ID-320-3

High-Rotation Optical Inertial Time-Base Simulation Tester

This product is a three-axis electromechanical simulation and test system, comprising an inner, middle and outer turntable, together with a control system. Its function is to replicate motion at extremely high angular rates in order to test the performance of optical inertial devices in highly dynamic environments.

Product Features

- Extremely high inner frame rotational speed: ±10,000°/s
- Precise angular positioning on all three axes
- High load capacity (10 kg)
- Supports three-axis synchronised simulation
- High stability of speed accuracy
- Compact overall design (120 kg)

Suitable scenarios

Suitable for the aerospace and weapons guidance industries, for testing high-dynamic sensors such as airborne gyroscopes and high-rate inertial measurement units.

Technical Specifications

Parameter categories	Parameter items	Parameter values
Accuracy Performance	Angular Positioning Accuracy	≤ ±10″ (arcseconds)
	Angular Positioning Repeatability	≤ ±5″ (arcseconds)
	Speed Smoothness	ω < 1°/s: 5×10^{-3}(averaged over 1°) 1° ≤ ω < 10°/s: 5×10^{-4} (averaged over 10°) ω ≥ 10°/s: 5×10^{-5} (averaged over 360°)
Dynamic Performance	Maximum Angular Velocity	Inner frame: ±10,000 °/s Middle frame: ±400 °/s Outer frame: ±300 °/s Three-axis synchronisation: ±100 °/s
	Maximum Angular Acceleration	Inner frame: 10,000 °/s² Middle frame: 200 °/s² Outer frame: 100 °/s²
	Range of Motion	Inner frame: 360° continuous rotation Middle frame: ±100° (0° when the work surface is facing upwards) Outer frame: 0°–360°
Mechanical Specifications	Load Capacity	10 kg
	Worktop diameter/dimensions	Load mounting surface: Φ320 mm Maximum load dimensions: Φ180 mm × 200 mm
Environmental Protection	Operating temperature	20°C ± 8°C
Power and Communications	Power supply requirements	220 V AC ±10% / 50 Hz
	Control interface	Ethernet/serial port