

# Video System Manager Pro

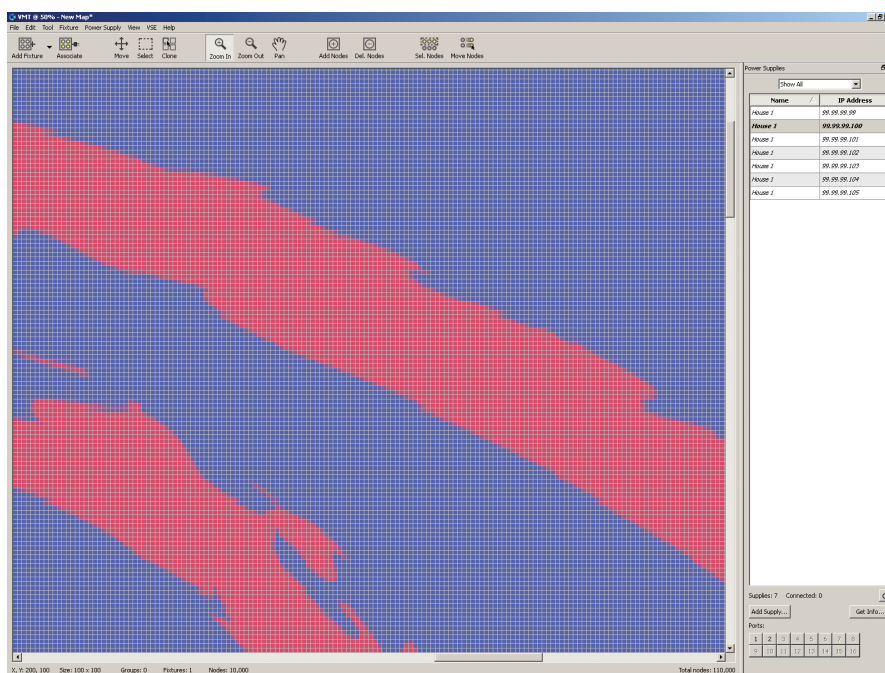
Product Guide

# Video System Manager Pro

Deliver spectacular video, imagery, and visual effects to Ethernet lighting networks

Video System Manager Pro is an integrated hardware and software solution enabling video playback and visual effects output on Color Kinetics intelligent solid-state lighting systems. VSM Pro converts standard video content from a variety of media sources and outputs the content to installations containing thousands of individually controlled LED nodes. VSM Pro lets you create video on almost any interior or exterior surface where conventional high-resolution video screens might be impractical or cost prohibitive.

- Easy to use — VSM Pro accepts direct input from industry standard media devices and operates on dedicated Ethernet networks, letting you spend more time on the creative aspects of lighting design and less time on setup.
- Improved reliability — Solid-state drives reduce the number of moving parts to enhance the reliability of the Video System Manager Pro hardware.
- Pixel-perfect output — VSM Pro delivers 1:1 output (ratio to source video) up to 1024 x 768 resolution, providing the highest quality digital video possible.
- Flexible display capability — VSM Pro streams video content to intelligent color-changing and tunable white light LED lighting fixtures from Color Kinetics. Create large-scale video installations without the cost of a conventional video wall.
- Pre-loaded with Video Management Tool software — VSM Pro's software provides built-in node-mapping and light discovery features, eliminating the need for additional tools, and reducing installation time.
- Compatible with application-specific products — Combine VSM Pro's flexible playback capabilities with the content creation, visual effects editing, and scheduling features of third-party systems to create stunning video environments.



## Display Live Video

Video Management Tool enables rapid pixel-to-node video mapping of your installation layout.

Video System Engine Pro hardware processes and outputs video to your lighting installation.

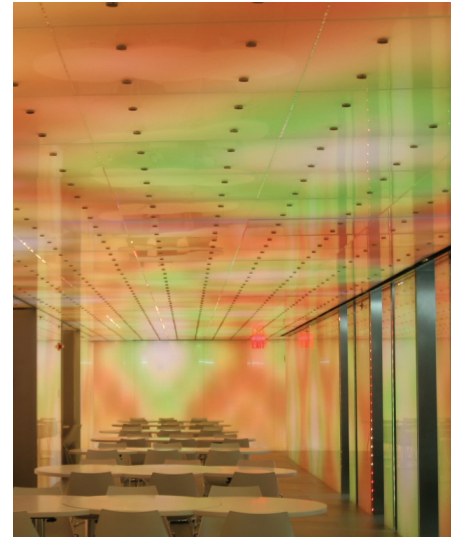
Video System Manager Pro's highly scalable design can accommodate small, medium, or large-scale installations comprising up to 250,000 LED nodes or fixtures.



## Develop immersive video environments



Condé Nast Cafeteria  
New York, NY



Condé Nast Cafeteria photography courtesy of Arup Lighting

### Installation Showcase

The corporate cafeteria within Condé Nast's New York headquarters provides a colorful respite from the daily grind. The 12,000 square foot (1,115 square meter) space is architecturally lit entirely by a Philips LED system — no conventional light sources are used.

Seven unique light sequences were programmed for the space, with the intent to invite outside artists to create temporary light exhibits.

✳ For full details on using Video System Manager Pro hardware and Video Management Tool software to control your lighting installation, refer to the user manuals available at [www.colorkinetics.com/ls/controllers/vsmpro](http://www.colorkinetics.com/ls/controllers/vsmpro)

The space encompasses approximately 90,000 individual nodes of iColor Flex SL, which line the ceiling and walls behind monolithic glass for a smooth, diffused effect. Philips software and hardware facilitate the complex mapping effort and video-driven control of each node in the installation.

# Video System Manager Pro Applications



Aspire Tower  
Doha, Qatar

Photography courtesy of Lumasense

## Flexible Large Screen Video Display

Paired with flexible lighting systems from, Video System Manager Pro excels at displaying video on large non-linear surfaces where conventional video walls might be impractical or cost-prohibitive.

The 1,043 ft (318 m) Aspire Tower installation uses lightweight, flexible lighting systems to output live video and graphics on a 11,700 square foot (1,087 square meter) curved surface. Approximately 156,500 nodes of iColor Flex SL were woven through the tower’s façade, forming a massive cylindrical display.

The video surface is divided into three low-resolution segments with 8 in (200 mm) node spacing and three higher-resolution segments with 2 in (50 mm) node spacing.

Application Details	
Node Pitch	2 in (51 mm)
Node Density	13.4 per sq ft (144 per sq m)
Minimum Viewing Distance	15 ft (5 m)
Horizontal Viewing Angle	150° (+ / – 75°)
Vertical Viewing Angle	150° (+ / – 75°)





Eclipse Bar at Ramada Express  
Laughlin, NV

Photography Studio West Photography

### Non-Rectangular Video Display

Conventional LED video screens display video in a flat rectangular format. VSM Pro offers lighting designers the ability to create unique video environments on non-rectangular architectural surfaces, curves, and three-dimensional features otherwise unsuitable for video.

VSM Pro is compatible with all Philips Color Kinetics direct and indirect view fixtures, creating a variety of unique installation options. Eclipse Bar has an oval ceiling set up for video display via 126 iColor Tile FX 2:2 units installed in an oblong grid above the central bar. Each 2 x 2 ft (610 x 610 mm) unit conceals 144 individually addressable, tri-color LED nodes capable of displaying video from the hotel media server.



The X Factor  
Fountain Studios, London, UK

Photography Louise Stickland

### Theater and Entertainment

In theater and entertainment applications, dynamic effects and video must complement the action on stage without appearing out of sync. VSE Pro hardware eliminates frame rate lag and video signal noise by accepting direct DVI and VGA video input from industry standard media servers and devices. Onboard VSE Pro signal processing features enable fine-tuning of video output to match network bandwidth.

Requiring a high-performance lighting system to enhance their TV broadcast, the design team for The X Factor chose iColor Tile FX 2:2 fixtures for a dramatic video display. Approximately 171 iColor Tile units were installed beneath the frosted stage floor without a diffusing lens, making the LED-based points of light visible in crisp definition.



Stadium Center  
Vienna, Austria

Photography Rob Nelisse

### Transformative Design

The designers of the Stadium Center video display created an inviting and attractive façade used for eye-catching light shows and commercial messaging at night, yet the installation appears transparent during the day.

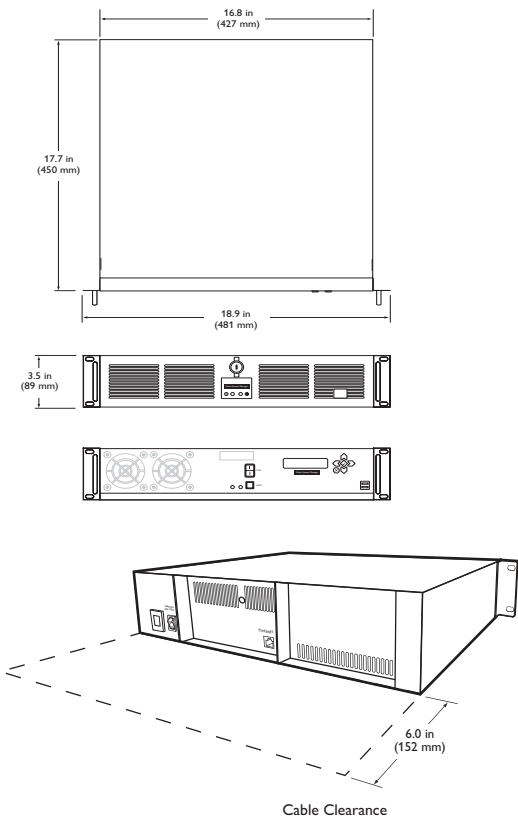
Stadium Center has a 262 ft (80 m) width and 26 ft (8 m) height display containing 37,620 individually controllable full-color pixels. iColor Flex SLX Clear, Flat Lens fixtures are mounted on an 85% transparent steel grid, the curved LED display has full visibility during the night and is almost invisible during the day. 18 temperature-controlled cabinets installed behind the display contain eight sPDS-480ca power data supplies, a VSM Pro and a Gigabit Ethernet switch connected to a remote server room.

# Specifications

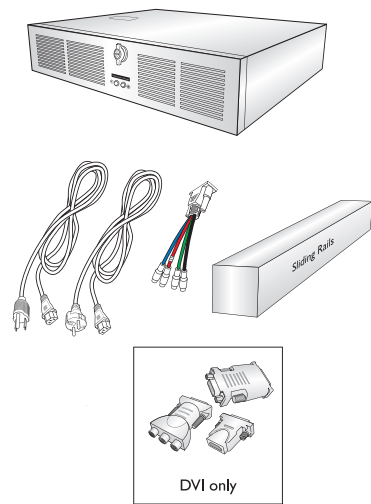
Due to continuous improvements and innovations, specifications may change without notice.

Item	Specification	Details
Electrical	Input Voltage	100 – 220 VAC, auto-switching, 50 / 60 Hz
	Power Consumption	400 W max.
Video Input	DVI Interface	1024 x 768 on DVI connector
Output	Network	KiNET Ethernet protocol via Gigabit Ethernet adapter†
Capability	Supported LED nodes	Up to 250,000‡
Physical	Form Factor	2U rack-mountable aluminum chassis
	Dimensions (Height x Width x Depth)	3.5 x 18.9 x 16.8 in (89 x 481 x 427 mm) 19-inch rackmountable
	Weight	32.23 lb (14.3 kg)
	Operating Temperature	50° – 95° F (10° – 35° C)
	Humidity	8 – 90%, non-condensing
Certification and Safety	Certification	UL, FCC, Class A, CE
	Environment	Dry Location, IP20

† KiNET is the Ethernet lighting protocol from Color Kinetics.  
‡ VSM Pro supports 250,000 nodes when using maximally loaded sPDS-480ca power / data supplies.



Included in box



# Software Requirements

System Requirements	Specification	PC	Mac
Software	Operating System	Windows XP / Vista / 7	Mac OSX 10.5.8 or greater
	Memory	256 MB RAM	256 MB RAM
	Disk space	40 MB free disk space	40 MB free disk space

# VSM Pro Selection

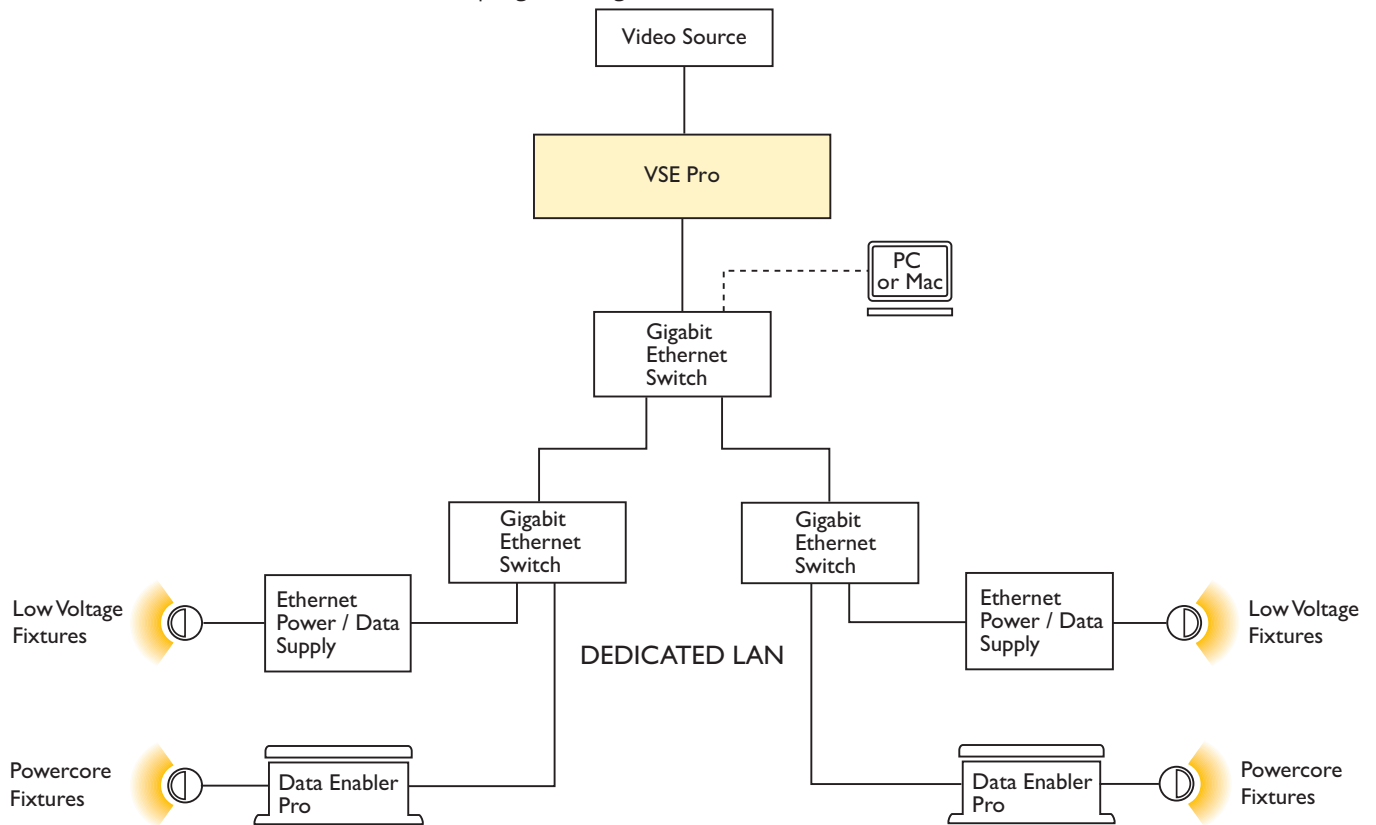
Item	Item Number	12NC
VSM Pro DVI SSD	103-000022-04	910503702736

Use Item Number when ordering in North America.

The VSM Pro box includes two power cords (one US and one Euro) and a set of keys (not shown) for securing the controller. The unit is shipped locked.

# Configuration Overview

Video System Engine (VSE) Pro hardware enables your lighting installation to display digital video. Your installation must include a video source, a Gigabit Ethernet switch on a dedicated Local Area Network, and a personal computer (PC or Mac) temporarily for programming.



## Video Sources

Video System Engine Pro connects directly with industry standard media servers and external devices for content creation, audio synchronization, video processing, storage, and scheduling features. Media systems may also integrate VSM Pro with external devices to create synchronized light and video shows, choreographed special effects, and more.

## Ethernet Layout

Video System Engine Pro hardware communicates with your lighting installation via KiNET Ethernet, the network protocol engineered by Color Kinetics specifically for high-performance lighting system control and full compatibility with all Ethernet hardware.

VSE Pro hardware can accommodate network trees up to three switches deep between the Video System Engine Pro and the farthest interface. Ethernet limits the maximum cable run to 328 ft (100 m) between active devices (e.g. switches). Adding Ethernet optical data cabling and hardware to your layout extends the maximum cable run distance.

✳ For optical device Ethernet network specifications, refer to your optical device user documentation.

## Dedicated Local Area Network

Video System Engine hardware sends up to 60 frames of video per second to your lighting installation. A dedicated LAN ensures optimal display output and enables advanced performance management features.

# Prepare for the Installation

## Owner / User Responsibilities

It is the responsibility of the contractor, installer, purchaser, owner, and user to install, maintain, and operate the Video System Manager Pro system in such a manner as to comply with all applicable codes, state and local laws, ordinances, and regulations. Consult with an appropriate electrical inspector to ensure compliance.

✳ Refer to the VSM Pro Installation Instructions for specific warning and caution statements.

## Planning the Installation

VSM Pro offers visually engaging video content, both indoors and outdoors. With its scalable design supporting up to 250,000 nodes, compatibility with all direct and indirect view Color Kinetics lighting systems, ease of installation, and direct input from industry standard media servers and devices, VSM Pro is ideal for applications ranging from large-scale outdoor video displays to indoor video displays, theater, and interactive video environments.

Color Kinetics offers a range of lighting systems suitable for video installations ranging from the simplest to the most complex. A simple application might use 24 units of iColor Tile MX displaying video from a DVD player at 704 x 480 resolution. A larger installation might use 5000 strands of iColor Flex LMX displaying pre-scheduled video sequences from a media server at 1024 x 768 resolution.

Regardless of the size and complexity of your project, the time you spend up front can help minimize installation and configuration issues later. Well-designed video display brightens an area, highlights architectural features, and creates a visually engaging environment. Keep these suggestions in mind as you plan your installation:

- 1. When displaying video as part of your installation, determine the minimum viewing distance (MVD). The MVD is the closest distance at which video is discernible to an acceptable level.
- 2. To determine the MVD, multiply the node pitch by 100 distance units. For example, if the node pitch is 50 mm, the MVD is 5 m.

Value	Calculation
Node Pitch	Distance between nodes
Minimum Viewing Distance	Node pitch x 100

✳ For further assistance determining optimal viewing distances and node spacing, Contact Application Engineering Services at [support@colorkinetics.com](mailto:support@colorkinetics.com).

- 3. Create a lighting design plan that specifies the locations of all fixtures, power / data supplies, and cables on a CAD layout, architectural plan or other diagram. Place nodes in a grid format, with equidistant horizontal and vertical spacing. Use the appropriate fixture Product Guides and wiring diagrams to determine how many fixtures you can install in a single run, and the maximum distances between power / data supplies, fixtures, and controllers.
- 4. As part of the lighting design plan, where possible, make use of a “repeated layout” that specifies the preferred orientation of each fixture. For example, if using iColor Tile MX fixtures, install each fixture in a uniform manner so that jumper cabling plugs into the same side of each fixture in a run. Similarly, if using iColor Flex MX, or iColor Flex LMX, install strands in vertical columns, without overlapping (“snaking”) between columns.
- 5. As you unpack components, track the serial numbers in a spreadsheet and physically label each PDS with an IP address. To save time later, use an IP addressing scheme that identifies where each device or cable is located. For example, assign IP addresses based on the floor, drop, or power / data supply.

✳ Product Guides are available online at [www.colorkinetics.com/support/productguides](http://www.colorkinetics.com/support/productguides)

✳ Custom-length iColor Flex are available from Color Kinetics at no extra cost. Contact Application Engineering Services for details at [support@colorkinetics.com](mailto:support@colorkinetics.com).



6. If creating a video display that is difficult to see in its entirety from a close distance (for example, a large outdoor display installed on a building façade), it is preferable to address fixtures and configure your system off-site, prior to installation. This enables faster testing and troubleshooting for your light addressing and video map.

## Start the Installation

1. Install all fixtures, power / data supplies, and any interfaces with external media servers or devices. If your installation calls for jumper cables to add space between fixtures, make sure they are available.
2. Verify that your VSM Pro is set up to operate on a dedicated LAN using a Gigabit Ethernet switch.
3. Certain Gigabit Ethernet switch settings suppress a single device from monopolizing network bandwidth. Since VSE Pro will be the primary device driving network communications, the following features should be disabled on your network switches :
  - Back pressure
  - Packet filtering
  - Broadcast storm control
4. Prepare the source video. For best results, optimize the source video content using external tools prior to streaming the video signal to the VSE Pro. The inherent quality of the source determines the display quality of the output.

✳ For instructions on how to modify device settings, refer to your network switch user documentation.

## Install Video System Manager Pro

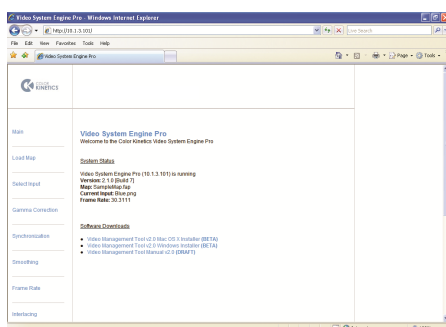
VSM Pro comprises two components: the VSE Pro Hardware and VMT software. With VSE Pro installed and configured and a personal computer (PC or Mac) set up, download and install VMT software.

### VSE Pro Installation Overview

- Use the Installation Instructions document included in the product packaging for step-by-step hardware installation instructions.
- Both VSE Pro and the personal computer hosting VMT must be set up on a dedicated network.
- VSE Pro automatically assigns the computer an IP address.
- Use the computer to connect to VSE Pro interface by entering 10.1.3.101 in a Web browser.
- Download the Video System Engine Pro User Guide from the VSE Pro interface or by visiting online at [www.colorkinetics.com/ls/controllers/vsmpro](http://www.colorkinetics.com/ls/controllers/vsmpro).

### VMT Installation Overview

- Use the Quick Start Guide included in the product packaging for step-by-step software installation instructions.
- Download and install VMT software from the VSE Pro application.
- Download the Video Management Tool User Guide from the VSE Pro interface or by visiting online at [www.colorkinetics.com/ls/controllers/vsmpro](http://www.colorkinetics.com/ls/controllers/vsmpro).

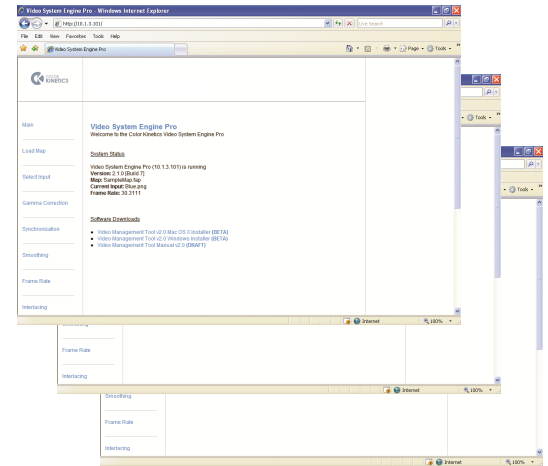


# Using Video System Engine Pro

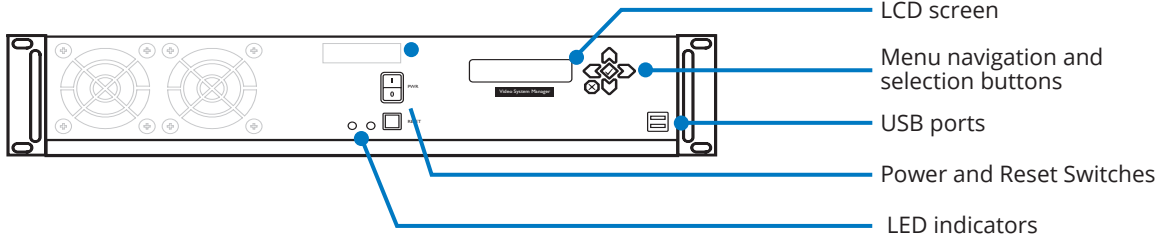
## VSE Pro Web Interface and Features

The VSE Pro interface, accessible via web browser at 10.1.3.101, offers access to the following features:

- System information including output frame rate, map name, and input source.
- User documentation and VMT software downloads.
- Map uploading interface. VSE Pro accepts .fap (Fast Map) files created in VMT or VMT 2.0.
- Input selection including static and video test files, input type.
- Video signal intensity correction including adjustable gamma, black level, and white level settings.
- Video output tuning including network bandwidth optimization, video filtering (noise reduction), frame rate settings, and sampling options (progressive or interlaced scan).



## VSE Pro Hardware Controls and Features



**LCD screen** – The LCD screen displays operational status, menus, and menu options.

**Menu navigation and selection buttons** – The → icon indicates that there are additional menus available. The ← icon points you back to the main menu. The ↑, ↓, and ↵ icons indicate selectable menu options. The menu system is identical to the menus available via the VSE Pro interface. The ⏏ and ⏏ menu buttons enable you to toggle through the menu system. The ⏏ and ⏏ buttons are selection buttons — they enable you to select and automatically save settings within a menu. The ⏏ and ⏏ buttons are unused.

The VSM Pro User Guide describes all menus, menu options, and their specific uses in detail.

**Power switch** – Press the Power switch to safely shut down or power up VSE Pro. For data integrity, do not remove the power cord or toggle the Master Power switch on the back side of the device unless the unit has shut down first via the Power switch.

**Reset switch** – Press the Reset button to perform a soft reboot. For data integrity, do not use this feature except for troubleshooting purposes, as directed by Color Kinetics Customer Support.

**LED indicators** – The LED indicators display main power, hard drive activity, and network activity.

**USB ports** – The USB ports enable firmware and map updates via USB flash drive.

# Using Video Management Tool

To display video content, a lighting installation requires a map to assign each pixel from the source video to a node in the installation. Video Management Tool Version 2.0.1 software enables you to quickly map an installation up to 250,000 nodes in size and transfer the map file to VSE Pro.

There are two mapping methods, virtual and interactive.

- Virtual mapping enables you to create a map off-site, prior to installation, without actually connecting to lighting system components.
- Interactive mapping enables you to 'discover' lighting system components during installation, while on-site and connected.

## Mapping Your Installation

### Method 1: Virtual Mapping

1. Working from the lighting design plan, add 'virtual' power supplies to the map in VMT. Virtual supplies stand in for the real power supplies, which will be discovered automatically by VMT once on-site.
2. Add the first light fixture to the map.
3. Use the Clone tool to add additional fixtures to the map.
4. Associate (connect) each fixture to a port on a power supply.
5. Repeat the process for each fixture.
6. Save the map.
7. Transfer the map to VSE Pro.

### Method 2: Interactive Mapping

1. Connect to your lighting installation via VMT.
2. Scroll through the list of automatically discovered power supplies, selecting them one at a time, until you select the supply controlling the fixtures in the top-left corner of the map (the corresponding, real-world fixtures in the installation will light up).
3. Click a port selection button and determine the node dimensions of the real-world fixture in the installation.
4. Add a fixture to the map with the same node dimensions. Rotate and / or move the on-screen fixture for correct orientation and placement.
5. Associate the on-screen fixture with the correct power supply port.
6. Determine the fixture's node order and change if necessary.
7. Add and associate fixtures for the remaining ports on the power supply.
8. Repeat the process for each power supply.
9. Save the map.
10. Transfer the map to VSE Pro.

✳ For full details on using Video System Manager Pro hardware and Video Management Tool software to control your lighting installation, refer to the user manuals available at [www.colorkinetics.com/ls/controllers/vsmp](http://www.colorkinetics.com/ls/controllers/vsmp)





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Color Kinetics  
[www.colorkinetics.com](http://www.colorkinetics.com)