



knowLEDge:

LED Indicator Design Tips, Tricks and Best Practices.

Choosing The Right LED Viewing Angle For Circuit Board Indicators

When it comes to selecting LEDs for circuit board indicators, the viewing angle plays a crucial role in determining visibility and brightness. Here are some important considerations to keep in mind:

1. Opt for a narrower degree viewing angle when the LEDs are placed on the board for backlighting a panel or when direct visibility is required. This will maximize straight-on brightness as the concentrated beam enhances visibility head-on.
2. For LEDs placed on the edges or sides of the boards with a need to be viewed from a variety of angles to the system i.e. diagnostic indicators, a slightly wider degree angle is recommended. This will spread the light and ensure better visibility from oblique angles.
3. Keep in mind that wider degree angles may appear dimmer from the front, as the light is distributed across a broader field of view. Take into account the LED's mounting orientation and lens design, as these factors can impact the effective viewing angle.
4. Consider the ambient lighting conditions, as LEDs with narrow beams are more resistant to washout from bright surroundings.
5. Don't forget to consider factors like directivity, beam pattern, regulations, and application requirements when selecting the ideal viewing angle.
6. Experiment with different LED viewing angles to determine the optimal visibility for each board's layout and intended viewing direction.
7. Specifications provided will indicate the viewing angle and intensity, which will help narrow down the selection.

In summary, the LED viewing angle plays a crucial role in determining the visibility and brightness of circuit board indicators. If LEDs have the same total light output but different viewing angles, the way they appear when viewed directly will be influenced by the viewing angle. Narrow-degree angles are ideal for optimizing straight-on visibility and backlighting, while wider-degree angles allow for visibility from more oblique angles if needed.

- Narrow Viewing Angle:**
Range between 10 to 25 degrees
- Medium Viewing Angle:**
Range between 30 to 70 degrees
- Wide Viewing Angle:**
Range between 120 to 140 degrees

