

Customer Information

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Performance of Optical Position Sensors and LEDs

The performance of integrated position sensors depends on the **sensor IC** itself, the quality of the moving disc or scale, the mechanics and tolerances of the assembly, and last, but not least, the LED. Counterfeit iC-Haus ICs fail for reasons like poor resolution and accuracy, reduced bandwidth, and increased distortion over temperature. Some may even violate iC-Haus patents. Our LEDs are tailored to our ICs in terms of wavelength, homogeneity, contrast, field of view, and long-term stability. Using an unsuitable LED may prevent optimum performance and functional margins from being achieved.

We encounter **LEDs** on the market which seem to work in an optical position sensor system, but only to a limited extent. In comparison to our selected LEDs, we can only recommend a few of them. Others fail to achieve the expected results in a position sensor system. Compared to iC-Haus iC-TL46 TO46-2L1, some show less homogeneity due to shading of the inner area of the LED chip. Others fail due to a strong reduction in contrast in the center of the light spot (known as “donut” distribution) caused by a mismatched lens shape. IR LEDs often suffer from reduced light efficiency and contrast.

We offer exemplary sets of **code discs** and LEDs to enable a more simple implementation of our integrated optical encoder solutions. We obtain code discs from well-known suppliers according to our specifications and deliver the exemplary units practically at production cost without further optical examination and inspections. For the series products, we gladly provide our data and share the discs as open tools to allow you direct communication with our supplier. For our exemplary supply, we can only accept obvious defects at state of delivery and complaints, which prevent implementation (broken glass, obvious defects in the code area, strong bending etc.), and those claims accepted by our suppliers.

We ask for your understanding and are gladly available to answer questions concerning the sourcing of code discs. On your request we can also offer series quantities of our code-discs, then including optical inspections on criteria to be defined. For volume production, the manufacturing data for our standard code discs can be provided free of charge.

Please contact us to find the right combination of optical sensor IC, LED and code disc.

iC-Haus GmbH

<https://www.ichaus.de/contact>