



Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

State of West Virginia  
 Request for Quotation  
 09 — Construction

Proc Folder: 607427

Doc Description: Audio Video Upgrades: Meeting & Conference Rooms (OT19133)

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2019-10-22	2019-11-07 13:30:00	CRFQ 0210 ISC2000000007	1

**BID RECEIVING LOCATION**

BID CLERK  
 DEPARTMENT OF ADMINISTRATION  
 PURCHASING DIVISION  
 2019 WASHINGTON ST E  
 CHARLESTON  
 US

WV 25305

RECEIVED

2019 NOV -7 AM 9:57

WV PURCHASING  
 DIVISION

**VENDOR**

Vendor Name, Address and Telephone Number:

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

**FOR INFORMATION CONTACT THE BUYER**

Jessica S Chambers  
 (304) 558-0246  
 jessica.s.chambers@wv.gov

Signature X

*Randy T. Cox*

FEIN # 540716361

DATE 6-NOV-2019

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

**ADDITIONAL INFORMATION:**

The West Virginia Purchasing Division is soliciting bids on behalf of WV Office of Technology to establish a contract for the following: Upgrade equipment to Conference Facilities and Meeting Rooms at the West Virginia State Training Center, the Gaston Caperton Training Center located in Building 7, and Conference Rooms located within the West Virginia Office of Technology in Buildings 5 and 6 per the terms and conditions and specifications as attached.

INVOICE TO	SHIP TO
DEPARTMENT OF ADMINISTRATION OFFICE OF TECHNOLOGY 1900 KANAWHA BLVD E, BLDG 5 10TH FLOOR CHARLESTON WV25305 US	IS&C - CHIEF FINANCIAL OFFICER DEPARTMENT OF ADMINISTRATION BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25305 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Lump Sum Cost for Equipment and Installation (attached)				\$ 214,778.98

Comm Code	Manufacturer	Specification	Model #
45111902			

**Extended Description :**

Vendor must include a bill of materials that confirms that the equipment being provided meets the mandatory requirements as listed in the specifications.

\*\*\*Failure to provide this information may result in disqualification of your bid.

**SCHEDULE OF EVENTS**

Line	Event	Event Date
1	Mandatory Prebid at 9:00 AM (EDT)	2019-10-29
2	Technical Question Deadline at 9:00 AM (EDT)	2019-11-01

## INSTRUCTIONS TO VENDORS SUBMITTING BIDS

**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.

**3. PREBID MEETING:** The item identified below shall apply to this Solicitation.

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

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

Pre-Bid meeting will begin at WV Office of Technology 10th Floor, Building 5, Conference Room A and B; then to Building 7: Capitol Room, Heritage Room, Executive Room, Regents Room; then to Building 6 - Conference Room - 122A.

Date and Time: October 29, 2019 at 9:00 AM (EDT)

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 individual is permitted to represent more than one vendor at the pre-bid meeting. Any individual that does attempt to represent two or more vendors will be required to select one vendor to which the individual's attendance will be attributed. The vendors not selected will be deemed to have not attended the pre-bid meeting unless another individual attended on their behalf.

An attendance sheet provided at the pre-bid meeting shall serve as the official document verifying 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

Revised 10/01/2019

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.

**4. VENDOR QUESTION DEADLINE:** Vendors may submit questions relating to this Solicitation to the Purchasing Division. Questions must be submitted in writing. All questions must be submitted on or before the date listed below and to the address listed below in order to be considered. A written response will be published in a Solicitation addendum if a response is possible and appropriate. Non-written discussions, conversations, or questions and answers regarding this Solicitation are preliminary in nature and are nonbinding.

Submitted e-mails should have solicitation number in the subject line.

Question Submission Deadline: **November 1, 2019 at 9:00 AM (EDT)**

Submit Questions to: **Jessica Chambers**

2019 Washington Street, East

Charleston, WV 25305

Fax: (304) 558-4115 (Vendors should not use this fax number for bid submission)

Email: [Jessica.S.Chambers@wv.gov](mailto:Jessica.S.Chambers@wv.gov)

**5. VERBAL COMMUNICATION:** Any verbal communication between the Vendor and any State personnel is not binding, including verbal communication at the mandatory pre-bid conference. Only information issued in writing and added to the Solicitation by an official written addendum by the Purchasing Division is binding.

**6. BID SUBMISSION:** All bids must be submitted electronically through wvOASIS or signed and delivered by the Vendor to the Purchasing Division at the address listed below on or before the date and time of the bid opening. Any bid received by the Purchasing Division staff is considered to be in the possession of the Purchasing Division and will not be returned for any reason. The Purchasing Division will not accept bids, modification of bids, or addendum acknowledgment forms via e-mail. Acceptable delivery methods include electronic submission via wvOASIS, hand delivery, delivery by courier, or facsimile.

The bid delivery address is:

Department of Administration, Purchasing Division

2019 Washington Street East

Charleston, WV 25305-0130

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 Purchasing Division.:

**SEALED BID:**

**BUYER:** Jessica Chambers

**SOLICITATION NO.:** CRFQ ISC2000000007

**BID OPENING DATE:** 11/07/2019

**BID OPENING TIME:** 1:30 PM (EDT)

**FAX NUMBER:** (304)558-3970

Revised 10/01/2019



The Purchasing Division may prohibit the submission of bids electronically through wvOASIS at its sole discretion. Such a prohibition will be contained and communicated in the wvOASIS system resulting in the Vendor's inability to submit bids through wvOASIS. Submission of a response to an Expression or Interest or Request for Proposal is not permitted in wvOASIS.

**For Request For Proposal ("RFP") Responses Only:** In the event that Vendor is responding to a request for proposal, the Vendor shall submit one original technical and one original cost proposal plus \_\_\_\_\_ convenience copies of each to the Purchasing Division at the address shown above. Additionally, the Vendor should identify the bid type as either a technical or cost proposal on the face of each bid envelope submitted in response to a request for proposal as follows:

BID TYPE: (This only applies to CRFP)

Technical

Cost

**7. BID OPENING:** Bids submitted in response to this Solicitation will be opened at the location identified below on the date and time listed below. Delivery of a bid after the bid opening date and time will result in bid disqualification. For purposes of this Solicitation, a bid is considered delivered when confirmation of delivery is provided by wvOASIS (in the case of electronic submission) or when the bid is time stamped by the official Purchasing Division time clock (in the case of hand delivery).

Bid Opening Date and Time: **November 7, 2019 at 1:30 PM (EDT)**

Bid Opening Location: Department of Administration, Purchasing Division  
2019 Washington Street East  
Charleston, WV 25305-0130

**8. ADDENDUM ACKNOWLEDGEMENT:** Changes or revisions to this Solicitation will be made by an official written addendum issued by the Purchasing Division. 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.

**9. 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.

**10. ALTERNATE MODEL OR BRAND:** Unless the box below is checked, 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.

This Solicitation is based upon a standardized commodity established under W. Va. Code § 5A-3-61. Vendors are expected to bid the standardized commodity identified. Failure to bid the standardized commodity will result in your firm's bid being rejected.

**11. 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.

**12. COMMUNICATION LIMITATIONS:** In accordance with West Virginia Code of State Rules §148-1-6.6, communication with the State of West Virginia or any of its employees regarding this Solicitation during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited without prior Purchasing Division approval. Purchasing Division approval for such communication is implied for all agency delegated and exempt purchases.

**13. 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.

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

**15. PREFERENCE:** Vendor Preference may be requested in purchases of motor vehicles or construction and maintenance equipment and machinery used in highway and other infrastructure projects. Any request for preference must be submitted in writing with the bid, must specifically identify the preference requested with reference to the applicable subsection of West Virginia Code § 5A-3-37, and should include with the bid any information necessary to evaluate and confirm the applicability of the requested preference. A request form to help facilitate the request can be found at:  
<http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf>.

**15A. RECIPROCAL PREFERENCE:** The State of West Virginia applies a reciprocal preference to all solicitations for commodities and printing in accordance with W. Va. Code § 5A-3-37(b). In effect, non-resident vendors receiving a preference in their home states, will see that same preference granted to West Virginia resident vendors bidding against them in West Virginia. A request form to help facilitate the request can be found at:  
<http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf>.

**16. 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.

**17. WAIVER OF MINOR IRREGULARITIES:** The Director reserves the right to waive minor irregularities in bids or specifications in accordance with West Virginia Code of State Rules § 148-1-4.6.

**18. ELECTRONIC FILE ACCESS RESTRICTIONS:** Vendor must ensure that its submission in wvOASIS can be accessed and viewed by the Purchasing Division staff immediately upon bid opening. The Purchasing Division will consider any file that cannot be immediately accessed 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 are 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 remove access restrictions to allow the Purchasing Division to print or electronically save documents provided that those documents are viewable by the Purchasing Division prior to obtaining the password or removing the access restriction.

**19. 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.”

**20. 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.”

**21. 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.

**22. INTERESTED PARTY DISCLOSURE:** West Virginia Code § 6D-1-2 requires that the vendor submit to the Purchasing Division a disclosure of interested parties to the contract for all contracts with an actual or estimated value of at least \$1 Million. That disclosure must occur on the form prescribed and approved by the WV Ethics Commission prior to contract award. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

**23. WITH THE BID REQUIREMENTS:** In instances where these specifications require documentation or other information with the bid, and a vendor fails to provide it with the bid, the Director of the Purchasing Division reserves the right to request those items after bid opening and prior to contract award pursuant to the authority to waive minor irregularities in bids or specifications under W. Va. CSR § 148-1-4.6. This authority does not apply to instances where state law mandates receipt with the bid.

## GENERAL TERMS AND CONDITIONS:

**1. CONTRACTUAL AGREEMENT:** Issuance of a Award Document signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office 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 and the Purchasing Division, and approved as to form by the Attorney General, 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 that is published by the Purchasing Division.

**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:** **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, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal should be delivered to the Agency and then submitted to the Purchasing Division 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. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

**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, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

**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 <sup>90</sup>\_\_\_\_\_ 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 Purchasing Division by the Vendor as specified below.

**BID BOND (Construction Only):** Pursuant to the requirements contained in W. Va. Code § 5-22-1(c), All Vendors submitting a bid on a construction project shall furnish a valid bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.

**PERFORMANCE BOND:** The apparent successful Vendor shall provide a performance bond in the amount of 100% of the contract. The performance bond must be received by the Purchasing Division prior to Contract award.

**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 delivered to the Purchasing Division 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 Purchasing Division prior to Contract award.

**LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section of the General Terms and Conditions entitled Licensing, 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 Purchasing Division.

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 and must include the State as an additional insured on each policy prior to Contract award. The insurance coverages identified below must be maintained throughout the life of this contract. Thirty (30) days prior to the expiration of the insurance policies, 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, including but not limited to, policy cancelation, policy reduction, or change in insurers. 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: \$1,000,000.00 per occurrence.
- Automobile Liability Insurance** in at least an amount of: \$1,000,000.00 per occurrence.
- Professional/Malpractice/Errors and Omission Insurance** in at least an amount of: \_\_\_\_\_ per occurrence. Notwithstanding the forgoing, Vendor's are not required to list the State as an additional insured for this type of policy.
- Commercial Crime and Third Party Fidelity Insurance** in an amount of: \_\_\_\_\_ per occurrence.
- Cyber Liability Insurance** in an amount of: \_\_\_\_\_ per occurrence.
- Builders Risk Insurance** in an amount equal to 100% of the amount of the Contract.
- Pollution Insurance** in an amount of: \_\_\_\_\_ per occurrence.
- Aircraft Liability** in an amount of: \_\_\_\_\_ per occurrence.
- 
- 
- 
-

Notwithstanding anything contained in this section to the contrary, the Director of the Purchasing Division reserves the right to waive the requirement that the State be named as an additional insured on one or more of the Vendor's insurance policies if the Director finds that doing so is in the State's best interest.

**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. [Reserved]**

**11. 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

**12. 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.

**13. 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. Notwithstanding the foregoing, Vendor must extend any publicly advertised sale price to the State and invoice at the lower of the contract price or the publicly advertised sale price.

**14. PAYMENT IN ARREARS:** 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.

**15. PAYMENT METHODS:** Vendor must accept payment by electronic funds transfer and P-Card. (The State of West Virginia's Purchasing Card program, administered under contract by a banking institution, processes payment for goods and services through state designated credit cards.)

**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. 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.

**18. 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.

**19. CANCELLATION:** The Purchasing Division Director 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 Purchasing Division Director 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.

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

**21. 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.

**22. 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.

**SUBCONTRACTOR COMPLIANCE:** 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. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

**23. 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.

**24. 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, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any change to existing contracts that adds work or changes contract cost, and were not included in the original contract, must be approved by the Purchasing Division and the Attorney General's Office (as to form) prior to the implementation of the change or commencement of work affected by the change.

**25. 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.

**26. 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.

**27. 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, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments.

**28. 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.

**29. 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.

**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.

**SUBCONTRACTOR COMPLIANCE:** 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. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

**33. ANTITRUST:** In submitting a bid to, signing a contract with, or accepting a 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 any 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 §§ 5A-3-10a and 5-22-1(i), the State is prohibited from awarding a contract to any bidder that owes a debt to the State or a political subdivision of the State, 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. ADDITIONAL AGENCY AND LOCAL GOVERNMENT USE:** This Contract may be utilized by other agencies, spending units, and political subdivisions of the State of West Virginia; county, municipal, and other local government bodies; and school districts (“Other Government Entities”), provided that both the Other Government Entity and the Vendor agree. Any extension of this Contract to the aforementioned Other Government Entities must be on the same prices, terms, and conditions as those offered and agreed to in this Contract, provided that such extension is in compliance with the applicable laws, rules, and ordinances of the Other Government Entity. A refusal to extend this Contract to the Other Government Entities shall not impact or influence the award of this Contract in any manner.

**39. 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.

**40. 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](mailto:purchasing.requisitions@wv.gov).

**41. 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.

Revised 10/01/2019

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

**42. 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.

**43. 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.

**44. INTERESTED PARTY SUPPLEMENTAL DISCLOSURE:** W. Va. Code § 6D-1-2 requires that for contracts with an actual or estimated value of at least \$1 million, the vendor must submit to the Agency a supplemental disclosure of interested parties reflecting any new or differing interested parties to the contract, which were not included in the original pre-award interested party disclosure, within 30 days following the completion or termination of the contract. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

**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. DRUG-FREE WORKPLACE AFFIDAVIT:** W. Va. Code § 21-1D-5 provides that any solicitation for a public improvement contract requires each Vendor that submits a bid for the work to submit an affidavit that the Vendor has a written plan for a drug-free workplace policy. If the affidavit is not submitted with the bid submission, the Purchasing Division shall promptly request by telephone and electronic mail that the low bidder and second low bidder provide the affidavit within one business day of the request. Failure to submit the affidavit within one business day of receiving the request shall result in disqualification of the bid. To comply with this law, Vendor should complete the enclosed drug-free workplace affidavit and submit the same with its bid. Failure to submit the signed and notarized drugfree workplace affidavit or a similar affidavit that fully complies with the requirements of the applicable code, within one business day of being requested to do so shall result in disqualification of Vendor's bid. Pursuant to W. Va. Code 21-1D-2(b) and (k), this provision does not apply to public improvement contracts the value of which is \$100,000 or less or temporary or emergency repairs.

**2.1. DRUG-FREE WORKPLACE POLICY:** Pursuant to W. Va. Code § 21-1D-4, Vendor and its subcontractors must implement and maintain a written drug-free workplace policy that complies with said article. The awarding public authority shall cancel this contract if: (1) Vendor fails to implement and maintain a written drug-free workplace policy described in the preceding paragraph, (2) Vendor fails to provide information regarding implementation of its drug-free workplace policy at the request of the public authority; or (3) Vendor provides to the public authority false information regarding the contractor's drug-free workplace policy.

Pursuant to W. Va. Code 21-1D-2(b) and (k), this provision does not apply to public improvement contracts the value of which is \$100,000 or less or temporary or emergency repairs.

**3. DRUG FREE WORKPLACE REPORT:** Pursuant to W. Va. Code § 21-1D-7b, no less than once per year, or upon completion of the project, every contractor shall provide a certified report to the public authority which let the contract. For contracts over \$25,000, the public authority shall be the West Virginia Purchasing Division. For contracts of \$25,000 or less, the public authority shall be the agency issuing the contract. The report shall include:

- (1) Information to show that the education and training service to the requirements of West Virginia Code § 21-1D-5 was provided;
- (2) The name of the laboratory certified by the United States Department of Health and Human Services or its successor that performs the drug tests;
- (3) The average number of employees in connection with the construction on the public improvement;
- (4) Drug test results for the following categories including the number of positive tests and the number of negative tests: (A) Pre-employment and new hires; (B) Reasonable suspicion; (C) Post-accident; and (D) Random.

Vendor should utilize the attached Certified Drug Free Workplace Report Coversheet when submitting the report required hereunder. Pursuant to W. Va. Code 21-1D-2(b) and (k), this provision does not apply to public improvement contracts the value of which is \$100,000 or less or temporary or emergency repairs.

**4. 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 attached AIA documents, as amended by the Supplementary Conditions for the State of West Virginia, in addition to the terms and conditions contained herein.

**4A. PROHIBITION AGAINST GENERAL CONDITIONS:** Notwithstanding anything contained in the AIA Documents or the Supplementary Conditions, the State of West Virginia will not pay for general conditions, or winter conditions, or any other condition representing a delay in the contracts. The Vendor is expected to mitigate delay costs to the greatest extent possible and any costs associated with Delays must be specifically and concretely identified. The state will not consider an average daily rate multiplied by the number of days extended to be an acceptable charge.

**5. 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.

**6. LOCAL LABOR MARKET HIRING REQUIREMENT:** Pursuant to West Virginia Code §21-1C-1 et seq., Employers shall hire at least seventy-five percent of employees for public improvement construction projects from the local labor market, to be rounded off, with at least two employees from outside the local labor market permissible for each employer per project.

Any employer unable to employ the minimum number of employees from the local labor market shall inform the nearest office of Workforce West Virginia of the number of qualified employees needed and provide a job description of the positions to be filled.

If, within three business days following the placing of a job order, Workforce West Virginia is unable to refer any qualified job applicants to the employer or refers less qualified job applicants than the number requested, then Workforce West Virginia shall issue a waiver to the employer stating the unavailability of applicant and shall permit the employer to fill any positions covered by the waiver from outside the local labor market. The waiver shall be in writing and shall be issued within the prescribed three days. A waiver certificate shall be sent to both the employer for its permanent project records and to the public authority.

Any employer who violates this requirement is subject to a civil penalty of \$250 per each employee less than the required threshold of seventy-five percent per day of violation after receipt of a notice of violation.

Any employer that continues to violate any provision of this article more than fourteen calendar days after receipt of a notice of violation is subject to a civil penalty of \$500 per each employee less than the required threshold of seventy-five percent per day of violation.

The following terms used in this section have the meaning shown below.

(1) The term “construction project” means any construction, reconstruction, improvement, enlargement, painting, decorating or repair of any public improvement let to contract in an amount equal to or greater than \$500,000. The term “construction project” does not include temporary or emergency repairs;

(2) The term “employee” means any person hired or permitted to perform hourly work for wages by a person, firm or corporation in the construction industry; The term “employee” does not include:(i) Bona fide employees of a public authority or individuals engaged in making temporary or emergency repairs;(ii) Bona fide independent contractors; or(iii) Salaried supervisory personnel necessary to assure efficient execution of the employee's work;

(3) The term “employer” means any person, firm or corporation employing one or more employees on any public improvement and includes all contractors and subcontractors;

(4) The term “local labor market” means every county in West Virginia and any county outside of West Virginia if any portion of that county is within fifty miles of the border of West Virginia;

(5) The term “public improvement” includes the construction of all buildings, roads, highways, bridges, streets, alleys, sewers, ditches, sewage disposal plants, waterworks, airports and all other structures that may be let to contract by a public authority, excluding improvements funded, in whole or in part, by federal funds.

**7. DAVIS-BACON AND RELATED ACT WAGE RATES:**

- The work performed under this contract is federally funded in whole, or in part. Pursuant to \_\_\_\_\_, Vendors are required to pay applicable Davis-Bacon wage rates.
- The work performed under this contract is not subject to Davis-Bacon wage rates.

**8. SUBCONTRACTOR LIST SUBMISSION:** In accordance with W. Va. Code § 5-22-1, the apparent low bidder on a contract valued at more than \$250,000.00 for the construction, alteration, decoration, painting or improvement of a new or existing building or structure shall submit a list of all subcontractors who will perform more than \$25,000.00 of work on the project including labor and materials. (This section does not apply to any other construction projects, such as highway, mine reclamation, water or sewer projects.) The subcontractor list shall be provided to the Purchasing Division within one business day of the opening of bids for review. If the apparent low bidder fails to submit the subcontractor list, the Purchasing Division shall promptly request by telephone and electronic mail that the low bidder and second low bidder provide the subcontractor list within one business day of the request. Failure to submit the subcontractor list within one business day of receiving the request shall result in disqualification of the bid.

If no subcontractors who will perform more than \$25,000.00 of work are to be used to complete the project, the apparent low bidder must make this clear on the subcontractor list, in the bid itself, or in response to the Purchasing Division's request for the subcontractor list.

a. Required Information. The subcontractor list must contain the following information:

- i. Bidder's name
- ii. Name of each subcontractor performing more than \$25,000 of work on the project.
- iii. The license number of each subcontractor, as required by W. Va. Code § 21-11-1 et. seq.
- iv. If applicable, a notation that no subcontractor will be used to perform more than \$25,000.00 of work. (This item iv. is not required if the vendor makes this clear in the bid itself or in documentation following the request for the subcontractor list.)

b. Subcontractor List Submission Form: The subcontractor list may be submitted in any form, including the attached form, as long as the required information noted above is included. If any information is missing from the bidder's subcontractor list submission, it may be obtained from other documents such as bids, emails, letters, etc. that accompany the subcontractor list submission.

c. Substitution of Subcontractor. Written approval must be obtained from the State Spending Unit before any subcontractor substitution is permitted. Substitutions are not permitted unless:

- i. The subcontractor listed in the original bid has filed for bankruptcy;
- ii. The subcontractor in the original bid has been debarred or suspended; or
- iii. The contractor certifies in writing that the subcontractor listed in the original bid fails, is unable, or refuses to perform his subcontract.



**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  
(email 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, Larry T. Cox, Area Manager  
(Authorized Signature) (Representative Name, Title)

Larry T. Cox, Area Manager  
(Printed Name and Title of Authorized Representative)

6-NOV-2019  
(Date)

304-397-4100 ext 1301, 304-397-4101  
(Phone Number) (Fax Number)



REQUEST FOR QUOTATION  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

**GENERAL CONSTRUCTION SPECIFICATIONS (No AIA Documents)**

1. **PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of WV Office of Technology to establish a contract for the following:

Upgrade equipment to Conference Facilities and Meeting Rooms at the West Virginia State Training Center, the Gaston Caperton Training Center located in Building 7, and Conference Rooms located within the West Virginia Office of Technology in Buildings 5 and 6.

The Vendor shall furnish all materials, labor, and equipment necessary to complete all Construction Services. The Vendor shall furnish any incidental work, materials, labor, and equipment that are necessary to complete the Construction Services, even if such incidental work is not explicitly included in the Project Plans.

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 and in the Project Plans as defined below.

- 2.1 **“Construction Services”** means upgrading audio video equipment for conference facilities and meeting rooms as more fully described in the Project Plans.
- 2.2 **“DLP”** means Digital Light Processing.
- 2.3 **“DVD”** means Digital Video Disc.
- 2.4 **“HD”** means High-Definition.
- 2.5 **“HDMI”** means High-Definition Multimedia Interface.
- 2.6 **“LCD”** means Liquid Crystal Display.
- 2.7 **“LED”** means Light-Emitting Diode.
- 2.8 **“Pricing Page”** means the pages contained in wvOASIS, attached hereto as Exhibit A, or included in the Project Plans upon which Vendor should list its proposed price for the Construction Services.
- 2.9 **“Project Plans”** means documents developed by an architect, an engineer, the Agency, or another design professional, which are attached hereto as Exhibit B, that provide detailed instructions on how the Construction Services are to be performed. In the event that Project Plans contain drawings or other documents too large to attach in Exhibit B, Vendors can obtain copies in accordance with Section 9 of these Specifications.
- 2.10 **“Solicitation”** means the official notice of an opportunity to supply the State with Construction Services that is published by the Purchasing Division.

REQUEST FOR QUOTATION  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

2.11 “VCR” means Video Cassette Recorder.

3. **ORDER OF PRECEDENCE:** This General Construction Specifications document will have priority over, and supersede, anything contained in the Project Plans.
4. **QUALIFICATIONS:** Vendor, or Vendor’s staff if requirements are inherently limited to individuals rather than corporate entities, shall have the following minimum qualifications:
  - 4.1. **Experience:** Vendor, or Vendor’s supervisory staff assigned to this project, must have successfully completed at least twenty (20) projects that involved work similar to that described in these specifications or the Project Plans. Compliance with this experience requirement will be determined prior to contract award by the State through references provided by the Vendor upon request, through knowledge or documentation of the Vendor’s past projects, through confirmation of experience requirements from the architect assisting the State in this project, or some other method that the State determines to be acceptable. Vendor must provide any documentation requested by the State to assist in confirmation of compliance with this provision. References, documentation, or other information to confirm compliance with this experience requirement may be requested after bid opening and prior to contract award.
5. **CONTRACT AWARD:** The Contract is intended to provide Agency with a purchase price for the Construction Services. The Contract will be awarded to the lowest qualified responsible bidder meeting the required specifications. If the Pricing Pages contain alternates/add-ons, the Contract will be awarded based on the grand total of the base bid and any alternates/add-ons selected.
6. **SELECTION OF ALTERNATES:** Pursuant to W. Va. Code § 5-22-1(f), any solicitation of bids shall include no more than five alternates. Alternates, if accepted, shall be accepted in the order in which they are listed on the bid form. Any unaccepted alternate contained within a bid shall expire 90 days after the date of the opening of bids for review. Determination of the lowest qualified responsible bidder shall be based on the sum of the base bid and any alternates accepted.
7. **PERFORMANCE:** Vendor shall perform the Construction Services in accordance with this document and the Project Plans.
8. **SUBSTITUTIONS:** Any substitution requests must be submitted in accordance with the official question and answer period described in the INSTRUCTIONS TO VENDORS SUBMITTING BIDS, Paragraph 4. Vendor Question Deadline. Vendors submitting substitution requests should submit product brochures and product specifications during the official question and answer period.
9. **PROJECT PLANS:** The checked box will apply to Project Plans for this solicitation.

REQUEST FOR QUOTATION  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

- x **No Additional Project Plan Documents:** There are no additional Project Plans other than those attached hereto as Exhibit B or any subsequent addenda modifying Exhibit B.

**10. CONDITIONS OF THE WORK**

**10.1. Permits:** The Vendor shall procure all necessary permits and licenses to comply with all applicable Federal, State, or Local laws, regulations and ordinances of any regulating body.

**10.2. Existing Conditions:** If discrepancies are discovered between the existing conditions and those noted in the specifications, Vendor must immediately notify the Agency's representative. Vendor must also immediately notify the Agency if suspected hazardous materials are encountered.

**10.3. Standard Work Hours:** The standard hours of work for this Contract will be Monday through Friday 8:00 AM to 4:00 PM EST excluding holidays recognized by the State of West Virginia. Any work outside of the standard hours of work must be approved in advance at the Agency's sole discretion. Authorization of work outside of the standard hours of work will not entitle Vendor to additional compensation.

**10.4. Project Closeout:** Project Closeout shall include the following:

**10.4.1. Final Cleanup:** Vendor shall perform the final cleanup activities listed below, along with any other final cleanup activities normally associated with the work performed under this Contract, prior to final inspection:

**10.4.1.1.** Removal or cleanup of trash and debris generated in performance of this contract. This includes left over screws, dust, boxes, or other debris left by Vendor's employees.

**10.4.2. Final Inspection:** Vendor shall participate in a final inspection with the Agency's project manager. The purpose of the final inspection will be to identify deficiencies that need to be remedied prior to Agency's final acceptance of the work. Vendor shall at all times be obligated to perform in accordance with the Contract and must take all actions necessary to ensure that work complies with requirements of Contract prior to final acceptance. Final acceptance does not waive or release Vendor from its obligation to ensure that work complies with the Contract requirements. Vendor shall submit any warranty documents to the Agency project manager at final inspection.

**11. FACILITIES ACCESS:** Performance of Contract Services may require access cards and/or keys to gain entrance to Agency's facilities. In the event that access cards and/or keys are required:

REQUEST FOR QUOTATION  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

- 11.1. Vendor must identify principal service personnel which will be issued access cards and/or keys to perform service.
- 11.2. Vendor will be responsible for controlling cards and keys and will pay replacement fee, if the cards or keys become lost or stolen.
- 11.3. Vendor shall notify Agency immediately of any lost, stolen, or missing card or key.
- 11.4. Anyone performing under this Contract will be subject to Agency's security protocol and procedures.
- 11.5. Vendor shall inform all staff of Agency's security protocol and procedures.

**12. MISCELLANEOUS:**

**12.1. Contract Manager:** During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

**Contract Manager:** Harry T. Cox

**Telephone Number:** 304.397.4100 ext 1301

**Fax Number:** 304.397.4101

**Email Address:** hcox@leeHartman.com

REQUEST FOR QUOTATION  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

**EXHIBIT A – Pricing Page**

See wvOASIS Pricing Section

REQUEST FOR QUOTATION  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

**EXHIBIT B – PROJECT PLANS**

West Virginia Office of Technology is seeking to upgrade Conference Facilities and Meeting Rooms at the West Virginia State Training Center, the Gaston Caperton Training Center located in Building 7, and Conference Rooms located within the West Virginia Office of Technology in Buildings 5 and 6.

The following is an overview of each conference room and meeting room in Buildings 5, 6, and 7 along with their current configuration.

***Executive Room – Building 7***

- Occupancy: 15 People
- 1 – 65” LCD monitor
- 1 – Polycom videoconferencing system / teleconferencing
- 1 – lectern (controls monitor, videoconferencing – allow presentation from laptop, DVD/VCR capabilities)

***Regents Room - Building 7***

- Occupancy: 25 People
- 1 - ceiling mounted projector
- 1 - projection screen
- 1 - lectern (controls projector, screen – allows presentation from laptop, DVD / VCR capabilities)
- Speakers
- Teleconferencing

***Capitol Room – Building 7***

- Occupancy: 150 with tables, 300 w/o tables
- 2 – ceiling mounted projectors
- 2 – projection screens (controlled remotely)
- 1 - speaker monitor (“52”)
- 2 – audience monitors (“52”)
- 1 – lectern (controls projectors, screens, monitors – DVD capability, laptop compatible)
- Speakers
- Teleconferencing

***Heritage Room - Training Room – Building 7***

- Occupancy: 12 students w/1 instructor
- 3 – wall mounted projectors
- 1 – lectern (controls projectors – allows presentation from laptop, DVD/VCR)

***OT Conference Room A – Building 5***

- Occupancy: 12

REQUEST FOR QUOTATION  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

- Portable projector

***OT Conference Room B – Building 5***

- Occupancy: 12
- 2 - LCD monitors

***OT Conference Room – Building 6 122A***

- Occupancy: 20
- 1 - LCD monitor

**Project Plan:** To upgrade equipment in Conference Facilities and Meeting Rooms at the West Virginia State Training Center, the Gaston Caperton Training Center located in Building 7, and Conference Rooms located within the West Virginia Office of Technology in Buildings 5 and 6.

**Executive Room – Building 7**

**13.** The Vendor must provide the following which will replace the current equipment in the Executive Room – Building 7:

**13.1.** A quantity of one (1) Samsung 75” LED Television (Part# QB75N), or Equal.

**13.1.1.** The Vendor must provide a minimum of 75” LED Television

**13.1.2.** The Vendor must provide a product with a minimum of 1.7GHz Quad Core processor, and memory interface with a minimum of 2.5 GB,

**13.1.3.** The Vendor must provide a product with the following input and output connections:

**13.1.3.1.** A minimum of one (1) DVI-D

**13.1.3.2.** A minimum of two (2) HDMI 2.0

**13.1.3.3.** A minimum of two (2) USB 2.0

**13.1.3.4.** A minimum of one (1) Stereo Mini Jack

**13.1.3.5.** A minimum of one (1) RS232C (in/out thru stereo jack RJ45

**13.1.4.** The Vendor must provide Extended Warranty Services for a minimum of four (4) years that includes the following:

**13.1.4.1.** Next Business Day (NBD) replacement.

**13.1.4.2.** On-site support for installation of replacement unit.

**13.1.5.** The Vendor must provide compatible wall mount capable of adjusting and tilting

**REQUEST FOR QUOTATION**  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

- 13.2.** A quantity of (1) AMX 10” TableTop Touch Panel, or Equal
  - 13.2.1.** The Vendor must provide an AMX Control Processor, or Equal
  - 13.2.2.** The Vendor must provide an AMX Power Supply, or Equal
  
- 13.3.** A quantity of one (1) Netgear (or Equal) 8 port Power Over Ethernet (POE) Switch
  
- 13.4.** A quantity of one (1) Barco Wireless Laptop Interface, or Equal
  - 13.4.1.** The Vendor must provide a minimum quantity of two (2) interfaces.
  - 13.4.2.** The Vendor must provide an extended service agreement for a minimum of five (5) years. Extended service agreement must include the following:
    - 13.4.2.1.** Email and phone consulting, technical support, with response time of 24 hours.
    - 13.4.2.2.** Next Business Day advance parts replacement.
  
- 13.5.** A quantity of one (1) Sony Blu-Ray Player (Part # BDPS1700), or Equal
  - 13.5.1.** The Vendor must provide a product that has an HDMI output, Coaxial digital audio output, USB input, and ethernet connection.
  
- 13.6.** A quantity of one (1) 4x4 HDMI Switch with Audio
  
- 13.7.** A quantity of one (1) Qomo QPC 35 Document camera, or Equal
  - 13.7.1.** The Vendor must provide a document camera that is capable of the following features:
    - 13.7.1.1.** Recording photos and videos.
    - 13.7.1.2.** A minimum 5-megapixel camera
    - 13.7.1.3.** A minimum 30 frames per seconds in high definition quality
    - 13.7.1.4.** Capable of autofocus and auto white balance.
  
- 13.8.** A quantity of one (1) Polycom Group 310 HD codec, with Eagle Eye 4x Camera (or Equal)
  - 13.8.1.** The Vendor must provide video conferencing system that is compatible with Microsoft Skype for Business
  - 13.8.2.** The Vendor must provide Polycom Premier Extended Service Agreements, or Equal for 3-years from the date of acceptance of system.
  - 13.8.3.** The Vendor’s extended service agreement (warranty) must provide the following:
    - 13.8.3.1.** Advance parts replacement with next business day shipping
    - 13.8.3.2.** Support by telephone, online, and email must be available 24 hours a day for troubleshooting technical issues.
    - 13.8.3.3.** Access to knowledge base and technical documentation.



REQUEST FOR QUOTATION  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

13.8.3.4. Access to fixes and release updates.

13.9. A quantity of one (1) lectern

13.9.1. The Vendor must provide a lectern with the following features:

13.9.1.1. controls monitor, videoconferencing, and DVD/VCR capabilities

13.9.1.2. Allows presentation from laptop

**Regents Room – Building 7**

14. The Vendor must provide the following which will replace the current equipment in the Regents Room – Building 7:

14.1. A quantity of one (1) DLP Laser Projector.

14.1.1. The Vendor must provide a minimum of 7000 Lumens

14.1.2. The Vendor must provide compatible mounts

14.1.3. The Vendor must provide compatible lenses

14.2. A quantity of one (1) Draper 109” Diagonal Grey XH600V surface, or Equal.

14.3. A quantity of (1) AMX 10” TableTop Touch Panel, or Equal

14.3.1. The Vendor must provide an AMX Control Processor, or Equal

14.3.2. The Vendor must provide an AMX Power Supply, or Equal

14.4. A quantity of one (1) Middle Atlantic Lectern (Part # L2LDC2FCMGC), or Equal

14.4.1. The Vendor must provide a lectern that is 28” W x 25” D x 43” H.

14.4.2. The Vendor must provide a lectern with the following features:

14.4.2.1. controls monitor, videoconferencing, and DVD/VCR capabilities

14.4.2.2. Allows presentation from laptop

14.5. A quantity of one (1) 4x4 HDMI Switch with Audio

14.5.1. The Vendor must provide a quantity of one (1) HD Base T Extension

14.6. A quantity of one (1) Barco Wireless Laptop Interface, or Equal

14.6.1. The Vendor must provide a minimum quantity of two (2) interfaces.

14.6.2. The Vendor must provide an extended service agreement for a minimum of five (5) years. Extended service agreement must include the following:



REQUEST FOR QUOTATION  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

**Capitol Room – Building 7**

**15.** The Vendor must provide the following which will replace the current equipment in the Capitol Room – Building 7:

**15.1.** A quantity of two (2) DLP Laser Projector.

**15.1.1.** The Vendor must provide a minimum of 7000 Lumens

**15.1.2.** The Vendor must provide compatible mounts

**15.1.3.** The Vendor must provide compatible lenses

**15.2.** A quantity of two (2) Draper 109” Diagonal Grey XH600V surface, or Equal.

**15.3.** A quantity of two (2) Samsung 75” LED Television (Part # QB75N), or Equal.

**15.3.1.** The Vendor must provide a minimum of 75” LED Television

**15.3.2.** The Vendor must provide a product with a minimum of 1.7GHz Quad Core processor, and memory interface with a minimum of 2.5 GB,

**15.3.3.** The Vendor must provide a product with the following input and output connections:

**15.3.3.1.** A minimum of one (1) DVI-D

**15.3.3.2.** A minimum of two (2) HDMI 2.0

**15.3.3.3.** A minimum of two (2) USB 2.0

**15.3.3.4.** A minimum of one (1) Stereo Mini Jack

**15.3.3.5.** A minimum of one (1) RS232C (in/out thru stereo jack RJ45

**15.3.4.** The Vendor must provide Extended Warranty Services for a minimum of four (4) years that includes the following:

**15.3.4.1.** Next Business Day (NBD) replacement.

**15.3.4.2.** On-site support for installation of replacement unit.

**15.3.5.** The Vendor must provide compatible large flat panel swing arm wall mount for each.

**15.4.** A quantity of (1) AMX 10” TableTop Touch Panel, or Equal

**15.4.1.** The Vendor must provide an AMX Control Processor, or Equal

**15.4.2.** The Vendor must provide an AMX Power Supply, or Equal

**15.5.** A quantity of one (1) wireless access point

**15.6.** A quantity of one (1) 8x8 HDMI Matrix

**15.6.1.** The Vendor must provide a quantity of four (4) HD Base T Extension

**15.7.** A quantity of one (1) Sony Blu-Ray player (Part # BDPS1700), or Equal

**15.7.1.** The Vendor must provide a product that has an HDMI output, Coaxial digital audio output, USB input, and ethernet connection.

REQUEST FOR QUOTATION  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

- 15.8. A quantity of one (1) Barco Wireless Laptop Interface, or Equal
  - 15.8.1. The Vendor must provide a minimum quantity of four (4) interfaces.
  - 15.8.2. The Vendor must provide an extended service agreement for a minimum of five (5) years. Extended service agreement must include the following:
    - 15.8.2.1. Email and phone consulting, technical support, with response time of 24 hours.
    - 15.8.2.2. Next Business Day advance parts replacement.
  
- 15.9. A quantity of one (1) Qomo QPC 35 Document Camera, or Equal
  - 15.9.1. The Vendor must provide a document camera that is capable of the following features:
    - 15.9.1.1. Recording photos and videos.
    - 15.9.1.2. A minimum 5-megapixel camera
    - 15.9.1.3. A minimum 30 frames per seconds in high definition quality
    - 15.9.1.4. Capable of autofocus and auto white balance.
  
- 15.10. A quantity of one (1) Spectrum Lectern (Part# 55213-P10020), or Equal
  - 15.10.1. The Vendor must provide a minimum of 46" wide flat surface lectern
  - 15.10.2. The Vendor must provide a lectern with the following features:
    - 15.10.2.1. controls monitor, videoconferencing, and DVD/VCR capabilities
    - 15.10.2.2. Allows presentation from laptop
  
- 15.11. A quantity of one (1) Middle Atlantic Floor Cabinet (Part# RFR-1628BR), or Equal
  - 15.11.1. The Vendor must provide a floor cabinet that is 28 ¼" D x 35" H X 19" W
  - 15.11.2. The Vendor must provide a cabinet cooler
  
- 15.12. A quantity of (1) Middle Atlantic Horizontal Power Strip (Part# PD-915R), or Equal
  - 15.12.1. The Vendor must provide a product with a minimum of nine (9) outlets.
  
- 15.13. A quantity of one (1) Biamp Sound Processor, or Equal
  
- 15.14. A quantity of six (6) wall mounted speakers
  - 15.14.1. The Vendor must provide power amplifier
  
- 15.15. A quantity of one (1) Desktop Transmitter
  
- 15.16. A quantity of one (1) wireless receiver

REQUEST FOR QUOTATION  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

- 15.17. A quantity of one (1) gooseneck microphone
- 15.18. A quantity of two (2) combo - lapel and handheld microphone system.
- 15.19. A quantity of one (1) Netgear (or Equal) 8 port Power Over Ethernet (POE) Switch
- 15.20. A quantity of one (1) wire and connectors
- 15.21. A quantity of one (1) Polycom Group 310 HD codec, with Eagle Eye 12x Camera (or Equal)
  - 15.21.1. The Vendor must provide video conferencing system that is compatible with Microsoft Skype for Business.
  - 15.21.2. The Vendor must provide a quantity of (1) white primary ceiling microphone array.
  - 15.21.3. The Vendor must provide a quantity of (1) white extension ceiling microphone array.
  - 15.21.4. The Vendor must provide Polycom Premier Extended Service Agreements, or Equal for 3-years from the date of acceptance of system.
  - 15.21.5. The Vendor's extended service agreement (warranty) must provide the following:
    - 15.21.5.1. Advance parts replacement with next business day shipping
    - 15.21.5.2. Support by telephone, online, and email must be available 24 hours a day for troubleshooting technical issues.
    - 15.21.5.3. Access to knowledge base and technical documentation.
    - 15.21.5.4. Access to fixes and release updates.

**Heritage Room – Building 7**

- 16. The Vendor must provide the following which will replace the current equipment in the Heritage Room – Building 7:
  - 16.1. A quantity of three (3) Epson Ultra Throw Projectors, or Equal
    - 16.1.1. The Vendor must provide a minimum of 4000 Lumens
    - 16.1.2. The Vendor must provide a product with a minimum of a 3-year warranty that includes phone consulting and tech support.
    - 16.1.3. The Vendor must provide compatible mounts
  - 16.2. A quantity of (1) AMX 10" TableTop Touch Panel, or Equal

## REQUEST FOR QUOTATION

### Audio Video Upgrades to Conference Facilities and Meeting Rooms

---

- 16.2.1. The Vendor must provide an AMX Control Processor, or Equal
- 16.2.2. The Vendor must provide an AMX Power Supply, or Equal
- 16.3. A quantity of one (1) 4x4 HDMI Switch with Audio
  - 16.3.1. The Vendor must provide a quantity of three (3) HD Base T Extension
- 16.4. A quantity of one (1) Sony Blu-Ray Player (Part # BDPS1700), or Equal
  - 16.4.1. The Vendor must provide a product that has an HDMI output, Coaxial digital audio output, USB input, and ethernet connection.
- 16.5. A quantity of one (1) Barco Wireless Laptop Interface, or Equal
  - 16.5.1. The Vendor must provide a minimum quantity of two (2) interfaces
  - 16.5.2. The Vendor must provide an extended service agreement for a minimum of five (5) years. Extended service agreement must include the following:
    - 16.5.2.1. Email and phone consulting, technical support, with response time of 24 hours.
    - 16.5.2.2. Next Business Day advance parts replacement.
- 16.6. A quantity of one (1) Qomo QPC 35 Document Camera, or Equal
  - 16.6.1. The Vendor must provide a document camera that is capable of the following features:
    - 16.6.1.1. Recording photos and videos.
    - 16.6.1.2. A minimum 5-megapixel camera
    - 16.6.1.3. A minimum 30 frames per seconds in high definition quality
    - 16.6.1.4. Capable of autofocus and auto white balance.
- 16.7. A quantity of one (1) Spectrum Lectern (Part # 55213-P10020), or Equal
  - 16.7.1. The Vendor must provide a minimum of 46" wide flat surface lectern
  - 16.7.2. The Vendor must provide a lectern with the following features:
    - 16.7.2.1. controls monitor, videoconferencing, and DVD/VCR capabilities
    - 16.7.2.2. Allows presentation from laptop
- 16.8. A quantity of two (2) wall mounted speakers
  - 16.8.1. The Vendor must provide power amplifier 70v 600-watt mono
- 16.9. A quantity of one (1) Netgear (or Equal) 8 port Power Over Ethernet (POE) Switch

### OT Conference Room A – Building 5

REQUEST FOR QUOTATION  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

17. The Vendor must provide the following which will replace the current equipment in the OT Conference Room A – Building 5:

- 17.1. A quantity of one (1) Samsung 75” LED Television (Part # QB75N), or Equal.
  - 17.1.1. The Vendor must provide a minimum of 75” LED Television
  - 17.1.2. The Vendor must provide a product with a minimum of 1.7GHz Quad Core processor, and memory interface with a minimum of 2.5 GB,
  - 17.1.3. The Vendor must provide a product with the following input and output connections:
    - 17.1.3.1. A minimum of one (1) DVI-D
    - 17.1.3.2. A minimum of two (2) HDMI 2.0
    - 17.1.3.3. A minimum of two (2) USB 2.0
    - 17.1.3.4. A minimum of one (1) Stereo Mini Jack
    - 17.1.3.5. A minimum of one (1) RS232C (in/out thru stereo jack RJ45)
  - 17.1.4. The Vendor must provide Extended Warranty Services for a minimum of four (4) years that includes the following:
    - 17.1.4.1. Next Business Day (NBD) replacement.
    - 17.1.4.2. On-site support for installation of replacement unit.
    - 17.1.4.3. The Vendor must provide wall mount capable of adjusting and tilting
- 17.2. A quantity of one (1) Barco Wireless Laptop Interface, or Equal
  - 17.2.1. The Vendor must provide a minimum quantity of two (2) interfaces.
  - 17.2.2. The Vendor must provide an extended service agreement for a minimum of five (5) years. Extended service agreement must include the following:
    - 17.2.2.1. Email and phone consulting, technical support, with response time of 24 hours.
    - 17.2.2.2. Next Business Day advance parts replacement.

**OT Conference Room B – Building 5**

18. The Vendor must provide the following which will replace the current equipment in the OT Conference Room B – Building 5:

- 18.1. A quantity of one (1) Samsung 75” LED Television (Part # QB75N), or Equal.
  - 18.1.1. The Vendor must provide a minimum of 75” LED Television
  - 18.1.2. The Vendor must provide a product with a minimum of 1.7GHz Quad Core processor, and memory interface with a minimum of 2.5 GB,
  - 18.1.3. The Vendor must provide a product with the following input and output connections:

**REQUEST FOR QUOTATION**  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

- 18.1.3.1. A minimum of one (1) DVI-D
        - 18.1.3.2. A minimum of two (2) HDMI 2.0
        - 18.1.3.3. A minimum of two (2) USB 2.0
        - 18.1.3.4. A minimum of one (1) Stereo Mini Jack
        - 18.1.3.5. A minimum of one (1) RS232C (in/out thru stereo jack RJ45
  - 18.1.4. The Vendor must provide Extended Warranty Services for a minimum of four (4) years that includes the following:
    - 18.1.4.1. Next Business Day (NBD) replacement.
    - 18.1.4.2. On-site support for installation of replacement unit.
  - 18.1.5. The Vendor must provide wall mount capable of adjusting and tilting
- 18.2. A quantity of one (1) Barco Wireless Laptop Interface, or Equal
  - 18.2.1. The Vendor must provide a minimum quantity of two (2) interfaces.
  - 18.2.2. The Vendor must provide an extended service agreement for a minimum of five (5) years. Extended service agreement must include the following:
    - 18.2.2.1. Email and phone consulting, technical support, with response time of 24 hours.
    - 18.2.2.2. Next Business Day advance parts replacement.

**OT Conference Room 122A – Building 6**

- 19. The Vendor must provide the following which will replace the current equipment in the OT Conference Room 122A – Building 6:
  - 19.1. A quantity of one (1) LED Projector.
    - 19.1.1. The Vendor must provide a minimum of 7000 Lumens
    - 19.1.2. The Vendor must provide compatible ceiling mounts and plates
    - 19.1.3. The Vendor must provide compatible lenses
  - 19.2. A quantity of one (1) Draper 94” Diagonal Grey XH600V surface, or Equal.
  - 19.3. A quantity of (1) AMX 10” TableTop Touch Panel, or Equal
    - 19.3.1. The Vendor must provide an AMX Control Processor, or Equal
    - 19.3.2. The Vendor must provide an AMX Power Supply, or Equal
  - 19.4. A quantity of one (1) Netgear (or Equal) 8 port Power Over Ethernet (POE) Switch
  - 19.5. A quantity of one (1) 4x4 HDMI Switch with Audio
    - 19.5.1. The Vendor must provide a quantity of two (2) HD Base T Extension



REQUEST FOR QUOTATION  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

- 19.6.** A quantity of one (1) Samsung 75" LED Television (Part # QB75N), or Equal.
  - 19.6.1.** The Vendor must provide a minimum of 75" LED Television
  - 19.6.2.** The Vendor must provide a product with a minimum of 1.7GHz Quad Core processor, and memory interface with a minimum of 2.5 GB,
  - 19.6.3.** The Vendor must provide a product with the following input and output connections:
    - 19.6.3.1.** A minimum of one (1) DVI-D
    - 19.6.3.2.** A minimum of two (2) HDMI 2.0
    - 19.6.3.3.** A minimum of two (2) USB 2.0
    - 19.6.3.4.** A minimum of one (1) Stereo Mini Jack
    - 19.6.3.5.** A minimum of one (1) RS232C (in/out thru stereo jack RJ45)
  - 19.6.4.** The Vendor must provide Extended Warranty Services for a minimum of four (4) years that includes the following:
    - 19.6.4.1.** Next Business Day (NBD) replacement.
    - 19.6.4.2.** On-site support for installation of replacement unit.
  - 19.6.5.** The Vendor must provide micro adjust tilt mount
  
- 19.7.** A quantity of one (1) Barco Wireless Laptop Interface, or Equal
  - 19.7.1.** The Vendor must provide a minimum quantity of two (2) interfaces.
  - 19.7.2.** The Vendor must provide an extended service agreement for a minimum of five (5) years. Extended service agreement must include the following:
    - 19.7.2.1.** Email and phone consulting, technical support, with response time of 24 hours.
    - 19.7.2.2.** Next Business Day advance parts replacement.
  
- 19.8.** A quantity of one (1) Qomo QPC 35 Document Camera, or Equal
  - 19.8.1.** The Vendor must provide a document camera that is capable of the following features:
    - 19.8.1.1.** Recording photos and videos.
    - 19.8.1.2.** A minimum 5-megapixel camera
    - 19.8.1.3.** A minimum 30 frames per seconds in high definition quality
    - 19.8.1.4.** Capable of autofocus and auto white balance.
  
- 19.9.** A quantity of one (1) Middle Atlantic Floor Cabinet (Part # RFR-1628BR), or Equal
  - 19.9.1.** The Vendor must provide a floor cabinet that is 28 ¼" D x 35" H X 19" W
  - 19.9.2.** The Vendor must provide a cabinet cooler

REQUEST FOR QUOTATION  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

- 19.10.** A quantity of (1) Middle Atlantic Horizontal Power Strip (Part # PD-915R), or Equal
- 19.10.1.** The Vendor must provide a product with a minimum of nine (9) outlets.
- 19.11.** A quantity of two (2) wall mounted speakers
- 19.11.1.** The Vendor must provide power amplifier 2 channel 200-watt.
- 19.12.** A quantity of one (1) Polycom Group 310 HD codec, with Eagle Eye 4x Camera (or Equal)
- 19.12.1.** The Vendor must provide video conferencing system that is compatible with Microsoft Skype for Business
- 19.12.2.** The Vendor must provide a quantity of (1) white primary ceiling microphone array.
- 19.12.3.** The Vendor must provide a quantity of (1) white extension ceiling microphone array.
- 19.12.4.** The Vendor must provide Polycom Premier Extended Service Agreements, or Equal for 3-years from the date of acceptance of system.
- 19.12.5.** The Vendor's extended service agreement (warranty) must provide the following:
- 19.12.5.1.** Advance parts replacement with next business day shipping
- 19.12.5.2.** Support by telephone, online, and email must be available 24 hours a day for troubleshooting technical issues.
- 19.12.5.3.** Access to knowledge base and technical documentation.
- 19.12.5.4.** Access to fixes and release updates.

**Removal and Installation Services**

- 20.** The Vendor must remove existing equipment and deliver to the WV Office of Technology's Warehouse at 908 Bullitt Street, Charleston, WV 25301.
- 20.1.** The Vendor will coordinate with the WVOT Warehouse Manager to schedule delivery of the retiring equipment.
- 21.** The Vendor must provide installation, label, and configure all hardware components. This will be coordinated with the WVOT Project Manager.
- 21.1.** The Vendor will coordinate with the WVOT Project Manager to schedule installation for each location.
- 21.2.** The Vendor must provide configuration documentation for the equipment in each location. The documentation must include a map or diagram to show how each component is connected the hardware settings.

REQUEST FOR QUOTATION  
**Audio Video Upgrades to Conference Facilities and Meeting Rooms**

---

22. The Vendor must ensure that all equipment is operating effectively and efficiently within 90 calendar days after notice to proceed.

**Training Services**

23. The Vendor must provide onsite training on troubleshooting technical issues with the audio video and web conferencing equipment.

- 23.1. The Vendor will provide a maximum total of four (4) hours of training for following staff members with the WV Division of Personnel, Organization and Human Resource Development (OHRD) and the WV Office of Technology (WVOT).

- 23.1.1. Each Agency will contact the winning Vendor via email or by phone to schedule the training sessions (post award).

23.1.1.1. OHRD – Staff:

23.1.1.1.1. A quantity of one (1) Assistant Director

23.1.1.1.2. A quantity of one (1) Manager

23.1.1.1.3. A quantity of three (3) Training Consultants

23.1.1.1.4. A quantity of two (2) Design Team

23.1.1.1.5. A quantity of two (2) Administrative Staff

23.1.1.2. WVOT – Staff

23.1.1.2.1. An estimated quantity of one (1) OT Field Tech

- 23.2. The Vendor will provide an instructor-led walk through to the following locations with the designated Agency staff members responsible for troubleshooting the equipment.

23.2.1. Executive Room – Building 7 with OHRD Staff and WVOT Staff

23.2.2. Regents Room – Building 7 with OHRD Staff and WVOT Staff

23.2.3. Capitol Room – Building 7 with OHRD Staff and WVOT Staff

23.2.4. Heritage Room – Building 7 with OHRD Staff and WVOT Staff

23.2.5. OT Conference Room A – Building 5 with WVOT Staff

23.2.6. OT Conference Room B – Building 5 with WVOT Staff

23.2.7. OT Conference Room – Building 6 122A with WVOT Staff

- 23.3. The Vendor must provide operating manuals and configuration guides, in English language, for all of the equipment listed in the following:

23.3.1. Executive Room – Building 7

23.3.2. Regents Room – Building 7

23.3.3. Capitol Room – Building 7

23.3.4. Heritage Room – Building 7

23.3.5. OT Conference Room A – Building 5

23.3.6. OT Conference Room B – Building 5

23.3.7. OT Conference Room – Building 6 122A



State of West Virginia  
**PURCHASING DIVISION**  
**Construction Bid Submission Review Form**

---

*This list has been provided for informational purposes only and is not to be construed as a complete list of request for quotation or bidding requirements for any individual construction project. This list does not and cannot include every item, mistake or oversight that could cause a contractor's bid to be disqualified. Rather, this list is intended to draw attention to some of the most common problems that the Purchasing Division encounters in the bidding process for construction projects. All potential bidders must read the request for quotation, all additional documents, and all instructions relating thereto ("Bid Documents") in their entirety to identify the actual request for quotation and bidding requirements. Failure to read the Bid Documents in their entirety and comply with the stated requirements contained therein may result in bid disqualification.*

---

**Errors That Shall Be Reason for Immediate Bid Disqualification**

1. Failure to attend a mandatory pre-bid meeting
2. Failure to sign the bid
3. Failure to supply a valid bid bond or other surety approved by the state of West Virginia
4. Failure to meet any mandatory requirement of the solicitation
5. Failure to acknowledge receipt of Addenda (only if stipulated as mandatory)
6. Failure to submit bid prior to the bid opening date and time
7. Federal debarment
8. State of West Virginia debarment or suspension

**Errors that May Be Reason for Bid Disqualification Before Contract Award**

1. Debt to the state or political subdivision (must be cured prior to award)
2. Workers' Compensation or Unemployment Compensation delinquency (must be cured prior to award)
3. Not registered as a vendor with the state of West Virginia (must be cured prior to award)
4. Failure to obtain required bonds and/or insurance
5. Failure to provide the sub-contractor listing within one business day of bid opening or one business day of the request to do so by the Purchasing Division.
6. Failure to supply West Virginia contractor's license number with bid or within one day of Purchasing Division request to do so.
7. Failure to supply a signed drug-free workplace affidavit with bid or within one day of Purchasing Division request to do so.
8. Failure to use the provided solicitation form (only if stipulated as mandatory).
9. Failure to complete the Disclosure of Interested Parties to Contracts form (if contract has an actual or estimated value of \$1 million or more; does not apply to publicly traded companies listed on national or internal stock exchange)

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 exceeds 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: [Signature] Date: 10-30-2019

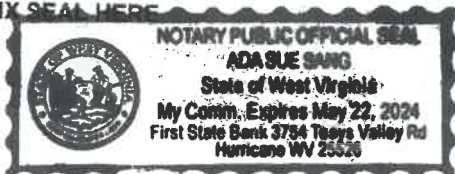
State of WEST VIRGINIA

County of PUTNAM, to-wit:

Taken, subscribed, and sworn to before me this 30 day of OCTOBER, 2019.

My Commission expires May 22 2024, 2024.

AFFIX SEAL HERE



NOTARY PUBLIC

[Signature]

Purchasing Affidavit (Revised 01/19/2018)



State of West Virginia  
DRUG FREE WORKPLACE CONFORMANCE AFFIDAVIT  
West Virginia Code §21-1D-5

STATE OF WEST VIRGINIA,  
COUNTY OF Pulaski, TO-WIT:

I, Larry T. Cox, after being first duly sworn, depose and state as follows:

1. I am an employee of Lee Hartman + Sons, Inc; and,  
(Company Name)
2. I do hereby attest that Lee Hartman + Sons, Inc  
(Company Name)

maintains a written plan for a drug-free workplace policy and that such plan and policy are in compliance with **West Virginia Code §21-1D**.

The above statements are sworn to under the penalty of perjury.

Printed Name: Larry T. Cox

Signature: [Handwritten Signature]

Title: Area Manager

Company Name: Lee Hartman + Sons, Inc

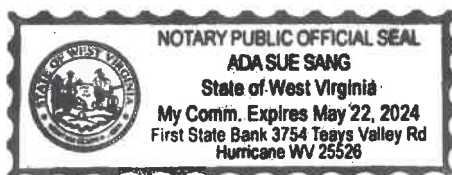
Date: 10-30-2019

Taken, subscribed and sworn to before me this 30 day of OCTOBER, 2019.

By Commission expires MAY 22 2024

(Seal)

[Handwritten Signature]  
(Notary Public)





RECD JUL 25 A.M.

# 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**

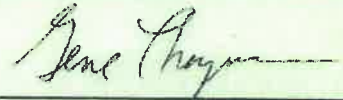
**Expiration Date**

JULY 22, 2019

JULY 22, 2020



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.

Agency \_\_\_\_\_  
REQ.P.O.# \_\_\_\_\_

**BID BOND**

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned, Lee Hartman & Sons, Inc.  
of 3236 Cove Road NW, Roanoke, VA 24017, as Principal, and The Ohio Casualty Insurance  
Company of 62 Maple Avenue, Keene, NH 03431 a corporation organized and existing under the laws of the State of NH  
with its principal office in the City of Keene, NH as Surety, are held and firmly bound unto the State  
of West Virginia, as Obligee, in the penal sum of Five Percent of Bid Price (\$ 5% ) for the payment of which,  
well and truly to be made, we jointly and severally bind ourselves, our heirs, administrators, executors, successors and assigns.

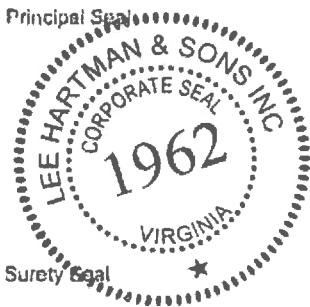
The Condition of the above obligation is such that whereas the Principal has submitted to the Purchasing Section of the  
Department of Administration a certain bid or proposal, attached hereto and made a part hereof, to enter into a contract in writing for  
CRFQ 0210 ISC200000007, Audio Visual Upgrades Meeting & Conference Room,  
IS&C Building 5, 10th Floor, 1900 Kanawha Boulevard E, Charleston, WV 25305

**NOW THEREFORE,**

- (a) If said bid shall be rejected, or
- (b) If said bid shall be accepted and the Principal shall enter into a contract in accordance with the bid or proposal  
attached hereto and shall furnish any other bonds and insurance required by the bid or proposal, and shall in all other respects perform  
the agreement created by the acceptance of said bid, then this obligation shall be null and void, otherwise this obligation shall remain in  
full force and effect. It is expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no  
event, exceed the penal amount of this obligation as herein stated.

The Surety, for the value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no  
way impaired or affected by any extension of the time within which the Obligee may accept such bid, and said Surety does hereby  
waive notice of any such extension

WITNESS, the following signatures and seals of Principal and Surety, executed and sealed by a proper officer of Principal and  
Surety, or by Principal individually if Principal is an individual, this 7th day of November, 2019.



Lee Hartman & Sons, Inc.  
(Name of Principal)  
By [Signature]  
(Must be President, Vice President, or  
Duly Authorized Agent)  
President  
(Title)

The Ohio Casualty Insurance Company  
(Name of Surety)

[Signature]  
Attorney-in-Fact

Sandra P. Hamilton

WV LICENSE # 3036394

IMPORTANT - Surety executing bonds must be licensed in West Virginia to transact surety insurance, must affix its seal, and  
must attach a power of attorney with its seal affixed.



**THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.**

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7342559

American Fire and Casualty Company  
The Ohio Casualty Insurance Company

Liberty Mutual Insurance Company  
West American Insurance Company

**POWER OF ATTORNEY**

KNOWN ALL PERSONS BY THESE PRESENTS: That American Fire & Casualty Company and The Ohio Casualty Insurance Company are corporations duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Carson B. Hamilton; Elizabeth S. Mabrey; Robert D. Lowery; Sandra P. Hamilton; Stephen T. Hamilton

all of the city of ROANOKE, state of VA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 26th day of April, 2016.



American Fire and Casualty Company  
The Ohio Casualty Insurance Company  
Liberty Mutual Insurance Company  
West American Insurance Company

By: David M. Carey  
David M. Carey, Assistant Secretary

STATE OF PENNSYLVANIA ss  
COUNTY OF MONTGOMERY

On this 26th day of April, 2016, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of American Fire and Casualty Company, Liberty Mutual Insurance Company, The Ohio Casualty Insurance Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.



Notarial Seal  
Teresa Pastella, Notary Public  
Plymouth Twp., Montgomery County  
My Commission Expires March 28, 2017  
Member, Pennsylvania Association of Notaries

By: Teresa Pastella  
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

**ARTICLE IV – OFFICERS** – Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

**ARTICLE XIII – Execution of Contracts – SECTION 5. Surety Bonds and Undertakings.** Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

**Certificate of Designation** – The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

**Authorization** – By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Gregory W. Davenport, the undersigned, Assistant Secretary, of American Fire and Casualty Company, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 7th day of November, 2019.



By: Gregory W. Davenport  
Gregory W. Davenport, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-810-827-8240 between 9:00 am and 4:30 pm EST on any business day



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
11/05/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> <b>HAWK Advisers, Inc.</b> 206 Williamson Road SE Suite 100 Roanoke VA 24011	<b>CONTACT NAME:</b> STEPHEN T. HAMILTON <b>PHONE (A/C, No, Ext):</b> (540) 343-4309 <b>E-MAIL ADDRESS:</b> jhartman@hawkemail.com	<b>FAX (A/C, No):</b> (540) 343-0257
	<b>INSURER(S) AFFORDING COVERAGE</b>	
<b>INSURED</b> <b>LEE HARTMAN &amp; SONS, INC.</b> P. O. BOX 13365 3236 COVE ROAD ROANOKE VA 24017	<b>INSURER A:</b> TRAVELERS PROP&CAS OF AMERICA	<b>NAIC #</b> 25674
	<b>INSURER B:</b> BEST'S RATING: A++, FSC XV	
	<b>INSURER C:</b> PHOENIX INS CO: A++, FSC XV	25623
	<b>INSURER D:</b> TRAVELERS IND CO OF AMERICA	25666
	<b>INSURER E:</b> A++, FSC XV	
	<b>INSURER F:</b>	

**COVERAGES**                      **CERTIFICATE NUMBER:**                      **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<b>GENERAL LIABILITY</b> <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> PRIMARY & NONCONTRIBUTORY <input checked="" type="checkbox"/> CONTRACTUAL LIABILITY GEN'L AGGREGATE LIMIT APPLIES PER <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ZLP-15T60075-19	10/01/2019	10/01/2020	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 300,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP-OP AGG \$ 2,000,000
C	<b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO <input checked="" type="checkbox"/> ALL OWNED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	BA-6N278705-19	10/01/2019	10/01/2020	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 10,000	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CUP-1L19449-19	10/01/2019	10/01/2020	EACH OCCURRENCE \$ 10,000,000 AGGREGATE \$ 10,000,000
D	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below Y/N <input checked="" type="checkbox"/> N/A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	UB-6H023547-19	10/01/2019	10/01/2020	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
A	<b>RENTAL EQUIPMENT INSTALLATION FLOATER</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	ZLP-15T60075-19	10/01/2019	10/01/2020	\$1000 DED, RENTAL 75,000 \$1,000 DED-INSTALLATION 500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)  
STATE OF WEST VIRGINIA, CERTIFICATE HOLDER, IS NAMED AS ADDITIONAL INSURED ON A PRIMARY & NON-CONTRIBUTORY BASIS WITH WAIVER OF SUBROGATION IN THEIR FAVOR PER THE INDICATED SPECIFICALLY SCHEDULED POLICIES ABOVE.  
RE: CRFQ 0210 ISC200000007, AUDIO VIDEO UPGRADES MEETING&CONFERENCE ROOM AT IS&C, BLDG 5,10TH FLOOR, 1900 KANAWHA BLVD E, CHARLESTON, WV 25305

### CERTIFICATE HOLDER

( ) - ( ) -

STATE OF WEST VIRGINIA, PURCHASING DIV  
 2019 WASHINGTON STREET EAST  
 P O BIX 50130  
 CHARLESTON WV 25305-0130

### CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE  
*James A. Hartman*



Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

State of West Virginia  
 Request for Quotation  
 09 - Construction

Proc Folder: 607427

Doc Description: Addendum 1-Audio Video Upgrades: Meeting & Conf Rms.

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2019-11-05	2019-11-07 13:30:00	CRFQ 0210 ISC2000000007	2

**BID RECEIVING LOCATION**

BID CLERK  
 DEPARTMENT OF ADMINISTRATION  
 PURCHASING DIVISION  
 2019 WASHINGTON ST E  
 CHARLESTON WV 25305  
 US

**VENDOR**

Vendor Name, Address and Telephone Number:

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

**FOR INFORMATION CONTACT THE BUYER**

Jessica S Chambers  
 (304) 558-0246  
 jessica.s.chambers@wv.gov

Signature X

FEIN #

540716361

DATE

6-Nov-2019

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

**ADDITIONAL INFORMATION:**

Addendum

Addendum No.01 is being issued to publish the mandatory pre-bid sign-in sheet and address all technical questions received.

\*\*\*\*\*

The West Virginia Purchasing Division is soliciting bids on behalf of WV Office of Technology to establish a contract for the following: Upgrade equipment to Conference Facilities and Meeting Rooms at the West Virginia State Training Center, the Gaston Caperton Training Center located in Building 7, and Conference Rooms located within the West Virginia Office of Technology in Buildings 5 and 6 per the terms and conditions and specifications as attached.

INVOICE TO		SHIP TO	
DEPARTMENT OF ADMINISTRATION OFFICE OF TECHNOLOGY 1900 KANAWHA BLVD E, BLDG 5 10TH FLOOR CHARLESTON WV25305 US		IS&C - CHIEF FINANCIAL OFFICER DEPARTMENT OF ADMINISTRATION BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25305 US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Lump Sum Cost for Equipment and Installation (attached)				\$ 214,778 <sup>98</sup>

Comm Code	Manufacturer	Specification	Model #
45111902			

**Extended Description :**

Vendor must include a bill of materials that confirms that the equipment being provided meets the mandatory requirements as listed in the specifications.

\*\*\*Failure to provide this information may result in disqualification of your bid.

**SCHEDULE OF EVENTS**

Line	Event	Event Date
1	Mandatory Prebid at 9:00 AM (EDT)	2019-10-29
2	Technical Question Deadline at 9:00 AM (EDT)	2019-11-01

**SOLICITATION NUMBER: CRFQ ISC2000000007**

**Addendum Number: No.01**

---

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

**Applicable Addendum Category:**

- Modify bid opening date and time
- Modify specifications of product or service being sought
- Attachment of vendor questions and responses
- Attachment of pre-bid sign-in sheet
- Correction of error
- Other

**Description of Modification to Solicitation:**

Addendum issued to publish and distribute the attached documentation to the vendor community.

1. The purpose of this addendum is to publish the mandatory prebid sign in sheet and address all technical questions received.

No additional changes.

**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 provisions of the 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 Solicitation by completing an Addendum Acknowledgment, 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.

# ATTACHMENT A

# Pre-Bid Sign-In Sheet

Solicitation Number: CRFQ ISC2000000007

Date of Pre-Bid Meeting: 10/29/2019 @ 9:00 AM

Location of Prebid Meeting: WVOT 10th Floor, Building 5

**Please Note:**

Vendors must sign-in on this sheet to verify attendance at the Pre-Bid meeting.  
 Failure to legibly sign in may be grounds for declaring a vendor ineligible to bid.  
 For further verification, please also provide a business card if possible.

<u>Firm Represented:*</u>	<u>Rep Name (Printed):</u>	<u>Firm Address:</u>	<u>Telephone #:</u>	<u>Fax #:</u>	<u>Email:</u>
Electronic Specialty Co	Tom Fitzwater	1325 Dunbar Ave Dunbar, WV 25064	304-766-6277	304-766-6277	Tommy@electronic specialty.com
AVIS SPL	RON SCHALL	207 COMMERCE PK DR CRAWFORD TWP PA 17026	724 302 6859	724- 776-3890	RON_SCHALL@ AVISPL.COM
Lee Herman & Sons	Todel Byrne	3 Davis Ct Hurricane WV 25526	304-744- 4592		Todyrne@ leeherman.com
WVOT	John Toney	1700 KANAWHA BLVD E DUBLON 5, FL 10 CHAPELTON WV 25225	704-957- 8158		John.Toney@ wv.gov
WVOT	Larry McDaniel	1900 Kanawha Blvd E Building 5 10th Floor Capital Center	304 957 8224		Larry.McDaniel@ wv.gov
WVOT	Marilyn Padon	1900 Kanawha Blvd E Build 5 10th Floor	304-958- 6354		marilyn@wv.gov j.padon

**\*One Vendor Per Representative - No one individual is permitted to represent more than one vendor at the pre-bid meeting. Any individual that does attempt to represent two or more vendors will be required to select one vendor to which the individual's attendance will be attributed. The vendors not selected will be deemed to have not attended the pre-bid meeting unless another individual attended on their behalf.**

# Pre-Bid Sign-In Sheet

Solicitation Number: CRFQ ISC2000000007  
 Date of Pre-Bid Meeting: 10/29/2019 @ 9:00 AM  
 Location of Prebid Meeting: WVOT 10th Floor, Building 5

*Please Note:*  
 Vendors must sign-in on this sheet to verify attendance at the Pre-Bid meeting.  
 Failure to legibly sign in may be grounds for declaring a vendor ineligible to bid.  
 For further verification, please also provide a business card if possible.

Firm Represented:*	Rep Name (Printed):	Firm Address:	Telephone #:	Fax #:	Email:
DOP	Jeremy Walker	Capital Complex, Bldg 3, Ste 500 1900 Kanawha Blvd, E Charleston, WV 25305	601-317-2656	—	jeremy.p.walker@wv.gov
DOP	Bobbie Seyedman	Same as above	601-330-2661	—	bobbie.r.seyedman@wv.gov
OT	Debra Pendleberry	1904 Kanawha Blvd Bldg 5 10th Floor	558-6384	—	debra.l.pendleberry@wv.gov
OT	Jeff Wilson	1900 Kanawha Blvd Bldg 5 10th Floor	304-957-8156	—	Jeff.K.Wilson@wv.gov

*\*One Vendor Per Representative - No one individual is permitted to represent more than one vendor at the pre-bid meeting. Any individual that does attempt to represent two or more vendors will be required to select one vendor to which the individual's attendance will be attributed. The vendors not selected will be deemed to have not attended the pre-bid meeting unless another individual attended on their behalf.*



**CRFQ ISC20-07 Audio Video Upgrades: Meeting & Conference Rooms (OT19133)**  
**Vendor Questions and WVOT Responses**  
**11/01/19**

---

**Vendor Question 01**

In reviewing the bid specifications page 16 under the OT Conference Room 122A Building 6 section 19.1. You state "A quantity of one (1) LED Projector" and under section 19.1.1 "The vendor must provide a minimum of 7000 Lumens. "

LED projectors do not come in a 7000 lumen model. The most you can obtain in an LED model is around 5500 Lumen.

Question 1: Will you accept a model with 5500 Lumens Light output? Or do you want a Laser projector that can produce the 7000 Lumens specified?

The room size and ambient light level in the room suggests that the 5500 Lumen LED model will be more than adequate.

**WVOT Response 01**

The WVOT will accept a model with 5,500 Lumens Light Output.

19 *The Vendor must provide the following which will replace the current equipment in the OT Conference Room 122A – Building 6:*

19.1 *A quantity of one (1) LED Projector.*

19.1.1 *The Vendor must provide a minimum of ~~7000~~ 5,500 Lumens*

19.1.2 *The Vendor must provide compatible ceiling mounts and plates*

19.1.3 *The Vendor must provide compatible lenses*

**Vendor Question 02**

Question 2: During our pre-bid walkthrough it was stated that You (The State) will be providing the IPAD for the Capitol Room and the vendor does not have to supply this. Is this correct?

**WVOT Response 02**

The Agency will be purchasing the iPad from a statewide contract.

**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)

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6  |
| <input type="checkbox"/> Addendum No. 2            | <input type="checkbox"/> Addendum No. 7  |
| <input type="checkbox"/> Addendum No. 3            | <input type="checkbox"/> Addendum No. 8  |
| <input type="checkbox"/> Addendum No. 4            | <input type="checkbox"/> Addendum No. 9  |
| <input type="checkbox"/> Addendum No. 5            | <input type="checkbox"/> 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 Hartmann & Sons, Inc  
Company

\_\_\_\_\_  
Larry Tucker  
Authorized Signature

\_\_\_\_\_  
6 - NOV - 2019  
Date

**NOTE:** This addendum acknowledgment should be submitted with the bid to expedite document processing.  
Revised 6/8/2012



Purchasing Division  
 2019 Washington Street East  
 Post Office Box 50130  
 Charleston, WV 25305-0130

State of West Virginia  
 Request for Quotation  
 09 – Construction

Proc Folder: 607427

Doc Description: Addendum 1-Audio Video Upgrades: Meeting & Conf Rms.

Proc Type: Central Purchase Order

Date Issued	Solicitation Closes	Solicitation No	Version
2019-11-05	2019-11-07 13:30:00	CRFQ 0210 ISC2000000007	2

**BID RECEIVING LOCATION**

BID CLERK  
 DEPARTMENT OF ADMINISTRATION  
 PURCHASING DIVISION  
 2019 WASHINGTON ST E  
 CHARLESTON WV 25305  
 US

**VENDOR**

Vendor Name, Address and Telephone Number:

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

**FOR INFORMATION CONTACT THE BUYER**

Jessica S Chambers  
 (304) 558-0246  
 jessica.s.chambers@wv.gov

Signature X *Jessica S Chambers*

FEIN # 54 0716361

DATE 6-NOV-2019

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

**ADDITIONAL INFORMATION:**

Addendum

Addendum No.01 is being issued to publish to publish the mandatory pre-bid sign-in sheet and address all technical questions received.

\*\*\*\*\*

The West Virginia Purchasing Division is soliciting bids on behalf of WV Office of Technology to establish a contract for the following: Upgrade equipment to Conference Facilities and Meeting Rooms at the West Virginia State Training Center, the Gaston Caperton Training Center located in Building 7, and Conference Rooms located within the West Virginia Office of Technology in Buildings 5 and 6 per the terms and conditions and specifications as attached.

INVOICE TO		SHIP TO	
DEPARTMENT OF ADMINISTRATION OFFICE OF TECHNOLOGY 1900 KANAWHA BLVD E, BLDG 5 10TH FLOOR CHARLESTON WV25305 US		IS&C - CHIEF FINANCIAL OFFICER DEPARTMENT OF ADMINISTRATION BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25305 US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Lump Sum Cost for Equipment and Installation (attached)				\$ 214,778 <sup>98</sup>

Comm Code	Manufacturer	Specification	Model #
45111902			

**Extended Description :**

Vendor must include a bill of materials that confirms that the equipment being provided meets the mandatory requirements as listed in the specifications.

\*\*\*Failure to provide this information may result in disqualification of your bid.

**SCHEDULE OF EVENTS**

Line	Event	Event Date
1	Mandatory Prebid at 9:00 AM (EDT)	2019-10-29
2	Technical Question Deadline at 9:00 AM (EDT)	2019-11-01

<b>ISC2000000007</b>	<b>Document Phase</b> Final	<b>Document Description</b> Addendum 1-Audio Video Upgrades: Meeting & Conf Rms.	<b>Page 3</b> <b>of 3</b>
----------------------	--------------------------------	--	------------------------------

**ADDITIONAL TERMS AND CONDITIONS**

See attached document(s) for additional Terms and Conditions

## Audio Video Upgrades: Meeting & Conference Rooms (OT19133)

Quote #LTC002224 v1

Prepared For:

**Department of Administration**

John Toomey  
Office of Technology  
1900 Kanawha Blvd. E. Bldg 5, 10th floor  
Charleston, WV 25305

P: (304) 957-8158  
E: John.Toomey@wv.gov

Prepared by:

**Lee Hartman & Sons - Charleston**

Larry Cox  
3 Davis Court  
Hurricane, WV 25526

P: (540) 366-3493 x1301  
E: lcox@leehartman.com

Date Issued:

**11.06.2019**

Expires:

**11.29.2019**

### Executive Room Bldg 7

L	Manufacturer	Model	Description	Price	Qty	Ext. Price
1	Samsung	QB75N-W	75"4K UHD IR TOUCH 16/7 IP5X SoC Tizen3.0 Wifi Landscape ONL	\$4,116.42	1	\$4,116.42
2	Samsung	P-LM-AE1X720	Next Business Day (NBD) Exchange	\$1,075.69	1	\$1,075.69
3	CHIEF	LTM1U	Micro-Adjust Tilt Wall Mount, Large	\$209.63	1	\$209.63
4	Crestron	DM-RMC-4KZ-100-C	DigitalMedia 8G+ 4K60 4:4:4 HDR Receiver & Room Controller 1	\$544.50	1	\$544.50
5	Crestron Electronics, Inc	DMPS3-200-C	Crestron 3-Series DigitalMedia Presentation System 200	\$3,267.00	1	\$3,267.00
6	Crestron	TSW-1060-W-S	10.1 in. Touch Screen, White Smooth	\$1,452.00	1	\$1,452.00
7	Crestron	TSW-1060-TTK-W-S	Tabletop Kit for TSS-10 and TSW-1060, White Smooth	\$151.25	1	\$151.25
8	Middle Atlantic	L2LDC2FCMGC	L2 LECTERN,28W25D,CF,GC	\$1,295.88	1	\$1,295.88
9	Crestron Electronics, Inc	TT-100-B-T	Crestron Connect It Cable Caddy	\$181.50	1	\$181.50
10	TRENDnet	TPE-TG81g	TRENDnet 8-Port Gigabit GREENnet PoE+ Switch	\$163.88	1	\$163.88
11	Barco	CSE-200	ClickShare-200 Set NA, Incl Ba	\$1,568.16	1	\$1,568.16
12	Barco	R9805970	CSM/CSE-200 EXTENDED WAR+2(5Y)	\$127.05	1	\$127.05
13	Sony Corporation	BDP-S1700	Sony 1 Disc(s) Blu-ray Disc Player - 1080p	\$69.20	1	\$69.20
14	QOMO	QPC35 C	Portable Camera, 5 MP, HD, Short-Arm Flexible Crane Neck	\$211.75	1	\$211.75
15	Poly	7200-65340-001	Polycom RealPresence Group 310 Video Conference Equipment	\$4,606.86	1	\$4,606.86
16	Poly	4870-65340-362	Polycom Total Coverage - 3 Year - Service	\$1,387.05	1	\$1,387.05
17	Poly	2457-64356-101	Polycom Mini-HDCI/HDCI Video Cable	\$238.02	1	\$238.02
<b>Subtotal:</b>						<b>\$20,665.84</b>

### Regents Room Bldg 7

L	Manufacturer	Model	Description	Price	Qty	Ext. Price
18	Epson Corporation	V11H734020	Epson Pro L1200U LCD Projector	\$6,387.59	1	\$6,387.59
19	CHIEF	RPAU	UNIVERSAL RPA	\$146.41	1	\$146.41
20	Draper, Inc.	101647U	Prem,109,1610,GrV,LVCIV	\$1,885.18	1	\$1,885.18
21	Crestron Electronics, Inc	DMPS3-200-C	Crestron 3-Series DigitalMedia Presentation System 200	\$3,267.00	1	\$3,267.00

### Regents Room Bldg 7

L	Manufacturer	Model	Description	Price	Qty	Ext. Price
22	Crestron	TSW-1060-W-S	10.1 in. Touch Screen, White Smooth	\$1,452.00	1	\$1,452.00
23	Crestron	TSW-1060-TTK-W-S	Tabletop Kit for TSS-10 and TSW-1060, White Smooth	\$151.25	1	\$151.25
24	Middle Atlantic	L2LDC2FCMGC	L2 LECTERN,28W25D,CF,GC	\$1,295.88	1	\$1,295.88
25	Crestron Electronics, Inc	TT-100-B-T	Crestron Connect It Cable Caddy	\$181.50	1	\$181.50
26	TRENDnet	TPE-TG81g	TRENDnet 8-Port Gigabit GREENnet PoE+ Switch	\$163.88	1	\$163.88
27	Barco	CSE-200	ClickShare-200 Set NA, Incl Ba	\$1,568.16	1	\$1,568.16
28	Barco	R9805970	CSM/CSE-200 EXTENDED WAR+2(5Y)	\$127.05	1	\$127.05
29	Sony Corporation	BDP-S1700	Sony 1 Disc(s) Blu-ray Disc Player - 1080p	\$69.20	1	\$69.20
30	QOMO	QPC35 C	Portable Camera, 5 MP, HD, Short-Arm Flexible Crane Neck	\$211.75	1	\$211.75
31	Crestron	SAROS SR6T-W-T-EACH	Saros 6.5 2-Way Surface Mount Indoor/Outdoor Speaker, White	\$145.20	2	\$290.40
32	Poly	7200-65340-001	Polycom RealPresence Group 310 Video Conference Equipment	\$4,606.86	1	\$4,606.86
33	Poly	4870-65340-362	Polycom Total Coverage - 3 Year - Service	\$1,387.05	1	\$1,387.05
34	Sound Control	RC4-E4P-K	Project Pack	\$1,534.58	1	\$1,534.58
35	Poly	2200-23809-002	Polycom Microphone	\$1,199.35	1	\$1,199.35
36	Poly	2200-23810-002	Polycom Microphone	\$1,199.35	1	\$1,199.35
<b>Subtotal:</b>						<b>\$27,124.44</b>

### Capitol Room Bldg 7

L	Manufacturer	Model	Description	Price	Qty	Ext. Price
37	Epson Corporation	V11H734020	Epson Pro L1200U LCD Projector	\$6,387.59	2	\$12,775.18
38	CHIEF	RPAU	UNIVERSAL RPA	\$146.41	2	\$292.82
39	Draper, Inc.	101647U	Prem,109,1610,GrV,LVCIV	\$1,885.18	2	\$3,770.36
40	Samsung	QB75N-W	75"4K UHD IR TOUCH 16/7 IP5X SoC Tizen3.0 Wifi Landscape ONL	\$4,116.42	2	\$8,232.84
41	Samsung	P-LM-AE1X72O	Next Business Day (NBD) Exchange	\$1,075.69	2	\$2,151.38
42	CHIEF	LTM1U	Micro-Adjust Tilt Wall Mount, Large	\$209.63	2	\$419.26
43	Crestron	DM-RMC-4KZ-100-C	DigitalMedia 8G+ 4K60 4:4:4 HDR Receiver & Room Controller 1	\$544.50	2	\$1,089.00
44	Crestron	CP3	3-Series Control System	\$1,089.00	1	\$1,089.00
45	Crestron	DM-MD6X6	6x6 DigitalMedia Distribution Center	\$3,025.00	1	\$3,025.00
46	Crestron	TSW-1060-W-S	10.1 in. Touch Screen, White Smooth	\$1,452.00	1	\$1,452.00
47	Crestron	TSW-1060-TTK-W-S	Tabletop Kit for TSS-10 and TSW-1060, White Smooth	\$151.25	1	\$151.25
48	Crestron Electronics, Inc	DM-RMC-200-C	THE PROVIDES AN ADVANCED ONE-BOX INTERFACE SOLUTION FOR A S	\$1,210.00	1	\$1,210.00
49	SnapAV	AN-700-AP-I-AC	Araknis Networks 700 series Indoor Wireless-AC 1750 Access P	\$328.74	1	\$328.74
50	Sony Corporation	BDP-S1700	Sony 1 Disc(s) Blu-ray Disc Player - 1080p	\$69.20	1	\$69.20
51	Barco	CSE-200	ClickShare-200 Set NA, Incl Ba	\$1,568.16	1	\$1,568.16

### Capitol Room Bldg 7

L	Manufacturer	Model	Description	Price	Qty	Ext. Price
52	Barco	R9805970	CSM/CSE-200 EXTENDED WAR+2(5Y)	\$127.05	1	\$127.05
53	QOMO	QPC35 C	Portable Camera, 5 MP, HD, Short-Arm Flexible Crane Neck	\$211.75	1	\$211.75
54	Spectrum	55213-P10020	Director Lectern Plain Worksurface Twin Wheels Matching Lami	\$2,350.06	1	\$2,350.06
55	Crestron Electronics, Inc	TT-100-B-T	Crestron Connect It Cable Caddy	\$181.50	1	\$181.50
56	Middle Atlantic	RFR-1628BR	28W16SP28DP RFR RACK BR	\$822.49	1	\$822.49
57	Middle Atlantic	RFR-CABCOOL50	RFR CABCOOL 50,PNL,2 GROM	\$195.36	1	\$195.36
58	Middle Atlantic	PD-915R	9OUT,15A,RCKMNT POWER CEN	\$95.95	1	\$95.95
59	Crestron	SAROS SR6T-W-T-EACH	Saros 6.5 2-Way Surface Mount Indoor/Outdoor Speaker, White	\$145.20	6	\$871.20
60	Shure	MX890=-H5	Wireless Desktop Base with Integrated Wireless Transmitter,	\$361.79	1	\$361.79
61	Shure Inc	SLX4=-H5	Shure SLX4 - Receiver w/Rack Hardware/PS and Antennas 518-54	\$335.78	1	\$335.78
62	Shure	MX415R/N	15" Shock-Mounted Gooseneck, No Capsule, with LED ring, incl	\$209.33	1	\$209.33
63	Shure	R185B	Black Cardioid Cartridge for MX- (Microflex)Models and WL185	\$45.98	1	\$45.98
64	Shure	SLX124/85/SM58-G4	Includes SLX4 Diversity Receiver, SLX1 Bodypack Transmitter,	\$764.72	2	\$1,529.44
65	Biamp Systems	TesiraFORTE CI	TesiraFORTE CI	\$1,995.29	1	\$1,995.29
66	Crestron	AMP-2100-70	Dual-Channel Modular Power Amplifier, 100W/Ch., 70V	\$635.25	1	\$635.25
67	TRENDnet	TPE-TG81g	TRENDnet 8-Port Gigabit GREENnet PoE+ Switch	\$163.88	1	\$163.88
68	Poly	7200-65330-001	PRP Group 310 HD Codec, w/12x	\$5,843.47	1	\$5,843.47
69	Poly	4870-65330-312	Premier 3 year support	\$2,623.26	1	\$2,623.26
70	Sound Control	RC4-E4P-K	Project Pack	\$1,534.58	1	\$1,534.58
71	Poly	2200-23809-002	Polycom Microphone	\$1,199.35	1	\$1,199.35
72	Poly	2200-23810-002	Polycom Microphone	\$1,199.35	1	\$1,199.35
Subtotal:						<b>\$60,156.30</b>

### Heritage Room-Bldg 7

L	Manufacturer	Model	Description	Price	Qty	Ext. Price
73	Epson	V11H878520	EPSON PowerLite 700U Ultra-Short Throw Laser Projector, WUXG	\$2,046.11	3	\$6,138.33
74	Epson	V12H902020	EPSON Ultra Short Throw Wall Mount for BrightLink 710Ui, 147	\$102.85	3	\$308.55
75	Crestron Electronics, Inc	DMPS3-300-C	Crestron 3-Series DigitalMedia Presentation System 300	\$3,872.00	1	\$3,872.00
76	Crestron	HD-TXC-101-C-E	DM Lite HDMI over CATx Transmitter w/IR & RS-232, Surface M	\$242.00	1	\$242.00
77	Crestron	HD-RXC-101-C-E	DM Lite HDMI over CATx Receiver w/IR & RS-232, Surface Moun	\$242.00	1	\$242.00
78	Crestron	DM-RMC-4KZ-100-C	DigitalMedia 8G+ 4K60 4:4:4 HDR Receiver & Room Controller 1	\$544.50	2	\$1,089.00
79	Crestron	TSW-1060-W-S	10.1 in. Touch Screen, White Smooth	\$1,452.00	1	\$1,452.00
80	Crestron	TSW-1060-TTK-W-S	Tabletop Kit for TSS-10 and TSW-1060, White Smooth	\$151.25	1	\$151.25
81	Sony Corporation	BDP-S1700	Sony 1 Disc(s) Blu-ray Disc Player - 1080p	\$69.20	1	\$69.20
82	Barco	CSE-200	ClickShare-200 Set NA, Incl Ba	\$1,568.16	1	\$1,568.16
83	Barco	R9805970	CSM/CSE-200 EXTENDED WAR+2(5Y)	\$127.05	1	\$127.05





### Heritage Room-Bldg 7

L	Manufacturer	Model	Description	Price	Qty	Ext. Price
84	QOMO	QPC35 C	Portable Camera, 5 MP, HD, Short-Arm Flexible Crane Neck	\$211.75	1	\$211.75
85	Spectrum	55213-P10020	Director Lectern Plain Worksurface Twin Wheels Matching Lami	\$2,350.06	1	\$2,350.06
86	Crestron Electronics, Inc	TT-100-B-T	Crestron Connect It Cable Caddy	\$181.50	1	\$181.50
87	Crestron	SAROS SR6T-W-T-EACH	Saros 6.5 2-Way Surface Mount Indoor/Outdoor Speaker, White	\$145.20	2	\$290.40
88	TRENDnet	TPE-TG81g	TRENDnet 8-Port Gigabit GREENnet PoE+ Switch	\$163.88	1	\$163.88
Subtotal:						<b>\$18,457.13</b>

### OT Conference Room A Bldg 5

L	Manufacturer	Model	Description	Price	Qty	Ext. Price
89	Samsung	QB75N-W	75"4K UHD IR TOUCH 16/7 IP5X SoC Tizen3.0 Wifi Landscape ONL	\$4,116.42	1	\$4,116.42
90	Samsung	P-LM-AE1X72O	Next Business Day (NBD) Exchange	\$1,075.69	1	\$1,075.69
91	CHIEF	LTM1U	Micro-Adjust Tilt Wall Mount, Large	\$209.63	1	\$209.63
92	Barco	CSE-200	ClickShare-200 Set NA, Incl Ba	\$1,568.16	1	\$1,568.16
93	Barco	R9805970	CSM/CSE-200 EXTENDED WAR+2(5Y)	\$127.05	1	\$127.05
Subtotal:						<b>\$7,096.95</b>

### OT Conference Room B Bldg 5

L	Manufacturer	Model	Description	Price	Qty	Ext. Price
94	Samsung	QB75N-W	75"4K UHD IR TOUCH 16/7 IP5X SoC Tizen3.0 Wifi Landscape ONL	\$4,116.42	1	\$4,116.42
95	Samsung	P-LM-AE1X72O	Next Business Day (NBD) Exchange	\$1,075.69	1	\$1,075.69
96	CHIEF	LTM1U	Micro-Adjust Tilt Wall Mount, Large	\$209.63	1	\$209.63
97	Barco	CSE-200	ClickShare-200 Set NA, Incl Ba	\$1,568.16	1	\$1,568.16
98	Barco	R9805970	CSM/CSE-200 EXTENDED WAR+2(5Y)	\$127.05	1	\$127.05
Subtotal:						<b>\$7,096.95</b>

### OT Conference Room 122A Bldg 6

L	Manufacturer	Model	Description	Price	Qty	Ext. Price
99	Epson Corporation	V11H824120	Epson PowerLite 5535U LCD Projector - 16:10	\$2,158.64	1	\$2,158.64
100	Milestone AV Technologies	SYSAUW	Chief Ceiling Mount for Projector - White	\$296.81	1	\$296.81
101	Draper, Inc.	101646U	Prem,94,1610,GrV,LVCIV	\$1,841.50	1	\$1,841.50
102	Samsung	QB75N-W	75"4K UHD IR TOUCH 16/7 IP5X SoC Tizen3.0 Wifi Landscape ONL	\$4,116.42	1	\$4,116.42
103	Samsung	P-LM-AE1X72O	Next Business Day (NBD) Exchange	\$1,075.69	1	\$1,075.69
104	CHIEF	LTM1U	Micro-Adjust Tilt Wall Mount, Large	\$209.63	1	\$209.63
105	Crestron	DM-RMC-4KZ-100-C	DigitalMedia 8G+ 4K60 4:4:4 HDR Receiver & Room Controller 1	\$544.50	1	\$544.50

**OT Conference Room 122A Bldg 6**

L	Manufacturer	Model	Description	Price	Qty	Ext. Price
106	Crestron Electronics, Inc	DMPS3-300-C	Crestron 3-Series DigitalMedia Presentation System 300	\$3,872.00	1	\$3,872.00
107	Crestron	TSW-1060-W-S	10.1 in. Touch Screen, White Smooth	\$1,452.00	1	\$1,452.00
108	Crestron	TSW-1060-TTK-W-S	Tabletop Kit for TSS-10 and TSW-1060, White Smooth	\$151.25	1	\$151.25
109	SnapAV	AN-700-AP-I-AC	Araknis Networks 700 series Indoor Wireless-AC 1750 Access P	\$328.74	1	\$328.74
110	Barco	CSE-200	ClickShare-200 Set NA, Incl Ba	\$1,568.16	1	\$1,568.16
111	Barco	R9805970	CSM/CSE-200 EXTENDED WAR+2(5Y)	\$127.05	1	\$127.05
112	QOMO	QPC35 C	Portable Camera, 5 MP, HD, Short-Arm Flexible Crane Neck	\$211.75	1	\$211.75
113	Middle Atlantic	RFR-1628BR	28W16SP28DP RFR RACK BR	\$822.49	1	\$822.49
114	Crestron Electronics, Inc	TT-100-B-T	Crestron Connect It Cable Caddy	\$181.50	1	\$181.50
115	Middle Atlantic	RFR-CABCOOL50	RFR CABCOOL 50,PNL,2 GROM	\$195.36	1	\$195.36
116	Middle Atlantic	PD-915R	9OUT,15A,RCKMNT POWER CEN	\$95.95	1	\$95.95
117	Crestron	AMP-2100	Dual-Channel Modular Power Amplifier, 100W/Ch., 4/8?	\$514.25	1	\$514.25
118	Crestron	SAROS SR6T-W-T-EACH	Saros 6.5 2-Way Surface Mount Indoor/Outdoor Speaker, White	\$145.20	2	\$290.40
119	TRENDnet	TPE-TG81g	TRENDnet 8-Port Gigabit GREENnet PoE+ Switch	\$163.88	1	\$163.88
120	Poly	7200-65340-001	Polycom RealPresence Group 310 Video Conference Equipment	\$4,606.86	1	\$4,606.86
121	Poly	4870-65330-312	Premier 3 year support	\$2,623.26	1	\$2,623.26
122	Sound Control	RC4-E4P-K	Project Pack	\$1,534.58	1	\$1,534.58
123	Poly	2200-23809-002	Polycom Microphone	\$1,199.35	1	\$1,199.35
124	Poly	2200-23810-002	Polycom Microphone	\$1,199.35	1	\$1,199.35
<b>Subtotal:</b>						<b>\$31,381.37</b>

**Labor**

Model	Description	Price	Qty	Ext. Price
Miscellaneous Hardware	Hardware, cables, and connectors	\$6,800.00	1	\$6,800.00
Labor - Installation	Installation Labor	\$36,000.00	1	\$36,000.00
<b>Subtotal:</b>				<b>\$42,800.00</b>

## Terms

### Notes

This quote is valid for 30 days from the date of issue, or for the term listed above, whichever is longer.

All taxes shown on this quote are estimated taxes only, and by accepting this quote, you are agreeing to be invoiced for and pay all due taxes, including those not listed or incorrectly listed on the above quote.

Unless specifically quoted as an individual line item, Lee Hartman & Sons does not provide high voltage electrical work, and any such work required for the system to function will be the at the obligation and cost of the client. The system(s) or items above may require configuration of, or installation of additional networking gear by the client to function properly.

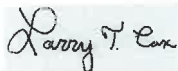
All system installations carry a one (1) year warranty, which covers both equipment and labor, which begins at the date of substantial completion.

Quote Summary	Amount
Executive Room Bldg 7	\$20,665.84
Regents Room Bldg 7	\$27,124.44
Capitol Room Bldg 7	\$60,156.30
Heritage Room-Bldg 7	\$18,457.13
OT Conference Room A Bldg 5	\$7,096.95
OT Conference Room B Bldg 5	\$7,096.95
OT Conference Room 122A Bldg 6	\$31,381.37
Labor	\$42,800.00
<b>Total:</b>	<b>\$214,778.98</b>

### Acceptance

**Lee Hartman & Sons - Charleston**

**Department of Administration**



Larry Cox

Signature / Name

11/06/2019

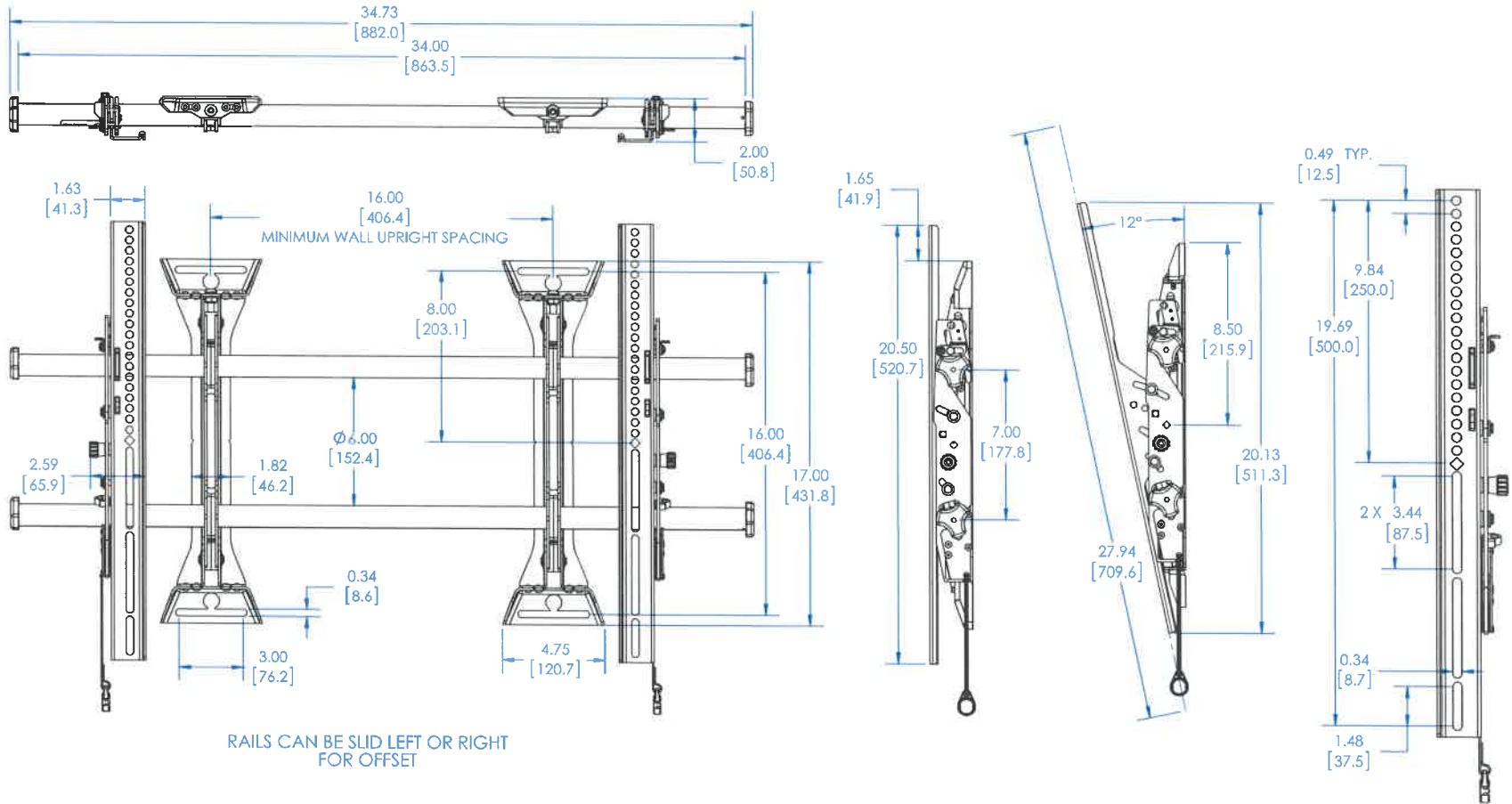
Date

John Toomey

Signature / Name

Initials

Date



1. MAXIMUM MOUNTING PATTERN IS 31.25" (793 mm) WITHOUT REVERSING UPRIGHTS
2. MAXIMUM MOUNTING PATTERN IS 34.6" (878 mm) WITH REVERSING UPRIGHTS
3. FOR RECESSED APPLICATIONS, MINIMUM VERTICAL LIFT FOR HOOK ENGAGEMENT IS .75" (19 mm)

THE INFORMATION AND DESIGNS CONTAINED IN THIS DRAWING ARE CONFIDENTIAL AND THE PROPRIETARY PROPERTY OF MILESTONE AV TECHNOLOGIES NEITHER THIS DESIGN NOR ANY INFORMATION CONTAINED IN THIS DRAWING MAY BE REPRODUCED OR DISCLOSED TO OTHERS WITHOUT THE EXPRESS WRITTEN CONSENT OF MILESTONE AV TECHNOLOGIES.

CAD GENERATED DRAWING. DO NOT MANUALLY UPDATE.			6436 CITY WEST PKWY EDEN PRAIRIE, MN, 55344 PHONE: 866-977-3901 FAX: 877-874-0918
DRAWN BY	JAB		11/9/2015
ENG APPROVAL			
HFG APPROVAL			
QA APPROVAL			MODEL NO. LTM1U
SHEET 1 OF 1		SCALE 1:8	SIZE: DWG... B TECH-000778
			REV. 00



## DigitalMedia 8G+® 4K60 4:4:4 HDR Receiver &amp; Room Controller 100

- > DigitalMedia 8G+® receiver and display controller
- > Connects to a DM® switcher or transmitter over a single CAT type twisted pair cable<sup>[1]</sup>
- > HDBaseT® compatible — Enables direct connection to other HDBaseT certified equipment
- > Provides one HDMI® or DVI display output<sup>[2,3]</sup>
- > Handles UHD and 4K video resolutions up to 4K60 4:4:4<sup>[2]</sup>
- > Handles HDR (High Dynamic Range) video (HDR10)<sup>[2]</sup>
- > Handles 3D video and Deep Color
- > Handles Dolby® TrueHD, Dolby Atmos®, DTS HD®, DTS:X®, 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<sup>[1]</sup>
- > Supports cable lengths up to 330 ft (100 m) for 1080p, WUXGA, and 2K using DM 8G® cable or CAT5e<sup>[1]</sup>
- > Supports cable lengths up to 230 ft (70 m) for UHD and 4K using DM 8G cable, or 165 ft (50 m) using CAT5e<sup>[1]</sup>
- > Provides a 10/100 Ethernet LAN connection
- > Enables device control via CEC, IR, RS-232, and Ethernet
- > Compatible with Crestron® USB over Ethernet Extenders<sup>[6]</sup>
- > Allows quick, easy setup and diagnostics
- > Low-profile surface mount design
- > Powered via the DM connection or local power pack (included)<sup>[4,5]</sup>

The DM-RMC-4KZ-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®, which allows it to be connected directly to an HDBaseT certified source. Its compact, low-profile design allows the DM-RMC-4KZ-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.<sup>[1,2]</sup>

#### 4K60 4:4:4 & HDR Support

Crestron DigitalMedia (DM®) was the world's first AV signal distribution solution to deliver end-to-end 4K signal management for large-scale commercial and residential applications. DM "4KZ" endpoints and cards enable new and existing DM systems to handle full 4K60 4:4:4 video signals, as well as HDR video signals (HDR10), without having to replace any wiring or switchers. Any Crestron DM system that supports 4K can be upgraded to handle 4K60 4:4:4 and HDR by simply installing DM 4KZ based cards, transmitters, and receivers. The DM-RMC-4KZ-100-C is designed to replace an existing DM-RMC-4K-100-C receiver without requiring any extra configuration or programming.<sup>[2]</sup>

DM 4KZ technology employs VESA® Display Stream Compression (DSC) to enhance the capabilities of DigitalMedia to handle the extreme bandwidth requirement of resolutions beyond 4K30 4:4:4 and 4K60 4:2:0. DSC is a



lightweight, line-based 2:1 compression standard that delivers visually lossless performance for 4K60 4:4:4 and HDR signals. DSC is applied only to 4K60 4:4:4 and HDR input signals. All other signals are transported uncompressed.

#### DigitalMedia 8G+®

Engineered for ultra high-bandwidth and ultimate scalability, DigitalMedia 8G+ (DM 8G+) provides a true one-wire lossless transport for moving high-definition video, audio, power, Ethernet, and control signals over twisted pair copper wire. DM 8G+ transports uncompressed Full HD 1080p, WUXGA, and 2K signals over distances up to 330 feet (100 m) using Crestron DM Ultra Cable, Crestron DM 8G® Cable, or third-party CAT5e. Higher resolution signals up to UHD and 4K are supported over 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.<sup>[1]</sup>

#### HDBaseT® Compatible

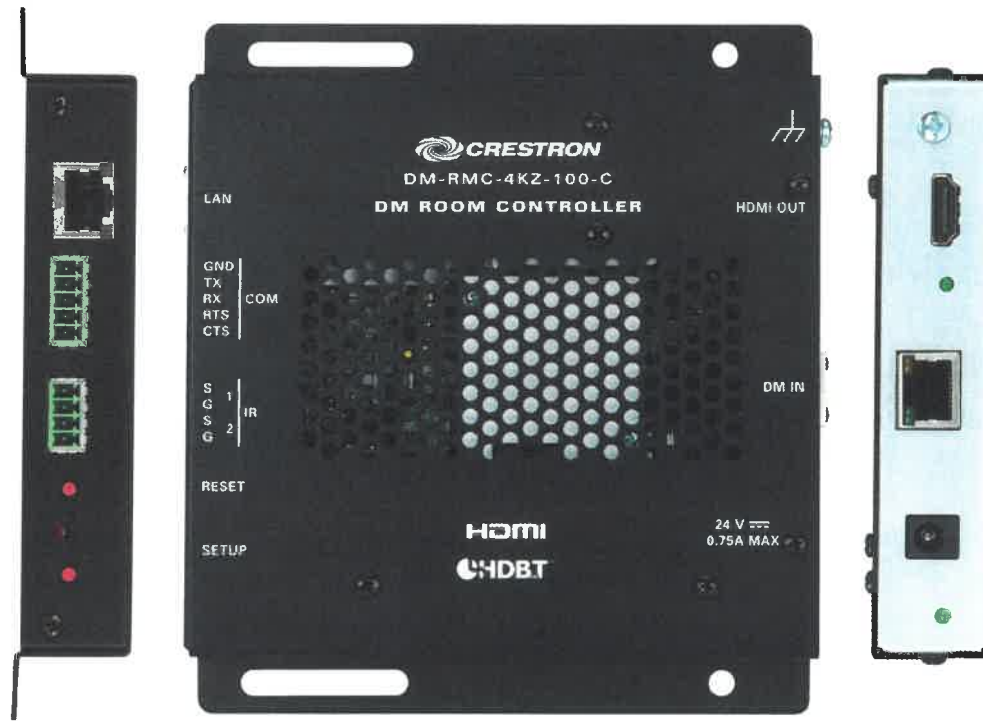
Crestron DigitalMedia 8G+ technology is designed using HDBaseT Alliance specifications, ensuring interoperability with other HDBaseT certified products. Via its DM 8G+ input, the DM-RMC-4KZ-100-C can be connected directly to an HDBaseT compliant source without requiring a DM transmitter.

#### Multimedia Display Interface

A single HDMI digital AV output port is provided on the DM-RMC-4KZ-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.<sup>[2,3]</sup>

A single CAT type cable connects the DM-RMC-4KZ-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.<sup>[1,4,5]</sup> Multiple DM-RMC-4KZ-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-4KZ-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-4KZ-100-C DM 8G+® 4K60 4:4:4 HDR Receiver & Room Controller 100



DM-RMC-4KZ-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-4KZ-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-4KZ-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-4KZ-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-4KZ-100-C by adding a Crestron USB over Ethernet Extender Module (model [USB-EXT-DM-LOCAL](#) or [USB-EXT-DM-REMOTE](#)).<sup>[6]</sup>

## Low-Profile Installation

The DM-RMC-4KZ-100-C mounts conveniently to a wall, ceiling, or other flat surface. At just over 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.<sup>[4,5]</sup> 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 webpage at <https://www.crestron.com/digitalmedia> for additional design tools and reference documents.

## SPECIFICATIONS

### Video

#### Maximum Resolutions:

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

# DM-RMC-4KZ-100-C DM 8G+® 4K60 4:4:4 HDR Receiver & Room Controller 100

**Input Signal Types:** DM 8G+ & HDBaseT w/HDR10, Deep Color, 3D, & 4K60 4:4:4 support

**Output Signal Types:** HDMI w/HDR10, Deep Color, 3D, & 4K60 4:4:4 support<sup>[2]</sup> (DVI compatible<sup>[3]</sup>)

**Copy Protection:** HDCP 2.2

## 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, DTS:X, 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, CEC, RS-232, 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

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

**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

**24VDC 0.75A MAX:** (1) 2.1 x 5.5 mm DC power connector;

24 Volt DC power input;

[PW-2407WU](#) power pack included

**DM IN:** (1) 8-pin RJ45 connector, female, shielded;

DM 8G+ input, HDBaseT compliant;

PoDM PD port (HDBaseT PoE compatible)<sup>[4,5]</sup>;

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<sup>[1]</sup>

**HDMI OUT:** (1) HDMI Type A connector, female;

HDMI digital video/audio output (DVI compatible<sup>[3]</sup>)<sup>[2]</sup>

**Ground:** (1) 6-32 screw;

Chassis ground lug

## Controls & Indicators

**LAN:** (2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity

**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

**DM IN:** (2) LEDs, green LED indicates DM link status, amber LED indicates video and HDCP signal presence

**HDMI OUT:** (1) Green LED, indicates video signal presence at the HDMI output

## 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 0 (12.95 W) compliant PoDM PD (Powered Device), capable of being powered by a PoDM PSE (Power Sourcing Equipment)<sup>[4]</sup>

**Power over HDBaseT:** IEEE 802.3at Type 1 Class 0 (12.95 W) compliant HDBaseT PoE PD (Powered Device), capable of being powered by an HDBaseT PoE PSE (Power Sourcing Equipment)<sup>[5]</sup>

## Environmental

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

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

## Enclosure

**Chassis:** Metal, black finish, with (2) integral mounting flanges; vented front, top, and bottom

**Mounting:** Freestanding, surface mount, or attach to a single rack rail

## Dimensions

**Height:** 6.09 in (155 mm)

**Width:** 5.63 in (143 mm)

**Depth:** 1.08 in (28 mm)

## Weight

16.5 oz (468 g)

## Compliance

UL Listed for US & Canada, CE, IC, FCC Part 15 Class B digital device



# DM-RMC-4KZ-100-C DM 8G+® 4K60 4:4:4 HDR Receiver & Room Controller 100

## Maximum Cable Lengths

Cable Type:	DM-CBL-ULTRA DM® Ultra Cable	DM-CBL-8G DM 8G® Cable	CAT5e (or better) <sup>(1)</sup>
Resolution:			
1920x1080 FHD 1080p	330 ft (100 m)	330 ft (100 m)	330 ft (100 m)
1920x1200 WUXGA			
1600x1200 UXGA			
2048x1080 DCI 2K			
2048x1152 QWXGA			
2560x1080 UWFHD	230 ft (70 m)	165 ft (50 m)	
2560x1440 WQHD			
2560x1600 WQXGA			
3840x2160 4K UHD			
4096x2160 DCI 4K			

## MODELS & ACCESSORIES

### Available Models

**DM-RMC-4KZ-100-C:** DigitalMedia 8G+® 4K60 4:4:4 HDR Receiver & Room Controller 100

### Included Accessories

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

### Available Accessories

**DM-CBL-ULTRA-PC Series:** DigitalMedia™ Ultra Patch Cables

**DM-CONN-ULTRA-RECP Series:** DigitalMedia™ Ultra Keystone RJ45 Jacks

**DM-CBL-ULTRA-NP Series:** DigitalMedia™ Ultra Cable, Non-Plenum Type CMR

**DM-CBL-ULTRA-P Series:** DigitalMedia™ Ultra Cable, Plenum Type CMP

**DM-CBL-ULTRA-LSZH Series:** DigitalMedia™ Ultra Cable, Low Smoke Zero Halogen

**DM-CONN-20:** Connectors for DM-CBL-ULTRA DigitalMedia Ultra Cable, 20-Pack

**DM-CBL-8G-NP Series:** DigitalMedia 8G™ Cable, non-plenum

**DM-CBL-8G-P Series:** DigitalMedia 8G™ Cable, plenum

**DM-8G-CONN-WG-100:** Connectors with Wire Guide for DM-CBL-8G DigitalMedia 8G™ Cable, 100-Pack

**DM-8G-CRIMP-WG:** Crimping Tool for DM-8G-CONN-WG

**DM-PSU-ULTRA-MIDSPAN:** DigitalMedia™ Ultra Midspan PoDM++ Injector

**CBL Series:** Crestron® Certified Interface Cables

**CNSP-XX:** Custom Serial Interface Cable

**IRP2:** IR Emitter w/Terminal Block Connector

**USB-EXT-DM-LOCAL:** USB over Ethernet Extender with Routing, Host Module

**USB-EXT-DM-REMOTE:** USB over Ethernet Extender with Routing, 4-Port Device Module

### Notes:

- 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 required when bundling multiple cables in a wire run, and are recommended for all applications 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.
- 4K60 4:4:4 performance and HDR support require the use of HDMI cables and couplers with a minimum TMDS bandwidth of 18 Gbps. If 4K60 4:2:0 or 4K30 4:4:4 performance is acceptable, cables and couplers with a minimum bandwidth of 10.2 Gbps may be used. Please be aware that bandwidth loss is cumulative, so performance may be reduced when inserting multiple cables and couplers inline.
- The HDMI output requires an appropriate adapter or interface cable to accommodate a DVI signal. **CBL-HD-DVI** interface cables are available separately.
- To power the DM-RMC-4KZ-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.
- To power the DM-RMC-4KZ-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.
- USB over Ethernet Extender Modules are sold separately. Refer to the [USB-EXT-DM-LOCAL](#) and [USB-EXT-DM-REMOTE](#) spec sheets 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 <https://www.crestron.com/How-To-Buy/Find-a-Representative> or by calling 855-263-8754.

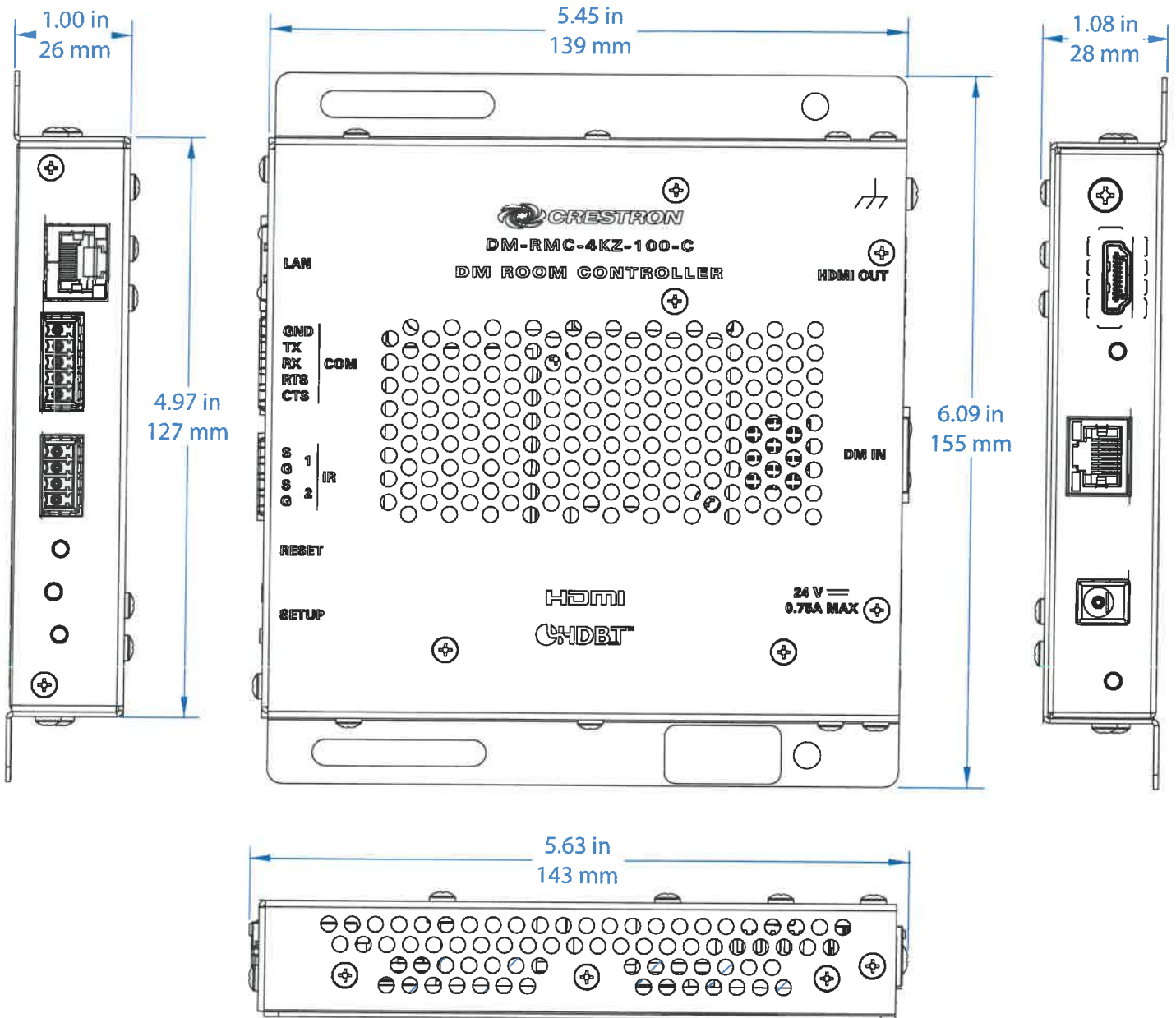
The specific patents that cover this and other Crestron products are listed online at <https://www.crestron.com/legal/patents>.

Certain Crestron products contain open source software. For specific information, visit <https://www.crestron.com/opensource>.

Crestron, the Crestron logo, DigitalMedia, DigitalMedia 8G, DigitalMedia 8G+, DM, DM 8G, and DM 8G+ are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. Dolby, Dolby Atmos, and Dolby Digital are either trademarks or registered trademarks of Dolby Laboratories in the United States and/or other countries. DTS, DTS HD, and DTS:X are either trademarks or registered trademarks of DTS, Inc. in the United States and/or other countries. HDBaseT and the HDBaseT Alliance logo are either trademarks or registered trademarks of the HDBaseT Alliance in the United States and/or other countries. HDMI and the HDMI Logo are either trademarks or registered trademarks of HDMI Licensing LLC in the United States and/or other countries. VESA is either a trademark or registered trademark of Video Electronics Standards Association in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography. Specifications are subject to change without notice. ©2018 Crestron Electronics, Inc.



# DM-RMC-4KZ-100-C DM 8G+® 4K60 4:4:4 HDR Receiver & Room Controller 100



# DMPS3-200-C



## 3-Series® DigitalMedia™ Presentation System 200

The DMPS3-200-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 DMPS3-200-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 DMPS3-200-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: [www.crestron.com/avframework](http://www.crestron.com/avframework).<sup>[1]</sup>

- > High-definition, multi-format 6x2 system switcher, mic mixer, audio DSP, amplifier, and control system
- > Built-in .AV Framework™ delivers a fully-functional system without any programming<sup>[1]</sup>
- > Integrated 3-Series Control System® allows fully-programmable room control
- > DigitalMedia 8G+® connectivity enables long-distance wiring over CAT type twisted pair cable<sup>[5]</sup>
- > HDBaseT® Certified — Enables direct connection to other HDBaseT certified equipment
- > Provides matrix signal routing for up to 6 video sources and 2 displays
- > Handles HDMI®, DVI, Dual-Mode DisplayPort, HDBaseT, and SPDIF digital sources<sup>[2]</sup>
- > Handles RGB, composite, S-Video, component, and stereo audio analog sources<sup>[9]</sup>
- > 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<sup>[7]</sup>
- > Includes built-in 4-channel gated microphone mixing w/DSP
- > Affords versatile audio signal mixing and routing to 5 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<sup>[3,4]</sup>
- > 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<sup>[6]</sup>
- > 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<sup>[7]</sup>
- > 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<sup>[6]</sup>
- > 3-space 19-inch rack-mountable





# DMPS3-200-C 3-Series® DigitalMedia™ Presentation System 200

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

## EDID Format Management

The DMPS3-200-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 DMPS3-200-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 DMPS3-200-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.<sup>[7]</sup>

## 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 DMPS3-200-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<sup>\[7\]</sup>](#)), which may be used to enable the routing of multiple USB devices of virtually any type, all seamlessly managed through the DMPS3-200-C.<sup>[8]</sup>

## Integrated 3-Series Control System®

Its built-in 3-Series control system enables the DMPS3-200-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 DMPS3-200-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 DMPS3-200-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 DMPS3-200-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 DMPS3-200-C employs Private Network Mode to provide a single-point connection for the complete system. Using Private Network Mode, the DMPS3-200-C requires just one IP address for the complete DM network including all connected DM receivers and transmitters.

## Easy Setup

Every step of the DMPS3-200-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 troubleshooting during installation. Simplified system configuration is enabled using .AV Framework, which is easily configurable via a computer web browser.<sup>[1]</sup> 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 DMPS3-200-C. Simply add one or more Crestron Connect It Cable Caddies ([TC-100](#) series<sup>[7]</sup>) 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.

# DMPS3-200-C 3-Series<sup>®</sup> DigitalMedia<sup>™</sup> Presentation System 200

## SPECIFICATIONS

### Operating System

Creston<sup>®</sup> 3-Series<sup>®</sup>; real-time, preemptive, multi-threaded/multitasking kernel; Transaction-Safe Extended FAT file system; supports up to 10 simultaneously running programs; preloaded DMPS3 .AV Framework<sup>™</sup> 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<sup>™</sup>/IP<sup>10</sup>, IPv4 or IPv6, Active Directory authentication, IIS v.6.0 web server, SMTP e-mail client, RSTP, Private Network Mode

**Cresnet<sup>®</sup>:** Cresnet master mode

**USB:** USB signal routing via select DM transmitters and receivers, or via USB-EXT-DM extenders<sup>®</sup>; 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 CNXRMRD IR Receiver<sup>™</sup>

**DigitalMedia<sup>™</sup>:** DM 8G+<sup>®</sup>, HDCP, EDID, CEC, PoDM, Ethernet

**HDBaseT<sup>®</sup>:** HDCP, EDID, PoH, Ethernet

**HDMI<sup>®</sup>:** 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:** 6x2 matrix, auto-switching, auto-detecting multi-format digital/analog source inputs, QuickSwitch HD<sup>™</sup> technology

**Input Signal Types:** HDMI w/Deep Color & 3D<sup>14</sup> (DVI & Dual-Mode DisplayPort Multimode compatible<sup>12</sup>), DM 8G+ & HDBaseT w/Deep Color & 3D<sup>14</sup>, RGB/VGA (RGBHV, RGBS, RGSB)<sup>19</sup>, component (YPbPr), S-Video (Y/C), composite (NTSC, PAL)

**Output Signal Types:** HDMI w/Deep Color & 3D<sup>14</sup> (DVI compatible<sup>21</sup>), DM 8G+ & HDBaseT w/Deep Color & 3D<sup>14</sup>

**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, 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:** 6x5 stereo source switcher, auto-detecting multi-format digital/analog source inputs, audio-follow-video or breakaway, 4-channel gated mic mixer w/DSP, independent 4-ch mic + source mixer per output, dual codec mixer, independent stereo DSP per analog output, integrated power amplifier, 6x2 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  $\pm 0.5$  dB (digital source);

20 Hz to 20 kHz  $\pm 0.5$  dB (analog line source);

20 Hz to 20 kHz  $\pm 0.7$  dB (microphone source)

**Frequency Response, Speaker Output:**

20 Hz to 20 kHz  $\pm 1$  dB @ 20 Watts into 8 Ohms;

100 Hz to 20 kHz  $\pm 2.5$  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

# DMPS3-200-C 3-Series® DigitalMedia™ Presentation System 200

## 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 4 microphone input channels (Mic/Line 1 – 4)

**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 6 source input channels (Input 1 – 6 & Audio In 1 – 5)

**Input Signal Types:** HDMI (Dual-Mode DisplayPort compatible<sup>[2]</sup>) on Inputs 1-5, analog 2-channel on Inputs 1-5, S/PDIF on Input 5 only, DM 8G+ & HDBaseT on Input 6

**Analog Formats:** Stereo 2-channel

**Digital Formats, HDMI & DM:** Dolby Digital®, Dolby Digital EX, Dolby Digital Plus<sup>[4]</sup>, Dolby® TrueHD<sup>[4]</sup>, Dolby Atmos®<sup>[4]</sup>, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res<sup>[4]</sup>, DTS-HD Master Audio™<sup>[4]</sup>, LPCM up to 8 channels

**Digital Formats, SPDIF:** LPCM 2-channel

**Input Compensation:** ±10.0 dB<sup>[3]</sup>

## 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 – 4:** -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)<sup>[1]</sup>

**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 dB

**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 2 digital outputs (HDMI Output 1 & DM Output 2)

**Output Signal Types:** HDMI (DVI compatible<sup>[2]</sup>) on Output 1, DM 8G+ & HDBaseT on Output 2

**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 – 4:** -80 to +10 dB Level adjustment range, plus Mute and Pan<sup>[3]</sup>

**Mics Master:** -80 to +10 dB Level adjustment range, plus Mute<sup>[3]</sup>

**Source:** -80 to +10 dB Level adjustment range, plus Mute and Balance<sup>[3]</sup>

**Master Volume:** -80 to +10 dB Level adjustment range, plus Mute<sup>[3]</sup>

**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<sup>[2,4]</sup>

**RGB INPUT 3 – 5:** (3) HD15 female;

Analog RGB/VGA/video inputs;

Signal Types: VGA, RGB, component, S-Video, or composite<sup>[9]</sup>;



# DMPS3-200-C 3-Series® DigitalMedia™ Presentation System 200

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:** (1) 8-pin RJ45 female, shielded;  
DM 8G+ input, HDBaseT compliant;  
PoDM and PoH PSE (Power Sourcing Equipment) port<sup>[6]</sup>;  
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<sup>[6]</sup>

**MC1/LN1 – MC4/LN4:** (4) 5-pin 3.5 mm detachable terminal blocks;  
Comprises (4) 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 OUTPUT 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 OUTPUT 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:** (1) 19-pin Type A HDMI female;  
Digital video/audio output;  
Signal Types: HDMI, DVI<sup>[2]</sup>

**DM OUTPUT 2:** (1) 8-pin RJ45 female, shielded;  
DM 8G+ output, HDBaseT compliant;  
PoDM and PoH PSE (Power Sourcing Equipment) port<sup>[6]</sup>;  
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<sup>[6]</sup>

## 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<sup>[7]</sup>;  
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<sup>[6]</sup>;  
Enables PoDM and PoH power sourcing

# DMPS3-200-C 3-Series® DigitalMedia™ Presentation System 200

**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-pin 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

**INPUT 1 – 6:** (6) Pushbuttons and red LEDs, select input to be routed

**OUTPUT 1 – 2, PROG, AUX 1 – 2:** (5) Pushbuttons and red LEDs, select output destination(s)

**SPEAKER OUTPUT (rear):** (1) 3-position slide switch, selects the amplifier output configuration

**DM INPUT 6 (rear):** (2) LEDs, green LED indicates DM link status, amber LED indicates video and HDCP signal presence

**DM INPUT 6 PoDM (rear):** (1) Green LED, indicates upstream device is drawing power over DM

**DM OUTPUT 2 (rear):** (2) LEDs, green LED indicates DM link status, amber LED indicates video and HDCP signal presence

**DM OUTPUT 2 PoDM (rear):** (1) Green LED, indicates downstream device is drawing power over DM

**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 Devices<sup>[6]</sup>

**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 Devices<sup>[6]</sup>

**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

**DMPS3-200-C:** 3-Series® DigitalMedia™ Presentation System 200

### 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



# DMPS3-200-C 3-Series® DigitalMedia™ Presentation System 200

**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](http://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 input 6.
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 DMPS3-200-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 DMPS3-200-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](http://www.crestron.com/salesreps) or by calling 800-237-2041.

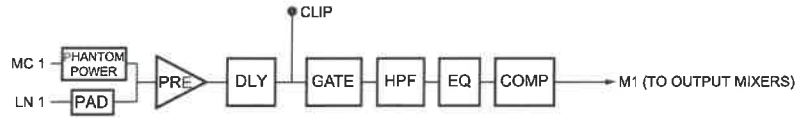
The specific patents that cover Crestron products are listed online at: [patents.crestron.com](http://patents.crestron.com).

Certain Crestron products contain open source software. For specific information, please visit [www.crestron.com/opensource](http://www.crestron.com/opensource).

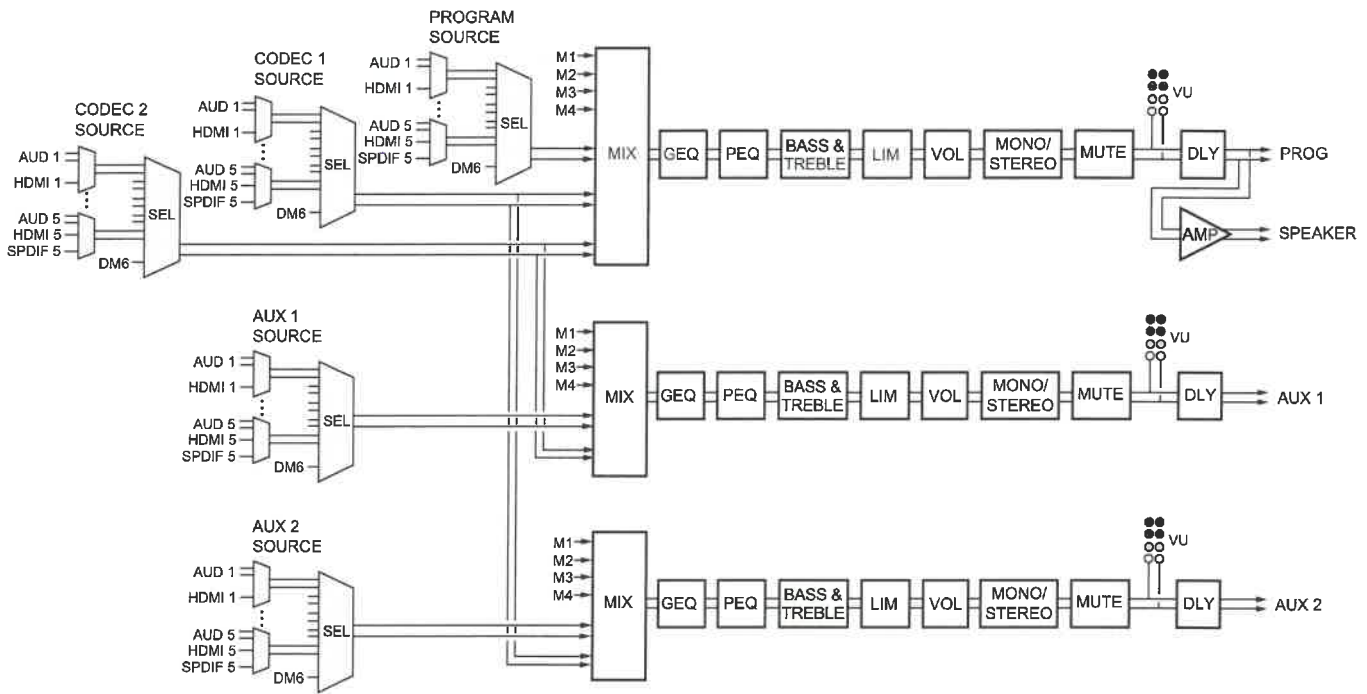
Crestron, the Crestron logo, 3-Series, 3-Series Control System, AirMedia, Auto-Locking, .AV Framework, Cresnet, Crestron Connect It, Crestron Control, Crestron Fusion, Crestron Toolbox, DigitalMedia, DigitalMedia 8G, DigitalMedia 8G+, DM, DM 8G+, QuickSwitch HD, and Smart Graphics are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. BACnet is either a trademark or registered trademark of American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. in the United States and/or other countries. Apple, iPad, and iPhone are either trademarks or registered trademarks of Apple Inc. in the United States and/or other countries. Blu-ray is either a trademark or registered trademark of the Blu-ray Disc Association in the United States and/or other countries. IOS is either a trademark or registered trademark of Cisco Technology, Inc. in the United States and/or other countries. Dolby, Dolby Atmos, and Dolby Digital are either trademarks or registered trademarks of Dolby Laboratories in the United States and/or other countries. DTS, DTS-HD, and DTS-HD Master Audio are either trademarks or registered trademarks of DTS, Inc. in the United States and/or other countries. Android is either a trademark or registered trademark of Google Inc. in the United States and/or other countries. HDBaseT and the HDBaseT Alliance logo are either trademarks or registered trademarks of the HDBaseT Alliance in the United States and/or other countries. HDMI and the HDMI Logo are either trademarks or registered trademarks of HDMI Licensing LLC in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography. Specifications are subject to change without notice. ©2016 Crestron Electronics, Inc.

# DMPS3-200-C 3-Series® DigitalMedia™ Presentation System 200

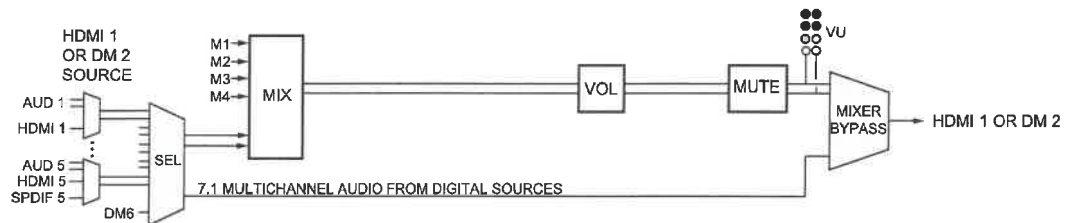
## AV SIGNAL FLOW DIAGRAMS



Microphone Inputs (Typical of 4)

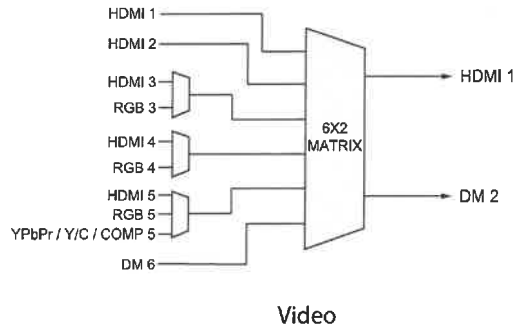


Analog Outputs

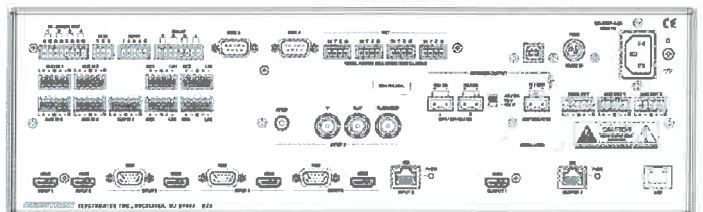
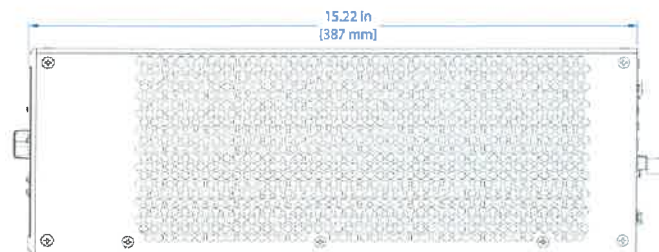
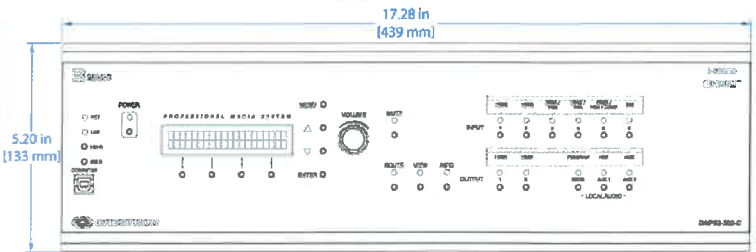
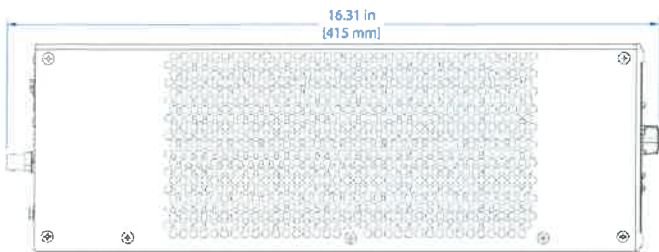


Digital Outputs (Typical of 2)

# DMPS3-200-C 3-Series® DigitalMedia™ Presentation System 200

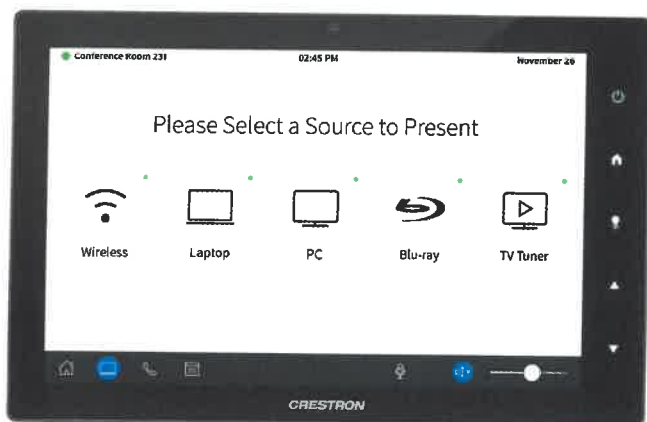


## DIMENSIONAL DIAGRAM



# TSW-1060

## 10.1 in. Touch Screen



- *Affordable and easy to install touch screen with ultra clean, modern appearance*
- *10.1 in. (257 mm) widescreen active-matrix color display and 1280 x 800 WXGA display resolution*
- *Capacitive touch screen display and backlit soft-touch capacitive buttons*
- *Voice recognition capability*
- *H.264 or MJPEG streaming video display*
- *Built-in microphone, speakers, and 5 MP H.264 IP camera*
- *Rava® SIP intercom and phone technology*
- *Native apps for Sonos® home sound control, Zoom Rooms™ conferencing control, Microsoft Teams® online meeting solution, and various room scheduling services*
- *Built-in web browsing*
- *Single-wire Ethernet connection with PoE or PoE+ power*
- *Enterprise grade security*
- *Web or cloud based configuration*
- *Electrical wall box or lectern mount*
- *Available in smooth black or white finish*

### Advanced Touch Screen Control

A Crestron® touch screen offers an ideal user interface for controlling all the technology in your home, boardroom, classroom, courtroom, or command center. Touch screens simplify and enhance the way you use technology, doing away with the need for remote controls, wall switches, smartphone apps, and computer screens. For controlling audio, video, lighting, shades, HVAC, security, and other systems, Crestron touch screens are fully-customizable with easy-to-use controls and icons, true feedback and real-time status display, live streaming video, voice recognition, web browsing, and a full-featured media player for an enhanced multiroom entertainment experience.

The TSW-1060 series features a 10.1 in. capacitive touch screen display with Smart Graphics® software technology and five soft-touch buttons. PoE (Power over Ethernet) connectivity and a range of mounting options make installation simple for both new and retrofit applications. Additional features include the ability to control any function using voice commands, view security cameras and other video sources, communicate using built-in video intercom and phone capabilities, and browse the Internet. Native applications are included to enable use as a room scheduling panel, to control a Zoom Rooms™ conferencing system or Microsoft Teams® online meeting solution, and to access a Sonos® home sound system.<sup>1</sup>

For dedicated room scheduling applications, see also the TSS-10 series 10.1 in. room scheduling touch screen.

### Smart Graphics

Crestron touch screens use Smart Graphics® software technology, enabling programmers to integrate fluid gesture-driven controls, animated feedback, rich metadata, embedded apps and widgets, and full-motion video.

Crestron Smart Graphics software offers these features and more:

- Intuitive graphical buttons, sliders, knobs, and gauges
- Lists and toolbars that scroll 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<sup>1</sup>
- A power-saving screensaver that can display 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
- SmartObjects® technology that enables control over complex devices with minimal programming
- A consistent look and feel across multiple touch screens of varying sizes

### Soft-Touch Buttons

The TSW-1060 series includes five backlit, soft-touch capacitive buttons for quick access to commonly used functions. These buttons are pre-labeled with icons for Power, Home, Lights, Up, and Down functions. Each button is programmable via a control system for custom functionality, and any unused button can be hidden by turning off its backlight.

### Auto Brightness Control

To ensure optimal visibility under varying lighting conditions, the TSW-1060 series includes a built-in light sensor, which regulates the display and button backlighting brightness according to the ambient light level in the room. Separate auto brightness settings are provided for the display and buttons to allow each to be adjusted or defeated as needed.



# TSW-1060

## 10.1 in. Touch Screen

### Voice Recognition

With built-in voice recognition, the TSW-1060 provides the ability to use spoken commands to quickly turn devices on or off, select and play a specific media title or playlist, change the channel, choose a lighting scene, lower the window shades, lock the doors, arm the security system, or enter a password. Simply say a command and Crestron does the rest.<sup>1,2</sup>

### Streaming Video

Native support for H.264 and MJPEG formats allows the TSW-1060 to display live streaming video from an IP camera, a streaming encoder (Crestron [CEN-NVS200](#), [DM-TXRX-100-STR](#), or similar<sup>3</sup>), or a [DigitalMedia™ switcher](#). Video is delivered to the touch screen over Ethernet, eliminating the need for any extra video wiring.

### Rava SIP Intercom

[Rava® SIP Intercom Technology](#) enables hands-free VoIP communication with other Rava-enabled touch screens and door stations. Rava works over Ethernet, supporting 2-way intercom and paging without requiring any special wiring. VoIP phone capability is also possible through integration with a 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 integrated microphone and speakers.<sup>2</sup>

### Built-in Camera

A 5 megapixel camera is built into the TSW-1060 to support video intercom and room monitoring capabilities. This feature allows individuals to communicate between two touch screens, or between one touch screen and a Rava-compatible video door station. It can also be used to visually monitor any room securely using an H.264 compatible decoder (Crestron [DM-TXRX-100-STR](#), [DM-RMC-100-STR](#), or similar<sup>3</sup>) or a third-party video monitoring system.<sup>2</sup>

### Sonos App

Merging technologies from [Sonos](#) and [Crestron](#) brings a powerful whole-house music experience. From any touch screen in the house, browse for tracks, artists, or playlists using all the services available from Sonos and instantly play them in any room using Sonos® wireless speakers or a Crestron [Sonnex® multiroom audio system](#). The Sonos app runs natively on the TSW-1060, enabling enhanced control of Sonos products as part of a complete Crestron system. The app checks for updates nightly so it's always current.<sup>1</sup>

### Room Scheduling Apps

The TSW-1060 comes with apps for all the most popular enterprise scheduling services.

- **Crestron Scheduling App:** Supports direct integration with [Crestron Fusion®](#) software, Microsoft Exchange Server® software (for users of Outlook® software and Office 365® software), the Google Calendar™ calendaring app (including G Suite™ software), CollegeNET® 25Live® scheduling software, and Ad Astra™ software.<sup>4</sup>

Crestron room scheduling touch screens help organizations to maximize productivity and manage usage for every meeting space. They can be installed at the entrance to each room to provide indication of the room's availability and a view of its schedule for the day. If desired, the room can be reserved on the spot for an ad hoc meeting.

Crestron room scheduling also offers three levels of customization—ranging from simply configuring settings in the web user interface to modifying the application source code for a completely unique appearance—depending on the needs of an enterprise.<sup>5</sup>

- **Third-Party Apps:** Includes support for [Teem®](#), [Robin®](#), [Appspace®](#), [Zoom™](#), [EMS Software®](#), [Space Connect™](#), [NFS™ Rendezvous](#), [Gingco.net™](#), [New Wave Apps®](#), and [SpacelQ®](#) scheduling applications.<sup>7</sup> Other providers may be added in the future.
- **Additional Options:** Supports IBM® Notes® software through a Crestron Fusion on-premises server.

Whatever provider you choose, setup is as simple as connecting the touch screen to the network and choosing an app from the web-based setup menu or built-in setup screens. The selected app downloads from the cloud and installs on the touch screen without any programming or control system required.<sup>7</sup>

### Status Indicator Options

Adding the optional light bar accessory ([TSW-1060-LB](#) series) to a TSW-1060 produces a light around the perimeter of the touch screen. For room scheduling applications, the light bar provides a 180° visual indication of a room's availability status, illuminating green if the room is available and red when reserved. Custom functionality is available by integrating with a control system, allowing the light bar to illuminate in almost any color.<sup>8</sup>

As an alternative to the light bar, Crestron offers a selection of hallway signs and indicators that mount on the wall or ceiling above each touch screen. The [SSW](#), [SSW-EL](#), [SSC](#), and [SSC-EL](#) series hallway signs feature a two sided acrylic sign face that can be custom engraved with the room name or number. The [SIW-100](#) offers a lower profile wall mount status indicator.<sup>8</sup>

### Zoom Rooms App

The [Zoom Rooms™](#) conferencing control application enables the TSW-1060 to be used as a touch screen control panel for a Zoom Rooms software-based conferencing and collaboration solution. The TSW-1060 offers a superior alternative to a consumer tablet device, providing a more reliable and secure platform with versatile, streamlined mounting options. Its 10.1 in. color touch screen delivers the same user-friendly Zoom

# TSW-1060

## 10.1 in. Touch Screen

Rooms experience as a typical tablet, but without the risk of misplacing the device. Instead of Wi-Fi® communications, the TSW-1060 uses a wired Ethernet connection to ensure reliable connectivity.<sup>9</sup>

The TSW-1060 may be configured to run the Zoom Rooms app exclusively, or to allow toggling between the Zoom Rooms app and touch screen control mode. The toggling option is used to integrate Zoom Rooms conferencing into a larger AV system while providing touch screen control for both.

**NOTE:** The Zoom ultrasonic proximity signal is supported up to an average of 3 ft (1 m) from the TSW-1060 touch screen to an end user device. The range will vary based on environmental noise, the sensitivity of the end user device, and the orientation to the touch screen.

### Microsoft Teams App

The **Microsoft Teams**® online meeting solution is the hub for teamwork in Office 365® software, engaging people through messaging, voice over IP, online meetings, conferencing, content sharing, and collaboration. The Microsoft Teams application on the TSW-1060 enables presentation, calling, conferencing, and collaboration — all through a single touch screen console, with exceptional full-duplex wideband audio and HD video. A consistent user experience in every meeting space is provided via the familiar and intuitive Microsoft Teams UI, affording simple operation, built-in calendaring, and one-touch meeting joins.

**NOTE:** The TSW-1060 must be operated in Microsoft Teams mode in conjunction with a **UC-ENGINE** or **UC-BRKT-100-ASSY**.

### PinPoint Beacon (Coming Soon)

The built-in PinPoint™ proximity detection beacon enhances the intelligence and personalization of a Crestron system by enabling a smartphone or tablet device to always know what room it is in. It works with the Crestron App or Crestron PinPoint App, using Bluetooth® technology to determine when the mobile device is in or near the same room as the beacon, and signals the mobile app to automatically display the appropriate controls and information for the room.<sup>2,10</sup>

### Web Browsing

Using its built-in web browser, the TSW-1060 provides access to online program guides and other web-based services at the touch of a button, allowing for touch screen control of DVRs and other devices without having to pick up a separate tablet or smartphone.<sup>1</sup>

### Onscreen Keyboard

Typing in passwords, URLs, and text searches is facilitated using the onscreen multilanguage keyboard.

### Multitouch Support

The capacitive touch screen display affords enhanced capabilities for browsing web pages using multitouch control.

### Audio Feedback

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

### Single-Wire Connectivity

An Ethernet LAN connection is all that is required to wire the TSW-1060, containing all control, video, intercom, and power signals within a single wire.

### Power over Ethernet

Using PoE technology, the TSW-1060 gets its operating power directly through the network cable. PoE (Power over Ethernet) eliminates the need for a local power supply or any dedicated power wiring. Crestron PoE switches (**CEN-SW-POE-5** or **CEN-SWPOE-16<sup>3</sup>**) offer a total networking solution with built-in PoE for multiple touch screens. A PoE Injector (**PWE-4803RU<sup>3</sup>**) is also available to support a single touch screen.

**NOTE:** PoE+ is required when connecting a light bar or hallway sign via USB. Refer to the "Power" specifications for more details.

### Enterprise Grade Security

Crestron touch screens employ enterprise-grade networking with robust security features such as 802.1X authentication, TLS encryption, HTTPS connectivity, and Active Directory® service integration. These features are imperative to protect your network against service interruptions and malicious intrusions, and to ensure compliance with your organization's network policies. Cloud-based provisioning and management streamlines the process of configuring, monitoring, and updating every touch screen on the network. Additional support for SNMP allows every touch screen to be monitored by your IT administrator.

### Crestron XiO Cloud Service

The TSW-1060 is compatible with the Crestron XiO Cloud™ service, which is an IoT (Internet of Things) based platform for remotely provisioning, monitoring, and managing Crestron devices across an enterprise or an entire client base. Built on the Microsoft® Azure® software platform and utilizing Microsoft's industry-leading Azure IoT Hub technology, Crestron XiO Cloud enables installers and IT managers to deploy and manage thousands of devices in the time it previously took to manage just one. Unlike other virtual machine-based cloud solutions, Azure services provide unlimited scalability to suit the ever-growing needs of an enterprise. For more information, visit [www.crestron.com/xiocloud](http://www.crestron.com/xiocloud).

# TSW-1060

## 10.1 in. Touch Screen

### Crestron Home OS 3 Control

The TSW-1060 may be used to control a [Crestron Home™ OS 3](#) whole home solution. Select the Crestron Home app from the touch screen to control lighting, shades, climate, media, security, and cameras, including the ability to create and recall scenes that create a desired ambiance throughout a home. A TSW-1060 may be installed in each room in the home to provide easy access to the room's environmental and media subsystems.

### 2N® Door Station Integration

The TSW-1060 may be integrated with a supported 2N® door station<sup>11</sup> via the touch screen's built-in Rava SIP intercom to provide a door station solution for Crestron Home or other residential systems. When a call is initiated on the 2N door station, the video and audio feed is displayed on the TSW-1060. Controls are provided on the touch screen to answer or decline the call, and Crestron Home quick actions (such as "open gate") may be performed while the call is in progress. A "do not disturb" option is also provided to prevent calls from appearing on the TSW-1060.

### Wall or Lectern Mounting Options

Using the bracket provided, the TSW-1060 is easily installed over a 2-gang or 3-gang US electrical box, or a 2-gang European or UK electrical box. The same bracket allows for installation in a wooden lectern or podium over a rectangular cutout. When installed, the touch screen protrudes only 1/2 in. out from the mounting surface and leaves no visible screws for an ultra clean appearance. A security latch option is included to deter unauthorized removal of the touch screen.

Additional mounting options are afforded using the [TSW-UMB-60](#) universal mounting bracket:<sup>12</sup>

- Can be used by itself as a postconstruction solution for retrofitting the TSW-1060 into existing drywall.
- Can be used with the [TSW-UMB-60-PMK](#) preconstruction mounting kit for applications that don't require a back box.
- Can be used with the [TSW-UMB-60-BBI](#) back box for masonry and concrete applications.

The [TS-10-MSMK<sup>3</sup>](#) allows a TSW-1060 touch screen to be mounted directly to virtually any flat surface, which is ideal for mounting at the entrance to a meeting space for room scheduling applications. The [TSW-760/1060-MSMK<sup>3</sup>](#) provides a similar surface mounting solution that can also be mounted over a conventional electrical box. When installed using the [TSW-760/1060-MSMK](#), the touch screen is angled upwards at a 20° tilt.

When installing the TSW-1060 in place of an older Crestron touch screen (APAD, CT-1000, LC-1000, TPS-4L, TPS-6L, TPS-2000L, or TPS-3100L), Crestron offers retrofit mounting brackets ([TSW-60-RMB](#) series<sup>3</sup>), which facilitate replacement without having to tear out the old mounting hardware or patch the wall.

### Other Mounting Options

Using the optional tabletop kit ([TSW-560-TTK<sup>3</sup>](#)), the TSW-1060 becomes a stylish, freestanding touch screen that fits perfectly on a table, desk, or countertop. It can even be permanently attached to the surface using the optional swivel mount kit ([TSW-560/760/1060-SMK<sup>3</sup>](#)). The TSW-1060 can also be mounted in a 19 in. EIA equipment rack using the optional rack mount kit ([TSW-1060-RMK-2<sup>3</sup>](#)). When rack mounted, the touch screen occupies four rack spaces.

# TSW-1060

## 10.1 in. Touch Screen

### Specifications

#### Touch Screen Display

<b>Display Type</b>	TFT active matrix color LCD
<b>Size</b>	10.1 in. (257 mm) diagonal
<b>Aspect Ratio</b>	16:10 WXGA
<b>Resolution</b>	1280 x 800 pixels
<b>Brightness</b>	400 nits (cd/m <sup>2</sup> )
<b>Contrast</b>	950:1
<b>Color Depth</b>	24 bit, 16.7M colors
<b>Illumination</b>	Edgelit LED with auto brightness control
<b>Viewing Angle</b>	±80° horizontal, ±80° vertical
<b>Touch Screen</b>	Projected capacitive, 5-point multitouch capable

#### Buttons

<b>Hard Keys</b>	(5) Projected capacitive push buttons, backlit with auto brightness control, per-button show/hide (backlight enable/disable), prelabeled with icons for Power, Home, Lights, Up, and Down
<b>Reset</b>	(1) Miniature push button on rear panel for hardware reset

#### Graphics Engine

Crestron Smart Graphics® software technology, multilanguage web browser<sup>1</sup>, multilanguage onscreen keyboard, screensaver, single scalable streaming video window, native Sonos® app<sup>1</sup>, native room scheduling applications<sup>7</sup>, native Zoom Rooms™ app, native Microsoft Teams® app, native Crestron Home OS 3™ app, setup and diagnostics via web browser or onscreen UI

#### Room Scheduling Support

**Crestron Scheduling App** Crestron Fusion® software, Microsoft Exchange Server® and Office 365® software, Google Calendar™ calendaring app and G Suite™ software, CollegeNET® 25Live® software, and Ad Astra™ software (IBM® Notes® software is also supported through Crestron Fusion on-premises server only)<sup>4</sup>

**Third-Party Apps** Includes support for Teem®, Robin®, Appspace®, Zoom™, EMS Software®, Space Connect™, NFS™ Rendezvous, Gingco.net™, New Wave Apps®, and SpaceIQ® scheduling applications.<sup>7</sup>

#### 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

**Onscreen 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

**Room Scheduling** Chinese (Simplified), Chinese (Traditional), Danish, Dutch (Netherlands), English (US), English (UK), French, German, Hebrew, Italian, Japanese, Korean, Norwegian, Portuguese (Brazil), Portuguese (Portugal), Russian, Spanish, Swedish

#### Memory

**RAM** 2 GB DDR3L

**Storage** Firmware/Application: 4 GB Class 10 microSD card; System: 4GB eMMC

**Maximum Project Size** 600 MB



# TSW-1060

## 10.1 in. Touch Screen

### Communications

<b>Ethernet</b>	100 Mbps, auto switching, auto negotiating, auto discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP, SSL, TLS, SSH, SFTP (SSH File Transfer Protocol), IEEE 802.1X, SNMP, IPv4 or IPv6, Active Directory® service authentication, HTTPS web browser setup, Crestron XiO Cloud™ client, IEEE 802.3at compliant
<b>USB</b>	USB 2.0 host for light bar or hallway sign <sup>8</sup>
<b>Bluetooth® Hardware</b>	Crestron PinPoint™ beacon <sup>2,10</sup>

### Streaming Decoder

<b>Video Formats</b>	H.264 (MPEG-4 part 10 AVC, MJPEG)
<b>Audio Formats</b>	AAC Stereo
<b>Bitrates</b>	Up to 25 Mbps (20 Mbps maximum recommended)
<b>Input Resolutions</b>	Up to 1920x1080@30fps
<b>Protocol</b>	RTSP

### Streaming Encoder and Camera<sup>2</sup>

<b>Camera Resolution</b>	5.0 MP
<b>Field of View</b>	50° horizontal
<b>Video Format</b>	H.264 (MPEG-4 part 10 AVC)
<b>Output Resolution</b>	1280x720
<b>Protocol</b>	RTSP, ONVIF discovery

### Audio

<b>Features</b>	Built-in microphone and speakers, Rava® SIP Intercom, voice recognition <sup>1,2</sup>
<b>Audio Feedback Formats</b>	MP3

### Connectors

<b>LAN PoE</b>	(1) 8-pin RJ45 connector, female, with 2 LED indicators; 100Base-TX Ethernet port; PoE+ PD port; Green and yellow LEDs indicate Ethernet port status
<b>USB</b>	(1) USB Type A connector, female; USB 2.0 host port; For optional light bar or hallway sign <sup>8</sup>

### Power

<b>PoE (Power over Ethernet)</b>	IEEE 802.3at Type 2 compliant PoE+ PD (Powered Device); Normally requests 15 Watts from an 802.3at Type 2 PSE with LLDP advanced power management; With room scheduling and USB enabled, requests 18 Watts from an 802.3at Type 2 PSE with LLDP; Requests 30 Watts (PoE+ Class 4) from an 802.3at Type 2 PSE without LLDP; Requests 15.4 Watts (PoE Class 0) from an 802.3af (or 802.3at Type 1) PSE <i>NOTE: Enabling the USB port requires use of an 802.3at Type 2 PoE+ PSE.</i>
----------------------------------	--

### Environmental

<b>Temperature</b>	32 to 112 °F (0 to 45 °C)
<b>Humidity</b>	10% to 95% RH (noncondensing)
<b>Heat Dissipation</b>	44 BTU/hr

### Construction

<b>Housing</b>	Plastic, smooth black or white finish, edge-to-edge glass with black or white surround
<b>Mounting</b>	Surface mount over a 2 or 3-gang US electrical box, 2-gang European (DIN 49073) electrical box, or 2-gang UK (BS 4662) electrical box; Lectern mount over a 2-1/5 in. H x 3-3/4 in. W (56 mm H x 96 mm W) cutout; 1-3/8 in. (35 mm) minimum mounting depth; Additional wall mount, surface mount, rack mount, and tabletop options available separately

### Dimensions

<b>Height</b>	6.59 in. (168 mm)
<b>Width</b>	10.23 in. (260 mm)
<b>Depth</b>	1.52 in. (39 mm)

*Dimensions do not include mounting bracket or add-on accessories*

### Weight

23.9 oz (675 g)

### Compliance

#### Regulatory Model: TSW-1060

UL® Listed for US and Canada, IC, CE, FCC Part 15 Class B digital device

# TSW-1060

## 10.1 in. Touch Screen

### Available Models

TSW-1060-B-S

TSW-1060-W-S

### Accessories

For supported accessories, visit the appropriate TSW-1060 product page at [www.crestron.com](http://www.crestron.com).

#### Notes:

1. Voice recognition, web browsing, weather information, and certain other functions require an Internet connection.
2. The camera, microphone, and Bluetooth® transceiver may each be defeated programmatically at any time. For applications demanding an extra measure of privacy, Crestron offers models [TSW-1060-NC-B-S](#) and [TSW-1060-NC-W-S](#), which have no physical camera, microphone, or Bluetooth transceiver installed.
3. Item(s) sold separately. Refer to each product's spec sheet for complete information.
4. Room Scheduling mode requires the TSW-1060 to be designated exclusively for room scheduling use, which precludes use of certain features and functions described in this spec sheet. For design assistance, contact the Crestron True Blue support team at [www.crestron.com/support](http://www.crestron.com/support).
5. For more information on custom programming for the Crestron® room scheduling app, refer to the Crestron Room Scheduling Panels Programming Guide (Doc. 8213) at [www.crestron.com/manuals](http://www.crestron.com/manuals).
6. Appspace® software functionality is currently limited to their Room Management feature (e.g., room cards or meeting cards) only.
7. Additional subscriptions and/or licenses may be required. Refer to each provider's website for details about the capabilities and requirements of its scheduling application and services. Third-party apps typically run on the TSW-1060 as they do on a tablet device. The TSW-1060 runs only one app, which is selected at setup. Only the apps approved and delivered by Crestron can run on the TSW-1060.
8. The light bar and hallway sign accessories are sold separately. Only one light bar or hallway sign may be connected to the TSW-1060. Use of either accessory precludes use of the other without the addition of a custom-programmed control system and Cresnet® network wiring for the hallway sign. Refer to each accessory's spec sheet for further information.
9. A complete Zoom Rooms solution requires a mini PC or Mac computer running Zoom software, a Zoom Rooms subscription, plus additional peripherals and cables. Visit [zoom.us/zoomrooms](http://zoom.us/zoomrooms) for more information about Zoom Rooms capabilities, hardware requirements, and subscription plans. For design assistance, contact the Crestron True Blue support team at [www.crestron.com/support](http://www.crestron.com/support).
10. Onboard PinPoint™ beacon functionality is not currently supported and will be enabled through a future update. When enabled, the TSW-1060 will provide an integrated, equivalent alternative to the standalone [PP-100-W](#) beacon. For more details, refer to the PP-100-W spec sheet. Bluetooth technology is used solely for proximity detection and does not transmit or receive any control, multimedia, or personal data. PinPoint beacons are only visible to Bluetooth enabled devices that are specifically programmed and configured to work with them.
11. Supported 2N door stations include the 2N IP Audio Kit, 2N IP Audio Vario Lite, 2N IP Base, 2N IP Force, 2N IP Safety, 2N IP Solo, 2N IP Uni, 2N IP Vario, 2N IP Verso, and 2N IP Video Kit. For pairing instructions, refer to the Crestron Home OS 3 Product Manual (Doc. 8525) and the TSW-560/TSW-760/TSW-1060 Supplemental Guide (Doc. 7927) at [www.crestron.com/manuals](http://www.crestron.com/manuals).
12. The [TSW-UMB-60](#), [TSW-UMB-60-PMK](#), and [TSW-UMB-60-BBI](#) are all sold separately. The TSW-UMB-60 is also compatible with older TSW-UMB-PMK preconstruction mounting kits and TSW-550-BBI back boxes, allowing the TSW-1060 to be installed in place of a previous generation TSW-5xx series touch screen, or any other device that was originally installed using a TSW-UMB-PMK or TSW-550-BBI, without modification to the wall. If replacing another older Crestron device, use the appropriate [TSW-60-RMB](#) series retrofit mounting bracket (sold separately).

This product may be purchased from select authorized Crestron dealers and distributors. To find a dealer or distributor, please contact the Crestron sales representative for your area. A list of sales representatives is available online at <https://www.crestron.com/How-To-Buy/Find-a-Representative> or by calling 855-263-8754.

The specific patents that cover Crestron products are listed online at [patents.crestron.com](http://patents.crestron.com).

Certain Crestron products contain open source software. For specific information, please visit [www.crestron.com/opensource](http://www.crestron.com/opensource).

Crestron, the Crestron logo, Cresnet, Crestron Fusion, Crestron Pyng, Crestron XiO Cloud, DigitalMedia, PinPoint, Rava, Smart Graphics, SmartObjects, and Sonnex are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. 2N is either a trademark or a registered trademark of 2N Telekomunikace in the United States and/or other countries. Ad Astra is either a trademark or a registered trademark of Ad Astra Information Systems, LLC in the United States and/or other countries. Appspace is either a trademark or registered trademark of Appspace, Inc. in the United States and/or other countries. Bluetooth is either a trademark or registered trademark of Bluetooth SIG, Inc. in the United States and/or other countries. CollegeNET and 25Live are either trademarks or registered trademarks of CollegeNET, Inc. in the United States and/or other countries. EMS Software is either a trademark or registered trademark of EMS Software LLC in the United States and/or other countries. Gingco.net is either a trademark or a registered trademark of Gingco.net in the United States and/or other countries. G Suite and Google Calendar are either trademarks or registered trademarks of Google, Inc. in the United States and/or other countries. IBM and Notes are either trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. Microsoft, Active Directory, Azure, Microsoft Exchange Server, Microsoft Teams, Office 365, and Outlook are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. New Wave Apps is either a trademark or a registered trademark of New Wave Apps in the United States and/or other countries. NFS is either a trademark or a registered trademark of NFS Technology Group in the United States and/or other countries. Robin is either a trademark or registered trademark of Robin Powered, Inc. in the United States and/or other countries. Sonos is either a trademark or registered trademark of Sonos, Inc. in the United States and/or other countries. Space Connect is either a trademark or a registered trademark of Spaceconnect Pty Ltd in the United States and/or other countries. SpacelQ is either a trademark or a registered trademark of SpacelQ, LLC in the United States and/or other countries. Teem is either a trademark or registered trademark of Teem Technologies, Inc. in the United States and/or other countries. UL is either a trademark or a registered trademark of Underwriters Laboratories, Inc. in the United States and/or other countries. Wi-Fi is either a trademark or registered trademark of Wi-Fi Alliance in the United States and/or other countries. Zoom and Zoom Rooms are either trademarks or registered trademarks of Zoom Video Communications, Inc. in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography.

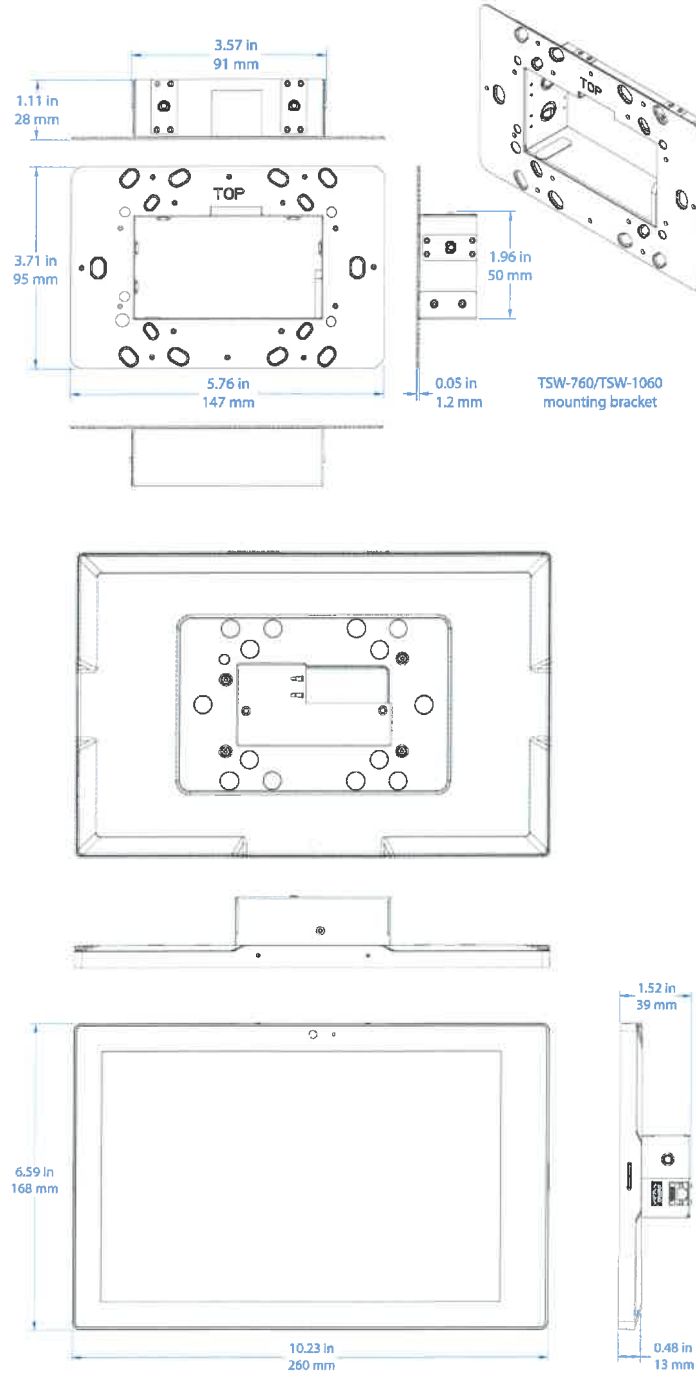
Specifications are subject to change without notice.

©2019 Crestron Electronics, Inc.

Rev 11/05/19

# TSW-1060

## 10.1 in. Touch Screen



# TSW-1060-TTK

## Tabletop Kit for TSW-1060

- > Converts a TSW-1060 to a stylish 10.1" tabletop touch screen
- > Provides a 38° fixed operating angle
- > Allows permanent mounting using the optional swivel mount kit <sup>[1]</sup>
- > Provides the choice of a rear or bottom wire exit

The TSW-1060-TTK provides a stylish and convenient tabletop enclosure for a **TSW-1060 Touch Screen**. The touch screen is angled when installed in the enclosure. The complete assembly may be placed on any flat, level surface.

An optional swivel mount accessory (**TSW-560/760/1060-SMK**) is available separately and provides a means for permanently mounting the enclosure while retaining the ability to rotate it for optimal positioning. The swivel range can be customized using optional limit screws, with a maximum of 330-degree rotation allowed. The swivel mount may be installed on any flat table, desk, or counter top surface with a thickness of 1 inch (25 mm) minimum to 1-3/8 inch (35 mm) maximum.

Wiring may be passed out the rear of the enclosure through a grommet and strain relief, or routed through the bottom for a very clean, cordless appearance. The rear wire opening can accommodate a single cable up to 1/4 inch (6 mm) diameter such as standard CAT5. The bottom opening measures 29/32 inch (23 mm) diameter, while the swivel mount <sup>[1]</sup> can accommodate wiring up to 11/16 inch (17 mm) diameter

## SPECIFICATIONS

### Enclosure

Plastic, black or white; 38° fixed angle device opening; freestanding or swivel mount installation <sup>[1]</sup>

### Dimensions

Height: 4.12 in (105 mm), 4.25 in (108 mm) with swivel mount <sup>[1]</sup>

Width: 7.86 in (200 mm)

Depth: 5.15 in (131 mm)

### With touch screen installed:

Height: 5.45 in (139 mm), 5.58 in (142 mm) with swivel mount <sup>[1]</sup>

Width: 10.23 in (260 mm)

Depth: 5.80 in (148 mm)

### Weight

17.3 oz (491 g), 41.2 oz (1166 g) with touch screen installed

## MODELS & ACCESSORIES

### Available Models

TSW-1060-TTK-B-S: Tabletop Kit for TSW-1060, Black Smooth

TSW-1060-TTK-W-S: Tabletop Kit for TSW-1060, White Smooth



Shown with TSW-1060 Touch Screen (Sold Separately)

### Available Accessories

**TSW-560/760/1060-SMK: Swivel Mount Kit for TSW-560-TTK, TSW-760-TTK & TSW-1060-TTK**

#### Notes:

1. TSW-560/760/1060-SMK Swivel Mount Kit 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](http://www.crestron.com/salesreps) or by calling 800-237-2041.

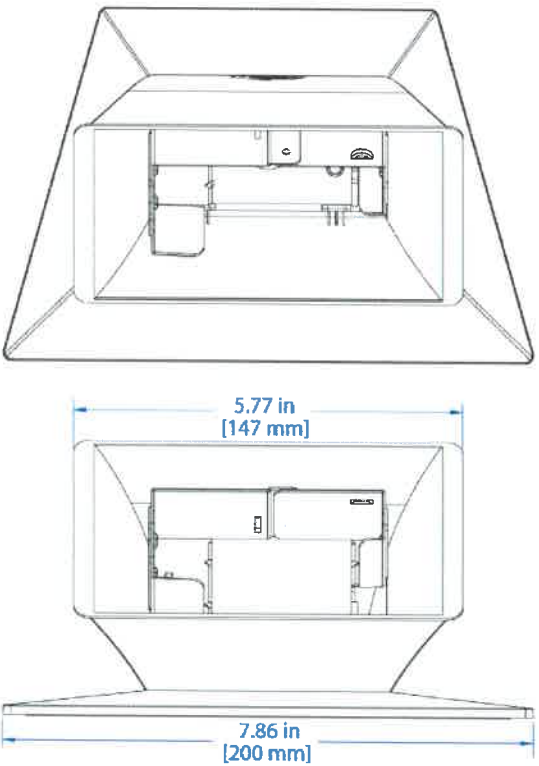
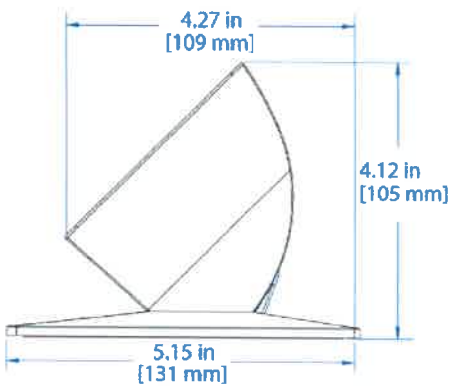
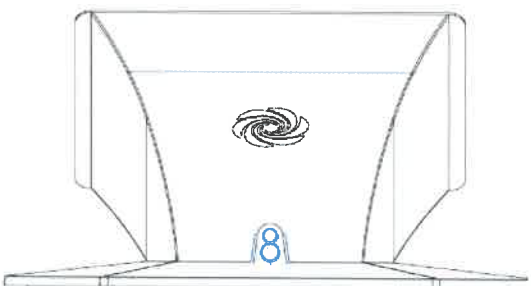
The specific patents that cover Crestron products are listed online at: [patents.crestron.com](http://patents.crestron.com).

Certain Crestron products contain open source software. For specific information, please visit [www.crestron.com/opensource](http://www.crestron.com/opensource).

Crestron and the Crestron logo are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography. Specifications are subject to change without notice. ©2016 Crestron Electronics, Inc.

# TSW-1060-TTK Tabletop Kit for TSW-1060

## CAD DRAWINGS





# 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.<sup>[1]</sup>

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.<sup>[2,3]</sup>

# 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<sup>[3]</sup>

### 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<sup>[3]</sup>

**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<sup>[3]</sup>

**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](http://www.crestron.com/salesreps) or by calling 800-237-2041.

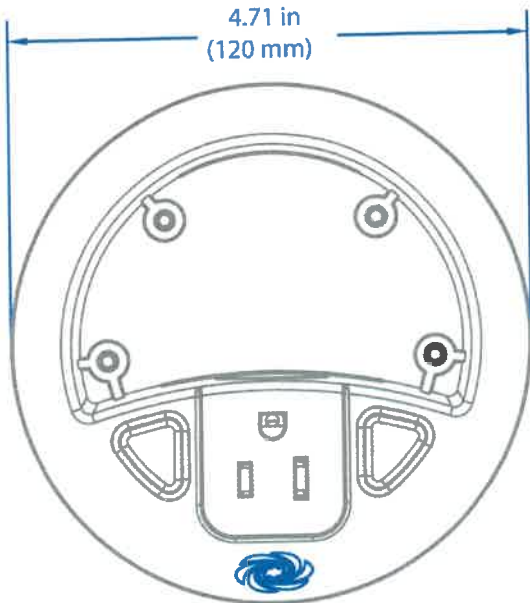
The specific patents that cover Crestron products are listed online at: [patents.crestron.com](http://patents.crestron.com).

Certain Crestron products contain open source software. For specific information, please visit [www.crestron.com/opensource](http://www.crestron.com/opensource).

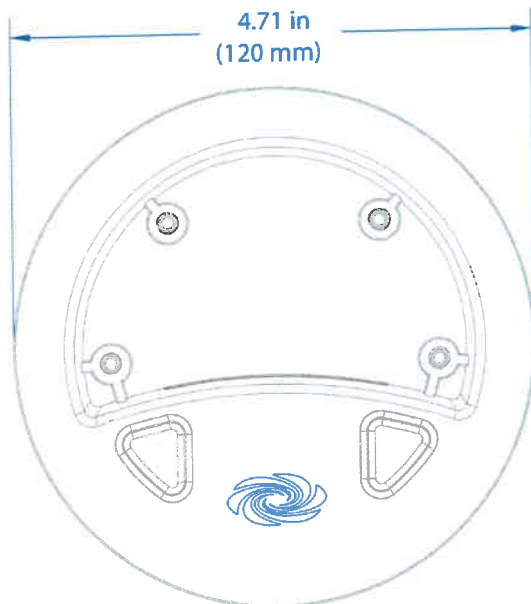
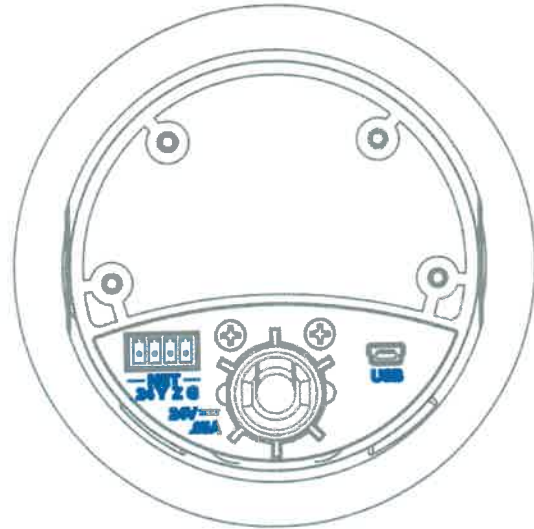
Crestron, the Crestron logo, 3-Series, Crestron Connect It, Cresnet, DigitalMedia, DigitalMedia 8G+, DM 8G+, HDBaseT, and Saros are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. HDMI is either a trademark or registered trademark of HDMI Licensing LLC in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography. Specifications are subject to change without notice.  
©2016 Crestron Electronics, Inc.



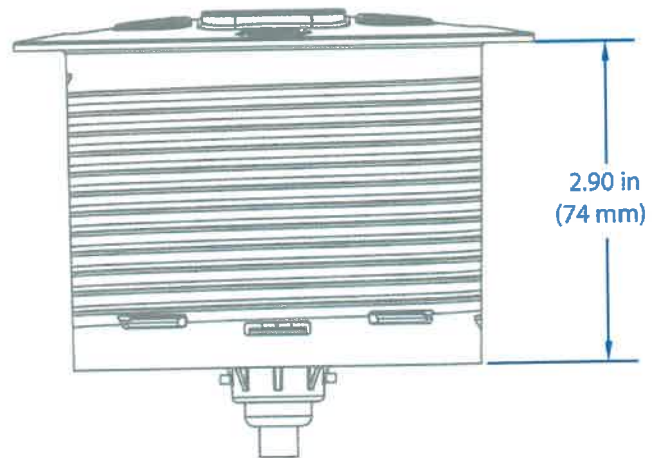
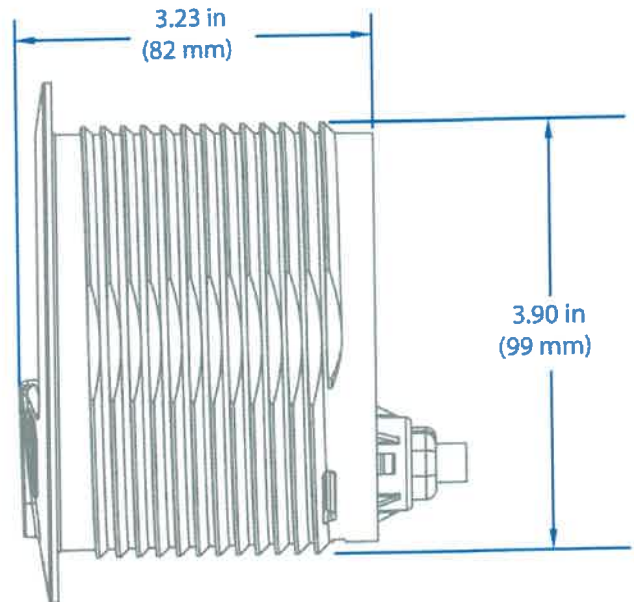
# TT-100 Crestron Connect It™ Cable Caddy



TT-100



TT-110





## 8-Port Gigabit GREENnet PoE+ Switch TPE-TG81g (v1.0R)

TRENDnet's 8-Port Gigabit GREENnet PoE+ Switch, model TPE-TG81g, reduces equipment and installation costs by delivering data and power over existing Ethernet cables. This unmanaged switch offers eight Gigabit PoE+ ports which supply up to 30 watts of power per port for devices such as high power wireless access points, PTZ (Pan / Tilt / Zoom) internet cameras, and VoIP telephony systems.

This rack mountable switch features an internal power supply. Auto sensing technology delivers 30 watts to 802.3at PoE+ devices (up to 3 devices), 15 watts to 802.3af PoE devices, and only data to non-PoE devices. GREENnet technology reduces energy consumption by up to 75% when the switch is not in use. Boost office efficiency and reduce network congestion with a total switching capacity of 16 Gbps. LED indicators display device status for efficient troubleshooting. This switch comes in a sturdy metal case and quickly adds PoE+, PoE, and non-PoE devices to your network.

## PRODUCT OVERVIEW

- 8 x Gigabit PoE+ ports (up to 30 watts per PoE+ port)
- Internal power supply
- Up to 30 W per port with 105 W total power budget
- Reduces equipment cost by delivering data and power over existing network cables
- 16 Gbps switching capacity
- Sturdy rack mountable metal case
- Up to 75% GREENnet power savings
- Limited lifetime warranty

## FEATURES

- IEEE 802.3at and IEEE 802.3af Power over Ethernet (PoE) compliant
- Supports PoE Class 2 (7 watts), 3 (15.4 watts), and 4 (30 watts)
- 8 x Gigabit Auto-MDIX PoE / PoE+ ports
- Internal power supply
- Up to 75% GREENnet energy savings
- Provides up to 30 watts for PoE+ (3 ports max.)
- Provides up to 15.4 watts for PoE
- Automatically detects the PoE class level of a Powered Device
- 16 Gbps switching fabric
- Forwarding rate: 1000 Mbps / 1,488,000pps; 100 Mbps / 148,800 pps; 10 Mbps / 14,880 pps
- Status LEDs: System Power, PoE, 1000 Mbps, and Link / Activity
- 2K Mac address entries
- 96 Kbyte memory buffer
- Full wire-speed non-blocking reception and transmission
- Store-and-forward switching method
- Back pressure Flow Control for Half-Duplex mode
- IEEE 802.3x Flow Control for Full-Duplex mode
- Power saving technology powers down unused ports and when a connected device is in standby mode
- Jumbo Frame support up to 9 Kbytes
- Plug and Play
- Sturdy rack mountable metal case
- Limited lifetime warranty

# 8-Port Gigabit GREENnet PoE+ Switch

TPE-TG81g [v1.0R]



## SPECIFICATIONS

### HARDWARE

<b>Standard</b>	<ul style="list-style-type: none"><li>• IEEE 802.3 10Base-T</li><li>• IEEE 802.3u 100Base-TX</li><li>• IEEE 802.3ab 1000Base-T</li><li>• IEEE 802.3at Power over Ethernet (PoE+)</li><li>• IEEE 802.3af Power over Ethernet (PoE)</li><li>• IEEE 802.3x Flow Control</li><li>• IEEE 802.3az Energy Efficient Ethernet</li></ul>
<b>Ports</b>	<ul style="list-style-type: none"><li>• 8 x Gigabit Auto-MDIX PoE / PoE+ RJ-45 ports</li></ul>
<b>Data Transfer Rate</b>	<ul style="list-style-type: none"><li>• Ethernet: 10/20 Mbps (Half / Full Duplex)</li><li>• Fast Ethernet: 100/200 Mbps (Half / Full Duplex)</li><li>• Gigabit: 2000 Mbps (Full Duplex)</li></ul>
<b>Forwarding Rate</b>	<ul style="list-style-type: none"><li>• Gigabit / 1,488,000 pps, 100 Mbps / 148,800 pps, 10 Mbps / 14,880 pps</li></ul>
<b>Data RAM Buffer</b>	<ul style="list-style-type: none"><li>• 96 Kbytes</li></ul>
<b>Address Table</b>	<ul style="list-style-type: none"><li>• 2 K MAC entries</li></ul>
<b>Switch Fabric</b>	<ul style="list-style-type: none"><li>• 16 Gbps</li></ul>
<b>Power</b>	<ul style="list-style-type: none"><li>• 90-260 V, 50/60 Hz, 1 A</li></ul>
<b>Diagnostic LEDs</b>	<ul style="list-style-type: none"><li>• Power, PoE, Link / Activity</li></ul>
<b>Power Consumption</b>	<ul style="list-style-type: none"><li>• Min: 8 Watts (standby)</li><li>• Max: 122 Watts</li><li>• PoE Max: 105 Watts (7 x 15 watts PoE devices connected or 3 x 30 Watts PoE+ devices connected)</li></ul>
<b>Temperature</b>	<ul style="list-style-type: none"><li>• Operating: 0° ~ 45°C (32° ~ 113°F)</li><li>• Storage: -20° ~ 90°C (-4° ~ 194°F)</li></ul>
<b>Humidity</b>	<ul style="list-style-type: none"><li>• Max 90% (non-condensing)</li></ul>
<b>Dimensions</b>	<ul style="list-style-type: none"><li>• 266 x 160 x 44 mm (10.5 x 6.3 x 1.7 in.)</li></ul>
<b>Weight</b>	<ul style="list-style-type: none"><li>• 1.36 kg (3 lbs.)</li></ul>
<b>Certifications</b>	<ul style="list-style-type: none"><li>• CE, FCC</li></ul>

### PoE

<b>Power over Ethernet</b>	<ul style="list-style-type: none"><li>• Up to 15.4 watts for PoE</li><li>• Up to 30 watts for PoE+</li><li>• PoE: pin 1,2 for power+ and pin 3,6 for power- (mode A)</li></ul>
----------------------------	--

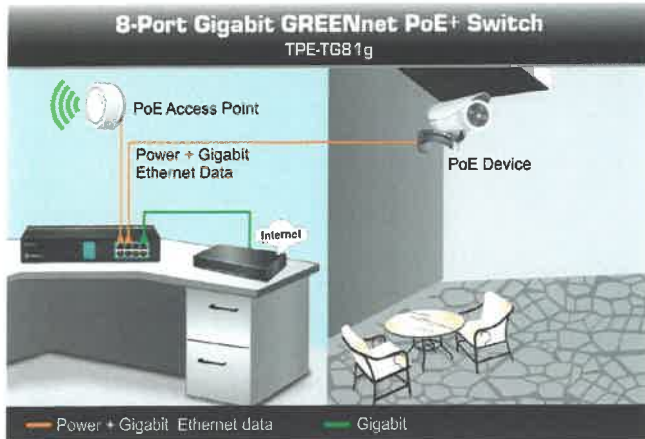
TRENDnet offers a limited lifetime warranty for all of its metal-enclosed network switches that have been purchased in the United States/Canada on or after 1/1/2015. Cooling fan and internal power supply carry a one-year warranty.

# 8-Port Gigabit GREENnet PoE+ Switch

TPE-TG81g (v1.0R)

PoE+

## NETWORKING SOLUTIONS



## PACKAGE CONTENTS

TPE-TG81g

Quick Installation Guide

Power Cord

Rack mount brackets

## RELATED PRODUCTS

TV-IP672PI Megapixel PoE Day / Night PTZ Internet Camera

TPE-114GS Gigabit Power over Ethernet (PoE) Splitter

TPE-TG44g 8-Port Gigabit GREENnet PoE+ Switch

## CONTACT INFORMATION

**TRENDnet**

20675 Manhattan Place, Torrance, CA 90501 USA

Tel: 1-310-961-5500

Fax: 1-310-961-5511

Web: [www.trendnet.com](http://www.trendnet.com)

Email: [sales@trendnet.com](mailto:sales@trendnet.com)

**1-888-326-6061**



# ClickShare CSE-200

Wireless presentation system for small to medium sized meeting rooms



- **Wireless connection to central screen**
- **Up to 2 users on-screen**
- **Share from laptop, tablet or smartphone**
- **Enhanced security features**
- **Touch back support**
- **Central management**
- **Delivered with 2 Buttons**

Creativity is one of the core assets of your organization. With ClickShare, you can make sure ideas receive the attention they deserve. This wireless presentation system allows users to simply share what's on their laptop or mobile device, on the presentation screen. No cables, no set-up, no waiting to join in.

## Plug in to stand out

The CSE-200 offers the ClickShare experience for small and medium-sized meeting rooms. Anyone – including guests – can connect with one click and share right away, without the need for any training. Users simply plug a USB-powered device – the ClickShare Button – into their PC or Mac and click the button to get the content from their laptop on the large meeting room screen. With the ClickShare Apps, users can also share content from their laptops, mobile phones or tablets. Make sure to have firmware version 1.7 installed on your Base Unit to enable the best experience with the Desktop App.

## Encouraging collaboration

The CSE-200 was designed for enterprise rollouts and offers enhanced security features, a wider range of connectivity options – including AirPlay and Google Cast support for non-HDCP content – Touch back function and central management. Allowing up to 2 persons to share content simultaneously, the CSE-200 ensures direct connectivity to the central screen and encourages collaboration. For user convenience, security features of the CSE-200 can be set to one of three predefined levels, depending on the company's policies and needs. Last but not least, the device's API also makes integration into the company network a lot easier. ClickShare also enables the touch back function in your meeting rooms. Run any application from your laptop and control it from the screen. With a few touches on the screen, open presentations, share mails, start a video. Focus on audience and content instead of on your presentation tool.

The CSE-200 is a product created with ISO 27001 certified flows and processes.



**PRODUCT SPECIFICATIONS****CLICKSHARE CSE-200****ClickShare Base Unit dimensions**

Dimensions (HxWxD)	205mm x 115mm x 45mm (excl. antennas) / 8.1" x 4.5" x 1.8" 205mm x 150mm x 135mm (incl. antennas) / 8.1" x 5.9" x 5.3"
Power supply	Standard 110/220 V AC plug or Power over Ethernet (PoE Plus)
Power consumption	Operation: 6W (typical) / 18W (max) Standby: 2.6W (ECO standby) / 0.4W (Deep standby)
Weight	600g / 1.32lbs

**General specifications**

Operating system	Windows 7/8/8.1/10 32 & 64 bit macOS 10.12/10.13/10.14 (Mojave) Android v7 & v8 & 8.1 (ClickShare app) iOS 10, 11 & 12 (ClickShare app)
Video outputs	1x HDMI
AirPlay Support	iOS mirroring (AirPlay) from iOS 9.0 up to iOS 12/ Mac OS 10.14
Google Cast Support	Android 9
Frame rate	Up to 30 fps
Output resolution	1920x1080
Noise Level	Fanless
Number of sources simultaneous on screen	2
Number of simultaneous connections	16
Audio	Via HDMI, analog via Audio Jack 3.5mm, S/PDIF
iPad, iPhone and Android compatibility	Sharing of documents, browser, camera for both Android and iOS devices via ClickShare app
Extended desktop	Available (depending on your operating system). May require ClickShare Extension Pack.
Authentication protocol	WPA2-PSK in stand alone mode WPA2-PSK or IEEE 802.1X in network integration mode
Wireless transmission protocol	IEEE 802.11 a/g/n
Reach	Adjustable with signal strength modulation; max. 30m (100 ft) between ClickShare Button and ClickShare Base Unit
Frequency band	2.4 GHz and 5 GHz (DFS channels not supported)
Connections	1x Ethernet LAN 100Mbit 2x (back) + 1x (front) USB Audio analog line out on mini jack socket (3.5mm), digital S/PDIF
Temperature range	Operating: 0°C to +40°C (+32°F to +104°F) Max: 35°C (95°F) at 3000m Storage: -20°C to +60°C (-4°F to +140°F)
Humidity	Storage: 0 to 90% relative humidity, non-condensing Operation: 0 to 85% relative humidity, non-condensing
Anti-theft system	Kensington lock
Certifications	FCC/CE
Warranty	3 years standard Possible to extend to 5 years

Last updated: 01 Oct 2019

Technical specifications are subject to change without prior notice. Please check [www.barco.com](http://www.barco.com) for the latest information.

ENABLING BRIGHT OUTCOMES





# Pro L1200U Laser WUXGA 3LCD Projector with 4K Enhancement

Projectors

Large Venue

## Brilliant

Color Brightness:  
7,000 lumens<sup>1</sup>

White Brightness:  
7,000 lumens<sup>1</sup>



## Versatile large-venue laser projector with virtually maintenance-free operation.

**One measurement of brightness is not enough** — look for both high color brightness and high white brightness. The Pro L1200U has:

**Color Brightness:** 7,000 lumens<sup>1</sup>

**White Brightness:** 7,000 lumens<sup>1</sup>

**Exceptional Full HD widescreen display** — native WUXGA (1920 x 1200) with 4K Enhancement<sup>2</sup> for presentations, videos, digital signage and more

**Solid-state laser light source** — designed with inorganic components for up to 20,000 hours of virtually maintenance-free operation<sup>3</sup>

**Industry-leading service and support** — limited warranty of 3 years or 20,000 hours, whichever comes first, plus free next-business-day replacement<sup>4</sup> with postage-paid returns

**Epson® 4K Enhancement Technology<sup>2</sup>** — a revolutionary technology that accepts 4K signal and enhances 1080p for output that surpasses Full HD image quality

**Nine optional interchangeable lenses** — with powered lens shift and lens memory, including an ultra short-throw lens for shallow spaces (one lens included)

**Reliable 24/7 operation** — ideal for applications requiring continuous projection

**Dynamic projection capabilities** — advanced built-in Edge Blending, image warping and curved-surface correction technologies for a variety of applications

**Seamless integration tools** — compatibility with Crestron® RoomView®, AMX®, Extron® XTP®, Control4® systems



**Pro L1200U Laser WUXGA 3LCD Projector with 4K Enhancement**

Projectors  
Large Venue



**Specifications**

**Projection System** High-aperture Epson 3LCD, 3-chip technology  
**Projection Method** Front/rear/ceiling mount  
**Driving Method** Poly-silicon TFT Active Matrix  
**Pixel Number** 2,304,000 dots (1920 x 1200) x 3  
**Native Resolution** 1920 x 1200 (WUXGA)  
**Resize** 640 x 480, 800 x 600, 1280 x 1024, 1400 x 1050  
**Aspect Ratio** Supports 4:3, 16:9, 16:10  
**Pixel Arrangement** Cross stripe  
**Color Brightness<sup>1</sup>** Color Light Output: 7,000 lumens  
**White Brightness<sup>1</sup>** White Light Output: 7,000 lumens  
**Contrast Ratio** 2,500,000:1 AbsoluteBlack™ (Full White 7,000 lm / Full Black 0 lm)  
**Brightness Uniformity (typical)** 90%  
**Color Reproduction** Up to 1 billion colors  
**Size (projected distance)** 50" – 300"  
**Lens Shift** Vertical: ±67%; horizontal: ±30%  
**Keystone Correction**  
 Vertical: ±45 degrees;  
 horizontal: ±30 degrees  
**Illumination Technology** Laser Phosphor  
**Light Source Life<sup>2</sup> (Normal)** 20,000 hours

**Projection Lens (Standard)**

See website for information on optional lenses.  
**Type** Powered shift/focus/zoom  
**F-number** 1.7 – 2.3  
**Focal Length** 24.0 mm – 38.2 mm  
**Zoom Ratio** Optical zoom 1 – 1.6x  
**Throw Ratio Range** 1.45 – 2.32

**Other Features**

**Operating Temperature** 32° to 113° F (0° to 45° C)  
**Power Supply Voltage** 100 – 240 V ±10%, 50/60 Hz AC  
**Power Consumption**  
 594 W (Normal Mode)  
 400 W (ECO Mode)  
 2.3 W Standby (Communication on)  
 0.22 W Standby (Communication off)  
**Fan Noise**  
 34 dB (Normal Mode); max.  
 28 dB (ECO Mode)  
**Security** Security cable hole, lens lock,  
 Kensington lock provision

**Effective Scanning Frequency Range**

**Pixel Clock** 13.5 MHz – 162 MHz (up to UXGA 60 Hz)  
**Horizontal** 15 kHz – 92 kHz  
**Vertical** 50 Hz – 85 Hz

**Interfaces**

DVI-D x 1  
 HDMI x 1  
 HDBaseT x 1  
 5-BNC, VGA x 1  
 Audio in: Mini Stereo x 3  
 Variable audio out: Mini Stereo x 1  
 USB connector Type B x 1: For service only  
 USB connector Type A x 1: For wireless only  
 Monitor out: Mini D-sub 15 pin x 1  
 Serial: RS-232c x 1

**Video I/O**

**Display Performance** NTSC: 480 line, PAL: 576 line (depends on observation of the multi-burst pattern)  
**Input Signal** NTSC/NTSC4.43/PAL/M-PAL/N-AL/PAL60/SECAM/480i/576i/480p/576p/720p/1080i/1080p  
**Pixelworks<sup>®</sup>** Video chip 3D Y/C separation, noise reduction, motion compensated, Interlace-Progressive conversion (2-2, 3-2 film detection)

**Dimensions (W x D x H)**

**Including Feet, Lens** 23.1" x 19.4" x 8.3"  
**Weight** 42.2 lb without lens

**Remote Control**

**Features** Power, source search selection, lens shift, zoom, focus, test pattern selection, A/V Mute, freeze, user ID, auto, aspect, color mode, number, page up and down, E-zoom, volume, help, menu, enter, esc and pointer functions

**Operating Angle**

Right/left: Front: ± 60 degrees; rear: ± 30 degrees  
 Upper/lower: Front: ± 45 to ± 15 degrees;  
 rear: ± 10 to ± 50 degrees

**Operating Distance** 49 ft

**Eco Features**

RoHS compliant  
 Recyclable product<sup>5</sup>  
 Epson America, Inc. is a SmartWay<sup>®</sup> Transport Partner<sup>6</sup>

**Support**

**The Epson Connection<sup>SM</sup>**  
 Pre-sales support U.S. and Canada 800-463-7766  
 Internet website [www.epson.com](http://www.epson.com)

**Service Programs**

The projector has a limited warranty of 3 years or 20,000 hours, whichever comes first. Epson Road Service program with free Next-Business-Day replacement<sup>4</sup>, PrivateLine<sup>SM</sup> dedicated toll-free support (U.S. and Canada only)

**What's in the Box**

Pro L1200U projector, a lens, power cable, computer cable (VGA), projector remote control with batteries, user manual CD, EasyMP<sup>SM</sup> software CD, Quick Setup Sheet and lens lock screw

**Ordering Information**

Pro L1200U  
 Replacement air filter (ELPAF51)  
 Ultra short-throw zoom lens  
 Short-throw #1 zoom lens  
 Short-throw #2 zoom lens  
 Wide-throw #1 zoom lens  
 Wide-throw #2 zoom lens  
 Middle-throw #1 zoom lens  
 Middle-throw #2 zoom lens  
 Middle-throw #3 zoom lens  
 Middle-throw #4 zoom lens  
 Long-throw zoom lens  
 Epson ceiling mount - low ceilings (ELPMB47)  
 Epson ceiling mount - high ceilings (ELPMB48)  
 False ceiling plate kit  
 Kensington security lock  
 Distribution amplifier  
 HDBaseT transmitter (ELPHD01)  
 Wireless LAN module (ELPAP10)  
 1-year extended warranty  
 2-year extended warranty

- V11H734020
- V13H134A51
- V12H004X01
- V12H004U03
- V12H004U04
- V12H004W05
- V12H004W06
- V12H004M08
- V12H004M09
- V12H004M0A
- V12H004M0B
- V12H004L08
- V12H802010
- V12H803010
- ELPMBP02
- ELPSL01
- ELPDA01
- V12H547020
- V12H731P02
- EPPEXPB1
- EPPTPB2

<sup>1</sup> Color brightness (color light output) and white brightness (white light output) will vary depending on usage conditions. Color light output measured in accordance with IDMS 15.4; white light output measured in accordance with ISO 21118. <sup>2</sup> 4K Enhancement Technology shifts each pixel diagonally by 0.5 pixels to double the resolution and surpass Full HD image quality. <sup>3</sup> 20,000 hours is the estimated projector life when used in Normal Mode. Actual hours may vary depending on mode and usage environment. The projector has a limited warranty of 3 years or 20,000 hours, whichever comes first. <sup>4</sup> Expedited shipping not available in all areas. Road Service orders must be in by 3 p.m. Eastern Time for Next-Business-Day delivery. <sup>5</sup> For convenient and reasonable recycling options, visit [www.epson.com/recycle](http://www.epson.com/recycle) <sup>6</sup> SmartWay is an innovative partnership of the U.S. Environmental Protection Agency that reduces greenhouse gases and other air pollutants and improves fuel efficiency.

See the latest innovations from Epson Business Solutions at [www.epson.com/forbusiness](http://www.epson.com/forbusiness)

**Better Products for a Better Future<sup>SM</sup>**  
[eco.epson.com](http://eco.epson.com)



**Epson America, Inc.**  
 3840 Kilroy Airport Way, Long Beach, CA 90806

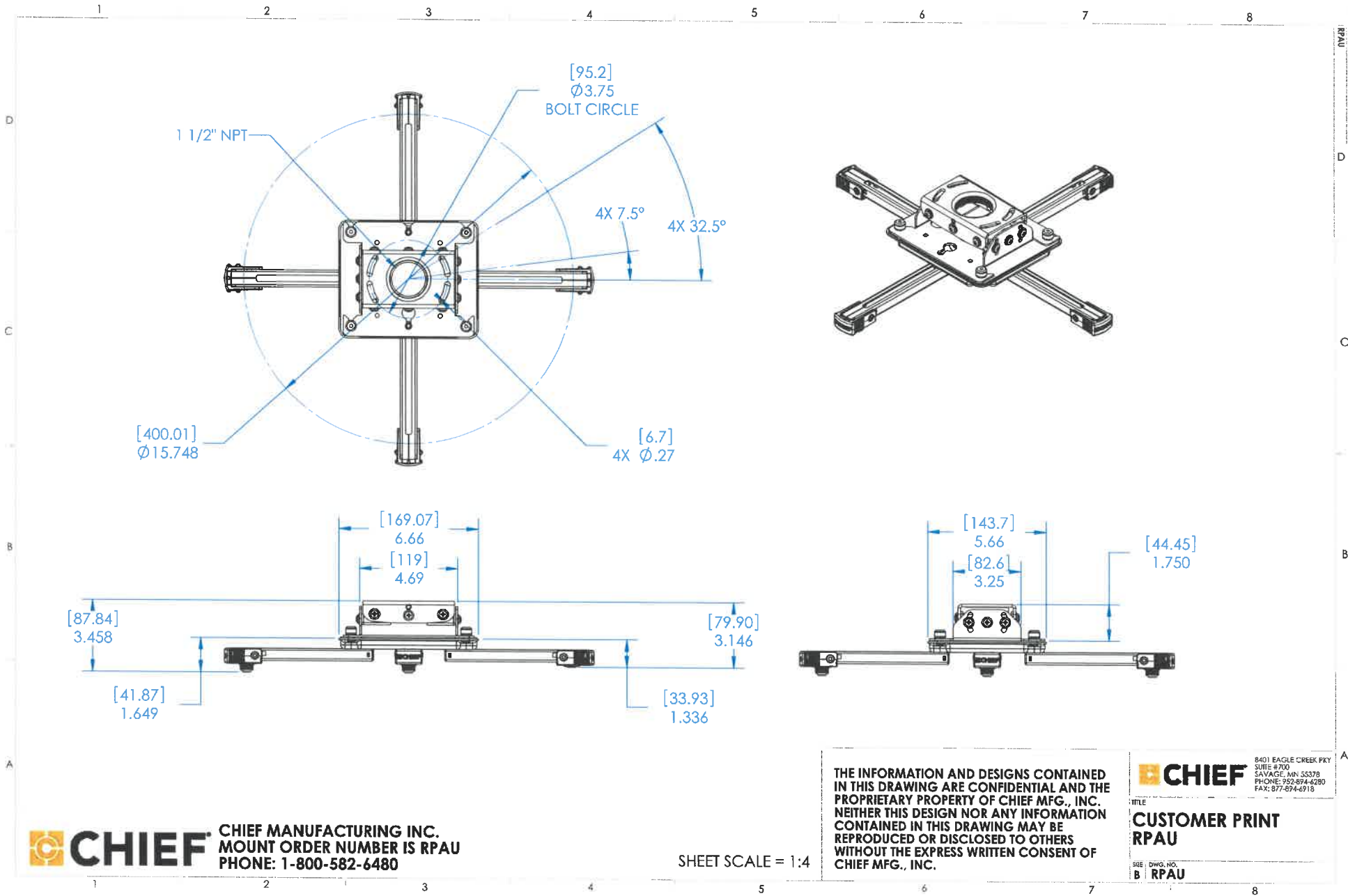
**Epson Canada Limited**  
 185 Renfrew Drive, Markham, Ontario L3R 6G3

[www.epson.com](http://www.epson.com)  
[www.epson.ca](http://www.epson.ca)

Specifications and terms are subject to change without notice. EPSON and EasyMP are registered trademarks, EPSON Exceed Your Vision is a registered trademark and Better Products for a Better Future is a trademark of Seiko Epson Corporation. PrivateLine is a registered trademark, AbsoluteBlack is trademark and Epson Connection is a service mark of Epson America, Inc. SmartWay is a registered trademark of the U.S. Environmental Protection Agency. All other product and brand names are trademarks and/or registered trademarks of their respective companies. Epson disclaims any and all rights in these marks. Copyright 2016 Epson America, Inc. Com-SS-Oct-13 CPD-52558 8/16

**Contact:**

[www.epson.com/largevenue](http://www.epson.com/largevenue)



# Draper 101647 Premier 57.5 x 92" Motorized Screen (120V)



Type	
Front/Rear Projection	Front
Aspect Ratio	16:10
Style	Motorized wall/ceiling
<b>Dimensions</b>	
Viewing Area	57.5 x 92" / 146.1 x 233.7 cm
Diagonal	109" / 276.9 cm
<b>Surface</b>	
Gain	0.6
Viewing Angle	180°
Screen Surface	Grey XH600V
<b>Controls</b>	
Included Controls	None
Motor	Standard
<b>Casing</b>	
Length	110" / 279.4 cm
<b>General</b>	
Voltage	120 VAC/60 Hz
<b>Packaging Info</b>	
Package Weight	73 lb
Box Dimensions (LxWxH)	124 x 11 x 11"

See any errors on this page? [Let us know](#)



# SAROS SR6T

## Saros® 6.5" 2-Way Surface Mount Indoor/Outdoor Speaker

- > High-performance 2-way surface mount speaker
- > Designed for high reliability in both indoor and outdoor applications
- > 6.5" polypropylene woofer with damped cloth surround for tight, controlled bass and clear midrange
- > Optimized dual front ports for enhanced low-frequency response
- > Horn-loaded titanium dome tweeter for crisp, clear high end and enhanced pattern control
- > Built-in 60 Watt 70/100V multi-tap transformer
- > Rigid ABS plastic construction with powder coated aluminum grille
- > IPx4 splash-proof rated, weatherized construction
- > Versatile and easy-to-install "QuickBall" mounting system
- > Allows 360° rotation and continuously variable positioning
- > 150 Watts program power handling at 8 Ohms
- > 70 Hz - 18 kHz frequency range
- > Available in black or white
- > Paintable to blend with surroundings



Saros® speakers by Crestron® deliver professional grade performance and flexible installation in a range of popular sizes for demanding commercial or residential applications. Solid construction, easy installation, and high-end components are hallmarks of the Saros speaker line. Ideal for use in background or foreground music, paging, and sound reinforcement systems, Saros speakers are engineered to achieve smooth, even coverage, high output, and clear, natural sound quality through the employment of horn-loaded titanium dome tweeters, high-efficiency damped cone woofers, ported enclosures, and precisely tuned crossovers.

The Saros SR6T model is a 2-way surface-mount speaker featuring a 6-1/2 inch woofer and horn-loaded 1 inch dome tweeter. A built-in 60 Watt multi-tap transformer allows for use with 70 and 100 Volt distributed speaker systems. Power handling at 8 Ohms is an impressive 150 Watts (program), with a frequency range from 70 Hz to 18 kHz (-10 dB).

The Saros SR6T is smartly designed for quick and easy installation and years of reliable performance. Its clean, contoured enclosure achieves an attractive appearance in restaurants and night clubs, retail spaces, houses of worship, convention facilities, universities, office buildings, and custom homes. Weatherized construction allows for use in outdoor entertainment venues, decks, patios, locker rooms, and swimming pools.

Featuring a unique "QuickBall" mounting system, the Saros SR6T can be mounted to any solid flat surface with the ability to orient and aim the speaker in virtually any position. The QuickBall bracket achieves a very clean and stable installation using a tool-free ball-and-socket mechanism. Simply position the speaker as desired and flip the clamp lever closed. A security screw is included to deter theft by preventing the lever from being released.

The QuickBall mounting bracket can be mounted over a 1-gang US, UK, or European electrical box, allowing wiring to be run through the wall and exit cleanly through the included cover plate. It can also be mounted to a light pole or post using pole-mounting straps (not included). A rear rigging point is also provided for securing the speaker using the optional safety tether kit (SPKA-ST-15™).

Connecting the wire at the back of the speaker is facilitated using a detachable screw terminal block with provisions for easy parallel wiring in multi-speaker applications. A weather boot is included to protect the wiring connections from moisture. Setting the 70/100V transformer tap is done via a recessed screwdriver-adjustable control on the rear.

Saros SR6T speakers are available in white or black, and can be painted to blend with the surrounding architecture. They are priced individually, but must be ordered in pairs.

### SPECIFICATIONS

#### Features & Performance

**Woofer:** 6.5 inch (165 mm) polypropylene w/ring mode decoupled cloth surround & steel basket

**Tweeter:** 0.98 inch (25 mm) titanium dome, 90° conical horn loaded

**Crossover Frequency:** 2 kHz

**Impedance:** 8 Ohms nominal with transformer set to "8Ω"

**Transformer Taps:** 3.75W/7.5W/15W/30W/60W at 70V;  
7.5W/15W/30W/60W at 100V

# SAROS SR6T Saros® 6.5" 2-Way Surface Mount Indoor/Outdoor Speaker

**Frequency Response:** 90 Hz to 16 kHz ( $\pm 3$  dB)  
**Frequency Range:** 70 Hz to 18 kHz ( $-10$  dB)  
**Power Handling:** 150 Watts program (8 Ohms)  
**Sensitivity:** 90 dB @ 1W/1m

## Connections

**Input:** (1) 4-pin 5 mm detachable terminal block with screw-down flanges and weather boot; speaker input with parallel pass-thru;  
**Maximum Wire Size:** 12 AWG

## Controls

**Transformer Tap:** (1) Recessed screwdriver-adjustable rotary switch on rear; Used to select 70/100V tap or 8 Ohms (bypass)

## Environmental

**Temperature:**  $-2^{\circ}$  to  $120^{\circ}$  F ( $-19^{\circ}$  to  $49^{\circ}$  C)  
**Humidity:** 5% to 95% RH (non-condensing)  
**Splash Resistance:** IPx4 rated per IEC 60529; withstands water splashing from any direction

## Construction

**Enclosure:** ABS plastic, textured finish, paintable  
**Grille:** Aluminum, powder coated, paintable  
**Mounting:** Surface mount to a solid flat surface with option to position over a flush-mounted 1-gang electrical box, 1-gang UK (BS 4662) electrical box, or 1-gang European (DIN 49073) electrical box; pole mount (straps not included); rigging point for safety tether (SPKA-ST-15 sold separately); theft-resistant security screw

## Positioning

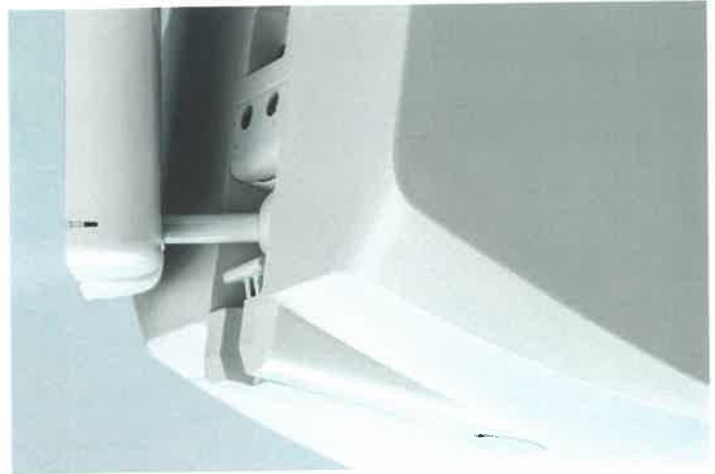
**Yaw (Horizontal):**  $\pm 30^{\circ}$   
**Pitch (Vertical):**  $\pm 30^{\circ}$   
**Roll (Rotation):**  $360^{\circ}$

## Dimensions

**Height:** 11.19 in (285 mm)  
**Width:** 8.08 in (205 mm)  
**Depth:** 6.70 in (170 mm), 8.86 in (225 mm) with mounting bracket

## Weight

8.3 lb (3.8 kg)

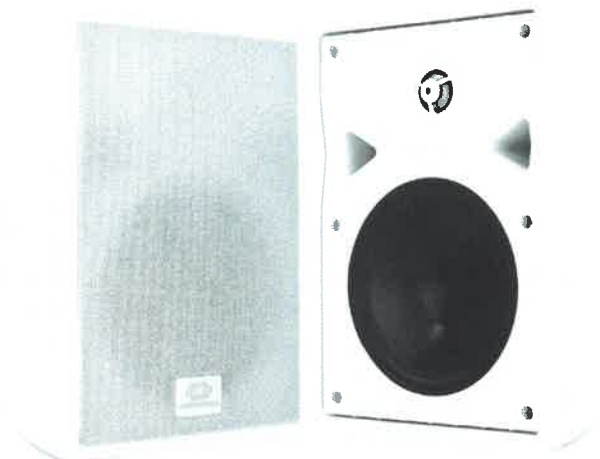


Black model – shown with cover removed



White model – shown with cover installed

## QuickBall Mounting Bracket (included)



SAROS SR6T – Shown in White

# SAROS SR6T Saros® 6.5" 2-Way Surface Mount Indoor/Outdoor Speaker

## MODELS & ACCESSORIES

### Available Models

**SAROS SR6T-B-T-EACH:** Saros® 6.5" 2-Way Surface Mount Indoor/Outdoor Speaker, Black Textured, Single (must be ordered in multiples of 2)  
**SAROS SR6T-W-T-EACH:** Saros® 6.5" 2-Way Surface Mount Indoor/Outdoor Speaker, White Textured, Single (must be ordered in multiples of 2)

### Available Accessories

**SPKA-ST-15:** Safety Tether/Tie Down Kits, 10 Sets

#### Notes:

- Item(s) sold separately.

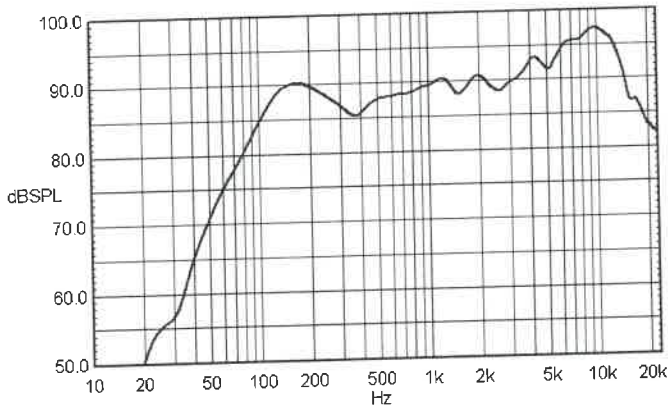
Crestron warrants to the original end purchaser that this Crestron Speaker Product, when purchased directly from Crestron or an authorized Crestron Dealer, will be free from defects in material and workmanship for the life of the product except for speaker grills and outdoor rated speakers, which are warranted for five (5) years. Crestron will at its option and expense either repair the defect or replace the Speaker Product with a new or remanufactured Product or a reasonable equivalent. In cases where a new model is substituted, a modification to the mounting surface may be required. If mounting surface modification is required, Crestron assumes no responsibility or liability for such modifications.

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](http://www.crestron.com/salesreps) or by calling 800-237-2041.

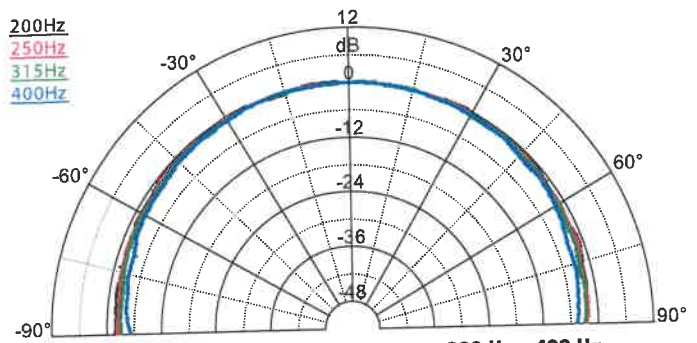
The specific patents that cover Crestron products are listed online at: [patents.crestron.com](http://patents.crestron.com).

Certain Crestron products contain open source software. For specific information, please visit [www.crestron.com/opensource](http://www.crestron.com/opensource).

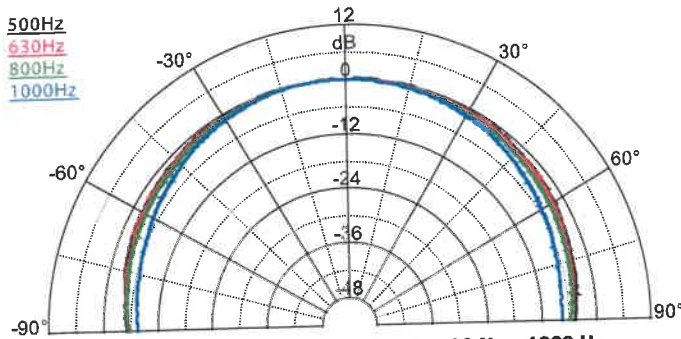
Crestron, the Crestron logo, and Saros are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography. Specifications are subject to change without notice. ©2016 Crestron Electronics, Inc.



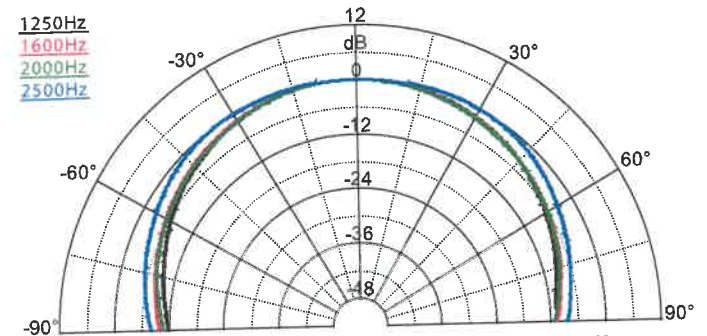
**SAROS SR6T – Frequency Response**



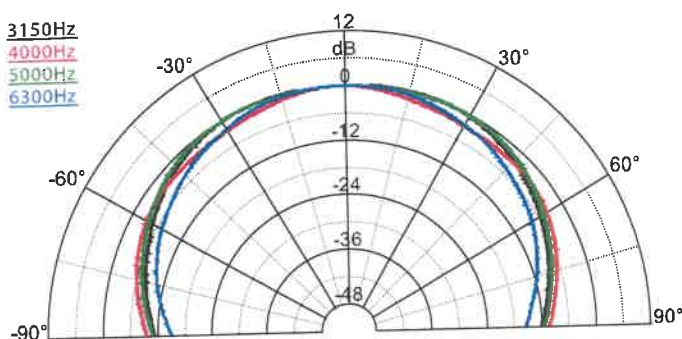
**SAROS SR6T – Dispersion Pattern, 200 Hz - 400 Hz**



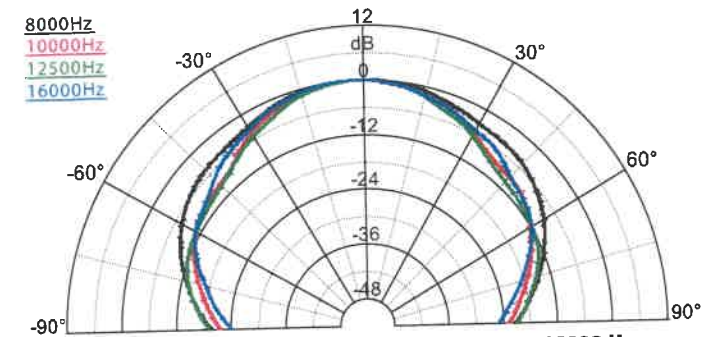
**SAROS SR6T – Dispersion Pattern, 500 Hz - 1000 Hz**



**SAROS SR6T – Dispersion Pattern, 1250 Hz - 2500 Hz**



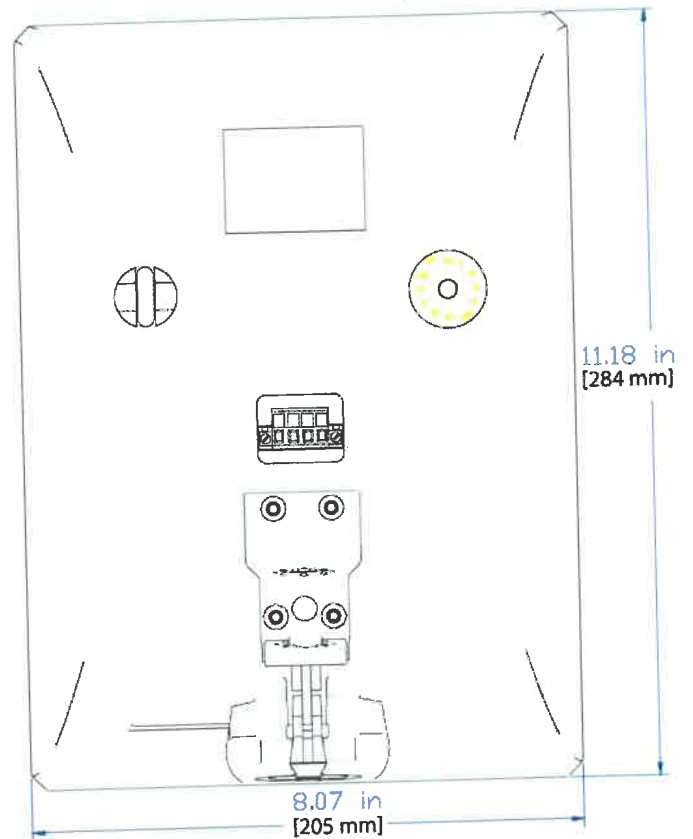
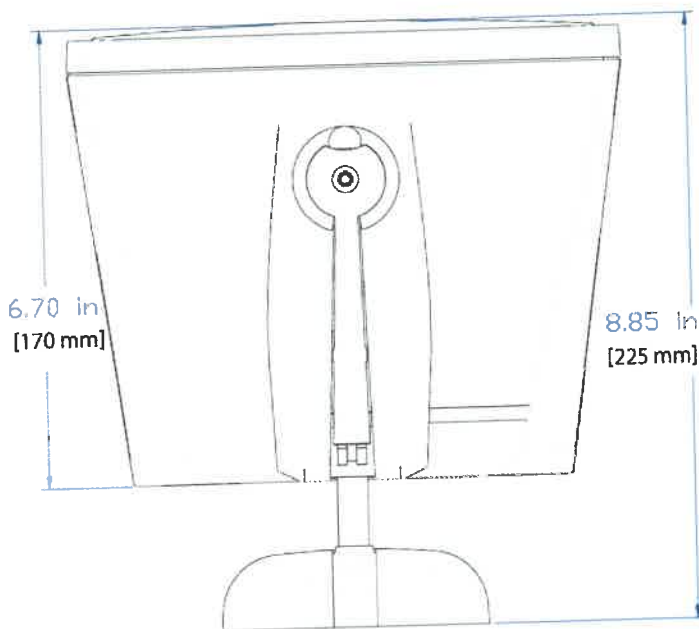
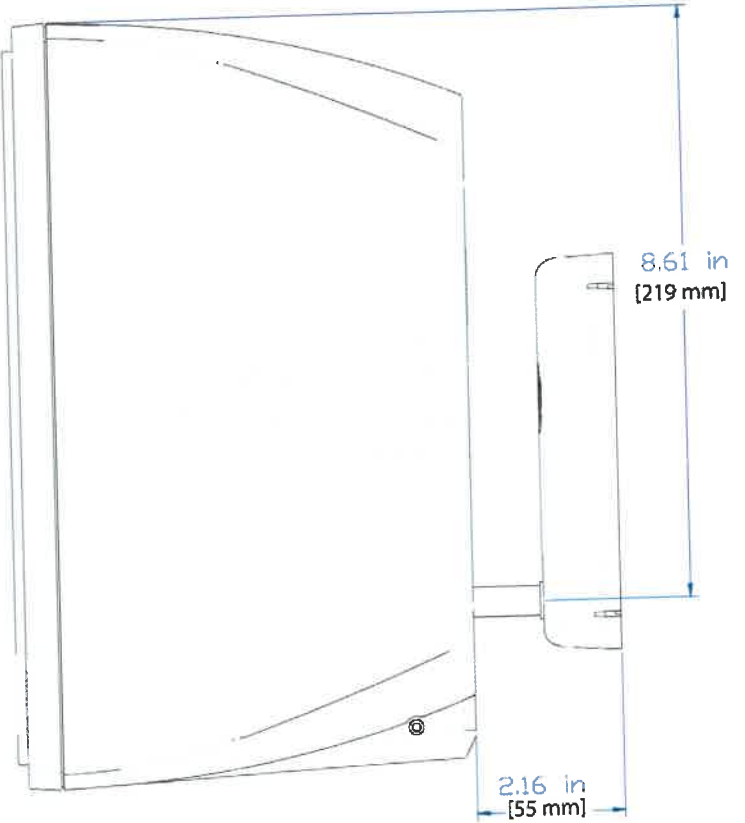
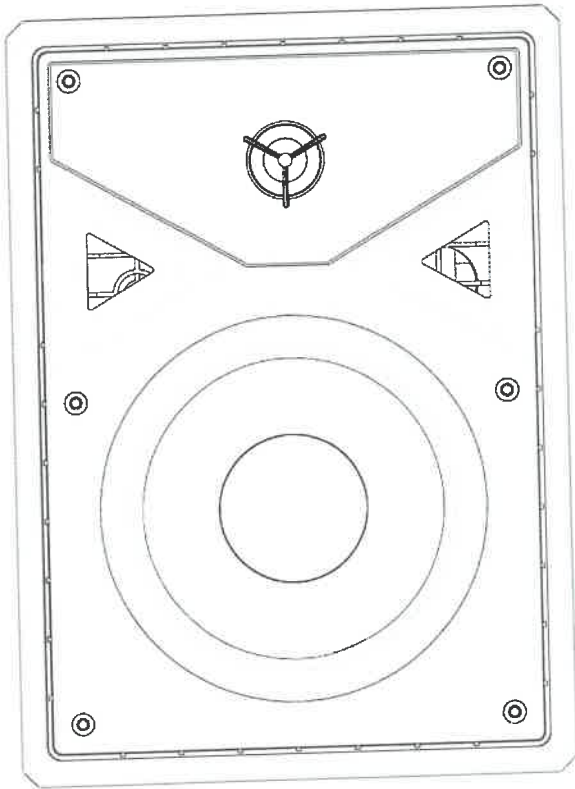
**SAROS SR6T – Dispersion Pattern, 3150 Hz - 6300 Hz**



**SAROS SR6T – Dispersion Pattern, 8000 Hz - 16000 Hz**



# SAROS SR6T Saros® 6.5" 2-Way Surface Mount Indoor/Outdoor Speaker

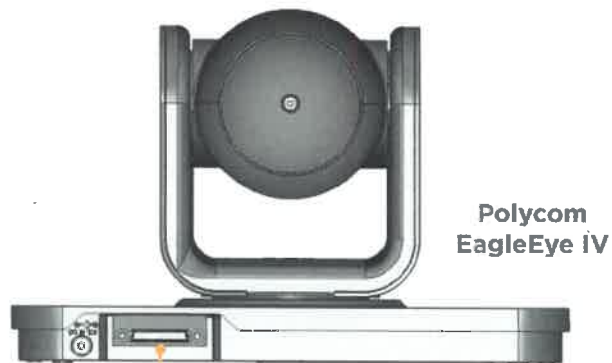




Sound Control Technologies

# RC4-E4P™ Application Guide

Polycom RPG300, RPG500 & RPG700



Polycom EagleEye IV

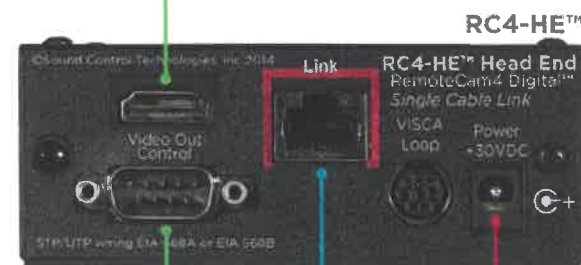
**RCC-C030**  
HDMI/RJ45 to Mini-HDCI Cable



**RCC-H030**  
HDCI to HDMI/  
9 Pin Cable



RC4-CE™



RC4-HE™

**LINK Cable**  
Power, Control & Video

**WPS-12 30VDC**  
100-240V 47-63Hz  
Power Supply

### LINK Cable Specs

Integrator-Supplied CAT5e/CAT6 UTP Cable  
EIA568A or EIA568B (Min. 30' to 300' Max)



### Module Dimensions

RC4-CE™: 2.5" W x 0.875"H x 3.6875"D

RC4-HE™: 3.75"W x 1.5"H x 3.625"D





### TEST YOUR LINK CABLE

*We highly recommend using an Ethernet Network Tester/Analyzer alongside our provided PowerSniffer to confirm your LINK cable's wiring. Our PowerSniffer only tests conductor continuity and will not identify data integrity or capacity issues.*

1. Test and verify your CAT5e/CAT6 LINK cable for UTP 568A/568B. Link cable must be between 30ft - 300ft.
2. Connect the provided PowerSniffer to the EagleEye IV end of your CAT5e/CAT6 Link cable.
3. Connect the other end of the Link cable to the LINK connection on the Head End module.
4. Connect the WPS-12 power supply to the Head End module.
5. Connect the WPS-12 power supply to AC mains.
6. If the SCT Link cable is properly terminated, it will display eight GREEN LEDs.  
If you get any other result, **stop and re-terminate cable.**
7. Once your cable has been tested, please disconnect the WPS-12 power supply from the RC4-HE module, and the PowerSniffer from the LINK cable, before proceeding to install.

### INSTALL THE EXTENSION KIT

#### Connect the camera-end cables:

1. Connect the RCC-C030 Y Cable between the RC4-CE Camera End module and Polycom EagleEye IV.
2. Connect the Mini-HDCI end to the EagleEye IV's Mini-HDCI input.
3. Connect the RJ45 branch of the Y Cable to the RC4-CE's RJ45 input labeled "Power Control".
4. Connect the HDMI branch of the Y Cable to the RC4-CE's HDMI input labeled "Video Input".

#### Connect the codec-end cables:

5. Connect the RCC-H030 Y Cable between the RC4-HE Head End module and the codec.  
**Caution: Please ensure the connector is right-side up as it can be easily inserted 'upside down'.**
6. Connect the 9Pin branch of the Y Cable to the RC4-HE's 9Pin input labeled "Control".
7. Connect the HDMI branch of the Y Cable to the RC4-HE's HDMI input labeled "Video Out".
8. Connect one end of your Cat5e/6 LINK cable to the RC4-HE module's "SCT Link" port.  
Connect the other end to the RC4-CE module's "SCT Link" port.
9. Connect the WPS-12 power supply to the RC4-HE's power input labeled "Power +30VDC".

**Installation Status** - Refer to our modules' LEDs for installation status.

For assistance troubleshooting INACTIVE LED statuses, please contact Tech Support at 203-854-5701.

MODULE	LED LABEL	ACTIVE STATUS	INACTIVE STATUS
RC4-CE	Camera Interface	Solid Green	Solid Red or Off
RC4-HE	HDCP LED	Solid Green	Off
RC4-HE	OK/LINK LED	Blinking Red > Green	Blinking Red

**Cable Table** - Part numbers, descriptions and functions of all SCT cables provided for the RC4-E4P.

CABLE	DESCRIPTION	FUNCTION
RCC-C030	1' HDMI/RJ45 to Mini-HDCI	Video/control connection between RC4-CE and camera.
RCC-H030	3' HDMI/ DB9 to HDCI	Video/control connection between RC4-HE and codec.

#### Power Supply Specifications (AC-Mains Side)

Input Voltage: 100VAC to 240VAC 47Hz to 63Hz. Efficiency: 85% minimum. Turn-on Surge: Less than 60 amperes for a duration less than 1mS. Power Factor: 0.9 minimum (where applicable). 30VDC power supply uses 1.45 amperes AC maximum. All specifications subject to change without notice.

# CP3

# B SERIES

## 3-Series Control System®

- > Enterprise-class control system
- > 3-Series® Control Engine — substantially faster and more powerful than other control systems
- > Exclusive modular programming architecture
- > Onboard 512MB RAM & 4GB Flash memory
- > Expandable storage up to 1TB
- > Rear panel memory card slot
- > High-speed USB 2.0 host port
- > 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 RS-232 COM ports with software handshaking only
- > Eight IR/serial, eight relay, and eight Versiport I/O ports
- > Programmable event scheduling with astronomical time clock
- > Native BACnet™/IP support<sup>1)</sup>
- > 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
- > JITC certified model available for use in secure network environments
- > TLS, SSL, SSH, and SFTP network security protocols
- > FIPS 140-2 compliant encryption
- > IIS v.6.0 Web Server
- > IPv6 ready
- > Front panel USB computer console port
- > 1-space rack-mountable



### 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 boardroom AV and home theater 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

Designed for enhanced scalability, the CP3 affords high-speed, real-time multi-tasking to seamlessly run multiple programs simultaneously. This exclusive modular programming architecture lets programmers independently develop and run device-specific programs for AV, lighting, shades, HVAC, security, 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.

### 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 CP3 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 CP3 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.

The Crestron® CP3 is an enterprise-class control system for residential, commercial, and government applications. Featuring the 3-Series® control engine, the CP3 forms the core of any modern networked home or commercial building, managing and integrating all the disparate technologies throughout your facility to make life easier, greener, more productive, and more enjoyable.



# CP3 3-Series Control System®



CP3 – 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 CP3 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. To assist with troubleshooting, the CP3 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 CP3 includes three bidirectional COM ports and eight IR ports to interface directly with all of your centralized AV sources, video displays, and other devices. Eight programmable relay ports are included for controlling projection screens, lifts, power controllers, and other contact-closure actuated equipment. Eight "Versiport" I/O ports

enable the integration of power sensors, motion detectors, door switches, alarms, or anything else that provides a dry contact closure, low-voltage logic, or 0-10 Volt DC 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.<sup>[1]</sup>



## Government Version

Crestron is committed to developing solutions for critical secure network environments. A government version of the CP3, model CP3-GV, is available preconfigured for deployment on a multi-level secured network. It has been specially developed and tested with specific government firmware. The CP3-GV has been assessed by JITC using IA requirements from the Department of Defense, and the results have been documented in a DIACAP scorecard. For additional information, see Crestron True Blue Online Help Answer ID 5361.

## 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

### Memory

SDRAM: 512 MB  
Flash: 4 GB  
Memory Card: Supports SD and SDHC cards up to 32 GB  
External Storage: Supports USB mass storage devices up to 1 TB

### 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<sup>[1]</sup>, IPv4 or IPv6, Active Directory authentication, IIS v.6.0 Web Server, SMTP e-mail client  
Cresnet: Cresnet master mode  
USB: Supports USB mass storage class devices via rear panel USB 2.0 host ports, supports computer console via front panel USB 2.0 device port

# CP3 3-Series Control System®

**RS-232/422/485:** For 2-way device control and monitoring, all ports support RS-232 up to 115.2k baud with software handshaking, one port also supports RS-422 or RS-485 and hardware 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 & Card Slots

---

**RELAY OUTPUT 1 – 8:** (2) 8-pin 3.5 mm detachable terminal blocks; Comprises (8) normally open, isolated relays; Rated 1 Amp, 30 Volts AC/DC; MOV arc suppression across contacts

**I/O 1 – 8:** (1) 9-pin 3.5 mm detachable terminal block; Comprises (8) "Versiport" digital input/output or analog input ports (referenced to GND);

Digital Input: Rated for 0-24 Volts DC, input impedance 20k Ohms, logic threshold >3.125V low/0 and <1.875V high/1;

Digital Output: 250 mA sink from maximum 24 Volts DC, catch diodes for use with "real world" loads;

Analog Input: Rated for 0-10 Volts DC, protected to 24 Volts DC maximum, input impedance 21k Ohms with pull-up resistor disabled;

Programmable 5 Volts, 2k Ohms pull-up resistor per pin

**IR - SERIAL OUTPUT 1 – 8:** (2) 8-pin 3.5 mm detachable terminal blocks; Comprises (8) 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:** (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

**COM 2 – 3:** (2) 3-pin 3.5 mm detachable terminal blocks;

Bidirectional RS-232 ports;

Up to 115.2k baud; software handshaking support

**MEMORY:** (1) SD memory card slot;

Accepts one SD or SDHC card up to 32 GB for memory expansion

**USB:** (1) USB Type A female;

USB 2.0 port for storage devices

**LAN:** (1) 8-pin RJ45 jack;

10Base-T/100Base-TX Ethernet port

**NET:** (1) 4-pin 3.5 mm detachable terminal block;

Cresnet master port;

Outputs power to Cresnet devices if a power pack is connected to the 24VDC power input jack;

Receives Cresnet network power if no power pack is connected to the 24VDC power input jack;

See "Power" section for additional specifications

**24VDC 2.0A:** (1) 2.1 x 5.5 mm DC power connector;

24 Volt DC power input, PW-2420RU power pack included;

Passes through to NET port to power Cresnet devices;

See "Power" section for additional specifications

**G:** (1) 6-32 screw;

Chassis ground lug

**COMPUTER (front):** (1) USB Type B female;

USB 2.0 computer console port (6 ft cable included);

For setup only

## Controls & Indicators

---

**PWR:** (1) Green LED, indicates operating power supplied from power pack or Cresnet network

**NET:** (1) Amber LED, indicates communication with the Cresnet system

**MSG:** (1) Red LED, indicates control system has generated an error message

**HW-R:** (1) Recessed pushbutton for hardware reset

**SW-R:** (1) Recessed pushbutton for software reset

**LAN (rear):** (2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity

## Power

---

**Power Pack:** 2.0 Amps @ 24 Volts DC;

100-240 Volts AC, 50/60 Hz power pack, model PW-2420RU included

**Available Cresnet Power:** 24 Watts (1 Amp @ 24 Volts DC) when using power pack

**Cresnet Power Usage:** 15 Watts (0.625 Amp @ 24 Volts DC) when using Cresnet network power

## Environmental

---

**Temperature:** 41° to 113° F (5° to 45° C)

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

**Heat Dissipation:** 50 BTU/hr

## Enclosure

---

**Chassis:** Metal, black finish

**Faceplate:** Extruded metal, black finish, polycarbonate label overlay

**Mounting:** Freestanding or 1 RU 19-inch rack-mountable (adhesive feet and rack ears included)

## Dimensions

---

**Height:** 1.70 in (44 mm) without feet

**Width:** 17.28 in (439 mm), 19.00 in (483 mm) with rack ears

**Depth:** 6.56 in (167 mm)

## Weight

---

3.12 lb (1.42 kg)

# CP3 3-Series Control System®

## MODELS & ACCESSORIES

### Available Models

CP3: 3-Series Control System®

CP3-GV: 3-Series Control System® - Government Version

### Included Accessories

PW-2420RU: Power Pack, Desktop, 24VDC, 2A (50 Watts), Regulated, US/International (Qty. 1 included)

### Available Accessories

C2N-HBLOCK: Multi-type Cresnet Distribution Block

CNTBLOCK: Cresnet Distribution Block

CNSP-XX: Custom Serial Interface Cable

IRP2: IR Emitter Probe w/Terminal Block Connector

Crestron® App: Control App for Apple® iOS® & Android™

XPanel: Crestron Control® for Computers

myCrestron: Dynamic DNS Service for Crestron Systems

Crestron Fusion®: Enterprise Management Platform

3-Series® BACnet™/IP Support: 3-Series Native BACnet/IP Interface License

CSP-LIR-USB: IR Learner

### Notes:

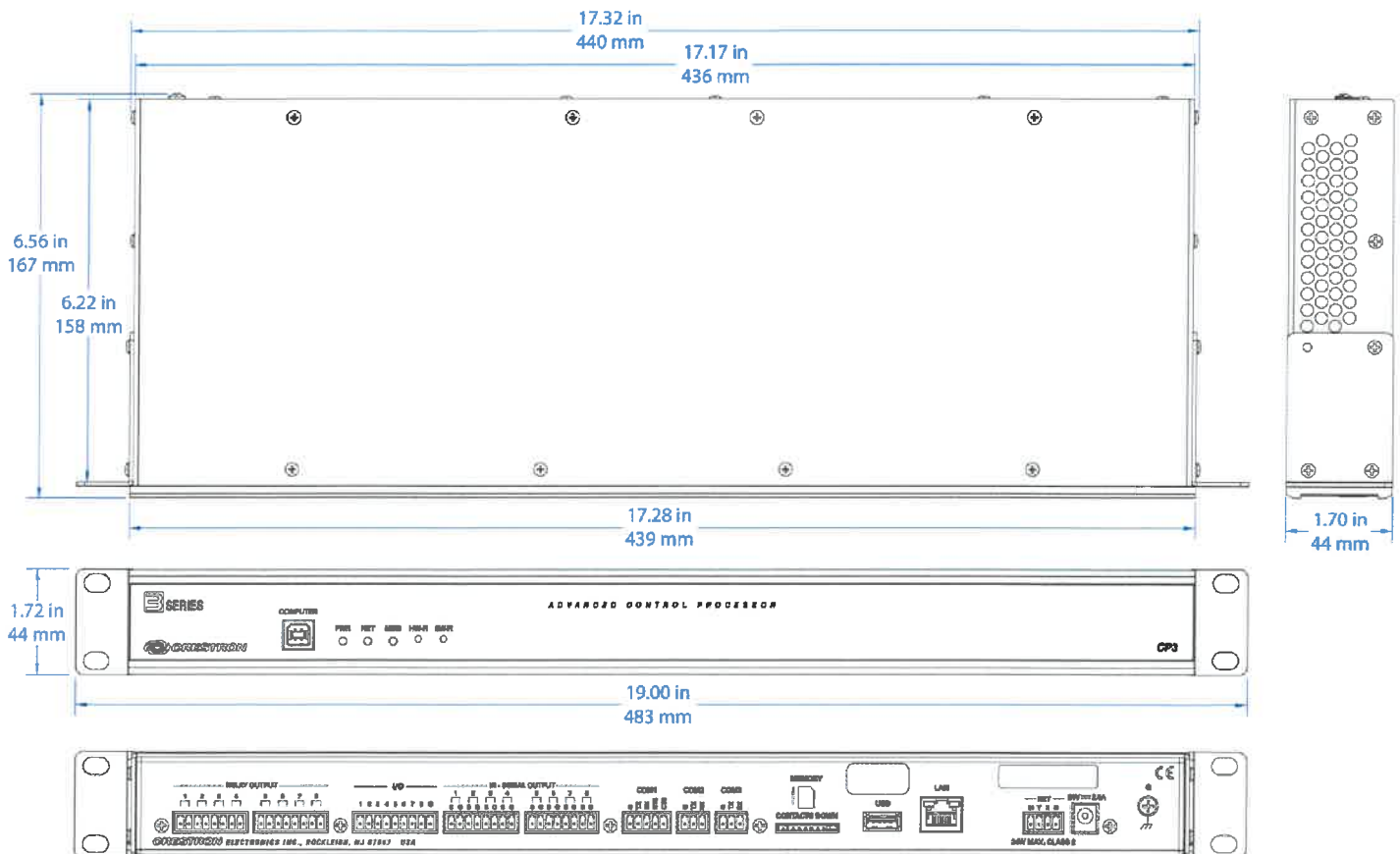
1. License required. The CP3 supports a maximum of 1000 BACnet objects when dedicated for BACnet use only. Actual capabilities are contingent upon the overall program size and complexity.

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](http://www.crestron.com/salesreps) or by calling 800-237-2041.

The specific patents that cover Crestron products are listed online at: [patents.crestron.com](http://patents.crestron.com).

Certain Crestron products contain open source software. For specific information, please visit [www.crestron.com/opensource](http://www.crestron.com/opensource).

Crestron, the Crestron logo, 3-Series, 3-Series Control System, Cresnet, Crestron Control, Crestron Fusion, Crestron Toolbox, and Smart Graphics are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. BACnet and the BACnet logo are either trademarks or registered trademarks of American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. in the United States and/or other countries. Apple, iPad, and iPhone are either trademarks or registered trademarks of Apple Inc. in the United States and/or other countries. IOS is either a trademark or registered trademark of Cisco Technology, Inc. in the United States and/or other countries. Android is either a trademark or registered trademark of Google, Inc. in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography. Specifications are subject to change without notice. ©2016 Crestron Electronics, Inc.





# DM-MD6X6



## 6x6 DigitalMedia™ Distribution Center

- > Provides a low-cost, high-performance multiroom HD AV signal routing solution
- > Distributes uncompressed digital video and audio over CAT5e twisted pair wire<sup>[1]</sup>
- > Affords a true one-wire solution using DigitalMedia 8G+® technology
- > HDBaseT® Certified — Enables direct connection to other HDBaseT certified equipment
- > Features independently-switchable DM 8G+™ or HDBaseT outputs for 5 remote displays
- > Allows up to 330 ft (100 m) wire distance to each display
- > Includes one HDMI® output for a local display or audio processor
- > Provides inputs for 6 HDMI, DVI, or DisplayPort Multimode sources<sup>[4]</sup>
- > Handles video resolutions up to Full HD 1080p
- > Handles computer resolutions up to WUXGA
- > Handles 3D video and Deep Color
- > Handles Dolby® TrueHD, DTS-HD®, and uncompressed 7.1 linear PCM audio
- > HDCP compliant
- > 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
- > Allows independent scaling for every display through select DM® receivers<sup>[2]</sup>
- > Enables USB HID mouse and keyboard signal extension
- > Expanded USB routing capabilities available using USB-EXT-DM USB over Ethernet Extenders<sup>[3]</sup>
- > Includes integrated Ethernet switch
- > Private Network Mode — requires just one IP address for the complete DM system
- > Provides Power over DM for PoDM compatible receivers
- > Provides easy setup and diagnostics tools via front panel or software
- > Includes built-in universal power supply
- > Allows native Crestron® system integration via Ethernet
- > Standard component width or 2-space rack-mountable



### HD Matrix Switcher

The DM-MD6X6 provides six HDMI® inputs to handle HDTV receivers, DVD or Blu-ray Disc® players, media servers, computers, and other HD digital sources. Outputs include one HDMI and five DigitalMedia ports, furnishing simple one-wire connectivity for a local display or audio processor, and five additional displays anywhere in the house. Six-by-six matrix switching allows any display to view any source at any time.

### DigitalMedia 8G+®

Crestron DM 8G+™ technology affords the ultimate in simplicity, providing a true one-wire interface for distributing high-definition video, audio, Ethernet, power, and control signals to multiple displays throughout a residence or commercial structure. Simply connect a DM 8G+ receiver<sup>[2]</sup> at each flat-panel display or projector for a complete AV and control interface. Just one CAT5e wire run to each receiver transports pure, uncompressed Full HD 1080p video, 7.1 surround sound audio, 10/100 Ethernet, power, and control signals for a fully integrated media system with minimal wiring. DM 8G+ allows for wire runs up to 330 feet (100 meters) using CAT5e or Crestron DigitalMedia 8G™ Cable.<sup>[1]</sup>

### HDBaseT® Certified

Crestron DigitalMedia 8G+ technology is designed using HDBaseT Alliance specifications, ensuring interoperability with other HDBaseT certified products. Via its DM 8G+ outputs, the DM-MD6X6 can be connected directly to HDBaseT compliant display devices without requiring any DM® receivers.

### QuickSwitch HD®

Handling high-definition digital media means handling HDCP (High-bandwidth Digital Content Protection), the encryption scheme that content providers use to protect their DVDs, Blu-ray™ Discs, and broadcast signals against unauthorized copying. Viewing HDCP encrypted content requires the source device to “authenticate” each display in the system and issue it a “key” before the content can be viewed. Ordinarily this causes a complete loss of signal for up to 15 seconds each time a new source or display is selected anywhere in the system. To make matters worse, every source device has a limited number of keys available, so connect too many displays and the source will simply stop outputting a signal without warning.

Not to worry — Crestron QuickSwitch HD manages the keys for every HDCP-compliant device in the system, maintaining continuous authentication for each device to ensure fast, reliable routing of any source to any number of display devices.

DigitalMedia™ isn't just for large, expensive homes and facilities. The DM-MD6X6 DigitalMedia Distribution Center provides a very simple and cost-effective solution for distributing multiple high-definition sources to up to six rooms as part of a complete Crestron® system. Featuring DigitalMedia 8G+® and HDBaseT® technologies, the DM-MD6X6 delivers ultra-reliable, ultra high-bandwidth signal routing over inexpensive CAT5e wiring<sup>[1]</sup>. Everything about the DM-MD6X6 is engineered to deliver a transparent user experience and the highest performance.

# DM-MD6X6 6x6 DigitalMedia™ Distribution Center



DM-MD6X6 – Rear View

## Auto-Locking™ Technology

Crestron Auto-Locking Technology enables super fast signal switching by instantaneously configuring every device in the signal path 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.

## EDID Format Management

With all of today's varied AV sources comes a multitude of confusing video and audio formats to keep track of, and chances are not every device in your system supports all of the same formats. Such conflicts can wreak havoc any time you route one source to more than one display or audio component. The Blu-ray player that's feeding your 1080p projector in the theater may restrict itself to a lower resolution, or even shut off completely, if someone decides to view the same signal on a smaller TV in another room. And, instead of enjoying your theater's incredible 7.1 surround sound, you may find yourself limited to 5.1 or even plain old stereo.

The DM-MD6X6 eliminates such conflicts by managing the EDID (Extended Display Identification Data) that modern digital devices use to communicate their capabilities. Through the DM-MD6X6, 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

High-performance scaling capability can be added to the DM-MD6X6 using select DM 8G+ receivers with built in HD and 4K scalers.<sup>[2]</sup> By placing an independent scaler at every display device, DigitalMedia truly delivers the most flexible and user-friendly solution for routing multiple disparate sources to many different display devices. This "Distributed Scaler Approach" ensures an optimal image on every screen no matter what sources are selected. Distributed scaling allows a high-res computer source to be viewed on any display in the building. It also allows a high-definition 3D source to be viewed on lower-resolution 2D displays without compromising the original signal, letting you share your theater's Full HD 1080p 3D image with smaller, lesser displays in other rooms.

## Multichannel HD Audio Routing

The DM-MD6X6 allows for the routing of signals containing multichannel surround sound audio, supporting high-bitrate 7.1 formats like Dolby® TrueHD and DTS-HD Master Audio™, as well as uncompressed linear PCM.

## Built-in Ethernet Switch

In addition to transporting digital video and audio, DigitalMedia can also extend high-speed Ethernet to display devices that require a LAN connection. Ethernet is also utilized internally by the Crestron control bus to manage all of the DM devices in the system and provide display control in each room. Through its 10/100 Ethernet port, the DM-MD6X6 provides a single-point connection to a home network or corporate LAN, requiring just one IP address for the complete DM system including all connected DM receivers.

## USB Signal Routing

With built-in USB HID (USB Human Interface Device) signal routing, the DM-MD6X6 lets you control a centralized computer or media server using a mouse or keyboard in another room. The mouse/keyboard can be connected to any DM 8G+ receiver that includes a USB HID host port, while the host computer is connected to the USB HID device port on the DM-MD6X6's rear panel. Crestron also offers USB over Ethernet Extenders (USB-EXT-DM), which may be used to enable the routing of multiple USB devices of virtually any type, all seamlessly managed through the DigitalMedia system.<sup>[3]</sup>

## CEC Embedded Device Control

The primary objective of every Crestron system is to enable precisely the control desired for a seamless user experience. DigitalMedia provides an alternative to conventional IR and RS-232 device control by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI. Through its connection to the control system, the DM-MD6X6 provides a gateway for controlling many devices right through their HDMI connections, potentially eliminating the need for any dedicated control wires or IR emitters.

## Easy Setup

Every step of the DM-MD6X6 setup is designed to be quick and easy using its front panel or [Crestron Toolbox™](#) software, configuring inputs and outputs automatically while letting the installer make intelligent design decisions along the way. Out of the box, the DM-MD6X6 front panel supports basic signal routing for testing and troubleshooting during installation. 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 through the software to appear on the LCD display.

Please refer to the [DigitalMedia Resources Webpage](#) at <http://www.crestron.com/dmresources/> for additional design tools and reference documents.

# DM-MD6X6 6x6 DigitalMedia™ Distribution Center

## SPECIFICATIONS

### Video

**Switcher:** 6x6 digital matrix switch, Crestron QuickSwitch HD®  
**Input Signal Types:** HDMI®, DVI<sup>[4]</sup>, DisplayPort Multimode<sup>[4]</sup>  
**Output Signal Types:** HDMI, DVI<sup>[4]</sup>, DM 8G+™ (DigitalMedia™ over one CAT type twisted-pair copper wire), HDBaseT®<sup>[1]</sup>  
**Formats:** DM 8G+, HDBaseT, & HDMI w/Deep Color & 3D; DVI; HDCP content protection support  
**Input Resolutions, 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, 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  
**Output Resolutions:** Matched to inputs

### Audio

**Switcher:** 6x6 digital matrix switch, audio-follow-video  
**Input Signal Types:** HDMI, DisplayPort Multimode<sup>[4]</sup>  
**Output Signal Types:** HDMI, DM 8G+, HDBaseT  
**Formats:** Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby® TrueHD, DTS®, DTS-ES, DTS 96/24, DTS-HD® High Res, DTS-HD Master Audio™, up to 8ch PCM

### Communications

**Ethernet:** 10/100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP, Private Network Mode  
**USB:** Supports signal extension and routing of USB HID class devices, expandable to support virtually any USB 1.1 or 2.0 device using Crestron USB-EXT-DM USB over Ethernet Extenders<sup>[3]</sup>; USB device port for computer console (setup)  
**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 a control system

### Connectors

**HDMI INPUT 1 – 6:** (6) 19-pin Type A HDMI female;  
Digital video/audio inputs;  
Signal Types: HDMI, DVI, or DisplayPort Multimode<sup>[4]</sup>

**HDMI OUTPUT 1:** (1) 19-pin Type A HDMI female;  
Digital video/audio output;  
Signal Types: HDMI, DVI<sup>[4]</sup>

**DM OUTPUT 2 – 6:** (5) 8-pin RJ45 female, shielded;  
DM 8G+ outputs, HDBaseT compliant;  
PoDM and PoH PSE (Power Sourcing Equipment) ports<sup>[5]</sup>;  
Each output 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 DigitalMedia 8G™ cable<sup>[1]</sup>

**USB HID:** (1) USB Type B female; USB device port for connection to the USB host interface of a computer or other USB HID-compliant host

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

**100-240V~2.0A MAX 50/60Hz:** (1) IEC 60320 C14 main power inlet;  
Mates with removable power cord, included

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

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

### LCD Display

**Display Type:** 16-bit TFT active matrix color LCD  
**Size:** 2 inch (52 mm) diagonal  
**Resolution:** 220 x 176 pixels  
**Functions:** Displays setup menus, EDID and HDCP details for source and destination devices, audio/video signal information, and other details; allows custom naming of inputs and outputs

### Controls & Indicators

**HW-R:** (1) recessed miniature pushbutton for hardware reset  
**Nav Pad:** (1) 5-way navigation pad for menu navigation and parameter adjustment  
**HOME:** (1) pushbutton, returns to the home menu  
**BACK:** (1) pushbutton, steps menu back one level  
**INPUT 1 – 6:** (6) pushbuttons and green LEDs, select input for routing  
**OUTPUT 1 – 6:** (6) pushbuttons and green LEDs, select output destination(s)  
**DM OUTPUT 2 – 6 (rear):** (2) LEDs per output, green LEDs indicate DM link status, amber LEDs indicate video and HDCP signal presence, for each corresponding DM 8G+ output  
**LAN (rear):** (2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity

### Power Requirements

**Main Power:** 2 Amps @ 100-240 Volts AC, 50/60 Hz  
**Power over DM (PoDM):** PoDM PSE (Power Sourcing Equipment), each DM 8G+ port supplies up to 15.4 Watts (Class 0-3) to one PoDM Powered Device  
**Power over HDBaseT (PoH):** PoH PSE (Power Sourcing Equipment), each DM 8G+ port supplies up to 15.4 Watts (Class 0-3) to one PoH Powered Device



# DM-MD6X6 6x6 DigitalMedia™ Distribution Center

## Environmental

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

## Enclosure

**Chassis:** Metal with black finish, vented sides, fan-cooled  
**Front Panel:** Metal, black finish with polycarbonate label overlay  
**Mounting:** Freestanding or 2U 19-inch rack-mountable (adhesive feet and rack ears included)

## Dimensions

**Height:** 3.47 in (89 mm) without feet  
**Width:** 17.03 in (433 mm), 19.00 in (483 mm) with ears  
**Depth:** 13.38 in (340 mm)

## Weight

12.0 lb (5.5 kg)

## MODELS & ACCESSORIES

### Available Models

**DM-MD6X6:** 6x6 DigitalMedia™ Distribution Center Available

### Available Accessories

**DM-RX1-4K-C-1G:** Wall Plate 4K DigitalMedia 8G+® Receiver  
**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  
**HD-SCALER:** High-Definition Video Scaler  
**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  
**USB-EXT-DM:** USB over Ethernet Extender with Routing

### Notes:

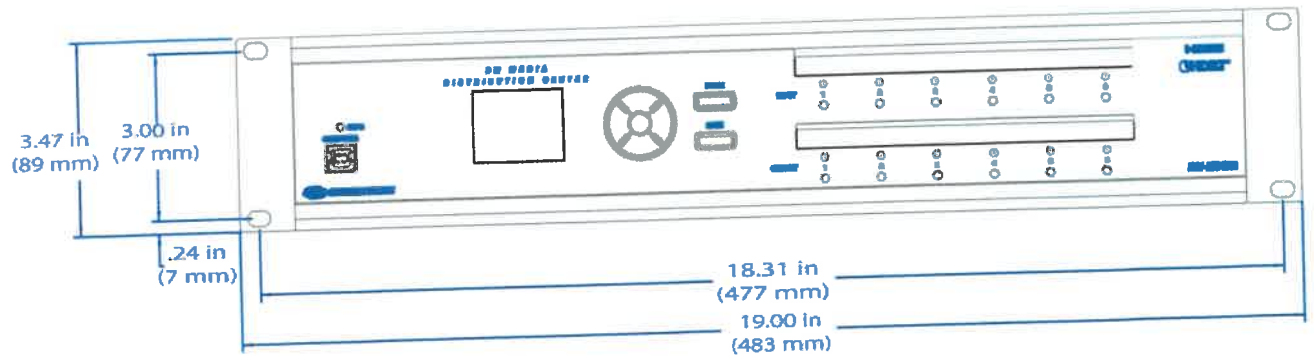
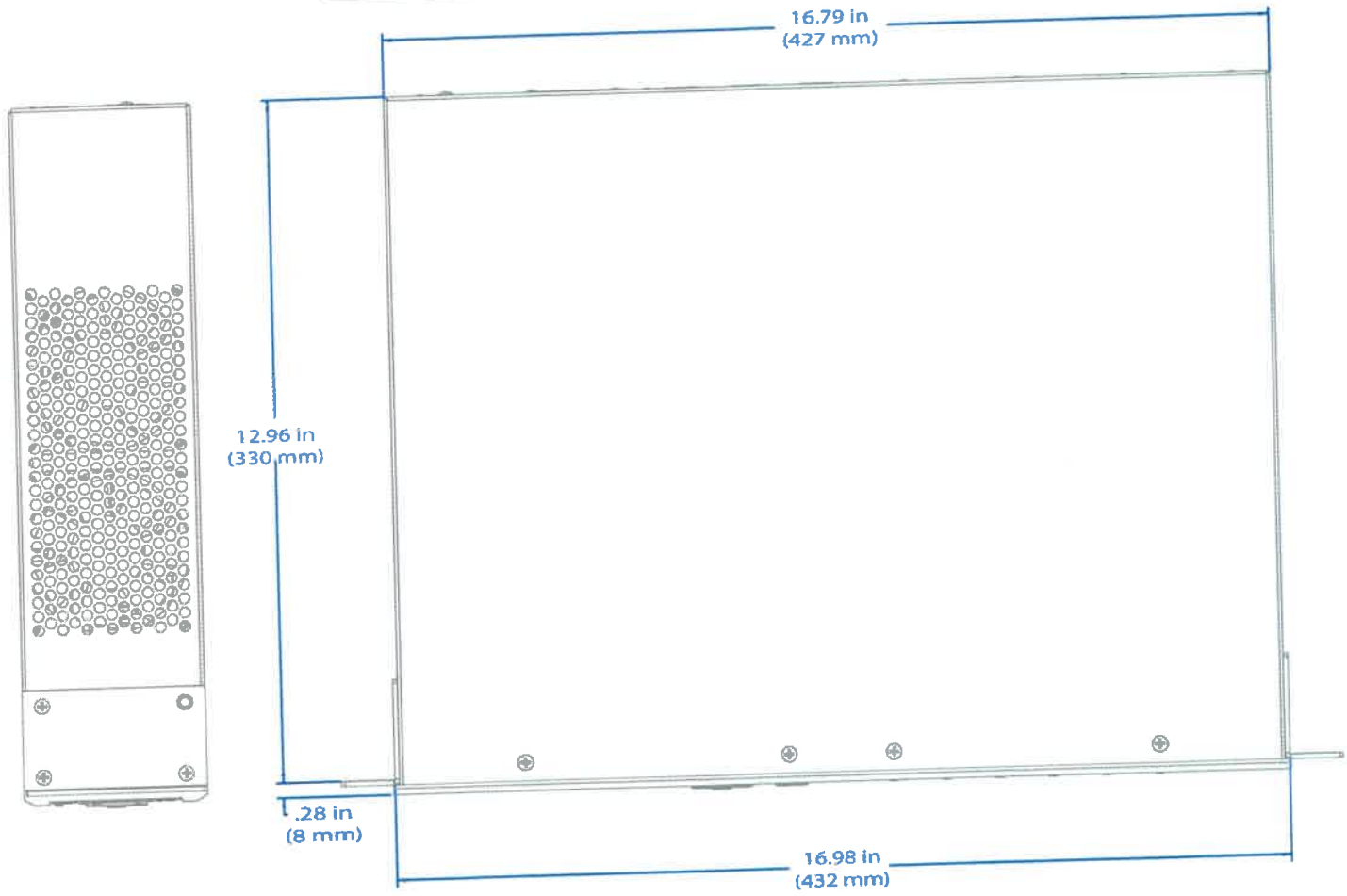
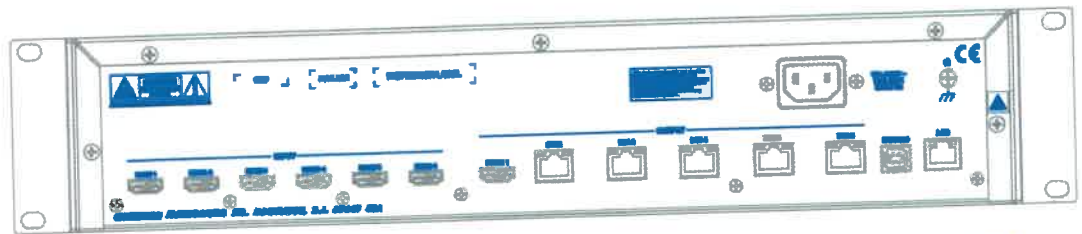
1. For DM 8G+ or HDBaseT, wiring, use Crestron **DM-CBL-8G** DigitalMedia 8G Cable or third-party CAT5e (or better) UTP or STP. (Crestron **DM-CBL** DigitalMedia Cable or **DM-CBL-D** DigitalMedia D Cable may also be used.) The maximum wire length for DM 8G+ is 330 ft (100 m) between devices. Shielded 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.
2. Item(s) sold separately.
3. USB-EXT-DM USB over Ethernet Extender Modules are sold separately. Refer to the [USB-EXT-DM](#) spec sheet for more information.
4. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or DisplayPort Multimode signal. **CBL-HD-DVI** interface cables are available separately.
5. Any wiring that is connected to a PoDM or PoH 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.

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](http://www.crestron.com/salesreps) or by calling 800-237-2041.

The specific patents that cover Crestron products are listed online at: [patents.crestron.com](http://patents.crestron.com).

Crestron, the Crestron logo, Auto-Locking, Crestron Toolbox, DigitalMedia, DigitalMedia 8G, DigitalMedia 8G+, DM, DM 8G+, and QuickSwitch HD are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. Blu-ray and Blu-ray Disc are either trademarks or registered trademarks of the Blu-ray Disc Association in the United States and/or other countries. Dolby and Dolby Digital are either trademarks or registered trademarks of Dolby Laboratories in the United States and/or other countries. DTS, DTS-HD, and DTS-HD Master Audio are either trademarks or registered trademarks of DTS, Inc. in the United States and/or other countries. HDBaseT and the HDBaseT Alliance logo are either trademarks or registered trademarks of the HDBaseT Alliance in the United States and/or other countries. HDMI and the HDMI Logo are either trademarks or registered trademarks of HDMI Licensing LLC in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography. Specifications are subject to change without notice. ©2015 Crestron Electronics, Inc.

# DM-MD6X6 6x6 DigitalMedia™ Distribution Center



# DM-RMC-200-C



## DigitalMedia 8G+® Receiver & Room Controller 200

- > DigitalMedia 8G+® receiver, high-definition scaler, audio amplifier, and display controller
- > Connects to a DM® switcher or transmitter over a single CAT type twisted pair cable<sup>[1]</sup>
- > Supports cable lengths up to 330 ft (100 m) using DM 8G® cable or CAT5e<sup>[1]</sup>
- > HDBaseT® Certified — Enables direct connection to other HDBaseT certified equipment
- > Provides one HDMI® or DVI display output<sup>[2]</sup>
- > Handles any video resolution from standard NTSC 480i or PAL 576i, to HD 1080p60 w/Deep Color
- > Handles any computer resolution from VGA to UXGA/WUXGA
- > Scales the signal to match the native resolution of virtually any digital video display or computer monitor up to 1080p or WUXGA
- > Provides intelligent frame rate conversion
- > Includes content-adaptive noise reduction
- > Allows motion-adaptive de-interlacing or interlacing
- > Allows adjustable overscan or underscan up to 7.5%
- > Provides automatic 3D to 2D signal conversion<sup>[3]</sup>
- > Automatically passes 3D video without scaling to 3D capable displays<sup>[3]</sup>
- > Supports left/right eye steering for dual-projector 3D setups<sup>[3]</sup>
- > Scalable zoom feature enables 2x2, 3x2, 3x3, 4x3, or 4x4 video wall capability<sup>[7]</sup>
- > Handles Dolby® TrueHD, DTS-HD®, and uncompressed 7.1 linear PCM audio
- > Provides a stereo analog line-level audio output with volume control<sup>[5]</sup>
- > Allows extraction of stereo 2-channel audio signals<sup>[5]</sup>
- > Includes a built-in 30 Watt stereo amplifier<sup>[5]</sup>
- > HDCP compliant
- > Provides a 10/100 Ethernet LAN connection
- > Enables device control via CEC, IR, RS-232, and Ethernet
- > Provides two relay control ports and two contact sensing inputs
- > Enables USB HID signal extension for a local keyboard/mouse
- > Compatible with Crestron® USB over Ethernet Extenders<sup>[6]</sup>
- > Allows quick, easy setup and diagnostics
- > Low-profile design mounts to a 2-gang US, UK, or European wall box
- > Includes mounting bracket with integral power pack holder
- > Universal power pack included



resolution up to HD 1080p or WUXGA. Its compact, low-profile design allows the DM-RMC-200-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.<sup>[1]</sup>

### 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 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 video signals with support for 3D, Deep Color, and HDCP, as well as computer signals up to WUXGA. Audio capabilities include support for high-bitrate 7.1 audio formats like Dolby® TrueHD and DTS-HD Master Audio™ as well as uncompressed linear PCM. All signals are transported over a single CAT type cable, supporting distances up to 330 feet (100 m) using Crestron [DM 8G Cable](#) or CAT5e.<sup>[1]</sup>

### 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-200-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-200-C for connection to a display or other device. The HDMI output can also handle DVI signals using an appropriate adapter or interface cable<sup>[2]</sup>.

A single CAT type cable connects the DM-RMC-200-C to a DM switcher or transmitter, or to an HDBaseT source, transporting video, audio, control, and networking signals all through one simple RJ45 connection.<sup>[1]</sup> Multiple

The DM-RMC-200-C provides an advanced one-box interface solution for a single display device as part of a complete Crestron® DigitalMedia™ system. It functions as a DM 8G+® receiver, video scaler, audio amplifier, and control interface. It provides a single HDMI® output, along with speaker and line level audio outputs, plus Ethernet, USB HID, and a variety of control ports. In addition to DM 8G+, it is also compatible with HDBaseT®, allowing it to be connected directly to an HDBaseT certified source. Built-in scaling allows the connected display to handle any video



# DM-RMC-200-C DigitalMedia 8G+® Receiver & Room Controller 200



DM-RMC-200-C – Rear, Top, Front, and Bottom Views

DM-RMC-200-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-200-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.

## High-Definition Scaler

Through a distributed scaler approach, DigitalMedia truly delivers the most flexible and user-friendly solution for routing multiple disparate sources to many different display devices. By placing an independent high-performance scaler at every display device, DM ensures an optimal image on every screen no matter what sources are selected. Distributed scaling allows a high-res computer source to be viewed on any display in the building. It also allows a high-definition 3D source to be viewed on lower-resolution 2D displays without compromising the original signal, letting you share your theater's full HD 1080p 3D image with smaller, lesser displays in other rooms.

The DM-RMC-200-C accepts any video source from standard NTSC 480i to Full HD 1080p60, as well as computer sources from VGA to UXGA/WUXGA, and scales them perfectly to match the native resolution of your video display. A range of common output resolutions are supported to work with virtually any popular flat-panel display, projector, or computer monitor. Intelligent frame rate conversion enables support for 24p and PAL format sources, and 3D to 2D conversion allows 3D content to be fed simultaneously to separate 3D and 2D displays.<sup>[3]</sup> Setup and use of the

scaler is simplified through fully automatic operation utilizing the display's EDID<sup>[4]</sup>.

## Dual-Projector 3D Support

A pair of DM-RMC-200-Cs can be used to facilitate a dual-projector 3D setup, steering just the left eye portion of a 3D signal to one projector, and the right eye portion to the other. This is done using the scaler's 3D to 2D conversion mode, enabling 3D capability with scaling.<sup>[3]</sup>

## Video Wall Processing

The DM-RMC-200-C has another trick up its sleeve, providing zoom capability and bezel compensation on its output to display just a portion of the source image. Using this feature, multiple units may be combined to configure a video wall composed of up to 16 individual displays. Configurations of 2x2, 3x2, 3x3, 4x3, or 4x4 are supported, and all that is required is a separate DM-RMC-200-C for each display, and a DM switcher with sufficient DM 8G+ outputs.

## Audio Extracting

The DM-RMC-200-C is equipped with an analog audio output, allowing stereo audio signals to be extracted from the digital stream and fed to a pair of speakers or a local sound system. The output volume is adjustable via a control system using a keypad, touch screen, handheld remote, or mobile device.<sup>[5]</sup>



# DM-RMC-200-C DigitalMedia 8G+® Receiver & Room Controller 200

## Built-in Audio Amplifier

Its built-in 30 Watt stereo amplifier allows the DM-RMC-200-C to drive a pair of speakers without requiring a separate amplifier.<sup>[5]</sup>

## 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-200-C includes a 10/100 Ethernet port, providing a convenient LAN connection for a local network device.

## USB Signal Extension

DigitalMedia allows for the routing of USB signals alongside video and audio. A USB HID compliant mouse or keyboard can be connected directly to the DM-RMC-200-C and used to control a computer or media server that's located at the central equipment cabinet or some other location. Crestron also offers USB over Ethernet Extender Modules (USB-EXT-DM)<sup>[6]</sup>, which may be added to enable support for more USB devices of virtually any type.

## Embedded Device Control

The primary objective of every Crestron system is to enable precisely the control desired for a seamless user experience. The DM-RMC-200-C includes built-in RS-232, IR, and Ethernet control ports to allow programmable control of the display device connected to it. But, it can also provide 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-200-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.

Two low-voltage relay ports are also included on the DM-RMC-200-C for control of a projection screen or lift. Also, there are two discrete digital input ports to accommodate room occupancy sensors, power sensors, or contact closures for enhanced automation and monitoring.

## Low-Profile Installation

Its low-profile design makes the DM-RMC-200-C perfect for installation behind a flat panel display or above a ceiling mounted projector. It mounts to a standard 2-gang US, UK, or European electrical box using the mounting bracket provided. The bracket even includes a convenient holder for the external power pack, providing for a clean installation that protrudes a mere 1-5/8 inches (41 mm) from the mounting surface.

Connections for the display device are all positioned along the top and bottom of the unit for a clean, serviceable installation. The DigitalMedia and relay connections are provided on the rear panel within the electrical box. Speakers may be connected to either the top panel or the rear. One of the digital input control ports is located on the rear panel, with the other provided on the bottom. An array of indicators is provided on the front of the DM-RMC-200-C 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

### Video

**Scaler:** HD video scaler, motion-adaptive deinterlacer, interlacer, intelligent frame rate conversion, Deep Color support, 3D to 2D conversion<sup>[3]</sup>, content-adaptive noise reduction, widescreen format selection (zoom, stretch, maintain aspect-ratio, or 1:1), video wall processing (2x2, 3x2, 3x3, 4x3, or 4x4)<sup>[7]</sup>

**Input Signal Types:** DM 8G+® (DigitalMedia™ over one CAT type twisted pair copper wire), HDBaseT®<sup>[1]</sup>

**Output Signal Types:** HDMI®, DVI<sup>[2]</sup>

**Formats:** DM 8G+, HDBaseT, & HDMI w/Deep Color & 3D<sup>[3]</sup>, DVI, HDCP content protection support

**Input Resolutions, 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, plus any other resolution allowed by HDMI up to 165MHz pixel clock

**Input Resolutions, 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

**Scaler Output Resolutions, Progressive:** 640x480@60Hz, 720x480@60Hz (480p), 720x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 1024x768@60Hz<sup>[8]</sup>, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz<sup>[8]</sup>, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1366x768@60Hz<sup>[8]</sup>, 1400x1050@60Hz<sup>[8]</sup>, 1440x900@60Hz<sup>[8]</sup>, 1600x900@60Hz<sup>[9]</sup>, 1600x1200@60Hz, 1680x1050@60Hz<sup>[8]</sup>, 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz<sup>[9]</sup>, 2048x1152@60Hz<sup>[9]</sup>

**Scaler Output Resolutions, Interlaced:** 720x480@30Hz (480i), 720x576@25Hz (576i), 1920x1080@25Hz (1080i25), 1920x1080@30Hz (1080i30)

**Pass-Thru Output Resolutions:** Matched to input

### Audio

**Input Signal Types:** DM 8G+, HDBaseT

**Output Signal Types:** HDMI, analog stereo (speaker and line level)<sup>[5]</sup>

**Formats, HDMI:** Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby® TrueHD, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio™, up to 8ch PCM

**Formats, Analog:** Stereo 2-Channel<sup>[5]</sup>

**Digital-To-Analog Conversion:** 24-bit 48 kHz

# DM-RMC-200-C DigitalMedia 8G+® Receiver & Room Controller 200

## Performance (analog):

Amplifier Output Power: 15 Watts per channel at 8 Ohms;  
Frequency Response: 20Hz to 20kHz  $\pm 0.5$ dB (line), 20Hz to 16kHz  $\pm 3$ dB (speaker);  
S/N Ratio:  $>95$ dB (line),  $>75$ dB (speaker) 20Hz to 20kHz A-weighted;  
THD+N:  $<0.005\%$  (line),  $<0.3\%$  (speaker) @ 1kHz;  
Stereo Separation:  $>90$ dB (line),  $>60$ dB (speaker)

Volume Gain Range (analog): -80dB to 0dB

## Communications

**Ethernet:** 10/100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP

**USB:** Supports signal extension of USB HID class devices, expandable to support virtually any USB 1.1 or 2.0 device using Crestron USB-EXT-DM USB over Ethernet Extenders<sup>(6)</sup>

**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 1.1 MHz or serial TTL/RS-232 (0-5 Volts) up to 19.2k baud

**DigitalMedia:** DM 8G+, HDCP, EDID, CEC, Ethernet

**HDBaseT:** HDCP, EDID, Ethernet

**HDMI:** HDCP, EDID, CEC

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

## Connectors - Bottom

**DIG IN:** (1) 2-pin 3.5mm detachable terminal block;  
Digital/contact closure sensing input;  
Rated for 0-24 Volts DC, referenced to GND;  
Input Impedance: 2.2k Ohms pulled up to 5 Volts DC;  
Logic Threshold: 2.5 Volts DC nominal with 1 Volt hysteresis band

**HDMI OUT:** (1) 19-pin Type A HDMI female;  
HDMI digital video/audio output;  
Also supports DVI<sup>(2)</sup>

**USB HID:** (1) USB Type A female;  
USB 2.0 host port for connection of a mouse/keyboard or other USB HID-compliant device

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

**IR 1 - 2:** (1) 4-pin 3.5mm detachable terminal block comprising (2) IR/Serial ports;

IR output up to 1.1 MHz;

1-way serial TTL/RS-232 (0-5 Volts) up to 19200 baud

## Connectors - Top

**AUDIO OUT R, L (Speaker):** (2) 2-pin 5mm detachable terminal blocks;  
Left & Right speaker-level audio outputs<sup>(5)</sup>;  
Paralleled with rear panel AUDIO OUT connectors;  
Wire Size: Connector accepts 12 AWG maximum;  
Output Power: 15 Watts per channel at 8 Ohms

**AUDIO OUT R, L (Line):** (2) RCA female;  
Stereo unbalanced line-level audio output<sup>(5)</sup>;  
Output Level: 2 Vrms maximum;  
Output Impedance: 100 Ohms nominal

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

**24VDC 2.0A MAX:** (1) 2.1 x 5.5 mm DC power connector;  
24 Volt DC power input;  
PW-2420RU power pack included

## Connectors - Rear

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

**AUDIO OUT L, R (Speaker):** (2) 2-pin 5mm detachable terminal blocks;  
Left & Right speaker-level audio outputs<sup>(5)</sup>;  
Paralleled with top panel AUDIO OUT (Speaker) connectors;  
Wire Size: Connector accepts 12 AWG maximum;  
Output Power: 15 Watts per channel at 8 Ohms

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

**DIG IN:** (1) 2-pin 3.5mm detachable terminal block;  
Digital/contact closure sensing input;  
Rated for 0-24 Volts DC, referenced to GND;  
Input Impedance: 2.2k Ohms pulled up to 5 Volts DC;  
Logic Threshold: 2.5 Volts DC nominal with 1 Volt hysteresis band

**DM IN:** (1) 8-pin RJ45 female, shielded;  
DM 8G+ input, HDBaseT compliant;  
Connects to the DM 8G+ output of a DM switcher, transmitter, or other DM device, or to a HDBaseT device, via CAT5e or Crestron DM-CBL-8G cable<sup>(1)</sup>

## Controls & Indicators

**PWR:** (1) green LED, indicates operating power supplied via local power pack

**DM LINK:** (1) green LED, indicates DM link status

**VIDEO:** (1) green LED, indicates video signal presence and lock status  
**USB HID:** (1) green LED, indicates a valid device connection and activity on the USB HID port

**SETUP:** (1) red LED and (1) miniature recessed pushbutton, for Ethernet setup

# DM-RMC-200-C DigitalMedia 8G+® Receiver & Room Controller 200

**RESET:** (1) miniature recessed pushbutton, for hardware reset  
**LAN (Top):** (2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity  
**DM IN (Rear):** (2) LEDs, green LED indicates DM link status, amber LED indicates video and HDCP signal presence

## Power Requirements

**Power Pack:** 2 Amps @ 24 Volts DC;  
100-240 Volts AC, 50/60 Hz power pack, model PW-2420RU included

## Environmental

**Temperature:** 32° to 104°F (0° to 40°C)  
**Humidity:** 10% to 90% RH (non-condensing)  
**Heat Dissipation:**  
Power amp off: 50 BTU/Hr;  
Power amp on: 60 BTU/Hr (typical), 165 BTU/Hr (maximum)

## Enclosure

**Chassis:** Metal, black finish, vented sides and front  
**Mounting:** Mounts to a 2-gang electrical box, 2-Gang UK (BS 4662) electrical box, or 2-Gang European (DIN 49073) electrical box; bracket includes holder for the included power pack

## Dimensions

**Height:** 7.92 in (202 mm)  
**Width:** 10.84 in (276 mm) with mounting bracket  
**Depth:** 1.85 in (47 mm) with mounting bracket

## Weight

3.25 lb (1.48 kg) including bracket and power pack

## MODELS & ACCESSORIES

### Available Models

**DM-RMC-200-C:** DigitalMedia 8G+® Receiver & Room Controller 200

### Included Accessories

**PW-2420RU:** Power Pack, Desktop, 24VDC, 2A (50 Watts), Regulated, US/International (Qty. 1 included)

### Available Accessories

**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 DigitalMedia 8G™ Cable  
**DM-8G-CRIMP:** Crimping Tool for DM-8G-CONN  
**DM-8G-CONN-WG:** Connector with Wire Guide for DM-CBL-8G DigitalMedia 8G™ Cable  
**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

**IRP2:** IR Emitter Probe w/Terminal Block Connector

**CNSP-XX:** Custom Serial Interface Cable

**USB-EXT-DM:** USB over Ethernet Extender with Routing

## Notes:

- 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.
- The HDMI output requires an appropriate adapter or interface cable to accommodate a DVI signal. [CBL-HD-DVI](#) interface cables are available separately.
- Automatically passes 3D video if the display device supports it (reverts to pass-through mode without scaling). Provides automatic 3D-to-2D conversion (with scaling) if the display device does not support 3D. 3D with scaling is only supported using two DM-RMC-200-Cs configured for use with a dual-projector 3D setup.
- EDID (Extended Display Identification Data) is data embedded in an HDMI, DVI, or VGA signal that enables a display device to tell the source device what resolutions and formats it can support, allowing the source to configure itself automatically to feed the best signal that both devices can support.
- The analog stereo audio output (line-level and amplified) is only active when the DM-RMC-200-C is receiving a 2-channel stereo signal.
- USB-EXT-DM USB over Ethernet Extender Modules are sold separately. Refer to the [USB-EXT-DM](#) spec sheet for more information.
- Video wall processing requires a separate DM-RMC-200-C for each individual display.
- With or without reduced blanking.
- With reduced blanking only.

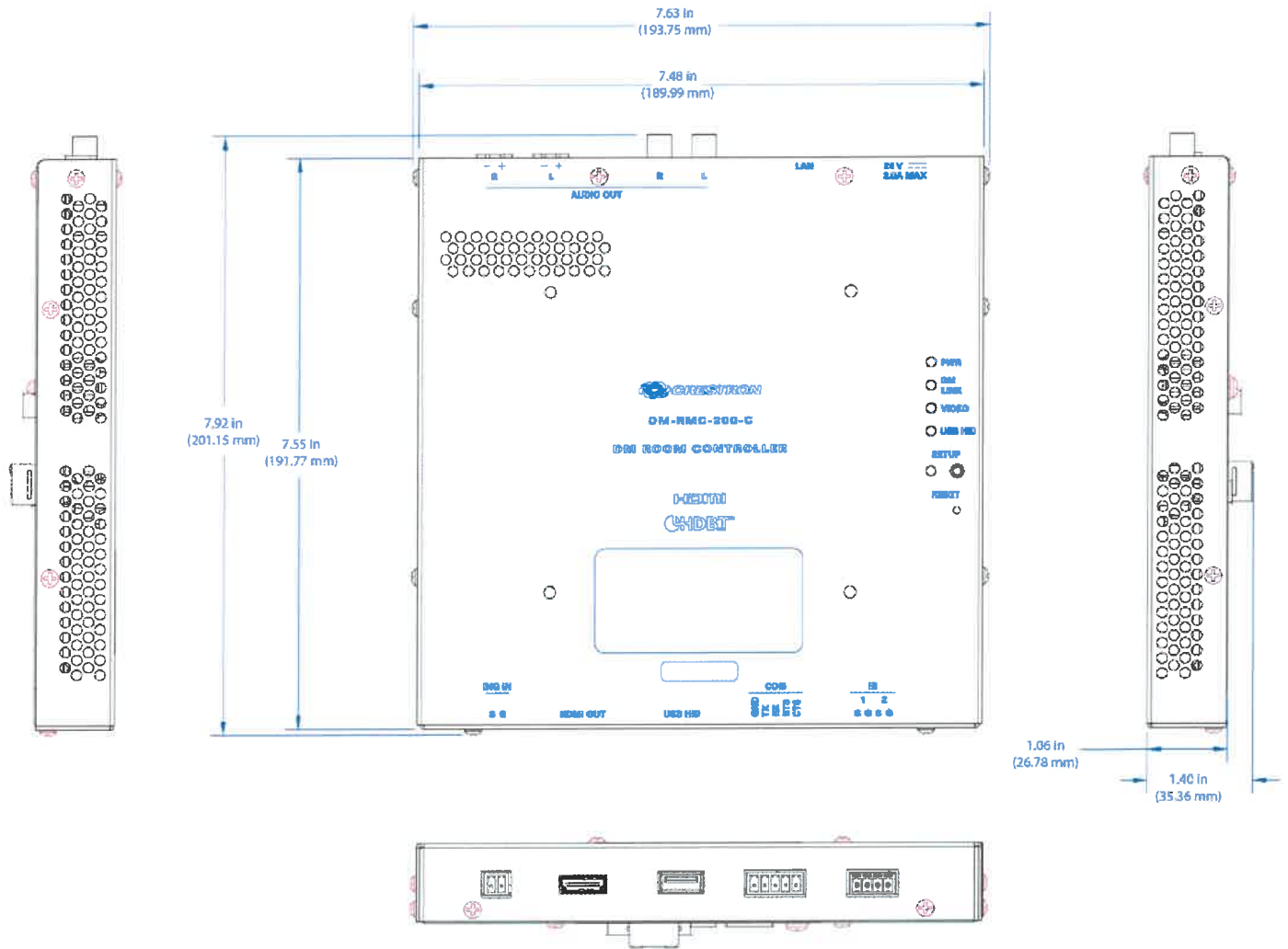
This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at [www.crestron.com/salesreps](http://www.crestron.com/salesreps) or by calling 800-237-2041.

The specific patents that cover Crestron products are listed online at: [patents.crestron.com](http://patents.crestron.com).

Crestron, the Crestron logo, DigitalMedia, DigitalMedia 8G, DigitalMedia 8G+, DM, DM 8G, and DM 8G+ are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. Dolby and Dolby Digital are either trademarks or registered trademarks of Dolby Laboratories in the United States and/or other countries. DTS, DTS-HD, and DTS-HD Master Audio are either trademarks or registered trademarks of DTS, Inc. in the United States and/or other countries. HDBaseT and the HDBaseT Alliance logo are either trademarks or registered trademarks of the HDBaseT Alliance in the United States and/or other countries. HDMI and the HDMI Logo are either trademarks or registered trademarks of HDMI Licensing LLC in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography. Specifications are subject to change without notice. ©2015 Crestron Electronics, Inc.

# DM-RMC-200-C

# DigitalMedia 8G+® Receiver & Room Controller 200



UNIT WITHOUT BRACKET INSTALLED





# Kiss Buffering Goodbye

Araknis designs its wireless access points to be fast, reliable, and hassle-free, because the best network is one you never notice. And with four distinct series, plus an outdoor option, you'll find a product that best fits your specific needs. Keep your Wi-Fi signal strong with Araknis Networks®.

UP TO  
**1750**  
MBPS



## FEATURES

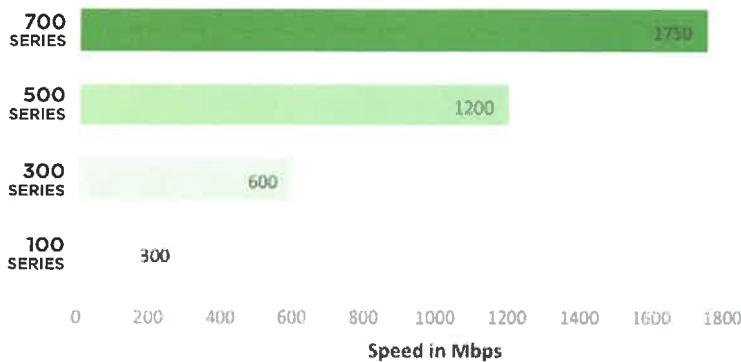
### STYLISH & EFFICIENT

Features include a sleek and compact design, Fast Roaming, which allows your wireless device to automatically connect to the strongest-signal access point based on your location, and cloud-based device management software that gives your integrator the option for remote troubleshooting.

### DESIGNED FOR YOU

A fast and reliable WAP ensures optimum performance with your wireless devices, and allows you and your family to enjoy uninterrupted Internet browsing, video, and music streaming. You can even schedule or restrict Wi-Fi access as you see fit.

### Maximum Aggregated Speed Family Comparison



SPEC FEATURES	100-series	300-series	500-series	700-series
<b>Recommended Setting</b>	Rural Area/ No Neighbors	Townhouse/Single Family House/ Apartment/Condo	Townhouse/Single Family House/ Apartment/Condo	Commercial/SMB/ Larger Homes
<b>Environment Interference Level</b>	Low	Med-High	Med-High	Med-High
<b>Client Devices</b>	Legacy	Not too modern, majority mobile	Modern, majority mobile	Modern, majority PC
<b>Client Speed Demand</b>	Low - just connectivity	Average	High	High
<b>Future Proof</b>	Low - 2.4GHz is very congested	Med - 5GHz capability	High - 802.11ac	High - 802.11ac
<b>Coverage</b>	High	High	High	High
<b>Max Aggregated Speed</b>	300Mbps	600Mbps	1200Mbps	1750Mbps
<b>Cloud Management Capability</b>	Yes	Yes	Yes	Yes
<b>Limited Product Warranty</b>	2-Year	2-Year	2-Year	2-Year
<b>Outdoor Model</b>				✓



# RFR Series

reference mobile furniture rack

uniquely styled furniture rack system that is optimized for easy integration and is ruggedly designed for years of trouble free room-to-room mobility

- features
- Engineered for professional integration to ensure efficient installation
  - Wide-body design allows for handy interior device mounting and cable management using optional tool-free LeverLock™ system
  - Robust construction features bolt-through floor-friendly casters and internal steel bracing for years of reliable use
  - Unique cable entry rear door and included cable spools allow easy storage of connecting cable bundle
  - Advanced cooling for system reliability
  - Optimized for passive ventilation featuring generous front air intake & rear exhaust vents
  - Enable energy-saving active cooling with optional thermostatically- controlled DC blower panel. Quiet and powerful: 50 CFM, 27 dB
  - Superior aesthetics complement any public space
  - Architectural design incorporates a highly aesthetic and durable new finish, available in three finishes
  - Attractive IR-friendly locking glass front door standard
  - Available in 16, 20, and 24 rackspace sizes in 3 attractive colors: Black Cascade, Cherry Cascade, and Teak Cascade
  - Optional flat screen mount accommodates most monitors up to 32" (VESA 100)
  - UL Listed (structural and tip) for support of audio/video equipment
  - Ships fully assembled



specifications

EIA compliant 19" mobile furniture equipment rack shall be Middle Atlantic Products model #RFR-\_\_\_28\_\_\_(see chart for available models). Overall dimensions of RFR shall be \_\_\_"H x 27.3"W x 27.55"D (refer to chart). Useable height of RFR shall be \_\_\_rackspace, useable depth shall be 23.31". RFR shall come equipped with one pair of adjustable steel rackrail with tapped 10-32 mounting holes in universal EIA spacing, black e-coat finish and numbered rackspace. RFR shall have bolt through 4" height casters. RFR shall have 4 casters total, with locking front casters. RFR shall have internal steel bracing. RFR shall be constructed of melamine and have a \_\_\_ finish (refer to chart). RFR shall have an undersized top. RFR shall include a locking and latching IR friendly tempered glass front door. RFR shall include a locking and latching melamine rear door. RFR shall have rear venting, cable entry and cable spools. RFR shall have a 60 MM (2.375 in.) cable grommet on top, that accepts a monitor mount. RFR shall accept patent-pending LeverLock™ tool free and hardware free internal cable and device management system accessories. RFR shall provide a UL Listed load capacity of 350 lbs. mounted in the rack, 50 lbs. on top of the rack and 35 lbs. on the optional monitor mount. RFR shall be UL Listed in the US and Canada. RFR shall be GREENGUARD Gold Certified. RFR shall be manufactured by an ISO 9001 and ISO 14001 registered company. RFR enclosure shall be warranted to be free from defects in material or workmanship under normal use and conditions 7 years.

Customizable specification clips available at [middleatlantic.com](http://middleatlantic.com)

EIA/TIA COMPLIANT



PRODUCT CERTIFIED FOR  
LOW CHEMICAL EMISSIONS  
UL.COM/GG  
UL 2818



## options:

- Rear Rackrail Kits shall be model # RFR-ERRK-\_\_\_ (16, 20, 24), # equals rackspace, which must match number of rackspace in rack.
- Monitor mount shall be model # MMB-1X1-12BLK, shall have a VESA 75 and 100 pattern, and have a 17.6 lb. weight capacity
- LeverLock™ mounts shall be model number LL-RFR
- Rear blower kit shall be model # RFR-CABCOOL50 and provide 50 CFM of cooling with 27 dB of noise

what great systems are built on.™

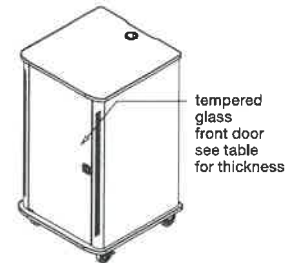
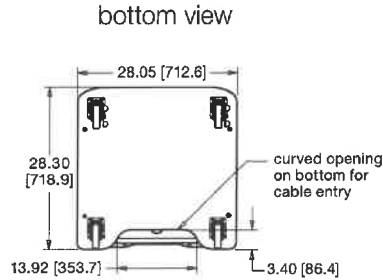
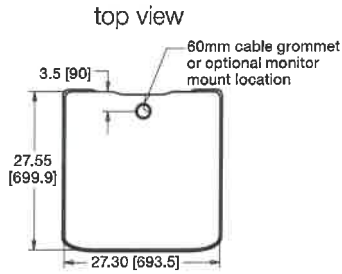
Group brand | legrand

Middle Atlantic Products  
[middleatlantic.com](http://middleatlantic.com) | [middleatlantic.ca](http://middleatlantic.ca)

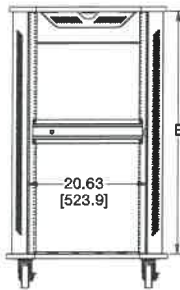
# RFR Series

## basic dimensions

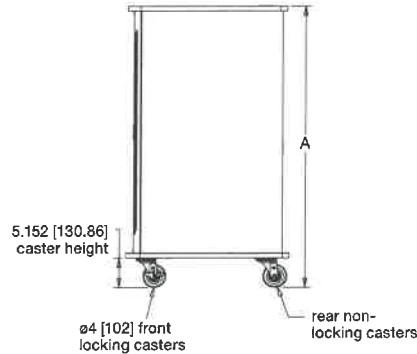
all dimensions in inches unless otherwise noted [all dimensions in brackets are in millimeters]



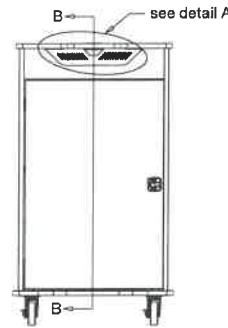
front view  
door removed for clarity



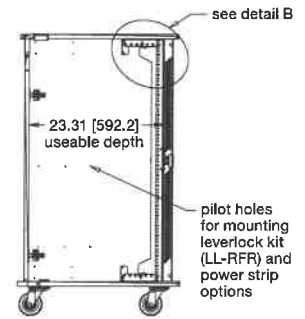
right side view



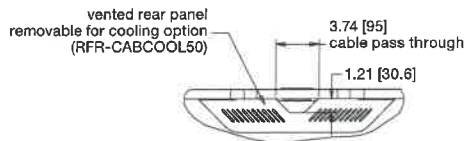
back view



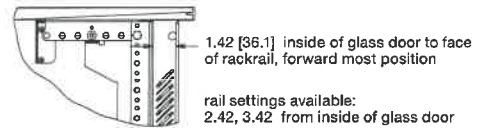
left side view



detail A



detail B



Part #	A Overall Height	B Inside Height	Rackspaces	Glass Thickness
RFR-1628-XX	34.95 [888]	28.25 [718]	16 space	1/8"
RFR-2028-XX	41.95 [1065]	35.25 [895]	20 space	1/8"
RFR-2428-XX	48.95 [1243]	42.25 [1073]	24 space	3/16"

Notes:

- Part number structure, where "XX" equals one of the following:  
BR = Black Cascade  
TR = Teak Cascade  
CR = Cherry Cascade
- Rack top, bottom, sides and rear access panel constructed from 3/4" melamine

what **great systems** are built on.™

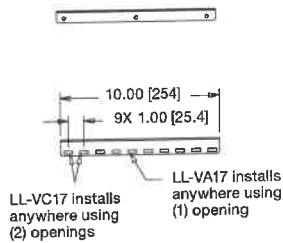
# RFR Series Options

## basic dimensions

all dimensions in inches unless otherwise noted [all dimensions in brackets are in millimeters]

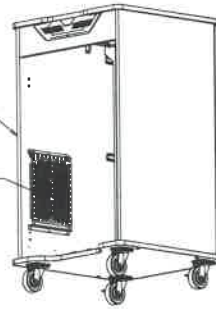
### LL-RFR LeverLock™ Brackets

#### LeverLock™ bracket



right rack side  
can mount  
(1) leverlock  
adapter for all  
rack sizes

LL-VP1710  
shown

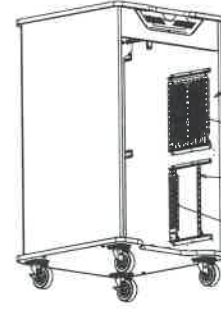


left rack side  
can mount (2)  
leverlock adapters  
for RFR-2428XX and  
RFR-2028XX, and (1)  
adapter for RFR-1628XX

LL-VP1710  
shown

LL-VA17  
shown

LL-VC17  
shown

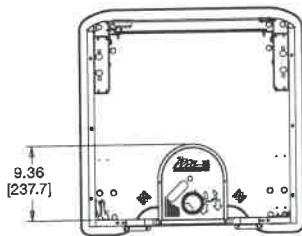


#### Notes:

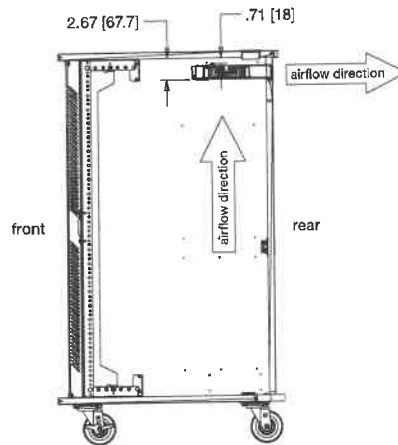
1. Pilot holes on rack sides accommodate the following LeverLock™ products: LL-VP1710 / LL-VA17 / LL-VC17
2. LeverLock™ products shown not included
3. Rear door removed for clarity

### RFR-CABCOOL50

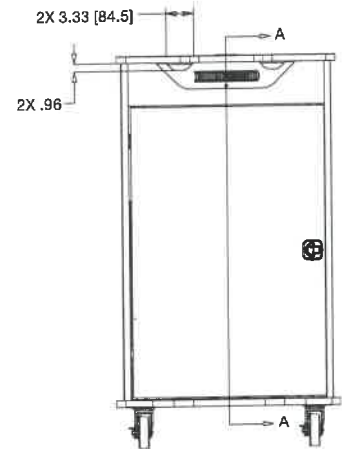
#### top view



#### right side



#### back view



#### Notes:

1. Fan Specifications:  
airflow: 50 CFM [1.4 M3/MIN]  
current draw: 550mA @12 VDC  
sound level: 29cBA @ 1 M  
static pressure: .031 IN H2O [77.22Pa]  
turn on: 87°F [30.5°C]  
turn off: 85°F [29.4°C]
2. RFR-CABCOOL50 shown. International model, IRFR-CABCOOL50, comes with a universal voltage plug-in power supply and adapters.
3. Top removed for clarity

what **great systems** are built on.

A Group brand | legrand

**Middle Atlantic Products**  
middleatlantic.com | midcleatlantic.ca

# Quiet-Cool Series

## CABINET COOLER

powerful and quiet way to remove heat from credenzas, lecterns and entertainment centers

### FEATURES:

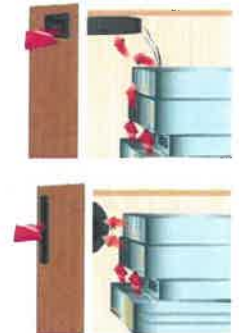
- Extends equipment life
- Removes heat from smaller cabinets and entertainment centers
- 20, 40 and 50 CFM models available
- Can be painted to match aesthetics of any environment
- Designed to pull hot air up out of a cabinet and direct it where desired
- Fan activates automatically at 87°F/30.5°C, turns off at 85°F/29°C



CAB-COOL



CAB-COOL50




### SPECIFICATIONS:

Cabinet Cooler shall be Middle Atlantic Products model # (1)CAB-COOL\_\_ (See chart). Cabinet Cooler shall have a black finish. Cabinet Cooler shall activate at 87°F (30.5°C), and switch off at 85°F (29.4°C). Cabinet Cooler shall displace \_\_ (20, 40, 50) CFM with maximum decibel level of \_\_ (24, 27, 29) dB (measurements made 1 meter from source, centered horizontally and vertically). Cabinet Cooler shall include \_ (1, 3) fans, and one fan controller/temperature sensor. The Cabinet Cooler requires \_\_ (refer to chart) cutout. The Cabinet Cooler (CAB-COOL only) mounts in material which has a thickness no greater than 1-1/2". Cabinet Cooler shall meet applicable requirements under the Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC. Cabinet Cooler shall comply with the requirements of the RoHS EU Directive 2011/65/EU. Cabinet Cooler shall be manufactured by an ISO 9001 and ISO 14001 registered company. Cabinet Cooler shall be warranted to be free from defects in materials and workmanship under normal use and conditions for a period of 3 years. Cabinet Cooler shall include a UL Listed 12V DC power supply and temperature probe with a 9' cord.

Customizable specification clips available at [middleatlantic.com](http://middleatlantic.com)



WHAT GREAT SYSTEMS ARE BUILT ON.™

A brand of  **legrand**



**Middle Atlantic Products**  
[middleatlantic.com](http://middleatlantic.com) | [middleatlantic.ca](http://middleatlantic.ca)

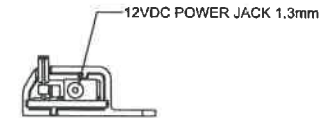
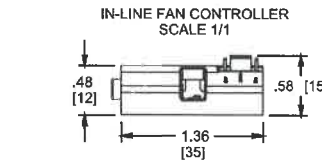
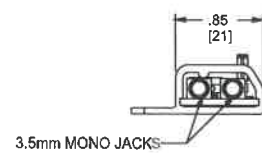
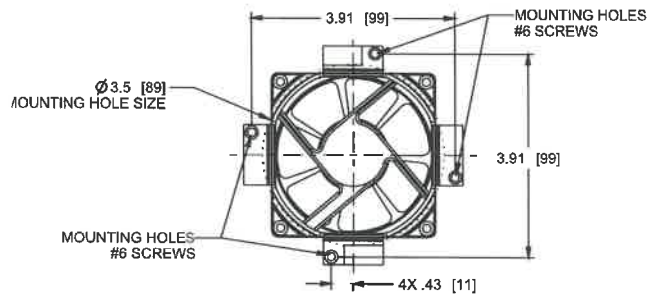
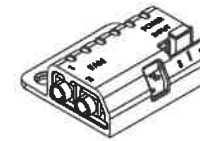
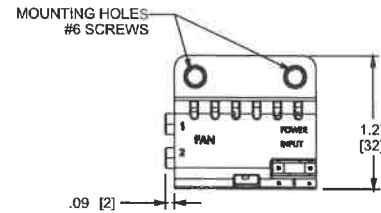
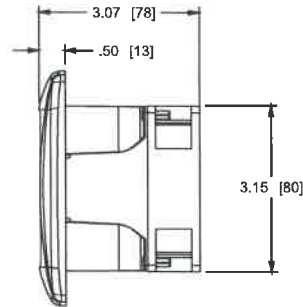
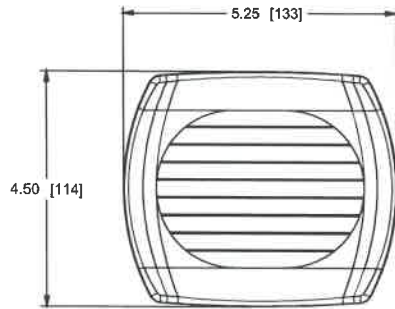
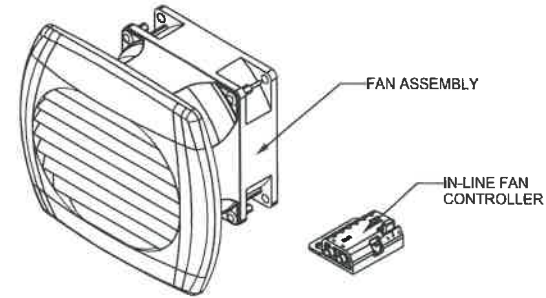
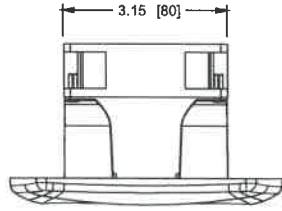
96-01068 / rev b / 9-6-17

# Quiet-Cool Series Cabinet Cooler

## BASIC DIMENSIONS

MODEL	POWER REQUIREMENTS	CFM	M3/MIN	dBA @ 1 meter
(1)CAB-COOL	12VDC @ 120mA	20	.57	24
(1)CAB-COOL-2	12VDC @ 240mA	40	1.13	27

- NOTE(S):
1. CABLE LENGTH AS FOLLOWS:  
POWER SUPPLY: 72 [1829]  
FAN CONTROL: 72 [1829]
  2. "1" PREFIX INDICATES 220V MODEL AND COMES WITH ADAPTERS.
  3. "-2" SUFFIX INDICATES DUAL UNIT CAB-COOL WHICH CONSISTS OF (2) FAN ASSEMBLIES, (1) IN-LINE FAN CONTROLLER, AND (1) POWER SUPPLY
  4. ALL DIMENSIONS LISTED ARE IN inches [mm].



WHAT GREAT SYSTEMS ARE BUILT ON.™

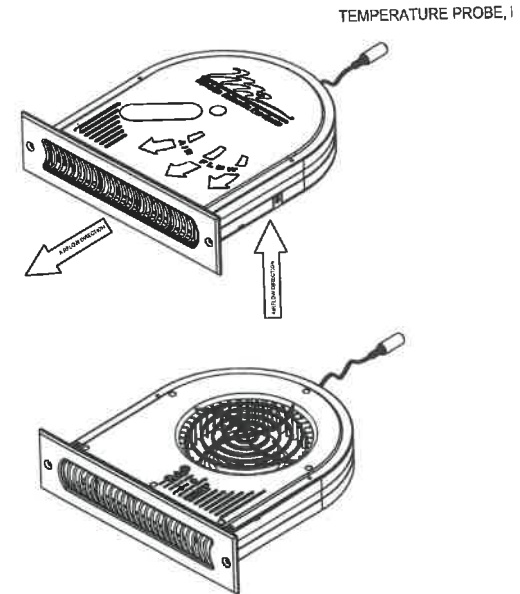
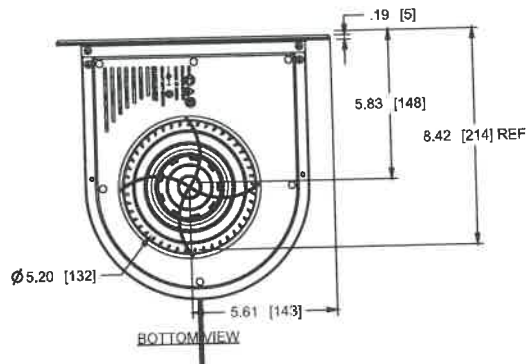
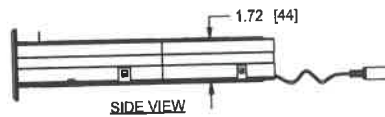
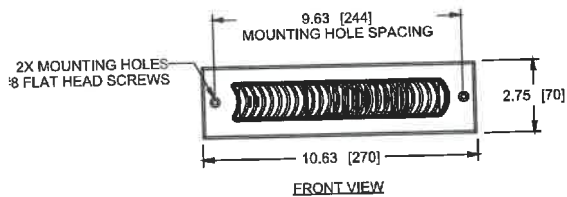
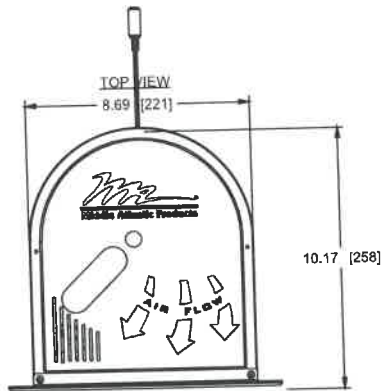
A brand of **Legrand**

**Middle Atlantic Products**  
middleatlantic.com | middleatlantic.ca



# Quiet-Cool Series Cabinet Cooler

## BASIC DIMENSIONS



- NOTE(S):
1. MOUNTING CUTOUT DIMENSIONS: 9.0 [229] X 2.0 [51]
  2. FAN SPECIFICATIONS  
 AIRFLOW: 50 CFM [1.4 M3/MIN]  
 CURRENT DRAW: 550mA @ 12 VDC  
 SOUND LEVEL: 29 dBA @ 1 M  
 STATIC PRESSURE: 0.31 IN H2O [77.22 Pa]  
 TURN ON: 87F [30.5C]  
 TURN OFF: 85F [29.4C]
  3. CAB-COOL50 SHOWN. INTERNATIONAL MODEL, ICAB-COOL50, COMES WITH AN UNIVERSAL VOLTAGE PLUG-IN POWER SUPPLY AND ADAPTERS.
  4. DIMENSION FORMAT SHOWN: IN [MM]

WHAT GREAT SYSTEMS ARE BUILT ON.™

A brand of **legrand**

**MP**  
**Middle Atlantic Products**  
 middleatlantic.com | middleatlantic.ca



### MX890 Wireless Desktop Base



The Shure MX890 desktop base for MX405, MX410 and MX415 gooseneck microphones offers cable-free installation for corporate boardrooms or other applications requiring flexible microphone configurations and MX415 miniature gooseneck microphones are suitable for boardrooms and other sites where aesthetics are important. The MX890 operates within the 518–937 MHz band and is compatible with Shure SLX wireless systems.

### MX690 Wireless Boundary Microphone



The Shure MX690 microphone offers cable-free installation for corporate boardrooms or other applications requiring flexible configurations. The MX690 operates within the 518–937 MHz band and is compatible with Shure SLX wireless systems.

### Features

- Sleek, low profile design
- Frequency agile, microprocessor controlled transmitter
- IR link to SLX receiver for automatic frequency synchronization
- Programmable frequency Group/Channel display
- Programmable mute function
- Operates on two AA batteries
- Compatible with all Shure SLX Wireless systems
- MX890 Supports Shure MX405, MX410 and MX415 Mini Gooseneck Microphones
- Commshield® technology for protection from RF interference

### Placement

#### MX890 Microphone Placement

Place the MX890 no more than 25 cm (1 ft.) from the edge of the table. Aim the microphone toward the talker and away from loudspeakers and noise sources. Use one microphone for each talker. Pickup angle with a cardioid cartridge is 130° at –3 dB. Pickup angle with a supercardioid cartridge is 115° at –3 dB.

**Note:** To minimize RF interference, maintain a distance of at least 0.3 m (1 ft.) between transmitters. In case of interference, increase the distance between transmitters or change channels.

#### MX690 Microphone Placement

Place the MX690 within 1.5 m (5 ft.) of a talker. Aim the microphone toward the talkers and away from loudspeakers and noise sources. Use one microphone for every two talkers. Pickup angle with a cardioid cartridge is 130° at –3 dB.

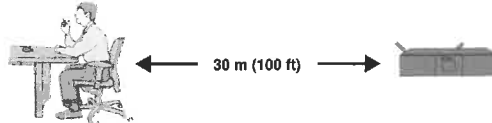
**Note:** To minimize RF interference, maintain a distance of at least 0.3 m (1 ft.)



### Receiver

Make sure the receiver is within sight of the transmitter. Do not place receiver behind a metal barrier or any reflective surface.

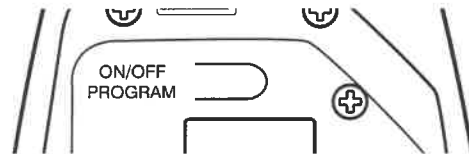
Refer to the SLX Wireless System User Guide for more information, or visit [www.shure.com](http://www.shure.com).



### Power On/Off

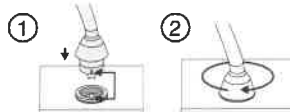
1. With the battery door open, press and hold the ON/OFF button for approximately 2 seconds. Release the button when the LCD screen illuminates.
2. To turn off the transmitter, press and hold the ON/OFF button for approximately 2 seconds. Release the button when the LCD screen is blank. The LEDs on the outside of the microphone will also go dark.

**Note:** To power on the transmitter without opening the battery compartment, press and hold the plastic ON/OFF button on the battery door for approximately 2 seconds, then release it.



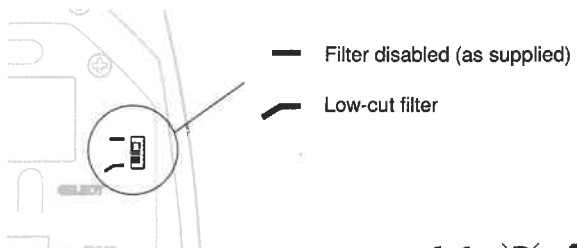
### MX890 Connecting Gooseneck

1. Align the pin on the microphone flange with the slot on the desktop base.
2. Insert the gooseneck into the desktop base and lock it in place by rotating the gooseneck sleeve clockwise.



### Low-Cut Filter

The low-cut filter attenuates frequencies below 150 Hz by 6 dB per octave.

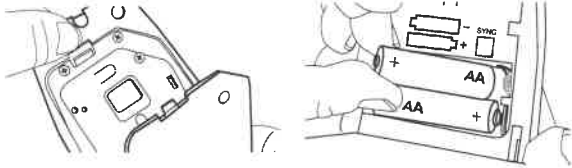


## Battery

### Installation

1. Open the battery compartment as shown.
2. Insert two 1.5 V "AA" batteries. Make sure the +/- terminals are properly oriented.

**Note:** Alkaline batteries last up to 8 hours. Rechargeable, carbon-zinc, and zinc-chloride batteries provide less operating time.



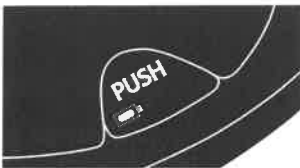
### Power Meter

The battery meter on the LCD shows remaining battery life.



### Low Power Indicator

Steady Red: Power low. Replace batteries immediately  
Pulsing Red: Batteries dead. Transmitter cannot be turned on until batteries are replaced.



## Mute Button

The mute button can be configured for toggle or momentary operation.

### Toggle (as supplied)

The PUSH button toggles the microphone between active and muted states.

**Note:** The microphone always powers up in the active state.

### Momentary

There are two types of momentary operation:

**Push-to-Mute:** The microphone is muted only while the button is pressed and held.

**Push-to-Talk:** The microphone is active only while the button is pressed and held.

### To change between toggle and momentary:

Hold the PUSH button and press the SELECT button. (Test the microphone to confirm the change.)

Hold



### To change between push-to-talk and push-to-mute:

1. Set the button for momentary operation.
2. Hold the SELECT button and press the PUSH button.

Hold



## Mute Indicator

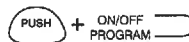
### MX890

The desktop base illuminates the gooseneck microphone LED to indicate whether the microphone is active or muted. Refer to the following table:

#### MX890 Status Indicator

Microphone Status	MX405 / MX410 Indicator	MX405R / MX410R Light Ring
Active	Green	Red
Muted	Red/Flashing Green*	Off/Flashing*

\*To toggle between off and flashing, press PUSH and ON/OFF simultaneously.



### MX690

The bi-color LED on the top of the microphone indicates whether the microphone is active or muted.

The LED can also be set to flash when muted.

#### MX690 Status Indicator

Display Mode	Status Indicator
Steady (as supplied)	Active = Green
	Muted = Red
Flashing	Active = Green
	Muted = Flashing Green

**SHURE**\*

**United States, Canada, Latin America, Caribbean:**

Shure Incorporated  
5800 West Touhy Avenue  
Niles, IL 60714-4608 USA

Phone: 847-600-2000  
Fax: 847-600-1212 (USA)  
Fax: 847-600-6446  
Email: info@shure.com

www.shure.com

©2013 Shure Incorporated

**Europe, Middle East, Africa:**

Shure Europe GmbH  
Jakob-Dieffenbacher-Str. 12,  
75031 Eppingen, Germany

Phone: 49-7262-92490  
Fax: 49-7262-9249114  
Email: info@shure.de

**Asia, Pacific:**

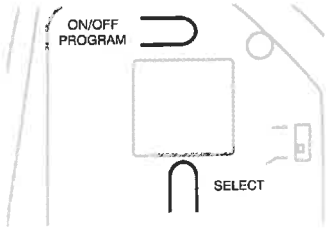
Shure Asia Limited  
22/F, 625 King's Road  
North Point, Island East  
Hong Kong

Phone: 852-2893-4290  
Fax: 852-2893-4055  
Email: info@shure.com.hk

## Locking Settings

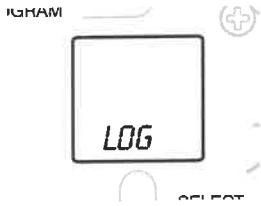
Press ON/OFF and SELECT simultaneously to lock or unlock transmitter settings. When locked, the current settings cannot be manually changed.

Note: Locking the transmitter settings does not disable IR frequency synchronization or the High Pass/Low Cut filter.



## Logic Mode

To use with a logic enabled receiver, you must perform an automatic sync. The LCD flashes "log" during sync. Once in logic mode, the LCD flashes "log" when powered up.



## Automatic Frequency Synchronization

1. Power off all transmitters.
2. Begin with the first transmitter. Open the battery cover and power it on.
3. Begin with the first transmitter. Open the battery cover and power it on.
4. Aim the IR sensor at the first receiver IR port. The transmitter should be no more than 15 cm (6 in.) from the receiver. Press and hold the receiver SYNC button to send group and channel data to the transmitter. The red LED on the transmitter will stop flashing when programming is complete.
5. Power off the first transmitter and repeat the synchronization with each additional transmitter and receiver pair.

## Manual Frequency Synchronization

1. Press and hold the transmitter SELECT button until the desired group number appears.
2. Press SELECT again and release it when the desired channel number appears.

## Tips for Optimum Performance

- Maintain a direct line of sight between the transmitter and receiver antennas.
- Avoid placing the transmitter on metal surfaces.
- Avoid placing laptop computers or other obstructions in front of the microphone during use.
- Only use with a Shure SLX4L wireless receiver.

## Troubleshooting

If you encounter difficulty with the SLX Wireless System

- Make sure both the transmitter and the receiver are turned on.
- Replace the battery if the battery LED is red.
- Make sure the Group/Channel settings for each transmitter-receiver pair are identical.
- Make sure there is an unobstructed line of sight between the transmitter and receiver.
- If necessary, reposition the receiver or decrease the distance between transmitter and receiver.
- Remove local sources of RF interference, such as computers or lighting equipment.
- Remove metal objects within 0.3 m (1 ft.) of the transmitter

Note: Refer to the SLX Wireless System User Guide for complete troubleshooting procedures.

## Frequency Selection

Shure offers wireless systems in a selection of bands that conform to the different government regulations of specific nations or geographic regions. These regulations help limit radio frequency (RF) interference among different wireless devices and prevent interference with local public communications channels, such as television and emergency broadcasts.

The system's band and frequency range are identified on the receiver and transmitter. For example, "H4 518-578 MHz."

For information on bands available in your area, consult your local dealer or phone Shure. More information is also available at [www.shure.com](http://www.shure.com).

## LICENSING INFORMATION

Licensing: A ministerial license to operate this equipment may be required in certain areas. Consult your national authority for possible requirements. Changes or modifications not expressly approved by Shure Incorporated could void your authority to operate the equipment. Licensing of Shure wireless microphone equipment is the user's responsibility, and licensability depends on the user's classification and application, and on the selected frequency. Shure strongly urges the user to contact the appropriate telecommunications authority concerning proper licensing, and before choosing and ordering frequencies.

## Certifications

Certified under FCC Part 74.

Certified by IC in Canada under RSS-123 and RSS-102.

**FCC:** DD4MX890. **IC:** 616A-MX890.

This product meets the Essential Requirements of all relevant European directives and is eligible for CE marking.

The CE Declaration of Conformity can be obtained from: [www.shure.com/europe/compliance](http://www.shure.com/europe/compliance)

Authorized European representative:

Shure Europe GmbH

Headquarters Europe, Middle East & Africa

Department: EMEA Approval

Jakob-Dieffenbacher-Str. 12

75031 Eppingen, Germany

Phone: 49-7262-92 49 0

Fax: 49-7262-92 49 11 4

Email: [EMEAsupport@shure.de](mailto:EMEAsupport@shure.de)

# Specifications

## Working Range

Line of Sight  
30 m (100 ft)

Note: Actual range depends on RF signal absorption, reflection and interference.

## Frequency Stability

±10 ppm

## Modulation

FM, 45 kHz max. deviation

## Power Requirements

2 LR6 AA batteries, 1.5 V, alkaline

## Power Consumption

@3 V

Display backlight on	220 mA, ±30 mA
Display backlight off	175 mA, ±30 mA

## Power Consumption (X4, X7)

@3 V

Display backlight on	245 mA, ±30 mA
Display backlight off	200 mA, ±30 mA

## Battery Life

>8 hours (alkaline)

## Operating Temperature Range

-18°C (0°F) to +57°C (135°F)

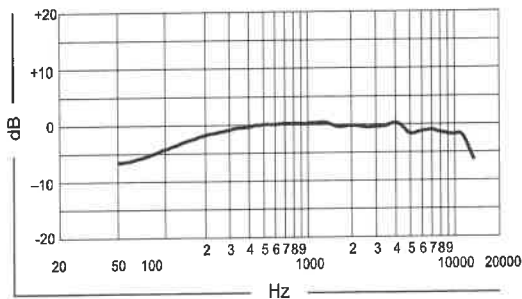
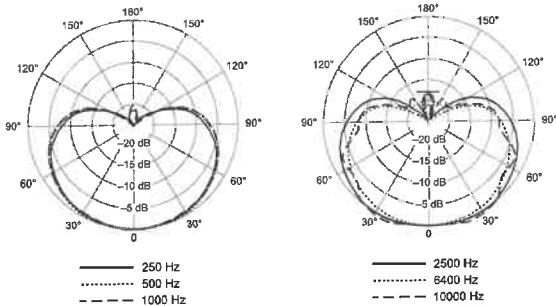
Note: Battery characteristics may limit this range.

## Dimensions

43 mm x 87 mm x 148 mm (H x W x D)

## Weight

	MX690	MX890
Net	319 g (11.2 oz.)	312 g (11 oz.)
Packaged	516 g (18.2 oz.)	530 g (18.7 oz.)



# Frequency Range and Transmitter Output Level

Band	Range	Output Power
G4	470 to 494 MHz	30 mW
G5	494 to 518 MHz	30 mW
H5	518 to 542 MHz	30 mW
J3	572 to 596 MHz	30 mW
L4	638 to 662 MHz	30 mW
P4	702 to 726 MHz	30 mW
Q4	740 to 752 MHz	10 mW
R13	794 to 806 MHz	20 mW
R5	800 to 820 MHz	20 mW
JB	806 to 810 MHz	10 mW
S6	838 to 865 MHz	10 mW
X4	925 to 932 MHz	10 mW
X7	925 to 937.5 MHz	10 mW

# IMPORTANT SAFETY INSTRUCTIONS

1. READ these instructions.
2. KEEP these instructions.
3. HEED all warnings.
4. FOLLOW all instructions.
5. DO NOT use this apparatus near water.
6. CLEAN ONLY with dry cloth.
7. DO NOT block any ventilation openings. Allow sufficient distances for adequate ventilation and install in accordance with the manufacturer's instructions.
8. DO NOT install near any heat sources such as open flames, radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Do not place any open flame sources on the product.
9. DO NOT defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. PROTECT the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. ONLY USE attachments/accessories specified by the manufacturer.
12. USE only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. UNPLUG this apparatus during lightning storms or when unused for long periods of time.
14. REFER all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. DO NOT expose the apparatus to dripping and splashing. DO NOT put objects filled with liquids, such as vases, on the apparatus.
16. The MAINS plug or an appliance coupler shall remain readily operable.
17. The airborne noise of the Apparatus does not exceed 70dB (A).
18. Apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.
19. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
20. Do not attempt to modify this product. Doing so could result in personal injury and/or product failure.
21. Operate this product within its specified operating temperature range.



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

**WARNING:** Voltages in this equipment are hazardous to life. No user-serviceable parts inside. Refer all servicing to qualified service personnel. The safety certifications do not apply when the operating voltage is changed from the factory setting.

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

# MICROFLEX® MICROPHONES: WORK A ROOM IN MORE WAYS THAN EVER.

Combining sleek, low profile aesthetics and a complete selection of microphones and mounting options, Microflex microphones include the highest standard of quality and efficiency for installed audio applications.

Get the exact fit for your professional installation; knowing it's backed by the superior sound quality, reliability, and durability you only get from Shure.

## The New Height of Flexibility.

### MX405/MX410/MX415 Modular Gooseneck Microphones

Flexible in more ways than one, Microflex Modular Gooseneck microphones deliver unsurpassed style and performance for conference rooms and similar applications.

Offering desktop or mounted bases, wired or wireless options, and even interchangeable cartridges, it's easy to get the perfect fit for your conferencing installation. Fully compatible with SLX® wireless systems, including the SLX4L wireless receiver with logic output for applications requiring logic functionality.

- Available in 5 inch (12.7 cm), 10 inch (25.4 cm) and 15 inch (38.1 cm) lengths
- Cardioid and supercardioid polar patterns
- Bi-color status indicator (standard models) or single color light ring ("R" models)
- Programmable mute switch (desktop models only)
- Logic input/output for remote LED and mute control dependent on base option
- Surface-mount and wired or wireless desktop base options



MX415, MX410 and MX405 with MX890 Wireless Desktop Base



MX405 (with MX400SMP), MX410 (with MX400DP), MX415 without base

### Available Models

**MX405 C/S**  
5 inch (12.7 cm), includes surface mount preamp

**MX405R N**  
5 inch (12.7 cm), includes light ring, surface mount preamp

**MX405LP C/S**  
5 inch (12.7 cm), less preamp

**MX405RNP N**  
5 inch (12.7 cm), light ring, less preamp

**MX410 C/S**  
10 inch (25.4 cm), includes surface mount preamp

**MX410R N**  
10 inch (25.4 cm), includes light ring, surface mount preamp

**MX410LP C/S**  
10 inch (25.4 cm), less preamp

**MX410RNP N**  
10 inch (25.4 cm), light ring, less preamp

**MX415 C/S**  
15 inch (38.1 cm), includes surface mount preamp

**MX415R N**  
15 inch (38.1 cm), includes light ring, surface mount preamp

**MX415LP C/S**  
15 inch (38.1 cm), less preamp

**MX415RNP N**  
15 inch (38.1 cm), light ring, less preamp

### Mounting Options

**MX400DP**  
Desktop Base

**MX890**  
Wireless Desktop Base

**MX400SMP**  
Surface mount Preamp

**C = Cardioid, S = Supercardioid, N = No Cartridge**

The MX890 Wireless Desktop Base is compatible with SLX4 and SLX4L Wireless Receivers.





## SLX Wireless System Specifications

### SHURE SLX WIRELESS

---

Sound installations and working bands need powerful wireless tools that can be set up quickly and used fearlessly. Shure's rugged SLX UHF Wireless Systems more than deliver with innovative setup features, exceptional wireless clarity, and legendary Shure microphones. Offering up to 20 compatible systems in a single installation, SLX smoothly integrates into houses of worship, lecture halls, conference rooms, and mobile gear cases.

#### SYSTEM FEATURES

##### Auto Frequency Selection

- Locates a clear channel instantly

##### Auto Transmitter Setup

- Infrared link automatically synchronizes the transmitter and receiver

##### Shure's patented Audio Reference Compressing

- Delivers crystal-clear audio transmission, far superior to conventional wireless technology

#### RECEIVER FEATURES

- Detachable 1/4 wave antennas
- Backlit LCD
- Rack-mount hardware included
- 1/4" and XLR audio outputs
- Frequency and power lockout
- Volume control on rear of unit
- Rugged metal construction

#### HANDHELD AND BODYPACK TRANSMITTER FEATURES

- Choice of Shure handheld microphones
- Bodypack works with headworn, lavalier and instrument microphones and cables
- Timed backlit LCD
- Frequency and power lockout
- 2 AA batteries (included) provide 8 hours of continuous use
- 100m (300 ft.) operating range
- Battery fuel gauge

### ARCHITECT'S SPEC

---

The wireless system shall operate in the UHF band between 524 MHz and 865 MHz, with the specific available frequency range being dependent on the user's locale. Effective range of the system, receiver to transmitter, shall be 100 meters (300 ft.), under optimal conditions. Each system shall allow selection of over 960 operating frequencies across 24 MHz of bandwidth in order to avoid RF interference. Optimal frequencies shall be selected automatically, ensuring that individual systems run at their highest level of performance, and that multiple systems in simultaneous use do not interfere with one another.

An infrared signal beamed from the receiver shall be used to synchronize the frequency between the transmitter and the receiver. The process of synchronizing the system shall be simple and instantaneous.

Each transmitter shall be powered by two AA batteries. Transmitters shall have a power on-off/mute switch, as well as a timed backlit LCD showing frequency group and channel, locked/unlocked status, and battery strength. Available transmitters shall include a bodypack for use with guitars, basses, and other electric instruments, as well as lavalier, headset or instrument microphones, and a handheld transmitter for vocals. The bodypack shall include a 3-position switch and the handheld transmitter shall include a 2-position switch to compensate for higher- or lower-gain devices. Both transmitters shall feature an easily accessible infrared port for system synchronization.

The receiver shall have a multi-function display showing group, channel, frequency, transmitter battery strength, and locked/unlocked status. The system shall use diversity technology to improve reception, minimize signal dropouts, and achieve the best possible signal-to-noise ratio. The receiver shall include an audio level meter and an infrared port for system synchronization.

The system shall be the Shure SLX Wireless.



# SLX WIRELESS SYSTEM SPECIFICATIONS

## SPECIFICATIONS

### System

#### Frequency Range and Transmitter Output Level

Band	Range	Transmitter output
G4	470-494 MHz	30 mW
G5	494-518 MHz	30 mW
H5	518-542 MHz	30 mW
J3	572-596 MHz	30 mW
L4	638-662 MHz	30 mW
P4	702-726 MHz	30 mW
R13	794-806 MHz	20 mW
R5	800-820 MHz	20 mW
S6	838-865 MHz	10 mW
JB	806-810 MHz	10 mW
Q4	740-752 MHz	10 mW

NOTE: This Radio apparatus may be capable of operating on some frequencies not authorized in your region. Please contact your national authority to obtain information on authorized frequencies for wireless microphone products in your region.

#### Operating Range Under Typical Conditions

100m (300 ft.)

Note: actual range depends on RF signal absorption, reflection, and interference

#### Audio Frequency Response (+/- 2 dB)

Minimum: 45 Hz

Maximum: 15 kHz

(Overall system frequency depends on microphone element.)

#### Total Harmonic Distortion (ref. +/- 38 kHz deviation, 1 kHz tone)

0.5%, typical

#### Dynamic Range

>100 dB A-weighted

#### Operating Temperature Range

-18°C (0°F) to +50°C (+122°F)

Note: battery characteristics may limit this range

#### Transmitter Audio Polarity

Positive pressure on microphone diaphragm (or positive voltage applied to tip of WA302 phone plug) produces positive voltage on pin 2 (with respect to pin 3 of low impedance output) and the tip of the high impedance 1/4-inch output.

### SLX1 Bodypack Transmitter

#### Audio Input Level

-10 dBV maximum at mic gain position

+10 dBV maximum at 0 dB gain position

+20 dBV maximum at -10 dB gain position

#### Gain Adjustment Range

30dB

#### Input Impedance

1 MΩ

#### RF Transmitter Output

30 mW maximum (dependent on applicable country regulations)

#### Dimensions

108 mm H x 64 mm W x 19 mm D (4.25 x 2.50 x 0.75 in.)

#### Weight

81 grams (3 oz.) without batteries

#### Housing

Molded ABS case

#### Power Requirements

2 "AA" size alkaline or rechargeable batteries

#### Battery Life

>8 hours (alkaline)

### SLX2 Handheld Transmitter

#### Audio Input Level

+2 dBV maximum at -10dB position

-8 dBV maximum at 0dB position

#### Gain Adjustment Range

10dB

#### RF Transmitter Output

30 mW maximum (dependent on applicable country regulations)

#### Dimensions (including SM58 cartridge)

254 mm x 51 mm dia. (10 x 2 in.)

#### Weight

290 grams (10.2 oz.) without batteries

#### Housing

Molded PC/ABS handle and battery cup

#### Power Requirements

2 "AA" size alkaline or rechargeable batteries

#### Battery Life

>8 hours (alkaline)

### SLX4 Receiver

#### Dimensions

42 mm H x 197 mm W x 134 mm D (1.65 x 7.76 x 5.28 in.)

#### Weight

816 g (1 lb. 13 oz.)

#### Housing

Galvanized steel

#### Audio Output Level (ref. +/- 38 kHz deviation with 1 kHz tone)

XLR connector (into 600 Ω load): -13 dBV

1/4 inch connector (into 3000 Ω load): -2 dBV

#### Output Impedance

XLR connector: 200 Ω

1/4 inch connector: 1kΩ

#### XLR output

Impedance balanced

Pin 1: Ground

Pin 2: Audio

Pin 3: No signal

#### Sensitivity

-105 dBm for 12 dB SINAD, typical

#### Image Rejection

>70 dB, typical

#### Power Requirements

12-18 Vdc at 150 mA, supplied by external power supply

# REPLACEMENT PARTS AND ACCESSORIES

## Replacement Parts (all systems)

Microphone Stand Adapter (SLX2)	WA371
Zipper Bag (SLX1)	26A13
Zipper Bag (SLX2)	26A14
Short Rack Bar	53A8571
Long Rack Bar	53A8572
Link Bar	53A8443
Antenna extension cables (2)	95A9023

## Replacement Parts (system-specific)

AC Adapter (120 VAC, 60 Hz)	PS20
AC Adapter (230 VAC, 50/60 Hz, Europlug)	PS20E
AC Adapter (230 VAC, 50/60 Hz, UK)	PS20UK
AC Adapter (100 VAC, 50/60 Hz)	PS20J
SM58 Head with Grille (SLX2/SM58)	RPW112
SM86 Head with Grille (SLX2/SM86)	RPW114
BETA 58 Head with Grille SLX2/BETA 58	RPW118
BETA 87A Head with Grille (SLX2/BETA 87A)	RPW120
BETA 87C Head with Grille (SLX2/BETA 87C)	RPW122
Matte Silver Grille (SLX2/SM58)	RK143G
Matte Silver Grille (SLX2/SM86)	RPM266
Matte Silver Grille (SLX2/BETA 58)	RK265G
Matte Silver Grille (SLX2/BETA 87A)	RK312
Matte Silver Grille (SLX2/BETA 87C)	RK312
Belt Clip	44A8030
1/4-Wave Antenna (518-752 MHz)	UA400B
1/4-Wave Antenna (748-865 MHz)	UA400

## Optional Accessories

Carrying Case	WA610
Black Grille (SLX2/BETA 58)	RK323G
Black Grille (SLX2/BETA 87A)	RK324G

## Antenna Combiners and Accessories

Antennas and receivers must be from the same band. The supplied 1/4 wave antennas can be used when mounted directly to the UA844. If antennas are remote mounted, 1/2 wave antennas must be used.

Antennas and cables are for use with UA844, and cannot be used with stand-alone SLX receivers.

Passive Antenna/Splitter Combiner Kit (recommended for 2 receivers)	UA221	
UHF Antenna Power Distribution Amplifier (recommended for 3 or more receivers)		
	U.S.A.	UA844US
	Europe	UA844E
	UK	UA844UK
1/2 Wave Antenna Remote Mount Kit	UA500	
1/2 wave antenna		
	H5 Band	UA820H
	J3 Band	UA820D
	L4 Band	UA820L
	P4, Q4 Bands	UA820B
	R13, R5, S6, JB Bands	UA820A
25' Antenna Cable	UA825	
50' Antenna Cable	UA850	
100' Antenna Cable	UA100	

# SHURE®

SHURE Incorporated <http://www.shure.com>  
 United States, Canada, Latin America, Caribbean:  
 5800 W. Touhy Avenue, Niles, IL 60714-4608, U.S.A.  
 Phone: 847-600-2000 U.S. Fax: 847-600-1212 Intl Fax: 847-600-6446  
 Europe, Middle East, Africa:  
 Shure Europe GmbH, Phone: 49-7131-72140 Fax: 49-7131-721414  
 Asia, Pacific:  
 Shure Asia Limited, Phone: 852-2893-4290 Fax: 852-2893-4055

**SHURE**<sup>®</sup>

LEGENDARY  
PERFORMANCE™



SLX<sup>®</sup> WIRELESS SYSTEMS

**SMART, HARD-WORKING  
WIRELESS.**

# SLX® Wireless Microphone Systems

# EVERYWHERE

# WIRELESS.

Whether it's for a sound installation or a working band on the road, audio professionals need powerful wireless tools that can be set up quickly and used confidently. Shure's rugged SLX Wireless Systems exceed these demands with innovative automatic setup features, exceptional wireless clarity and legendary Shure microphones. Supporting up to 20 compatible systems across multiple UHF frequency bands, SLX smoothly integrates into houses of worship, lecture halls, conference rooms and mobile gear cases.

### Shure's patented Audio Reference Companding

Delivers crystal-clear audio transmission, far superior to conventional wireless technology

### Auto Frequency Selection

Locates a clear channel instantly

### Auto Transmitter Setup

Infrared link automatically syncs the transmitter and receiver



### Wireless Receiver

- Detachable ¼ wave antennas
- Backlit LCD
- Rack-mount hardware included
- ¼" and XLR audio outputs
- Frequency and power lockout
- Volume control on rear of unit
- Rugged metal construction

### Handheld or Bodypack Transmitter

- Choice of Shure handheld microphones
- Bodypack works with headworn, lavalier and instrument microphones and cables
- Timed backlit LCD
- Frequency and power lockout
- 2 AA batteries (included) provide 8 hours of continuous use
- 100m (300 ft.) operating range

# Available System Options

## Handheld



**SM58®**  
SM86  
BETA 58A®

**BETA 87A**  
BETA 87C

### Systems include:

SLX4 Diversity Receiver and a choice of Handheld Microphone Transmitter.

SLX24/SM58  
SLX24/SM86  
SLX24/BETA58

SLX24/BETA87A  
SLX24/BETA87C

## Lavalier



**WL93**  
WL184  
WL185

### Systems include:

SLX4 Diversity Receiver, SLX1 Bodypack Transmitter and a choice of Microphone or Guitar/Bass Cable.

SLX14/93    SLX14/SM35    SLX14    SLX14/BETA98H  
SLX14/84  
SLX14/85

## Headworn



**SM35\***  
\*Available in select regions.

## Guitar



**WA302**

## Instrument



**WB98H/C**

## Combo



**SM58®**  
WL185



### System includes:

SLX4 Diversity Receiver, SLX1 Bodypack Transmitter and SLX2 handheld Transmitter.

SLX124/85/SM58

## Wireless Microflex® Boundary/Gooseneck



**MX690**



**MX405**  
with MX890



**MX410**  
with MX890

Microflex Microphones are sold as components only.

## Optional Accessories

- UA221** Passive Antenna Splitter
- UA505** Remote Mount Kit for ½ wave antennas
- UA820** ½ Wave Antennas
- UA825** 25' cable for ½ wave antennas
- UA844SWB** Antenna/Power Distribution System
- UA850** 50' cable for ½ wave antennas
- UA830** Active Remote Antenna Kit (UA844 required)
- UA870** Active Directional Antenna (UA844 required)
- WA610** Universal Hard Carrying Case transmitter

## Optional Logic Functionality

A logic circuit and associated block connector is provided on the SLX4L receiver, designed to function optimally with software echo cancellers and provide remote monitoring of transmitter battery life. Supported models include MX690, MX890, and SLX4L receiver.

- SLX4L** Wireless Receiver with Logic
- MX690** Wireless Microflex® Boundary Microphone
- MX890** Wireless Microflex® Desktop Base

# System Specifications

NOTE: All specifications are subject to change.

## Frequency Range and Transmitter Output Level

Band	Range	SLX1/SLX2	MX690/ MX890
H5	518–542 MHz	30 mW	10 mW
J3	572–596 MHz	28 mW	28 mW
L4	638–662 MHz	30 mW	10 mW
P4	702–726 MHz	30 mW	10 mW
R5	800–820 MHz	20 mW	10 mW
S6	838–865 MHz	10 mW	10 mW
JB	806–810 MHz	10 mW	10 mW
Q4	740–752 MHz	10 mW	10 mW
R13	794–806 MHz	20 mW	10 mW
G4	470–494 MHz	30 mW	10 mW
G5	494–518 MHz	30 mW	10 mW

### Operating Range:

30–100 m (100–300 ft.) under typical conditions, depending on transmitter type

Note: actual range depends on RF signal absorption, reflection, and interference.

### Audio Frequency Response:

Minimum: 45 Hz, Maximum: 15 kHz ( $\pm 2$  dB)

### Total Harmonic Distortion:

0.5%, typical (ref.  $\pm 38$  kHz deviation, 1 kHz tone)

### Dynamic Range:

>100 dB A-weighted

### Operating Temperature Range:

$-18^{\circ}\text{C}$  ( $0^{\circ}\text{F}$ ) to  $+50^{\circ}\text{C}$  ( $+122^{\circ}\text{F}$ )

Note: battery characteristics may limit this range.

### Transmitter Audio Polarity:

Positive pressure on microphone diaphragm (or positive voltage applied to tip of WA302 phone plug) produces positive voltage on pin 2 (with respect to pin 3 of low impedance output) and the tip of the high impedance  $\frac{1}{4}$ -inch output.

NOTE: This radio apparatus may be capable of operating on some frequencies not authorized in your region. Please contact your national authority to obtain information on authorized frequencies and output power levels for wireless microphone products in your region.



- No “breathing” noise
- Lower noise floor
- More headroom - won't clip as easily
- Clearer sound at all audio levels
- Sounds more like a wired mic

**SHURE**<sup>®</sup>  
LEGENDARY  
PERFORMANCE™

United States, Canada,  
Latin America, Caribbean:  
Shure Incorporated  
5800 West Touhy Avenue  
Niles, IL 60714-4608 USA

Phone: +1 847-600-2000  
Fax: +1 847-600-1212 (USA)  
Fax: +1 847-600-6446  
Email: info@shure.com  
www.shure.com

Europe, Middle East, Africa:  
Shure Europe GmbH  
Jakob-Dieffenbacher-Str. 12,  
75031 Eppingen, Germany

Phone: +49-7262-92490  
Fax: +49-7262-9249114  
Email: info@shure.de  
www.shure.eu

Asia, Pacific:  
Shure Asia Limited  
22/F, 625 King's Road  
North Point, Island East  
Hong Kong

Phone: +852-2893-4290  
Fax: +852-2893-4055  
Email: info@shure.com.hk  
www.shureasia.com

# Component Specifications

## Receiver



SLX4 Receiver Front



SLX4 Receiver Rear



SLX4L Receiver Rear

### SLX4/SLX4L

#### Housing:

Galvanized steel

#### Audio Output Level:

(ref.  $\pm 38$  kHz deviation with 1 kHz tone)  
XLR connector (into 600  $\Omega$  load):  
-13 dBV  
 $\frac{1}{4}$  inch connector (into 3000  $\Omega$  load):  
-2 dBV

#### Sensitivity:

-105 dBm for 12 dB SINAD, typical

#### Image Rejection

>70 dB, typical

#### Power:

12–18 Vdc at 150 mA, supplied by external power supply

#### Weight:

816 g (1 lb. 13 oz.)

#### Dimensions:

42 mm H x 197 mm W x 134 mm D

## Handheld Transmitter



### SLX2

#### Housing:

Molded ABS handle and battery cup

#### Audio Input Level:

-8 dBV maximum at OdB position

#### Operating range:

100 m (300 ft.)

#### Power Requirements:

2 “AA” size alkaline or rechargeable batteries

#### Battery Life (alkaline):

>8 hours

#### Weight:

290 grams (10.2 oz.) without batteries

#### Dimensions:

254 mm x 51 mm dia. (incl. SM58 cartridge)

## Bodypack Transmitter



### SLX1

#### Housing:

Molded ABS case

#### Audio Input Level:

+10 dBV max. at 0 dB gain position

#### Operating range:

100 m (300 ft.)

#### Power Requirements:

2 “AA” size alkaline or rechargeable batteries

#### Battery Life (alkaline):

>8 hours

#### Weight:

81 grams (3 oz.) without batteries

#### Dimensions:

108 mm H x 64 mm W x 19 mm D

## Wireless Boundary Microphone



### MX690

#### Operating Range:

30 m (100 ft.) Note: Actual range depends on RF signal absorption, reflection, and interference

#### Type:

Condenser (electret bias)

#### Polar Pattern (at 1 kHz):

Cardioid

#### Power Requirements:

2 “AA” size alkaline or rechargeable batteries

#### Battery Life:

$\geq 8$  hours (alkaline)

#### Dimensions:

43 mm H x 87 mm W x 148 mm D

#### Weight:

Net: 318 g (11.2 oz)  
Packaged: 516 g (18.2 oz)

## Gooseneck Microphone with Wireless Desktop Base



### MX405 & MX410

#### Type:

Condenser (electret bias)

#### Polar Pattern:

MX405/C, MX410/C: Cardioid  
MX405/S, MX410/S:  
Supercardioid

#### Weight:

Net MX405: 54 g (1.9 oz)  
Net MX410: 68 g (2.3 oz)

#### Dimensions:

MX405: 152mm L x 7.5mm dia.  
MX410: 251 mm L x 7.5 mm dia.



### MX890

#### Operating Range:

30 m (100 ft.) Note: Actual range depends on RF signal absorption, reflection, and interference

#### Power Requirements:

2 “AA” size alkaline or rechargeable batteries

#### Battery Life:

$\geq 8$  hours (alkaline)

#### Weight:

Net: 312 g (11 oz)

#### Dimensions:

43 mm H x 87 mm W x 148 mm D



## DATA SHEET

# TESIRAFORTÉ® CI FIXED I/O DSP



TesiraFORTÉ® CI is a fixed I/O DSP with 12 analog inputs and 8 analog outputs and includes Acoustic Echo Cancellation (AEC) technology on all 12 inputs. It also includes up to 8 channels of configurable USB audio. 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 CI 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 CI is best suited for small- to medium-sized rooms that require high-quality audio solutions using AEC, voice lift, and mix-minus, such as conference rooms or distance learning environments.

### BENEFITS

- 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
- Acoustic Echo Cancellation (AEC) technology on all 12 inputs
- SpeechSense™ technology enhances speech processing
- Integrates directly with soft codecs and other USB audio hosts

### FEATURES

- 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)
- Supports port authentication via IEEE 802.1X
- System configuration and control via Ethernet
- Internal universal power supply
- 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

Biamp, Tesira, and TesiraFORTÉ are either trademarks or registered trademarks of Biamp Systems, LLC in the United States and other countries. Other product names referenced may be trademarks or registered marks of their respective owners and Biamp Systems is not affiliated with or sponsored by these companies.

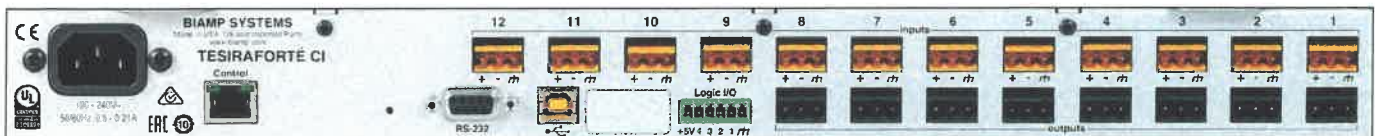
## ARCHITECTS & ENGINEERS SPECIFICATION

The fixed I/O DSP shall be designed exclusively for use with Tesira® systems. The fixed I/O DSP shall support Ethernet connection for programming and control on a RJ-45 connector. The fixed I/O DSP shall have internal DSP processing. The fixed I/O 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 fixed I/O DSP shall include a RS-232 connection for control data transmission into or out of the fixed I/O DSP and such operation shall be software programmable. The fixed I/O DSP shall include a Universal Serial Bus (USB) connection on a standard USB-B type connector. The fixed I/O DSP shall be software configurable to stream up to 8 channels of digital USB Class 1 Audio transmission either into or out of the fixed I/O DSP or simultaneous input and output. The fixed I/O DSP shall support port authentication via IEEE 802.1X. The fixed I/O 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 fixed I/O 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 fixed I/O DSP shall provide front panel OLED identification of device power, status, alarm, and activity as well as system-wide alarm. The fixed I/O 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 fixed I/O DSP shall be CE marked, UL listed, and shall be compliant with the RoHS directive. Warranty shall be five years. The fixed I/O DSP shall be TesiraFORTÉ® CI.

## TESIRAFORTÉ CI SPECIFICATIONS

<b>Frequency Response:</b>		<b>Crosstalk, channel to channel, 1 kHz:</b>	
20Hz to 20kHz, +4dBu output:	+0.25 dB/-0.5 dB	0dB gain, +4dBu input:	< -85dB
<b>THD+N (22Hz to 22kHz):</b>		54dB gain, -50dBu input:	< -75dB
0dB gain, +4dBu input:	< 0.006%	<b>Sampling Rate:</b>	48kHz
54dB gain, -50dBu input:	< 0.040%	<b>A/D - D/A Converters:</b>	24-bit
<b>EIN (no weighting, 22Hz to 22kHz):</b>	< -125dBu	<b>Power Consumption:</b>	100-240VAC 50/60Hz: < 35W
<b>Dynamic Range (in presence of signal)</b>		<b>USB:</b>	
22Hz to 22kHz, 0dB gain:	> 108dB	Bit Depth:	16- or 24-bit
<b>Input Impedance (balanced):</b>	8kΩ	Number of Channels:	up to 8
<b>Output Impedance (balanced):</b>	207Ω	Sample Rate:	48kHz
<b>Maximum Input:</b>	+24dBu	<b>Environment:</b>	
<b>Maximum Output (selectable):</b>	+24dBu, +18dBu, +12dBu, +6dBu, 0dBu, -31dBu	Ambient Operating Temperature Range:	32-104° F (0-40° C)
<b>Input Gain Range (6dB steps):</b>	0-66dB	Humidity:	0-98%, non-condensing
<b>Overall Dimensions:</b>		Altitude:	0-6,600 feet (0-2000 Meters) MSL
Height:	1.75 inches (44 mm)	<b>Compliance:</b>	
Width:	19.0 inches (483 mm)		FCC Part 15B (USA)
Depth:	10.5 inches (267 mm)		CE marked (Europe)
Weight:	8 lbs (3.63 kg)		UL und C-UL listed (USA and Canada)
<b>Phantom Power:</b>	+48VDC (7mA/input)		RCM (Australia)
			RoHS Directive (Europe)

## TESIRAFORTÉ CI BACK PANEL



# AMP-2100 Series

## Dual-Channel Modular Power Amplifiers, 100W/Ch.; 4/8Ω, 70V, or 100V

- > ENERGY STAR® certified power amplifier
- > Ultra-efficient space-saving design
- > Choice of 4/8Ω, 70V, or 100V outputs
- > Two channels, 100 Watts per channel
- > Half-width, 1 RU form factor
- > Surface or rack mountable
- > Gangable with other Crestron® modular amps
- > All mounting and ganging hardware included
- > High-density stackable
- > Convection cooling — no mechanical fans
- > Comprehensive fault and speaker protection
- > Clip limiters
- > Low noise, low distortion, high headroom
- > Low power consumption
- > Automatic low-power standby
- > Balanced and unbalanced inputs
- > Detachable terminal blocks for easy servicing
- > Front panel level adjustments with tamper-preventive magnetic cover
- > Front panel power/standby, fault, and signal/clip indicators
- > Internal universal 100-240V power supply

Finally, a space saving, energy efficient, commercial grade, professional performance amplifier solution that's totally configurable yet remarkably straightforward. Whether you need a stereo amp that mounts on a wall or under a table, or a multichannel rack mount amp with multiple output types and power levels, Crestron® modular amps are astoundingly simple to specify and install in any configuration you require.

### All-Inclusive Modular Design

Crestron modular amplifiers are offered in a range of output power levels, with single and dual-channel models available, and with options to address either Lo-Z (4/8 Ω) or Hi-Z (70 or 100 Volt) speaker types. Each model is housed in either a quarter- or half-width rack-mountable form factor that can be installed individually or ganged together in a single rack space. (All AMP-2100 models are half-width.) Every model ships complete with all the hardware required for installation of the unit by itself or in combination with any other unit(s). Rack and surface mount kits are included, so there are no other mounting accessories or rack shelves to purchase.

Whether mounting in a rack, attaching to a flat surface, or simply placing on a shelf, it's easy to combine multiple units into a single assembly. Just remove a couple of screws, slide the side panel off and attach it to the next unit, slide the two units together, and reinstall the screws. The complete multichannel amp assembly is sturdy and solid, with the look of a full-space unit. Attach the appropriate sized rack ears or surface brackets and it's ready to mount.



### 4/8Ω, 70V, or 100V Output

The AMP-2100 is a dual channel amplifier, conservatively rated at 100 Watts per channel, with a choice of “Lo-Z” outputs to drive 4 or 8 Ohm speakers, or “Hi-Z” outputs to drive a distributed speaker system. Three models are offered: The AMP-2100 model has 4/8 Ω outputs, the AMP-2100-70 has 70 Volt outputs, and the AMP-2100-100 has 100 Volt outputs. Output wiring is facilitated using detachable terminal blocks. Balanced and unbalanced inputs are provided for connection to one stereo or two mono source(s) via a detachable terminal block or RCA connectors.

### Solid & Efficient Performance

All Crestron modular amps are engineered to deliver exceptional performance and reliability with low distortion, low noise, and high power headroom. Advanced Class D technology maximizes efficiency to reduce power consumption and heat dissipation. An internal universal power supply with power factor correction ensures consistent performance at varying line voltages.

### Convection Cooled

The ultra-efficient design of the AMP-2100 ensures cool running operation without the use of internal fans. This means there's no fan noise to disturb nearby listeners and no moving parts to break down. Cool operation also helps to ensure long term reliability. The AMP-2100 is high-density stackable with other Crestron modular amps, allowing multiple units to be installed vertically in an equipment rack without extra ventilation space in between.

### Fully Protected

The AMP-2100 features comprehensive protection against overheating, shorted or overloaded speaker lines, excessive input signals, and other faults. Built-in clip limiting prevents extreme output signals and distortion that can damage the speakers or amplifier. In the case of a shorted speaker line or overheating condition, both outputs mute automatically until the fault condition is resolved. In the event of a prolonged fault, such as an internal component failure, the outputs mute instantly and the amplifier shuts down.

# AMP-2100 Dual-Channel Modular Power Amplifiers, 100W/Ch.



Front View



Rear View

## ENERGY STAR® Certified

Its energy-efficient design enables the AMP-2100 to meet demanding ENERGY STAR requirements. Crestron modular amps, like the AMP-2100, allow organizations to fulfill their green initiatives without compromising on audio performance. In addition to its high efficiency under operation, the AMP-2100 draws no added inrush current during power-up, thereby reducing AC circuit requirements and allowing multiple units to be connected to a single switched circuit. To reduce energy usage further, the AMP-2100 automatically enters a low-power standby state if no input signal is detected on either channel for 25 minutes, and returns to full operation within a half-second the instant an input signal is detected.

## SPECIFICATIONS

### Audio

**Input Signal Types:** Balanced or unbalanced analog line-level  
**Output Power, AMP-2100:** 100 Watts per channel @ 4-8 Ohms  
**Output Power, AMP-2100-70:** 100 Watts per channel @ 70 Volts nominal  
**Output Power, AMP-2100-100:** 100 Watts per channel @ 100 Volts nominal  
**Frequency Response, AMP-2100:** 20 Hz to 20 kHz  $\pm 0.5$  dB  
**Frequency Response, AMP-2100-70/100:** 200 Hz to 20 kHz  $\pm 0.5$  dB  
**High-Pass Filter (AMP-2100-70/100 only):** -3 dB @ 80 Hz, 12 dB/octave  
**THD+N:** <0.1%<sup>(1)</sup>  
**S/N Ratio:** >100 dBA, 20 Hz to 20 kHz, balanced  
**Crosstalk:** -75 dB at 1 kHz  
**Input Sensitivity:** 1.23 Vrms, +4 dBu balanced;  
0.316 Vrms, -10 dBV unbalanced;  
For full rated output power  
**Go To Sleep Time:** 25 minutes with no signal present  
**Wake Time:** 0.5 second typical  
**Wake Threshold:** 5 to 20 mV typical  
**Protection:** Clip limiter, over current, under voltage, over temperature, DC offset, extreme high frequency

### Connectors

**SPEAKER OUT 1 – 2:** (2) 2-pin 7.62 mm reversed gender 20A detachable terminal blocks; Power amplifier outputs;  
**Wire Size:** Terminals accept up to 12 AWG (3.31 mm<sup>2</sup>);  
*Note: Outputs are direct-coupled, not transformer isolated*  
**AUDIO IN 1 – 2 (unbalanced):** (2) RCA connectors, female;  
Unbalanced line-level audio inputs;  
Maximum Input Level: 2.24 Vrms, +7 dBV (+9.2 dBu)

**AUDIO IN 1 – 2 (balanced):** (1) 5-pin 3.5 mm detachable terminal block;  
Balanced line-level audio inputs;  
Maximum Input Level: 7.75 Vrms, +20 dBu;  
Input Impedance: 20k Ohms

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

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

### Controls & Indicators

**PWR:** (1) Bi-color green/amber LED, indicates operating power supplied from AC line power, turns green while operating and amber when in standby

**FAULT 1 – 2:** (2) Red LEDs; each indicates an over-temperature or over-current fault on the corresponding channel

**SIGNAL 1 – 2:** (2) Bi-color green/red LEDs, green indicates input signal presence and red indicates input signal clipping on each corresponding channel

**Input Level 1 – 2:** (2) Screwdriver-adjustable rotary controls, each adjusts the input attenuation level for the corresponding channel, tamper-preventive magnetic cover included

### Power

**Main Power:** 1 Amp @ 100-240 Volts AC, 50/60 Hz  
**Power Consumption:** 45 Watts, all channels driven at 1/8th output power;  
16 Watts, idle;  
<0.5 Watt, standby (sleep)

### Environmental

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

### Construction

**Chassis:** Metal, convection-cooled (fanless), vented front and rear  
**Front Panel:** Metal, black finish with polycarbonate label overlay  
**Mounting:** Freestanding, surface-mount, or 1/2-width 1 RU 19-inch rack-mountable; gangable with other Crestron modular AMP series products (adhesive feet, surface mounting kit, ganging kit, and rack mounting kit included)



# AMP-2100 Dual-Channel Modular Power Amplifiers, 100W/Ch.



Two 1/2-width units ganged together (ganging kit and rack mounting kit included)



One 1/2-width and one 1/4-width units ganged together (ganging kit and rack mounting kit included)



Single 1/2-width unit with surface mounting kit (included)

## Dimensions

**Height:** 1.74 in (45 cm) without feet;  
1.82 in (47 mm) with surface kit  
**Width:** 8.65 in (220 mm);  
9.75 in (248 mm) with surface kit;  
19.00 in (483 mm) with rack kit  
**Depth:** 10.46 in (266 mm)

## Weight

4.2 lb (1.9 kg) without mounting kits  
4.5 lb (2.0 kg) maximum with surface or rack kit

## Compliance

ENERGY STAR, ErP (1275/2008/EC), UL 60065, FCC Class A commercial use

## MODELS & ACCESSORIES

### Available Models

AMP-2100: Dual-Channel Modular Power Amplifier, 100W/Ch., 4/8Ω  
AMP-2100-70: Dual-Channel Modular Power Amplifier, 100W/Ch., 70V  
AMP-2100-100: Dual-Channel Modular Power Amplifier, 100W/Ch., 100V

### Available Accessories

CBL Series: Crestron® Certified Interface Cables  
AUD-EXT: Audio over CAT5 Extenders





# Epson PowerLite 700U WUXGA 3LCD Ultra-short Throw Laser Display



Offering superior image quality matched by continuous performance, the PowerLite 700U ultra short-throw 3LCD laser display is ideal for virtually any signage or presentation need. Get stunning images up to 130" diagonal in Full HD — perfect for storefronts, offices, schools and more. Featuring breakthrough laser technology, the PowerLite 700U includes a laser light source that lasts up to 20,000 hours<sup>1</sup>. Plus, Epson® 3LCD projectors deliver high Color Brightness<sup>2</sup>. Additional features include 4,000 lumens of color/white brightness<sup>3</sup>, up to 2,500,000:1 dynamic contrast and expansive connectivity.

- **Model:** V11H878520

# 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.



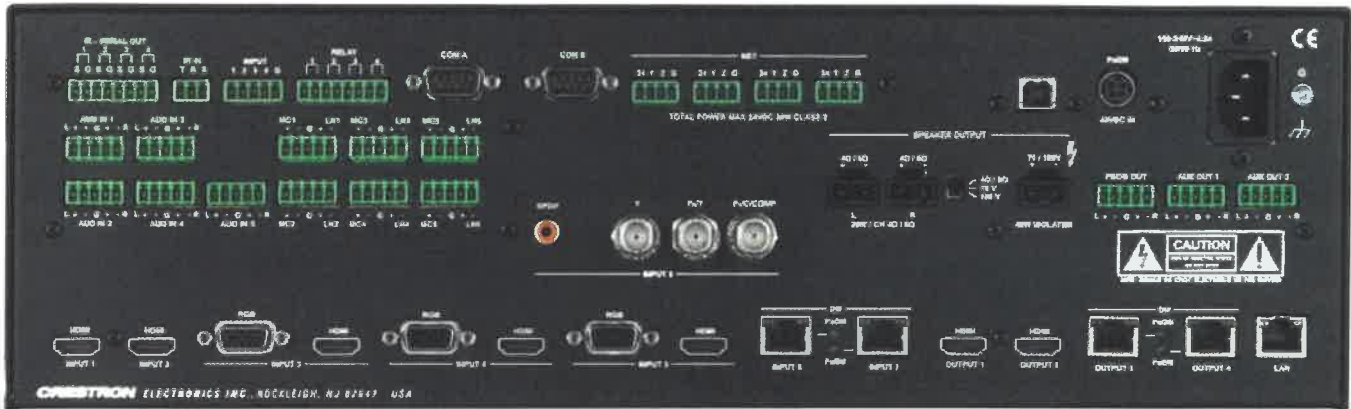
### No Programming Required!

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: [www.crestron.com/avframework](http://www.crestron.com/avframework).<sup>[1]</sup>

- > 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<sup>[1]</sup>
- > Integrated 3-Series Control System® allows fully-programmable room control
- > DigitalMedia 8G+® connectivity enables long-distance wiring over CAT type twisted pair cable<sup>[2]</sup>
- > 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<sup>[2]</sup>
- > Handles RGB, composite, S-Video, component, and stereo audio analog sources<sup>[3]</sup>
- > 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<sup>[7]</sup>
- > 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<sup>[8]</sup>
- > Includes onboard IR, RS-232, relay, digital input, and Crestron® 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<sup>[7]</sup>
- > 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<sup>[6]</sup>
- > 3-space 19-inch rack-mountable

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



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<sup>[2]</sup>, 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.<sup>[3,4]</sup>

## 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.<sup>[5,6]</sup>

## 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

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

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.<sup>[7]</sup>

## 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<sup>\[7\]</sup>](#)), which may be used to enable the routing of multiple USB devices of virtually any type, all seamlessly managed through the DMPS3-300-C.<sup>[8]</sup>

## 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 troubleshooting during installation. Simplified system configuration is enabled using .AV Framework, which is easily configurable via a computer web browser.<sup>[1]</sup> 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 ([CIT-100 series<sup>\[7\]</sup>](#)) 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.



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

## 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<sup>10</sup>, 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<sup>18</sup>; 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<sup>17</sup>

**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<sup>14</sup> (DVI & Dual-Mode DisplayPort compatible<sup>12</sup>), DM 8G+ & HDBaseT w/Deep Color & 3D<sup>14</sup>, RGB/VGA (RGBHV, RGBS, RGSB)<sup>19</sup>, component (YPbPr), S-Video (Y/C), composite (NTSC, PAL)

**Output Signal Types:** HDMI w/Deep Color & 3D<sup>14</sup> (DVI compatible<sup>12</sup>), DM 8G+ & HDBaseT w/Deep Color & 3D<sup>14</sup>

**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

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

## 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<sup>[2]</sup>) 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<sup>[4]</sup>, Dolby® TrueHD<sup>[4]</sup>, Dolby Atmos®<sup>[4]</sup>, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res<sup>[4]</sup>, DTS-HD Master Audio™<sup>[4]</sup>, LPCM up to 8 channels

Digital Formats, SPDIF: LPCM 2-channel

Input Compensation: ±10.0 dB<sup>[3]</sup>

## 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 and Balance

Source: -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)<sup>[11]</sup>

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<sup>[2]</sup>) 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<sup>[3]</sup>

Mics Master: -80 to +10 dB Level adjustment range, plus Mute<sup>[3]</sup>

Source: -80 to +10 dB Level adjustment range, plus Mute and Balance<sup>[3]</sup>

Master Volume: -80 to +10 dB Level adjustment range, plus Mute<sup>[3]</sup>

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<sup>[2,4]</sup>

RGB INPUT 3 – 5: (3) HD15 female;

Analog RGB/VGA/video inputs;

Signal Types: VGA, RGB, component, S-Video, or composite<sup>[9]</sup>;



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

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<sup>[6]</sup>;  
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<sup>[5]</sup>

**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<sup>[2]</sup>

**DM OUTPUT 3 – 4:** (2) 8-pin RJ45 female, shielded;  
DM 8G+ outputs, HDBaseT compliant;  
PoDM and PoH PSE (Power Sourcing Equipment) ports<sup>[6]</sup>;  
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<sup>[5]</sup>

## 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<sup>[7]</sup>;  
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<sup>[6]</sup>;  
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<sup>[6]</sup>

**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<sup>[6]</sup>

**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](http://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](http://www.crestron.com/salesreps) or by calling 800-237-2041.

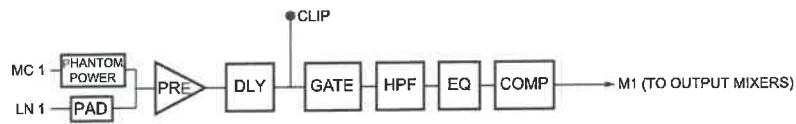
The specific patents that cover Crestron products are listed online at: [patents.crestron.com](http://patents.crestron.com).

Certain Crestron products contain open source software. For specific information, please visit [www.crestron.com/opensource](http://www.crestron.com/opensource).

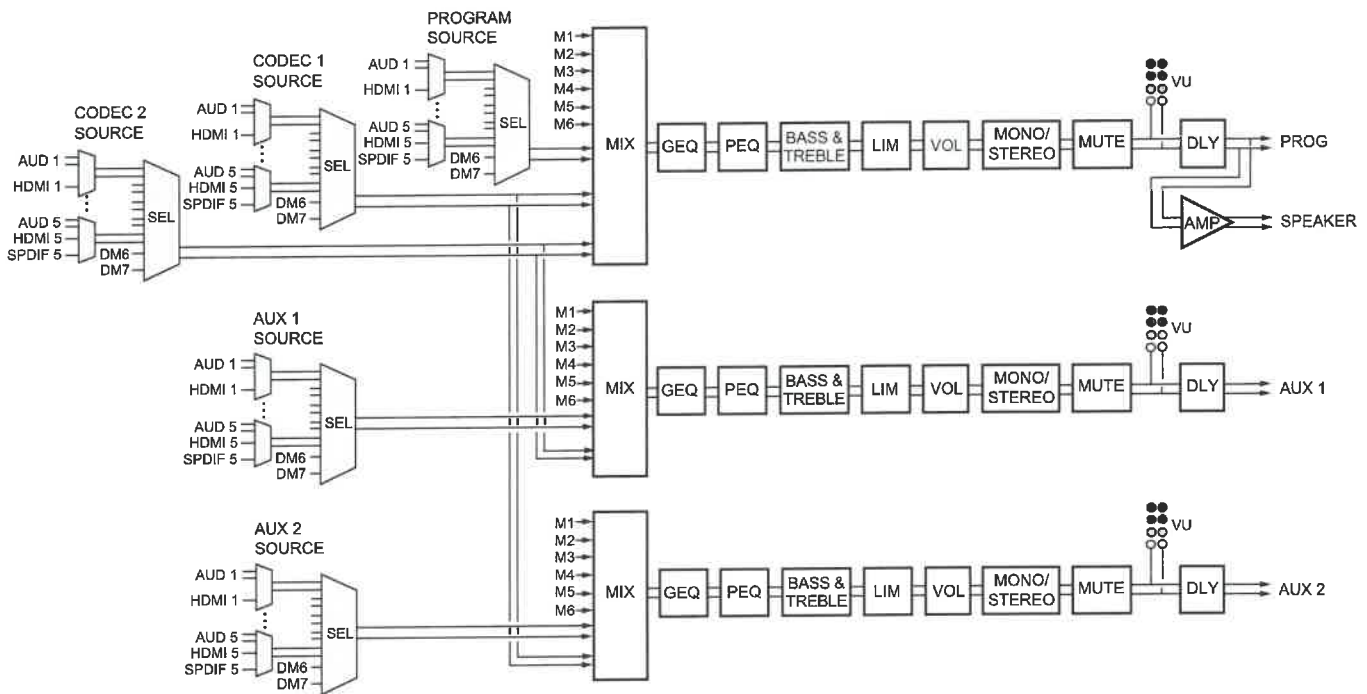
Crestron, the Crestron logo, 3-Series, 3-Series Control System, AirMedia, Auto-Locking, .AV Framework, Cresnet, Crestron Connect It, Crestron Control, Crestron Fusion, Crestron Toolbox, DigitalMedia, DigitalMedia 8G, DigitalMedia 8G+, DM, DM 8G+, QuickSwitch HD, and Smart Graphics are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. BACnet is either a trademark or registered trademark of American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. in the United States and/or other countries. Apple, iPad, and iPhone are either trademarks or registered trademarks of Apple Inc. in the United States and/or other countries. Blu-ray is either a trademark or registered trademark of the Blu-ray Disc Association in the United States and/or other countries. IOS is either a trademark or registered trademark of Cisco Technology, Inc. in the United States and/or other countries. Dolby, Dolby Atmos, and Dolby Digital are either trademarks or registered trademarks of Dolby Laboratories in the United States and/or other countries. DTS, DTS-HD, and DTS-HD Master Audio are either trademarks or registered trademarks of DTS, Inc. in the United States and/or other countries. Android is either a trademark or registered trademark of Google Inc. in the United States and/or other countries. HDBaseT and the HDBaseT Alliance logo are either trademarks or registered trademarks of the HDBaseT Alliance in the United States and/or other countries. HDMI and the HDMI Logo are either trademarks or registered trademarks of HDMI Licensing LLC in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography. Specifications are subject to change without notice. ©2016 Crestron Electronics, Inc.

# DMPS3-300-C 3-Series<sup>®</sup> DigitalMedia<sup>™</sup> Presentation System 300

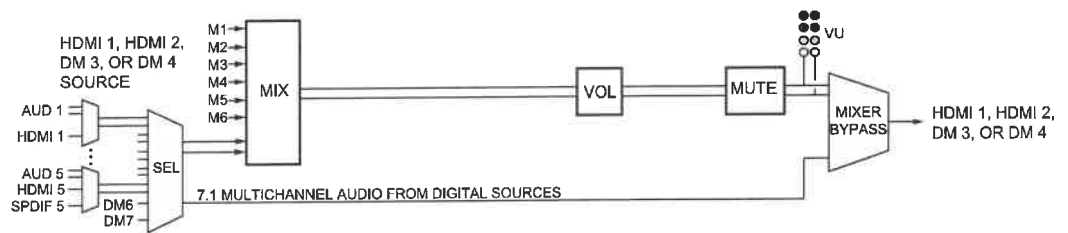
## AV SIGNAL FLOW DIAGRAMS



Microphone Inputs (Typical of 6)



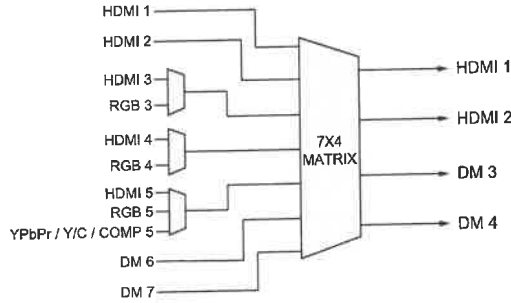
Analog Outputs



Digital Outputs (Typical of 4)

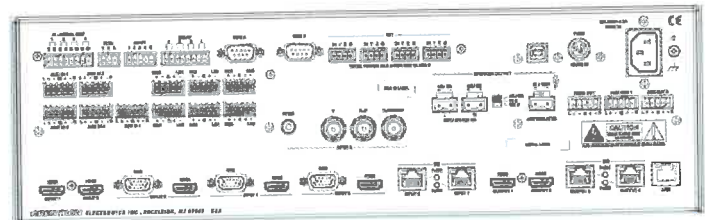
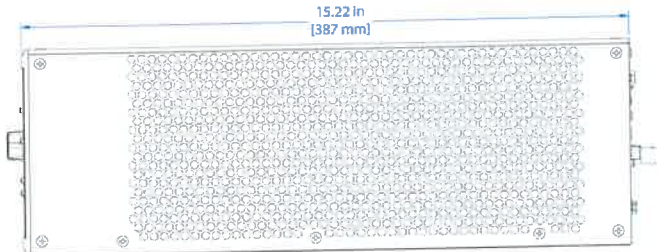
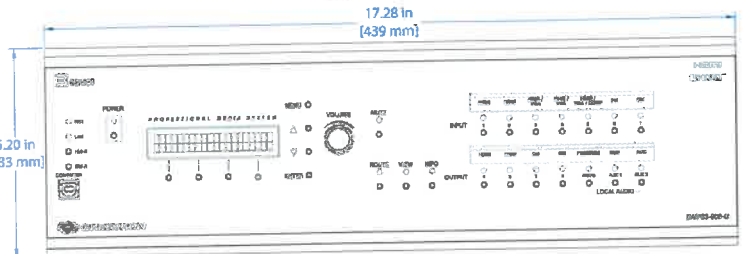
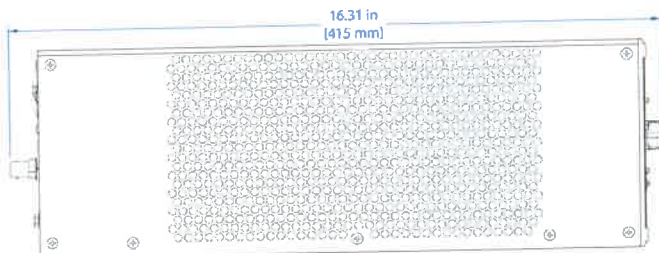
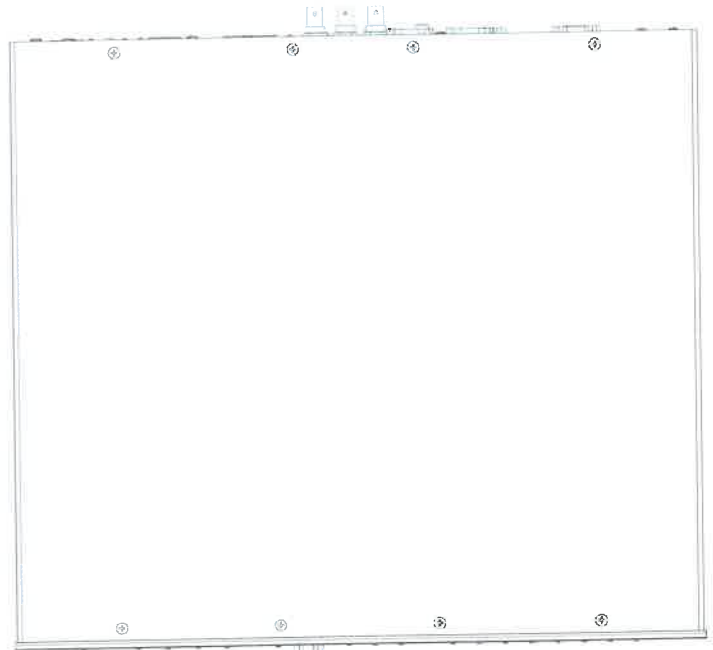


# DMPS3-300-C 3-Series® DigitalMedia™ Presentation System 300



Video

## DIMENSIONAL DIAGRAM



# HD-TXC-101-C-E

## DM Lite – HDMI® over CATx Transmitter w/IR & RS-232, Surface Mount

- > Pairs with a DM Lite receiver to provide a simple point-to-point signal extender
- > Enables extension of HDMI®, RS-232, and IR signals
- > Links to the receiver via a single CAT5e (or better) twisted pair cable<sup>[1]</sup>
- > Supports 4K and UHD at up to 130 ft (40 m)
- > Supports HD 1080p, WUXGA, and 2K at up to 230 ft (70 m)
- > Handles 4K video resolutions up to 4K60 4:2:0 and 4K30 4:4:4
- > Handles 3D video and Deep Color
- > Supports Dolby® TrueHD, Dolby Atmos®, DTS HD®, DTS:X®, and uncompressed 7.1 linear PCM audio
- > Compatible with HDMI, DVI, and Dual-Mode DisplayPort sources<sup>[3]</sup>
- > USB power port supplies power to USB powered devices
- > HDCP 2.2 compliant
- > Passes CEC and EDID signals
- > Extends bidirectional RS-232 and IR control signals
- > Low-profile surface mount design
- > Universal 100-240V power pack included<sup>[2]</sup>



**Important:** This product is not addressable from a control system and offers no programmable functionality. AV, CEC, IR, and RS-232 signals are simply passed through between a single transmitter and receiver pair. The RJ45 link port on this product is exclusively intended for linking with a single DM Lite receiver. It should not be used to connect to any other equipment or network. DM Lite is not compatible with PoE, PoDM, DigitalMedia 8G+® (DM 8G+®), or HDBaseT®.

### SPECIFICATIONS

#### Video

**Input Signal Type:** HDMI w/Deep Color, 3D, & 4K (DVI & Dual-Mode DisplayPort compatible<sup>[3]</sup>)

**Copy Protection:** HDCP 2.2

**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

The HD-TXC-101-C-E is a surface-mountable DM Lite transmitter designed to pair with a DM Lite receiver to form a point-to-point signal extender for HDMI®, RS-232, and IR signals. The DM Lite family of products offers a very simple and versatile solution for extending HD, UHD, 2K, and 4K video signals, with stereo or surround sound audio, over a single CAT5e (or better) cable. A cable length of up to 230 ft (70 m) is supported for HD 1080p, WUXGA, and 2K signals, or up to 130 ft (40 m) for UHD and 4K. In addition to video and audio, the HD-TXC-101-C-E supports the extension of RS-232 and IR control signals in either direction.<sup>[1]</sup>

For applications requiring a wall plate version, refer to the HD-TXC-101-C-1G-E-B-T or HD-TXC-101-C-1G-E-W-T.

For applications that do not require IR or RS-232 signal extension, refer to the HD-TX-101-C-E.

The USB power port supplies power only (500 mA maximum) and is suitable for general use to power USB powered devices. No USB data is passed through this connection. It cannot be used to extend USB data, video, or audio signals.

The HD-TXC-101-C-E is designed to mount on a flat surface beneath a table, behind a credenza, or inside a podium. It can also be attached to a single rack rail in the back of an equipment cabinet. When powered using the provided wall mount power pack, the HD-TXC-101-C-E also supplies power to the connected receiver over the link cable. Alternately, a power pack may be connected to the receiver, which in turn supplies power to the HD-TXC-101-C-E over the link cable.<sup>[2]</sup>



# HD-TXC-101-C-E DM Lite – HDMI® over CATx Transmitter w/IR & RS-232



**HDMI IN:** (1) HDMI Type A connector, female;  
HDMI digital video/audio input (DVI and Dual-Mode DisplayPort compatible<sup>[3]</sup>)

**IR IN/OUT:** (1) 4-pin 3.5 mm detachable terminal block;  
Comprises (1) IR input port and (1) IR output port;  
IR IN is for connection from a Crestron IR control port or other IR signal source and passes the IR input signal to the IR OUT port on the RX;  
IR OUT is for connection to an IR emitter (IRP2, sold separately) and transmits the IR signal from the IR IN port on the RX;  
Supports IR up to 60 kHz

**COM:** (1) 3-pin 3.5 mm detachable terminal block;  
Bidirectional RS-232 port;  
Passes RS-232 TD/RD data to/from the COM port on the RX;  
Supports up to 115.2k baud

**POWER ONLY:** (1) USB Type A connector, female;  
USB power port (500 mA maximum output);  
Supplies power to a USB powered device

## Indicators

**PWR:** (1) Green LED, indicates operating power is supplied from the power pack via the 24VDC input or from the RX via the DM Lite link  
**HDMI IN:** (1) Green LED, indicates HDMI input signal presence  
**LINK:** (1) Green LED, indicates the DM Lite link status  
**TO RX:** (2) LEDs (on RJ45 connector), green LED indicates link status, amber LED indicates a valid video signal

## Power

**Power Pack (included):** Input: 100-240 Volts AC, 50/60 Hz;  
Output: 1.25 Amps @ 24 Volts DC;  
Model: [PW-2412WU](#)

*Note: The transmitter and receiver are powered together using a single power pack connected at either the transmitter or receiver (not both).<sup>[2]</sup>*

## Environmental

**Temperature:** 32° to 104° F (0° to 40° C)  
**Humidity:** 20% to 90% RH (non-condensing)

## Construction

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

## Dimensions

**Height:** 1.26 in (32 mm)  
**Width:** 4.21 in (107 mm)  
**Depth:** 4.07 in (104 mm)

## Weight

9.95 oz (282 g)

## Audio

**Input Signal Type:** HDMI (Dual-Mode DisplayPort compatible<sup>[3]</sup>)  
**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, DTS:X, LPCM up to 8 channels

## Communications

**HDMI:** HDCP 2.2, EDID, CEC pass-through  
**RS-232:** 2-way serial pass-through up to 115.2k baud (TD/RD only)  
**IR:** Bidirectional IR signal pass-through up to 60 kHz  
**DM Lite Link:** Proprietary link for connection between one DM Lite TX & RX only

## Connectors

**24VDC 1.25A:** (1) 2.1 x 5.5 mm DC power connector;  
24 Volt DC power input;

[PW-2412WU](#) power pack included;

*Note: This connection powers both the transmitter and receiver<sup>[2]</sup>*

**TO RX:** (1) 8-pin RJ45 connector, female, shielded;  
Link port for connection to a DM Lite receiver<sup>[1]</sup>

# HD-TXC-101-C-E DM Lite – HDMI® over CATx Transmitter w/IR & RS-232

## Compliance

UL Listed for US & Canada, CE, IC, FCC Part 15 Class B digital device

## Maximum DM Lite Link Cable Lengths

Cable Type:	CAT5e (or better), DM-CBL-ULTRA DM® Ultra Cable, or DM-CBL-8G DM 8G® Cable <sup>[1]</sup>
Resolution:	
1920x1080 FHD 1080p	230 ft (70 m)
1920x1200 WUXGA	
1600x1200 UXGA	
2048x1080 DCI 2K	
2048x1152 QWXGA	
2560x1080 UWFHD	130 ft (40 m)
2560x1440 WQHD	
2560x1600 WQXGA	
3840x2160 4K UHD	
4096x2160 DCI 4K	

## MODELS & ACCESSORIES

### Available Models

HD-TXC-101-C-E: DM Lite – HDMI® over CATx Transmitter w/IR & RS-232, Surface Mount

### Included Accessories

PW-2412WU: Wall Mount Power Pack, 24VDC, 1.25A, 2.1mm, Universal (Qty. 1 included)

### Available Accessories

HD-RXC-101-C-1G-E-B-T: DM Lite – HDMI® over CATx Receiver w/IR & RS-232, Wall Plate, Black Textured

HD-RXC-101-C-E: DM Lite – HDMI® over CATx Receiver w/IR & RS-232, Surface Mount

DM-CBL-ULTRA-PC Series: DigitalMedia™ Ultra Patch Cables

DM-CONN-ULTRA-RECP Series: DigitalMedia™ Ultra Keystone RJ45 Jacks

DM-RPP-K24: DigitalMedia™ 24-Port Keystone Patch Panel

DM-CBL-8G-NP Series: DigitalMedia 8G™ Cable, non-plenum

DM-CBL-8G-P Series: DigitalMedia 8G™ Cable, plenum

DM-8G-CONN-WG: Connector with Wire Guide for DM-CBL-8G

DM-8G-CRIMP-WG: Crimping Tool for DM-8G-CONN-WG

DM-CBL-ULTRA-NP Series: DigitalMedia™ Ultra Cable, Non-Plenum Type CMR

DM-CBL-ULTRA-P Series: DigitalMedia™ Ultra Cable, Plenum Type CMP

DM-CBL-ULTRA-LSZH Series: DigitalMedia™ Ultra Cable, Low Smoke Zero Halogen (Available only in Europe)

DM-CONN-20: Connectors for DM-CBL-ULTRA DigitalMedia Ultra Cable

CBL Series: Crestron® Certified Interface Cables

IRP2: IR Emitter

### Notes:

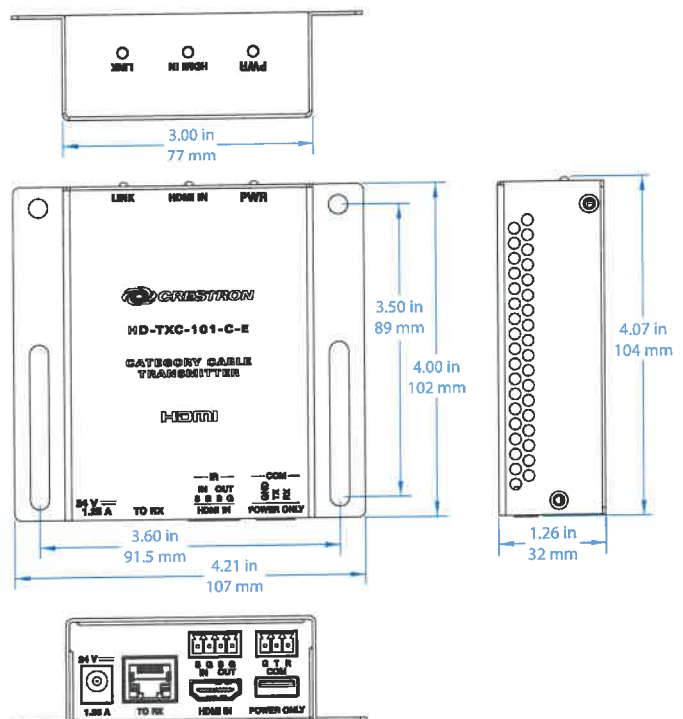
- For the DM Lite link cable, use Crestron DM-CBL-8G DigitalMedia 8G™ cable, Crestron DM-CBL-ULTRA DigitalMedia™ Ultra cable, or third-party CAT5e (or better). The maximum cable length is 230 ft (70 m) for resolutions up to 2K or 130 ft (40 m) for higher resolution signals up to 4K. Refer to the "Maximum DM Lite Link Cable Lengths" table for a more detailed overview. Shielded cable and connectors are required when bundling multiple cables in a wire run, and are recommended for all applications to safeguard against unpredictable environmental electrical noise which may impact performance at resolutions above 1080p. All wire and cables are sold separately. DM Lite devices are not compatible with DigitalMedia 8G+ (DM 8G+), HDBaseT, PoE, PoDM, or any other CATx based interface or network.
- The power pack may be connected to either the transmitter or receiver. Only one power pack is required. Do not connect more than one power pack. DM Lite devices are not compatible with PoE or PoDM.
- The HDMI input requires an appropriate adapter or interface cable to accommodate a DVI or Dual-Mode DisplayPort signal. CBL-HD-DVI interface cables are available 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 <https://www.crestron.com/How-To-Buy/Find-a-Representative> or by calling 855-263-8754.

The specific patents that cover this and other Crestron products are listed online at <https://www.crestron.com/legal/patents>.

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

Crestron, the Crestron logo, Crestron Mercury, DigitalMedia, DigitalMedia 8G, DigitalMedia 8G+, DM, DM 8G, and DM 8G+ are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. Dolby, Dolby Atmos, and Dolby Digital are either trademarks or registered trademarks of Dolby Laboratories in the United States and/or other countries. DTS, DTS HD, and DTS:X are either trademarks or registered trademarks of DTS, Inc. in the United States and/or other countries. HDBaseT is either a trademark or registered trademark of HDBaseT Alliance in the United States and/or other countries. HDMI and the HDMI Logo are either trademarks or registered trademarks of HDMI Licensing LLC in the United States and/or other countries. USB Type-C is either a trademark or registered trademark of USB Implementers Forum, Inc. in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography. Specifications are subject to change without notice. ©2018 Crestron Electronics, Inc.



# HD-RXC-101-C-E

## DM Lite – HDMI® over CATx Receiver w/IR & RS-232, Surface Mount

- > Pairs with a DM Lite transmitter to provide a simple point-to-point signal extender
- > Enables extension of HDMI®, RS-232, and IR signals
- > Links to the transmitter via a single CAT5e (or better) twisted pair cable<sup>[1]</sup>
- > Supports 4K and UHD at up to 130 ft (40 m)
- > Supports HD 1080p, WUXGA, and 2K at up to 230 ft (70 m)
- > Handles 4K video resolutions up to 4K60 4:2:0 and 4K30 4:4:4
- > Handles 3D video and Deep Color
- > Supports Dolby® TrueHD, Dolby Atmos®, DTS HD®, DTS:X®, and uncompressed 7.1 linear PCM audio
- > Compatible with HDMI and DVI display devices<sup>[2]</sup>
- > HDCP 2.2 compliant
- > Passes CEC and EDID signals
- > Extends bidirectional RS-232 and IR control signals
- > Low-profile surface mount design
- > Universal 100-240V power pack included<sup>[2]</sup>



### SPECIFICATIONS

#### Video

Output Signal Type: HDMI w/Deep Color, 3D, & 4K (DVI compatible<sup>[3]</sup>)  
Copy Protection: HDCP 2.2

#### 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
	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

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, DTS:X, LPCM up to 8 channels

#### Communications

HDMI: HDCP 2.2, EDID, CEC pass-through

RS-232: 2-way serial pass-through up to 115.2k baud (TD/RD only)

IR: Bidirectional IR signal pass-through up to 60 kHz

DM Lite Link: Proprietary link for connection between one DM Lite TX & RX only

The HD-RXC-101-C-E is a surface-mountable DM Lite receiver designed to pair with a DM Lite transmitter to form a point-to-point signal extender for HDMI®, RS-232, and IR signals. The DM Lite family of products offers a very simple and versatile solution for extending HD, UHD, 2K, and 4K video signals, with stereo or surround sound audio, over a single CAT5e (or better) cable. A cable length of up to 230 ft (70 m) is supported for HD 1080p, WUXGA, and 2K signals, or up to 130 ft (40 m) for UHD and 4K. In addition to video and audio, the HD-RXC-101-C-E supports the extension of RS-232 and IR control signals in either direction.<sup>[1]</sup>

For applications requiring a wall plate version, refer to the HD-RXC-101-C-1G-E-B-T.

For applications that do not require IR or RS-232 signal extension, refer to the HD-RX-101-C-E.

The HD-RXC-101-C-E is designed to mount on a wall behind a flat-panel display, on the ceiling above a projector, or on any other flat surface. It can also be attached to a single rack rail in the back of an equipment cabinet. When powered using the provided wall mount power pack, the HD-RXC-101-C-E also supplies power to the connected transmitter over the link cable. Alternately, a power pack may be connected to the transmitter, which in turn supplies power to the HD-RXC-101-C-E over the link cable.<sup>[2]</sup>

**Important:** This product is not addressable from a control system and offers no programmable functionality. AV, CEC, IR, and RS-232 signals are simply passed through between a single transmitter and receiver pair. The RJ45 link port on this product is exclusively intended for linking with a single DM Lite transmitter. It should not be used to connect to any other equipment or network. DM Lite is not compatible with PoE, PoDM, DigitalMedia 8G+® (DM 8G+®), or HDBaseT®.

# HD-RXC-101-C-E DM Lite – HDMI® over CATx Receiver w/IR & RS-232

## Connectors

**24VDC 1.25A:** (1) 2.1 x 5.5 mm DC power connector;  
24 Volt DC power input;

**PW-2412WU** power pack included;

*Note: This connection powers both the receiver and transmitter<sup>[2]</sup>*

**FROM TX:** (1) 8-pin RJ45 connector, female, shielded;  
Link port for connection to a DM Lite transmitter<sup>[1]</sup>

**HDMI OUT:** (1) HDMI Type A connector, female;  
HDMI digital video/audio output (DVI compatible<sup>[3]</sup>)

**IR IN/OUT:** (1) 4-pin 3.5 mm detachable terminal block;  
Comprises (1) IR input port and (1) IR output port;  
IR IN is for connection from a Crestron IR control port or other IR signal source and passes the IR input signal to the IR OUT port on the TX;  
IR OUT is for connection to an IR emitter (**IRP2**, sold separately) and transmits the IR signal from the IR IN port on the TX;  
Supports IR up to 60 kHz

**COM:** (1) 3-pin 3.5 mm detachable terminal block;  
Bidirectional RS-232 port;  
Passes RS-232 TD/RD data to/from the COM port on the TX;  
Supports up to 115.2k baud

## Indicators

**PWR:** (1) Green LED, indicates operating power is supplied from the power pack via the 24VDC input or from the TX via the DM Lite link

**HDMI OUT:** (1) Green LED, indicates HDMI output signal presence

**LINK:** (1) Green LED, indicates the DM Lite link status

**FROM TX:** (2) LEDs (on RJ45 connector), green LED indicates link status, amber LED indicates a valid video signal

## Power

**Power Pack (included):** Input: 100-240 Volts AC, 50/60 Hz;  
Output: 1.25 Amps @ 24 Volts DC;  
Model: **PW-2412WU**

*Note: The receiver and transmitter are powered together using a single power pack connected at either the receiver or transmitter (not both).<sup>[2]</sup>*

## Environmental

**Temperature:** 32° to 104° F (0° to 40° C)  
**Humidity:** 20% to 90% RH (non-condensing)

## Construction

**Chassis:** Metal, black finish, with (2) integral mounting flanges, vented sides

**Mounting:** Freestanding, surface mount, or attach to a single rack rail

## Dimensions

**Height:** 1.26 in (32 mm)  
**Width:** 4.21 in (107 mm)  
**Depth:** 4.07 in (104 mm)

## Weight

9.95 oz (282 g)

## Compliance

UL Listed for US & Canada, CE, IC, FCC Part 15 Class B digital device

## Maximum DM Lite Link Cable Lengths

Cable Type:	CAT5e (or better), DM-CBL-ULTRA DM® Ultra Cable, or DM-CBL-8G DM 8G® Cable <sup>[1]</sup>
<b>Resolution:</b>	
1920x1080 FHD 1080p	230 ft (70 m)
1920x1200 WUXGA	
1600x1200 UXGA	
2048x1080 DCI 2K	
2048x1152 QWXGA	
2560x1080 UWFHD	130 ft (40 m)
2560x1440 WQHD	
2560x1600 WQXGA	
3840x2160 4K UHD	
4096x2160 DCI 4K	

## MODELS & ACCESSORIES

### Available Models

**HD-RXC-101-C-E:** DM Lite – HDMI® over CATx Receiver w/IR & RS-232, Surface Mount

### Included Accessories

**PW-2412WU:** Wall Mount Power Pack, 24VDC, 1.25A, 2.1mm, Universal (Qty. 1 included)

### Available Accessories

**HD-TXC-101-C-1G-E-B-T:** DM Lite – HDMI® over CATx Transmitter w/IR & RS-232, Wall Plate, Black Textured

**HD-TXC-101-C-1G-E-W-T:** DM Lite – HDMI® over CATx Transmitter w/IR & RS-232, Wall Plate, White Textured

**HD-TXC-101-C-E:** DM Lite – HDMI® over CATx Transmitter w/IR & RS-232, Surface Mount

**DM-CBL-ULTRA-PC Series:** DigitalMedia™ Ultra Patch Cables

**DM-CONN-ULTRA-RECP Series:** DigitalMedia™ Ultra Keystone RJ45 Jacks

**DM-RPP-K24:** DigitalMedia™ 24-Port Keystone Patch Panel

**DM-CBL-8G-NP Series:** DigitalMedia 8G™ Cable, non-plenum

**DM-CBL-8G-P Series:** DigitalMedia 8G™ Cable, plenum

**DM-8G-CONN-WG:** Connector with Wire Guide for DM-CBL-8G

**DM-8G-CRIMP-WG:** Crimping Tool for DM-8G-CONN-WG

**DM-CBL-ULTRA-NP Series:** DigitalMedia™ Ultra Cable, Non-Plenum Type CMR

**DM-CBL-ULTRA-P Series:** DigitalMedia™ Ultra Cable, Plenum Type CMP



# HD-RXC-101-C-E DM Lite – HDMI® over CATx Receiver w/IR & RS-232



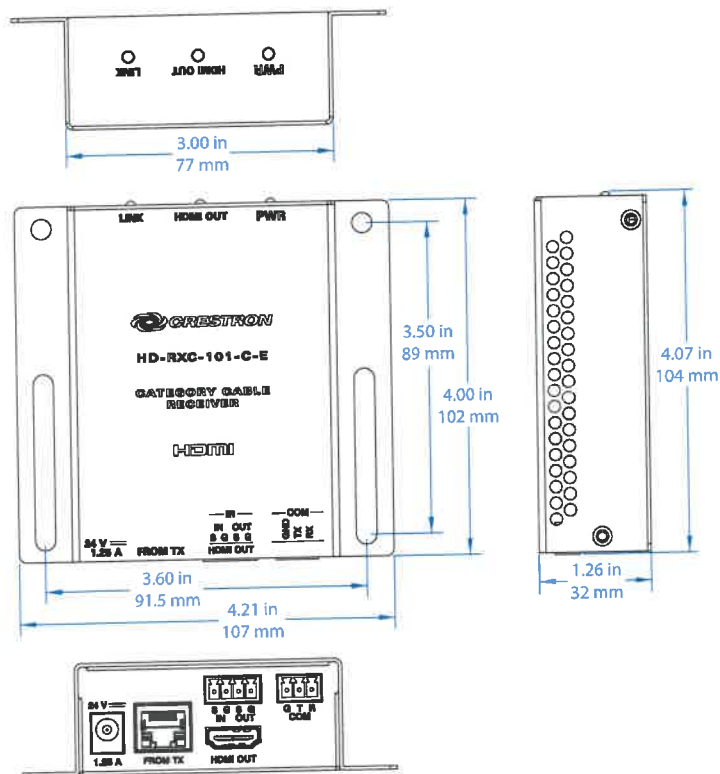
- The power pack may be connected to either the receiver or transmitter. Only one power pack is required. Do not connect more than one power pack. DM Lite devices are not compatible with PoE or PoDM.
- The HDMI output requires an appropriate adapter or interface cable to accommodate a DVI signal. [CBL-HD-DVI](#) interface cables are available 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 <https://www.crestron.com/How-To-Buy/Find-a-Representative> or by calling 855-263-8754.

The specific patents that cover this and other Crestron products are listed online at <https://www.crestron.com/legal/patents>.

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

Crestron, the Crestron logo, DigitalMedia, DigitalMedia 8G, DigitalMedia 8G+, DM, DM 8G, and DM 8G+ are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. Dolby, Dolby Atmos, and Dolby Digital are either trademarks or registered trademarks of Dolby Laboratories in the United States and/or other countries. DTS, DTS HD, and DTS:X are either trademarks or registered trademarks of DTS, Inc. in the United States and/or other countries. HDBaseT is either a trademark or registered trademark of HDBaseT Alliance in the United States and/or other countries. HDMI and the HDMI Logo are either trademarks or registered trademarks of HDMI Licensing LLC in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography. Specifications are subject to change without notice. ©2018 Crestron Electronics, Inc.



- DM-CBL-ULTRA-LSZH Series: DigitalMedia™ Ultra Cable, Low Smoke Zero Halogen (Available only in Europe)
- DM-CONN-20: Connectors for DM-CBL-ULTRA DigitalMedia Ultra Cable
- CBL Series: Crestron® Certified Interface Cables
- CNSP-XX: Custom Serial Interface Cable
- IRP2: IR Emitter

## Notes:

- For the DM Lite link cable, use Crestron [DM-CBL-8G](#) DigitalMedia 8G™ cable, Crestron [DM-CBL-ULTRA](#) DigitalMedia™ Ultra cable, or third-party CAT5e (or better). The maximum cable length is 230 ft (70 m) for resolutions up to 2K or 130 ft (40 m) for higher resolution signals up to 4K. Refer to the "Maximum DM Lite Link Cable Lengths" table for a more detailed overview. Shielded cable and connectors are required when bundling multiple cables in a wire run, and are recommended for all applications to safeguard against unpredictable environmental electrical noise which may impact performance at resolutions above 1080p. All wire and cables are sold separately. DM Lite devices are not compatible with DigitalMedia 8G+ (DM 8G+), HDBaseT, PoE, PoDM, or any other CATx based interface or network.

# Basic Installation Projectors

Designed for medium- and large-sized rooms with high ambient light, these installation projectors offer powerful brightness, super-wide lens shift and robust digital connectivity. Select models offer native Full HD support.



MODEL	PowerLite 5510	PowerLite 5520W	PowerLite 5530U	PowerLite 5535U
Product Code	V11H828020	V11H826020	V11H824020	V11H824120
Replacement Lamp Code	V13H010L95	V13H010L95	V13H010L95	V13H010L95
Case Color	White	White	White	Black
Road Service Warranty*	3-year	3-year	3-year	3-year
Color Brightness (Color Lumens) <sup>5</sup>	5,500	5,500	5,500	5,500
White Brightness (White Lumens) <sup>6</sup>	5,500	5,500	5,500	5,500
Native Resolution <sup>7</sup>	XGA	WXGA	Full HD WUXGA	Full HD WUXGA
Contrast Ratio	Up to 15,000:1	Up to 15,000:1	Up to 15,000:1	Up to 15,000:1
Light Source	Lamp	Lamp	Lamp	Lamp
Light Source Life (Normal/ECO Hours) <sup>10</sup>	5,000/10,000	5,000/10,000	5,000/10,000	5,000/10,000
Manual Lens Shift	±58 percent vertical ±38 percent horizontal	±50 percent vertical ±10 percent horizontal	±50 percent vertical ±10 percent horizontal	±50 percent vertical ±10 percent horizontal
Built-in Speaker	10 W	10 W	10 W	10 W
Epson iProjection Suite <sup>9</sup> (Moderator <sup>9</sup> Multi-PC, Device Management)	Yes	Yes	Yes	Yes
Wired Connectivity	RJ-45 (Content over IP)			
Enterprise Wireless Security	Optional			
Compatible Control Systems	Crestron, AMX, Extron, Control4			

## FEATURES

- **Installation flexibility** — up to ±58 percent vertical and ±38 percent horizontal lens shift<sup>\*\*</sup>; also features lens shift lock
- **Advanced connectivity** — HDBaseT<sup>\*\*</sup> and 2x HDMI inputs for easy integration with any system
- **Robust wireless networking** — enterprise-level security for peace of mind; compatible with WPA, WPA2-PSK and WPA2-EAP security protocols (optional; LAN module sold separately)
- **Remote network monitoring and control** — plus Message Broadcasting<sup>12</sup> and built-in scheduling functions

## RECOMMENDED ACCESSORIES

- Custom Micro-adjustable Mount
- Wireless LAN Module
- HDBaseT Transmitter<sup>\*\*</sup>
- Replacement Air Filter V13H134A45 (ELPAF45)

See pages 25–27 for product codes and more information.

## CONNECTIVITY

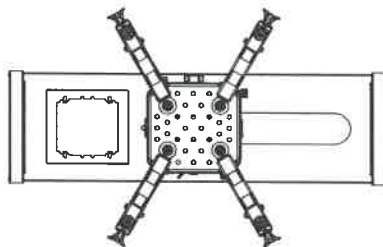
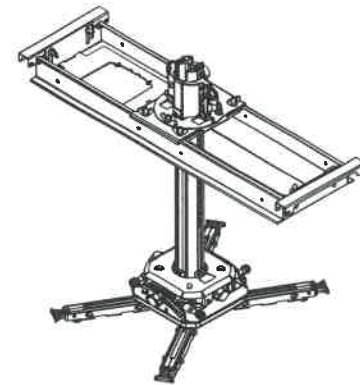
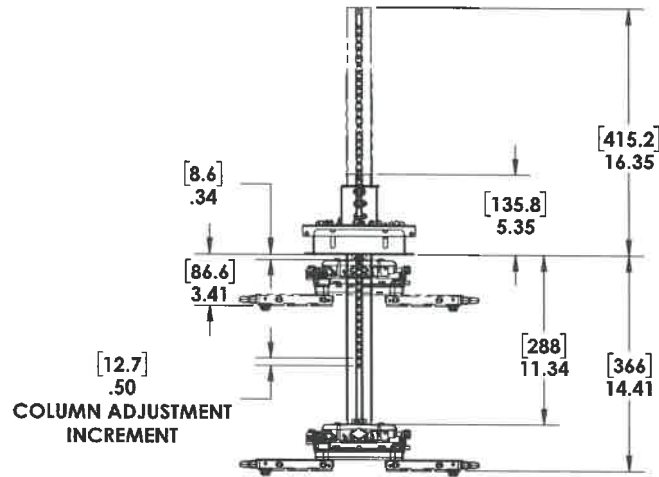
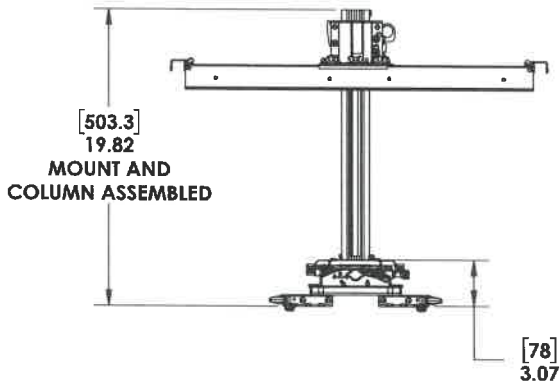
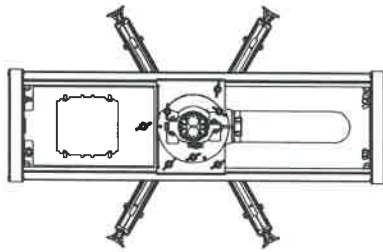


Product shown is PowerLite 5535U. Visit [www.epson.com/support](http://www.epson.com/support) to see the connectivity options for all models listed.

\*Standard limited warranty is 2 years. Brighter Futures pricing includes 1-year warranty extension.

\*\*Specifications vary by model.





- NOTE:**
1. THIS IS A 4 SHEET DRAWING
  2. SHEET 2 - CEILING PLATE
  3. SHEET 3 - PROJECTOR MOUNT AND COLUMN
  4. SHEET 4 - UNIVERSAL INTERFACE

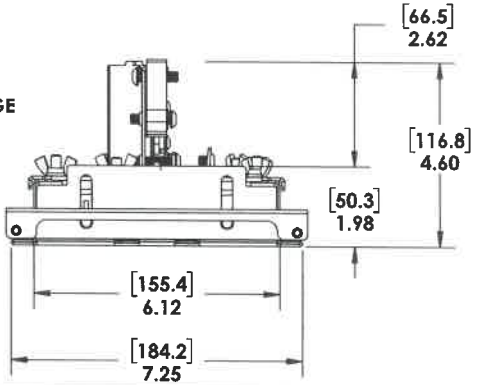
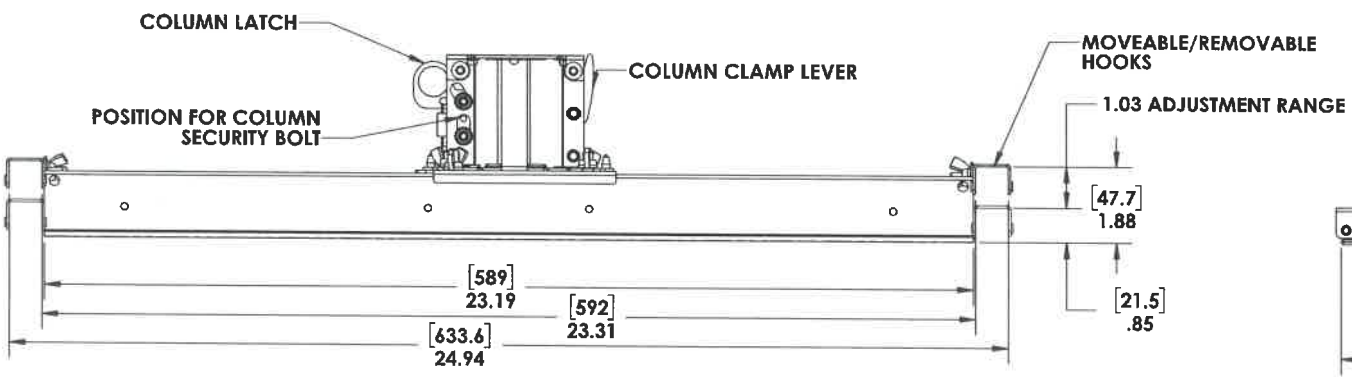
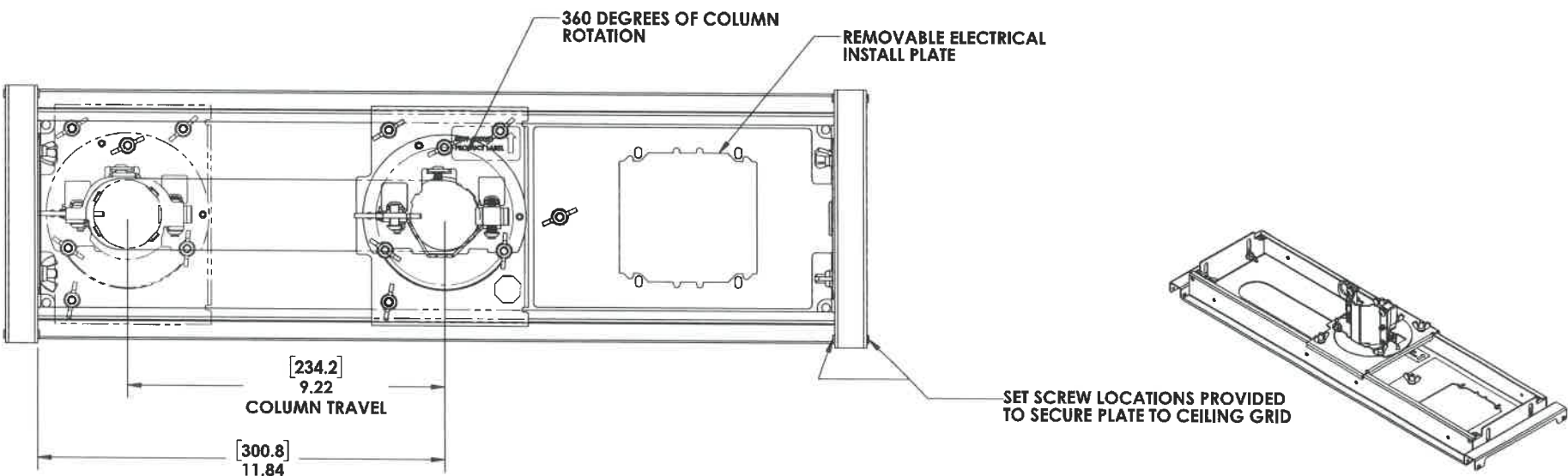
THE INFORMATION AND DESIGNS CONTAINED IN THIS DRAWING ARE CONFIDENTIAL AND THE PROPRIETARY PROPERTY OF MILESTONE AV TECHNOLOGIES NEITHER THIS DESIGN NOR ANY INFORMATION CONTAINED IN THIS DRAWING MAY BE REPRODUCED OR DISCLOSED TO OTHERS WITHOUT THE EXPRESS WRITTEN CONSENT OF MILESTONE AV TECHNOLOGIES.

CAD GENERATED DRAWING. DO NOT MANUALLY UPDATE.		6436 CITY WEST PKWY EDEN PRAIRIE MN, 55344 PHONE: 954-977-3301 FAX: 977-594-6918
DRAWN BY	HEF 4/8/2015	
ENG APPROVAL		DESCRIPTION ASSEMBLED SYSTEM SUSPENDED CEILING PROJECTOR SYSTEM
MFG APPROVAL		MODEL NO. SYSAU
GA APPROVAL		SCALE 1:8
SHEET 1 OF 4		SIZE DWG. NO. B TECH-000683
		REV. 02

1 2 3 4 5 6 7 8

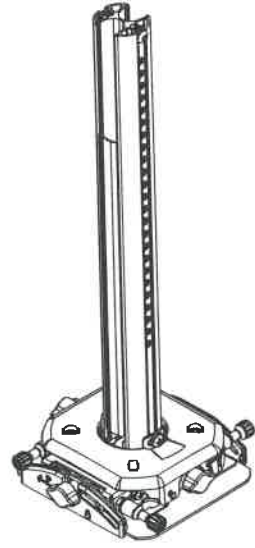
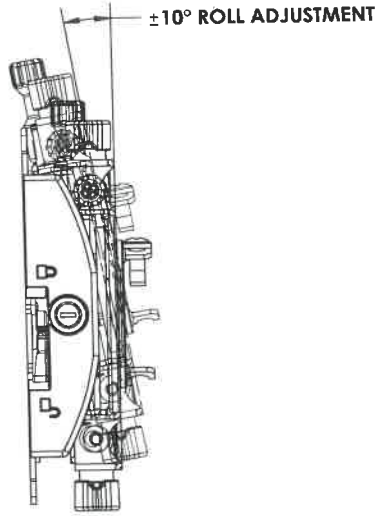
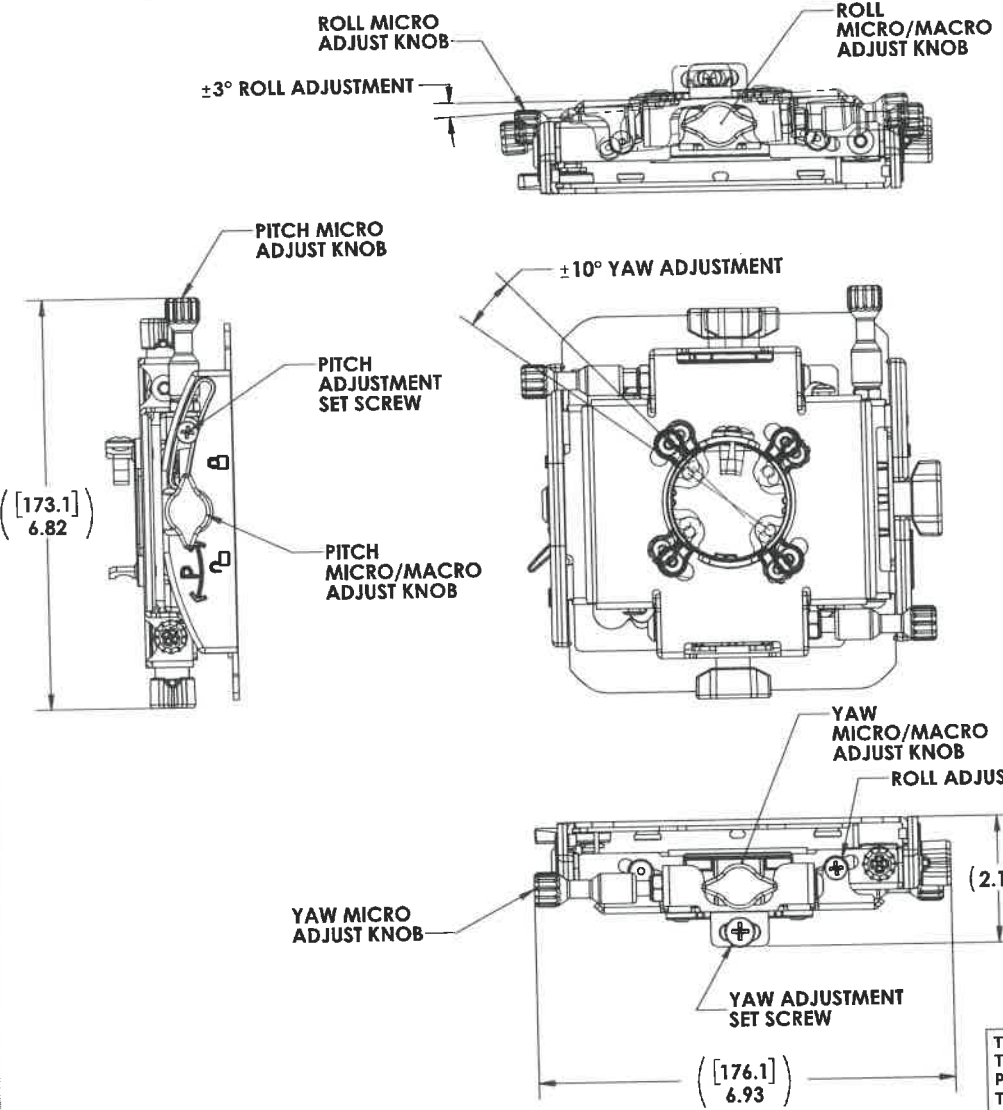
1 2 3 4 5 6 7 8

D  
C  
B  
A



THE INFORMATION AND DESIGNS CONTAINED IN THIS DRAWING ARE CONFIDENTIAL AND THE PROPRIETARY PROPERTY OF MILESTONE AV TECHNOLOGIES NEITHER THIS DESIGN NOR ANY INFORMATION CONTAINED IN THIS DRAWING MAY BE REPRODUCED OR DISCLOSED TO OTHERS WITHOUT THE EXPRESS WRITTEN CONSENT OF MILESTONE AV TECHNOLOGIES.

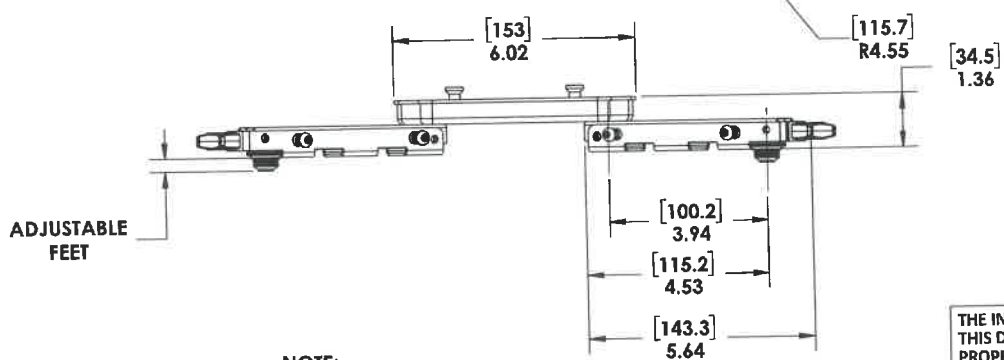
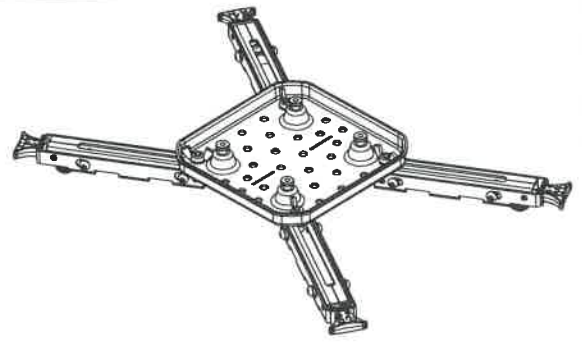
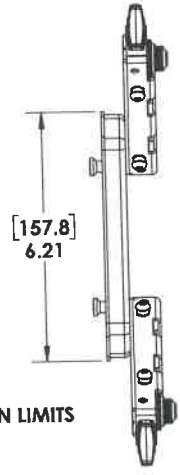
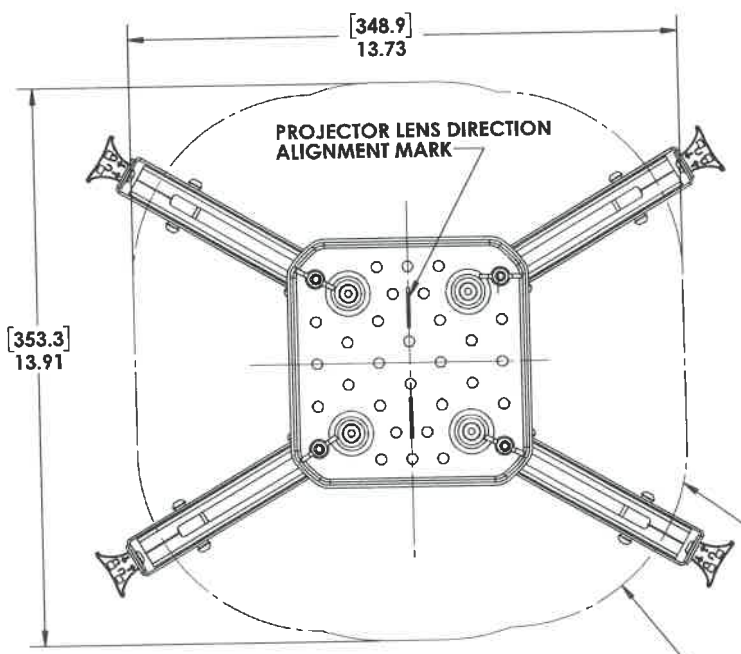
CAD GENERATED DRAWING. DO NOT MANUALLY UPDATE.		6434 CITY WEST PKWY EDEN PRAIRIE, MN, 55344 PHONE: 844-977-3701 FAX: 877-674-6718	
DRAWN BY	HEF	4/8/2015	DESCRIPTION
ENG APPROVAL			CEILING PLATE SUSPENDED CEILING PROJECTOR SYSTEM
MFG APPROVAL			MODEL NO.
QA APPROVAL			SYSAU
SHEET 2 OF 4		SCALE	REV.
		1:3	B   TECH-000683   02



DIMENSIONAL VIEWS OF MOUNT SHOWN WITHOUT COLUMN AND COVER TO INCREASE CLARITY

THE INFORMATION AND DESIGNS CONTAINED IN THIS DRAWING ARE CONFIDENTIAL AND THE PROPRIETARY PROPERTY OF MILESTONE AV TECHNOLOGIES NEITHER THIS DESIGN NOR ANY INFORMATION CONTAINED IN THIS DRAWING MAY BE REPRODUCED OR DISCLOSED TO OTHERS WITHOUT THE EXPRESS WRITTEN CONSENT OF MILESTONE AV TECHNOLOGIES.

CAD GENERATED DRAWING. DO NOT MANUALLY UPDATE.		<p>6438 CITY WEST PKWY EDEN PRAIRIE MN, 55344 PHONE: 866-977-3901 FAX: 877-694-6718</p>
DRAWN BY	HEF 4/8/2015	
ENG APPROVAL:		
MFG APPROVAL:		
QA APPROVAL:		DESCRIPTION <b>PROJECTOR MOUNT AND COLUMN                  SUSPENDED CEILING PROJECTOR                  SYSTEM</b>
SHEET 3 OF 4		MODE NO. SYSAU
SCALE	1:2	SIZE (DWG. NO.) B : TECH-000683
		REV. 02



ADJUSTABLE FEET

- NOTE:
1. INTERFACE SHOWN ASSEMBLED, SHIPPED AS LOOSE PIECES
  2. FOUR LEGS SHOWN, A MINIMUM OF THREE LEGS MUST BE USED TO PROPERLY MOUNT THE PROJECTOR

THE INFORMATION AND DESIGNS CONTAINED IN THIS DRAWING ARE CONFIDENTIAL AND THE PROPRIETARY PROPERTY OF MILESTONE AV TECHNOLOGIES NEITHER THIS DESIGN NOR ANY INFORMATION CONTAINED IN THIS DRAWING MAY BE REPRODUCED OR DISCLOSED TO OTHERS WITHOUT THE EXPRESS WRITTEN CONSENT OF MILESTONE AV TECHNOLOGIES.

CAD GENERATED DRAWING. DO NOT MANUALLY UPDATE.		
DRAWN BY	HEF	4/8/2015
ENG APPROVAL		
MFG APPROVAL		
QA APPROVAL		
SHEET 4 OF 4		

**CHIEF** 6436 CITY WEST PKWY  
EDEN PRAIRIE, MN, 55344  
PHONE: 846-977-3901  
FAX: 877-814-6918

DESCRIPTION: **UNIVERSAL INTERFACE SUSPENDED CEILING PROJECTOR SYSTEM**

MODEL NO.: **SYSAU**

SCALE: **1:3**

SIZE: **B** DWG. NO.: **TECH-000683** REV: **02**



## Draper 101646U Premier 50 x 80" Motorized Screen with LVC-IV Low Voltage Controller (120V)

### Type

Front/Rear Projection

Front

Aspect Ratio

16:10

Style

Motorized wall/ceiling

### Dimensions

Viewing Area

50 x 80" / 127 x 203.2 cm

Diagonal

94" / 238.8 cm

### Surface

Gain

0.6

Viewing Angle

180°

Screen Surface

Grey XH600V

### Controls

Included Controls

Low voltage control

Motor

Standard

### Casing

Length

97" / 246.4 cm

### General

Voltage

120 VAC/60 Hz