Acutronic
The Driving Force in Motion Simulation™
Our Background
ACUTRONIC is a privately owned company with US headquarters located in Pittsburgh, Pennsylvania. We have a proud heritage of engineering and manufacturing expertise that extends over 40 years. Globally, we employ over 110 people and maintain engineering, manufacturing, customer service and support, and sales in both the US and Switzerland.

Our Core Competence
ACUTRONIC is the pioneer and now, world leader, in the field of motion simulation. We specialize in the development, design and manufacture of precision motion simulators and the provision of system test and evaluation solutions. With regional offices and local customer support in North America, Europe and Asia, we are the only truly global provider of motion simulators and system solutions.

Development, design, manufacturing, and integration of precision motion simulators require a diverse range of technical and engineering capabilities. Our in-house expertise combines the fundamentals of system engineering, process control, innovative algorithm development, mechanical and electrical engineering, and hydraulic know-how with a deep understanding of industry-specific application knowledge.

Our customer-focused approach is designed to ensure the establishment and sustainability of mutual trust and commercial success.

Our Markets
Customers from the following industry sectors rely on ACUTRONIC motion simulation test equipment:

- Aviation
- Defense
- Space
- Consumer Electronics
- Transportation
- High-tech Industry
**Custom Solutions**
One of our key strengths is the delivery of motion simulation solutions specifically designed to meet our customers’ unique requirements. During design, development, production, and testing, continuous reviews are held internally and with our customer to ensure that all expectations are being met.

**Customer Support**
Due to the many years of use expected from an ACUTRONIC simulator, product delivery is just the start of a long relationship. Our team of support personnel helps the user to be productive with their ACUTRONIC motion simulation equipment by providing:

- Technical support via telephone or e-mail
- On-call, on-site support
- Scheduled maintenance
- Performance verifications
- Spare-part supply
- Maintenance contracts
- Training

**Inertial Testing (iTS)**
Our inertial testing services allow manufacturers and developers to use ACUTRONIC motion simulator systems located in our manufacturing facilities in both the US and Switzerland. These facilities can enable our customers to spend resources and energy on developing their product rather than developing and maintaining their own customized test facilities.

**Refurbishment**
With a retrofit, re-instrumentation or upgrade, ACUTRONIC is able to breathe new life into old simulation systems. The replacement of an old or obsolete controller with our high performance ACUTROL®3000e results in a system working better than it did when new. Typical refurbishment options include replacement of the system controller, servo components, environmental chamber, motors, bearings, sliprings and transducers.

**Consultancy Services**
Using our extensive HWIL (Hardware-in-the-Loop) knowledge we are able to assist our clients in developing turn-key missile test facilities. We can help with identification of credible third-party equipment providers, the development of specifications as well as design and development of simulation solutions.
Building on our extensive know-how and experience we are constantly enhancing our core competencies as they apply to this wide variety of applications:

- SANETY & MONITORING
- GAMING & MOTION SENSING
- MISSILE TESTING
- SURVEILLANCE & RECONNAISSANCE
- NAVIGATION & GUIDANCE
- STABILIZATION & CONTROL
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The Challenge
A large variety of highly precise one-, two- or three-axis rate tables assist our Inertial Guidance Test System (IGTS) customers in the development, manufacture, and test of inertial sensors and systems. Testing capabilities include numerous customizable interfaces to the devices under test. To further enhance “real-world” simulation and characterization, an environmental chamber can be provided.

Devices and Systems under Test
- Inertial Navigation Systems (INS)
- Inertial Measurement Units (IMU)
- Inertial Reference Units (IRU)
- Gyrocompasses
- Attitude and Heading Reference Systems (AHRS)
- Attitude and Orbital Control Systems (AOCS)
- Star Trackers
- Gyroscopes (FOG, RLG, HRG, MEMS)
- Accelerometers
The Challenge
Cost-efficient test solutions are an obvious key to success for our customers in any application field we serve. Product offerings include both customized or standard rate tables as well as extensive services including rental or leasing of either systems or testing facilities.

Devices and Systems under Test
• Inertial Measurement Units (IMU)
• Accelerometers
• Rate Gyros
• Inclinometers (Clinometers)
• Roll-over Sensors
• Flight Instruments
MISSILE TESTING

The Challenge
Highly customized Hardware-in-the-Loop (HWIL) missile test solutions are among our most sophisticated products. We offer solutions for both Infrared (IR) and Radio Frequency (RF) test methods. Products range from three-axis and five-axis Flight Motion Simulators (FMS), linear and curved Target Motion Simulators (TMS) to Actuator Fin Loading Systems. Further, we are able to offer fully integrated HWIL system solutions yielding significant cost savings and reduced time to market of newly developed missiles.

Devices and Systems under Test
Missile Systems and Subsystems including:
- Seekers and Sensors (Radio Frequency, Infrared)
- Guidance and Control Sections
- Inertial Measurement Units
- Control (Fin) Actuator Sections
- Counter Measures
The Challenge
The handling of large and heavy payloads, adaptation to a wide unobstructed Field Of View (FOV) and maintaining pointing accuracy under high dynamic motion are challenges that ACUTRONIC simulation systems are designed to overcome.

Devices and Systems under Test
• Gyro-stabilized Electro/Optical Seekers
• Forward-looking Infrared (FLIR) Seekers
• Star Trackers
• Radar Antennas
• Tracking Mounts
• Stabilized Periscopes
• Stabilized Mounts
• Stabilized Electro/Optical Cameras
• Gun Control Systems
The Challenge
Short lead times for the delivery of our field-proven test equipment and its integration into large scale production facilities are just two of the main characteristics of our applications in the Safety & Monitoring context. In the cost- and time-critical commercial world, our equipment is often used in mass production sites and may be used 24/7.

Devices and Systems under Test
- Accelerometers for Airbag (Crash) Sensors
- Automotive Electronic Stability Controls (ESC) Systems
- Angular Rate Sensors
- Roll-over Sensors
- Crash Test Dummies
- Sensors for Monitoring Bridges, Off-shore Oil Drilling and Cranes
The Challenge
A range of off-the-shelf standard products is available for testing needs in this application field. The solutions are scalable and allow easy expansion of capabilities when necessary. Customer applications are typically based on sensors manufactured using Micro Electro Mechanical Systems (MEMS) technology.

Devices and Systems under Test
Inertial Sensors, Rate Sensors, Accelerometers and IMU’s for:
• Gaming Controllers
• Smart Phones
• Mobile Computing (Tablets, Laptops)
• Body Motion Dynamics Monitoring for Health Care and Fitness Applications
• Gesture Recognition for Hand-held Devices and PDAs
OUR PRODUCTS

Our Solutions
A wide range of both standard and customized products cover the testing needs of those working with inertial sensors, electro-optical sensors, missile systems and satellite navigation system components, amongst others.

The product range comprises one-, two-, three-, and five-axis motion simulators, instrument test centrifuges, and curved and linear motion systems. A large number of options are available; e.g., integrated temperature chambers; electric, fluid, gas, high-speed data busses and optical rotary connections to the unit under test. Real-time controller interfaces further enhance the testing capabilities.

Our simulator systems combine a mechanically stiff and stable structure with the required drive solution of either electric motors or hydraulic actuators. These systems use our industry standard proprietary real-time advanced digital motion controller; ACUTROL® to provide the accuracy and dynamic control required by our customers.

ACUTRONIC personnel look forward to understanding your requirements and recommending the optimal solution to suit your specific needs.
Our Products

Three-axis Motion Simulators

Five-axis Motion Simulators

One-axis Motion Simulators

Two-axis Motion Simulators

Centrifuges

Special Motion Systems