

ABSTRACT

OPTICAL MEASUREMENT SYSTEM, METHOD AND SCALEPLATE THEREFOR

5 Embodiment of the present invention provides various types of optical
measurement scaleplates, optical measurement apparatus and method using the optical
measurement scaleplates for position measurements. In one embodiment, an optical
measurement scaleplate has a substrate and a plurality of marking units each being borne
on the substrate at a predetermined position. Each marking unit includes a plurality of
10 optically detectable marking elements. Each of said marking elements has an element
value defined a permutation of the element value of each of the marking elements in said
marking unit, and each unit value corresponds to a physical quantity. On the substrate
there is defined a first direction. The physical quantity includes a first distance between a
reference position and said predetermined position along the first direction.

15

(Fig. 1A)