

Crestron **MM-DE-12**

MediaManifold<sup>®</sup> Expander

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Operations & Installation Guide



## Regulatory Compliance

As of the date of manufacture, the MM-DE-12 has been tested and found to comply with specifications for CE marking.



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## Federal Communications Commission (FCC) Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

**CAUTION:** Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

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## Industry Canada (IC) Compliance Statement

CAN ICES-3(B)/NMB-3(B)

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

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# MediaManifold Expander: MM-DE-12

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## Introduction

The MM-DE-12 is a 12-zone expander for the MM-DS-12 MediaManifold<sup>®</sup> High-Definition CATV Distribution System. Adding the MM-DE-12 expander to the MM-DS-12 provides a total of 24 zone connections. Each zone includes independent gain and tilt adjustments, and supports up to 300 feet of homerun RG6 coaxial cable feeding a single television or set-top box. Complete setup of the MM-DE-12 is facilitated through the MM-DS-12 front panel.

The MM-DE-12 is intended to mount to a wall surface beside or beneath the MM-DS-12 and connects to the MM-DS-12 using three short “F” cables (included). An additional input is provided for an external modulator to enable signals from security cameras and other video sources to be combined and distributed along with the main cable TV channels.

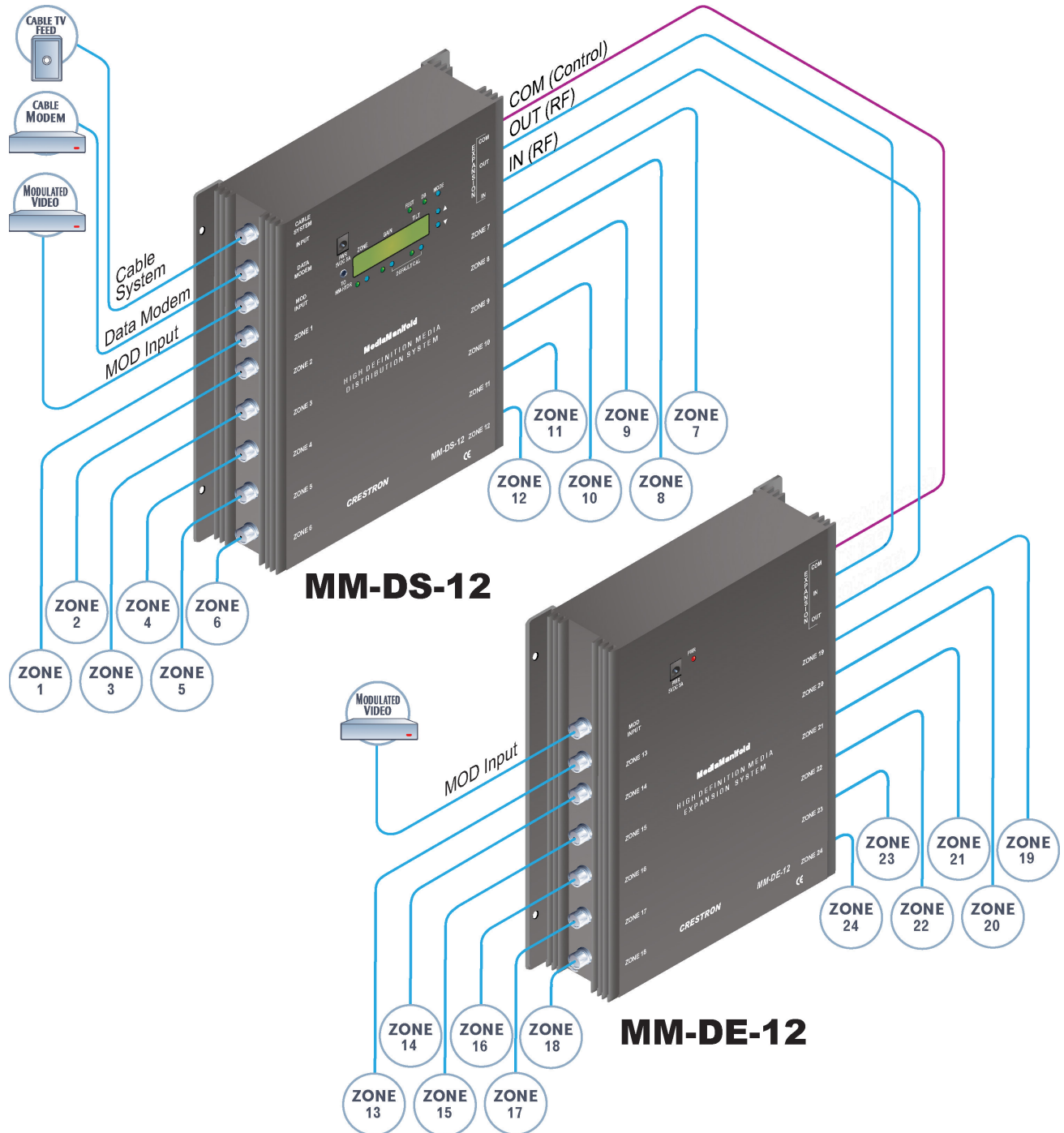
## Features and Functions

- 12-zone MediaManifold expander, requires MM-DS-12 High-Definition CATV Distribution System (sold separately)
- High-power, high-headroom, low-noise, and low-distortion
- Supports bidirectional RG6 cable runs up to 300 feet (91 meters) each
- Individual gain and tilt adjustments per zone (from MM-DS-12)
- Automatic setup using MM-HTDR MediaManifold Cable Analyzer (sold separately)
- Compact surface wall-mount design

## Applications

The following diagram shows an MM-DE-12 in a residential application.

*MM-DE-12 in a Residential Application*



## Specifications

Specifications for the MM-DE-12 are listed in the following table.

### *MM-DE-12 Specifications*

SPECIFICATION	DETAILS
RF	
Forward Bandwidth	54 MHz to 1 GHz
Reverse Bandwidth	5 MHz to 42 MHz
Minimum Output Cable Length	5 feet (1.5 meters)
Maximum Output Cable Length	300 feet (91 meters)
Gain	23 dB
Gain Adjust	-6 to +25 dB
Tilt Adjust	0 to 31 dB
Isolation	>45 dB
Power Requirements	5 A @ 5 Vdc regulated
Power Supply (included)	120 Vac, 60 Hz
Enclosure	Chromium-plated aluminum with black powder-coated steel end panels and polycarbonate label overlay, surface-mount with integral heat-sinks and (2) mounting flanges
Environmental	
Temperature	41° to 104° F (5° to 40° C)
Humidity	10% to 90% RH (non-condensing)
Heat Dissipation	68 Btu/h
Dimensions	
Height	11.05 in (281 mm)
Width	10.42 in (265 mm)
Depth	2.54 in (65 mm)
Weight	5.7 lbs (2.6 kg)
Available Accessories	
CAEN	Automation Enclosures
CAEN-UMP	Universal Mounting Plates

## Physical Description

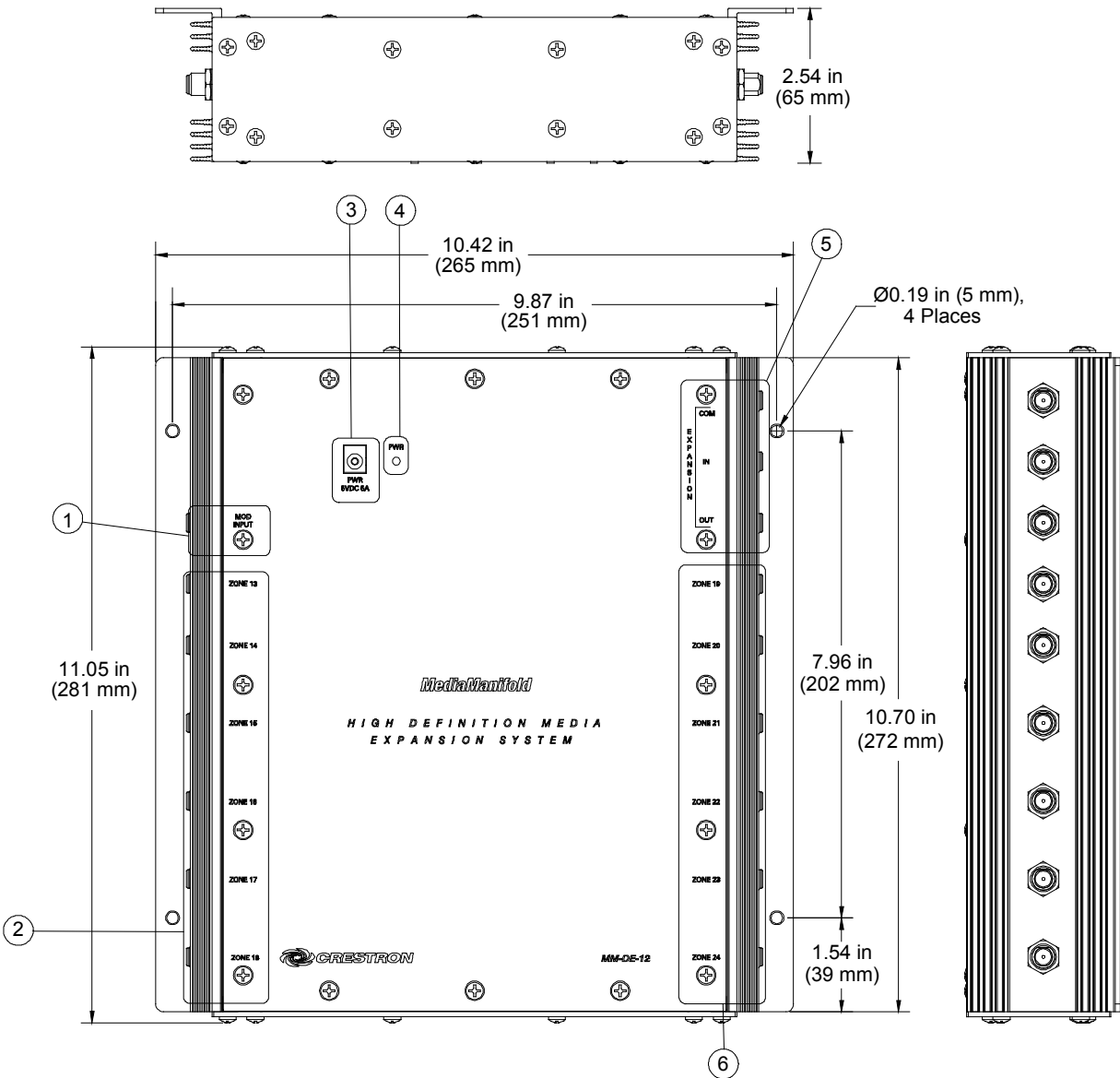
This section provides information on the connections and indicators available on the MM-DE-12.

### *MM-DE-12 Physical View*


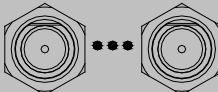






*MM-DE-12 Overall Dimensions*



*Connectors, Controls, and Indicators*

#	CONNECTORS, CONTROLS, AND INDICATORS	DESCRIPTION
1	MOD INPUT 	(1) F-type coaxial, female; Impedance: 75 Ω nominal; Nominal Input Level: +30 dBmV
2	ZONE 13-24 	(12) F-type coaxial, female; Bidirectional CATV distribution outputs for use with RG6 only; Impedance: 75 Ω nominal
3	PWR 5 VDC 5A 	(1) 3.0 mm barrel dc power jack; 5 Vdc power input (power supply included) <b>NOTE:</b> Only the included power supply should be used.
4	PWR LED	(1) Green LED, indicates 5 Vdc power supplied from power supply
5	EXPANSION 	(3) F-type coaxial, female; Impedance: 75 Ω nominal; COM, IN, and OUT connections to MM-DS-12 (sold separately); Maximum Cable Length: 10 feet (3 meters) (1.5 feet or 0.5 meter long cables provided)

# Setup

## Supplied Hardware

The hardware supplied with the MM-DE-12 is listed in the following table.

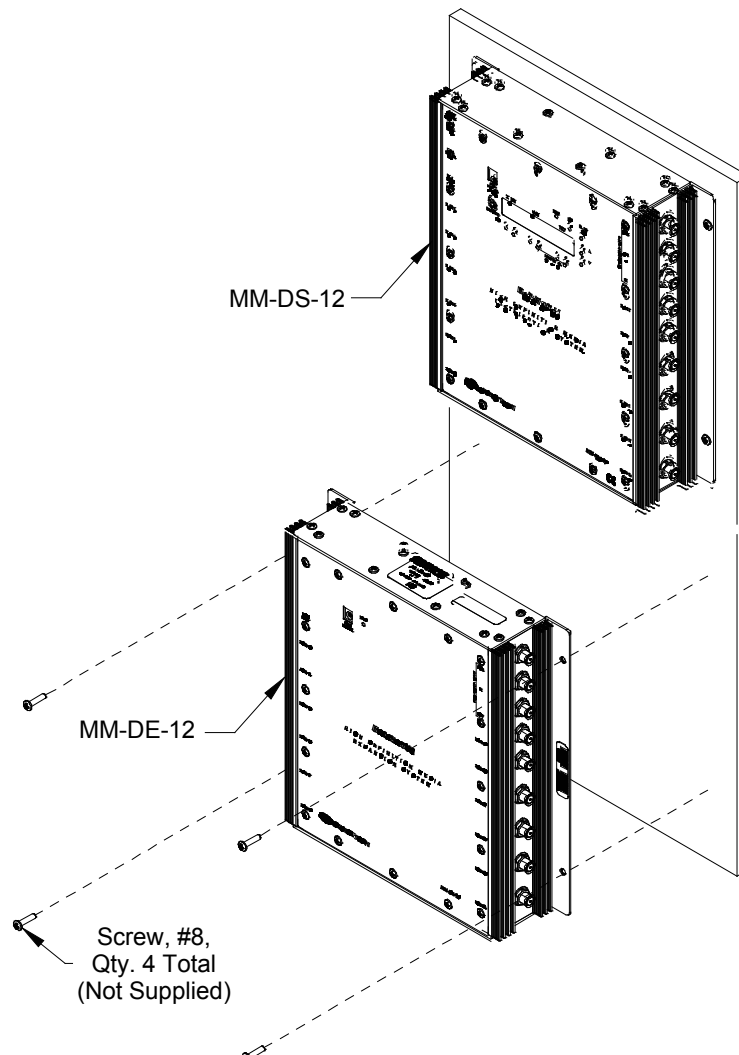
*Supplied Hardware for the MM-DE-12*

DESCRIPTION	PART NUMBER	QUANTITY
75 $\Omega$ Female Terminator	2017362	12
Cable Assy, RG6, F Male to F Male, 1.5 feet (0.5 meter) L	2019405	3

## Installation

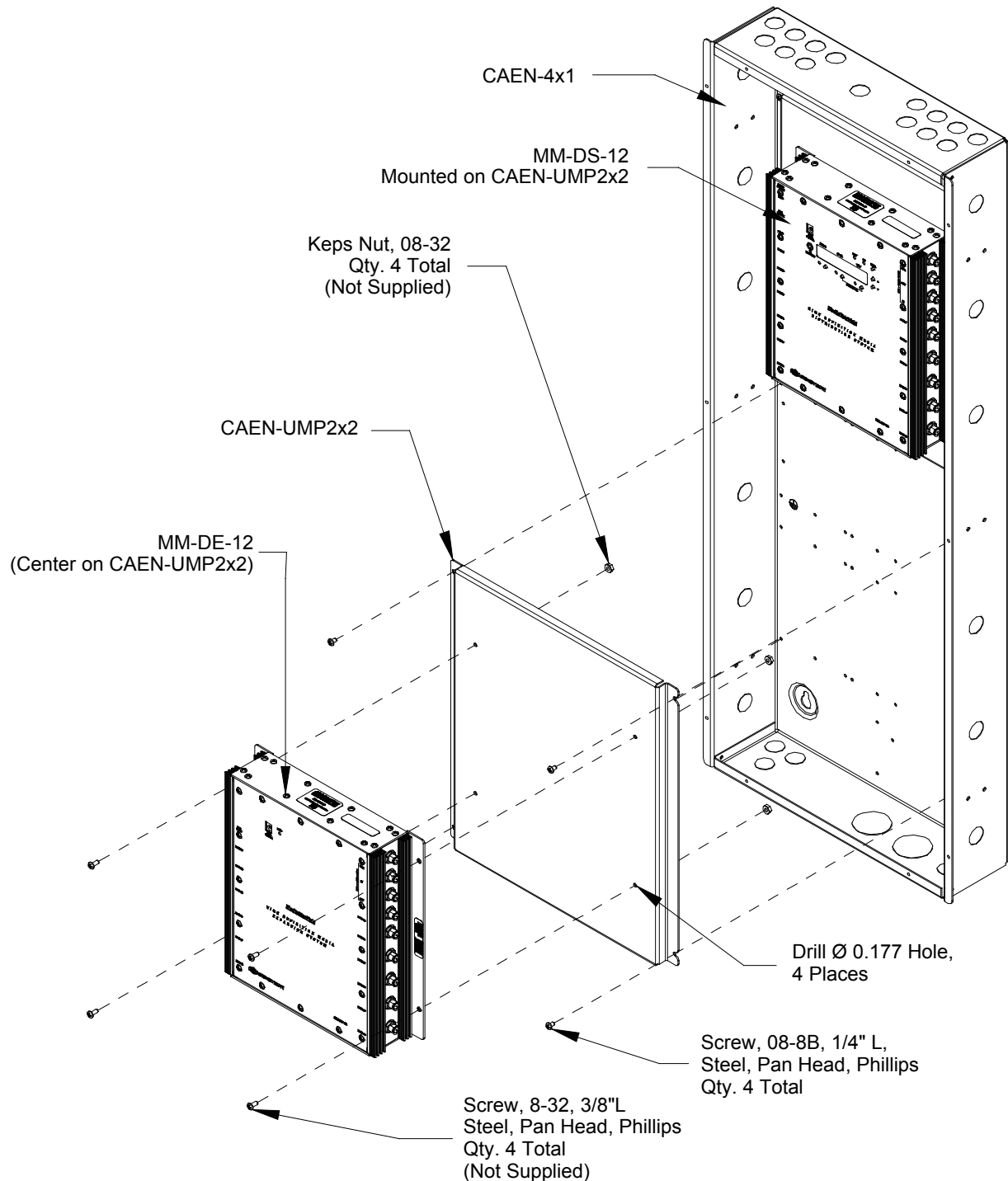
The MM-DE-12 can be mounted on a rack or on a board using the integral mounting flanges as shown in the following diagram. Mounting hardware is not provided.

*Mounting the MM-DE-12 to a Board*



The MM-DE-12 can also be mounted in a CAEN Automation Enclosure with the use of a CAEN-UMP2x2 Universal Mounting Plate for CAEN Automation Enclosures. The installation is shown in the following diagram with a MM-DS-12 installed in the same enclosure. For more information, refer to the CAEN-UMP Installation Guide (Doc. 5981) at [www.crestron.com/manuals](http://www.crestron.com/manuals).

*Mounting the MM-DE-12 to a CAEN-UMP2x2*



### Hardware Hookup

**Ventilation**

The MM-DE-12 should be used in a well-ventilated area. The venting holes should not be obstructed under any circumstances.

To prevent overheating, do not operate this product in an area that exceeds the environmental temperature range listed in the table of specifications. Consideration must be given if installed in a closed or multi-unit rack assembly since the operating ambient temperature of the environment may be greater than the room ambient temperature. Contact with thermal insulating materials should be avoided on all sides of the unit.

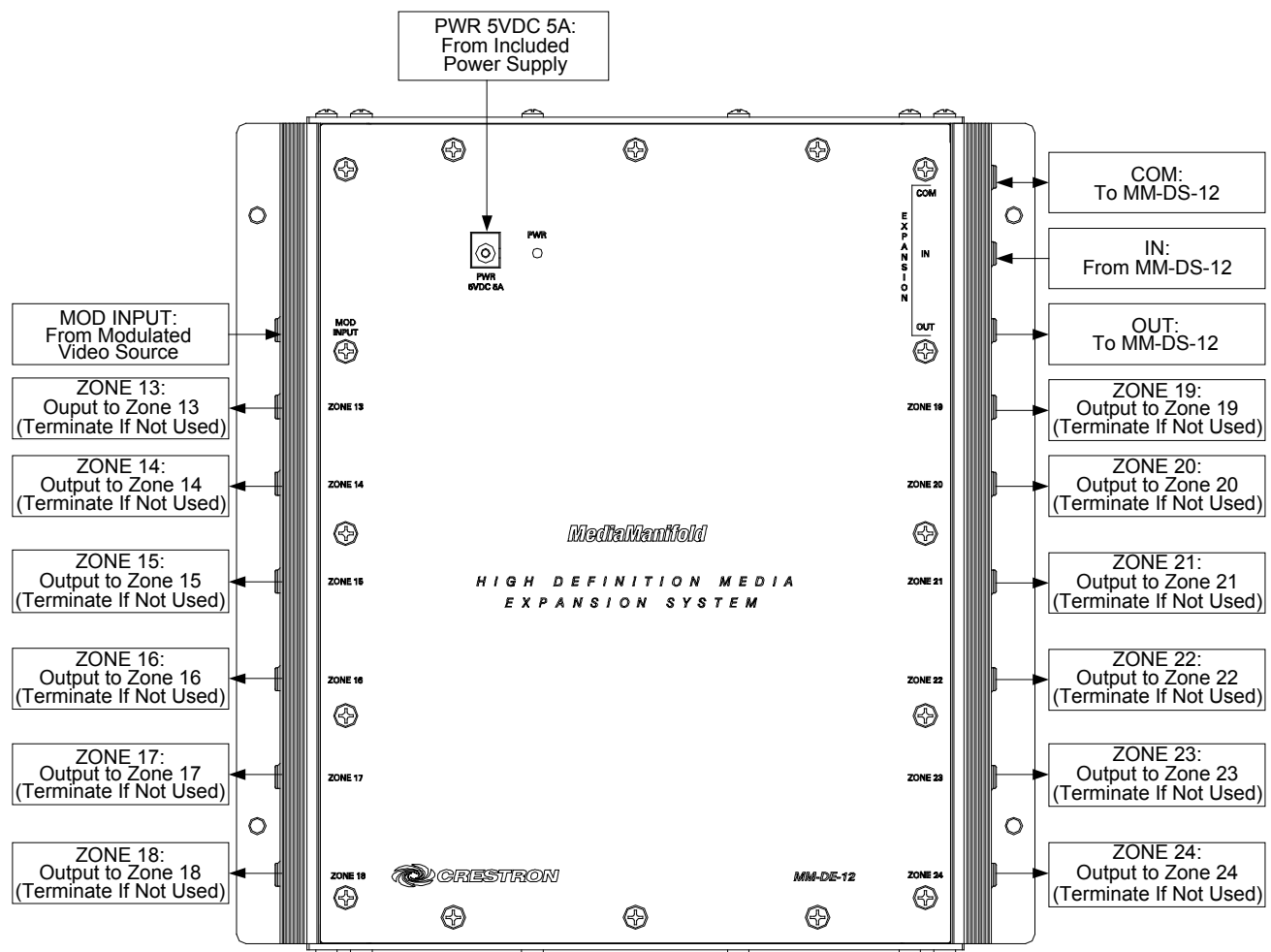
**Connect the Device**

Make the necessary connections as called out in the illustration that follows this paragraph. Apply power after all connections have been made.

When making connections to the MM-DE-12, consider the following:

- Use Crestron® power supplies for Crestron equipment.
- The included cables cannot be extended.

*Hardware Connections for the MM-DE-12*



**NOTE:** Any **ZONE** outputs that are not used must be terminated using the included terminators.

**Connect the MM-DS-12**

The following connections must be made to connect to the MM-DS-12:

- Connect the **COM** port on the MM-DE-12 to the **COM** port on the MM-DS-12 MediaManifold High-Definition CATV Distribution System. Use the 1.5-foot (0.5 meter) cable included with the MM-DE-12 or a cable up to 10 feet (3 meters) in length (not included).
- Connect the **EXPANSION-IN** port on the MM-DE-12 to the **EXPANSION-OUT** port on the MM-DS-12 MediaManifold High-Definition CATV Distribution System. Use the 1.5-foot (0.5 meter) cable included with the MM-DE-12 or a cable up to 10 feet (3 meters) in length (not included).
- Connect the **EXPANSION-OUT** port on the MM-DE-12 to the **EXPANSION-IN** port on the MM-DS-12 MediaManifold High-Definition CATV Distribution System. Use the 1.5-foot (0.5 meter) cable included with the MM-DE-12 or a cable up to 10 feet (3 meters) in length (not included).

For more information refer to the MM-DS-12 Operations & Installation Guide (Doc. 6600) at [www.crestron.com/manuals](http://www.crestron.com/manuals).

## Operation

Settings for zones connected to the MM-DE-12 are controlled by the MM-DS-12 MediaManifold High-Definition CATV Distribution System. For instructions, refer to the MM-DS-12 Operations & Installation Guide (Doc. 6600) at [www.crestron.com/manuals](http://www.crestron.com/manuals).

## Problem Solving

### Troubleshooting

The following table provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron customer service representative.

#### *MM-DE-12 Troubleshooting*

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Device does not function.	Device is not receiving power from a Crestron power source.	Use the provided Crestron power source. Verify connections.
The picture has poor quality.	Cables are not securely connected.	Properly connect all cables.
	Cable run is not properly calibrated.	Verify setting for cable length.
	The signal strength is low.	Increase the gain setting on the MM-DS-12 High-Definition CATV Distribution System to compensate for signal loss.
Certain TV channels have poor picture.	There is too much signal loss at low end of the frequency spectrum.	Raise the tilt setting on the MM-DS-12 High-Definition CATV Distribution System to accommodate for signal loss.
The cable box or cable modem is not receiving signal.	There is a short or open in circuit path.	Verify cabling.
	The cable box or cable modem is not working.	Contact the local cable operator for repair.

### Reference Documents

All documents mentioned in this guide are available at [www.crestron.com/manuals](http://www.crestron.com/manuals).

#### *List of Related Reference Documents*

DOCUMENT TITLE
CAEN-UMP Installation Guide
MM-DS-12 Operations & Installation Guide

### Further Inquiries

To locate specific information or resolve questions after reviewing this guide, contact Crestron's True Blue Support at 1-888-CRESTRON [1-888-273-7876] or, for assistance within a particular geographic region, refer to the listing of Crestron worldwide offices at [www.crestron.com/offices](http://www.crestron.com/offices).

To post a question about Crestron products, log onto Crestron's Online Help at [www.crestron.com/onlinehelp](http://www.crestron.com/onlinehelp). First-time users must establish a user account to fully benefit from all available features.



## **Future Updates**

As Crestron improves functions, adds new features, and extends the capabilities of the MM-DE-12, additional information may be made available as manual updates. These updates are solely electronic and serve as intermediary supplements prior to the release of a complete technical documentation revision.

Check the Crestron website periodically for manual update availability and its relevance. Updates are identified as an “Addendum” in the Download column.

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## Return and Warranty Policies

### Merchandise Returns / Repair Service

1. No merchandise may be returned for credit, exchange or service without prior authorization from Crestron. To obtain warranty service for Crestron products, contact an authorized Crestron dealer. Only authorized Crestron dealers may contact the factory and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying the nature of the problem, name and phone number of contact person, RMA number and return address.
2. Products may be returned for credit, exchange or service with a Crestron Return Merchandise Authorization (RMA) number. Authorized returns must be shipped freight prepaid to Crestron, 6 Volvo Drive, Rockleigh, N.J. or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. Crestron reserves the right in its sole and absolute discretion to charge a 15% restocking fee plus shipping costs on any products returned with an RMA.
3. Return freight charges following repair of items under warranty shall be paid by Crestron, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

### Crestron Limited Warranty

Crestron Electronics, Inc. warrants its products to be free from manufacturing defects in materials and workmanship under normal use for a period of three (3) years from the date of purchase from Crestron, with the following exceptions: disk drives and any other moving or rotating mechanical parts, pan/tilt heads and power supplies are covered for a period of one (1) year; touch screen display and overlay components are covered for 90 days; batteries and incandescent lamps are not covered.

This warranty extends to products purchased directly from Crestron or an authorized Crestron dealer. Purchasers should inquire of the dealer regarding the nature and extent of the dealer's warranty, if any.

Crestron shall not be liable to honor the terms of this warranty if the product has been used in any application other than that for which it was intended or if it has been subjected to misuse, accidental damage, modification or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number altered, defaced or removed.

This warranty shall be the sole and exclusive remedy to the original purchaser. In no event shall Crestron be liable for incidental or consequential damages of any kind (property or economic damages inclusive) arising from the sale or use of this equipment. Crestron is not liable for any claim made by a third party or made by the purchaser for a third party.

Crestron shall, at its option, repair or replace any product found defective, without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty.

Except as expressly set forth in this warranty, Crestron makes no other warranties, expressed or implied, nor authorizes any other party to offer any warranty, including any implied warranties of merchantability or fitness for a particular purpose. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty. This warranty statement supersedes all previous warranties.

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Specifications subject to  
change without notice.