Simulators, Displays and Visual Systems
Advanced Flight Simulation Tools for Full Mission Support

We are a world leader in the design, manufacture and support of full flight simulators and other advanced-technology training devices. Government and military organizations worldwide rely on our equipment for their training programs. We have been delivering training and training equipment to U.S. and allied governments for more than 50 years. As a trusted partner to every branch of the U.S. Armed Forces and foreign militaries, we deliver resolute dedication to our Customers’ missions.
We provide training devices and upgrades with the highest fidelity and realism for everything from heavy cargo and refueling to light-utility or attack to surveillance or search and rescue.

We can take you from a Training Needs Analysis all the way through to your mission debriefs with industry-leading technology – including interoperable and collective operations. But technology only provides the means – supporting your mission readiness is our focus.
Full Flight Simulation Provides the Highest Level of Realism

Our full flight simulators provide the highest level of realism and fidelity in aircraft simulation, feature advanced instructional capabilities and are designed for maximum reliability, ease of maintenance and support.

We constantly introduce advances in simulation technology to further increase fidelity and create a more secure training environment.

The new FlightSafety FS1000 full flight simulator will outperform current generation simulators in virtually all aspects. Its new lightweight and highly robust modular design offer added configuration flexibility and ease of systems integration.

This will enable us to respond quickly as new aircraft and advances in technology are introduced and will serve to increase reliability and reduce maintenance time.
Electric Motion and Control Loading

Electric motion and control loading-equipped simulators – a technology pioneered by FlightSafety – offer the highest level of fidelity, enhanced performance and increased availability thanks to reduced maintenance requirements. Simulators equipped with this cutting-edge technology also offer significant environmental advantages compared with hydraulic-fluid-based motion systems.

- Less heat, lower levels of ambient noise and reduced electricity consumption by up to 85 percent compared with previous-generation hydraulic-actuated systems.
- Eliminates the need for numerous gallons of hydraulic fluid and high-pressure distribution pumps.
- Qualified by aviation authorities the world over, including FAA, CAA, DGAC, JCAB, LBA and EASA.
- In service at FlightSafety Learning Centers, military installations and commercial customer sites worldwide.
VITAL 1100 – High Resolution Simulation for Visual Acuity

Combined with the latest state-of-the-art high-resolution projectors, VITAL 1100 offers out-the-window fields of view over 300 degrees horizontal and 70 vertical, delivering resolutions with tens of millions of pixels.


VITAL 1100 supplies aircrews with the out-the-window visual information they need for flight training in the simulator. The system simulates the imagery and environmental conditions experienced during aircraft taxi, takeoff, en-route and tactical flight operations, visual navigational and instrument flight, and landing maneuvers. Simulated flight conditions include continuous time of day, night, dawn/dusk, and a comprehensive set of physics-based weather features.
VITAL 1100 State-of-the-Art Visual Systems

Our exclusive VITAL 1100 visual system provides pilots with simulator training that features realistic, detailed, high-resolution views designed to enhance safety. Combine VITAL 1100 with our ground-breaking all-glass CrewView mirror displays for the ultimate in simulation training fidelity. VITAL 1100 enhances the learning experience in everything from full flight simulators to a complete range of advanced training devices.

The system provides pilots with the out-the-window and sensor information needed to operate the aircraft and fulfill operational missions. It features five times greater computational performance than predecessor systems for exceptional visual realism. Environmental effects, such as physics-based weather models, develop and react as in the real world. Dynamic shadowing and enhanced shading add a new dimension to the training environment.

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VITAL 1100 Visual Systems

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Using the latest PC technology and high-performance off-the-shelf graphics processors, VITAL 1100 provides a fully certifiable PC image generator. It maintains the proper throughput required for the highest military accreditation levels for fast jet and high performance aircraft simulators such as F-16, T-38 and T-6, tanker and transport including KC-46, KC-10, KC-135, C-17, C-5, C-12, C-130 and numerous rotary wing and tilt-rotor platforms for the Army, USN/USMC and USAF.

Mission-specific visuals enhance scenario-based training.

Combat training tools include detailed air-to-air refueling scenarios.
VITAL 1100 Visual Systems

Compatible With Other Systems

The system is completely compatible with other aircraft systems such as head-up displays, enhanced and synthetic vision systems and radar. VITAL 1100 also simulates high quality forward-looking infrared (FLIR) and electro-optical sensors including ColorTV, LowLightTV, All Light Level TV and aircraft remote direct view camera systems. VITAL 1100 also exceeds the FAA Level D and military equivalent standards for training with night vision devices.

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VITAL 1100 Visual Systems
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Worldwide Training Environment
VITAL 1100 provides a whole-Earth model for a realistic training environment between high detail airport and other objective area models. The worldwide database incorporates the latest terrain information with geo-specific satellite images for unprecedented realism. This allows the aircrew to fly continuous, no-break flights anywhere in the world. For enhanced realism, the worldwide database includes sophisticated weather simulation that can be controlled automatically by current and forecast weather inputs of temperature, humidity, wind, ceilings and visibility. Seasonal weather includes snow, ice, hail and rainfall.
CrewView All-Glass Mirror Displays

True Collimated Images

Our glass mirror displays provide superior optical performance, sharper image clarity, long-term reliability, and are night vision capable. The true collimated images they present are free of visible distortions and artifacts out to mirror edge, eliminating ground rush distortion in the bottom field of view. Combined with our VITAL visual system, CrewView delivers unprecedented simulation training fidelity.

Up to 300-Degree Fields of View

The all-glass CrewView displays offer the industry’s greatest level of realism. Its modular design produces fields of view (FOV) up to 300 degrees horizontally, providing significant improvements in realism and situational awareness. By filling the entire aircraft window, these devices also allow greater levels of training and effectiveness by moving critical training tasks (checking for prop feathering, checking landing gear deployment, brown out training, search and rescue scans and advanced mission rehearsal scenarios) out of the aircraft and into the simulator, further reducing costs and risks.
FlightSafety can offer a variety of Containerized Flight Training Devices to meet a wide range of training and budget requirements. These devices can feature high performance visuals, including the VITAL 1100 and the all-glass CrewView display, to create a high-fidelity device in a containerized system that can be relocated, deployed or transported based on mission, training and budget requirements.
The WASP family of displays is a series of custom developed displays configured to meet the needs of fast jet training requirements. Designed to meet a multitude of training tasks and budgets, these displays provide full field of view training for a variety of fast jet aircraft including F-16, F-18, F-22, JSF/F-35 and BAE Hawk.
MATRIX: An Integrated Training System

MATRIX integrates the realities of the Level D simulator experience into the classroom and to other training devices. MATRIX – consisting of the DeskTop Simulator, Integrated Courseware, Graphical Flight-deck Simulator and SimVu – is an innovative suite of flight training tools featuring shared applications and graphics.

By drawing on the same powerful software that drives our Level D full flight simulators, MATRIX creates a consistent progression of training suitable for the most rigorous proficiency demands.

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DeskTop Simulator

The DeskTop Simulator can be used for instructor-led or self-paced instruction. It is an interactive PC-based training system used to demonstrate and learn the function and control of aircraft systems. It provides an interactive representation of the cockpit displayed on multiple touch-screen monitors enabling the pilot or technician to monitor or perform all the functions that would be performed in the aircraft.

Graphical Flight-deck Simulator

The Graphical Flight-deck Simulator provides an interactive representation of the cockpit displayed on multiple touch-screen monitors. This allows the user to monitor or perform virtually all the functions that would be performed in the aircraft. System schematics and flows are illustrated through animated graphics. An instructor operating station with the same appearance provides control of the Graphical Flight-deck Simulator, just as on our full flight simulators.
SimVu provides the pilot with a detailed visual representation of a full flight simulator training session. This allows immediate reinforcement of training lessons and provides an opportunity to identify areas for special emphasis. SimVu presents the audio, video and flight data collected during the simulator session, including air speed, altitude, aircraft orientation and engine performance. Pilots view a compilation of the Instrument Panel, Cockpit Camera and Jeppesen Chart flight profile. It also provides an outside view of the animated flight path, destination airport and more.

Integrated Courseware

Our courseware designers and engineers translate the software code used to control our flight simulators into the interactive graphics used in the classroom. Training curriculums, programs and course materials are driven by training requirements. Our centralized development and distribution of all course materials ensure consistent delivery throughout our Learning Center network. Our military courseware development team has developed Level 1 through Level 4 courseware. Level 4 is fully interactive and features actual aircraft functions embedded into the lessons.