MILESTONE
MEDIA · SIGNAGE · DIGITAL

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Brightness Control
LED Digital Billboard Applications

Mechanisms for control

LED display technology installed by Milestone Media utilises a sophisticated brightness control system which automatically manages the brightness of the display in accordance with the ambient light conditions. There are a number of levels to this control to ensure there are fail safe mechanisms in place:

- Sensor driven only – This is the basic control measure whereby the brightness of the screen is determined automatically by the light sensor. Dependant on the site parameters, Milestone Media will position the sensor appropriately to ensure correct operation in all weather conditions. The screen will automatically dim down on dull days or at night, and become brighter on sunny days or if in direct sunlight.
- The display controller can additionally use a schedule to dim the brightness to an appropriate level for the time of day
- Sensor driven as primary, with schedule brightness secondary and ONLY if the sensor should fail (NOT working in parallel). This fail safe ensures that the display brightness will remain appropriate even in the event of hardware or connectivity failure.

Light sensor overview

Milestone Media designs and engineers every component of its products with safety in mind. This safety is in every aspect of design and product reliability to ensure the display meets all sign codes, to optimize image quality, and to maximize energy efficiency.

The standard front facing light sensor is used in digital signage applications to measure the current ambient lighting conditions and the amount of light shining on the sign face. This information is used to dim or brighten the sign appropriately based on lighting conditions. Whilst different sensor models may be used by different LED manufacturers, they all have the same general functionality.

Image 1 – example ambient light sensor

Typical sensor technical specifications:

• Lux reading
• Operating temperature: -40° to 80° C (-40° to 176° F)
• Controller Area Network (CAN) communication interface to display control equipment
• Power requirements: 4 - 48V DC

How does brightness control work in practice?

The light sensor constantly reads ambient light levels, measures and averages them to provide a smoothed brightness adjustment of the display. This on screen adjustment occurs approximately once per minute, providing:

- Increased safety for drivers and passers-by in busy environments. The display adjusts smoothly and gradually, avoiding sudden brightness changes that could distract drivers or cause objectionable appearance shifts to onlookers.

- Consistent looking content that appears rendered at the right colour balance and brightness for the environment, day or night, cloudy or sunny skies.

The sensor detects ambient light levels from 200 to 10,000 Lux, and may adjust display brightness based on increments as little as 100 detected Lux if necessary. With some display controllers, custom algorithmic programming is also available from the factory if required along with multi-directional light sensors.

Set-up

No set up of the light sensor is required by the end user. Milestone Media will install the sensor to the display, and as part of the commissioning process ensure that all settings are pre-programmed to provide the benefits listed above. If required, your Milestone Media representative will walk you through any questions you may have, and our Operations team stands ready to answer any questions you may have after installation.

Field test and on site adjustment

As well as the previously mentioned auto adjust mechanisms, the display can also be adjusted to suit any site specific requirements. Displays may in some circumstances be in locations which are very close to vehicular traffic and as such if required we are able to determine max brightness settings for both daytime and hours of darkness in the field, by adjusting those settings remotely whilst on site. This will enable a subjective case to be made for each location and enable each location to be tailored to suit the circumstances if desired by the end user.

For this exercise the brightness of a display was measured in the field with a calibrated light meter, and at 5% brightness - during the hours of darkness, it did not exceed 600cd/m2. If required however, this standard value and the operational parameters can be reduced further to satisfy any planning conditions.