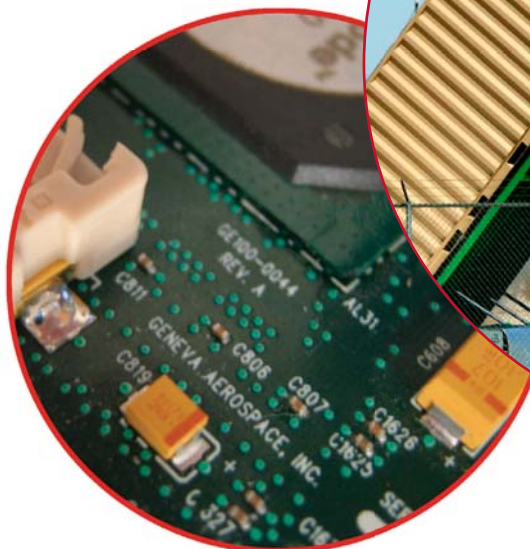


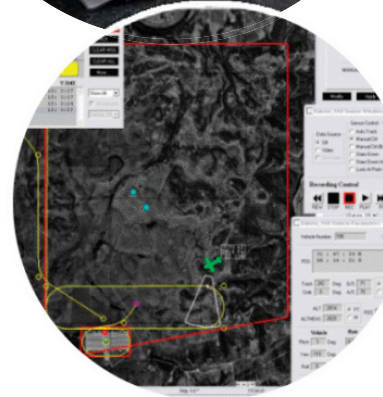
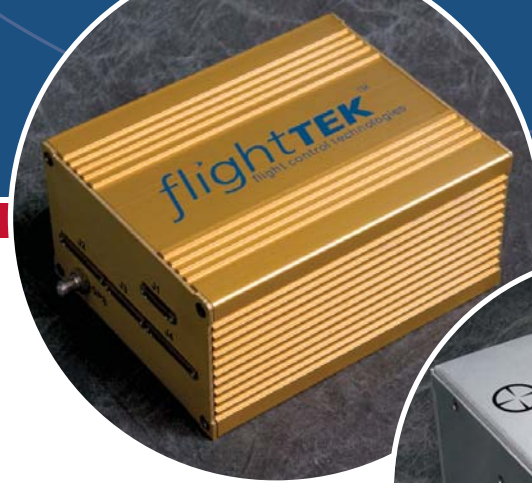


**communications**

**Geneva Aerospace**

**WHEN THE MISSION MATTERS**





## Objective

To provide tightly integrated command, control and communication (C<sup>3</sup>) solutions for a broad range of unmanned vehicles.





# Leadership Statement

At L-3 Geneva Aerospace, unmanned systems reach a new level of control and functionality bringing unmatched capability to the unmanned aerial vehicle (UAV) industry, with:

- Complete command, control and communication (C<sup>3</sup>) solutions that are seamlessly integrated with our customers' industry-leading airframes and payloads
- System integration and engineering services to make our partners' solutions work
- The expertise to successfully apply our solutions to ground and water vehicles, not just aerial

The results? Our customers and their end-users get a total C<sup>3</sup> system solution with the best technologies available on the market and better flight precision than they've ever experienced.

## Mission

Geneva Aerospace advances our customer's unmanned vehicle capabilities by developing and delivering innovative control technologies, products and system solutions.

Geneva offers more advanced unmanned autonomous controls technology. We enable a broad range of unmanned vehicles to manage missions autonomously by providing ultra-precise course following with multiple levels of autonomy. We are also advancing autonomous UAV capability through our current Department of Defense development programs in areas such as:

- Passive See and Avoid
- Ground Moving Target Tracking
- Shipboard Landing
- Sea Based Takeoff and Landing

## Company Vision

Our goal is to revolutionize the industry by providing complete C<sup>3</sup> solutions for a variety of unmanned systems varying in size and capability ranging from standard fixed-wing vehicles to mini air vehicles, loitering munitions, airships, seaplanes and more. We will continue offering the same line of products along with a see and avoid module and an autonomous

target tracking module. These products will be supported through a formal training program which will complement the system integrator's training program with C<sup>3</sup> specific training.

## Core Competencies

Geneva offers a total C<sup>3</sup> systems solution that is highly modular and customizable, allowing us to seamlessly integrate with our customers' airframes and payloads. Our C<sup>3</sup> solution can autonomously fly and control a variety of unmanned systems varying in size and capability.

In addition, Geneva has a highly qualified staff of domain experts in the area of embedded flight controls and guidance systems. Our team of experts understand the challenges and opportunities of UAVs and are continually working on solutions to satisfy those needs. We offer mission effective solutions which include:

- Precision control
- Tightly integrated sensor / flight controls
- Network centric high bandwidth and long range data communications
- Intuitive multi-vehicle management and control interface
- Fixed site auto take-off and landing

In the near-term future, Geneva will also offer:

- Ship or sea-based autonomous landing
- Image tracker and flight controls integration
  - > Autonomous See and Avoid
  - > Autonomous Ground Moving Target Tracking





# Products

At L-3 Geneva Aerospace, unmanned systems reach a new level of control and functionality, bringing the unmanned vehicle (UV) industry to new standards with command, control and communication (C<sup>3</sup>) solutions. Geneva helps its military and commercial customers achieve unprecedented precision and control of UVs by integrating their C<sup>3</sup> system into their customers' airframes and payloads.

Geneva Aerospace offers a full portfolio of UV technologies. The company can provide its customers with complete C<sup>3</sup> solutions. The following are descriptions of the firm's key products and services.

## *flightTEK*<sup>®</sup>

*flight control technologies*

The "command central" of Geneva's tightly integrated flight control solution, the flightTEK flight control system, transforms unmanned aerial vehicles into powerful, "smart" machines. flightTEK can autonomously fly and control UAVs of varying sizes and capabilities, ranging from 30-pound-class mini air vehicles to 600-pound-class loitering munitions to a 160-foot airship to seaplanes and more. flightTEK includes Geneva's Variable Autonomy Control System (VACS<sup>™</sup>) architecture, which serves as a true mission management system.

flightTEK measures just 3.5 inches by 4.75 inches by 2.30 inches, yet includes a wide variety of input/output capabilities, including seven serial ports, twelve input and twelve output digital I/O ports, eight 14-bit analog channels, a 10/100 Mbps Ethernet port and eight Pulse-Width-Modulated (PWM) ports.

## *linkTEK*<sup>™</sup>

*flight control technologies*

linkTEK is Geneva's communication solution that blends both line-of-sight (LOS) and beyond-line-of-sight (BLOS) communications into a single data router that can handle your data telemetry and video telemetry needs. linkTEK uses standard TCP/IP and UDP/IP communications that enable multi-vehicle control. Data and video can be configured independently to be sent to specific IP addresses. Data is provided to linkTEK via one of our externally available Ethernet ports, all attached to a common Ethernet switch enabling linkTEK to be networked to multiple devices simultaneously.

## *missionTEK*<sup>™</sup>

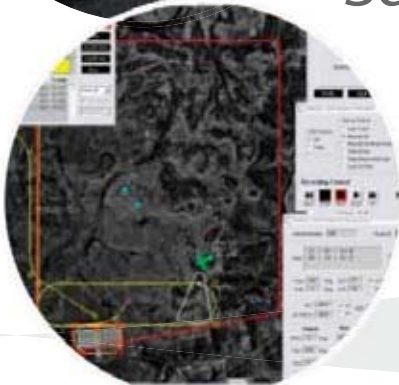
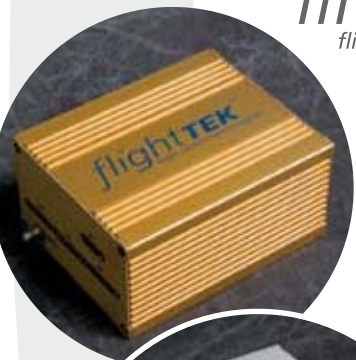
*flight control technologies*

missionTEK control station makes it easy to manage every detail of the mission. This full-featured software offers an intuitive, easy interface to give a single operator the power to command and control multiple different UAVs, with minimal training. The graphical interface displays vehicle status, situations and videos. It supports real-time route editing, as well as a variety of selection panes to support fully functional dynamic control and management of the UAV and the UAV payload. missionTEK can be hosted on a variety of COTS PCs and is hardware and UAV-platform independent.

## *safeTEK*<sup>™</sup>

*flight control technologies*

safeTEK is Geneva's low cost primary or secondary source flight termination system (FTS). The system uses Dual Tone Multi-Frequency (DTMF) sequenced tones to signal the appropriate host system and reduce the risk of an unexpected termination. The system is made up of a control station component and a vehicle hardware component. The vehicle component is a signal receiver that is compact in size and powered by a rechargeable battery pack.





# Customers

L-3 Geneva Aerospace was founded in 1997 with a passion for flight technologies. Funded by the Air Force Research Lab (AFRL), the company's first project was a study of simplified control concepts for unmanned systems. From this initial research, Geneva has developed a portfolio of industry-leading unmanned vehicle command, control and communication (C<sup>3</sup>) technologies. Geneva has provided customized C<sup>3</sup> solutions under contract funding for a number of customers, with highly successful results. Our customers know they can depend on Geneva Aerospace's advanced engineering and strong commitment to support when they cannot afford anything less than success.

At Geneva Aerospace, we, along with our customers, are dedicated to defending America together. Our customer list includes leading government agencies and commercial businesses including:

- Airborne Technologies, LLC
- Air Force Research Laboratory [AFRL]
- Alion Science and Technology
- Defense Advanced Research Projects Agency [DARPA]
- Department of Naval Aviation
- General Dynamics Corporation
- Harris Corporation
- ISL-Bosch Aerospace Division
- Titan [formerly E-Systems]
- Lockheed Martin
- National Aeronautics and Space Administration [NASA]
- Naval Air Systems Command [NAVAIR]
- Naval Research Laboratory [NRL]
- Naval Sea Systems Command [NAVSEA]
- Northrop Grumman
- Office of Naval Research [ONR]
- Oregon Iron Works, Inc.
- Raspet Flight Research Laboratory
- Raytheon
- SRA International, Inc.
- UAV Battlelabs
- U.S. Air Force
- U.S. Army
- Vought Aircraft Industries, Inc.





# Company Profile

Since its inception, L-3 Geneva Aerospace, Inc. has developed, refined, and deployed next-generation on-board flight command, control and communication (C<sup>3</sup>) solutions for unmanned aerial vehicles (UAVs) and for a certain class of loitering missiles. The company has applied more than ten and a half years of operational history and decades of industry know-how to develop a core set of modular products designed for implementation onto a majority of the diverse applications called for in the UAS markets. When you work with Geneva, you can feel confident that you are working with the best.

## History

Geneva Aerospace was established in June of 1997 by six Guidance and Control design engineers from Texas Instrument's Defense Systems and Equipment Group (TI-DSEG). From that date and until the present, Geneva has constantly developed and further refined a next-generation on-board flight C<sup>3</sup> solution for the UAS industry and for a certain class of loitering missiles. This is a rare, yet critical capability in the UAS industry and is the core of Geneva's current business.

The founding principals, engineers and management team of Geneva Aerospace possess a broad experience base developed in the U.S. aerospace industry, having designed systems for missiles, guided smart bombs and munitions, piloted fixed-wing aircraft, piloted rotary vehicles, and unmanned aerial vehicles. Today, the company applies its decades of cumulative engineering experience to the continued evolution of the company's state-of-the-art UAS flight control technology.

## Management Team

At Geneva our executive team includes a broad range of management, operations, sales and financial experience building and running businesses in many technologies including unmanned aerial vehicles and advanced flight technologies. We take a business, as well as a technical, approach to our customer's unmanned vehicle challenges thanks to our broad management experience as:

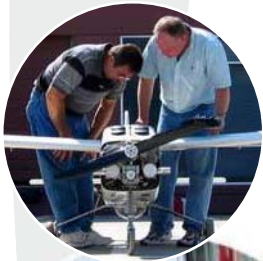
- Aerospace executives
- Telecommunications experts
- Commercial product executives
- Defense program managers
- Missile guidance experts
- Industry-leading engineers

In addition, Geneva's executives have been key individual contributors on more than two dozen Department of Defense weapon system and aircraft flight test programs. Together, they have decades of accumulated flight test experience.

## Engineering Team

Through strong alliances with the military laboratories, Geneva's engineer's experience and expertise has been refined through years of actual flight tests culminating in key contributions to over two dozen US military weapon systems and aircraft test programs.

Our engineers have been through numerous cycles of design, integration, and testing for GPS augmentation on autonomous missile system navigators. Their experiences have provided us with an extensive toolset and knowledge base to leverage the benefits of precision inertial navigation to advance the state-of-the-art in affordable UAS applications.





# Value Proposition

We deliver precise and sophisticated variable autonomy system solutions for command, control and communications of a wide variety of unmanned vehicles. These solutions are delivered through timely integration using proven engineering practices.

Our value proposition is enforced by several core elements of our business: research and development, mission focused design, and industry proven engineering practices.

Geneva Aerospace has a proven capability as a Department of Defense (DoD) research and development prime contractor which enables Geneva to deliver the latest in sophisticated, mission focused autonomy capability. More than just an autopilot, Geneva's mission focused C<sup>3</sup> system solutions enables unmanned vehicle operators to put their payloads on target with confidence. Our autonomy solutions help reduce the operations logistics footprint by eliminating the need for independent pilot and sensor operators. We deliver at every level including:

- Vehicle stability and control (autopilot)
- Autonomous flight path management
- Payload /sensor data management and control
- Network centric communications
- Mission management and
- Multi-vehicle control

We support our customers throughout the program life cycle by bringing proven engineering practices to the requirements, integration testing, and deployment phases.

Geneva is able to apply all of these capabilities across a wide variety of unmanned systems, varying in size and capability ranging, from standard fixed-wing vehicles to mini air vehicles, loitering munitions, airships, seaplanes and more. Since Geneva is heavily involved in DoD development, we strive to have the majority of our staff hold security clearances.





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**Geneva Aerospace**



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