Whitepaper

SHARP / NEC

Sharp NEC Display Solutions

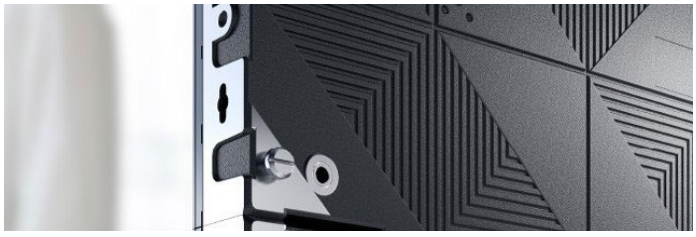
Sustainable production, processes and usage in digital visual devices. Sharp/NEC responds to Frequently Asked Questions.

Why are Sharp/NEC products more environmentally friendly than others? How can Sharp/NEC prove this?

We have always focused on sustainable production. We produce particularly high-quality and recyclable products, in order to ensure their longevity and, as a result, avoid repair costs and reduce waste. Our commitment to the environment goes beyond legal guidelines: as a member of EICTA (the European ICT industry umbrella organisation) and the Japanese Business Council Europe, we have a voice in Europe and are actively involved in the formulation, promotion and implementation of EU environmental policies.

We ensure the quality and durability of our products through three key elements:

1. The right materials



The Sharp/NEC quality guarantee starts with the careful selection of key components. In the design of our Sharp and NEC Large Format Displays and LED modules, we rely on metal instead of plastic.

Metal is more durable than plastic due to its robustness. In addition, metal is flame retardant and also an excellent heat conductor: the heat generated is efficiently dissipated from heat-sensitive electronic components, extending their service life. At the end of their life cycle, our products can be recycled: NEC displays, for example, are almost entirely reusable with a recyclability of 97.4%. The metal chassis is 100% recyclable contributing to the circular economy.

In addition to the predominant use of metal instead of plastic, Sharp/NEC also avoids adhesives, as far as possible, in product design. For one reason, adhesives are made up of plastics that cannot be recycled; another reason is that gluing components would severely limit the repairability of the devices.

We also extend the life of our products through a modular approach that allows users to optionally upgrade the computing power of their visual solutions. Our future-proof upgrade options include the optimised Open Pluggable Specification (OPS) computing platform and the Intel® Smart Display Module.

We deliver Sharp/NEC products with optimised basic settings, so-called “factory settings”. This again makes our solutions more durable, because use within these settings protects the device. Many customers continue to use these default settings and thus benefit from consistent and high-performance use over several years, also long after the warranty time.

serviceplus

2. After-sales: repair instead of scrapping

At Sharp/NEC we achieve the lowest failure rate on the market thanks to the high quality of our products. The product design is a major contributor to this: metal back panels and various active cooling technologies in our LCD and LED products ensure that the worst enemy of electronics - heat - is minimised.

Should a repair be necessary, we offer customers a comprehensive EMEA-wide service program. Regardless of the country in which a product was purchased, our network of several hundred local service partners is available. This means that equipment does not have to be sent to a central service centre or even to the country where it was purchased, as is often the case in the industry. That’s how we guarantee short and fast transport routes. We repair cinema projectors and dvLEDs directly on site.

We serve our global accounts through our global service network which operates de-centrally, whilst being centrally coordinated.

To ensure that we can also directly replace individual components such as electronic boards, PCBs and PWBs, our procurement strategy focuses on a particularly high availability of spare parts, beyond the legal requirements. For example, in the case of our cinema projectors, we keep spare parts in stock for ten years and longer. For our LED technologies, we stock spare parts according to customer need and the service life of each product.

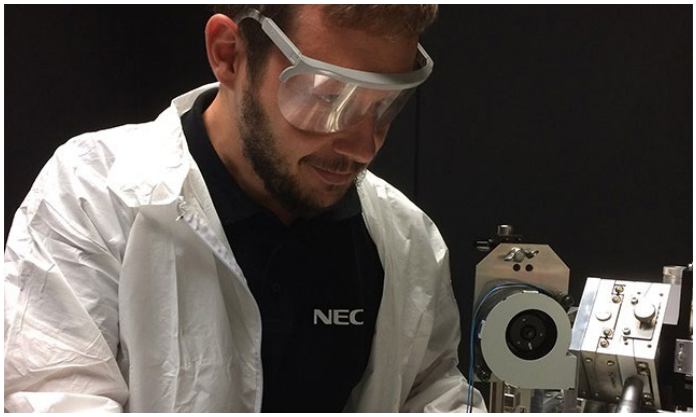
Elements of our service program include, for example:

Prism remanufacturing:
Our digital cinema projectors have an above-average lifespan, with a service life of ten years or more. With our Prism Refurbishment Program, we can ensure and even extend the period over which our cinema projectors deliver top performance, enabling cinema operators to benefit from significant added value. The prisms are refurbished locally in Europe, which saves costs and shortens logistics routes.

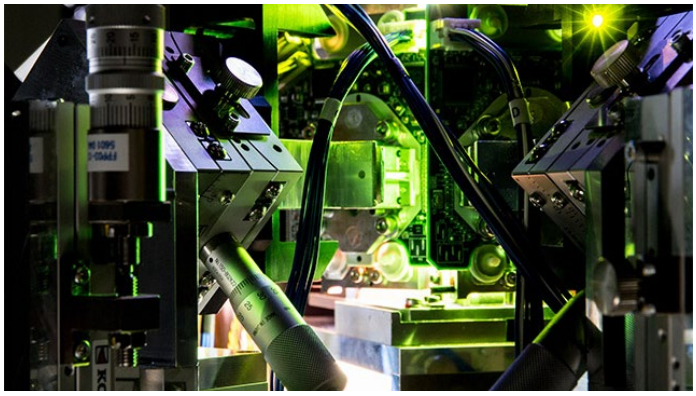
Laser refurbishment:
In the digital signage industry, the trend is moving away from lamps to laser technology. Sharp/NEC is able to refurbish Solid State Light Sources (SSL) locally in Europe, in this way, we will continue to avoid electronic scrap and long transport routes.

Tailored LED service program:
With our high-quality LED products users can anticipate a remarkable 100,000 hour life span, that's 10 years based on average use. Naturally, to enjoy peak performance over this extended period, regular maintenance and servicing is required and we offer a range of service packs, managed services, and warranty extensions to suit.

You can find these and other service programs in our overview "ServicePlus promise". If a product or solution is irreparably defective, we recycle it in accordance with the statutory regulations.



The Sharp/NEC Prism Refurbishment Program extends the lifecycle of digital cinema projectors



3. Short shipping distances and recyclable packaging

We aim to minimise shipping distances. To this end, we continuously optimise our distribution processes while maintaining our high standards of customer service.

We have already reduced packaging to a minimum and use 100% recyclable materials without compromising the stability of the packaging and the optimum protection of the products. By optimising packaging sizes and using less material, we reduce freight costs, which can save up to 35% in CO2 emissions.

In order to further save materials, Sharp/NEC is working on a concept whereby products are initially shipped from the factory in collective packaging, and are transferred to the warehouse individually, therefore reducing shipping materials as much as possible. This is how we make optimum use of transport capacities, reduce transport costs as well as packaging, and still increase transport safety - which also has a positive effect for the end customer.

Sharp/NEC thus complies with all applicable environmental standards and will continue to work on advancing the quality standards of both brands in the future. In the weekly 'Quality Call' with our headquarters in Japan, our Engineering & Quality Team, and the Sharp Environmental Affairs Group, we continuously discuss how we can make our solutions greener, step by step. After all, quality and durability are the key to sustainability.

In 2022, we received the Green Signage Award from the consulting company invidis in recognition of our continuous efforts.

What distinguishes an environmentally friendly product? What should users look for when buying?

When buying, users should pay particular attention to ensuring that products are suitable for the intended use. Many manufacturers offer devices that are not suitable for certain applications because they are based on consumer products from the domestic TV market. In addition to the pure picture impression, attention should also be paid to high-quality workmanship and the use of sustainable materials.

Energy consumption during use is an important element in distinguishing an environmentally friendly product. With the Sharp/NEC savings calculator, users can compare the energy consumption of different desktop displays, projectors or large format displays.

Users can also find out which standards and ISO norms manufacturers comply with. TCO Certified, TCO Edge Certified, and the Energy Star are examples, but they are not relevant for all product categories, nor across all regions.

Which industries particularly benefit from environmentally friendly display technologies? In which application scenarios can they be used?

Environmentally friendly display technologies are in demand in all industries because sustainability is a topic that affects us all. This is why the selection options for Sharp/NEC digital signage solutions are so broad and the products so flexible, meaning they can be used across all industries and in a wide variety of scenarios.

These include:

- Retail
- Offices and meeting rooms
- Security / Surveillance / Control Room
- Leisure (theatre, cinema, museum, sports etc.)
- Education (schools and universities)
- Transport (airports, train stations etc.)

You can find application examples for a wide range of industries in our case studies.

What are the top tips for achieving low power consumption and sustainable operation?

Many of our products already have eco-functions such as automatic timers and smart sensors, which are recommended to use. These functions vary depending on the product group:

ECO
INNOVATION

Projectors:

- **ECO Mode:** lamp brightness is automatically adjusted to the content being displayed.
- **75% AV Mute:** cuts the light beam and reduces the lamp power by 75%.
- **Intelligent Power Management:** direct scheduling and signal detection functions limit unnecessary on-time.
- **Hard Power Down:** ensures zero Watts consumption when not in use.

Desktop monitors:

- **ECO Mode:** optimises energy consumption.
- **Intelligent Energy Management:** minimises power consumption
- **LED Backlight:** low energy usage.
- **Ambient Light Sensor:** the sensor adjusts the optimal brightness according to the ambient light conditions. It can be programed to guarantee minimum or maximum brightness levels.
- **Human Sensor:** the monitor powers-up automatically when a user is present and powers-down when the user moves away. Companies can save over 30% of their CO2 consumption with this feature.

Large Format Displays:

- **Optional Human Presence Sensor:** detects when someone is in front of the display triggering the backlight to increase from low level to high level for better readability of the content. Any NEC LFD can be upgraded to offer this functionality.
- **LED Backlight:** low energy usage.
- **Ambient Light Sensor:** The sensor adjusts the optimal brightness according to ambient light conditions. It can be programed to guarantee minimum or maximum brightness levels.
- **Scheduler:** avoids unnecessary operating time.
- **Auto-standby Mode:** the display is only switched on when a source is connected.

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Especially vital during these times of scarce energy supply, Digital Signage operators are required to save energy. That is why Sharp/NEC has compiled some further quick fixes to help solve the problem of excess energy consumption:

Shut Down

Both LED and LCD technologies are mature enough to be shut down every day. The only aspect to be considered is the inrush current.

For example, each LED module has its own power supply unit, and the resulting inrush current is many times higher than the nominal current that flows later. Thus, it can overload the components and lead to failures. If users regulate the switch-on process with a **switch-on controller**, the individual modules start up sequentially and power peaks are avoided. This investment is small compared to running the overall system 24/7 just to avoid having to shut it down.

Even outdoor LEDs can be shut down completely on a regular basis.

Dark Content / No Content

If a complete shutdown of the solution is not possible outside of usage times, there are other options which could help to reduce power consumption. Running without content for instance could minimally reduce energy usage.

The influence of the content on the energy balance is often underestimated. If users switch to a **black background** with white text on LED screens instead of a bright background, the power consumption drops by up to 50 percent. Also, blue LEDs consume the least power so content using predominantly blue rather than red or green is preferable.

Automatic brightness control and motion sensors

Sensor technology, thermal management and remote access are the most important levers for Green Signage in the more highly standardised display sector, although may not be suitable for all technologies.

Brightness sensors adapt the display brightness to the time of day and can thus save between 20 and 30% of energy.

Motion sensors, such as the NEC Human Presence Sensor (KT-RC3), detect when people approach the technology and automatically increase brightness, then dim the brightness to a minimum when no motion is detected. The backlight is only activated when passers-by step into the sensor area.

This concept has two advantages: energy consumption is measurably reduced (by around 25%) and the service life of the display is prolonged.

Especially in **retail** and in **corporate meeting rooms**, motion sensors can have a considerable influence on energy efficiency.

Active device management

Digital signage screens, media players and other devices should be continuously monitored and actively controlled. The basic requirement for this is **network access and remote access** to all hardware devices. Serial connections like the still popular RS232 are not sufficient. The energy infrastructure, such as IP socket strips, should also be managed remotely.

Many digital signage networks are neglected after installation and are not actively monitored and managed. In many scenarios, a **software solution for remote control** is one of the most efficient measures to operate a display network more sustainably in the short term. With the **NEC NaViSet Administrator 2** software, for example, automated switch-on and switch-off times can be defined.

Find out more about Sharp NEC Display Solutions

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