State of West Virginia
Request For Quotation

Procurement Folder : 412615

Document Description : AUDIO VISUAL HARDWARE AND INSTALLATION

Procurement Type : Agency Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version	Phase
2018-02-16	2018-02-23 13:30:00	ARFQ 0803 DOT1800000037	4	Final

SUBMIT RESPONSES TO:	VENDOR
FINANCE & ADMINISTRATION DIVISION OF HIGHWAYS BLDG 5, RM A-220 1900 KANAWHA BLVD E CHARLESTON WV 25302 US	**Vendor Name, Address and Telephone** **Lee Hartman & Sons, Inc.** **3 Davis Court** **Hurricane, WV 25526** **V 304-397-4100 F 304-397-4101**

FOR INFORMATION CONTACT THE
Dusty J Smith
(304) 558-9398
dusty.j.smith@wv.gov

Signature X Ray Yex **FEIN #** 54 0716361 **DATE** 2-22-2018

All offers subject to all terms and conditions contained in this solicitation

Lee Hartman & Sons, Inc.
Blue Ridge Court
Hurricane, WV 25526
304-757-4150 F 304-757-4104

ADDITIONAL INFORMATION:

02/08/2018 - TECHNICAL QUESTIONS ARE DUE BY NOON EASTERN

02/15/18-BID CLOSES AT 1:30PM

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Commodity Line Description	Qty	Unit Issue	Unit Price	Total Price
1	AUDIO VISUAL HARDWARE	2.00000	EA		31,060.13

Commodity Code	Manufacturer	Model #	Specification
86141702			

Extended Description
AUDIO VISUAL HARDWARE FOR ROOM 148 AND ROOM 955 ROOMS IN BUILDING 5

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Commodity Line Description	Qty	Unit Issue	Unit Price	Total Price
2	INSTALLATION OF AUDIO VISUAL EQUIPMENT				4890.00

Commodity Code	Manufacturer	Model #	Specification
72151603			

Extended Description
INSTALLATION OF AUDIO VISUAL HARDWARE FOR ROOM 148 AND ROOM 955 BUILDING 5

INVOICE TO	SHIP TO
DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV25305-0430 US	DIVISION OF HIGHWAYS INFORMATION SERVICE DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM 920 CHARLESTON WV 25305-0430 US

Line	Commodity Line Description	Qty	Unit Issue	Unit Price	Total Price
3	EQUIPMENT EXTENDED WARRANTY	0.00000	EA	895.00	895.00

Commodity Code	Manufacturer	Model #	Specification
81111818			

Extended Description
EXTENDED WARRANTY COVERAGE FOR AUDIO VISUAL HARDWARE ROOM 148 AND 955

SCHEDULE OF EVENTS

Line	Event	Event Date
1	TECHNICAL QUESTIONS DUE AT NOON	2018-02-08

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

INSTRUCTIONS TO VENDORS SUBMITTING BIDS
(Agency Delegated Procurements Only)

1. REVIEW DOCUMENTS THOROUGHLY: The attached documents contain a solicitation for bids. Please read these instructions and all documents attached in their entirety. These instructions provide critical information about requirements that if overlooked could lead to disqualification of a Vendor's bid. All bids must be submitted in accordance with the provisions contained in these instructions and the Solicitation. Failure to do so may result in disqualification of Vendor's bid.

2. MANDATORY TERMS: The Solicitation may contain mandatory provisions identified by the use of the words "must," "will," and "shall." Failure to comply with a mandatory term in the Solicitation will result in bid disqualification.

2A. PREBID MEETING: The item identified below shall apply to this Solicitation.

☐ A pre-bid meeting will not be held prior to bid opening

☐ A NON-MANDATORY PRE-BID meeting will be held at the following place and time:

☑ A MANDATORY PRE-BID meeting will be held at the following place and time:

Building 5, Room 955
1900 Kanawha Blvd. East
Charleston, WV 25305

February 02, 2018 10am

All Vendors submitting a bid must attend the mandatory pre-bid meeting. Failure to attend the mandatory pre-bid meeting shall result in disqualification of the Vendor's bid. No one person attending the pre-bid meeting may represent more than one Vendor.

An attendance sheet provided at the pre-bid meeting shall serve as the official document verifying attendance. The State will not accept any other form of proof or documentation to verify attendance. Any person attending the pre-bid meeting on behalf of a Vendor must list on the attendance sheet his or her name and the name of the Vendor he or she is representing.

Additionally, the person attending the pre-bid meeting should include the Vendor's E-Mail address, phone number, and Fax number on the attendance sheet. It is the Vendor's responsibility to locate the attendance sheet and provide the required information. Failure to complete the attendance sheet as required may result in disqualification of Vendor's bid.

All Vendors should arrive prior to the starting time for the pre-bid. Vendors who arrive after the starting time but prior to the end of the pre-bid will be permitted to sign in, but are charged with knowing all matters discussed at the pre-bid.

Questions submitted at least five business days prior to a scheduled pre-bid will be discussed at the pre-bid meeting if possible. Any discussions or answers to questions at the pre-bid meeting are preliminary in nature and are non-binding. Official and binding answers to questions will be published in a written addendum to the Solicitation prior to bid opening.

3. BID SUBMISSION: All bids must be submitted electronically through wvOASIS or signed and delivered by the Vendor to the Agency on or before the date and time of the bid opening. Any bid received by the Agency staff is considered to be in the possession of the Agency and will not be returned for any reason.

3A. BID SUBMISSION

A bid that is not submitted electronically through wvOASIS should contain the information listed below on the face of the envelope or the bid may be rejected by the Agency.

SEALED BID: AUDIO VISUAL HARDWARE AND INSTALLATION
BUYER: DUSTY SMITH
SOLICITATION NO.: DOT1800000037
BID OPENING DATE: 2/06/18
BID OPENING TIME: 1:30PM
FAX NUMBER: N/A

4. ADDENDUM ACKNOWLEDGEMENT: Changes or revisions to this Solicitation will be made by an official addendum issued by the Agency. Vendor should acknowledge receipt of all addenda issued with this Solicitation by completing an Addendum Acknowledgment Form, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

5. BID FORMATTING: Vendor should type or electronically enter the information onto its bid to prevent errors in the evaluation. Failure to type or electronically enter the information may result in bid disqualification.

6. ALTERNATES: Any model, brand, or specification listed in this Solicitation establishes the acceptable level of quality only and is not intended to reflect a preference for, or in any way favor, a particular brand or vendor. Vendors may bid alternates to a listed model or brand provided that the alternate is at least equal to the model or brand and complies with the required specifications. The equality of any alternate being bid shall be determined by the State at its sole discretion. Any Vendor bidding an alternate model or brand should clearly identify the alternate items in its bid and should include manufacturer's specifications, industry literature, and/or any other relevant documentation demonstrating the equality of the alternate items. Failure to provide information for alternate items may be grounds for rejection of a Vendor's bid.

7. EXCEPTIONS AND CLARIFICATIONS: The Solicitation contains the specifications that shall form the basis of a contractual agreement. Vendor shall clearly mark any exceptions, clarifications, or other proposed modifications in its bid. Exceptions to, clarifications of, or modifications of a requirement or term and condition of the Solicitation may result in bid disqualification.

8. REGISTRATION: Prior to Contract award, the apparent successful Vendor must be properly registered with the West Virginia Purchasing Division and must have paid the $125 fee, if applicable.

9. UNIT PRICE: Unit prices shall prevail in cases of a discrepancy in the Vendor's bid.

10. PREFERENCE: Vendor Preference may only be granted upon written request and only in accordance with the West Virginia Code § 5A-3-37 and the West Virginia Code of State Rules. A Vendor Preference Certificate form has been attached hereto to allow Vendor to apply for the preference. Vendor's failure to submit the Vendor Preference Certificate form with its bid will result in denial of Vendor Preference. Vendor Preference does not apply to construction projects.

11. SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES: For any solicitations publicly advertised for bid, in accordance with West Virginia Code §5A-3-37(a)(7) and W. Va. CSR § 148-22-9, any non-resident vendor certified as a small, women-owned, or minority-owned business under W. Va. CSR § 148-22-9 shall be provided the same preference made available to any resident vendor. Any non-resident small, women-owned, or minority-owned business must identify itself as such in writing, must submit that writing to the Purchasing Division with its bid, and must be properly certified under W. Va. CSR § 148-22-9 prior to contract award to receive the preferences made available to resident vendors. Preference for a non-resident small, women-owned, or minority owned business shall be applied in accordance with W. Va. CSR § 148-22-9.

12. ELECTRONIC FILE ACCESS RESTRICTIONS: Vendor must ensure that its submission in wvOASIS can be accessed and viewed by the Agency staff immediately upon bid opening. The Agency will consider any file that cannot be immediately access and viewed at the time of the bid opening (such as, encrypted files, password protected files, or incompatible files) to be blank or incomplete as context requires, and therefore unacceptable. A vendor will not be permitted to unencrypt files, remove password protections, or resubmit documents after bid opening to make a file viewable if those documents are required with the bid. A Vendor may be required to provide document passwords or removed access restrictions to allow the Agency to print or electronically save documents provided that those documents are viewable by the Agency prior to obtaining the password or removing the access restriction.

13. NON-RESPONSIBLE: The Purchasing Division Director reserves the right to reject the bid of any vendor as Non-Responsible in accordance with W. Va. Code of State Rules § 148-1-5.3, when the Director determines that the vendor submitting the bid does not have the capability to fully perform, or lacks the integrity and reliability to assure good-faith performance."

14. ACCEPTANCE/REJECTION: The State may accept or reject any bid in whole, or in part in accordance with W. Va. Code of State Rules § 148-1-4.5. and § 148-1-6.4.b."

15. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., 5G-1-1 et seq. and the Freedom of Information Act in West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

GENERAL TERMS AND CONDITIONS:
(Agency Delegated Procurements Only)

1. CONTRACTUAL AGREEMENT: Issuance of a Award Document signed by the Agency and approved as to form by the Attorney General's office, if required, constitutes acceptance of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

2. DEFINITIONS: As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.

2.1. "Agency" or **"Agencies"** means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.

2.2. "Bid" or "Proposal" means the vendors submitted response to this solicitation.

2.3. "Contract" means the binding agreement that is entered into between the State and the Vendor to provide the goods or services requested in the Solicitation.

2.4. "Director" means the Director of the West Virginia Department of Administration, Purchasing Division.

2.5. "Purchasing Division" means the West Virginia Department of Administration, Purchasing Division.

2.6. "Award Document" means the document signed by the Agency that identifies the Vendor as the contract holder.

2.7. "Solicitation" means the official notice of an opportunity to supply the State with goods or services.

2.8. "State" means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

2.9. "Vendor" or **"Vendors"** means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

3. CONTRACT TERM; RENEWAL; EXTENSION: The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

☐ **Term Contract**

Initial Contract Term: This Contract becomes effective on _____ and extends for a period of _____ year(s).

Renewal Term: This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor. Any request for renewal should be delivered to the Agency thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Unless otherwise specified below, renewal of this Contract is limited to _____ successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed the total number of months available in all renewal years combined. Automatic renewal of this Contract is prohibited.

☐ **Alternate Renewal Term** – This contract may be renewed for _____ successive _____ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor and Agency.

Delivery Order Limitations: In the event that this contract permits delivery orders, a delivery order may only be issued during the time this Contract is in effect. Any delivery order issued within one year of the expiration of this Contract shall be effective for one year from the date the delivery order is issued. No delivery order may be extended beyond one year after this Contract has expired.

☐ **Fixed Period Contract:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within _____ days.

☐ **Fixed Period Contract with Renewals:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract more fully described in the attached specifications must be completed within _____ days. Upon completion of the work covered by the preceding sentence, the vendor agrees that maintenance, monitoring, or warranty services will be provided for _____ year(s) thereafter.

☑ **One Time Purchase:** The term of this Contract shall run from the issuance of the Award Document until all of the goods contracted for have been delivered, but in no event will this Contract extend for more than one fiscal year.

☐ **Other:** See attached.

4. NOTICE TO PROCEED: Vendor shall begin performance of this Contract immediately upon receiving notice to proceed unless otherwise instructed by the Agency. Unless otherwise specified, the fully executed Award Document will be considered notice to proceed.

5. QUANTITIES: The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.

☐ **Open End Contract:** Quantities listed in this Solicitation are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

☐ **Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.

☑ **Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

☐ **One Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.

6. EMERGENCY PURCHASES: The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute of breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One Time Purchase contract.

7. REQUIRED DOCUMENTS: All of the items checked below must be provided to the Agency by the Vendor as specified below.

☐ **PERFORMANCE BOND:** The apparent successful Vendor shall provide a performance bond in the amount of _____. The performance bond must be received by the Agency prior to Contract award. On construction contracts, the performance bond must be 100% of the Contract value.

☐ **LABOR/MATERIAL PAYMENT BOND:** The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be received by the Agency prior to Contract award.

In lieu of the Bid Bond, Performance Bond, and Labor/Material Payment Bond, the Vendor may provide certified checks, cashier's checks, or irrevocable letters of credit. Any certified check, cashier's check, or irrevocable letter of credit provided in lieu of a bond must be of the same amount and delivered on the same schedule as the bond it replaces. A letter of credit submitted in lieu of a performance and labor/material payment bond will only be allowed for projects under $100,000. Personal or business checks are not acceptable. Notwithstanding the foregoing, West Virginia Code § 5-22-1(d) mandates that a vendor provide a performance and labor/material payment bond for construction projects. Accordingly, substitutions for the performance and labor/material payment bonds for construction projects is not permitted.

☐ **MAINTENANCE BOND:** The apparent successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and delivered to the Agency prior to Contract award.

☐ **LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section entitled Licensing, of the General Terms and Conditions, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits prior to Contract award, in a form acceptable to the Agency.

☐

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The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications prior to Contract award regardless of whether or not that requirement is listed above.

8. INSURANCE: The apparent successful Vendor shall furnish proof of the insurance identified by a checkmark below prior to Contract award. Subsequent to contract award, and prior to the insurance expiration date, Vendor shall provide the Agency with proof that the insurance mandated herein has been continued. Vendor must also provide Agency with immediate notice of any changes in its insurance policies mandated herein, including but not limited to, policy cancelation, policy reduction, or change in insurers. The insurance coverages identified below must be maintained throughout the life of this contract. The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether or not that insurance requirement is listed in this section.

Vendor must maintain:

☑ **Commercial General Liability Insurance** in at least an amount of:
$100,000.00

☐ **Automobile Liability Insurance** in at least an amount of: _____

☐ **Professional/Malpractice/Errors and Omission Insurance** in at least an amount of:

☐ **Commercial Crime and Third Party Fidelity Insurance** in an amount of:

☐ **Cyber Liability Insurance** in an amount of: _____

☐ **Builders Risk Insurance** in an amount equal to 100% of the amount of the Contract.

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9. WORKERS' COMPENSATION INSURANCE: The apparent successful Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

10. LIQUIDATED DAMAGES: This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy. Vendor shall pay liquidated damages in the amount specified below or as described in the specifications:

☐ _____ for _____

☐ Liquidated Damages Contained in the Specifications

11. ACCEPTANCE: Vendor's signature on its bid, or on the certification and signature page, constitutes an offer to the State that cannot be unilaterally withdrawn, signifies that the product or service proposed by vendor meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise indicated, and signifies acceptance of the terms and conditions contained in the Solicitation unless otherwise indicated.

12. PRICING: The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification.

13. PAYMENT: Payment in advance is prohibited under this Contract. Payment may only be made after the delivery and acceptance of goods or services. The Vendor shall submit invoices, in arrears.

14. PURCHASING CARD ACCEPTANCE: The State of West Virginia currently utilizes a Purchasing Card program, administered under contract by a banking institution, to process payment for goods and services. The Vendor must accept the State of West Virginia's Purchasing Card for payment of all orders under this Contract unless the box below is checked.

☑ Vendor is not required to accept the State of West Virginia's Purchasing Card as payment for all goods and services.

15. ADDITIONAL FEES: Vendor is not permitted to charge additional fees or assess additional charges that were not either expressly provided for in the solicitation published by the State of West Virginia or included in the unit price or lump sum bid amount that Vendor is required by the solicitation to provide. Including such fees or charges as notes to the solicitation may result in rejection of vendor's bid. Requesting such fees or charges be paid after the contract has been awarded may result in cancellation of the contract.

16. TAXES: The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

17. FUNDING: This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available.

18. CANCELLATION: The State reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Agency may also cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-5.2.b.

19. TIME: Time is of the essence with regard to all matters of time and performance in this Contract.

20. APPLICABLE LAW: This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code or West Virginia Code of State Rules is void and of no effect.

21. COMPLIANCE WITH LAWS: Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable laws, regulations, and ordinances. Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to comply with all applicable laws, regulations, and ordinances.

22. ARBITRATION: Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.

23. MODIFICATIONS: This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary, no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor.

24. WAIVER: The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

25. SUBSEQUENT FORMS: The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

26. ASSIGNMENT: Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency and any other government agency or office that may be required to approve such assignments.

27. WARRANTY: The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

28. STATE EMPLOYEES: State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

29. BANKRUPTCY: In the event the Vendor files for bankruptcy protection, the State of West Virginia may deem this Contract null and void, and terminate this Contract without notice.

30. PRIVACY, SECURITY, AND CONFIDENTIALITY: The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in http://www.state.wv.us/admin/purchase/privacy/default.html

31. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

32. LICENSING: In accordance with West Virginia Code of State Rules § 148-1-6.1.e, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to be licensed, in good standing, and up-to-date on all state and local obligations as described in this section.

33. ANTITRUST: In submitting a bid to, signing a contract with, or accepting an Award Document from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

34. VENDOR CERTIFICATIONS: By signing its bid or entering into this Contract, Vendor certifies (1) that its bid or offer was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid or offer for the same material, supplies, equipment or services; (2) that its bid or offer is in all respects fair and without collusion or fraud; (3) that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; and (4) that it has reviewed this Solicitation in its entirety; understands the requirements, terms and conditions, and other information contained herein. Vendor's signature on its bid or offer also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency. The individual signing this bid or offer on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or offer or any documents related thereto on

Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with any State agency that may require registration.

35. VENDOR RELATIONSHIP: The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms, and returns pertinent to all of the foregoing. Vendor shall hold harmless the State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

36. INDEMNIFICATION: The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to an y person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

37. PURCHASING AFFIDAVIT: In accordance with West Virginia Code § 5-22-1(i), the contracting public entity shall not award a contract for a construction project to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees. Accordingly, prior to contract award, Vendors are required to sign, notarize, and submit the Purchasing Affidavit to the Purchasing Division affirming under oath that it is not in default on any monetary obligation owed to the state or a political subdivision of the state.

38. CONFLICT OF INTEREST: Vendor, its officers or members or employees, shall not presently have or acquire an interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.

39. REPORTS: Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:

☑ Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

☐ Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at purchasing.requisitions@wv.gov.

40. BACKGROUND CHECK: In accordance with W. Va. Code § 15-2D-3, the Director of the Division of Protective Services shall require any service provider whose employees are regularly employed on the grounds or in the buildings of the Capitol complex or who have access to sensitive or critical information to submit to a fingerprint-based state and federal background inquiry through the state repository. The service provider is responsible for any costs associated with the fingerprint-based state and federal background inquiry. After the contract for such services has been approved, but before any such employees are permitted to be on the grounds or in the buildings of the Capitol complex or have access to sensitive or critical information, the service provider shall submit a list of all persons who will be physically present and working at the Capitol complex to the Director of the Division of Protective Services for purposes of verifying compliance with this provision. The State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check.

Service providers should contact the West Virginia Division of Protective Services by phone at (304) 558-9911 for more information.

41. PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS: Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:

a. "State Contract Project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.

b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open heath, basic oxygen, electric furnace, Bessemer or other steel making process. The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:

c. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total contract cost or two thousand five hundred dollars ($2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or

d. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

42. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL: In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars ($50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a "substantial labor surplus area", as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products. This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

ADDITIONAL TERMS AND CONDITIONS (Construction Contracts Only)

1. CONTRACTOR'S LICENSE: West Virginia Code § 21-11-2 requires that all persons desiring to perform contracting work in this state be licensed. The West Virginia Contractors Licensing Board is empowered to issue the contractor's license. Applications for a contractor's license may be made by contacting the West Virginia Division of Labor. West Virginia Code § 21-11-11 requires any prospective Vendor to include the contractor's license number on its bid. If an apparent low bidder fails to submit a license number in accordance with this section, the Purchasing Division will promptly request by telephone and electronic mail that the low bidder and the second low bidder provide the license number within one business day of the request. Failure of the bidder to provide the license number within one business day of receiving the request shall result in disqualification of the bid. Vendors should include a contractor's license number in the space provided below.

Contractor's Name: Lee Hartman & Sons, Inc.

Contractor's License No.: WV-037465

The apparent successful Vendor must furnish a copy of its contractor's license prior to the issuance of a contract award document

2. AIA DOCUMENTS: All construction contracts that will be completed in conjunction with architectural services procured under Chapter 5G of the West Virginia Code will be governed by the AIA A101-2007 and A201-2007 or the A107-2007 documents, as amended by the Supplementary Conditions for the State of West Virginia, in addition to the terms and conditions contained herein.

3. GREEN BUILDINGS MINIMUM ENERGY STANDARDS: In accordance with § 22-29-4, all new building construction projects of public agencies that have not entered the schematic design phase prior to July 1, 2012, or any building construction project receiving state grant funds and appropriations, including public schools, that have not entered the schematic design phase prior to July 1, 2012, shall be designed and constructed complying with the ICC International Energy Conservation Code, adopted by the State Fire Commission, and the ANSI/ASHRAE/IESNA Standard 90.1-2007: Provided, That if any construction project has a commitment of federal funds to pay for a portion of such project, this provision shall only apply to the extent such standards are consistent with the federal standards.

ADDITIONAL TERMS AND CONDITIONS
(Architectural and Engineering Contracts Only)

1. PLAN AND DRAWING DISTRIBUTION: All plans and drawings must be completed and available for distribution at least five business days prior to a scheduled pre-bid meeting for the construction or other work related to the plans and drawings.

2. PROJECT ADDENDA REQUIREMENTS: The Architect/Engineer and/or Agency shall be required to abide by the following schedule in issuing construction project addenda. The Architect/Engineer shall prepare any addendum materials for which it is responsible, and a list of all vendors that have obtained drawings and specifications for the project. The Architect/Engineer shall then send a copy of the addendum materials and the list of vendors to the State Agency for which the contract is issued to allow the Agency to make any necessary modifications. The addendum and list shall then be forwarded to the Purchasing Division buyer by the Agency. The Purchasing Division buyer shall send the addendum to all interested vendors and, if necessary, extend the bid opening date. Any addendum should be received by the Purchasing Division at least fourteen (14) days prior to the bid opening date.

3. PRE-BID MEETING RESPONSIBILITIES: The Architect/Engineer shall be available to attend any pre-bid meeting for the construction or other work resulting from the plans, drawings, or specifications prepared by the Architect/Engineer.

4. AIA DOCUMENTS: Contracts for architectural and engineering services will be governed by the AIA document B101-2007, as amended by the Supplementary Conditions for the State of West Virginia, in addition to the terms and conditions contained herein when procured under Chapter 5G of the West Virginia Code.

5. GREEN BUILDINGS MINIMUM ENERGY STANDARDS: In accordance with West Virginia Code § 22-29-4, all new building construction projects of public agencies that have not entered the schematic design phase prior to July 1, 2012, or any building construction project receiving state grant funds and appropriations, including public schools, that have not entered the schematic design phase prior to July1, 2012, shall be designed and constructed complying with the ICC International Energy Conservation Code, adopted by the State Fire Commission, and the ANSI/ASHRAE/IESNA Standard 90.1-2007: Provided, That if any construction project has a commitment of federal funds to pay for a portion of such project, this provision shall only apply to the extent such standards are consistent with the federal standards.

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

Larry T. Cox , Area Manager

(Name, Title)

Larry T. Cox, Area Manager

(Printed Name and Title)

3 Davis Court, Hurricane, WV 25526

(Address)

304-397-4100 ext 1301 304-397-4101

(Phone Number) / (Fax Number)

lcox@leehartman.com

(E-mail address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

Lee Hartman & Sons, Inc.

(Company)

Larry T. Cox, Area Manager

(Authorized Signature) (Representative Name, Title)

Larry T. Cox , Area Manager

(Printed Name and Title of Authorized Representative)

2.22.2018

(Date)

304-397-4100 ext 1301, 304-397-4101

(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM

SOLICITATION NO.:

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification. Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

☑ Addendum No. 1	☐ Addendum No. 6
☑ Addendum No. 2	☐ Addendum No. 7
☑ Addendum No. 3	☐ Addendum No. 8
☐ Addendum No. 4	☐ Addendum No. 9
☐ Addendum No. 5	☐ Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Lee Hartman & Sons, Inc

Company

Authorized Signature

2-22-2018

Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

SPECIFICATIONS

1. **PURPOSE AND SCOPE:** The West Virginia Department of Transportation is soliciting bids for a one-time purchase audio visual equipment for multiple conference rooms within Building 5. This equipment will be utilized to connect laptop or tablet computers using multiple standard display ports (including HDMI, DVI and VGA) for conducting audio visual presentations which incorporate both Windows PowerPoints, high definition videos with sound amplification. This is a request for a turn-key solution for the purchase of equipment, installation, acceptance and training.

2. **DEFINITIONS:** The terms listed below shall have the meanings assigned to them below. Additional definitions can be found in section 2 of the General Terms and Conditions.

   2.1 "Contract Item" means components provided by a qualified manufacturer that is authorized to sell, install and service the equipment more fully described by these specifications.

   2.2 "Pricing Page" means the pages, contained in wvOASIS or attached as Exhibit A, upon which Vendor should list its proposed price for the Contract Items.

   2.3 "Solicitation" means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.

   2.4 "DM" stands for digital media.

   2.5 "DVI-D" stands for digital visual interface.

   2.6 "HDMI" stands high definition media interface.

   2.7 "SDRAM" stands for synchronous dynamic random access memory.

   2.8 "MBPS" stands for megabytes per second.

   2.9 "RGB" stands for red, green, blue.

   2.10 "RGBHV" stands for red, green, blue, horizontal synch vertical synch.

   2.11 "RBSB" stands for red, green, synch blue.

2.12 **"YPBPR"** is an analog color space used in video electronics, in particular in reference to component video cables.

2.13 **"S-VIDEO"** is a signaling standard for standard definition video, typically 480i or 576i.

2.14 **"NTSC"** means national television system committee.

2.15 **"PAL"** is a color encoding system for analog television used in broadcast television systems.

2.16 **"WVGA"** means wide video graphics array.

2.17 **"EMI"** means electromagnetic interface.

3. GENERAL REQUIREMENTS:

3.1 **Mandatory Contract Item Requirements:** Contract Item must meet or exceed the mandatory requirements listed below.

3.1.1 **Turn Key installation and equipment necessary to provide audio visual equipment for Building 5, Room 148. Equipment must include a minimum 75 inch LED Ultra 4K HD television with wireless control panel to control connectivity and operation.**

3.1.1.1 Vendor must provide a minimum 75 inch LED Ultra 4K television.

3.1.1.2 Vendor must provide a cart stand to accommodate all equipment described in this section.

3.1.1.3 Vendor must provide an Extron or equivalent wireless presentation system controller. Controller shall utilize the existing wireless network and must provide auto switching, auto negotiating, auto discovery of wireless ethernet.

3.1.1.3.1 Presentation system must have HDMI with deep Color DVI and Dual Mode display port compatible, RGB/VGA components, S-Video composite NTSC and PAL input signal types.

3.1.1.3.2 Presentation system controller must provide all the connections required to connect a laptop and/or tablet PC using HDMI or DVI connection without requiring the installation of specialized computer software or drivers.

3.1.1.4 Presentation system controller must include an easy to use graphic based interface that allows the user to control volume and switch between input types such as cable, HDMI or DVI inputs.

3.1.1.5 Vendor must include wall mounted surround sound speakers that are compatible with the display unit described in this section. Speaker sound level and quality must be controlled using the wireless presentation system controller as described in this section.

3.1.1.6 Presentation system controller shall be compatible with video conference system integration.

3.1.1.7 Vendor shall include all costs associated with the equipment outlined in this section, as well as component pricing and turn key installation pricing. Costs shall be detailed in Exhibit A, Pricing Page.

3.1.2 Turn key installation and equipment necessary to provide audio visual equipment for Building 5, Room 955 Equipment must include a minimum 75 inch LED Ultra 4K HD television with wireless control panel to control connectivity and operation.

3.1.2.1 Vendor must provide a minimum 75 inch LED Ultra 4K television.

3.1.2.2 Vendor must provide a cart stand to accommodate all equipment described in this section.

3.1.2.3 Vendor must provide an Extron or equivalent wireless presentation system controller that shall utilize the existing wireless network and

must provide auto switching, auto negotiating, auto discovery of wireless ethernet.

3.1.2.3.1 Presentation system must have HDMI with deep Color DVI and Dual Mode display port compatible, RGB/VGA components, S-Video composite NTSC and PAL input signal types.

3.1.2.3.2 Presentation system controller must be either wall mounted or accessible from a conference table.

3.1.2.3.3 Presentation system must provide all the connections required to connect a laptop and our tablet using HDMI or DVI connection without requiring the installation of specialized computer software or drivers.

3.1.2.4 Vendor must include a pair of surround sound speakers that are compatible with the display unit described in this section. Speaker sound level and quality must be controlled using the wireless presentation system as described in this section.

3.1.2.5 Presentation system shall be compatible with integration with a video conference system.

3.1.2.6 Vendor must include installation which includes testing and hardware/components required to provide full functionality of the presentation system.

3.1.2.7 Vendor shall include all costs associated with the equipment outlined in this section, as well as component pricing and turn key installation pricing. Costs shall be detailed in Exhibit A, Pricing Page.

3.2 Installation, Acceptance, Testing, Training and Warranty

3.2.1 This procurement includes two conference rooms located in the Department of Transportation Headquarters Building located in Charleston, WV. Each vendor will be provided with an

opportunity during a mandatory pre-bid meeting to tour the meeting rooms to obtain room configuration, measurements and other details required to determine installation needs.

3.2.2 Vendor must design a high quality, professional audio visual presentation system that is tailored to meet the needs of each room listed in this request.

3.2.3 Vendor must have a minimum of five years of experience in the design, installation of presentation systems. Vendor must also include references for three systems that have been installed within the last five years.

3.2.3.1 Vendor must provide pricing in Exhibit A Pricing Page per conference which includes all components, hardware and installation required to install equipment for each location.

3.2.3.2 Vendor must conduct end user acceptance and training for equipment located in each location as described in this RFQ.

3.2.3.3 The vendor will be required to conduct a walk-through session with Agency representatives prior to project completion. During this walk through, the vendor will demonstrate the functionality of the system provided. Any deficiencies in the installation and equipment operation will be documented by the agency and will be corrected by the vendor.

3.2.3.4 Vendor will conduct one training sessions that outlines the operation of the equipment being provided. Each training session will include no more than (10) ten participated. The vendor will also be required to provide a quick reference guide which outlines the process for utilizing the presentation system.

3.2.3.5 Vendor will be required to provide onsite training for the operation of equipment in each room. Training will be conducted for approximately 5 people.

3.2.3.5.1 Vendor must provide training documentation that explains step-by-step the process required for an end user to connect and utilize the audio-visual presentation system.

3.2.3.6 Vendor must provide a five year manufacturer's warranty on all equipment provided in this procurement. During this time, the vendor will be responsible to replace or repair equipment that malfunctions or stops working.

3.2.3.7 Installation and training shall be coordinated with the WVDOT representative assigned to manage this project. Specific contact information will be provided upon award.

4. CONTRACT AWARD:

4.1 Contract Award: The Contract is intended to provide Agencies with a purchase price for the Contract Items. The Contract shall be awarded to the Vendor that provides the Contract Items meeting the required specifications for the lowest overall total cost as shown on the Pricing Pages.

4.2 Pricing Page: Vendor should complete the Pricing Page by completely Exhibit A, Pricing Page. Vendor should complete the Pricing Page in full as failure to complete the Pricing Page in its entirety may result in Vendor's bid being disqualified.

Vendor should type or electronically enter the information into the Pricing Page to prevent errors in the evaluation.

5. PAYMENT:

5.1 Payment: Vendor shall accept payment in accordance with the payment procedures of the State of West Virginia.

6. DELIVERY AND RETURN:

6.1 Shipment and Delivery: Vendor shall ship the Contract Items immediately after being awarded this Contract and receiving a purchase order or notice to proceed. Vendor shall deliver, install and conduct training of the Contract Items within ninety (90) working days after receiving a purchase order or notice to proceed. Contract Items must be delivered to Agency 1900 Kanawha Blvd East, Building 5, Charleston WV 25305.

6.2 Late Delivery: The Agency placing the order under this Contract must be notified in writing if the shipment of the Contract Items will be delayed for any reason. Any delay in delivery that could cause harm to an Agency will be grounds for cancellation of the Contract, and/or obtaining the Contract Items from a third party.

Any Agency seeking to obtain the Contract Items from a third party under this provision must first obtain approval of the Purchasing Division.

6.3 Delivery Payment/Risk of Loss: Vendor shall deliver the Contract Items F.O.B. destination to the Agency's location.

6.4 Return of Unacceptable Items: If the Agency deems the Contract Items to be unacceptable, the Contract Items shall be returned to Vendor at Vendor's expense and with no restocking charge. Vendor shall either make arrangements for the return within five (5) days of being notified that items are unacceptable, or permit the Agency to arrange for the return and reimburse Agency for delivery expenses. If the original packaging cannot be utilized for the return, Vendor will supply the Agency with appropriate return packaging upon request. All returns of unacceptable items shall be F.O.B. the Agency's location. The returned product shall either be replaced, or the Agency shall receive a full credit or refund for the purchase price, at the Agency's discretion.

6.5 Return Due to Agency Error: Items ordered in error by the Agency will be returned for credit within 30 days of receipt, F.O.B. Vendor's location. Vendor shall not charge a restocking fee if returned products are in a resalable condition. Items shall be deemed to be in a resalable condition if they are unused and in the original packaging. Any restocking fee for items not in a resalable condition shall be the lower of the Vendor's customary restocking fee or 5% of the total invoiced value of the returned items.

7 VENDOR DEFAULT:

7.1 The following shall be considered a vendor default under this Contract.

7.1.1 Failure to provide Contract Items in accordance with the requirements contained herein.

7.1.2 Failure to comply with other specifications and requirements contained herein.

7.1.3 Failure to comply with any laws, rules, and ordinances applicable to the Contract Services provided under this Contract.

7.1.4 Failure to remedy deficient performance upon request.

7.2 The following remedies shall be available to Agency upon default.

7.2.1 Immediate cancellation of the Contract.

7.2.2 Immediate cancellation of one or more release orders issued under this Contract.

7.2.3 Any other remedies available in law or equity.

EXHIBIT A - PRICING PAGE

TOTAL INSTALLATION & DELIVERY COST VARIOUS LOCATIONS IN BUILDING 5			
Item Number	**Description**	**Unit Price**	**TOTAL**
1	3.1.1 Building 5, Room 148		8306.38
3	3.1.3 Building 5 Room 955		22,752.75
4	Five Year Manufacturer's Warranty on all equipment listed in the RFQ		895.00
5	Turn Key Installation for all equipment listed in the RFQ		4890.00
Total			36,844.13

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

CONSTRUCTION CONTRACTS: Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

ALL CONTRACTS: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Lee Hartman & Sons, Inc.

Authorized Signature: Ray Hex Date: 2.13.2018

State of WV

County of Putnam, to-wit:

Taken, subscribed, and sworn to before me this 13 day of February, 2018.

My Commission expires September 08, 2021.

AFFIX SEAL HERE

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
ASHLEY NICHOLSON
THE FIRST STATE BANK
8784 TEAYS VALLEY ROAD
HURRICANE, WV 25526
My Commission Expires SEPTEMBER 08, 2021

NOTARY PUBLIC Ashley Nicholson

West Virginia Ethics Commission

Disclosure of Interested Parties to Contracts

Pursuant to W. Va. Code § 6D-1-2, a state agency may not enter into a contract, or a series of related contracts, that has/have an actual or estimated value of $100,000 or more until the business entity submits to the contracting state agency a Disclosure of Interested Parties to the applicable contract. In addition, the business entity awarded a contract is obligated to submit a supplemental Disclosure of Interested Parties reflecting any new or differing interested parties to the contract within 30 days following the completion or termination of the applicable contract.

For purposes of complying with these requirements, the following definitions apply:

> *"Business entity"* means any entity recognized by law through which business is conducted, including a sole proprietorship, partnership or corporation.
>
> *"Interested party"* or *"Interested parties"* means:
>
> (1) A business entity performing work or service pursuant to, or in furtherance of, the applicable contract, including specifically sub-contractors;
> (2) the person(s) who have an ownership interest equal to or greater than 25% in the business entity performing work or service pursuant to, or in furtherance of, the applicable contract. (This subdivision does not apply to a publicly traded company); and
> (3) the person or business entity, if any, that served as a compensated broker or intermediary to actively facilitate the applicable contract or negotiated the terms of the applicable contract with the state agency. (This subdivision does not apply to persons or business entities performing legal services related to the negotiation or drafting of the applicable contract.)
>
> *"State agency"* means a board, commission, office, department or other agency in the executive, judicial or legislative branch of state government, including publicly funded institutions of higher education: Provided, that for purposes of W. Va. Code § 6D-1-2, the West Virginia Investment Management Board shall not be deemed a state agency nor subject to the requirements of that provision.

The contracting business entity must complete this form and submit it to the contracting state agency prior to contract award and to complete another form within 30 days of contract completion or termination.

This form was created by the State of West Virginia Ethics Commission, 210 Brooks Street, Suite 300, Charleston, WV 25301-1804. Telephone: (304)558-0664; fax: (304)558-2169; e-mail: ethics@wv.gov; website: www.ethics.wv.gov.

West Virginia Ethics Commission

Disclosure of Interested Parties to Contracts

Contracting business entity: Lee Hartman & Sons, Inc.

Address: 3 Davis Court, Hurricane, WV 25526

Contracting business entity's authorized agent: Larry T. Cox

Address: 3 Davis Court, Hurricane, WV 25526

Number or title of contract: ARFQ 0803 DOT1800000037

Type or description of contract: AUDIO VISUAL HARDWARE AND INSTALLATION

Governmental agency awarding contract: FINANCE & ADMINISTRATION DIVISION OF HIGHWAYS

Names of each Interested Party to the contract known or reasonably anticipated by the contracting business entity *(attach additional pages if necessary)*:

Colin Ward

Aubrey Peters

Signature: Larry T Cox Date Signed: 2-13-2018

☐ Check here if this is a Supplemental Disclosure.

Verification

State of WV, County of Putnam:

I, Larry T. Cox, the authorized agent of the contracting business entity listed above, being duly sworn, acknowledges that the Disclosure herein is being made under oath and under the penalty of perjury.

Taken, sworn to and subscribed before me this 13 day of February, 2018.

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
ASHLEY NICHOLSON
THE FIRST STATE BANK
3754 TEAYS VALLEY ROAD
HURRICANE, WV 25526
My Commission Expires SEPTEMBER 08, 2021

Ashley Nicholson
Notary Public's Signature

To be completed by State Agency:

Date Received by State Agency: _____

Date submitted to Ethics Commission: _____

Governmental agency submitting Disclosure: _____

AGENCY SOLICITATION NUMBER – ARFQ DOT1800000037
Addendum Number: 1

The Purpose of this addendum is to modify the solicitation identified as ("Agency Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

[X] Modify bid opening date and time

[ ] Modify specification of product or service being sought

[x] Attachment of pre-bid sign-in sheet

[ ] Correction of error

[x] Other

Description of Modification to Solicitation:	CHANGE TECHNICAL
CHANGE BID OPENING	FROM
FROM	JANUARY 30, 2018
FEBRUARY 6 2018 1:30pm	TO
TO	FEBRUARY 8, 2018 AT
FEB 15 2018 AT 1:30PM	NOON EST

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provision of the Agency Solicitation and other addenda not modified herein shall remain in full force and effect.

2. Vendor should acknowledge receipt of all addenda issued for this Agency Solicitation by completing an Addendum Acknowledgement, a copy of which is included herewith.

SIGN IN SHEET

Page _____ of _____

Request for Proposal No. DOT1800000037 **PLEASE PRINT**

Date: 02/02/18

PLEASE BE SURE TO PRINT LEGIBLY - IF POSSIBLE, LEAVE A BUSINESS CARD

FIRM & REPRESENTATIVE NAME	MAILING ADDRESS	TELEPHONE & FAX NUMBERS
Company: WVDOT Rep: Email Address: DUSTY.J.SMITH@WV.GOV	BUILDING 5	PHONE 304-558-9398 TOLL FREE FAX
Company: WVDOT Rep. JEREMY CASTO Email Address: jeremy.d.casto@wv.gov	Building 5	PHONE 6-7427 TOLL FREE FAX
Company: WVDOT Rep: Kristy James Email Address: kristy.e.james@wv.gov	Bldg 5 Rm 980	PHONE 304-558-9956 TOLL FREE FAX
Company: Lee Hartman & Sons, INC Rep: Larry Cox Email Address: lcox@LeeHartman.com	3 Davis Court Hurricane, WV 25526	PHONE 304-397-4100 x130 TOLL FREE FAX 304.397.4101
Company: Jeremy Hatfield Rep: NewTech Systems, INC Email Address: Shatfield@newtech-sys.com	420 16th ST. Dunbar - WV. 25064	PHONE TOLL FREE 304-766-0000 FAX

SIGN IN SHEET

Page ____ of ____

Request for Proposal No. DOT1800000037 **PLEASE PRINT**

Date: 02/02/18

*** PLEASE BE SURE TO PRINT LEGIBLY - IF POSSIBLE, LEAVE A BUSINESS CARD**

FIRM & REPRESENTATIVE NAME	MAILING ADDRESS	TELEPHONE & FAX NUMBERS
Company: WVDOT Rep: Dusty Smith Email Address: DUSTY.J.SMITH@WV.GOV	BUILDING 5	PHONE 304-558-8398 TOLL FREE FAX
Company: Electronic Specialty Co Rep: Tommie Fitzwater Email Address: tommie@electronicspecialty.com	1325 Dunbar Ave Dunbar WV 25064	PHONE 304-766-6277 TOLL FREE FAX 304-766-6270
Company: Pomeroy IT Rep: Caleb Hughes Email Address: caleb.hughes@pomeroy.com	500 Westmoreland Office Park Dunbar, WV 25064	PHONE 304-382-8021 TOLL FREE FAX
Company: Audio Visual Subcontractors Inc Rep: Steve McConihay Email Address: Kipp@AVSubs.com	100 Wimbledon Dr. Hurricane, WV 25526	PHONE 304-881-8748 TOLL FREE FAX
Company: Advanced Media Installations Rep: Corey Jones Email Address: CJones@advancedmediaonline.com	403 27th S Dunbar, WV 25064	PHONE 814-450-0953 TOLL FREE FAX

LIFE SAFETY–SECURITY–A/V–CCTV–NURSE CALL–QUALITY LOCAL SERVICE

PO Box 400
1325 Dunbar Avenue
Dunbar, WV 25064
Tom_Fitzwater@electronicspecialty.com

Office 304.766.6277
or 800.642.5500
Mobile 304.545.1472
Fax 304.766.6270

TOM FITZWATER
SENIOR AUDIO/VIDEO ENGINEER

ELECTRONIC SPECIALTY COMPANY
Since 1947

NEWTECH
SYSTEMS.INC

Healthcare Communications
Educational & Multimedia
Surveillance & Security
Professional Audio
Fire Alarm

Jeremy Hatfield
General Manager

420 16th St.
Dunbar, WV 25064
Phone: 304-766-0000
Cell: 304-417-3735
jhatfield@newtech-sys.com

POMEROY
infrastructure. optimized.™

Caleb Hughes
Interactive Technology Specialist

500 Westmoreland Office Park
Dunbar, WV 25064
Mobile: 304.382.8021
caleb.hughes@pomeroy.com
www.pomeroy.com

LEE HARTMAN & SONS INC.

Sales & Service Professionals for all your Electronic Needs

LARRY COX
Area Manager

3 Davis Court
Hurricane, WV 25526

304-397-4100
Fax 304-397-4101
Cell 304-545-8701

lcox@leehartman.com

www.leehartman.com

AGENCY SOLICITATION NUMBER – ARFQ DOT1800000037
Addendum Number: 2

The Purpose of this addendum is to modify the solicitation identified as ("Agency Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

[X] Modify bid opening date and time

[ ] Modify specification of product or service being sought

[ ] Attachment of pre-bid sign-in sheet

[ ] Correction of error

[ ] Other

Description of Modification to Solicitation:

CHANGE BID OPENING

FROM

FEBRUARY 15 2018 1:30pm

TO

FEB 22 2018 AT 1:30PM

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provision of the Agency Solicitation and other addenda not modified herein shall remain in full force and effect.

2. Vendor should acknowledge receipt of all addenda issued for this Agency Solicitation by completing an Addendum Acknowledgement, a copy of which is included herewith.

AGENCY SOLICITATION NUMBER – ARFQ DOT1800000037
Addendum Number: 3

The Purpose of this addendum is to modify the solicitation identified as ("Agency Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

[ ] Modify bid opening date and time

[x] Modify specification of product or service being sought

[ ] Attachment of pre-bid sign-in sheet

[ ] Correction of error

[x] Other QUESTIONS AND ANSWERS

Description of Modification to Solicitation:

TO ANSWER THE TECHINCAL QUESTIONS.

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provision of the Agency Solicitation and other addenda not modified herein shall remain in full force and effect.

2. Vendor should acknowledge receipt of all addenda issued for this Agency Solicitation by completing an Addendum Acknowledgement, a copy of which is included herewith.

Vendor Questions
ARQS 0803 DOT 18*37

Question 1 "Room 955, the specifications say one 75" display (3.1.2.1), but the room size calls for (2) 75" displays this was discussed at the pre-bid meeting are we bidding on 2 displays? or 1?"

Answer 1 *Specification 3.1.2 and 3.1.2.1 will be modified. Two (2) 85 inch wall mounted commercial grade minimum 1080p televisions will be required in room 955. Wall outlets will be installed on the wall where these televisions will be installed.*

3.1.2 Turn key installation and equipment necessary to provide audio visual equipment for Building 5, Room 955. Equipment must include two (2) 85 inch minimum 1080p television displays with wireless control panel to control connectivity and operation.

3.1.2.1 Vendor must provide two (2) 85 inch minimum 1080p televisions.

Question 2 "If we are bidding on 2 displays, are you wanting the capability to display separate material on either display? or mirroring the information from a single source? Or both?

Answer 2 *Dual television displays for Room 955 must provide the ability to mirror information provided by a single source and should also allow for a split display. Section 3.1.2.3.4 will be added to clarify this requirement.*

3.1.2.3.4 Presentation system controller shall provide the ability to mirror information provided by a single source on the two displays. The system controller shall also provide the ability to split the display so that each television is able to present different information.

Question 3 "surround sound" is used in the specifications, (3.1.2.4 actual "surround sound" is not normally used in commercial applications, but full coverage audio is normally required, meaning minimum variation of db measurement in the immediate coverage area. Your specifications are calling for a "pair of surround sound speakers" a "pair" of speakers will not be sufficient for a room of this size and is not recommended especially for future Video conferencing (3.1.2.5) options. Ceiling speakers are recommended. What is your expectation of this?"

Answer 3 *Ceiling mounted speakers will not be required. The requirement for surround sound will be changed to require the installation of two full coverage sound bars to be mounted near the televisions. In addition, a new section will be added requiring the system to project the sound from the existing Cisco IP Conference Station Model 7936 conference phone.*

3.1.2.4 The vendor must include (2) two full coverage audio sound bar speakers that are compatible with the display unit described in this section. Speaker sound level and quality must be controlled using the wireless presentation system described in this section.

3.1.2.4.1 The audio solution provided by the vendor shall project sound from the existing CISCO IP Conference Station Model 7936 conference phone.

Vendor Questions
ARQS 0803 DOT 18*37

Question 4 Building 5 Room 148 Will a network connection be provided at the wall location behind the television stand by others?

Answer 4 *WVDOT will be providing the network connections required for this project. The installation of networking connections will be discussed during the post award, project kick off discussions.*

Question 5 Will the use of floor duct from the conference table to the television stand be acceptable?

Answer 5 *Floor access is not available in Room 148. Cabling must be contained in the area that the television cart will be located. WVDOT does not plan to move the cart more than six feet from the current position discussed in the Pre-Bid Meeting. This cart will only be turned/adjusted to enhance viewing by those seated at the conference table.*

Question 6 Will you require a touch screen at the table or will the television remote control be acceptable?

Answer 6 *WVDOT will not accept the use of the television remote control to provide the functionality discussed in this RFQ. The vendor shall provide a touch screen presentation controller as discussed in section 3.1.1.2. This section will be modified to require a "touch screen" controller.*

3.1.1.3 Vendor must provide an Extron or equivalent wireless "touch screen" presentation controller. Controller shall utilize the existing wireless network and must also provide auto switching, auto negotiating and auto discovery of wireless ethernet.

Question 7 Will a sound bar speaker on the television stand be acceptable in lieu of wall mounted speakers?

Answer 7 *Section 3.1.1.5 will be modified to require the installation of a sound bar with the television display.*

3.1.1.5 Vendor must include a sound bar that is compatible with the display unit described in this section. Speaker sound level and quality must be controlled using the wireless presentation system controller as described in this section.

Question 8 Do you want VGA and HDMI jacks on the TV cart in addition to the wireless presentation interface?

Answer 8 *Yes, the cart should include both VGA and HDMI jacks. Section 3.1.1.2 will be modified to include this requirement.*

3.1.1.2 Vendor must provide a cart/stand to accommodate all equipment described in this section. The cart stand shall be portable and shall include locking casters. The television display shall be attached to the cart. The cart shall also include both VGA

and HDMI jacks. The cart should be tall enough to allow for comfortable viewing while seated at the conference table.

Question 9 Building 5 Room 955 The 75" Television is not suitable for display in this area, will using dual projection systems be acceptable?

Answer 9 *See response to Question 1.*

Question 10 Will a combined lectern with integrated equipment rack be acceptable to house the room AV Equipment?

Answer 10 *WVDOT will accept a combined lectern with integrated equipment rack to store the AV equipment. The lectern will not require casters. In addition, section 3.1.2.2 will be modified to include specifications for the lectern.*

3.1.2.2 Vendor must provide a wood finish lectern stand to accommodate all equipment described in this section. The lectern shall be a minimum of forty-six (46) inches tall and shall include a locking door for secure equipment storage. The lectern shall be equipped with a gooseneck style microphone and fixed laptop jacks for interfacing.

Question 11 Will a third party be responsible for providing electric to the lectern, projectors, and wall screen locations?

Answer 11 *WVDOT will provide electricity to the lectern and television displays. A projector and wall screens will not be required.*

Question 12 Using a lectern location between the wall screen locations will require a **Floor Penetration** to allow cabling to be ran from the lectern to the projectors, screens, and ceiling speakers. Will this be provided by a third others?

Answer 12 *WVDOT will provide floor access upon request. Projectors, wall screens and ceiling speakers will not be required.*

Question 13 Is there a path to allow cables to be ran from the lectern under the floor to above the ceilings?

Answer 13 *Room 955 is the only room that has floor and ceiling accessibility.*

Question 14 Will a network connection be provided to the Lectern location by others?

Answer 14 *WVDOT will provide the network connection upon request.*

Vendor Questions
ARQS 0803 DOT 18*37

Question 15 Will you require the Audio Teleconferencing system to be integrated into the room sound system?

Answer 15 *See response to Question 3 and new section 3.1.2.4.1.*

3.1.2.4.1 ***The audio solution provided by the vendor shall project sound from the existing CISCO IP Conference Station Model 7936 conference phone.***

Question 16 If yes to question 7, we will need to add a microphone to the sound system for audience pickup. Is this acceptable?

Answer 16 *Separate microphones will not be required for audience pickup. The only required microphone shall be included with the lectern.*

Question 17 At the lectern do you prefer a gooseneck fixed style mic or do you prefer a head worn or lapel wireless microphone?

Answer 17 *A fixed gooseneck style microphone is required. Lapel wireless microphones will not be needed.*

3.1.2.2 Vendor must provide a wood finish lectern stand to accommodate all equipment described in this section. The lectern shall be a minimum of forty-six (46) inches tall and shall include a locking door for secure equipment storage. The lectern shall be equipped with a gooseneck style microphone and fixed laptop jacks for interfacing.

Question 18 In addition to the wireless presenter, do you require fixed jacks for laptop interfacing at the lectern?

Answer 18 *The lectern shall be equipped with fixed jacks for laptop interfacing. See section 3.1.2.2 listed above.*

Question 19 Do you want a document camera included at the lectern?

Answer 19 *A document camera is not required for the lectern.*

Question 20 Do you want a DVD player included at the lectern?

Answer 20 *A DVD player is not required for the lectern.*

Question 21 The two wall screens, do you want them below the ceiling grid or do you want them built in above the ceiling?

Answer 21 *Wall screens will not be required. The vendor will be required to provide (2) 85 inch television displays as described in sections 3.1.2 and 3.1.2.1.*

3.1.2 Turn key installation and equipment necessary to provide audio visual equipment for Building 5, Room 955. Equipment must include dual (2) 85 inch 1080p television displays with wireless control panel to control connectivity and operation.

3.1.2.1 Vendor must provide two (2) minimum 85 inch 1080p televisions.

Question 22 If you choose to have screens placed above ceiling, who is responsible for customizing the ceiling tiles and grid around the screens?

Answer 22 *See response to Question 21. Customization of ceiling tiles will not be required.*

Question 23 Do you want future video conferencing capability built into the system?

Answer 23 *Section 3.1.2.6 indicates that the system shall be compatible with integration with a video conference system.*

Question 24 Will you be publishing an addendum with new required specs based upon added scope?

Answer 24 *The project scope has not been changed. The RFQ will require audio visual system installations in both room 148 and 955. This document addresses the specification modifications.*

Question 25 Will bid be awarded based upon low bid number only or will overall design be considered?

Answer 25 *This is a request for quotation, RFQ. Bids will be evaluated on cost not design. The award will be made to the vendor with the lowest bid meeting all the required specifications.*

Question 26 Since we need to interface to it, we would like clarification on the Manufacturer and Model Number of the Current Telephone in Room 955 the he actual Instrument in the space)

Answer 26 *Room 955 has a CISCO IP Conference Station Model 7935 conference phone.*

Question 27 3.1.1.1 List a 75" Led 4k Television. Could we get a clarification for tis display? Is this a commercial or consumer grade specification? Could we get a bases of design?

Answer 27 *Section 3.1.1.1 has been modified. See response to Question 1.*

Question 28 3.1.1.2 Calls for a cart stand. Could we get a clarification for this item? Is this a Hard mounted cart or just sitting the display on the cart unattached permanently? Are there to be casters added to this cart. Is there shelf mounting in the cart design? Is there height requirements?

Answer 28 *Section 3.1.1.2 has been modified to include additional cart requirements. The television for room 148 will be permanently located on the cart provided by the vendor. The television shall be*

attached to the cart to provide for stability when the cart is moved. This cart will not be moved more than a few feet.

The vendor will not be able to mount anything to the walls in room 148. A shelf mounting is not required.

3.1.1.2 Vendor must provide a cart/stand to accommodate all equipment described in this section. The cart stand shall be portable and shall include locking casters. The television display shall be attached to the cart. The cart shall also include both VGA and HDMI jacks. The cart should be tall enough to allow for comfortable viewing while seated at the conference table.

Question 29 3.1.1.5 Surround sound speakers. In the Pre-Bid meeting the conversation was as such, that we would include a sound bar or audio attached to the 3.1.1.2 cart. Please clarify design?

Answer 29 *Section 3.1.15 will be modified to allow for a sound bar for room 148. The sound bar can be placed on the cart described in section 3.1.1.2.*

3.1.1.5 Vendor must include a sound bar that is compatible with the display unit described in this section. Sound level and quality must be controlled using the wireless presentation system controller as describe in this section.

Question 30 3.1.1.6 Please clarify the term compatible with conference system.

Answer 30 *WVDOT would like to be able to utilize the audio visual system with a future video conference system.*

Question 31 3.1.2 Please clarify if this portion will still listed in the scope of work for this bid?

Answer 31 *The scope of this RFQ has not been modified, this project includes room 148 and room 955. Minor modifications have been made to the specifications, as detailed in the responses above.*

Question 32 3.1.2 Is the requirement the same exact parts as listed for 3.1.

Answer 32 *Section 3.1.1 is intended for room 148. This specification has been modified to allow for a 75 inch 1080p cart mounted display. 3.1.2 has been modified to allow for (2) 85 inch 1080p wall mounted displays.*

3.1.1. Turn key installation and equipment necessary to provide audio visual equipment for Building 5, Room 148. Equipment must include a 75 inch minimum 1080p television display with wireless control panel to control connectivity and operation.

3.1.1.1 Vendor must provide a 75 inch minimum 1080p television display.

3.1.2 Turn key installation and equipment necessary to provide audio visual equipment for Building 5, Room 955. Equipment must include dual (2) 85 inch minimum 1080p television displays with wireless control panel to control connectivity and operation.

3.1.2.1 Vendor must provide two (2) two 85 inch minimum 1080p televisions.

Question 33 During Pre-Bid the requested specifications for RM 955 were determined to be insufficient. How will you determine what is needed for the is room design?

Answer 33 *Specifications for room 955 have been modified in the answers above. Since this room is primarily used by internal personnel, it was determined that two wall mounted 85 inch displays would be sufficient.*

Question 34 3.2.3.6 Requires a 5 Year warranty. Please clarify if this is a complete Labor and Parts warranty or just Labor or just Parts?

Answer 34 *Section 3.2.3.6 will be modified to include parts only warranty coverage.*

3.2.3.6 Vendor must provide a five-year parts only manufacturer's warranty on all equipment provided in this procurement. During this time, the vendor will be responsible for replacement or repair of equipment that malfunctions or stops working.

Question 35 Would the supplied TV remote for the television be acceptable for the wireless TV controller?

Answer 36 *See response to Question 6.*

CONTRACTOR LICENSE

Authorized by the

West Virginia Contractor Licensing Board

Number: WV037465

Classification:
COMMUNICATION & SOUND

LEE HARTMAN & SONS INC
DBA LEE HARTMAN & SONS INC
PO BOX 13365
ROANOKE, VA 24033

Date Issued	Expiration Date
JULY 22, 2017	JULY 22, 2018

Authorized Company Signature

Chair, West Virginia Contractor Licensing Board

WEST VIRGINIA CONTRACTOR LICENSING BOARD

This license, or a copy thereof, must be posted in a conspicuous place at every construction site where work is being performed. This license number must appear in all advertisements, on all bid submissions and on all fully executed and binding contracts. This license cannot be assigned or transferred by licensee. Issued under provisions of West Virginia Code, Chapter 21, Article 11.

Lee Hartman & Sons, Inc.
3 Davis Court
Hurricane, WV 25526
V 304-397-4100 F 304-397-4101

EXHIBIT A - PRICING PAGE

TOTAL INSTALLATION & DELIVERY COST VARIOUS LOCATIONS IN BUILDING 5			
Item Number	**Description**	**Unit Price**	**TOTAL**
1	3.1.1 Building 5, Room 148		8,306.39
3	3.1.3 Building 5 Room 955		22,752.75
4	Five Year Manufacturer's Warranty on all equipment listed in the RFQ		895.00
5	Turn Key Installation for all equipment listed in the RFQ		4890.00
Total			36,844.14

Lee Hartman & Sons, Inc.
3 Davis Court
Hurricane, WV 25526
V 304-397-4100 F 304-397-4101

Equipment list for Conference Room 148

		*********Room 148********	
Sharp	PN-LE801	80" Commercial 1080p LED	1
Chief	PFCUB	Cart for LED TV	1
Extron	60-1490-02	Elink 100 Tx	1
Extron	60-1490-03	Elink 100 Rx	1
Extron	60-1253-01	DSC 301 HD	1
Extron	70-1028-01	UTS 100	1
Crestron	SAROS SB-200-P-B	Sound Bar for TV	1
Crestron	RMC3	Control Processor (PoE)	1
Crestron	TSR-310	Handheld Wireless Touchscreen Remote	1
Varies	Misc	Cables/Connectors/Hardware (Lot)	1
Lee Hartman	Labor	Installation of System	1
Lee Hartman	Programming	Programming of Control System	1
Sharp		2 year extended warranty	1

Leatherman & Sons, Inc.
3 Dove Court
Huntington, NY 11743

SHARP®

PN-LE901
PN-LE801
PN-LE701
PN-LE601

Commercial LCD TVs

Grab the Attention of Viewers for a New Level of Engagement

Affordable, Commercial LCD TVs to Engage Audience in a Variety of Environment

The 90" class (90 1/64" diagonal), 80" class (80" diagonal), 70" class (69 1/2" diagonal) and 60" class (60 3/32" diagonal) Sharp commercial LCD TVs combine full-HD image quality and a stylish, thin profile with a built-in tuner for the ultimate viewing experience. PN-LE901, PN-LE801, PN-LE701 and PN-LE601 commercial LCD TVs are perfect for sports bars, waiting rooms and other business locations that need to grab the attention of viewers for a new level of engagement.

PN-LE601

B2B Features for Ultimate Control

Business owners can easily manage the functionality of the PN-LE901/LE801/LE701/LE601 commercial LCD TVs due to their many user friendly features. They include a powerful RS-232C command set, which permits flexible remote control capabilities from connected devices. In addition, displaying still images or videos couldn't be easier with the USB port. Business owners will also appreciate optimal content control with added lockout features including IR Remote, Power, Channel, Volume, Input, OSD disable and LED disable. All this with 16/7 reliability and a three-year limited commercial warranty.

Superb Image Quality

The PN-LE901/LE801/LE701/LE601 commercial LCD TVs have cutting-edge picture technology that deliver amazing detail, gorgeous color depth and consistent image quality. The advanced pixel structure of the panel enables stunning 4 million : 1 dynamic contrast for deeper blacks and whiter whites.

PN-LE801

Bigger Screen, Slimmer Bezel

Fit more screen in less space with the PN-LE901/LE801/LE701/LE601 commercial LCD TVs. Streamlined for a pleasing appearance and minimal protruding parts, the PN-LE901/LE801/LE701/LE601 weighs only 141.1/110.2/75/52.9 lbs. A bezel thickness* of only 1 3/64", 5/8", 29/64", 7/16" makes for easy placement in offices, public places, stores and other commercial establishments. Compared to a 75" Class (diagonal) screen, the PN-LE901 commercial LCD TV also has a 44 percent greater viewing area and the PN-LE801 has a 14 percent greater viewing area. The PN-LE701 has a 14 percent greater viewing area than a 65" Class (diagonal) screen and the PN-LE601 has a 20 percent more viewing area than a 55" Class (diagonal) screen.

* PN-LE901: 1 3/64" (right/left), 1 11/64" (top), 1 25/64" (bottom**)
PN-LE801: 5/8" (right/left/top), 51/64" (bottom**)
PN-LE701: 29/64" (right/left), 7/16" (top), 5/8" (bottom**)
PN-LE601: 7/16" (right/left/top), 5/8" (bottom**)
** Excluding protruding indicator panel

Enhanced Connectivity

Three (3) HDMI™ inputs let you connect multiple HD sources including digital signage and cable boxes. A powerful RS-232C command set permits flexible remote control capabilities from connected devices. A built-in USB port lets you present a variety of digital content. Simply insert a USB memory device into the monitor and the built-in media player starts playing your photos, music and videos, right away.

Superb Support

A limited commercial three-year warranty, plus Sharp's best-in-class customer support service is included.

Built-in Speakers for Powerful Audio

Powerful 20W audio features high fidelity so all of your scenes sound as breathtaking as they look.

Unique Wallpaper Mode

When the unit is turned off, Wallpaper Mode lets you display virtually any image you choose on the screen at a reduced light level that mirrors museum conditions, so your screen blends beautifully into your installed environment—all at extremely low power.

PN-LE901

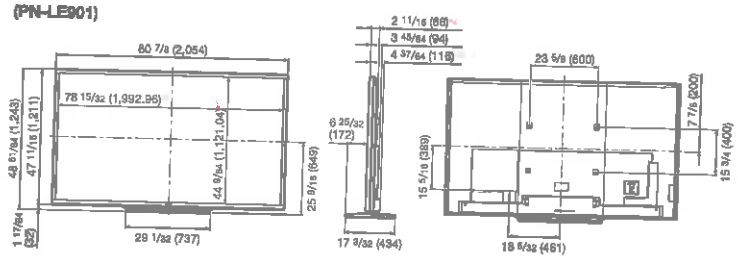
Specifications

Model Name		PN-LE901	PN-LE801	PN-LE701	PN-LE601
Installation		Landscape			
LCD Panel		90" Class (90 1/64" diagonal) UV²A*1 LCD	80" Class (80" diagonal) UV²A*1 LCD	70" Class (69 1/2" diagonal) UV²A*1 LCD	60" Class (60 3/32" diagonal) UV²A*1 LCD
	Max. Resolution	1,920 x 1,080 pixels			
	Max. Display Colors (approx.)	1.07 billion colors			
	Pixel Pitch (H x V)	1.038 x 1.038 mm	0.9225 x 0.9225 mm	0.8015 x 0.8015 mm	0.693 x 0.693 mm
	Max. Brightness*2	350 cd/m²			
	Contrast Ratio	5,000 : 1			
	Dynamic Contrast Ratio	4,000,000 : 1			
	Viewing Angle (H/V)	176°/176° (CR ≥ 10)			
	Active Screen Area (W x H)	78 15/32" x 44 9/64"	69 47/64" x 39 15/64"	60 19/32" x 34 3/32"	52 25/64" x 29 15/32"
	Response Time	4 ms (grey to grey, avg.)			
	Backlight	LED, full array		LED, edge lit	
Computer Input	Video	HDMI, Analog RGB			
	Synchronization	Horizontal/vertical separation (TTL: positive/negative)			
	Plug & Play	VESA DDC2B			
Video Color System		NTSC-M/PAL-N/PAL-M			
Analog/Digital Tuner		NTSC/ATSC			
Input Terminals*3		HDMI x 3, Mini D-sub 15-pin x 1, Component Video RCA (Y, Cb/Pb, Cr/Pr) x 1, Composite Video RCA pin x 2, RCA pin (L/R) x 2, 3.5 mm-diameter mini stereo jack x 1, RS-232C x 1, ANT/Cable x 1, USB x 1			
Output Terminals*3		Audio: RCA pin (L/R) x 1, Digital audio output (optical) x 1			
Input/Output Terminals*3		Ethernet RJ-45 x 1			
Speaker Output		10 W + 10 W			
Power Supply		110 – 240 V AC 50/60Hz			
Power Consumption		290 W	300 W	180 W	150 W
Operating Temperature		0°C to 40°C			
Dimensions (W x D x H) (approx.) (display only)		80 7/8" x 4 37/64" x 47 11/16"	71 1/2" x 4 1/2" x 41 36/64"	61 35/64" x 3 7/16" x 35 53/64"	53 23/64" x 3 25/64" x 31 3/16"
Weight (approx.) (display only)		141.1 lbs	110.2 lbs	75 lbs	52.9 lbs

*1 UV²A stands for Ultraviolet-induced Multi-domain Vertical Alignment, a photo-alignment technology that ensures uniform alignment of liquid crystal molecules. *2 Brightness depends on input mode and other picture settings. Brightness level will decrease slightly over the lifetime of the product. Due to the physical limitations of the equipment, it is not possible to maintain a precisely constant level of brightness. *3 Use a commercially available connection cable for PC and other video connections.

Dimensions

(PN-LE901)



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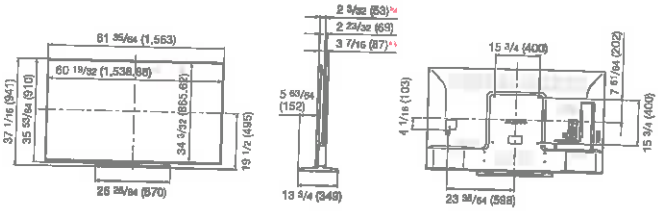

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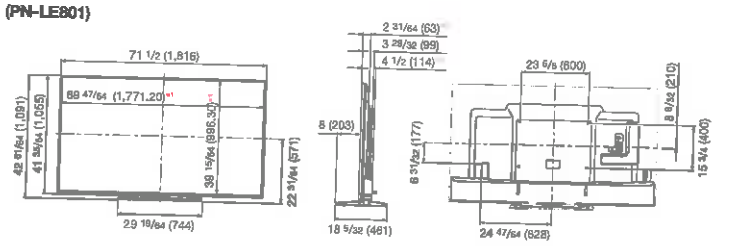

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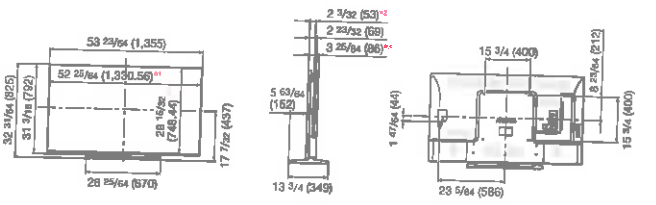

Units: inch (mm)
*1 Active area, *2 Thinnest part, *3 Including projecting parts

HDMI™ HIGH-DEFINITION MULTIMEDIA INTERFACE

SHARP®

SHARP ELECTRONICS CORPORATION
100 Paragon Drive, Montvale, NJ 07645
1-800-BE-SHARP • www.sharpusa.com

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PFC □ 42 - 71" MOBILE CART

FEATURES

1. **CENTRIS® FINGERTIP TILT**
   Effortlessly adjust display using Centris fingertip tilt technology. Screen angle stays set until you decide to readjust.
2. **TELESCOPING HEIGHT ADJUSTMENT**
   Integrated knob provides tool-less telescoping adjustment from 4 ft (122 cm) to 6 ft (180 cm).
3. **CLICKCONNECT® LATCHING**
   Hear an audible click when the screen engages with the mount. Easy to connect/disconnect – no tools needed!
4. **PORTRAIT/LANDSCAPE CAPABILITY**
   Mounts in either portrait or landscape position.
5. **CABLE MANAGEMENT**
   Flexible covers hide cables for a clean installation.

WHAT YOU NEED TO KNOW

OTHER PRODUCT OPTIONS

MFC
Moble Cart
Height: 4 - 6' (122 - 180 cm), Tilt: ±15°

PFM
Confidence Monitor Cart
Height: 3 - 4' (91 - 122 cm), Tilt: +15°/+45°

PFQ
Confidence Monitor Cart
Height: 2 - 2.5' (61 - 76 cm), Tilt: +15°/+45°

SPECIFICATIONS

Dimensions* (HxWxD)	80.25" x 37.13" x 32.13" (204 x 94.3 x 81.6 cm)
Height	4 - 6' (122 - 180 cm)
Tilt	±15°
Weight Capacity	200 lbs (90.7 kg)
Colors	Black, Silver

** Dimensions do not include interface bracket*

RECOMMENDED ACCESSORIES

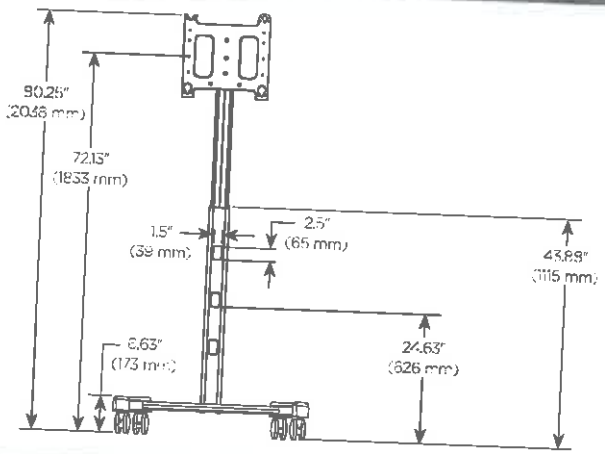
PAC710 • Accessory Shelf

PAC720 • Dual Display Accessory

PAC730 • Secure Storage Shelf

For a complete list of cart & stand accessories see pages **93 - 94**

TECHNICAL DRAWINGS



eLink 100

PROFESSIONAL GRADE WIRELESS EXTENDER FOR HDMI

Real-time wireless transmission of HDMI signals for applications where cable installation is not an option

- Reliable, professional-grade wireless extension of HDMI video and multi-channel audio signals up to 100 feet (30 meters)
- Capable of transmitting through multiple walls and furniture
- Supports computer video up to 1920x1080, including HDTV 1080p/60
- HDCP Compliant
- Ultra-low latency transmission of video and audio signals
- Professional-grade technology enables simultaneous transmission from one transmitter to as many as four receivers
- Actively monitors RF spectrum to select the ideal transmission channels

Extron

Introduction

The eLink 100 eliminates wires for a clean installation.

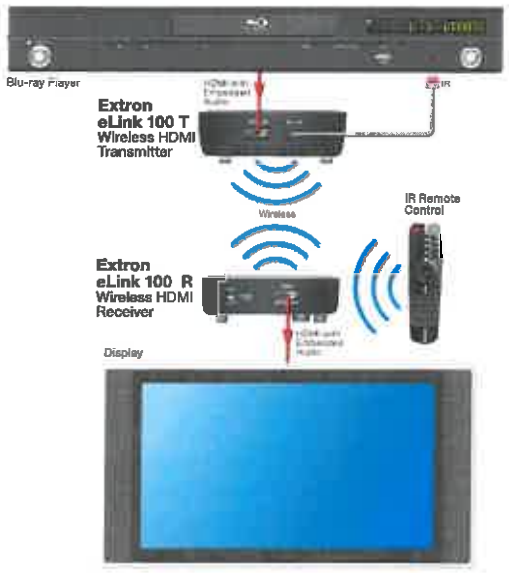
The Extron **eLink 100** is a professional-grade wireless transmitter and receiver set for extension of HDMI video and multi-channel audio up to 100 feet (30 meters). This HDCP-compliant extender features a robust wireless communication technology to ensure high reliability and real-time performance with exceptional image quality for resolutions up to 1920x1080, including HDTV 1080p/60. It includes features designed specifically for professional AV systems such as AES-128 encryption to ensure a secure link and use of the 5 GHz spectrum for transmission through multiple walls. Extron eLink™ technology ensures reliable operation of up to four eLink extender sets in the presence of the facility's other wireless systems. In addition to point-to-point designs, one transmitter can support four receivers to create a wireless distribution system.

The eLink 100 Professional Wireless Extender for HDMI is ideal for use in AV applications that benefit from wireless connection between a source and a display device. For example, the eLink 100 can provide signal extension from a media server or Blu-ray Disc player to a display positioned at the front of a presentation room without having unsightly cables stretched between source and display. In divisible spaces, a wireless connection enables a portable lectern to be moved anywhere within the room regardless of the location of floor boxes. For historic buildings, a wireless connection from the source or equipment room to the display can reduce or eliminate expensive and time-consuming structural modifications such as the need to core or trench concrete for cable runs. Wireless connections also simplify the setup and teardown in rental and staging applications.

For connection stability within environments with multipath signals, the eLink 100 uses a robust multi-input and multi-output - MIMO communication technology that reliably delivers high quality video and audio with real-time performance. MIMO technology provides maximum throughput to enable precise image transmission of high resolution video with ultra-low latency, which makes the extender suitable for live presentations. Use of the 5 GHz spectrum allows omnidirectional transmission through walls and furniture.

The included professional-grade technologies enable up to four eLink 100 transmitter and receiver sets to operate within the same space and without disrupting other wireless systems. Also, one transmitter can support multiple receivers, creating a virtual wireless distribution system. A single eLink 100 T transmitter can support up to four eLink 100 R receivers, allowing a single source such as a digital signage player to support multiple displays. The eLink 100 is also compatible with a broad range of multi-channel audio signals, providing reliable operation with HDMI devices, DSP mixers, and professional sound systems. This design flexibility further reduces costs and simplifies the upgrade or installation and setup of a professional AV system.

The eLink 100 wireless extender is backed by Extron's award-winning service and support. The compact transmitter and receiver enclosures may be concealed or mounted in adjacent areas to maintain the aesthetics of the facility.



Transmit HDMI signals up to 100 feet (30 meters)

Features

Reliable, professional-grade wireless extension of HDMI video and multi-channel audio signals up to 100 feet (30 meters)

Capable of transmitting through multiple walls and furniture
The eLink 100 wireless extender works in the 5 GHz spectrum to allow for broad coverage and transmission through walls and similar materials, overcoming limitations of other technologies that are more directional or limited to line-of-sight.

Supports computer video up to 1920x1080, including HDTV 1080p/60

Supported HDMI specification features include data rates up to 6.75 Gbps, Deep Color up to 12-bit, 3D, and multi-channel audio formats

HDCP Compliant

Professional-grade technology enables simultaneous transmission from one transmitter to as many as four receivers
One transmitter can support multiple receivers, allowing an AV signal to be distributed to as many as four displays.

AES 128-bit Data Encryption
Ensures content sent between the transmitter and receiver is fully encrypted and secure.

Ultra-low latency transmission of video and audio signals
Latency of less than one millisecond ensures high quality wireless operation with real-time performance.

Actively monitors RF spectrum to select the ideal transmission channels
Provides Automatic Frequency Selection
- AFS and Dynamic Frequency Selection
- DFS, using the most appropriate frequencies to avoid interference from other devices operating in the same spectrum.

Supports multiple embedded audio formats
The eLink 100 is compatible with a broad range of multi-channel audio signals, providing reliable operation with HDMI devices and surround sound systems.

eLink™ wireless technologies allow as many as four extenders to operate within the same space
Enables point-to-point signal extension between up to four eLink 100 transmitter and receiver pairs without risk of interference or signal loss.

Multi-input and multi-output, or MIMO, wireless technology provides robust connection
Ensures wireless connections are stable in environments with multipath signals.

Cost-effective alternative to cable installation
Reduces installation time and costs associated with signal extension by eliminating the need to install cables in challenging environments such as historic buildings and rooms with mobile lecterns.

On-screen display
The eLink 100 features an on-screen display for simplified setup and configuration.

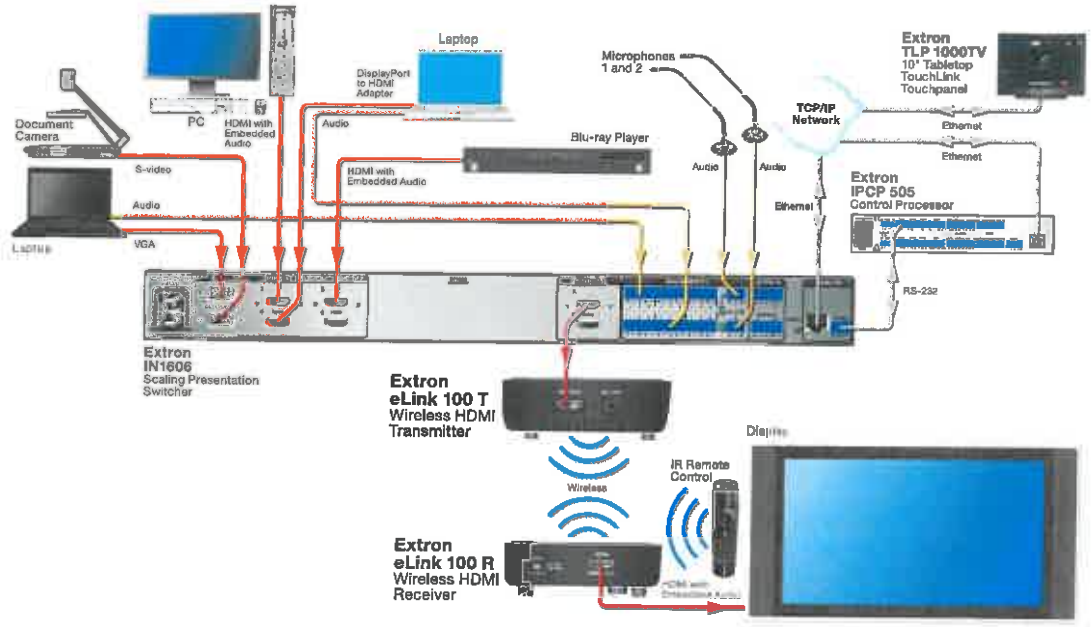
IR remote control
The included IR remote control provides easy control for configuration and setup.

IR output control port
The eLink 100 R receiver accepts IR signals from a remote control and sends the signal to the transmitter for control of source equipment, such as a Blu-ray Disc player.

Compact design for easy installation into small spaces or behind equipment

Energy-efficient, external universal power supply included
Provides worldwide power compatibility.

APPLICATION DIAGRAM



Specifications

NOTE: *Appropriate DVI-D to HDMI cables or adapters are required for DVI signal input/output.

VIDEO	
Maximum data rate	6.75 Gbps (2.25 Gbps per color)
Maximum pixel clock	148.5 MHz
Resolution range	Up to 1080p @ 60 Hz; 8, 10, or 12 bit color depth and VESA up to 1920x1080 @ 60 Hz
Supported resolutions	720(1440)x480[1], 640x480[1], 720x480[1], 720(1440) x576[2], 720x576[2], 1280x720[3], 1920x1080[3,4], 1366x768[5], 1440x900[5], 1400x1050[5], 1600x900[5], 1680x1050[5], 640x480[6], 800x600[7], 1024x768[8], 1280x720[9], 1920x1080[3,9] [1] = 60 Hz, and 59.94 Hz [2] = 50 Hz [3] = 50 Hz, 60 Hz, and 59.94 Hz [4] = 50 Hz, 60 Hz, 23.98 Hz, 24 Hz, 25 Hz, 59.94 Hz, 29.97 Hz, and 30 Hz [5] = 60 Hz [6] = 72 Hz, and 59.94 Hz [7] = 60 Hz, and 72 Hz [8] = 60 Hz, and 70 Hz [9] = 50 Hz, 60 Hz, 23.98 Hz, 24 Hz, 59.94 Hz, 29.97 Hz, and 30 Hz
Formats	RGB and YCbCr digital video
Standards	DVI 1.0, HDMI, HDCP 2.0
VIDEO INPUT — TRANSMITTER	
Number/signal type	1 single link HDMI (or DVI-D*)
VIDEO OUTPUT — RECEIVER	
Number/signal type	1 single link HDMI (or DVI-D*)
AUDIO	
Supported formats	PCM, Dolby Digital 2/0, Dolby Digital 2/0 Surround, Dolby Digital 5.1, Dolby Digital Surround EX, DTS 2-channel, DTS Digital Surround 5.1, DTS 96/24
COMMUNICATIONS	
IR control port (Rx)	Included IR remote control
IR pass-through control port (Rx to Tx)	Unidirectional, 38 KHz
SIGNAL CHARACTERISTICS	
HDCP compliant	Yes
Bandwidth	40 MHz
Transmission distance	100 ft (30 m)
Operating frequency	
Non-DFS center frequencies	USA/Canada: 5.19 ~ 5.23, 5.755 ~ 5.795 GHz EU: 5.19 ~ 5.23 GHz Australia: 5.19 ~ 5.23 GHz
DFS center frequencies	USA/Canada: 5.27 ~ 5.59, 5.67 GHz EU: 5.27 ~ 5.67 GHz Australia: 5.27 ~ 5.55 GHz, 5.67 GHz
System latency	<1 ms
Security Encryption Standards	AES-128
GENERAL	
Power supply	External Input: 100-240 VAC, 50-60 Hz Output: 5 VDC, 2.6 A, 13 watts

Power consumption	
Transmitter	
Device and power supply	8.8 watts, 100-240 VAC, 50-60 Hz
Receiver	
Device and power supply	9.0 watts, 100-240 VAC, 50-60 Hz
Cooling	Convection
Thermal dissipation	
Transmitter	
Device	24.4 BTU/hr
Device and power supply	28.9 BTU/hr
Receiver	
Device	24.4 BTU/hr
Device and power supply	29.6 BTU/hr
Mounting	
Wall mount	Yes
Enclosure type	Plastic
Enclosure dimensions	
Transmitter	1.4" H x 3.2" W x 4.0" D (3.6 cm H x 8.0 cm W x 10.2 cm D)
Receiver	1.3" H x 3.7" W x 3.7" D (3.4 cm H x 9.5 cm W x 9.5 cm D)
Product weight	
Transmitter	0.3 lbs (0.1 kg)
Receiver	0.3 lbs (0.1 kg)
Regulatory compliance	
Safety	UL, c-UL, CE
EMI/EMC	CE, C-tick, FCC Class B, ICES, VCCI, KC
Environmental	Complies with the appropriate requirements of RoHS, WEEE
Warranty	3 years parts and labor

Model	Version Description	Part number
eLink 100 T US	Transmitter - US/Canada version	60-1490-02
eLink 100 R US	Receiver - US/Canada version	60-1490-03
eLink 100 T EU	Transmitter - EU version	60-1490-12
eLink 100 R EU	Receiver - EU version	60-1490-13
eLink 100 T AUS	Transmitter - Australia version	60-1490-22
eLink 100 R AUS	Receiver - Australia version	60-1490-23

For complete specifications, please go to www.extron.com
Specifications are subject to change without notice.

THE eLINK 100 IS CERTIFIED FOR USE IN THE FOLLOWING COUNTRIES:

American Samoa	France	Malta	Singapore
Australia	Germany	Marshall Islands	Slovakia
Austria	Greece	Netherlands	Slovenia
Belgium	Guam	New Zealand	South Africa
Bulgaria	Hong Kong	Northern Mariana Islands	Spain
Canada	Hungary	Norway	Sweden
Croatia	Iceland	Palau	Switzerland
Cyprus	Ireland	Poland	UAE
Czech Republic	Italy	Portugal	United Kingdom
Denmark	Latvia	Puerto Rico	United States
Estonia	Liechtenstein	Qatar	United States Virgin Islands
Federated States of Micronesia	Lithuania	Romania	
Finland	Luxembourg	Saudi Arabia	

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REV. B2
Letter - English - NP

DSC 301 HD

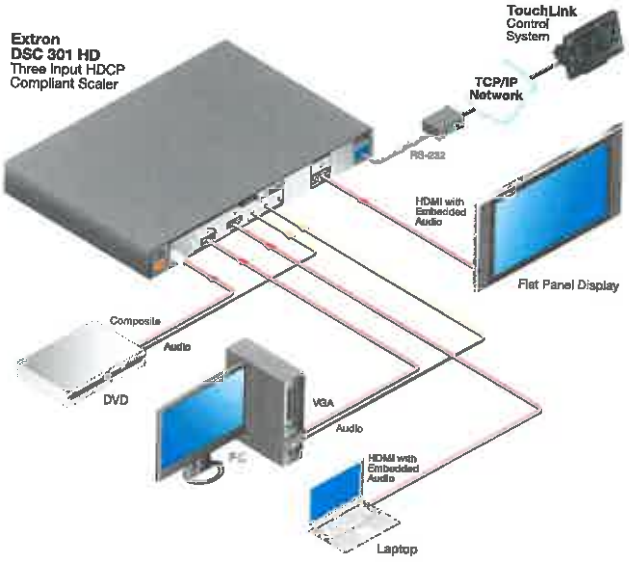
THREE INPUT COMPACT HDCP-COMPLIANT VIDEO SCALER

- **HDMI, RGB, HDTV, and video scaling to HDMI**
- **Auto-switching between inputs**
- **HDMI audio embedding**
- **Selectable output rates from 640x480 to 1920x1200, including HDTV 1080p/60 and 2K**
- **Advanced scaling engine with 30-bit processing and 1080i deinterlacing**
- **HDCP compliant**
- **Aspect ratio control**
- **Seamless switching**

The Extron DSC 301 HD is a compact video scaler that accepts a wide variety of video formats including HDMI, HDTV, RGB, and standard definition video. Analog audio from any of three stereo inputs may be selectively embedded onto the HDMI output. Designed for professional integration, the DSC 301 HD provides scaling and format conversion in a low profile enclosure that enables quick and simple installation in many environments.

FEATURES

- **HDMI, RGB, HDTV, and video scaling to HDMI** – Digital and analog video sources can all be scaled to high resolution HDMI output.
- **Auto-switching between inputs** – Auto-switching allows for simple, unmanaged installation in locations such as in a podium or under a conference table. When multiple inputs are active, the switching priority is configurable.
- **HDMI audio embedding** – Analog input audio signals can be embedded onto the HDMI output signal.
- **Advanced scaling engine with 30-bit processing and 1080i deinterlacing** – Image scaling and video format conversion are performed at 30-bit precision for enhanced color accuracy and picture detail. High performance deinterlacing for 1080i signals from HD sources delivers optimized image quality.
- **HDCP compliant** – Fully supports encrypted content, with selectable authorization for unencrypted content.
- **Supported HDMI specification features include data rates up to 6.75 Gbps, Deep Color, and HD lossless audio formats**
- **Key Minder® continuously verifies HDCP compliance for quick, reliable switching** – Key Minder authenticates and maintains continuous HDCP encryption between input and output devices to ensure quick and reliable switching in professional AV environments.
- **EDID Minder® automatically manages EDID communication between connected devices** – EDID Minder ensures that all sources power up properly and reliably output content for display.
- **Aspect ratio control** – The aspect ratio of the video output can be controlled by selecting a FILL mode, which provides a full screen output, or a FOLLOW mode, which preserves the original aspect ratio of the input signal.
- **HDCP Visual Confirmation provides a green signal when encrypted content is sent to a non-compliant display** – A full-screen green signal is sent when HDCP-encrypted content is transmitted to a non-HDCP compliant display, providing immediate visual confirmation that protected content cannot be viewed on the display.
- **Seamless switching** – Seamless cut and fade to black transition effects are available to enhance presentations by eliminating distractions during switching.
- **AFL™ - Accu-RATE Frame Lock** – A patented technology exclusive to Extron that locks the output frame rate to a designated input to eliminate stuttering caused by frame rate conversion.
- **Image freeze control** – A live image can be frozen using RS-232 serial control or USB.
- **Auto-Image™ setup** – When activated, the unit automatically detects the resolution of the incoming video signal and sets the total pixels, active pixels, and active lines, as well as the horizontal and vertical starting points. This can save time and effort in setting up a newly connected source, particularly in presentation environments where the input is not connected to a fixed source, but instead goes to an open connection for a presenter's laptop.
- **Output Standby Mode** – The scaler can be set to automatically mute video and sync output to the display device when no active input signal is detected. This allows the projector or flat-panel display to automatically enter into standby mode to save energy and enhance lamp or panel life.
- **Power Save Mode** – The scaler can be placed in a low power standby state to conserve energy when not in use.
- **Automatic 3:2 and 2:2 pulldown detection** – Advanced film mode processing techniques that help maximize image detail and sharpness for NTSC, PAL, and HDTV 1080i sources that originated from film.
- **Quad standard, 3D composite video decoding** – A temporal, 3D adaptive comb filter provides advanced decoding of composite NTSC 3.58, NTSC 4.43, PAL, and SECAM for integration into systems worldwide.
- **Internal test patterns for calibration and setup** – The DSC 301 HD offers a crop pattern, crosshatch, grayscale, color bars, alternating pixels, blue mode, and audio pink noise.
- **Audio switching transitions** – The audio output level automatically ramps down and then ramps up to match the video during switching transitions.
- **Front panel security lockout** – This feature locks out all front panel functions except for input selection; all functions, however, are available through RS-232 control.
- **RS-232 control port** – Enables the use of serial commands for complete control and configuration via the Extron Windows®-based control program or integrated into a control system. Extron products use the SIS™ - Simple Instruction Set command protocol, a set of basic ASCII code commands that allow for quick and easy programming.
- **Front panel USB configuration port** – Enables easy configuration without having to access the rear panel.
- **1" (2.5 cm) high, half rack width metal enclosure**



OVERVIEW

Dual color LED displays signal presence and power

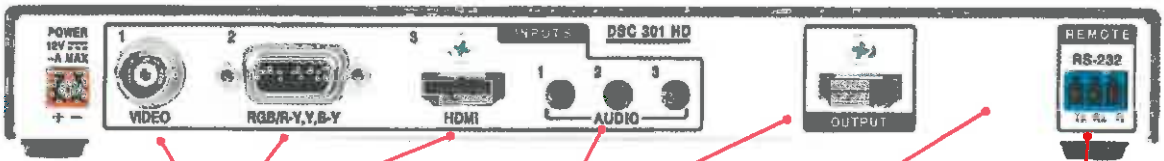
Convenient front mounted USB configuration port

Input select buttons and LED indicators
Direct access buttons and indicators simplify system setup and operation

Dual color LEDs show HDCP input and output status

Menus navigation controls
Full access to configuration parameters is provided by the on-screen menus

DSC 301 HD - Front



DSC 301 HD - Back

Auto-switching inputs
HDMI, configurable analog, and SD video inputs with selectable switching priority

HDMI audio embedding
Audio from any of three stereo audio inputs may be embedded onto the HDMI output

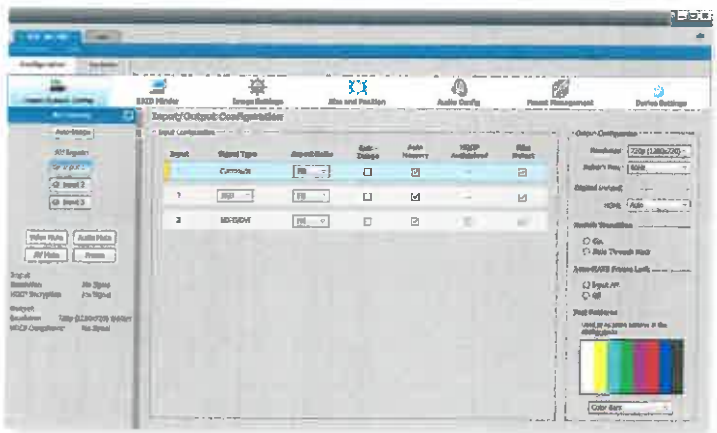
Compact metal enclosure
1" high, half rack width

RS-232 serial control
An RS-232 port enables professional grade control and monitoring

SIMPLE, COMPREHENSIVE SETUP AND CONFIGURATION

The DSC 301 HD features intuitive on-screen menus for setup using the front panel controls. Key parameters, such as input and output video formats and resolutions, are conveniently grouped on the initial Quick Setup screen, while additional screens provide full control over the scaler's other functions and settings. Alternatively, the DSC 301 HD can be controlled over RS-232 using available software, which simplifies configuration with a user-friendly interface. The software GUI allows easy adjustment of picture and audio settings for optimal quality images and sound.

DSC 301 HD on-screen menus



DSC 301 HD control software

SPECIFICATIONS

VIDEO INPUT

Number/signal type	1 Composite 1 RGBHV/YUV (YUVi, YUVp, and YUV-HD) 1 HDMI/DVI
Connectors	1 female BNC for composite 1 female 15-pin HD for RGB/YUV 1 female HDMI for HDMI/DVI
Resolution range	640x480 to 1600x1200 and 1920x1200* NTSC, PAL, SECAM, 480p, 576p, 720p, 1080i, 1080p, and 2k *reduced blanking

VIDEO PROCESSING

Analog sampling	12 bits per color; 13.5 MHz standard (video) 170 MHz standard (RGB)
Digital pixel data bit depth	8, 10, or 12 bits per channel; 165 Mhz pixel clock (HDMI)

VIDEO OUTPUT

Number/signal type	1 HDMI (HDCP)
Connectors	1 female HDMI
Scaled resolutions	640x480 [6,8,9], 800x600 [6,8,9], 852x480 [6,8,9], 1024x768 [5,8,9] 1024x852 [6,8,9], 1024x1024 [6,8,9], 1280x768 [6,8,9], 1280x800 [5,8,9], 1280x1024 [5,8,9], 1360x765 [5,8,9], 1360x768 [6,8,9], 1365x768 [6,8,9], 1365x1024 [6,8,9], 1366x768 [5,8,9],1400x1050 [6,8], 1440x900 [5,8,9], 1600x900 [6,8], 1600x1200 [6,8], 1680x1050 [6,8], 1920x1200 [6,8], HDTV 480p [7,8], 576p [6], 720p [3,4,5,6,7,8], 1080i [6,7,8], 1080p [1,2,3,4,5,6,7,8], 2048x1080 [1,2,3,4,5,6,7,8] [1] = at 23.98 Hz, [2] = at 24 Hz, [3] = at 25 Hz, [4] = at 29.97 Hz, [5] = 30 Hz, [6] = at 50 Hz, [7] = at 59.94 Hz, [8] = at 60 Hz, [9] = at 75 Hz

AUDIO

Frequency response	20 Hz to 20 kHz, ±0.5 dB
THD + Noise	< 0.1% @ 1 kHz, 20 Hz to 20 kHz bandwidth (at nominal level)
S/N	>90 dB, at maximum output (unweighted)

AUDIO INPUT

Number/signal type	3 stereo unbalanced
Connectors	(3) 3.5 mm TRS connectors

AUDIO OUTPUT

Number/signal type	(1) 2-channel LCPM audio or digital pass-through
Connectors	1 female HDMI (shared with HDMI video)

CONTROL/REMOTE — DECODER/SCALER

Serial control port	1 bidirectional RS-232 rear panel 3 pole captive screw connector
USB control ports	1 front panel female mini USB B

GENERAL

Power supply	External Input: 100-240 VAC, 50-60 Hz Output: 12 VDC, 1 A, 12 watts
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 top and sides
Mounting	
Rack mount	Yes, with optional rack shelf
Furniture mount	Yes, with optional under-desk or through-desk mounting kit
Enclosure dimensions	1.0 H x 8.75" W x 6.0" D (half rack wide) (2.5 cm H x 22.2 cm W x 15.2 cm D) (Depth excludes connectors and knobs.)
Product weight	1.3 lbs (0.6 kg)
Regulatory compliance	
Safety	CE, c-UL, UL
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI
Environmental	Complies with the appropriate requirements of RoHS, WEEE.
Warranty	3 years parts and labor

NOTE: All nominal levels are at ±10%.

Model	Version Description	Part number
DSC 301 HD	Three Input HDCP-Compliant Scaler	60-1253-01

For complete specifications, please go to www.extron.com
Specifications are subject to change without notice.

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Letter - English - NP

UTS 100 Series

UNDER TABLE SHELF SYSTEM

- **Self-supporting 1U, half rack width shelf system**
- **Mounts directly to the undersurface of furniture, eliminating the need for an equipment rack or cabinet**
- **Accommodates half-rack, quarter-rack, or eighth-rack width products**
- **Simple, secure hook-and-post mount system connects UTS 150 shelves to UTS 100**
- **Mounting holes for 3", 6", and 9.5" deep Extron products**
- **Four rows of wire tie openings for enhanced cable management**
- **Available in gray powder coat finish**

The Extron UTS 100 Series Under Table Shelf System is a unique self-supporting half-rack width shelf system designed for use in environments where a traditional equipment rack or cabinet cannot be located beneath a table top or other furniture surface.

Extron Electronics
INTERFACING, SWITCHING AND CONTROL

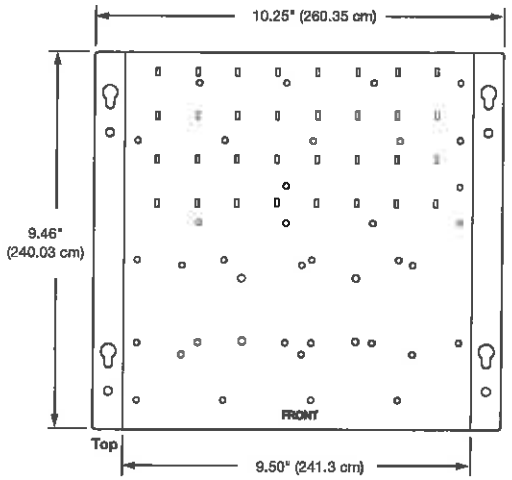
DESCRIPTION

The Extron **UTS 100 Series** of half-rack width shelves is a self-supporting system designed for use in environments where a traditional equipment rack or cabinet cannot be located beneath a table top or other furniture surface. The compact, 1U modular shelf system mounts directly to the undersurface of a table top, without rack rails, and supports any combination of half-, quarter-, and eighth-rack products. The UTS 100 Series can be placed next to a table leg, in the center of the table, or within reach of the system user at the table's edge. The UTS 100 Series includes the UTS 100 Primary Shelf that mounts directly to the furniture's undersurface and supports one or more UTS 150 Secondary Shelf units for additional rack capacity. The system is expandable to meet most rack space needs. UTS 100 Series products are finished in a durable gray powder coat finish to match other Extron products.

FEATURES

- **Self-supporting 1U, half rack width shelf system**
- **Mounts directly to the undersurface of furniture, eliminating the need for an equipment rack or cabinet**
- **Accommodates half-rack, quarter-rack, or eighth-rack width products**
- **Simple, secure hook-and-post mount system connects UTS 150 shelves to UTS 100**
- **Mounting holes for 3", 6", and 9.5" deep Extron products**
- **Four rows of wire tie openings for enhanced cable**

PANEL DRAWING



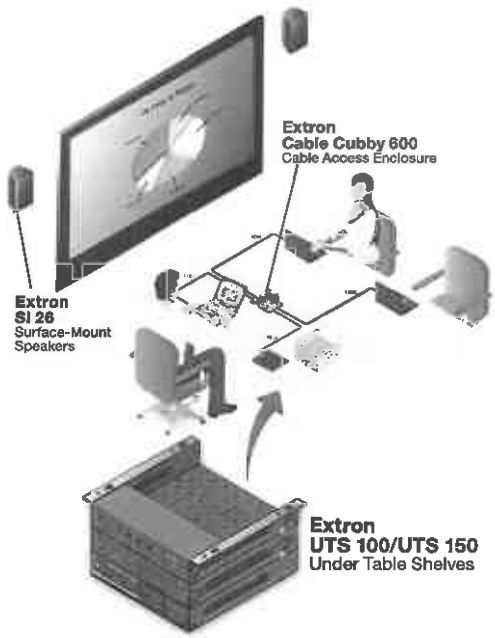
SPECIFICATIONS

GENERAL	
Mounting	Mountable under furniture surface
Maximum load capacity	20 lbs (9.1 kg) total system weight (includes UTS shelves and mounted products)
Material	Steel
Enclosure dimensions	
UTS 100	9.45" L x 10.25" W x 1.82" H (24.0 cm L x 26.0 cm W x 4.6 cm H)
UTS 150	9.45" L x 8.89" W x 2.94" H (24.0 cm L x 22.8 cm W x 7.5 cm H)
Product weight	
UTS 100	1.64 lbs
UTS 150	1.64 lbs
Shipping weight	
UTS 100	2.4 lbs
UTS 150	3.0 lbs
Vibration	ISTA 1A in carton (International Safe Transit Association)
Regulatory compliance	
Safety	CE
Environmental	Complies with the appropriate requirements of RoHS
Warranty	3 years parts and labor

Model	Version Description	Part number
UTS 100	Primary Shelf, gray	70-1028-01
UTS 150	Secondary Shelf, gray	70-1028-02

For complete specifications, please go to www.extron.com
Specifications are subject to change without notice.

APPLICATION DIAGRAM



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Letter - English - NP

SAROS SB-200-P

Saros® Sound Bar 200, Powered

- *High-quality, full-range amplified stereo sound bar*
- *Delivers enhanced sound quality and performance for use with any flat panel display*
- *Mounts to a wall or sits on a shelf*
- *Balanced or unbalanced stereo line-level audio input[1]*
- *Unbalanced stereo audio cable included*
- *Powers on and off automatically*
- *100 to 240 Volt AC powered*

The Saros® SB-200-P is a stereo sound bar designed to provide enhanced audio performance for a flat panel display. Its full-range, front-firing speakers offer an improvement over the small, rear-facing speakers typical of many display devices. The bracket included with the sound bar allows for attachment to a wall surface, or the unit can be placed on a shelf below or above the display.

Built-in amplification allows for direct connection to the line-level audio output of the display device, or to the output of an audio preamp, switcher, mixer, tv tuner, codec, or Crestron DM® receiver.[1] The amplifier powers on automatically when an audio input signal is detected, and powers off if no signal is detected for several minutes.

The SAROS SB-200-P sound bar is ideally suited for use with the Crestron RL® 2 Group Collaboration System and other unified communication and videoconferencing systems. It is equally well-suited for use in any small to medium sized room or public space in a hotel, restaurant, museum, medical center, airport, office building, or residence.

SPECIFICATIONS

Features & Performance

Woofers: (2) 3 inch (76 mm) polypropylene cone w/rubber surround
Passive Radiator: (2) 3 x 4-3/8 inch (76 x 112 mm) polypropylene cone w/rubber surround
Tweeters: (2) 1 inch (25 mm) polyester dome
Amplifier Power: 20 Watts per channel, stereo
Frequency Response: 100 Hz to 20 kHz (±3 dB)
Output Sensitivity: 83 dB SPL @ 1 meter, both channels driven @ 1 Watt
Input Sensitivity: 0.75 Vrms per channel for full rated output

Connections

BALANCED AUDIO INPUTS: (1) 5-pin 3.5 mm detachable terminal block;
Balanced stereo line-level audio input[1];
Maximum Input Level: 0.85 Vrms;
Input Impedance: 10k Ohms

UNBALANCED AUDIO INPUTS: (2) RCA female;
Unbalanced stereo line-level audio input[1];
Maximum Input Level: 0.85 Vrms;
Input Impedance: 10k Ohms;
NOTE: Right-angle plugs may be required for wall mount applications. A 59 inch (150 cm) right-angle RCA to straight RCA stereo cable is included.

100-240V~50/60Hz 50W: (1) IEC 60320 C8 main power inlet;
Mates with removable power cord, included

Controls & Indicators

100-240V~50/60Hz 50W: (1) Rocker switch, turns main power on or off
PWR: (1) Blue LED, indicates an audio input signal has triggered the amplifier to turn on

Power Requirements

Main Power: 50 Watts (500 mA maximum) @ 100-240 Volts AC, 50/60 Hz

Environmental

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

SAROS SB-200-P Saros® Sound Bar 200, Powered

Construction

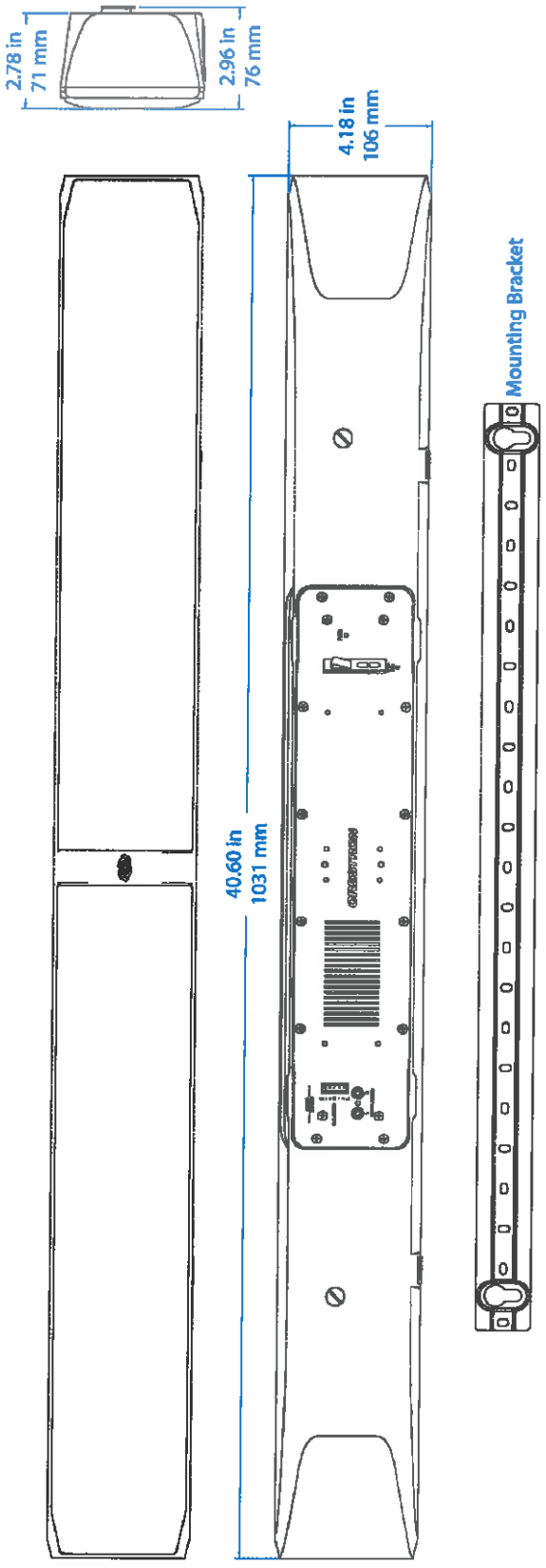
Enclosure: Plastic housing with perforate metal grille, black
Mounting: Freestanding or wall mount (bracket included)

Dimensions

Height: 4.18 in (106 mm)
Width: 40.60 in (1031 mm)
Depth: 2.78 in (71 mm);
2.96 in (76 mm) with wall mount bracket

Weight

7.8 lb (3.6 kg)



MODELS & ACCESSORIES

Available Models

SAROS SB-200-P-B: Saros® Sound Bar 200, Powered, Black

Available Accessories

CBL Series: Crestron® Certified Interface Cables

Notes:

1. The SAROS SB-200-P has a fixed input level. It must be connected to an audio source equipped with adjustable audio output level.

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.

The specific patents that cover Crestron products are listed online at: patents.crestron.com

Certain Crestron products contain open source software. For specific information, please visit www.crestron.com/opensource.

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RMC3

3 SERIES

3-Series® Room Media Controller

- > *Compact and cost-effective control system*
- > *3-Series® Control Engine*
- > *Modular programming architecture (optional[1])*
- > *Onboard 256MB RAM & 4GB Flash memory*
- > *Support for external USB flash memory and mass storage devices*
- > *Industry-standard Ethernet and Cresnet® wired communications*
- > *XPanel with Smart Graphics™ computer and web based control*
- > *iPhone®, iPad®, and Android™ control app support*
- > *Crestron Fusion® Cloud Enterprise Management Service support*
- > *SNMP remote management support*
- > *One RS-232/422/485 COM port with hardware and software handshaking*
- > *Two IR/serial, two relay, and two digital input ports*
- > *Programmable event scheduling with astronomical time clock*
- > *Native BACnet™/IP support[3]*
- > *Installer setup via Crestron Toolbox™ software or web browser*
- > *C#, symbol based, and drag-and-drop programming environments*
- > *Full Unicode (multi-language) support*
- > *Increased network throughput and security*
- > *Secure access through full user/group management or Active Directory integration*
- > *Hardware level security using 802.1X authentication*
- > *TLS, SSL, SSH, and SFTP network security protocols*
- > *FIPS 140-2 compliant encryption*
- > *Built-in web server*
- > *IPv6 ready*
- > *USB On-The-Go port*
- > *PoE network powered*
- > *Compact, stackable "IFE micro" form factor*
- > *Surface or DIN rail mountable*
- > *Available rack mount and pole mount options[4]*

The Crestron® RMC3 is a compact and cost-effective 3-Series Control System® designed to provide control and monitoring for a single display device, a small AV system, lighting and shading, climate control, security, energy management, and many other specialized applications. Its tiny form factor allows it to be placed just about anywhere with the option to attach it to a flat surface or DIN rail using the mounting bracket provided. It can fit easily behind a video display or above a projector, and provides enough control ports to control the display device along with a screen or lift. Cresnet® and Ethernet connectivity provides full support for the full line of Crestron touch screens, keypads, dimmers, shades, thermostats, and other peripherals. Featuring the 3-Series® control engine, the RMC3 provides a robust, feature-packed controller that's ideal for mass deployment across college campuses, corporate office buildings, museums, MDUs, hotels, and convention centers.

3-Series® Control Systems

Today's commercial buildings and custom homes comprise more technology than ever before, and all these systems need to be networked, managed, and controlled in fundamentally new ways. The IP based 3-Series platform is engineered from the ground up to deliver a network-grade server appliance capable of faithfully handling everything from lighting and AV system control to total building management.

3-Series embodies a distinctively robust, dynamic, and secure platform to elevate your system designs to higher levels of performance and reliability. Compared to other control systems, Crestron 3-Series provides a pronounced increase in processing power and speed with more memory, rock solid networking and IP control, and a unique modular programming architecture.

Modular Programming Architecture (Optional [1])

This optional add-on enables high-speed, real-time multitasking to allow the RMC3 to run multiple programs simultaneously. With this add-on, programmers can develop and run independent, device-specific programs for lighting, shades, HVAC, security, AV, etc., allowing for the optimization of each program, and allowing changes to be made to one program without affecting the whole. Even as your system grows, processing resources can easily be shifted from one 3-Series processor to another without rewriting any code. The end benefit is dramatically simplified upgradability with minimal downtime, whether implementing changes on site or remotely via the network.[1]

Robust Ethernet & IP Control

IP technology is the heart of 3-Series, so it should be no surprise that its networking abilities are second to none. High-speed Ethernet connectivity enables integration with IP-controllable devices and allows the RMC3 to be part of a larger managed control network. Whether residing on a sensitive corporate LAN, a home network, or accessing the Internet through a cable modem, the RMC3 provides secure, reliable interconnectivity with IP-enabled touch screens, computers, mobile devices, video displays, media servers, security systems, lighting, HVAC, and other equipment — whether on premises or across the globe.

RMC3 3-Series® Room Media Controller

Front View

Rear View

Control Apps & XPanel

Years ago, Crestron pioneered the world's first IP-based control system unleashing vast new possibilities for controlling, monitoring, and managing integrated systems over a LAN, WAN, and the Internet. Today, Crestron offers more ways than ever to control your world the way you want. Using a computer, smartphone, or tablet device, Crestron lets you control anything in your home or workplace from anywhere in the world.

Native to every 3-Series control system, Crestron XPanel technology transforms any laptop or desktop computer into a virtual Crestron touch screen. Crestron control apps deliver the Crestron touch screen experience to iPhone®, iPad®, and Android™ devices, letting you safely monitor and control your entire residence or commercial facility using the one device that goes with you everywhere.

Crestron Fusion® Cloud

Crestron Fusion Cloud provides an integrated platform for creating truly smart buildings that save energy, enhance worker productivity, and prolong the life-span of valuable equipment. As part of a complete managed network in a corporate enterprise, college campus, convention center, or any other facility, the RMC3 works integrally with Crestron Fusion Cloud to enable remote scheduling, monitoring, and control of rooms and technology from a central help desk. It also enables organizations to reduce energy consumption by tracking real-time usage and automating control of lighting, shades, and HVAC.

SNMP Support

Built-in SNMP support enables integration with third-party IT management software, allowing network administrators to manage and control Crestron systems on the network in an IT-friendly format.

Cresnet®

Cresnet provides a dependable network wiring solution for Crestron keypads, lighting controls, shade motors, thermostats, occupancy sensors, and other devices that don't require the higher speed of Ethernet. The Cresnet bus offers easy wiring and configuration, carrying bidirectional communication and 24VDC power to each device over a simple 4-conductor cable.[2] To assist with troubleshooting, the RMC3 includes our patent-pending Network Analyzer which continuously monitors the integrity of the Cresnet network for wiring faults, marginal performance, and other errors.

Onboard Control Ports

In addition to Ethernet, the RMC3 includes a variety of control ports for interfacing with third-party equipment. A single bidirectional COM port (RS-232/422/485) and two IR ports allow for interfacing with AV devices, small appliances, and other equipment. Two programmable relay ports are provided for controlling projection screens, lifts, power controllers, and other contact-closure actuated equipment. Two digital input ports enable the integration of power sensors, motion detectors, door switches, alarms, anything else that provides a dry contact closure or low-voltage logic signal.

BACnet™/IP

Native support for the BACnet/IP communication protocol provides a direct interface to third-party building management systems over Ethernet, simplifying integration with HVAC, security, fire & life safety, voice & data, lighting, shades, and other systems. Using BACnet/IP, each system runs independently with the ability to communicate together on one platform for a truly smart building.[3]

Power over Ethernet

Using PoE technology, the RMC3 gets its operating power right through the LAN wiring. PoE (Power over Ethernet) eliminates the need for a local power supply or any dedicated power wiring. A PoE Injector (PWE-4803RU[4]) simply connects in line with the LAN cable at any convenient location. Crestron PoE switches (CEN-SW-POE-5 or CEN-SWPOE-16[4]) may also be used to provide a total networking solution with built-in PoE.

Integrator Friendly Enclosure

The RMC3 features the Crestron IFE form factor, a compact "Integrator Friendly Enclosure" design that fits almost anywhere and enables a variety of installation options. Its shape allows multiple RMC3s and other IFE compliant devices to be stacked together. Using the included mounting bracket, it can be fastened to any flat surface or snapped onto a standard DIN rail. Rack mount and pole mount kits are also available.[4]

Shown with mounting bracket

RMC3 3-Series® Room Media Controller

SPECIFICATIONS

Control Engine

Crestron 3-Series; real-time, preemptive multi-threaded/multitasking kernel; Transaction-Safe Extended FAT file system; supports up to 10 simultaneously running programs (license required [1])

Memory

DDR3 SDRAM: 256 MB
Flash: 4 GB
External Storage: supports USB mass storage devices

Communications

Ethernet: 10/100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, industry-standard TCP/IP stack, UDP/IP, CIP, DHCP, SSL, TLS, SSH, SFTP (SSH File Transfer Protocol), FIPS 140-2 compliant encryption, IEEE 802.1X, SNMP, BACnet/IP [3], IPv4 or IPv6, Active Directory authentication, web server, SMTP e-mail client, IEEE 802.3af and 802.3at Type 1 compliant
Cresnet: Cresnet master mode
USB: Supports computer console and USB mass storage devices via USB OTG (On-The-Go) port
RS-232/422/485: For 2-way device control and monitoring, supports RS-232, RS-422, or RS-485 up to 115.2k baud with hardware and software handshaking
IR/Serial: Supports 1-way device control via infrared up to 1.2 MHz or serial TTL/RS-232 (0-5 Volts) up to 115.2k baud

Connectors

DIGITAL IN 1 – 2: (1) 3-pin 3.5 mm detachable terminal block;
Comprises (2) digital inputs (referenced to GND);
Input Voltage Range: 0-24 Volts DC;
Logic Threshold: ≥ 2.0 Volts DC 0/low, ≤1.1 Volt DC 1/high;
Input Impedance: 2.2k Ohms pulled up to 5 Volts

RELAY 1 – 2: (1) 4-pin 3.5 mm detachable terminal block;
Comprises (2) normally open, isolated relays;
Rated 1 Amp, 30 Volts AC/DC;
MOV arc suppression across contacts

IR 1 – 2: (1) 4-pin 3.5 mm detachable terminal block;
Comprises (2) 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

COM: (1) 5-pin 3.5 mm detachable terminal block;
Bidirectional RS-232/422/485 port;
Up to 115.2k baud; hardware and software handshaking support

G: (1) 4-40 screw;
Chassis ground lug

USB-OTG: (1) USB Type Mini-AB female;
USB OTG port for computer console and USB mass storage devices;
(6 ft A male to Mini-B male cable, and A female to Mini-A male adapter, included)

LAN PoE: (1) 8-pin RJ45 female;
10Base-T/100Base-TX Ethernet port, Power over Ethernet compliant

NET: (1) 3-pin 3.5 mm detachable terminal block;
Cresnet master port (data only, no power [2])

Controls & Indicators

PWR: (1) Dual-color green/amber LED, indicates operating power supplied via PoE, turns amber while booting and green when operating
NET: (1) Amber LED, indicates communication with the Cresnet system
MSG: (1) Red LED, indicates processor has generated an error message
LAN PoE: (2) LEDs, green LED indicates 100Mbps Ethernet link status, amber LED indicates Ethernet activity
HW-R: (1) Recessed miniature pushbutton for hardware reset
SW-R: (1) Recessed miniature pushbutton for software reset

Power

Power over Ethernet: IEEE 802.3at Type 1 (802.3af compatible) Class 0 (12.95 W) PoE Powered Device

NOTE: Does not use or supply any Cresnet power

Environmental

Temperature: 32° to 104° F (0° to 40° C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: 17 BTU/hr

Construction

Enclosure: IFE micro form factor, black and blue plastic
Mounting: Freestanding, stackable, surface mount, or 35 mm DIN EN 60715 rail mount; occupies 8 DIN module spaces (144 mm); surface/DIN rail mounting bracket included, optional rack mount and pole mount kits sold separately

Dimensions

Height: 1.35 in (35 mm), 1.77 in (45 mm) with bracket
Width: 5.04 in (128 mm), 5.36 in (137 mm) with bracket
Depth: 2.86 in (73 mm)

Weight

6.4 oz (180 g)

RMC3 3-Series® Room Media Controller

MODELS & ACCESSORIES

Available Models

RMC3: 3-Series® Room Media Controller Available April 1, 2014

Available Accessories

SW-RMC3-10PROG: 10 Program MPA Support License
RMK-IFE-1U: IFE Rack Mount Kit
PLMK-IFE-101: IFE Pole Mount Kit
PWE-4803RU: PoE Injector
CEN-SW-POE-5: 5-Port PoE Switch
CEN-SWPOE-16: 16-Port Managed PoE Switch
CNSP-XX: Custom Serial Interface Cable
IRP2: IR Emitter Probe w/Terminal Block Connector
Crestron® App: Control App for Apple® iOS® and Android™
XPanel: Crestron Control® for Computers
myCrestron: Dynamic DNS Service
Crestron Fusion®: Enterprise Management Platform
SW-3SERIES-BACNET: BACnet®/IP Support for 3-Series®
CSP-LIR-USB: IR Learner

Notes:

1. To enable Modular Programming Architecture (MPA) on the RMC3 requires the purchase of one SW-RMC3-10PROG license. The license enables support for running up to 10 simultaneous programs on a single RMC3. The license is not required if running only one program on the RMC3.
2. The NET (Cresnet) port on the RMC3 is a 3-pin connector which provides connectivity for Cresnet data only, not power. The Cresnet power conductor does not terminate to the RMC. An external Cresnet power supply is required to provide power for Cresnet devices.
3. License required. The RMC3 supports a maximum of 500 BACnet objects when dedicated for BACnet use only. Actual capabilities are contingent upon the overall program size and complexity.
4. Item(s) sold separately.

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.

The specific patents that cover Crestron products are listed online at: patents.crestron.com.

Certain Crestron products contain open source software. For specific information, please visit www.crestron.com/opensource

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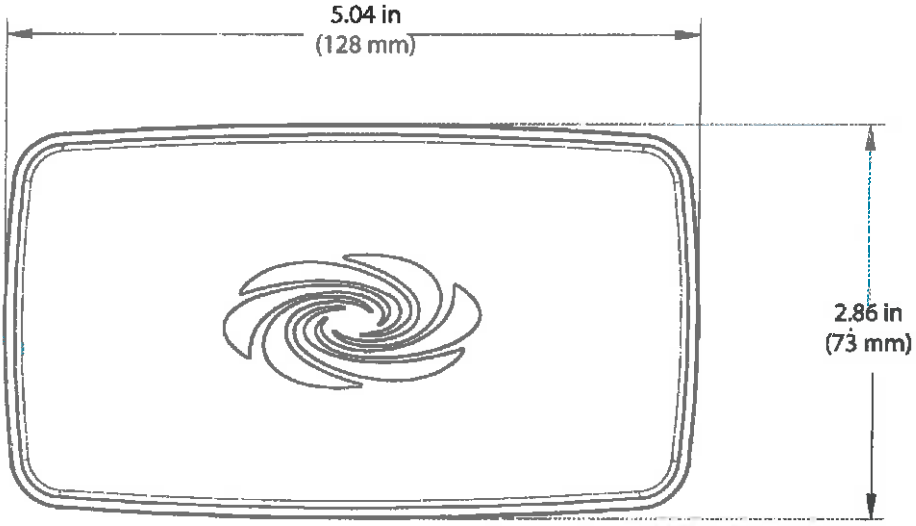
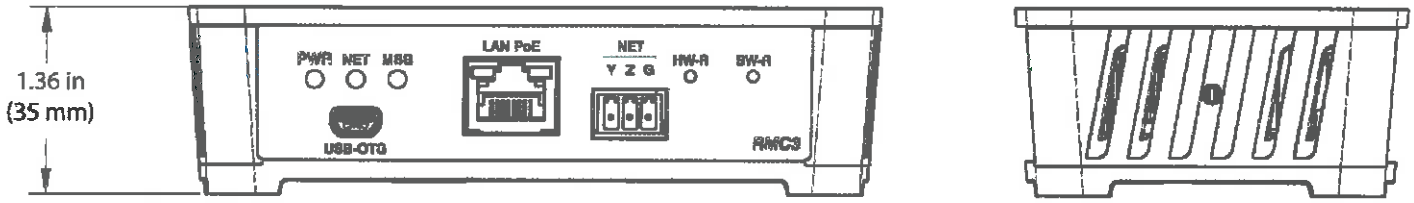
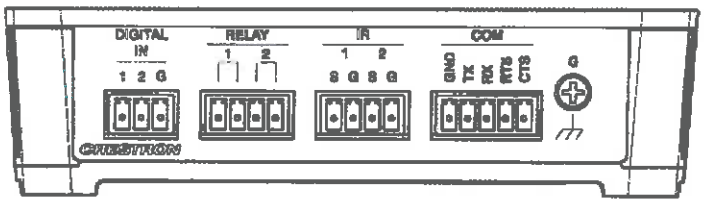
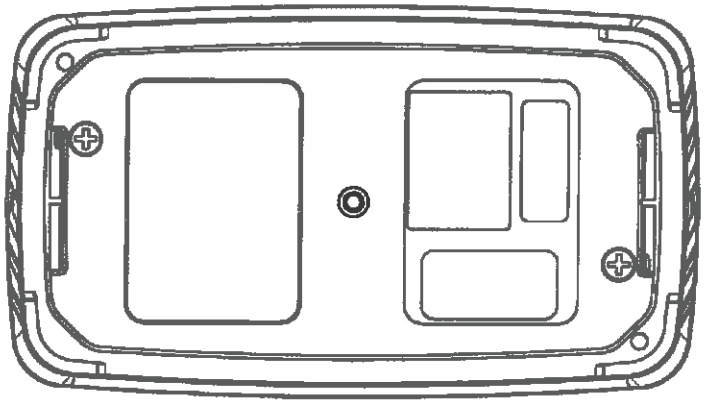
RMC3 3-Series® Room Media Controller









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TSR-310

Handheld Touch Screen Remote

The Crestron® TSR-310 Handheld Touch Screen Remote is an elegant, customizable wireless controller designed for use in home theaters, bedrooms, hotel rooms, boardrooms, and many other applications. Ruggedized for durability, the TSR-310 offers exceptional comfort and ergonomics for hours of one-handed use. Wi-Fi® wireless communications with Instant-Waking® affords reliable connectivity throughout the home or workplace. A stylish tabletop dock is included for charging the remote.

Backlit buttons provide positive tactile response and clear visibility under all lighting conditions. A high-contrast 3" capacitive touch screen with Smart Graphics® affords completely customizable control over audio, video, lighting, shades, climate, security, and other technologies. Scrolling menus of media titles and channel presets make it quick and easy to find and select any TV channel, video title, or music track. Voice recognition allows any function to be controlled using spoken commands.

Note: The TSR-310 does not support intercom or streaming video display.
Complete details and specifications are coming soon.

Notes:

CRESTRON

Lee Hartman & Sons, Inc.
3 Davis Court
Hurricane, WV 25526
V 304-397-4100 F 304-397-4101

Equipment list for Conference Room 955

		********Room 955********	
Sharp	PN-LE901	90" 1080p TV	2
Chief	XTM1U	Tilt Wall Mount	2
Exact	PM-400	Lectern	1
Crestron	DMPS3-300-C	Digital Media Presentation Switcher	1
Crestron	DM-RMC-4K-100-C	Digital Media Receiver	2
Crestron	TT-100-B-T	Table Cubby	2
Crestron	TST-602-B-T	5.7" Wireless Touchscreen	1
Crestron	SAROS SB-200-P-B	Sound Bar for TV	2
Biamp	TesiraFORTÉ AVB VT4	Audio Processor w/ Phone Capabilities	1
Shure	MX418/C	18" Gooseneck Microphone	1
Juice Goose	JG8.0	Rack Mount Power Strip	1
Varies	Misc	Cables/Connectors/Hardware (Lot)	1
Lee Hartman	Labor	Installation of System	1
Lee Hartman	Programming	Programming of Control System	1
Sharp		2 year extended Warranty	2

SHARP®

PN-LE901
Commercial LCD TV

Grab the Attention of Viewers for a New Level of Engagement

The 90" Class (90 1/64" diagonal) Sharp PN-LE901 commercial LCD TV combines full-HD image quality and a stylish, thin profile with a built-in tuner for the ultimate viewing experience. It is perfect for sports bars, waiting rooms and other business locations that need to grab the attention of viewers for a new level of engagement.

B2B Features for Ultimate Control

Business owners can easily manage the functionality of the PN-LE901 commercial LCD TV due to its many user friendly features. This includes a powerful RS-232C command set, which permits flexible remote control capabilities from connected devices. In addition, displaying still images or videos couldn't be easier with the USB port. Business owners will also appreciate optimal content control with added lockout features including IR Remote, Power, Channel, Volume, Input, OSD disable and LED disable. All this with a three-year limited commercial warranty.

Superb Image Quality

The PN-LE901 commercial LCD TV has cutting-edge picture technology that delivers amazing detail, gorgeous color depth and consistent image quality. The advanced pixel structure of the panel enables stunning 4 million : 1 dynamic contrast for deeper blacks and whiter whites.

Bigger Screen, Slimmer Bezel

Fit more screen in less space with the PN-LE901 commercial LCD TV. Streamlined for a pleasing appearance and minimal protruding parts, this monitor weighs only 141 lbs. A bezel thickness of only 1.2" makes for easy placement in offices, public places, stores and other commercial establishments. The PN-LE901 commercial LCD TV also has a 44 percent greater viewing area than a 75" Class screen.*

* Based on data as of December 20, 2016

Enhanced Connectivity

Three (3) HDMI™ inputs let you connect multiple HD sources including digital signage and cable boxes. A powerful RS-232C command set permits flexible remote control capabilities from connected devices. A built-in USB port lets you present a variety of digital content. Simply insert a USB memory device into the monitor and the built-in media player starts playing your photos, music and videos, right away.

Superb Support

A limited commercial three-year warranty, plus Sharp's best-in-class customer support service is included.

Built-In Speakers for Powerful Audio

Powerful 20W audio features high fidelity so all of your scenes sound as breathtaking as they look.

Unique Wallpaper Mode

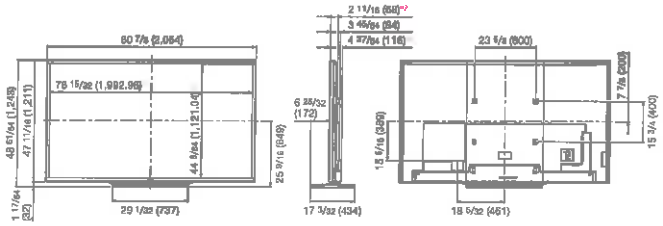
When the unit is turned off, Wallpaper Mode lets you display virtually any image you choose on the screen at a reduced light level that mirrors museum conditions, so your screen blends beautifully into your installed environment—all at extremely low power.

Specifications

Model Name		PN-LE901
Installation		Landscape
LCD Panel		90" Class (90 1/64" diagonal) TFT LCD
	Max. Resolution	1,920 x 1,080 pixels
	Max. Display Colors (approx.)	1.07 billion colors
	Pixel Pitch (H x V)	1.038 x 1.038 mm
	Max. Brightness*1	350 cd/m²
	Contrast Ratio	5,000 : 1
	Dynamic Contrast Ratio	4,000,000 : 1
	Viewing Angle (H/V)	176°/176° (CR ≥10)
	Active Screen Area (W x H)	78 15/32" x 44 9/64"
	Response Time	4 ms (grey to grey, avg.)
	Backlight	LED, full array
Computer Input	Video	HDMI, Analog RGB
	Synchronization	Horizontal/vertical separation (TTL: positive/negative)
	Plug & Play	VESA DDC2B
Video Color System		NTSC-M/PAL-N/PAL-M
Analog/Digital Tuner		NTSC/ATSC
Input Terminals*2		HDMI x 3, Mini D-sub 15-pin x 1, Component Video RCA (Y, Cb/Pb, Cr/Pr) x 1, Composite Video RCA pin x 2, RCA pin (L/R) x 2, 3.5 mm-diameter mini stereo jack x 1, RS-232C x 1, ANT/Cable x 1, USB x 1
Output Terminals*2		Audio: RCA pin (L/R) x 1, Digital audio output (optical) x 1
Input/Output Terminals*2		Ethernet RJ-45 x 1
Speaker Output		10W + 10W
Power Supply		110 – 240V AC 50/60Hz
Power Consumption		290W
Operating Temperature		0°C to 40°C
Dimensions (W x D x H) (approx.) (display only)		80 7/8" x 4 37/64 x 47 11/16"
Weight (approx.) (display only)		141.1 lbs

*1 Brightness will depend on input mode and other picture settings. Brightness level will decrease over time. Due to the nature of the equipment, it is not possible to precisely maintain a constant level of brightness.
*2 Use a commercially available connection cable for PC and other video connections.

Dimensions



Units: inch (mm)
*1 Active area, *2 Thinnest part, ▭ Including projecting parts

HDMI™ HIGH-DEFINITION MULTIMEDIA INTERFACE

SHARP®

SHARP ELECTRONICS CORPORATION
100 Paragon Drive, Montvale, NJ 07645
1-800-BE-SHARP • www.sharpusa.com

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EASE
EQUIPMENT ANCHORAGE & SEISMIC ENGINEERING

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Chino Hills, CA. 91709
Phn: (909) 606-7622

Office of Statewide Health Planning and Development

PREAPPROVAL OF MANUFACTURER'S CERTIFICATION

OPM-0284-13

THIS PREAPPROVAL CONFORMS TO THE 2013 CALIFORNIA BUILDING CODE

MANUFACTURER: **MILESTONE INC.**

EQUIPMENT NAME: **XSM1U & XTM1U SERIES MONITOR WALL MOUNT**

Date: 2/10/16

GENERAL NOTES

1. THIS OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE 2013 CBC. THE DEMANDS (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE 2013 CBC
2. THIS DOCUMENT MAY ONLY BE USED WITH THE EXPRESS WRITTEN CONSENT OF THE MANUFACTURER LISTED ABOVE FOR THE SPECIFIC PROJECT SITE AND INSTALLATION LOCATION. THIS DOCUMENT IS INVALID WITHOUT SUCH CONSENT.
3. THIS PREAPPROVAL CONFORMS TO THE 2013 CALIFORNIA BUILDING CODE WHERE S_{DS} IS NOT GREATER THAN 2.20.
4. FORCES PER ASCE 7-10 SECTION 13.3.1, EQUATIONS 13.3-1, 13.3-2 & 13.3-3,
   WHERE $S_{DS} = 2.20$, $a_p = 2.5$, $I_p = 1.5$, $R_p = 2.5$, $z/h \leq 1$ CONCRETE WALL. SEE FOLLOWING SHEETS FOR Ω_o
5. THIS PREAPPROVAL COVERS ONLY THE SUPPORTS AND ATTACHMENTS OF THE EQUIPMENT TO THE STRUCTURE.
6. ALL DESIGN FORCES SHOWN ON THE DRAWINGS ARE FACTORED LOADS THAT SHALL BE USED FOR STRENGTH DESIGN.
7. SHEET METAL SCREWS SHALL BE TEKS SCREWS BY ITW BUILDEX (ICC ESR-1976).
8. CONCRETE WALL DETAIL VALID FOR DEMANDS SHOWN AT ANY ELEVATION. (i.e. $z/h \leq 1$)
9. **RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD OF THE BUILDING**
   - A. PROVIDE SUPPORTING STRUCTURE TO SUPPORT WEIGHTS AND FORCES SHOWN IN ADDITION TO ALL OTHER LOADS.
   - B. VERIFY THAT THE INSTALLATION IS IN CONFORMANCE WITH THE 2013 CBC AND WITH THE DETAILS, MATERIAL AND GAGE OF THE UNIT WHERE ATTACHMENTS ARE MADE AGREE WITH THE INFORMATION SHOWN ON THE PREAPPROVAL DOCUMENTS.
   - C. VERIFY THAT PROJECT SPECIFIC VALUES OF S_{DS} & z/h RESULT IN SEISMIC FORCES (E_h, E_v) THAT DO NOT EXCEED THE VALUES ON THE DETAILS.
   - D. VERIFY THAT THE CONCRETE WALL TO WHICH THE EQUIPMENT IS ANCHORED MEETS THE REQUIREMENTS OF THE APPLICABLE ICC ESR.
   - E. VERIFY THAT THE ANCHORS ARE AN ADEQUATE DISTANCE FROM ANY CONCRETE WALL EDGES OR OPENINGS (SEE TYPICAL DETAIL ON SHEET 2).
   - F. VERIFY THAT ALL NEW OR EXISTING ANCHORS ARE AN ADEQUATE DISTANCE FROM THE UNIT ATTACHMENTS AND CHECK FOR INTERACTION WHERE OTHER ANCHORS ARE WITHIN 18" OR 6hef FROM THIS UNIT'S ANCHORS.
   - G. DESIGN BACKING BARS, STUDS, ETC. WHICH THE UNITS ARE ATTACHED TO AS NOTED ON THE DRAWINGS.

REGISTERED PROFESSIONAL ENGINEER
JONATHAN ROBERSON
No. 4197
EXP. 6-30-2016
2/10/16
STRUCTURAL
STATE OF CALIFORNIA

MILESTONE INC.

XSM1U & XTM1U SERIES MONITOR WALL MOUNT

DES. J. ROBERSON
JOB NO. 11-1518
DATE 2/10/16
SHEET 2 OF 8 SHEETS

9. **EXPANSION ANCHORS:**

A. ATTACHMENT IS TO BE MADE WITH THE ANCHORS LISTED BELOW AND INSTALLED AS DESCRIBED IN THE CORRESPONDING ICC REPORT.

Anchor Diameter	Concrete Type	Min. f'c (psi)	Anchor Type	ICC Report No.	Min. Embed.	Min. Spacing	Min. Edge Dist.	Min. Conc. Thickness	Torque Test	Direct Tension Test
1/4"	Normal Weight	3000	Hilti Kwik HUS	ESR-3027	1.92"	2.5"	12"	6"	N/A	779

B. THIS PREAPPROVAL ALLOWS FOR UP TO A MAXIMUM OF 2 ADJACENT CONCRETE WALL EDGES, 12" AWAY MINIMUM (I.e. - CORNER). SEE ADJACENT DETAIL FOR ADDITIONAL MINIMUM ALLOWABLE CONCRETE EDGE DISTANCES.

C. TESTING OF CONCRETE SCREW ANCHORS PER 2013 CBC, 1913A.7: TESTING SHALL BE DONE IN THE PRESENCE OF THE SPECIAL INSPECTOR AND A REPORT OF THE TEST RESULTS SHALL BE SUBMITTED TO OSHPD

(i) AFTER AT LEAST 24 HOURS HAVE ELAPSED SINCE INSTALLATION, DIRECT PULL TENSION TEST OR AT LEAST 50% OF THE ANCHORS.

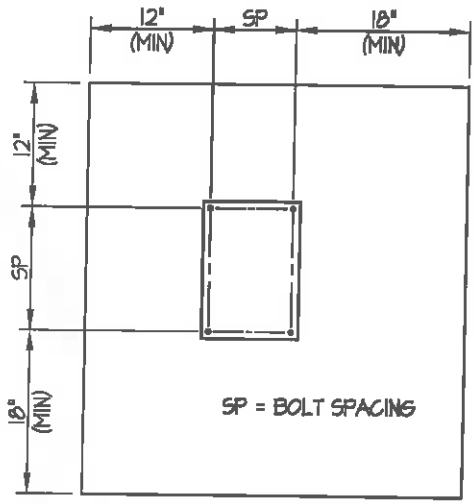
(ii) ACCEPTANCE CRITERIA:

- DIRECT TENSION TEST: THE ANCHOR SHOULD HAVE NO OBSERVABLE MOVEMENT AT THE TEST LOAD. A PRACTICAL WAY TO DETERMINE OBSERVABLE MOVEMENT IS THAT THE WASHER BECOMES LOOSE.

(iii) IF ANY ANCHOR FAILS, TEST ALL ANCHORS.

D. AVOID DAMAGING EXISTING STEEL REINFORCING IN CONCRETE WALL WHEN INSTALLING CONCRETE SCREW ANCHORS.

E. PROVIDE FOR FULL THREAD ENGAGEMENT OF NUT & WASHER.



TYPICAL CONCRETE EDGE DETAIL

REGISTERED PROFESSIONAL ENGINEER
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No. 4197
EXP. 6-30-2016
2/10/16
STRUCTURAL
STATE OF CALIFORNIA

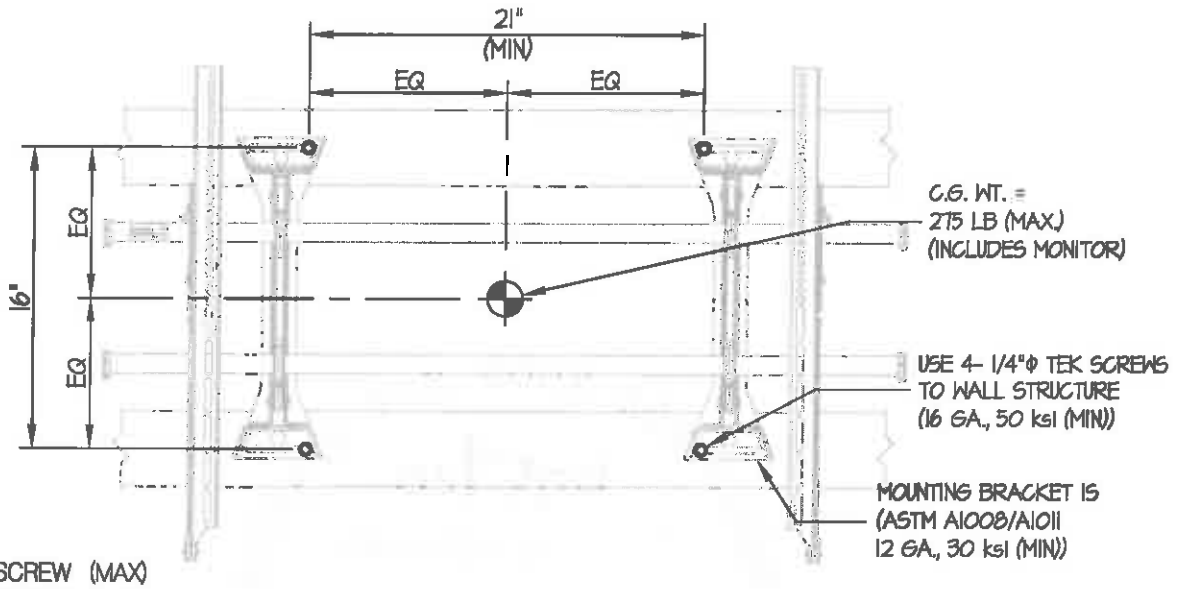
MILESTONE INC.

XSM1U & XTM1U SERIES MONITOR WALL MOUNT

DES.	J. ROBERSON
JOB NO.	11-1524
DATE	2/10/16
SHEET	3
OF	8 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

WALL MOUNTED



Tu = 194 LB/SCREW (MAX)
Vu = 157 LB/SCREW (MAX)
(VALUES DO NOT INCLUDE Ω_o)

ELEVATION AT WALL PLATE
(XSM1U MODEL SHOWN)

NOTES:

1. **FORCES ARE DETERMINED PER 2013 CALIFORNIA BUILDING CODE AND ASCE 7-10.**
   STRENGTH DESIGN IS USED. (S_{DS} = 2.20, a_p = 1.0, I_p = 1.5, R_p = 2.5, Ω_o = 2.5, z/h ≤ 1)

   HORIZONTAL FORCE (E_h) = 1.58 W_p
   HORIZONTAL FORCE (E_{mh}) = 3.96 W_p (FOR CONCRETE ANCHORAGE)
   VERTICAL FORCE (E_v) = 0.44 W_p
2. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.
3. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGNED TO SUPPORT WEIGHTS AND FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.
4. SEE GENERAL NOTES: SHEETS 1 AND 2.

REGISTERED PROFESSIONAL ENGINEER
JONATHAN ROBERSON
No. 4197
EXP. 6-30-2016
2/10/16
STRUCTURAL
STATE OF CALIFORNIA

MILESTONE INC.

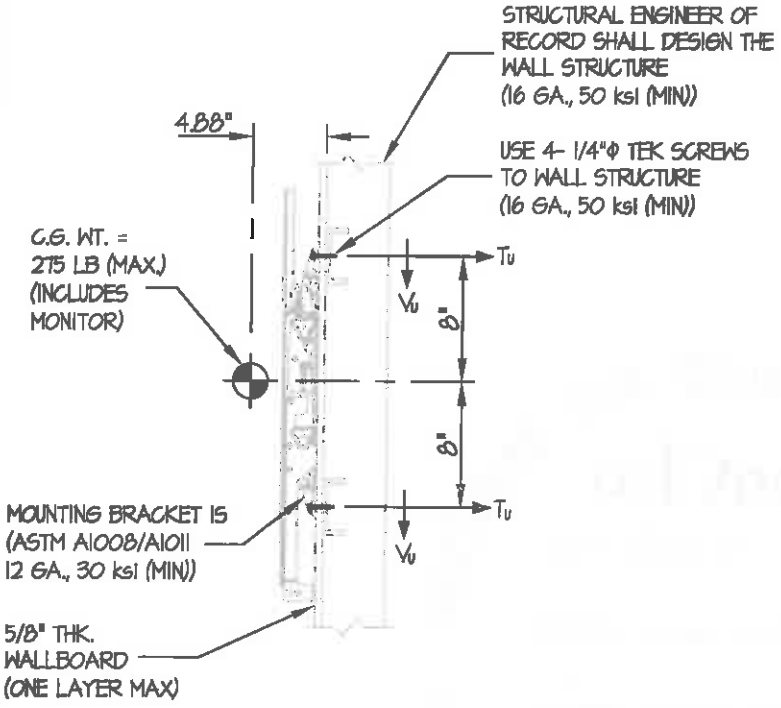
XSM1U & XTM1U SERIES MONITOR WALL MOUNT

DES.	J. ROBERSON
JOB NO.	11-1524
DATE	2/10/16

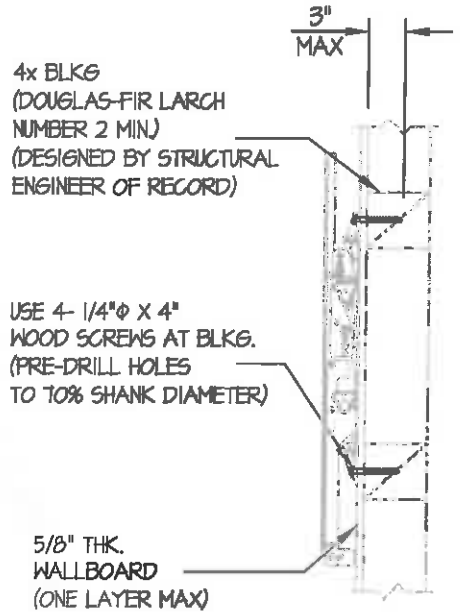
SHEET 4 OF 8 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

WALL MOUNTED

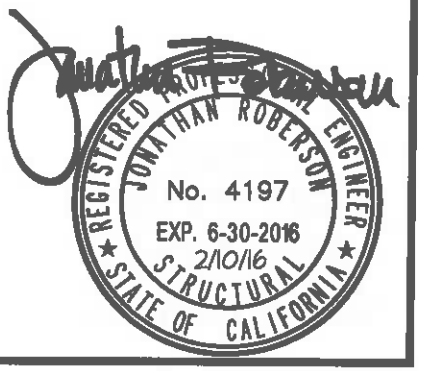


STEEL STUD WALL SECTION
(XSM1U MODEL SHOWN)



NOTE:
MIN EDGE DISTANCE = 1"
MIN END DISTANCE = 2"

WOOD STUD WALL SECTION
(XSM1U MODEL SHOWN)



MILESTONE INC.

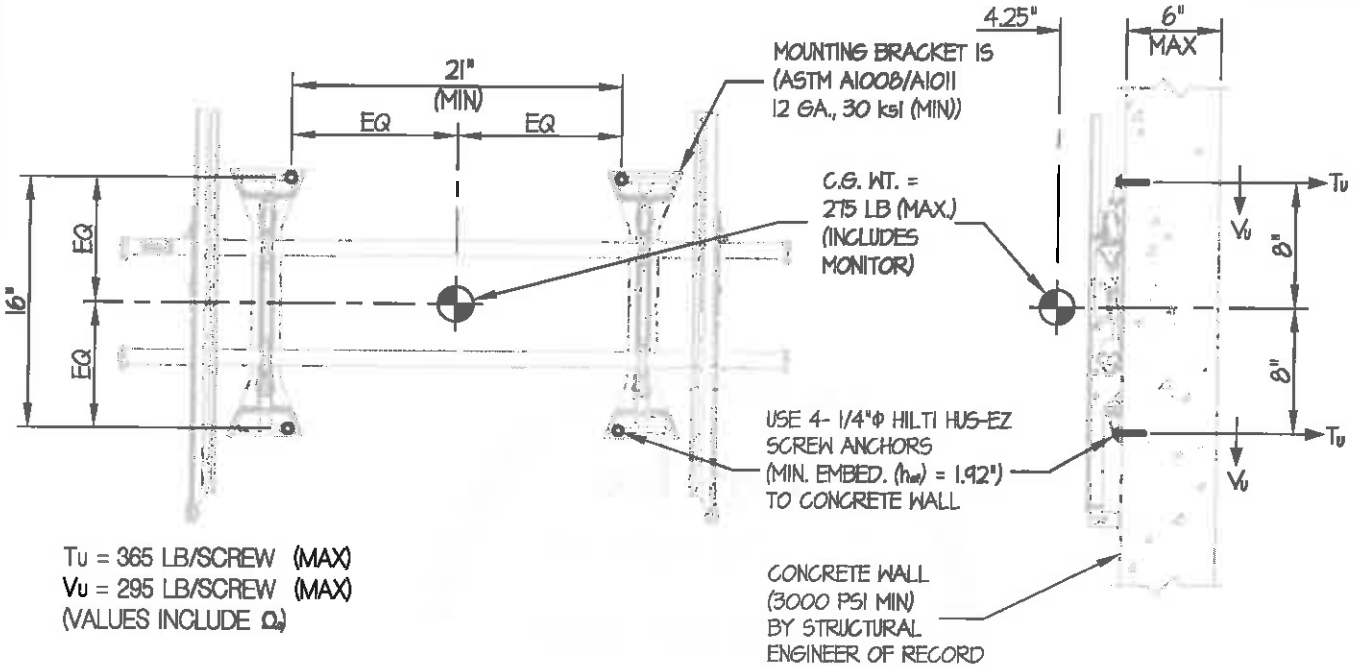
XSM1U & XTM1U SERIES MONITOR WALL MOUNT

DES.	J. ROBERSON
JOB NO.	11-1524
DATE	2/10/16

SHEET 5 OF 8 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

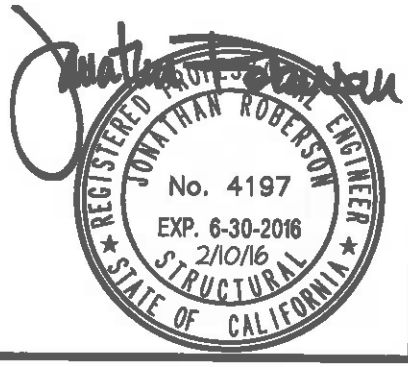
WALL MOUNTED



Tu = 365 LB/SCREW (MAX)
Vu = 295 LB/SCREW (MAX)
(VALUES INCLUDE Ω_0)

ELEVATION AT WALL PLATE
(XSM1U MODEL SHOWN)

CONCRETE WALL SECTION
(XSM1U MODEL SHOWN)



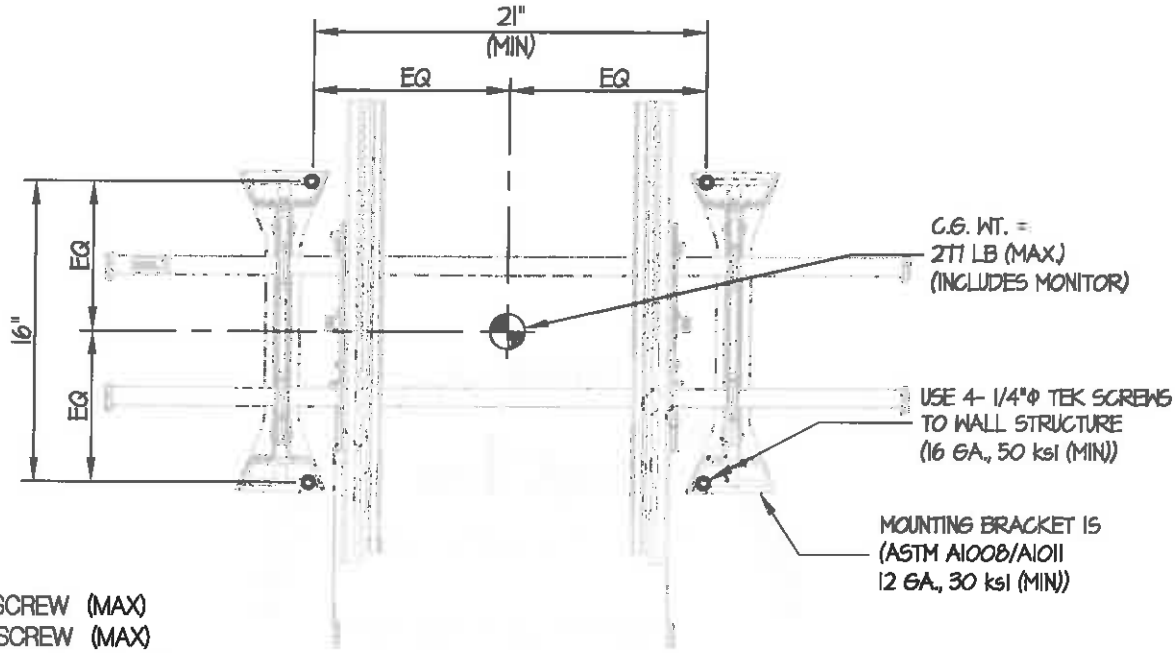
MILESTONE INC.

XSM1U & XTM1U SERIES MONITOR WALL MOUNT

DES.	J. ROBERSON
JOB NO.	11-1524
DATE	2/10/16
SHEET	6
OF	8 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

WALL MOUNTED



Tu = 211 LB/SCREW (MAX)
Vu = 158 LB/SCREW (MAX)
(VALUES DO NOT INCLUDE Ω_o)

ELEVATION AT WALL PLATE
(XTM1U MODEL SHOWN)

NOTES:

1. **FORCES ARE DETERMINED PER 2013 CALIFORNIA BUILDING CODE AND ASCE 7-10.**
   STRENGTH DESIGN IS USED. (S_{DS} = 2.20, a_p = 1.0, I_p = 1.5, R_p = 2.5, Ω_o = 2.5, $z/h \leq 1$)

   HORIZONTAL FORCE (E_h) = 1.58 W_p
   HORIZONTAL FORCE (E_{mh}) = 3.96 W_p (FOR CONCRETE ANCHORAGE)
   VERTICAL FORCE (E_v) = 0.44 W_p
2. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.
3. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGNED TO SUPPORT WEIGHTS AND FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.
4. SEE GENERAL NOTES: SHEETS 1 AND 2.

REGISTERED PROFESSIONAL ENGINEER
JONATHAN ROBERSON
No. 4197
EXP. 6-30-2016
2/10/16
STRUCTURAL
STATE OF CALIFORNIA

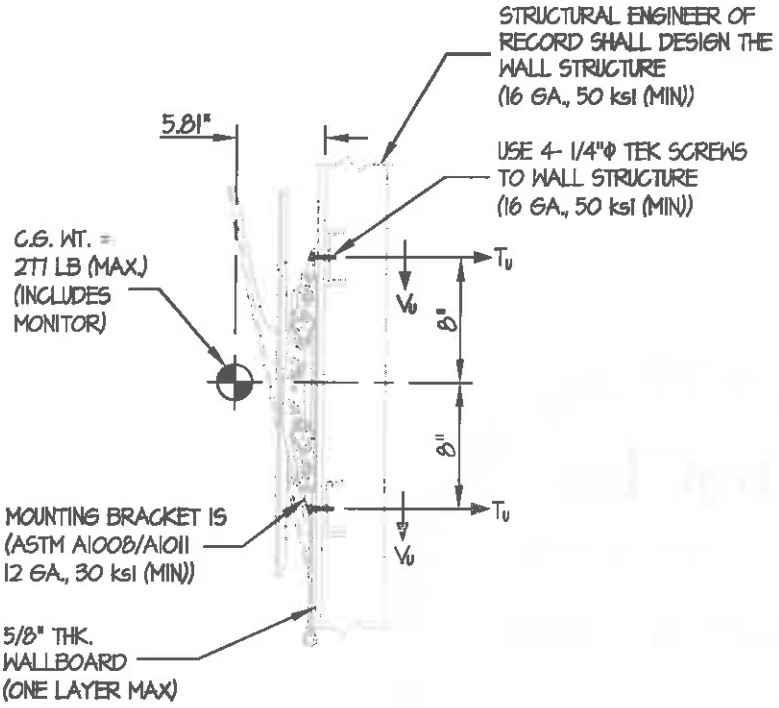
MILESTONE INC.

XSM1U & XTM1U SERIES MONITOR WALL MOUNT

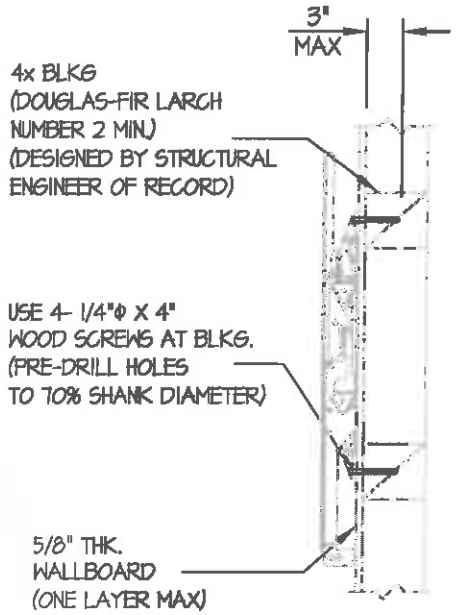
DES.	J. ROBERSON
JOB NO.	11-1524
DATE	2/10/16
SHEET	7
OF	8 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

WALL MOUNTED



STEEL STUD WALL SECTION
(XTM1U MODEL SHOWN)



NOTE:
MIN EDGE DISTANCE = 1"
MIN END DISTANCE = 2"

WOOD STUD WALL SECTION
(XTM1U MODEL SHOWN)

REGISTERED PROFESSIONAL ENGINEER
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2/10/16
STRUCTURAL
STATE OF CALIFORNIA

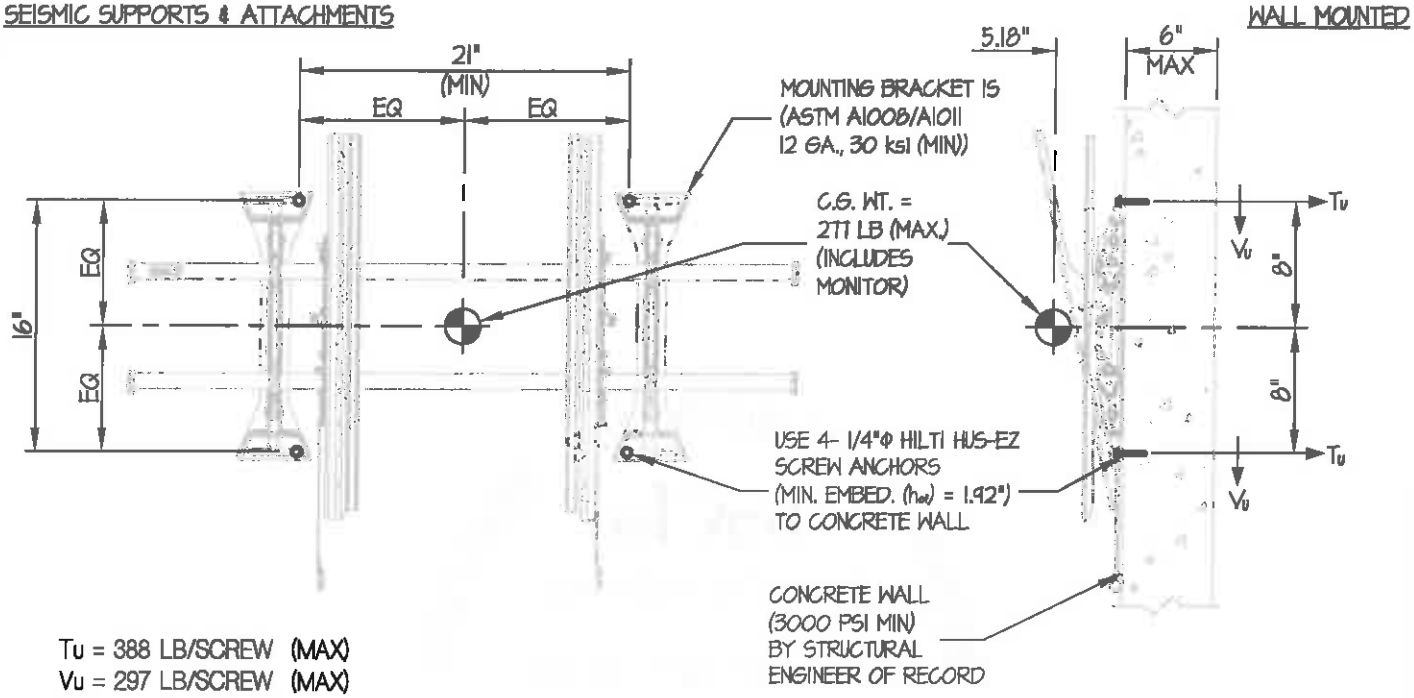
MILESTONE INC.

XSM1U & XTM1U SERIES MONITOR WALL MOUNT

DES.	J. ROBERSON
JOB NO.	11-1524
DATE	2/10/16
SHEET	8
OF	8 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

WALL MOUNTED



Tu = 388 LB/SCREW (MAX)
Vu = 297 LB/SCREW (MAX)
(VALUES INCLUDE Ω_0)

ELEVATION AT WALL PLATE
(XTM1U MODEL SHOWN)

CONCRETE WALL SECTION
(XTM1U MODEL SHOWN)

REGISTERED PROFESSIONAL ENGINEER
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No. 4197
EXP. 6-30-2016
2/10/16
STRUCTURAL
STATE OF CALIFORNIA

Model PM-400

The Exact Furniture PM-400 podium is designed for use in a smaller lecture hall, classroom or training room. This 30" wide podium has lots of room inside for audio visual equipment. Standard features that include a 28" wide work surface, pull-out keyboard shelf, an internal adjustable shelf, locking casters and locking front and rear Euro hinged doors.

Standard Features

- Constructed with melamine laminates and edge banding
- Pullout keyboard slide
- Locking presenter side door
- Locking audience side door
- Large interior compartment with adjustable shelf
- Locking heavy-duty 4" casters
- Cable management features
- Available in our standard finishes

Options Include

- LC-400 Cable cubby with HDMI, VGA, audio, USB and Cat6 cables plus A/C outlet and dual USB charger
- SH-SIDE Flip-up side shelf for projector or document camera
- DOC-DR Document camera drawer (8" H x 17.5" W x 22.5" D)
- MT-LCD Articulating LCD mount
- TH-FAN Thermostat controlled fan
- QFAN Quiet fan
- DASH Custom angled dash and cut-outs
- CUT-OUT Custom cut outs
- AC+USB Dual AC outlet with dual USB charger
- SH Additional adjustable shelf
- RR-12 12RU Rack rails
- LIGHT Hi-intensity gooseneck light
- PB 8 outlet power bar
- PB-RACK 12 outlet rackable power bar
- MIC Shock mounted gooseneck condenser microphone
- CAST-PR Premium casters
- TOP-SL Sloped work surface with pencil ledge
- CT-100 Digital clock/count-down timer
- EL-100 Electronic locks
- CUSTOM Custom laminates

Dimensions

43.5" H x 30" W x 25" D, (110cm H x 76cm W x 64cm D)
Worksurface 38" above floor, 28" W x 24" D

Phone: 1-800-648-9125 www.exactfurniture.com sales@exactfurniture.com
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DMPS3-300-C

3-Series® DigitalMedia™ Presentation System 300

The DMPS3-300-C from Crestron® delivers a complete, high-definition presentation control and signal routing solution for classrooms, boardrooms, lecture halls, and videoconference rooms. It integrates the control system, multi-format matrix switcher, mic mixer, audio DSP, and amplifier all into one 3-space rack mount package. The DMPS3-300-C offers extensive signal routing flexibility and high-performance signal processing without the need for separate components. Auto-configuring inputs enable plug-and-play compatibility with a wide range of digital and analog sources. Built-in DigitalMedia 8G+® and HDBaseT® connectivity affords a streamlined, long-distance wiring solution for remote sources and display devices, and for facility-wide integration as part of a larger media distribution system.

No Programming Required!
Installing the DMPS3-300-C is easy, fast, and affordable. Built-in .AV Framework™ technology delivers a fully-functional presentation system with simplified configuration and a choice of control options and other add-ons. For complete details on the capabilities supported by .AV Framework, please visit: [1]

- > *High-definition, multi-format 7x4 system switcher, mic mixer, audio DSP, amplifier, and control system*
- > *Built-in .AV Framework™ delivers a fully-functional system without any programming[1]*
- > *Integrated 3-Series Control System® allows fully-programmable room control*
- > *DigitalMedia 8G+® connectivity enables long-distance wiring over CAT type twisted pair cable[5]*
- > *HDBaseT® Certified — Enables direct connection to other HDBaseT certified equipment*
- > *Provides matrix signal routing for up to 7 video sources and 4 displays*
- > *Handles HDMI®, DVI, Dual-Mode DisplayPort, HDBaseT, and SPDIF digital sources[2]*
- > *Handles RGB, composite, S-Video, component, and stereo audio analog sources[3]*
- > *Features auto-detecting, auto-switching inputs for all types of video and audio sources*
- > *QuickSwitch HD™ technology manages HDCP keys for fast, reliable switching*
- > *Auto-Locking® technology achieves rapid switching between disparate sources*
- > *Performs automatic AV signal format management via EDID*
- > *Provides adjustable input level compensation on each audio input*
- > *External scaler options provide discrete image optimization for each display device[7]*
- > *Includes built-in 6-channel gated microphone mixing w/DSP*
- > *Affords versatile audio signal mixing and routing to seven separate outputs*
- > *Allows audio-follow-video or breakaway switching for all inputs*
- > *Enables analog-to-HDMI audio embedding and de-embedding*
- > *Handles Dolby® TrueHD, Dolby Atmos®, DTS-HD®, and uncompressed 7.1 linear PCM audio [3,4]*
- > *Provides 3 stereo analog outputs with independent DSP per output*
- > *Features built-in amplifier, selectable for 20W/Ch. @ 8Ω stereo or 40W @ 70/100 Volts mono*
- > *Enables USB signal routing via DM® transmitters and receivers or USB-EXT-DM extenders[8]*
- > *Includes onboard IR, RS-232, relay, digital input, and Cresnet® control ports*
- > *Supports Crestron® touch screens, keypads, and wireless remotes*
- > *Supports XPanel with Smart Graphics™ computer and web based control*
- > *Supports iPhone®, iPad®, and Android® control apps*
- > *Supports universal remotes via external RC-5 compatible IR receiver[7]*
- > *Communicates natively with Crestron Fusion® Cloud*
- > *Enables IT-friendly network integration via SNMP*
- > *Integrated Ethernet switch provides a single-point LAN connection*
- > *Private Network Mode — requires just one IP address for the complete system*
- > *Provides easy setup and diagnostics via the front panel, a web browser, or Crestron Toolbox™ software*
- > *Includes front panel controls for basic configuration, diagnostics, and signal routing*
- > *Includes customizable front panel label strips and LCD display*
- > *Features an internal universal power supply for worldwide compatibility*
- > *Furnishes Power over DM or HDBaseT for PoDM/PoH-powered devices[6]*
- > *3-space 19-inch rack-mountable*

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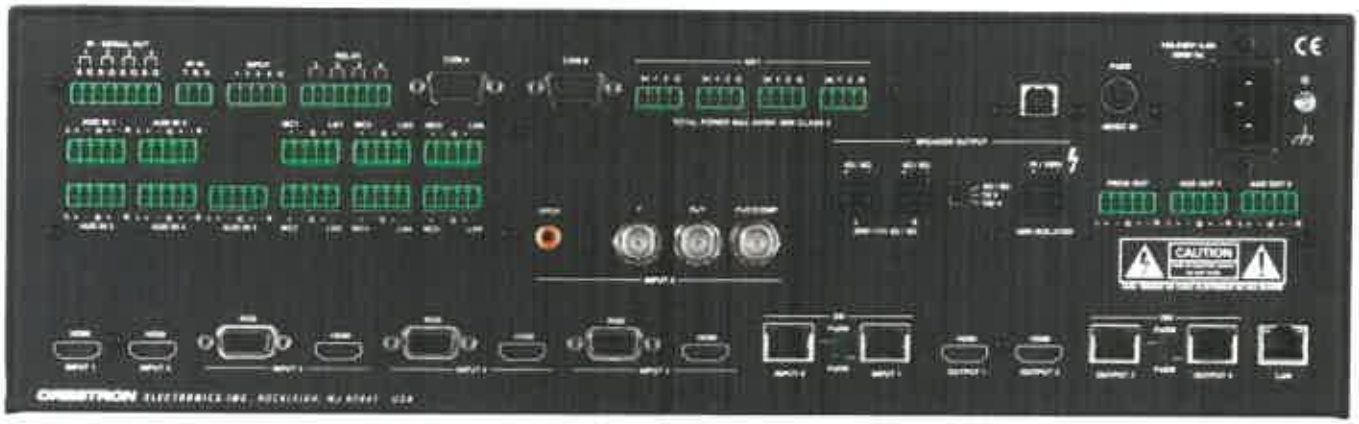

DMPS3-300-C – Rear View

HD System Switcher

The DMPS3-300-C provides high-performance routing of numerous digital and analog sources to up to four separate projectors, flat panel displays, codecs, and other devices. Connectivity is provided for up to five HDMI® sources [2], or other combinations of HDMI, RGB, SPDIF, analog audio, and analog video sources. Additional remote sources can be connected via two DM 8G+® inputs. Input auto-detection and auto-switching eliminates the need to configure the inputs – simply connect your source and the DMPS3-300-C selects the right audio and video combination. Built-in matrix switching allows routing of seven simultaneous sources to four different digital AV devices and three additional analog audio components.

Flexible Audio Routing

The HDMI, SPDIF, and analog audio inputs may be configured to follow their associated video inputs, or switched independently. In fact, the audio from any HDMI source can be extracted from the digital stream and converted to analog to feed an outboard processor, mixer, or codec, with the return signal feeding back through any analog input, which can be embedded with any video source to form a new HDMI output. Dolby® TrueHD, Dolby Atmos®, DTS-HD®, and 7.1 linear PCM audio signals can be routed through the HDMI and DM 8G+ inputs and outputs. The HDMI, SPDIF, and analog audio inputs include adjustable input compensation to accommodate a wide range of signals and maintain consistent volume levels when switching between sources.[3,4]

DigitalMedia 8G+®

Its DM 8G+ inputs and outputs endow the DMPS3-300-C with incredible potential for connecting remote sources and display devices, and integrating with larger systems. DM 8G+ provides a true one-wire interface for transporting high-definition video, audio, control, power, and networking signals over CAT type cable at distances up to 330 feet (100 meters). Connecting a DM 8G+ receiver to either DM 8G+ output provides a streamlined AV and control interface for a projector or flat panel display located anywhere in the room. Connecting up to two DM 8G+ transmitters provides expanded input connectivity to incorporate remote AV sources and mobile devices at a conference table, lectern, credenza, wall plate, or some other location. DM 8G+ can also provide the interface to a centralized DigitalMedia™ matrix switcher to enable the distribution of signals between multiple rooms and buildings.[5,6]

HDBaseT® Certified

Crestron DM 8G+ technology is designed using HDBaseT Alliance specifications, ensuring interoperability with other HDBaseT certified products. Via DM 8G+, the DMPS3-300-C can be connected directly to an HDBaseT compliant source or display device without requiring a DM® transmitter or receiver.

6-Channel Microphone Mixer

The DMPS3-300-C includes built-in mixing and processing for six microphones. Each mic input provides 60 dB of gain adjustment, switchable 48V phantom power, fully-adjustable gating, compression, delay, and 4-band semi-parametric EQ. Sophisticated matrix mixing allows for a completely different stereo mix of all six microphones at each of the DMPS3-300-C's seven outputs.

Codec Mixing

For video conferencing applications, the DMPS3-300-C allows one or two codecs to be connected to any of the seven source inputs. Audio from both codecs can be mixed with the local presentation source and routed to the room speakers via the main "Program" output. The presentation source audio can also be routed to the codecs via the "Aux" outputs, allowing far end participants to experience the full presentation. Both codecs can even be used simultaneously, allowing the signal from one codec to be fed to the other for a fully inclusive teleconferencing experience.

Professional Audio DSP

Each analog audio output on the DMPS3-300-C includes its own digital signal processor, allowing each output to be optimized to feed a power amplifier, codec, recorder, or assistive listening system. In addition to real-time adjustable volume, bass, treble, and mute controls, each DSP provides 10-band graphic equalization, 4-band parametric equalization, fully-adjustable limiting, and up to 85 ms of speaker delay adjustment.

Built-in Power Amplifier

Its built-in power amplifier allows the DMPS3-300-C to directly drive a pair of stereo speakers (20 Watts per channel @ 8Ω), or a group of distributed ceiling speakers (40 Watts mono @ 70 or 100 Volts). Fed by the main "Program" output, the internal amplifier benefits fully from the onboard DSP. For larger applications, Crestron AMP-Series power amplifiers may

be added, providing a complete solution for driving separate program and speech speakers, or any multi-zone speaker system.

EDID Format Management

The DMPS3-300-C allows for management of the EDID (Extended Display Identification Data) information that passes between the display devices and input sources in the system. Using Crestron Toolbox™ software, the format and resolution capabilities of each device can be assessed, allowing the installer to configure EDID signals appropriately for the most desirable and predictable behavior.

A Scaler for Every Display

Through a distributed scaler approach, the DMPS3-300-C affords a very flexible and user-friendly solution for handling multiple disparate display devices. Employing discrete outboard scalers like the HD-SCALER-HD-E, DM-RMC-SCALER-C, and DM-RMC-4K-SCALER-C, the DMPS3-300-C allows an independent high-performance scaler to be installed at each display device, ensuring an optimal image on every screen no matter what sources are selected.[7]

QuickSwitch HD™ Technology

Handling digital media signals means handling HDCP (High-bandwidth Digital Content Protection), the encryption scheme used by content providers to protect their DVDs, Blu-ray™ discs, and broadcast signals against unauthorized copying. Viewing HDCP encrypted content requires a source device to "authenticate" each display and signal processor in the system and issue it a "key" before delivering an output signal. Crestron QuickSwitch HD manages these keys to ensure fast, reliable switching and immunity to "blackouts" for every source and display device connected to the system.

Auto-Locking® Technology

Crestron Auto-Locking Technology enables super fast signal switching by instantaneously configuring every device in the signal path, including DM transmitters, DM receivers, and scalers, as soon as the signal hits the first device. Whether switching between sources or TV channels, Auto-Locking significantly reduces the time it takes each device to sense the new signal and configure itself to handle the changes, virtually eliminating any noticeable gap while switching.

USB Signal Routing

Along with video and audio, the DMPS3-300-C can also provide for the routing of USB HID (Human Interface Device) signals, allowing a USB HID compliant keyboard and/or mouse at one location to control a computer or media server at another location. USB HID connectivity is provided through select DM receivers and transmitters. Crestron also offers USB over Ethernet Extenders (USB-EXT-DM[7]), which may be used to enable the routing of multiple USB devices of virtually any type, all seamlessly managed through the DMPS3-300-C.[8]

Integrated 3-Series Control System®

Its built-in 3-Series control system enables the DMPS3-300-C to provide complete, customizable control of every AV device, as well as room lighting, window shades, and projection screens, without requiring a separate control processor. Onboard control ports include four IR ports, two RS-232 COM ports, four relay ports, and four digital input ports, as well as Cresnet® and Ethernet. The DMPS3-300-C supports the full line of Crestron touch screens, keypads, and wireless remotes for a user experience custom tailored to the specific requirements of each end-user. Support for Crestron control apps and Crestron Fusion® Cloud delivers the industry's most powerful platform for remotely controlling and managing multiple rooms using computers and mobile devices.

CEC Embedded Device Control

For controlling third-party AV devices, the DMPS3-300-C provides an alternative to conventional IR, RS-232, and Ethernet by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI. Using CEC, many devices can be controlled right through their HDMI connections, eliminating the need for any dedicated serial cables or IR emitters.

Built-In Ethernet Switch

In addition to transporting digital video and audio, the DM 8G+ ports on the DMPS3-300-C can also extend Ethernet out to the display and source devices, providing high-speed connectivity for each room device that requires a LAN connection. Ethernet is also utilized internally by the Crestron control bus to manage each transmitter and receiver and provide device control.

Private Network Mode

To streamline its implementation on a corporate or university LAN, the DMPS3-300-C employs Private Network Mode to provide a single-point connection for the complete system. Using Private Network Mode, the DMPS3-300-C requires just one IP address for the complete DM network including all connected DM receivers and transmitters.

Easy Setup

Every step of the DMPS3-300-C setup process is designed to be quick and easy, configuring inputs and outputs automatically while letting the installer make intelligent design decisions along the way. Out of the box, the front panel supports basic signal routing for easy testing and trouble-shooting during installation. Simplified system configuration is enabled using .AV Framework, which is easily configurable via a computer web browser.[1] Advanced configuration and adjustment is enabled through the front panel, a web browser, or Crestron Toolbox software. The front panel label strips can be customized using Crestron Engraver software or standard 3/8" tape labels, allowing for the clear designation of each input and output. Inputs and outputs may also be designated by name to appear on the LCD display when selected.

Crestron Connect It™

Crestron Connect It is a cost-effective, simple-to-use presentation solution that works seamlessly with the DMPS3-300-C. Simply add one or more Crestron Connect It Cable Caddies (series[7]) to provide BYOD connectivity and one-touch control for multiple participants around a conference table. Power and communications for each cable caddy are provided via Cresnet, or via the USB port on a Crestron Connect It compatible DM transmitter.

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SPECIFICATIONS

Operating System

Crestron® 3-Series®; real-time, preemptive, multi-threaded/multitasking kernel; Transaction-Safe Extended FAT file system; supports up to 10 simultaneously running programs; preloaded DMPS3 .AV Framework™ Base Program

Memory

SDRAM: 512 MB
Flash: 4 GB

Communications

Ethernet: 10/100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, industry-standard TCP/IP stack, UDP/IP, CIP, DHCP, SSL, TLS, SSH, SFTP (SSH File Transfer Protocol), FIPS 140-2 compliant encryption, IEEE 802.1X, SNMP, BACnet™/IP [10], IPv4 or IPv6, Active Directory authentication, IIS v.6.0 web server, SMTP e-mail client, RSTP, Private Network Mode
Cresnet®: Cresnet master mode
USB: USB signal routing via select DM transmitters and receivers, or via USB-EXT-DM extenders [8]; USB device port for computer console (setup)
RS-232: 2-way device control and monitoring up to 115.2k baud with hardware and software handshaking
IR/Serial: 1-way device control via infrared up to 1.2 MHz or serial TTL/RS-232 (0-5 Volts) up to 115.2k baud; supports CNXRMIRD IR Receiver [7]
DigitalMedia™: DM 8G+®, HDCP, EDID, CEC, PoDM, Ethernet
HDBaseT®: HDCP, EDID, PoH, Ethernet
HDMI®: HDCP, EDID, CEC

NOTE: Supports management of HDCP and EDID; supports management of CEC between the connected HDMI devices and the control system

Video

Switcher: 7x4 matrix, auto-switching, auto-detecting multi-format digital/analog source inputs, QuickSwitch HD™ technology
Input Signal Types: HDMI w/Deep Color & 3D [4] (DVI & Dual-Mode DisplayPort compatible [2]), DM 8G+ & HDBaseT w/Deep Color & 3D [4], RGB/VGA (RGBHV, RGBS, RGsB) [9], component (YPbPr), S-Video (Y/C), composite (NTSC, PAL)
Output Signal Types: HDMI w/Deep Color & 3D [4] (DVI compatible [2]), DM 8G+ & HDBaseT w/Deep Color & 3D [4]
Input Resolutions, HDMI & HDBaseT, Progressive: 640x480@60Hz, 720x480@60Hz (480p), 720x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 852x480@60Hz, 854x480@60Hz, 1024x768@60Hz, 1024x852@60Hz, 1024x1024@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1365x1024@60Hz, 1366x768@60Hz, 1400x1050@60Hz, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@24Hz (1080p24), 1920x1080@25Hz (1080p25), 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz, 2048x1080@24Hz, 2048x1152@60Hz, plus any other resolution allowed by HDMI up to 165MHz pixel clock
Input Resolutions, HDMI & HDBaseT, Interlaced: 720x480@30Hz (480i), 720x576@25Hz (576i), 1920x1080@25Hz (1080i25), 1920x1080@30Hz (1080i30), plus any other resolution allowed by HDMI up to 165MHz pixel clock
Input Resolutions, RGB: 640x480@60Hz, 720x480@60Hz (480p), 720x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 1024x768@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1366x768@60Hz, 1400x1050@60Hz, 1440x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz, 2048x1152@60Hz
Input Resolutions, Component: 480i, 576i, 480p, 576p, 720p50, 720p60, 1080p24, 1080i25 (1125 lines), 1080i30, 1080p30, 1080p50 (1125 lines), 1080p60
Input Resolutions, Composite & S-Video: 480i, 576i
Output Resolutions: Matched to inputs
Analog-To-Digital Conversion: 10-bit 165 MHz per each of 3 channels
RGB Source Image Adjustments:
- Brightness: 0% to 50%;
- Contrast: -50% to +50%;
- Fine Phase: -16 to +15;
- X Position: -100 to +100;
- Y Position: -10 to +10;
- RGB Gains: -50 to +50, separately adjustable for Red, Green, and Blue

YPbPr, Y/C, or Composite Source Image Adjustments:
- Brightness: 0% to 50%;
- Contrast: -50% to +50%;
- Saturation: -50% to +50%;
- Hue: -50% to +50%

Audio – General

Switcher/Mixer: 7x7 stereo source switcher, auto-detecting multi-format digital/analog source inputs, audio-follow-video or breakaway, 6-channel gated mic mixer w/DSP, independent 6-ch mic + source mixer per output, dual codec mixer, independent stereo DSP per analog output, integrated power amplifier, 7x4 multichannel source switcher, digital audio mixer bypass mode for multichannel pass-through to digital outputs
Analog-To-Digital Conversion: 24-bit 48 kHz
Digital-To-Analog Conversion: 24-bit 48 kHz
Frequency Response, Digital & Analog Line Outputs:
- 20 Hz to 20 kHz ±0.5 dB (digital source);
- 20 Hz to 20 kHz ±0.5 dB (analog line source);
- 20 Hz to 20 kHz ±0.7 dB (microphone source)

Frequency Response, Speaker Output:
- 20 Hz to 20 kHz ±1 dB @ 20 Watts into 8 Ohms;
- 100 Hz to 20 kHz ±2.5 dB @ 70 or 100 Volts

S/N Ratio, Digital & Analog Line Outputs:
- >108 dB, 1 kHz, A-weighted (digital source);
- >103 dB, 1 kHz, A-weighted (analog line source)

S/N Ratio, Speaker Output:
- 98 dB @ 20 Watts into 8 Ohms, 1 kHz, A-weighted;
- 96 dB @ 20 Watts in 4 Ohms, 1 kHz, A-weighted

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THD+N, Digital & Analog Line Outputs:
<0.002%, 20 Hz to 20 kHz (digital source);
<0.005%, 20 Hz to 20 kHz (analog line source);
<0.05%, 20 Hz to 20 kHz (microphone source)
THD+N, Speaker Output:
<0.1%, 1 kHz @ 20 Watts into 4 or 8 Ohms
<0.7%, 20 Hz to 20 kHz @ 20 Watts into 4 or 8 Ohms
Stereo Separation, Digital & Analog Line Outputs:
>108 dB (digital source);
>103 dB (analog source)
Stereo Separation, Speaker Output: >65 dB @ 20 Watts, 1 kHz
Channel Separation, Digital Outputs:
>108 dB (digital source);
>103 dB (analog source)
Channel Separation, Analog Line Outputs: >103 dB
Speaker Output Modes: 4Ω/8Ω stereo, 70V mono, or 100V mono
Speaker Amplifier Output Power:
20 Watts RMS per channel at 8 Ohms, 4 Ohms tolerant
40 Watts RMS @ 70 or 100 Volts

Audio – Microphone Inputs

Typical of 6 microphone input channels (Mic/Line 1 – 6)
Input Signal Types: Mono analog mic or line level
Phantom Power: Enable/Disable per channel
Gain: 0 to +60 dB Gain adjustment, plus Mute
Delay: 0.0 to 85.0 ms
EQ Center Frequencies: 50 to 200 Hz (Band 1), 200 to 800 Hz (Band 2), 800 to 3.2k Hz (Band 3), 3.2k to 12.8k Hz (Band 4)
EQ Gain: ±12.0 dB per band
High-Pass Filter: On or Off
Gating Threshold: -80 to 0 dB
Gating Depth (Attenuation): -80 to 0 dB
Gating Attack: 1 to 250 ms
Gating Release: 1 to 1000 ms
Compression Threshold: -80 to 0 dB
Compression Ratio: 1:1 to 10:1
Compression Attack: 1 to 250 ms
Compression Release: 1 to 1000 ms
Compression Curve: Hard or soft knee

Audio – Source Inputs

Typical of 7 source input channels (Input 1 – 7 & Audio In 1 – 5)
Input Signal Types: HDMI (Dual-Mode DisplayPort compatible [2]) on Inputs 1-5, analog 2-channel on Inputs 1-5, S/PDIF on Input 5 only, DM 8G+ & HDBaseT on Inputs 6 & 7
Analog Formats: Stereo 2-channel
Digital Formats, HDMI & DM: Dolby Digital®, Dolby Digital EX, Dolby Digital Plus [4], Dolby® TrueHD [4], Dolby Atmos® [4], DTS®, DTS-ES, DTS 96/24, DTS-HD High Res [4], DTS-HD Master Audio™ [4], LPCM up to 8 channels
Digital Formats, SPDIF: LPCM 2-channel
Input Compensation: ±10.0 dB [3]

Audio – Analog Line & Speaker Outputs

Typical of 1 analog line/speaker output (Program Out & Speaker Outputs) and 2 analog line outputs (Aux Out 1 – 2)
Output Signal Type/Format: Stereo 2-channel
Mic 1 – 6: -80 to +10 dB Level adjustment range, plus Mute and Pan
Mics Master: -80 to +10 dB Level adjustment range, plus Mute
Source: -80 to +10 dB Level adjustment range, plus Mute and Balance
Codec 1 – 2: -80 to +10 dB Level adjustment range, plus Mute and Balance (Codec 1 available at Program Out and Aux 2 Out only, Codec 2 available at Program Out and Aux 1 Out only) [11]
Master Volume: -80 to +10 dB Level adjustment range, plus Mute and Mono
Mixer Presets: 1 through 5
Bass: ±12.0 dB
Treble: ±12.0 dB
Equalization: 10-band graphic + 4-band parametric
GEQ Center Frequencies: 31.5, 63, 125, 250, 500, 1k, 2k, 4k, 8k, 16k Hz
GEQ Gain: ±12.0 dB per band
PEQ Center Frequencies: 10 to 22000 Hz per band
PEQ Gain: -36.0 to +24.0 dB per band
PEQ Bandwidth: 0.02 to 3.50 octaves per band
PEQ Types: Peaking EQ, High Pass, Low Pass, High Shelf, Low Shelf, Notch
Delay: 0.0 to 85.0 ms
Limiter Threshold: -80 to 0 dBz
Limiter Ratio: 1:1 to 10:1
Limiter Attack: 1 to 250 ms
Limiter Hold: 1 to 200 ms
Limiter Release: 1 to 1000 ms
Limiter Curve: Hard or soft knee
EQ Presets: 1 through 10 (includes Delay and Limiter settings)

Audio – Digital Outputs

Typical of 4 digital outputs (HDMI Output 1 – 2 & DM Output 3 – 4)
Output Signal Types: HDMI (DVI compatible [2]) on Outputs 1 & 2, DM 8G+ & HDBaseT on Outputs 3 & 4
Formats: Dolby Digital, Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio, LPCM up to 8 channels
Mic 1 – 6: -80 to +10 dB Level adjustment range, plus Mute and Pan [3]
Mics Master: -80 to +10 dB Level adjustment range, plus Mute [3]
Source: -80 to +10 dB Level adjustment range, plus Mute and Balance [3]
Master Volume: -80 to +10 dB Level adjustment range, plus Mute [3]
Mixer Presets: 1 through 5

Connectors – Audio/Video Inputs

HDMI INPUT 1 – 5: (5) 19-pin Type A HDMI female;
Digital video/audio inputs;
Signal Types: HDMI, DVI, or Dual-Mode DisplayPort [2,4]

RGB INPUT 3 – 5: (3) HD15 female;
Analog RGB/VGA/video inputs;
Signal Types: VGA, RGB, component, S-Video, or composite [9];

Formats: RGBHV, RGBS, RGsB, YPbPr, Y/C, NTSC or PAL;
Input Level: 0.5 to 1.5 Vp-p with built-in DC restoration;
Input Impedance: 75 Ohms nominal;
Sync Detection: RGBHV, RGBS, RGsB, YPbPr;
Sync Input Level: 3 to 5 Vp-p;
Sync Input Impedance: 2.2k Ohms;
Note: RGB Inputs 3-5 and HDMI Inputs 3-5 are mutually exclusive; HDMI overrides RGB when using the auto-switching feature

Y, PB/Y, PR/C/COMP INPUT 5: (3) BNC female;
Comprises (1) auto-sensing multi-format analog video input;
Signal Types: Component, S-Video, or composite;
Formats: YPbPr, Y/C, NTSC or PAL;
Input Level: 1 Vp-p nominal;
Input Impedance: 75 Ohms nominal;
Note: Video Input 5, RGB Input 5, and HDMI Input 5 are mutually exclusive; HDMI and RGB override Video when using the auto-switching feature

SPDIF INPUT 5: (1) RCA female;
S/PDIF coaxial digital audio input;
Input Impedance: 75 Ohms;
Note: SPDIF Input 5 and HDMI Input 5 are mutually exclusive; HDMI overrides SPDIF when using the auto-switching feature

AUD IN 1 – 5: (5) 5-pin 3.5 mm detachable terminal blocks;
Balanced/unbalanced stereo line-level analog audio inputs;
Input Impedance: 24k Ohms balanced/unbalanced;
Maximum Input Level: 4 Vrms balanced, 2 Vrms unbalanced;
Note: Analog Audio Inputs 1-5, SPDIF Input 5, and HDMI Inputs 1-5 are mutually exclusive; HDMI and SPDIF override Analog Audio when using the auto-switching feature

DM INPUT 6 – 7: (2) 8-pin RJ45 female, shielded;
DM 8G+ inputs, HDBaseT compliant;
PoDM and PoH PSE (Power Sourcing Equipment) ports [6];
Each connects to the DM 8G+ output of a DM transmitter or other DM device, or to an HDBaseT device, via CAT5e or Crestron DM-CBL-8G cable [5]

MC1/LN1 – MC6/LN6: (6) 5-pin 3.5 mm detachable terminal blocks;
Comprises (6) balanced microphone/line audio inputs;
Balanced Mic Input Level: -60 to 0 dBV, 1 Vrms maximum;
Balanced Line Input Level: -31 to +11 dBV, 3.7 Vrms maximum;
Unbalanced Line Input Level: -37 to +5 dBV, 1.85 Vrms maximum;
Mic Input Impedance: 3.9k Ohms balanced;
Line Input Impedance: 19k Ohms balanced, 9.5k Ohms unbalanced;
Phantom Power: 48 Volts DC, software enabled/disabled per channel

Connectors - Audio/Video Outputs

SPEAKER OUTPUTS 4Ω/8Ω L – R: (2) 2-pin 7.62 mm 15A detachable terminal blocks;
4-8 Ohm stereo speaker-level audio output;
Wire Size: Terminals accept up to 14 AWG;
Output Power: 20W RMS per channel stereo at 8 Ohms, 4 Ohms tolerant

SPEAKER OUTPUTS 70/100V: (1) 2-pin 7.62 mm 15A detachable terminal block;
Transformer-isolated 70 or 100 Volt mono speaker-level audio output;
Wire Size: Terminals accept up to 14 AWG;
Output Power: 40W RMS mono at 70 or 100 Volts;
Note: 4Ω/8Ω and 70/100V outputs are mutually exclusive

PROG OUT: (1) 5-pin 3.5 mm detachable terminal block;
Balanced/unbalanced stereo line-level audio output;
Output Impedance: 200 Ohms balanced, 100 Ohms unbalanced;
Maximum Output Level: 4 Vrms balanced, 2 Vrms unbalanced

AUX OUT 1 – 2: (2) 5-pin 3.5 mm detachable terminal blocks;
Balanced/unbalanced stereo line-level audio outputs;
Output Impedance: 200 Ohms balanced, 100 Ohms unbalanced;
Maximum Output Level: 4 Vrms balanced, 2 Vrms unbalanced

HDMI OUTPUT 1 – 2: (2) 19-pin Type A HDMI female;
Digital video/audio outputs;
Signal Types: HDMI, DVI [2]

DM OUTPUT 3 – 4: (2) 8-pin RJ45 female, shielded;
DM 8G+ outputs, HDBaseT compliant;
PoDM and PoH PSE (Power Sourcing Equipment) ports [6];
Each connects to the DM 8G+ input of a DM receiver or other DM device, or to an HDBaseT device, via CAT5e or Crestron DM-CBL-8G cable [5]

Connectors - Control & Power

IR/SERIAL OUT 1 – 4: (4) 2-pin 3.5 mm 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

IR IN: (1) 3-pin 3.5 mm detachable terminal block;
For connection of the CNXRMIRD IR Receiver [7];
Allows control from IR wireless remotes using RC-5 command set

INPUT 1 – 4: (1) 5-pin 3.5 mm detachable terminal block;
Comprises (4) programmable digital inputs;
Input Voltage Range: 0 to 24 Volts DC, referenced to GND;
Logic Threshold: 2.5 Volts DC nominal with 1 Volt hysteresis band;
Input Impedance: 10k Ohms at >5 Volts, 1M Ohms at <5 Volts;
Pull-up Resistor: 2.2k Ohms per input

RELAY 1 – 4: (1) 8-pin 3.5 mm detachable terminal block;
Comprises (4) normally open, isolated relays;
Rated 1 Amp, 30 Volts AC/DC;
MOV arc suppression across contacts

COM A – B: (2) DB9 male;
Bidirectional RS-232 ports;
Up to 115.2k baud, hardware and software handshaking support

NET: (4) 4-pin 3.5 mm detachable terminal blocks;
Cresnet Master ports, paralleled;
Available Cresnet Power: 30 Watts

SERVICE: (1) USB Type B female, for factory use only

PoDM 48VDC IN: (1) 4-pin snap & lock DC power connector, female;
48 Volt DC power input for PoDM power pack [6];
Enables PoDM and PoH power sourcing

DMPS3-300-C 3-Series® DigitalMedia™ Presentation System 300

100-240V~4.0A 50/60Hz: (1) IEC 60320 C14 main power inlet; Mates with removable power cord, included

G: (1) 6-32 screw, chassis ground lug

LAN: (1) 8-wire RJ45 female; 10Base-T/100Base-TX/1000Base-T Ethernet port

COMPUTER (front): (1) USB Type B female (cable included); USB computer console port (for setup only)

Controls & Indicators

NET: (1) Yellow LED, indicates Cresnet bus activity
LAN: (1) Yellow LED, indicates Ethernet activity
HW-R: (1) Recessed pushbutton for hardware reset, reboots the control system
SW-R: (1) Recessed pushbutton for software reset, restarts the SIMPL program
POWER: (1) Pushbutton and green LED, programmable for system power control
LCD Display: (1) Green LCD alphanumeric; adjustable backlight; 2 lines x 20 characters per line; displays input/outputs by name, volume levels, setup menus, signal routing, device info, and other system information
SOFTKEYS: (4) Pushbuttons for activation of LCD driven functions and passcode entry
MENU: (1) Pushbutton, steps menu back one level
▲, ▼: (2) Pushbuttons, scroll up or down through menu and adjust menu parameters
ENTER: (1) Pushbutton, executes highlighted menu or value
VOLUME: (1) Continuous turn rotary encoder, adjusts menu parameters, defaults to Program audio volume
MUTE: (1) Pushbutton and red LED, mutes the Program audio output
ROUTE: (1) Pushbutton and red LED, selects ROUTE mode to allow routing changes
VIEW: (1) Pushbutton and red LED, selects VIEW mode to view current routing
INFO: (1) Pushbutton and red LED, selects INFO mode to view AV and device info
INPUTS 1 – 7: (7) Pushbuttons and red LEDs, select input to be routed
OUTPUTS 1 – 4, PROG, AUX 1 – 2: (7) Pushbuttons and red LEDs, select output destination(s)
SPEAKER OUTPUTS (rear): (1) 3-position slide switch, selects the amplifier output configuration
DM INPUT 6 – 7 (rear): (4) LEDs, green LEDs indicate DM link status, amber LEDs indicate video and HDCP signal presence, for each respective port
DM INPUT 6 – 7 PoDM (rear): (2) Green LEDs, indicate upstream device is drawing power over DM for each respective port
DM OUTPUT 3 – 4 (rear): (4) LEDs, green LEDs indicate DM link status, amber LEDs indicate video and HDCP signal presence, for each respective port
DM OUTPUT 3 – 4 PoDM (rear): (2) Green LEDs, indicate downstream device is drawing power over DM for each respective port
LAN (rear): (2) LEDs, bi-color LED (left) indicates Ethernet speed and activity, green LED (right) indicates Ethernet link status

Power Requirements

Main Power: 4 Amps @ 100-240 Volts AC, 50/60 Hz
Power Consumption: 81 Watts typical
Available Cresnet Power: 30 Watts
Power over DM (PoDM): PoDM PSE (Power Sourcing Equipment), each DM INPUT/OUTPUT port supplies up to 15.4 Watts (Class 0-3) to one PoDM Powered Device [5]
Power over HDBaseT (PoH): PoH PSE (Power Sourcing Equipment), each DM INPUT/OUTPUT port supplies up to 15.4 Watts (Class 0-3) to one PoH Powered Device [5]
PoDM Power Pack: 1.875 Amp @ 48 Volts (100-240 Volts AC, 50/60 Hz power pack, model PW-4818DU sold separately)

Environmental

Temperature: 41° to 104° F (5° to 40° C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: 277 BTU/hr

Enclosure

Chassis: Metal, black finish, fan-cooled, vented sides
Front Panel: Metal, black finish with polycarbonate label overlay
Mounting: Freestanding or 3 RU 19-inch rack-mountable (adhesive feet and rack ears included)

Dimensions

Height: 5.20 in (133 mm) without feet
Width: 17.28 in (439 mm);
19.00 in (483 mm) with rack ears
Depth: 16.31 in (415 mm)

Weight

16.4 lb (7.5 kg)

MODELS & ACCESSORIES

Available Models

DMPS3-300-C: 3-Series® DigitalMedia™ Presentation System 300

Available Accessories

TSW-752-B-DMPS3_PAK: 7" Touch Screen Package for DMPS3 Series, Black; Includes: TSW-752-B-S, TSW-750-TTK-B-S, & Preloaded Software
MP-B10: Media Presentation Button Panel B10
TT-100 Series: Crestron Connect It™ Cable Caddy
AM-100: AirMedia® Presentation Gateway
PW-4818DU: 90W PoDM Power Pack for DMPS
HD-SCALER-HD-E: High-Definition Video Scaler, HDMI® In, HDMI Out
HD-SCALER-VGA-E: High-Definition Video Scaler, VGA In, HDMI® Out
DM-RMC-4K-100-C-1G: Wall Plate 4K DigitalMedia 8G+® Receiver & Room Controller 100

DMPS3-300-C 3-Series® DigitalMedia™ Presentation System 300

DM-RMC-4K-100-C: 4K DigitalMedia 8G+® Receiver & Room Controller 100
DM-RMC-200-C: DigitalMedia 8G+® Receiver & Room Controller 200
DM-RMC-SCALER-C: DigitalMedia 8G+® Receiver & Room Controller w/Scaler
DM-RMC-4K-SCALER-C: 4K DigitalMedia 8G+® Receiver & Room Controller w/Scaler
DM-RMC-4K-SCALER-C-DSP: 4K DigitalMedia 8G+® Receiver & Room Controller w/Scaler & Downmixing
DM-TX-4K-100-C-1G: Wall Plate 4K DigitalMedia 8G+® Transmitter 100
DM-TX-200-C-2G: Wall Plate DigitalMedia 8G+® Transmitter 200
DM-TX-201-C: DigitalMedia 8G+® Transmitter 201
DM-TX-4K-202-C: 4K DigitalMedia 8G+® Transmitter 202
DM-TX-4K-302-C: 4K DigitalMedia 8G+® Transmitter 302
DM-TX-401-C: DigitalMedia 8G+® Transmitter 401
USB-EXT-DM: USB over Ethernet Extender with Routing
AMP Series: Commercial Power Amplifiers
GLS-ODT-C-CN: Dual-Technology Occupancy Sensor with Cresnet®
GLS-OIR-C-CN: Passive Infrared Occupancy Sensor with Cresnet®
Crestron Fusion®: Enterprise Management Platform
Crestron® App: Control App for Apple® iOS® & Android™
XPanel: Crestron Control® for Computers
3-Series® BACnet™/IP Support: 3-Series Native BACnet/IP Interface License
CSP-LIR-USB: IR Learner
CNSP-XX: Custom Serial Interface Cable
IRP2: IR Emitter Probe
CNXRMIRD: IR Receiver
DM-CBL-8G: DigitalMedia 8G™ Cable
DM-8G-CONN: Connector for DM-CBL-8G
DM-8G-CRIMP: Crimping Tool for DM-8G-CONN
DM-8G-CONN-WG: Connector with Wire Guide for DM-CBL-8G
DM-8G-CRIMP-WG: Crimping Tool for DM-8G-CONN-WG
CRESNET: Cresnet® Control Cable
CBL Series: Crestron® Certified Interface Cables
MP-WP Series: Media Presentation Wall Plates
MPI-WP Series: Media Presentation Wall Plates - International Version

Notes:

1. Some features and functions described in this spec sheet may not be supported using .AV Framework. For a complete list of capabilities and options supported by .AV Framework, please visit: www.crestron.com/avframework.
2. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or Dual-Mode DisplayPort signal. CBL-HD-DVI interface cables are available separately.
3. Routing of a multichannel audio signal via any HDMI or DM input and output requires the input to be set for "mixer bypass" mode. When that input is routed to a given digital output, all audio controls on that output are disabled, and the ability to simultaneously route microphone signals to that output is defeated. Mixer bypass mode also disables the Input Compensation control on that input.
4. High-bitrate 7.1 encoded audio, 3D video, and Deep Color video signals are only supported via HDMI inputs 1 and 2, and DM inputs 6 and 7.
5. For DM 8G+ or HDBaseT wiring, use Crestron DM-CBL-8G DigitalMedia 8G Cable or third-party CAT5e (or better) UTP or STP. (Crestron legacy DM-CBL DigitalMedia Cable or DM-CBL-D DigitalMedia D Cable may also be used) The maximum wire length for DM 8G+ is 330 ft (100 m) between devices. Shielded cable and connectors are recommended to safeguard against unpredictable environmental electrical noise which may impact performance at resolutions above 1080p. Refer to the Crestron DigitalMedia Design Guide, Doc. #4546 for complete system design guidelines. DM 8G+ is compatible with HDBaseT Alliance specifications for connecting to HDBaseT compliant equipment. All wire and cables are sold separately.
6. Supplying Power over DM (PoDM) or Power over HDBaseT (PoH) requires an external power pack, model PW-4818DU, sold separately.
7. Item(s) sold separately.
8. Manages the routing of USB HID signals between peripheral DM devices that are equipped with USB HID ports. The USB ports onboard the DMPS3-300-C are not usable for USB signal routing. Also programmable to manage the routing of USB signals between Crestron USB over Ethernet Extender modules (USB-EXT-DM, sold separately). Refer to the USB-EXT-DM spec sheet for more information.
9. The RGB/VGA inputs can accept component, composite, and S-Video signals using an appropriate adapter (not included). However, input sync detection is not provided for composite or S-Video signal types through the RGB connection.
10. License required. The DMPS3-300-C supports a maximum of 500 BACnet objects when dedicated for BACnet use only. Actual capabilities are contingent upon the overall program size and complexity.
11. The settings for CODEC 1 & 2 are global for all outputs that receive these signals.

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.

The specific patents that cover Crestron products are listed online at: patents.crestron.com

Certain Crestron products contain open source software. For specific information, please visit www.crestron.com/opensource

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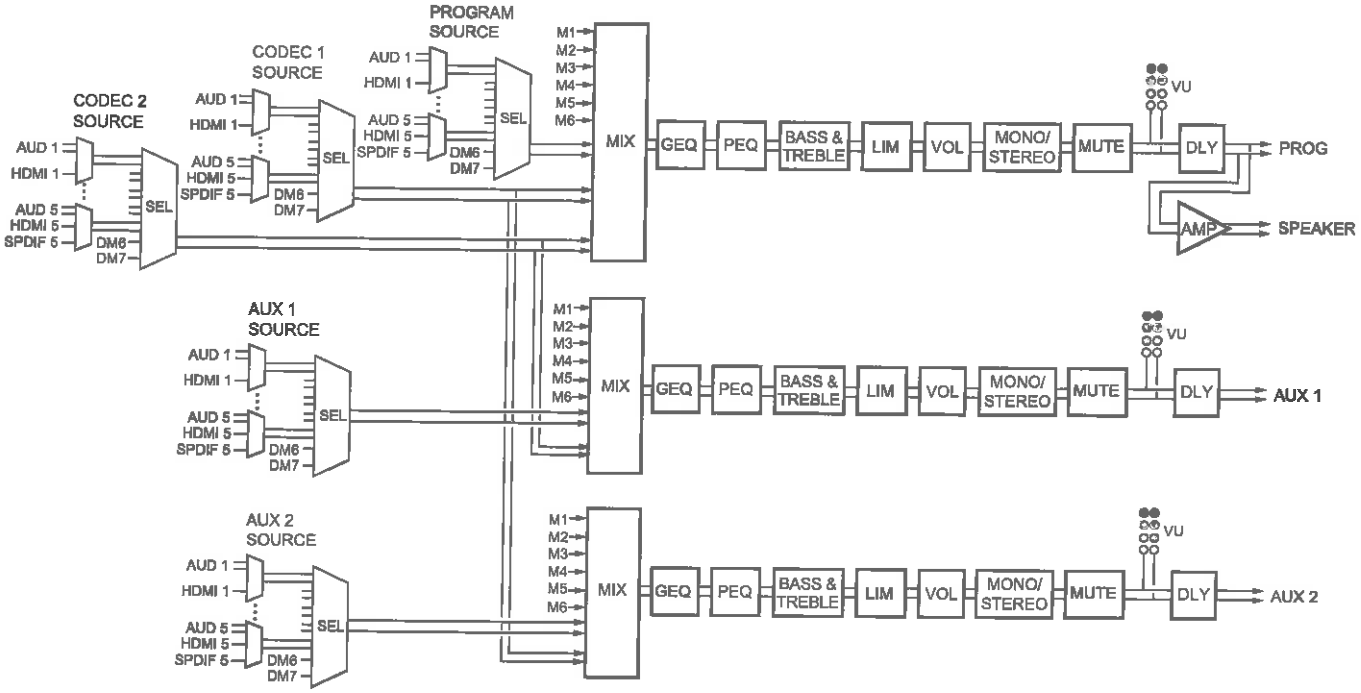
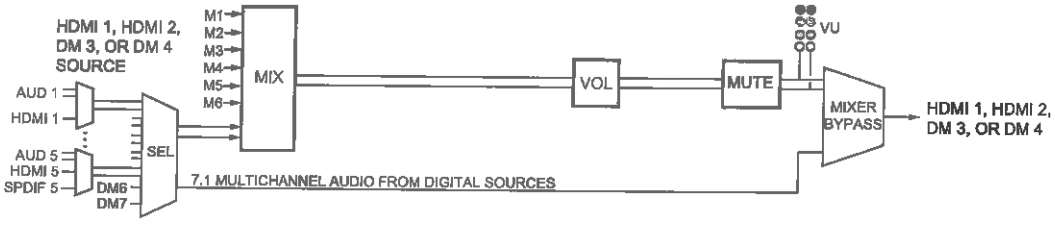
AV SIGNAL FLOW DIAGRAMS

Microphone Inputs (Typical of 6)

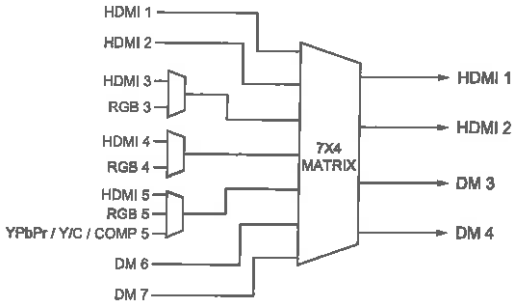


Analog Outputs



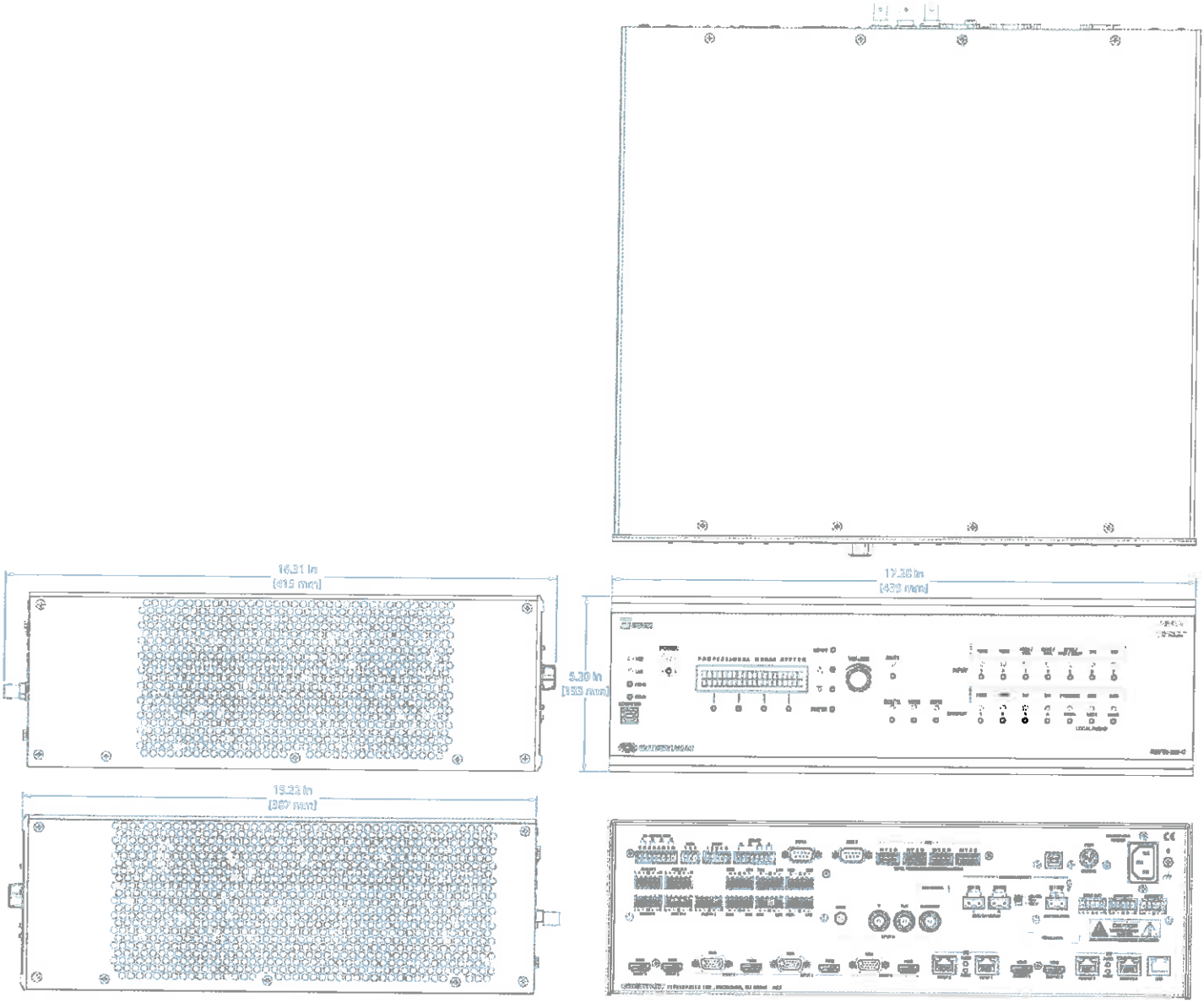
Digital Outputs (Typical of 4)

DMPS3-300-C 3-Series® DigitalMedia™ Presentation System 300



Video

DIMENSIONAL DIAGRAM



DM-RMC-4K-100-C

4K DigitalMedia 8G+® Receiver & Room Controller 100

- > *DigitalMedia 8G+® receiver and display controller*
- > *Connects to a DM® switcher or transmitter over a single CAT type twisted pair cable [1]*
- > *HDBaseT® Certified — Enables direct connection to other HDBaseT certified equipment*
- > *Provides one HDMI® or DVI display output [2]*
- > *Handles video resolutions up to 4K and Ultra HD*
- > *Handles 3D video and Deep Color*
- > *Handles Dolby® TrueHD, Dolby Atmos®, DTS-HD®, and uncompressed 7.1 linear PCM audio*
- > *HDCP 2.2 compliant*
- > *Supports cable lengths up to 330 ft (100 m) for all resolutions up to UHD and 4K using DM Ultra cable [1]*
- > *Supports cable lengths up to 330 ft (100 m) for 1080p, WUXGA, and 2K using DM 8G® cable or CAT5e [1]*
- > *Supports cable lengths up to 230 ft (70 m) for UHD and 4K using DM 8G cable, or 165 ft (50 m) using CAT5e [1]*
- > *Provides a 10/100 Ethernet LAN connection*
- > *Enables device control via CEC, IR, RS-232, and Ethernet*
- > *Compatible with Crestron® USB over Ethernet Extenders [5]*
- > *Allows quick, easy setup and diagnostics*
- > *Low-profile surface mount design*
- > *Powered via the DM connection or local power pack (included) [3,4]*

The DM-RMC-4K-100-C provides a simple one-box interface solution for a single display device as part of a complete Crestron® DigitalMedia™ system. It functions as a DM 8G+® receiver and control interface, providing a single HDMI® output along with Ethernet, RS-232, and IR control ports. In addition to DM 8G+, it is also compatible with HDBaseT®, allowing it to be connected directly to an HDBaseT certified source. Its compact, low-profile design allows the DM-RMC-4K-100-C to be installed discreetly behind a flat panel display or above a ceiling mounted projector. It connects to the head end or source location using a single CAT type twisted pair cable.[1]

4K Ultra HD

Crestron DigitalMedia continues to advance the standard for digital AV signal distribution, delivering the world's first end-to-end 4K system solution. The DM-RMC-4K-100-C features the latest DM 8G+ technology, providing support for the transport of 4K and Ultra HD video signals. Support for 4K video also ensures support for the latest generation of computers and monitors with native resolutions beyond 1080p and WUXGA.

DigitalMedia 8G+®

As the leader in HDMI and control system technologies, Crestron developed DigitalMedia (DM™) to deliver the first complete HD AV distribution system to take HDMI to a higher level. DigitalMedia allows virtually any mix of HDMI and other AV sources to be distributed throughout a home, office, school, or virtually any other facility. The latest generation of DM is called DigitalMedia 8G™ (DM 8G®). Engineered for ultra high-bandwidth and ultimate scalability, DM 8G provides a true one-wire lossless transport for moving high-definition video, audio, Ethernet, and control signals over a choice of low-cost twisted pair or fiber optic cable.

DM 8G over twisted pair copper wire is called DigitalMedia 8G+ (DM 8G+). DM 8G+ handles uncompressed Full HD 1080p, Ultra HD, 2K, and 4K video signals with support for 3D, Deep Color, and HDCP 2.2. Audio capabilities include support for high-bitrate 7.1 audio formats like Dolby® TrueHD, Dolby Atmos®, and DTS-HD® as well as uncompressed linear PCM. All signals are transported over a single CAT type cable, supporting 1080p, WUXGA, and 2K signals at distances up to 330 feet (100 m) using Crestron DM Ultra Cable, Crestron DM 8G Cable, or third-party CAT5e. Higher resolutions up to UHD and 4K are supported at distances up to 330 feet (100 m) using DM Ultra Cable, 230 feet (70 m) using DM 8G Cable, or 165 feet (50 m) using CAT5e.[1]

HDBaseT® Certified

Crestron DigitalMedia 8G+ technology is designed using HDBaseT Alliance specifications, ensuring interoperability with other HDBaseT certified products. Via its DM 8G+ input, the DM-RMC-4K-100-C can be connected directly to an HDBaseT compliant source without requiring a DM transmitter.

Multimedia Display Interface

A single HDMI digital AV output port is provided on the DM-RMC-4K-100-C for connection to a display or other device. The HDMI output can also handle DVI signals using an appropriate adapter or interface cable.[2]

A single CAT type cable connects the DM-RMC-4K-100-C to a DM switcher or transmitter, or to an HDBaseT source, transporting video, audio, control, networking, and power signals all through one simple RJ45 connection.[1,3,4] Multiple DM-RMC-4K-100-Cs may be installed to handle each display in a multiroom distribution system, all fed from a central DM-MD series switcher. Or, a single DM-RMC-4K-100-C can be fed straight from a DM 8G+ or HDBaseT transmitter, affording a simple solution for extending a computer or AV signal to a single display.

DM-RMC-4K-100-C 4K DigitalMedia 8G+® Receiver & Room Controller 100

DM-RMC-4K-100-C – Left, Front, and Right Side Views

LAN Connectivity

Along with high-definition AV and control, DigitalMedia also integrates high-speed Ethernet networking for a total signal distribution solution. The DM-RMC-4K-100-C includes a 10/100 Ethernet port, which can be used to provide a convenient LAN connection for a local network device.

Embedded Device Control

The DM-RMC-4K-100-C includes built-in RS-232, IR, and Ethernet control ports to enable programmable control of the display device connected to it (via a control system). It also offers an alternative to such conventional control methods by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI. Through its connection to the control system, the DM-RMC-4K-100-C provides a gateway for controlling the display device right through the HDMI connection, potentially eliminating the need for any dedicated control wires or IR emitters.

USB Signal Extension (optional)

DigitalMedia allows for the routing of USB signals alongside video and audio. USB signal extension is enabled on the DM-RMC-4K-100-C by adding a USB-EXT-DM USB over Ethernet Extender Module [5].

Low-Profile Installation

The DM-RMC-4K-100-C mounts conveniently to a wall, ceiling, or other flat surface. At just one inch deep, it fits easily behind a flat panel display or above a ceiling-mounted projector. The unit can be powered using the wall mount power pack (included), or PoDM (Power over DigitalMedia) for a true one-wire solution.[3,4] All connections and LED indicators are positioned on the sides, ensuring optimal access and visibility for a clean, serviceable installation. An array of indicators is provided for easy setup and troubleshooting.

Please refer to the DigitalMedia Resources Webpage at http://www.crestron.com/dmresources/ for additional design tools and reference documents.

SPECIFICATIONS

Maximum Cable Lengths

Cable Type: / Resolution:	DM-CBL-ULTRA DM® Ultra Cable	DM-CBL-8G DM 8G® Cable	CAT5e (or better) [1]
1080p60 Full HD	330 ft (100 m)	330 ft (100 m)	330 ft (100 m)
1920x1200 WUXGA			
1600x1200 UXGA			
2048x1080 DCI 2K			
2560x1440 WQHD		230 ft (70 m)	165 ft (50 m)
2560x1600 WQXGA			
3840x2160 4K UHD			
4096x2160 DCI 4K			

DM-RMC-4K-100-C 4K DigitalMedia 8G+® Receiver & Room Controller 100

Video

Input Signal Types: DM 8G+ & HDBaseT w/Deep Color, 3D, & 4K
Output Signal Types: HDMI w/Deep Color, 3D, & 4K (DVI compatible [2])

Maximum Resolutions:

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	4096x2160 DCI 4K & 3840x2160 4K UHD	24 Hz	4:4:4	30 bit
		30 Hz	4:4:4	24 bit
		30 Hz	4:2:2	36 bit
		60 Hz	4:2:0	24 bit
	2560x1600 WQXGA	60 Hz	4:4:4	36 bit
	1920x1080 HD1080p	60 Hz	4:4:4	36 bit
Interlaced	1920x1080 HD1080i	30 Hz	4:4:4	36 bit

NOTE: Common resolutions are shown; other custom resolutions are supported at pixel clock rates up to 300 MHz

Audio

Input Signal Types: DM 8G+, HDBaseT
Output Signal Type: HDMI
Formats: Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby® TrueHD, Dolby Atmos®, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio™, LPCM up to 8 channels

Communications

Ethernet: 10/100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP
RS-232: 2-way device control and monitoring up to 115.2k baud with hardware and software handshaking (via control system)
IR/Serial: 1-way device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5 Volts) up to 19.2k baud (via control system)
DigitalMedia: DM 8G+, HDCP 2.2, EDID, CEC, PoDM, Ethernet
HDBaseT: HDCP 2.2, EDID, PoE, Ethernet
HDMI: HDCP 2.2, EDID, CEC
NOTE: Supports management of HDCP and EDID; supports management of CEC between the connected HDMI device and a control system

Connectors

HDMI OUT: (1) 19-pin Type A HDMI female;
HDMI digital video/audio output (DVI compatible [2])

COM: (1) 5-pin 3.5 mm detachable terminal block;
Bidirectional RS-232 port;
Up to 115.2k baud, hardware and software handshaking support

IR 1 – 2: (1) 4-pin 3.5 mm detachable terminal block;
Comprises (2) IR/Serial ports;
IR output up to 1.1 MHz;
1-way serial TTL/RS-232 (0-5 Volts) up to 19200 baud

LAN: (1) 8-pin RJ45 female, shielded;
10Base-T/100Base-TX Ethernet port

Ground: (1) 6-32 screw;
Chassis ground lug

DM IN: (1) 8-pin RJ45 female, shielded;
DM 8G+ input, HDBaseT compliant;
PoDM PD port (HDBaseT PoE compatible) [3,4];
Connects to the DM 8G+ output of a DM switcher, transmitter, or other DM device, or to an HDBaseT device, via CAT5e, Crestron DM-CBL-8G, or Crestron DM-CBL-ULTRA cable [1]

24VDC 0.75A MAX: (1) 2.1 x 5.5 mm DC power connector;
24 Volt DC power input;
PW-2407WU power pack included

Controls & Indicators

HDMI OUT: (1) Green LED, indicates video signal presence at the HDMI output
LAN: (2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity
DM IN: (2) LEDs, green LED indicates DM link status, amber LED indicates video and HDCP signal presence
RESET: (1) Recessed pushbutton, for hardware reset
SETUP: (1) Red LED and (1) recessed pushbutton, for Ethernet setup
24VDC: (1) Green LED, indicates operating power supplied via PoDM, HDBaseT PoE, or local power pack

Power

Power Pack (Included): Input: 100-240 Volts AC, 50/60 Hz
Output: 0.75 Amps @ 24 Volts DC
Model: PW-2407WU

Power over DM (PoDM): IEEE 802.3at Type 1 Class 3 (12.95 W) compliant PoDM PD (Powered Device), capable of being powered by a PoDM PSE (Power Sourcing Equipment) [3]

Power over HDBaseT: IEEE 802.3at Type 1 Class 3 (12.95 W) compliant HDBaseT PoE PD (Powered Device), capable of being powered by an HDBaseT PoE PSE (Power Sourcing Equipment) [4]

Environmental

Temperature: 32° to 104° F (0° to 40° C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: 29 BTU/hr

Enclosure

Chassis: Metal, black finish, with (2) integral mounting flanges, vented top and bottom
Mounting: Freestanding, surface mount, or attach to a single rack rail

Dimensions

Height: 6.09 in (155 mm)
Width: 5.68 in (145 mm)
Depth: 1.02 in (26 mm)

DM-RMC-4K-100-C 4K DigitalMedia 8G+® Receiver & Room Controller 100

Weight

16.5 oz (468 g)

MODELS & ACCESSORIES

Available Models

DM-RMC-4K-100-C: 4K DigitalMedia 8G+® Receiver & Room Controller 100

Included Accessories

PW-2407WU: Wall Mount Power Pack 24VDC, 0.75A, Universal (Qty. 1 included)

Available Accessories

DM-PSU-ULTRA-MIDSPAN: DigitalMedia™ Ultra Midspan PoDM++ Injector
DM-CBL-ULTRA-PC: DigitalMedia™ Ultra Patch Cables
DM-CONN-ULTRA-RECP: DigitalMedia™ Ultra Keystone RJ45 Jack
DM-CBL-ULTRA-NP: DigitalMedia™ Ultra Cable, Non-Plenum Type CMR
DM-CBL-ULTRA-P: DigitalMedia™ Ultra Cable, Plenum Type CMP
DM-CBL-ULTRA-LSZH: DigitalMedia™ Ultra Cable, Low Smoke Zero Halogen
DM-CONN: Connector for DM-CBL-ULTRA
DM-CBL-8G-NP: DigitalMedia 8G™ Cable, non-plenum
DM-CBL-8G-P: DigitalMedia 8G™ Cable, plenum
DM-8G-CONN: Connector for DM-CBL-8G
DM-8G-CRIMP: Crimping Tool for DM-8G-CONN
DM-8G-CONN-WG: Connector with Wire Guide for DM-CBL-8G
DM-8G-CRIMP-WG: Crimping Tool for DM-8G-CONN-WG
CBL Series: Crestron® Certified Interface Cables
MP-WP Series: Media Presentation Wall Plates
MPI-WP Series: Media Presentation Wall Plates - International Version
CNSP-XX: Custom Serial Interface Cable
IRP2: IR Emitter Probe w/Terminal Block Connector
USB-EXT-DM: USB over Ethernet Extender with Routing

Notes:

1. The maximum cable length for DigitalMedia 8G+ (DM 8G+) or HDBaseT is dependent upon the type of cable and resolution of the video signal. Refer to the "Maximum Cable Lengths" table for a detailed overview. Crestron legacy cable models DM-CBL DigitalMedia Cable and DM-CBL-D DigitalMedia D Cable support the same resolutions and cable lengths as CAT5e. Shielded cable and connectors are recommended to safeguard against unpredictable environmental electrical noise which may impact performance at resolutions above 1080p. Refer to the Crestron DigitalMedia Design Guide, Doc. #4546 for complete system design guidelines. DM 8G+ is compatible with HDBaseT Alliance specifications for connecting to HDBaseT compliant equipment. All wire and cables are sold separately.
2. The HDMI output requires an appropriate adapter or interface cable to accommodate a DVI signal. CBL-HD-DVI interface cables are available separately.
3. To power the DM-RMC-4K-100-C using PoDM (Power over DigitalMedia) requires connection to a DM switcher or other equipment that has a PoDM PSE port. Any wiring that is connected to a PoDM PSE port is for intra-building use only and should not be connected to a line that runs outside of the building in which the PSE is located.
4. To power the DM-RMC-4K-100-C using HDBaseT PoE requires connection to a switcher or other equipment that has an HDBaseT PoE PSE port. Any wiring that is connected to an HDBaseT PoE PSE port is for intra-building use only and should not be connected to a line that runs outside of the building in which the PSE is located.
5. USB-EXT-DM USB over Ethernet Extender Modules are sold separately. Refer to the USB-EXT-DM spec sheet for more information.

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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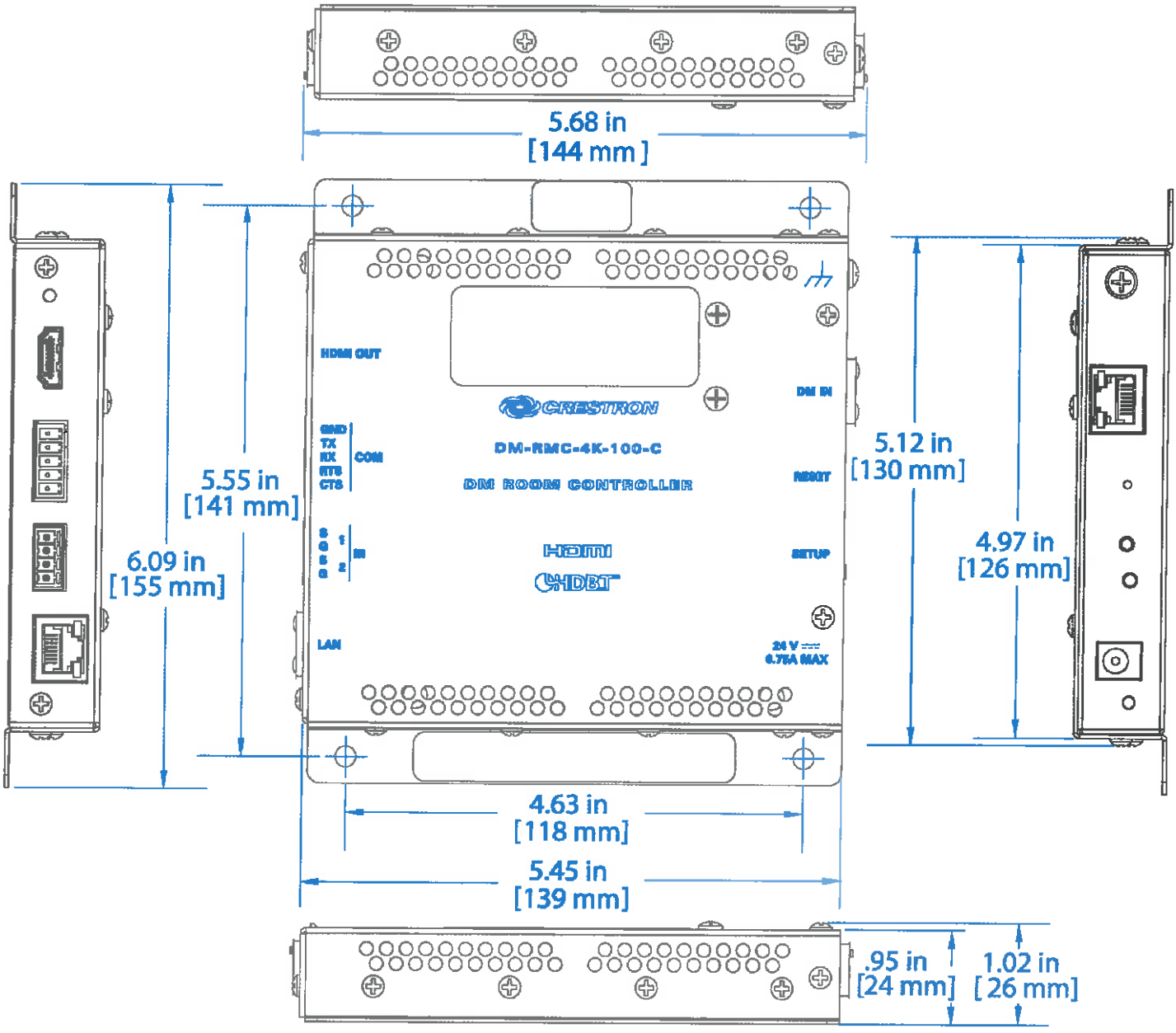
DM-RMC-4K-100-C 4K DigitalMedia 8G+® Receiver & Room Controller 100



TT-100

Crestron Connect It™ Cable Caddy

- > *Simple-to-use tabletop presentation interface*
- > *Stylish, unimposing design*
- > *Simple one-touch toggling between multiple presenters*
- > *Soft-touch capacitive buttons with multicolored status indicators*
- > *Convenient left or right hand access*
- > *Recessed cable storage compartment*
- > *Available with or without cables*
- > *Optional 120 Volt AC power outlet*
- > *4K and Ultra HD compatible*
- > *Compact and easy to install*
- > *Available in black or gray textured*
- > *Integrates with DigitalMedia™ and other systems*
- > *Complete system solutions available with no programming required*

TT-101-B-T
model shown

Crestron Connect It™ offers a cost-effective, simple-to-use presentation solution that provides connectivity, cable management, and one-touch control, all in one stylish tabletop device that's remarkably easy to install. Using a Crestron Connect It Cable Caddy (TT-100 Series), anyone can easily connect their laptop, tablet, or smartphone device and instantly start presenting. Multiple cable caddies can be deployed across any sized table to enable natural, free-flowing collaboration amongst several participants in a huddle room, conference room, council chamber, or training lab. Simple one-touch control at each cable caddy makes toggling between sources effortless.

Four Crestron Connect It Cable Caddy models are available:

TT-100 – Includes a 120 Volt outlet and space for four customer-supplied cables

TT-101 – Includes a 120 Volt outlet plus HDMI®, VGA, Audio, and Ethernet cables

TT-110 – Provides space for four customer-supplied cables; no outlet

TT-111 – Includes HDMI, VGA, Audio, and Ethernet cables; no outlet

Connect to Present, Tap to Switch

Starting a presentation and switching between presenters is incredibly easy and intuitive. To begin, simply connect a source and the room display automatically turns on and displays that source. With a simple tap of the finger, any other presenter can take over the presentation at any time via a pair of soft-touch capacitive buttons, conveniently positioned for left or right hand access. Multi-colored lights surrounding each button clearly indicate when a source is connected and ready, and when that source is being displayed.

A Personal Connection

Stowed neatly within its recessed storage compartment, the Crestron Connect It Cable Caddy provides four easy pull-out interface cables for HDMI, VGA, Audio, and Ethernet. Custom cables can also be accommodated, and select models include a single AC power outlet.

The "Hole" Thing

Mounting the cable caddy device requires just a 4 inch (102 mm) round hole through the tabletop surface. The device is secured in place with a single twist-on locking ring, which features three lock-down screws to prevent the device from coming loose.

The Whole Package

A complete Crestron Connect It collaboration solution is incredibly easy to specify and install. A single presentation switcher mounts conveniently under the table to enable automatic switching for up to four TT-100 series cable caddies. It can also provide control and connectivity for the room's display device along with a host of other features and functions, all without requiring any custom programming. Three presentation switcher options are available including the HD-MD8X1-4K 4K Scaling Presentation Switcher, the DM-MD8X1-4K-C 4K Scaling Presentation Switcher w/HDBaseT® Output, and the DMPS3-4K-150-C 3-Series® 4K DigitalMedia™ Presentation System 150. Just add a Crestron® sound bar (CCS-SPK-SB-100), or an MP-AMP30 or MP-AMP40 amplifier with Saros® speakers for a total huddle room collaboration solution.[1]

Other system configurations are possible using any Crestron DMPS3 system or DigitalMedia switcher. Integration with a Crestron Control System is enabled directly via Cresnet®, or through a DM 8G+® transmitter via USB. A DM 8G+ transmitter offers a long-distance, single-wire interface with auto-switching inputs for a single TT-100 series cable caddy.[2,3]

TT-100 Crestron Connect It™ Cable Caddy

SPECIFICATIONS

Controls & Indicators

"Connect It" Buttons: (2) Soft-touch capacitive buttons; Press either button to select the connected video source for viewing on a display device

"Connect It" Indicators: (2) Multicolored LED indicators:

Blue (solid) – Indicates no video source is connected
Green (blinking) – Indicates a video source is connected and the display device is powering up
Green (solid) – Indicates the connected video source is selected for viewing on the display device
Green (slow pulse) – Indicates a video source is connected but not currently selected for viewing
Red (blinks 5 times) – Indicates one of the "Connect It" buttons has been pressed but no video source is connected

Communications

Cresnet®: Cresnet slave mode
USB: USB OTG port for interfacing with select Crestron devices including: DMPS3-4K-150-C, DM-MD8X1-4K-C, HD-MD8X1-4K, DM-TX-4K-202-C, DM-TX-4K-302-C, DM-TX-401-C, or DM-TX-201-C [3]

Connections - Top

Cable Storage Compartment: Provides pass-thru holes for up to four cables; Models TT-101 and TT-111 include the following cables:

- HDMI, Type A, 6 ft (1.8 m)
- VGA, HD15, 6 ft (1.8 m)
- Stereo Audio, 3.5mm TRS, 6 ft (1.8 m)
- LAN, Shielded CAT5e, RJ45, 7 ft (2.1 m)

AC Power Outlet (TT-100 & TT-101 only): (1) NEMA 5-15R grounded AC power receptacle;
Maximum Load: 10 Amps @ 125 Volts AC, 50/60 Hz

Connections - Bottom Panel

NET: (1) 4-pin 3.5 mm detachable terminal block; Cresnet slave port

USB: (1) USB Type mini-AB female, USB OTG port;
Includes a 6.5 ft (2 m) mini-B to A USB cable for connection to a DMPS3-4K-150-C, DM-MD8X1-4K-C, HD-MD8X1-4K, DM-TX-4K-202-C, DM-TX-4K-302-C, or DM-TX-401-C;
Includes a 6 ft (1.8 m) mini-A to B USB cable for connection to a DM-TX-201-C [3]

Utility Power (TT-100 & TT-101 only): (1) 9 ft (2.7 m) AC line cord with NEMA 5-15P grounded plug; Passes through to front panel AC power outlet

Power Requirements

Cresnet Power Usage: 1.2 Watts (0.05 Amps @ 24 Volts DC)
USB: 5 Volts DC, draws power from USB if Cresnet power is not connected, and only when connected to a USB host port [3]
Utility Power (TT-100 & TT-101 only): 10 Amps at 125 Volts AC 50/60Hz

TT-111-GRY-T – Shown with cables installed

Environmental

Temperature: 32° to 112° F (0° to 45° C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: <0.05 BTU/hr

Construction

Housing: Plastic
Mounting: Flush tabletop mount in a 4 inch (102 mm) round hole, 1/2 to 1-1/4 inch (13 to 32 mm) surface thickness

Dimensions

Height: 3.76 in (96 mm)
Diameter: 4.71 in (120 mm);
5.90 in (150 mm) with locking ring

Weight

15.3 oz (433 g) without cables

TT-100 Crestron Connect It™ Cable Caddy

MODELS & ACCESSORIES

Available Models

TT-100-B-T: Crestron Connect It™ Cable Caddy w/120V Outlet, No Cables, Textured Black
TT-100-GRY-T: Crestron Connect It™ Cable Caddy w/120V Outlet, No Cables, Textured Gray
TT-101-B-T: Crestron Connect It™ Cable Caddy w/Cables & 120V Outlet, Textured Black
TT-101-GRY-T: Crestron Connect It™ Cable Caddy w/Cables & 120V Outlet, Textured Gray
TT-110-B-T: Crestron Connect It™ Cable Caddy, No Cables or Outlet, Textured Black
TT-110-GRY-T: Crestron Connect It™ Cable Caddy, No Cables or Outlet, Textured Gray
TT-111-B-T: Crestron Connect It™ Cable Caddy w/Cables, No Outlet, Textured Black
TT-111-GRY-T: Crestron Connect It™ Cable Caddy w/Cables, No Outlet, Textured Gray

Available Accessories

HD-MD8X1-4K: 4K Scaling Presentation Switcher
DM-MD8X1-4K-C: 4K Scaling Presentation Switcher w/HDBaseT® Output
DMPS3-4K-150-C: 3-Series® 4K DigitalMedia™ Presentation System 150
DM-TX-4K-302-C: 4K DigitalMedia 8G+® Transmitter 302
DM-TX-4K-202-C: 4K DigitalMedia 8G+® Transmitter 202
DM-TX-401-C: DigitalMedia 8G+® Transmitter 401
DM-TX-201-C: DigitalMedia 8G+® Transmitter 201
PW-2407RU: 18 Watt Cresnet® Power Supply, US/International
CBL-Series: Crestron® Certified Interface Cables

Notes:

1. Item(s) sold separately.
2. Compatible DM 8G+ Transmitters include the DM-TX-4K-202-C, DM-TX-4K-302-C, DM-TX-401-C, and DM-TX-201-C, all sold separately.
3. The DM-TX-201-C does not have a USB host port. It has a USB device port, which does not supply USB power. When connected to a DM-TX-201-C, the cable caddy must be powered through a connection to a Cresnet network or power supply. The PW-2407RU 18 Watt Cresnet Power Supply (sold separately) is available to power multiple cable caddies.

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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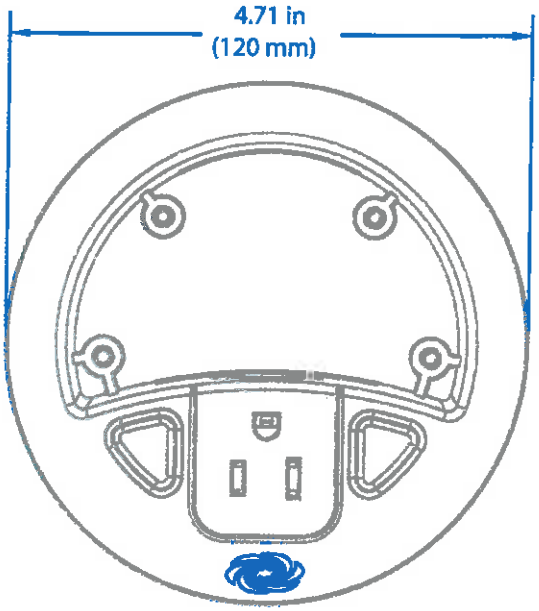
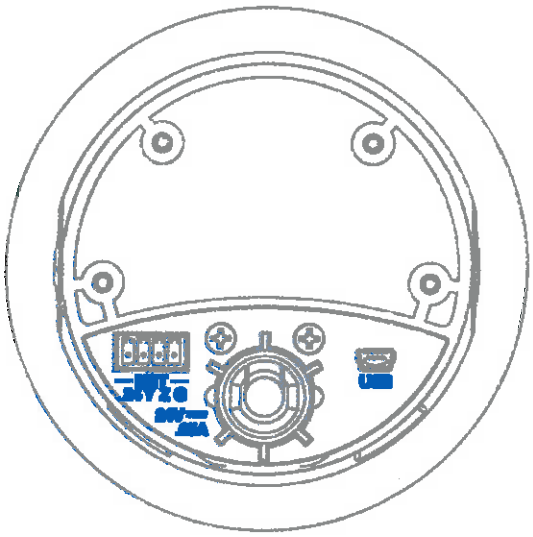
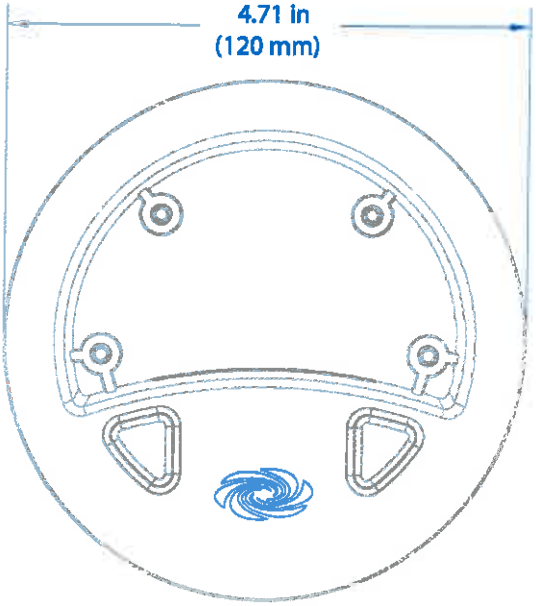
TT-100 Crestron Connect It™ Cable Caddy



TT-100





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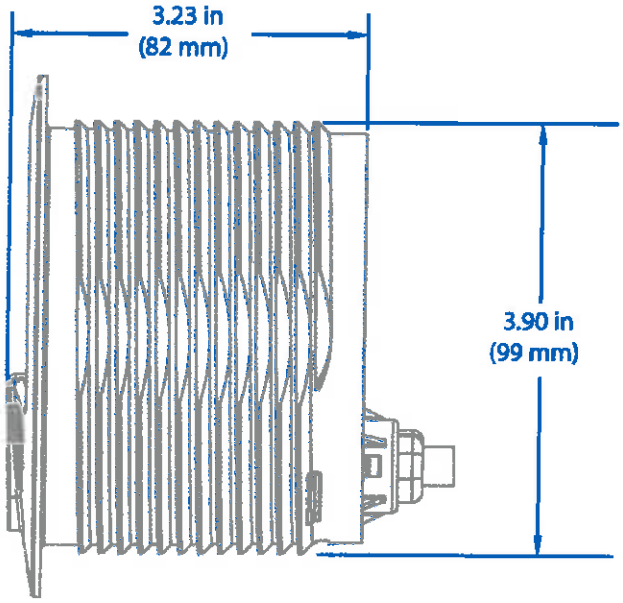

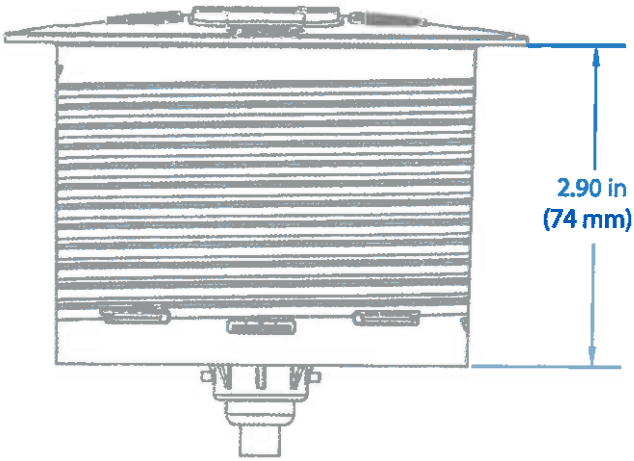

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Specifications subject to change without notice. Revised 02.12.18

TST-602

5.7" Wireless Touch Screen

- > *Advanced wireless touch screen controller*
- > *Compact, lightweight contoured design*
- > *5.7" LED Edgelit color LCD display*
- > *Capacitive touch screen technology*
- > *Smart Graphics™ support[11]*
- > *Voice recognition capability[1,2]*
- > *High-performance H.264 streaming video[1]*
- > *Rava® SIP intercom and phone technology[1]*
- > *Customizable audio feedback*
- > *Web browsing[1,2]*
- > *On-screen keyboard and mouse*
- > *Customizable screensaver*
- > *Built-in microphone and speakers*
- > *Illuminated buttons and engravable backlit text[3]*
- > *No-button front bezel option included*
- > *Dual-mode RF wireless performance — Extended Range 2.4 GHz RF plus Wi-Fi®[8]*
- > *Instant-Waking® behavior — like an IR remote with all the benefits of 2-way RF!*
- > *Supports roaming for extended wireless coverage[7]*
- > *Includes wired Ethernet connectivity as an alternative to Wi-Fi[1]*
- > *Fast charging, long lasting Li-Ion battery*
- > *Low-profile table dock charger[9]*
- > *Available in smooth black or white, or textured black finishes*

The Crestron® TST-602 Wireless Touch Screen delivers enhanced wireless control for the home, boardroom, or classroom in a stylish, ergonomic design. Its curved shape feels natural in the hands, with easy-access thumb-operable buttons placed to either side of a perfectly-sized color touch screen display. Dual-mode wireless performance with roaming capability assures dependable connectivity throughout the home or workplace. Wired Ethernet connectivity is also available via the included table dock.

Featuring a high-contrast 5.7" capacitive touch screen with Smart Graphics™, the TST-602 allows completely customizable control over audio, video, lighting, shades, climate, security, and other technologies. Scrolling menus of media titles and channel presets make it quick and easy to find and select any TV channel, video title, or music track. Optional tactile pushbuttons provide easy, immediate access to commonly used functions such as volume, mute, power, and on-screen menu navigation. Additional advanced features include the abilities to control any function using voice commands, view security cameras and other video sources, communicate using built-in intercom and phone capabilities, and browse the Internet.[1,2]

Smart Graphics™

Crestron touch screens use Smart Graphics to deliver the ultimate user experience *and* the ultimate value by enabling the creation of dynamically rich user interfaces with incredible efficiency and unparalleled functionality. Using Smart Graphics, programmers can swiftly integrate fluid gesture-driven controls, animated feedback, rich metadata, embedded apps and widgets, and full-motion video for a deeply engaging and ultra-intuitive touch screen experience.

Crestron Smart Graphics offers these enhancements and more:

- Cool-looking graphical buttons, sliders, knobs, and gauges that are intuitive and fun to use
- Kinetic effects to enhance the feeling of realism, with lists and toolbars that scroll with momentum at the flick of a fingertip
- Drag-and-drop objects that snap into place, offering an easy way to switch sources
- Dashboard widgets to personalize the touch screen with clocks, weather, news, and other information[2]
- A power-saving screensaver, allowing display of time, temperature, and other text content at a reduced brightness level
- Customizable themes allowing a completely different look and feel for every user, event, or season
- Fully-developed SmartObjects® that enable sophisticated control over complex devices with minimal programming
- A consistent look and feel across multiple touch screens of varying sizes

Tactile Pushbuttons

In addition to its touch screen display, the TST-602 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 touch screen 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. 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, which may be installed in place of the button bezel for a very clean appearance with no front panel pushbuttons.[3]

Two additional itrigger" style buttons are positioned on top of the TST-602 for easy control of the display brightness, sleep mode, and other programmable functions.

Voice Recognition

Some things are easier *said* than *done*, so why not just *say* what you want and let Crestron *do* it for you? With built-in voice recognition, the TST-602 provides the ability to use spoken commands to control virtually anything. Voice recognition can be used to quickly turn devices on or off, select and play a specific media title or playlist, change the channel, choose a lighting scene, lock the doors, arm the security system, or enter a password. Simply press the Voice Recognition button on the touch screen and say a command and Crestron does the rest.[1,2]

Streaming Video

High-performance streaming video capability makes it possible to view security cameras and other video sources right on the touch screen. Native support for H.264 and MJPEG formats allows the TST-602 to display live streaming video from an IP camera, a streaming server (Crestron CEN-NVS200, DM-TXRX-100-STR, or similar[4]), or a DigitalMedia™ switcher.[1]

Rava® SIP Intercom

Rava SIP Intercom Technology enables hands-free VoIP communication with other Rava-enabled touch screens and door stations, supporting 2-way intercom, video intercom[5], and paging. VoIP phone capability is also possible through integration with an SIP-compatible IP phone system or SIP server, allowing hands-free telephone functionality complete with speed-dialing, caller ID, custom ringers, and other enhancements. Built-in echo cancellation affords full-duplex performance for clear, seamless voice communication using the TST-602's integrated microphone and speakers.[1]

Web Browsing

Using its built-in web browser, the TST-602 provides quick access to online program guides and other web-based services at the touch of a button, allowing enhanced touch screen control of DVRs and other appliances without having to pick up a separate tablet or smartphone. If a device can be controlled or managed through a web browser, it can be integrated into the Crestron system through the TST-602. Of course, the web browser may also be used to simply browse the Internet, watch online videos, and check up on social media.[1,2]

Multi-Touch Support

The TST-602's capacitive touch screen affords enhanced capabilities for navigating web pages using multi-touch gestures.

On-Screen Keyboard & Mouse

On-screen multi-language keyboard and mouse capabilities provide for entry of passwords, URLs, and text search items, and enable the touch screen to be used as a wireless mouse touchpad to control a computer running TouchPoint® Virtual Mouse & Keyboard Software (VMK-WIN).

Audio Feedback

Customized audio files can be loaded on the TST-602 to add another dimension to the touch screen graphics using personalized sounds, button feedback, and voice prompts.

Dual-Mode Wireless

To deliver the ultimate in wireless touch screen performance and functionality, the TST-602 employs a combination of Crestron Extended Range 2.4 GHz RF (ER) and Wi-Fi® wireless technologies.

- **Extended Range RF (Required)** — Primary functionality is supported via Crestron ER (Extended Range) wireless communications, providing seamless control with true feedback using the TST-602's tactile buttons and basic touch screen objects. A single ER gateway[4] enables ultra dependable wireless performance at a range of up to 200 feet (60 m) indoors.[6] Roaming capability allows for even greater coverage using up to eight ER gateways.

- **Wi-Fi (Optional)** — While the TST-602 can be operated using only ER wireless, advanced wireless capabilities such as streaming video, intercom, voice recognition, web browsing, and dynamic graphics can only be supported using both ER and Wi-Fi together (dual-mode). Crestron enhanced Wi-Fi wireless performance achieves a remarkable 50 feet (15 m) omnidirectional coverage indoors.[6] For Wi-Fi networks with multiple access points, the TST-602 supports the ability to hand off communication from one access point to another if the active connection is lost.[7] The choice of 802.11 b, g, and n protocols affords reliable, high-speed wireless performance in virtually any RF environment. For optimal Wi-Fi performance, Crestron offers the CEN-WAP-1500 High Power Dual-Band Wireless Access Point.

IMPORTANT: EVERY INSTALLATION OF THE TST-602 REQUIRES A CRESTRON ER WIRELESS GATEWAY TO ENABLE ESSENTIAL WIRELESS CAPABILITY. THE TST-602 WILL NOT WORK WITH WI-FI (OR WIRED ETHERNET) ALONE.[8]

Instant-Waking®

To ensure the most transparent user experience possible, the TST-602 has been engineered to wake instantly at the press of a button or touch of the touch screen. Button presses are sent immediately, just like an IR remote but with none of IR's limitations. So spontaneous actions like muting the audio, pausing the video, or changing the channel can be executed on-the-fly with just a single button press.

Extended Battery Life

Intelligent power management and robust Lithium Ion battery technology afford up to 3.2 hours of continuous operation and several days of typical use between charges.

Table Dock Charger

The TST-602 includes a low-profile table dock for charging its internal battery. While docked, the touch screen remains fully operational so you're always in control. The table dock can also provide a wired Ethernet connection for the touch screen in the absence of Wi-Fi. The table dock and touch screen look stylish together sitting on a countertop or side table, and can also fit discreetly in a cabinet or drawer. A single cable connects the table dock to a compact interface module, which provides wired

connections for power and Ethernet. The interface module can be installed in a wall-mounted electrical box, or simply attached to any flat surface or a single rack rail. Power can be supplied using the included power pack or 24VDC Cresnet® power.[9,10]

SPECIFICATIONS

Note: See also TST-600-DS and TST-600-IMCW for additional specifications.

Touch Screen Display

Display Type: TFT Active matrix color LCD
Size: 5.7 inch (145 mm) diagonal
Aspect Ratio: 4:3 VGA
Resolution: 640 x 480 pixels
Brightness: 350 nits (cd/m²)
Contrast: 800:1
Color Depth: 18-bit, 262k colors
Illumination: Edgelit LED
Viewing Angle: ±80° horizontal, ±70° vertical
Touch Screen: Projected capacitive, 2-point multi-touch capable

Buttons, Switches, & Indicators

Sleep: (1) Top-mounted pushbutton (left); programmable, normally initiates "Sleep" mode when docked, turns power on/off when undocked; also resets the unit if held for 5 seconds
Brightness: (1) Top-mounted pushbutton (right); programmable, normally sets display brightness level
Hard Keys: (8) Optional pushbuttons, programmable, engravable backlit text[3]
Up/Down: (2) Optional backlit translucent "up" and "down" pushbuttons, programmable, engravable backlit text on bezel[3]
Navigation Pad: (5) Optional backlit translucent pushbuttons for 4-way directional navigation and "select", programmable
Battery Switch: (1) Rear panel recessed slide switch, shuts off battery for long-term storage
Battery LED: (1) Green LED, indicates battery condition and charging status when docked

Memory

LPDDR2 RAM: 1 GB
Flash: 4 GB
Maximum Project Size: 512 MB

Graphics Engine

Supports Smart Graphics™[11], multi-language web browser[1,2], multi-language on-screen keyboard, screensaver

Languages

Smart Graphics: Arabic, Chinese (Simplified), Chinese (Traditional), Czech, Danish, Dutch, English (UK), English (US), Finnish, French, German, Greek, Hebrew, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Portuguese (Brazilian), Romanian, Russian, Slovak, Spanish, Swedish, Thai
On-Screen Keyboard: Arabic, Chinese (Simplified), Croatian, Czech, Danish, Dutch, English (UK), English (US), Finnish, French (Canada), French (Switzerland), German, Hebrew, Hungarian, Italian, Japanese, Norwegian Bokmal, Polish, Portuguese, Russian, Serbian, Spanish, Swedish, Turkish
Voice Recognition: Afrikaans (South Africa); Chinese, Mandarin (China, Simplified); Chinese, Mandarin (Hong Kong, Simplified); Chinese, Mandarin (Taiwan, Traditional); Chinese, Yue (Hong Kong, Traditional); Czech (Czech Republic); Dutch (Netherlands); English (Australia); English (Canada); English (Generic); English (India); English (New Zealand); English (South Africa); English (UK); English (US); French (France); German (Germany); isiZulu (South Africa); Italian (Italy); Japanese (Japan); Korean (South Korea); Polish (Poland); Portuguese (Brazil); Russian (Russia); Spanish (Spain); Turkish (Turkey)
Web Browser: Arabic, Bulgarian, Catalan, Chinese, Croatian, Czech, Danish, Dutch, English, Filipino, Finnish, French, German, Greek, Hebrew, Hindi, Hungarian, Indonesian, Italian, Japanese, Korean, Latvian, Lithuanian, Norwegian Bokmal, Pashto, Persian, Polish, Portuguese, Romanian, Romansh, Russian, Serbian, Slovak, Slovenian, Spanish, Swedish, Thai, Turkish, Ukrainian, Vietnamese

Wireless Communication (Primary) – Extended Range RF[8]

RF Transceiver: 2-way RF, 2.4 GHz ISM Channels 11-26 (2400 to 2483.5 MHz), IEEE 802.15.4 compliant
Transmitting Power: 75 mW (Ch.11), 100 mW (Ch.12-23), 15 mW (Ch.24), 3.5 mW (Ch.25), 1 mW (Ch.26) @ High Setting; 1 mW (Ch.11-25), 0.5 mW (Ch.26) @ Low Setting
Range (typical): 100 to 200 feet (30 to 60 m) maximum indoor, 1000 feet (300 m) outdoor, subject to site-specific conditions
Gateway: Requires a Crestron Extended Range (ER) Wireless Gateway[4]
Roaming: Supports roaming between a maximum of eight gateways

Wireless Communication (Secondary) – Wi-Fi® [8]

Transceiver: IEEE 802.11b/g/n Wi-Fi (2.4 GHz 2-way RF), static IP or dynamic IP via DHCP
Security: 64 & 128-bit WEP, WPA™ & WPA2™-PSK with TKIP & AES
Range: Up to 50 feet (15 m), subject to site-specific conditions
Gateway: Requires a CEN-WAP-1500 or similar 802.11b/g/n wireless access point and Ethernet-enabled Crestron control system
Handoff: Supports handoff between a maximum of four Wi-Fi wireless access points[7]

Wired Communications

Ethernet[1]: (Via table or wall dock) 10/100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP
USB: USB client for console only

Video

Streaming Formats: H.264 (MPEG-4 part 10 AVC) or MJPEG, up to 1024x720 @ 30 fps[1]

TST-602 5.7" Wireless Touch Screen

Audio

Features: Built-in microphone and speakers, Rava® SIP Intercom [1], multi-language voice recognition [1,2]
Audio Feedback Formats: MP3

Connectors

Docking Connector: (1) Multi-pin connector;
Mates with the docking port on the table or wall dock [9]

USB: (1) Mini-B USB console port, for installer use only;
Mini-B to A USB cable included

NOTE: See TST-600-IMCW interface module specification for additional connectors [9]

Battery

Rechargeable Battery: Li-ion, 3.7 Volt, 3200 mAh, model TST-600-BTP [12]
Usage per Charge: 3.2 hours continuous, 90 hours under normal use (10% active duty cycle with standby/power down enabled)
Charging Time: 2.5 hours with touch screen in standby, 3.5 to 5 hours during use

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: 18 Watts (0.75 Amps @ 24 Volts DC) [10]

Note: May be powered by power pack or Cresnet network power, not both. All power connections are made via the TST-600-IMCW interface module [9,10]

Environmental

Temperature: 32° to 112° F (0° to 45° C);
50° to 104° F (10° to 40° C) while charging
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: 40 BTU/hr

Construction

Enclosure: Plastic, non-slip grips/feet, integral docking port
Front Bezels: Plastic, button and no-button bezels included, button bezel includes white translucent illuminated Up/Down and Navigation Pad buttons and 8 hardkey buttons with illuminated dividers and default backlit text engraving, optional custom backlit text engraving sold separately [3]

Dimensions

Height: 5.10 in (130 mm)
Width: 8.08 in (206 mm)
Depth: 1.59 in (41 mm)

Note: Combined height of the TST-602 touch screen docked on the TST-600-DS table dock [9] is 3.30 in (84 mm)

Weight

22.5 oz (636 g) without table dock or interface module

MODELS & ACCESSORIES

Available Models

TST-602-B-S: 5.7" Wireless Touch Screen, Black Smooth
TST-602-B-T: 5.7" Wireless Touch Screen, Black Textured
TST-602-W-S: 5.7" Wireless Touch Screen, White Smooth

Included Accessories

TST-600-BTP: Battery Pack (Qty. 1 included)
TST-600-DS-B-S: Table Dock, Black Smooth (Qty. 1 included with TST-602-B-S)
TST-600-DS-B-T: Table Dock, Black Textured (Qty. 1 included with TST-602-B-T)
TST-600-DS-W-S: Table Dock, White Smooth (Qty. 1 included with TST-602-W-S)
TST-600-IMCW: Interface Module for TST-600-DS (Qty. 1 included)
PW-2407WU: Wall Mount Power Pack, 24VDC, 0.75A, 2.1mm, Universal (Qty. 1 included)
TST-602-FPB-S-NB_FRONT_BEZEL: No-Button Bezel Kit, Black Smooth (Qty. 1 included with TST-602-B-S)
TST-602-FPB-T-NB_FRONT_BEZEL: No-Button Bezel Kit, Black Textured (Qty. 1 include with TST-602-B-T)
TST-602-FPW-S-NB_FRONT_BEZEL: No-Button Bezel Kit, White Smooth (Qty. 1 included with TST-602-W-S)

Available Accessories

TST-602-FP-BKLT-B-S_FRONT_BEZEL_BLANK: Button Bezel Kit, No Engraving, Black Smooth
TST-602-FP-BKLT-B-S_FRONT_BEZEL_ENGRAVED: Button Bezel Kit w/ Custom Backlit Engraving, Black Smooth
TST-602-FP-BKLT-B-T_FRONT_BEZEL_BLANK: Button Bezel Kit, No Engraving, Black Textured
TST-602-FP-BKLT-B-T_FRONT_BEZEL_ENGRAVED: Button Bezel Kit w/ Custom Backlit Engraving, Black Textured
TST-602-FPW-S_FRONT_BEZEL_ BLANK: Button Bezel Kit, No Engraving, White Smooth
TST-602-FPW-S_FRONT_BEZEL_ENGRAVED: Button Bezel Kit w/Custom Engraving, White Smooth
TST-600-SMK: Swivel Mount Kit for TST-600-DS
TST-600-DSW: Wall Dock
CEN-GWEXER: infiNET EX® & ER Wireless Gateway
MC3: 3-Series Control System® w/infiNET EX® & ER Wireless Gateway
DIN-AP3MEX: DIN Rail 3-Series® Automation Processor w/infiNET EX® & ER Wireless Gateway
CEN-WAP-1500: High Power Dual-Band Wireless Access Point
CBL-CAT5E-P-50: Ethernet LAN Cable, Plenum, 50 ft
CEN-NVS200: Network Video Streamer
DM-TXRX-100-STR: HD Streaming Transmitter/Receiver

TST-602 5.7" Wireless Touch Screen

SW-VMK-WIN: TouchPoint® Virtual Mouse & Keyboard Software for Windows®

Notes:

1. The TST-602 requires a LAN connection via either Wi-Fi wireless or wired Ethernet to enable advanced functionality including voice recognition, streaming video, intercom, web browsing, and dynamic graphics. In addition to Wi-Fi or Ethernet, the TST-602 requires ER (Extended Range) wireless communications for all applications to enable basic functionality. The TST-602 will not work with Wi-Fi or Ethernet alone. The wired Ethernet connection is only available when docked.
2. Voice recognition, web browsing, weather information, and certain other functions require an Internet connection via Wi-Fi or Ethernet.
3. Text engraving is not backlit on the white model. All models include a button bezel with default engraving. Custom engraving is sold separately. All buttons may be removed using the TST-602-FP-NB No-Button Bezel (included).
4. Item(s) sold separately.
5. H.264 compatible IP camera required.
6. Wireless range subject to site-specific conditions.
7. True roaming is supported for ER wireless communication only, affording uninterrupted wireless performance for primary touch screen functions. Wi-Fi ihandoff* capability enables automatic handoff amongst up to four pre-designated Wi-Fi wireless access points, wherein the last successful Wi-Fi connection is maintained indefinitely until that connection is lost, at which point communication is handed off to the next nearest access point. A very brief interruption to wireless Ethernet communication may occur during the handoff. Primary ER wireless communication is unaffected by the Wi-Fi handoff process.
8. ER (Extended Range) RF wireless communication supports basic wireless touch screen functionality, and is required for all applications. For advanced functionality including streaming video, intercom, voice recognition, web browsing, and dynamic graphics, Wi-Fi wireless communication is also required (dual-mode). The TST-602 will not work with Wi-Fi alone. Advanced functionality can also be enabled while docked through a wired Ethernet LAN connection (in combination with ER wireless).
9. The TST-602 ships with (1) TST-600-DS Table Dock and (1) TST-600-IMCW Interface Module included. Additional docking options are available separately. The TST-602 is compatible with any 24VDC powered TPS-6X series docking station (legacy) as long as power is provided using the power pack that ships with the TST-602 (or Cresnet power where supported). When docked in a TPS-6X series docking station, the TST-602 does not interface with Cresnet data or wired analog video. Refer to the spec sheet for each individual docking product for additional information.
10. Connection to a Cresnet power supply or network is for power only. Cresnet communication is not supported.
11. Supports Smart Graphics only. Not compatible with itraditional* UI projects.
12. Internal battery pack included. Battery pack replacement must be performed by a Crestron qualified technician.

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.

The specific patents that cover Crestron products are listed online at: patents.crestron.com

Certain Crestron products contain open source software. For specific information, please visit www.crestron.com/opensource.

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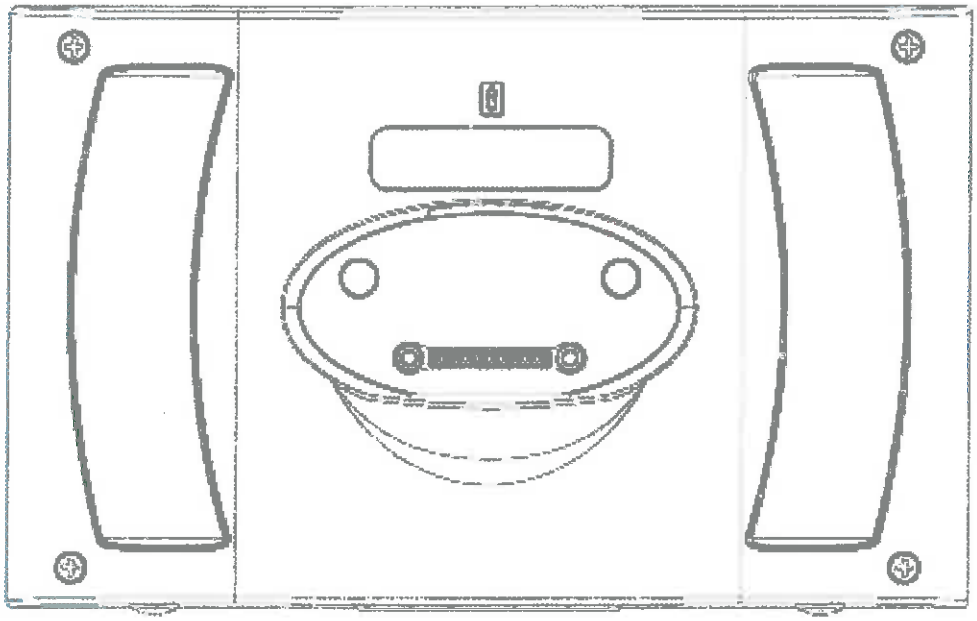
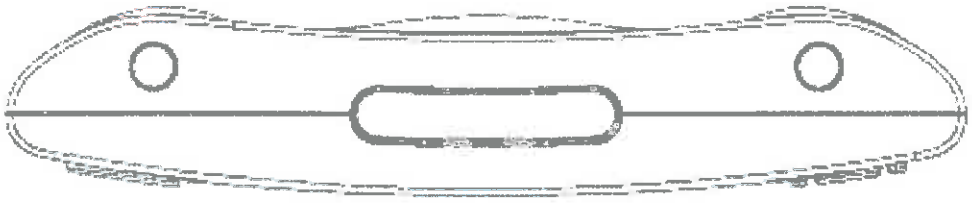
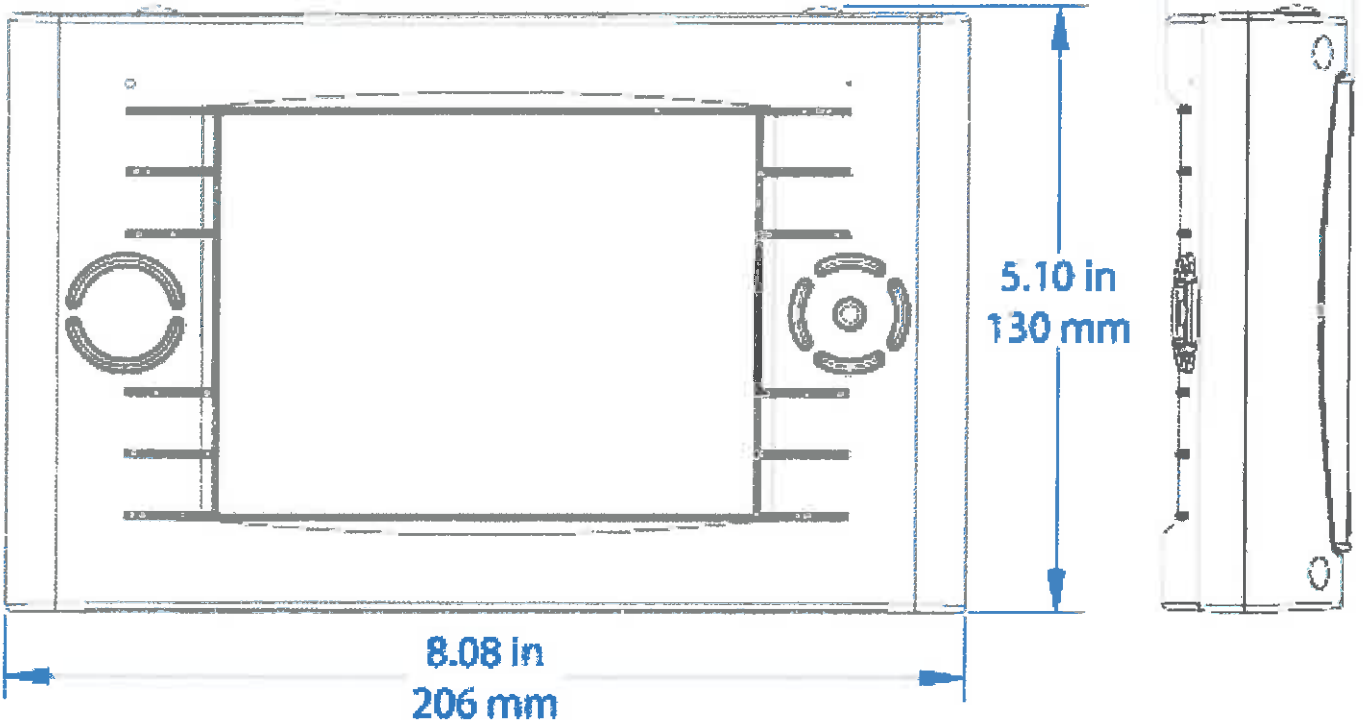
TST-602 5.7" Wireless Touch Screen







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SAROS SB-200-P

Saros® Sound Bar 200, Powered

- > *High-quality, full-range amplified stereo sound bar*
- > *Delivers enhanced sound quality and performance for use with any flat panel display*
- > *Mounts to a wall or sits on a shelf*
- > *Balanced or unbalanced stereo line-level audio input[1]*
- > *Unbalanced stereo audio cable included*
- > *Powers on and off automatically*
- > *100 to 240 Volt AC powered*

The Saros® SB-200-P is a stereo sound bar designed to provide enhanced audio performance for a flat panel display. Its full-range, front-firing speakers offer an improvement over the small, rear-facing speakers typical of many display devices. The bracket included with the sound bar allows for attachment to a wall surface, or the unit can be placed on a shelf below or above the display.

Built-in amplification allows for direct connection to the line-level audio output of the display device, or to the output of an audio preamp, switcher, mixer, tv tuner, codec, or Crestron DM® receiver.[1] The amplifier powers on automatically when an audio input signal is detected, and powers off if no signal is detected for several minutes.

The SAROS SB-200-P sound bar is ideally suited for use with the Crestron RL® 2 Group Collaboration System and other unified communication and videoconferencing systems. It is equally well-suited for use in any small to medium sized room or public space in a hotel, restaurant, museum, medical center, airport, office building, or residence.

SPECIFICATIONS

Features & Performance

Woofers: (2) 3 inch (76 mm) polypropylene cone w/rubber surround
Passive Radiator: (2) 3 x 4-3/8 inch (76 x 112 mm) polypropylene cone w/rubber surround
Tweeters: (2) 1 inch (25 mm) polyester dome
Amplifier Power: 20 Watts per channel, stereo
Frequency Response: 100 Hz to 20 kHz (±3 dB)
Output Sensitivity: 83 dB SPL @ 1 meter, both channels driven @ 1 Watt
Input Sensitivity: 0.75 Vrms per channel for full rated output

Connections

BALANCED AUDIO INPUTS: (1) 5-pin 3.5 mm detachable terminal block;
Balanced stereo line-level audio input[1];
Maximum Input Level: 0.85 Vrms;
Input Impedance: 10k Ohms

UNBALANCED AUDIO INPUTS: (2) RCA female;
Unbalanced stereo line-level audio input[1];
Maximum Input Level: 0.85 Vrms;
Input Impedance: 10k Ohms;
NOTE: Right-angle plugs may be required for wall mount applications. A 59 inch (150 cm) right-angle RCA to straight RCA stereo cable is included.

100-240V~50/60Hz 50W: (1) IEC 60320 C8 main power inlet;
Mates with removable power cord, included

Controls & Indicators

100-240V~50/60Hz 50W: (1) Rocker switch, turns main power on or off
PWR: (1) Blue LED, indicates an audio input signal has triggered the amplifier to turn on

Power Requirements

Main Power: 50 Watts (500 mA maximum) @ 100-240 Volts AC, 50/60 Hz

Environmental

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

SAROS SB-200-P Saros® Sound Bar 200, Powered

Construction

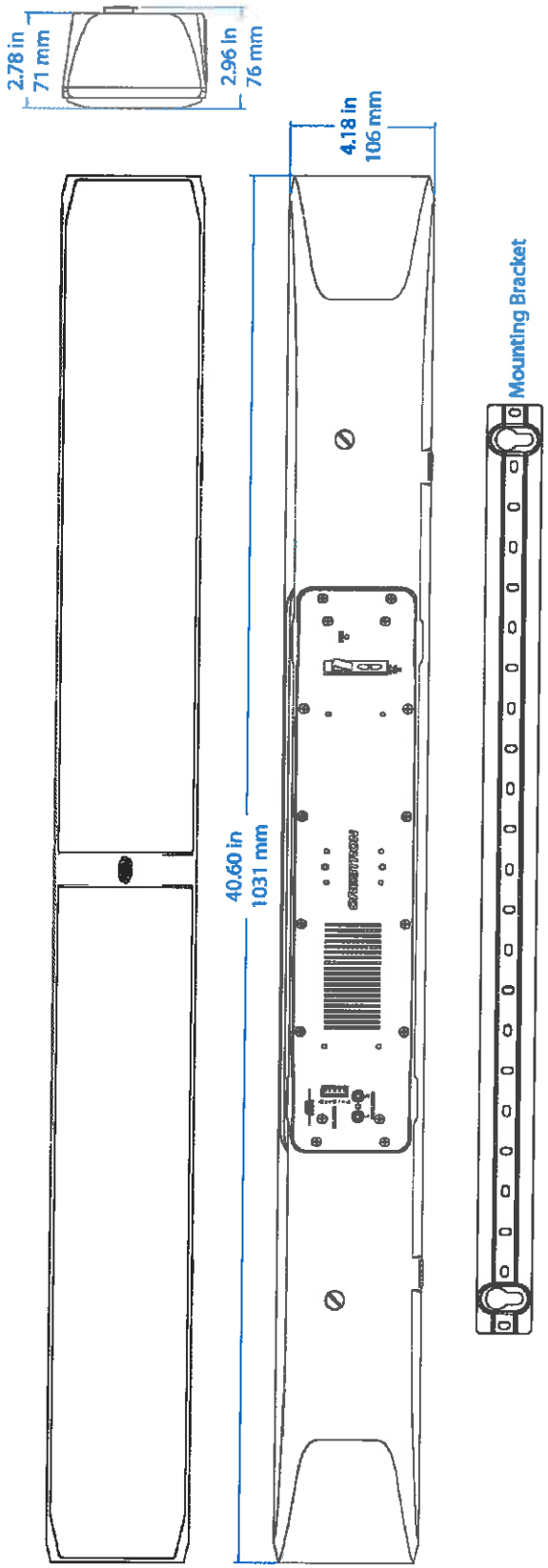
Enclosure: Plastic housing with perforate metal grille, black
Mounting: Freestanding or wall mount (bracket included)

Dimensions

Height: 4.18 in (106 mm)
Width: 40.60 in (1031 mm)
Depth: 2.78 in (71 mm);
2.96 in (76 mm) with wall mount bracket

Weight

7.8 lb (3.6 kg)



MODELS & ACCESSORIES

Available Models

SAROS SB-200-P-B: Saros® Sound Bar 200, Powered, Black

Available Accessories

CBL Series: Crestron® Certified Interface Cables

Notes:

1. The SAROS SB-200-P has a fixed input level. It must be connected to an audio source equipped with adjustable audio output level.

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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DATA SHEET
TESIRAFORTÉ® AVB VT
FIXED AUDIO DSP

The TesiraFORTÉ® AVB VT is a fixed audio DSP with 12 analog inputs and 8 analog outputs and includes Acoustic Echo Cancellation (AEC) technology on all 12 inputs.It includes up to 8 channels of configurable USB audio, a 2-channel VoIP interface, and a standard FXO telephone interface. USB audio allows TesiraFORTÉ to interface directly with USB audio hosts, as well as to take full advantage of today's most sophisticated conferencing solutions. TesiraFORTÉ AVB VT utilizes Audio Video Bridging (AVB) for digital audio networking, and can be used as standalone device or combined with other TesiraFORTÉ AVB devices and Tesira servers, expanders, endpoints, and controllers. TesiraFORTÉ AVB VT also provides extensive audio processing, including but not limited to: AEC technology, signal routing and mixing, equalization, filtering, dynamics, and delay, as well as control, monitoring, and diagnostic tools; all configured through the Tesira configuration software. TesiraFORTÉ AVB VT is best-suited for rooms that require high-quality audio solutions using VoIP, voice lift, mix-minus, and AEC, such as conference rooms or distance learning environments.

BENEFITS

- Integrates VoIP, POTS, and USB audio in one product allowing integrators to choose the type of audio conferencing that works best for their installation
- AVB allows audio networking via IEEE open standards protocol
- Includes default configuration file allowing for plug-and-play usage
- Highly scalable and cost-effective solution that can grow over time with the needs of the customer
- SpeechSense™ technology to enhance speech processing
- Integrates directly with soft codecs and other USB audio hosts

FEATURES

- 128 x 128 channels of AVB
- 12 mic/line level inputs with AEC, 8 mic/line level outputs
- Gigabit Ethernet port
- Up to 8 channels of configurable USB audio
- RS-232 serial port
- 4-pin GPIO
- 2-line OLED display with capacitive-touch navigation
- Rack mountable (1RU)
- System configuration and control via Ethernet
- Internal universal power supply
- SIP VoIP interface via a RJ-45 connector
- Standard FXO telephone interface via RJ-11 connector
- Fully compatible with Tesira AVB servers, endpoints, expanders, and controllers
- Signal processing via intuitive software allows configuration and control for signal routing, mixing, equalization, filtering, delay and much more
- CE marked, UL listed, and RoHS compliant
- Covered by Biamp Systems' 5-year warranty

ARCHITECTS & ENGINEERS SPECIFICATION

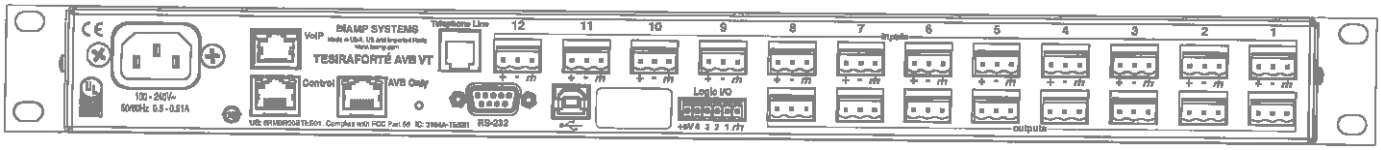
The fixed audio DSP shall be designed exclusively for use with Tesira® systems. The audio DSP shall support Audio Video Bridging (AVB) digital audio networking that shall allow up to 128 x 128 channels. The AVB networking connection shall be implemented on a RJ-45 connector. The audio DSP shall support Ethernet connection for programming and control on a RJ-45 connector. The audio DSP shall have internal DSP processing. The audio DSP shall include 4 channels of General Purpose Input and Output connection (GPIO) for sending or receiving logic signals. The programming of the GPIO ports shall be software configurable. The audio DSP shall include a RS-232 connection for control data transmission into or out of the audio DSP and such operation shall be software programmable. The audio DSP shall include a Universal Serial Bus (USB) connection on a standard USB-B type connector. The audio DSP shall be software configurable to stream up to 8 channels of digital USB Class 1 Audio transmission either into or out of the audio DSP or simultaneous input and output. The audio DSP shall provide 12 balanced input connections for receiving of microphone or line level analog audio signals on screw-down, removable connectors. The input connections shall include Acoustic Echo Cancellation (AEC) hardware and firmware, the parameters, routing and operation of which shall be software programmable. The audio DSP shall provide 8 balanced output channels for the transmission of microphone or line level analog audio signals on screw-down, removable connectors. Each individual channel shall have its own dedicated connection. The audio DSP shall integrate to Voice Over Internet Protocol (VoIP) systems on a RJ-45 connector for two lines of VoIP communication and shall support Session Initiation Protocol (SIP) v2.0 or later. The audio DSP shall integrate to standard telephony communications on a RJ-11 connector for a single line of telephone communication. The audio DSP shall provide front panel OLED identification of device power, status, alarm, and activity as well as system-wide alarm. The audio DSP shall be rack mountable (1RU) and feature software-configurable signal processing, including but not limited to: signal routing and mixing, equalization, filtering, dynamics, and delay, as well as control, monitoring, and diagnostic tools. The audio DSP shall control and proxy all Tesira expander-class devices and Tesira control devices. The audio DSP shall be CE marked, UL listed, and shall be compliant with the RoHS directive. Warranty shall be five years. The fixed audio DSP shall be TesiraFORTÉ AVB VT.

TESIRAFORTÉ AVB VT SPECIFICATIONS

Frequency Response:	
20Hz to 20kHz, +4dBu output:	+0.25 dB/-0.5 dB
THD+N (22Hz to 22kHz):	
0dB gain, +4dBu input:	< 0.006%
54dB gain, -50dBu input:	< 0.040%
EIN (no weighting, 22Hz to 22kHz):	< -125dBu
Dynamic Range (in presence of signal)	
22Hz to 22kHz, 0dB gain:	> 108dB
Input Impedance (balanced):	8kΩ
Output Impedance (balanced):	207Ω
Maximum Input:	+24dBu
Maximum Output (selectable):	+24dBu, +18dBu, +12dBu, +6dBu, 0dBu, -31dBu
Input Gain Range (6dB steps):	0-66dB
Overall Dimensions:	
Height:	1.75 inches (44 mm)
Width:	19.0 inches (483 mm)
Depth:	10.5 inches (267 mm)
Weight:	8 lbs (3.63 kg)
Environment:	
Ambient Operating Temperature Range:	32-104° F (0-40° C)
Humidity:	0-98%, non-condensing
Altitude:	0-6,600 feet (0-2000 Meters) MSL

Phantom Power:	+48VDC (7mA/input)
Crosstalk, channel to channel, 1 kHz:	
0dB gain, +4dBu input:	< -85dB
54dB gain, -50dBu input:	< -75dB
Sampling Rate:	48kHz
A/D - D/A Converters:	24-bit
Power Consumption:	
100-240VAC 50/60Hz:	< 35W
USB:	
Bit Depth:	16- or 24-bit
Number of Channels:	up to 8
Sample Rate:	48kHz
Compliance:	
	FCC Part 15B (USA)
	FCC Part 68 (USA)
	Industry Canada CS-03 (Canada)
	CE marked (Europe)
	UL und C-UL listed (USA and Canada)
	RCM (Australia)
	RoHS Directive (Europe)

TESIRAFORTÉ AVB VT BACK PANEL



biamp.
9300 S.W. Gemini Drive Beaverton, OR 97008 USA +1 503 641 7287 www.biamp.com

Model MX400 Series Microphones Specification Sheet

MODEL MX400 SERIES MICROPHONES

OVERVIEW

Shure Microflex® MX400 Series microphones are miniature gooseneck-mounted electret condenser microphones designed primarily for speech and vocal pickup. They can be mounted on lecterns, pulpits, or conference tables. All models include a preamplifier and are available with interchangeable cardioid, supercardioid, or omnidirectional cartridges.

FEATURES

- Wide dynamic range and frequency response for accurate sound reproduction across the audio spectrum
- Interchangeable cartridges provide the right polar pattern for every application
- Balanced, transformerless output for increased immunity to noise over long cable runs
- Shock mount that provides over 20 dB isolation from surface vibration noise
- Locking flange mount for permanently securing microphone to lecterns, pulpits, or conference tables
- Snap-fit foam windscreen

MODEL VARIATIONS

- **MX412:** 305 mm (12 in.) gooseneck microphone.
- **MX418:** 457 mm (18 in.) gooseneck microphone.
- **MX412S:** 305 mm (12 in) gooseneck microphone; includes a mute switch and an LED.
- **MX418S:** 457 mm (18 in) gooseneck microphone; includes a mute switch and an LED.

SPECIFICATIONS

Frequency Response (Figure 1)
50 to 17,000 Hz
Polar Pattern (Figure 2)
Output Impedance (at 1000 Hz)
Rated at 150 Ω (180 Ω actual)
Open Circuit Sensitivity (at 1 kHz, ref. 1 V/Pascal*)
Cardioid: –35.0 dB (17.8 mV)
Supercardioid: –33.5 dB (21.1 mV)
Omnidirectional: –27.5 dB (42.2 mV)
All settings –12 dB at 0 gain
*1 Pascal = 94 dB SPL
Maximum SPL (1 kHz at 1% THD, 1 kΩ load)
Cardioid: 124.2 dB
Supercardioid: 122.7 dB
Omnidirectional: 116.7 dB
All settings +6 dB at 0 gain
Equivalent Output Noise (A-weighted)
Cardioid: 28.0 dB SPL
Supercardioid: 26.5 dB SPL
Omnidirectional: 20.5 dB SPL
Signal to Noise Ratio (referenced at 94 dB SPL)
Cardioid: 66.0 dB
Supercardioid: 67.5 dB
Omnidirectional: 73.5 dB

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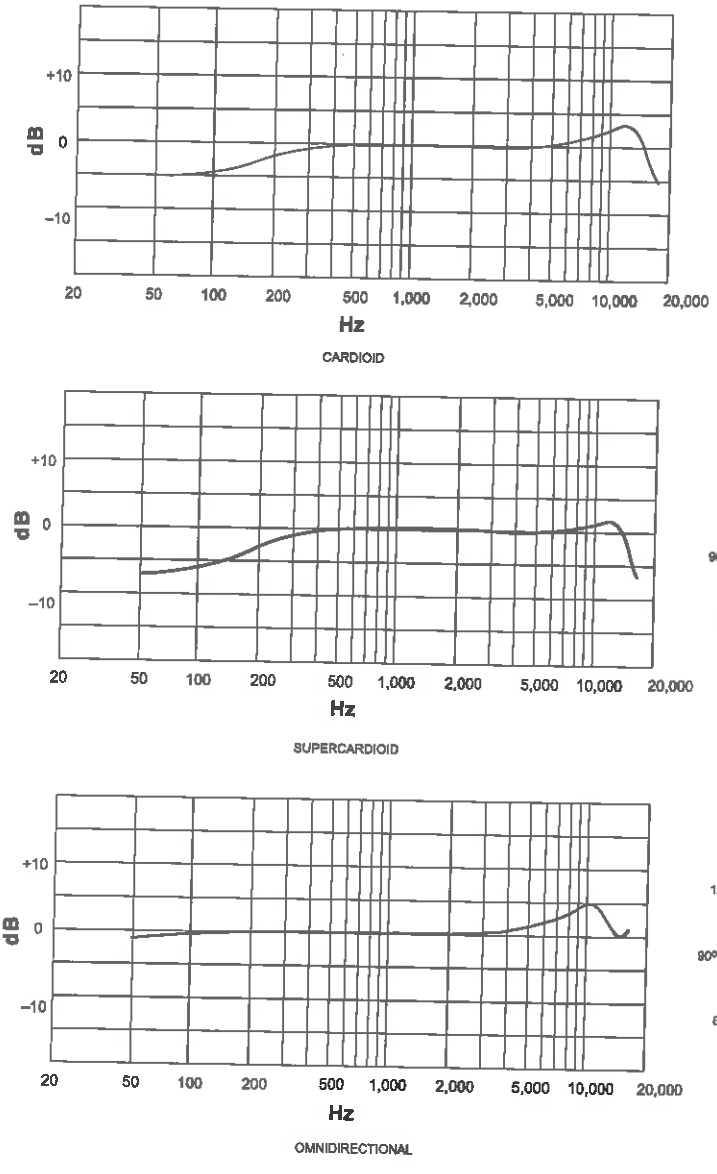
Dynamic Range at 1 kΩ Load
96.2 dB
100 dB at 0 gain
Common Mode Rejection
45.0 dB minimum
Mute Switch Attenuation (switched models only)
50.0 dB minimum
Preamplifier Output Clipping Level (1% THD)
–6.0 dBV (0.5 V)
–12 dB at 0 gain
Polarity
Positive sound pressure on diaphragm produces positive voltage on pin 2 relative to pin 3 of output connector.
Power Requirements
11 to 52 Vdc phantom, 2.0 mA
Environmental Requirements
Operating Temperature Range: –18° C to 57° C (0° F to 135° F)
Relative Humidity: 0 to 95%
Dimensions (Figure 3)

Certification

Eligible to bear CE Marking. Conforms to European EMC Directive 89/336/EEC. Meets applicable tests and performance criteria in European Standard EN55103 (1996) parts 1 and 2, for residential (E1) and light industrial (E2) environments.

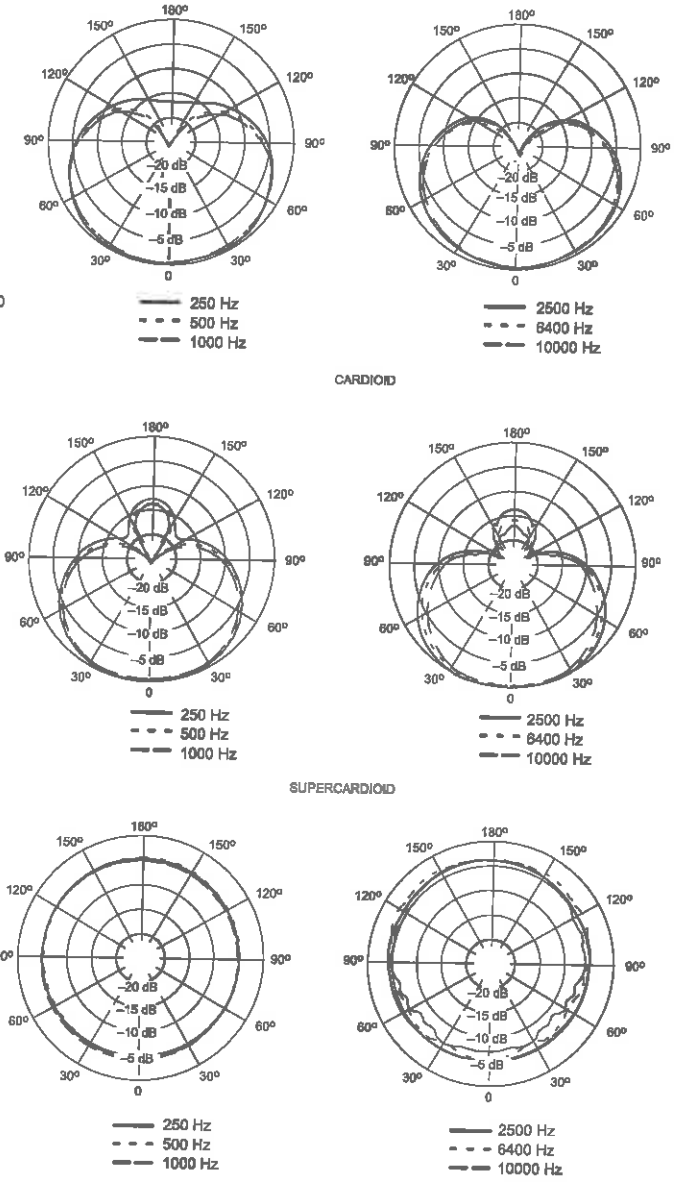
REPLACEMENT PARTS

Foam Ball Windscreen	A99WS
Locking Metal Windscreen	A412MWS
Portable Desktop Base	A412B
Stand Adapter	A57E
Omnidirectional Cartridge	R183B
Supercardioid Cartridge	R184B
Cardioid Cartridge	R185B
Snap-fit Foam Windscreen (4)	RK412WS
Shock Mount	A400SM



TYPICAL FREQUENCY RESPONSE

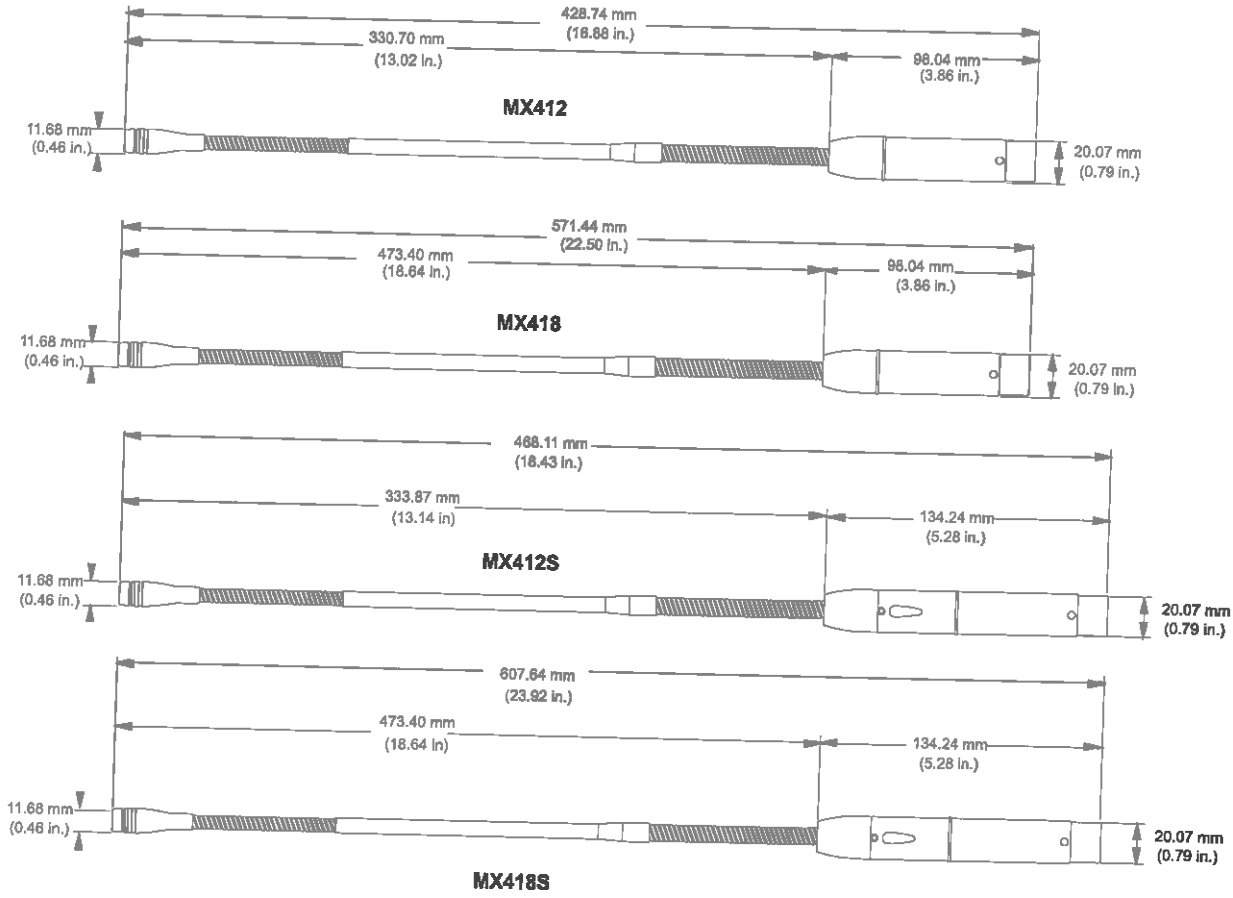
Figure 1

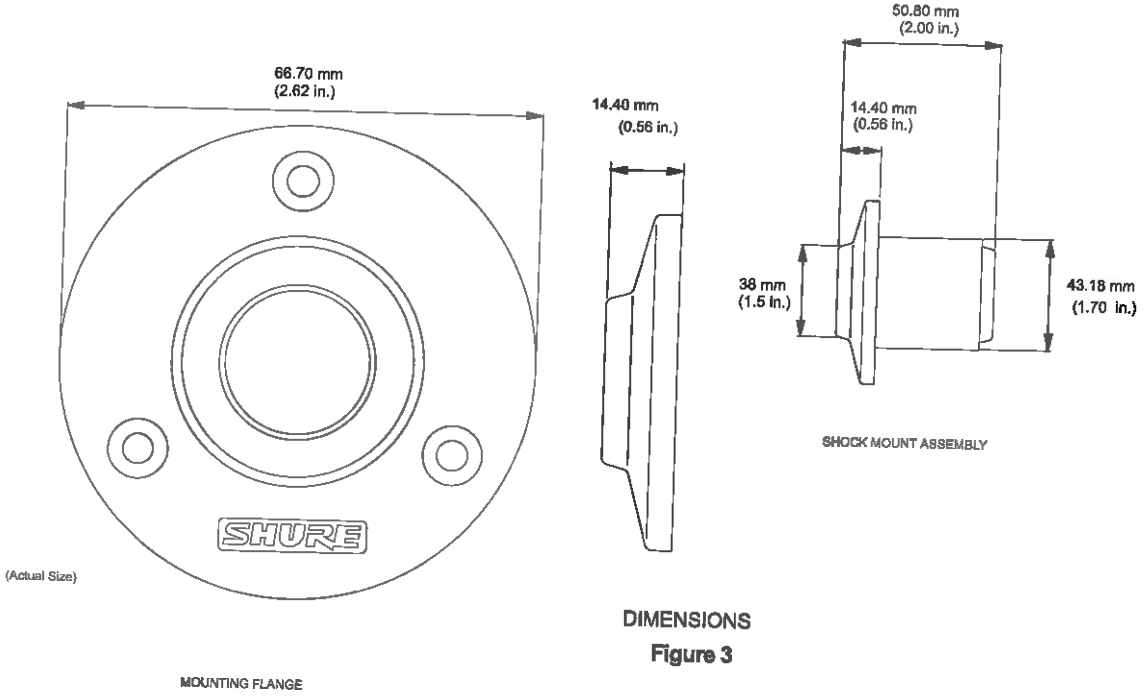


OMNIDIRECTIONAL

TYPICAL POLAR PATTERNS

Figure 2





DIMENSIONS

Figure 3

JUICE GOOSE™

JG SERIES

STANDARD POWER DISTRIBUTION CENTERS

GENERAL DESCRIPTION All JG Series models provide high quality, economical power distribution for nineteen inch rack mounted electronic systems. Each model is designed to offer a specific feature set to meet the needs of various installations and budgets. All models provide the same base level of AC power protection.

CONNECTIVITY JG Series models are vailable with six (JGJr), eight (JG8LED), nine (JG9 and JG9NS) or eleven (JG11-15 and JG11-20) AC receptacles. The JG9 and JG11 offer an unswitched outlet on the front panel. All other receptacles on the back are rotated to better accommodate "wall wart" power supplies. Each of the AC outlets is a NEMA 5-15R, rated for 15 amps.

CAPACITY The JG11-20A has a circuit breaker rating of twenty amps and a technical maximum current rating of eighteen amps. All other JG Series models have a fifteen amp circuit breaker and a twelve amp maximum current rating.

POWER PROTECTION All JG Series models feature the same base level of AC power protection which includes a fast acting metal oxide varistor which guards against high energy surges between the line and neutral power leads. This protection also includes filtration capacitance which enhances the surge protection and adds a primary level of line noise elimination.

POWER CORD Power cords on all JG Series models are rated for fifteen amps and feature a NEMA 5-15P plug—except the JG11-20A which has a twenty amp rated cord with a NEMA 5-20P plug which requires a twenty amp receptacle. Power cords on JGJr, JG8LED, JG9 and JG9NS are six feet long. Cords on the JG11 models are fifteen feet long.

CIRCUIT BREAKER The JGJr and both JG11s feature a circuit breaker mounted on the front of the chassis. The JGJr circuit breaker is incorporated into the power switch. Circuit breakers on the JG8LED, JG9 and JG9NS are on the back panels of those models. Circuit breakers are rated at either 15 amps or 20 amps, depending on the current rating of that model.

RACK LIGHTS The JG8LED has two slide out light tubes that provide dependable, dimmable LED rack lighting. LED lighting is long lasting and should never need replacing. It also can be left on for long periods without creating significant heat.

WARRANTY Every JG Series product is manufactured to exact Juice Goose specifications. The JGJr is warranted for one year. Warranties for all other JG Series models are for three years.

JG SERIES
SPECIFICATIONS

INPUT VOLTAGE	120vac, 60 Hz
TECHNICAL CURRENT CAPACITY JGJr, JG8LED, JG9, JG9NS, JG11-15 JG11-20	 12 Amps 18 Amps
CURRENT OVERLOAD PROTECTION JGJr, JG8LED, JG9, JG9NS, JG11-15 JG11-20	 15 Amps 20 Amps
DIMENSIONS (inches) JGJr All other JG Series models	 1.75H x 19W x 4.5D 1.75H x 19W x 7D
WEIGHT (lbs) JGJr JG8LED, JG9, JG9NS JG11-15, JG11-20	 4.0 5.5 6.0
POWER CORD JGJr, JG8LED, JG9, JG9NS JG11-15 JG11-20	 15 Amps, 6 foot 16/3 SJT with NEMA 5-15P Plug 15 Amps, 15 foot 16/3 SJT with NEMA 5-15P Plug 20 Amps, 15 foot 12/3 SJT with NEMA 5-20P Plug
POWER OUTPUT RECEPTACLES JGJr JG8LED JG9, JG9NS JG11-15, JG11-20	 Six NEMA 5-15 (back) Eight NEMA 5-15 (back) Eight NEMA 5-15 (back), one NEMA 5-15 (front) Nine NEMA 5-15 (back), one NEMA 5-15 (front)
AC LINE FILTRATION	Line Capacitor (Line & Neutral)
VOLTAGE SPIKE PROTECTION	Metal Oxide Varistor (Line & Neutral)
WARRANTY JGJr All other JG Series models	 One year Three years

JUICE GOOSE™

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1900 Kanawha Blvd E
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SEALED BID:	Audio Visual Hardware and Installation
Buyer:	Dusty Smith
Solicitation No:	DOT1800000037 (ARFQ 0803 DOT1800000037)
Bid Opening Date:	2/23/2018 (2/22/2018 per Addendum Number 2)
Bid Opening Time:	1:30 PM