

# NEC MultiSync® P Series with SpectraView™ II

## Color calibration solution ideal for color-critical applications

Designed with key features for the web graphics and photography professional, NEC MultiSync P Series displays are smart investments for your desktop. These models include the SpectraView<sub>II</sub> Color Calibration Solution, which combines award-winning NEC LCD display technology with a color measurement sensor and sophisticated software. The result is a highly accurate, reliable, repeatable and feature-rich display calibration and profiling solution.

Color and brightness uniformity were paramount in the design of these high-performance displays, making them ideal for graphic arts, desktop publishing, photography and other color-critical environments where an sRGB gamut is ideal. In addition to accurate color, the displays also feature Picture-in-Picture and Picture-by-Picture modes for a real-time preview of work in a second color space.



SpectraView™ II

## Highlights

- **Best-in-class 8-bit active matrix IPS LCD technology with wide viewing angle** provides optimum performance for displaying color images
- **XtraView+™ technology** provides for the widest viewing angles available (up to 178°) with minimal off-angle color shift
- **Internal 14-bit programmable 3D lookup tables (LUTs)** allow the display of 1.07 billion colors out of a palette of 4.3 trillion for lossless color and smooth images and hardware calibration
- **Free MultiProfiler software** provides complete control over the five picture modes. This includes loading any ICC profile directly into the monitor for optimal color space matching.
- **Built-in USB hub with DisplaySync Pro™** controls two computers with only one keyboard and mouse
- **AmbiBright™ ambient light sensor** automatically adjusts the display's brightness based on lighting conditions
- **Four-way ergonomic stand** boasts pivot, swivel, tilt and height-adjustment up to 150mm to maximize your viewing comfort
- **Color Vision Emulation** allows a real-time preview of Type P/D/T color vision deficiencies in support of Color Universal Design



# SpectraView<sub>II</sub> Color Calibration Solution Features and Benefits

**Quick and easy measurements.** The SpectraView<sub>II</sub> system, available for Mac OS and Windows, uses an ultra-sensitive, custom-calibrated NEC/X-rite iOne Display 2 colorimeter to take color measurements of the display screen during calibration. The software analyzes these measurements and sends color adjustment commands directly to the display monitor. This means that color adjustments are made in the monitor rather than in the video graphics adapter, resulting in full use of the number of colors available on the graphics adapter and a much brighter image with the maximum possible color gamut. With SpectraView<sub>II</sub>, the video graphics adapter is not used at all to make any gamma or tone response curve corrections to the display, so the full color resolution and fidelity of the system is maintained.

**10-bit Internal Look Up Tables (LUTs)** - Each LCD monitor supported by SpectraView<sub>II</sub> features three internal 10-bit LUTs. These tables allow precise adjustments to be made to the display's tone response curve with minimal reduction to the number of displayable colors. Since the tone response curve correction is stored within the display and not on the host system's video graphics card LUT, the display can be calibrated on one machine and then used on another and still maintain calibration as long as a digital video signal is used.

**Display Data Channel Command Interface (DDC/CI)** - SpectraView<sub>II</sub> communicates with the monitor using DDC/CI, which is a two-way communications link between the video graphics adapter and display monitor using the standard video signal cable. No extra cables are necessary. All adjustments to the monitor settings are done automatically using this communications link.

**Multiple calibration sets** - Different monitor calibrations can be instantly loaded, allowing quick and easy switching between different calibration settings without the need to re-calibrate the display. Each time a calibration set is loaded, the necessary monitor settings and ICC/ColorSync profiles are automatically updated.

**Calibrated display information** - At the end of each monitor calibration, an information window is displayed, which shows the results of the calibration and includes a wealth of information about the display such as the measured color gamut, grayscale color tracking, Delta-E and luminance values. Additional information about the display monitor such as the model name, serial number and the total number of hours that it has been in use are also displayed.



**Calibration status validation** - SpectraView<sub>II</sub> will query each calibrated monitor to see if any controls have changed since the last calibration. If anything has changed, the previous calibrated state can be restored automatically.

**Application flexibility** - SpectraView<sub>II</sub> provides many features and options that make it flexible enough to be used in a large variety of applications, including full DICOM support for medical imaging. The display luminance can be adjusted to either a specific user-defined value or set to the maximum the display can achieve. In addition, custom target response curves can be created in addition to presets such as L\* and SMPTE.

**Network support (Windows only)** - SpectraView<sub>II</sub> integrates with the NEC NaViSet™ Administrator network software (available separately from your NEC representative) to provide remote network access and monitoring of display monitors. NaViSet™ Administrator is able to read, display and log the current calibration settings and status of displays on an existing network (LAN). This feature is particularly useful for large installations where central monitoring and asset management is needed.

**Monitor locking** - Once calibrated, the On Screen Display (OSD®) controls for the display monitors can be locked to prevent accidental or unauthorized adjustment, which may invalidate the calibrated state of the monitor.

**Monitor profiling** - After calibration, the display is automatically profiled and highly accurate ICC/ColorSync color profiles are generated and automatically registered with the color management system. These profiles use the Bradford Chromaticity Adaptation matrix.

**Colorimeter function** - The software features a colorimeter function, which allows direct measurements to be taken by the color sensor and the results displayed in a variety of different formats.

## Specifications for MultiSync P241W-BK-SV

MODEL	P241W-BK-SV
<b>DISPLAY</b>	
Panel Technology	IPS
Viewable Image Size	24.1"
Aspect Ratio	16:10
Native Resolution	1920 x 1200
Pixel Pitch	0.27mm
Pixels Per Inch	93 @ native resolution
Backlight Type	CCFL
Brightness (typical)	360 cd/m <sup>2</sup>
Contrast Ratio (typical)	1000:1
Viewing Angle (typical)	178° Vert., 178° Hor. (89U/89D/89L/89R) @ CR>10
Response Time (typical)	8ms
<b>Color Gamut*</b>	
Adobe RGB Coverage/Size**	75.2% / 95.6%
NTSC Coverage/Size	71.4% / 72.2%
sRGB Coverage/Size	96.7% / 102%
Lookup Table	14-bit 3D
Displayable Colors	16.7 million out of 1.05 billion
<b>Synchronization Range</b>	
Horizontal (Analog/Digital)	31.5-93.8/118.4 kHz
Vertical	50-85 Hz
<b>Input Signal</b>	
Video	Analog RGB 0.7 Vp-p/75 Ohms
Sync	Separate Sync: TTL Level (Positive/Negative); Composite Sync: TTL Level (Positive/Negative); Composite Sync on Green: (0.3Vp-p negative 0.7Vp-p positive)
Input Connectors	DisplayPort, DVI-D (2), VGA 15-pin D-sub
<b>POWER CONSUMPTION</b>	
On (typical)	95W
Power Savings Mode (typical)	1W
<b>PHYSICAL SPECIFICATIONS</b>	
<b>Dimensions (WxHxD)</b>	
Net (with stand)	21.9 x 14.9-20.8 x 9 in. / 556.3 x 378.5-528.3 x 228.6mm
Net (without stand)	21.9 x 14.3 x 3.3 in. / 556.3 x 363.2 x 83.8mm
<b>Weight</b>	
Net (with stand)	23.8 lbs. / 10.8 kg
Net (without stand)	16.8 lbs. / 7.6 kg
VESA Hole Configuration	100 x 100mm
<b>ENVIRONMENTAL CONDITIONS</b>	
Operating Temperature	41-95°F / 5-35°C
Operating Humidity	30 - 80%
Operating Altitude	6562 ft. / 2000m
Storage Temperature	14-140°F / -10-60°C
Storage Humidity	10-85%
Storage Altitude	40,000 ft. / 12,192m
<b>LIMITED WARRANTY</b>	4 years parts and labor, including backlight***
<b>ADDITIONAL FEATURES</b>	ECO Mode; Carbon footprint meter; Tilt; Swivel; Pivot; Height-adjustable stand; Quick release stand; Carrying handle; Rapid Response; XtraView+; OSD user controls; NaViSet software; Cable management; Touch-integratable; VESA mount; HDCP; DDC/CI; No Touch Auto Adjust; 14-bit 3D LUT; Black Level adjustment; AmbiBright; CableComp; GammaComp MD QA software; SpectraView software-ready
<b>SHIPS WITH</b>	User manual; Power cord; 15-pin D-sub cable; DVI-D cable; USB cable; DisplayPort cable; Cable Cover; Mounting Screws
<b>OPTIONAL ACCESSORIES</b>	Multimedia soundbar - black (SOUNDBAR90-BK); Hood (HDP212426)

\* Color gamut size and coverage calculated as 2-D gamut area in CIE 1931 xy colorspace. Size is the total relative display gamut area and includes any colors outside the reference gamut. Coverage is the relative display gamut area contained inside the reference gamut. NTSC values provided for comparison purposes - modern broadcast video uses SMPTE-C, ITU-R BT, 709-5/sRGB or EBU primaries.

\*\* AdobeRGB is a standard defined by Adobe Systems Incorporated.

\*\*\* Warranty restrictions apply. Contact your representative for details.

The MultiSync P Series design allows you to adjust the displays to your exact ergonomic preferences. In addition to tilt and swivel functionality, the height adjusts up to 150mm, and the displays pivot between landscape to portrait orientations.



### SpectraView<sub>ii</sub> Software Requirements

Apple Mac OS X v10.3.9 or higher. Microsoft Windows 2000, Windows XP (Home and Professional editions), Windows XP x64, Windows Vista 32 bit and x64 versions, and Windows 7 32 bit and x64 versions. Suse Enterprise Desktop 10 and higher.

At least one available USB port for MDSVSENSOR2 color sensor.

Visit [www.necdisplay.com](http://www.necdisplay.com) for the latest requirements.