



Commercial vs. Consumer Grade LCDs

NEC's large screen LCDs are specifically designed for commercial applications requiring long, continuous hours of operation and include many unique features to minimize TCO (Total Cost of Ownership).

Consumer LCD TVs:

Consumer products are designed for use 6-8 hours per day and are designed to have the smallest cabinet possible. The lack of space and ventilation increases the thermal stress on all electronic components which decreases the operational life of the product.

- Consumer products typically use what is referred to as "TV Grade" LCD modules. The specifications and quality are lowered for this type of product in the following areas:
 - Brightness uniformity
 - Color uniformity
 - Dead pixels (both on and off)
 - Image persistence
 - Product life
 - Higher Brightness/Shorter Life
 - Higher Color Gamut/Shorter Life
- All plastic cabinet with little regard for ventilation.
- Lower initial cost, but performance, quality and reliability is sacrificed
- Fewer features and OSM options, especially for commercial applications
- Not designed for long hours of operation or wide temperature environments
- Susceptible to image retention
- Designed for accurate flesh tones (white point look pink)
- Not designed for portrait mode
- 90 day commercial warranty (1 yr consumer)

Commercial-Grade LCDs from NEC

A Commercial grade product is designed with long term operation in mind. To accomplish this there is additional ventilation, cooling fans, and heat sensors that reduce the chassis temperature.

- Use "A" grade LCD module glass with tighter specifications
- Built for 24/7/365 operation and wider temperatures
- Incorporate a large number of bi-directional controls through RS-232 communications
- Designed for rotation and tiling
- Incorporate diagnostics including temperature monitoring, color calibration, etc.
- Wide variety of inputs/outputs
- 3 Year Standard Warranty Period –5 Year Optional Warranty
- All Metal cabinet with only a plastic bezel
- Cabinet color and surface are made to blend in with the environment
- Designed for functionality
- Large ventilation areas including internal fans

Conclusion

It is important to note that consumer grade products are very good devices for the market in which they are designed – home entertainment. The trouble occurs when such a product is applied in a much more harsh commercial application. The following items yield some “real world” measurements to how this misapplication of the device can reduce its life expectancy.

- Internal Temperature. Increased internal temperature leads to premature component failure and decreased product life. NEC commercial products utilize internal fans and large ventilation areas to reduce temperature build up. Consumer products do not address this issue since they are designed to be used in a very controlled home environment. Typically, heat build up can decrease life expectancy by 15-30%.
- Quality of components. NEC commercial products use extremely tight tolerances for the electrical components used in their design. Consumer product tolerances are much wider, leading to the equipment potentially operating at the low or high end of its design limits. These extremes (both low and high) can reduce life expectancy by 10-15%.
- Brightness. NEC commercial grade products utilize higher brightness backlighting to be able to overcome ambient lighting that is typical to commercial applications. By correctly sizing the bulbs for these applications, the commercial unit can reduce this setting, enabling it achieve a half life of +60,000 hours. Consumer grade TV's generally need to run at maximum brightness to overcome ambient commercial lighting since they were designed for home use. This typically reduces bulb life by 30-50%.
- Controls. NEC commercial grade units have features such as internal scheduling, internal real time clocks as well as external RS-232 controls. These controls enable the unit to be turned on and off only when needed and have the capability of remote diagnostics to ensure uptime. Having this type of controlling system can add 10-20% to the life of a commercial product as well as reduce the cost of wasted man power for unneeded servicing.
- Service/Warranty. Typical consumer products require the individual to take the unit down and bring or send it to the manufacturer's service center for repair. NEC offers many types of service plans that are designed to meet the needs of commercial operations. NEC offers 24 or 48-hour product swaps, 24 or 48 hour uninstall/reinstall of product – all for 3 or 5 year warranty periods. Warranties for consumer products typically run 90 days to 1-year with extended warranties up to 3 years. This does not typically cover units that are used in commercial applications, which can void the warranty. NEC warranties start at 3-year for all parts, bulbs and zero-pixel defects and can be extended to 5-years. This can save hours and dollars of man power and lost Digital Signage revenue due to the monitor being in for repair.
- In summary, the NEC commercial grade display will ultimately cost less to operate over a 3-6 year time frame vs. using a lower initial cost consumer grade product.