth



PM8FA Polar Charts



Strategy Series® II



Next Generation Strategy Series II Speaker Systems—The definitive choice for commercial and business applications

In 1991, Atlas Sound shook the commercial sound industry with the introduction of the Strategy Series commercial loudspeaker systems. Strategy Series set the benchmark for "step-up" business and commercial ceiling speaker systems. Since the original Strategy Series introduction many have copied the original Strategy Series concept but few have ever come close to performance of the product that has been the choice of consultants, specifiers and contractors for years. Why? The smooth frequency response, even, wide coverage, sonically pleasing voicing and ease of installation of the Strategy Series have stood the test of time.

The Next Generation

Atlas Sound engineers have taken all feedback received over the years for suggested enhancements to Strategy Series and employed advanced new manufacturing techniques to present Strategy Series II, a series that will "re-set the bar" for commercial audio ceiling speaker systems.

New Models Include:

The **FAP42T** 70.7/100V tuned & ported 4" coaxial ceiling speaker system

The **FAP62T** 70.7/100V tuned & ported 6" coaxial ceiling speaker system

These premium 70.7/100V tuned & ported coaxial ceiling speaker packages will satisfy the needs of owners, architects, contractors, and consultants by delivering true, high fidelity sound reproduction in an attractive and easy-to-install system.

To reduce installation time and simplify ordering and specifying, the **FAP42T** and **FAP62T** packages ship complete with speaker/transformer factory assembled into back can, grille and unique V-rail/C-ring mounting hardware.

Feature Enhancements include

- Front mounted tap selector switch for easy system tuning adjustments
- Unique "trap door" input section allows for through conduit runs with rigid or flex conduit
- 4 Pole detachable "Phoenix" style connector allows easy pre-wiring and is convenient for daisy chaining additional Strategy Series II full range speakers or subwoofers
- "Press fit" grilles blend better into contemporary architecture
- Higher power, enhanced quality 70.7V/100V internal transformers minimize insertion loss and maintain low frequency response while providing increased output for higher SPL applications
- Extended low frequency response from the optimally tuned and ported deep drawn galvanized steel enclosure (285 cubic inches FAP42T, 475 cubic inches FAP62T)

Premium Construction Provides Premium Performance

The high quality construction of the FA series drivers utilized in the **FAP42T** & **FAP62T** will provide familiar performance.

All Strategy Series II drivers feature a weather/UV resistant polypropylene cone with butyl rubber surround coupled with a 19mm PEI tweeter. Crossover components are of the highest quality providing a smooth transition between the driver components insuring even frequency response and coverage.

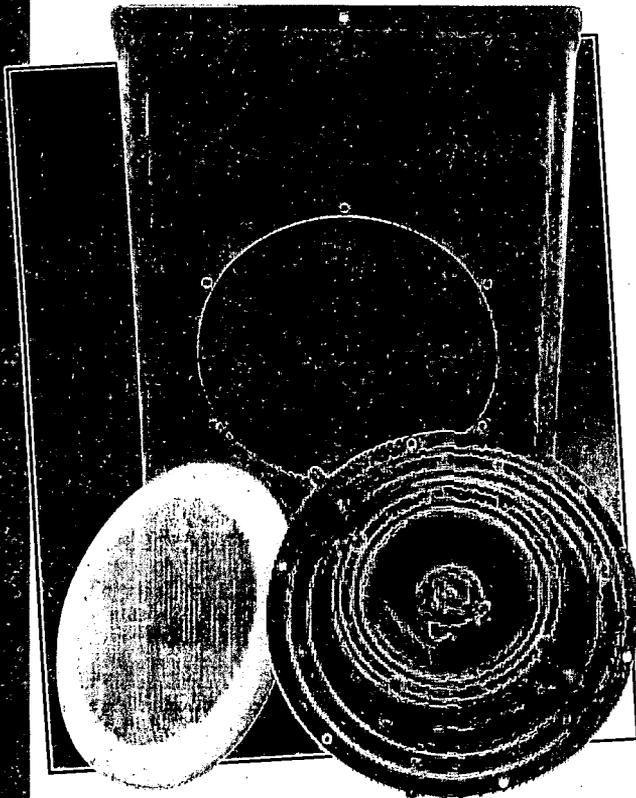


**C-Ring/V-Rail
Mounting System**

SPECIFICATIONS

MODEL	FAP42T	FAP62T
POWER RATING	25 Watts (Transformer Limited)	50 Watts (Transformer Limited)
70.7V TAPS	1, 2, 4, 8, 16	2, 4, 8, 16, 32
FREQUENCY RESPONSE (±3dB)	75Hz - 20kHz	63Hz - 20kHz
SENSITIVITY (1W/1M)	92dB Peak, 88dB Average	91dB Peak, 88dB Average
WOOFER	4" W/ Polypropylene Cone & Butyl Rubber Surround	6" W/ Polypropylene Cone & Butyl Rubber Surround
WOOFER MAGNET WT	10oz (264g)	14oz (398g)
HF DRIVER	Coaxially Mounted PEI Dome Tweeter	Coaxially Mounted PEI Dome Tweeter
DIMENSIONS	10.5"(267mm) Bezel Diameter, 8.97"(228mm) Overall Height	12.5"(318mm) Bezel Diameter, 8.48"(215mm) Overall Height
CUT-OUT DIMENSION	8.9" (226mm)	10.9" (277mm)





FA62T-8MB

Shown in FA97-8 Enclosure, with
FA720-8 Grille and FA81-8 Tile Bridge

**Strategy Series® II
"Motor Board" Assemblies**

Atlas Sound has also addressed retrofit and "division of labor" installations with new "motor board" versions of the Strategy Series II.

Model **FA42T-6MB** is the entire 4" speaker/transformer/selector switch/front plate assembly found in the **FAP42T** assembly. The footprint of the **FA42T-6MB** is identical to a standard FA series 6" speaker component. This footprint allows the motor board to fit into all current Strategy Series 6" enclosures in the exact same manner as a regular 6" FA speaker.

Model **FA62T-8MB** is the entire 6" speaker/transformer/selector switch/front plate assembly found in the **FAP62T** assembly. The footprint of the **FA62T-8MB** is identical to a standard FA series 8" speaker component. This footprint allows the motor board to fit into all current Strategy Series II 8" enclosures in the exact same manner as a regular 8" FA speaker.

MODEL	SPECIFICATIONS	
	FAP42T-6MB	FAP62T-8MB
SENSITIVITY	88dB Avg/92dB Peak	88dB Avg/91dB Peak
TRANSFORMER	16 Watt @70.7/100V	32 Watt @70.7/100V
TRANSFORMER TAPS	1, 2, 4, 8 & 16 Watts	1, 2, 4, 8 & 32 Watts
MATCHES ENCLOSURE	FA95-6, FA97-6	FA95-8, FA97-8

• Five Year Limited Warranty •



1601 Jack McKay Blvd.
Ennis, TX 75119
AtlasSound.com
Tech Support 800.876.3333

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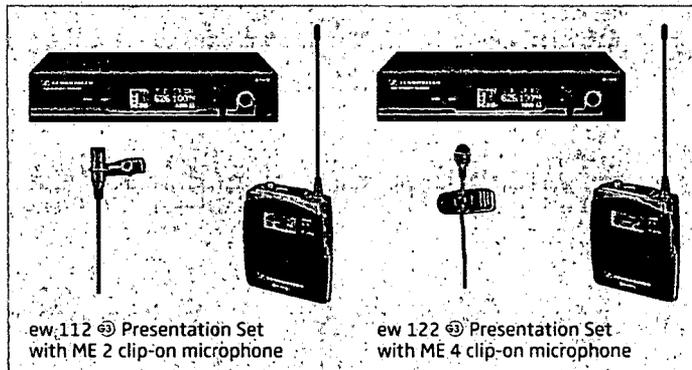
ATS001153 RevA 3/02

ew 100 [Ⓞ] Presentation Sets

RF Wireless Systems | evolution wireless G3

General Description

This system is ideal for theater and presentation use. The ME 2 and ME 4 clip-on microphones are virtually invisible. The extremely small SK 100 G3 body-pack transmitter and the EM 100 G3 rack-mountable receiver each feature 20 frequency banks with one user bank and 12 directly accessible frequency presets. Each system is ready for immediate use.



System variants and included components:

- ew 112 G3 – (1) SK 100 G3 bodypack transmitter, (1) ME 2 omnidirectional clip-on microphone, (1) EM 100 G3 rack-mountable receiver
- ew 122 G3 – (1) SK 100 G3 bodypack transmitter, (1) ME 4 cardioid clip-on microphone, (1) EM 100 G3 rack-mountable receiver

For recommended accessories please visit www.sennheiserusa.com

Features

- Sturdy metal housing
- Automatic frequency management for transmitter and receiver
- Tunable UHF frequencies within a large switching bandwidth
- Programmable MUTE switch
- Wireless synchronization of transmitters via infrared interface
- Enhanced frequency bank management with up to 12 compatible frequencies
- 42 MHz bandwidth, 1,680 switchable frequencies
- Increased range for audio sensitivity
- Easy-to-read illuminated dot matrix display with warning indicator
- More control options (menu)
- Enhanced AF frequency range
- Soundcheck mode
- Integrated equalizer
- Contacts for recharging the BA 2015 accupack directly in the transmitter
- (2) AA batteries for over 8 hours of use
- 4-level battery indicator for transmitter
- HDX compander for crystal-clear sound
- True diversity receiver for optimum reception
- High RF output power for large range
- Suitable for 19" rack mounting (1 U)

Technical Specifications

ew 100 [Ⓞ]

Modulation..... wideband FM
 Frequency ranges 516–558, 566–608,
 626–668, 734–776, 780–822, 823–865
 Transmission/Receiving
 frequencies 20 channel banks, 1 user bank,
 12 factory preset channels each
 Switching bandwidth..... 42 MHz
 Noise reduction system..... Sennheiser HDX
 AF frequency response..... 25 – 18,000 Hz
 S/N ratio (at 1mV and peak deviation) .. ≥ 110 dBA
 THD (at nominal deviation and 1 kHz) ≤ 0.9 %

EM 100 [Ⓞ]

Receiver principle..... True Diversity
 Sensitivity (with HDX,
 peak deviation)..... $< 2.5 \mu\text{V}$ at 52 dBA_{eff} S/N
 Adjacent channel rejection ≥ 65 dB
 Intermodulation attenuation ≥ 65 dB
 Blocking ≥ 70 dB
 Pilot-tone squelch..... detachable
 Antenna inputs 2 BNC sockets
 AF output voltage (at peak deviation,
 1 kHz AF)..... 1/4" (6.3 mm) jack socket,
 unbalanced: +12 dBu XLR socket,
 balanced: +18 dBu
 Power supply 12 V DC
 Dimensions 7.48" x 8.35" x 1.69"
 Weight approx. 1.99 lbs

SK 100 [Ⓞ]

RF output power at 50 Ω typ. 30 mW
 AF frequency response 25 – 18,000 Hz (Line)
 Max input voltage transmitter / line 3 V_{eff}
 Input impedance transmitter / line 40 k Ω ,
 unbalanced / 1M Ω
 Power supply 2 AA batteries, 1.5 V
 Nominal voltage..... 2.4 V
 Operating time typ. 8 h
 Dimensions 3.23" x 2.52" x 0.94"
 Weight approx. 5.64 oz

ME 2

Transducer principle..... condenser
 Sensitivity 20 mV/Pa
 Pick-up pattern omni-directional
 Max. SPL 130 dB SPL

ME 4

Transducer principle..... condenser
 Sensitivity 40 mV/Pa
 Pick-up pattern cardioid
 Max. SPL 120 dB SPL

ew 100 G3 Presentation Set



ew 100 G3 Presentation Sets

RF Wireless Systems | evolution wireless G3

Architect and Engineering Specifications

The wireless microphone system shall feature a true-diversity receiver with 42 MHz of available tuning bandwidth with a total of 1,680 frequencies accessible in 25 kHz steps. The wireless microphone receiver must feature one balanced XLR output with a max. output of +18 dBu, and one unbalanced 1/4" output with a max. output of +12 dBu. The wireless microphone receiver must feature two BNC antenna inputs, one for each receiver module in the true diversity system. The wireless microphone receiver must feature a backlit display that displays AF and RF levels, battery telemetry from the transmitter, operating frequency, and diversity switching information. The wireless microphone receiver must feature an automatic frequency scanning function that utilizes twenty (20) banks of pre-coordinated frequencies that are free of intermodulation interference. The wireless microphone receiver must also feature a user bank in order to store user defined frequencies. The wireless microphone transmitter must operate on two 1.5V AA battery cells. The wireless microphone transmitter must have access to 1,680 frequencies tuned in 25 kHz steps across a defined 42 MHz bandwidth. The wireless microphone transmitter must feature a backlit display that displays frequency information, AF level, battery level. The wireless microphone transmitter must transmit a pilot-tone squelch. The wireless microphone transmitter must have a specified RF output power of 30mW. The wireless microphone receiver must accept 12V DC power via BNC antenna inputs.

Limited Product Warranty/Service

Sennheiser Electronic Corporation extends the following limited product warranty for Sennheiser products:

The warranty period for all covered Sennheiser products is two years from the date of purchase. Not covered by this warranty are accessories and other consumables; for example, items of wear and tear, such as cables. During the warranty period, Sennheiser Electronic Corporation warrants that the Sennheiser equipment will be free from defects in materials and workmanship used in making the product. Abnormal conditions, deliberate abuse and damage due to accidents, operator's error, or unauthorized service attempts are excluded from any warranty claims. Under this warranty, Sennheiser Electronic Corporation will repair, or at its option, replace free of charge the covered defective Sennheiser product, provided it is returned (postage paid, with proof of purchase from the original seller) to a Sennheiser Service Facility. Products should be returned in their original package, or otherwise suitably protected to avoid shipping damage. Either product registration or a valid, dated proof of purchase is accepted to establish the warranty period. The Sennheiser Service Department will be the sole authority to determine the validity of all warranty issues.

This Limited Product Warranty is Sennheiser Electronic Corporation's only warranty, and the customer's only remedy concerning Sennheiser products. All other representations and warranties, express or implied, written or oral, including, but not limited to, any warranties of merchantability, fitness for a particular purpose, or non-infringement, are expressly excluded. As a result, except as set forth in the previous paragraphs, the product is sold "as-is" and the customer is assuming the entire risk as to the product's suitability for his needs, its quality and its performance.

In no event will Sennheiser Electronic Corporation be liable for direct, indirect, special, incidental or consequential damages resulting from any defect in the product or from its use, even if advised of the possibility of such damages.

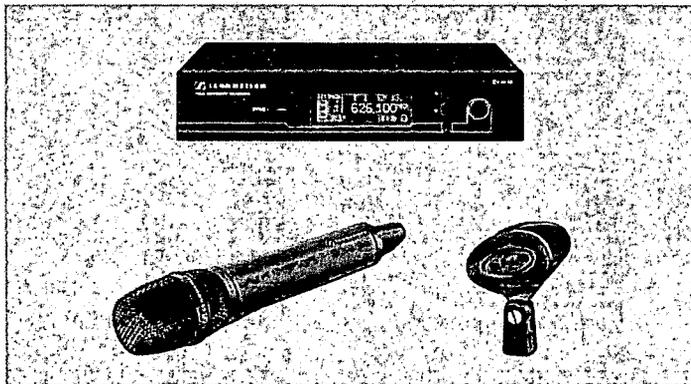
ew 100 [Ⓞ] Vocal Sets

RF Wireless Systems | evolution wireless G3

System variants and included components:

- ew 135 G3 – (1) SKM 100 G3 handheld transmitter, (1) [Ⓞ]835 dynamic, cardioid capsule, (1) EM 100 G3 rack-mountable receiver
- ew 145 G3 – (1) SKM 100 G3 handheld transmitter, (1) [Ⓞ]845 dynamic, super-cardioid capsule, (1) EM 100 G3 rack-mount receiver
- ew 165 G3 – (1) handheld transmitter, (1) [Ⓞ]865 super-cardioid condenser capsule, (1) EM 100 G3 rack-mount receiver

For recommended accessories please visit www.sennheiserusa.com



Features

- Sturdy metal housing
- Automatic frequency management for transmitter and receiver
- Tunable UHF frequencies within a large switching bandwidth
- Wireless microphone with a quick-change microphone head from the [Ⓞ]800 series
- Large range of interchangeable microphone heads from the successful evolution series
- Wireless synchronization of transmitters via infrared interface
- Enhanced frequency bank management with up to 12 compatible frequencies
- 42 MHz bandwidth, 1,680 switchable frequencies
- Increased range for audio sensitivity
- Easy-to-read illuminated dot matrix display with warning indicator
- More control options (menu)
- Enhanced AF frequency range
- Soundcheck mode
- Integrated equalizer
- Contacts for recharging the BA 2015 accupack directly in the transmitter (requires LA2 adapter)
- (2) AA batteries for over 8 hours of use
- 4-level battery indicator for transmitter
- HDX compander for crystal-clear sound
- True diversity receiver for optimum reception
- High RF output power for large range
- Suitable for 19" rack mounting (1 U)

General Description

This system is ideal for vocal applications. Choose from two (2) dynamic microphone heads with cardioid or super-cardioid pick-up patterns and one (1) electret condenser, super-cardioid pattern from the renowned evolution 800 microphone series. The SKM 100 G3 handheld transmitter and the EM 100 G3 rack-mountable receiver each features 20 frequency banks with one user bank and 12 directly accessible frequency presets. Each system is ready for immediate use.

Technical Specifications

ew 100 [Ⓞ]

Modulation..... wideband FM
 Frequency ranges 516–558, 566–608,
 626–668, 734–776, 780–822, 823–865
 Transmission/Receiving
 frequencies 20 channel banks, 1 user bank,
 12 factory preset channels each
 Switching bandwidth..... 42 MHz
 Noise reduction system..... Sennheiser HDX
 AF frequency response..... 25 – 18,000 Hz
 S/N ratio (at 1mV and peak deviation) .. ≥ 110 dBA
 THD (at nominal deviation and 1 kHz) ≤ 0.9 %

EM 100 [Ⓞ]

Receiver principle..... True Diversity
 Sensitivity (with HDX,
 peak deviation)..... <2.5 µV at 52 dBA_{eff} S/N
 Adjacent channel rejection ≥ 65 dB
 Intermodulation attenuation ≥ 65 dB
 Blocking ≥ 70 dB
 Pilot-tone squelch..... detachable
 Antenna inputs 2 BNC sockets
 AF output voltage (at peak deviation,
 1 kHz AF)..... 1/4" (6.3 mm) jack socket,
 unbalanced: +12 dBu XLR socket,
 balanced: +18 dBu
 Power supply 12 V DC
 Dimensions 7.48" x 8.35" x 1.69"
 Weight approx. 1.99 lbs.

SKM 100 [Ⓞ]

RF output power at 50 Ω typ. 30 mW
 AF frequency response 80 – 18,000 Hz
 Power supply 2 AA batteries, 1.5 V
 Nominal voltage..... 2.4 V
 Operating time typ. 8 h
 Dimensions Ø 1.97" x 10.43"
 Weight approx. 15.87 oz

ew 100 G3 Vocal Set



ew 100 ^{CS} Vocal Sets

RF Wireless Systems | evolution wireless G3

Architect and Engineering Specifications

The wireless microphone system shall feature a true-diversity receiver with 42 MHz of available tuning bandwidth with a total of 1,680 frequencies accessible in 25 kHz steps. The wireless microphone receiver must feature one Balanced XLR output with a max. output of +18 dBu, and one unbalanced 1/4" output with a max. output of +12 dBu. The wireless microphone receiver must feature two BNC antenna inputs, one for each receiver module in the true diversity system. The wireless microphone receiver must feature a backlit display that displays AF and RF levels, battery telemetry from the transmitter, operating frequency, and diversity switching information. The wireless microphone receiver must feature an automatic frequency scanning function that utilizes twenty (20) banks of pre-coordinated frequencies that are free of intermodulation interference. The wireless microphone receiver must also feature a user bank in order to store user defined frequencies. The wireless microphone transmitter must operate on two 1.5V AA battery cells. The wireless microphone transmitter must have access to 1,680 frequencies tuned in 25 kHz steps across a defined 42 MHz bandwidth. The wireless microphone transmitter must feature a backlit display that displays frequency information, AF level, battery level. The wireless microphone transmitter must transmit a pilot-tone squelch. The wireless microphone transmitter must have a specified RF output power of 30mW. The wireless microphone receiver must accept 12V DC power via BNC antenna inputs.

Limited Product Warranty/Service

Sennheiser Electronic Corporation extends the following limited product warranty for Sennheiser products:

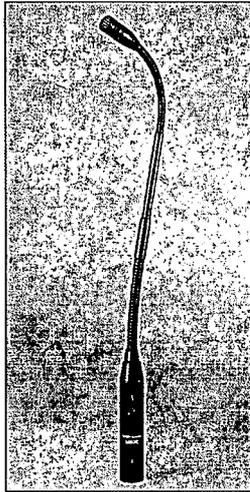
The warranty period for all covered Sennheiser products is two years from the date of purchase. Not covered by this warranty are accessories and other consumables; for example, items of wear and tear, such as cables. During the warranty period, Sennheiser Electronic Corporation warrants that the Sennheiser equipment will be free from defects in materials and workmanship used in making the product. Abnormal conditions, deliberate abuse and damage due to accidents, operator's error, or unauthorized service attempts are excluded from any warranty claims. Under this warranty, Sennheiser Electronic Corporation will repair, or at its option, replace free of charge the covered defective Sennheiser product, provided it is returned (postage paid, with proof of purchase from the original seller) to a Sennheiser Service Facility. Products should be returned in their original package, or otherwise suitably protected to avoid shipping damage. Either product registration or a valid, dated proof of purchase is accepted to establish the warranty period. The Sennheiser Service Department will be the sole authority to determine the validity of all warranty issues.

This Limited Product Warranty is Sennheiser Electronic Corporation's only warranty, and the customer's only remedy concerning Sennheiser products. All other representations and warranties, express or implied, written or oral, including, but not limited to, any warranties of merchantability, fitness for a particular purpose, or non-infringement, are expressly excluded. As a result, except as set forth in the previous paragraphs, the product is sold "as-is" and the customer is assuming the entire risk as to the product's suitability for his needs, its quality and its performance.

In no event will Sennheiser Electronic Corporation be liable for direct, indirect, special, incidental or consequential damages resulting from any defect in the product or from its use, even if advised of the possibility of such damages.

U857Q/U857QL CARDIOID CONDENSER QUICK-MOUNT GOOSENECK MICROPHONES

unipoint



- Designed for high-quality sound reinforcement, professional recording and broadcasting
- 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
- Self-contained electronics eliminate need for external power module

- Accepts interchangeable elements to permit angle of acceptance from 90° to 360°
- Two-stage foam windscreen yields dramatically improved resistance to P-pops and other breath blasts
- Quick-mount design with 3-pin XLRM-type connector insert at base plugs into any standard XLRF-type surface or cable connector
- Included shock mount attenuates noise, shock and vibration transmitted through the mounting surface

The U857Q stands 14.37" (365.0 mm) from the table or podium; it is also available in a 18.94" (481.0 mm) version as U857QL. The two models are identical in all other respects.

The U857Q requires 11V to 52V phantom power for operation.

Output from the microphone's XLRM-type connector 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.

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.

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.

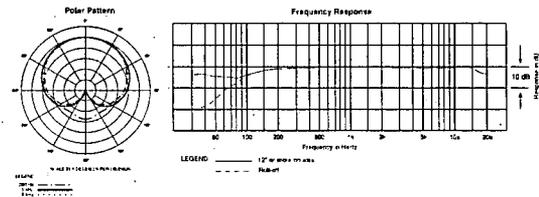
U857Q/U857QL SPECIFICATIONS¹

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	-39 dB (11.2 mV) re 1V at 1 Pa*
IMPEDANCE	250 ohms
MAXIMUM INPUT SOUND LEVEL	139 dB SPL, 1 kHz at 1% T.H.D.
DYNAMIC RANGE (typical)	115 dB, 1 kHz at Max SPL
SIGNAL-TO-NOISE RATIO¹	70 dB, 1 kHz at 1 Pa*
PHANTOM POWER REQUIREMENTS	11-52V DC, 2 mA typical
SWITCH	Flat, roll-off
WEIGHT	
U857Q	5.1 oz (144 g)
U857QL	5.3 oz (150 g)
DIMENSIONS	
U857Q	14.37" (365.0 mm) long
U857QL	18.94" (481.0 mm) long
BOTH	0.48" (12.2 mm) head diameter, 0.74" (18.9 mm) base diameter
OUTPUT CONNECTOR	Integral 3-pin XLRM-type
OPTIONAL INTERCHANGEABLE ELEMENTS	UE-H hypercardioid (100°); UE-O omnidirectional (360°); UE-UL UniLine™ (90°)
ACCESSORIES FURNISHED	AT8153 two-stage foam windscreen; AT8662 shock mount

¹In 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/cm² = 10 microbars = 94 dB SPL

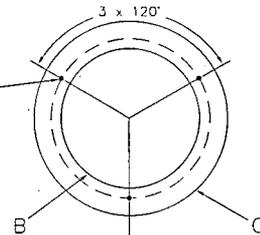
¹Typical, A-weighted, using Audio Precision System One. Specifications are subject to change without notice.



Shock Mount Installation

AT8662 mounting dimensions

- $\frac{1}{16}$ " (1.5 mm) pilot holes 3 places on 2.29" (58.2 mm) circle.
- 2.0" (51.0 mm) through-hole for mount clearance
- Outside edge of flange, 2.79" (71.0 mm) diameter



Drawing not actual size.

1. Find the center of the mounting location and mark it. Allow enough clearance to accommodate the shock mount's flange on the surface and make certain there are no physical obstructions below the desired location.
2. Using 2.0" (51.0 mm) hole saw, drill the large through-hole for the shock mount.
3. Set the shock mount into the hole and mark the location of the three mounting screw holes. Make certain to "center" the mount in the large hole before marking the three small mounting screw locations.
4. Using a $\frac{1}{16}$ " (1.5 mm) drill bit, drill three pilot holes for the mounting screws.
5. After installing the microphone, assure maximum shock mounting effectiveness by providing some slack in the connecting cable.

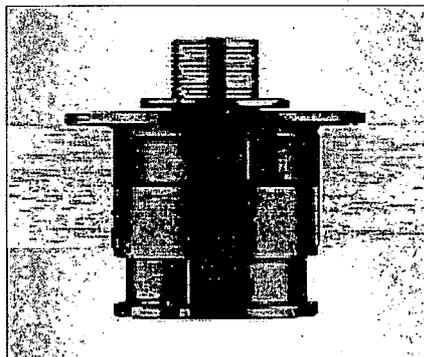
 **audio-technica**

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Audio-Technica Limited, Old Lane, Leeds LS11 8AG England
www.audio-technica.com

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Professional Microphone Accessories

AT8416 MICROPHONE SHOCK MOUNT



Description

The Audio-Technica AT8416 shock mount effectively isolates mounted microphones from impact vibration and shock handling noise. It is intended for use with microphones mounted on lecterns, pulpits, conference tables and similar surfaces. Designed especially for UniPoint® gooseneck microphones, it may be used with other lightweight microphones as well.

The use of a shock mount is particularly important in any application where wide-range sound equipment is used, and where high-level low-frequency sounds can be expected.

The AT8416 shock mount system utilizes two oversize chloroprene rings, similar to rubber bands. The rings are mounted transversely. An aluminum mounting stud with 5/8"-27 threads is held in the central cavity formed by the opposing bands, thereby "floating" the shock mount assembly, and isolating it from mechanical coupling to the resonating surface. A slot is provided in the mounting flange to allow a small-diameter cable to pass down the mounting hole. A cable channel secures the cable in the flush mount assembly and helps to further deaden the transmission of vibration.

When properly installed, the AT8416 isolates the microphone from contact with the mounting surface, and eliminates pickup of low-frequency resonances caused by mechanical coupling. This generally allows higher sound reinforcement levels and higher gain-before-feedback.

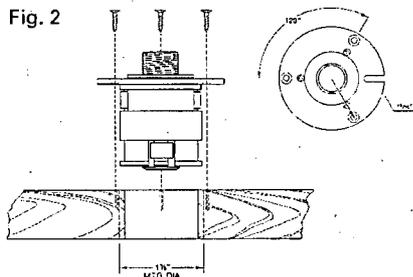


Installation

5/8"-27 Mount: Drill a 1 3/8" hole at the desired point in the mounting surface. Screw the base of the microphone onto the threads of the mounting stud. Drop the microphone cable down through the hole in the mounting surface, making certain the cable is captured by the slot in the mounting flange and is in place in the cable channel along the side of the shock mount (Fig. 1).

Leave some slack in the cable between the mic and the mounting flange; pulling the cable snug will "bypass" the suspension. Set the shock mount in place, with the cable slot away from the "front," and secure with the three screws provided (Fig. 2).

Fig. 2



Plug-in Mount: Drill a 1 3/8" hole at the desired point in the mounting surface. Run the XLR connector of the microphone cable up through the hole. Remove the mounting stud from the AT8416 and insert the XLRF connector up through the chloroprene rings (Fig. 3). Secure the shock mount with the three screws provided (as in Fig. 2). Attach the XLRF connector to the microphone and work the connector body back down into the shock mount (Fig. 4).

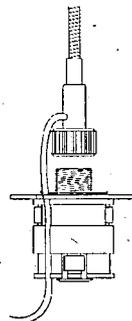


Fig. 1

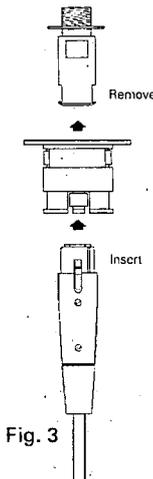


Fig. 3

Since the design of the shock mount "floats" the microphone, with no rigid, fixed position, take care to center the mounting stud (or connector) in the shock mount cavity. This will ensure that the microphone stands upright. If the microphone still leans to one side after installation, the mounting stud or connector can be repositioned without damage.

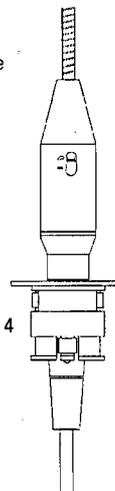


Fig. 4

AT8416 SPECIFICATIONS

DEPTH	
MOUNTING FLANGE	0.08" (2 mm)
BODY	1.26" (32 mm)
DIAMETER	
MOUNTING FLANGE	2.01" (51 mm)
BODY	1.34" (34 mm)
MOUNTING STUD	0.71" (18 mm)
WEIGHT	
	2.5 oz (71 grams)
SUSPENSION SYSTEM	
	2 chloroprene rings

One-Year Limited Warranty

Audio-Technica microphones and accessories purchased in the U.S.A. are warranted for one year from date of purchase by Audio-Technica U.S., Inc. (A.T.U.S.) to be free of defects in materials and workmanship. In event of such defect, product will be repaired promptly without charge or, at our option, replaced with a new product of equal or superior value if delivered to A.T.U.S. or an Authorized Service Center, prepaid, together with the sales slip or other proof of purchase date. **Prior approval from A.T.U.S. is required for return.** This warranty excludes defects due to normal wear, abuse, shipping damage, or failure to use product in accordance with instructions. This warranty is void in the event of unauthorized repair or modification.

For return approval and shipping information, contact the Service Department, Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, Ohio 44224.

Except to the extent precluded by applicable state law, **A.T.U.S. will have no liability for any consequential, incidental, or special damages; any warranty of merchantability or fitness for particular purpose expires when this warranty expires.**

This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Outside the U.S.A., please contact your local dealer for warranty details.



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POLAR
PATTERN

PZM[®]-11 PZM-11LL

The Crown[®] PZM[®]-11 or PZM-11LL is a Pressure Zone Microphone[®] designed for conference-room, security and surveillance applications. Each can be mounted in the ceiling or wall in a standard electrical outlet box. Providing excellent intelligibility, the PZM-11 and PZM-11LL are designed to look like a light switch so as not to draw attention.

The **PZM-11** has a mic-level output and is powered by 12-48V phantom power.

The **PZM-11LL** has a line-level output and can be powered by 24V AC, 12-24V DC, or 12-48V phantom power. Since the PZM-11LL has a high output, it can be plugged directly into a VCR line input—no costly mic preamp is needed.

To phantom power the PZM-11LL, a modification will have to be made to the electronics module (see Installation Step 3 for details).

Like other Pressure Zone Microphones, the PZM-11 and PZM-11LL utilize the Pressure Recording Process[™] in which a miniature condenser microphone capsule is mounted very close to a sound-reflecting plate or boundary. The capsule is mounted in the "Pressure Zone" just above the boundary, a region where sound coming directly from the sound source combines in-phase with sound reflected off the boundary. The benefits are a wide, smooth frequency response free of phase interference, excellent clarity and "reach," and consistent pickup anywhere around the microphone.

In the PZM-11 and PZM-11LL, low frequencies below the voice range are rolled off to reduce pickup of air-conditioning rumble. The high-frequency response is boosted slightly to aid clarity and articulation.

The microphone connector is a row of screw terminals for easy installation. The output is balanced, low impedance, which allows long cable runs without hum pickup or high-frequency loss.

Installation

1. Please refer to Fig. 3 (PZM-11) or Fig. 4 (PZM-11LL) and locate all the parts shown.

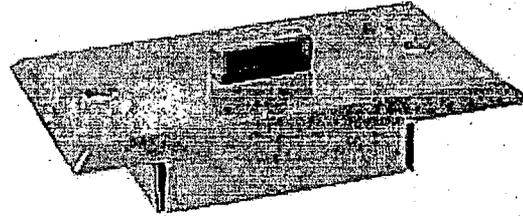
2. Run a 2-conductor shielded mic cable to the hole where you intend to install the microphone. Install a standard electrical outlet box in the hole.

To use phantom power, you need a mixer with phantom power or an external phantom-power supply. Crown makes a PH-1A phantom power supply which has 1 channel and is AC-adaptor powered.

(Continued on back)



PRESSURE ZONE MICROPHONES



Features

- Ideal for security, surveillance and conference rooms
- Clear, articulate sound
- Low-impedance screw-terminal output
- Inconspicuous
- PZM-11 is mic level; PZM-11LL is line level

Specifications

Type: Pressure Zone Microphone.

Element: Electret condenser.

Frequency response (typical): 80 Hz to 20,000 Hz. See Fig. 1.

Polar pattern: Hemispherical.

Impedance:

PZM-11: 225 ohms, balanced.

PZM-11LL: 75 ohms, balanced.

Recommended minimum load impedance 1000 ohms.

Open circuit sensitivity:

PZM-11: 5 mV/Pa* (-46 dBV/Pa).

PZM-11LL: 1.4V/Pa* (+3 dB re 1V/Pa).

Power sensitivity:

PZM-11: -45.5 dBm/Pa*

PZM-11LL: +8 dBm/Pa*

Equivalent noise level (self-noise): 26 dB SPL typical (0 dB = .0002 dyne/cm²), A-weighted.

S/N Ratio: 68 dB at 94 dB SPL.

Maximum SPL:

PZM-11: 120 dB SPL produces 3% THD.

PZM-11LL: 100 dB SPL produces 3% THD.

Output connector:

Three screw terminals.

1 = ground, 2 = audio hot (in polarity),

3 = audio cold (opposite polarity).

Polarity: Positive pressure on the diaphragm produces a positive voltage on screw terminal 2 with respect to screw terminal 3.

Operating voltage:

PZM-11: Standard phantom power, 12 to 48V DC on screw terminals 2 and 3 with respect to screw terminal 1.

PZM-11LL: 24V AC, 12-24V DC, or phantom power as the PZM-11LLS2.

Current drain:

PZM-11: 400 microamperes.

PZM-11LL: 4 milliamperes.

Materials: Steel plate and high-impact plastic capsule holder.

Finish: Off-white. May be painted any color; take care to first seal the opening between the mic capsule and boundary plate.

Operating Temperature Range: -10° to +60° C (+14° to +140° F).

Net weight: 2.5 oz. (71 g).

Dimensions: See Fig. 2.

Optional accessories: Crown PH-1A phantom power supply (1 channel, AC-adaptor powered).

*1 pascal = 10 dynes/cm² = 10 microbars = 94 dB SPL.

Fig. 1. Frequency Response

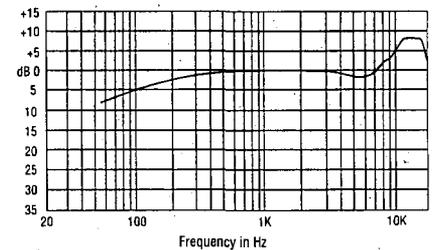
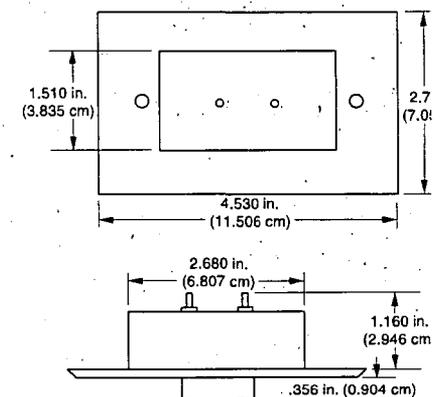


Fig. 2. Dimensions





INSTALLED

PZM-11 PZM-11LL

audio connector and power connector shall be screw terminals. Output shall be balanced, low impedance. The electret condenser transducer shall have a hemispherical polar pattern when the microphone is mounted in a wall or ceiling. The Crown PZM-11LL microphone is specified.

Warranty

Crown professional microphones are guaranteed against malfunction for a period of three years from date of original purchase. See enclosed warranty sheet for additional information.

Service

If the unit fails to work, first replace or repair the mic cables and check the power supply. Recheck your connections to the microphone screw terminals. If service is required, return the microphone and the electronic interface in its original packaging to: **Crown Factory Service, 1718 West Mishawaka Road, Elkhart, IN 46517-9439. A Service Return Authorization (SRA) is required for product being sent to the factory for service. An SRA can be completed on line at www.crownaudio.com/support/factserv.htm.** For further assistance or technical support call 800-342-6939.

Fig. 5. PZM-11LL DC Powering and Output Wiring

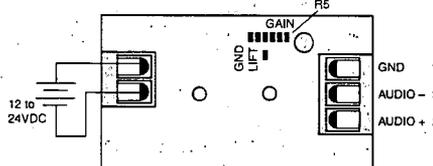
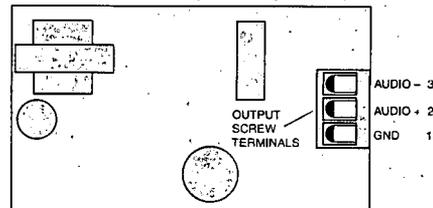


Fig. 6. PZM-11 Output Wiring



A Harman International Company

Crown International, Inc.
1718 W. Mishawaka Rd.
Elkhart, IN 46517-9439
TEL: 574-294-8000
FAX: 574-294-8FAX
www.crownaudio.com

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6/08 136455-6

3. This entire step is for the PZM-11LL only. The PZM-11LL can be powered in three ways: 24V AC, 12-24V DC, or 12-48V phantom power. The mic is factory-wired for 24V AC powering so that it is compatible with video surveillance systems where 24V AC is readily available.

To use phantom power with the PZM-11LL: Put R14 in R13's space; put R15 in R16's space (the resistors are labeled on the circuit board). Note: In some cases these resistors may be on the bottom side of the board. Do not overheat. Then proceed to step 4.

To use 24V AC or 12-24V DC with the PZM-11LL: From your power source, run a twisted pair of power cable to the ceiling or wall hole. Run the power cable through the hole in the electrical box (if any) and through either hole in the chassis (Fig. 4). Service the end of the power cable.

To use 24V AC with the PZM-11LL: Attach the power leads to the screw terminals labeled 24V AC INPUT.

To use 12-24V DC with the PZM-11LL: See Fig. 5. Connect the positive lead from the DC source to either screw terminal of the INPUT terminal block. Connect the negative lead to the other terminal of the INPUT terminal block.

4. Run the mic cable through the hole in the electrical box (if any) and through either hole in the chassis (Fig. 4). Service the end of the mic cable.

5. Attach your mic-cable leads to the screw terminals labeled OUTPUT. Connect the mic-cable shield to 1, audio + lead to 2, and audio - lead to 3. See Figures 5 and 6.

6. Place the chassis over the two long screws. Using the nuts provided, secure the chassis to the faceplate.

7. Using the two screws provided, secure the faceplate to the electrical box or wall board.

8. If you plan to use an XLR-type cable connector: Solder the cable shield to pin 1, audio + lead to pin 2 and audio - lead to pin 3 of the XLR.

If you plan to use an RCA or phone connector: Solder the cable shield to the long lug, and solder the audio + lead to the tip or pin. Do not connect the audio - lead because this may reduce the output level in an unbalanced configuration.

9. If the mic cable is run in metal conduit, ground loops can occur that can cause hum. If hum is present after installation, unsolder the chip resistor labeled 000 on the printed-circuit board (R21 GND LIFT in Fig. 5).

10. If you plan to use a cable connector, solder the other end of the mic cable to a 3-pin professional audio connector (XLR-type). Solder the cable shield to pin 1, light-colored lead to pin 2, and darker lead to pin 3.

If the PZM-11LL distorts, change resistor R5 labeled GAIN to increase headroom. Do not overheat. The surface-mount resistors listed below are already on the circuit board. See Fig. 5.

1K	minimum headroom
2K	6 dB more headroom
3.9K	12 dB more headroom
8.2K	18 dB more headroom
100K	maximum headroom (mic level)

Architects' and Engineers' Specifications

PZM-11

The microphone shall be the Crown Model PZM-11. The microphone shall be a Pressure Zone Microphone, electret-condenser type, with built-in electronics interface. The microphone capsule holder shall be mounted on a standard switch plate. The microphone shall be powered from 12-48V phantom power. The output shall be low impedance balanced. Frequency response shall be from 80 Hz to 20,000 Hz. Low frequencies below the voice range shall be rolled off. Open-circuit sensitivity shall be 5 mV/Pa (-46 dB re 1V/Pa). Maximum SPL capability shall be 120 dB SPL at 3% THD. Equivalent noise shall be 26 dBA typical (0 dB = .0002 dyne/cm²). The Crown model PZM-11 microphone is specified.

PZM-11LL

The microphone shall be the Crown model PZM-11LL. It shall be a Pressure Zone Microphone, mountable in a wall or ceiling, and designed not to look like a microphone. It shall have a line-level output (1.4 V/Pa unloaded) and be powered by 24V AC, 12-24V DC, or phantom power. The frequency response shall be from 80 Hz to 20,000 Hz with a low-frequency rolloff to reduce rumble and high-frequency boost for articulation. The

Fig. 3. Wiring for Phantom Power

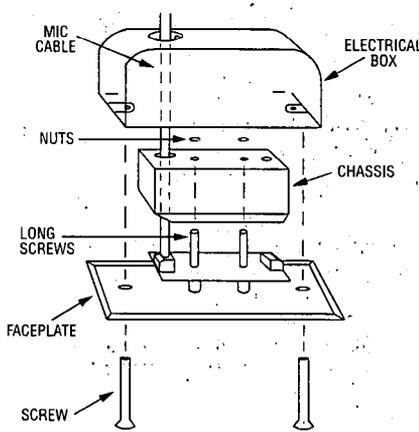
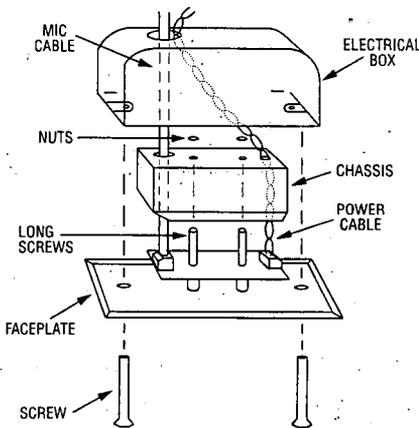


Fig. 4. PZM-11LL Wiring for 24V AC or 12-24V DC

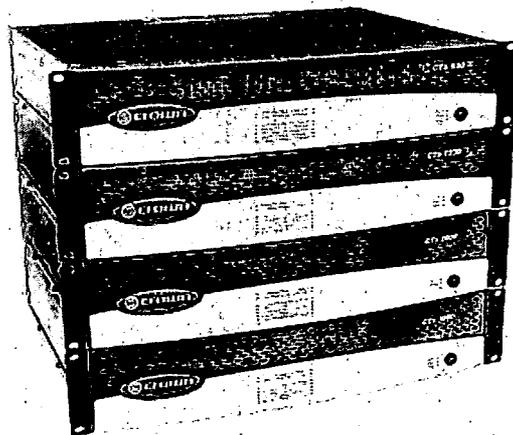




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CTs Series



HiQnet™ compatible

Crown's CTs Series amplifiers provide exceptional performance, flexibility and value for installed sound applications. CTs Series amplifiers feature independent selection of high and low impedance operation for a specific channel, plus power levels and features that were carefully chosen to match the requirements of fixed install design. Easy integration with HiQnet™ and CobraNet™ allows CTs amplifiers to deliver a comprehensive lineup of monitoring and control features along with digital audio transport for an award-winning digital audio solution.

- High power density. All two channel models and four channel model in a 2RU chassis, eight channel model in a 3RU chassis
- Crown Switching Power Supply for lighter weight
- Selectable "Constant-Voltage" or low-impedance (4/8 ohm) operation per channel on 2-channel models, and per channel-pair on 4-and 8-channel models
- 100V direct outputs on CTs 2000, CTs 3000, CTs 4200, and CTs 8200
- Legendary Crown class-I (BCA) and AB+B output topologies offer the best in amplifier reliability
- 4- and 8-channel models offer perfect independent power solutions for multi-zoned systems- "FIT" (Fault Isolation Topology) circuitry on 4- and 8-channel models isolates fault conditions without affecting neighboring channels
- Comprehensive array of indicators provide accurate diagnostics
- Two-channel models are fully PIP2-compatible. Multi-channel models accept MC accessory modules.

[Front and Back Panel Views](#)
(Opens a new window)

[CTs Options & Accessories](#)
[CTs Protection Systems](#)

[2 Channel Specifications](#)
[4/8 Channel Specifications](#)

[2 Channel Datasheet](#)
[4 & 8 Channel Datasheet](#)
[CTs 4200/8200 USP/CN Datasheet](#)

[CTs Series Manual](#)
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[Power/Current Draw and Thermal Dissipation Info](#)

[CTs 600 A&E Spec Sheet](#)
[CTs 1200 A&E Spec Sheet](#)
[CTs 2000 A&E Spec Sheet](#)
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Stay up to date with firmware and software releases by subscribing to the [Crown Mailing List](#).

For product availability and pricing please contact your local dealer.

CTs 2 Channel Specifications

Minimum Guaranteed Power (20 Hz - 20 kHz)	CTs 600 Power at 0.1% THD	CTs 1200 Power at 0.1% THD	CTs 2000 Power at 0.35% THD	CTs 3000 Power at 0.35% THD
2-ohm Dual (per ch.)	150W	250W	1000W	1500W
4-ohm Dual (per ch.)	300W	600W	1000W	1500W
8-ohm Dual (per ch.)	300W	600W	1000W	1250W
16-ohm Dual (per ch.)	300W	300W	625W	625W
70V Dual (per ch.)	300W	600W	1000W	1500W
100V Dual (per ch.)	300W*	600W*	1000W	1500W
4-ohm Bridge	300W	500W	2000W	3000W
8-ohm Bridge	600W	1200W	2000W	3000W
16-ohm Bridge	600W	1200W	2000W	2500W
100V Bridge	600W	1200W*	2000W	3000W
140V Bridge	600W	1200W	2000W	3000W
200V Bridge	600W*	1200W*	2000W	3000W

Performance	CTs 600	CTs 1200	CTs 2000	CTs 3000
Frequency Response (at 1 watt, 20 Hz - 20 kHz)	± 0.25 dB			
Signal to Noise Ratio (ref. rated power, 20 Hz to 20 kHz, A-weighted)	< 105 dB			
Total Harmonic Distortion (THD) at full rated power, from 20 Hz to 20 kHz	< 0.1%	< 0.1%	< 0.35%	< 0.35%
Intermodulation Distortion (IMD) 60 Hz and 7 kHz at 4:1, from -40 dB to full rated power	< 0.1%	< 0.1%	< 0.35%	< 0.35%
Damping Factor: 10 Hz to 100 Hz	> 3000			
Crosstalk (below rated power) 20 Hz to 1kHz	> 80 dB			
Common Mode Rejection (CMR) (20 Hz to 1 kHz, typical)	50 dB			
DC Output Offset	< 2 mV			
Input Impedance nominally balanced, nominally unbalanced	10 k ohms, 5 k ohms			
Maximum Input Level Before input compression Absolute maximum	+20 dBu + 32 dBu			
Load Impedance (Note: Safe with all types of loads) Stereo Bridge Mono	2, 4, 8, 16 ohms, 70V, and 100V* 4, 8, 16, 100V*, 140V and 200V*	2, 4, 8, 16 ohms, 70V, and 100V* 4, 8, 16, 100V*, 140V and 200V*	2, 4, 8, 16 ohms, 70V, and 100V* 4, 8, 16, 100V*, 140V and 200V*	2, 4, 8, 16 ohms, 70V, and 100V* 4, 8, 16, 100V*, 140V and 200V*
Voltage Gain (at maximum level setting) 8/4 Ohm Operation 26 dB 70V Operation 100V Operation	35:1 (31 dB) 20:1 (26 dB) 50:1 (34 dB) n/a	50:1 (34 dB) 20:1 (26 dB) 50:1 (34 dB) n/a	63.9:1 (36 dB) 20:1 (26 dB) 50:1 (34 dB) 50:1 (34 dB)	71.4:1 (37 dB) 20:1 (26 dB) 50:1 (34 dB) 50:1 (34 dB)
Input Sensitivity 2/4/8 ohms 70V 100 V 26 dB gain	1.4V 1.4V n/a 4 ohm: 1.74V. 8 ohm: 2.46V	1.4V 1.4V n/a 4 ohm: 2.46V. 8 ohm: 3.47V	1.4V 1.4V 2.0V 4 ohm: 3.17V. 8 ohm: 4.48V	1.4V 1.4V 2.0V 4 ohm: 3.88V. 8 ohm: 5.01V
Required AC Mains (+15%, - 25%)	120V/60 Hz, 230V/50 Hz			
Power Draw at Idle (120 VAC mains)	24W (Standby Mode)	24W (Standby Mode)	35W (Standby Mode)	35W (Standby Mode)
Overall Group Delay	< 120 usec			
Cooling	Continuously variable speed forced air, front-to-back airflow			
Dimensions Width Height Depth	19 in. (48.3 cm.) 3.5 in. (8.9 cm.) 14.25 in. (36.2 cm.)			
Net Weight Shipping Weight	22.8 lb (10.3 kg) 27.7 lb (12.6 kg)	23.4 lb (10.6 kg) 28.3 lb (12.8 kg)	27.0 lb (12.2 kg) 32.0 lb (14.5 kg)	27.7 lb (12.6 kg) 32.7 lb (14.8 kg)

* With T-170V or TP-170V.

CTs 4 & 8 Channel Specifications

CTs 4200: MINIMUM GUARANTEED POWER (in watts, 0.1% THD) 120VAC, 60 Hz units					
Dual Mode					
Channels Driven	4		2	1	
	1 kHz	20 Hz - 20 kHz	1 kHz	1 kHz	20 Hz - 20 kHz
4 Ohm	260	215	270	270	225
8 Ohm	180	190	210	220	210
70V (25 Ohm) at 0.1% THD	220	220*	240	250	245*
Bridge-Mono Mode					
Channel-Pairs Driven	2		1		
	1 kHz	20 Hz - 20 kHz	1 kHz	20 Hz - 20 kHz	
8 Ohm	520	430	560	450	
16 Ohm	400	380	440	420	
100V (50 Ohm) at 0.1% THD	220	220*	250	245*	

* Constant Voltage full bandwidth power ratings support 100 Hz - 20 kHz due to automatic high-pass filters.

CTs 8200: MINIMUM GUARANTEED POWER (in watts, 0.1% THD) 120VAC, 60 Hz units						
Dual Mode						
Channels Driven	8		4	2	1	
	1 kHz	20 Hz - 20 kHz	1 kHz	1 kHz	1 kHz	20 Hz - 20 kHz
4 Ohm	200	175	250	260	270	230
8 Ohm	160	155	190	200	220	220
70V (25 Ohm) at 0.1% THD	200	185*	220	240	250	230*
Bridge-Mono Mode						
Channel-Pairs Driven	4		2	1		
	1 kHz	20 Hz - 20 kHz	1 kHz	1 kHz	20 Hz - 20 kHz	
8 Ohm	400	350	500	540	460	
16 Ohm	320	310	380	440	440	
100V (50 Ohm) at 0.1% THD	200	185*	220	250	230*	

* Constant Voltage full bandwidth power ratings support 100 Hz - 20 kHz due to automatic high-pass filters.

Performance	CTs 4200	CTs 8200
Frequency Response (at 1 watt, 20 Hz - 20 kHz)	± 0.5 dB	
Phase Response (at 1 watt, 10 Hz - 20 kHz)	± 35°	
Signal to Noise Ratio below rated power (20 Hz to 20 kHz)	100 dB unweighted	
Total Harmonic Distortion (THD) at 1 watt, from 20 Hz to 20 kHz	< 0.05%	
Intermodulation Distortion (IMD) 60 Hz and 7 kHz at 4:1, from 163 milliwatts to full bandwidth power, typical	< 0.05%	
Damping Factor: 10 Hz to 400 Hz	> 180	
Crosstalk (below rated power, 20 Hz to 1 kHz)	> 80 dB	
Common Mode Rejection (CMR) (20 Hz to 1 kHz)	> 50 dB	
DC Output Offset (Shorted input)	< ± 5 mV	
Input Impedance nominally balanced, nominally unbalanced	20 kilohms, 10 kilohms	
Maximum Input Level (before input compression)	+ 20 dBu	
Load Impedance (Note: Safe with all types of loads)		
Stereo	4/8 and 25 ohms (70V)	
Bridge Mono	8/16 and 50 ohms (100V)	
Voltage Gain (at maximum level setting), 1.4V sensitivity		
4/8 Ohm Operation	20:1 (26 dB)	
70V Operation	50:1 (34 dB)	
100V Operation	71.4:1 (37 dB)	

Required AC Mains (model dependent)	120V, 60 Hz. 220/230/240V, 50 Hz	100V, 50/60Hz. 120V, 60 Hz. 220/230/240V, 50 Hz
Power Draw at Idle (120VAC mains, all channels in 4/8 ohm mode)	70W	
Power Draw at Idle (120VAC mains, all channels in 70V mode)	114W	
Cooling	Continuously variable speed forced air, front-to-back airflow	
Dimensions: Width, Height, Depth	19 in. (48.3 cm) W x 3.5 in. (8.9 cm) H x 16.25 in. (41.3 cm) D	19 in. (48.3 cm) W x 5.25 in. (13.3 cm) H x 16.25 in. (41.3 cm) D
Net Weight, Shipping Weight	26 lb. 6 oz. (12 kg), 30 lb. 14 oz. (14 kg)	36 lb. 6 oz. (16.5 kg), 47 lb. (21.3 kg)



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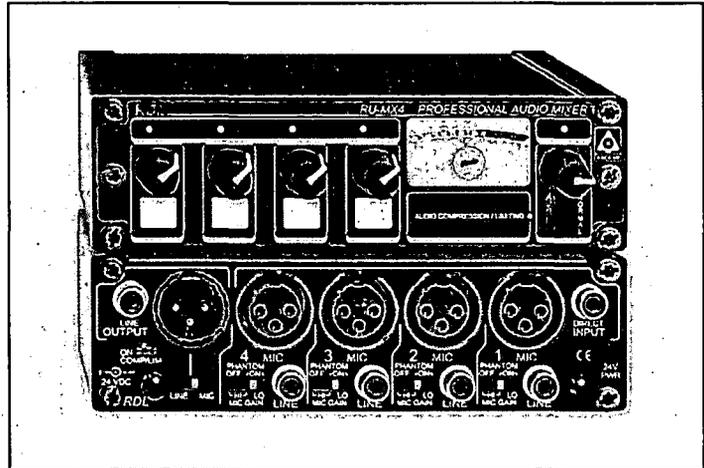


SPECIALISTS IN PRACTICAL PRECISION ENGINEERING™

max RACK-UP® SERIES Model RU-MX4 Pro Audio Mic/Line Mixer

ANYWHERE YOU NEED...

- Four Channel Audio Mixer
- XLR Microphone Inputs, Phono Line Inputs
- Switchable Phantom for Each Mic Input
- Mic or Line XLR Output, Switchable
- Unbalanced Line Output and Direct Input
- Studio Quality, Low-Noise Performance
- Integral Compressor/Limiter, Switchable
- Expansion Bussing Capability
- Output Isolation Transformer (RU-MX4T)



You Need The RU-MX4(T)!

The RU-MX4 is part of the group of RDL RACK-UP products. The compact design permits high-density installations, with three products mounted in a single rack unit. The RU-MX4 may be used alone, or mounted using a wide variety of RACK-UP series options.

APPLICATION: The RU-MX4 is the ideal choice in many applications where a combination of balanced mic and/or unbalanced line-level signals needs to be mixed. All balanced connections are made through XLR connectors. Unbalanced signals are coupled through phono jacks.

Each of the four RU-MX4 inputs can accept either a balanced XLR mic or an unbalanced line-level phono input. Each MIC input accepts either a dynamic or a condenser microphone. A PHANTOM switch is located below each microphone input. These switches activate the phantom voltage and set the input preamplifier for the optimum gain range for the type of microphone. An integral high-pass filter rolls off frequencies below 80 Hz.

A separate unbalanced DIRECT input allows an external audio source to be summed directly into the mix amplifier, bypassing the front-panel input level controls. The unbalanced phono jack LINE OUTPUT from one RU-MX4 may connect to the unbalanced input of other equipment, or may be connected to the DIRECT input of another RU-MX4 to expand mixing capabilities. Up to 3 RU-MX4 mixers may be rack mounted in a single rack unit using an RDL RU-RA3HD rack adapter. A power interconnect cable is supplied with each RU-MX4 allowing the rack mounted mixers to run from a single 24 Vdc power supply.

The RU-MX4 provides one balanced output, switchable for mic or line level. The balanced XLR output and the unbalanced phono jack output may be used at the same time.

Audio levels are adjustable on the front panel. A convenient label area is provided below each fader knob. A label tab included with the mixer may be professionally labeled using a commercial lettering machine, or the user may write on the tab. The tabs lock into a pocket behind the front panel laminate to produce a professionally labeled appearance.

Each input channel is equipped with a front-panel dual-LED VU meter that follows standard VU ballistics. A green LED illuminates at 15 dB below the optimum input gain; becoming progressively brighter with increasing audio level. The adjacent red LED illuminates when the input gain exceeds the correct operating level.

The final mix is displayed on an LED string VU meter featuring a visually comfortable arc motion. The outputs may be fed directly from the final mix, or may be routed through the integral compressor/limiter. A rear-panel switch allows the soft-knee compressor to be switched in or out. When active, the compressor/limiter begins acting as signals exceed 6 dB below the normal output level, and maintain an average +4 dBu output level for excessive signal levels up to 20 dB. An optional security cover (RU-MX4SC) is available to prevent user access to the rear panel switches. The RU-MX4 is electronically balanced. A factory installed output isolation transformer is available by ordering the RU-MX4T.

Wherever a mixer is needed to provide superior audio clarity, user adjustments, reliability, compactness and unsurpassed versatility, the RU-MX4 is the ideal choice. Use the RU-RA3HD rack-mount adapter to mount multiple mixers, or to combine related products (such as audio or video distribution, or audio metering) into a single rack unit!



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max RACK-UP® SERIES

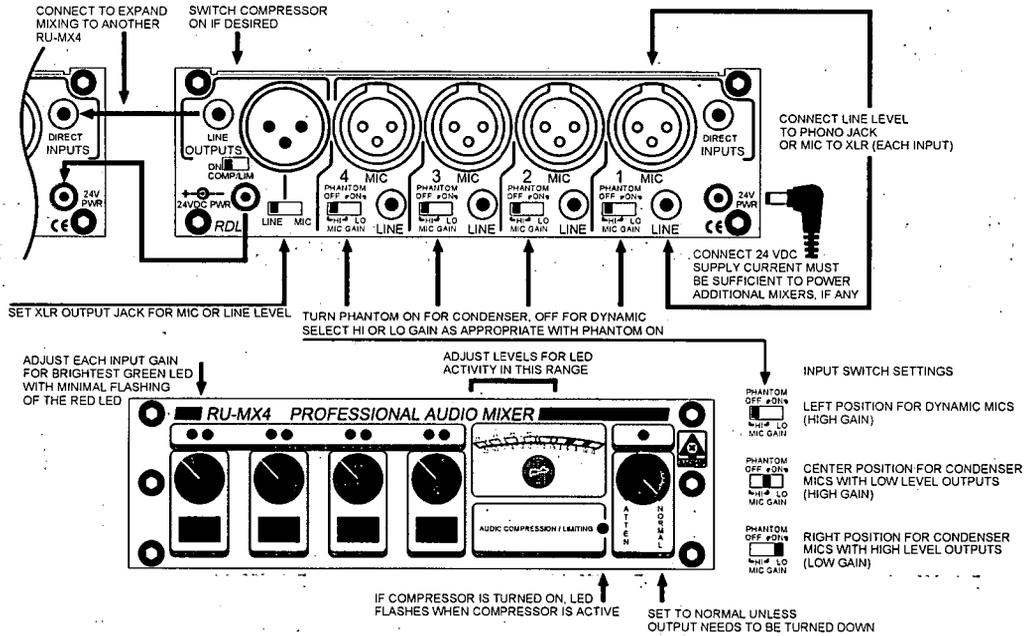
Model RU-MX4

Professional Audio Mic/Line Mixer

Installation/Operation



EN55103-1 E1-E5; EN55103-2 E1-E4
Typical Performance reflects product at publication time exclusive of EMC data, if any, supplied with product. Specifications are subject to change without notice.



TYPICAL PERFORMANCE

Microphone Inputs(4):
Microphone Input Level:
Line Inputs (4):
Line Input Level:
Gain Adjustments (5):

Output Attenuator:
Frequency Response:
Mic:
Line:
THD+N:
Mic:
Line:
Residual Noise (below +4dBu output):
40dB Gain, LO GAIN:
50dB Gain, HI GAIN:
60dB Gain, HI GAIN:
Outputs (2):
Indicators (18):

2 k Ω balanced, switchable 24 V phantom (IEC 1938: 1996-12)
-58 to -20 dBu (PHANTOM OFF); -41 to -4 dBu (PHANTOM ON) for +4 dBu output
2 k Ω unbalanced
-25 dBV to +20 dBV for +4 dBu output; -10 dBV nominal
Mic: Off to 62 dB gain (PHANTOM OFF); Off to 62 dB gain (PHANTOM ON HI GAIN);
Off to 46 dB gain (PHANTOM ON LO GAIN)
Line: Off to 27 dB gain
0 dB to infinity
80 Hz to 30 kHz (+/- 1.5 dB), <-10 dB @ 20 Hz (integral high-pass filter)
20 Hz to 30 kHz (+/- 0.25 dB)
< 0.1% (80 Hz to 20 kHz)
< 0.02%
4 line level sources (unity gain): < -82 dB (wideband)
Mic: -79 dB; all 4 mic level sources: < -73 dB (wideband); < -76 dB ("A" weighted)
Mic: -79 dB; all 4 mic level sources: < -73 dB (wideband); < -76 dB ("A" weighted)
Mic: -70 dB; all 4 mic level sources: < -64 dB (wideband); < -66 dB ("A" weighted)
+4 dBu 150 Ω balanced (switchable MIC or LINE); -10 dBV unbalanced
Dual-LED VU meter for each input
COMPRESSION/LIMITING active LED
POWER LED
8-segment bar mode string LED audio mix level meter, 0 dB = +4 dBu
VU ballistic: -20 dB, -10 dB, -6 dB, -2 dB, 0 dB, +3 dB; Peak reading: +8 dB, +12 dB
24 Vdc @ 150 mA, Ground-referenced
Height: 1.7 in. 4.3 cm
Length: 5.8 in. 15.0 cm
Depth: 4.8 in. 12.2 cm

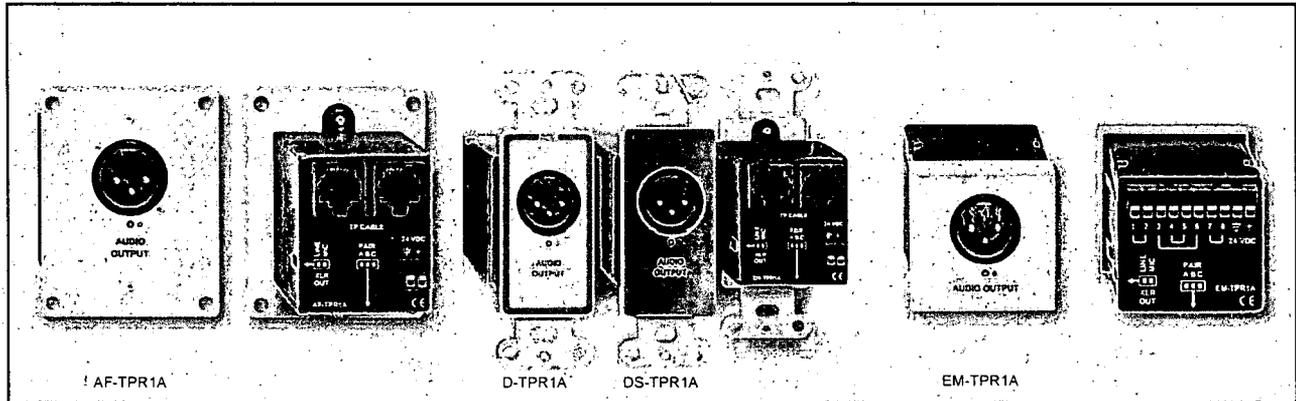
Power Requirement:
Overall Dimensions:

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SPECIALISTS IN PRACTICAL PRECISION ENGINEERING™

TWISTED PAIR FORMAT-A



Models AF-TPR1A, D-TPR1A, DS-TPR1A & EM-TPR1A Format-A Single-Pair Receivers

- Balanced Mic or Line Level XLR Output
- Switch-Selectable Output Level on Rear Panel
- Switch Selects which Pair (A, B or C) Feeds the Output
- Signal and Power Pair Pass-through on RJ45s
- Remote Powering through Twisted Pair Cable
- Fused Local Power Feeds all Connected Modules
- Local Power Input on Terminal Block
- Blue LED Indicates Module is Powered
- Daisy-Chain with Additional Format-A Receivers
- Studio-Quality Precision Active Balanced Circuitry

The -TPR1A modules are single-pair audio receiving modules compatible with RDL Format-A twisted pair products. These modules are designed to be mounted in wall boxes, cabinets or other enclosures that allow users to connect external equipment. The D- and DS- models mount in RDL WB-1U and WB-2U wall boxes, or in standard U.S. electrical boxes. The D-TPR1A features a white front-panel laminate with gray lettering that matches RDL Decora®-style remote controls. The DS-TPR1A is constructed of stainless steel to coordinate with RDL Decora-style stainless steel remote controls in commercial/industrial installations. The AF-TPR1A is an APPFLEX™ series product that is compatible with various APPFLEX wall-mount, cabinet-mount and tabletop enclosures. The EM-TPR1A is a 45mm square module that fits the European Modular mounting frames and cover plates. European electrical boxes are not sufficiently deep to accommodate RJ45 jacks and plugs, therefore the EM- products connect to the twisted pair cable through a detachable terminal block.

APPLICATION: The -TPR1A modules feature an XLR output jack. A rear-panel switch set during installation determines which of the three FORMAT-A pairs is buffered to feed the module output. The audio signal received from the selected pair of the RJ45 INPUT jack feeds the XLR audio output jack. The output level from the XLR jack is set to either MIC or LINE level during installation using a rear-panel switch. This module receives signal from only one cable pair, so the D-, DS-, and AF modules have a second RJ45 jack to connect cables to additional receiver modules. Installers simply connect the conductors of two cables in parallel on the EM- model terminal block. Two other single-pair receivers may be chained to the second RJ45 jack, or a single two-pair receiver may be connected. In addition to completing the reception of signals from all three FORMAT-A pairs, additional receivers may be connected to the same twisted pair feed. The bridging input circuits used in all FORMAT-A twisted pair receivers allow connection of up to 10 receiver outputs for each cable pair. The possibility of multiple receiver locations adds enormous flexibility in the design of audio routing systems using RDL FORMAT-A products. The power pair and all three audio pairs are fed through both rear-panel RJ45 jacks. The -TPR1A may be powered directly from a 24 Vdc power supply using the rear-panel detachable terminal block. Local power connected to the module is also fed to all connected remote modules. The -TPR1A may be remotely powered through the twisted pair cable from any other module, signal distributor or RDL power inserter connected to the same twisted pair cable. Module power is indicated by a front-panel LED.

RDL FORMAT-A features superior audio performance that rivals or exceeds shielded wiring. Design simplicity, ease of installation, unsurpassed flexibility, automatic fused power, exceptional hum rejection, low noise, and low distortion provide designers and installers the optimum choice in economical twisted pair products.



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SPECIALISTS IN PRACTICAL PRECISION ENGINEERING™

TWISTED PAIR FORMAT-A

Models AF-TPR1A, D-TPR1A, DS-TPR1A, EM-TPR1A Format-A Single-Pair Receivers

Installation/Operation



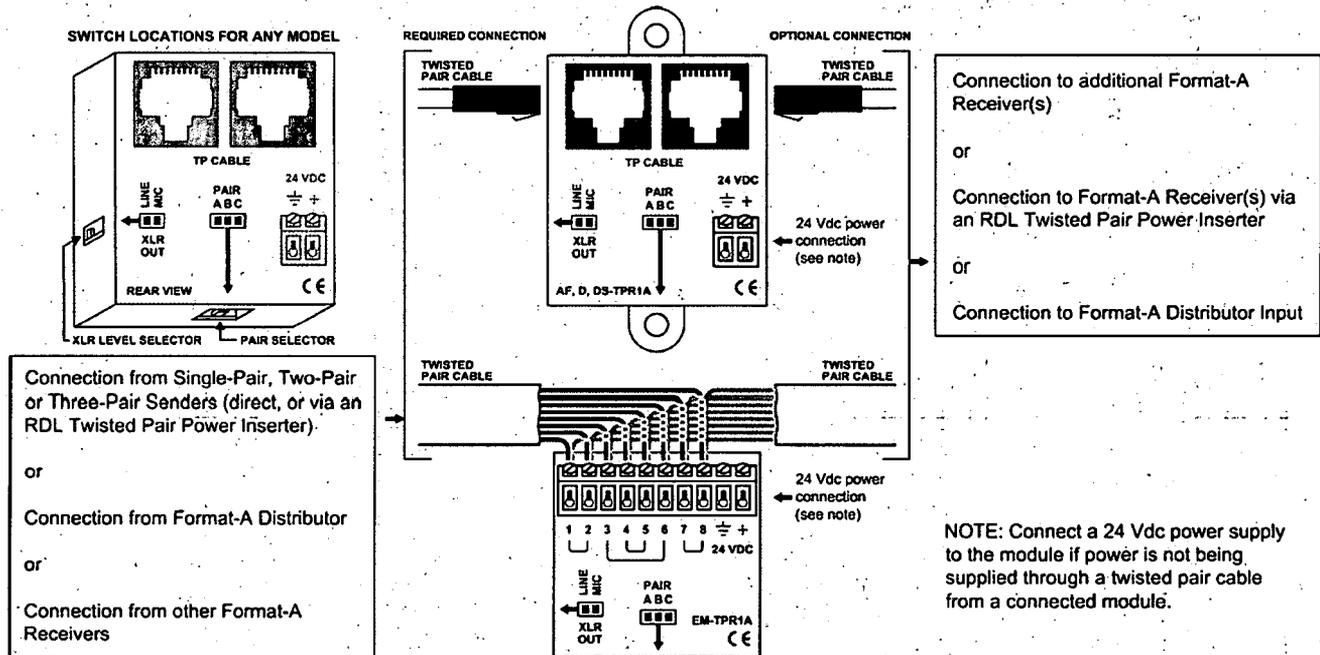
EN55103-1 E1-E5; EN55103-2 E1-E4
Typical Performance reflects product at publication time exclusive of EMC data, if any, supplied with product. Specifications are subject to change without notice.

STEP 1: Connect 24 Vdc to the power input terminals if this module is not being powered through the twisted pair cable from another module, or if this module is located an excessive distance from the next powered module on the cable. Note: The front-panel power LED will be illuminated if this module is powered. If this module is powering other modules through the cable and if there is a wiring short, the short must be cleared then power must be turned off to this module for 10 seconds to reset the internal protection circuit.

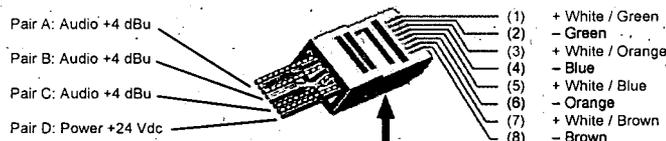
STEP 2: Set the PAIR selector so the module is receiving signal from the desired pair A, B or C of the Format-A cable.

STEP 3: Connect the twisted pair cable coming from Format-A senders or distributors.

STEP 4: Connect the twisted pair cable feeding additional Format-A receiver(s), if any, and fasten the module in its mounting box.



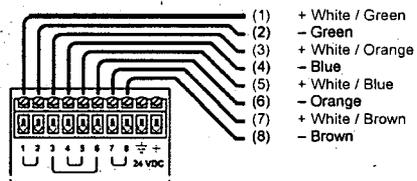
RJ45 Standard wiring



Tab on bottom of connector

RJ45 conductor colors shown are for 568A standard. The 568B standard may be used if the connectors at both ends of the cable are wired identically.

EM Terminal Block Standard wiring



TYPICAL PERFORMANCE

Input: RDL Format-A
Input Connection: RJ45 (Models D-, DS-, AF-); Detachable Terminal Block (Model EM-)
Format-A Signal Pair Used: Switch-selectable A, B, or C
Format-A Output: RJ45 (not applicable to EM-)
Output: 150 Ω balanced
Output Connection: XLR
Output Level: -45 dBu Mic or +4 dBu Line Level, Switch-selectable on rear panel
Frequency Response: 10 Hz to 50 kHz (+/- 0.1 dB)
THD+N: < 0.005%
Noise below +4 dBu: < -90 dB

Headroom above +4 dBu: > 18 dB
CMRR: > 80 dB (50 Hz to 150 Hz)
Indicator: Power In
Power Connections (2): Detachable terminal block; RJ45
Power Requirement: 24 Vdc @ 45 mA plus connected loads
Maximum Load Current: 155mA
Dimensions: EM-TPR1A: 1.77" (45 mm) W and H; 1.93" (4.9 cm) D
D-, DS-TPR1A: 1.6" (4.06 cm) W; 4.11" (10.45 cm) H; 1.89" (4.8 cm) D
AF-TPR1A: 2.22" (5.64 cm) W; 2.77" (7.04 cm) H; 1.89" (4.8 cm) D
Mounting Box Minimum Depth: 2.4" (Models D-, DS-, AF-); 39 mm (Model EM-)

Radio Design Labs Technical Support Centers

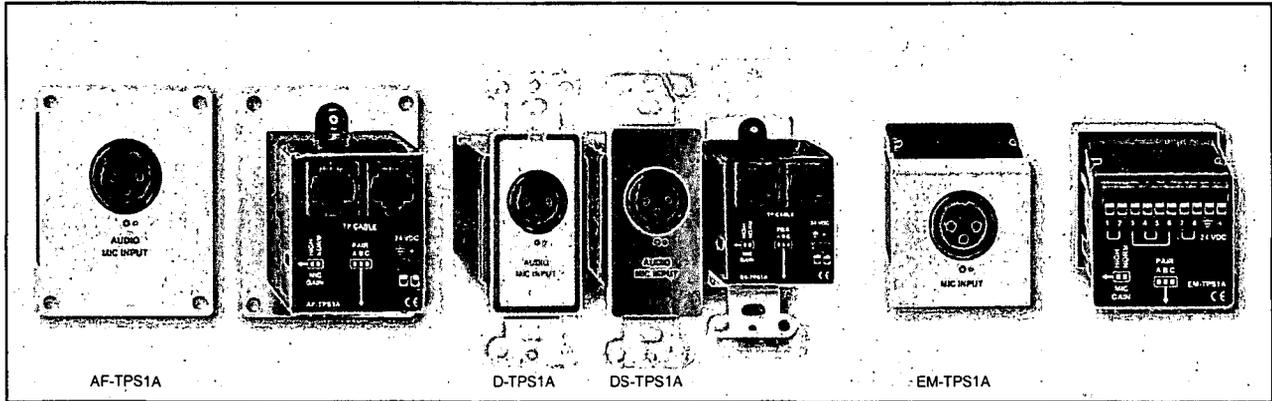
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SPECIALISTS IN PRACTICAL PRECISION ENGINEERING™

TWISTED PAIR FORMAT-A



Models AF-TPS1A, D-TPS1A, DS-TPS1A & EM-TPS1A Format-A Single-Pair Senders

- Balanced Microphone XLR Input with Phantom
- Switch-Selectable Mic Gain on Rear Panel
- Switch Selects which RJ45 Pair (A, B or C) is Fed
- Signal and Power Pair Pass-Through on RJ45 Jacks
- Remote Powering through Twisted Pair Cable
- Fused Local Power Feeds all Connected Modules
- Local Power Input on Terminal Block
- Blue LED Indicates Module is Powered
- Daisy-Chain with Single-Pair or Two-Pair Senders
- Studio-Quality Precision Active Balanced Circuitry

The -TPS1A modules are single-pair audio sending modules compatible with RDL Format-A twisted pair products. These modules are designed to be mounted in wall boxes, cabinets or other enclosures that allow users to connect audio sources. The D- and DS- models mount in RDL WB-1U and WB-2U wall boxes, or in standard U.S. electrical boxes. The D-TPS1A features a white front-panel laminate with gray lettering that matches RDL Decora®-style remote controls. The DS-TPS1A is constructed of stainless steel to coordinate with RDL Decora-style stainless steel remote controls in commercial/industrial installations. The AF-TPS1A is an APPFLEX™ series product that is compatible with various APPFLEX wall-mount, cabinet-mount and tabletop enclosures. The EM-TPS1A is a 45mm square module that fits the European Modular mounting frames and cover plates. European electrical boxes are not sufficiently deep to accommodate RJ45 jacks and plugs, therefore the EM- products connect to the twisted pair cable through a detachable terminal block.

APPLICATION: The -TPS1A modules feature an XLR microphone input. The module provides IEC 24 V phantom and accepts input signals from both dynamic and condenser microphones. The input signal is amplified using a studio-quality microphone preamplifier optimized for normal operating levels. The rear-panel GAIN switch is normally set by the installer for NORM (normal) gain. If consistently low mic levels are expected, this switch may be set to the HIGH gain position. The pre-amplified microphone source is routed to one output cable pair selected during installation using a rear-panel switch. These modules drive only one cable pair, therefore they accept signals and power from other mic-level or line-level Format-A senders. The D-, DS-, and AF- modules have a second RJ45 jack for these input cables. Installers simply connect the conductors of two cables in parallel on the EM- model terminal block. Two other single-pair senders may be chained with the -TPS1A, or a single two-pair sender may be connected. If three single-pair senders are connected together, each sender must feed a different pair: A, B or C. The TPS1A must be set to feed pair A if it is connected together with an RDL two-pair sender that feeds stereo audio on pairs B and C. The power pair and all three audio pairs are fed through both rear-panel RJ45 jacks.

The -TPS1A may be powered directly from a 24 Vdc power supply using the rear-panel detachable terminal block. Local power connected to the module is also fed to all connected remote modules. The -TPS1A may be remotely powered through the twisted pair cable from any other module, signal distributor or RDL power inserter connected to the same twisted pair cable. Module power is indicated by a front-panel LED. RDL FORMAT-A features superior audio performance that rivals or exceeds shielded wiring. Design simplicity, ease of installation, unsurpassed flexibility, automatic fused power, exceptional hum rejection, low noise, and low distortion provide designers and installers the optimum choice in economical twisted pair products.

TWISTED PAIR FORMAT-A

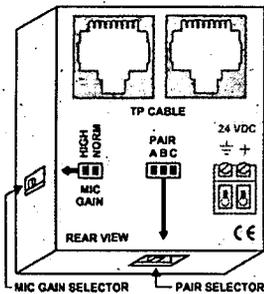
Models AF-TPS1A, D-TPS1A, DS-TPS1A & EM-TPS1A
Format-A Single-Pair Senders

Installation/Operation



EN55103-1 E1-E5; EN55103-2 E1-E4
Typical Performance reflects product at publication time exclusive of EMC data, if any, supplied with product. Specifications are subject to change without notice.

SWITCH LOCATIONS FOR ANY MODEL



Connection from two Single-Pair Senders (Pair selector may not be set to the same pair as either of the connected single-pair senders)

or

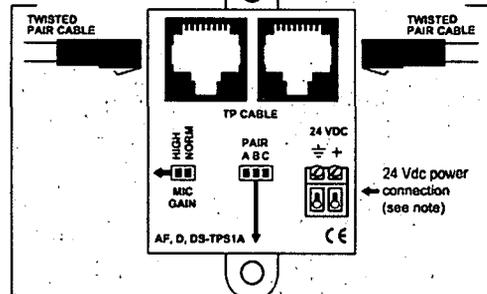
Connection from one Two-Pair Sender (PAIR selector must be set to Pair A)

Connection from two Single-Pair Senders (Pair selector may not be set to the same pair as either of the connected single-pair senders)

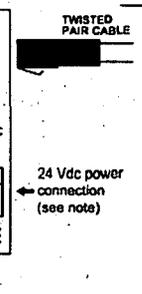
or

Connection from one Two-Pair Sender (PAIR selector must be set to Pair A)

OPTIONAL CONNECTION



REQUIRED CONNECTION



Connection to Format-A Receiver(s)

or

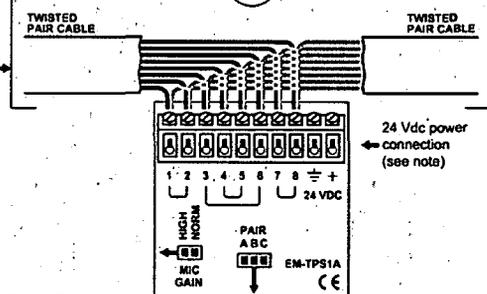
Connection to Format-A Receiver(s) via an RDL Twisted Pair Power Inserter

or

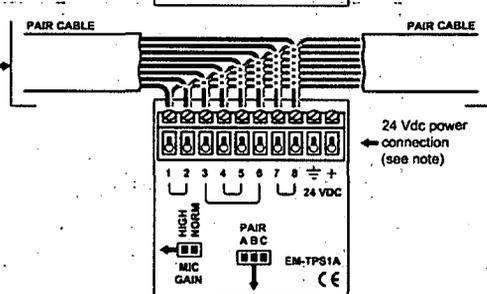
Connection to Format-A Distributor

or

Connection to Single- or Two-Pair senders that connect to the Format-A Receivers or Distributor.



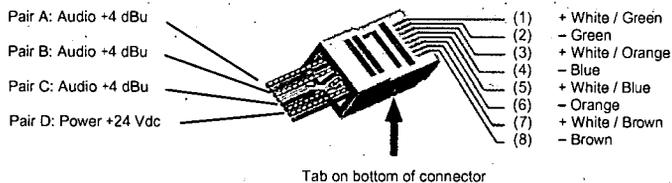
NOTE: Connect a 24 Vdc power supply to the module if power is not being supplied through a twisted pair cable from a connected module.



Connection to Single- or Two-Pair senders that connect to the Format-A Receivers or Distributor.

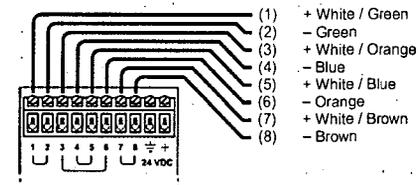
NOTE: Connect a 24 Vdc power supply to the module if power is not being supplied through a twisted pair cable from a connected module.

RJ45 Standard wiring



RJ45 conductor colors shown are for 568A standard. The 568B standard may be used if the connectors at both ends of the cable are wired identically.

EM Terminal Block Standard wiring



TYPICAL PERFORMANCE

Input Connection: XLR
Input Level: -45 to -65 dBu Bal.; Max: -40 dBu (HIGH Gain), -28 dBu (NORM Gain)
Format-A Signal Pair Used: Switch-selectable A, B, or C
Gain: 50 dB (NORM) or 63 dB (HIGH), Switch-selectable on rear panel
Format-A Input: RJ45 (not applicable to EM-)
Format-A Output: RDL TP Format-A
Output Connection: RJ45 (Models D-, DS-, AF-); Detachable Terminal Block (Model EM-)
Frequency Response: 100 Hz to 30 kHz (+/- 1 dB); integral low-cut filter -10 dB @ 30 Hz
THD+N: < 0.1% (80 Hz to 20 kHz)
Noise below +4 dBu: < -80 dB (NORM Gain), < -70 dB (HIGH Gain)

Headroom above +4 dBu: > 18 dB
CMRR (50 to 150 Hz): > 60 dB (HIGH Gain), > 65 dB (NORM Gain)
Indicator: Power In
Power Connections (2): Detachable terminal block; RJ45
Power Requirement: 24 Vdc @ 65 mA plus connected loads
Maximum Load Current: 135 mA
Dimensions: EM-TPS1A: 1.77" (45 mm) W and H; 1.93" (4.9 cm) D
D-, DS-TPS1A: 1.6" (4.06 cm) W; 4.11" (10.45 cm) H; 1.89" (4.8 cm) D
AF-TPS1A: 2.22" (5.64 cm) W; 2.77" (7.04 cm) H; 1.89" (4.8 cm) D
Mounting Box Min. Depth: 2.4" (Models D-, DS-, AF-); 39 mm (Model EM-)

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ACCESSORIES

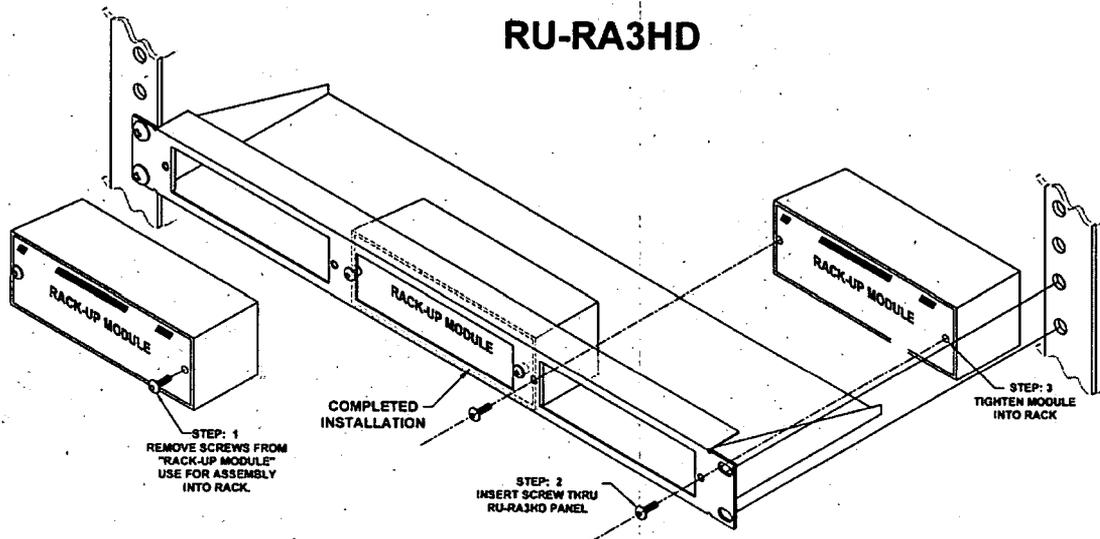
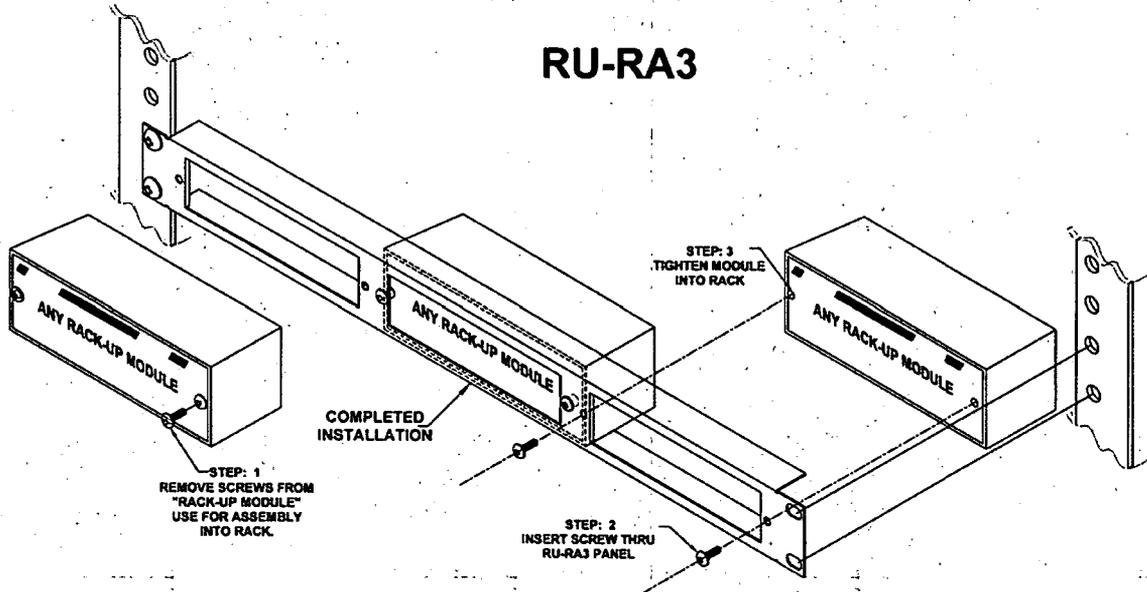
Model RU-RA3 / RU-RA3HD

19" Rack Adapter

Installation/Operation



EN55103-1 E1-E5; EN55103-2 E1-E4
Typical Performance reflects product at publication time
exclusive of EMC data, if any, supplied with product.
Specifications are subject to change without notice.



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STICK-ON[®] SERIES

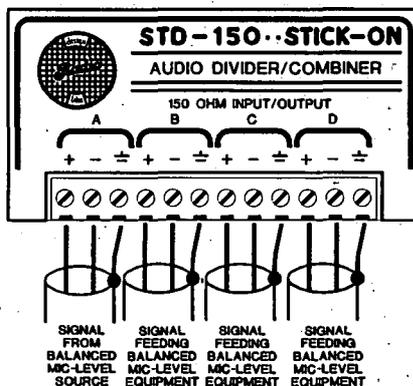
Model STD Series Divider/Combiner Networks

Installation/Operation

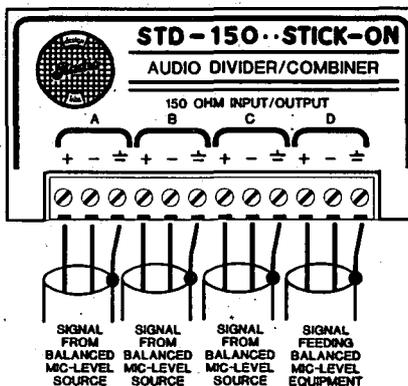


EN55103-1 E1-E5; EN55103-2 E1-E4
Typical Performance reflects product at publication time
exclusive of EMC data, if any, supplied with product.
Specifications are subject to change without notice.

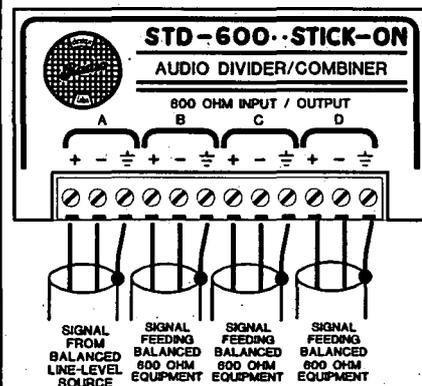
**BRANCH A 150 OHM MIC
TO MULTIPLE INPUTS**



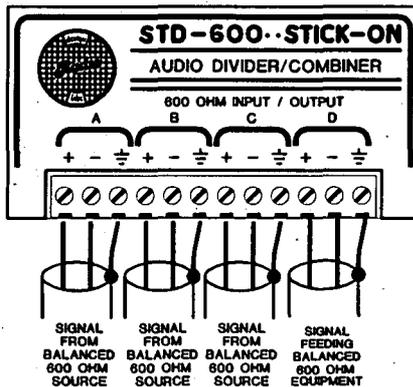
**COMBINE MULTIPLE 150
OHM MICS TO SINGLE INPUT**



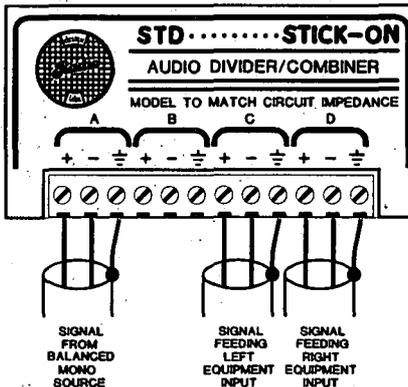
**BRANCH A 600 OHM
LINE TO 3 INPUTS**



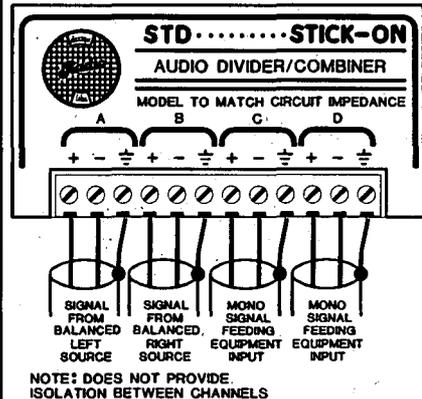
**COMBINE MULTIPLE 600
OHM SIGNALS TO SINGLE INPUT**



**FEED MONO SIGNALS
TO STEREO INPUTS**



**COMBINE STEREO SIGNALS
INTO MONO INPUTS**



A MODULE MAY BE UNBALANCED BY CONNECTING ALL 4 NEGATIVE TERMINALS TO THE ADJACENT GROUNDS. BALANCED AND UNBALANCED WIRING MAY NOT BE MIXED.

TYPICAL PERFORMANCE

Circuit Type:
Circuit Configuration:
Input/Output Impedance:
Number of Inputs/Outputs:
Insertion Loss:
Isolation between Channels:
Maximum Signal Input:

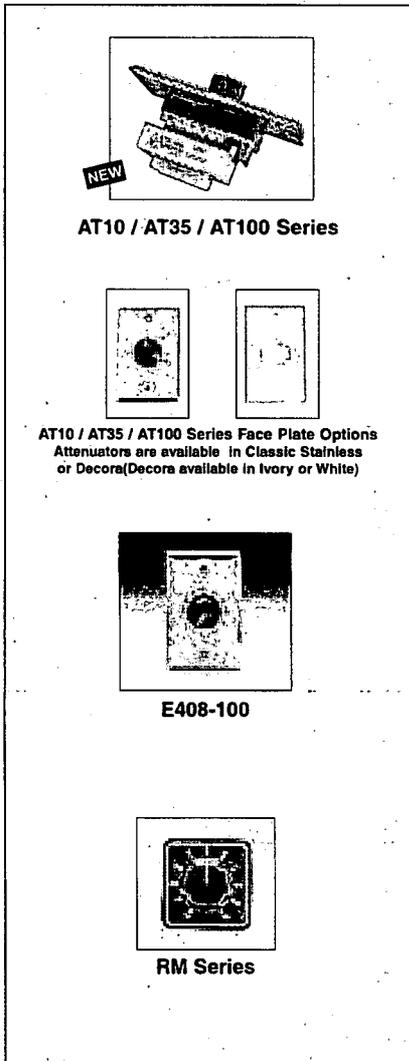
Passive
Balanced
150, 600, or 10 kΩ as marked
4 Total: Useable in any combination: split 1 in to 3 out; 2 in to 2 out; 3 in to 1 out
3 dB (STD products are passive and therefore not intended as isolation devices; use RDL Mixers or Mixers or Distribution Amps for isolation)
+28 dBu (at 600 Ω)
+22 dBu (at 150 Ω)

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INDUSTRY STANDARD COMMERCIAL ATTENUATORS

AT Series, E408 Series



- Models Feature a Range of Attenuation Steps (3dB or 1.5dB Steps) as Well as Continuous to Meet Application and Budget Requirements
- Wall Plates are Stainless Steel with Stamped and Filled or Screen Printed Dial Scale, and a Skirted Black Knob (White and Ivory Plastic Plates with Matching Skirted Knobs Also Available in Decora Style-D Series Only)
- Popular Rack Mount Attenuator Versions are Available on the AT and E408 and Series for Mounting on to Blank Panels in Equipment Cabinets
- All AT Models Mount into Most 1-Gang E.O. Boxes.
- AT and E408 Series are UL Listed

AT Series Industry Standard Auto Transformer. High-quality auto transformer series provides the advantages of excellent frequency response, low insertion loss and reliable performance for volume control application in 25 and 70.7-volt systems. Attenuation is accomplished in ten make before break steps plus positive off position. (No stop between maximum and off position to prevent switch damage). Contacts are silver plated for noise-free operation. Features a removable terminal block. Includes stainless steel plate, with stamped and filled or screen printed dial scale and a skirted black knob. (White and ivory plastic plates with matching skirted knobs also available in Decora style-see AT model description chart.)

E408 Auto Transformer with Precision Level Control. Specially designed for attenuation in masking and sound reinforcement systems where fine tuning of level control is required. Employs a ten-position, non-shorting rotary switch without stop. Attenuation rate is 1.5dB per step. (All other specifications are the same as the AT Series including the UL listing.)

PA Series Priority Paging Option. Priority paging feature by-passes the effect of the attenuator to provide program level selection of individual emergency and paging signals at the amplifier. Option is available on all AT attenuators. The SPDT relay is operated with 24 VDC at 10mA. Includes protective relay cover to insure lasting trouble-free performance. Terminations to the relay and attenuator are made via a removable terminal block. (All other specifications except for dimensions are the same as selected AT models.)

RM Series Rack Mount Option. For attenuation convenience of rack-mounted equipment in cabinets and consoles, the AT, E408 Series attenuators are available without mounting plate for rack panel installation. Attractive matte black polycarbonate dial scale overlay with adhesive backing replaces the mounting plate. Includes skirted black knob. Overlay size is 29 sq. (51mm). (To order, simply add RM after the selected attenuator model number. Example: AT10-RM or AT10-PARM.) (Dial scale overlays to retrofit existing installations are available, see hardware section Model HX23.)

AT10 (dc) (-PA) (-RM)
AT35 (dc) (-PA) (-RM)
AT100 (dc) (-PA) (-RM)

Faceplate Options:
d = D - Decora Style Faceplate
Ivory and White inserts, trim ring and knobs included.

If there is not the above 1 letter suffix, the attenuator is shipped with the standard stainless steel faceplate or is the RM version without a faceplate.

(-RM)
Rack Mount Option

(-PA)
Priority Announce Circuit

MODEL	POWER RATING*	ATTENUATION PER STEP	TOTAL ATTENUATION	INSERTION LOSS	PLATE SIZE	RESISTANCE
* AT10(-PA)	10 Watts	3dB	33dB**	.4dB	1 gang	—
* AT35(-PA)	35 Watts	3dB	27dB	.6dB	1 gang	—
* AT100(-PA)	100 Watts	3dB	27dB	.6dB	1 gang	—
E408-100	100 Watts	1.5dB	15dB	.6dB	1 gang	—

* Continuous
** These units have two steps of 6dB before off position.
Note: Attenuation curve is steeper for a 25-volt line



Specifications subject to change without notice



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TELEPHONE: (800) 876-3333 / FAX (800) 765-3435

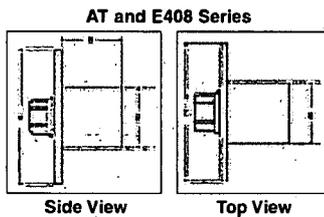
AtlasSound.com

FOUR

ARCHITECT AND ENGINEER SPECIFICATIONS

AT Series Attenuator(s) shall be Atlas Sound AT Series Model _____ auto transformer or approved equal. The power rating shall be _____ and attenuation range shall be _____ dB. Attenuation per step for ET-_____ and AT-_____ shall be 8 steps of 3dB and 6dB each for the last two positions. Attenuator shall be a step type control with a positive off position. There shall be no stop between the maximum and off positions (AT Series only). Switch shall have silver plated contacts to eliminate noise and contact loss. All terminations must be made via a removable terminal block. Unit(s) shall be supplied with one of the following single gang face plates to be noted by model number suffix: Standard stainless steel faceplate (with dial scale to indicate attenuator position), Decora style plastic face plate-Ivory color, Decora style plastic face plate-White color. All models are designed to mount in a standard E.O. box.

E408 UL Listed attenuator shall be Atlas Sound Model _____ auto transformer or approved equal. The power rating shall be _____. The attenuation per step shall be 1.5dB. Unit shall be a step type control with a positive off position. There shall be no stop between the maximum and off positions. Switch shall have silver plated contacts to eliminate noise and contact loss. The attenuator shall be mounted to a standard gang stainless steel wall plate which mounts to a standard E.O. box.



RM Option Attenuator shall be Atlas Sound Model _____ [(AT, E408 (-RM))] or approved equal. Face plate shall be replaced by an adhesive matte black polycarbonate dial scale escutcheon for attachment to a rack mount panel. Escutcheon size shall be 2" SQ.

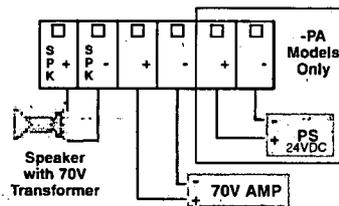
PA Option Specified AT Series attenuators include a priority relay. Relay shall be an SPDT, 24 VDC type securely mounted to the attenuator assembly wired at the factory. Relay shall include a protective cover.

WIRING - AT SERIES

Each terminal will hold up to 2-16AWG stranded wire. For larger wires or home run situations, a small length of wire and a wire nut are recommended.

Attach wire according to label on terminal block as shown below (Non-PA Models will not have the "VDC+" and "VDC-" terminals).

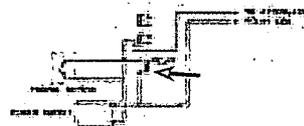
* Install the unit with the terminal block on top. This will ensure that the off position is on the bottom.



DIMENSIONAL SPECIFICATIONS - PLATE MOUNTED ATTENUATORS					
MODEL	A	B	C	D	E
AT10	4 1/2"	2 1/8"	2 3/4"	2 3/4"	1 3/4"
AT10-PA	4 1/2"	2 1/8"	2 3/4"	2 3/4"	1 3/4"
AT35	4 1/2"	2 1/8"	2 3/4"	2 3/4"	1 3/4"
AT35-PA	4 1/2"	2 1/8"	2 3/4"	2 3/4"	1 3/4"
AT100	4 1/2"	2 1/2"	2 3/4"	2 3/4"	1 3/4"
AT100-PA	4 1/2"	2 1/2"	2 3/4"	2 3/4"	1 3/4"
E408-100	4 1/2"	2 5/8"	2 1/16"	4 9/16"	2 5/16"

WIRING - (-PA) PRIORITY ATTENUATORS

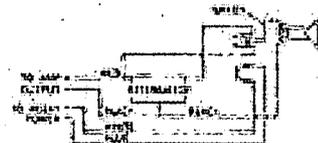
POWER SWITCHING REQ. FOR - PA ATTENUATORS



RELAY SPECIFICATIONS

COIL VOLTAGE: 24VDC
 COIL CURRENT: 10MA
 CONTACTS: SPDT-2AMP Rating
 Relay has a protective cover

SCHEMATICS FOR PRIORITY ATTENUATORS



WIRING REQUIREMENTS: (1) PAIR FOR AUDIO,
 (1) PAIR FOR RELAY

NEW
 NEW
 NEW
 NEW
 NEW
 NEW

For information on Atlas Sound Stereo Attenuators (DAT Series and SAT Series), refer to specification sheet #SL4-1523.

For information on Atlas Sound WhisperTouch Stereo Attenuators:

Original 8 Ohm #SL4-1570
 Switched 8 Ohm #SL4-1571

Specifications subject to change without notice



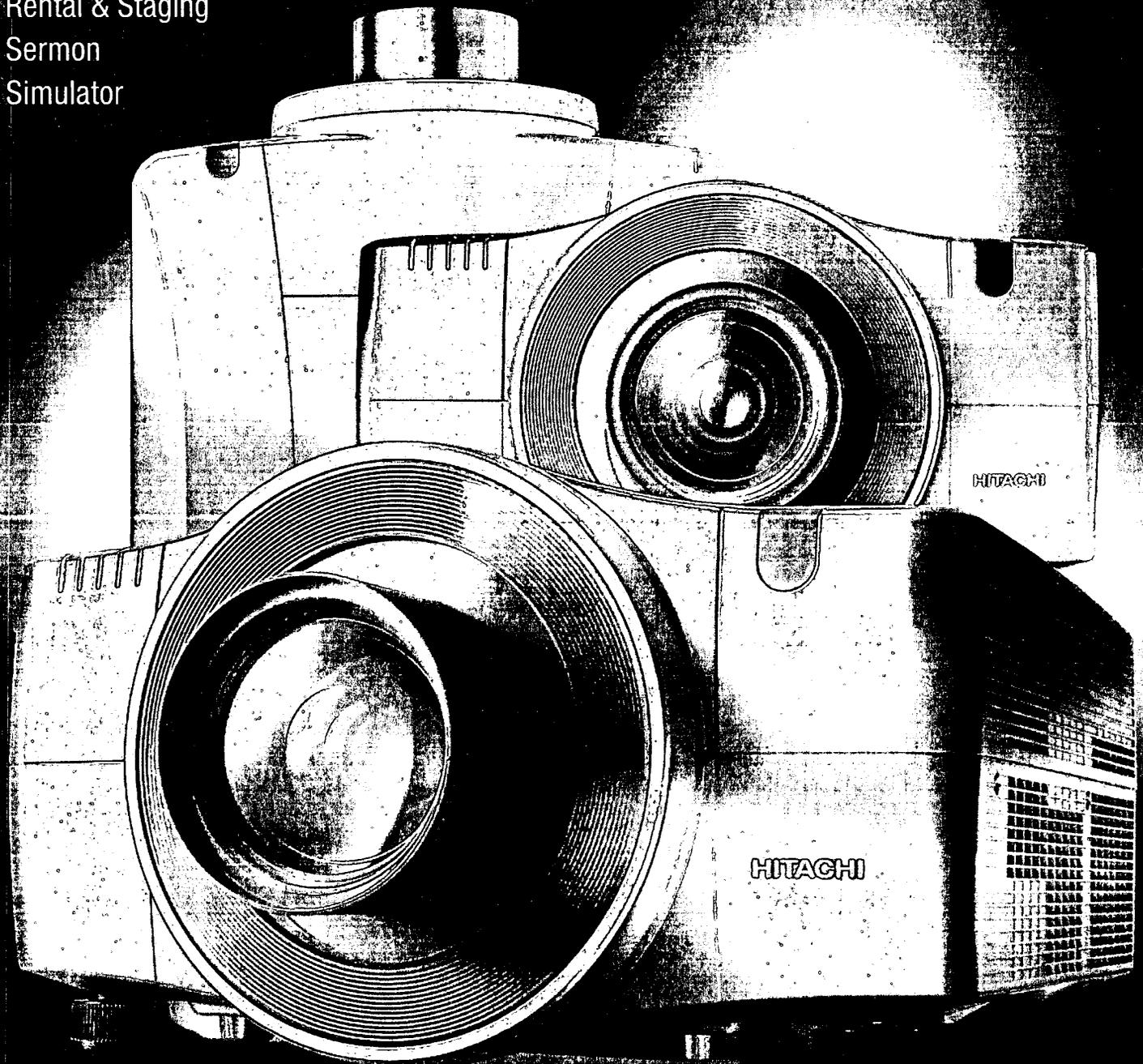
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CP-WX11000 Professional Series

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Video Conferencing
Rental & Staging
Sermon
Simulator



6,500 ANSI Lumens | 2500:1 Contrast | WXGA Resolution
10,000 Hour Longer Life Filter | Rich Connectivity | Longer Life (Inorganic Optics)
Lamp Eco Mode | Ultra Wide Range Lens Shift | 10 Bit Full Digital Video Processing
Network Bridge (RS-232 Pass Through) | Security Bar & Transition Detector
Network Control Maintenance and Security | Six Bayonet Style Lens Options
Picture by Picture | Mechanical Shutter for Blank Mode

Lens sold separately.

3LCD

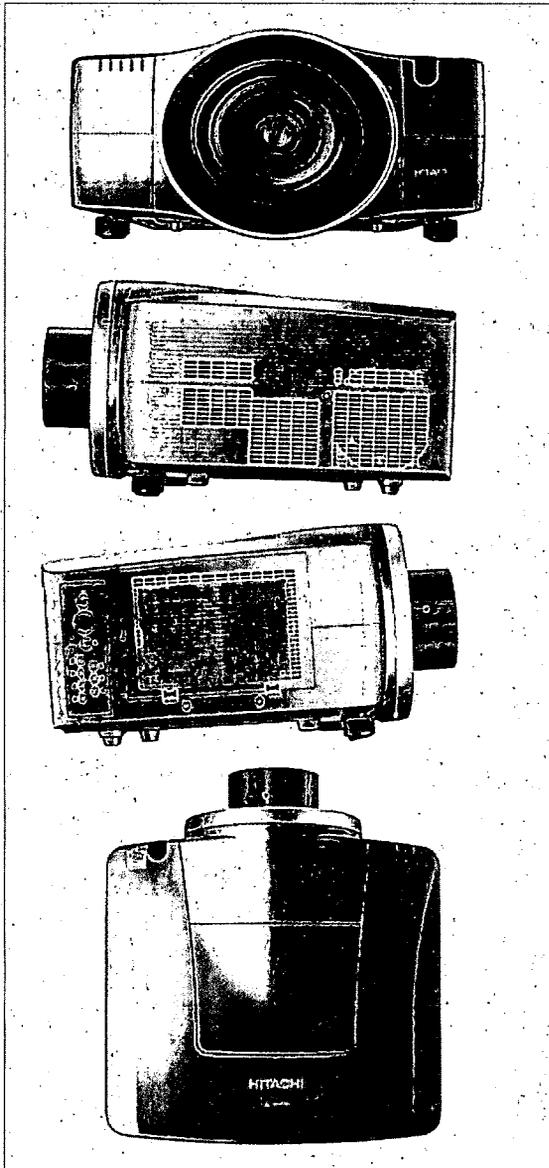
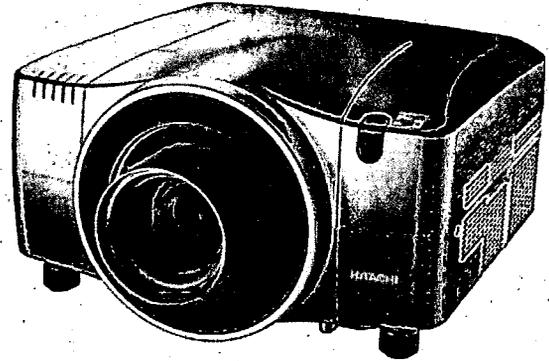
CP-WX11000 Professional Series

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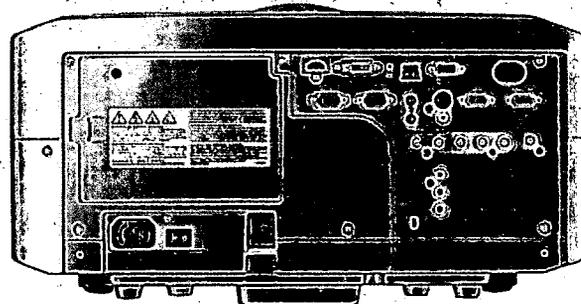
Key Features

- 6,500 ANSI Lumens
- 2500:1 Contrast ratio
- Native WXGA Resolution
1366 dots x 800 lines
- 10,000 Hour Longer Life Filter
- Longer Life Inorganic Optics
- Rich Connectivity
- Picture-by-Picture
- Security Bar & Transition Detector
- Ultra Wide Range Lens Shift (3.5 screens Vertical shift)
(2.2 screens Horizontal shift)
- 10 Bit Full Digital Video Processing
- Network Bridge (RS-232 Pass Through)
- Network Control Maintenance and Security
- Six Bayonet Style Lens Options*
- Mechanical Shutter for Blank Mode



Specifications

Model Name	CP-WX11000 Series
Liquid Crystal Panel Structure	1.3" Polysilicon Active-matrix TFT x 3
Number of Pixels	1,092,800 Pixels
Resolution	540 TV lines
	1366 dots x 800 lines
Colors	1.074 billion colors
Aspect Ratio	Native 16:9 / 4:3 compatible
Lamp	350W UHB
Brightness	6,500 ANSI lumens
Expected lamp Life	Approximately 2,000 hours (normal) 3,000 hours (eco mode)*
Contrast Ratio	2500:1 (using Active Iris)
Power Supply	AC100 - 120V / AC220 - 240V 50/60 Hz Power
Power Consumption	540W
Operating Temperature	5°C - 35°C (41°F - 95°F)
Input Signals	RGB Composite Video Component Video
Acoustic Noise Level	40 dB (32 dB in whisper mode)
H-Sync	15 kHz - 106 kHz
V-Sync	50 kHz - 120 kHz
Vertical Keystone	+ / - 15°
Horizontal Keystone	+ / - 5°
Approvals	UL, C-UL, FCC, CE
RGB Input	Analog RGB 15-pin D-sub connector x 2, BNC Terminals x 1
RGB Output	RGB 15-pin D-sub connector x 1
Digital Input	HDMI x 1, DVI-D
Video Input	S-Video Mini DIN 4-pin connector x 1 Composite Video RCA jack x 1, BNC x 1 Component Video RCA jack x 3, BNC terminals (Share with Analog RGB)
Other	Wired Remote
Ethernet	RJ-45 port / 100 base-T
Control Terminals	9-pin D-sub connector x 2 (RS232C in/out)
Dimensions (W x D x H)	18.7" x 18.5" x 10.7"
Weight	28.9 lbs. (without lens)
Additional Features	Kensington Slot, Digital Gamma Correction, Whiteboard/Blackboard Mode, Input Source Naming, MyMemory / MyScreen / MyButtons, Wired Remote
Supplied Accessories	Remote Control, Batteries (AA), RGB cable, Power Cord, Multiple language operator / Safety Manual, Security Label
Lamp	CPX1000LAMP (DT01001)
Remote Control	HLO2197
Filter	MU06351
Lenses Available	FL-801, SL-802, SL-803, SD-804, LL-805, UL-806



Lens Options

(Lens sold separately.)

Variety of Interchangeable Lenses

By making use of six types of optional lenses, projection onto a 100" screen can be achieved from a distance of anywhere from 1 to 19 meters, allowing the CP-WX11000 to fit easily into available space. Furthermore, in spacious areas such as auditoriums and convention halls it is capable of creating up to a 700" image.



USL-801	SL-802	SL-803	SD-804	LL-805	UL-806
Ultra Short Throw Lens	Short Throw Lens 1	Short Throw Lens 2	Standard Lens	Long Throw Lens	Ultra Long Throw Lens
F = 2.4 - 2.5	F = 2.8 - 2.9	F = 2.1 - 2.7	F = 1.6 - 2.1	F = 2.2 - 3.4	F = 2.3 - 3.5
f = 14 - 17mm	f = 34 - 41mm	f = 40 - 59mm	f = 60 - 78mm	f = 77 - 139mm	f = 136 - 247mm
Throw Distance	Throw Distance	Throw Distance	Throw Distance	Throw Distance	Throw Distance
Ratio = 0.5 - 0.6	Ratio = 1.2 - 1.5	Ratio = 1.5 - 2.2	Ratio = 2.2 - 2.9	Ratio = 2.8 - 5.2	Ratio = 5.0 - 9.2
8.8 lbs	9.7 lbs	10.6 lbs	7.1 lbs	8.2 lbs	9.9 lbs

Detailed Specifications

	USL-801	SL-802	SL-803	SD-804	LL-805	UL-806
Zoom Ratio	x 1.2	x 1.2	x 1.5	x 1.3	x 1.8	x 1.8
F Number	2.4 (Wide) - 2.5 (Tele)	2.5 (Wide) - 2.9 (Tele)	2.1 (Wide) - 2.7 (Tele)	1.6 (Wide) - 2.1 (Tele)	2.2 (Wide) - 3.4 (Tele)	2.3 (Wide) - 3.5 (Tele)
Focal Length	14mm (Wide) - 17mm (Tele)	34mm (Wide) - 41mm (Tele)	40mm (Wide) - 59mm (Tele)	60mm (Wide) - 78mm (Tele)	77mm (Wide) - 139mm (Tele)	136mm (Wide) - 247mm (Tele)
Lens Shift Position	Vert: 1:1 Fixed Horz: 1:1 Fixed	2.3:-1 - -1:2.3	2.3:-1 - -1:2.3	2.3:-1 - -1:2.3	2.3:-1 - -1:2.3	2.3:-1 - -1:2.3
Focus Range	0.9' - 23.5'	2.5' - 58.1'	3.0' - 83.5'	4.4' - 111.4'	5.8' - 202.7'	10.4' - 355.9'
Dimensions	182mm x 241mm	188mm x 247mm	188mm x 276mm	182mm x 251mm	188mm x 260mm	188mm x 282mm
Weight	8.8 lbs	9.7 lbs	10.6 lbs	7.1 lbs	8.2 lbs	9.9 lbs
Supplied Accessories	Lens cap, Manuals, FB Adjust Pin, Large Hexagon Pin x 1, Small Hexagon Pin x 1,	Lens cap, Protector x 2, Blinder x 2, Manuals	Lens cap, Protector x 2, Blinder x 2, Manuals	Lens cap, Blind sheet, Manuals	Lens cap, Blind sheet, Manuals	Lens cap, Blind sheet, Manuals
Image Size	40" - 700"	40" - 700"	40" - 700"	40" - 700"	40" - 700"	40" - 700"

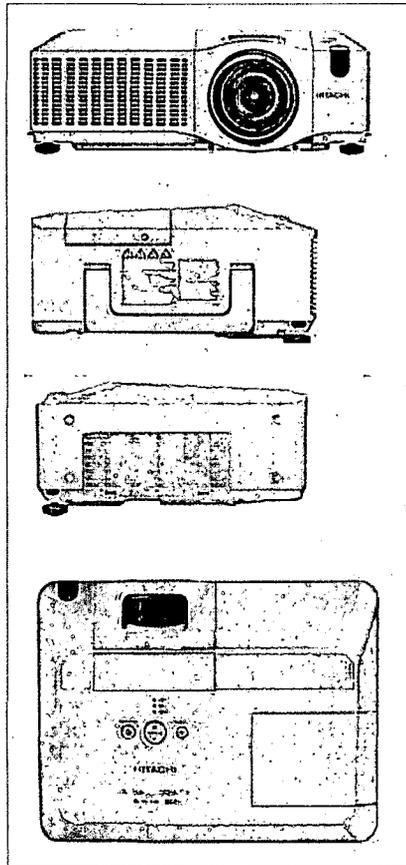
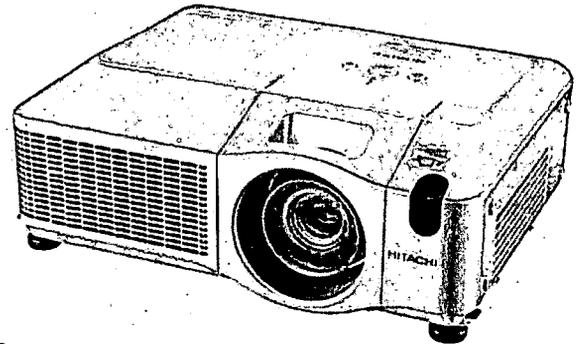
CP-WX625 series

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Key Features

- 4,000 ANSI Lumens
- Native WXGA Resolution
- 15.8 lbs.
- 1 RGB / 1 BNC / 1 HDMI input
- 1 RGB out
- 16W speaker output
- Lamp door on the top
- 29 dB (Whisper Mode)
- Horizontal & Vertical lens shift
- Side-Mounted High Efficiency Filter
- Component / Composite / S-Video
- Approx. 3,000 hrs. Lamp (whisper Mode)
- Security Bar & Transition Detector
- Network Control, Maintenance & Security
- Instant On/Off
- Picture by Picture



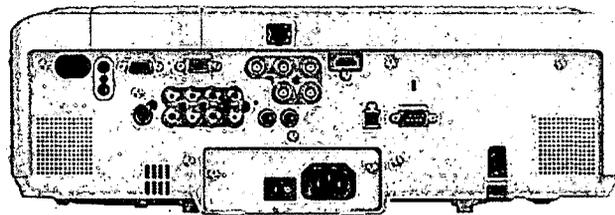
Specifications

Model Name	CP-WX625 Series	
Liquid Crystal Panel Structure	0.75" Polysilicon Active-matrix TFT x 3	
Number of Pixels	1,024,000 Pixels	
Resolution	Video	540 TV lines
	RGB	1280 dots x 800 lines
Colors	16.7 million colors	
Aspect Ratio	Native 16:10 / 4:3 compatible	
Lens	F1.7 - 1.9, manual zoom x 1.2	
Throw Ratio (distance : width)	1.5 - 1.8 : 1	
Lamp	275W UHB	
Brightness	4,000 ANSI lumens	
Expected lamp Life	Approximately 2,000 hours (normal) 3,000 hours (whisper)	
Contrast Ratio	1000 : 1 (using Active Iris)	
Speaker Output	16W (4 speakers)	
Power Supply	AC100 - 120V / AC220 - 240V 50/60 Hz Power	
Power Consumption	460W	
Operating Temperature	5°C - 35°C (41°F - 95°F)	
Input Signals	RGB	VGA, SVGA, XGA, SXGA, SXGA+, UXGA, MAC13", MAC16"
	Composite Video	NTSC, NTSC4.43, PAL, SECAM, PAL-M, PAL-N
	Component Video	480i, 576i, 480p, 720p, 1080i
Acoustic Noise Level	35 dB (29 dB in whisper mode)	
H-Sync	15 kHz - 106 kHz	
V-Sync	50 kHz - 120 kHz	
Vertical Keystone	+ / - 40°	
Horizontal Keystone	+ / - 20°	
Approvals	UL60950 / C-UL, FCC Part15, Class B, EN60950	
RGB Input	Analog RGB	15-pin D-sub connector x 1, BNC Terminal x 1
RGB Output	RGB	15-pin D-sub connector x 1
Digital Input	RGB	HDMI X1
Video Input	S-Video	Mini DIN 4-pin connector x 1
	Composite Video	RCA jack x 1
	Component Video	RCA jack x 3, BNC Terminals (Shared with Analog RGB)
Audio	Input	Stereo mini jack x 2, RCA (L/R) x 2 pairs
	Output	Stereo mini jack x 1
Ethernet	RJ-45 port / 100 base-T	
Control Terminals	9-pin D-sub connector x 1 (RS-232 control)	
	USB Type-B x 1 (Remote Mouse)	
Dimensions (W x D x H)	16.5" x 12.6" x 5.5"	
Weight	15.8 lbs.	
Additional Features	Kensington Slot, MyMemory / MyScreen / MyButtons Digital Gamma Correction, Whiteboard/Blackboard Mode, Input Source Naming, Wired Remote Remote Control, Batteries (AA), RGB cable, US Power Cord, Multiple language operator / Safety Manual, Security Label CPWX625LAMP (DT00873)	
Supplied Accessories	HL02196 MU05661	
Lamp	CPWX625LAMP (DT00873)	
Remote Control	HL02196	
Filter	MU05661	

Screen Size 16:10 Throw Distance

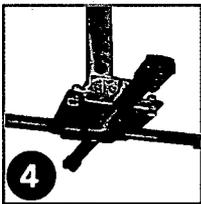
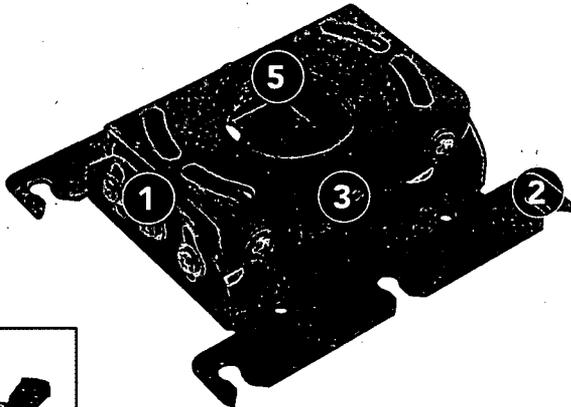
Diagonal*	Width*	Min*	Max*
30	25	36	44
60	51	74	90
80	68	100	120
100	85	125	151
120	102	150	181
150	127	188	227
200	170	252	303
300	254	379	455

Throw Ratio: 1.5 - 1.8:1 (distance : width)
*Measured in inches





CEILING MOUNTS RPA® □ PROJECTOR MOUNT



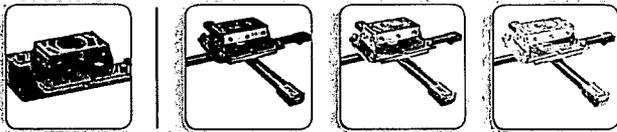
FEATURES

- 1 INDEPENDENT ROLL, PITCH AND YAW**
For quick and precise projector registration.
- 2 QUICK CONNECT/DISCONNECT**
Convenient lamp and filter access on most projectors. Disconnecting maintains registration and doesn't affect pre-set adjustments.
- 3 ALL-POINTS® SECURITY**
Exclusive steel-into-steel locking hardware at all connection points to protect against theft.
- 4 MULTIPLE INSTALLATION OPTIONS**
Mounting options include: flush mount to ceiling, use 0.25" (6.35 mm) threaded rods or use a 1-1/2" NPT threaded extension column.
- 5 CABLE MANAGEMENT**
Route cables through top of mount without additional accessories.

WHAT YOU NEED TO KNOW

ABOUT RPA

- Industry-leading RPA Series with independent roll, pitch and yaw
- New universal interface with faster installation and lamp/filter access
- Compatible with a wide array of accessories
- Ships fully-assembled with everything you need for installation in one box
- Available in custom (black) or universal (black, silver, white)

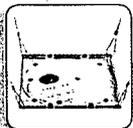


SPECIFICATIONS

Roll	±4°
Pitch	±25°
Yaw	360°
Dimensions* (HxWxD)	1.75" x 6.5" x 5.5" (44 x 165 x 140 mm)
Color, Custom	Black
Color, Universal	Black, Silver, White
Weight Capacity	50 lbs (22.7 kg)

* Dimensions don't include interface bracket

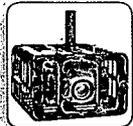
RECOMMENDED ACCESSORIES



CMS SUSPENDED CEILING KITS



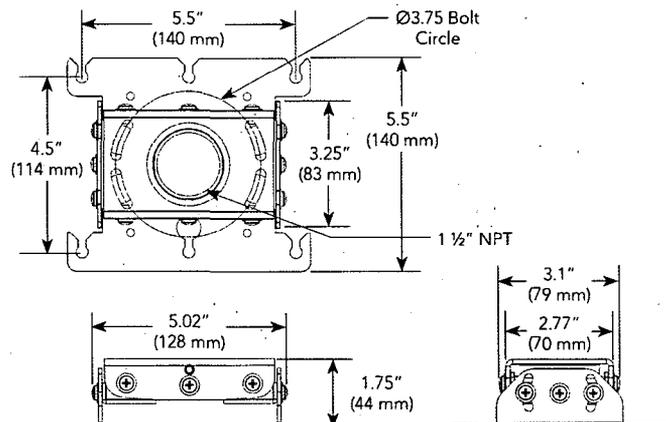
CMS EXTENSION COLUMNS



PG2A □ Security Cage

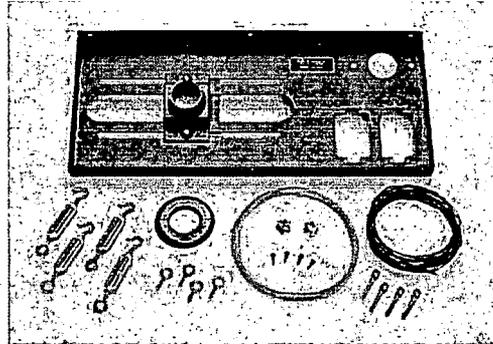
For a complete list of projector mount accessories see page 18.

TECHNICAL DRAWINGS



Advance ABOVE CEILING PLATE**Above Ceiling Plate**

- Designed to accommodate any projector mount with 1 1/2" NPT pipe.
- Conveniently fits and attaches within 1' x 2' area of drop ceiling grid.
- Will not interfere with tie wires or lighting fixtures in suspended ceiling grid.
- Projector mount may be positioned in corner of ceiling grid.
- Maximum load of 50 pounds.
- Two electrical knockouts provided.
- Kit includes 10' of safety cable, 20' of tie wire, four turn buckles, wood and concrete anchors.
- Includes a black finish escutcheon ring.



CPM-ACP

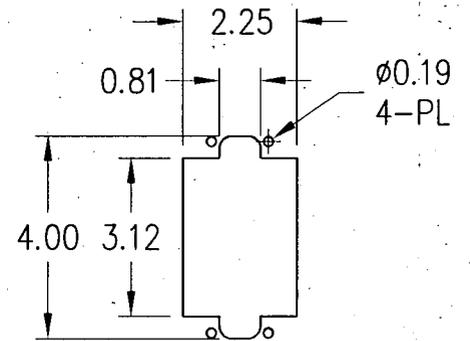
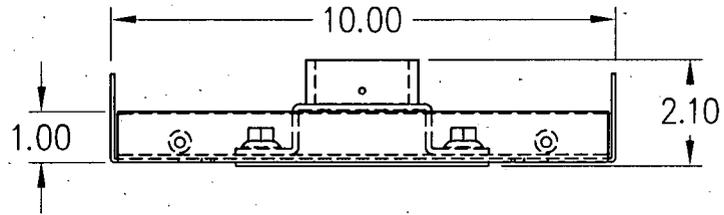
THE Advance

PRODUCTS COMPANY

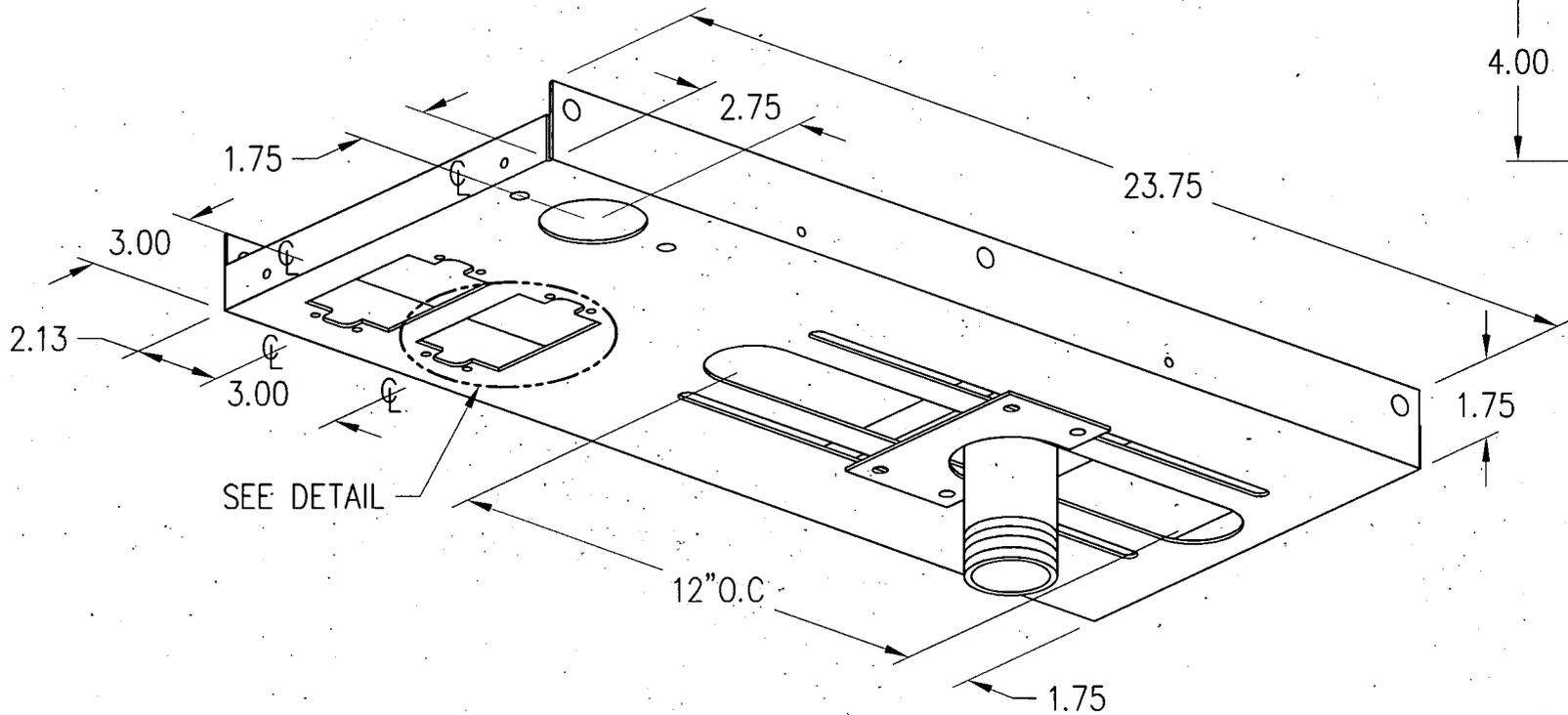
1199 E. Central, Wichita, KS 67214-3922 Ph: (316) 263-4231

THIS DRAWING IS THE PROPERTY OF THE ADVANCE PRODUCTS COMPANY AND IS NOT TO BE REPRODUCED OR USED TO FURNISH INFORMATION FOR MAKING DRAWINGS EXCEPT WHERE PROVIDED BY AGREEMENT WITH SAID COMPANY.

DA-LITE



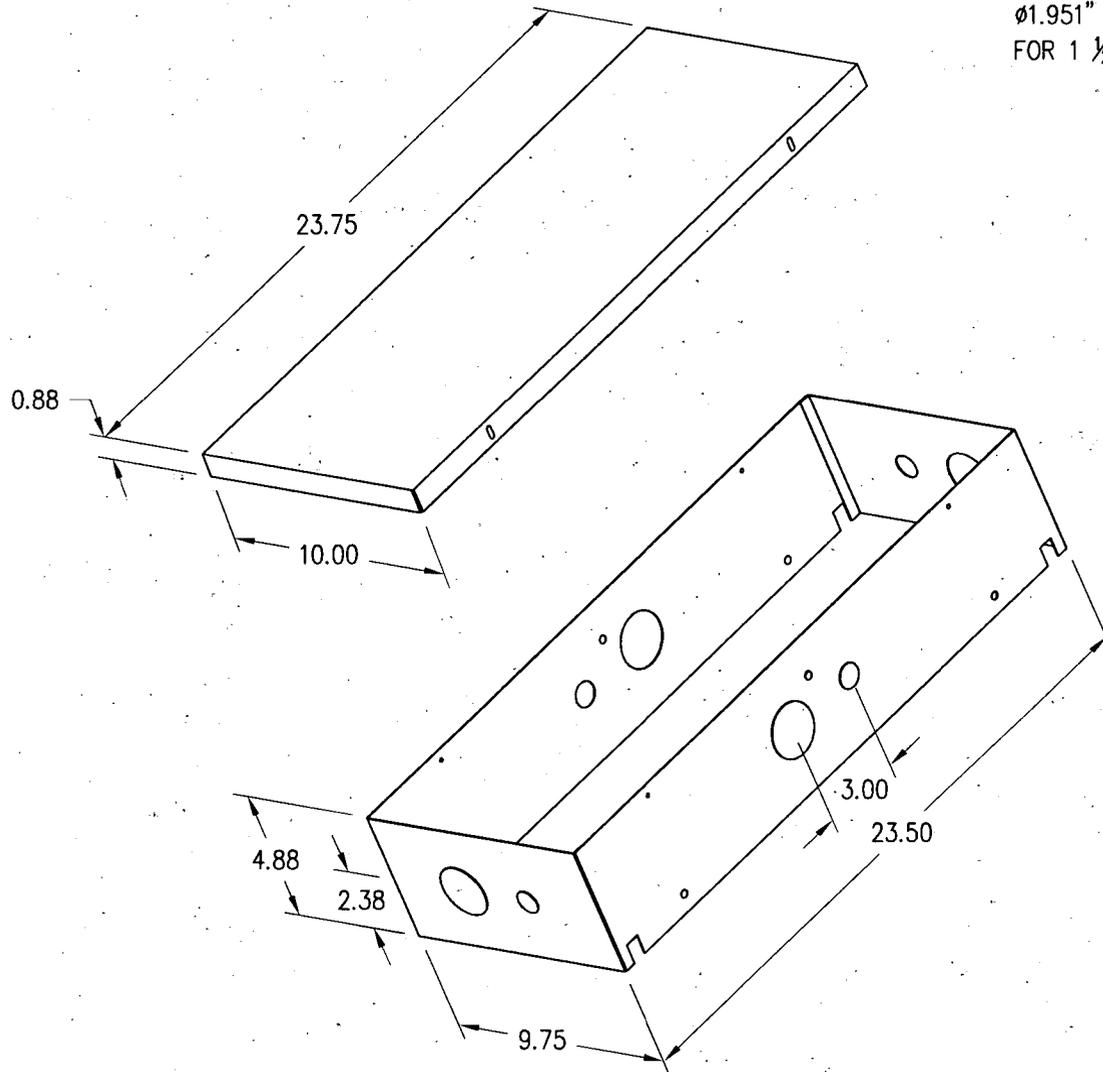
DETAIL



CPM-PLC

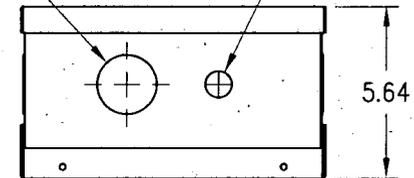
THE **Advance**
PRODUCTS COMPANY
1199 E. Central, Wichita, KS 67214-3922 Ph: (316) 263-4231

THIS DRAWING IS THE PROPERTY OF THE ADVANCE PRODUCTS COMPANY AND IS NOT TO BE REPRODUCED OR USED TO FURNISH INFORMATION FOR MAKING DRAWINGS EXCEPT WHERE PROVIDED BY AGREEMENT WITH SAID COMPANY.



Ø1.951" KNOCKOUT
FOR 1 ½" CONDUIT

Ø0.875 KNOCKOUT
FOR ½" CONDUIT



INSTALLED VIEW



LARGE COSMOPOLITAN® ELECTROL®

Automatic Electric Projection Screen Model
SPECIFICATION DATA

DA-LITE SCREEN COMPANY, INC.
3100 North Detroit Street
Post Office Box 137
Warsaw, Indiana 46581-0137
Phone: 574-267-8101
800-622-3737
Fax: 574-267-7804
Toll Free Fax: 877-325-4832
www.da-lite.com
e-mail: info@da-lite.com

12' x 12', 200" DIAGONAL (120" x 160") AND LARGER SIZES (FOR SMALLER SIZES, REFER TO ADDITIONAL SPECIFICATION DATA SHEET)

SUGGESTED SPECIFICATIONS: _____ projection screen(s), _____ (H) x _____ (W), electrically operated 120 volt (60 Hz) not more than 2.4 amp. Shall have specially designed motor mounted inside the roller to be three wire with ground quick reversal type, oiled for life, with automatic thermal overload cut-out, integral gears, capacitor and an electric brake to prevent coasting. To have pre-set but adjustable limit switches to automatically stop picture surface in the "up" and "down" positions. The roller to be of aluminum. Screen fabric to be flame retardant and mildew resistant fiberglass with black masking borders standard. Bottom of fabric shall be formed into a pocket holding a metal rod. Case to be a two-piece design made of extruded aluminum with a white, lightly textured powder coat finish. End caps to be plastic with integrated junction box. To be complete with three position control switch with cover plate. Screen to be listed by Underwriters' Laboratories.

Matte White: Seamless in all standard sizes.

High Contrast Matte White: Available in sizes where both dimensions do not exceed 10'.



VIDEO (NTSC 4:3) FORMAT DIMENSIONS (2" standard black drop at top)

Viewing Area		Nominal Diagonal		Overall Length of Case		Approx. Ship. Wt.	
H x W	Cm	In.	Cm	In.	Cm	Lbs.	Kg
120" x 160"	305 x 406	200"	508	173½"	441	210	95.3
123" x 164"	312 x 417	210"	533	177½"	451	225	102.1
141" x 188"	358 x 478	240"	610	201½"	512	254	115.2

HDTV (16:9) FORMAT DIMENSIONS (2" standard black drop at top)

Viewing Area		Nominal Diagonal		Overall Length of Case		Approx. Ship. Wt.	
H x W	Cm	In.	Cm	In.	Cm	Lbs.	Kg
92" x 164"	234 x 417	188"	478	177½"	451	215	97.5
106" x 188"	269 x 478	216"	549	201½"	512	241	109.3

SQUARE FORMAT DIMENSIONS

Sizes		Overall Length of Case		Approx. Ship. Wt.	
H x W	Cm	In.	Cm	Lbs.	Kg
12' x 12'	366 x 366	153½"	390	194	88.0
14' x 14'	427 x 427	177½"	451	229	103.9
16' x 16'	488 x 488	201½"	512	263	119.3

Overall case length dimensions ± 1/8" (6mm).

Detail dimensional drawings, wiring diagrams and installation instructions available upon request.

Specifications subject to change without notice.

Custom formats and sizes available upon request.

WHEN ORDERING, MARK APPROPRIATE SELECTIONS:

Select size from charts on the other side.

Select viewing surface:

- Matte White
- High Contrast Matte White

GREENGUARD® and GREENGUARD® Children and Schools Certified.

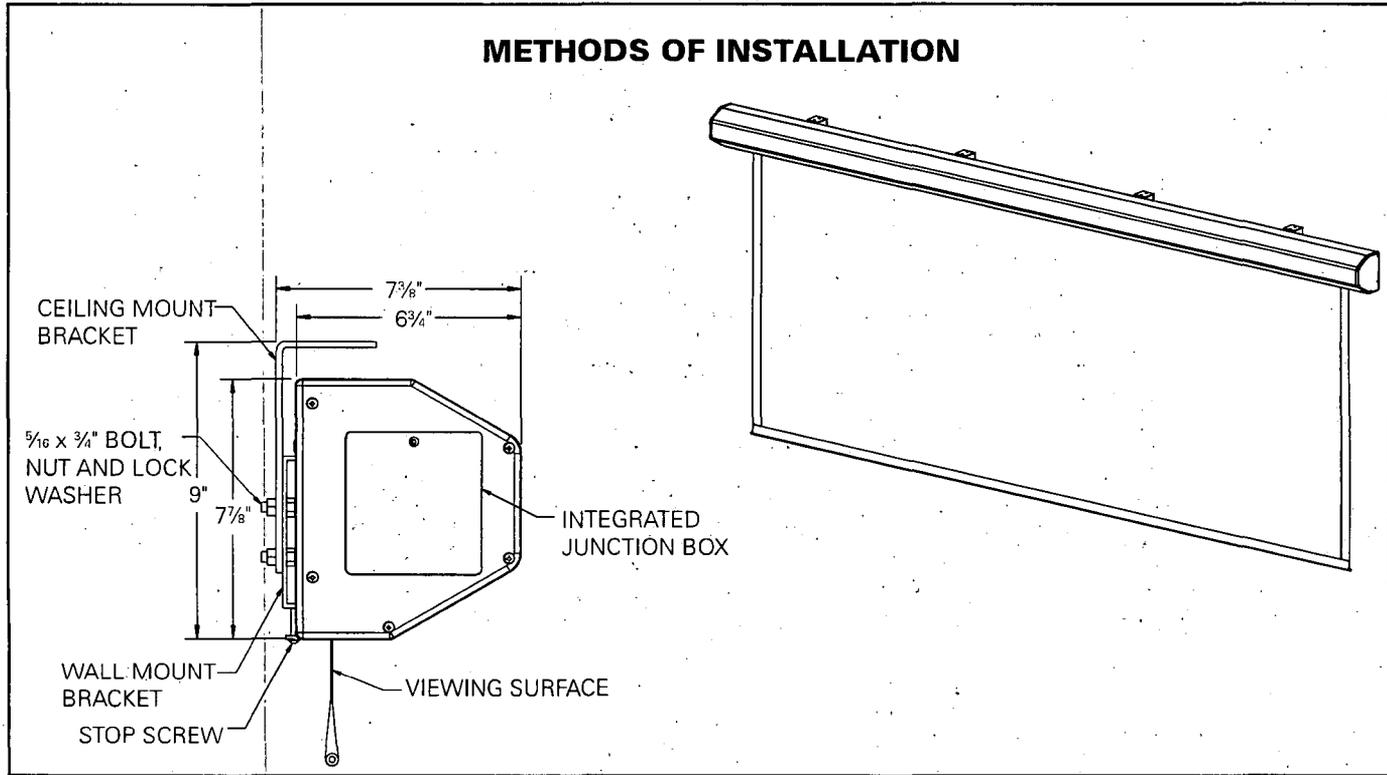
Optional Accessories:

- Extra Drop available to lower picture area more than normal. Specify total drop at top ____ (black or white) or at bottom ____ (black or white). 16" maximum total surface height including picture area.
- No borders (Black masking borders standard).
- Single Motor Low Voltage Control System (LVC) - external.
- Single Motor Low Voltage Control System (LVC) - built-in.
- Wireless Remote Control for LVC.
 - Radio Frequency Remote
 - Radio Frequency Range Extender available
 - Infrared Remote
- Key Locking Cover Plate for 120 V Switch or LVC Switch.
- Key Operated Switch for 120 V only (Note: Cannot be used with LVC).
- 220 Volt (50 Hz) Motor.
- Video Projector Interface Control - external.
- External SCB-100 - RS-232 Serial Control Board
 - NET-100 Ethernet-Serial Adapter
- Black case (white standard).

Project:	_____
Architect:	_____
Phone:	_____
Contractor:	_____
Phone:	_____
Supervisor:	_____
Phone:	_____
Supplier:	_____
Date:	_____
Revised:	_____

COSMOPOLITAN® ELECTROL®

METHODS OF INSTALLATION





ADVANTAGE® ELECTROL®

(UP TO 12' x 12')

Automatic Electric Projection Screen Model

DA-LITE SCREEN COMPANY, INC.
 3100 North Detroit Street
 Post Office Box 137
 Warsaw, Indiana 46581-0137
 Phone: 574-267-8101
 800-622-3737
 Fax: 574-267-7804
 Toll Free Fax: 877-325-4832
 www.da-lite.com
 e-mail: info@da-lite.com

SPECIFICATION DATA

SUGGESTED SPECIFICATIONS: _____ projection screen(s), _____ (H) x _____ (W), electrically operated 120 volt (60Hz), not more than 2.4 amp with a quick connect male plug-in connector on the motor. Shall have specially designed motor mounted inside the roller, to be three wire with ground, quick reversal type, oiled for life, with automatic thermal overload cutout, integral gears, capacitor and an electric brake to prevent coasting. To have preset but adjustable limit switches to automatically stop picture surface in the "up" and "down" positions. Junction box shall be externally integrated into the housing making it possible to install the housing and wire to the building's electrical system during construction. The junction box shall contain a quick connect connector that is mounted in the housing for easy plug-in connection to the motorized fabric and roller assembly. The roller to be of rigid metal. The motorized fabric and roller assembly to be installed in the case at the factory or at a later time at the job site. Roller mounting brackets to be adjustable to allow centering or offsetting of the screen within the case. Screen to be designed for left or right-hand motor installation. Screen fabric to be flame retardant and mildew resistant fiberglass with black masking borders standard. Bottom of fabric shall be formed into a pocket holding a metal rod. Heavy duty plastic caps shall protect the ends of the rod. Top, front and back of case to be made of extruded aluminum powder coated white. End caps to be of heavy gauge steel, powder coated white. Bottom of case to have a removable access door. Door to be of extruded aluminum powder coated white. Bottom of case to be self-trimming, with a built-in flange around the bottom of the case. To be complete with a three-position control switch and cover plate. Suitable for use in environmental air space in accordance with section 300-22 (c) of the National Electric Code, and sections 2-128, 12-010 (3) and 12-100 of the Canadian Electrical Code, part 1, CSA C22.1. Screen to be listed by Underwriters' Laboratories.



VIDEO (NTSC 4:3) FORMAT DIMENSIONS (2" standard black drop at top)

Viewing Area		Nominal Diagonal		Overall Length of Case (does not include flange)		Approx. Ship. Wt.	
H x W	Cm	In.	Cm	In.	Cm	Lbs.	Kg
43" x 57"	109 x 145	72"	183	65½"	166	60	27.2
50" x 67"	127 x 170	84"	213	75½"	192	65	29.5
57" x 77"	145 x 196	96"	244	89½"	227	77	34.9
60" x 80"	152 x 203	100"	254	89½"	227	77	34.9
69" x 92"	175 x 234	120"	305	101½"	258	89	40.4
87" x 116"	221 x 295	150"	381	125½"	319	100	45.4
105" x 140"	267 x 356	180"	457	149½"	380	106	48.1
120" x 160"	305 x 406	200"	508	169½"	431	123	55.8

HDTV (16:9) FORMAT DIMENSIONS (2" standard black drop at top)

Viewing Area		Nominal Diagonal		Overall Length of Case (does not include flange)		Approx. Ship. Wt.	
H x W	Cm	In.	Cm	In.	Cm	Lbs.	Kg
45" x 80"	114 x 203	92"	234	89½"	227	75	34.0
52" x 92"	132 x 234	106"	269	101½"	258	88	39.9
54" x 96"	137 x 244	110"	279	105½"	268	89	40.4
58" x 104"	147 x 264	119"	302	113½"	288	95	43.1
65" x 116"	165 x 295	133"	338	125½"	319	98	44.5
78" x 139"	198 x 353	159"	404	149½"	380	104	47.2
90" x 160"	229 x 406	184"	467	169½"	431	123	55.8

16:10 WIDE FORMAT DIMENSIONS (2" standard black drop at top)

Viewing Area		Nominal Diagonal		Overall Length of Case (does not include flange)		Approx. Ship. Wt.	
H x W	Cm	In.	Cm	In.	Cm	Lbs.	Kg
50" x 80"	127 x 203	94"	239	89½"	227	75	34
60" x 96"	152 x 244	113"	287	105½"	268	89	40.4
69" x 110"	175 x 279	130"	330	119½"	304	97	44
87" x 139"	221 x 353	164"	417	149½"	380	104	47.2

SQUARE FORMAT DIMENSIONS (screens with ^ have 2" standard black drop at top)

Sizes		Overall Length of Case (does not include flange)		Approx. Ship. Wt.	
H x W	Cm	In.	Cm	Lbs.	Kg
50" x 50"	127 x 127	55½"	141	54	24.5
60" x 60"	152 x 152	65½"	166	61	27.7
70" x 70"	178 x 178	75½"	192	68	30.8
84" x 84"	213 x 213	89½"	227	79	35.8
6' x 8'^^	183 x 244	101½"	258	89	40.4
8' x 8'	244 x 244	101½"	258	91	41.3
7' x 9'^^	213 x 274	113½"	288	96	43.5
9' x 9'^^	274 x 274	113½"	288	97	44.0
8' x 10'^^	244 x 305	125½"	319	100	45.4
10' x 10'^^	305 x 305	125½"	319	102	46.3
9' x 12'^^	274 x 366	149½"	380	106	48.1
12' x 12'	366 x 366	149½"	380	119	54.0

Electrical junction box extends 2 1/4" past case length on left end of case (1 1/4" past ceiling flange). Internal junction box available (will add 3 1/2" to overall case length and must be specified at time of order, recommended for drywall installations).
 Overall case length dimensions ± 1/4" (6mm).
 Detail dimensional drawings, wiring diagrams and installation instructions available upon request.
 Specifications subject to change without notice.
 Custom formats and sizes available upon request.

- Matte White:** Seamless in all sizes.
- High Contrast Matte White:** Available in sizes where both dimensions do not exceed 10'.
- Video Spectra 1.5:** Available in sizes where both dimensions do not exceed 8'.
- High Power®:** Available in sizes up to 9' x 12'. Horizontal seam required when both dimensions exceed 6'.

WHEN ORDERING, MARK APPROPRIATE SELECTIONS:

Select size from charts above.

Select viewing surface:

- Matte White
- High Contrast Matte White
- High Power
- Video Spectra 1.5
- Greenguard® and Greenguard® Children and Schools Certified.

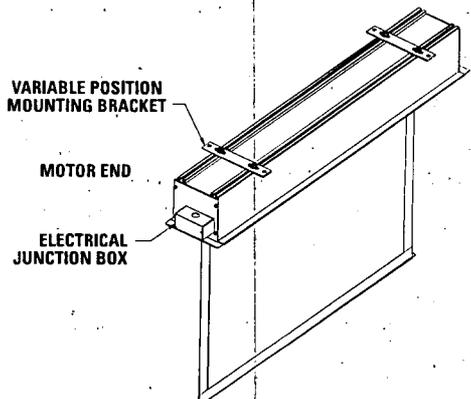
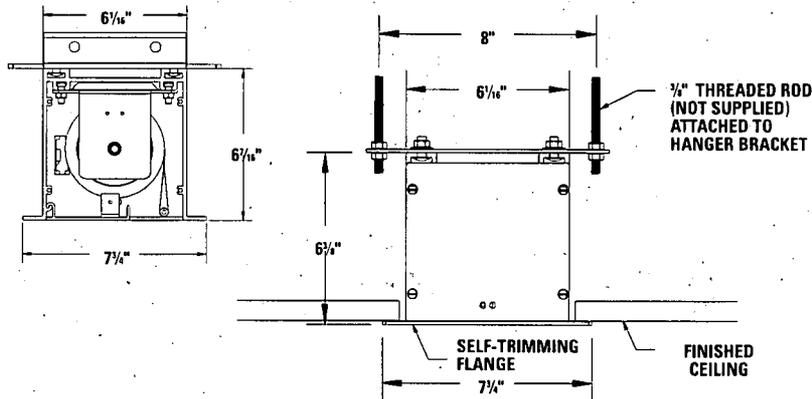
Optional Accessories:

- Extra Drop available to lower picture area more than normal. Specify total drop at top _____ (black or white) or at bottom _____ (black or white). 13" maximum total surface height including picture area.
- Single Motor Low Voltage Control (LVC) - external.
- Single Motor Low Voltage Control (LVC) - built-in.
- Wireless Remote Control for LVC.
 - Radio Frequency Remote.
 - Radio Frequency Range Extender available
 - Infrared Remote.
- Silent Motor for sizes up to 9'x12'.
- Silent Motor with Integrated LVC for sizes up to 9'x12'.
- Key Locking Cover Plate for 120V or LVC Switch.
- Key Operated Switch for 120V only (NOTE: Cannot be used with LVC).

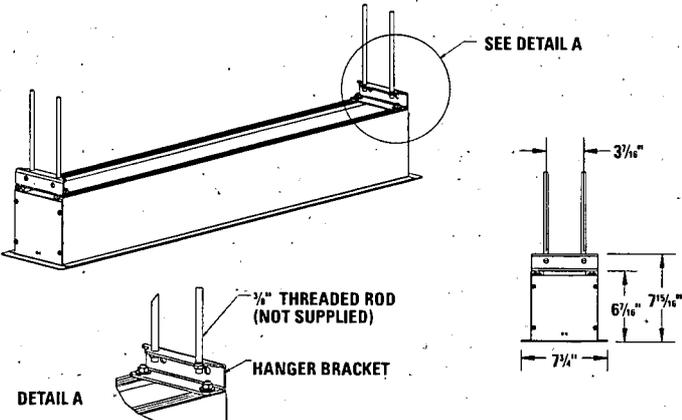
Project:	_____
Architect:	_____
Phone:	_____
Contractor:	_____
Phone:	_____
Supervisor:	_____
Phone:	_____
Supplier:	_____
Date:	_____
Revised:	_____

- No Borders (Black masking borders standard).
- 220 Volt (50 Hz) Motor.
- Video Projector Interface Control - external.
- Video Projector Interface Control - built-in (Adds 10" to case length on 220V motor only).
- SCB-100 RS-232 Serial Control Board - external.
 - NET-100 Ethernet-Serial Adapter
- SCB-100 RS-232 Serial Control Board - built-in. (adds 10" to overall length of case)
 - NET-100 Ethernet-Serial Adapter
- SCB-200 RS-232 Serial Control Board - built-in only. (adds 10" to overall length of case)
 - NET-200 Ethernet-Serial Adapter
 - WC-200 Wall Controller
 - IR-200 Infrared Remote

**ADVANTAGE® ELECTROL®
SUGGESTED METHODS OF INSTALLATION**



AUDIENCE SIDE



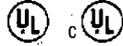


SINGLE MOTOR LOW VOLTAGE CONTROL (LVC)

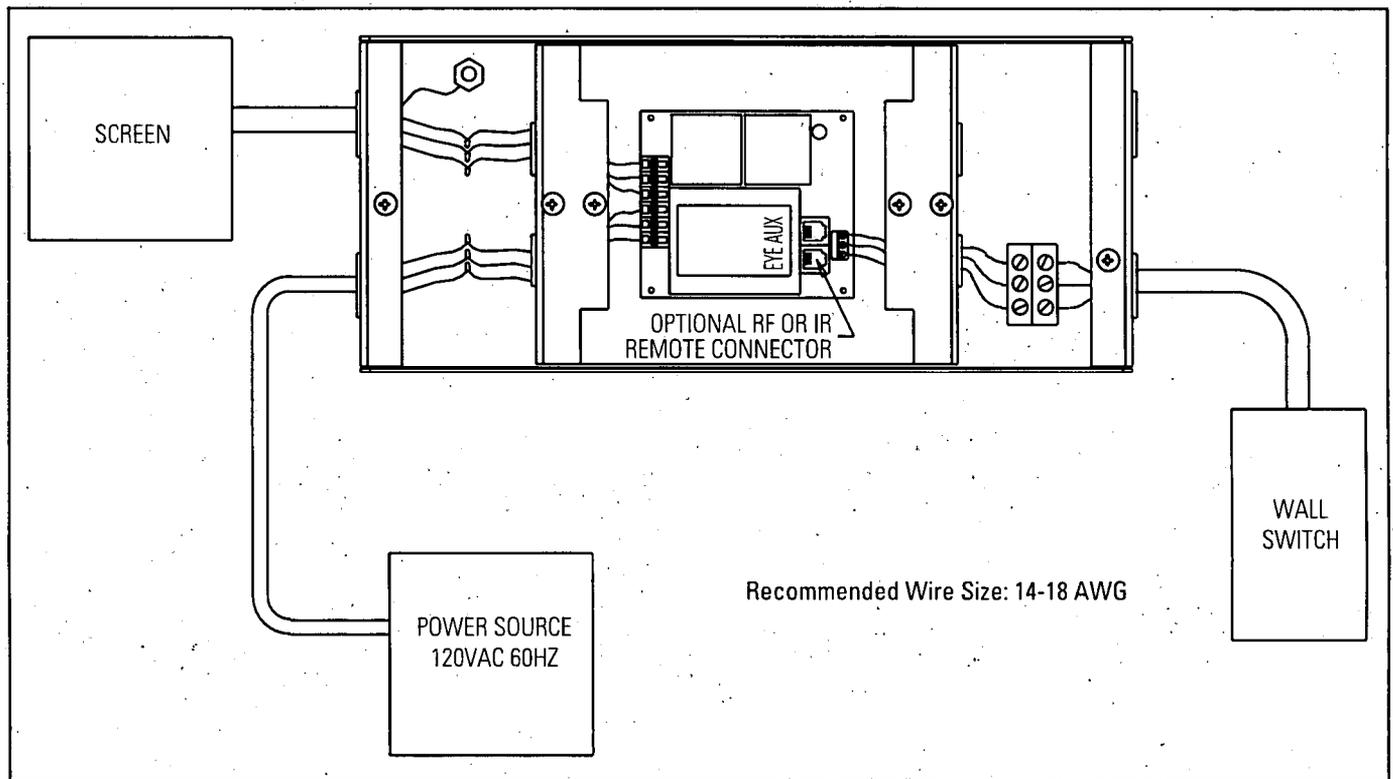
SPECIFICATION DATA

DA-LITE SCREEN COMPANY, INC.
 3100 North Detroit Street
 Post Office Box 137
 Warsaw, Indiana 46581-0137
 Phone: 574-267-8101
 800-622-3737
 Fax: 574-267-7804
 Toll Free Fax: 877-325-4832
 www.da-lite.com
 e-mail: info@da-lite.com

SUGGESTED SPECIFICATIONS: Electrical rating 115 VAC 60 Hz 5A. The single motor LVC is used to operate Da-Lite single motor electric screens from one or more locations, remote control, or for integration into a control panel system. Operated by a 3-button momentary, dry contact switch. Any combination of single or multiple 3-button switches, optional radio frequency remote or infrared remote, or a control panel with momentary dry contacts may control the LVC. Control board to be mounted in a galvanized steel housing measuring 2 1/4" H x 4 1/2" W x 10 1/2" L. Standard knockouts provided on housing for 1/2" conduit connections. Control to be listed by Underwriter's Laboratories.



NOTE: This control cannot be used with the Horizon Electrol®, Ascender® Electrol®, Dual Masking Electrol® or Motorized Scenic Roller screens.



NOTE: Do not seal in – allow access.

Options:

- Radio Frequency Remote Control.
 - Radio Frequency Range Extender available
- Infrared Remote Control.
- Additional 3-button Wall Switch.
- 240V Model Available.
- Key Locking Cover Plate for 120V or Low Voltage Control (LVC).

Specifications are subject to change without notice.

Project:	_____
Architect:	_____
Phone:	_____
Contractor:	_____
Phone:	_____
Supervisor:	_____
Phone:	_____
Date:	_____
Revised:	_____

Sony Single-disc 1080p upscaling DVD player DVPSR500H (Black)



Comparison Specifications

- Processing decoding: Dolby Digital / dts
- HDTV-ready progressive: 1080p video upscaling via HDMI
- Playable formats: DVD, DVD±R (DL), DVD±RW / CD, CD-R, CD-RW / VCD, SVCD / JPEG
- Best video out: 1 HDMI
- Best audio out: 1 digital coaxial out
- Other outputs: 1 component-video out / 1 composite-video out / 1 L/R audio out
- Navigation aids; On-screen display
- Video DAC: 12-bit/108MHz digital-to-analog converter
- Audio DAC: 24-bit/192kHz digital-to-analog converter
- Remote control: Included

Additional Specifications

- Progressive Cinema Progressive technology
- Precision Drive 3 system
- Photo TV HD
- ENERGY STAR qualified
- Multiple-disc resume
- Child lock

- Fast/slow playback with sound.
- Convenience features: Instant replay / Instant search

Manufacturer Specifications

- Power requirements: AC 120V, 60Hz

Dimensional Specifications

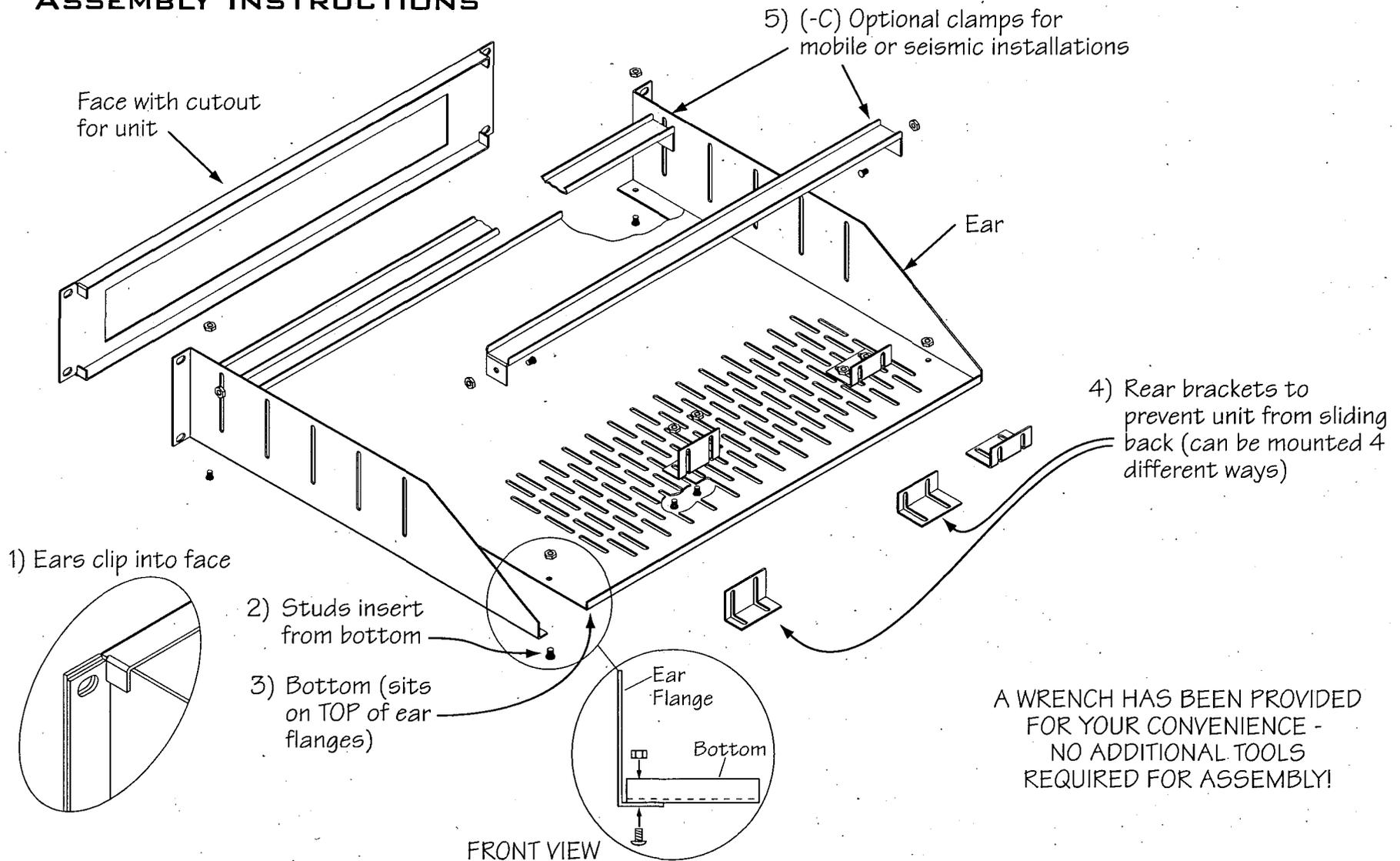
- Dimensions: 12.6" W x 1.26" H x 8.23" D
- Weight: 2.65 lbs

Sony DVPSR500H Warranty Details

1-year parts, 90-day labor limited warranty

RSH CUSTOM RACKSHELF

ASSEMBLY INSTRUCTIONS



Instruction # I-1505	Rev. G	Date: 11/11/03
Part # RSH		
Page: 1 of 1	Assembly: full	
North Corporate Drive Riverdale, NJ 07457	Voice 973-839-1011 Fax 973-839-1976	www.middleatlantic.com



INSTRUCTION # I-1505 REV. G 11-11-03

Samsung Digital Presenter

SDP-860



Specifications

		SDP-860
OPTICAL SYSTEM		
Lens		F=2.5 (Wide) - 3.2 (Tele) f=4.1 - 24.6mm, 6X Zoom Lens
Shooting Area		Max : 420 x 297mm
Zoom		48X Zoom (Optical 6X / Digital 8X)
Focus		Auto focus / Manual
Iris		Auto (with fine level adjustment)
VIDEO		
Pick-up Device		1/3" Progressive Scan CMOS Image Sensor
Total Number of Pixels		1,384(H) x 1,076(V), 1.49M pixels
Number of Effective Pixels		1329(H) x 1049(V), 1.39M pixels
Frame Rate		SXGA : 30fps
VGA Output Resolution		SXGA (1,280 x 1,024), XGA (1,024 x 768), HD (1,280 x 720p), 1,920 x 1,080p H : 700TV lines / V : 700TV lines
FUNCTIONS		
White Balance		AWC (One-touch) / ATW / Manual
Aperture Function		Image mode / Text mode / Custom mode
Noise Reduction		Available (Low light presenter with 2D/3D NR)
Preset Function		Up to 4 user settings
Image Freeze		Available
Image Rotation		Available (Flip / Mirror / 180 degree)
Image Save	Photo	JPEG, BMP
	Movie	MPEG-4 640 x 512@30fps with Audio (Mic) - Internal memory & SDHC card (up to 32GB)
Image Playback	Photo	Slide show / 3 x 3 (9-Split)
	Movie	Internal movie player
USB I/F		USB 2.0 support
Input Selection		2 Channels (Internal : 1, External : 1)
Illumination		LED Illumination system
INTERFACE		
Input Port	VGA In	15 pin DSUB Connector x 1
	Audio In	φ3.5 Jack x 1 (Built-in Microphone)
	VGA Out	15 pin DSUB Connector x 1
Output Port	DVI Out	DVI Connector
	Audio Out	φ3.5 Jack x 1
	RS-232C	φ3.5 Jack x 1
I/F Port	USB	USB B-type x 1
	Memory I/F	SD Slot x 1
Power Input		12V DC In x 1
GENERAL		
Operating Temperature		+5°C ~ +35°C
Operating Humidity		30% ~ 90%
Power		12V DC (Adaptor input : 100V AC ~ 240V free voltage, 50/60Hz, output : 12V, 4A)
Dimensions		In-use : 366(W) x 424(H) x 349(D)mm / φ14.41*(W) x 16.69*(H) x 13.74*(D)
Weight		3.5Kg (7.72 lb)
Accessories	Supplied	Remote controller, USB cable, DVI cable
	Accessories	VGA cable, Audio cable
	Optional	Microscope adaptor lens
	Accessories	RS-232C cable, SD card



The Eco mark represents Samsung Techwin's will to create environment-friendly products, and indicates that the product satisfies the EU RoHS Directive.

Design and specifications are subject to change without notice.

SAMSUNG

SAMSUNG TECHWIN

SAMSUNG TECHWIN CO., LTD.
145-3, Sanggaewon 1-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do Korea 462-703
Tel : +82-31-740-8160 Fax : +82-31-740-8145
www.samsungpresenter.com

SAMSUNG TECHWIN AMERICA Inc.
100 Challenger Road, #700 Ridgely Park,
NJ 07666, UNITED STATES
Tel : +1-201-325-6920 Fax : +1-201-373-0124
www.samsungpresentusa.com

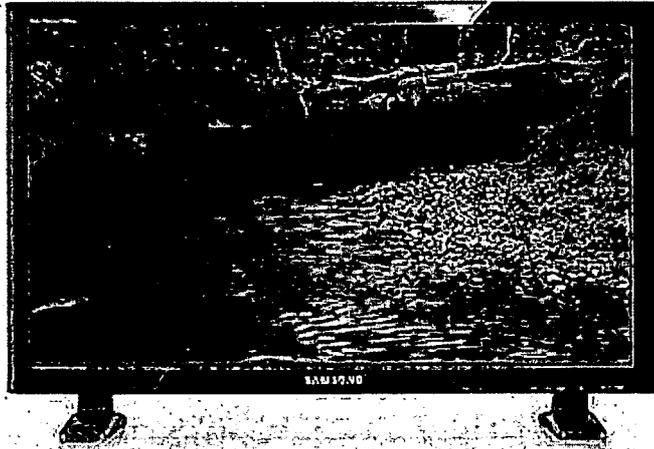
SAMSUNG TECHWIN EUROPE CO., LTD.
Samsung House, 1000 Hillwood Drive, Hillwood Business Park
Chertsey, Surrey, UNITED KINGDOM KT16 0PS
Tel : +44-1932-45-5300 Fax : +44-1932-45-5325

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I.E-0909

Samsung 460CX-2 46" Professional Digital LCD TV



Panel/Display	
Type	LCD
Viewable Size	46"
Brightness	450cd/m ²
Contrast Ratio	4000:1
Viewing Angle	178° horizontal, 178° vertical
Pixel Dot Pitch	0.53025mm
Response Time	8ms
Panel Life	<i>Not Specified by Manufacturer</i>

Colors Supported	<i>Not Specified by Manufacturer</i>
Signal	
Internal Interface	Analog/Digital
Frequency	<i>Not Specified by Manufacturer</i>
Sync Type	<i>Not Specified by Manufacturer</i>
Resolution	1920 x 1080
Input/Output Connectors	
Analog	1x VGA 1x Composite RCA
Digital	1x HDMI 1x DVI (Input) 1x DVI (Output)
Audio Input	1x RCA Stereo
Headphone Jack	None
Hub Ports	None
Speakers	Stereo
Mount	VESA
Controls	
Buttons	<i>Not Specified by Manufacturer</i>

On-Screen Display	Yes
Auto Configuration	Yes
Touch Screen	None
Tilt/Swivel Range	None
Security	None
Compliant Standards	None
System Requirements	PC or Mac with DVI, VGA, or HDMI output; ATSC TV signal
Power Requirements	AC: 100-240VAC
Environmental Requirements	Operating Temperature: 50-95°F (10-35°C) Humidity: 10-80%
Dimensions (WxHxD)	43.4 x 28.2 x 12.2" (110.2 x 71.6 x 31cm)
Weight	62.8 lb (28.5kg)



50" Class (49.9" Diag.) 550 Series 1080p Plasma HDTV

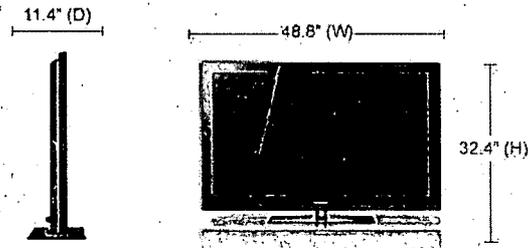
PN50C550G1F

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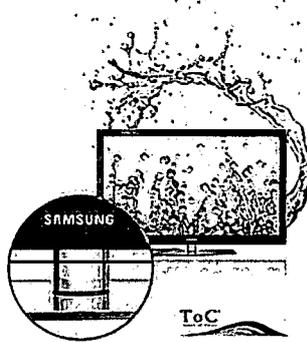
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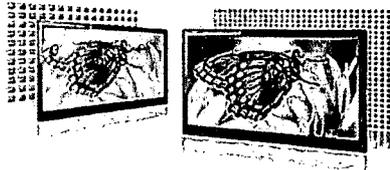
Stylish TV frame with Touch of Color design

Make an artistic statement with a design that naturally blends subtle color gradations into the standard TV and computer monitor frames.



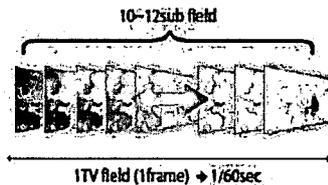
Sharp images and bright colors with Full HD 1080p

In the 1920x1080 full high definition resolution, 1,080 horizontal lines create sharp details and crystal-clear, smooth motion for the brightest, boldest colors and realistic picture.



Reduce glare with E-Panel Technology

E-panel technology features FilterBright™ to reduce glare for optimal viewing, 600Hz Subfield Motion for clearer fast-action sports scenes, .001ms response time to eliminate blurring, 1080p Full HD Motion for better resolution during faster motion, and Mega Dynamic Contrast Ratio to boost color.



Wide Color Enhancer brings color to life

Every color on the RGB spectrum is brought to life with this unique 3D color-stretching technology that saturates each pixel until it achieves the true color nature intended.



Tune into any cable service with a built-in digital tuner

Plasma TVs boast built-in Digital Tuners (ATSC/Clear QAM) to access any type of cable service, including high definition.

ENERGY STAR® Compliant

This eco-friendly feature helps you save money, while helping to save the environment by consuming less energy. ENERGY STAR® is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy that promotes energy efficiency.



Series

550 Series

Design

Plasma TV
Grey Touch of Color™
Comes With Swivel Stand

Video

49.9" Screen Measured Diagonally
1,920 x 1,080 Native Resolution
2,000,000:1 Dynamic Contrast Ratio
.001 ms Response Time
600Hz Subfield Motion Refresh Rate
16:9 Aspect Ratio

Audio

SRS TruSurround HD™
15 Watts x 2 Audio Channels
Built-in Bottom Speakers

Features

AllShare™ DLNA Networking
ConnectShare™ Movie
Game Mode
Anynet+™ (HDMI-CEC)
1-Tuner Picture-in-Picture
Auto Channel Search
Auto Power Off
Auto Volume Leveler
Clock & On/Off Timer
Closed Captioning
HDTV Tuner Built-in
Sleep Timer
V-Chip

Inputs & Outputs

4 HDMI Inputs
2 Component Inputs
1 Composite (AV) Input
1 PC Input (D-sub)
1 PC Audio Input (Mini Jack)
1 Ethernet Port
1 USB 2.0 Port
1 Optical Digital Audio Output
1 DVI Audio Input (Mini Jack)
1 RF Input

Dimensions

2.9" Thin

48.8" x 30.2" x 2.9"
 48.8" x 32.4" x 11.4" with stand
 59.8" x 34.8" x 11.4" shipping size

Weight

73.6 lbs.
 84.7 lbs. with stand
 99.9 lbs. shipping weight

Power

Exceeds ENERGY STAR Standards

System

ATSC/Clear QAM Tuners

Accessory

TM1060 Remote Control

2010 Plasma Models

Series	8000	7000	6500	6400	590	550	540	530	450	430
Screen Sizes	50,58,63	50,58,63	50,58	50,58	50,58	42,50	50,58	50	42,50	42,50
3D	●	●								
Samsung Apps	●	●	●	●						
Real Black Filter	●									
BD Wise™	●	●	●	●						
SRS TruSurround HD	●	●	●	●	●	●	●	●	●	●
600Hz Subfield Motion	●	●	●	●	●	●	●	●	●	●
Depth of TV	1.4"	1.4"	1.4"	2.9"	2.8"	2.8"	2.7"	2.7"	2.7"	2.7"
Touch of Color™ Design	Brushed Titanium	Brushed Black	Black	Rose Black	Black	Charcoal Gray	Rose Black			
HDMI Inputs	4	4	4	4	4	4	3	3	3	2

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- Ranges
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55" Class (54.6" Diag.) 630 Series 1080p LCD HDTV

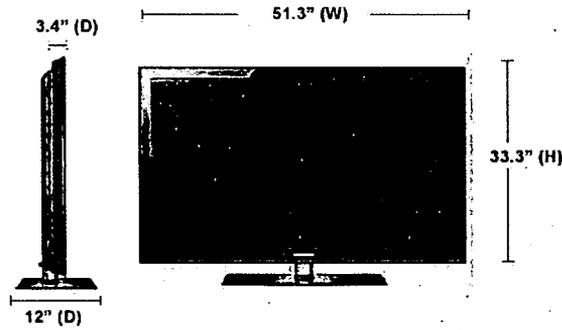
LN55C630K1F

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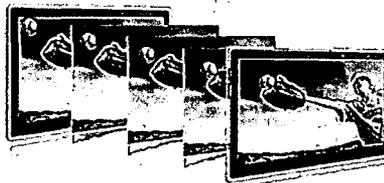
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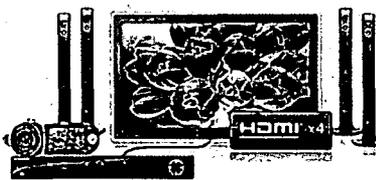
Reduce blur with Auto Motion Plus

Auto Motion Plus 120Hz™ brings action movies and sports to life in the living room, thanks to frame-to-frame smooth motion. This technology eliminates motion blur by calculating the image and inserting it, creating a non-repetitive transition from one frame to the next.



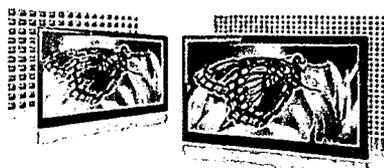
HDMI: Multiple connections, one solution

Share your TV with other devices, simultaneously. Movies, video games, photos and more can be hooked-up with one simple connection that imports content without compressing it.



Sharp images and bright colors with Full HD 1080p

In the 1920x1080 full high definition resolution, 1,080 horizontal lines create sharp details and crystal-clear, smooth motion for the brightest, boldest colors and realistic picture.



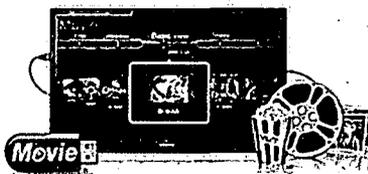
One simple remote control with Anynet+

Eliminate the clutter and confusion of too many remotes by combining them into one, simple control. All HDMI-connected compatible devices such as TV, AV receiver and home theater are united in a convenient one-touch device.



Instant music and video-sharing with ConnectShare

Plug your MP3 player, digital camera or camcorder directly to your TV to easily share photos and music on the "big" screen in your living room.



Series

630 Series

Design

LCD TV

Charcoal Grey Touch of Color™

Comes With Swivel Stand

Video

54.6" Screen Measured Diagonally

1,920 x 1,080 Native Resolution

120,000:1 Dynamic Contrast Ratio

4 ms Response Time

*Auto Motion Plus 120Hz Refresh Rate

16:9 Aspect Ratio

Audio

SRS TheaterSound®

10 Watts x 2 Audio Channels

Built-in Bottom Speakers

Features

AllShare™ DLNA Networking

Wide Color Enhancer Plus

ConnectShare™ Movie

BD Wise

Game Mode

Anynet+™ (HDMI-CEC)

1-Tuner Picture-in-Picture

Wireless LAN Adaptor Support

Auto Channel Search

Auto Power Off

Auto Volume Leveler

Clock & On/Off Timer

Closed Captioning

HDTV Tuner Built-in

Sleep Timer

V-Chip

Inputs & Outputs

4 HDMI Inputs

2 Component Inputs

2 Composite (AV) Inputs

1 PC Input (D-sub)

1 PC Audio Input (Mini Jack)

1 Ethernet Port

2 USB 2.0 Ports

1 Optical Digital Audio Output

1 DVI Audio Input (Mini Jack)

1 RF Input

Dimensions

3.4" Thin
 51.3" x 30.8" x 3.4"
 51.3" x 33.3" x 12.0" with stand
 62.8" x 35.7" x 8.7" shipping size

Weight

55.1 lbs.
 65.3 lbs. with stand
 80 lbs. shipping weight

Power

Exceeds ENERGY STAR Standards

System

ATSC/Clear QAM Tuners

Accessory

TM1060 Remote Control

2010 LCD Models

Series	750	650	630	610	560	550	540	530	450	350
Screen Sizes	46	40,46,55	40,46,55,60	40,46,55	40,46	32,37,40,46	32,40,46	32,37,40,46,52	19,22,26,32	19,22,26,32
3D	○									
Samsung Apps	○	○			○					
AllShare™ (DLNA® certified)	○	○	○	○	○	○	○			
Refresh Rate	240Hz	120Hz	120Hz	120Hz	120Hz	60Hz	60Hz	60Hz	60Hz	60Hz
Contrast Ratio	200,000:1	150,000:1	120,000:1	120,000:1	90,000:1	90,000:1	80,000:1	80,000:1	60,000:1	35,000:1
Wide Color Enhancer	○	○	○	○	○	○	○	○	○	○
Touch of Color™ Design	Glass Deco	Red	Charcoal Gray	Red	Gray	Red				
HDMI Inputs	4	4	4	4	4		4	3	3	1

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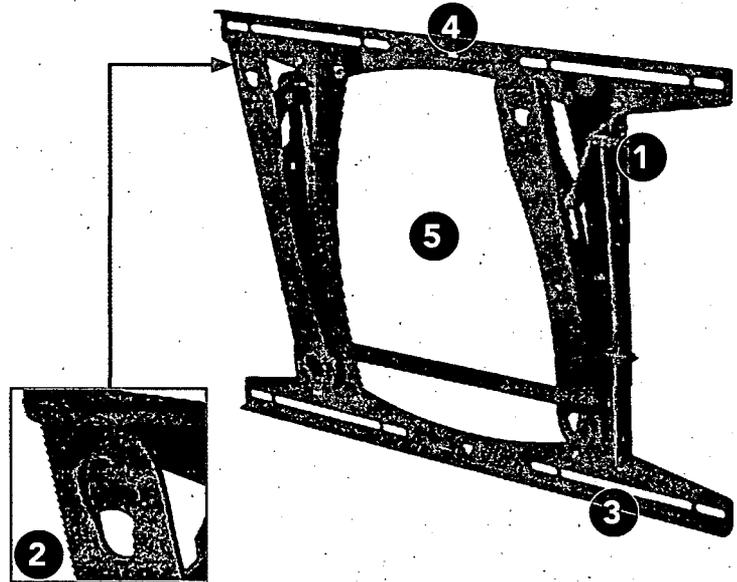
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PLP™ □ 42 - 71" PULL-N-TILT™ WALL MOUNT



FEATURES

- 1 PULL-N-TILT™**
PATENTED FEATURE (US 6,402,109)
Provides hand tilt adjustment between 0 - 15°.
- 2 Q-LATCH™ MOUNTING SYSTEM**
Flat panel secures to mount with a latching flag. Easy to connect/disconnect – no tools needed! Protect display by adding a padlock.
- 3 INTEGRATED LATERAL SHIFT**
Reposition mount 4" (102 mm) left or right after installation for ultimate positioning flexibility.
- 4 RAPID LEVELING™**
Hands-free leveling of mount on wall after installation.
- 5 OPEN WALL PLATE DESIGN**
Expanded wall plate opening provides cable access and reduces risk of outlet interference.



SPECIFICATIONS

Depth from Wall 1.8" (45.7 mm)

Tilt 0-15°

Dimensions* 18.38" x 26" x 1.83"
(HxWxD) (467 x 660 x 46.5 mm)

Color Black

Weight Capacity 200 lbs (90.7 kg)

* Dimensions don't include interface bracket



WHAT YOU NEED TO KNOW

ORDERING OPTIONS

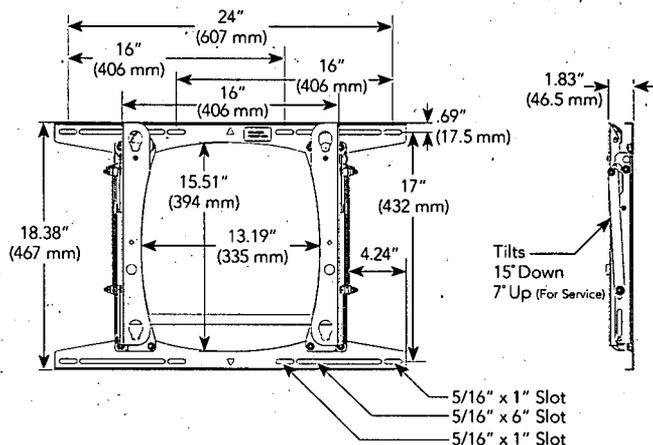
Available in custom or universal.

OTHER PRODUCT OPTION

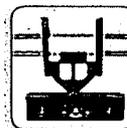


• PLP16
Portrait/Landscape, Pull-N-Tilt™ Wall Mount

TECHNICAL DRAWINGS



RECOMMENDED ACCESSORIES



PACCC1 □ Center Channel
Speaker Adapter

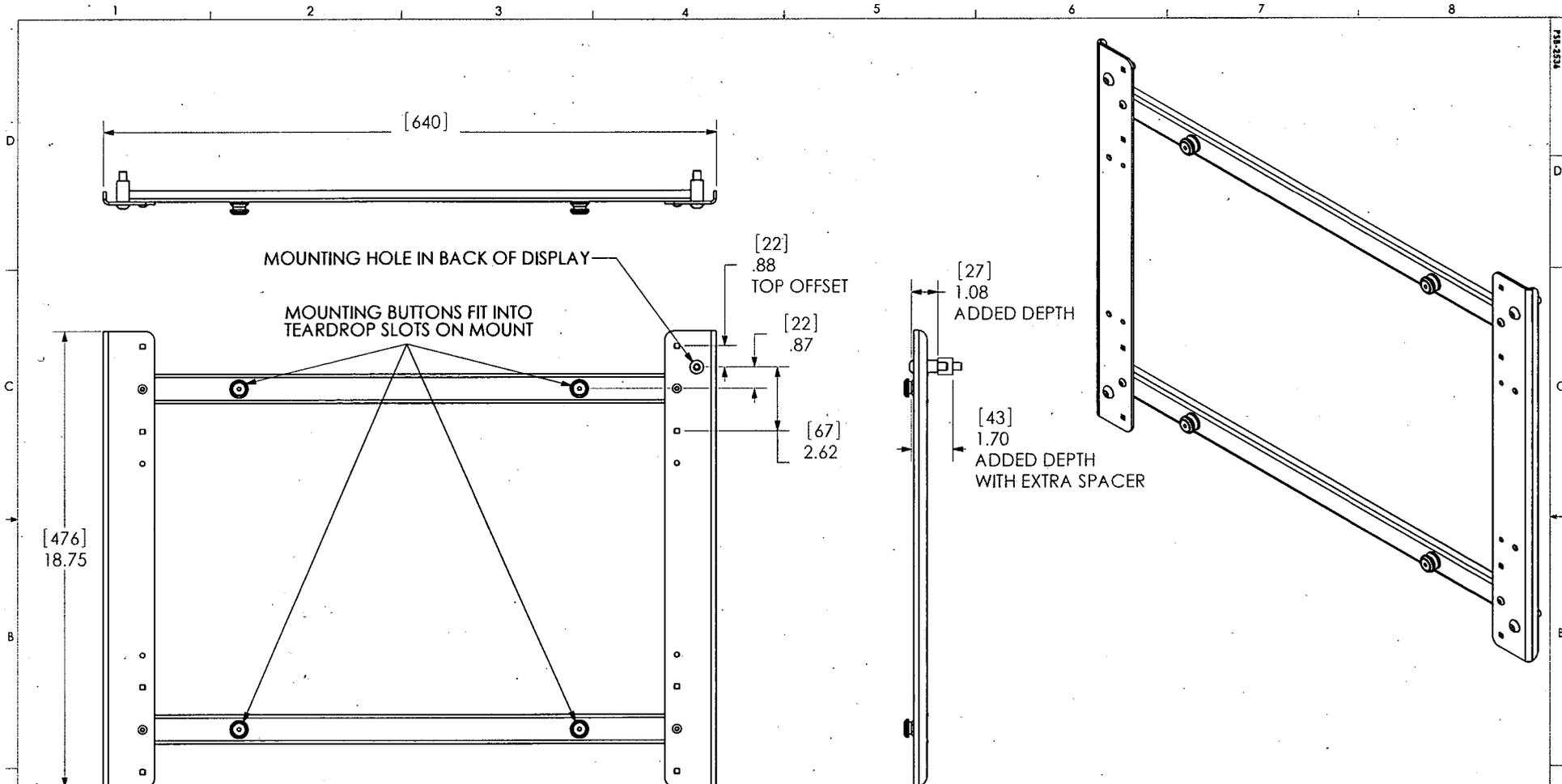


PAC510 □ Retro-Fit Pre-wire Box



PACPC1 □ Power Conditioner Kit

For a complete list of flat panel mount accessories see page 69.



CHIEF MANUFACTURING INC.
 MOUNT ORDER NUMBER IS PSB-2536
 PHONE: 1-800-582-6480

SHEET SCALE = 1:4

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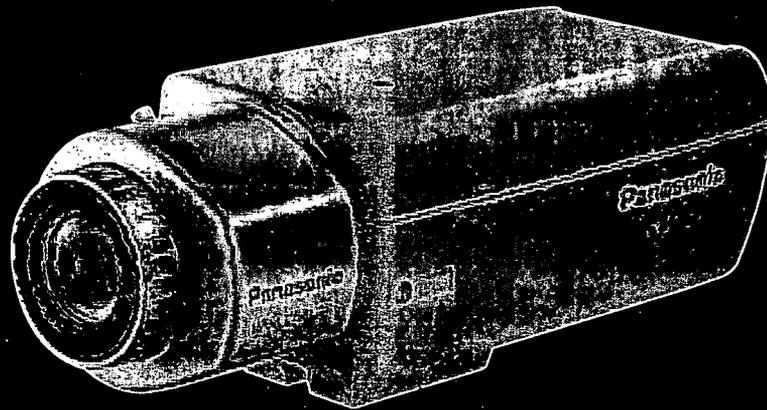
Panasonic

ideas for life

Color Surveillance Cameras WV-CP280 Series

Lens : optional

Preliminary



New High-Performance DSP Superb Image Quality and Cost Performance Color Camera

The stylish new WV-CP280 Series color camera is equipped with a newly-developed DSP, providing improved image quality. Utilizing the first **Adaptive Black Stretch** technology in the industry, the DSP uses image processing to transform dark areas into natural, high contrast images in real time, while keeping crisp areas unchanged.

Horizontal resolution is 540 TV lines in color mode. Minimum illumination intensity is 0.8 lux (0.08 fc) in color mode with the F1.4 lens. This is due to the new DSP and the introduction of a new circuit. Signal-to-Noise ratio under low-light intensity has been improved. Furthermore, it is equipped with a Day/Night feature, supporting greater low-light intensity*.

It also eliminates strong backlighting with Backlight Compensation (BLC). The camera is equipped with various features, including Automatic Light Control (ALC) and Electronic Light Control (ELC) and supports a wide-range of installation environments.

Three selectable synchronization modes include Internal, Line-locked and Multiplexed Vertical Drive (VD2) synchronization. The camera supports 120V AC (WV-CP280) and 24V AC/ 12V DC (WV-CP284) power supplies.

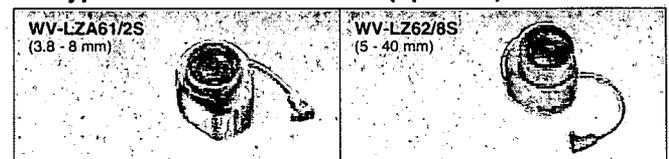
With a host of new and improved features, the WV-CP280 Series is the ideal camera for offices, retail locations, restaurants and shopping malls.

* No IR filter shifting

KEY FEATURES

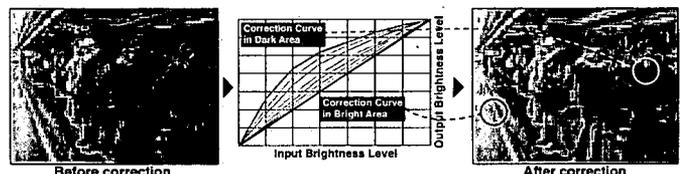
- 1/3-type CCD pick-up element featuring 768 (H) x 494 (V) pixels.
- Newly-developed Digital Signal Processor (DSP).
- Higher horizontal resolution of 540-line in color mode.
- Adaptive Black Stretch feature transforms shadows and dark areas into natural and crisp images in real time.
- Minimum illumination of 0.8 lux (0.08 fc) in color mode with F1.4 optional lens.
- Day/Night function allows use in low light situations*.
- Accuracy improvement of Auto-Tracing White Balance (ATW).
- Back Light Compensation (BLC).
- Automatic Light Control (ALC).
- Electronic Light Control (ELC) enables the use of inexpensive fixed iris lenses for more cost effective systems.
- Line-lock capability for roll-free pictures during systems operation switching.
- VD2 sync capability with Panasonic system products.
- CS-mount lenses. DC-servo ALC lenses.
- WV-CP280 Camera Series:
 - WV-CP280: 120V AC, 60 Hz
 - WV-CP284: 24V AC, 60 Hz or 12V DC

1/3-type Variable Focal Lenses (optional)

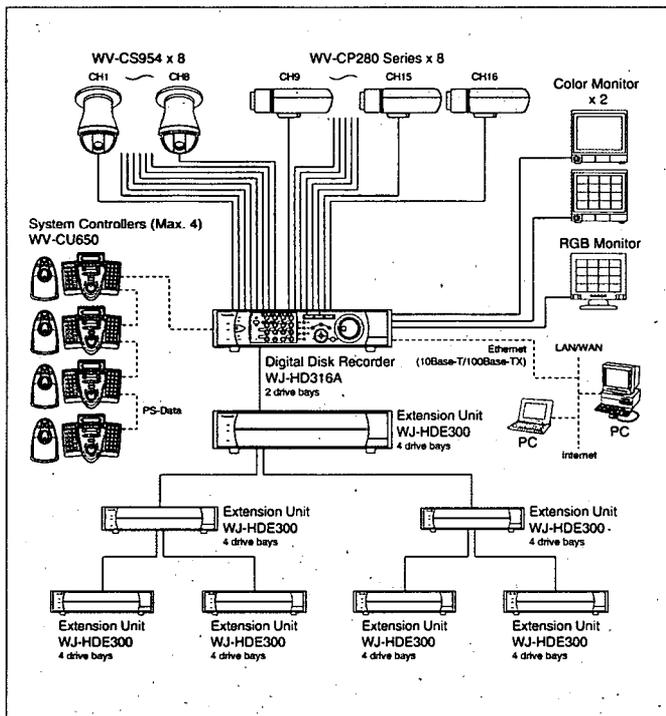


Newly-developed DSP utilizes the first Adaptive Black Stretch technology in the Security industry

The first DSP to automatically detect dark areas inside an image, applying the most suitable correction curve based on brightness data of areas surrounding the dark area. This image processing algorithm transforms shadows and dark areas into natural and crisp images in real time.



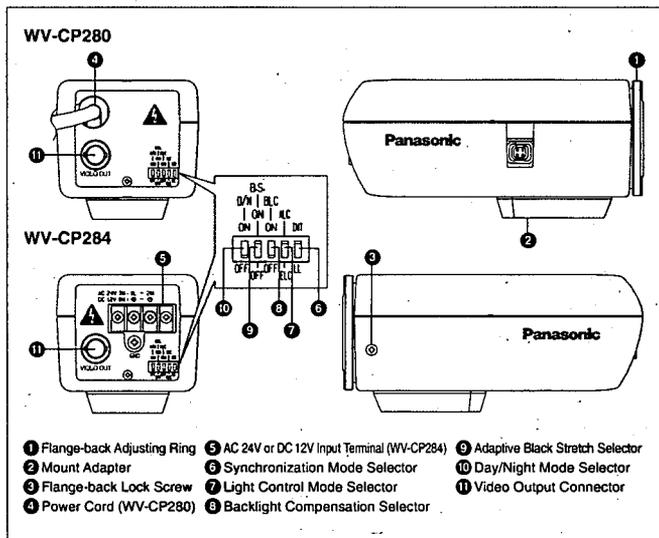
SYSTEM EXAMPLE



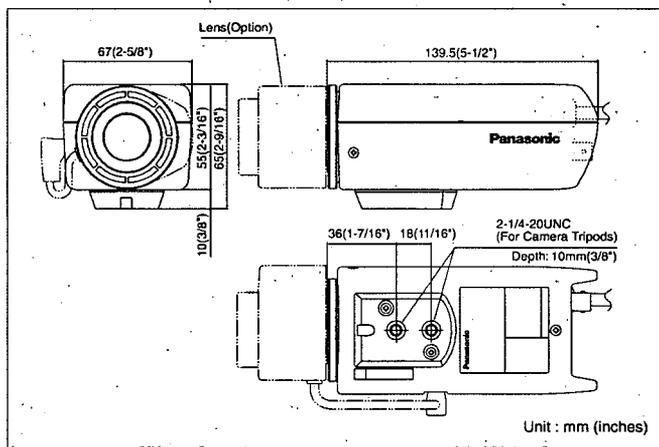
SPECIFICATIONS

Model No.	WV-CP280	WV-CP284
Pick-up Device	768 (H) x 494 (V) pixels, Interline Transfer CCD	
Scanning Area	4.9 (H) x 3.7 (V) mm (Equivalent to scanning area of 1/3" pick-up tube)	
Synchronization	Internal, Line-locked or Multiplexed Vertical Drive (VD2), selectable	
Scanning System	2 : 1 interlaced	
Scanning	525 lines	
Horizontal	15.734 kHz	
Vertical	59.94 Hz	
Horizontal Resolution	540 TV lines	
Video Output	1.0 V [p-p] NTSC composite 75 Ω / BNC connector	
White Balance	ATW	
Signal-to-Noise Ratio	50 dB (Equivalent to AGC Off, weight On)	
Control Mode Setting	ALC / ELC	
Minimum Illumination	0.6 lux (0.06 fc) at F1.2, 0.8 lux (0.08 fc) at F1.4	
Switch Function	Light control mode selector (ALC/ELC), Backlight compensation selector (ON/OFF), Adaptive Black Stretch selector (ON/OFF), Day/Night mode selector (ON/OFF), Synchronization mode selector (INT/LL)	
Lens Mount	CS-mount	
Ambient Operating Temperature	-10 °C ~ +50 °C (14 °F ~ 122 °F)	
Ambient Operating Humidity	Less than 90 %	
Power Source and Power Consumption	120 V AC 60 Hz, 3.4 W	24 V AC 60 Hz, 2.7 W 12 V DC, 220 mA
Dimensions (without lens) (W x H x D)	67 x 65 x 139.5 mm (2-5/8" x 2-9/16" x 5-1/2")	
Weights (without lens)	510 g (1.12 lbs.)	350 g (0.77 lbs.)

MAJOR OPERATING CONTROLS & TERMINALS



APPEARANCE



OPTIONAL COMPONENTS & ACCESSORIES

Digital Disk Recorders WJ-HD316A (16ch) WJ-HD309A (9ch) WJ-HD220 (8ch)	System Controllers WV-CU650 WV-CU360C
PS-Data	PS-Data
Matrix Systems SYSTEM 650 SYSTEM 150	LCD AV Monitors WV-LC1710 43.2cm (17") WV-LD2000 50.8cm (20") WV-LD1500 38.1cm (15")

Important - Safety Precaution: carefully read the operating instructions and installation manual before using this product.

• All TV pictures are simulated. • Weights and dimensions are approximate. • Specifications are subject to change without notice. • These products may be subject to export control regulations.

Panasonic

Panasonic System Solutions Company
 Unit Company of Panasonic Corporation of North America

Security Systems

Website : www.panasonic.com/security

For Customer Support : call 1.877.733.3689

Executive Office : Three Panasonic Way 2H-2, Secaucus, New Jersey 07094

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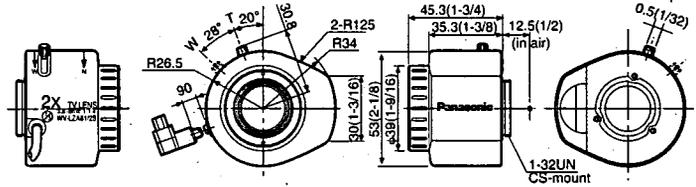
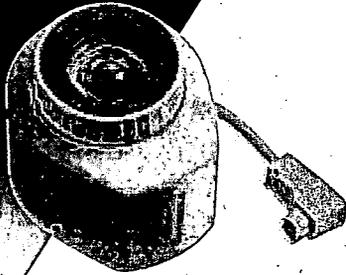
1/3-type Variable Focal Lenses

(For 1/3-type CCD Cameras)

Unit = mm (inches)

WV-LZA61/2S

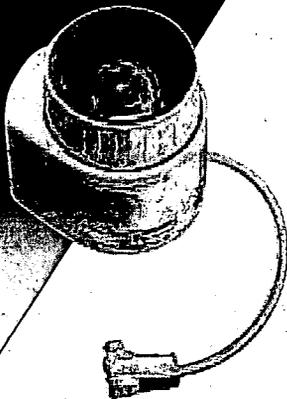
2x Variable Focal
ALC Lens



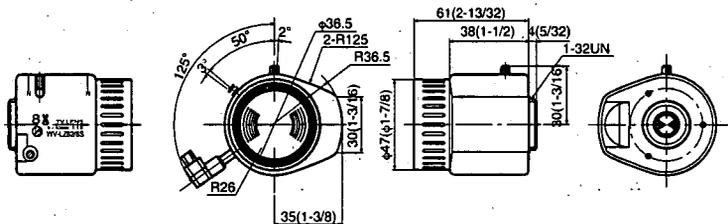
Focal Length	3.8 - 8 mm	Iris Type	Automatic
Aperture Ratio	F1.4 (Wide) to F176, close F1.8 (Tele) to F176, close	Minimum Object Distance	1.2 m (3.9 ft.) - ∞
Image Size	4.8(H) x 3.6(V) mm (ø6 mm)	Optical Filter Size	M30.5 mm, P = 0.5 mm
Angular Field of View	H 35.6°(Tele) 73.6°(Wide) V 26.6°(Tele), 53.4°(Wide)	Mount	Special C-Mount (CS-Mount, 1-32UN)
		Weight	75 g (0.17 lbs.)
		Dimensions (W x H x D)	60.5 x 53 x 45.3 mm (2-3/8" x 2-1/8" x 1-13/16")

WV-LZ62/8S

8x Variable Focal
ALC Lens



Unit = mm (inches)



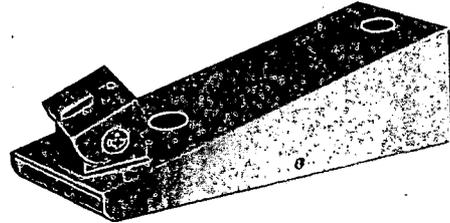
Focal Length	5 - 40 mm	Iris Type	Automatic
Aperture Ratio	F1.6 (Wide) to F176, close F1.9 (Tele) to F176, close	Minimum Object Distance	1.2 m (3.9 ft.) - ∞
Image Size	4.8(H) x 3.6(V) mm (ø6 mm)	Optical Filter Size	None
Angular Field of View	H 6.6°(Tele) 52°(Wide) V 5.0°(Tele) 39.6°(Wide)	Mount	Special C-Mount (CS-Mount, 1-32UN)
		Weight	110 g (0.24 lbs.)
		Dimensions (W x H x D)	61 x 52 x 65 mm (2-13/32" x 2-1/16" x 2-9/16")

CM1300 Mount

WALL MOUNT, CAMERA

Product Features

- Low Cost
- Wall Mount Applications
- Can Be Mounted Directly to Standard Electrical Box Using WP13 Adapter
- Cable Feedthrough Holes and Removable Bottom Cover Conceal Wiring
- "Keyhole" Mounting Slots for Easy Installation
- Manually Adjustable Head
- Accommodates Light Duty Cameras up to 25 Pounds (11.25 kg)

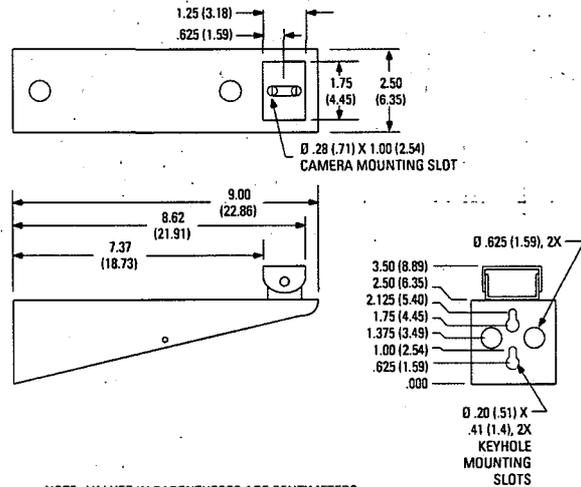


The **CM1300** is a light duty camera mount designed for indoor use and will accommodate cameras weighing up to 25 pounds (11.2 kg).

The **CM1300** is versatile in that it can be mounted directly to a wall or adapted to a standard 2 x 4-inch (5.08 x 10.16 cm) electrical box when used with the WP13 adapter.

Manufactured from steel, the **CM1300** features a manually adjustable head, "keyhole" mounting slots, feedthrough holes, and removable bottom cover.

The **CM1300** is inexpensive and easy to install.



NOTE: VALUES IN PARENTHESES ARE CENTIMETERS; ALL OTHERS ARE INCHES.



TECHNICAL SPECIFICATIONS

MODEL

CM1300 Light duty camera mount with manually adjustable head for wall mount applications

MECHANICAL

Pan Adjustment 360°
Tilt Adjustment ±65°
Mounting Method Secure to solid surface with two fasteners (minimum #10 screws recommended)

GENERAL

Construction 0.047-inch (1.19 mm) thick steel
Finish Gray polyester powder coat
Maximum Load 25 lb (11.25 kg)
Environment Indoor
Temperature Range 32° to 120°F (0° to 48.89°C)
Unit Weight
CM1300 1.28 lb (0.58 kg)
WP13 0.18 lb (0.08 kg)
Shipping Weight
CM1300 2 lb (0.9 kg)
WP13 1 lb (0.45 kg)

OPTIONAL ACCESSORIES

WP13 Wall plate for use in mounting CM1300 to a standard 2 x 4-inch (5.08 x 10.16 cm) electrical box



Pelco, Inc. Worldwide Headquarters:
3500 Pelco Way, Clovis, California 93612-5699 USA
USA & Canada Tel: (800) 289-9100 • FAX: (800) 289-9150
International Tel: +1 (559) 292-1981 • FAX: +1 (559) 348-1120
www.pelco.com

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Specifications — PIP 444, PIP 422

Video

Gain	Unity
Differential phase error	1.5° at 3.58 MHz and 4.43 MHz
Differential gain error	1.5% at 3.58 MHz and 4.43 MHz

Video input and loop-through

Number/signal type	
PIP 444	4 component video, S-video, composite video inputs 4 identical, buffered loop-throughs
PIP 422	2 component video, S-video, composite video inputs 2 identical, buffered loop-throughs
Connectors	
PIP 444	4 x 3 female BNC for inputs 4 x 3 female BNC for loop-throughs
PIP 422	2 x 3 female BNC for inputs 2 x 3 female BNC for loop-throughs
Nominal level	1 Vp-p for Y of component video and S-video 1 Vp-p for composite video 0.7 Vp-p for R-Y and B-Y of component video 0.7 V p-p for C of S-video
Minimum/maximum levels	0.3 V to 2.0 V p-p with no offset
Impedance	75 ohms
Horizontal/vertical frequency ..	NTSC 3.58, NTSC 4.43, PAL, SECAM
Resolution range	NTSC 3.58, NTSC 4.43, PAL, SECAM
Return loss	<-30 dB @ 5 MHz
DC offset (min./max.)	-0.3 V to +1.3 V
External sync (genlock)	0.3 V to 1.0 Vp-p

Video processing

Encoder	10 bit digital
Digital sampling	24 bit, 8 bits per color; 80 MHz standard
Colors	16.8 million
Anti-aliasing filtering	5 levels: 0 (off), 1, 2, 3, auto (which uses 0-3)
Detail filtering	16 levels: 0-7, 8 (no filtering), 9-15

Video output

Number/signal type	1 component video 1 S-video 1 composite video
Connectors	3 female BNC for component video 2 female BNC for S-video 1 female BNC for composite video
Nominal level	1 Vp-p for Y of component video and S-video 1 Vp-p for composite video 0.7 Vp-p for R-Y and B-Y of component video 0.7 V p-p for C of S-video
Minimum/maximum levels	0.0 V to 1.0 Vp-p
Impedance	75 ohms
DC offset	350 ±25 mV (max.) with input at 0 offset (for Y of component and S-video and for composite video) 650 ±25 mV (max.) with input at 0 offset (for R-Y and B-Y of component video and for C of S-video)

Sync

Genlock connectors (PIP 444)	1 BNC female for genlock input 1 BNC female for genlock output (terminate with 75 ohms if unused)
Standards	
Input	NTSC 3.58, NTSC 4.43, PAL, SECAM
Output	NTSC 3.58, PAL

Control/remote — processor

Serial control port	RS-232 or RS-422, 9-pin female D connector
Baud rate and protocol	115200, 38400, 19200, or 9600 (default) baud (configurable); 8 data bits; 1 stop bit; no parity
Serial control pin configurations	RS-232: 2 = TX, 3 = RX, 5 = GND RS-422: 2 = TX-, 3 = RX-, 5 = GND, 7 = Rx+, 8 = Tx+
Program control	Extron's control/configuration program for Windows® Extron's Simple Instruction Set (SIS™)

General

Power	100 VAC to 240 VAC, 50/60 Hz, 10 watts, internal, autoswitchable
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Rack mount	Yes, with included brackets
Enclosure type	Metal
Enclosure dimensions	1.75" H x 17.5" W x 8.5" D (1U high, full rack wide) 4.4 cm H x 44.4 cm W x 21.6 cm D (Depth excludes connectors and knobs. Width excludes rack ears.)
Product weight	7.0 lbs (3.2 kg)
Shipping weight	10 lbs (5 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Listings	UL, CUL
Compliances	CE, FCC Class A, VCCI, AS/NZS, ICES
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE All nominal levels are at $\pm 10\%$

NOTE Specifications are subject to change without notice.

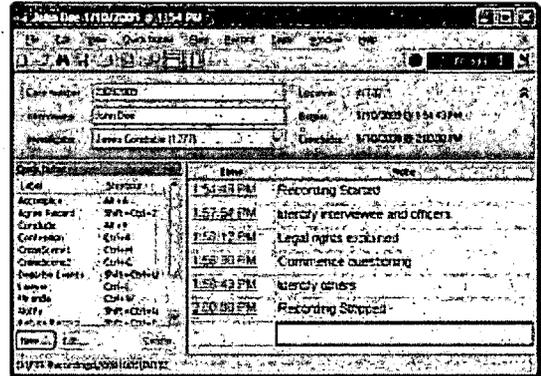
(7.51-091505-D3)

FTR Interrogator

FTR Interrogator™ is a complete digital interview room solution that enables investigators to capture, playback, annotate, save and manage audio/video recordings of custodial interrogations and interviews.

Valuable features of FTR Interrogator include:

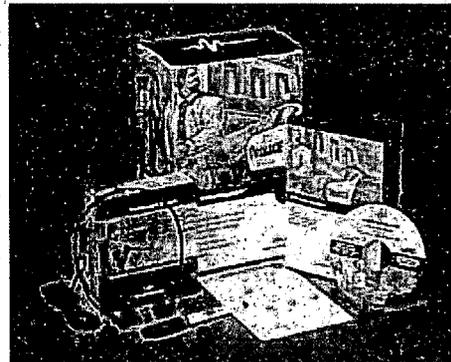
- Time-and-date watermark, embedded on each recorded frame
- Ability to create time-stamped, linked notes
- One-click access to specific segments within an interview
- Quick search & retrieval of relevant pre-recorded interviews
- Import field recordings
- Isolate/duplicate specific interview segments for review



For maximum flexibility, FTR Interrogator is available either with or without recording ability¹.

When recording with FTR Interrogator Plus, a time-and-date watermark is indicated on each recorded frame, which means that the authenticity of the recording can be verified at any time. While recording is in progress, the content can be simultaneously archived to another location. With Interrogator Plus, you can quickly achieve considerable savings in storage costs and space.

With FTR Interrogator, users can create indexed notes that are linked directly to recorded audio/video. These linked notes can be rapidly searched to locate specific words or phrases and the corresponding audio/video instantly played. Field recordings from select hand-held voice recorders² can be imported to become part of the permanent record for a particular case.



FTR Interrogator's rich, usable feature set, combined with the simplicity and versatility of its operation, makes it the perfect choice for interview rooms that require a single cost-effective solution for capturing & managing digital audio/video recordings.

¹Two options are: (1) FTR Interrogator™ Plus, which includes TheRecord Recorder - one installation per interview room and (2) FTR Interrogator™, which does NOT include TheRecord Recorder - enables investigators to search, retrieve & access recordings directly from their desk as well as import and associate any field recordings.

²Contact FTR for an up-to-date list of compatible devices.

KEY FEATURES

- Time-and-date watermark
- Linked electronic notes
- Rapid search and retrieval
- Import field recordings



ForTheRecord[™]
a Melbourne IT company

FTR Interrogator

Recommended System Requirements Version 4.3

Interrogator Recording Computer

For recording audio and large video with simultaneous playback (confidence monitoring)

Microsoft® Windows® XP Professional SP3
3.4 GHz Intel® Pentium® 4HT Processor
1024 MB memory
1024x768 High Color (16 bit) display
Windows compatible stereo sound card
CD or DVD recordable drive or network access (for archiving or long term storage)
FTR and Windows® compatible video capture card (refer to the FTR web site support section for a current list)

Interrogator Desktop Computer

For audio and large video playback

Microsoft® Windows® XP Home/Professional SP3
2.8 GHz Intel® Celeron® D 335 Processor
512 MB memory
1024x768 High Color (16 bit) display
Windows compatible stereo sound card
DVD recordable drive (for saving to TheRecord DVD format) USB port (for importing recordings)

NOTE: As with any software there are hardware and software requirements which need to be in place prior to installing and using FTR software. While this list shows the recommended system requirements, it is important to be aware that using additional programs may require a higher specification.

For a list of FTR compatible audio and video cards, please type the following address into your browser: www.fortherecord.com/compatiblecards

How FTR Interrogator helps you

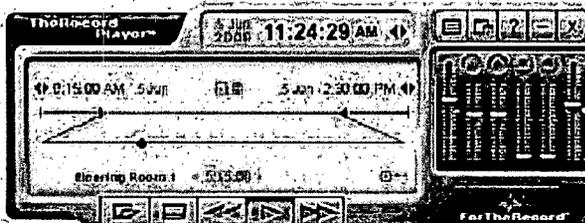
- Superior quality video and audio recordings
- Transition to smaller, lighter, longer-lasting and cost-effective digital storage media
- Easier transcription of recordings with the use of FTR's free TheRecord Player, resulting in more accurate transcripts
- Improve productivity without changing established procedures

Investigators

- Minimal training - does not require you to spend hours in a training class
- Watch your colleague conduct an interview from a supervisor's office or other location
- Search and retrieve all interview recordings directly from your desk
- Instantly access relevant, specific points in a given recording - no repeated rewinding or fast forwarding
- Easily share all or selected portions of interviews with your colleagues
- Duplicate required segments to CD or DVD
- Import field recordings and index marks, and associate them with the corresponding case - everything is now indexed and searchable

Prosecution and Defense

- Gain immediate access to interview recordings
- Quickly access specific points of interest within a long interview for a more detailed review
- Make personal linked notes about the case while reviewing audio/video
- Save valuable review time with superior quality recordings



FTR PTY LTD
Suite 7
16 Brodie Hall Drive
Technology Park
Bentley 6102
Perth, Western Australia
tel 61 8.9470.4366
fax 61 8.9470.4310

FTR LIMITED
2700 North Central Avenue
Suite 810
Phoenix, AZ 85004
toll free 877.650.0958
tel 602.650.0958
fax 602.385.4990
www.fortherecord.com



ForTheRecord
a Melbourne IT company

Specifications — MTP SW6

Video

Gain Unity

Video input — see MTP Series transmitter specifications

Number/signal type..... 6 sets of proprietary analog signals
Connectors 6 female RJ-45

Video output — See MTP Series receiver specifications

Number/signal type..... 1 set of proprietary analog signals
Connectors 1 female RJ-45
Maximum resolution 1920x1200

NOTE Refer to the user's manual for the maximum distances recommended for specific resolutions.

Audio

Number/signal type..... 1 set of proprietary analog signals
Connectors 1 female RJ-45
Gain Unbalanced output: 0 dB; balanced output: +6 dB
Frequency response 20 Hz to 20 kHz, ± 1 dB
THD + Noise 0.15% @ 1 kHz, 0.3% @ 20 kHz at nominal level
S/N >70 dB at maximum output (unweighted)
CMRR..... >43 dB @ 20 Hz to 20 kHz

Audio input — see MTP Series transmitter specifications

Number/signal type..... 6 sets of proprietary analog signals
Connectors 6 female RJ-45

NOTE $0\text{ dBu} = 0.775\text{ Vrms}$, $0\text{ dBV} = 1\text{ Vrms}$, $0\text{ dBV} \approx 2\text{ dBu}$

Audio output — local

Number/signal type..... 1 dual mono, balanced/unbalanced
Connectors (1) 3.5 mm captive screw connector, 5 pole
Impedance..... 50 ohms unbalanced, 100 ohms balanced
Gain error ± 1 dB channel to channel
Maximum level (Hi-Z) >+18 dBu, balanced or unbalanced at 1% THD+N
Maximum level (600 ohm) >+15 dBm, balanced or unbalanced at 1% THD+N

Audio output — see MTP Series receiver specifications

Number/signal type..... 1 set of proprietary analog signals
Connectors 1 female RJ-45

Control/remote— switcher host control

Serial control port..... 1 RS-232, 9-pin female D connector
Baud rate and protocol..... 9600 baud; 8 data bits, 1 stop bit, no parity
Serial control pin configuration .. 2 = TX, 3 = RX, 5 = GND
Program control..... Extron's control/configuration program for Windows®
Extron's Simple Instruction Set (SIS™)

Control/remote — external device (pass-through)

Serial control port..... RS-232, 3.5 mm captive screw connector, 5 pole (uses 3 poles)
Baud rate and protocol..... Up to 38400 baud; 5-8 data bits; 1 or 2 stop bits; odd, even, or no parity;
XON, XOFF, or no flow control

NOTE Protocol is mirrored between the switcher and the receiver.

Serial control pin configuration .. 1 = TX, 2 = RX, 3 = GND

Specifications — MTP SW6, cont'd

General

Recommended cable type	CAT5/5E/6 (shielded or unshielded)
External power supply	100 VAC to 240 VAC, 50/60 Hz, external; to 12 VDC, 2 A, regulated
Power input requirements	12 VDC, 0.8 A
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	Convection, vents on right and left sides
Mounting	
Rack mount	Yes, with optional 1U, 9.5" deep rack shelf (RSU 129, #60-190-01 or RSB 129, 60-604-01) or 1U, 6" deep rack shelf (RSU 126, #60-190-10 or RSB 126, 60-604-10)
Furniture mount	Yes, with optional Under-Desk Mounting Kit (MBU 125, #70-077-01)
Enclosure type	Metal
Enclosure dimensions	1.7" H x 8.7" W x 6.0" D (1U high, half rack wide) (4.3 cm H x 22.1 cm W x 15.2 cm D) (Depth excludes connector and knob.)
Product weight	1.2 lbs (0.5 kg)
Shipping weight	3 lbs (2 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Regulatory compliance	
Safety	CE, CUL, UL
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE All nominal levels are at $\pm 10\%$.

NOTE Specifications are subject to change without notice.

7.6-100908-D7

Specifications — MTP 15HD A Series

Video

Gain Unity
Number/signal type 1 set of proprietary analog signals

Connectors

MTP R 15HD RSA D 1 female RJ-45 on a pigtail
All other models 1 female RJ-45

Video input and loop through — transmitters

Number/signal type

MTP T 15HD A 1 analog RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, or composite video
1 buffered RGBHV, RGBS, RGsB, RsGsBs local monitor loop through (includes ID bits)
MTP T 15HD A AAP, MTP T 15HD A D, MTP T 15HD A WM
1 analog RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, or composite video

Connectors

MTP T 15HD A 2 female 15-pin HD
All other transmitters 1 female 15-pin HD

Nominal level 1 Vp-p for Y of component video and S-video, and for composite video
0.7 Vp-p for RGB and for R-Y and B-Y of component video
0.3 Vp-p for C of S-video

Minimum/maximum levels 0.3 V to 1.45 Vp-p

Impedance 75 ohms

Horizontal frequency 15 kHz to 130 kHz

Vertical frequency 30 Hz to 150 Hz

Return loss <-30 dB @ 5 MHz

DC offset (max. allowable) 250 mV

Video output — receivers (MTP RL 15HD A, MTP RL 15HD A SEQ, MTP R 15HD RSA D)

Number/signal type

MTP R 15HD RSA D 1 analog VGA-UXGA RGBHV, RGBS, RGsB, RsGsBs, HD component video, component video, S-video, or composite video
All other receivers 1 set of proprietary analog signals
1 analog RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, or composite video

Connectors

MTP R 15HD RSA D 1 female 15-pin HD
All other receivers 1 female RJ-45
1 female 15-pin HD

Nominal level 1 Vp-p for Y of component video and S-video, and for composite video
0.7 Vp-p for RGB and for R-Y and B-Y of component video
0.3 Vp-p for C of S-video

Minimum/maximum levels 0.3 V to 1.45 Vp-p

Impedance 75 ohms

Return loss <-30 dB @ 5 MHz

DC offset

MTP R 15HD RSA D <±20 mV with input at 0 offset
All other receivers <±35 mV with input at 0 offset

Skew compensation 62 ns

Maximum resolution Up to 1920x1200 or 2048x1080 or 1080p at 300'
Up to 1024x768 at 600'

NOTE Refer to the user's manual for the maximum distances recommended for specific resolutions.

Specifications — MTP 15HD A Series, cont'd

Sync

Input type (transmitters).....	RGBHV, RGBS, RGsB, RsGsBs
Output type (receivers)	RGBHV, RGBS, RGsB, RsGsBs
Standards.....	NTSC 3.58, NTSC 4.43, PAL, SECAM
Input level (transmitter).....	3.5 V to 5.5 Vp-p, unterminated
Output level (receivers).....	4.0 V to 5.0 Vp-p, unterminated
Input impedance (transmitter)....	573 ohms $\pm 5\%$
Output impedance (receivers).....	110 ohms
Max. input voltage (transmitter).	5.5 V p-p
Polarity	
Transmitter	Positive or negative (follows input polarity)
Receivers.....	Positive or negative (switch-selectable)

Audio — all models

Number/signal type.....	1 set of proprietary analog signals
Connectors	1 female RJ-45
Gain.....	Unbalanced output: 0 dB; balanced output: +6 dB
Frequency response	20 Hz to 20 kHz, ± 1 dB
THD + Noise.....	0.15% @ 1 kHz, 0.3% @ 20 kHz at nominal level
S/N.....	>70 dB at maximum output (unweighted)
Stereo channel separation	
MTP T 15HD A AAP, MTP T 15HD A D, MTP T 15HD A WM	
	>60 dB @ 1 kHz
CMRR.....	>43 dB @ 20 Hz to 20 kHz

Audio input — transmitters

Number/signal type.....	1 stereo, unbalanced
Connectors	(1) 3.5 mm mini stereo jack
Impedance.....	>10k ohms, unbalanced
Nominal level	+4 dBu (1.23 Vrms), -10 dBV (316 mVrms)
Maximum level.....	+18 dBu, (unbalanced) at 1% THD+N

NOTE 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV \approx 2 dBu

Audio output — MTP T 15HD A AAP, MTP T 15HD A D, MTP T 15HD A WM local stereo output

Number/signal type.....	1 stereo, balanced/unbalanced
Connectors	(1) 3.5 mm direct insertion captive screw connector, 5 pole
Impedance.....	50 ohms unbalanced, 100 ohms balanced
Gain error	± 1 dB channel to channel
Maximum level (Hi-Z)	>+23 dBu, balanced or unbalanced at 1% THD+N
Maximum level (600 ohm).....	>+17 dBm, balanced or unbalanced at 1% THD+N

Audio output — receivers

Number/signal type	
MTP R 15HD RSA D.....	1 mono, balanced/unbalanced
All other receivers.....	2 mono, balanced/unbalanced
Connectors	
MTP R 15HD RSA D.....	(1) 3.5 mm captive screw connector, 5 pole (uses 3 poles)
All other receivers.....	(1) 3.5 mm captive screw connector, 5 pole
Impedance.....	50 ohms unbalanced, 100 ohms balanced
Gain error	MTP R 15HD RSA D: ± 1 dB channel to channel

Nominal level	+4 dBu (1.23 Vrms), -10 dBV (316 mVrms)
Maximum level	
MTP R 15HD RSA D	14 dBm, unbalanced at 1% THD+N
All other receivers	+18 dBu, unbalanced at 1% THD+N

Control/remote — external device (pass-through, unidirectional or bidirectional) — MTP R 15HD RSA D only

Serial control port input/output.	1 set of proprietary signals on a female RJ-45 jack
Serial control port output/input.	RS-232 via 3 poles of a 3.5 mm captive screw connector, 5 pole
Baud rates.....	Up to 38400 bps at up to 1000' (304.8 m) (Higher data rates and distances are possible. Performance varies based on baud rate and cable length.)
Protocol.....	Data bits = 5 - 8 Stop bits = 1 or 2 Parity = odd, even, none Flow control = XON, XOFF, none

NOTE Protocol is mirrored between the transmitter and the receiver.

Serial control pin configuration .. Captive screw connector: 1 = TX, 2 = RX, 3 = GND

General

Recommended cable type.....	CAT 5/5e/6 (shielded or unshielded)
External power supply	100 VAC to 240 VAC, 50-60 Hz, external; to 12 VDC, 1 A, regulated
Power input requirements	12 VDC, 0.5 A
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	Convection, no vents

Mounting

Rack mount

MTP T 15HD A, MTP RL 15HD A, MTP RL 15HD A SEQ
Yes, with optional rack shelf mounting kit

Furniture mount

MTP T 15HD A, MTP RL 15HD A, MTP RL 15HD A SEQ
Yes, with optional under-desk mounting kit

MTP T 15HD A AAP. Wall or furniture mountable with optional AAP mounting faceplates that have double space high AAP opening

MTP T 15HD A D, MTP R 15HD RSA D
Wall or furniture mountable in a Decora®-style opening with a standard electrical wall box or Decora size mud ring

MTP T 15HD A WM.. Wall or furniture mountable in a 1-gang opening

Pole mount

MTP T 15HD A, MTP RL 15HD A, MTP RL 15HD A SEQ
Yes, with optional pole mounting kit

Enclosure type

Metal

Specifications — MTP 15HD A Series, cont'd

Enclosure dimensions

MTP T 15HD A, MTP RL 15HD A, MTP RL 15HD A SEQ
1.7" H x 4.3" W x 3.0" D (1U high, quarter rack wide)
4.3 cm H x 10.9 cm W x 7.6 cm D
(Depth excludes connectors.)

Faceplates

MTP T 15HD A AAP. 1.4" H x 3.5" W x 0.1" D (3.6 cm H x 8.9 cm W x 0.3 cm D)
(double space high AAP plate)

MTP T 15HD A D, MTP R 15HD RSA D
2.6" H* x 1.3" W x 0.1" D (6.6 cm H* x 3.3 cm W x 0.3 cm D)
(Fits the opening in a 1 gang, 4.4" H x 2.7" W Decora-style wallplate. Depth
excludes connectors.)
*Overall height is 4.1" (10.4 cm) including mounting tabs.

MTP T 15HD A WM. 4.5" H x 2.8" W x 0.1" D (11.4 cm H x 7.1 cm W x 0.3 cm D) (1 gang)

Device

MTP R 15HD RSA D. 2.75" H x 1.65" W x 1.3" D
(7.0 cm H x 4.2 cm W x 3.3 cm D)
(Depth excludes connectors.)

Other AAP, D, and WM models.....2.7" H x 1.4" W x 1.4" D (6.9 cm H x 3.6 cm W x 3.6 cm D)
(Depth excludes connectors.)

Product weight 0.4 lbs (0.2 kg)

Shipping weight 2 lbs (1 kg)

Vibration..... ISTA 1A in carton (International Safe Transit Association)

Regulatory compliance

Safety..... CE, c-UL, UL

EMI/EMC CE, C-tick, FCC Class A, ICES, VCCI

MTBF..... 30,000 hours

Warranty..... 3 years parts and labor

NOTE All nominal levels are at $\pm 10\%$.

NOTE Specifications are subject to change without notice.

7.6-111909-D15

Specifications — MTP 15HD RS Series

Video

Gain	Unity
Number/signal type.....	1 set of proprietary analog signals
Connectors	
MTP R 15HD RSA D.....	1 female RJ-45 on a pigtail
All other models.....	1 female RJ-45

Video input and loop-through — transmitter (MTP T 15HD RS)

Number/signal type.....	1 analog RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, or composite video 1 buffered RGBHV, RGBS, RGsB, RsGsBs local monitor loop through (includes ID bits)
Connectors	2 female 15-pin HD
Nominal level	1 Vp-p for Y of component video and S-video, and for composite video 0.7 Vp-p for RGB and for R-Y and B-Y of component video 0.3 Vp-p for C of S-video
Minimum/maximum levels.....	0.3 V to 1.45 Vp-p
Impedance.....	75 ohms
Horizontal frequency.....	15 kHz to 130 kHz
Vertical frequency.....	30 Hz to 150 Hz
Return loss.....	<-30 dB @ 5 MHz
DC offset (max. allowable).....	250 mV

Video output — receivers (MTP RL 15HD RS, MTP RL 15HD RS SEQ, MTP R 15HD RSA D)

Number/signal type	
MTP R 15HD RSA D.....	1 analog VGA-UXGA RGBHV, RGBS, RGsB; RsGsBs, HD component video, component video, S-video, or composite video
All other receivers.....	1 set of proprietary analog signals 1 analog RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, or composite video
Connectors	
MTP R 15HD RSA D.....	1 female 15-pin HD
All other receivers.....	1 female RJ-45 1 female 15-pin HD
Nominal level	1 Vp-p for Y of component video and S-video, and for composite video 0.7 Vp-p for RGB and for R-Y and B-Y of component video 0.3 Vp-p for C of S-video
Minimum/maximum levels.....	0.3 V to 1.45 Vp-p
Impedance.....	75 ohms
Return loss.....	<-30 dB @ 5 MHz
DC offset.....	<±20 mV with input at 0 offset
Skew compensation	62 ns
Maximum resolution	Up to 1920x1200 or 2048x1080 or 1080p at 300' Up to 1024x768 at 600'

NOTE Refer to the user's manual for the maximum distances recommended for specific resolutions.

Sync

Input type (transmitter).....	RGBHV, RGBS, RGsB, RsGsBs
Output type (receivers)	RGBHV, RGBS, RGsB, RsGsBs
Standards.....	NTSC 3.58, NTSC 4.43, PAL, SECAM
Input level (transmitter).....	3.5 V to 5.5 Vp-p, unterminated
Output level (receivers).....	4.0 V to 5.0 Vp-p, unterminated

Specifications — MTP 15HD RS Series, cont'd

Input impedance	510 ohms
Output impedance	110 ohms
Max. input voltage	5.5 Vp-p
Polarity	
Transmitter	Positive or negative (follows input polarity)
Receivers	Positive or negative (switch selectable)

Control/remote — external device (pass-through, unidirectional or bidirectional)

Serial control port input/output	
MTP T 15HD RS	RS-232 via (1) 3.5 mm, 3 pole captive screw connector
Receivers	1 set of proprietary signals on a female RJ-45 jack
Serial control port output/input	
MTP T 15HD RS	1 set of proprietary signals on a female RJ-45 jack
MTP R 15HD RSA D	RS-232 via 3 poles of a 3.5 mm captive screw connector, 5 pole
All other receivers	RS-232 via a 3.5 mm, 3 pole captive screw connector

Baud rates	
MTP R 15HD RSA D	Up to 38400 bps at up to 1000' (304.8 m) (Higher data rates and distances are possible. Performance varies based on baud rate and cable length.)
All other models	Up to 38400 bps at up to 600' (183 m) (Higher data rates and distances are possible. Performance varies based on baud rate and cable length.)
Protocol	Data bits = 5 - 8 Stop bits = 1 or 2 Parity = odd, even, none Flow control = XON, XOFF, none

NOTE Protocol is mirrored between the transmitter and the receiver.

Serial control pin configuration .. Captive screw connectors: 1 = TX, 2 = RX, 3 = GND

General

Recommended cable type	CAT 5/5e/6 (shielded or unshielded)
External power supply	100 VAC to 240 VAC, 50-60 Hz, external; to 12 VDC, 1 A, regulated
Power input requirements	12 VDC, 0.5 A
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	Convection, no vents
Mounting	
MTP R 15HD RSA D	
Furniture mount	Yes, using a standard electrical wall box or Decora® size mud ring
All other models	
Rack mount	Yes, with optional 1U deep rack shelf
Furniture mount	Yes, with optional mini under-desk mounting kit
Pole mount	Yes, with optional pole mounting kit
Enclosure type	Metal

Enclosure dimensions

MTP R 15HD RSA D

Faceplate..... 2.6" H* x 1.3" W x 0.24" D
(6.6 cm H* x 3.3 cm W x 0.5 cm D)
*Height is 3.8" (9.7 cm) including mounting tabs.
(Fits the opening in a 1 gang, 4.4" H x 2.7" W Decora®-style wallplate. Depth
excludes connectors.)

Device 2.75" H x 1.65" W x 1.3" D
(7.0 cm H x 4.2 cm W x 3.3 cm D)
(Depth excludes connectors.)

All other models..... 1.7" H x 4.3" W x 3.0" D (1U high, quarter rack wide)
(4.3 cm H x 10.9 cm W x 7.6 cm D)
(Depth excludes connectors.)

Product weight 0.4 lbs (0.2 kg)

Shipping weight 2 lbs (1 kg)

Vibration..... ISTA 1A in carton (International Safe Transit Association)

Regulatory compliance

Safety..... CE, c-UL, UL

EMI/EMC CE, C-tick, FCC Class A, ICES, VCCI

MTBF..... 30,000 hours

Warranty..... 3 years parts and labor

NOTE All nominal levels are at $\pm 10\%$.

NOTE Specifications are subject to change without notice.

7.6-111909-D9

TPS-6L

Isys™ 5.7" Wall Mount Touchpanel

The Isys TPS-6L Wall Mount Touchpanel delivers high-end style and performance in a compact, cost-effective flush mount design. Featuring a bright, beautiful, high-contrast 5.7" color touchscreen with 16-bit Isys graphics, 640 x 480 resolution, and single video window display, the TPS-6L delivers a world of control capability yet leaves a very small footprint. The addition of 12 optional pushbuttons provides quick access to commonly used functions.

Crestron touchpanels offer an ideal user-interface for controlling everything from basic audio distribution and lighting to complete home automation and multimedia presentation, providing a wide-open canvas for the creation of custom control screens perfectly tailored to the needs of the end-user. Touchpanels do away with piles of remote controls, cryptic front panels, and cluttered wall switches, affording true "one-touch" control over a broad range of complex devices and systems.

Isys™ Color Touchscreen

Isys power and beauty are infused throughout the entire Crestron touchpanel lineup. Under the hood, the Isys engine combines a 32-bit Freescale ColdFire® microprocessor with an ingenious and ultra efficient operating system to produce astonishing full-color graphics and high-res images with lightning-fast performance. Dynamic graphics and text capability enable the display of all kinds of useful data and alluring eye candy—from audio settings, satellite radio channels, and lighting levels—to changing icons, photos, and logos—to digital media playlists complete with album cover art.

Crestron exclusive DNav and Synapse™ technologies enable system programmers to produce amazing graphics faster and easier using advanced dynamic control menus and 3D effects. Additional capabilities like animations, multimode objects, PNG translucency, and full-motion video enhance the palette for creating GUIs that are both eye-catching and easy to use.

Full-Motion Video

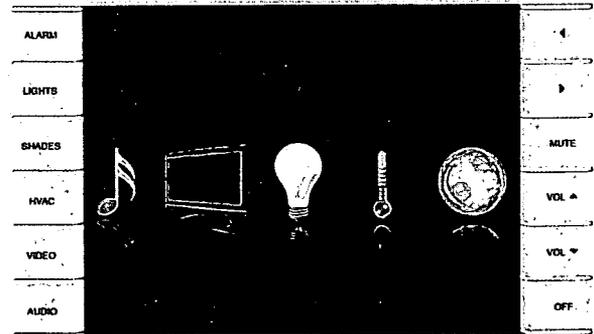
The TPS-6L can display full-motion video from an external source, providing an exceptional utility for viewing security cameras and other video signals on the touchscreen display. The video image is fully scalable for viewing in any sized window or full screen. The choice of balanced or unbalanced composite inputs allows compatibility with both conventional coaxial and Crestron Home Balanced AV distribution systems.

Audio Features

Customized WAV audio files can be loaded on the touchpanel to add dimension to its touchscreen graphics using personalized sounds, button feedback, and voice prompts. A speaker option can be added for amplification of external AV sources, and to support programmable intercom functionality in combination with the built-in microphone.

Crestron Home® CAT5 AV

The TPS-6L is ideal for use with AV distribution and intercom systems of all sizes. Its balanced audio and video connections make installation easy and affordable using inexpensive CAT5 type wire and our popular CH CAT5 Balanced AV distribution switchers. A single balanced video input accepts signals from composite video sources over wiring distances of up to 750 feet, while balanced audio connections are included to accept incoming stereo program audio and intercom signals, and to output audio from the internal microphone. Connection to conventional coaxial video and audio systems is also supported.



Pushbutton Options

The TPS-6L features a faceplate containing 12 programmable "hard key" pushbuttons, elegantly trimmed by illuminated button dividers. Integral to the faceplate, the pushbuttons are positioned along the left and right edges of the touchscreen, making it possible to align dynamically changing text and graphics onscreen beside the pushbuttons to support context-sensitive menu functions such as digital media titles, channels, or lighting presets. Custom engraving of the buttons is available, with a choice of solid or backlit text. A plain no-button faceplate is also included, allowing a very clean appearance with no pushbuttons.

Light Sensor

A light sensor is built into the TPS-6L to automatically adjust the display brightness for optimal visibility under varying light conditions.

High-Speed Connectivity

Both Cresnet and high-speed Ethernet are standard on the TPS-6L, providing for easy network integration and seamless communications with Crestron control systems.

Versatile Flush-Mount Design

The TPS-6L is designed for easy flush-mount installation in a wall, lectern or similar flat surface. Mounting clips furnished with the TPS-6L facilitate a clean installation in drywall and many furniture applications. Additional mounting options are available separately including optional back box and 19-inch rack mount kit.

> 5.7" active matrix color touchscreen display

> 16-bit Isys™ graphics | 640 x 480 resolution

> DNav dynamic menu objects

> Synapse Image Rendering Algorithm

> Single full-motion, fully-scalable video window

TPS-6L Isys™ 5.7" Wall Mount Touchpanel

- > Amplified speaker (sold separately) and microphone
- > Includes faceplate with 12 "hard key" pushbuttons
- > Button engraving available as solid or backlit text
- > No-button blank faceplate also provided
- > WAV file audio feedback | Built-in light sensor
- > Crestron Home® CAT5 AV connectivity
- > High-speed Ethernet and Cresnet® communications
- > Wall, lectern, and rack mounting options
- > Available in almond, black, or white

SPECIFICATIONS

Touchscreen Display

Display Type : TFT Active matrix color LCD
Size: 5.7 inch (145 mm) diagonal
Aspect Ratio: 4:3 SVGA
Resolution: 640 x 480 pixels
Brightness: 400 nits (cd/m²)
Contrast: 400:1
Color Depth: 18-bit, 256k colors
Illumination: Backlit fluorescent
Viewing Angle: ±80° horizontal, +80°/-70° vertical
Touchscreen: Resistive membrane

Buttons

Hard Keys: (12) Optional engravable pushbuttons with available backlighting
Reset: (1) Miniature pushbutton behind faceplate, used to reset the touchpanel.

Light Sensor

Programmable photosensor for automatic backlight dimming

Processor

CPU: 32-bit Freescale ColdFire® Microprocessor

Memory

SDRAM: 32 MB
Flash: 32 MB
Maximum Project Size: 28 MB

Graphic Engine

Isys engine; 16-bit non-palette graphics; 65,536 colors; Synapse image rendering algorithm; multi-mode objects, DNav dynamic menu objects, dynamic graphics, PNG translucency, full-motion (60 fps) animation, color key video windowing

Communications

Ethernet: 10BaseT/100BaseTX, auto-switching, auto-negotiating, auto-discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP
Cresnet: Supports Cresnet slave mode

Video

Signal Types: Composite
Formats: NTSC 480i or PAL 576i

Color Depth: 18-bit; 262,144 colors
Windowing: Single-window, deinterlaced and scalable up to full-screen

Audio

Hardware Features: Built-in microphone, internal speaker for WAV/keyclick, optional amplified speaker for program/intercom, internal volume & tone control

Audio Feedback (WAV): 8-bit PCM, mono, 8 kHz sampling rate

Amplification: 0.75 Watt for internal WAV/keyclick speaker, 6 Watts for optional program/intercom speaker (requires SPK-6L speaker kit, sold separately)

Connectors

LAN: (1) 8-wire RJ45 with 2 LED indicators;
10/100BaseT Ethernet port;
Green LED indicates link status;
Yellow LED indicates Ethernet activity
NET: (1) 4-pin 3.5mm detachable terminal block;
Cresnet slave port, connects to Cresnet control network
MIC OUT: (1) 3-pin 3.5mm detachable terminal block;
Balanced mono line-level output;
Output Impedance: 600 ohms balanced, 300 ohms unbalanced;
Maximum Output Level: 2 V_{RMS} balanced, 1 V_{RMS} unbalanced
AUDIO INPUT: (1) 5-pin 3.5mm detachable terminal block;
Balanced/unbalanced stereo (summed to mono) line-level input (requires SPK-6L speaker kit, sold separately);
Input Impedance: 10k ohms balanced, 5k ohms unbalanced;
Maximum Input Level: 2 V_{RMS} balanced/unbalanced;
Normally connects to a Crestron CAT5 balanced audio source via CresCAT cable;
Maximum CAT5 Cable Length: 1000 feet
NTSC/PAL INPUT: (1) 5-pin 3.5mm detachable terminal block;
Balanced (CAT5) or unbalanced (coaxial) composite video inputs;
Formats: NTSC 480i or PAL 576i;
Input Impedance: 100 ohms balanced, 75 ohms unbalanced;
Input Level: 1 V_{P-P} nominal;
Balanced input normally connects to a Crestron CAT5 balanced video source via CresCAT cable;
Maximum CAT5 Cable Length: 750 feet
Speaker Option: 6-pin (2x3) rectangular connector;
Connects to optional SPK-6L speaker kit (sold separately)

Power Requirements

Cresnet Power Usage: 15 Watts (0.625 Amp @ 24 Volts DC)

Environmental

Temperature: 32° to 104°F (0° to 40°C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: 51 BTU/hr

Enclosure

Construction: Injection-molded plastic, flush-mountable using (4) clips provided (additional mounting kits available)
Faceplate: Injection-molded plastic, button and no-button faceplates included, optional solid or backlit button engraving sold separately

Dimensions

Height: 5.60 in (143 mm)
Width: 7.40 in (188 mm)
Depth: 2.28 in (58 mm);
3.58 in (91 mm) with SPK-6L speaker kit

TPS-6L Isys™ 5.7" Wall Mount Touchpanel

Weight

.52 lb (0.69 kg)

Available Models

TPS-6LA-T: Isys 5.7" Wall Mount Touchpanel, Almond, Textured

TPS-6LB-T: Isys 5.7" Wall Mount Touchpanel, Black

TPS-6LW-T: Isys 5.7" Wall Mount Touchpanel, White, Textured

Included Accessories

TPS-6L-FPA-T_BLANK Engravable Faceplate w/Buttons (blank), Almond
[Included Quantity for TPS-6LA-T: 1]

TPS-6L-FPB-T_BLANK Engravable Faceplate w/Buttons (blank), Black
[Included Quantity for TPS-6LB-T: 1]

TPS-6L-FPW-T_BLANK Engravable Faceplate w/Buttons (blank), White
[Included Quantity for TPS-6LW-T: 1]

TPS-6L-FPA-T-NB No-Button Faceplate, Almond [Included Quantity for
TPS-6LA-T: 1]

TPS-6L-FPB-T-NB No-Button Faceplate, Black [Included Quantity for
TPS-6LB-T: 1]

TPS-6L-FPW-T-NB No-Button Faceplate, White [Included Quantity for
TPS-6LW-T: 1]

Available Accessories

SPK-6L: Speaker Kit

TPS-6L-FPA-T_ENGRAVED: Engravable Faceplate w/Buttons (engraved),
Almond

TPS-6L-FPB-T_ENGRAVED: Engravable Faceplate w/Buttons (engraved),
Black

TPS-6L-FPW-T_ENGRAVED: Engravable Faceplate w/Buttons (engraved),
White

TPS-6L-FPA-T_BLANK: Engravable Faceplate w/Buttons (blank), Almond

TPS-6L-FPB-T_BLANK: Engravable Faceplate w/Buttons (blank), Black

TPS-6L-FPW-T_BLANK: Engravable Faceplate w/Buttons (blank), White

TPS-6L-FPA-T-NB: No-Button Faceplate, Almond

TPS-6L-FPB-T-NB: No-Button Faceplate, Black

TPS-6L-FPW-T-NB: No-Button Faceplate, White

TPS-6L-FP-BKLT-A-T_ENGRAVED: Backlit Engravable Faceplate w/Buttons
(engraved), Almond

TPS-6L-FP-BKLT-B-T_ENGRAVED: Backlit Engravable Faceplate w/Buttons
(engraved), Black

TPS-6L-FP-BKLT-W-T_ENGRAVED: Backlit Engravable Faceplate w/Buttons
(engraved), White

TPS-6L-FP-BKLT-A-T_BLANK: Backlit Engravable Faceplate w/Buttons
(blank), Almond

TPS-6L-FP-BKLT-B-T_BLANK: Backlit Engravable Faceplate w/Buttons
(blank), Black

TPS-6L-FP-BKLT-W-T_BLANK: Backlit Engravable Faceplate w/Buttons
(blank), White

BB-6L: Pre-Construction Wall Mount Back Box

PMK-6L: Pre-Construction Wall Mount Kit

TMK-6L: Trim Ring for BB-6L and PMK-6L

MMK-6L: Mud Ring for BB-6L and PMK-6L

WMKT-6L: Lectern or Post-Construction Wall Mount Kit with Trim Ring

WMKM-6L: Post-Construction Wall Mount Kit with Mud Ring

WMKB-6L: 10 sets Replacement Mounting Clips

RMK-6L: Rack Mount Kit

CRESCAT-D-NP-SP500: Crestron Home® CAT5 AV Cable, 2x CAT5e &
Cresnet, non-plenum, 500 ft spool

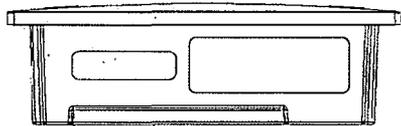
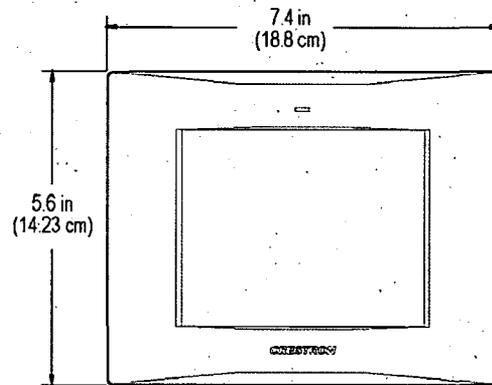
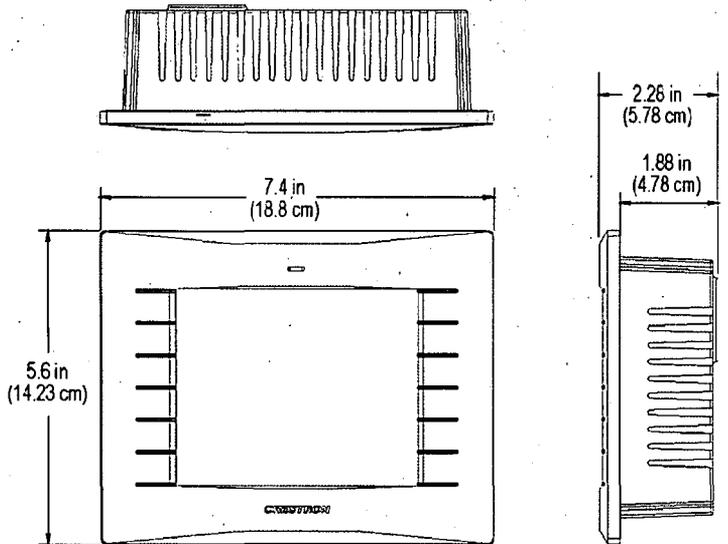
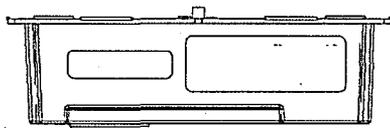
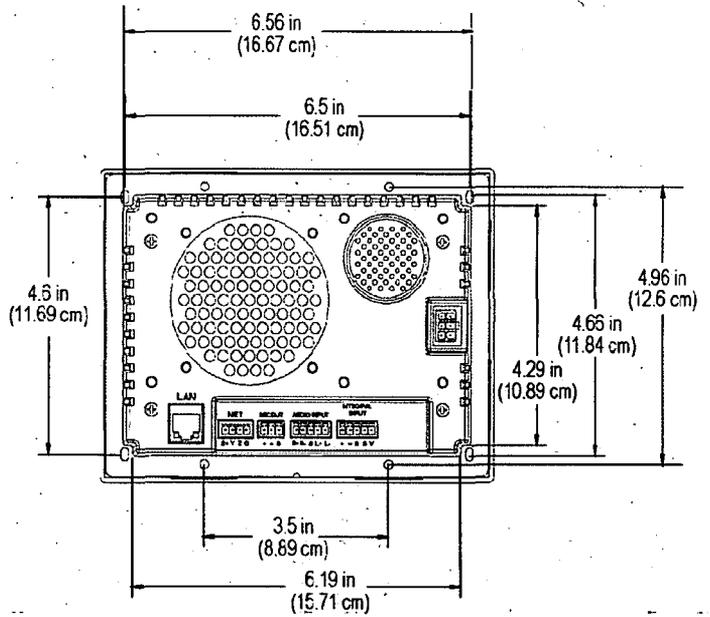
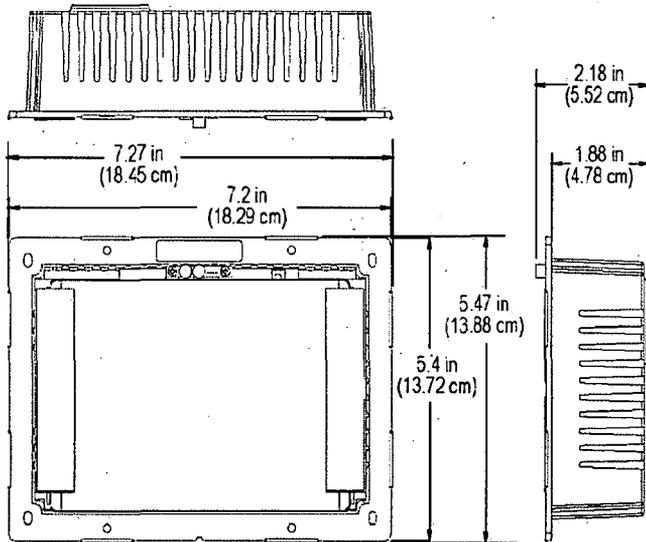
CRESCAT-NP-TL-SP500: Cresnet® Control Cable, non-plenum, teal, 500 ft
spool

CRESCAT-NP-TL-SP1000: Cresnet® Control Cable, non-plenum, teal, 1000
ft spool

CRESCAT-NP-TL-B250: Cresnet® Control Cable, non-plenum, teal, 250 ft

CRESCAT-NP-TL-SP1000: Cresnet® "High-Power" Control Cable, non-
plenum, teal, 1000 ft spool

TPS-6L Isys™ 5.7" Wall Mount Touchpanel



TPS-6

Isys™ 5.7" Tilt Touchpanel

The Isys™ TPS-6 Tilt Touchpanel delivers high-end style and performance in a striking tabletop design. Sleek and compact, the TPS-6 does away with piles of remotes and cryptic control panels, affording true "one-touch" control over a broad range of complex devices and systems. Featuring a bright, beautiful, high-contrast color touchscreen, and a smart array of backlit tactile pushbuttons⁽¹⁾, the TPS-6 offers an ideal user-interface for controlling multimedia presentations, home automation, and a host of other uses.

Isys™ Color Touchscreen

The TPS-6 provides a wide open canvas for the creation of custom control screens tailored to each unique application. Its brilliant 5.7" active-matrix display and powerful Isys engine combine to produce stunning 16-bit color graphics with extreme versatility and lightning-fast performance. Dynamic graphics and text capability enable the display of all kinds of useful data and alluring eye candy—from audio settings, TV channels, and lighting levels—to changing icons, photos, and logos—to digital media playlists complete with album cover art.

Crestron exclusive DNav and Synapse™ technologies enable system programmers to produce amazing graphics faster and easier using advanced dynamic control menus and 3D effects. Additional capabilities like animations, multimode objects, PNG translucency, and full-motion video⁽²⁾ enhance the palette for creating GUIs that are both eye-catching and easy to use.

Tactile Pushbuttons

In addition to its touchscreen, the TPS-6 features illuminated tactile pushbuttons for quick access to volume adjustment, channel selection, and on-screen menu navigation functions. Eight additional pushbuttons, elegantly trimmed by illuminated button dividers, flank the edges of the touchscreen to support additional programmable functions.

High-quality backlit laser-engraving lends a crisp, legible appearance to button text in both darkened and fully lit rooms⁽¹⁾. The pushbuttons come pre-engraved with labeling suited to a typical home theater or multimedia presentation application. If needed, customized engraving can be attained simply using Crestron Engraver software. A no-button front bezel is also included with the TPS-6, which may be installed in place of the button bezel for a very clean appearance with no front panel pushbuttons.

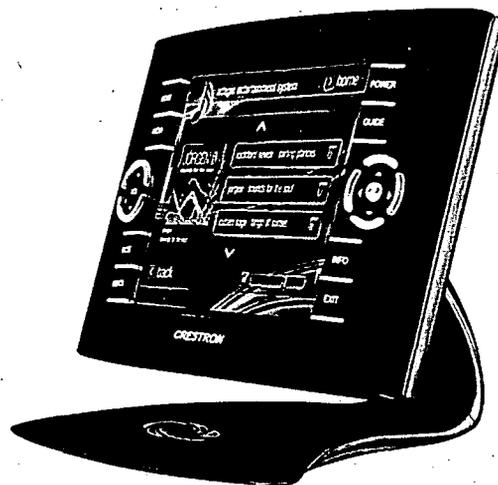
Two additional "trigger" style buttons are positioned on top of the TPS-6 for easy control of the display brightness and other programmable functions.

Full-Motion Video

The TPS-6 displays full-motion video, providing the ability to monitor a security camera, or preview a DVD or television channel, right on the touchscreen display. The video image is fully scalable for viewing in any sized window or full screen. The choice of balanced or unbalanced composite inputs allows compatibility with both conventional coaxial and Crestron Home® Balanced AV distribution systems.

TableTop Tilt Base

With its sleek and innovative tilting base, the TPS-6 functions as a stylish tabletop tilt touchpanel, providing full-time wired



communications and video capability. Both high-speed Ethernet and Cresnet connectivity are available. The screen tilt can be freely adjusted or locked down at up to a 45 degree angle for optimal viewing and operation. A single cable exits the rear of the base, extending to a wall or surface mounted TPS-6X-IMCW Interface Module⁽²⁾. The cable can also be repositioned to exit the bottom for a very clean, cordless appearance. A swivel mount kit is also available for fixed-mount applications that require the ability to rotate the touchpanel during use.

- > Sleek, contoured design for tabletop use
- > Full-time wired touchpanel operation
- > Elegant high gloss black or white, or matte black finishes
- > Illuminated buttons and engravable backlit text⁽¹⁾
- > 5.7" active matrix color touchscreen display
- > 16-bit Isys graphics | 640 x 480 resolution
- > Dynamic graphics & text capability
- > DNav dynamic menu objects
- > Synapse Image Rendering Algorithm
- > Full-motion video display
- > High-speed Ethernet and Cresnet communications
- > Crestron Home® CAT5 video connectivity
- > Up to 45 degree tilt adjustment
- > Low-profile single-wire connection
- > No-button front bezel option included

TPS-6 Isys™ 5.7" Tilt Touchpanel

SPECIFICATIONS

Touchscreen Display

Display Type: TFT Active matrix color LCD
Size: 5.7 inch (14.48 cm) diagonal
Aspect Ratio: 4:3 VGA
Resolution: 640 x 480 pixels
Brightness: 350 nits (cd/m²)
Contrast: 400:1
Color Depth: 18-bit, 256k colors
Illumination: Backlit fluorescent
Viewing Angle: ±80° horizontal, +80°/-70° vertical
Touchscreen: Resistive membrane

Buttons & Switches

Trigger: (1) Programmable top-mounted pushbutton (left); resets touchpanel if held for 5 seconds
Brightness: (1) Programmable top-mounted pushbutton (right), normally sets display brightness level
Hard Keys: (8) Optional programmable pushbuttons, engravable backlit text^[1,3] (default engraving included)
Up/Down: (2) Optional programmable "up/down" pushbuttons, backlit, engravable backlit text^[1,3] on bezel (default engraving included)
Thumbpad: (5) Optional programmable pushbuttons for 4-way directional navigation and "enter", backlit

Connectors

Integral 9 ft (2.75 m) cable with 10-pin RJ50 male connector;
Connects to TPS-6X-IMCW interface module^[2]
See the TPS-6X-IMCW interface module specification for other connectors

Processor

CPU: 32-bit Freescale ColdFire® Microprocessor

Memory

SDRAM: 32 MB
Flash: 32 MB
Maximum Project Size: 28 MB

Graphic Engine

Isys engine; 16-bit non-palette graphics; 65,536 colors; Synapse image rendering algorithm; multi-mode objects, DNav dynamic menu objects, dynamic graphics, PNG translucency, full-motion (60 fps) animation, color key video windowing

Communications

Ethernet: 10BaseT/100BaseTX, auto-switching, auto-negotiating, auto-discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP
Cresnet: Supports Cresnet slave mode

Video

Signal Types: Composite
Formats: NTSC 480i or PAL 576i
Color Depth: 18-bit; 262,144 colors
Windowing: Single-window, deinterlaced and scalable up to full-screen

Audio

Internal transducer for keyclick sound

Power Requirements

Power Pack: 0.75 Amps @ 24 Volts DC;
100-240 Volts AC, 50/60 Hz power pack, model PW-2407WU included

Cresnet Power Usage: 16 Watts (0.67 Amps @ 24 Volts DC) including TPS-6X-IMCW module^[2]
Note: May be powered by power pack or Cresnet network power, not both. All power connections are made via the TPS-6X-IMCW interface module^[2]

Environmental

Temperature: 32° to 112°F (0° to 45°C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: 30 BTU/hour

Enclosure

Construction: Injection-molded plastic, 0° to 45° adjustable friction clutch tilt mechanism, low-profile base, integral cable assembly, swivel mount kit available separately
Front Bezels: Button and no-button bezels included; button bezel includes white translucent illuminated Up/Down and Thumbpad buttons and 8 hardkey buttons with illuminated dividers and default backlit text engraving, optional custom backlit text engraving sold separately^[1]

Dimensions

Height: 6.21 in (158 mm) maximum
Width: 8.08 in (206 mm)
Depth: 7.02 in (179 mm), 6.53 in (166 mm) without grommet

Weight

2.9 lb (1.3 kg)

Available Models

TPS-6: Isys™ 5.7" Tilt Touchpanel, Gloss Black
TPS-6-B-T: Isys™ 5.7" Tilt Touchpanel, Matte Black
TPS-6-W-S: Isys™ 5.7" Tilt Touchpanel, Gloss White

Included Accessories

PW-2407WU 24 Volt Power Pack, Universal [Included Quantity for TPS-6, TPS-6-B-T, TPS-6-W-S: 1]
TPS-6X-IMCW Interface Module [Included Quantity for TPS-6, TPS-6-B-T, TPS-6-W-S: 1]
TPS-6X-FP_ENGRAVED Backlit Engraving Button Bezel Kit w/Default Engraving, Gloss Black [Included Quantity for TPS-6: 1]
TPS-6X-FP-NB No-Button Bezel Kit, Gloss Black [Included Quantity for TPS-6: 1]
TPS-6X-FPB-T_ENGRAVED Backlit Engraving Button Bezel Kit w/Default Engraving, Matte Black [Included Quantity for TPS-6-B-T: 1]
TPS-6X-FPB-T-NB No-Button Bezel Kit, Matte Black [Included Quantity for TPS-6-B-T: 1]
TPS-6X-FPW-S_ENGRAVED Backlit Engraving Button Bezel Kit w/Default Engraving, Gloss White [Included Quantity for TPS-6-W-S: 1]
TPS-6X-FPW-S-NB No-Button Bezel Kit, Gloss White [Included Quantity for TPS-6-W-S: 1]

Available Accessories

TPS-6X-FP_ENGRAVED: Backlit Engraving Button Bezel Kit w/Custom Engraving, Gloss Black
TPS-6X-FP_BLANK: Backlit Engraving Button Bezel Kit (blank), Gloss Black
TPS-6X-FPB-T_ENGRAVED: Backlit Engraving Button Bezel Kit w/Custom Engraving, Matte Black
TPS-6X-FPB-T_BLANK: Backlit Engraving Button Bezel Kit (blank), Matte Black
TPS-6X-FPW-S_ENGRAVED: Backlit Engraving Button Bezel Kit w/Custom Engraving, Gloss White
TPS-6X-FPW-S_BLANK: Backlit Engraving Button Bezel Kit (blank), Gloss White
SMK-6X: Swivel Mount Kit

TPS-6 Isys™ 5.7" Tilt Touchpanel

CRESNET-NP-BK-B500: Cresnet® Control Cable, non-plenum, black, 500 ft box

CRESNET-NP-OR-B500: Cresnet® Control Cable, non-plenum, orange, 500 ft box

CRESNET-NP-YL-B500: Cresnet® Control Cable, non-plenum, yellow, 500 ft box

CRESNET-P-TL-SP500: Cresnet® Control Cable, plenum, teal, 500 ft spool

CRESNET-P-TL-SP1000: Cresnet® Control Cable, plenum, teal, 1000 ft spool

CRESNET-P-BK-SP500: Cresnet® Control Cable, plenum, black, 500 ft spool

CRESNET-P-OR-SP500: Cresnet® Control Cable, plenum, orange, 500 ft spool

CRESNET-P-YL-SP500: Cresnet® Control Cable, plenum, yellow, 500 ft spool

CRESNET-HP-NP-TL-SP500: Cresnet® "High-Power" Control Cable, non-plenum, teal, 500 ft spool

CRESNET-HP-NP-TL-SP1000: Cresnet® "High-Power" Control Cable, non-plenum, teal, 1000 ft spool

CRESCAT-NP-SP500: Crestron Home® CAT5 AV Cable, Single CAT5e & Cresnet, non-plenum, 500 ft spool

CRESCAT-D-NP-SP500: Crestron Home® CAT5 AV Cable, 2x CAT5e & Cresnet, non-plenum, 500 ft spool

CRESCAT-D-HP-NP-TL-SP500: Crestron Home® CAT5 AV Cable, 2x CAT5e & Cresnet "High-Power", non-plenum, teal, 500 ft spool

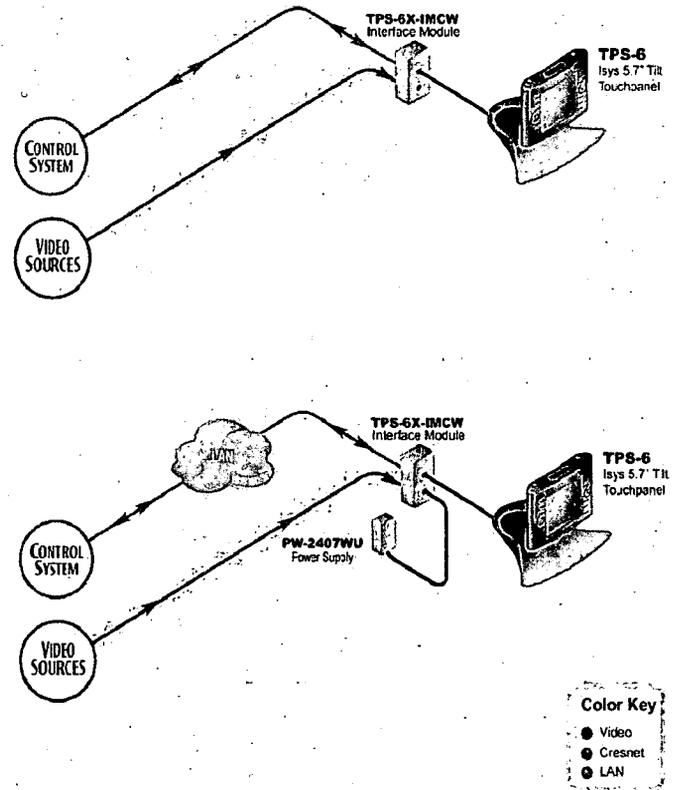
Notes:

1. Text engraving is not backlit on the TPS-6-W-S white model.

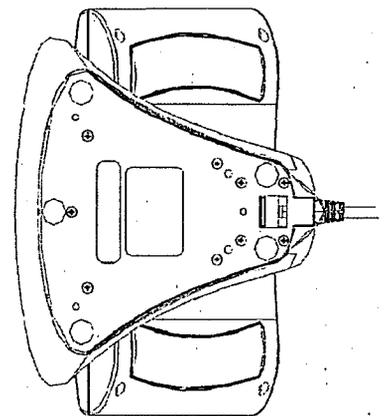
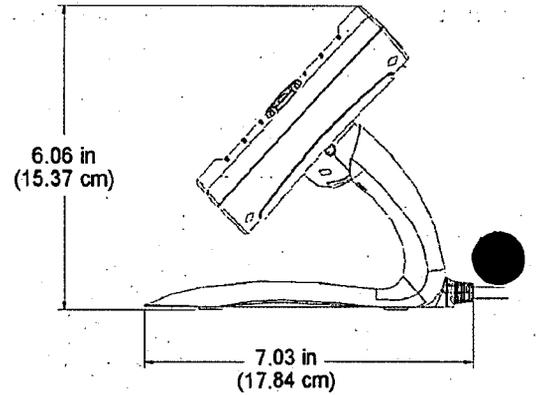
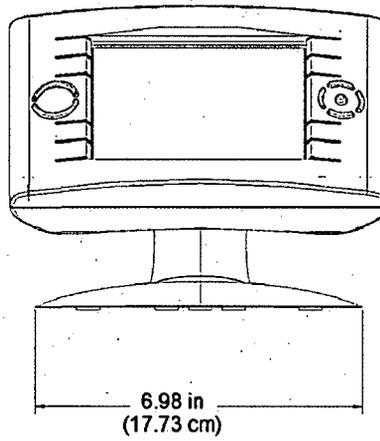
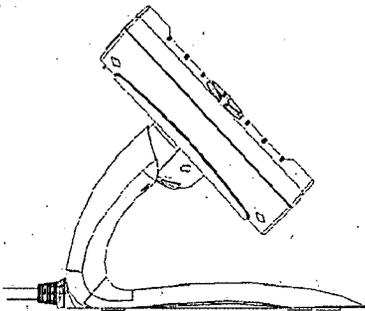
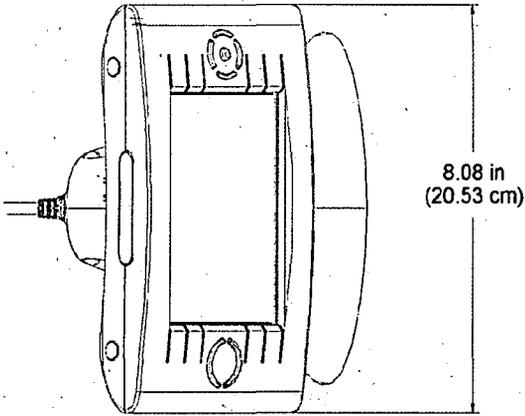
2. Item included, see individual product specifications for additional information.

3. Item sold separately.

Typical TPS-6 Application



TPS-6 Isys™ 5.7" Tilt Touchpanel



TPMC-4SM

Isys™ 4.3" Wall Mount Touchpanel

With its clean, contoured appearance, the Crestron Isys® TPMC-4SM Wall Mount Touchpanel makes an elegant statement in any environment. Perfectly at home in the most modern office building, hotel, or residence, its high-tech good looks underline its power for simplifying everyday tasks and functions throughout any facility, all in a very affordable device that's versatile and easy to install.

An incredibly thin profile and small footprint allow the TPMC-4SM to be installed in places other touchpanels just can't go, providing the choice of mounting to a standard electrical box or to virtually any flat surface — even glass, granite, or marble. A table top enclosure is also available, affording a very stylish, space-saving solution for placement on a desktop or bedside table. Complete connectivity is provided through a single high-speed Ethernet connection, containing all control, video, intercom, and power signals within a single wire.

The TPMC-4SM packs our latest digital touchpanel technology powered by the groundbreaking Cores 3 OS, delivering amazing new control and graphics capabilities, plus streaming video and 2-way IP intercom, cohesively merged into one seamless user interface. Other features include dual-color backlit buttons, built-in proximity sensor, PoE network power, occupancy sensor inputs, and out-of-the-box room scheduling capability for use with Crestron RoomView® Server Edition room management software.

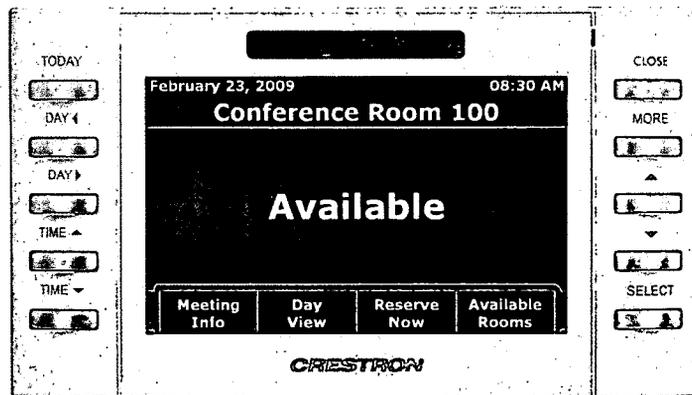
Widescreen Touchpanel

Fully custom touchpanel versatility is afforded through a brilliant 4.3" widescreen format touchscreen, displaying stunning 16-bit color graphics and video. Dynamic graphics and text capabilities enable the display of all kinds of useful data and alluring eye candy—from AV controls and icons—to room temperature and lighting levels—to photos and video—to digital media playlists complete with metadata and cover art. Advanced gestures navigation, animated objects, multi-mode buttons, PNG translucency, and page transition effects enhance the palette for creating interactive GUIs that are both eye-catching and easy to use.

Powered by Core 3 [Available Late 2010]

The Crestron Core 3 framework enables the generation of dynamically rich user interfaces with greater power and ease than ever. Even on such a compact touchpanel as the TPMC-4SM, Core 3 lets touchpanel designers merge multiple objects and apps on screen leveraging the power of Adobe® Flash®, streaming video, IP intercom, and other emerging technologies to deliver an engaging and ultra-intuitive touchpanel experience. Use gestures navigation to effortlessly browse through music and movie libraries, scroll through TV channels and radio stations, and select any desired control app from an intuitive menu of colorful 3D icons. Personalize the touchpanel desktop with animated clocks, calendars, weather widgets, news feeds, and other informative objects. Even apply themes and backgrounds that change on the fly with each user, event, or season.

But, the power of Core 3 extends beyond impressive graphics and animated objects, unleashing tremendous new capabilities for controlling devices and managing a complete integrated system. Using the Core 3 SDK, programmers can develop fully functioning "device apps" that can be dropped into each touchpanel project without additional programming or resizing. Or, choose from an expanding library of fully developed device apps to instantly add controls for security systems and HVAC, provide sophisticated navigation for media



servers and tuners, and enable user-friendly editing of lighting scenes and channel presets. With Core 3, the possibilities are virtually limitless.

Dual-Color Backlit Buttons

The TPMC-4SM comes standard with 10 programmable "hard key" pushbuttons for quick access to commonly used functions. Discrete red and green LEDs behind each translucent button afford enhanced multi-state feedback capability for clear status indication of each button function. The LEDs may also be set to provide dimmable backlighting of the buttons, with independent control over the left and right columns, for a custom appearance and enhanced visibility.

Customized labeling of the covers surrounding the pushbuttons can be attained simply using Crestron Engraver software. Or, for a clean appearance, either column of buttons may be removed and covered using the no-button covers provided.

Room Scheduling Mode

The TPMC-4SM works directly with Crestron RoomView® Server Edition room management software to provide a powerful enterprise-wide room scheduling solution. Installed outside the entrance to every meeting room, the TPMC-4SM provides an immediate view of each room's availability, with the ability to look up the calendar for any room on the network, and even book the room right on-the-spot. The dual-color buttons give a clear indication of a room's status at-a-glance, lighting green when the room is available and red when it is in use. The touchpanel's contoured shape assures that, even when mounted in a narrow hallway, the buttons remains clearly visible at a distance to either side.

Occupancy Sensing

Crestron GLS-series room occupancy sensors can be connected directly to the TPMC-4SM to allow automation of the room's lighting, climate control, and other devices. In Room Scheduling Mode, the sensors allow RoomView to detect when no one has shown up for a scheduled meeting, so even if the meeting is not cancelled or rescheduled by its host, the calendar can be updated automatically to make the room available to other users.

TPMC-4SM Isys™ 4.3" Wall Mount Touchpanel

Proximity Sensor

The TPMC-4SM senses as you approach it, waking its display automatically without having to touch the screen so it's always ready for use.

Streaming Video

An onboard streaming video player makes it possible to monitor a security camera, or preview a DVD or television channel, right on the touchscreen display. Native support for the motion-JPEG streaming format allows the TPMC-4SM to display live video from a variety of Web cameras and servers including the Crestron CEN-NVS100 Network Video Streamer^[1].

IP Intercom

Built-in IP intercom capability facilitates direct panel-to-panel intercom and monitoring right over the LAN without requiring any additional AV wiring. The TPMC-4SM features an integrated microphone and speaker for clear speech communication.

Audio Feedback

Customized WAV files can be loaded on the TPMC-4SM to add dimension to its touchscreen graphics using personalized sounds, button feedback, and voice prompts.

Single-Wire Connectivity

A simple Ethernet LAN connection is all that is required to wire the TPMC-4SM, enabling seamless communication with Crestron control systems, computers, video servers, and other touchpanels.

Power over Ethernet

The TPMC-4SM gets its power right through the LAN wiring using 802.3af PoE technology. PoE (Power over Ethernet) eliminates the need for a local power supply or any dedicated power wiring. A PoE Injector (PWE-4803RU^[1]) simply connects inline with the LAN cable, allowing for installation at any convenient location. For applications with multiple TPMC-4SMs or other PoE-powered devices, a Crestron PoE switch (CEN-SW-POE-5 or CEN-SWPOE-24^[1]) may be used, allowing numerous devices to be powered from a single location.

Simple, Versatile Mounting

The TPMC-4SM installs easily on virtually any mounting surface. As standard, it mounts directly to a single-gang electrical box (horizontally oriented) or European electrical box, requiring just 1/2-inch mounting depth while protruding less than 3/4-inch from the wall surface. It can also be adapted for mounting to a vertically-oriented 1-gang or 2-gang electrical box, or a 2-gang UK electrical box, using the optional WMKU-4SM Universal Wall Mount Kit^[1], which can also be used without an electrical box for a low-profile surface-mount solution^[2].

For impenetrable surfaces, such as decorative glass, granite, marble, plaster, smooth stone and masonry, Crestron offers the MSMK-4SM Multi-Surface Mount Kit^[1], which provides a very versatile mounting solution complete with a low-profile rear shell enclosure, adhesive mounting plate, optional angle bracket, and wire raceway. And finally, the TTK-4SM Table Top Kit^[1] converts the TPMC-4SM into a stylish, compact tabletop touchpanel, perfect for free-standing use or permanently-mounted on a tabletop or counter surface.

> Modern, contoured appearance

> Thin profile and small footprint

> Affordable and easy to install

> 4:3" widescreen color touchscreen > 16-bit color

> Streaming video

> Crestron IP intercom

> WAV file audio feedback

> Built-in microphone and speaker

> Built-in proximity sensor

> 10 optional "hard key" pushbuttons

> Dual-color button backlighting and feedback

> Engravable button text

> RoomView™ room scheduling mode

> Room occupancy sensor option

> Single-wire Ethernet connectivity

> PoE network powered

> Versatile wall, surface, and tabletop mounting options

> Available in gloss black or white

SPECIFICATIONS

Touchscreen Display

Display Type : TFT Active matrix color LCD

Size: 4.3 inch (109 mm) diagonal

Aspect Ratio: 16:9 WVGA

Resolution: 800 x 480 pixels

Brightness: 270 nits (cd/m²)

Contrast: 300:1

Color Depth: 16-bit, 64k colors

Illumination: Backlit LED

Viewing Angle: ±80° horizontal, ±80° vertical

Touchscreen: Resistive membrane

Buttons

Hard Keys: (10) Optional programmable pushbuttons, translucent backlit
Feedback/Backlight: (1) red and (1) green LED per hard key, programmable for feedback and backlighting

Reset: (1) Recessed pushbutton behind pinhole for hardware reset

Proximity Sensor

Type: Active infrared beam and receiver

Range: 3-4 feet

Memory

SDRAM: 256 MB

Flash: 2 GB

Maximum Project Size: 80 MB

Graphic Engine

16-bit non-palette graphics, 65,536 colors, Crestron Core 3 framework, multi-mode objects, dynamic graphics and text, PNG translucency, full-motion (60 fps) animation, transition effects

TPMC-4SM Isys™ 4.3" Wall Mount Touchpanel

Embedded Applications

Crestron MJPEG Viewer, Crestron IP Intercom [3]

Communications

Ethernet: 10BaseT/100BaseTX, auto-switching, auto-negotiating, auto-discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP, IEEE 802.3af compliant

Video

Streaming Formats: MJPEG via Crestron MJPEG Viewer[3]

Audio

Hardware Features: Built-in microphone and speaker

Amplification: Mono, 0.5 Watts

Audio Feedback: WAV format, 8 & 16 bit PCM, mono & stereo, 8 - 44.1 kHz sampling rates

Connectors

LAN PoE: (1) 8-wire RJ45 with 2 LED indicators;

10BaseT/100BaseTX Ethernet port;

802.3af Power over Ethernet compliant;

Green LED indicates link status;

Yellow LED indicates Ethernet activity

Occupancy Sensor Input: (4) captive screw terminals comprising (2) voltage sensing inputs (referenced to GND) with 24 Volt DC power output;

Input Voltage Range: 0-30 Volts DC;

Sensing Threshold: \geq 4.5 Volts DC active, \leq 1 Volt DC inactive;

Maximum DC Load: 4 Watts @ 24 Volts DC, provides operating power for up to (4) Crestron GLS Series occupancy sensors

Power Requirements

Power over Ethernet: IEEE 802.3af Class 3 PoE Powered Device

Environmental

Temperature: 32° to 104°F (0° to 40°C)

Humidity: 10% to 90% RH (non-condensing)

Heat Dissipation: 14 BTU/Hr

Enclosure

Construction: Plastic

Front Bezel: Plastic, includes button and no-button covers, button covers include default engraving, custom engraving sold separately

Mounting: Requires a horizontally-oriented 1-Gang electrical box or plaster ring, or a 1-Gang European (DIN 49073) electrical box; choice of standard or security screws provided; optional universal wall, multi-surface, and table top mounting kits sold separately

Dimensions

Height: 3.47 in (89 mm)

Width: 6.20 in (158 mm)

Depth: 1.21 in (31 mm)

Weight

8.8 oz (249 g)

Available Models

TPMC-4SM-B-S: Isys™ 4.3" Touchpanel, Gloss Black

TPMC-4SM-W-S: Isys™ 4.3" Touchpanel, Gloss White

Included Accessories

4SM-BTNO-B-S Engravable Button Covers w/Default Engraving, Set of 2, Gloss Black [Included Quantity for TPMC-4SM-B-S: 1]

4SM-BTNO-W-S Engravable Button Covers w/Default Engraving, Set of 2, Gloss White [Included Quantity for TPMC-4SM-W-S: 1]

Available Accessories

4SM-BTNO-B-S: Engravable Button Covers w/Custom Engraving, Set of 2, Gloss Black

4SM-BTNO-W-S: Engravable Button Covers w/Custom Engraving, Set of 2, Gloss White

WMKU-4SM-B-S: Universal Wall Mount Kit, Gloss Black

WMKU-4SM-W-S: Universal Wall Mount Kit, Gloss White

MSMK-4SM-B-S: Multi-Surface Mount Kit, Gloss Black

MSMK-4SM-W-S: Multi-Surface Mount Kit, Gloss White

TTK-4SM-B-S: TableTop Mount Kit, Gloss Black

TTK-4SM-W-S: TableTop Mount Kit, Gloss White

SMK-4SM: Swivel Mount Kit for TTK-4SM

PWE-4803RU: PoE Injector

CEN-SW-POE-5: 5-Port PoE Switch

CEN-SWPOE-24: 24-Port Managed PoE Switch

GLS-ODT-C-1000: Crestron Green Light™ Dual-Technology Ceiling Mount Occupancy Sensor, 1000 Sq. Ft.

GLS-ODT-C-2000: Crestron Green Light™ Dual-Technology Ceiling Mount Occupancy Sensor, 2000 Sq. Ft.

GLS-ODT-C-500: Crestron Green Light™ Dual-Technology Ceiling Mount Occupancy Sensor, 500 Sq. Ft.

GLS-ODT-W-1200: Crestron Green Light™ Dual-Technology Wall Mount Occupancy Sensor, 1200 Sq. Ft.

GLS-OIR-C-1500: Crestron Green Light™ Passive Infrared Ceiling Mount Occupancy Sensor, 1500 Sq. Ft.

GLS-OIR-C-450: Crestron Green Light™ Passive Infrared Ceiling Mount Occupancy Sensor, 450 Sq. Ft.

GLS-OIR-W-2500: Crestron Green Light™ Passive Infrared Wall Mount Occupancy Sensor, 2500 Sq. Ft.

CEN-NVS100: Network Video Streamer

CEN-NVS100-PWE: Network Video Streamer w/PoE Injector

SW-VMK-WIN: TouchPoint™ Virtual Mouse & Keyboard Software for Windows® [Release Date: TBA]

Notes:

1. Item(s) sold separately.

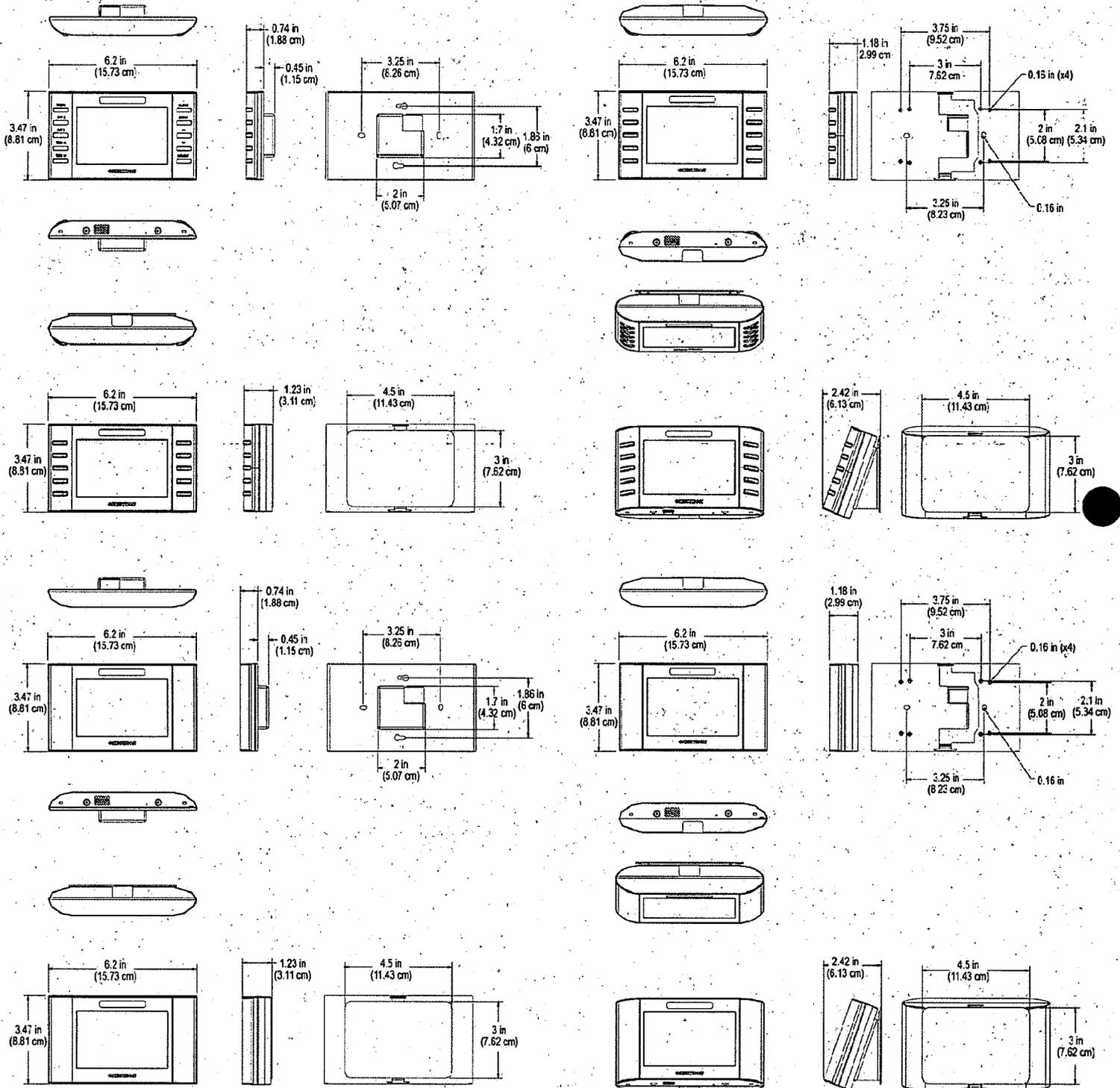
2. WMKU-4SM mounting option requires a minimum surface or wall box opening of 1.7" high x 2.0" wide.

3. Contact Crestron for a current list of embedded applications. To ensure reliable performance, new device drivers and applications are available only from Crestron through firmware updates.

This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at www.crestron.com/salesreps or by calling 800-237-2041.

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TPMC-4SM Isys™ 4.3" Wall Mount Touchpanel



CNX-B

Designer Keypads

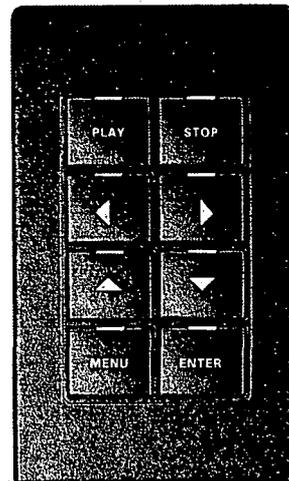
Elegant in their simplicity, Crestron® CNX-B Designer Series wall mount keypads afford uncomplicated pushbutton control for a host of applications. These Designer keypads are at once attractive and versatile, offered in a choice of five matte finishes, in configurations of 2, 4, 6, 8, or 12 buttons. The buttons are large in size for excellent ergonomics, with custom engraving available to provide clear designation of each button's function. Every button is accompanied by an LED indicator, providing true status feedback for the most reliable operation. And, every button and LED is fully programmable for virtually any custom functionality, making CNX-B Designer Keypads perfect for controlling room lighting and shades, audio and video equipment, or any other application that demands simple, immediate one-touch control.

The CNX-B series includes additional features for enhanced usability, like audible feedback using your choice of custom WAV sound files. Use sounds to confirm a button press or response from the device you're controlling, sound an alarm, or provide helpful voice prompts. An onboard temperature sensor is also built in for general monitoring of room temperature. Backlit engraving is even available on black models for enhanced visibility in a darkened room.

Each CNX-B keypad mounts in a standard electrical gang box and includes a matching 1-gang faceplate. Optional 2 and 3-gang faceplates are available to allow up to three keypads to be installed side-by-side. Optional Designer and Architectural faceplates are offered in a variety of elegant finishes.

Please note, the new almond matte (-A-T) and white matte (-W-T) finishes are not the same as on previous almond (A) and white (W) models. Please contact your Crestron representative if you require keypads or buttons to match an older finish.

- > *Elegant design with large buttons*
- > *Fits standard electrical gang boxes*
- > *Gangable up to 3 side-by-side*
- > *Available in 2, 4, 6, 8, and 12 button configurations*
- > *Replaceable, custom-engravable button caps*
- > *Programmable feedback LEDs*
- > *Backlit button option*
- > *WAV file audio feedback*
- > *Built-in temperature sensor*
- > *Available in matte almond, black, white, dusk, and latte finishes*
- > *Designer and Architectural faceplates available*
- > *Easy Cresnet® wiring*



SPECIFICATIONS

Connectors

NET: (1) 4-pin 3.5mm detachable terminal block;
Cresnet slave port, connects to Cresnet control network

Buttons

Keypad: (2, 4, 6, 8 or 12 depending upon model) replaceable engravable buttons, programmable;
Selectable, dimmable backlight

LED Indicators

Feedback: (1 per button) red LED, programmable and dimmable

Audio

WAV File Capacity: 101 WAV files maximum, ~56 seconds total time, 512 KB total memory

WAV File Format: 8-bit PCM, mono, 8 kHz sampling rate
Built-in speaker

Temperature Sensor

Type: Linear, digital

Precision: 0.18°F (0.1°C)

Accuracy: 1.8°F (1.0°C) with all LEDs and backlight off

Range: 32° to 113°F (0° to 45°C)

Power Requirements

Cresnet Power Usage: 3 Watts (0.125 Amps @ 24 Volts DC)

Environmental

Temperature: 32° to 113°F (0° to 45°C)

Humidity: 10% to 90% RH (non-condensing)

CNX-B Designer Keypads

Enclosure

1-gang mountable in a standard electrical box

Dimensions

(including faceplate)

Height: 4.77 in (121 mm)

Width: 2.92 in (74 mm)

Depth: 1.54 in (39 mm)

Weight

2.6 oz (74 g)

Available Models

CNX-B2-A-T: Designer Keypad, 2-Buttons, Almond, Matte
CNX-B2B: Designer Keypad, 2-Buttons, Black, Matte
CNX-B2-DSK-T: Designer Keypad, 2-Buttons, Dusk, Matte
CNX-B2-LAT-T: Designer Keypad, 2-Buttons, Latte, Matte
CNX-B2-W-T: Designer Keypad, 2-Buttons, White, Matte
CNX-B4-A-T: Designer Keypad, 4-Buttons, Almond, Matte
CNX-B4B: Designer Keypad, 4-Buttons, Black, Matte
CNX-B4-DSK-T: Designer Keypad, 4-Buttons, Dusk, Matte
CNX-B4-LAT-T: Designer Keypad, 4-Buttons, Latte, Matte
CNX-B4-W-T: Designer Keypad, 4-Buttons, White, Matte
CNX-B6-A-T: Designer Keypad, 6-Buttons, Almond, Matte
CNX-B6B: Designer Keypad, 6-Buttons, Black, Matte
CNX-B6-DSK-T: Designer Keypad, 6-Buttons, Dusk, Matte
CNX-B6-LAT-T: Designer Keypad, 6-Buttons, Latte, Matte
CNX-B6-W-T: Designer Keypad, 6-Buttons, White, Matte
CNX-B8-A-T: Designer Keypad, 8-Buttons, Almond, Matte
CNX-B8B: Designer Keypad, 8-Buttons, Black, Matte
CNX-B8-DSK-T: Designer Keypad, 8-Buttons, Dusk, Matte
CNX-B8-LAT-T: Designer Keypad, 8-Buttons, Latte, Matte
CNX-B8-W-T: Designer Keypad, 8-Buttons, White, Matte
CNX-B12-A-T: Designer Keypad, 12-Buttons, Almond, Matte
CNX-B12B: Designer Keypad, 12-Buttons, Black, Matte
CNX-B12-DSK-T: Designer Keypad, 12-Buttons, Dusk, Matte
CNX-B12-LAT-T: Designer Keypad, 12-Buttons, Latte, Matte
CNX-B12-W-T: Designer Keypad, 12-Buttons, White, Matte

Included Accessories

B2-BTN-A-T Engravable Button Cap (blank) for CNX-B2, Almond, Matte [Included Quantity for CNX-B2-A-T: 2]
B2-BTNB Engravable Button Cap (blank) for CNX-B2, Black, Matte [Included Quantity for CNX-B2B: 2]
B2-BTN-DSK-T Engravable Button Cap (blank) for CNX-B2, Dusk, Matte [Included Quantity for CNX-B2-DSK-T: 2]
B2-BTN-LAT-T Engravable Button Cap (blank) for CNX-B2, Latte, Matte [Included Quantity for CNX-B2-LAT-T: 2]
B2-BTN-W-T Engravable Button Cap (blank) for CNX-B2, White, Matte [Included Quantity for CNX-B2-W-T: 2]
B4-BTN-A-T Engravable Button Cap (blank) for CNX-B4, Almond, Matte [Included Quantity for CNX-B4-A-T: 4]
B4-BTNB Engravable Button Cap (blank) for CNX-B4, Black, Matte [Included Quantity for CNX-B4B: 4]
B4-BTN-DSK-T Engravable Button Cap (blank) for CNX-B4, Dusk, Matte [Included Quantity for CNX-B4-DSK-T: 4]
B4-BTN-LAT-T Engravable Button Cap (blank) for CNX-B4, Latte, Matte [Included Quantity for CNX-B4-LAT-T: 4]
B4-BTN-W-T Engravable Button Cap (blank) for CNX-B4, White, Matte [Included Quantity for CNX-B4-W-T: 4]
B6-BTN-A-T Engravable Button Cap (blank) for CNX-B6, Almond, Matte [Included Quantity for CNX-B6-A-T: 6]
B6-BTNB Engravable Button Cap (blank) for CNX-B6, Black, Matte [Included Quantity for CNX-B6B: 6]

B8-BTN-LAT-T Engravable Button Cap (blank) for CNX-B8, Latte, Matte [Included Quantity for CNX-B8-LAT-T: 8]
B8-BTN-W-T Engravable Button Cap (blank) for CNX-B8, White, Matte [Included Quantity for CNX-B8-W-T: 8]
B12-BTN-A-T Engravable Button Cap (blank) for CNX-B12, Almond, Matte [Included Quantity for CNX-B12-A-T: 12]
B12-BTNB Engravable Button Cap (blank) for CNX-B12, Black, Matte [Included Quantity for CNX-B12B: 12]
B12-BTN-DSK-T Engravable Button Cap (blank) for CNX-B12, Dusk, Matte [Included Quantity for CNX-B12-DSK-T: 12]
B12-BTN-LAT-T Engravable Button Cap (blank) for CNX-B12, Latte, Matte [Included Quantity for CNX-B12-LAT-T: 12]
B12-BTN-W-T Engravable Button Cap (blank) for CNX-B12, White, Matte [Included Quantity for CNX-B12-W-T: 12]

Available Accessories

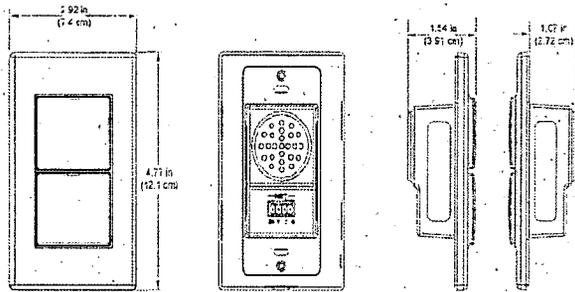
B2-BTN-A-T: Engravable Button Cap for CNX-B2, Almond, Matte
B2-BTNB: Engravable Button Cap for CNX-B2, Black, Matte
B2-BTN-DSK-T: Engravable Button Cap for CNX-B2, Dusk, Matte
B2-BTN-LAT-T: Engravable Button Cap for CNX-B2, Latte, Matte
B2-BTN-W-T: Engravable Button Cap for CNX-B2, White, Matte
B2-BTN-BKLT: Backlit Engravable Button Cap for CNX-B2, Black, Matte
B4-BTN-A-T: Engravable Button Cap for CNX-B4, Almond, Matte
B4-BTNB: Engravable Button Cap for CNX-B4, Black, Matte
B4-BTN-DSK-T: Engravable Button Cap for CNX-B4, Dusk, Matte
B4-BTN-LAT-T: Engravable Button Cap for CNX-B4, Latte, Matte
B4-BTN-W-T: Engravable Button Cap for CNX-B4, White, Matte
B4-BTN-BKLT: Backlit Engravable Button Cap for CNX-B4, Black, Matte
B6-BTN-A-T: Engravable Button Cap for CNX-B6, Almond, Matte
B6-BTNB: Engravable Button Cap for CNX-B6, Black, Matte
B6-BTN-DSK-T: Engravable Button Cap for CNX-B6, Dusk, Matte
B6-BTN-LAT-T: Engravable Button Cap for CNX-B6, Latte, Matte
B6-BTN-W-T: Engravable Button Cap for CNX-B6, White, Matte
B6-BTN-BKLT: Backlit Engravable Button Cap for CNX-B6, Black, Matte
B8-BTN-A-T: Engravable Button Cap for CNX-B8, Almond, Matte
B8-BTNB: Engravable Button Cap for CNX-B8, Black, Matte
B8-BTN-DSK-T: Engravable Button Cap for CNX-B8, Dusk, Matte
B8-BTN-LAT-T: Engravable Button Cap for CNX-B8, Latte, Matte
B8-BTN-W-T: Engravable Button Cap for CNX-B8, White, Matte
B8-BTN-BKLT: Backlit Engravable Button Cap for CNX-B8, Black, Matte
B12-BTN-A-T: Engravable Button Cap for CNX-B12, Almond, Matte
B12-BTNB: Engravable Button Cap for CNX-B12, Black, Matte
B12-BTN-DSK-T: Engravable Button Cap for CNX-B12, Dusk, Matte
B12-BTN-LAT-T: Engravable Button Cap for CNX-B12, Latte, Matte
B12-BTN-W-T: Engravable Button Cap for CNX-B12, White, Matte
B12-BTN-BKLT: Backlit Engravable Button Cap for CNX-B12, Black, Matte
B-G1-WPK: Water Resistant Covers, 4 Pack
B-G1-FPAR-A-T: 1-Gang Architectural Series Faceplate, Almond, Matte
B-G1-FPAR-A/BLK: 1-Gang Architectural Series Faceplate, Anodized Black
B-G1-FPAR-DSK-T: 1-Gang Architectural Series Faceplate, Dusk, Matte
B-G1-FPAR-LAT-T: 1-Gang Architectural Series Faceplate, Latte, Matte
B-G1-FPAR-S/STEEL: 1-Gang Architectural Series Faceplate, Stainless Steel
B-G1-FPAR-W-T: 1-Gang Architectural Series Faceplate, White, Matte
B-G1-FPAR-UF: 1-Gang Architectural Series Faceplate, Unfinished
B-G2-FP-A-T: 2-Gang Standard Faceplate, Almond, Matte
B-G2-FPB: 2-Gang Standard Faceplate, Black, Matte
B-G2-FP-DSK-T: 2-Gang Standard Faceplate, Dusk, Matte
B-G2-FP-LAT-T: 2-Gang Standard Faceplate, Latte, Matte
B-G2-FP-W-T: 2-Gang Standard Faceplate, White, Matte
B-G3-FP-A-T: 3-Gang Standard Faceplate, Almond, Matte
B-G3-FPB: 3-Gang Standard Faceplate, Black, Matte
B-G3-FP-DSK-T: 3-Gang Standard Faceplate, Dusk, Matte
B-G3-FP-LAT-T: 3-Gang Standard Faceplate, Latte, Matte
B-G3-FP-W-T: 3-Gang Standard Faceplate, White, Matte
B-G1-FP-BLK/CHRM: Metallic Cover for CNX-B 1-Gang Standard Faceplate,

CNX-B Designer Keypads

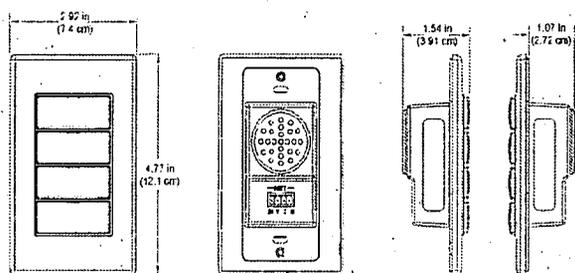
B-G2-FP-P/GLD: Metallic Cover for B-G2-FP 2-Gang Standard Faceplates, Polished Gold
B-G2-FP-S/STEEL: Metallic Cover for B-G2-FP 2-Gang Standard Faceplates, Stainless Steel
B-G2-FP-PRIMED: Metallic Cover for B-G2-FP 2-Gang Standard Faceplates, Primed
B-G3-FP-BLK/CHRM: Metallic Cover for B-G3-FP 3-Gang Standard Faceplates, Black Chrome
B-G3-FP-BR/GLD: Metallic Cover for B-G3-FP 3-Gang Standard Faceplates, Brushed Gold
B-G3-FP-P/BLK: Metallic Cover for B-G3-FP 3-Gang Standard Faceplates, Polished Black
B-G3-FP-P/BRASS: Metallic Cover for B-G3-FP 3-Gang Standard Faceplates, Polished Brass
B-G3-FP-P/GLD: Metallic Cover for B-G3-FP 3-Gang Standard Faceplates, Polished Gold
B-G3-FP-S/STEEL: Metallic Cover for B-G3-FP 3-Gang Standard Faceplates, Stainless Steel
B-G3-FP-PRIMED: Metallic Cover for B-G3-FP 3-Gang Standard Faceplates, Primed
CRESNET-NP-TL-B250: Cresnet® Control Cable, non-plenum, teal, 250 ft box
CRESNET-NP-TL-B500: Cresnet® Control Cable, non-plenum, teal, 500 ft box
CRESNET-NP-TL-SP500: Cresnet® Control Cable, non-plenum, teal, 500 ft spool
CRESNET-NP-TL-SP1000: Cresnet® Control Cable, non-plenum, teal, 1000 ft spool
CRESNET-NP-BK-B500: Cresnet® Control Cable, non-plenum, black, 500 ft box
CRESNET-NP-OR-B500: Cresnet® Control Cable, non-plenum, orange, 500 ft box
CRESNET-NP-YL-B500: Cresnet® Control Cable, non-plenum, yellow, 500 ft box
CRESNET-P-TL-SP500: Cresnet® Control Cable, plenum, teal, 500 ft spool
CRESNET-P-TL-SP1000: Cresnet® Control Cable, plenum, teal, 1000 ft spool
CRESNET-P-BK-SP500: Cresnet® Control Cable, plenum, black, 500 ft spool
CRESNET-P-OR-SP500: Cresnet® Control Cable, plenum, orange, 500 ft spool
CRESNET-P-YL-SP500: Cresnet® Control Cable, plenum, yellow, 500 ft spool
CRESNET-HP-NP-TL-SP500: Cresnet® "High-Power" Control Cable, non-plenum, teal, 500 ft spool
CRESNET-HP-NP-TL-SP1000: Cresnet® "High-Power" Control Cable, non-plenum, teal, 1000 ft spool
CCR-L-1: Crestron Color Ring

CNX-B Designer Keypads

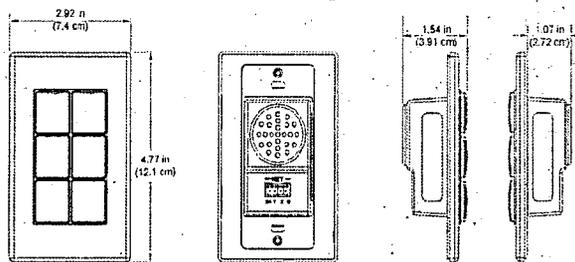
CNX-DB2



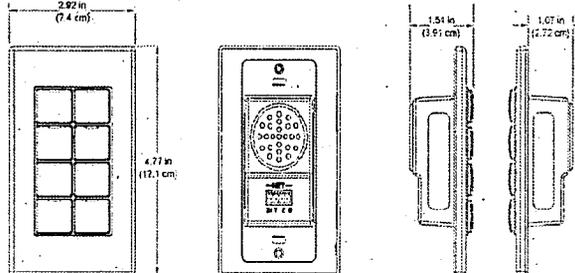
CNX-DB4



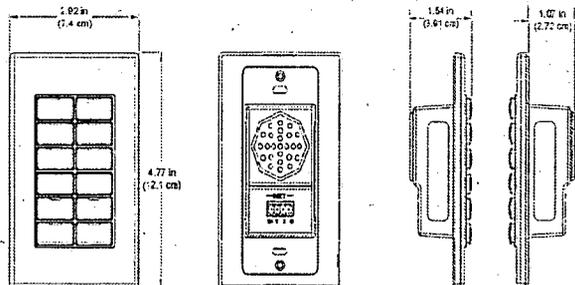
CNX-DB6



CNX-DB8



CNX-DB12



CP2E

Compact Control System with Ethernet

Crestron 2-Series Control Systems are the brain of a complete integrated AV or automation solution. Every audio, video, and environmental element of the home, boardroom, classroom, or command center becomes integrated and accessible through the control system. Crestron 2-Series control systems are unmatched for power, performance and scalability, providing the ideal choice for today's demanding control applications.

The CP2E is a compact Ethernet control system designed for small to medium sized residential and commercial control applications. Three built-in COM ports, eight IR/Serial ports, eight I/O Versiports, eight isolated relays, and Ethernet provide for control of video projectors, plasma displays, switchers, DVD players, screens, lifts, and much more. Additional control ports may be added using Cresnet expansion modules, or by "slaving" additional control processors such as the CP2.

2-Series Engine

At the heart of the CP2E is the powerful 32-bit Freescale ColdFire® processor. Crestron's exclusive enhanced real-time operating system makes the CP2E the fastest, most reliable control system available.

Cresnet®

Cresnet is the communications backbone for many Crestron touchpanels, keypads, lighting controls, and other devices. The Cresnet bus is a simple, yet flexible 4-wire network that provides rock-solid bidirectional communication for numerous Cresnet devices.

Cresnet Slave Mode

Selectable Cresnet Slave Mode enables the CP2E to be configured as a Cresnet slave device, effectively transforming it into a Cresnet expansion module. Such flexibility can offer a cost-effective solution for system expansion, providing a host of additional control ports in a single module.

Ethernet

Crestron pioneered the IP-based control system to harness the vast possibilities of Ethernet and the Internet for remote control, monitoring, programming, and diagnostics. The CP2E is designed to deliver the world's most advanced IP control solution with full-duplex 10/100 Ethernet, built-in Web server and email client, and support for both static and dynamic IP addressing.

e-Control@2

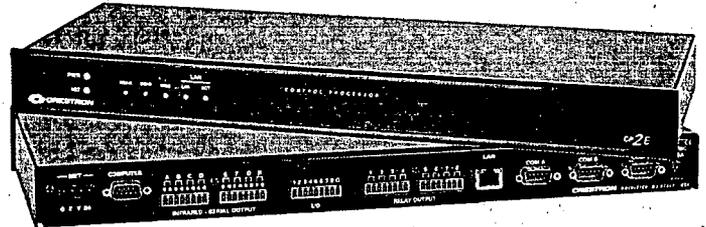
Crestron's award-winning e-Control 2 XPanel solutions offer the most flexible range of IP control possibilities available. Using a Windows® computer or CE/PocketPC™ PDA device, e-Control 2 provides an amazing control GUI that looks and behaves just like a Crestron Isys® touchpanel.

RoomView™

Every Ethernet-enabled 2-Series control system works directly with Crestron's exclusive RoomView Help Desk software for the industry's most comprehensive facility-wide asset management solution.

SNMP

Built-in SNMP support enables network management of Crestron control systems using third-party SNMP software. As an alternate or supplement to RoomView, SNMP allows full control and monitoring from the IT Help Desk or NOC in a format that's familiar to IT personnel.



SSL

All Ethernet-enabled 2-Series control systems support SSL (Secure Sockets Layer), the industry standard for protecting sensitive network communications.

- > 2-Series engine | Dual-bus architecture
- > Cresnet port - master/slave selectable
- > 10/100 Ethernet | SSL encryption
- > e-Control 2 and RoomView enabled | SNMP support
- > 3 Com ports (RS-232/422/485)
- > 8 IR/serial ports
- > 8 Versiport I/O ports
- > 8 Low-voltage relay ports
- > Single-space EIA rack-mountable

SPECIFICATIONS

Processor

CPU: 32-bit Freescale ColdFire® Microprocessor

Memory

SDRAM: 32 MB
NVRAM: 256 KB
Flash: 4 MB

Operating System

Real-time, preemptive multi-threaded/multitasking kernel; FAT32 file system with long names; supports SIMPL™ Windows® and SIMPL+®

CP2E Compact Control System with Ethernet

Ethernet

10/100BaseT, auto-negotiating, full/half duplex, static IP or DHCP/DNS, SSL, TCP/IP, UDP/IP, CIP, SMTP, SNMP, built-in Web server and e-mail client; supports Crestron e-Control@2 XPanel and RoomView™ applications

Connectors

COM A - C : (3) DB9 male, bidirectional RS-232/422/485 ports;
Up to 115.2k baud;
Hardware and software handshaking support;
All ports support C2N-NPA8 Network Poll Accelerator
INFRARED-SERIAL OUTPUT A - H: (8) 2-pin 3.5mm detachable terminal blocks, IR/Serial output ports;
IR output up to 1.2 MHz;
1-way serial TTL/RS-232 (0-5 Volts) up to 115.2k baud;
Individual signal generator per port, allowing simultaneous firing of all ports
I/O Versiports 1 - 8: (1) 9-pin 3.5mm detachable terminal block comprising (8) digital input/output or analog input ports (referenced to GND);
Digital Input: Rated for 0-24 Volts DC, input impedance 20k ohms, logic threshold: 1.24 Volts DC;
Digital Output: 250mA sink from maximum 24 Volts DC, catch diodes for use with "real world" loads;
Analog Input: Rated for 0-10 Volts DC, protected to 24 Volts DC maximum, input impedance 20k ohms;
Programmable 5 Volts, 2k ohms pull-up resistor per pin
RELAY OUTPUT 1 - 8: (2) 8-pin 3.5mm detachable terminal blocks comprising (8) normally open, isolated relays;
Rated 1 Amp, 30 Volts AC/DC;
MOV arc suppression across contacts
LAN: (1) 8-wire RJ45 with 2 LED indicators;
10/100BaseT Ethernet port;
Green LED indicates link status;
Yellow LED indicates Ethernet activity
COMPUTER: (1) DB9 female, RS-232 computer console port
NET: (1) 4-pin 5mm detachable terminal block;
Cresnet port, Master/Slave selectable;
Expandable via C2N-NPA8 Network Poll Accelerator
24VDC: (1) 2.1mm barrel DC power jack, 24 Volt DC power input; (PW-2420RU power supply sold separately);
Passes through to NET port to power Cresnet devices

Reset Buttons

HW-R: Hardware reset (reboots the control system)
SW-R: Software reset (restarts the SIMPL program)

LED Indicators

PWR: (1 green) Indicates DC power supplied to unit
NET: (1 yellow) Indicates Cresnet bus activity
MSG: (1 red) Indicates control system has generated an error message
LNK: (1 red) Indicates a valid connection on LAN port
ACT: (1 red) Indicates activity on LAN port

Power Requirements

24 Watts (1 Amp) @ 24 Volts DC (PW-2420RU power supply sold separately)
Available Cresnet Power: 26 Watts using PW-2420RU (sold separately)
Cresnet Power Usage: 24 Watts (1 Amp @ 24 Volts DC) with no power supply connected to the 24VDC connector

Environmental

Temperature: 41° to 113°F (5° to 45°C)
Humidity: 10% to 90% RH (non-condensing)

Enclosure

Chassis: Steel, black matte powder coat finish
Faceplate: Extruded aluminum, black matte powder coat finish with polycarbonate label overlay
Mounting: Freestanding or 1U 19-inch rack-mountable (adhesive feet and rack ears included)

Dimensions

Height: 1.80 in (4.57 cm);
1.70 in (4.32 cm) without feet
Width: 17.03 in (43.24 cm);
19.0 in (48.26 cm) with ears
Depth: 6.66 in (16.91 cm)

Weight

3.54 lbs (1.59 kg)

Available Models

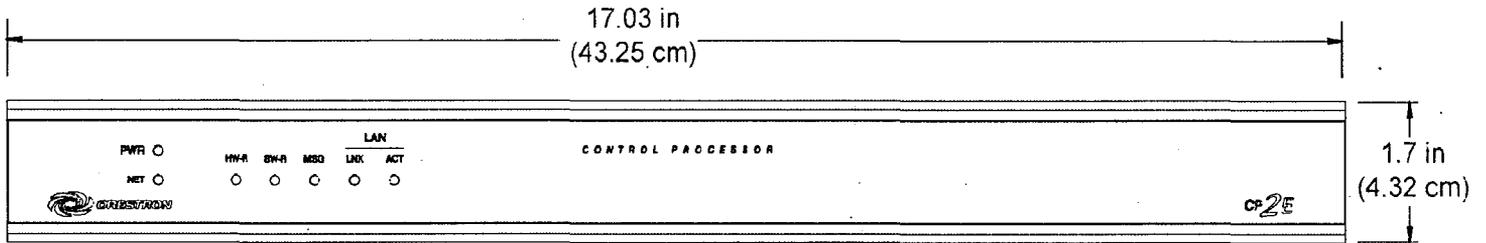
CP2E: Compact Control System with Ethernet

Available Accessories

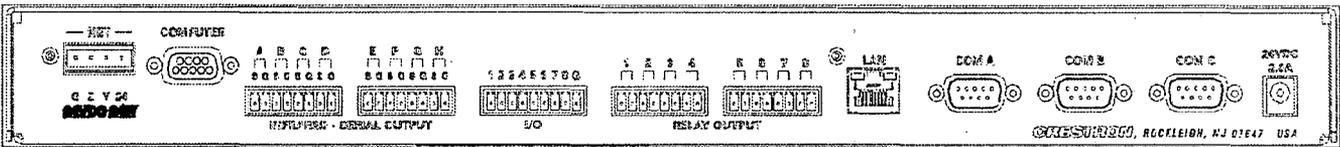
C2N-HBLOCK: Multi-type Cresnet Distribution Block
CNSP-XX: Custom Serial Interface Cable
IRP2: IR Emitter Probe
PW-2420RU: Power Pack, Desktop, 24VDC, 2A (50 Watts), Regulated, US/International

CP2E Compact Control System with Ethernet

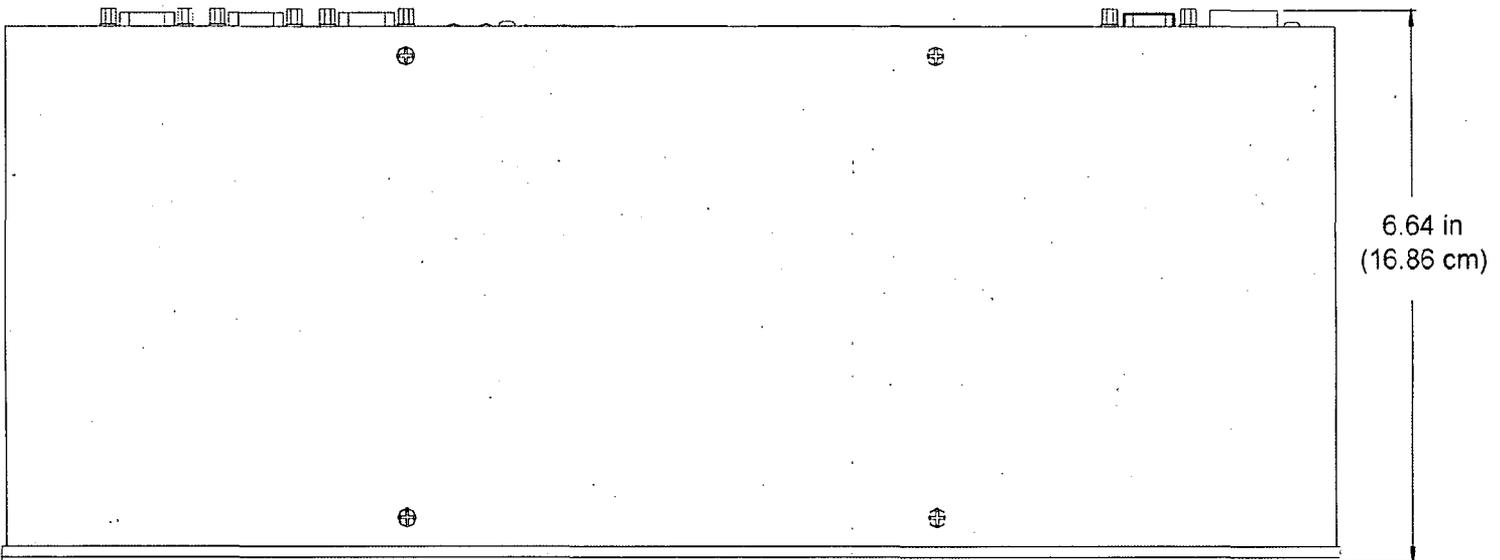
Front



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QM-RMC

Room Media Controller

The QM-RMC is a very compact 2-Series Ethernet control system, which may be used standalone for small or specialized IP-based control applications, or as an expansion module for larger systems. The QM-RMC provides a very cost-effective solution for controlling and monitoring any number of classroom video projectors, public display devices, centralized AV matrix routers, codecs, lighting systems, or remote motorized cameras over an IP network. Combining high performance and versatility at an affordable cost makes the QM-RMC ideal for mass deployment throughout college campuses, corporate meeting and training centers, and other multi-room facilities.

The QM-RMC is designed to mount inconspicuously at a projector, flat panel display, or any other device that requires control. The QM-RMC communicates securely and transparently via 10/100 Ethernet to any IP-enabled Crestron® touchpanel or control system. Crestron e-Control® 2 XPanel technology is fully supported as well allowing complete control from a computer or mobile device. Hundreds of AV devices and systems throughout a facility can be managed easily using Crestron RoomView® ProAV Help Desk Software, delivering the industry's best centralized control, monitoring and scheduling solution.

Two bi-directional RS-232 ports and one IR/Serial port are provided on the QM-RMC for full control of a wide array of AV devices. In addition, four digital input ports provide for direct connection to room occupancy sensors, power sensors, etc.

A compact multipurpose 2-Series control processor

- > Also ideal as a networked control system expansion module
- > High-speed 10/100 Ethernet with SSL encryption
- > e-Control® 2 enabled
- > SNMP support
- > 2 RS-232 Com ports
- > 1 IR/serial port
- > 4 digital input ports
- > External power supply included

SPECIFICATIONS

Processor

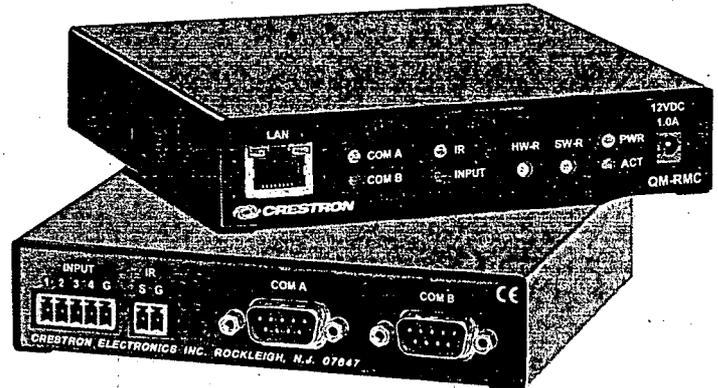
CPU: 32-bit Freescale ColdFire® Microprocessor

Memory

SDRAM: 32 MB
NVRAM: 256 KB
Flash: 4 MB

Operating System

Real-time, preemptive, multitasking kernel, multi-threaded; FAT32 file system with long names; supports SIMPL Windows™, SIMPL+®, SystemBuilder™, and D3 Pro™



Ethernet

10/100 Mbps, auto-negotiating, full/half duplex, static IP or DHCP, SSL, TCP/IP, UDP/IP, CIP, SMTP, SNMP, Web server, SMTP e-mail client, supports all e-Control® 2 and RoomView™ applications

Connectors

INPUT 1 - 4: (1) 5-pin 3.5mm detachable terminal block comprising (4) digital input ports;
Rated for 0-24 Volts DC, referenced to GND;
Input Impedance: 2k ohms pulled up to 5 Volts DC;
Logic Threshold: 2.5 Volts DC nominal
IR: (1) 2-pin 3.5mm detachable terminal block;
IR/Serial output port;
IR output up to 1.2 MHz;
1-way serial TTL/RS-232 (0-5 Volts) up to 115.2k baud;
Expandable via ST-SPL to control multiple disparate devices
COM A - B: (2) DB9 male, bidirectional RS-232 ports;
Up to 115.2k baud, hardware and software handshaking support;
Com port B also serves as the computer console port
LAN: (1) 8-wire RJ45 female;
10BaseT/100BaseTX Ethernet port
12VDC 0.5A: (1) 2.5mm barrel DC power jack;
12 Volt DC power input;
(PW-1205 power pack included)

Controls & Indicators

LAN: (2) LEDs, green indicates Ethernet link status, amber indicates Ethernet activity
COM A - B: (2) red LEDs, indicate activity on each corresponding COM port
IR: (1) red LED, indicates activity on the IR port
INPUT: (1) red LED, indicate activity on any digital input port
HW-R: (1) recessed pushbutton for hardware reset (reboots the control system)
SW-R: (1) recessed pushbutton for software reset (restarts the SIMPL program)
PWR: (1) green LED, indicates power supplied from power pack
ACT: (1) red LED, indicates activity on the LAN port

Power Requirements

Power Pack: 0.5 Amp @ 12 Volts DC;
120 Volts AC, 60 Hz power pack, model PW-1205, included

QM-RMC Room Media Controller

Environmental

Temperature: 41° to 113°F (5° to 45°C)
Humidity: 10% to 90% RH (non-condensing)

Enclosure

Metal, black finish, freestanding (adhesive feet included)

Dimensions

Height: 1.43 in (37 mm)
Width: 4.65 in (119 mm)
Depth: 5.41 in (138 mm)

Weight

1.34 lb (0.61 kg)

INTERNATIONAL VERSION (230 VAC)

QMI-RMC

All the features and specifications of the QM-RMC except:

Power Requirements

Power Pack: 0.5 Amp @ 12 Volts DC;
230 Volts AC, 50 Hz power pack, model PWI-1215, included

Available Models

QM-RMC: Room Media Controller

QMI-RMC: Room Media Controller - International Version, 230V

Included Accessories

PW-1205 Power Pack, Wall, 12VDC, 0.5A, 120VAC [Included Quantity for QM-RMC: 1]

PWI-1215 Power Pack, Desktop, 12VDC, 1.5A, 230VAC [Included Quantity for QMI-RMC: 1]

Available Accessories

CNSP-XX: Custom Serial Interface Cable

IRP2: IR Emitter Probe

CNXRMCS: TV Current Sensor

CRESTRON-MOBILE: Crestron Mobile™ e-Control® Solution for Apple® iPhone® and iPod® touch

CRESTRON-MOBILE-PRO: Crestron Mobile Pro® e-Control® Solution for Apple® iPhone® and iPod® touch

CRESTRON-MOBILE-PRO-G: Crestron Mobile Pro® G e-Control® Solution for Apple® iPad™

SW-ECONTROL2-PDA: e-Control2 XPanel PDA activation

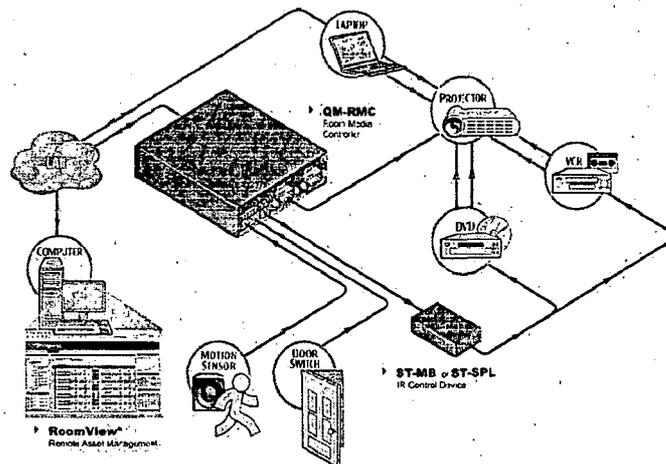
SW-ROOMVW-ENT: RoomView® Express - Remote Help Desk and Resource Management Software

SW-ROOMVW-SERVER: RoomView® Server Edition - Enterprise Management and Scheduling Software

Notes:

Crestron, Crestron RoomView, e-Control, RoomView, SIMPL Windows, SIMPL+, SystemBuilder, and D3 Pro are trademarks of Crestron Electronics, Inc. ColdFire is a registered trademark of Freescale Semiconductor, Inc. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims proprietary interest in the marks and names of others.

Typical QM-RMC Application

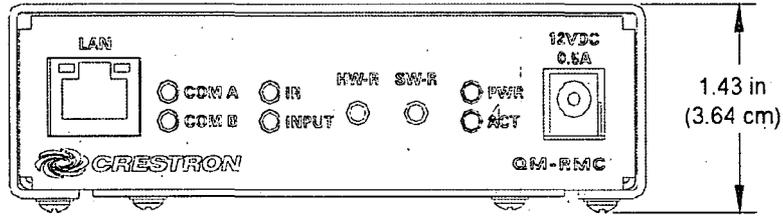


Color Key

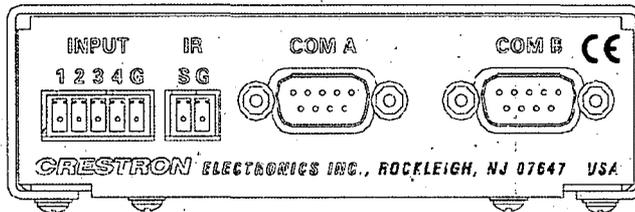
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|---------|---------|-------|
| Control | Video | Audio |
| CAT5E | Cresnet | LAN |
| RGB | CresCAT | |

QM-RMC Room Media Controller

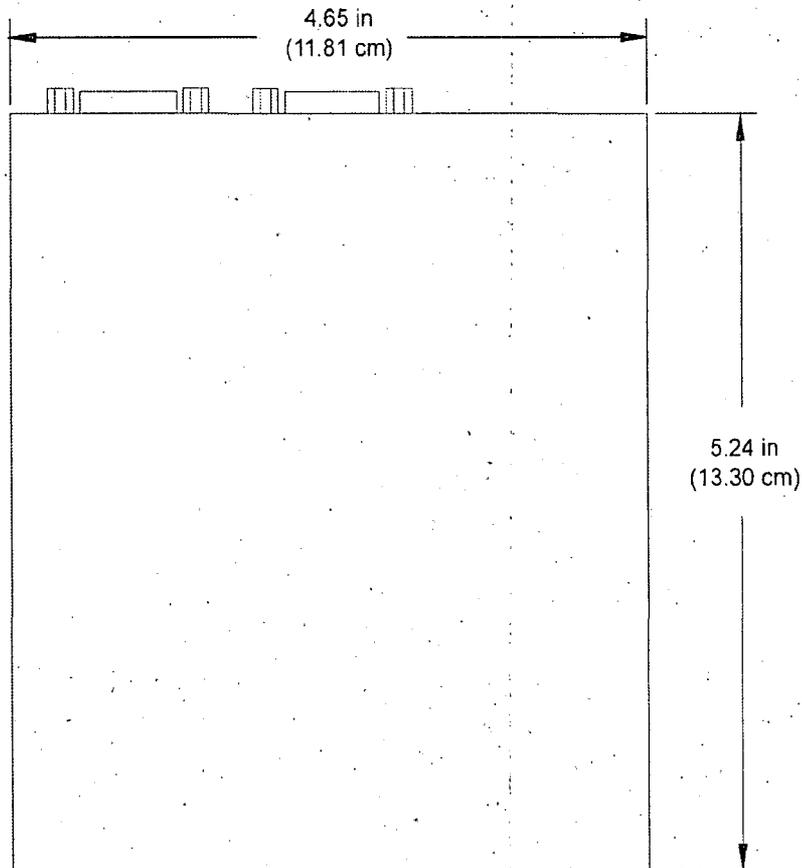
Front



Rear



Top



CEN-SW-POE-5

5-Port Power over Ethernet Switch

The CEN-SW-POE-5 is a 5-port unmanaged Ethernet switch that also provides 802.3af compliant Power over Ethernet (PoE) on four (4) of its ports to support PoE powered devices such as the Crestron CEN-WAP-ABG-1G Wireless Access Point. Standards-based Power over Ethernet affords a one-wire solution for connecting Ethernet devices, delivering power and data over a single CAT5/6 network cable.

Using the CEN-SW-POE-5, there is no need to install a separate power supply at each device location. The CEN-SW-POE-5 can simply be mounted at any convenient location on a wall or in an equipment rack, providing a single power source for four separate PoE powered devices. Non-PoE devices may also be connected to any port on the CEN-SW-POE-5 without risk of damage to either component.

- > 5-port unmanaged 10/100 Ethernet switch
- > 802.3af Power over Ethernet (PoE) power source
- > 3.2 Gbps switching fabric
- > Autonegotiation and auto MDI/MDIX capability

SPECIFICATIONS

Ethernet

Ports: (5) 10BaseT/100BaseTX Ethernet
Network Standards: IEEE 802.3, 802.3u, 802.3x, & 802.3af
Transmission Method: Store-and-Forward
Data Rate: 10/100 Mbps
MAC Addresses: 1K addresses
Memory Buffer: 512 Kb
Switching Fabric: 3.2 Gbps

LED Indicators

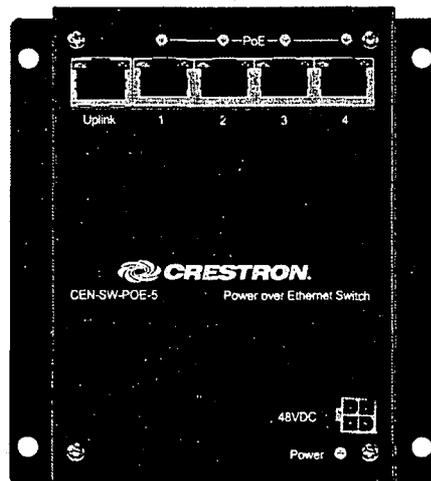
PoE 1 - 4: (4) Green LEDs, indicate a PoE powered device is connected to each corresponding port
Power: (1) Yellow LED, indicates power is supplied to the 48VDC power input

Connectors

Uplink: (1) 8-wire RJ45, female, with 2 LED indicators;
10BaseT/100BaseTX Ethernet port;
Green LED indicates link status and activity;
Amber LED indicates 100BaseT link status
1 - 4: (4) 8-wire RJ45, female, with 2 LED indicators;
10BaseT/100BaseTX Ethernet ports and IEEE 802.3af Class 0 PoE Power Sourcing Equipment outputs;
Green LED indicates link status and activity;
Amber LED indicates a 100BaseT link status
48VDC: (1) 4-pin (2x2) rectangular connector;
48 Volt DC power input (power supply included)

Power Requirements

CEN-SW-POE-5: 60 VA (1.25 Amps) @ 48 Volts DC
Power Supply (included): 100-240 Volts AC 50/60 Hz



Enclosure

Metal surface mount box with (2) integral mounting flanges, 19" EIA rack-rail mountable (one-sided), black matte powder coat finish

Environmental

Temperature: 32° to 104°F (0° to 40°C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: 10 BTU/hour

Dimensions

Height: 5.06 in (12.86 cm)
Width: 4.66 in (11.82 cm)
Depth: 1.17 in (2.97 cm)

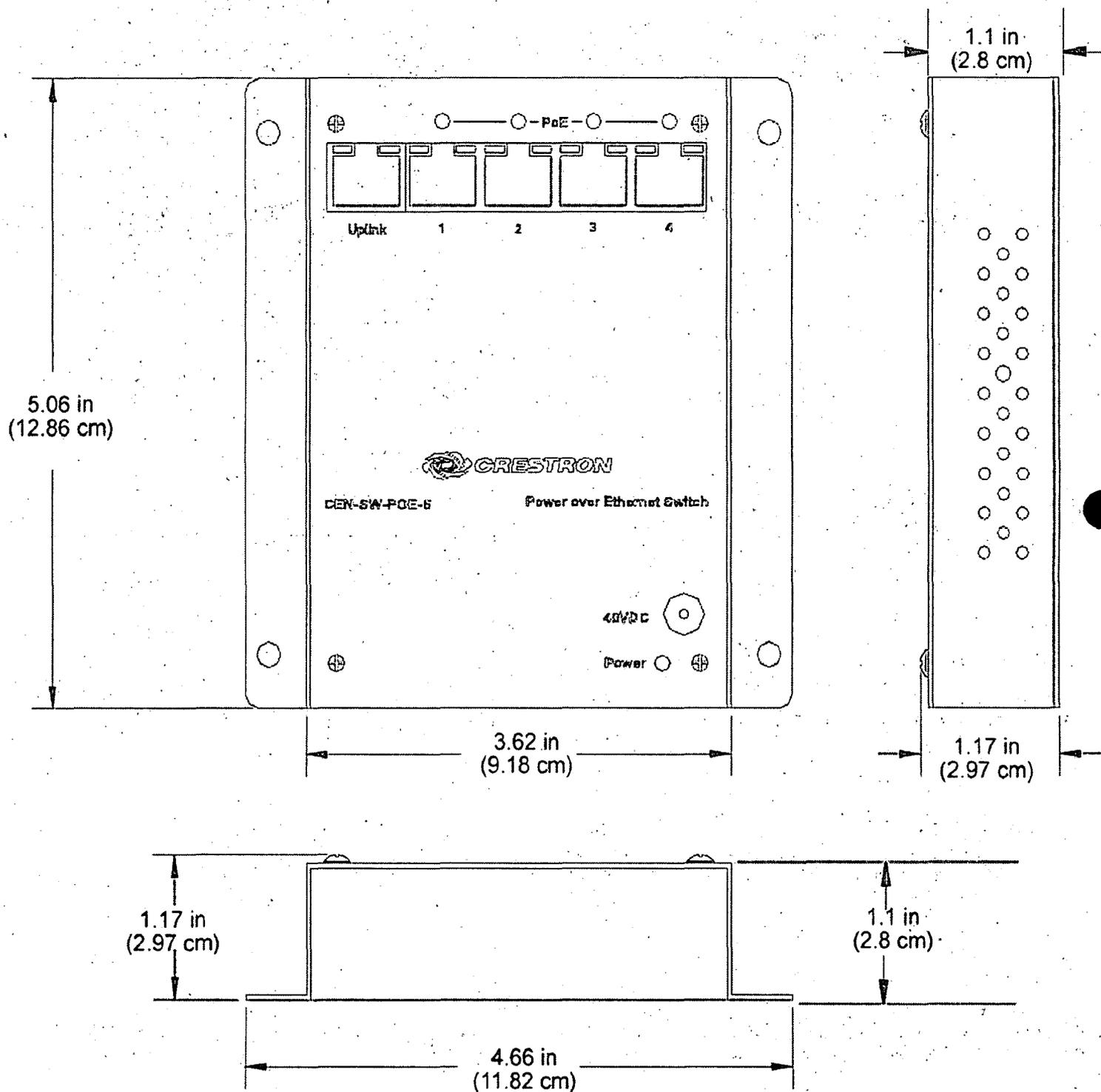
Weight

13.5 oz (381 g)

Available Models

CEN-SW-POE-5: 5-Port PoE Switch

CEN-SW-POE-5 5-Port Power over Ethernet Switch



C2N-HBLOCK

Multi-Type Cresnet Distribution Block

The C2N-HBLOCK is a parallel distribution block for termination of multiple Cresnet cables. Three different types of connectors are provided to accommodate all types of Cresnet wiring including standard 4-wire Cresnet cable, CAT5/UTP mini-network cable, and RJ11 modular cables. Diagnostic LEDs indicate presence of network power and data. A mounting plate (included) provides for standalone surface mounting, or up to three units may be rack mounted together using the optional CNXRMAK (sold separately.)

The C2N-HBLOCK is designed for transparent communications between all connected Cresnet devices and the control system. Multiple units may be cascaded for expanded connectivity.

SPECIFICATIONS

Connectors

NET A - E: (5) 4-pin 5mm detachable terminal blocks;

Connect to standard 4-wire Cresnet cables

NET 1 - 8: (8) 4-pin 3.5mm detachable terminal blocks;

Connect to standard 4-wire or CAT5/UTP mini-network Cresnet cables

NET a - c: (3) 6-pin RJ11 female;

Connect to RJ11 modular Cresnet cables

LED Indicators

PWR: (Green) indicates that 24VDC Cresnet power is present (at any port)

Y: (Red) Indicates presence and integrity of the Cresnet "Y" data signal

Z: (Red) Indicates presence and integrity of the Cresnet "Z" data signal

Enclosure

Steel, black matte powder coat finish, surface mount box with removable mounting plate

Dimensions (Including mounting plate)

Height: 1.27 in (3.23 cm)

Width: 6.55 in (16.64 cm)

Depth: 4.30 in (10.92 cm)

Weight

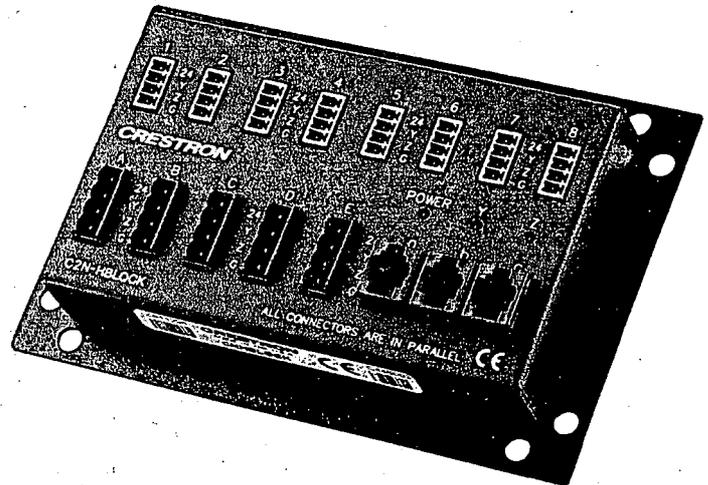
0.68 lb (0.31 kg) including all supplied terminal block connectors

Available Models

C2N-HBLOCK: Multi-type Cresnet Distribution Block

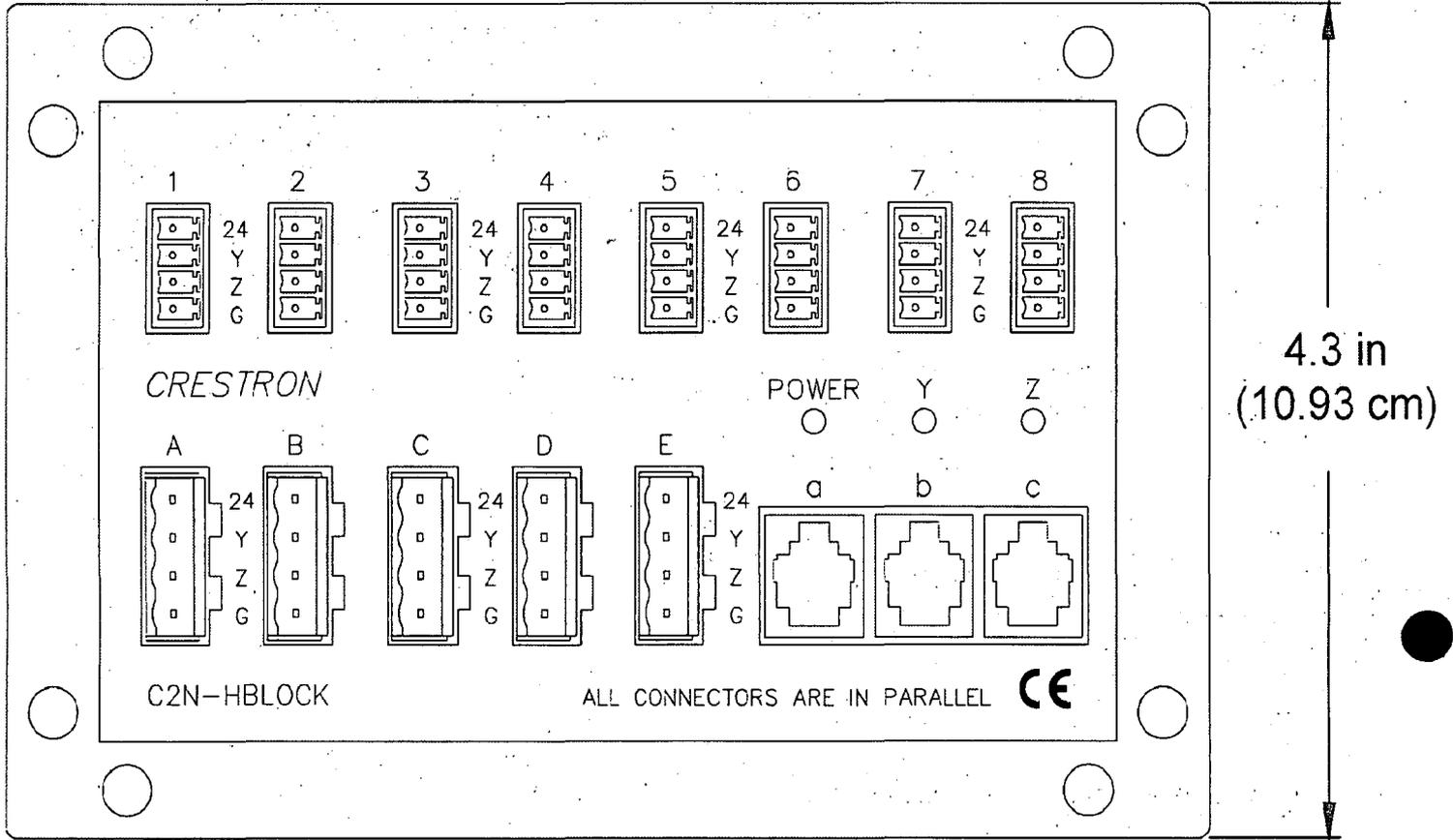
Available Accessories

CNXRMAK: Rack Mount Kit

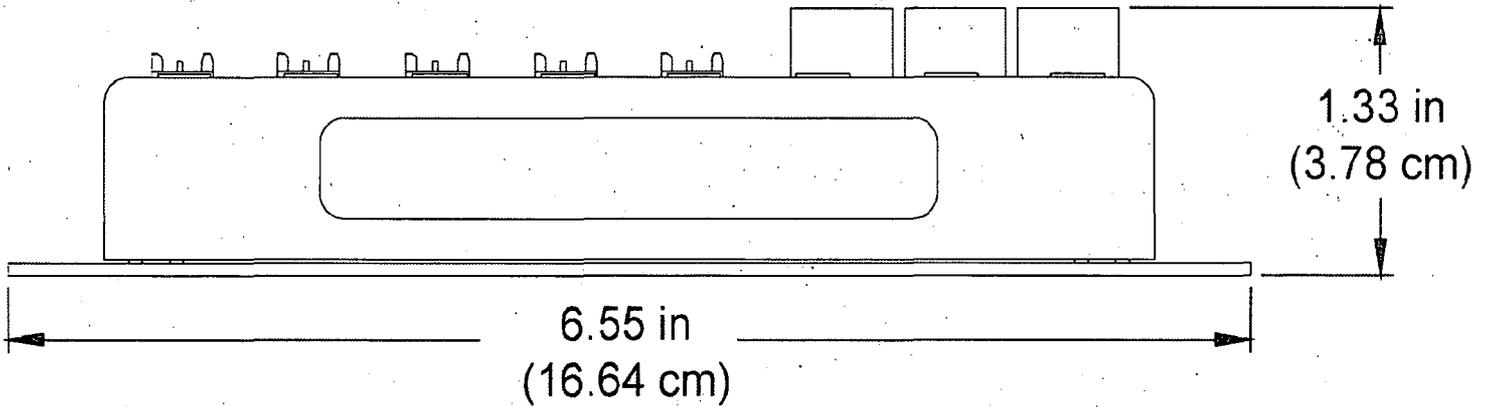


C2N-HBLOCK Multi-Type Cresnet Distribution Block

Front



Back



CNPWS-75

75 Watt Cresnet Power Supply

The CNPWS-75 is a 75 Watt, 24 Volt regulated power supply for powering Cresnet control systems and devices. Two 4-pin network connectors are provided, wired in parallel to provide for versatile connectivity with pass-thru of the Cresnet data signal. The output is fuse protected. Up to three CNPWS-75 power supplies may be rack mounted together using the optional CNXRMAK (sold separately).

SPECIFICATIONS

Load Rating

75 Watts (3.125 Amps) @ 24 Volts DC regulated
Ripple / Noise: <300 mV
Load Protection: 4A, 250V, Time Lag fuse

Power Requirements

2.3 Amps, 100-240 Volts AC, 50/60 Hz

Connectors

NET: (2) 4-pin 5mm detachable terminal blocks;
Cresnet power output ports, paralleled;
Cresnet data 'Y' and 'Z' terminals pass-through only
Power: (1) IEC320 Socket;
Mates with removable power cord, included

LED Indicators

NET POWER: Indicates 24 Volts DC at both Cresnet power ports, extinguished when fuse is blown

Environmental

Temperature: 41° to 104°F (5° to 40°C)
Humidity: 10% to 90% RH (non-condensing)

Enclosure

Chassis: Steel, black matte powder coat finish, convection-cooled, vented top and sides
Mounting: Freestanding or 2U 19-inch rack-mountable (adhesive feet included, CNXRMAK rack kit sold separately)

Dimensions

Height: 2.55 in (6.48 cm)
Width: 4.74 in (12.05 cm)
Depth: 8.07 in (20.50 cm)

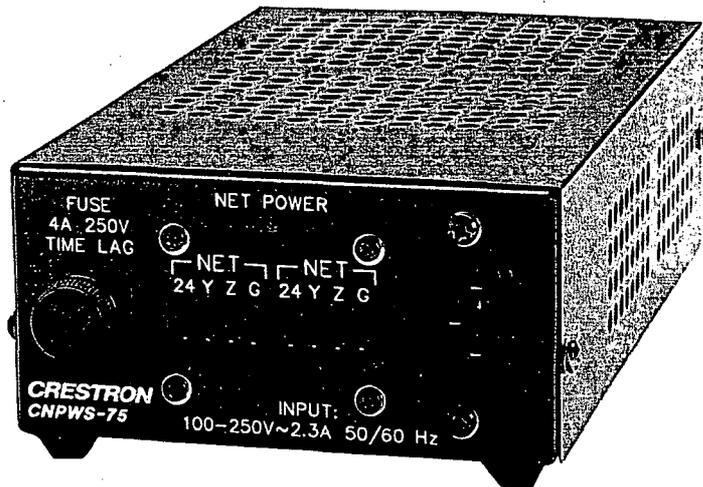
Weight

2.3 lb (1.1 kg)

INTERNATIONAL VERSION (230 VAC)

CNPWSI-75

All the features and specifications of the CNPWS-75 except the removable power cord is provided without connector



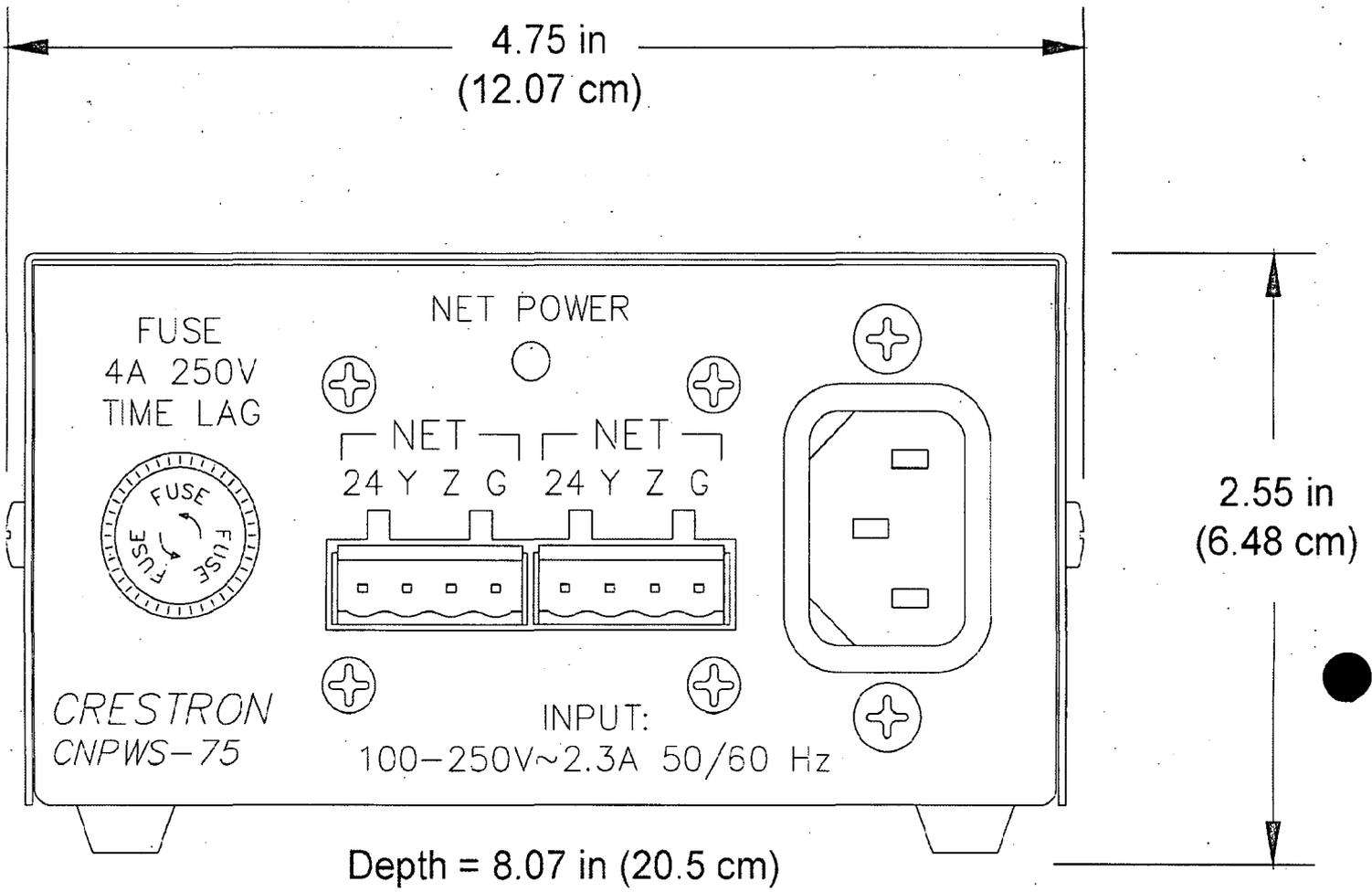
Available Models

CNPWS-75: Cresnet Power Supply, 75 Watts
CNPWSI-75: Cresnet Power Supply, 75 Watts - International Version, 230V

Available Accessories

CNXRMAK: Rack Mount Kit

CNPWS-75 75 Watt Cresnet Power Supply



CNTBLOCK

Cresnet Distribution Block

The CNTBLOCK is a parallel distribution block for termination of multiple 4-wire Cresnet cables. Eight 4-pin connectors are provided, grouped in two sets of four. Power can be isolated between the two sets by removing an internal jumper. Diagnostic LEDs indicate presence of network power and data. The compact CNTBLOCK is designed for surface mounting, and includes integral mounting flanges.

SPECIFICATIONS

Connectors

NET 1 - 8: (8) 4-pin 3.5mm detachable terminal blocks;
Connect to standard 4-wire Cresnet cables

LED Indicators

PWR: (Green) Indicates that 24VDC Cresnet power is present (at any port)
Y: (Red) Indicates presence and integrity of the Cresnet "Y" data signal
Z: (Red) Indicates presence and integrity of the Cresnet "Z" data signal

Enclosure

Steel, black matte powder coat finish, surface mount box with (2) integral mounting flanges

Dimensions

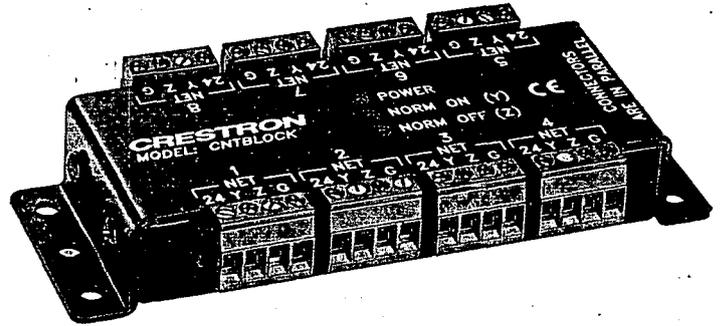
Height: 0.92 in (2.33 cm)
Width: 5.75 in (14.61 cm)
Depth: 1.89 in (4.81 cm)

Weight

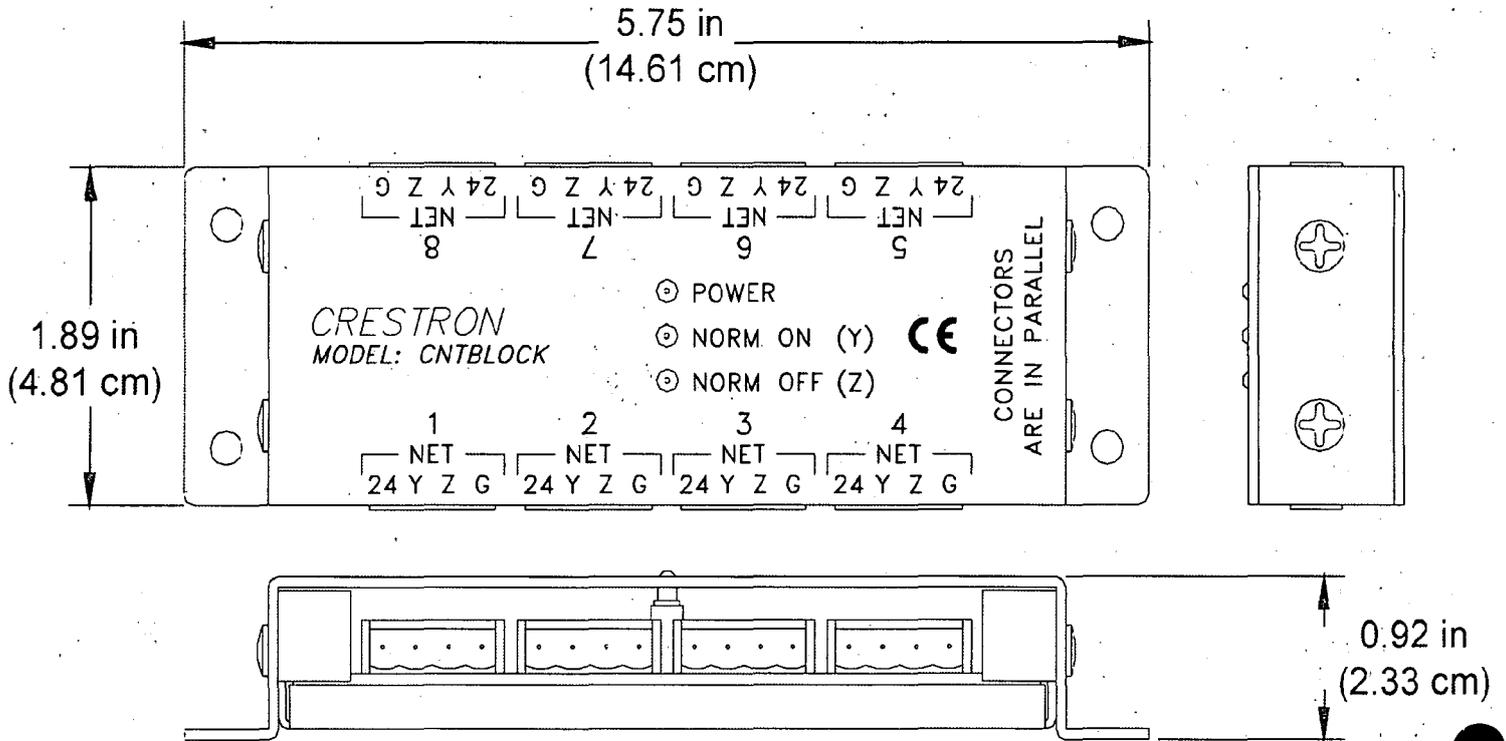
0.5 lb (0.2 kg)

Available Models

CNTBLOCK: Cresnet Distribution Block



CNTBLOCK Cresnet Distribution Block



PW-2420RU

Regulated Universal Power Pack 24VDC, 2A (50 Watts)

The PW-2420RU is a 2 Amp regulated power supply designed to provide 24 Volts DC to power some models of Crestron control systems and touchpanels. Generally, the PW-2420RU may be used to power nearly any Cresnet device(s) provided the total combined power factor does not exceed 50 Watts. For US/International use.

SPECIFICATIONS

Connectors

24VDC: (1) Attached cable with 2.1mm barrel-type male DC connector, center pin +;

Rated for 50 Watts (2 Amp @ 24 Volts DC) regulated

Power: (1) IEC320 Socket;

Mates with removable power cord, included

Power Requirements

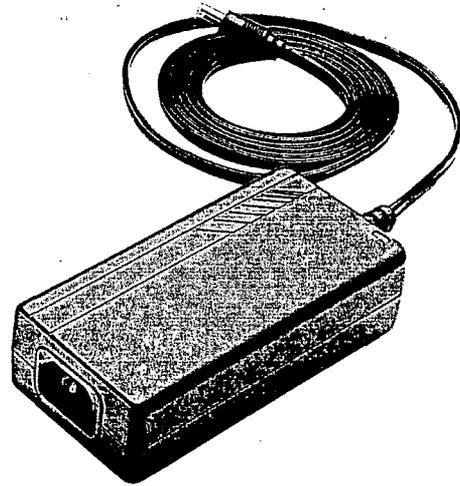
100-250 Volts AC, 50/60 Hz

Enclosure

Black plastic, desktop

Available Models

PW-2420RU: Power Pack, Desktop, 24VDC, 2A (50 Watts), Regulated, US/International



CNXRMAK

Rack Mount Kit for C2N-HBLOCK and CNPWS-75

The CNXRMAK is a 2-space rack mount kit that is used to install up to three Crestron C2N-HBLOCK Cresnet distribution blocks or three CNPWS-75 Cresnet power supplies (or any combination thereof) into a 19-inch EIA equipment rack. Includes (1) black metal 2U rack mounting panel and (12) 6-32 device mounting screws.

SPECIFICATIONS

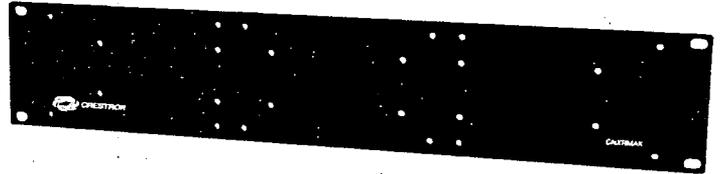
Dimensions

Height: 3.5 in (8.89 cm)

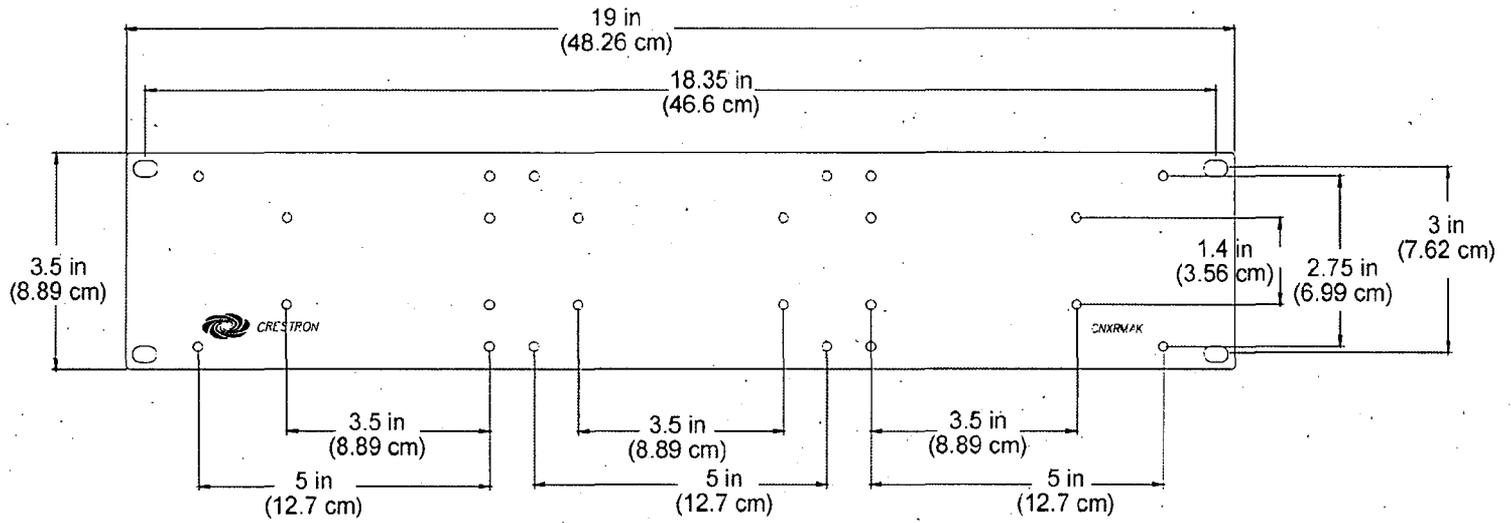
Width: 19.0 in (48.26 cm)

Available Models

CNXRMAK: Rack Mount Kit for up to 3 C2N-HBLOCK and CNPWS-75, 2U



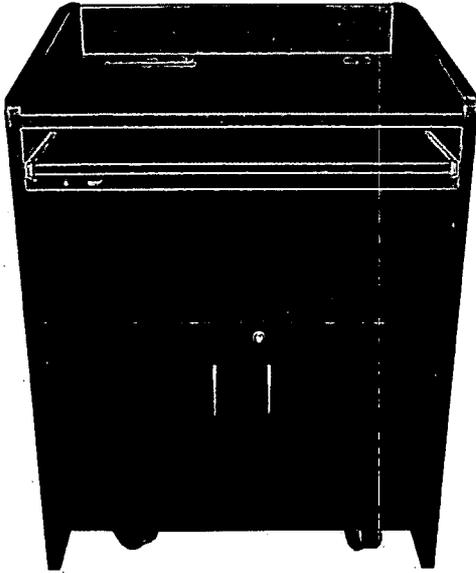
CNXRMAK Rack Mount Kit for C2N-HBLOCK and CNPWS-75





32" Wide Podium

Model PM-432



Standard Features include:

- Constructed with furniture grade laminates and edge banding
- Pull out keyboard shelf
- Two locking presenter side doors
- Locking removable access panel
- Two interior compartments, a smaller one for a CPU the other side has an adjustable shelf
- Locking heavy-duty casters
- Cable management system

Options:

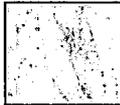
- Flip-up side shelf for projector or document camera
- Cable well with lap top connections and dual A/C outlet
- Shock mounted gooseneck condenser microphone
- Document camera drawer
- Quiet Fan
- Custom control dash and cut-outs
- Additional adjustable shelf
- 12RU Rack rails
- Hi-intensity gooseneck light
- Digital clock/count-down timer

Specifications:

External dimensions - Height 45" (114cm) x Width 32" (81cm) x Depth 30" (76cm)

Work surface height 38" (97cm)

Available in light cherry, dark cherry, maple, mahogany, cognac and black



Light Cherry

Dark Cherry

Maple

Mahogany

Black

Cognac

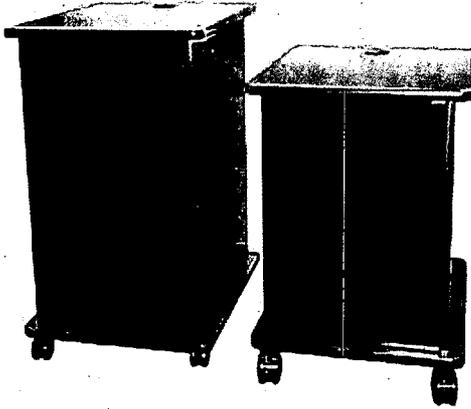
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Phone: 1-800-648-9125 local 905-856-8887 Fax: (905)-856-6344,

www.exactfurniture.com E-mail: sales@exactfurniture.com



Mobile Audio/Video Rack Cart RA-160 & RA-200

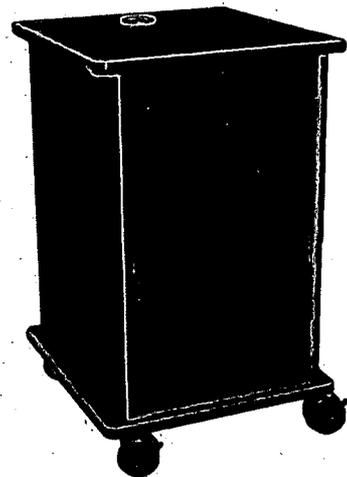


Standard Features

- Constructed with furniture grade laminates and edge banding
- Impact resistant t-molding on top and bottom
- Locking, removable back for easy access to equipment
- Heavy-duty 4" casters
- Cable management system
- Locking, tinted plexiglas front door
- 16RU (RA-160) or 20RU (RA-200) rack rails

Options and Accessories

- 12RU version or other sizes
- Rear rack rails
- Replace the rack rails with shelves
- Quiet Fan
- Wooden front door
- Ventilation panels
- 3" or 5" casters
- Custom speaker or control panel cut-outs



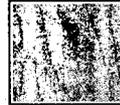
Specifications:

External dimensions - RA-160 Height: 34.5" (88cm) x Width: 24" (61cm) x Depth: 26" (66cm).

RA-200 Height: 41.5" (105cm) Width and Depth same as above.

Custom sizes available

Available colors shown below.



Black

Light Cherry

Dark Cherry

Mahogany

Maple

Cognac

Gray

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www.exactfurniture.com email: sales@exactfurniture.com


Middle Atlantic Products

EXCEPTIONAL SUPPORT & PROTECTION™

Slim 5 Series 19" Equipment Racks



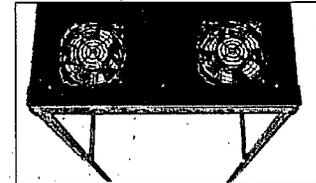
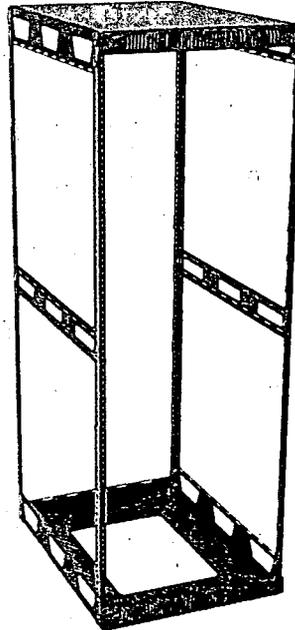
EIA/TIA Compliant

cUL US LISTED

Versatile rack frame system satisfies many design requirements

Features

- Available in 20" and 26" useable depths to accommodate deeper equipment
- Wide range of cabinet options makes rack adaptable to a multitude of different installation environments
- Ready-to-assemble design saves space and freight
- Optional removable steel side panels provide security while attractive thermolaminate side panel option provides aesthetic appeal for home and studio installations
- Optional casters can be bolted directly to bottom of rack or concealed in skirted base
- Unique mechanically interlocking corner joint is central to each unit's exceptional strength and eases assembly



top shown with optional
5-FAN-K fan kit



CABINET ACCESSORIES

ADJUSTABLE SPLIT REAR RAIL
CABLE CHASE KIT
COPPER BUSS BAR
FRONT DOORS (solid, plexi.)
DOOR LATCH
LEVELING FEET
REAR ACCESS PAN
SKIRTED CASTER BASE
THERMOLAMINATE OR STEEL
SIDE PANELS

for further details - see the SLIM 5 section of the Master catalog

Architects' and Engineers' Specifications

EIA compliant 19" gangable ready-to-assemble equipment rack shall be Middle Atlantic Products model # S-___ (refer to chart). Overall dimensions of rack shall be 19.125" W x ___" D x ___" H, with a useable height of ___ rack spaces (refer to chart). Rack shall have a static load capacity of 1,000 lbs. and a UL Listed 400 lb. weight capacity. Slim 5 series rack shall be of ready-to-assemble construction. Rack top and bottom shall be constructed of 14-gauge steel; horizontal braces shall be 13-gauge steel. Top, bottom and braces shall be phosphate pre-treated and finished in black powdercoat. Rack uprights shall be 11-gauge steel rackrail with tapped 10-32 mounting holes in universal EIA spacing with black e-coat finish and numbered rack spaces. Rack features eight 1/2" or 3/4" cable knockouts, four in top and four in base. Rack shall be UL listed in the US and Canada. Rack shall be GREENGUARD Indoor Air Quality Certified for Children and Schools. Rack shall be RoHS EU Directive 2002/95/EC compliant. Rack shall be manufactured by an ISO 9001 and ISO 14001 registered company. Rack shall be warranted to be free from defects in material or workmanship under normal use and conditions for the lifetime of the rack.

OPTIONS

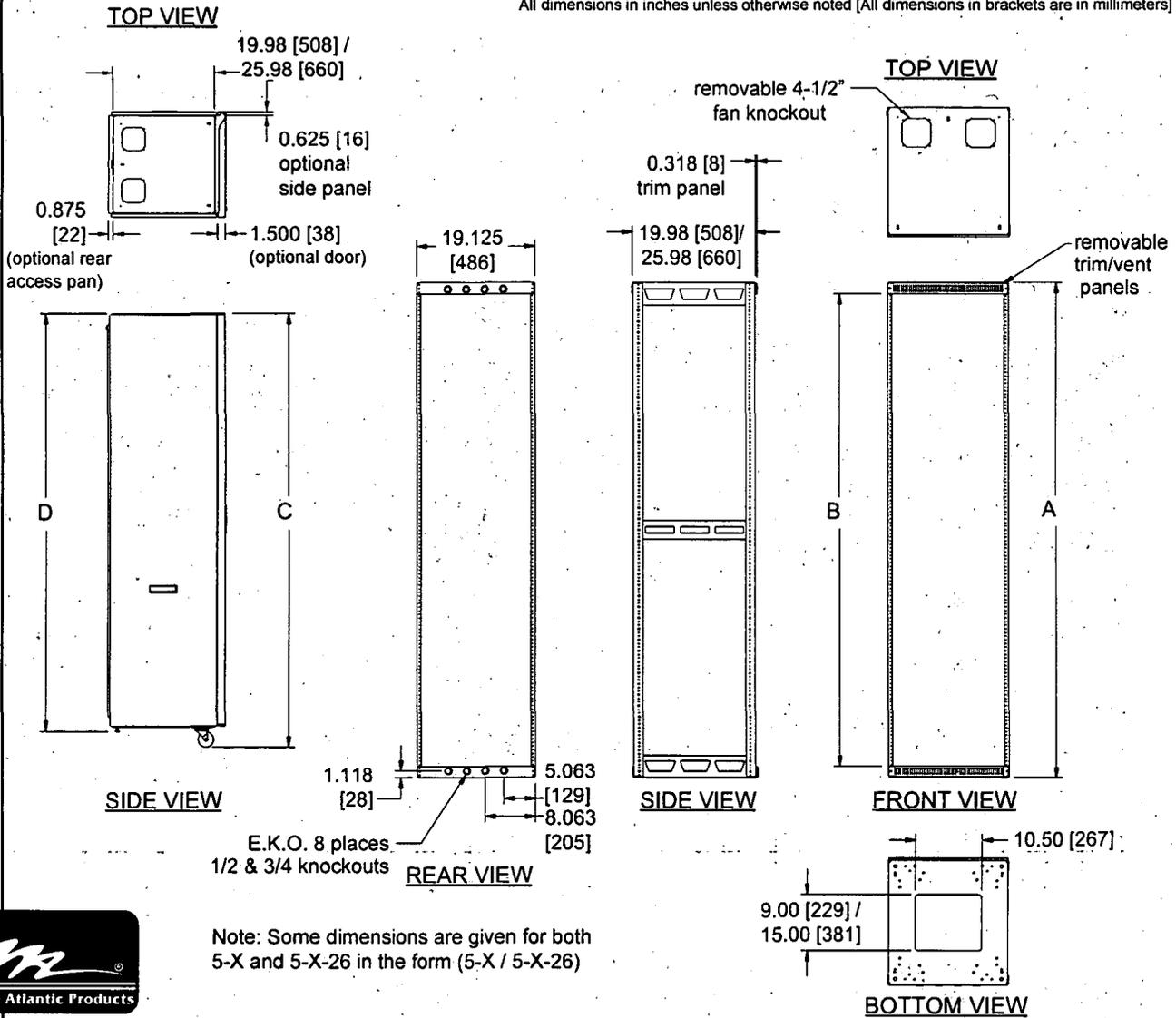
- Front doors* shall be 16-gauge steel
- Removable side panels shall be constructed of either 18-gauge steel, with recessed lift pulls, or 3/4" thermolaminate. Both include steel locking clips to secure side panels
- Rear access pan shall be constructed of 18-gauge steel and come with keylock
- Cable Chase kit shall be constructed of 16-gauge steel, 3 inches wide for wire clearance when ganging
- Adjustable Split Rackrail™ (for rear equipment support) shall be constructed of 11-gauge steel and mount to accompanying 13-gauge steel brackets
- Casters, set of four, shall have a total weight capacity of 900 lbs.
- Leveling feet part # LF, shall be 3/8" threaded steel, and shall be adjustable from top or bottom
- Runner kit shall be 5-RSxx.
- Fan kit shall be 5-FAN-K and shall displace 114 CFM of free air.

*NOTE: To use this option in a multi-bay configuration, a cable chase is required.
(See the SLIM 5 options section of our Master catalog.)

CUSTOMIZABLE SPECIFICATION CLIPS AVAILABLE AT MIDDLEATLANTIC.COM

Slim 5 basic dimensions

All dimensions in inches unless otherwise noted [All dimensions in brackets are in millimeters]



Note: Some dimensions are given for both 5-X and 5-X-26 in the form (5-X / 5-X-26)



USEABLE DEPTH PART #	USEABLE DEPTH	A OVERALL HEIGHT	B RACKING HEIGHT	C HEIGHT WITH CASTERS	D HEIGHT W/ LEVELING FEET
5-43	20 [508]	79.00 [2007]	75.25 [1911]	82.75 [2102]	79.38/79.75 [2016/2026]
5-37	20 [508]	68.50 [1740]	64.75 [1645]	72.25 [1835]	68.88/69.25 [1750/1759]
5-29	20 [508]	54.50 [1384]	50.75 [1289]	58.25 [1480]	54.88/55.25 [1394/1403]
5-21	20 [508]	40.50 [1029]	36.75 [933]	44.25 [1124]	40.88/41.25 [1038/1048]
5-14	20 [508]	28.25 [718]	24.50 [622]	32.00 [813]	28.63/29.00 [727/737]
5-8	20 [508]	17.75 [451]	14.00 [356]	21.50 [546]	18.13/18.50 [461/470]
5-43-26	26 [660]	79.00 [2007]	75.25 [1911]	82.75 [2102]	79.38/79.75 [2016/2026]
5-37-26	26 [660]	68.50 [1740]	64.75 [1645]	72.25 [1835]	68.88/69.25 [1750/1759]
5-29-26	26 [660]	54.50 [1384]	50.75 [1289]	58.25 [1480]	54.88/55.25 [1394/1403]
5-21-26	26 [660]	40.50 [1029]	36.75 [933]	44.25 [1124]	40.88/41.25 [1038/1048]
5-14-26	26 [660]	28.25 [718]	24.50 [622]	32.00 [813]	28.63/29.00 [727/737]
5-8-26	26 [660]	17.75 [451]	14.00 [356]	21.50 [546]	18.13/18.50 [461/470]

- Notes: 1 - Side panels are .25" [6] shorter than the overall height of the Slim 5 Rack
- 2 - Add an additional .06" [2] to the "Height with casters" (C) for the skirted caster base option
- 3 - Skirted caster base is not a required option when using casters
- 4 - Runner kits (5-RS20 and 5-RS26) add 1/4" [6mm] to overall height of rack



Middle Atlantic Products

EXCEPTIONAL SUPPORT & PROTECTION™



EIA/TIA Compliant

SEISMIC CERTIFIED

UL US LISTED

96-038 / rev 11c / 06-01-10

ERK Series Enclosure

The ERK Series 19" welded stand-alone / gangable enclosures. Advanced manufacturing techniques provide highest quality and lowest price.

Features

- Fully welded construction
- 2,500 lb. weight capacity
- 1/8" thick structural steel internal braces
- UL Listed in the US and Canada
- Seismic certified (when used with ERK-Z4 option) with an Ip value of 1.5
- 22" OD width, available 20" or 25" OD depth
- 1/2", 3/4", 1" & 1-1/2" electrical knockouts on removable split rear plates top and bottom, easily removable for cable pass-through. Top plates additionally include UHF / VHF knockouts
- Standard front, optional rear 11-gauge 10-32 threaded, fully adjustable rackrail with numbered rackspace increments
- Keylocked solid rear door standard, optional vented rear doors available
- Optional front doors available
- Configurable top options on 44, 40, and 35 space sizes
- Durable black textured powder coat finish



ERK-4425

Architects' and Engineers' Specifications

EIA compliant 19" stand-alone / gangable equipment rack shall be Middle Atlantic Products model # ERK-___ (see chart for available models). Overall dimensions of rack shall be ___"H x ___"W x ___"D (refer to chart). Useable height shall be ___ rackspaces, useable depth shall be ___" (refer to chart). Rack shall be of fully welded construction. Weight capacity shall be 2,500 lbs. Rack shall be constructed of the following materials: top and bottom shall be 16-gauge steel, horizontal braces shall be 16-gauge steel welded to integral structural side panels of 16-gauge steel giving an 1/8" thick structure, rear door shall be 18-gauge steel, all structural elements shall be finished in a durable black powder coat. Rack shall come equipped with one pair of fully adjustable 11-gauge steel rackrail with tapped 10-32 mounting holes in universal EIA spacing, black e-coat finish and numbered rackspaces. Rack shall include solid locking rear door standard and solid side panels with vertical slotted vent pattern at top and bottom (and laser knockouts for cable pass-through on 44, 40, and 35 space models). Top and bottom of rack shall feature vertical slotted vent pattern. Rack shall have removable split rear knockout panels with 1/2", 3/4", 1", and 1-1/2" electrical knockouts installed in base and a removable rear knockout panel with 1/2", 3/4", 1", and 1-1/2" electrical knockouts and BNC knockouts for UHF/VHF antennae installed in top. Grounding and bonding stud shall be 1/4-20 threaded, installed in base of enclosure. ERK series racks shall satisfy the 1997 UBC and 2001 CBC Seismic Zone 4 and the 2000 IBC, 2003 IBC, 2002 ASCE Standard 7 and 2003 NFPA 5000 Seismic Use Group III lateral force requirements for protecting 600 lbs. of essential equipment in upper floor installations when used in conjunction with the ERK-Z4 floor anchor brackets. Rack shall be UL Listed in the US and Canada. Rack shall be GREENGUARD Indoor Air Quality Certified for Children and Schools. Rack shall be RoHS EU Directive 2002/95/EC compliant. Rack shall be manufactured by an ISO 9001 and ISO 14001 registered company. Rack shall be warranted to be free from defects in material or workmanship under normal use and conditions for the lifetime of the product.

OPTIONS

- Front doors shall be reinforced 16-gauge steel, model #FD-XX (solid), VFD-XX (vented, 22% open area), LVFD-xx (vented 63% open area-not available for 27 space rack) PVFD-44 (vented plexi), (X=# of rackspaces of ERK rack)
- Vented rear doors shall be 16-gauge steel & available as model #ERK-VRD-XX, (X=# of rackspaces of ERK rack)
- Top panels for 35, 40 or 44 space ERK, 16-gauge steel, multiple styles available including model #ERK-ST (solid), ERK-10FT (10" fan), ERK-6FT (two 6" fans) ERK-4FT (three 4-1/2" fans), ERK-VT (vented) and ERK-LVT (large perf vented) see A&E spec 96-01063 for more details
- Caster base, four casters shall have a total weight capacity of 1300 pounds, model #CBS-ERK-YY (Y= cabinet depth)
- Rear rail kit; 11-gauge, 10-32 threaded, sold in pairs, hardware included, model #ERK-RRXX (X=# of rackspaces)
- Seismic compliancy floor anchor kit, model # ERK-Z4
- 18, 21 and 27 space ERK come preconfigured with solid top that includes knockouts to accommodate up to two 4-1/2" fans, or included vent panels
- Grommet for 4" electrical knockout in side of ERK shall be model # GK4 and include 4 pieces
- Gland grommet for 4" electrical knockout in side of ERK shall be model #GK-4G. 4 Pieces.
- Slide out option available (See AXS Spec sheet 96-0555)

CUSTOMIZABLE SPECIFICATION CLIPS AVAILABLE AT MIDDLEATLANTIC.COM

US: New Jersey • California • Illinois • Voice: 973-839-1011 Fax: 973-839-1976 • middleatlantic.com
Canada: Ontario • British Columbia • Voice: 613-836-2501 Fax: 613-836-2690 • middleatlantic.ca

96-038 / rev 11c / 06-01-10 / ERK Series Enclosure

ERK Configured A/V Enclosure



EIA/TIA Compliant

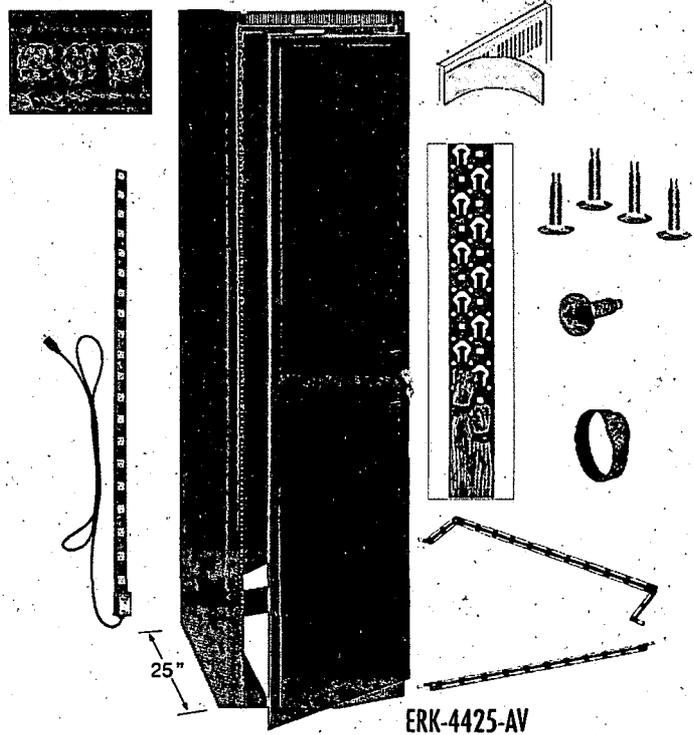
SEISMIC CERTIFIED

UL US LISTED

Configured A/V enclosure ships complete with the most commonly used accessories

Includes

- Integrated fan top
- Configurable rear door with bottom vent, solid locking front door
- 3-1/4" wide vertical lacer strip (height varies based on model)
- Six horizontal lacer bars
- Twelve 8" Velcro® cable management straps
- Thin power strip, 20 Amp, 20 outlet with cord (44 space enclosures) or 2 qty. thin power strip, 20 Amp, 10 outlet with cord (35 & 40 space enclosures)
- Leveling feet
- 100 qty. 10-32 mounting hardware



Architects' and Engineers' Specifications

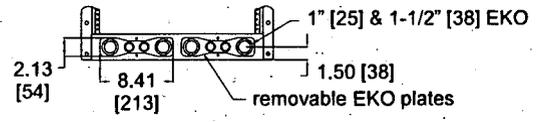
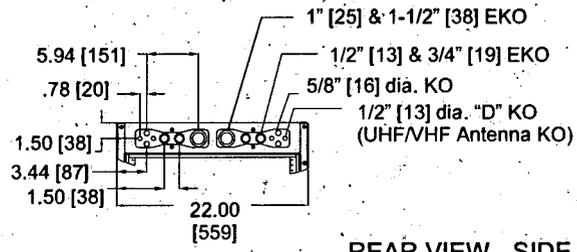
EIA compliant 19" stand-alone equipment rack shall be Middle Atlantic Products model # ERK-___-AV (refer to chart). Overall dimensions of rack shall be ___" H x 22" W x 25" D. Useable height shall be ___ rackspace, useable depth shall be 23-1/2". Fully welded construction shall provide a 2,500 lb. weight capacity. Rack shall be constructed of the following materials: top and bottom shall be 16-gauge steel, horizontal braces shall be 16-gauge steel welded to integral structural side panels of 16-gauge steel giving an 1/8" thick structure. Solid front door shall be 18-gauge steel and rear door shall be 18-gauge steel and all structural elements shall be finished in a durable black powder coat. Rack shall come equipped with one pair of 11-gauge steel rackrail with tapped 10-32 mounting holes in universal EIA spacing, black e-coat finish and numbered rackspace. Rack shall include 100 qty. 10-32 mounting screws. Rack shall be equipped with one 3-1/4" vertical lacer strip Middle Atlantic Products model # LACE-___-OP (refer to chart), four 'L' shaped straight and two 4" offset horizontal lacer bars and twelve, 8" Velcro® straps for cable management. The ERK shall have a solid locking rear door standard and solid side panels with vertical slotted vent pattern at top and bottom with laser knockouts for cable pass-through. Top and bottom of rack shall feature vertical slotted vent pattern. Rack shall have feature integrated fan top, Middle Atlantic Products model # ERK-4FT-285CFM for active thermal management. The ERK-4FT-285CFM shall consist of three 4-1/2" fans and airflow shall be 285 CFM. Rack shall have removable split rear knockout panels with 1/2", 3/4", 1" and 1-1/2" electrical knockouts and top BNC

knockouts for UHF/VHF antennae. ERK Series enclosures shall satisfy the 1997 UBC and 2001 CBC Seismic Zone 4 and the 2000 IBC, 2003 IBC, 2002 ASCE Standard 7 and 2003 Ed. NFPA 5000 Seismic Use Group III lateral force requirements for protecting 600 lbs. of essential equipment in upper floor installations when used in conjunction with the ERK-Z4 seismic floor anchor brackets with an Ip value of 1:5. ERK-___-AV shall include a high-density thin power distribution and shall be Middle Atlantic Products model # PDT-___-NS with ___ outlets and 20 amps (refer to chart). Thin power distribution shall be ___" long (refer to chart) x 1" deep x 1.9" wide. J-Box shall be 2" deep x 2" wide. Thin power distribution shall feature ___ NEMA 5-20R outlets. Corded power strip includes 20 amp protection and mounting hardware. Corded model shall be terminated with 10-foot power cord and a NEMA 5-20P plug. PDT Series shall feature a black anodized finish. ERK and PDT Series shall be UL Listed in the US and Canada. ERK-___-AV shall be GREENGUARD Indoor Air Quality Certified for Children and Schools. ERK-___-AV shall be RoHS EU Directive 2002/95/EC compliant. ERK-___-AV shall be manufactured by an ISO 9001 and ISO 14001 registered company. PDT series shall be warranted to be free from defects in materials or workmanship for a period of 3 years. ERK enclosure shall be warranted to be free from defects in material or workmanship under normal use and conditions for the lifetime of the rack.

ERK basic dimensions

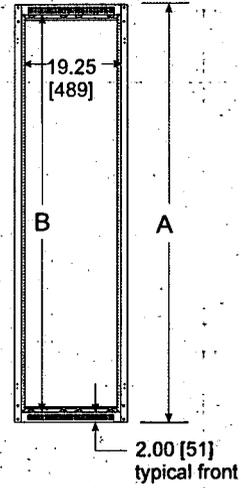
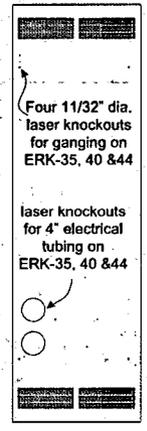
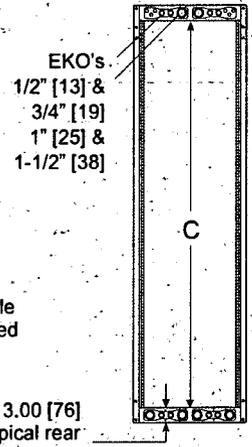
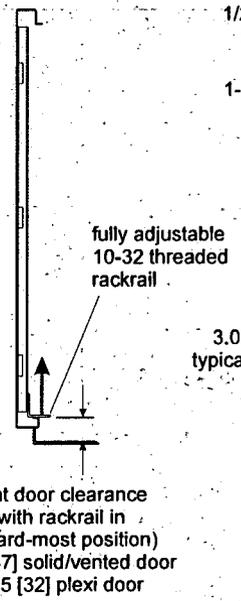


REAR VIEW, TOP & BOTTOM

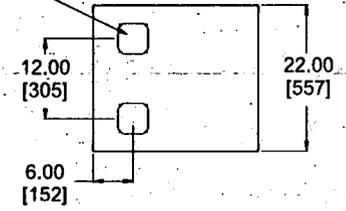


REAR VIEW SIDE VIEW FRONT VIEW

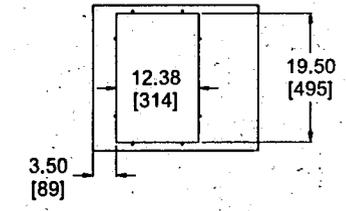
TOP VIEW OF ERK SIDE SECTIONAL VIEW



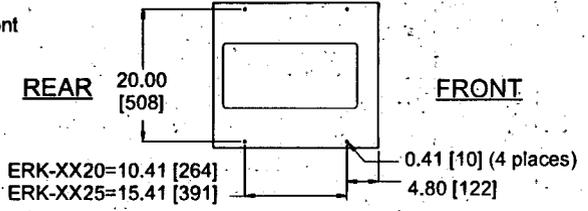
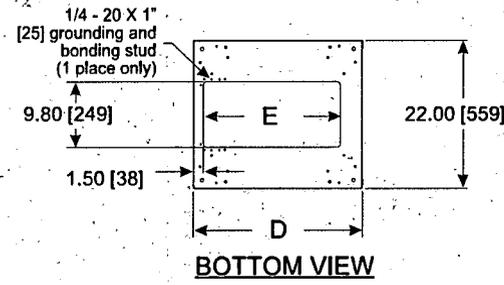
Laser knockouts for 4-1/2" fans



TOP VIEW
 ERK-18XX
 ERK-21XX
 ERK-27XX



TOP VIEW
 ERK-35XX
 ERK-40XX
 ERK-44XX



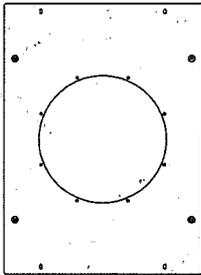
BOTTOM VIEW
 mounting holes

All dimensions in inches unless otherwise noted [All dimensions in brackets are in millimeters]

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Part #	A Overall Height	B Useable Height	C Rear Height	D Overall Depth	E Bottom Opening Depth
ERK-4425	81.125 [2061]	77.125 [1959]	75.125 [1908]	25.00 [635]	20.25 [514]
ERK-4025	74.125 [1883]	70.125 [1781]	68.125 [1703]	25.00 [635]	20.25 [514]
ERK-3525	65.375 [1661]	61.375 [1559]	59.375 [1508]	25.00 [635]	20.25 [514]
ERK-2725	51.375 [1305]	47.375 [1203]	45.375 [1153]	25.00 [635]	20.25 [514]
ERK-2125	40.875 [1038]	36.875 [937]	34.875 [886]	25.00 [635]	20.25 [514]
ERK-1825	35.625 [905]	31.625 [803]	29.625 [752]	25.00 [635]	20.25 [514]
ERK-4420	81.125 [2061]	77.125 [1959]	75.125 [1908]	20.00 [508]	15.25 [387]
ERK-4020	74.125 [1883]	70.125 [1781]	68.125 [1703]	20.00 [508]	15.25 [387]
ERK-3520	65.375 [1661]	61.375 [1559]	59.375 [1508]	20.00 [508]	15.25 [387]
ERK-2720	51.375 [1305]	47.375 [1203]	45.375 [1153]	20.00 [508]	15.25 [387]
ERK-2120	40.875 [1038]	36.875 [937]	34.875 [886]	20.00 [508]	15.25 [387]
ERK-1820	35.625 [905]	31.625 [803]	29.625 [752]	20.00 [508]	15.25 [387]
ERK-4425-AV	81.125 [2061]	77.125 [1959]	75.125 [1908]	25.00 [635]	20.25 [514]
ERK-4025-AV	74.125 [1883]	70.125 [1781]	68.125 [1703]	25.00 [635]	20.25 [514]
ERK-3525-AV	65.375 [1661]	61.375 [1559]	59.375 [1508]	25.00 [635]	20.25 [514]

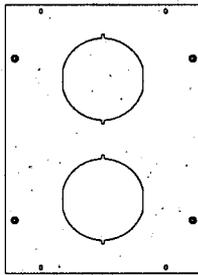
TOP OPTIONS



ERK-10FT
accepts 10" fan

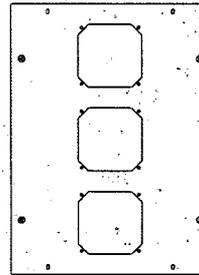
ERK-10FT- 550CFM
includes 10" fan

ERK-10FT-FC
includes 10" fan and
fan controller



ERK-6FT
accepts two 6" fans

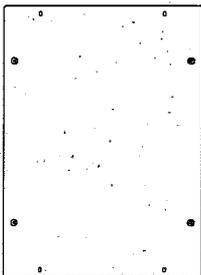
ERK-6FT- 440CFM
includes two 6" fans



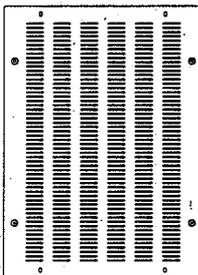
ERK-4FT accepts
three 4-1/2" fans

ERK-4FT- 285CFM
includes three
4-1/2" fans
(included in AV
enclosures)

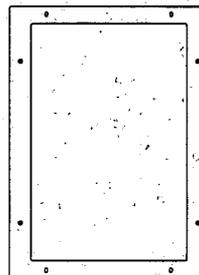
ERK-4QFT-FC
includes 4-1/2"
quiet fans and fan
controller



ERK-ST
solid



ERK-VT
slot vent



ERK-LVT
large perf vent

ERK A/V Enclosure Power Distribution

Rack Part #	Part #	Terminated	Circuit	Outlets	Overall Length	Qty
ERK-4025-AV / ERK-3525-AV	PDT-1020C-NS	5-20P	20 Amp	10, 5-20R	37.75 [959]	2
ERK-4425-AV	PDT-2020C-NS	5-20P	20 Amp	20, 5-20R	72.75 [1848]	1

ERK A/V Enclosure Vertical Lacer Bar Chart

Part #	Lacer Bar	Number of Rackspaces	Width
ERK-4425-AV	LACE-44-OP	44	3.25 [83]
ERK-4025-AV	LACE-40-OP	40	3.25 [83]
ERK-3525-AV	LACE-37-OP	37	3.25 [83]



Middle Atlantic Products

EXCEPTIONAL SUPPORT & PROTECTION™



US PATENT# 7, 278, 183

EIA/TIA Compliant

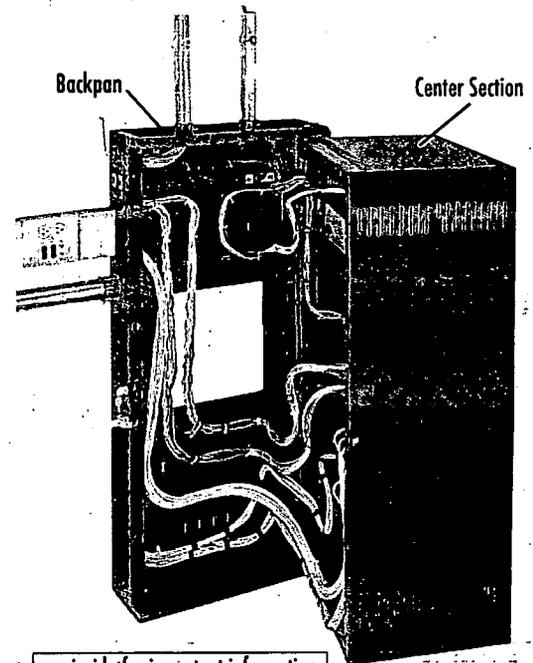
C(UL) US LISTED

DWR Series Wall Mount Rack

This pivoting, sectional wall cabinet is ideal for larger systems in both secured and non-secured areas

Features

- Available in 17", 22", 26" and 32" overall depths with 15", 20", 24" and 30" of useable depth
- Tool-Free Quick-Mount™ system for easy, one-person mounting of the center section to the backpan on the jobsite
- New center section rear channel accommodates slim power to save space
- Optional minimum-clearance latch allows side-by-side or interior corner mounting
- 16-gauge steel construction with 1/8" thick laser-cut corner braces
- Reversible padlockable center section is keyed differently from optional front door for security
- 2" knockouts, 4" knockouts for Wiremold 4000® Series raceways, and knockouts for UCP Series universal connector panels on side
- Grounding/bonding stud in top and bottom of center section and backpan facilitates proper grounding and bonding of electronic equipment, as per NEBS and NEC standards
- Finished in a durable black or granite gray textured powder coat
- UL listed in the US and Canada



see inside for important information regarding useable depths

DWR-24-22

Architects' and Engineers' Specifications

EIA compliant 19" wall mount rack shall be Middle Atlantic Products model # DWR-___ (refer to chart). Overall dimensions shall be 23.4" W x ___" H x ___" D (refer to chart). Weight capacity shall be ___ lbs. Tool-Free Quick-Mount™ system enables one-person installation. Useable depth shall be ___" (refer to chart) and shall extend into the back pan 3.5". Center section and back pan shall be 16-gauge steel, phosphate pre-treated and finished in a black or granite gray textured powder coat. Rackrail shall be constructed of 11-gauge steel with tapped 10-32 mounting holes in universal EIA spacing with black e-coat finish and marked rack spaces. Rack shall be constructed to swing open for component cabling access, center section shall pivot for either left or right opening. Back pan includes raised mounting embosses to mount power products and other accessories. Rack shall have a rear knockout panel with 1/2", 3/4", 1", 1-1/2", 2" and 3" electrical knockouts installed in base, and a rear knockout panel with 1/2", 3/4", 1", 1-1/2", 2" and 3" electrical knockouts, four Decora® cutouts, and BNC knockouts for UHF/VHF antennas installed in top. Large laser knockout on back pan shall have a 12-1/2" x 12-1/2" cutout for electrical pull-box. Fan knockouts on top and bottom shall allow for installation of up to four 4-1/2" fans. Rack shall have 2" knockouts, 4" knockouts for Wiremold 4000® Series raceways, and knockouts for UCP Series universal connector panels on the side. Top, bottom and sides shall feature vertical vent pattern. Rack shall be UL Listed in the US and Canada. Rack shall be GREENGUARD Indoor Air Quality Certified for Children and Schools. Rack shall be RoHS EU Directive 2002 / 95 / EC compliant. Rack shall be manufactured by an ISO 9001 and ISO 14001 registered company. Rack shall be

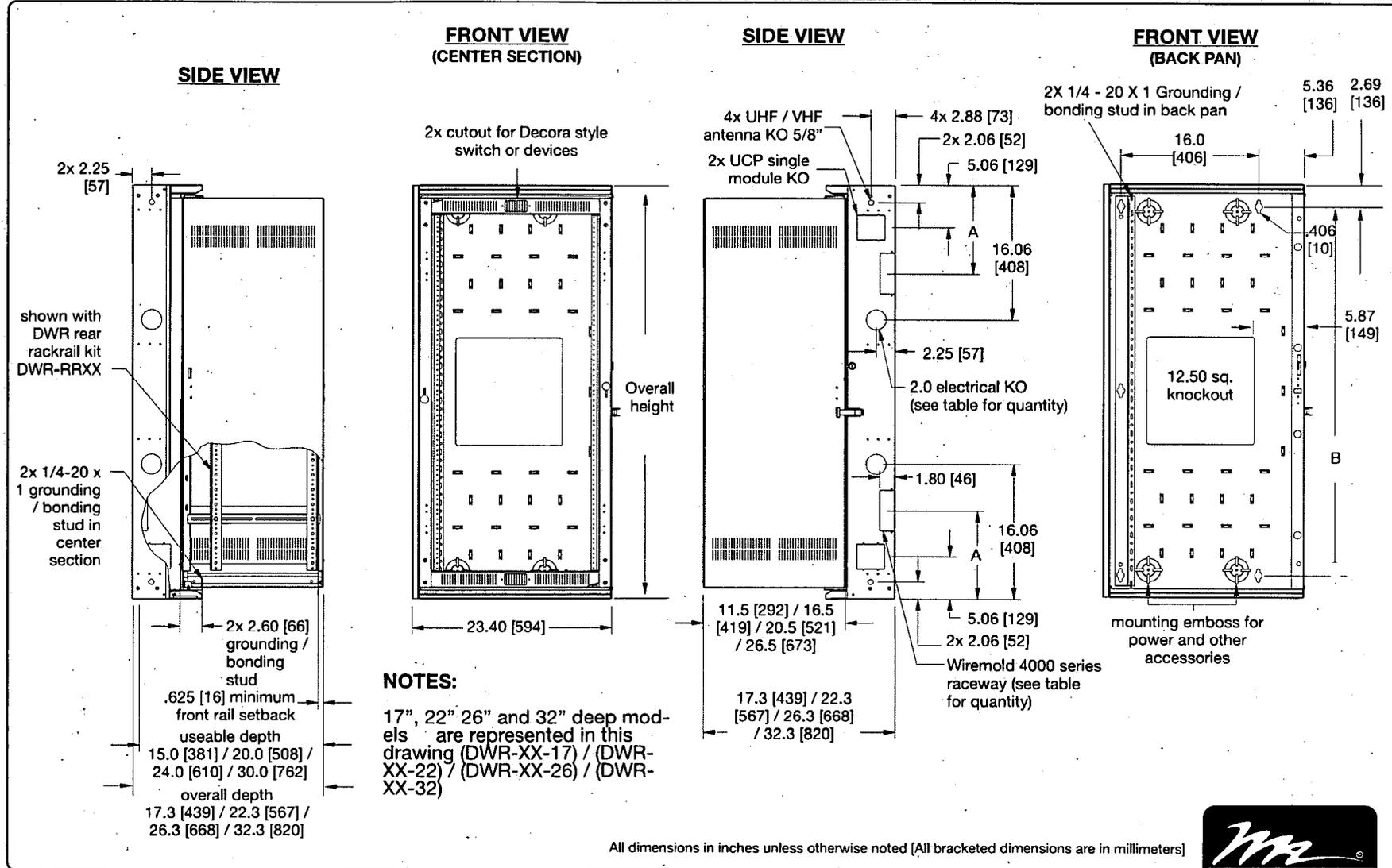
warranted to be free from defects in materials or workmanship under normal use and conditions for the lifetime of the rack.

OPTIONS

- Front doors shall be reinforced 16-gauge steel, model # FD-XX (solid), VFD-XX (vented, 25% open area), LVFD-XX (vented, 64% open area), PFD-XX (plexi), (XX= # of rackspaces of DWR rack)
- Keyless Latch replaces keylock, fits front & rear doors, shall be models # LATCH
- Rear rail kit 11-gauge, 10-32 threaded, sold in pairs, hardware included, shall be model # DWR-RRXX
- Fan kits with two 4-1/2" exhaust fans, fan guards and vent blockers, shall be model # DWR-FK17 (fits DWR-xx-17), DWR-FK22 (fits DWR-xx-22), DWR-FK26 (fits DWR-xx-26), DWR-FK32 (fits DWR-xx-32)
- Vent Blockers used to promote active thermal management, shall be model # VBK-D17 (fits DWR-XX-17), VBK-SD22 (fits DWR-XX-22), VBK-E20 (fits DWR-XX-26)
- Optional cover plate / shelf kit shall be model # DWR-CVR
- Minimum-clearance latch shall allow side-by-side or corner mounting, shall be model # DWRSR-ZL

CUSTOMIZABLE SPECIFICATION CLIPS AVAILABLE AT MIDDLEATLANTIC.COM

DWR Series basic dimensions



All dimensions in inches unless otherwise noted [All bracketed dimensions are in millimeters]



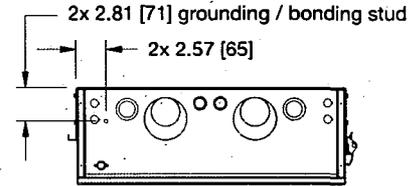
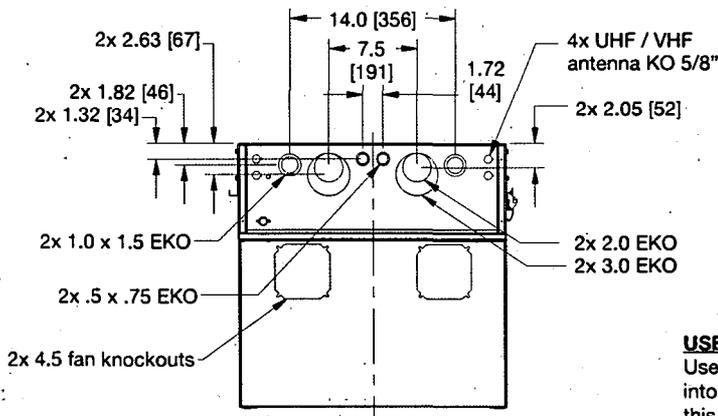
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DWR Series basic dimensions



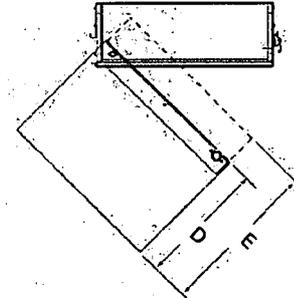
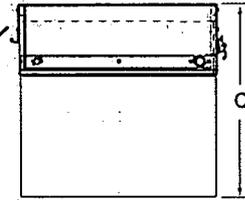
TOP VIEW

(knockouts pictured in top view are also on the bottom view)

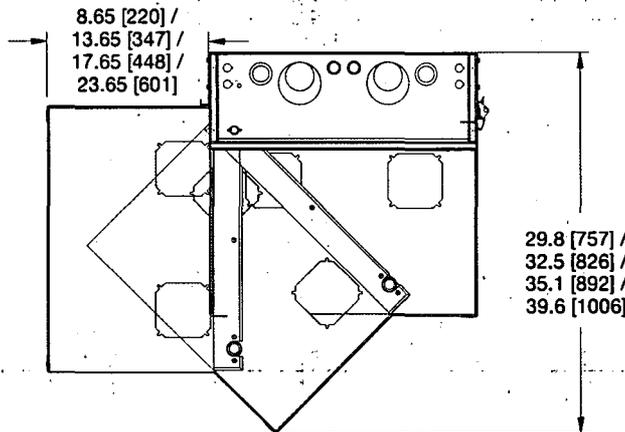


USEABLE DEPTH

Useable depth extends into backpan. Consider this when applications require large amounts of cables, connectors and/or conduit in the backpan.



CENTER SECTION CLEARANCE

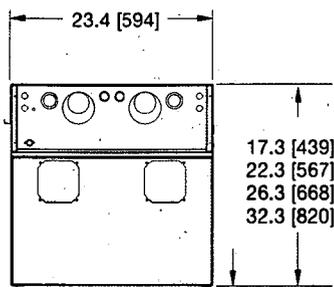


MODEL #	C OVERALL DEPTH	D CENTER SECTION DEPTH	E USEABLE DEPTH
DWR-XX-17	17.3 [439]	11.5 [292]	15.0 [381]
DWR-XX-22	22.3 [567]	16.5 [419]	20.0 [508]
DWR-XX-26	26.3 [668]	20.5 [521]	24.0 [610]
DWR-XX-32	32.3 [820]	26.5 [673]	30.0 [762]

Part #	Overall Height	Racking Height	Useable Depth	Rackspaces	Weight Capacity	2" EKO Backpan Qty.	Wiremold 4000 Series Qty.	A Wiremold 4000 Series Spacing	B Mounting Hole Spacing	Qty. of Mounting Holes
DWR-10-17	24.50 (622)	17.50 (445)	15	10 spaces	200 lbs.	-	1	12.25 (311)	19.13 (486)	4
DWR-10-22	24.50 (622)	17.50 (445)	20	10 spaces	200 lbs.	-	1	12.25 (311)	19.13 (486)	4
DWR-12-17	28.00 (711)	21.00 (533)	15	12 spaces	200 lbs.	-	1	14.00 (356)	22.63 (575)	4
DWR-12-22	28.00 (711)	21.00 (533)	20	12 spaces	200 lbs.	-	1	14.00 (356)	22.63 (575)	4
DWR-12-26	28.00 (711)	21.00 (533)	24	12 spaces	200 lbs.	-	1	14.00 (356)	22.63 (575)	4
DWR-12-32	28.00 (711)	21.00 (533)	30	12 spaces	200 lbs.	-	1	14.00 (356)	22.63 (575)	4
DWR-16-17	35.00 (889)	28.00 (711)	15	16 spaces	200 lbs.	-	1	17.50 (445)	29.63 (752)	4
DWR-16-22	35.00 (889)	28.00 (711)	20	16 spaces	200 lbs.	-	1	17.50 (445)	29.63 (752)	4
DWR-18-17	38.50 (978)	31.50 (800)	15	18 spaces	250 lbs.	-	1	19.25 (489)	33.13 (841)	4
DWR-18-22	38.50 (978)	31.50 (800)	20	18 spaces	250 lbs.	-	1	19.25 (489)	33.13 (841)	4
DWR-18-26	38.50 (978)	31.50 (800)	24	18 spaces	250 lbs.	-	1	19.25 (489)	33.13 (841)	4
DWR-18-32	38.50 (978)	31.50 (800)	30	18 spaces	250 lbs.	-	1	19.25 (489)	33.13 (841)	4
DWR-21-17	43.75 (1111)	36.75 (933)	15	21 spaces	250 lbs.	4	2	10.56 (268)	38.33 (975)	4
DWR-21-22	43.75 (1111)	36.75 (933)	20	21 spaces	250 lbs.	4	2	10.56 (268)	38.33 (975)	4
DWR-24-17	49.00 (1245)	42.00 (1067)	15	24 spaces	300 lbs.	4	2	10.56 (268)	43.63 (1108)	5
DWR-24-22	49.00 (1245)	42.00 (1067)	20	24 spaces	300 lbs.	4	2	10.56 (268)	43.63 (1108)	5
DWR-24-26	49.00 (1245)	42.00 (1067)	24	24 spaces	300 lbs.	4	2	10.56 (268)	43.63 (1108)	5
DWR-24-32	49.00 (1245)	42.00 (1067)	30	24 spaces	300 lbs.	4	2	10.56 (268)	43.63 (1108)	5
DWR-35-17	68.25 (1734)	61.25 (1558)	15	35 spaces	300 lbs.	4	2	10.56 (268)	62.83 (1597)	6
DWR-35-22	68.25 (1734)	61.25 (1558)	20	35 spaces	300 lbs.	4	2	10.56 (268)	62.83 (1597)	6
DWR-35-26	68.25 (1734)	61.25 (1558)	24	35 spaces	300 lbs.	4	2	10.56 (268)	62.83 (1597)	6

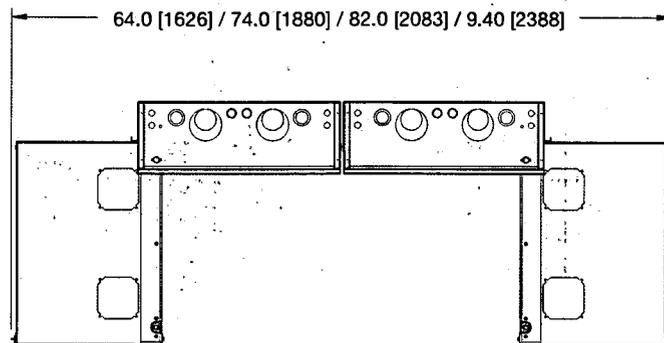
DWR Series basic dimensions with Minimum-Clearance Latch installed

TOP VIEW

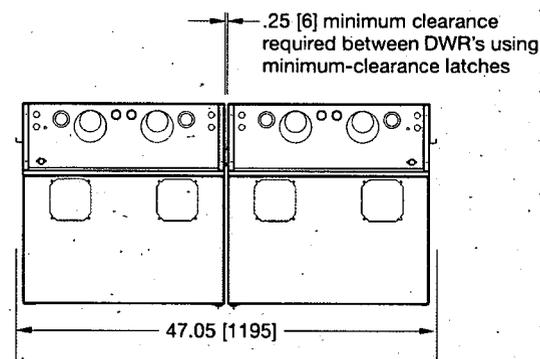


Minimum-clearance latch adds an additional .52 [13] to front of rack

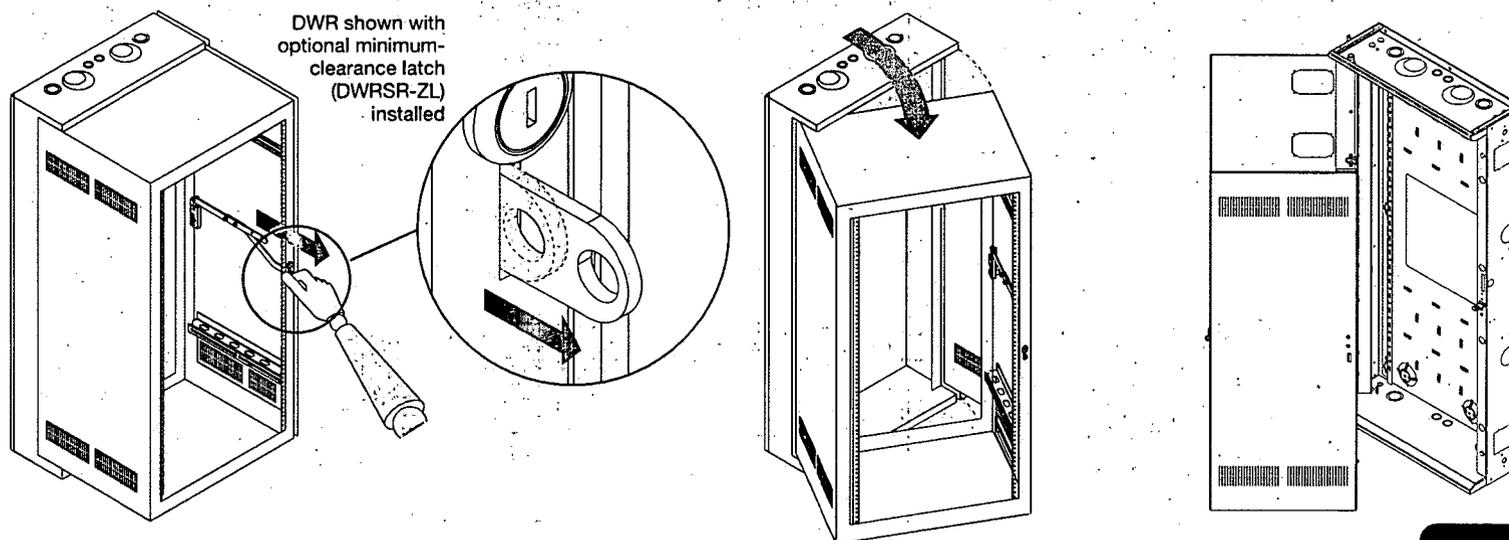
**TOP VIEW
(2 DWR'S FULLY OPEN)**



**TOP VIEW
(2 DWR'S IN CLOSED POSITION)**



OPTIONAL DWRSR-ZL MINIMUM-CLEARANCE LATCH OPERATION:



All dimensions in inches unless otherwise noted [All bracketed dimensions are in millimeters]

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Middle Atlantic Products

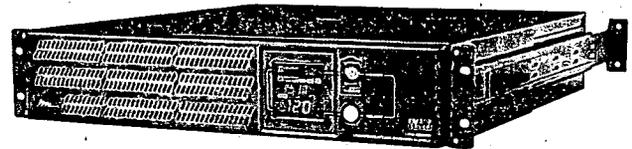
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Uninterruptible Power Supply

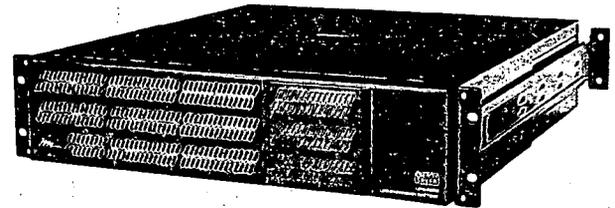
Uninterruptible Power Supply with Energy Saver design that is optimized to address the needs of A/V systems

Features

- Pure Sine Wave technology with Automatic Voltage Regulation to improve the quality of power provided to the A/V system
- Control system integration via RS-232 and USB and analog I/O
- Load shedding allows extended run time for system-critical components by disconnecting power to less-critical components
- Line Interactive Technology
- Power Manager software allows extensive configuration and event notification capabilities
- Energy Saver design reduces power consumption by up to 75% when compared with traditional UPS designs
- 9' SignalSafe™ power cord minimizes stray magnetic fields
- UL Listed in the US and Canada



UPS-1000R



UPS-EBPR

Architects and Engineers' Specifications

Rackmount Uninterruptible Power Supply (UPS) shall be Middle Atlantic Products model # UPS- ___ R (refer to chart). UPS shall be line interactive with AVR. Unit shall measure 19.00" W x 3.50" H x 19.00" D and occupy 2 rackspaces. UPS shall have a rear mounting range of 19" to 32" and not require more than one person to mount. Unit shall operate on 120 VAC/60Hz current. Unit shall have a nominal output of 120V. Unit shall have a capacity of ___ VA and ___ W (refer to chart). Unit shall have (8) NEMA 5- ___ receptacles on the rear of the unit (refer to chart). Unit shall have a priority outlet bank consisting of 4 outlets dedicated to ensure maximum run time of critical components. Unit shall have a non-critical outlet bank consisting of 4 outlets dedicated to load shedding. Rackmount UPS shall include a 9' ___ (refer to chart) SignalSafe™ power cord with NEMA ___ (refer to chart) plug. Rackmount UPS shall have a hot swappable battery that allows for a ___ minute run time at half load and a ___ (refer to chart) minute run time at full load. Rear of unit shall have inputs that allow for the installation of up to 10 additional hot swappable batteries. Rackmount UPS shall utilize Middle Atlantic Power Manager™ software. Rackmount UPS shall be warranted to be free from defects in materials

and workmanship under normal use and conditions for a period of 3 years; battery shall be warranted for a period of 1 year. Rackmount UPS shall be UL listed in US and Canada.

Expansion Battery

Rackmount expansion battery pack shall be Middle Atlantic Products model # UPS-EBPR. Expansion battery pack shall be suitable for use with both UPS-1000R and UPS-2200R. UPS-EBPR shall measure 19.00" W x 3.50" H x 19.29" D and occupy 2 rackspaces. With ___ hot swappable batteries connected to the unit, there is a ___ minute run time at half load and a ___ minute run time at full load (refer to chart). Rackmount expansion battery pack shall be warranted for a period of 1 year.

Replacement Battery

Replacement Battery Pack for the UPS shall be Middle Atlantic Products model # UPS-RBP. Replacement battery pack shall be suitable for use with both UPS-1000R and UPS-2200R. Replacement battery shall be warranted to be free from defects in materials and workmanship under normal use and conditions for a period of 1 year.

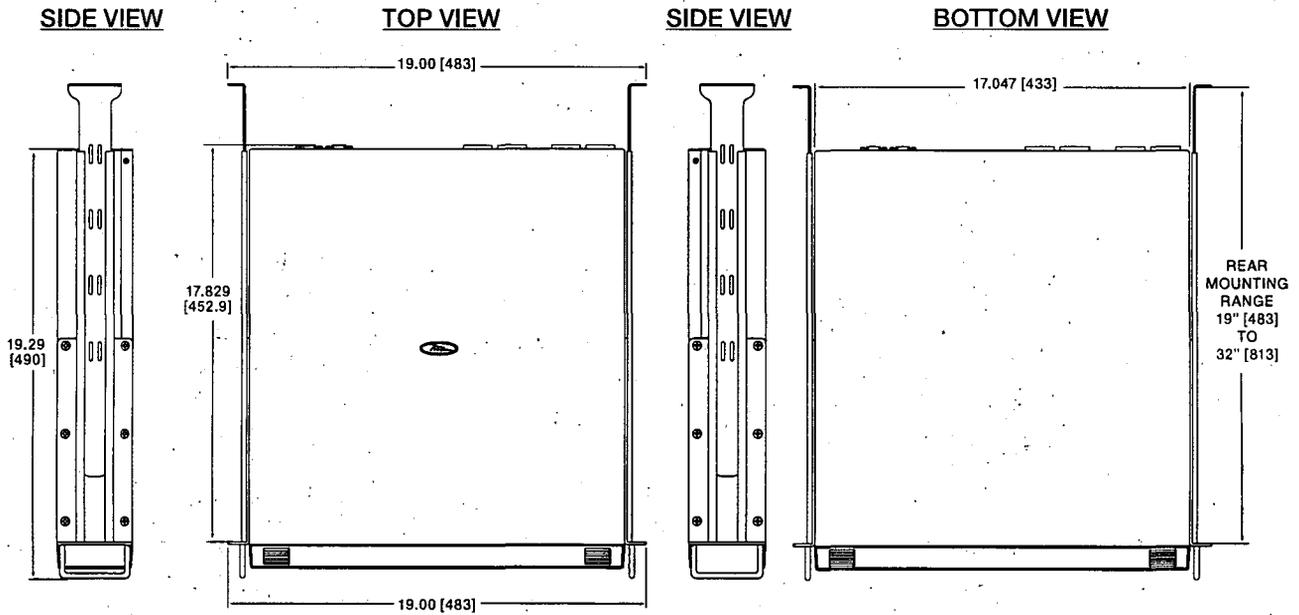
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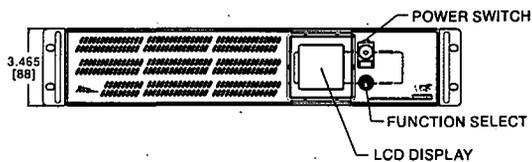
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UPS basic dimensions

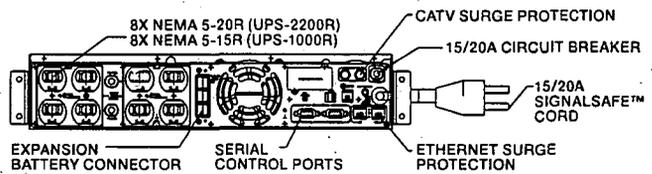
All dimensions in inches unless otherwise noted [All dimensions in brackets are in millimeters]



FRONT VIEW (UPS-xx00R)



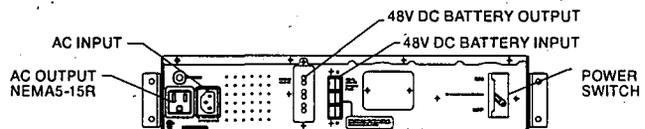
REAR VIEW (UPS-xx00R)



FRONT VIEW (UPS-EBPR)



REAR VIEW (UPS-EBPR)



General Information				
Model No.	UPS-1000R		UPS-2200R	
Input				
Nominal Input Voltage	120 V		120 V	
Input Voltage Range	80VAC – 145VAC		80VAC – 145VAC	
Input Frequency	60 Hz +/- 3 Hz (auto sensing)		60 Hz +/- 3 Hz (auto sensing)	
Input Protection Type	Resettable thermal fuse		Resettable thermal fuse	
Cord Length / Cord Type / Plug Type	9 ft. / 14/3 / NEMA 5-15P		9 ft. / 12/3 / NEMA 5-20P	
Output				
Green Mode Consumption	Less than 9W at full battery capacity		Less than 9W at full battery capacity	
Nominal Output Voltage	120 V		120 V	
Capacity (VA)	1000VA		2150VA	
Capacity (Watts)	750W		1650W	
Waveform	Pure Sine Wave		Pure Sine Wave	
On Line Output Frequency	57 - 63 Hz for 60 Hz nominal		57 - 63 Hz for 60 Hz nominal	
On Battery Output Frequency	60 Hz +/- .1 Hz		60 Hz +/- .1 Hz	
Transfer Time (Typical)	4 ms typical line to battery / battery to line		4 ms typical line to battery / battery to line	
Overload Protection (on line mode)	100% ≤ Load < 110% warning, 120 sec shutdown 110% ≤ Load < 125% warning, 40 sec shutdown 125% ≤ Load warning, 10 sec shutdown		100% ≤ Load < 110% warning, 120 sec shutdown 110% ≤ Load < 125% warning, 40 sec shutdown 125% ≤ Load warning, 10 sec shutdown	
Overload Protection (on battery mode)	100% ≤ Load < 110% warning, 30 sec shutdown 110% ≤ Load < 125% warning, 10 sec shutdown 125% ≤ Load warning, 3 sec shutdown		100% ≤ Load < 110% warning, 30 sec shutdown 110% ≤ Load < 125% warning, 10 sec shutdown 125% ≤ Load warning, 3 sec shutdown	
Total Harmonic Distortion (THD)				
Total System Load	0%	20%	60%	100%
Utility Mains* THD	2.0%	2.0%	2.0%	2.0%
Battery Backup THD	1.9%	1.3%	1.5%	5.2%
*typical 120V power with 2% THD				
Surge Protection and Filtering				
	UPS-1000R		UPS-2200R	
Lightning / Surge Protection	L-N=>381 J (127J x 3) Clamp voltage 270V (Max energy 10 / 1000 μs)		L-N=>381 J (127J x 3) Clamp voltage 270V (Max energy 10 / 1000 μs)	
RJ11 / RJ45 Protection	Sidactorx1 Clamp Voltage 275V Fuse (.75A / 250V) x 2		Sidactorx1 Clamp Voltage 275V Fuse (.75A / 250V) x 2	
Physical				
Output Receptacles	(8) NEMA 5-15R		(8) NEMA 5-20R	
Dimensions (in.)	19.00" [423] W x 3.50" [89] H x 19.29" [490] D		19.00" [423] W x 3.50" [89] H x 19.29" [490] D	
Weight (lb.)	68 lbs.		77 lbs.	
Battery				
Rating	12V / 9.0 AH x 4		12V / 9.0 AH x 4	
Auto Charger	1A		1A	
Hot Swappable External Battery	Yes		Yes	
Run Time at Half Load	26 minutes		13 minutes	
Run Time at Full Load	13 minutes		6.4 minutes	
Warning/Diagnostics				
Control Panel	LCD Display Indicators, Power On		LCD Display Indicators, Power On	
Audible Alarms	On Battery, Low Battery		On Battery, Low Battery	
Environmental				
Operating Temperature	32°F to 104°F (0°C to 40°C)		32°F to 104°F (0°C to 40°C)	
Operating Relative Humidity	0 to 95% Non-Condensing		0 to 95% Non-Condensing	

Communication		
Software	Middle Atlantic Power Manager™	Middle Atlantic Power Manager™
Management		
Self-Test	Manual Self-Test via front panel	Manual Self-Test via front panel
Auto-Charger/ Auto-Restart	Yes	Yes
COM Interface	Primary: - RS232 Communication + Control - Analog Status Notification + Control Secondary: - Analog status notification only	Primary: - RS232 Communication + Control - Analog Status Notification + Control Secondary: - Analog status notification only
Built-in USB Interface	Yes	Yes

Expansion Battery Estimated Run Times

UPS-1000R								
Load (VA)	120	240	360	480	600	720	840	960
Load (W)*	84	168	252	336	420	504	588	672
Load (A)	1	2	3	4	5	6	7	8
Number of expansion batteries	ESTIMATED RUN TIME (Minutes)							
UPS only	102	51	34	26	20	17	15	13
1	561	283	190	143	114	94	80	69
2	1020	515	345	260	207	171	145	125
3	1479	747	501	377	300	249	211	181
4	1938	979	657	494	394	326	276	238
5	2397	1211	813	611	487	403	341	294
6	2856	1443	968	728	580	480	407	350
7	3315	1676	1124	845	674	557	472	406
8	3774	1908	1280	962	767	635	537	463
9	4233	2140	1435	1079	860	712	603	519
10	4692	2372	1591	1196	954	789	668	575

*Assuming a Power Factor of .7

UPS-2200R																
Load (VA)	120	240	360	480	600	720	840	960	1080	1200	1320	1440	1560	1680	1800	1920
Load (W)*	90	180	270	360	450	540	630	720	810	900	990	1080	1170	1260	1350	1440
Load (A)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Number of expansion batteries	ESTIMATED RUN TIME (Minutes)															
UPS only	102	51	34	26	20	17	15	13	11	10	9	9	8	7	7	6
1	561	283	190	143	114	94	80	69	60	53	47	42	37	33	29	26
2	1020	515	345	260	207	171	145	125	109	96	84	75	66	58	51	45
3	1479	747	501	377	300	249	211	181	158	139	122	108	95	84	74	64
4	1938	979	657	494	394	326	276	238	207	181	160	141	124	109	96	84
5	2397	1211	813	611	487	403	341	294	256	224	197	174	153	135	118	103
6	2856	1443	968	728	580	480	407	350	305	267	235	207	182	161	141	122
7	3315	1676	1124	845	674	557	472	406	353	310	272	240	212	186	163	142
8	3774	1908	1280	962	767	635	537	463	402	352	310	273	241	212	185	161
9	4233	2140	1435	1079	860	712	603	519	451	395	348	306	270	237	208	181
10	4692	2372	1591	1196	954	789	668	575	500	438	385	339	299	263	230	200

*Assuming a Power Factor of .75



Middle Atlantic Products, Inc.

middleatlantic.com

96-976 / rev 4 / 9-27-05

PD Series Slim Power Strips

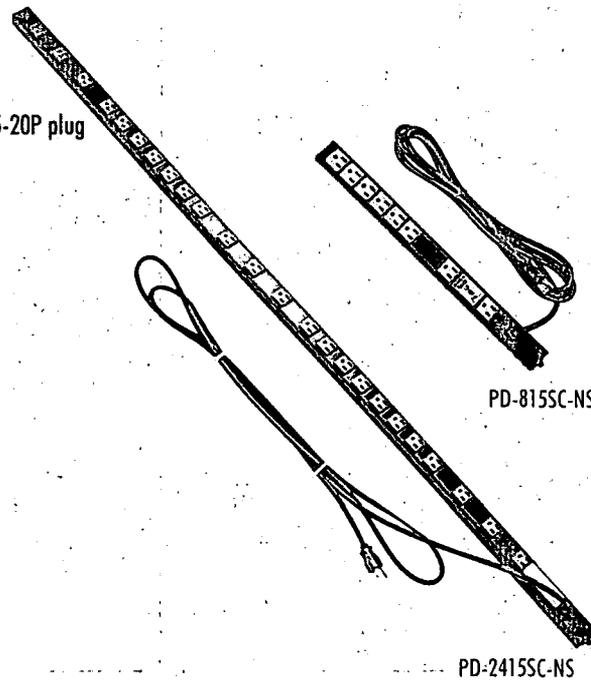


High density power strips feature a slim, low-profile design and staggered outlets to accommodate plug-in power supplies

Features

- (1) 15 or 20 amp circuit depending on model
- Includes 10' power cord terminated with NEMA 5-15P or NEMA 5-20P plug depending on model
- Up to 24 outlets depending on model
- Outlets spaced to accommodate plug-in power supplies
- Circuit breaker or MOV surge & EMI filter & breaker protected, depending on model
- Mounting hardware included
- Slim low-profile design requires less space
- Gray outlets easy to see in rear of enclosures
- Light-weight anodized aluminum chassis
- UL Listed and CSA certified (PD-2420SC-NS UL Listed only)

* For additional Vertical Power Strips, please see A&E Spec # 96-938



Architects' and Engineers' Specifications

High density slim power strip shall be Middle Atlantic Products model # PD-___ with ___ outlets and ___ amps (refer to chart). Slim power strip shall be ___" long x 1.25" deep x 1.6" wide and shall have gray ___ NEMA ___ outlets (refer to chart) in unique spacing pattern that allows up to ___ plug-in power supplies (refer to chart). Slim power strip includes ___ amp ___ protection and mounting hardware (refer to chart). Terminated with 10' power cord with NEMA ___ plug (refer to chart). Slim power strip shall be warranted to be free from defects in material or workmanship under normal use and conditions for a period of 3 years. 15 amp slim powerstrip shall be UL listed and CSA certified (20 amp version is UL listed only)

OPTIONS

- Model # PB-XS, rackmounting bracket mounts any extra-short power strip (PD-815SC, PD-815SC-NS) between rackrail of any EIA compliant 19" rack. Includes cable management tie points
- Model # PB-5A mounting brackets shall accommodate the mounting of vertical power strips to rackrail of any rack
- Model # PB-DWR mounting bracket shall accommodate the mounting of vertical power strips to rear rackrail of Middle Atlantic Products DWR & SR series wall racks

electronic version available at www.middleatlantic.com

Engineered Mounting Solutions for Low Voltage Applications

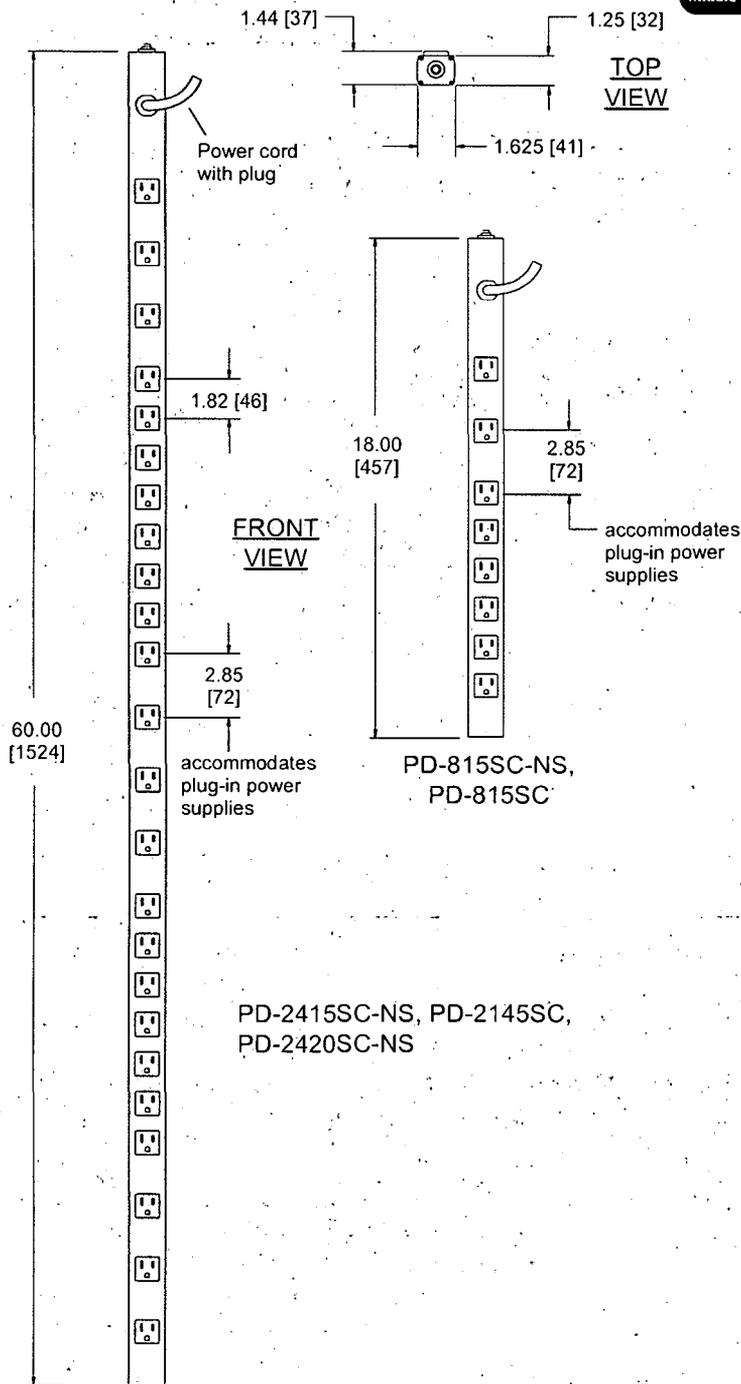
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Canada: Ontario • British Columbia • Voice: 613-836-2501 Fax: 613-836-2690 • middleatlantic.ca

96-976 / rev 4 / 9-27-05 / Slim Power Strips

PD Series Slim power strips basic dimensions



All dimensions in inches unless otherwise noted [All dimensions in brackets are millimeters]



PART #	CIRCUIT	PROTECTION	# OF OUTLETS	OVERALL LENGTH	# OF PLUG-IN POWER SUPPLIES ACCOMMODATED	NEMA OUTLET TYPE	PLUG TYPE
PD-815SC-NS	15 AMP (1)	CIRCUIT BREAKER	8	18" [457]	3	5-15R	5-15P
PD-815SC	15 AMP (1)	MOV SURGE + EMI FILTER + BREAKER	8	18" [457]	3	5-15R	5-15P
PD-2415SC-NS	15 AMP (1)	CIRCUIT BREAKER	24	60" [1524]	11	5-15R	5-15P
PD-2415SC	15 AMP (1)	MOV SURGE + EMI FILTER + BREAKER	24	60" [1524]	11	5-15R	5-15P
PD-2420SC-NS	20 AMP (1)	CIRCUIT BREAKER	24	60" [1524]	11	5-15R (22), 5-20R (2)	5-20P



Middle Atlantic Products

EXCEPTIONAL SUPPORT & PROTECTION™

PDT Series Thin Power Distribution

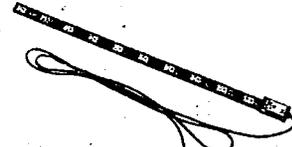


High density power strips feature a slim, low-profile design

Features

- Slim low-profile design requires minimum space
- Up to 20 outlets depending on model
- Lightweight aluminum chassis
- Field configurable single or dual circuits available in both 15 & 20 amp models
- Field configurable isolated ground models available
- Mounting hardware included
- Corded models include 10' SignalSafe™ power cord terminated with NEMA 5-15P / 5-20P / LS-20P plug depending on model
- Black anodized finish
- Top feed models available
- ETL Listed in the US and Canada

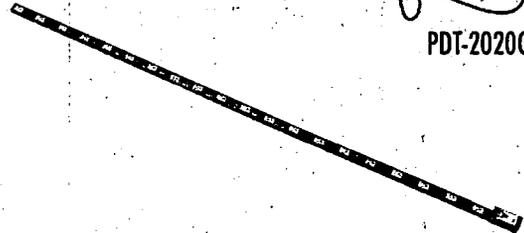
* For additional Vertical Power Strips, please see A&E Spec # 96-938 and #96-976



PDT-1015C-NS



PDT-2020C-NS



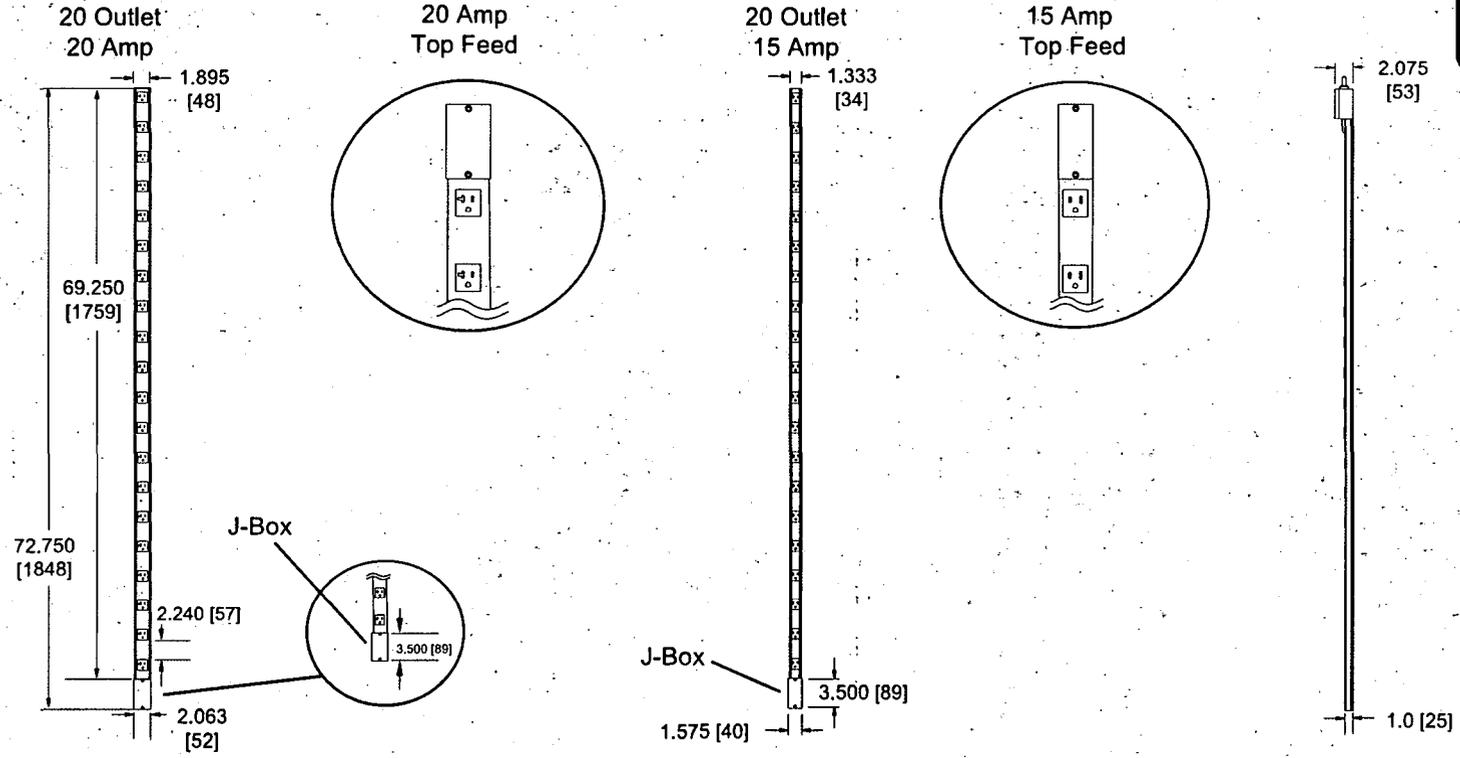
PDT-2X1015

Architects' and Engineers' Specifications

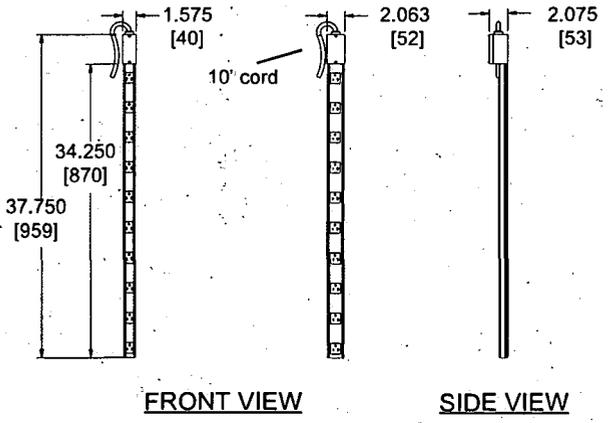
High density thin power distribution shall be Middle Atlantic Products model # PDT-___ with ___ outlets and ___ amps (refer to chart). Thin power distribution shall be ___ long (refer to chart) x 1" deep x 1.9" (20 amp models) or 1.3" (15 amp models) wide. J-Box shall be 2" deep X 2" (20 amp models) or 1.5" (15 amp models) wide. Thin power distribution shall feature ___ NEMA 5-15R / 5-20R outlets (refer to chart). Corded power strip include ___ amp protection and mounting hardware (refer to chart). Corded models shall be terminated with 10' SignalSafe™ power cord and NEMA 5-15P / 5-20P / LS-20P plug (refer to chart). PDT Series shall feature a black anodized finish. Regular and top feed models shall be provided to accommodate installations where ground prongs must be positioned at the top of each outlet. PDT Series with J-Box shall feature field configurable single or dual circuits available in both 15 & 20 amp models. PDT Series with J-Box shall feature field configurable isolated ground models. PDT Series shall be ETL listed to UL Standard 1363 in the US and to CAN/CSA C22.2 #21 in Canada. PDT shall be GREENGUARD Indoor Air Quality Certified for Children and Schools. PDT shall be RoHS EU Directive 2002/95/EC compliant. PDT shall be manufactured by an ISO 9001 registered company. PDT shall be warranted to be free from defects in material or workmanship under normal use and conditions for a period of three years

CUSTOMIZABLE SPECIFICATION CLIPS AVAILABLE AT MIDDLEATLANTIC.COM

PDT Series power strips basic dimensions



PDT-1015C-NS PDT-1020C-NS



FRONT VIEW

SIDE VIEW

PART #	TERMINATED	CORD LENGTH	CIRCUIT	# OF OUTLETS	OVERALL LENGTH	UL LISTED
PDT-2015C-NS	5-15P	9'	15 AMP (1)	20, 5-15R	72-3/4 [1848]	1
PDT-2020C-NS	5-20P	9'	20 AMP (1)	20, 5-20R	72-3/4 [1848]	1
PDT-2X1015	J-BOX	-	15 AMP (2)	20, 5-15R	72-3/4 [1848]	2
PDT-2X1015T	J-BOX	-	15 AMP (2)	20, 5-15R	72-3/4 [1848]	2
PDT-2X1020	J-BOX	-	20 AMP (2)	20, 5-20R	72-3/4 [1848]	2
PDT-2X1020T	J-BOX	-	20 AMP (2)	20, 5-20R	72-3/4 [1848]	2
PDT-1015C-NS	5-15P	9'	15 AMP (1)	10, 5-15R	37-3/4 [959]	1
PDT-1015C-NS20	5-15P	20'	15 AMP (1)	10, 5-15R	37-3/4 [959]	1
PDT-1020C-NS	5-20P	9'	20 AMP (1)	10, 5-20R	37-3/4 [959]	1
PDT-2020TL-NS	LS-20P	9'	20 AMP (1)	20, 5-20R	72-3/4 [1848]	1

All dimensions in inches unless otherwise noted [All dimensions in brackets are millimeters]

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MAAP Mounting Frames (continued)

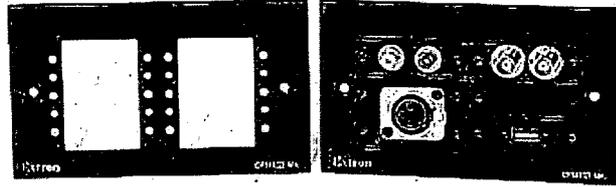
Mounting Frames for MAAP - Mini Architectural Adapter Plates

CPM103MK

MAAP Mounting Frame for Two-Gang MK Electric Wall Boxes

DESCRIPTION

The Extron **CPM103MK** is a two-gang mounting frame with an opening for up to three single-space MAAP - Mini Architectural Adapter Plates. Designed for use in MK Electric type British standard wall boxes. Available in black, white, or RAL9010 white finish. Dimensions: 3.35" x 5.8" x 0.1" (8.5 x 14.7 x 0.25 cm)



Shown with optional MAAPs

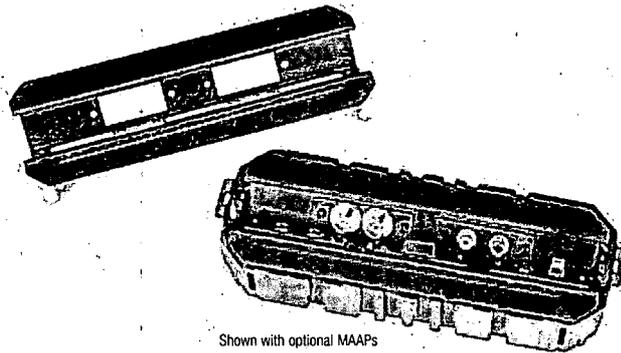
MODEL	VERSION DESCRIPTION	PART #
CPM103MK	Black	60-583-19
CPM103MK	White	60-583-29
CPM103MK	RAL9010 White	60-583-59

CPM105AM

MAAP Mounting Frame for Ackermann Floor Boxes

DESCRIPTION

The Extron **CPM105AM** is a modular connector frame designed to mount in an Ackermann floor box that holds GB3 insert modules. The CPM105AM can hold up to five single-space MAAP - Mini Architectural Adapter Plates. Black finish. Dimensions: 2.7" x 7.9" x 0.6" (7.0 x 20.0 x 1.6 cm)



Shown with optional MAAPs

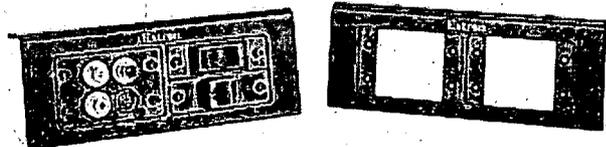
MODEL	VERSION DESCRIPTION	PART #
CPM105AM	Mounting Frame - Ackermann Floor Box	60-586-11

CPM115

MAAP Mounting Frame for Steel City 665 Floor Box

DESCRIPTION

The Extron **CPM115** is a modular connector frame designed to mount in a Steel City 665 floor box. The CPM115 can hold up to four single-space MAAP - Mini Architectural Adapter Plates. Up to four CPM115 modular connector plates can be mounted in a Steel City 665 floor box. Black finish. Dimensions: 2.1" x 5.75" x 0.95" (5.3 x 14.6 x 2.4 cm)



Shown with optional MAAPs

MODEL	VERSION DESCRIPTION	PART #
CPM115	Mounting Frame - Steel City 665 Fl. Box	60-585-11

Specifications — Extender Series

Video

Gain.....	0 dB, 0.6 dB, 1.2 dB, selectable (when input is 0.7 Vp-p, output is 0.7 V, 0.75 V, 0.8 Vp-p)
Bandwidth.....	300 MHz (-3 dB)

NOTE ID bits are terminated (pins 4 and 11).

Video input

Number/signal type.....	1 VGA-QXGA RGBHV, RGBS, RGsB, RsGsBs, HDTV component video
Connectors.....	1 female 15-pin HD
Nominal level.....	1.0 Vp-p for Y of component video 0.7 Vp-p for RGB and for R-Y and B-Y of component video
Minimum/maximum levels.....	Analog: 0.3 V to 1.5 Vp-p with no offset at unity gain
Impedance.....	75 ohms
Horizontal frequency.....	15 kHz to 135 kHz
Vertical frequency.....	30 Hz to 170 Hz
Input coupling.....	DC
ID bits.....	Pins 4 and 11: terminated to ground Pins 12 and 15: floating

Video output

Number/signal type.....	1 VGA-QXGA RGBHV, RGBS, RGsB, RsGsBs, HDTV component video
Connectors	
Extender AAP EX.....	5 female BNC on pigtails RGB: 20" (50.8 cm) pigtails HV: 18" (45.7 cm) pigtails
All other models.....	5 female BNC on 3" (7.6 cm) pigtails
Nominal level.....	1.0 Vp-p for Y of component video 0.7 Vp-p for RGB and for R-Y and B-Y of component video
Minimum/maximum levels.....	Analog: 0.3 V to 1.5 Vp-p with no offset at unity gain
Impedance.....	75 ohms
DC offset.....	±5 mV with input at 0 offset
Return loss.....	<-35 dB @ 5 MHz

Sync

Input type.....	RGBHV, RGBS, RGsB, RsGsBs, bi-level and tri-level component video sync
Output type.....	RGBHV, RGBS, RGsB, RsGsBs, bi-level and tri-level component video sync
Input level.....	2.0 V to 5.0 Vp-p
Output level.....	TTL: 5 Vp-p, unterminated
Input impedance.....	510 ohms
Output impedance.....	75 ohms
Max. propagation delay.....	18.8 ns
Max. rise/fall time.....	4 ns
Polarity.....	Positive or negative (follows input)

Audio

Gain.....	Unbalanced output: 0 dB; balanced output: +6 dB
Frequency response.....	20 Hz to 20 kHz, ±0.5 dB
THD + Noise.....	0.025% @ 1 kHz, 0.020% @ 20 kHz at nominal level
S/N.....	>90 dB at rated maximum output
Stereo channel separation.....	>75 dB @ 20 Hz to 20 kHz

Audio input

Number/signal type.....	1 stereo, unbalanced
Connectors.....	(1) 3.5 mm mini stereo jack

Specifications — Extender Series, cont'd

Impedance.....	>10k ohms unbalanced, DC coupled
Nominal level	-10 dBV (316 mVrms)
Maximum level.....	+6 dBV, (unbalanced) at 1% THD+N

Audio output

Number/signal type.....	1 stereo, balanced/unbalanced
Connectors	(1) 3.5 mm direct insertion captive screw connector, 5 pole
Impedance.....	50 ohms unbalanced, 100 ohms balanced
Nominal level	-2 dBu, balanced; -10 dBV unbalanced
Maximum level (Hi-Z)	+14 dBu, balanced, at 1% THD+N
Maximum level (600 ohm).....	+6 dBm, balanced, at 1% THD+N

NOTE 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu

General

External power supply.....	100 VAC to 240 VAC, 50-60 Hz, external; to 12 VDC, 1 A, regulated
Power input requirements.....	12 VDC, 0.2 A
Temperature/humidity.....	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	Convection, no vents

Mounting

Floor box mount

Extender AKM UK AAP	Ackerman UK floor box mountable
Extender AKM MAAP	Ackerman floor box mountable in either a GB2 or a GB3 mounting space

Furniture mount

Extender AAP EX.....	Mountable in an optional HSA 800 Series or HSA 400 Series Hideaway Surface Access Enclosure, which can be mounted in furniture
Extender WM AUS....	Wall or furniture mountable in a standard Australian electrical wall box
Extender AAP.....	Wall or furniture mountable with optional AAP mounting faceplates
All other models.....	Wall or furniture mountable in a standard US electrical wall box

Enclosure type..... Metal (Extender D has a metal faceplate and a plastic Decora® wall plate.)

Enclosure dimensions

Extender AAP, Extender AAP EX

Faceplate.....	1.4" H x 3.5" W x 0.1" D (3.6 cm H x 8.9 cm W x 0.3 cm D) (double space high AAP plate)
Buffer.....	1.1" H* x 2.75" W x 1.2" D (2.8 cm H* x 7.0 cm W x 3.0 cm D) (*Height excludes BNC connectors and cables.)

Extender WM

Faceplate.....	4.5" H x 2.8" W x 0.1" D (11.4 cm H x 7.1 cm W x 0.3 cm D) (1 gang)
Buffer.....	2.7" H x 1.8" W x 0.75" D* (6.9 cm H x 4.6 cm W x 1.9 cm D*) (*Depth excludes BNC connectors and cables.)

Extender WM AUS

Faceplate.....	3.0" H x 4.7" W x 0.1" D (7.6 cm H x 11.8 cm W x 0.3 cm D)
Buffer.....	2.75" H* x 1.1" W x 1.2" D (7.0 cm H* x 2.8 cm W x 3.0 cm D) (*Height excludes BNC connectors and cables.)

Extender WM AAP

Faceplate.....	4.5" H x 6.4" W x 0.1" D (11.4 cm H x 16.3 cm W x 0.3 cm D) (3 gang)
----------------	---

Buffer.....	2.7" H x 1.8" W x 0.75" D* (6.9 cm H x 4.6 cm W x 1.9 cm D*) (*Depth excludes BNC connectors and cables.)
Extender MK	
Faceplate.....	3.4" H x 5.7" W (8.6 cm H x 14.4 cm W) (UK knockout box size)
Buffer.....	1.1" H* x 2.75" W x 1.2" D (2.8 cm H* x 7.0 cm W x 3.0 cm D) (*Height excludes BNC connectors and cables.)
Extender AKM UK AAP	
Faceplate.....	3.0" H x 8.1" W x 0.6" D (7.6 cm H x 20.6 cm W x 1.5 cm D)
Buffer.....	1.1" H* x 2.75" W x 1.2" D (2.8 cm H* x 7.0 cm W x 3.0 cm D) (*Height excludes BNC connectors and cables.)
Extender AKM MAAP	
Faceplate.....	1.67" H x 6.12" to 7.85" W* x 3.0" D (4.1 cm H x 15.5 cm to 19.9 cm W* x 7.6 cm D) *Width is adjustable.
Buffer.....	1.8" H x 4.4" W x 3.0" D (4.6 cm H x 11.2 cm W x 7.6 cm D)
Extender D	
Faceplate.....	2.6" H* x 1.3" W x 0.1" D (6.6 cm H* x 3.3 cm W x 0.3 cm D) (Fits the opening in a 1 gang Decora® faceplate. *Height is 3.8" [9.7 cm] including mounting tabs.)
Buffer.....	2.7" H x 1.8" W x 0.75" D* (6.9 cm H x 4.6 cm W x 1.9 cm D*) (*Depth excludes BNC connectors and cables.)

Product weight

Extender AAP, Extender AAP EX, Extender WM	0.2 lbs (0.1 kg)
Extender WM AUS.....	0.3 lbs (0.1 kg)
Extender WM AAP	0.4 lbs (0.2 kg)
Extender MK.....	0.5 lbs (0.3 kg)
Extender AKM UK AAP ..	0.6 lbs (0.3 kg)
Extender AKM MAAP.....	1.2 lbs (0.5 kg)
Extender D	0.2 lbs (0.1 kg)

Shipping weight

Extender AAP, Extender AAP EX	1 lb (1 kg)
All other models.....	3 lbs (2 kg)

Vibration..... ISTA 1A in carton (International Safe Transit Association)

Regulatory compliance

Safety.....	CE, c-UL, UL
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI

MTBF..... 30,000 hours

Warranty..... 3 years parts and labor

NOTE All nominal levels are at ±10%.

NOTE Specifications are subject to change without notice.

7.6-082109-D18

Specifications — WP Series Wall Plates

General

Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing
Rack mount	No, but furniture/wall mountable.
Enclosure type	Metal
Dimensions	
1-gang models	
Faceplate	4.5" H x 2.8" W x 0.1" D (11.4 cm H x 7.1 cm W x 0.3 cm D) (1 gang)
Boards	2.6" H x 1.75" W x 1.1" D (6.6 cm H x 4.4 cm W x 2.8 cm D) (Depth includes rear connectors. Allow at least 2.5" (6.4 cm) depth within the wall box or furniture to accommodate the circuit board, connectors, and cables.)
AUS models	
Faceplate	3.0" H x 4.7" W x 0.1" D (7.6 cm H x 11.8 cm W x 0.3 cm D)
Boards	1.75" H x 2.6" W x 1.1" D (4.4 cm H x 6.6 cm W x 2.8 cm D) (Depth includes rear connectors. Allow at least 2.5" (6.4 cm) depth within the wall box or furniture to accommodate the circuit board, connectors, and cables.)
Product weight	0.2 lbs (0.1 kg)
Shipping weight	1 lbs (1 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Listings	UL, CUL
Compliances	FCC Class A, VCCI, AS/NZS, ICES as components of the MLC 206
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE Specifications are subject to change without notice.

(7.51-021105-D4)

VGA to BNC Cables

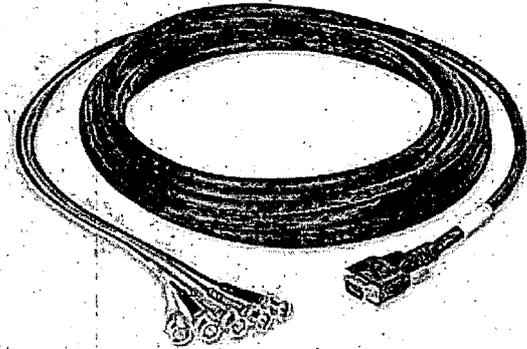
SY BNCM Series

15-pin HD to BNC Male Mini High Resolution Cables

DESCRIPTION

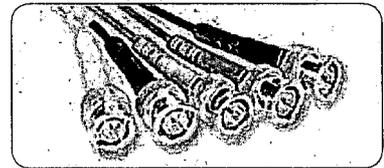
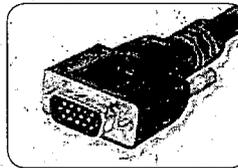
The Extron **SY BNCM Series** cable assemblies utilize Extron MHR-5 Cable terminated with five, color-coded male BNC connectors on one end and a 15-pin HD connector on the other. The SY BNCM Series cable assemblies are ideal for connecting a computer-video source to a projector or other display device.

For cable specifications, see page 762.



SYM BNCM

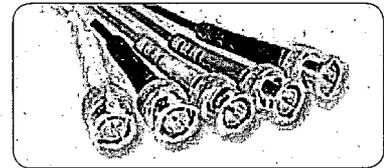
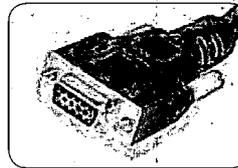
15-pin HD Male to BNC Male Mini High Resolution Cables



MODEL	VERSION DESCRIPTION	PART #
SYM BNCM/0.5	6" (15 cm)	26-533-01
SYM BNCM/1	1' (30 cm)	26-533-11
SYM BNCM/3	3' (90 cm)	26-533-12
SYM BNCM/6	6' (1.8 m)	26-533-02
SYM BNCM/12	12' (3.6 m)	26-533-03
SYM BNCM/25	25' (7.6 m)	26-533-04
SYM BNCM/50	50' (15.2 m)	26-533-05
SYM BNCM/75	75' (22.8 m)	26-533-06
SYM BNCM/100	100' (30.4 m)	26-533-07

SYF BNCM

15-pin HD Female to BNC Male Mini High Resolution Cables



MODEL	VERSION DESCRIPTION	PART #
SYF BNCM/0.5	6" (15 cm)	26-534-01
SYF BNCM/1.5	1.5' (45 cm)	26-534-11
SYF BNCM/3	3' (90 cm)	26-534-12
SYF BNCM/6	6' (1.8 m)	26-534-02
SYF BNCM/12	12' (3.6 m)	26-534-03
SYF BNCM/25	25' (7.6 m)	26-534-04
SYF BNCM/50	50' (15.2 m)	26-534-05
SYF BNCM/75	75' (22.8 m)	26-534-06
SYF BNCM/100	100' (30.4 m)	26-534-07

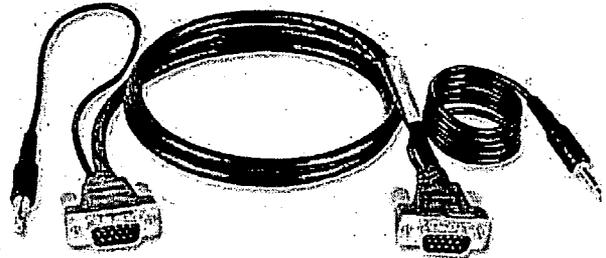
VGA to VGA Cables (continued)

MVGA-A Series

15-pin HD and 3.5 mm Stereo Audio Connector Micro High Resolution VGA Cables

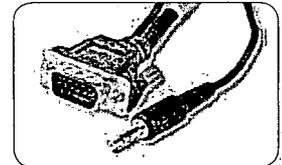
DESCRIPTION

The Extron **MVGA-A Series** utilizes five 30 AWG micro high resolution coaxial conductors terminated with 15-pin HD male connectors and an audio cable terminated with 3.5 mm mini plugs. On one side, the audio cable is 24 inches long, and on the other side, the audio cable is 8 inches long. All ID bits are passed through the cable. This cable is extremely thin and flexible with very small VGA connectors, making it ideal for use with Extron HSA and Cable Cubby® products.



MVGA-A M-M

Male to Male VGA Micro HR with Audio Cables



MODEL	VERSION DESCRIPTION	PART #
MVGA-A M-M/3	3' (90 cm)	26-566-01
MVGA-A M-M/6	6' (1.8 m)	26-566-02
MVGA-A M-M/12	12' (3.6 m)	26-566-03
MVGA-A M-M/25	25' (7.6 m)	26-566-04

MVGA-A M-F

Male to Female VGA Micro HR with Audio Cables



MODEL	VERSION DESCRIPTION	PART #
MVGA-A M-F/3	3' (90 cm)	26-565-01
MVGA-A M-F/6	6' (1.8 m)	26-565-02
MVGA-A M-F/12	12' (3.6 m)	26-565-03
MVGA-A M-F/25	25' (7.6 m)	26-565-04



FA62T-8MB
 Shown in FA97-8 Enclosure, with
 FA720-8 Grille and FA81-8 Tile Bridge

Strategy Series® II
"Motor Board" Assemblies

Atlas Sound has also addressed retrofit and "division of labor" installations with new "motor board" versions of the Strategy Series II.

Model **FA42T-6MB** is the entire 4" speaker/transformer/selector switch/front plate assembly found in the **FAP42T** assembly. The footprint of the **FA42T-6MB** is identical to a standard FA series 6" speaker component. This footprint allows the motor board to fit into all current Strategy Series 6" enclosures in the exact same manner as a regular 6" FA speaker.

Model **FA62T-8MB** is the entire 6" speaker/transformer/selector switch/front plate assembly found in the **FAP62T** assembly. The footprint of the **FA62T-8MB** is identical to a standard FA series 8" speaker component. This footprint allows the motor board to fit into all current Strategy Series II 8" enclosures in the exact same manner as a regular 8" FA speaker.

SPECIFICATIONS		
MODEL	FAP42T-6MB	FAP62T-8MB
SENSITIVITY	88dB Avg/92dB Peak	88dB Avg/91dB Peak
TRANSFORMER	16 Watt @70.7/100V	32 Watt @70.7/100V
TRANSFORMER TAPS	1, 2, 4, 8 & 16 Watts	1, 2, 4, 8 & 32 Watts
MATCHES ENCLOSURE	FA95-6, FA97-6	FA95-8, FA97-8

• **Five Year Limited Warranty** •



1601 Jack McKay Blvd.
 Ennis, TX 75119
 AtlasSound.com
 Tech Support 800.876.3333

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Strategy Series® II

Next Generation Strategy Series II Speaker Systems—The definitive choice for commercial and business applications

In 1991, Atlas Sound shook the commercial sound industry with the introduction of the Strategy Series commercial loudspeaker systems. Strategy Series set the benchmark for "step-up" business and commercial ceiling speaker systems. Since the original Strategy Series introduction many have copied the original Strategy Series concept but few have ever come close to performance of the product that has been the choice of consultants, specifiers and contractors for years. Why? The smooth frequency response, even, wide coverage, sonically pleasing voicing and ease of installation of the Strategy Series have stood the test of time.

The Next Generation

Atlas Sound engineers have taken all feedback received over the years for suggested enhancements to Strategy Series and employed advanced new manufacturing techniques to present Strategy Series II, a series that will "re-set the bar" for commercial audio ceiling speaker systems.

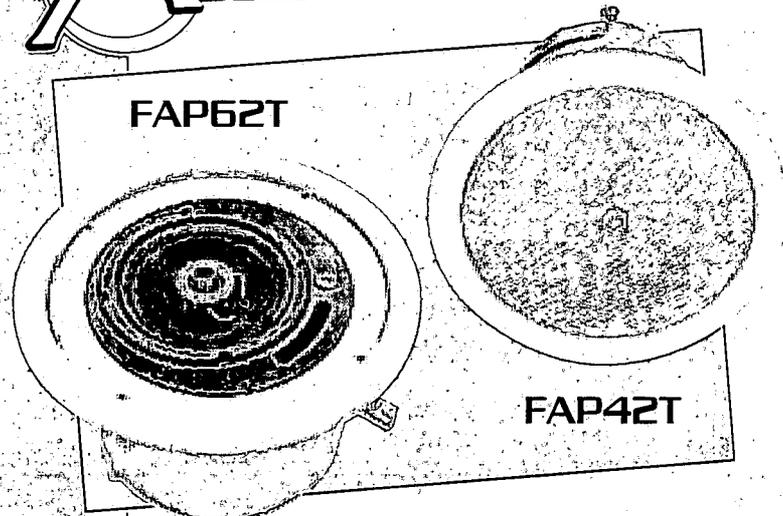
New Models Include:

The **FAP42T** 70.7/100V tuned & ported 4" coaxial ceiling speaker system

The **FAP62T** 70.7/100V tuned & ported 6" coaxial ceiling speaker system

These premium 70.7/100V tuned & ported coaxial ceiling speaker packages will satisfy the needs of owners, architects, contractors, and consultants by delivering true, high fidelity sound reproduction in an attractive and easy-to-install system.

To reduce installation time and simplify ordering and specifying, the **FAP42T** and **FAP62T** packages ship complete with speaker/transformer factory assembled into back can, grille and unique V-rail/C-ring mounting hardware.



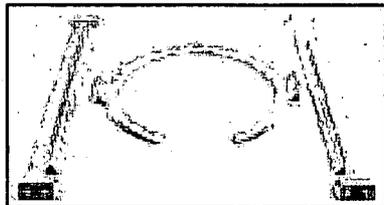
Feature Enhancements include

- Front mounted tap selector switch for easy system tuning adjustments
- Unique "trap door" input section allows for through conduit runs with rigid or flex conduit
- 4 Pole detachable "Phoenix"-style connector allows easy pre-wiring and is convenient for daisy chaining additional Strategy Series II full range speakers or subwoofers
- "Press fit" grilles blend better into contemporary architecture
- Higher power, enhanced quality 70.7V/100V internal transformers minimize insertion loss and maintain low frequency response while providing increased output for higher SPL applications
- Extended low frequency response from the optimally tuned and ported deep drawn galvanized steel enclosure (285 cubic inches FAP42T, 475 cubic inches FAP62T)

Premium Construction Provides Premium Performance

The high quality construction of the FA series drivers utilized in the **FAP42T** & **FAP62T** will provide familiar performance.

All Strategy Series II drivers feature a weather/UV resistant polypropylene cone with butyl rubber surround coupled with a 19mm PEI tweeter. Crossover components are of the highest quality providing a smooth transition between the driver components insuring even frequency response and coverage.



C-Ring/V-Rail Mounting System

SPECIFICATIONS

MODEL	FAP42T	FAP62T
POWER RATING	25 Watts (Transformer Limited)	50 Watts (Transformer Limited)
70.7V TAPS	1, 2, 4, 8, 16	2, 4, 8, 16, 32
FREQUENCY RESPONSE (±3dB)	75Hz - 20kHz	63Hz - 20kHz
SENSITIVITY (1W/1M)	92dB Peak, 88dB Average	91dB Peak, 88dB Average
WOOFER	4" W/ Polypropylene Cone & Butyl Rubber Surround	6" W/ Polypropylene Cone & Butyl Rubber Surround
WOOFER MAGNET WT	10oz (264g)	14oz (398g)
HF DRIVER	Coaxially Mounted PEI Dome Tweeter	Coaxially Mounted PEI Dome Tweeter
DIMENSIONS	10.5"(267mm) Bezel Diameter, 8.97"(228mm) Overall Height	12.5"(318mm) Bezel Diameter, 8.48"(215mm) Overall Height
CUT-OUT DIMENSION	8.9" (226mm)	10.9" (277mm)





Limited Five Year Warranty

All products manufactured by Atlas Sound are warranted to the original dealer/installer, industrial, or commercial purchaser to be free from defects in material and workmanship and to be in compliance with our published specifications, if any. "This warranty shall extend from the date of purchase for a period of five years on all Atlas Sound products, including SOUNDOLIER brand, and ATLAS SOUND brand products except as follows: one year on electronics and control systems; one year on replacement parts; and one year on Musician Series stands and related accessories. Additionally, fuses and lamps carry no warranty." Atlas Sound will solely at its discretion, replace at no charge or repair free of charge defective parts or products when the product has been applied and used in accordance with our published operation and installation instructions. We will not be responsible for defects caused by improper storage, misuse (including failure to provide reasonable and necessary maintenance), accident, abnormal atmospheres, water immersion, lightning discharge, or malfunctions when products have been modified or operated in excess of rated power, altered, serviced or installed in other than a workman like manner. The original sales invoice should be retained as evidence of purchase under the terms of this warranty. All warranty returns must comply with our return policy set forth below. When products returned to Atlas Sound do not qualify for repair or replacement under our warranty, repairs may be performed at prevailing costs for material and labor unless there is included with the returned product(s) a written request for an estimate of repair costs before any non-warranty work is performed. In the event of replacement or upon completion of repairs, return shipment will be made with the transportation charges collect.

EXCEPT TO THE EXTENT THAT APPLICABLE LAW PREVENTS THE LIMITATION OF CONSEQUENTIAL DAMAGES FOR PERSONAL INJURY, ATLAS SOUND SHALL NOT BE LIABLE IN TORT OR CONTRACT FOR ANY DIRECT, CONSEQUENTIAL OR INCIDENTAL LOSS OR DAMAGE ARISING OUT OF THE INSTALLATION, USE OR INABILITY TO USE THE PRODUCTS. THE ABOVE WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Atlas Sound does not assume, or does it authorize any other person to assume or extend on its behalf, any other warranty, obligation or liability. This warranty gives you specific legal rights and you may have other rights which vary from state to state.

Specifications are subject to change without notice



**Atlas
Sound**

AtlasSound.com

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U.S. One-year Limited Warranty

Audio-Technica brand products purchased in the U.S.A. are warranted for one year from date of purchase by Audio-Technica U.S., Inc. (A.T.U.S.) to be free of defects in materials and workmanship. In event of such defect, product will be repaired promptly without charge or, at our option, replaced with a new product of equal or superior value if delivered to A.T.U.S. or an Authorized Service Center, prepaid, together with the sales slip or other proof of purchase date. This warranty excludes defects due to normal wear, abuse, shipping damage, or failure to use product in accordance with instructions. This warranty is void in the event of unauthorized repair or modification, or removal or defacing of the product labeling.

For U.S. service return instructions and procedure please go to:
www.audio-technica.com/returninstructions.

Except to the extent precluded by applicable state law, A.T.U.S. will have no liability for any consequential, incidental, or special damages; any warranty of merchantability or fitness for particular purpose expires when this warranty expires.

This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Outside the U.S.A., please contact your local dealer for warranty details.

To contact the A.T.U.S. Service Department:

Tel: 330-686-2600 (Monday - Friday, 8:30 a.m. - 5:30 p.m. Eastern time)

Fax: 330-688-3752

E-mail: repair@atus.com



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Biamp's 5-Year Limited Warranty

BIAMP SYSTEMS IS PLEASED TO EXTEND THE FOLLOWING 5-YEAR LIMITED WARRANTY TO THE ORIGINAL PURCHASER OF THE PROFESSIONAL SOUND EQUIPMENT DESCRIBED IN THIS MANUAL

1. BIAMP Systems warrants to the original purchaser of new products that the product will be free from defects in material and workmanship for a period of 5 YEARS from the date of purchase from an authorized BIAMP Systems dealer, subject to the terms and conditions set forth below.
2. If you notify BIAMP during the warranty period that a BIAMP Systems product fails to comply with the warranty, BIAMP Systems will repair or replace, at BIAMP Systems' option, the nonconforming product. As a condition to receiving the benefits of this warranty, you must provide BIAMP Systems with documentation that establishes that you were the original purchaser of the products. Such evidence may consist of your sales receipt from an authorized BIAMP Systems dealer. Transportation and insurance charges to and from the BIAMP Systems factory for warranty service shall be your responsibility.
3. This warranty will be VOID if the serial number has been removed or defaced; or if the product has been altered, subjected to damage, abuse or rental usage, repaired by any person not authorized by BIAMP Systems to make repairs; or installed in any manner that does not comply with BIAMP Systems' recommendations.
4. Electro-mechanical fans, electrolytic capacitors, and normal wear and tear of items such as paint, knobs, handles, and covers are not covered under this warranty.
5. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. BIAMP SYSTEMS DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.
6. The remedies set forth herein shall be the purchaser's sole and exclusive remedies with respect to any defective product.
7. No agent, employee, distributor or dealer of Biamp Systems is authorized to modify this warranty or to make additional warranties on behalf of Biamp Systems. statements, representations or warranties made by any dealer do not constitute warranties by Biamp Systems. Biamp Systems shall not be responsible or liable for any statement, representation or warranty made by any dealer or other person.
8. No action for breach of this warranty may be commenced more than one year after the expiration of this warranty.
9. BIAMP SYSTEMS SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS OR LOSS OF USE ARISING OUT OF THE PURCHASE, SALE, OR USE OF THE PRODUCTS, EVEN IF BIAMP SYSTEMS WAS ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

TECH SUPPORT CONTACT

If you need a question answered or product/design assistance, call 1.800.826.1457 (US and Canada) or 503.641.7287.

LOCATION

Biamp Systems
9300 S.W. Gemini Drive
Beaverton, OR 97008

800.826.1457
503.641.7287
503.626.0281 Fax

Warranty and Returns

What is your damaged goods/return policy?

FREIGHT DAMAGE: Upon acceptance of a shipment, it is your responsibility to open the package(s) immediately and report any damage AND file a claim with the freight company. All products ship FOB Savage, MN, or point of shipment. This means once it leaves our warehouse it is the responsibility of the purchaser.

OBVIOUS FREIGHT DAMAGE: If a shipment is received with obvious freight damage or the carton is obviously damaged, REFUSE the package(s) and contact us immediately to allow us to supply you with a replacement. The replacement item(s) will be charged to you. Any reimbursement from the original product order should be settled with the freight company. If you accept a package with obvious damage, Chief will supply you with a replacement at your cost, but it is again your responsibility to report any damage to the freight company.

CONCEALED FREIGHT DAMAGE: If a shipment is received with concealed freight damage, notify Chief and the freight company immediately. It is your responsibility to file a claim with the freight company. Keep the product in the original carton. If the concealed damage is not reported to the carrier and Chief immediately, there is no recourse. The above steps must be taken on all shipments with damage whether Chief ships to you or your customer.

What is your Return Authorization Policy?

All merchandise returned to Chief must be returned with prior authorization and a Return Authorization number provided by Customer Service. Defective or product received incorrectly due to an error on Chief's part will be credited to your account in full. In situations where the dealer needs to return merchandise due to a change in its project/equipment or due to ordering incorrectly, a restock charge will apply as follows. Merchandise invoiced in the past 0-30 days - 10%; 31-60 days - 15%; 61-90 days - 25%. Reduced fees may be given for an accompanying reorder of equal or greater value. Returns are not allowed for merchandise over 90 days old; electrical lift products; special order products, or discontinued merchandise. Products returned that are damaged or missing parts will not be eligible for credit unless they can easily be made saleable. Additional charges for parts and labor may apply.

Are Chief products covered under a warranty?

With the exception of electric, gas cylinder and one-way bearing mechanisms, Chief warrants its products to be free of defects in material and workmanship for 10 years. All warranties are in effect beginning the date the product was invoiced by Chief. Electrical mechanisms (such as lift products) have a 1-year limited warranty. Gas cylinder and one-way bearing mechanisms have a 5-year limited warranty. All warranties are in effect for the original

purchaser only. Chief disclaims liability for any modifications, improper installation and/or installations over the specified weight capacity. Chief also disclaims liability for any modifications made to electrical mechanisms, improper installation, incorrect voltage connection and/or installations over the stated weight capacity. All Electrical Mechanisms are intended for indoor use only and failure to comply will void warranty. Chief's sole warranty obligation to the owner of its products is to repair or replace (at Chief's discretion) defective products at no charge to the original purchaser within the warranty period. The purchaser is responsible for returning the product to Chief Manufacturing via prepaid shipping. To the maximum extent permitted by applicable law, Chief disclaims any other warranties, express or implied, including warranties of fitness for a particular purpose and warranties of merchantability. Chief will not be liable for any damages whatsoever arising out of the use or inability to use Chief products, even if Chief has been advised of the possibility of such damages. Chief bears no responsibility for incidental or consequential damages. This includes, but is not limited to, any labor charges for the repair of Chief products performed by someone other than a Chief employee. Because some states and jurisdictions do not allow the exclusion or limitation of liability for consequential or incidental damages, the above limitation may not apply. Chief will not be responsible for damage to Chief products caused by misuse, abuse, failure to properly package the product for return to Chief or for damage caused by carriers during shipment to or from Chief. Any repairs to Chief products required due to misuse, abuse or shipping damage or repairs of defective Chief product outside the warranty period will be performed at the current rates established by Chief for factory service.

Crestron Limited Warranty

CRESTRON ELECTRONICS INC. warrants its products to be free from manufacturing defects in materials and workmanship under normal use for a period of (3) three years from the date of the purchase from CRESTRON, with the following exceptions: disk drives and any other moving or rotating mechanical parts, pan/tilt heads and power supplies are covered for a period of (1) one year; touchscreen display and overlay components are covered for 90 days; batteries and incandescent lamps are not covered.

This warranty extends to products purchased directly from CRESTRON or an authorized CRESTRON dealer. Purchasers should inquire of the dealer regarding the nature and extent of the dealer's warranty, if any.

CRESTRON shall not be liable to honor the terms of this warranty if the product has been used in any application other than that for which it was intended, or if it has been subjected to misuse, accidental damage, modification, or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number altered, defaced, or removed.

This warranty shall be the sole and exclusive remedy to the original purchaser. In no event shall CRESTRON be liable for incidental or consequential damages of any kind (property or economic damages inclusive) arising from the sale or use of this equipment. CRESTRON is not liable for any claim made by a third party or made by the purchaser for a third party.

CRESTRON shall, at its option, repair or replace any product found defective, without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty.

Except as expressly set forth in this warranty CRESTRON makes no other warranties, expressed or implied, nor authorizes any other party to offer any warranty, including any implied warranties of merchantability or fitness for a particular purpose. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty. This warranty statement supercedes all previous warranties.



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3-Year Standard Warranty

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UNITED STATES & CANADA

SUMMARY OF WARRANTY

Crown International, 1718 West Mishawaka Road, Elkhart, Indiana 46517-4095 U.S.A. warrants to you, the ORIGINAL PURCHASER and ANY SUBSEQUENT OWNER of each NEW Crown product, for a period of three (3) years from the date of purchase by the original purchaser (the "warranty period") that the new Crown product is free of defects in materials and workmanship. We further warrant the new Crown product regardless of the reason for failure, except as excluded in this Warranty.

Warranty is only valid within the country in which the product was purchased.

ITEMS EXCLUDED FROM THIS CROWN WARRANTY

This Crown Warranty is in effect only for failure of a new Crown product which occurred within the Warranty Period. It does not cover any product which has been damaged because of any intentional misuse, accident, negligence, or loss which is covered under any of your insurance contracts. This Crown Warranty also does not extend to the new Crown product if the serial number has been defaced, altered, or removed.

WHAT THE WARRANTOR WILL DO

We will remedy any defect, regardless of the reason for failure (except as excluded), by repair, replacement, or refund. We may not elect refund unless you agree, or unless we are unable to provide replacement, and repair is not practical or cannot be timely made. If a refund is elected, then you must make the defective or malfunctioning product available to us free and clear of all liens or other encumbrances. The refund will be equal to the actual purchase price, not including interest, insurance, closing costs, and other finance charges less a reasonable depreciation on the product from the date of original purchase. Warranty work can only be performed at our authorized service centers or at the factory. Warranty work for some products can only be performed at our factory. We will remedy the defect and ship the product from the service center or our factory within a reasonable time after receipt of the defective product at our authorized service center or our factory. All expenses in remedying the defect, including surface shipping costs in the United States, will be borne by us. (You must bear the expense of shipping the product between any foreign country and the port of entry in the United States including the return shipment, and all taxes, duties, and other customs fees for such foreign shipments.)

HOW TO OBTAIN WARRANTY SERVICE

You must notify us of your need for warranty service within the warranty period. All components must be shipped in a factory pack, which, if needed, may be obtained from us free of charge. Corrective action will be taken within a reasonable time of the date of receipt of the defective product by us or our authorized service center. If the repairs made by us or our authorized service center are not satisfactory, notify us or our authorized service center immediately.

DISCLAIMER OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

YOU ARE NOT ENTITLED TO RECOVER FROM US ANY INCIDENTAL DAMAGES RESULTING FROM ANY DEFECT IN THE NEW CROWN PRODUCT. THIS INCLUDES ANY DAMAGE TO ANOTHER PRODUCT OR PRODUCTS RESULTING FROM SUCH A DEFECT. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

WARRANTY ALTERATIONS

No person has the authority to enlarge, amend, or modify this Crown Warranty. This Crown Warranty is not extended by the length of time which you are deprived of the use of the new Crown product. Repairs and replacement parts provided under the terms of this Crown Warranty shall carry only the unexpired portion of this Crown Warranty.

DESIGN CHANGES

We reserve the right to change the design of any product from time to time without notice and with no obligation to make corresponding changes in products previously manufactured.

LEGAL REMEDIES OF PURCHASER

THIS CROWN WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE. No action to enforce this Crown Warranty shall be commenced after expiration of the warranty period.

THIS STATEMENT OF WARRANTY SUPERSEDES ANY OTHERS CONTAINED IN THIS MANUAL FOR CROWN PRODUCTS. 09/07

WORLDWIDE EXCEPT USA & CANADA

SUMMARY OF WARRANTY

Crown International, 1718 West Mishawaka Road, Elkhart, Indiana 46517-4095 U.S.A. warrants to you, the ORIGINAL PURCHASER and ANY SUBSEQUENT OWNER of each NEW Crown1 product, for a period of three (3) years from the date of purchase by the original purchaser (the "warranty period") that the new Crown product is free of defects in materials and workmanship, and we further warrant the new Crown product regardless of the reason for failure, except as excluded in this Warranty.

Warranty is only valid within the country in which the product is purchased.

1 Note: If your unit bears the name "Amcron," please substitute it for the name "Crown" in this warranty.

ITEMS EXCLUDED FROM THIS CROWN WARRANTY

This Crown Warranty is in effect only for failure of a new Crown product which occurred within the Warranty Period. It does not cover any product which has been damaged because of any intentional misuse, accident, negligence, or loss which is covered under any of your insurance contracts. This Crown Warranty also does not extend to the new Crown product if the serial number has been defaced, altered, or removed.

WHAT THE WARRANTOR WILL DO

We will remedy any defect, regardless of the reason for failure (except as excluded), by repair, replacement, or refund. We may not elect refund unless you agree, or unless we are unable to provide replacement, and repair is not practical or cannot be timely made. If a refund is elected, then you must make the defective or malfunctioning product available to us free and clear of all liens or other encumbrances. The refund will be equal to the actual purchase price, not including interest, insurance, closing costs, and other finance charges less a reasonable depreciation on the product from the date of original purchase. Warranty work can only be performed at our authorized service centers. We will remedy the defect and ship the product from the service center within a reasonable time after receipt of the defective product at our authorized service center.

HOW TO OBTAIN WARRANTY SERVICE

You must notify your local Crown importer of your need for warranty service within the warranty period. All components must be shipped in the original box. Corrective action will be taken within a reasonable time of the date of receipt of the defective product by our authorized service center. If the repairs made by our authorized service center are not satisfactory, notify our authorized service center immediately.

DISCLAIMER OF CONSEQUENTIAL AND INCIDENTAL DAMAGES

YOU ARE NOT ENTITLED TO RECOVER FROM US ANY INCIDENTAL DAMAGES RESULTING FROM ANY DEFECT IN THE NEW CROWN PRODUCT. THIS INCLUDES ANY DAMAGE TO ANOTHER PRODUCT OR PRODUCTS RESULTING FROM SUCH A DEFECT.

WARRANTY ALTERATIONS

No person has the authority to enlarge, amend, or modify this Crown Warranty. This Crown Warranty is not extended by the length of time which you are deprived of the use of the new Crown product. Repairs and replacement parts provided under the terms of this Crown Warranty shall carry only the unexpired portion of this Crown Warranty.

DESIGN CHANGES

We reserve the right to change the design of any product from time to time without notice and with no obligation to make corresponding changes in products previously manufactured.

LEGAL REMEDIES OF PURCHASER

No action to enforce this Crown Warranty shall be commenced after expiration of the warranty period.

THIS STATEMENT OF WARRANTY SUPERSEDES ANY OTHERS CONTAINED IN THIS MANUAL FOR CROWN PRODUCTS. 09/07



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**LIMITED ONE YEAR WARRANTY
ON DA-LITE PRESENTATION PRODUCTS**

Da-Lite Screen Company, Inc. warrants its products to the original purchaser only, to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase by the original purchaser provided they are properly operated according to Da-Lite's instructions and are not damaged due to improper handling or treatment after shipment from the factory.

This warranty does not apply to equipment showing evidence of misuse, abuse or accidental damage, or which has been tampered with or repaired by a person other than authorized Da-Lite personnel.

Da-Lite's sole obligation under this warranty shall be to repair or to replace (at Da-Lite's option) the defective part of the merchandise. Returns for service should be made to your Da-Lite dealer. If it is necessary for the dealer to return the screen or part to Da-Lite, transportation expenses to and from Da-Lite are payable by the purchaser and Da-Lite is not responsible for damage in shipment. To protect yourself against damage or loss in transit, insure the product and prepay all transportation expenses.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES AS TO FITNESS FOR USE AND MERCHANT ABILITY. Any implied warranties of fitness for use, or merchantability, that may be mandated by statute or rule of law are limited to the one (1) year warranty period. This warranty gives you specific legal rights, and you may also have other rights, which vary from state-to-state. **NO LIABILITY IS ASSUMED FOR EXPENSES OR DAMAGES RESULTING FROM INTERRUPTION IN OPERATION OF EQUIPMENT, OR FOR INCIDENTAL, DIRECT, OR CONSEQUENTIAL DAMAGES OF ANY NATURE.**

In the event that there is a defect in materials or workmanship of a Da-Lite product, you may contact our Sales Partners at PO Box 137, Warsaw, IN 46581-0137, (574) 267-8101, (800) 622-3737.

IMPORTANT: THIS WARRANTY SHALL NOT BE VALID AND DA-LITE SHALL NOT BE BOUND BY THIS WARRANTY IF THE PRODUCT IS NOT OPERATED IN ACCORDANCE WITH DA-LITE'S WRITTEN INSTRUCTIONS.

Keep your sales receipt to prove the date of purchase and your original ownership.

Warranty

Exact Furniture is proud of our quality furniture, we thoroughly inspect all products prior to shipment to ensure they meet our rigid standards. As a result of our commitment to provide exceptional products, Exact Furniture is pleased to offer a **5 year** warranty against defects on cabinet materials and workmanship. This warranty covers manufacturing defects which occur during normal usage of the cabinet or podium and does not include general wear, damage caused by abuse or excessive weight applied to slides or hinges. Exact Furniture will warranty any installed electronic components to the same extent as the original manufacturer, for more details please contact us.



Powered Product Warranty

Extron Electronics warrants its powered products against any defects in materials and workmanship for a period of three years from the date of invoice. Touchscreen display and overlay components carry a one year parts and labor warranty. Extron offers a five year parts and labor warranty for *System INTEGRATOR*® speakers. In the event of a malfunction during the warranty period, Extron will repair or replace a product to its original operating condition. To assure the highest level of service, a return authorization number must be obtained from Extron before products are returned for service.

Lifetime Limited Cable Performance Warranty

Extron Electronics warrants that its cable products will be free from defects in material and workmanship for as long as you or your customer owns the cable. Each and every Extron cable is designed and engineered to meet and exceed performance specifications. If, at anytime, the cable fails due to manufacturer defect, Extron will repair or replace the cable to ensure that it meets original performance specifications. Reduced performance due to normal wear and tear, or damages caused by misuse or negligence will not be covered. Extron will test and evaluate all cable products claimed defective. Cable products must be shipped to Extron, prepaid along with proof of purchase ONLY after obtaining a Return Authorization (RA) number from the Extron Customer Support department. This statement of policy is in lieu of any other policy expressed or implied and no representative or person is authorized to assume any other liability or adopt any other policy for Extron Electronics without our written consent.

FTR PTY LTD

Statement of Limited Product Warranty

Limited Warranty

For purposes of this Statement of Limited Product Warranty (the "Warranty Statement"); (i) the term "Hardware Products" shall mean the mechanical, electrical and/or electronic equipment manufactured by FTR, Pty. Ltd. ("FTR") and/or its affiliates, (ii) the term "Software Products" shall mean FTR's "For The Record," "FTR Gold" and "TheRecord" software products, or such components thereof as are licensed by a Customer from FTR or an Authorized Licensee, and (iii) the term "Customer" shall mean the original end user that purchases or licenses FTR Products directly from FTR or an entity licensed by FTR to provide such FTR products ("Authorized Licensee"). When used with reference to the FTR ReporterDeck product (a mixed hardware and software product), the term "Hardware Product" means the hardware (mechanical) portions of the FTR ReporterDeck product.

FTR warrants that the Hardware Products, as delivered by FTR or its Authorized Licensee, shall substantially comply with their written documentation, under normal use, for a period of one (1) year from the date of the associated FTR or Authorized Licensee invoice to the Customer. FTR warrants that the Software Products, as delivered by FTR or its Authorized Licensee, shall operate in all material respects in accordance with their accompanying user documentation, under normal use, for a period of ninety (90) days from the date of such invoice.

The express warranties provided herein are limited and are the only warranties that apply to the Hardware Products and Software Products. The express warranties provided by FTR herein are subject to the following limitations:

- (a) FTR's warranties granted herein are extended to and benefit only the Customer;
- (b) FTR makes no warranty that the Software Products will work in combination with any hardware or software provided by third parties, or that the operation of the Software Products will be uninterrupted or error-free, or that all defects in the Software Products will be corrected;
- (c) FTR's warranties herein do not apply to: (i) any FTR Hardware Product or Software Product that is modified by anyone other than FTR; (ii) defects arising from use of the FTR Hardware Product or Software Product other than in accordance with its operating instructions; (iii) any FTR Hardware Product or Software Product that has been kept outdoors or in extreme heat and humidity; (iv) failures caused by defects, problems, or failures of hardware or software provided by third parties; and
- (d) The warranties herein do not apply to defects arising from acts of persons other than FTR, misuse, neglect, improper installation or testing, unauthorized attempts to repair an FTR Hardware Product, any other cause beyond the range of the intended use of the FTR Hardware Product, or by accident, fire, lightning, theft, vandalism, water, acts of God, or other peril.

Customer's sole remedy for breach of the above warranties shall be that FTR shall, at its own option and expense, within thirty (30) days of being delivered the defective Hardware Product or Software Product, either (a) grant to Customer a full refund of the purchase price of the FTR Hardware Product or Software Product; (b) repair the defective Hardware Product or Software Product and return it to Customer; or (c) deliver to Customer a replacement Hardware Product or Software Product. All Hardware Products and Software Products that are replaced will become the property of FTR. Replacement products may be new or reconditioned. Any replacement or repaired Hardware Product shall have a warranty identical to this warranty commencing on the date of delivery of the replacement or repaired Hardware Product to Customer and ending (i) ninety (90) days thereafter, or (ii) one (1) year from the original date of purchase, whichever is later. Any replacement or repaired Software Product shall have a ninety (90) day warranty identical to this warranty commencing on the date of delivery of the replacement or repaired Software Product to Customer. This warranty is non-transferable. FTR shall not be responsible for any software, firmware, information, or memory data of Customer contained in, stored on, or integrated with any products returned to FTR pursuant to any warranty.

Standard Warranty Service

Repair and replacement of Hardware Products or replacement of Software Products may be obtained by contacting FTR telephonically during the warranty period and obtaining a Return Material Authorization (RMA) number, then, as directed by FTR and at Customer's expense, delivering the defective Hardware Product or Software Product, accompanied by proof of purchase, to FTR or to an authorized FTR service center. Warranty service for Software Products may in some cases be obtained without delivering the FTR Software Product to FTR, as directed by FTR. Any FTR Hardware Product or Software Product returned to FTR must have an RMA number marked on the outside of the package, and be packaged in the FTR Hardware Product or Software Product's original or comparable packaging. FTR is not responsible for product(s) lost or damaged during transit from the Customer to FTR. FTR has the right to refuse any FTR Hardware Product or Software Product received without a RMA number on the outside of the packaging. Repaired Hardware Products and Software Products will be returned to Customer at FTR's expense.

This warranty is not valid if the serial number has been tampered with or removed from the product(s).

Warranties Exclusive

THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES OF MERCHANTABILITY, TITLE, NON-INFRINGEMENT AND FITNESS FOR A PARTICULAR PURPOSE. FTR neither assumes nor authorizes any other person to assume for it any other liability in connection with the sale, installation, maintenance or use of its Hardware Products or Software Products. FTR shall not be liable under this warranty if its testing and examination disclose that an alleged defect in a Hardware Product or Software Product does not exist.

Limitation of Liability

IN NO EVENT, whether BASED IN CONTRACT OR TORT (INCLUDING NEGLIGENCE) SHALL FTR BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FOR LOSS OF REVENUE, LOSS OF BUSINESS, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF THE HARDWARE PRODUCTS OR SOFTWARE PRODUCTS, EVEN IF FTR OR ITS LICENSED RESELLERS OR AUTHORIZED LICENSEES HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT WILL FTR'S LIABILITY UNDER THIS AGREEMENT EXCEED THE AMOUNT PAID BY THE CUSTOMER FOR THE FTR HARDWARE PRODUCT OR SOFTWARE PRODUCT.

Warranty Registration

Customers may register their products by completing the product registration form enclosed with the product or on the FTR web site at www.ftrgold.com. This information will be used for customer support access as well as notification of new product releases and enhancements.

FTR-Limited Warranty- General Products.DOC 20050911

HITACHI MULTIMEDIA PROJECTOR LIMITED WARRANTY (USA)

THIS LIMITED WARRANTY SETS FORTH CERTAIN RIGHTS AS WELL AS CERTAIN WARRANTY DISCLAIMERS AND EXCLUSIONS FOR HITACHI'S PROJECTOR PRODUCTS. PLEASE READ THIS DOCUMENT CAREFULLY.

1. **Limited Warranty.** Hitachi America, Ltd. ("Hitachi") stands behind the quality of its products and warrants to original end user purchasers only ("End Users") in the Territory on Attachment 1 only that Hitachi projector products will be free from defects in material and workmanship during the applicable Warranty Period listed on Attachment 1, subject to the exceptions, exclusions and disclaimers below. The Warranty Period begins on the date the End User originally purchased the product from an authorized Hitachi dealer in the Territory. This warranty extends to the End User only and cannot be transferred to another individual or organization.
2. **Exceptions to Limited Warranty.** The following items are exceptions to the above limited warranty and are not covered by the warranty or are subject to different warranty periods:
 - a. The warranty for accessories (except batteries) is for parts only and is effective only during the Accessory Warranty Period listed on Attachment 1, beginning on the date of original purchase of the projector. Batteries are not covered by this warranty under any circumstances.
 - b. The warranty for lamps that are included as original equipment in the projectors is for parts only and is effective only during the Lamp Warranty Period listed on Attachment 1, beginning on the date of original purchase of the projector.
 - c. The warranty period for the Optical Assembly, which includes the Dichroic Optics Unit and the Lens / Prism Assembly, is effective only during the Optical Assembly Warranty Period listed on Attachment 1. If within the Optical Assembly Warranty Period, the Optical Assembly requires replacement and is otherwise eligible for warranty coverage, but the projector has exceeded the hours of usage specified in Attachment 1, Hitachi will cover the cost of labor, but not the cost of parts that require replacement.
 - d. Except as provided in Section 5 below, all repaired or replaced parts shall be warranted only for the remainder of the original warranty period specified for such parts in Attachment 1.
3. **General Warranty Exclusions.** This warranty shall not apply and Hitachi shall have no obligation under this warranty if in Hitachi's judgment:
 - a. End User or any third party has modified, repaired or attempted to modify or repair the product without obtaining Hitachi's prior written authorization;
 - b. the identification markings on the product have been removed, defaced or altered;
 - c. the product was damaged or malfunctions due to accident, disaster, abuse, improper use, mishandling, mispackaging, shipping, exposure to dust and/or smoke, or electrical shock and/or power surges;
 - d. the product was not installed on a system configured as specified in the user's manual or was otherwise improperly installed;
 - e. the product was subjected to operating conditions outside of the range specified in the user's manual or this Warranty;
 - f. the product was subjected to use in excess of 8 hours per day for more than 5 consecutive days per week;
 - g. End User or any user of the product failed to follow the user's manual, including but not limited to the manual's instructions regarding the proper handling, operation, service and/or maintenance of the product; or
 - h. End User or any user of the product has installed or used a replacement lamp in the product that has not been sold, supplied or authorized by Hitachi.
4. **Specific Warranty Exclusions.** In addition, this limited warranty does not cover normal wear and tear of the product, including, but not limited to image burn-in or scratches or marks on the surface of the projector's lens and/or cabinet. Please also note the following warranty disclaimers and exclusions:
 - a. Hitachi's projectors are manufactured in accordance with high quality standards. However, the specifications of Hitachi's projectors may not meet, and are not warranted to satisfy, all requirements of professional or high-end home theater applications.
 - b. The digital input terminals of certain Hitachi projectors (M1-D and DVI) are intended for computer data transfer and are not designed for video signal transfer, including but not limited to the transfer of DVD signals from a computer, DVD player or any other device. For best video results, component inputs are recommended.
 - c. Hitachi's 1365 x 1024 resolution projectors do not remap 1280 x 1024 signals or any other signals to 1365 x 1024 resolution. SXGA input will be reproduced as standard SXGA output.
 - d. The projector's USB interface (if applicable) is designed for usage with standard USB storage devices. Some USB-based flash drives or other storage devices may not be recognized by the projector for a variety of possible reasons, such as data encryption, data compression, HUB interfaced memory, inappropriate class definition of memory or otherwise.

- e. The wireless performance specifications of the projector are defined based on optimal operating conditions and configurations. Actual performance may vary depending on the characteristics of the applicable computer (both software and hardware), wireless / network performance and other such factors or variables.
 - f. In certain projectors, tiny dark pixels or bright pixels may continuously appear on the image. This pixel phenomenon is normal, does not indicate a malfunction and is not a warranted defect.
 - g. In certain projectors, black or very dark signals may be reproduced with some non-black hues. This color reproduction phenomenon is normal, does not indicate a malfunction and is not a warranted defect.
 - h. In certain projectors, the infrared remote may not work properly or may work only intermittently as a result of interference from fluorescent light ballasts or fixtures or usage in high brightness environments.
 - i. Due to the characteristics of short throw distance projectors, the tolerance of focus performance, image distortion and drift may vary more widely than with non-short throw distance projectors, and their use with uneven screen surfaces may lead to increased image distortion and unbalanced focus issues.
5. **Warranty Claims, Product Return Procedures and Remedies.** In the unlikely event that a Hitachi projector, lamp or accessory should prove defective during the Warranty Period, (a) please return the product to the retailer that sold it to you if the defect occurs within the first 60 days of purchase; or (b) after such 60-day period, please locate your nearest Hitachi Authorized Service Center by calling 1-800-HITACHI and file a warranty claim in accordance with Hitachi's then-current Return Material Authorization (RMA) Procedures. Hitachi's RMA Procedures can be referenced at www.hitachi.us/digitalmedia or by calling 1-800-HITACHI. YOU MUST PRESENT A VALID PROOF OF PURCHASE IN ORDER TO MAKE A WARRANTY CLAIM. NO RETURNS WILL BE ACCEPTED UNLESS THEY ARE MADE IN ACCORDANCE WITH HITACHI'S RMA PROCEDURES. To prevent damage during shipping, products returned for service must be securely packaged in the original shipping container or its equivalent. Product must be returned with shipping charges pre-paid and proof of purchase included in the box. Failure to properly package the product will void all applicable warranties. Hitachi shall not be liable under any circumstances for any damage to or loss of the product during shipping or transit and recommends that you procure appropriate shipping insurance. After receipt of your product properly shipped as described above, Hitachi will inspect the product. If Hitachi determines that the product contains a warranted defect, Hitachi will, at its sole option, either ship to you the repaired product or replace the product with a new or reconditioned product of comparable or greater specified functionality. If in Hitachi's sole opinion no comparable product is available, Hitachi may, at its sole discretion and option, refund the original purchase price of the applicable product. HITACHI'S ENTIRE LIABILITY AND YOUR EXCLUSIVE REMEDY FOR VALID WARRANTY CLAIMS SHALL BE AS STATED HEREIN. If Hitachi repairs your product, any product parts that are replaced during the repair process shall become Hitachi's property. If Hitachi chooses to replace your product rather than repair it, or if Hitachi refunds your original purchase price of the applicable product, the product you returned to Hitachi shall become Hitachi's property. Except as stated in Section 2 above, all repaired or replaced product shall be warranted for the remainder of the original Warranty Period or, if the product defect occurs ninety (90) days or less before the expiration of the Warranty Period, and the product is properly returned to Hitachi prior to the expiration date of the Warranty Period, then the repaired or replaced product will be warranted for ninety (90) days from the date Hitachi ships the repaired or replacement product to you.
 6. **DISCLAIMERS OF ALL OTHER WARRANTIES.** HITACHI MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO YOUR HITACHI PRODUCT OTHER THAN THE LIMITED WARRANTY SET FORTH ABOVE. NO HITACHI DEALER, AGENT OR EMPLOYEE IS AUTHORIZED TO MAKE ANY MODIFICATION, EXTENSION OR ADDITION TO THIS WARRANTY, UNLESS UNENFORCEABLE OR UNLAWFUL UNDER APPLICABLE LAW. HITACHI DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE. ANY APPLICABLE IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ON THE PROJECTOR IS LIMITED TO THE DURATION OF THE WRITTEN WARRANTY PERIOD. SOME STATES DO NOT ALLOW LIMITATIONS ON IMPLIED WARRANTIES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.
 7. **LIMITATIONS ON LIABILITY.** THE LIABILITY OF HITACHI, IF ANY, FOR DAMAGES RELATING TO ANY ALLEGEDLY DEFECTIVE PRODUCT UNDER TORT, CONTRACT OR ANY OTHER LEGAL THEORY SHALL BE LIMITED TO THE ACTUAL PRICE PAID FOR SUCH PRODUCT AND SHALL IN NO EVENT INCLUDE INCIDENTAL, CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES OF ANY KIND, INCLUDING BUT NOT LIMITED TO LOST PROFITS OR LOSS OF BUSINESS, EVEN IF HITACHI IS AWARE OF THE POSSIBILITY OF SUCH DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU

SPECIFIC LEGAL RIGHTS, AND YOU MAY HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE.

End User Support
Technical Support Website
Warranty Registration

1-800-HITACHI
www.hitachiserviceusa.com
www.hitachi.us/digitalmediaregistration

ATTACHMENT 1 WARRANTY PERIODS AND TERRITORY

The Warranty Periods below apply only to products purchased on or after the Limited Warranty Effective Date specified below. If you purchased your product prior to that Limited Warranty Effective Date, please see Hitachi's Warranty Archive at www.hitachi.us/digitalmedia for the limited warranty that applies to your product.

1. All time periods below begin on the original date of product purchase by the original End User from an authorized Hitachi reseller, as shown on End User's original product receipt or invoice.
2. Where a warranty period is listed in days as well as hours of usage, the applicable Warranty Period expires on whichever time period occurs first.
3. "A-Stock" refers to new products. "B-Stock" refers to refurbished products.
4. "USA" refers to the fifty United States, the District of Columbia and Puerto Rico only, not including any other U.S. territories, commonwealths, possessions or protectorates.

Limited Warranty Effective Date: January 1st, 2008
Territory: USA

Projector Model	Projector Warranty Period	Accessory Warranty Period	Lamp Warranty Period	Optical Assembly Warranty Period
All models (except the models written below) (A-Stock)	3 years	60 days	90 days or 250 hours of use	3 years See the exception at section 3(f) of Limited Warranty
CP-R Series (A-Stock)	3 years	60 days	90 days or 250 hours of use	3 years See the exception at section 3(f) of Limited Warranty
ED- Series (A-Stock)	3 years	60 days	90 days or 250 hours of use	3 years See the exception at section 3(f) of Limited Warranty
PJ- Series (A-Stock) *	3 years	60 days	90 days or 250 hours of use	3 years See the exception at section 3(f) of Limited Warranty
All Models (B-Stock)	1 year	60 days	90 days or 250 hours of use	1 year or 500 hours of use, whichever comes first. See the exception at section 3(f) of Limited Warranty

(*) PJ-TX Series excluded. The limited warranty applicable to Hitachi PJ-TX Series models is governed only by the limited warranty terms and conditions that accompany the actual products.

Limited Warranty Effective Date: January 1st, 2008

Standard Limited Warranty

Middle Atlantic Products, Inc. (the "Company") warrants the products manufactured by it to be free from defects in material or workmanship under normal use and conditions as follows: (I) for the lifetime of all sheet metal products, (II) for a period of seven (7) years from the date of shipment by the Company for casters and products constructed of wood, (III) for a period of three (3) years from date of shipment by the Company for power distribution, lighting, temperature, cooling and control products and products with slides or that rotate, and (IV) for a period of one year from the date of shipment by the Company for products containing LCD screens. Please see the accompanying Spreadsheet (warrantylist.xls) Updated 1-Jul-08 for a classification of warranty period by S.K.U. or request this document by e-mailing info@middleatlantic.com.

The lifetime warranty on the Company's sheet metal is limited to, and available only to, the original purchaser of the product, whether purchased from the Company or from an authorized Dealer or Distributor, provided that the Company determines after inspection thereof that the product does not show any signs of unusual wear and tear.

The Company's entire liability to the purchaser, and the purchaser's (or any other party's) sole and exclusive remedy, under this warranty shall be limited, at the Company's option, to either (a) return of and refund of the price paid for, or (b) repair or replacement at the Company's factory of the products purchased, or any part or parts thereof, which the Company has determined to be defective after inspection thereof at the Company's factory. This warranty does not cover damage due to acts of God, accident, misuse, abuse or negligence by parties other than the Company, or any modification or alteration of the products. In addition, this warranty does not cover damage due to improper handling, assembly, installation or maintenance.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL THE COMPANY BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES WHATSOEVER (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION OR ANY OTHER PECUNIARY LOSS) ARISING OUT OF THE USE OF THE PRODUCTS PURCHASED, EVEN IF THE COMPANY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE COMPANY'S LIABILITY TO THE PURCHASER (OR ANY OTHER PARTY) HEREUNDER, IF ANY, SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE PRODUCTS PAID TO THE COMPANY.

Panasonic System Networks Company of America,
Unit of Panasonic Corporation of North America
Three Panasonic Way Secaucus, New Jersey 07094

LIMITED WARRANTY FOR SECURITY and VISION SYSTEMS EQUIPMENT

Panasonic System Networks Company of America, Unit of Panasonic Corporation of North America ("Panasonic") will, at its sole option, repair or exchange this product with a new or a comparable refurbished product, free of charge, in the USA from the date of original purchase in the event of a defect in materials or workmanship, as follows:

Three Years

Digital Disk Recorder, Network Disk Recorder and Extension Unit:
WJ-ND400 (sold after July 1, 2009), WJ-HD616, WJ-HD716, WJ-HDE400. Hard disk drives are warranted separately. Cooling fans are warranted for one year.

Hard disk drive: all models 250GB or higher capacity. 160GB or less carry a 180-day warranty. Neither the cost of recovering data from the hard disk drives, nor the value of any data which cannot be recovered, is covered under warranty.

Camera: all fixed standard body and fixed dome cameras beginning with WV and all Pan/Tilt/Zoom cameras beginning with WV except for fans, motors, lens assemblies and slip ring which are warranted for one year).

Displays: LCD and CRT's beginning with PLCD and WV.

Matrix/Switch: all matrix / switch products beginning with WJ-SX, WJ-MPU and PMPU.

One Year

Digital Disk Recorder, Network Disk Recorder and Extension Unit:
WJ-HD220, WJ-HD316(A), WJ-HD309(A), WJ-ND200, WJ-ND300(A), and WJ-HDE300.

Iris readers: all.

Accessories: all.

Other: software, lenses, video/network transmission equipment

With regard to the Digital Disk Recorders, Network Disk Recorders and Extension Units which are not described above, please refer to Operating manual.

Service

To locate the nearest Panasonic repair center, please call toll free 1-800-526-6610 or visit our web site at:

<http://www.pasc.panasonic.com/WhereTo/FindServicer.asp?Pass=1>

This warranty is extended only to the original purchaser. A purchase receipt or other proof of date of original purchase will be required before warranty service is rendered. If you ship the product, carefully pack it and send it prepaid, adequately insured and preferably in its original carton. Attach a postage paid letter, detailing your complaint, to the outside of the carton.

This warranty covers failures due to defects in materials or workmanship which occur during normal use. It does not cover damage which occurs in shipment or failures which are caused by products not supplied by Panasonic or failures which result from alteration, accident, misuse, abuse, neglect, faulty installation, maladjustment of user controls, improper maintenance, modification or service by anyone other than an Authorized Panasonic Security Systems/Vision Systems Service center, or damage that is attributable to acts of God.

LIMITATIONS AND EXCLUSIONS

There are no express warranties except as listed above.

PANASONIC SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE WARRANTY PERIOD SET FORTH ABOVE. Some states do not allow the exclusion or limitation of implied warranties or liability for incidental or consequential damages, so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights. You may also have other rights that vary from state to state.

If a problem with your equipment develops during the warranty period, first contact your Panasonic dealer or Panasonic Service center. If the problem is not handled to your satisfaction, then write to the Panasonic National Service Manager at Panasonic System Networks Company of America, 3 Panasonic Way 2H-4, Secaucus, New Jersey 07094.

Product Warranty and Return Information

REVISED 02/10/2010



Pelco will repair or replace, without charge, any merchandise proved defective in material or workmanship for a period of one year after the date of shipment.

Exceptions to this warranty are as noted below:

- **Five years:**
 - Fiber optic products
 - Unshielded Twisted Pair (UTP) transmission products
 - CC3701H-2, CC3701H-2X, CC3751H-2, CC3651H-2X, MC3651H-2, and MC3651H-2X camera models
- **Three years:**
 - Pelco-designed fixed network cameras and network dome cameras with Sarix™ technology
 - Pelco-branded fixed camera models (CCC1390H Series, C10DN Series, C10CH Series, and IP3701H Series)
 - EH1500 Series enclosures
 - Spectra® IV products (including Spectra IV IP)
 - Camclosure® Series (IS, ICS, IP) integrated camera systems
 - DX Series digital video recorders (except DX9000 Series which is covered for a period of one year), DVR5100 Series digital video recorders, Digital Sentry® Series hardware products, DVX Series digital video recorders, and NVR300 Series network video recorders
 - Endura® Series distributed network-based video products
 - Genex® Series products (multiplexers, server, and keyboard)
 - PMCL200/300/400 Series LCD monitors
 - PMCL5xx Series FHD monitors
- **Two years:**
 - Standard varifocal, fixed focal, and motorized zoom lenses
 - DF5/DF8 Series fixed dome products
 - Legacy® Series integrated positioning systems
 - Spectra III™, Spectra Mini, Spectra Mini IP, Esprit®, ExSite®, and PS20 scanners, including when used in continuous motion applications.
 - Esprit Ti and TI2500 Series thermal imaging products

- Esprit and WW5700 Series window wiper (excluding wiper blades).
- CM6700/CM6800/CM9700 Series matrix
- Digital Light Processing (DLP®) displays (except lamp and color wheel). The lamp and color wheel will be covered for a period of 90 days. The air filter is not covered under warranty
- Intelli-M® eIDC controllers
- **One year:**
 - Video cassette recorders (VCRs), except video heads. Video heads will be covered for a period of six months.
- **Six months:**
 - All pan and tilts, scanners, or preset lenses used in continuous motion applications (preset scan, tour, and auto scan modes).

Pelco will warrant all replacement parts and repairs for 90 days from the date of Pelco shipment. All goods requiring warranty repair shall be sent freight prepaid to a Pelco designated location. Repairs made necessary by reason of misuse, alteration, normal wear, or accident are not covered under this warranty.

Pelco assumes no risk and shall be subject to no liability for damages or loss resulting from the specific use or application made of the Products. Pelco's liability for any claim, whether based on breach of contract, negligence, infringement of any rights of any party or product liability, relating to the Products shall not exceed the price paid by the Dealer to Pelco for such Products. In no event will Pelco be liable for any special, incidental, or consequential damages (including loss of use, loss of profit, and claims of third parties) however caused, whether by the negligence of Pelco or otherwise.

The above warranty provides the Dealer with specific legal rights. The Dealer may also have additional rights, which are subject to variation from state to state.

If a warranty repair is required, the Dealer must contact Pelco at (800) 289-9100 or (559) 292-1981 to obtain a Repair Authorization number (RA), and provide the following information:

- Model and serial number
- Date of shipment, P.O. number, sales order number, or Pelco invoice number
- Details of the defect or problem

If there is a dispute regarding the warranty of a product that does not fall under the warranty conditions stated above, please include a written explanation with the product when returned.

Method of return shipment shall be the same or equal to the method by which the item was received by Pelco.

Returns

To expedite parts returned for repair or credit, please call Pelco at (800) 289-9100 or (559) 292-1981 to obtain an authorization number (CA number if returned for credit, and RA number if returned for repair) and designated return location.

All merchandise returned for credit may be subject to a 20 percent restocking and refurbishing charge.

Goods returned for repair or credit should be clearly identified with the assigned CA or RA number and freight should be prepaid.

Legal Information

Pelco, the Pelco logo, Camclosure, Digital Sentry, Endura, Esprit, ExSite, Genex, Legacy, and Spectra are registered trademarks of Pelco, Inc.

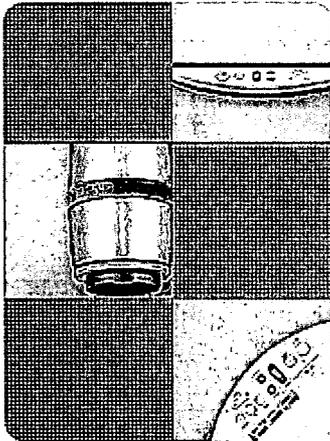
Spectra III is a trademark of Pelco, Inc.

DLP is a registered trademark of Texas Instruments Incorporated.

RDL Three-Year Limited Warranty

Installation of these products by the Purchaser shall constitute Purchaser's acknowledgement and acceptance of the terms and conditions for sale and of this warranty, and shall constitute the Purchaser's determination of the suitability of this product for the Purchaser's intended application. Radio Design Labs, Inc., also referred to as RDL®, warrants to the Purchaser that products manufactured by RDL are free from defects in material and workmanship. This warranty applies to the period of three years from the date of shipment, except for component parts or products purchased from other sources and supplied by RDL. Such component parts or products bear only the warranty of the manufacturer thereof in effect at the time of shipment to the Purchaser. RDL will, without charge, and after written notice has been received and acknowledged by RDL, repair an RDL product if proved to be defective according to the usage of the trade, when such equipment is received by RDL at the location it designates with shipment costs prepaid by the Purchaser. RDL shall not be liable for any expense whether for repairs, replacements, material, service, or otherwise, incurred by the Purchaser or modifications made by the Purchaser to the product. No equipment shall be deemed defective if it shall fail to operate in a normal or proper manner due to exposure to excessive moisture in the atmosphere, excessive temperature extremes, improper environmental cleanliness, or any other environment not consistent with the principles of good engineering practice. In no event shall RDL have any liability for consequential damage or expense directly or indirectly arising from the use of the products, or any inability to use it either separately or in combination with other equipment or materials, or from any other cause, whether used in accordance with instructions or not. This warranty is void if equipment is altered in any way by other than RDL. RDL products are NOT intended for use in life support appliances, devices, or systems. Use of RDL products in such applications is done solely at the liability of the reseller/installer and/or end user. RDL reserves the right to change design parameters and specifications at any time without notice. The performance measurements reflect the products at the time of printing. This warranty is in lieu of all others, either expressed or implied. No representative is authorized to assume for RDL any other liability in connection with RDL products.

Warranty Policy



Samsung Digital

Presenter

The SAMSUNG product is guaranteed for a period of two years from the date of purchase against defects in workmanship and materials. This warranty is valid only on Samsung Products and it shall be limited to the repair and /or adjustment. Exceptions to this warranty are as noted below

When service is required; the warranty is validated by the submission of a fully completed warranty card which was marked with Model Name, Serial No, Date of Purchase & Price, Purchaser's Name & Address, and Place of purchase & Address. If there is an alteration or removal of the serial number, Samsung does not warrant the repair of any product.

The service will be performed by one of the SAMSUNG Presenter service agents listed on warranty card.

This warranty becomes void if there is any malfunction, defect or failure caused by or resulting from the evidence of impact, mishandling, tampering, use contrary to the applicable instruction manual, incorrect power line voltage, fire, flood or other Acts of God, shipping damage or damage resulting from repairs performed by unauthorized personnel. Routine cleaning, normal cosmetic and mechanical wear and tear are not covered under the terms of this warranty. When returning the product for warranty service, please pack it carefully, insure the product and enclose your warranty card, original receipt or copy, brief explanation of the problem.

The warranty does not cover the postal cost, insurance and any other incidental charges.

Warranty Information for 460CX-2 - Parts : 36 months, Labor : 36 months

PROFESSIONAL DISPLAYS

SAMSUNG LCD DISPLAY PANEL - COMMERCIAL MODEL LIMITED WARRANTY

LIMITED WARRANTY COVERAGE

This Samsung branded LCD display panel product, as supplied and distributed by Samsung Electronics America, Inc. ("Samsung") and delivered new, in the original carton to the original commercial purchaser ("you" or "purchaser"), is warranted by Samsung against manufacturing defects in materials and workmanship. Please note that some states do not allow time limitations on implied warranties.

This limited warranty begins on the original date of purchase and continues through the Limited Warranty Period and is valid only on Samsung products purchased from Samsung or a Samsung authorized reseller and used in the fifty (50) United States and the District of Columbia (unless you enter into a separate written agreement with Samsung). Since no end-user purchase takes place, this limited warranty does not apply to a party who rents or leases a Samsung brand product, and such a party must contact its rental or leasing company to determine whether warranty coverage is applicable.

If the product is found to be defective as a result of manufacturing defects in materials and workmanship during the Limited Warranty Period, Samsung will, at its sole option, (1) repair or replace the product, at no charge as stipulated herein, with new or reconditioned parts or a functionally equivalent product, (2) for user-installable parts, require you to repair the product with new or reconditioned parts provided at no charge, or (3) provide a refund of the purchase price of the product, LESS THE PRODUCT'S DEPRECIATED VALUE, only if Samsung is unable to replace the product or repair it in accordance with applicable law.

All replaced parts and products, and products for which a refund is provided, become the property of Samsung and must be returned to Samsung free of any third-party ownership claims within thirty (30) days after you receive the replacement parts or products (or refund, if applicable). Samsung may require your credit card information prior to providing replacement parts or products (or refund, if applicable)

and will charge you for the replacement parts or products (or product for which a refund is provided) if you fail to return them within such time. Replacement parts and products will be new or serviceably used, comparable in function and performance to the original parts, and warranted for the remainder of the original warranty period or, if longer, ninety (90) days after they are shipped to you.

OBTAINING WARRANTY SERVICE

To receive warranty service, you must (1) first follow the procedures outlined below, in the product manual and in online help resources, and (2) if these procedures do not resolve the problem, contact Samsung at the number provided below for problem determination and service procedures. Warranty service can only be performed by a Samsung authorized service center, except that such a center need not be used for the installation of replacement parts at your expense in the event that a warranty labor coverage period has expired but a warranty parts coverage period remains in effect. Samsung will not reimburse for any service performed by others. The original dated bill of sale, or a substitute proof of purchase acceptable at Samsung's sole option in accordance with applicable law, must be presented upon request as proof of purchase to Samsung or Samsung's authorized service center.

If it is determined that your Samsung monitor requires onsite services, Samsung will dispatch an onsite technician to personally evaluate your monitor's technical needs. On-site service will be provided during the warranty labor period subject to availability within the continuous United States. On-site service is not available in all areas. To receive on-site service, the product must be unobstructed and accessible to service personnel without the use of ladders or other apparatus required to service the display. If during on-site service repair can not be completed, it may be necessary to remove, repair and return the product. Removal and/or installation charges are the responsibility of the purchaser. You are responsible backing-up all system and applications software and data and disabling and security passwords before services are performed, removing any data before parts or products are returned, and for reinstalling all software, data and passwords.

SAMSUNG SHALL NOT BE LIABLE FOR THE LOSS OR DESTRUCTION OF DATA OR MEDIA RESULTING FROM THE USE OR SERVICE OF THIS PRODUCT, WHETHER DUE TO VIRUS ISSUES OR OTHERWISE, OR ANY FAILURE TO SECURE ALL PROGRAMS

AND DATA CONTAINED IN OR AFFECTED BY THE PRODUCT OR TO MAINTAIN THE CONFIDENTIALITY OF DATA STORED ON THE PRODUCT.

LIMITATIONS AND EXCLUSIONS

Samsung does not warrant uninterrupted or error-free operation of the product. Product performance is affected by system configuration, software, applications, your data and operator control of the system, among other factors. Though the product is considered to be compatible with many systems, it is your responsibility to determine compatibility and integration with other products or systems.

This limited warranty applies only to hardware products manufactured by or for Samsung that can be identified by the "Samsung" trademark, trade name or logo affixed to them. It does not apply to non-Samsung hardware products or any software, even if packaged or sold with Samsung hardware. Manufacturers, suppliers or publishers, other than Samsung, may provide their own warranties to you, but Samsung, to the extent permitted by law, provides such third-party products "AS IS". If applicable, software distributed by Samsung with or without the Samsung brand name (including but not limited to system software) is not covered under this limited warranty. Please refer to any licensing agreement accompanying the software for details of any purchaser rights with respect to its use.

This limited warranty covers manufacturing defects in materials and workmanship encountered in normal, reasonable, and except to the extent otherwise expressly provided for in this statement, noncommercial use of this product, and shall not apply to the following type of exclusions:

- damage which occurs in shipment, delivery and installation;
- applications and uses for which this product was not intended;
- altered product or serial numbers;
- cosmetic damage, such as to the exterior finish;
- damage (not resulting from defects in materials and workmanship) which occurs in your possession or that of other

- third parties, including due to accidents, opening of the product case or cabinet, abuse, neglect, fire, water, lightning or other acts of nature;
- use of products, equipment, systems, utilities, services, parts supplies, accessories, applications, installations, repairs, external wiring or connectors not supplied or authorized by Samsung;
- incorrect electrical line voltage, fluctuations and surges;
- adjustments and failure to follow operating instructions, instructions for installing a user-installable part, or cleaning, maintenance and environmental instructions that are covered and prescribed in the instruction book, including incorrect installation of hardware or software;
- reception or display problems and distortion related to noise, echo, interference or other signal transmission and delivery problems;
- burned-in images resulting from viewing an image on the display screen for an extended period of time; and
- minor imperfections within design specifications or that do not materially alter functionality.

THERE ARE NO EXPRESS WARRANTIES OTHER THAN THOSE LISTED AND DESCRIBED ABOVE. NO WARRANTIES WHETHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY AFTER THE EXPRESS WARRANTY PERIODS STATED ABOVE. NO OTHER EXPRESS WARRANTY OR GUARANTY GIVEN BY ANY PERSON, FIRM OR CORPORATION WITH RESPECT TO THIS PRODUCT SHALL BE BINDING ON SAMSUNG, SAMSUNG UNDERTAKES NO RESPONSIBILITY FOR THE QUALITY OF THE PRODUCT, AND ASSUMES NO RESPONSIBILITY THAT THE PRODUCT WILL BE FIT FOR ANY PARTICULAR PURPOSE FOR WHICH YOU MAY BE BUYING THE PRODUCT, EXCEPT AS OTHERWISE PROVIDED IN THIS LIMITED WARRANTY OR IN APPLICABLE LAW.

SAMSUNG SHALL NOT BE LIABLE FOR LOSS OF REVENUE OR PROFITS, FAILURE TO REALIZE SAVINGS OR OTHER BENEFITS, OR ANY OTHER SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY THE USE, MISUSE OR INABILITY TO USE THE PRODUCT, REGARDLESS OF THE LEGAL THEORY ON WHICH THE CLAIM IS

BASED, AND EVEN IF SAMSUNG HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. NO RECOVERY OF ANY KIND AGAINST SAMSUNG SHALL BE GREATER IN AMOUNT THAN THE PURCHASE PRICE OF THE PRODUCT SOLD BY SAMSUNG AND CAUSING THE ALLEGED DAMAGE.

WITHOUT LIMITING THE FOREGOING, YOU ASSUME ALL RISK AND LIABILITY FOR LOSS, DAMAGE OR INJURY TO YOU AND YOUR PROPERTY AND TO OTHERS AND THEIR PROPERTY ARISING OUT OF THE USE, MISUSE OR INABILITY TO USE THE PRODUCT NOT CAUSED DIRECTLY BY THE NEGLIGENCE OF SAMSUNG. THIS LIMITED WARRANTY SHALL NOT EXTEND TO ANYONE OTHER THAN THE ORIGINAL PURCHASER OF THIS PRODUCT, IS NONTRANSFERABLE AND STATES YOUR EXCLUSIVE REMEDY.

If there is any inconsistency between this Limited Warranty to original purchaser and any other agreement or statement included with or relating to the Samsung products or services, this limited warranty shall govern. If any provision of this limited warranty is found invalid or unenforceable, it shall be deemed modified to the minimum extent necessary to make it enforceable and the remainder of the limited warranty shall remain valid and enforceable according to its terms.

CONSUMER PROTECTION AND OTHER LAWS MAY APPLY

Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. Some states may provide for additional warranty rights and remedies, and the provisions contained in this limited warranty are not intended to limit, modify, take away from, disclaim or exclude any mandatory warranty requirements provided by states, including certain implied warranties. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

CONTACTING SAMSUNG

To obtain warranty service for your product, please choose one of the following:

Call Samsung at: **1-866-SAM-4BIZ (726-4249)**

or

Fill out our convenient, **online service request form**

print warranty statement

AUDIO AND VIDEO

PLASMA DISPLAY

LIMITED WARRANTY TO ORIGINAL PURCHASER

This SAMSUNG brand product, as supplied and distributed by SAMSUNG and delivered new, in the original carton to the original consumer purchaser, is warranted by SAMSUNG against manufacturing defects in materials and workmanship for a limited warranty period.

This limited warranty begins on the original date of purchase, and is valid only on products purchased and used in the United States. To receive warranty service, the purchaser must contact SAMSUNG for problem determination and service procedures. Warranty service can only be performed by a SAMSUNG authorized service center. The original dated bill of sale must be presented upon request as proof of purchase to SAMSUNG or SAMSUNG's authorized service center.

SAMSUNG will repair or replace this product, at our option and at no charge as stipulated herein, with new or reconditioned parts or products if found to be defective during the limited warranty period specified above. All replaced parts and products become the property of SAMSUNG and must be returned to SAMSUNG. Replacement parts and products assume the remaining original warranty, or ninety (90) days, whichever is longer.

For 26" and larger televisions, in-home service will be provided during the warranty labor period subject to availability within the contiguous United States. In-home service is not available in all areas. To receive in-home service, the product must be unobstructed and accessible to service personnel. If during in-home service repair can not be completed, it may be necessary to remove, repair and return the product.

If in-home service is unavailable, SAMSUNG may elect, at our option, to provide for transportation of our choice to and from a SAMSUNG authorized service center. Otherwise, and for 25" and smaller televisions, transportation to and from the SAMSUNG authorized service center is the responsibility of the purchaser.

This limited warranty covers manufacturing defects in materials and workmanship encountered in normal, and except to the extent otherwise expressly provided for in this statement, noncommercial use of this product, and shall not apply to the following, including, but not limited to: damage which occurs in shipment; delivery and installation; applications and uses for which this product was not intended; altered product or serial numbers; cosmetic damage or exterior finish; accidents, abuse, neglect, fire, water, lightning or other acts of nature; use of products, equipment, systems, utilities, services, parts, supplies, accessories, applications, installations, repairs, external wiring or connectors not supplied or authorized by SAMSUNG which damage this product or result in service problems; incorrect electrical line voltage, fluctuations and surges; customer adjustments and failure to follow operating instructions, cleaning, maintenance and environmental instructions that are covered and prescribed in the instruction book; reception problems and distortion related to noise, echo, interference or other signal transmission and delivery problems; picture tube (CRT) brightness related to normal aging, or burned-in images. SAMSUNG does not warrant uninterrupted or error-free operation of the product.

THERE ARE NO EXPRESS WARRANTIES OTHER THAN THOSE LISTED AND DESCRIBED ABOVE, AND NO WARRANTIES WHETHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY AFTER THE EXPRESS WARRANTY PERIODS STATED ABOVE, AND NO OTHER EXPRESS WARRANTY OR GUARANTY GIVEN BY ANY PERSON, FIRM OR CORPORATION WITH RESPECT TO THIS PRODUCT SHALL BE BINDING ON SAMSUNG. SAMSUNG SHALL NOT BE LIABLE FOR LOSS OF REVENUE OR PROFITS, FAILURE TO REALIZE SAVINGS OR OTHER BENEFITS, OR ANY OTHER SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY THE USE, MISUSE OR INABILITY TO USE THIS PRODUCT, REGARDLESS OF THE LEGAL THEORY ON WHICH THE CLAIM IS BASED, AND EVEN

IF SAMSUNG HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. NOR SHALL RECOVERY OF ANY KIND AGAINST SAMSUNG BE GREATER IN AMOUNT THAN THE PURCHASE PRICE OF THE PRODUCT SOLD BY SAMSUNG AND CAUSING THE ALLEGED DAMAGE. WITHOUT LIMITING THE FOREGOING, PURCHASER ASSUMES ALL RISK AND LIABILITY FOR LOSS, DAMAGE OR INJURY TO PURCHASER AND PURCHASER'S PROPERTY AND TO OTHERS AND THEIR PROPERTY ARISING OUT OF THE USE, MISUSE OR INABILITY TO USE THIS PRODUCT SOLD BY SAMSUNG NOT CAUSED DIRECTLY BY THE NEGLIGENCE OF SAMSUNG. THIS LIMITED WARRANTY SHALL NOT EXTEND TO ANYONE OTHER THAN THE ORIGINAL PURCHASER OF THIS PRODUCT, IS NONTRANSFERABLE AND STATES YOUR EXCLUSIVE REMEDY.

Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

CONTACTING SAMSUNG

To obtain warranty service for your product, please choose one of the following:

Call Samsung at: **1-800-SAMSUNG (726-7864)**

or

Fill out our convenient, **online service request form**

IMPORTANT WARRANTY INFORMATION REGARDING TELEVISION FORMAT VIEWING

Standard screen format televisions (4:3, the aspect ratio of the screen width to height) are primarily designed to view standard format full-motion video. The images displayed on them should primarily be in the standard 4:3 ratio format and constantly moving. Displaying stationary graphics and images on screen, such as the dark top and bottom letterbox bars (wide screen

pictures), should be limited to no more than 15% of the total television viewing per week.

Wide screen format televisions (16:9, the aspect ratio of the screen width to height) are primarily designed to view wide screen format full-motion video. The images displayed on them should primarily be in the wide screen 16:9 ratio format, or expanded to fill the screen if your model offers this feature, and constantly moving. Displaying stationary graphics and images on screen, such as the dark side-bars on non-expanded standard format television video and programming, should be limited to no more than 15% of the total television viewing per week.

Additionally, viewing other stationary images and text such as stock market reports, video game displays, station logos, web sites or computer graphics and patterns, should be limited as described above for all televisions. Displaying any stationary images that exceed the above guidelines can cause uneven aging of picture tubes (CRTs) or Plasma Display Panels that leave subtle, but permanent burned-in ghost images in the television picture. To avoid this, vary the programming and images, and primarily display full screen moving images, not stationary patterns or dark bars. On television models that offer picture sizing features, use these controls to view the different formats as a full screen picture.

Be careful in the selection and duration of television formats used for viewing. Uneven CRT or Plasma Display Panels aging as a result of format selection and use, as well as other burned-in images, is not covered by your Samsung limited warranty.

AUDIO AND VIDEO

LCD TV

LIMITED WARRANTY TO ORIGINAL PURCHASER

This SAMSUNG brand product, as supplied and distributed by SAMSUNG and delivered new, in the original carton to the original consumer purchaser, is warranted by SAMSUNG against manufacturing defects in materials and workmanship for a limited warranty period.

This limited warranty begins on the original date of purchase, and is valid only on products purchased and used in the United States. To receive warranty service, the purchaser must contact SAMSUNG for problem determination and service procedures. Warranty service can only be performed by a SAMSUNG authorized service center. The original dated bill of sale must be presented upon request as proof of purchase to SAMSUNG or SAMSUNG's authorized service center.

SAMSUNG will repair or replace this product, at our option and at no charge as stipulated herein, with new or reconditioned parts or products if found to be defective during the limited warranty period specified above. All replaced parts and products become the property of SAMSUNG and must be returned to SAMSUNG. Replacement parts and products assume the remaining original warranty, or ninety (90) days, whichever is longer.

For 37" and larger televisions, in-home service will be provided during the warranty labor period subject to availability within the contiguous United States. In-home service is not available in all areas. To receive in-home service, the product must be unobstructed and accessible to service personnel. If during in-home service repair can not be completed, it may be necessary to remove, repair and return the product. If in-home service is unavailable, SAMSUNG may elect, at our option, to provide for

transportation of our choice to and from a SAMSUNG authorized service center. Otherwise, and for 27" and smaller televisions, transportation to and from the SAMSUNG authorized service center is the responsibility of the purchaser.

This limited warranty covers manufacturing defects in materials and workmanship encountered in normal, and except to the extent otherwise expressly provided for in this statement, noncommercial use of this product, and shall not apply to the following, including, but not limited to: damage which occurs in shipment; delivery and installation; applications and uses for which this product was not intended; altered product or serial numbers; cosmetic damage or exterior finish; accidents, abuse, neglect, fire, water, lightning or other acts of nature; use of products, equipment, systems, utilities, services, parts, supplies, accessories, applications, installations, repairs, external wiring or connectors not supplied or authorized by SAMSUNG which damage this product or result in service problems; incorrect electrical line voltage, fluctuations and surges; customer adjustments and failure to follow operating instructions, cleaning, maintenance and environmental instructions that are covered and prescribed in the instruction book; reception problems and distortion related to noise, echo, interference or other signal transmission and delivery problems; picture tube (CRT) brightness related to normal aging, or burned-in images. SAMSUNG does not warrant uninterrupted or error-free operation of the product.

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SHALL RECOVERY OF ANY KIND AGAINST SAMSUNG BE GREATER IN AMOUNT THAN THE PURCHASE PRICE OF THE PRODUCT SOLD BY SAMSUNG AND CAUSING THE ALLEGED DAMAGE. WITHOUT LIMITING THE FOREGOING, PURCHASER ASSUMES ALL RISK AND LIABILITY FOR LOSS, DAMAGE OR INJURY TO PURCHASER AND PURCHASER'S PROPERTY AND TO OTHERS AND THEIR PROPERTY ARISING OUT OF THE USE, MISUSE OR INABILITY TO USE THIS PRODUCT SOLD BY SAMSUNG NOT CAUSED DIRECTLY BY THE NEGLIGENCE OF SAMSUNG. THIS LIMITED WARRANTY SHALL NOT EXTEND TO ANYONE OTHER THAN THE ORIGINAL PURCHASER OF THIS PRODUCT, IS NONTRANSFERABLE AND STATES YOUR EXCLUSIVE REMEDY.

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or

Fill out our convenient, **online service request form**

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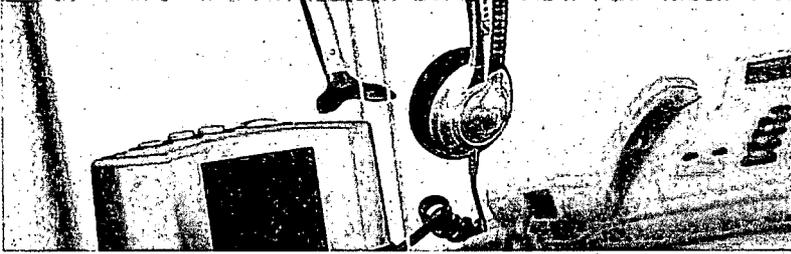
Displaying stationary graphics and images on screen, such as the dark top and bottom letterbox bars (wide screen pictures), should be limited to no more than 15% of the total television viewing per week.

Wide screen format televisions (16:9, the aspect ratio of the screen width to height) are primarily designed to view wide screen format full-motion video. The images displayed on them should primarily be in the wide screen 16:9 ratio format, or expanded to fill the screen if your model offers this feature, and constantly moving. Displaying stationary graphics and images on screen, such as the dark side-bars on non-expanded standard format television video and programming, should be limited to no more than 15% of the total television viewing per week.

Additionally, viewing other stationary images and text such as stock market reports, video game displays, station logos, web sites or computer graphics and patterns, should be limited as described above for all televisions. Displaying any stationary images that exceed the above guidelines can cause uneven aging of picture tubes (CRTs) or Plasma Display Panels that leave subtle, but permanent burned-in ghost images in the television picture. To avoid this, vary the programming and images, and primarily display full screen moving images, not stationary patterns or dark bars. On television models that offer picture sizing features, use these controls to view the different formats as a full screen picture.

Be careful in the selection and duration of television formats used for viewing. Uneven CRT or Plasma Display Panels aging as a result of format selection and use, as well as other burned-in images, is not covered by your Samsung limited warranty.

Sennheiser Electronic Corporation



The service policies and warranty statements on this page are relevant for all Sennheiser products and Sennheiser distributed brands purchased in the **U.S. only**. For other countries, please refer to our international service menu. Please note that certain items might be subject to different warranty and service conditions.

Service Policies

If you wish to discuss your individual service situation or submit a service inquiry, please contact us or submit your service request online.

Service and repairs covered by the manufacturer's warranty

Sennheiser products: 2 years
 Wired evolution products: 10 years
 Aviation products: 5 years (selective products 10 years)
 Sennheiser Communications Headsets: 2 years
 Neumann products: 1 year
 HHB: 1 year
 Klein and Hummel: 1 year
 Refurbished products: 90 days
 "Out of Warranty" replacements for telecom headsets carry a 1 year guarantee
 Sennheiser products purchased from non-authorized dealers are not covered by warranty.

For details, refer to the manufacturer specific Limited Product Warranty statements.

Applicable to all manufacturers represented by Sennheiser Electronic Corporation (SEC) are the following conditions:

Not covered by SEC's warranty are accessories, batteries and other consumables. The manufacturer's warranties are limited to physical defects in the materials, parts and workmanship used in making the product. Abnormal conditions, deliberate abuse and damage due to accidents, operator's error, or unauthorized service attempts are excluded from any warranty claims.

Under the warranty, SEC will repair, or at its discretion, replace the product at no charge, provided it is returned (postage paid, with proof of purchase from the original seller) to a Sennheiser Service Facility. Products should be returned in their original package, or otherwise suitably protected to avoid shipping damage. A valid, dated proof of purchase from an authorized Sennheiser dealer or reseller is necessary to establish the warranty period. The SEC Service Department shall be the sole and final authority to determine the validity of all warranty issues.

This Limited Product Warranty is SEC's only warranty, and the customer's only remedy concerning the product. All other representations, warranties or conditions, express or implied, written or oral, including any warranties of merchantability, fitness for a particular purpose, or non-infringement, are expressly excluded. As a result, except as set forth in the previous paragraphs, the product is sold "as-is" and the customer is assuming the entire risk as to the product's suitability for his needs, its quality and its performance.

Services and repairs not covered by Warranty**Current Products:**

All repairs for current products will be charged according to the service repair pricing schedule. Please [click here](#) to download the price schedule for headphones, or [click here](#) to download the price schedule for other products.

(This is a PDF document and Adobe Acrobat Reader is required. You can download Acrobat Reader by [clicking here](#))

Repair prices will either be based on a flat fee for repair or replacement, or will be estimated depending on the product category. Repairs costing more than 50% of the retail price of the new product are deemed not economically repairable. It will be up to the customer to choose to continue with the repair, receive the product back unrepaired, or purchase a new product at 50% of suggested retail price.

'Vintage', Collector's and Obsolete Equipment:

Service within customer approved maximum cost limits, otherwise an itemized estimate will be submitted for approval. The cost for a diagnostic estimate shall be \$35.00 and count toward the first hour of labor.

Payment Terms:

For customers with a current Sennheiser account, a Service Purchase Order shall be accepted for payment. All other settlements of service charges shall be through verified check, credit card debit (MC/Visa/Amex) or COD shipment.

Express Service (Warranty and Out-of-Warranty):

Sennheiser Electronic Corporation will strive to satisfy all service requests in the fastest

manner possible. Arrangements may be negotiated separately with our Service Department in advance for extraordinary requests, such as express and on-site services.

Service Warranty:

SEC warrants all service repairs and replacements for 90 days from the date of return to their customer. This warranty specifically excludes unrelated additional defects or failures. Otherwise the same general provisions of the limited product warranties apply.

Shipping Address for Service:

Sennheiser Electronic Corporation
attn.: Service Department
1 Enterprise Drive
Old Lyme, CT 06371-1568

Tel: 860-434-9190 Fax: 860-434-1759



3-062-244-21

SONY

CD/DVD Player

LIMITED WARRANTY (U.S. Only)

Sony Electronics Inc. ("Sony") warrants this product against defects in material or workmanship for the time periods and as set forth below. Pursuant to this Limited Warranty, Sony will, at its option, (i) repair the product using new or refurbished parts or (ii) replace the product with a new or refurbished product. For purposes of this Limited Warranty, "refurbished" means a product or part that has been returned to its original specifications. **In the event of a defect, these are your exclusive remedies.**

Labor: For a period of ninety days from the original date of purchase of the product ("Labor Warranty"), Sony will, at its option, repair or replace with new or refurbished product, product determined to be defective. If Sony elects to replace the product after this Labor Warranty has expired but while the Parts Warranty below is still in effect, it will do so for the applicable labor charge.

Parts: For a period of one year from the original date of purchase of product ("Parts Warranty"), Sony will supply new or refurbished replacement parts in exchange for parts determined to be defective.

This Limited Warranty covers only the hardware components packaged with the Product. It does not cover technical assistance for hardware or software usage and it does not cover any software products whether or not contained in the Product; any such software is provided "AS IS" unless expressly provided for in any enclosed software Limited Warranty. Please refer to the End User License Agreements included with the Product for your rights and obligations with respect to the software.

Instructions: To obtain warranty service, you must deliver the product, freight prepaid, in either its original packaging or packaging affording an equal degree of protection to the Sony authorized service facility specified. **It is your responsibility to backup any data, software or other materials you may have stored or preserved on your unit. It is likely that such data, software, or other materials will be lost or reformatted during service and Sony will not be responsible for any such damage or loss.** A dated purchase receipt is required. For specific instructions on how to obtain warranty service for your product,

Visit Sony's Web Site:
www.sony.com/service

Or call the Sony Customer Information Service Center
1-800-222SONY

For an accessory or part not available from your authorized dealer, call:

1-800-488-SONY (7669)

Repair / Replacement Warranty: This Limited Warranty shall apply to any repair, replacement part or replacement product for the remainder of the original Limited Warranty period or for ninety (90) days, whichever is longer. Any parts or product replaced under this Limited Warranty will become the property of Sony.

This Limited Warranty only covers product issues caused by defects in material or workmanship during ordinary consumer use; it does not cover product issues caused by any other reason, including but not limited to product issues due to commercial use, acts of God, misuse, limitations of technology, or modification of or to any part of the Sony product. This Limited Warranty does not cover Sony products sold AS IS or WITH ALL FAULTS or consumables (such as fuses or batteries). This Limited Warranty is invalid if the factory-applied serial number has been altered or removed from the product. This Limited Warranty is valid only in the United States.

LIMITATION ON DAMAGES: SONY SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY ON THIS PRODUCT.

DURATION OF IMPLIED WARRANTIES: EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ON THIS PRODUCT IS LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or allow limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. This Limited Warranty gives you specific legal rights and you may have other rights which vary from state to state.

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