Empowered by Innovation NEC

Next Generation Clinical Review Displays

MDVIEW SERIES

Featuring MDview 232 | MDview 271

10-BIT P-IPS PERFORMANCE

Hospital-Wide DICOM Part 14 Compliant Viewing with up to 1024 Grayscale Levels

CLINICAL REVIEW DISPLAYS

NEC MDview Displays are setting a new standard in the field of medical image viewing, meeting the highest reviewing expectations of departments like orthopedics, pneumology and intensive care.

Digitalisation has long reached the Healthcare Sector, with productivity gains and the recent move towards a film-less environment. Current challenging and innovative medical techniques rely on access to accurate information at all times.

MDview271
Split-Screen example

The hospital-wide roll-out of Picture Archiving and Communication Systems (PACS) relies on monitors able to view medical images, enriched with patient information, at a consistent high standard across all departments and consultation rooms within the hospital. As the leading Manufacturer of innovative medical displays NEC is your partner to deal with the challenges of hospital wide digitalisation processes. NEC Display Solutions offers the widest range of display products for any medical application.

The MDview Series are budget-friendly DICOM Part 14 calibratable LCD displays for image viewing of CT/MRI and PACS referral. Exhibiting many environmentally friendly features, as well as featuring a design which has won the prestigious iF Design Award 2010, the MDview series proves that an environmentally responsible approach to product design does not have to compromise technical performance.

Offering a range of professional sizes and resolutions, the outstanding MDview series offers direct productivity benefits, future-proof peace of mind and an uncompromising promise to give the clinical user the most accurate and consistent display performance in the market.

REFERENCE STANDARD MEDICAL PERFORMANCE*

- 10-Bit P-IPS Panel, Ideal for Accurate Review
- 1 Billion Colours with 3D Colour Emulation Look Up Table
- DICOM Part 14 Calibratable Display able to accurately represent Colour or Grayscale Images
- Image Uniformity Control and Backlight Ageing Correction
- Advanced Connectivity Including 10 Bit DisplayPort Input
- Split-Screen, Multiple Input Source, Simultaneous Viewing

* Features for MDview 271. Please refer to specifications for other MDview models.

COLOUR AND GRAYSCALE PRECISION

The professional 10-bit P-IPS* panel, with an extended colour space, delivers uncompromising image quality to a variety of demanding medical display applications. The wide-format LCD offers a large viewing area which increases productivity by allowing two or more applications or medical images to be viewed simultaneously thanks to a powerful split-screen function.

NEC maintains its responsible approach to environmental impact, without performance compromise, through ambient light sensor, carbon savings meter, efficient cabinet packing design and use of sensitive materials. All efforts are made to ensure that high performance is provided with the minimal use of valuable resources. Finally, future proof connectivity with the latest DisplayPort connector, as well as use of high quality Japanese design and components ensure that the life-cycle environmental impact of the MDview series is mitigated to a minimum.

10-BIT P-IPS PERFORMANCE

The In Plane Switching (IPS) panel technology is found at the heart of the MDview series technology design. The IPS advantage has always found particular favour in medical imaging. The wide viewing angle with negligible colour shift means that medical images are accurately and reliably communicated to all users from all viewing positions.

The latest 10-bit P-IPS panel offers the ultimate image quality and represents the cutting-edge of today's medical imaging technology. The P-IPS version is a member of H-IPS technology grouping, in which the light transmittance (aperture ratio) of the semiconductor transistor has been further improved. This improves specified contrast levels, as well as offering an opportunity for energy savings. More importantly the P-IPS version also offers an improved wider colour gamut performance. This wider colour gamut is possible through the use of improved colour filters, stabilised spectral backlighting technologies and the improved aperture ratio of the panel.

IPS OFF 0%
Brightness LC Molecules
Unpolarised

IPS ON 50%
Brightness LC Molecules
Partially Polarised

IPS ON 100%
Brightness LC Molecules
Fully Polarised

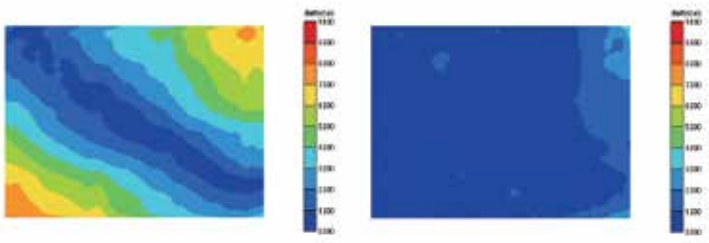
CONSISTENT IMAGE EVERY TIME

DIGITAL UNIFORMITY CONTROL (DUC)

A homogeneous distribution of brightness and colour across the entire image area is an essential basis for medical imaging. A fine matrix and high precision sensor electronics measure individual irregularities in brightness, colour and gamma values for each individual display. Digital Uniformity Control (DUC) determines variations and optimises millions of pixels to ensure a uniform image with regard to brightness distribution and colour re-production. At the same time, various parameters such as temperature, operating time and even the alignment of the monitor are taken into account.

BACKLIGHT AGEING CORRECTION

The Backlight Ageing Correction function is an additional feature to assure stable colour reproduction and luminance stabilisation during the warm-up phase, as well as over the lifetime of the product. An internal electronic back light compensation system assesses the luminance of the back light, corrects and stabilizes it during its warm up phase. Additionally, as the backlight ages, the white point temperature shifts to yellow, which can be periodically compensated through an ageing estimate to appropriately modify the RGB filter gains.



DIGITAL UNIFORMITY CONTROL Before Image (Left) After Image (Right)

ADVANCED COLOUR REPRODUCTION

OVER 1 BILLION COLOURS

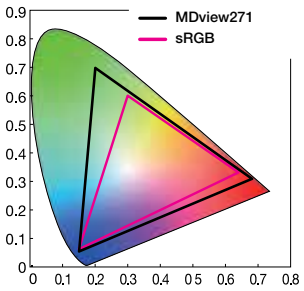
The multi-purpose MDview Series employs the latest 10-bit (or 8-bit plus Frame Rate Control) grayscale control and processing electronics, which, when aligned with the wide colour gamut RGB colour filters, allows over a billion individual colours to be displayed. This 10-bit colour capability delivers outstanding image quality for applications such as 3D rendering, Maximum Intensity Projection (MIP), Multi-Planar Reconstruction (MPR) and image fusion.

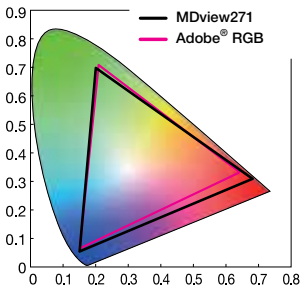
Enjoy the smoothest colour gradation with the 10-bit panel offering 1024 grayscales per RGB channel generating 1.073 billion possible colours, instead of the conventional 16.7 million colours associated with 8-bit technology. A calibrated DICOM curve will offer even smoother grayscale gradations, with more visible nuances due to 1024 possible grayscale levels, compared to the more conventional 256 levels.

Three 14-bit lookup tables (LUT), individually programmable for each RGB signal makes it possible to accurately calibrate the monitor in accordance with the DICOM Part 14 GSDF standard.

WIDE COLOUR GAMUT

Experience the very best in colour image quality with the latest generation of state of the art 10-bit P-IPS technology, with exceptionally wide viewing angle, widest colour gamut available (107% AdobeRGB colour space on the MDview 271; other MDview models have more conventional sRGB colour space capability) and absence of colour shift. The true benefit of a wide colour gamut display is particularly visible when combined with a 10-bit panel, since potential colour banding or visible grayscale steps are much reduced.





ADVANCED TECHNOLOGY
Digital Uniformity Control Chip.

A REASSURING DISPLAY CHOICE

FINE TUNING IMAGE ADJUSTMENT

NEC MDview Series monitors feature a custom-designed colour processor called the Colour Processing Engine. This sophisticated processor, combined with internal luminance, temperature and time monitoring of the monitor, and individual characterisation and calibration of each unit during production, results in an unparalleled level of colour control, accuracy and stability.
The integrated USB hub can also be managed to function as a Keyboard / Video / Mouse (KVM) switch. This DisplaySync Pro feature allows the mapping of the two USB upstream ports to the various monitor inputs, which is useful for managing multiple computers attached to the unit.

HIGHEST QUALITY WARRANTED IMAGING

MDview Series include a zero pixel failure warranty for the 10cm radius of the displays central viewing area and all displays are offered with 3 years standard warranty. A 5 years or 30.000 hours usage, whichever comes first, warranty extension is offered as an option.
NEC Display Solutions Healthcare warranty always includes LCD panel and backlight, as well as same service level during the complete warranty period (no limited warranty statements). Each MDview display is also hand-picked for optimum backlight uniformity over the entire panel including edges and corners.

IMPROVING PRODUCTIVITY

The powerful Split-Screen or Picture-by-Picture feature of the MDview 232, MDview 241 and MDview 271 allows two different platforms or images to be simultaneously viewed, with a single mouse and keyboard being switched between active operating systems (DisplaySync Pro).
Clinical staff will save time with having instant access to multiple information feeds in the same display workspace.

PICTURE MODE SELECTION

The MDview Series allow an advanced workflow which makes multi-tasking and verification easy. Two picture modes can be created for different office and medical imaging applications. The two modes can be simply toggled using the monitor's On Screen Display (OSD) controls. Each of the picture modes has an assigned colour gamut, gamma correction curve and white point temperature.

HOSPITAL WIDE DICOM PART 14 COMPLIANT VIEWING

The MDview Series comes with a factory-preset DICOM curve and offers a number of professional features for first-class medical image quality. Three 14-bit lookup tables (LUT), individually programmable for each RGB signal makes it possible to calibrate the monitor in accordance with the DICOM Part 14 GSDF standard.

WHY CHOOSE DICOM?

Hospital wide displays that are recalibratable to a recognised industry standard for image consistency.

Maximized number of grey tones that can be perceived on the display for better representation of medical images.

A consistently high level of image quality that aids the speed and accuracy of diagnosis and reviewing.

GammaCompMD QA

QA OPTIMISED DICOM QUALITY ASSURANCE

NEC's comprehensive approach to Medical Quality Assurance compliance is extended to the MDview series through its GammaCompMD QA software suite. Featuring an intuitive user interface with three different user levels, a straightforward network protocol facilitates maintenance, DICOM GSDF calibration and QA documentation on all NEC displays for medical diagnosis, review and referral. The optional QA X-RAY module provides comprehensive quality assurance in conformance with the latest internationally recognised legal standards and guidelines, such as AAPM TG18, the new IEC 62563-1 standard and the German QS-RL (DIN V 6868-57).

The administrator level contains access to the complete menu and configuration structure, and is aimed at expert users and IT network administrators. A second level has slightly restricted menu options, which are suited to technicians and medical physicists who need to carry out conformance checks and QA procedures. The final level is aimed at Medical Radiologists with a visual test to confirm the DICOM accuracy of the display.

Regular users of GammaCompMD QA will appreciate the high level of automated procedures. For example, while the Auto Mode for a simplified calibration routine ensures a more productive work process, automatic data backup increases data security and QA peace of mind. With various supported network protocols, the displays can be easily integrated and configured into the medical IT network.

GammaCompMD QA is supplied with all MDview medical display solutions, and is licensed either as stand-alone or within a server configuration, covering varying quantities of networked workstations.

The GammaCompMD QA Network administration software performs network communication between GammaCompMD QA Server and associated GammaCompMD QA Client workstations. These workstations can be either diagnostic imaging workstations or client clinical referral workstations as part of a PACS system.

GammaCompMD QA Network system uses a proprietary lower level TCP/IP socket protocol and higher level HTTP or HTTPS protocol (selectable) as communication protocol between the network system's nodes. The server computer where the GammaCompMD QA Server software is installed, manages the network in the LAN environment on the same site. VPN concepts may be used to manage a network over several physical sites, as long as IP addressing schemes are consistent over these sites.

ADVANCED CONNECTIVITY

Experience time saving and reduced hardware requirements through easy multi-platform support (Windows, Mac, Linux) and input following USB hub (DisplaySync Pro) all on one display.

DISPLAYPORT

The DisplayPort connector is compact and features an in-built locking mechanism, which can be disengaged with a simple button press, giving you hassle-free installation. Longer cable lengths and 10-bit colour support ensure that you enjoy greater installation flexibility as well as an enhanced viewing experience with future-proof peace of mind.

MULTI-PLATFORM

You will have less desk clutter and easier multi-platform working with the integrated USB hub (2 up; 3 down) for attaching USB peripherals such as mouse and keyboard. The 2 upstream USB ports can be assigned to different video inputs. This is most advantageous when feeding the Picture-by-Picture feature with two independent video signals from different platforms (Windows, Mac, Linux etc.), since a single mouse and keyboard can be used to drive both platforms. The thin bezel design and compact form factor ensure clean desktop look.

FUTURE READY CONNECTIVITY

Including all the Connectivity for today and tomorrow means a safe investment and peace of mind for the future.

NEXT GENERATION ERGONOMICS

VISUAL COMFORT ERGONOMICS

The MDview Series offers a range of features to guarantee outstanding image quality and levels of ergonomic comfort which allow for accurate, fatigue-free working to avoid human error.

PHYSICAL MOTION ERGONOMICS

Our monitors are designed for clinical staff and their environment. If you spend the whole day working in front of a monitor, every ill-fitting millimeter will make itself felt. That is why our displays have ErgoDesign® with height-adjustment up to 150 mm, swivel through +/-45° degrees and easy adjustment to different tilt angles. Many small details make up a large ergonomic package. Design means more than just looking good.

The monitor stand Quick-Release mechanism is extremely easy to use and saves precious installation time with large roll-outs. To attach the monitor to a monitor arm or wall bracket, the stand can quickly and easily be removed without any tools. Smart details for professional use.

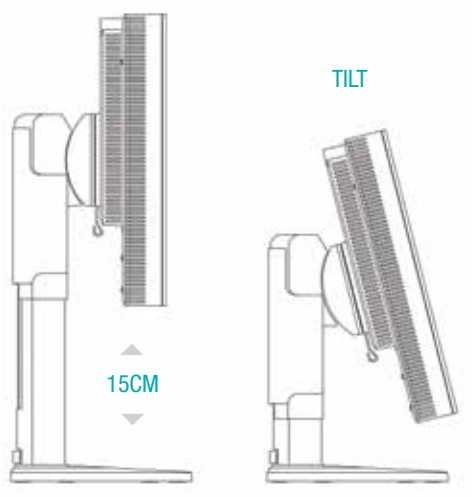
SUPERIOR IMAGE SUPERIOR WORKING SET UP

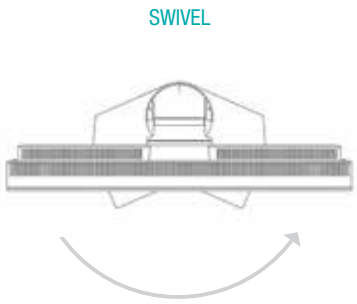
Optimising user comfort during examinations creates a proactive, satisfying and therefore more productive working environment

10 Bit P-IPS Image for Smoother and Wider Angle Viewing

15cm Height Adjust and Quick Release Head

Tilt, Swivel and Rotate Functionality





AN NEC GREEN VISION DISPLAY

A BILLION COLOURS AND ALL OF THEM GREEN

The MDview Series product concept has been engineered from the start to be consistent with NEC's long term environmental commitments. Clearly articulated in its award winning Green Vision campaign, NEC is combining its leading edge technology and passion for innovation, with all efforts to minimise life-cycle environmental impact, while at the same time as continuing to meet the most demanding customer expectations.

The Green Vision campaign is based on the two pillars of Green Productivity and Green Sustainability.

Green Productivity is NEC's commitment to more efficiency with less consumption and is based on the use of reliable, leading edge technology. This guarantees an exceptionally long service life with subsequent life-cycle cost-effectiveness of the equipment.

The latest MDview Series come equipped with many eco-features as standard. These include an easy to adopt Eco Mode giving the user the option of operating the equipment with reduced power consumption at a single touch of a button.

A Carbon Savings Meter calculates and totals the quantity of CO2 saved by operating the desktop display. At the same time the latest MDview Series are variously compliant with the demanding environmental standards such as TCO 5.0, TCO 03, EPEAT and Energy Star 5.0.

'Green Sustainability' is NEC's commitment to responsible innovation and production and involves materials management as well as packaging and transport. The latest MDview Series use bio-plastics, along with recycled metal and plastic, are being used, and enjoys reduced packaging sizes and weights through its innovative IF Design awarded cabinet design.

GREEN PERFORMANCE WITHOUT COMPROMISE

NEC Green Vision, MDview Displays are environmentally designed, but operate without the common performance compromise which can be associated with Displays promoted as eco-friendly.

SPECIFICATIONS	MDview202	MDview213	MDview232	MDview241	MDview271
Panel Technology	S-IPS TFT	S-PVA	IPS with LED Backlight	IPS	P-IPS
Screen size	20.1 inch / 51.0 cm	21.3 inch / 54.0 cm	23.0 inch / 50.9 cm	24.1 inch / 61.1 cm	27.0 inch / 68.5 cm
Aspect Ratio	4:3	4:3	16:9	16:10	16:9
Brightness (typical)	280 cd/m²	300 cd/m²	250 cd/m²	360 cd/m²	300 cd/m²
Contrast (typical)	700:1	1000:1	1000:1	1000:1	1000:1
Colours	16.77 Million (8-bit per colour)	16.77 Million (8-bit per colour)	16.77 Million (8-bit per colour)	16.77 Million (8-bit per colour)	1.073 Billion (10-bit per colour)
Native Resolution	1600 x 1200	1600 x 1200	1920 x 1080	1920 x 1200	2560 x 1440
Digital	1 x DVI-D, 1 x DVI-I	1 x DVI-D, 1 x DVI-I	1x DisplayPort, 1x DVI-D, 1x HDMI	1 x DisplayPort, 2 x DVI-D	1 x DisplayPort, 2 x DVI-D
Analog	1x VGA	1x VGA	1x VGA	1xVGA	-
Power Savings Mode	<1.0	<1.0	1.0	1.0	<1.4
Height adjustable Stand	150 mm height adjust range, Tilt, Swivel, Screen rotation	150 mm height adjust range, Tilt, Swivel, Screen rotation	150 mm height adjust range, Tilt, Swivel, Screen rotation	150 mm height adjust range, Tilt, Swivel, Screen rotation	150 mm height adjust range, Tilt, Swivel, Screen rotation
Dimensions (W x H x D) [mm]	439 x 416 - 566 x 248 mm	465 x 425 - 575 x 248 mm	543.6 x 337.4 - 487.4 x 227.6 mm	556.8 x 378-528 x 227.6 mm	640.4 x 396.2 - 546.2 x 235.5 mm
Weight	9.7 kg	10.7 kg	9.2 kg	10.6 kg	13.6 kg
Cable Management	•	•	•	•	•
Slot for Kensington Lock	•	•	•	•	•
VESA Mounting	100 x 100 (4 points)	100 x 100 (4 points)	100 x 100 (4 points); 200 x 100 (5 points)	100 x 100 (4 points); 200 x 100 (5 points)	100 x 100 (4 points); 200 x 100 (5 points)
Plug & Play	VESA DDCi; DDC2B/2Bi; EDID Standard	VESA DDCi; DDC2B/2Bi; EDID Standard	VESA DDC/CI; EDID Standard; VESA DDC2B	VESA DDC/CI; EDID Standard; VESA DDC2B	VESA DDC/CI; EDID Standard; VESA DDC2B
Safety and Ergonomics	CE (EN60950); TÜV ergonomics approved, TÜV GS; C-tick; FCC Class B; PCT/Gost; UL/C-UL or CSA, CCC, PCBC/B-Mark, PSB, GEEA/Energy label	CE (EN60950); TÜV ergonomics approved, TÜV GS; C-tick; FCC Class B; PCT/Gost; UL/C-UL or CSA, CCC, PCBC/B-Mark, PSB, GEEA/Energy label	CE; TCO 5.0; ERP; Energy Star 5.1; TÜV Ergonomics; TÜV GS; C-tick; FCC Class B; PCT/Gost; UL/C-UL or CSA; CCC; ISO 9241-307 (pixel failure class I); MPR II/ MPR III; PCBC/B-mark; PSB; RoHS	CE; ERP; TÜV Ergonomics; TÜV GS; C-tick; FCC Class B; PCT/Gost; UL/C-UL or CSA; CCC; ISO 9241-307 (pixel failure class I); MPR II/ MPR III; PCBC/B-mark; PSB; RoHS	CE; TCO 03; ERP; TÜV Ergonomics; TÜV GS; C-tick; FCC Class B; PCT/ Gost; UL/C-UL or CSA; CCC; ISO 9241-307 (pixel failure class I); MPR II/ MPR III; PCBC/B-mark; PSB; RoHS
Warranty	3 years warranty incl. backlight	3 years warranty incl. backlight	3 years warranty incl. backlight	3 years warranty incl. backlight	3 years warranty incl. backlight

Next Generation Clinical Review Displays

MDVIEW SERIES

Featuring MDview 232 | MDview 271

Medical device registration plays an important role in complying with mandatory EU regulations on the medical vigilance system. In addition, product registration ensures you receive the best after-sales support and warranty conditions.

Please register your NEC medical device at

http://medical.nec-display-solutions.com/medregistration

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