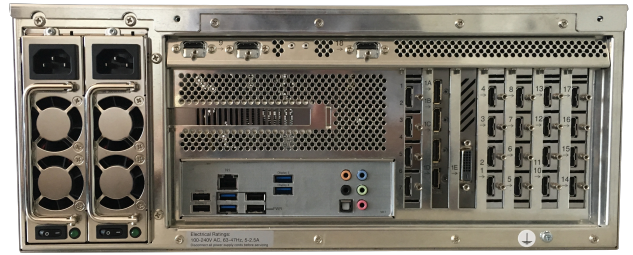




# Multi Display Manager MDM-D

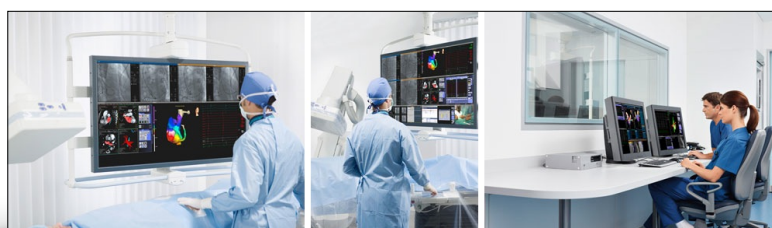
MDM-1 with 3x MDI-7



- Up to 26 video inputs
- Supports UHD input signal
- Simultaneously support of up to five independent displays
- Real-time architecture with low latency
- Customer definable screen arrangements
- Hardware scaling with bilinear filter for best possible video quality
- High reliable design with redundancies & watch dog build for 24x7 operations
- On-Screen administration tool & API for remote control & Touch PanelPC support
- Multiple User KVM functionality fully integrated

## Overview

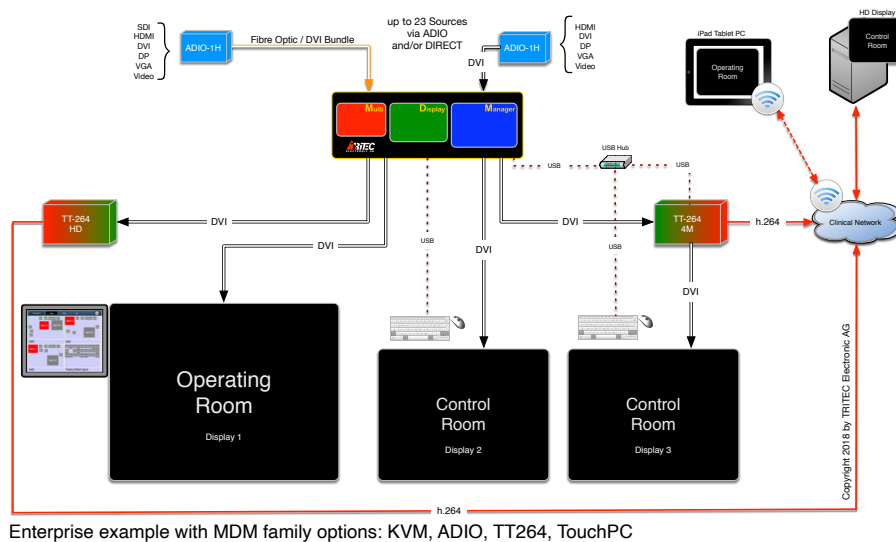
- MDM contains **all system functionality in one unit**
- Capability to collect, combine, and transmit up to **26** different video **sources** on up to **2x 8MP QFHD@60Hz** plus **2x 4MP** and **1x FullHD** displays.
- Up to two **UHD input** signals with 550MHz pixel clock
- **Digital and analog** (with ADIO-1) inputs are supported.
- 2-3 frames delay from input to display possible because of a **Real-time architecture**
- Customer **definable size, position and scale** of sources, **including overlapping**.
- Sources can be **cropped** on top, bottom, left or right.
- Signal can be **scaled** by a factor of 0.1 to 10.0.
- Signals can be **duplicated** to show the same input, cropped or sized.  
Sources can be **framed** (borders with selectable colours and thickness) and **named** (font, color, size and position definable)
- **Customer definable arrangement** sets that can be easily switched via Touch PanelPC, web-interface with iPad or similar device.
- Arrangements are storable at the system as well as external storage equipment.
- Switching between predefined arrangement sets is less than 500ms
- In **critical environments**, the MDM has a highly **reliable design**. No hard disk is used; Redundant Power Supply's; and Active Watch Dog are employed
- **Robust construction** and material methods employed for use in specialized Medical and Industrial disciplines **build for 24x7 operations**.
- **Status information** and Diagnostics accessible **via network**.
- **Customizing** for OEM partners is available.





In total 5 connectors can be used with: max. 2x 8MP **and** 2x 4MP **and** 1x HD Display or any other combination with less resolutions i.e. 1x 8MP **and** 3x 4MP **and** 1x HD.<sup>1,2</sup>

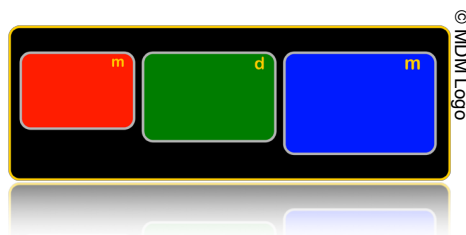
Output displays with the same resolution are configurable not only as independent displays, but also as extended displays. The behaviour is like an extended desktop on a local PC and two attached monitors.



- (1) Display configuration depends of available bandwidth. Not every combination of this matrix is possible.
- (2) MDM includes a license for an output pixel volume of 8MP.



Type		MDM-1	MDM-1 L
Maximal Display Resolution for one Display		8MP (max. 600MHz)	
Number of Output connections		3x DisplayPort 1.2 1x DualLink DVI 1x HDMI 2.0	
<b>MDI-7 input boards</b>			
Number of Input Boards		1 / 2 / 3	1 / 2
Number of Inputs		9 / 18 / 26	9 / 18
Number of Digital Inputs [HDMI] [550MHz]		1 / 2 / 2	1 / 2
Number of Digital Inputs [HDMI] [165MHz]		4 / 8 / 12	4 / 8
Number of Digital Inputs [DVI (HDMI)] [165MHz]		4 / 8 / 12	4 / 8
Support of Analog Inputs [165MHz]		with ADIO-1 Extension Box	
Videotiming per Input Board	H-Display	Min. 320 Pixel ↔ Max. 4096 Pixel	
	V-Display	Min. 200 Lines ↔ Max. 2560 Lines	
	Pixel-Clock	Min. 16MHz ↔ Max. 165/550MHz	
	H-Blank	Min. 8 Pixel	
	V-Blank	Min. 4 Lines	
	Interlace	Not supported, progressive timings only	
Bandwidth	per Input Board	1.200MPx/s	
	per System	2.000MPx/s	
<b>Inputs with MDI-5 input boards</b>			
Number of Input Boards		1 / 2 / 3	1 / 2
Number of Inputs		9 / 18 / 26	9 / 18
Number of Digital Inputs [DVI (HDMI)] [165MHz]		6 / 12 / 17	6 / 12
Number of Digital Inputs [DVI-I] [165MHz]		1 / 2 / 3	1 / 2
Number of Analog Inputs [DVI-I] [135MHz]		1 / 2 / 3	1 / 2
Number of Analog Inputs [VGA] [170MHz]		1 / 2 / 3	1 / 2
Videotiming per Input Board	H-Display	Min. 320 Pixel ↔ Max. 2048 Pixel	
	V-Display	Min. 200 Lines ↔ Max. 2560 Lines	
	Pixel-Clock	Min. 16MHz ↔ Max. 140/165/170MHz	
	H-Blank	Min. 8 Pixel	
	V-Blank	Min. 4 Lines	
	Interlace	Not supported, progressive timings only	
Bandwidth	per Input Board	620MPx/s	
	per System	1.500MPx/s	

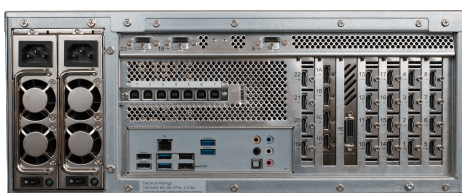


TRITEC is offering a wide range of equipment completely validated and certified to work with our Multi Display Manager Video Processor. Begins with high quality cabling with locks, HD-SDI converter, optical extenders with galvanic isolation, any many more.

<b>MDM-1</b>		<p><b>MDI Bay Upgrades</b></p> <ul style="list-style-type: none"> <li>• MDI-7 Board</li> <li>• MDI-5 Board</li> </ul> <p><b>Option Bay Upgrades</b></p> <ul style="list-style-type: none"> <li>• KMS-1 Board</li> <li>• PPB Board</li> </ul>
<b>MDM-1 L</b>		<p><b>MDI Bay Upgrades</b></p> <ul style="list-style-type: none"> <li>• MDI-7 Board</li> <li>• MDI-5 Board</li> </ul> <p><b>Option Bay Upgrades</b></p> <ul style="list-style-type: none"> <li>• KMS-1 Board</li> <li>• PPB Board</li> </ul> <p><b>Power Upgrade</b></p> <ul style="list-style-type: none"> <li>• Redundant Power Supply</li> </ul>

<b>MDM-1 Options</b>	
<b>MDI Input Boards (MDM-1 L max. 2 boards; MDM-1 max. 3 boards) <sup>(1)</sup></b>	
Additional MDI-7 Board	Additional 9x Video inputs (HDMI: 1x 550MHz, 4x 165MHz + DVI: 4x 165MHz with HDMI Connector)
Downgrade to MDI-5 Boards	Replace preconfigured MDI-7 Boards with a MDI-5 Boards to add analog inputs directly to the MDM. <b>Mixing of MDI-7 and MDI-5 Boards is not supported!</b>
Additional MDI-5 Board	Additional 1x digital <b>Single Link DVI-I</b> , 6x DVI with HDMI Connector, 1x analogue DVI-I and 1x analogue VGA input.
<b>Add-Ons (check maximum available option bays on next page)</b>	
KMS-1 Board	7 Port Keyboard/Mouse Switch module, USB to Host connection
PPB-S Board	7 Port 5V Power Breakout Module; provides external 5V power (Hirose)
MDM-LIC-DISPLAY	MDM Display License to add additional output pixels. Licenses for an area of 8MP is included. Additional licenses are available in FullHD, 4MP and 8MP steps.

(1) 3rd MDI board has one HDMI input less than 1st and 2nd board.



MDM-1

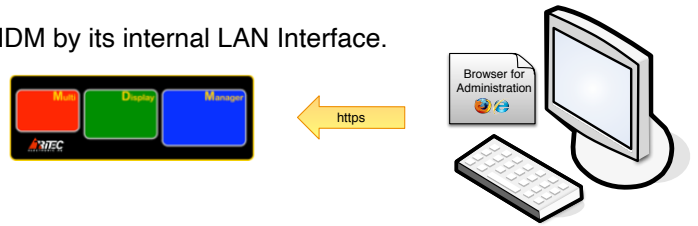


MDM-1 L

The Multi Display Manager supports multiple ways of configure and control the device.

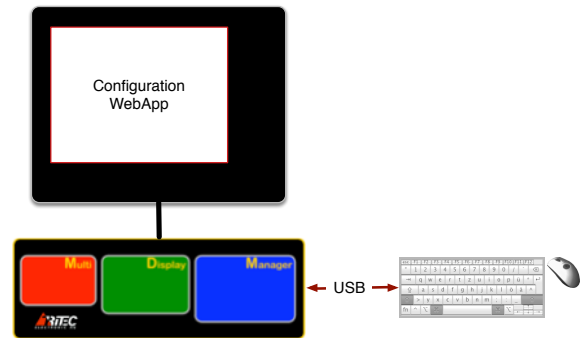
## External Browser Interface

A full featured configuration WebApp is provided by the MDM by its internal LAN Interface.



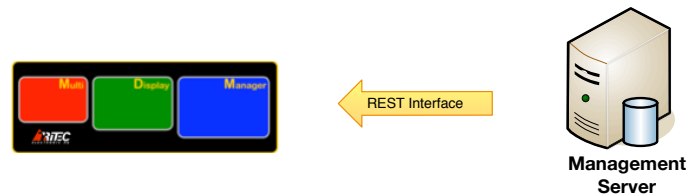
## OnScreen Interface

The Multi Display Manager is able to show the configuration WebApp as a single window OnScreen. It is usable by connecting a Keyboard and Mouse beneath a display to the MDM



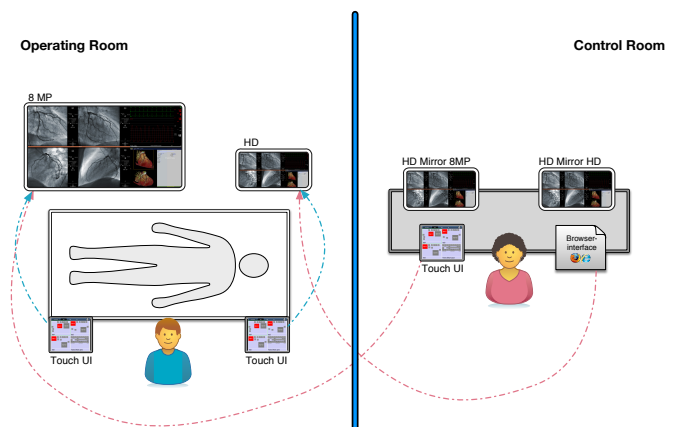
## REST Interface

The REST Interface provides OEM partners to fully integrate the configuration of a MDM into their management environment. A well documented and standardized interface language keeping implementation efforts on a very low level.



## Touch Panel PC

The latest development is a network attached Touch PanelPC which is able to switch the layout of a display which is attached to a Multi Display Manager. It is possible to have multiple Touch Panel PC connected to one MDM.



Power Supply		
Type	4U redundant 400W	non redundant 400W
Input Voltage	90 - 264VAC	90 - 264VAC
Input Frequency	47 to 63Hz	47 to 63Hz
Inrush Current	60A max. @115VAC 80A max. @230VAC	20A max. @115VAC 40A max. @230VAC
Isolation	Input to output 1500VAC	3100VAC
Leakage Current	3.5mA max.	<1.5mA
Input Connector	IEC320/C14 per Module	EC320/C14
Efficiency	>63% / 115VAC	>80%
Input Current	Max: 8A@115VAC 4A @ 230VAC Typ: 3A@115VAC 1.5A@230VAC	Max: 6A@115VAC 3A @ 230VAC Typ: 3A@115VAC 1.5A@230VAC
Power Consumption	Typ. 340W	Typ. 340W
Power Switch	Power switch at the back, no other hardware power off/on switch.	

Electrical Safety & EMC Specifications	
Electrical Safety:	Power supply according EN62368, UL62368, IEC62368
EMC:	According EN55022 and EN55024.
Radiated Emissions:	IEC61000-3-2/EN61000-3-2 (Harmonic Current Emissions) IEC61000-3-3/EN61000-3-3 (Voltage Changes) CISPR 22/ EN55022 or CISPR 11/EN55011 Level B Radiated & Conducted Emissions.  FCC class A.
Immunity:	IEC61000-4-2/EN61000-4-2 Level 2 (ESD) IEC61000-4-3/EN61000-4-3 Level 2 (EM Field Immunity) IEC61000-4-4/EN61000-4-4 Level 2 (Fast Transient/Burst Immunity) IEC61000-4-5/EN61000-4-5 Level 2 (Surge Immunity) IEC61000-4-6/EN61000-4-6 Level 2 (Conducted Disturbances) IEC61000-4-8/EN61000-4-8 Level 2 (Power Freq Magnetic Immunity) IEC61000-4-11/EN61000-4-11 Level 3 (Voltage Dips, Short Interrupt, Voltage Variations Immunity).
Marking	CE, FCC, RoHS, UL, WEEE

Environmental Specifications	
Unpackaged Operating	Temperature 5 °C according EN 60068-2-1 Temperature 40 °C according EN 60068-2-2.
Unpackaged Operating Humidity	Damp heat, 25°C, 10 to 80% RH (non condensing) according EN 60068-2-38.
Unpackaged Operating Pressure	700-1060 hPa (525 -795 mmHg) or up to 3050m (10,000ft).
Packaged Non-Operating Temperature (Storage, Transportation)	Temperature -40 °C according EN 60068-2-1 Temperature +70°C according EN 60068-2-2.
Packaged Non-Operating Humidity	+25°C 10 to 95% RH (non-condensing) according 60068-2-38.
Packaged Non-Operating Pressure	500 -1060 hPa (375 -795 mmHg) or up to 5,050m (18,000 ft).
Packaged Tests Continuous Shock	according EN 60068-2-29 and EN60721-3-2, class 2M2.
Package Drop Test	according EN 24180-2.
Degree of protection	IP 20

Dimensions		
Model	MDM-1	MDM-1 L
Size unpacked (WxHxD)	483x177x450mm	430x172x450mm
Weight	20kg	20kg
Size packed (WxHxD)	800x460x800mm	800x460x800mm
Weight	25kg	25kg
Form factor	19" 4U	

Other Inputs / Outputs		
Networking:	Ethernet	10/100/1000Mbit/s
	Connector	RJ45
USB	2x KVM Support 2x Power DP-Converter	
Other	All other inputs/outputs should not be connected.	



# ADIO-1 Extension Box

Video signal repeater and converter with one device only.



ADIO-1 Extension Box					
Order Number	Optical Isolation	Output Connector	Repeater Outputs	Inputs	Packaging list
ADIO-1H-AH	No	HDMI	yes	HDMI, VGA, analog	ADIO-1H TX Unit
ADIO-1H-AHDUS	No	HDMI	yes	DVI, DP, HDMI, VGA, analog, USB, SDI	ADIO-1H-AHDUS TX Unit
ADIO-1H-VHDS	No	HDMI	no	DVI, DP, HDMI, VGA, SDI	ADIO-1H-VHDS TX Unit
ADIO-1O-AH	yes	HDMI	yes	HDMI, VGA, analog	ADIO-1H TX Unit, Optical Bundle <sub>1</sub>
ADIO-1O-AHDUS	yes	HDMI	yes	DVI, DP, HDMI, VGA, analog, USB, SDI	ADIO-1H-AHDUS TX Unit, Optical Bundle <sub>1</sub>
ADIO-1O-VHDS	yes	HDMI	no	DVI, DP, HDMI, VGA, SDI	ADIO-1H-VHDS TX Unit, Optical Bundle <sub>1</sub>
ADIO-1-PSU	Power supply				One power supply with adapter cable

(1) Optical bundle includes: Power Supply for ADIO unit, optical transmitter, 36m Optical Cable, Optical Receiver, cable to supply Optical Receiver with power from MDM Power Break Out Board, cable to connect the Optical Receiver to the MDM HDMI input connector with lock.





### Europe

TRITEC Electronic GmbH  
Carl-Zeiss-Strasse 41  
55129 Mainz, Germany  
[www.tritec.de](http://www.tritec.de)

### America

The Linden Group Corp.  
2B Wing Dr.  
Cedar Knolls, NJ 07927, USA  
[www.optikview.com](http://www.optikview.com)

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## TRITEC Electronic GmbH

Carl-Zeiss-Str. 41  
55129 Mainz, Germany  
Tel. +49 6131 92 22-0  
Fax +49 6131 92 22-29  
E-Mail: [sales@tritec.de](mailto:sales@tritec.de)  
URL: <http://www.tritec.de>

