

Large Format Displays

Operational Guidelines

Sharp/NEC Large Format Displays are designed to perform reliably over the long term. However we also grade our products with differing operation time certification. This document provides further detailed information on the levels of certification and recommendations for maintaining image quality.

Information on 24/7 operation

Sharp/NEC recommends the avoidance of actual 24/7 use of Large Format Displays. If such use is deemed inevitable, Sharp/NEC approves the following products to be used in such conditions:

Midrange Displays – NEC MultiSync® C, V, M, MA Series, Sharp PN-HY Series

Professional Displays – NEC MultiSync® P Series, Sharp PN-HS Series

Video Wall Displays – NEC MultiSync® UN Series

Interactive Displays – NEC MultiSync® SST, IGB, InfinityBoard, Du-Co Room System, PCAP Series, Sharp PN-CD701

Protective Glass Displays – NEC MultiSync® PG-2 Series

Recommendations for optimised 24/7 operation

- Content should not be of static nature (image retention is not covered by warranty)
- Operating temperature should be as low as possible (ideal: room temperature)
- If possible, reduce brightness (reduces wear on the LCD panel and minimizes power consumption)
- Where possible, minimize the contrast of the content (sharp black/white contrasts should be avoided)

Following products are not approved for 24/7 operation

Recommended operation time: **18 hours** or less per day

Midrange Displays – NEC MultiSync® ME Series, E Series 75" and 68"

Interactive Displays – NEC MultiSync® ME -IR Series

Recommended operation time: **12 hours** or less per day.

Interactive Displays - MultiSync® CB Series

Recommended operation time: **16 hours** or less per day

Essential Displays – NEC MultiSync® E Series 32" to 65"
Sharp PN-HW Series

Interactive Displays – NEC MultiSync® WD551, Sharp PN-HC1,
HW1T, PN-L2B Series

Helping prevent image retention on a LCD display

LCDs can show image retention 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 Large Format Display is mounted in a wall or separate housing, make sure that the temperature sensor readings within the monitor are checked. Using an LCD display in areas with ambient temperatures above 35 degrees Celsius can reduce the time period in which image persistence may occur. The ventilation holes must be free of dust and dirt in all locations.

Power save or power OFF

Sharp/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, 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, Sharp NEC Display Solutions insists that the display's "Screen Saver" control be activated. This feature is selected via OS

D (on screen display) under "Display Protection" / "Screen Saver" / "Motion".

Tips for optimised content design

- a) Keeping 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 colour
- d) Horizontal scrolling of characters / images at regular, periodic intervals
- 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

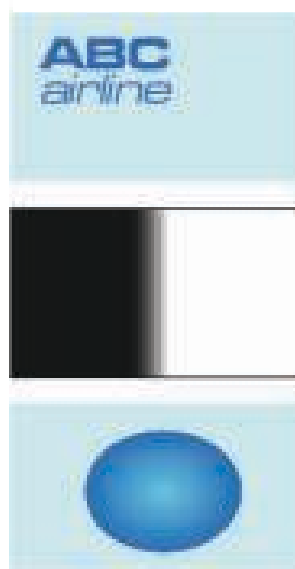
Please note: When showing the same static content for an extended period of time, showing a different content for a few seconds will not help reduce image retention. The best effects are achieved when different contents are shown for an equal period of time. Switching the displays off for a few hours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

- 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

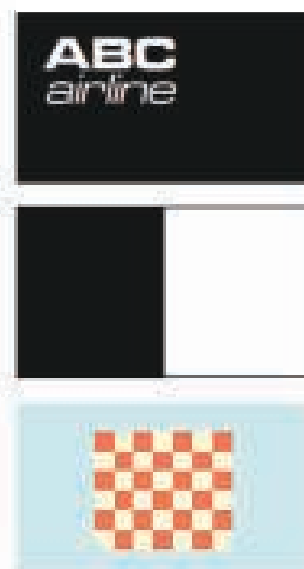
Displays operating under 24/7 conditions (or more than 7000 hours / year) are very likely to experience accelerated aging effects (e.g. staining, image retention, brightness non-uniformity), which cause visible deterioration of image quality.

Consequently Sharp/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 ageing processes, and will not be considered defective.

EXAMPLES OF A GOOD DESIGN



EXAMPLES OF A BAD DESIGN



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



Characters scrolling in horizontal direction / logo in vertical direction



Insert moving pictures between fixed images

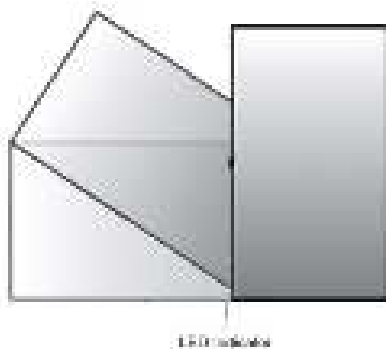
Guideline for installation orientation of LCD Displays

Landscape / Portrait

LCD displays are designed and manufactured for a standard use in vertical position. Some models can be used only in landscape and others also in portrait orientation. Please refer to product's user manual to find the correct rotation direction!



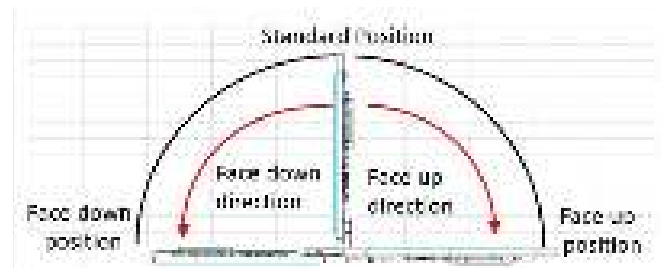
Example 1: counterclockwise



Example 2: clockwise

Face up / Face down

In addition, some LCD displays may be used facing upwards or downwards with the screen side.



For the use in this position the operating conditions are different than when used in standard vertical position. To assure a correct and efficient heat dissipation, the maximum allowed ambient temperature must be lower than 35°C and the fans must be active (ON) to increase the air flow and assure the normal operation of the device. Please beware that the LCD may show a different picture performance over the years. This is standard to LCD panel technology and is not subject to warranty claims.