TECHNICAL DATA

Moment of inertia and angular acceleration with Cobra SMARTsense and a precision pivot bearing

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Principle

If a constant torque is applied to a body that rotates without friction around a fixed axis, the changing angle of rotation increases proportionally to the square of the time and the angular velocity proportional to the time.

Benefits

- Long runtime
- Nearly friction-less movement due to precision bearing
- Steady set-up prevents interferences
- Data logging reveals instantaneous results during measurement

Tasks

1. Measurement of the laws of angle and angular velocity according to time for a uniform rotation movement.
2. Measurement of the laws of angle and angular velocity according to time for a uniformly accelerated rotational movement.
3. Rotation angle; is proportional to the time *t* required for the rotation.

Learning objectives

- Angular velocity
- Rotation
- Moment
- Torque
- Moment of inertia
- Rotational energy

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Scope of delivery

Tripod base PHYWE	02002-55	1
Precision pivot bearing	02419-00	1
Inertia rod	02417-03	1
Turntable with angle scale	02417-02	1
Cobra SMARTsense - Rotary Motion (Bluetooth + USB) - Sensor for measuring rotational movements 0 ... ∞ ° (Bluetooth + USB)	12918-01	1
measureLAB, multi-user license	14580-61	1
Support rod, stainless steel, different lenghts	02031-00	1
Bench clamp expert	02011-00	1
Fish line, l. 100m	02090-00	1
Weight holder, 10 g	02204-01	1
Slotted weight, silver bronze, 10 g	02205-03	10
Slotted weight, silver bronze, 50 g	02206-03	2
USB charger for Cobra SMARTsense and Cobra4	07938-99	1