Using the reversal measurement amongst others the so-called heading, i.e. the course or orientation of the object (e.g. of a ship) with respect to a reference system, can be determined with an increased precision. The navigation device may then in particular be used for a so-called "attitude heading reference system" (AHRS).

However, intensive use of the turntable, in particular during use of the navigation system during a longer time period, can lead to wearing or a deterioration of the mechanical, movable parts and therefore to imprecisions during mechanical rotation of the turntable, in particular with respect to the precision of the end or rotary positions. These imprecisions can lead due to the increasingly imprecise positioning of the turntable to an increase of navigation errors during the time of use as well as to a shortened lifetime of the whole apparatus due to lack of precision.

Embodiments of the invention are concerned with the problem of how to provide a navigation device that uses the method of reversal measurement and that allows an elongation of the lifetime of the apparatus while satisfying high quality requirements.

According to a first aspect of the present invention, there is provided a navigation device including a turntable that can be rotated depending on a rotary control signal around an axis into at least two different rotary positions; an inertial measuring unit that is arranged on the turntable and can be rotated together with the turntable; and an evaluation unit for evaluating of measurement data of the inertial measuring unit; wherein by the evaluation unit the quality of the measurement data can be detected; and wherein by the evaluation unit a rotary control signal can be generated, if the determined quality does not reach a predetermined minimum quality, such that then the turntable is rotated to the respective other rotary position.

According to a second aspect of the present invention, there is provided a method for operating the above navigation device, including the steps of operating an inertial measuring unit that is arranged rotatable around an axis alternatingly in a first rotary position and in a second rotary position; evaluating of measurement data of the inertial measuring unit and determining the quality of the measurement data; comparing the quality with a minimum quality; rotating the inertial measuring unit into the respective other rotary position always then, if the determined quality does not reach the minimum quality.

A navigation device is provided having: a turntable that can be rotated depending on a rotary control signal around an axis into at least two different rotary positions; an inertial measuring unit arranged on the turntable, which can be rotated together with the turntable; and having an evaluation unit for evaluating of measurement data of the inertial measuring unit; wherein the quality of measurement data can be determined by the evaluation unit, and wherein by the evaluation unit a rotary control signal can be generated, if the determined quality does not reach a predetermined minimum quality, such that then the turntable is rotated to the respectively other rotary position.

The inertial measuring unit can be abbreviated as IMU (inertial measuring unit). The IMU may be one or several rotation rate sensors, such as fiber optical gyroscopes (FOG), also in combination with one or several acceleration sensors. But typically, for uses in connection with a reversal measurement a less expensive system is used such as for example a MEMS (micro electro mechanical system).