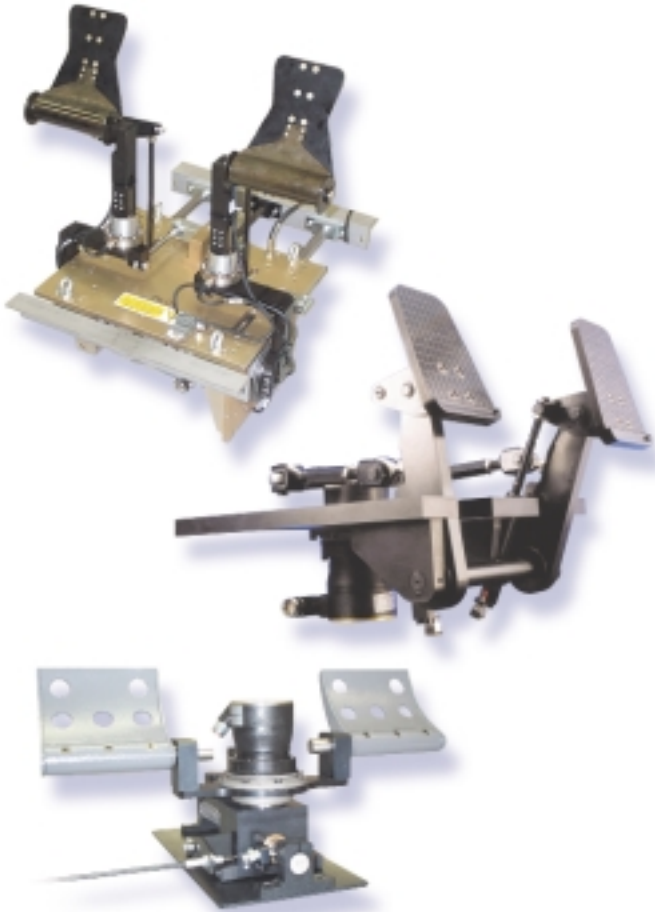


# Re-Configurable Active Rudder/Directional Pedals



## Unique Features

- Both compact and light
- Smooth, precise and repeatable feel
- Proven WITTENSTEIN motors, gearboxes and digital motor controllers
- Mechanically simple and easy to mount
- Robust and reliable
- Latest integrated digital motor controller technology
- CAN bus to couple twin systems to a compact system control module
- Optional force sensor

## Wittenstein Aerospace & Simulation

The Aerospace and Simulation Division has developed a range of Re-Configurable Active Rudder/Directional Pedals that provide programmable feel characteristics using force feedback. Their high performance and programmability make them suitable for both re-configurable and high fidelity controllers. They have applications in airplane and helicopter simulators, and mission trainers.

## Operation of the System

High dynamic performance brushless ac motors are used to drive the pedals through two-stage planetary precision gearboxes. The motor has a digital motor controller that determines the torque, speed and position of the axis of rotation. For high fidelity applications, force sensors can be attached to the pedals. The system control module controls the force-feel characteristics so that they can be re-configured or dynamically changed to simulate different systems or changing operating conditions.

The unique mechanical design of the units, both compact and very light, has been achieved by using the low backlash, low friction, motor-gearboxes developed by the WITTENSTEIN Group for applications such as robotics and manipulators.

For multiple rudder/directional pedal applications, units can be linked to one system control module using a CAN bus cable for both implementing and coordinating control.

## Aerospace and Simulation Division

The Aerospace and Simulation Division specializes in the application of active force-feel technology. We offer the advantage of having all the technology in-house. This enables us to react quickly to market needs as we can take standard products and adapt them to the needs of the application. WITTENSTEIN's many years of experience as a supplier of gearboxes, ac brushless motors, integrated motor-gearboxes, and digital motor controllers, provides us with a unique experience in the field of electric drive systems. This know-how has been incorporated into our active pedal products.

**WITTENSTEIN**



**aerospace & simulation**

[www.wittenstein.aero](http://www.wittenstein.aero)

# Technical Information

## CONTROL LOADING UNIT

### Travel

- General Aviation Rudder Pedals  
-customer adjustable to  $\pm 25^\circ$
- Directional/Transport Pedals  
-customer adjustable to  $\pm 8.0$  in.
- Fighter Rudder Pedals  
-customer adjustable to  $\pm 1.5$  in.

### Force Capability

General Aviation Rudder Pedals			
DRIVE	LEVEL	TORQUE	FORCE
MYTA010	Cont.	50 Nm (440 in.lb)	312N (70 lbf)
	Peak	100 Nm (885 in.lb)	635N (142 lbf)
Directional/Transport Pedals			
DRIVE	LEVEL	TORQUE	FORCE
MYTA025	Cont.	150 Nm (1330 in.lb)	285N (64 lbf)
	Peak	170 Nm (1400 in.lb)	445N (100 lbf)
Fighter Rudder Pedals			
DRIVE	LEVEL	TORQUE	FORCE
MYTA010	Cont.	50 Nm (440 in.lb)	197N (44 lbf)
	Peak	100 Nm (885 in.lb)	394N (89 lbf)

- 1) Note 91:1 gear ratio gearbox used for ratings. Other force ratings are available with alternate gear ratios.
- 2) Pivot radius is to the pedal reference point.

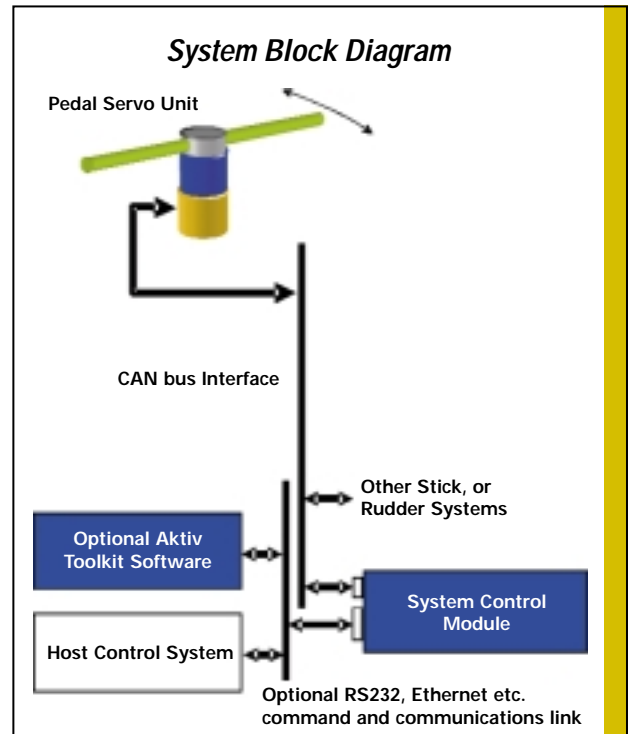
## Dynamically Variable Characteristics

- Force-feel curve
- Trimming and trim release
- End stops and mixer limits

## SYSTEM CONTROL MODULE

### Features

- Multiple stick control capability with pilot/copilot electronic coupling
- CAN bus interface to stick servo units
- Ethernet, RS232 or customized interfaces to host
- Multiple aircraft characteristics defined in configuration files



### Size

- Six-slot microbox  
177 mm (7 in), 274 mm (10.8 in), 287 mm (11.3 in) H, W, D
- 19 inch rack mountable  
177 mm (7 in), 432 mm (17 in), 457 mm (18 in) H, W, D

### Customer Options

- Analog outputs of stick parameters
- Software toolkit for setting defaults and system evaluation
- Setup of characteristics to meet customer requirements
- Dynamic response

**WITTENSTEIN**



**aerospace & simulation**

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