

ID-300-5

Five-axis simulation turntable

This gimbal comprises a three-axis gimbal (O-U-T type) that simulates the attitude of an aircraft, and a two-axis gimbal (O-U type) that simulates relative motion with a target; it is used for simulating the spatial attitude of inertial measurement units and for semi-physical simulation testing of optoelectronic systems.



Product Features

- 1. Five-axis simultaneous motion simulation
- 2. High dynamic response capability
- High load capacity
- Positioning, speed and oscillation functions
- Ultra-high positioning accuracy ($\pm 15''$)
- High intersectability between two and three axes (≤ 1 mm radius sphere)

Suitable scenarios

Suitable for the aerospace and defence industries, for indoor semi-physical simulation testing of inertial measurement units (IMUs), guidance heads and target simulators.

Technical Specifications

Parameter categories	Parameter items	Parameter values
Accuracy Performance	Angular position accuracy	$\pm 15''$
	Angular position repeatability	$\pm 7.2''$
	Speed stability	$\omega \leq 1^\circ/\text{s}: 2 \times 10^{-2}$ $\omega > 1^\circ/\text{s}: 5 \times 10^{-3}$
Dynamic Performance	Maximum angular velocity	Three-axis: $400^\circ/\text{s}$ (roll), $300^\circ/\text{s}$ (yaw/pitch) Two-axis: $50^\circ/\text{s}$
	Maximum angular acceleration	Three-axis: $4000^\circ/\text{s}^2$ (roll), $3000^\circ/\text{s}^2$ (yaw), $2000^\circ/\text{s}^2$ (pitch); two-axis: $450^\circ/\text{s}^2$
	Range of motion	Roll: Continuous Yaw/Pitch: $\pm 65^\circ$ Two-axis azimuth/pitch: $\pm 60^\circ$ Relative limit: $\geq 40^\circ$
Environmental Protection	Load capacity	Three-axis stage: $\geq 35 \text{ kg}$ Two-axis stage: $\geq 80 \text{ kg}$
	Table diameter/dimensions	Load dimensions for the three-axis stage: $\geq \phi 300 \text{ mm} \times 600 \text{ mm}$ Load dimensions for the two-axis stage: $\geq \phi 300 \text{ mm} \times 400 \text{ mm}$
Environmental Protection	Operating temperature	$20 \pm 5^\circ\text{C}$
Power and Communications	Power supply requirements	380V AC, three-phase, 50Hz
	Control interface	Reflective Memory Network/High-Speed Ethernet