

ID-250-5

Five-axis flight simulation turntable

This turntable comprises three internal axes (simulating the aircraft's roll, pitch and yaw) and two external axes (simulating target movement). It is used to replicate the relative motion and attitude between the aircraft and the target in a laboratory setting, providing a hardware-in-the-loop test environment for guidance heads and flight control systems.



Product Features

- High-precision five-axis synchronous control
- Simulates the full-attitude motion of an aircraft
- Capable of loading real-world target scenarios
- Supports dynamic real-time simulation testing
- Rigid frame structure with fast response
- Suitable for testing a wide range of guidance heads

Suitable scenarios

Suitable for the aerospace and defence industries, it is primarily used for semi-physical simulation testing and performance evaluation of guidance heads and flight control systems for aircraft such as missiles and unmanned aerial vehicles.

Technical Specifications

Parameter categories	Parameter items	Parameter values
Accuracy Performance	Angular position accuracy	$\pm 0.005^\circ$
	Angular position repeatability	$\pm 0.005^\circ$
	Speed smoothness	$0.005^\circ/\text{s}$
	Non-perpendicularity	0.005°
	Non-intersection	1 mm
Dynamic Performance	Maximum angular velocity	Roll/pitch: $200^\circ/\text{s}$ Yaw: $150^\circ/\text{s}$ Outer two axes: $200^\circ/\text{s}$
	Maximum angular acceleration	Roll: $2525^\circ/\text{s}^2$ Pitch: $2000^\circ/\text{s}^2$ Yaw: $1500^\circ/\text{s}^2$ Outer two axes: $300^\circ/\text{s}^2$
	Frequency band (Double Ten)	Roll: 11 Hz Pitch: 8 Hz Yaw: 6 Hz Outer two axes: 4 Hz
Range of motion	Range of azimuth/elevation movement	Inner three axes: Roll $\pm 60^\circ$, Pitch -45° – 75° , Yaw continuous Outer two axes: Pitch -10° – 80° , Yaw $\pm 60^\circ$
Mechanical Specifications	Load capacity	Inner three axes: 20 kg (payload) Outer two axes: 50 kg (payload)
	Table diameter/dimensions	$\Phi 250\text{mm}$ (inner work surface) Outer frame load dimensions: 300×400mm / 500×500mm
	Overall dimensions	3600 × 2000 × 4596 mm (length × width × height)
	External dimensions	8500 kg
Environmental Protection	Equipment weight	0°C to 40°C
Power and Communications	Operating temperature	220 V/380 V AC, 50 Hz
	Power supply requirements	Reflective Memory Network / Ethernet