DAKTRONICS

Concept Group
Signage | Digital | Build Solutions

Think Creative, Think Solution, Think Concept

Daktronics Brightness Control
LED Digital Billboard Applications

Mechanisms for control

Daktronics display technology 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 determine automatically by the light sensor. Dependant on the site parameters, Concept Group will recommend either a multi-directional or front facing only light sensor. The screen will automatically dim down on dull days, and become brighter on sunny days or if in direct sunlight.
- The display controller additionally uses a unique algorithm to incrementally dim the display to an appropriate level. This algorithm validates the sensor reading against a pre-determined schedule and via use of grid co-ordinates, time, date and direction of sign face. This will allow a smooth brightness transition throughout the day from the max level for darkness, and the max level for daylight hours.
- Sensor driven as primary, with calculated 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

Daktronics 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 LUX light sensor is used in Daktronics 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. The MLDS sensor additionally senses light coming from multiple directions (e.g. behind and below the display), however this is not generally used for billboard applications.

Image 1 – 'LUX' ambient light sensor

Image 2 – 'MLDS' ambient light sensor

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. Custom algorithmic programming is also available from the factory if required.

Set-up

No set up of the light sensor is required by the end user. Daktronics and Concept Group 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 Concept Group 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 Concept Group 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. Different content types may in some instances appear brighter - this is generally in the case of a piece of content with say a predominantly white background. To accommodate this, unless there is a good reason not to, both factory and field brightness settings are adjusted for a full white background for consistency.

The brightness of the displays have been measured in the field with a calibrated light meter and at 7% brightness - the maximum factory setting - during the hours of darkness do not exceed 600cd/m2. If required however (for example due to local planning constraints) this standard value can be reduced further.

Concept Group
Signage | Digital | Build Solutions

Contact

Call Us

t: 0121 693 0005
f: 0121 747 3602
e: signs@conceptsigns.co.uk

Head Office

22 Gas Street, Birmingham B1 2JT

Our Head Office is located in the heart of Birmingham, approximately 5 minutes from Junction 6 of the M6 motorway,and within walking distance to New Street and Five Ways railway stations.