NEC Desktop Displays are designed to perform reliably over the long term. While their primary application is standard office usage, with careful consideration certain models work effectively in 24/7 situations. This document provides further detailed information and recommendations for maintaining image quality.

Information on 24/7 operation

While most displays are not ideal for 24/7 operation, NEC recommends the following products to be capable for 24/7 operation:

- MultiSync® EX241UN
- MultiSync® P212
- MultiSync® PA243W
- MultiSync® PA272W
- MultiSync® PA302W
- MultiSync® PA322UHD-2
- MultiSync® PA242W

Recommendations for optimized 24/7 operation

- Content should not be of static nature (image retention is not covered by the standard warranty).
- The operating temperature should be as low as possible (ideal: room temperature).
- If possible, reduce brightness, since this reduces wear on the LCD panel and minimizes power consumption. All of the aforementioned desktop display products should be used at or below a maximum brightness setting of 70%.
- Where possible minimize the contrast of the content (sharp black/white contrasts should be avoided).
Helping prevent image retention on a LCD display

LCDs can show image burn in when static information is displayed for an extended period of time which is commonly called image retention. Image retention is not covered by warranty as the user can avoid image retention by taking certain measures.

Be extra careful with modified screens

When a protection sheet (glass, acrylic/touch screen) is installed over the LCD surface, or the desktop display is mounted in a wall or separate housing, take special care to ensure ambient temperature is within the monitor usage specification. Using an LCD display in areas with ambient temperatures above 35 degrees Celsius / 95 degrees Fahrenheit can speed up image persistence effects. In addition, the monitor’s ventilation holes must be free of dust and dirt in all locations.

Power save or power off

NEC Display Solutions recommends that the display enters the power saving mode, or is turned off, when not in use. Leaving the unit on – even with a blank screen – decreases the overall lifetime of the display. Turning off, using the human sensor (where applicable) or using power management for 6-8 hours per day can considerably extend the life of the product and minimize image persistence.

Screen saver control for fixed images

In those rare instances when fixed images over a long period of time cannot be avoided, NEC Display Solutions recommends that the display’s “Screen Saver” control be activated. This feature is selected via Advanced OSD (on screen display) under “Screen Saver” / “Motion”.

Tips for optimized content

A) Keep the operating temperature as close to “room” temperature as possible
B) Avoid high brightness levels which is closely related to a)
C) Avoid bright background colors
D) Horizontal scrolling of characters / images at regular, periodic intervals reduces image retention
E) Movement of characters / images at periodic intervals. Applying movement to the screen content is one of the most effective ways of reducing image persistence. This can easily be achieved by having the whole screen move, or just portions that are usually static.

F) Avoid vertical lines, borders or frames next to high contrast pictures.
G) Avoid high contrast image patterns. High contrast patterns should not be positioned side by side in a fixed image. This type of pattern increases the risk of image persistence due to the presence of charged ions in the LCD in adjacent areas.

Displays operating under 24/7 conditions (or more than 7000 hours/year) are very likely to experience accelerated aging effects (e.g. staining, image retention, brightness non-uniformity), which cause visible deterioration of image quality.

Consequently NEC considers that displays, which are operated as 24/7 (or more than 7000 hours/year), and which have visible image deterioration are nonetheless still offering an acceptable performance within the expected aging processes, and will not be considered defective.

Please note: When showing the same static content for an extended period of time, showing different content for a few seconds will not help reduce image retention. The best effects are achieved when different contents are shown for an equal period of time. Switching the displays off for a few hours per day also supports efforts to minimize image retention effectively.

Not recommended: Black / White combinations of fonts and sharp borders with rapid changes

Recommended: Characters scrolling in horizontal direction / logo in vertical direction

Recommended: Insert moving pictures between fixed images