



Electro-Mechanical SMART Actuation System for First-Class Commercial Aviation Seats

Description:

Read how Kyntronics Seat Actuation System (SAS) met the tough challenges of complex seat movement quiet operation, lightweight, in a cost-effective approach

Application:

First-Class and Business-Class Commercial Aircraft Seats

Products:

L500, R60, R155, R05



Challenge:

The global leader in Premium-Class Aircraft Seats and Interior Systems was faced with challenging new requirements from a large airline customer for a First-Class Seat product that contained ten axis of motion.

Their critical requirements included:

- Ten actuators to adjust seating elements to provide the utmost in passenger comfort.
- Pre-programmed settings for TTOL, Dining, and Z-lounge along with passenger-controlled infinite-adjustment of each actuator
- Simplified wiring design to facilitate wire routing during seat assembly.
- Synchronized motion from multiple actuators to accomplish seat movement in the most comfortable manner.
- Passenger control via the IFE system over seat positions, lighting and other seat comfort features.
- Quiet operation
- Lightweight and cost effective.

Solution:

Kyntronics worked closely with this OEM customer during the design phase to develop and configure a Seat Actuation System based on Kyntronics Electro-Mechanical SMART Actuator products that met the stringent program requirements.

A solution was implemented that included both Linear and Rotary SMART EMAs. Some of the key system features and benefits were:

- Ten SMART EMAs per seat were installed with up to 1,000 lbs. of linear force and 60 in-lbs. of rotary torque, powerful yet very lightweight... critical for airplane use.
- The SMART EMAs contained built-in electronics, position feedback and software along with mechanical components that were packaged in a small space envelope for easy installation into the seat frame.
- Special software was developed that coordinated multiple actuators simultaneously to create a very smooth and comfortable passenger experience during seat position changes.
- Use of Kyntronics' 2-wire Power Line Communications wiring system between actuators and electronic modules reduced weight further, simplified installation and reduced cost.
- Kyntronics provided the control interface and software to the aircraft In-flight Entertainment System for passenger control of the seat, lighting and surrounding suite components.
- Kyntronics engineers worked closely with the OEM to certify the actuation system for aircraft use.



Kyntronics L500, R60 and R155 Electro-Mechanical SMART Actuators

Results:

The Kyntronics Electro-Mechanical SMART Actuation system met or exceeded all the requirements of the OEM and their airline customer. Following certification, the system has been supplied to multiple premier airline customers and is operating reliably in dozens of wide-body long-haul aircraft on hundreds of daily flights.

[Click to view a short video on this system](#)

Find out more about Kyntronics Electro-Mechanical SMART Actuators and how they can improve your company's machines and processes.

<https://www.kyntronics.com/products/electro-mechanical-smart-actuators>

Interested in how Kyntronics can help solve your actuation challenges, [contact our Engineering team](#).

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