

ITT is a diversified leading manufacturer of highly engineered critical components and customized technology solutions for growing industrial end-markets in energy infrastructure, electronics, aerospace and transportation. Building on its heritage of innovation, ITT partners with its customers to deliver enduring solutions to the key industries that underpin our modern way of life.

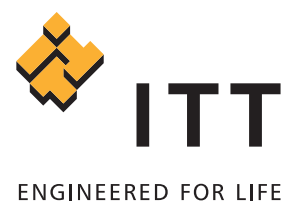
Founded in 1920, ITT is headquartered in White Plains, NY, with employees in more than fifteen countries and sales in more than 125 countries. The company generated 2011 revenues of \$2.1 billion.

For more information, visit [www.itt.com](http://www.itt.com).

**ITT Control Technologies provides efficient and reliable products for the passenger aircraft seat industry.**



## SkyMotion™ Power Seat Actuation for Passenger Seats



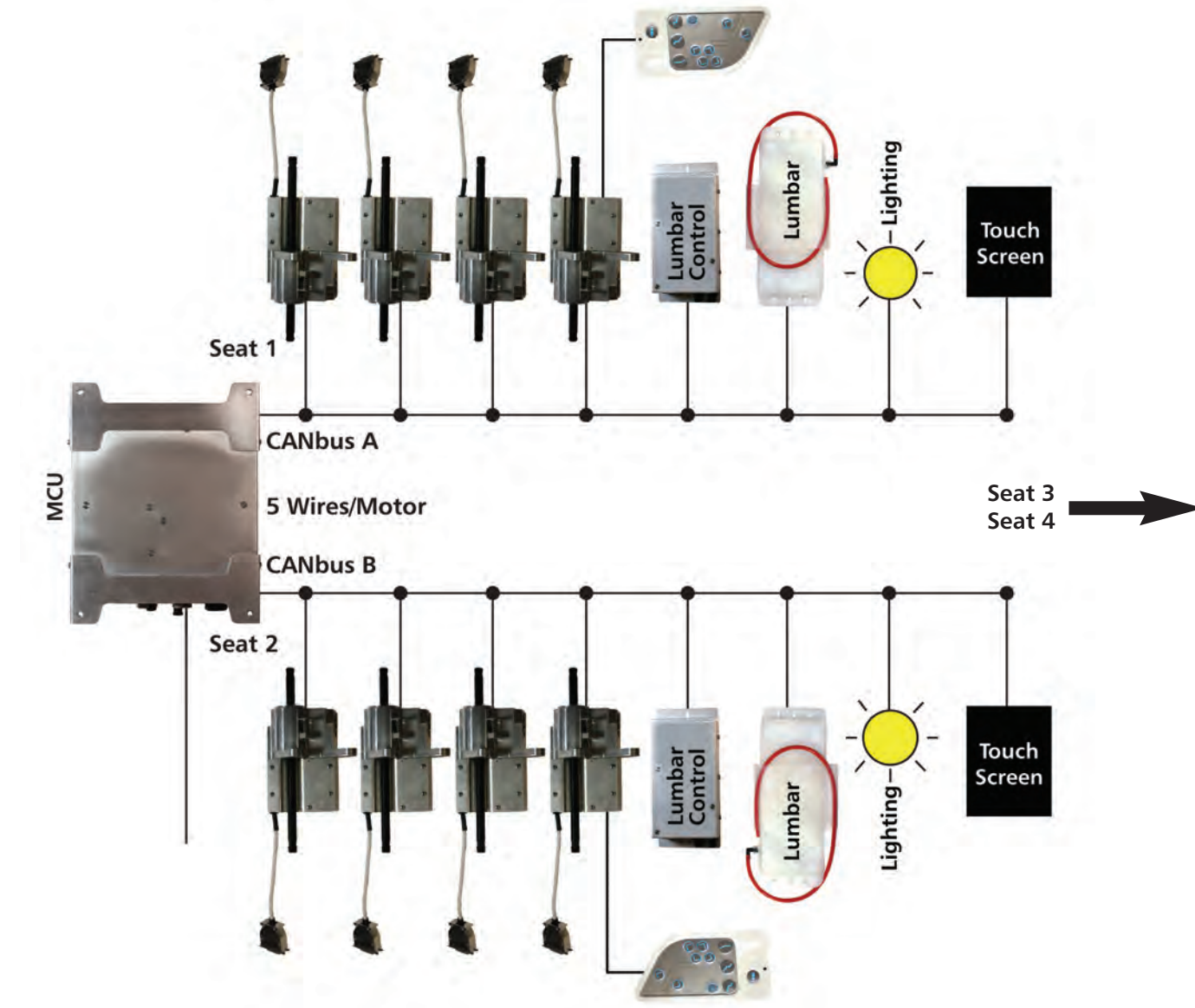
ENGINEERED FOR LIFE

**Aerospace Controls**  
28150 Industry Drive  
Valencia, CA 91355  
Phone: 661-295-4000  
Fax: 661-294-1750  
[www.ittaerospace.com](http://www.ittaerospace.com)

**ITT Enivate**  
28150 Industry Drive  
Valencia, CA 91355  
Phone: 661-295-4000  
Fax: 661-294-1750  
[www.enivate.com](http://www.enivate.com)



ENGINEERED FOR LIFE



System Architecture

- Simplified CANBus communication
- Scalable for Single, Double, and Triple Seat Applications
- Airbus and Boeing compatible Power Management
- Fast remove/replace actuators with Auto-Calibration feature
- Optional Junction Box for power and communication distribution
- Pass through aircraft power for daisy chaining with subsystems
- Optional individual Kill Switch for each passenger place

Software and Diagnostics

- Integrated or remote BIT readout – laptop or touchscreen PCU
- ARINC 485/604 compliant
- Event logging for 30+ power-ups, time stamp option
- Compatible with IFE systems for communication to master control panel
- Central Command option to activate all seats for cabin servicing
- 3-color LED readout on actuators for fast troubleshooting on board
- Continuous polling with download capability

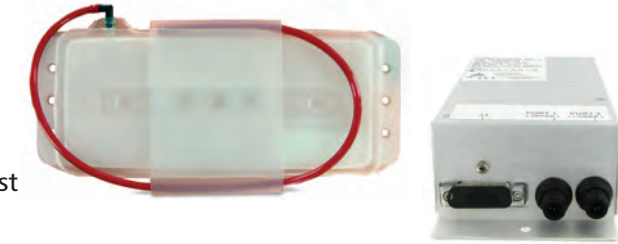
Master Control Unit

- Integrated Power Supply
- Dedicated (BIT) Built In Test and programming port
- 12V and 28V controllable outputs for lights and accessories
- 4 CANBus ports for symmetric seat installations
- 4 RS485 Input/Outputs
- 1 RS232 Input/Output
- Jam detection with auto-reverse and force limiting
- 300 Watt power supply
- Complies with Boeing 787 and A380 interface requirements



Pneumatic Comfort Controls

- High flow pneumatic pump for instant response
- Quiet operation
- Custom pneumatic chamber shapes for lumbar, headrest
- Multi-chamber programmed massage option
- Active deflation



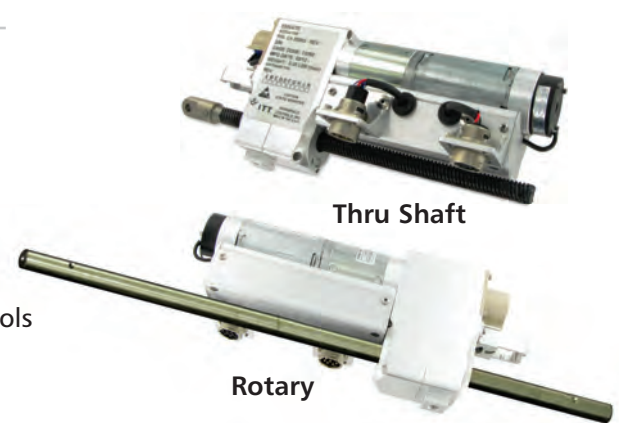
Diagnostics

- Continuous polling
- 30 power-up memory
- Download capability
- Remote option
- ARINC or Text Messages



Actuators

- Integrated electronics, compact packaging
- Fixed mount locking connectors – eliminates need for panel mount connections
- Integrated positive locking – Patent Pending –SAE ARP5526 compliant
- 3-color LED diagnostic indicator lights for on board troubleshooting
- Brushless DC motor for efficiency and reliability
- Ball Detent Manual Override - low release force without tools
- Low operating noise ~50dB
- Full range of output forces
- Rotary – Linear – Thru Shaft configurations
- No calibration required for replacement



Passenger Control Units

- Custom keypads
- Touchscreen option
- Up to 50 keys per seat group
- Interface with 3rd party serial communication PCU's



Master Control Unit

**Input:** 115 VAC single phase, 400hz (360-800hz) power factor corrected (pf>90% at full rated load)  
**Output:** 300W continuous  
**Protection:** Continuous thermal monitoring, Circuit breakers  
**Features:** Power cascading, Convection air cooled  
**Drive:** Brushless DC, Dynamic braking, Hardware over-current monitor  
**Communication:** Multi RS232, RS485, CANbus ports and keypad controls  
**Efficiency:** 90% at full load  
**DC Power Output:** Actuators 33 VDC overload protected, PCU Auxiliary 12 VDC @ 1.5A max, Lighting 28 VDC @ 3A max

Pneumatic Comfort System

**Pump/Controller:** High flow rate, quiet operation  
**Deflation:** Active  
**Lumbar:** 4-way, 8-way optional  
**Headrest:** Available  
**Programmed Massage:** Available

Interconnect Wiring

MIL Spec or equivalent wiring and connectors  
 Custom design to suit seat OEM  
 Eliminates point-to-point harnesses

Actuators

**Configurations:** Rotary-Thru Shaft-Extension Shaft  
**Output Force:** Full range available  
**Manual Override:** Low force release with knob or cable remote lever  
**Motor:** Brushless DC, low EMI, high power density  
**Integrated Positive Lock** – patent pending  
**Position Feedback:** Potentiometer

Regulatory

RTCA DO-160/EUROCAE ED-14  
 RTCA DO-178B/EUROCAE ED-12B  
 FAR/JAR 25  
 Boeing D6-36440  
 Airbus ABD0100, 2520M1F, X2521PTS  
 ARINC 485, 604  
 ARP 5526

Passenger Control Units

**Membrane Keypad:** Up to 25 keys per passenger  
**Touchscreen Control:** Optional  
 Available to command calibration mode, BIT