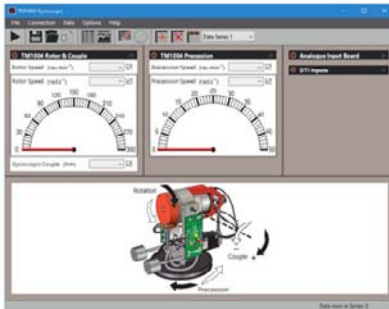




VDAS® TM1004
GYROSCOPE

For experiments in gyroscopic couple and velocities of rotor and precession.



SCREENSHOT OF THE VDAS® SOFTWARE



KEY FEATURES

- Demonstrates the relationship between gyroscopic couple, and the velocities of rotor and precession
- Portable, self-contained bench-top unit, suitable for classroom demonstrations and use by small groups of students
- Interlocked, transparent dome allows students to see the gyroscope spinning in safety
- Works in both clockwise and anticlockwise directions for a full range of tests
- Unique multifunction controls for coarse and fine adjustment of velocity and direction
- Direct measurement of gyroscopic tilting force, couple and velocities (speeds) shown on digital displays
- Works with TecEquipment's Versatile Data Acquisition System (VDAS®)



DESCRIPTION

A base unit supports a gimbal frame, holding a gyroscope assembly that spins and precesses under a clear dome.

The rotor of an electric motor shares a horizontally supported shaft with a flywheel, forming the gyroscope. A second electric motor turns a belt that turns a turntable under the gyroscope, causing precession about a vertical axis. Both motors work in clockwise and anticlockwise rotation and with variable velocity. Sensors measure the rotational velocity of the rotor and precession.

A sensor measures the gyroscope's up or down tilting force at a known distance from the gyroscope pivot. This allows calculation of the torque or 'gyroscopic couple'.

The clear dome includes an interlock that shuts off power to the motors. This allows students to see the gyroscope and use it in safety while still giving them access to examine the mechanism.

The base unit includes motor controls and multiline displays. The motor controls include unique direction, coarse and fine velocity adjustment and 'press to stop' functions. The displays show rotor and precession velocity (speed) in units of revolutions per minute and radians per second. They also show the magnitude of force and couple.

The equipment works with TecQuipment's Versatile Data Acquisition System (VDAS® available separately). Using VDAS® enables accurate real-time data capture, monitoring and display, calculation and charting of all relevant parameters on a computer (not supplied) making tests quick and reliable.

STANDARD FEATURES

- Supplied with comprehensive user guide
- Five-year warranty
- Manufactured in accordance with the latest European Union directives
- ISO9001 certified manufacturer

LEARNING OUTCOMES

- Direction of gyroscopic couple (in relation to precession and rotor spin directions)
- Magnitude of gyroscopic couple (in relation to precession and rotor spin velocities)

RECOMMENDED ANCILLARIES

- Versatile Data Acquisition System – bench-mounted version (VDAS-B)

ESSENTIAL SERVICES

BENCH SPACE NEEDED:

600 mm x 600 mm (plus space for the optional VDAS-B and a computer if needed).

ELECTRICAL SUPPLY:

Single-phase 90 VAC to 250 VAC

50 Hz to 60 Hz and 0.3 A

OPERATING CONDITIONS

OPERATING ENVIRONMENT:

Laboratory environment

STORAGE TEMPERATURE RANGE:

-25°C to +55°C (when packed for transport)

OPERATING TEMPERATURE RANGE:

+5°C to +40°C

OPERATING RELATIVE HUMIDITY RANGE:

80% at temperatures < 31°C decreasing linearly to 50% at 40°C

SOUND LEVELS

Less than 70 dB(A)

SPECIFICATIONS

TecQuipment is committed to a programme of continuous improvement; hence we reserve the right to alter the design and product specification without prior notice.

NETT DIMENSIONS AND WEIGHTS:

600 mm wide x 600 mm front to back x 370 mm high and 17 kg

APPROXIMATE PACKED VOLUME AND WEIGHT:

0.23 m³ and 25 kg