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(21) International Application Number: PCT/US97/05393 (22) International Filing Date: 1 April 1997 (01.04.97) (30) Priority Data: 08/627,200 3 April 1996 (03.04.96) US (71) Applicant (for all designated States except US): PLACA LTD. [IL/IL]; Building 3, Kiryat Weizmann Science Park, 70400 Ness Ziona (IL). (71) Applicant (for TJ only): FRIEDMAN, Mark, M. [US/IL]; 1 Alharizi Street, 43406 Raanana (IL). (72) Inventors; and (75) Inventors/Applicants (for US only): PESCHANSKY, Boris [IL/IL]; Apartment 6, 37 Ben-Gurion, 76390 Rehovot (IL). KRAITMAN, Lev [IL/IL]; 55 Yaron Street, 12900 Katzrin (IL). KRAITMAN, Shimon [IL/IL]; 103/9 Etzel Street, 74014 Ness Ziona (IL). (74) Common Representative: FRIEDMAN, Mark, M.; c/o Robert Sheinbein, 2940 Birchtree Lane, Silver Spring, MD 20906 (US).	(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published With international search report. (check from PF-8)	

(54) Title: ANGULAR MEASUREMENT APPARATUS**(57) Abstract**

A device and method for measuring a precise angular position of an element rotatable (13) relative to a base (14). The device includes a rotating disk (16) having a first track (18) and a second track (20), each track being made up of alternating lines of high and low transparency. The rotating disk is rotated continuously about the axis of rotation of the element. Aligned opposite the first track and parallel to the rotating disk is an optical grid (22) fixed relative to the base, having alternation lines of high and low transparency. A measuring disk (24) attached to the element is aligned coaxially with the rotating disk. The device also features two photoelectric sensors (28 and 30) and which generate signals corresponding to variations in measured optical transmissivity. One photoelectric sensor generates a reference signal (56) corresponding to variations in optical transmissivity through a combination of the first track and the optical grid. The other photoelectric sensor generates a measuring signal (58) corresponding to variations in optical transmissivity through a combination of the second track and the track of the measuring disk. These signals are then processed by a processor to calculate information relating to the precise angular position of the element relative to base.

