

The Analysis of Parasitic Movements on a High Precision Rotation Table

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The measurement and analysis of parasitic angle and translation movements of a high precision rotary table is presented. The table, which is used in the calibration of high precision theodolites, is capable of discriminating angular movements on its main rotation axis in the order of 0.1 arc-seconds. However, to achieve maximum performance, parasitic movements of the other 5 degrees of freedom of the table must be measured. This paper will discuss the simultaneous determination of the three translation and two tilt motions of the table using high precision capacitive probes. These probes have a range of 0.25 mm and 0.5 mm and resolution inferior to 50 nm. Both the measurement process and results are presented.