VIRTUAL MATRIX DISPLAY CONTROLLER

VICON

Product at a Glance

- Scalable matrix control solution for small and large installations
- Create large multi-monitor displays
- Local and remote control
- Tower and rack-mount configurations
- Intuitive GUI provides simple, easy-to-use controls
- Compatible with IP keypads and Programmable Logic Controllers (PLC)
- Connect up to 6 monitors to each unit and add more units for multiple monitor solutions
- Supports 4K resolution; 16 x 9 viewing
- H.264 compression; ViconNet masking feature
- Control can be shared by multiple operators
- Smart WatchDog function continuously monitors memory management

Virtual Matrix Display Controller

The Virtual Matrix Display Controller (VMDC) is a self-contained, matrix control solution for the ViconNet® Video Management system designed to provide users with the ability to direct network video to multiple monitor displays. The VMDC solution is comprised of both a matrix command/control center software interface and a hardware decoding component that enables the high-quality ViconNet remote network video streams to display sharp and clear high-resolution images on multiple monitors in multiple locations. The design enables each operator to display any camera on any monitor connected to the network. Camera selection may be controlled via a dedicated keypad (up to 4 keypads) or by using the graphical user interface. This enhancement over the standard ViconNet interface is specifically designed to support the typical environment of a command center which includes workstations and video walls.

Each VMDC can control up to 6 high-definition monitors. The unit may be rack or desk mounted. Control of additional monitors is as easy as connecting additional units to the network providing a scalable, cost-effective management solution. Typically, a VMDC would be installed in the command/control center for the video management system and provide both local control of monitors in the center and remote control of monitors located elsewhere in the facility, including monitor wall displays. In a real-world situation, an operator who sees something on his station that bears additional scrutiny can direct that video to a monitor wall, another station or any monitor on the network.

The Main Monitor display interface allows dynamic control of the layout and content is easily added by dragging and dropping cameras into the monitor views. Multi-level map displays can be used to provide an alternative means of identifying camera locations and graphically depicting alarms.

Virtual Matrix Display Controller
Main Monitor Display

SPECIFICATIONS

Minimum Hardware Requirements (COTS)

Operating System:	Microsoft® Windows® 10 IoT LTSB*, 64 bit.
CPU:	Intel® Core™ i7-7700 processor.
Motherboard:	ASUS Z270-A.
RAM:	8 GB minimum.
Hard Drive:	1 TB.
Video Card:	GEForce GT710 (EVGA). Supports 4K resolution.
Power Supply:	510 W minimum.

Note: Specifications listed above are the minimum requirements for a workstation running the VMDC software and represent the hardware configuration with which the software was tested. For the latest hardware requirements, refer to the Tech Support section on www.vicon-security.com.

Software

Graphical Map:	Graphical site map that supports realistic camera location.
Quick Playback:	Starts video playback of live camera with a few clicks.
Local and Remote Monitor Control:	The interface graphically displays a virtual representation of all monitors connected in the system and permits flexible display configurations and drag-and-drop camera selection.
PTZ Control:	Operator has full PTZ control of any PTZ camera in the system using the GUI, keypad or PLC.
Macro Configuration:	Macros can be defined for recording or displaying/playing cameras, microphones and related devices (sensors) as well as sending alarm notification through email or SMS text message.
Authorization Rights:	Group rights can be configured by specific site. Rights provide authority to perform all system functions.
Alarms:	Alarms can be programmed to annunciate under special conditions.
Central Failure Notification (CFN):	Utility that provides notifications indicating certain applications have failed.
Search Function:	Search list of devices at each the Site List in the system. Includes Next and Previous function.

Electrical

Input Voltage:	90-230 ±10% VAC, 50/60 Hz.
Current:	1.4 A @ 115 VAC; 0.7 A @ 230 VAC.
Power Consumption:	161 W nominal.
Heat Output:	563.5 btu/hour.
Power Connector:	Standard 3-conductor female socket.
CPU:	Intel Core i7-8700 processor.
Memory:	8 GB minimum.
Operating System:	Microsoft Windows 10 IoT LTSC*, 64-bit.
Hard Drive:	1 TB.
Motherboard:	Gigabyte C246 C246WU4.
Network:	1 Gbps onboard.
Video Card(s):	NVidia VCQP620V2-PB. Supports 4K resolution.
Cooling:	Internal fans; 79.92 cfm flow rate each.
Certifications:	Rack-version: CE and FCC, Class A; UL. Tower: FCC.

Mechanical

Application:	Indoor.
Mounting:	Standard 19 in. (483 mm) rack mount and stackable, 3RU height or desk-top PC tower.
Dimensions:	Rack: 5.3 in. (135 mm) H x 17.1 in. (435 mm) W x 20.5 in. (520 mm) D, including connectors Tower: 16.9 in. (430 mm) H x 8.5 in. (217 mm) W x 19.5 in. (495 mm) D
Weight:	30.0 lb (13.6 kg).
Construction:	Steel case and hardware.
Color:	Black.

Environmental

Operating Temperature:	32° to 104° F (0° to 40° C).
Humidity:	Up to 95% relative, non-condensing.
Storage Temperature Range:	-4 to 158° F (-20 to 70° C) maximum.

Warranty

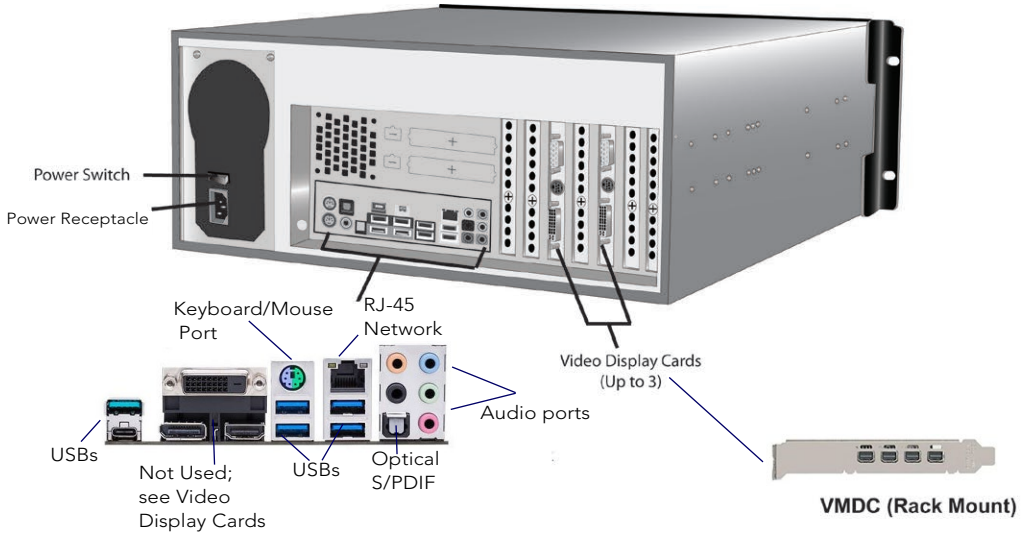
3 years parts and labor

*The LTSC (Long Term Servicing Channel) version is provided. If a full Windows 10 CB O.S. is required, contact you Vicon Sales Representative.

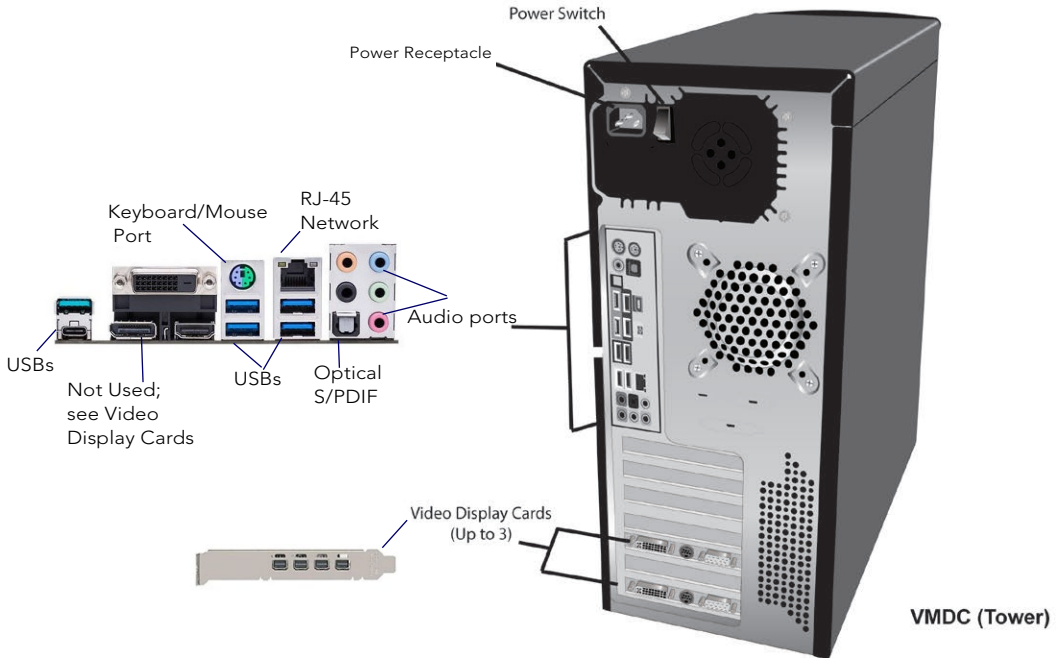
Ordering Information

Description	Model Number
Virtual Matrix Display Controller Software (Installation on 3rd party server). Single license.	VMDC-SWV8
Virtual Matrix Display Controller with 2 display outputs. 3RU rack-mount unit	VMDC-2V8-B-RK
Virtual Matrix Display Controller with 4 display outputs. 3RU rack-mount unit	VMDC-4V8-B-RK
Virtual Matrix Display Controller with 6 display outputs. 3RU rack-mount unit	VMDC-6V8-B-RK
Virtual Matrix Display Controller with 2 display outputs. Tower unit.	VMDC-2V8-A
Virtual Matrix Display Controller with 4 display outputs. Tower unit.	VMDC-4V8-A
Virtual Matrix Display Controller with 6 display outputs. Tower unit.	VMDC-6V8-B
Network Control Keypad. Used to control ViconNet digital video management systems over an IP network or serial connection.	VN-KEYPAD

Data Sheet Number: V212
Dated: 7/2022
Vicon Data Sheet Part Number: 8009-7212-02-04
Specifications subject to change without notice.

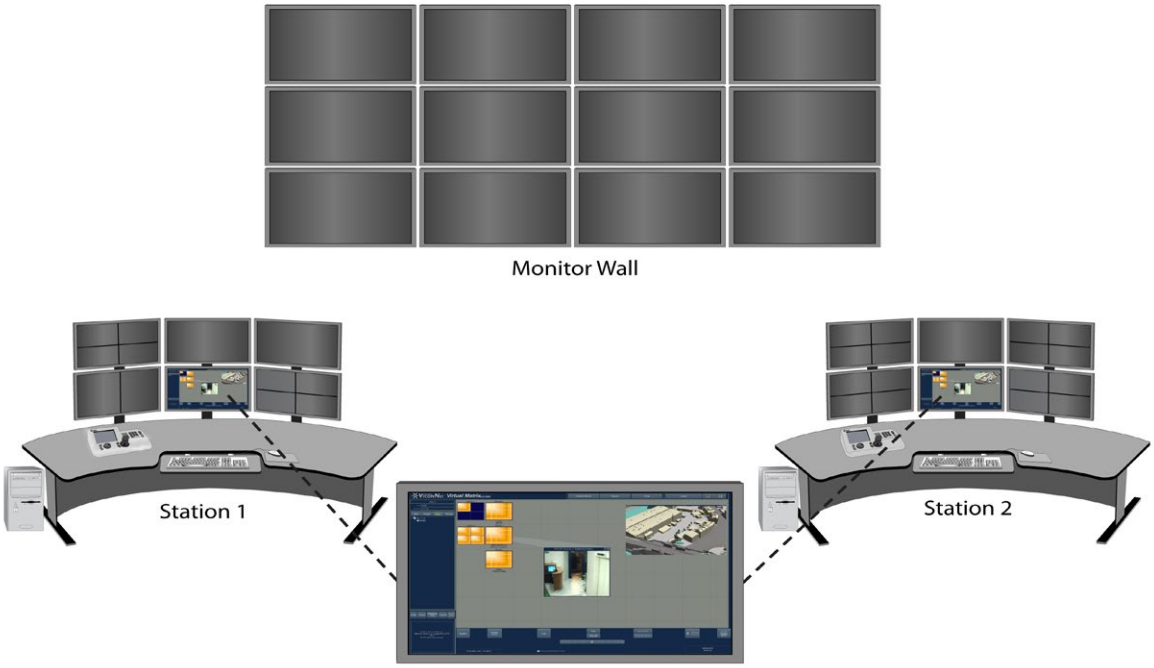


VMDC (Rack Mount)



VMDC (Tower)

Virtual Matrix Display Controller Multi-Station Installation



A multiple station installation employing 2 VMDC Tower units is shown above. Station 2 can be at a remote location or another facility. ViconNet video is provided to each station via the network. Each operator has access to the Main Monitor Display and can view and control monitors on the Monitor Wall, if so equipped, or any system monitor. Typically, most operators would view local ViconNet video at their stations and one operator would control the VMDC.

This setup provides the following control options:

- Monitor wall can be set up with any combination of camera window views. For example: a single window on one monitor, a quad view on another, etc. The monitor windows can be divided into 1, 4, 6, 9, 10, 16, 25, 36 or 64 segments. There are a maximum of 150 video streams for each VMDC, regardless of how the monitors are segmented.
- Operator can start any camera on any monitor or any monitor window view by dragging and dropping views from the Main Monitor site list, group list or map by dropping the view on the selected monitor icon using a mouse, keypad or PLC control.
- Cameras may be placed on any of the monitors connected to either VMDC. Each operator has full control of every system camera.

System Performance

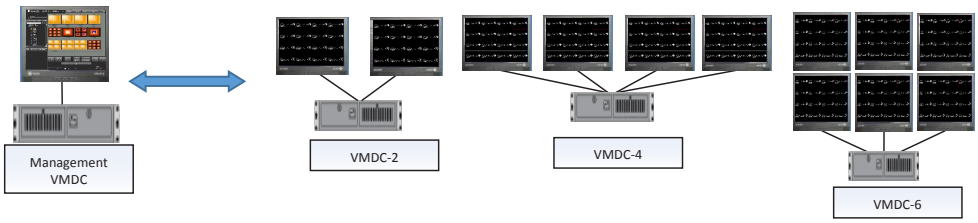
In every system there is at least one management VMDC that is running the VMDC user interface (with the monitor icons) and manages the video traffic from the cameras to the monitors that are doing the display itself. This management VMDC is limited by two factors:

- Number of channels that can be processed: This is the total number of cameras that any management VMDC can connect to and handle. This is not the total number of cameras on the system, only those that at any time are handled by the specific management VMDC.
- Bandwidth to and from the management VMDC: The management VMDC has a 1Gbps network card and is expected to connect to a compatible port.

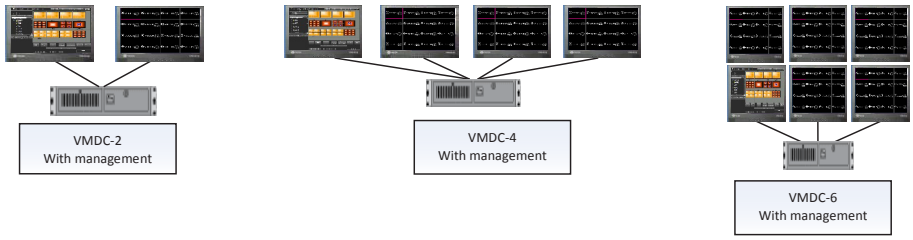
In order to ensure the system's performance these guidelines need to be observed:

- Do not exceed 500 cameras to be connected by any given management VMDC. To explain what connected means:
  - A camera on the site list that is displayed on any monitor managed by the VMDC by the user, PLC, keypad or macro.
  - Cameras on the list that are never used by the VMDC do not need to be part of this count as they do not require resources.
- If the performance guide is followed, it is very unlikely the recommended 700Mbps (70% of the maximum 1Gbps) bandwidth will be exceeded.
- If more than 500 cameras need to be switched and managed on the VMDC systems, or if the bandwidth is expected to exceed the one recommended, add another management VMDC and split the tasks between them.

Systems with based on VMDCs



❖ **Display units fully controlled by a VMDC on a different PC (receive monitor only)**



❖ **One monitor is used for the management UI**

Resolution	Maximum Cameras Across All Video Monitors		
	30 FPS	15 FPS	7 FPS
1 CIF	60	114	150
4 CIF	41	68	150
800x600 (0.5MP)	25	39	80
1280x720 (1MP)	18	30	58
1280x1024 (1.3MP)	17	28	56
1920x1080 (2MP)	12	22	42
1600x1200 (2MP)	12	22	42
2048x1536 (3MP)	8	14	28
2600x1950 (5MP)	4	7	14
3840x2160 (8MP/4K)	2	4	8
4000x3000 (12MP)	N.A.	2	4