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Glass Edge Detection

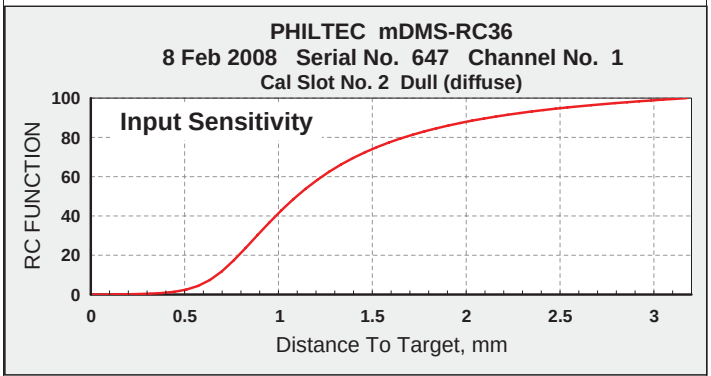
The Problem

To locate the edge position of glass panels to 0.5 mm accuracy.

The Solution

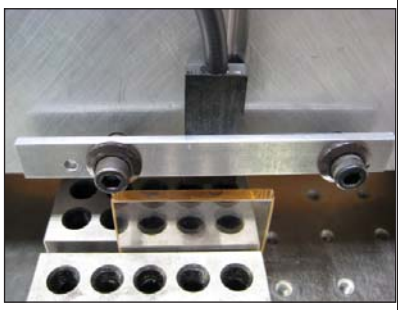
A model RC36 sensor tip was designed with
- two fiberoptic bundles 0.006” x 0.50” long
- 0.024 gap between fiber sections

The calibration to a flat surface shows an operating range of about 3 mm.

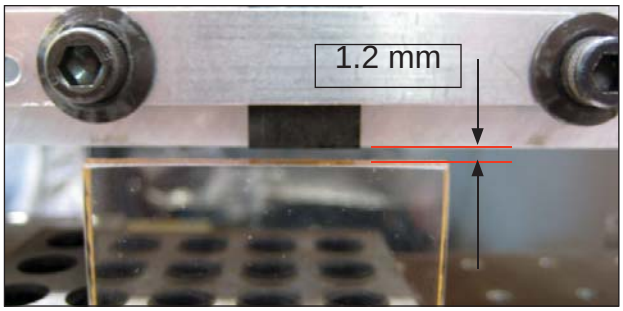


Test Setup

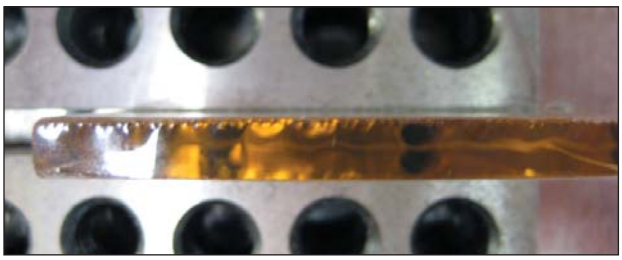
A 5 mm thick piece of glass was fixtured on an air bearing stage.



The RC36 tip was mounted above the glass at a gap of 1.2 mm.



The glass test piece had one sharply square edge and one rough sanded edge.



Results

The air stage was moved a distance of 12 mm. At the start, the sensor was not over the glass. The leading edge of the glass moved into view of the first fiberoptic bundle at 3.5 mm. The trailing edge of the glass passed out of the view of the second fiber bundle at 8.5 mm. Two scans are presented, one with the square edge at the leading edge position (top chart) and one with the square edge in the trailing edge location (bottom chart).

Conclusions

- The square edge can be located with 0.5 mm accuracy or better.
- Edge effects on the sanded edge lead to reduced location accuracy, app. 1 mm.