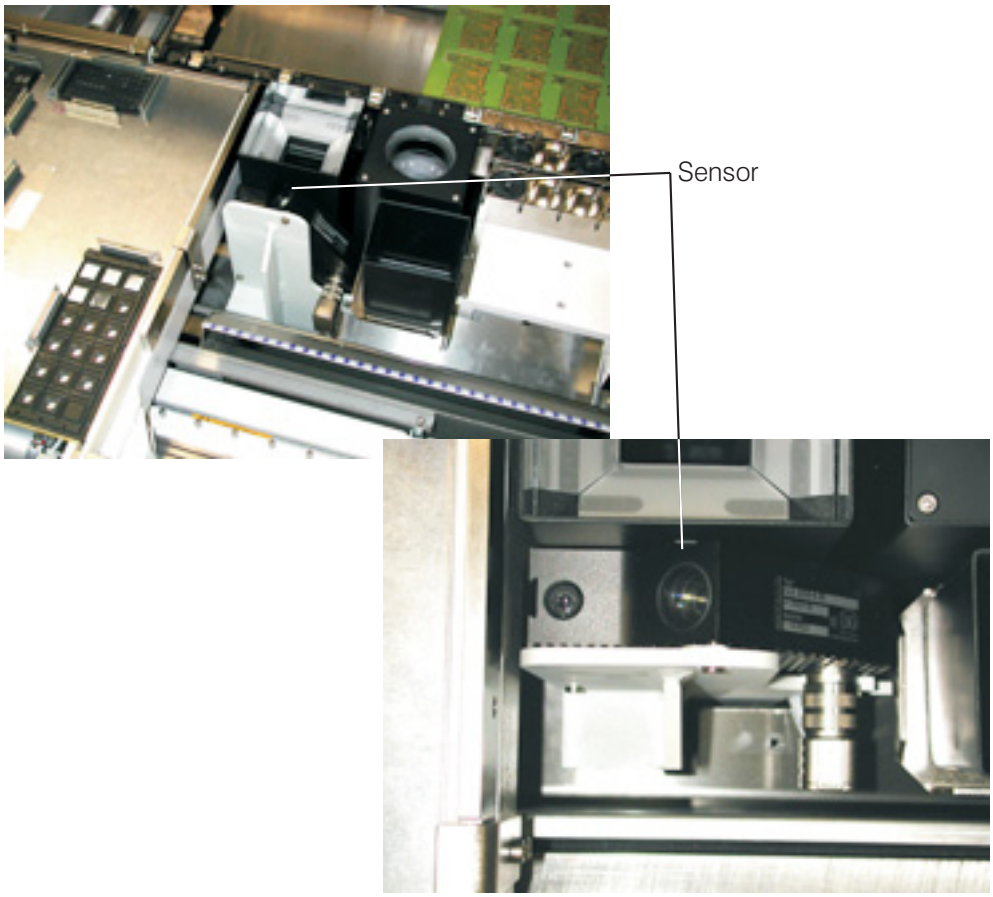
MICRO-EPSILON

Co-planarity of IC-pins

The term „co-planarity“ discribes the proper seating of the tips of fine-pitch device leads on the copper pads on a PCB prior to solder process. The co-planarity is a critical dimension for the quality of the soldered joints, because no reliable and correct soldering can be done if there is a gap between the lead and the pad. In state of the art automatic assembly machines the co-planarity of components is measured during the assembling process. The component to be measured is passed over a triangulation displacement sensor which has a laser beam that scans the row of pins.

After the distance readings are acquired the placement plane and the distance of each pin to this plane is calculated. These numbers are used to determine whether the component is placed or must be sorted out from the process. The requirements for the laser triangulation sensor are extreme in this application: The pins consist of bright, shiny metal and are measured with a resolution of 0.2 µm. On top of the high accuracy requirement the 10 kHz real time dynamic capability of the MICRO-EPSILON optoNCDT proofs the superiority of this sensor for this application. It is now possible for the automatic assembly machines to significantly increase the assembly performance and productivity for the end user.



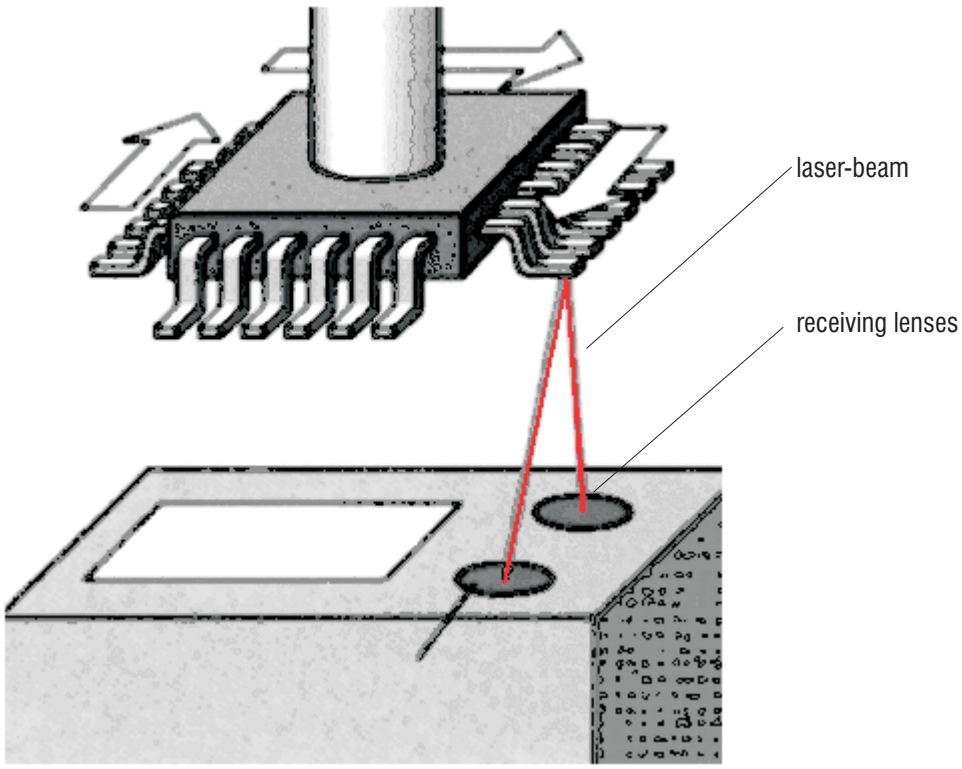
Application

Measurement system requirements

- Measuring range: ± 2.5 mm
- Resolution: < 0.25 µm
- Linearity: < 0.03 % FSO
- Data rate: 10 kHz
- Reference distance: 58 mm

Reasons for choosing the system

- High data rate
- Extreme high resolution and accuracy on polished metals
- Competitive priced, customer-specific OEM versions
- Non-contact and wear free measuring principle



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