AERO 3500 Precision Motion Controller

The AERO 3500 is designed for Ideal's next generation of precision rate and positioning table systems, and precision centrifuges.

In the AERO 3500, Ideal Aerosmith continues to adhere to its long-standing philosophy of using COTS (commercial off-the-shelf) technology so that all of its motion-based test systems will benefit customers by providing the lowest life-cycle cost of ownership. Even for systems controlled by newer generation digital controllers, upgrading to the AERO 3500 improves reliability while extending the support life.

It also shares the same software architecture as the AERO 4000 so customers can easily operate both AERO 3500 systems and AERO 4000 systems.

AERO 3500 - Continuing the Legacy

Simplicity

- Single computer solution Distributed software architecture provides greater performance/flexibility
- Distributed software architecture provides greater performance/flexibility
- Distributed hardware architecture reduces wiring while improving accuracy and reliability

Performance

- 2.0 kHz frame rate for single axis or multi-axis
- Feedback error correction for smoother rates and more accurate positioning

Ease of Use

- Based on Windows 10 Enterprise 2016 LTSB (Long Term Servicing Branch to minimize operator training
- C#, Visual Basic® and LabVIEW® VI examples provided to simplify host computer programming
- IEEE-488, RS-232, and Ethernet remote host interface

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Ideal Aerosmith AERO 3500 Key Specifications

General	
Chassis Packaging	• 6U 19-inch industrial rack-mount Panel PC. • 19-inch rack-mount axis drive modules
Power Requirements	• 90-253 VAC / 47-63 Hz • Current depends on configuration.
Axis Configuration	• Configurable from 1 to 3 axes. • Rotational and translational axes in various configurable units. • Supports modulo and bi-polar control and feedback • Brushed or brushless motors
Controller Type	• Digital PID with velocity & acceleration feedforward
Controller Frequency	• 2000 Hz (Speed fixed within controller)
Readout	• Position, velocity, and acceleration for each axis. • Optional configurable selectable filtering. • At-position and at-velocity indicators with configurable epsilons (tolerance band).
Demand	• New command trigger for: o Position, velocity, and acceleration. o Mode select.
Diagnostics/Self-Test	• System check on power-up.
Load Menu	• Gain settings for various payloads can be selected/stored via GUI or remote interface.
Signal I/O	
Once Per x Degrees Interval Output	• Per axis configurable: o ≤ 15 arc-sec error at all rates. o 250 nanosecond (nominal) pulse width, active low, TTL level. o N (degrees) rounded to nearest integer number of coarse feedback pulses
Capture Input	• Per axis: o Asynchronous position capture within 25 microsecond of falling edge, TTL level.
Analog Inputs	• Per axis: o 2 channels, 16-bit, ±10V o Configurable gains, offsets, used to command position or rate.
Analog Outputs	• Per axis: o 2 channels, 16-bit, ±10V, 1Khz update rate o Configurable gains, offsets, and usage from controller. (Position, Rate, Acceleration or position error)

For special requirements or custom specifications, contact Ideal Aerosmith. Specifications are subject to change without notice. Please call for pricing. Rev. B