

Sarnicola Simulation Systems, Inc.

Hexad Universal Motion Controller

Six-Channel Control System for Simulation Motion Platforms

Now available from Sarnicola Simulation Systems, the **Hexad Universal Motion Controller** (UMC) reflects fifteen years of experience in advanced simulation motion control. This new controller offers a compact, rugged package and the simplicity of a USB interface to a standard Windows PC motion control computer. The motion control computer provides complete, standalone operation from the familiar Windows operating environment, and can also serve as an intelligent interface to the simulation host computer, completely replacing the “motion cabinet” on a legacy commercial or military flight simulator.

Each SSS *Hexad* UMC controller package includes *HexTest*, a general-purpose control software package suitable for general system setup and test, as well as for a variety of demonstration and test applications. The software allows straightforward system setup and performance evaluation, and provides a sophisticated sum-of-sines profile generator that is useful in system demonstrations and in many equipment testing applications. The system also provides file playback and basic host connectivity via RS-232.

Hexad UMC Hardware Features

- Standard USB interface to its Windows PC control computer.
- Second-order electronic analog servo system that uses no computer resources.
- Simple, stable, four-parameter tuning via “set and forget” trim pots
- Extremely simple standard packaging: a single small metal cabinet with no external controls.
- Complete custom packaging options available.
- Emergency stop system gracefully settles the platform upon facility E-Stop.
- Self-monitoring system invokes E-Stop if the motion controller goes off line.
- Sixteen auxiliary digital (TTL-level) input lines and sixteen output lines (DIOs).
- Two auxiliary analog inputs (10-bit resolution) and two analog outputs (12-bit resolution).
- On-board data acquisition system for performance verification and application monitoring.

HexTest Software Features

- Convenient, intuitive, mouse-oriented user interface.
- Real-time graphical depiction of platform state.
- HPU interface control (if HPU control hardware is included)
- Manual control of each axis independently.
- Full control of the position and orientation of the center-of-rotation coordinate system.
- Automatic data logging of both commanded and actual leg extensions.
- Standard test profile generation.
- Custom test profile generation using a 30-term sum-of-sines with full control of amplitude, frequency and phase of each term in all six degrees of freedom.
- Playback of prerecorded motion files.
- Automated system test (“morning readiness check”).
- Basic host computer interface (RS-232) for realtime operation.
- User-defined update rates from 20 to 60 Hz.
- Interface monitoring.